CAR ATS

AIR TRAFFIC SERVICES

FOREWORD

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REVISION RECORD

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FOREWORD

1. The Republic of San Marino Civil Aviation Authority, known in these regulations as the "Authority" has implemented CAR ATS, (Civil Aviation Regulations – Air Traffic Services).

2. The structure and substance of these regulations is based on Annex 11 to the Convention on International Civil Aviation. Appendices to ICAO Annex 11 are not included in these regulations and when referred to require compliance.

3. Unless otherwise stated, applicable CAR DEF definitions and abbreviations are used throughout this document.

4. The editing practices used in this document are as follows:

   (a) 'Shall' or 'Will' or 'Must' is used to indicate a mandatory requirement.

   (b) 'Should' is used to indicate a recommendation.

   (c) 'May' is used to indicate discretion by the Authority, the industry or the applicant, as appropriate.

   Note: The use of the male gender implies the female gender and vice versa.

5. Paragraphs and sub-paragraphs with new, amended and corrected text will be enclosed within brackets until a subsequent "amendment" is issued.

REVISION RECORD

REVISION NO.	EFFECTIVE DATE	ENTERED BY *(Hardcopy only)*
Initial Issue (Rev 00)	01 October 2016	
Rev 01	01 January 2018	
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CHAPTER 1

DEFINITIONS

Note: Throughout the text of this document the term "service" is used as an abstract noun to designate functions, or service rendered; the term "unit" is used to designate a collective body performing a service.

1.1 Definitions

Unless otherwise stated, applicable CAR DEF definitions and abbreviations are used throughout this document.

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CHAPTER 2

GENERAL

2.1 Establishment of authority

2.1.1 The Authority shall determine, in accordance with the provisions of these regulations and for the territories over which they have jurisdiction, those portions of the airspace and those aerodromes where air traffic services will be provided. It shall thereafter arrange for such services to be established and provided in accordance with the provisions of these regulations, except that, by mutual agreement, the Authority may delegate to another State the responsibility for establishing and providing air traffic services in flight information regions, control areas or control zones extending over the territory of San Marino.

Note 1: Where the Authority delegates to another State the responsibility for the provision of air traffic services over its territory, it does so without derogation of its national sovereignty. Similarly, the providing State's responsibility is limited to technical and operational considerations and does not extend beyond those pertaining to the safety and expedition of aircraft using the concerned airspace. Furthermore, the providing State in providing air traffic services within the territory of San Marino will do so in accordance with the requirements of the latter which is expected to establish such facilities and services for the use of the providing State as are jointly agreed to be necessary. It is further expected that the delegating State would not withdraw or modify such facilities and services without prior consultation with the Authority. Both the delegating and providing States may terminate the agreement between them at any time.

Note 2: San Marino has an agreement with ENAC of the Italian Republic for the provision of air traffic services over its territory.

Note 3: San Marino air space is identified as a regulated area (R) having the following characteristics:

- *Class: G (uncontrolled air space);*

- *Vertical limits: from GND to 3000 ft AGL;*

2.1.2 Those portions of the airspace over the high seas or in airspace of undetermined sovereignty where air traffic services will be provided shall be determined on the basis of regional air navigation agreements. A Contracting State having accepted the responsibility to provide air traffic services in such portions of airspace shall thereafter arrange for the services to be established and provided in accordance with the provisions of these regulations.

2.1.3 When it has been determined that air traffic services will be provided, the States concerned shall designate the authority responsible for providing such services.

Note: ENAC of the Italian Republic has been formally designated for the provision of air traffic services over San Marino territory.

2.1.4 Where air traffic services are established, information shall be published as necessary to permit the utilization of such services.

2.2 Objectives of the air traffic services

The objectives of the air traffic services shall be to:

(a) prevent collisions between aircraft;

(b) prevent collisions between aircraft on the manoeuvring area and obstructions on that area;

(c) expedite and maintain an orderly flow of air traffic;

(d) provide advice and information useful for the safe and efficient conduct of flights;

(e) notify appropriate organisations regarding aircraft in need of search and rescue aid, and assist such organisations as required.

2.3 Divisions of the air traffic services

The air traffic services shall comprise three services identified as follows.

2.3.1 The *air traffic control service*, to accomplish objectives (a), (b) and (c) of 2.2, this service being divided in three parts as follows:

(a) *Area control service:* the provision of air traffic control service for controlled flights, except for those parts of such flights described in 2.3.1 (b) and (c), in order to accomplish objectives (a) and (c) of 2.2;

(b) *Approach control service:* the provision of air traffic control service for those parts of controlled flights associated with arrival or departure, in order to accomplish objectives (a) and (c) of 2.2;

(c) *Aerodrome control service:* the provision of air traffic control service for aerodrome traffic, except for those parts of flights described in 2.3.1 (b), in order to accomplish objectives (a), (b) and (c) of 2.2.

2.3.2 The *flight information service*, to accomplish objective (d) of 2.2.

2.3.3 The *alerting service*, to accomplish objective (e) of 2.2.

2.4 Determination of the need for air traffic services

2.4.1 The need for the provision of air traffic services shall be determined by consideration of the following:

(a) the types of air traffic involved;

(b) the density of air traffic;

(c) the meteorological conditions;

(d) such other factors as may be relevant.

2.4.2 The carriage of airborne collision avoidance systems (ACAS) by aircraft in a given area shall not be a factor in determining the need for air traffic services in that area.

2.5 Designation of the portions of the airspace and controlled aerodromes where air traffic services will be provided

2.5.1 When it has been determined that air traffic services will be provided in particular portions of the airspace or at particular aerodromes, then those portions of the airspace or those aerodromes shall be designated in relation to the air traffic services that are to be provided.

2.5.2 The designation of the particular portions of the airspace or the particular aerodromes shall be as follows:

2.5.2.1 *Flight information regions.* Those portions of the airspace where it is determined that flight information service and alerting service will be provided shall be designated as flight information regions.

2.5.2.2 *Control areas and control zones*

2.5.2.2.1 Those portions of the airspace where it is determined that air traffic control service will be provided to IFR flights shall be designated as control areas or control zones.

2.5.2.2.1.1 Those portions of controlled airspace wherein it is determined that air traffic control service will also be provided to VFR flights shall be designated as Classes B, C, or D airspace.

2.5.2.2.2 Where designated within a flight information region, control areas and control zones shall form part of that flight information region.

2.5.2.3 *Controlled aerodromes.* Those aerodromes where it is determined that air traffic control service will be provided to aerodrome traffic shall be designated as controlled aerodromes.

2.6 Classification of airspaces

2.6.1 ATS airspaces shall be classified and designated in accordance with the following:

Class A. IFR flights only are permitted, all flights are provided with air traffic control service and are separated from each other.

Class B. IFR and VFR flights are permitted, all flights are provided with air traffic control service and are separated from each other.

Class C. 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.

Class D. 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.

Class E. 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 practical. Class E shall not be used for control zones.

Class F. 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.

Class G. IFR and VFR flights are permitted and receive flight information service if requested.

2.6.2 The Authority shall select those airspace classes appropriate to their needs.

2.6.3 The requirements for flights within each class of airspace shall be as shown in the table in Appendix 4 to ICAO Annex 11.

2.7 Performance-based navigation (PBN) operations

2.7.1 In applying performance-based navigation, navigation specifications shall be prescribed by States. When applicable, the navigation specification(s) for designated areas, tracks or ATS routes shall be prescribed on the basis of regional air navigation agreements. In designating a navigation specification, limitations may apply as a result of navigation infrastructure constraints or specific navigation functionality requirements.

2.7.2 Performance-based navigation operations should be implemented as soon as practicable.

2.7.3 The prescribed navigation specification shall be appropriate to the level of communications, navigation and air traffic services provided in the airspace concerned.

2.8 Performance based communication (PBC) operations

2.8.1 In applying performance based communication (PBC), RCP specifications shall be prescribed by the Authority. When applicable, the RCP specifications shall be prescribed on the basis of regional air navigation agreements.

2.8.2 The prescribed RCP specification shall be appropriate to the air traffic services provided in the airspace concerned.

2.9 Performance-based surveillance (PBS) operations

2.9.1 In applying performance-based surveillance (PBS), RSP specifications shall be prescribed by States. When applicable, the RSP specification(s) shall be prescribed on the basis of regional air navigation agreements.

2.9.2 The prescribed RSP specification shall be appropriate to the air traffic services provided.

2.9.3 Where an RSP specification has been prescribed by States for performance-based surveillance, ATS units shall be provided with equipment capable of performance consistent with the prescribed RSP specification(s).

2.10 Establishment and designation of the units providing air traffic services

The air traffic services shall be provided by units established and designated as follows:

2.10.1 Flight information centres shall be established to provide flight information service and alerting service within flight information regions, unless the responsibility of providing such services within a flight information region is assigned to an air traffic control unit having adequate facilities for the discharge of such responsibility.

2.10.2 Air traffic control units shall be established to provide air traffic control service, flight information service and alerting service within control areas, control zones and at controlled aerodromes.

2.11 Specifications for flight information regions, control areas and control zones

2.11.1 The delineation of airspace, wherein air traffic services are to be provided, should be related to the nature of the route structure and the need for efficient service rather than to national boundaries.

2.11.2 Flight information regions

2.11.2.1 Flight information regions shall be delineated to cover the whole of the air route structure to be served by such regions.

2.11.2.2 A flight information region shall include all airspace within its lateral limits, except as limited by an upper flight information region.

2.11.2.3 Where a flight information region is limited by an upper flight information region, the lower limit specified for the upper flight information region shall constitute the upper vertical limit of the flight information region and shall coincide with a VFR cruising level of the tables in Appendix 3 to ICAO Annex 2.

2.11.3 Control areas

2.11.3.1 Control areas including, *inter alia*, airways and terminal control areas shall be delineated so as to encompass sufficient airspace to contain the flight paths of those IFR flights or portions thereof to which it is desired to provide the applicable parts of the air traffic control service, taking into account the capabilities of the navigation aids normally used in that area.

2.11.3.2 A lower limit of a control area shall be established at a height above the ground or water of not less than 200 m (700 ft).

2.11.3.2.1 The lower limit of a control area should, when practicable and desirable in order to allow freedom of action for VFR flights below the control area, be established at a greater height than the minimum specified in 2.10.3.2.

2.11.3.2.2 When the lower limit of a control area is above 900 m (3 000 ft) MSL it should coincide with a VFR cruising level of the tables in Appendix 3 to ICAO Annex 2.

2.11.3.3 An upper limit of a control area shall be established when either:

(a) air traffic control service will not be provided above such upper limit; or

(b) the control area is situated below an upper control area, in which case the upper limit shall coincide with the lower limit of the upper control area.

