REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 500
INTERPRETATION

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
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Interpretation

500.00 Interpretation

(1) In these Regulations:

"Act" - means the Aeronautics Act;

"Accountable manager"- means the manager who has corporate authority for ensuring that all maintenance required by the aircraft operator can be financed and carried out to the standard required by the DGCA. The accountable manager may delegate in writing to another person in the organization, such person then becoming the accountable manager.

"advanced ultra-light airplane" - means an airplane that has a type design that is in compliance with the standards specified in the manual entitled (Standards for Advanced Ultra-light Airplanes) TBD;

"aerial work" - means a commercial air service other than an air transport service or a flight training service;

“aircraft” - means any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth’s surface.

“aircraft flight manual” – means a manual requirements for which may be established by the Minister in Part V, that contains information in respect of an aircraft.

"airplane" - means a power-driven heavier-than-air aircraft that derives its lift in flight from aerodynamic reactions on surfaces that remain fixed during flight;

"air operator" - means the holder of an air operator certificate;

"air operator certificate" - means a certificate issued under Part VII that authorizes the holder of the certificate to operate a commercial air service;

"air time" - means, with respect to keeping technical records, the time from the moment an aircraft leaves the surface until it comes into contact with the surface at the next point of landing;

"air transport service" - means a commercial air service that is operated for the purpose of transporting persons, personal belongings, baggage, goods or cargo in an aircraft between two points;

"airport" - means an aerodrome for which an airport certificate has been issued by the Minister;

"airship" - means a power-driven, lighter-than-air aircraft;

"airworthiness directive" - means an instruction issued by the Minister or by a civil aviation authority responsible for an aeronautical product type design that mandates a maintenance or operation action to ensure that an aeronautical product conforms to its type design and is in a condition for safe operation;

"airworthiness limitation" - means a limitation applicable to an aeronautical product, in the form of a life limit or a maintenance task that is mandatory as a condition of the type certificate;

"airworthy" - in respect of an aeronautical product, means in a fit and safe state for flight and in conformity with its type design;

"AMO" - means an Approved Maintenance Organization.

"appliance" - means any instrument, mechanism, equipment, apparatus or accessory that is

(a) used, or intended to be used, in operating or controlling an aircraft in flight,

(b) installed in or attached to, or intended to be installed in or attached to, the aircraft, and not part of the airframe, engine or propeller of that aircraft; "APU" or "auxiliary power unit" - means any power unit that delivers rotating shaft power or compressed air, or both, and that is not intended for direct propulsion of an aircraft;

“Authority” – means the government organization that has responsibility for Aviation Safety Oversight in a contracting state.

"CAT II minima" - , in respect of an aerodrome, means the minima specified in the Jeppesen Aeronautical Publications for a CAT II precision approach to a runway at that aerodrome; (minimums CAT II)

"CAT III minima" - in respect of an aerodrome, means the minima specified in the Jeppesen Aeronautical Publications for a CAT III precision approach to a runway at that aerodrome; (minimums CAT III)

"category" - means

(a) when used in reference to flight crew licensing, the classification of aircraft as an airplane, a balloon, a glider, a gyroplane, a helicopter or an ultra-light airplane, and
(b) when used in reference to the certification of aircraft, a grouping of aircraft based upon intended use or operating limitations such as normal, utility, aerobatic, commuter and transport;

"class" - in relation to the classification of airplanes, means airplanes having similar operating characteristics to single-engined airplanes, multi-engined airplanes, center-line thrust airplanes, land airplanes or sea airplanes;

"Commercial Air Service Standards" - means the standards published under the authority of the Minister that apply in respect of commercial air services operated by air operators;

"company operations manual" - means a manual established by an air operator pursuant to Part VII;

"contracting state" - means a state that is a party to the Convention;

"Convention" - means the Convention on International Civil Aviation signed on behalf of Lebanon at Chicago on December 7, 1944, as amended from time to time;

"crew member" - means a person assigned to duty in an aircraft during flight time;

"elementary work" - means those tasks that are listed as elementary work in Standard 625, Appendix A;

"empty weight" - in respect of an aircraft, means the total weight of the following parts or contents that are part of, or carried on board, the aircraft, namely,

(a) the airframe, including the rotor in the case of a helicopter or gyroplane,
(b) the power plant,
(c) the fixed ballast,
(d) the unusable fuel,
(e) the maximum amount of normal operating fluids, including oil, power plant coolant, hydraulic fluid, de-icing fluid and anti-icing fluid but not including potable water, lavatory pre-charge fluid or fluid intended for injection into the engines, and
(f) all of the installed equipment;

"flight authority" - means a certificate of airworthiness, special certificate of airworthiness, flight permit or validation of a foreign document attesting to an aircraft's fitness for flight, issued under Part V, or a foreign certificate of airworthiness that meets the requirements of Article 31 of the Convention;

"flight crew member" - means a crew member assigned to act as pilot or flight engineer of an aircraft during flight time;

"flight time" - means the time from the moment an aircraft first moves under its own power for the purpose of taking off until the moment it comes to rest at the end of the flight;

"flight training organization" - means

(a) in the case of an airplane or helicopter, the holder of a flight training organization operator certificate, or
(b) in the case of a glider, balloon, gyroplane or ultra-light airplane, a club, school or other organization that conducts flight training;

"flight training organization operator certificate" - means a certificate issued under Subpart 6 of Part IV that authorizes the holder of the certificate to operate a flight training organization;

"glider" - means a non-power-driven heavier-than-air aircraft that derives its lift in flight from aerodynamic reactions on surfaces that remain fixed during flight;

"gyroplane" - means a heavier-than-air aircraft that derives its lift in flight from aerodynamic reactions on one or more non-power-driven rotors on substantially vertical axes;

"hang glider" - means a glider that is designed to carry not more than two persons and has a launch weight of 45 kg (99.2 pounds) or less;

"heavier-than-air aircraft" - means an aircraft supported in the atmosphere by lift derived from aerodynamic forces;

"helicopter" - means a power-driven heavier-than-air aircraft that derives its lift in flight from aerodynamic reactions on one or more power-driven rotors on substantially vertical axes;

"IFR" - means instrument flight rules;

"IFR aircraft" - means an aircraft operating in IFR flight;

"land aircraft" - means an aircraft that is not capable of normal operations on water;

"landing" - means
(a) in respect of an aircraft other than an airship, the act of coming into contact with a supporting surface, and includes the acts immediately preceding and following the coming into contact with that surface, and
(b) in respect of an airship, the act of bringing the airship under restraint, and includes the acts immediately preceding and following the bringing of the airship under restraint;

"large airplane" - means an airplane with an MCTOW of more than 5,700 kg (12,566 pounds);

"Lebanese Aviation Regulations" - means the Lebanese Aviation Regulations (LARS) published by the Government of Lebanon, as amended from time to time;

"Lebanese Domestic Airspace" means the airspace specified, and delineated as such, in the Aeronautical Information Publication (AIP);

"life-limited part" - means a part that, as a condition of the type certificate, may not exceed a specified time, or number of operating cycles, in service;

"lighter-than-air aircraft" - means an aircraft supported in the atmosphere by its buoyancy;

"limited supplemental type certificate" - means a supplemental type certificate that is applicable only to those aeronautical products that are specified in the certificate by serial number or by some other identification unique to those products and includes a limited type approval;

"maintenance" - means the overhaul, repair, required inspection or modification, or removal and installation of components of, an aeronautical product, but does not include
(a) elementary work, or
(b) servicing; (maintenance)

"maintenance release" - means a certification made following the maintenance of an aeronautical product, indicating that the maintenance was performed in accordance with the applicable provisions of these Regulations and the standards of airworthiness;

"maintenance schedule" - means a schedule required pursuant to Section 605.86 of the Lebanese Aviation Regulations (LARs) for the performance of the inspections and other maintenance required by these Regulations;

"major modification" - means an alteration to the type design of an aeronautical product in respect of which a type certificate has been issued that has other than a negligible effect on the weight and center-of-gravity limits, structural strength, performance, power plant operation, flight characteristics or other qualities affecting its airworthiness or environmental characteristics;

"major repair" - means a repair to an aeronautical product in respect of which a type certificate has been issued, that causes the aeronautical product to deviate from the type design defined by the type certificate, where the deviation from the type design has other than a negligible effect on the weight and center-of-gravity limits, structural strength, performance, power plant operation, flight characteristics or other qualities affecting the aeronautical product's airworthiness or environmental characteristics;

"manufacture" - means the making, assembly and fabrication, other than the fabrication of parts as part of a repair, of aeronautical products, and includes, in the case of newly manufactured aircraft, any work performed on an aircraft prior to the issuance of the first certificate of airworthiness or export certificate of airworthiness by the manufacturer;

"manufacturer" - means the holder of a type certificate for an aeronautical product or, where no type certificate has been issued by the Minister, the maker of the aeronautical product;

"manufacturer certificate" - means a certificate that authorizes the holder of the certificate to manufacture an approved aeronautical product;

"maximum permissible take-off weight" - means the maximum take-off weight for an aircraft as authorized by the state of registry of the aircraft, as provided for in the aircraft type certificate or other Flight Authority;

"MCTOW" or "maximum certificated take-off weight" - means the weight identified as such in the type certificate of an aircraft;

"MEL" or "minimum equipment list" - means a document approved by the Minister pursuant to subsection 605.07(3) that authorizes an operator to operate an aircraft with aircraft equipment that is inoperative under the conditions specified therein, and may specify certain equipment that must be operative;

“member state” – means a foreign state that is a party to the convention on international civil aviation;

"model aircraft" - means an aircraft, the total weight of which does not exceed 35 kg (77.2 pounds), that is mechanically driven or launched into flight for recreational purposes and that is not designed to carry persons or other living creatures;

"MOE", means a Maintenance Organization Exposition manual or document.

"operator" - in respect of an aircraft, means the person that has possession of the aircraft as owner, lessee or otherwise;

"operator" - in respect of an airport, means the holder of an airport certificate issued by the Minister , or the person in charge of the airport, whether as employee, agent or representative of the holder of the certificate;

"overhaul" - means a restoration process that includes the disassembly, inspection, repair or replacement of parts, reassembly, adjustment, refinishing and testing of an aeronautical product, and ensures that the aeronautical product is in complete conformity with the service tolerances specified in the applicable instructions for continued airworthiness;

"owner" - in respect of an aircraft, means the person who has legal custody and control of the aircraft;

"passenger" - means a person, other than a crew member, who is carried on board an aircraft;

"powered glider" - means an airplane that, with engines inoperative, has the flight characteristics of a glider;

"primary structure" - means a structure that carries flight, ground or pressure loads;

"private aircraft" - means an aircraft that is registered as a private aircraft pursuant to the LARs;

"private operator" - means the holder of a private operator certificate;

"private operator certificate" - means a certificate issued under Subpart 4 of Part VI that authorizes the holder of the certificate to operate a Lebanese aircraft for the purpose of transporting passengers;

"repair" - means the rectification of deficiencies in an aeronautical product or the restoration of an aeronautical product to an airworthy condition;

"repair design certificate" - means a document issued by the Minister or a Civil Aviation Authority having jurisdiction over the type design to record the approval of a repair design for an aeronautical product, identified in the document by a serial number or by some other identification unique to the aeronautical product, and that references the documents and data defining the repair design and the limitations and conditions applicable to the aeronautical product as a result of the design change, and includes a repair design approval;

"required inspection" - means an inspection of an aeronautical product that is required by a maintenance schedule, an airworthiness limitation or an airworthiness directive, except where the airworthiness directive specifies that the inspection may be performed by a flight crew member;

"scheduled maintenance" - means any maintenance performed at predetermined intervals pursuant to these Regulations, a maintenance schedule or an airworthiness directive;

"serviceable" - in respect of an aircraft or aircraft part, means fit and safe for flight;

"servicing" - in respect of an aeronautical product, means cleaning, lubricating and the replenishment of fluids not requiring the disassembly of the product;

"small aircraft" - means an airplane having a maximum permissible take-off weight of 5 700 kg (12,566 pounds) or less, or a helicopter having a maximum permissible take-off weight of 2 730 kg (6,018 pounds) or less;

"standard of airworthiness" - in respect of the design, manufacture or maintenance of an aeronautical product, means the description, in terms of a minimum standard, of the properties and attributes of the configuration, material and performance or physical characteristics of that aeronautical product, and includes the procedures to ascertain compliance with or to maintain that minimum standard, as specified in Part V;

"supplemental type certificate" - means a document that is issued by the Minister or the Civil Aviation Authority having jurisdiction over the type design to record the approval of a change to the type design of an aeronautical product and that references the documents and data defining the change and the limitations and conditions applicable as a result of the change and includes a limited supplemental type approval;

"take-off" - means

(a) in respect of an aircraft other than an airship, the act of leaving a supporting surface, and includes the take-off run and the acts immediately preceding and following the leaving of that surface, and
(b) in respect of an airship, the act of freeing the airship from restraint, and includes the acts immediately preceding and following the freeing of that airship from restraint;

"transport category aircraft" - means an airplane or a helicopter certified pursuant to LARs Part V, Subpart 515 or an equivalent foreign airworthiness standard;

"type" - means

(a) when used in reference to personnel licensing, a specific make and model of aircraft, including modifications thereto that do not change its handling or flight characteristics, and

(b) when used in reference to the certification of aircraft, a classification of aircraft having similar design characteristics;

"type certificate" - means a document issued by the Minister or the Minister or the Civil Aviation Authority having jurisdiction over the type design certifying that the type design of an aircraft, aircraft engine, aircraft propeller or aircraft appliance meets the applicable standards for that aeronautical product, as recorded in the type certificate data sheet, and includes a type approval;

"type design" - means

(a) the drawings and specifications, and a listing of those drawings and specifications that are necessary to define the design features of an aeronautical product in compliance with the standards applicable to the aeronautical product,

(b) the information on dimensions, materials and manufacturing processes that is necessary to define the structural strength of an aeronautical product,

(c) the approved Sections of the aircraft flight manual, where required by the applicable standards of airworthiness,

(d) the airworthiness limitations Section of the instructions for continued airworthiness specified in the applicable subparts of the Part V and

(e) any other data necessary to allow, by comparison, the determination of the airworthiness and, where applicable, the environmental characteristics of later aeronautical products of the same type or model;

"ultra-light airplane" - means

(a) a single-seat airplane that has a launch weight of 165 kg (363.8 pounds) or less, and a wing area, expressed in square meters, of not less than the launch weight minus 15, divided by 10, and in no case less than 10 m2,

(b) a two-seat instructional airplane that has a launch weight of 195 kg (429.9 pounds) or less, and a wing area, expressed in square meters, of not less than 10 m2 and a wing loading of not more than 25 kg / m2 (5.12 pounds/ft.2), the wing loading being calculated using the launch weight plus the occupant weight of 80 kg (176.4 pounds) per person, or

(c) an advanced ultra-light airplane;

"unforeseen operational circumstance" means an event, such as unforecast adverse weather, or an equipment malfunction or air traffic control delay, that is beyond the control of an air operator or private operator;

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 505
ANNUAL AIRWORTHINESS STATUS REPORT

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

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LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 505 - Annual Airworthiness Status Report

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INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 505 - Regulations
Standards s505- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 505 - Annual Airworthiness Status Report

505.01 Requirement to Report

The owner or operator of a Lebanese registered aircraft, other than an ultra-light airplane, shall submit to the DGCA, an Annual Airworthiness Status Report in respect of the aircraft, in the form and manner specified in *Standard 505.*

505.02 Reporting Schedule

The owner of a Lebanese registered aircraft shall submit the Annual Airworthiness Status Report to the DGCA, no later than at the anniversary of the day on which the aircraft's flight authority was issued or at a reporting schedule agreed by the Lebanese DGCA.

505.03 Reporting Responsibilities

Failure to submit to the DGCA, the required Annual Airworthiness Status Report and applicable fee within the specified time frame, may invalidate the aircraft's flight authority "certificate of Airworthiness".

REPUBLIC OF LEBANON
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LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Standard 505
ANNUAL AIRWORTHINESS STATUS REPORT

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 505 - Annual Airworthiness Status Report

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Standard 505 - Annual Airworthiness Status Reporting

s505.01 Requirement to Report

(1) Unless a consolidated fleet report is used as provided for in paragraph (2), or unless an aircraft is out of service as provided for in paragraph (3), an Annual Airworthiness Status Report shall be submitted on form # LAR-0505. The report shall be submitted to the DGCA office not later than the due date.

(2) (*a)* The owner of three or more aircraft can request approval to submit a single consolidated fleet report for all of his aircraft in lieu of submitting individual reports in respect of each of those aircraft.

(b) Consolidated fleet reports are to be submitted in an approved form and manner not later than on the approved due date, and shall contain information for each individual aircraft in the fleet. The approved due date for the consolidated report will be the date accepted by the DGCA.

The owner will not be sent a reminder that a report or consolidated fleet report is coming due.

(3) (*a)* Except as provided in (c), the owner of an aircraft that is out of service for one or more reporting periods is relieved from the obligation to submit a report for those reporting periods provided the appropriate section of form LAR-0505, has been completed indicating, in the space provided, the approximate date that the aircraft is expected to return to service.

(b) Each reporting period is one complete calendar year.

(c) Notification that an aircraft is being returned to service following relief from one or more reporting periods is to be submitted, in writing, to the Chief of Airworthiness, DGCA.

(d) The status of any out of service aircraft shall be indicated on the applicable consolidated fleet report.

s505.02 Reportable Information

(1) Pursuant to LAR 505.02 requirements, the following information shall be provided in the Annual Airworthiness Status Report:

(a) Aircraft nationality and registration marks;

(b) Aircraft total hours flown since new and aircraft hours flown in the last reporting period; *(12 months)*

c) The date of the most recent scheduled maintenance check, event or annual inspection and

(i) the name and licence number of the Aircraft Maintenance Technician who conducted and certified the inspection; or

(ii) in the case where it was an Approved Maintenance Organisation (AMO) which conducted the inspection, the name and approval number of the AMO; or

(iii) in the case of an amateur-built aircraft, the name of the owner if it was the owner who conducted the inspection;

(d) Whether the aircraft was significantly damaged since the last report and, if applicable, the date of repair certification;

(e) Applicable Type Certificate or equivalent document number;

(f) Aircraft base of operation;

(g) Type of flight authority;

(h) Aircraft purpose (i.e. private, commercial or other);

(i) Aircraft make, model and serial number;

(j) Aircraft empty weight and maximum certified take-off weight;

(k) Engine(s), make, model and serial number(s), if applicable;

(l) Propeller(s), Rotors, make, model and serial number(s), if applicable;

(m) Skis make and model, if applicable;

(n) Floats make and model, if applicable;

(o) Airworthiness Directives and Service Bulletins complied with, and;

(p) Certification, by the date and signature of the registered owner, that the reported information is correct.

s505.03 Reporting Schedule

(1) Where the owner of an aircraft requests an alternate reporting due date, a request shall be submitted in writing 30 days prior the reporting due date to the Chief of Airworthiness, DGCA.

(2) Where the DGCA requests the owner of an aircraft to consider an alternate due date, the Chief of Airworthiness, will in writing advise the owner of the new reporting date.

Annual Airworthiness Status Report

COMPLETE FORM AND SUBMIT NOT LATER THAN THE DUE DATE.

REGISTRATION MARK	TYPE CERTIFICATE	FLIGHT AUTHORITY	PURPOSE	AIRCRAFT BASE	COUNTRY **LEBANON**
DATE OF THE MOST RECENT MAJOR MAINTENANCE CHECK OR ANNUAL INSPECTION ✈:				**Applicable FEE:**	
NAME AND NUMBER OF AMT OR AMO WHO/WHICH CONDUCTED AND CERTIFIED THE ABOVE INSPECTION ✈ NAME ✈ NO.					
HAS THE AIRPCRAFT BEEN DAMAGED SINCE LAST REPORT ( ) YES ( ) NO DATE OF DAMAGE ✈					DATE OF REPAIR CERTIFICATION ✈

REPORTING PERIOD FOR HOURS FLOWN LAST CALENDAR YEAR	TOTAL HOURS FLOWN SINCE NEW ✈ HRS.	HOURS FLOWN LAST CALENDAR YEAR ✈ HRS.	FOR AIR OPERATORS AND FLIGHT TRAINING UNITS TRAINING OR AERIAL WORK ✈ HRS ✈ HRS.

AIRCRAFT MAKE	AIRCRAFT MODEL	AIRCRAFT SERIAL NO.	LATEST EMPTY WEIGHT LB./kg	MAX. APPROVED TAKE-OFF WEIGHT LB./Kg	LANDING GEAR CONFIGURATION ( ) WHEELS ( ) FLOATS ( ) SKIS
ENGINE MAKE		ROTOR/PROPELLER MAKE			

ENGINE MODEL	ENGINE SERIAL NO.	ROTOR/PROPELLER MODEL	RT/PROP. SERIAL NO.
1.	1.	1.	1.
2.	2.	2.	2.
3.	3.	3.	3.
4.	4.	4.	4.

SKI MANUFACTURER	SKI MODEL	*AIRCRAFT OUT OF SERVICE* *(SEE INSTRUCTIONS & COMPLETE ONLY IF APPLICABLE)*
FLOAT MANUFACTURER	FLOAT MODEL	( ) The aircraft will be out of service for all of the current calendar year. Estimated date of return to service _____ (MO) (YR) Reason aircraft is out of service . ✈

ADDRESS: _____

_____ ✈

_____

I CERTIFY THAT THE INFORMATION SUPPLIED IS CORRECT.

_____ _____

SIGNATURE OF OWNER OR AUTHORIZED AGENT DATE

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 515
DESIGN AND CERTIFICATION STANDARDS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

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LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 515 - Design and Certification Standards

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INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 515 - Regulations
Standards s515- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 515 - Design and Certification Standards

515.01 Interpretation

In this Subpart,

"aeronautical product" means an aircraft, aircraft engine, aircraft propeller or aircraft appliance;

"foreign aeronautical product" means an aeronautical product for which the state of design is a state other than Lebanon.

515.02 Applicability

This Subpart applies, in respect of aeronautical product type design and certification standards acceptance.

515.03 Applicable Standards

The Standards applicable in respect of design and certification acceptance of aeronautical products in Lebanon, are

(a) the airworthiness certification standards specified in Standard s515.03, and

(b) any special conditions specified by the Lebanese DGCA as being necessary to provide an acceptable level of safety, if

(i) the aeronautical product has novel or unusual design features, or

(ii) there are no applicable standards of airworthiness for the aeronautical product; and

(iii) the aircraft in respect of which acceptance is requested is in the restricted category, such as agricultural or fire-fighting operations.

515.04 Evaluation

(1) The DGCA reserves the right to evaluate any aircraft, which will be "first of the type" on the Lebanese Register or operated in Lebanon. Special conditions could arise from such evaluation.

(2) The DGCA may require that an aeronautical product is made available for such test and inspections as deemed necessary for the purpose of final documentation by the DGCA inspectors.

515.05 ***Reserved***

515.06 Provision of Documents

The owner or operator, in respect of a first type or model of aeronautical product to be imported or operated in Lebanon, shall

(a) supply the DGCA, with the Instructions for Continued Airworthiness (ICAS), manuals and technical data specified in Standard 515.06.

(b) Make provisions to ensure amendments of documents stated in subsection (1) above are directly supplied to the DGCA from the concerned manufacturers.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Standard 515
DESIGN AND CERTIFICATION STANDARDS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

LEBANESE AVIATION REGULATIONS (LARs)

STANDARD 515 - DESIGN AND CERTIFICATION STANDARDS

s515. 03 Applicable Certification Standards

The applicable standards in respect of the acceptance of aeronautical products in Lebanon are

(a) Federal Aviation Regulations (FARs) - United States
Parts 21, 23, 25, 27, 29, 31, 33, 33, 34, 35, 36;

(b) Joint Airworthiness Requirements (JAR) - Europe
JAR-21, JAR 22, JAR 23, JAR- 25, JAR-27, JAR-29, JAR-36, JAR- APU, JAR-E engine, JAR-P Propellers and JAR-TSO Technical Standard Orders;

(c) Canadian Aviation Regulations (CAR)- Canada
Subparts 11, 13, 16, 22, 23, 25, 27, 29, 31, 33, 35, 41, 49, 51; or

(d) equivalent Certification Standards.

s515.04 Evaluation

(1) The evaluation process may be accomplished through different levels of review, dependent upon the country of origin and the complexity of the product. The different review levels are:

(a) Review Level 1- is an acceptance of the type certificate issued by the Exporting Airworthiness Authority for the given type of aeronautical product.

(b) Review Level 2- is an on-site review and would include assistance and cooperation of the Foreign Regulatory Authority Airworthiness system.

(2) A level 2 review would normally include, an initial briefing from the manufacturer, the review of compliance documentation, one or more visits by DGCA personnel to the design and/or manufacturing facilities. In general the evaluation will include the following activities:

- initial briefing from the design holder
- review of compliance documentation
- on-site review of the product

(a) Initial Briefing; the purpose of the briefing is to provide DGCA personnel, with general information on the design of the product and on the domestic certification of the product. It is therefore necessary that the briefing be presented by individuals with sufficient knowledge of both the product design and the manner in which it was certificated. The briefing should include an overview of the product; emphasis should be placed on novel or unusual design features or design changes. It would also be appropriate to address service experience.

(b) Review of Compliance Documentation; the review of compliance and certification documentation will take place during the visit to the design or manufacturer's facility, when such a visit is necessary. DGCA may elect to require provision of compliance documentation, relating to the equipment and furnishings determined by a review of the *Lebanese Aviation Regulations* (LARs), in particular Parts VI and VII.

(c) On-Site Review of aeronautical products.

(1) ***Purpose of the Visit***. A visit to the type design holder's location and/or the site of manufacturing is undertaken, when necessary, for the purpose of:

(i) obtaining more detailed knowledge of the product design in order to support the type certification acceptance activity, the Lebanese operation of the product and the continuing airworthiness of the in-service product.

(ii) obtaining adequate knowledge of the manner in which the product complies with the proposed type certification basis.

(2) ***Activities.*** The objectives are normally achieved by the following activities:

(i) overview of the product - its components, its systems and the manner in which they function. A condensed version of the Pilot Training Ground School lasting one to two days has been found to provide an appropriate level of information.

(ii) design review - specific attention is paid to particular areas or components of the product, both on drawings and by review of the hardware at various stages of manufacture. This includes the review of the complete product in the final form, as per the type design.

(iii) briefing - the company will be initially briefed on the purpose for the visit and finally debriefed on the findings of the visit.

(vi) review of manuals - all approved manuals are reviewed to determine their acceptability and to define any changes necessary for Lebanon.

(vii) maintainability review - the completed product is reviewed in terms of its maintainability in the Lebanese operating environment.

(viii) establishing an appropriate Aircraft Flight Manual, or equivalent.

(iv) evaluating the different aircraft configurations permitted.

(3) ***Aircraft Configuration***. The owner or operator is responsible for providing a representative aircraft. Where differences exist these must be identified and reviewed by DGCA.

(4) A compliance checklist, or an equivalent document, is required showing the means of demonstrating compliance with the equivalent type certification basis, including compliance with all additional technical conditions.

(d) ***Findings.*** The findings if any, are presented and discussed during the visit, with both the Foreign Aviation Authority and the company. Formal transmission to both parties is completed as soon as possible after the DGCA has returned from the visit.

(i) ***Findings*** - each one represents an open item that requires resolution prior to the acceptance of a type certificate and is pertinent to the introduction of the product into Lebanon

*(ii)****Observations*** - are not considered as open items requiring resolution prior to the acceptance issuance of the type certificate.

s515.06 Provision of Documents

(1) The owner or operator, in respect of a first type or model of aeronautical product to be imported or operated in Lebanon, shall supply the DGCA with the following Instructions for Continued Airworthiness-ICAS, manuals and technical data in accordance to LAR 515.07.as applicable;

(a) Maintenance Manual and related schedule.

(b) Overhaul Manual

(c) Structural Repair Manual

(d) Illustrated Parts Catalogue

(e) Wiring Diagram Manual

(f) Equipment Maintenance and Overhaul Manual *(if not part of (a)*)

(g) Weight and Balance Handbook

(h) Maintenance Planing Document (MPD)

(i) Maintenance Review Board Report (MRBR)

(j) Engine(s) Manuals or documents

(k) Propeller(s) Manuals or documents

(l) Electronic Equipment's Manuals

(m) Service Bulletins

(n) Approved Flight Manuals and related documents

(o) The approved Master Minimum Equipment List (where appropriate)

(p) Any other Technical or Operations manuals pertaining to the aeronautical product concerned.

(2) Provisions, shall be made to supply amendments of above manuals direct to the DGCA from the manufacturers concerned.

(3) Provisions, shall be made to ensure the DGCA be supplied with, all applicable Airworthiness Directives directly from the appropriate Civil Aviation Authorities holding jurisdiction over certification of the aircraft, engine(s), propeller(s)and associated components, appliance and equipment.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 525
FLIGHT AUTHORITIES

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
03/08/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 525 - Flight Authorities

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INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 525 - Regulations
Standards s525- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 525 - Flight Authority

525.01 Applicability

This Subpart applies in respect of aircraft, other than ultra-light airplanes and hang gliders that are

(a) Lebanese registered aircraft; or

(b) Operated in Lebanon or Lebanese airspace.

525.02 Certificate of Airworthiness - Standard

Where an application for a flight authority is made pursuant to LAR 525.06, the Lebanese DGCA may issue a certificate of airworthiness in respect of an aircraft

(a) for which an aircraft type design has been certified and the certification is not restricted or provisional;

(b) that conforms to its certified type design; and

(c) that is safe for flight.

Failure to submit to the DGCA, the required Annual Airworthiness Status Report within the specified time frame pursuant to LAR 505.03, may invalidate the aircraft's flight Authority "certificate of Airworthiness"

525.03 Certificate of Airworthiness - Special

Where an application for a flight authority is made pursuant to LAR 525.06, the Lebanese DGCA may issue a special certificate of airworthiness in respect of an aircraft that

(a) meets the criteria for one of the classifications of certificate of airworthiness specified in *Standard 525.03*;

(b) conforms to the applicable type design or,

(c) in the case of an amateur-built aircraft, is designed and constructed in a way that ensures its airworthiness, in conformity with the requirements of Subpart 555; and

(c) is safe for flight.

525.04 Flight Permit

Where an application for a flight permit authority is made pursuant to LAR 525.06, the Lebanese DGCA may issue a flight permit in respect of an aircraft that meets the criteria for one of the classifications of flight permits specified in *Standard 525*.04 and that is safe for flight.

525.05 Validation of Foreign Flight Authority

Where an aircraft is operating under a foreign flight authority that and the aircraft does not conform to Article 31 of the ICAO Convention, and the Lebanese DGCA determines that the aircraft is safe for flight, the Lebanese DGCA may validate the foreign flight authority, thereby authorizing the operation of the aircraft in Lebanese airspace.

525.06 Application for Flight Authority

(1) An application for a flight authority shall be signed by the registered owner of the aircraft in respect of which it is submitted, or by a representative of the registered owner as defined in *Standard 525.06.*

(2) A person who applies for a flight authority shall do so in the form and manner specified in *Standard 525.*

(3) An applicant for a flight authority shall include with the application a declaration, made by a person or organization authorized to do so pursuant to LAR 525.10 attesting that

(a) in the case of an application for a standard certificate of airworthiness, the aircraft meets the requirements of LAR 525.02.

(b) in the case of an application for a special certificate of airworthiness, the aircraft meets the requirements of LAR 525.03; or

(c) in the case of an application for a flight permit, the aircraft meets the requirements of LAR 525.04.

(4) In the case of an application to validate a foreign flight authority, the applicant shall submit a copy of the foreign flight authority, including any operational limitation imposed in respect of that flight authority.

(5) The Lebanese DGCA may inspect, or may cause to be inspected, any aircraft for which an application for flight authority has been made, for the purposes of determining conformity with its type design and compliance with the applicable requirements of these Regulations.

(6) The applicant must agreed to reimburse the DGCA for any expenses incurred in carrying out foreign activities related to issuance of a flight authority.

525.07 Flight Authority for an Imported Aircraft

Where an application for a flight authority is made in respect of an aircraft being imported, the applicant must comply with the importation requirements specified in *Standard 525.*

525.08 Issuance of Additional Flight Authority (C of A)

(1) Where the registered owner of an aircraft requests an additional flight authority in accordance with the requirements of LAR 525.06 in respect of an aircraft that is safe for flight, the DGCA, may issue the additional flight authority in the restricted category where, the aircraft has been modified to allow multiple configurations, one of which results in the aircraft no longer meeting the conditions of the previously issued flight authority.

*It is the modification to the aircraft, not the type of operation that determines if a **re-classification to the restricted category** is required. Modifications to conduct the following types of operations can require this re-classification:*

(a) aerial advertising using other than a towed banner;

(b) aerial fire-fighting;

(c) aerial photography and survey;

(d) aerial application services;

(e) any other similar services.

(2) Where an additional flight authority is issued in respect of an aircraft pursuant to this Section,

(a) the additional flight authority takes effect when an entry indicating that it is in effect, is made in the aircraft journey log; and

(b) the flight authority specified in the most recent journey log entry, remains in effect until the validity period of the flight authority expires, or a new flight authority is specified.

525.09 Operating Conditions

Where an aircraft does not meet the requirements for the issue of a flight authority that conforms to Article 31 of the ICAO Convention, the DGCA may specify operating conditions where the conditions are required to ensure the safety of the aircraft, other aircraft, persons or property.

525.10 Persons Who May Attest to Condition and Conformity

No person shall make a declaration of an aircraft's condition or conformity to its certified type design for the purpose of obtaining a flight authority other than a qualified maintenance technician, a qualified and authorized representative of an Approved Maintenance Organization (AMO) or

(a) in the case of a new aircraft, an authorised representative of the manufacturer; or

(b) in the case of an amateur-built aircraft, the registered owner of the aircraft.

The term "technician" is used in this context as an all-encompassing expression for maintenance personnel, "engineer" and "mechanic" being an acceptable alternative.

525.11 Duration of a Flight Authority

Unless surrendered, suspended or cancelled, a flight authority issued pursuant to this Subpart remains in force during the period or for the number of flights specified in it, if the aircraft continues to meet the conditions subject to which the flight authority was issued.

525.12 Alteration of Document

No person other than the Lebanese DGCA shall amend a flight authority issued pursuant to this Subpart.

525.13 Replacement of Lost or Destroyed Documents (flight authorities)

The DGCA shall replace a lost or destroyed Flight Authority, upon receipt of an acceptable statement explaining the circumstances of the loss or destruction of the document or certificate, and payment of the prescribed fee.

REPUBLIC OF LEBANON
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LEBANESE AVIATION REGULATIONS

Part V
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Standard 525
FLIGHT AUTHORITIES

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
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LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 525 - Flight Authorities

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Appendix A- 100 Scheduled Inspections for Small Aircraft pursuant to s525.07 (5) (a)

-Application for a Certificate of Airworthiness (LAR-0525/1)

-Application for a Flight Permit (LAR-0525/2)

Standard 525 - Flight Authorities

s525.01 Applicability

An aircraft for which the Lebanese DGCA has issued a certificate of airworthiness, is considered to be in compliance with Article 31 of the ICAO Convention, hence meeting the code established in Annex 8 by the International Civil Aviation Organization (ICAO). Aircraft meeting this code can be flown without, in regard to airworthiness, further approval, in the airspace of any participating ICAO State. Conversely, an aircraft, for which a special certificate of airworthiness or a flight permit is issued by the Lebanese DGCA, is not considered to be in compliance with all requirements of the code of ICAO - Annex 8, and cannot be flown in the airspace of another country without special authorization by the civil aviation authority of the other country.

s525.02 Issue of a Certificate of Airworthiness - Standard

(1) A Certificate of Airworthiness (C of A) shall be issued for an aircraft which complies with all standards of airworthiness in the

normal,
utility,
aerobatics,
commuter,
transport category and

rotorcraft in the normal and transport category, glider, powered glider, airship, or manned free balloon, as applicable.

(2) The C of A is transferable with the aircraft when sold or leased, providing the aircraft remains a Lebanese registered aircraft.
When applying for a C of A, it is advisable for the owner to have, or obtain a copy of the applicable type certificate data sheets. A copy of the data sheets can be obtained from the type certificate holder.

(3) Where the application is made in respect of an aircraft for which an Export Airworthiness Certificate has been obtained, the applicant shall ensure that the aircraft:

(a) is eligible for Lebanese registration and a certificate of airworthiness;

(b) is being imported as a complete aircraft;

(c) has the manufacturer's identification plates, or equivalent markings, attached to the aircraft, engine(s), and propeller(s).

s525.03 Issue of Special Certificates of Airworthiness

(1) A special certificate of airworthiness is issued for an aircraft that does not meet all the requirements for a certificate of airworthiness, in any one of the following classifications:

(a) Restricted;

(b) Amateur-built;

(2) Special Certificate of Airworthiness - Restricted

A Special C of A in the Restricted classification can be used for:

(a) an aircraft for which a type certificate in the restricted classification has been issued;

(b) an aircraft of another type certificate classification which has been altered, in accordance with Lebanese regulations, in such a manner as to change its type certificate classification to the restricted category; or

(c) an aircraft that is to be exported and has been modified to meet the requirements of its intended state of operation, where the modification does not comply with the applicable Lebanese requirements.

It is the modification to the aircraft, not the type of operation, which determines if a re-classification to the restricted category is required. Modifications to conduct the following types of operations can require this re-classification:

(a) aerial advertising using other than a towed banner;

(b) aerial fire-fighting;

(c) aerial photography and survey;

(d) aerial application services;

(e) any other similar services.

(3) Special Certificate of Airworthiness - Amateur-built

A Special C of A in the Amateur-built classification may be issued by the DGCA for an aircraft which is constructed in accordance with, and meets the requirements of
Subpart 555 along with its associated standards.

s525.04 Issue of a Flight Permit

(1) Flight permits shall only be issued on a temporary (12 months or less) basis where the aircraft in respect of which an application is made does not conform to the conditions of issue for a C of A or a Special C of A. A flight permit is issued in one of the following classifications:

(a) Experimental;

(b) Specific Purpose.

(2) Flight Permit - Experimental
An experimental flight permit is issued for any aircraft, excluding amateur-built aircraft, which is manufactured for, or engaged in, aeronautical research and development, or for showing compliance with airworthiness standards.

(3) Flight Permit - Specific Purpose
A specific purpose flight permit is issued for an aircraft, which does not conform to the applicable airworthiness standards, but is capable of safe flight. It provides a flight authority in circumstances when a certificate of airworthiness is invalidated, or there is no other certificate or permit in force.

Specific purpose flight permits can be issued for:
(a) Ferry-flights to a base for repairs or maintenance;
(b) Importation or exportation flights;
(c) Test purposes following repair, modification or maintenance; or
(d) Other temporary purposes.

(4) Flight Permit Authorizations

An application for a flight permit authorisation shall be made to the Lebanese DGCA office. The application shall specify the make; model, serial number and registration for each aircraft that will be subject to the flight permit authorisation, including any alternate number, such as a tail number, if applicable.

s525.05 Validation of a Foreign Flight Authority

(1) Foreign flight authority validations issued by the DGCA pursuant to LAR 525.05, shall apply only to those flights or segments of the flights where the aircraft is operating within Lebanese airspace.

Under the provisions of the ICAO Convention on civil aviation, Lebanon has sovereignty over Lebanese airspace. The validation of a foreign flight authority provides a means for Lebanon to exercise this sovereignty in cases when a certificate of airworthiness issued by a foreign state is not valid and the aircraft must operate on an authority that does not meet the criteria specified in Article 31 of the ICAO Convention. This type of flight authority will be validated where the applicant demonstrates that the aircraft, which is not in compliance with applicable airworthiness standards, is capable of safe flight.

(2) Where the application is made in respect of a foreign flight authority, the documentation that accompanies the application shall include the aircraft make, model, serial number, and registration. In addition, a copy of the company procedure used to dispatch the aircraft under the provisions of the foreign flight authority translated into English when submitted in another language, shall accompany the application.

s525.06 Application for a Flight Authority - General

(1) Application for a flight authority can be made by:

(a) the person to whom the aircraft registration has been issued;

(b) a person to whom custody and control of the aircraft has been transferred by virtue of a lease.

(c) a person authorised to make application on behalf of the person named in (a) or

(d), where the authorisation meets the requirements of (3).

