

# ADMINISTRATIVE ORDER NO. 91, SERIES OF 2002

## GENERAL FLIGHT AND OPERATING RULES

### Chapter A - General

#### § 91.1 Definitions and abbreviations.

- (a) When the following definitions are used in these and other civil aviation regulations they shall have the following meanings. The term *service* is used as an abstract noun to designate functions or service rendered and *unit* is used to designate a collective body performing a service. Additional definitions may be found in AO 60:

*Acrobatic flight* – maneuvers intentionally performed by an aircraft involving an abrupt change in its attitude, an abnormal attitude or an abnormal variation in speed (also known as *aerobatic flight*).

*Advisory airspace* – an airspace of defined dimensions, or designated route, within which air traffic advisory service is available.

*Advisory area* – a designated area within a flight information region where air traffic advisory service is available.

*Advisory route* – a designated route along which air traffic advisory service is available.

*Aerodrome* – a defined area on land or water (including any buildings, installations and equipment) intended to be used either wholly or in part for the arrival, departure and surface movement of aircraft (also known as *airport*).

*Aerodrome advisory zone* – an uncontrolled airspace of defined dimensions extending from the surface of the earth within which air traffic services, except air traffic control, are available.

*Aerodrome control service* – air traffic control service for aerodrome traffic.

*Aerodrome control tower* – a unit established to provide air traffic control service to aerodrome traffic.

*Aerodrome operating minima* – the limits of usability of an aerodrome for:

- (1) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;
- (2) landing in precision approach and landing operations, expressed in terms of runway visual range and/or visibility and decision altitude/height (DA/H) as appropriate to the category of the operation; and
- (3) landing in non-precision approach and landing operations, expressed in terms of runway visual range and/or visibility, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

(also known as *approach minima or minimums*)

*Aerodrome traffic* – all traffic on the maneuvering area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

Note – An aircraft is in the vicinity of an aerodrome when it is in, entering or leaving an aerodrome traffic circuit.

*Aerodrome traffic circuit* – the specified path to be flown by aircraft in the vicinity of an aerodrome.

*Aerodrome traffic zone* – an airspace of defined dimensions established around an aerodrome for the protection of aerodrome traffic.

*Aeronautical Information Publication* – a publication issued by or with the authority of the ASEC and containing aeronautical information of a lasting character essential to air navigation.

*Aeronautical station* – a land station in the aeronautical mobile service. In certain instances, an aeronautical station may be located, for example, on board ship or on a platform at sea.

*Agricultural Aircraft Operation* – means the operation of an aircraft for the purpose of (1) dispensing any economic poison, (2) dispensing any other substance intended for plant nourishment, soil treatment, propagation of plant life, or pest control, or (3) engaging in dispensing activities directly affecting agriculture, horticulture, or forest preservation, but not including the dispensing of live insects.

*Airborne collision avoidance system* – an aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders (also known as *traffic collision avoidance system*).

*Air-ground control radio station* – an aeronautical telecommunication station having primary responsibility for handling communications pertaining to the operation and control of aircraft in a given area.

*Air-taxiing* – movement of a helicopter/VTOL above the surface of an aerodrome, normally in ground effect and at a ground speed normally less than 20 knots.

*Air traffic* – all aircraft in flight or operating on the maneuvering area of an aerodrome.

*Air traffic advisory service* – a service provided within advisory airspace to ensure separation, in so far as practical, between aircraft which are operating on IFR flight plans.

*Air traffic control clearance* – authorization for an aircraft to proceed under conditions specified by an air traffic control unit.

Note 1 – For convenience, the term *air traffic control clearance* is frequently abbreviated to *clearance* when used in appropriate contexts.

Note 2 – The abbreviated term *clearance* may be prefixed by the word *taxi, take-off, departure, enroute, approach, or landing* to indicate the particular portion of flight to which the air traffic control clearance relates.

*Air traffic control service* – a service provided for the purpose of:

- (1) Preventing collisions:
  - a) Between aircraft; and
  - b) On the maneuvering area, between aircraft and obstructions; and
- (2) Expediting and maintaining an orderly flow of air traffic.

*Air traffic control unit* – a generic term meaning variously area control center, approach control office or approach control tower.

*Air traffic service* – a generic term meaning variously flight information service, alerting service, air traffic advisory service, air traffic control service, area control service, approach control service or aerodrome control service.

*Air traffic services airspace* – airspaces of defined dimensions, alphabetically designated, within which specific types of flights may operate and for which air traffic services and rules of operation are specified.

Note – ATS airspaces are classified as Class A to G.

*Air traffic services reporting office* – a unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

Note – An air traffic services reporting office may be established as a separate unit or combined with an existing unit, such as another air traffic services unit, or a unit of the aeronautical information services.

*Air traffic services unit* – a generic term meaning variously air traffic control unit, flight information center or air traffic services reporting office.

*Airway* – a control area or portion thereof established in the form of a corridor equipped with radio navigation signals.

*Alerting service* – a service provided to notify appropriate organizations regarding aircraft in need of search and rescue aid and to assist such organizations as required.

*Alternate Aerodrome* – an aerodrome specified in the flight plan to which a flight may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

- (1) *Take-off alternate* – an alternate aerodrome at which an aircraft can land should this become necessary after take-off and it is not possible to use the aerodrome of departure;
- (2) *Enroute alternate* – an aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while enroute;
- (3) *Destination alternate* – an alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note – The aerodrome from which a flight departs may also be used as an enroute or a destination alternate aerodrome for that flight.

*Altitude* – the vertical distance of a level, a point or an object considered as a point, measured from mean sea level.

*AO* – Administrative Order

*Approach control office* – a unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

*Approach control service* – an air traffic control service for arriving or departing controlled flights.

*Appropriate ATS authority* – the relevant authority, designated by the ASEC, responsible for providing air traffic services in the airspace concerned.

*Apron* – a defined area on a land aerodrome intended to accommodate aircraft for purposes of loading or unloading passengers, mail or cargo, fuelling, parking or maintenance.

*Area control center* – a unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

*Area control service* – air traffic control service for controlled flights in control areas.

*ASEC* – Assistant Secretary.

*ATS route* – a specified route designed for channeling the flow of traffic as necessary for the provision of air traffic services.

Note – The term *ATS route* is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

*Automatic dependent surveillance (ADS)* – a surveillance technique in which aircraft automatically provide, via a data link, data derived from on-board navigation and position-fixing systems, including aircraft identification, four dimensional position and additional data as appropriate.

*Ceiling* – the height above the ground or water of the base of the lowest layer of cloud below 6000 meters (20,000 feet) covering more than half the sky.

*Change-over point* – the point at which an aircraft navigating on an ATS route segment defined by reference to VHF omni directional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

Note – Change-over points are established to provide the optimum balance in respect of signal strength and quality between facilities at all levels to be used and to ensure a common source of azimuth guidance for all aircraft operating along the same portion of a route segment.

*Clearance limit* – the point to which an aircraft is granted an air traffic control clearance.

*Control area* – a controlled airspace extending upwards from a specified limit above the earth.

*Controlled aerodrome* – an aerodrome at which air traffic control service is provided to aerodrome traffic.

Note – The term *controlled aerodrome* indicates that air traffic control service is provided to aerodrome traffic but

does not necessarily imply that a control zone exists.

*Controlled airspace* – an airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification (see *air traffic services airspaces*). Controlled airspace includes the following:

*Controlled flight* – any flight which is subject to an air traffic control clearance.

*Controller-pilot data link communication (CPDLC)* – a means of communication between controller and the pilot using data link for ATC communications.

*Control zone* – a controlled airspace extending upwards from the surface of the earth to a specified upper limit.

*Cruise climb* – an airplane cruising technique resulting in a net increase in altitude as the airplane weight decreases.

*Cruising level* – a level maintained during a significant portion of a flight.

*Current flight plan* – the flight plan, including changes, if any, brought about by subsequent clearances.

*Danger area* – an airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times.

*Data link communications* – a form of communication intended for the exchange of messages via data link.

*Decision altitude or decision height* – a specified altitude or height in the precision approach at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1 – *Decision altitude* is referenced to mean sea level and *decision height* is referenced to the threshold elevation.

Note 2 – The required visual reference means that section of the visual aids or of the approach area which should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In Category III operations with a *decision height*, the required visual reference is that specified for the particular procedure and operation.

Note 3 – For convenience, where both expressions are used they may be written in the form *decision altitude/height* and abbreviated *DA/H*.

*Economic Poison* – means (1) any substance or mixture of substances intended for preventing, destroying, repelling, or mitigating any insects, rodents, nematodes, fungi, weeds, and other forms for plant or animal life or viruses, except viruses on or living man or other animal which a Secretary of Agriculture shall declare a pest, and (2) any substance or mixture of substances intended for used as a plant regulator, defoliant or desiccant.

*Emergency locator transmitter* – a generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may either sense a crash and operate automatically or be manually activated. An ELT may be any of the following:

(1) *Automatic fixed ELT (ELT(AF))* – an ELT which is permanently attached to an aircraft.

(2) *Automatic portable ELT (ELT(AP))* – an ELT which is rigidly attached to an aircraft but is readily removable from the aircraft after a crash.

(3) *Automatically deployable ELT (ELT(AD))* – an ELT which is rigidly attached to an aircraft and deployed automatically in response to a crash. Manual deployment is also provided.

(4) *Survival ELT (ELT(S))* – an ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency and activated by survivors. Automatic activation may apply.

*Estimated off-block time* – the estimated time at which the aircraft will commence movement associated with departure.

*Estimated time of arrival* – for IFR flights, the time at which it is estimated that the aircraft will arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the aerodrome, the time at which the aircraft will arrive over the aerodrome. For VFR flights, the time at which it is estimated that the aircraft will arrive over the aerodrome.

*Expected approach time* – the time at which ATC expects that an arriving aircraft, following a delay, will leave the holding point to complete an approach for a landing.

Note – The actual time of leaving the holding point may be different depending upon circumstances.

*Filed flight plan* – the flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.

*Flight information center* – a unit established to provide flight information service and alerting service.

*Flight information service* – a service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

*Flight level* – a surface of constant atmospheric pressure which is related to a specific pressure datum, 1013.2 hectopascals (hPa)/29.92 millibars (mb), and is separated from other such surfaces by specific pressure intervals.

Note 1 – A pressure-type altimeter calibrated in accordance with the Standard Atmosphere:

(1) when set to a QNH altimeter setting, will indicate altitude;

(2) when set to a QFE altimeter setting, will indicate height above the QFE reference datum; and

(3) when set to a pressure of 1013.2 hPa/29.92 mb, may be used to indicate flight levels.

Note 2 – The terms *height* and *altitude* used in Note 1 above indicate altimetric rather than geometric heights and altitudes.

*Flight plan* – specified information provided to air traffic services units, relative to an intended flight or portion of a flight of an aircraft.

*Flight service station* – an ATS unit located at an uncontrolled aerodrome.

*Flight status* – an indication of whether a given aircraft requires special handling by air traffic services units or not.

*Flight visibility* – the visibility forward from the cockpit of an aircraft in flight.

*Ground visibility* – the visibility at an aerodrome, as reported by an accredited observer.

*Heading* – the direction in which the longitudinal axis of an aircraft is pointed, usually expressed in degrees from North (true, magnetic, compass or grid).

*Height* – the vertical distance of a level, a point or an object considered as a point, measured from a specified datum.

*IFR flight* – a flight conducted in accordance with the instrument flight rules.

*Instrument approach and landing operations* – instrument approach and landing operations using instrument approach procedures are classified as follows:

- (1) *Non-precision approach and landing operations* – an instrument approach and landing which does not utilize electronic glide path guidance.
- (2) *Precision approach and landing operations* – an instrument approach and landing using precision azimuth and glide path guidance with minima as determined by the category of operation based on the following:
  - a) *Category I (CAT I) operation* – a precision instrument approach and landing with a decision height not lower than 200 ft (60 m) and with either a visibility not less than ½ nautical mile (.58 miles)(800 m) or a runway visual range not less than 1800 ft (550 m).
  - b) *Category II (CAT II) operation* – a precision instrument approach and landing with a decision height lower than 200 ft (60 m), but not lower than 100 ft (30 m), and a runway visual range not less than 1200 ft (350 m).
  - c) *Category IIIA (CAT IIIA) operation* – a precision instrument approach and landing with:
    - i) a decision height lower than 100 ft (30 m) or no decision height; and
    - ii) a runway visual range not less than 600 ft (200 m).
  - d) *Category IIIB (CAT IIIB) operation* – a precision instrument approach and landing with:
    - i) a decision height lower than 50 ft (15 m) or no decision height; and
    - ii) a runway visual range less than 600 ft (200 m) but not less than 150 ft (50 m).
  - e) *Category IIIC (CAT IIIC) operation* – a precision instrument approach and landing with no decision height and no runway visual range limitations.

Note – Where the DH and RVR aerodrome operating minima fall into different categories of operation, the instrument approach and landing operation would be conducted in accordance with the requirements of the most demanding category (eg. an operation with a DH in the range of CAT IIIA but with an RVR in the range of CAT IIIB would be considered a CAT IIIB operation or an operation with a DH in the range of CAT II but with an RVR in the range of CAT I would be considered a CAT II operation).

*Instrument approach procedure* – a series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or wherever applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or enroute obstacle clearance criteria apply.

*Instrument meteorological conditions* – meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Note – The specified minima for VMC are contained in Chapter B.

*Landing area* – the part of a movement area intended for the landing or take-off of aircraft.

*Level* – a generic term relating to the vertical position of an aircraft in flight and meaning variously, height, altitude or flight level.

*Maneuvering area* – that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

*Manned free balloons* – a non-power driven, manned, lighter-than-air aircraft in free flight.

*Minimum descent altitude* or *minimum descent height* – a specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference.

Note 1 – MDA is referenced to mean sea level and MDH is referenced to the aerodrome elevation or to the threshold elevation if that is more than 7 ft (2 m) below the aerodrome elevation. An MDH for a circling approach is referenced to the aerodrome elevation.

Note 2 – The required visual reference means that section of the visual aids or of the approach area that should have been in view for sufficient time for the pilot to have made an assessment of the aircraft position and rate of change of position, in relation to the desired flight path. In the case of a circling approach the required visual reference is the runway environment.

Note 3 – For convenience, where both expressions are used they may be written in the form *minimum descent altitude/ height* and abbreviated *MDA/H*.

*Minimum navigation performance specification airspace* – a specified airspace within which specific navigational capabilities and/or equipment are required.

*Movement area* – that part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, consisting of the maneuvering area and apron(s).

