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FOREWORD

This Manual has been developed as a technical requirement (TR) of CAA.IRI ATM/ANS part ATS and compatible with Standards & Recommended Practices of annex 11 and PANS-ATM (DOC4444) and other ICAO documents relevant to the provision of Air Traffic Services.

The Manual of Air Traffic Services contains regulations, procedures and information which are intended to form the basis of ATS within Tehran FIR. It is published for the use of ATS personnel and relevant offices providing Air Traffic Services according to CAA.IRI ATM/ANS part ATS within Tehran FIR and also be of general interest to all concerned to ATS.

ACC Operation manual and local Air traffic Services Procedures that apply to a particular ATSU shall produced locally and approved by the CAA.IRI. They amplify and interpret, at local level, MATS instructions. Any authorisation required by CAA.IRI ATM/ANS and MATS is to appear in the ACC Operation manual and local Air traffic Services Procedures.

Chapter 1 . DOCUMENT IDENTIFICATION AND CONTROL

1.1 TITLE OF THE DOCUMENT

This document is identified as” Manual of Air Traffic Services (MATS)”.

1.2 AUTHORITY/RESPONSIBILITY FOR CHANGES

1.2.1 CAA.IRI is responsible for incorporating amendments to the Manual of Air Traffic Services (MATS).

1.2.2 CAA.IRI is responsible for ensuring that the Manual is kept up to date by inserting or replacing new chapters or chapter amendments in a timely manner.

1.2.3 The user of MATS is responsible for verifying the currency of documentation in the Manual.

1.3 INTERPRETATION OF WORDS

1.3.1 Throughout this document the use of male gender should be understood to include male and female person.

1.3.2 To avoid any misunderstanding within the Manual of Air Traffic Services (MATS), certain words are to be interpreted as having specific meanings when they are the operative words in an instruction.

Table 1-1 Certain words meanings

“shall”, “is to”, “are to” and “must”	mean that the instruction is mandatory.
“should”	means that it is strongly advisable that an instruction is carried out; it is recommended or discretionary. It is applied where the more positive ‘shall’ is unreasonable but nevertheless a controller would have to have good reason for not doing so.
“may”	means that the instruction is permissive, optional or alternative, e.g. ‘a controller may seek assistance...’ but would not if he did not need it.
“will”	is used for informative or descriptive writing, e.g. ‘pilots will file...’, is not an instruction to the controller.
“rule”	refers to the Rules of the Air Regulations.
“miles”	always refers to nautical miles.
“Course/track”, “bearing”, “azimuth”, “heading”, and “wind direction”	information shall always be magnetic unless specifically stated otherwise.
“Time”	when used for ATC operational activities, is the hour and the minute in Coordinated Universal Time (UTC). Change to the next minute is made at the minute plus 30 seconds

1.3.3 When the service provider wishes to use an AltMOC instead of procedures include “should”, it shall, prior to implementing it, provide CAA.IRI with a full description of the AltMOC. The description shall include any revisions to manuals or procedures that may be relevant, as well as an assessment demonstrating compliance with the requirements of this Regulation.

1.4 EFFECTIVE DATE

1.4.1 Effective date of the amendment is indicated at the foot of the page.

1.4.2 New edition will be indicated by date at the foot of the page.

1.5 FORMAT

Amendment-documentation being inserted in the manual must contain headers and footers that are consistent with those residing in this document.

1.6 DISTRIBUTION OF THE MANUAL

Publication and distribution of MATS is the responsibility of CAA.IRI Air Navigation and Aerodromes Safety oversight department and is accessible through the "system of rules and regulations" on the CAA.IRI website. MATS is not under control of CAA.IRI after printing or downloading.

Chapter 2 . DEFINITIONS AND ABBREVIATIONS

Section 1

DEFINITIONS

The following terms have been defined to remove any doubt about the meaning of instructions in the text of the Manual and associated documents. Where a definition in law exists, it is given here.

Suitable interpretations, where they exist, have been selected from national and international documents. Some terms appear in more than one document and sometimes with different meanings.

Terms which have not been annotated are those which have specific meanings within the text and have been defined to avoid ambiguity or misunderstanding. In some cases, they are slight modifications of definitions in other documents.

Note1. The terms which are marked by “” are not ICAO definitions.*

Note2. 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.

A

Accepting unit/controller. Air traffic control unit/air traffic controller next to take control of an aircraft.

Note. See definition of “TRANSFERRING UNIT/CONTROLLER”.

Accident. An occurrence associated with the operation of an aircraft which takes place between the time any person boards the aircraft with the intention of flight until such time as all such persons have disembarked, in which:

- a) a person is fatally or seriously injured as a result of:

being in the aircraft, or

direct contact with any part of the aircraft, including parts which have become detached from the aircraft, or

direct exposure to jet blast, except when the injuries are from natural causes, self-inflicted or inflicted by other persons, or when the injuries are to stowaways hiding outside the areas normally available to the passengers and crew; or

- b) the aircraft sustains damage or structural failure which:

- 1. adversely affects the structural strength, performance or flight characteristics of the aircraft, and

2. would normally require major repair or replacement of the affected component, except for engine failure or damage, when the damage is limited to the engine, its cowlings or accessories; or for damage limited to propellers, wing tips, antennas, tires, brakes, fairings, small dents or puncture holes in the aircraft skin; or
- c) the aircraft is missing or is completely inaccessible.

Note 1. For statistical uniformity only, an injury resulting in death within thirty days of the date of the accident is classified as a fatal injury by ICAO.

Note 2. An aircraft is considered to be missing when the official search has been terminated and the wreckage has not been located.

Note 3. The type of unmanned aircraft system to be investigated is addressed in Annex 13, 5.1.

Note 4. Guidance for the determination of aircraft damage can be found in Annex 13, Attachment E.

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

Advisory route. Means a designated route along which air traffic advisory service is available;

Aerial work. An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, all Helicopter operations, clouds seeding, ambulance, firefighting, etc.

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

Note. The term "aerodrome" where used in the provisions relating to flight plans and ATS messages is intended to cover also sites other than aerodromes which may be used by certain types of aircraft, e.g. helicopters or balloons.

- a) **Aerodrome beacon.** Aeronautical beacon used to indicate the location of an aerodrome from the air.
- b) **Aerodrome control service.** Air traffic control service for aerodrome traffic.
- c) **Aerodrome control tower.** A unit established to provide air traffic control service to aerodrome traffic.
- d) **Aerodrome elevation.** The elevation of the highest point of the landing area.
- e) **Aerodrome flight information service officer (AFISO).** A person properly trained, competent and duly authorized to provide aerodrome flight information service and, if necessary, licensed.

Aerodrome flight information service unit. A unit established to provide flight information service and alerting service for aerodrome traffic at uncontrolled aerodromes.

Aerodrome meteorological office. An office, located at an aerodrome, designated to provide meteorological service for international air navigation.

Aerodrome operating minima. The limits of usability of an aerodrome for:

- a) take-off, expressed in terms of runway visual range and/or visibility and, if necessary, cloud conditions;

- b) landing in precision approach and landing operations, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H) as appropriate to the category of the operation;
- c) landing in approach and landing operations with vertical guidance, expressed in terms of visibility and/or runway visual range and decision altitude/height (DA/H); and
- d) landing in non-precision approach and landing operations, expressed in terms of visibility and/or runway visual range, minimum descent altitude/height (MDA/H) and, if necessary, cloud conditions.

Aerodrome reference point. The designated geographical location of an aerodrome.

Aerodrome traffic. All traffic on the manoeuvring area of an aerodrome and all aircraft flying in the vicinity of an aerodrome.

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

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

Aerodrome traffic density.

Light. Where the number of movements in the mean busy hour is not greater than 15 per runway or typically less than 20 total aerodrome movements.

Medium. Where the number of movements in the mean busy hour is of the order of 16 to 25 per runway or typically between 20 to 35 total aerodrome movements.

Heavy. Where the number of movements in the mean busy hour is of the order of 26 or more per runway or typically more than 35 total aerodrome movements.

Note 1. The number of movements in the mean busy hour is the arithmetic mean over the year of the number of movements in the daily busiest hour.

Note 2. Either a take-off or a landing constitutes a movement.

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

Aeronautical beacon. An aeronautical ground light visible at all azimuths, either continuously or intermittently, to designate a particular point on the surface of the earth.

Aeronautical fixed service (AFS). A telecommunication service between specified fixed points provided primarily for the safety of air navigation and for the regular, efficient and economical operation of air services.

Aeronautical fixed station. A station in the aeronautical fixed service.

Aeronautical Fixed Telecommunication Network (AFTN). A worldwide system of aeronautical fixed circuits provided, as part of the aeronautical fixed service, for the exchange of messages and/or digital data between aeronautical fixed stations having the same or compatible communications characteristics.

Aeronautical fixed telecommunication network communication centre. An AFTN station whose primary function is the relay or retransmission of AFTN traffic from (or to) a number of other AFTN stations connected to it.

Aeronautical ground light. Any light specially provided as an aid to air navigation, other than a light displayed on an aircraft.

Aeronautical Information Circular (AIC). A notice containing information that does not qualify for the origination of a NOTAM or for inclusion in the AIP, but which relates to flight safety, air navigation, technical, administrative or legislative matters.

Aeronautical Information Publication (AIP). A publication issued by or with the authority of a State and containing aeronautical information of a lasting character essential to air navigation.

Aeronautical Information Service (AIS). A service established within the defined area of coverage responsible for the provision of aeronautical information/data necessary for the safety, regularity and efficiency of air navigation.

Aeronautical mobile service. A mobile service between aeronautical stations and aircraft stations, or between aircraft stations, in which survival craft stations may participate; emergency position-indicating radio beacon stations may also participate in this service on designated distress and emergency frequencies.

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

Aeronautical telecommunication station. A station in the aeronautical telecommunication service.

Aeroplane. A power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Aeroplane reference field length. The minimum field length required for take-off at maximum certificated take-off mass, sea level, standard atmospheric conditions, still air and zero runway slope, as shown in the appropriate aeroplane flight manual prescribed by the certificating authority or equivalent data from the aeroplane manufacturer. Field length means balanced field length for aeroplanes, if applicable, or take-off distance in other cases.

AIP Amendment. Permanent changes to the information contained in the AIP.

AIP Supplement. Temporary changes to the information contained in the AIP which are published by means of special pages.

Airborne Collision Avoidance System (ACAS). An aircraft system based on secondary surveillance radar (SSR) transponder signals which operates independently of ground-based equipment to provide advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.

Aircraft. Any machine that can derive support in the atmosphere from the reactions of the air other than the reactions of the air against the earth's surface.

Aircraft address. A unique combination of 24 bits available for assignment to an aircraft for the purpose of air-ground communications, navigation and surveillance.

Aircraft-category. Classification of aircraft according to specified basic characteristics, e.g. aeroplane, helicopter, glider, free balloon.

Aircraft Classification Number (ACN). A number expressing the relative effect of an aircraft on a pavement for a specified standard subgrade category.

Note. The aircraft classification number is calculated with respect to the centre of gravity (CG) position which yields the critical loading on the critical gear. Normally the aft most CG position appropriate to the maximum gross apron (ramp) mass is used to calculate the ACN. In exceptional cases the forward most CG position may result in the nose gear loading being more critical.

Aircraft identification. A group of letters, figures or a combination thereof which is either identical to, or the coded equivalent of, the aircraft call sign to be used in air-ground communications, and which is used to identify the aircraft in ground-ground air traffic services communications.

Aircraft observation. The evaluation of one or more meteorological elements made from an aircraft in flight.

Aircraft proximity. A situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised. An aircraft proximity is classified as follows:

Risk of collision. The risk classification of an aircraft proximity in which serious risk of collision has existed.

Safety not assured. The risk classification of an aircraft proximity in which the safety of the aircraft may have been compromised.

No risk of collision. The risk classification of an aircraft proximity in which no risk of collision has existed.

Risk not determined. The risk classification of an aircraft proximity in which insufficient information was available to determine the risk involved, or inconclusive or conflicting evidence precluded such determination.

Aircraft stand. A designated area on an apron intended to be used for parking an aircraft.

Air-ground communication. Two-way communication between aircraft and stations or locations on the surface of the earth.

AIRMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified En-route weather phenomena which may affect the safety of low-level aircraft operations and which was not already included in the forecast issued for low-level flights in the flight information region concerned or sub-area thereof.

***Air Navigation Service Provider (ANSP).** An organization having applied for a certificate to provide such services.

AIRPROX. The code word used in an air traffic incident report to designate aircraft proximity.

Air-report. A report from an aircraft in flight prepared in conformity with requirements for position, and operational and/or meteorological reporting.

AIRAC. An acronym (aeronautical information regulation and control) signifying a system aimed at advance notification based on common effective dates, of circumstances that necessitate significant changes in operating practices.

Air Defense Identification Zone (ADIZ). Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services (ATS).

Airspace management (ASM). The process by which airspace options are selected and applied to meet the needs of the air traffic management community.

AIS product. Aeronautical information provided in the form of the elements of the Integrated Aeronautical Information Package (except NOTAM and PIB), including aeronautical charts, or in the form of suitable electronic media.

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

Note. The actual height may vary, and some helicopters may require air-taxiing above 25 ft AGL to reduce ground effect turbulence or provide clearance for cargo sling loads.

Air-to-ground communication. One-way communication from aircraft to stations or locations on the surface of the earth.

Air traffic. All aircraft in flight or operating on the manoeuvring area of an aerodrome.

Air traffic advisory service. means a service provided within an airspace of defined dimensions, or a designated route (advisory airspace) to ensure separation, in so far as practical, between aircraft which are operating on instrument flight rules (IFR) flight plans;

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

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

Note 2. The abbreviated term “clearance” may be prefixed by the words “TAXI”, “TAKE-OFF”, “DEPARTURE”, “EN-ROUTE”, “APPROACH” or “LANDING” to indicate the particular portion of flight to which the air traffic control clearance relates.

Air traffic control instruction. Directives issued by air traffic control for the purpose of requiring a pilot to take a specific action.

***Air Traffic Control Officer (ATCO).** ATS personnel who are trained, authorized and certified to provide some or all of the services that comprised Iran air traffic services.

Air traffic control service. A service provided for the purpose of:

- a) preventing collisions:
 - 1. between aircraft, and

on the manoeuvring area between aircraft and obstructions; and

- b) expediting and maintaining an orderly flow of air traffic.

Air Traffic Control Unit (ATCU). A generic term meaning variously, area control centre, approach control unit or aerodrome control tower.

Air Traffic Flow Management (ATFM). A service established with the objective of contributing to a safe, orderly and expeditious flow of air traffic by ensuring that ATC capacity is utilized to the maximum extent possible, and that the traffic volume is compatible with the capacities declared by the appropriate ATS provider.

Air Traffic Management (ATM). The dynamic, integrated management of air traffic and airspace including air traffic services, airspace management and air traffic flow management — safely, economically and efficiently — through the provision of facilities and seamless services in collaboration with all parties and involving airborne and ground-based functions.

Air traffic management system. A system that provides ATM through the collaborative integration of humans, information, technology, facilities and services, supported by air and ground- and/or space-based communications, navigation and surveillance.

Air Traffic Service (ATS). A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

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

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

Air traffic services Reporting Office (ARO). A unit established for the purpose of receiving reports concerning air traffic services and flight plans submitted before departure.

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

Air Traffic Services Unit (ATSU). A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

Airway. A control area or portion thereof established in the form of a corridor.

Airworthy. The status of an aircraft, engine, propeller or part when it conforms to its approved design and is in a condition for safe operation.

ALERFA. The code word used to designate an alert phase.

Alerting post. Any facility intended to serve as an intermediary between a person reporting an emergency and a rescue coordination centre or rescue sub centre.

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

Alert phase. A situation wherein apprehension exists as to the safety of an aircraft and its occupants.

Allocation, allocate. Distribution of frequencies, SSR codes, etc. to a State, unit or service. Distribution of 24-bit aircraft addresses to a State or common mark registering authority.

Alphanumeric characters (alphanumerics). A collective term for letters and figures (digits).

Alternate aerodrome. An aerodrome to which an aircraft may proceed when it becomes either impossible or inadvisable to proceed to or to land at the aerodrome of intended landing. Alternate aerodromes include the following:

Take-off alternate. An alternate aerodrome at which an aircraft can land should this become necessary shortly after take-off and it is not possible to use the aerodrome of departure.

En-route alternate. An aerodrome at which an aircraft would be able to land after experiencing an abnormal or emergency condition while En-route.

Destination alternate. An alternate aerodrome to which an aircraft may proceed should it become either impossible or inadvisable to land at the aerodrome of intended landing.

Note. The aerodrome from which a flight departs may also be an En-route or a destination alternate aerodrome for that flight.

Altitude. The vertical distance of a level, a point or an object considered as a point, measured from mean sea level (MSL).

Air navigation service providers. Means any public or private entity providing air navigation services for general air traffic.

Approach control service. Air traffic control service for arriving or departing controlled flights.

Approach control unit (APP). A unit established to provide air traffic control service to controlled flights arriving at, or departing from, one or more aerodromes.

Approach sequence. The order in which two or more aircraft are cleared to approach to land at the aerodrome.

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

Apron management service. A service provided to regulate the activities and the movement of aircraft and vehicles on an apron.

Area Control Centre (ACC). A unit established to provide air traffic control service to controlled flights in control areas under its jurisdiction.

Area control service. Air traffic control service for controlled flights in control areas.

Area Navigation (RNAV). A method of navigation which permits aircraft operation on any desired flight path within the coverage of ground- or space-based navigation aids or within the limits of the capability of self-contained aids, or a combination of these.

Area navigation route. An ATS route established for the use of aircraft capable of employing area navigation.

ASHTAM. A special series NOTAM notifying by means of a specific format change in activity of a volcano, a volcanic eruption and/or volcanic ash cloud that is of significance to aircraft operations.

Assignment, assign. Distribution of frequencies to stations. Distribution of SSR codes or 24-bit aircraft addresses to aircraft.

ATIS. The symbol used to designate automatic terminal information service.

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

Note 1. The term “ATS ROUTE” is used to mean variously, airway, advisory route, controlled or uncontrolled route, arrival or departure route, etc.

Note 2. An ATS route is defined by route specifications which include an ATS route designator, the track to or from significant points (waypoints), distance between significant points, reporting requirements and, the lowest safe altitude as determined by the ANSP and approved by CAA.IRI.

ATS surveillance service. A term used to indicate a service provided directly by means of an ATS surveillance system.

ATS surveillance system. A generic term meaning variously, ADS-B, PSR, SSR or any comparable ground-based system that enables the identification of aircraft.

Note. A comparable ground-based system is one that has been demonstrated, by comparative assessment or other methodology, to have a level of safety and performance equal to or better than monopulse SSR.

Automatic Dependent Surveillance-Contract agreement. A reporting plan which establishes the conditions of ADS-C data reporting (i.e. data required by the air traffic services unit and frequency of ADS-C reports which have to be agreed to prior to using ADS-C in the provision of air traffic services).

Note. The terms of the agreement will be exchanged between the ground system and the aircraft by means of a contract, or a series of contracts.

Automatic Dependent Surveillance-Broadcast (ADS-B). A means by which aircraft, aerodrome vehicles and other objects can automatically transmit and/or receive data such as identification, position and additional data, as appropriate, in a broadcast mode via a data link.

Automatic Dependent Surveillance-Contract (ADS-C). A means by which the terms of an ADS-C agreement will be exchanged between the ground system and the aircraft, via a data link, specifying under what conditions ADS-C reports would be initiated, and what data would be contained in the reports.

Note. The abbreviated term “ADS CONTRACT” is commonly used to refer to ADS event contract, ADS demand contract, ADS periodic contract or an emergency mode.

Automatic Terminal Information Service (ATIS). The automatic provision of current, routine information to arriving and departing aircraft throughout 24 hours or a specified portion thereof:

Data link-automatic terminal information service (D-ATIS). The provision of ATIS via data link.

Voice-automatic terminal information service (Voice-ATIS). The provision of ATIS by means of continuous and repetitive voice broadcasts.

B

Balked landing. A landing manoeuvre that is unexpectedly discontinued at any point below the obstacle clearance altitude/height (OCA/H).

Base turn. A turn executed by the aircraft during the initial approach between the end of the outbound track and the beginning of the intermediate or final approach track. The tracks are not reciprocal.

Note. Base turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Blind transmission. A transmission from one station to another station in circumstances where two-way communication cannot be established but where it is believed that the called station is able to receive the transmission.

Balloon. A non-power-driven lighter-than-air aircraft.

Note. For the purposes of this Annex, this definition applies to free balloons.

Broadcast. A transmission of information relating to air navigation that is not addressed to a specific station or stations.

C

Calendar. Discrete temporal reference system that provides the basis for defining temporal position to a resolution of one day (ISO 19108).

Caution area: An airspace of defined dimensions within which uncontrolled and manoeuvring aircraft may be encountered, so it is necessary for the pilots “to use caution” when entering such airspace for avoidance of probable danger. Pilots of participating aircraft as well as pilots transiting the area are responsible for collision avoidance and pilots transiting Caution areas should coordinate with ATS units prior entering such areas.

Note. Details are contained in I.R AIP ENR 5-1-0 and 5-1-4.

Ceiling. The height above the ground or water of the base of the lowest layer of cloud below 20000 ft covering more than half the sky.

Changeover point. The point at which an aircraft navigating on an ATS route segment defined by reference to very high frequency omnidirectional radio ranges is expected to transfer its primary navigational reference from the facility behind the aircraft to the next facility ahead of the aircraft.

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

Circling approach. An extension of an instrument approach procedure which provides for visual circling of the aerodrome prior to landing.

Clearance limit. The point to which an aircraft is granted an air traffic control clearance.

Clearway. A defined rectangular area on the ground or water under the control of the appropriate authority, selected or prepared as a suitable area over which an aeroplane may make a portion of its initial climb to a specified height.

Cloud of operational significance. A cloud with the height of cloud base below 5000 ft or below the highest minimum sector altitude, whichever is greater, or a cumulonimbus cloud or a towering cumulus cloud at any height.

Code (SSR). The number assigned to a particular multiple pulse reply signal transmitted by a transponder in Mode A or Mode C.

Common point. A point on the surface of the earth common to the tracks of two aircraft, used as a basis for the application of separation (e.g. significant point, waypoint, navigation aid, fix).

Competency. A combination of skills, knowledge and attitudes required to perform a task to the prescribed standard.

Competency element. An action that constitutes a task that has a triggering event and a terminating event that clearly defines its limits, and an observable outcome.

Computer. A device which performs sequences of arithmetical and logical steps upon data without human intervention.

Note. When the word “COMPUTER” is used in this document it may denote a computer complex, which includes one or more computers and peripheral equipment.

Commercial air transport operation. An aircraft operation involving the transport of passengers, cargo or mail for remuneration or hire.

Conference communications. Communication facilities whereby direct speech conversation may be conducted between three or more locations simultaneously.

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

Controlled aerodrome. An aerodrome at which air traffic control service is provided to aerodrome traffic.

Note. The term “CONTROLLED AERODROME” indicates that air traffic control service is provided to aerodrome traffic but does not necessarily imply that a control zone exists.

Controlled airspace. An airspace of defined dimensions within which air traffic control service is provided in accordance with the airspace classification.

Note. Controlled airspace is a generic term which covers ATS airspace Classes A, B, C, D and E.

Controlled flight. Any flight which is subject to an air traffic control clearance.

Controller-Pilot Data Link Communications (CPDLC). A means of communication between controller and pilot, using data link for ATC communications.

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

***Co-ordination.** The act of negotiation between 2 or more parties each vested with the authority to make executive decisions appropriate to the task being discharged.

***Cross-country.** A special flight between a point of departure and a point of arrival following a pre-planned route using standard navigation procedures.

Cruise climb. An aeroplane cruising technique resulting in a net increase in altitude as the aeroplane mass decreases.

Cruising level. A level maintained during a significant portion of a flight.

Current Flight Plan (CPL). The flight plan, including changes, if any, brought about by subsequent clearances.

Note. When the word “message” is used as a suffix to this term, it denotes the content and format of the current flight plan data sent from one unit to another.

D

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

Note. Details are contained in I.R AIP ENR 5-1-0 and 5-1-3

Dangerous goods. Articles or substances which are capable of posing a risk to health, safety, property or the environment and which are shown in the list of dangerous goods in the Technical Instructions or which are classified according to those Instructions.

Data convention. An agreed set of rules governing the manner or sequence in which a set of data may be combined into a meaningful communication.

Data processing. A systematic sequence of operations performed on data.

Note. Examples of operations are the merging, sorting, computing or any other transformation or rearrangement with the object of extracting or revising information, or of altering the representation of information.

Decision altitude (DA) or decision height (DH). A specified altitude or height in a 3D instrument approach operation at which a missed approach must be initiated if the required visual reference to continue the approach has not been established.

Note 1. Decision altitude (DA) is referenced to mean sea level and decision height (DH) is referenced to the threshold elevation.

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

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

Declared capacity. A measure of the ability of the ATC system or any of its subsystems or operating positions to provide service to aircraft during normal activities. It is expressed as the number of aircraft entering a specified portion of airspace in a given period of time, taking due account of weather, ATC unit configuration, staff and equipment available, and any other factors that may affect the workload of the controller responsible for the airspace.

Declared distances.

Take-off run available (TORA). The length of runway declared available and suitable for the ground run of an aeroplane taking off.

Take-off distance available (TODA). The length of the take-off run available plus the length of the clearway, if provided.

Accelerate-stop distance available (ASDA). The length of the take-off run available plus the length of the stop way, if provided.

Landing distance available (LDA). The length of runway which is declared available and suitable for the ground run of an aeroplane landing.

De-icing/anti-icing facility. A facility where frost, ice or snow is removed (de-icing) from the aeroplane to provide clean surfaces, and/or where clean surfaces of the aeroplane receive protection (anti-icing) against the formation of frost or ice and accumulation of snow or slush for a limited period of time.

Note. Further guidance is given in the Manual of Aircraft Ground De-icing/Anti-icing Operations (Doc 9640).

De-icing/anti-icing pad. An area comprising an inner area for the parking of an aeroplane to receive de-icing/anti-icing treatment and an outer area for the manoeuvring of two or more mobile de-icing/anti-icing equipment.

Dependent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are prescribed.

Detect and avoid. The capability to see, sense or detect conflicting traffic or other hazards and take the appropriate action.

Note. It is important that vigilance for the purpose of detecting potential collisions be exercised on board an aircraft, regardless of the type of flight or the class of airspace in which the aircraft is operating, and while operating on the movement area of an aerodrome.

DETRESFA. The code word used to designate a distress phase.

Discrete code. A four-digit SSR code with the last two digits not being “00”.

Displaced threshold. A threshold not located at the extremity of a runway.

Distress phase. A situation wherein there is reasonable certainty that an aircraft and its occupants are threatened by grave and imminent danger or require immediate assistance.

Ditching. The forced landing of an aircraft on water.

Duplex. A method in which telecommunication between two stations can take place in both directions simultaneously.

E

Elevation. The vertical distance of a point or a level, on or affixed to the surface of the earth, measured from mean sea level.

Ellipsoid height (Geodetic height). The height related to the reference ellipsoid, measured along the ellipsoidal outer normal through the point in question.

Emergency locator transmitter (ELT). A generic term describing equipment which broadcast distinctive signals on designated frequencies and, depending on application, may be automatically activated by impact or be manually activated. An ELT may be any of the following:

Automatic fixed ELT (ELT(AF)). An automatically activated ELT which is permanently attached to an aircraft.

Automatic portable ELT (ELT(AP)). An automatically activated ELT which is rigidly attached to an aircraft but readily removable from the aircraft.

Automatic deployable ELT (ELT(AD)). An ELT which is rigidly attached to an aircraft and which is automatically deployed and activated by impact, and, in some cases, also by hydrostatic sensors. Manual deployment is also provided.

Survival ELT (ELT(S)). An ELT which is removable from an aircraft, stowed so as to facilitate its ready use in an emergency, and manually activated by survivors.

Emergency phase. A generic term meaning, as the case may be, uncertainty phase, alert phase or distress phase.

Estimated Elapsed Time (EET). The estimated time required to proceed from one significant point to another.

Estimated Off-Block Time (EOBT). The estimated time at which the aircraft will commence movement associated with departure.

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

Expected Approach Time (EAT). The time at which ATC expects that an arriving aircraft, following a delay, will leave the holding fix to complete its approach for a landing.

Note. The actual time of leaving the holding fix will depend upon the approach clearance.

E

Filed Flight Plan (FPL). The flight plan as filed with an ATS unit by the pilot or a designated representative, without any subsequent changes.

Note. When the word “MESSAGE” is used as a suffix to this term, it denotes the content and format of the filed flight plan data as transmitted.

Final approach. That part of an instrument approach procedure which commences at the specified final approach fix or point, or where such a fix or point is not specified,

- a) at the end of the last procedure turn, base turn or inbound turn of a racetrack procedure, if specified; or
- b) at the point of interception of the last track specified in the approach procedure; and ends at a point in the vicinity of an aerodrome from which:
 1. a landing can be made; or

a missed approach procedure is initiated.

Flexible use of airspace (FUA). An airspace management concept based on the principle that airspace should not be designated purely as civil or military, but rather as a continuum in which all user requirements are accommodated to the greatest possible extent.

Flight crew member. A licensed crew member charged with duties essential to the operation of an aircraft during a flight duty period.

Flight Information Centre (FIC). A unit established to provide flight information service and alerting service.

Flight Information Region (FIR). An airspace of defined dimensions within which flight information service and alerting service are provided.

Flight Information Service (FIS). A service provided for the purpose of giving advice and information useful for the safe and efficient conduct of flights.

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

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

- a) when set to a QNH altimeter setting, will indicate altitude;
- b) when set to QFE altimeter setting, will indicate height above the QFE reference datum;
- c) when set to a pressure of 1013.2 hPa, may be used to indicate flight levels.

Note 2. The terms “height” and “altitude”, used in Note 1 above, indicate altimetric rather than geometric heights and altitudes.

Flight path monitoring. The use of ATS surveillance systems for the purpose of providing aircraft with information and advice relative to significant deviations from nominal flight path, including deviations from the terms of their air traffic control clearances.

Note. Some applications may require a specific technology, e.g. radar, to support the function of flight path monitoring.

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

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

Flow control. Measures designed to adjust the flow of traffic into a given airspace, along a given route, or bound for a given aerodrome, so as to ensure the most effective utilization of the airspace.

Forecast. A statement of expected meteorological conditions for a specified time or period, and for a specified area or portion of airspace.

G

General air traffic (GAT). All flights which are conducted in accordance with the rules and procedures of ICAO and/or the national civil aviation regulations and legislation.

General aviation operation. An aircraft operation other than a commercial air transport operation or an aerial work operation.

Geodetic datum. A minimum set of parameters required to define location and orientation of the local reference system with respect to the global reference system/frame.

Geoid. The equipotential surface in the gravity field of the Earth which coincides with the undisturbed mean sea level (MSL) extended continuously through the continents.

Glide path. A descent profile determined for vertical guidance during a final approach.

Glider. A non-power-driven heavier-than-air aircraft, deriving its lift in flight chiefly from aerodynamic reactions on surfaces which remain fixed under given conditions of flight.

Gregorian calendar. Calendar in general use; first introduced in 1582 to define a year that more closely approximates the tropical year than the Julian calendar (ISO 19108*).

Note. In the Gregorian calendar, common years have 365 days and leap years 366 days divided into twelve sequential months.

Ground effect. A condition of improved performance (lift) due to the interference of the surface with the airflow pattern of the rotor system when a helicopter or other VTOL aircraft is operating near the ground.

Note. Rotor efficiency is increased by ground effect to a height of about one rotor diameter for most helicopters.

Ground visibility. The visibility at an aerodrome, as reported by an accredited observer or by automatic systems.

Ground-to-air communication. One-way communication from stations or locations on the surface of the earth to aircraft.

Gyroplane. A heavier-than-air aircraft supported in flight by the reactions of the air on one or more rotors which rotate freely on substantially vertical axes.

H

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

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

Helicopter. A heavier-than-air aircraft supported in flight chiefly by the reactions of the air on one or more power driven rotors on substantially vertical axes.

Heliport. An aerodrome or a defined area on a structure intended to be used wholly or in part for the arrival, departure and surface movement of helicopters.

Holding bay. A defined area where aircraft can be held, or bypassed, to facilitate efficient surface movement of aircraft.

Holding fix. A geographical location that serves as a reference for a holding procedure.

***Holding Point.**

- a) A specified location, identified by visual or other means, in the vicinity of which the position of an aircraft in flight is maintained in accordance with air traffic control clearances.
- b) A speech abbreviation used in radiotelephony phraseology having the same meaning as Runway Holding Position.

Holding procedure. A predetermined manoeuvre which keeps an aircraft within a specified airspace while awaiting further clearance.

Holdover time. The estimated time the anti-icing fluid (treatment) will prevent the formation of ice and frost and the accumulation of snow on the protected (treated) surfaces of an aeroplane.

Homing. The procedure of using the direction-finding equipment of one radio station with the emission of another radio station, where at least one of the stations is mobile, and whereby the mobile station proceeds continuously towards the other station.

Hot spot. A location on an aerodrome movement area with a history or potential risk of collision or runway incursion, and where heightened attention by pilots/drivers is necessary.

Human Factors principles. Principles which apply to aeronautical design, certification, training, operations and maintenance and which seek safe interface between the human and other system components by proper consideration to human performance.

Human performance. Human capabilities and limitations which have an impact on the safety and efficiency of aeronautical operations.

I

Identification. The situation which exists when the position indication of a particular aircraft is seen on a situation display and positively identified.

IFR. The symbol used to designate the instrument flight rules.

IFR flight. A flight conducted in accordance with the instrument flight rules.

IMC. The symbol used to designate instrument meteorological conditions.

INCERFA. The code word used to designate an uncertainty phase.

Incident. An occurrence, other than an accident, associated with the operation of an aircraft which affects or could affect the safety of operation.

Note. The type of incidents which are of main interest to the International Civil Aviation Organization for accident prevention studies can be found at Annex 13, Attachment C.

Independent parallel approaches. Simultaneous approaches to parallel or near-parallel instrument runways where radar separation minima between aircraft on adjacent extended runway centre lines are not prescribed.

Independent parallel departures. Simultaneous departures from parallel or near-parallel instrument runways.

Initial approach segment. That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or, where applicable, the final approach fix or point.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

- a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and
- b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note. Lateral and vertical navigation guidance refers to the guidance provided either by:

- a) a ground-based radio navigation aid; or
- b) computer-generated navigation data from ground-based, space-based, self-contained navigation aids or a combination of these.

Instrument Approach Procedure (IAP). A series of predetermined manoeuvres by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or En-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

Note. Non-precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with advisory VNAV guidance calculated by on-board equipment (see CAA.IRI AIR OPS) are considered 3D instrument approach operations. CDFAs with manual calculation of the required rate of descent are considered 2D instrument approach operations. For more information on CDFAs, refer to CAA.IRI AIR OPS.

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, GLS and SBAS cat I) designed for 3D instrument approach operations Type A or B.

Note. Refer to CAA.IRI AIR OPS for instrument approach operation types.

Instrument Meteorological Conditions (IMC). Meteorological conditions expressed in terms of visibility, distance from cloud, and ceiling, less than the minima specified for visual meteorological conditions.

Note1. The specified minima for visual meteorological conditions are contained in SIRA.

Note2. In a control zone, a VFR flight may proceed SVFR under instrument meteorological conditions if and as authorized by air traffic control.

Instrument runway. One of the following types of runways intended for the operation of aircraft using instrument approach procedures:

- a) *Non-precision approach runway.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type A and a visibility not less than 1 000 m.
- b) *Precision approach runway, category I.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) not lower than 60 m (200 ft) and either a visibility not less than 800 m or a runway visual range not less than 550 m.
- c) *Precision approach runway, category II.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 60 m (200 ft) but not lower than 30 m (100 ft) and a runway visual range not less than 300 m.
- d) *Precision approach runway, category III.* A runway served by visual aids and non-visual aid(s) intended for landing operations following an instrument approach operation type B with a decision height (DH) lower than 30 m (100 ft), or no decision height and a runway visual range less than 300 m, or no runway visual range limitations.

Note 1. Visual aids need not necessarily be matched to the scale of non-visual aids provided. The criterion for the selection of visual aids is the conditions in which operations are intended to be conducted.

Note 2. Refer to Annex 6 — Operation of Aircraft for instrument approach operation types.

Intermediate approach – Instrument. That part of an instrument approach procedure between the intermediate approach fix and the final approach fix or point, or between the end of a reversal, racetrack or dead reckoning track procedure and the final approach fix or point, as appropriate.

Note. In radar approaches, no distinction is made between initial and intermediate approach.

Intermediate Fix (IF). A fix that marks the end of an initial segment and the beginning of the intermediate segment. In RNAV applications this fix is normally defined by a fly-by waypoint.

Interpilot air-to-air communication. Two-way communication on the designated air-to-air channel to enable aircraft engaged in flights over remote and oceanic areas out of range of VHF ground stations to exchange necessary operational information and to facilitate the resolution of operational problems.

J

Joint Rescue Coordination Centre (JRCC). A rescue coordination centre responsible for both aeronautical and maritime search and rescue operations.

K

***Known Traffic.** Traffic, the current flight details and intentions of which are known to the ATS personnel concerned through direct communication or co-ordination.

L

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

Landing direction indicator. A device to indicate visually the direction currently designated for landing and for take-off.

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

Location indicator. A four-letter code group formulated in accordance with rules prescribed by ICAO and assigned to the location of an aeronautical fixed station.

Local traffic. Any aircraft, vehicle or personnel on or near the manoeuvring area, or traffic operating in the vicinity of the aerodrome, which may constitute a hazard to the aircraft concerned.

M

Manoeuvring area. That part of an aerodrome to be used for the take-off, landing and taxiing of aircraft, excluding aprons.

Marker. An object displayed above ground level in order to indicate an obstacle or delineate a boundary.

Marking. A symbol or group of symbols displayed on the surface of the movement area in order to convey aeronautical information.

Maximum mass. Maximum certificated take-off mass.

Meteorological authority. The authority providing or arranging for the provision of meteorological service for international air navigation on behalf of a Contracting State.

Meteorological information. Meteorological report, analysis, forecast, and any other statement relating to existing or expected meteorological conditions.

Meteorological office. An office designated to provide meteorological service for international air navigation.

Meteorological report. A statement of observed meteorological conditions related to a specified time and location.

Minimum Descent Altitude (MDA) or Minimum Descent Height (MDH). A specified altitude or height in a non-precision approach or circling approach below which descent must not be made without the required visual reference.

Note 1. Minimum descent altitude (MDA) is referenced to mean sea level and minimum descent height (MDH) is referenced to the aerodrome elevation or to the threshold elevation if that is more than 7 ft below the aerodrome elevation. A minimum descent height for a circling approach is referenced to the aerodrome elevation.

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

Note 3. For convenience when both expressions are used they may be written in the form “minimum descent altitude/height” and abbreviated “MDA/H”.

Minimum En-route Altitude (MEA). The altitude for an En-route segment that provides adequate reception of relevant navigation facilities and ATS communications, complies with the airspace structure and provides the required obstacle clearance.

Minimum fuel. The term used to describe a situation in which an aircraft’s fuel supply has reached a state where the flight is committed to land at a specific aerodrome and no additional delay can be accepted.

Minimum Obstacle Clearance Altitude (MOCA). The minimum altitude for a defined segment that provides the required obstacle clearance.

Minimum sector altitude. The lowest altitude which may be used which will provide a minimum clearance of 1000 ft above all objects located in an area contained within a sector of a circle of 25 NM radius centred on a radio aid to navigation.

Missed Approach Point (MAPT). That point in an instrument approach procedure at or before which the prescribed missed approach procedure must be initiated in order to ensure that the minimum obstacle clearance is not infringed.

Missed approach procedure. The procedure to be followed if the approach cannot be continued.

Mode (SSR). The conventional identifier related to specific functions of the interrogation signals transmitted by an SSR interrogator. There are four modes specified in CAA.IRI ATM/ANS part CNS: A, C, S and inter mode.

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

Multilateration (MLAT) system. A group of equipment configured to provide position derived from the secondary surveillance radar (SSR) transponder signals (replies or squitters) primarily using time difference of arrival (TDOA) techniques. Additional information, including identification, can be extracted from the received signals.

N

Navigation specification. A set of aircraft and flight crew requirements needed to support performance-based navigation operations within a defined airspace. There are two kinds of navigation specifications:

Required navigation performance (RNP) specification. A navigation specification based on area navigation that includes the requirement for performance monitoring and alerting, designated by the prefix RNP, e.g. RNP 4, RNP APCH.

Area navigation (RNAV) specification. A navigation specification based on area navigation that does not include the requirement for performance monitoring and alerting, designated by the prefix RNAV, e.g. RNAV 5, RNAV 1.

Note 1. The Performance-based Navigation (PBN) Manual (Doc 9613), Volume II, contains detailed guidance on navigation specifications.

Note 2. The term RNP, previously defined as “a statement of the navigation performance necessary for operation within a defined airspace”, has been removed from this document as the concept of RNP has been overtaken by the concept of PBN. The term RNP in this Annex is now solely used in the context of navigation specifications that require performance monitoring and alerting, e.g. RNP 4 refers to the aircraft and operating requirements, including a 4 NM lateral performance with on-board performance monitoring and alerting that are detailed in Doc 9613.

Night. The hours between the end of evening civil twilight and the beginning of morning civil twilight.

Note. Civil twilight ends in the evening when the centre of the sun’s disc is 6 degrees below the horizon and begins in the morning when the centre of the sun’s disc is 6 degrees below the horizon.

Non-instrument runway. A runway intended for the operation of aircraft using visual approach procedures.

NOTAM. A notice distributed by means of telecommunication containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations.

O

Obstacle. All fixed (whether temporary or permanent) and mobile objects, or parts thereof, that:

- a) are located on an area intended for the surface movement of aircraft; or
- b) extend above a defined surface intended to protect aircraft in flight; or
- c) stand outside those defined surfaces and that have been assessed as being a hazard to air navigation.

Obstacle Clearance Altitude (OCA) or Obstacle Clearance Height (OCH). The lowest altitude or the lowest height above the elevation of the relevant runway threshold or the aerodrome elevation as applicable, used in establishing compliance with appropriate obstacle clearance criteria.

Note 1. Obstacle clearance altitude is referenced to mean sea level and obstacle clearance height is referenced to the threshold elevation or in the case of non-precision approaches to the aerodrome elevation or the threshold elevation if that is more than 7 ft below the aerodrome elevation. An obstacle clearance height for a circling approach is referenced to the aerodrome elevation.

Note 2. For convenience when both expressions are used they may be written in the form “obstacle clearance altitude/height” and abbreviated “OCA/H”.

***On the Job Training (OJT).** The integration in practice of previously acquired job-related routines and skills under the supervision of a qualified OJTI in a live traffic situation.

On-the-Job Training Instructor (OJTI). The qualified controller (in many organizations previously known as the coach) who has successfully completed Training Program for the OJTI. He will primarily have the responsibility for providing training at an operational working position, but may be called upon to give training during the Pre-OJT phase.

***Operational Air Traffic (OAT).** All flights which do not comply with the provisions stated for GAT and for which rules and procedures have been specified by appropriate national authorities.

Operational control. The exercise of authority over the initiation, continuation, diversion or termination of a flight in the interest of the safety of the aircraft and the regularity and efficiency of the flight.

Operator. A person, organization or enterprise engaged in or offering to engage in an aircraft operation.

P

Pavement classification number (PCN). A number expressing the bearing strength of a pavement for unrestricted operations.

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Note. An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-Based Navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note. Performance requirements are expressed in navigation specification (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Note. An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Pilot-in-command. The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

Position indication. The visual indication, in non-symbolic and/or symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object.

Position symbol. The visual indication in symbolic form, on a situation display, of the position of an aircraft, aerodrome vehicle or other object, obtained after automatic processing of positional data derived from any source.

Precision Approach Radar (PAR). Primary radar equipment used to determine the position of an aircraft during final approach, in terms of lateral and vertical deviations relative to a nominal approach path, and in range relative to touchdown.

Note. Precision approach radars are designated to enable pilots of aircraft to be given guidance by radio communication during the final stages of the approach to land.

Pre-flight information bulletin (PIB). A presentation of current NOTAM information of operational significance, prepared prior to flight.

Pre-OJT. The phase of locally-based training during which extensive use of Simulation, using site-specific facilities, will enhance the development of previously acquired routines and abilities to an exceptionally high level of achievement.

Note. To be most effective, this training should ideally be conducted in the operational environment.

***Pressure-altitude.** An atmospheric pressure expressed in terms of altitude which corresponds to that pressure in the Standard Atmosphere.

Prevailing visibility. The greatest visibility value, observed in accordance with the definition of “visibility”, which is reached within at least half the horizon circle or within at least half of the surface of the aerodrome. These areas could comprise contiguous or non-contiguous sectors.

Note. This value may be assessed by human observation and/or instrumented systems. When instruments are installed, they are used to obtain the best estimate of the prevailing visibility.

Primary radar. A radar system which uses reflected radio signals.

Primary Surveillance Radar (PSR). A surveillance radar system which uses reflected radio signals.

Problematic use of substances. The use of one or more psychoactive substances by aviation personnel in a way that:

- a) constitutes a direct hazard to the user or endangers the lives, health or welfare of others; and/or
- b) causes or worsens an occupational, social, mental or physical problem or disorder.

Procedural control. Term used to indicate that information derived from an ATS surveillance system is not required for the provision of air traffic control service.

Procedural separation. The separation used when providing procedural control.

Procedure turn. A manoeuvre in which a turn is made away from a designated track followed by a turn in the opposite direction to permit the aircraft to intercept and proceed along the reciprocal of the designated track.

Note 1. Procedure turns are designated “left” or “right” according to the direction of the initial turn.

Note 2. Procedure turns may be designated as being made either in level flight or while descending, according to the circumstances of each individual procedure.

Profile. The orthogonal projection of a flight path or portion thereof on the vertical surface containing the nominal track.

Prohibited area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited.

Note. Details are contained in I.R AIP ENR 5-1-0 and 5-1-1.

Psychoactive substances. Alcohol, opioids, cannabinoids, sedatives and hypnotics, cocaine, other psychostimulants, hallucinogens, and volatile solvents, whereas coffee and tobacco are excluded.

PSR blip. The visual indication, in non-symbolic form, on a situation display of the position of an aircraft obtained by primary radar.

R

Racetrack procedure. A procedure designed to enable the aircraft to reduce altitude during the initial approach segment and/or establish the aircraft inbound when the entry into a reversal procedure is not practical.

Radar. A radio detection device which provides information on range, azimuth and/or elevation of objects.

Radar approach. An approach in which the final approach phase is executed under the direction of a controller using radar.

Radar clutter. The visual indication on a situation display of unwanted signals.

Radar contact. The situation which exists when the radar position of a particular aircraft is seen and identified on a situation display.

Radar separation. The separation used when aircraft position information is derived from radar sources.

***Radial.** A magnetic bearing extending from a VOR/VORTAC/TACAN.

Radio bearing. The angle between the apparent direction of a definite source of emission of electro-magnetic waves and a reference direction, as determined at a radio direction finding station. A true radio bearing is

one for which the reference direction is that of true North. A magnetic radio bearing is one for which the reference direction is that of magnetic North.

