MENTERI PERHUBUNGAN
REPUBLIK INDONESIA

KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR : KM. 24 TAHUN 1997

TENTANG

PANDAFTARAN PESAWAT UDARA, SERTIFIKASI PERSONIL PESAWAT UDARA, PENGOPERASIAN PESAWAT UDARA, ORGANISASI PENDIDIKAN DAN PELATIHAN SERTA PERAWATAN PESAWAT UDARA

MENTERI PERHUBUNGAN,

Menimbang : bahwa untuk menjamin keamanan dan keselamatan penerbangan perlu menetapkan peraturan tentang pendaftaran pesawat udara, sertifikasi personil pesawat udara, pengoperasian pesawat udara, organisasi pendidikan dan pelatihan serta perawatan pesawat udara, dengan Keputusan Menteri Perhubungan;

Mengingat :

1. Undang-undang Nomor 15 Tahun 1992 tentang Penerbangan (Lembaran Negara Nomor 53 Tahun 1992, Tambahan Lembaran Negara Nomor 3481);

2. Keputusan Presiden Nomor 44 Tahun 1974 tentang Pokok-pokok Organisasi Departemen;

3. Keputusan Presiden Nomor 15 Tahun 1984 tentang Susunan Organisasi Departemen sebagaimana telah diubah terakhir dengan Keputusan Presiden Nomor 76 Tahun 1996;

4. Keputusan Menteri Perhubungan Nomor T.11/2/4-U tentang Peraturan-peraturan Keselamatan Penerbangan Sipil sebagaimana telah diubah terakhir dengan Keputusan Menteri Perhubungan Nomor SK.2/AU.407/PHB-97;

5. Keputusan Menteri Perhubungan Nomor KM 90 Tahun 1993 tentang Prosedur, Standar Kelaikan Udara, Bahan Bakar Terbuang, Gas Buang, Kebisingan dan Marka Pesawat Udara sebagaimana telah diubah terakhir dengan Keputusan Menteri Perhubungan Nomor KM 36 Tahun 1996;

6. Keputusan Menteri Perhubungan Nomor KM 91/OT.002/Phb-80, dan KM 164/OT.002/Phb-80, tentang Susunan Organisasi dan Tata Kerja Departemen Perhubungan sebagaimana telah diubah terakhir dengan Keputusan Menteri Perhubungan Nomor KM 58 Tahun 1996;

M E M U T U S K A N :

dengan mencabut Part 1, Part 20, Part 37, Part 46 dan Part 52 sebagaimana dimaksud dalam Keputusan Menteri Perhubungan Udara Nomor T.11/2/4/U tentang Peraturan-peraturan Keselamatan Penerbangan Sipil;

Menetapkan : KEPUTUSAN MENTERI PERHUBUNGAN TENTANG PANDAFTARAN PESAWAT UDARA, SERTIFIKASI PERSONIL PESAWAT UDARA, PENGOPERASIAN PESAWAT UDARA, ORGANISASI PENDIDIKAN DAN PELATIHAN SERTA PERAWATAN PESAWAT UDARA.

PERTAMA : Pendaftaran pesawat udara, sertifikasi personil pesawat udara, pengoperasian pesawat udara, organisasi pendidikan dan pelatihan serta perawatan pesawat udara, diatur sebagaimana tercantum dalam Lampiran I, II, III, IV dan V Keputusan ini.

KEDUA : Pengaturan lebih lanjut yang bersifat teknis mengenai pendaftaran pesawat udara, sertifikasi personil pesawat udara, pengoperasian pesawat udara, organisasi pendidikan dan pelatihan serta perawatan pesawat udara, ditetapkan oleh Direktur Jenderal Perhubungan Udara.

KETIGA : Keputusan ini berlaku surut sejak tanggal 30 Juni 1997.

Ditetapkan di : J A K A R T A
Pada tanggal : 22 Juli 1997

MENTERI PERHUBUNGAN

ttd

Dr. HARYANTO DHANUTIRTO

SALINAN Keputusan ini disampaikan kepada :

1. Menteri Negara Koordinator Bidang EKKU dan WASBANG;
2. Menteri Perindustrian dan Perdagangan;
3. Menteri Negara Riset dan Teknologi/Ketua BPPT;
4. Menteri Pertahanan dan Keamanan;
5. Sekretaris Jenderal, Inspektur Jenderal, Direktur Jenderal Perhubungan Udara dan Kepala Badan Litbang Perhubungan;
6. Kepala Biro I, IV dan V di lingkungan Setjen, Departemen Perhubungan.

Salinan sesuai dengan aslinya

Kepala Biro Hukum dan KSLN

ZULKARNAIN OEYOEB, SH
NIP 120106134

LAMPIRAN I KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR : KM. 24 TAHUN 1997
TANGGAL : 22 Juli 1997

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# AIRCRAFT REGISTRATION

## (PART 47)

# CASR PART 47 - AIRCRAFT REGISTRATION

## Contents

## 47.1 Applicability.

This part prescribes the requirements for registering aircraft under Article 9 of the Aviation Act of 1992. Subpart B applies to each applicant for, and holder of, a Certificate of Aircraft Registration.

## 47.3 Register of Civil Aircraft.

The register of civil aircraft established in pursuance of Article 9 of Aviation Act No. 15, 1992 shall be maintained by the Director General. The Director General shall record in the register the following particulars in respect of each civil aircraft registered in Indonesia:

(a) The number of the certificate of registration;

(b) The nationality and registration marks;

(c) The manufacture's designation of the aircraft;

(d) The serial number of the aircraft;

(e) The name of the registered owner;

(f) The address of the registered owner;

(g) The name of the registered operator;

(h) The address of the registered operator;

(i) The date on which the entry was made in the register : and

(j) The type of operations for which the aircraft is registered.

## 47.5 Eligibility for Registration.

An aircraft shall be eligible for registration in Indonesia if, but only if:
(a) It is owned and operated wholly by a person or persons qualified to be the owner or owners of an aircraft registered in Indonesia and is not registered under the laws of any foreign country:

NOTE : Qualified person or persons are described in Article 9 of the Aviation Act No. 15, 1992.

(b) All duties due and payable under the laws of Indonesia in respect of the importation of the aircraft into Indonesia have been paid : and

(c) The aircraft is certificated and equipped in accordance with the requirements of these Regulations for the type(s) of operation in respect of which registration is sought.

**47.7 Applicants.**

(a) A person who wishes to register an aircraft in Indonesia must submit an Application for Aircraft Registration under this part.

(b) An aircraft may be registered only by and in the legal name of its owner.

(c) The registration is not evidence of ownership of aircraft in any proceeding in which ownership by a particular person is in issue. The DGAC does not issue any certificate of ownership or endorse any information with respect to ownership on a Certificate of Aircraft Registration. The DGAC issues a Certificate of Aircraft Registration to the person who appears to be the owner on the basis of the evidence of ownership submitted pursuant to Section 47.11 with the Application for Aircraft Registration, or recorded at the DGAC Aircraft Registry.

(d) In this part, "owner" includes a buyer in possession, a bailee, or a lessee of an aircraft under a contract of conditional sale, and the assignee of that person.

**47. 9 Evidence of ownership.**

Each person who submits an Application for Aircraft Registration under this part shall also submit the required evidence of ownership.

**47.11 Registration Marks.**

(a) The registration mark shall be assigned by the Director General and shall consist of three letters.

(b) Combinations of letters designed for the registration mark shall not be used which might be confused with the five - letter combinations used in the International Code of Signals, Part II, or the three letter combinations beginning with Q used in the Q-code, and with the distress signal SOS or other similar urgency signals, e.g. XXX. PAN and TTT.

## SUBPART B - CERTIFICATE OF AIRCRAFT REGISTRATION

### 47.21 Application for Registration.

Application for the registration of an aircraft in Indonesia shall be made on a form as prescribed by the Director General.

### 47.23 Certificate of Registration.

The Director General shall issue to the owner of each aircraft registered by him a certificate of registration conforming to the form adopted in pursuance of the ICAO Convention on International Civil Aviation.

### 47. 25 Duration of Certificate of Registration.

A Certificate of Registration shall remain valid for the period of validity specified in the Certificate and such period shall not exceed three years from the date of issue or previous renewal of the Certificate.

### 47.27 Change of ownership of aircraft.

(a) Where there is a change in the ownership of a registered aircraft, the Certificate of Registration shall thereupon be deemed to be canceled and the vender or transferor of the aircraft shall forward the following to the Director General :

(1) a notification of the change of ownership, setting out the full name and address of the new owner and date of change of ownership; and

(2) the Certificate of Registration of the aircraft.

(b) Upon application by the new owner of the aircraft, the Director General may register him as the owner of the aircraft and issue a new Certificate of Registration.

(c) An appropriate entry shall be made in the Register of Civil Aircraft.

**47.29 Aircraft destroyed or permanently withdrawn from Use.**

When a registered aircraft has been destroyed or permanently withdrawn from use, the owner of the aircraft shall forward the following to the Director General :

(a) A notification of the destruction or withdrawal from use.

(b) the Certificate of Registration of the aircraft. The Certificate of Registration shall be canceled and an appropriate entry made in the Register.

**47.31 Change of address.**

Within 30 days after any change in his permanent mailing address, the holder of a Certificate of Aircraft Registration for an aircraft shall notify the Director General of his new address. A revised Certificate of Aircraft Registration is then issued.

**47.33 Cancellation of Certificate for export purpose.**

(a) The holder of a Certificate of Aircraft Registration who wishes to cancel the Certificate for the purpose of export must submit to the Director General:

(1) A written request for cancellation of the Certificate describing the aircraft by make, model, and serial number, stating the registration marks and the country to which the aircraft will be exported; and
(2) Evidence satisfactory to the Director General that each holder of a recorded right has been satisfied or has consented to the transfer.

(b) The DGAC notifies the country to which the aircraft is to be exported of the cancellation by ordinary mail, or by airmail at the owner's request. The owner must arrange and pay for the transmission of this notice by means other than ordinary mail or airmail.

**47.35 Replacement of Certificate.**

If a Certificate of Aircraft Registration is lost, stolen, or mutilated, the holder of the Certificate of Aircraft Registration may apply to the Director General for a duplicate certificate.

MENTERI PERHUBUNGAN

ttd

Dr. HARYANTO DHANUTIRTO

Salinan sesuai dengan aslinya
Kepala Biro Hukum dan KSLN

ZULKARNAIN OEYOEB, SH
NIP. 120106134

LAMPIRAN II KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR : KM. 24 TAHUN 1997
TANGGAL : 22 Juli 1997

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# CERTIFICATION PILOT AND FLIGHT INSTRUCTORS

(PARTS 61)

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# PART 61 - CERTIFICATION: PILOTS AND FLIGHT INSTRUCTORS

## SUBPART A - GENERAL

**61.1 Applicability.**

(a)This part prescribes the requirements for issuing pilot and flight instructor certificates and ratings, the conditions under which those certificates and ratings are necessary, and the privileges and limitations of those certificates and ratings.

(b) Except as provided in Section 61.71, an applicant for a certificate or rating must meet the requirements of this part.

**61.2 Certification of foreign pilots and flight instructors outside the Republic of Indonesia.**

A person who is not an Indonesian citizen shall be issued a certificate under this part (other than under Section 61.75 or Section 61.77, outside the Republic of Indonesia, only when the Director finds that the pilot certificate is needed for the operation of an Indonesian-registered civil aircraft or finds that the flight instructor certificate is needed for the training of students who are citizens of the Republic of Indonesia.

**61.3 Requirement for certificates, rating, and authorizations.**

(a) Pilot certificate. No person may act as pilot in command or in any other capacity as a required pilot flight crewmember of a civil aircraft of Indonesian registry unless he has in his personal possession a current pilot certificate issued to him under this part. However, when the aircraft is operated within a foreign country a current pilot license issued by the country in which the aircraft is operated may be used.

(b) Pilot certificate: Foreign aircraft. No person may, within the Republic of Indonesia, act as pilot in command or in any other capacity as a required pilot flight crewmember of a civil aircraft of foreign registry unless he has in his personal possession a current pilot certificate issued to him under this part, or a pilot license issued to him or validated for him by the country in which the aircraft is registered.

(c) Medical certificate. Except for free balloon pilots piloting balloons and glider pilots piloting gliders, no person may act as pilot in command or in any other capacity as a required pilot flight crewmember of an aircraft under a certificate issued to him under this part, unless he has in his personal possession an appropriate, current medical certificate issued under Part 67 of the CASRs. However, when the aircraft is operated within a foreign country with a current pilot license issued by that foreign country, evidence of current medical qualification for that foreign license, issued by that foreign country, may be used. In the case of a pilot certificate issued on the basis of a foreign pilot license under Section 61.75, evidence of current medical qualification accepted for the issue of that foreign license is used in place of a medical certificate.

(d) Flight instructor certificate. Except for lighter-than-air flight instruction in lighter-than-air aircraft, and for instruction in air transportation service given by the holder of an Airline Transport Pilot Certificate under Section 61.169, no person other than the holder of a flight instructor certificate issued by the Director with an appropriate rating on that certificate may-

(1) Give any of the flight instruction required to qualify for a solo flight, solo cross-country flight, or for the issue of a pilot or flight instructor certificate or rating;
(2) Endorse a pilot logbook to show that he has given any flight instruction; or
(3) Endorse a student pilot certificate or logbook for solo operating privileges.

(e) Instrument rating. No person may act as pilot in command of a civil aircraft under instrument flight rules, or in weather conditions less than the minimums prescribed for VFR flight unless-
(1) In the case of an airplane, he holds an instrument rating or an airline transport pilot certificate with an airplane category rating on it;
(2) In the case of a helicopter, he holds a helicopter instrument rating or an airline transport pilot certificate with a rotorcraft category and helicopter class rating;
(3) In the case of a glider, he holds an instrument rating (airplane) or an airline transport pilot certificate with an airplane category rating; or
(4) In the case of an airship, he holds a commercial pilot certificate with lighter-than-air category and airship class ratings.

(f) Category II pilot authorization.
(1) No person may act as pilot in command of a civil aircraft in a Category II operation unless he holds a current Category II pilot authorization for that type aircraft or, in the case of a civil aircraft of foreign registry, he is authorized by the country of registry to act as pilot in command of that aircraft in Category II operations.
(2) No person may act as second in command of a civil aircraft in a Category II operation unless he holds a current appropriate instrument rating or an appropriate airline transport pilot certificate or, in the case of a civil aircraft of foreign registry, he is authorized by the country of registry to act as second in command of that aircraft in Category II operations.

This paragraph does not apply to operations conducted by the holder of a certificate issued under Parts 121 and 135 of the CASRs.

(g) Inspection of certificate. Each person who holds a pilot certificate, flight instructor certificate, medical certificate, authorization, or license required by this part shall present it for inspection upon the request of the Director or his authorized representative.

**61.5 Certificates and ratings issued under this part.**
(a) The following certificates are issued under this part:
(1) Pilot certificates:
(i) Student pilot.
(ii) Sport pilot.
(iii) Private pilot.

(iv) Commercial pilot.
(v) Airline transport pilot.
(2) Flight instructor certificates.

(b) The following ratings are placed on pilot certificates (other than student pilot) where applicable:
(1) Aircraft category ratings:
(i) Airplane.
(ii) Rotorcraft.
(iii) Glider.
(iv) Lighter-than-air.
(2) Airplane class ratings:
(i) Single engine land.
(ii) Multiengine land.
(iii) Single engine sea.
(iv) Multiengine sea.
(3) Rotorcraft class ratings:
(i) Helicopter.
(ii) Gyroplane.
(4) Lighter-than-air class ratings:
(i) Airship.
(ii) Free balloon.
(5) Aircraft type ratings:
(i) Large aircraft, other than lighter-than-air.
(ii) Small turbojet powered aircraft.
(iii) Helicopters for operations requiring an airline transport pilot certificate.
(iv) Other aircraft type ratings specified by the Director through aircraft type certificate procedures.
(6) Instrument ratings (on private and commercial pilot certificates only):
(i) Instrument airplanes.
(ii) Instrument helicopter.

(c) The following ratings are placed on flight instructor certificates where applicable:
(1) Aircraft category ratings:
(i) Airplane.
(ii) Rotorcraft.
(iii) Glider.
(2) Airplane class ratings:
(i) Single engine.
(ii) Multiengine.
(3) Rotorcraft class ratings:
(i) Helicopter.
(ii) Gyroplane.
(4) Instrument ratings:
(i) Instrument airplane.
(ii) Instrument helicopter.

**61.7 [Reserved].**

**61.9 [Reserved].**

**61.11 Expired pilot certificates and reissuance.**

(a) No person who holds an expired pilot certificate or rating may exercise the privileges of that pilot certificate, or rating.

(b) A private or commercial pilot certificate or a special purpose pilot certificate, issued on the basis of a foreign pilot license, expires on the expiration date stated thereon. A certificate without an expiration date is issued to the holder of the expired certificate only if he meets the requirements of Section 61.75 for the issue of a pilot certificate based on a foreign license.

**61.13 Application and qualification.**

(a) An application for a certificate and rating or for an additional rating under this part is made on a form and in a manner prescribed by the Director. Each applicant must show evidence that the application fee, prescribed by ministerial decree, has been paid.

(b) An applicant who meets the requirements of this part is entitled to an appropriate pilot certificate with aircraft ratings. Additional aircraft category, class, type and other ratings, for which the applicant is qualified, are added to his certificate. However, the Director may refuse to issue certificates to persons who are not citizens of the Republic of Indonesia and who do not reside in the Republic of Indonesia.

(c) An applicant for a pilot certificate who holds a medical certificate under Section 67.19 of the CASRs with special limitations on it, but who meets all other requirements for that pilot certificate, is issued a pilot certificate containing such operating limitations as the Director determines are necessary because of the applicant's medical deficiency.

(d) A Category II pilot authorization is issued as a part of the applicant's instrument rating or airline transport pilot certificate. Upon original issue the authorization contains a limitation for Category II operations of 1,600 feet RVR and a 150-foot decision height. This limitation is removed when the holder shows that since the beginning of the sixth preceding calendar month he has made three Category II ILS approaches to a landing under actual or simulated instrument conditions with a 150-foot decision height.

(e) Unless authorized by the Director
(1) A person whose pilot certificate is suspended may not apply for any pilot or a flight instructor certificate or any rating during the period of suspension; and
(2) A person whose flight instructor certificate is suspended may not apply for any rating to be added to that certificate during the period of suspension.

(f) Unless the order of revocation provides otherwise
(1) A person whose pilot certificate is revoked may not apply for any pilot or flight instructor certificate or rating for 1 year after the date of revocation; and
(2) A person whose flight instructor certificate is revoked may not apply for any flight instructor certificate for 1 year after the date of revocation.

**61.15 Offenses involving alcohol or drugs.**

(a) A conviction for the violation of any national law relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marihuana, or depressant or stimulant drugs or substances is grounds for-
(1) Denial of an application for any certificate or rating issued under this part for a period of up to 1 year after the date of final conviction; or
(2) Suspension or revocation of any certificate or rating issued under this part.

(b) The commission of an act prohibited by Section 91.17(a) or Section 91.19(a) of the CASRs is grounds for-
(1) Denial of an application for a certificate or rating issued under this part for a period of up to 1 year after the date of that act; or
(2) Suspension or revocation of any certificate or rating issued under this part.

**61.16 Refusal to submit to an alcohol test or to furnish test results.**

A refusal to submit to a test to indicate the percentage by weight of alcohol in the blood, when requested by a law enforcement officer in accordance with Section 91.17(c) of the CASRs, or a refusal to furnish or authorize the release of the test results requested by the Director in accordance with Section 91.17(c) or (d) of the CASRs, is grounds for-

(a) Denial of an application for any certificate or rating issued under this part for a period of up to 1 year after the date of that refusal; or

(b) Suspension or revocation of any certificate or rating issued under this part.

**61.17 Temporary certificate.**

(a) A temporary pilot or flight instructor certificate, or a rating, effective for a period of not more than 30 days, is issued to a qualified applicant pending a review of his qualifications and the issuance of a permanent certificate or rating by the Director. The permanent certificate or rating is issued to an applicant found qualified and a denial thereof is issued to an applicant found not qualified.

(b) A temporary certificate issued under Paragraph (a) of this section expires-
(1) At the end of the expiration date stated thereon; or
(2) Upon receipt by the applicant, of-
(i) The certificate or rating sought; or
(ii) Notice that the certificate or rating sought is denied.

**61.19 Duration of pilot and flight instructor certificates.**

(a) Pilot certificates. Any pilot certificate (other than a student pilot certificate) issued under this part is issued no expiration date. However, the holder of a pilot certificate issued on the basis of a foreign pilot license may exercise the privileges of that certificate only while the foreign pilot license on which that certificate is based is effective.

(b) General. The holder of a certificate with an expiration date may not, after that date, exercise the privileges of that certificate. However, a pilot certificate bearing an expiration date, issued within the period of one year before the effective date of this part of the CASRs, may be exchanged for a new pilot certificate without an expiration date if presented to the Directorate of Air Communications (DGAC) for renewal before the expiration date of the original certificate.

(c) Student pilot certificate. A student pilot certificate expires at the end of the 24th calendar month after the month in which the certificate is issued.

(d) Flight instructor certificate. A flight instructor certificate-

(1) Is effective only while the holder has a current pilot certificate and a medical certificate appropriate to the pilot privileges being exercised; and

(2) Expires at the end of the 24th calendar month after the month the certificate was last issued or renewed.

(e) Surrender, suspension, or revocation. Any pilot certificate or flight instructor certificate issued under this part ceases to be effective if it is surrendered, suspended, or revoked.

(f) Return of certificate. The holder of any certificate issued under this part that is suspended or revoked shall, upon the Director's request, return it to the Director.

**61.21 Duration of Category II pilot authorization.**

A Category II pilot authorization expires at the end of the sixth calendar month after the authorization was last issued or renewed. Upon passing a practical test it is renewed for each type aircraft for which an authorization is held. However, an authorization for any particular type aircraft for which an authorization is held will not be renewed to extend beyond the end of the 12th calendar month after the practical test was passed in that type aircraft. If the holder of the authorization passes the practical test for a renewal in the calendar month before the authorization expires, he is considered to have passed it during the month the authorization expired.

**61.23 Duration of medical certificates.**

(a) A first-class medical certificate expires at the end of the last day of-

(1) The sixth calendar month after the month of the date of examination shown on the certificate, for operations requiring an airline transport pilot certificate;

(2) The sixth calendar month after the month of the date of examination shown on the certificate, for operations requiring a commercial pilot certificate; and

(3) The 12th calendar month after the month of the date of examination shown on the certificate, for operations requiring a private, sporting, or student pilot certificate.

(b) A second-class medical certificate expires at the end of the last day of-
(1) The 12th calendar month after the month of the date of examination shown on the certificate, for operations requiring, a private, sport, or student pilot certificate.

**61.25 Change of name.**
An application for the change of a name on a certificate issued under this part must be accompanied by the applicant's current certificate and a copy of the marriage license, court order, or other document verifying the change, and a check giro or post wesel for the cost of the revised certificate, payable to the DGAC. The accompanying documents are returned to the applicant after inspection.

**61.27 Voluntary surrender or exchange of certificate.**
The holder of a certificate issued under this part may voluntarily surrender it for cancellation, or for the issue of a certificate of lower grade, or another certificate with specific ratings deleted. If he so requests, he must include the following signed statement or its equivalent:
"This request is made for my own reasons, with full knowledge that my (insert name of certificate or rating, as appropriate) may not be reissued to me unless I again pass the tests prescribed for its issue."

**61.29 Replacement of lost or destroyed certificate.**
(a) An application for the replacement of a lost or destroyed airman certificate issued under this part is made by letter to the DGAC, Directorate of Airworthiness Certification.
The letter must-
(1) State the name of the person to whom the certificate was issued, the permanent mailing address, date and place of birth of the certificate holder, and any available information regarding the grade, number, and date of issue of the certificate, and the ratings on it; and
(2) Be accompanied by a check giro or post wesel for the cost of the replacement certificate, payable to the DGAC.

(b) An application for the replacement of a lost or destroyed medical certificate is made by letter to the DGAC, Aviation Medical Center, accompanied by a check giro or post wesel for the cost of the replacement certificate, payable to the DGAC.

(c) A person who has lost a certificate issued under this part, or a medical certificate issued under Part 67 of the CASRs, or both, may obtain a facsimile message (fax) from the DGAC confirming that it was issued. The fax may be carried as a certificate for a period not to exceed 60 days pending his receipt of a duplicate certificate under Paragraph (a) or (b) of this section, unless he has been notified that the certificate has been suspended or revoked. The request for such a fax may be made by letter or fax, including the date upon which a duplicate certificate was previously requested, if a request has been made, and a check giro or post wesel for the cost of the duplicate certificate. The request for a fax certificate is sent to the office listed in Paragraph (a) or (b) of this section, as appropriate. However, a request for both airman and medical certificates at the same time must be sent to the office prescribed in Paragraph (a) of this section.

61.31 General limitations.

(a) Type ratings required. A person may not act as pilot in command of any of the following aircraft unless he holds a type rating:

(1) A large aircraft (except lighter-than-air).

(2) A helicopter, for operations requiring an airline transport pilot certificate.

(3) A turbojet powered airplane.

(4) Other aircraft specified by the Director through aircraft type certificate procedures.

(b) Category and class rating: Carrying another person or operating for compensation or hire. Unless he holds a category and class rating for that aircraft, a person may not act as pilot in command of an aircraft that is carrying another person or is operated for compensation or hire. In addition, he may not act as pilot in command of that aircraft for compensation or hire.

(c) Category and class rating: Other operations. No person may act as pilot in command of an aircraft in solo flight in operations not subject to Paragraph (c) of this section, unless he meets at least one of the following:

(1) He holds a category and class rating appropriate to that aircraft.

(2) He has received flight instruction in the pilot operations required by this part, appropriate to the category and class of aircraft for first solo, given to him by a certificated flight instructor who found him competent to solo that category and class of aircraft and has so endorsed his pilot logbook.

(d) High performance airplanes. A person holding a private or commercial pilot certificate may not act as pilot in command of an airplane that has more than 200 horsepower, or that has a retractable landing gear, flaps, and a controllable propeller, unless he has received flight instruction from an authorized flight instructor who has certified in his logbook that he is competent to pilot an airplane that has more than 200 horsepower, or that has a retractable landing gear, flaps, and a controllable propeller, as the case may be. However, this instruction is not required if he has logged flight time as pilot in command in high performance airplanes before the effective date of this part of the CASRs.

(e) High altitude airplanes.

(1) Except as provided in Paragraph (f)(2) of this section, no person may act as pilot in command of a pressurized airplane that has a service ceiling or maximum operating altitude, whichever is lower, above 25,000 feet MSL unless that person has completed the ground and flight training specified in Paragraphs (f)(1)(i) and (ii) of this section and has received a logbook or training record endorsement from an authorized instructor certifying satisfactory completion of the training. The training shall consist of:

(i) Ground training that includes instruction on high altitude aerodynamics and meteorology; respiration; effects, symptoms, and causes of hypoxia and any other high altitude sicknesses; duration of consciousness without supplemental oxygen; effects of prolonged usage of supplemental oxygen; causes and effects of gas expansion and gas bubble formations; preventive measures for eliminating gas expansion, gas bubble formations, and high altitude sicknesses; physical

phenomena and incidents of decompression; and any other physiological aspects of high altitude flight; and

(ii) Flight training in an airplane, or in a simulator that meets the requirements of Section 121.407 of the CASRs, and which is representative of an airplane as described in Paragraph (f)(1) of this section. This training shall include normal cruise flight operations while operating above 25,000 feet MSL; the proper emergency procedures for simulated rapid decompression without actually depressurizing the airplane; and emergency descent procedures;

(2) The training required in Paragraph (f)(1) of this section is not required if a person can document accomplishment of any of the following in an airplane, or in a simulator that meets the requirements of Section 121.407 of this section, and that is representative of an airplane described in Paragraph (f)(1) of this section:

(i) Served as pilot in command prior to the effective date of this part of the CASRs.

(ii) Completed a pilot proficiency check for a pilot certificate or rating conducted by the DGAC prior to the effective date of this part of the CASRs.

(iii) Completed an official pilot in command check by the military services of the Republic of Indonesia; or

(iv) Completed a pilot in command proficiency check under Parts 121, 125, or 135 conducted by the DGAC or by a DGAC-approved check pilot.

(f) Tailwheel Airplanes. No person may act as pilot in command of a tailwheel airplane unless that pilot has received flight instruction from an authorized flight instructor who has found the pilot competent to operate a tailwheel airplane and has made a one time endorsement so stating in the pilot's logbook. The endorsement must certify that the pilot is competent in normal and crosswind takeoffs and landings, wheel landings unless the manufacturer has recommended against such landings, and go-around procedures. This endorsement is not required if a pilot has logged flight time as pilot in command of tailwheel airplanes before the effective date of this part of the CASRs.

(g) Exception. This section does not require a class rating for gliders, or category and class ratings for aircraft that are not type certificated as airplanes, rotorcraft, or lighter-than-air aircraft. In addition, the rating limitations of this section do not apply to-

(1) The holder of a student pilot certificate;

(2) The holder of a sport pilot certificate when operating under the provisions of Section 61.101(f), (g), and (h).

(3) The holder of a pilot certificate when operating an aircraft under the authority of an experimental or provisional type certificate;

(4) An applicant when taking a flight test given by the Director; or

(5) The holder of a pilot certificate with a lighter-than-air category rating when operating a hot air balloon without an airborne heater.

**61.33 Tests: General procedure.**

Tests prescribed by or under this part are given at times and places, and by persons, designated by the Director.

**61.35 Written tests: Prerequisites and passing grades.**

(a) An applicant for a written test must-

(1) Show that he has satisfactorily completed the ground instruction course required by this part for the certificate or rating sought;

(2) Present as personal identification an airman certificate, driver's license, *Kartu Tanda Penduduk* (KTP), or other officially-approved document; and

(3) Present a birth certificate or other official document showing that he meets the age requirement prescribed in this part for the certificate sought not later than 2 years from the date of application for the test.

(b) The minimum passing grade is specified by the Director on each written test sheet or booklet furnished to the applicant.

This section does not apply to the written test for an airline transport pilot certificate or a rating associated with that certificate.

**61.37 Written tests: Cheating or other unauthorized conduct.**

(a) Except as authorized by the Director, no person may-

(1) Copy, or intentionally remove, a written test under this part;

(2) Give to another, or receive from another, any part or copy of that test;

(3) Give help on that test to, or receive help on that test from, any person during the period that test is being given;

(4) Take any part of that test in behalf of another person;

(5) Use any material or aid during the period that test is being given: or

(6) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) No person whom the Director finds to have committed an act prohibited by Paragraph (a) of this section is eligible for any airman or ground instructor certificate or rating, or to take any test therefor, under the CASRs for a period of 1 year after the date of that act. In addition, the commission of that act is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

**61.39 Prerequisites for flight tests.**

(a) To be eligible for a flight test for a certificate, or an aircraft type, or instrument rating issued under this part, the applicant must-

(1) Have passed any required written test since the beginning of the 24th calendar month before the month in which he takes the flight test;

(2) Have the applicable instruction and aeronautical experience prescribed in this part;

(3) Hold a current medical certificate appropriate to the certificate he seeks or, in the case of a rating to be added to his pilot certificate, at least a second-class medical certificate issued since the beginning of the 12th calendar month before the month in which he takes the flight test;

(4) Except for a flight test for an airline transport pilot certificate, meet the age requirement for the issuance of the certificate or rating he seeks; and

(5) Have a written statement from an appropriately certificated flight instructor certifying that he has given the applicant flight instruction in preparation for the flight test within 60 days preceding the date of application, and finds him competent to pass the test. However, an applicant need not have this written statement if he holds a foreign pilot license issued by a contracting State to the Convention on International Civil Aviation that authorizes at least the pilot privileges of the airman certificate sought by him.

**61.41 Flight instruction received from flight instructors not certificated by DGAC.**
Flight instruction may be credited toward the requirements for a pilot certificate or rating issued under this part if it is received from-

(a) An Armed Force (ABRI) of either the Republic of Indonesia or a foreign contracting State to the Convention on International Civil Aviation in a program for training military pilots; or

(b) A flight instructor who is authorized to give that flight instruction by the licensing authority of a foreign contracting State to the Convention on International Civil Aviation and the flight instruction is given outside the Republic of Indonesia.

**61.43 Flight tests: General procedures.**

(a) The ability of an applicant for a private or commercial pilot certificate, or for an aircraft or instrument rating on that certificate to perform the required pilot operations is based on the following:
(1) Executing procedures and maneuvers within the aircraft's performance capabilities and limitations, including use of the aircraft's systems.
(2) Executing emergency procedures and maneuvers appropriate to the aircraft.
(3) Piloting the aircraft with smoothness and accuracy.
(4) Exercising judgment.
(5) Applying his aeronautical knowledge.
(6) Showing that he is the master of the aircraft, with the successful outcome of a procedure or maneuver never seriously in doubt.

(b) If the applicant fails any of the required pilot operations in accordance with the applicable provisions of Paragraph (a) of this section, the applicant fails the flight test. The applicant is not eligible for the certificate or rating sought until he passes any pilot operations he has failed

(c) The examiner or the applicant may discontinue the test at any time when the failure of a required pilot operation makes the applicant ineligible for the certificate or rating sought. If the test is discontinued the applicant is entitled to credit for only those entire pilot operations that he has successfully performed.

61.45 Flight tests: **Required aircraft and equipment.**

(a) General. An applicant for a certificate or rating under this part must furnish, for each flight test that he is required to take, an appropriate aircraft of Indonesian registry that has a current standard or limited airworthiness certificate. However, the applicant may, at the discretion of the DGAC inspector or designated airmen conducting the test, furnish an aircraft of Indonesian registry that has a current airworthiness certificate other than

standard or limited, an aircraft of foreign registry that is properly certificated by the country of registry, or a military aircraft in an operational status if its use is allowed by an appropriate military authority.

(b) Required equipment (other than controls). Aircraft furnished for a flight test must have-
(1) The equipment for each pilot operation required for the flight test;
(2) No prescribed operating limitations that prohibit its use in any pilot operation required on the test;
(3) Pilot seats with adequate visibility for each pilot to operate the aircraft safely, except as provided in Paragraph (d) of this section; and
(4) Cockpit and outside visibility adequate to evaluate the performance of the applicant, where an additional jump seat is provided for the examiner.

(c) Required controls. An aircraft (other than lighter-than-air) furnished under Paragraph (a) of this section for any pilot flight test must have engine power controls and flight controls that are easily reached and operable in a normal manner by both pilots, unless after considering all the factors, the determines that the flight test can be conducted safely without them. However, an aircraft having other controls such as nose wheel steering, brakes, switches, fuel selectors, and engine air flow controls that are not easily reached and operable in a normal manner by both pilots may be used, if more than one pilot is required under its airworthiness certificate, or if the determines that the flight can be conducted safely.

(d) Simulated instrument flight equipment. An applicant for any flight test involving flight maneuvers solely by reference to instruments must furnish equipment satisfactory to the that excludes the visual reference of the applicant outside of the aircraft.

(e) Aircraft with single controls. At the discretion of the examiner, an aircraft furnished under Paragraph (a) of this section for a flight test may, in the cases listed below, have a single set of controls. In such case, the examiner determines the competence of the applicant by observation from the ground or from another aircraft.
(1) A flight test for addition of a class or type rating, not involving demonstration of instrument skills, to a private or commercial pilot certificate.
(2) A flight test in a single place gyroplane for-
(i) A private pilot certificate with a rotorcraft category rating and gyroplane class rating, in which case the certificate bears the limitation "rotorcraft single place gyroplane only", or
(ii) Addition of a rotorcraft category rating and gyroplane class rating to a pilot certificate, in which case a certificate higher than a private pilot certificate bears the limitation "rotorcraft single place gyroplane, private pilot privileges, only".

The limitations prescribed by this subparagraph may be removed if the holder of the certificate passes the appropriate flight test in a gyroplane with two pilot stations or otherwise passes the appropriate flight test for a rotorcraft category rating.

**61.47 Flight tests: Status of DGAC inspectors and designated airmen examiners.**
A DGAC inspector or designated airmen examiner conducts the flight test of an applicant for a pilot certificate or rating for the purpose of observing the applicant's ability to perform satisfactorily the procedures and maneuvers on the flight test. The inspector or examiner is not pilot in command of the aircraft during the flight test unless he acts as the PIC for the flight, or a portion of the flight, by prior arrangement with the applicant or other person who would otherwise act as pilot in command.

**61.49 Retesting after failure.**
(a) An applicant for a written or practical test who fails that test may not apply for retesting until 30 days after the date the test was failed. However, in the case of a first failure, the applicant may apply for retesting before the 30 days have expired provided the applicant presents a logbook or training record endorsement from an authorized instructor who has given the applicant remedial instruction and finds the applicant competent to pass the test.

(b) An applicant for a flight instructor certificate with an airplane category rating, or for a flight instructor certificate with a glider category rating, who has failed the practical test due to deficiencies of knowledge or skill relating to stall awareness, spin entry, spins, or spin recovery techniques must, during the retest, satisfactorily demonstrate both knowledge and skill in these areas in an aircraft of the appropriate category that is certificated for spins.

**61.51 Pilot logbooks.**
(a) The aeronautical training and experience used to meet the requirements for a certificate or rating, or the recent flight experience requirements of this part must be shown by a reliable record. The logging of other flight time is not required.

(b) Logbook entries. Each pilot shall enter the following information for each flight or lesson logged:
(1) General.
(i) Date.
(ii) Total time of flight.
(iii) Place, or points of departure and arrival.
(iv) Type and identification of aircraft.
(2) Type of pilot experience or training.
(i) Pilot in command or solo.
(ii) Second in command.
(iii) Flight instruction received from an authorized flight instructor.
(iv) Instrument flight instruction from an authorized flight instructor.
(v) Pilot ground trainer instruction.
(vi) Participating crew (lighter-than-air).
(vii) Other pilot time.
(3) Conditions of flight.
(i) Day or night.
(ii) Actual instrument.

(iii) Simulated instrument conditions.

(c) Logging of pilot time-

(1) Solo flight time. A pilot may log as solo flight time only that flight time when he is the sole occupant of the aircraft. However, a student pilot may also log as solo flight time that time during which he acts as the pilot in command of an airship requiring more than one flight crewmember.

(2) Pilot in command flight time.

(A) A sport, private, or commercial pilot may log as pilot in command time only that flight time during which that pilot:

(i) Is the sole manipulator of the controls of an aircraft for which the pilot is rated; or

(ii) When the pilot is the sole occupant of the aircraft; or

(iii) Except for a sport pilot, when acting as pilot in command of an aircraft on which more than one pilot is required under-

(1) The type certification of the aircraft, or

(2) The regulations under which the flight is conducted.

(B) An airline transport pilot may log as pilot in command time all of the flight time during which he acts as pilot in command.

(C) A certificated flight instructor may log as pilot in command time all flight time during which he acts as a flight instructor.

(3) Second in command flight time. A pilot may log as second in command time all flight time during which he acts as second in command of an aircraft on which more than one pilot is required under the type certification of the aircraft, or the regulations under which the flight is conducted.

(4) Instrument flight time. A pilot may log as instrument flight time only that time during which he operates the aircraft solely by reference to instruments, under actual or simulated instrument flight conditions. Each entry must include the place and type of each instrument approach completed, and the name of the safety pilot for each simulated instrument flight. An instrument flight instructor may log as instrument time that time during which he acts as instrument flight instructor in actual instrument weather conditions.

(5) Instruction time. All time logged as flight instruction, instrument flight instruction, pilot ground trainer instruction, or ground instruction time must be certified by the appropriately rated and certificated instructor from whom it was received.

(d) Presentation of logbook.

(1) A pilot must present his logbook (or other record required by this section) for inspection upon reasonable request by the Director or his authorized representative.

(2) A student pilot must carry his logbook (or other record required by this section) with him on all solo cross-country flights, as evidence of the required instructor clearances and endorsements.

(3) A sport pilot must carry his logbook that has the required instructor endorsements on all solo flights-

(i) In excess of 50 nautical miles from an airport at which instruction was received;

(ii) In airspace in which communication with air traffic control is required;

(iii) Between sunset and sunrise; and

**61.53 Operations during medical deficiency.**
No person may act as pilot in command, or in any other capacity as a required pilot flight crewmember while he has a known medical deficiency, or increase of a known medical deficiency, that would make him unable to meet the requirements for his current medical certificate.

**61.55 Second in command qualifications.**

(a) Except as provided in Paragraph (d) of this section, no person may serve as second in command of an aircraft type certificated for more than one required pilot flight crewmember unless that person holds-
(1) At least a current private pilot certificate with appropriate category and class ratings; and
(2) An appropriate instrument rating in the case of flight under IFR.

(b) Except as provided in Paragraph (d) of this section, no person may serve as second in command of an aircraft type certificated for more than one required pilot flight crewmember unless, since the beginning of the 12th calendar month before the month in which the pilot serves, the pilot has, with respect to that type of aircraft-

(1) Become familiar with all information concerning the aircraft's powerplant, major components and systems, major appliances, performance and limitations, standard and emergency operating procedures, and the contents of the approved aircraft flight manual or approved flight manual material, placards, and markings.
(2) Except as provided in Paragraph (e) of this section, performed and logged-
(i) Three takeoffs and three landings to a full stop in the aircraft as the sole manipulator of the flight controls; and
(ii) Engine out procedures and maneuvering with an engine out while executing the duties of a pilot in command. For airplanes, this requirement may be satisfied in a simulator acceptable to the Director.

For the purpose of meeting the requirements of Paragraph (b)(2) of this section, a person may act as second in command of a flight under day VFR or day IFR, if no persons or property, other than as necessary for the operation, are carried.

(c) If a pilot complies with the requirements in Paragraph (b) of this section in the calendar month before, or the calendar month after, the month in which compliance with those requirements is due, he is considered to have complied with them in the month they are due.

(d) This section does not apply to a pilot.
(1) Meets the pilot in command proficiency check requirements of Part 121, 125, or 135 of the CASRs;
(2) Is designated as the second in command of an aircraft operated under the provisions of Part 121, 125, or 135 of the CASRs; or
(3) Is designated as the second in command of an aircraft for the purpose of receiving flight training required by this section and no passengers or cargo are carried on that aircraft.

(e) The holder of a commercial or airline transport pilot certificate with appropriate category and class ratings need not meet the requirements of Paragraph (b)(2) of this section for the conduct of ferry flights, aircraft flight tests, or airborne equipment evaluation, if no persons or property other than as necessary for the operation are carried.

**61.56 Flight review.**

(a) A flight review consists of a minimum of 1 hour of flight instruction and 1 hour of ground instruction. The review must include-
  (1) A review of the current general operating and flight rules of Part 91 of the CASRs; and
  (2) A review of those maneuvers and procedures which, at the discretion of the person giving the review, are necessary for the pilot to demonstrate the safe exercise of the privileges of the pilot certificate.

(b) Glider pilots may substitute a minimum of three instructional flights in a glider, each of which includes a 360 degree turn, in lieu of the 1 hour of flight instruction required in Paragraph (a) of this section.

(c) Except as provided in Paragraphs (d) and (e) of this section, no person may, after six months from the effective date of this part of the CASRs, act as pilot in command of an aircraft unless, since the beginning of the 24th calendar month before the month in which that pilot acts as pilot in command, that person has-
  (1) Accomplished a flight review given in an aircraft for which that pilot is rated by an appropriately rated instructor certificated under this part or other person designated by the Director; and
  (2) A logbook endorsed by the person who gave the review certifying that the person has satisfactorily completed the review.

(d) A person who has, within the period specified in Paragraph (c) of this section, satisfactorily completed a pilot proficiency check conducted by the DGAC, a designated airmen examiner, a DGAC-approved check pilot, or a Republic of Indonesia Armed Force (ABRI) check pilot, for a pilot certificate, rating, or operating privilege, need not accomplish the flight review required by this section.

(e) A person who holds a current flight instructor certificate who has, within the period specified in Paragraph (c) of this section, satisfactorily completed a renewal of a flight instructor certificate under the provisions of Section 61.197(c), need not accomplish the 1 hour of ground instruction specified in Subparagraph (a)(1) of this section.

(f) The requirements of this section may be accomplished in combination with the requirements of Section 61.57 and other applicable recency requirements at the discretion of the instructor.

**61.57 Recent flight experience: Pilot in command.**

(a) General experience. No person may act as pilot in command of an aircraft carrying passengers, nor of an aircraft certificated for more than one required pilot flight crewmember, unless within the preceding 90 days, he has made three takeoffs and three landings as the sole manipulator of the flight controls in an aircraft of the same category and class and, if a type rating is required, of the same type. If the aircraft is a tailwheel airplane, the landings must have been made to a full stop in a tailwheel airplane. For the purpose of meeting the requirements of the paragraph, a person may act as pilot in command of a flight under day VFR or day IFR if no persons or property other than as necessary for his compliance thereunder, are carried. This paragraph does not apply to operations requiring an airline transport pilot certificate, or to operations conducted under Part 135 of the CASRs.

(b) Night experience. No person may act as pilot in command of an aircraft carrying passengers during the period beginning 1 hour after sunset and ending 1 hour before sunrise (as published in the Air Almanac) unless, within the preceding 90 days, he has made at least three takeoffs and three landings to a full stop during that period in the category and class of aircraft to be used. This paragraph does not apply to operations requiring an airline transport pilot certificate.

(c) Instrument experience.

(1) Recent IFR experience. No pilot may act as pilot in command under IFR, nor in weather conditions less than the minimums prescribed for VFR, unless he has, within the past 6 calendar months-

(i) In the case of an aircraft other than a glider, logged at least 6 hours of instrument time under actual or simulated IFR conditions, at least 3 of which were in flight in the category of aircraft involved, including at least six instrument approaches, or passed an instrument competency check in the category of aircraft involved.

(ii) In the case of a glider, logged at least 3 hours of instrument time, at least half of which were in a glider or an airplane. If a passenger is carried in the glider, at least 3 hours of instrument flight time must have been in gliders.

(2) Instrument competency check. A pilot who does not meet the recent instrument experience requirements of Paragraph (e)(1) of this section during the prescribed time or 6 calendar months thereafter may not serve as pilot in command under IFR, nor in weather conditions less than the minimums prescribed for VFR, until he passes an instrument competency check in the category of aircraft involved, given by a DGAC inspector, a member of an Armed Force (ABRI) of the Republic of Indonesia authorized to conduct flight tests, a DGAC-approved check pilot, or a certificated instrument flight instructor. The Director may authorize the conduct of part or all of this check in a pilot ground trainer equipped for instruments or an aircraft simulator.

**61.58 Pilot in command proficiency check: Operation of aircraft requiring more than one required pilot.**

(a) No person may act as pilot in command of an aircraft that is type certificated for more than one required pilot crewmember unless the proficiency checks or flight checks prescribed in Paragraphs (b) and (c) of this section are satisfactorily completed.

(b) Since the beginning of the 12th calendar month before the month in which a person acts as pilot in command of an aircraft that is type certificated for more than one required pilot crewmember he must have completed one of the following:
(1) For an airplane - a proficiency or flight check given to him by a DGAC inspector or designated airmen examiner in either an airplane that is type certificated for more than one required pilot crewmember, or in an approved simulator. A proficiency or flight check given in an approved simulator shall include at least those maneuvers and procedures (set forth by the DGAC) which may be performed in a simulator or training device.
(2) For other aircraft - a proficiency or flight check in an aircraft that is type certificated for more than one required pilot crewmember given to him by a DGAC inspector or designated airmen examiner which includes those maneuvers and procedures required for the original issuance of a type rating for the aircraft used in the check.
(3) A pilot in command proficiency check given to him in accordance with the provisions for that check under Parts 121, 125, or 135 of the CASRs.
(4) A flight test required for an aircraft type rating.
(5) An initial or periodic flight check for the purpose of the issuance of a designated airman examiner or DGAC-approved check pilot designation.
(6) A military proficiency check required for pilot in command and instrument privileges in an aircraft which the military requires to be operated by more than one pilot.

(c) Except as provided in Paragraph (d) of this section, since the beginning of the 24th calendar month before the month in which a person acts as pilot in command of an aircraft that is type certificated for more than one required pilot crewmember he must have completed one of the following proficiency or flight checks in the particular type aircraft in which he is to serve as pilot in command:
(1) A proficiency check or flight check given to him by a DGAC inspector or a designated airmen examiner which includes the maneuvers, procedures, and standards required for the original issuance of a type rating for the aircraft used in the check.
(2) A pilot in command proficiency check given to him in accordance with the provisions for that check under Parts 121, 123, or 135 of the CASRs.
(3) A flight test required for an aircraft type rating.
(4) An initial or periodic flight check for the purpose of the issuance of a designated airman examiner or DGAC-approved check pilot designation.
(5) A military proficiency check required for pilot in command and instrument privileges in an aircraft which the military requires to be operated by more than one pilot.

(d) For airplanes, the maneuvers and procedures required for the checks and test prescribed in Paragraphs (c) (1), (2), (4), and (5) of this section, and Paragraph (c)(3) of this section in the case of type ratings obtained in conjunction with a Part 121 of the CASRs training program may be performed in a simulator or training device if-
(1) The maneuver or procedure can be performed in a simulator or training device as set forth by the DGAC; and
(2) The simulator or training device is one that is approved for the particular maneuver or procedure

(e) For the purpose of meeting the proficiency check requirements of Paragraphs (b) and (c) of this section, a person may act as pilot in command of a flight under day VFR or day IFR if no persons or property, other than as necessary for his compliance with those paragraphs, are carried.

(f) If a pilot takes the proficiency check required by Paragraph (a) of this section in the calendar month before, or the calendar month after, the month in which it is due, he is considered to have taken it in the month it is due.

**61.59 Falsification, reproduction, or alteration of applications, certificates, logbooks, reports, or records.**

(a) No person may make or cause to be made-

(1) Any fraudulent or intentionally false statement on any application for a certificate, rating, or duplicate thereof, issued under this part;

(2) Any fraudulent or intentionally false entry in any logbook, record, or report that is required to be kept, made, or used, to show compliance with any requirement for the issuance, or exercise of the privileges, or any certificate or rating under this part;

(3) Any reproduction, for fraudulent purpose, of any certificate or rating under this part; or

(4) Any alteration of any certificate or rating under this part.

(b) The commission by any person of an act prohibited under Paragraph (a) of this section is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

**61.60 Change of address.**

The holder of a pilot or flight instructor certificate who has made a change in his permanent mailing address may not after 30 days from the date he moved, exercise the privileges of his certificate unless he has notified in writing the DGAC of his new address.

## SUBPART B - AIRCRAFT RATINGS AND SPECIAL CERTIFICATES

**61.61 Applicability.**
This subpart prescribes the requirements for the issuance of additional aircraft ratings after a pilot or instructor certificate is issued, and the requirements and limitations for special pilot certificates and ratings issued by the Director.

**61.63 Additional aircraft ratings (other than Airline Transport Pilot).**
(a) General. To be eligible for an aircraft rating after his certificate is issued to him an applicant must meet the requirements of Paragraphs (b) through (d) of this section, as appropriate to the rating sought.

(b) Category rating. An applicant for a category rating to be added on his pilot certificate must meet the requirements of this part for the issue of the pilot certificate appropriate to the privileges for which the category rating is sought. However, the holder of a category rating for powered aircraft is not required to take a written test for the addition of a category rating on his pilot certificate.

(c) Class rating. An applicant for an aircraft class rating to be added on his pilot certificate must-
(1) Present a logbook record certified by an authorized flight instructor showing that the applicant has received flight instruction in the class of aircraft for which a rating is sought and has been found competent in the pilot operations appropriate to the pilot certificate to which his category rating applies; and
(2) Pass a flight test appropriate to his pilot certificate and applicable to the aircraft category and class rating sought.