When established, such upper limit shall coincide with a VFR cruising level of the tables in Appendix 3 to ICAO Annex 2.

2.11.4 Flight information regions or control areas in the upper airspace

Where it is desirable to limit the number of flight information regions or control areas through which high flying aircraft would otherwise have to operate, a flight information region or control area, as appropriate, should be delineated to include the upper airspace within the lateral limits of a number of lower flight information regions or control areas.

2.11.5 Control zones

2.11.5.1 The lateral limits of control zones shall encompass at least those portions of the airspace, which are not within control areas, containing the paths of IFR flights arriving at and departing from aerodromes to be used under instrument meteorological conditions.

2.11.5.2 The lateral limits of a control zone shall extend to at least 9.3 km (5 NM) from the centre of the aerodrome or aerodromes concerned in the directions from which approaches may be made.

2.11.5.3 If a control zone is located within the lateral limits of a control area, it shall extend upwards from the surface of the earth to at least the lower limit of the control area.

2.11.5.4 If a control zone is located outside of the lateral limits of a control area, an upper limit should be established.

2.11.5.5 If it is desired to establish the upper limit of a control zone at a level higher than the lower limit of the control area established above it, or if the control zone is located outside of the lateral limits of a control area, its upper limit should be established at a level which can easily be identified by pilots. When this limit is above 900 m (3 000 ft) MSL it should coincide with a VFR cruising level of the tables in Appendix 3 to ICAO Annex 2.

2.12 Identification of air traffic services units and airspaces

2.12.1 An area control centre or flight information centre should be identified by the name of a nearby town or city or geographic feature.

2.12.2 An aerodrome control tower or approach control unit should be identified by the name of the aerodrome at which it is located.

2.12.3 A control zone, control area or flight information region should be identified by the name of the unit having jurisdiction over such airspace.

2.13 Establishment and identification of ATS routes

2.13.1 When ATS routes are established, a protected airspace along each ATS route and a safe spacing between adjacent ATS routes shall be provided.

2.13.2 When warranted by density, complexity or nature of the traffic, special routes should be established for use by low-level traffic, including helicopters operating to and from helidecks on the high seas. When determining the lateral spacing between such routes, account should be taken of the navigational means available and the navigation equipment carried on board helicopters.

2.13.3 ATS routes shall be identified by designators.

2.13.4 Designators for ATS routes other than standard departure and arrival routes shall be selected in accordance with the principles set forth in Appendix 1 to ICAO Annex 11.

2.13.5 Standard departure and arrival routes and associated procedures shall be identified in accordance with the principles set forth in Appendix 3 to ICAO Annex 11.

2.14 Establishment of change-over points

2.14.1 Change-over points should be established on ATS route segments defined by reference to very high frequency omnidirectional radio ranges where this will assist accurate navigation along the route segments. The establishment of change-over points should be limited to route segments of 110 km (60 NM) or more, except where the complexity of ATS routes, the density of navigation aids or other technical and operational reasons warrant the establishment of change-over points on shorter route segments.

2.14.2 Unless otherwise established in relation to the performance of the navigation aids or frequency protection criteria, the change-over point on a route segment should be the mid-point between the facilities in the case of a straight route segment or the intersection of radials in the case of a route segment which changes direction between the facilities.

2.15 Establishment and identification of significant points

2.15.1 Significant points shall be established for the purpose of defining an ATS route or instrument approach procedure and/or in relation to the requirements of air traffic services for information regarding the progress of aircraft in flight.

2.15.2 Significant points shall be identified by designators.

2.15.3 Significant points shall be established and identified in accordance with the principles set forth in Appendix 2 to ICAO Annex 11.

2.16 Establishment and identification of standard routes for taxiing aircraft

2.16.1 Where necessary, standard routes for taxiing aircraft should be established on an aerodrome between runways, aprons and maintenance areas. Such routes should be direct, simple and where practicable, designed to avoid traffic conflicts.

2.16.2 Standard routes for taxiing aircraft should be identified by designators distinctively different from those of the runways and ATS routes.

2.17 Coordination between the operator and air traffic services

2.17.1 Air traffic services units, in carrying out their objectives, shall have due regard for the requirements of the operators consequent on their obligations as specified in ICAO Annex 6, and, if so required by the operators, shall make available to them or their designated representatives such information as may be available to enable them or their designated representatives to carry out their responsibilities.

2.17.2 When so requested by an operator, messages (including position reports) received by air traffic services units and relating to the operation of the aircraft for which operational control service is provided by that operator shall, so far as practicable, be made available immediately to the operator or a designated representative in accordance with locally agreed procedures.

2.18 Coordination between military authorities and air traffic services

2.18.1 Air traffic services authorities shall establish and maintain close cooperation with military authorities responsible for activities that may affect flights of civil aircraft.

2.18.2 Coordination of activities potentially hazardous to civil aircraft shall be effected in accordance with 2.18.

2.18.3 Arrangements shall be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.

2.18.3.1 Air traffic services units shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions, air traffic services authorities shall designate any areas or routes where the requirements of CAR OPS 0 concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all pertinent data is available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

2.18.3.2 Special procedures shall be established in order to ensure that:

(a) air traffic services units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;

(b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

2.19 Coordination of activities potentially hazardous to civil aircraft

2.19.1 [The arrangements for activities potentially hazardous to civil aircraft, whether over the territory of a State or over the high seas, shall be coordinated with the appropriate air traffic services authorities. The coordination shall be effected early enough to permit timely promulgation of information regarding the activities in accordance with PANS-AIM, Doc 10066.]

2.19.1.1 If the appropriate ATS authority is not that of the State where the organisation planning the activities is located, initial coordination should be effected through the ATS authority responsible for the airspace over the State where the organisation is located.

2.19.2 The objective of the coordination shall be to achieve the best arrangements which will avoid hazards to civil aircraft and minimize interference with the normal operations of such aircraft.

2.19.2.1 In determining these arrangements the following should be applied:

(a) the locations or areas, times and durations for the activities should be selected to avoid closure or realignment of established ATS routes, blocking of the most economic flight levels, or delays of scheduled aircraft operations, unless no other options exist;

(b) the size of the airspace designated for the conduct of the activities should be kept as small as possible;

(c) direct communication between the appropriate ATS authority or air traffic services unit and the organisation or unit conducting the activities should be provided for use in the event that civil aircraft emergencies or other unforeseen circumstances require discontinuation of the activities.

2.19.3 [The appropriate ATS authorities shall ensure that a safety risk assessment is conducted, as soon as practicable, for activities potentially hazardous to civil aircraft and that appropriate risk mitigation measures are implemented.

Note: Such risk mitigation measures may include, but would not be limited to, airspace restriction or temporary withdrawal of established ATS routes or portions thereof.

2.19.3.1 The appropriate ATS authorities shall establish procedures to enable the organization or unit conducting or identifying activities potentially hazardous to civil aircraft to contribute to the safety risk assessment in order to facilitate consideration of all relevant safety-significant factors.]

2.19.4 The appropriate ATS authorities shall be responsible for initiating the promulgation of information regarding the activities.

2.19.5 If activities potentially hazardous to civil aircraft take place on a regular or continuing basis, special committees should be established as required to ensure that the requirements of all parties concerned are adequately coordinated.

2.19.6 Adequate steps shall be taken to prevent emission of laser beams from adversely affecting flight operations.

2.19.7 In order to provide added airspace capacity and to improve efficiency and flexibility of aircraft operations, the Authority should establish procedures providing for a flexible use of airspace reserved for military or other special activities. The procedures should permit all airspace users to have safe access to such reserved airspace.

2.20 Aeronautical data

2.20.1 Determination and reporting of air traffic services-related aeronautical data shall be in accordance with the accuracy and integrity classification required to meet the needs of the end-user of aeronautical data.

2.20.2 Digital data error detection techniques shall be used during the transmission and/or storage of aeronautical data and digital data sets.

2.21 Coordination between meteorological and air traffic services authorities

2.21.1 To ensure that aircraft receive the most up-to-date meteorological information for aircraft operations, arrangements shall be made, where necessary, between meteorological and air traffic services authorities for air traffic services personnel:

(a) in addition to using indicating instruments, to report, if observed by air traffic services personnel or communicated by aircraft, such other meteorological elements as may be agreed upon;

(b) to report as soon as possible to the associated meteorological office meteorological phenomena of operational significance, if observed by ATS personnel or communicated by aircraft, which have not been included in the aerodrome meteorological report;

(c) to report as soon as possible to the associated meteorological office pertinent information concerning pre-eruption volcanic activity, volcanic eruptions and information concerning volcanic ash cloud. In addition, area control centres and flight information centres shall report the information to the associated meteorological watch office and volcanic ash

advisory centres (VAACs).

2.21.2 Close coordination shall be maintained between area control centres, flight information centres and associated meteorological watch offices to ensure that information on volcanic ash included in NOTAM and SIGMET messages is consistent.

2.22 Coordination between aeronautical information services and air traffic services authorities

2.22.1 To ensure that aeronautical information services units obtain information to enable them to provide up-to-date pre-flight information and to meet the need for in-flight information, arrangements shall be made between aeronautical information services and air traffic services authorities responsible for air traffic services to report to the responsible aeronautical information services unit, with a minimum of delay:

(a) information on aerodrome conditions;

(b) the operational status of associated facilities, services and navigation aids within their area of responsibility;

(c) the occurrence of volcanic activity observed by air traffic services personnel or reported by aircraft; and

(d) any other information considered to be of operational significance.

2.22.2 Before introducing changes to the air navigation system, due account shall be taken by the services responsible for such changes of the time needed by the aeronautical information service for the preparation, production and issuance of relevant material for promulgation. To ensure timely provision of the information to the aeronautical information service, close coordination between those services concerned is therefore required.

2.22.3 Of particular importance are changes to aeronautical information that affect charts and/or computer-based navigation systems which qualify to be notified by the Aeronautical Information Regulation and Control (AIRAC) system, as specified in ICAO Annex 15, Chapter 6. The predetermined, internationally agreed AIRAC effective dates shall be observed by the responsible air traffic services when submitting the raw information/data to aeronautical information services.

2.22.4 The air traffic services responsible for the provision of raw aeronautical information/data to the aeronautical information services shall do so while taking into account accuracy and integrity requirements required to meet the needs of the end-user of aeronautical data.

2.23 Minimum flight altitudes

Minimum flight altitudes shall be determined and promulgated by the Authority for each ATS route and control area over its territory. The minimum flight altitudes determined shall provide a minimum clearance above the controlling obstacle located within the areas concerned.