*Overtaking aircraft* – an aircraft that approaches another from the rear on a line forming an angle of less than 70° with the plane of symmetry of the latter; that is, is in such a position with reference to the other aircraft that, at night, it would be unable to see either of the aircraft's left (port) or right (starboard) navigation lights.

*Pressure altitude* – an atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the

Standard Atmosphere.

*Prohibited area* – an airspace of defined dimensions, above the land areas or territorial waters of the Republic of the Philippines, within which the flight of aircraft is prohibited.

*Reduced vertical separation minima airspace* – a specified airspace within which the vertical separation between aircraft is less than that normally applied and within which special procedures and/or equipment are required.

Note – The airspace area is geographically defined with the vertical limits being normally between FL 290 and FL 410 and the vertical separation being 1000 ft.

*Repetitive flight plan* – a flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units.

*Reporting point* – a specified geological location in relation to which the position of an aircraft can be reported.

*Required navigation performance* – a statement of the navigation performance necessary for operation within a defined airspace.

*Required navigation performance type* – a containment value expressed as a distance in nautical miles from the intended position within which flights would be for at least 95% of the total flying time (eg. RNP 5 represents a navigation accuracy of  $\pm 5$  nm on a 95% containment basis).

*Restricted area* – an airspace of defined dimensions, above the land areas or territorial waters of the Republic of the Philippines, within which the flight of aircraft is restricted in accordance with certain specified conditions.

*Runway* – a defined rectangular area on a land aerodrome prepared for the landing and take-off of aircraft.

*Runway visual range* – the range over which the pilot of an aircraft on the center line of a runway can see the runway surface markings or the lights delineating the runway or identifying its center line.

*Runway holding position* – a designated position intended to protect a runway, an obstacle limitation surface or an ILS/MLS critical/sensitive area at which taxiing aircraft and vehicles shall stop and hold, unless otherwise authorized by the aerodrome control tower.

*Signal area* – an area on an aerodrome used for the display of ground signals.

*Special VFR flight* – a controlled VFR flight authorized by air traffic control to operate within a control zone under meteorological conditions below VMC.

*Taxiing* – movement of an aircraft on the surface of an aerodrome under its own power, excluding take-off and landing.

*Taxiway* – a defined path on a land aerodrome established for the taxiing of aircraft and intended to provide a link between one part of the aerodrome and another, including:

- (1) *Aircraft stand taxi lane*. A portion of an apron designated as a taxiway and intended to provide access to aircraft stands only;
- (2) *Apron taxiway*. A portion of a taxiway system located on an apron and intended to provide a through taxi route across the apron; and
- (3) *Rapid exit taxiway*. A taxiway connected to a runway at an acute angle and designed to allow landing aircraft to turn off at higher speeds than are achieved on other exit taxiways and thereby minimizing runway occupancy times.

*Terminal maneuvering area* – a control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes (also known as *terminal control area*).

*Total elapsed time* – for IFR flight, the estimated time required from take-off to arrive over that designated point, defined by reference to navigation aids, from which it is intended that an instrument approach procedure will be commenced, or, if no navigation aid is associated with the destination aerodrome, the time at which the aircraft will arrive over the destination aerodrome. For VFR flights, the estimated time required from take-off to arrive over the destination aerodrome.

*Track* – the projection on the earth's surface of the path of an aircraft, the direction of which path at any point is usually expressed in degrees from North (true, magnetic and grid).

*Traffic avoidance advice* – advice provided by an air traffic services unit specifying maneuvers to assist a pilot to avoid a collision.

*Traffic information* – information issued by an air traffic services unit to alert a pilot to other known or observed air traffic which may be in proximity to the position or intended route of flight and to help the pilot to avoid a collision.

*Transition altitude* – the altitude at or below which the vertical position of an aircraft is controlled by reference to altitudes.

*Unmanned free balloons* – a non-power driven, unmanned, lighter-than-air aircraft in free flight.

*VFR flight* – a flight conducted in accordance with the visual flight rules.

*Visibility* – the ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.

*Visual meteorological conditions* – meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling equal to or better than specified minima.

- (b) When the following abbreviations are used in these regulations they shall have the meanings as shown. Additional abbreviations may be found in AO 60:

ACAS – airborne collision avoidance system  
ASD- aviation safety division

<i>ASEC</i>	ASEC
<i>ATC</i>	air traffic control
<i>ATS</i>	air traffic services
<i>DA</i>	decision altitude
<i>DH</i>	decision height
<i>ELT</i>	emergency locator transmitter
<i>FIR</i>	flight information region
<i>FL</i>	flight level
<i>FSS</i>	flight service station
<i>GPS</i>	global positioning system
<i>ILS</i>	instrument landing system
<i>MDA</i>	minimum descent altitude
<i>MDH</i>	minimum descent height
<i>MEA</i>	minimum en-route altitude
<i>MLS</i>	microwave landing system
<i>MNPS</i>	minimum navigation performance specification
<i>NOTAM</i>	notice to airmen
<i>PAPI</i>	precision approach path indicator
<i>PT</i>	procedure turn
<i>RNP</i>	required navigation performance
<i>RVR</i>	runway visual range
<i>SSR</i>	secondary surveillance radar
<i>TCAS</i>	traffic collision avoidance system
<i>TCA</i>	terminal control area
<i>TMA</i>	terminal maneuvering area
<i>VASIS</i>	visual approach slope indicating system
<i>VOR</i>	VHF omni-directional range
<i>VTOL</i>	vertical take-off and landing

#### **§ 91.2 Applicability.**

Except as provided in § 91.703, this Administrative Order (AO) prescribes the rules governing the operation of aircraft (other than moored balloons, kites, unmanned rockets, unmanned free balloons and ultralight vehicles operated in accordance with AO FSS 6.06, Series of 1973 and AO 2-80, Series of 1980) within the Republic of the Philippines.

#### **§ 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 ASEC, send a written report of that deviation to the ASEC.

#### **§ 91.4 Applicability of the rules of the air.**

- (a) The rules of the air contained in this Administrative Order shall apply to all RP-registered aircraft, wherever they may be, to the extent that they do not conflict with the rules of the air of the State having jurisdiction over the territory being overflown. These rules shall also apply to all aircraft of foreign registry operating within the territorial limits of the Republic of the Philippines.
- (b) The operation of an aircraft either in flight or on the maneuvering area of an aerodrome shall be in compliance with the general rules, and in addition, when in flight either with:
  - (1) the visual flight rules; or
  - (2) the instrument flight rules.

#### **§ 91.5 thru § 91.6 Reserved.**

#### **§ 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.

**§ 91.8 Reserved.**

**§ 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 country of registry.
- (b) No person may operate an RP-registered civil aircraft unless there is available in the aircraft a current, approved Airplane or Rotorcraft Flight Manual.
- (c) No person may operate an RP-registered civil aircraft unless that aircraft is identified in accordance with AO No 6, Series 1953.
- (d) Any person taking off or landing a helicopter properly certificated by the ATO 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.

**§ 91.10 Reserved.**

**§ 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.

**§ 91.12 Reserved.**

**§ 91.13 Careless or reckless operation.**

No person may operate an aircraft on the ground or in flight in a careless or reckless manner so as to endanger the life or property of another.

**§ 91.14 Reserved.**

**§ 91.15 Dropping objects.**

No pilot-in-command of a civil aircraft may allow any object to be dropped from that aircraft in flight that creates a hazard to persons or property. 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 and appropriate approval has been received from the ASEC.

**§ 91.16 Reserved.**

**§ 91.17 Alcohol or drugs.**

- (a) No person may act or attempt to act as a crewmember or perform any function associated with the dispatch, loading, maintenance or control, including air traffic control, of a civil aircraft—
  - (1) Within 8 hours after the consumption of any alcoholic beverage;
  - (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) Whenever the ASEC, his authorized representative or a law enforcement officer 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 submit to a test to indicate the percentage by weight of alcohol in the blood and furnish the ASEC, or authorize any clinic, hospital, doctor, or other person to release to the ASEC, the results of such test.
- (d) Whenever the ASEC 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 ASEC, his authorized representative or a law enforcement officer, submit to a test to indicate the presence of illegal drugs and to furnish the ASEC, or authorize any clinic, hospital, doctor, or other person to release to the ASEC, the results of such test.
- (e) The tests referred to in paragraphs (c) and (d) of this section shall be taken as soon as possible after a person attempts to act, acts or has acted as a crewmember or person performing any function associated with the dispatch, loading, maintenance or control, including air traffic control, of a civil aircraft, that indicates the presence of any drugs in the body.
- (f) The ASEC or his authorized representative may require any crewmember or person performing any function associated with the dispatch, loading, maintenance or control, including air traffic control, of a civil aircraft to submit to a test to indicate the percentage by weight of alcohol in the blood or a test to indicate the presence of illegal drugs before, during or after the performance of that person's duties.
- (g) Any test information obtained by the ASEC 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 this section and may be used as evidence in any legal proceeding under the Republic Act 776.

**§ 91.18 Reserved.**

**§ 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 the Republic of the Philippines with knowledge that narcotic drugs, marijuana and depressant or stimulant drugs or substances as defined in RP law are carried in the aircraft.
- (b) Paragraph (a) of this section does not apply to any carriage of narcotic drugs, marijuana and depressant or stimulant drugs or substances authorized by or under any Government law or by any Government agency.

**§ 91.20 Reserved.**

**§ 91.21 Portable electronic devices.**

- (a) Holders of an air carrier operating certificate (ACOC). Holders of ACOC shall be governed by AO 121.583 and AO 135.123, as appropriate.
- (b) Operators of other civil aircraft. Except as provided in paragraph (c) 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 RP-registered civil aircraft while it is operated under IFR.
- (c) Paragraph (b) 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.
- (d) In the case of an aircraft operated by a holder of an air carrier operating certificate, the determination required by paragraph (c)(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.



**§ 91.22 Reserved.**

**§ 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 RP-registered large civil aircraft and entered into after January 2, 2003, shall execute a written lease or contract and include therein 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 with respect to each such aircraft:
  - (1) Identification of the AO 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 thereto 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 Administrative Orders.
  - (3) A statement that an explanation of factors bearing on operational control and pertinent AOs can be obtained from the Air Transportation Office.
- (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 AO 121 or AO 135, or
    - (ii) The party furnishing the aircraft is a foreign air carrier, certificate holder under AO 121 or a certificate holder under AO 135 having appropriate authority to engage in air taxi operations 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.
- (c) No person may operate a large civil aircraft of RP 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 the Republic of the Philippines, has mailed or delivered 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 Air Transportation Office, Old Mia Road, Pasay City, M.M. Philippines;
  - (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 ASEC, and
  - (3) The lessee or conditional buyer, or the registered owner if the lessee is not a citizen of the Republic of the Philippines, has notified by telephone, facsimile or in person the Air Transportation Office, Old Mia Road, Pasay City, M.M. Philippines. Unless otherwise authorized by that office, the notification shall be given at least 48 hours before take-off in the case of the first flight of that aircraft under that lease or contract and inform the ATO of -
    - (i) The location of the airport of departure;
    - (ii) The departure time; and
    - (iii) The registration number of the aircraft involved.
- (d) The copy of the lease or contract furnished to the ATO under paragraph (c) of this section contains commercial or financial information obtained from a person. It is, therefore, privileged and confidential and will not be made available by the ATO for public inspection or copying.

- (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.

**§ 91.24 thru § 91.100 Reserved.**

## **Chapter B - Flight Rules**

### **General.**

#### **§ 91.101 Applicability.**

This chapter prescribes flight rules governing the operation of aircraft within the Republic of the Philippines.

#### **§ 91.102 Reserved.**

#### **§ 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 Aircraft 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.

#### **§ 91.104 Reserved.**

#### **§ 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 RP-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 the crewmember would be unable to perform required duties with the shoulder harness fastened.

#### **§ 91.106 Reserved.**

#### **§ 91.107 Use of safety belts, shoulder harnesses and child restraint systems.**

- (a) Unless otherwise authorized by the ASEC –
  - (1) No pilot may takeoff an RP-registered civil aircraft (except a free balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) 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, shoulder harness.
  - (2) No pilot may cause to be moved on the surface, takeoff, or land an RP-registered civil aircraft (except a free

balloon that incorporates a basket or gondola, or an airship type certificated before November 2, 1987) 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 RP-registered civil aircraft (except a free balloon that incorporates a basket or gondola or an airship type certificated before November 2, 1987) must occupy an approved seat or berth with a safety belt and, if installed, shoulder harness, properly secured about him or her during movement on the surface, takeoff, and 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) Be held by an adult who is occupying a seat or berth if that person has not reached his or her second birthday;
  - (ii) 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
  - (iii) Notwithstanding any other requirement of this chapter, occupy an approved 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 attend to the safety of the child during the flight;
    - (B) The approved child restraint system must bear either a label showing approval of a local or foreign government or a label showing that the seat was manufactured under the standards of the United Nations; and
    - (C) 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 AO 121 or 135. Paragraph (a)(3) of this section does not apply to persons subject to § 91.105.

**§ 91.108 Reserved.**

**§ 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.
- (b) No person may operate a civil aircraft in simulated instrument flight unless –
  - (1) The other control seat is occupied by a safety pilot who possesses at least a private pilot license 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.
- (c) No person may operate a multi-engine civil aircraft that is being used for a flight test for any initial or renewal of a pilot license, or a class or type rating on that license, or for either an AO 121 or 135 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.

**§ 91.110 Reserved.**

**§ 91.111 Operating near other aircraft.**

- (a) Except as provided in paragraph (b) of this section, 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 and approved by the ASEC.
- (c) No person may operate an aircraft, carrying passengers for hire, in formation flight.

**§ 91.112 Reserved.**

**§ 91.113 Right of way rules: Except water operations.**

- (a) 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.
- (b) In distress. An aircraft in distress has the right of way over all other air traffic.
- (c) 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.

- (d) 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.
- (e) 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.
- (f) 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.
- (g) Aircraft taking off. An aircraft taxiing on the maneuvering area of an aerodrome shall give way to aircraft taking off or about to take off.
- (h) Surface movement of aircraft. In case of danger of collision between two aircraft taxiing on the maneuvering area of an aerodrome, the following shall apply:
  - (1) When two aircraft are approaching head on, or approximately so, each shall stop or, where practicable, alter its course to the right so as to keep well clear;
  - (2) When two aircraft are on a converging course, the one which has the other on the right shall give way; and
  - (3) An aircraft which is being overtaken by another aircraft shall have the right-of-way and the overtaking aircraft shall keep well clear of the other aircraft.