A person who holds a lighter-than-air category rating with a free balloon class rating, who seeks an airship class rating, must meet the requirements of Paragraph (b) of this section as though seeking a lighter-than-air category rating.

(d) Type rating. An applicant for a type rating to be added on his pilot certificate must meet the following requirements:
(1) He must hold, or concurrently obtain, an instrument rating appropriate to the aircraft for which a type rating is sought.
(2) He must pass a flight test showing competence in pilot operations appropriate to the pilot certificate he holds and to the type rating sought.
(3) He must pass a flight test showing competence in pilot operations under instrument flight rules in an aircraft of the type for which the type rating is sought or, in the case of a single pilot station airplane, meet the requirements of Paragraph (d)(3) (i) or (ii) of this section, whichever is applicable.
(i) The applicant must have met the requirements of this paragraph in a multiengine airplane for which a type rating is required.
(ii) If he does not meet the requirements of Paragraph (d)(3)(i) of this section and he seeks a type rating for a single engine airplane, he must meet the requirements of this subparagraph in either a single or multiengine airplane, and have the recent

instrument experience set forth in Section 61.57(e), when he applies for the flight test under Paragraph (d)(2) of this section.

(4) An applicant who does not meet the requirements of Paragraphs (d) (1) and (3) of this section may obtain a type rating limited to "VFR only." Upon meeting these instrument requirements or the requirements of Section 61.73(e)(2), the "VFR only" limitation may be removed for the particular type of aircraft in which competence is shown.

(5) When an instrument rating is issued to the holder of one or more type ratings, the type ratings on the amended certificate bear the limitation described in Paragraph (d)(4) of this section for each airplane type rating for which he has not shown his instrument competency under this paragraph.

(6) After six months from the effective date of this part of the CASRs, an applicant for a type rating to be added to a pilot certificate must-

(i) Have completed ground and flight training on the maneuvers and procedures required by the DGAC of this part that is appropriate to the airplane for which a type rating is sought, and received an endorsement from an authorized instructor in the person's logbook or training records certifying satisfactory completion of the training; or

(ii) For a pilot employee of a Part 121 or Part 135 certificate holder, have completed the certificate holder's approved ground and flight training that is appropriate to the airplane for which a type rating is sought.

**61.65 Instrument rating requirements.**

(a) General. To be eligible for an instrument rating (airplane) or an instrument rating (helicopter), an applicant must-

(1) Hold at least a current private pilot certificate with an aircraft rating appropriate to the instrument rating sought;

(2) Be able to read, speak, and understand the English language; and

(3) Comply with the applicable requirements of this section.

(b) Ground instruction. An applicant for the written test for an instrument rating must have received ground instruction in at least the following areas of aeronautical knowledge appropriate to the rating sought.

(1) The regulations of the CASRs that apply to flight under IFR conditions and the IFR air traffic system and procedures;

(2) Dead reckoning appropriate to IFR navigation, IFR navigation by radio aids using the VOR, ADF, and ILS systems, and the use of IFR charts and instrument approach plates;

(3) The procurement and use of aviation weather reports and forecasts, and the elements of forecasting weather trends on the basis of that information and personal observation of weather conditions; and

(4) The safe and efficient operation of airplanes or helicopters, as appropriate, under instrument weather conditions.

(c) Flight instruction and skill - airplanes. An applicant for the flight test for an instrument rating (airplane) must present a logbook record certified by an authorized flight instructor showing that he has received instrument flight instruction in an airplane in the following pilot operations, and has been found competent in each of them:

(1) Control and accurate maneuvering of an airplane solely by reference to instruments.

(2) IFR navigation by the use of the VOR and ADF systems, including compliance with air traffic control instructions and procedures.
(3) Instrument approaches to published minimums using the VOR, ADF, and ILS systems (instruction in the use of the ADF and ILS may be received in an instrument ground trainer and instruction in the use of the ILS glide slope may be received in an airborne ILS simulator).
(4) Cross-country flying in simulated or actual IFR conditions, on airways or as routed by ATC, including one such trip of at least 250 nautical miles, including VOR, ADF, and ILS approaches at different airports.
(5) Simulated emergencies, including the recovery from unusual attitudes, equipment or instrument malfunctions, loss of communications, and engine out emergencies if a multiengine airplane is used, and missed approach procedure.

(d) Instrument instruction and skill - (helicopter). An applicant for the flight test for an instrument rating (helicopter) must present a logbook record certified to by an authorized flight instructor showing that he has received instrument flight instruction in a helicopter in the following pilot operations, and has been found competent in each of them:
(1) The control and accurate maneuvering of a helicopter solely by reference to instruments.
(2) IFR navigation by the use of the VOR and ADF systems, including compliance with air traffic instructions and procedures.
(3) Instrument approaches to published minimums using the VOR, ADF, and ILS systems (instruction in the use of the ADF and ILS may be received in an instrument ground trainer, and instruction in the use of the ILS glide slope may be received in an airborne ILS simulator).
(4) Cross-country flying under simulated or actual IFR conditions, on airways or as routed by ATC, including one flight of at least 100 nautical miles, including VOR, ADF, and ILS approaches at different airports.
(5) Simulated IFR emergencies, including equipment malfunctions, missed approach procedures, and deviations to unplanned alternates.

(e) Flight experience. An applicant for an instrument rating must have at least the following flight time as a pilot:
(1) A total of 125 hours of pilot flight time, of which 50 hours are as pilot in command in cross-country flight in a powered aircraft with other than a student pilot certificate. Each cross-country flight must have a landing at a point more than 50 nautical miles from the original departure point.
(2) 40 hours of simulated or actual instrument time, of which not more than 20 hours may be instrument instruction by an authorized instructor in an instrument ground trainer acceptable to the Director.
(3) 15 hours of instrument flight instruction by an authorized flight instructor, including at least 5 hours in an airplane or a helicopter, as appropriate.

(f) Written test. An applicant for an instrument rating must pass a written test appropriate to the instrument rating sought on the subjects in which ground instruction is required by Paragraph (b) of this section.

(g) Practical test. An applicant for an instrument rating must pass a flight test in an airplane or a helicopter, as appropriate. The test must include instrument flight procedures selected by the inspector or conducting the test to determine the applicant's ability to perform competently the IFR operations on which instruction is required by Paragraph (c) or (d) of this section.

**61.67 Category II pilot authorization requirements.**

(a) General. An applicant for a Category II pilot authorization must hold-
(1) A pilot certificate with an instrument rating or an airline transport pilot certificate; and
(2) A type rating for the aircraft type.

(b) Experience requirements. Except for the holder of an airline transport pilot certificate, an applicant for a Category II authorization must have at least-
(1) 50 hours of night flight time under VFR conditions as pilot in command;
(2) 75 hours of instrument time under actual or simulated conditions that may include 25 hours in a synthetic trainer; and
(3) 250 hours of cross-country flight time as pilot in command.

Night flight and instrument flight time used to meet the requirements of Paragraphs (b) (1) and (2) of this section may also be used to meet the requirements of Paragraph (b)(3) of this section.

(c) Practical test required.
(1) The practical test must be passed by-
(i) An applicant for issue or renewal of an authorization; and
(ii) An applicant for the addition of another type aircraft to his authorization.
(2) To be eligible for the practical test an applicant must meet the requirements of Paragraph (a) of this section and, if he has not passed a practical test since the beginning of the twelfth calendar month before the test, he must meet the following recent experience requirements:
(i) The requirements of Section 61.57(e).
(ii) At least six ILS approaches since the beginning of the sixth calendar month before the test. These approaches must be under actual or simulated instrument flight conditions down to the minimum landing altitude for the ILS approach in the type aircraft in which the flight test is to be conducted. However, the approaches need not be conducted down to the decision heights authorized for Category II operations. At least three of these approaches must have been conducted manually, without the use of an approach coupler.

The flight time acquired in meeting the requirements of Paragraph (c)(2)(ii) of this section may be used to meet the requirements of Paragraph (c)(2)(i) of this section.

(d) Practical test procedures. The practical test consists of two phases:
(1) Phase I - oral operational test. The applicant must demonstrate his knowledge of the following:
(i) Required landing distance.
(ii) Recognition of the decision height.

(iii) Missed approach procedures and techniques utilizing computed or fixed attitude guidance displays.
(iv) RVR, its use and limitations.
(v) Use of visual clues, their availability or limitations, and altitude at which they are normally discernible at reduced RVR readings.
(vi) Procedures and techniques related to transition from non-visual to visual flight during a final approach under reduced RVR.
(vii) Effects of vertical and horizontal windshear.
(viii) Characteristics and limitations of the ILS and runway lighting system.
(ix) Characteristics and limitations of the flight director system, auto approach coupler (including split axis type if equipped), auto throttle system (if equipped), and other required Category II equipment.
(x) Assigned duties of the second in command during Category II approaches.
(xi) Instrument and equipment failure warning systems.

(2) Phase II - flight test. The flight test must be taken in an aircraft that meets the requirements of Part 91 of the CASRs for Category II operations. The test consists of at least two ILS approaches to 100 feet including at least one landing and one missed approach. All approaches must be made with the approved flight control guidance system. However, if an approved automatic approach coupler is installed, at least one approach must be made manually. In the case of a multiengine aircraft that has performance capability to execute a missed approach with an engine out, the missed approach must be executed with one engine set in idle or zero thrust position before reaching the middle marker. The required flight maneuvers must be performed solely by reference to instruments and in coordination with a second in command who holds a class rating and, in the case of a large aircraft or a small turbojet aircraft, a type rating for that aircraft.

**61.69 Glider towing: Experience and instruction requirements.**

No person may act as pilot in command of an aircraft towing a glider unless he meets the following requirements:

(a) He holds a current pilot certificate (other than a student or sport pilot certificate) issued under this part.

(b) He has an endorsement in his pilot logbook from a person authorized to give flight instruction in gliders, certifying that he has received ground and flight instruction in gliders and is familiar with the techniques and procedures essential to the safe towing of gliders, including airspeed limitations, emergency procedures, signals used, and maximum angles of bank.

(c) He has made and entered in his pilot logbook :
(1) At least three flights as sole manipulator of the controls of an aircraft towing a glider while accompanied by a pilot who has met the requirements of this section and made and logged at least 10 flights as pilot in command of an aircraft towing a glider; or
(2) At least three flights as sole manipulator of the controls of an aircraft simulating glider towing flight procedures (while accompanied by a pilot who meets the requirements of this section), and at least three flights as pilot or observer in a glider being towed by an aircraft.

(d) If he holds only a private pilot certificate he must have had, and entered in his pilot logbook at least-
(1) 100 hours of pilot flight time in powered aircraft; or
(2) 200 total hours of pilot flight time in powered or other aircraft.

(e) Within the preceding 12 calendar months he has-
(1) Made at least three actual or simulated glider tows while accompanied by a qualified pilot who meets the requirements of this section; or
(2) Made at least three flights as pilot in command of a glider towed by an aircraft.

**61.71 Graduates of approved flying schools: Special rules.**

(a) A graduate of a flying school that is certificated under Part 141 of the CASRs is considered to meet the applicable aeronautical experience requirements of this part if he presents an appropriate graduation certificate within 60 days after the date he is graduated. However, if he applies for a flight test for an instrument rating he must hold a commercial pilot certificate, or hold a private pilot certificate and meet the requirements of Sections 61.65(e)(1) and 61.123 (except Paragraphs (d) and (e) thereof). In addition, if he applies for a flight instructor certificate he must hold a commercial pilot certificate.

(b) An applicant for a certificate or rating under this part is considered to meet the aeronautical knowledge and skill requirements, or both, applicable to that certificate or rating if the applicant applies within 90 days after graduation from an appropriate course given by a pilot school that is certificated under Part 141 of the CASRs and is authorized to test applicants on aeronautical knowledge or skill, or both.

**61.73 Military pilots or former military pilots: Special rules.**

(a) General. A rated military pilot or former rated military pilot who applies for a private or commercial pilot certificate, or an aircraft or instrument rating, is entitled to that certificate with appropriate ratings or to the addition of a rating on the pilot certificate he holds, if he meets the applicable requirements of this section. This section does not apply to a military pilot or former military pilot who has been removed from flying status for lack of proficiency or because of disciplinary action involving aircraft operations.

(b) Military pilots on active flying status within the preceding 12 calendar months. A rated military pilot or former rated military pilot who has been on active flying status within the 12 calendar months before he applies must pass a written test on the parts of the CASRs relating to pilot privileges and limitations, air traffic and general operating rules, and accident reporting rules. In addition, he must present documents showing that he meets the requirements of Paragraph (d) of this section for at least one aircraft rating, and that he is, or was at any time since the beginning of the twelfth calendar month before the month in which he applies :
(1) A rated military pilot on active flying status in an Armed Force (ABRI) of the Republic of Indonesia; or
(2) A rated military pilot of an armed force of a foreign contracting State to the Convention on International Civil Aviation, assigned to pilot duties (other than flight training) with an armed force of the Republic of Indonesia who holds, at the time he

applies, a current civil pilot license issued by that foreign State authorizing at least the privileges of the pilot certificate he seeks.

(c) Military pilots not on active flying status within previous 12 calendar months. A rated military pilot or former military pilot who has not been on active flying status within the 12 calendar months before he applies must pass the appropriate written and flight tests prescribed in this part for the certificate or rating he seeks. In addition, he must show that he holds a DGAC medical certificate appropriate to the pilot certificate he seeks and present documents showing that he was, before the beginning of the twelfth calendar month before the month in which he applies, a rated military pilot as prescribed by either Paragraph (b) (1) or (2) of this section.

(d) Aircraft ratings: Other than airplane category and type. An applicant for a category, class, or type rating (other than airplane category and type rating) to be added on the pilot certificate he holds, or for which he has applied, is issued that rating if he presents documentary evidence showing one of the following:

(1) That he has passed an official Republic of Indonesia military checkout as pilot in command of aircraft of the category, class, or type for which he seeks a rating since the beginning of the twelfth calendar month before the month in which he applies.

(2) That he has had at least 10 hours of flight time serving as pilot in command of aircraft of the category, class, or type for which he seeks a rating since the beginning of the twelfth calendar month before the month in which he applies and previously has had an official Republic of Indonesia military checkout as pilot in command of that aircraft.

(3) That he has met the requirements of Paragraph (b) (1) or (2) of this section, has had an official Republic of Indonesia military checkout in the category of aircraft for which he seeks a rating, and that he passes a DGAC flight test appropriate to that category and the class or type rating he seeks. To be eligible for that flight test, he must have a written statement from an authorized flight instructor, made not more than 60 days before he applies for the flight test, certifying that he is competent to pass the test. A type rating is issued only for aircraft types that the Director has certificated for civil operations. Any rating placed on an airline transport pilot certificate is limited to commercial pilot privileges.

(e) Airplane category and type ratings.

(1) An applicant for a commercial pilot certificate with an airplane category rating, or an applicant for the addition of an airplane category rating on his commercial pilot certificate, must hold an airplane instrument rating, or his certificate is endorsed with the following limitation: "Not valid for the carriage of passengers or property for hire in airplanes on cross-country flights of more than 50 nautical miles, or at night."

(2) An applicant for a private or commercial pilot certificate with an airplane type rating, or for the addition of an airplane type rating on his private or commercial pilot certificate who holds an instrument rating (airplane), must present documentary evidence showing that he has demonstrated instrument competency in the type of airplane for which the type rating is sought, or his certificate is endorsed with the following limitation: "VFR only."

(f) Instrument rating. An applicant for an airplane instrument rating or a helicopter instrument rating to be added on the pilot certificate he holds, or for which he has applied, is entitled to that rating if he has, within the 12 calendar months preceding the month in which he

applies, satisfactorily accomplished an instrument flight check of a Republic of Indonesia Armed Force (ABRI) in an aircraft of the category for which he seeks the instrument rating and is authorized to conduct IFR flights on airways. A helicopter instrument rating added on an airline transport pilot certificate is limited to commercial pilot privileges.

(g) Evidentiary documents. The following documents are satisfactory evidence for the purposes indicated:
(1) To show that the applicant is a member of the Armed Forces (ABRI), an official identification card issued to the applicant by an armed force may be used.
(2) To show the applicant's discharge or release from an armed force, or his former membership in an armed force, an original or a copy of a certificate of discharge or release may be used.
(3) To show current or previous status as a rated military pilot on flying status with a Republic of Indonesia Armed Force, one of the following may be used:
(i) An official Republic of Indonesia Armed Force order to flight duty as a military pilot.
(ii) An official Republic of Indonesia Armed Force form or logbook showing military pilot status.
(iii)An official order showing that the applicant graduated from a Republic of Indonesia military pilot school and is rated as a military pilot.
(4) To show flight time in military aircraft as a member of a Republic of Indonesia Armed Force, an appropriate Republic of Indonesia Armed Force form or summary of it, or a certified Republic of Indonesia military logbook may be used.
(5) To show pilot in command status, an official Republic of Indonesia Armed Force record of a military checkout as pilot in command, may be used.
(6) To show instrument pilot qualification, a current instrument card issued by a Republic of Indonesia Armed Force, or an official record of the satisfactory completion of an instrument flight check within the 12 calendar months preceding the month of the application may be used.

**61.75 Pilot certificate issued on basis of a foreign pilot license.**

(a) Purpose. The holder of a current private, commercial or airline transport pilot license issued by a foreign contracting State to the Convention on International Civil Aviation may apply for a pilot certificate under this section authorizing him to act as a pilot of a civil aircraft of Indonesian registry.

(b) Certificate issued. A pilot certificate is issued to an applicant under this section, specifying the number and State of issuance of the foreign pilot license on which it is based. An applicant who holds a foreign private pilot license is issued a private pilot certificate, and an applicant who holds a foreign commercial or airline transport pilot license is issued a commercial pilot certificate, if-
(1) He meets the requirements of this section;
(2) His foreign pilot license does not contain an endorsement that he has not met all of the standards of ICAO for that license; and
(3) He does not hold a Republic of Indonesia pilot certificate of private pilot grade or higher.

(c) Limitation on licenses used as basis for a Republic of Indonesia certificate. Only one foreign pilot license may be used as a basis for issuing a pilot certificate under this section.

(d) Aircraft ratings issued. Aircraft ratings listed on the applicant's foreign pilot license, in addition to any issued after testing under the provisions of this part, are placed on the applicant's pilot certificate.

(e) Instrument rating issued. An instrument rating is issued to an applicant if-
(1) His foreign pilot license authorizes instrument privileges; and
(2) Within 24 calendar months preceding the month in which he makes application for a certificate, he passed a test on the instrument flight rules in Subpart B of Part 91 of the CASRs, including the related procedures for the operation of the aircraft under instrument flight rules.

(f) Medical standards and certification. An applicant must submit evidence that he currently meets the medical standards for the foreign pilot license on which the application for a certificate under this section is based. A current medical certificate issued under Part 67 of the CASRs is accepted as evidence that the applicant meets those standards. However, a medical certificate issued under Part 67 of the CASRs is not evidence that the applicant meets those standards outside the Republic of Indonesia, unless the State that issued the applicant's foreign pilot license also accepts that medical certificate as evidence of meeting the medical standards for his foreign pilot license.

(g) Limitations placed on pilot certificate.
(1) If the applicant cannot read, speak, and understand the English language, the Director places any limitation on the certificate that he considers necessary for safety.
(2) A certificate issued under this section is not valid for agricultural aircraft operations, or the operation of an aircraft in which persons or property are carried for compensation or hire. This limitation is also placed on the certificate.

(h) Operating privileges and limitations. The holder of a pilot certificate issued under this section may act as a pilot of a civil aircraft of Indonesian registry in accordance with the pilot privileges authorized by the foreign pilot license on which that certificate is based, subject to the limitations of this part and any additional limitations placed on his certificate by the Director. He is subject to these limitations while he is acting as a pilot of the aircraft within or outside the Republic of Indonesia. However, he may not act as pilot in command, or in any other capacity as a required pilot flight crewmember, of a civil aircraft of Indonesian registry that is carrying persons or property for compensation or hire.

(i) Flight instructor certificate. A pilot certificate issued under this section does not satisfy any of the requirements of this part for the issuance of a flight instructor certificate.

**61.77 Special purpose pilot certificate: Operation of Indonesian-registered civil airplanes leased by a person not an Indonesian citizen.**

(a) General. The holder of a current foreign pilot certificate or license issued by a foreign contracting State to the Convention on International Civil Aviation, who meets the requirements of this section, may hold a special purpose pilot certificate authorizing the holder to perform pilot duties on a civil airplane of Indonesian registry, leased to a person not a citizen of the Republic of Indonesia, carrying persons or property for compensation or hire. Special purpose pilot certificates are issued under this section only for airplane types that can have a maximum passenger seating configuration (not including any flight crewmember seat) of more than 30 seats or a maximum payload capacity (as defined in Section 135.2(e) of the CASRs) of more than 7,500 pounds.

(b) Eligibility. To be eligible for the issuance or renewal of a certificate under this section, an applicant or a representative of the applicant must present the following to the Director:
(1) A current foreign pilot certificate or license, issued by the aeronautical authority of a foreign contracting State to the Convention on International Civil Aviation, or a facsimile acceptable to the Director. The certificate or license must authorize the applicant to perform the pilot duties to be authorized by a certificate issued under this section on the same airplane type as the leased airplane.
(2) A current certification by the lessee of the airplane :
(i) Stating that the applicant is employed by the lessee;
(ii) Specifying the airplane type on which the applicant will perform pilot duties; and
(iii) Stating that the applicant has received ground and flight instruction which qualifies the applicant to perform the duties to be assigned on the airplane.
(3) Documentation showing that the applicant has not reached the age of 60 and that the applicant currently meets the medical standards for the foreign pilot certificate or license required by Paragraph (b)(1) of this section, except that a Republic of Indonesia medical certificate issued under Part 67 of the CASRs is not evidence that the applicant meets those standards unless the State which issued the applicant's foreign pilot certificate or license accepts a Republic of Indonesia medical certificate as evidence of medical fitness for a pilot certificate or license.

(c) Privileges. The holder of a special purpose pilot certificate issued under this section may exercise the same privileges as those shown on the certificate or license specified in Paragraph (b)(1) of this section, subject to the limitations specified in this section. The certificate holder is not subject to the requirements of Sections 61.55, 61.57, and 61.58 of this part.

(d) Limitations. Each certificate issued under this section is subject to the following limitations:
(1) It is valid only :
(i) For flights between foreign countries or for flights in foreign air commerce;
(ii) While it and the foreign pilot certificate or license required by Paragraph (b)(1) of this section are in the certificate holder's personal possession and are current;
(iii) While the certificate holder is employed by the person to whom the airplane described in the certification required by Paragraph (b)(2) of this section is leased;

(iv) While the certificate holder is performing pilot duties on the Indonesian-registered civil airplane described in the certification required by Paragraph (b)(2) of this section;
(v) While the medical documentation required by Paragraph (b)(3) of this section is in the certificate holder's personal possession and is currently valid; and
(vi) While the certificate holder is under 60 years of age.

(2) Each certificate issued under this section contains the following:
(i) The name of the person to whom the Indonesian-registered civil aircraft is leased.
(ii) The type of aircraft.
(iii)The limitation: "Issued under, and subject to, Section 61.77 of the Civil Aviation Safety Regulations."
(iv)The limitation: "Subject to the privileges and limitations shown on the holder's foreign pilot certificate or license."

(3) Any additional limitations placed on the certificate which the Director considers necessary.

(e) Termination. Each special purpose pilot certificate issued under this section terminates-
(1) When the lease agreement for the airplane described in the certification required by Paragraph (b)(2) of this section terminates;
(2) When the foreign pilot certificate or license, or the medical documentation, required by Paragraph (b) of this section is suspended, revoked, or no longer valid;
(3) When the certificate holder reaches the age of 60; or
(4) After 24 calendar months after the month in which the special purpose pilot certificate was issued.

(f) Surrender of certificate. The certificate holder shall surrender the special purpose pilot certificate to the Director within 7 days after the date it terminates.

(g) Renewal. The certificate holder may have the certificate renewed by complying with the requirements of Paragraph (b) of this section at the time of application for renewal.

## SUBPART C - STUDENT AND SPORT PILOTS

**61.81 Applicability: Student pilots.**
This subpart prescribes the requirements for the issuance of student pilot certificates and sport pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules and limitations for the holders of those certificates and ratings.

**61.83 Eligibility requirements: Student pilots.**
To be eligible for a student pilot certificate, a person must :
(a) Be at least 16 years of age, or at least 14 years of age for a student pilot certificate limited to the operation of a glider or free balloon;

(b) Be able to read, speak, and understand the English language, or have such operating limitations placed on his pilot certificate as are necessary for the safe operation of aircraft, to be removed when he shows that he can read, speak, and understand the English language; and

(c) Hold at least a current second-class medical certificate issued under Part 67 of the CASRs or, in the case of glider or free balloon operations, certify that he has no known medical defect that makes him unable to pilot a glider or a free balloon.

**61.85 Application: Student pilots.**
An application for a student pilot certificate is made on a form and in a manner provided by the Director and is submitted to-
(a) An aviation medical examiner when applying for a DGAC medical certificate in the Republic of Indonesia; or

(b) A DGAC inspector or designated airmen examiner, accompanied by a current DGAC medical certificate, or in the case of an application for a glider or free balloon pilot certificate it may be accompanied by a certification by the applicant that he has no known medical defect that makes him unable to pilot a glider or free balloon.

**61.87 Solo flight requirements for student pilots.**
(a) General. A student pilot may not operate an aircraft in solo flight unless that student meets the requirements of this section. The term "solo flight," as used in this subpart, means that flight time during which a student pilot is the sole occupant of the aircraft, or that flight time during which the student acts as pilot in command of an airship requiring more than one flight crewmember.

(b) Aeronautical knowledge. A student pilot must have demonstrated satisfactory knowledge to an authorized instructor, of the appropriate portions of Parts 61 and 91 of the Civil Aviation Safety Regulations that are applicable to student pilots. This demonstration must include the satisfactory completion of a written examination to be administered and graded by the instructor who endorses the student's pilot certificate for solo flight. The

written examination must include questions on the applicable regulations and the flight characteristics and operational limitations for the make and model aircraft to be flown.

(c) Pre-solo flight training. Prior to being authorized to conduct a solo flight, a student pilot must have received and logged instruction in at least the applicable maneuvers and procedures listed in Paragraphs (d) through (j) of this section for the make and model of aircraft to be flown in solo flight, and must have demonstrated proficiency to an acceptable performance level as judged by the instructor who endorses the student's pilot certificate.

(d) For all aircraft (as appropriate to the aircraft to be flown in solo flight), the student pilot must have received pre-solo flight training in-
(1) Flight preparation procedures, including preflight inspections, powerplant operation, and aircraft systems;
(2) Taxiing or surface operations, including runups;
(3) Takeoffs and landings, including normal and crosswind;
(4) Straight and level flight, shallow, medium, and steep banked turns in both directions;
(5) Climbs and climbing turns;
(6) Airport traffic patterns including entry and departure procedures, and collision and wake turbulence avoidance;
(7) Descents with and without turns using high and low drag configurations;
(8) Flight at various airspeeds from cruising to minimum controllable airspeed;
(9) Emergency procedures and equipment malfunctions; and
(10) Ground reference maneuvers.

(e) For airplanes, in addition to the maneuvers and procedures in Paragraph (d) of this section, the student pilot must have received pre-solo flight training in-
(1) Approaches to the landing area with engine power at idle and with partial power;
(2) Slips to a landing;
(3)Go-arounds from final approach and from the landing flare in various flight configurations including turns;
(4) Forced landing procedures initiated on takeoff, during initial climb, cruise, descent, and in the landing pattern; and
(5) Stall entries from various flight attitudes and power combinations with recovery initiated at the first indication of a stall, and recovery from a full stall.

(f) For rotorcraft (other than single place gyroplanes), in addition to the maneuvers and procedures in Paragraph (d) of this section and as allowed by the aircraft's performance and maneuver limitations, the student pilot must have received pre-solo flight training in :
(1) Approaches to the landing area;
(2) Hovering turns and air taxiing (for helicopters only) and ground maneuvers;
(3) Go-arounds from landing hover and from final approach;
(4) Simulated emergency procedures, including autorotational descents with a power recovery or running landing in gyroplanes, a power recovery to a hover in a single engine helicopter, or approaches to a hover or landing with one engine inoperative in multiengine helicopters; and
(5) Rapid decelerations (helicopters only).

(g) For single place gyroplanes, in addition to the appropriate maneuvers and procedures in Paragraph (d) of this section, the student pilot must have received pre-solo flight training in :
(1) Simulated emergency procedures, including autorotational descents with a power recovery or a running landing;
(2) At least three successful flights in gyroplanes under the observation of a qualified instructor; and
(3) For non-powered single place gyroplanes only, at least three successful flights in a gyroplane towed from the ground under the observation of the flight instructor who endorses the student's pilot certificate.

(h) For gliders, in addition to the appropriate maneuvers and procedures in Paragraph (d) of this section, the student pilot must have received pre-solo flight training in :
(1) Preflight inspection of towline rigging, review of signals, and release procedures to be used;
(2) Aerotows, ground tows, or self-launch;
(3) Principles of glider disassembly and assembly;
(4) Stall entries from various flight attitudes with recovery initiated at the first indication of a stall, and recovery from a full stall;
(5) Straight glides, turns, and spirals;
(6) Slips to a landing;
(7) Procedures and techniques for thermalling in convergence lift or ridge lift as appropriate to the training area; and
(8) Emergency operations including towline break procedures.

(i) In airships, in addition to the appropriate maneuvers and procedures in Paragraph (d) of this section, the student pilot must have received pre-solo flight training in :
(1) Rigging, ballasting, controlling pressure in the ballonets, and superheating; and
(2) Landings with positive and with negative static balance.

(j) In free balloons, in addition to the appropriate maneuvers and procedures in Paragraph (d) of this section, the student pilot must have received pre-solo flight training in :
(1) Operation of hot air or gas source, ballast, valves, and rip panels, as appropriate;
(2) Emergency use of rip panel (may be simulated);
(3) The effects of wind on climb and approach angles; and
(4) Obstruction detection and avoidance techniques.

(k) The instruction required by this section must be given by an authorized flight instructor who is certificated :
(1) In the category and class of airplanes, for airplanes;
(2) Except as provided in Paragraph (k)(3) of this section, in helicopters or gyroplanes, as appropriate, for rotorcraft;
(3) In airplanes or gyroplanes, for single place gyroplanes; and
(4) In gliders for gliders.

(l) The holder of a commercial pilot certificate with a lighter-than-air category rating may give the instruction required by this section in :
(1) Airships, if that commercial pilot holds an airship class rating; and
(2) Free balloons, if that commercial pilot holds a free balloon class rating.

(m) Flight instructor endorsements. No student pilot may operate an aircraft in solo flight unless that student's pilot certificate and logbook have been endorsed for the specific make and model aircraft to be flown by an authorized flight instructor certificated under this part, and the student's logbook has been endorsed, within the 90 days prior to the student operating in solo flight, by an authorized flight instructor certificated under this part who has flown with the student. No flight instructor may authorize solo flight without endorsing the student's logbook. The instructor's endorsement must certify that the instructor :
(1) Has given the student instruction in the make and model aircraft in which the solo flight is to be made;
(2) Finds that the student has met the flight training requirements of this section; and
(3) Finds that the student is competent to make a safe solo flight in that aircraft.

(n) Notwithstanding the requirements of Paragraphs (a) through (m) of this section, each student pilot, whose student pilot certificate and logbook are endorsed for solo flight by an authorized flight instructor on or before the effective date of this part of the CASRs may operate an aircraft in solo flight until the 90th day after the date on which the logbook was endorsed for solo flight.

**61.89 General limitations: Student pilots.**

(a) A student pilot may not act as pilot in command of an aircraft-
(1) That is carrying a passenger;
(2) That is carrying property for compensation or hire;
(3) For compensation or hire;
(4) In furtherance of a business;
(5) On an international flight;
(6) With a flight or surface visibility of less than 3 statute miles during daylight hours or 5 statute miles at night;
(7) When the flight cannot be made with visual reference to the surface; or
(8) In a manner contrary to any limitations placed in the pilot's logbook by the instructor.

(b) A student pilot may not act as a required pilot flight crewmember on any aircraft for which more than one pilot is required by the type certificate of the aircraft or regulations under which the flight is conducted, except when receiving flight instruction from an authorized flight instructor on board an airship and no person other than a required flight crewmember is carried on the aircraft.

**61.91 Aircraft limitations for student pilots: Pilot in command.**

A student pilot may not serve as pilot in command of any airship requiring more than one flight crewmember unless he has met the pertinent requirements prescribed in Section 61.87.

**61.93 Cross-country flight requirements (for student and sport pilots seeking private pilot certification).**

(a) General. No student pilot may operate an aircraft in solo cross-country flight, nor may that student, except in an emergency, make a solo flight landing at any point other than the airport of takeoff, unless the student has met the requirements of this section. The term cross-country flight, as used in this section, means a flight beyond a radius of 25 nautical miles from the point of departure.

(b) Notwithstanding Paragraph (a) of this section, an authorized flight instructor, certificated under this part, may permit the student to practice solo takeoffs and landings at another airport within 25 nautical miles from the airport at which the student receives instruction if the flight instructor :

(1) Determines that the student pilot is competent and proficient to make those landings and takeoffs;

(2) Has flown with that student prior to authorizing those takeoffs and landings; and

(3) Endorses the student pilot's logbook with an authorization to make those landings and takeoffs.

(c) Flight training. A student pilot, in addition to the pre-solo flight training maneuvers and procedures required by Section 61.87(c), must have received and logged instruction from an authorized flight instructor in the appropriate pilot maneuvers and procedures of this section. Additionally, a student pilot must have demonstrated an acceptable standard of performance, as judged by the authorized flight instructor certificated under this part, who endorses the student's pilot certificate in the appropriate pilot maneuvers and procedures of this section.

(1) For all aircraft :

(i) The use of aeronautical charts for VFR navigation using pilotage and dead reckoning with the aid of a magnetic compass;

(ii) Aircraft cross-country performance, and procurement and analysis of aeronautical weather reports and forecasts, including recognition of critical weather situations and estimating visibility while in flight;

(iii) Cross-country emergency conditions including lost procedures, adverse weather conditions, and simulated precautionary off airport approaches and landing procedures;

(iv) Traffic pattern procedures, including normal area arrival and departure, collision avoidance, and wake turbulence precautions;

(v) Recognition of operational problems associated with the different terrain features in the geographical area in which the cross-country flight is to be flown; and

(vi) Proper operation of the instruments and equipment installed in the aircraft to be flown.

(2) For airplanes, in addition to Paragraph (c)(1) of this section :

(i) Short and soft field takeoff, approach, and landing procedures, including crosswind takeoffs and landings;

(ii) Takeoffs at best angle and rate of climb;

(iii) Control and maneuvering solely by reference to flight instruments including straight and level flight, turns, descents, climbs, and the use of radio aids and radar directives;

(iv) The use of radios for VFR navigation and for two-way communication; and

(v) For those student pilots seeking night flying privileges, night flying procedures including takeoffs, landings, go-arounds, and VFR navigation.

(3) For rotorcraft, in addition to Paragraph (c)(1) of this section and as appropriate to the aircraft being flown :

(i) High altitude takeoff and landing procedures;

(ii) Steep and shallow approaches to a landing hover;

(iii) Rapid decelerations (helicopters only); and

(iv) The use of radios for VFR navigation and two-way communication.

(4) For gliders, in addition to the appropriate maneuvers and procedures in Paragraph (c)(1) of this section :

(i) Landings accomplished without the use of the altimeter from at least 2,000 feet above the surface;

(ii) Recognition of weather conditions and conditions favorable for cross-country soaring; and

(iii) The use of radios for two-way radio communications.

(5) For airships, in addition to the appropriate maneuvers and procedures in Paragraph (c)(1) of this section-

(i) Control of gas pressure with regard to superheating and altitude; and

(ii) Control of the airship solely by reference to flight instruments.

(6) For free balloons, the appropriate maneuvers and procedures in Paragraph (c)(1) of this section.

(d) No student pilot may operate an aircraft in solo cross-country flight, unless :

(1) The instructor is an authorized instructor certificated under this part and the student's certificate has been endorsed by the instructor attesting that the student has received the instruction and demonstrated an acceptable level of competency and proficiency in the maneuvers and procedures of this section for the category of aircraft to be flown; and

(2) The instructor has endorsed the student's logbook :

(i) For each solo cross-country flight, after reviewing the student's preflight planning and preparation, attesting that the student is prepared to make the flight safely under the known circumstances and subject to any conditions listed in the logbook by the instructor; and

(ii) For repeated specific solo cross-country flights that are not greater than 50 nautical miles from the point of departure, after giving that student flight instruction in both directions over the route, including takeoffs and landings at the airports to be used, and has specified the conditions for which the flights can be made.

**61.95 Operations in Class B airspace and at airports located within Class B airspace: Student pilots.**

(a) A student pilot may not operate an aircraft on a solo flight in Class B airspace unless :

(1) The pilot has received both ground and flight instruction from an authorized instructor on that Class B airspace area and the flight instruction was received in the specific Class B airspace area for which solo flight is authorized;

(2) The logbook of that pilot has been endorsed within the preceding 90 days for conducting solo flight in that Class B airspace area by the instructor who gave the flight training; and

(3) The logbook endorsement specifies that the pilot has received the required ground and flight instruction and has been found competent to conduct solo flight in that specific Class B airspace area.

(b) Pursuant to Section 91.131(b), a student pilot may not operate an aircraft on a solo flight to, from, or at an airport located within Class B airspace unless :
(1) That student pilot has received both ground and flight instruction from an authorized instructor to operate at that airport and the flight and ground instruction has been received at the specific airport for which the solo flight is authorized;
(2) The logbook of that student pilot has been endorsed within the preceding 90 days for conducting solo flight at that specific airport by the instructor who gave the flight training; and
(3) The logbook endorsement specifies that the student pilot has received the required ground and flight instruction and has been found competent to conduct solo flight operations at that specific airport.

**61.96 Eligibility requirements: Sport pilots.**
To be eligible for a sport pilot certificate, a person must :
(a) Be at least 17 years of age;

(b) Be able to read, speak, and understand the English language, or have such operating limitations placed on the pilot certificate as are necessary for the safe operation of aircraft, to be removed when the sport pilot shows the ability to read, speak, and understand the English language;

(c) Hold at least a current third-class medical certificate issued under Part 67 of the CASRs;

(d) Pass a written test on the subject areas on which instruction is required by Section 61.97;

(e) Pass an oral and flight test on maneuvers and procedures selected by a DGAC inspector or designated airmen examiner to determine the applicant's competency in the appropriate flight operations listed in Section 61.98; and

(f) Comply with the sections of this part that apply to the rating sought.

**61.97 Aeronautical knowledge: Sport pilots.**
An applicant for a sport pilot certificate must have logged ground instruction from an authorized instructor, or must present evidence showing satisfactory completion of a course of instruction in at least the following areas of aeronautical knowledge appropriate to the category and class of aircraft for which a rating is sought:

(a) The Civil Aviation Safety Regulations applicable to sport pilot privileges, limitations, and flight operations and the accident reporting requirements of the CASRs.

(b) The use of aeronautical charts for VFR navigation using piloting with the aid of a magnetic compass;

(c) The recognition of critical weather situations from the ground and in flight and the procurement and use of aeronautical weather reports and forecasts;

(d) The safe and efficient operation of aircraft including collision and wake turbulence avoidance;

(e) The effects of density altitude on takeoff and climb performance;

(f) Weight and balance computations;

(g) Principles of aerodynamics, powerplants, and aircraft systems; and

(h) Stall awareness, spin entry, spins, and spin recovery techniques.

**61.98 Flight proficiency: Sport pilots.**

The applicant for a sport pilot certificate must have logged instruction from an authorized flight instructor in at least the pilot operations listed in this section. In addition, the applicant's logbook must contain an endorsement by an authorized flight instructor who has found the applicant competent to perform each of those operations safely as a sport pilot.

(a) In airplanes.

(1) Preflight operations, including weight and balance determination, line inspection, airplane servicing, powerplant operations, and aircraft systems;
(2) Airport and traffic pattern operations, collision and wake turbulence avoidance;
(3) Flight maneuvering by reference to ground objects;
(4) Pilotage with the aid of magnetic compass;
(5) Flight at slow airspeeds with realistic distractions and the recognition of and recovery from stalls entered from straight flight and from turns;
(6) Emergency operations, including simulated aircraft and equipment malfunctions;
(7) Maximum performance takeoffs and landings; and
(8) Normal and crosswind takeoffs and landings.

(b) In helicopters.

(1) Preflight operations including weight and balance determination, line inspection, helicopter servicing, powerplant operations, and aircraft systems;
(2) Airport and traffic pattern operations, collision and wake turbulence avoidance;
(3) Hovering, air taxiing, and maneuvering by reference to ground objects;
(4) Pilotage with the aid of magnetic compass;
(5) High altitude takeoffs and roll on landings, and rapid decelerations; and
(6) Emergency operations, including autorotative descents.

(c) In gyroplanes.

(1) Preflight operations including weight and balance determination, line inspection, gyroplane servicing, powerplant operations, and aircraft systems;
(2) Airport and traffic pattern operations, collision and wake turbulence avoidance;
(3) Flight maneuvering by reference to ground objects;
(4) Pilotage with the aid of a magnetic compass;
(5) Maneuvering at critically slow air speeds, and the recognition of and recovery from high rates of descent at low airspeeds; and

(6) Emergency procedures, including maximum performance takeoffs and landings.

**61.99 Airplane rating: Aeronautical experience for sport pilots.**

(a) An applicant for a sport pilot certificate with an airplane rating must have had at least a total of 30 hours of flight instruction and solo flight time which must include the following:

(1) Fifteen hours of flight instruction from an authorized flight instructor, including at least-

(i) Except as provided for in Paragraph (b), 2 hours outside of the vicinity of the airport at which instruction is given, including at least three landings at another airport that is located more than 25 nautical miles from the airport of departure; and

(ii) Two hours in airplanes in preparation for the sport pilot flight test within the 60 day period before the test.

(2) Fifteen hours of solo flight time in airplanes.

(b) Pilots based on small islands.

(1) An applicant who is located on an island from which the flight required in Section 61.99(a)(1)(i) cannot be accomplished without flying over water more than 10 nautical miles from the nearest shoreline need not comply with Section 61.99(a)(1)(i). However, if other airports that permit civil operations are available to which a flight may be made without flying over water more than 10 nautical miles from the nearest shoreline, the applicant must show completion of a single cross-country flight with two return trips between those two airports which must include three landings at the other airport.

(2) The pilot certificate issued to a person under Paragraph (b)(1) of this section contains an endorsement with the following limitation which may subsequently be amended to include another island if the applicant complies with Paragraph (b)(1) of this section with respect to that island: "Passenger carrying prohibited in flights more than 10 nautical miles from (appropriate island)."

(3) The holder of a sport pilot certificate with an endorsement described in Paragraph (b)(2) of this section is entitled to removal of the endorsement if the holder presents satisfactory evidence of compliance with the applicable flight requirements of Section 61.93(c) to a DGAC inspector or designated airmen examiner.

**61.100 Rotorcraft rating: Aeronautical experience for sport pilots.**

An applicant for a sport pilot certificate with a rotorcraft category rating must have a least the following aeronautical experience:

(a) For a helicopter rating, an applicant must have a minimum of 30 hours of flight instruction and solo flight time in aircraft, which must include the following:

(1) Fifteen hours of flight instruction from an authorized flight instructor including at least-

(i) Two hours of flight instruction in helicopters from an authorized flight instructor outside the vicinity of the airport at which instruction is given, including at least three landings at another airport that is located more than 25 nautical miles from the airport of departure; and

(ii) Two hours of flight instruction in preparation for the flight test within the 60 day period preceding the test.

(2) Fifteen hours of solo time in helicopters including :

(i) A takeoff and landing at an airport that serves both airplanes and helicopters; and

(ii) A flight with a landing at a point other than an airport.

(b) For a gyroplane rating, an applicant must have a minimum of 30 hours of flight instruction and solo flight time in aircraft, which must include the following:
(1) Fifteen hours of flight instruction from an authorized flight instructor including at least-
(i) Two hours of flight instruction in gyroplanes from an authorized flight instructor outside the vicinity of the airport at which instruction is given, including at least three landings at another airport that is located more than 25 nautical miles from the airport of departure; and
(ii) Two hours of flight instruction in preparation for the flight test within the 60 day period preceding the test.
(2) Ten hours of solo flight time in a gyroplane, including flights with takeoffs and landings at paved and unpaved airports.

**61.101 Sporting pilot privileges and limitations.**
(a) A sporting pilot may :
(1) Carry not more than one passenger; and
(2) Share the operating expenses of the flight with the passenger.
(3) Act as pilot in command of an aircraft only when-
(i) The flight is within 50 nautical miles of an airport at which the pilot has received ground and flight instruction from an authorized instructor certificated under this part;
(ii) The flight lands at an airport within 50 nautical miles of the departure airport; and
(iii) The pilot carries, in that pilot's personal possession, a logbook that has been endorsed by the instructor attesting to the instruction required by Paragraph (a)(3)(i) of this section.

(b) Except as provided in Paragraphs (f) and (g) of this section, a sport pilot may not act as pilot in command of an aircraft-
(1) That is certificated :
(i) For more than four occupants;
(ii) With more than one powerplant;
(iii) With a powerplant of more than 180 horsepower; or
(iv) With retractable landing gear.
(2) That is classified as a glider, airship, or balloon;
(3) That is carrying a passenger or property for compensation or hire;
(4) For compensation or hire;
(5) In furtherance of a business;
(6) Between sunset and sunrise;
(7) In airspace in which communication with air traffic control is required;
(8) At an altitude of more than 10,000 feet MSL or 2,000 feet AGL, whichever is higher;
(9) When the flight or surface visibility is less than 3 statute miles;
(10) Without visual reference to the surface;
(11) On a flight outside the Republic of Indonesia;
(12) To demonstrate that aircraft in flight to a prospective buyer;
(13) That is used in a passenger carrying airlift and sponsored by a charitable organization; and
(14) That is towing any object.

(c) A sport pilot may not act as a required pilot flight crewmember on any aircraft for which more than one pilot is required by the type certificate of the aircraft or the regulations under which the flight is conducted, except when receiving flight instruction from an authorized flight instructor on board an airship and no person other than a required flight crewmember is carried on the aircraft.

(d) A sport pilot who has logged fewer than 400 flight hours and who has not logged pilot in command time in an aircraft within the preceding 180 days may not act as pilot in command of an aircraft until the pilot has received flight instruction from an authorized flight instructor who certifies in the pilot's logbook that the pilot is competent to act as pilot in command of the aircraft. This requirement can be met in combination with the requirements of Sections 61.56 and 61.57 at the discretion of the instructor.

(e) The sport pilot certificate issued under this subpart carries the notation "Holder does not meet ICAO requirements."

(f) For the purpose of obtaining additional certificates or ratings, while under the supervision of an authorized flight instructor, a sport pilot may fly as sole occupant of an aircraft-
(1) For which the pilot does not hold an appropriate category or class rating;
(2) Within airspace that requires communication with air traffic control; or
(3) Between sunset and sunrise, provided the flight or surface visibility is at least 5 statute miles.

(g) In order to fly solo as provided in Paragraph (f) of this section, the sport pilot must meet the appropriate aeronautical knowledge and flight training requirements of Section 61.87 for that aircraft. When operating an aircraft under the conditions specified in Paragraph (f) of this section, the sport pilot shall carry the logbook that has been endorsed for each flight by an authorized pilot instructor who :
(1) Has given the sport pilot instruction in the make and model of aircraft in which the solo flight is to be made;
(2) Has found that the sport pilot has met the applicable requirements of Section 61.87; and
(3) Has found that the sport pilot is competent to make solo flights in accordance with the logbook endorsement.

(h) Notwithstanding Section 61.101(a)(3), a sport pilot may, for the purpose of obtaining an additional certificate or rating, while under the supervision of an authorized flight instructor, act as pilot in command of an aircraft on a flight in excess of 50 nautical miles from an airport at which flight instruction is received if the pilot meets the flight training requirements of Section 61.93 and in that pilot's personal possession is the logbook that has been endorsed by an authorized instructor attesting that:
(1) The sport pilot has received instruction in solo cross-country flight and the training described in Section 61.93 applicable to the aircraft to be operated, and is competent to make solo cross-country flights in the make and model of aircraft to be flown; and
(2) The instructor has reviewed the student's preflight planning and preparation for the specific solo cross-country flight and that the sport pilot is prepared to make the flight safely under the known circumstances and subject to any conditions listed in the logbook by the instructor.

## SUBPART D - PRIVATE PILOTS

**61.102 Applicability.**
This subpart prescribes the requirements for the issuance of private pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the general operating rules for the holders of those certificates and ratings.

**61.103 Eligibility requirements: General.**
To be eligible for a private pilot certificate, a person must :
(a) Be at least 17 years of age, except that a private pilot certificate with a free balloon or a glider rating only may be issued to a qualified applicant who is at least 16 years of age;

(b) Be able to read, speak, and understand the English language, or have such operating limitations placed on his pilot certificate as are necessary for the safe operation of aircraft, to be removed when he shows that he can read, speak, and understand the English language;

(c) Hold at least a current second-class medical certificate issued under Part 67 of the CASRs, or, in the case of a glider or free balloon rating, certify that he has no known medical defect that makes him unable to pilot a glider or free balloon, as appropriate;

(d) Pass a written test on the subject areas on which instruction is required by Section 61.105;

(e) Pass an oral and flight test on procedures and maneuvers selected by a DGAC inspector or designated airmen examiner to determine the applicant's competency in the flight operations on which instruction is required by the flight proficiency provisions of Section 61.107; and

(f) Comply with the sections of this part that apply to the rating he seeks.

**61.105 Aeronautical knowledge.**
An applicant for a private pilot certificate must have logged ground instruction from an authorized instructor, or must present evidence showing that he has satisfactorily completed a course of instruction in at least the following areas of aeronautical knowledge appropriate to the category of aircraft for which a rating is sought.
(a) Airplanes and rotorcraft.
(1) The accident reporting requirements of the Civil Aviation Safety Regulations applicable to private pilot privileges, limitations, and flight operations for airplanes or rotorcraft as appropriate;
(2) VFR navigation using pilotage, dead reckoning, and radio aids;
(3) The recognition of critical weather situations from the ground and in flight, the procurement and use of aeronautical weather reports and forecasts;

(4) The safe and efficient operation of airplanes or rotorcraft, as appropriate, including high density airport operations, collision avoidance precautions, and radio communication procedures;
(5) Basic aerodynamics and the principles of flight which apply to airplanes or rotorcraft, as appropriate; and
(6) Stall awareness, spin entry, spins, and spin recovery techniques for airplanes.

(b) Gliders.
(1) The accident reporting requirements of the Civil Aviation Safety Regulations applicable to glider pilot privileges, limitations, and flight operations;
(2) Glider navigation, including the use of aeronautical charts and the magnetic compass;
(3) Recognition of weather situations of concern to the glider pilot, and the procurement and use of aeronautical weather reports and forecasts;
(4) The safe and efficient operation of gliders, including ground and/or aero tow procedures as appropriate, signals, and safety precautions; and
(5) Stall awareness, spin entry, spins, and spin recovery techniques for gliders.

(c) Airships.
(1) The Civil Aviation Safety Regulations applicable to private lighter-than-air pilot privileges, limitations, and airship flight operations;
(2) Airship navigation, including pilotage, dead reckoning, and the use of radio aids;
(3) The recognition of weather conditions of concern to the airship pilot, and the procurement and use of aeronautical weather reports and forecasts; and
(4) Airship operations, including free ballooning, the effects of superheating, and positive and negative lift.