(2) Except as provided in (3), all applications for a flight authority shall be made using the appropriate application form and shall include supplemental documentation if applicable.

(3) In cases of emergency, or when an aircraft is in a remote area, an application for a specific purpose flight permit can be made in a verbal manner, and responded to by facsimile transmission, provided all of the information that would have been required by the completion of the application form is provided. The applicant shall retain written records and copies of the facsimile transmission.

(4) All completed forms shall be submitted in duplicate, together with any other documents prescribed in these standards, as applicable to the type of flight authority being requested.

(5) Application forms shall be submitted within 30 days of the date on which the condition of the aircraft was certified, and shall bear original signatures in permanent ink, of the owner and the duly authorized certifying person.

(6) All applications for a flight authority or validation of a foreign flight authority including Amateur-built aircraft that is equivalent to a Lebanese Amateur-built aircraft will be submitted to the Chief of Airworthiness, DGCA.

(7) Applications for the validation of a foreign flight authority shall be submitted to the Chief of Airworthiness, DGCA, when the aircraft in respect of which the application is made:

(a) will be involved in a market survey or demonstration tour;

(b) will be involved in an experimental flight or test program; or

(c) is an aircraft registered in a state that is not a signatory to the International Civil Aviation Organisation (ICAO) Convention.

(8) Aircraft Importation; when a person intends to import an aircraft into Lebanon, he must before making an application for a flight authority contact the DGCA to ensure that the aircraft is eligible for import.

(9) In all cases, the applicant for any flight authority shall also have available for the aircraft:

(a) in respect of which a type certificate has been issued the approved Aircraft Flight Manual or approved operating limitations as applicable;

(b) a Weight and Balance report, together with an equipment list which includes the weight and moment arm of each item of equipment not forming part of the type design;

(c) the aircraft Journey Log and other technical records assigned to that aircraft, or in the case of an application made in respect of a foreign aircraft, the equivalent; and

(d) an approved maintenance schedule to which that aircraft will be maintained, not applicable in respect of a specific purpose flight permit, the validation of a foreign flight authority, or an application made in respect of an amateur-built aircraft,

(e) Instructions for Continued Airworthiness (ICAs) such as, but not limited to; flight manuals, maintenance manuals, service bulletins, assembly instructions required by the type certificate and any additional material necessary to ensure continued Airworthiness of the aircraft.

s525.07 Imported Aircraft

For the purposes of this chapter, the term "import" means acceptance on the Lebanese register of an aircraft that was previously registered in another state, or newly manufactured in another state.

(1) An imported aircraft can be eligible for use in Lebanon when it can be shown and the DGCA is satisfied that the aircraft conforms to an acceptable approved type design and is in a condition for safe operation.

(2) Conformity to an approved type design can be shown by means of:

(a) an Export Airworthiness Certificate (EAC) issued by the civil aviation authority of the country of export;

(b) an airworthiness inspection to procedures detailed in paragraphs (5) to (12) of this standard, for an aircraft imported without an EAC; or

(c) an airworthiness inspection for complete aircraft engines or propellers. This inspection shall be carried out in sufficient detail to ensure that the imported aircraft engine or propeller:

(i) is in compliance with the acceptable type design specified in the applicable type certificate;

(ii) is in compliance with all applicable mandatory instructions issued by the civil aviation authority of the country of manufacture, and all applicable airworthiness directives;

(iii) has, in the case of any major repairs or major modifications made prior to importation, the required certification indicating that they are of an approved type and were made in accordance with accepted standards of workmanship;

(iv) has been subjected to a satisfactory operational check to the manufacturer's specifications; and

(v) is in a condition for safe operation.

(3) The DGCA may consider for acceptance the Export Airworthiness Certificate as proof of conformity to a type certificate where:

(a) the product was designed and manufactured in the country of export, type certified by the civil aviation authority of that country.

(b) the product, if manufactured in a country other than the country of export, is manufactured to a type design acceptable to the DGCA.

(4) To be acceptable to the DGCA, each Export Airworthiness Certificate shall be properly signed by an authorized representative of the civil aviation authority of the country of export, and shall include the following information:

(a) a certification of conformity to the type design specified.

(b) a list of any major modifications and major repairs approved by the country of export and embodied in the product; and

(c) a list of all applicable airworthiness directives or equivalent notices issued by the country of export, indicating which have been complied with.

(5) The DGCA will accept an imported aircraft which does not have an Export Airworthiness Certificate issued by the civil aviation authority of the exporting country where the aircraft is inspected and certified by a person authorized and properly qualified to do so under LAR 525.10. Inspection, including disassembly when necessary, depending on the technical history of the aircraft, shall be conducted as follows:

(a) if the technical history of the aircraft is sufficient, for a small aircraft, a 100-hour inspection or equivalent, shall be carried out. Such inspection shall not be less in scope than the inspection detailed in Appendix A of this standard. For a Large aircraft, the inspection schedule or letter checks accomplished must be equivalent to cover the scope of Appendix A. Sufficient, in relation to technical history means, as a minimum, a maintenance release or equivalent certification for each maintenance task completed within the preceding year, and technical records in sufficient detail to enable a determination of:

(i) the identity of the aircraft, each installed engine, and each installed propeller;

(ii) the identity and airworthiness status of each installed serialized component;

(iii) the time remaining before the next scheduled task on the applicable maintenance schedule; and

(iv) the permissible time in service remaining for each life-limited part installed.

(b) if the technical history of the aircraft lacks continuity, or does not, in the opinion of the "authorised person", contain sufficient data regarding the maintenance of the aircraft, engines, or other aeronautical products, disassembly and inspection are required in addition to that required in subsection (5)(a); or

(c) if the technical history is not sufficient to determine the conformity and condition of the aircraft, component or equipment, a complete restoration is required, except for those aeronautical products for which there is documentary evidence that the product meets (5) (a), unless otherwise accepted by the DGCA.

(6) In all cases, the inspection shall determine, as a minimum, whether:

(a) the aircraft, engines, propellers and appliances are in compliance with the applicable type certificate data sheets or aircraft specifications;

(b) all applicable airworthiness directives (or foreign equivalents) have been complied with;

(c) major repairs and major modifications, carried out prior to importation, are in accordance with approved data and are appropriately certified;

(d) the airframe, engines, and propellers are free of corrosion within the limits prescribed by the applicable maintenance manuals;

(e) all aircraft systems, engines, propellers, appliances, and controls are functioning properly; and

(f) the time in service of each life-limited part does not exceed its maximum permitted life.

(7) When the aircraft has been inspected as required in subsection (5), the owner shall submit a report to the DGCA office. This report must detail the inspection that was carried out, and the work required to bring the aircraft to a condition of conformity to the certified type design and of safe operation.

(8) After evaluation of the report and inspection of the aircraft, the DGCA will determine if the work proposed will bring the aircraft to a state of conformity and to a condition of safe operation, or whether more work is required.

(9) The owner will be advised of the DGCA's decisions with supporting details.

(10) If the aircraft is eligible for a certificate of airworthiness, it shall be brought to required standards, as necessary, through the use of the applicable airworthiness data and maintenance manuals.

(11) On completion of the work, an application for a certificate of airworthiness can be submitted to the DGCA office in accordance with LAR 525.06. "Conformity Certificate" (form LAR-0525/3) including the description of work completed shall also be submitted with the application.

(12) The aircraft may be inspected by the DGCA during the evaluation of the application and on completion of the work.

(13) To be acceptable for importation, an imported aeronautical product shall be identified in accordance with its applicable certification data. Aeronautical products imported from a country not requiring certain identification data will require the identification data to be installed prior to acceptance. (data plate)

(14) Each life-limited component, or any product containing a life-limited component, which has been exposed to prior service shall be accompanied by its technical record containing details of all repairs and modifications carried out during its service life, and a record of accumulated time in flying hours or cycles, as may be applicable.

s525.08 Issue of an Additional Flight Authority

(1) LAR 525.08 provides the means for issuing one or more additional flight authorities in respect of an aircraft. In the case of such an aircraft which is subject to a type certificate, all assessments of the aircraft's condition shall be in conformity with the basis of certification specified in that type certificate.

(2) LAR 575 and LAR 605 provide specific instructions to persons making assessments of aircraft condition and to those persons configuring aircraft in accordance with a modification of the type specified in LAR 525.08 (1) (a).

s525.09 Operating Conditions

(1) The DGCA may subject a flight authority to one or more operational conditions, or any other conditions the DGCA determines to be appropriate for the safety of the aircraft.

(2) Some of the Operational Conditions that may be attached to a flight authority includes, but are not limited to:

(a) a brief description of the flight or the number of flights authorised;

(b) the period during which the flight authority is valid;

(c) instructions regarding the display of the flight authority;

(d) as necessary, the requirement for signs or placards to show the condition of the aircraft and any operating restrictions;

(e) the need for signs or placards to show the nature of the flight; and,

(f) any operating limitations.

APPENDIX - A

100 Hour Inspections for Small Aircraft pursuant to s525.07 (5)(a)

(1) Aircraft Generally

(a) Remove or open all necessary inspection plates, access doors, fairings and cowlings. Thoroughly clean the aircraft and engine.

(b) Inspect panel, door and cowling closing and locking mechanisms for improper installation and function.

(c) Lubricate in accordance with the manufacturer's recommendations.

(2) Fuselage and Hull Group

(a) Structure - inspect for deterioration, distortion, evidence of failure and defective or insecure attachment of fittings.

(b) Systems and components - inspect for improper installation, apparent defects and unsatisfactory operation.

(3) Cabin and Cockpit Group

(a) Generally - inspect for dirt and loose equipment that might foul the controls;

(b) Seats and safety belts - inspect for poor condition, fraying, and any other apparent defects;

(c) Windows and windshields - inspect for deterioration and breakage;

(d) Instruments - inspect for poor condition, mounting, marking and, where practicable, for improper operation;

(e) Flight and engine controls - inspect for improper installation and improper operation;

(f) Batteries - inspect for improper installation and improper charge;

(g) All systems - inspect for improper installation, poor general condition, apparent and obvious defects and insecurity of attachment.

(4) Engine and Nacelle Group

(a) Leaks - inspect for oil, fuel or hydraulic leaks;

(b) Studs and nuts - inspect for defects, evidence of improper torque and safety locking;

(c) Cylinder compression - check; if compression test indicates problems, check internal condition and tolerances;

(d) Screens and sump drain plugs - check for metal particles or foreign matter;

(e) Engine mounts - inspect for cracks, looseness of mounting and looseness of engine to mount;

(f) Flexible vibration dampeners - inspect for poor condition and deterioration;

(g) Engine controls - inspect for defects, improper travel and improper safety locking;

(h) Lines, hoses and clamps - inspect for leaks, improper condition and looseness;

(i) Exhaust stacks - inspect for cracks, defects and improper attachment;

(j) Accessories - inspect for apparent defects in security of mounting;

(k) All systems - inspect for improper installation, poor general condition, defects and insecure attachment;

(l) Cowlings - inspect for cracks and other defects.

(m) Internal corrosion - inspect engines which have not been inhibited and have been out of service in excess of 12 months.

(n) Engine performance - during the ground run, run the engine in accordance with the manufacturer's recommendation to determine satisfactory performance of the following:

(i) idle and maximum RPM;

(ii) magneto RPM drop;

(iii) fuel and oil pressures;

(iv) cylinder and oil temperatures.

(o) Engines maintained to an On-condition program - check reference RPM.

(5) Landing Gear Group

(a) All units - inspect for condition and security of attachment;

(b) Shock absorbing devices - check oleo fluid level;

(c) Linkage, trusses and members - inspect for undue or excessive wear, fatigue and distortion;

(d) Retracting and locking mechanism - inspect for improper operation;

(e) Hydraulic lines - inspect for leakage;

(f) Electrical system - inspect for chafing and improper operation of switches;

(g) Wheels - inspect for cracks, defects and condition of bearings;

(h) Tires - inspect for wear, cuts and incorrect inflation; inspect for improper installation and improper operation.

(i) Brakes - inspect for improper adjustment;

(j) Floats and skis - inspect for insecure attachment and apparent defects;

(6) Wing and Centre Section Assembly

Inspect structure for general condition, deterioration, distortion, evidence of failure and insecurity of attachment.

(7) Empennage Assembly

Inspect structure for general condition, deterioration, distortion, evidence of failure, insecure attachment, improper component installation and improper component operation.

(8) Propeller Group

(a) Propeller assembly - inspect for cracks, nicks, binding and oil leakage;

(b) Bolts - inspect for improper torque and safety locking;

(c) Anti-icing devices - inspect for improper operation and defects;

(d) Control mechanisms - inspect for improper operation, insecure mounting and improper range of travel.

(9) Radio Group

(a) Radio and electronic equipment - inspect for improper installation and insecure mounting.

(b) Emergency Locator Transmitters - test performance in accordance with the procedure specified in Appendix G of Standard 575.

(c) Wiring and conduits - inspect for improper routing, insecure mounting and apparent defects.

(d) Bonding and shielding - inspect for improper installation and poor condition.

(e) Antennas, including trailing antennas - inspect for poor condition, insecure mounting and improper operation.

(10) Miscellaneous Items Not Otherwise Covered by this Listing:

(11) Aircraft Generally, Including Technical Records

(a) Enter details of all deficiencies found during the inspection in the aircraft technical records.

(b) Upon completion of the inspection, replace or close all inspection plates, access doors, fairings and cowlings.

Republic of Lebanon
Ministry of Transport
Directorate General of Civil Aviation

APPLICATION FOR A CERTIFICATE OF AIRWORTHINESS (C OF A)

INSTRUCTIONS: SEE LAR 525 FOR THE USE OF THIS FORM, PRINT OR TYPE ALL ENTRIES.

A. AIRCRAFT DESCRIPTION

1. NATIONALITY AND REGISTRATION MARKS	2. AIRCRAFT CONFIGURATION WHEELS ! SKIS ! FLOATS ! OTHER (SPECIFY) _____	3. MAXIMUM PERMISSIBLE TAKE OFF WEIGHT FOR CONFIGURATION IN BLOCK 2. _____lbs./kg

	4. MANUFACTURER	5. MODEL	6. SERIAL NUMBER	7. HOURS SINCE NEW
AIRCRAFT				
ENGINES			1.	
			2.	
			3.	
			4.	
PROPELLERS OR ROTORS			1.	
			2.	
			3.	
			4.	

8. AIRWORTHINESS STANDARD	SUPPLEMENTARY TYPE CERTIFICATE
TYPE CERTIFICATE NO.	OTHER (SPECIFY)

9. AIRWORTHINESS DIRECTIVES STATUS

ALL APPLICABLE AIRWORTHINESS DIRECTIVES HAVE BEEN COMPLIED WITH _____ Signature

B. C OF A REQUESTED CHECK (✳) APPLICABLE BOXES

1. STANDARD C OF A

NORMAL ! UTILITY ! AEROBATIC

! COMMUTER ! TRANSPORT

! ROTORCRAFT ! POWERED GLIDER

! GLIDER

! AIRSHIP(SMALL) ∀ AIRSHIP (LARGE)

! MANNED FREE BALLOON

! OTHER (SPECIFY) _____

2. SPECIAL C OF A ! AMATEUR BUILT

! RESTRICTED

! AERIAL APPLICATION ! FIRE SUPPRESSION

! AERIAL SURVEYING ! AERIAL ADVERTISING (SPECIFY)

! AERIAL INSPECTION

! OTHER (SPECIFY) _____

C. CERTIFICATION

1. I HEREBY CERTIFY THAT THE AIRCRAFT DESCRIBED ABOVE HAS BEEN INSEPCTED AND FOUND TO CONFORM TO ITS APPROVED TYPE DESIGN AND IS IN A FIT AND SAFE STATE FOR FLIGHT.

_____ _____ _____

DATE (Y-M-D) SIGNATURE OF AIRCRAFT MAINTENANCE TECHNICIAN AMT LICENCE NO.

2. I CERTIFY TO THE BEST OF MY KNOWLEDGE THAT ALL APPLICABLE DGCA AIRWORTHINESS REQUIREMENTS RELATIVE TO THE AIRCRAFT DESCRIBED ABOVE HAVE BEEN COMPLIED WITH.

_____ _____

SIGNATURE DATE (Y-M-D)

∀ REGISTERED OWNER AS SHOWN ON THE CERTIFICATE OF REGISTRATION.

! AUTHORIZED REPRESENTATIVE

REPUBLIC OF LEBANON
MINISTERY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

FLIGHT PERMIT APPLICATION

INSTRUCTIONS: ***Print or type. Refer to LAR PART V – SUBPART 525 for the use and disposition of this form.***

AIRCRAFT IDENTIFICATION

1. Owner

2. Address

3. Aircraft Manufacturer	**4. Model**	**5. Serial Number**	**6. Nationality and Registration marks**

B. FLIGHT PERMIT REQUESTED – ***Check applicable boxes***

1. ! Experiment flight Permit

2. ! Specific Purpose Flight Permit

(a) ! Ferry Flight (b) ! Importation or Exportation Flight

(c) !Flight Test following repair, modification or maintenance (d) ! Other purpose (Specify)

C. FLIGHT DESCRIPTION AND AIRCRAFT LIMITATIONS Description of Flight(s) ***Use attachment if appropriate***

1. From: (*Airport)*	**2. To: (*Destination)***	
3. Via: (En Route Stops)	**4. Date**	**5. Duration**

6. Aircraft does not meet the applicable airworthiness requirements as follows:

7. The following restrictions are considered necessary for safe operations:

D. CERTIFICATION

I hereby certify that the aircraft described above is in a condition for safe operation.

Signature	**Date (Y- M -D)**	**! Registered Owner** **! Authorized Representative**

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT

DIRECTORATE GENERAL OF CIVIL AVIATION

FLIGHT PERMIT

This flight permit is issued pursuant to the ICAO convention on civil aviation. The Aircraft described above is permitted to fly when it complies with the Lebanese Aviation Safety Directives and when certified as safe for flight in accordance with those Directives.

Nationality and Registration	Aircraft Manufacturer	Aircraft Serial Number
Engine Manufacturer	**Engine Model**	**Maximum Take-Off Weight**

PURPOSE

Additional Conditions

1. Operating Conditions dated _____are a part of this permit.
2. This aircraft has not been shown to comply with the ICAO airworthiness standards of Article 31 of the convention on civil aviation. Therefore, approval of the foreign Civil Aviation Authority is required prior to flight over its territory.
3. This flight permit is not valid after _____ 2000.

_____ _____

Date Director General of Civil Aviation

LEBANON

Republic of Lebanon
Ministry of Transport
Directorate General of Civil Aviation

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

FLIGHT AUTHORITY VALIDATION

This document constitutes validation of the foreign flight authority issued

by:

dated:

Authority

This validation authority is issued under the provisions of the ICAO Convention on civil aviation articles 31 and 39 and allows the aircraft to operate on an authority that does not meet the criteria specified in the above articles of the Convention. This type of flight authority will be validated where the applicant demonstrates that the aircraft, which is not in compliance with all applicable airworthiness standards, is capable of safe flight."

This flight authority validation shall apply only to the flight or segments of the flight where the aircraft is within Lebanese airspace.

This flight authority validation must be carried on board the Aircraft for the duration of the intended flight.

The aircraft must be certified as safe for flight.

This authorization is valid for a period not to exceed 30 days and expires immediately following the conduct of the intended flight.

Special conditions may apply.

Director General of Civil Aviation

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 535
EXPORT AIRWORTHINESS CERTIFICATE

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
03/08/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 535 - Export Airworthiness Certificate

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535.05 Responsibilities of the Exporter 4

INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V – Airworthiness
Subpart 535 – Regulations
Standards s535- Means of Compliance
Information notes – in Italics, these are interpretation, not regulations.

Subpart 535 – Export Airworthiness Certificate

535.01 Applicability

This Subpart applies to aircraft that meet the export requirements specified in Standard s535, and that are Lebanese aircraft in respect of which a Certificate of Airworthiness (standard or special) has been issued pursuant to Subpart 525.

535.02 Application for an Export Airworthiness Certificate

(1) A person who applies for an Export Airworthiness Certificate shall do so in the form and manner specified in Standard s535.

(2) An applicant for an Export Airworthiness Certificate shall include with the application a declaration made by a person authorized pursuant to LAR 535.04, attesting that the aircraft conforms to the certified type design specified in the application.

535.03 Authority for Export

(1) The DGCA may issue an Export Airworthiness Certificate where the aircraft in respect of which the application is made conforms to the type design specified in a type certificate.

(2) Where an aircraft does not meet the requirements stated in (1), the DGCA may issue an Export Airworthiness Certificate that specifies the non-conformity to the applicable type design or any special requirement and the acceptance of that non-conformity by the state to which the aircraft is being exported.

535.04 Condition and Conformity Statement

No person shall make a declaration of an aircraft's condition or conformity to its certified type design for the purpose of obtaining an Export Airworthiness Certificate in respect of the aircraft, other than

(a) the holder of an aircraft maintenance technician license, issued pursuant to Part IV, that is applicable to that aircraft type;

(b) an authorised representative of an Approved Maintenance Organisation (AMO) holding the appropriate aircraft category; or

(c) in special circumstance, a person authorised by the DGCA.

535.05 Responsibilities of the Exporter

Where an Export Airworthiness Certificate has been issued in respect of an aircraft, the owner of the aircraft shall, on transfer of its title,

(a) forward to the new owner all of the documents and information required by Standard s535;

(b) where the exported aircraft is disassembled, forward to the new owner the manufacturer's assembly instructions and the other documents relating to the aircraft;

(c) ensure that the temporary equipment, if any, incorporated into the aircraft for the purpose of the export delivery flight is removed and the aircraft is restored to the configuration approved in the type certificate.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Standard 535
EXPORT AIRWORTHINESS CERTIFICATE

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 535 - Export Airworthiness Certificate

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Application for an Export Airworthiness Certificate form (LAR-0535)

Standard 535 - Export Airworthiness Certificates for Aircraft

s535.01 Applicability

(1) These Standard sets out the procedures for obtaining an Export Airworthiness Certificate for a complete aircraft that is exported from Lebanon pursuant to Subpart 535. These standards and procedures apply to the exportation of a complete aircraft only. Aeronautical products, other than a complete aircraft, are not eligible for export under a certificate issued by the Lebanese DGCA or its representative.

The issue of an Export Airworthiness Certificate does not constitute an authority to fly the aircraft. Procedures for obtaining a flight authority for delivery of the aircraft are contained in Subpart 525.

(2) For the purposes of these standards the following definitions apply:

(a) "state of design" - is the state whose aviation authority issued the first type design approval for the aeronautical product. Where the responsibility for the type design has been transferred to a holder in another state, this other state becomes the state of design.

(b) "state of manufacture" - is the state in which the manufacturer's facility is located and whose civil aviation authority certifies the aeronautical product airworthy.

s535.02 Application Procedures

(1) An application for an Export Airworthiness Certificate shall be submitted as soon as possible prior to the date on which the aircraft is to undergo the exportation flight.

(2) Export certification of a used aircraft will be made, only where the aircraft has been certified by a person meeting the requirements of Subpart 535.04, within 30 days prior to the date of the application as conforming to the type design requirements specified in the application. Following this certification, the aircraft must be maintained in the certified condition throughout the Export Airworthiness Certificate issuance process.

(3) An application for an Export Airworthiness Certificate shall be made using form LAR-0535, which can be obtained from the Lebanese DGCA office.

(4) An application for an Export Airworthiness Certificate shall include, the additional documents listed below:

(a) in the case of a new aircraft, that is, an aeroplane, helicopter or an aircraft that has never been operated, and that has, since its date of manufacture, a statement of conformity which includes the total number of operating hours accumulated;

(b) a weight and balance report, together with an equipment list which includes the weight and moment arm of each item of equipment not forming part of the type design;

(c) current details of any temporary installations incorporated in the aircraft for delivery purposes;

(d) a list of Airworthiness Directives which have been complied with, and a list of all major modifications and major repairs which have been incorporated;

(e) a certified document showing the status of the aircraft in respect of any special requirements mandated by the importing state.

(5) An aircraft is considered to be in conformity to the type design shown in a type certificate where, in respect of that aircraft:

(a) the aircraft conforms to the type design for which the application is being made, including its status in regard to any Airworthiness Limitations specified in that type design;

(b) the aircraft, its engines, and any installed components are in compliance with all applicable Airworthiness Directives;

(c) there are no unapproved modifications and repairs incorporated on the aircraft, its engines, or any installed components, that are subject to the additional approval requirements and

(d) there is in force a Certificate of Airworthiness, or a Special Certificate of Airworthiness issued under the provisions of Subpart 525.

(6) No flight authority issued pursuant to Subpart 525 is required where the aircraft has been inspected and certified as meeting the requirements for the issue of a Certificate of Airworthiness or a Special Certificate of Airworthiness requirements.

s535.03 Authority for Export

(1) Where the DGCA agrees to issue an Export Airworthiness Certificate in respect of an aircraft being exported as conforming to a foreign airworthiness standard, the DGCA, will verify compliance with any special requirements contained in that foreign standard, including any additional requirements specified by the importing state as a condition of shipment at the time of export.

(2) The responsibility to obtain the applicable Airworthiness Standards and any special requirements from the importing country remains with the exporter. Such additional requirements can involve, for example, markings and registration, additional copies of the export airworthiness certificate, copies of maintenance records and flight manuals, when these exist.

(3) When a product does not meet the special requirements of the civil aviation authority of the importing state, a written statement will be obtained by the exporter from the civil aviation authority of the importing state indicating acceptance of the deviation. The importing states written statement will, when applicable, accompany the application for the Export Airworthiness Certificate. It is the responsibility of the exporter to ensure that a copy of the certificate is included for shipment with the product.

s535.04 Reserved

s535.05 Export Airworthiness Certificate Holder Responsibilities

(1) The owner of an aircraft for which an Export Airworthiness Certificate has been issued is responsible to forward to the importer all documents and information necessary for the proper operation of the product being exported. These documents include, but are not limited to:

(d) flight manuals;

(b) maintenance manuals;

(c) service bulletins and assembly instructions required by the type certificate; and,

(d) any material stipulated by the civil aviation authority of the importing state.

(2) Where an aircraft is being exported as a disassembled aircraft, the holder of the Export Airworthiness Certificate shall forward the manufacturer's assembly instructions to the new owner. These instructions shall include the manufacturer's approved production flight test check form, along with additional instructions that provide sufficient detail to permit whatever rigging, alignment, and ground testing as necessary to ensure that the aircraft will conform to the approved configuration and type design when re-assembled.

Republic of Lebanon
Ministry of Transport
Directorate General of Civil Aviation

EXPORT AIRWORTHINESS CERTIFICATE

This certifies that the aircraft identified below and described in the relevant type certificate mentioned herein has been examined and as of the date of this certificate conforms to the data forming the basis for the type certificate and is in a condition for safe operation.

Note: This certificate does not constitute a flight authority.

For Export to:			This aircraft is ▶ ☐ new ☐ used	
	Manufacturer	**Model**	**Serial Number**	**Type Certificate No.**
Aircraft				
Engine(s)				
Propeller(s)				

Additional AirworthinessRequirements:
Additional requirements notification received from the importing state: ☐ yes ☐ No
Specify:

Exceptions: ***specify any exceptions applicable to the airworthiness of the aircraft; attach list if required***

Remarks: ***specify any additional requirements or special conditions as required:***

Issued at: BEIRUT	
Date	**For the DGCA**

Lebanon

REPUBLIC OF LEBANON
MINITERY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

APPLICATION FOR AN EXPORT AIRWORTHINESS CERTIFICATE

FOR DGCA ONLY **FILE NO.** **FEE :**

PART 1

1. NAME AND ADDRESS OF EXPORTER

PURCHASER

2. FOR EXPORT TO COUNTRY

3. MANUFACTURER	MODEL	SERIAL NO.	TYPE CERTIFICATE NO.	OPERTATING HOURS	
				SINCE NEW	SINCE LAST OVERHAUL
AIRCRAFT					
ENGINE(S)	1.				
	2.				
	3.				
	4.				
PROPELLER(S)	1.				
	2.				
	3.				
	4.				

4. THE PRODUCT COMPLIES WITH ALL APPLCIABLE AIRWORTHINESS REQUIREMENTS AND AIRWORTHINESS DIRECTIVES.

! YES # NO (EXPLAIN IN REMARKS)

5. ALL APPLICABLE SPECIAL REQUIREMENTS OF THE IMPORTING COUNTRY HAVE BEEN COMPLIED WITH

! YES ! NO (EXPLAIN IN REMARKS)

6. REMARKS, INCLUDING DEVIATIONS FROM TYPE DESIGN DATA, STC, TEMPORARY INSTALLATIONS, ETC.

! CONTINUED ON ATTACHED SHEET

PART 2 – INSPECTION CERTIFICATE (FOR USED PRODUCTS)

7. AIRWORTHINESS DIRECTIVES COMPLIED WITH

!CONTINUED ON ATTACHED SHEET

8. APPROVED MODIFICATIONS / REPAIRS CARRIED OUT, STA/STC.

!CONTINUED ON ATTACHED SHEET

9. PRODUCT HAS BEEN MAINTAINED IN ACCORDANCE WITH

!INSPECTION PROGRAM FOR SMALL AIRCRAFT

! PROGRESSIVE INSPECTION ROGRAM FOR SMALL AIRCRAFT

!OPERATOR'S APPROVED INSPECTION PROGRAM NO. _____

10. DATE OF LAST ANNUAL OR EQUIVALENT INSPECTION

11. I HEREBY CERTIFY THAT, EXCEPT WHERE NOTED ABOVE, THE PRODUCT DESCRIBED HEREIN CONFORMS TO THE APPROVED TYPE DESIGN DATA AND IS IN A FIT AND SAFE STATE FOR FLIGHT.

_____ _____ _____

DATE SIGNATURE AMT LICENCE NO. OR APPROVED ORGANIZATION NO.

PART 3 – DECLARATION

12.THE UNDERSIGNED CERTIFIES THAT THE INFORMATION GIVEN ON THIS FORM AND IN ANY ATTACHMENT THERETO IS TRUE AND THAT THE PRODUCT IS AVAILABLE FOR DGCA INSPECTION.

_____ _____

SIGNATURE DATE

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 545
APPROVED MAINTENANCE ORGANIZATIONS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
26/07/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 545 - Approved Maintenance Organization

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INTRODUCTORY NOTE TO LAR-545

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 545 - Regulations
Standards s545- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 545 - Approved Maintenance Organizations

545.00 Applicability

(a) LAR-545 prescribes the requirements for issuing approvals to organizations for the maintenance of aircraft and aircraft components and prescribes the general operating rules for Approved Maintenance Organizations (AMO). The approval, when granted, will apply to the whole organization headed by the person responsible for maintenance.

(b) Organizations located outside Lebanon may be evaluated for acceptance when working in accordance with the conditions detailed in a maintenance agreement between the Lebanese DGCA, and the Authority of the organization involved.

Interpretation

(1) In this Subpart;

(a) "AMO", means an Approved Maintenance Organization.

(b) "MOE", means a Maintenance Organization Exposition manual or document.

Accountable manager' means the manager who has corporate authority for ensuring that all maintenance required by the aircraft operator can be financed and carried out to the standard required by the DGCA. The accountable manager may delegate in writing to another person in the organization, such person then becoming the accountable manager for the purpose of this LAR–545.

545.01 Application for Approval

An applicant for an Approved Maintenance Organization (AMO) certificate of approval or for an amendment of an existing certificate of approval shall make an application in the form and manner specified in *Standard 545* of this Subpart.

(2) An applicant shall submit to the DGCA with the application a copy of its Maintenance Organization Exposition manual (MOE) required pursuant to *Standard 545.10(1).*

545.02 Entitlement to and Scope of Certificate

(1) The issue of an approval certificate to the maintenance organization indicates the grant of approval by the DGCA. The approval certificate will specify the extent of the approval.

(2) The (AMO) certificate shall specify all categories in which ratings have been issued and shall list the aeronautical products that the AMO is authorized to maintain or the maintenance services that the AMO is authorized to perform.

(3) The scope of the work that may be performed under each rating specified on the AMO certificate is determined as set out in the certificate. The AMO's Maintenance Organization Exposition must specify the scope of work and limitations deemed to constitute approval.

(4) Unless an expiry date is specified in an AMO certificate or the renewal form and fee have not been received by the DGCA, the certificate issued pursuant to subsection (1), remains in effect until it is surrendered, suspended or cancelled.

545.03 Person Responsible for maintenance (accountable manager)

(1) An Approved Maintenance Organization certificate holder shall;

(a) Appoint a person to be responsible for all of the activities that the AMO undertakes pursuant to this Part; and

(b) Ensure that the person appointed pursuant to paragraph (a) meets the standards of competence set out in Standard 545.03.

(2) An AMO certificate holder shall provide the person appointed with the staff and facilities necessary to ensure compliance with all applicable requirements of this Part.

(3) A person appointed pursuant to 545.03 (1) (a) may assign management functions for specific maintenance activities required by this Subpart to another person, if the assignment and the scope of the assigned functions are specified in the (MOE).

545.04 Personnel Requirements

(1) The AMO must employ sufficient personnel to plan, perform, supervise and inspect the work in accordance with the approval.

(2) A senior person or group of persons acceptable to the Lebanese DGCA, whose responsibilities include ensuring that the LAR-545 Approved Maintenance Organization, is in compliance with LAR-545 requirements, must be nominated. Such person(s) must ultimately be acceptable to the DGCA.

(3) The competence of personnel involved in maintenance must be established in accordance with a procedure and to a standard acceptable to the DGCA.

(4) Certifying staff must meet the qualification requirements stated in LAR 407 and receive initial and recurrent training in accordance with Standard 545.06.

545.05 Authorisation to Sign a Maintenance Release

(1) No AMO certificate holder shall authorize a person to sign a maintenance release unless the person meets all the applicable qualification requirements as stated in Subpart 575 and has successfully completed the training required by Standard s545.06.

(2) No AMO certificate holder shall authorize a person to sign a maintenance release unless the person has, in respect of the work being certified, demonstrated to the certificate holder levels of knowledge and experience that are appropriate and that meet the applicable criteria specified in Standard s545.05.

(3) A maintenance release must be issued by appropriately authorized and qualified staff of the organization when satisfied that all required maintenance of the aircraft/ component or related system has been properly carried out in accordance with the procedures specified in the maintenance organization exposition (MOE).

545.06 Training Program

(1) An AMO certificate holder shall implement a training program to ensure that persons authorized to perform or supervise the performance of any function under this subpart are trained in respect of the regulations, the standards and the AMO procedures.

(2) The program required shall include initial training, recurrent training and other additional training necessary, within the meaning assigned to those terms in Standard 545.06, to ensure continued qualification that is appropriate to the function to be performed or supervised.

545.07 Personnel Records

(1) An AMO certificate holder shall establish, maintain and retain for at least two years following termination of employment, a record of;

(a) all personal qualifications in respect of appointments made pursuant to 545.03 and in respect of assignments of functions made pursuant to 545.04;

(b) all of the authorizations to sign a maintenance release pursuant to 545.05; and

(c) all of the training conducted pursuant to 545.06.

(2) An AMO certificate holder shall provide a copy of the record required by this Subpart to the person to whom the record refers on the completion of each training activity or the granting of an authorization referred to in paragraph (1)(b).

545.08 Facilities, Equipment, Standards and Procedures

(1) An AMO certificate holder shall provide the facilities and equipment that are necessary for the work to be performed.

(2) Except in cases provided for in a maintenance organization exposition manual (MOE), work performed by an AMO certificate holder shall be performed in the facilities required by (1), unless unforeseen circumstances do not permit the work to be performed in those facilities and the safety of the aircraft is not affected by the fact that the work is performed elsewhere.

(3) Where an AMO uses standards equivalent to those of the manufacturer of an aeronautical product for the performance of work; those standards shall be identified in accordance with 545.10.

(a) The AMO must be in receipt of all necessary airworthiness data from other Aviation Authorities, the aircraft/aircraft component design organizations and any other approved design organizations, as appropriate to support the work performed.
The DGCA may classify data from another authority or organization as mandatory and may require the LAR-545 AMO to hold such data.

(b) Where the AMO produces its own airworthiness data additional to that specified in paragraph (a) such additional airworthiness data must be produced in accordance with a procedure acceptable to the DGCA.

(c) All airworthiness data must be kept up to date and made available to all personnel who need access to such data to perform their duties.

(4) The Approved Maintenance Organization must record all details of work carried out in a form acceptable to the DGCA.

(a) The AMO must provide a copy of each maintenance release to the aircraft operator, together with a copy of any specific airworthiness data used for the repairs or modifications carried out.

(b) The AMO must retain a copy of all detailed maintenance records and any associated airworthiness data for two years from the date the aircraft or aircraft component to which the work relates was released.

Where a task undertaken by an AMO is divided into sub-tasks, the person responsible for maintenance, shall establish a system of task control to ensure that all of the sub-tasks are completed prior to the signing of a maintenance release in respect of the completion of that task.

545.09 Quality system

An AMO certificate holder shall establish a quality system to verify and ensure that maintenance and its administration continue to comply with these Regulations.

545.10 Maintenance Organization Exposition Manual

(1) An AMO certificate holder shall establish, maintain and authorize the use of an Approved Maintenance Organization Exposition Manual (MOE) that contains information to ensure the efficiency of the AMO's maintenance policies, dealing with the subjects set out in Standard 545.

(2) The DGCA may authorize the incorporation by reference in an (MOE) of detailed procedures manuals and lists prepared by the AMO certificate holder, dealing with the subjects set out in Standard 545, where

(a) the policy affecting those detailed procedures and the composition of the lists is set out in the MOE;

(b) each incorporation is clearly indicated in the MOE; and

(d) the AMO certificate holder ensures that the incorporated procedures, manuals and lists meet the requirements of this Subpart.

(3) Where detailed procedures, manuals or lists are being incorporated by reference in an MOE, the person responsible for maintenance, shall certify in the MOE that the incorporated documents and every amendment thereto meet the requirements of the policy established in the MOE with respect to those documents.

(4) An AMO certificate holder need not conform to the policy and procedures contained in its MOE, where the holder has submitted in writing and received a written exemption by the DGCA. The request shall demonstrate that such exemption would not affect the safety of the aeronautical product to be maintained or the maintenance service to be offered.

(5) An AMO certificate holder shall submit its MOE and subsequent amendments, to the DGCA for approval.

(6) An AMO certificate holder shall amend its MOE when instructed to do so by the DGCA, where the MOE does not

(a) meet the requirements of this Subpart; or

(b) contain policies or procedures that are sufficiently detailed to demonstrate that the AMO's quality system meets the requirements of these Regulations.

(7) An AMO certificate holder shall take steps to ensure that a current copy of its MOE, relevant to the work to be performed, is made available to each person who performs or certifies that work.

(8) Amendments to each copy of the MOE shall be incorporated within 30 days after receiving approval.

545.11 Maintenance Arrangements

(1) No AMO shall permit an external agent to perform maintenance on its behalf unless;

(a) the external agent holds a *LAR 545* AMO certificate with a rating of a category that is appropriate to the type of work to be performed;

(b) where the work is to be performed outside Lebanon, the external agent has been authorised to do the work or maintenance under the laws of his state , and the state as enter into an agreement with the DGCA and the agreement provides for the recognition of such maintenance functions; or

(c) in all other cases, the DGCA has approved the performance of the maintenance by the person or organisation.

(2) An AMO certificate holder may permit work to be performed by an external agent other than an agent described in **(1),** where the work is performed, under the direct supervision of the person appointed pursuant to *545.03 or 545.04* and certified by persons authorized to do so in accordance with the approved procedures set out in the AMO's maintenance organization exposition (MOE).

(3) Arrangements respecting work to be performed by external agents shall be made in accordance with procedures governing maintenance arrangements set out in the MOE or, if such procedures are not set out in the MOE, shall be approved by the DGCA as ensuring conformity with the requirements of this Subpart.

(4) An AMO certificate holder that requests an external agent to perform work shall be responsible for specifying the tasks to be performed by the agent and ensuring completion and conformity of the work with applicable *LAR* requirements.

(5) Foreign Air Operators, who require maintenance to be carried out in Lebanon by an organisation that holds an AMO certificate issued pursuant to 545.02, shall comply with the requirements for maintenance arrangements in accordance with Standard 545.