2.24 Service to aircraft in the event of an emergency

2.24.1 An aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, shall be given maximum consideration, assistance and priority over other aircraft as may be necessitated by the circumstances.

Note: To indicate that it is in a state of emergency, an aircraft equipped with an appropriate data link capability and/or an SSR transponder might operate the equipment as follows:

(a) on Mode A, Code 7700; or

(b) on Mode A, Code 7500, to indicate specifically that it is being subjected to unlawful interference; and/or

(c) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C; and/or

(d) transmit the appropriate emergency message via CPDLC.

2.24.1.1 In communications between ATS units and aircraft in the event of an emergency, Human Factors principles should be observed.

2.24.2 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall attend promptly to requests by the aircraft. Information pertinent to the safe conduct of the flight shall continue to be transmitted and necessary action shall be taken to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

2.24.3 When an occurrence of unlawful interference with an aircraft takes place or is suspected, ATS units shall, in accordance with locally agreed procedures, immediately inform the appropriate authority designated by the State and exchange necessary information with the operator or its designated representative.

2.25 In-flight contingencies

2.25.1 Strayed or unidentified aircraft

Note: The terms "strayed aircraft" and "unidentified aircraft" in this paragraph have the following meanings:

Strayed aircraft. An aircraft which has deviated significantly from its intended track or which reports that it is lost.

Unidentified aircraft. An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.

2.25.1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft it shall take all necessary steps as outlined in 2.24.1.1.1 and 2.24.1.1.2 to assist the aircraft and to safeguard its flight.

2.25.1.1.1 If the aircraft's position is not known, the air traffic services unit shall:

(a) attempt to establish two-way communication with the aircraft, unless such communication already exists;

(b) use all available means to determine its position;

(c) inform other ATS units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances;

(d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning strayed aircraft;

(e) request from the units referred to in (c) and (d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

2.25.1.1.2 When the aircraft's position is established, the air traffic services unit shall:

(a) advise the aircraft of its position and corrective action to be taken; and

(b) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

2.25.1.2 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:

(a) attempt to establish two-way communication with the aircraft;

(b) inquire of other air traffic services units within the flight information region about the flight and request their assistance in establishing two-way communication with the aircraft;

(c) inquire of air traffic services units serving the adjacent flight information regions about the flight and request their assistance in establishing two-way communication with the aircraft;

(d) attempt to obtain information from other aircraft in the area.

2.25.1.2.1 The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

2.25.1.3 Should the ATS unit consider that a strayed or unidentified aircraft may be the subject of unlawful interference, the appropriate authority designated by the State shall immediately be informed, in accordance with locally agreed procedures.

2.25.2 Interception of civil aircraft

2.25.2.1 As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

(a) attempt to establish two-way communication with the intercepted aircraft via any means available, including the emergency radio frequency 121.5 MHz, unless such communication already exists;

(b) inform the pilot of the intercepted aircraft of the interception;

(c) establish contact with the intercept control unit maintaining two-way communication with the intercepting aircraft and provide it with available information concerning the aircraft;

(d) relay messages between the intercepting aircraft or the intercept control unit and the intercepted aircraft, as necessary;

(e) in close coordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft;

(f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

2.25.2.2 As soon as an air traffic services unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

(a) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with 2.24.2.1;

(b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

2.26 Time in air traffic services

2.26.1 Air traffic services units shall use Coordinated Universal Time (UTC) and shall express the time in hours and minutes and, when required, seconds of the 24-hour day beginning at midnight.

2.26.2 Air traffic services units shall be equipped with clocks indicating the time in hours, minutes and seconds, clearly visible from each operating position in the unit concerned.

2.26.3 Air traffic services unit clocks and other time-recording devices shall be checked as necessary to ensure correct time to within plus or minus 30 seconds of UTC. Wherever data link communications are utilized by an air traffic services unit, clocks and other time-recording devices shall be checked as necessary to ensure correct time to within 1 second of UTC.

2.26.4 The correct time shall be obtained from a standard time station or, if not possible, from another unit which has obtained the correct time from such station.

2.26.5 Aerodrome control towers shall, prior to an aircraft taxiing for take-off, provide the pilot with the correct time, unless arrangements have been made for the pilot to obtain it from other sources. Air traffic services units shall, in addition, provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

2.27 Establishment of requirements for carriage and operation of pressure-altitude reporting transponders

The Authority shall establish requirements for carriage and operation of pressure-altitude reporting transponders within defined portions of airspace.

2.28 Fatigue Management

2.28.1 The Authority shall establish regulations for the purpose of managing fatigue in the provision of air traffic control services. These regulations shall be based upon scientific principles, knowledge and operational experience, with the aim of ensuring that air traffic controllers perform at an adequate level of alertness. To that aim, States shall establish:

(a) regulations that prescribe scheduling limits in accordance with Appendix 6; and

(b) where authorizing air traffic services providers to use a fatigue risk management system (FRMS) to manage fatigue, FRMS regulations in accordance with Appendix 7.

2.28.2 States shall require that the air traffic services provider, for the purposes of managing its fatigue-related safety risks, establish one of the following:

(a) air traffic controller schedules commensurate with the service(s) provided and in compliance with the prescriptive limitation regulations established by the State in accordance with 2.28.1 a); or

(b) an FRMS, in compliance with regulations established by the State in accordance with 2.28.1 b), for the provision of all air traffic control services; or

(c) an FRMS, in compliance with regulations established by the State in accordance with 2.28.1 b), for a defined part of its air traffic control services in conjunction with schedules in compliance with the prescriptive limitation regulations established by the State in accordance with 2.28.1 a) for the remainder of its air traffic control services.

2.28.3 Where the air traffic services provider complies with prescriptive limitation regulations in the provision of part or all of its air traffic control services in accordance with 2.28.2 a), the State:

(a) shall require evidence that the limitations are not exceeded and that non-duty period requirements are met;

(b) shall require that the air traffic services provider familiarize its personnel with the principles of fatigue management and its policies with regard to fatigue management;

(c) shall establish a process to allow variations from the prescriptive limitation regulations to address any additional risks associated with sudden, unforeseen operational circumstances; and

(d) may approve variations to these regulations using an established process in order to address strategic operational needs in exceptional circumstances, based on the air traffic services provider demonstrating that any associated risk is being managed to a level of safety equivalent to, or better than, that achieved through the prescriptive fatigue management regulations.

Note.— Complying with the prescriptive limitations regulations does not relieve the air traffic services provider of the responsibility to manage its risks, including fatigue-related risks, using its SMS in accordance with the provisions of Annex 19.

2.28.4 Where an air traffic services provider implements an FRMS to manage fatigue-related safety risks in the provision of part or all of its air traffic control services in accordance with 2.28.2 b), the State shall:

(a) require the air traffic services provider to have processes to integrate FRMS functions with its other safety management functions; and

(b) approve an FRMS, according to a documented process, that provides a level of safety acceptable to the State.

2.29 Safety management

(See Appendix to 2.29)

(a) The SMS of a service provider shall:

(1) be established in accordance with the framework elements contained in the Appendix to 2.29; and

(2) be commensurate with the size of the service provider and the complexity of its aviation services.

(3) The SMS of an ATS provider shall be made acceptable to the Authority if responsible for the provider's designation.

(b) [Any significant safety-related change to the ATS system, including the implementation of a reduced separation minimum or a new procedure, shall only be effected after a safety risk assessment has demonstrated that an acceptable level of safety will be met and users have been consulted. When appropriate, the responsible authority shall ensure that adequate provision is made for post-implementation monitoring to verify that the defined level of safety continues to be met.]

2.30 Common reference systems

2.30.1 Horizontal reference system

World Geodetic System — 1984 (WGS-84) shall be used as the horizontal (geodetic) reference system for air navigation. Reported aeronautical geographical coordinates (indicating latitude and longitude) shall be expressed in terms of the WGS-84 geodetic reference datum.

2.30.2 Vertical reference system

Mean sea level (MSL) datum, which gives the relationship of gravity-related height (elevation) to a surface known as the geoid, shall be used as the vertical reference system for air navigation.

2.30.3 Temporal reference system

2.30.3.1 The Gregorian calendar and Coordinated Universal Time (UTC) shall be used as the temporal reference system for air navigation.

2.30.3.2 When a different temporal reference system is used, this shall be indicated in GEN 2.1.2 of the Aeronautical Information Publication (AIP).

2.31 Language proficiency

2.31.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in ICAO Annex 1.

2.31.2 Except when communications between air traffic control units are conducted in a mutually agreed language, the English language shall be used for such communications.

2.32 Contingency arrangements

Air traffic services authorities shall develop and promulgate contingency plans for implementation in the event of disruption, or potential disruption, of air traffic services and related supporting services in the airspace for which they are responsible for the provision of such services. Such contingency plans shall be developed with the assistance of ICAO as necessary, in close coordination with the air traffic services authorities responsible for the provision of services in adjacent portions of airspace and with airspace users concerned.

2.33 Identification and delineation of prohibited, restricted and danger areas

2.33.1 Each prohibited area, restricted area, or danger area established by the Authority shall, upon initial establishment, be given an identification and full details shall be promulgated.

2.33.2 The identification so assigned shall be used to identify the area in all subsequent notifications pertaining to that area.

2.33.3 The identification shall be composed of a group of letters and figures as follows:

(a) nationality letters for location indicators assigned to the State or territory which has established the airspace;

(b) a letter P for prohibited area, R for restricted area and D for danger area as appropriate; and

(c) a number, unduplicated within the State or territory concerned.

2.33.4 To avoid confusion, identification numbers shall not be reused for a period of at least one year after cancellation of the area to which they refer.

2.33.5 When a prohibited, restricted or danger area is established, the area should be as small as practicable and be contained within simple geometrical limits, so as to permit ease of reference by all concerned.

2.34 Instrument flight procedure design service

The Authority shall ensure that an instrument flight procedure design service is in place in accordance with Appendix 8 to ICAO Annex 11.

Appendix to 2.29
Framework for a Safety Management System (SMS)
(See 2.29)

This Appendix specifies the framework for the implementation and maintenance of an SMS. The framework comprises four components and twelve elements as the minimum requirements for SMS implementation:

1. Safety policy and objectives

1.1 Management commitment

1.1.1 The service provider shall define its safety policy in accordance with international and national requirements. The safety policy shall:

(a) reflect organisational commitment regarding safety, including the promotion of a positive safety culture;

(b) include a clear statement about the provision of the necessary resources for the implementation of the safety policy;

(c) include safety reporting procedures;

(d) clearly indicate which types of behaviours are unacceptable related to the service provider's aviation activities and include the circumstances under which disciplinary action would not apply;

(e) be signed by the accountable executive of the organisation;

(f) be communicated, with visible endorsement, throughout the organisation; and

(g) be periodically reviewed to ensure it remains relevant and appropriate to the service provider.