(d) Free balloons.
(1) The Civil Aviation Safety Regulations applicable to private free balloon pilot privileges, limitations, and flight operations;
(2) The use of aeronautical charts and the magnetic compass for free balloon navigation;
(3) The recognition of weather conditions of concern to the free balloon pilot, and the procurement and use of aeronautical weather reports and forecasts appropriate to free balloon operations; and
(4) Operating principles and procedures of free balloons, including gas and hot air inflation systems.

**61.107 Flight proficiency.**
The applicant for a private pilot certificate must have logged instruction from an authorized flight instructor in at least the following pilot operations. In addition, his logbook must contain an endorsement by an authorized flight instructor who has found him competent to perform each of those operations safely as a private pilot.
(a) In airplanes.
(1) Preflight operations, including weight and balance determination, line inspection, and airplane servicing;
(2) Airport and traffic pattern operations, including operations at controlled airports, radio communications, and collision avoidance precautions;
(3) Flight maneuvering by reference to ground objects;

(4) Flight at slow airspeeds with realistic distractions, and the recognition of and recovery from stalls entered from straight flight and from turns;
(5) Normal and crosswind takeoffs and landings;
(6) Control and maneuvering an airplane solely by reference to instruments, including descents and climbs using radio aids or radar directives;
(7) Cross-country flying, using pilotage, dead reckoning, and radio aids, including one 2 hour flight;
(8) Maximum performance takeoffs and landings;
(9) Night flying, including takeoffs, landings, and VFR navigation; and
(10) Emergency operations, including simulated aircraft and equipment malfunctions.

(b) In helicopters.
(1) Preflight operations, including the line inspection and servicing of helicopters;
(2) Hovering, air taxiing, and maneuvering by ground references;
(3) Airport and traffic pattern operations, including collision avoidance precautions;
(4) Cross-country flying, using pilotage, dead reckoning, and radio aids, including one 1 hour flight;
(5) Operations in confined areas and on pinnacles, rapid decelerations, landings on slopes, high altitude takeoffs, and run on landings;
(6) Night flying, including takeoffs, landings, and VFR navigation; and
(7) Simulated emergency procedures, including aircraft and equipment malfunctions, approaches to a hover or landing with an engine inoperative in a multiengine helicopter, or autorotational descents with a power recovery to a hover in single engine helicopters.

(c) In gyroplanes.
(1) Preflight operations, including the line inspection and servicing of gyroplanes;
(2) Flight maneuvering by ground references;
(3) Maneuvering at critically slow airspeeds, and the recognition of and recovery from high rates of descent at low airspeeds;
(4) Airport and traffic pattern operations, including collision avoidance precautions and radio communication procedures;
(5) Cross-country flying by pilotage, dead reckoning, and the use of radio aids; and
(6) Emergency procedures, including maximum performance takeoffs and landings.

(d) In gliders.
(1) Preflight operations, including the installation of wings and tail surfaces specifically designed for quick removal and installation by pilots, and line inspection;
(2) Ground (auto or winch) tow or aero tow (the applicant's certificate is limited to the kind of tow selected);
(3) Precision maneuvering, including steep turns and spirals in both directions;
(4) The correct use of critical sailplane performance speeds;
(5) Flight at slow airspeeds with realistic distractions, and the recognition of and recovery from stalls entered from straight flight and from turns; and
(6) Accuracy approaches and landings with the nose of the glider stopping short of and within 200 feet of a line or mark.

(e) In airships.
(1) Ground handling, mooring, rigging, and preflight operations;

(2) Takeoffs and landing with static lift, and with negative and positive lift, and the use of two-way radio;
(3) Straight and level flight, climbs, turns, and descents;
(4) Precision flight maneuvering;
(5) Navigation, using pilotage, dead reckoning, and radio aids; and
(6) Simulated emergencies, including equipment malfunction, the valving of gas, and the loss of power on one engine.

(f) In free balloons.
(1) Rigging and tethering, including the installation of baskets and burners specifically designed for quick removal or installation by a pilot and the interchange of baskets or burners, when provided for in the type certificate data, classified as preventive maintenance, and subject to the recording requirements of Section 43.9 of the CASRs;
(2) Operation of burner, if airborne heater used;
(3) Ascents and descents;
(4) Landing; and
(5) Emergencies, including the use of the ripcord (may be simulated).

**61.109 Airplane rating: Aeronautical experience.**
An applicant for a private pilot certificate with an airplane rating must have had at least a total of 40 hours of flight instruction and solo flight time which must include the following:
(a) Twenty hours of flight instruction from an authorized flight instructor, including at least :
(1) Three hours of cross-country;
(2) Three hours at night, including 10 takeoffs and landings for applicants seeking night flying privileges; and
(3) Three hours in airplanes in preparation for the private pilot flight test within 60 days prior to that test.

An applicant who does not meet the night flying requirement in Paragraph (a)(2) of this section is issued a private pilot certificate bearing the limitation "Night flying prohibited." This limitation may be removed if the holder of the certificate shows that he has met the requirements of Paragraph (a)(2) of this section.

(b) Twenty hours of solo flight time, including at least:
(1) Ten hours in airplanes.
(2) Ten hours of cross-country flights, each flight with a landing at a point more than 50 nautical miles from the original departure point. One flight must be of at least 300 nautical miles with landings at a minimum of three points, one of which is at least 100 nautical miles from the original departure point.
(3) Three solo takeoffs and landings to a full stop at an airport with an operating control tower.

**61.111 Cross-country flights: Pilots based on small islands.**

(a) An applicant who shows that he is located on an island from which the required flights cannot be accomplished without flying over water more than 10 nautical miles from the nearest shoreline need not comply with Paragraph (b)(2) of Section 61.109. However, if other airports that permit civil operations are available to which a flight may be made without flying over water more than 10 nautical miles from the nearest shoreline, he must show that he has completed two round trip solo flights between those two airports that are farthest apart, including a landing at each airport on both flights.

(b) The pilot certificate issued to a person under Paragraph (a) of this section contains an endorsement with the following limitation which may be subsequently amended to include another island if the applicant complies with Paragraph (a) of this section with respect to that island:
"Passenger carrying prohibited on flights more than 10 nautical miles from (appropriate island)."

(c) If an applicant for a private pilot certificate under Paragraph (a) of this section does not have at least 3 hours of solo cross-country flight time, including a round trip flight to an airport at least 50 nautical miles from the place of departure with at least two full stop landings at different points along the route, his pilot certificate is also endorsed as follows:

"Holder does not meet the cross-country flight requirements of ICAO."

(d) The holder of a private pilot certificate with an endorsement described in Paragraph (b) or (c) of this section, is entitled to a removal of the endorsement, if he presents satisfactory evidence to a DGAC inspector or designated airmen examiner that he has complied with the applicable solo cross-country flight requirements and has passed a practical test on cross-country flying.

**61.113 Rotorcraft rating: Aeronautical experience.**

An applicant for a private pilot certificate with a rotorcraft category rating must have at least the following aeronautical experience:

(a) Helicopter class rating. A total of 40 hours of flight instruction and solo flight time in aircraft, including at least :

(1) 20 hours of flight instruction from an authorized flight instructor, 15 hours of which must be in a helicopter, including :

(i) 3 hours of cross-country flying in helicopters;

(ii) 3 hours of night flying in helicopters, including 10 takeoffs and landings, each of which must be separated by an enroute phase of flight;

(iii) 3 hours in helicopters in preparation for the private pilot flight test within 60 days before that test; and

(iv) A flight in a helicopter with a landing at a point other than an airport; and (2) 20 hours of solo flight time, 15 hours of which must be in a helicopter, including at least :

(A) 3 hours of cross-country flying in helicopters, including one flight with a landing at three or more points, each of which must be more than 25 nautical miles from each of the other two points; and

(B) Three takeoffs and landings in helicopters at an airport with an operating control tower, each of which must be separated by an enroute phase of flight.

(b) Gyroplane class rating. A total of 40 hours of flight instruction and solo flight time in aircraft, including at least-

(1) 20 hours of flight instruction from an authorized flight instructor, 15 hours of which must be in a gyroplane, including-

(i) 3 hours of cross-country flying in gyroplanes;

(ii) 3 hours of night flying in gyroplanes, including 10 takeoffs and landings; and

(iii) 3 hours in gyroplanes in preparation for the private pilot flight test within 60 days before that test; and

(2) 20 hours of solo flight time, 10 hours of which must be in a gyroplane, including-

(i) 3 hours of cross-country flying in gyroplanes, including one flight with a landing at three or more points, each of which must be more than 25 nautical miles from each of the other two points; and

(ii) Three takeoffs and landings in gyroplanes at an airport with an operating control tower.

(c) An applicant who does not meet the night flying requirement in Paragraph (a)(1)(ii) or (b)(1)(ii) of this section is issued a private pilot certificate bearing the limitation "night flying prohibited." This limitation may be removed if the holder of the certificate demonstrates compliance with the requirements of Paragraph (a)(1)(ii) or (b)(1)(ii) of this section, as appropriate.

**61.115 Glider rating: Aeronautical experience.**

An applicant for a private pilot certificate with a glider rating must have logged at least one of the following:

(a) Seventy solo glider flights, including 20 flights during which 360 degree turns were made.

(b) Seven hours of solo flight in gliders, including 35 glider flights launched by ground tows, or 20 glider flights launched by aero tows.

(c) Forty hours of flight time in gliders and single engine airplanes, including 10 solo glider flights during which 360 degree turns were made.

**61.117 Lighter-than-air rating: Aeronautical experience.**

An applicant for a private pilot certificate with a lighter-than-air category rating must have at least the aeronautical experience prescribed in Paragraph (a) or (b) of this section, appropriate to the rating sought.

(a) Airships. A total of 50 hours of flight time as pilot with at least 25 hours in airships, which must include 5 hours of solo flight time in airships, or time performing the functions of pilot in command of an airship for which more than one pilot is required.

(b) Free balloons.

(1) If a gas balloon or a hot air balloon with an airborne heater is used, a total of 10 hours in free balloons with at least six flights under the supervision of a person holding a commercial pilot certificate with a free balloon rating. These flights must include-

(i) Two flights, each of at least 1 hour's duration, if a gas balloon is used, or of 30 minutes' duration, if a hot air balloon with an airborne heater is used;

(ii) One ascent under control to 5,000 feet above the point of takeoff, if a gas balloon is used, or 3,000 feet above the point of takeoff, if a hot air balloon with an airborne heater is used; and

(iii) One solo flight in a free balloon.

(2) If a hot air balloon without an airborne heater is used, six flights in a free balloon under the supervision of a commercial balloon pilot, including at least one solo flight.

**61.118 Private pilot privileges and limitations: Pilot in command.**
Except as provided in Paragraphs (a) through (d) of this section, a private pilot may not act as pilot in command of an aircraft that is carrying passengers or property for compensation or hire; nor may he, for compensation or hire, act as pilot in command of an aircraft.

(a) A private pilot may, for compensation or hire, act as pilot in command of an aircraft in connection with any business or employment if the flight is only incidental to that business or employment and the aircraft does not carry passengers or property for compensation or hire.

(b) A private pilot may share the operating expenses of a flight with his passengers.

(c) A private pilot who is an aircraft salesman and who has at least 200 hours of logged flight time may demonstrate an aircraft in flight to a prospective buyer.

(d) A private pilot may act as pilot in command of an aircraft used in a passenger carrying airlift sponsored by a charitable organization, and for which the passengers make a donation to the organization, if-
(1) The sponsor of the airlift notifies the DGAC at least 7 days before the flight, and furnishes any essential information that the office requests;
(2) The flight is conducted from a public airport adequate for the aircraft used, or from another airport that has been approved for the operation by a DGAC inspector;
(3) He has logged at least 200 hours of flight time;
(4) No acrobatic or formation flights are conducted;
(5) Each aircraft used is certificated in the standard category and complies with the 100 hour inspection requirement of Section 91.409 of the CASRs; and
(6) The flight is made under VFR during the day.

**61.119 Free balloon rating: Limitations.**
(a) If the applicant for a free balloon rating takes his flight test in a hot air balloon with an airborne heater, his pilot certificate contains an endorsement restricting the exercise of the privilege of that rating to hot air balloons with airborne heaters. The restriction may be deleted when the holder of the certificate obtains the pilot experience required for a rating on a gas balloon.

(b) If the applicant for a free balloon rating takes his flight test in a hot air balloon without an airborne heater, his pilot certificate contains an endorsement restricting the exercise of the privileges of that rating to hot air balloons without airborne heaters. The restriction may be deleted when the holder of the certificate obtains the pilot experience and passes the tests required for a rating on a free balloon with an airborne heater or a gas balloon.

**61.120 Private pilot privileges and limitations: Second in command of aircraft requiring more than one required pilot.**
A private pilot may not,, act as second in command of an aircraft that is type certificated for more than one required pilot.

## SUBPART E - COMMERCIAL PILOTS

**61.121 Applicability.**
This subpart prescribes the requirements for the issuance of commercial pilot certificates and ratings, the conditions under which those certificates and ratings are necessary, and the limitations upon those certificates and ratings.

**61.123 Eligibility requirements: General.**
To be eligible for a commercial pilot certificate, a person must :
(a) Be at least 18 years of age;

(b) Be able to read, speak, and understand the English language, or have such operatinglimitations placed on his pilot certificate as are necessary for safety, to be removed when he shows that he can read, speak, and understand the English language;

(c) Hold at least a valid first-class medical certificate issued under Part 67 of the CASRs, or, in the case of a glider or free balloon rating, certify that he has no known medical deficiency that makes him unable to pilot a glider or a free balloon, as appropriate;

(d) Pass a written examination appropriate to the aircraft rating sought on the subjects in which ground instruction is required by Section 61.125;

(e) Pass an oral and flight test appropriate to the rating he seeks, covering items selected by the DGAC inspector or designated airmen examiner from those on which training is required by Section 61.127; and

(f) Comply with the provisions of this subpart which apply to the rating he seeks.

**61.125 Aeronautical knowledge.**
An applicant for a commercial pilot certificate must have logged ground instruction from an authorized instructor, or must present evidence showing that he has satisfactorily completed a course of instruction, in at least the following areas of aeronautical knowledge appropriate to the category of aircraft for which a rating is sought.
(a) Airplanes.
(1) The regulations of the CASRs governing the operations, privileges, and limitations of a commercial pilot, and the accident reporting requirements of the Civil Aviation Safety Regulations:
(2) Basic aerodynamics and the principles of flight which apply to airplanes;
(3) Airplane operations, including the use of flaps, retractable landing gears, controllable propellers, high altitude operation with and without pressurization, loading and balance computations, and the significance and use of airplane performance speeds; and
(4) Stall awareness, spin entry, spins, and spin recovery techniques for airplanes.

(b) Rotorcraft.

(1) The regulations of the CASRs which apply to the operations, privileges, and limitations of a commercial rotorcraft pilot, and the accident reporting requirements of the Civil Aviation Safety Regulations;

(2) Meteorology, including the characteristics of air masses and fronts, elements of weather forecasting, and the procurement and use of aeronautical weather reports and forecasts;

(3) The use of aeronautical charts and the magnetic compass for pilotage and dead reckoning, and the use of radio aids for VFR navigation;

(4) The safe and efficient operation of helicopters or gyroplanes, as appropriate to the rating sought; and

(5) Basic aerodynamics and principles of flight which apply to rotorcraft and the significance and use of performance charts.

(c) Airships.

(1) The regulations of the CASRs pertinent to airship operations, VFR and IFR, including the privileges and limitations of a commercial airship pilot;

(2) Airship navigation, including pilotage, dead reckoning, and the use of radio aids for VFR and IFR navigation, and IFR approaches;

(3) The use and limitations of the required flight instruments;

(4) ATC procedures for VFR and IFR operations, and the use of IFR charts and approach plates;

(5) Meteorology, including the characteristics of air masses and fronts, and the procurement and use of aeronautical weather reports and forecasts;

(6) Airship ground and flight instruction procedures; and

(7) Airship operating procedures and emergency operations, including free ballooning procedures.

(d) Free balloons.

(1) The regulations of the CASRs pertinent to commercial free balloon piloting privileges, limitations, and flight operations;

(2) The use of aeronautical charts and the magnetic compass for free balloon navigation;

(3) The recognition of weather conditions significant to free balloon flight operations, and the procurement and use of aeronautical weather reports and forecasts appropriate to free ballooning;

(4) Free balloon flight and ground instruction procedures; and

(5) Operating principles and procedures for free balloons, including emergency procedures such as crowd control and protection, high wind and water landings, and operations in proximity to buildings and power lines.

**61.127 Flight proficiency.**

The applicant for a commercial pilot certificate must have logged instruction from an authorized flight instructor in at least the following pilot operations. In addition, his logbook must contain an endorsement by an authorized flight instructor who has given him the instruction certifying that he has found the applicant prepared to perform each of those operations competently as a commercial pilot.

(a) Airplanes.

(1) Preflight duties, including load and balance determination, line inspection, and aircraft servicing;
(2) Flight at slow airspeeds with realistic distractions, and the recognition of and recovery from stalls entered from straight flight and from turns;
(3) Normal and crosswind takeoffs and landings, using precision approaches, flaps, power as appropriate, and specified approach speeds;
(4) Maximum performance takeoffs and landings, climbs, and descents;
(5) Operation of an airplane equipped with a retractable landing gear, flaps, and controllable propeller(s), including normal and emergency operations; and
(6) Emergency procedures, such as coping with power loss or equipment malfunctions, fire in flight, collision avoidance precautions, and engine out procedures if a multiengine airplane is used.

(b) Helicopters.
(1) Preflight duties, including line inspection and helicopter servicing;
(2) Straight and level flight, climbs, turns, and descents;
(3) Air taxiing, hovering, and maneuvering by ground references;
(4) Normal and crosswind takeoffs and landings;
(5) Recognition of and recovery from imminent flight at critical/rapid descent with power (settling with power);
(6) Airport and traffic pattern operations, including collision avoidance precautions and radio communications;
(7) Cross-country flight operations;
(8) Operations in confined areas and on pinnacles, rapid decelerations, landing on slopes, high altitude takeoffs, and run on landings; and
(9) Simulated emergency procedures, including failure of an engine or other component or system, and approaches to a hover or landing with one engine inoperative in multiengine helicopters, or autorotational descents with a power recovery to a hover in single engine helicopters.

(c) Gyroplanes.
(1) Preflight operations, including line inspection and gyroplane servicing;
(2) Straight and level flight, turns, climbs, and descents;
(3) Flight maneuvering by ground references;
(4) Maneuvering at critically slow airspeeds, and the recognition of and recovery from high rates of descent at slow airspeeds;
(5) Normal and crosswind takeoffs and landings;
(6) Airport and traffic pattern operations, including collision avoidance precautions and radio communications;
(7) Cross-country flight operations; and
(8) Emergency procedures, such as power failures, equipment malfunctions, maximum performance takeoffs and landings and simulated liftoffs at low airspeed and high angles of attack.

(d) Airships.
(1) Ground handling, mooring, and preflight operations;
(2) Straight and level flight, turns, climbs, and descents, under VFR and simulated IFR conditions;
(3) Takeoffs and landings with positive and with negative static lift;

(4) Turns and figure eights;
(5) Precision turns to headings under simulated IFR conditions;
(6) Preparing and filing IFR flight plans, and complying with IFR clearances;
(7) IFR radio navigation and instrument approach procedures;
(8) Cross-country flight operations, using pilotage, dead reckoning, and radio aids; and
(9) Emergency operations, including engine out operations, free ballooning an airship, and ripcord procedures (may be simulated).

(e) Free balloons.
(1) Assembly of basket and burner to the envelope, and rigging, inflating, and tethering of a free balloon;
(2) Ground and flight crew briefing;
(3) Ascents;
(4) Descents;
(5) Landings;
(6) Operation of airborne heater, if balloon is so equipped; and
(7) Emergency operations, including the use of the ripcord (may be simulated), and recovery from a terminal velocity descent if a balloon with an airborne heater is used.

**61.129 Airplane rating: Aeronautical experience.**

(a) General. An applicant for a commercial pilot certificate with an airplane rating must hold a private pilot certificate with an airplane rating. If he does not hold that certificate and rating he must meet the flight experience requirements for a private pilot certificate and airplane rating and pass the applicable written and practical test prescribed in Subpart D of this part. In addition, the applicant must hold an instrument rating (airplane), or the commercial pilot certificate that is issued is endorsed with a limitation prohibiting the carriage of passengers for hire in airplanes on cross-country flights of more than 50 nautical miles, or at night.

(b) Flight time as pilot. An applicant for a commercial pilot certificate with an airplane rating must have a total of at least 200 hours of flight time as pilot, which may include not more than 50 hours of instruction from an authorized instructor in a ground trainer acceptable to the Director. The total flight time as pilot must include-
(1) 100 hours in powered aircraft, including at least-
(i) 50 hours in airplanes, and
(ii) 10 hours of flight instruction and practice given by an authorized flight instructor in an airplane having a retractable landing gear, flaps, and a controllable pitch propeller; and
(2) 50 hours of flight instruction given by an authorized flight instructor, including-
(i) 10 hours of instrument instruction, of which at least 5 hours must be in flight in airplanes, and
(ii) 10 hours of instruction in preparation for the commercial pilot flight test; and
(3) 100 hours of pilot in command time, including at least:
(i) 50 hours in airplanes.
(ii) 50 hours of cross-country flights, each flight with a landing at a point more than 50 nautical miles from the original departure point. One flight must have landings at a minimum of three points, one of which is at least 250 nautical miles from the

original departure point, unless the Director grants a Letter of Deviation Authority from this minimum distance if flights are to be conducted over small island areas.

(iii) 5 hours of night flying including at least 10 takeoffs and landings as sole manipulator of the controls.

**61.131 Rotorcraft ratings: Aeronautical experience.**

An applicant for a commercial pilot certificate with a rotorcraft category rating must have at least the following aeronautical experience as a pilot:

(a) Helicopter class rating. A total of 150 hours of flight time, including at least 100 hours in powered aircraft, 50 hours of which must be in a helicopter, including at least-

(1) 40 hours of flight instruction from an authorized flight instructor, 15 hours of which must be in a helicopter, including :

(i) 3 hours of cross-country flying in helicopters;

(ii) 3 hours of night flying in helicopters, including 10 takeoffs and landings, each of which must be separated by an enroute phase of flight;

(iii) 3 hours in helicopters preparing for the commercial pilot flight test within 60 days before that test; and

(iv) Takeoffs and landings at three points other than airports; and

(2) 100 hours of pilot in command flight time, 35 hours of which must be in a helicopter, including at least-

(i) 10 hours of cross-country flying in helicopters, including one flight with a landing at three or more points, each of which must be more than 50 nautical miles from each of the other two points; and

(ii) Three takeoffs and landings in helicopters, each of which must be separated by an enroute phase of flight, at an airport with an operating control tower.

(b) Gyroplane class rating. A total of 150 hours of flight time in aircraft, including at least 100 hours in powered aircraft, 25 hours of which must be in a gyroplane, including at least :

(1) 40 hours of flight instruction from an authorized flight instructor, 10 hours of which must be in a gyroplane, including at least :

(i) 3 hours of cross-country flying in gyroplanes;

(ii) 3 hours of night flying in gyroplanes, including 10 takeoffs and landings; and

(iii) 3 hours in gyroplanes preparing for the commercial pilot flight test within 60 days before that test; and

(2) 100 hours of pilot in command flight time, 15 hours of which must be in a gyroplane, including at least :

(i) 10 hours of cross-country flying in gyroplanes, including one flight with a landing at three or more points, each of which is more than 50 nautical miles from each of the other two points; and

(ii) Three takeoffs and landings in gyroplanes at an airport with an operating control tower.

61.133 - Reserved

**61.135 Airship rating: Aeronautical experience.**
An applicant for a commercial pilot certificate with an airship rating must have a total of at least 200 hours of flight time as pilot, including-
(a) Fifty hours of flight time as pilot in airships;

(b) 30 hours of flight time performing the duties of pilot in command in airships, including-
(1) 10 hours of cross-country flight; and
(2) 10 hours of night flight; and

(c) 40 hours of instrument time, of which at least 20 hours must be in flight with 10 hours of that flight time in airships.

**61.137 Free balloon rating: Aeronautical experience.**
An applicant for a commercial pilot certificate with a free balloon rating must have the following flight time as pilot:
(a) If a gas balloon or a hot air balloon with an airborne heater is used, a total of at least 35 hours of flight time as pilot including-
(1) 20 hours in free balloons; and
(2) 10 flights in free balloons, including-
(i) Six flights under the supervision of a commercial free balloon pilot;
(ii) Two solo flights;
(iii) Two flights of at least 2 hours duration if a gas balloon is used, or at least 1 hour duration if a hot air balloon with an airborne heater is used; and
(iv) One ascent under control to more than 10,000 feet above the takeoff point if a gas balloon is used or 5,000 feet above the takeoff point if a hot air balloon with an airborne heater is used.

(b) If a hot air balloon without an airborne heater is used, 10 flights in free balloons including-
(1) Six flights under the supervision of a commercial free balloon pilot; and
(2) Two solo flights.

**61.139 Commercial pilot privileges and limitations: General.**
The holder of a commercial pilot certificate may:
(a) Act as pilot in command of an aircraft carrying persons or property for compensation or hire;

(b) Act as pilot in command of an aircraft for compensation or hire; and

(c) Give flight instruction in an airship if he holds a lighter-than-air category and an airship class rating, or in a free balloon if he holds a free balloon class rating.

**61.141 Airship and free balloon ratings: Limitations.**

(a) If the applicant for a free balloon class rating takes his flight test in a hot air balloon without an airborne heater, his pilot certificate contains an endorsement restricting the exercise of the privileges of that rating to hot air balloons without airborne heaters. The restriction may be deleted when the holder of the certificate obtains the pilot experience and passes the test required for a rating on a free balloon with an airborne heater or a gas balloon.

(b) If the applicant for a free balloon class rating takes his flight test in a hot air balloon with an airborne heater, his pilot certificate contains an endorsement restricting the exercise of the privileges of that rating to hot air balloons with airborne heaters. The restriction may be deleted when the holder of the certificate obtains the pilot experience required for a rating on a gas balloon.

## SUBPART F - AIRLINE TRANSPORT PILOTS

**61.151 Eligibility requirements: General.**
To be eligible for an airline transport pilot certificate, a person must-
(a) Be at least 21 years of age;

(b) Be of good moral character;

(c) Be able to read, write, and understand the English language and speak it without accent or impediment of speech that would interfere with two-way radio conversation;

(d) Be a high school graduate, or its equivalent in the Director's opinion, based on the applicant's general experience and aeronautical experience, knowledge, and skill;

(e) Have a first-class medical certificate issued under Part 67 of the CASRs within the 6 months before the date he applies; and

(f) Comply with the sections of this part that apply to the rating he seeks.

**61.153 Airplane rating: Aeronautical knowledge.**
An applicant for an airline transport pilot certificate with an airplane rating must, after meeting the requirements of Sections 61.159 (except Paragraph (a) thereof) and 61.163, pass a written test on-
(a) The sections of this part relating to airline transport pilots and Part 121, Subpart C of Part 65, and Sections 91.1, 91.3, 91.5, 91.11, 91.13, 91.103, 91.105, 91.189, 91.193, 91.703, and Subpart B of Part 91 of the CASRs, and so much of Parts 21 and 25 of the CASRs as relate to the operations of air carrier aircraft;

(b) The fundamentals of air navigation and use of formulas, instruments, and other navigational aids, both in aircraft and on the ground, that are necessary for navigating aircraft by instruments;

(c) The general system of weather collection and dissemination;

(d) Weather maps, weather forecasting, and weather sequence abbreviations, symbols, and nomenclature;

(e) Elementary meteorology, including knowledge of cyclones as associated with fronts;

(f) Cloud forms;

(g) Weather conditions, including icing conditions and upper air winds, that affect aeronautical activities;

(h) Air navigation facilities used on airways, including rotating beacons, course lights, radio ranges, and radio marker beacons;

(i) Information from airplane weather observations and meteorological data reported from observations made by pilots on air carrier flights;

(j) The influence of terrain on meteorological conditions and developments, and their relation to air carrier flight operations;

(k) Radio communication procedure in aircraft operations; and

(l) Basic principles of loading and weight distribution and their effect on flight characteristics.

**61.155 Airplane rating: Aeronautical experience.**

(a) An application for an airline transport pilot certificate with an airplane rating must hold a commercial pilot certificate or a foreign airline transport pilot or commercial pilot license without limitations, issued by a member state of ICAO, or he must be a pilot in an Armed Force (ABRI) of the Republic of Indonesia whose military experience qualifies him for a commercial pilot certificate under Section 61.73.

(b) An applicant must have had :
  (1) At least 250 hours of flight time as pilot in command of an airplane, or as copilot of an airplane performing the duties and functions of a pilot in command under the supervision of a pilot in command, or any combination thereof, at least 100 hours of which were cross-country time and 25 hours of which were night flight time; and
  (2) At least 1,500 hours of flight time as a pilot, including at least :
    (i) 500 hours of cross-country flight time;
    (ii) 100 hours of night flight time; and
    (iii) 75 hours of actual or simulated instrument time, at least 50 hours of which were in actual flight.

Flight time used to meet the requirements of Paragraph (b)(1) of this section may also be used to meet the requirements of Paragraph (b)(2) of this section. Also, an applicant who has made at least 20 night takeoffs and landings to a full stop may substitute one additional night takeoff and landing to a full stop for each hour of night flight time required by Paragraph (b)(2)(ii) of this section. However, not more than 25 hours of night flight time may be credited in this manner.

(c) If an applicant with less than 150 hours of pilot in command time otherwise meets the requirements of Paragraph (b)(1) of this section, his certificate will be endorsed "Holder does not meet the pilot in command flight experience requirement of ICAO", as prescribed by article 39 of the "Convention on International Civil Aviation." Whenever he presents satisfactory written evidence that he has accumulated the 150 hours of pilot in command time, he is entitled to a new certificate without the endorsement.

(d) A commercial pilot may credit the following flight time toward the 1,500 hours total flight time requirement of Paragraph (b)(2) of this section:
  (1) All second in command time acquired in airplanes required to have more than one pilot by their approved Aircraft Flight Manuals or airworthiness certificates; and

(2) Flight engineer time acquired in airplanes required to have a flight engineer by their approved Aircraft Flight Manuals, while participating at the same time in an approved pilot training program approved under Part 121 of the CASRs.

However, the applicant may not credit under Paragraph (d)(2) of this section more than 1 hour for each 3 hours of flight engineer flight time so acquired, nor more than a total of 500 hours.

(e) If an applicant who credits second in command or flight engineer time under Paragraph (d) of this section toward the 1,500 hours total flight time requirement of Paragraph (b)(2) of this section :
(1) Does not have at least 1,200 hours of flight time as a pilot including no more than 50 percent of his second in command time and none of his flight engineer time; but
(2) Otherwise meets the requirements of Paragraph (b)(2) of this section, his certificate will be endorsed "Holder does not meet the pilot flight experience requirements of ICAO," as prescribed by Article 39 of the "Convention on International Civil Aviation." Whenever he presents satisfactory evidence that he has accumulated 1,200 hours of flight time as a pilot including no more than 50 percent of his second in command time and none of his flight engineer time, he is entitled to a new certificate without the endorsement.

**61.157 Airplane rating: Aeronautical skill.**

(a) An applicant for an airline transport pilot certificate with a single engine or multiengine class rating or an additional type rating must pass a practical test that includes the items set forth in Appendix A of this part. The DGAC inspector or designated airmen examiner may modify any required maneuver where necessary for the reasonable and safe operation of the airplane being used and, unless specifically prohibited in Appendix A, may combine any required maneuvers and may permit their performance in any convenient sequence.

(b) Whenever an applicant for an airline transport pilot certificate does not already have an instrument rating he shall, as part of the oral part of the practical test, comply with Section 61.65(g), and, as part of the flight part, perform each additional maneuver required by Section 61.65(g) that is appropriate to the airplane.

(c) Unless the Director requires certain or all maneuvers to be performed, the person giving a flight test for an airline transport pilot certificate or additional airplane class or type rating may, in his discretion, waive any of the maneuvers for which a specific waiver authority are required by DGAC if a pilot being checked :
(1) Is employed as a pilot by a Part 121 certificate holder; and
(2) Within the preceding 6 calendar months, has successfully completed that certificate holder's approved training program for the airplane type involved.

(d) The items specified in Paragraph (a) of this section may be performed in the airplane simulator or other training device required by DGAC for the particular item if :
(1) The airplane simulator or other training device meets the requirements of Section 121.407 of the CASRs; and
(2) The applicant has successfully completed the training set forth in Section 121.424(d) of the CASRs. However, the DGAC inspector or designated airmen examiner may

require to be performed in the airplane if he determines that action is necessary to determine the applicant's competence with respect to that maneuver.

(e) An approved simulato may be used instead of the airplane to satisfy some of the in-flight requirements of this part, if the simulator :
(1) Is approved under Section 121.407 of the CASRs and meets appropriate simulator requirements acceptable to DGAC; and
(2) Is used as part of an approved program that meets the training requirements of Section 121.424(a) and (c) of the CASRs.

(f) After six months from the effective date of this part of the CASRs an applicant for a type rating to be added to an airline transport pilot certificate must :
(1) Have completed ground and flight training on the maneuvers and procedures of Appendix A of this part that is appropriate to the airplane for which a type rating is sought and received an endorsement from an authorized instructor in the person's logbook or training records certifying satisfactory completion of the training; or
(2) For a pilot employee of a Part 121 or Part 135 certificate holder, have completed ground and flight training that is appropriate to the airplane for which a type rating is sought and is approved under Parts 121 and 135.

**61.159 Rotorcraft rating: Aeronautical knowledge.**
An applicant for an airline transport pilot certificate with a rotorcraft category and a helicopter class rating must pass a written test on :
(a) So much of the CASRs as relates to air carrier rotorcraft operations;

(b) Rotorcraft design, components, systems, and performance limitations;

(c) Basic principles of loading and weight distribution and their effect on rotorcraft flight characteristics;

(d) Air traffic control systems and procedures relating to rotorcraft;

(e) Procedures for operating rotorcraft in potentially hazardous meteorological conditions;

(f) Flight theory as applicable to rotorcraft; and

(g) The items listed under Paragraphs (b) through (m) of Section 61.153.

**61.161 Rotorcraft rating: Aeronautical experience.**
(a) An applicant for an airline transport pilot certificate with a rotorcraft category and helicopter class rating must hold a commercial pilot certificate, or a foreign airline transport pilot or commercial pilot certificate with a rotorcraft category and helicopter class rating issued by a member of ICAO, or be a pilot in an Armed Force (ABRI) of the Republic of Indonesia whose military experience qualifies that pilot for the issuance of a commercial pilot certificate under Section 61.73.

(b) An applicant must have had at least 1,200 hours of flight time as a pilot, including at least-
(1) 500 hours of cross-country flight time;
(2) 100 hours of night flight time, of which at least 15 hours are in helicopters;
(3) 200 hours in helicopters, including at least 75 hours as pilot in command, or as second in command performing the duties and functions of a pilot in command under the supervision of a pilot in command, or any combination thereof; and
(4) 75 hours of instrument time under actual or simulated instrument conditions of which at least 50 hours were completed in flight with at least 25 hours in helicopters as pilot in command, or as second in command performing the duties of a pilot in command under the supervision of a pilot in command, or any combination thereof.

**61.163 Rotorcraft rating: Aeronautical skill.**

(a) An applicant for an airline transport pilot certificate with a rotorcraft category and helicopter class rating, or additional aircraft rating, must pass a practical test on those maneuvers set forth in required by DGAC in a helicopter. The DGAC inspector or designated airmen examiner may modify or waive any maneuver where necessary for the reasonable and safe operation of the rotorcraft being used and may combine any maneuvers and permit their performance in any convenient sequence to determine the applicant's competency.

(b) Whenever an applicant for an airline transport pilot certificate with a rotorcraft category and helicopter class rating does not already have an instrument rating, the applicant shall, as part of the practical test, comply with Section 61.65(g).

**61.165 Additional category ratings.**

(a) Rotorcraft category with a helicopter class rating. The holder of an airline transport pilot certificate (airplane category) who applies for a rotorcraft category with a helicopter class rating must meet the applicable requirements of Sections 61.159, 61.161, and 61.163 and-
(1) Have at least 100 hours, including at least 15 hours at night, of rotorcraft flight time as pilot in command or as second in command performing the duties and functions of a pilot in command under the supervision of a pilot in command who holds an airline transport pilot certificate with an appropriate rotorcraft rating, or any combination thereof; or
(2) Complete a training program conducted by a certificated air carrier or other approved agency requiring at least 75 hours of rotorcraft flight time as pilot in command, second in command, or as flight instruction from an appropriately rated DGAC certificated flight instructor or an airline transport pilot, or any combination thereof, including at least 15 hours of night flight time.

(b) Airplane rating. The holder of an airline transport pilot certificate (rotorcraft category) who applies for an airplane category must comply with Sections 61.153, 61.155 (except Section 61.155(b)(1)), and 61.165 and :
(1) Have at least 100 hours, including at least 15 hours at night, of airplane flight time as pilot in command or as second in command performing the duties and functions of a pilot in command under the supervision of a pilot in command who holds an airline transport pilot certificate with an appropriate airplane rating, or any combination thereof; or

(2) Complete a training program conducted by a certificated air carrier or other approved agency requiring at least 75 hours of airplane flight time as pilot in command, second in command, or as flight instruction from an appropriately rated DGAC certificated flight instructor or an airline transport pilot, or any combination thereof, including at least 15 hours of night flight time.

**61.167 Tests.**

(a) Each applicant for an airline transport pilot certificate must pass each practical and theoretical test to the satisfaction of the Director. The minimum passing grade in each subject is 70 percent. Each flight maneuver is graded separately. Other tests are graded as a whole.

(b) Information collected incidentally to such a test shall be treated as a confidential matter by the persons giving the test and by employees of the DGAC.

**61.169 Instruction in air transportation service.**

An airline transport pilot may instruct other pilots in air transportation service in aircraft of the category, class, and type for which he is rated. However, he may not instruct for more than 8 hours in one day nor more than 36 hours in any 7 day period. He may instruct under this section only in aircraft with functioning dual controls. Unless he has a flight instructor certificate, an airline transport pilot may instruct only as provided in this section.

**61.171 General privileges and limitations.**

An airline transport pilot has the privileges of a commercial pilot with an instrument rating. The holder of a commercial pilot certificate who qualifies for an airline transport pilot certificate retains the ratings on his commercial pilot certificate, but he may exercise only the privileges of a commercial pilot with respect to them.

## SUBPART G - FLIGHT INSTRUCTORS

**61.181 Applicability.**

This subpart prescribes the requirements for the issuance of flight instructor certificates and ratings, the conditions under which those certificates and ratings are necessary, and the limitations upon these certificates and ratings.

**61.183 Eligibility requirements: General.**

To be eligible for a flight instructor certificate a person must-

(a) Be at least 18 years of age but less than 60 years of age;

(b) Be of good moral character;

(c) Read, write, and converse fluently in English;

(d) Hold :
(1) A commercial or airline transport pilot certificate with an aircraft rating appropriate to the flight instructor rating sought, and
(2) An instrument rating, if the person is applying for an airplane or an instrument instructor rating:

(e) Pass a written test on the subjects in which ground instruction is required by Section 61.185; and

(f) Pass a practical test on all items in which instruction is required by Section 61.187 and, in the case of an applicant for either a flight instructor - airplane or flight instructor - glider rating, present a logbook endorsement from an appropriately certificated and rated flight instructor who has provided the applicant with spin entry, spin, and spin recovery training in an aircraft of the appropriate category that is certificated for spins, and has found that applicant competent and proficient in those training areas. Except in the case of a retest after a failure for the deficiencies stated in Section 61.49(b), the person conducting the practical test may either accept the spin training logbook endorsement or require demonstration of the spin entry, spin, and spin recovery maneuver on the flight portion of the practical test.

(g) Be attached to flying school or flying club.

**61.185 Aeronautical knowledge.**

(a) Present evidence showing that he has satisfactorily completed a course of instruction in at least the following subjects:
(1) The learning process.
(2) Elements of effective teaching.
(3) Student evaluation, quizzing, and testing.
(4) Course development.
(5) Lesson planning.
(6) Classroom instructing techniques.

(b) Have logged ground instruction from an authorized ground or flight instructor in all of the subjects in which ground instruction is required for a private and commercial pilot certificate, and for an instrument rating, if an airplane or instrument instructor rating is sought.

**61.187 Flight proficiency.**

(a) An applicant for a flight instructor certificate must have received flight instruction, appropriate to the instructor rating sought in the subjects listed in this paragraph by a person authorized in Paragraph (b) of this section. In addition, his logbook must contain an endorsement by the person who has given him the instruction certifying that he has found the applicant competent to pass a practical test on the following subjects:
(1) Preparation and conduct of lesson plans for students with varying backgrounds and levels of experience and ability.
(2) The evaluation of student flight performance.
(3) Effective preflight and postflight instruction.

(4) Flight instructor responsibilities and certifying procedures.
(5) Effective analysis and correction of common student pilot flight errors.
(6) Performance and analysis of standard flight training procedures and maneuvers appropriate to the flight instructor rating sought. For both airplane flight instructor and glider flight instructor applicants, this shall include the satisfactory demonstration of stall awareness, spin entry, spins, and spin recovery techniques in an aircraft of the appropriate category that is certificated for spins.

(b) The flight instruction required by Paragraph (a) of this section must be given by a person who has held a flight instructor certificate during the 24 calendar months immediately preceding the date the instruction is given, who meets the general requirements for a flight instructor certificate prescribed in Section 61.183, and who has given at least 200 hours of flight instruction, or 80 hours in the case of glider instruction, as a certificated flight instructor.

**61.189 Flight instructor records.**

(a) Each certificated flight instructor shall sign the logbook of each person to whom he hasgiven flight or ground instruction and specify in that book the amount of the time and the date on which it was given. In addition, he shall maintain a record in his flight instructor logbook, or in a separate document containing the following:
(1) The name of each person whose logbook or student pilot certificate he has endorsed for solo flight privileges. The record must include the type and date of each endorsement.
(2) The name of each person for whom he has signed a certification for a written, flight, or practical test, including the kind of test, date of his certification, and the result of the test.

(b) The record required by this section shall be retained by the flight instructor separately or in his logbook for at least 3 years.

**61.191 Additional flight instructor ratings.**

The holder of a flight instructor certificate who applies for an additional rating on that certificate must-

(a) Hold an effective pilot certificate with ratings appropriate to the flight instructor rating sought.

(b) Have had at least 15 hours as pilot in command in the category and class of aircraft appropriate to the rating sought; and

(c) Pass the written and practical test prescribed in this subpart for the issuance of a flight instructor certificate with the rating sought.

**61.193 Flight instructor authorizations.**

(a) The holder of a flight instructor certificate is authorized, within the limitations of that person's flight instructor certificate and ratings, to give the-
(1) Flight instruction required by this part for a pilot certificate or rating;
(2) Ground instruction course required by this part for a pilot certificate and rating;

(3) Ground and flight instruction required by this subpart for a flight instructor certificate and rating, if that person meets the requirements prescribed in Section 61.187(b);
(4) Flight instruction required for an initial solo or cross-country flight;
(5) Flight review required in Section 61.56 in a manner acceptable to the Director;
(6) Instrument competency check required in Section 61.57(e)(2);
(7) Pilot in command flight instruction required under Section 61.101(d); and
(8) Ground and flight instruction required by this part for the issuance of the endorsements specified in Paragraph (b) of this section.

(b) The holder of a flight instructor certificate is authorized within the limitations of that person's flight instructor certificate and rating, to endorse-
(1) In accordance with Sections 61.87(m) and 61.93(c) and (d), the pilot certificate of a student pilot the flight instructor has instructed authorizing the student to conduct solo or solo cross-country flights, or to act as pilot in command of an airship requiring more than one flight crew member;
(2) In accordance with Sections 61.87(m) and 61.93(b) and (d), the logbook of a student pilot the flight instructor has instructed, authorizing single or repeated solo flights;
(3) In accordance with Section 61.93(d), the logbook of a student pilot whose preparation and preflight planning for a solo cross-country flight the flight instructor has reviewed and found adequate for a safe flight under the conditions the flight instructor has listed in the logbook;
(4) In accordance with Section 61.95, the logbook of a student pilot the flight instructor has instructed authorizing solo flights in a Class B airspace area or at an airport within a Class B airspace area;
(5) The logbook of a pilot or another flight instructor who has been trained by the person described in Paragraph (b) of this section, certifying that the pilot or other flight instructor is prepared for an operating privilege, a written test, or practical test required by this part;
(6) In accordance with Sections 61.57(e)(2) and 61.101(d) the logbook of a pilot the flight instructor has instructed authorizing the pilot to act as pilot in command;
(7) In accordance with Sections 61.101(g) and (h), the logbook of a sport pilot the flight instructor has instructed authorizing solo flight.

**61.195 Flight instructor limitations.**
The holder of a flight instructor certificate is subject to the following limitations:
(a) Hours of instruction. He may not conduct more than eight hours of flight instruction in any period of 24 consecutive hours.

(b) Ratings. Flight instruction may not be conducted in any aircraft for which the flight instructor does not hold a category, class, and if appropriate, a type rating, on the flight instructor's pilot and flight instructor certificates.

(c) Endorsement of student pilot certificate. He may not endorse a student pilot certificate for initial solo or solo cross-country flight privileges, unless he has given that student pilot flight instruction required by this part for the endorsement, and considers that the student is prepared to conduct the flight safely with the aircraft involved.

(d) Logbook endorsement. He may not endorse a student pilot's logbook-

(1) For solo flight unless he has given that student flight instruction and found that student pilot prepared for solo flight in the type of aircraft involved;
(2) For a cross-country flight, unless he has reviewed the student's flight preparation, planning, equipment, and proposed procedures and found them to be adequate for the flight proposed under existing circumstances; or
(3) For solo flight in a Class B airspace area or at an airport within a Class B airspace area unless the flight instructor has given that student ground and flight instruction and has found that student prepared and competent to conduct the operations authorized.

(e) Solo flights. He may not authorize any student pilot to make a solo flight unless he possesses a valid student pilot certificate endorsed for solo in the make and model aircraft to be flown. In addition, he may not authorize any student pilot to make a solo cross-country flight unless he possesses a valid student pilot certificate endorsed for solo cross-country flight in the category of aircraft to be flown.

(f) Instruction in multiengine airplane or helicopter. He may not give flight instruction required for the issuance of a certificate or a category, or class rating, in a multiengine airplane or a helicopter, unless he has at least 5 hours of experience as pilot in command in the make and model of that airplane or helicopter, as the case may be.

**61.197 Renewal of flight instructor certificates.**
The holder of a flight instructor certificate may have his certificate renewed for an additional period of 24 months if he passes the practical test for a flight instructor certificate and the rating involved, or those portions of that test that the Director considers necessary to determine his competency as a flight instructor. His certificate may be renewed without taking the practical test if-
(a) His record of instruction shows that he is a competent flight instructor;

(b) He has a satisfactory record as a company check pilot, chief flight instructor, pilot in command of an aircraft operated under Part 121 of the CASRs, or other activity involving the regular evaluation of pilots, and passes any oral test that may be necessary to determine that instructor's knowledge of current pilot training and certification requirements and standards; or

(c) He has successfully completed, within 90 days before the application for the renewal of his certificate, an approved flight instructor refresher course consisting of ground or flight instruction, or both.

**61.199 Expired flight instructor certificates and ratings.**
(a) Flight instructor certificates. The holder of an expired flight instructor certificate may exchange that certificate for a new certificate by passing the practical test prescribed in Section 61.187.

(b) Assistant flight instructor ratings. An assistant flight instructor rating is no longer valid and may not be exchanged for a similar rating or a flight instructor certificate. The holder of either of that rating is issued a flight instructor certificate only if he passes the written and practical test prescribed in this subpart for the issue of that certificate.

## APPENDIX A TO PART 61 - PRACTICAL TEST REQUIREMENTS FOR AIRPLANE AIRLINE TRANSPORT PILOT CERTIFICATES AND ASSOCIATED CLASS AND TYPE RATINGS

Throughout the maneuvers prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the DGAC inspector or designated airmen examiner who conducts the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of prudence and care in selecting a course of action.

Each maneuver or procedure must be performed in-flight except to the extent that certain maneuvers or procedures may be performed in an airplane simulator with a visual system (visual simulator) or an airplane simulator without a visual system (non-visual simulator) or may be waived as indicated by an X in the appropriate columns. A maneuver authorized to be performed in a non-visual simulator may be performed in a visual simulator, and a maneuver authorized to be performed in a training device may be performed in a non-visual or a visual simulator.

An asterisk (*) preceding a maneuver or procedure indicates that the maneuver or procedure may be performed in an airplane simulator or other training device as indicated, provided the applicant has successfully completed the training set forth in Section 121.424(d) of the CASRs.

When a maneuver or procedure is preceded by this symbol (#), it indicates that the DGAC inspector or designated airmen examiner may require the maneuver or procedure to be performed in the airplane if he determines such action is necessary to determine the applicant's competence with respect to that maneuver.

An X and asterisk (X*) indicates that a particular condition is specified in connection with the maneuver, procedure, or waiver provisions.

Key:
RS = Required, Simulated instrument conditions
RI = Required, In-flight
PV = Permitted, Visual simulator
PN = Permitted, Non-visual simulator
PT = Permitted, Training device
PW = Permitted, Waiver provisions of Section 61.157(c)

The procedures and maneuvers set forth in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to-

(1) The airplane, its systems and components;

(2) Proper control of airspeed, configuration, direction, altitude, and attitude in accordance with procedures and limitations contained in the approved Airplane Flight Manual, check lists, or other approved material appropriate to the airplane type; and

(3) Compliance with approved enroute, instrument approach, missed approach, ATC, or other applicable procedures.

61xA.I Preflight:

(a) Equipment examination (oral). As part of the practical test the equipment examination must be closely coordinated with and related to, the flight maneuvers portion but may not be given during the flight maneuvers portion. Notwithstanding Section 61.21 the equipment examination may be given to an applicant who has completed a ground school that is part of an approved training program under Civil Aviation Safety Regulations Part 121 for the airplane type involved and who is recommended by his instructor. The equipment examination must be repeated if the flight maneuvers portion is not satisfactorily completed within 60 days. The equipment examination must cover airplane, its powerplants, systems, components, operational, and performance factors; {PT}

(1) Subjects requiring a practical knowledge of the airplane, its powerplants, systems, components, operational, and performance factors;

(2) Normal, abnormal, and emergency procedures, and the operations and limitations relating to those procedures; and

(3) The appropriate provisions of the approved Airplane Flight Manual.

(b) Preflight Inspection. The pilot must-

(1) Conduct an actual visual inspection of the exterior and interior of the airplane, locating each item and explaining briefly the purpose of inspecting it; and {PT, PW*}

(2) Demonstrate the use of the prestart check list, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies prior to flight. {PN}

If a flight engineer is a required crewmember for the particular type airplane, the actual visual inspection may either be waived or it may be replaced by using an approved pictorial means that realistically portrays the location and detail of inspection items.

(c) Taxiing. This maneuver includes taxiing, sailing, or docking procedures in compliance with instructions issued by the appropriate traffic control authority or by the DGAC inspector or designated airmen examiner. {RI}

(d) Powerplant checks. As appropriate to the airplane type. {PN}

61xA.II Takeoffs:

(a) Normal. One normal takeoff which, for the purpose of this maneuver begins when the airplane is taxied into position on the runway to be used. {RI}

*(b) Instrument. One takeoff with instrument conditions simulated at or before reaching an altitude of 100 feet above the airport elevation. {RS, PV}

(c) Cross wind. One cross wind takeoff, if practical under the existing meteorological, airport, and traffic conditions. {RI*}

#*(d) Powerplant failure. One takeoff with a simulated failure of the most critical powerplant. {PV}

(1) At a point after V1 and before V2 that in the judgment of the person conducting the check is appropriate to the airplane type under the prevailing conditions;

(2) At a point as close as possible after V1 when V1 and V2 or V1 and Vr are identical; or
(3) At the appropriate speed for non-transport category airplanes.