Radio navigation service. A service providing guidance information or position data for the efficient and safe operation of aircraft supported by one or more radio navigation aids.

Radiotelephony. A form of radio communication primarily intended for the exchange of information in the form of speech.

Rated air traffic controller. An air traffic controller holding a licence and valid ratings appropriate to the privileges to be exercised.

Rating. An authorization entered on or associated with a license and forming part thereof, stating special conditions, privileges or limitations pertaining to such license.

RCP type. A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.

Read-back. A procedure whereby the receiving station repeats a received message or an appropriate part thereof back to the transmitting station so as to obtain confirmation of correct reception.

Receiving unit/controller. Air traffic services unit/air traffic controller to which a message is sent.

Note. See definition of “sending unit/controller”.

***Reduced Vertical Separation Minimum.** Airspace between FL290 and FL410 inclusive designated by CAA.IRI as being airspace within which a vertical separation minimum of 1000 feet or 300 metres shall be applied.

Remote pilot. A person charged by the operator with duties essential to the operation of a remotely piloted aircraft and who manipulates the flight controls, as appropriate, during flight time.

Remote pilot station. The component of the remotely piloted aircraft system containing the equipment used to pilot the remotely piloted aircraft.

Remotely Piloted Aircraft (RPA). An unmanned aircraft which is piloted from a remote pilot station.

Remotely Piloted Aircraft System (RPAS). A remotely piloted aircraft, its associated remote pilot station(s), the required command and control links and any other components as specified in the type design.

Repetitive Flight Plan (RPL). A flight plan related to a series of frequently recurring, regularly operated individual flights with identical basic features, submitted by an operator for retention and repetitive use by ATS units.

Reporting point. A specified geographical location in relation to which the position of an aircraft can be reported.

Required Communication Performance (RCP). A statement of the performance requirements for operational communication in support of specific ATM functions.

Required Navigation Performance (RNP). A statement of the navigation performance necessary for operation within a defined airspace.

Note. Navigation performance and requirements are defined for a particular RNP type and/or application.

Rescue. An operation to retrieve persons in distress, provide for their initial medical or other needs, and deliver them to a place of safety.

Rescue Coordination Centre (RCC). A unit responsible for promoting efficient organization of search and rescue services and for coordinating the conduct of search and rescue operations within a search and rescue region.

Rescue Sub Centre (RSC). A unit subordinate to a rescue coordination centre, established to complement the latter according to particular provisions of the responsible authorities.

Rescue unit. A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue.

Reversal procedure. A procedure designed to enable aircraft to reverse direction during the initial approach segment of an instrument approach procedure. The sequence may include procedure turns or base turns.

Required Surveillance Performance (RSP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

Restricted area. An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions.

Note. Details are contained in I.R AIP ENR 5-1-0 and 5-1-2

RPA observer. A trained and competent person designated by the operator who, by visual observation of the remotely piloted aircraft, assists the remote pilot in the safe conduct of the flight.

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

Runway End Safety Area (RESA). An area symmetrical about the extended runway centre line and adjacent to the end of the strip primarily intended to reduce the risk of damage to an aeroplane undershooting or overrunning the runway.

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

Note. In radiotelephony phraseologies, the expression "holding point" is used to designate the runway-holding position.

Runway incursion. Any occurrence at an aerodrome involving the incorrect presence of an aircraft, vehicle or person on the protected area of a surface designated for the landing and take-off of aircraft.

Runway strip. A defined area including the runway and stop way, if provided, intended:

- a) to reduce the risk of damage to aircraft running off a runway; and
- b) to protect aircraft flying over it during take-off or landing operations.

Runway turn pad. A defined area on a land aerodrome adjacent to a runway for the purpose of completing a 180-degree turn on a runway.

Runway Visual Range (RVR). The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.

S

Safety Management System (SMS). A systematic approach to managing safety, including the necessary organizational structures, accountabilities, policies and procedures.

Safety-sensitive personnel. Persons who might endanger aviation safety if they perform their duties and functions improperly including, but not limited to, crew members, aircraft maintenance personnel and air traffic controllers.

Secondary radar. A radar system wherein a radio signal transmitted from the radar station initiates the transmission of a radio signal from another station.

Secondary Surveillance Radar (SSR). A surveillance radar system which uses transmitters/receivers (interrogators) and transponders.

Segregated parallel operations. Simultaneous operations on parallel or near-parallel instrument runways in which one runway is used exclusively for approaches and the other runway is used exclusively for departures.

Sending unit/controller. Air traffic services unit/air traffic controller transmitting a message.

Note. See definition of "RECEIVING UNIT/CONTROLLER".

Search. An operation normally coordinated by a rescue coordination centre or rescue sub-centre using available personnel and facilities to locate persons in distress.

Search and rescue aircraft. An aircraft provided with specialized equipment suitable for the efficient conduct of search and rescue missions.

Search and rescue facility. Any mobile resource, including designated search and rescue units, used to conduct search and rescue operations.

Search and rescue service. The performance of distress monitoring, communication, coordination and search and rescue functions, initial medical assistance or medical evacuation, through the use of public and private resources, including cooperating aircraft, vessels and other craft and installations.

Search and Rescue Region (SRR). An area of defined dimensions, associated with a rescue coordination centre, within which search and rescue services are provided.

Search and rescue services unit. A generic term meaning, as the case may be, rescue coordination centre, rescue sub Centre or alerting post.

Search and rescue unit. A mobile resource composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations.

Shoreline. A line following the general contour of the shore, except that in cases of inlets or bays less than 30 nautical miles in width, the line shall pass directly across the inlet or bay to intersect the general contour on the opposite side.

Shoulder. An area adjacent to the edge of a pavement so prepared as to provide a transition between the pavement and the adjacent surface.

SIGMET information. Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified En-route weather and other phenomena in the atmosphere that may affect the safety of aircraft operations.

Sign.

- a) Fixed message sign. A sign presenting only one message.
- b) Variable message sign. A sign capable of presenting several predetermined messages or no message, as applicable.

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

Significant point. A specified geographical location used in defining an ATS route or the flight path of an aircraft and for other navigation and ATS purposes.

Note. There are three categories of significant points: ground-based navigation aid, intersection and waypoint. In the context of this definition, intersection is a significant point expressed as radials, bearings and/or distances from ground-based navigation aids.

Simplex. A method in which telecommunication between two stations takes place in one direction at a time.

Situation display. An electronic display depicting the position and movement of aircraft and other information as required.

Slush. Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with as platter; specific gravity: 0.5 up to 0.8.

Note. Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.

Snow (on the ground).

Dry snow. Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35.

Wet snow. Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.

Compacted snow. Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.

SNOWTAM. A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.

Special VFR flight. A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

SSR response. The visual indication, in non-symbolic form, on a situation display, of a response from an SSR transponder in reply to an interrogation.

Standard Instrument Arrival (STAR). A designated instrument flight rule (IFR) arrival route linking a significant point, normally on an ATS route, with a point from which a published instrument approach procedure can be commenced.

Standard Instrument Departure (SID). A designated instrument flight rule (IFR) departure route linking the aerodrome or a specified runway of the aerodrome with a specified significant point, normally on a designated ATS route, at which the En-route phase of a flight commences.

State of Registry. The State on whose register the aircraft is entered.

State of the Operator. The State in which the operator's principal place of business is located or, if there is no such place of business, the operator's permanent residence.

Stepdown Fix. A defined point on the final approach track indicating that a critical obstacle has been safely overflown and descent to the next specified level may be commenced.

Stop and Go Landing. A procedure whereby an aircraft lands, comes to a complete stop on the runway and then commences take-off from that point.

Stopway. A defined rectangular area on the ground at the end of take-off run available prepared as a suitable area in which an aircraft can be stopped in the case of an abandoned take-off.

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

Surveillance radar. Radar equipment used to determine the position of an aircraft in range and azimuth.

T

Target level of safety (TLS). A generic term representing the level of risk which is considered acceptable in particular circumstances.

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

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

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

Temporary Reserved Area (TRA). Is a defined volume of airspace normally under the jurisdiction of one aviation authority and temporarily reserved, by common agreement, for the specific use by another aviation authority and through which other traffic may be allowed to transit, under ATC clearance. In the context of the FUA Concept, all TRAs are airspace reservations subject to management and allocation at ASM Level 2.

Terminal control area (TMA). A control area normally established at the confluence of ATS routes in the vicinity of one or more major aerodromes.

Terrain. The surface of the Earth containing naturally occurring features such as mountains, hills, ridges, valleys, bodies of water, permanent ice and snow, and excluding obstacles.

Note. In practical terms, depending on the method of data collection used, terrain represents the continuous surface that exists at the bare Earth, the top of the canopy or something in-between, also known as “first reflective surface”.

Threshold (THR). The beginning of that portion of the runway usable for landing.

Threat. Events or errors that occur beyond the influence of an operational person, increase operational complexity and must be managed to maintain the margin of safety.

Time difference of arrival (TDOA). The difference in relative time that a transponder signal from the same aircraft (or ground vehicle) is received at different receivers.

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

Touchdown. The point where the nominal glide path intercepts the runway.

Note. “TOUCHDOWN” as defined above is only a datum and is not necessarily the actual point at which the aircraft will touch the runway.

Touchdown zone. The portion of a runway, beyond the threshold, where it is intended landing aeroplanes first contact the runway.

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

Traffic avoidance advice. Advice provided by an air traffic services unit specifying manoeuvres to assist a pilot to avoid a collision.

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

Transfer of control point. A defined point located along the flight path of an aircraft, at which the responsibility for providing air traffic control service to the aircraft is transferred from one control unit or control position to the next.

Transferring unit/controller. Air traffic control unit/air traffic controller in the process of transferring the responsibility for providing air traffic control service to an aircraft to the next air traffic control unit/air traffic controller along the route of flight.

Note. See definition of “ACCEPTING UNIT/CONTROLLER”.

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

Transition layer. The airspace between the transition altitude and the transition level.

Transition level. The lowest flight level available for use above the transition altitude.

***Transponder.** A receiver/transmitter which will generate a reply signal upon interrogation.

Tropical cyclone. Generic term for a non-frontal synoptic-scale cyclone originating over tropical or sub-tropical waters with organized convection and definite cyclonic surface wind circulation.

U

Uncertainty phase. A situation wherein uncertainty exists as to the safety of an aircraft and its occupants.

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

***Unknown Traffic.** Traffic, the flight details and intentions of which are not known to the ATS unit.

Unmanned free balloon. A non-power-driven, unmanned, lighter-than-air aircraft in free flight.

Note. Unmanned free balloons are classified as heavy, medium or light in accordance with specifications contained in SIRA Appendix 2.

V

Vectoring. Provision of navigational guidance to aircraft in the form of specific headings, based on the use of an ATS surveillance system.

VFR. The symbol used to designate the visual flight rules.

VFR flight. A flight conducted in accordance with the visual flight rules.

Visibility. Visibility for aeronautical purposes is the greater of:

- a) the greatest distance at which a black object of suitable dimensions, situated near the ground, can be seen and recognized when observed against a bright background;
- b) the greatest distance at which lights in the vicinity of 1 000 candelas can be seen and identified against an unlit background.

Note 1. The two distances have different values in air of a given extinction coefficient, and the latter b) varies with the background illumination. The former a) is represented by the meteorological optical range (MOR).

Note 2. The definition applies to the observations of visibility in local routine and special reports, to the observations of prevailing and minimum visibility reported in METAR and SPECI and to the observations of ground visibility.

Visual approach. An approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

Visual Approach (Circling). The visual phase of flight, after completing an instrument approach, to bring the aircraft into position for landing on a runway which is not suitably located for straight-in approach.

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

Note. The specified minima are contained in Chapter 9.

VMC. The symbol used to designate visual meteorological conditions.

W

Waypoint. A specified geographical location used to define an area navigation route or the flight path of an aircraft employing area navigation. Waypoints are identified as either:

Fly-by waypoint. A waypoint which requires turn anticipation to allow tangential interception of the next segment of a route or procedure, or

Flyover waypoint. A waypoint at which a turn is initiated in order to join the next segment of a route or procedure.

Section 2

ABBREVIATIONS

		ALS	Approach Lighting System
		ALT	Altitude
ACARS	Aircraft communication addressing and reporting system (<i>to be pronounced "AY-CARS"</i>)	AltMoC	Alternative Means of Compliance
ACAS	Airborne Collision Avoidance System	ALTN	Alternate aerodrome
ACC	Area Control Centre	AMSL	Above Mean Sea Level
ACFT	Aircraft	ANC	Air Navigation Commission
ACN	Aircraft Classification Number	AOM	Aerodrome Operating Minima
AD	Aerodrome	AOR	Area of responsibility
ADF	Automatic Direction Finding	AP	Airport
ADIZ	Air Defense Identification Zone	APCH	Approach
ADOC	Air Defense Operations Center	APP	Approach control office
ADS	Automatic Dependent Surveillance	ARO	Air traffic services reporting office
AFIS	Aerodrome Flight Information Service	ARP	Aerodrome Reference Point
AFISO	Aerodrome flight information service Officer	ARR	Arrival
AFTN	Aeronautical Fixed Telecommunication Network	ASDA	Accelerate Stop Distance Available
AGL	Above Ground Level	ATC	Air Traffic Control
AIC	Aeronautical Information Circular	ATCSMAC	Air traffic control surveillance minimum altitude chart (<i>followed by name/title</i>)
AIDC	Air traffic services Inter-facility Communication	ATD	Actual Time of Departure
AIP	Aeronautical Information Publication	ATFM	Air Traffic Flow Management
AIRAC	Aeronautical Information Regulation And Control	ATIS	Automatic Terminal Information Service
AIREP	Air-report	ATM	Air Traffic Management
AIR OPS	AIR OPERATIONS	ATM/ANS	Air Traffic Management/Air Navigation systems
AIRPROX	Aircraft proximity	ATN	Aeronautical Telecommunication Network
AIS	Aeronautical Information Service	ATZ	Aerodrome Traffic Zone
ALERFA	Alert phase	AWY	Airway
ALRS	Alerting service	BA	Braking Action

BKN	Broken	DME	Distance Measuring Equipment
C	Caution area/ Centre /degrees Celsius (Centigrade)	DOF	Date of Flight
CAA.IRI	Civil Aviation Authority of Islamic Republic of Iran	DP	Dew Point temperature
CAT	Category / Clear Air Turbulence	DVOR	Doppler VOR
CAD	Civil Aviation Directive	E	East/Eastern longitude
CAVOK	Visibility , cloud and present weather better than prescribed value or conditions	EAT	Expected Approach Time
CB	Cumulonimbus	EET	Estimated Elapsed Time
CBR	California Bearing Ratio	ELEV	Elevation
CFIT	Control Flight Into Terrain	ELT	Emergency Locator Transmitter
CH	Channel	EMERG	Emergency
CLD	Cloud	ENR	En-route
CLR	Cleared	EOBT	Estimated Off-Block Time
CLSD	Closed	ETA	Estimated Time of Arrival
CM	Centimeter	ETB	Estimated Time of Boundary
CNL	Cancel / Canceled	ETD	Estimated Time of Departure
CNS	Communication, Navigation and Surveillance	ETO	Estimated Time Over significant point
COM	Communications	F	Fix/Fixed
COP	Change-Over-Point Co-ordination point	FAF	Final Approach Fix
CP	command post	FAP	Final Approach Point
CPDLC	Controller Pilot Data Link Communication	FATO	Final Approach and Take-Off area
CPL	Current flight plan	FAX	Facsimile transmitter
CTA	Control Area	FBL	Light (use to indicate intensive of WX phenomena e.g. FBL RA= light rain)
CTR	Control zone	FCST	Forecast
CWY	Clearway	FDP	Flight Data Processing
D	Danger area	FDR	Flight Data Recorder
DA	Decision Altitude	FIC	Flight Information Centre
DCT	Direct	FIR	Flight Information Region
DEG	Degrees	FIS	Flight Information Service
DEP	Departure	FL	Flight Level
DES	Descend to/ descending to/destination	FLT	Flight
DETERSFA	Distress phase	FLTCK	Flight Check
DF	Direction Finding	FMS	Flight Management System
DH	Decision Height	FPL	Filed Flight plan
DIV	Divert/Diversion	FREQ	Frequency
DLA	Delay	FT	Feet
		FUA	Flexible use of airspace

G/A	Ground- to- Air	KM	Kilometers
G/A/G	Ground-to- Air & Air-to-Ground	KT	Knot
GBAS	Ground based augmentation system	L	Left
GEN	General	LAT	Latitude
GND	Ground	LATCI	Local Air Traffic Control Instruction
GNSS	Global Navigation Satellite System	LCA	Local or locally or location or located
GP	Glide Path	LDA	Landing Distance Available
GPS	Global positioning System	LDG	Landing
GLS	GBAS landing system	LGT	Light
GS	Ground Speed	LOC	Localizer or Letter of Coordination
H24	Continuous day and night service	LOA	Letter Of Agreement
HDG	Heading	LONG	Longitude
HEL	Helicopter	LORAN	Long Range Air Navigation system
HF	High Frequency	M	Mach number / Meter
HJ	Sunrise to sunset	MAG	Magnetic
HN	Sunset to sunrise	MAP	Aeronautical Maps and charts
HOSP	Hospital aircraft	MAPT	Missed App Point
hPa	Hectopascal	MATS	Manual of Air Traffic Services
HVY	Heavy	MAX	Maximum
HZ	Haze	MDA	Minimum Descend Altitude
I.R. of IRAN	Islamic Republic of Iran	MDH	Minimum Descend Height
IAF	Initial Approach Fix	MEA	Minimum En-route Altitude
IAS	Indicated Air Speed	MET	Meteorological / Meteorologically
ICAO	International Civil Aviation Organization	METAR	Aviation routine weather report
IDENT	Identification	MHz	Megahertz
IF	Intermediate Fix	MID	Middle east/Midpoint of RVR
IFPS	Integrated flight plan system	MIL	Military
IFR	Instrument Flight Rules	MIN	Minutes
ILS	Instrument Landing System	MLS	Microwave Landing System
IMC	Instrument Meteorological Condition	MNM	Minimum
IMO	International Maritime Organization	MN/m3	Meganewton per cubic meter
INCERFA	Uncertainty phase	MNPS	Minimum Navigation Performance Specification
INTL	International	MNT	Mach Number Technique
ISA	International Standard Atmosphere	MPa	Megapascal
KG	Kilogram	MOC	Minimum Obstacle Clearance
KHZ	Kilohertz	MOCA	Minimum Obstacle Clearance Altitude

MSA	Minimum Sector Altitude	REC	Receive / Receiver
MSAW	Minimum Sector Altitude Warning	REF	Reference to.../ Refer to...
MSL	Mean Sea Level	REG	Registration
MTSAT	Multifunctional transport satellite	REP	Report / Reporting point
N	North/ Northern latitude	REQ	Request / Requested
NAV	Navigation	RESA	Runway End Safety Area
NDB	Non-Directional Beacon	RLCE	Request Level Change En-route
NGT	Night	RNAV	Area Navigation
NIL	None	RNP	Required Navigation Performance
NM	Nautical Mile	ROC	Rate Of Climb
NOF	International NOTAM Office	ROD	Rate Of Descend
NOTAM	Notice to Airman	RPL	Repetitive Flight plan
OM	Operation Manual	RPS	Radar Positioning System
O/R	On Request	RTF	Radio Telephony
OBS	Observe/ observed/ observation	RVR	Runway Visual Range
OBST	Obstacle	RVSM	Reduced Vertical Separation Minima
OCA	Obstacle Clearance Altitude	RWY	Runway
OCH	Obstacle Clearance Height	S	South / Southern latitude
OPR	Operator/ Operating/ Operational	SAR	Search And Rescue
OVC	Overcast	SARPS	Standard And Recommended Practices
P	Prohibited area	SARSAT	Search And Rescue Satellite Aided Tracking
PANS	Procedures for Air Navigation Services	SATCOM	Satellite Communication
PAPI	Precision Approach Path Indicator	SATVOICE	Satellite voice communication
PAR	Precision Approach Radar	SBAS	Satellite-based augmentation system
PCN	Pavement Classification Number	SCT	Scattered
PERM	Permanent	SEC	Second
POB	Persons On Board	SECT	Sector
PSN	Position	SELCAL	Selecting Calling System
PSR	Primary Surveillance Radar	SEP	Separation
R	Restricted area/ Right	SEV	Severe
RA	Resolution Advisory	SFC	Surface
RCAG	Remote Communication Air-Ground	SHORAN	Short Range Air Navigation
RCC	Rescue Co-ordination Centre	SID	Standard Instrument Departure
RCF	Radio Communication Failure	SKC	Sky Clear
RDH	Reference Datum Height	SMC	Surface Movement Control
RDL	Radial	SMR	Surface Movement Radar
RDP	Radar Data Processing		

SNOWTAM	A special series NOTAM given in a standard format providing a surface condition report notifying the presence or cessation of hazardous conditions due to snow, ice, slush, frost, standing water or water associated with snow, slush, ice or frost on the movement area.	TIBA	Traffic Information Broadcast by Aircraft
		TL	Transition Level
		TMA	Terminal control area
		TODA	Take-Off Distance Available
		TORA	Take-Off Run Available
SPL	Supplementary flight plan	TOS	Traffic Orientation Scheme
SPECI	Aerodrome special meteorological report (<i>in meteorological code</i>)	TR	Track / Technical Requirement
SQK	Squawk code	TRANS	Transmits/Transmitter
SR	Sunrise	TWR	Aerodrome control tower/ Aerodrome control
SRA	Surveillance Radar Approach	TWY	Taxiway
SRR	Search and Rescue Region	TYP	Type of aircraft
SRY	Secondary	U/S	Unserviceable
SS	Sunset / Sandstorm	UDF	UHF Direction Finding station
SSB	Single Side Band	UFN	Until Further Notice
SSR	Secondary Surveillance Radar	UHF	Ultra High Frequency (300 to 3000 MHz)
STA	Straight-in Approach	UNL	Unlimited
STCA	Short-Term Conflict Alert	UTC	Co-ordinated Universal Time
STAR	Standard Terminal Arrival Route	VAR	Magnetic Variation
STS	status	VASIS	Visual Approach Slope Indicator System
SUP	Supplementary (AIP supplement)	Vat	Velocity at threshold
SVFR	Special VFR	VFR	Visual Flight Rules
SWY	Stopway	VHF	Very High Frequency (30 to 300 MHz)
T	Temperature	VIP	Very Important Person
TA	Transition Altitude / Traffic advisory	VIS	Visibility
TACAN	Tactical Air Navigation aid	VLF	Very Low Frequency (3 to 30 MHz)
TAF	Aerodrome forecast	VMC	Visual Meteorological Condition
TAFOR	Terminal Area Forecast	VOR	VHF omnidirectional radio range
TAS	True Air Speed	VORTAC	VOR and TACAN combination
TCAS	Traffic Collision Avoidance System	VRB	Variable
TCU	Towering Cumulus	VSAT	Very Small Aperture Terminal
TDZ	Touchdown Zone	VSP	Vertical speed
TEET	Total Estimated Elapsed Time	VTOL	Vertical Take-Off and Landing
TEL	Telephone	W	West/ western longitude
TEMPO	Temporary/ Temporarily	WDI	Wind Direction Indicator
TFC	Traffic	WEF	With Effect from or Effective from
TGL	Touch and Go Landing		
THR	Threshold		

WGS-84	World Geodetic Reference System 1984	WT	Weight
WID	Width	WX	Weather
WILCO	Will Comply	Z	Zulu time / Co-ordination universal time
WIP	Work In Progress		
WPT	Way-point		
WS	Wind Shear		

Chapter 3 . GENERAL PRINCIPLES

Section 1

GENERAL

3.1.1 AIR TRAFFIC SERVICES

In this document an Air Traffic Service is a generic term means variously:

- a) Air Traffic Control Service;
- b) Flight Information Service;
- c) Alerting Service.

3.1.2 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 organizations regarding aircraft in need of search and rescue aid, and assist such organizations as required.

3.1.3 FAILURE OR IRREGULARITY OF SYSTEMS AND EQUIPMENT

ATS units shall immediately report in accordance with local instructions any failure or irregularity of communication, navigation and surveillance systems or any other safety-significant systems or equipment which could adversely affect the safety or efficiency of flight operations and/or the provision of air traffic control service.

3.1.4 DIVISIONS OF THE AIR TRAFFIC SERVICES

3.1.4.1 AIR TRAFFIC CONTROL SERVICE

3.1.4.1.1 An ATC service is provided according to the particular circumstances and class of airspace, for the purpose of:

- a) preventing collisions:
 - 1. between aircraft, and
 - 2. on the manoeuvring area between aircraft and obstructions; and
- b) expediting and maintaining an orderly flow of air traffic.

3.1.4.1.2 The ATC system may be used for the provision of some additional services related to the safe operation of flights, only if factors such as traffic volume, frequency congestion, radar data quality and controllers' workload permit such a provision without adversely affecting higher priority duties. The pure physical inability to scan and detect those situations may also preclude such a provision. Safety shall always be the first priority in the provision of ATS and it shall never be treated negligently for the sake of expediting the flow of traffic.

3.1.4.1.3 A deviation from the procedures and minima in this manual may be necessary to assist an aircraft when an emergency has been declared.

3.1.4.2 FLIGHT INFORMATION SERVICE

FIS is a service provided for the purposes of supplying advice and information useful for the safe and efficient conduct of flight, together with pertinent information about:

- a) traffic information
- b) weather;
- c) changes to serviceability of facilities;
- d) conditions at aerodromes;
- e) any other information likely to affect safety.

3.1.4.3 ALERTING SERVICE

An Alerting Service is provided to notify appropriate organizations regarding aircraft in need of SAR aid and assist such organizations as required.

3.1.5 PROCEDURE AND SERVICE PREFERENCES

3.1.5.1 Automation procedures should be used in preference to non-automation procedures when workload, communications, and equipment capabilities permit.

3.1.5.2 Radar separation should be applied in preference to non-radar separation when it will be to an operational advantage and also workload, communications, and equipment permit.

3.1.5.3 Non-radar separation should be applied in preference to radar separation when the situation dictates that an operational advantage will be gained.

Note. One situation may be where vertical separation would preclude excessive vectoring.

3.1.6 OPERATIONAL PRIORITY

Note 1. Safety shall not be compromised in order to meet traffic priority.

Note 2. For departing and arriving traffic see Para 6.7.5.3 and Para 7.6.1.1.

3.1.6.1 Normally ATCO provides service to aircraft on a “FIRST COME, FIRST SERVED” basis as circumstances permit.

3.1.6.2 Arriving aircraft normally have priority over departing aircraft.

3.1.6.3 IFR flights must have priority over SVFR flights.

3.1.6.4 The approach sequence shall be established in a manner, which will facilitate arrival of the maximum number of aircraft with the least average delay.

3.1.6.5 Departures shall normally be cleared in the order in which they are ready for take-off, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay.

3.1.7 EXPEDITIOUS COMPLIANCE

3.1.7.1 If an ATS unit wishes to indicate that the instruction or clearance must be complied with at once, the controller's message will include the word 'NOW' or 'IMMEDIATELY'. Use of the word 'NOW' indicates that the instruction should be complied in accordance with normal aircraft operating procedures, but without delay. Use of the word 'IMMEDIATELY' indicates a further degree of urgency exists (e.g. to avoid flight into terrain or restricted airspace, or for the provision of collision avoidance).

Example 1:

IRA123 DESCENT NOW

Example 2:

TURN LEFT IMMEDIATELY HEADING 110

3.1.7.2 Use the word “EXPEDITE” only when prompt compliance is required to avoid the development of an imminent situation. Expedite climb/descent normally indicates to the pilot that the approximate best rate of climb/descent should be used without requiring an exceptional change in aircraft handling characteristic. If an “EXPEDITE” climb or descent clearance is issued by ATC, and subsequently the altitude to maintain is changed or restated without an expedite instruction, the expedite instruction is canceled.

Note 1. Instruction to an aircraft to expedite climb or descent is not an indication of exertion of the maximum rate, but the best rate as deemed appropriate by the flight crew concerned.

Note 2. “EXPEDITE” is not to be used in lieu of appropriate restrictions to ensure separation.

Example:

Occasionally, for traffic reasons, a higher than normal rate-of-climb or descent may be required.

IRA123 EXPEDITE DESCENT TO FL80

EXPEDITING DESCENT TO FL80 IRA123

3.1.7.3 In either case, if time permits, ATCO should include the reason for this action.

3.1.8 TRANSFER OF CONTROL

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.

3.1.8.1 Transfer of control of an aircraft shall be effected in accordance with the following conditions:

- a) at a prescribed or coordinated location, time, fix, or level; or,
- b) at the time a radar hand over and frequency change to the receiving controller have been completed and when authorized by the coordination procedure(s).

3.1.8.2 Transfer of control of an aircraft should be effected after eliminating any potential conflict with other aircraft for which ATCO has separation responsibility unless with prior coordination with the relevant ATCO according to the coordination procedures.

3.1.8.3 ATCO shall assume control of an aircraft only after it is in his area of responsibility unless specifically coordinated or as specified by coordination procedure.

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

3.1.9 TRANSFER OF COMMUNICATIONS

3.1.9.1 If transfer of communication is used to transfer an aircraft to an accepting ATC unit, responsibility for control shall not be assumed until the time of crossing the control area boundary or other transfer of control point specified in designated coordination procedures unless otherwise agreed by prior coordination between two units/controllers.

3.1.9.2 The transfer of control and communication should normally take place simultaneously at the AoR-boundary, unless otherwise agreed by prior coordination procedure between two units/controllers.

Note. The accepting ATS unit shall not notify the transferring ATS unit that it has established ground-air communications with the transferred aircraft unless specifically requested to do so. The accepting ATS unit shall notify the transferring ATS unit in the event that communication with the aircraft has not been established as expected.

Phraseology:

CONTACT (unit call sign) (frequency) [NOW];

AT (or OVER) (time or place) [or WHEN] [PASSING/LEAVING/REACHING (level)] CONTACT (unit call sign) (frequency);

IF NO CONTACT (instructions);

STAND BY FOR (unit call sign) (frequency);

FREQUENCY CHANGE APPROVED;

MONITOR (unit call sign) (frequency);

WHEN READY CONTACT (unit call sign) (frequency);

REMAIN THIS FREQUENCY.

Note. An aircraft may be requested to "STAND BY" on a frequency when it is intended that the ATS unit will initiate communications soon and to "MONITOR" a frequency when information is being broadcast thereon.

3.1.9.3 In situations where an operational advantage will be gained, and following coordination with the accepting controller, transferring unit may instruct aircraft to monitor the accepting unit frequency.

Example:

MONITOR TOWER 118.100.

3.1.9.4 In situations where a sector has multiple frequencies or when sectors are combined using multiple frequencies and the aircraft will remain under the same AoR, transfer communication by specifying the following:

Phraseology:

(Identification) CHANGE TO MY FREQUENCY (state frequency).

Example:

IRA254 CHANGE TO MY FREQUENCY 119.300.

3.1.9.5 ATCO should avoid issuing a frequency change to helicopters known to be single-piloted during air-taxiing, hovering, or low-level flight. Whenever possible, relay necessary control instructions until the pilot is able to change frequency.

Note. Most light helicopters are flown by one pilot and require the constant use of both hands and feet to maintain control. Although Flight Control Friction Devices assist the pilot, changing frequency near the ground could result in inadvertent ground contact and consequent loss of control. Pilots are expected to advise ATC of their single-pilot status if unable to comply with a frequency change.

3.1.9.6 In situations where the controller does not want the pilot to change frequency but the pilot is expecting or may want a frequency change, use the following phraseology.

Phraseology:

REMAIN THIS FREQUENCY.

3.1.10 CONTROL POSITION HAND OVER & TAKE OVER PROCEDURES

3.1.10.1 The transfer of position responsibility must be accomplished in accordance with the “Hand over & Take over procedure”. This procedure shall be developed by the air traffic services provider and approved by CAA.IRI.

3.1.11 WAKE TURBULENCE

3.1.11.1 The purpose of the material contained herein is to provide air traffic controllers with a thorough understanding of situations where hazardous wake turbulence may exist and to recommend appropriate separation minima for use when wake turbulence is likely to exist. The material is intended to serve as a link between the wake turbulence categorization of aircraft and increased longitudinal separation minima. Wake vortices are present behind every aircraft, but are particularly severe when generated by a large and wide-bodied jet aircraft. These vortices are two counter-rotating cylindrical air masses trailing aft from the aircraft. The vortices are most dangerous to aircraft during the take-off, initial climb, final approach and landing phases of flight. Wake turbulence separation minima shall be based on a grouping of aircraft types into four categories according to the maximum certificated take-off mass as follows:

- a) SUPER (J) — aircraft types specified as such in Doc 8643, *Aircraft Type Designators*;
- b) HEAVY (H) — aircraft types of 136 000 kg or more, with the exception of aircraft types listed in Doc 8643 in the SUPER (J) category;
- c) MEDIUM (M) — aircraft types less than 136 000 kg but more than 7 000 kg; and
- d) LIGHT (L) — aircraft types of 7 000 kg or less.

Note. The wake turbulence category for each aircraft type is contained in Doc 8643, Aircraft Type Designators.

Note 1.— Guidance on the implementation of wake turbulence separation between wake turbulence groups can be found in the Manual on Implementation of Wake Turbulence Separation Minima (Doc 10122).

Manufacturer	Model	Type Designator	Description	Engine Type	Engine Count	WTC
AIRBUS	A-380-800 Prestige	A388	LandPlane	Jet	4	J
AIRBUS	Prestige (A-380-800)	A388	LandPlane	Jet	4	J
AIRBUS	A-380-800	A388	LandPlane	Jet	4	J

Latest version of SUPER Category in Doc 8643. Last Updated: 04 November 2021

3.1.11.2 Helicopters should be kept well clear of light aircraft when hovering or while air taxiing.

Note 1. Helicopters produce vortices when in flight and there is some evidence that, per kilogram of gross mass, their vortices are more intense than those of fixed-wing aircraft. When hovering in ground effect or air taxiing, helicopters generate downwash producing high velocity outwash vortices to a distance approximately three times the diameter of the rotor.

Note 2. The provisions governing wake turbulence separation minima are set forth in Chapter 5, Section 5.4.10, and Chapter 8, Section 8.2.13.

3.1.11.3 Application of minima

Because wake turbulence is invisible, its presence and location cannot be determined with precision. Controllers, therefore, as well as pilots, should thoroughly understand the likely situations where hazardous wake turbulence may be encountered. Wake turbulence separation minima should be applied for any situation not covered by other specified minima whenever a controller believes there is a potential hazard due to wake turbulence.

3.1.11.4 Effects on aircraft

- a) the three basic effects of wake turbulence on a following aircraft are:
 - 1. induced roll;
 - 2. loss of height or rate of climb; and
 - 3. possible structural stress.
- b) the greatest danger is the roll induced on the penetrating aircraft to the degree that it exceeds the counter control capability of the aircraft concerned. Should the wake turbulence encounter occur in the approach area, its effect is greater because the following aircraft is in a critical state with regard to speed, thrust, altitude and reaction time.

3.1.11.5 Wake turbulence characteristics

- a) wake vortices generated by an aircraft in flight are related to the aircraft gross mass, airspeed, configuration and wing span. Vortex characteristics are altered and eventually dominated by interactions between the vortices and the ambient atmosphere. The wind, wind shear, turbulence and atmospheric stability affect the motion and decay of a vortex system. The proximity of the ground significantly affects vortex movement and decay.
- b) vortex generation begins on rotation when the nose wheel lifts off the runway and ends when the nose wheel touches down on landing. Vortex strength increases proportionally to weight and is greatest when the generating aircraft is “HEAVY” or “SUPER”, in a clean configuration, and is flying slowly.
- c) helicopters produce vortices when in flight and there is some evidence that, per kilogram of gross mass, their vortices are more intense than those of fixed-wing aircraft. When hovering or while hover-taxiing helicopters should be kept well clear of light aircraft.

3.1.11.6 Indication of heavy wake turbulence category

For aircraft in the SUPER or HEAVY wake turbulence categories, the word “super” or “heavy” shall be included, as appropriate, immediately after the aircraft call sign in the initial radiotelephony contact between such aircraft and ATS.

3.1.12 PROCEDURES IN REGARD TO AIRCRAFT EQUIPPED WITH ACAS

Note. see also SIRA.11014

3.1.12.1 The procedures to be applied for the provision of air traffic services to aircraft equipped with ACAS shall be identical to those applicable to non-ACAS equipped aircraft. In particular, the prevention of collisions, the establishment of appropriate separation and the information, which might be provided in relation to conflicting traffic and to possible avoiding action, shall conform with the normal ATS procedures and shall exclude consideration of aircraft capabilities dependent on ACAS equipment.

3.1.12.2 When a pilot reports an ACAS resolution advisory (RA), the controller shall not attempt to modify the aircraft flight path until the pilot reports “CLEAR OF CONFLICT”.

3.1.12.3 Once an aircraft departs from its ATC clearance or instruction in compliance with an RA, or a pilot reports an RA, the controller ceases to be responsible for providing separation between that aircraft and any other aircraft affected as a direct consequence of the manoeuvre induced by the RA. The controller shall resume responsibility for providing separation for all the affected aircraft when:

- a) the controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or
- b) the controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.

3.1.12.4 Following a significant ACAS event, pilots and controllers should complete an air traffic incident report.

Note 1. Parties involved in aeronautical radiotelephony communication shall avoid arguing on operational frequency channels, regardless of the circumstances. Specifically, in case of generation of RAs or any fault or negligence that the pilot may have committed, the compliance with this provision shall be taken into consideration.

Note 2. Nothing in the procedures specified above shall prevent pilots-in-command from exercising their best judgment and full authority in the choice of the best course of action to resolve a traffic conflict or avert a potential collision.

3.1.12.5 Warnings for aircraft equipped with TCAS II are given in two steps:

- a) Traffic Advisory (TA) warning.

According to doc8168, vol1, Chapter 3, Para 3.2, controller expect, pilots shall not manoeuvre their aircraft in response to traffic advisories (TAs) alone;

Note. TAs are intended to alert pilots to the possibility of a resolution advisory (RA), to enhance situational awareness, and to assist in visual acquisition of conflicting traffic.

- b) Resolution Advisory (RA) warning.

3.1.13 RVSM OPERATIONS

In addition to the procedures of RVSM specified in 2.31 of Operations Manual (OM) of Tehran ACC, the following shall be complied with by airport ATS units. The vertical separation minimum to be applied between non-RVSM approved aircraft as well as those aircraft and all other aircraft, within RVSM airspace, shall be 2000 feet.

3.1.13.1 Flight Planning Requirements

3.1.13.1.1 It is essential that ATS units be aware of which aircraft operating or intending to operate within RVSM airspace are approved, non-approved or State aircraft. Since only IFR traffic is allowed, RVSM approved aircraft and non-RVSM approved State aircraft must submit a flight plan to operate within RVSM airspace and non-RVSM approved civil aircraft must submit a flight plan to operate outside of RVSM airspace. The status of all aircraft will be clearly shown on the ICAO Flight Plan, according to MATS, Chapter 4, Section 4.

3.1.13.1.2 Indication of “I” in item 8 of flight plan by pilot or his designated representative, shows that the flight is authorized to perform an Instrument Flight Rules operation.

3.1.13.1.3 ICAO flight planning requirements for the RVSM airspace require the inclusion of all ICAO Flight Plan item 10 equipment and capability information to be included in Item Q (Remarks) of the RPL. For RVSM this requires the letter “W” to be included in Item Q of an RPL.

3.1.14 COORDINATED USE OF AIRSPACE

3.1.14.1 ATCO shall ensure that the necessary coordination has been accomplished before ATCO allows an aircraft under his control to enter another controller’s area of responsibility (AoR).

3.1.14.2 Issuance of a control instruction directly to a pilot that will change the aircraft’s heading, route, speed, or level, shall be withheld until an approval is obtained from ATCOs whose AoR is affected by those instructions unless otherwise specified in the coordination procedure (letter of agreement (LOA), letter of coordination (LOC), inter sector coordination procedure (ISCP) or ATCOs coordination).

3.1.14.3 If an ATCO’s instruction is to be relayed to the pilot through other sources, the ATCO issuing the instruction will still remain responsible to ensure that all required coordinations are carried out.

Note 1. It is operationally advisable that ATCOs confirm that coordination has been/will be effected, especially in unusual circumstances, such as recently modified sector configurations, airspace changes, route changes, etc.

Note 2. Ensuring that all required coordination has been completed does not necessarily imply that the controller issuing the control instruction directly to the pilot has to perform the coordination action, except in alternate fallback procedures in coordination procedures.

3.1.15 TEMPORARY RESERVED AREA (TRA).

To be developed.

3.1.16 CHANGE FROM IFR TO VFR FLIGHT

3.1.16.1 Change from instrument flight rules (IFR) flight to visual flight rules (VFR) flight is only acceptable when a message initiated by the pilot-in-command containing the specific expression “CANCELLING MY IFR FLIGHT”, together with the changes, if any, to be made to the current flight plan, is received by an air traffic services unit. No invitation to change from IFR flight to VFR flight is to be made either directly or by inference, but if there is any doubt about the pilot’s intentions he may be asked if he wishes to cancel his IFR flight plan.

Note. Providing any information to an aircraft should not be considered as an encouragement to change from IFR to VFR.

3.1.16.2 Controllers are to acknowledge a cancellation using the phrase “IFR FLIGHT CANCELLED AT (time)”.

3.1.16.3 When an ATS unit is in possession of information that instrument meteorological conditions are likely to be encountered along the route of flight, a pilot changing from IFR flight to VFR flight should, if practicable, be so advised.

3.1.16.4 An ATC unit receiving notification of an aircraft’s intention to change from IFR to VFR flight shall, as soon as practicable thereafter, so inform all other ATS units to whom the IFR flight plan was addressed, except those units through whose regions or areas the flight has already passed.

3.1.16.5 Information to a pilot changing from IFR flight to VFR flight where it is likely that flight in VMC cannot be maintained shall be given in the following manner:

Phraseology:

*INSTRUMENT METEOROLOGICAL CONDITIONS REPORTED (or forecast) IN THE VICINITY OF
(location)*

Note. see also SIRA.5015

3.1.17 PRESENTATION AND UPDATING OF FLIGHT PLAN AND CONTROL DATA

3.1.17.1 Sufficient information and data shall be presented in such a manner as to enable the controller to have a complete representation of the current air traffic situation within the controller’s area of responsibility and, when relevant, movements on the manoeuvring area of aerodromes. The presentation shall be updated in accordance with the progress of aircraft, in order to facilitate the timely detection and resolution of conflicts as well as to facilitate and provide a record of coordination with adjacent ATS units and control sectors.

3.1.17.2 An appropriate representation of the airspace configuration, including significant points and information related to such points, shall be provided. Data to be presented shall include relevant information from flight plans and position reports as well as clearance and coordination data. The information display may be generated and updated automatically, or the data may be entered and updated by authorized personnel.

3.1.17.3 The required flight plan and control data may be presented through the use of paper flight progress strips or electronic flight progress strips, by other electronic presentation forms or by a combination of presentation methods.

3.1.17.4 The method(s) of presenting information and data shall be in accordance with Human Factors principles. All data, including data related to individual aircraft, shall be presented in a manner minimizing the potential for misinterpretation or misunderstanding.

3.1.17.5 Paper FPS shall be retained for a period of at least 30 days. Electronic flight progress and coordination data shall be recorded and retained for at least the same period of time.

3.1.18 FLIGHT PROGRESS STRIPS

Note. The following formats are only introduced as samples. Therefore, each airport would design the required format in accordance with local operational needs as referred in LATCIs.

3.1.18.1 An aerodrome flight progress strip shall be made for each departing, arriving, over flight and local flight.

3.1.18.2 Flight strip will be used as follows:

- a) departing Flights -BLUE (as a paper strip or holder)
- b) arriving Flights-RED/PINK (as a paper strip or holder)
- c) over Flights & Local Flights -YELLOW (as a paper strip or holder)

Note 1. See also table 3-1

Note 2. Electronic flight strip may be used in ATSU, where available.

3.1.18.2.1 Departing flights:

B	C	F 1	H	I	J	K	L	N	Q
A		F 2		M	M	M	M	O	
D	E	G		L	L	L	L	P	
				M	M	M	M	R	S

Figure 3-1 Departing flights

A= Aircraft identification or registration

B= Destination of flight

C= Type of aircraft

D= SSR Code

E= Speed of aircraft (may be deleted)

F1= Estimated Off Block Time at top of box

Note. F1 should only be crossed out in case of EOBT revision.

F2= Actual Time of departure

G= Route of flight

H= Level of flight, any changes thereto and stop climb (The "VFR" for visual flight rules is required) including symbols

I= ST (to indicate Start up)

J= ATC (to indicate ATC clearance)

K= TX (to indicate Taxi clearance)

L= Position report

M= Time (may be divided in two parts to indicate estimate and actual time preferably in minutes)

N= ATC clearance in symbolic form

O= Amended to ATC clearance

P= WX, Weather information will be ticked (✓) when passed to aircraft.

Q= ACC (will be ticked (✓) when passed to ACC)

R= RWY (Runway to be used by aircraft for departure)

S= Symbol of other necessary information such as Hospital, ...

3.1.18.2.2 Arriving flights:

B	C	F 1	H	I	I	J	K	N	R
A	F 2	G		L	L	L	L	O	
D	E			M	M	M	M	P	
							Q		

Figure 3-2 Arriving flights

A= Aircraft identification or registration

B= Point of departure

C= Type of aircraft

D= SSR Code

E= Speed of aircraft (may be deleted)

F1= Estimated Time of Arrival at top of box

F2= Actual time of arrival (landing) at bottom of box

G= Route of flight

H= Level of flight, any changes there to and descend level (The “VFR” for visual flight rules is required) including symbols

I= Abbreviation of reporting point or distance

J= Initial approach fix

K= Final or established ILS

L= Estimate time preferably in minutes

M= Actual time

N= CA (Control accepted) Time

O= Type of approach

P= WX, Weather information will be ticked (✓) when passed to aircraft

Q= RWY (Runway to be used by aircraft for landing)

R= Symbol of other necessary information such as emergency, ...

3.1.18.2.3 Local flights:

B	C	E ¹	H	I	J	K	L	N
A	D	E ²		M	M	M	M	O
		F		L	L	L	L	P
		G		M	M	M	M	Q

Figure 3-3 Local flights

A= Aircraft identification or registration

B= LOC, as a local flight

C= Type of aircraft

D= SSR Code (If necessary)

E1= Estimated Off Block Time

E2= Actual time of departure

F= Actual time of arrival

G= Route if needed

H= Level of flight, any changes there to (The "VFR" for visual flight rules is required) including symbols

I= ST (to indicate Start up)

J= ATC (to indicate ATC clearance)

K= TX (to indicate Taxi clearance)

L= Position report

M= Time (may be divided in two parts to indicate estimate and actual time preferably in minutes)

N= ATC clearance in symbolic form

O= WX, Weather information will be ticked (✓) when passed to aircraft.

P= Symbol of other necessary information such as Hospital, ...