545.12 Service Difficulty Reporting

An Approved Maintenance Organization certificate holder shall report to the DGCA, in accordance with *Subpart 585*, any service difficulty relating to the aeronautical products being maintained.

545.13 Approval of Foreign Maintenance Organisations

An application submitted by a maintenance organization for the issuance of an AMO certificate for the performance of work in facilities located outside Lebanon will be granted if;

(a) the applicant has recognised by advance agreement the DGCA's right to enter and inspect those facilities and seize any evidence found in those facilities, under the same conditions as would govern the exercise of the DGCA's powers pursuant to *Civil Aviation Safety Act* if the facilities were located in Lebanon;

(b) the AMO has agreed to reimburse the DGCA for any expenses incurred by Department personnel in carrying out the activities provided for in paragraph (a) in respect of those facilities; and

(c) in the case of an AMO whose facilities are located outside Lebanon, the DGCA specifies on the AMO certificate the date on which the certificate expires.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Standard 545
APPROVED MAINTENANCE ORGANIZATIONS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 545 - Approved Maintenance Organization

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APPENDIX - I. Maintenance Organization Exposition

Standard 545 - Approved Maintenance Organizations

Information notes:

a) In these standards, "the person responsible for maintenance" means any person appointed pursuant to LAR 545.03. (AMO accountable manager)

b) Where the holder of an AMO Certificate also holds any other certificate, which requires an approved manual, a separate manual can be provided with respect to each separate approval.

c) Where the certificate holder chooses to combine these separate manuals, each division of the manual should identify its source regulation (e.g. combined AMO-Air Operator manual can be divided into Division I for the AMO, and Division II for the air operator requirements).

d) Notwithstanding these standards, applicants for an AMO Certificate are reminded that applicable national codes may specify minimum requirements applicable to building standards, security and other environmental factors applicable to the work place.

s545.01 Application for Approval

Form LAR-0545, should be obtained from the Lebanese DGCA and completed by the Person Responsible for Maintenance. The required number of copies of the Maintenance Organization Exposition normally includes one for the DGCA office, but in a particular case, additional copies may be required.

s545.02 AMO Certificates (extent of approval)

(1) An AMO Certificate is issued with ratings in one or more of the following categories:

(a) Aircraft;
(b) Avionics;
(c) Engine;
(d) Propeller;
(e) Structure;
(f) Component;
(g) Welding; and
(h) NDT.

Where machining, grinding, electro-plating and metalizing are performed as part of the maintenance of an aeronautical product, they must be carried out under the control of an AMO with a category for that product. The AMO is responsible for the conformity of the (special process) to the applicable design standard for that product. Where work is sent to an external agent, a maintenance arrangement meeting the applicable requirements of LAR 545.11(2) is required.

(2) Ratings in the aircraft category are issued to authorize the performance of work, other than specialized maintenance, on aeroplanes and helicopters operated under a Flight Training Organization Certificate or on aircraft that are operated under an Air Operator Certificate. Other AMO categories are issued to authorize the performance of specialized maintenance that is beyond the privileges of an AMO with only an aircraft category.

(3) A rating in the aircraft category will specify one or more types or groups of aircraft that are eligible to be maintained. Each type or group will be further subject to one of these limitations:

(a) Non-specialized
Any maintenance on the aircraft of the types specified, or any of their component parts, provided the maintenance is not specialized maintenance under the provisions of Subpart 575.

(b) Check Limited
Any type of maintenance required to accomplish the level of check or inspection indicated on the limitations section, including the rectification of defects on the aircraft types specified, provided the maintenance is not specialized maintenance under the provisions of S*ubpart 575.*

(c) Line Maintenance
Maintenance of the specified aircraft types is limited to pre-flight, daily and weekly checks, and includes the rectification of aircraft defects, provided the maintenance is not specialized maintenance. A line maintenance limitation may include (A check) segments, but must not include any scheduled checks that include segmented portions of higher levels.

(4) Ratings in the Engine category will be issued in respect of the maintenance, up to and including overhaul, of one or more types or groups of engines.

(5) Ratings in the Propeller category will be issued in respect of specialized or non-specialized maintenance of one or more types or groups of propellers.

(6) Ratings in the Structure category will be issued in respect of the repair or modification of structures of the following kinds.

(a) Wooden
A wooden structure rating covers all repairs and modifications to wooden structure and includes the repair or making of any metal attachment bracket forming part of the structure, provided that welding is not required. This includes the repair of laminated structures, including metal sheathed laminated structures, provided the core material is wood.

(b) Sheet Metal
A sheet metal structure rating covers all repairs and modifications to sheet metal structures including airframes, floats, and skis, and includes the repair of metal sheathed honeycomb structures. This rating does not include repairs to tubular structures within sheet metal aircraft

(c) Tubular
A tubular structure rating covers all repairs and modifications to tubular metal structures. This rating will not be issued unless the applicant also holds a rating for Tig, Mig or Oxy-acetylene welding, as applicable to the type of structure being repaired. A tubular structure rating includes the repair of tubular engine mount assemblies.

(d) Composite
A composite structure rating covers all repairs and modifications to composite structures, including any integral bonded metal members or fasteners. This rating also covers the repair of metal or wood sheathed laminated structures.
The term "Composite Structure" includes, but is not limited to graphite, aramid (kevlar), and glass fiber filaments.

(7) Ratings in the Avionics category will be issued in respect of the incorporation of a modification, which provides for the installation of one of the following types of equipment into an aircraft, or the repair or modification of one of the following categories of avionics equipment, this rating includes:

(a) Radio

(i) all RF receivers or transceivers including Emergency Locator Transmitters (ELT) and Underwater Locating Devices (ULD);

(ii) Air Traffic Control (ATC) transponders (not including the aneroid sensing devices used in altitude reporting systems);

(iii) radar;

(iv) Distance Measuring Equipment (DME);

(v) radar altimeters;

(vi) Traffic Collision Avoidance Systems (TCAS);

(vii) Ground Proximity Warning Systems (GPWS); and

(viii) Flight Data Recorders (FDRs) and Cockpit Voice Recorders (CVRs).

(b) Electrical;
This rating includes electrical components used in power generation, distribution or control. It is also applicable to devices using electrical power as their primary source, other than a device for which another limitation applies. This rating includes:

(i) galley electrical components;

(ii) heating and lighting devices; and

(iii) fire detection equipment.

(c) Instrument;
this rating includes:

(i) gyroscopic instruments,

(ii) pitot-static instruments including aneroid sensing devices used in altitude reporting systems; and

(iii) any other instruments or displays device.

(d) Autoflight;
this rating includes:

-Any device used in an autoflight system, including flight guidance computers and their associated display devices.

Work carried out under these ratings includes on-aircraft work. Where on-aircraft work is authorized, the provisions of LAR575 and LAR 545 will apply to any person who is authorized to issue a maintenance release for work conducted on an aircraft.

(8) Ratings in the Component category will be issued in respect of the maintenance of one of the following categories of components or appliances .

(a) hydraulic or pneumatic power valves, or power packs;

(b) fuel metering or air metering components;

(c) pressure type fuel, oil, and pneumatic or hydraulic pumps;

(d) speed-regulating governors, including engine or propeller governors and constant speed drives;

(e) power train components. This limitation includes a rotor-head transmission, and those mechanisms used to transmit power to the rotor of a rotary wing or tilt wing aircraft;

(f) rotor blades;

(g) aircraft magnetos;

(h) bladder type fuel tanks.

(9) Ratings in the NDT category will be issued in respect of inspection of aeronautical products using one of the following methods and must be carried out as per approved Standards, within limitations indicated:

(a) Liquid Penetrant Inspection includes fluorescent and non-fluorescent methods

(b) Magnetic Particle Inspection includes fluorescent and non-fluorescent methods

(c) Eddy Current Inspection includes inspection methods conducted using equipment relying on eddy current technology.

(d) Ultrasonic Inspection includes contact, immersion, and through transmission techniques.

(e) Radiographic Inspection includes methods using X-Ray, Gamma and Neutron radiation sources.

(10) Ratings in the Welding category will be issued in respect of the repair or modification under one of the following processes:

(a) arc welding includes tungsten inert gas, metal inert gas, and other general arc techniques

(b) resistance welding includes spot and seam welding

(c) gas welding

(d) electron Beam welding

(11) An AMO certificate will not be subject to an expiry date except where the certificate is issued to an organization that is located outside Lebanon; in such a case, the certificate will be issued with an expiry date that is 2 years following the date of issue.

(12) Certificates issued to foreign AMOs are not renewable; a new application is required prior to the issue of a new certificate.

s545.03 Person Responsible for Maintenance (accountable manager)

(1) Persons appointed pursuant to Subpart545.03 must meet the following standards of competence:

(a) except as provided in paragraph (2), they shall have acquired a minimum of five years general experience in the performance or supervision of maintenance activities to be undertaken by the AMO.

(b) they shall have demonstrated knowledge of Regulatory requirements by completing an examination on Lebanese Aviation Regulations (LAR);

(c) their personal record in relation to aviation shall not include any "mensrea" conviction under the Civil Aviation ¨ (Safety) ¨ within the past 5 years; or any combination of three or more convictions on separate occasions to contravention's to *Subpart 575.10 or 575.11* of the Lebanese Aviation Regulations.

(2) In the case of an AMO not holding an aircraft, avionics, engine, or propeller rating, the person appointed may have less experience than required by paragraph (1)(a), provided the certificate holder can demonstrate to the DGCA that the lesser experience is appropriate to the scope of work undertaken by the AMO. The amount of experience required is determined by the complexity of the work undertaken by the organization, but in no case shall it be less than one year.

The following guidelines may be applied in determining the required amount of experience:

(a) for an AMO in the Component category with a single component rating - one (1) year;
(b) for an AMO in the Component category with two or more component ratings - two (2) years;
(c) for an AMO with an appropriate rating in the Welding category — two (2) years; or
(d) for an AMO with an appropriate rating in the Structures category — two (2) years;
(e) for an AMO with an appropriate rating in the NDT category — two (2) years.
(f) Persons, who held the position prior implementation of LAR 545, may continue in that position without the need to comply with (1)(a) and (b), but must be in compliance with (1)(c).

(3) The examination required by paragraph (1)(b) shall be an open book examination. It shall be restricted to questions that are applicable to the category of organization concerned. Holders of current Aircraft Maintenance Technician licenses shall be exempt from this examination.
The term "technician" is used in this context as an all-encompassing expression for maintenance personnel, "engineer" and "mechanic" being an acceptable alternative

(4) An applicant for the " Accountable manager" position within an AMO shall demonstrate, during an interview that they are knowledgeable, in respect of the AMO's approved policies, and with the following topics:

(a) Duties and responsibilities of the appointed position;
(b) Duties of persons who have been assigned functional responsibilities;
(c) Responsibilities of the AMO in relation to those of the operator;
(d) Responsibilities of the AMO for work that has been contracted out;
(e) Responsibilities of Aircraft Certification Authority and Shop Certification Authority holders in relation to those of the AMO;
(f) The function of Quality Assurance;
(g) Maintenance release requirements;
(h) Record keeping requirements;
(i) Identification of acceptable reference data for repairs and modifications;
(j) Parts control and traceability; and
(k) Control of non-conforming parts and materials.

(5) The purpose of the interview is confirm the applicant's knowledge and competence. The applicant will be informed of any mistakes, and the correct answers will be discussed. Questions and responses will be recorded. Should the interview be unsuccessful, the applicant will be informed immediately, and the decision will be confirmed by a written notification to the applicant and the AMO.

(6) The person responsible for maintenance may assign management functions for specific maintenance activities where those management functions are detailed in the maintenance organization exposition (MOE) manual. These details must include:

(a) a description of the functions being assigned which are pertinent to those duties required to ensure compliance with the LARs.

(b) for each person who has been assigned management functions, the identity of the person to whom that person reports; in the case of a large organization, this will usually be satisfied by means of an organizational chart.

(7) Persons assigned managerial responsibility for Quality Assurance or Production shall meet the standards of competence set forth in Standard s545.03.
The requirements for persons having assigned responsibilities to comply with LAR 545.03, is intended to apply only to persons assigned responsibility for the entire Quality or Production functions, and not to persons assigned responsibility for a segment of those functions.

s545.04 Assignment of Management Functions

(1) The person or persons nominated shall represent the maintenance management structure of the AMO and be responsible for all functions specified in *LAR-545*. Dependent upon the size of the AMO, the functions may be subdivided under individual managers and may be further subdivided or combined in any number of ways.

(2) In essence however the AMO should have, dependent upon the extent of approval, a base manager, line accountable manager, a workshop manager and a quality assurance manager, all of whom should report to the Person Responsible for Maintenance (accountable manager); except in a small organization where any one of these managerial responsibilities may be combined, subject to DGCA acceptance.

(3) The person responsible for maintenance (accountable manager) is responsible for ensuring that all maintenance required to be carried out, is carried out to the applicable design and quality standards specified in Subpart 545.08. He is also responsible for any corrective action resulting from the quality compliance monitoring under Subpart 545.09.

(4) The line manager is responsible for ensuring that all maintenance required to be carried out on the line including line defect rectification is carried out to standards as specified in applicable *LARs.*

(5) The workshop manager is responsible for ensuring that all work on aircraft components is carried out to applicable standards as specified in the *LARs*, he is also responsible for any corrective action resulting from the quality compliance monitoring.

(6) The quality manager shall be responsible for monitoring the AMO's compliance with the LARs, MOE and related documents, requesting remedial action as necessary by all managers as appropriate. *The AMO may adopt any title for the foregoing managerial positions but should identify to the Minister the titles and persons chosen to carry out these functions.*

(7) Where the organization chooses to appoint managers for all or any combination of the identified functions because of the size of the undertaking, these managers shall ultimately report to the person responsible for maintenance.

(8) To be accepted, such managers should have relevant knowledge and satisfactory experience related to aircraft/aircraft component maintenance as appropriate and with the current Lebanese Aviation Regulations.

(9) To demonstrate compliance with Subpart 545, the AMO should have a production man-hours plan showing that it has sufficient man-hours for the work that is intended to be carried out. Man-hour plans should regularly be updated.

(10) Planners, mechanics, supervisors and certifying staff shall be assessed for competence by 'on the job' evaluation or by examination relevant to their particular job role within the organization before unsupervised work is permitted. To assist in the assessment of competence, job descriptions are recommended for each job role in the organization. Basically, the assessment should establish that;

a) Planners are able to interpret maintenance requirements into maintenance tasks, and have an appreciation that they have no authority to deviate from the aircraft maintenance program.

b) Mechanics are able to carry out maintenance tasks to any standard specified in the maintenance instructions and will notify supervisors of mistakes requiring rectification to re-establish required maintenance standards.

c) Supervisors are able to ensure that all required maintenance tasks are carried out and where not done or where it is evident that a particular maintenance task cannot be carried out to the maintenance instructions, then such problems will be reported to the quality assurance department.

d) Certifying staff are able to determine when the aircraft or aircraft component is ready to release to service and when it should not be released to service.
Particularly, in the case of planners, supervisors and certifying staff, knowledge of organization procedures relevant to their particular role in the AMO is important.

s545.05 Qualifications for Signing a Maintenance Release

A maintenance technician license does not automatically qualify an individual to sign a maintenance release under an AMO authority. The authority to sign a release within the AMO's jurisdiction shall be separately granted by the AMO, in accordance with Subpart 545.07, following specific training in regards to AMO procedures and other regulatory training.

(1) Pursuant to Subpart 545.05, an AMO shall issue an authorization to those individuals who are entitle to sign a maintenance release in respect of work performed on an aircraft.

(i) This type of authorization is commonly known as an Aircraft Certification Authority (ACA). An ACA also permits the certification of work that is performed off the aircraft, provided it is not prohibited in the MOE. This work is only appropriate under an ACA where it is performed on products that are eligible for installation on the aircraft or system for which the AMT license, forming the basis of the ACA, is rated.

(ii) The term "technician" is used in this context as an all-encompassing expression for maintenance personnel, "engineer" and "mechanic" being an acceptable alternative

(2) When an AMO authorizes a person, who is not the holder of a maintenance technician license to sign a maintenance release in respect of work performed on parts intended for installation on an aircraft, by means of a Shop Certification Authority (SCA), the AMO shall ensure that the person has demonstrated levels of knowledge and experience that meet the applicable requirements of *LAR 545.05*, in respect of the work certified. These levels of knowledge and experience shall be determined as follows:

(a) by diploma or certificate from a course in an appropriate field or by an attestation that the person has been working in the field, under the supervision of an ACA or SCA holder for a period of not less than:

(i) in the case of engine or propeller overhauls, 1800 hours; and
(ii) in all other cases, including the repair of engine modules, 300 hours.

(b) the AMO has assured itself that the SCA holder understands his responsibilities applicable to the work to be certified.

(3) ACA or SCA authorizations are indicated in a document issued to each individual concerned; the identity of each person shall also be established in the records required by Subpart 545.07. In the case of an SCA, the records shall include details in respect of paragraph (2)(a) and (b).

s545.06 Training Program

(1) An AMO Certificate holder shall ensure that all staff with technical responsibilities is provided appropriate training to the extent necessary to ensure the competence of the person in the areas for which the person is responsible as described in the MOE.

(2) For the purposes of this section the following definitions apply:

"Initial training" - is the training provided to ensure that persons taking on new responsibilities are aware of their technical, administrative, and regulatory responsibilities;

"Recurrent training" - is the training provided to ensure that personnel remain competent, and are made aware of any change to their area of responsibility; intervals should not exceed 24 months.

"Additional training" - is the training provided where it is shown to be necessary by a finding made under the quality system or required due to changes in the regulations, applicable standards, or company procedures.

(3) Until such time as it is revised through an assessment made in respect of the quality system required by Subpart 545.09, the initial cycle for update training shall not exceed two years.

s545.07 Personnel Records

(1) The following minimum information should be kept on record in respect of each certifying person:

a. Name
b. Date of Birth
c. Basic Training, including educational level
d. Type Training
e. Continuation Training
f. Experience
g. Qualifications relevant to the approval
h. Scope of the authorization
i. Date of first issue of the authorization
j. If appropriate - expiry date of the authorization
k. Identification Number of the authorization

(2) These records may be kept in any format but should be controlled by the organization's quality assurance department. This does not mean that the quality department should run the record system.

(3) Persons authorized to access the record system should be maintained at a minimum to ensure that records cannot be altered in an unauthorized manner or that such confidential records become accessible to unauthorized persons.

(4) The certifying person should be given reasonable access on request to his own records.

(5) The Lebanese DGCA inspectors, are authorized persons when investigating the records system for initial and continued approval or when the DGCA has cause to doubt the competence of a particular certifying person.

s545.08 Facilities and Equipment

(1) For the purposes of this standard, equipment includes, but is not limited to technical and regulatory information, hand tools, jigs, fixtures, work stands, test equipment, calibrated tools, hoists, jacks, ladders, portable lighting, electrical power supplies, hydraulic or pneumatic ground support equipment.

(2) Subpart 545.08 requires the AMO Certificate holder to provide detailed information on the various locations where aircraft maintenance is to be performed. For the purpose of these standards, facilities shall include, as appropriate to the scope of work to be performed:

(a) lighted hangars;
(b) maintenance docks;
(c) workshops;
(d) clean rooms;
(e) storage; and
(f) other housing and support facilities to enable maintenance to be performed in clean conditions protected from the elements.

(3) When the work is to be performed on the aircraft, all scheduled maintenance, including the rectification of defects whose repair has been deferred, shall be carried out in a hangar that is capable of completely enclosing the aircraft, where that work:

(a) is, in respect of a large aircraft, C, D or E checks, or any equivalent check scheduled at an interval greater than 12 months;

(b) except where otherwise specified by the manufacturer's maintenance manual for the aircraft type, involves the placing of the complete aircraft on jacks;

(c) requires the use of environmentally sensitive testing equipment, unless that equipment has been calibrated to take the environment into account; or

(d) involves the disassembly of components, which would require lubrication upon re-assembly and could affect safety of the aircraft if exposed to contaminants such as dirt, water, sand, snow, etc.

(4) The facilities may be owned by the AMO, or be available through a lease agreement, provided the facilities are available on a "when needed" basis, or otherwise subject to pre-arranged periods of hangar availability.

(5) In the case where the AMO has agreed, through a maintenance arrangement, to perform maintenance for an Air Operator on an aircraft routinely operated away from the AMO's facilities (deployed operations), the MOE shall address provisions for outside work, paying particular attention to environmental factors.

Some operators may be operating in remote areas for extended periods and it may not be feasible to return to the main base for scheduled maintenance. These operators must submit details of the level of

maintenance that will be conducted and how the maintenance will be controlled, what temporary shelter will be provided, and any special procedures that will be instituted to ensure that maintenance conforms to the LAR requirements.

(6) Compliance with *LAR 575.02* performance rules requires that only the equipment recommended by the aeronautical product manufacturer, or its equivalent, be used to perform maintenance on an aeronautical product. To determine equivalence, an applicant shall compare performance criteria for the equipment and ensure that the substituted equipment can provide at least the same output as the equipment recommended by the manufacturer.

(7) The equipment that the AMO has at its facilities or has access to as required shall include the technical and regulatory information consistent with the maintenance or services specified in the AMO categories, ratings, and the scope of work.

(8) Except for tools commonly available for commercial rental, all other pieces of equipment and information to which the AMO has access but which it does not own, shall be shown to be available by a contract or other documented agreement. The organization must be prepared to make available for inspection all facilities and equipment whether owned by the organization or otherwise.

s545.09 Quality System

(1) Pursuant to Subpart 545.09, each AMO Certificate holder must establish and maintain a program to ensure that the maintenance system continues to comply with the regulations.
This program should provide for periodic verifications of all aspects of the systems and practices used in the performance of maintenance, to ensure compliance with regulations and approved company procedure. It should Verify that activities and results comply with the MOE and confirm that the MOE and the systems and procedures described within it remain effective and are achieving the AMO's objectives.

(2) The program must:

(a) be under the sole control of either the person responsible for maintenance, or a person to whom, pursuant to *LAR 545.04*, the management function for the program has been assigned;

(b) as a minimum, cover all functions defined within the approved manual;

(c) include all elements necessary to confirm that the AMO is in compliance with the *LARs* and the MOE;

(d) ensure that all referenced procedures remain applicable and effective;

(e) be responsive to any changes within the AMO that could affect the MOE or the AMO certificate ratings, and it must address the need for MOE amendments resulting from such changes. The MOE must be reviewed periodically to ensure compliance with current regulations.

(f) employ audit checklists to identify all functions controlled by the MOE, having regard to the complexity of the AMO's activities. Checklists must be sufficiently detailed to ensure

that all maintenance functions are addressed. Specifically, the program must include the following elements:

(i) an initial internal audit, using the audit checklists, that covers all aspects of the AMO's technical activities, within 6 months of the date on which the certificate is issued;

(ii) a recurring cycle of further internal audits, conducted at intervals established in the approved MOE;

(iii) records of findings of compliance and non-compliance resulting from the audits required by (i) and (ii);

(iv) procedures to ensure that the findings of the audits are communicated to the person appointed pursuant to *LAR 545* and made available to the AMO certificate holder;

(v) where appropriate, an immediate and long-term action to correct the root cause of each non-compliance noted;

(vi) follow up procedures, to ensure that necessary corrective actions (both immediate and long term) instituted by the AMO are effective; and

(vii) a record keeping system to ensure that details of audit findings, corrective actions, and follow up inspections are recorded, and that the records are retained for two complete audit cycles.

(3) The audits required may be conducted on a progressive or segmented basis, provided that the entire organization system is verified within the applicable interval.

(4) Wherever practical, having regard to the size of the organization, quality assurance duties related to specific tasks or functions shall be undertaken by persons who are not responsible for, and have not been involved in, the performance or certification of those tasks or functions.

(5) Functions related to quality assurance may be performed by persons within the AMO or by external agents. Personnel may be assigned responsibilities for other duties, in addition to those related to the program, provided that the quality assurance responsibilities take precedence over all other responsibilities.

s545.10 Maintenance Organization Exposition (manual)

(1) The purpose of the Maintenance Organization Exposition (MOE) is to set forth the procedures, means and methods in regard to the AMO's maintenance pollicies and procedures. Compliance with its contents will assure compliance with LARs requirements, which is a pre-requisite to obtaining and retaining an Approved Maintenance Organization (AMO) certificate.

(2) Subpart 545.10(2) and (3) specify the working procedures of the organization and therefore as stated in the requirement may be produced as separate procedure manuals. It should be remembered that these documents should be cross-referenced from the management MOE.

(3) Personnel must be familiar with those parts of the manuals that are relevant to the maintenance work they carry out.

(4) The AMO will specify in the MOE who should amend the manual particularly in the case where there are several parts.

(5) The Quality Manager shall be responsible for monitoring the amendment of the MOE, unless otherwise agreed by the DGCA, including associated procedure manuals and submission of the proposed amendments to the DGCA.

(6) the MOE has to cover four main parts:

a. The management MOE covering the parts specified earlier.

b. The maintenance procedures covering all aspects of how aircraft components may be accepted from outside sources and how aircraft will be maintained to the required standard.

c. The quality system procedures including the methods of qualifying mechanics, inspection, certifying staff and quality audit personnel.

d. Contracted operators procedures and paperwork.

(7) The accountable manager's exposition statement must satisfy the intent of the following paragraph and in fact this statement may be used without amendment. Any modification to the statement should not alter the intent.

This exposition defines the organization and procedures upon which the Lebanese DGCA , LAR-545 Approval is based. These procedures are approved by the undersigned and must be complied with, as applicable, when maintenance and associated work is being processed under the terms of the LAR-545 approval. It is accepted that these procedures do not override the necessity of complying with any new or amended regulations published by the Lebanese DGCA, from time to time where these new or amended regulations are in conflict with these procedures.

It is understood that the Lebanese DGCA will approve this organization once it is satisfied that the procedures are being followed and work standards maintained. It is further understood that the Lebanese DGCA reserves the right to suspend, vary or cancel the LAR-545 approval of the organization if the (Authority*) has evidence that procedures are not followed or standards not upheld.

Signed .....
Dated .....
Accountable manager and ...(quote position) .....
For and on behalf of ...(quote organization's name).....

(8) Whenever the accountable manager changes, the new accountable manager must sign paragraph 7 statement within 15 days following transition as part of the acceptance by the Authority. Failure to carry out this action may invalidate the *LAR 545* Approval.

(9) When an organization is approved against any other Part of the *LARs* containing a requirement for an exposition, a supplement covering the differences will suffice to meet the requirements except that the supplement must have an index showing where those parts missing from the supplement are covered.

(10) For use in emergency situations, the provisions of *LAR 545.10. (4),* provides a mean to authorize an AMO to conduct maintenance outside the policies and procedures contained in the MOE. This can occur for any number of reasons; however, approval shall not be granted unless the applicant can demonstrate that safety will not be adversely affected.

(11) Where a MOE no longer meets the requirements of this part, whether through a change in the requirements, a change in the organization or its activities, or through an inadequacy shown to exist by verification inspections conducted under the quality system, or any other reason that affects the manuals conformity to requirements, the certificate holder must prepare and have approved an amendment to its MOE.

(12) An AMO certificate holder shall make a copy of the MOE, or relevant portions thereof available to each person who performs or certifies work on an aeronautical product. In the case where only a portion of the manual is provided, it shall be sufficiently comprehensive to ensure that the person performing the tasks has all relevant information. For unscheduled work, temporary copies of the relevant portions of the MOE, or any incorporated reference, can be sent via facsimile transmission.

Appendix 1 contains an example of a MOE layout.

s545.11 Maintenance Arrangements

(1) Subpart 545.11 requires that an AMO develop specific approval procedures governing maintenance arrangements, and that the procedures be detailed in its MOE. However, where an AMO chooses not to include in its MOE detailed approval procedures in respect of maintenance arrangements, each specific maintenance arrangement entered into by the AMO shall be individually submitted to the DGCA for approval.

(2) Where an AMO certificate holder requests that an external agent perform work, the AMO is responsible for specifying the tasks to be performed, and, in addition, when that external agent is not the holder of an AMO certificate, or a foreign equivalent, the AMO is also responsible for the completion and certification of the work.

(3) For the purposes of this section where an AMO has a maintenance arrangement for the performance of work with an organization other than an AMO, "direct supervision" means that the person from the AMO tasked with certifying the work must personally ensures compliance with applicable *LAR* requirements.

(4) With respect to maintenance performed on an aeronautical product, a maintenance release shall be completed. It is a declaration that, with respect to the maintenance performed, the performance rules have been complied with, and the applicable standards of airworthiness have been met.

s545.12 Service Difficulty Reporting

The standards applicable to the reporting of service difficulties are found in Subpart 585.

s545.13 Foreign Approvals

(1) The issuance of a foreign AMO approval, or its renewal, shall only take place where there is an application from the foreign organization seeking a Lebanese approval.

(2) Foreign AMO approvals will only be issued in rare cases;

(a) where no other practical alternative exists, such as in the case where, due to local regulation, a state will not allow the extension of a Lebanese AMO approval;

(b) where the nature of the work is such that the expertise to perform the work is not available in Lebanon or in a state with which Lebanon has entered into an agreement that provides for recognition of such work.

APPENDIX - I

Example of a Maintenance Organization Exposition

The exposition may be put together in any subject order as long as all applicable subject are covered.

PART 1 MANAGEMENT

1.1 .Corporate commitment by the accountable manager.
1.2 .Management personnel.
1.3 .Duties and responsibilities of the management personnel.
1.4 .Management Organization Chart.
1.5 .List of certifying staff.
NOTE: A separate document may be referenced.

1.6 .Manpower resources.
1.7. General description of the facilities at each address intended to be approved.
1.8 . Organizations intended scope of work.
1.9 . Notification procedure to the DGCA regarding changes to the organization's activities/approval/location/personnel.
1.10.Exposition amendment procedures.

PART 2 MAINTENANCE PROCEDURES

2.1. Supplier evaluation procedure.
2.2 . Acceptance/inspection of aircraft components and material from outside contractors.
2.3 . Storage, tagging and release of aircraft components and material to aircraft maintenance.
2.4 . Acceptance of tools and equipment.
2.5 . Calibration of tools and equipment.
2.6 . Use of tooling and equipment by staff (including alternate tools).
2.7 . Cleanliness standards of maintenance facilities.
2.8 . Maintenance instructions and relationship to aircraft/aircraft component manufacturers' instructions including updating and availability to staff.
2.9 . Repair procedure.
2.10. Aircraft maintenance program compliance.
2.11. Airworthiness Directives procedure.
2.12. Optional modification procedure.
2.13. Maintenance documentation in use and completion of it.
2.14. Technical record control.
2.15. Rectification of defects arising during base maintenance.
2.16. Release to service procedure.
2.17. Records for the operators.
2.18. Reporting of defects to the DGCA/Operator/Manufacturer.
2.19. Return of defective aircraft components to store.
2.20. Defective components to outside contractors.
2.21. Control of computer maintenance record systems.

2.22. Reference to specific maintenance procedures such as -
Engine running procedures,
Aircraft pressure run procedures,
Aircraft towing procedures,
Aircraft taxiing procedures.

PART L2 ADDITIONAL LINE MAINTENANCE PROCEDURES

L2.1. Line maintenance control of aircraft components, tools, equipment etc.
L2.2. Line maintenance procedures related to servicing/fuelling/deicing etc.
L2.3. Line maintenance control of defects and repetitive defects.
L2.4. Line procedure for completion of technical log.
L2.5. Line procedure for pooled parts and loan parts.
L2.6. Line procedure for return of defective parts removed from aircraft.

PART 3 QUALITY SYSTEM PROCEDURES

3.1 . Quality audit of organization procedures.
3.2 . Quality audit of aircraft.
3.3 . Quality audit remedial action procedure.
3.4 . Certifying staff qualification and training procedures.
3.5 . Certifying staff records.
3.6 . Quality audit personnel.
3.7 . Qualifying inspectors.
3.8 . Qualifying mechanics.
3.9 . Aircraft or aircraft component maintenance tasks exemption process control.
3.10.Concession control for deviation from organizations' procedures.
3.11.Qualification procedure for specialized activities such as NDT, welding etc.

PART 4 MAINTENANCE ARRANGEMENTS WITH OPERATORS

4.1 . List of contracts or maintenance arrangements.
4.2 . Operator procedures and paperwork.
4.3 . Operator record completion.
Note: A list may be kept separate from the exposition.

PART 5 APPENDICES

5.1. Sample of documents.
5.2. List of Sub-contractors
5.3. List of Line maintenance locations

NOTE: These two lists may be kept separate from the exposition and may be kept on a computer database as long as an adequate backup system is available that can permit access to the information cross-reference is included in the exposition.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 555
AMATEUR-BUILT AIRCRAFT
VERY LIGHT AEROPLANES
ULTRA-LIGHTS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
03/08/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 555 - Amateur-Built Aircraft, Very Light Airplanes and Ultra-Lights

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Lebanese Civil Aviation Regulations Part V - Airworthiness
Subpart 555 - Regulations
Standards s555- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

555.01 APPLICABILITY

A person, who intends to construct, assemble or import an Amateur-Built or VLA category aircraft and obtain, a special certificate of airworthiness in respect of the aircraft must

(a) before starting construction, assembly or importation

(i) inform the DGCA of his intentions;

(ii) show that the aircraft design meets the requirements specified in *Standard s555*, *JAR- VLA, Very Light Airplanes- Joint Aviation Authorities* or DGCA accepted *Equivalent Standards;* and

(iii) show that the major portion of the aircraft if constructed, is to be from raw material and assembled on a non-commercial, non-production basis for educational or recreational purposes.

(b) during construction or assembly and again before the first flight, make the aircraft available to the DGCA for inspection.

Ultra-Light Airplanes

A person, who intends to construct or import an Ultra-Light airplane and obtain a Certificate of Registration in respect of such an airplane, must comply to the references, authorizations and requirements as set out in the DGCA *"Airworthiness for Ultra-light Airplanes"* policy document.

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard s555 - Amateur-Built Aircraft and Ultra-Light Airplanes

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AM 555- Accepted Kits

Standard s555 - AMATEUR-BUILT

GENERAL

s555.1 General

This Standard sets out the design and construction requirements, which shall be met to satisfy the DGCA, that the aircraft is an amateur-built; and the requirements for inspections, equipment and instruments, and operating information necessary to obtain a Special Certificate of Airworthiness.

s555.3 Applications

The applicant shall:

(a) Before starting importation or construction, inform the DGCA of his intention to build or import an amateur-built aircraft, and show that the design will meet the requirements set out in this Section; and

(b) Before the first flight, apply for a Special Certificate of Airworthiness in accordance with the requirements of *Subpart 525*, and show compliance with the requirements of paragraphs *s555.19* and *s555.21*.

s555.5 Construction

(1) Aircraft, including those supplied in kit form, will be designated as amateur-built aircraft, where the a significant portion of the aircraft (more than 40%) is fabricated from raw material and assembled by an individual or a group of individuals on a non-commercial, non-production basis for educational or recreational purposes

(2) Methods of fabrication and assembly, and workmanship shall be appropriate and should conform to accepted aviation standard practices.

s555.7 Materials

Materials shall be appropriate and should conform to aviation quality specifications. Composite non-metallic materials are accepted for use in primary structures. Certain components and parts such as engine(s), propeller(s), rotor blades and precision hub components, accessories, wheels and brakes, standard aircraft hardware, heat treated or welded assemblies and components from other aircraft may be obtained from trade sources provided that the applicant for a special Certificate of Airworthiness for amateur-built aircraft can show that the major portion of the aircraft has been amateur-built, as required in section s555.5.

s555.9 Powerplant

(1) The Powerplant may utilize propeller or reaction jet propulsion, but not solid and liquid fuel rockets. Installations are not restricted to approved aircraft engines. Type-approved engines shall be operated within all established certification limits. For non-type-approved engines, the applicant must establish limits.

(2) *For propeller driven propulsion systems:*

(a) Acceptable engines include, but are not limited to, conventional 2 or 4 cycle piston engines, Wankel engines, gas turbines and other unconventional internal combustion engines.

(3) *For engines incorporating turbomachinery* (e.g. turbocharger), rotating shaft speed limits shall be established by the applicant and:

(a) There shall be means to prevent such limits being exceeded; or

(b) It must be shown that in the event of a failure, no hazardous debris will be released following a mechanical failure at the highest shaft speed possible.

s555.11 Aircraft Noise
Amateur-built aircraft are not required to comply with the applicable noise standards.

s555.13 Equipment and Instruments
Unless otherwise indicated in the applicable Subpart, aircraft shall have the following serviceable and functioning equipment and instruments, as a minimum:

(a) ***Equipment:***

(i) A safety belt for each seat, including shoulder harness for each pilot seat and front seat adjacent to a pilot seat, securely anchored so that the loads are transmitted to the primary structure.
(ii) A firewall(s), isolating the engine compartment(s) from the remainder of the aircraft, if applicable.
(iii) For aircraft whose engine(s) is (are) equipped with a carburetor(s), a means to minimize the possibility of carburetor icing, unless it is shown to be unnecessary by actual test.
(iv) A portable fire extinguisher approved for use in aircraft.

(b) ***Flight & Navigation Instruments:***

(i) An airspeed indicator.
(ii) An altimeter.
(iii) A magnetic compass.

(c) ***Power Plant Instruments*****:**

(i) A tachometer for each engine.
(ii) Oil pressure indicator for each engine using a pressure lubricating system.
(iii) A temperature indicator for each engine.
(iv) A fuel quantity indicating system for each main fuel tank.
(v) A manifold pressure indicator for each turbocharged/supercharged engine, and airplanes equipped with constant speed propellers

s555.15 Placards
Unless otherwise required in the applicable section, all aircraft shall have the following placards:

(a) On the side of the fuselage, in a position that is readily visible to persons entering the aircraft, in letters at least 10 mm (3/8 in.) high and of a color contrasting with the background in ARABIC and English:

NOTICE: THIS AIRCRAFT IS OPERATING WITH A SPECIAL CERTIFICATE OF AIRWORTHINESS FOR AMATEUR-BUILT AIRCRAFT.

(b) For aircraft with passenger seats, during the period when the applicable initial operating restrictions apply:

PASSENGERS PROHIBITED"

(c) In any area of an aircraft designated for the carriage of passengers, other than an area beside the pilot, a placard shall be displayed showing the maximum permissible load in such compartment or area:

"MAXIMUM PASSENGER AND/OR BAGGAGE LOAD: KG (_LB)",

The load values to be used on this placard shall be obtained from the Aircraft Weight and Balance Report.

s555.17 Identification Plate

In accordance with the requirements respecting the Identification of Aircraft and Other Aeronautical Products, a fireproof identification plate shall be secured in a prominent location on a part of the structure that is not removable. The information on this shall include:

(a) Name of builder;
(b) Model designation;
(c) Serial number;
(d) Date of manufacture; and
(e) Nationality and registration marks.

s555.19 Inspections and Maintenance

(1) During fabrication and after final assembly the aircraft shall be inspected for workmanship and general serviceability according to a schedule acceptable to the DGCA. Particular attention shall be paid to enclosed areas of the primary structure, which are not visible after final assembly.

(2) In accordance with *Subpart 525*, an annual inspection is required to keep in force the Special Certificate of Airworthiness for amateur-built aircraft.

(3) The inspection shall show that the maintenance requirements set out *in Subpart 575.101(a)* are met.

s555.21 Aircraft Weight and Balance Control

In accordance with the requirements of Subpart 575, a Weight and Balance Report is required for each aircraft configuration.

s555.23 Design Changes and Repairs

Design changes and repairs affecting structural integrity, geometry, performance (e.g. change of c.g. limits) and maximum permissible take-off mass will require an inspection by a DGCA inspector or representative, and may invalidate the Special Certificate of Airworthiness for amateur-built aircraft. Following a design change or repair:

(a) A new Weight and Balance Report and Climb Test Report may be required,

(b) Changes or repairs shall be annotated in the Aircraft Technical Records, including the Journey Log book; and

(c) The DGCA may request a new Special C of A application or inspections.

FIXED - WING

s555.101 General

(1) This Subpart contains standards of airworthiness for:
- (a) airplanes, powered by one or more engines;
- (b) gliders; and
- (c) single-engine powered gliders,

(2) Aircraft shall meet the applicable mass limits specified in section s555.103.