For additional type rating in an airplane group with engines mounted in similar positions or from wing mounted engines to aft fuselage mounted engines this maneuver may be performed in a non-visual simulator

(e) Rejected. A rejected takeoff performed in an airplane during a normal takeoff run after reaching a reasonable speed determined by giving due consideration to aircraft characteristics, runway length, surface conditions, wind direction and velocity, brake heat energy, and any other pertinent factors that may adversely affect safety or the airplane. {PN, PW*}

61xA.III Instrument Procedures:

*(a) Area departure and area arrival. During each of these maneuvers the applicant must- {RS, PN, PW*}
(1) Adhere to actual or simulated ATC clearances (including assigned radials); and
(2) Properly use available navigation facilities.

Either area arrival or area departure, but not both, may be waived under Section 61.157(c)

(b) Holding. This maneuver includes entering, maintaining, and leaving holding patterns. It may be performed under either area departure or area arrival. {RS, PN, PW*}

(c) ILS and other instrument approaches. There must be the following:

*(1) At least one normal ILS approach. {RS, PV}

#(2) At least one manually controlled ILS approach with a simulated failure of one powerplant. The simulated failure should occur before initiating the final approach course and must continue to touchdown or through the missed approach procedure. {RS, PV}

However, either the normal ILS approach or the manually controlled ILS approach must be performed in flight.

(3) At least one non-precision approach procedure that is representative of the non-precision approach procedures that the applicant is likely to use. {RS, PV}
(4) Demonstration of at least one non-precision approach procedure on a letdown aid other than the approach procedure performed under Subparagraph (3) of this paragraph that the applicant is likely to use. If performed in a synthetic instrument trainer, the procedures must be observed by the DGAC inspector or designated airmen examiner, or if the applicant has completed an approved training course under Part 121 of the CASRs for the airplane type involved, the procedures may be observed by a person qualified to act as an instructor or DGAC-approved check pilot under that approved training program. {RS, PT}

Each instrument approach must be performed according to any procedures and limitations approved for the approach facility used. The instrument approach begins when the airplane is over the initial approach fix for the approach procedure being used (or turned over to the final approach controller in the case of GCA approach) and ends when the airplane touches down on the runway or when transition to a missed approach configuration is completed. Instrument conditions need not be simulated below 100 above touchdown zone elevation.

(d) Circling approaches. At least one circling approach must be made under the following conditions: {PV, PW*}
(1) The portion of the circling approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions. {RS}
(2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90 degrees from the final approach course of the simulated instrument portion of the approach.
(3) The circling approach must be performed without excessive maneuvering, and without exceeding the normal operating limits of the airplane. The angle of bank should not exceed 30 degrees.

When the maneuver is performed in an airplane, it may be waived as provided in Section 61.157(c) if local conditions beyond the control of the pilot prohibit the maneuver or prevent it from being performed as required.

The circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of Part 121 of the CASRs, if the certificate holder's manual prohibits a circling approach in weather conditions below 1000-foot ceilings and 3 miles visibility.

*(e) Missed approaches. Each applicant must perform at least two missed approaches, with at least one missed approach from an ILS approach. A complete approved missed approach procedure must be accomplished at least once and, at the discretion of the DGAC inspector or designated airmen examiner, a simulated powerplant failure may be required during any of the missed approaches. These maneuvers may be performed either independently or in conjunction with maneuvers required under sections III or V or this appendix. At least one must be performed in-flight. {RS, RI*, PV*}

61xA.IV In-flight Maneuvers:

*(a) Steep turns. At least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 45 degrees with a heading change of at least 180 degrees but not more than 360 degrees. {RS, PN, PW}

*(b) Approaches to stalls. For the purpose of this maneuver the required approach to a stall is reached when there is a perceptible buffet or other response to the initial stall entry. Except as provided below, there must be at least three approaches to stalls as follows: {RS, PN, PW*}
(1) One must be in the takeoff configuration (except where the airplane uses only a zero flap takeoff configuration).
(2) One in a clean configuration.

(3) One in a landing configuration.

At the discretion of the DGAC inspector or designated airmen examiner, one approach to a stall must be performed in one of the above configurations while in a turn with a bank angle between 15 degrees and 30 degrees. Two out of the three approaches required by this paragraph may be waived as provided in Section 61.157(c)

*(c) Specific flight characteristics. Recovery from specific flight characteristics that are peculiar to the airplane type. {PN, PW}

(d) Powerplant failures. In addition to the specific requirements for maneuvers with simulated powerplant failures, the DGAC inspector or designated airmen examiner may require a simulated powerplant failure at any time during the check. {RI}

61xA.V Landings and Approaches to Landings:
Notwithstanding the authorizations for combining of maneuvers and for waiver of maneuvers, at least three actual landings (one to a full stop), must be made. These landings must include the types listed below but more than one type can be combined where appropriate:
(a) Normal landing. {RI}

#(b) Landing in sequence from an ILS instrument approach except that if circumstances beyond the control of the pilot prevent an actual landing, the person conducting the check may accept an approach to a point where in his judgment a landing to a full stop could have been made. In addition, where a simulator approved for the landing maneuver out of an ILS approach is used, the approach may be continued through the landing and credit given for 1 of the 3 landings required by this section. {PV*}

(c) Cross wind landing, if practical under existing meteorological, airport, and traffic conditions. {RI*}

#(d) Maneuvering to a landing with simulated powerplant failure, as follows: {PV*}
(1) In the case of three engine airplanes, maneuvering to a landing with an approved procedure that approximates the loss of 2 powerplants (center and 1 outboard engine); or
(2) In the case of other multiengine airplanes, maneuvering to a landing with a simulated failure of 50 percent of available powerplants, with the simulated loss of power on one side of the airplane. However, before Jan. 1, 1975, in the case of a four engine turbojet powered airplane, maneuvering to a landing with a simulated failure of the most critical powerplant may be substituted therefor, if a flight instructor in an approved training program under Part 121 of the CASRs certifies to the Director that he has observed the applicant satisfactorily perform a landing in that type airplane with a simulated failure of 50 percent of the available powerplants.

The substitute maneuver may not be used if the Director determines that training in the two engine out landing maneuver provided in the training program is unsatisfactory.

If an applicant performs this maneuver in a visual simulator, he must, in addition, maneuver in flight to a landing with a simulated failure of the most critical powerplant

*(e) Except as provided in Paragraph (f), landing under simulated circling approach conditions except that if circumstances beyond the control of the pilot prevent a landing, the person conducting the check may accept an approach to a point where, in his judgment, a landing to a full stop could have been made. {PV}.

The circling approach maneuver is not required for a pilot employed by a certificate holder subject to the operating rules of Part 121 of the CASRs, if the certificate holder's manual prohibits a circling approach in weather conditions below 1000 - 3 (ceiling and visibility)

*#(f) A rejected landing, including a normal missed approach procedure, that is rejected approximately 50 over the runway and approximately over the runway threshold. This maneuver may be combined with instrument, circling, or missed approach procedures, but instrument conditions need not be simulated below 100 above the runway. {RS*, PV*}

#(g) A zero flap visual approach to a point where, in the judgment of the person conducting the check, a landing to a full stop on the appropriate runway could be made. This maneuver is not required for a particular airplane type if the Director has determined that the probability of flap extension failure on that type is extremely remote due to system design. In making this determination, the Director determines whether checking on slats only and partial flap approaches is necessary. {PV*}

(h) For a single powerplant rating only, unless the applicant holds a commercial pilot certificate, he must accomplish accuracy approaches and spot landings that include a series of three landings from an altitude of 1,000 or less, with the engine throttled and 180 degrees change in direction. The airplane must touch the ground in a normal landing attitude beyond and within 200 from a designated line. At least one landing must be from a forward slip. One hundred eighty degree approaches using two 90 degree turns with a straight base leg are preferred although circular approaches are acceptable. {RI}

61xA.VI Normal and Abnormal Procedures.
Each applicant must demonstrate the proper use of as many of the systems and devices listed below as the DGAC inspector or designated airmen examiner finds are necessary to determine that the person being checked has a practical knowledge of the use of the systems and devices appropriate to the aircraft type:
(a) Anti-icing and deicing systems. {PN}
(b) Autopilot systems. {PN}
(c) Automatic or other approach aid systems. {PN}
(d) Stall warning devices, stall avoidance devices, and stability augmentation devices. {PN}
(e) Airborne radar devices. {PN}
(f) Any other systems, devices, or aids available. {PN}
(g) Hydraulic and electrical system failures and malfunctions. {PT}
(h) Landing gear and flap systems failures or malfunctions. {PT}
(i) Failure of navigation or communications equipment. {PN}

61xA.VII Emergency Procedures.
Each applicant must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the DGAC inspector or designated airmen examiner finds are necessary to determine that the person being checked has an adequate knowledge of, and ability to perform, such procedures:

(a) Fire in-flight. {PN}
(b) Smoke control. {PN}
(c) Rapid decompression. {PN}
(d) Emergency descent. {PN}
(e) Any other emergency procedures outlined in the appropriate approved airplane flight manual. {PN}

## APPENDIX B TO PART 61 - PRACTICAL TEST REQUIREMENTS FOR ROTORCRAFT AIRLINE TRANSPORT PILOT CERTIFICATES WITH A HELICOPTER CLASS RATING AND ASSOCIATED TYPE RATINGS

Throughout the maneuvers prescribed in this appendix, good judgment commensurate with a high level of safety must be demonstrated. In determining whether such judgment has been shown, the DGAC inspector or designated airmen examiner who conducts the check considers adherence to approved procedures, actions based on analysis of situations for which there is no prescribed procedure or recommended practice, and qualities of prudence and care in selecting a course of action. The successful outcome of a procedure or maneuver will never be in doubt.

The maneuvers and procedures in this appendix must be performed in a manner that satisfactorily demonstrates knowledge and skill with respect to-

(1) The helicopter, its systems, and components;

(2) Proper control of airspeed, direction, altitude, and attitude in accordance with procedures and limitations contained in the approved Rotorcraft Flight Manual, checklists, or other approved material appropriate to the rotorcraft type; and

(3) Compliance with approved enroute, instrument approach, missed approach, ATC, and other applicable procedures.

61xB.I Preflight

(a) Equipment examination (oral). The equipment examination must be repeated if the flight maneuvers portion is not satisfactorily completed within 60 days. The equipment examination must cover-

(1) Subjects requiring a practical knowledge of the helicopter, its powerplants, systems, components, and operational and performance factors;

(2) Normal, abnormal, and emergency procedures and related operations and limitations; and

(3) The appropriate provisions of the approved helicopter Flight Manual or manual material.

(b) Preflight inspection. The pilot must-

(1) Conduct an actual visual inspection of the exterior and interior of the helicopter, locating each item and explaining briefly the purpose of inspecting it; and

(2) Demonstrate the use of the prestart checklist, appropriate control system checks, starting procedures, radio and electronic equipment checks, and the selection of proper navigation and communications radio facilities and frequencies before flight.

(c) Taxiing. The maneuver includes ground taxiing, hover taxiing (including performance checks),,and docking procedures, as appropriate, in compliance with instructions issued by ATC, the DGAC inspector, or the designated airmen examiner.

(d) Powerplant checks. As appropriate to the helicopter type in accordance with the Rotorcraft Flight Manual procedures.

61xB.II Takeoffs

(a) Normal. One normal takeoff from a stabilized hover which begins when the helicopter is taxied into position for takeoff.

(b) Instrument. One takeoff with instrument conditions simulated at or before reaching 100 feet above airport elevation.

(c) Crosswind. One crosswind takeoff from a stabilized hover, if practical under the existing meteorological, airport, and traffic conditions.

(d) Powerplant failure.
(1) For single engine rotorcraft, one normal takeoff with simulated powerplant failure.
(2) For multiengine rotorcraft, one normal takeoff with simulated failure of one engine-
(i) At an appropriate airspeed that would allow continued climb performance in forward flight; or
(ii) At an appropriate airspeed that is 50 percent of normal cruise speed, if there is no published single engine climb airspeed for that type of helicopter.

(e) Rejected. One normal takeoff that is rejected after simulated engine failure at a reasonable airspeed, determined by giving due consideration to the helicopter's characteristics, length of landing area, surface conditions, wind direction and velocity, and any other pertinent factors that may adversely affect safety.

61xB.III Instrument Procedures

(a) Area departure and arrival. During each of these maneuvers, the applicant must-
(1) Adhere to actual or simulated ATC clearances (including assigned bearings or radials); and
(2) Properly use available navigation facilities.

(b) Holding. This maneuver includes entering, maintaining, and leaving holding patterns.

(c) ILS and other instrument approaches. The instrument approach begins when the helicopter is over the initial approach fix for the approach procedure being used (or turned over to the final controller in case of a surveillance or precision radar approach) and ends when the helicopter terminates at a hover or touches down or where transition to a missed approach is completed. The following approaches must be performed:
(1) At least one normal ILS approach.
(2) For multiengine rotorcraft, at least one manually controlled ILS approach with a simulated failure of one powerplant. The simulated engine failure should occur before initiating the final approach course and continue to a hover to touchdown or through the missed approach procedure.
(3) At least one non-precision approach procedure that is representative of the non-precision approach procedure that the applicant is likely to use.
(4) At least one non-precision approach procedure on a letdown aid other than the approach procedure performed under Subparagraph (3) of this paragraph that the applicant is likely to use.

(d) Circling approaches. At least one circling approach must be made under the following conditions:
(1) The portion of the circling approach to the authorized minimum circling approach altitude must be made under simulated instrument conditions.
(2) The approach must be made to the authorized minimum circling approach altitude followed by a change in heading and the necessary maneuvering (by visual reference) to maintain a flight path that permits a normal landing on a runway at least 90 degrees from the final approach course of the simulated instrument portion of the approach.
(3) The circling approach must be performed without excessive maneuvering and without exceeding the normal operating limits of the rotorcraft. The angle of bank should not exceed 30 degrees.

(e) Missed approaches. Each applicant must perform at least two missed approaches with at least one missed approach from an ILS approach. At the discretion of the DGAC inspector or designated airmen examiner, a simulated powerplant failure may be required during any of the missed approaches. The maneuvers may be performed either independently or in conjunction with maneuvers required under section III or V of this appendix. At least one must be performed in flight.

61xB.IV In-flight Maneuvers

(a) Steep turns. At least one steep turn in each direction must be performed. Each steep turn must involve a bank angle of 30 degrees with a heading change of at least 180 degrees but not more than 360 degrees.

(b) Settling with power. Demonstrate recognition of and recovery from imminent flight at critical/rapid descent with power. For the purpose of this maneuver, settling with power is reached when a perceptive buffet or other indications of imminent settling with power have been induced.

(c) Powerplant failure. In addition to the specific requirements for maneuvers with simulated powerplant failures, the DGAC inspector or designated airmen examiner may require a simulated powerplant failure at any time during the check.

(d) Recovery from unusual attitudes.

61xB.V Approaches and Landings

(a) Normal. One normal approach to a stabilized hover or to the ground must be performed.

(b) Instrument. One approach to a hover or to a landing in sequence from an ILS instrument approach.

(c) Crosswind. One crosswind approach to a hover or to the ground, if practical under the existing meteorological, airport, or traffic conditions.

(d) Powerplant failure. For a multiengine rotorcraft, maneuvering to a landing with simulated powerplant failure of one engine.

(e) Rejected. Rejected landing, including a normal missed approach procedure at approximately 50 feet above the runway. This maneuver may be combined with instrument or missed approach procedures, but instrument conditions need not be simulated below 100 feet above the runway or landing area.

(f) Autorotative landings. Autorotative landings in a single engine helicopter. The applicant may be required to accomplish at least one autorotative approach and landing from any phase of flight as specified by the DGAC inspector or designated airmen examiner.

61xB.VI Normal and Abnormal Procedures

Each applicant must demonstrate the proper use of as many systems and devices listed below as the DGAC inspector or designated airmen examiner finds are necessary to determine that the applicant has a practical knowledge of the use of the systems and devices appropriate to the helicopter type:

(a) Anti-icing or deicing systems.
(b) Autopilot or other stability augmentation devices.
(c) Airborne radar devices.
(d) Hydraulic and electrical systems failures or malfunctions.
(e) Landing gear failures or malfunctions.
(f) Failure of navigation or communications equipment.
(g) Any other system appropriate to the helicopter as outlined in the approved Rotorcraft Flight Manual.

61xB.VII Emergency Procedures

Each applicant must demonstrate the proper emergency procedures for as many of the emergency situations listed below as the DGAC inspector or designated airmen examiner finds are necessary to determine that the applicant has adequate knowledge of, and ability to perform, such procedures:

(a) Fire or smoke control in flight.
(b) Ditching.
(c) Evacuation.
(d) Operation of emergency equipment.
(e) Emergency descent.
(f) Any other emergency procedure outline in the approved Rotorcraft Flight Manual.

**MENTERI PERHUBUNGAN**

**ttd**

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Salinan sesuai dengan aslinya

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# SERTIFICATION FLIGHT CREW MEMBERS OTHER THAN PILOTS (PART 63)

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# PART 63__ CERTIFICATION: FLIGHT CREWMEMBERS OTHER THAN PILOTS

## SUBPART A__ GENERAL

**63.1 Applicability.**
This part prescribes the requirements for issuing flight engineer and flight navigator certificates and the general operating rules for holders of those certificates.

**63.2 Certification of foreign flight crewmembers other than pilots.**
A person who is not an Indonesian citizen is issued a certificate under this part (other than under Section 63.23 or Section 63.42) outside the Republic of Indonesia only when the Director finds that the certificate is needed for the operation of an Indonesian-registered civil aircraft.

**63.3 Certificates and ratings required.**
(a) No person may act as a flight engineer of a civil aircraft of Indonesian registry unless he has in his personal possession a current flight engineer certificate with appropriate type ratings issued to him under this part and a first-class medical certificate issued to him under Part 67 of the CASRs within the preceding 12 calendar months. However, when the aircraft is operated within a foreign country, a current flight engineer certificate issued by the country in which the aircraft is operated, with evidence of current medical qualification for that certificate, may be used. Also, in the case of a flight engineer certificate issued under Section 63.43, evidence of current medical qualification accepted for the issue of that certificate is used in place of a medical certificate.

(b) No person may act as a flight navigator of a civil aircraft of Indonesian registry unless he has in his personal possession a current flight navigator certificate issued to him under this part and a second-class (or higher) medical certificate issued to him under Part 67 of the CASRs within the preceding 12 calendar months. However, when the aircraft is operated within a foreign country, a current flight navigator certificate issued by the country in which the aircraft is operated, with evidence of current medical qualification for that certificate, may be used.

(c) Inspection of certificate. Each person who holds a flight engineer or flight navigator certificate, or medical certificate shall present either or both for inspection upon the request of the Director or his authorized representative.

**63.11 Application and issue.**
(a) An application for a certificate and appropriate type rating, or for an additional rating, under this part must be made on a form and in a manner prescribed by the Director.

(b) An applicant who meets the requirements of this part is entitled to an appropriate certificate and appropriate type ratings.

(c) Unless authorized by the Director, a person whose flight engineer certificate is suspended may not apply for any rating to be added to that certificate during the period of suspension.

(d) Unless the order of revocation provides otherwise, a person whose flight engineer or flight navigator certificate is revoked may not apply for the same kind of certificate for 1 year after the date of revocation.

**63.12 Offenses involving alcohol or drugs.**
(a) A conviction for the violation of any national law relating to the growing, processing, manufacture, sale, disposition, possession, transportation, or importation of narcotic drugs, marihuana, or depressant or stimulant drugs or substances is grounds for_
... (1) Denial of an application for any certificate or rating issued under this part for a period of up to 1 year after the date of final conviction; or
... (2) Suspension or revocation of any certificate or rating issued under this Part.

(b) The commission of an act prohibited by Section 91.17(a) or Section 91.19(a) of the CASRs is grounds for_
... (1) Denial of an application for a certificate or rating issued under this part for a period of up to 1 year after the date of that act; or
... (2) Suspension or revocation of any certificate or rating issued under this part.

**63.12a Refusal to submit to a drug or alcohol test or to furnish test results.**
A refusal to submit to a drug or alcohol test to indicate the percentage by weight of alcohol in the blood, when requested by a law enforcement officer in accordance with Section 91.17(c) of the CASRs, or a refusal to furnish or authorize the release of the test results when requested by the Director in accordance with Section 91.17(c) or (d) of the CASRs, is grounds for_
(a) Denial of an application for any certificate or rating issued under this part for a period of up to 1 year after the date of that refusal; or

(b) Suspension or revocation of any certificate or rating issued under this part.

**63.12b. Reserved**

63.1[illegible]

[illegible] days may be issued to a qualified applicant, [illegible]ocuments and the issue of the certificate for

[illegible]b) of this section, a certificate or rating [illegible]ended, or revoked.

[illegible] issued under Section 63.42 expires at [illegible]he certificate was issued or renewed. [illegible]rtificate only while the foreign flight

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International Trade and Industry

(c) Any certificate issued under this part ceases to be effective if it is surrendered, suspended, or revoked. The holder of any certificate issued under this part that is suspended or revoked shall, upon the Director's request, return it to the Director.

**63.16 Replacement of lost or destroyed certificate; change of name.**

(a) An application for the replacement of a lost or destroyed airman certificate issued under this part is made by letter to the Directorate General Air Communications (DGAC), Directorate of Airworthiness Certification. The letter must_

... (1) State the name of the person to whom the certificate was issued, the company mailing address, and date and place of birth of the certificate holder, and any available information regarding the number, and date of issue of the certificate, and the ratings on it.

(b) An application for the replacement of a lost or destroyed medical certificate is made by letter to the DGAC, Aviation Medical Center.

**63.17 Tests: General procedure.**

(a) Tests prescribed by or under this part are given at times and places, and by persons, designated by the Director.

(b) The minimum passing grade for each test is 70 percent.

**63.19 Operations during physical deficiency.**

No person may serve as a flight engineer or flight navigator during a period of known physical deficiency, or increase in physical deficiency, that would make him unable to meet the physical requirements for his current medical certificate.

**63.20 Applications, certificates, logbooks, reports, and records; falsification, reproduction, or alteration.**

(a) No person may make or cause to be made_

... (1) Any fraudulent or intentionally false statement on any application for a certificate or rating under this part;

... (2) Any fraudulent or intentionally false entry in any logbook, record, or report that is required to be kept, made, or used, to show compliance with any requirement for any certificate or rating under this part;

... (3) Any reproduction, for fraudulent purpose, of any certificate or rating under this part; or

... (4) Any alteration of any certificate or rating under this part.

(b) The commission by any person of an act prohibited under Paragraph (a) of this section is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

**63.21 Change of address.**

The holder of a certificate issued under this part who has made a change in company may not after 30 days from the date he moved, exercise the privileges of his certificate unless he has notified in writing the DGAC of his new address/company.

**63.25 Written tests: Cheating or other unauthorized conduct.**

(a) . No person may_

... (1) Copy, or intentionally remove, a written test under this part;

... (2) Give to another, or receive from another, any part or copy of that test;

... (3) Give help on that test to, or receive help on that test from, any person during the period that test is being given.

... (4) Take any part of that test in behalf of another person;

... (5) Use any material or aid during the period that test is being given; or

... (6) Intentionally cause, assist, or participate in any act prohibited by this paragraph.

(b) No person who commits an act prohibited by Paragraph (a) of this section is eligible for any airman or ground instructor certificate or rating under the CASRs for a period of 1 year after the date of that act. In addition, the commission of that act is a basis for suspending or revoking any airman or ground instructor certificate or rating held by that person.

**63.23 Special purpose flight engineer and flight navigator: Operation of Indonesian-registered civil airplanes leased by a person not an Indonesian citizen.**

(a) General. The holder of a current foreign flight engineer or flight navigator certificate, license, or authorization issued by a foreign contracting State to the Convention on International Civil Aviation, who meets the requirements of this section, may hold a special purpose flight engineer or flight navigator certificate authorizing the holder to perform flight engineer or flight navigator duties on a civil airplane of Indonesian registry, leased to a person not a citizen of the Republic of Indonesia, carrying persons or property for compensation or hire. Special purpose flight engineer or flight navigator certificates are issued under this section only for airplane types that can have a maximum passenger seating configuration (not including any flight crewmember seat) of more than 30 seats or a maximum payload capacity of more than 7,500 pounds.

(b) Eligibility. To be eligible for the issuance, or renewal, of a certificate under this section, an applicant must present the following to the Director:

... (1) A current foreign flight engineer or flight navigator certificate, license, or authorization issued by the aeronautical authority of a foreign contracting State to the Convention on International Civil Aviation or a facsimile acceptable to the Director. The certificate or license must authorize the applicant to perform the flight engineer or flight navigator duties to be authorized by a certificate issued under this section on the same airplane type as the leased airplane.

... (2) A current certification by the lessee of the airplane_

.... (i) Stating that the applicant is employed by the lessee;

.... (ii) Specifying the airplane type on which the applicant will perform flight engineer or flight navigator duties; and

.... (iii) Stating that the applicant has received ground and flight instruction which qualifies the applicant to perform the duties to be assigned on the airplane.

... (3) Documentation showing that the applicant currently meets the medical standards for the foreign flight engineer or flight navigator certificate, license, or authorization required by Paragraph

(b)(1) of this section, except that a Republic of Indonesia medical certificate issued under Part 67 of the CASRs is not evidence that the applicant meets those standards unless the State which issued the applicant's foreign flight engineer or flight navigator certificate, license, or authorization accepts a Republic of Indonesia medical certificate as evidence of medical fitness for a flight engineer or flight navigator certificate, license, or authorization.

(c) Privileges. The holder of a special purpose flight engineer or flight navigator certificate issued under this section may exercise the same privileges as those shown on the certificate, license, or authorization specified in Paragraph (b)(1) of this section, subject to the limitations specified in this section.

(d) Limitations. Each certificate issued under this section is subject to the following limitations:

... (1) It is valid only_

.... (i) For flights between foreign countries and for flights in foreign air commerce;

.... (ii) While it and the certificate, license, or authorization required by Paragraph (b)(1) of this section are in the certificate holder's personal possession and are current;

.... (iii) While the certificate holder is employed by the person to whom the airplane described in the certification required by Paragraph (b)(2) of this section is leased;

.... (iv) While the certificate holder is performing flight engineer or flight navigator duties on the Indonesian-registered civil airplane described in the certification required by Paragraph (b)(2) of this section; and

.... (v) While the medical documentation required by Paragraph (b)(3) of this section is in the certificate holder's personal possession and is currently valid.

... (2) Each certificate issued under this section contains the following:

.... (i) The name of the person to whom the Indonesian-registered civil airplane is leased.

.... (ii) The type of airplane.

.... (iii) The limitation: "Issued under, and subject to, Section 63.23 of the Civil Aviation Safety Regulations."

.... (iv) The limitation: "Subject to the privileges and limitations shown on the holder's foreign flight (engineer or navigator) certificate, license, or authorization."

... (3) Any additional limitations placed on the certificate which the Director considers necessary.

(e) Termination. Each special purpose flight engineer or flight navigator certificate issued under this section terminates_

... (1) When the lease agreement for the airplane described in the certification required by Paragraph (b)(2) of this section terminates;

... (2) When the foreign flight engineer or flight navigator certificate, license, or authorization, or the medical documentation required by Paragraph (b) of this section is suspended, revoked, or no longer valid; or

... (3) After 24 calendar months after the month in which the special purpose flight engineer or flight navigator certificate was issued.

(f) Surrender of certificate. The certificate holder shall surrender the special purpose flight engineer or flight navigator certificate to the Director within 7 days after the date it terminates.

(g) Renewal. The certificate holder may have the certificate renewed by complying with the requirements of Paragraph (b) of this section at the time of application for renewal.

## SUBPART B FLIGHT ENGINEERS

**63.31 Eligibility requirements; general.**
To be eligible for a flight engineer certificate, a person must_
(a) Be at least 21 years of age;

(b) Be able to read, speak, and understand the English language, or have an appropriate limitation placed on his flight engineer certificate;

(c) Hold at least a first-class medical certificate issued under Part 67 of the CASRs within the 12 calendar months before the date he applies, or other evidence of medical qualification accepted for the issue of a flight engineer certificate under Section 63.42, and

(d) Comply with the requirements of this subpart that apply to the rating he seeks.

**63.33 Aircraft ratings.**
(a) The specific aircraft type ratings will be place on the flight engineer certificate

(b) To be eligible for an additional aircraft type rating, an applicant must pass the written test that is appropriate to the type of airplane for which an additional rating is sought, and_

... (1) Satisfactorily complete an approved flight engineer training program that is appropriate to the additional type rating sought; and
..... (2) Pass the flight test for that type of aircraft;

**63.35 Knowledge requirements.**
(a) An applicant for a flight engineer certificate must pass a written test on the following:
... (1) The regulations of the CASRs that apply to the duties of a flight engineer.
... (2) The theory of flight and aerodynamics.
... (3) Basic meteorology with respect to engine operations.
... (4) Center of gravity computations.

(b) An applicant for the original or additional issue of a flight engineer class rating must pass a written test for that airplane class on the following:
... (1) Preflight.
... (2) Airplane equipment.
... (3) Airplane systems.
... (4) Airplane loading.
... (5) Airplane procedures and engine operations with respect to limitations.
... (6) Normal operating procedures.
... (7) Emergency procedures.
... (8) Mathematical computation of engine operations and fuel consumption.

(c) Before taking the written tests prescribed in Paragraphs (a) and (b) of this section, an applicant for a flight engineer certificate must present satisfactory evidence of having completed one of the experience requirements of Section 63.3?; he may take the written tests before acquiring the flight training required by Section 63.37.

(d) An applicant for a flight engineer certificate or rating must have passed the written tests required by Paragraphs (a) and (b) of this section since the beginning of the 24th calendar month before the month in which the flight is taken. However, this limitation does not apply to an applicant for a flight engineer certificate or rating if_

...(1) The applicant_

.... (i) Within the period ending 24 calendar months after the month in which the applicant passed the written test, is employed as a flight crewmember or aircraft maintenance engineer by an Indonesian air carrier operating either under Part 121 or under Part 135 and is employed by such a certificate holder at the time of the flight test;

.... (ii) If employed as a flight crewmember, has completed initial training, and, if appropriate, transition or upgrade training; and

.... (iii) Meets the recurrent training requirements of the applicable part or, for aircraft maintenance engineers, meets the recency of experience requirements of Part 65; or

...(2) Within the period ending 24 calendar months after the month in which the applicant passed the written test, the applicant participated in a flight engineer or maintenance training program of a Republic of Indonesia scheduled military air transportation service and is currently participating in that program.

(e) An air carrier with an approved training program under Part 121 of the CASRs may, when authorized by the Director, provide as part of that program a written test that it may administer to satisfy the test required for an additional rating under Paragraph (b) of this section.

**63.37 Aeronautical experience requirements.**

(a) Except as otherwise specified therein, the flight time used to satisfy the aeronautical experience requirements of Paragraph (b) of this section must have been obtained on an airplane_

...(1) On which a flight engineer is required by the CASRs; or

...(2) That has at least three engines that are rated at least 800 horsepower each or the equivalent in turbine powered engines.

(b) An applicant for a flight engineer certificate with a class rating must present, for the class rating sought, satisfactory evidence of one of the following:

...(1) At least 3 years of diversified practical experience in aircraft and aircraft engine maintenance (of which at least 1 year was in maintaining multiengine aircraft with engines rated at least 800 horsepower each, or the equivalent in turbine engine powered aircraft), and at least 5 hours of flight training in the duties of a flight engineer.

...(2) Graduation from at least a 2-year specialized aeronautical training course in maintaining aircraft and aircraft engines (of which at least 6 calendar months were in maintaining multiengine aircraft with engines rated at least 800 horsepower each or the equivalent in turbine engine powered aircraft), and at least 5 hours of flight training in the duties of a flight engineer.

...(3) A degree in aeronautical, electrical, or mechanical engineering from a college, university, or engineering school accredited by the Indonesian Ministry of Education and Culture or approved by the Director, at least 6 calendar months of practical experience in maintaining multiengine aircraft with engines rated at least 800 horsepower each, or the equivalent in turbine engine powered aircraft; and at least 5 hours of flight training in the duties of a flight engineer.

...(4) At least a commercial pilot certificate with an instrument rating and at least 5 hours of flight training in the duties of a flight engineer.

... (5) At least 200 hours of flight time in a transport category airplane (or in a military airplane with at least two engines and at least equivalent weight and horsepower) as pilot in command or second in command performing the functions of a pilot in command under the supervision of a pilot in command.

... (6) At least 100 hours of flight time as a flight engineer.

... (7) Within the 90 day period before he applies, successful completion of an approved flight engineer ground and flight course of instruction as provided in Appendix C of this part.

**63.39 Skill requirements.**

(a) An applicant for a flight engineer certificate with a type rating must pass a practical test on the duties of a flight engineer in the class of airplane for which a rating is sought. The test may only be given on an airplane specified in Section 63.37(a).

(b) The applicant must_

... (1) Show that he can satisfactorily perform preflight inspection, servicing, starting, pretakeoff, and postlanding procedures;

... (2) In flight, show that he can satisfactorily perform the normal duties and procedures relating to the airplane, airplane engines, propellers (if appropriate), systems, and appliances; and

... (3) In flight, in an airplane simulator, or in an approved flight engineer training device, show that he can satisfactorily perform emergency duties and procedures and recognize and take appropriate action for malfunctions of the airplane, engines, propellers (if appropriate), systems and appliances.

**63.41 Retesting after failure.**

An applicant for a flight engineer certificate who fails a written test or practical test for that certificate may apply for retesting_

(a) After 30 days after the date he failed that test; or

(b) After he has received additional practice or instruction (flight, synthetic trainer, or ground training, or any combination thereof) that is necessary, in the opinion of the Director or the applicant's instructor (if the Director has authorized him to determine the additional instruction necessary) to prepare the applicant for retesting.

**63.42 Flight engineer certificate issued on basis of a foreign flight engineer license.**

(a) Certificates issued. The holder of a current foreign flight engineer license issued by a contracting State to the Convention on International Civil Aviation, who meets the requirements of this section, may have a flight engineer certificate issued to him for the operation of civil aircraft of Indonesian registry. Each flight engineer certificate issued under this section specifies the number and State of issuance of the foreign flight engineer license on which it is based. If the holder of the certificate cannot read, speak, or understand the English language, the Director may place any limitation on the certificate that he considers necessary for safety.

(b) Medical standards and certification. An applicant must submit evidence that he currently meets the medical standards for the foreign flight engineer license on which the application for a certificate under this section is based. A current medical certificate issued under Part 67 of the CASRs will be excepted as evidence that the applicant meets those standards. However, a medical certificate issued under Part 67 of the CASRs is not evidence that the applicant meets those standards outside the Republic of Indonesia unless the State that issued the applicant's foreign flight engineer license

also accepts that medical certificate as evidence of the applicant's physical fitness for his foreign flight engineer license.

(c) Ratings issued. Aircraft type ratings listed on the applicant's foreign flight engineer license, in addition to any issued to him after testing under the provisions of this part, are placed on the applicant's flight engineer certificate. An applicant without an aircraft type rating on his foreign flight engineer license may be issued a type rating if he shows that he currently meets the requirements for exercising the privileges of his foreign flight engineer license on that type of aircraft.

(d) Privileges and limitations. The holder of a flight engineer certificate issued under this section may act as a flight engineer of a civil aircraft of Indonesian registry subject to the limitations of this part and any additional limitations placed on his certificate by the Director. He is subject to these limitations while he is acting as a flight engineer of the aircraft within or outside the Republic of Indonesia. However, he may not act as flight engineer or in any other capacity as a required flight crewmember, of a civil aircraft of Indonesian registry that is carrying persons or property for compensation or hire.

(e) Renewal of certificate and ratings. The holder of a certificate issued under this section may have that certificate and the ratings placed thereon renewed if, at the time of application for renewal, the foreign flight engineer license on which that certificate is based is in effect. Application for the renewal of the certificate and ratings thereon must be made before the expiration of the certificate.

**63.43 Flight engineer courses.**
An applicant for approval of a flight engineer course must submit a letter to the Director requesting approval, and must also submit three copies of each course outline, a description of the facilities and equipment, and a list of the instructors and their qualifications. An air carrier with an approved flight engineer training course under Part 121 of the CASRs may apply for approval of a training course under this part by letter without submitting the additional information required by this paragraph. Minimum requirements for obtaining approval of a flight engineer course are set forth in Appendix C of this part.

## SUBPART C FLIGHT NAVIGATORS

**63.51 Eligibility requirements; general.**
To be eligible for a flight navigator certificate, a person must_
(a) Be at least 21 years of age;

(b) Be able to read, write, speak, and understand the English language;

(c) Hold at least a second-class medical certificate issued under Part 67 of the CASRs within the 12 calendar months before the date he applies; and

(d) Comply with Sections 63.53, 63.55, and 63.57.

**63.53 Knowledge requirements.**

(a) An applicant for a flight navigator certificate must pass a written test on_

...(1) The regulations of the CASRs that apply to the duties of a flight navigator;

...(2) The fundamentals of flight navigation, including flight planning and cruise control;

...(3) Practical meteorology, including analysis of weather maps, weather reports, and weather forecasts; and weather sequence abbreviations, symbols, and nomenclature;

...(4) The types of air navigation facilities and procedures in general use;

...(5) Calibrating and using air navigation instruments;

...(6) Navigation by dead reckoning;

...(7) Navigation by celestial means;

...(8) Navigation by radio aids;

...(9) Pilotage and map reading; and

...(10) Interpretation of navigation aid identification signals.

(b) A report of the test is mailed to the applicant. A passing grade is evidence, for a period of 24 calendar months after the test, that the applicant has complied with this section.

**63.55 Experience requirements.**

(a) An applicant for a flight navigator certificate must be a graduate of a flight navigator course approved by the Director or present satisfactory documentary evidence of_

...(1) Satisfactory determination of his position in flight at least 25 times by night by celestial observations and at least 25 times by day by celestial observations in conjunction with other aids; and

...(2) At least 200 hours of satisfactory flight navigation including celestial and radio navigation and dead reckoning.

A pilot who has logged 500 hours of cross-country flight time, of which at least 100 hours were at night, may be credited with not more than 100 hours for the purposes of Paragraph (a)(2) of this section.

(b) Flight time used exclusively for practicing long range navigation methods, with emphasis on celestial navigation and dead reckoning, is considered to be satisfactory navigation experience for the purposes of Paragraph (a) of this section. It must be substantiated by a logbook, by records of an armed force (ABRI) or a certificated air carrier, or by a letter signed by a certificated flight navigator and attached to the application.

**63.57 Skill requirements.**

(a) An applicant for a flight navigator certificate must pass a practical test in navigating aircraft by_

...(1) Dead reckoning;

...(2) Celestial means; and

...(3) Radio aids to navigation.

(b) An applicant must pass the written test prescribed by Section 63.53 before taking the test under this section. However, if a delay in taking the test under this section would inconvenience the applicant or an air carrier, he may take it before he receives the result of the written test, or after he has failed the written test.

(c) The test requirements for this section are set forth in Appendix A of this part.

**63.59 Retesting after failure.**

(a) An applicant for a flight navigator certificate who fails a written or practical test for that certificate may apply for retesting_

...(1) After 30 days after the date he failed that test; or

...(2) Before the 30 days have expired if the applicant presents a signed statement from a certificated flight navigator, certificated ground instructor, or any other qualified person approved by the Director, certifying that person has given the applicant additional instruction in each of the subjects failed and that person considers the applicant ready for retesting.

(b) A statement from a certificated flight navigator, or from an operations official of an approved navigator course, is acceptable, for the purposes of Paragraph (a)(2) of this section, for the written test and for the flight test. A statement from a person approved by the Director is acceptable for the written tests. A statement from a supervising or check navigator with the Indonesian Armed Forces (ABRI) is acceptable for the written test and for the practical test.

(c) If the applicant failed the flight test, the additional instruction must have been administered in flight.

**63.61 Flight navigator courses.**

An applicant for approval of a flight navigator course must submit a letter to the Director requesting approval, and must also submit three copies of the course outline, a description of his facilities and equipment, and a list of the instructors and their qualifications. Requirements for the course are set forth in Appendix B to this part.

## APPENDIX A TO PART 63 TEST REQUIREMENTS FOR FLIGHT NAVIGATOR CERTIFICATE

63xA.a Demonstration of skill.

An applicant will be required to pass practical tests on the prescribed subjects. These tests may be given by DGAC inspectors and designated flight navigator examiners.

63xA.b The examination.

The practical examination consists of a ground test and a flight test as itemized on the examination check sheet. Each item must be completed satisfactorily in order for the applicant to obtain a passing grade. Items 5, 6, 7 of the ground test may be completed orally, and items 17, 22, 23, 34, 36, 37, 38, and 39 of the flight test may be completed by an oral examination when a lack of ground facilities or navigation equipment makes such procedure necessary. In these cases a notation to that effect shall be made in the "Remarks" space on the check sheet.

63xA.c Examination procedure.

(1) An applicant will provide an aircraft in which celestial observations can be taken in all directions. Minimum equipment shall include a table for plotting, a drift meter or absolute altimeter, an instrument for taking visual bearings, and a radio direction finder.

(2) More than one flight may be used to complete the flight test and any type of flight pattern may be used. The test will be conducted chiefly over water whenever practicable, and without regard to radio range legs or radials. If the test is conducted chiefly over land, a chart should be used which shows very little or no topographical and aeronautical data. The total flight time will cover a period of at least four hours. Only one applicant may be examined at one time, and no applicant may perform other than navigator duties during the examination.

(3) When the test is conducted with an aircraft belonging to an air carrier, the navigation procedures should conform with those set forth in the carrier's operations manual. Items of the flight test which are not performed during the routine navigation of the flight will be completed by oral examination after the flight or at times during flight which the applicant indicates may be used for tests on those items. Since in-flight weather conditions, the reliability of the weather forecast, and the stability of the aircraft will have considerable effect on an applicant's performance, good judgment must be used by the agent or examiner in evaluating the tests.

63xA.d Ground test.

For the ground test, in the order of the numbered items on the examination check sheet, an applicant will be required to:

(1) Identify without a star identifier, at least six navigational stars and all planets available for navigation at the time of the examination and explain the method of identification.

(2) Identify two additional stars with a star identifier or sky diagrams and explain identification procedure.

(3) Pre-compute a time/altitude curve for a period of about 20 minutes and take 10 single observations of a celestial body which is rising or setting rapidly. The intervals between observations should be at least one minute. Mark each observation on the graph to show accuracy. All observations, after corrections, shall plot within 8 minutes of arc from the time/altitude curve, and the average error shall not exceed 5 minutes of arc.

(4) Take and plot one 3 star fix and 3 LOPs of the sun. Plotted fix or an average of LOPs must fall within 5 miles of the actual position of the observer.

(5) Demonstrate or explain the compensation and swinging of a liquid type magnetic compass.

(6) Demonstrate or explain a method of aligning one type of drift meter.

(7) Demonstrate or explain a method of aligning an astrocompass or periscopic sextant.

63xA.e Flight test.

For the flight test, in the order of the numbered items on the examination check sheet, an applicant will be required to:

(1) Demonstrate his ability to read weather symbols and interpret synoptic surface and upper air weather maps with particular emphasis being placed on winds.

(2) Prepare a flight plan by zones from the forecast winds or pressure data of an upper air chart and the operator's data.

(3) Compute from the operator's data the predicted fuel consumption for each zone of the flight, including the alternate.

(4) Determine the point of no return for the flight with all engines running and the equitime point with one engine inoperative. Graphical methods which are part of the company's operations manual may be used for these computations.

(5) Prepare a cruise control (howgozit) chart from the operator's data.

(6) Enter actual fuel consumed on the cruise control chart and interpret the variations of the actual curve from the predicted curve.

(7) Check the presence on board and operating condition of all navigation equipment. Normally a check list will be used. This check will include a time tick or chronometer comparison. Any lack of thoroughness during this check will justify this item being graded unsatisfactory.

(8) Locate emergency equipment, such as, the nearest fire extinguisher, life preserver, life rafts, exits, ax, first aid kits, etc.

(9) Recite the navigator's duties and stations during emergencies for the type of aircraft used for the test.

(10) Demonstrate the proper use of a flux gate compass or gyrosyn compass (when available), with special emphasis on the caging methods and the location of switches, circuit breakers, and fuses. If these compasses are not part of the aircraft's equipment, an oral examination will be given.

(11) Be accurate and use good judgment when setting and altering headings. Erroneous application of variation, deviation, or drift correction, or incorrect measurement of course on the chart will be graded as unsatisfactory.

(12) Demonstrate or explain the use of characteristics of various chart projections used in long range air navigation, including the plotting of courses and bearings, and the measuring of distances.

(13) Demonstrate ability to identify designated landmarks by the use of a sectional or WAC chart.

(14) Use a computer with facility and accuracy for the computation of winds, drift correction and drift angles, ground speeds, ETAs, fuel loads, etc.

(15) Determine track, ground speed, and wind by the double drift method. When a drift meter is not part of the aircraft's equipment, an oral examination on the use of the drift meter and a double drift problem shall be completed.

(16) Determine ground speed and wind by the timing method with a drift meter. When a drift meter is not part of the aircraft's equipment, an oral examination on the procedure and a problem shall be completed.

(17) Demonstrate the use of air plot for determining wind between fixes and for plotting pressure lines of position when using pressure and absolute altimeter comparisons.

(18) Give ETAs to well defined check points at least once each hour after the second hour of flight. The average error shall not be more than 5 percent of the intervening time intervals, and the maximum error of any one ETA shall not be more than 10 percent.

(19) Demonstrate knowledge and use of D/F equipment and radio facility information. Grading on this item will be based largely on the applicant's selection of those radio aids which will be of most value to his navigation, the manner with which he uses equipment, including filter box

63xA.e Flight test.

For the flight test, in the order of the numbered items on the examination check sheet, an applicant will be required to:

(1) Demonstrate his ability to read weather symbols and interpret synoptic surface and upper air weather maps with particular emphasis being placed on winds.

(2) Prepare a flight plan by zones from the forecast winds or pressure data of an upper air chart and the operator's data.

(3) Compute from the operator's data the predicted fuel consumption for each zone of the flight, including the alternate.

(4) Determine the point of no return for the flight with all engines running and the equitime point with one engine inoperative. Graphical methods which are part of the company's operations manual may be used for these computations.

(5) Prepare a cruise control (howgozit) chart from the operator's data.

(6) Enter actual fuel consumed on the cruise control chart and interpret the variations of the actual curve from the predicted curve.

(7) Check the presence on board and operating condition of all navigation equipment. Normally a check list will be used. This check will include a time tick or chronometer comparison. Any lack of thoroughness during this check will justify this item being graded unsatisfactory.

(8) Locate emergency equipment, such as, the nearest fire extinguisher, life preserver, life rafts, exits, ax, first aid kits, etc.

(9) Recite the navigator's duties and stations during emergencies for the type of aircraft used for the test.

(10) Demonstrate the proper use of a flux gate compass or gyrosyn compass (when available), with special emphasis on the caging methods and the location of switches, circuit breakers, and fuses. If these compasses are not part of the aircraft's equipment, an oral examination will be given.

(11) Be accurate and use good judgment when setting and altering headings. Erroneous application of variation, deviation, or drift correction, or incorrect measurement of course on the chart will be graded as unsatisfactory.

(12) Demonstrate or explain the use of characteristics of various chart projections used in long range air navigation, including the plotting of courses and bearings, and the measuring of distances.

(13) Demonstrate ability to identify designated landmarks by the use of a sectional or WAC chart.

(14) Use a computer with facility and accuracy for the computation of winds, drift correction and drift angles, ground speeds, ETAs, fuel loads, etc.

(15) Determine track, ground speed, and wind by the double drift method. When a drift meter is not part of the aircraft's equipment, an oral examination on the use of the drift meter and a double drift problem shall be completed.

(16) Determine ground speed and wind by the timing method with a drift meter. When a drift meter is not part of the aircraft's equipment, an oral examination on the procedure and a problem shall be completed.

(17) Demonstrate the use of air plot for determining wind between fixes and for plotting pressure lines of position when using pressure and absolute altimeter comparisons.

(18) Give ETAs to well defined check points at least once each hour after the second hour of flight. The average error shall not be more than 5 percent of the intervening time intervals, and the maximum error of any one ETA shall not be more than 10 percent.

(19) Demonstrate knowledge and use of D/F equipment and radio facility information. Grading on this item will be based largely on the applicant's selection of those radio aids which will be of most value to his navigation, the manner with which he uses equipment, including filter box

controls, and the precision with which he reads bearings. The aircraft's compass heading and all compass corrections must be considered for each bearing.

(20) Use care in tuning to radio stations to insure maximum reception of signal and check for interference signals. Receiver will be checked to ascertain that antenna and BFO (Voice/CW) switches are in correct positions.

(21) Identify at least three radio stations using International Morse code only for identification. The agent or examiner will tune in these stations so that the applicant will have no knowledge of the direction, distance, or frequency of the stations.

(22) Take at least one radio bearing by manual use of the loop. The agent or examiner will check the applicant's bearing by taking a manual bearing on the same station immediately after the applicant.

(23) Show the use of good judgment in evaluating radio bearings, and explain why certain bearings may be of doubtful value.

(24) Determine and apply correctly the correction required to be made to radio bearings before plotting them on a Mercator chart, and demonstrate the ability to plot bearings accurately on charts of the Mercator and Lambert conformal projections.

(25) Compute the compass heading, ETA, and fuel remaining if it is assumed that the flight would be diverted to an alternate airport at a time specified by the agent or examiner.

(26) Check the counter scales of a Loran receiver for accuracy, and explain the basic (face) adjustments which affect tuning and counter alignment. A guide sheet may be used for this test.

(27) Demonstrate a knowledge of the basic principle of Loran and the ability to tune a Loran receiver, to match signals, to read time differences, to plot Loran LOPs, and to identify and use sky waves.

(28) Take and plot bearings from a consol station and explain the precautions which must be taken when tuning a radio receiver for consol signals. Also, discuss those conditions which affect the reliability of consol bearings.

(29) Demonstrate the ability to properly operate and read an absolute altimeter.

(30) Determine the "D" factors for a series of compared readings of an absolute altimeter and a pressure altimeter.

(31) Determine drift angle or lateral displacement from the true headingline by application of Bellamy's formula or a variation thereof.

(32) Interpret the altimeter comparison data with respect to the pressure system found at flight level. From this data evaluate the accuracy of the prognostic weather map used for flight planning and apply this analysis to the navigation of the flight.

(33) Interpret single LOPs for most probable position, and show how a series of single LOPs of the same body may be used to indicate the probable track and ground speed. Also, show how a series of single LOPs (celestial or radio) from the same celestial body or radio station may be used to determine position when the change of azimuth or bearing is 30° or more between observations.

(34) Select one of the celestial LOPs used during the flight and explain how to make a single line of position approach to a point selected by the agent or examiner, giving headings, times, and ETAs.

(35) Demonstrate the proper use of an astrocompass or periscopic sextant for taking bearings.

(36) Determine compass deviation as soon as possible after reaching cruising altitude and whenever there is a change of compass heading of 15° or more.

(37) Take celestial fixes at hourly intervals when conditions permit. The accuracy of these fixes shall be checked by means of a Loran, radio, or visual fix whenever practicable. After allowing for the probable error of a Loran, radio, or visual fix, a celestial fix under favorable conditions should plot within 10 miles of the actual position.