1.1.2 Taking due account of its safety policy, the service provider shall define safety objectives. The safety objectives shall:

(a) form the basis for safety performance monitoring and measurement as required by 3.1.2;

(b) reflect the service provider's commitment to maintain or continuously improve the overall effectiveness of the SMS;

(c) be communicated throughout the organisation; and

(d) be periodically reviewed to ensure they remain relevant and appropriate to the service provider.

1.2 Safety accountability and responsibilities

The service provider shall:

(a) identify the accountable executive who, irrespective of other functions, is accountable on behalf of the organisation for the implementation and maintenance of an effective SMS;

(b) clearly define lines of safety accountability throughout the organisation, including a direct accountability for safety on the part of senior management;

(c) identify the responsibilities of all members of management, irrespective of other functions, as well as of employees, with respect to the safety performance of the organisation;

(d) document and communicate safety accountability, responsibilities and authorities throughout the organisation; and

(e) define the levels of management with authority to make decisions regarding safety risk tolerability.

1.3 Appointment of key safety personnel

The service provider shall appoint a safety manager who is responsible for the implementation and maintenance of the SMS.

Note: Depending on the size of the service provider and the complexity of its services, the responsibilities for the implementation and maintenance of the SMS may be assigned to one or more persons, fulfilling the role of safety manager, as their sole function or combined with other duties, provided these do not result in any conflicts of interest.

1.4 Coordination of emergency response planning

The service provider required to establish and maintain an emergency response plan for accidents and incidents in aircraft operations and other aviation emergencies shall ensure that the emergency response plan is properly coordinated with the emergency response plans of those organisations it must interface with during the provision of its services.

1.5 SMS documentation

1.5.1 The service provider shall develop and maintain an SMS manual that describes its:

(a) safety policy and objectives;

(b) SMS requirements;

(c) SMS processes and procedures; and

(d) accountability, responsibilities and authorities for SMS processes and procedures.

1.5.2 The service provider shall develop and maintain SMS operational records as part of its SMS documentation.

Note Depending on the size of the service provider and the complexity of its services, the SMS manual and SMS operational records may be in the form of stand-alone documents or may be integrated with other organisational documents (or documentation) maintained by the service provider.

2. Safety risk management

2.1 Hazard identification

2.1.1 The service provider shall develop and maintain a process to identify hazards associated with its aviation services.

2.1.2 Hazard identification shall be based on a combination of reactive and proactive methods.

2.2 Safety risk assessment and mitigation

The service provider shall develop and maintain a process that ensures analysis, assessment and control of the safety risks associated with identified hazards.

Note: The process may include predictive methods of safety data analysis.

3. Safety assurance

3.1 Safety performance monitoring and measurement

3.1.1 The service provider shall develop and maintain the means to verify the safety performance of the organisation and to validate the effectiveness of safety risk controls.

Note: An internal audit process is one means to monitor compliance with safety regulations, the foundation upon which SMS is built, and assess the effectiveness of these safety risk controls and the SMS.

3.1.2 The service provider's safety performance shall be verified in reference to the safety performance indicators and safety performance targets of the SMS in support of the organisation's safety objectives.

3.2 The management of change

The service provider shall develop and maintain a process to identify changes which may affect the level of safety risk associated with its aviation products or services and to identify and manage the safety risks that may arise from those changes.

3.3 Continuous improvement of the SMS

The service provider shall monitor and assess its SMS processes to maintain or continuously improve the overall effectiveness of the SMS.

4. Safety promotion

4.1 Training and education

4.1.1 The service provider shall develop and maintain a safety training programme that ensures that personnel are trained and competent to perform their SMS duties.

4.1.2 The scope of the safety training programme shall be appropriate to each individual's involvement in the SMS.

4.2 Safety communication

The service provider shall develop and maintain a formal means for safety communication that:

(a) ensures personnel are aware of the SMS to a degree commensurate with their positions;

(b) conveys safety-critical information;

(c) explains why particular actions are taken to improve safety; and

(d) explains why safety procedures are introduced or changed.

CHAPTER 3

AIR TRAFFIC CONTROL SERVICE

3.1 Application

Air traffic control service shall be provided:

(a) to all IFR flights in airspace Classes A, B, C, D and E;

(b) to all VFR flights in airspace Classes B, C and D;

(c) to all special VFR flights;

(d) to all aerodrome traffic at controlled aerodromes.

3.2 Provision of air traffic control service

The parts of air traffic control service described in 2.3.1 shall be provided by the various units as follows:

(a) *Area control service:*

(1) by an area control centre; or

(2) by the unit providing approach control service in a control zone or in a control area of limited extent which is designated primarily for the provision of approach control service and where no area control centre is established.

(b) *Approach control service:*

(1) by an aerodrome control tower or area control centre when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service with those of the aerodrome control service or the area control service;

(2) by an approach control unit when it is necessary or desirable to establish a separate unit.

(c) *Aerodrome control service:* by an aerodrome control tower.

3.3 Operation of air traffic control service

3.3.1 In order to provide air traffic control service, an air traffic control unit shall:

(a) be provided with information on the intended movement of each aircraft, or variations therefrom, and with current information on the actual progress of each aircraft;

(b) determine from the information received, the relative positions of known aircraft to each other;

(c) issue clearances and information for the purpose of preventing collision between aircraft under its control and of expediting and maintaining an orderly flow of traffic;

(d) coordinate clearances as necessary with other units:

(1) whenever an aircraft might otherwise conflict with traffic operated under the control of such other units;

(2) before transferring control of an aircraft to such other units.

3.3.2 Information on aircraft movements, together with a record of air traffic control clearances issued to such aircraft, shall be so displayed as to permit ready analysis in order to maintain an efficient flow of air traffic with adequate separation between aircraft.

3.3.3 Air traffic control units should be equipped with devices that record background communication and the aural environment at air traffic controller work stations, capable of retaining the information recorded during at least the last twenty-four hours of operation.

3.3.4 Clearances issued by air traffic control units shall provide separation:

(a) between all flights in airspace Classes A and B;

(b) between IFR flights in airspace Classes C, D and E;

(c) between IFR flights and VFR flights in airspace Class C;

(d) between IFR flights and special VFR flights;

(e) between special VFR flights when so prescribed by the appropriate ATS authority,

except that, when requested by an aircraft and if so prescribed by the appropriate ATS authority for the cases listed under (b) above in airspace Classes D and E, a flight may be cleared without separation being so provided in respect of a specific portion of the flight conducted in visual meteorological conditions.

3.3.5 Separation by an air traffic control unit shall be obtained by at least one of the following:

(a) vertical separation, obtained by assigning different levels selected from:

(1) the appropriate table of cruising levels in Appendix 3 of ICAO Annex 2, or

(2) a modified table of cruising levels, when so prescribed in accordance with Appendix 3 of ICAO Annex 2 for flight above FL 410,

except that the correlation of levels to track as prescribed therein shall not apply whenever otherwise indicated in appropriate aeronautical information publications or air traffic control clearances;

(b) horizontal separation, obtained by providing:

(1) longitudinal separation, by maintaining an interval between aircraft operating along the same, converging or reciprocal tracks, expressed in time or distance; or

(2) lateral separation, by maintaining aircraft on different routes or in different geographical areas;

(c) composite separation, consisting of a combination of vertical separation and one of the other forms of separation contained in (b) above, using minima for each which may be lower than, but not less than half of, those used for each of the combined elements when applied individually. Composite separation shall only be applied on the basis of regional air navigation agreements.

3.3.5.1 For all airspace where a reduced vertical separation minimum of 300 m (1 000 ft) is applied between FL 290 and FL 410 inclusive, a programme shall be instituted, on a regional basis, for monitoring the height-keeping performance of aircraft operating at these levels, in order to ensure that the continued application of this vertical separation minimum meets the safety objectives. The scope of regional monitoring programmes shall be adequate to conduct analyses of aircraft group performance and evaluate the stability of altimetry system error.

3.3.5.2 Where RCP/RSP specifications are applied, programmes shall be instituted for monitoring the performance of the infrastructure and the participating aircraft against the appropriate RCP and/or RSP specifications, to ensure that operations in the applicable airspace continue to meet safety objectives. The scope of monitoring programmes shall be adequate to evaluate communication and/or surveillance performance, as applicable.

3.3.5.3 Arrangements should be put in place, through interregional agreement, for the sharing between regions of data and/or information from monitoring programmes.

3.4 Separation minima

3.4.1 The selection of separation minima for application within a given portion of airspace shall be as follows:

(a) the separation minima shall be selected from those prescribed by the provisions of the PANS-ATM and the *Regional Supplementary Procedures* as applicable under the prevailing circumstances except that, where types of aids are used or circumstances prevail which are not covered by current ICAO provisions, other separation minima shall be established as necessary by:

(1) the appropriate ATS authority, following consultation with operators, for routes or portions of routes contained within the sovereign airspace of a State;

(2) regional air navigation agreements for routes or portions of routes contained within airspace over the high seas or over areas of undetermined sovereignty.

(b) the selection of separation minima shall be made in consultation between the appropriate ATS authorities responsible for the provision of air traffic services in neighbouring airspace when:

(1) traffic will pass from one into the other of the neighbouring airspaces;

(2) routes are closer to the common boundary of the neighbouring airspaces than the separation minima applicable in the circumstances.

3.4.2 Details of the selected separation minima and of their areas of application shall be notified:

(a) to the ATS units concerned; and

(b) to pilots and operators through aeronautical information publications, where separation is based on the use by aircraft of specified navigation aids or specified navigation techniques.

3.5 Responsibility for control

3.5.1 Responsibility for control of individual flights

A controlled flight shall be under the control of only one air traffic control unit at any given time.

3.5.2 Responsibility for control within a given block of airspace

Responsibility for the control of all aircraft operating within a given block of airspace shall be vested in a single air traffic control unit. However, control of an aircraft or groups of aircraft may be delegated to other air traffic control units provided that coordination between all air traffic control units concerned is assured.

3.6 Transfer of responsibility for control

3.6.1 Place or time of transfer

The responsibility for the control of an aircraft shall be transferred from one air traffic control unit to another as follows:

3.6.1.1 *Between two units providing area control service.* The responsibility for the control of an aircraft shall be transferred from a unit providing area control service in a control area to the unit providing area control service in an adjacent control area at the time of crossing the common control area boundary as estimated by the area control centre having control of the aircraft or at such other point or time as has been agreed between the two units.