(3) Upon receipt of a Special Certificate of Airworthiness with modified operating conditions issued pursuant to Subpart 525, prohibition of aerobatics flights may be removed on the basis of:
- (a) a one-off aerobatics demonstration; or
- (b) a type evaluation.

s555.103 Maximum Take-Off Mass and Wing Loading

(1) For the purpose of this sub-Subpart:

(a) The wing area S is defined as:

(i) the area enclosed by the wing outline including ailerons and flaps in the retracted position, (obtained by extending the wing leading and trailing edges through nacelles and fuselage to the aircraft centerline). Wing strakes platform area may be added, if applicable; or

(ii) for multi-wing aircraft, Canard types included the area of each wing, which provides positive lift in the landing configuration.

(b) High performance amateur-built airplanes are amateur-built airplanes having a wing loading exceeding the values given in paragraph 2(b).

(c) Single place and two place amateur-built airplanes meeting the maximum take-off mass and stall speed limits of advanced ultra-light airplanes may be identified as "amateur-built light airplanes"

(2) ***Airplanes:***

(a) The maximum permissible take-off mass M shall not exceed 1,800 Kg (weight W=3,968 lb). For multi-wing aircraft, Canard types included, the area referred to in s555.103 (a)(1)(ii), may be used to determine the maximum permissible mass for each wing and the results will be added to determine the aircraft maximum permissible take-off mass.

(b) Except for high performance amateur-built airplanes, the wing loading M/S (W/S) shall not be greater than:

(i) For wings without flaps, M/S = 65 Kg/m^2 (W/S=13.3 lb/ft^2); or

(ii) For wings with flaps, the value calculated using the method of Appendix A of this Subpart, but not exceeding 100 Kg/m^2 (20.4 lb/ft^2).

(3) ***Gliders*****:** The maximum permissible take-off mass shall not exceed 750 kg (1650 lb).

(4) ***Powered gliders*****:** The maximum permissible take-off mass shall not exceed 909 kg (2,000 lb) and the design value M/b^2 (mass to $span^2$) shall not be greater than 3 kg/m^2 (W/b^2 not greater than 0.615 lb/ft^2).

s555.105 Number of Seats

(1) *All aircraft*: For the purpose of applying the requirements of section s555.107, only one aircraft seat may be designated as a pilot's seat; and

(2) *Airplanes:* All seats, other than the pilot's seat defined in sub-paragraph (a), will be designated as passenger seats and the maximum number will be as stated in section s555.107, but in any case shall not exceed three seats.

(3) *Gliders and powered gliders:* The number of passenger seats shall not exceed one seat.

s555.107 Maximum Empty Mass

To ensure that an adequate minimum useful load, including fuel, can be carried within the maximum permissible take-off mass declared by the applicant in accordance with section s555.103, the maximum empty mass M_{Emax} (weight W_{Emax}) of the aircraft shall not be greater than that determined by the following equation:

$$M_{Emax} = M_{TOmax} - (80 + 80\sqrt{a} + 0.3P)(kg)$$

$$\left(W_{Emax} = W_{TOmax} - (175 + 175\sqrt{a} + 0.5P)(lb)\right)$$

Where:
M_{TOmax} (W_{TOmax}) = maximum permissible take-off mass (weight) selected by the applicant in kg (lb);
a = number of passenger seats, as defined in s555.105;
P = rated power of engine(s) in KW (BHP).

s555.109 Minimum Rated Engine Power

(1) *Piston engines:* To ensure that there is a reasonable expectation of meeting the climb test requirements set out in section s555.111, the minimum permissible rated engine power shall be determined by the following equation:

$$P_{min} = 0.0269M + \frac{C\sqrt{M^3}}{b} \ (kW);$$

$$\left(P_{min} = 0.036W + \frac{C\sqrt{W^3}}{b} \ (BHP)\right)$$

Where
P_{min} = rated power of the engine(s) in kw (BHP);
b = wing span in meters (ft);
M (W) = declared maximum T.O. mass in kg (weight in lb);
C = 0.01339 (for use with fps units = 0.018) for monoplanes (including tandem wing and canard airplanes); or
C = 0.01711 (for use with fps units = 0.023) for biplanes or triplanes.

(2) *Turbine engines:* The minimum permissible rated power/thrust will be evaluated on an individual basis.

s555.111 Performance: Rate of Climb

(1) In standard sea level atmospheric conditions at the maximum approved weight, the aircraft shall demonstrate the capability of climbing, as follows:

(a) *Airplanes:* 360 m (1180 ft) in 3 minutes.

(b) *Powered gliders*: 300 m (984 ft) in 4 minutes.

(2) Test in conditions other than standard sea level may be accepted by the DGCA.

s555.113 Equipment and Instruments

The following applies:

(a) *Airplanes and powered gliders:* Subject to s555.113 (b), all the equipment and instruments specified in section s555.13 are required as a minimum.

(b) *Open cockpit aircraft:* Compliance with s555.13 (a).

(c) *Gliders:* Only items (a)(i), (b)(i), (b)(ii) and (b)(iii of section s555.13 are required.

(d) *Aerobatics airplanes:* A peak recording accelerometer shall be permanently installed.

s555.115 Placards

In addition to the placards specified in s555.15, the following are required in the cockpit or cabin in full view of the pilot:

(a)

"Aerobatics Prohibited"

unless the "aerobatics prohibited" restriction has been removed from the airplane's special certificate of airworthiness for amateur-built aircraft.

(b) For aerobatics airplanes that obtained the restriction removed, the placards specified in s5549.115 (a) may be replaced by the following:

"The Following Aerobatics Maneuvers, and Combinations Thereof, May Be Performed in this Airplane": 1. ..... 2. ..... 3. .....

(c) For high performance airplanes:

"This Airplane is a High Performance Amateur-Built Airplane. Operation Requires a Pilot License With a High Performance Type Rating";

Rotary-Wing Aircraft

s555.201 General

(a) This Subpart contains standards of airworthiness for:

(1) Helicopters;

(2) Gyroplanes; and

(3) Gyrogliders.

(b) The aircraft shall meet the applicable mass limits specified in section s555.203.

(c) Helicopters may be accepted on the basis of a type evaluation, and will be issued a Special Certificate of Airworthiness in the Amateur-Built classification according to Subpart 507.

Information Note:

*On the basis of recommendations made by a technical organization or person(s) acceptable to the DGCA, helicopters may be eligible for a special C of A Amateur-Built. On behalf of The DGCA , such an organization or person(s) will carry out the type evaluation following the criteria contained in AMA s555.201)***.**

s555.203 Maximum Take-off Mass

(a) *Helicopters and Gyroplanes:* The maximum permissible take-off mass shall not be greater than 700 kg (1540 lb), except that the maximum disc loading referred to the total disc area shall not exceed 20 kg/m^2 (4.10 lb/sq. ft).

(b) *Gyrogliders:* The maximum mass shall not exceed 510 kg (1125 lb).

s555.205 Number of Seats

(a) For the purpose of applying the requirements set out in section s555.207 only one aircraft seat may be designated as a pilot's seat; and

(b) The number of passenger seats shall not exceed one.

s555.207 Maximum Empty Mass

The requirements set out in section s555.107 apply.

s555.209 Minimum Rated Engine Power

(a) *Helicopters*: The minimum rated engine power will be evaluated on an individual basis.

(b) *Gyroplanes*: The requirements set out in s555.109(a) apply.

s555.211 Performance: Rate of Climb

(a) *Helicopters:* The rate of climb will be evaluated on an individual basis.

(b) *Gyroplanes:* Gyroplanes are exempt from climb requirements.

s555.213 Equipment and Instruments

In addition to the applicable equipment and instruments specified in section s555.13, the following are required:

(a) *Helicopters:* A main rotor tachometer with rotor speed limits clearly identified.

(b) *Gyrogliders:* Items (a)(1) and (b)(1) of section s555.13 are required as a minimum.

s555.215 Placards

In addition to the placards required by section s555.15, rotorcraft shall have a placard stating any ballast required, as obtained from the Aircraft Weight and Balance Report.

Lighter-Than-Air Aircraft

s555.301 General
(a) This Subpart contains standards of airworthiness for:

(1) Manned free balloons; and

(2) Airships.

(b) Heated air or captive non-flammable gas shall provide the aircraft buoyancy.

s555.303 Maximum Displaced Volume
The maximum displaced volume shall not exceed:
(a) *Balloons:* 2200 m^3 (77 690 ft^3)
(b) *Airships:* 4300 m^3 (151 850 ft^3)

s555.305 Number of Occupants
(a) *Balloons:* The number of occupants shall be established by the applicant so that pilot operation during take-off, ascent and descent are not adversely affected, but shall not exceed four.
(b) *Airships*: The number of occupants shall not exceed two.

s555.307 Maximum Empty Mass
The empty mass of a LTA aircraft shall include installed equipment but no lifting gas or heater fuel, and shall not exceed:
(a) *Balloons:* 455 Kg (1000 lb).
Airships: 2500 Kg (5511 lb).

s555.309 Power Plant Installation: Airships
The power plant installation and the minimum rated engine power will be evaluated on an individual basis.

s555.313 Equipment and Instruments
(a) *Lighter-Than-Air Aircraft:* In lieu of the equipment and instruments required by section s555.13, all Lighter-Than-Air aircraft are required to have the following items as a minimum:

(1) an altimeter;

(2) a rate of climb indicator; and

(3) for each occupant, appropriate restraining means securely anchored to the primary structure, unless the balloon has a basket or gondola.

(b) *Hot Air Balloons:* In addition to the requirements of s555.313 (a), hot-air balloons shall have:

(1) a fuel quantity gauge for each fuel tank;

(2) an envelope temperature indicator; and

(3) shielding to protect occupants and parts adjacent to the burner flame unless the DGCA finds it unnecessary.

(c) *Captive Gas Balloons:* In addition to the requirements of s555.313 (a) and (b), captive gas balloons shall have a compass.

(d) *Airships:* In addition to the instruments and equipment of paragraphs (a) and (b) of this section, airships shall have the applicable power plant instruments of paragraph s555.13(c).

s555.315 Placards

In addition to the placards specified in paragraph s555.15(a) the following are required:

(a) In lieu of s555.15(b), a placard shall be displayed in a conspicuous position, readily visible to persons entering the aircraft, showing the number of occupants allowed:

"Maximum Number of Occupants: ..."

Or

(b) For hot air balloons on the envelope in full view of the pilot:

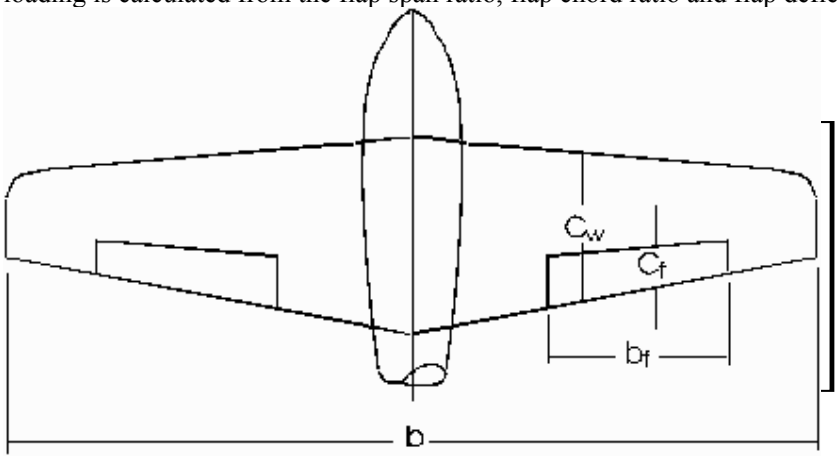
"Maximum Operational Envelope Temperature .....°C (..... °F)";

Appendix A

Maximum Allowable Wing Loading for A Fixed-Wing Aircraft with Flaps

A555.1 General

This Appendix details the methods of calculating the maximum allowable wing loading and hence the maximum allowable take-off mass for a fixed-wing aircraft with flaps. The maximum allowable wing loading is calculated from the flap span ratio, flap chord ratio and flap deflection



Information Note: (Ref. section 555.103).

A555.3 Flap Span Ratio, Flap Chord Ratio and Flap Deflection

The Flap Span Ratio (R_{fs}), Flap Chord Ratio (R_{fc}) and Flap Deflection (d_f) are calculated as follows:

(a) *Flap Span Ratio*:

The Flap Span Ratio (R_{fs}) is given by:

$$R_{fs} = \left(2 \times b_f\right) / b$$

Where:

$\mathbf{b_f}$ = Span of One Flap, m (ft)

b = Wing Span, m (ft)

The value of the Flap Span Ratio shall not exceed: 0.75

(b) *Flap Chord Ratio:*

The Flap Chord Ratio (R_{fc}) is given by:

$$R_{fc} = \left(C_f / C_w\right)$$

Where: $\mathbf{C_f}$ = Mean Flap Chord = $\mathbf{(S_f / b_f)}$,m (ft);

$\mathbf{S_f}$ = Area of One Flap, m^2 (ft^2); and

$\mathbf{C_w}$ = Mean Wing Chord = (S / b), m (ft);

S = Wing Area, m^2 (ft^2).

The value of the Flap Chord Ratio shall not exceed: 0.25

(c) Flap Deflection:

The Flap Deflection **(d_f)** = number of degrees (^{o}) of flap rotation from fully retracted position to fully extended position. The value of the Flap Deflection shall not exceed = 45^o.

A555.5 Maximum Allowable Wing Loading

Using the Flap Span Ratio (R_{fs}), the Flap Chord Ratio (R_{fc}) and the Flap Deflection (d_f) determined in A555.3, the maximum allowable wing loading is given by the equation (a) or (b), as applicable:

(a) *For Use with S.I. (Metric) Units*, the lesser of:

$M/S = 65.0 + (4.66 \times (R_{fs}) \times (R_{fc}) \times (d_f))$ kg/m^2; or

$M/S = 100$ kg/m^2.

(b) *For Use with Imperial Units (fps)*, the lesser of:

$W/S = 13.3 + (0.96 \times (R_{fs}) \times (R_{fc}) \times (d_f))$ lb/ft^2; or

$W/S = 20.4$ lb/ft^2.

Advisory Material

Subject: Amateur-Built Aircraft: General

1. Purpose.
This advisory gives guidance for acceptable means, but not the only means, for complying with the standards of airworthiness for the design and construction of amateur-built aircraft, and procedures for obtaining and maintaining the special Certificate of Airworthiness (CofA) for amateur-built aircraft.

2. Reference Airworthiness Standards.
LAR 555, "Airworthiness Standards: Amateur-Built Aircraft".

3. Background and Discussion.
LAR 555, contains the parameters necessary to define an aircraft as being eligible for designation in this category, and minimum requirements for instruments, equipment and operating information necessary to be eligible for a special CofA for amateur-built aircraft

4. Procedure before Starting Construction.
(a) Prior to the purchase of a kit-built aircraft or prior to the construction of a plans-built aircraft, owner/builders should contact DGCA Airworthiness office. This will assist owners/builders to select an aircraft that meets the "Major Portion" requirement (40% Rule), the wing-loading, weight, stalling speed, and other requirements that may be applicable to the operation and construction of the type and will ensure that the requirements of paragraph 4(b) and (c) will be met.
(b) To be eligible for the issue of a special CofA for an amateur-built aircraft, the applicant shall provide the DGCA with, as a minimum, the following information:

(1) The design selected, identified by type, model and the designer's name and address.

(2) For fixed-wing aircraft, the wing geometry, the estimated wing loading, and where flaps are to be installed, the flaps geometry.

(3) For helicopters and Gyroplanes, the rotor(s) geometry and estimated disc loading referred to the total disc area. *(Ref. section s555.203 (a))*.

(4) For all powered aircraft, the engine type, model and power output and whether the engine output meets the applicable minimum rated engine power requirements of Subpart s555. Where applicable, the applicant may use graphs provide in this AMA.

(5) The empty and take-off design mass (weights) of the aircraft compared with the applicable limitations specified in Subpart s555, (sections s555.103, s555.107, s555.203, s555.207 or s555.307.)

(6) The components and parts which will be of an amateur construction and those which will be prefabricated or procured from commercial or other sources. For details, refer to paragraph 5 of this AM.

(7) A schedule of inspections during fabrication, which provides for the inspection of enclosed areas before covering or closure, as required by section s555.19 (a).

(8) Any additional information required by the DGCA, Airworthiness.

(c) On the basis of recommendations made by a technical organization or person(s) acceptable to the DGCA, helicopters may be eligible for a special CofA Amateur-Built, and certain airplanes may be eligible for an aerobatics flight approval. (Standard Operating Conditions - Aerobatics Flight Approval). Such an organization or person(s) will carry out the type evaluation specified in paragraphs s555.101(c)(2) or s555.201(c), as applicable. *(Ref. AM s555.101 or AMA s555.201)*.

5. Design and Construction *(Ref., section s555.5).*

(a) General.

(1) Any choice of engines, propellers, wheels, and other components, and any choice of materials may be used in the construction of an amateur-built aircraft. However, it is recommended that established aircraft quality material and components be used, especially in fabricating primary structure parts, such as wing spars, critical attachment fittings, and fuselage structural members. Non-aircraft materials, or materials whose identity cannot be established, should only be used after careful evaluation.

(2) Builders are urged to be particularly aware of the risks associated with the operation of used engines, propellers and associated accessories whose history cannot be verified or which may have been involved in accidents and/or subjected to unapproved repairs or modifications. Such items are often advertised as "suitable for homebuilt" because they can no longer meet standards of airworthiness for normal (approved) aircraft. In such cases, the potential for catastrophic failure should be kept in mind by the builder and advice from competent authority sought.

(3) An engine installation shall be such that adequate fuel is constantly supplied to the engine in all flight attitudes. Also, suitable means should be provided to reduce fire hazard wherever possible, including a firewall between the engine compartment and the fuselage, if applicable. Where applicable, a system providing for carburetor heat should also be installed to minimize the possibility of carburetor icing.

(4) The design of the cockpit or cabin of the aircraft should avoid, or provide for padding on, sharp corners or edges, protrusions, knobs and similar objects which may cause injury to the pilot or passengers in the event of an accident.

(5) Information and guidance concerning acceptable fabrication and assembly methods, techniques and practices are provided in the U.S. FAA Advisory Circular (AC) No. 43.13-1A, "Acceptable Methods, Techniques, and Practices - Aircraft Inspection and Repair," and AC No. 43.13-2A, "Acceptable Methods, Techniques and Practices - Aircraft Alterations." These publications are accepted by the DGCA.

(b) *Kit-Built Aircraft*. An aircraft built from a kit may be eligible for the issue of a special CofA provided that the major portion (more than 50 percent) has been fabricated and assembled by the amateur builder. Procedures to determine compliance with the "Major Portion" requirement.

6. Equipment and Instruments.

(a) Equipment.

(1) Carburetor Icing Prevention.

(2) Portable fire extinguishers.

(b) Instruments.

(1) for twin engine aircraft single instruments with dual readouts are acceptable to provide engine speed (r.p.m.) indications.

(2) the temperature indication for each engine may be one of the following, as applicable to the type of engine:

(i) oil temperature, for air-cooled four-stroke engines;

(ii) water temperature, for liquid-cooled four-stroke engines; or

(iii) cylinder-head or exhaust gas temperature, for two or four-stroke engines.

(c) *Instrument Markings.* Since amateur-built aircraft are not required to have flight manuals, each instrument should be clearly marked with the minimum and maximum range limits for the particular installation. This should reduce the possibility of hazardous operation by a pilot who is not completely familiar with the aircraft.

7. Inspections (*Ref. section s555.19).*
(a) The DGCA Airworthiness office shall require inspection(s) during fabrication, according to a schedule as referenced in para. 4(b)(7) of this AM, and after final assembly to determine:

(1) compliance with the applicable requirements of Subpart s555;

(2) workmanship and general serviceability; and

(3) disposition of unsafe features.

(b) Any unsafe feature shall be re-worked, or otherwise changed so as to be acceptable to the DGCA, prior to issuance of a special CofA for amateur-built aircraft.
(c) The final inspection after completion shall be made when the aircraft is equipped and ready for flight at a site suitable for the proposed test flight prior to the issuance of a special CofA for amateur-built aircraft. The applicant should inform the DGCA when the aircraft is ready for inspection.

8. Procedure For Obtaining A Special Certificate Of Airworthiness - Amateur Built

(Ref. LAR525 sections s555.3 para. (b) and s555.21)

At the time of application for a special CofA for amateur-built aircraft, the applicant shall provide:
(a) information required in form No. LAR0525/1; and
(b) except for balloons, a Weight and Balance Report using the appropriate form that meets the requirements of LAR 575, Standard s575, Appendix C.

9. Initial Standard Operating Conditions - Amateur-Built Aircraft
(a) The special CofA for amateur-built aircraft authorizes operation of the aircraft with the following initial operating conditions:

(1) the aircraft may only be operated from a prescribed base;

(2) the aircraft shall not be operated more than 40 km (25 nautical miles) from the airfield specified in (a);

(3) the aircraft shall not be flown over any built-up area, open-air assembly of persons, etc.;

(4) carriage of persons, other than for dual instruction, is prohibited;

(5) aerobatics flight is prohibited;

(6) day VFR only; and

(7) during the first five hours of flight, a powered aircraft may only be flown by a pilot who has acquired not less than 100 hours of pilot-in-command flight time in an aircraft of the same category.

(b) The operating restrictions of paragraph 9(a) shall apply until the aircraft has accumulated the following flight time:

(1) Powered fixed-wing aircraft: The flight time to be accumulated by powered aircraft shall be the number of hours required to rectify all design and/or construction errors plus an additional 25 hours during which the aircraft has required only the maintenance, repair and inspection associated with normal aircraft operations.

(2) Fixed-wing gliders: 10 hours.

(3) Helicopters and powered Gyroplanes (gyrocopters): in accordance with sub-paragraph 9(b)(1).

(4) Unpowered Gyroplanes (gyrogliders): 100 flights including 20 flights in which the towline is released at a height of not less than 30 meters (100 feet) above the surface.

(5) Balloons: 10 hours, including 10 flights.

10. Standardized Operating Conditions - Amateur-Built Aircraft

(a) Upon completion of the applicable period of flight time specified in paragraph 9(b), the owner may apply to operate the aircraft under modified operating conditions.

(b) The applicant shall provide the following information:

(1) An Aircraft Journey Log Extract, (certified as a true copy by the owner/builder), with the following information:

(i) date and duration of each flight;

(ii) a statement of the purpose of each flight (test, pleasure or proficiency);

(iii) the number of landings made;

(iv) a full description of any mishaps, however minor, or any abnormal experience that occurred during the flight experience period; and

(2) For powered fixed-wing aircraft: A Climb Test Report showing compliance with the applicable performance requirements of Subpart s555, section s555.111.

(c) The Special CofA for amateur-built aircraft authorizes the aircraft to be flown within the following modified operating conditions:

(1) VFR flight only; and

(2) aerobatics flight is prohibited.

11. Climb Test

Standard s555 requires powered fixed-wing aircraft to demonstrate climb capabilities in standard sea level atmospheric conditions, but usually the tests are performed in atmospheric conditions that considerably differ from those prescribed by the requirements. Therefore, for airplanes, to determine the minimum required gain in altitude for the ground level pressure altitude and air temperature conditions at the time of the tests, the applicant can use the applicable graph provided in Appendix B of this AM. The take-off mass should equal, but not exceed, the maximum permissible weight stated in the Special CofA; otherwise the latter will be reduced to the value of the take-off mass used in the test.

12. Log Books and Maintenance Records *(Ref.s555, section s555.25).*

(a) *Construction Log:* It is strongly recommended that the aircraft owner/builder keep a construction log with daily notes of construction, photographs taken as major components are completed, bills of sales or other shipping documents, etc. This logbook may be maintained in a three-ring binder, and divided in three separate parts for aircraft, engine and propeller, if convenient.

The information contained in this logbook will be helpful to preclude problems and answer questions concerning sources or specifications of material, parts, etc., used in fabricating the aircraft. This LogBook should be retained for historical reference, and will be helpful to substantiate that the builder constructed the "Major Portion" of the aircraft, as required in section s555.5.

(b) *Journey Log:* The Journey Log shall be maintained. The Journey Log must be carried on board the aircraft during flight. It is used to record the aircraft's flight history. The nature and duration of each flight should be documented. If the aircraft has had its aerobatics limitation removed, the documented aerobatics maneuvers should be recorded in the Journey Log. This logbook is needed at the time of application for operation under "modified operating conditions" to substantiate the completion of the minimum period of flight time required for the aircraft (refer to paragraph 9(b) of this AM).

(c) *Technical Log(s):* An Aircraft Technical LogBook shall be maintained. The log(s) shall contain particulars of any repair to, modification of, defect of, airframe, engine, propeller, or any component, as applicable for the type of aircraft.

(d) All LogBooks shall be maintained and passed on to subsequent owners of the aircraft.
(Ref. LAR 575).

13. Changes and Major Repairs after Registration. *(Ref. Subpart s555, section s555.23)*
A major change or repair affecting structural integrity, performance (e.g. C. of G. limits), geometry and maximum take-off mass (weight) will invalidate the Special CofA for amateur-built aircraft and may require an inspection by a DGCA inspector.

(a) Changes, which will invalidate the Special CofA for amateur-built aircraft, and require a new Weight and Balance Report and Climb Test, include:

(i) A change in the type or model of the engine. This does not include engine changes within the same series.

(ii) A change resulting in a mass (weight) exceeding the maximum permissible stated on the special CofA for amateur-built aircraft.

(iii) An initial change in landing gear.

(b) Changes, which will require a DGCA inspection, include any change or major repair affecting structural integrity.

Note: Any change or major repair should be annotated in Aircraft Journey and Technical Logs.

14. Construction outside Lebanon.
(a) In certain circumstances and subject to the approval of the DGCA, a Lebanese citizen living abroad and intending to resume permanent residence in Lebanon, can apply for the issuance of a special CofA for an amateur-built aircraft constructed outside Lebanon.
The applicant shall:

(1) provide the DGCA with the information required by paragraph 4 of this AM; and

(2) request that the inspections during fabrication to establish compliance with the relevant requirements of Subpart s555, be conducted by:

(i) a representative of the Airworthiness Authority of the country in which the aircraft is to be built under arrangements made by the DGCA with that Airworthiness Authority;

(ii) an Airworthiness Inspector of the Lebanese DGCA under arrangements acceptable to the DGCA, in which case the applicant shall be required to pay all expenses incurred by the Airworthiness Inspector in travelling outside Lebanon; or

(iii) other arrangements acceptable to the Lebanese DGCA.

(3) at time of application for the special CofA provide the DGCA with the following documentary evidence:
(i) a statement by the Airworthiness Authority of the country in which the aircraft was built, or by the Airworthiness Inspector of the Lebanese DGCA who inspected the aircraft during fabrication, testifying as to the identity of the builder and giving the dates of the inspections carried out and the findings of these inspections; and

(ii) a Log Book recording the flights performed by the aircraft, if applicable.

(4) upon importation into Lebanon, an inspection by the DGCA Airworthiness office in which the aircraft is to be registered will be conducted to establish that the aircraft complies with all the requirements of this section.

(b) If the person who applies for a special CofA for an amateur-built aircraft is a non-Lebanese citizen with the status of "Permanent Resident" taking up or resuming residence in Lebanon, the procedures set forth in paragraph 4 of this AMA, if applicable, shall be met.
(c) Cases in which the procedures of this paragraph are not complied with in full are referred to the DGCA Airworthiness office, which may authorize the issue a special CofA, where the DGCA is satisfied that the intent of the requirements is met.

Advisory Material

Subject: Composite Primary Structures - Amateur-Built Aircraft

Purpose.
This advisory material provides guidance for the construction of amateur-built aircraft whose primary structure is made of composite (non-metallic) materials.

Reference Airworthiness Standards.
LAR, Section 555.7 paragraph (b).

Background.
When composite aircraft first appeared, there was a need to provide guidance to builders, designers and DGCA Airworthiness Inspectors or others to ensure that each designer provided adequate instructions with his product for the builder, to ensure that the builder had complete instructions for the proper assembly procedures.
The availability of composite aircraft kits has increased to the point where they are one of the most common types on the market. As a result, designers are more knowledgeable of proper manufacturing technologies; they are providing adequate information for the proper assembly of their product.

While the designs and designers instructions are generally adequate, there are still instances where builders of composite aircraft are not always adhering to the manufacturer instructions during construction. Such cases of improper construction techniques have resulted in fatal accidents. Thus, there is still a need to make builders aware of the importance of observing the proper techniques for the assembly of composite aircraft.
Construction of aircraft in which primary structure is a fiber-reinforced resin requires several special considerations that are not applicable to traditional methods of construction. Even with ideal conditions, structural integrity is not assured. This applies whether the aircraft is built from raw materials or from bonded, pre-molded components. Following inspections and investigations of accidents, it has been determined that joints do delaminate, even when reasonable preparation techniques have been followed. Unfortunately, at this time it is practically impossible to determine integrity by any non-destructive inspection technique, therefore general builder attitude and expertise is the only available guide to the probability of a good job being done.

General.

a) Builders of composite aircraft are urged to familiarize themselves with the recommended procedures for fabricating composite materials. As a part of this process, builders should:
(1) carefully review all aspects of the design and designer's instructions;
(2) review inspection and repair instructions;
(3) familiarize themselves with related material regarding composite aircraft construction;
(4) fabricate the aircraft structure in conformance with the designer's instructions, other instructions or any other "mandatory" advice in the form of newsletter or service bulletins;
(5) not substitute for specified materials unless authorized by the designer;
(6) ensure proper shop and working conditions (temperature, humidity); and
(7) ensure proper joint preparation.
(b) It is strongly recommended that builders make and retain for future reference, representative samples of all bonded joints, paying particular attention to those made during environmental changes of temperature, humidity etc.

Reference Bibliography/Material.
The Experimental Aircraft Association Aviation Foundation offers for sale publications and videos on the subject of composite aircraft construction. Information may be obtained by contacting:

EAA Aviation Foundation
Catalog Sales
P.O. Box 3065
Oshkosh Wisconsin
54903-3065

Advisory Material

Subject: Evaluation of Amateur-Built Helicopters

Purpose.
This advisory information provides criteria, but not the only criteria, for the evaluation of helicopter types for the purpose of issuing a Special (CofA) for Amateur-Built Aircraft. As a guidance document, its purpose is to outline a method of compliance with existing standards. The applicant may elect to follow an alternate, which must be acceptable to the DGCA as a means of compliance with the requirements of LAR 555.

Reference Airworthiness Standards
LARs555, Amateur-Built Aircraft, Subsections A and C.

Background and Discussion.
Due to the uniqueness of design and construction (compared with amateur-built fixed-wing aircraft), amateur-built helicopters will be evaluated on an individual basis for structural integrity, weight and balance, flutter, flight limitations and handling qualities. The main object of this evaluation is to ensure safe flight. In this regard, the following outlines acceptable requirements and procedures:

(a) To thoroughly inform the amateur-builder of the limitations of the aircraft, the designer of the kit manufacturer shall provide in the form of manuals, information relating to structural integrity, rigging, weight and balance, flight limitations, and maintenance.

(b) The information specified in sub paragraph 3(a) shall be provided to a person (or group) acceptable to the DGCA, conducting the type evaluation before it is started. The appraisal of this information will be based on the requirements of Subparts s555 and 515 (Normal Category Rotorcraft) of the Airworthiness Manual, and will clear the aircraft for flight test.

(c) The flight test program will encompass the performance and handling quality aspects of the design to ensure that the aircraft is safe and controllable in all regimes of flight including the case of power unit failure.

Structural Requirements
(a) *Maneuvering Loads.* The rotorcraft shall withstand the maximum loads which arise from the most severe movements of the controls which it is anticipated will occur during operational flight including the emergency condition after engine failure. The most adverse combinations of flight speed, rotor rotational speed and control movements shall be included. The values of limit load factors to be assumed for design purposes are:

(1) Limit Positive Factor: 3.5: and

(2) Limit Negative Factor: -1.0

(b) *Safety Factor*. The structure shall have an ultimate safety factor of 1.5 under the loads arising during balanced flight at all points on or within the flight envelope.
(c) *Structural Fatigue*. Due to the fluctuating loads and vibratory stresses inherent in rotorcraft, structural fatigue strength is a necessary consideration. The strength and fabrication of the rotorcraft shall be such as to ensure that the possibility of catastrophic fatigue failure of the primary structure under the action of the repeated loads of variable magnitude expected in service is extremely remote throughout its operational life.

(1) A list of parts of the primary structure which may be critical from the fatigue aspect shall be provided together with satisfactory substantiation of a demonstrated safe fatigue life, or that such part(s) or structure are fail-safe.

(2) In addition, vibrating stresses shall be kept low by attention to detail design, conceptual design, materials specified, freedom from stress concentrations and correct tolerances. Critical parts shall be easily inspected and the designer shall provide the constructor with a pre- and post-flight inspection procedure in the Flight and Maintenance Manuals.

(3) Operational limitations may be established until sufficient knowledge of the rotorcraft has been accumulated in order to establish that the rotorcraft will have safe qualities in service.

Flutter
(a) The designer's/kit manufacturer's structural testing, flight testing, and/or operational flight experience shall be reviewed to determined that it can be reasonably assured that:

(1) all rotor blades are free from any dangerous characteristics, including flutter and resonance; and

(2) the natural frequency of any parts of the rotorcraft which may be excited by rotor vibration (in particular the rotor mounting) is remote from the fundamental rotor frequency and its higher harmonics.

(b) In addition, the rotorcraft shall be:

(1) ground tested at rotor speeds up to 1.05 times the rotor never-exceed-RPM (taking into account any engine condition likely to be critical during power-on operation); and

(2) flight tested at speed up to 1.10 times the rotorcraft never-exceed speed (V_{NE}).

Mechanical Systems
(a) *Rotor Blade Clearance.* There shall be enough clearance between the rotor blades and other parts of the structure to prevent the blades from striking any parts of the structure during any operating condition.
(b) *Rotor Drive Systems.* The rotor drive system shall incorporate a free-wheel unit to automatically disengage the power unit from the main and auxiliary rotors in the event of power unit failure. Each rotor drive system shall be arranged so that each rotor necessary for control in autorotation will continue to be driven by the main rotor system after disengagement of the power unit. All universal joints, slip joints, and other shafting joints where lubrication is necessary for operation shall have provision for lubrication even in the event of power unit failure.
(c) *Clutch.* A clutch shall be incorporated between the free-wheel unit and the power unit transmission where it is deemed necessary to avoid dangerously high stresses in the rotor system whilst starting the power unit.
(d) *Fuel and Oil Systems.* The systems shall be designed and manufactured in accordance with accepted aircraft practice.

Cockpit Layout.
(a) *View.* The field of view shall be sufficiently extensive, clear and undistorted for safe operation of the rotorcraft in all regimes of flight.
(b) *Cockpit Controls*. Essential cockpit controls shall be conventional in layout and operation and compatible with current industry practice. All controls shall be easily reached and operable in all regimes of flight. There shall be minimal coupling between the longitudinal and other control planes. There shall be no overbalance of controls.

Rotorcraft Weight and Balance.
The designer shall prescribe longitudinal and lateral center-of-gravity (C.G.) limits. These limits shall not be impracticably small and any ballast requirements, if necessary, shall be clearly stated and placarded in the aircraft, according to section s555.215.

Limitations.
(a) The designer shall provide a flight envelope and this shall cover the limiting conditions, including the emergency conditions following engine failure, of flight speed and rotor rotational speed at which the rotorcraft will be permitted to fly at the design maximum weight.
(b) A range of main rotor speeds shall be established that -

(1) With power on, provides adequate margin to accommodate the variations in rotor speed occurring in any appropriate manoeuvre;

(2) With power off, allows each appropriate autorotative manoeuvre to be performed throughout the ranges of established airspeeds and weights; and,

(3) The maximum (never-exceed) rotor RPM does not exceed 95 percent of the maximum design RPM.

(c) Rotor pitch limits shall be set such that at the upper limit, unsafe low main rotor speeds are unlikely. At the lower pitch limit sufficient rotor speed shall be possible for any autorotative condition under the most critical combinations of weight and airspeed without the recourse to exceptional piloting skills being necessary to prevent overspeeding of the rotor.
(d) A maximum safe engine power limit shall be established.

10. Pilot Techniques.
Flight test pilot techniques shall conform as closely as possible to normal operating procedures so that they will be readily repeatable.

11. Handling Qualities
(a) *Controllability and Maneuverability*. The rotorcraft shall be safely controllable and maneuverable during steady flight and any maneuver expected in normal operations without undue pilot fatigue or strain.
(b) *Stability.* It shall be possible to maintain any required flight condition without exceptional pilot skill, fatigue or strain.
(c) *Transitions*. It shall be possible to make a smooth transition from any normal flight condition to any other normal flight condition without exceptional pilot skill, fatigue or strain. This includes the transition from powered to unpowered flight following a sudden complete power failure.
(d) *Autorotation*. The rotorcraft shall be controllable in autorotative flight so that survivable power off landings is possible following engine failure without requiring exceptional pilot skill. The designer shall alert the rotorcraft builder/operator to any flight conditions, which will preclude execution of a survivable landing in the event of a sudden complete power failure.
(e) *Trim.* It should be possible to reduce any steady longitudinal and lateral control forces to zero in level flight at any appropriate speed.

Advisory Material

LISTING OF AMATEUR-BUILT AIRCRAFT KITS

A revised listing of aircraft kits which have been evaluated and found eligible in meeting the "major portion" requirement of Transport Canada and FAA and are considered acceptable without further evaluation in Lebanon, is available at the DGCA Office. This listing is only representative of those kits where the kit manufacturer/distributor requested an evaluation by the Federal Aviation Administration (FAA) for eligibility and SHOULD NOT be construed as meaning the kit(s) are DGCA certified", "certificated", or "approved".

This listing and other related information may be viewed via the Internet on the FAA Regulatory Support Division home page @ **http://www.mmac.jccbi.gov/afs/afs600/ama_kit.html** .

Note: A listing of European Kits will also be made available as published.

Advisory Material

Information Note:

The purpose of the Checklist is to assist evaluate and record the amount of fabrication and assembly accomplished by the kit manufacturer, and the fabrication and assembly necessary for the builder to complete the aircraft.

The numbers derived from the "manufacturer" and "builder" columns on the checklist indicate the percentage of the aircraft fabricated and assembled by the manufacturer and the builder. To meet the requirements of Subpart555, the sum total in the builder's column must equal 40% of the manufacturer's.

It is not necessary that a major portion of the individual parts be fabricated by the builder. If there is some work; i.e., trimming, measuring, cutting, drilling, gluing, layup, etc., required to prepare the individual part for installation/assembly into the aircraft, and if this work is performed on a representative number of parts listed under each applicable section of the aircraft, the kit would be considered eligible, as long as fabrication and assembly make up the "major portion".

As used in this AM:

"fabricate" means to make or construct parts or assemblies from raw materials or other parts. This involves operations such as measuring, cutting, drilling, bending, welding, riveting, gluing, bonding, etc. It also involves operations such as soldering, crimping, swaging, "covering" and painting.

"assemble" means to fasten parts or assemblies together, using screws, bolts, nuts, or other mechanical fasteners.

Instruction for Completing Checklist

1. Enter the kit manufacturer's company name and address.
2. Enter model of kit by name and/or number.
3. List the latest date or revision date of kit parts list.
4. Enter type of aircraft (land, sea, fixed-wing, rotorcraft etc.).
5. Enter the date of the evaluation.
6. Review each operation for its applicability to the kit under evaluation.
7. Check the respective block under "accomplished by" (manufacturer, or builder).
8. Enter any operations not on list in blank spaces.
9. If the operation is not applicable to the kit construction enter "N/A" in the respective blocks.
10. Operations that are accomplished by other manufacturers or suppliers are to be checked in the kit manufacturer block.
11. Only special tools and fixtures, (i.e., jigs, templates, etc.) fabricated by the builder will be give credit. (No credit for hand tools).
12. When the evaluation is complete the total check marks are to be entered in the respective blocks on page 3 of the checklist.
13. Sign and date the checklist.

Instructions For Determining Totals To Complete An Amateur-Built Aircraft Kit, Using the Checklist.

a. For each item on the checklist that is accomplished by the manufacturer, a checkmark is entered under the "KIT MANUFACTURED" column. This should not include jigs, special fixtures, etc.
b. For each item that is fabricated or installed by the amateur-builder, a checkmark is entered under the "AMATEUR BUILDER" column. This can include jigs and fixtures that would be necessary for the amateur-builder to make in the fabrication of the aircraft or components thereof.
c. When this is completed for the aircraft the two columns are totaled and the percentage of checkmarks in the "AMATEUR BUILDER" column determined.