(38) Select celestial bodies for observation, when possible, whose azimuths will differ by approximately 120° for a 3 body fix and will differ by approximately 90° for a 2 body fix. The altitudes of the selected bodies should be between 25° and 75° whenever practicable.

(39) Have POMAR and any other required reports ready for transmission at time of schedule, and be able to inform the pilot in command promptly with regard to the aircraft's position and progress in comparison with the flight plan.

(40) Keep a log with sufficient legible entries to provide a record from which the flight could be retraced.

(41) Note significant weather changes which might influence the drift or ground speed of the aircraft, such as, temperature, "D" factors, frontal conditions, turbulence, etc.

(42) Determine the wind between fixes as a regular practice.

(43) Estimate the time required and average ground speed during a letdown, under conditions specified by the pilot in command.

(44) Work with sufficient speed to determine the aircraft's position hourly by celestial means and also make all other observations and records pertinent to the navigation. The applicant should be able to take the observation, compute, and plot a celestial LOP within a time limit of 8 minutes; take and plot a Loran LOP within a time limit of 3 minutes for ground waves and 4 minutes for sky waves; observe the absolute and pressure altimeters and compute the drift or lateral displacement within a time limit of 3 minutes.

(45) Be accurate in reading instruments and making computations. Errors which are made and corrected without affecting the navigation will be disregarded unless they cause considerable loss of time.

.... An uncorrected error in computation (including reading instruments and books) which will affect the reported position more than 25 miles, the heading more than 3°, or any ETA more than 15 minutes will cause this item to be graded unsatisfactory.

(46) Be alert to changing weather or other conditions during flight which might affect the navigation. An applicant should not fail to take celestial observations just prior to encountering a broken or overcast sky condition; and he should not fail to take a bearing on a radio station, which operates at scheduled intervals and which would be a valuable aid to the navigation.

(47) Show a logical choice and sequence in using the various navigation methods according to time and accuracy, and check the positions determined by one method against positions determined by other methods.

(48) Use a logical sequence in performing the various duties of a navigator and plan work according to a schedule. The more important duties should not be neglected for others of less importance.

## APPENDIX B TO PART 63 FLIGHT NAVIGATOR TRAINING COURSE REQUIREMENTS

63xB.a Training course outline

(1) Format. The ground course outline and the flight course outline shall be combined in one looseleaf binder and shall include a table of contents, divided into two parts ground course and flight course. Each part of the table of contents must contain a list of the major subjects, together with hours allotted to each subject and the total classroom and flight hours.

(2) Ground course outline.

...(i) It is not mandatory that a course outline have the subject headings arranged exactly as listed in this paragraph. Any arrangement of general headings and subheadings will be satisfactory provided all the subject material listed here is included and the acceptable minimum number of hours is assigned to each subject. Each general subject shall be broken down into detail showing items to be covered.

...(ii) If any agency desires to include additional subjects in the ground training curriculum, such as international law, flight hygiene, or others which are not required, the hours allotted these additional subjects may not be included in the minimum classroom hours.

...(iii) The following subjects with classroom hours are considered the minimum coverage for a ground training course for flight navigators:

| Subject | Classroom Hours |
|---|---|
| Civil Aviation Safety Regulations<br>...To include Parts 63, 91, and 121 of the CASRs. | 5 |
| Meteorology<br>...To include:<br>Basic weather principles.<br>Temperature.<br>Pressure.<br>Winds.<br>Moisture in the atmosphere.<br>Stability.<br>Clouds.<br>Hazards.<br>Air masses.<br>Front weather.<br>Fog.<br>Thunderstorms.<br>Icing.<br>World weather and climate.<br>Weather maps and weather reports.<br>Forecasting.<br>International Morse code:<br>...Ability to receive code groups of letters and numerals at a speed of eight words per minute | 40 |
| Navigation instruments (exclusive of radio and radar)<br>...To include: | 20 |

| Subject | Classroom Hours |
|---|---|
| Compasses.<br>Pressure altimeters.<br>Airspeed indicators.<br>Driftmeters.<br>Bearing indicators.<br>Aircraft octants.<br>Instrument calibration and alignment. | |
| Charts and pilotage<br>...To include:<br>Chart projections.<br>Chart symbols.<br>Principles of pilotage. | 15 |
| Dead reckoning<br>...To include:<br>Air plot.<br>Ground plot.<br>Calculation of ETA.<br>Vector analysis.<br>Use of computer.<br>Search. | 30 |
| Absolute altimeter with:<br>Applications<br>...To include:<br>Principles of construction.<br>Operating instructions.<br>Use of Bellamy's formula.<br>Flight planning with single drift correction. | 15 |
| Radio and long range navigational aids<br>...To include:<br>Principles of radio transmission and reception.<br>Radio aids to navigation.<br>Government publications.<br>Airborne D/F equipment.<br>Errors of radio bearings.<br>Quadrantal correction.<br>Plotting radio bearings.<br>ICAO Q code for direction finding.<br>Loran.<br>Consol. | 35 |

| Subject | Classroom Hours |
|---|---|
| Celestial navigation<br>...To include:<br>The solar system.<br>The celestial sphere.<br>The astronomical triangle.<br>Theory of lines of position.<br>Use of the Air Almanac.<br>Time and its applications.<br>Navigation tables.<br>Precomputation.<br>Celestial line of position approach.<br>Star identification.<br>Corrections to celestial observations. | 150 |
| Flight planning and cruise control<br>...To include:<br>The flight plan.<br>Fuel consumption charts.<br>Methods of cruise control.<br>Flight progress chart.<br>Point of no return.<br>Equitime point. | 25 |
| Long range flight problems | 15 |
| Total (exclusive of final examinations) | 350 |

(3) Flight course outline.

...(i) A minimum of 150 hours of supervised flight training shall be given, of which at least 50 hours of flight training must be given at night, and celestial navigation must be used during flights which total at least 125 hours.

...(ii) A maximum of 50 hours of the required flight training may be obtained in acceptable types of synthetic flight navigator training devices.

...(iii) Flights should be at least four hours in length and should be conducted off civil airways. Some training on long range flights is desirable, but is not required. There is no limit to the number of students that may be trained on one flight, but at least one astrodrome or one periscopic sextant mounting must be provided for each group of four students.

...(iv) Training must be given in dead reckoning, pilotage, radio navigation, celestial navigation, and the use of the absolute altimeter.

63xB.b Equipment.

(1) Classroom equipment shall include one table for each student.

(2) Aircraft suitable for the flight training must be available to the approved course operator to insure that the flight training may be completed without undue delay.

... The approved course operator may contract or obtain written agreements with aircraft operators for the use of suitable aircraft. A copy of the contract or written agreement with an aircraft operator shall be attached to each of the three copies of the course outline submitted for approval. In all cases, the approved course operator is responsible for the nature and quality of instruction given during flight.

63xB.c Instructors.

(1) Sufficient classroom instructors must be available to prevent an excessive ratio of students to instructors. Any ratio in excess of 20 to 1 will be considered unsatisfactory.

(2) At least one ground instructor must hold a valid flight navigator certificate, and be utilized to coordinate instruction of ground school subjects.

(3) Each instructor who conducts flight training must hold a valid flight navigator certificate.

63xB.d Revision of training course.

(1) Requests for revisions to course outlines, facilities, and equipment shall follow procedures for original approval of the course. Revisions should be submitted in such form that an entire page or pages of the approved outline can be removed and replaced by the revisions.

(2) The list of instructors may be revised at any time without request for approval, provided the minimum requirement of Paragraph (e) of this section is maintained.

63xB.e Credit for previous training and experience.

(1) Credit may be granted by an operator to students for previous training and experience which is provable and comparable to portions of the approved curriculum. When granting such credit, the approved course operator should be fully cognizant of the fact that he is responsible for the proficiency of his graduates in accordance with Subdivision (i) of Paragraph (3) of this section.

(2) Where advanced credit is allowed, the operator shall evaluate the student's previous training and experience in accordance with the normal practices of accredited technical schools. Before credit is given for any ground school subject or portion thereof, the student must pass an appropriate examination given by the operator. The results of the examination, the basis for credit allowance, and the hours credited shall be incorporated as a part of the student's records.

(3) Credit up to a maximum of 50 hours toward the flight training requirement may be given to pilots who have logged at least 500 hours while a member of a flight crew which required a certificated flight navigator or the Armed Forces (ABRI) equivalent. A similar credit may also be given to a licensed deck officer of the Maritime Service who has served as such for at least one year on ocean going vessels. One-half of the flight time credited under the terms of this paragraph may be applied toward the 50 hours of flight training required at night.

63xB.f Students records and reports.

Approval of a course shall not be continued in effect unless the course operator keeps an accurate record of each student, including a chronological log of all instruction, subjects covered and course examinations and grades, and unless he prepares and transmits to the DGAC not later than January 31 of each year, a report containing the following information for the previous calendar year:

(1) The names of all students graduated, together with their school grades for ground and flight subjects.

(2) The names of all students failed or dropped, together with their school grades and reasons for dropping.

63xB.g Quality of instruction.
Approval of a course shall not be continued in effect unless at least 80 percent of the students who apply within 90 days after graduation are able to qualify on the first attempt for certification as flight navigators.

63xB.h Statement of graduation.
Each student who successfully completes an approved flight navigator course shall be given a statement of graduation.

63xB.i Inspections.
Approved course operations will be inspected by authorized representatives of the Director as often as deemed necessary to insure that instruction is maintained at the required standards, but the period between inspections shall not exceed 12 calendar months.

63xB.j Change of ownership, name, or location
(1) Change of ownership. Approval of a flight navigator course shall not be continued in effect after the course has changed ownership. The new owner must obtain a new approval by following the procedure prescribed for original approval.
(2) Change in name. An approved course changed in name but not changed in ownership shall remain valid if the change is reported by the approved course operator to the DGAC. A letter of approval under the new name will be issued by the DGAC.
(3) Change in location. An approved course shall remain in effect even though the approved course operator changes location if the change is reported without delay by the operator to the DGAC which will inspect the facilities to be used. If they are found to be adequate, a letter of approval showing the new location will be issued by the DGAC.

63xB.k Cancellation of approval.
(1) Failure to meet or maintain any of the requirements set forth in this section for the approval or operation of an approved flight navigator course shall be considered sufficient reason for cancellation of the approval.
(2) If an operator should desire voluntary cancellation of his approved course, he should submit the effective letter of approval and a written request for cancellation to the Director.

63xB.l Duration.
The authority to operate an approved flight navigator course shall expire 24 calendar months after the last day of the month of issuance.

63xB.m Renewal.
Application for renewal of authority to operate an approved flight navigator course may be made by letter to the DGAC at any time within 60 days before to the expiration date. Renewal of approval will depend upon the course operator meeting the current conditions for approval and having a satisfactory record as an operator.

## APPENDIX C TO PART 63 FLIGHT ENGINEER TRAINING COURSE REQUIREMENTS

63xC.a Training course outline:

(1) Format. The ground course outline and the flight course outline are independent. Each must be contained in a looseleaf binder to include a table of contents. If an applicant desires approval of both a ground school course and a flight school course, they must be combined in one looseleaf binder that includes a separate table of contents for each course. Separate course outlines are required for each type of airplane.

(2) Ground course outline.

... (i) It is not mandatory that the subject headings be arranged exactly as listed in this paragraph. Any arrangement of subjects is satisfactory if all the subject material listed here is included and at least the minimum programmed hours are assigned to each subject. Each general subject must be broken down into detail showing the items to be covered.

... (ii) If any course operator desires to include additional subjects in the ground course curriculum, such as international law, flight hygiene, or others that are not required, the hours allotted these additional subjects may not be included in the minimum programmed classroom hours.

... (iii) The following subjects and classroom hours are the minimum programmed coverage for the initial approval of a ground training course for flight engineers. Subsequent to initial approval of a ground training course an applicant may apply to the Director for a reduction in the programmed hours. Approval of a reduction in the approved programmed hours is based on improved training effectiveness due to improvements in methods, training aids, quality of instruction, or any combination thereof.

| Subject | Classroom Hours |
|---|---|
| Civil Aviation Safety Regulations<br>... To include the regulations of the CASRs that apply to flight engineers | 10 |
| Theory of Flight and Aerodynamics | 10 |
| Airplane Familiarization<br>... To include as appropriate:<br>Specifications.<br>Construction features.<br>Flight controls.<br>Hydraulic systems.<br>Pneumatic systems.<br>Electrical systems.<br>Anti-icing and deicing systems.<br>Pressurization and air conditioning systems.<br>Vacuum systems.<br>Pilot static systems.<br>Instrument systems.<br>Fuel and oil systems.<br>Emergency equipment. | 90 |
| Engine Familiarization<br>... To include as appropriate:<br>Specifications. | 45 |

| Subject | Classroom Hours |
|---|---|
| Construction features.<br>Lubrication.<br>Ignition.<br>Carburetor and induction, supercharging and fuel control systems<br>Accessories.<br>Propellers.<br>Instrumentation.<br>Emergency equipment. | |
| Normal Operations (Ground and Flight)<br>...To include as appropriate:<br>Servicing methods and procedures.<br>Operation of all the airplane systems.<br>Operation of all the engine systems.<br>Loading and center of gravity computations.<br>Cruise control (normal, long range, maximum endurance)<br>Power and fuel computation.<br>Meteorology as applicable to engine operation | 50 |
| Emergency Operations<br>...To include as appropriate:<br>Landing gear, brakes, flaps, speed brakes, and leading edge devices<br>Pressurization and air conditioning.<br>Portable fire extinguishers.<br>Fuselage fire and smoke control.<br>Loss of electrical power.<br>Engine fire control.<br>Engine shutdown and restart.<br>Oxygen. | 80 |
| Total (exclusive of final tests) | 285 |

The above subjects, except Theory of Flight and Aerodynamics, and Regulations must apply to the same type of airplane in which the student flight engineer is to receive flight training.

(3) Flight Course Outline.

...(i) The flight training curriculum must include at least 10 hours of flight instruction in an airplane specified in Section 63.37(a). The flight time required for the practical test may not be credited as part of the required flight instruction.

...(ii) All of the flight training must be given in the same type airplane.

...(iii) As appropriate to the airplane type, the following subjects must be taught in the flight training course:

SUBJECT

NORMAL DUTIES, PROCEDURES AND OPERATIONS
To include as appropriate:
Airplane preflight.
Engine starting, power checks, pretakeoff, postlanding and shutdown procedures.
Power control.
Temperature control.
Engine operation analysis.
Operation of all systems.
Fuel management.
Logbook entries.
Pressurization and air conditioning.

RECOGNITION AND CORRECTION OF IN-FLIGHT MALFUNCTIONS
To include:
Analysis of abnormal engine operation.
Analysis of abnormal operation of all systems.
Corrective action.

EMERGENCY OPERATIONS IN FLIGHT
To include as appropriate:
Engine fire control.
Fuselage fire control.
Smoke control.
Loss of power or pressure in each system.
Engine overspeed.
Fuel dumping.
Landing gear, spoilers, speed brakes, and flap extension and retraction.
Engine shutdown and restart.
Use of oxygen.

...(iv) If the Director finds a simulator or flight engineer training device to accurately reproduce the design, function, and control characteristics, as pertaining to the duties and responsibilities of a flight engineer on the type of airplane to be flown, the flight training time may be reduced by a ratio of 1 hour of flight time to 2 hours of airplane simulator time, or 3 hours of flight engineer training device time, as the case may be, subject to the following limitations:

.... (a) Except as provided in Subdivision (b) of this paragraph, the required flight instruction time in an airplane may not be less than 5 hours.

.... (b) As to a flight engineer student holding at least a commercial pilot certificate with an instrument rating, airplane simulator or a combination of airplane simulator and flight engineer training device time may be submitted for up to all 10 hours of the required flight instruction time in an airplane. However, not more than 15 hours of flight engineer training device time may be substituted for flight instruction time.

...(v) To obtain credit for flight training time, airplane simulator time, or flight engineer training device time, the student must occupy the flight engineer station and operate the controls.

63xC.b Classroom equipment.

Classroom equipment should consist of systems and procedural training devices, satisfactory to the Director, that duplicate the operation of the systems of the airplane in which the student is to receive his flight training.

63xC.c Contracts or agreements.

(1) An approved flight engineer course operator may contract with other persons to obtain suitable airplanes, airplane simulators, or other training devices or equipment.

(2) An operator who is approved to conduct both the flight engineer ground course and the flight engineer flight course may contract with others to conduct one course or the other in its entirety but may not contract with others to conduct both courses for the same airplane type.

(3) An operator who has approval to conduct a flight engineer ground course or flight course for a type of airplane, but not both courses, may not contract with another person to conduct that course in whole or in part.

(4) An operator who contracts with another to conduct a flight engineer course may not authorize or permit the course to be conducted in whole or in part by a third person.

(5) In all cases, the course operator who is approved to operate the course is responsible for the nature and quality of the instruction given.

(6) A copy of each contract authorized under this paragraph must be attached to each of the 3 copies of the course outline submitted for approval.

63xC.d Instructors.

(1) Only certificated flight engineers may give the flight instruction required by this Appendix in an airplane, simulator, or flight engineer training device.

(2) There must be a sufficient number of qualified instructors available to prevent an excess ratio of students to instructors.

63xC.e Revisions.

(1) Requests for revisions of the course outlines, facilities or equipment must follow the procedures for original approval of the course. Revisions must be submitted in such form that an entire page or pages of the approved outline can be removed and replaced by the revisions.

(2) The list of instructors may be revised at any time without request for approval, if the requirements of Paragraph (d) of this Appendix are maintained.

63xC.f Ground school credits.

(1) Credit may be granted a student in the ground school course by the course operator for comparable previous training or experience that the student can show by written evidence: however, the course operator must still meet the quality of instruction as described in Paragraph (h) of this Appendix.

(2) Before credit for previous training or experience may be given, the student must pass a test given by the course operator on the subject for which the credit is to be given. The course operator shall incorporate results of the test, the basis for credit allowance, and the hours credited as part of the student's records.

63xC.g Records and reports.

(1) The course operator must maintain, for at least two years after a student graduates, fails, or drops from a course, a record of the student's training, including a chronological log of the subject course, attendance examinations, and grades.

(2) Except as provided in Paragraph (3) of this section, the course operator must submit to the Director, not later than [date to be determined] of each year, a report for the previous calendar year's training, to include:

... (i) Name, enrollment and graduation date of each student;
... (ii) Ground school hours and grades of each student;
... (iii) Flight, airplane simulator, flight engineer training device hours, and grades of each student; and
... (iv) Names of students failed or dropped, together with their school grades and reasons for dropping.
(3) Upon request, the Director may waive the reporting requirements of Paragraph (2) of this section for an approved flight engineer course that is part of an approved training course under Subpart N of Part 121 of the CASRs.

63xC.h Quality of instruction.
(1) Approval of a ground course is discontinued whenever less than 80 percent of the students pass the DGAC written test on the first attempt.
(2) Approval of a flight course is discontinued whenever less than 80 percent of the students pass the DGAC practical test on the first attempt.
(3) Notwithstanding Paragraphs (1) and (2) of this section, approval of a ground or flight course may be continued when the Director finds_
... (i) That the failure rate was based on less than a representative number of students; or
... (ii) That the course operator has taken satisfactory means to improve the effectiveness of the training.

63xC.i Time limitation.
Each student must apply for the written test and the flight test within 90 days after completing the ground school course.

63xC.j Statement of course completion.
(1) The course operator shall give to each student who successfully completes an approved flight engineer ground school training course, and passes the DGAC written test, a statement of successful completion of the course that indicates the date of training, the type of airplane on which the ground course training was based, and the number of hours received in the ground school course.
(2) The course operator shall give each student who successfully completes an approved flight engineer flight course, and passed the DGAC practical test, a statement of successful completion of the flight course that indicates the dates of the training, the type of airplane used in the flight course, and the number of hours received in the flight course.
(3) A course operator who is approved to conduct both the ground course and the flight course may include both courses in a single statement of course completion if the provisions of Paragraphs (1) and (2) of this section are included.
(4) The requirements of this paragraph do not apply to an air carrier or commercial operator with an approved training course under Part 121 of the CASRs providing the student receives a flight engineer certificate upon completion of that course.

63xC.k Inspections.
Each course operator shall allow the Director at any time or place, to make any inspection necessary to ensure that the quality and effectiveness of the instruction are maintained at the required standards.

63xC.l Change of ownership, name, or location.

(1) Approval of a flight engineer ground course or flight course is discontinued if the ownership of the course changes. The new owner must obtain a new approval by following the procedure prescribed for original approval.

(2) Approval of a flight engineer ground course or flight course does not terminate upon a change in the name of the course that is reported to the Director within 30 days. The Director issues a new letter of approval, using the new name, upon receipt of notice within that time.

(3) Approval of a flight engineer ground course or flight course does not terminate upon a change in location of the course that is reported to the Director within 30 days. The Director issues a new letter of approval, showing the new location, upon receipt of notice within that time, if he finds the new facilities to be adequate.

63xC.m Cancellation of approval.

(1) Failure to meet or maintain any of the requirements of this Appendix for the approval of a flight engineer ground course or flight course is reason for cancellation of the approval.

(2) If a course operator desires to voluntarily terminate the course, he should notify the Director in writing and return the last letter of approval.

63xC.n Duration.

Except for a course operated as part of an approved training course under Subpart N of Part 121 of the CASRs, the approval to operate a flight engineer ground course or flight course terminates 24 calendar months after the last day of the month of issue.

63xC.o Renewal.

(1) Renewal of approval to operate a flight engineer ground course or flight course is conditioned upon the course operator's meeting the requirements of this Appendix.

(2) Application for renewal may be made to the Director at any time after 60 days before the termination date.

63xC.p Course operator approvals.

An applicant for approval of a flight engineer ground course, or flight course, or both, must meet all of the requirements of this Appendix concerning application, approval, and continuing approval of that course or courses.

63xC.q Practical test eligibility.

An applicant for a flight engineer certificate and class rating under the provisions of Section 63.37(b)(6) is not eligible to take the practical test unless he has successfully completed an approved flight engineer ground school course in the same type of airplane for which he has completed an approved flight engineer flight course.

**MENTERI PERHUBUNGAN**
**ttd**

**Dr. HARYANTO DHANUTIRTO**

Salinan sesuai dengan aslinya
**Kepala Biro Hukum dan KSLN**

**ZULKARNAIN OEYOEB, SH**
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LAMPIRAN IV KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR : KM. 24 TAHUN 1997
TANGGAL : 22 Juli 1997

# GENERAL OPERATING AND FLIGHT RULES
# (PART 91)

LAMPIRAN IV KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR :
TANGGAL :

# GENERAL OPERATING AND FLIGHT RULES

# ( PART 91 )

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# PART 91__ GENERAL OPERATING AND FLIGHT RULES

## SUBPART A__ GENERAL

**91.1 Applicability.**

(a) Except as provided in Paragraph (b) of this section, this part prescribes rules governing the operation of aircraft within Indonesia, including the waters within 12 nautical miles of the Indonesian coast.

(b) This part does not apply to the following aircraft:
(1) Those aircraft operating in accordance with Section 91.703, and
(2) Moored balloons, kites, unmanned rockets, and unmanned free balloons, which are governed by Part 101 of the CASRs, and ultralight vehicles operated in accordance with Part 103 of the CASRs.

**91.3 Responsibility and authority of the pilot in command.**

(a) The pilot in command of an aircraft is directly responsible for, and is the final authority as to, the operation of that aircraft.

(b) In an in-flight emergency requiring immediate action, the pilot in command may deviate from any rule of this part to the extent required to meet that emergency.

(c) Each pilot in command who deviates from a rule under Paragraph (b) of this section shall, upon the request of the Director, send a written report of that deviation to the Director.

**91.5 Aircraft requiring more than one required pilot.**

(a) No person may operate an aircraft that is type certificated for more than one required pilot flight crewmember unless the pilot in command meets the requirements of Section 61.58 of the CASRs.

(b) No person may designate a pilot to serve as second in command, nor may any pilot serve as second in command, of an aircraft that is type certified for more than one required pilot flight crewmember
unless the second in command meets the requirements for second in command of Section 61.55 of the CASRs.

**91.7 Civil aircraft airworthiness.**

(a) No person may operate a civil aircraft unless it is in an airworthy condition.

(b) The pilot in command of a civil aircraft is responsible for determining whether that aircraft is in condition for safe flight. The pilot in command shall discontinue the flight when unairworthy mechanical, electrical, or structural conditions occur.

**91.9 Civil aircraft flight manual, marking, and placard requirements.**

(a) Except as provided in Paragraph (d) of this section, no person may operate a civil aircraft without complying with the operating limitations specified in the approved Airplane or Rotorcraft Flight Manual, markings, and placards, or as otherwise prescribed by the certificating authority of the aircraft's country of registry.

(b) No person may operate an Indonesian-registered civil aircraft_

(1) For which an Airplane or Rotorcraft Flight Manual is required by Part 21.5 of the CASRs unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual or the manual provided for in Section 121.141(b); and

(2) For which an Airplane or Rotorcraft Flight Manual is not required by Section 21.5 of the CASRs, unless there is available in the aircraft a current approved Airplane or Rotorcraft Flight Manual, approved manual material, markings, and placards, or any combination of those devices.

(c) No person may operate an Indonesian-registered civil aircraft unless that aircraft is identified and marked in accordance with applicable policies of the CASRs.

(d) Any person taking off or landing a helicopter at a heliport constructed over water may make such momentary flight as is necessary for takeoff or landing through the prohibited range of the limiting height/speed envelope established for the helicopter if that flight through the prohibited range takes place over water on which a safe ditching can be accomplished and if the helicopter is amphibious or is equipped with floats or other emergency flotation gear adequate to accomplish a safe emergency ditching on open water.

**91.11 Prohibition against interference with crewmembers.**

No person may assault, threaten, intimidate, or interfere with a crewmember in the performance of the crewmember's duties aboard an aircraft being operated.

**91.13 Careless or reckless operation.**

No person shall operate an aircraft for the purpose of air navigation or for operations on any part of an airport (including areas used by those aircraft for receiving or discharging persons or cargo), in a careless or reckless manner so as to endanger or be likely to endanger the life or property of any person.

**91.15 Dropping objects.**

No person shall create a hazard to persons or property on the surface by dropping an object from an aircraft in flight. However, this section does not prohibit the dropping of any object if reasonable precautions are taken to avoid injury or damage to persons or property.

**91.17 Alcohol or drugs.**

(a) No person may act or attempt to act as a crewmember of a civil aircraft_

(1) Within 8 hours after consuming alcohol;

(2) While under the influence of alcohol;
(3) While using any drug that affects the person's faculties in any way contrary to safety; or
(4) While having 0.04 percent by weight or more alcohol in the blood.

(b) Except in an emergency, no pilot of a civil aircraft may allow a person who appears to be intoxicated or who demonstrates by manner or physical indications that the individual is under the influence of drugs (except a medical patient under proper care) to be carried in that aircraft.

(c) A crewmember shall do the following:
(1) On request of a law enforcement officer, submit to a test to indicate the percentage by weight of alcohol in the blood, when_
(i) The law enforcement officer is authorized by law to conduct the test or to have the test conducted; and
(ii) The law enforcement officer is requesting submission to the test to investigate a suspected violation of a law governing the same or substantially similar conduct prohibited by Paragraph (a)(1), (a)(2), or (a)(4) of this section.

(2) Whenever the Director has a reasonable basis to believe that a person may have violated Paragraph (a)(1), (a)(2), or (a)(4) of this section, that person shall, upon request by the Director, furnish the Director, or authorize any clinic, hospital, doctor, or other person to release to the Director, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates percentage by weight of alcohol in the blood.

(d) Whenever the Director has a reasonable basis to believe that a person may have violated Paragraph (a)(3) of this section, that person shall, upon request by the Director, furnish the Director, or authorize any clinic, hospital, doctor, or other person to release to the Director, the results of each test taken within 4 hours after acting or attempting to act as a crewmember that indicates the presence of any drugs in the body.

(e) Any test information obtained by the Director under Paragraph (c) or (d) of this section may be evaluated in determining a person's qualifications for any airman certificate or possible violations of the CASRs and may be used as evidence in any legal proceeding.

**91.19 Carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances.**

(a) Except as provided in Paragraph (b) of this section, no person may operate a civil aircraft within Indonesia with knowledge that narcotic drugs, marihuana, and depressant or stimulant drugs or substances as defined by law are carried in the aircraft.

(b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marihuana, and depressant or stimulant drugs or substances authorized by law or a national agency.

**91.21 Portable electronic devices.**

(a) Except as provided in Paragraph (b) of this section, no person may operate, nor may any operator or pilot in command of an aircraft allow the operation of, any portable electronic device on any of the following Indonesian-registered civil aircraft:
(1) Aircraft operated by a holder of an Air Carrier Operator Certificate or
(2) Any other aircraft while it is operated under IFR.

(b) Paragraph (a) of this section does not apply to_
(1) Portable voice recorders;
(2) Hearing aids;
(3) Heart pacemakers;
(4) Electric shavers; or
(5) Any other portable electronic device that the operator of the aircraft has determined will not cause interference with the navigation or communication system of the aircraft on which it is to be used.

(c) In the case of an aircraft operated by a holder of an Air Carrier Operator Certificate the determination required by Paragraph (b)(5) of this section shall be made by that operator of the aircraft on which the particular device is to be used. In the case of other aircraft, the determination may be made by the pilot in command or other operator of the aircraft.

**91.23 Truth-in-leasing clause requirement in leases and conditional sales contracts.**

(a) Except as provided in Paragraph (b) of this section, the parties to a lease or contract of conditional sale involving an Indonesian-registered large civil aircraft shall execute a written lease or contract and include in that document a written truth-in-leasing clause as a concluding paragraph in large print, immediately preceding the space for the signature of the parties, which contains the following information concerning each such aircraft:

(1) Identification of the Civil Aviation Safety Regulations under which the aircraft has been maintained and inspected during the 12 months preceding the execution of the lease or contract of conditional sale, and certification by the parties to the lease or conditional sale regarding the aircraft's status of compliance with applicable maintenance and inspection requirements in this part for the operation to be conducted under the lease or contract of conditional sale.

(2) The name and address (printed or typed) and the signature of the person responsible for operational control of the aircraft under the lease or contract of conditional sale, and certification that each person understands that person's responsibilities for compliance with applicable Civil Aviation Safety Regulations.

(3) A statement that an explanation of factors bearing on operational control and pertinent Civil Aviation Safety Regulations can be obtained from DGAC.

(b) The requirements of Paragraph (a) of this section do not apply_
(1) To a lease or contract of conditional sale when_
(i) The party to whom the aircraft is furnished is a foreign air carrier or certificate holder under Parts 121, 125, 135, or 141 of the CASRs, or

(ii) The party furnishing the aircraft is a foreign air carrier, certificate holder under Part 121, 125, or 141 of the CASRs, or a certificate holder under Part 135 of the CASRs having appropriate authority to engage in operations as a commercial operator with large aircraft.

(2) To a contract of conditional sale, when the aircraft involved has not been registered anywhere prior to the execution of the contract, except as a new aircraft under a dealer's aircraft registration certificate issued in accordance with the CASRs.

(c) No person may operate a large civil aircraft of Indonesian registry that is subject to a lease or contract of conditional sale to which Paragraph (a) of this section applies, unless_

(1) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of Indonesia, has mailed a copy of the lease or contract that complies with the requirements of Paragraph (a) of this section, within 24 hours of its execution, to the Director;

(2) A copy of the lease or contract that complies with the requirements of Paragraph (a) of this section is carried in the aircraft. The copy of the lease or contract shall be made available for review upon request by the Director, and

(3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of Indonesia, has notified by telephone or in person the DGAC. Unless otherwise authorized by DGAC, the notification shall be given at least 48 hours before takeoff in the case of the first flight of that aircraft under that lease or contract and inform the DGAC of_

(i) The location of the airport of departure;
(ii) The departure time; and
(iii) The registration mark of the aircraft involved.

(d) The copy of the lease or contract furnished to the DGAC under Paragraph (c) of this section is considered commercial or financial information obtained from a person. It is, therefore, privileged and confidential and will not be made available by the DGAC for public inspection or copying unless it is recorded with the DGAC Aircraft Registry.

(e) For the purpose of this section, a lease means any agreement by a person to furnish an aircraft to another person for compensation or hire, whether with or without flight crewmembers, other than an agreement for the sale of an aircraft and a contract of conditional sale. The person furnishing the aircraft is referred to as the lessor, and the person to whom it is furnished the lessee.

**91.25 through 91.99 [Reserved]**

*GENERAL*

**91.101 Applicability.**
This subpart prescribes flight rules governing the operation of aircraft within Indonesia and within 12 nautical miles from the coast of Indonesia.

**91.103 Preflight action.**
Each pilot in command shall, before beginning a flight, become familiar with all available information concerning that flight. This information must include_

(a) For a flight under IFR or a flight not in the vicinity of an airport, weather reports and forecasts, fuel requirements, alternatives available if the planned flight cannot be completed, and any known traffic delays of which the pilot in command has been advised by ATC;

(b) For any flight, runway lengths at airports of intended use, and the following takeoff and landing distance information:
(1) For civil aircraft for which an approved Airplane or Rotorcraft Flight Manual containing takeoff and landing distance data is required, the takeoff and landing distance data contained therein; and
(2) For civil aircraft other than those specified in Paragraph (b)(1) of this section, other reliable information appropriate to the aircraft, relating to aircraft performance under expected values of airport elevation and runway slope, aircraft gross weight, and wind and temperature.

**91.105 Flight crewmembers at stations.**
(a) During takeoff and landing, and while enroute, each required flight crewmember shall_
(1) Be at the crewmember station unless the absence is necessary to perform duties in connection with the operation of the aircraft or in connection with physiological needs; and
(2) Keep the safety belt fastened while at the crewmember station.

(b) Each required flight crewmember of an Indonesian-registered civil aircraft shall, during takeoff and landing, keep his or her shoulder harness fastened while at his or her assigned duty station. This paragraph does not apply if_
(1) The seat at the crewmember's station is not equipped with a shoulder harness; or
(2) The crewmember would be unable to perform required duties with the shoulder harness fastened.

**91.107 Seats, safety belts, shoulder harnesses, and child restraint systems.**

(a) Unless otherwise authorized by the Director the following rules apply to all Indonesian-registered civil aircraft except a free balloon that incorporates a basket or gondola, or an airship.

(1) No pilot may takeoff an aircraft unless the pilot in command of that aircraft ensures that each person on board is briefed on how to fasten and unfasten that person's safety belt and, if installed, that person's shoulder harness.

(2) No pilot may cause to be moved on the surface, takeoff, or land an aircraft unless the pilot in command of that aircraft ensures that each person on board has been notified to fasten his or her safety belt and, if installed, his or her shoulder harness.

(3) Except as provided in this paragraph, each person on board an aircraft must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him for her during movement on the surface, for takeoff, and for landing. For seaplane and float-equipped rotorcraft operations during movement on the surface, the person pushing-off the seaplane or rotorcraft from the dock and the person mooring the seaplane or rotorcraft at the dock are excepted from the preceding seating and safety belt requirements. Notwithstanding the preceding requirements of this paragraph, a person may:

(i) Use the floor of the aircraft as a seat, provided that the person is on board for the purpose of engaging in sport parachuting; or

(ii) Be held by an adult who is occupying an approved seat or berth if the person held is not yet two years old; and

(iii) Notwithstanding any other requirement of the CASRs, occupy a child-restraint system furnished by the operator or one of the persons described in Paragraph (a)(3)(iii)(A) of this section provided that:

(A) The child is accompanied by a parent, guardian, or attendant designated by the child's parent or guardian to care for the safety of the child during the flight; and

(B) The operator complies with the following requirements:

(1) The restraint system must be properly secured to an approved forward-facing seat or berth; and

(2) The child must be properly secured in the restraint system and must not exceed the specified weight limit for the restraint system.

(b) Unless otherwise stated, this section does not apply to operations conducted under Part 121, 125, or 135 of the CASRs. Paragraph (a)(3) of this section does not apply to persons subject to Section 91.105.

**91.109 Flight instruction; Simulated instrument flight and certain flight tests.**

(a) No person may operate a civil aircraft (except a manned free balloon) that is being used for flight instruction unless that aircraft has fully functioning dual controls. However, instrument flight instruction may be given in a single engine airplane equipped with a single, functioning throwover control wheel in place of fixed, dual controls of the elevator and ailerons when

(1) The instructor has determined that the flight can be conducted safely; and

(2) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(b) No person may operate a civil aircraft in simulated instrument flight unless_
(1) The other pilot's seat is occupied by a safety pilot who possesses at least a private pilot certificate with category and class ratings appropriate to the aircraft being flown.
(2) The safety pilot has adequate vision forward and to each side of the aircraft, or a competent observer in the aircraft adequately supplements the vision of the safety pilot; and
(3) Except in the case of lighter-than-air aircraft, that aircraft is equipped with fully functioning dual controls. However, simulated instrument flight may be conducted in a single engine airplane, equipped with a single, functioning, throwover control wheel, in place of fixed, dual controls of the elevator and ailerons, when_
(i) The safety pilot has determined that the flight can be conducted safely; and
(ii) The person manipulating the controls has at least a private pilot certificate with appropriate category and class ratings.

(c) No person may operate a civil aircraft that is being used for a flight test for an airline transport pilot certificate or a class or type rating on that certificate, or for a Part 121 proficiency flight test, unless the pilot seated at the controls, other than the pilot being checked, is fully qualified to act as pilot in command of the aircraft.

**91.111 Operating near other aircraft.**
(a) No person may operate an aircraft so close to another aircraft as to create a collision hazard.

(b) No person may operate an aircraft in formation flight except by arrangement with the pilot in command of each aircraft in the formation.

(c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

**91.113 Right of way rules: Except water operations.**
(a) Inapplicability. This section does not apply to the operation of an aircraft on water.

(b) General. When weather conditions permit, regardless of whether an operation is conducted under instrument flight rules or visual flight rules, vigilance shall be maintained by each person operating an aircraft so as to see and avoid other aircraft. When a rule of this section gives another aircraft the right of way, the pilot shall give way to that aircraft and may not pass over, under, or ahead of it unless well clear.

(c) In distress. An aircraft in distress has the right of way over all other air traffic.

(d) Converging. When aircraft of the same category are converging at approximately the same altitude (except head-on, or nearly so), the aircraft to the other's right has the right of way. If the aircraft are of different categories_
(1) A balloon has the right of way over any other category of aircraft;
(2) A glider has the right of way over an airship, airplane, or rotorcraft; and
(3) An airship has the right of way over an airplane or rotorcraft.

However, an aircraft towing or refueling other aircraft has the right of way over all other engine driven aircraft.

(e) Approaching head-on. When aircraft are approaching each other head-on, or nearly so, each pilot of each aircraft shall alter course to the right.

(f) Overtaking. Each aircraft that is being overtaken has the right of way and each pilot of an overtaking aircraft shall alter course to the right to pass well clear.

(g) Landing. Aircraft, while on final approach to land or while landing, have the right of way over other aircraft in flight or operating on the surface, except that they shall not take advantage of this rule to force an aircraft off the runway surface which has already landed and is attempting to make way for an aircraft on final approach. When two or more aircraft are approaching an airport for the purpose of landing, the aircraft at the lower altitude has the right of way, but it shall not take advantage of this rule to cut in front of another which is on final approach to land or to overtake that aircraft.

**91.115 Right of way rules: Water operations.**

(a) General. Each person operating an aircraft on the water shall, insofar as possible, keep clear of all vessels and avoid impeding their navigation, and shall give way to any vessel or other aircraft that is given the right of way by any rule of this section.

(b) Crossing. When aircraft, or an aircraft and a vessel, are on crossing courses, the aircraft or vessel to the other's right has the right of way.

(c) Approaching head-on. When aircraft, or an aircraft and a vessel, are approaching head-on, or nearly so, each shall alter its course to the right to keep well clear.

(d) Overtaking. Each aircraft or vessel that is being overtaken has the right of way, and the one overtaking shall alter course to keep well clear.

(e) Special circumstances. When aircraft, or an aircraft and a vessel, approach so as to involve risk of collision, each aircraft or vessel shall proceed with careful regard to existing circumstances, including the limitations of the respective craft.

**91.117 Aircraft speed.**

(a) Unless otherwise authorized by the Director or by ATC, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (290 mph/460 kph).

(b) Unless otherwise authorized or required by ATC, no person may operate an aircraft at or below 2,500 feet above the surface within 4 nautical miles of the primary airport of a Class C or Class D airport at an indicated airspeed of more than 200 knots (230 mph/370 kph).

(c) No person may operate an aircraft in the airspace underlying a Class B airspace area designated for an airport or in a VFR corridor designated through such a Class B airspace area, at an indicated airspeed of more than 200 knots (230 mph/370kph).

(d) If the minimum safe airspeed for any particular operation is greater than the maximum speed prescribed in this section, the aircraft may be operated at that minimum speed.

**91.119 Minimum safe altitudes: General.**

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

(a) Anywhere. An altitude allowing, if a power unit fails, an emergency landing without undue hazard to persons or property on the surface.

(b) Over congested areas. Over any congested area of a city, town, or settlement, or over any open air assembly of persons, an altitude of 1,000 feet above the highest obstacle within a horizontal radius of 2,000 feet of the aircraft.

(c) Over other than congested areas. An altitude of 500 feet above the surface, except over open water or sparsely populated areas. In those cases, the aircraft may not be operated closer than 500 feet to any person, vessel, vehicle, or structure.

(d) Helicopters. Helicopters may be operated at less than the minimums prescribed in Paragraph (b) or (c) of this section if the operation is conducted without hazard to persons or property on the surface. In addition, each person operating a helicopter shall comply with any routes or altitudes specifically prescribed for helicopters by the Director.

**91.121 Altimeter settings.**

(a) Each person operating an aircraft shall maintain the cruising altitude or flight level of that aircraft, as the case may be, by reference to an altimeter that is set, when operating_

(1) Below 18,000 feet MSL, to_

(i) The current reported altimeter setting of a station along the route and within 100 nautical miles of the aircraft;

(ii) If there is no station within the area prescribed in Paragraph (a)(1)(i) of this section, the current reported altimeter setting of an appropriate available station; or

(iii) In the case of an aircraft not equipped with a radio, the elevation of the departure airport or an appropriate altimeter setting available before departure; or

(2) At or above 18,000 feet MSL, to 29.92" Hg or 1013.2 mb.

(b) The lowest usable flight level is determined by the atmospheric pressure in the area of operation as shown in the following table:

| Current altimeter setting | Lowest usable flight level |
|---|---|
| 29.92 (or higher) | 180 |
| 29.91 through 29.42 | 185 |
| 29.41 through 28.92 | 190 |
| 28.91 through 28.42 | 195 |
| 28.41 through 27.92 | 200 |
| 27.91 through 27.42 | 205 |
| 27.41 through 26.92 | 210 |

(c) To convert minimum altitude prescribed under Sections 91.119 and 91.177 to the minimum flight level, the pilot shall take the flight level equivalent of the minimum altitude in feet and add the appropriate number of feet specified below, according to the current reported altimeter setting:

| Current altimeter setting | Adjustment factor |
|---|---|
| 29.92 (or higher) | None |
| 29.91 through 29.42 | 500 |
| 29.41 through 28.92 | 1,000 |
| 28.91 through 28.42 | 1,500 |
| 28.41 through 27.92 | 2,000 |
| 27.91 through 27.42 | 2,500 |
| 27.41 through 26.92 | 3,000 |

**91.123 Compliance with ATC clearances and instructions.**

(a) When an ATC clearance has been obtained, a pilot in command may not deviate from that clearance, except in an emergency, unless that pilot obtains an amended clearance. However, except in Class A airspace, this paragraph does not prohibit that pilot from canceling an IFR flight plan if the operation is being conducted in VFR weather conditions. When a pilot is uncertain of an ATC clearance, that pilot must immediately request clarification from ATC.

(b) Except in an emergency, no person may operate an aircraft contrary to an ATC instruction in an area in which air traffic control is exercised.

(c) Each pilot in command who, in an emergency, deviates from an ATC clearance or instruction shall notify ATC of that deviation as soon as possible.

(d) Each pilot in command who (though not deviating from a rule of this subpart) is given priority by ATC in an emergency, shall submit a detailed report of that emergency within 48 hours to the manager of that ATC facility, if requested by ATC.

(e) Unless otherwise authorized by ATC, no person operating an aircraft may operate that aircraft according to any clearance or instruction that has been issued to the pilot of another aircraft for radar air traffic control purposes.

**91.125 ATC light signals.**

ATC light signals have the meaning shown in the following table:

| Color and Type of Signal | Meaning of Signal(s) |
|---|---|
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Steady green<br>___ Cleared for takeoff<br>___ Cleared to land |
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Flashing green<br>___ Cleared to taxi<br>___ Return for landing<br>(to be followed by steady green at proper time). |
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Steady red<br>___ Stop<br>___ Give way to other aircraft and continue circling. |
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Flashing red<br>___ Taxi clear of runway in use<br>___ Airport unsafe - do not land |
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Flashing white<br>___ Return to starting point on airport<br>___ Not applicable |
| ■ Color and type of signal:<br>___ Meaning to aircraft on the surface<br>___ Meaning to aircraft in flight | ■ Alternating red and green<br>___ Exercise extreme caution<br>___ Exercise extreme caution |

**91.126 Operating on or in the vicinity of an airport in Class G airspace.**

(a) General. Unless otherwise authorized or required, each person operating an aircraft on or in the vicinity of an airport in a Class G airspace area must comply with the requirements of this section.

(b) Direction of turns. When approaching to land at an airport without an operating control tower in a Class G airspace area_!

(1) Each pilot of an airplane must make all turns of that airplane to the left unless the airport displays approved light signals or visual markings indicating that turns should be made to the right, in which case the pilot must make all turns to the right; and
(2) Each pilot of a helicopter must avoid the flow of fixed wing aircraft.

(c) Reserve.

(d) Communications with control towers. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Section 91.185.

**91.127 Operating on or in the vicinity of an airport in Class E airspace.**

(a) Unless otherwise required by the CASRs or unless otherwise authorized or required by the ATC facility having jurisdiction over the Class E airspace area, each person operating an aircraft on or in the vicinity of an airport in a Class E airspace area must comply with the requirements of Section 91.126.

(b) Departures. Each pilot of an aircraft must comply with any special traffic patterns established for that airport.

(c) Communications with control towers. Unless otherwise authorized or required by ATC, no person may operate an aircraft to, from, through, or on an airport having an operational control tower unless two-way radio communications are maintained between that aircraft and the control tower. Communications must be established prior to 4 nautical miles from the airport, up to and including 2,500 feet AGL. However, if the aircraft radio fails in flight, the pilot in command may operate that aircraft and land if weather conditions are at or above basic VFR weather minimums, visual contact with the tower is maintained, and a clearance to land is received. If the aircraft radio fails while in flight under IFR, the pilot must comply with Section 91.185.

**91.129 Operations in Class D airspace.**

(a) General. Unless otherwise authorized or required by the ATC facility having jurisdiction over the Class D airspace area, each person operating an aircraft in Class D airspace must comply with the applicable provisions of this section. In addition, each person must comply with Sections 91.126 and 91.127. For the purpose of this section, the primary airport is the airport for which the Class D airspace area is designated. A satellite airport is any other airport within the Class D airspace area.

(b) Deviations. An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

(c) Communications. Each person operating an aircraft in Class D airspace must meet the following two-way radio communications requirements:
(1) Arrival or through flight. Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in Indonesia) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.
(2) Departing flight. Each person_
(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class D airspace area; or
(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class D airspace area as soon as practicable after departing.

(d) Communications failure. Each person who operates an aircraft in a Class D airspace area must maintain two-way radio communications with the ATC facility having jurisdiction over that area.
(1) If the aircraft radio fails in flight under IFR, the pilot must comply with 91.185 of the part.
(2) If the aircraft radio fails in flight under VFR, the pilot in command may operate that aircraft and land if_
(i) Weather conditions are at or above basic VFR weather minimums;
(ii) Visual contact with the tower is maintained; and
(iii) A clearance to land is received.

(e) Minimum Altitudes. When operating to an airport in Class D airspace, each pilot of_
(1) A large or turbine-powered airplane shall, unless otherwise required by the applicable distance from cloud criteria, enter the traffic pattern at an altitude of at least 1,500 feet above the elevation of the airport and maintain at least 1,500 feet until further descent is required for a safe landing;
(2) A large or turbine-powered airplane approaching to land on a runway served by an instrument landing system (ILS), if the airplane is ILS equipped, shall fly that airplane at an altitude at or above the glide slope between the outer marker (or point of interception of glide slope, if compliance with the applicable distance from clouds criteria requires interception closer in) and the middle marker; and
(3) An airplane approaching to land on a runway served by a visual approach slope indicator shall maintain an altitude at or above the glide slope until a lower altitude is necessary for a safe landing.

Paragraphs (e)(2) and (e)(3) of this section do not prohibit normal bracketing maneuvers above or below the glide slope that are conducted for the purpose of remaining on the glide slope.

(f) Approaches. Except when conducting a circling approach authorized by a DGAC-approved standard instrument approach procedure or unless otherwise required by ATC, each pilot must_
(1) Circle the airport to the left, if operating an airplane; or
(2) Avoid the flow of fixed wing aircraft, if operating a helicopter.

(g) Departures. No person may operate an aircraft departing from an airport except in compliance with the following:
(1) Each pilot must comply with any departure procedures established for that airport by the DGAC.
(2) Unless otherwise required by the prescribed departure procedure for that airport or the applicable distance from clouds criteria, each pilot of a turbine-powered airplane and each pilot of a large airplane must climb to an altitude of 1,500 feet above the surface as rapidly as practicable.

(h) Reserve.

(i) Takeoff, landing, taxi clearance. No person may, at any airport with an operating control tower, operate an aircraft on a runway or taxiway, or take off or land an aircraft, unless an appropriate clearance is received from ATC. A clearance to "taxi to" the takeoff runway assigned to the aircraft is not a clearance to cross that assigned takeoff runway, or to taxi on that runway at any point but is a clearance to cross other runways that intersect the taxi route to that assigned takeoff runway. A clearance to "taxi to" any point other than an assigned takeoff runway is clearance to cross all runways that intersect the taxi route to that point.

**91.130 Operations in Class C airspace.**

(a) General. Unless otherwise authorized by ATC, each aircraft operation in Class C airspace must be conducted in compliance with this section and Section 91.129. For the purpose of this section, the primary airport is the airport for which the Class C airspace area is designated. A satellite airport is any other airport within the Class C airspace area.

(b) Traffic patterns. No person may take off or land an aircraft at a satellite airport within a Class C airspace area except in compliance with DGAC arrival and departure traffic patterns.

(c) Communications. Each person operating an aircraft in Class C airspace must meet the following two-way radio communications requirements:
(1) Arrival or through flight. Each person must establish two-way radio communications with the ATC facility (including foreign ATC in the case of foreign airspace designated in Indonesia) providing air traffic services prior to entering that airspace and thereafter maintain those communications while within that airspace.
(2) Departing flight. Each person_
(i) From the primary airport or satellite airport with an operating control tower must establish and maintain two-way radio communications with the control tower, and thereafter as instructed by ATC while operating in the Class C airspace area; or

(ii) From a satellite airport without an operating control tower, must establish and maintain two-way radio communications with the ATC facility having jurisdiction over the Class C airspace area as soon as practicable after departing.

(d) Equipment requirements. Unless otherwise authorized by the ATC having jurisdiction over the Class C airspace area, no person may operate an aircraft within a Class C airspace area designated for an airport unless that aircraft is equipped with the applicable equipment specified in Section 91.215.

(e) Deviations. An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. ATC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.

**91.131 Operations in Class B airspace.**

(a) Operating rules. No person may operate an aircraft within a Class B airspace area except in compliance with Section 91.129 and the following rules:

(1) The operator must receive an ATC clearance from the ATC facility having jurisdiction for that area before operating an aircraft in that area.