3.6.1.2 *Between a unit providing area control service and a unit providing approach control service.* The responsibility for the control of an aircraft shall be transferred from a unit providing area control service to a unit providing approach control service, and vice versa, at a point or time agreed between the two units.

3.6.1.3 *Between a unit providing approach control service and an aerodrome control tower*

3.6.1.3.1 *Arriving aircraft*. The responsibility for the control of an arriving aircraft shall be transferred from the unit providing approach control service to the aerodrome control tower, when the aircraft:

(a) is in the vicinity of the aerodrome, and:

(1) it is considered that approach and landing will be completed in visual reference to the ground, or

(2) it has reached uninterrupted visual meteorological conditions, or

(b) is at a prescribed point or level, as specified in letters of agreement or ATS unit instructions; or

(c) has landed.

3.6.1.3.2 *Departing aircraft.* The responsibility for control of a departing aircraft shall be transferred from the aerodrome control tower to the unit providing approach control service:

(a) when visual meteorological conditions prevail in the vicinity of the aerodrome:

(1) prior to the time the aircraft leaves the vicinity of the aerodrome, or

(2) prior to the aircraft entering instrument meteorological conditions, or

(3) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions;

(b) when instrument meteorological conditions prevail at the aerodrome:

(1) immediately after the aircraft is airborne, or

(2) at a prescribed point or level,

as specified in letters of agreement or ATS unit instructions.

3.6.1.4 *Between control sectors/positions within the same air traffic control unit*

The responsibility for control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same air traffic control unit at a point, level or time, as specified in ATS unit instructions.

3.6.2 Coordination of transfer

3.6.2.1 Responsibility for control of an aircraft shall not be transferred from one air traffic control unit to another without the consent of the accepting control unit, which shall be obtained in accordance with 3.6.2.2, 3.6.2.2.1, 3.6.2.2.2 and 3.6.2.3.

3.6.2.2 The transferring control unit shall communicate to the accepting control unit the appropriate parts of the current flight plan and any control information pertinent to the transfer requested.

3.6.2.2.1 Where transfer of control is to be effected using radar or ADS-B data, the control information pertinent to the transfer shall include information regarding the position and, if required, the track and speed of the aircraft, as observed by radar or ADS-B immediately prior to the transfer.

3.6.2.2.2 Where transfer of control is to be effected using ADS-C data, the control information pertinent to the transfer shall include the four-dimensional position and other information as necessary.

3.6.2.3 The accepting control unit shall:

(a) indicate its ability to accept control of the aircraft on the terms specified by the transferring control unit, unless by prior agreement between the two units concerned, the absence of any such indication is understood to signify acceptance of the terms specified, or indicate any necessary changes thereto; and

(b) specify any other information or clearance for a subsequent portion of the flight, which it requires the aircraft to have at the time of transfer.

3.6.2.4 The accepting control unit shall notify the transferring control unit when it has established two-way voice and/or data link communications with and assumed control of the aircraft concerned, unless otherwise specified by agreement between the two control units concerned.

3.6.2.5 Applicable coordination procedures, including transfer of control points, shall be specified in letters of agreement and ATS unit instructions as appropriate.

3.7 Air traffic control clearances

Air traffic control clearances shall be based solely on the requirements for providing air traffic control service.

3.7.1 Contents of clearances

3.7.1.1 An air traffic control clearance shall indicate:

(a) aircraft identification as shown in the flight plan;

(b) clearance limit;

(c) route of flight;

(d) level(s) of flight for the entire route or part thereof and changes of levels if required;

(e) any necessary instructions or information on other matters such as approach or departure manoeuvres, communications and the time of expiry of the clearance.

3.7.1.2 Standard departure and arrival routes and associated procedures should be established when necessary to facilitate:

(a) the safe, orderly and expeditious flow of air traffic;

(b) the description of the route and procedure in air traffic control clearances.

3.7.2 Clearances for transonic flight

3.7.2.1 The air traffic control clearance relating to the transonic acceleration phase of a supersonic flight shall extend at least to the end of that phase.

3.7.2.2 The air traffic control clearance relating to the deceleration and descent of an aircraft from supersonic cruise to subsonic flight should provide for uninterrupted descent, at least during the transonic phase.

3.7.3 Read-back of clearances and safety-related information

3.7.3.1 The flight crew shall read back to the air traffic controller safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items shall always be read back:

(a) ATC route clearances;

(b) clearances and instructions to enter, land on, take off from, hold short of, cross and backtrack on any runway; and

(c) runway-in-use, altimeter settings, SSR codes, level instructions, heading and speed instructions and, whether issued by the controller or contained in ATIS broadcasts, transition levels.

3.7.3.1.1 Other clearances or instructions, including conditional clearances, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with.

3.7.3.1.2 The controller shall listen to the read-back to ascertain that the clearance or instruction has been correctly acknowledged by the flight crew and shall take immediate action to correct any discrepancies revealed by the read-back.

3.7.3.2 Unless specified by the appropriate ATS authority, voice read-back of CPDLC messages shall not be required.

3.7.3.3 [Vehicle drivers operating or intending to operate on the manoeuvring area shall read back to the air traffic controller safety-related parts of instructions which are transmitted by voice, e.g. instructions to enter, hold short of, cross and operate on any operational runway or taxiway.

3.7.3.4 The controller shall listen to the read-back to ascertain that the instruction has been correctly acknowledged by the vehicle driver and shall take immediate action to correct any discrepancies revealed by the read-back.]

3.7.4 Coordination of clearances

An air traffic control clearance shall be coordinated between air traffic control units to cover the entire route of an aircraft or a specified portion thereof as follows.

3.7.4.1 An aircraft shall be cleared for the entire route to the aerodrome of first intended landing:

(a) when it has been possible, prior to departure, to coordinate the clearance between all the units under whose control the aircraft will come; or

(b) when there is reasonable assurance that prior coordination will be effected between those units under whose control the aircraft will subsequently come.

3.7.4.2 When coordination as in 3.7.4.1 has not been achieved or is not anticipated, the aircraft shall be cleared only to that point where coordination is reasonably assured; prior to reaching such point, or at such point, the aircraft shall receive further clearance, holding instructions being issued as appropriate.

3.7.4.2.1 When prescribed by the appropriate ATS authority, aircraft shall contact a downstream air traffic control unit, for the purpose of receiving a downstream clearance prior to the transfer of control point.

3.7.4.2.1.1 Aircraft shall maintain the necessary two-way communication with the current air traffic control unit whilst obtaining a downstream clearance.

3.7.4.2.1.2 A clearance issued as a downstream clearance shall be clearly identifiable as such to the pilot.

3.7.4.2.1.3 Unless coordinated, downstream clearances shall not affect the aircraft's original flight profile in any airspace, other than that of the air traffic control unit responsible for the delivery of the downstream clearance.

3.7.4.2.1.4 Where practicable, and where data link communications are used to facilitate down-stream clearance delivery, two-way voice communications between the pilot and the air traffic control unit providing the downstream clearance should be available.

3.7.4.3 When an aircraft intends to depart from an aerodrome within a control area to enter another control area within a period of thirty minutes, or such other specific period of time as has been agreed between the area control centres concerned, coordination with the subsequent area control centre shall be effected prior to issuance of the departure clearance.

3.7.4.4 When an aircraft intends to leave a control area for flight outside controlled airspace, and will subsequently re-enter the same or another control area, a clearance from point of departure to the aerodrome of first intended landing may be issued. Such clearance or revisions thereto shall apply only to those portions of the flight conducted within controlled airspace.

3.7.5 Air traffic flow management

3.7.5.1 Air traffic flow management (ATFM) shall be implemented for airspace where air traffic demand at times exceeds, or is expected to exceed, the declared capacity of the air traffic control services concerned.

3.7.5.2 ATFM should be implemented on the basis of regional air navigation agreements or, if appropriate, through multilateral agreements. Such agreements should make provision for common procedures and common methods of capacity determination.

3.7.5.3 When it becomes apparent to an ATC unit that traffic additional to that already accepted cannot be accommodated within a given period of time at a particular location or in a particular area, or can only be accommodated at a given rate, that unit shall so advise the ATFM unit, when such is established, as well as, when appropriate, ATS units concerned. Flight crews of aircraft destined to the location or area in question and operators concerned shall also be advised of the delays expected or the restrictions that will be applied.

3.8 Control of persons and vehicles at aerodromes

3.8.1 The movement of persons or vehicles including towed aircraft on the manoeuvring area of an aerodrome shall be controlled by the aerodrome control tower as necessary to avoid hazard to them or to aircraft landing, taxiing or taking off.

3.8.2 In conditions where low visibility procedures are in operation:

(a) persons and vehicles operating on the manoeuvring area of an aerodrome shall be restricted to the essential minimum, and particular regard shall be given to the requirements to protect the ILS/MLS sensitive area(s) when Category II or Category III precision instrument operations are in progress;

(b) subject to the provisions in 3.8.3, the minimum separation between vehicles and taxiing aircraft shall be as prescribed by the appropriate ATS authority taking into account the aids available;

(c) when mixed ILS and MLS Category II or Category III precision instrument operations are taking place to the same runway continuously, the more restrictive ILS or MLS critical and sensitive areas shall be protected.

3.8.3 Emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic.

3.8.4 Subject to the provisions in 3.8.3, vehicles on the manoeuvring area shall be required to comply with the following rules:

(a) vehicles and vehicles towing aircraft shall give way to aircraft which are landing, taking off or taxiing;
(b) vehicles shall give way to other vehicles towing aircraft;

(c) vehicles shall give way to other vehicles in accordance with ATS unit instructions;

(d) notwithstanding the provisions of (a), (b) and (c), vehicles and vehicles towing aircraft shall comply with instructions issued by the aerodrome control tower.

3.9 Provision of radar and ADS-B

Radar and ADS-B ground systems should provide for the display of safety-related alerts and warnings, including conflict alert, conflict prediction, minimum safe altitude warning and unintentionally duplicated SSR codes.

3.10 Use of surface movement radar (SMR)

In the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, surface movement radar (SMR) provided in accordance with the provisions of Annex 14, Volume I, or other suitable surveillance equipment, should be utilized to:

(a) monitor the movement of aircraft and vehicles on the manoeuvring area;

(b) provide directional information to pilots and vehicle drivers as necessary; and

(c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

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CHAPTER 4

FLIGHT INFORMATION SERVICE

4.1 Application

4.1.1 Flight information service shall be provided to all aircraft which are likely to be affected by the information and which are:

(a) provided with air traffic control service; or

(b) otherwise known to the relevant air traffic services units.