FABRICATION/ASSEMBLY OPERATION CHECKLIST		
Company Name Address Aircraft Model Parts List Date Type of Aircraft		
	Accomplished by	
	Kit Mfr	Builder
FUSELAGE		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Longitudinal Members, Cores or Shells		
3. Fabricate Bulkheads or Cross Members		
4. Assemble Fuselage Basic Structure		
5. Fabricate Brackets and Fittings		
6. Install Brackets and Fittings		
7. Fabricate Flight Control System Components		
8. Install Flight Control System Components		
9. Fabricate Cables, Wires and Lines		
10. Install Cables, Wires and Lines		
11. Fabricate Fuselage Covering or Skin		
12. Install Fuselage Covering or Skin		
13. Fabricate Windshield/Windows/Canopy		
14. Install Windshield/Windows/Canopy		
WINGS		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Wing Spars		
3. Fabricate Wing Ribs or Cores		
4. Fabricate Wing Leading and Trailing Edge		
5. Fabricate Drag/Anti-Drag Truss Members		
6. Fabricate Wing Brackets and Fittings		
7. Fabricate Wing Tips		
8. Assemble Basic Wing Structures		
9. Install Wing Leading/Trailing Edge and Tips		
10. Install Wing Ailerons		
11. Install Wing Drag/Anti-Drag Truss		
12. Fabricate Cables, Wires and Lines		
13. Install Cables, Wires and Lines		

14. Fabricate Flight Control System Components		
15. Install Flight Control System Components		
16. Fabricate Wing Covering or Skin		
17. Install Wing Covering or Skin		
18. Fabricate Wing Struts/Wires		
19. Install and Rig Wings and Struts		
20. Fabricate Wing Flaps and Spoilers		
21. Install Wing Flaps and Spoilers		
AILERONS		
1. Fabricate Aileron Spars		
2. Fabricate Aileron Ribs or Cores		
3. Fabricate Aileron Leading and Trailing Edge		
4. Fabricate Aileron Brackets and Fittings		
5. Assemble Basic Aileron Structures		
6. Install Aileron Leading/Trailing Edge and Tips		
7. Install Aileron Fittings		
8. Fabricate Aileron Covering or Skin		
9. Install Aileron Covering or Skin		
10. Install and Rig Wings and Struts		
EMPENNAGE		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Spars		
3. Fabricate Ribs or Cores		
4. Fabricate Leading and Trailing Edges		
5. Fabricate Tips		
6. Fabricate Brackets and Fittings		
7. Assemble Empennage Structure		
8. Install Leading/Trailing Edges and Tips		
9. Install Fittings		
10. Fabricate Cables, Wires and Lines		
11. Install Cables, Wires and Lines		
12. Fabricate Empennage Covering or Skin		
13. Install Empennage Covering or Skin		
14. Install and Rig Empennage		
CANARD		
1. Fabricate Canard		
2. Assemble Canard Structures		
3. Install and Rig Canard		
LANDING GEAR		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Struts		
3. Fabricate Brakes System		
4. Fabricate Retraction System		
5. Fabricate Cables, Wires and Lines		
6. Assemble Wheels, Brakes, Tires, Landing Gear		

7. Install Landing Gear System Components Above		
PROPULSION		
1. Fabricate Special Tools or Fixtures		
2. Fabricate Engine Mount		
3. Fabricate Engine Cooling System/Baffles		
4. Fabricate Induction System		
5. Fabricate Exhaust System		
6. Fabricate Engine Controls		
7. Fabricate Brackets and Fittings		
8. Fabricate Cables, Wires and Lines		
9. Assemble Engine		
10. Install Engine and Items Listed Above		
11. Fabricate Engine Cowling		
12. Install Engine Cowling		
13. Fabricate Propeller		
14. Install Propeller		
15. Fabricate Fuel Tank		
16. Install Fuel Tank		
17. Fabricate Fuel System Components		
18. Install Fuel System Components		
HELICOPTER MAIN ROTOR DRIVE SYSTEMS AND CONTROL MECHANISM(S)		
1. Fabricate Special Static and Dynamic Main Rotor Rigging Tools		
2. Fabricate/Assemble Main Rotor Drive Train		
3. Install Main Rotor Drive Train Assembly		
4. Fabricate/Assemble Main Rotor Shaft and Hub Assembly		
5. Install Main Rotor Shaft and Hub Assembly		
6. Align Main Rotor Shaft Drive Train, Shaft and Hub Assembly		
7. Fabricate Main Rotor Rotating Controls		
8. Install Main Rotor Rotating Controls		
9. Fabricate Main Rotor Non-Rotating Controls		
10. Rig Main Rotor Rotating and Non-Rotating Controls		
11. Fabricate Main Rotor Blades		
12. Install Main Rotor Blades on Rotor Hub		
13. Statically Balance and Rig Main Rotor System		
14. Dynamically Track and Balance Main Rotor System		
HELICOPTER TAIL ROTOR DRIVE SYSTEMS AND CONTROL MECHANISM(S)		
1. Fabricate Special Static Tail Rotor Rigging Tools		
2. Fabricate Vertical Trim Fin		
3. Install Vertical Trim Fin		
4. Fabricate Horizontal Trim Fin		
5. Install Horizontal Trim Fin		
6. Fabricate Tail Rotor Drive System		
7. Install Tail Rotor Drive System		
8. Fabricate Tail Cone or Frame		

9. Install Tail Cone or Frame		
10. Rig Vertical and Horizontal Fins		
11. Fabricate Tail Rotor Shaft and Hub Assembly		
12. Install Tail Rotor Shaft and Hub Assembly		
13. Fabricate Tail Rotor Rotating and Non-Rotating Controls		
14. Rig Tail Rotor Rotating and Non-Rotating Controls		
15. Fabricate/Assemble Tail Rotor Blades		
16. Install Tail Rotor Blades		
17. Statically Balance and Rig Tail Rotor System		
18. Dynamically Track and Balance Tail Rotor System		
COCKPIT/INTERIOR		
1. Fabricate Instrument Panel		
2. Install Instrument Panel and Instruments		
3. Fabricate Seats		
4. Install Seats		
5. Fabricate Electrical Wiring, Controls/Switches		
6. Install Electrical System Controls/Switches		
TOTALS		

Sample Letter To Applicant When Kit Is Determined To Be Eligible

Applicant's Name
Address
Dear Sir:

The Directorate General of Civil Aviation has completed evaluation of the (Aircraft Model) kit. We have determined that the kit, as evaluated at your facility on (date), and defined by parts list (date/revision) meets the intent of LAR Subpart 555. "The major portion of the aircraft (more than 40%) is fabricated from raw material and assembled by an individual or a group of individuals on a non-commercial, non-production basis for educational or recreational purposes".

This evaluation should not be construed to mean that the kit is "certified," "certificated", or "approved" and it is not appropriate to represent it as such. It may be represented as eligible for construction as an amateur-built aircraft under the provisions of LAR Subpart 555.

Copies of the kit parts list, identified by date and/or revision, shall be provided with kits supplied to customers. This will assist the builders in identifying the configuration of the kits for the final approval of the completed aircraft. Any changes to the configuration or contents of the kits and parts lists may affect the eligibility of the kits.

AIRWORTHINESS for Ultra-light Airplanes

POLICY DOCUMENT - October 21, 1999

Introduction
The implementation of the *Lebanese Aviation Regulations* (LARs) has resulted in the regulatory references, authorizations and exemptions found in this *Policy for Ultra-light Airplanes* being applicable.

Application
The information contained herein applies in respect of Ultra-light Airplanes.

Definition
Under subpart 101 of the LARs, Ultra-light Airplane is included as a subset of the ultra-light airplane category. For the purpose of this Policy, Ultra-light Airplanes will be those as described in the LARs and will refer to those aircraft that have the limited design criteria and are prohibited from carrying passengers.

Terminology

Where a term is not defined here, the definition found in the LARs will apply.

"Aerial work" means a commercial air service other than an air transport service or a flight training service;

"Airplane kit" means an airplane designed and manufactured, but not completely assembled, that is sold with instructions for assembly by a person other than the manufacturer

"Declaration of Compliance" (DOC) means a written submission to DGCA by the manufacturer of an advanced ultra-light airplane attesting that the *Type Definition* for a particular make and model of advanced ultra-light airplane complies with an acceptable design standards.

"Design Standards for Ultra-light Airplanes " means approved or accepted standards for the design of Ultra-light Airplanes that have been accepted by the DGCA;

"Fit For Flight Form" means a document that when signed by the old owner and the new owner provides acceptable evidence of the transfer of custody and control of an ultra-light airplane and on which the old owner declares and the new owner accepts that the airplane is fit for flight, there are no unapproved modifications on the airplane, all mandatory actions have been completed and there are no outstanding maintenance actions as required by the *Manufacturer Specified Maintenance Program.*

"Flight authority" means a certificate of airworthiness, special certificate of airworthiness, flight permit or validation of a foreign document attesting to an aircraft's fitness for flight, issued under Subpart 525 of the LARs, or a foreign certificate of airworthiness that meets the requirements of Article 31 of the ICAO Convention on Civil Aviation;

"Listing of Approved Ultra-light Airplanes" means a DGCA list of airplanes for which a Document of Compliance has been provided by an aircraft manufacturer that attests that the airplane *Type Definition* for a specific Ultra-light Airplane model meets an approved or accepted Design Standards for Ultra-light Airplanes or equivalent and a Manufacturer *Specified Maintenance Program* has been provided.

"Maximum take-off weight" means the total weight, resting on the surface of the earth or water, at the moment the airplane moves for the purpose of take-off and includes, pilot, passenger, fuel, all installed equipment and appliances and, if installed, floats and a ballistic recovery system;

"Mandatory Action" means an action taken with respect to an Advanced Ultra-light Airplane, which, in the opinion of the manufacturer or DGCA, if not taken, would result in an unsafe or potentially unsafe condition.

"Manufacturer" means a person or company that designs, builds or supplies:

(a) ultra-light Airplanes in the form of completed aircraft;
(b) partially completed kits that require final assembly by someone other than the aircraft manufacturer; or
(c) parts for installation on ultra-light airplanes.

"Modification" means any deviation from the original ultra-light airplane design specification that was submitted to the DGCA.

"Statement of Conformity" (SOC) means a document upon which a Manufacturer attests that a specific airplane manufactured and test flown by the manufacturer, or a specific airplane kit manufactured, sold, and assembled by a person other than the manufacturer, conforms to the Manufacturer's *Type Definition* as stated in the *Declaration of Compliance* for that airplane.

"Type Definition" means the Manufacturer's technical specifications, drawings, calculations, assembly instructions and other documented material for a particular model of Advanced Ultra-light Airplane. This information must be kept by the manufacturer and be made available to the DGCA upon request.

Basic Ultra-light Airplanes

BU.01 Definition

A basic ultra-light airplane shall be defined as either:

(1) a single-seat ultra-light airplane pursuant to Subpart 101, Part 1 of the *Lebanese Aviation Regulations;*

(2) A two seat instructional ultra-light airplanes pursuant to Subpart 101, Part 1 of the *Lebanese Aviation Regulations;* or

(3) an airplane having no more than two seats, designed and manufactured to have a maximum take-off weight of 544 kilograms and a stall speed in the landing configuration (Vso) of 39 knots (45 mph) or less indicated airspeed at the maximum take-off weight .

(a) For the purpose of calculation of wing area with respect of option (a) or (b), where an ultra-light airplane has a canard configuration, the canard surface may be credited as wing area provided that the center of gravity range lies between the mean quarter chords of the lifting surfaces. The maximum allowable contribution is the plan-area of the canard; i.e., the actual surface area multiplied by the cosine of the dihedral angle plus the fuselage area between the canard surfaces.

(b) Some ultra-light airplane kits have a specified maximum take-off weight less than the ones specified above. Owners of these aircraft are strongly encouraged to adhere to the manufacturer's design, assembly and maintenance specifications.

(c) If registering a basic ultra-light airplane under option (c) the following minimum useful load (Mu or Wu) calculation shall be carried out:

For a single place airplane

Mu = 80 + 0.3P, in kg; where P is the rated engine power in kilowatts

(Wu) = 175 + 0.5P, in lb.; where P is the rated engine power in Brake Horse Power

or

For a two place airplane

Mu = 160 + 0.3P, in kg; where P is the rated engine power in kilowatts

(Wu) = 350 + 0.5P, in lb. ; where P is the rated engine power in Brake Horse Power

BU.02 Owner Registration

(1) Basic Ultra-light Airplanes must be registered in Lebanon but are not issued with a flight authority document.

(2) To become the registered owner the applicant must meet the registration requirements found in Part II, 200 and 202 *of the Lebanese Aviation Regulations*.

BU.03 Basic Ultra-light Airplane Manufacturer/Owner Responsibility

(1) Basic Ultra-light Airplanes may be built from an original design, purchased as a kit from an ultra-light airplane kit manufacturer or be a combination of these two possibilities. Regardless of how or where the aircraft is constructed or assembled, the responsibility to meet the design specifications and maintain the aircraft for continued safe flight rests solely with the owner of the aircraft. If the aircraft registered as an ultra-light airplane is modified so as it is no longer an ultra-light airplane the certificate of registration is cancelled.

(2) Although the manufacturer of a Basic Ultra-light Airplane is not required to meet any criteria with respect to standards of materials, workmanship or the continuing “fit for flight” status of their product, it is strongly recommended that, in the interest of safety, Basic Ultra-light Airplane manufacturers use “aviation accepted” design criteria, materials and practices.

(3) Prospective purchasers of Basic Ultra-light Airplane kits should be aware that kit manufacturers and part suppliers are bound by no legal requirements under the Civil Aviation "Safety Act". It is strongly recommended that owners and prospective owners of Basic Ultra-light Airplanes avail themselves of the information and services provided by the recreational aviation industry, schools and the ultra-light aviation community.
An ultra-light airplane MAY NOT be used for commercial aviation operation or aerial work.

BU.04 Operations outside Lebanon

Contracting states of ICAO have agreed to honor each other's flight authorities so long as those flight authorities are based on internationally accepted and recognized standards. When this happens, a document called a Certificate of Airworthiness is issued in accordance with Article 31 of the ICAO Convention on Civil Aviation. Ultra-light airplanes in Lebanon are not issued with such a Certificate of Airworthiness. In fact, ultra-light airplanes operate in Lebanon without any flight authority document.

Without this document, approval for flight in countries other than Lebanon may be difficult. Contact the appropriate foreign regulatory authority to request approval for flight into another country.

BU.05 Importing a Basic Ultra-light Airplane

Other countries do not regulate ultra-light airplanes in the same manner as they are regulated in Lebanon. As such, if you plan to purchase a basic ultra-light airplane from a manufacturer or owner outside of Lebanon you are encouraged to contact the DGCA Office to ensure that you are aware of all the administrative requirements before you make a financial commitment.

Advanced Ultra-light Airplanes

AU.01 Definition

An "advanced ultra-light airplane" means an airplane that has a type design that is in compliance with acceptable standards as specified in this section.

AU.02 Registration - Manufacturer
(1) DGCA maintains a *Listing of Approved Advanced Ultra-light Airplanes.* Each model of advanced ultra-light airplane that a manufacturer markets must appear on this list before the owner can register the aircraft as an advanced ultra-light airplane.

(2) For an Advanced Ultra-light Airplane to be added to this list the following information must be supplied to the DGCA:

(a) *Declaration of Compliance* (DOC); and

(b) Copy of the *Manufacturer Specified Maintenance Program.*

(c) A copy of the DOC document is found in Appendix "A" of this strategy.

(d) The purchase of "plans only" to construct and assemble an advanced ultra-light airplane is not permitted. There is no means of assuring quality control on the parts or materials used for construction. Building an aircraft in this manner falls under Subpart 555, Standard 555 for Amateur-Built Aircraft.

AU.03 Registration - Owner
(1) To become the registered owner the applicant must meet the registration requirements found in subparts 200 - 202 of Part II of the *Lebanese Aviation Regulations*.

(2) The initial registration of an advanced ultra-light airplane requires the applicant to submit the following documents:

(a) Evidence of custody and control of the airplane such as a bill of sale; lease agreement or other acceptable document in accordance with Part II of the LAR's;

(b) A completed *Application for Registration*

(c) A *Statement of Conformity* (SOC). *A copy of an SOC is found in Appendix "B"*

(d) The registration marks that will be issued to an advanced ultra-light airplane will begin with "_____??".

AU.04 Manufacturer Responsibility

(1) Where a person manufactures an advanced ultra-light airplane, that manufacturer shall ensure that their final product conforms to the following DGCA accepted *Type Definition Design Standard*s

(a) Design Standards for Advance Ultra-light Airplanes;
or
(b) An Equivalent Standard

(2) Where an advanced ultra-light airplane is manufactured as a complete airplane and is test flown by the manufacturer, the manufacturer shall provide the purchaser with a *Statement of Conformity* (SOC) that certifies that the specific airplane conforms to the airplane *Type Definition*.

(3) Where an advanced ultra-light airplane kit is sold and assembled by a person other than the manufacturer, the manufacturer shall provide the owner with a SOC.

(4) The manufacturer of an advanced ultra-light airplane is responsible for the "after market" support for the continuing "fit for flight" condition of their airplanes. The manufacturer of an advanced ultra-light airplane shall prepare and provide to all owners of the their airplanes the following information:

(a) a specified maintenance program that includes the inspection schedule and the maintenance procedures to maintain the airplane in a "fit for flight" condition; and
(b) *Mandatory Action* information issued by the manufacturer or the DGCA and corrective procedures for potential unsafe flight conditions.

AU.05 Owner Responsibility

(1) The owner of an advanced ultra-light airplane shall maintain the airplane in a "fit for flight" condition by adhering to the *Manufacturer Specified Maintenance Program*.
(2) The owner of an advanced ultra-light airplane shall complete manufacturer's *Mandatory Actions* in accordance with the manufacturer's instructions and time frame.
(3) The owner of an advanced ultra-light airplane shall maintain appropriate records for the airplane, which must include scheduled maintenance, mandatory action, modifications, and accident repairs.

AU.06 Operating Limitations

(1) Advanced Ultra-light Airplanes operate under the same regulations as basic ultra-light airplanes except that a passenger may be carried if the pilot holds a license/permit-providing passenger carrying privileges and the advanced ultra-light airplane meets the following conditions:

(a) The aircraft is registered as an Advanced Ultra-light Airplane;
(b) The Advanced Ultra-light Airplane is maintained in accordance with the *Manufacturer Specified Maintenance Program*;
(c) The owner of the Advanced Ultra-light Airplane has complied with any *Mandatory Actions* specified by the manufacturer;
(c) The Advanced Ultra-light Airplane has not been modified without written approval from the manufacturer; and

(c) A placard is installed in a location highly visible to the both occupants of the aircraft containing the following information:

THIS AIRCRAFT IS AN ADVANCED ULTRA-LIGHT AEROPLANE AND IS OPERATING *WITHOUT* A CERTIFICATE OFAIRWORTHINESS.

(2) Failure to comply with these conditions will cause the airplane, where it meets basic Ultra-Light requirements, to revert to the basic Ultra-Light airplane category prohibiting the carriage of a passenger. Where the airplane does not meet the requirements of the basic Ultra-light category, the certificate of registration is cancelled in accordance with LAR 202.29.

AU.08 Operations outside Lebanon

Contracting states of ICAO have agreed to honor each other's flight authorities so long as those flight authorities are based on internationally accepted and recognized standards. When this happens, a document called a Certificate of Airworthiness is issued in accordance with Article 31 of the ICAO Convention on Civil Aviation. Ultra-light airplanes in Lebanon are not issued with such a Certificate of Airworthiness. In fact, ultra-light airplanes operate in Lebanon without any flight authority document.

Without this document approval for flight in countries other than Lebanon may be difficult. Contact the appropriate foreign regulatory authority to request approval for flight into another country.

AU.09 Importing an Advanced Ultra-light Airplane

Regulatory requirements are unique to each country. As such, if you plan to purchase an advanced ultra-light airplane from a manufacturer or owner outside of Lebanon you are encouraged to contact the DGCA Office to ensure that you are aware of all the administrative requirements before you make a financial commitment.

Appendix A

DECLARATION OF COMPLIANCE

ADVANCED ULTRA-LIGHT AEROPLANE

Airplane

Make: _____

Model: _____

Manufacturer

Name: _____

Address: _____

_____

_____

I hereby declare that the Type Definition for the advanced ultra-light airplane herein described is in compliance with the applicable Design Standards for Advanced Ultra-light Airplanes_____.

The Type Definition is in my possession and is available for inspection or retention by the DGCA.

I understand and agree that by signing this declaration I am responsible for ensuring that the Type Definition of this airplane model continues to comply with the Design Standards for Advanced Ultra-light Airplanes as long as it appears on the DGCA Listing of Accepted Advanced Ultra-light Airplanes.

_____ _____

Signature of Manufacturer **Date**

Appendix B

STATEMENT OF CONFORMITY

ADVANCED ULTRA-LIGHT AEROPLANE

Airplane

Make: _____ **Manufacturer:**_____

Model: _____ **Address:** _____

Serial No.: _____ _____

_____

Manufacturer's Statement:

The assembled Advanced Ultra-light Airplane described herein conforms to the Type Definition as declared in the Declaration of Compliance for the airplane type and model and has been found to conform to the Design Standards for (Advanced Ultra-light Airplanes.) and is fit for flight.

_____ _____

Signature of Manufacturer **Date**

Transfer of Ownership Appendix C

FIT FOR FLIGHT FORM

ULTRA-LIGHT AEROPLANE

Airplane

Registration:_____

Make: _____

Model: _____

Serial No.: _____

Manufacturer: _____

I certify that the custody and control of the Ultra-light Airplane described herein has been transferred to _____*(name of new owner).*

The airplane has been maintained in accordance with the Manufacturer Specified Maintenance Program, all mandatory actions have been completed, and no modifications have been made to the airplane without the written approval of the manufacturer.

_____ _____
Signature of Registered Owner **Date**

I hereby accept the custody and control of the Ultra-light Airplane described herein and have inspected the airplane and have found the airplane to be as described by the registered owner and is fit for flight.

_____ _____
Signature of New Owner **Date**

Appendix D

Advisory Material

LISTING OF ACCEPTED ULTRA-LIGHT AIRPLANES

A revised listing of Ultra-light Airplane kits which have been evaluated and found eligible in meeting the "Ultra-Light and Advance Ultra-Light Airplanes Policy " requirement of Transport Canada and, that are considered acceptable without further evaluation in Lebanon, is available at the DGCA Airworthiness Office. This listing is only representative of those kits where the kit manufacturer/distributor requested an evaluation by Transport Canada for eligibility and SHOULD NOT be construed as meaning the kit(s) are DGCA certified", "certificated", or "approved".
The listing and other related information may be viewed via the Internet on the TransportCanada Regulatory Support Division home page @ **http://www.tc.gc.ca**.

Design Standards for Advance Ultra-Light Airplanes

PREAMBLE

These standards have been accepted by DGCA for the design of Advanced Ultra-light Aeroplanes.

Format

To make this publication user-friendly, the content has been reorganized to parallel the presentation of subject material of Part 23 of the Federal Aviation Regulations of the United States of America and Joint Aviation Authorities, JAR- VLA.

ABBREVIATIONS AND DEFINITIONS

The abbreviations and definitions presented here are for use with this section.

AR = aspect ratio
b = wing span m (ft.)
c = chord m (ft.)
CAS = calibrated air speed
C_L = lift coefficient
C_D = drag coefficient
CG = centre of gravity
Cm = moment coefficient (Cm is with respect to C/4 point, positive = nose up)
Cn = normal coefficient
daN = decaNewton
deg. = degrees = 2 x 3.1416/360 = .0174 radian = 1 = 1/57.3 per radian
g = acceleration due to gravity = 9.81 m/s^2 (32.2 ft/s^2)
IAS = indicated air speed
MAC = Mean Aerodynamic Chord
M(W) = gross (maximum design) mass (weight) kgs (lbs)
m(w) = average design surface load kgs/m^2 (PSF)
n = load factor
q =
S = wing area in square meters (square ft.)
V_A = design manoeuvring speed
V_C = design cruising speed
V_D = design diving speed
V_F = design flap speed
V_H = maximum speed in level flight with maximum continuous power
V_{NE} = never-exceed speed
V_S = stalling speed or minimum steady flight speed at which the aeroplane is controllable
V_{S0} = stalling speed or minimum steady flight speed in the landing configuration
V_{SP} = maximum spoiler/speed brake extended speed
V_{S1} = stalling speed or minimum steady flight speed obtained in a specific configuration
V_X = speed for best angle of climb
V_Y = speed for best rate of climb

Chapter A - General

Applicability

(a) This publication contains standards for the design of Advanced Ultra-Light Aeroplanes.

(b) Each person who manufactures an aeroplane or aeroplane kit for subsequent registration in the advanced ultra-light category shall demonstrate compliance with the applicable requirements of this section.

Advanced Ultra-Light Aeroplane Category

An Advanced Ultra-Light Aeroplane is an aeroplane which:

(a) Is propeller driven;

(b) Is designed to carry a maximum of two persons, including the pilot;

(c) Has a maximum take-off mass, M_{TOmax}, (weight, W_{TOmax}) of:

(1) in the case of a landplane,

(i)285.0 Kg (628.3 lb) for a single place aeroplane, or

(ii)480.0 Kg (1058.2 lb) for a two place aeroplane; or

(2) in the case of a seaplane, an additional mass (weight) allowance of:

(i)35 Kg (77.2 lb) for a single place aeroplane, or

(ii)70 Kg (154.4 lb) for a two place aeroplane; and

(d) A maximum stalling speed in the landing configuration, V_{SO}, at manufacturer's recommended maximum take-off mass (weight) not exceeding 72 km/h (45 mph) (IAS); and

(e)Is limited to non-aerobatic operations. Non-aerobatic operations include:

(1) Manoeuvres incident to normal flying;

(2) stalls and spins (if approved for type);

(3) lazy eights, chandelles; and

(4) steep turns, in which the angle of bank is not more than 60□.

Minimum Useful Load

Advanced ultra-light aeroplanes shall have a Minimum Useful Load, M_U (W_U) computed as follows:

(a) For a single place aeroplane:

$M_U = 80 + 0.3P$, in kg; where P is the rated engine(s) power in kw;

($W_U = 175 + 0.5P$, in lb; where P is the rated engine(s) power in BHP).

(b)For a two place aeroplane:

$M_U = 160 + 0.3P$, in kg; where P is the rated engine(s) power in kw;

($W_U = 350 + 0.5P$, in lb; where P is the rated engine(s) power in BHP).

Maximum Empty Mass (Weight)

The Maximum Empty Mass, M_{Emax}, (Weight, W_{Emax}) includes all operational equipment that is actually installed in the aeroplane. It includes the mass (weight) of the airframe, powerplant, required equipment, optional and specific equipment, fixed ballast, full engine coolant, hydraulic fluid, and the residual fuel and oil.

Hence, the maximum empty mass (weight) = maximum take-off mass (weight) - minimum useful load.

Chapter B - Flight

Proof of Compliance

Each of the following requirements shall be met at the most critical mass (weight) and CG configuration. Unless otherwise specified, the speed range from stall to V_{NE} shall be considered.

Load Distribution Limits

(a) Using comprehensive references, the following shall be determined:

(1) the maximum empty mass (weight) and maximum take-off mass (weight) as defined in section 5. and 7., and a minimum flying weight; and

(2) the empty CG, most forward and most rearward CG.

Note: Standard occupant mass (weight) = 80 kg (175 lbs);
Fuel density = .72 kg/1 (6 lb/US gal.)

(b) Fixed and/or removable ballast may be used if properly installed and placarded.

Propeller Speed and Pitch Limits

Propeller speed (RPM) and pitch shall not be allowed to exceed safe operating limits established by the manufacturer under normal conditions (i.e. maximum take-off RPM during take-off and 110% of maximum continuous RPM at closed throttle and V_{NE}).

Performance, General

All performance requirements apply in standard ICAO atmosphere and still air conditions. Speeds shall be given in indicated (IAS) and calibrated (CAS) airspeeds.

Stalling Speeds

(a) Wing level stalling speeds shall be determined by flight test at a rate of speed decrease of 1.6 km/h/sec (1 mph/sec) or less, throttle closed, with maximum weight, and most unfavourable CG:

(1) V_{S0}: shall not exceed 72 km/h (45mph)
(2) V_{S1}: flaps retracted, shall not exceed 96.5 km/h (60 mph).

(b) Level wing attitude and yaw control shall be possible down to V_{S0} or the speed at which the pitch control reaches the control stop.

Take-off

With take-off at the maximum weight, full throttle, sea level, the following shall be measured:

(a) Ground roll distance; and,

(b)Distance to clear a 15.2 m (50 ft.) obstacle at 1.3 V_{S1}.

Note: The aeroplane configuration, including flap position, shall be specified.

Climb: All Engines Operating

With climb out at full throttle:

(a) Best rate of climb (V_Y) shall exceed 93 m (300 ft) per minute; and,

(b) Best angle of climb (V_X) shall exceed 1/12.

Landing

For landing with throttle closed and flaps extended, the following shall be determined:

(a) Landing distance from 15.2 m (50 ft.) 1.3 V_{S0}; and

(b) Ground roll distance with reasonable braking if so equipped.

Balked Landing

For a balked landing at 1.3 V_{S0} and flaps extended, the full throttle angle of climb shall exceed 1/30.

Controllability and Manoeuvrability

(a) The aeroplane shall be safely controllable and manoeuvrable during take-off, climb, level flight (cruise), dive, approach and landing (power off and on, flaps retracted and extended) with the primary controls and following displacements: pull for nose up, push right for right wing down, push right rudder pedal for nose to the right.

(b) Smooth transition between all flight conditions shall be possible without excessive pilot skills nor exceeding pilot force as shown in Figure 1.

Values in decaNewtons (pounds) of force as applied to the control wheel or rudder pedals	Pitch daN (lb)	Roll daN (lb)	Yaw daN (lb)
(1) For temporary application:			
Stick	26.7 (60)	13.3 (30)	.....
Wheel (applied to rim)....	26.7 (60)	13.3 (30)	.....
Rudder pedal	.....	.....	59.2(130)
(2) For prolonged application:	4.4 (10)	2.2 (5)	8.9 (20)

(c) It shall be possible to trim the aeroplane at least for level cruise at an average weight and CG.

Longitudinal Control

Longitudinal control shall allow:

(a) Speed increase from 1.1 V_{S1} to 1.5 V_{S1} and from 1.1 V_{SO} to V_F in less than 3 seconds. This applies for both power-off and full power conditions.

(b) Full control to be maintained when retracting and extending the flaps in the normal speed range; and

(c) Stick forces per 'g' to steadily increase.

Directional and Lateral Control

(a) Reversing the roll from 30 degrees one wing low over to 30 degrees the other wing low shall be possible within 4 seconds at 1.3 V_{S0} (flaps extended and throttle idle) and at 1.2 V_{S1} (flaps retracted, throttle idle and full).

(b) Rapid entry and recovery into/from yaw and roll shall not result in uncontrollable flight characteristics.

(c) Aileron and rudder forces shall not reverse with increased deflection.

Static Longitudinal Stability
Longitudinal stability shall be positive from 1.2 V_{S1} to V_{NE} at the most critical power setting and CG combination.

Static Directional and Lateral Stability

(a) Directional and lateral stability and take-off and climb performance tests shall be performed to ensure the aeroplane complies with the requirements of this publication.

(b) Directional and lateral stability is considered acceptable when the spiral stability of the aeroplane is neutral within the range specified in section 173.

Dynamic Stability
Any short period oscillation shall be rapidly dampened with the controls free and the controls fixed.

Wings Level Stall
It shall be possible to prevent more than 15 degrees of roll or yaw by normal use of the controls.

Turning Flight and Accelerated Stalls
Stalls shall also be performed with power. After establishing a 30 degree co-ordinated turn, the turn shall be tightened until the stall. After the turning stall, level flight shall be regained without exceeding 60 degrees of roll. These stalls shall be performed with power on, flaps retracted and flaps extended. No excessive loss of altitude, nor spin tendency, nor speed build up shall be associated with the recovery.

Directional Stability and Control
(a) Steering: Pushing the right rudder pedal shall cause a turn to the right.

(b) Ground handling shall not require special skills. No uncontrollable ground looping tendency shall arise from 90 degrees of cross wind up to the maximum wind velocity selected by the applicant.

Chapter C - Structure

Loads

(a) All requirements are specified in terms of limit loads.

(b) Ultimate loads are limit loads multiplied by the factor of safety of section 303.

(c) Loads shall be redistributed if the deformations affect them significantly.

Factor of Safety

(a) The factor of safety is 1.5, except that it shall be increased to:

(1) 2.0 x 1.5 = 3. on castings;
(2) 1.2 x 1.5 = 1.8 on fittings;
(3) 4.45 x 1.5 = 6.67 on control surface hinges;
(4) 2.2 x 1.5 = 3.3 on push-pull control systems; and
(5) 1.33 x 1.5 = 2. on cable control systems.

(b)The structure shall be designed as far as practicable, to avoid points of stress concentration where variable stresses above the fatigue limit are likely to occur in normal service.

Strength and Deformation

(a)Limit loads shall not create permanent deformations nor large enough deformations which may interfere with safe operation.

(b)The structure shall be able to support ultimate loads with a positive margin of safety (analysis), or without failure for at least three seconds (static tests).

Proof of Structure

Each critical load requirement shall be investigated either by conservative analysis or tests or a combination of both.

Flight Loads

(a) JAR -VLA shall be used to determine the flight loads, except as noted in paragraphs 321.(b) and (c).

(b)Other design criteria may be used to determine the flight loads if their interpretation gives a level of safety equal to or exceeding Chapter 523 of the Airworthiness Manual.

(c)For conventional designs, the simplified criteria of sections 333. to 361. may be used if they do not result in smaller load factors than the gust load factors of paragraph 321.(a), or in unrealistic values and the design falls within the limitations of Figure 2.

Flight Envelope

For conventional designs referred to in paragraph 321.(c), compliance shall be shown at the combinations of airspeed and load factor on the boundaries of the flight envelopes at Figure 3 as specified in section 339. The flight envelope represents the envelope of the flight loading conditions specified by the criteria of sections 335. and 337.

Design Airspeeds (in mph)

(1) Design Stall Speed:

$$V_S = 19.77 \, x \sqrt{\frac{W}{S \, x \, C_{Lmax}}}$$

(The following values may be used: $C_{Lmax} = 1.35$ and $C_{Lmin} = -0.68$)

(2) Design Manoeuvring Speed:

$$V_A = 19.77 \, x \sqrt{\frac{n \, x \, W}{S \, x \, C_{Lmax}}} = 2 \, x \, V_S$$

(3) Design Dive Speed, V_D is the greater of the following:

$$V_D = 1.5 \text{ x } V_A = 3 \text{ x } V_S, \text{ or}$$

$$V_D = 1.22 \, V_H$$

(4) Never Exceed Speed:

V_{NE} shall be less than 0.9 x V_D, and more than 1.1 V_H

(5) Flap Extended Speed

$$V_F = 19.77 \, x \sqrt{\frac{W}{S \, x \, C_{L \text{ max } flap}}}$$

V_F shall be more than $\sqrt{2} \, x \, V_S = 1.42 \, x \, V_S$ 4

Limit Load Factors

The limit load factors shall be:

(a) Positive: n = 4 (flaps retracted) and n = 2 (flaps extended); and

(b) Negative: n = -2 (flaps retracted) and n = 0 (flaps extended).

Symmetrical Wing Loads
As a minimum, the following three conditions need investigation:

(a) Point A	normal load up	= 4 x W
	tangential forward	= W
(b) Point G	normal down	= -2 x W
	tangential forward	= -2 x W/5
(c) Point F	with flaps extended:	
	normal up	= 2 x W
	tangential forward	= W

Note: (1) Both components (normal and tangential) must be considered simultaneously.

(2) The aerodynamic loads shall be considered to be located at the aerodynamic centre.

(3) The wing normal and tangential loads given by the assumptions of Figure 4 are balanced by the inertia loads (corresponding load factors).

(4) If wing flaps are installed, the resulting loads shall also be investigated at point F of figure 3. This a symmetrical load condition.

Unsymmetrical Wing Loads

(a) Shear, Wing carry-through: Assume 100% of Point A on one wing, and apply 75% of Point A on the other wing.

(b)Torsion, Wing: Assume 75% of Point A or D on each wing and add the torsional loads due to the aileron deflection.

Note: (1) Some wing structures may need checking for torsion at V_D. In this case, 1/3 of the aileron deflection shall be used.

(2)If the landing gear is attached to the wing, the wing structure shall be justified for the ground loads as well.

Rear Fuselage Loads
The rear fuselage shall be substantiated for:

(a) The symmetrical horizontal tail load of Appendix A, paragraph A.1;
(b) The unsymmetrical horizontal tail loads of Appendix, A paragraph A.2;
(c) The vertical tail loads of Appendix A, paragraph A.3; and
(d) The tailwheel loads of Appendix B and sections 485. through 499.

Forward Fuselage Loads

The forward fuselage shall be substantiated for each of the following conditions:

(a) Inertia forces of n = 4 and n = -2
(see also "Ground Loads" if n_j of section 473. is larger than 3.33) and:

(b) Engine torque in N x m (1bs x inches) equal to :

$$K \times 19070 \times \frac{kW_{take\text{-}off}}{tr/\min_{take\text{-}off}} \quad \left(K \times 125850 \times \frac{BHP_{take\text{-}off}}{tr/\min_{take\text{-}off}} \right)$$

Where:

(1) For 4-stroke engines: K = 8, 4, 3, 2, with 1, 2, 3 and 4 cylinder engines respectively; or

(2) For 2-stroke engines:

(i) K = 2 for engines with three or more cylinders; or

(ii) K = 3 or 6, for engines with two or one cylinder respectively.

(c) An independent side load on the engine
(n lateral = + or - 1.5); and

(d) Nose wheel loads, if applicable.

Control Surface Loads

(a) Control surface load conventions shall be:
(1) + = up
(2) - = down

(b) The control surface loads specified in Appendix A shall be used.

Ground Gust Conditions

(a) All control surfaces and the wing shall be designed for a reverse airflow, V_R, as follows:

$$V_R = 0.645 \times \sqrt{\frac{Mg}{S}} + 4.47 \quad m/s \quad \left(= 10 \times (1 + \sqrt{\frac{W}{S}}) \quad mph \right)$$

(b) C_L (surface) = -.8 and a triangular chordwise pressure distribution with the peak at the trailing edge shall be used.

Control System and Supporting Structure

(a) The control system and supporting structures shall be designed for at least 125% hinge moments resulting from the surface load from section 391. and 415. but need not exceed the loads from the following pilot forces:

(1) at the grip of the stick:
(i) 445 N (100 lbs) in pitch
(ii) 178 N (40 lbs) in roll limit loads: and

(2) at the rudder pedals:
578 N (130 lbs) in yaw.

(b) When dual controls are installed, the relevant system shall be designed for the pilots operating in opposition.

(c) Control surface mass balance weights shall be designed for:

(1) 24 'g' ultimate normal to the surface; and
(2) 12 'g' ultimate fore and aft and parallel to the hinge line.

(d) Right and left flaps shall be synchronized for symmetrical operation.

(e) All primary controls shall have stops within the system to withstand the greater of pilot force, 125% surface loads, or ground gust loads.

(f) The secondary controls shall be designed for the maximum forces a pilot is likely to apply in normal operation.

Ground Load Conditions

(a) The basic landing conditions in Appendix B of this publication.

(b) For advanced ultra-light aeroplanes the basic landing conditions of Appendix B of this publication are simplified as follows:

L = ratio of the assumed wing lift to the aeroplane weight = 2/3;
K = 0.25;
n = n_j + .67, load factor; and,
n_j = load factor on wheels, as defined in para (c) of this section.