(2) Unless otherwise authorized by ATC, each person operating a large turbine engine-powered airplane to or from a primary airport for which a Class B airspace area is designated must operate at or above the designated floors of the Class B airspace area while within the lateral limits of that area.

(3) Any person conducting pilot training operations at an airport within a Class B airspace area must comply with any procedures established by ATC for such operations in that area.

(b) Pilot requirements.

(1) No person may take off or land a civil aircraft at an airport within a Class B airspace area or operate a civil aircraft within a Class B airspace area unless_

(i) The pilot in command holds at least a private pilot certificate; or

(ii) The aircraft is operated by a student pilot or sport pilot who seeks private pilot certification and has met the requirements of Section 61.95 of the CASRs.

(c) Communications and navigation equipment requirements. Unless otherwise authorized by ATC, no person may operate an aircraft within a Class B airspace area unless that aircraft is equipped with_

(1) For IFR operation. An operable VOR or TACAN receiver; and

(2) For all operations. An operable two-way radio capable of communications with ATC on appropriate frequencies for that Class B airspace area.

(d) Transponder requirements. No person may operate an aircraft in a Class B airspace area unless the aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment specified in Paragraph (a) of Section 91.215, except as provided in Paragraph (d) of that section.

**91.133 Restricted and prohibited areas.**

(a) No person may operate an aircraft within a restricted area contrary to the restrictions imposed, or within a prohibited area, unless that person has the permission of the using or controlling agency, as appropriate.

(b) Each person conducting, within a restricted area, an aircraft operation (approved by the using agency) that creates the same hazards as the operations for which the restricted area was designated may deviate from the rules of this subpart that are not compatible with the operation of the aircraft.

**91.135 Operations in Class A airspace.**

Except as provided in Paragraph (d) of this section, each person operating an aircraft in Class A airspace must conduct that operation under instrument flight rules (IFR) and in compliance with the following:

(a) Clearance. Operations may be conducted only under an ATC clearance received prior to entering the airspace.

(b) Communications. Unless otherwise authorized by ATC, each aircraft operating in Class A airspace must be equipped with a two-way radio capable of communicating with ATC on a frequency assigned by ATC. Each pilot must maintain two-way radio communications with ATC while operating in Class A airspace.

(c) Transponder requirement. Unless otherwise authorized by ATC, no person may operate an aircraft within Class A airspace unless that aircraft is equipped with the applicable equipment specified in Section 91.215.

(d) ATC authorizations. An operator may deviate from any provision of this section under the provisions of an ATC authorization issued by the ATC facility having jurisdiction of the airspace concerned. In the case of an inoperative transponder, ATC may immediately approve an operation within a Class A airspace area allowing flight to continue, if desired, to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made, or both. Requests for deviation from any provision of this section must be submitted in writing, at least 4 days before the proposed operation. ATC may authorize a deviation on a continuing basis or for an individual flight.

**91.137 Temporary flight restrictions.**

(a) The Director will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply and specifying the hazard or condition requiring their imposition, whenever he determines it is necessary in order to_

(1) Protect persons and property on the surface or in the air from a hazard associated with an incident on the surface;

(2) Provide a safe environment for the operation of disaster relief aircraft; or

(3) Prevent an unsafe congestion of sightseeing and other aircraft above an incident or event which may generate a high degree of public interest.

The Notice to Airmen will specify the hazard or condition that requires the imposition of temporary flight restrictions.

(b) When a NOTAM has been issued under Paragraph (a)(1) of this section, no person may operate an aircraft within the designated area unless that aircraft is participating in the hazard relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.

(c) When a NOTAM has been issued under Paragraph (a)(2) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions are met:
(1) The aircraft is participating in disaster relief activities and is being operated under the direction of the official in charge of on scene emergency response activities.
(2) The aircraft is carrying law enforcement officials.
(3) The aircraft is operating under the ATC approved IFR flight plan.
(4) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather, or terrain; notification is given to the ATC facility specified in the NOTAM to receive advisories concerning disaster relief aircraft operations; and the operation does not hamper or endanger relief activities and is not conducted for the purpose of observing the disaster.
(5) The aircraft is carrying properly accredited news representatives, and, prior to entering the area, a flight plan is filed with the appropriate DGAC or ATC facility specified in the Notice to Airmen and the operation is conducted above the altitude used by the disaster relief aircraft, unless otherwise authorized by the official in charge of on scene emergency response activities.

(d) When a NOTAM has been issued under Paragraph (a)(3) of this section, no person may operate an aircraft within the designated area unless at least one of the following conditions is met:
(1) The operation is conducted directly to or from an airport within the area, or is necessitated by the impracticability of VFR flight above or around the area due to weather or terrain, and the operation is not conducted for the purpose of observing the incident or event.
(2) The aircraft is operating under an ATC approved IFR flight plan.
(3) The aircraft is carrying incident or event personnel, or law enforcement officials.
(4) The aircraft is carrying properly accredited news representatives and, prior to entering that area, a flight plan is filed with the appropriate ATC facility specified in the NOTAM.

(e) Flight plans filed and notifications made with an ATC facility under this section shall include the following information:
(1) Aircraft identification, type and color.
(2) Radio communications frequencies to be used.
(3) Proposed times of entry of, and exit from, the designated area.
(4) Name of news media or organization and purpose of flight.
(5) Any other information requested by ATC.

**91.139 Emergency air traffic rules.**

(a) This section prescribes a process for utilizing Notices to Airmen (NOTAMs) to advise of the issuance and operations under emergency air traffic rules and regulations and designates the official who is authorized to issue NOTAMs on behalf of the Director in certain matters under this section.

(b) Whenever the Director determines that an emergency condition exists, or will exist, relating to the DGAC's ability to operate the air traffic control system and during which normal flight operations under the CASRs cannot be conducted consistent with the required levels of safety and efficiency_

(1) The Director issues an immediately effective air traffic rule or regulation in response to that emergency condition; and

(2) The Director may utilize the NOTAM system to provide notification of the issuance of the rule or regulation.

Those NOTAMs communicate information concerning the rules and regulations that govern flight operations, the use of navigation facilities, and designation of that airspace in which the rules and regulations apply.

(c) When a NOTAM has been issued under this section, no person may operate an aircraft, or other device governed by the regulation concerned, within the designated airspace except in accordance with the authorizations, terms, and conditions prescribed in the regulation covered by the NOTAM.

**91.141 Flight restrictions in the proximity of the Presidential and other parties.**

No person may operate an aircraft over or in the vicinity of any area to be visited or traveled by the President, the Vice President, state guests, or other public figures contrary to the restrictions established by the Director and published in a Notice to Airmen (NOTAM).

**91.143 RESERVE**

**91.144 Temporary restriction on flight operations during abnormally high barometric pressure conditions.**

(a) Special flight restrictions. When any information indicates that barometric pressure on the route of flight currently exceeds or will exceed 31 inches of mercury, no person may operate an aircraft or initiate a flight contrary to the requirements established by the Director and published in a Notice to Airmen issued under this section.

(b) Deviations. The Director may authorize deviations from restrictions issued under Paragraph (a) of this section to permit emergency supply, transport, or medical services to be delivered to isolated communities, where the operation can be conducted with an acceptable level of safety.

**91.145 through 91.149 [Reserved]**

*VISUAL FLIGHT RULES*

**91.151 Fuel requirements for flight in day VFR conditions.**

(a) No person may begin a flight in an airplane under day VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed_ to fly after that for at least 30 minutes.

(b) No person may begin a flight in a rotorcraft under VFR conditions unless (considering wind and forecast weather conditions) there is enough fuel to fly to the first point of intended landing and, assuming normal cruising speed, to fly after that for at least 20 minutes.

**91.152 Night VFR**

**Night VFR is prohibited unless authorized by the Director**

**91.153 VFR flight plan: Information required.**

(a) Information required. Unless otherwise authorized by ATC, each person filing a VFR flight plan shall include in it the following information:
(1) The aircraft identification mark and, if necessary, its radio call sign.
(2) The type of the aircraft or, in the case of a formation flight, the type of each aircraft and the number of aircraft in the formation.
(3) The full name and address of the pilot in command or, in the case of a formation flight, the formation commander.
(4) The point and proposed time of departure.
(5) The proposed route, cruising altitude (or flight level), and true airspeed at that altitude.
(6) The point of first intended landing and the estimated elapsed time until over that point.
(7) The amount of fuel on board (in hours).
(8) The number of persons in the aircraft, except where that information is otherwise readily available to the DGAC.
(9) Any other information the pilot in command or ATC believes is necessary for ATC purposes.

(b) Cancellation. When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify the appropriate ATC facility.

**91.155 Basic VFR weather minimums.**

(a) Except as provided in Paragraph (b) of this section and Section 91.157, no person may operate an aircraft under VFR when the flight visibility is less, or at a distance from clouds that is less, than that prescribed for the corresponding altitude and class of airspace in the following table:

| Airspace | Flight Visability | Distance from Clouds |
|---|---|---|
| Class A | Not Applicable | Not Applicable |
| Class B | 3 statute miles (4.8 km) | Clear of clouds |
| Class C | 3 statute miles (4.8 km) | 500 feet below.<br>1,000 feet above.<br>2,000 feet horizontal. |
| Class D | 3 statute miles (4.8 km) | 500 feet below.<br>1,000 feet above.<br>2,000 feet horizontal. |
| Class E | | |
| Less than 10,000 feet MSL. | 3 statute miles (4.8 km) | 500 feet below.<br>1,000 feet above.<br>2,000 feet horizontal |
| Greater than or equal to 10,000 feet MSL. | 5 statute miles (8 km) | 1,000 feet below.<br>1,000 feet above.<br>1 statute mile (1.6 km) horizontal. |
| Class G | | |
| Less than or equal to 1,200 feet AGL (regardless of MSL altitude): | | |
| Except as provided in Section91.155(b). | 1 statute mile (1.6 km) | Clear of clouds. |
| Greater than 1,200 feet AGL but less than 10,000 feet MSL: | | |
| | 1 statute mile (1.6 km) | 500 feet below.<br>1,000 feet above.<br>2,000 feet horizontal. |
| Greater than 1,200 feet AGL and greater than or equal to 10,000 feet MSL: | | |
| | 5 statute miles (8 km) | 1,000 feet below.<br>1,000 feet above.<br>1 statute mile (1.6 km) horizontal. |

(b) Class G Airspace. In Class G airspace below 1,200 feet above the surface notwithstanding the provisions of Paragraph (a) of this section, a helicopter may be operated clear of clouds if operated at a speed that allows the pilot adequate opportunity to see any air traffic or obstruction in time to avoid a collision.

(c) No person may operate an aircraft beneath the ceiling under VFR within the lateral boundaries of controlled airspace designated to the surface for an airport when the ceiling is less than 1,000 feet.

(d) No person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport_
(1) Unless ground visibility at that airport is at least 3 statute miles (4.8 km); or
(2) If ground visibility is not reported at that airport, unless flight visibility during landing or takeoff, or while operating in the traffic pattern is at least 3 statute miles (4.8 km).

(e) For the purpose of this section, an aircraft operating at the base altitude of a Class E airspace area is considered to be within the airspace directly below that area.

**91.157 RESERVE.**

**91.159 VFR cruising altitude or flight level.**
Except while holding in a holding pattern of 2 minutes or less, or while turning, each person operating an aircraft under VFR in level cruising flight more than 3,000 feet above the surface shall maintain the appropriate altitude or flight level prescribed below, unless otherwise authorized by ATC:
(a) When operating below 18,000 feet MSL and_
(1) On a magnetic course of 0° through 179°, any odd-thousand foot MSL altitude +500 feet (such as 3,500, 5,500, or 7,500); or
(2) On a magnetic course of 180° through 359°, any even-thousand foot MSL altitude +500 feet (such as 4,500, 6,500, or 8,500).

(b) When operating above 18,000 feet MSL to flight level 290 (inclusive) and_
(1) On a magnetic course of 0° through 179°, any odd flight level +500 feet (such as 195, 215, or 235); or
(2) On a magnetic course of 180° through 359°, any even flight level +500 feet (such as 185, 205, or 225).

(c) When operating above flight level 290 and_
(1) On a magnetic course of 0° through 179°, any flight level, at 4,000-foot intervals, beginning at and including flight level 300 (such as flight level 300, 340, or 380); or
(2) On a magnetic course of 180° through 359°, any flight level, at 4,000-foot intervals, beginning at and including flight level 320 (such as flight level 320, 360, or 400).

| TRACK 000° __ 179° | VFR Cruising Altitude or Flight Level | TRACK 180° - 359° |
|---|---|---|
| 3,500 | | 4,500 |
| 5,500 | | 6,500 |
| 7,500 | When operating | 8,500 |
| 9,500 | below 18,000 | 10,500 |
| 11,500 | feet MSL | 12,500 |
| 13,500 | | 14,500 |
| 15,500 | | 16,500 |
| 17,500 | | _ |
| 195 | | 185 |
| 215 | When operating | 205 |
| 235 | above 18,000 | 225 |
| 255 | feet MSL to | 245 |
| 275 | Flight Level 290 | 265 |
| 295 | (inclusive) | 285 |
| 300 | When operating | 320 |
| 340 | above Flight | 360 |
| 380 | Level 290 | 400 |

**91.161 through 91.165 [Reserved]**

*INSTRUMENT FLIGHT RULES*

**91.167 Fuel requirements for flight in IFR conditions.**

(a) Except as provided in Paragraph (b) of this section, no person may operate a civil aircraft in IFR conditions unless it carries enough fuel (considering weather reports and forecasts and weather conditions) to_

(1) Complete the flight to the first airport of intended landing;

(2) Fly from that airport to the alternate airport; and

(3) Fly after that for 45 minutes at normal cruising speed or, for helicopters, fly after that for 30 minutes at normal cruising speed.

(b) Paragraph (a)(2) of this section does not apply if_

(1) The DGAC prescribes a standard instrument approach procedure for the first airport of intended landing; and

(2) For at least 1 hour before and 1 hour after the estimated time of arrival at the airport, the weather reports or forecasts or any combination of them indicate_

(i) The ceiling will be at least 2,000 feet above the airport elevation; and

(ii) Visibility will be at least 3 statute miles (4.8 km).

**91.169 IFR flight plan: Information required.**

(a) Information required. Unless otherwise authorized by ATC, each person filing an IFR flight plan shall include in it the following information:
(1) Information required under Section 91.153(a).
(2) An alternate airport, except as provided in Paragraph (b) of this section.

(b) Exceptions to applicability of Paragraph (a)(2) of this section. Paragraph (a)(2) of this section does not apply if the DGAC prescribes an approved standard instrument approach procedure for the first airport of intended landing and, for at least 1 hour before and 1 hour after the estimated time of arrival, the weather reports or forecasts, or any combination of them, indicate_
(1) The ceiling will be at least 2,000 feet above the airport elevation; and
(2) The visibility will be at least 3 statute miles (4.8 km).

(c) IFR alternate airport weather minimums. Unless otherwise authorized by the Director, no person may include an alternate airport in an IFR flight plan unless current weather forecasts indicate that, at the estimated time of arrival at the alternate airport, the ceiling and visibility at that airport will be at or above the following alternate airport weather minimums:
(1) If an instrument approach procedure has been approved by the Director for that airport, the alternate airport minimums specified in that procedure or, if none are so specified, the following minimums:
(i) Precision approach procedure: Ceiling 600 feet and visibility 2 statute miles (3.2 km).
(ii) Non-precision approach procedure: Ceiling 800 feet and visibility 2 statute miles (3.2 km).
(2) If no instrument approach procedure has been approved by the Director for that airport, the ceiling and visibility minimums are those allowing descent from the MEA, approach, and landing under VFR.

(d) Cancellation. When a flight plan has been activated, the pilot in command, upon canceling or completing the flight under the flight plan, shall notify an appropriate ATC facility.

**91.171 VOR equipment check for IFR operations.**

(a) No person may operate a civil aircraft under IFR using the VOR system of radio navigation unless the VOR equipment of that aircraft_
(1) Is maintained, checked, and inspected under an approved procedure; or
(2) Has been operationally checked within the preceding 30 days, and was found to be within the limits of the permissible indicated bearing error set forth in Paragraph (b) or (c) of this section.

(b) Except as provided in Paragraph (c) of this section, each person conducting a VOR check under Paragraph (a)(2) of this section shall_

(1) Use, at the airport of intended departure, DGAC-operated or approved test signal or a test signal radiated by a certificated and appropriately rated radio repair station or, outside Indonesia, a test signal operated or approved by an appropriate authority to check the VOR equipment (the maximum permissible indicated bearing error is ±4°); or

(2) Use, at the airport of intended departure, a point on the airport surface designated as a VOR system checkpoint by the Director, or, outside Indonesia, by an appropriate authority (the maximum permissible bearing error is ±4°);

(3) If neither a test signal nor a designated checkpoint on the surface is available, use an airborne checkpoint designated by the Director or, outside Indonesia, by an appropriate authority (the maximum permissible bearing error is ±6°); or

(4) If no check signal or point is available, while in flight_

(i) Select a VOR radial that lies along the centerline of an established VOR airway;

(ii) Select a prominent ground point along the selected radial preferably more than 20 nautical miles from the VOR ground facility and maneuver the aircraft directly over the point at a reasonably low altitude; and

(iii) Note the VOR bearing indicated by the receiver when over the ground point. The maximum permissible variation between the published radial and the indicated bearing is 6 degrees.

(c) If dual system VOR (units independent of each other except for the antenna) is installed in the aircraft, the person checking the equipment may check one system against the other in place of the check procedures specified in Paragraph (b) of this section. Both systems shall be tuned to the same VOR ground facility and note the indicated bearings to that station. The maximum permissible variation between the two indicated bearings is 4 degrees.

(d) Each person making the VOR operational check, as specified in Paragraph (b) or (c) of this section, shall enter the date, place, bearing error, and sign the aircraft log or other record. In addition, if a test signal radiated by a repair station, as specified in Paragraph (b)(1) of this section, is used, an entry must be made in the aircraft log or other record by the repair station certificate holder or the certificate holder's representative certifying to the bearing transmitted by the repair station for the check and the date of transmission.

**91.173 ATC clearance and flight plan required.**

No person may operate an aircraft in controlled airspace under IFR unless that person has_

(a) Filed an IFR flight plan; and

(b) Received an appropriate ATC clearance.

**91.175 Takeoff and landing under IFR.**

(a) Instrument approaches to civil airports.

Unless otherwise authorized by the Director, when an instrument letdown to a civil airport is necessary, each person operating an aircraft shall use a standard instrument approach procedure prescribed for the airport by the Director.

(b) Authorized DH or MDA. For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH or MDA, the authorized DH or MDA is the highest of the following:
(1) The DH or MDA prescribed by the approach procedure.
(2) The DH or MDA prescribed for the pilot in command.
(3) The DH or MDA for which the aircraft is equipped.

(c) Operation below DH or MDA. Where a DH or MDA is applicable, no pilot may operate an aircraft, except a military aircraft of Indonesia, at any airport below the authorized MDA or continue an approach below the authorized DH unless_
(1) The aircraft is continuously in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and for operations conducted under Part 121 or Part 135 unless that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing;
(2) The flight visibility is not less than the visibility prescribed in the standard instrument approach being used; and
(3) Except for a Category II or Category III approach where any necessary visual reference requirements are specified by the Director, at least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:
(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.
(ii) The threshold.
(iii) The threshold markings.
(iv) The threshold lights.
(v) The runway end identifier lights.
(vi) The visual approach slope indicator.
(vii) The touchdown zone or touchdown zone markings.
(viii) The touchdown zone lights.
(ix) The runway or runway markings.
(x) The runway lights.

(d) Landing. No pilot operating an aircraft may land that aircraft when the flight visibility is less than the visibility prescribed in the standard instrument approach procedure being used.

(e) Missed approach procedures. Each pilot operating an aircraft, except a military aircraft of Indonesia, shall immediately execute an appropriate missed approach procedure when either of the following conditions exist:
(1) Whenever the requirements of Paragraph (c) of this section are not met at either of the following times:
(i) When the aircraft is being operated below MDA; or
(ii) Upon arrival at the missed approach point, including a DH where a DH is specified and its use is required, and at any time after that until touchdown.
(2) Whenever an identifiable part of the airport is not distinctly visible to the pilot during a circling maneuver at or above MDA, unless the inability to see an identifiable part of the airport results only from a normal bank of the aircraft during the circling approach.

(f) Civil airport takeoff minimums. Unless otherwise authorized by the Director, no pilot operating an aircraft under Parts 121, 125, 129, or 135 of the CASRs may takeoff from a civil airport under IFR unless weather conditions are at or above the weather minimum for IFR takeoff prescribed for that airport by the Director. If takeoff minimums are not prescribed by the Director for a particular airport, the following minimums apply to takeoffs under IFR for aircraft operating under those parts:
(1) For aircraft, other than helicopters, having two engines or less__ 1 statute mile (1.6 km) visibility.
(2) For aircraft having more than two engines__ ½ statute mile (800 meters) visibility.
(3) For helicopters__ ½ statute mile (800 meters) visibility.

(g) Military airports. Unless otherwise prescribed by the Director, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the takeoff and landing minimum prescribed by the military authority having jurisdiction of that airport.

(h) Comparable values of RVR and ground visibility.
(1) Except for Category II or Category III minimums, if RVR minimums for takeoff or landing are prescribed in an instrument approach procedure, but RVR is not reported for the runway of intended operation, the RVR minimum shall be converted to ground visibility in accordance with the table in Paragraph (h)(2) of this section and shall be the visibility minimum for takeoff or landing on that runway.

| RVR | Visibility | |
|---|---|---|
| **Meters** | **Feet** | **Statute miles** |
| 400 | 1,600 | ¼ |
| 800 | 2,400 | ½ |
| 1,000 | 3,200 | |
| 1,200 | 4,000 | ¾ |
| 1,400 | 4,500 | |
| 1,600 | 5,000 | 1 |
| 2,000 | 6,000 | 1¼ |

(i) Reserve

(j) Limitation on procedure turns. In the case of a radar vector to a final approach course or fix, a timed approach from a holding fix, or an approach for which the procedure specifies "No PT," no pilot may make a procedure turn unless cleared to do so by ATC.

(k) ILS components. The basic ground components of an ILS are the localizer, glide slope, outer marker, middle marker, and, when installed for use with Category II or Category III instrument approach procedures, an inner marker. A compass locator or precision radar may be substituted for the outer or middle marker. DME, VOR, or non-directional beacon fixes authorized in the standard instrument approach procedure or surveillance radar may be substituted for the outer marker. Applicability of, and substitution for, the inner

marker for Category II or III approaches is determined by the appropriate DGAC-approved approach procedure, a letter of authorization issued by the DGAC, or operations specification pertinent to the operations.

**91.177 Minimum altitudes for IFR operations.**

(a) Operation of aircraft at minimum altitudes. Except when necessary for takeoff or landing, no person may operate an aircraft under IFR below_

(1) The applicable minimum altitudes prescribed; or

(2) If no applicable minimum altitude is prescribed in those parts_

(i) In the case of operations over a mountainous area, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown; or

(ii) In any other case, an altitude of 1,000 feet above the highest obstacle within a horizontal distance of 4 nautical miles from the course to be flown.

However, if both a MEA and a MOCA are prescribed for a particular route or route segment, a person may operate an aircraft below the MEA down to, but not below, the MOCA, when within 22 nautical miles of the VOR concerned (based on the pilot's reasonable estimate of that distance).

(b) Climb. Climb to a higher minimum IFR altitude shall begin immediately after passing the point beyond which that minimum altitude applies, except that when ground obstructions intervene, the point beyond which that higher minimum altitude applies shall be crossed at or above the applicable MCA.

**91.179 IFR cruising altitude or flight level.**

(a) In controlled airspace. Each person operating an aircraft under IFR in level cruising flight in controlled airspace shall maintain the altitude or flight level assigned that aircraft by ATC. However, if the ATC clearance assigns "VFR conditions on top," that person shall maintain an altitude or flight
level as prescribed by Section 91.159.

(b) In uncontrolled airspace. Except while in a holding pattern of 2 minutes or less or while turning, each person operating an aircraft under IFR in level cruising flight in uncontrolled airspace shall maintain an appropriate altitude as follows:

(1) When operating below 18,000 feet MSL and_

(i) On a magnetic course of 0° through 179°, any odd-thousand foot MSL altitude (such as 3,000, 5,000, or 7,000); or

(ii) On a magnetic course of 180° through 359°, any even-thousand foot MSL altitude (such as 2,000, 4,000, or 6,000).

(2) When operating at or above 18,000 feet MSL but below flight level 290, and_

(i) On a magnetic course of 0° through 179°, any odd flight level (such as 190, 210, or 230); or

(ii) On a magnetic course of 180° through 359°, any even flight level (such as 180, 200, or 220).

(3) When operating at flight level 290 and above, and_

(i) On a magnetic course of 0° through 179°, any flight level, at 4,000-foot intervals, beginning at and including flight level 290 (such as flight level 290, 330, or 370); or
(ii) On a magnetic course of 180° through 359°, any flight level, at 4,000-foot intervals, beginning at and including flight level 310 (such as flight level 310, 350, or 390).

| TRACK 000° - 179° | IFR Cruising Altitude or Flight Level | TRACK 180° - 359° |
|---|---|---|
| | | 2,000 |
| 3,000 | | 4,000 |
| 5,000 | | 6,000 |
| 7,000 | When operating | 8,000 |
| 9,000 | below 18,000 | 10,000 |
| 11,000 | feet MSL | 12,000 |
| 13,000 | | 14,000 |
| 15,000 | | 16,000 |
| 17,000 | | |
| | | 180 |
| 190 | When operating at | 200 |
| 210 | or above 18,000 | 220 |
| 230 | feet MSL but | 240 |
| 250 | below Flight | 260 |
| 270 | Level 290 | 280 |
| 290 | When operating at | 310 |
| 330 | or above Flight | 350 |
| 370 | Level 290 | 390 |

**91.181 Course to be flown.**

Unless otherwise authorized by ATC, no person may operate an aircraft within controlled airspace under IFR except as follows:

(a) On an airway, along the centerline of that airway.

(b) On any other route, along the direct course between the navigational aids or fixes defining that route. However, this section does not prohibit maneuvering the aircraft to pass well clear of other air traffic or the maneuvering of the aircraft in VFR conditions to clear the intended flight path both before and during climb or descent.

**91.183 IFR radio communications.**

The pilot in command of each aircraft operated under IFR in controlled airspace shall have a continuous watch maintained on the appropriate frequency and shall report by radio as soon as possible_

(a) The time and altitude of passing each designated reporting point, or the reporting points specified by ATC, except that while the aircraft is under radar control, only the passing of those reporting points specifically requested by ATC need be reported;

(b) Any unforecast weather conditions encountered; and

(c) Any other information relating to the safety of flight.

**91.185 IFR operations: Two-way radio communications failure.**

(a) General. Unless otherwise authorized by ATC, each pilot who has two-way radio communications failure when operating under IFR shall comply with the rules of this section.

(b) VFR conditions. If the failure occurs in VFR conditions, or if VFR conditions are encountered after the failure, each pilot shall continue the flight under VFR and land as soon as practicable.

(c) IFR conditions. If the failure occurs in IFR conditions, or if Paragraph (b) of this section cannot be complied with, each pilot shall continue the flight according to the following:

(1) Route.

(i) By the route assigned in the last ATC clearance received;

(ii) If being radar vectored, by the direct route from the point of radio failure to the fix, route, or airway specified in the vector clearance;

(iii) In the absence of an assigned route, by the route that ATC has advised may be expected in a further clearance; or

(iv) In the absence of an assigned route or a route that ATC has advised may be expected in a further clearance, by the route filed in the flight plan.

(2) Altitude. At the highest of the following altitudes or flight levels for the route segment being flown:

(i) The altitude or flight level assigned in the last ATC clearance received;

(ii) The minimum altitude (converted, if appropriate, to minimum flight level as prescribed in Section 91.121(c)) for IFR operations; or

(iii) The altitude or flight level ATC has advised may be expected in a further clearance.

(3) Leave clearance limit.

(i) When the clearance limit is a fix from which an approach begins, commence descent or descent and approach as close as possible to the expect further clearance time if one has been received, or if one has not been received, as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time enroute.

(ii) If the clearance limit is not a fix from which an approach begins, leave the clearance limit at the expect further clearance time if one has been received, or if none has been received, upon arrival over the clearance limit, and proceed to a fix from which an approach begins and commence descent or descent and approach as close as possible to the estimated time of arrival as calculated from the filed or amended (with ATC) estimated time enroute.

**91.187 Operation under IFR in controlled airspace: Malfunction reports.**

(a) The pilot in command of each aircraft operated in controlled airspace under IFR shall report as soon as practical to ATC any malfunctions of navigational, approach, or communication equipment occurring in flight.

(b) In each report required by Paragraph (a) of this section, the pilot in command shall include the_

(1) Aircraft identification;

(2) Equipment affected;

(3) Degree to which the capability of the pilot to operate under IFR in the ATC system is impaired; and

(4) Nature and extent of assistance desired from ATC.

**91.189 Category II and III operations: General operating rules.**

(a) No person may operate a civil aircraft in a Category II or III operation unless_

(1) The flight crew of the aircraft consists of a pilot in command and a second in command who hold the appropriate authorizations and ratings prescribed in Section 61.3 of the CASRs;

(2) Each flight crewmember has adequate knowledge of, and familiarity with, the aircraft and the procedures to be used; and

(3) The instrument panel in front of the pilot who is controlling the aircraft has appropriate instrumentation for the type of flight control guidance system that is being used.

(b) Unless otherwise authorized by the Director, no person may operate a civil aircraft in a Category II or Category III operation unless each ground component required for that operation and the related airborne equipment is installed and operating.

(c) Authorized DH. For the purpose of this section, when the approach procedure being used provides for and requires the use of a DH, the authorized DH is the highest of the following:

(1) The DH prescribed by the approach procedure.

(2) The DH prescribed for the pilot in command.

(3) The DH for which the aircraft is equipped.

(d) Unless otherwise authorized by the Director, no pilot operating an aircraft in a Category II or Category III approach that provides and requires use of a DH may continue the approach below the authorized decision height unless the following conditions are met:

(1) The aircraft is in a position from which a descent to a landing on the intended runway can be made at a normal rate of descent using normal maneuvers, and where that descent rate will allow touchdown to occur within the touchdown zone of the runway of intended landing.

(2) At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:

(i) The approach light system, except that the pilot may not descend below 100 feet above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.

(ii) The threshold.

(iii) The threshold markings.
(iv) The threshold lights.
(v) The touchdown zone or touchdown zone markings.
(vi) The touchdown zone lights.

(e) Unless otherwise authorized by the Director, each pilot operating an aircraft shall immediately execute an appropriate missed approach whenever, prior to touchdown, the requirements of Paragraph (d) of this section are not met.

(f) No person operating an aircraft using a Category III approach without decision height may land that aircraft except in accordance with the provisions of the letter of authorization issued by the DGAC.

(g) Paragraphs (a) through (f) of this section do not apply to operations conducted by the holders of Air Operator Certificates issued under Parts 121, 125, 129, or 135 of the CASRs. No person may operate a civil aircraft in a Category II or Category III operation conducted by the holder of a certificate issued under Parts 121, 125, 129, or 135 of the CASRs unless the operation is conducted in accordance with that certificate holder's operations specifications.

**91.191 Category II manual.**

(a) No person may operate a civil aircraft of Indonesian registry in a Category II operation unless_
(1) There is available in the aircraft a current, approved Category II manual for that aircraft;
(2) The operation is conducted in accordance with the procedures, instructions, and limitations in that manual; and
(3) The instruments and equipment listed in the manual that are required for a particular Category II operation have been inspected and maintained in accordance with the maintenance program contained in that manual.

(b) Each operator shall keep a current copy of the approved manual at its principal base of operations and shall make it available for inspection upon request of the Director.

(c) This section does not apply to operations conducted by the holder of a certificate issued under Part 121 of the CASRs.

**91.195 through 91.199 [Reserved]**

## SUBPART C - EQUIPMENT, INSTRUMENT, AND CERTIFICATE REQUIREMENTS

**91.203 Civil aircraft: Certifications required.**

(a) Except as provided in Section 91.715, no person may operate a civil aircraft unless it has within the aircraft the following:

(1) An appropriate and current airworthiness certificate. Each Indonesian airworthiness certificate used to comply with this subparagraph, except the following_

- A special flight permit,
- A copy of the applicable operations specifications issued under Part 21 of the CASRs,
- Appropriate sections of the air carrier manual required by Parts 121 and 135 of the CASRs containing that portion of the operations specifications issued under Part 21, or
- An authorization under Section 91.611 must have on it the registration mark assigned to the aircraft by the DGAC. However, the airworthiness certificate need not have on it an assigned special identification number until 10 days after that number is first affixed to the aircraft.

A revised airworthiness certificate with an assigned special identification number, that has been affixed to an aircraft, may only be obtained upon application to the DGAC.

(2) An effective Indonesian registration certificate issued to its owner or, for operation within Indonesia, the duplicate copy of the Aircraft Registration Application as provided for by the DGAC, or a registration certificate issued under the laws of a foreign country.

(b) No person may operate a civil aircraft unless the airworthiness certificate required by Paragraph (a) of this section or a special flight authorization issued under Section 91.715 is displayed at the cabin or cockpit entrance so that it is legible to passengers or crew.

(c) No person may operate an aircraft with a fuel tank installed within the passenger compartment or a baggage compartment unless the installation was accomplished in accordance with applicable provisions of the CASRs, and a copy of DAC Form KU18_2A authorizing that installation is on board the aircraft.

(d) No person may operate a civil airplane (domestic or foreign) into or out of an airport in Indonesia unless it complies with the fuel venting and exhaust emissions requirements of the CASRs.

**91.205 Powered civil aircraft with standard category Indonesian airworthiness certificates: Instrument and equipment requirements.**

(a) General. Except as provided in Paragraphs (c)(3) and (e) of this section, no person may operate a-powered civil aircraft with a standard category Indonesian airworthiness certificate in any operation described in Paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment (or DGAC-approved equivalents) specified in those paragraphs for that type of operation, and those instruments and items of equipment are in operable condition.

(b) Visual flight rules (day). For VFR flight during the day, the following instruments and equipment are required:

(1) Airspeed indicator.
(2) Altimeter.
(3) Magnetic direction indicator.
(4) Tachometer for each engine.
(5) Oil pressure gauge for each engine using pressure system.
(6) Temperature gauge for each liquid cooled engine.
(7) Oil temperature gauge for each air cooled engine.
(8) Manifold pressure gauge for each altitude engine.
(9) Fuel gauge indicating the quantity of fuel in each tank.
(10) Landing gear position indicator, if the aircraft has a retractable landing gear.
(11) If the aircraft is operated for hire over water and beyond power off gliding distance from shore, approved flotation gear readily available to each occupant and at least one pyrotechnic signaling device. As used in this section, "shore" means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.
(12) An approved safety belt with an approved metal-to-metal latching device for each occupant 2 years of age or older.
(13) For small civil airplanes manufactured after July 18, 1978 an approved shoulder harness for each front seat. The shoulder harness must be designed to protect the occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in Part 23 of the CASRs. Each shoulder harness installed at a flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operations. For purposes of this paragraph_
  (i) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the DGAC-approved type design data; and
  (ii) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.
(14) An emergency locator transmitter, if required by Section 91.207.
(15) For normal, utility, and acrobatic category airplanes with a seating configuration (not including pilot seats) of 9 or less, manufactured after December 12, 1986, a shoulder harness for_
  (i) Each front seat that meets the requirements of Part 23 of the CASRs;
  (ii) Each additional seat that meets the requirements of Part 23 of the CASRs.
(16) For rotorcraft manufactured after September 16, 1992, a shoulder harness for each seat that meets the requirements of DGAC.

(c) Reserved

(d) Instrument flight rules. For IFR flight, the following instruments and equipment are required:
(1) Instruments and equipment specified in Paragraph (b) of this section, and, for night flight, instruments and equipment specified in Paragraph (c) of this section.
(2) Two-way radio communications system and navigational equipment appropriate to the ground facilities to be used.
(3) Gyroscopic rate of turn indicator, except on the following aircraft:

(i) Airplanes with a third attitude instrument system usable through flight attitudes of 360° of pitch and roll and installed in accordance with the instrument requirements prescribed in Section 121.305(j) of the CASRs; and

(ii) Rotorcraft with a third attitude instrument system usable through flight attitudes of ±80° of pitch and ±20° of roll and installed in accordance with Part 29.1303 (g) of the CASRs.

(4) Slip/skid indicator.

(5) Sensitive altimeter adjustable for barometric pressure.

(6) A clock displaying hours, minutes, and seconds with a sweep-second pointer or digital presentation.

(7) Generator or alternator of adequate capacity.

(8) Gyroscopic pitch and bank indicator (artificial horizon).

(9) Gyroscopic direction indicator (directional gyro or equivalent).

(e) Flight at and above 24,000 feet MSL (FL 240). If VOR navigational equipment is required under Paragraph (d)(2) of this section, no person may operate an Indonesian-registered civil aircraft within Indonesia at or above FL 240 unless that aircraft is equipped with approved distance measuring equipment (DME). When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATC immediately, and then may continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made.

(f) Category II operations. For Category II operations the instruments and equipment specified in Paragraph (d) of this section and Appendix A to this part are required. This paragraph does not apply to operations conducted by the holder of a certificate issued under Part 121 of the CASRs.

(g)

(1) Instruments and equipment specified in Paragraph (b) of this section.

(2) Approved position lights.

(3) An approved aviation red or aviation white anticollision light system on all Indonesian-registered civil aircraft. Anticollision light systems must at least meet the anticollision light standards of Part 23, 25, 27, or 29 of the CASRs, as applicable. The color may be either aviation red or aviation white. In the event of failure of any light of the anticollision light system, operations with the aircraft may be continued to a stop where repairs or replacement can be made.

(4) If the aircraft is operated for hire, one electric landing light.

(5) An adequate source of electrical energy for all installed electrical and radio equipment.

(6) One spare set of fuses, or three spare fuses of each kind required, that are accessible to the pilot in flight.

**91.207 Emergency locator transmitters.**

(a) Except as provided in Paragraphs (e) and (f) of this section, no person may operate an Indonesian-registered civil airplane unless_

(1) There is attached to the airplane an approved automatic type emergency locator transmitter that is in operable condition for the following operations:

(i) Those operations governed by the supplemental air carrier and commercial operator rules of Parts 121 and 125;

(ii) Charter flights governed by the domestic and flag air carrier rules of Part 121 of the CASRs; and

(iii) Operations governed by Part 135 of the CASRs; or

(2) For operations other than those specified in Paragraph (a)(1) of this section, there must be attached to the airplane an approved personal type or an approved automatic type emergency locator transmitter that is in operable condition.

(b) Each emergency locator transmitter required by Paragraph (a) of this section must be attached to the airplane in such a manner that the probability of damage to the transmitter in the event of crash impact is minimized. Fixed and deployable automatic type transmitters must be attached to the airplane as far aft as practicable.

(c) Batteries used in the emergency locator transmitters required by Paragraphs (a) and (b) of this section must be replaced (or recharged, if the batteries are rechargeable)_

(1) When the transmitter has been in use for more than 1 cumulative hour; or

(2) When 50 percent of their useful life (or, for rechargeable batteries, 50 percent of their useful life of charge) has expired, as established by the transmitter manufacturer under its approval.

The new expiration date for replacing (or recharging) the battery must be legibly marked on the outside of the transmitter and entered in the aircraft maintenance record. Paragraph (c)(2) of this section does not apply to batteries (such as water activated batteries) that are essentially unaffected during probable storage intervals.

(d) Each emergency locator transmitter required by Paragraph (a) of this section must be inspected within 12 calendar months after the last inspection for_

(1) Proper installation;

(2) Battery corrosion;

(3) Operation of the controls and crash sensor; and

(4) The presence of a sufficient signal radiated from its antenna.

(e) Notwithstanding Paragraph (a) of this section, a person may_

(1) Ferry a newly acquired airplane from the place where possession of it was taken to a place where the emergency locator transmitter is to be installed; and

(2) Ferry an airplane with an inoperative emergency locator transmitter from a place where repairs or replacements cannot be made to a place where they can be made.

No person other than required crewmembers may be carried aboard an airplane being ferried under Paragraph (e) of this section.

(f) Paragraph (a) of this section does not apply to_

(1) Turbojet-powered aircraft;

(2) Aircraft while engaged in scheduled flights by scheduled air carriers;

(3) Aircraft while engaged in training operations conducted entirely within a 50 nautical mile radius of the airport from which such local flight operations began;

(4) Aircraft while engaged in flight operations incident to design and testing;

(5) New aircraft while engaged in flight operations incident to their manufacture, preparation, and delivery;

(6) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;
(7) Aircraft certificated by the Director for research and development purposes;
(8) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing, or market surveys;
(9) Aircraft equipped to carry not more than one person; and
(10) An aircraft during any period for which the transmitter has been temporarily removed for inspection, repair, modification, or replacement, subject to the following:
(i) No person may operate the aircraft unless the aircraft records contain an entry which includes the date of initial removal, the make, model, serial number, and reason for removing the transmitter, and a placard located in view of the pilot to show "ELT not installed."
(ii) No person may operate the aircraft more than 90 days after the ELT is initially removed from the aircraft.

**91.209 Aircraft lights.**

No person may, during the period from sunset to sunrise_
(a) Operate an aircraft unless it has lighted position lights;

(b) Park or move an aircraft in, or in dangerous proximity to, a night flight operations area of an airport unless the aircraft_
(1) Is clearly illuminated;
(2) Has lighted position lights; or
(3) Is in an area which is marked by obstruction lights;

(c) Anchor an aircraft unless the aircraft_
(1) Has lighted anchor lights; or
(2) Is in an area where anchor lights are not required on vessels; or

(d) Operate an aircraft, required by Section 91.205(c)(3) to be equipped with an anticollision light system, unless it has approved and lighted aviation red or aviation white anticollision lights. However, the anticollision lights need not be lighted when the pilot in command determines that, because of operating conditions, it would be in the interest of safety to turn the lights off.

**91.211 Supplemental oxygen.**

(a) General. No person may operate a civil aircraft of Indonesian registry_
(1) At cabin pressure altitudes above 12,500 feet (MSL) up to and including 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen for that part of the flight at those altitudes that is of more than 30 minutes duration;
(2) At cabin pressure altitudes above 14,000 feet (MSL) unless the required minimum flight crew is provided with and uses supplemental oxygen during the entire flight time at those altitudes; and
(3) At cabin pressure altitudes above 15,000 feet (MSL) unless each occupant of the aircraft is provided with supplemental oxygen.

(b) Pressurized cabin aircraft.

(1) No person may operate a civil aircraft of Indonesian registry with a pressurized cabin_

(i) At flight altitudes above flight level 250 unless at least a 10 minute supply of supplemental oxygen, in addition to any oxygen required to satisfy Paragraph (a) of this section, is available for each occupant of the aircraft for use in the event that a descent is necessitated by loss of cabin pressurization; and

(ii) At flight altitudes above flight level 350 unless one pilot at the controls of the airplane is wearing and using an oxygen mask that is secured and sealed and that either supplies oxygen at all times or automatically supplies oxygen whenever the cabin pressure altitude of the airplane exceeds 14,000 feet (MSL), except that the one pilot need not wear and use an oxygen mask while at or below flight level 410 if there are two pilots at the controls and each pilot has a quick donning type of oxygen mask that can be placed on the face with one hand from the ready position within 5 seconds, supplying oxygen and properly secured and sealed.

(2) Notwithstanding Paragraph (b)(1)(ii) of this section, if for any reason at any time it is necessary for one pilot to leave the controls of the aircraft when operating at flight altitudes above flight level 350, the remaining pilot at the controls shall put on and use an oxygen mask until the other pilot has returned to that crewmember's station.

**91.213 Inoperative instruments and equipment.**

(a) Except as provided in Paragraph (d) of this section, no person may takeoff an aircraft with inoperative instruments or equipment installed unless the following conditions are met:

(1) An approved Minimum Equipment List exists for that aircraft.

(2) The aircraft has within the aircraft a letter of authorization, issued by the DGAC authorizing operation of the aircraft under the Minimum Equipment List. The letter of authorization may be obtained by written request of the airworthiness certificate holder. The Minimum Equipment List and the letter of authorization constitute a supplemental type certificate for the aircraft.

(3) The approved Minimum Equipment List must_

(i) Be prepared in accordance with the limitations specified in Paragraph (b) of this section; and

(ii) Provide for the operation of the aircraft with the instruments and equipment in an inoperable condition.

(4) The aircraft records available to the pilot must include an entry describing the inoperable instruments and equipment.

(5) The aircraft is operated under all applicable conditions and limitations contained in the Minimum Equipment List and the letter authorizing the use of the list.

(b) The following instruments and equipment may not be included in a Minimum Equipment List:

(1) Instruments and equipment that are either specifically or otherwise required by the airworthiness requirements under which the aircraft is type certificated and which are essential for safe operations under all operating conditions.

(2) Instruments and equipment required by an airworthiness directive to be in operable condition unless the airworthiness directive provides otherwise.

(3) Instruments and equipment required for specific operations by this part.

(c) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under Parts 121, 125, or 135 of the CASRs shall use that Minimum Equipment List in connection with operations conducted with that aircraft under this part without additional approval requirements.

(d) Except for operations conducted in accordance with Paragraph (a) or (c) of this section, a person may takeoff an aircraft in operations conducted under this part with inoperative instruments and equipment without an approved Minimum Equipment List provided_
(1) The flight operation is conducted in a_
(i) Rotorcraft, non-turbine powered airplane, glider, or lighter-than-air aircraft for which a master Minimum Equipment List has not been developed; or
(ii) Small rotorcraft, non-turbine powered small airplane, glider, or lighter-than-air aircraft for which a Master Minimum Equipment List has been developed; and
(2) The inoperative instruments and equipment are not_
(i) Part of the VFR day type certification instruments and equipment prescribed in the applicable airworthiness regulations under which the aircraft was type certificated;
(ii) Indicated as required on the aircraft's equipment list, or on the Kinds of Operations Equipment List for the kind of flight operation being conducted;
(iii) Required by Section 91.205 or any other rule of this part for the specific kind of flight operation being conducted; or
(iv) Required to be operational by an airworthiness directive; and
(3) The inoperative instruments and equipment are_
(i) Removed from the aircraft, the cockpit control placarded, and the maintenance recorded in accordance with the CASRs; or
(ii) Deactivated and placarded "Inoperative." If deactivation of the inoperative instrument or equipment involves maintenance, it must be accomplished and recorded in accordance with the CASRs; and
(4) A determination is made by a pilot, who is certificated and appropriately rated under Part 61 of the CASRs, or by a person, who is certificated and appropriately rated to perform maintenance on the aircraft, that the inoperative instrument or equipment does not constitute a hazard to the aircraft.

An aircraft with inoperative instruments or equipment as provided in Paragraph (d) of this section is considered to be in a properly altered condition acceptable to the Director.

(e) Reserve

**91.215 ATC transponder and altitude reporting equipment and use.**

(a) All airspace: Indonesian-registered civil aircraft. For operations not conducted under Part 121 or 135 of the CASRs, ATC transponder equipment installed must meet the performance and environmental requirements acceptable by DGAC.

(b) All airspace. Unless otherwise authorized or directed by ATC, no person may operate an aircraft in the airspace described in Paragraphs (b)(1) through (b)(3) of this section, unless that aircraft is equipped with an operable coded radar beacon transponder having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100-foot increments. This requirement applies to_
(1) All aircraft. In Class A, Class B, and Class C airspace areas;

(2) All aircraft in all airspace above the ceiling and within the lateral boundaries of a Class B or Class C airspace area designated for an airport upward to 10,000 feet MSL; and
(3) All aircraft in all airspace of Indonesia at and above 10,000 feet MSL, not including the airspace at and below 2,500 feet above the surface except any aircraft which was_
(i) Not originally certificated with an engine driven electrical system or which has not subsequently been certified with such a system installed;
(ii) A balloon, or
(iii) A glider.

(c) Transponder "ON" operation. While in the airspace as specified in Paragraph (b) of this section or in all controlled airspace, each person operating an aircraft equipped with an operable ATC transponder maintained in accordance with Section 91.413 of this part shall operate the transponder, including Mode C equipment if installed, and shall reply on the appropriate code or as assigned by ATC.

(d) ATC authorized deviations.
Requests for ATC authorized deviations must be made to the ATC facility having jurisdiction over the concerned airspace within the time periods specified as follows:
(1) For operation of an aircraft with an operating transponder but without operating automatic pressure altitude reporting equipment having a Mode C capability, the request may be made at any time.
(2) For operation of an aircraft with an inoperative transponder to the airport of ultimate destination, including any intermediate stops, or to proceed to a place where suitable repairs can be made or both, the request may be made at any time.
(3) For operation of an aircraft that is not equipped with a transponder, the request must be made at least one hour before the proposed operation.

**91.217 Data correspondence between automatically reported pressure altitude data and the pilot's altitude reference.**
No person may operate any automatic pressure altitude reporting equipment associated with a radar beacon transponder_
(a) When deactivation of that equipment is directed by ATC;

(b) Unless, as installed, that equipment was tested and calibrated to transmit altitude data corresponding within 125 feet (on a 95 percent probability basis) of the indicated or calibrated datum of the altimeter normally used to maintain flight altitude, with that altimeter referenced to 29.92 inches of mercury for altitudes from sea level to the maximum operating altitude of the aircraft; or

(c) Unless the altimeters and digitizers in that equipment meet the standards of the DGAC.

**91.219 Altitude alerting system or device: Turbojet-powered civil airplanes.**
(a) Except as provided in Paragraph (d) of this section, no person may operate a turbojet-powered Indonesian-registered civil airplane unless that airplane is equipped with an approved altitude alerting system or device that is in operable condition and meets the requirements of Paragraph (b) of this section.

(b) Each altitude alerting system or device required by Paragraph (a) of this section must be able to -

(1) Alert the pilot_

(i) Upon approaching a preselected altitude in either ascent or descent, by a sequence of both aural and visual signals in sufficient time to establish level flight at that preselected altitude; or

(ii) Upon approaching a preselected altitude in either ascent or descent, by a sequence of visual signals in sufficient time to establish level flight at that preselected altitude, and when deviating above and below that preselected altitude, by an aural signal;

(2) Provide the required signals from sea level to the highest operating altitude approved for the airplane in which it is installed;

(3) Preselect altitudes in increments that are commensurate with the altitudes at which the aircraft is operated;

(4) Be tested without special equipment to determine proper operation of the alerting signals; and

(5) Accept necessary barometric pressure settings if the system or device operates on barometric pressure. However, for operation below 3,000 feet AGL, the system or device need only provide one signal, either visual or aural, to comply with this Paragraph. A radio altimeter may be included to provide the signal if the operator has an approved procedure for its use to determine DH or MDA, as appropriate.

(c) Each operator to which this section applies must establish and assign procedures for the use of the altitude alerting system or device and each flight crewmember must comply with those procedures assigned to him.

(d) Paragraph (a) of this section does not apply to any operation of an airplane that has an experimental certificate or to the operation of any airplane for the following purposes:

(1) Ferrying a newly acquired airplane from the place where possession of it was taken to a place where the altitude alerting system or device is to be installed.

(2) Continuing a flight as originally planned, if the altitude alerting system or device becomes inoperative after the airplane has taken off; however, the flight may not depart from a place where repair or replacement can be made.

(3) Ferrying an airplane with any inoperative altitude alerting system or device from a place where repairs or replacements cannot be made to a place where it can be made.

(4) Conducting an airworthiness flight test of the airplane.