**§ 91.114 Reserved.**

**§ 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) Landing and taking off. Aircraft landing on or taking off from the water shall, in so far as practicable, keep well clear of all vessels and avoid impeding their navigation.
- (f) 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.

**§ 91.116 Reserved.**

**§ 91.117 Aircraft speed.**

- (a) Unless otherwise authorized by the ASEC, no person may operate an aircraft below 10,000 feet MSL at an indicated airspeed of more than 250 knots (288 mph).
- (b) Unless otherwise authorized or required by ATC, no person may operate an aircraft at or below 2,000 feet above the surface within 5 nautical miles(5.76 miles)(9.27 km) of the primary aerodrome area at an indicated airspeed of more than 200 knots (230 mph). This paragraph does not apply to any operations within an aerodrome where specific speed limits are published in the AIP.
- (c) No person may operate an aircraft in the airspace identified in the AIP designated for an airport or in a VFR corridor, at an indicated airspeed of more than 200 knots (230 mph).
- (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.

**§ 91.118 Reserved.**

**§ 91.119 Minimum safe altitudes: General.**

Except when necessary for takeoff or landing, no person may operate an aircraft below the following altitudes:

- (a) 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 or an altitude allowing, if a power unit fails, an emergency landing to be made without undue hazard to persons or property on the surface, whichever is higher.
- (b) Over other than congested areas. Unless otherwise authorized by the ASEC, an altitude of 500 feet above the surface or an altitude allowing, if a power unit fails, an emergency landing to be made without undue hazard to persons or property on the surface, whichever is higher.
- (c) 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 ASEC.

**§ 91.120 Reserved.**

**§ 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) At or below the published transition altitude, to –
    - (i) The current reported altimeter setting of a station along the route and within 100 nautical miles (115.16 miles)(185.40 km)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 which experiences a communications radio failure, the elevation of the departure airport or an appropriate altimeter setting available before departure; or
  - (2) At or above FL130, to 29.92" Hg or 1013.2 Mb.
- (b) Specific altimeter setting procedures are to be found in the Altimeter Setting Procedures section of the AIP.

**§ 91.122 Reserved.**

**§ 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, below FL200, 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) Clearances issued by controllers relate to known traffic and aerodrome conditions only and do not relieve a pilot of any responsibility whatsoever in connection with a possible violation of applicable rules and regulations.
- (c) 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.
- (d) 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.
- (e) Each pilot-in-command who (though not deviating from a rule of this AO) is given priority by ATC in an emergency, shall submit a detailed report of that emergency within 48 hours to the ASEC.
- (f) 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.

**§ 91.124 Reserved.**

**§ 91.125 ATC light signals.**

ATC light signals have the meaning shown in the following table:

Light	From Aerodrome Control To:	
	Aircraft on the ground	Aircraft in flight
<b>Steady green</b>	Cleared for takeoff	Cleared to land
<b>Flashing green</b>	Cleared to taxi	Return for landing*
<b>Steady red</b>	Stop	Give way to other aircraft and continue circling
<b>Flashing red</b>	Taxi clear of runway in use	Airport unsafe – do not land
<b>Flashing white</b>	Return to starting point on airport	Land at this aerodrome and proceed to the apron*
<b>Red pyrotechnic</b>	Not applicable	Notwithstanding any previous

		instructions, do not land for the time being
*Clearance to land and to taxi will be given in due course.		

**§ 91.126 Operating on or in the vicinity of an aerodrome.**

- (a) General. Unless otherwise authorized or required, each person operating an aircraft on or in the vicinity of an aerodrome, whether or not within an aerodrome traffic zone, must comply with the requirements of this section and the current AIP.
- (b) Each pilot taking off or landing an aircraft shall do so into the wind unless safety, runway configurations or air traffic considerations dictate the use of a different direction.
- (c) Unless otherwise published in the AIP or directed by ATC, all turns after take-off from an aerodrome, while in the traffic pattern or approaching the aerodrome for a landing shall be to the left.
- (d) All pilots shall conform with the traffic pattern formed by other aircraft in operation. If conformance with the established traffic pattern is not possible for safety reasons, a clearance to deviate from the pattern shall be obtained if the aerodrome has an operating tower and, if not, the pattern is to be avoided and the intentions of the pilot are to be broadcast to the FSS and other aircraft.
- (e) In the absence of a published helicopter route, each pilot of a helicopter must avoid the flow of airplanes.
- (f) Special procedures: Large or turbine powered airplanes.
  - (1) Departures. Unless otherwise required by the prescribed departure procedure for that airport, an ATC clearance or the applicable distance from clouds criteria, each pilot of a large or turbine powered airplane must climb to an altitude of 1,500 feet above the surface as rapidly as practicable and, thereafter, maintain at least 1500 feet.
  - (2) Arrivals. When operating to an aerodrome, each pilot of:
    - (i) A large or turbine powered airplane shall, unless otherwise published in the AIP, directed by ATC or 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; and
    - (ii) A large or turbine powered airplane approaching to land on a runway served by an 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.

Paragraphs (f)(2)(i) and (ii) 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.
  - (3) Transitting. Unless otherwise authorized by ATC, each person operating a large or turbine powered airplane over an airport for which a TMA or CZ is designated must operate at least 1500 feet above the surface of the earth while within the lateral limits of that airspace.
- (g) 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.
- (h) Unless authorized by ATC, no person may operate an aircraft departing from an airport for which there are

departure procedures established by the ATO except in compliance with those procedures.

(i) Communications procedures.

(1) Operation at aerodromes with aerodrome control service. No person may operate an aircraft to, from, through or on an aerodrome having a control tower operated by an ATC unit, unless two-way radio communications are maintained between that aircraft and the control tower. Unless otherwise authorized or required by an ATC unit, the following procedures shall be followed:

(i) Departing aircraft. The pilot shall advise the tower when:

- (A) Ready to taxi;
- (B) Before taking the runway for take-off; and
- (C) When leaving the aerodrome traffic zone.

Note: A clearance must be obtained prior to taxiing and taking off.

(ii) Arriving aircraft. Communications must be established with the control tower prior to 5 nautical miles(5.76 miles)(9.27km) from the airport, at or below 2,000 feet AGL, and a clearance obtained to enter the zone, join the traffic pattern and land. In addition, pilot should report upon reaching:

- (A) Downwind leg;
- (B) Base leg; and
- (C) On final approach, with intentions to land, touch and go, or go around.

(iii) Transiting aircraft. Communications must be established with the control tower prior to 5 nautical miles(5.76 miles)(9.27km) from the airport, at or below 2,000 feet AGL, and a clearance obtained to enter the zone.

(2) Operation at aerodromes with aerodrome advisory service. No person may operate an aircraft to, from, through or on an uncontrolled aerodrome, unless two-way radio communications are maintained between that aircraft and the FSS. The following procedures shall apply:

(i) Departing aircraft. The pilot shall advise the FSS of his location and intention when:

- (A) ready to taxi;
- (B) before taking the runway for take-off and intentions following take-off; and
- (C) when leaving the aerodrome advisory zone.

(ii) Arriving aircraft. Communications must be established with the FSS prior to 5 nautical miles(5.76 miles)(9.27 km) from the airport, at or below 2000 feet AGL, and intentions broadcast. In addition, pilot reports shall be made upon reaching:

- (A) Downwind leg;
- (B) Base leg; and
- (C) On final approach, with intentions to land, touch and go, or go around.

(iii) Transiting aircraft. Communications must be established with the FSS prior to 5 nautical miles(5.76miles)(9.27km) from the airport, at or below 2000 feet AGL, and intentions broadcast.

(3) Operation at aerodromes without an air traffic service. No person may operate an aircraft to, from, through or on an uncontrolled aerodrome, unless the following procedures are followed:

(i) Departing aircraft. The pilot shall broadcast on VHF Unicom frequency 123.0:

- (A) ready to taxi;



- (B) before taking the runway for take-off and intentions following take-off; and
  - (C) when 5 nautical miles(5.76miles)(9.27km) from the aerodrome, outbound.
- (ii) Arriving aircraft. The pilot shall broadcast his intentions on VHF Unicom frequency 123.0 prior to 5 nautical miles(5.76miles)(9.27km) from the airport, at or below 2000 feet AGL. In addition, he shall broadcast upon reaching:
- (A) Downwind leg;
  - (B) Base leg; and
  - (C) On final approach, with intentions to land, touch and go, or go around.
- (iii) Transiting aircraft. The pilot shall broadcast his intentions on VHF Unicom frequency 123.0 prior to 5 nautical miles(5.76miles)(9.27km) from the airport, at or below 2000 feet AGL.

**§ 91.127 thru 91.128 Reserved.**

**§ 91.129 Operations in a Terminal Maneuvering Area (TMA) or Control Zone (CZ).**

- (a) General. Unless otherwise authorized or required by the ATC facility having jurisdiction over the TMA or CZ, each person operating an aircraft in that airspace must comply with the applicable provisions of § 91.126 of this AO, this section and the current AIP. For the purpose of this section, the primary airport is the airport for which the TMA is designated. A satellite airport is any other airport within the TMA.
- (b) Deviations.
  - (1) Except as provided in subparagraph (2) of this paragraph, deviations to any of the provisions of this section may only be authorized by the ASEC. Requests for deviation shall be submitted in writing at least 72 hours before the proposed operation. The ASEC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.
  - (2) During the period an aircraft taxis for take-off until that flight terminates, an operator may deviate from any provision of this section under the conditions prescribed in an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned.
- (c) Noise abatement. Where a formal runway use program has been established by the ATO, each pilot of a large or turbine powered airplane assigned a noise abatement runway by ATC must use that runway. However, consistent with the final authority of the pilot-in-command concerning the safe operation of the aircraft as prescribed in § 91.3(a), ATC may assign a different runway if requested by the pilot in the interest of safety.
- (d) Pilot requirements.
  - (1) Unless authorized by the ASEC, no person may take off or land a civil aircraft at an airport within a TMA or CZ or operate a civil aircraft within a TMA or CZ unless –
    - (i) The pilot-in-command holds at least a private pilot license; or
    - (ii) The aircraft is operated by a student pilot who seeks private pilot certification and has met the requirements of AO 60.95.
  - (2) Notwithstanding the provisions of paragraph (d)(1)(ii) of this section, no person may take off or land a civil aircraft at those airports listed in section AGA 1-1 of the AIP unless the pilot-in-command holds at least a private pilot certificate.
- (e) Communications. Each person operating an aircraft in a TMA or CZ 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 providing air traffic services and, if applicable, obtain a clearance 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 TMA or CZ; 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 TMA as soon as practicable after departing.
- (f) Navigation equipment requirements. Unless otherwise authorized by ATC, no person may operate an aircraft under IFR within a TMA or CZ unless that aircraft is equipped with navigation equipment capable of ensuring adequate navigation in that airspace without visual reference to the ground; and
- (g) Transponder requirements. No person may operate an aircraft in a terminal control area with terminal approach radar unless the aircraft is equipped with the applicable operating transponder and automatic altitude reporting equipment specified in § 91.215(a), except as provided in paragraph (d) of that section.

**§ 91.130 Reserved.**

**§ 91.131 Airspace classification.**

- (a) Philippine airspace may be designated in accordance with the following:
- (1) Class A airspace – IFR flights only are permitted. All flights are provided with air traffic control service and are separated from each other.
  - (2) Class B airspace – IFR and VFR flights are permitted. All flights are provided with air traffic control service and are separated from each other.
  - (3) Class C airspace – IFR and VFR flights are permitted. All flights are provided with air traffic control service and IFR flights are separated from other IFR flights and from VFR flights. VFR flights are separated from IFR flights and receive traffic information in respect of other VFR flights.
  - (4) Class D airspace – IFR and VFR flights are permitted and all flights are provided with air traffic control service. IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights. VFR flights receive traffic information in respect of all other flights.
  - (5) Class E airspace – IFR and VFR flights are permitted. IFR flights are provided with air traffic control service and are separated from other IFR flights. All flights receive traffic information as far as is practicable.
  - (6) Class F airspace – IFR and VFR flights are permitted. All participating IFR flights receive an air traffic advisory service and all flights receive flight information service if requested.
  - (7) Class G airspace – IFR and VFR flights are permitted and receive flight information service if requested.

- (b) Within the Manila FIR, the airspace is divided and classified as follows:

AIRSPACE	LEVELS	CLASSIFICATION
Manila FIR Upper Control Area (except special use airspace)	FL 200 – Unlimited	A
Oceanic Airspace	FL 65 – Unlimited	A
ATS Routes and TMA	Lower limit – FL 200	E
Control Zones	Surface – Upper limit	D
Aerodrome Traffic Zones in Airports with Aerodrome Control Service	Surface – Upper limit	D

Aerodrome Advisory Zones with Airports without Aerodrome Control Service	Surface – Upper limit	F
Uncontrolled Airspace		G

Note: A summary of the requirements for flight and the services provided in each class of airspace is included in Appendix A to this AO.

**§ 91.132 Reserved.**

**§ 91.133 Restricted and prohibited areas.**

- (b) No person may operate an aircraft within a restricted area as published in the AIP contrary to the restrictions imposed, or within a prohibited area as published in the AIP, unless that person has the permission of the using or controlling agency, as appropriate.
- (c) Each person conducting, an aircraft operation within a restricted area (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.

**§ 91.134 Flight into restricted airspace (RP-P1)**

- (a) The rule on this section should be strictly adhered to before a flight could commence within the Malacañang (RP-P1)
  - (1) Helicopter pilots/operators should first request in writing a PSG clearance addressed to the Commanding, PSG (Attn: OG3) with the following information:
    - (i) Time and date of actual flight;
    - (ii) Registration number of aircraft;
    - (iii) Type and capacity of aircraft;
    - (iv) Name of pilots and crew;
    - (v) Name of all VIP/ passenger(s) on board; and
    - (vi) Proposed Flight Plan.
  - (2) The PSG clearance shall be submitted to Domestic Flight Operations Briefing Station (DFOBS) as an attachment to the Flight Plan;
  - (3) The Flight Plan, together with the PSG clearance, will be presented to the 250<sup>th</sup> Presidential Airlift Wing Operation Center for RP-P1 airspace limits flight briefing;
  - (4) Upon airborne, the pilot shall contact call sign “PAPA ONE” of the Group Operations Center, PSG at 11.5 MHz (primary) or 133.0 MHz (secondary) before entering RP-P1 airspace and observe designated gates of entry within the 2 nautical miles(2.3miles)(3.71km) radius;
  - (5) In situations where a VIP passenger has to immediately proceed to Malacañang Park. The pilot should at once contact “PAPA ONE” for clearance informing of a VIP passenger on board and the reason for urgency to proceed to Malacañang Park. The aircraft shall hold on a designated holding area until a clearance is given to proceed. The pilot shall then inform MNL TWR at 118.1 MHz informing that he is flying into RP-P1 and that a clearance has been granted by the PSG before entering RP-P1 airspace. The time of granting such clearance should be specified.
  - (6) Accidental intrusions are strictly unauthorized and the pilot should coordinate with “PAPA ONE” at frequency 119.5 MHz for proper instructions;
    - (i) Two (2) days for overfly
    - (ii) Three (3) days for landing at Area III; and
    - (iii) Ten (10) days for aerial flights.
- (b) In operation like paradrop, aerial photography, and request for clearance to operate a helipad, strict adherence to PSG SOP 9-99 dated June 12, 1999 is enjoined.