Q= RWY (Runway to be used by aircraft for departure)

3.1.18.2.4 Over flights:

B	C	F	H				N
A			L	L	L	L	O
			M	M	M	M	P
D	E	G	L	L	L	L	Q
			M	M	M	M	

Figure 3-4 Over flights

A= Aircraft identification or registration

B= Not used

C= Type of aircraft

D= SSR Code

E=Speed of ACFT

F= The symbol of "✓"

G= Route of flight

H=Level of flight, any changes thereto (The “VFR” for visual flight rules is required) including symbols

L= Position report

M= Time (may be divided in two parts to indicate estimate and actual time preferably in minutes)

N= CA, controlled accepted (time of control accepted)

O= Departure - Destination

P= WX, Weather information will be ticked (✓) when passed to aircraft.

Q= Symbol of other necessary information such as Hospital, ...

Note 1. For printed flight progress strips format refer to specific aerodrome LATCI.

Note 2. For area control centre flight progress strip format refer to operational manual (OM) of Tehran ACC.

3.1.18.2.5 Additional strips describing common activities or situations, e.g. ‘Work in Progress’, ‘Runway Blocked’, ‘Low Visibility Procedures’, ‘VFR suspended’, ‘Danger/Restricted airspace activity’, etc. should be provided. Such strips should be displayed in an appropriate location within the controller’s work area to denote information that may affect the service provided by the controller.

3.1.18.2.6 Do not draw a horizontal line through an altitude being vacated until after the aircraft has reported or is observed (valid Mode C) leaving the altitude.

3.1.18.2.7 Updating of data on the strip should be achieved by crossing through the out-of-date information with a single line and inserting the new data within the same box

3.1.18.2.8 Correction of errors should be made by crossing through the incorrect data with double horizontal lines and inserting the correct data in the same box. Erasures must not be made. Erasing / overwriting must not be made.

3.1.18.2.9 Maintain all necessary current data and keep the strips on the flight progress boards as long as required for control purposes.

3.1.18.2.10 All handling should be neat, clear and concise. Letters should be written in printed capitals.

3.1.18.2.11 Non-corrected / not updated data displayed on a flight progress strip should be assumed as correct. No additional ticks or other markings shall be used to indicate that the data have been checked.

3.1.18.2.12 At units where two or more functions are performed at one operating position, strips should be prepared for the combined operating position, for example, when approach control and aerodrome control are combined, the approach strip may be used for the dual purpose.

3.1.19 SYMBOLOGY

3.1.19.1 ATCO should use symbols or abbreviations for recording clearances, reports, instructions and information. You may use plain language markings when it will aid in understanding information.

3.1.19.2 Words in parentheses indicate that specific information, such as a level, a place or a time, etc., must be inserted to complete the symbol, or alternatively that optional symbols may be used. Words in square parentheses indicate optional additional words or information that may be necessary in specific instances.

Note. Parentheses and square parentheses need not to be inserted in symbols writing.

3.1.19.3 SYMBOLS

Table 3-1 Symbols

Intention	Symbol
Abeam location	A/(LOC)
Above Level	⁺ (level)
ACFT did not report at compulsory reporting point	Δ
ACFT has been cleared to an opposite level (indicated in the square)	280
ACFT instructed to hold at location until specific time	HLD (time)
ACFT unable to land at ADES and proceed to other than ADEP	DIV (time)
ACFT unable to land at ADES and return to ADEP	QRF (time)
After passing	/
Alternative instruction	OR (alternative instruction)
Ambulance priority	A
Any items on FPS is not as the same as approval or clearance Which is reported, previous data should be recorded in circle.	
Any restriction written below this line (e.g. release not before)	—
Appropriate altimeter setting	Q
ATS surveillance lost	RX (time)
Before	B4
Behind	BH
Below Level	₋ (level)
Clearance expired at (time)	CE (time)

Cleared to cross AWY at location	X(AWY) at (LOC)
Climb	↑
Climb Coordinated	C [↑] (level) [AT (time)]
Control accepted	CA (time)
Co-ordination effected for level or location	C [→] (level) or (LOC) [AT (time)]
Cross location at or before	X (LOC) (time) _
Cross location at or later	X (LOC) (time) +
Current weather	WX [time]
Delay not determined	Z
Delivered	D (time)
Descend	↓
Descend coordinated	C [↓] (level)[AT(time)]
Deviation of airway	((distance or bearing) NM/DEG) L/R =
Emergency descend	↓ ^{EM}
Emergency priority	ⓔ
Entering controlled airspace	Δ [↖] [time]
Establishment of ATS surveillance	R (time)
Expected Approach Time	EAT (time)
Flight check priority	ⓕ
Fuel endurance	FOB (time)
Heading	H (3digit)
IFR canceled	C [↖] (time)
ILS APCH	I

Leaving controlled airspace	Δ ↗ [time]
Level or above	(level) ⁺
Level or below	(level) ₋
Mach number speed	M (number)
Maintain	M →
Make a left turn	↶
Make a right turn	↷
NDB APCH	B
No delay expected	^
Omit position report until specific location or time	OMF (location or time)
Over flight	∨
Person on board	POB (number)
Radial	R (3digit)
Radio communication failure	RCF
Rate of climb greater or less	ROC (number) ±
Rate of descend greater or less	ROD (number) ±
Release subject to another ACFT	RS (aircraft call sign)
Request level change En-route	RLCE
Resolution advisory	RA (time)
Resume normal navigation	RNN (time)
Runway-in-use	RWY (name of the active runway)
Special VFR	SVFR
Traffic advisory	TA (time)
Traffic information has been passed	TFC [relevant traffic call-sign]

Termination of ATS surveillance	R (time)
Time check	T
Time of passing	TOP (time)
This information has been passed and acknowledged	√
Vectoring for Visual approach	R/V
Vectoring for ILS approach	R/I
VIP priority	Ⓥ
VISUAL APCH	V
VOR APCH	O
VOR / DME APCH	V/D

Section 2

RADIOTELEPHONY COMMUNICATIONS

Note. see also SIRA Section 14 VOICE COMMUNICATION PROCEDURES.

3.2.1 INTRODUCTION

3.2.1.1 Standardized phraseology in chapter 14 shall be used in all situations for which it has been specified. Only when standardized phraseology cannot serve an intended transmission, plain language shall be used.

3.2.1.2 In all communications the highest standard of discipline shall be observed at all times.

3.2.2 TRANSMITTING TECHNIQUE

3.2.2.1 The following transmitting techniques will assist in ensuring that transmitted speech is clear and satisfactorily received:

- a) before transmitting, listen out on the frequency to be used to ensure that there will be no interference with a transmission from another station;
- b) be familiar with good microphone operating techniques;
- c) use a normal conversational tone, and speak clearly and distinctly;
- d) maintain an even rate of speech not exceeding 100 words per minute. When it is known that elements of the message will be written down by the recipient, speak at a slightly slower rate;
- e) maintain the speaking volume at a constant level;
- f) a slight pause before and after numbers will assist in making them easier to understand;
- g) avoid using hesitation sounds such as “er”;
- h) be familiar with the microphone operating techniques, particularly in relation to the maintenance of a constant distance from the microphone if a modulator with a constant level is not used;
- i) suspend speech temporarily if it becomes necessary to turn the head away from the microphone;
- j) depress the transmit switch fully before speaking and do not release it until the message is completed. This will ensure that the entire message is transmitted;
- k) the transmission of long messages should be interrupted momentarily from time to time to permit the transmitting operator to confirm that the frequency in use is clear and, if necessary, to permit the receiving operator to request repetition of parts not received.

3.2.2.2 After a call has been made to the aeronautical station, a period of at least 10 seconds should elapse before a second call is made. This should eliminate unnecessary transmissions while the aeronautical station is getting ready to reply to the initial call.

3.2.2.3 An irritating and potentially dangerous situation in radiotelephony is a “STUCK” microphone button. Operators should always ensure that the button is released after a transmission and the microphone placed in an appropriate place ensuring that it will not inadvertently be switched on.

3.2.2.4 Controllers should not transmit to an aircraft during take-off, initial climb, the last part of final approach or the landing roll, unless it is necessary for safety reasons, as it may be distracting to the pilot at a time when the cockpit workload is at its highest.

3.2.2.5 When an aeronautical station is called simultaneously by several aircraft stations, the aeronautical station shall decide the order in which aircraft shall communicate.

3.2.3 TRANSMISSION OF LETTERS

3.2.3.1 To expedite communications, the use of phonetic spelling should be dispensed with if there is no risk of this affecting correct reception and intelligibility of the message.

3.2.3.2 With the exception of the telephony designator and the type of aircraft, each letter in the aircraft call sign shall be spoken separately using the phonetic spelling.

3.2.3.3 The words in the table below shall be used when using the phonetic spelling.

Note. Syllables to be emphasized are underlined.

Table 3-2 Transmission of letters

Letter	Word	Pronunciation
A	Alfa	<u>AL</u> FAH
B	Bravo	<u>BRAH</u> VOH
C	Charlie	<u>CHAR</u> LEE or <u>SHAR</u> LEE
D	Delta	<u>DELL</u> TAH
E	Echo	<u>ECK</u> OH
F	Foxtrot	<u>FOKS</u> TROT
G	Golf	GOLF
H	Hotel	HO <u>TELL</u>
I	India	<u>IN</u> DEE AH
J	Juliett	<u>JEW</u> LEE <u>ETT</u>
K	Kilo	<u>KEY</u> LOH
L	Lima	<u>LEE</u> MAH
M	Mike	MIKE
N	November	NO <u>VEM</u> BER

O	Oscar	<u>OSS</u> CAH
P	Papa	PAH <u>PAH</u>
Q	Quebec	KEH <u>BECK</u>
R	Romeo	<u>ROW</u> ME OH
S	Sierra	SEE <u>AIR</u> RAH
T	Tango	<u>TANG</u> GO
U	Uniform	<u>YOU</u> NEE FORM or <u>OO</u> NEE FORM
V	Victor	<u>VIK</u> TAH
W	Whiskey	<u>WISS</u> KEY
X	X-ray	<u>ECKS</u> RAY
Y	Yankee	<u>YANG</u> KEY
Z	Zulu	<u>ZOO</u> LOO

3.2.4 TRANSMISSION OF NUMBERS

3.2.4.1 When the language used for communication is English, numbers shall be transmitted using the following pronunciation:

Note. The syllables printed in capital letters are to be stressed; for example, the two syllables in ZE-RO are given equal emphasis, whereas the first syllable of FOW-er is given primary emphasis.

Table 3-3 Transmission of numbers

Numeral or numeral element	Pronunciation
0	ZE-RO
1	WUN
2	TOO
3	TREE
4	FOW-er
5	FIFE
6	SIX
7	SEV-en
8	AIT
9	NIN-er
Decimal	DAY-SEE-MAL
Hundred	HUN-dred
Thousand	TOU-SAND

3.2.4.2 Numbers containing a decimal point shall be transmitted as “DECIMAL”.

3.2.4.3 All numbers, except as specified in Para 3.2.4.4, shall be transmitted by pronouncing each digit separately.

Table 3-4 Transmission of numbers - each digit separately

Subject	Example	Transmitted as
Flight levels	FL180	FLIGHT LEVEL ONE EIGHT ZERO
	FL200	FLIGHT LEVEL TWO HUNDRED
	FL50	FLIGHT LEVEL FIVE ZERO Note. For avoiding misunderstanding in communication, it is necessary to use the term “flight level” before transmitting cleared flight level especially when it has two digits. Example 1: IRA222 CLIMB TO <u>FLIGHT LEVEL</u> FIVE ZERO Example 2: IRA333 CLIMB TO <u>FLIGHT LEVEL</u> TWO FIVE ZERO
Heading	100 DEGREES	HEADING ONE ZERO ZERO
	080 DEGREES	HEADING ZERO EIGHT ZERO
Wind direction and speed	200 DEGREES 70 KNOTS	WIND TWO ZERO ZERO DEGREES SEVEN ZERO KNOTS
	160 DEGREES 18 KNOTS GUSTING 30 KNOTS	WIND ONE SIX ZERO DEGREES ONE EIGHT KNOTS GUSTING THREE ZERO KNOTS
Transponder codes	2400	SQUAWK TWO FOUR ZERO ZERO
	4203	SQUAWK FOUR TWO ZERO THREE
Runway	27	RUNWAY TWO SEVEN
	30	RUNWAY THREE ZERO
Altimeter setting	1010	QNH ONE ZERO ONE ZERO
	1000	QNH ONE THOUSAND
	997	QNH NINER NINER SEVEN HECTOPASCALS

3.2.4.3.1 Flight levels shall be transmitted by pronouncing each digit separately except for the case of flight levels in whole hundreds, which shall be transmitted by pronouncing the digit of the whole hundred followed by the word HUNDRED.

Note. The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

*flight levels transmitted as FL 180 flight level **one eight zero** FL 200 flight level **two hundred**.*

3.2.4.3.2 The altimeter setting shall be transmitted by pronouncing each digit separately except for the case of a setting of 1 000 hPa which shall be transmitted as ONE THOUSAND.

Note. The following examples illustrate the application of this procedure (see 5.2.1.4.3.1 for pronunciation).

*altimeter setting transmitted as 1009 QNH **one zero zero nine** 1000 QNH **one thousand** 993 QNH **nine nine three**.*

3.2.4.4 All numbers used in the transmission of altitude, cloud height, visibility and runway visual range (RVR) information, which contain whole hundreds and whole thousands, shall be transmitted by pronouncing each digit in the number of hundreds or thousands followed by the word “HUNDRED” or “THOUSAND” as appropriate. Combinations of thousands and whole hundreds shall be transmitted by pronouncing each digit in the number of thousands followed by the word “THOUSAND” followed by the number of hundreds followed by the word “HUNDRED”.

Table 3-5 Transmission of number - in the number of hundreds or thousands

Subject	Example	Transmitted as
Altitude	800	<i>EIGHT HUNDRED FEET</i>
	3400	<i>THREE THOUSAND FOUR HUNDRED FEET</i>
	12000	<i>ONE TWO THOUSAND FEET</i>
	11500	<i>ONE ONE THOUSAND FIVE HUNDRED FEET</i>
	10000	<i>ONE ZERO THOUSAND FEET</i>
Cloud height	2200	<i>TWO THOUSAND TWO HUNDRED METERS</i>
	4500	<i>FOUR THOUSAND FIVE HUNDRED METERS</i>
Visibility	9999	<i>VISIBILITY MORE THAN TEN KILOMETERS</i>
	5000	<i>VISIBILITY FIVE KILOMETERS</i>
	1000	<i>VISIBILITY ONE THOUSAND METERS</i>
	700	<i>VISIBILITY SEVEN HUNDRED METERS</i>
RVR	600	<i>RVR SIX HUNDRED METERS</i>
	1700	<i>RVR ONE THOUSAND SEVEN HUNDRED METERS</i>

3.2.5 INDICATION OF TRANSMITTING CHANNEL

3.2.5.1 In airspace where all VHF voice communications channels are separated by 25 kHz or more, the first five digits of the numerical designator should be used, except in the case of both the fifth and sixth digits being zeros, in which case only the first four digits should be used.

Example:

Table 3-6 Transmission of channel - example

Channel	Transmitted as	25 kHz (5 digits)	8.33/25 kHz (6 digits)
118.000	ONE ONE EIGHT DECIMAL ZERO	118.00	118.000
118.025	ONE ONE EIGHT DECIMAL ZERO TWO	118.02	118.025
118.050	ONE ONE EIGHT DECIMAL ZERO FIVE	118.05	118.050
118.075	ONE ONE EIGHT DECIMAL ZERO SEVEN	118.07	118.075
118.100	ONE ONE EIGHT DECIMAL ONE	118.10	118.100

Note. Caution must be exercised with respect to the indication of transmitting channels in VHF radiotelephony communications when five digits of the numerical designator are used in airspace where aircraft are also operated with channel separation capabilities of 8.33/25 kHz. On aircraft installations with a channel separation capability of 8.33 kHz and more, it is possible to select six digits on the radio management panel. It should therefore be ensured that the fifth and sixth digits are set to 25 kHz channels.

3.2.6 STANDARD WORDS AND PHRASES

The following words and phrases shall be used in radiotelephony communications as appropriate and shall have the meaning given below.

Table 3-7 Standard word and phrases

Word/phrase	Meaning
Acknowledge	Let me know that you have received and understood this message. The receiving operator shall make certain that the message has been received correctly before acknowledging receipt. When transmitted by an aircraft station, the acknowledgement of receipt of a message shall comprise the call sign of that aircraft. An aircraft station should acknowledge receipt of important air traffic control messages or parts thereof by reading them back and terminating the read-back by its radio call sign.
Affirm	Yes.
Approved	Permission for proposed action granted.
Break	I hereby indicate the separation between portions of the message.

	<i>Note. To be used where there is no clear distinction between the text and other portions of the message</i>										
Break break	I hereby indicate the separation between messages transmitted to different aircraft in a very busy environment. <i>Note. The phraseology “BREAK BREAK” should be used only in situations which enhances the level of safety because it may cause confusions.</i>										
Cancel	Annul the previously transmitted clearance.										
Check	Examine a system or procedure.										
Cleared	Authorized to proceed under the conditions specified.										
Confirm	I request verification of: (clearance, instruction, action, information).										
Contact	Establish communications with . . .										
Correct	True” or “Accurate.										
Correction	An error has been made in this transmission (or message indicated). The correct version is . . . When an error has been made in transmission, the word “CORRECTION” shall be spoken, the last correct group or phrase repeated, and then the correct version transmitted. If a correction can best be made by repeating the entire message, the operator shall use the phrase “CORRECTION, I SAY AGAIN” before transmitting the message a second time. If the receiving operator is in doubt as to the correctness of the message received, he shall request repetition either in full or in part.										
Disregard	Ignore.										
How do you read	What is the readability of my transmission? <i>When the tests are made, the following readability scale should be used:</i> <table> <tr> <td>1</td><td>Unreadable</td></tr> <tr> <td>2</td><td>Readable now and then</td></tr> <tr> <td>3</td><td>Readable but with difficulty</td></tr> <tr> <td>4</td><td>Readable</td></tr> <tr> <td>5</td><td>Perfectly readable</td></tr> </table>	1	Unreadable	2	Readable now and then	3	Readable but with difficulty	4	Readable	5	Perfectly readable
1	Unreadable										
2	Readable now and then										
3	Readable but with difficulty										
4	Readable										
5	Perfectly readable										
I say again	I repeat for clarity or emphasis. If, in checking the correctness of a read back, an operator notices incorrect items, he shall transmit the words “NEGATIVE I SAY AGAIN” at the										

	conclusion of the read back followed by the correct version of the items concerned.
Maintain	Continue in accordance with the condition(s) specified or in its literal sense, e.g. “maintain VFR.
Monitor	Listen out on (frequency). An aircraft may be instructed to “monitor” a frequency on which information is being broadcast.
Negative	“No” or “ <i>Permission not granted</i> ” or “ <i>That is not correct</i> ” or “ <i>not capable</i> ”.
Over	“My transmission is ended, and I expect a response from you.” <i>Note. Not normally used in VHF or satellite voice communications.</i>
Out	“This exchange of transmissions is ended and no response is expected.” <i>Note. Not normally used in VHF or satellite voice communications.</i>
Read-back	“Repeat all, or the specified part, of this message back to me exactly as received.” Pilot acknowledgment and read back 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: ATC route clearances; clearances and instructions to enter, land on, take off from, hold short of, cross, taxi and backtrack on any runway; and runway-in-use, altimeter settings, SSR codes, newly assigned communication channels, level instructions, heading and speed instructions and, whether issued by the controller or contained in automatic terminal information service (ATIS) broadcasts, transition levels. The flight crew shall use call-sign in any read back acknowledging an Air Traffic Clearance or ATC Instruction. Other clearances or instructions, including conditional clearances and taxi instructions, shall be read back or acknowledged in a manner to clearly indicate that they have been understood and will be complied with. 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. Unless specified by ANSP , voice read-back of CPDLC messages shall not be required.

Re-cleared	“A change has been made to your last clearance and this new clearance supersedes your previous clearance or part thereof.”						
Report	“Pass me the following information . . .”						
Request	“I should like to know . . .” or “I wish to obtain . . .”						
Roger	“I have received all of your last transmission.” <i>Note. Under no circumstances to be used in reply to a question requiring “READ BACK” or a direct answer in the affirmative (AFFIRM) or negative (NEGATIVE).</i>						
Say again	“Repeat all, or the following part, of your last transmission.” <table border="1"> <thead> <tr> <th>Phrase</th><th>Meaning</th></tr> </thead> <tbody> <tr> <td>SAY AGAIN</td><td>Repeat entire message</td></tr> <tr> <td>SAY AGAIN . . . (item)</td><td>Repeat specific item</td></tr> </tbody> </table> Specific items should be requested, as appropriate, such as “SAY AGAIN ALTIMETER”, “SAY AGAIN WIND”. When a station is called but is uncertain of the identification of the calling station, it should reply by transmitting the following: STATION CALLING . . . (station called) SAY AGAIN YOUR CALL SIGN	Phrase	Meaning	SAY AGAIN	Repeat entire message	SAY AGAIN . . . (item)	Repeat specific item
Phrase	Meaning						
SAY AGAIN	Repeat entire message						
SAY AGAIN . . . (item)	Repeat specific item						
Speak slower	“Reduce your rate of speech.”						
Standby	“Wait and I will call you.” <i>Note. The caller would normally re-establish contact if the delay is lengthy. STANDBY is not an approval or denial.</i> An aircraft may be instructed to “stand by” on a frequency when it is intended that the ATS unit will initiate communications soon. a) STANDBY FOR FL360” is to be avoided and only “STANDBY” should be used. b) “STANDBY FOR DEPARTURE” is to be avoided and only “STANDBY” or “HOLD POSITION” should be used. c) “STANDBY TO CROSS RUNWAY” is to be avoided and only “STANDBY” or “HOLD POSITION” or “HOLD AT HOLDING POINT” should be used						
Unable	“I cannot comply with your request, instruction, or clearance.” <i>Note. “UNABLE” is normally followed by a reason.</i> If there is a doubt as to whether a pilot can comply with an ATC clearance or instruction, the controller may follow the clearance or instruction by the phrase “if unable”, and subsequently offer an alternative. If at any time a pilot receives a clearance or instruction which cannot be complied with, that pilot should advise the controller using the phrase “UNABLE” and give the reasons.						

Wilco	<i>WILCO (Abbreviation for “WILL COMPLY”).</i> “I understand your message and will comply with it.”
Words twice	<i>As a request:</i> “Communication is difficult. Please send every word or group of words twice.” <i>As information:</i> “Since communication is difficult, every word or group of words in this message will be sent twice.” When an operator transmitting a message considers that reception is likely to be difficult, he should transmit the important elements of the message twice.
Go ahead	<i>Note. The phrase GO AHEAD may only be used in Ground-Ground communication at the time a call ring is being answered. The phrase “PASS YOUR MESSAGE” is optional to be used following the aeronautical station call sign.</i>

3.2.7 TEST PROCEDURES

3.2.7.1 When it is necessary for a ground station in the aeronautical mobile service to make test signals, either for the adjustment of a transmitter before making a call or for the adjustment of a receiver, such signals shall not continue for more than 10 seconds and shall be composed of spoken numerals (ONE, TWO, THREE, etc.) in radiotelephony, followed by the radio call sign of the station transmitting the test signals. Such transmissions shall be kept to a minimum.

3.2.7.2 The form of test transmissions should be as follows:

- the identification of the station being called;
- the aircraft identification;
- the words “RADIO CHECK”;
- the frequency being used.

3.2.7.3 The reply to a test transmission should be as follows:

- the identification of the aircraft;
- the identification of the aeronautical station replying;
- information regarding the readability of the aircraft transmission.

3.2.8 COMMUNICATION PROCEDURE

3.2.8.1 ATC units shall maintain a continuous listening watch on relevant frequency (ies).

3.2.8.2 Aeronautical stations shall maintain a continuous listening watch on VHF emergency channel 121.5 MHz—during the hours of service of the units at which it is installed.

3.2.8.3 When an aeronautical station has been unable to establish contact with an aircraft station after calls on the frequencies on which the aircraft is believed to be listening, it shall:

- a) request other aeronautical stations to render assistance by calling the aircraft and relaying traffic, if necessary;
- b) request aircraft on the route to attempt to establish communication with the aircraft and relay traffic, if necessary.

Note 1. Stations having a requirement to transmit information to all stations likely to intercept should preface such transmission by the general call "ALL STATIONS", followed by the identification of the calling station.

Note 2. No reply is expected to such general calls unless individual stations are subsequently called to acknowledge receipt.

3.2.9 CALL SIGNS

3.2.9.1 AIRCRAFT CALL SIGN

3.2.9.1.1 Full call signs

An aircraft radiotelephony call sign shall be one of the following types:

Type a) the characters corresponding to the registration marking of the aircraft;

Example 1:

EPABC

Example 2:

FOKKEREPABC

Type b) the telephony designator of the aircraft operating agency, followed by the last four characters of the registration marking of the aircraft;

Example:

IRAPABC

Type c) the telephony designator of the aircraft operating agency, followed by the flight identification.

Example:

IRA222

Type d) special call sign

Example:

SOROUGH

FLCK01

EMDAD01

3.2.9.1.2 Abbreviated call signs

After satisfactory communication has been established, and provided that no confusion is likely to occur, aircraft call signs specified in above may be abbreviated as follows:

Type a) the first character of the registration and at least the last two characters of the call sign;

Example 1:

E-BC

Example 2:

FOKKER E-BC

Type b) the telephony designator of the aircraft operating agency, followed by at least the last two characters of the call sign;

Example:

IRA BC

Type c) no abbreviated form

3.2.9.2 Full radiotelephony call signs shall always be used when establishing communication.

3.2.9.3 An aircraft shall use its abbreviated call sign only after it has been addressed in this manner by the aeronautical station.

3.2.9.4 An aircraft shall not change its type of call sign during flight except when there is a likelihood that confusion may occur because of similar call signs; in such cases, an aircraft may be instructed by an air traffic control unit to change the type of its call sign temporarily.

Note. See also Para 12.2.5

Phraseology:

Change of call sign

- a) CHANGE YOUR CALL SIGN TO (new call sign) [UNTIL FURTHER ADVISED];
- b) REVERT TO FLIGHT PLAN CALL SIGN (call sign) [AT (significant point)].

Example:

IRA222-TEHRAN RADAR, REPORT REGISTRATION MARK

EPIAC, IRA222

IRA222-TEHRAN RADAR, CHANGE YOUR CALL SIGN TO EPIAC UNTIL FURTHER ADVISED

WILCO, EPIAC

*EPIAC-TEHRAN RADAR, REVERT TO FLIGHT PLAN CALL SIGN IRA222 AND CONTACT RADAR
125.700*

WILCO, IRA222

3.2.10 CALL SIGNS FOR AERONAUTICAL STATIONS

3.2.10.1 Aeronautical stations are identified by the name of the location followed by a suffix. The suffix indicates the type of unit or service provided.

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

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

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

3.2.10.5 The unit or service shall be identified in accordance with the table below except that the name of the location or the unit/service may be omitted provided satisfactory communication has been established.

Table 3-8 Call signs for aeronautical stations

Unit/service available	Call sign suffix
area control centre	CONTROL
approach control	APPROACH
approach control radar arrivals	ARRIVAL
approach control radar departures	DEPARTURE
approach control radar director	DIRECTOR
aerodrome control	TOWER
surface movement control	GROUND
radar (in general)	RADAR
precision approach radar	PRECISION
flight information service	INFORMATION
clearance delivery	DELIVERY
apron control	APRON
aeronautical station	RADIO

3.2.11 LANGUAGE TO BE USED

3.2.11.1 An air traffic services provider shall ensure that air traffic controllers speak and understand the language(s) used for radiotelephony communications as specified in CAA.IRI CAD 5001.

3.2.11.2 The language that is normally used in all air-ground communications shall be English language while in some cases, for the purpose of better mutual understanding of Persian speaking parties, such as unusual situations, Persian language may also be used.

3.2.11.3 The standard phraseologies specified in this document, and ICAO Doc. 9432 shall primarily be used. It shall be considered that the phraseologies contained in these documents are not intended to be exhaustive, and in several instances “appropriate subsidiary phraseologies”, or “plain language” may be used. The use of slang or idiomatic speech in no circumstances is authorized.

Note. usage of plain language shall be limited to the situations when there are no such phraseologies available.

3.2.12 TRANSMISSION OF TIME

3.2.12.1 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.

3.2.12.2 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.

3.2.12.3 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.

3.2.12.4 Air traffic services units shall provide aircraft with the correct time on request. Time checks shall be given to the nearest half minute.

3.2.12.5 When transmitting time, only the minutes of the hour should normally be required. Each digit should be pronounced separately. However, the hour should be included when any possibility of confusion is likely to result.

3.2.12.6 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.

3.2.12.7 The correct time shall be obtained from a standard time station (such as ACC) or, if not possible, from another unit which has obtained the correct time from such station.

Examples:

- a) 0920 (9:20 A.M.) TOO ZE-RO or ZE-RO NIN-er TOO ZE-RO
- b) 1643 (4:43 P.M.) FOW-er TREE or WUN SIX FOW-er TREE

3.2.13 DISTRESS AND URGENCY RADIOTELEPHONY COMMUNICATION PROCEDURES

3.2.13.1 Distress and urgency traffic shall comprise all radiotelephony messages relative to the distress and urgency conditions respectively. Distress and urgency conditions are defined as:

DISTRESS: A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.

URGENCY: A condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but which does not require immediate assistance.

3.2.13.2 CATEGORIES OF MESSAGES

3.2.13.2.1 The categories of messages handled by the aeronautical mobile service and the order of priority in the establishment of communications and the transmission of messages shall be in accordance with the following table.

Table 3-9 Categories of messages

Row	Message category and order of priority	Radiotelephony signal
a	Distress calls, distress messages and distress traffic	MAYDAY
b	Urgency messages, including messages preceded by the or medical transports signal	PAN, PAN or PAN, PAN MEDICAL
c	Communications relating to direction finding	-
d	Flight safety messages	-
e	Meteorological messages	-
f	Flight regularity messages	-

3.2.13.2.2 The radiotelephony distress signal “MAYDAY” and the radiotelephony urgency signal “PAN PAN” shall be used at the commencement of the first distress and urgency communication respectively.

3.2.13.2.3 At the commencement of any subsequent communication in distress and urgency traffic, it shall be permissible to use the radiotelephony distress and urgency signals.

3.2.13.2.4 The originator of messages addressed to an aircraft in distress or urgency condition shall restrict to the minimum the number and volume and content of such messages as required by the condition.

3.2.13.2.5 If no acknowledgement of the distress or urgency message is made by the station addressed by the aircraft, other stations shall render assistance respectively.

Note. “Other stations” is intended to refer to any other station which has received the distress or urgency message and has become aware that it has not been acknowledged by the station addressed.

3.2.13.2.6 Distress and urgency traffic shall normally be maintained on the frequency on which such traffic was initiated until it is considered that better assistance can be provided by transferring that traffic to another frequency.

Note. 121.500 MHz, 243.000 MHz or alternative available VHF, UHF or HF frequencies may be used as appropriate.

3.2.13.2.7 In cases of distress and urgency communications, in general, the transmissions by radiotelephony shall be made slowly and distinctly, each word being clearly pronounced to facilitate transcription.

Note. Messages concerning acts of unlawful interference constitute a case of exceptional circumstances which may preclude the use of recognized communication procedures used to determine message category and priority.

3.2.13.3 RADIOTELEPHONY DISTRESS COMMUNICATIONS

3.2.13.3.1 Action by the aircraft in distress

In addition to being preceded by the radiotelephony distress signal “MAYDAY”, preferably spoken three times, the distress message to be sent by an aircraft in distress shall:

- be on the air-ground frequency in use at the time;

- b) consist of as many as possible of the following elements spoken distinctly and, if possible, in the following order:
 - 1. name of the station addressed (time and circumstances permitting);
 - 2. the identification of the aircraft;
 - 3. the nature of the distress condition;
 - 4. intention of the person in command;
 - 5. present position, level (i.e. flight level, altitude, etc., as appropriate) and heading

3.2.13.3.2 Action by the station addressed or first station acknowledging the distress message. The station addressed by aircraft in distress, or first station acknowledging the distress message, shall:

- a) immediately acknowledge the distress message;
- b) take control of the communications or specifically and clearly transfer that responsibility, advising the aircraft if a transfer is made;
- c) take immediate action to ensure that all necessary information is made available, as soon as possible to the ATS unit concerned.

Note. The concerned ATS unit is responsible to notify relevant authorities according to notification procedure as indicated in airport emergency plan and ACC OM.

- d) warn other stations, as appropriate, in order to prevent the transfer of traffic to the frequency of the distress communication.

3.2.13.3.3 Imposition of silence

3.2.13.3.3.1 The station in distress, or the station in control of distress traffic, shall be permitted to impose silence, either on all stations of the mobile service in the area or on any station which interferes with the distress traffic. It shall address these instructions “to all stations”, or to one station only, according to circumstances. In either case, it shall use:

Phraseologies:

- a) STOP TRANSMITTING;
- b) the radiotelephony distress signal MAYDAY.

3.2.13.3.3.2 The use of the signals specified in above shall be reserved for the aircraft station in distress and for the station controlling the distress traffic.

3.2.13.3.3.3 Any station which has knowledge of distress traffic, and which cannot itself assist the station in distress, shall nevertheless continue listening to such traffic until it is evident that assistance is being provided.

3.2.13.3.4 Termination of distress communications and of silence.

3.2.13.3.4.1 When an aircraft is no longer in distress, it shall transmit a message cancelling the distress condition.

3.2.13.3.4.2 When the station which has controlled the distress communication traffic becomes aware that the distress condition is ended, it shall take immediate action to ensure that this information is made available, as soon as possible, to the ATS unit concerned.

Note. The concerned ATS unit is responsible to notify relevant authorities according to notification procedure as indicated in airport emergency plan.

3.2.13.3.4.3 The distress communication and silence conditions shall be terminated by transmitting a message, including the words “DISTRESS TRAFFIC ENDED”, on the frequency or frequencies being used for the distress traffic. This message shall be originated only by the station controlling the communications when, after the reception of the message prescribed.

3.2.13.4 RADIOTELEPHONY URGENCY COMMUNICATIONS

3.2.13.4.1 Action by the aircraft reporting an urgency condition except as indicated in procedure for medical transports. In addition to being preceded by the radiotelephony urgency signal “PAN PAN”, preferably spoken three times, the urgency message to be sent by an aircraft reporting an urgency condition shall:

- a) be on the air-ground frequency in use at the time;
- b) consist of as many as required of the following elements spoken distinctly and, if possible, in the following order:

- 1. the name of the station addressed;

the identification of the aircraft;

the nature of the urgency condition;

the intention of the person in command;

present position, level (i.e. flight level, altitude, etc., as appropriate) and heading;

any other useful information

3.2.13.4.2 Action by the station addressed or first station acknowledging the urgency message. The station addressed by an aircraft reporting an urgency condition, or first station acknowledging the urgency message, shall:

- a) acknowledge the urgency message;
- b) take immediate action to ensure that all necessary information is made available, as soon as possible, to the ATS unit concerned;

Note. The concerned ATS unit is responsible to notify relevant authorities according to notification procedure as indicated in airport emergency plan.

- c) if necessary, exercise control of communications.

3.2.13.4.3 Action by all other stations (e.g. special handling...). The urgency communications have priority over all other communications, except distress, and all stations shall take care not to interfere with the transmission of urgency traffic.

3.2.13.5 MEDICAL TRANSPORTS

3.2.13.5.1 The use of the signal described below shall indicate that the message which follows concerns a protected medical transport pursuant to the 1949 Geneva Conventions and Additional Protocols.

3.2.13.5.2 For the purpose of announcing and identifying aircraft used for medical transports, a transmission of the radiotelephony urgency signal “PAN PAN”, preferably spoken three times shall be followed by the radiotelephony signal for medical transports “MAY-DEE-CAL”. The use of the signals described above indicates that the message which follows concerns a protected medical transport. The message shall convey the following data:

- a) the call sign or other recognized means of identification of the medical transports;

-
- b) position of the medical transports;
 - c) number and type of medical transports;
 - d) intended route;
 - e) estimated time En-route and of departure and arrival, as appropriate; and
 - f) any other information such as flight altitude, radio frequencies guarded, languages used, and secondary surveillance radar modes and codes.

3.2.14 AUTHORIZED TRANSMISSIONS

Transmit only those messages necessary for air traffic control or otherwise contributing to air safety.

Section 3

ROUTE AND NAVAID DESCRIPTION

3.3.1 NAVAID USE LIMITATION

Controllers should consider the limitations of Navaid's when specifying any portion of the route other than an established airway or route, which lies within controlled airspace.

Note 1. For altitude and distance limitations, see the relevant LATCIs.

Note 2. Altitude and distance limitations need not be applied when routing is initiated by ATC or requested by the pilot and radar monitoring is provided.

3.3.2 COMPOSITION OF DESIGNATOR

3.3.2.1 THE ATS ROUTE DESIGNATOR

3.3.2.1.1 The ATS route designator shall consist of a basic designator supplemented, if necessary, by selection of the letter shall be made from those listed hereunder:

- a) "A, B, G, R" for routes which form part of the regional networks of ATS routes and are not area navigation routes;
- b) "L, M, N, P" for area navigation routes which form part of the regional networks of ATS routes;
- c) "H, J, V, W" for routes which do not form part of the regional networks of ATS routes and are not area navigation routes;
- d) "Q, T, Y, Z" for area navigation routes which do not form part of the regional networks of ATS routes.

3.3.2.1.2 Where applicable, one supplementary letter shall be added as a prefix to the basic designator in accordance with the following:

- a) "K" to indicate a low-level route established for use primarily by helicopters;
- b) "U" to indicate that the route or portion thereof is established in the upper airspace;
- c) "S" to indicate a route established exclusively for use by supersonic aircraft during acceleration, deceleration and while in supersonic flight.

3.3.2.1.3 Where the prefixes "K", "U" or "S" specified, they shall, in voice communications, be spoken as follows:

- a) "K" — KOPTER
- b) "U" — UPPER
- c) "S" — SUPERSONIC

3.3.2.1.4 In voice communications, the basic letter of a designator shall be spoken in accordance with the ICAO spelling alphabet.

3.3.2.1.5 Standard Arrival/Departure instrument route:

- a) plain language KODAP TWO ALPHA designator: ARRIVAL
- b) coded designator: KODAP 2 A

Meaning:

This designator identifies a standard instrument arrival route which begins at the significant point KODAP (basic indicator). KODAP is a significant point not marked by the site of a radio navigation facility and therefore assigned a five-letter name-code in accordance with Appendix 2. The validity indicator TWO (2) signifies that a change has been made from the previous version ONE (1) to the now effective version TWO (2). The route indicator ALPHA (A) identifies one of several routes established with reference to KODAP and is a specific character assigned to this route.

3.3.3 ESTABLISHMENT AND DESIGNATION OF THE UNITS PROVIDING AIR TRAFFIC SERVICES

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

3.3.3.1 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.

Note.— This does not preclude delegating to other units the function of providing certain elements of the flight information service.

3.3.3.2 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.

3.3.4 IDENTIFICATION OF AIR TRAFFIC SERVICES UNITS AND AIRSPACES

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

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

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

Section 4

WEATHER INFORMATION

3.4.1 FAMILIARIZATION

ATCO shall become familiar with pertinent weather information when coming on duty, and stay aware of current weather information needed to perform ATC duties.

3.4.2 REPORTS OF ROUTINE OBSERVATIONS

It shall be issued as METAR for dissemination beyond the aerodrome of origin.

Note. Meteorological information used in ATIS is to be extracted from METAR and SPECI reports.

- a) at aerodromes, routine observations shall be made throughout the 24 hours each day, except as otherwise agreed between the local meteorological and ANSP. Such observations shall be made at intervals of one hour or, if so determined by local coordination procedure, at intervals of one half-hour.
- b) at aerodromes that are not operational throughout 24 hours, METAR shall be issued, at a time as determined in Iran AIP to the aerodrome resuming operations.

3.4.2.1 Reports of special observations shall be issued as SPECI for dissemination beyond the aerodrome of origin.

3.4.3 CONTENTS OF REPORTS

3.4.3.1 CONTENT OF METAR AND SPECI

3.4.3.1.1 METAR and SPECI shall contain the following elements indicated:

- a) identification of the type of report;
- b) location indicator;
- c) time of the observation;
- d) identification of an automated or missing report, when applicable;
- e) surface wind direction and speed;
- f) visibility;
- g) runway visual range, when applicable;
- h) present weather;
- i) cloud amount, cloud type (only for cumulonimbus and towering cumulus clouds) and height of cloud base or, where measured, vertical visibility;
- j) air temperature and dew-point temperature; and
- k) QNH and, when applicable QFE.

3.4.3.1.2 Observing and reporting meteorological elements

- a) surface wind

Note. The mean direction and the mean speed of the surface wind shall be measured, as well as significant variations of the wind direction and speed, and reported in degrees true and knots, respectively.

- b) visibility

Note. The visibility shall be measured or observed, and reported in meters or kilometers.

- c) runway visual range

- d) present weather

Note 1. The present weather occurring at the aerodrome shall be observed and reported as necessary.

Note 2. The following present weather phenomena shall be identified, as a minimum: rain, drizzle, snow and freezing precipitation (including intensity thereof), haze, mist, fog, freezing fog and thunderstorms (including thunderstorms in the vicinity).

- e) clouds

Note 1. Cloud amount, cloud type and height of cloud base shall be observed and reported as necessary to describe the clouds of operational significance. When the sky is obscured, vertical visibility shall be observed and reported, where measured, in lieu of cloud amount, cloud type and height of cloud base. The height of cloud base and vertical visibility shall be reported in feet.

Note 2. Cloud observations for METAR and SPECI should be representative of the aerodrome and its vicinity.

- f) air temperature and dew-point temperature

Note. The air temperature and the dew-point temperature shall be measured and reported in degrees Celsius.

- g) atmospheric pressure

Note. The atmospheric pressure shall be measured, and QNH and QFE values shall be computed and reported in hectopascals and in case of joint civil and military airports in inches as well.

- h) supplementary information

Note. Observations made at aerodromes should include the available supplementary information concerning significant meteorological conditions, particularly those in the approach and climb-out areas. Where practicable, the information should identify the location of the meteorological condition.

3.4.3.2 CONTENT OF SPECI

3.4.3.2.1 SPECI shall be issued whenever changes in accordance with the following criteria occur:

- a) when the mean surface wind direction has changed by 60° or more from that given in the latest report, the mean speed before and/or after the change being 10 kt or more;
- b) when the mean surface wind speed has changed by 10 kt or more from that given in the latest report;

- c) when the variation from the mean surface wind speed (gusts) has changed by 10 kt or more from that at the time of the latest report, the mean speed before and/or after the change being 15 kt or more;
- d) when the onset, cessation or change in intensity of any of the following weather phenomena occurs:
 - 1. freezing precipitation;
 - 2. moderate or heavy precipitation (including showers thereof);
 - 3. thunderstorm (with precipitation).
- e) when the onset or cessation of any of the following weather phenomena occurs:
 - 1. freezing fog;
 - 2. thunderstorm (without precipitation).
- f) when the amount of a cloud layer below 1500 ft changes:
 - 1. from SCT or less to BKN or OVC; or
 - 2. from BKN or OVC to SCT or less.
- g) When the visibility is improving and changes to or passes through one or more of the following values, or when the visibility is deteriorating and passes through one or more of the following values:
 - 1. 800, 1 500 or 3 000 m; and
 - 2. 5 000 m, in cases where significant numbers of flights are operated in accordance with the visual flight rules.
- h) When the runway visual range is improving and changes to or passes through one or more of the following values, or when the runway visual range is deteriorating and passes through one or more of the following values: 50, 175, 300, 550 or 800 m.

3.4.3.3 REPORTING OF METEOROLOGICAL ELEMENTS

3.4.3.3.1 Surface wind

In “METAR” and “SPECI”, the surface wind direction and speed shall be reported in steps of 10 degrees true and 1 knot, respectively. Any observed value that does not fit the reporting scale in use shall be rounded to the nearest step in the scale.

- a) the units of measurement used for the wind speed shall be indicated;
- b) variations from the mean wind direction during the past 10 minutes shall be reported as follows, if the total variation is 60° or more:
 - 1. when the total variation is 60° or more and less than 180° and the wind speed is 3 kt or more, such directional variations shall be reported as the two extreme directions between which the surface wind has varied;
 - 2. when the total variation is 60° or more and less than 180° and the wind speed is less than 3 kt, the wind direction shall be reported as variable with no mean wind direction; or
 - 3. when the total variation is 180° or more, the wind direction shall be reported as variable with no mean wind direction;

- c) variations from the mean wind speed (gusts) during the past 10 minutes shall be reported when the maximum wind speed exceeds the mean speed by:
 - 1. 5 kt or more when noise abatement procedures are applied; or
 - 2. 10 kt or more otherwise;
- d) when a wind speed of less than 1 kt is reported, it shall be indicated as calm;
- e) when a wind speed of 100 kt or more is reported, it shall be indicated to be more than 99 kt; and
- f) when the 10-minute period includes a marked discontinuity in the wind direction and/or speed, only variations from the mean wind direction and mean wind speed occurring since the discontinuity shall be reported.

3.4.3.3.2 Visibility

3.4.3.3.2.1 The visibility shall be reported in steps of:

- a) 50 m when the visibility is less than 800 m;
- b) 100 m, when it is 800 m or more but less than 5 km; in kilometer steps,
- c) when the visibility is 5 km or more but less than 10 km; and
- d) it shall be given as 10 km when the visibility is 10 km or more,

Note. When the visibility is not the same in different directions and

a) when the lowest visibility is different from the prevailing visibility, and 1) less than 1 500 m or 2) less than 50 per cent of the prevailing visibility and less than 5 000 m; the lowest visibility observed should also be reported and, when possible, its general direction in relation to the aerodrome reference point indicated by reference to one of the eight points of the compass. If the lowest visibility is observed in more than one direction, then the most operationally significant direction should be reported; and

b) when the visibility is fluctuating rapidly, and the prevailing visibility cannot be determined, only the lowest visibility should be reported, with no indication of direction.

3.4.3.3.2.2 When the visibility is not the same in different directions and

- a) when the lowest visibility is different from the prevailing visibility, and 1) less than 1 500 m or 2) less than 50 per cent of the prevailing visibility and less than 5 000 m; the lowest visibility observed should also be reported and, when possible, its general direction in relation to the aerodrome reference point indicated by reference to one of the eight points of the compass. If the lowest visibility is observed in more than one direction, then the most operationally significant direction should be reported; and
- b) when the visibility is fluctuating rapidly, and the prevailing visibility cannot be determined, only the lowest visibility should be reported, with no indication of direction.

3.4.3.3.2.3 Except when the conditions for the use of “CAVOK” apply. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

3.4.3.3.3 Runway visual range (RVR)

3.4.3.3.3.1 RVR is defined in Chapter 2, as:

“The range over which the pilot of an aircraft on the centre line of a runway can see the runway surface markings or the lights delineating the runway or identifying its centre line.”