(5) Ferrying an airplane to a place outside Indonesia for the purpose of registering it in a foreign country.

(6) Conducting a sales demonstration of the operation of the airplane.

(7) Training foreign flight crews in the operation of the airplane before ferrying it to a place outside Indonesia for the purpose of registering it in a foreign country.

**91.221 RESERVE**

**91.223 through 91.299 [Reserved]**

## SUBPART D - SPECIAL FLIGHT OPERATIONS

**91.303 Aerobatic flight.**

No person may operate an aircraft in aerobatic flight_

(a) Over any congested area of a city, town, or settlement;

(b) Over an open air assembly of persons;

(c) Within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport;

(d) Within 4 nautical miles of the center line of any airway;

(e) Below an altitude of 1,500 feet above the surface; or

(f) When visibility is less than 3 statute miles (4.8 km).

For the purposes of this section, aerobatic flight means an intentional maneuver involving an abrupt change in an aircraft's attitude, an abnormal attitude, or abnormal acceleration, not necessary for normal flight.

**91.305 Flight test areas.**

No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.

**91.307 Parachutes and parachuting.**

(a) No pilot of a civil aircraft may allow a parachute that is available for emergency use to be carried in that aircraft unless it is an approved type and_

(1) If a chair type (canopy in back), it has been packed by a certificated and appropriately rated parachute rigger within the preceding 120 days; or

(2) If any other type, it has been packed by a certificated and appropriately rated parachute rigger_

(i) Within the preceding 120 days, if its canopy, shrouds, and harness are composed exclusively of nylon, rayon, or other similar synthetic fiber or materials that are substantially resistant to damage from mold, mildew, or other fungi and other rotting agents propagated in a moist environment; or

(ii) Within the preceding 60 days, if any part of the parachute is composed of silk, pongee, or other natural fiber, or materials not specified in Paragraph (a)(2)(i) of this section.

(b) Except in an emergency, no pilot in command may allow, and no person may make, a parachute jump from an aircraft within Indonesia except in accordance with Part 105.

(c) Unless each occupant of the aircraft is wearing an approved parachute, no pilot of a civil aircraft carrying any person (other than a crewmember) may execute any intentional maneuver that exceeds -

(1) A bank of 60° relative to the horizon; or

(2) A nose up or nose down attitude of 30° relative to the horizon.

(d) Paragraph (c) of this section does not apply to_

(1) Flight tests for pilot certification or rating; or

(2) Spins and other flight maneuvers required by the regulations for any certificate or rating when given by_

(i) A certificated flight instructor; or

(ii) An airline transport pilot instructing in accordance with Section 61.169 of the CASRs.

(e) For the purposes of this section, "approved parachute" means_

(1) A parachute manufactured under a type certificate or a technical standard order (C-23 series); or

(2) A personnel carrying military parachute identified by an NAF, AAF, or AN drawing number, an AAF order number, or any other military designation or specification number.

**91.309 Towing: Gliders.**

(a) No person may operate a civil aircraft towing a glider unless_

(1) The pilot in command of the towing aircraft is qualified under Section 61.69 of the CASRs;

(2) The towing aircraft is equipped with a tow hitch of a kind, and installed in a manner, that is approved by the Director;

(3) The towline used has breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not more than twice this operating weight. However, the towline used may have a breaking strength more than twice the maximum certificated operating weight of the glider if -

(i) A safety link is installed at the point of attachment of the towline to the glider with a breaking strength not less than 80 percent of the maximum certificated operating weight of the glider and not greater than twice this operating weight.

(ii) A safety link is installed at the point of attachment of the towline to the towing aircraft with a breaking strength greater, but not more than 25 percent greater, than that of the safety link at the towed glider end of the towline and not greater than twice the maximum certificated operating weight of the glider;

(4) Before conducting any towing operation within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport, or before making each towing flight within such controlled airspace if required by ATC, the pilot in command notifies the control tower. If a control tower does not exist or is not in operation, the pilot in command must notify the DGAC flight service station serving that controlled airspace before conducting any towing operations in that airspace; and

(5) The pilots of the towing aircraft and the glider have agreed upon a general course of action, including takeoff and release signals, airspeeds, and emergency procedures for each pilot.

**91.311 Towing: Other than under Section 91.309.**

No pilot of a civil aircraft may tow anything with that aircraft (other than gliders under Section 91.309) except in accordance with a Letter of Deviation Authority issued by the Director under the provisions of Section 91.903.

**91.313 Restricted category civil aircraft: Operating limitations.**

(a) No person may operate a restricted category civil aircraft_
(1) For other than the special purpose for which it is certificated; or
(2) In an operation other than one necessary to accomplish the work activity directly associated with that special purpose.

(b) For the purpose of Paragraph (a) of this section, operating a restricted category civil aircraft to provide flight crewmember training in a special purpose operation for which the aircraft is certificated is considered to be an operation for that special purpose.

(c) No person may operate a restricted category civil aircraft carrying persons or property for compensation or hire. For the purposes of this paragraph, a special purpose operation involving the carriage of persons or material necessary to accomplish that operation, such as crop dusting, seeding, spraying, and banner towing (including the carrying of required persons or material to the location of that operation), and operation for the purpose of providing flight crewmember training in a special purpose operation, are not considered to be the carriage of persons or property for compensation or hire.

(d) No person may be carried on a restricted category civil aircraft unless that person_
(1) Is a flight crewmember;
(2) Is a flight crewmember trainee;
(3) Performs an essential function in connection with a special purpose operation for which the aircraft is certificated; or
(4) Is necessary to accomplish the work activity directly associated with that special purpose.

(e) Except when operating in accordance with the terms and conditions of a Letter of Deviation Authority or special operating limitations issued by the Director, no person may operate a restricted category civil aircraft within Indonesia_
(1) Over a densely populated area;
(2) In a congested airway; or
(3) Near a busy airport where passenger transport operations are conducted.

(f) This section does not apply to non-passenger carrying civil rotorcraft external load operations conducted under Part 133 of the CASRs.

(g) No person may operate a small restricted category civil airplane manufactured after July 18, 1978, unless an approved shoulder harness is installed for each front seat. The shoulder harness must be designed to protect each occupant from serious head injury when the occupant experiences the ultimate inertia forces specified in Part 23 of the CASRs. The shoulder harness installation at each flight crewmember station must permit the crewmember, when seated and with the safety belt and shoulder harness fastened, to perform all functions necessary for flight operation. For purposes of this paragraph_

(1) The date of manufacture of an airplane is the date the inspection acceptance records reflect that the airplane is complete and meets the DGAC-approved type design data; and
(2) A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat.

**91.315 Limited category civil aircraft: Operating limitations.**
No person may operate a limited category civil aircraft carrying persons or property for compensation or hire.

**91.317 RESERVE**

**91.319 Aircraft having experimental certificates: Operating limitations.**
(a) No person may operate an aircraft that has an experimental certificate_
(1) For other than the purpose for which the certificate was issued; or
(2) Carrying persons or property for compensation or hire.

(b) No person may operate an aircraft that has an experimental certificate outside of an area assigned by the Director until it is shown that_
(1) The aircraft is controllable throughout its normal range of speeds and throughout all the maneuvers to be executed; and
(2) The aircraft has no hazardous operating characteristics or design features.

(c) Unless otherwise authorized by the Director in special operating limitations, no person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway. The Director may issue special operating limitations for particular aircraft to permit takeoffs and landings to be conducted over a densely populated area or in a congested airway, in accordance with terms and conditions specified in the authorization in the interest of safety in air commerce.

(d) Each person operating an aircraft that has an experimental certificate shall_
(1) Advise each person carried of the experimental nature of the aircraft;
(2) Operate under VFR, day only, unless otherwise specifically authorized by the Director; and
(3) Notify the control tower of the experimental nature of the aircraft when operating the aircraft into or out of airports with operating control towers.

(e) The Director may prescribe additional limitations that the Director considers necessary, including limitations on the persons that may be carried in the aircraft.

**91.326 through 91.399 [Reserved]**

## SUBPART E MAINTENANCE, PREVENTIVE MAINTENANCE, AND ALTERATIONS

**91.401 Applicability.**

(a) This subpart prescribes rules governing the maintenance, preventive maintenance, and alterations of Indonesian-registered civil aircraft operating within or outside of Indonesia.

(b) Sections 91.405, 91.409, 91.411, 91.417, and 91.419 of this subpart do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in Part 121, 129, or Section 135.411(a)(2) of the CASRs.

(c) Sections 91.405 and 91.409 of this part do not apply to an airplane inspected in accordance with Part 125 of the CASRs.

**91.403 General.**

(a) The owner or operator of an aircraft is primarily responsible for maintaining that aircraft in an airworthy condition, including compliance with all relevant airworthiness directives.

(b) No person may perform maintenance, preventive maintenance, or alterations on an aircraft other than as prescribed in this subpart and other applicable regulations of the CASRs.

(c) No person may operate an aircraft for which a manufacturer's maintenance manual or instructions for continued airworthiness has been issued that contains an airworthiness limitations section unless the mandatory replacement times, inspection intervals, and related procedures specified in that section or alternative inspection intervals and related procedures set forth in an operations specification approved by the Director under Part 121 or 135 of the CASRs or in accordance with an inspection program approved under Section 91.409(e) have been complied with.

**91.405 Maintenance required.**

Each owner or operator of an aircraft_

(a) Shall have that aircraft inspected as prescribed in Subpart E of this part and shall between required inspections, except as provided in Paragraph (c) of this section, have discrepancies repaired as prescribed in the CASRs;

(b) Shall ensure that maintenance personnel make appropriate entries in the aircraft maintenance records indicating the aircraft has been approved for return to service;

(c) Shall have any inoperative instrument or item of equipment, permitted to be inoperative by Section 91.213(d)(2) of this part, repaired, replaced, removed, or inspected at the next required inspection; and

(d) When listed discrepancies include inoperative instruments or equipment, shall ensure that a placard has been installed as required by the CASRs.

**91.407 Operation after maintenance, preventive maintenance, rebuilding, or alteration.**

(a) No person may operate any aircraft that has undergone maintenance, preventive maintenance, rebuilding, or alteration unless_

(1) It has been approved for return to service by a person authorized under Section 43.7 of the CASRs; and

(2) The maintenance record entry required by the CASRs has been made.

(b) No person may carry any person (other than crewmembers) in an aircraft that has been maintained, rebuilt, or altered in a manner that may have appreciably changed its flight characteristics or substantially affected its operation in flight until an appropriately rated pilot with at least a private pilot certificate flies the aircraft, makes an operational check of the maintenance performed or alteration made, and logs the flight in the aircraft records.

(c) The aircraft does not have to be flown as required by Paragraph (b) of this section if, prior to flight, ground tests, inspection, or both show conclusively that the maintenance, preventive maintenance, rebuilding, or alteration has not appreciably changed the flight characteristics or substantially affected the flight operation of the aircraft.

**91.409 Inspections.**

(a) Except as provided in Paragraph (c) of this section, no person may operate an aircraft unless, within the preceding 12 calendar months, it has had_

(1) An annual inspection in accordance with the CASRs and has been approved for return to service by a person authorized by the CASRs; or

(2) An inspection for the issuance of an airworthiness certificate in accordance with Part 21 of the CASRs.

No inspection performed under Paragraph (b) of this section may be substituted for any inspection required by this paragraph unless it is performed by a person authorized to perform annual inspections and is entered as an "annual" inspection in the required maintenance records.

(b) Except as provided in Paragraph (c) of this section, no person may operate an aircraft carrying any person (other than a crewmember) for hire, and no person may give flight instruction for hire in an aircraft which that person provides, unless within the preceding 100 hours of time in service the aircraft has received an annual or 100-hour inspection and been approved for return to service in accordance with the CASRs or has received an inspection for the issuance of an airworthiness certificate in accordance with Part 21 of the CASRs. The 100-hour limitation may be exceeded by not more than 10 hours while enroute to reach a place where the inspection can be done. The excess time used to reach a place where the inspection can be done must be included in computing the next 100 hours of time in service.

(c) Paragraphs (a) and (b) of this section do not apply to_

(1) An aircraft that carries a special flight permit, a current experimental certificate, or a provisional airworthiness certificate;

(2) An aircraft inspected in accordance with an approved aircraft inspection program under Part 125 or 135 of the CASRs and so identified by the registration mark in the operations specifications of the certificate holder having the approved inspection program;
(3) An aircraft subject to the requirements of Paragraph (d) or (e) of this section; or
(4) Turbine-powered rotorcraft when the operator elects to inspect that rotorcraft in accordance with Paragraph (e) of this section.

(d) Progressive inspection. Each registered owner or operator of an aircraft desiring to use a progressive inspection program must submit a written request to the DGAC, and shall provide_
(1) A certificated mechanic holding an inspection authorization, a certificated airframe repair station, or the manufacturer of the aircraft to supervise or conduct the progressive inspection;
(2) A current inspection procedures manual available and readily understandable to pilot and maintenance personnel containing, in detail_
(i) An explanation of the progressive inspection, including the continuity of inspection responsibility, the making of reports, and the keeping of records and technical reference material;
(ii) An inspection schedule, specifying the intervals in hours or days when routine and detailed inspections will be performed and including instructions for exceeding an inspection interval by not more than 10 hours while enroute and for changing an inspection interval because of service experience;
(iii) Sample routine and detailed inspection forms and instructions for their use; and
(iv) Sample reports and records and instructions for their use;
(3) Enough housing and equipment for necessary disassembly and proper inspection of the aircraft; and
(4) Appropriate current technical information for the aircraft.

The frequency and detail of the progressive inspection shall provide for the complete inspection of the aircraft within each 12 calendar months and be consistent with the manufacturer's recommendations, field service experience, and the kind of operation in which the aircraft is engaged. The progressive inspection schedule must ensure that the aircraft, at all times, will be airworthy and will conform to all applicable DGAC aircraft specifications, type certificate data sheets, airworthiness directives, and other approved data. If the progressive inspection is discontinued, the owner or operator shall immediately notify the DGAC, in writing, of the discontinuance. After the discontinuance, the first annual inspection under Section 91.409(a)(1) is due within 12 calendar months after the last complete inspection of the aircraft under the progressive inspection. The 100-hour inspection under Section 91.409(b) is due within 100 hours after that complete inspection.
A complete inspection of the aircraft, for the purpose of determining when the annual and 100-hour inspections are due, requires a detailed inspection of the aircraft and all its components in accordance with the progressive inspection. A routine inspection of the aircraft and a detailed inspection of several components is not considered to be a complete inspection.

(e) Large airplanes (to which Part 125 is not applicable), turbojet multiengine airplanes, turbopropeller-powered multiengine airplanes, and turbine-powered rotorcraft. No person may operate a large airplane, turbojet multiengine airplane, turbopropeller-powered multiengine airplane, or turbine-powered rotorcraft unless the replacement times for life-limited parts specified in the aircraft specifications, type data sheets, or other documents approved by the Director are complied with and the airplane or turbine-powered rotorcraft, including the airframe, engines, propellers, rotors, appliances, survival equipment, and emergency equipment, is inspected in accordance with an inspection program selected under the provisions of Paragraph (f) of this section, except that, the owner or operator of a turbine-powered rotorcraft may elect to use the inspection provisions of Section 91.409(a), (b), (c), or (d) in lieu of an inspection option of Section 91.409(f).

(f) Selection of inspection program under Paragraph (e) of this section. The registered owner or operator of each airplane or turbine-powered rotorcraft described in Paragraph (e) of this section must select, identify in the aircraft maintenance records, and use one of the following programs for the inspection of the aircraft:

(1) A continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program currently in use by a person holding an Air Carrier Operator Certificate or a Commercial Operator Certificate issued under Parts 121 or 135 of the CASRs and operating that make and model aircraft under Part 121 of the CASRs or operating that make and model under Part 135 of the CASRs and maintaining it under Section 135.411(a)(2) of the CASRs.

(2) An approved aircraft inspection program approved under Section 135.419 of the CASRs and currently in use by a person holding a Commercial Operator Certificate issued under Part 135 of the CASRs.

(3) A current inspection program recommended by the manufacturer.

(4) Any other inspection program established by the registered owner or operator of that airplane or turbine-powered rotorcraft and approved by the Director under Paragraph (g) of this section. However, the Director may require revision of this inspection program in accordance with the provisions of Section 91.415.

Each operator shall include in the selected program the name and address of the person responsible for scheduling the inspections required by the program and make a copy of that program available to the person performing inspections on the aircraft and, upon request, to the Director.

(g) Inspection program approved under Paragraph (e) of this section. Each operator of an airplane or turbine-powered rotorcraft desiring to establish or change an approved inspection program under Paragraph (f)(4) of this section must submit the program for approval to the DGAC. The program must be in writing and include at least the following information:

(1) Instructions and procedures for the conduct of inspections for the particular make and model airplane or turbine-powered rotorcraft, including necessary tests and checks. The instructions and procedures must set forth in detail the parts and areas of the airframe, engines, propellers, rotors, and appliances, including survival and emergency equipment required to be inspected.

(2) A schedule for performing the inspections that must be performed under the program expressed in terms of the time in service, calendar time, number of system operations, or any combination of these.

(h) Changes from one inspection program to another. When an operator changes from one inspection program under Paragraph (f) of this section to another, the time in service, calendar times, or cycles of operation accumulated under the previous program must be applied in determining inspection due times under the new program.

**91.411 Altimeter system and altitude reporting equipment tests and inspections.**

(a) No person may operate an airplane, or helicopter, in controlled airspace under IFR unless_

(1) Within the preceding 24 calendar months, each static pressure system, each altimeter instrument, and each automatic pressure altitude reporting system has been tested and inspected and found to comply with the CASRs;

(2) Except for the use of system drain and alternate static pressure valves, following any opening and closing of the static pressure system, that system has been tested and inspected and found to comply with the CASRs; and

(3) Following installation or maintenance on the automatic pressure altitude reporting system of the ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with the CASRs.

(b) The tests required by Paragraph (a) of this section must be conducted by_

(1) The manufacturer of the airplane, or helicopter, on which the tests and inspections are to be performed;

(2) A certificated repair station properly equipped to perform those functions and holding_

(i) An instrument rating, Class I;

(ii) A limited instrument rating appropriate to the make and model of appliance to be tested;

(iii) A limited rating appropriate to the test to be performed;

(iv) An airframe rating appropriate to the airplane, or helicopter, to be tested; or

(v) A limited rating for a manufacturer issued for the appliance in accordance with the CASRs; or

(3) A certificated mechanic with an airframe rating (static pressure system tests and inspections only).

(c) Altimeter and altitude reporting equipment approved under Technical Standard Orders are considered to be tested and inspected as of the date of their manufacture.

(d) No person may operate an airplane, or helicopter, in controlled airspace under IFR at an altitude above the maximum altitude at which all altimeters and the automatic altitude reporting system of that airplane, or helicopter, have been tested.

**91.413 ATC transponder tests and inspections.**

(a) No persons may use an ATC transponder that is specified in 91.215(a), 121.345(c), or Section 135.143(c) of the CASRs unless, within the preceding 24 calendar months, the ATC transponder has been tested and inspected and found to comply with the CASRs; and

(b) Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested, inspected, and found to comply with the CASRs.

(c) The tests and inspections specified in this section must be conducted by_

(1) A certificated repair station properly equipped to perform those functions and holding -

(i) A radio rating, Class III;

(ii) A limited radio rating appropriate to the make and model transponder to be tested;

(iii) A limited rating appropriate to the test to be performed;

(iv) A limited rating for a manufacturer issued for the transponder in accordance with the CASRs; or

(2) A holder of a continuous airworthiness maintenance program as provided in Part 121 or Section 135.411(a)(2) of the CASRs; or

(3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.

**91.415 Changes to aircraft inspection programs.**

(a) Whenever the Director finds that revisions to an approved aircraft inspection program under Section 91.409(f)(4) are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the Director, make any changes in the program found to be necessary by the Director.

(b) The owner or operator may petition the Director to reconsider the notice to make any changes in a program in accordance with Paragraph (a) of this section.

(c) The petition must be filed with the DGAC within 30 days after the certificate holder receives the notice.

(d) Except in the case of an emergency requiring immediate action in the interest of safety, the filing of the petition stays the notice pending a decision by the Director.

**91.417 Maintenance records.**

(a) Except for work performed in accordance with Section 91.411 and 91.413, each registered owner or operator shall keep the following records for the periods specified in Paragraph (b) of this section:

(1) Records of the maintenance, preventive maintenance, and alteration and records of the 100-hour, annual, progressive, and other required or approved inspections, as appropriate, for each aircraft (including the airframe) and each engine, propeller, rotor, and appliance of an aircraft. The records must include_

(i) A description (or reference to data acceptable to the Director) of the work performed; and

(ii) The date of completion of the work performed; and

(iii) The signature, and certificate number of the person approving the aircraft for return to service.

(2) Records containing the following information:

(i) The total time in service of the airframe, each engine, each propeller, and each rotor.

(ii) The current status of life-limited parts of each airframe, engine, propeller, rotor, and appliance.

(iii) The time since last overhaul of all items installed on the aircraft which are required to be overhauled on a specified time basis.

(iv) The current inspection status of the aircraft, including the time since the last inspection required by the inspection program under which the aircraft and its appliances are maintained.

(v) The current status of applicable airworthiness directives (AD) including, for each, the method of compliance, the AD number, and revision date. If the AD involves recurring action, the time and date when the next action is required.

(vi) Copies of the forms prescribed by the CASRs for each major alteration to the airframe and currently installed engines, rotors, propellers, and appliances.

(b) The owner or operator shall retain the following records for the periods prescribed:

(1) The records specified in Paragraph (a)(1) of this section shall be retained until the work is repeated or superseded by other work or for 1 year after the work is performed.

(2) The records specified in Paragraph (a)(2) of this section shall be retained and transferred with the aircraft at the time the aircraft is sold.

(3) A list of defects furnished to a registered owner or operator required under the CASRs shall be retained until the defects are repaired and the aircraft is approved for return to service.

(c) The owner or operator shall make all maintenance records required to be kept by this section available for inspection by the Director or any authorized representative of the DGAC.

(d) When a fuel tank is installed within the passenger compartment or a baggage compartment, a copy of DAC Form KU18_2A shall be kept on board the modified aircraft by the owner or operator.

**91.419 Transfer of maintenance records.**

Any owner or operator who sells an Indonesian-registered aircraft shall transfer to the purchaser, at the time of sale, the following records of that aircraft, in plain language form or in coded form at the election of the purchaser, if the coded form provides for the preservation and retrieval of information in a manner acceptable to the Director:

(a) The records specified in Section 91.417(a)(2).

(b) The records specified in Section 91.417(a)(1) which are not included in the records covered by Paragraph (a) of this section, except that the purchaser may permit the seller

to keep physical custody of such records. However, custody of records by the seller does not relieve the purchaser of the responsibility under Section 91.417(c) to make the records available for inspection by the Director or any authorized representative of the DGAC.

**91.421 Rebuilt engine maintenance records.**

(a) The owner or operator may use a new maintenance record, without previous operating history, for an aircraft engine rebuilt by the manufacturer or by an agency approved by the manufacturer.

(b) Each manufacturer or agency that grants zero time to an engine rebuilt by it shall enter in the new record
(1) A signed statement of the date the engine was rebuilt;
(2) Each change made as required by airworthiness directives; and
(3) Each change made in compliance with manufacturer's service bulletins, if the entry is specifically requested in that bulletin.

(c) For the purposes of this section, a rebuilt engine is a used engine that has been completely disassembled, inspected, repaired as necessary, reassembled, tested, and approved in the same manner and to the same tolerances and limits as a new engine with either new or used parts. However, all parts used in it must conform to the production drawing tolerances and limits for new parts or be of approved oversized or undersized dimensions for a new engine.

**91.423 through 91.499 [Reserved]**

## SUBPART F LARGE AND TURBINE-POWERED MULTIENGINE AIRPLANES

**91.501 Applicability.**

(a) This subpart prescribes operating rules, in addition to those prescribed in other subparts of this part, governing the operation of large and of turbojet-powered multiengine civil airplanes of Indonesian registry. Authority for the operation of small turboprop airplanes under this subpart may be requested from the DGAC. The operating rules in this subpart do not apply to airplanes when they are required to be operated under Parts 121, 125, 129, 135, and 137 of the CASRs (Section 91.409 prescribes an inspection program for large and for turbine-powered [turbojet and turboprop] multiengine airplanes of Indonesian registry when they are operated under this part or Part 129 or 137).

(b) Operations that may be conducted under the rules in this subpart instead of those in Parts 121, 129, 135, and 137 of the CASRs when common carriage is not involved, include_

(1) Ferry or training flights;

(2) Aerial work operations such as pipeline patrol, but not including firefighting operations;

(3) Flights for the demonstration of an airplane to prospective customers when no charge is made except for those specified in Paragraph (d) of this section;

(4) Flights conducted by the operator of an airplane for his personal transportation, or the transportation of his guests when no charge, assessment, or fee is made for the transportation;

(5) Carriage of officials, employees, guests, and property of a company on an airplane operated by that company, or the parent or a subsidiary of the company or a subsidiary of the parent, when the carriage is within the scope of, and incidental to, the business of the company (other than transportation by air) and no charge, assessment or fee is made for the carriage in excess of the cost of owning, operating, and maintaining the airplane, except that no charge of any kind may be made for the carriage of a guest of a company, when the carriage is not within the scope of, and incidental to, the business of that company;

(6) The carriage of company officials, employees, and guests of the company on an airplane operated under a time sharing, interchange, or joint ownership agreement as defined in Paragraph (c) of this section;

(7) The carriage of property (other than mail) on an airplane operated by a person in the furtherance of a business or employment (other than transportation by air) when the carriage is within the scope of, and incidental to, that business or employment and no charge, assessment, or fee is made for the carriage other than those specified in Paragraph (d) of this section;

(8) The carriage on an airplane of an athletic team, sports group, religous group, or similar group having a common purpose or objective when there is no charge, assessment, or fee of any kind made by any person for that carriage; and

(9) The carriage of persons on an airplane operated by a person in the furtherance of a business other than transportation by air for the purpose of selling them land, goods, or property, including franchises or distributorships, when the carriage is within the scope of, and incidental to, that business and no charge, assessment, or fee is made for that carriage.

(c) As used in this section_
(1) A "time sharing agreement" means an arrangement whereby a person leases his airplane with flight crew to another person, and no charge is made for the flights conducted under that arrangement other than those specified in Paragraph (d) of this section;
(2) An "interchange agreement" means an arrangement whereby a person leases his airplane to another person in exchange for equal time, when needed, on the other person's airplane, and no charge, assessment, or fee is made, except that a charge may be made not to exceed the difference between the cost of owning, operating, and maintaining the two airplanes;
(3) A "joint ownership agreement" means an arrangement whereby one of the registered joint owners of an airplane employs and furnishes the flight crew for that airplane and each of the registered joint owners pays a share of the charge specified in the agreement.

(d) The following may be charged, as expenses of a specific flight, for transportation as authorized by Paragraphs (b) (3) and (7) and (c)(1) of this section:
(1) Fuel, oil, lubricants, and other additives.
(2) Travel expenses of the crew, including food, lodging, and ground transportation.
(3) Hangar and tie down costs away from the aircraft's base of operation.
(4) Insurance obtained for the specific flight.
(5) Landing fees, airport taxes, and similar assessments.
(6) Customs, foreign permit, and similar fees directly related to the flight.
(7) In flight food and beverages.
(8) Passenger ground transportation.
(9) Flight planning and weather contract services.
(10) An additional charge equal to 100 percent of the expenses listed in Paragraph (d)(1) of this section.

**91.503 Flying equipment and operating information.**

(a) The pilot in command of an airplane shall ensure that the following flying equipment and aeronautical charts and data, in current and appropriate form, are accessible for each flight at the pilot station of the airplane:
(1) A flashlight having at least two size "D" cells, or the equivalent, that is in good working order.
(2) A cockpit checklist containing the procedures required by Paragraph (b) of this section
(3) Pertinent aeronautical charts.
(4) For IFR, VFR over-the-top, or night operations, each pertinent navigational enroute, terminal area, and approach and letdown chart.
(5) In the case of multiengine airplanes, one engine inoperative climb performance data.

(b) Each cockpit checklist must contain the following procedures and shall be used by the flight crewmembers when operating the airplane:
(1) Before starting engines.
(2) Before takeoff.
(3) Cruise

(4) Before landing.
(5) After landing.
(6) Stopping engines.
(7) Emergencies.

(c) Each emergency cockpit checklist procedure required by Paragraph (b)(7) of this section must contain the following procedures, as appropriate:
(1) Emergency operation of fuel, hydraulic, electrical, and mechanical systems.
(2) Emergency operation of instruments and controls.
(3) Engine inoperative procedures.
(4) Any other procedures necessary for safety.

(d) The equipment, charts, and data prescribed in this section shall be used by the pilot in command and other members of the flight crew, when pertinent.

**91.505 Familiarity with operating limitations and emergency equipment.**

(a) Each pilot in command of an airplane shall, before beginning a flight, become familiar with the Airplane Flight Manual for that airplane, if one is required, and with any placards, listings, instrument markings, or any combination thereof, containing each operating limitation prescribed for that airplane by the Director, including those specified in Section 91.9(b).

(b) Each required member of the crew shall, before beginning a flight, become familiar with the emergency equipment installed on the airplane to which that crewmember is assigned and with the procedures to be followed for the use of that equipment in an emergency situation.

**91.507 Equipment requirements: Over-the-top <u>or night VFR operations.</u>**

No person may operate an airplane over-the-top <u>or at night</u> under VFR unless that airplane is equipped with the instruments and equipment required for IFR operations under Section 91.205(d) <u>and one electric landing light for night operations.</u> Each required instrument and item of equipment must be in operable condition.

**91.509 Survival equipment for overwater operations.**

(a) No person may takeoff an airplane for a flight over water more than 50 nautical miles from the nearest shore unless that airplane is equipped with a life preserver or an approved flotation means for each occupant of the airplane.

(b) No person may takeoff an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has on board the following survival equipment:
(1) A life preserver, equipped with an approved survivor locator light, for each occupant of the airplane.
(2) Enough life rafts (each equipped with an approved survival locator light) of a rated capacity and buoyancy to accommodate the occupants of the airplane.
(3) At least one pyrotechnic signaling device for each life raft.

(4) One self-buoyant, water resistant, portable emergency radio signaling device that is capable of transmission on the appropriate emergency frequency or frequencies and not dependent upon the airplane power supply.
(5) A lifeline stored in accordance with Section 25.1411(g) of the CASRs.

(c) The required life rafts, life preservers, and signaling devices must be installed in conspicuously marked locations and easily accessible in the event of a ditching without appreciable time for preparatory procedures.

(d) A survival kit, appropriately equipped for the route to be flown, must be attached to each required life raft.

(e) As used in this section, the term shore means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.

**91.511 Radio equipment for overwater operations.**

(a) Except as provided in Paragraphs (c) and (d) of this section, no person may takeoff an airplane for a flight over water more than 30 minutes flying time or 100 nautical miles from the nearest shore unless it has at least the following operable equipment:

(1) Radio communication equipment appropriate to the facilities to be used and able to transmit to, and receive from, any place on the route, at least one surface facility:
(i) Two transmitters.
(ii) Two microphones.
(iii) Two headsets or one headset and one speaker.
(iv) Two independent receivers.
(2) Appropriate electronic navigational equipment consisting of at least two independent electronic navigation units capable of providing the pilot with the information necessary to navigate the airplane within the airspace assigned by air traffic control. However, a receiver that can receive both communications and required navigational signals may be used in place of a separate communications receiver and a separate navigational signal receiver or unit.

(b) For the purposes of Paragraphs (a)(1)(iv) and (a)(2) of this section, a receiver or electronic navigation unit is independent if the function of any part of it does not depend on the functioning of any part of another receiver or electronic navigation unit.

(c) Notwithstanding the provisions of Paragraph (a) of this section, a person may operate an airplane on which no passengers are carried from a place where repairs or replacement cannot be made to a place where they can be made, if not more than one of each of the dual items of radio communication and navigational equipment specified in Paragraphs (a)(1) (i) through (iv) and (a)(2) of this section malfunctions or becomes inoperative.

(d) Notwithstanding the provisions of Paragraph (a) of this section, when both VHF and HF communications equipment are required for the route and the airplane has two VHF transmitters and two VHF receivers for communications, only one HF transmitter and one HF receiver is required for communications.

(e) As used in this section, the term "shore" means that area of the land adjacent to the water which is above the high water mark and excludes land areas which are intermittently under water.

**91.513 Emergency equipment.**

(a) No person may operate an airplane unless it is equipped with the emergency equipment listed in this section.

(b) Each item of equipment_
(1) Must be inspected in accordance with Section 91.409 to ensure its continued serviceability and immediate readiness for its intended purposes;
(2) Must be readily accessible to the crew;
(3) Must clearly indicate its method of operation; and
(4) When carried in a compartment or container, must have that compartment or container marked as to contents and date of last inspection.

(c) Hand fire extinguishers must be provided for use in crew, passenger, and cargo compartments in accordance with the following:
(1) The type and quantity of extinguishing agent must be suitable for the kinds of fires likely to occur in the compartment where the extinguisher is intended to be used.
(2) At least one hand fire extinguisher must be provided and located on or near the flight deck in a place that is readily accessible to the flight crew.
(3) At least one hand fire extinguisher must be conveniently located in the passenger compartment of each airplane accommodating more than six but less than 31 passengers, and at least two hand fire extinguishers must be conveniently located in the passenger compartment of each airplane accommodating more than 30 passengers.
(4) Hand fire extinguishers must be installed and secured in such a manner that they will not interfere with the safe operation of the airplane or adversely affect the safety of the crew and passengers. They must be readily accessible and, unless the locations of the fire extinguishers are obvious, their stowage provisions must be properly identified.

(d) First aid kits for treatment of injuries likely to occur in flight or in minor accidents must be provided.

(e) Each airplane accommodating more than 19 passengers must be equipped with a crash axe.

(f) Each passenger carrying airplane must have a portable battery-powered megaphone or megaphones readily accessible to the crewmembers assigned to direct emergency evacuation, installed as follows:
(1) One megaphone on each airplane with a seating capacity of more than 60 but less than 100 passengers, at the most rearward location in the passenger cabin where it would be readily accessible to a normal flight attendant seat. However, the Director may grant a deviation from the requirements of this subparagraph if the Director finds that a different location would be more useful for evacuation of persons during an emergency.

(2) On each airplane with a seating capacity of 100 or more passengers, one megaphone installed at the forward end and one installed at the most rearward location where it would be readily accessible to a normal flight attendant seat.

**91.515 Flight altitude rules.**

(a) Notwithstanding Section 91.119, and except as provided in Paragraph (b) of this section, no person may operate an airplane under VFR at less than_
One thousand feet above the surface, or 1,000 feet from any mountain, hill, or other obstruction to flight, for day operations; and

(b) This section does not apply_
(1) During takeoff or landing;
(2) When a different altitude is authorized by a deviation to this section under Subpart J of this part; or

**91.517 Passenger information.**

(a) Except as provided in Paragraph (b) of this section, no person may operate an airplane carrying passengers unless it is equipped with signs that are visible to passengers and flight attendants to notify them when smoking is prohibited and when safety belts must be fastened. The signs must be so constructed that the crew can turn them on and off. They must be turned on during airplane movement on the surface, for each takeoff, for each landing, and when otherwise considered to be necessary by the pilot in command.

(b) The pilot in command of an airplane that is not required, in accordance with applicable aircraft and equipment requirements of the CASRs, to be equipped as provided in Paragraph (a) of this section shall ensure that the passengers are notified orally each time that it is necessary to fasten their safety belts and when smoking is prohibited.

(c) If passenger information signs are installed, no passenger or crewmember may smoke while any "no smoking" sign is lighted nor may any passenger or crewmember smoke in any lavatory.

(d) Each passenger required by Section 91.107(a)(3) to occupy a seat or berth shall fasten his or her safety belt about him or her and keep it fastened while any "fasten seat belt" sign is lighted.

(e) Each passenger shall comply with instructions given him or her by crewmembers regarding compliance with Paragraphs (b), (c), and (d) of this section.

**91.519 Passenger briefing.**

(a) Before each takeoff the pilot in command of an airplane carrying passengers shall ensure that all passengers have been orally briefed on_
(1) Smoking: Each passenger shall be briefed on when, where, and under what conditions smoking is prohibited. This briefing shall include a statement, as appropriate, that the Civil Aviation Safety Regulations require passenger compliance with lighted passenger information signs and no smoking placards, prohibit smoking in lavatories, and require compliance with crewmember instructions with regard to these items;

(2) Use of safety belts and shoulder harnesses: Each passenger shall be briefed on when, where, and under what conditions it is necessary to have his or her safety belt and, if installed, his or her shoulder harness fastened about him or her. This briefing shall include a statement, as appropriate, that the Civil Aviation Safety Regulations require passenger compliance with the lighted passenger sign and/or crewmember instructions with regard to these items;
(3) Location and means for opening the passenger entry door and emergency exits;
(4) Location of survival equipment;
(5) Ditching procedures and the use of flotation equipment required under Section 91.509 for a flight over water; and
(6) The normal and emergency use of oxygen equipment installed on the airplane.

(b) The oral briefing required by Paragraph (a) of this section shall be given by the pilot in command or a member of the crew, but need not be given when the pilot in command determines that the passengers are familiar with the contents of the briefing. It may be supplemented by printed cards for the use of each passenger containing_
(1) A diagram of, and methods of operating, the emergency exits; and
(2) Other instructions necessary for use of emergency equipment.

(c) Each card used under Paragraph (b) must be carried in convenient locations on the airplane for the use of each passenger and must contain information that is pertinent only to the type and model airplane on which it is used.

**91.521 Shoulder harness.**

(a) No person may operate a transport category airplane unless it is equipped at each seat at a flight deck station with a combined safety belt and shoulder harness that meets the applicable requirements specified in Section 25.785 of the CASRs, except that_
(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before promulgation of Part 25 may continue to be used; and
(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

(b) No person may operate a transport category airplane unless it is equipped at each required flight attendant seat in the passenger compartment with a combined safety belt and shoulder harness that meets the applicable requirements specified in Section 25.785 of the CASRs, except that_
(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before the promulgation of Part 25 may continue to be used; and
(2) Safety belt and shoulder harness restraint systems may be designed to the inertia load factors established under the certification basis of the airplane.

**91.523 Carry-on baggage.**

No pilot in command of an airplane having a seating capacity of more than 19 passengers may permit a passenger to stow baggage aboard that airplane except_

(a) In a suitable baggage or cargo storage compartment, or as provided in Section 91.525; or

(b) Under a passenger seat in such a way that it will not slide forward under crash impacts severe enough to induce the ultimate inertia forces specified in Section 25.561(b)(3) of the CASRs, or the requirements of the regulations under which the airplane was type certificated. Restraining devices must also limit sideward motion of underseat baggage and be designed to withstand crash impacts severe enough to induce sideward forces specified in Section 25.561(b)(3) of the CASRs.

**91.525 Carriage of cargo.**

(a) No pilot in command may permit cargo to be carried in any airplane unless_

(1) It is carried in an approved cargo rack, bin, or compartment installed in the airplane;

(2) It is secured by means approved by the Director; or

(3) It is carried in accordance with each of the following:

(i) It is properly secured by a safety belt or other tie down having enough strength to eliminate the possibility of shifting under all normally anticipated flight and ground conditions.

(ii) It is packaged or covered to avoid possible injury to passengers.

(iii) It does not impose any load on seats or on the floor structure that exceeds the load limitation for those components.

(iv) It is not located in a position that restricts the access to or use of any required emergency or regular exit, or the use of the aisle between the crew and the passenger compartment.

(v) It is not carried directly above seated passengers.

(b) When cargo is carried in cargo compartments that are designed to require the physical entry of a crewmember to extinguish any fire that may occur during flight, the cargo must be loaded so as to allow a crewmember to effectively reach all parts of the compartment with the contents of a hand fire extinguisher.

**91.527 Operating in icing conditions.**

(a) No pilot may takeoff an airplane that has_

(1) Frost, snow, or ice adhering to any propeller, windshield, or powerplant installation or to an airspeed, altimeter, rate of climb, or flight attitude instrument system;

(2) Snow or ice adhering to the wings or stabilizing or control surfaces; or

(3) Any frost adhering to the wings or stabilizing or control surfaces, unless that frost has been polished to make it smooth.

(b) Except for an airplane that has ice protection provisions that meet the requirements for transport category airplane type certification, no pilot may fly_

(1) Under IFR into known or forecast moderate icing conditions; or

(2) Under VFR into known light or moderate icing conditions unless the aircraft has functioning deicing or anti-icing equipment protecting each propeller, windshield, wing, stabilizer, or control surface, and each airspeed, altimeter, rate of climb, or flight attitude instrument system.

(c) Except for an airplane that has ice protection provisions that meet the requirements for transport category airplane type certification, no pilot may fly an airplane into known or forecast severe icing conditions.

(d) If current weather reports and briefing information relied upon by the pilot in command indicate that the forecast icing conditions that would otherwise prohibit the flight will not be encountered \during the flight because of changed weather conditions since the forecast, the restrictions in Paragraphs (b) and (c) of this section based on forecast conditions do not apply.

**91.529 Flight engineer requirements.**

(a) No person may operate the following airplanes without a flight crewmember holding a current flight engineer certificate:
(1) An airplane for which a flight engineer is required by the airplane's type certification requirements.
(2) An airplane for which DGAC deems a flight engineer is necessary by the requirements of Part 25.

(b) No person may serve as a required flight engineer on an airplane unless, within the preceding 6 calendar months, that person has had at least 50 hours of flight time as a flight engineer on that type airplane or has been checked by the Director on that type airplane and is found to be familiar and competent with all essential current information and operating procedures.

**91.531 Second in command requirements.**

(a) Except as provided in Paragraph (b) of this section, no person may operate the following airplanes without a pilot who is designated as second in command of that airplane:
(1) A large airplane, except that a person may operate an airplane without a pilot who is designated as second in command if that airplane is certificated under applicable CASRs for operation with one pilot.
(2) A turbojet-powered multiengine airplane for which two pilots are required under the type certification requirements for that airplane.
(3) A commuter category airplane, except that a person may operate a commuter category airplane notwithstanding Paragraph (a)(1) of this section, that has a passenger seating configuration (not including pilot seats) of nine or less without a pilot who is designated as second in command if that airplane is type certificated for operations with one pilot.

(b) The Director may issue a letter of authorization for the operation of an airplane without compliance with the requirements of Paragraph (a) of this section if that airplane is designed for and type certificated with only one pilot station. The authorization contains any conditions that the Director finds necessary for safe operation.

(c) No person may designate a pilot to serve as second in command, nor may any pilot serve as second in command, of an airplane required under this section to have two pilots unless that pilot meets the qualifications for second in command prescribed in Section 61.55 of the CASRs.

**91.533 Flight attendant requirements.**

(a) No person may operate an airplane unless at least the following number of flight attendants are on board the airplane:

(1) For airplanes having more than 19 but less than 51 passengers on board, one flight attendant.

(2) For airplanes having more than 50 but less than 101 passengers on board, two flight attendants.

(3) For airplanes having more than 100 passengers on board, two flight attendants plus one additional flight attendant for each unit (or part of a unit) of 50 passengers above 100.

(b) No person may serve as a flight attendant on an airplane when required by Paragraph (a) of this section unless that person has demonstrated to the pilot in command familiarity with the necessary functions to be performed in an emergency or a situation requiring emergency evacuation and is capable of using the emergency equipment installed on that airplane.

**91.535 Stowage of food, beverage, and passenger service equipment during aircraft movement on the surface, takeoff, and landing.**

(a) No operator may move an aircraft on the surface, takeoff, or land when any food, beverage, or tableware furnished by the operator is located at any passenger seat.

(b) No operator may move an aircraft on the surface, takeoff, or land unless each food and beverage tray and seat back tray table is secured in its stowed position.

(c) No operator may permit an aircraft to move on the surface, takeoff, or land unless each passenger serving cart is secured in its stowed position.

(d) No operator may permit an aircraft to move on the surface, takeoff, or land unless each movie screen that extends into the aisle is stowed.

(e) Each passenger shall comply with instructions given by a crewmember with regard to compliance with this section.

**91.536 through 91.599 [Reserved]**

## SUBPART G__ ADDITIONAL EQUIPMENT AND OPERATING REQUIREMENTS FOR LARGE AND TRANSPORT CATEGORY AIRCRAFT

**91.601 Applicability.**
This subpart applies to operation of large and transport category Indonesian-registered civil aircraft.

**91.603 Aural speed warning device.**
No person may operate a transport category airplane in air commerce unless that airplane is equipped with an aural speed warning device that complies with Section 25.1303(c)(1).

**91.605 Transport category civil airplane weight limitations.**
(a) No person may takeoff any transport category airplane (other than a turbine engine powered airplane) unless_
  (1) The takeoff weight does not exceed the authorized maximum takeoff weight for the elevation of the airport of takeoff;
  (2) The elevation of the airport of takeoff is within the altitude range for which maximum takeoff weights have been determined;
  (3) Normal consumption of fuel and oil in flight to the airport of intended landing will leave a weight on arrival not in excess of the authorized maximum landing weight for the elevation of that airport; and
  (4) The elevations of the airport of intended landing and of all specified alternate airports are within the altitude range for which the maximum landing weights have been determined.

(b) No person may operate a turbine engine powered transport category airplane contrary to the Airplane Flight Manual, or takeoff that airplane unless_
  (1) The takeoff weight does not exceed the takeoff weight specified in the Airplane Flight Manual for the elevation of the airport and for the ambient temperature existing at the time of takeoff;
  (2) Normal consumption of fuel and oil in flight to the airport of intended landing and to the alternate airports will leave a weight on arrival not in excess of the landing weight specified in the Airplane Flight Manual for the elevation of each of the airports involved and for the ambient temperatures expected at the time of landing;
  (3) The takeoff weight does not exceed the weight shown in the Airplane Flight Manual to correspond with the minimum distances required for takeoff considering the elevation of the airport, the runway to be used, the effective runway gradient, and the ambient temperature and wind component existing at the time of takeoff; and
  (4) Where the takeoff distance includes a clearway, the clearway distance is not greater than one-half of the runway length.

(c) No person may takeoff a turbine engine powered transport category airplane unless, in addition to the requirements of Paragraph (b) of this section_
  (1) The accelerate-stop distance is no greater than the length of the runway plus the length of the stopway (if present); and

(2) The takeoff distance is no greater than the length of the runway plus the length of the clearway (if present); and
(3) The takeoff run is no greater than the length of the runway.

**91.607 Emergency exits for airplanes carrying passengers for hire.**

(a) Notwithstanding any other provision of the CASRs, no person may operate a large airplane in passenger carrying operations for hire, with more than the number of occupants prescribed for that aircraft by its type certificate.

However, with DGAC approval, an airplane may be operated with up to the listed number of occupants (including crewmembers) and the corresponding number of exits (including emergency exits and doors) approved for the emergency exit of passengers or with an occupant exit configuration approved under Paragraph (b) or (c) of this section.

(b) Occupants in addition to those authorized under Paragraph (a) of this section may be carried as follows:
(1) For each additional floor-level exit at least 24 inches wide by 48 inches high, with an unobstructed 20-inch wide access aisleway between the exit and the main passenger aisle, 12 additional occupants.
(2) For each additional window exit located over a wing that meets the requirements of the airworthiness standards under which the airplane was type certificated or that is large enough to inscribe an ellipse 19 x 26 inches, eight additional occupants.
(3) For each additional window exit that is not located over a wing but that otherwise complies with Paragraph (b)(2) of this section, five additional occupants.
(4) For each airplane having a ratio (as computed from the table in Paragraph (a) of this section) of maximum number of occupants to number of exits greater than 14:1, and for each airplane that does not have at least one full-size, door-type exit in the side of the fuselage in the rear part of the cabin, the first additional exit must be a floor-level exit that complies with Paragraph (b)(1) of this section and must be located in the rear part of the cabin on the opposite side of the fuselage from the main entrance door. However, no person may operate an airplane under this section carrying more than 115 occupants unless there is such an exit on each side of the fuselage in the rear part of the cabin.

(c) No person may eliminate any approved exit except in accordance with the following:
(1) The previously authorized maximum number of occupants must be reduced by the same number of additional occupants authorized for that exit under this section.
(2) Exits must be eliminated in accordance with the following priority schedule: First, non-overwing window exits; second, overwing window exits; third, floor-level exits located in the forward part of the cabin; and fourth, floor-level exits located in the rear of the cabin.
(3) At least one exit must be retained on each side of the fuselage regardless of the number of occupants.
(4) No person may remove any exit that would result in a ratio of maximum number of occupants to approved exits greater than 14:1.

(d) This section does not relieve any person operating under Part 121 of the CASRs from complying with the emergency evacuation procedures demonstration required by Section 121.291.

**91.609 Flight recorders and cockpit voice recorders.**

(a) No holder of an Air Carrier Operator Certificate may conduct any operation under this part with an aircraft listed in the holder's operations specifications or current list of aircraft used in air transportation unless that aircraft complies with any applicable flight recorder and cockpit voice recorder requirements of the part under which its certificate is issued. However, the operator may_

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned, if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft; or

(4) Ferry a newly acquired aircraft from the place where possession of it is taken to a place where the flight recorder or cockpit voice recorder is to be installed.

(b) Notwithstanding Paragraphs (c) and (e) of this section, an operator other than the holder of an air carrier or a commercial operator certificate may_

(1) Ferry an aircraft with an inoperative flight recorder or cockpit voice recorder from a place where repair or replacement cannot be made to a place where they can be made;

(2) Continue a flight as originally planned if the flight recorder or cockpit voice recorder becomes inoperative after the aircraft has taken off;

(3) Conduct an airworthiness flight test during which the flight recorder or cockpit voice recorder is turned off to test it or to test any communications or electrical equipment installed in the aircraft;

(4) Ferry a newly acquired aircraft from a place where possession of it was taken to a place where the flight recorder or cockpit voice recorder is to be installed; or

(5) Operate an aircraft:

(i) For not more than 15 days while the flight recorder and/or cockpit voice recorder is inoperative and/or removed for repair provided that the aircraft maintenance records contain an entry that indicates the date of failure, and a placard is located in view of the pilot to show that the flight recorder or cockpit voice recorder is inoperative.

(ii) For not more than an additional 15 days, provided that the requirements in Paragraph (b)(5)(i) are met and that a certificated pilot, or a certificated person authorized to return an aircraft to service under applicable regulations of the CASRs, certifies in the aircraft maintenance records that additional time is required to complete repairs or obtain a replacement unit.

(c) No person may operate an Indonesian civil registered, multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration (not including any pilot seats) of 30 or more that has been manufactured after October 15, 1991, unless it is equipped with one or more approved flight recorders that utilize a digital method of recording and storing data and a method of readily retrieving that data from the storage medium, that are capable of recording the data specified in Appendix E to this part, for an airplane, or Appendix F to this part, for a rotorcraft, of this part within the range, accuracy, and recording interval specified, and that are capable of retaining no less than 8 hours of aircraft operation.

(d) Whenever a flight recorder, required by this section, is installed, it must be operated continuously from the instant the airplane begins the takeoff roll or the rotorcraft begins liftoff until the airplane has completed the landing roll or the rotorcraft has landed at its destination.

(e) Unless otherwise authorized by the Director, after December 1998, no person may operate an Indonesian civil registered multiengine, turbine-powered airplane or rotorcraft having a passenger seating configuration of six passengers or more and for which two pilots are required by type certification or operating rule unless it is equipped with an approved cockpit voice recorder that:
(1) Is installed in compliance with standart acceptable for DGAC and the CASRs, as applicable; and
(2) Is operated continuously from the use of the checklist before the flight to completion of the final checklist at the end of the flight.