**§ 91.135 Operations in airspace at or above FL200.**

Except as provided in paragraph (d) of this section, each person operating an aircraft in airspace at or above FL200 must conduct that operation under instrument flight rules (IFR) and in compliance with the following:

- (a) Clearance. An ATC clearance shall be received prior to entering the airspace.
- (b) Communications. Unless otherwise authorized by ATC, each aircraft operating in airspace at or above FL200 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 airspace at or above FL200.
- (c) Transponder requirement. Unless otherwise authorized by ATC, no person may operate an aircraft within airspace at or above FL200 unless that aircraft is equipped with the applicable equipment specified in § 91.215.
- (d) Deviations.
  - (1) Except as provided in subparagraph (2) of this paragraph, deviations to any of the provisions of this section may only be authorized by the ASEC. Requests for deviation shall be submitted in writing at least 72 hours before the proposed operation. The ASEC may authorize a deviation on a continuing basis or for an individual flight, as appropriate.
  - (2) During the period an aircraft taxis for take-off until that flight terminates, an operator may deviate from any provision of this section under the conditions prescribed in an ATC authorization issued by the ATC facility having jurisdiction over the airspace concerned. In the case of an inoperative transponder, ATC may immediately approve an operation within airspace at or above FL200 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

**§ 91.136 Reserved.**

**§ 91.137 Temporary flight restrictions.**

- (a) The ASEC 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 hazard 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 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 Flight Service Station (FSS) or 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 ATO 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 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 FOBS or ATC facility specified in the NOTAM.
  
- (e) Flight plans filed and notifications made with an FOBS or 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.

**§ 91.138 Temporary Flight Restrictions in National Disaster Areas**

- (a) When the ASEC has determined, pursuant to a request and justification provided by the Governor of a Province, or the Governor's designee, that an inhabited area within a declared national disaster area in the named Province is in need of protection for humanitarian reasons, the ASEC will issue a Notice to Airmen (NOTAM) designating an area within which temporary flight restrictions apply. The ASEC will designate the extent and duration of the temporary flight restrictions necessary to provide for the protection of persons and property on the surface.
  
- (b) When a NOTAM has been issued in accordance with this section, no person may operate an aircraft within the designated airspace unless:
  - (1) That person has obtained authorization from the official in charge of associated emergency or disaster relief response activities, and is operating the aircraft under the conditions of that authorization;
  - (2) The aircraft is carrying law enforcement officials;
  - (3) The aircraft is carrying persons involved in an emergency or a legitimate scientific purpose;
  - (4) The aircraft is carrying properly accredited news persons, and that prior to entering the area, a flight plan is filed with the appropriate ATO or ATC facility specified in the NOTAM and the operation is conducted in compliance with the conditions and restrictions established by the official in charge of on-scene emergency response activities; or,
  - (5) The aircraft is operating in accordance with an ATC clearance or instruction.
  
- (c) A NOTAM issued under this section is effective for 90 days or until the national disaster area designation is terminated, whichever comes first, unless terminated by notice or extended by the ASEC at the request of the Governor of the Province or the Governor's designee.

**§ 91.139 Emergency air traffic rules.**

- (a) This section prescribes a process for utilizing 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

ASEC in certain matters under this section.

- (b) Whenever the ASEC determines that an emergency condition exists, or will exist, relating to the ATO's ability to operate the air traffic control system and during which normal flight operations under this chapter cannot be conducted consistent with the required levels of safety and efficiency:
  - (1) The ASEC issues an immediately effective air traffic rule or regulation in response to that emergency condition; and
  - (2) The ASEC or his authorized representative for Air Traffic Services (ATS) 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.

**§ 91.140 Reserved.**

**§ 91.141 Flight restrictions in the proximity of a Presidential Area of Engagement.**

No person may operate an aircraft over or in the vicinity of any Presidential Area of Engagement to be visited or traveled by the President, contrary to the restrictions established by the ASEC and published in a NOTAM.

**§ 91.142 thru 91.143 Reserved.**

**§ 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 ASEC and published in a Notice to Airmen issued under this section.
- (b) Waivers. The ASEC is authorized to waive any restriction 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 thru 91.149 [Reserved]**

**Visual Flight Rules**

**§ 91.150 Fuel requirements for flight in VFR conditions.**

- (a) No person may begin a flight in an airplane 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:
  - (1) During the day, to fly after that for at least 30 minutes; or
  - (2) At night, to fly after that for at least 45 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.

**§ 91.151 thru 91.152 Reserved.**

**§ 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 number 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 and names of persons and their nationality (if other than Filipino) in the aircraft, except where that information is otherwise readily available to the ATO.
  - (9) Any other information the pilot-in-command or ATC believes is necessary for ATC purposes or required by the AIP.
- (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 an ATO Flight Service Station or ATC facility.

**§ 91.154 Reserved.**

**§ 91.155 Basic VFR weather minimums.**

- (a) Except as provided in paragraph (b) of this section and § 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 airspace in the following table:

WITHIN CONTROLLED AIRSPACE		OUTSIDE CONTROLLED AIRSPACE	
ABOVE	AT OR BELOW	ABOVE	AT OR BELOW
900 M (3,000FT) above mean sea level or 300M (1,000FT) above terrain, whichever is higher*			
<b>FLIGHT VISIBILITY:</b>			
8 KM (5 miles)	5 KM** (3 miles)	8 KM (5 miles)	1.5 KM (1 mile)***
<b>DISTANCE FROM CLOUD:</b>			
a) Horizontal:			Clear of clouds and in sight of the ground or water
1.5 km (1 mile)	1.5 km (1 mile)	1.5 km (1 mile)	
b) Vertical:			Clear of clouds and in sight of the ground or water
300 m (1,000 ft)	300 m (1,000 ft)	300 m (1,000 ft)	

\* Unless a higher plane of division is prescribed on the basis of regional air navigation agreement or by appropriate authority.

\*\* When so prescribed by the appropriate ATS authority.

\*\*\* Except that helicopters may operate with a flight visibility below 1.5 km. (1 mile) if maneuvered at a speed that will give adequate opportunity to observe other traffic or any obstructions in time to avoid collision.

- (b) Except as provided in § 91.157, 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 1,500 feet.
- (c) Except as provided in § 91.157 of this part, no person may take off or land an aircraft, or enter the traffic pattern of an airport, under VFR, within the lateral boundaries of a control zone designated for an airport:

- (1) Unless ground visibility at that airport is at least 5 statute miles(5 miles)(8.05 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 5 statute miles(5 miles)(8.05 km).

**§ 91.156 Reserved.**

**§ 91.157 Authorization of Special VFR Flights.**

- (a) Except where prohibited by the ASEC, special VFR operations may be conducted under the weather minimums and requirements of this section, instead of those contained in § 91.155.
- (b) When the traffic conditions permit, special VFR flights may be authorized subject to the following conditions:
  - (1) Aerodrome control towers shall obtain approval from the unit providing approach control service prior to authorizing operation of special VFR flights.
  - (2) Requests for such authorization shall be handled individually.
  - (3) Separation shall be effected between all special VFR flights in accordance with minima prescribed by the appropriate ATS authority, and between such flights and all IFR flights in accordance with the separation minima.
- (c) When the ground visibility is not less than 1.5 km (1 mile), special VFR flights may be authorized to enter a control zone for the purpose of landing or take off, and depart directly from a control zone, whether or not the aircraft is equipped with a functioning radio receiver.
- (d) Special VFR flights may be authorized to operate locally within a control zone when the ground visibility is not less than 1.5 km (1mile), provided that:
  - (1) The aircraft is equipped with a functioning radio receiver and the pilot has agreed to guard the appropriate communication frequency; or
  - (2) If the aircraft is not equipped with a functioning radio receiver, that adequate arrangements have been made for the termination of the flight.

**§ 91.158 Communications failure: VFR.**

If the aircraft radio fails in flight and radio contact cannot be maintained, the pilot-in-command may operate that aircraft but must land at the nearest suitable aerodrome in accordance with the following:

- (a) If the radio failure occurs while enroute and weather conditions are at or above basic VFR weather minimums, squawk 7600 on the aircraft transponder and proceed under VFR to the nearest suitable aerodrome and land; or
- (b) If the radio failure occurs while in a control zone, advisory zone or in the vicinity of an aerodrome, squawk 7600 on the aircraft transponder, attempt to attain and/or maintain visual contact with the tower, if one exists, otherwise with the aerodrome, and land as soon as possible.

Note: When approaching an aerodrome with an operating tower, the pilot shall adhere to any light signals given.

**§ 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 and below FL200, shall maintain the appropriate altitude or flight level prescribed below, unless otherwise authorized by ATC:

- (a) On a magnetic course of 0 degree through 179 degrees, any odd thousand feet MSL altitude +500 feet (such as 3,500, 5,500, or 7,500); or
- (b) On a magnetic course of 180 degrees through 359 degrees, any even thousand feet MSL altitude +500 feet (such as 4,500, 6,500, or 8,500).

**§ 91.160 VFR position reporting procedures.**



- (a) This section specifies the minimum reporting requirements for VFR flights and are in addition to those in §§ 91.126 and 91.129.
- (b) Aircraft transiting over or in the vicinity of an aerodrome, except an aerodrome without a communications capability, shall broadcast a position report consisting of a minimum of the following information:
  - (1) Aircraft registration;
  - (2) Name of pilot;
  - (3) Position;
  - (4) Altitude;
  - (5) Aerodrome of departure;
  - (6) Destination aerodrome; and
  - (7) Expected arrival time at the destination aerodrome.

**§§ 91.161 thru 91.166 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, if one is required; 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) There is prescribed a standard instrument approach procedure for the first airport of intended landing; and
  - (2) For at least 2 hours before and 2 hours 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 1,000 feet above the minimum associated with the approach procedure; and
    - (ii) Visibility will be at least 5.5 km (3.42 miles) or 4 km (2.5 miles) more than minimum associated with the approach procedure, whichever is higher.

**§ 91.168 Reserved.**

#### **§ 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 § 91.153(a); and
  - (2) An alternate airport, except as provided in paragraph (b) of this section.
- (b) Paragraph (a)(2) of this section does not apply if a standard instrument approach procedure is prescribed for the first airport of intended landing and, for at least 2 hours before and 2 hours after the estimated time of arrival, the weather reports or forecasts, or any combination of them, indicate:

- (1) The ceiling will be at least 1,000 feet above the minimums associated with the approach procedure; and
  - (2) The visibility will be at least 5.5 km (3.42 miles) or 4 km (2.5 miles) more than minimum associated with the approach procedure, whichever is higher.
- (c) IFR alternate airport weather minimums. Unless otherwise authorized by the ASEC, 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 published 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 3.2 km (2 miles).
    - (ii) Non-precision approach procedure: Ceiling 800 feet and visibility 3.2 km (2 miles).
  - (2) If no instrument approach procedure has been published for that airport, the ceiling and visibility minimums are those allowing descent from the MEA, approach and landing under basic 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 ATO Flight Service Station or ATC facility. Cancellation of a flight plan prior to completion of the flight leaves the operator without any flight plan unless another is filed and activated.

**§ 91.170 Reserved.**

**§ 91.171 Navigational equipment check for IFR operations.**

No person may operate a civil aircraft under IFR using any system of navigation unless such equipment is checked for proper functioning prior to the first flight of the day.

**§ 91.172 Reserved.**

**§ 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 IFR flight plan; and
- (b) Received an appropriate ATC clearance.

**§ 91.174 Reserved.**

**§ 91.175 Takeoff and landing under IFR.**

- (a) Instrument approaches to civil airports. Unless otherwise authorized by the ASEC, 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 published in the AIP of the Philippines.
- (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 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 AO 121 or

- AO 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 ASEC, 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, 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 ASEC, no pilot operating an aircraft may take off from a civil airport under IFR unless weather conditions are at or above the weather minimums for IFR take-off prescribed for that airport in the AIP. If take-off minimums are not prescribed in the AIP for a particular airport, the following minimums apply to take-offs under IFR:
    - (1) For aircraft, other than helicopters, having two engines or less – 1.6 km (1 mile) visibility.
    - (2) For aircraft having more than two engines – 800 m (½ statute mile) visibility.
    - (3) For helicopters - 800 m (½ statute mile) visibility.
  - (g) Military airports. Unless otherwise prescribed by the ASEC, each person operating a civil aircraft under IFR into or out of a military airport shall comply with the instrument approach procedures and the take-off and landing minimums 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.

(2)

<b>RVR (feet)</b>	<b>Visibility (miles)</b>	<b>Visibility (meters)</b>
1,600	¼	400
2,400	½	800
3,200	¾	1000
4,000	1	1200
4,500	1¼	1400
5,000	1½	1600
6,000	2	2000

(i) Operations on unpublished routes and use of radar in instrument approach procedures. When radar is approved at certain locations for ATC purposes, it may be used in conjunction with instrument approach procedures predicated on other types of radio navigational aids. Radar vectors may be authorized to provide course guidance through the segments of an approach to the final course or fix. When operating on an unpublished route or while being radar vectored, the pilot, when an approach clearance is received, shall, in addition to complying with § 91.177, maintain the last altitude assigned to that pilot until the aircraft is established on a segment of a published route or instrument approach procedure unless a different altitude is assigned by ATC. After the aircraft is so established, published altitudes apply to descent within each succeeding route or approach segment unless a different altitude is assigned by ATC. Upon reaching the final approach course or fix, the pilot may either complete the instrument approach in accordance with a procedure approved for the facility or, if in VMC, continue with a visual approach to a landing.

(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. DME, VOR, or non-directional beacon and GPS 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 approach procedure, letter of authorization or operations specification pertinent to the operations.