4.1.2 Where air traffic services units provide both flight information service and air traffic control service, the provision of air traffic control service shall have precedence over the provision of flight information service whenever the provision of air traffic control service so requires.

4.2 Scope of flight information service

4.2.1 Flight information service shall include the provision of pertinent:

(a) SIGMET and AIRMET information;

(b) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;

(c) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;

(d) information on changes in the availability of radio navigation services;

(e) information on changes in condition of aerodromes and associated facilities, including information on the state of the aerodrome movement areas when they are affected by snow, ice or significant depth of water;

(f) information on unmanned free balloons; and of any other information likely to affect safety.

4.2.2 Flight information service provided to flights shall include, in addition to that outlined in 4.2.1, the provision of information concerning:

(a) weather conditions reported or forecast at departure, destination and alternate aerodromes;

(b) collision hazards, to aircraft operating in airspace Classes C, D, E, F and G;

(c) for flight over water areas, in so far as practicable and when requested by a pilot, any available information such as radio call sign, position, true track, speed, etc., of surface vessels in the area.

4.2.3 ATS units should transmit, as soon as practicable, special air-reports to other aircraft concerned, to the associated meteorological office, and to other ATS units concerned. Transmissions to aircraft should be continued for a period to be determined by agreement between the meteorological and air traffic services authorities concerned.

4.2.4 Flight information service provided to VFR flights shall include, in addition to that outlined in 4.2.1, the provision of available information concerning traffic and weather conditions along the route of flight that are likely to make operation under the visual flight rules impracticable.

4.3 Operational flight information service broadcasts

4.3.1 Application

4.3.1.1 The meteorological information and operational information concerning radio navigation services and aerodromes included in the flight information service shall, whenever available, be provided in an operationally integrated form.

4.3.1.2 Where integrated operational flight information messages are to be transmitted to aircraft, they should be transmitted with the content and, where specified, in the sequence indicated, for the various phases of flight.

4.3.1.3 Operational flight information service broadcasts, when provided, should consist of messages containing integrated information regarding selected operational and meteorological elements appropriate to the various phases of flight. These broadcasts should be of three major types, i.e. HF, VHF and ATIS.

4.3.1.4 Use of the OFIS messages in directed request/reply transmissions

When requested by the pilot, the applicable OFIS message(s) shall be transmitted by the appropriate ATS unit.

4.3.2 HF operational flight information service (OFIS) broadcasts

4.3.2.1 HF operational flight information service (OFIS) broadcasts should be provided when it has been determined by regional air navigation agreements that a requirement exists.

4.3.2.2 Whenever such broadcasts are provided:

(a) the information should be in accordance with 4.3.2.5, as applicable, subject to regional air navigation agreements;

(b) the aerodromes for which reports and forecasts are to be included should be as determined by regional air navigation agreements;

(c) the time-sequencing of stations participating in the broadcast should be as determined by regional air navigation agreements;

(d) the HF OFIS broadcast message should take into consideration human performance. The broadcast message should not exceed the length of time allocated for it by regional air navigation agreements, care being taken that the readability is not impaired by the speed of the transmission;

(e) each aerodrome message should be identified by the name of the aerodrome to which the information applies;

(f) when information has not been received in time for a broadcast, the latest available information should be included together with the time of that observation;

(g) the full broadcast message should be repeated if this is feasible within the remainder of the time allotted to the broadcasting station;

(h) the broadcast information should be updated immediately a significant change occurs; and

(i) the HF OFIS message should be prepared and disseminated by the most appropriate unit(s) as designated by each State.

4.3.2.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, HF OFIS broadcasts concerning aerodromes designated for use by international air services should be available in the English language.

4.3.2.4 Where HF OFIS broadcasts are available in more than one language, a discrete channel should be used for each language.

4.3.2.5 HF operational flight information service broadcast messages should contain the following information in the sequence indicated or as determined by regional air navigation agreements:

(a) En-route weather information

Information on significant en-route weather phenomena should be in the form of available SIGMET as prescribed in ICAO Annex 3.

(b) Aerodrome information including:

(1) name of aerodrome;

(2) time of observation;

(3) essential operational information;

(4) surface wind direction and speed; if appropriate, maximum wind speed;

(5) visibility and, when applicable, runway visual range (RVR);

(6) present weather;

(7) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available; and

(8) aerodrome forecast.

4.3.3 VHF operational flight information service (OFIS) broadcasts

4.3.3.1 VHF operational flight information service broadcasts should be provided as determined by regional air navigation agreements.

4.3.3.2 Whenever such broadcasts are provided:

(a) the aerodromes for which reports and forecasts are to be included should be as determined by regional air navigation agreements;

(b) each aerodrome message should be identified by the name of the aerodrome to which the information applies;

(c) when information has not been received in time for a broadcast, the latest available information should be included together with the time of that observation;

(d) the broadcasts should be continuous and repetitive;

(e) the VHF OFIS broadcast message should take into consideration human performance. The broadcast message should, whenever practicable, not exceed five minutes, care being taken that the readability is not impaired by the speed of the transmission;

(f) the broadcast message should be updated on a scheduled basis as determined by regional air navigation agreements. In addition it should be expeditiously updated immediately a significant change occurs; and

(g) the VHF OFIS message should be prepared and disseminated by the most appropriate unit(s) as designated by each State.

4.3.3.3 Pending the development and adoption of a more suitable form of speech for universal use in aeronautical radiotelephony communications, VHF OFIS broadcasts concerning aerodromes designated for use by international air services should be available in the English language.

4.3.3.4 Where VHF OFIS broadcasts are available in more than one language, a discrete channel should be used for each language.

4.3.3.5 VHF operational flight information service broadcast messages should contain the following information in the sequence indicated:

(a) name of aerodrome;

(b) time of observation;

(c) landing runway;

(d) significant runway surface conditions and, if appropriate, braking action;

(e) changes in the operational state of the radio navigation services, if appropriate;

(f) holding delay, if appropriate;

(g) surface wind direction and speed; if appropriate, maximum wind speed;

(h) visibility and, when applicable, runway visual range (RVR);

(i) present weather;

(j) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility, when available;

(k) air temperature;

(l) dew point temperature;

(m) QNH altimeter setting;

(n) supplementary information on recent weather of operational significance and, where necessary, wind shear;

(o) trend forecast, when available; and

(p) notice of current SIGMET messages.

4.3.4 Voice-automatic terminal information service (Voice-ATIS) broadcasts

4.3.4.1 Voice-automatic terminal information service (Voice-ATIS) broadcasts shall be provided at aerodromes where there is a requirement to reduce the communication load on the ATS VHF air-ground communication channels. When provided, they shall comprise:

(a) one broadcast serving arriving aircraft; or

(b) one broadcast serving departing aircraft; or

(c) one broadcast serving both arriving and departing aircraft; or

(d) two broadcasts serving arriving and departing aircraft respectively at those aerodromes where the length of a broadcast serving both arriving and departing aircraft would be excessively long.

4.3.4.2 A discrete VHF frequency shall, whenever practicable, be used for Voice-ATIS broadcasts. If a discrete frequency is not available, the transmission may be made on the voice channel(s) of the most appropriate terminal navigation aid(s), preferably a VOR, provided the range and readability are adequate and the identification of the navigation aid is sequenced with the broadcast so that the latter is not obliterated.

4.3.4.3 Voice-ATIS broadcasts shall not be transmitted on the voice channel of an ILS.

4.3.4.4 Whenever Voice-ATIS is provided, the broadcast shall be continuous and repetitive.

4.3.4.5 The information contained in the current broadcast shall immediately be made known to the ATS unit(s) concerned with the provision to aircraft of information relating to approach, landing and take-off, whenever the message has not been prepared by that (those) unit(s).

4.3.4.6 Voice-ATIS broadcasts provided at designated aerodromes for use by international air services shall be available in the English language as a minimum.

4.3.4.7 Where Voice-ATIS broadcasts are available in more than one language, a discrete channel should be used for each language.

4.3.4.8 The Voice-ATIS broadcast message should, whenever practicable, not exceed 30 seconds, care being taken that the readability of the ATIS message is not impaired by the speed of the transmission or by the identification signal of a navigation aid used for transmission of ATIS. The ATIS broadcast message should take into consideration human performance.

4.3.5 Data link-automatic terminal information service (D-ATIS)

4.3.5.1 Where a D-ATIS supplements the existing availability of Voice-ATIS, the information shall be identical in both content and format to the applicable Voice-ATIS broadcast.

4.3.5.1.1 Where real-time meteorological information is included but the data remains within the parameters of the significant change criteria, the content, for the purpose of maintaining the same designator, shall be considered identical.

4.3.5.2 Where a D-ATIS supplements the existing availability of Voice-ATIS and the ATIS requires updating, Voice-ATIS and D-ATIS shall be updated simultaneously.

4.3.6 Automatic terminal information service (voice and/or data link)

4.3.6.1 Whenever Voice-ATIS and/or D-ATIS is provided:

(a) the information communicated shall relate to a single aerodrome;

(b) the information communicated shall be updated immediately a significant change occurs;

(c) the preparation and dissemination of the ATIS message shall be the responsibility of the air traffic services;

(d) individual ATIS messages shall be identified by a designator in the form of a letter of the ICAO spelling alphabet. Designators assigned to consecutive ATIS messages shall be in alphabetical order;

(e) aircraft shall acknowledge receipt of the information upon establishing communication with the ATS unit providing approach control service or the aerodrome control tower, as appropriate;

(f) the appropriate ATS unit shall, when replying to the message in e) above or, in the case of arriving aircraft, at such other time as may be prescribed by the appropriate ATS authority, provide the aircraft with the current altimeter setting; and

(g) the meteorological information shall be extracted from the local meteorological routine or special report.

4.3.6.2 When rapidly changing meteorological conditions make it inadvisable to include a weather report in the ATIS, the ATIS messages shall indicate that the relevant weather information will be given on initial contact with the appropriate ATS unit.

4.3.6.3 Information contained in a current ATIS, the receipt of which has been acknowledged by the aircraft concerned, need not be included in a directed transmission to the aircraft, with the exception of the altimeter setting, which shall be provided in accordance with 4.3.6.1 (f).

4.3.6.4 If an aircraft acknowledges receipt of an ATIS that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.

4.3.6.5 Contents of ATIS should be kept as brief as possible. Information additional to that specified in 4.3.7 to 4.3.9, for example information already available in aeronautical information publications (AIPs) and NOTAM, should only be included when justified in exceptional circumstances.