In METAR and SPECI, the runway visual range shall be reported in steps of 25 m when it is less than 400 m; in steps of 50 m when it is between 400 m and 800 m; and in steps of 100 m when the it is more than 800 m. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale

3.4.3.3.2 Assessment of RVR

The method of RVR assessment available at suitably equipped aerodromes is:

Instrumented RVR, using electronic equipment;

Runway visual range assessments shall be representative of:

- a) the touchdown zone of the runway intended for non-precision or Category I instrument approach and landing operations;
- b) the touchdown zone and the mid-point of the runway intended for Category II instrument approach and landing operations; and
- c) the touchdown zone, the mid-point and stop-end of the runway intended for Category III instrument approach and landing operations.

Note. A detailed understanding of the assessment of RVR is described in ICAO Doc 9328 'Manual on 'RVR — Observing and reporting practices'.

3.4.3.3.4 Present weather

3.4.3.3.4.1 Observed present weather phenomena shall be reported in terms of type and characteristics and qualified with respect to intensity or proximity to the aerodrome, as appropriate.

- a) Precipitation

Table 3-10 Precipitation

Drizzle	DZ
Rain	RA
Snow	SN
Snow grains	SG
Ice pellets	PL
Hail <i>Note. Reported when diameter of largest hailstones is 5 mm or more.</i>	GR
Small hail and/or snow pellets <i>Note. Reported when diameter of largest hailstones is less than 5 mm.</i>	GS

b) obscurations (hydrometeors)

Table 3-11 Obscurations (hydrometeors)

Fog Reported when visibility is less than 1000 m, except when qualified by “MI”, “BC”, “PR” or “VC”	FG
Mist Reported when visibility is at least 1000 m but not more than 5000 m.	BR

c) obscurations (lithometeors)

The following should be used only when the obscuration consists predominantly of lithometeors and the visibility is 5000 m or less except “SA”

Table 3-12 Obscurations (lithometeors)

Sand When qualified by “DR” and volcanic ash.	SA
Dust (widespread)	DU
Haze	HZ
Smoke	FU
Volcanic ash	VA

d) other phenomena

Table 3-13 other phenomena

Dust/sand whirls (dust devils)	PO
Squall	SQ
Funnel cloud (tornado or waterspout)	FC
Dust storm	DS
Sand storm	SS

3.4.3.3.4.2 The following characteristics of present weather phenomena, as necessary, shall be reported, using their respective abbreviations and relevant criteria, as appropriate:

Table 3-14 Thunderstorm

Thunderstorm	TS

3.4.3.3.4.3 When thunder is heard or lightning is detected at the aerodrome during the 10-minute period preceding the time of observation but no precipitation is observed at the aerodrome, the abbreviation “TS” shall be used without qualification.

Table 3-15 Freezing

Freezing	FZ

3.4.3.3.4.4 The following characteristics of present weather phenomena, as necessary, should be reported, using their respective abbreviations and relevant criteria, as appropriate:

Table 3-16 Shower/Blowing

Shower	SH
Blowing	BL

3.4.3.3.4.5 Types of present weather phenomena raised by the wind to a height of 6 ft or more above the ground.

Table 3-17 Low drifting

Low drifting	DR

3.4.3.3.4.6 Types of present weather phenomena raised by the wind to less than 6 ft above ground level.

Table 3-18 Shallow/Patches/Partial

Shallow <i>Note. Less than 2 m (6 ft) above ground level.</i>	MI
Patches <i>Note. Fog patches randomly covering the aerodrome.</i>	BC
Partial <i>Note. A substantial part of the aerodrome covered by fog while the remainder is clear.</i>	PR

3.4.3.3.4.7 The relevant intensity or, as appropriate, the proximity to the aerodrome of the reported present weather phenomena should be indicated as follows:

Table 3-19 Intensity of weather phenomena

Light	FBL	-
Moderate	MOD	no indication
Heavy	HVY	+

3.4.3.3.5 Clouds

- a) the height of cloud base shall be reported in steps of 100 ft up to 10000 ft.

Note. Any observed value which does not fit the reporting scale in use shall be rounded down to the nearest lower step in the scale.

- b) cloud amount should be reported using the abbreviations:
 - 1. “FEW” (1 to 2 oktas);
 - 2. “SCT” (3 to 4 oktas);
 - 3. “BKN” (5 to 7 oktas);
 - 4. “OVC” (8 oktas).
- c) cumulonimbus clouds and towering cumulus clouds should be indicated as “CB” and “TCU”, respectively;
- d) the vertical visibility should be reported in steps of 100 ft up to 2000 ft;
- e) if there are no clouds of operational significance and no restriction on vertical visibility and the abbreviation “CAVOK” is not appropriate, the abbreviation “NSC” should be used;
- f) when several layers or masses of cloud of operational significance are observed, their amount and height of cloud base should be reported in increasing order of the height of cloud base, and in accordance with the following criteria:
 - 1. the lowest layer or mass, regardless of amount to be reported as “FEW”, “SCT”, “BKN” or “OVC” as appropriate;
 - 2. the next layer or mass, covering more than 2/8 to be reported as “SCT”, “BKN” or “OVC” as appropriate;
 - 3. the next higher layer or mass, covering more than 4/8 to be reported as “BKN” or “OVC” as appropriate; and
 - 4. cumulonimbus and/or towering cumulus clouds, whenever observed and not reported in all the above;
- g) when an individual layer (mass) of cloud is composed of cumulonimbus and towering cumulus clouds with a common cloud base, the type of cloud should be reported as cumulonimbus only.

Note. Towering cumulus indicates cumulus congestus clouds of great vertical extent.

3.4.3.3.6 Air temperature and dew-point temperature

The air temperature and the dew-point temperature shall be reported in steps of whole degrees Celsius. Any observed value which does not fit the reporting scale in use shall be rounded to the nearest whole degree Celsius, with observed values involving 0.5° rounded up to the next higher whole degree Celsius. a temperature below 0°C shall be identified.

3.4.3.3.7 Atmospheric pressure

“QNH” and “QFE” shall be reported in steps of whole hectopascals. Any observed value which does not fit there porting scale in use shall be rounded down to the nearest lower whole hectopascal.

Note. In case of joint civil and military airports, QNH shall be reported in inches as well.

3.4.3.4 AERODROME FORECASTS (TAF)

3.4.3.4.1 An aerodrome forecast shall be prepared by the aerodrome meteorological office according to local procedure (LATCI).

3.4.3.4.2 An aerodrome forecast shall be issued at a specified time not earlier than one hour prior to the beginning of its validity period and consist of a concise statement of the expected meteorological conditions at an aerodrome for a specified period.

3.4.3.4.3 Aerodrome forecasts and amendments thereto shall be issued as TAF and include the following information in the order indicated:

- a) identification of the type of forecast;
- b) location indicator;
- c) time of issue of forecast;
- d) identification of a missing forecast, when applicable;
- e) date and period of validity of forecast;
- f) identification of a cancelled forecast, when applicable;
- g) surface wind;
- h) visibility;
- i) weather;
- j) cloud; and
- k) expected significant changes to one or more of these elements during the period of validity.

Note. The visibility included in TAF refers to the forecast prevailing visibility.

3.4.3.4.4 Aerodrome meteorological offices preparing TAF shall keep the forecasts under continuous review and, when necessary, shall issue amendments promptly.

3.4.3.4.5 The length of the forecast messages and the number of changes indicated in the forecast shall be kept to a minimum.

3.4.3.4.6 TAF that cannot be kept under continuous review shall be cancelled.

3.4.3.4.7 The period of validity of a routine TAF should be not less than 6 hours nor more than 30 hours;

3.4.3.4.8 Routine TAF valid for less than 12 hours should be issued every 3 hours and those valid for 12 to 30 hours should be issued every 6 hours.

3.4.3.4.9 When issuing TAF, aerodrome meteorological offices shall ensure that not more than one TAF is valid at an aerodrome at any given time.

3.4.3.5 LANDING FORECASTS

3.4.3.5.1 A landing forecast shall be prepared by the aerodrome meteorological office designated by the meteorological authority concerned as determined by regional air navigation agreement; such forecasts are intended to meet the requirements of local users and of aircraft within about one hour's flying time from the aerodrome.

3.4.3.5.2 Landing forecasts shall be prepared in the form of a trend forecast.

3.4.3.5.3 A trend forecast shall consist of a concise statement of the expected significant changes in the meteorological conditions at that aerodrome to be appended to a local routine or local special report, or a "METAR" or "SPECI". The period of validity of a trend forecast shall be 2 hours from the time of the report which forms part of the landing forecast.

3.4.3.6 SIGMET INFORMATION

3.4.3.6.1 “SIGMET” information shall be issued by a meteorological watch office and shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified En-route weather phenomena, which may affect the safety of aircraft operations, and of the development of those phenomena in time and space.

3.4.3.6.2 “SIGMET” information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

3.4.3.6.3 The period of validity of a “SIGMET” message shall be not more than 4 hours. In the special case of “SIGMET” messages for volcanic ash cloud and tropical cyclones, the period of validity shall be extended up to 6 hours.

3.4.3.6.4 “SIGMET” messages shall be issued not more than 4 hours before the commencement of the period of validity.

3.4.3.7 “AIRMET” INFORMATION

3.4.3.7.1 “AIRMET” information shall be issued by a meteorological watch office taking into account the density of air traffic operating below FL100.

3.4.3.7.2 “AIRMET” information shall give a concise description in abbreviated plain language concerning the occurrence and/or expected occurrence of specified en-route weather phenomena, which have not been included in Section I of the area forecast for low-level flights and which may affect the safety of low-level flights, and of the development of those phenomena in time and space.

3.4.3.7.3 “AIRMET” information shall be cancelled when the phenomena are no longer occurring or are no longer expected to occur in the area.

3.4.3.7.4 The period of validity of an “AIRMET” message shall be not more than 4 hours.

3.4.3.7.5 The Tehran Meteorological Watch Office (MWO) issue information in the form of SIGMET and AIRMET messages about the occurrence or expected occurrence of one or several of the following significant meteorological phenomena:

- a) Thunderstorms
- b) Severe turbulence
- c) Severe icing
- d) Severe mountain waves
- e) Heavy sand storm/dust storm
- f) Volcanic ash cloud
- g) Tropical cyclone
- h) Radioactive cloud

3.4.3.7.6 The SIGMETs and AIRMETs are issued in abbreviations and plain language using ICAO abbreviations and are numbered consecutively for each day commencing at 0001. Their period of validity is generally limited to less than 4 hours from the time of transmission.

3.4.3.7.7 The Meteorological Watch Office transmit SIGMETs and AIRMETs issued by itself, as well as SIGMET and AIRMET of adjacent Meteorological Watch Offices and, upon agreement, also SIGMET and AIRMET of other MWOs, to the regional control centre competent for the FIR or UIR (Upper flight information region) concerned.

3.4.3.7.8 In addition to the issuance of SIGMETs and AIRMETs, the MWOs will inform the regional control centre s concerned about the occurrence or expected occurrence of thunderstorms, moderate icing, light to moderate hail, or moderate turbulence within the FIRs concerned. The information is intended for the safety of low-level flights and is limited to the lower airspace.

3.4.3.8 USE OF “CAVOK”

This term replaces the entries for visibility, weather and cloud when the following conditions apply simultaneously:

- a) visibility 10 km or more.
- b) no significant weather at or in the vicinity of the aerodrome.
- c) no cloud below a level 5000 feet above aerodrome elevation or minimum sector altitude (whichever is the greater) and no cumulonimbus (CB) or towering cumulus cloud (TCU) at any level.

3.4.4 AIRCRAFT OBSERVATION

3.4.4.1 TYPES OF AIRCRAFT OBSERVATIONS

The following aircraft observations shall be made:

- a) routine aircraft observations during en-route and climb-out phases of the flight; and
- b) special and other non-routine aircraft observations during any phase of the flight.

3.4.4.2 SPECIAL AIRCRAFT OBSERVATIONS

Special observations shall be made by all aircraft whenever the following conditions are encountered or observed:

- a) moderate or severe turbulence; or
- b) moderate or severe icing; or
- c) severe mountain wave; or
- d) thunderstorms, without hail, that are obscured, embedded, widespread or in squall lines; or
- e) thunderstorms, with hail, that are obscured, embedded, widespread or in squall lines; or
- f) heavy dust storm or heavy sandstorm; or
- g) volcanic ash cloud; or
- h) pre-eruption volcanic activity or a volcanic eruption, or
- i) runway braking action encountered is not as good as reported.

ANSP shall prescribe as necessary other conditions which shall be reported by all aircraft when encountered or observed.

Note. Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

3.4.4.3 OTHER NON-ROUTINE AIRCRAFT OBSERVATIONS

When other meteorological conditions not listed under Para 3.4.5.2, e.g. wind shear, are encountered and which, in the opinion of the pilot-in-command, may affect the safety or markedly affect the efficiency of other aircraft operations, the pilot-in-command shall advise the appropriate air traffic services unit as soon as practicable.

Note. Icing, turbulence and, to a large extent, wind shear are elements which, for the time being, cannot be satisfactorily observed from the ground and for which in most cases aircraft observations represent the only available evidence.

3.4.4.4 AERODROME WARNINGS

3.4.4.4.1 Aerodrome warnings shall be issued by the aerodrome meteorological office designated by the meteorological authority concerned and shall give concise information of meteorological conditions which could adversely affect aircraft on the ground, including parked aircraft, and the aerodrome facilities and services, if one or several of the following phenomena are expected to occur at the airport:

- Squall *
- Thunderstorm
- Hail
- Frost**
- Heavy rime deposit
- Heavy snow
- Freezing precipitation

Differences from these criteria have to be agreed upon locally.

*. The warning is designated as “storm warning” and will be issued when the mean speed of the surface wind is expected to exceed 34 kt (Beaufort Scale 8) or when gusts in excess of 41 kt (Beaufort Scale 9) are expected to occur.

**. A “frost warning” will be issued when the air temperature is expected to fall below 0 ° C on those dates when protective measures have generally not yet been taken and also when a substantial deposit of hoarfrost, e.g. on wing surfaces, is expected.

3.4.4.4.2 Aerodrome warnings should be cancelled when the conditions are no longer occurring and/or no longer expected to occur at the aerodrome.

Section 5

ALTIMETER SETTING AND VERTICAL REFERENCE

3.5.1 UNITS OF PRESSURE

Hectopascals are the notified units for the measurements of pressure for flying within Tehran FIR. Controllers will provide pressure settings in inches of mercury in joint civil and military airport.

3.5.2 EXPRESSION OF VERTICAL POSITION OF AIRCRAFT

3.5.2.1 For flights within 25 NM from ARP the vertical position of aircraft shall, except as provided for in Para 3.5.2.2, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position shall be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

3.5.2.2 When an aircraft which has been given clearance to land is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft shall be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it shall be expressed in terms of height above runway threshold elevation:

- a) for instrument runways, if the threshold is “7 ft” or more below the aerodrome elevation; and
- b) for precision approach runways.

3.5.2.3 For flights En-route, the vertical position of aircraft shall be expressed in terms of:

- a) flight levels at or above the lowest usable flight level; and
- b) altitudes below the lowest usable flight level;

3.5.2.4 The lowest useable flight level in Tehran FIR is FL30.

3.5.2.5 The table below shows the altimeter subscale settings, the terms in which vertical position is reported and the occasions on which they are used to report to ATSU.

Table 3-20 How to report vertical position to ATSUs

Subscale Setting	Expressed in terms of	How to report vertical position to ATSUs
1013.2 hPa	FLIGHT LEVEL	a) at, or above, the transition level. b) climbing through the transition layer. c) at or above 3000 feet AMSL and not in the vicinity of an aerodrome.
QNH	ALTITUDE	a) at, or below, the transition altitude, i.e. within 25 NM from ARP of an aerodrome. b) descending through the transition layer.
QFE	HEIGHT	a) during final approach, as local procedures. b) require or when requested by the pilot.

3.5.2.6 Altimeter settings are rounded down to the nearest whole Hectopascal before being passed to the pilot.

Note. When transmitting altimeter pressure settings that are lower than 1000 hPa, controllers are to specify clearly the unit of measurement and pay particular attention to the read-back.

3.5.3 DETERMINATION OF THE TRANSITION LEVEL

3.5.3.1 The appropriate ATS unit shall establish the transition level to be used in the vicinity of the aerodrome(s) concerned and, when relevant, the terminal control area (TMA) concerned, for the appropriate period of time on the basis of QNH (altimeter subscale setting to obtain elevation when on the ground) reports and forecast mean sea level pressure, if required.

3.5.3.2 The transition level shall be the lowest flight level available for use above the transition altitude established for the aerodrome(s) concerned. Where a common transition altitude has been established for two or more aerodromes which are so closely located as to require coordinated procedures, the appropriate ATS units shall establish a common transition level to be used at any given time in the vicinity of the aerodrome and, when relevant, in the TMA concerned.

3.5.3.3 Transition Level of an aerodrome may be predetermined and published in the AIP, e.g. OIII, OIAG, OIBV, etc., or calculated and declared spontaneously.

3.5.4 TRANSITION ALTITUDE

Transition altitude is the altitude at or below which the vertical position of an aircraft is normally controlled by reference to altitude. Wherever possible there is a common transition altitude for aerodromes within a control zone.

3.5.5 TRANSITION LAYER

3.5.5.1 Transition layer is the airspace between the transition altitude and the transition level. It is not less than 1000ft.

3.5.5.2 Controllers should not issue clearance to any traffic to cruise in transition layer unless assurance exists that standard separation will be provided by requiring aircraft to use the same altimeter setting procedures.

Table 3-21 Transition Layer

QNH	959.5 to 977.1	977.2 to 995.0	995.1 to 1013.2	1013.3 to 1031.6	1031.7 to 1050.3
TL	TA+2500ft	TA+2000ft	TA+1500ft	TA+1000ft	TA+500ft
TA (example)	4000ft				
TL (example)	FL065	FL060	FL055	FL050	FL045

Note. In some aerodromes, transition level is pre-determined and mentioned in instrument approach chart.

Section 6

VOICE-AUTOMATIC TERMINAL INFORMATION SERVICE (VOICE-ATIS) BROADCASTS

3.6.1 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 serving both arriving and departing aircraft.

3.6.2 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.

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

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

3.6.5 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).

Note. The requirements for the provision of "ATIS" that applies to "Voice-ATIS" are contained in Para 3.6.9 below.

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

3.6.7 "Voice-ATIS" broadcasts provided at designated aerodromes for use by international air services shall be available in the English language.

3.6.8 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.

Note. Guidance material on human performance can be found in the Human Factors Training Manual (Doc 9683).

3.6.9 AUTOMATIC VOICE TERMINAL INFORMATION SERVICE (VOICE-ATIS)

3.6.9.1 WHENEVER “VOICE-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 related ATS unit shall, when replying to the message in e) above, provide the aircraft with the current altimeter setting; and
- g) normally the meteorological information shall be extracted from the “METAR” or “SPECI”.

Note. In accordance with CAA.IRI ATM/ANS MET.TR.210, the surface wind direction and speed and runway visual range (RVR) are to be averaged over 2 minutes and 1 minute, respectively; and the wind information is to refer to conditions along the runway for departing aircraft and to conditions at the touchdown zone for arriving aircraft. A template for the local meteorological report, including the corresponding ranges and resolutions of each element, are CAA.IRI ATM/ANS.

3.6.9.2 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.

3.6.9.3 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 Para 3.6.9.1 “f”.

3.6.9.4 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.

3.6.9.5 Contents of ATIS should be kept as brief as possible. Information additional to that specified in Para 3.6.9.6, for example information already available in aeronautical information publications (AIPs) and NOTAM, should be included when justified in exceptional and important operational circumstances.

Closure of runway and important taxiway should be included.

Note. When the landing runway-in-use is not a preferential runway, the non-availability of the preferential runway should be stated, together with the reason, e.g.

RUNWAY 34 IN USE; RUNWAY 23 CLOSED, SNOW CLEARANCE.

3.6.9.6 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) designator;
- d) time of observation;
- e) type of approach(es) to be expected;
- f) the runway(s) in use; status of arresting system constituting a potential hazard, if any;
- g) significant runway surface conditions and, if appropriate, braking action;
- h) holding delay, if appropriate;
- i) transition level;
- 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 5000 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 approach and climb out areas including wind shear, and information on recent weather of operational significance;
- s) trend forecast, when available; and
- t) specific ATIS instructions.
- u) changes in the operational status of visual and non-visual aids essential for approach and landing.

** These elements are replaced by the term “CAVOK”, whenever the conditions as specified in Para 3.4.4.7*

Note. For more information about SNOWTAM format and related details refer to Iran AIP.

Section 7

TEAM POSITION RESPONSIBILITIES

The contents of this section should be provided by ATS service provider.

Section 8

POSITION REPORTING

3.8.1 TRANSMISSION OF POSITION REPORTS

3.8.1.1 On routes defined by designated significant points, position reports shall be made by the aircraft when over, or as soon as possible after passing, each designated compulsory reporting point, and other points that may be requested by the ATS unit.

3.8.1.2 For flights operating in uncontrolled airspaces or in designated areas, position reports shall be made by the aircraft at half hour intervals of flight or at shorter intervals of time as requested by the ATS unit.

3.8.1.3 Flights may be exempted from the requirement to make position reports at each designated compulsory reporting point or interval by the ATS unit.

3.8.1.4 All flights are required to contact Tehran ACC at least 5 minutes before entering Tehran FIR, except departures from aerodromes within 5 minutes flying time to Tehran FIR.

3.8.2 CONTENTS OF VOICE POSITION REPORTS

The position shall contain the following elements of information:

- a) aircraft identification;
- b) position;
- c) time;
- d) level, including passing actual level and cleared level if not maintaining the cleared level;
- e) next position and time over; and
- f) ensuing significant point. Item d, level shall, however, be included in the initial call after a change of air-ground voice communication channel.

3.8.3 RADIOTELEPHONY PROCEDURES FOR AIR-GROUND VOICE COMMUNICATION CHANNEL CHANGEOVER

3.8.3.1 The initial call to Tehran ACC after a change of air -ground voice communication channel shall contain the following elements:

- a) The designation of the ATS unit being called;
- b) Call sign and, for aircraft in the heavy wake turbulence category, the word 'Heavy' or 'Super';
- c) SSR code;
- d) Position
- e) Time

- f) Level, including passing and cleared levels, if not maintaining the cleared level;
- g) Next position and time over, and any deviation from ATS routs including direct routing (or heading instruction if any) assigned by ATS unit;
- h) Speed restrictions including any restrictions assigned by ATS (e.g. rate of climb or descend restrictions).
- i) Additional elements, as required by the ANSP responsible for the provision of services and approved by CAA.IRI.

3.8.3.2 The initial call to a unit providing APP/RADAR control service after a change of air -ground voice communication channel shall contain the following elements:

- a) The designation of the ATS unit being called;
- b) 2) Call sign and, for aircraft in the heavy wake turbulence category, the word 'Heavy' or 'Super';
- c) SSR code;
- d) Position
- e) Time
- f) level, including passing and cleared levels, if not maintaining the cleared level;
- g) any deviation from ATS routs including direct routing (or heading instruction if any) assigned by ATS unit;
- h) received WX information (only for arriving flights);
- i) speed restrictions including any restrictions assigned by ATS (e.g. rate of climb or descend restrictions); and
- j) Additional elements, as required by the ANSP responsible for the provision of services and approved by CAA.IRI.

3.8.3.3 The initial call to a unit providing Aerodrome control service after a change of air -ground voice communication channel shall contain the following elements:

- a) The designation of the ATS unit being called;
- b) Call sign and, for aircraft in the heavy wake turbulence category, the word 'Heavy' or 'Super' if that aircraft has been so identified by CAA.IRI;
- c) Position; and
- d) Pilots shall provide level information at the nearest full 30 m or 100 ft as indicated on the pilot's altimeter.
- e) Additional elements, as required by the ANSP responsible for the provision of services and approved by CAA.IRI.

Section 9

AERONAUTICAL GROUND LIGHTS

Note. The procedures in this Section apply to all aerodromes, whether aerodrome control service or AFIS is provided.

3.9.1 GENERAL

3.9.1.1 Runway lighting shall not be operated if that runway is not in use for landing, take-off or taxiing purposes, unless required for runway inspections or maintenance.

3.9.1.2 Do not turn on the runway edge lights when a NOTAM closing the runway is in effect.

3.9.1.3 Lights are not required to be turned on and off repeatedly when the density of airport traffic is so high that the arrival/departure intervals are usually less than 20 minutes.

Note. Whenever controllers become aware that an emergency has occurred, due to smoke or fire in the cockpit/cabin, he must take action to switch on APP / RWY lighting system 100%.

3.9.2 AERONAUTICAL LIGHTING

3.9.2.1 all aeronautical ground lights should be operated continuously during night , unless otherwise provided hereafter;

3.9.2.1.1 DEPARTURE

3.9.2.1.1.1 at aerodromes where air traffic service is provided and where lights are centrally controlled, the lights of one runway shall remain lighted after take-off as long as is considered necessary for the return of the aircraft due to an emergency occurring during or immediately after take-off;

3.9.2.1.1.2 at aerodromes without air traffic service or without centrally controlled lights, the lights of one runway shall remain lighted until such time as would normally be required to reactivate the lights in the likelihood of the departing aircraft returning for an emergency landing, and in any case not less than fifteen minutes after take-off.

3.9.2.1.2 ARRIVAL

3.9.2.1.2.1 Approach and runway lights:

3.9.2.1.2.1.1 approach and runway lighting shall be operated at least 20 minutes before the estimated time of landing of the aircraft and shall be kept on for at least 5 minutes after the aircraft is parked on its stand, considering the following provisions;

3.9.2.1.2.1.2 between sunset and sunrise and between sunrise and sunset when the ceiling is less than 1000 feet or the prevailing visibility is 5 Km or less when one of the following conditions exists:

- they serve the landing runway.
- they serve by sidestep landing runway.

3.9.2.1.2.1.3 as requested by the pilot.

3.9.2.1.2.1.4 as deemed necessary by air traffic services personnel, if not contrary to pilot's request.

Note. In case of circling approach, the runway lighting of the runway which is not being used for landing, shall be turned off.

Note 2. The ALS should be turned off when not needed for aircraft operations.

3.9.2.1.3 Operate PAPI lights:

3.9.2.1.3.1 PAPI light shall be operated at least 20 minutes before the estimated time of landing of the aircraft and shall be kept on for at least 5 minutes after the aircraft is parked on its stand, during the hours of daylight as well as of darkness and irrespective of the visibility conditions.

3.9.2.1.4 at any other time when their use, based on meteorological conditions, is considered desirable for the safety of air traffic.

Note. Lights used for en-route navigation purposes, which are located in the vicinity of aerodromes, should always be kept illuminated.

3.9.2.2 Table of intensity

At aerodromes equipped with lights of variable intensity, table 3-22 of intensity settings, based on conditions of visibility and ambient light, should be used for the guidance of air traffic services personnel in effecting adjustment of these lights to suit the prevailing conditions. When so requested by an aircraft, further adjustment of the intensity should be made whenever possible.

Table 3-22 Table of intensity

Operation condition	RVR/MET visibility	BRIGHTNESS					
		H.I. APCH C/L& Crossbar	APCH side row, RWY C/L	RWY Edge, THR, WNBAR, END	PAPI	TWY CL, Stop bars	TWY Edge
DAY	0-2 Km	5	5	5	5	3	3
	2-3	4	4	4	4	2	2
	3-5 inclusive	3	3	3	4	off	off
NIGHT	0-2	3	3	3	4	3	3
	2-5 inclusive	2	2	2	3	2	2
BRIGHT DAY, FOG, SNOW	0-2	5	5	5	5	3	3
	2-3	5	5	5	5	3	3
	3-5 inclusive	4	4	4	4	2	2

3.9.3 TAXIWAY LIGHTING

Where required to provide taxi guidance, taxiway lighting shall be turned on in such order that a continuous indication of the taxi path is presented to taxiing aircraft. Taxiway lighting or any portion thereof may be turned off when no longer needed.

3.9.4 SEQUENCED FLASHING LIGHTS (SFL)

3.9.4.1 At locations where identification of the simple approach lighting system is difficult at night due to surrounding lights, sequence flashing lights installed in the outer portion of the system may resolve this problem and cannot be operated when the ALS is off.

3.9.4.2 Air traffic controller should operate Sequenced Flashing Lights as defined in 3.9.2.2.1.

3.9.5 AERODROME BEACON

If controls are provided, turn the rotating beacon on:

- a) between sunset and sunrise.
- b) between sunrise and sunset when the reported ceiling or visibility is below VMC.

Section 10

AIR TRAFFIC FLOW MANAGEMENT (ATFM)

1. Procedures applicable for departing flights

3.10.1.1 All controlled flights shall inform appropriate ATS unit of departure aerodrome 5 to 10 minutes before the time at which they expect to be ready for startup.

3.10.1.2 Issued start up approval by ATS unit is valid up to 10 minutes from the time of start up approval granted to the pilot.

3.10.1.3 In so far as practicable, ATC clearance should be issued to the aircraft prior to taxi.

Note 1. Aircraft are required to request taxi during the validity time (10 minutes after start up approval).

Note 2. If the pilot is not able to make start up by the first start up approval for any reason, only another request can be accepted during the validity of the flight plan.

Note 3. It is required to submit a new flight plan if an aircraft fails to depart after two start up approvals. Departure should not be made more than 10 minutes before EOBT.

Chapter 4 . PROVISION OF AIR TRAFFIC SERVICES

Section1

AIR TRAFFIC CONTROL SERVICE

4.1.1 DIVISIONS OF THE AIR TRAFFIC SERVICES

Air traffic control services have been divided into three parts as follows:

4.1.1.1 AREA CONTROL SERVICE

The provision of air traffic control service for controlled flights, except for those parts of such flights which are under the jurisdiction of Approach Control or Aerodrome Control to accomplish the following objectives:

- a) prevention of collisions between aircraft;
- b) expedition and maintaining an orderly flow of air traffic;

4.1.1.2 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 following objectives:

- a) prevention of collisions between aircraft;
- b) expedition and maintaining an orderly flow of air traffic;

4.1.1.3 AERODROME CONTROL SERVICE

The provision of air traffic control service for aerodrome traffic, except for those parts of flights which are under the jurisdiction Approach Control to accomplish objectives:

- a) prevention of collisions between aircraft;
- b) prevention of collisions between aircraft on the manoeuvring area and obstructions on that area;
- c) expedition and maintaining an orderly flow of air traffic;

4.1.2 RESPONSIBILITY FOR THE PROVISION OF AIR TRAFFIC CONTROL SERVICE

4.1.2.1 AREA CONTROL SERVICE

Area control service shall be provided:

- a) by Tehran area control centre (ACC); and
- b) by the unit providing approach control service within TMAs and CTRs;

4.1.2.2 APPROACH CONTROL SERVICE

Approach control service shall be provided:

- a) by an aerodrome control tower or Tehran ACC, when it is necessary or desirable to combine under the responsibility of one unit the functions of the approach control service and those of the aerodrome control service or the area control service; or
- b) by an approach control unit, when it is necessary or desirable to establish a separate unit.

Note. Approach control service may be provided by a unit collocated with an ACC, or by a control sector within an ACC.

4.1.2.3 AERODROME CONTROL SERVICE

Aerodrome control service shall be provided by an aerodrome control tower.

4.1.3 DIVISION OF RESPONSIBILITY FOR CONTROL BETWEEN AIR TRAFFIC CONTROL UNITS

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

4.1.3.1 Between a unit providing aerodrome control service and a unit providing approach control service

4.1.3.1.1 Except for flights which are provided with aerodrome control service only and when aerodrome control service and approach control service are not provided by the same air traffic control unit, the control of arriving and departing controlled flights shall be divided between two units as follows:

4.1.3.1.1.1 Arriving aircraft. Unless otherwise specified in LATCIs, control of an arriving aircraft shall be transferred from the unit providing approach control service/approach radar service to the unit providing aerodrome control service when the aircraft:

Note. Distress and urgency traffic should normally be retained on the frequency on which such traffic was initiated until it is considered that better assistance can be provided by transferring that traffic to another frequency.

- a) is in the vicinity of the aerodrome, and reported the runway is insight, or
- b) is at one of the following points:
 - 1. established LOC, when executing ILS approach.
 - 2. on the final approach track (when executing non-precision approach).
 - 3. on the gate (when executing TACAN or SHORAN approaches).
 - 4. For VFR flights and aircraft executing visual approach according to local instructions.

Note - local instructions, appropriate to the airspace structure, terrain, meteorological conditions and air traffic services facilities available, should establish rules for the transfer of arriving aircraft.

4.1.3.1.1.2 Transfer of communications to the aerodrome controller should be effected at such a point, level or time that clearance to land or alternative instructions, as well as information on essential local traffic, can be issued in a timely manner.

Note. Aircraft should be instructed to monitor tower frequency for the purpose of receiving essential local traffic information whenever due to time limitation it is not practicable to receive it through approach control unit/approach radar control unit.

4.1.3.1.1.3 Departing aircraft. Unless otherwise specified in LATCIs, control of a departing aircraft shall be transferred from the unit providing aerodrome control service to the unit providing approach control service:

- a) for IFR flights, immediately after the aircraft is airborne.
- b) for VFR flights:
 - 1. immediately after the aircraft is airborne; or
 - 2. prior to the time the aircraft leaves the vicinity of the aerodrome.

Note. Traffic information should be passed to departing aircraft before issuing take-off clearance.

4.1.3.2 Between a unit providing approach control service and a unit providing area control service.

4.1.3.2.1 When area control service and approach control service are not provided by the same air traffic control unit, responsibility for controlled flights shall rest with the unit providing area control service except that a unit providing approach control service shall be responsible for the control of:

- a) arriving aircraft that have been released to it by Tehran ACC as prescribed in the relevant LoC;
- b) departing aircraft until such aircraft are released to Tehran ACC as prescribed in the relevant LoC.

4.1.3.2.2 A unit providing approach control service shall assume control of arriving aircraft, provided such aircraft have been released to it, upon arrival of the aircraft at the point, level or time agreed for transfer of control, and shall maintain control during approach to the aerodrome as prescribed in the relevant LoC.

4.1.3.3 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 ACC having control of the aircraft or at such other point, level or time as has been agreed between the two units as prescribed in the relevant LOA.

4.1.3.4 BETWEEN CONTROL SECTORS/POSITIONS WITHIN THE SAME AIR TRAFFIC CONTROL UNIT

The responsibility for the control of an aircraft shall be transferred from one control sector/position to another control sector/position within the same ATC unit at a point, level or time, as specified in the relevant LATCI and Tehran ACC OM.

4.1.4 OPERATION OF AIR TRAFFIC CONTROL SERVICE

4.1.4.1 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.

4.1.5 ROUTE STRUCTURE TRANSITIONS

To effect transition within or between route structures, an air traffic controller may clear an aircraft by one or more of the following methods, based on “NAVAIDs” or RNAV:

- a) vector aircraft to or from radials, tracks, or azimuths of the ATS route assigned.
- b) assign a SID/STAR.
- c) clear an aircraft directly to or between the “NAVAIDs” forming the ATS route assigned.
- d) clear aircraft to climb or descend on specified radials, courses, or azimuths of “NAVAIDs”

Note1. Assigned level must be given with consideration of the highest terrain /obstacle along the projected route segment being flown, including the protect 5 miles either side of the specified radials, tracks, or azimuths of NAVAIDs.

Note2. See 3.3.1 about NAVAIDs limitation.

- e) clear RNAV aircraft between designated or established ATS routes via direct routes to a “NAVAID”, waypoint, airport or fix on the new route.
- f) Instructing an aircraft to resume own navigation after being vectored, by specifying a significant point to go direct to.
- g) Instructing an aircraft to rejoin FPL after a diverging radial/track is given.
- h) Instructing an aircraft to rejoin FPL after completion of adverse WX circumnavigation.

Section 2

ATS AIRSPACES CLASSIFICATION

4.2.1 CLASSIFICATION OF AIRSPACES

ATS airspaces are 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. Continuous air - ground voice communications are required for all flights. All flights shall be subject to ATC clearance.

Class B. IFR and VFR flights are permitted. All flights are provided with air traffic control service and are separated from each other. Continuous air - ground voice communications are required for all flights. All flights shall be subject to ATC clearance.

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 and traffic avoidance advice on request. Continuous air-ground voice communications are required for all flights. For VFR flights a speed limitation of 250 kts indicated airspeed (IAS) applies below 3 050 m (10 000 ft) AMSL, except where approved by the CAA.IRI. for aircraft types, which for technical or safety reasons, cannot maintain this speed. All flights shall be subject to ATC clearance.

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, receive traffic information in respect of VFR flights and traffic avoidance advice on request. VFR flights receive traffic information in respect of all other flights and traffic avoidance advice on request. Continuous air-ground voice communications are required for all flights and a speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the CAA.IRI. for aircraft types, which for technical or safety reasons, cannot maintain this speed. All flights shall be subject to ATC clearance.

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. Continuous air-ground voice communications are required for all flights. A speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the CAA.IRI. for aircraft types, which for technical or safety reasons cannot maintain this speed. All IFR flights shall be subject to ATC clearance. 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. Continuous air-ground voice communications are required for all flights. A speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the CAA.IRI for aircraft types, which for technical or safety reasons cannot maintain this speed. ATC clearance is not required.

Note. Implementation of Class F shall be considered as a temporary measure until such time as it can be replaced by an alternative classification.

Class G. IFR and VFR flights are permitted and receive flight information service if requested. Continuous air-ground voice communications are required for all flights. A speed limitation of 250 kts IAS applies to all flights below 3 050 m (10 000 ft) AMSL, except where approved by the CAA.IRI. for aircraft types, which for technical or safety reasons cannot maintain this speed. ATC clearance is not required.

Note 1. Military Traffic Zone (MTZ) is classified as “G-military” airspace.

The requirements for the flights within each class of airspace are as shown in the following table.

Table 4-1 ATS airspaces services provided and flight requirements within Tehran FIR

Class	Type of flight	Subject to an ATC clearance	Separation provided	Service provided	Speed limitation*	Radio COM requirement
A	IFR only	Yes	All aircraft	Air traffic control service	Not applicable	Continues two-way
C	IFR		IFR from IFR IFR fro VFR			
	VFR		VFR from IFR	Air traffic control service for separation from IFR; VFR/VFR traffic information (and traffic avoidance advise on request)	250 kt IAS Below 10000 ft AMSL	
D	IFR		IFR from IFR	Air traffic control service. traffic information about VFR flights (and traffic avoidance advise on request)		
	VFR	Nil	IFR/VFR and VFR/VFR Traffic information (and traffic avoidance advise on request)			
G	IFR	No	Nil	Flight information service		
	VFR					
*when the height of the transition altitude is lower than FL100 AMSL, should be used in lieu of the 10000ft						

Note 1. Visibility criteria for helicopter operation are mentioned in table 9-2.

Note 2. The controller shall pass traffic information on relevant traffic, and should update the traffic information if so requested by the pilot or following pilot's report of “LOOKING OUT”, “NEGATIVE CONTACT” or “NOT IN SIGHT”.

4.2.2 APPLICATION OF AIR TRAFFIC CONTROL SERVICE

Air traffic control service shall be provided:

- to all IFR flights in airspace classes “A”, “C”, “D” and “E”;
- to all VFR flights in airspace classes “B” “C” and “D”;
- to all special VFR flights
- to all aerodrome traffic at controlled aerodromes.

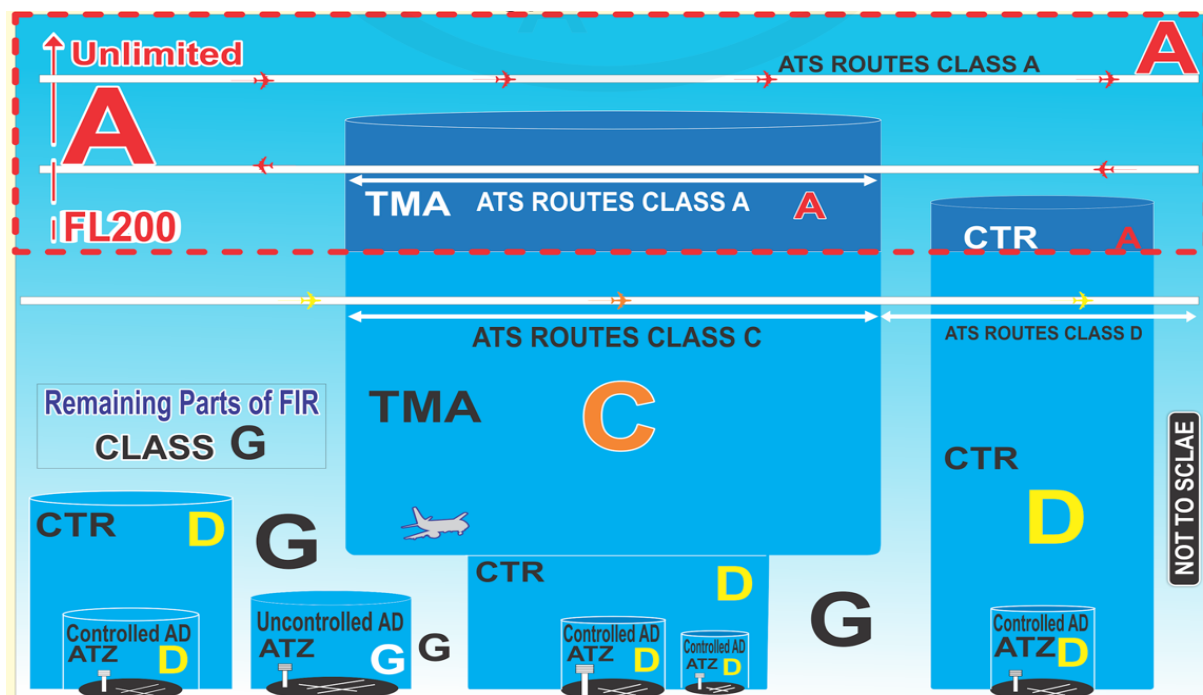


Figure 4-1 ATS airspaces classification within Tehran FIR

Section 3

SPEED CONTROL TECHNIQUE

4.3.1 HORIZONTAL SPEED CONTROL INSTRUCTIONS

4.3.1.1 GENERAL

4.3.1.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may, subject to conditions, be instructed to adjust speed in a specified manner. Flight crews should be given adequate notice of planned speed control.

Note 1. Application of speed control over a long period of time may affect aircraft fuel reserves.

Note 2. Provisions concerning longitudinal separation using the Mach number technique are contained in Tehran ACC OM.

4.3.1.1.2 Speed control shall not be applied to aircraft entering or established in a holding pattern.

4.3.1.1.3 Speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum or spacing. Instructions involving frequent changes of speed, including alternate speed increases and decreases, should be avoided.

4.3.1.1.4 The flight crew shall inform the ATC unit concerned if at any time they are unable to comply with a speed instruction. In such cases, the controller shall apply an alternative method to achieve the desired spacing between the aircraft concerned.

4.3.1.1.5 At levels at or above FL250, speed adjustments should be expressed in multiples of 0.01 Mach; at levels below FL250, speed adjustments should be expressed in multiples of 10 kt based on indicated airspeed (IAS).

Note 1. Mach 0.01 equals approximately 6 kt IAS at higher flight levels.

Note 2. When an aircraft is heavily loaded and at a high level, its ability to change speed may, in cases, be very limited.

4.3.1.1.6 Aircraft shall be advised when a speed control restriction is no longer required.

4.3.1.2 METHODS OF APPLICATION

4.3.1.2.1 In order to establish a desired spacing between two or more successive aircraft, the controller should first either reduce the speed of the last aircraft, or increase the speed of the lead aircraft, then adjust the speed(s) of the other aircraft in order.

4.3.1.2.2 In order to maintain a desired spacing using speed control techniques, specific speeds need to be assigned to all the aircraft concerned.

Note 1. The true airspeed (TAS) of an aircraft will decrease during descent when maintaining a constant IAS. When two descending aircraft maintain the same IAS, and the leading aircraft is at the lower level, the TAS of the leading aircraft will be lower than that of the following aircraft. The distance between the two aircraft will thus be reduced, unless a sufficient speed differential is applied. For the purpose of calculating a desired speed differential between two succeeding aircraft, 6 kt IAS per 1000 ft height difference may be used as a general rule. At levels below FL80 the difference between IAS and TAS is negligible for speed control purposes.

Note 2. Time and distance required to achieve a desired spacing will increase with higher levels, higher speeds, and when the aircraft is in a clean configuration.

4.3.1.3 DESCENDING AND ARRIVING AIRCRAFT

4.3.1.3.1 An aircraft should, when practicable, be authorized to absorb a period of notified terminal delay by cruising at a reduced speed for the latter portion of its flight.

4.3.1.3.2 An arriving aircraft may be instructed to maintain its “MAXIMUM SPEED”, “MINIMUM CLEAN SPEED”, “MINIMUM SPEED”, or a specified speed.

Note. “MINIMUM CLEAN SPEED” signifies the minimum speed at which an aircraft can be flown in a clean configuration, i.e. without deployment of lift-augmentation devices, speed brakes or landing gear.

4.3.1.3.3 Speed reductions to less than 250 kt IAS for turbojet aircraft during initial descent from cruising level should be applied only with the concurrence of the flight crew.

4.3.1.3.4 Instructions for an aircraft to simultaneously maintain a high rate of descent and reduce its speed should be avoided as such manoeuvres are normally not compatible. Any significant speed reduction during descent may require the aircraft to temporarily level off to reduce speed before continuing descent.

4.3.1.3.5 Arriving aircraft should be permitted to operate in a clean configuration for as long as possible. Below FL150, speed reductions for turbojet aircraft to not less than 220 kt IAS, which will normally be very close to the minimum speed of turbojet aircraft in a clean configuration, may be used.

4.3.1.3.6 Unless a pilot concurs in the use of lower speed, the controller should use the following minima for arriving aircraft operating below 10 000 ft:

- a) an IAS not less than 210 knots, except when the aircraft is within 20 flying miles of the runway threshold of the airport of intended landing.
- b) an IAS not less than:
 - 1. 090 Knots for aircraft category A,
 - 2. 120 Knots for aircraft category B,
 - 3. 160 Knots for aircraft category C,
 - 4. 185 Knots for aircraft category D/E,

Note. It may be necessary for the pilot to level off temporarily and reduce speed prior to descending below 10 000 feet.

4.3.1.3.7 Speed control should not be applied to aircraft after passing a point 4 NM from the threshold on final approach.

Note. The flight crew has a requirement to fly a stabilized approach (airspeed and configuration) typically by 3 NM from the threshold.

4.3.1.3.8 At the time approach clearance is issued, previously issued speed adjustments shall be restated if required. Pilots are expected to make their own speed adjustments to complete the approach unless the adjustments are restated.

4.3.1.3.9 Only minor speed adjustments not exceeding plus/minus 20 kt IAS should be used for aircraft on intermediate and final approach.

4.3.2 VERTICAL SPEED CONTROL INSTRUCTIONS

4.3.2.1 GENERAL

4.3.2.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may be instructed to adjust rate of climb or rate of descent. Vertical speed control may be applied between two climbing aircraft or two descending aircraft in order to establish or maintain a specific vertical separation minimum.

4.3.2.1.2 Vertical speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum. Instructions involving frequent changes of climb/descent rates should be avoided.

4.3.2.1.3 The flight crew shall inform the ATC unit concerned if unable, at any time, to comply with a specified rate of climb or descent. In such cases, the controller shall apply an alternative method to achieve an appropriate separation minimum between aircraft, without delay.