(c) The load factor on the wheels, n_j, may be computed as follows:

$$n_j = \frac{h + d/3}{ef \times d}$$

where:

h = drop height cm (in) =

$$1.32 \times \sqrt{\frac{Mg}{s}} \ (cm) \quad \left(= 3.6 \times \sqrt{\frac{P}{S}} \ (inches) \right)$$

d = total shock absorber travel cm (inches) =
= d(tire) + d(shock);

ef = shock efficiency;

ef x d= 0.5 x d for tire and rubber or spring shocks; or
= 0.5 x d (tire) + 0.65 x d (shock) for hydraulic shock absorbers.

If n_j is larger than 3.33, all concentrated masses (engine, fuel tanks, occupant seats, ballast, etc...) must be substantiated for a limit landing load factor of n_j+0.67 = n which is greater than 4.

Note: The ultimate landing loads are the limit loads specified in this publication multiplied by the usual safety factor of 1.5.

Side Load Conditions
Side load conditions on main wheels (level attitude) are given by the following:

Braked Roll Conditions
Braked roll conditions on main wheels (level attitude) are given by the following:

Supplementary Conditions for Tail Wheel
Tail wheel conditions (tail down attitude) are given by the following:

Supplementary Conditions for Nose Wheel
Supplementary conditions for nose wheel (static attitude) are given by the following (static load is maximum for weight and CG combination):
Note: Shock absorbers and tires in static position.

Water Load Conditions
The structure of seaplanes and amphibians must be designed for water loads developed during take-off and landing with the aeroplane in any attitude likely to occur in normal operations at appropriate forward and sinking velocities under the most severe sea conditions likely to be encountered.

Emergency Landing Conditions

The structure must be designed to protect each occupant during emergency landing conditions when occupants (through seat belts and/or harnesses) as well as any concentrated weight (such as engine, baggage, fuel, ballast etc.) at the rear of the occupants, experience the static inertia loads corresponding to the following ultimate load factors (these are three independent conditions):

(1) 3 'g' up;

(2) 9 'g' forward; and

(3) 1.5 'g' sidewards.

Tie-down Points

Tie-down points shall be designed for the maximum wind at which the aeroplane may be tied down in the open. If reasonable, VR as defined in section 393. may be used.

Chapter D - Design and Construction

General
The integrity of any novel or unusual design feature having an important bearing on safety, shall be established by test.

Materials and Workmanship
Materials shall be suitable and durable for the intended use and design values (strength) must be chosen so that the probability of any structure being understrength because of material variations is extremely remote.

Fabrication Methods

(a) Workmanship of manufactured parts, assemblies, and aircraft shall be of high standards.

(b) Methods of fabrication shall produce consistently sound structures.

(c) Process specification shall be followed where required.

Self-Locking Nuts
No self-locking nut shall be used on any bolt subject to rotation in operation unless a non-friction locking device is used in addition to the self-locking device.

Protection of Structure
Protection of the structure against weathering, corrosion, and abrasion, as well as suitable ventilation and drainage shall be provided.

Accessibility
Accessibility for principal structural and control system inspection, adjustment, maintenance, and repair shall be provided.

Flutter
No part of the aeroplane shall show heavy buffeting, excessive vibration, flutter (with proper attempts to induce it), nor control reversal nor divergence, in the complete speed range up to 1.1 V_{NE}. *(Note: refer to FAA Advisory Circular 23.629-1A - Means of Compliance with section 23.629, Flutter).*

Proof of Strength - Wings
The strength of wings shall be investigated by conservative analysis, or tests, or a combination of both. Structural analysis alone may be used only if the structure conforms to those for which experience has shown this method to be reliable.

Control System - Operation Test
It must be shown by functional test that the control system is free from jamming, excessive friction, and excessive deflection when the pilot forces are applied from the cockpit.

Pilot Compartment
Pilot comfort, good visibility (instruments, placards and outside), accessibility, exit (fire), and ability to reach all controls for smooth and positive operation as well as pilot protection as far as practical in emergency landing shall be provided.

Chapter E - Powerplant

Installation
The Powerplant installation shall be easily accessible for inspection and maintenance. The Powerplant attachment to the airframe is part of the structure and shall withstand the applicable load factors.

Engines
Unless reliable and extensive operational experience is available, the Powerplant (engine, reduction drive, propeller, exhaust, and other accessories) shall comply with the requirements of an approved airworthiness standard, NASAD engine standard or equivalent specifications.

Fuel Tank Tests
The fuel tank shall be pressure tested to 24.13 kPa (3.5 PSI, 8-ft. water column) and installed to withstand prescribed load factors.

Fuel Tank Vents
A fuel tank vent, which does not syphon in flight, shall be provided.

Fuel Strainer or Filter
A fuel filter accessible for drainage and/or cleaning and replacement shall be included in the system.

Induction System Icing Protection
Preheated air shall be available, if required by the engine, to prevent carburettor icing.

Chapter F - Equipment

Flight and Navigation Instruments

(a) The following instruments are required:

(1) Airspeed indicator

(2) (Reserved)

(b) The following flight and navigation instruments are recommended:

(1) Altimeter; and

(2) Magnetic compass.

Powerplant Instruments

(a) The following powerplant instruments are required:

(1) Fuel quantity indicator;

(2) Tachometer (RPM);

(3) Engine 'kill' switch; and

(4) Engine instruments as required by engine manufacturer.

Miscellaneous Equipment

Master switch and electrical protective devices shall be provided when an electrical system is installed. The battery shall be installed to withstand the load factors and to prevent corrosion.

Safety Belts and Harnesses

Occupant seat belts, harnesses and their attachments, baggage compartment and restraints shall be designed for the appropriate load factors.

Chapter G - Operating Limitations and Information

General
The operating limitations and other information necessary for safe operation shall be established and made available to the pilot.

Weight and Centre of Gravity
Weight and Centre of Gravity limitations shall be provided, including reference and levelling data.

Powerplant Limitations
Powerplant limitations shall be provided.

Instructions for Continued Airworthiness
Maintenance information for inspections shall be provided.

Control Markings
Each control (except primary controls) shall be suitably placarded.

Miscellaneous Markings and Placards
Baggage, ballast location, etc., shall be suitably indicated.

Aeroplane Manual
Each aeroplane or kit shall be accompanied by an owner's manual and/or information to be placarded on the aeroplane giving the data specified in this publication.

Operating Limitations
(a) The following IAS information shall be provided:
(1) Stall speed at gross weight (V_{S1});
(2) Flap extended speed range (V_{SO} to V_F);
(3) Manoeuvring speed (V_A); and
(4) Never exceed speed (V_{NE}).
b) Load factors, prohibited manoeuvres and operating limitations shall be provided.

Operating Procedures
The following operating procedures and handling information shall be provided:
(a) Loading procedures (occupants, baggage, fuel, ballast, weight, and CG as required) and their limitations;
(b) Preflight check;
(c) Engine starting;
(d) Taxiing;
(e) Take-off;
(f) Climb at V_X and V_Y;
(g) Cruise;
(h) Approach;
(i)Landing;
(j)Cross-wind and wind limitations;
(k) Balked landing procedures;
(l) Information on stalls, spins and any other useful pilot information;
(m) Performances at various weights, CGs, altitudes, air temperatures;
(n) Take-off and landing distances, rate of climb, cruise speeds, RPMs and fuel consumption; and
(o) Tie-down instructions.

APPENDIX A
CONTROL SURFACE LOADINGS

A.1 Symmetrical horizontal and vertical tail air loads: (Cn = .7 at V_A)

$$+\_ \bar{w} = 4.8 + 2.1 \frac{W}{S} \quad 8$$ but larger than 12 PSF

A.2 Unsymmetric horizontal tail air loads: 100% w on one side, 65% w on the other side.

A.3 Aileron air loads: (Cn = .6 at V_A)

$$+\_ \bar{w} = 1.8 \frac{W}{S} \quad 9$$ but larger than 12 PSF

A.4 Flap air loads:

(a) $$\bar{w}_{up} = 2.5 \frac{W}{S} \frac{Cn_{flaps}}{1.6} \quad 10$$ but larger than 12 PSF

(For conventional flaps Cn_{flaps} = 1.6 may be used)

(b) $$\bar{w}_{down} = \frac{\bar{w}_{up}}{4} \quad 11$$

A.5 Trim tab air loads: (Cn. = .6 at V_D, or 1.35 at V_A)

$$+\_ \bar{w} = 4 \frac{W}{S} \quad 12,$$ but larger than 12PSF

Same distribution as in the flap case.

Note: See JAR 23, for design speeds greater than the speeds specified in this publication.

A.6 Speed brake and spoiler air loads: (Cn. = 1.35 at V_A)
(to be used and placarded up to V_{SP})

$$\bar{w} = 4 \frac{W}{S} \left(\frac{V_{SP}}{V_A} \right)^2 \quad 13,$$ but larger than 12 PSF

Rectangular distribution.

APPENDIX B

BASIC LANDING CONDITIONS

Note 1. K may be determined as follows: K=0.25 for W=3,000 pounds or less; K=0.33 for W=6,000 pounds or greater, with linear variation of K between these weights.

Note 2. For the purpose of design, the maximum load factor is assumed to occur throughout the shock absorber stroke from 25 percent deflection to 100 percent deflection unless otherwise shown and the load factor must be used with whatever shock absorber extension is most critical for each element of the landing gear.

Note 3. Unbalanced moments must be balanced by a rational conservative method.

Note 4. L is defined in JAR 23.

Note 5. n is the limit inertia load factor, at the c.g. of the aeroplane.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 565
AERONAUTICAL PRODUCTS
(DISTRIBUTION and CONTROL)

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	*Revision #*	*Date Entered*	*Entered By*
04/10/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Subpart 565 - Aeronautical Products Distribution and Control

INTRODUCTION

Distributors are an important source of supply to commercial and private aircraft owners and aircraft maintenance technicians and engineers for materials and spare parts not immediately and readily obtainable from manufacturers economically and in small quantities. A distributor is committed, under regulatory requirements, to stock and supply only those materials and spare parts for which certificates of conformity were received and for only those products traceable to sources of supply acceptable to the DGCA.

The conditions and requirements set forth for persons or organizations engaged in the distribution of aeronautical products are based on similar standards applied in the Aerospace industry and Civil Aviation Authorities for approving manufacturers and maintenance organizations, with respect to the purchase of materials and related storage, handling, packaging, packing and shipping activities.

This subpart also includes applicable advisory material, which provide advice and guidance for complying with the regulatory requirements. It should be noted that these advisories are for guidance purposes only and, as such, should not be construed as being the only acceptable methods of demonstrating compliance with the procedures.

Part V - Airworthiness

Subpart 565 - Aeronautical Products Distribution and Control

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INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V – Airworthiness
Subpart 565 – Regulations
Standards s565- Means of Compliance
Information notes – in Italics, these are interpretation, not regulations.

Subpart 565 - Aeronautical Products Distribution and Control

Information note:
Policies and procedures related to the requirements of this subpart may be incorporated within an approved Manufacturers or AMOs quality manual or Maintenance Exposition (MOE) manual.

565.01 Applicability

(a) This Subpart prescribes the conditions under which, a person or organization is entitled to distribute aeronautical products and establishes the responsibilities for the control of aeronautical products.

(b) For the purpose of this section;
“aeronautical product” means an aircraft engine, aircraft propeller or aircraft appliance or the component parts thereof.

"distributors" means, dealers, resellers, or other persons and agencies engaged in the sale of parts for installation in type-certificated aircraft, aircraft engines, propellers and in appliances.

"Self-Evaluation" means a continuous program that the distributor applies to evaluate its own compliance with the applicable regulatory requirements.

"traceability" means the ability via documentation or electronic means to track parts, processes, and materials, by such means as lot number, or serial number to the original manufacturer or other source.

565.03 Aeronautical Products - eligibility

No person or organization shall distribute aeronautical products unless such products are obtained from;

(a) a manufacturer of aeronautical products, who is approved by the DGCA or a foreign civil aviation authority, with whom the DGCA has an airworthiness agreement or its equivalent;

(b) a manufacturer who is approved to produce, identify and certify an appliance conforming to a specific appliance Type Certificate, Technical Standard Order (TSO), or equivalent;

(c) a manufacturer who produces, identifies and certifies standard parts and materials which conform to established industrial, national or international standards, and which are referenced in approved design data;

(d) an organization approved either by the DGCA, or a foreign civil aviation authority with whom the DGCA has an airworthiness agreement or its equivalent, to perform maintenance on aeronautical products and who is authorized to certify such products as serviceable and in a condition for safe operation; or

(e) a supplier who provides original certification of product conformity to approved design data for supplied raw material acquired from authorized sources as specified in this section.

565.05 Aeronautical Products - certification

(1) Each person or organization distributing an aeronautical product to a customer, shall provide that customer with a completed release certificate properly describing the product by the manufacturers name, part or model number, serial number (if applicable), and its nomenclature.***(LAR-FORM 001)***

(2) The certification statement of a release certificate may only be signed for a product which has been received, stored and released in accordance with the procedures set out in the product control system document and where documented evidence of product conformity to the manufacturer's design specifications has been received and is retained by the person or organization acting as a distributor.

(3) Except as prescribed for imported products, acceptable certification documentation shall comply with the following requirements.

(a) airframes, aircraft engines, propellers, appliances and any parts and assemblies thereof shall have been received, with inspection release documents or tags that were originated and signed by the approved manufacturer, approved organization or equivalent.

(b) proprietary parts and accessories that are listed in approved product parts catalogues, shall have been received, with inspection release documents or tags traceable to the manufacturer, approved organization or supplier.

(c) materials intended for aircraft construction or maintenance shall have been received, by the distributor, with release documentation from an approved organization or from a supplier who can provide proof of conformity to the material specifications in certificates supplied by the manufacturers or in test and analysis reports prepared by qualified persons in a materials test laboratory.

(d) standard aircraft hardware manufactured to government or industry association standards shall have been received with packing notes, invoices or equivalent documents that identify the product and the supplier.

(4) For imported products the documented evidence shall, as appropriate, comply with the following requirements or as prescribed in Subsection (3) paragraphs (b), (c), or (d).

(a) except for engines and propellers being returned to Lebanon with an acceptable maintenance release tags, each foreign manufactured aircraft engine or propeller shall have been received with an export airworthiness certification signed by a representative of the civil aviation authority of the country of export certifying that such engine or propeller conforms to the type approval stated on the document.

(b) aircraft parts, appliances and assemblies from an organization approved either by the DGCA, or a foreign civil aviation authority with whom the DGCA has an airworthiness agreement or its equivalent, shall have been received with release notes or tags. Imports from other sources shall have been received with airworthiness tags or release notes signed by a representative of the civil aviation authority of the country of export.

565.07 Facilities
No person or organization shall distribute aeronautical products unless they can show that they have facilities, equipment and the personnel necessary to comply with the policies, responsibilities, methods and procedures set out in this Subpart.

565.09 Product Control System
No person or organization shall distribute aeronautical products unless they can show that a product control system as been established and maintained in accordance to *Standard s565.09.*

565.11 Responsibilities
A Person or Organization acting as a distributor shall;
(a) maintain his organization, facilities and product control system in accordance to this Subpart;

(b) ensure that each aeronautical product, which he distributes, can be shown, through documented evidence, to conform to approved design data; ***(traceability)***

(c) allow, with reasonable notice, and assist as necessary, the DGCA personnel to perform, in his own facilities or in any of his supplier's facilities, inspections to determine continuing compliance with the requirements of this Subpart; and

(e) Retain his product control system records for a minimum of two years after delivery of the aeronautical products.

565.13 Certification for Export
Aeronautical products, other than a complete aircraft, are not eligible for export under a certificate issued by the Lebanese DGCA or its representative.

565.15 Service Difficulty Reporting

Each person or organization distributing aeronautical products shall report to the DGCA, in accordance with *Subpart 585*, any service difficulty relating to the aeronautical products being distributed.

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Part V
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Standard 565
AERONAUTICAL PRODUCTS
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***** *FINAL PROPOSAL* *****

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LEBANESE AVIATION REGULATIONS (LARs)

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Appendix III Product Control System

Standard 565 - Aeronautical Products Distribution and Control

s565.09 Aeronautical Products - Control

Each person or organization either involved in distribution and control of aeronautical products, must have in place a product control system. The product control system shall include product control policies and procedures documents, which state(s) as applicable;

(a) a statement to define the policies and objectives of the product control system;

(b) assignment of responsibilities and authority granted to the product control department;

(c) a list and a brief description on the method of updating the product control system;

(d) written procedures , which provide instructions and data necessary to retain, established integrity of aeronautical products while in the care of the person or organization. Product control system procedures shall include, as applicable;

(i) purchasing procedures for ensuring that all aeronautical products obtained for distribution are traceable to approved design data;

(ii) receiving inspection procedures to ensure that all incoming aeronautical products are properly identified, documented and visually inspected to detect any apparent damage that may have occurred during shipment;

(iii) procedures for the handling, segregation and storage of aeronautical products,

(iv) preservation and packaging procedures to protect aeronautical products against deterioration and damage during storage,

(v) certification and release procedures.

(vi) procedures for establishing and maintaining records as objective evidence that aeronautical products have been purchased, identified, inspected and certified in conformity with the requirements of this Subchapter.

APPENDIX I

DOCUMENTATION MATRIX

CLASS OF PART	REQUIRED ON RECEIPT	REQUIRED FOR SHIPMENT
RAW MATERIALS	PHYSICAL & CHEMICAL PROPERTIES REPORTS TRACEABLE TO HEAT OR LOT NUMBER	CERTIFICATION THAT TEST REPORTS ARE ON FILE
STANDARD PARTS	CERTIFICATE OF CONFORMITY (C of C) FROM PRODUCER	CERTIFICATION THAT (C of C) ARE ON FILE
NEW AIRCRAFT COMPONENTS	LAR FORM 001/FAA FORM 8130-3/ JAR FORM ONE/CAR FROM 24-0078 ORIGINAL CERTIFICATION	CERTIFIED TRUE COPY OF RECEIPT DOCUMENT
USED AIRCRAFT COMPONENTS (other than std. parts)	LAR FORM 001/FAA FORM 8130-3/ JAR FORM ONE/ CAR FORM 24-0078, FROM SELLER MEETINGS PROVISIONS OF LAR 575.11 & 575.12	LAR FORM 001/ FAA FORM 8130/3 JAR FORM ONE/CAR FORM 24-0078 OR ITS EQUIVALENT ATTACHED TO COMPONENT
COMPONENTS WITHOUT LAR FORM 001/FAAFORM 8130-3 / JAR FORM ONE/ CAR FORM 24-0078	CERTIFIED STATEMENT FROM SELLER AS TO IDENTITY AND CONDITION	STATEMENT AS TO IDENTITY, CONDITION AND THAT ORIGINAL CERTIFIED STATEMENT IS ON FILE

Appendix II

STANDARDS AND PROCEDURES

Purpose
This advisory provides information concerning Subpart 565, it provides an acceptable means, but not the sole means, of compliance with its requirements. It covers only those sections where further discussion, information and examples would be helpful.

565.03 Eligibility

Since a distributor does not normally hold current approved design data and because he would find it difficult, if not impossible, to inspect most aeronautical products to on receipt to the specified design data, dependence in regard to conformity must be placed on the source of aeronautical products, proper identification, acceptable airworthiness certification traceable to the source, and to objective evidence of conformity either received from the source, or known to be held by the manufacturer, or maintenance organization.

The standard parts and materials referred to in Section 565.03 are those, which are, manufactured to the requirements of established standards acceptable to the aircraft industry and to civil aviation authorities or equivalent authorities. (***Examples are NAS, SAE and MIL specifications.)***

The organization of a distributorship and terms of reference of the various departments responsible for distribution and control operations of aeronautical products should be clearly defined. Means must be established to ensure that all product control operations, which could affect the integrity of the aeronautical products, are effective and properly coordinated.

565.09 Product Control System
The complexity of a product control system will vary with the volume and types of aeronautical products to be distributed and controlled. Therefore, a person or organization needs only to be concerned with those aspects of a product control system, which apply to his particular organization.

A well-prepared product control system document is an asset to any person or organization task with the control or distribution of aeronautical products, in assuring prospective customers that the aeronautical products which they provide can be shown to meet approved design data.

The document also provides management personnel with an overview of the methods used to meet DGCA requirements.

Written procedures are required to ensure that each product control system function is performed in a consistent manner regardless of changes in personnel.

Appendix III

Product Control System

The following elements provide amplification of Section 565.09 but are not meant to be all-inclusive or restrictive in content or in the function covered.

Purchasing
A distributor is responsible for establishing the airworthiness of each aeronautical product he provides to a customer. His most important task therefore is to ensure that he acquires his aeronautical products from approved and acceptable sources as outlined in Section 565.03.

Receipt Inspection
All incoming aeronautical products should be segregated until they can be identified and inspected. Each incoming product should be checked against purchasing requirements to ensure that it is the correct product, that it has been properly identified, and that inspection data and proper certification has been included with the shipment.

Segregation and Storage
Adequate facilities are required to isolate, protect and maintain positive identification of certified aeronautical products held in storage for distribution. Any product with a specified shelf life should be monitored for time expiry dates and purchasers advised of the life remaining. Split batches or individual aeronautical products segregated from an original shipment with a blanket certification should be appropriately identified and cross-referenced to the incoming shipment and certification documentation.

Records
A distributor should have in his possession, or have his supplier hold and make available to him on request, objective evidence of conformity in the form of inspection records.

The two years prescribed for the retention of records is a minimum period only. The need to retain records beyond two years is left to the best judgement of the distributor.

RELATED READING MATERIAL.

Current editions of the publications listed below may be obtained free of charge from the following address: U.S. Department of Transportation, Subsequent Distribution Center, Ardmore East Business Center, 3341 Q 75th Avenue, Landover, MD 20785:

AC 20-62, Eligibility, Quality and Identification of Approved Aeronautical Replacement Parts. This AC contains guidance and information regarding eligibility and traceability of aeronautical parts and materials to be installed on type-certificated products.

AC 21-20, Supplier Surveillance Procedures. This AC contains guidance and information on how to establish surveillance procedures over suppliers.

AC 21-29, Detecting and Reporting Suspected Unapproved Parts. This AC contains guidance and information regarding the detection and reporting of suspected unapproved parts.

AC 21-38, Disposition of Unsalvageable Aircraft Parts and Materials. This AC contains guidelines for the proper disposal of unsalvageable parts and/or materials so they are not returned to service.

AC 21.303-2, Announcement of Availability: Parts Manufacturer Approvals. This AC provides information concerning how to obtain a listing of parts manufacturing approvals.

AC 43-9, Maintenance Records. This AC provides information regarding maintenance record requirements under 14 CFR parts 43 & 91, sections 43.9, 43.11, and 91.173 and the related responsibilities of owners, operators, and persons performing maintenance, preventive maintenance and alterations.

FAA Order 8110.42, Parts Manufacturer Approval Procedures. This order contains guidance and information on how to obtain parts manufacturer approval.

FAA Order 8130.21, Procedures for Completion and Use of FAA Form 8130-3, Airworthiness Approval Tag.

Current editions of the AC's listed below may be purchased from the following address: New Orders, Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954, TEL: (202) 512-1800 (Order Desk):

AC 20-36, Index of Articles (Materials, Parts, Processes and Appliances) Certified Under the Technical Standard Order System. This AC lists the materials, parts, and appliances for which the Administrator has received statements of conformance under the Technical Standard Order (TSO) system. Such products are deemed to have met the requirements of FAA approval as delineated in Title 14 of the Code of Federal Regulations (14 CFR) part 21, Subparts N and O.

AC 21-2, Export Airworthiness Approval Procedures. This AC contains the special airworthiness requirements that have been provided to the FAA by the foreign Civil Airworthiness Authorities.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 575
MAINTENANCE REQUIREMENTS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
26/07/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 575 - Maintenance Requirements

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INTRODUCTORY NOTE TO LAR-575

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 575 - Regulations
Standards s575 -Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 575 - Maintenance Requirements

575.01 Applicability

This Subpart applies, with the exception of ultra-light airplanes and hang gliders, in respect of the maintenance and elementary work performed on

(a) Lebanese registered aircraft;

(b) foreign aeroplanes and helicopters operated pursuant to LAR Part IV and foreign aircraft operated pursuant to LAR Part VII; and

(c) parts intended for installation on aircraft specified in (a) and (b).

575.02 Maintenance Performance Rules

(1) Maintenance or elementary work on an aeronautical product shall be performed to the most recent methods, techniques, practices, parts, materials, tools, shop and test equipment that are;

(a) specified in the most recent Instructions for Continued Airworthiness (ICAs) developed by the manufacturer of that aeronautical product, or

(b) equivalent to those specified by the manufacturer of that aeronautical product in the most recent (ICAs).

(2) A person who performs maintenance or elementary work shall ensure that any measuring device or test equipment used;

(a) meets the specifications of the manufacturer of the aeronautical product with respect to accuracy and

(b) where calibration requirements are published by the manufacturer of the measuring device or test equipment, is calibrated in conformity with these requirements or an acceptable national standard.

(3) No person shall supervise, or perform without supervision, maintenance unless the person holds the applicable qualifications for the work to be accomplished and certified.
Not applicable in respect of an amateur-built aircraft

575.03 Recording of Maintenance and Elementary Work

A person who performs maintenance or elementary work on an aeronautical product shall ensure that

(a) all details required are entered in the technical record, in respect of the task performed; and

(b) the technical record is accurate with respect to any outstanding tasks of the work performed, including, the need to secure any fastening devices that was disturbed to facilitate the work.

575.04 Reserved

575.05 Maintenance Requirements for Commercial Air Services

No person shall perform maintenance or install a part that has undergone maintenance, on an airplane, helicopter or aircraft operated in Commercial Air Services, except where the maintenance has been performed

(a) a maintenance organisation exposition manual (MOE) established by the holder of an approved maintenance organisation (AMO) certificate rated for a category appropriate to the work to be performed; or

(b) a foreign document equivalent to an MOE established by maintenance organisation approved under the laws of a state that is party to an agreement with Lebanon, providing for recognition of the work to be performed.

(c) or an equivalent system authorised and approved by the DGCA.

An equivalent system refers to specific authorisations that may be granted to, Agricultural operations, Flight Training Organisations and Small Air Operators, under the provision of an approved maintenance control manual.

Not applicable in respect of a balloon

575.06 Repairs and Modifications

(1) A person who performs a major repair or major modification or signs a maintenance release in respect of such work, shall ensure that the major repair or major modification conforms to the requirements of technical data that have been approved within the meaning assigned to the term "Approved Data" in Standard s575.06.

(2) A person who performs a repair or modification on an aeronautical product or signs a maintenance release in respect of such work other than a major repair or major modification, shall ensure that the repair or modification conforms to the requirements with respect to acceptable technical data within the meaning of Standard s575.06.

(3) Where an additional flight authority has been issued in respect of an aircraft, no person shall change the configuration of the aircraft, unless;

(a) the person makes an entry in the aircraft journey log indicating the flight authority that is in effect for the modified aircraft; or

(b) the change is made in accordance with technical dispatch procedures required by Subpart 706.06.

(4) Repairs or modifications to an aeronautical product may include the making of a part in conformity with the standards specified in Standard s575.06, if the part made is no longer available from the product manufacturer.

575.07 Installation of Parts (General)

No person shall install a part on an aeronautical product unless the part is

(a) inspected and its accompanying documentation verified in accordance with a procedure that ensures that the part conforms to its design standards with regard to the safety of the aircraft; and

(b) installed in accordance with the requirements of Standard s575.07.

575.08 Installation of New Parts

(1) No person shall install a new part on an aeronautical product unless the part meets the standards of airworthiness applicable to the installation of new parts and has been certified in accordance with Standard s575.

(2) No LAR certification is required where

(a) a new part is a foreign-manufactured part that is certified pursuant to an agreement with Lebanon, which agreement provides for the acceptance of export airworthiness certification;

(b) a new part is a foreign-manufactured part that is obtained from a manufacturer holding a type design accepted in Lebanon and the part is certified in accordance with the laws of the state of manufacture;

(c) a new part is installed on an amateur-built aircraft; or

(d) a part is made in accordance with Subpart 575.06(4).

(3) No certification is required in respect of a new part that bears markings, identifying it, as a part specified in the type design and that was originally designed and manufactured for non-aeronautical use, on condition that it has been approved for use on the aeronautical product, in accordance with the type certificate.

575.09 Installation of Used Parts

No person shall install a used part on an aeronautical product, unless the part meets the standards of airworthiness applicable to the installation of used parts stated in Standard s575 and

(a) is an airworthy part that has been removed from an aircraft for immediate installation on another aircraft;

(b) is an airworthy part that has undergone maintenance for which a maintenance release has been signed, or

(c) has been inspected and tested to ensure that the part conforms to its design standards and is in a safe condition for operation and a maintenance release has been signed to that effect.
Not applicable in respect of an amateur-built aircraft

575.10 Installation of Life-limited Parts

No person shall install a life-limited part on an aeronautical product unless

(a) the technical history of the part is available to show that the time in service authorised for that part has not been exceeded; and

(b) the history is incorporated into the technical record for the aeronautical product on which the part is installed.

575.11 Maintenance Release

(1) No person shall sign or authorize supervised persons to sign a maintenance release, unless the applicable standards of airworthiness in regard to the maintenance performed as stated in Standard s575 have been complied with and the maintenance release meets the applicable requirements specified in *Standard 575.10*.

(2) A maintenance release shall include the following, or a similarly statement:
"The described maintenance has been performed in accordance with the applicable airworthiness requirements."

(3) No maintenance release is required in respect of any task designated as elementary work that is performed by

(a) the pilot, in the case of a glider, a balloon or an unpressurized small aircraft that is powered by a piston engine and not operated in Commercial Air Services.

(b) in the case of an aircraft operated in Commercial Air Services, a person who has been trained and authorised in accordance with the operator's maintenance control manual (MCM); or

(c) in the case of an aircraft operated pursuant to Part VI - Private Operator Certificate, a person who has been trained in accordance with those Sections of the private operator's operations manual that contain details of the operator's maintenance control system.
Certification of the elementary task carried out must be entered in applicable logbooks.

(4) Where, the satisfactory completion of maintenance performed on an aircraft cannot be verified by inspection or testing of the aircraft on the ground, the required maintenance release shall be made conditional on the satisfactory completion of a test flight, by the inclusion of the phrase *"subject to satisfactory test flight*".

(5) No person shall sign a maintenance release in respect of specialized maintenance unless the requirements of Standard s575.04 have been met.

575.12 Persons Who May Sign a Maintenance Release

(1) No person other than the holder of an aircraft maintenance technician license, specifying a class or rating appropriate to the aeronautical product being maintained, shall sign a maintenance release.

The term "technician" is used in this context as an all-encompassing expression for maintenance personnel, "engineer" and "mechanic" being an acceptable alternative

(2) A person other than a person described in (1) may sign a maintenance release where

(a) in the case of maintenance performed outside Lebanon, the person

(i) is authorised to sign under the laws of a state that is party to a technical arrangement with Lebanon and the agreement provides for such certification, or

(ii) where no agreement provides for such certification, the person holds qualifications that the DGCA, has determined to be equivalent to those of a person described in (1);

(b) in the case of maintenance performed on an amateur-built aircraft, the person is an owner of the aircraft.

(c) in the case of maintenance performed on an aircraft or part that is intended for installation on an aircraft, the maintenance release is issued under the authority of an approved maintenance organisation (AMO) certificate issued pursuant to Subpart 545.

(3) No person shall sign a maintenance release in respect of maintenance performed on parts or aeroplanes, helicopters and aircraft intended for operation in Commercial Air Services, unless the person is authorized to sign

(a) in accordance with a maintenance organisation exposition manual (MOE) established by the holder of an AMO certificate issued pursuant to Subpart 545 with a rating of a category appropriate to the work performed; or

(b) where the maintenance is performed outside Lebanon, in accordance with a foreign document equivalent to an MOE, established by a maintenance organisation approved under the laws of a state and the document is acceptable to the DGCA.

(4) A person who is not the holder of a maintenance technician license specifying a rating appropriate to the aeronautical product being maintained, may sign a maintenance release where the person holds a restricted certification authority (RCA) issued by the DGCA.

(5) Where a maintenance release is signed by a person in respect of work performed by another person who is not qualified to sign a maintenance release, the person signing the release, must exercise adequate supervision, to ensure that the work is performed in accordance with applicable standards of airworthiness and, specifically, the requirements of 575.02 and 575.10.

575.13 Reporting Major Repairs and Major Modifications

A person who performs a major repair or major modification on an aeronautical product or installs on an aircraft a part that has undergone a major repair or major modification shall report the action to the DGCA in accordance with the procedures specified in Standard s575.13.

APPENDIX- I

Elementary Work

The following lists are exhaustive in nature; **if a task is not listed, it is not elementary work**.

Elementary work is a form of maintenance that is not subject to a maintenance release. Hence, it need not be performed by a holder of an AMT license, or by persons working under an AMO certificate. The owner is responsible for controlling authorizations to persons who may perform elementary work.

Subpart 575 of the Lebanese Aviation Regulations (LARs) requires that all tasks designated as elementary work be detailed in the technical record.

Elementary Work Task Listings

(1) Balloons

For this type of aircraft, the following tasks are elementary work:

(a) repair of upholstery and trim;
(b) removal and installation of fuses, light bulbs and reflectors;
(c) removal and installation of parts of communications equipment that are line replaceable units designed for rapid replacement;
(d) cleaning of balloon burner nozzles;
(e) removal and installation of balloon baskets, burners and gas tanks that are designed for rapid change in service.

(2) Gliders or Small, Unpressurized, Piston-engine Aircraft, Not Engaged in Commercial Air Service

For those types of aircraft, the following tasks are elementary work:

(a) fabric patches measuring not more than 15 cm (6 in) in any direction and not requiring rib stitching or the removal of control surfaces or structural parts;
(b) removal and installation of tires, wheels, landing skids or skid shoes, not requiring separation of any hydraulic lines;
(c) removal and installation of skis on fixed landing gear, not requiring separation of any hydraulic lines;
(d) removal and installation of seats, safety belts and harnesses;
(e) repair of non-structural fairings, cover plates and cowlings;
(f) repair of upholstery and cabin trim;
(g) removal and installation of glider wings and tail surfaces that are designed for quick assembly;
(h) removal and installation of co-pilot flight control levers and pedals that are designed for quick removal and installation;
(i) cleaning and installation of spark plugs;
(j) checking of cylinder compression;
(k) cleaning or changing of fuel, oil, and air filters;
(l) draining and replenishing engine oil;
(m) adjustment of generator or alternator drive belt tension;
(n) removal and installation of aircraft batteries;
(o) checking the electrolyte level and specific gravity of lead acid batteries;
(p) removal and installation of fuses, light bulbs and reflectors;
(q) removal and installation of parts of communications equipment that are line replaceable units (LRUs) designed for rapid replacement;

Elementary Work

(3) Airplanes and Helicopters Operated Pursuant to LAR 406 - Flight Training Organizations; or Aircraft Operated Pursuant to LAR 604 - Private Operator Passenger Transportation; Aircraft Operated Pursuant to LAR Part VII - Commercial Air Services

For those types indicated above, the following tasks are elementary work:

(a) performance of a pre-flight or turnaround check;
(b) removal and installation of passenger seats and passenger seat belts;
(c) repairs to upholstery and cabin furnishings;
(d) removal, installation or repositioning of non structural partitions in the passenger cabin;
(e) opening and closing of non-structural access panels;
(f) removal and installation of cabin doors on unpressurized aircraft, where the door is designed for rapid removal and installation;
(g) removal and installation of co-pilot flight control levers and pedals that are designed for quick removal and installation;
(h) removal and installation of fuses and light bulbs;
(i) **removal and installation of aircraft batteries;**
(j) **adjustment of generator or alternator drive belt tension;**
(k) inspection and continuity checking of self-sealing chip detectors;
(l) **the replacement of line replaceable units (LRUs) that are designed for rapid replacement that, following replacement, do not require testing other than an operational check.**

Information Note: ***An operational check is used to determine that a unit is working, and does not involve measuring degradation of the unit's output or functionality. Where the post-replacement procedures require measurements, the LRU replacement is not Elementary Work.***

Appendix II

Personnel Certification for Non Destructive Inspection

Method	Personnel Certification
NDT using liquid penetrant, magnetic particle, eddy current or ultrasonic methods not performed pursuant to Appendix L of Standard 575.	Level 2 or Level 3 of the following standards: • AIA/NAS, NAS-410; or equivalent Standard • Level 2 or Level 3 of the following specification: ATA 105
NDT using radiographic methods	Level 2 or Level 3 of the following standards: • AIA/NAS, NAS-410; or equivalent Standard • Level 2 or Level 3 of the following specification: ATA 105

Information Note:
Equivalent National or International Standards or Specifications may be used, equivalency must be demonstrated and accepted by the DGCA.

- AIA/NAS (Aerospace Industries Association) (National Aerospace Standard)
- ATA (Air Transport Association of America)

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Part V
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MAINTENANCE REQUIREMENTS

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 575 - Maintenance Requirements

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Appendix A. Criteria for the Classification of Modifications and Repairs

Appendix B. Altimeter System Test and Inspection

Appendix C. Aircraft Weight and Balance Control

Appendix D. Inspections of Aircraft Propellers

Appendix E. Inspection of Aircraft Wooden Components

Appendix F. ATC Transponder Performance Tests

Appendix G. Maintenance of Emergency Locator Transmitters (ELTs)

Appendix H. Cockpit Voice Recorders (CVRs) and Underwater Locating Devices (ULDs)

Appendix I. Maintenance of Flight Data Recorders (FDRs) and Underwater Locating Devices (ULDs)

Appendix J. Authorized Release Certificate (Form #LAR-0001)

Appendix K. Equipment Maintenance Requirements

Appendix L. Specific Nondestructive Testing (NDT) Tasks

Standard 575 – Maintenance

s575.01 Applicability (reserved)

s575.02 Maintenance Performance Rules (General)

Persons who perform maintenance or elementary work are required to follow the manufacturer's recommendations. Where the recommendations of the aircraft manufacturer are incompatible with those of the engine, propeller, or appliance manufacturer, the recommendations of the aircraft manufacturer shall be used.

s575.03 Recording of Maintenance and Elementary Work

A person who performs maintenance or elementary work on an aeronautical product shall ensure that the following information is recorded in the technical records.
Standard s605 - Aircraft Equipment and Maintenance, lists the tasks and conditions associated to elementary work.
Standard 605.94 - requires that all tasks designated as elementary work be recorded in the journey log.

(a) product identification (aircraft registration marking, nomenclature, type/model number, name of manufacturer, part number, and serial number), unless the entry is being made in technical record that contains this information;

(b) a brief description of the work performed;

(c) where a standard other than the manufacturer's recommended practice is being used, reference to the standard used in the performance of the work;

(d) where damage is being assessed, the extent of the damage and the associated reference to manufacturer's limitations shall be referenced.

(e) the date on which the maintenance was performed and the identification of the employee who accomplished the task;

(f) where the maintenance involves a repair that includes making and installing repair parts in accordance with Subpart 575.06 (4), a statement to that effect;

(g) where disassembly is required during performance of work, a general description of any defect found prior to re-assembly; and

(h) where a task is partially completed, a general description of any outstanding work, including the specific location of any parts/systems that have been disturbed, is to be recorded. Where the open work lists inspection sheets or job cards used to accomplish the work clearly indicate any outstanding work, they are acceptable for meeting this requirement.

s575.04 Approved Maintenance Organization

For the purpose of this section, the following definition applies:
"an AMO category appropriate to the work performed" - means a category, issued pursuant to Subpart 545.02 of the L*ARs*, identifying the product being maintained or the process being performed.

(i) Processes, specifically welding and nondestructive testing, and aeronautical products for which an AMO Certificate can be issued are listed in Subpart 545.02.

(ii) In the case of engine overhaul, an AMO with only an engine category can perform the overhaul, provided that any specialized NDT/welding forming part of the overhaul is carried out by an AMO approved for those processes.

s575.05 Aeroplanes, Helicopter and Aircraft Maintenance Requirements.

Maintenance of aeronautical products installed on aircraft used in Commercial Air Services, shall be performed under the control of an Approved Maintenance Organization (AMO) approved pursuant to Subpart 545 of the LARs. Maintenance of components and parts, prior to installation on such aircraft can be performed outside an AMO, provided the work is subject to a maintenance arrangement made pursuant to Subpart 545 of the LARs.
See subpart 406 for Flight Training Organizations, Operator MCM.

s575.06 Repairs and Modifications

(1) The following definitions apply to this section:

major modification*; means an alteration to the type design of an aeronautical product for which a type certificate has been issued, that provides for the installation of equipment, or that has other than a negligible effect on:*

(a) operational limits;

(b) structural strength;

(c) aero-elastic properties;

(d) performance;

(e) powerplant operation;

(f) flight characteristics;

(g) environmental characteristics;

(h) aerodynamic characteristics; or

(i) any other quality affecting airworthiness.