**§ 91.176 Reserved.**

**§ 91.177 Minimum altitudes for IFR operations.**

(a) Operation of aircraft at minimum altitudes. Except when necessary for take-off 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 -

(i) In the case of operations over an area designated as a mountainous area, an altitude of 2,000 feet above the highest obstacle within a horizontal distance of 8 km (5 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 8 km (5 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(25.33 miles)(40.79 km) of the navigation aid concerned (based on the pilot's reasonable estimate of that distance).

(b) Climb. Climb to or above a higher minimum IFR altitude shall be accomplished prior to passing the point beyond which that minimum altitude applies.

**§ 91.178 Reserved.**

**§ 91.179 IFR cruising altitude or flight level.**

- (a) Except in RVSM airspace, when flight planning, each person shall select an altitude appropriate to the direction of flight in accordance with paragraph (c) of this section.
- (b) 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.
- (c) 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 the published transition level and –
    - (i) On a magnetic course of 0 degrees through 179 degrees, any odd thousand foot MSL altitude (such as 1,000, 3,000, 5,000 or 7,000); or
    - (ii) On a magnetic course of 180 degrees through 359 degrees, any even thousand foot MSL altitude (such as 2,000, 4,000 or 6,000).
  - (2) When operating at or above the published transition level but below FL 290, and –
    - (i) On a magnetic course of 0 degrees through 179 degrees, any odd flight level (such as 190, 210 or 230); or
    - (ii) On a magnetic course of 180 degrees through 359 degrees, any even flight level (such as 180, 200 or 220).
  - (3) When operating at FL 290 and above, and -
    - (i) On a magnetic course of 0 degrees through 179 degrees, 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 degrees through 359 degrees, any flight level, at 4,000 foot intervals, beginning at and including flight level 310 (such as flight level 310, 350 or 390).

**§ 91.180 Reserved.**

**§ 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 a published 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.

**§ 91.182 Reserved.**

**§ 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) The ETA for the next reporting point and the name of the subsequent reporting point;

- (c) Any unforecast weather conditions encountered; and
- (d) Any other information relating to the safety of flight.

**§ 91.184 Reserved.**

**§ 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 IFR altitude for the route being flown; 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 expected 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 expected 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.

In the event of an arrival at a clearance limit prior to the ETA last passed to ATC or the flight plan estimate, the pilot shall enter a hold on the inbound course until the time to proceed with a descent and approach arrives.

**§ 91.186 Reserved.**

**§ 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.

**§ 91.188 Reserved.**

**§ 91.189 Category II operations: General operating rules.**

- (a) No person may operate a civil aircraft in a Category II 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 AO 60;
  - (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 ASEC, no person may operate a civil aircraft in a Category II 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 ASEC, no pilot operating an aircraft in a Category II 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 ASEC, 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) Paragraphs (a) through (f) of this section do not apply to operations conducted by the holders of certificates issued under AO 121 or AO 135. No person may operate a civil aircraft in a Category II operation conducted by the holder of a certificate issued under AO 121 or 135 unless the operation is conducted in accordance with that certificate holder's operations specifications.

**§ 91.190 Reserved.**

**§ 91.191 Category II manual.**

- (a) No person may operate a civil aircraft of Republic of the Philippines 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 ASEC.
- (c) This section does not apply to operations conducted by the holder of a certificate issued under AO 121 or AO 135.

**§ 91.192 Reserved.**

**§ 91.193 Certificate of authorization for certain Category II operations.**

The ASEC may issue a certificate of authorization authorizing deviations from the requirements of §§ 91.189, 91.191, and 91.205(f) for the operation of small aircraft identified as Category A aircraft in Category II operations if the ASEC finds that the proposed operation can be safely conducted under the terms of the certificate. Such authorization does not permit operation of the aircraft carrying persons or property for compensation or hire.

**§§ 91.194 thru 91.199 Reserved.**

**Chapter C  
Equipment, Instrument and Certificate Requirements**

**§ 91.200 thru 91.201 Reserved.**

**§ 91.203 Civil aircraft: Certifications required.**

- (a) Except as provided in § 91.715, no person may operate a civil aircraft unless it has within it the following:
  - (1) An appropriate and current airworthiness certificate or a Special Flight Permit.
  - (2) An effective registration certificate issued to its owner or, for operation within the Republic of the Philippines, or a registration certificate issued under the laws of a foreign country.
  - (3) A current radio station license.
- (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 § 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 the ATO approved repair and modification scheme pursuant to AO No. 4-A and a copy of ATO Form No. 1051 authorizing that installation is on board the aircraft.

**§ 91.204 Reserved.**

**§ 91.205 Powered civil aircraft with standard category RP 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 airworthiness certificate in any operation described in paragraphs (b) through (f) of this section unless that aircraft contains the instruments and equipment specified in those paragraphs (or ATO-approved equivalents) 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 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 Appendix C Part I to this A. O. 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 on the validated aircraft type certificate is the date the inspection acceptance records reflect that the airplane is complete and meets the ATO-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.
  - (15) For normal, utility, and acrobatic category airplanes with a seating configuration, excluding pilot seats, of 9 or less, manufactured after December 12, 1986, a shoulder harness for:
    - (i) Each front seat that meets the requirements of Appendix C Part II (a) and (b) of this A. O.;

- (ii) Each additional seat that meets the requirements of Appendix C Part II (a) of this A. O.
- (16) For rotorcraft manufactured after September 16, 1992, a shoulder harness for each seat that meets the requirements of Appendix C Part III of this A. O.
- (c) Visual flight rules (night). For VFR flight at night, a waiver from the ASEC must be secured prior to the conduct of such flight and the following instruments and equipment are required:
- (1) Instruments and equipment specified in paragraph (b) of this section.
  - (2) Approved position and navigational lights.
  - (3) An approved aviation red or aviation white anticollision light system on all R.P.-registered aircraft. Anticollision light systems initially installed after August 11, 1971, on aircraft for which a type certificate was issued or applied for before August 11, 1971, except that 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) At least 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.
- (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. As a minimum, the following are the required navigational equipment:
    - (i) Dual automatic direction finder (ADF) and/or radio magnetic indicator (RMI); and
    - (ii) Dual VOR
  - (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 degrees of pitch and roll and installed in accordance with the instrument requirements prescribed in AO 121.305(j); and
    - (ii) Rotorcraft with a third attitude instrument system usable through flight attitudes of 80 degrees of pitch and 20 degrees of roll and installed in accordance with appendix F to this A. O.
  - (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 a civil registered aircraft within the RP 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 AO are required. This paragraph does not apply to operations conducted by the holder of a certificate issued under AO 121.

**§ 91.207 Emergency locator transmitters.**

- (a) Except as provided in paragraphs (e) and (f) of this section, no person may operate an RP 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 except that after June 21, 1998, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations:
    - (i) Those operations governed by the domestic and international air carrier operator rules of AO 121; and
    - (ii) Operations governed by AO 135; 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, except that after June 21, 1998, an emergency locator transmitter that meets the requirements of TSO-C91 may not be used for new installations.
- (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) Aircraft while engaged in training operations conducted entirely within a 50 nautical mile(57.58 miles)(92.70km) radius of the airport from which such local flight operations began;
- (2) Aircraft while engaged in flight operations incident to design and testing;
- (3) New aircraft while engaged in flight operations incident to their manufacture, preparation and delivery;
- (4) Aircraft while engaged in flight operations incident to the aerial application of chemicals and other substances for agricultural purposes;
- (5) Aircraft certificated by the ASEC for research and development purposes;
- (6) Aircraft while used for showing compliance with regulations, crew training, exhibition, air racing or market surveys;
- (7) Aircraft equipped to carry not more than one person; and
- (8) 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 there is 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.

**§ 91.208 Reserved.**

**§ 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 § 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.

**§ 91.210 Reserved.**

**§ 91.211 Supplemental oxygen.**

- (a) General. No person may operate a civil registered aircraft:
  - (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 registered aircraft with a pressurized cabin:
    - (i) At flight altitudes above FL 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 FL 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 FL 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.

**§ 91.212 Reserved.**

**§ 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 it a letter of authorization, issued by the ATO, 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 AO or AO 121 or AO 135.
- (c) A person authorized to use an approved Minimum Equipment List issued for a specific aircraft under AO 121, or 135 shall use that Minimum Equipment List in connection with operations conducted with that aircraft under this AO 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 AO 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 kind of operations equipment list for the kind of flight operation being conducted;
    - (iii) Required by § 91.205 or any other rule of this AO 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 AO 4-A; 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 AO 4-A; and
  - (4) A determination is made by a pilot, who is certificated and appropriately rated under AO 60 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 ASEC.

- (e) Notwithstanding any other provision of this section, an aircraft with inoperable instruments or equipment may be operated under a special flight permit issued in accordance with AO 21.197 and 21.199.

**§ 91.214 Reserved.**

**§ 91.215 ATC transponder and altitude reporting equipment and use.**

- (a) All Controlled Airspace: R. P. registered civil aircraft. For operations not conducted under AO 121, or 135, ATC transponder equipment installed must meet the performance and environmental requirements of any class of TSO-C74c (Mode A with altitude reporting capability) as appropriate, or the appropriate class of TSO-C112 (Mode S) or its equivalent.
- (b) Unless otherwise published in the AIP 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 either Mode 3/A 4096 code capability, replying to Mode 3/A interrogations with the code specified by ATC, or a Mode S capability, replying to Mode 3/A interrogations with

the code specified by ATC and intermode and Mode S interrogations in accordance with the applicable provisions specified in TSO C112 or its equivalent, and that aircraft is equipped with automatic pressure altitude reporting equipment having a Mode C capability that automatically replies to Mode C interrogations by transmitting pressure altitude information in 100 foot increments. This requirement applies:

- (1) All aircraft in Class A airspace and terminal control areas where terminal radar service is provided;
  - (2) All aircraft. In all airspace within the terminal control areas of airports listed in the AIP with terminal radar service;
  - (3) Notwithstanding paragraph (b)(2) of this section, any aircraft which was not originally certificated with an engine driven electrical system or which has not subsequently been certified with such a system installed, balloon or glider may conduct operations in the airspace within terminal control areas of airports listed in the AIP providing terminal radar service provided they have permission from ATC.
- (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 § 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.

**§ 91.216 Reserved.**

**§ 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 TSO-C10b and TSO-C88, respectively.

**§ 91.218 Reserved.**

**§ 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 civil registered 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 the Republic of the Philippines 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 the Republic of the Philippines for the purpose of registering it in a foreign country.

**§ 91.220 Reserved.**

**§ 91.221 Traffic alert and collision avoidance system equipment and use.**

- (a) All airspace: RP-registered civil aircraft. Any traffic alert and collision avoidance system installed in a RP-registered civil aircraft must be approved by the ASEC.
- (b) Traffic alert and collision avoidance system, operation required. Each person operating an aircraft equipped with an operable traffic alert and collision avoidance system shall have that system on and operating.

**§ 91.222 Ground proximity warning system equipment.**

- (a) After July 1, 2003, no person may operate a turbine-powered aircraft having a maximum certificated take-off weight of 12,500 pounds or more or a passenger seating capacity, excluding any required pilot seat, of 10 seats or more, unless that aircraft is equipped with a ground proximity warning system.
- (b) The ground proximity warning system required by paragraph (a) of this section shall automatically provide a timely and distinctive warning to the flight crew when the airplane is in a potentially hazardous proximity to the earth's surface and provide, as a minimum, warnings of the following circumstances:



- (1) Excessive sink rate;
- (2) Excessive terrain closure rate;
- (3) Excessive altitude loss after take-off or go around;
- (4) Unsafe terrain clearance while not in landing configuration (gear not locked down or flaps not in landing configuration); and
- (5) Excessive descent below the instrument glide path.

**§ 91.223 Flight data recorders.**

- (a) Except as provided in paragraph (b) of this section, no person may operate a multi-engine, turbine-powered airplane or rotorcraft having a passenger seating configuration, excluding any pilot seat, of 10 seats or more after July 1, 2004 unless it is equipped with one or more approved flight data recorders that utilize a digital method of recording and storing data, and a method of readily retrieving that data from the storage medium. The recorder shall retain no less than 25 hours of airplane operation and 10 hours of rotorcraft operation. The recorder shall record the parameters that are set forth in Appendix B or C of AO 135, as applicable, and must be recorded within the range, accuracy, resolution and recording intervals as specified therein.
- (b) Operators with aircraft registered with the ATO on July 1, 2004 not in compliance with paragraph (a) of this section are required to modify such aircraft to meet the requirements of paragraph (a) of this section in accordance with the following schedule:

<u>Date</u>	<u>Required Equipage</u>
September 1, 2004	At least 20% of all covered airplanes.
July 1, 2005	At least 40% of all covered airplanes.
July 1, 2006	At least 60% of all covered airplanes.
July 1, 2007	At least 80% of all covered airplanes.
July 1, 2008	100% of all covered airplanes.

- (c) 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 the lift-off until the airplane has completed the landing roll or the rotorcraft has landed at its destination.
- (d) Except as provided in paragraph (c) of this section, and except for recorded data erased as authorized in this paragraph, each certificate holder shall keep the recorded data prescribed in paragraph (a) of this section until the aircraft has been operating for at least 25 hours for airplanes and 10 hours for rotorcraft, of the operating time specified in paragraph (c) of this section. A total of 1 hour of recorded data may be erased for the purpose of testing the flight recorder or the flight recorder system. Any erasure made in accordance with this paragraph must be of the oldest recorded data accumulated at the time of testing. Except as provided in paragraph (e) of this section, no record need be kept more than 60 days.
- (e) In the event of an accident or occurrence that requires that immediate notification of the Air Transportation Office and that results in termination of the flight, the certificate holder shall remove the recording media from the aircraft and keep the recorded data required by paragraphs (a) and (b) of this section for at least 60 days or for a longer period upon request of the Aviation Accident Investigation Board or the ASEC.
- (f) Each flight recorder required by this section must be installed in accordance with the requirements of Appendix D of AO 135. The correlation required by AO 135, Appendix D, Section A.III or B.III, as appropriate, need be established only on one aircraft of a group of aircraft:
  - (1) That are of the same type;
  - (2) On which the flight recorder models and their installations are the same; and
  - (3) On which there are no differences in the type design with respect to the installation of the first pilot's

instruments associated with the flight recorder. The certificate holder must retain the most recent instrument calibration, including the recording medium from which this calibration is derived, and the recorder correlation.

- (g) Each flight recorder required by this section that records the data specified in paragraphs (a) and (b) of this section must have an approved device to assist in locating that recorder under water.
- (h) Operators shall develop procedures for testing each flight data recorder to ensure its serviceability prior to the first flight of each day and an annual inspection to verify that the recorder is functioning properly.