4.3.2.1.4 Aircraft shall be advised when a rate of climb/descent restriction is no longer required.

4.3.2.2 METHODS OF APPLICATION

4.3.2.2.1 An aircraft may be instructed to expedite climb or descent as appropriate to or through a specified level, or may be instructed to reduce its rate of climb or rate of descent.

4.3.2.2.2 Climbing aircraft may be instructed to maintain a specified rate of climb, a rate of climb equal to or greater than a specified value or a rate of climb equal to or less than a specified value.

4.3.2.2.3 Descending aircraft may be instructed to maintain a specified rate of descent, a rate of descent equal to or greater than a specified value or a rate of descent equal to or less than a specified value.

4.3.2.2.4 In applying vertical speed control, the controller should ascertain to which level(s) climbing aircraft can sustain a specified rate of climb or, in the case of descending aircraft, the specified rate of descent which can be sustained, and shall ensure that alternative methods of maintaining separation can be applied in a timely manner, if required.

Note 1. Controllers need to be aware of aircraft performance characteristics and limitations in relation to a simultaneous application of horizontal and vertical speed limitations.

Note 2. Controllers should keep in mind the rate of climb/descent restrictions while applying the vertical speed control to reduce false TCAS RA, crew must reduce the aircraft rate of climb or descent as applicable to 1500 feet per minute or less when the aeroplane is 1000 feet to level off altitude.

Section 4

FLIGHT PLANNING

4.4.1 Submission of a flight plan

4.4.1.1 Information relative to an intended flight, to be provided to air traffic services units, shall be in the form of a flight plan.

4.4.1.2 There are two categories of FPL:

- a) Flight Plans - the information filed on the FPL form (Form F101);
- b) Repetitive Flight Plans (See 4.4.10).

Note. The term "flight plan" is used to mean full information on all items comprised in the flight plan description, covering the whole route of a flight.

4.4.1.3 For all flights within the Tehran FIR, a flight plan (FPL) shall be submitted prior to operating unless arrangements have been made for the submission of repetitive flight plans (RPL). The format, content and procedures for submission of the FPL and RPL shall be as per the PANS-ATM Doc 4444 and instruction contained under 4.4.12.

4.4.2 Time of submission

4.4.2.1 A flight plan shall be filed on the ground at least 60 minutes and not more than 120 hours before EOBT of a flight. The 'Estimated Off Block Time' (EOBT) is used as the planned departure time in flight planning, not the planned airborne time.

Note. See also 4.4.6.2 of Authorization for special flights.

4.4.2.2 The Date of Flight (DOF) shall be included in Item 18 of the FPL for all flights planned for the following day or beyond.

Note 1. IFR flights on airports subject to ATFM, may be filed a minimum of 3 hours before EOBT.

(Ref AIP AD 2.22).

Note 2. All operators shall meet flight plan criteria and procedures which have been promulgated by other states or organizations, e.g., Eurocontrol requirement in term of time parameter is at least 3 hours before EOBT.

4.4.3 Mechanisms for filing a FPL

4.4.3.1 Iran Airports and Air Navigation Company provides AFTN within Tehran FIR.

4.4.3.2 The following categories describe the method which should be adopted by each group to file FPLs within the Tehran FIR:

- a) Aircraft operators, flight handlers and aerodromes must use the AFTN;
- b) General aviation pilots;

- c) Military operators (who have no access to the AFTN) may use recordable CP hotline in accordance with locally agreed procedures in joint civil/military airports;
- d) Helicopter pilots engaged in MEDEVAC, HOSP and RESCUE flights (not having enough time to use AFTN), may submit the flight plan before or immediately after becoming airborne by radiotelephony.

4.4.3.3 Submitting a FPL through the departure aerodrome ATS unit: A written flight plan shall be submitted on the flight plan form before departure, to an air traffic services reporting office (ARO) at the departure aerodrome. If no such unit exists at the departure aerodrome, the flight plan shall be submitted to the ATS unit performing the functions of such an office. The local ATS unit, if required, assist in completing FPLs and checking them. However, the ultimate responsibility for filing accurate FPLs, rests with the pilot or the aircraft operator.

Note. If there is no ATS unit at the departure aerodrome, or the ATS unit is not connected to the AFTN, the FPL shall be passed to the Iran IFPS for onward transmission (see 4.4.3.5).

4.4.3.4 Submitting a FPL via AFTN: A FPL for foreign air operations which is planned to depart from an aerodrome within Tehran FIR to a destination abroad, may be submitted via AFTN. These FPLs and associated messages must be addressed only to AFTN addresses: "OIIXIFPS" for processing and further transmission to appropriate ATS units.

Note. Using other ATS units AFTN addresses, may result in the departure aerodrome and Tehran ACC not being aware of an outbound flight that has filed a flight plan.

4.4.3.4.1 Only upon receipt of an acknowledgement (ACK) message over AFTN, may the message originator consider that message to be processed. The ACK message is a means whereby the Iran IFPS indicates successful processing and transmission of a submitted message.

4.4.3.4.2 If no ACK message is received, it remains the message originator's responsibility to check the message status.

4.4.3.4.3 Message originators shall always react to the reception of a REJ message by amending the original message as appropriate and re-submitting it to Iran IFPS. Therefore, if a REJ message is received over AFTN, then no flight plan will exist.

4.4.3.5 Submitting a FPL via facsimile: For those who have no access to AFTN, a written, or preferably typewritten FPL should be submitted to Iran IFPS using Fax number +9821-44544125, to be subsequently transmitted over AFTN. Ensuring the accuracy of the transmitted information is the responsibility of the pilot or aircraft operator.

Note: If pilots or aircraft operators send their FPLs by facsimile, they should assure themselves that the FPL has been accepted and has been transmitted over AFTN. A telephone call to Iran IFPS, or contact with the ATS unit at the aerodrome of departure, will enable pilots or aircraft operator to confirm that their FPL has been received, accepted and transmitted.

4.4.3.6 Submitting a FPL via other methods shall be defined by ANSP and approved by CAA.IRI.

4.4.4 'Ghost' and Duplicate Flight Plans

4.4.4.1 'Ghost' is the term used to refer to the flight plans of flights which do not take place i.e. flight plans that were not cancelled by the originators.

4.4.4.2 Only one Flight Plan shall exist at any given time for the same flight.

4.4.4.3 It is absolutely essential that flight plan originators:

- a) cancel a flight plan as soon as they know that the flight is not going to take place;
- b) cancel an existing flight plan before filing a replacement flight plan for the same flight.

4.4.4.2 The existence of ghost or multiple flight plans is to be condemned as they will:

- a) present ATC with false information;
- b) impair the efficiency of the ATC automation;
- c) cause additional possible delays to regulated flights;
- d) lead to an underutilization of ATC capacity.

Note. Before a FPL becomes ATS activated, the relevant aircraft operator shall ensure that no other active ATS FPL with the same aircraft identification exists.

4.4.5 Adherence to airspace utilization rules and availability

4.4.5.1 No IFR flight plan originator can freely plan a route between two published or unpublished significant point/waypoint in OIIX FIR without reference to the Iran ATS route network.

4.4.5.2 No IFR flight plan shall be filed via OIIX FIR deviating from the restrictions defined within Traffic Orientation Scheme (TOS). This reference document contains all airspace utilization rules and availability for OIIX FIR and any reference to them shall be made via published supplements to Iran AIP.

Note. Specific approval to conduct direct routes or to deviate from TOS, can be obtained from as detailed in Iran AIP GEN 3.3-1.

4.4.6 Authorization for special flights

4.4.6.1 Flights of a specific character, such as firefighting flights, search and rescue flights, etc., may be exempted from some ATS requirements. To indicate the necessity for special handling, the appropriate status indicator (STS) should be inserted in Field 18 of the flight plan.

4.4.6.2 FPL with the following STS/ or RMK/ indicators will be provided with exemption from time restriction in 4.4.2:

- a) STS/HOSP
- b) STS/HEAD
- c) STS/SAR
- d) STS/MEDEVAC
- e) STS/FFR
- f) STS/FLTCK
- g) STS/HAZMAT
- h) RMK/MILITARY HEL
- i) RMK/LOCAL FLIGHT (For a flight operating in the vicinity of an aerodrome and subject to pre-arrangement with relevant ATS unit)
- j) RMK/SM (For a flight operating on a special mission e.g. Scramble flight)
- k) RMK/RESCUE (For a flight engaged in a rescue mission e.g. mountain or road rescue with helicopter)

Note: MEDEVAC is evacuation of injured persons from the scene of an accident or a low-level care facility to a better equipped facility or hospital using a medically equipped helicopter or aeroplane (Aeromedical Service).

4.4.7 Delays, modifications and cancellations to a filed flight plan

4.4.7.1. All changes to a flight plan submitted for an IFR flight or a VFR flight, shall be reported as soon as possible to the appropriate ATS unit using the methods provided under 4.4.3.

Note. Information submitted prior to departure regarding fuel endurance or total number of persons carried on board, if incorrect at time of departure, must be reported to ATS unit serving aerodrome of departure.

4.4.7.2 In the case of a change to aircraft type and/or aircraft registration (if not identical to aircraft call sign), a modification (CHG) message can be sent. The CHG message (Form F103) shall be transmitted to all the addressees that will be affected by the change(s).

4.4.7.3 Any changes to a flight plan such as change to aircraft call sign, equipment, point of departure and/or destination, route of flight, alternate airport and etc., will require the original flight plan or repetitive flight plan to be cancelled and a new flight plan submitted.

4.4.7.4 In the event of a delay of 30 minutes in excess of the estimated off-block time for an IFR flight or a delay of one hour for a VFR flight for which a flight plan has been submitted, a delay (DLA) message (Form F102A) must be sent or the old flight plan cancelled and a new flight plan submitted, whichever is applicable.

Note 1. Time limits for flight plan originators to remain eligible to send revision message (DLA/CHG) is maximum 30 minutes and 60 minutes after EOBT for IFR and VFR flights, respectively provided that FPL is not ATS activated i.e. prior to start up request. The number of revisions that can be accepted, shall not exceed two revision message per flight plan.

Note 2. If a delay in departure of a controlled flight is not properly reported, the relevant flight plan data may no longer be readily available to the appropriate ATS unit when a clearance is ultimately requested, which will consequently result in extra delay for the flight.

Note 3. If a delay in departure (or cancellation) of an uncontrolled VFR flight is not properly reported, alerting or search and rescue action may be unnecessarily initiated when the flight fails to arrive at the destination aerodrome within 30 minutes after its current ETA.

4.4.7.5 Change of EOBT over midnight shall be notified via CHG message (Form F102B). A CHG message that delays a flight over midnight, results in the modification to both Field 13 (including EOBT) and Field 18 (including DOF). It should be noted that when modifying a field, the data for the complete field must be provided and not just the modified elements, this is particularly significant for modifications to Field 18.

4.4.7.6 Changes to both EOBT and aircraft type (or aircraft registration) shall be merged in one CHG message (Form F104).

4.4.7.7 Should the flight be cancelled, for any reason, it is equally important to ensure that a cancellation (CNL) message (Form F105) is transmitted to all the addressees which have received the basic flight plan data.

4.4.8 Departure message

4.4.8.1 A DEP message shall be transmitted immediately after the departure of an aircraft for which basic flight plan data have been previously distributed.

4.4.8.2 The DEP message (Form F106) shall be transmitted by the ATS unit serving the departure aerodrome to all recipients of basic flight plan data.

4.4.9 Arrival report (Closing a flight plan)

4.4.9.1 A report of arrival shall be made at the earliest possible moment after landing to the ATS unit of the arrival aerodrome by all flights, except when the arrival has been acknowledged by the local ATS unit.

4.4.9.2 In the absence of an ATS unit at the destination aerodrome, the pilot is responsible for passing the arrival report to the nearest ATS unit by the most expeditious means. (Form F107)

4.4.9.3 After landing at an aerodrome which is not the destination aerodrome (diversionary landing) the local ATS unit shall be specifically informed accordingly.

4.4.9.4 In the absence of a local ATS unit at the aerodrome of diversionary landing the pilot is responsible for passing the arrival report to the destination aerodrome by the most expeditious means.

4.4.9.5 Arrival reports shall contain the following elements of information:

- a) Aircraft identification
- b) Departure aerodrome
- c) Destination aerodrome (only in the case of diversionary landing)
- d) Arrival aerodrome
- e) Time of arrival

4.4.10 Repetitive flight plan

4.4.10.1 Repetitive Flight Plans (RPL) should be used for all domestic scheduled IFR flights operated regularly on the same day(s) of consecutive weeks and on at least ten occasions or every day over a period of at least ten consecutive days. The elements of each flight plan shall have a high degree of stability. RPLs shall be submitted in the form of listings containing the required flight plan data using an RPL listing form.

4.4.10.2 RPL listings shall be submitted separately for winter and summer periods. The effective dates for winter and summer RPL are 22nd of September and 22nd of March, respectively.

4.4.10.3 Initial submission of complete RPL listing and any subsequent seasonal resubmission of complete listing or any permanent changes thereto shall be made at least three weeks before effective date to permit the data to be properly assimilated by the ATS.

Note. The number of RPL amendment (RMDT) can be accepted during validity time of RPL, shall not exceed one amendment per listing.

4.4.10.4 Operators shall submit listings to the AIS office for distribution to the appropriate air traffic services.

4.4.10.5 Only upon receipt of an acknowledgement from AIS, may the operator consider that listings of flight plan data and/or amendment thereto to be processed.

4.4.10.6 An RPL listing form shall comprise information regarding the following items:

- a) Validity period of the flight plan
- b) Days of operation
- c) Aircraft identification
- d) Aircraft type and wake turbulence category
- e) Departure aerodrome and EOBT

-
- f) Cruising speed and cruising level
 - g) Route to be followed without SID and STAR
 - h) Destination aerodrome and total estimated elapsed time
 - i) Remarks, including alternate aerodrome(s), RNAV5 capability indication (R) and RVSM capability indication (W)
 - j) Name of the office from which the supplementary flight plan data (information normally provided under Item 19 of the ICAO flight plan form) may be obtained immediately upon request by ATS units.

4.4.11. Flight Plan and associated update messages Forms

Form F101:

ISLAMIC REPUBLIC OF IRAN
CIVIL AVIATION ORGANIZATION
AIR TRAFFIC SERVICES

جمهوری اسلامی ایران
سازمان هواپیمایی کشوری
مراقبت پرواز

FLIGHT PLAN			
PRIORITY <<<≡ FF >>>		ADDRESSEE(S) <<<≡	
FILING TIME 		ORIGINATOR <<<≡	
SPECIFIC IDENTIFICATION OF ADDRESSEE(S) AND/OR ORIGINATOR			
3 MESSAGE TYPE <<<≡ (FPL 7 AIRCRAFT IDENTIFICATION 8 FLIGHT RULES TYPE OF FLIGHT <<<≡			
9 NUMBER TYPE OF AIRCRAFT WAKE TURBULENCE CAT. 10 EQUIPMENT AND CAPABILITIES <<<≡			
13 DEPARTURE AERODROME TIME <<<≡			
15 CRUISING SPEED LEVEL ROUTE 			
16 DESTINATION AERODROME TOTAL EET ALTN AERODROME 2ND ALTN AERODROME <<<≡			
18 OTHER INFORMATION 			
) <<<≡			
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)			
19 ENDURANCE → E / → P / EMERGENCY RADIO → R / VHF ELT			
SURVIVAL EQUIPMENT → S / P JACKETS → J / L			
DINGHIES → D / CAPACITY COVER			
→ C COLOUR <<<≡			
AIRCRAFT COLOUR AND MARKINGS 			
REMARKS <<<≡			
PILOT-IN-COMMAND) <<<≡			
FILED BY 		SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE 	
ACCEPTED BY ARO / ATS UNIT 		PLEASE PROVIDE A TELEPHONE NUMBER SO ARO / ATS CAN CONTACT YOU IF NEEDED 	

Form F102A:

DELAY (DLA) MESSAGE

FF→

FILING TIME

ORIGINATOR

DLA	Aircraft Identification	Departure Aerodrome and Time	Destination Aerodrome	Other Information O/DOF
(DLA -)	-	-	-	-

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F102B:

DELAY OVER 0000 UTC, NEXT DAY (CHG) MESSAGE

FF→

FILING TIME

ORIGINATOR

CHG	Aircraft Identification	Departure Aerodrome and EOBT	Destination Aerodrome	O or DOF/	Departure Aerodrome and new EOBT over 0000 UTC
(CHG -	-	-	-	-	-13/
Other information of Filed flight plan and next day DOF/					
18/)					

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F103:

MODIFICATION (CHG) MESSAGE

FF→

FILING TIME

ORIGINATOR

CHG	Aircraft Identification	Departure Aerodrome and EOBT	Destination Aerodrome	0 or DOF/	Type of Aircraft	WTC
(CHG -	-	-	-	-		
-9/	/					
Equipment and capabilities		Other information of changed Filed Flight Plan				
-10/	/	-18/				
						)

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F104:

DELAY AND MODIFICATION (CHG) MESSAGE

FF→

FILING TIME

ORIGINATOR

CHG	Aircraft Identification	Departure Aerodrome and EOBT	Destination Aerodrome	0 or DOF/	Type of Aircraft	WTC
(CHG -	-	-	-	-		
/						-9/
Equipment and capabilities		Departure Aerodrome and new EOBT		Other information of changed Filed Flight Plan		
-10/		-13/		-18/		

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F105:

CANCELLATION (CNL) MESSAGE

FF→

FILING TIME

ORIGINATOR

CNL	Aircraft Identification	Departure Aerodrome and Time	Destination Aerodrome	Other information 0/DOF
(CNL - - - - -)				

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F106:

DEPARTURE (DEP) MESSAGE

FF→

FILING TIME

ORIGINATOR

DEP	Aircraft Identification and SSR mode and code	Departure Aerodrome and Time	Destination Aerodrome	Other information 0/DOF
(DEP - / - - -)				

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

Form F107:

ARRIVAL (ARR) MESSAGE

FF→

FILING TIME

ORIGINATOR

ARR	Aircraft Identification	Departure Aerodrome and Time	Arrival Aerodrome and Time
(ARR -)	-	-	

SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE
UNIT

ACCEPTED BY ATS

4.4.12 Instructions for the completion of the Flight Plan Form

4.4.12.1 General

- Adhere closely to the prescribed formats and manner of specifying data.
- Commence inserting data in the first space provided.
- Where excess space is available, leave unused spaces blank.
- Insert all clock times in 4 figures UTC.
- Insert all estimated elapsed times in 4 figures (hours and minutes).
- Shaded area preceding Item 3 – to be completed by ATS or ARO services.

Note. The term “aerodrome” where used in the flight plan is intended to cover also sites other than aerodromes which may be used by certain types of aircraft, e.g. helicopters or balloons.

4.4.12.2 Instructions for insertion of ATS data

- Complete Items 7 to 18 as indicated hereunder.

- b) Complete also Item 19 as indicated hereunder.

Note 1. Item numbers on the form are not consecutive, as they correspond to Field Type numbers in ATS messages.

Note 2. Air traffic services data systems may impose communications or processing constraints on information in filed flight plans. Possible constraints may, for example, be limits with regard to item length, number of elements in the route item or total flight plan length. Significant constraints are documented in the relevant Aeronautical Information Publication (AIP).

Item 7: Aircraft identification (Maximum 7 characters)

INSERT one of the following aircraft identifications, not exceeding 7 alphanumeric characters and without hyphens or symbols:

- a) the ICAO designator for the aircraft operating agency followed by the flight identification (e.g. IRA213) when in radiotelephony the call sign to be used by the aircraft will consist of the ICAO telephony designator for the operating agency followed by the flight identification (e.g. IRANAIR 213); OR
- b) the nationality or common mark and registration mark of the aircraft (e.g. EPIAD, URCPD, N2567GA), when in radiotelephony the call sign to be used by the aircraft will consist of this identification alone (e.g. EPPAT), or preceded by the ICAO telephony designator for the aircraft operating agency (e.g. ASEMAN EPPAT or ASEMAN PAT); Special call sign (e.g. PL8900, SEPEHR, HL9500, FLTCK1B, SOROUGH, ...)

Note 1. Standards for nationality, common and registration marks to be used are contained in Annex 7, Chapter 2.

Note 2. Provisions for the use of radiotelephony call signs are contained in Annex 10, Volume II, Chapter 5. ICAO designators and telephony designators for aircraft operating agencies are contained in Doc 8585 — Designators for Aircraft Operating Agencies, Aeronautical Authorities and Services.

Note 3. When type of flight is positioning or ferry flight, the aircraft identification shall be registration mark of a/c.

Item 8: Flight rules and type of flight (one or two characters)

Flight rules

INSERT one of the following letters to denote the category of flight rules with which the pilot intends to comply:

- a) I if it is intended that the entire flight will be operated under the IFR;
- b) V if it is intended that the entire flight will be operated under the VFR;
- c) Y if the flight initially will be operated under the IFR, followed by one or more subsequent changes of flight rules; or
- d) Z if the flight initially will be operated under the VFR, followed by one or more subsequent changes of flight rules.

Specify in Item 15 the point or points at which a change of flight rules is planned.

Type of flight

INSERT one of the following letters to denote the type of flight:

- a) S if commercial scheduled air service
- b) N if non-scheduled commercial air transport operation

- c) **G** if general aviation (e.g. Training flight, Private, etc.)
- d) **M** if military
- e) **X** if other than any of the defined categories above, such as Positioning flight, Ferry flight, Test flight and Aerial work operations.

Aerial work. An aircraft operation in which an aircraft is used for specialized services such as agriculture, construction, photography, surveying, observation and patrol, search and rescue, aerial advertisement, all Helicopter operations, clouds seeding, ambulance, firefighting, etc.

Specify status of a flight following the indicator STS in Item 18, or when necessary to denote other reasons for specific handling by ATS, indicate the reason following the indicator RMK in Item 18.

Item 9: Number and type of aircraft and wake turbulence category

Number of aircraft (1 or 2 characters)

INSERT the number of aircraft, if more than one

Type of aircraft (2 to 4 characters)

INSERT the appropriate designator as specified in ICAO Doc 8643, *Aircraft Type Designators*,

OR, if no such designator has been assigned, or in case of formation flights comprising more than one type,

INSERT ZZZZ, and SPECIFY in Item 18, the (numbers and) type(s) of aircraft preceded by TYP/.

Wake turbulence category (1 character)

INSERT an oblique stroke followed by one of the following letters to indicate the wake turbulence category of the aircraft:

- **J** - SUPER, to indicate an aircraft type specified as such in Doc 8643, *Aircraft Type Designators*;
- **H** - HEAVY, to indicate an aircraft type with a maximum certificated take-off mass of 136 000 kg or more, with the exception of aircraft types listed in Doc 8643 in the SUPER (J) category;
- **M** - MEDIUM, to indicate an aircraft type with a maximum certificated take-off mass of less than 136 000 kg but more than 7 000 kg;
- **L** - LIGHT, to indicate an aircraft type with a maximum certificated take-off mass of 7 000 kg or less.

Item 10: Equipment and capabilities

Capabilities comprise the following elements:

- Presence of relevant serviceable equipment on board the aircraft;
- Equipment and capabilities commensurate with flight crew qualifications; and
- Authorization from the appropriate authority, if required.

Radio communication, navigation and approach aid equipment and capabilities

INSERT one letter as follows:

N if no COM/NAV/approach aid equipment for the route to be flown is carried or the equipment is unserviceable,

OR **S** if standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (*see Note 1*),

AND/OR

INSERT one or more of the following letters to indicate the serviceable COM/NAV/approach aid equipment and capabilities available:

- **A** GBAS landing system

- **B** LPV (APV with SBAS)
- **C** LORAN C
- **D** DME
- **E1** FMC WPR ACARS
- **E2** D-FIS ACARS
- **E3** PDC ACARS
- **F** ADF
- **G** GNSS If any portion of the flight is planned to be conducted under IFR, it refers to GNSS receivers that comply with the requirements of Annex 10, Volume I (See Note 2)
- **H** HF RTF
- **I** Inertial Navigation
- **J1** CPDLC ATN VDL Mode 2 (See Note 3)
- **J2** CPDLC FANS 1/A HFDL
- **J3** CPDLC FANS 1/A VDL Mode A
- **J4** CPDLC FANS 1/A VDL Mode 2
- **J5** CPDLC FANS 1/A SATCOM (INMARSAT)
- **J6** CPDLC FANS 1/A SATCOM (MTSAT)
- **J7** CPDLC FANS 1/A SATCOM (Iridium)
- **K** MLS
- **L** ILS
- **M1** ATC RTF SATCOM (INMARSAT)
- **M2** ATC RTF (MTSAT)
- **M3** ATC RTF (Iridium)
- **O** VOR
- **P1** CPDLC RCP 400 (See Note 7)
- **P2** CPDLC RCP 240 (See Note 7)
- **P3** SATVOICE RCP 400 (See Note 7)
- **P4-P9** Reserved for RCP
- **R** PBN approved (See Note 4)
- **T** TACAN
- **U** UHF RTF
- **V** VHF RTF
- **W** RVSM approved
- **X** MNPS approved
- **Y** VHF with 8.33 kHz channel spacing capability
- **Z** Other equipment carried or other capabilities (See Note 5)

Any alphanumeric characters not indicated above are reserved.

Note 1: If the letter S is used, standard equipment is considered to be VHF RTF, VOR and ILS.

Note 2: If the letter G is used, the types of external GNSS augmentation, if any, are specified in Item 18 following the indicator NAV/ and separated by a space. (for GPS facility see also Note 5)

Note 3: See RTCA/EUROCAE Interoperability Requirements Standard for ATN Baseline 1 (ATN B1 INTEROP Standard – DO-280B/ED-110B) for data link services air traffic control clearance and information/air traffic control communications management/air traffic control microphone check.

Note 4: If the letter R is used, the performance-based navigation levels that can be met are specified in Item 18 following the indicator PBN/. Guidance material on the application of performance-based navigation to a specific route segment, route or area is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

Note 5: If the letter Z is used, specify in Item 18 the other equipment carried or other capabilities, preceded by COM/, NAV/ and/or DAT, as appropriate. Indication of GPS facility as an equipment should be as NAV/ GPS.

Note 6: An operator shall, prior to departure:

- a) *Ensure that, where the flight is intended to operate on a route or in an area where an RNP type is prescribed, the aircraft has an appropriate RNP approval, and that all conditions applying to that approval will be satisfied;*
- b) *Ensure that, where operation in reduced vertical separation minimum (RVSM) airspace is planned, the aircraft has the required RVSM approval; and*
- c) *Ensure that, where the flight is intended to operate where an RCP type is prescribed, the aircraft has an appropriate RCP approval, and that all conditions applying to that approval will be satisfied.*

Surveillance equipment and capabilities

INSERT N if no surveillance equipment for the route to be flown is carried or the equipment is unserviceable,
OR

INSERT one or more of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board:

SSR Modes A and C

- a) A Transponder — Mode A (4 digits — 4 096 codes)
- b) C Transponder — Mode A (4 digits — 4 096 codes) and Mode C
- c) *SSR Mode S*
- d) E Transponder — Mode S, including aircraft identification, pressure-altitude and extended squitter (ADS-B) capability
- e) H Transponder — Mode S, including aircraft identification, pressure-altitude and enhanced surveillance capability
- f) I Transponder — Mode S, including aircraft identification, but no pressure-altitude capability
- g) L Transponder — Mode S, including aircraft identification, pressure-altitude, extended squitter (ADS-B) and enhanced surveillance capability
- h) P Transponder — Mode S, including pressure-altitude, but no aircraft identification capability
- i) S Transponder — Mode S, including both pressure altitude and aircraft identification capability
- j) X Transponder — Mode S with neither aircraft identification nor pressure-altitude capability

Note. Enhanced surveillance capability is the ability of the aircraft to down-link aircraft derived data via a Mode S transponder.

ADS-B

- a) B1 ADS-B with dedicated 1 090 MHz ADS-B “out” Capability
- b) B2 ADS-B with dedicated 1 090 MHz ADS-B “out” and “in” capability
- c) U1 ADS-B “out” capability using UAT
- d) U2 ADS-B “out” and “in” capability using UAT
- e) V1 ADS-B “out” capability using VDL Mode 4
- f) V2 ADS-B “out” and “in” capability using VDL Mode 4

ADS-C

- a) D1 ADS-C with FANS 1/A capabilities
- b) G1 ADS-C with ATN capabilities

Alphanumeric characters not indicated above are reserved.

Example: ADE3RV/HB2U2V2G1

Note. Additional surveillance application should be listed in Item 18 following the indicator SUR/.

Item 13: Departure aerodrome and time (8 characters)

INSERT the ICAO four-letter location indicator of the departure aerodrome as specified in Doc 7910, Location Indicators,

OR, if no location indicator has been assigned,

INSERT ZZZZ and *SPECIFY*, in Item 18, the name and location of the aerodrome preceded by DEP/,

OR, if the flight plan is received from an aircraft in flight,

INSERT AFIL, and *SPECIFY*, in Item 18, the ICAO four-letter location indicator of the location of the ATS unit from which supplementary flight plan data can be obtained, preceded by DEP/

THEN, WITHOUT A SPACE,

INSERT for a flight plan submitted before departure, the estimated off-block time (EOBT),

OR, for a flight plan received from an aircraft in flight, the actual or estimated time over the first point of the route to which the flight plan applies.

Item 15: Route

INSERT the first cruising speed as in (a) and the first cruising level as in (b), without a space between them.

THEN, following the arrow, *INSERT* the route description as in (c).

(a) Cruising speed (maximum 5 characters)

INSERT the True airspeed for the first or the whole cruising portion of the flight, in terms of:

- a) *Kilometers per hour*, expressed as K followed by 4 figures (e.g. K0830), *or*
- b) *Knots*, expressed as N followed by 4 figures (e.g. N0485), *or*
- c) *True Mach number*, to the nearest hundredth of unit Mach, expressed as M followed by 3 figures (e.g. M082).

(b) Cruising level (maximum 5 characters)

INSERT the planned cruising level for the first or the whole portion of the route to be flown, in terms of:

- a) *Flight level*, expressed as F followed by 3 figures (e.g. F085; F330), *or*
- b) *Standard metric level in tens of meters*, expressed as S followed by 4 figures (e.g. S1130), *or*
- c) *Altitude in hundreds of feet*, expressed as A followed by 3 figures (e.g. A045; A100), *or*
- d) *Above Ground Level (AGL) in hundreds of feet*, for flight which is intended to use Above Ground Level (AGL) at or below 2500 Ft, express as followed by 3 figures (e.g. F005, F010, F015, F020 and F025) in order used for AGL500 FT, AGL1000 FT, AGL1500 FT, AGL2000 FT and AGL2500 FT.
- e) *Altitude in tens of meters*, expressed as M followed by 4 figures (e.g. M0840),

(c) Route (including changes of speed, level and/or flight rules)

➤ *Flights along designated ATS routes*

INSERT, if the departure aerodrome is located on or connected to the ATS route, the designator of the first ATS route,

OR, if the departure aerodrome is not on or connected to the ATS route, the letters DCT followed by the point of joining the first ATS route, followed by the designator of the ATS route.

THEN

INSERT each point at which either a change of speed and/or level is planned to commence, or a change of ATS route, and/or a change of flight rules is planned,

Note. When a transition is planned between a lower and upper ATS route and the routes are oriented in the same direction, the point of transition need not be inserted.

FOLLOWED IN EACH CASE

by the designator of the next ATS route segment, even if the same as the previous one,

OR by DCT, if the flight to the next point will be outside a designated route, unless both points are defined by geographical coordinates.

➤ *Flights outside designated ATS routes*

INSERT points normally not more than 30 minutes flying time or 370 km (200 NM) apart, including each point at which a change of speed or level, a change of track, or a change of flight rules is planned.

INSERT DCT between successive points unless both points are defined by geographical coordinates or by bearing and distance from navaid.

USE ONLY the conventions in (1) to (5) below and *SEPARATE* each sub-item by a space.

(1) ATS route (2 to 7 characters)

The coded designator assigned to the route or route segment including, where appropriate, the coded designator assigned to the SID or STAR (e.g. W3, NAGMO 1A, RADAL 1N).

Note. Provisions for the application of route designators are contained in Annex 11, Appendix 1.

(2) Significant point (2 to 11 characters)

The coded designator (2 to 5 characters) assigned to the point (e.g. VR, SAV, PAROT),

or, if no coded designator has been assigned, one of the following ways:

— *Degrees only (7 characters):*

2 figures describing latitude in degrees, followed by “N” (North) or “S” (South), followed by 3 figures describing longitude in degrees, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 46N078W.

— *Degrees and minutes (11 characters):*

4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W.

— *Bearing and distance from a navaid only:*

The identification of the Navaid, followed by the bearing from the Navaid in the form of 3 figures giving degrees magnetic, followed by the distance from the Navaid in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros — e.g. a point 180° magnetic at a distance of 40 nautical miles from VOR “DHN” should be expressed as DHN180040.

(3) Change of speed or level (Maximum 21 characters)

The point at which a change of speed (5% TAS or 0.01 Mach or more) or a change of level is planned to commence, expressed exactly as in (2) above, followed by an oblique stroke and both the cruising speed and the cruising level, expressed exactly as in (a) and (b) above, without a space between them, even when only one of these quantities will be changed.

Examples: VR/N0284A045
DHN/N0305F180
PAROT/N0420F330
3542N05120E/N0500F350
35N051E/M082F330
DHN180040/N0350F220

(4) Change of flight rules (Maximum 3 characters)

The point at which the change of flight rules is planned, expressed exactly as in (2) or (3) above as appropriate, followed by a space and one of the following:

- VFR if from IFR to VFR
- IFR if from VFR to IFR

Examples: VR/N0180A045 VFR
VR/N0284F150 IFR

(5) Cruise climb (maximum 28 characters)

The letter C followed by an oblique stroke; THEN the point at which cruise climb is planned to start, expressed exactly as in (2) above, followed by an oblique stroke; THEN the speed to be maintained during cruise climb, expressed exactly as in (a) above, followed by the two levels defining the layer to be occupied during cruise climb, each level expressed exactly as in (b) above, or the level above which cruise climb is planned followed by the letters PLUS, without a space between them.

Examples: C/35N051E/M082F430F470
C/35N051E/M082F410PLUS
C/35N051E/M220F580F620.

Item 16: Destination aerodrome and total estimated elapsed time, Destination alternate aerodrome(s)

Destination aerodrome and total estimated elapsed time (8 characters)

INSERT the ICAO four-letter location indicator of the destination aerodrome as specified in Doc 7910, Location Indicators,

OR, if no location indicator has been assigned,

INSERT ZZZZ and *SPECIFY* in Item 18 the name and location of the aerodrome, preceded by DEST/.

THEN WITHOUT A SPACE

INSERT the total estimated elapsed time.

Note. For a flight plan received from an aircraft in flight, the total estimated elapsed time is the estimated time from the first point of the route to which the flight plan applies to the termination point of the flight plan.

Destination alternate aerodrome(s)

INSERT the ICAO four-letter location indicator(s) of not more than two destination alternate aerodromes, as specified in Doc 7910, Location Indicators, separated by a space,

OR, if no location indicator has been assigned to the destination alternate aerodrome(s),

INSERT ZZZZ and SPECIFY in Item 18 the name and location of the destination alternate aerodrome(s), preceded by ALTN/.

Item 18: other information

Note. Use of indicators not included under this item may result in data being rejected, processed incorrectly or lost.

Hyphens or oblique strokes should only be used as prescribed below.

INSERT 0 (zero) if no other information,

OR, any other necessary information in the sequence shown hereunder, in the form of the appropriate indicator selected from those defined hereunder followed by an oblique stroke and the information to be recorded:

STS/ One or more reason for special handling by ATS, as follows:

- a) ALTRV: for a flight operated in accordance with an altitude reservation;
- b) FFR: firefighting;
- c) FLTCK: flight check for calibration of NAV aids;
- d) HAZMAT: for a flight carrying hazardous material;
- e) HEAD: a flight with Head of State status;
- f) HOSP: for a medical flight and ambulance;
- g) HUM: for a flight operating on a humanitarian mission;
- h) MEDEVAC: for a life critical medical emergency evacuation;
- i) NONRVSM: for a non-RVSM capable flight intending to operate in RVSM airspace;
- j) SAR: for a flight engaged in a search and rescue mission for the purpose of providing ATS alerting service; and
- k) STATE: for a flight engaged in military, customs or police services.

Other reasons for special handling by ATS shall be denoted under the designator RMK/ (e.g. RMK/TEST FLT, RMK/ONE ENG INOP, RMK/SM, etc.)

PBN/ Indication of RNAV and / or RNP capabilities. Include as many of the descriptors below, as apply to the flight, up to a maximum of 8 entries, i.e. a total of not more than 16 characters without any space (e.g. PBN/A1B3B4B5C4D2D4O1).

➤ RNAV SPECIFICATIONS

- a) A1 RNAV 10 (RNP 10)
- b) B1 RNAV 5 all permitted sensors (see Note below)
- c) B2 RNAV 5 GNSS
- d) B3 RNAV 5 DME/DME
- e) B4 RNAV 5 VOR/DME
- f) B5 RNAV 5 INS or IRS
- g) B6 RNAV 5 LORANC
- h) C1 RNAV 2 all permitted sensors

- i) C2 RNAV 2 GNSS
- j) C3 RNAV 2 DME/DME
- k) C4 RNAV 2 DME/DME/IRU
- l) D1 RNAV 1 all permitted sensors
- m) D2 RNAV 1 GNSS
- n) D3 RNAV 1 DME/DME
- o) D4 RNAV 1 DME/DME/IRU

Note: Insert only B1 if the flight qualifies for all of the B2, B3, B4 and B5.

➤ RNP SPECIFICATIONS

- a) L1 RNP 4
- b) O1 Basic RNP 1 all permitted sensors
- c) O2 Basic RNP 1 GNSS
- d) O3 Basic RNP 1 DME/DME
- e) O4 Basic RNP 1 DME/DME/IRU
- f) S1 RNP APCH
- g) S2 RNP APCH with BARO-VNAV
- h) T1 RNP AR APCH with RF (special authorization required)
- i) T2 RNP AR APCH without RF (special authorization required)

Combinations of alphanumeric characters not indicated above are reserved.

NAV/ Significant data related to navigation equipment, other than specified in PBN/, as required by the CAA.IRI. Indicate GNSS augmentation under this indicator, with a space between two or more methods of augmentation, e.g. NAV/GBAS SBAS.

COM/ Indicate communications applications or capabilities not specified in Item 10 a).

DAT/ Indicate data applications or capabilities not specified in 10 a).

SUR/ Include surveillance applications or capabilities not specified in Item 10 b).

DEP/ Name and location of departure aerodrome, if ZZZZ is inserted in Item 13, or the ATS unit from which supplementary flight plan data can be obtained, if AFIL is inserted in Item 13. For aerodromes not listed in the Aeronautical Information Publication (AIP), indicate location as follows:

With 4 figures describing latitude in degrees and tens and units of minutes followed by “N” (North) or “S” (South), followed by 5 figures describing longitude in degrees and tens and units of minutes, followed by “E” (East) or “W” (West). Make up the correct number of figures, where necessary, by insertion of zeros, e.g. 4620N07805W (11 characters).

OR, Bearing and distance from the nearest significant point, as follows:

The identification of the significant point followed by the bearing from the point in the form of 3 figures giving degrees magnetic, followed by the distance from the point in the form of 3 figures expressing nautical miles. In areas of high latitude where it is determined by the appropriate authority that reference to degrees magnetic is impractical, degrees true may be used. Make up the correct number of figures, where necessary, by insertion of zeros, e.g. a point of 180° magnetic at a distance of 40 nautical miles from VOR “DHN” should be expressed as DHN180040.

OR, The first point of the route (name or LAT/LONG) or the marker radio beacon, if the aircraft has not taken off from an aerodrome.

DEST/ Name and location of destination aerodrome, if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication (AIP), indicate location in LAT/LONG from the nearest Navaid, as described under DEP/ above.

DOF/ The date of flight departure in a six-figure format (YYMMDD, where YY equals the year, MM equals the month and DD equals the day).

REG/ The nationality or common mark and registration mark of the aircraft, if different from the aircraft identification in Item 7.

EET/ Significant points or FIR boundary designators and accumulated estimated elapsed times from take-off to such points or FIR boundaries, when so prescribed on the basis of regional air navigation agreements, or by CAA.IRI.

Examples: EET/ ORSAR0830
 EET/OIIX0204

SEL/ SELCAL Code, for aircraft so equipped.

TYP/ Type(s) of aircraft, preceded if necessary without a space by number(s) of aircraft and separated by one space, if ZZZZ is inserted in Item 9.

Example: TYP/2F14 5F5 3C130

CODE/ Aircraft address (expressed in the form of an alphanumerical code of six hexadecimal characters).

Example: "F00001" is the lowest aircraft address contained in the specific block administered by ICAO.

DLE/ En-route delay or holding, insert the significant point(s) on the route where a delay is planned to occur, followed by the length of delay using four-figure time in hours and minutes (hhmm).

Example: DLE/DHN0030

OPR/ ICAO designator or name of the aircraft operating agency, if different from the aircraft identification in item 7.

ORGN/ The originator's 8 letter AFTN address or other appropriate contact details, in cases where the originator of the flight plan may not be readily identified.

Note. In some areas, flight plan reception centres may insert the ORGN/ identifier and originator's AFTN address automatically.

PER/ Aircraft performance data, indicated by a single letter as specified in the Procedures for Air Navigation Services - Aircraft Operations (CAA.IRI AIR OPS), Volume I — Flight Procedures, as below:

- Category A: less than 169 km/h (91 kt) indicated airspeed (IAS)
- Category B: 169 km/h (91 kt) or more but less than 224 km/h (121 kt) IAS
- Category C: 224 km/h (121 kt) or more but less than 261 km/h (141 kt) IAS
- Category D: 261 km/h (141 kt) or more but less than 307 km/h (166 kt) IAS
- Category E: 307 km/h (166 kt) or more but less than 391 km/h (211 kt) IAS
- Category H: Specific procedures for Helicopters.

ALTN/ Name of destination alternate aerodrome(s), if ZZZZ is inserted in Item 16. For aerodromes not listed in the relevant Aeronautical Information Publication (AIP), indicate location in LAT/LONG or bearing and distance from the nearest navaid, as described in DEP/ above.

RALT/ ICAO four letter indicator(s) for en-route alternate(s), as specified in Doc 7910, Location Indicators, or name(s) of en-route alternate aerodrome(s), if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication (AIP), indicate location in LAT/LONG or bearing and distance from the nearest navaid, as described in DEP/ above.

TALT/ ICAO four letter indicator(s) for take-off alternate, as specified in Doc 7910, Location Indicators, or name of take-off alternate aerodrome, if no indicator is allocated. For aerodromes not listed in the relevant Aeronautical Information Publication (AIP), indicate location in LAT/LONG or bearing and distance from the nearest navaid, as described in DEP/ above.

RIF/ The route details to the revised destination aerodrome, followed by the ICAO four-letter location indicator of the aerodrome. The revised route is subject to re-clearance in flight.

Examples: RIF/TBZ R661 MIVAK OIII
RIF/KER R654 YZD W32 ROVAD G208 RADAL OIII

RMK/ Any other plain-language remarks when deemed necessary. (e.g.: IRFPN YK/1A/29/8436 GAF, SM, TCAS EQUIPPED, etc.)

Item 19: supplementary information

Endurance

After E/ *INSERT a 4-figure group giving the fuel endurance in hours and minutes.*

Persons on board

After P/ *INSERT the total number of persons (passengers and crew) on board. INSERT TBN (to be notified) if the total number of persons is not known at the time of filing.*

Emergency and survival equipment

R/ (RADIO) *CROSS OUT U* if UHF on frequency 243.0 MHz is not available. *CROSS OUT V* if VHF on frequency 121.5 MHz is not available. *CROSS OUT E* if emergency locator transmitter (ELT) is not available.

S/ (SURVIVAL EQUIPMENT) *CROSS OUT* all indicators if survival equipment is not carried. *CROSS OUT P* if polar survival equipment is not carried. *CROSS OUT D* if desert survival equipment is not carried. *CROSS OUT M* if maritime survival equipment is not carried. *CROSS OUT J* if jungle survival equipment is not carried.

J/ (JACKETS) *CROSS OUT* all indicators if life jackets are not carried. *CROSS OUT L* if life jackets are not equipped with lights. *CROSS OUT F* if life jackets are not equipped with fluorescein. *CROSS OUT U* or *V* or both as in R/ above to indicate radio capability of jackets, if any.

D/ (DINGHIES) (NUMBER) *CROSS OUT* indicators D and C if no dinghies are carried, or *INSERT* number of dinghies carried; and

(CAPACITY) *INSERT* total capacity, in persons, of all dinghies carried; and

(COVER) *CROSS OUT* indicator C if dinghies are not covered; and

(COLOUR) *INSERT* color of dinghies if carried.

A/ (AIRCRAFT COLOUR AND MARKINGS) *INSERT* colour of aircraft and significant markings.

N/ (REMARKS) *CROSS OUT* indicator N if no remarks, or *INDICATE* any other survival equipment carried and any other remarks regarding survival equipment.

C/ (PILOT) *INSERT* name of pilot-in-command.

4.4.12.3 Filed by

INSERT the name of the unit, agency or person filing the flight plan.

4.4.12.4 Acceptance of the flight plan

Indicate acceptance of the flight plan by ATS by signature and date/time of acceptance.

4.4.12.5 Instructions for insertion of COM data.

Items to be completed

COMPLETE, the areas indicating: Address, Filing time, Originator by ATS unit.

Example of a completed flight plan form

View FPL Paper

ISLAMIC REPUBLIC OF IRAN CIVIL AVIATION ORGANIZATION AIR TRAFFIC SERVICES				جمهوری اسلامی ایران سازمان هواپیمایی کشوری مراقبت پرواز	
FLIGHT PLAN					
PRIORITY FF		ADDRESSES(S) OIFMZTX OIIIRAX OIIIRAX OIIIZAX OIIIZTX OIIIZQZX OIIIXRZX OIIYZPX OIIYZTX			
FLIGHT TIME 2,60,63,6		ORIGINATOR O I I X I F P S			
SPECIFIC IDENTIFICATION OF ADDRESSES(S) AND/OR ORIGINATOR					
MESSAGE TYPE (FPL)		AIRCRAFT IDENTIFICATION I R A 2 9 8		FLIGHT RULES I	
NUMBER A 3 1 9		WAKE TURBULENCE CAT. M		EQUIPMENT AND CAPABILITIES SDFGHIJ1RWY / B1H	
DEPARTURE AERODROME O I I I		TIME 1,6,0,5			
CRUISING SPEED N 0,4,7,5		LEVEL F,2,9,0		ROUTE OBRIX2A OBRIX T215 PURKI W32 BONOL BONOL1N	
DESTINATION AERODROME O I Y Y		TOTAL FET 0,0,4,7		ALTN AERODROME O I F M	
2ND ALTN AERODROME					
OTHER INFORMATION PBN/B1D101S2A1 DOF/210926 REG/EPIEP SEL/DFLP PER/C					
SUPPLEMENTARY INFORMATION (NOT TO BE TRANSMITTED IN FPL MESSAGES)					
ENDURANCE E / 0,2,0,7		PERSONS ON BOARD P / T, B, N		EMERGENCY RADIO R / U V E	
SURVIVAL EQUIPMENT S / P D M J		JACKETS J / L F U Y			
DINGHIES NUMBER CAPACITY COVER		COLDER			
AIRCRAFT COLOUR AND MARKINGS A / B OVER W					
REMARKS N					
PILOT-IN-COMMAND C / SARALLAH					
FILED BY MR. ARMAN FAMILI 2021/09/26 06:33		SIGNATURE OF PILOT-IN-COMMAND / DESIGNATED REPRESENTATIVE PLEASE PROVIDE A TELEPHONE NUMBER SO ARO / ATS CAN CONTACT YOU IF NEEDED		ACCEPTED BY ARO / ATS UNIT MR. HAMID HOSEINIAN 2021/09/26 06:36	

Close

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Chapter 5 . SEPARATION METHODS AND MINIMA

Section 1

GENERAL PRINCIPLE

5.1.1 CONCEPT

5.1.1.1 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 SIRA, or
 - 2) a modified table of cruising levels, when so prescribed in accordance with Appendix 3 of SIRA 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 (AIP) 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;

5.1.1.2 Vertical or horizontal separation shall be provided:

- a) between all flights in Class A and B airspaces;
- b) between IFR flights in Class C, D and E airspaces;
- c) between IFR flights and VFR flights in Class C airspace;
- d) between IFR flights and special VFR flights; and
- e) between special VFR flights;

except, for the cases under b) above in airspace Classes D and E, during the hours of daylight when flights have been cleared to climb or descend subject to maintaining own separation and remaining in visual meteorological conditions. Conditions applicable to the use of this procedure are contained in 5.2.6.