***major repair**: means extensive work or alteration that restores an aeronautical product to an airworthy condition.*

***acceptable data;** includes*

(a) drawings and methods recommended by the manufacturer of the aircraft, component, or appliance;

(b) DGCA advisory documents; and,

(c) advisory documents issued by foreign airworthiness authorities acceptable to the DGCA, such as current issues of Advisory Circular 43.13-1 and –2 latest revision issued by the FAA, Civil Aviation Information Publications (CAIPs) issued by the Civil Aviation Authority (CAA) of the United Kingdom, or Advisory Circular, Administrative and Guidance Material issued by the Joint Aviation Authority (JAA).

(d) drawings or methods described or referenced in Airworthiness Directives;

***approved data;** includes*

(a) type certificates, supplemental type certificates, limited supplemental type certificates, or repair design approvals, including equivalent foreign documents which have undergone the familiarisation or validation process, or are otherwise accepted by the DGCA, and

(b) other drawings and methods approved by the DGCA or a delegate or delegated organisation. (DAR or DAO)

(c) data issued by the manufacturer or type certificate holder of the aircraft, component or appliance, such as modification orders, service bulletins, or engineering orders, which include a statement of approval by the applicable regulatory authority or a delegated representative of such an authority. Where the data issued by the aircraft manufacturer are incompatible with those of the component or appliance manufacturer, the data of the aircraft manufacturer shall prevail;

(d) manufacturer's Structural Repair Manuals;

(e) FAA Advisory Circulars AC 43.13-1 and AC 43.13-2 latest revision, subject to the following conditions:

(i) the aircraft is a small aircraft, and the alteration does not affect dynamic components, rotor blades, structure that is subject to pressurisation loads, or the primary structure of a rotorcraft;

(ii) the alteration does not affect an existing limitation (including the information contained on mandatory placards) or change any data contained in the approved sections of the Aircraft Flight Manual, or equivalent;

(iii) the data are appropriate to the product being altered, and are directly applicable to the alteration being made; and,

(iv) the data are not contrary to the aircraft manufacturer's data.

(2) The criteria to be used to determine which data applies to modifications and repairs is as follows:

(a) **Major modifications** and **major repairs** shall be performed in accordance with **"approved" data** . A statement of "No technical objection", by the manufacturer does not constitute approval and shall not be used without further approval by the DGCA.

(b) **All other modifications and repairs** shall be performed in accordance with **"acceptable" data.**

Additional guidance for the classification of modifications and repairs can be found in Appendix A.

(3) Major modifications or major repairs must conform to the applicable technical data. Consequently, the entire major modification or major repair requires re-approval in cases where a deviation has other than a negligible effect on items listed in Standard s575.06. All deviations must be recorded in the applicable documents.

(4) The person who performs a **major repair** or **major modification** or signs a maintenance release in respect of the modification or repair shall ensure that the technical data used is applicable for the type of work undertaken. Therefore, prior to certification, the person certifying the modification or repair shall ensure that any deviation from the original documents meets the requirements stated in s575.06 **(3)** above.

(5) A repair or the incorporation of a modification, which includes the making and installing of a part must meet that the following standards of airworthiness:

(a) All repair parts must conform to the applicable type design data. Where documents such as Maintenance Manuals, Structural Repair Manuals, or other service information do not provide all of the information required to fully describe the attributes of the part, it is necessary to obtain a copy of the manufacturer's drawings and all associated specifications;

(b) No part made to conduct a repair can be marked with the original part number specified in the type design;

(c) Where parts are no longer in production by the manufacturer, or an authorised representative, and the type design data for the part is not available, the design data used for the making of the part may be established by inspecting and testing to determine the correct:

(i) materials;

(ii) dimensions;

(iii) hardness and temper;

(iv) surface finish; and

(v) protective coatings.

(6) Where the repair part constitutes a portion of the primary structure of the aeronautical product, the design data developed in accordance with (5)(c) above shall be meet the approval requirements of *Standard 575.06 (1).*

(7) Where, a modification authorizes repetitive re-configurations of an aircraft and separate flight authorities have been issued under Subpart 525, the responsibility for determining which flight authority is in effect, rests with the person who carries out the re-configuration of the aircraft. Where the reconfiguration only involves elementary work, it may be the authorized signatory of an air operator, or a private aircraft owner/operator.

s575.07 Installation of Parts (General)

The following standards of airworthiness are applicable to the installation of a part:

(a) except in the case of amateur-built aircraft, only parts that are specified in the type design of an aeronautical product are eligible for installation in that product;

(b) where a manufacturer assigns a specific number to a part made to national or international standards, and the specific part number is the only part number shown in the parts catalogue or similar document, only a part bearing the specific number shall be installed;

Information Notes:
(i) In some cases, the manufacturer of an aeronautical product will, through the part number contained in the parts catalogue, add a suffix or a prefix to what appears to be a standard industry part. The installation of the standard part is not permitted without an appropriate engineering approval as a modification.

(ii) In many cases, the illustrated parts catalogue may contain a standard part number. This may be especially true in the case of bearings and electronic components. Standard parts having the identical part number may be installed regardless of the part manufacturer.

(iii) Engineering approvals made in respect of i) or ii) will require substantiation that the characteristics of the substitute part meet all of the requirements of the type design. Reliance on substitution guides will not be considered adequate as the characteristics of that part may be subject to specific design or processing requirements contained in other manufacturer's data such as technical drawings and substantiation reports associated with that type design.

(c) the part to be installed must be correctly configured for the installation in the aeronautical product; and

(d) prior to installation, the part should be inspected to ensure that it corresponds with its documentation, there are no signs of obvious damage, corrosion or deterioration, and the shelf life, where applicable, has not been exceeded.

s575.08 Installation of New Parts

The standards of airworthiness applicable to the installation of new parts are as follows:

(a) requirements detailed in *s575.07* must be met;

(b) Where the original manufacturer's part number is not shown in a parts list, other data authorised by type design, such as data approved under a supplemental type certificate or limited supplemental type certificate are to be consulted.

(c) Parts made to a FAA Parts Manufacturer Approval (hereinafter simply known as (PMA) or parts made to an equivalent approval can be installed on aeronautical products for which the manufacturer's certification authority has jurisdiction for the initial type design.

(d) A PMA or equivalent manufactured part can remain in service until such time as its replacement is required by reason of deterioration of time in service. Such parts shall only be replaced by the original part or an approved replacement PMA or equivalent manufactured part certified to confirm to the applicable type design standard.

(e) Installation of a FAA, Parts Manufacturer Approval part or equivalent manufactured part not meeting these criteria constitutes a modification requiring DGCA approval.

s575.09 Installation of Used Parts

(1) The standards of airworthiness applicable to the installation of used parts are as follows:

(a) the requirements detailed in *s575.07* are met;

(b) used parts shall be accompanied by a maintenance release;

(c) the document bearing the maintenance release shall be examined to see if any additional maintenance tasks are required upon installation. On completion of the maintenance, the certification statement must include the release for these additional tasks.

The maintenance release is to cover any maintenance performed on the part including, at least, inspection of the part to verify that it conforms to it's design standards and is in a condition for safe operation.

(2) No maintenance release document is required where the part is airworthy and it has been removed from an airworthy aircraft for immediate installation on another aircraft. The identification of the aircraft from which the part was removed, and any other details necessary to establish the technical history of the part, shall be entered in the recipient aircraft's technical record.

s575.10 Installation of Life - Limited Parts

The standards of airworthiness applicable to the installation of life-limited parts are:

(a) that the standards detailed in *s575.07* are met; and

(b) that the history of the part is complete in relation to the time it has been in service since new, the number of hours, cycles, landings, or the calendar time, whichever is applicable to the limitation on the life of the part.

s575.11 Maintenance Release

(1) For the purpose of this section the following definitions apply:

"under the person's supervision" - means that the person, by way of the organization chart or assignment of responsibilities in an approved MOE manual, exercises supervisory authority over the person making a maintenance release.
Information note:
This statement may be omitted when the Technical Record, established pursuant to Subpart 605 of the LARs, clearly indicates that a signature in a specified signature block constitutes a maintenance release.

(2) Maintenance Release Record Keeping

(a) A maintenance release applies only to the particular maintenance task or tasks to which it relates. Therefore:

(i) it is acceptable to sign a maintenance release in respect of a single task or group of tasks, even if other work is outstanding on the aircraft, provided that the wording of the entry leaves no doubt as to the scope of work being certified; and

(ii) it is the responsibility of the person signing a maintenance release to ensure that the technical record is correct in respect of the status of any outstanding task.

(b) Each maintenance release must include the following information:

(i) product identification (aircraft registration marking, nomenclature, type/model number, name of manufacturer, part number, and serial number), unless the release is being made in an established Technical Record that contains this information; and,

(ii) a brief description of the work performed including reference to applicable data. Applicable data reference includes the maintenance publications of the manufacturer, and the work order number.

(c) The maintenance release shall contain a statement indicating when a part is removed from an airworthy aircraft.

(d) Where a maintenance release is made using an "Authorised Release Certificate" (form # LAR-001).
Appendix J, contains information to complete form # LAR-001, respecting certification of new and used aeronautical products, other than a complete aircraft.

(e) Where a maintenance release is made under the authority of an AMO it must include the identification of both the signatory and the AMO. Identification of the signatory may be either by licence number, or by other means that clearly identifies the signatory within that organisation.

(f) Where a person holding a restricted certification authority (RCA) makes a maintenance release, the number of that authority must be entered.

(3) Responsibility for compliance with airworthiness directives (ADs) is assigned to the registered owner of the aircraft in accordance with Subpart 605 of the *LARs*. If the owner wishes to have this research undertaken by an aircraft maintenance technician as a separate maintenance task, it can be raised as a separate item on the work order, work card, or other document detailing the maintenance arrangement.

s575.12 Persons Who May Sign a Maintenance Release

Information note:
LAR 575.12 of the LARs authorizes the holder of a maintenance technician license with a rating appropriate to the product being maintained to sign any maintenance release. The term "technician" is used in this context as an all-encompassing expression for maintenance personnel, "engineer" and "mechanic" being an acceptable alternative.

(1) Maintenance performed in a State that has enter into an agreement with Lebanon, shall be certified by either the holder of a Lebanese maintenance technician license, a person who has been authorized under the laws of that State, or a person whose knowledge is determined by the DGCA to be equivalent to the holder of a license. Where that work is performed by a foreign maintenance organization, the maintenance release must be signed by a qualified person pursuant to the local regulations and authorized by the FAMO.

(2) For the purpose of executing a maintenance release on Lebanese aircraft, agreements between Lebanon and another State only have effect within the territories stated in the agreement.

(3) Applicants for a Restricted Certification Authority (RCA), must demonstrate to the DGCA that issuance of the RCA is justified and no alternatives are available.

s575.13 Reporting of Major Modifications and Major Repairs

(1) Major modifications and **major repairs** shall be reported to the DGCA, by means of a Conformity Certificate (form #LAR-0575) in accordance with the requirements established under LAR 575.06 .

(2) Where **major modifications** are accomplished in accordance with **approved data**, the information required in the description of work performed on form #LAR-0575 shall identify the specific references in the Specified Data, together with specific reference to the appropriate manufacturer's installation instructions.

(3) Where **major modifications** or **major repairs** are accomplished in accordance with **approved data**, which incorporate (manufacturer's installation, repair, maintenance, or overhaul manuals), the description of work accomplished on form LAR-0575, shall identify the specific manual and section as applicable.

(4) Where **major repairs** are accomplished in accordance with the Structural Repair Manuals, the description of work performed on form LAR-0575, shall identify the specific pages, paragraphs, and figures referred to, together with the critical dimensions, materials, locations, and processes.

Appendix A

Classification of Modifications and Repairs

1) General

The following criteria outline a decision process for assessing the classification of a modification or repair. The following questions answered with a YES answer indicates that the modification or repair shall be classified major.

2) Criteria

(a) **Operating Limitations**

Does the modification or repair involve a revision in the operating limitations specified in the approved type design?

(b) **Structural Strength**

The questions contained in this paragraph apply to airframe, engine, propeller, or component.

Does the modification or repair alter:

(i) a principal component of the aircraft structure such as a frame, stringer, rib, spar, skin or rotor blade?

(ii) a life-limited part or a structural element that is subject to a damage tolerance assessment or fail-safe evaluation?

(iii) the strength or structural stiffness of a pressure vessel?

(iv) the mass distribution in a structural element?

This might involve the installation of an item of mass that would necessitate a structural re-evaluation.

(v) a containment or restraint system intended for occupants or the storage of items of mass (e.g. cargo)?

(vi) the structure of seats, harnesses, or their means of attachment?

(c) **Powerplant Operation**

Does the modification or repair:

(1) affect the power output or control qualities of the powerplant, engine, propeller, or their accessories?

(2) alter the approved operating limitations?

(d) **Performance and Flight Characteristics**

Does the modification or repair involve alterations that:

(1) significantly increases drag or exceed aerodynamic smoothness limits?

(2) significantly alter thrust or power output?

(3) affect stability or controllability?

(4) induce flutter or vibration?

(5) affect the stall characteristics?

(e) **Other Qualities Affecting Airworthiness**

Does the modification or repair:

(1) change the information on, or the location of, a placard required by the type design or an Airworthiness Directive?

(2) alter any information contained in the approved section of the aircraft flight manual or equivalent publication?

(3) affect the flight-crew's visibility or their ability to control the aircraft?

(4) affect exit/escape from the aircraft?

(5) reduce the storage capacity of an oxygen system, or alter the oxygen rate of flow?

(6) affect flight controls or an autopilot?

(7) alter an electrical generation device, or the electrical distribution system between the generating source and either its primary distribution bus, or any other bus designated as an essential bus?

(8) reduce the storage capacity of the primary battery?

(9) affect a communication system required by the approved type design?

(10) affect instruments, or indicators that are installed as part of a system required by the approved type design?

(f) **Other Qualities Affecting Environmental Characteristics**

Does the modification or repair increase aircraft noise levels or emissions?

(g) **Equipment Required by Operating Rules**

Does the modification or repair provide for the installation or alteration of any equipment or system required to be installed, or carried, on board the aircraft by LARs Part IV, VI, or VII.

Appendix B

Altimeter System Test and Inspection

The standards of airworthiness applicable to the performance of an altimeter or altimeter system test and inspection are:

(a) For static pressure systems:

(1) the system is free from moisture or sources of restriction;

(2) the static port heater, if installed, is operative;

(3) there is no alteration or deformity of the airframe surface that would affect the relationship between air pressure in the static pressure system and true ambient static air pressure under any flight condition; and

(4) the leakage rate of the system shall not exceed the following tolerances:

(i) for unpressurized aircraft, where the static pressure system is evacuated to a pressure differential of approximately 1 inch of mercury, or to a reading on the altimeter 1000 feet above the aircraft elevation at the time of test, without additional vacuum applied for a period of 1 minute, the loss of indicated altitude must not exceed 100 feet on the altimeter.

(ii) for pressurised aircraft, where the static pressure system is evacuated until a pressure differential equivalent to the maximum cabin pressure differential for which the aircraft is type certified, without additional vacuum applied for a period of 1 minute, the loss of indicated altitude must not exceed 2 percent of the altitude equivalent to the maximum permitted cabin differential pressure, or 100 feet, whichever is greater.

(b) For an altimeter:

Test by an approved maintenance organization in accordance with manufacturer recommendations and any additional applicable regulatory requirements.

Appendix C

Aircraft Weight and Balance Control

(1) Weight and Balance Reports

(a) The empty weight of an aircraft stated in a weight and balance report shall include all items required by the basis of the aircraft type certification, and all additional items of installed equipment. Any item not forming part of the type design shall be entered in an equipment list with its associated weight and moment. This list constitutes a part of the weight and balance report.

(b) Weight and Balance reports shall be certified by signing a maintenance release.

(2) Amendments to Weight and Balance Reports

(a) Following any change to the empty weight or centre of gravity of an aircraft, an amendment to the weight and balance report shall be prepared, which includes:

(i) An explanation of the change;

(ii) The effective date of the change;

(iii) A replacement equipment list, showing the items affected, and their revised weights and/or moment arms, as applicable;

(iv) A statement of the new empty weight and centre of gravity; and

(v) Maintenance release in respect of the revised weight and balance report.

(3) Aircraft Having Alternative Configurations

(a) Where an aircraft is likely to be operated in two or more different configurations, a separate weight and balance report addendum for each configuration will meet the requirements of paragraph (2), where each addendum:

(i) contains a supplementary list, which clearly shows the differences from the basic aircraft configuration;

(ii) includes the empty weight and centre of gravity for the applicable configuration; and

(iii) is clearly identified with respect to the aircraft configuration to which it applies.

(b) For each change of configuration to which a change of aircraft weight and balance addendum applies, the currently applicable addendum shall be identified in the aircraft journey log.

Appendix D

Inspections of Aircraft Propellers

Specialized inspections or repairs shall only be performed by an approved propeller overhaul organization. All repairs shall be in accordance with the propeller manufacturer's recommendations or methods.

Blade Field Repairs

Field repairs to blades can only be applied, provided the tolerances of the appropriate blade specification are not exceeded.

Miscellaneous:

1) The accuracy of the tachometer shall be checked at least at each annual inspection.

Information Notes:

(i) The loads on a propeller increase greatly with even the slightest overspeed. Also, some installations have restrictions against operating in certain RPM ranges which have undesirable vibration effects. The only protection against overspeed or prohibited range operation is the accuracy of the tachometer, and errors in these instruments are common. Therefore, it is important to check the accuracy of the tachometer at least at each annual inspection. Prevention of overspeeding will increase the reliability not only of the propeller, but also of the engine and engine driven accessories.

(ii) Another worthwhile task which can be carried out at the annual inspection is a check of dynamic balance. Although often obvious, sometimes vibration due to imbalance can be hard to detect without instruments, but is nevertheless causing problems throughout the aircraft, including to the propeller itself. With proper equipment, dynamic imbalance is simple both to detect and to correct.

2) Aircraft that operate in harsh environments such as:

(a) agricultural operations;

(b) gravel strips; or

(c) in a salt water area

will require correspondingly increased attention.

Appendix E

Inspection of Aircraft Wooden Components

Preamble

Experience has shown that in addition to the normal routine maintenance inspections, all aircraft, which have wooden components in their primary structure, require very thorough repetitive inspections, especially of the glued joints, to determine continuing structural soundness. While excessive moisture has been the cause of both glued joint failures and delaminating of plywood, another factor to be considered is the deterioration of the structure with time.

Tests have shown that even in well-maintained and properly stored components, the loss of linear strength of a glued joint can amount to 60% in ten years' time. Fungi may, under conditions that favor their growth, attack the wood resulting in a condition designated as decay. Decay can occur at temperatures that favor growth of plant life in general. Serious decay occurs only when the moisture content of the wood is above the fiber saturation point (average 30 percent).

Only when previously dried wood is contacted by water, such as provided by rain, condensation, or contact with wet ground, will the fiber saturation point be reached. The water vapor in humid air alone will not wet wood sufficiently to support significant decay, but it will permit development of some mould. If excessive moisture is not allowed to enter the wood fibers, there is virtually no limit to the components' structural life expectancy.

(2) **Methods**

Unless otherwise specified by the manufacturer of the aeronautical product, the following standards of airworthiness apply to the inspection of wooden components:

(2.1) **Exterior Surface Inspection**

(a) Inspect the entire exterior surface of the component (wing, fuselage, tail, etc.) for the following characteristics:

(i) Signs which indicate that the wood immediately below the fabric is soft or contains excessive moisture (i.e swollen). Soft wood may be located and/or confirmed by depressing the components surface in the vicinity of the area in question with a rounded, blunt instrument and comparing its hardness with that of good wood. Note that the areas being compared must have identical substructure.

(ii) Signs, which indicate that the fabric/paint is delaminating from the wood, surface (bubbles, discoloration, boils, soft spots and other surface flaws).

(iii) Cracks or breaks in the paint. Water is prevented from entering the component by the fabric/paint barrier. Any cracks in this barrier, no matter how small, may comprise its ability to prevent water from entering the wood.

(iv) Exterior damage which would allow water to penetrate the fabric/paint barrier and enter the wood.

The surface features described in (i), (ii), and (iv) can be accentuated by illuminating the surface with a light source placed at a shallow angle.

An experienced person to detect soft and/or decayed wood in the wing spars can use the following technique. Tap the wing directly above and below both spars with a small rounded, blunt instrument, approximately the size of a small pocketknife. Start at the outboard end and work inboard, listening to the sound generated by the wing. The sound quality will change slowly. If the change in sound is abrupt, the wood directly below the surface may have decay.

The above method can also be adapted to check other components for decay.

(b) Mark the areas, which have the characteristics described in paragraph 2.1(a) of this appendix, and refer to paragraph 2.3 of this appendix for additional inspection procedures.

(2.2) **Internal Inspection**

(a) Remove all inspection/access covers.

(b) Using a flashlight and a mirror, inspect the entire interior of the component for the following problems:

(i) wood decay;

(ii) water stains on wood or covering;

(iii) pooled dust/dirt, which may indicate evidence of previous standing water;

(iv) rust or corrosion on metallic surfaces;

(v) detectable moisture.

(c) Make note of any areas, which have the characteristics described in paragraph 2.2(b) of this appendix, and refer to paragraph 2.3 of this appendix for additional inspection procedures.

(d) Be certain that all drain holes are completely open and free of burrs and/or pieces of fabric, which would cause water to be retained.

(2.3) **Moisture Test and Probing Inspection**

(a) If the inspection described in paragraphs 2.1 and 2.2 identify any questionable areas; continue the progressive inspection by testing these areas per the following procedures:

(i) Test for soft/decayed wood with sharp probe.

(ii) Test for moisture content using suitable resistance type moisture meter (model G-2, Delmhorst Instrument Company, Boonton, New Jersey, or equivalent).

The probing inspection is designed to identify wood by penetrating it with a sharp object such as an awl or sharp pocketknife. You can "calibrate" the probe instrument yourself by testing known good wood of a quality equal to that used in the component. Note that the airframe is constructed with several different kinds of woods, each of which has a noticeably different hardness.

(b) If, during the inspection of a component, you suspect that the structure has decay close to the surface, you can remove a small plug of the wing skin (1/16 inch thick or 1/8 inch thick) to probe inspect the structure material directly. Sharpen a 1/4 inch drill bit so that its point angle is very flat and provide it with a stop which prevents it from penetrating to a depth greater than the thickness of the skin; test the drill bit on a separate piece of plywood to ensure that it cuts clean and penetrates the proper amount. If the probing inspection indicates good wood, the plug must be replaced using standard repair procedures.

(c) If the inspection described in subparagraph 2.1(a)(iii) gives you reason to suspect that there may be decay in a fuel tank area, a more thorough inspection can be conducted by removing fuel tank covers.

(d) If moisture content is below 15% and the wood is solid as determined by probing, the structure is considered airworthy. If moisture content is 15% or above and the wood is solid as determined by probing, the structure is still considered airworthy but repetitive inspections of suspected areas are required every 15 days until moisture content is below 15%. Moisture content will decrease provided no additional water is allowed to enter wood fibres. The drying process can be assisted by directing warm, dry air over the entire suspected area, taking moisture readings daily; do not allow the moisture content to go below 10%. All deficiencies, which would allow water to come in contact with wood fibres, shall be corrected prior to exposing the aircraft to high moisture conditions.

(e) If probing indicates soft or decayed wood, the affected structural members shall be replaced. The repairs can be accomplished with reference to the following documents:

(i) FAA AC 43.13-1: Department of Transportation, Federal Aviation Agency, 1972, *Acceptable Methods, Techniques and Practices - Aircraft Inspection and Repair*; available from:

Superintendent of Documents U.S. Government Printing Office Washington, D.C., U.S.A. 20402

(ii) ANC-18: Munitions Board Aircraft Committee, June 1951, *Design of Wood Aircraft Structures*, Chapter 4 - Detail Structural Design; available from:

USA Naval Depot 5801 Tabor Avenue Philadelphia, PA. U.S.A. 19120

Appendix F

ATC Transponder Performance Tests

The performance of Air Traffic Control (ATC) transponders can be tested using either a bench check or portable test equipment and shall meet the standards of airworthiness requirements elaborated in relation to LAR 575.02 and listed in paragraphs (a) through (j) of this appendix. Where portable test equipment with appropriate coupling to the aircraft antenna system is used, it shall be operated at a nominal rate of 235 interrogations per second to prevent possible interference with the Air Traffic Control Radar Beacon System (ATCRBS). An additional 3-decibel (dB) loss is allowed to compensate for antenna coupling errors during receiver sensitivity measurements conducted in accordance with subsection (c)(1) when using portable equipment.

Information Note:

For definition of classes of transponders refer to the US FAA's Technical Standard Order (TSO-C112) entitled "Air Traffic Control Radar Beacon System/Mode Select (ATCRBS/Mode S) Airborne Equipment".

(a) **Radio Reply Frequency**

(1) For all classes of ATCRBS transponders, interrogate the transponder and verify that the reply frequency is 1090 ±3 Megahertz (MHz).

(2) For 1B, 2B and 3B Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090 ±3 MHz.

(3) For class 1B, 2B and 3B Mode S transponders that incorporate the optional 1090 ±1 MHz reply frequency, interrogate the transponder and verify that the reply frequency is correct.

(4) For class 1A, 2A, 3A, and 4 Mode S transponders, interrogate the transponder and verify that the reply frequency is 1090 ±1 MHz.

(b) **Suppression**

(1) When class 1B and 2B ATCRBS transponders, or class 1B, 2B and 3B Mode S transponders are interrogated on Mode 3/A at an interrogation rate between 230 and 1,000 interrogations per second; or when class 1A and 2A ATCRBS transponders or class 1B, 2A, 3A and 4 Mode S transponders are interrogated at a rate between 230 and 1,200 Mode 3/A interrogations per second:

(I) Verify that the transponder does not respond to more than 1 percent of the interrogations when the amplitude of P2 pulse is equal to P1 pulse; and,

(ii) Verify that the transponder replies to at least 90 percent of the ATCRBS interrogations when the amplitude of the P2 pulse is 9 dB less than the P1 pulse. If the test is conducted with a radiated test signal, the interrogation rate shall be 235 ±5 interrogations per second unless a higher rate has been approved for the test equipment used at that location.

(c) **Receiver Sensitivity**

(1) Verify that for any class of ATCRBS transponder, the receiver minimum triggering level (MTL) of the system is - 73 ±4 dbm, or that for any class of Mode S transponder, the receiver MTL for Mode S format (P6 type) interrogations is -74 ±3 dbm by use of a test set:

(i) connected to the antenna end of the transmission line;

(ii) connected to the antenna terminal of the transponder with a correction for transmission line loss; or

(iii) utilising a radiated signal.

(2) Verify that the difference in Mode 3/A and Mode C receiver sensitivity does not exceed 1 dbm for either any class of ATCRBS transponder or any class of Mode S transponder.

(d) **Radio Frequency (RF) Peak Output Power**

(1) Verify that the transponder RF output power is within specifications for the class of transponder. Apply the same conditions as described in (c),1),i),ii),iii) above.

(i) For class 1A and 2A ATCRBS transponders, verify that the minimum RF peak output power is at least 21.0 dbw (125 watts).

(ii) For class 1B and 2B ATCRBS transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70 watts).

(iii) For class 1A, 2A, 3A, 4 and class 1B, 2B and 3B Mode S transponders that include the optional high RF peak output power, verify that the minimum RF peak output power is at least 21.0 dbw (125 watts).

(iv) For class 1B, 2B and 3B Mode S transponders, verify that the minimum RF peak output power is at least 18.5 dbw (70 watts).

(v) For any class of ATCRBS or any class of Mode S transponders, verify that the maximum RF peak output power does not exceed 27.0 dbw (500 watts).

Information Note:
The tests specified in (e) through (j) below apply only to Mode S transponders.

(e) **Mode S Diversity Transmission Channel Isolation**
For any class of Mode S transponder that incorporates diversity operation, verify that the RF peak output power transmitted from the selected antenna exceeds the power transmitted from the nonselected antenna by at least 20 dB.

(f) **Mode S Address**
Interrogate the Mode S transponder and verify that it replies only to its assigned address. Use the correct address and at least two incorrect addresses. The interrogations shall be made at a nominal rate of 50 interrogations per second.

(g) **Mode S Formats**
Interrogate the Mode S transponder with uplink formats (UF) for which it is equipped and verify that the replies are made in the correct format. Use the surveillance formats UF=4 and 5. Verify that the altitude reported in the replies to UF=4 are the same as that reported in a valid ATCRBS Mode C reply. Verify that the identity reported in the replies to UF=5 are the same as that reported in a valid ATCRBS Mode 3/A reply. If the transponder is so equipped, use the communications formats UF=20, 21 and 24.

(h) **Mode S All-call Interrogations**
Interrogate the Mode S transponder with the Mode S-only all-call format UF=11 and the ATCRBS/Mode S all-call formats (1.6 microsecond P4 pulse) and verify that the correct address and capability are reported in the replies (downlink format DF=11).

(i) **ATCRBS-only All-call Interrogation**
Interrogate the Mode S transponder with the ATCRBS-only all-call interrogation (0.8 microsecond P4 pulse) and verify that no reply is generated.

(j) **Squitter**
Verify that the Mode S transponder generates a correct squitter approximately once per second.

(k) **Integration Test**

(1) Following maintenance which could introduce automatic pressure altitude reporting errors or ATC transponder systems data correspondence errors, the integrated system shall be inspected and tested in accordance with the following procedures:

(i) The altimeter shall be adjusted to a setting of 1013.2 millibars (29.92 inches of mercury) for altitudes from sea level to the maximum certified altitude of the aircraft.

(ii) Measure the automatic pressure altitude at the output of the installed ATC transponder when interrogated on mode C at sufficient altitude levels up to the certified altitude of the aircraft. The following altitude levels will exercise all pulse positions up to 50,000 feet:

(A) 500';

(B) 1,300';

(C) 2,700';

(D) 10,000';

(E) 14,000';

(F) 30,800'.

The difference between the automatic reporting output and the altitude displayed on the aircraft altimeter shall not exceed 125 feet.

Appendix G

Maintenance of Emergency Locator Transmitters (ELTs)

Corrosion Inspection

ELTs installed in aircraft are subject to extreme environmental conditions, which may cause corrosion to develop in circuit boards and battery compartments. As a minimum, corrosion inspection shall be performed during each required battery replacement and performance test.

Operational Testing

An acceptable procedure for operational tests is to:

(1) Tune the aircraft or other VHF receiver in the area to 121.5 MHz;

(2) Activate the ELT for not more than five seconds, while monitoring the VHF receiver; approximately three ELT audio sweeps are to be heard;

(3) Reset the ELT to ARM or AUTO, as applicable, and continue to listen to 121.5 MHz for a few seconds to ensure that the ELT does not continue to transmit after the test is terminated.

Performance Testing

(1) Testing of any ELT shall be conducted in a screen room or metal enclosure, or, the transmitter power output shall be connected to a suitable dummy load to minimise radiation.

(2) For ELTs powered by other than water activated batteries, the performance test shall be performed using the ELT's own battery. An alternate power source can be used where lengthy servicing, other than the performance test, is anticipated.

(3) As a minimum, the performance test for ELTs powered by non water-activated batteries shall include:

(a) the measured peak power after 3 minutes of operation;

(b) the measured frequency after 3 minutes of operation;

(c) the audio modulation, which shall be recognisable as a typical ELT signal, and shall meet the specifications of the ELT manufacturer;

(d) the measured current draw in the "Arm" or "Auto" position, and in the "On" position as specified by the ELT manufacturer; and (e) a test of the automatic activation system.

(4) Except for the automatic activation system test, the performance test for ELTs utilising water activated batteries shall include all of the above (see paragraph 3).

(5) Following satisfactory completion of a performance test, the date on which the test was performed shall be marked on the external casing in a legible and permanent manner.

Battery Replacement and Recharging

(1) Battery manufacturers are required to indicate the type, model, part number, ELT type & model(s) for which the battery has been approved, and the battery's expiry date.

(2) The following general guidelines relate to the replacement of ELT batteries:

(a) only batteries approved for the particular ELT type are to be installed;

(b) following each battery replacement, recharge or capacity test, the date when the next replacement, recharge or capacity test becomes due shall be marked in a legible and permanent manner on the external casing of the ELT and, where the ELT is installed on a life raft, on the outside of the life raft;

(c) an operational test shall be performed following reinstallation in an aircraft of an ELT, which has been removed for any reason.

(3) Non-rechargeable batteries shall be replaced by serviceable batteries:

(a) After use of the ELT in an emergency;

(b) After an inadvertent activation of unknown duration;

(c) When the cumulative time of all known transmissions exceeds one hour; and,

(d) On or before the proposed battery replacement date.

(4) Rechargeable batteries shall be recharged:

(a) immediately before the ELT is installed in an aircraft;

(b) after use in an emergency;

(c) after an inadvertent activation of unknown duration;

(d) at the time intervals established by the ELT manufacturer; and

(e) when the cumulative time of all known transmissions exceeds one hour.

(5) Capacity tests and recharging shall be accomplished at the time intervals, and in accordance with the procedures established by the manufacturer.

(6) Water-activated batteries shall be replaced by serviceable batteries after activation or under any other conditions specified by the ELT manufacturer.

Shipping

When shipping an ELT, the battery shall be disconnected. If that is not practicable, the ON/OFF/ARM switch shall be secured in the "OFF" position.

Appendix H

Cockpit Voice Recorders (CVRs) and Underwater Locating Devices (ULDs)

(1) Cockpit Voice Recorders

The maintenance of CVRs shall be performed in accordance with the recommendations of the CVR manufacturers.
Information Note:
EUROCAE ED-56A document provides guidelines for CVR maintenance in general; it also provides information relative to equipment required to adequately evaluate the quality of voice recording.
Copies of ED56A may be obtained from:
EUROCAE, 11 rue Hamelin 75783 Paris CEDEX 16, France

(2) Underwater Locating Devices

The maintenance of ULDs shall be performed in accordance with the recommendations of the ULD manufacturers. In part, the manufacturer recommends that the case of the device and water switch be cleaned at a regular interval to prevent premature discharge of the ULD battery. The location of the ULD should be considered when establishing the periodic cleaning schedule of the case and water switch as it will help to choose the most appropriate frequency.

Appendix I

Maintenance of Flight Data Recorders (FDRs) and Underwater Locating Devices (ULDs)

(1) Flight Data Recorders

The maintenance of FDRs shall be performed in accordance with the recommendations of the FDR manufacturers.
Information Note:
EUROCAE ED-55 document provides information related to FDR maintenance.
Copies of ED-55 may be obtained from:
EUROCAE, 11 rue Hamelin, 75783 Paris CEDEX 16, France

(2) Underwater Locating Devices

The maintenance of ULDs shall be performed in accordance with the recommendations of the ULD manufacturers. In part, the manufacturer recommends that the case of the device and water switch be cleaned at a regular interval to prevent premature discharge of the ULD battery. The location of the ULD should be considered when establishing the periodic cleaning schedule of the case and water switch as it will help to choose the most appropriate frequency.

Appendix J

Authorized Release Certificate (LAR-001)

1. This appendix provides general information related to the Authorized Release Certificate form LAR-001, when used as an official document for identification, conformity determination, manufacturer's and maintenance release document.

2. Lebanese Aviation Regulations 535 and 575 contain regulatory information related to export and certification of aeronautical products.

3. To facilitate the movement and acceptance of aeronautical products from organizations under the jurisdiction of the Joint Aviation Authority (JAA) in Europe, the Federal Aviation Administration (FAA) in the United States, and Transport Canada Civil Aviation (TC) in Canada, these authorities have developed similar certification documents, they are:

a) TC Form 24-0078 Authorised Release Certificate;

b) JAA Form One Authorised Release Certificate;

c) FAA Form 8130-3 Airworthiness Approval Tag.

4. The purpose of these documents is to identify the airworthiness, conformity and eligibility status of aeronautical products after manufacture or maintenance performed on those products under the approval of the National Airworthiness Authority (NAA).

5. All entries must be typewritten or clearly printed in block letters in permanent ink, and must be signed by persons authorized by the NAA.

6. In Lebanon, the certification document for new or used aeronautical products is the Authorized Release Certificate LAR form # LAR-001. Authorized persons issuing this form must ensure the provisions of the applicable LARs have been complied with, particularly with respect to persons authorized to perform the work, use of approved data, work, inspection records and maintenance releases. Where a Conformity Certificate is required, a completed copy of form LAR-0575 must be attached to form LAR-001.

7. Form LAR-001 may be reproduced by the user as a printed form or computer generated format. User produced forms, must comply with the format including block numbers. The blocks must be located as per the layout of form LAR-0001 to be acceptable to foreign authorities. The size of the blocks may be varied to suit individual applications, but not to the extent that would make the form unrecognizable.

8. The form should be completed in English when used for shipping aeronautical products outside of Lebanon. Compliance with this requirement is left to the originator discretion. However, shipments may be rejected where the requirements of the foreign airworthiness authority are not respected. The JAA requires that form LAR-001, that accompanies the aeronautical product(s), contains the certification of the organization that performed the work.

9. A copy of form LAR-001 should be retained for at least two years by the organization that issues the form. Where the form and data are entirely computer generated, it is permissible to retain the form and data on a secure database.

10. A numbering system to provide control and traceability must be established. These numbers should be reflected in block 3 of the form. The originator should maintain a method of cross-reference with the control number of the form and parts being shipped.

11. For bulk shipments, the information required in blocks 6 through 12 may be omitted if the document referenced in block 5 contains all the necessary information. It is the originators responsibility to determine if the authority of the importing country will accept such bulk shipments in this manner. When an attachment is used, it shall be cross-referenced to the number in block 3.

12. COMPLETION OF FORM LAR-FORM 001 BY THE ORIGINATOR

Block 1. Name of the exporting country. May be pre-printed.

Block 2. Pre-printed.

Block 3. The certificate number should be a unique number established by the originator for the purpose of identification and/or traceability. May be pre-printed or computer generated.

Block 4. The full name, address and DGCA approval number of the organisation releasing the aeronautical product(s) covered by the form. May be pre-printed.

Block 5. Its purpose is to reference work order, contract, and invoice numbers, list of parts covered by document in bulk shipments; or any other internal organisational process, such that a traceability system can be established.

Block 6. This block is provided for the convenience of the organisation issuing the form to permit easy cross-reference to the remarks block 13 by the use of item numbers.

Block 7. The name or description of the aeronautical product. The Illustrated Parts Catalogue (IPC) designation or that used in the approved design data must be used.

Block 8. Part number. The Illustrated Parts Catalogue (IPC) number designation or that used in the approved design data must be used.

Block 9. State the aircraft, propeller, appliance or engine model on which the part is eligible for installation or reference to a readily available catalogue or manual which contains such information.

Information Note: Information contained in block 9 does not constitute an authority to install the aeronautical product on a particular aircraft, engine or propeller. The user/installer must confirm via documents such as the Illustrated Parts Catalogue (IPC), Service Bulletins (SBs), etc., that the aeronautical product is eligible for installation.

Block 10. Enter the quantity of each aeronautical product listed.

Block 11. Enter the Serial Number or Batch Number of each aeronautical product listed, if applicable. If neither is applicable enter "N/A".

Block 12. Enter the status of the aeronautical product being released in this block, by entering the work done using one or a combination of the following words: *MANUFACTURED, OVERHAULED, INSPECTED, MODIFIED or REPAIRED*.

Block 13. Any information, either directly or by reference to supporting documentation, that identifies particular data or limitations relating to the aeronautical product being released that may be necessary for the user/installer to make the final airworthiness determination of the aeronautical product listed in block 7.

Examples of information to be quoted are:

- Usage restrictions for repaired items (i.e. prototype only).

- Modification Standard (i.e., service bulletins, STC, etc.);

- Alternative approved parts supplied (i.e., design change, part number, change due to alternate supplier, etc.).

- Details of repair work carried out or reference to a document where this is stated such as a maintenance manual chapter, section, page and revision number.