**§ 91.224 Cockpit voice recorders.**

- (a) Except as provided in paragraph (b) of this section, no person may operate a multi engine, turbine-powered airplane or rotorcraft having a passenger seating configuration of ten or more and for which two pilots are required by certification or operating rules after July 1, 2004 unless it is equipped with an approved cockpit voice recorder that:
  - (1) Is installed in compliance with Appendix A of AO 135; 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.
- (b) Operators with aircraft registered with the ATO on July 1, 2004 not in compliance with paragraph (a) of this section are required to modify such aircraft to meet the requirements of paragraph (a) of this section in accordance with the following schedule:

<u>Date</u>	<u>Required Equipage</u>
September 1, 2004	At least 20% of all covered airplanes.
July 1, 2005	At least 40% of all covered airplanes.
July 1, 2006	At least 60% of all covered airplanes.
July 1, 2007	At least 80% of all covered airplanes.
July 1, 2008	100% of all covered airplanes.

- (c) In the event of an accident, or occurrence requiring immediate notification of the Air Transportation Office which results in termination of the flight, the certificate holder shall keep the recorded information for at least 60 days or, if requested by the ASEC or the Civil Aeronautics Board, for a longer period. Information obtained from the record may be used to assist in determining the cause of accidents or occurrences in connection with investigations. The ASEC does not use the record in any civil penalty or certificate action.
- (d) For those aircraft equipped to record the uninterrupted audio signals received by a boom or a mask microphone the pilots are required to use the boom microphone below 18,000 feet mean sea level. No person may operate a large turbine engine powered airplane manufactured after October 11, 1991, or on which a cockpit voice recorder has been installed, unless it is equipped to record the uninterrupted audio signal received by a boom or mask microphone in accordance with AO 135, Appendix A, Section A.III(e).
- (e) In complying with this section, an approved cockpit voice recorder having an erasure feature may be used, so that during the operation of the recorder, information recorded in accordance with paragraph (a) of this section and recorded more than 30 minutes earlier; may be erased or otherwise obliterated.
- (f) Operators shall develop procedures for testing each cockpit voice recorder to ensure its serviceability prior to the first flight of each day and an annual inspection to verify that the recorder is functioning properly.

**§§ 91.225 thru 91.299 Reserved.**

**Chapter D  
Special Flight Operations**

**§§ 91.301 thru 91.302 Reserved.**

**§ 91.303 Aerobatic flight.**

No person may operate an aircraft in aerobatic flight:

- (a) Without permit from the ASEC:
- (b) Over any congested area of a city, town, or settlement;
- (c) Over an open air assembly of persons;
- (d) Within the lateral boundaries of the surface areas of airspace designated for an airport;
- (e) Below an altitude of 1,500 feet above the surface; or
- (f) When visibility is less than 5 km (3.11 miles).

**§ 91.304 Reserved.**

**§ 91.305 Flight test areas.**

No person may flight test an aircraft except over open water, or sparsely populated areas, having light air traffic.

**§ 91.306 Reserved.**

**§ 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 the RP except in accordance with the terms of an authorization issued by the ASEC and as indicated by relevant information, advice and/or clearance from the appropriate ATC units.
- (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 degrees relative to the horizon; or
  - (2) A nose up or nose down attitude of 30 degrees 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 AO 60.169.

- (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 military parachute identified by an RP military drawing number, order number or any other military designation or specification number.

**§ 91.308 Reserved.**

**§ 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 AO 60.69;
  - (2) The towing aircraft is equipped with a tow hitch of a kind, and installed in a manner, that is approved by the ASEC;
  - (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; and
    - (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 controlled 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 ATO 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.
- (b) No pilot of a civil aircraft may intentionally release a towline, after release of a glider, in a manner that endangers the life or property of another.

**§ 91.310 Reserved.**

**§ 91.311 Towing: Other than under AO 91.309.**

No pilot of a civil aircraft may tow anything with that aircraft (other than under § 91.309) except in accordance with the terms of a certificate of waiver issued by the ASEC.

**§ 91.312 Reserved.**

**§ 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 certificate of waiver or special operating limitations issued by the ASEC, no person may operate a restricted category civil aircraft within the Republic of the Philippines:
  - (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.
- (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 state inertia loads corresponding to the following ultimate load factors: upward 3.0g for normal, utility and commuter category airplanes or 4.5 g for aerobatic category airplane; forward 9.0 g; sideward 1.5 g; and downward 3.0 g. 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. A front seat is a seat located at a flight crewmember station or any seat located alongside such a seat. For the 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 ATO-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.

**§ 91.314 Reserved.**

**§ 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.

**§91.314 Reserved.**

**§ 91.317 Non-Type Certificated Aircraft: Operating limitations**

Definition: Non-type certificated aircraft is an aircraft that does not possess an aircraft type certificate issued by any country/state. It is, of simple design and construction, either a homebuilt or a kit built variety and for recreational and sport use, day VFR condition only. Applicable to all classification, including powered parachutes, gyrocopter, fixed wing aircraft and helicopters.

Each person operating a non-type certificated aircraft shall operate within the following prescribed limitations;

- (a) Amateur builders can select their own aircraft design and is not subject to ATO approval.

- (b) Non-type certificated aircraft will only be registered as RP-S.
- (c) Aircraft airworthiness certificate will not be issued to non-type certificated aircraft.
- (d) License to pilot these non-type certificated aircraft will not be issued by this office.
- (e) Its place of operation will be evaluated and approved by the Air Transportation Office.
- (f) Operators will be responsible in maintaining these non-type certificated aircraft in airworthy condition so as not to be hazard to life and property.
- (g) Operators will be responsible to any damages to either life or property that maybe incurred during the operation of these non-type certificated aircraft.
- (h) Except with the approval of the ASEC, non-type certificated aircraft shall no be flown:
  - (1) Outside the designated area of operation
  - (2) Without an operational two-way radio.
  - (3) At a height in excess of 800 ft. above ground level within the designated area of operation and outside of the approved lateral area.
  - (4) Within 5 Statute miles(5 miles)(8.05km) from an airport with an operational control tower, unless two-way radio contact is established and prior approval is obtained to enter controlled airspace/designated flight training areas.
  - (5) Over congested area or over open-air assemblies of people.
  - (6) In clouds
  - (7) Between the period of sunset and sunrise
  - (8) In other than VFR conditions
  - (9) In aerobatics conditions
  - (10) In commercial conditions
  - (11) Without clearance from the control tower if operating within radio contact of a controlled aerodrome.
- (i) Where it is proposed to fly a non-type certificated aircraft other than those specified in paragraph 8, the person operating these aircraft or his agent shall submit a written application specifying the details of the proposed operation to the ASEC not less than fifteen (15) days prior to the proposed flight.

**§ 91.318 Reserved.**

**§ 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 ASEC 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) No person may operate an aircraft that has an experimental certificate over a densely populated area or in a congested airway.
- (d) Each person operating an aircraft that has an experimental certificate shall:
  - (1) Advise each person carried on the aircraft of its experimental nature;
  - (2) Operate under VFR, day only; 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 ASEC may prescribe additional limitations that are deemed necessary, including limitations on the persons that may be carried in the aircraft.

**§ 91.324 Reserved.**

**§ 91.325 Primary category aircraft: Operating limitations.**

- (a) No person may operate a primary category aircraft carrying persons or property for compensation or hire.
- (b) No person may operate a primary category aircraft that is maintained by the pilot-owner under an approved special inspection and maintenance program except:
  - (1) The pilot-owner; or
  - (2) A designee of the pilot-owner, provided that the pilot-owner does not receive compensation for the use of the aircraft.

**§§ 91.326 thru 91.399 Reserved.**

**Chapter E  
Maintenance, Preventive Maintenance and Alterations**

**§ 91.401 Applicability.**

- (a) This chapter prescribes rules governing the maintenance, preventive maintenance and alterations of RP-registered civil aircraft operating within or outside of the Republic of the Philippines.
- (b) §§ 91.405, 91.409, 91.411, 91.417, and 91.419 of this chapter do not apply to an aircraft maintained in accordance with a continuous airworthiness maintenance program as provided in AO 121 or AO 135.411(b).

**§ 91.402 Reserved.**

**§ 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 airworthiness directives applicable to the aircraft.
- (b) No person may perform maintenance, preventive maintenance or alterations on an aircraft other than as prescribed in this chapter and other applicable regulations, including AO 4-A.
- (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 ASEC under AO 121 or AO 135 or in accordance with an inspection program approved under § 91.409(e) have been complied with.

**§ 91.404 Reserved.**

**§ 91.405 Maintenance required.**

Each owner or operator of an aircraft:

- (a) Shall have that aircraft inspected as prescribed in Chapter E and shall between required inspections, except as provided in paragraph (c) of this section, have discrepancies repaired as prescribed in AO 4-A;
- (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 § 91.213(d)(2) of this AO, 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 AO 4-A.

**§ 91.406 Repaired.**

**§ 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 AO 4-A; and
  - (2) The maintenance record entry required by AO 4-A 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.

**§ 91.408 Reserved.**

**§ 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 AO 91 and has been approved for return to service by a person authorized by AO 4-A; or
  - (2) An inspection for the issuance of an airworthiness certificate in accordance with AO 21.

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 AO 4-A or has received an inspection for the issuance of an airworthiness certificate in accordance with AO 21. The 100 hour limitation may be exceeded by not more than 10 hours if approved by the ASEC 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 or a current experimental certificate;
  - (2) An aircraft inspected in accordance with an approved aircraft inspection program under AO 121 or AO 135 and so identified by the registration number 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 ATO Aviation Safety Division 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 ATO 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 ATO, in writing, of the discontinuance. After the discontinuance, the first annual inspection under § 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 § 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, turbojet multiengine airplanes, turbopropeller-powered multi-engine airplanes, and turbine powered rotorcraft. No person may operate a large airplane, turbojet multi-engine airplane, turbopropeller-powered multi-engine 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 ASEC 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 § 91.409(a), (b), (c), or (d) in lieu of an inspection option of § 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 operating certificate or an operating certificate issued under AO 121 or AO 135 and operating that make and model aircraft under AO 121. or operating that make and model under AO135 and maintaining it under AO 135.411(b).
  - (2) An approved aircraft inspection program approved under A.O 135.419 and currently in use by a person holding an operating certificate issued under AO 135.
  - (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 ASEC under paragraph (g) of this section. However, the ASEC may require revision of this inspection program in accordance with the provisions of § 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 ASEC.

- (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 ATO. 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; and
  - (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.

**§ 91.410 Reserved.**

**§ 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, altimeter instrument and automatic pressure altitude reporting system has been tested and inspected;
  - (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
  - (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 airworthiness requirements.
- (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 AO 1 Series of 1980; 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.

**§ 91.412 Reserved.**

**§ 91.413 ATC transponder tests and inspections.**

- (a) No persons may use an ATC transponder that is specified in AO 91.215(a), 121.345(c) or 135.143(c) unless:
  - (1) Within the preceding 24 calendar months, the ATC transponder has been tested and inspected; and
  - (2) Following any installation or maintenance on an ATC transponder where data correspondence error could be introduced, the integrated system has been tested and inspected.

- (b) 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 AO 1 Series of 1980; or
  - (2) A holder of a continuous airworthiness maintenance program as provided in AO 121, or AO 135.411(b); or
  - (3) The manufacturer of the aircraft on which the transponder to be tested is installed, if the transponder was installed by that manufacturer.

**§ 91.414 Reserved.**

**§ 91.415 Changes to aircraft inspection programs.**

- (a) Whenever the ASD finds that revisions to an approved aircraft inspection program under § 91.409(f)(4) are necessary for the continued adequacy of the program, the owner or operator shall, after notification by the ASD, make any changes in the program found to be necessary.
- (b) The owner or operator may petition the ASEC to reconsider the notice to make any changes in a program in accordance with paragraph (a) of this section. The petition must be filed with the ASEC within 30 days after the certificate holder receives the notice.
- (c) 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 ASEC.

**§ 91.416 Reserved.**

**§ 91.417 Maintenance records.**

- (a) Except for work performed in accordance with §§ 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 ASEC) of the work performed;
    - (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; and
  - (vi) Copies of the forms prescribed by AO 4-A 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; and
  - (3) A list of defects furnished to a registered owner or operator under AO 4-A 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 ASEC or any authorized representative. In addition, the owner or operator shall present Form 1051 described in paragraph (d) of this section for inspection upon request.
- (d) When a fuel tank is installed within the passenger compartment or a baggage compartment pursuant to AO 4-A, a copy of ATO Form 1051 shall be kept on board the modified aircraft by the owner or operator.

**§ 91.418 Reserved.**

**§ 91.419 Transfer of maintenance records.**

Any owner or operator who sells a RP-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 ASEC:

- (a) The records specified in § 91.417(a)(2).
- (b) The records specified in § 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 § 91.417(c) to make the records available for inspection by the ASEC.

**§ 91.420 Reserved.**

**§ 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.

**§§ 91.422 thru 91.499 Reserved.**

## **Chapter F**

### **Large and Turbine Powered Multiengine Airplanes**

#### **§ 91.500 Applicability.**

(a) This chapter prescribes operating rules, in addition to those prescribed in other chapter of this AO, governing the operation of large and of turbojet powered multiengine civil airplanes of R.P. registry. The operating rules in this chapter do not apply to those airplanes when they are required to be operated under AOs 121 or 135. [§ 91.409 prescribes an inspection program for large and for turbine powered (turbojet and turboprop) multiengine airplanes of R.P. registry when they are operated under this AO]

(b) Operations that may be conducted under the rules in this AO instead of those in AO 121, or 135 when common carriage is not involved, include -

(1) Ferry or training flights;

(2) Aerial work operations such as aerial photography or survey, or 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, choral 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.

**§ 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, 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) After starting engine
- (3) Taxi
- (4) Before takeoff.
- (5) After takeoff
- (5) Cruise.
- (6) Descent
- (7) Final check
- (8) Before landing.
- (9) After landing.
- (10) Shutdown engines.
- (11) Emergencies.

(c) Each emergency cockpit checklist procedure required by paragraph (b)(11) 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 ASEC, including those specified in § 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: Night VFR operations.**

No person may operate an airplane at night under VFR unless that airplane is equipped with the instruments and equipment required for IFR operations under § 91.205(d) and one electric landing light for night operations. 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 [(57.58 miles)(92.70km)] 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 [(115.16 miles)(185.40 km)] 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 the following provisions that must-
  - (i) Allow one lifeline to be attached to each side of the fuselage; and
  - (ii) Be arranged to allow the lifelines to be used to enable the occupants to stay on the wing after ditching.

(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[(115.15 miles)(185.4 km)] 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 § 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 ax.