5.1.1.3 No clearance shall be given to execute any manoeuvre that would reduce the spacing between two aircraft to less than the separation minimum applicable in the circumstances.

5.1.1.4 Larger separations than the specified minima should be applied whenever exceptional circumstances such as unlawful interference, Head flight or navigational difficulties call for extra precautions. This should be done with due regard to all relevant factors so as to avoid impeding the flow of air traffic by the application of excessive separations.

5.1.1.5 The separation minima specified above should be increased in the following circumstances:

- a) HEAD flights, indicating STS/HEAD in item 18 if the flight plan;
- b) Pilot reporting severe turbulence or the aircraft is known to be entering an area of severe turbulence;
- c) Failure of a navigational aid or communication equipment that reduces the capacity for frequent determination of position and speed;
- d) Aircraft performance is degraded below the level required for the airspace, as a result of failure or degradation of navigation, communications, altimetry, flight control or other systems;
- e) An aircraft experiencing emergency; and
- f) An aircraft is being subjected to unlawful interference.

5.1.1.6 Where the type of separation or minimum used to separate two aircraft cannot be maintained, another type of separation or another minimum shall be established prior to the time when the current separation minimum would be infringed.

5.1.2 DEGRADED AIRCRAFT PERFORMANCE

5.1.2.1 Whenever, as a result of failure or degradation of navigation, communications, altimetry, flight control or other systems, aircraft performance is degraded below the level required for the airspace in which it is operating, the flight crew shall advise the ATC unit concerned without delay. Where the failure or degradation affects the separation minimum currently being employed, the controller shall take action to establish another appropriate type of separation or separation minimum.

5.1.3 SEPARATION MINIMA

The selection of separation minima for application within a given portion of airspace shall be in accordance with 3.4 annex 11.

Section 2

VERTICAL SEPARATION

5.2.1 ASSIGNMENT OF CRUISING LEVELS FOR CONTROLLED FLIGHTS

5.2.1.1 An ATC unit shall normally authorize only one level for an aircraft beyond its control area, i.e. that level at which the aircraft will enter the next control area whether contiguous or not. It is the responsibility of the accepting ATC unit to issue clearance for further climb as appropriate. When relevant, aircraft will be advised to request En-route any cruising level changes desired.

5.2.1.2 If it is necessary to change the cruising level of an aircraft operating along an established ATS route extending partly within and partly outside controlled airspace and where the respective series of cruising levels are not identical, the change shall, whenever possible, be effected within controlled airspace.

5.2.1.3 When an aircraft has been cleared into a control area at a cruising level which is below the established minimum cruising level for a subsequent portion of the route, the ATC unit responsible for the area should issue a revised clearance to the aircraft even though the pilot has not requested the necessary cruising level change.

5.2.1.4 An aircraft may be cleared to change cruising level at a specified time, place or rate.

Note. See 5.2.4.1 and 4.3.2 concerning procedures for vertical speed control.

5.2.1.5 In so far as practicable, cruising levels of aircraft flying to the same destination shall be assigned in a manner that will be correct for an approach sequence at destination.

5.2.1.6 An aircraft at a cruising level shall normally have priority over other aircraft requesting that cruising level. When two or more aircraft are at the same cruising level, the preceding aircraft shall normally have priority.

5.2.1.7 The cruising levels, the range of levels, to be assigned to controlled flights shall be selected from those allocated to IFR flights in accordance with the tables 5-1 of cruising levels.

5.2.1.8 Vertical separation is obtained by requiring aircraft using the same altimeter setting references (1013.2 hPa/QNH) to operate at different levels expressed in terms of flight levels or altitudes in accordance with the provisions in Chapter 3, Section 5.

5.2.2 VERTICAL SEPARATION MINIMUM

- a) A nominal 1000 feet below FL290 and a nominal 2000 feet at or above FL290, except as provided for in "b" below; and
- b) A nominal 1000 feet when both aircraft are RVSM compliant and operating within designated RVSM airspace.

Table 5-1 Cursing levels

Aircraft operating	Magnetic track* (Degrees)	Assigned	Example
Below 3000 ft	Any track	Any altitude	500 ft
Above FL30 up to FL410 inclusive	0-179	Odd cardinal altitude or flight levels at intervals of 2000 ft	3000 ft, 5000 ft FL310, FL350
	180-359	Even cardinal altitude or flight levels at intervals of 2000 ft	4000 ft, 6000 ft FL320, FL340
Above FL410	0-179	Odd cardinal altitude or flight levels at intervals of 4000 ft	FL410, FL450
	180-359	Even cardinal altitude or flight levels at intervals of 4000 ft	FL430, FL470
<i>*Departure and arrival flights in TMA and CTR may not be subject to level/track correlation.</i>			

5.2.3 CRUISE CLIMB

Cruise climb is not permitted in Tehran FIR.

5.2.4 VERTICAL SEPARATION DURING CLIMB AND DESCENT

5.2.4.1 An aircraft may be cleared to a level previously occupied by another aircraft after the latter has reported vacating it, except when:

- a) severe turbulence is known to exist; or
- b) the higher aircraft is effecting a cruise climb; or
- c) the aircraft concerned are established at the same holding pattern; or
- d) the difference in aircraft performance is such that less than the applicable separation minimum may result;

5.2.4.2 In which case such clearance shall be withheld until the aircraft vacating the level has reported at or passing another level separated by the required minimum.

5.2.5 STEP CLIMB AND DESCENTS

The step climb/descent procedure may be used for simultaneous climb/descent of the aircraft to vertically separated levels provided that the lower/higher aircraft is progressively assigned levels that provide vertical separation with the higher/lower aircraft.

5.2.6 VMC CLIMB AND DESCENT BETWEEN TWO AIRCRAFT

5.2.6.1 To avoid excessive delays to aircraft which are not flying in reciprocal tracks and when ATS surveillance systems are not available, ATC unit may clear an aircraft to climb or descend in VMC provided:

- a) requested by pilot;
- b) the pilot of the aircraft climbing or descending agrees to maintain his own separation from other aircraft and the manoeuvre is agreed by the pilot of the other aircraft;
- c) it is during the hours of daylight;
- d) the aircraft is flying in visual meteorological conditions;
- e) the manoeuvre is restricted to Class D, E; and
- f) below 10000 ft

5.2.6.2 Essential traffic information shall be passed to both aircraft.

Note. The pilot of the aircraft that is requesting a VMC climb/descent is responsible to be ascertain that he will remain in VMC during the manoeuvre.

5.2.6.3 If there is a possibility that flight under visual meteorological conditions may become impracticable, an IFR

flight shall be provided with alternative instructions to be complied with in the event that flight in visual meteorological conditions (VMC) cannot be maintained for the term of the clearance;

5.2.6.4 The pilot of an IFR flight, on observing that conditions are deteriorating and considering that operation in VMC will become impossible, shall inform ATC before entering instrument meteorological conditions (IMC) and shall proceed in accordance with the alternative instructions given.

Section 3

HORIZONTAL SEPARATION - LATERAL

5.3.1 GENERAL CONCEPT

5.3.1.1 Lateral separation should be applied so that the distance between those portions of the intended routes for which the aircraft are to be laterally separated is never less than an established distance to account for navigational inaccuracies plus a specified buffer. This buffer should be determined by the air traffic services provider and approved by CAA.IRI and included in the lateral separation minima as an integral part thereof.

Note. In the minima specified in 5.3.2 an appropriate buffer has already been included.

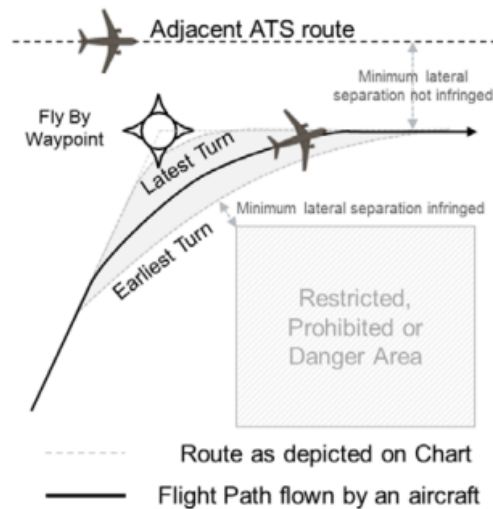
5.3.1.2 Lateral separation of aircraft is obtained by requiring operation on different routes or in different geographical locations as determined by visual observation, by the use of navigation aids or by the use of area navigation (RNAV) equipment (see LATCIs).

5.3.1.3 Where a route flown by an aircraft involves a specified turn which will result in the minimum lateral separation being infringed, another type of separation or another minimum shall be established prior to the aircraft commencing the turn (see Figures 5-1 and 5-2).

5.3.1.4 For flyover waypoints, aircraft are required to first fly over the waypoint before executing the turn. After the turn, the aircraft may either navigate to join the route immediately after the turn or navigate to the next defined waypoint before rejoining the route. This will require additional lateral separation on the overflown side of the turn (See Figure 5-1).

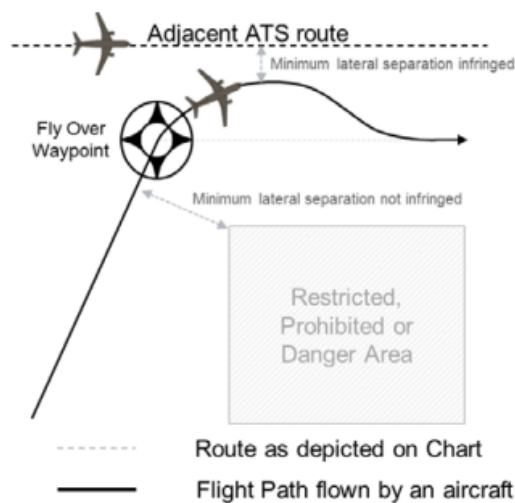
Note. This does not apply to ATS routes that have turns using fly-by waypoints.

5.3.1.5 When information is received indicating navigation equipment failure or deterioration below the navigation performance requirements, ATC shall then, as required, apply alternative separation methods or minima.



Fly By Turns

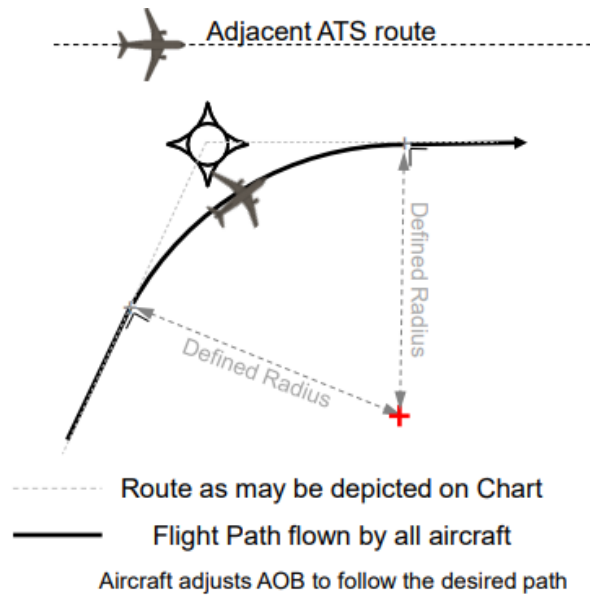
Aircraft will calculate a turn radius and angle of bank (AOB) subject to performance characteristics, airspeed, altitude, angle of turn and wind conditions. Aircraft determine to initiate the turn, prior to the waypoint, based on the calculated radius – this may be up to 20 NM before the waypoint. There will be variation in the paths because each aircraft calculates its own turn radius (indicated by the grey area in the figure). This variation becomes more apparent at higher altitudes and greater turn angles. The controller can expect the aircraft track to be on the inside of the waypoint.



Flyover Turns

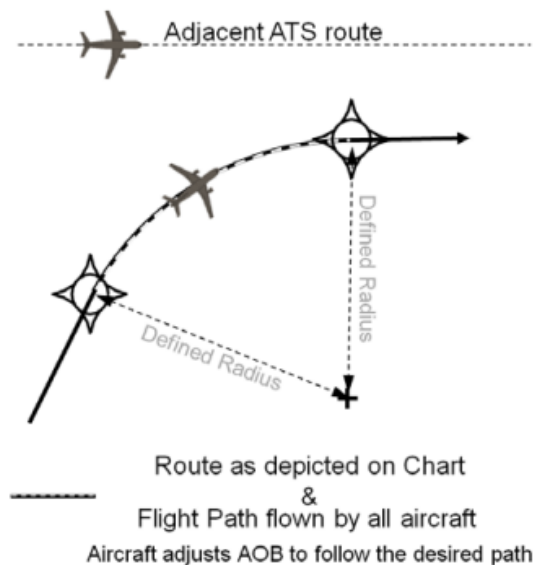
Aircraft will come to the overhead of the waypoint before initiating the turn onto the next leg. Therefore, if the minimum prescribed lateral separation is applied, it will be infringed as the aircraft manoeuvres onto its next leg. The controller can expect the aircraft track to be on the outside of the waypoint.

Figure 5-1: Turn over flyover waypoint and turn at fly-by waypoint



Fixed Radius Transition (FRT)

An FRT for published enroute RNP ATS routes has a turn radius specified by the airspace planner. Approaching the waypoint, the computer will calculate the arc centre and will initiate the turn at a point perpendicular to that centre point. This turn type should provide highly consistent and repeatable turn performance.



Radius arc to a Fix (RF)

The RF for Instrument Flight Procedures (IFP) is a curved route segment that has been designed with a published radius and arc centre. Aircraft will initiate the turn at the waypoint defining the start of the curved segment and will follow the published route until the next waypoint. This turn type should provide highly consistent and repeatable turn performance.

Figure 5-2: Fixed radius transition (FRT) and radius arc to a Fix (RF) turn

5.3.2 LATERAL SEPARATION CRITERIA AND MINIMA

5.3.2.1 Means by which lateral separation may be applied include the following:

5.3.2.1.1 By reference to the same or different geographical locations.

By position reports which positively indicate the aircraft are over different geographic locations as determined visually or by reference to a navigation aid in relevant LATCIs and OM (see figure 5-3).

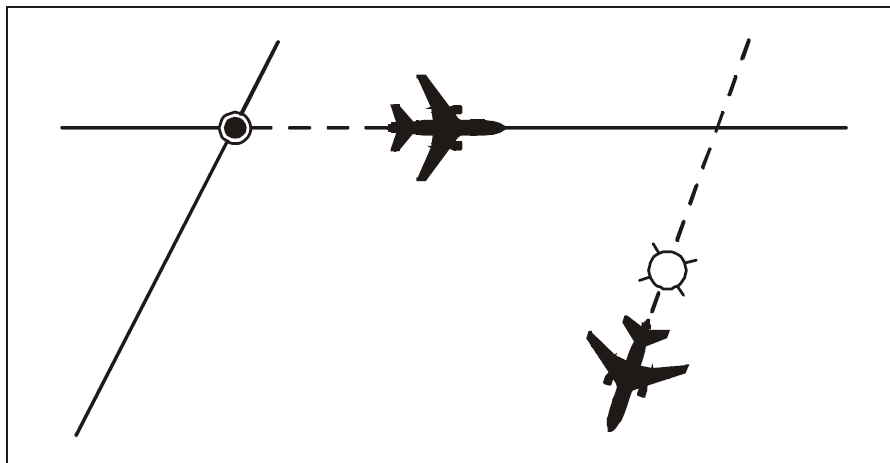


Figure 5-3 Using same or different geographic locations

5.3.2.1.2 Lateral separation of aircraft on intersecting tracks or ATS routes.

Lateral separation between aircraft operating on intersecting tracks or ATS routes shall be established in accordance with the following.

- a) an aircraft converging with the track of another aircraft is laterally separated until it reaches a lateral separation point that is located a specified distance measured perpendicularly from the track of the other aircraft (see figure 5-4); and
- b) an aircraft diverging from the track of another aircraft is laterally separated after passing a lateral separation point that is located a specified distance measured perpendicularly from the track of the other aircraft (see figure 5-4).

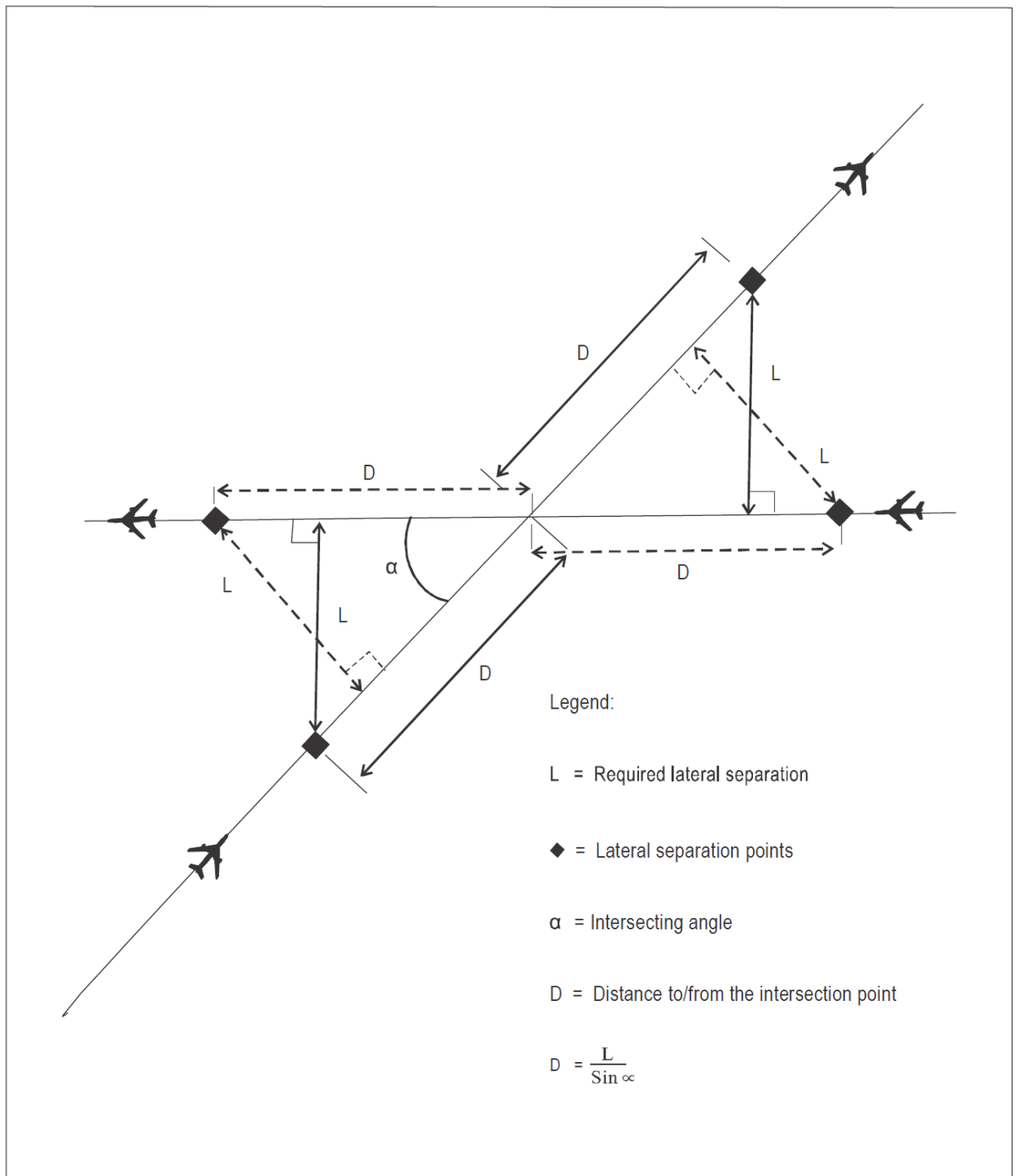


Figure 5-4 Lateral separation points

5.3.2.1.3 By use of NDB, VOR or GNSS on intersecting tracks or ATS routes.

This type of separation may be used for tracks that intersect at any angles using the values for lateral separation points specified below:

a) VOR:

Using VOR and associated DME/TACAN station. Both aircraft must have reported established on radials according to the following conditions:

1. both aircraft established on diverging radials at least 15 degrees and at least one aircraft is at a distance of 15 DME or more from the facility (see figure 5-5);

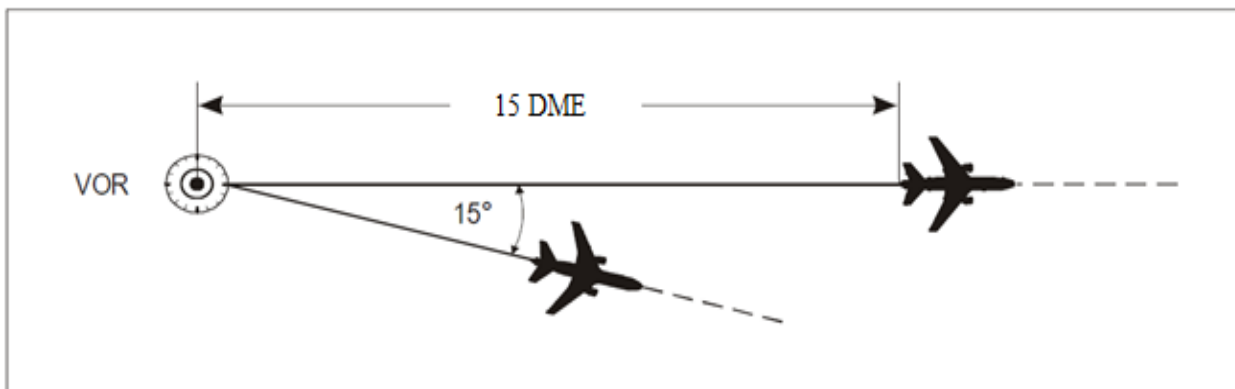


Figure 5-5 Separation using the same VOR - diverging

both aircraft established on converging radials at least 20 degrees and at least one aircraft is at a distance of 30 DME or more from the facility (see figure 5-6);

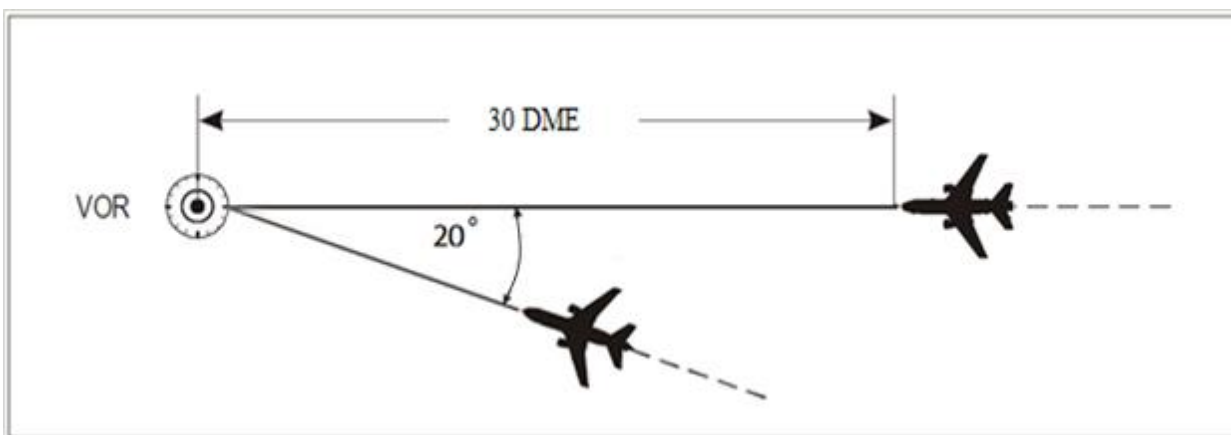


Figure 5-6 Separation using the same VOR - converging

one aircraft in bound and the other out bound from the VOR station (see figures 5-7 and 5-8) provided that:

- i. both aircraft established on radials with angular difference of at least 20 degrees and at least one aircraft is at a distance of 30 DME or more from the facility.

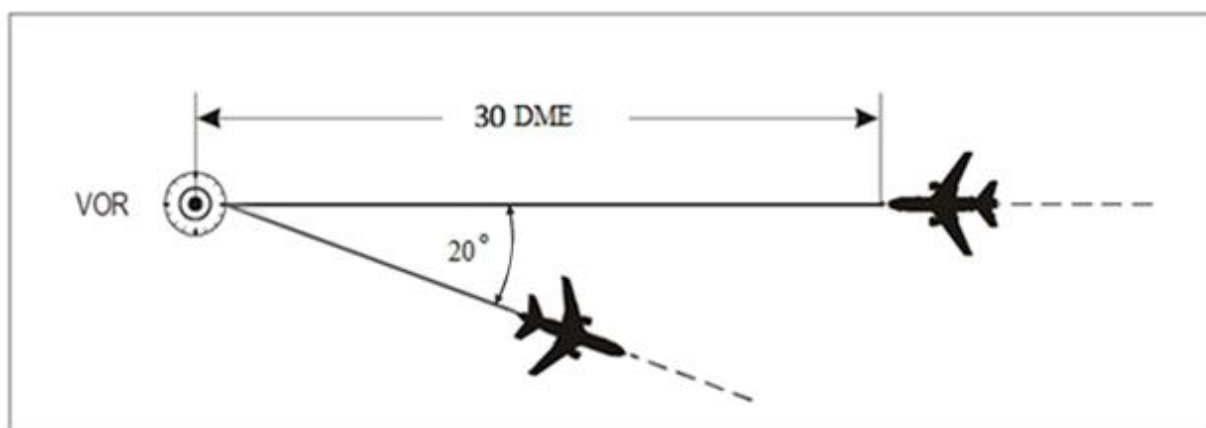


Figure 5-7 Separation using the same VOR – inbound and out bound

- ii. both aircraft established on radials with angular difference of at least 30 degrees and at least one aircraft is at a distance of 20 DME or more from the facility.

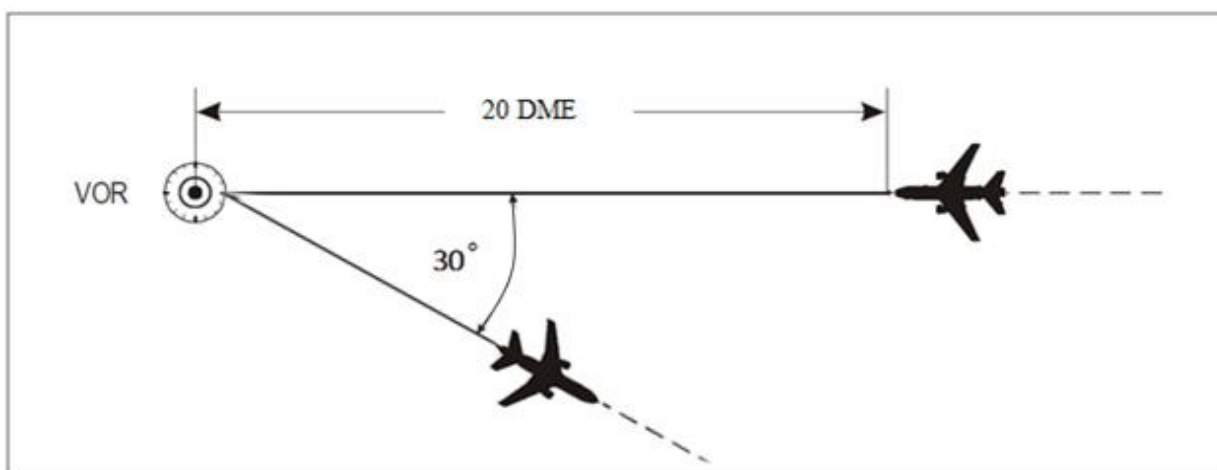


Figure 5-8 Separation using the same VOR– inbound and out bound

using VOR radials without DME/TACAN station

Both aircraft must have passed a VOR on radials diverging by 45 degrees or more and have reported established on the relevant radials (see figure 5-9).

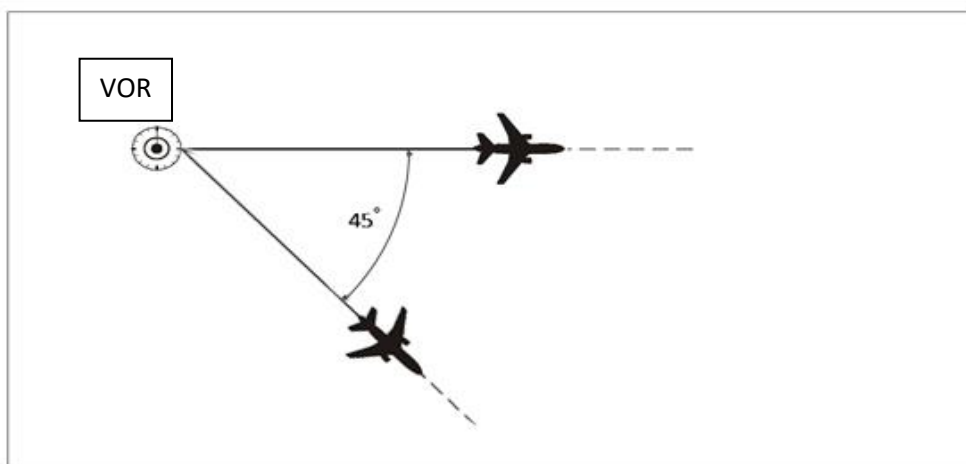


Figure 5-9 Separation using the same VOR without DME/TACAN station

b) NDB:

both aircraft are established on tracks from the NDB which are diverging by at least 30 degrees and at least one aircraft is at a distance of 15 DME or more from the facility (see figure 5-10);

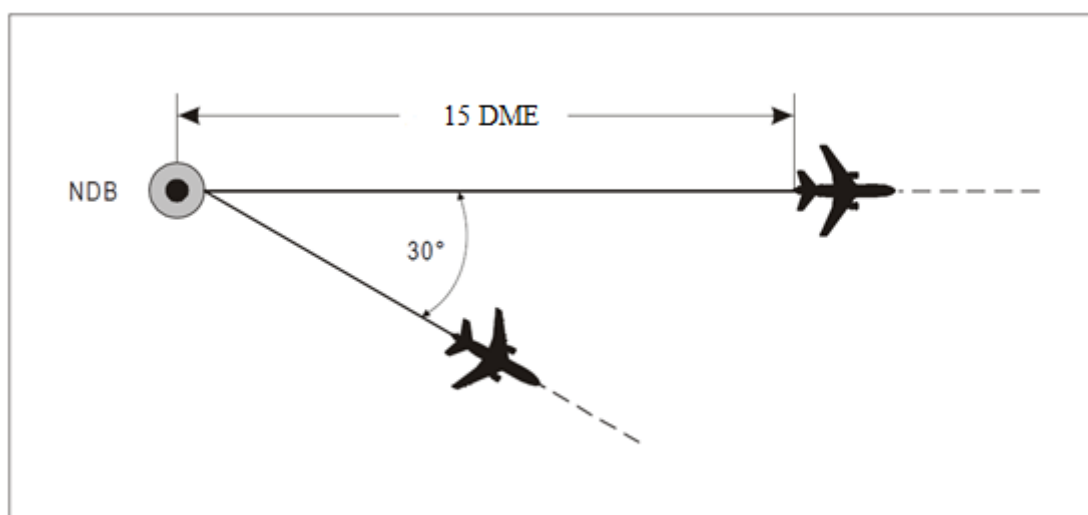


Figure 5-10 Separation using the same NDB

c) GNSS/GNSS and VOR/GNSS:

1. *GNSS/GNSS*: each aircraft is confirmed to be established on a track with zero offset between two waypoints and at least one aircraft is at a minimum distance from a common point as specified in table 5-2; or
2. *VOR/GNSS*: the aircraft using VOR is established on a radial to or from the VOR and the other aircraft using GNSS is confirmed to be established on a track with zero offset between two waypoints and at least one aircraft is at a minimum distance from a common point as specified in Table 5-2.

Table 5-2 Lateral separation for aircraft flying GNSS/GNSS and VOR/GNSS

Angular difference between tracks measured at the common point (degrees)	Aircraft 1: VOR or GNSS Aircraft 2: GNSS	
	FL010 – FL190 Distance from a common point	FL200 – FL600 Distance from a common point
15 – 135	27.8 km (15 NM)	43 km (23 NM)
The distances in the table are ground distances. States must take into account the distance (slant range) from the source of a DME signal to the receiving antenna when DME is being utilized to provide range information.		

GNSS-based track separation shall not be applied in cases of pilot-reported receiver autonomous integrity monitoring (RAIM) outages.

Note 1. For the purpose of applying GNSS-based lateral separation minima, distance and track information derived from an integrated navigation system incorporating GNSS input is regarded as equivalent to GNSS distance and track.

Note 2. Where position information derived from GNSS is the only input to the RNAV system, it is incumbent upon operators to confirm that the necessary coverage from GNSS is provided for the intended flight (route and time). The availability of GNSS integrity (Receiver Autonomous Integrity Monitoring (RAIM)) should be obtained from an on-board equipment function.

Note 3. The distances in the table are ground distances and, in their determination, the distance (slant range) from the source of a DME signal to the receiving antenna when DME is being utilized to provide range information is taken into account.

Phraseology:

Degradation of aircraft navigation performance:

- a) *GNSS REPORTED UNRELIABLE (or GNSS MAY NOT BE AVAILABLE [DUE TO INTERFERENCE]);*
 1. *IN THE VICINITY OF (location) (radius) [BETWEEN (levels)]; or*
 2. *IN THE AREA OF (description) (or IN (name) FIR) [BETWEEN (levels)];*
- b) *BASIC GNSS (or SBAS, or GBAS) UNAVAILABLE FOR (specify operation) [FROM (time) TO (time) (or UNTIL FURTHER NOTICE)];*

5.3.2.1.4 Lateral separation of aircraft on published instrument flight procedures for arrivals and departures should be established in the relevant LATCIs take into account paragraph 5.3.2.1.3.

5.3.2.1.5 RNAV operations where RNP is specified on parallel tracks or ATS routes. Within designated airspace or on designated routes, where RNP is specified, lateral separation between RNAV-equipped aircraft may be obtained by requiring aircraft to be established on the centre lines of parallel tracks or ATS routes spaced at a distance which ensures that the protected airspace of the tracks or ATS routes does not overlap.

Note. The spacing between parallel tracks or between parallel ATS route centre lines for which an RNP type is required will be dependent upon the relevant RNP type specified.

5.3.2.1.6 *By use of different navigation aids or methods.* Lateral separation between aircraft using different navigation aids, or when one aircraft is using RNAV equipment, shall be established by ensuring that the derived protected airspaces for the navigation aid(s) or RNP do not overlap.

5.3.2.1.7 *Transitioning into airspace where a greater lateral separation minimum applies.* Lateral separation will exist when aircraft are established on specified tracks which:

- a) are separated by an appropriate minimum; and
- b) diverge by at least 15 degrees until the applicable lateral separation minimum is established;

providing that it is possible to ensure, by means approved by CAA.IRI, that aircraft have the navigation capability necessary to ensure accurate track guidance.

Section 4

HORIZONTAL SEPARATION - LONGITUDINAL

5.4.1 GENERAL CONCEPT

5.4.1.1 Longitudinal separation shall be applied so that the spacing between the estimated positions of the aircraft being separated is never less than a prescribed minimum. Longitudinal separation between aircraft following the same or diverging tracks may be maintained by application of speed control, including the Mach number technique.

5.4.1.2 In applying a time or distance-based longitudinal separation minimum between aircraft following the same track, care shall be exercised to ensure that the separation minimum will not be infringed whenever the following aircraft is maintaining a higher airspeed than the preceding aircraft. When aircraft are expected to reach minimum separation, speed control shall be applied to ensure that the required separation minimum is maintained.

5.4.1.3 Longitudinal separation may be established by requiring aircraft to depart at a specified time, to arrive over a geographical location at a specified time, or to hold over a geographical location until a specified time.

5.4.1.4 For the purpose of application of longitudinal separation, the terms same track, reciprocal tracks and crossing tracks shall have the following meanings:

- a) *Same track*: same direction tracks and intersecting tracks or portions thereof, the angular difference of which is less than 45 degrees or more than 315 degrees, and whose protected airspaces overlap (see figure 5-11).
- b) *Reciprocal tracks*: opposite tracks and intersecting tracks or portions thereof, the angular difference of which is more than 135 degrees but less than 225 degrees, and whose protected airspaces overlap (see figure 5-11).
- c) *Crossing tracks*: intersecting tracks or portions thereof other than those specified in a) and b) above (see figure 5-11).

Note. As required by CAA.IRI ATM/ANS Appendix 1 to Annex xi, Section 2 (a), when ATS routes are established, a protected airspace along each ATS route shall be provided. As for the protected airspace within Tehran FIR, the published lateral limits of each ATS route in AIP ENR.3 is also considered as the protected airspace along that ATS route, nevertheless, the protected airspace of an ATS route shall not be considered to be less than 10 NM either side of the route centre line.

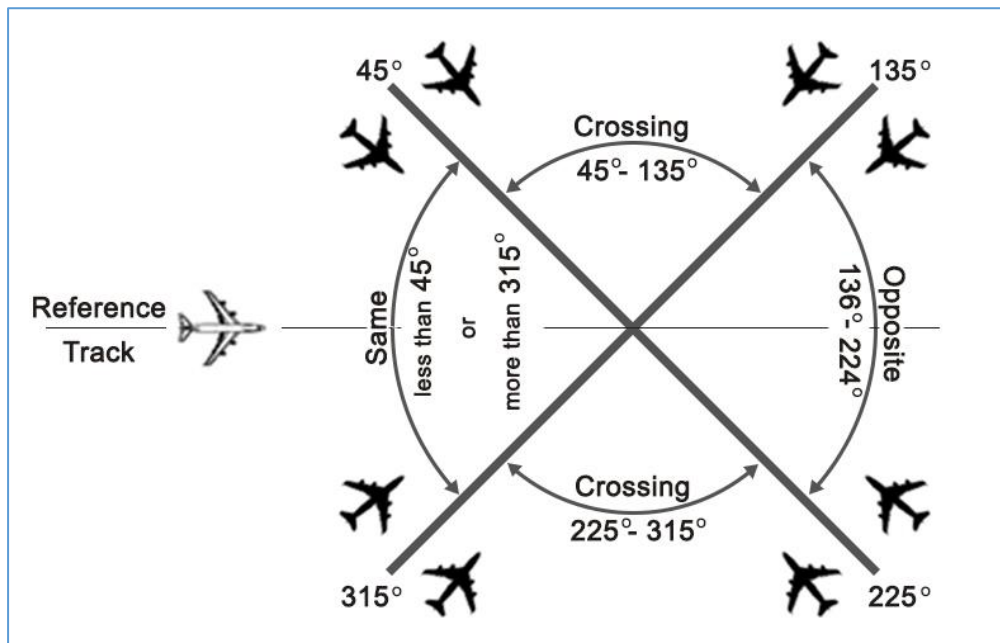


Figure 5-11 Aircraft on same, reciprocal and crossing track

5.4.2 LONGITUDINAL SEPARATION MINIMA BASED ON TIME:

5.4.2.1 AIRCRAFT AT THE SAME CRUISING LEVEL

5.4.2.1.1 Aircraft flying on the same track:

- a) 15 minutes; only in contingency situation (see figure 5-12).

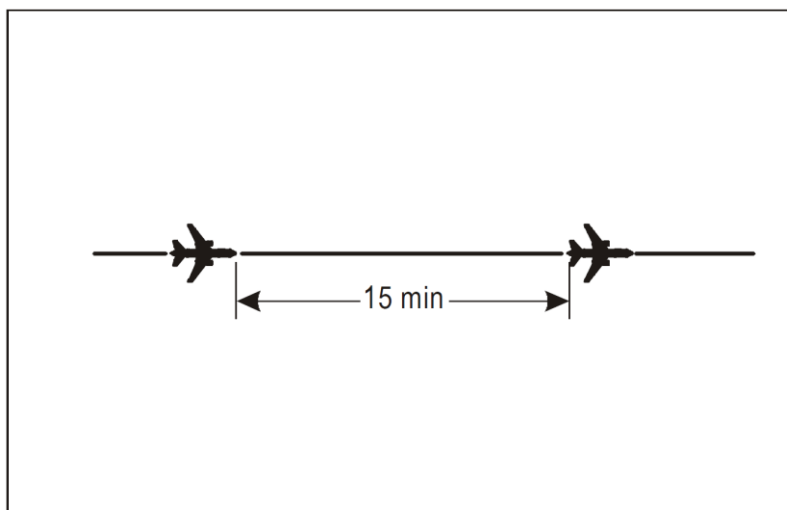


Figure 5-12 Same track same level – 15 min

- b) 10 minutes, if navigation aids permit frequent determination of position and speed (see figure 5-13);

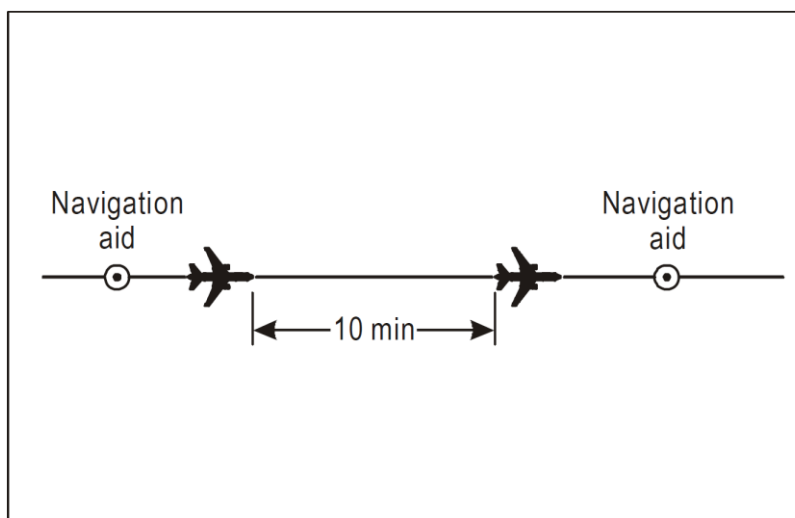


Figure 5-13 Same track same level - 10 min

- c) 5 minutes in the following cases, provided that in each case the preceding aircraft is maintaining a true airspeed of 20 kt or more faster than the succeeding aircraft (see figure 5-14):
1. between aircraft that have departed from the same aerodrome;
 2. between en-route aircraft that have reported over the same exact significant point;
 3. between departing and en-route aircraft after the en-route aircraft has reported over a fix that is so located in relation to the departure point as to ensure that five-minute separation can be established at the point the departing aircraft will join the air route; or

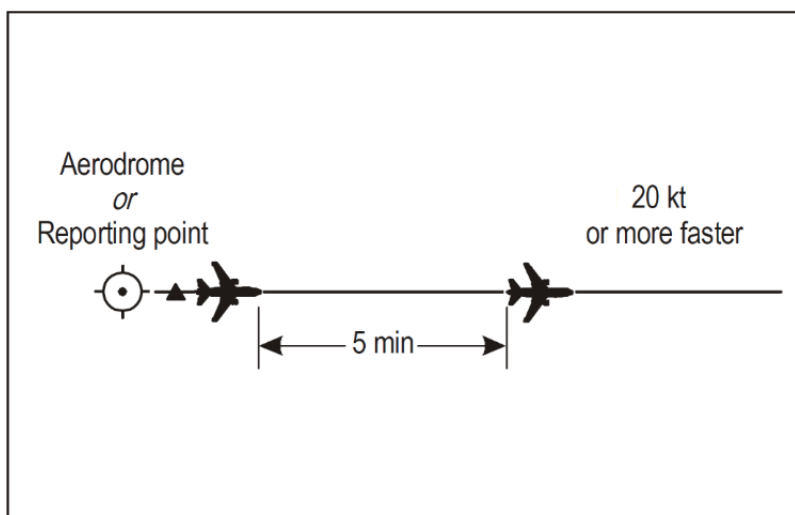


Figure 5-14 Same track same level - 5 min

- d) 3 minutes in the cases listed under “c” provided that in each case the preceding aircraft is maintaining a true airspeed of 40 kt or more faster than the succeeding aircraft (see figure 5-15).

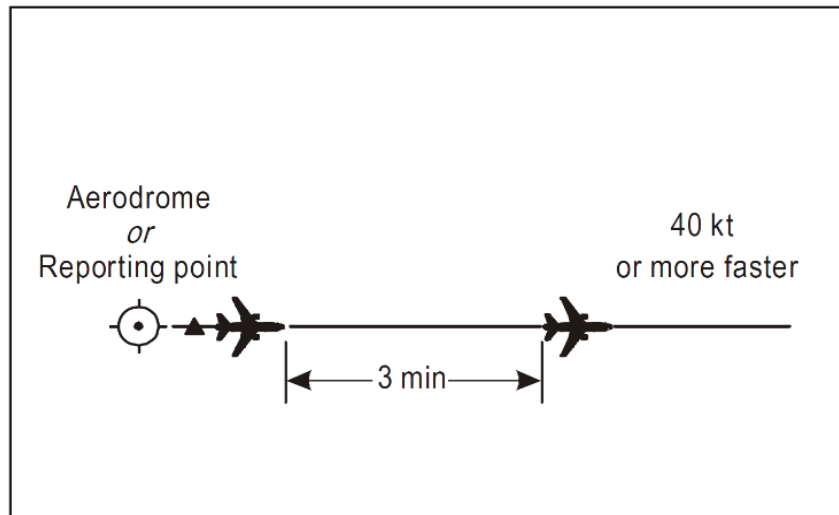


Figure 5-2 Same track same level - 3 min

5.4.2.1.2 Aircraft flying on crossing tracks:

- a) 15 minutes only in contingency situation (see figure 5-16);

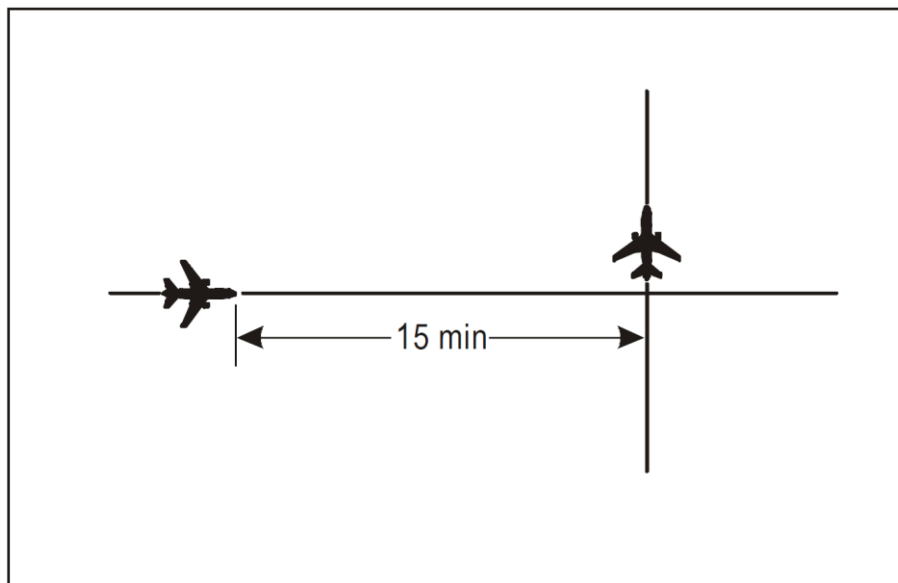


Figure 5-3 Crossing track same level - 15 min

- b) 10 minutes if navigation aids permit frequent determination of position and speed (see figure 5-17).