4.3.7 ATIS for arriving and departing aircraft

ATIS messages containing both arrival and departure information shall contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) arrival and/or departure indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) type of approach(es) to be expected;

(g) the runway(s) in use; status of arresting system constituting a potential hazard, if any;

(h) significant runway surface conditions and, if appropriate, braking action;

(i) holding delay, if appropriate;

(j) transition level, if applicable;

(k) other essential operational information;

(l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(n) present weather;

(o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(p) air temperature;

(q) dew point temperature;

(r) altimeter setting(s);

(s) any available information on significant meteorological phenomena in the approach and climb out areas including wind shear, and information on recent weather of operational significance;

(t) trend forecast, when available; and

(u) specific ATIS instructions.

4.3.8 ATIS for arriving aircraft

ATIS messages containing arrival information only shall contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) arrival indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) type of approach(es) to be expected;

(g) main landing runway(s); status of arresting system constituting a potential hazard, if any;

(h) significant runway surface conditions and, if appropriate, braking action;

(i) holding delay, if appropriate;

(j) transition level, if applicable;

(k) other essential operational information;

(l) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(n) present weather;

(o) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(p) air temperature;

(q) dew point temperature;

(r) altimeter setting(s);

(s) any available information on significant meteorological phenomena in the approach area including wind shear, and information on recent weather of operational significance;

(t) trend forecast, when available; and

(u) specific ATIS instructions.

4.3.9 ATIS for departing aircraft

ATIS messages containing departure information only shall contain the following elements of information in the order listed:

(a) name of aerodrome;

(b) departure indicator;

(c) contract type, if communication is via D-ATIS;

(d) designator;

(e) time of observation, if appropriate;

(f) runway(s) to be used for take-off; status of arresting system constituting a potential hazard, if any;

(g) significant surface conditions of runway(s) to be used for take-off and, if appropriate, braking action;

(h) departure delay, if appropriate;

(i) transition level, if applicable;

(j) other essential operational information;

(k) surface wind direction (in degrees magnetic) and speed, including significant variations and, if surface wind sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(l) visibility and, when applicable, RVR and, if visibility/RVR sensors related specifically to the sections of runway(s) in use are available and the information is required by operators, the indication of the runway and the section of the runway to which the information refers;

(m) present weather;

(n) cloud below 1 500 m (5 000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

(o) air temperature;

(p) dew point temperature;

(q) altimeter setting(s);

(r) any available information on significant meteorological phenomena in the climb out area including wind shear;

(s) trend forecast, when available; and

(t) specific ATIS instructions.

4.4 VOLMET broadcasts and D-VOLMET service

4.4.1 HF and/or VHF VOLMET broadcasts and/or D-VOLMET service should be provided when it has been determined by regional air navigation agreements that a requirement exists.

4.4.2 VOLMET broadcasts should use standard radiotelephony phraseologies.

CHAPTER 5

ALERTING SERVICE

5.1 Application

5.1.1 Alerting service shall be provided:

(a) for all aircraft provided with air traffic control service;

(b) in so far as practicable, to all other aircraft having filed a flight plan or otherwise known to the air traffic services; and

(c) to any aircraft known or believed to be the subject of unlawful interference.

5.1.2 Flight information centres or area control centres shall serve as the central point for collecting all information relevant to a state of emergency of an aircraft operating within the flight information region or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

5.1.3 In the event of a state of emergency arising to an aircraft while it is under the control of an aerodrome control tower or approach control unit, such unit shall notify immediately the flight information centre or area control centre responsible which shall in turn notify the rescue coordination centre, except that notification of the area control centre, flight information centre, or rescue coordination centre shall not be required when the nature of the emergency is such that the notification would be superfluous.

5.1.3.1 Nevertheless, whenever the urgency of the situation so requires, the aerodrome control tower or approach control unit responsible shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organisations which can give the immediate assistance required.

5.2 Notification of rescue coordination centres

5.2.1 Without prejudice to any other circumstances that may render such notification advisable, air traffic services units shall, except as prescribed in 5.5.1, notify rescue coordination centres immediately an aircraft is considered to be in a state of emergency in accordance with the following:

(a) *Uncertainty phase* when:

(1) no communication has been received from an aircraft within a period of thirty minutes after the time a communication should have been received, or from the time an unsuccessful attempt to establish communication with such aircraft was first made, whichever is the earlier, or when

(2) an aircraft fails to arrive within thirty minutes of the estimated time of arrival last notified to or estimated by air traffic services units, whichever is the latter,

except when no doubt exists as to the safety of the aircraft and its occupants.

(b) *Alert phase* when:

(1) following the uncertainty phase, subsequent attempts to establish communication with the aircraft or inquiries to other relevant sources have failed to reveal any news of the aircraft, or when

(2) an aircraft has been cleared to land and fails to land within five minutes of the estimated time of landing and communication has not been re-established with the aircraft, or when

(3) information has been received which indicates that the operating efficiency of the aircraft has been impaired, but not to the extent that a forced landing is likely,

except when evidence exists that would allay apprehension as to the safety of the aircraft and its occupants, or when

(4) an aircraft is known or believed to be the subject of unlawful interference.

(c) *Distress phase* when:

(1) following the alert phase, further unsuccessful attempts to establish communication with the aircraft and more widespread unsuccessful inquiries point to the probability that the aircraft is in distress, or when

(2) the fuel on board is considered to be exhausted, or to be insufficient to enable the aircraft to reach safety, or when

(3) information is received which indicates that the operating efficiency of the aircraft has been impaired to the extent that a forced landing is likely, or when

(4) information is received or it is reasonably certain that the aircraft is about to make or has made a forced landing, except when there is reasonable certainty that the aircraft and its occupants are not threatened by grave and imminent danger and do not require immediate assistance.

5.2.2 The notification shall contain such of the following information as is available in the order listed:

(a) INCERFA, ALERFA or DETRESFA, as appropriate to the phase of the emergency;

(b) agency and person calling;

(c) nature of the emergency;

(d) significant information from the flight plan;

(e) unit which made last contact, time and means used;

(f) last position report and how determined;

(g) colour and distinctive marks of aircraft;

(h) dangerous goods carried as cargo;

(i) any action taken by reporting office; and

(j) other pertinent remarks.

5.2.2.1 Such part of the information specified in 5.2.2, which is not available at the time notification is made to a rescue coordination centre, should be sought by an air traffic services unit prior to the declaration of a distress phase, if there is reasonable certainty that this phase will eventuate.

5.2.3 Further to the notification in 5.2.1, the rescue coordination centre shall, without delay, be furnished with:

(a) any useful additional information, especially on the development of the state of emergency through subsequent phases; or

(b) information that the emergency situation no longer exists.

5.3 Use of communication facilities

Air traffic services units shall, as necessary, use all available communication facilities to endeavour to establish and maintain communication with an aircraft in a state of emergency, and to request news of the aircraft.

5.4 Plotting aircraft in a state of emergency

When a state of emergency is considered to exist, the flight of the aircraft involved shall be plotted on a chart in order to determine the probable future position of the aircraft and its maximum range of action from its last known position. The flights of other aircraft known to be operating in the vicinity of the aircraft involved shall also be plotted in order to determine their probable future positions and maximum endurance.

5.5 Information to the operator

5.5.1 When an area control or a flight information centre decides that an aircraft is in the uncertainty or the alert phase, it shall, when practicable, advise the operator prior to notifying the rescue coordination centre.

5.5.2 All information notified to the rescue coordination centre by an area control or flight information centre shall, whenever practicable, also be communicated, without delay, to the operator.

5.6 Information to aircraft operating in the vicinity of an aircraft in a state of emergency

5.6.1 When it has been established by an air traffic services unit that an aircraft is in a state of emergency, other aircraft known to be in the vicinity of the aircraft involved shall, except as provided in 5.6.2, be informed of the nature of the emergency as soon as practicable.

5.6.2 When an air traffic services unit knows or believes that an aircraft is being subjected to unlawful interference, no reference shall be made in ATS air-ground communications to the nature of the emergency unless it has first been referred to in communications from the aircraft involved and it is certain that such reference will not aggravate the situation.

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CHAPTER 6

AIR TRAFFIC SERVICES REQUIREMENTS FOR COMMUNICATIONS

6.1 Aeronautical mobile service (air-ground communications)

6.1.1 General

6.1.1.1 Radiotelephony and/or data link shall be used in air-ground communications for air traffic services purposes.

6.1.1.2 Where a RCP specification has been prescribed by States for performance-based communications, ATS units shall, in addition to the requirements specified in 6.1.1.1, be provided with communication equipment which will enable them to provide ATS in accordance with the prescribed RCP specifications.

6.1.1.3 When direct pilot-controller two-way radio-telephony or data link communications are used for the provision of air traffic control service, recording facilities shall be provided on all such air-ground communication channels.

6.1.1.4 Recordings of communications channels as required in paragraph 6.1.1.3 shall be retained for a period of at least thirty days.

6.1.2 For flight information service

6.1.2.1 Air-ground communication facilities shall enable two-way communications to take place between a unit providing flight information service and appropriately equipped aircraft flying anywhere within the flight information region.

6.1.2.2 Whenever practicable, air-ground communication facilities for flight information service should permit direct, rapid, continuous and static-free two-way communications.

6.1.3 For area control service

6.1.3.1 Air-ground communication facilities shall enable two-way communications to take place between a unit providing area control service and appropriately equipped aircraft flying anywhere within the control area(s).

6.1.3.2 Whenever practicable, air-ground communication facilities for area control service should permit direct, rapid, continuous and static-free two-way communications.

6.1.3.3 Where air-ground voice communication channels are used for area control service and are worked by air-ground communicators, suitable arrangements should be made to permit direct pilot-controller voice communications, as and when required.

6.1.4 For approach control service

6.1.4.1 Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between the unit providing approach control service and appropriately equipped aircraft under its control.

6.1.4.2 Where the unit providing approach control service functions as a separate unit, air-ground communications shall be conducted over communication channels provided for its exclusive use.

6.1.5 For aerodrome control service

6.1.5.1 Air-ground communication facilities shall enable direct, rapid, continuous and static-free two-way communications to take place between an aerodrome control tower and appropriately equipped aircraft operating at any distance within 45 km (25 NM) of the aerodrome concerned.

6.1.5.2 Where conditions warrant, separate communication channels should be provided for the control of traffic operating on the manoeuvring area.

6.2 Aeronautical fixed service (ground-ground communications)

6.2.1 General

6.2.1.1 Direct-speech and/or data link communications shall be used in ground-ground communications for air traffic services purposes.

6.2.2 Communications within a flight information region

6.2.2.1 Communications between air traffic services units

6.2.2.1.1 A flight information centre shall have facilities for communications with the following units providing a service within its area of responsibility:

(a) the area control centre, unless collocated;

(b) approach control units;

(c) aerodrome control towers.