(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 ASEC may grant a deviation from the requirements of this subparagraph if the ASEC 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 § 91.119, and except as provided in paragraph (b) of this section, no person may operate an airplane under VFR at less than -

(1) One thousand feet above the surface, or 1,000 feet from any mountain, hill, or other obstruction to flight, for day operations; and

(2) The altitudes prescribed in § 91.177, for night operations.

(b) This section does not apply -

(1) During takeoff or landing;

(2) When a different altitude is authorized by a waiver to this section under chapter J of this AO; or

(3) When a flight is conducted under the special VFR weather minimums of § 91.157 with an appropriate clearance from ATC.

#### **§ 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 this chapter, 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 § 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 Air Transportation Office 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 AOs 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 AO 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 that was type certificated after January 1, 1958, 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 Appendix I to AO 121

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, 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 Appendix I to AO 121, except that -

(1) Shoulder harnesses and combined safety belt and shoulder harnesses that were approved and installed before March 6, 1980, 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 AO 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 Appendix I to AO 121(c)(1) to (5) 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 Appendix I to AO 121(c)(1) to (5).

**§ 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 ASEC; 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 Reserved.**

**§ 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 type certificate was issued before January 2, 1964, having a maximum certificated takeoff weight of more than 80,000 pounds.

(2) An airplane type certificated after January 1, 1964, for which a flight engineer is required by the type certification requirements.

(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 ASEC 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 certificated without a pilot who is designated as second-in-command if that airplane is certificated 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, excluding 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 ASEC 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 ASEC 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 AO 61.55.

**§ 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 thru 91.599 Reserved.**

**Chapter G  
Additional Equipment and Operating Requirements for  
Large and Transport Category Aircraft**

**§ 91.600 Applicability.**

This chapter applies to operation of large and transport category RP-registered civil aircraft.

**§ 91.603 Aural speed warning device.** No person may operate a transport category turbine engine powered airplane and airplanes with  $V_{mo}/M_{mo}$  greater than  $0.8 V_{df}/M_{df}$  or  $0.8 V_d/M_d$ . In air commerce unless that airplane is equipped with an aural speed warning device that give effects aural warnings (differing distinctively from aural warnings used for other purpose) to the pilots, whenever the speed exceeds  $V_{mo}$  plus 6 knots or  $M_{mo} + 0.01$ . The upper limit of the production tolerance for the warning device may not exceed the prescribed warnings speed.

**§ 91.605 Transport category civil airplane weight limitations.**

(a) No person may takeoff any transport category airplane (other than a turbine engine powered airplane certificated after September 30, 1958) 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 certificated after September 30, 1958, 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 -

(i) The takeoff run, in the case of airplanes certificated after September 30, 1958, and before August 30, 1959; or

(ii) The runway length, in the case of airplanes certificated after August 29, 1959.

(c) No person may takeoff a turbine engine powered transport category airplane certificated after August 29, 1959, 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) No person may operate a large airplane in passenger-carrying operations for hire, with more than the following number of occupants. An airplane type listed in the following table 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.

**Key:**

**(1) Airplane type**

**(2) Maximum number of occupants including all crewmembers**

**(3) Corresponding number of exits authorized for passenger use**

(1)	(2)	(3)
B-307	61	4
B-377	96	9
C-46	67	4
CV-240	53	6
CV-340 and CV-440	53	6
DC-3	35	4

DC-3 (Super)	39	5
DC-4	86	5
DC-6	87	7
DC-6B	112	11
L-18	17	3
L-049, L-649, L-749	87	7
L-1049 series	96	9
M-202	53	6
M-404	53	7
Viscount 700 series	53	7

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(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 AO 121 from complying with § 121.291.

**§ 91.609 Flight recorders and cockpit voice recorders.**

(a) No holder of an air carrier operating certificate may conduct any operation under this AO 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 AO under which its certificate is issued except that 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 operating 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

(c) No person may operate an R.P. registered, multiengine, turbine powered airplane or rotorcraft having a passenger seating configuration, excluding any pilot seats of 10 or more 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 AO, for an airplane, or appendix F to this AO, for a rotorcraft, 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 ASEC, after October 11, 1991, no person may operate an R.P. 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 appendix A, part A to AO 135 and appendix L to AO 121 and appendix A part B to AO 135, 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 A.T.O. 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 ASEC, for a longer period. Information obtained from the record is used to assist in determining the cause of accidents or occurrences. The ASEC 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 operating certificate 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. However, each operator who before November 19, 1966, has shown that a model of airplane with an engine inoperative is satisfactory for safe flight by a test flight conducted in accordance with performance data contained in the applicable Airplane Flight Manual under paragraph (a)(2) of this section need not repeat the test flight for that model.

(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 ATO 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 required 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  $1.3 V_{S1}$  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, at an altitude of 5,000 feet.

(5) The performance must be determined using temperature accountability for the takeoff field length.

(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  $V_r$  and  $V_2$ , not less than the corresponding speeds under which the airplane was type certificated 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 as set as specified in the aircraft type certificate data sheet.

(2) The minimum takeoff field length must be the horizontal distance required to accelerate and climb to the 35 feet height at  $V_2$  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 as specified in the aircraft type certificate data sheet.

(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 as specified In the aircraft type certificate sheet.

(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 Appendix G to this A. O.

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 which has maximum certified take-off weight in excess of 12,500 pounds unless the airplane interior meets the applicable requirements of paragraph (a),(b),(f),and (g) of part I of appendix J to AO 121.

**§§ 91.615 thru 91.699 Reserved.**

## **Chapter H**

### **Foreign Aircraft Operations and Operations of RP-Registered Aircraft Outside of the Republic of the Philippines**

**§ 91.700 Applicability.** This chapter applies to the operations of R.P. registered aircraft outside of the Republic of the Philippines and the operations of foreign civil aircraft within the Republic of the Philippines.

**§ 91.703 Operations of RP registered aircraft outside of the Republic of the Philippines.** Each person operating an R.P. registered aircraft outside of the Republic of the Philippines shall -

(a) When over the high seas, comply with Annex 2 (Rules of the Air) to the Convention on International Civil Aviation and with §§ 91.117(c) and 91.129.

(b) When within a foreign country, comply with the regulations relating to the flight and maneuver of aircraft there in force;

(c) Except for §§ 91.307(b), 91.309, and 91.711, comply with this AO 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

(d) When operating in international airspace requiring minimum navigation performance or where other specialized procedures are required, comply with § 91.705.

**§ 91.705 Operations in airspace requiring specialized equipment or procedures.**

(a) No person may operate a civil aircraft in airspace requiring specialized procedures or equipment unless authorized to do so.

(b) No person may operate a civil aircraft in airspace designated as minimum navigation performance specifications (MNPS) airspace unless:

- (1) The aircraft has the required navigation performance capability.
- (2) The crew has been trained in the use of the navigation equipment and is authorized to use such airspace; and
- (3) The operator is authorized to perform such operations.

(c) Air traffic control (ATC) may authorize an aircraft operator to deviate from the requirements of this section 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 requirement of this section.

**§ 91.711 Special rules for foreign civil aircraft.**

(a) General. In addition to the other applicable regulations of this AO, each person operating a foreign civil aircraft within the Republic of the Philippines shall comply with this section.

(b) VFR. No person may conduct VFR operations which require two-way radio communications under this AO 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 Republic of the Philippines instrument rating or is authorized by his foreign airman certificate to pilot under IFR; and

(ii) Is thoroughly familiar with the Republic of the Philippines 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 the Republic of the Philippines.

(d) Over water. Each person operating a foreign civil aircraft over water off the shores of the Republic of the Philippines 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 200. If VOR navigational equipment is required under paragraph (c)(1)(ii) of this section, no

person may operate a foreign civil aircraft within the Republic of the Philippines at or above FL 200, unless the aircraft is equipped with distance measuring equipment (DME) capable of receiving and indicating distance information from the VOR facilities to be used. When DME required by this paragraph fails at and above FL 200, the pilot-in-command of the aircraft shall notify ATC immediately and may then continue operations at and above FL 200 to the next airport of intended landing at which repairs or replacement of the equipment can be made. However, this 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 the Republic of the Philippines where repairs or alterations are to be made.
- (2) Ferry flights to a new country of registry.
- (3) Ferry, demonstration, and test flight of an aircraft brought to the Republic of the Philippines for the purpose of demonstration or testing the whole or any part thereof.

**§ 91.715 Special flight authorizations for foreign civil aircraft.**

(a) Foreign civil aircraft may be operated without airworthiness certificates required under § 91.203 if a special flight authorization for that operation is issued under this section. Application for a special flight authorization must be made to the Aviation Safety Division Chief. However, in the case of an aircraft to be operated in the R.P. for the purpose of demonstration or at an airshow, the application must be made to the ASEC, Air transportation Office.

(b) Foreign civil aircraft may be operated without airworthiness certificates required under § 91.203 for the purpose of flight testing the aircraft only.

(c) The ASEC may issue a special flight authorization for a foreign civil aircraft subject to any conditions and limitations that the ASEC considers necessary for safe operation in the R.P. airspace.

(d) No person may operate a foreign civil aircraft under a special flight authorization unless that operation also complies with existing A.T.O. regulations.

**§§ 91.717 thru 91.799 Reserved.**

**Chapter I  
Operating Noise Limits**

**§ 91.800 Applicability: Relation to AO No. 1, Series of 1979  
Aircraft Noise**

(a) This A. O. prescribes operating noise limits and related requirements that apply to the operation of civil aircraft in the Republic of the Philippines.

(1) All sections of AO No. 1, Series of 1979, Aircraft Noise apply to civil subsonic turbojet airplanes with maximum weights of more than 75,000 pounds and -

- (i) If R.P. registered, that have standard airworthiness certificates; or

(b) For purposes of this AO, for subsonic airplanes operated in foreign air commerce in the R.P., the ASEC may accept compliance with the noise requirements under annex 16 of the International Civil Aviation Organization when those requirements have been shown to be substantially compatible with, and achieve results equivalent to those achievable under, AO No. 1 Series 1979, Aircraft Noise for that airplane.

**§§ 91.801 thru 91.814 Reserved.**

**§ 91.815 Agricultural and firefighting airplanes: Noise operating limitations.**

(a) This section applies to propeller driven, small airplanes having standard airworthiness certificates that are designed for "agricultural aircraft operations" or for dispensing firefighting materials.

(b) If the Airplane Flight Manual, or other approved manual material information, markings, or placards for the airplane indicate that the airplane has not been shown to comply with the noise limits under AO No. 1 Series 1979, Aircraft Noise, no person may operate that airplane, except -

- (1) To the extent necessary to accomplish the work activity directly associated with the purpose for which it is

designed;

(2) To provide flight crewmember training in the special purpose operation for which the airplane is designed; and

(3) The holder of an agricultural aircarrier operating certificate may deviate from the provision of this AO without a certificate of waiver, when conducting non-dispensing aerial work operation related to agricultural, horticultural, or forest preservation in accordance with operating rules of agricultural operation.

**§§ 91.817 thru 91.899 Reserved.**

## **Chapter J Waivers**

**§ 91.900 thru 91.902 [Reserved]**

**§ 91.903 Policy and procedures.**

(a) The ASEC may issue a certificate of waiver authorizing the operation of aircraft in deviation from any rule listed in this chapter if the ASEC finds that the proposed operation can be safely conducted under the terms of that certificate of waiver.

(b) An application for a certificate of waiver under this AO is made on a form and in a manner prescribed by the ASEC and shall be submitted to the Aviation Safety Division.

(c) A certificate of waiver is effective as specified in that certificate of waiver.

**§ 91.905 List of rules subject to waivers.**

Section 91.107 Use of safety belts.

Section 91.111 Operating near other aircraft.

Section 91.113 Right of way rules: Except water operations.

Section 91.115 Right of way rules: Water operations.

Section 91.117 Aircraft speed.

Section 91.119 Minimum safe altitudes: General.

Section 91.121 Altimeter settings.

Section 91.123 Compliance with ATC clearances and instructions.

Section 91.125 ATC light signals.

Section 91.126 Operating on or in the vicinity of a controlled airport/aerodrome: General Rules.

Section 91.127 Operating on or in the vicinity of a controlled airport/aerodrome.

Section 91.129 Operations in Terminal Control Area airspace.

Section 91.130 Operations in Terminal Control Areas (TCAs and Control Zones).

Section 91.133 Restricted and prohibited areas.

Section 91.135 Operations in Airspace at or above FL200.

Section 91.137 Temporary flight restrictions.

Section 91.153 VFR flight plan: Information required.

Section 91.155 Basic VFR weather minimums.

Section 91.157 Special VFR weather minimums.

Section 91.159 VFR cruising altitude or flight level.

Section 91.169 IFR flight plan: Information required.

Section 91.173 ATC clearance and flight plan required.

Section 91.175 Takeoff and landing under IFR.

Section 91.177 Minimum altitudes for IFR operations.

Section 91.179 IFR cruising altitude or flight level.

Section 91.181 Course to be flown.

Section 91.187 Operation under IFR in controlled airspace: Malfunction reports.

Section 91.209 Aircraft lights.

Section 91.303 Aerobatic flights.

Section 91.305 Flight test areas.

Section 91.311 Towing: Other than under §91.309.

Section 91.313(e) Restricted category civil aircraft: Operating limitations.

Section 91.515 Flight altitude rules.

**§§ 91.907 thru 91.999 Reserved.**

## **Chapter K Repealing Provisions**

This AO repeals the following:  
AO No. 3 Series of 1964 ( Operation of Civil Aircraft in the Philippines)  
Memorandum Circular No. 14-00 dated June 21, 2000 [Flight into Restricted Airspace (PR-P1)]  
Memorandum Circular No. 04-99 dated March 3, 1999 ( Non-Type Certificated Aircraft)

## **Chapter L Penalties**

Any person who shall violate any provision of these rules and regulation shall be dealt with in accordance with the provisions of Chapter VII, Republic Act No. 776 Approved June 20, 1952.

## **Chapter M Effectively**

This regulation shall take effect fifteen (15) days following its publication in the official gazette or Newspaper of general circular.