(f) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that at any time during the operation of the recorder, information recorded more than 15 minutes earlier may be erased or otherwise obliterated.

(g) In the event of an accident or occurrence requiring immediate notification to the DGAC that results in the termination of the flight, any operator who has installed approved flight recorders and approved cockpit voice recorders shall keep the recorded information for at least 60 days or, if requested by the Director, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences in connection with the investigation. The Director does not use the cockpit voice recorder record in any civil penalty or certificate action.

**91.611 Authorization for ferry flight with one engine inoperative.**

(a) General. The holder of an Air Carrier Operator Certificate or a Commercial Operator Certificate issued under Part 125 may conduct a ferry flight of a four engine airplane or a turbine engine powered airplane equipped with three engines, with one engine inoperative, to a base for the purpose of repairing that engine subject to the following:
(1) The airplane model has been test flown and found satisfactory for safe flight in accordance with Paragraph (b) or (c) of this section, as appropriate.
(2) The approved Airplane Flight Manual contains the following performance data and the flight is conducted in accordance with that data:
(i) Maximum weight.
(ii) Center of gravity limits.

(iii) Configuration of the inoperative propeller (if applicable).
(iv) Runway length for takeoff (including temperature accountability).
(v) Altitude range.
(vi) Certificate limitations.
(vii) Ranges of operational limits.
(viii) Performance information.
(ix) Operating procedures.

(3) The operator has DGAC-approved procedures for the safe operation of the airplane, including specific requirements for_
(i) Limiting the operating weight on any ferry flight to the minimum necessary for the flight plus the necessary reserve fuel load;
(ii) A limitation that takeoffs must be made from dry runways unless, based on a showing of actual operating takeoff techniques on wet runways with one engine inoperative, takeoffs with full controllability from wet runways have been approved for the specific model aircraft and included in the Airplane Flight Manual:
(iii) Operations from airports where the runways may require a takeoff or approach over populated areas; and
(iv) Inspection procedures for determining the operating condition of the operative engines.

(4) No person may takeoff an airplane under this section if_
(i) The initial climb is over thickly populated areas; or
(ii) Weather conditions at the takeoff or destination airport are less than those required for VFR flight.

(5) Persons other than required flight crewmembers shall not be carried during the flight.

(6) No person may use a flight crewmember for flight under this section unless that crewmember is thoroughly familiar with the operating procedures for one engine inoperative ferry flight contained in the certificate holder's manual and the limitations and performance information in the Airplane Flight Manual.

(b) Flight tests: reciprocating engine powered airplanes. The airplane performance of a reciprocating engine powered airplane with one engine inoperative must be determined by flight test as follows:

(1) A speed not less than 1.3 Vs1 must be chosen at which the airplane may be controlled satisfactorily in a climb with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator) and with all other engines operating at the maximum power determined in Paragraph (b)(3) of this section.

(2) The distance required to accelerate to the speed listed in Paragraph (b)(1) of this section and to climb to 50 feet must be determined with_
(i) The landing gear extended;
(ii) The critical engine inoperative and its propeller removed (or in a configuration desired by the operator); and
(iii) The other engines operating at not more than maximum power established under Paragraph (b)(3) of this section.

(3) The takeoff, flight and landing procedures, such as the approximate trim settings, method of power application, maximum power, and speed must be established.

(4) The performance must be determined at a maximum weight not greater than the weight that allows a rate of climb of at least 400 feet per minute in the enroute configuration set forth in Part 25 of the CASRs at an altitude of 5,000 feet.

(5) The performance must be determined using temperature accountability for the takeoff field length, computed in accordance with Part 25 of the CASRs in effect on [date to be determined].

(c) Flight tests: Turbine engine powered airplanes. The airplane performance of a turbine engine powered airplane with one engine inoperative must be determined by flight tests, including at least three takeoff tests, in accordance with the following:

(1) Takeoff speeds Vr and V2, not less than the corresponding speeds under which the airplane was type certificated under Section 25.107 of the CASRs, must be chosen at which the airplane may be controlled satisfactorily with the critical engine inoperative (with its propeller removed or in a configuration desired by the operator, if applicable) and with all other engines operating at not more than the power selected for type certification as set forth in Section 25.101 of the CASRs.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate and climb to the 35-foot height at V2 speed (including any additional speed increment obtained in the tests) multiplied by 115 percent and determined with_

(i) The landing gear extended;

(ii) The critical engine inoperative and its propeller removed (or in a configuration desired by the operator, if applicable); and

(iii) The other engine operating at not more than the power selected for type certification as set forth in Section 25.101 of the CASRs.

(3) The takeoff, flight, and landing procedures such as the approximate trim setting, method of power application, maximum power, and speed must be established. The airplane must be satisfactorily controllable during the entire takeoff run when operated according to these procedures.

(4) The performance must be determined at a maximum weight not greater than the weight determined under Section 25.121(c) of the CASRs but with_

(i) The actual steady gradient of the final takeoff climb requirement not less than 1.2 percent at the end of the takeoff path with two critical engines inoperative; and

(ii) The climb speed not less than the two engine inoperative trim speed for the actual steady gradient of the final takeoff climb prescribed by Paragraph (c)(4)(i) of this section.

(5) The airplane must be satisfactorily controllable in a climb with two critical engines inoperative. Climb performance may be shown by calculations based on, and equal in accuracy to, the results of testing.

(6) The performance must be determined using temperature accountability for takeoff distance and final takeoff climb computed in accordance with Section 25.101 of the CASRs.

For the purpose of Paragraphs (c)(4) and (5) of this section, "two critical engines" means two adjacent engines on one side of an airplane with four engines, and the center engine and one outboard engine on an airplane with three engines.

**91.613 Materials for compartment interiors**

No person may operate an airplane that conforms to an amended or supplemental type certificate for a maximum certificated takeoff weight in excess of 12,500 pounds unless, within 1 year after issuance of the initial airworthiness certificate the airplane meets the compartment interior requirements set forth in Section 25.853(a), (b), (b-1), (b-2), and (b-3) of the CASRs.

91.615 through 91.699 [Reserved]

## SUBPART H__ FOREIGN AIRCRAFT OPERATIONS AND OPERATIONS OF INDONESIAN-REGISTERED CIVIL AIRCRAFT OUTSIDE OF INDONESIA

**91.701 Applicability.**
This subpart applies to the operations of civil aircraft of Indonesian registry outside of Indonesia and the operations of foreign civil aircraft within Indonesia.

**91.703 Operations of civil aircraft of Indonesian registry outside of Indonesia.**
(a) Each person operating a civil aircraft of Indonesian registry outside of Indonesia shall_
(1) When over the high seas, comply with Annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with Sections 91.117(c), 91.127, 91.129, and 91.131;
(2) When within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force;
(3) Except for Sections 91.307(b), 91.309, and 91.711, comply with this part so far as it is not inconsistent with applicable regulations of the foreign country where the aircraft is operated or Annex 2 of the Convention on International Civil Aviation; and
(4) When over the North Atlantic within airspace designated as Minimum Navigation Performance Specifications airspace, comply with Section 91.705.

(b) Annex 2 to the Convention on International Civil Aviation, Eighth Edition__ July 1986 (with amendments through Amendment 28), is incorporated into this part. In addition, Annex 2 may be purchased from the International Civil Aviation Organization (Attention: Distribution Officer), P.O. Box 400, Succursale, Place de L'Aviation Internationale, 1000 Sherbrooke Street West, Montreal, Quebec, Canada H3A 2R2.

**91.705 Operations within the North Atlantic Minimum Navigation Performance Specifications Airspace.**
No person may operate a civil aircraft of Indonesian registry in North Atlantic (NAT) airspace designated as Minimum Navigation Performance Specifications (MNPS) airspace unless_

(a) The aircraft has approved navigation performance capability which complies with the requirements of Appendix C of this part; and

(b) The operator is authorized by the Director to perform such operations.

(c) The Director authorizes deviations from the requirements of this section in accordance with Appendix C to this part.

**91.711 Special rules for foreign civil aircraft.**

(a) General. In addition to the other applicable regulations of this part, each person operating a foreign civil aircraft within Indonesia shall comply with this section.

(b) VFR. No person may conduct VFR operations which require two-way radio communications under this part unless at least one crewmember of that aircraft is able to conduct two-way radio communications in the English language and is on duty during that operation.

(c) IFR. No person may operate a foreign civil aircraft under IFR unless_

(1) That aircraft is equipped with_

(i) Radio equipment allowing two-way radio communication with ATC when it is operated in controlled airspace; and

(ii) Radio navigational equipment appropriate to the navigational facilities to be used;

(2) Each person piloting the aircraft_

(i) Holds a current Indonesian instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with Indonesian enroute, holding, and letdown procedures; and

(3) At least one crewmember of that aircraft is able to conduct two-way radio telephone communications in the English language and that crewmember is on duty while the aircraft is approaching, operating within, or leaving Indonesia.

(d) Over water. Each person operating a foreign civil aircraft over water off the shores of Indonesia shall give flight notification or file a flight plan in accordance with the Supplementary Procedures for the ICAO region concerned.

(e) Flight at and above FL 240. If VOR navigational equipment is required under Paragraph (c)(1)(ii) of this section, no person may operate a foreign civil aircraft within Indonesia at or above FL 240, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VORTAC facilities to be used. When DME required by this paragraph fails at and above FL 240, the pilot in command of the aircraft shall notify ATC immediately and may then continue operations at and above FL 240 to the next airport of intended landing at which repairs or replacement of the equipment can be made. However, Paragraph (e) of this section does not apply to foreign civil aircraft that are not equipped with DME when operated for the following purposes and if ATC is notified prior to each takeoff:

(1) Ferry flights to and from a place in Indonesia where repairs or alterations are to be made.

(2) Ferry flights to a new country of registry.

(3) Flight of a new aircraft of Indonesian manufacture for the purpose of_

(i) Flight testing the aircraft;

(ii) Training foreign flight crews in the operation of the aircraft; or

(iii) Ferrying the aircraft for export delivery outside Indonesia.

(4) Ferry, demonstration, and test flight of an aircraft brought to Indonesia for the purpose of demonstration or testing the whole or any part thereof.

91.713 RESERVE

**91.715 Special flight authorizations for foreign civil aircraft.**

(a) Foreign civil aircraft may be operated without airworthiness certificates required under Section 91.203 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization, including an authorization for an aircraft to be operated in Indonesia for the purpose of demonstration at an airshow, must be made to the DGAC.

(b) The Director may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the Director considers necessary for safe operation in the Indonesian airspace.

**91.717 through 91.799 [Reserved]**

## SUBPART I RESERVED

**91.801 through 91.899 [Reserved]**

## SUBPART J DEVIATION AUTHORITY

**91.901 RESERVE**

**91.903 Policy and procedures.**

(a) The Director may, upon consideration of the circumstances of a particular operation, issue a Letter of Deviation Authority providing relief from specified sections of Part 91. This deviation authority will be issued as a Letter of Deviation Authority.

(b) A Letter of Deviation Authority may be terminated or amended at any time by the Director.

(c) A request for deviation authority must be submitted to the DGAC, not less than 60 days prior to the date of intended operations. A request for deviation authority must contain a complete statement of the circumstances and justification for the deviation requested.

**91.907 through 91.999 [Reserved]**

## APPENDIX A - CATEGORY II OPERATIONS: MANUAL, INSTRUMENTS, EQUIPMENT, AND MAINTENANCE

### 91xA.1 Category II Manual

(a) Application for approval. An applicant for approval of a Category II manual or an amendment to an approved Category II manual must submit the proposed manual or amendment to the DGAC. If the application requests an evaluation program, it must include the following:

(1) The location of the aircraft and the place where the demonstrations are to be conducted; and

(2) The date the demonstrations are to commence (at least 10 days after filing the application).

(b) Contents. Each Category II manual must contain:

(1) The registration mark, make, and model of the aircraft to which it applies;

(2) A maintenance program as specified in Section 4 of this appendix; and

(3) The procedures and instructions related to recognition of decision height, use of runway visual range information, approach monitoring, the decision region (the region between the middle marker and the decision height), the maximum permissible deviations of the basic ILS indicator within the decision region, a missed approach, use of airborne low approach equipment, minimum altitude for the use of the autopilot, instrument and equipment failure warning systems, instrument failure, and other procedures, instructions, and limitations that may be found necessary by the Director.

### 91xA.2 Required Instruments and Equipment

The instruments and equipment listed in this section must be installed in each aircraft operated in a Category II operation. This section does not require duplication of instruments and equipment required by Section 91.205 or any other provisions of the CASRs.

(a) Group I.

(1) Two localizer and glide slope receiving systems. Each system must provide a basic ILS display and each side of the instrument panel must have a basic ILS display. However, a single localizer antenna and a single glide slope antenna may be used.

(2) A communications system that does not affect the operation of at least one of the ILS systems. (3) A marker beacon receiver that provides distinctive aural and visual indications of the outer and the middle markers.

(4) Two gyroscopic pitch and bank indicating systems.

(5) Two gyroscopic direction indicating systems.

(6) Two airspeed indicators.

(7) Two sensitive altimeters adjustable for barometric pressure, each having a placarded correction for altimeter scale error and for the wheel height of the aircraft. After [date to be determined], two sensitive altimeters adjustable for barometric pressure, having markings at 20-foot intervals and each having a placarded correction for altimeter scale error and for the wheel height of the aircraft.

(8) Two vertical speed indicators.

(9) A flight control guidance system that consists of either an automatic approach coupler or a flight director system. A flight director system must display computed information as steering command in relation to an ILS localizer and, on the same instrument,

either computed information as pitch command in relation to an ILS glide slope or basic ILS glide slope information. An automatic approach coupler must provide at least automatic steering in relation to an ILS localizer. The flight control guidance system may be operated from one of the receiving systems required by Subparagraph (1) of this paragraph.

(10) For Category II operations with decision heights below 150 feet either a marker beacon receiver providing aural and visual indications of the inner marker or a radio altimeter.

(b) Group II.

(1) Warning systems for immediate detection by the pilot of system faults in items (1), (4), (5), and (9) of Group I and, if installed for use in Category III operations, the radio altimeter and autothrottle system.

(2) Dual controls.

(3) An externally vented static pressure system with an alternate static pressure source.

(4) A windshield wiper or equivalent means of providing adequate cockpit visibility for a safe visual transition by either pilot to touchdown and rollout.

(5) A heat source for each airspeed system pitot tube installed or an equivalent means of preventing malfunctioning due to icing of the pitot system.

**91xA.3 Instruments and Equipment Approval**

(a) General. The instruments and equipment required by Section 2 of this appendix must be approved as provided in this section before being used in Category II operations. Before presenting an aircraft for approval of the instruments and equipment, it must be shown that since the beginning of the 12th calendar month before the date of submission_

(1) The ILS localizer and glide slope equipment were bench checked according to the manufacturer's instructions and found to meet those standards specified by the Director.

(2) The altimeters and the static pressure systems were tested and inspected in accordance with Appendix E to Part 43 of the CASRs; and

(3) All other instruments and items of equipment specified in Section 2(a) of this appendix that are listed in the proposed maintenance program were bench checked and found to meet the manufacturer's specifications.

(b) Flight control guidance system. All components of the flight control guidance system must be approved as installed by the evaluation program specified in Paragraph (e) of this section if they have not been approved for Category III operations under applicable type or supplemental type certification procedures. In addition, subsequent changes to make, model, or design of the components must be approved under this paragraph. Related systems or devices, such as the autothrottle and computed missed approach guidance system, must be approved in the same manner if they are to be used for Category II operations.

(c) Radio altimeter. A radio altimeter must meet the performance criteria of this paragraph for original approval and after each subsequent alteration.

(1) It must display to the flight crew clearly and positively the wheel height of the main landing gear above the terrain.

(2) It must display wheel height above the terrain to an accuracy of ±5 feet or 5 percent, whichever is greater, under the following conditions:
(i) Pitch angles of zero to ±5° about the mean approach attitude.
(ii) Roll angles of zero to 20° in either direction.
(iii) Forward velocities from minimum approach speed up to 200 knots.
(iv) Sink rates from zero to 15 feet per second at altitudes from 100 to 200 feet.
(3) Over level ground, it must track the actual altitude of the aircraft without significant lag or oscillation.
(4) With the aircraft at an altitude of 200 feet or less, any abrupt change in terrain representing no more than 10 percent of the aircraft's altitude must not cause the altimeter to unlock, and indicator response to such changes must not exceed 0.1 seconds and, in addition, if the system unlocks for greater changes, it must reacquire the signal in less than 1 second.
(5) Systems that contain a push to test feature must test the entire system (with or without an antenna) at a simulated altitude of less than 500 feet.
(6) The system must provide to the flight crew a positive failure warning display any time there is a loss of power or an absence of ground return signals within the designed range of operating altitudes.

(d) Other instruments and equipment. All other instruments and items of equipment required by Paragraph 2 of this appendix must be capable of performing as necessary for Category II operations. Approval is also required after each subsequent alteration to these instruments and items of equipment.

(e) Evaluation program_
(1) Application. Approval by evaluation is requested as a part of the application for approval of the Category II manual.
(2) Demonstrations. Unless otherwise authorized by the Director, the evaluation program for each aircraft requires the demonstrations specified in this paragraph. At least 50 ILS approaches must be flown with at least five approaches on each of three different ILS facilities and no more than one half of the total approaches on any one ILS facility. All approaches shall be flown under simulated instrument conditions to a 100-foot decision height and 90 percent of the total approaches made must be successful. A successful approach is one in which_
(i) At the 100-foot decision height, the indicated airspeed and heading are satisfactory for a normal flare and landing (speed must be ±5 knots of programmed airspeed, but may not be less than computed threshold speed if autothrottles are used);
(ii) The aircraft at the 100-foot decision height, is positioned so that the cockpit is within, and tracking so as to remain within, the lateral confines of the runway extended;
(iii) Deviation from glide slope after leaving the outer marker does not exceed 50 percent of full-scale deflection as displayed on the ILS indicator;
(iv) No unusual roughness or excessive attitude changes occur after leaving the middle marker; and
(v) In the case of an aircraft equipped with an approach coupler, the aircraft is sufficiently in trim when the approach coupler is disconnected at the decision height to allow for the continuation of a normal approach and landing.

(3) Records. During the evaluation program the following information must be maintained by the applicant for the aircraft with respect to each approach and made available to the Director upon request:
  (i) Each deficiency in airborne instruments and equipment that prevented the initiation of an approach.
  (ii) The reasons for discontinuing an approach, including the altitude above the runway at which it was discontinued.
  (iii) Speed control at the 100-foot decision height if auto throttles are used.
  (iv) Trim condition of the aircraft upon disconnecting the auto coupler with respect to continuation to flare and landing.
  (v) Position of the aircraft at the middle marker and at the decision height indicated both on a diagram of the basic ILS display and a diagram of the runway extended to the middle marker. Estimated touchdown point must be indicated on the runway diagram.
  (vi) Compatibility of flight director with the auto coupler, if applicable.
  (vii) Quality of overall system performance.
(4) Evaluation. A final evaluation of the flight control guidance system is made upon successful completion of the demonstrations. If no hazardous tendencies have been displayed or are otherwise known to exist, the system is approved as installed.

**91xA.4 Maintenance program**

(a) Each maintenance program must contain the following:
(1) A list of each instrument and item of equipment specified in Paragraph 2 of this appendix that is installed in the aircraft and approved for Category II operations, including the make and model of those specified in Paragraph 2(a).
(2) A schedule that provides for the performance of inspections under Snubparagraph (5) of this paragraph within 3 calendar months after the date of the previous inspection. The inspection must be performed by a person authorized by Part 43 of the CASRs, except that each alternate inspection may be replaced by a functional flight check. This functional flight check must be performed by a pilot holding a Category II pilot authorization for the type aircraft checked.
(3) A schedule that provides for the performance of bench checks for each listed instrument and item of equipment that is specified in Section 2(a) within 12 calendar months after the date of the previous bench check.
(4) A schedule that provides for the performance of a test and inspection of each static pressure system in accordance with Appendix E to Part 43 of the CASRs within 12 calendar months after the date of the previous test and inspection.
(5) The procedures for the performance of the periodic inspections and functional flight checks to determine the ability of each listed instrument and item of equipment specified in Section 2(a) of this appendix to perform as approved for Category II operations including a procedure for recording functional flight checks.
(6) A procedure for assuring that the pilot is informed of all defects in listed instruments and items of equipment.
(7) A procedure for assuring that the condition of each listed instrument and item of equipment upon which maintenance is performed is at least equal to its Category II approval condition before it is returned to service for Category II operations.

(8) A procedure for an entry in the maintenance records required by Section 43.9 of the CASRs that shows the date, airport, and reasons for each discontinued Category II operation because of a malfunction of a listed instrument or item of equipment.

(b) Bench check. A bench check required by this section must comply with this paragraph.
(1) It must be performed by a certificated repair station holding one of the following ratings as appropriate to the equipment checked:
(i) An instrument rating.
(ii) A radio rating.
(iii) A rating issued under Subpart D of Part 145 of the CASRs.3
(2) It must consist of removal of an instrument or item of equipment and performance of the following:
(i) A visual inspection for cleanliness, impending failure, and the need for lubrication, repair, or replacement of parts;
(ii) Correction of items found by that visual inspection; and
(iii) Calibration to at least the manufacturer's specifications unless otherwise specified in the approved Category II manual for the aircraft in which the instrument or item of equipment is installed.

(c) Extensions. After the completion of one maintenance cycle of 12 calendar months, a request to extend the period for checks, tests, and inspections is approved if it is shown that the performance of particular equipment justifies the requested extension.

## APPENDIX B

[Reserved]

## APPENDIX C__ OPERATIONS IN THE NORTH ATLANTIC (NAT) MINIMUM NAVIGATION PERFORMANCE SPECIFICATIONS (MNPS) AIRSPACE

**91xC.1**

NAT MNPS airspace is that volume of airspace between FL 275 and FL 400 extending between latitude 27° north and the North Pole, bounded in the east by the eastern boundaries of control areas Santa Maria Oceanic, Shanwick Oceanic, and Reykjavik Oceanic and in the west by the western boundary of Reykjavik Oceanic Control Area, the western boundary of Gander Oceanic Control Area, and the western boundary of New York Oceanic Control Area, not including the areas west of 60 degrees west and south of 38 degrees 30 minutes north.

**91xC.2**

The navigation performance capability required for aircraft to be operated in the airspace defined in Section 1 of this appendix is as follows:

(a) The standard deviation of lateral track errors shall be less than 6.3 NM (11.7 km Standard deviation is a statistical measure of data about a mean value. The mean is zero nautical miles. The overall form of data is such that the plus and minus 1 standard deviation about the mean encompasses approximately 68 percent of the data and plus or minus two deviations encompasses approximately 95 percent.

(b) The proportion of the total flight time spent by aircraft 30 NM (55.6 km or more off the cleared track shall be less than 5.3 x 10^-4 (less than 1 hour in 1,887 flight hours).

(c) The proportion of the total flight time spent by aircraft between 50 NM and 70 NM (92.6 km and 129.6 km) off the cleared track shall be less than 13 x 10^-5 (less than 1 hour in 7,693 flight hours.)

**91xC.3**

Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of Section 91.705 for a specific flight if, at the time of flight plan filing for that flight, ATC determines that the aircraft may be provided appropriate separation and that the flight will not interfere with, or impose a burden upon, the operations of other aircraft which meet the requirements of Section 91.705.

## APPENDIX E AIRPLANE FLIGHT RECORDER SPECIFICATIONS

| | |
|---|---|
| Parameter__ Relative Time (From Recorded on Prior to Takeoff) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | 8 hr minimum<br>±0.125% per hour<br>1<br>1 sec |
| Indicated Airspeed | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Vs0 to VD (KIAS)<br>±5% or ±10 knots, whichever is greater.<br>Resolution 2 knots below 175 KIAS<br>1<br>1% [3] |
| Altitude | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | -1,000 feet to max cert. alt. of A/C<br>±100 to ±700 feet (see Table 1, TSO C51-a)<br>11<br>25 to 150 feet |
| Magnetic Heading | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | 360°<br>±5°<br>1<br>1° |
| Vertical Acceleration | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | -3 g to +6 g<br>±0.2 g in addition to ±0.3 g maximum datum<br>4 (or 1 per second where peaks, ref. to 1 g are recorded)<br>0.03 g |
| Longitudinal Acceleration | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | ±1.0 g<br>±1.5% max. range not including datum error of ±5%<br>2<br>0.01 g |

| | |
|---|---|
| Pitch Attitude | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | 100% of usable<br>±2°<br>1<br>0.8° |
| Roll Attitude | |
| Range<br><br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | ±60° or 100% of usable range, whichever is greater<br>±2°<br>1<br>0.8° |
| Stabilizer Trim Position, or Pitch Control Position | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Full Range<br>±3% unless higher uniquely required<br>1<br>1% [3] |
| Engine Power, Each Engine: | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Full Range<br>±3% unless higher uniquely required<br>1<br>1% [3] |
| Fan or N1 Speed or EPR or Cockpit indications Used for Aircraft Certification OR | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Maximum Range<br>±5%<br>1<br>1% [3] |
| Prop. Speed and Torque (Sample Once/Sec as Close together as Practicable) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | 1 (prop Speed)<br>1% [3]<br>1 (torque)<br>1% [3] |
| Altitude Rate [2] (need depends on altitude resolution) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1] | ±8,000 fpm<br>±10%. Resolution 250 fpm below 12,000 feet indicated |

| | |
|---|---|
| Sampling interval (per second)<br>Resolution read out [4] | 1<br>250 fpm. below 12,000 |
| Angle of Attack [2] (need depends on altitude resolution) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | -20° to 40° or 100% of usable range<br>±2°<br>1<br>0.8% [3] |
| Radio Transmitter Keying (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | On/Off<br>1 |
| TE Flaps (Discrete or Analog) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Each discrete position (U, D, T/O, AAP)<br>OR<br>1<br>Analog 0 to 100% range<br>±3%<br>1<br>1% [3] |
| LE Flaps (Discrete or Analog) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Each discrete position (U, D, T/O, AAP)<br>OR<br>1<br>Analog 0 to 100% range<br>±3%<br>1<br>1% [3] |
| Thrust Reverser, Each Engine (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Stowed or full reverse |
| Spoiler/Speedbrake (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second) | Stowed or out<br>1 |

| | |
|---|---|
| Resolution read out [4] | |
| Autopilot Engaged (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [4] | Engaged or Disengaged<br>1 |

**Notes:**

[1] When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system not including these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

[2] If data from the altitude encoding altimeter (100 feet resolution) is used, then either one of these parameters should also be recorded. If however, altitude is recorded at a minimum resolution of 25 feet, then these two parameters can be omitted.

[3] Percent of full range.

[4] This column applies to aircraft manufactured after October 11, 1991.

## APPENDIX F__ HELICOPTER FLIGHT RECORDER SPECIFICATIONS

Key:
Parameters
Range
Installed system minimum accuracy (to recovered data) [1]
Sampling interval (per second)
Resolution read out [3].

| Parameter__ Relative Time (From Recorded on Prior to Takeoff) | |
|---|---|
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | 4 hr minimum<br>±0.125% per hour<br>1<br>1 sec |
| Indicated Airspeed | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Vm in to Vd (KIAS) (minimum airspeed signal attainable with installed pitot/static system)<br>±5% or ±10 knots, whichever is greater<br>1<br>1 knot |
| Altitude | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | -1,000 feet to 20,000 feet pressure altitude<br>±100 to ±700 feet (see Table 1, TSO C51-a)<br>1<br>25 to 150 feet |
| Magnetic Heading | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | 360°<br>±5°<br>1<br>1° |
| Vertical Acceleration | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | -3 g to +6 g<br>±0.2 g in addition to ±0.3 g maximum datum 4 (or 1 per second where peaks, ref. to 1 g are recorded)<br>0.05 g |
| Longitudinal Acceleration | |

| | |
|---|---|
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br><br>Sampling interval (per second)<br>Resolution read out [3] | ±1.0 g<br>±1.5% max. range not including datum error of ±5%<br>2<br>0.03 g |
| Pitch Attitude | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | 100% of usable range<br>±2°<br>1<br>0.8° |
| Roll Attitude | |
| Range<br><br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | ±60 or 100% of usable range, whichever is greater<br>±2°<br>1<br>0.8° |
| Altitude Rate | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | ±8,000 fpm<br>±10% Resolution 250 fpm below 12,000 feet indicated<br>1<br>250 fpm below 12,000. |
| Engine Power, Each Engine: | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Main Rotor Speed<br>Maximum Range<br>±5%<br>1<br>1% [2] |
| Free or Power Turbine | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Maximum Range<br>±5%<br>1<br>1% [2] |
| Engine Torque Maximum Range | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second) | ±5%<br>1<br>1% [2] |

| | |
|---|---|
| Resolution read out [3] | |
| Flight Control Hydraulic Pressure: Primary Flight Control Hydraulic Pressure (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br><br>Sampling interval (per second)<br>Resolution read out [3] | High/Low<br>1 |
| Secondary Flight Control Hydraulic Pressure - if applicable (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | High/Low<br>1 |
| Radio Transmitter Keying (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | On/Off<br>1 |
| Autopilot Engaged (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Engaged or Disengaged<br>1 |
| SAS Status Engaged (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Engaged or Disengaged<br>1 |
| SAS Fault Status (Discrete) | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Fault/OK<br>1 |
| Flight Controls: | |
| Range<br>Installed system minimum accuracy (to | Collective<br>Full range |

| | |
|---|---|
| recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | ±3%<br>2<br>1% [2]<br><br>Pedal Position<br>Full range<br>±3%<br>2<br>1% [2]<br><br>Lat. Cyclic<br>Full range<br>±3%<br>2<br>1% [2]<br><br>Long. Cyclic<br>Full range<br>±3%<br>2<br>1% [2] |
| Controllable Stabilator Position | |
| Range<br>Installed system minimum accuracy (to recovered data) [1]<br>Sampling interval (per second)<br>Resolution read out [3] | Full range<br>±3%<br>2<br>1% [2] |

**Notes:**

[1] When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system not including these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.

[2] Percent of full range.

[3] This column applies to aircraft manufactured after October 11, 1991.

**MENTERI PERHUBUNGAN**

**ttd**

**Dr. HARYANTO DHANUTIRTO**

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NIP 120106134

LAMPIRAN V KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR : KM. 24 TAHUN 1997
TANGGAL : 22 Juli 1997

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# AIRCRAFT MAINTENANCE TRAINING ORGANIZATIONS (PART 147)

LAMPIRAN V KEPUTUSAN MENTERI PERHUBUNGAN

NOMOR :
TANGGAL

# AIRCRAFT MAINTENANCE TRAINING ORGANIZATIONS

# (PART 147)

# CASR PART 147 - AIRCRAFT MAINTENANCE TRAINING ORGANIZATIONS

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Subpart E - Operating Rules



APPENDIX A
Facility and Equipment Requirements for
Approved Maintenance Training Organizations

SUBPART A- GENERAL

147.1 Applicability.

This part prescribes the requirements for issuing aircraft maintenance training organization certificates and associated ratings, and the general operating rules for holders of those certificates and ratings.

147.3 Recognized training courses

(a) The provisions of Section 147.1 includes the issuing of Maintenance Training Organization certificates to provide basic aircraft and avionics maintenance training and / or aircraft and aircraft equipment type training.

(b) Upon meeting the applicable provisions of this Part, the Director General shall grant a certificate to a qualifying training organization for one or both of the following types of aircraft maintenance training:

(1) Basic aircraft training courses -- intended for the initial training of students in either general aircraft or avionics maintenance, completion of which will entitle a graduate to credit towards the total experience time required to qualify for an Aircraft Maintenance Engineer license in accordance with CASR Part 65.

(2) Aircraft and aircraft equipment type courses -- normally intended for licensed and experienced Aircraft Maintenance Engineers, and, where applicable, will entitle a graduate to a type rating on an existing Aircraft Maintenance Engineer License in accordance with CASR Part 65.

147.5 Certificate required.

No person may operate as an approved aircraft maintenance training organization without, or in violation of, an aircraft maintenance training organization certificate issued under this part.

147.7 Application and issue.

(a) An application for a certificate and rating, or for an additional rating, under this part is made on a form and in a manner prescribed by the Director General, and submitted with:

(1) Two copies of a training procedure manual;
(2) A description of the proposed curriculum;
(3) A list of the facilities and equipment to be used;

(4) A list of instructors, including the classes of license and ratings held and their license numbers; and

(5) A statement of the maximum number of students the organization expects to teach at any one time.

(b) An applicant who meets the requirements of this part is entitled to an aircraft maintenance training organization certificate and associated ratings prescribing the operations specifications and limitations.

**147.9 Duration of certificates.**

(a) An aircraft maintenance training organization certificate shall remain in force for such period as determined by the Director General forthwith.

(b) The holder of a certificate that is surrendered, suspended, or revoked, shall return it to the Director General.

## SUBPART B - APPROVAL REQUIREMENTS - GENERAL

**147.13 Training Procedures Manual**

An applicant for aircraft maintenance training organization approval shall prepare a Training Procedures Manual and submit two copies to the appropriate office of the Director General. Each manual shall have a serial number, and shall include at least the following:

(a) a system for amendments;

(b) a list of holders of the manual, by serial number;

(c) an organizational chart, showing the responsibility and reporting levels of each member of the organization;

(d) a description of the duties and responsibilities of the reporting levels listed on the organizational chart;

(e) a simple floor plan of the facility, showing the location of the hangar, classrooms, shops and offices, and a general description of facilities as required by section 147.15;

(f) instructor qualifications as required by section 147.17;

(g) a description of the quality control system that ensures the policies and procedures are effectively in place as required by section 147.19;

(h) a copy of the course curriculum as required by section 147.31;

(i) sample copies of examination questions, which shall reflect all subjects taught, and be representative of the level of difficulty of the examination as a whole as required by 147.55;

(j) an explanation of the means by which a student's attendance and grades can be verified as required by 147.53 and 147.55;

(k) a description of any exceptions to attendance requirements as described in 147.53;

(l) procedures for development of examinations as required by 147.55;

(m) a copy of the graduation certificate as required by 147.57;

(n) a list of the names and signatures of all individuals authorized to sign certificates, forms and letters;

(o) a description of the course prerequisites for basic training as required by 147.33;

(p) for type training courses, a detailed explanation of how changes to the course are controlled;

(q) a list of reference material as required by 147.21;

(r) a description of training aids available for basic training as required by 147.15 and Appendix A.

**147.15 Facilities -- General**

(a) As applicable to the training provided, and the maximum number of students expected to be taught at any one time, the facility shall have:

(1) Proper cooling, ventilation and lighting;

(2) A sufficient number of classrooms which will be separated from workshops, labs and other specialty areas.

(b) The following classroom equipment shall be available:

(1) Suitable seating and writing surface for each student such as a desk or table and chair;

(2) Suitable writing surfaces for the instructor such as blackboard, whiteboard, flip chart;

(3) Podium and / or desk for the instructor;

(4) Overhead projector and screen;

(5) Slide film projector, video player and monitor;

(6) Wall charts; and

(7) Visual training aids, as required for each course subject.

(c) The training organization shall have a technical library, in a controlled environment, and students shall have reasonable access to the area including all the material.

(d) The training organization shall have an adequate supply of materials, shop equipment and tools, including special tools, and miscellaneous equipment used in the maintenance of aircraft, which shall be appropriate for the purpose for which they are to be used, and in satisfactory working condition.

(f) Additional facility and equipment requirements shall be as detailed in Appendix A.

**147.17 Instructor requirements**

The training organization shall:

(a) Provide an appropriate number of instructors, who are licensed in aircraft maintenance or have extensive experience in an appropriate specialty, and are trained in instructional techniques.

(b) Ensure that specialist instructors who do not have experience in aircraft maintenance are not authorized to give instruction in aircraft maintenance.

(c) Implement policies and procedures to ensure evaluation of instructors' teaching techniques, technical accuracy and conformance of presentations to course objectives.

(d) Implement a structured professional development program to ensure appropriate up-dating of instructors' knowledge and expertise on a continuing basis.

**147.19 Quality control system requirements**

(a) A quality control system shall be established to ensure that the policies and procedures described in the Training Procedures Manual are effectively in place.

(b) The training organization shall appoint a person who will be responsible to ensure the integrity of the quality control program.

(c) The person appointed in accordance with paragraph (b) shall have:

(1) A minimum of five years experience in the maintenance of aircraft;

(2) Experience as a trainer and / or administrator at a recognized training organization;

(3) Demonstrated ability to administer a quality control program.

**147.21 Reference Material**

(a) The training organization shall:

(1) provide each student with a copy of the course training manual containing all the subject material covered.

(2) ensure that all publications pertinent to each training course are available and up-to-date.

(3) ensure that at least the following publications, as applicable to the training given, are available and up-to-date:

(I) Indonesian Civil Aviation Act;
(ii) Indonesian Civil Aviation Safety Regulations (CASRs);
(iii) DGAC Staff Instructions (when provided by DGAC);
(iv) DGAC Advisory Circulars;
(v) Index of Airworthiness Directives Applicable in Indonesia;
(vi) FAA Advisory Circulars AC 43-13-1A & 2A;
(vii) Type Certificates and Supplemental Type Certificates for the primary training aircraft;

(viii) a complete set of manuals including maintenance, overhaul, structural repair, illustrated parts catalogs, service bulletins and service instructions for the primary training aircraft; and

(ix) one copy of each text book required for the course of study.

**147.23 Class Size**

Classes shall be limited to the number of students consistent with the size of the room and the type of equipment utilized for the presentation of the course material, and so that each student can clearly view all presentations and training aids.

**147.25 Supervision of students**

When carrying out practical tasks in the work area a ratio of not less than one instructor or qualified supervisor for each six students shall be utilized.

**147.27 Serviceability of aircraft**

Where aircraft with valid Airworthiness Certificates are used for training purposes, the training organization shall implement policies and procedures to ensure the aircraft are in an airworthiness condition prior to flight.

## SUBPART C - APPROVAL REQUIREMENTS FOR BASIC TRAINING

**147.31 Curriculum requirements**

(a) The curriculum for basic aircraft and avionics maintenance training courses shall cover the subjects and items set out in Appendix C of Part 65.

(b) The training organization shall have in place policies and procedure to ensure that curriculum objectives are being met.

(c) Where the Director General has published curriculum guidelines for the type of training involved, the curriculum shall meet those requirements.

(d) The training organization shall adhere to the approved curriculum, which shall not be changed without prior approval from the Director General.

(e) The curriculum shall include:

1) Details of the allotted number of hours for each subject;

(2) The course objectives, including the level of competency and skill to be achieved by the student;

(3) Details of practical projects to be completed by individuals or groups, either at the facility or in the field;

(4) The ratio of theory to practical (hands-on) shop time;

(5) A schedule of the examinations or tests to be given.

**147.33 Student Prerequisites**

Each training organization shall establish procedures for student admission which ensures that the student has the required knowledge and ability to learn and understand the course content.

**147.35 Training hours**

The minimum basic training requirement is 3000 hours for the basic aircraft maintenance and 3000 hours for the basic avionics maintenance programs.

**147.37 Experience credit**

An experience credit of one month for each 100 hours of training time will be credited towards the total experience requirement for the issue of an Aircraft Maintenance Engineer license for graduates of the basic aircraft maintenance and the basic avionics maintenance programs.

## SUBPART D - APPROVAL REQUIREMENTS FOR TYPE TRAINING

**147.41 Type training courses - General**

(a) Aircraft or aircraft equipment type training courses approved by the Director General shall be recognized as meeting the mandatory training requirements for endorsement of the applicable aircraft or aircraft equipment type on an existing AME license.

(b) Approved type courses can be conducted by either approved Indonesian aircraft maintenance training organizations or by overseas organizations accepted by the Director General in accordance with Part 65, Appendix B.

(c) Successful completion of an approved type course is required to qualify for a type rating as specified in Part 65.
(d) Type training courses shall cover the topics set out in Apprndix D of Part 65.

(e) Type courses shall not be recognized as providing credit towards the experience requirement for initial issue of an Aircraft Maintenance Engineer license.

### 147.43 Knowledge prerequisites

Training organizations shall establish criteria to ensure that the students are capable of learning and understanding the type course training material.

### 147.45 Curriculum

(a) Except as provided in (b), the curriculum for a complete aircraft type course shall cover the entire aircraft including engine and propeller.

(b) An exception to (a) will be made when the applicant for a type endorsement based on an approved aircraft course:

(1) successfully complete a separate engine course; or

(2) holds a rating on another aircraft having the same engine.

(c) Course length may vary according to the complexity of the aircraft or equipment type and as determined by the Director General.

## SUBPART E -- OPERATING RULES

### 147.51 Record Keeping

(a) Each training organization shall keep a current record for each student enrolled, including attendance and grades, and shall retain this record for a period of not less than 5 years from the date of graduation.

(b) The records required by (a) shall be made available to the Director General upon request.

## 147.53 Attendance

(a) Except as provided in (b), the training schedule shall ensure that students do not exceed eight hours of training, or combined duty / training in any one day, or more than six days or forty hours of duty / training time in any seven day period.

(b) An exception to (a) may be made where the unavailability of equipment such as a simulator or aircraft would otherwise cause a student to miss a portion of the curriculum.

(c) The training organization shall accurately document the student's attendance, ensuring that each student's presence is recorded and controlled for each class, shop or laboratory.

(d) Students who miss more than 5% of the course curriculum through absence shall not qualify for any experience credit unless the lost time is made up through documented supplementary studies which include the portions of the curriculum equivalent to those missed from the original program.

(e) Students who graduate from a basic training course but who have missed more than 5 % of the course curriculum through absence can still qualify as meeting the requirement for an acceptable course, but without experience credit.

## 147.55 Examinations

(a) Examinations shall be developed in accordance with the approved policies and procedures to ensure that students have achieved the course objectives.

(b) The required examinations can be written tests or a combination of written, oral and practical tests.

(c) The passing grade for all required examinations shall be 70 %.

(d) Each student shall attain a passing grade in each part of the course curriculum in order to qualify for the appropriate credit.

(e) Students who complete a basic training course, but do not achieve a passing grade in the final examination, will not be entitled to any credit toward the experience requirement for an Aircraft Maintenance Engineer license, but can still be accepted as having completed an acceptable course, subject to a statement by the training organization that the student completed the curriculum.

147.57 Graduation Certificates

(a) The training organization shall provide a certificate of graduation to each student who successfully completes an approved course.

(b) This certificate required by (a) shall include:

(1) the name and location of the training organization;
(2) the type of training accomplished;
(3) the full name of the student;
(4) the date of course completion;
(5) an embossed raised seal;
(6) the signature of authorized officials; and
(7) the DGAC course approval number.

(c) Samples of certificates shall be included in the Training Procedures Manual, with the word "sample" marked diagonally across the page.

147.59 Maintenance of instructor requirements

(a) Each approved aircraft maintenance training organization shall, following initial approval or approval of an addition of a rating, continue to provide the number of instructors holding appropriate Aircraft Maintenance Engineer licenses and ratings that the Director General determines necessary to provide adequate instruction to the students.

(b) The organization may continue to provide specialist instructors who are not licensed Aircraft Maintenance Engineers to teach mathematics, physics, drafting, basic electricity, basic hydraulics, and similar subjects.

147.61 Maintenance of facilities and equipment

(a) Each approved aircraft maintenance training organization shall continue to provide facilities and equipment equal to the standards required at the time of initial issue of the certificate and rating that it holds.

(b) An approved organization may not make a substantial change in facilities and equipment that have been approved for a particular curriculum, unless that change is approved in advance by the Director General.

147.63 Maintenance of curriculum requirements

(a) Each approved aircraft maintenance training organization shall adhere to the approved curriculum.

(b) An organization may not change its approved curriculum unless the change is approved by the Director General, in advance.

### 147. 65 Display of certificate

Each holder of an aircraft maintenance training organization certificate and ratings shall display the certificate and ratings at a place that is normally accessible to the public and is not obscured. The certificate must be available for inspection by the Director General.

### 147.67 Change of location

(a) The holder of an aircraft maintenance training organization certificate may not make any change in the location of the facility unless the change is approved in advance by the Director General.

(b) Notification of change of location shall be made to the Director General, in writing, at least 30 days before the planned relocation date.

(c) Unapproved relocation will result in suspension of the certificate.

### 147.69 Inspection

The Director General, may, at any time, inspect an aircraft maintenance training organization to determine its compliance with this part.

### 147.71 Advertising

(a) An approved aircraft maintenance training organization shall not make any statement relating to the organization that is false or is designed to mislead any person considering enrollment therein.

(b) Whenever an aircraft maintenance training organization indicates in advertising that it is approved by the Director General, it shall clearly distinguish between its approved courses and those that are not approved.

# CASR PART 147 -- APPENDIX A

# FACILITY AND EQUIPMENT REQUIREMENTS FOR APPROVED MAINTENANCE TRAINING ORGANIZATIONS

## 1. PURPOSE

This appendix details the minimum facility and equipment requirements that an applicant for an Aircraft Maintenance Training Organization certificate must meet to qualify for approval to provide training in any or all of the following categories:

(a) Basic general aircraft maintenance.
(b) Basic avionics maintenance.
(c) Aircraft or aircraft equipment type training

## 2. FACILITY REQUIREMENTS - GENERAL

For the purpose of training courses in Basic General Aircraft Maintenance and Basic Avionics Maintenance, the training organization shall have policies and procedures in place to ensure that the facilities simulate as closely as possible the actual working environment of an aircraft operator, as detailed below:

### Hangar

The hangar shall be of sufficient size to contain the training aircraft and equipment, including tables, benches, jacks and stands, and to permit the disassembly, inspection and general maintenance of the aircraft, engines, avionics, instruments, electrical and other systems and equipment.

### Stores

Parts and material stores shall be located in the training area and shall:

(a) Be a typical store, including sections for receiving, storing (bonded and quarantine) and issuing of in-house certified parts and material.

(b) Be arranged to ensure proper separation from the work place.

(c) Have procedures for the control of all calibrated tools, instruments and equipment.

NOTE: To meet the requirement of (c), calibration can be simulated to some extent, such as adding date stickers to calibrated equipment and changing them on a regular basis, however, proper calibration shall be accomplished on equipment to be used for certification of aircraft, engines, avionics, instruments and other aircraft systems and equipment.

(d) Ensure that inflammable products are stored in an enclosed space separate from other areas, and that the area is properly ventilated, has sealed electrical systems and liquid spill retention.

## 3. FACILITY REQUIREMENTS - Basic General Aircraft Maintenance

In addition to the requirements of Section 2, facility requirements for Basic Aircraft Maintenance Training courses shall include the following:

### Sheet Metal Shop

The sheet metal shop shall have sufficient space to contain the equipment, required to fabricate and repair sheet metal, including tables, benches, break and bender.

### Woodworking And Fabric Shop

The woodworking and fabric shop(s) shall be of sufficient size to contain the necessary equipment including tables, benches, saws, sanders and joiners to fabricate and repair wood structure.

### Battery Shop

The battery shop shall be separate from the other work areas and be of sufficient size to contain two segregated areas, one for nickel cadmium batteries and one for lead acid batteries, and shall incorporate proper ventilation and sealed electrical systems.

### Paint Shop

The painting area shall be separate from the other work areas and be of sufficient size for doping and spray painting.

### Cleaning and degreasing

The cleaning & degreasing area shall be in a separate, ventilated, space, and be equipped with adequate washtanks and degreasing equipment.

### Engine run-up

The engine running area shall be a safe, separate space away from the work area, and can be an engine test cell or a tie-down area to run actual aircraft.

### Equipment and component shops

The equipment and component shops shall be provided with adequate equipment, including benches, stands, test equipment and special tools to disassemble, repair, assemble, test, service and inspect:

(a) avionics;
(b) electrical;
(c) powerplants;
(d) fuels;
(e) pneumatics and vacuum;
(f) instruments: magnetic, gyro, pitot-static;
(g) hydraulics;
(h) helicopter powertrains; and
(I) propellers.

## 4. FACILITY REQUIREMENTS - Basic Avionics Maintenance

In addition to the requirements of Section 2, facility requirements for Basic Avionics Maintenance Training courses shall include the following:

### Battery Shop

The battery shop shall be separate from the other work areas and be of sufficient size to contain two segregated areas, one for nickel cadmium batteries and one for lead acid batteries, and shall incorporate proper ventilation and sealed electrical systems.

Equipment and component shops

The equipment and component shops shall be provided with adequate equipment, including benches, stands, test equipment and special tools to disassemble, repair, assemble, test, service and inspect all avionics, electrical and instrument equipment, including:

radio;
navigation;
radionavigation;
alternators, generators, starters;
TRUs;
instruments:
magnetic;
gyroscopic;
pitot-static; and
auto-pilots.

## 5. FACILITY REQUIREMENTS - Type Training Courses

(a) Facilities for aircraft type courses need not be as elaborate as for basic training courses, however, the training organization shall have, or have ready access to, facilities appropriate to the course content requirements.

(b) If simulators or mockups are used, they shall be located in a separate area with sufficient space to contain the equipment in an acceptable fashion for display, inspection and operation.

(c) If aircraft are used, hangar facilities shall provide sufficient space to contain an aircraft and required shop equipment to, as applicable to the approved curriculum, allow for:

(1) disassembly, inspection, maintenance, overhaul, adjustment and assembly aircraft;

(2) locating, inspecting, troubleshooting, functional testing and explaining the functions of various areas and components of an aircraft.

## 6. EQUIPMENT AND TRAINING AID REQUIREMENTS - General

(a) The training aids on which instruction is to be given, and practical work experience gained, shall be so diversified as to show the different methods of construction, assembly, inspection and operation which a student can be expected to encounter following graduation.

(b) There shall be enough training aid equipment units so that not more than six students will work on any one unit at a time .

(c) If the aircraft and equipment used for instructional purposes have only simple systems, such as aircraft with fixed landing gear, then training aids or operational mockups of the more complicated systems shall be provided.

(d) The aircraft referred to in Sections 6 and 7 need not be certifiable as airworthy, however, they shall be complete assemblies that can be used in all aspects of training up to and including ground runs.

## 7. EQUIPMENT REQUIREMENTS - Basic General Aircraft Maintenance

Equipment requirements for Basic Aircraft Maintenance Training courses shall include the following:

### Aircraft

(a) At least one aircraft appropriate to the course curriculum.

(b) In the case of training organizations offering both fixed and rotary wing training, one fixed wing and one rotary wing.

(c) The aircraft required by (a) and (b) shall be of a type certified by a contracting state for civil operation, and shall be complete in all aspects, including engines, propellers or rotor systems, instruments, radios, landing gear, landing lights and other equipment and accessories.

(d) A variety of airframe structures, airframe systems and components, powerplants, powerplant systems and components of a quality and type suitable to complete the practical projects required by the course curriculum.

## 8. EQUIPMENT REQUIREMENTS - Basic Avionics Maintenance

Equipment requirements for Basic Avionics Maintenance Training courses shall include the following:

(a) At least one aircraft equipped with a comprehensive avionics package.

(b) The aircraft required by (a) shall be of a type certified by a contracting state for civil operation, and shall be complete in all aspects, including engines, propellers or rotor systems, instruments, radios, electrical systems, landing gear, landing lights and other equipment and accessories.

(c) A variety of airframe installed avionics systems and components of a quality and type suitable to complete the practical projects required by the course curriculum.

## 9. EQUIPMENT REQUIREMENTS - Type Training Courses

To ensure that students can locate and identify all aircraft components and effectively inspect, troubleshoot, and carry out functional tests of all aircraft systems, each aircraft type course shall provide for a minimum of 5% hands-on training hours with any combination of the following instructional equipment:

(a) A simulator or procedures trainer of a type compatible with or similar to the aircraft on which the training is being given.

(b) An aircraft of the type on which the training is being given.

(c) training aid mock-ups appropriate to the aircraft type.

**MENTERI PERHUBUNGAN**

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