- Compliance with, or non-compliance with, Airworthiness Directives, or Service Bulletins.

- Information on life-limited parts.

- Condition of parts or reference to a document detailing this information.

- Manufacturing data or cure date.

- Shelf life data.

- Time Since New, Time Since Overhaul, etc.

- Exceptions to the notified special requirements of the importing country.

- Conformity (followed by an explanation to clarify the use of conformity, i.e., pending approved data, foreign design approval including limitations, pending type certificate, for test only, etc.).

- Details of any outstanding work required to bring the part into an airworthy condition.

- Any other special conditions.

Block 14. This certification statement pertains to newly manufactured parts identified as such in block 12. (This statement must be pre-printed on all forms.)

Block 15. Signature of the authorised person in permanent black ink.

Information Note: *Block 15 should only be signed when block 12 specifies "manufactured".*

Block 16. Authorisation number of the person certifying together with the identification of the organisation that authorised the person to certify. For example SCA No. # xxx, Manufacturer Approval Certificate No. # x-xx.

Block 17. The name of the person signing in block 15 shall be typed or printed in a legible manner.

Block 18. The date the form is signed.

Block 19. This certification statement pertains to the maintenance identified in block 12. (This statement must be pre-printed on all forms.)

Block 20. Signature of the authorised person in permanent black ink.

Information Note: *Block 20 should only be signed when block 12 specifies other than "manufactured".*

Block 21. Authorisation number of the person certifying together with the identification of the organisation that authorised the person to certify. For example SCA No. # xxx, AMO No. # x-xx.

Block 22. The name of the person signing in block 20 shall be typed or printed in a legible manner.

Block 23.The date the form is signed.

Appendix K
Equipment Maintenance Requirements

Information note:
This appendix lists the maintenance requirements for specific equipment. Unless otherwise specified in the Out of Phase Tasks and Equipment Maintenance Requirements of Part VI, Standard s605, Appendix C, these intervals apply to all installed equipment of a type listed herein.

Operators with an approved maintenance schedule may obtain approval to deviate from the standard where acceptable documentation can be provided to the DGCA.

Out of Phase Task Listings
Carry out the following tasks at the times indicated:

1. **All Aircraft**
Ensure that any applicable equipment maintenance task required by this appendix is performed at, or before, the next inspection interval listed therein.

2. **Aircraft Used in Dual Role Operations**
Upon conversion between roles, inspect to ensure that contamination, structural damage and other defects incurred during operation in the special purpose role, are rectified prior to operation in the normal role.

3. **Rotorcraft Dynamic Components**
At the intervals recommended by the aircraft manufacturer, inspect:

(a) the drive shafts or similar systems;

(b) the main rotor transmission gearboxes;

(c) the main rotors and hubs;

(d) the tail rotor.

4. **Variable Pitch Propellers**

(a) Where the manufacturer has recommended a TBO in flying hours or cycles, this recommendation shall apply.
(b) Where the manufacturer has not made any recommendations regarding TBO, the propeller(s) shall be overhauled at the following intervals:

(i) in the case of propellers installed on turbine engines:
2,000 hours air time;

(ii) in the case of single acting propellers installed on piston engines:
1,500 hours air time;

(iii) in the case of double acting propellers installed on piston engines:
2,000 hours air time.

(c) At intervals of not more than 5 years, the propeller shall be subjected to an internal inspection for corrosion by an AMO holding an applicable rating in the propeller category. The dismantling of the propeller shall be to the extent that will allow for the complete inspection of the propeller; including, as required, removal of blade root ferrules, de-icer boots, decals, etc.

Information Note:

The inspection described in paragraph (c) does not constitute overhaul. It is intended to meet the needs of those owners who operate in a benign environment or have extremely low utilization.

(d) The interval of 5 years, required by paragraph (c), starts following the first installation of the propeller on the aircraft, subject to the following conditions:

(i) the propeller is new, properly packaged and protected against corrosion while in shipment or storage; or

(ii) the propeller is newly overhauled or has been inspected as per paragraph (c), properly protected and packaged against corrosion while in shipment or storage.

(e) The interval of 5 years, required by paragraph (c), may be interrupted by a period of storage following the first installation of the propeller, subject to the following conditions:

(i) the propeller shall be completely cleaned of all residual oil and foreign deposits, e.g. lead, in accordance with the manufacturer's recommendations; and

(ii) it shall be completely inhibited, properly protected and packaged against corrosion while in storage using the manufacturer's recommendations, or other procedures acceptable to the DGCA.

5. **Fixed Pitch and Ground Adjustable Propellers**

At intervals of not more than 5 years, the propeller shall be removed from the aircraft and inspected for corrosion or other defects over its entire surface, including the hub faces and the mounting hole bores. While the propeller is removed, it shall also be checked for correct dimensions. However, if defects which require repairs beyond those recommended as field repairs by the propeller manufacturer are found, the propeller shall be repaired by an organization approved for the overhaul of propellers.

Information Note:

The dimensional check requirement does not include a check on blade twist. The dimensional check refers to changes in blade dimension resulting from repairs, particularly cropping of the tips. It is intended to ensure that the blade diameter remains within service limits.

6. **Engines**

All piston and turbine engines installed in airplanes and helicopter shall be overhauled at the intervals recommended by the engine manufacturer.

7. **Tachometers**

The accuracy of the tachometer system shall be checked at least at each annual inspection.

8. **Weight and Balance**
Except as provided for in an approved fleet empty weight and balance control program, all aircraft shall be reweighed and an updated report prepared every **five years** and submitted to the DGCA.

9. **Non-stabilized Magnetic Direction Indicators (MDIs)**

(a) Except as provided in (b) and (c), non-stabilized magnetic direction indicators shall be calibrated, and a dated correction card installed for each indicator, at intervals not exceeding **12 months**;

(b) The annual calibration requirement of (a) does not apply to an aircraft operating under an air operator certificate, or to any large or turbine-powered pressurized aircraft, where:

(i) the aircraft is equipped with two independent stabilized magnetic direction indicators in addition to the non-stabilized direct reading magnetic direction indicator; and

(ii) a procedure for monitoring and recording the performance of the magnetic direction-indicators is detailed in the air operator's approved maintenance control manual.

(c) The calibration requirement can be postponed for any of a series of flights conducted within a period of seven consecutive days, where the series commences within the area of compass unreliability.

10. **Survival and Emergency Equipment**
Survival and emergency equipment shall be overhauled at the intervals recommended by the manufacturer.

11. **Emergency Locator Transmitters (ELTs)**

(a) Except where powered by water activated batteries, the ELT shall be checked at intervals not exceeding **12 months**, in accordance with Appendix G.

(b) ELTs powered by water activated batteries shall be performance-tested at intervals not exceeding **5 years**.

(c) ELT batteries shall be replaced at the interval recommended by the ELT manufacturer.

12. **Altimetry Devices**
Altimeters and other Altimetry devices installed in aircraft operating under Instrument Flight Rules, or under visual flight rules in Class B Airspace shall be calibrated at intervals not exceeding **24 months**, to the standard outlined in Appendix B.
Information Note:
For the purpose of this section, the term "other altimetry devices" includes any air data computer, or other barometric device, providing a flight crew station, or an auto pilot, or automatic pressure altitude reporting system with altitude data derived from static pressure.

13. **Air Traffic Control (ATC) Transponders**
ATC Transponders, including any associated altitude sensing reporting mechanisms, where installed, shall be tested every **24 calendar months**, in accordance with Appendix F.

14. **Cockpit Voice Recorders (CVRs)**

(a) Cockpit Voice Recorders (CVR), where installed for compliance with the basis of certification listed on the type certificate, or where required by operating rule, shall be subject to the following maintenance, in accordance with a maintenance schedule meeting the following requirements:

(i) an operational check;

(ii) a functional check;

(iii) an intelligibility check; and

(iv) unit overhaul, at the interval recommended by the CVR manufacturer.

(b) An operational check shall be performed, in accordance with the manufacturers instructions, as follows:

(i) by maintenance personnel during each line check and following any system maintenance;

(ii) by each new, or partial change of, flight crew; and

(iii) upon installation in the aircraft.

(c) **A functional check shall be completed in accordance with manufacturers maintenance instructions at 3,000 hours, or 12 months, whichever comes first.**

(d) An intelligibility check shall be performed by means of a test procedure which, when completed under operational conditions, shall enable verification of intelligible recorded audio information from all the various input sources required by the regulations:

(i) upon initial installation;

(ii) at 3,000 hours, or 12 months, whichever comes first.

(e) CVR maintenance and overhaul shall be performed in accordance with manufacturer's recommendations.
Information Note:
EUROCAE ED-56A document provides guidelines for CVR maintenance in general; it also provides information relative to equipment required to adequately evaluate the quality of voice recording. Copies of ED56A may be obtained from:

EUROCAE, 11 rue Hamelin 75783 Paris CEDEX 16, France

(f) CVR maintenance details can be found in Appendix H.

15. **Underwater Locating Devices (ULDs)**

(a) The beacon case and water switch shall be cleaned at the interval, specified by the ULD manufacturers' recommendations.

(b) Operational checks shall be conducted on ULDs upon installation, and once a year thereafter. The ULD battery shall be replaced on or before the expiry date stamped on the battery, and a label affixed to the ULD case indicating the next replacement date.

(c) The ULD shall be inspected and tested at the intervals specified below:

(i) cleaning of the water switch at interval as recommended by the ULD manufacturer;

(ii) recertification of the ULD at **12 month intervals**; and

(iii) replacement of the ULD battery at the interval as recommended by the battery manufacturer.

16. **Flight Data Recorders (FDRs)**

Information Note:

Operators with an approved maintenance schedule may obtain approval to deviate from the standard where acceptable documentation can be provided to the DGCA.

At the intervals specified in the table below, and where installed for compliance with the basis of certification listed on the type certificate, or where required by operating rules, FDRs shall be inspected and tested in accordance with Appendix I.

FDR Maintenance Schedule

"Task"	**"Interval"**
Correlation check to ensure all required parameters are being recorded and usable.	3,000 flight hours, or 12 months, whichever occurs first.
Accelerometer functional check.	As specified by the FDR manufacturer. (
Overhaul of the FDR.	As specified by the FDR manufacturer.
Cleaning of heads.	As specified by the FDR manufacturer.

Appendix L

Specific Nondestructive Testing (NDT) Tasks

(refer to LAR 575.02(3) and LAR 575.04)

(1) Purpose

(a) The NDT of certain items can be carried out after a technician has satisfied training requirements and is qualified in accordance with this appendix.

(b) Exemption from the requirements for an AMO to hold a rating in the NDT category apply where:

(i) the technician holds an appropriate Level 2 or Level 3 NDT certification;

(c) These instructions also provide a means by which personnel can gain the work-time experience to meet the requirements of a National or International certification standards. *Information Note**:** Appendix L is not applicable for AMOs that are certified in the NDT category.*

(2) Limitation

The NDT eligible under this provision is restricted to Liquid Penetrant, Magnetic Particle, Ultrasonic, and Eddy Current methods that do not require interpretative skills beyond the training received.

(3) Procedure General

(a) The technician shall be trained and found qualified to perform typical NDT tasks for the methods being employed. He shall contract with either a recognised NDT training institute or an AMO holding appropriate ratings in the NDT category (hereafter referred to as the "training organisation") to provide this type of training.

(b) Where the technician is employed by an AMO, the training organisation shall provide the AMO with assistance in amending its quality assurance system to be effective for the NDT undertaken. This contract shall include a provision for the training organisation to audit the applicant on a regular basis, at least annually; to ensure that the inspections are completed in compliance with established procedures. The frequency of the audits will vary with the complexity of the specific NDT undertaken and will be conducted in compliance with the procedures established in the MOE of the AMO.

(c) Where the technician is not employed by an AMO, the training authorisation issued shall be subject to a renewal every two years.

(4) Qualifications

(a) Technicians who do not work within an AMO must hold an appropriate Level 2 or Level 3 NDT certification.

(b) Individuals providing training and assisting with the amendment of the quality assurance system on behalf of the training organisation shall be, or have been, certified to Level 2 or Level 3 for the applicable NDT method.

(5) Training

(a) The technician shall be trained for each application of a procedure that is intended to be performed and shall successfully complete, for the NDT method, a course which:

(i) provides for an equivalent outline of theory and at least equivalent training hours to those specified for Level 1 in an approved National or International standard pursuant to LAR 575, for that method; and

(ii) is acceptable to the DGCA

(b) The training organisation shall test the selected individual by written and practical examination, on aeronautical products that are similar to applications that would be most commonly encountered, on test materials with known flaws. The examiner shall not attest to the applicant's qualifications until satisfied that he can carry out the inspection independently.

(c) The training organisation is responsible to provide each trainee with adequate documentation confirming his successful completion of the required training. Certificates of attendance shall not be accepted as evidence of successful training.
The documentation shall indicate the specific NDT task that is authorised, including any applicable limitations.

(d) The trainee shall retain the documentation referred to in (c), or where the trainee is employed within an AMO, with the individual's training and experience record.

(6) Scope of Work

(a) Where the technician is employed by an AMO, the scope of work is limited to the specific NDT tasks covered by the training undertaken and must be listed in the AMO's personnel training records.

(b) Where the technician is not employed by an AMO, the scope of work is limited to the inspection of those parts specifically indicated in the technician's training documentation.

(7) Experience Record
To validate the work-time experience, the technician shall keep a record of each inspection carried out, including dates, times, location, equipment used, aircraft identity, and other pertinent information (see paragraph 1(c)). Copies of the NDT inspection form will be completed by the individuals and retained by themselves and the AMO as a record of work.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 585
SERVICE DIFFICULTY REPORTING

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
05/08/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 585 - Service Difficulty Reporting

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Lebanese Aviation Regulations Part V - Airworthiness
Subpart 585 - Regulations
Standards s585- Means of Compliance
Information notes - in Italics, these are interpretation, not regulations.

Subpart 585 - Service Difficulty Reporting

Note: Overview of the SDR System

(1) The following information is provided to identify background information concerning service difficulty reporting requirements. Although this information is advisory in nature, its inclusion in these standards indicates the importance attached to the understanding of the principles of the SDR system.

(2) For the purpose of this chapter the following definition applies:
"reportable service difficulty" - Any defect, malfunction or failure of an aeronautical product affecting, or that if not corrected is likely to affect, the safety of the aircraft, its occupants or any other person.
This definition is very broad due to the complexity of modern aircraft and the many factors that could affect their safe operation. When considering the reportability of a particular defect, malfunction or failure, the reporter shall apply the criterion of "... affecting safety...". The following points shall also be kept in mind:

(a) Deliberate simulation of failure conditions for training, system test or test purposes need not be reported, but any defect, malfunction or failure arising from such action shall be reportable; and

(b) A particular defect or failure could introduce an element of danger and require a report for one type of aircraft, whereas on another type it would not.

(3) The establishment of the SDR system is not intended to replace the various normal "control" systems, which are the responsibilities of operators, flight crew, manufacturers, maintenance organizations and personnel. It is intended to complement and enhance the normal procedures and controls, which ensure that required standards of safety are achieved and maintained.

(4) The purpose of the DGCA, SDR system is to collect, analyze, record and disseminate data concerning those defects and malfunctions which have resulted in, or are likely to result in a safety hazard to an aircraft or its occupants. It is intended to use the reported information to support the regulatory activities required to improve the level of flight safety.
The DGCA will:

(a) Assess each report for airworthiness safety implications, both in itself and in relation to previous similar reports;

(b) Use the data collected on a national basis to establish trends that would not be apparent to individual operators;

(c) Issue specific advice or instructions to particular sections of the aviation community;

(d) Take action in the form of:

(i) regulations;

(ii) issuance of ADs which introduce mandatory modifications and inspections;

(iii) directives which result in amendments to maintenance schedules, maintenance instructions and maintenance manuals; and

(iv) issue of airworthiness and safety information in whatever form that is appropriate.

(e) Request foreign aviation authorities and organisations to take any necessary remedial and preventive action in relation to the reported deficiencies.

(5) It is fundamental to the purpose of the SDR system that the substance of reports shall be disseminated where necessary in the interest of flight safety. However, keeping in mind its responsibilities in this regard, the DGCA, commits itself to not disclosing the name of the person or organization submitting a report, or of a person cited in the report, unless required to do so by law.

(6) Various operating rules specify those persons and organizations required to submit service difficulty reports. It is anticipated that operators will submit the majority of reports because they, in most cases, will discover the defects during the course of normal operations;

Examples of the expected level of reporting are:

(a) The manufacturers of aircraft, engines, components or equipment are not required to report defects in their own products if they know an operator has already reported the defect to the DGCA. Manufacturers shall report any defect, malfunction or failure discovered by them, which they consider to be a reportable service difficulty. Manufacturers shall also report any reportable service difficulty reported to them by a foreign operator of their product.

(b) Defects, malfunctions and failures occurring on prototypes during aircraft, engine or appliance development or developmental flight tests are not considered reportable service difficulties.

(c) In relation to the discovery of defects in the course of overhaul or repair work, the primary responsibility for reporting falls on the overhaul agencies. When an overhaul agency is in doubt as to the applicability of the reporting requirements, (e.g. it discovers a defect in a component or appliance which cannot be associated with a particular aircraft, or even a type of aircraft) it shall submit a report to ensure that it has complied with requirements of LAR 585. The DGCA would, in any case, want the agency to report such defects, where the equipment may later be fitted to an aircraft.

(7) The DGCA Service Difficulty Report form is designed to provide all the data required under LAR 585 when properly completed. The information from all reports will be stored for the purpose of flight safety studies. Complete and accurate reports will facilitate both the storage and subsequent analysis of the data.

585.01 Reporting Requirements

(1) A person who, by these Regulations, is required to report a service difficulty shall submit a report

(a) in respect of each occurrence of a service difficulty; and

(b) in the form and manner, and within the period, specified in *Standard 585*.

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

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Date of Revision	***Revision #***	***Date Entered***	***Entered By***
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Appendix B- Examples of defects for which an SDR is required.

Appendix C- Guidelines for reporting suspected unapproved parts.

Standard 585 - Service Difficulty Reporting

s585.01 Reporting Requirements

(1) For each occurrence of a service difficulty, a Service Difficulty Report (SDR) shall be submitted by any one of the following on a "one SDR form per event" basis:

Type of Submitter

Flight Training Organizations
Manufacturer of Aeronautical Products
Type Certificate holder
Supplemental Type Certificate holder
Distributor of Aeronautical Products
Approved Maintenance Organization
Private Operator - Passenger Transportation
Air Operator (Commercial Air Service)

(2) A SDR shall be submitted to the Authority within 3 working days from the time the service difficulty was first discovered.

(3) Where not all the required information is available within the time period specified in (2), an interim report can be submitted by telephone, or other expedient means, to the local Authority office within that period. Such reports shall be followed by a complete written report within 14 days of the discovery of the occurrence.

(4) Unless approved in accordance with procedures contained in an organization's approved manual, an interim report must contain at least:

(a) the occurrence date;

(b) the aircraft registration (if applicable);

(c) a description of the defect;

(d) the name of the submitter.

(5) Except as provided in (6) below a Service Difficulty Report will normally be submitted using form (LAR-0585).

(6) Organizations who wish to use a reporting form other than (LAR-0585), if granted approval, may do so provided all the information required by these standards is supplied. Approval for the use of such forms will be granted through the approval of the alternate form within the organization's approved MOE manual.

The following additional information is provided in the appendices indicated below:
Appendix A- Completion of the Service Difficulty Report (SDR) form.
Appendix B- Examples of defects for which an SDR is required.
Appendix C- Guidelines for reporting suspected unapproved parts.

Appendix A

Completion of the Service Difficulty Report (SDR) form.

In utilising form #LAR-0585, all the pertinent blocks shall be filled. Additional information may be provided in separate reports.

1. **Aircraft Registration:** *Enter the aircraft nationality and registration marks.*

2. **Date:** *Enter date the service difficulty was discovered.*

3. **Status:** *Enter ORIG-OPEN for an original report to which additional information will be added later. Enter CLOSED for an original report that is considered complete. Enter SUPP-OPEN for a supplementary report when further information is to be provided. Enter SUPP-CLOSED for a supplementary report that is complete.*

4. **Aircraft:** *Enter the aircraft manufacturer's name, the aircraft model number and serial number.*

5. **Powerplant:** *Enter the engine manufacturer's name, the model number, and the serial number.*

6. **Propeller:** *Enter the propeller manufacturer's name, the model number, and the serial number.*

7. **Assembly***: This area identifies the next higher assembly containing the defective part. Example: When the part is a burnt wire, the assembly must be the system using the wire, such as VHF comm. system; when the part is a stringer, the assembly name could be fuselage, etc.*
   A. Name: *Enter the technical or common name of the assembly.*
   B. Manufacturer: *Enter the name of the assembly manufacturer.*
   C. Model/Part No.: *Enter the manufacturer's identification of the assembly.*
   D. Serial Number: *Enter the manufacturer's serial number of the assembly.*

8. **Specific Part:**
   A. Part Name: *Enter the specific part name, as defined by the manufacturer, causing the problem (e.g. oil seal is the part name, magneto is the assembly name)*
   B. Part Number: *Enter the manufacturer's part number*
   C. Part Condition: *Enter the word(s) which best describes the part condition. Example: Broken, Chafed, Corroded, etc.*
   D. Part/Defect Location: *Location of the defect on the part or of the part in relation to the assembly.*
   E. Cycles since New: *For turbine engine and other components with a life measured in cycles.*
   F. Part TSN: *Part total time since new; enter the total service time of the part in whole hours.*
   G. Part TSO: *Part time since overhaul; enter the service time of the part since it was last overhauled, in whole hours.*

   Information Note:
   With regards to Parts: To assist possible further investigation of the service difficulty, the submitter should retain affected parts for 21 days after submission of the SDR. If the DGCA does not request the parts within 21 days, submitters may dispose of the parts as they choose.

9. **Problem Description:**

The text must identify and describe the cause of the malfunction, failure or defect, if known. It shall also contain descriptive information concerning the part/component that caused the difficulty, the inspection findings and the corrective action taken to prevent recurrence

Information Note:

The submitter must remember that what is entered in this section must enable to understand the problem. It shall also assist in the development of a repair. The submitter shall enter data important to the particular problem (e.g. calendar dates, how the problem was found, relevant ADs or SBs, cycles, etc.), in addition to that specified in the above paragraph. If the text of the report requires more typing space than the block provides, continue the text on separate sheet(s) of paper and attach them to the form.

Appendix B

Examples of Defects Requiring Submission of a SDR

(1) It is not possible to envisage every defect, malfunction, or failure that would constitute a reportable service difficulty. Therefore, to a large degree, it is necessary to depend upon the reporter's knowledge, experience, and good judgement to determine if an occurrence is a reportable service difficulty.
(2) There are a number of defects, malfunctions and failures that are likely to be reportable. For guidance to those persons required to report, listed below are some examples of the types of service difficulties, which may be reportable. This list must not be considered exhaustive. For ease of reference, the examples are grouped under the following headings: aircraft structure, powerplant, and systems or equipment.

Aircraft Structure

(a) Any failure of aircraft primary structure.

(b) Cracks, permanent deformation or corrosion of aircraft primary structure for which a repair scheme is not already provided in the manufacturer's repair manual, or which occur after repair.

(c) Any part of the aircraft becoming detached, in flight or during operation on the ground that would endanger the aircraft or any person.

Powerplant

(a) Loss of thrust/power, shutdown or failure of any engine.

(b) Inability to shutdown an engine or to control power, thrust or RPM.

(c) Uncontained failure of engine compressor or turbines.

(d) Inability to feather or un-feather a propeller.

Aircraft Systems or Equipment

(a) Fire or explosion.

(b) Smoke, toxic or noxious fumes in the aircraft.

(c) Leakages of fuel, which result in major loss or is a fire hazard.

(d) Fuel system malfunction having a significant effect on fuel supply and/or distribution.

(e) Any loss or malfunction of one or more main system(s), subsystem(s), or set(s) of equipment (e.g., hydraulic power, flight control system [auto flight, auto trim], electrical power, air systems, ice protection, navigation systems and instruments, warning systems and devices, brake systems, etc.).

(f) Uncontained failure of any high speed rotating component, (e.g. auxiliary power unit, air starters, air cycle machine, etc.).

(g) Asymmetry of flaps, slats, spoilers, etc. (i.e., limiting systems do not function properly), or limitation of movement of more than one of these surfaces.

(h) Limitation of movement, stiffness, poor or delayed response in the operation of flight controls systems or their associated control/trim tab and locking systems.

(i) Any failure, defect, malfunction or deterioration of any critical item, system, or equipment found as the result of any special mandatory inspection or check (e.g. an airworthiness directive or alert service bulletin).

(j) Defects or deterioration of systems or components found during routine maintenance, overhaul or repair, when of a type not expected as a result of normal service.

(k) System/component defects or malfunctions identified by routine testing and inspection procedures on the aircraft or in workshops, where there is a likelihood that other operators might have similar but undetected defective items.

(l) Loss, defect, or malfunction of any emergency equipment or life support system (e.g. oxygen, fire protection, etc.).

(m) Damage to the aircraft and loss or malfunction of any essential service, or engine, as the result of a lightning strike.

(n) Defects or malfunctions of rotors or rotor drive systems (e.g. rotors, transmissions, drive shaft, etc.).

(o) Loss or malfunction of any rotorcraft automatic stabilisation system.

(3) As previously stated, the above list shall not be considered comprehensive. Any other defect, failure or malfunction, which, in the opinion of a reporter, constitutes a reportable service difficulty, shall be reported. These include:

(a) Defects occurring at an excessive frequency which in isolation would not be considered reportable (e.g., high frequency warnings for certain systems or high failure rate for a specific component).

(b) Incorrect assembly of components.

(c) Use of incorrect oil, hydraulic fluid or other essential fluids.

(d) Unapproved parts, as detailed in Appendix C of this Subpart.

Appendix C

Reporting Suspected Unapproved Parts Using the SDR System

(1) Definition

For the purpose of using the SDR system to report unapproved parts, the following definition applies: "unapproved part" - Any part, component or material that has not been manufactured in accordance with approved Airworthiness Standards, or repaired in accordance with LAR 575, or their foreign equivalence, that may not conform to an approved type design, or may not conform to an established industry specification for standard parts.

(2) Examples of unapproved parts include, but are not limited to:

(a) "Counterfeit", or fraudulently marked parts, components, or materials;

(b) Parts shipped directly to users by a manufacturer, supplier, or distributor who does not hold, or operate under the authority of manufacturer approval for the part (e.g. production overruns); or

(c) Parts that have been maintained or repaired and returned to service by persons or facilities not authorised under LAR 575 or LAR 545.

(3) Reporting Procedures

Reporting of suspected unapproved parts is accomplished using SDR form LAR 00585, with the following amplification:

(a) Block 7 enter "suspected unapproved parts";

(b) Block 8(c), Part Condition: enter "Suspected Unapproved Part"

(c) Block 9, Text: within the text, ensure that you provide information such as;

(i) identification of the commercial source of the suspected unapproved part;

(ii) how the suspect part was detected; and

(iii) any other pertinent information that can help in the investigation.

Information Note:
It is advisable for the submitter to include photos and copies of invoices, certificates of conformance, tags, or other release documentation when filing a report of this type.

(d) Block 11, Submitter: to aid in the investigation of suspected unapproved parts, it is essential that a point of contact be identified on the SDR.

(4) Disposition of Suspected Unapproved Parts

Investigation of the report and reduction in occurrences of distribution of unapproved parts can be greatly enhanced if suspected parts, together with their documentation, are quarantined until examination by DGCA Inspectors for agreement on the disposal action.

REPUBLIC OF LEBANON
MINISTRY OF TRNASPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

CONTROL NO.

SERVICE DIFFICULTY REPORT
Airworthiness

AIRCRAFT INFORMATION				1. A\C REGISTRATION
				2. DATE Y.A. M D.J
	MANUFACTURER	MODEL	SERIAL.NO.	3. REPORT STATUS
4. AIRCRAFT				( ) OPEN
5. POWERPLANT				( ) CLOSED
6. PROPELLER				( ) SUPPLEMENTARY

7. ASSEMBLY THAT INCLUDES SPECIFIC PART

(A) ASSY NAME.	(B) MANUFACTURE	(C) MODEL/PART No.	(D) SERIAL.NO.

8. SPECIFIC PART CAUSING DIFFICULTY		(E) PART CYCLES
(A) PART NAME	(B) PART NO.	(F) PART T.S.N HRS
(C) PART CONDITION	(D) LOCATION OF DEFECT ON PART	(G) PART T.S.O HRS

9. PROBLEM DESCRIPTION

10. SUBMITTER : NAME & ADDRESS	CHECK (√) ONE BOX	
	☐ AIR OPERATOR	☐ MANUFACTURER
	☐ AMO	☐ DGCA
Tel. ( ) Fax: ( )	☐ AME	☐ OTHER

DIRECTORATE GENERAL OF CIVIL AVIATION

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Subpart 595
AIRWORTHINESS DIRECTIVES

***** *FINAL PROPOSAL* *****

UNDP / ICAO PROJECT LEB / 95 / 001
Civil Aviation Technical Training and Safety Oversight Programme

Republic of Lebanon

NOTE

All revisions to the Lebanese Aviation Regulations will be indicated by a side bar to the left of the revised text and a revision number at the bottom of the page.

RECORD OF REVISIONS

Date of Revision	***Revision #***	***Date Entered***	***Entered By***
05/08/99	Original		

LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Subpart 595 - Airworthiness Directives

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INTRODUCTORY NOTE TO LAR- Part V

Lebanese Aviation Regulations Part V - Airworthiness
Subpart 595 - Regulations
Standards s595- Means of Compliance including
Information notes - in Italics, these are interpretation, not regulations.

Subpart 595 - Airworthiness Directives

595.01 Applicability

This Subpart applies to aircraft, aircraft engines, propellers, or appliances (hereinafter referred to as aeronautical products) for which a type certificate, type design, technical standard order-TSO or equivalent document has been issued, or accepted, by the DGCA.

595.02 Conditions for Issuance

Unless the DGCA considers that an alternative action to an airworthiness directive will ensure an equivalent level of safety, the DGCA shall issue, in the form and manner set out in *Standard 595*, an airworthiness directive in respect of an aeronautical product for which a type certificate or equivalent document has been issued, or accepted, by the DGCA where

(a) an unsafe condition exists in the aeronautical product and the condition is likely to exist or develop in other aeronautical products;

(b) it has been found, subsequent to the issuance of the type certificate or equivalent document, that the aeronautical product does not conform to the requirements of the basis of certification for the type design of the aeronautical product;

(c) it is necessary to modify or cancel the requirements of an airworthiness directive issued by a civil aviation authority having jurisdiction over the type design of the aeronautical product because the Lebanese DGCA considers the airworthiness directive inappropriate for reasons related to the environment, the delayed receipt of an instruction issued by a foreign civil aviation authority or reliance on foreign legislation; or

(d) it is necessary to modify or cancel a Lebanese airworthiness directive that is in force, because a condition referred to in any of paragraphs (a) to (c) has changed or ceased to exist.

595.03 Responsibilities

(1) Owners/operators of aircraft are responsible for ensuring that their aircraft are not flown with any *Airworthiness Directive* (AD) outstanding against that aircraft or its components. Owners/operators are to ensure that:

(a) applicable ADs are scheduled in accordance with *LAR* 605, or with *LAR 706*; and

(b) the requirements of all ADs issued relating to their aircraft or aeronautical products are complied with and applicable entries made in the aircraft technical records.

(2) failure to comply with an AD invalidates the Flight Authority, and makes it an offence to fly the aircraft.

595.04 Exemptions and Alternative Means of Compliance

(1) Alternative means of compliance (AMOC) with the requirements of an AD can be used only if approved by the DGCA, as offering a degree of safety at least equivalent to that offered by compliance with the AD.

(a) An AMOC can be, but is not necessarily, limited to the following:

(i) an alternative modification;

(ii) an alternative inspection procedure;

(iii) a different inspection schedule;

(iv) an extension to the compliance deadline; or

(v) a specified operating procedure or limitation.

(b) The exemption or AMOC will be given an approval number to be quoted in the technical records of the affected aeronautical product.
An example of this approval number would be "DGCAL 97/A02" broken down as follows:

(i) "DGCAL" = Directorate General Civil Aviation, Lebanon, who approves the exemption or AMOC;

(ii) "97" = the year (1997);

(iii) "A" = alleviation;

(iv) "02" = the sequential number of the alleviation.

Information note: Foreign ADs are sometimes received late and warrant an extension of compliance deadline. The DGCA may issue a revised effective date, annotated with an AMOC approval number.

(2) Application for Approval of an Exemption or Alternative Means of Compliance

(a) Application for exemptions and Alternative Means of Compliance-AMOC to a Lebanese or foreign AD are to be made, in writing, to the Lebanese DGCA. In no circumstance is a request for an exemption to a foreign AD applicable to a Lebanese registered aircraft to be made directly to the issuing foreign authority.

(b) When submitting an application for an exemption or AMOC, evidence shall be provided by the applicant that the requested exemption or AMOC will provide a level of safety equivalent to that of the original AD requirements.

(c) The application shall provide complete details regarding the requested exemption or AMOC, including:

(i) aircraft type;

(ii) aircraft serial number;

(iii) owner's name;

(iv) organisation making the application with name of contact, if not the owner;

(v) AD number;

(vi) parts and/or components involved;

(vii) exact details of the proposed change together with reasons for the application;

(viii) drawings and/or sketches to clearly describe repairs or modifications; and

(ix) date required by.

595.05 Foreign Airworthiness Directives or Other Equivalent Foreign Notices

The Lebanese DGCA, recognizes the mandatory status of foreign ADs and equivalent notices issued by the aviation authority that has jurisdiction over the type design of the aeronautical product. In the case of a conflict between an AD issued by the Lebanese DGCA and one issued by the foreign aviation authority that has jurisdiction over the type design, the AD issued by the DGCA prevails.

***INFORMATION NOTE*:**
(i) Equivalent notices normally take the form of a manufacturer's service bulletin which is prefaced by a statement to the effect that the civil aviation authority having jurisdiction over the type design has declared the bulletin to be ***mandatory.***

(ii) service bulletins themselves are not mandatory unless mandated by the foreign civil aviation authority, or referenced by an AD.

(iii) An AD issued by a foreign aviation authority that does not have jurisdiction over the type design of the aeronautical product affected, does not apply in Lebanon.

REPUBLIC OF LEBANON
MINISTRY OF TRANSPORT
DIRECTORATE GENERAL OF CIVIL AVIATION

LARs

LEBANESE AVIATION REGULATIONS

Part V
AIRWORTHINESS

Standard 595
AIRWORTHINESS DIRECTIVES

(Final proposal)

Republic of Lebanon

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Date of Revision	***Revision #***	***Date Entered***	***Entered By***
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LEBANESE AVIATION REGULATIONS (LARs)

Part V – Airworthiness

Standard 595 - Airworthiness Directives

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Standard 595 - Airworthiness Directives

s595.01 Applicability

The type certificates referred to in Subpart 595.01 of the *Lebanese Aviation Regulations*, include:

(a) type certificates or equivalent documents issued for an aircraft, aircraft engines, propellers and appliances .

(b) supplemental type certificates and limited supplemental type certificates, including equivalent documents; and

(c) appliance technical standard orders, certificates or equivalent documents.

(d) Airworthiness Directives (ADs) will not be issued against amateur- built or ultra-light aircraft. Amateur-built and ultra-light aircraft owners, should take ADs issued against any component or material installed on their aircraft into consideration.

The Directorate General of Civil Aviation publishes an index of Lebanese Airworthiness Directives issued.

s595.02 Information

The purpose of an AD is to notify aircraft owners, operators and maintenance personnel of:

(a) unsafe conditions;

(b) non-conformity with the basis of certification and other conditions affecting the airworthiness of their aircraft;

(c) the mandatory actions required for the continued safe operation of an aeronautical product; or

(d) exceptionally, the interdiction of flight until corrective action is developed.

s595.03 Responsibilities

(1) The responsibility for monitoring the overall airworthiness of aeronautical products used in Lebanon rests with the Director General of Civil Aviation, aircraft owners should share this responsibility and assist the Lebanese DGCA in meeting its objective.

Monitoring is accomplished, in part, by the review of reports and service bulletins received from manufacturers, service difficulty reports, and information received from other airworthiness authorities, or from other sources. Based on this information, it can be determined that a condition exists that affects the airworthiness of a particular aeronautical product, and that an AD is warranted. The AD will normally specify the corrective action required to restore the product to an airworthy condition, as well as outline the compliance date, or service period by which the prescribed action must be carried out.

(2) It is incumbent upon owners/operators of Lebanese registered aircraft to ensure that the Directorate General Civil Aviation has their correct address to ensure prompt delivery of Lebanese ADs applicable to their aircraft.

s595.04 reserved

s595.05 reserved

s595.06 Development

In accordance with Subpart 595.01, an AD is developed and issued where:

(a) a product does not conform to the standards, which govern its type certification;

(b) a safety risk exists; or

(c) the need to supersede a foreign AD for reasons of environment, compliance lead-time, or reliance on foreign legislation, exists.

(i) Some of the environmental considerations, which might influence the risk analysis done in the foreign state, are:

(a) differences in weather extremes;

(b) corrosive components in the environment, and their concentration, or regions in which the aircraft is operating; and,

(ii) There is always a potential for diverging assessments between the/Lebanese DGCA, and a foreign authority of the total risk surrounding a foreign AD. For example foreign airworthiness authority could be unwilling or unable to issue an AD in a timely manner.

(iii) ADs are normally not issued where:

(a) remedial action has already been accomplished on all affected aircraft, and steps have been taken to prevent return to the unsatisfactory state; or

(b) the condition is shown to be caused by improper maintenance practices or procedures, or improper operational procedures, which can be corrected by other means.

s595.07 Format

A standard format is used for ADs. The principal parts always appear in the same sequence, and are as describe.

(1) Heading - *Airworthiness Directive*
For a telegraphic AD, the heading will also include **"URGENT - URGENT - URGENT"** to indicate that immediate attention is required of the recipient;

(2) Identifier
The identifier consists of a nationality code, serial number and the manufacturer's name (*e.g. DGCA leb-96-01 Airfreight; 96 designates the year; and 01 is the sequential number of the AD)*;

(3) Product Affected
This part will specify the aeronautical product affected (the aircraft, engine, propeller etc.), with the specification of the model designation of the product, and if applicable, the serial numbers or configuration affected;

(4) Compliance
This part will specify the delay provided for compliance (in airtime, number of flights, or pressurization cycles, etc.), and/or intervals for recurring measures that apply;

(5) Unsafe Condition
This part describes the unsafe condition that the AD is being issued to correct;

(6) Corrective Action
This part will provide a statement of the corrective measures or limitations required, including the method of compliance; and

(7) Effective Date
States when the AD and its measures become effective, taking into account the compliance delay provided under 4).

(8) Signature
The signature of the delegate of the Minister authorizing the issue of the AD.

s595.08 Distribution

The distribution of domestic and foreign ADs, and equivalent notices;

(1) Copies of all ADs issued by the Lebanese DGCA are available to the public for consultation.

(2) The methods used to distribute ADs to Lebanese aircraft owners and foreign authorities are as follows:

(a) Lebanese Owners

(i) Except as outlined in subsection (vi) below, ADs issued by DGCA are normally distributed by mail to all registered owners to whom they apply. Where an AD has a short compliance time, priority post, facsimile, or other rapid means notifies the applicable registered owners.

(ii) ADs issued by foreign authorities who have jurisdiction over the type design of any foreign manufactured aeronautical products are considered mandatory and applicable to aircraft registered or operated in Lebanon. Any foreign AD received by the Lebanese DGCA, is reviewed, reproduced, and mailed to the registered owners to whom it applies. Foreign emergency ADs received by message will be transmitted by appropriate rapid means to the registered owners.

(iii) Lebanese owners, to whom a foreign AD or equivalent notice applies, are responsible for obtaining directly from their manufacturers all continuing airworthiness information, including service bulletins, mandated by the state or not. They must ensure that they receive all ADs and continuing airworthiness information directly from the state having jurisdiction over the type design.

(b) **Foreign States**

ADs issued by the Lebanese DGCA on an aeronautical product for which Lebanon oversees the design will be sent to the aviation authorities of every foreign state in which that product is known to be registered.