6.2.2.1.2 An area control centre, in addition to being connected to the flight information centre as prescribed in 6.2.2.1.1, shall have facilities for communications with the following units providing a service within its area of responsibility:

(a) approach control units;

(b) aerodrome control towers;

(c) air traffic services reporting offices, when separately established.

6.2.2.1.3 An approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in 6.2.2.1.1 and 6.2.2.1.2, shall have facilities for communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

6.2.2.1.4 An aerodrome control tower, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in 6.2.2.1.1, 6.2.2.1.2 and 6.2.2.1.3, shall have facilities for communications with the associated air traffic services reporting office, when separately established.

6.2.2.2 Communications between air traffic services units and other units

6.2.2.2.1 A flight information centre and an area control centre shall have facilities for communications with the following units providing a service within their respective area of

responsibility:

(a) appropriate military units;

(b) the meteorological office serving the centre;

(c) the aeronautical telecommunications station serving the centre;

(d) appropriate operator's offices;

(e) the rescue coordination centre or, in the absence of such centre, any other appropriate emergency service;

(f) the international NOTAM office serving the centre.

6.2.2.2.2 An approach control unit and an aerodrome control tower shall have facilities for communications with the following units providing a service within their respective area of responsibility:

(a) appropriate military units; rescue and emergency services (including ambulance, fire, etc.);

(b) the meteorological office serving the unit concerned;

(c) the aeronautical telecommunications station serving the unit concerned;

(d) the unit providing apron management service, when separately established.

6.2.2.2.3 The communication facilities required under 6.2.2.2.1 (a) and 6.2.2.2.2 (a) shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.

6.2.2.3 Description of communication facilities

6.2.2.3.1 The communication facilities required under 6.2.2.1, 6.2.2.2.1 (a) and 6.2.2.2.2 (a), (b) and (c) shall include provisions for:

(a) communications by direct speech alone, or in combination with data link communications, whereby for the purpose of transfer of control using radar or ADS-B, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and

(b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

6.2.2.3.2 In all cases not covered by 6.2.2.3.1, the communication facilities should include provisions for:

(a) communications by direct speech alone, or in combination with data link communications, whereby the communications can normally be established within fifteen seconds; and

(b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.

6.2.2.3.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.

6.2.2.3.4 The communication facilities required in accordance with 6.2.2.1 and 6.2.2.2 should be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

6.2.2.3.5 The communication facilities required under 6.2.2.2.2 (a), (b) and (c) shall include provisions for communications by direct speech arranged for conference communications.

6.2.2.3.6 The communication facilities required under 6.2.2.2.2 (d) should include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

6.2.2.3.7 All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under 6.2.2.2.1 and 6.2.2.2.2 shall be provided with automatic recording.

6.2.2.3.8 Recordings of data and communications as required in 6.2.2.3.3 and 6.2.2.3.7 shall be retained for a period of at least thirty days.

6.2.3 Communications between flight information regions

6.2.3.1 Flight information centres and area control centres shall have facilities for communications with all adjacent flight information centres and area control centres.

6.2.3.1.1 These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.

6.2.3.1.2 Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas shall, in addition, include provisions for direct-speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

6.2.3.1.3 When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centres or area control centres other than those mentioned in 6.2.3.1.2 shall include provisions for direct speech alone, or in combination with data link communications. The communication facilities shall be provided with automatic recording.

6.2.3.1.4 The communication facilities in 6.2.3.1.3 should permit communications to be established normally within fifteen seconds.

6.2.3.2 Adjacent ATS units should be connected in all cases where special circumstances exist.

6.2.3.3 Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, an approach control unit and/ or aerodrome control tower should be connected with the area control centre serving the adjacent area.

6.2.3.4 The communication facilities in 6.2.3.2 and 6.2.3.3 should include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

6.2.3.5 In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.

6.2.3.6 Recordings of data and communications as required in 6.2.3.5 shall be retained for a period of at least thirty days.

6.2.4 Procedures for direct-speech communications

Appropriate procedures for direct-speech communications should be developed to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

6.3 Surface movement control service

6.3.1 Communications for the control of vehicles other than aircraft on manoeuvring areas at controlled aerodromes

6.3.1.1 Two-way radiotelephony communication facilities shall be provided for aerodrome control service for the control of vehicles on the manoeuvring area, except where communication by a system of visual signals is deemed to be adequate.

6.3.1.2 Where conditions warrant, separate communication channels shall be provided for the control of vehicles on the manoeuvring area. Automatic recording facilities shall be provided on all such channels.

6.3.1.3 Recordings of communications as required in 6.3.1.2 shall be retained for a period of at least thirty days.

6.4 Aeronautical radio navigation service

6.4.1 Automatic recording of surveillance data

6.4.1.1 Surveillance data from primary and secondary radar equipment or other systems (e.g. ADS-B, ADS-C), used as an aid to air traffic services, shall be automatically recorded for use in accident and incident investigations, search and rescue, air traffic control and surveillance systems evaluation and training.

6.4.1.2 Automatic recordings shall be retained for a period of at least thirty days. When the recordings are pertinent to accident and incident investigations, they shall be retained for longer periods until it is evident that they will no longer be required.

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CHAPTER 7

AIR TRAFFIC SERVICES REQUIREMENTS FOR INFORMATION

7.1 Meteorological information

7.1.1 General

7.1.1.1 Air traffic services units shall be supplied with up-to-date information on existing and forecast meteorological conditions as necessary for the performance of their respective functions. The information shall be supplied in such a form as to require a minimum of interpretation on the part of air traffic services personnel and with a frequency which satisfies the requirements of the air traffic services units concerned.

7.1.1.2 Air traffic services units should be supplied with available detailed information on the location, vertical extent, direction and rate of movement of meteorological phenomena in the vicinity of the aerodrome, and particularly in the climb-out and approach areas, which could be hazardous to aircraft operations.

7.1.1.3 When computer-processed upper air data are made available to air traffic services units in digital form for use by air traffic services computers, the contents, format and transmission arrangements should be as agreed between the Meteorological Authority and the appropriate ATS Authority.

7.1.2 Flight information centres and area control centres

7.1.2.1 Flight information centres and area control centres shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.3, particular emphasis being given to the occurrence or expected occurrence of weather deterioration as soon as this can be determined. These reports and forecasts shall cover the flight information region or control area and such other areas as may be determined on the basis of regional air navigation agreements.

7.1.2.2 Flight information centres and area control centres shall be provided, at suitable intervals, with current pressure data for setting altimeters, for locations specified by the flight information centre or area control centre concerned.

7.1.3 Units providing approach control service

7.1.3.1 Units providing approach control service shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.2 for the airspace and the aerodromes with which they are concerned. Special reports and amendments to forecasts shall be communicated to the units providing approach control service as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast. Where multiple anemometers are used, the indicators to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each anemometer.

7.1.3.2 Units providing approach control service shall be provided with current pressure data for setting altimeters, for locations specified by the unit providing approach control service.

7.1.3.3 Units providing approach control service for final approach, landing and take-off shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

7.1.3.4 Units providing approach control service for final approach, landing and take-off at aerodromes where runway visual range values are assessed by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding displays in the aerodrome control tower and in the meteorological station, where such a station exists.

7.1.3.5 Units providing approach control service for final approach, landing and take-off at aerodromes where the height of cloud base is assessed by instrumental means should be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays should be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the aerodrome control tower and in the meteorological station, where such a station exists.

7.1.3.6 Units providing approach control service for final approach, landing and take-off shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach.

7.1.4 Aerodrome control towers

7.1.4.1 Aerodrome control towers shall be supplied with meteorological information as described in ICAO Annex 3, Appendix 9, 1.1 for the aerodrome with which they are concerned. Special reports and amendments to forecasts shall be communicated to the aerodrome control towers as soon as they are necessary in accordance with established criteria, without waiting for the next routine report or forecast.

7.1.4.2 Aerodrome control towers shall be provided with current pressure data for setting altimeters for the aerodrome concerned.

7.1.4.3 Aerodrome control towers shall be equipped with surface wind display(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists. Where multiple sensor(s) are used, the displays to which they are related shall be clearly marked to identify the runway and section of the runway monitored by each sensor.

7.1.4.4 Aerodrome control towers at aerodromes where runway visual range values are measured by instrumental means shall be equipped with display(s) permitting read-out of the current runway visual range value(s). The display(s) shall be related to the same location(s) of observation and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

7.1.4.5 Aerodrome control towers at aerodromes where the height of cloud base is assessed by instrumental means should be equipped with display(s) permitting read-out of the current value(s) of the height of cloud base. The displays should be related to the same location(s) of observations and be fed from the same sensor(s) as the corresponding display(s) in the meteorological station, where such a station exists.

7.1.4.6 Aerodrome control towers shall be supplied with information on wind shear which could adversely affect aircraft on the approach or take-off paths or during circling approach and aircraft on the runway during the landing roll or take-off run.

7.1.4.7 Aerodrome control towers and/or other appropriate units should be supplied with aerodrome warnings.

7.1.5 Communication stations

Where necessary for flight information purposes, current meteorological reports and forecasts shall be supplied to communication stations. A copy of such information shall be forwarded to the flight information centre or the area control centre.

7.2 Information on aerodrome conditions and the operational status of associated facilities

Aerodrome control towers and units providing approach control service shall be kept currently informed of the operationally significant conditions of the movement area, including the existence of temporary hazards, and the operational status of any associated facilities at the aerodrome(s) with which they are concerned.

7.3 Information on the operational status of navigation services

7.3.1 ATS units shall be kept currently informed of the operational status of radio navigation services and visual aids essential for take-off, departure, approach and landing procedures within their area of responsibility and those radio navigation services and visual aids essential for surface movement.

7.3.2 Information on the operational status, and any changes thereto, of radio navigation services and visual aids as referred to in 7.3.1 should be received by the appropriate ATS unit(s) on a timely basis consistent with the use of the service(s) and aid(s) involved.

7.4 Information on unmanned free balloons

Operators of unmanned free balloons shall keep the appropriate air traffic services units informed of details of flights of unmanned free balloons in accordance with the provisions contained in ICAO Annex 2.

7.5 Information concerning volcanic activity

7.5.1 ATS units shall be informed, in accordance with local agreement, of pre-eruption volcanic activity, volcanic eruptions and volcanic ash cloud which could affect airspace used by flights within their area of responsibility.

7.5.2 Area control centres and flight information centres shall be provided with volcanic ash advisory information issued by the associated VAAC.

7.6 Information concerning radioactive materials and toxic chemical “clouds”

ATS units shall be informed, in accordance with local agreement, of the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace used by flights within their area of responsibility.

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