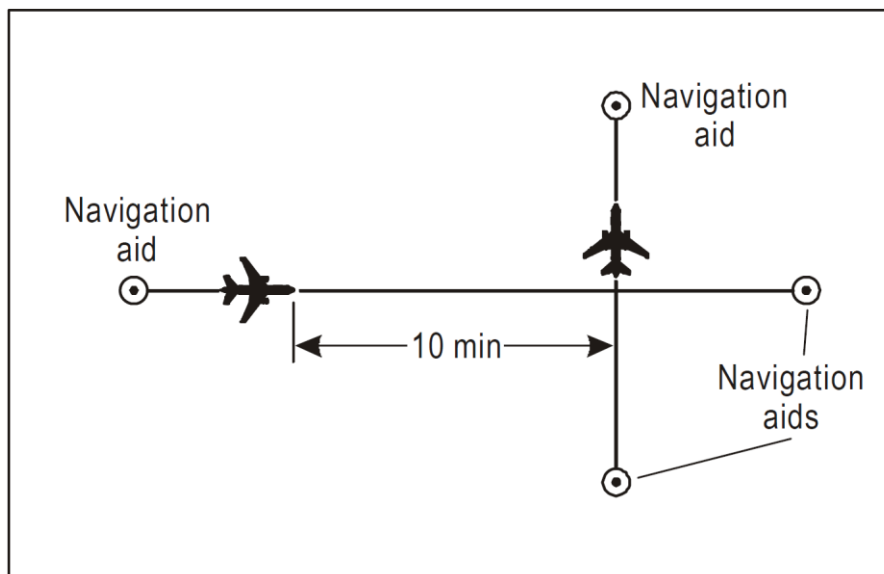


Figure 5-4 Crossing track same level - 10 min

5.4.2.2 AIRCRAFT CLIMBING OR DESCENDING

5.4.2.2.1 *Traffic on the same track:* When an aircraft will pass through the level of another aircraft on the same track, the following minimum longitudinal separation shall be provided:

- a) 15 minutes while vertical separation does not exist only in contingency situation (see figures 5-18 and 5-19).

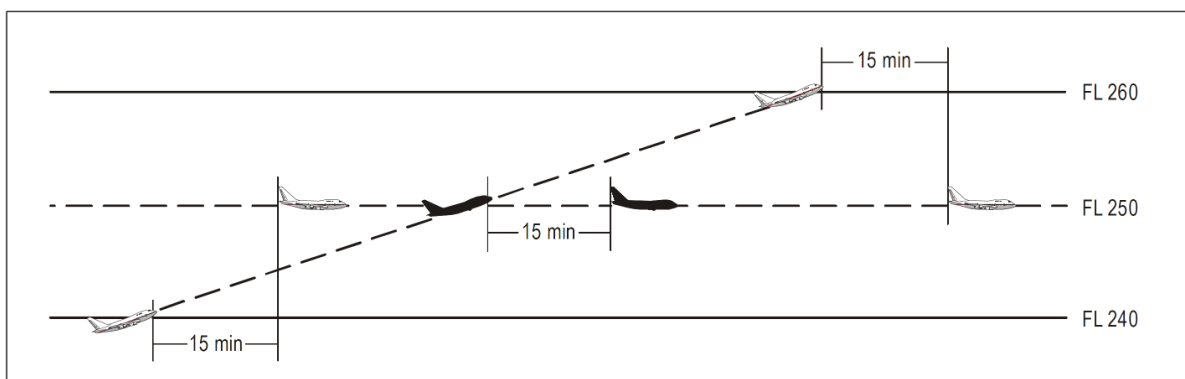


Figure 5-5 Same track climbing level - 15 min

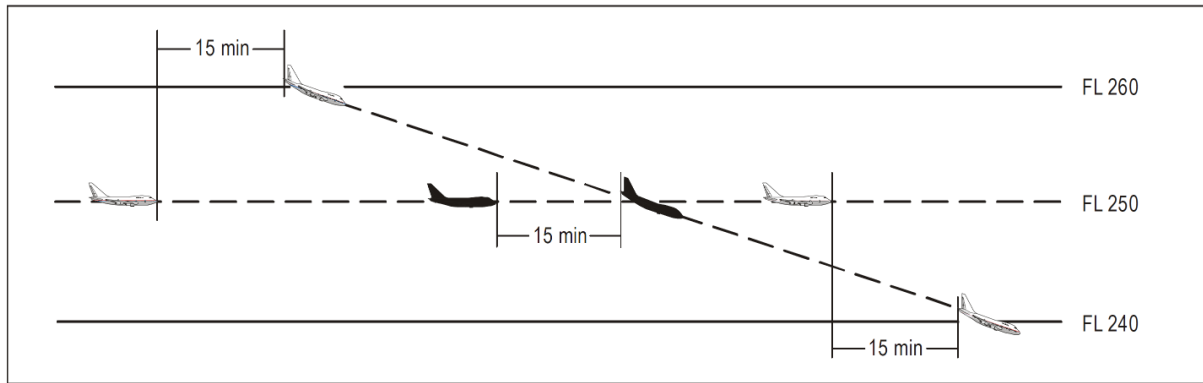


Figure 5-6 Same track descending level - 15 min

- b) 10 minutes while vertical separation does not exist, provided that such separation is authorized only where navigation aids permit frequent determination of position and speed (see figures 5-20 and 5-21).

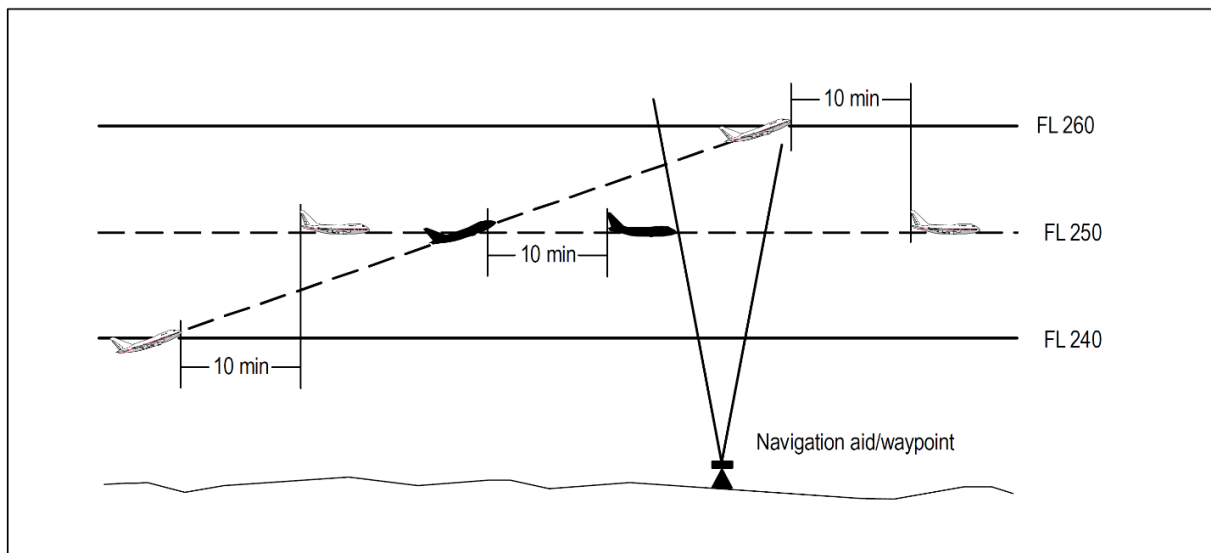


Figure 5-20 Same track climbing level - 10 min

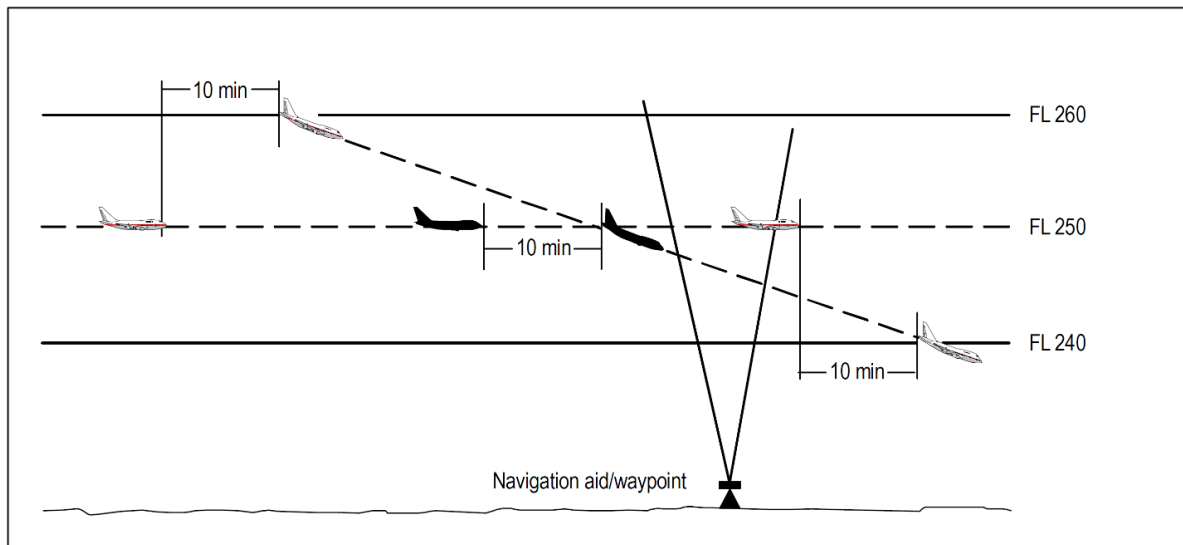


Figure 5-21 Same track descending level - 10 min

- c) 5 minutes while vertical separation does not exist, provided that the level change is commenced within 10 minutes of the time the second aircraft has reported over a common point which must be derived from ground-based navigation aids or by GNSS (see figures 5-22 and 5-23);

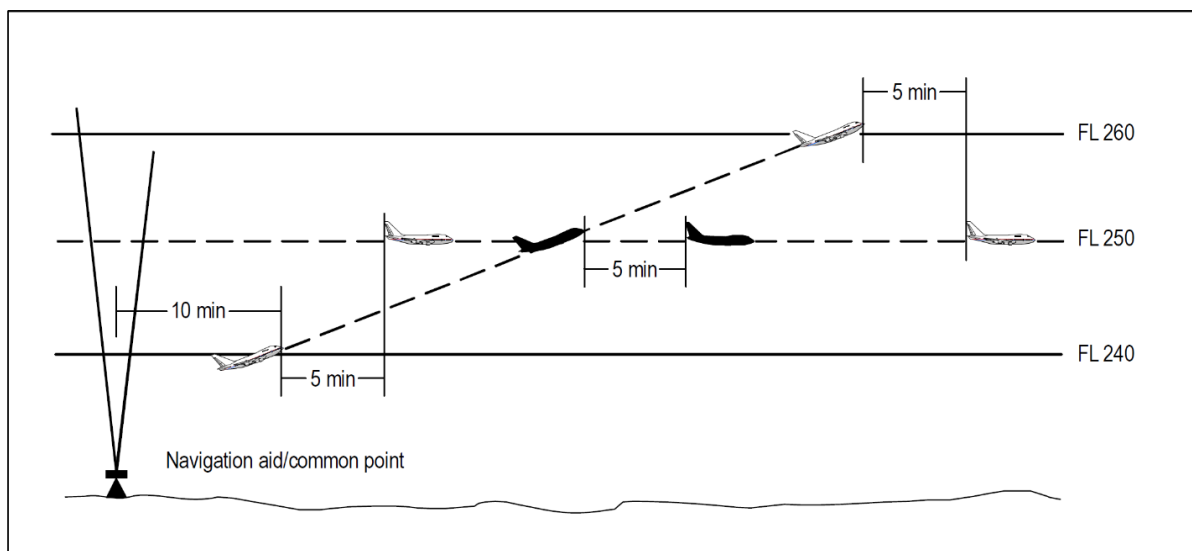


Figure 5-7 Same track climbing level - 5 min

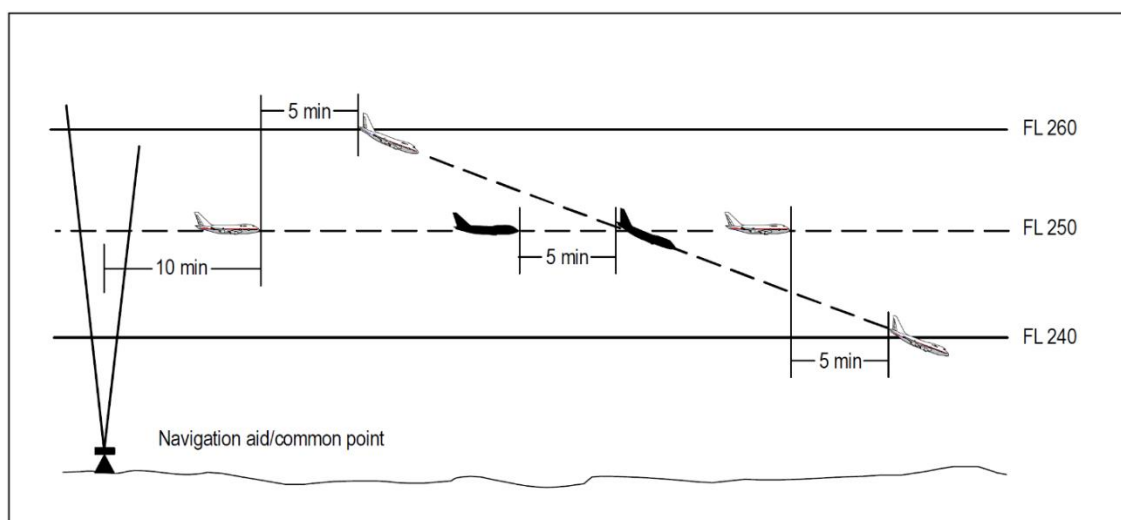


Figure 5-8 Same track descending level - 5 min

Note. To facilitate application of the procedure where a considerable change of level is involved, a descending aircraft may be cleared to some convenient level above the lower aircraft, or a climbing aircraft to some convenient level below the higher aircraft, to permit a further check on the separation that will obtain while vertical separation does not exist.

5.4.2.2.2 Traffic on crossing tracks:

- a) 15 minutes while vertical separation does not exist (see figures 5-24 and 5-25);

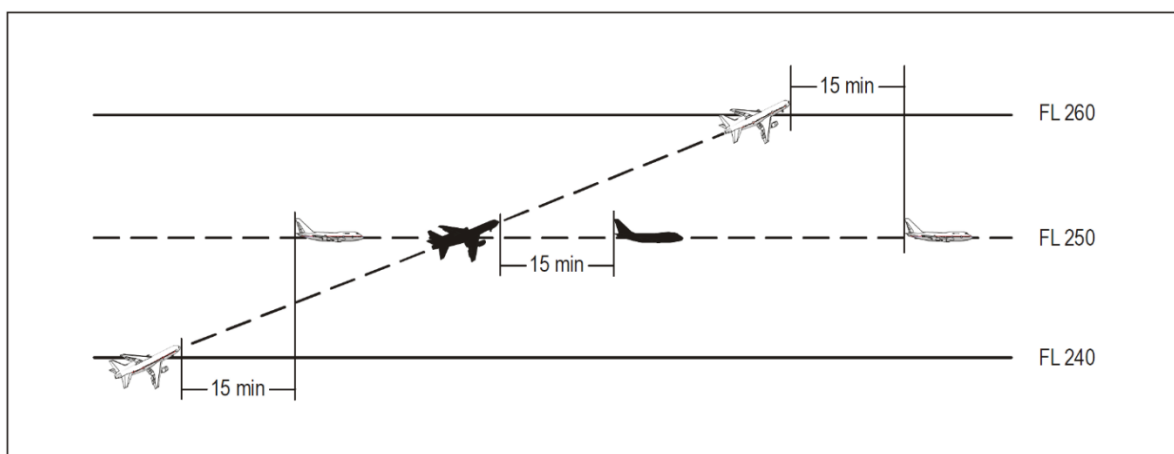


Figure 5-9 Crossing track climbing level - 15 min

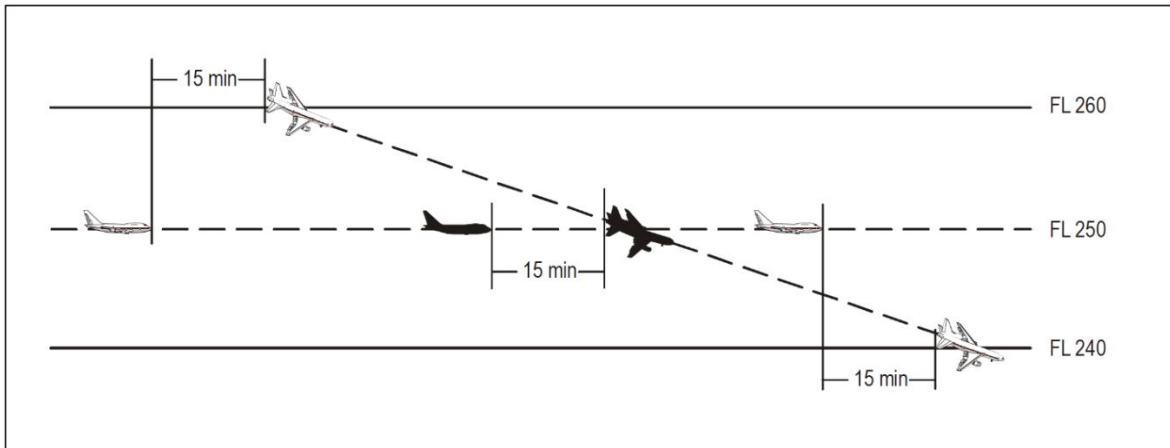


Figure 5-10 Crossing track descending level - 15 min

- b) 10 minutes while vertical separation does not exist if navigation aids permit frequent determination of position and speed (see figures 5-26 and 5-27).

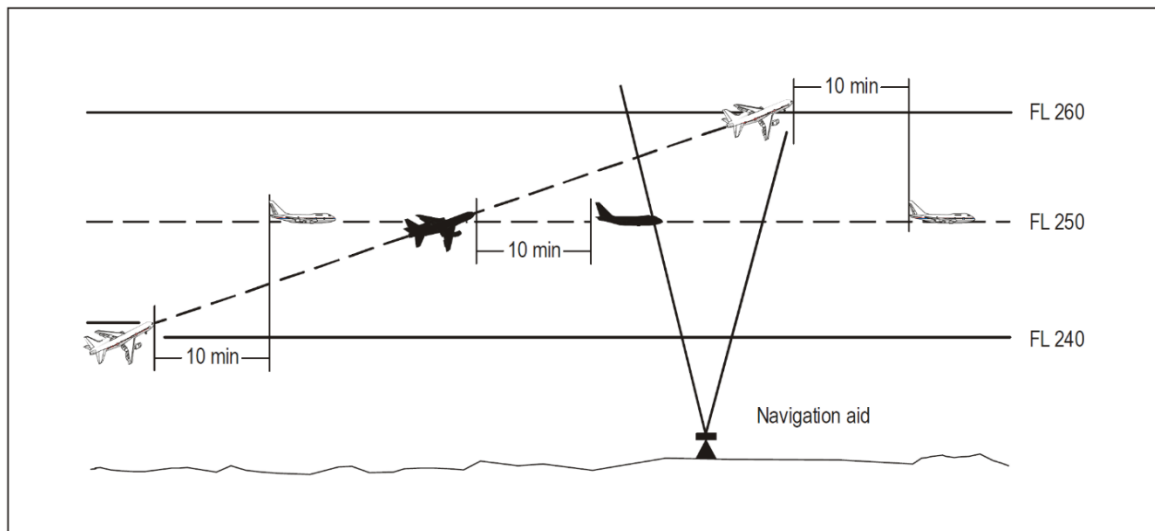


Figure 5-11 Crossing track climbing level - 10 min

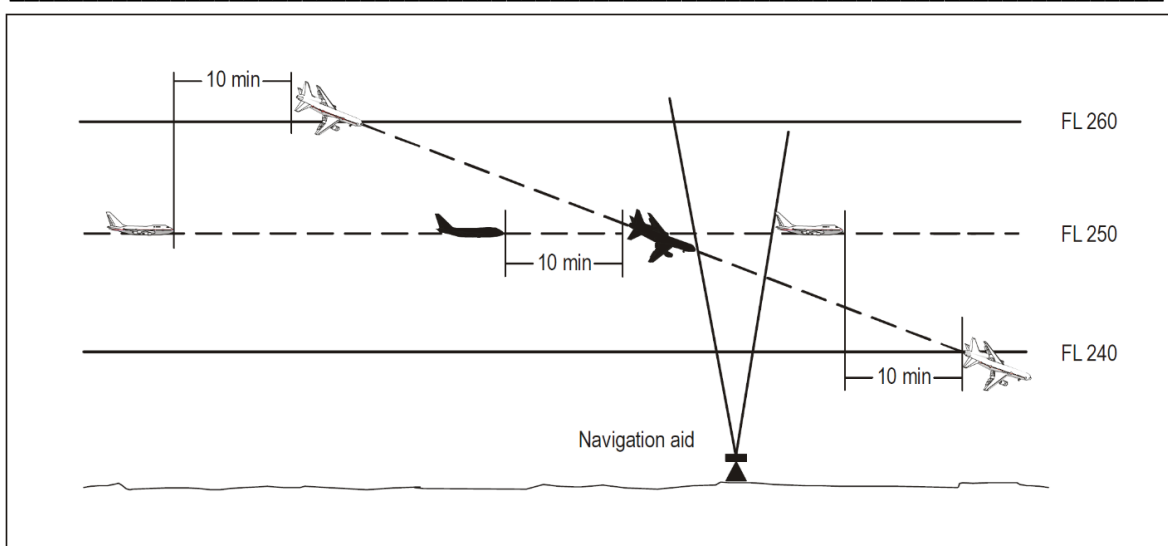


Figure 5-12 Crossing track descending level - 10 min

5.4.2.2.3 *Traffic on reciprocal tracks*: Where lateral separation is not provided, vertical separation shall be provided for at least ten minutes prior to and after the time the aircraft are estimated to pass, or are estimated to have passed. Provided that it has been determined that the aircraft have passed each other, this minimum need not apply by (see figure 5-28):

Note. AMD and RPS are not considered as ATS surveillance system.

- a) a visual sighting report from both pilots (during daylight only); or

Note 1. This method is not applicable in class "A" airspace.

Note 2. For application of this method, the pilot of one aircraft shall be informed about the other aircraft, including its position, direction, type and if it is classified as a super or heavy aircraft, this shall be included in the information passed, as well.

Note 3. TCAS shall not be used for establishment of this determination.

- b) aircraft position reports over the same significant point; provided vertical separation is maintained for at least 1 minute, to take into consideration possible navigation errors.

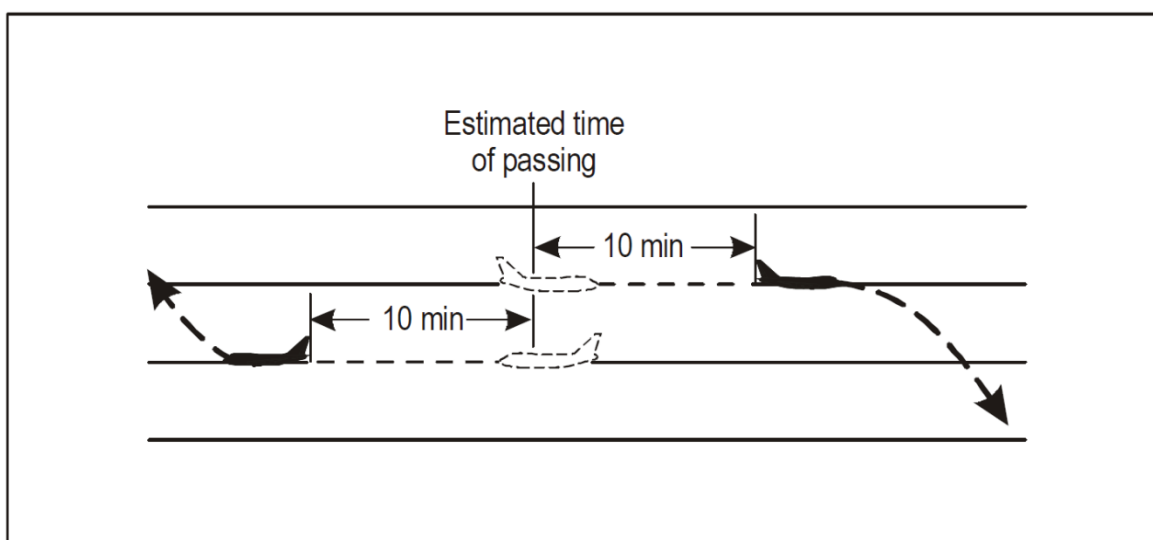


Figure 5-13 Reciprocal track climbing or descending

Table 5-3 Separation based on time

Aircraft En-route	Minimum standard separation	Provisions
Same cursing level and same track	15 minutes	In contingency situation
	10 minutes	
	5 minutes	Preceding aircraft is maintaining a true airspeed of 20 kt or more faster than the succeeding
	3 minutes	Preceding aircraft is maintaining a true airspeed of 40 kt or more faster than the succeeding
Same cursing level on crossing tracks	15 minutes	In contingency situation
	10 minutes	
Climbing or descending on the same track.	15 minutes	In contingency situation
	10 minutes	
	5 minutes	Provided that the change is commenced within 10 minutes of the time the second aircraft has reported over the same exact reporting point
Climbing or descending on crossing tracks	15 minutes	In contingency situation
	10 minutes	
Traffic on reciprocal tracks	10 minutes	Provided for at least ten minutes prior to and after the time the aircraft are estimated to pass.

5.4.3 LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE

Note. For application of longitudinal separation minima based on distance, see Tehran ACC Operation Manual (OM).

5.4.3.1 LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING DME AND/OR GNSS

5.4.3.1.1 Where the term “ON TRACK” is used in the provisions relating to the application of longitudinal separation minima using DME and/or GNSS, it means that the aircraft is flying either directly inbound to or directly outbound from the station/waypoint.

5.4.3.1.2 Separation shall be established by maintaining not less than specified distance(s) between aircraft positions as reported by reference to DME in conjunction with other appropriate navigation aids and/or GNSS. This type of separation shall be applied between two aircraft using DME, or two aircraft using GNSS, or one aircraft using DME and one aircraft using GNSS. Direct controller-pilot VHF voice communication shall be maintained while such separation is used.

Note. For the purpose of applying GNSS based separation minimum, a distance derived from an integrated navigation system incorporating GNSS input is regarded as equivalent to GNSS distance.

5.4.3.1.3 All distance reports must be made with reference to the same DME station.

5.4.3.1.4 When applying these separation minima between any aircraft with area navigation capability, controllers shall specifically request GNSS derived distance.

Note. Reason making a pilot unable to provide GNSS distance information may include inadequate onboard equipment, no GNSS input into an integrated navigation system, or a loss of GNSS integrity.

5.4.3.1.5 Aircraft at the same cruising level

Note. For application in Tehran ACC AOR see OM.

5.4.3.1.5.1 Aircraft on the same track:

a) 20 NM, provided (see figure 5-29):

1. each aircraft utilizes,

- i. the same “ON TRACK” DME station when both aircraft are utilizing DME, or
- ii. an “ON TRACK” DME station and a collocated waypoint when one aircraft is utilizing DME and the other is utilizing GNSS, or
- iii. the same waypoint when both aircraft are utilizing GNSS, and

separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.

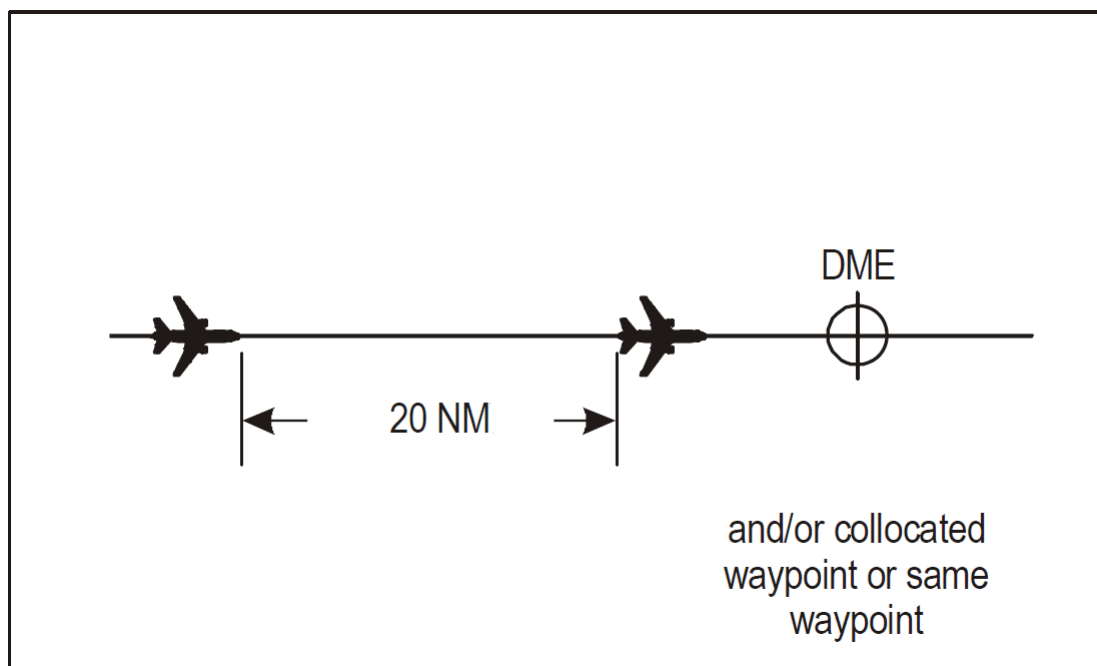


Figure 5-14 Same track same level – 20NM

b) 10 NM, provided (see figure 5-30):

1. the leading aircraft maintains a true airspeed of 20 kt or more faster than the succeeding aircraft;
2. each aircraft utilizes,
 - i. the same “ON TRACK” DME station when both aircraft are utilizing DME, or
 - ii. an “ON TRACK” DME station and a collocated waypoint when one aircraft is utilizing DME and the other is utilizing GNSS, or
 - iii. the same waypoint when both aircraft are utilizing GNSS, and

separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.

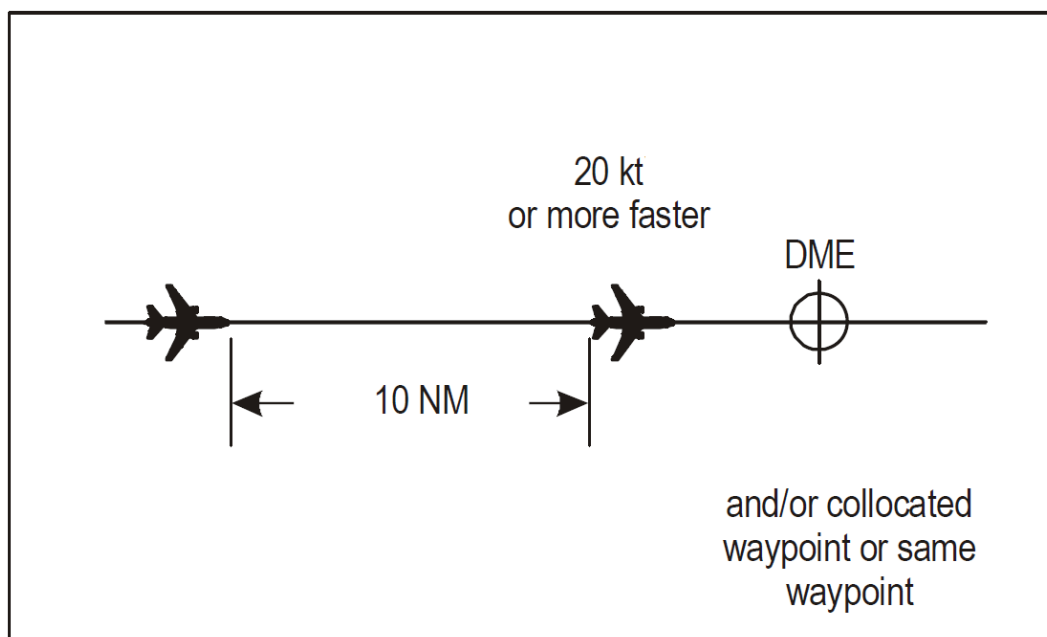


Figure 5-30 Same track same level – 10NM

5.4.3.1.5.2 Aircraft on crossing tracks:

- a) 20 NM, provided (see figure 5-31):
 1. each aircraft reports distance from the DME station and/or collocated waypoint/or same waypoint located at the crossing point of the tracks and that the relative angle between the tracks is less than 90 degrees; and
 2. separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at frequent intervals to ensure that the minimum will not be infringed.

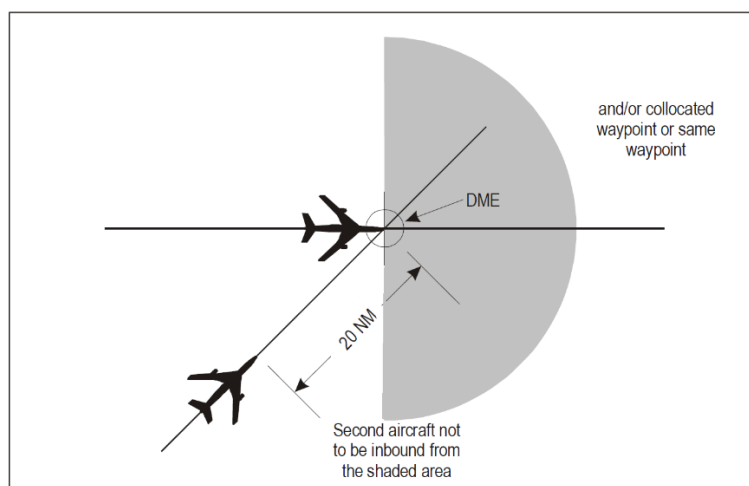


Figure 5-31 Crossing track same level – 20NM

- b) 10 NM provided (see figure 5-32):
 1. the leading aircraft maintains a true airspeed of 20 kt or more faster than the succeeding aircraft;

2. each aircraft reports distance from the DME station and/or collocated waypoint/or same waypoint located at the crossing point of the tracks and that the relative angle between the tracks is less than 90 degrees; and
3. separation is checked by obtaining simultaneous DME and/or GNSS readings from the aircraft at such intervals as are necessary to ensure that the minimum is established and will not be infringed.

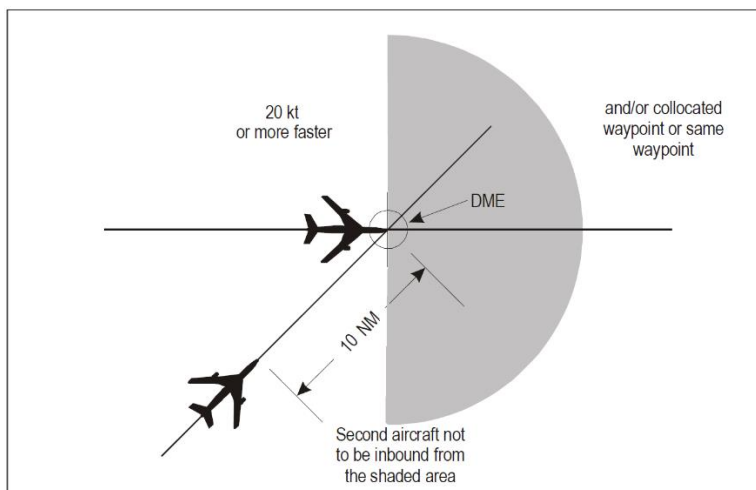


Figure 5-32 Crossing track same level – 10NM

5.4.3.1.6 Aircraft climbing or descending

5.4.3.1.6.1 Aircraft on the same track:

10 NM while vertical separation does not exist, provided (see figures 5-33 and 5-34):

- a) each aircraft utilizes,
 1. the same “ON TRACK” DME station when both aircraft are utilizing DME, or
 2. an “ON TRACK” DME station and a collocated waypoint when one aircraft is utilizing DME and the other is utilizing GNSS, or
 3. the same waypoint when both aircraft are utilizing GNSS, and
- b) one aircraft maintains a level while vertical separation does not exist; and
- c) separation is established by obtaining simultaneous DME and/or GNSS readings from the aircraft.

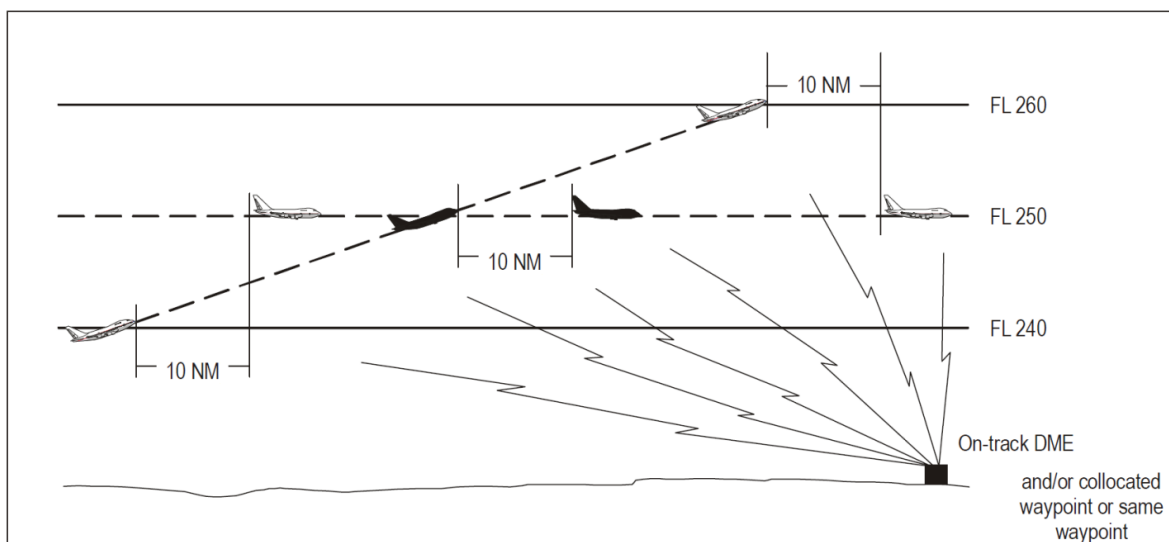


Figure 5-33 Crossing track same level – 10NM

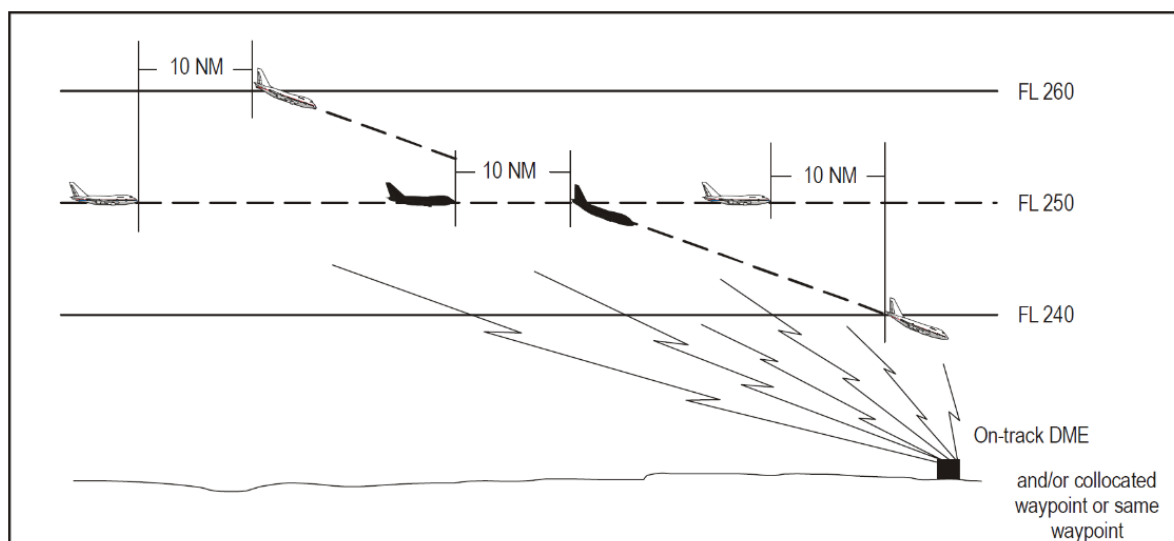


Figure 5-34 Crossing track same level – 10NM

Note. To facilitate application of the procedure where a considerable change of level is involved, a descending aircraft may be cleared to some convenient level above the lower aircraft, or a climbing aircraft to some convenient level below the higher aircraft, to permit a further check on the separation that will obtain while vertical separation does not exist.

5.4.3.1.6.2 Aircraft on reciprocal tracks (see figure 5-35):

Aircraft utilizing on-track DME and/or collocated waypoint or same waypoint may be cleared to climb or descend to or through the levels occupied by other aircraft utilizing on-track DME and/or collocated waypoint or same waypoint, provided that it has been positively established that the aircraft have passed each other and are at least 10 NM apart. It should have been determined that the aircraft have passed each other, this minimum need not apply. This determination shall be established by visual sighting report from both pilots (during daylight only).

Note 1. This method is not applicable in class “A” airspace.

Note 2. For application of this method, the pilot of one aircraft shall be informed about the other aircraft, including its position, direction, type and if it is classified as a heavy aircraft, this shall be included in the information passed, as well.

Note 3. TCAS shall not be used for establishment of this determination.

Note 4. AMD and RPS are not considered as ATS surveillance system.

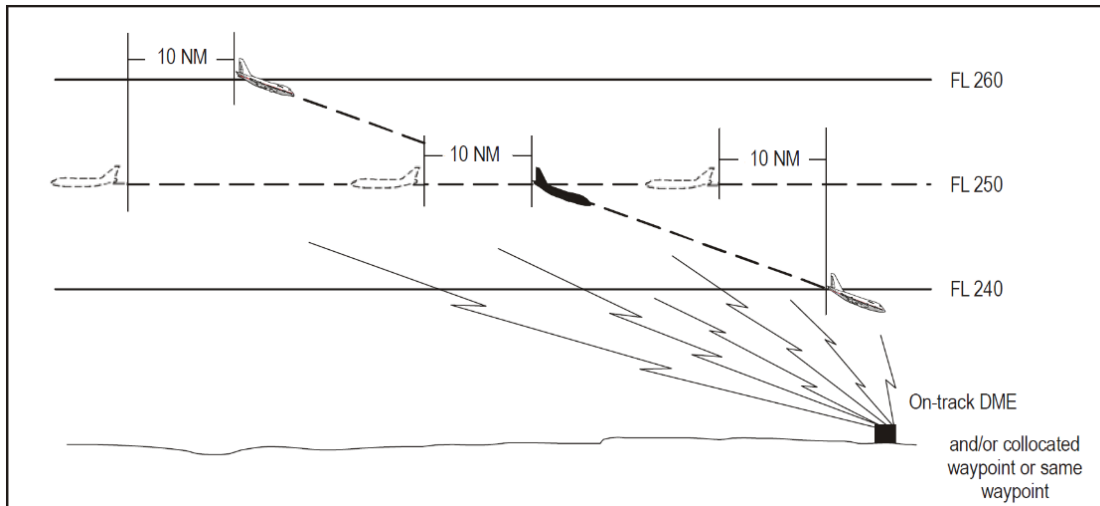


Figure 5-35 Crossing track same level – 10NM

5.4.4 LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON TIME

5.4.4.1 Aircraft subject to Mach number technique shall adhere to the true Mach number approved by ATC and shall request ATC approval before making any changes thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.4.4.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during En-route climbs and descents, pilots of aircraft concerned shall advise ATC at the time of the climb/descent request.

5.4.4.3 When the Mach number technique is applied and provided that:

- a) the aircraft concerned have reported over the same common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or
- b) if the aircraft have not reported over the same common point and it is possible to ensure, by radar or ADS-B or other means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

minimum longitudinal separation between aircraft on the same track, whether in level, climbing or descending flight shall be:

1. 10 minutes; or
2. between 9 and 5 minutes inclusive, provided that:

the preceding aircraft is maintaining a true Mach number greater than the following aircraft in accordance with the following:

- 9 minutes, if the preceding aircraft is Mach 0.02 faster than the following aircraft;
- 8 minutes, if the preceding aircraft is Mach 0.03 faster than the following aircraft;
- 7 minutes, if the preceding aircraft is Mach 0.04 faster than the following aircraft;
- 6 minutes, if the preceding aircraft is Mach 0.05 faster than the following aircraft;
- 5 minutes, if the preceding aircraft is Mach 0.06 faster than the following aircraft.

5.4.4.4 When the 10-minute longitudinal separation minimum with Mach number technique is applied, the preceding aircraft shall maintain a true Mach number equal to or greater than that maintained by the following aircraft.

5.4.5 LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE BASED ON DISTANCE USING RNAV

Note. Guidance material on RNAV operations is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).

5.4.5.1 Aircraft subject to Mach number technique shall adhere to the true Mach number approved by ATC and shall request ATC approval before making any changes thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

5.4.5.2 If it is not feasible, due to aircraft performance, to maintain the last assigned Mach number during En-route climbs and descents, pilots of aircraft concerned shall advise ATC at the time of the climb/descent request.

5.4.5.3 RNAV distance-based separation minima shall not be applied after ATC has received pilot advice indicating navigation equipment deterioration or failure.

5.4.5.4 Separation shall be established by maintaining not less than the specified distance between aircraft positions as reported by reference to RNAV equipment. Direct controller-pilot communications should be maintained, while such separation is used.