Recommended Approval:

**M/GEN. ADELBERTO F. YAP (Ret.)**  
ASEC  
Air Transportation Office

Approved:

**HON. LEANDRO R. MENDOZA**  
Secretary  
Department of Transportation and Communication

## Appendix A – Airspace Classification – Services Provided and Flight Requirements

<b>Class</b>	<b>Type of Flight</b>	<b>Separation Provided</b>	<b>Service Provided</b>	<b>Radio Communication Requirement</b>	<b>Subject to an ATC Clearance</b>
<b>A</b>	IFR only	All aircraft	Air traffic control service	Continuous two-way	Yes
<b>B</b>	IFR	All aircraft	Air traffic control service	Continuous two-way	Yes
	VFR	All aircraft	Air traffic control service	Continuous two-way	Yes
<b>C</b>	IFR	IFR from IFR IFR from VFR	Air traffic control service	Continuous two-way	Yes
	VFR	VFR from IFR	a. ATC service for separation from IFR, and b. VFR/VFR traffic information (and traffic avoidance advice on request)	Continuous two-way	Yes
<b>D</b>	IFR	IFR from IFR	1) ATC service, and 2) Traffic information about VFR flights (and traffic avoidance advice on request)	Continuous two-way	Yes
	VFR	Nil	IFR/VFR and VFR/VFR traffic information (and traffic avoidance advice on request)	Continuous two-way	Yes
<b>E</b>	IFR	IFR from IFR	ATC service and, as far as practical, traffic information about VFR flights	Continuous two-way	Yes
	VFR	Nil	Traffic information as far as practical.	No	No
<b>F</b>	IFR	IFR from IFR as far as practical	Air traffic advisory service and flight information service	Continuous two-way	No
	VFR	Nil	Flight information service	No	No
<b>G</b>	IFR	Nil	Flight information service	Continuous two-way	No
	VFR	Nil	Flight information service	No	No

# **Appendix B - Category II Operations: Manual, Instruments, Equipment and Maintenance**

## **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 Air Transportation Office Aviation Safety Division. 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 number, 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 ASEC.

## **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 § 91.205 or any other provisions of this chapter.

(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, 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.

### 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 country of manufacture; e.g. RTCA Paper 23-63/DO-117 dated March 14, 1963, "Standard Adjustment Criteria for Airborne Localizer and Glide Slope Receivers," which may be obtained from the RTCA Secretariat, 1425 K St., NW., Washington, DC 20005.

(2) The altimeters and the static pressure systems were tested and inspected in accordance with airworthiness standards.

(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 auto throttle 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  $\pm 5$  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 ASEC, 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  $\pm 5$  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 ASEC 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.

#### **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 subparagraph (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 AO 4-A, 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 airworthiness standards 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 AO 4-A 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 AO 1, Series 1980.

(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 C - Seats, berths, litters, safety belts, and shoulder harnesses.**

### **Part I** Shoulder Harness

The structure must be designed to give each occupant every reasonable chance of escaping serious injury when---

- a. The occupant experiences the static inertia loads corresponding to the following ultimate load factors---
  - i ) Upward, 3.0g for normal, utility, and commuter category airplanes, or 4.5g for acrobatic category airplanes;
  - ii ) forward, 9.0g;
  - iii ) Sideward, 1.5g; and
  - iv ) downward, 6.0g.

### **Part II** Seats or Berths

- (a). There must be a means to secure each safety belt and shoulder harness, when not in use, to prevent interference with the operation of the airplane and with rapid occupant egress in an emergency.
- b. Unless otherwise placarded, each seat in a utility or acrobatic category airplane must be designed to accommodate an occupant wearing a parachute.

### **Part III** Special retroactive requirements.

For each rotorcraft manufactured after September 16, 1992, each applicant must show that each occupant's seat is equipped with a safety belt and shoulder harness that meets the requirements of paragraphs (a), (b), and (c) of this section.

- (a) Each occupant's seat must have a combined safety belt and shoulder harness with a single-point release. Each pilot's combined safety belt and shoulder harness must allow each pilot, when seated with safety belt and shoulder, to perform all functions necessary for flight operations. There must be a means to secure belts and harnesses, when not in use, to prevent interference with the operation of the rotorcraft and with rapid egress in an emergency.
- (b) Each occupant must be protected from serious head injury by a safety belt plus a shoulder harness that will prevent the head from contacting any injurious object.
- (c) The safety belt and shoulder harness must meet the static and dynamic strength requirements, if applicable, specified by the rotorcraft type certification basis.
- (d) For purposes of this section, the date of manufacture is either---
  - (1) The date the inspection accept acceptance records, or equivalent, reflect that the rotorcraft is complete and meets the Approved Type Design Data; or
  - (2) The date that the foreign civil airworthiness authority certifies the rotorcraft is complete and issues an original standard airworthiness certificate, or equivalent, in that country.

## Appendix D- Airplane Flight Recorder Specifications

Parameters	Range	Installed system minimum accuracy (to recovered data) (1)	Sampling interval (per second)	Resolution read out (2)
Relative time (from recorded on prior to takeoff).	8 hr minimum	$\pm 0.125\%$ per hour	1	1 sec.
Indicated airspeed	$V_{so}$ to $V_d$ (KIAS) ( $V_d$ = design diving speed)	$\pm 5\%$ or $\pm 10$ kts., whichever is greater. Resolution 2 kts. below 175 KIAS.	1	1%. (3)
Altitude	-1,000 ft. To max cert. alt. of a/c	$\pm 100$ to $\pm 700$ ft. (See Table 1, latest amendment of TSO C51-a, or equivalent).	1	25 to 150
Magnetic heading	360°	$\pm 5^\circ$	1	1°
Vertical acceleration	-3g to +6g	$\pm 0.2g$ in addition to $\pm 0.3g$ maximum datum	4 (or 1 per second where peaks, ref. to 1g are recorded)	0.03g
Longitudinal acceleration	$\pm 1.0g$	$\pm 1.5\%$ max. range excluding datum error of $\pm 5\%$	2	0.01g
Pitch attitude	100% of useable	$\pm 2^\circ$	1	0.8°
Roll attitude	$\pm 60^\circ$ or 100% of useable range, whichever is greater	$\pm 2^\circ$	1	0.8°
Stabilizer trim position, OR Pitch control position	Full range	$\pm 3\%$ unless higher uniquely required	1	1% (3)
Engine power each engine Fan or N1 speed or EPR or cockpit indications used for a/c certification. OR Prop. speed and torque (sample once/sec as close together as practicable).	Maximum range	$\pm 5\%$	1  1 (prop speed) 1 (torque)	1% (3)
Altitude rate (need depends on altitude resolution). (4)	$\pm 8,000$ fpm	$\pm 10\%$ , Resolution 250 fpm below 12,000 ft. indicated	1	250 fpm below 12,000 ft.
Angle of attack (need depends on altitude resolution). (4)	$-20^\circ$ to $40^\circ$ or data of useable range	$\pm 2^\circ$	1	0.8% Note (3)
Radio transmitter keying (discrete)	On/off		1	
TE flaps (discrete or	Each discrete			1% Note

analog)	position (U, D, T/O, AAP). OR Analog 0-100% range	$\pm 3^\circ$	1	(3)
LE flaps (discrete or analog)	Each discrete position (U, D, T/O, AAP). OR Analog 0-100% range	$\pm 3^\circ$	1	1% (3)
Thrust reverser each engine (discrete)	Stowed or full reverse		1	
Spoiler/speedbrake (discrete)	Stowed or out		1	
Autopilot engaged (discrete)	Engaged or disengaged		1	

- Notes
- (1) When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system excluding these sensors (but including all other characteristics of the recording system) shall contribute no more than half of the values in this column.
  - (2) This column applies to aircraft manufactured after October 11, 1991.
  - (3) Percent of full range.
  - (4) If data from the altitude encoding altimeter (100 ft. 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.

## Appendix E - Helicopter Flight Recorder Specifications

Parameters	Range	Installed system minimum accuracy (to recovered data) (1)	Sampling interval (per second)	Resolution read out $\pm$ Note (2)
Relative time (from recorded on prior to takeoff).	8 hr minimum	$\pm 0.125\%$ per hour	1	1 sec.
Indicated airspeed	V <sub>min</sub> to V <sub>d</sub> (KIAS)(minimum airspeed signal attainable with installed pitot-static system)	$\pm 5\%$ or $\pm 10$ kts, whichever is greater.	1	1 kt.
Altitude	-1,000 ft. To 20,000 ft. Pressure altitude	$\pm 100$ to $\pm 700$ ft. (See Table 1, latest amendment to TSO C51-a, or equivalent)	1	25 to 150 ft.
Magnetic heading	360°	$\pm 5^\circ$	1	1°
Vertical acceleration	-3g to +6g	$\pm 0.2g$ in addition to $\pm 0.3g$ maximum datum	4 or 1 per second where peaks, ref. to 1g are recorded	0.05g
Longitudinal acceleration	$\pm 1.0g$	$\pm 1.5\%$ max. Range excluding datum error of $\pm 5\%$	2	0.03g
Pitch attitude	100% of useable range	$\pm 2^\circ$	1	0.8°
Roll attitude	$\pm 60^\circ$ or 100% of useable range, whichever is greater	$\pm 2^\circ$	1	0.8°
Altitude rate	$\pm 8,000$ fpm.	$\pm 10\%$ Resolution 250 fpm below 12,000 ft. Indicated	1	250 fpm. below 12,000 ft.

### Engine Power, Each Engine:

Main rotor speed	Maximum range	$\pm 5\%$	1	1% (3)
Free or power turbine	Maximum range	$\pm 5\%$	1	1% (3)
Engine torque	Maximum range	$\pm 5\%$	1	1% (3)

### Flight Controls - Hydraulic Pressure:

Primary (discrete)	High/low		1	
Secondary - if applicable (discrete)	High/low		1	
Radio transmitter keying (discrete)	On/off		1	
Autopilot engaged	Engaged or		1	

(discrete)	disengaged			
SAS status - engaged (discrete)	Engaged/disengaged		1	
SAS fault status (discrete)	Fault/OK		1	

Flight Controls:

Collective	Full range	±3%	2	1% (3)
Pedal position	Full range	±3%	2	1% (3)
Lat. Cyclic	Full range	±3%	2	1% (3)
Long. Cyclic	Full range	±3%	2	1% (3)
Controllable stabilator position	Full range	±3%	2	1% (3)

- Notes: (1) When data sources are aircraft instruments (except altimeters) of acceptable quality to fly the aircraft the recording system, excluding these sensors (but including all other characteristics of the recording system), shall contribute no more than half of the values in this column.  
(2) This column applies to aircraft manufactured after October 11, 1991.  
(3) Percent of full range.

## Appendix F - Gyroscopic Rate-of-turn Indicator

- (a) A gyroscopic rate-of-turn indicator combined with an integral slip-skid indicator (turn-and-bank indicator) except that only a slip-skid indicator is required on rotorcraft with a third altitude instrument system that--

- (1) Is useable through flight altitudes of ± 80 degrees of pitch and ± 120 degrees of roll;
- (2) Is powered from a source independent of the electrical generation system;
- (3) Continues reliable operation for a minimum of 30 minutes after total failure of the electrical generating system;
- (4) Operates independently of any other altitude indication system;
- (5) Is operative without selection after total failure of the electrical generating system;
- (6) Is located on the instrument panel in a position acceptable to the Administrator that will make it plainly visible to and useable by any pilot at his station; and
- (7) Is appropriately lighted during all phases of operation.

## Appendix G – Performance Requirements

- (a) Unless otherwise prescribed, airplanes must meet the applicable performance requirements of this appendix for ambient atmospheric conditions and still air.
- (b) The performance, as affected by engine power or thrust, must be based on the following relative humidities:
- (1) For turbine engine powered airplanes, a relative humidity of-
    - (i) 80 percent, at and below standard temperatures; and
    - (ii) 34 percent, at and above standard temperature plus 50°F.
Between these two temperatures, the relative humidity must vary linearly.
  - (2) For reciprocating engine powered airplanes, a relative humidity of 80 percent in a standard atmosphere. Engine power corrections for vapor pressure must be made in accordance with the following table:

Altitude H (ft)	Vapor pressure $e$ (In.Hg.)	Specific humidity $w$ (lbs. Moisture per lb. Dry air)	Density ratio $\rho/\delta=0.0023769$
0	0.00849	0.00849	0.99508
1,000	.354	.00773	.96672
2,000	.311	.00703	.93895
3,000	.272	.00638	.91178
4,000	.238	.00578	.88514
5,000	.207	.00523	.85910



6,000	.1805	.00472	.83361
7,000	.1566	.00425	.80870
8,000	.1356	.00382	.78434
9,000	.1172	.00343	.76053
10,000	.1010	.00307	.73722
15,000	.0463	.001710	.62868
20,000	.01978	.000896	.53263
25,000	.00778	.000436	.44806

- (c) The performance must correspond to the propulsive thrust available under the particular ambient atmospheric conditions, the particular flight condition, and the relative humidity specified in paragraph (b) of this section. The available propulsive thrust must correspond to engine power or thrust, not exceeding the approved power or thrust less-
- (1) Installation losses; and
  - (2) The power or equivalent thrust absorbed by the accessories and services appropriate to the particular ambient atmospheric conditions and the particular flight condition.
- (d) Unless otherwise prescribed, the applicant must select the takeoff, en route, approach, and landing configuration for the airplane.
- (e) The airplane configuration may vary with weight, altitude, and temperature, to the extent they are compatible with the operating procedures required by paragraph (f) of this section.
- (f) Unless otherwise prescribed, in determining the accelerate-stop distance, takeoff flight paths, takeoff distances, and landing distances, changes in the airplane's configuration, speed, power, and thrust, must be made in accordance with procedures established by the applicant for operation in service.
- (g) Procedures for the exclusion of balked landings and missed approaches associated with the conditions prescribed as follows must be established:
- (1) Landing climb. All-engine-operating. In the landing configuration, the steady gradient of climb may not be less than 3.2 percent, with-
    - (i) The engines at the power or thrust that is available eight seconds after initiation of movement of the power or thrust controls from the minimum flight idle to the go-around power or thrust setting; and
    - (ii) A climb speed of not more than 1.3 Vs
  - (2) Approach. In the approach configuration corresponding to the normal all-engines-operating procedure in which Vs for this configuration does not exceed 110 percent of the Vs for the related landing configuration, the steady gradient of climb may not be less than 2.1 percent for two-engine airplanes, 2.4 percent for three-engine airplanes, and 2.7 percent for four-engine airplanes, with-
    - (i) The critical engine inoperative, the remaining engines at the go-around power or thrust setting;
    - (ii) The maximum landing weight; and
    - (iii) A climb speed established in connection with normal landing procedures, but not exceeding 1.5 Vs.
- (h) The procedures established under paragraph (f) and (g) of this Section must-
- (1) Be able to be constantly executed in service by crews of average skill;
  - (2) Use methods or devices that are safe and reliable; and
  - (3) Include allowances for any time delays, in the execution of the procedures, that may reasonably be expected in service.