5.4.5.5 To assist pilots to readily provide the required RNAV distance information, such position reports should, wherever possible, be referenced to a common waypoint ahead of both aircraft.

5.4.5.6 RNAV distance-based separation may be applied between RNAV-equipped aircraft when operating on designated RNAV routes or on ATS routes defined by VOR.

5.4.5.7 When the 80 NM longitudinal separation minimum with Mach number technique is applied, the preceding aircraft shall maintain a true Mach number equal to or greater than that maintained by the following aircraft.

Note. To facilitate application of the procedure where a considerable change of level is involved, a descending aircraft may be cleared to some convenient level above the lower aircraft, or a climbing aircraft to some convenient level below the higher aircraft, to permit a further check on the separation that will be obtained while vertical separation does not exist.

5.4.5.8 Aircraft on reciprocal tracks. Aircraft utilizing RNAV may be cleared to climb or descend to or through the levels occupied by other aircraft utilizing RNAV provided it has been positively established by simultaneous RNAV distance readings to or from the same "on-track" common point that the aircraft have passed each other and are at least 50 NM apart.

5.4.6 LONGITUDINAL DISTANCE-BASED SEPARATION MINIMA IN AN RNP RNAV ENVIRONMENT

5.4.6.1 For aircraft cruising, climbing or descending on the same track, the following separation minimum may be used:

Table 5-4 Longitudinal distance-based separation minima in an RNAV

<i>Separation minimum</i>	<i>PBN</i>	<i>Communication requirement</i>	<i>Surveillance requirement</i>	<i>Distance verification requirements</i>
93 km (50 NM)	RNAV 5	Direct controller-pilot communications	Procedural position reports	At least every 24 minutes

Note. Where a considerable change of level is involved using distance-based separation, a descending aircraft may be cleared to some convenient level above the lower aircraft, or a climbing aircraft to some convenient level below the higher aircraft (e.g. 4 000 ft or less) to permit a further check on the separation that will be maintained while vertical separation does not exist.

5.4.6.2 During the application of the 50 NM separation, when an aircraft fails to report its position, the controller shall take action within 3 minutes to establish communication. If communication has not been established within 8 minutes of the time the report should have been received, the controller shall take action to apply an alternative form of separation.

5.4.6.3 Aircraft on reciprocal tracks. Aircraft may be cleared to climb or descend to or through the levels occupied by the other provided that it has been positively established that the aircraft have passed each other and the distance between them is equal to at least the applicable separation minimum.

5.4.7 SEPARATION OF AIRCRAFT HOLDING IN FLIGHT

5.4.7.1 Aircraft established in adjacent holding patterns shall, except when lateral separation between the holding areas exists as determined in LATCIs, be separated by the applicable vertical separation minimum.

Note . Criteria and procedures for the simultaneous use of adjacent holding patterns should be prescribed in LATCIs.

5.4.7.2 Except when lateral separation exists, Vertical separation shall be applied between aircraft holding in flight and other aircraft, whether arriving, departing or en-route, whenever the other aircraft concerned are within five minutes flying time of the holding areas, except where it is published in LATCIs that lateral separation is deemed to exist. (see figure 5-36).

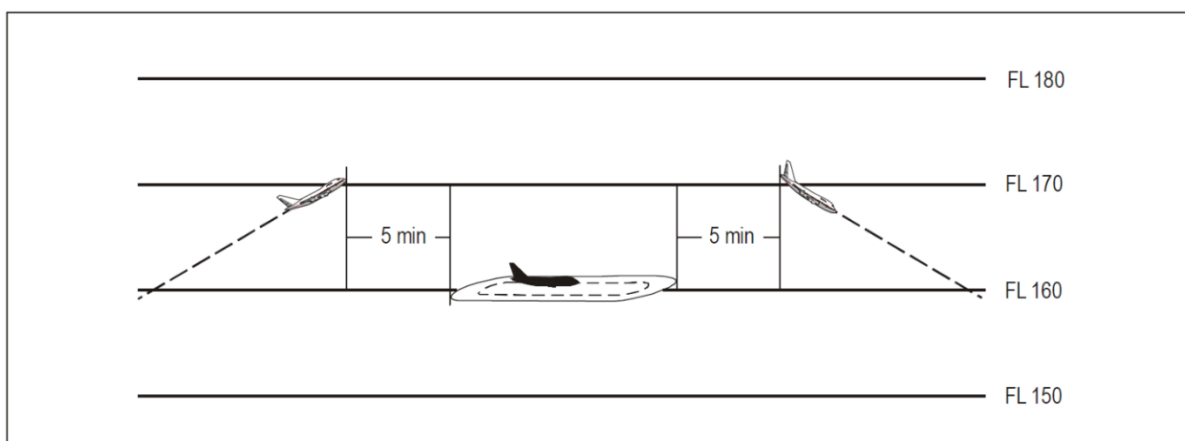


Figure 5-36 Separation between holding aircraft and en-route aircraft

5.4.7.3 The separation minima specified based on ATS surveillance systems shall not be applied between aircraft holding over the same holding fix.

5.4.8 MINIMUM SEPARATION BETWEEN DEPARTING AIRCRAFT

The following provisions are complementary to the longitudinal separation minima based on time. Greater minima than that listed below may be required for wake turbulence separation purposes.

Note. See Note 3 following 5.4.10.11.

5.4.8.1 One-minute separation if aircraft are to fly on tracks diverging by at least 45 degrees immediately after take-off so that lateral separation is provided (see figure 5-37).

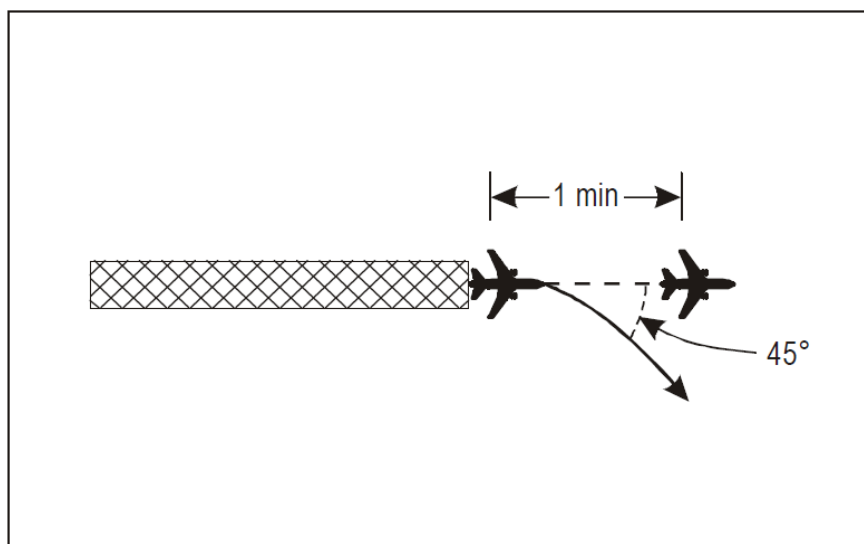


Figure 5-37 One-minute separation

5.4.8.2 The air traffic controller should apply a 2-minute separation between take-offs when the preceding aircraft is 74 km/h (40 kt) or more faster than the succeeding aircraft and both aircraft will follow the same track (see figure 5-36).

Note. neither aircraft is cleared to execute any manoeuvre that would decrease the 2-minute separation between them.

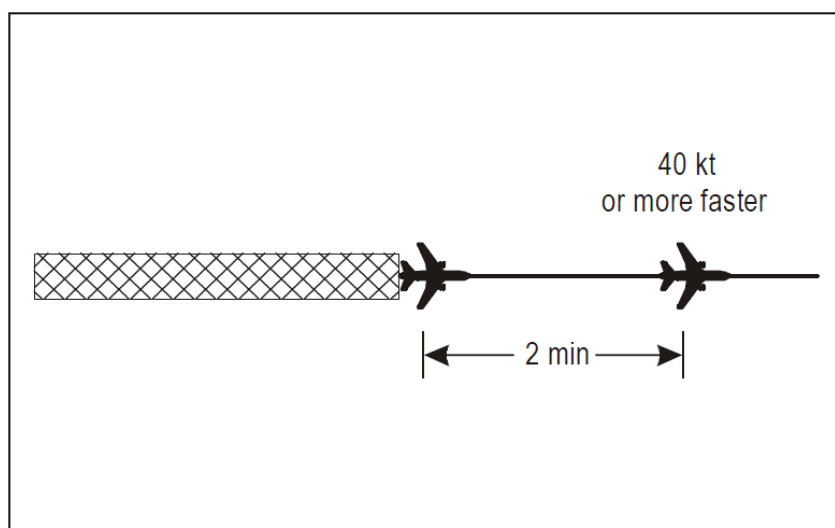


Figure 5-15 Two-minute separation

5.4.8.3 Five-minute separation is required while vertical separation does not exist if a departing aircraft will be flown through the level of a preceding departing aircraft and both aircraft propose to follow the same track. Action must be taken to ensure that the five-minute separation will be maintained or increased while vertical separation does not exist (see figure 5-39).

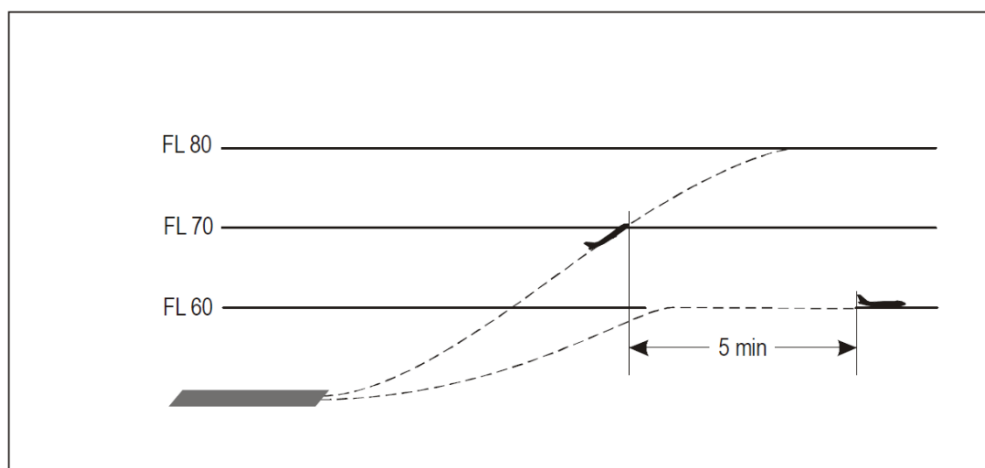


Figure 5-16 Five-minute separation

5.4.9 SEPARATION OF DEPARTING AIRCRAFT FROM ARRIVING AIRCRAFT

5.4.9.1 The following separation should be applied when take-off clearance is based on the position of an arriving aircraft:

- a) If an arriving aircraft is making a complete instrument approach, a departing aircraft may take off:
 - 1) in any direction until an arriving aircraft has started its procedure turn or base turn leading to final approach;

- 2) in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach after the arriving aircraft has started procedure turn or base turn leading to final approach, provided that the take-off will be made at least 3 minutes before the arriving aircraft is estimated to be over the beginning of the instrument runway (see Figure 5-40).
- b) If an arriving aircraft is making a straight-in approach, a departing aircraft may take off:
- 1) in any direction until 5 minutes before the arriving aircraft is estimated to be over the instrument runway;
 - 2) in a direction which is different by at least 45 degrees from the reciprocal of the direction of approach of the arriving aircraft:
 - i) until 3 minutes before the arriving aircraft is estimated to be over the beginning of the instrument runway (see Figure 5-40); or
 - ii) before the arriving aircraft crosses a designated fix on the approach track; the location of such fix should be determined by the air traffic services provider after consultation with the operators, and approved by CAA.IRI.

Note 1. Increase distances in 5.4.9.1 b), as appropriate to ensure that the separation will be maintained when:

- i. *missed approaches are likely;*
- ii. *the tailwind component exists at final approach*
- iii. *A faster type aircraft is approaching in respect of slower type aircraft taking off.*

Note 2. Use of runway other than runway- in- use for the purpose of application of separation Para 5.4.9.1 "a" and "b" is not authorized.

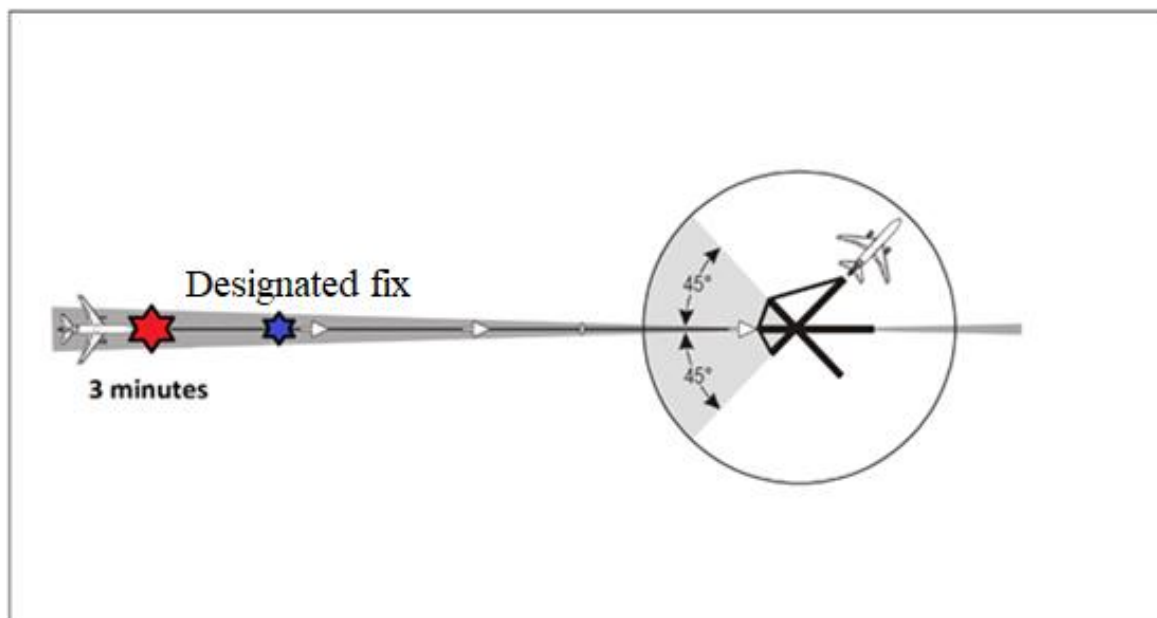


Figure 5 40 Separation of departing aircraft from arriving aircraft

5.4.9.2 If an arriving aircraft is following an RNAV or RNP instrument flight procedure, a departing aircraft may take off on a departure path that is clear of the arrival protection area for the arriving aircraft (see Figure 5-41) provided:

- vertical separation is applied until the arriving aircraft has reported passing the compulsory reporting waypoint on the instrument flight procedure, the location of such waypoint to be determined by the ANSP;
- the take-off takes place before the arriving aircraft crosses a designated waypoint on the instrument flight procedure, the location of such waypoint to be determined by ANSP; and
- the departing aircraft remains clear of the arrival protection area until another form of separation is established.

Note. The arrival protection area is defined as the shaded area extending from a line 45 degrees from an established compulsory reporting waypoint to a line 45 degrees from the outermost edge of the remainder of the arrival and/or approach procedure (see Figure 5-41).

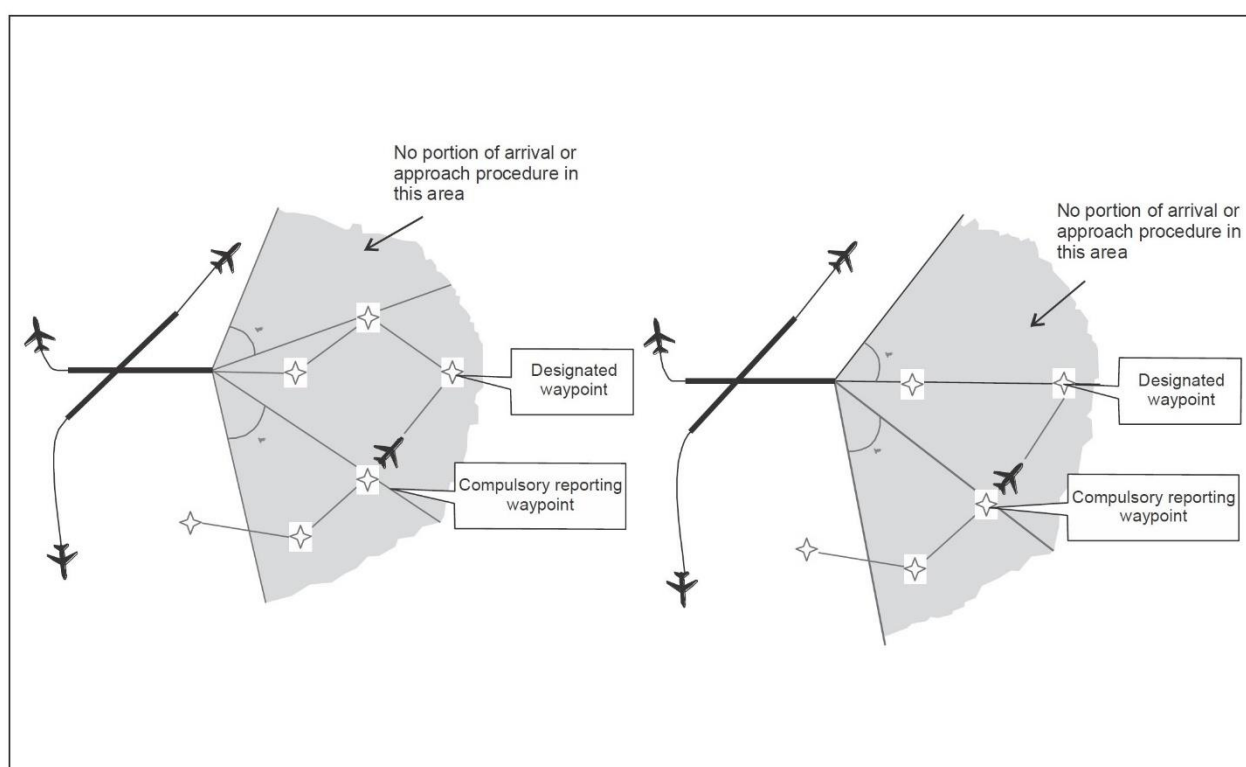


Figure 5-41 Example of arrival protection area

5.4.10 TIME-BASED WAKE TURBULENCE LONGITUDINAL SEPARATION MINIMA

Note. Distance-based wake turbulence separation minima are set forth in Chapter 8, 8.2.13.2.1.

5.4.10.1 Time-based wake turbulence longitudinal separation minima is applying for IFR and VFR flights notwithstanding of airspace classification.

Where the separation minima required for flights are greater than the separation for wake turbulence, the separation minima shall be applied.

5.4.10.2 The ATC unit concerned shall not be required to apply wake turbulence separation:

- a) when an arriving VFR flight is following or crossing behind a SUPER, a HEAVY or a MEDIUM VFR and IFR aircraft;
- b) between arriving IFR flights executing visual approach when the aircraft has reported the preceding aircraft in sight and has been instructed to follow and maintain own separation from that aircraft; and
- c) in the vicinity of an aerodrome, when the pilots have accepted an instruction to maintain own separation in accordance with 6.8.3.1.1 b) or c).

5.4.10.3 The ATC unit shall, in respect of the flights specified in Para 5.4.10.2 as well as when otherwise deemed necessary, issue a caution of possible wake turbulence. The pilot-in-command of the aircraft concerned shall be responsible for ensuring that the spacing from a preceding aircraft of a heavier wake turbulence category is acceptable. If it is determined that additional spacing is required, the flight crew shall inform the ATC unit accordingly, stating their requirements.

Phraseology:

CAUTION WAKE TURBULENCE (traffic information).

5.4.10.4 ARRIVING AIRCRAFT

Except as provided for in 5.4.10.2 a), b) and c), the following separation minima shall be applied. The following minima in the table below shall be applied to aircraft landing behind a SUPER , HEAVY or a MEDIUM aircraft.

Table 5-5 Arriving aircraft

Following Aircraft	Landing Aircraft	Minimum Separation
HEAVY	SUPER	2 minutes
MEDIUM	SUPER	3 minutes
	HEAVY	2 minutes
LIGHT	SUPER	4 minutes
	HEAVY	3 minutes
	MEDIUM	3 minutes

5.4.10.5 DEPARTING AIRCRAFT

5.4.10.5.1 Wake turbulence separation minima on departure shall be applied by measuring airborne times between successive aircraft. The following minima in the table below shall be applied between aircraft taking off from;

- a) the same runway;
- b) parallel runways separated by less than 760 m (2 500 ft);
- c) crossing runways if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below;

- d) parallel runways separated by 760 m (2 500 ft) or more, if the projected flight path of the second aircraft will cross the projected flight path of the first aircraft at the same altitude or less than 300 m (1 000 ft) below.

Table 5-6 Departing aircraft

Following Aircraft	preceding Aircraft	Minimum Separation
HEAVY	SUPER	2 minutes
MEDIUM	SUPER	3 minutes
LIGHT		3 minutes
MEDIUM	HEAVY	2 minutes
LIGHT		2 minutes
LIGHT	MEDIUM	2 minutes

Note. See figures 5-42 and 5-43.

The following minima in the table below shall be applied between aircraft taking off from;

- an intermediate part of the same runway; or
- an intermediate part of a parallel runway separated by less than 760 m (2 500 ft).

Note. See figure 5-44

Table 5-7 Departing aircraft

Following Aircraft	preceding Aircraft	Minimum Separation
HEAVY	SUPER	3 minutes
MEDIUM	SUPER	4 minutes
LIGHT		
MEDIUM	HEAVY	3 minutes
LIGHT		3 minutes
LIGHT	MEDIUM	3 minutes

2 minutes

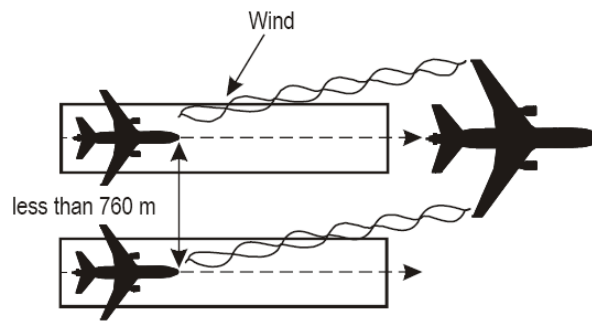


Figure 5-42 Two-minutes separation for following aircraft

2 minutes

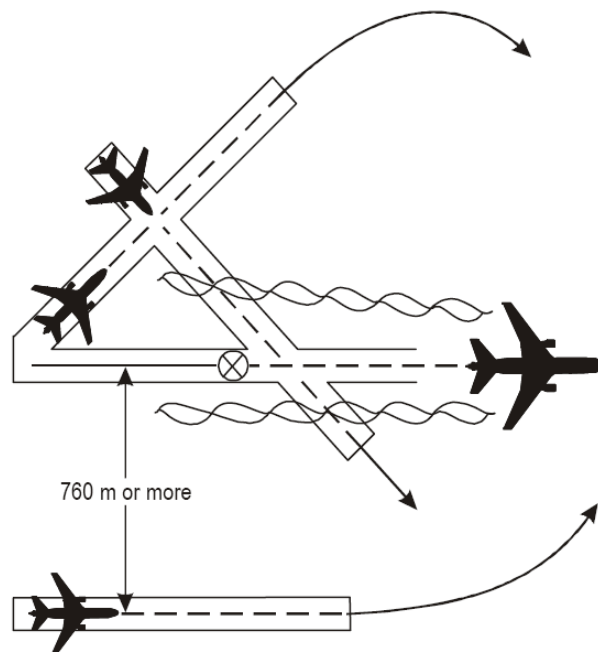


Figure 5-17 Two-minutes wake turbulence separation for crossing aircraft

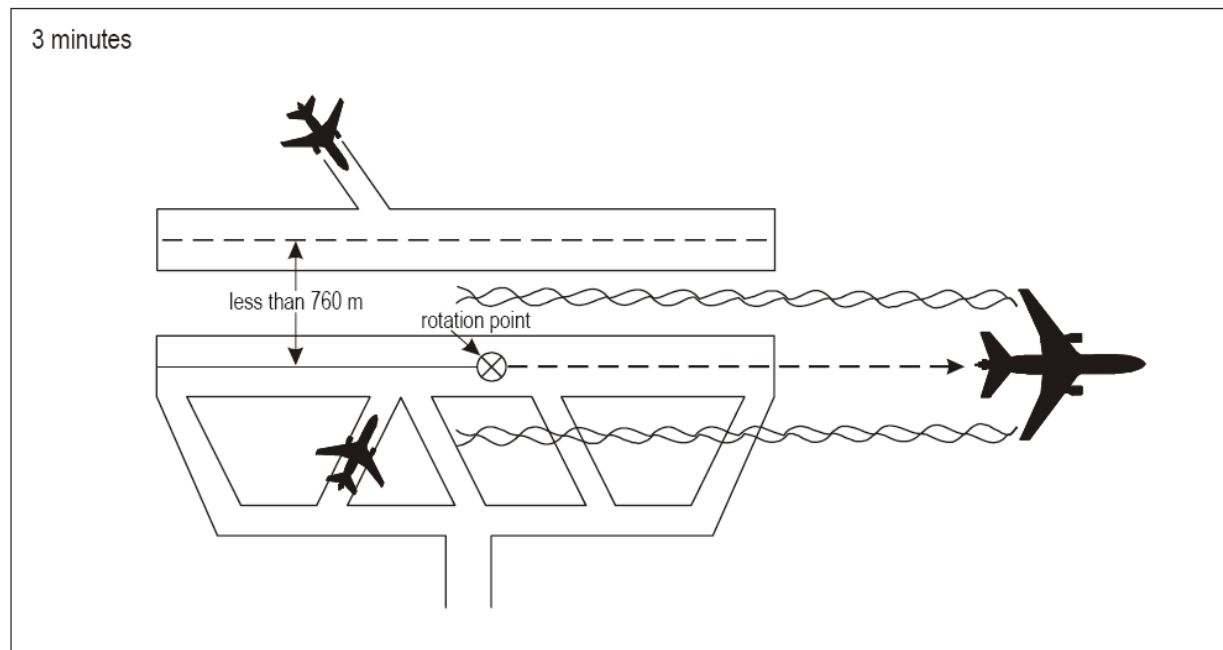


Figure 5-18 Three-minutes wake turbulence separation for following aircraft

5.4.10.6 DISPLACED LANDING THRESHOLD

5.4.10.6.1 When using wake turbulence categories contained in Chapter 3, 3.1.11.1 and when operating a displaced landing threshold, the following minimum separations shall be applied if the projected flight paths are expected to cross:

Table 5-8 displaced landing threshold minimum separations

Following Aircraft	Preceding Aircraft	Minimum Separation
HEAVY departure	SUPER arrival	2 minutes
LIGHT or MEDIUM departure	SUPER arrival	3 minutes
LIGHT or MEDIUM departure	HEAVY arrival	2 minutes
LIGHT departure	MEDIUM arrival	2 minutes
HEAVY arrival	SUPER departure	2 minutes
LIGHT or MEDIUM arrival	SUPER departure	3 minutes
LIGHT or MEDIUM arrival	HEAVY departure	2 minutes
LIGHT arrival	MEDIUM departure	2 minutes

5.4.10.7 OPPOSITE DIRECTION

5.4.10.7.1 When using wake turbulence categories contained in Chapter 3, 3.1.11.1 for a heavier aircraft making a low or missed approach and when the lighter aircraft is:

- using an opposite-direction runway for take-off (see Figure 5-45); or
- landing on the same runway in the opposite direction, or on a parallel opposite-direction runway separated by less than 760 m (2 500 ft) (see Figure 5-46);

the following minimum separations shall be used:

Table 5-9

Preceding Aircraft	Following Aircraft	Minimum Separation
SUPER	HEAVY	3 minutes
SUPER	LIGHT or MEDIUM	3 minutes
HEAVY	LIGHT or MEDIUM	2 minutes
MEDIUM	LIGHT	2 minutes

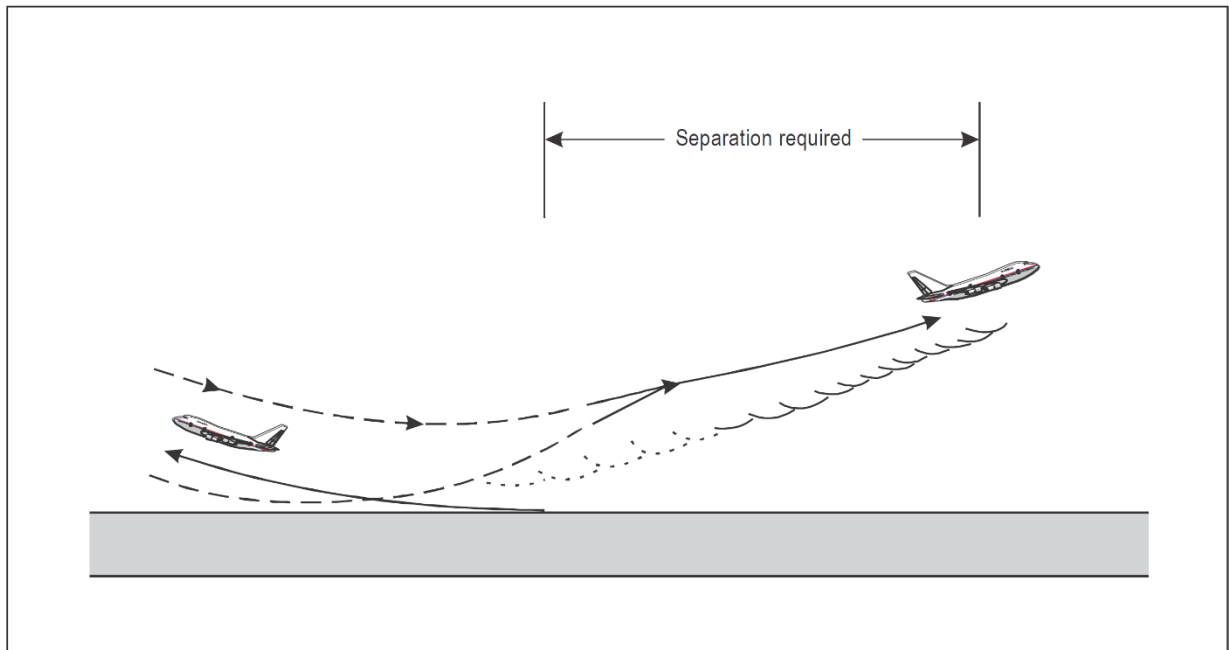


Figure 5-19 Two-minute wake turbulence separation for opposite-direction take-off

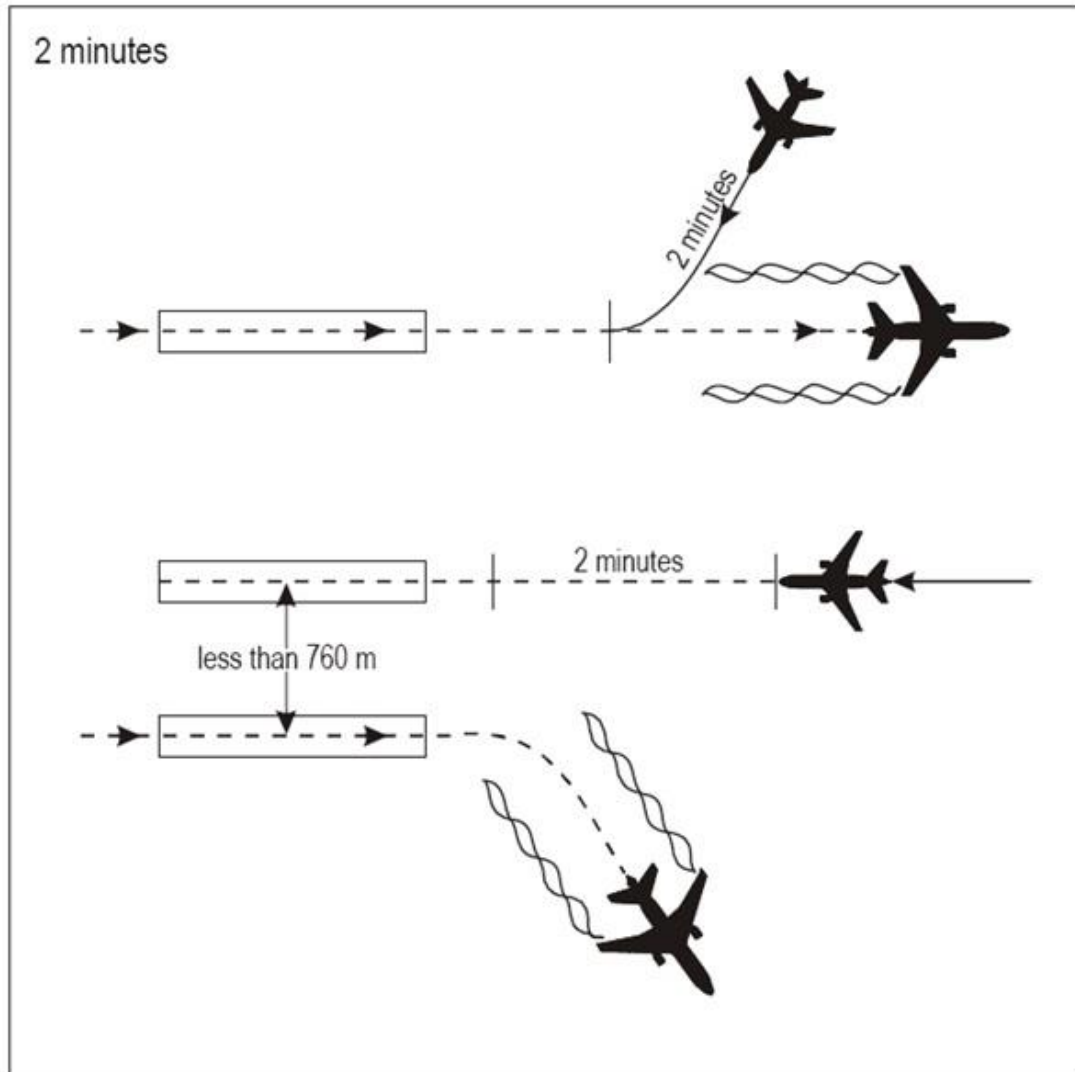


Figure 5-20 Two-minutes wake turbulence separation for opposite-direction landing

5.4.10.8 Time-based wake turbulence longitudinal separation minima and wake turbulence category of fighter aircraft is according to LATCIs.

5.4.10.9 For wake turbulence separation purposes, aircraft carrying out Touch and Go a low approach shall be considered as making departure from an intermediate point at the runway.

5.4.10.10 For wake turbulence separation purposes, Helicopters, air taxiing across runway shall be considered to be a departure from that intermediate point of the runway.

5.4.10.11 ATC shall apply the minima as prescribed above, irrespective of any pilot request for reduced wake turbulence separation. ATC does not have the discretion to reduce wake turbulence separation minima.

Note 1. Caution should be exercised when a helicopter or fixed-wing aircraft of a lower weight turbulence category is cleared to land on a runway immediately after a helicopter of higher weight turbulence category has taken off from that runway's threshold.

Note 2. Occurrence of turbulent wake hazards cannot be accurately predicted and aerodrome controllers cannot assume responsibility for the issuance of advice on such hazards at all times, nor for its accuracy.

Note 3. Wake turbulence Separation minima based on time cannot be achieved unless the whole sixty seconds of each minute specified is permitted to elapse.

5.4.11 ESSENTIAL TRAFFIC INFORMATION

5.4.11.1 Essential traffic is that controlled traffic to which the provision of separation by ATC is applicable, but which, in relation to a particular controlled flight is not, or will not be, separated from other controlled traffic by the appropriate separation minimum.

5.4.11.2 Essential traffic information shall be given to controlled flights concerned whenever they constitute essential traffic to each other.

5.4.11.3 Essential traffic information shall include if relevant and available:

- a) direction of flight of aircraft concerned;
- b) type and wake turbulence category of aircraft concerned;
- c) level of aircraft concerned and;
- d) one of the following:
 - (1) estimated time over the reporting point nearest to where the level will be crossed; or
 - (2) in case of providing ATS surveillance service, relative bearing of the aircraft concerned in terms of the 12-hour clock as well as distance from the conflicting traffic; or
 - (3) actual or estimated position of the aircraft concerned.

Note 1. Nothing in this section is intended to prevent ATC from imparting to aircraft under its control any other information at its disposal with a view to enhancing air safety in accordance with the objectives of ATS as defined in MATS Chapter 3, 3.1.2.

Note 2. Wake turbulence category will only be essential traffic information if the aircraft concerned is of a heavier wake turbulence category than the aircraft to which the traffic information is directed.

Note 3. Air traffic control units are required to provide separation between IFR flights in airspace classes A to E, and between IFR and VFR flights in classes B and C. Air traffic control units are not required to provide separation between VFR flights, except within airspace class B. Therefore, IFR or VFR flights may constitute essential traffic to IFR traffic, and IFR flights may constitute essential traffic to VFR traffic. However, a VFR flight would not constitute essential traffic to other VFR flights except within class B airspace.

5.4.12 RUNWAY SEPARATION

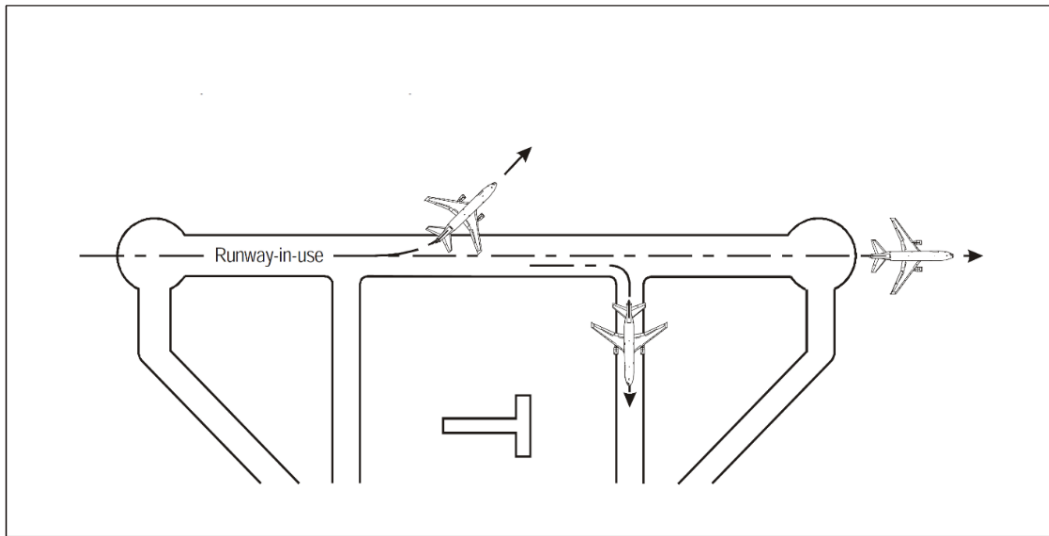


Figure 5-21 runway separation

5.4.12.1 Except as provided in 5.4.10 as regards time-based wake turbulence separation minima, the aerodrome control tower should not permit a departing aircraft to commence take-off until:

- a) the preceding departing aircraft has crossed the end of the runway-in-use; or
- b) the preceding departing aircraft has started a turn; or
- c) all preceding landing aircraft are clear of the runway-in-use (see Figure 5-47).

5.4.12.2 Position limits to be reached by a landed aircraft or a departing aircraft before an arriving aircraft may be cleared to cross the threshold of the runway-in-use or a departing aircraft may be cleared to take off, unless otherwise prescribed.

5.4.12.3 Except 5.4.10 as regards time-based wake turbulence separation minima and 5.4.9 as separation of departing aircraft from arriving aircraft, the aerodrome control tower should not permit a landing aircraft to cross the runway threshold on its final approach until:

- a) the preceding departing aircraft has crossed the end of the runway-in-use; or
- b) the preceding departing aircraft has started a turn; or
- c) all preceding landing aircraft are clear of the runway-in-use (see Figure 5-47).

Note1. Reduced runway separation minima for helicopters if exist, shall be included in LATCIs.

Note2. The runway separation will not apply to fighter aircraft in formation with respect to other aircraft in the same formation.

Note3. Aerodrome Control Tower may authorize simultaneous same direction operation for military and VFR flights, as if defined in LATCI(s).

Chapter 6 . DEPARTURE PROCEDURES

Section 1

GENERAL

6.1.1 FUNCTIONS OF AERODROME CONTROL TOWERS

6.1.1.1 Aerodrome control towers shall issue information, instructions and clearances to aircraft under their control to achieve a safe, orderly and expeditious flow of air traffic on and in the vicinity of an aerodrome with the object of preventing collision(s) between:

- a) aircraft flying within the designated area of responsibility of the control tower, including the aerodrome traffic circuits;
- b) aircraft operating on the manoeuvring area;
- c) aircraft landing and taking off;
- d) aircraft and vehicles operating on the manoeuvring area; and
- e) aircraft on the manoeuvring area and obstructions on that area.

6.1.1.2 Control of all flight operations on and in the vicinity of an aerodrome, as well as of vehicles and personnel on the manoeuvring area, should be continuously maintained by:

- (1) visual observation, which can be achieved directly by out-of-the-window observation or through the use of a visual surveillance system; and
- (2) an ATS surveillance system where available, in accordance with 8.4.3.

6.1.1.3 Traffic shall be controlled in accordance with the procedures set forth herein and all applicable traffic rules specified in LATCIs. If there are other aerodromes within a control zone, traffic at all aerodromes within such a zone shall be coordinated so that traffic circuits do not conflict.

6.1.1.4 The functions of an aerodrome control tower may be performed by different control or working positions, such as:

- a) aerodrome air traffic controller, normally responsible for operations on the runway and aircraft flying within the area of responsibility of the aerodrome control tower;
- b) ground air traffic controller, normally responsible for traffic on the manoeuvring area with the exception of runways; and
- c) clearance delivery position, normally responsible for delivery of start-up and ATC clearances to departing IFR flights.

6.1.2 FAILURE OR IRREGULARITY OF AIDS AND EQUIPMENT

Aerodrome control towers shall immediately report in accordance with local instructions any failure or irregularity of operation in any equipment, light or other device established at an aerodrome for the guidance of aerodrome traffic and flight crews or required for the provision of air traffic control service.

6.1.3 PROVISION OF SERVICE

Provision of aerodrome control service is based only upon observed or known traffic and aerodrome conditions.

6.1.4 OPERATION ON RUNWAY-IN-USE

6.1.4.1 The issuance of runway entry/crossing clearances for aircraft shall only remain with the aerodrome control tower and is performed on his frequency and shall not be delegated to another ATS unit or authority.

6.1.4.2 The issuance of runway entry/crossing clearances for vehicle and personnel should remain with the aerodrome control tower as far as possible, where Ground control functions are performed by a separate so called ground controller, considering the coordination procedures in force, this responsibility may be delegated to that controller, while using intercom or recordable line for coordination of those controllers.

Note1. Ground controller must obtain approval from aerodrome Tower controller before authorizing a vehicle to cross or use any portion of a runway-in-use, the coordination must include the point/intersection at the runway where the operation will occur and must advise the aerodrome Tower controller when the coordinated runway operation is complete. This should be accomplished verbally via intercom or recordable line.

Note 2. When aircraft, vehicles or personnel have been given permission to cross or occupy a runway-in-use, the controller shall, as a positive reminder that the runway is blocked, display the adequate number of strips, markers or visual aids separately for each element that is involved, on the active part of the flight progress board. The format of most commonly used indicators shall be included in the LATCI of the aerodrome, as appropriate.

6.1.4.3 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.

6.1.4.4 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.

6.1.5 COORDINATION BETWEEN AERODROME TOWER CONTROLLER AND GROUND CONTROLLERS

Aerodrome Tower controller and Ground controller must exchange information as necessary for the safe and efficient use of airport runways and taxiways. This may be accomplished via verbal means, flight progress strips, other written information, or automation displays. As a minimum, provide aircraft identification and applicable runway/intersection/taxiway information as follows:

- a) ground controller shall notify aerodrome Tower controller when a departing aircraft has requested a runway other than runway-in-use.
- b) ground controller shall notify aerodrome Tower controller when a departing aircraft has requested an intersection for take-off.

6.1.6 VISUALLY SCANNING RUNWAYS

6.1.6.1 Aerodrome Tower controllers must visually scan runways to the maximum extent possible.

6.1.6.2 Ground controller/tower assistant should as far as practicable assist tower controller in visual scanning of runways, especially when runways are in close proximity to other movement areas.

6.1.7 VEHICLES/EQUIPMENT/PERSONNEL ON RUNWAYS

6.1.7.1 The aerodrome Tower controller shall ensure that the runway to be used is cleared of all known or observed ground vehicles, equipment, and personnel before issuing take-off or landing clearance.

Note. Since There might be some limitations for the aerodrome tower controller's visibility due to weather condition, obstacles, etc. on the maneuvering area, his responsibility would be limited.

6.1.7.2 Vehicles, equipment, and personnel in communications with the control tower may be authorized to operate up to the runway holding position or equal distance as follows:

- a) 50 meters from runway edge where runway length is 900 meter or more;
- b) 30 meters from runway edge where runway length is less than 900 meter.

Note. See 6.11.1.3

6.1.8 ESSENTIAL LOCAL TRAFFIC

6.1.8.1 Information on essential local traffic shall be issued in a timely manner, either directly or through the unit providing approach control service when, in the judgement of the aerodrome controller, such information is necessary in the interests of safety, or when requested by aircraft.

6.1.8.2 Essential local traffic shall be considered to consist of any aircraft, vehicle or personnel on or near the manoeuvring area, traffic in the take-off and climb-out area, the final approach area or traffic operating in the vicinity of the aerodrome, which may constitute a collision hazard to the aircraft concerned.

6.1.8.3 Essential local traffic shall be described so as to be easily identified.

Note 1. Describe position of the essential local traffic relative to the aircraft concerned, and direction of movement.

Note 2. Describe vehicles, equipment, or personnel on or near the manoeuvring area in a manner which will assist pilots in recognizing them.

Examples:

"low level helicopter crossing take-off leg, from left to right"

"sweeper car working on taxiway Alfa."

"Workman near the middle of the RWY."

6.1.9 ESSENTIAL INFORMATION ON AERODROME CONDITIONS

6.1.9.1 Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft, which pertains to the movement area or any facilities usually associated therewith. For example, construction work on a taxi strip not connected to the runway-in-use would not be essential information to any aircraft except one that might be taxed in the vicinity of the construction work. As another example, if all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

6.1.9.2 Whenever information is provided on aerodrome conditions, this shall be done in a clear and concise manner so as to facilitate appreciation by the pilot of the situation described. It shall be issued whenever deemed necessary by the controller on duty in the interest of safety, or when requested by an aircraft. If the information is provided on the initiative of the controller, it shall be transmitted to each aircraft concerned in sufficient time to enable the pilot to make proper use of the information.

6.1.9.3 Aerodrome information should be passed to aircraft whenever possible prior to start-up or taxi and prior to the commencement of final approach, except when it is known that the aircraft has received all or part of the information from other sources.

6.1.9.4 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.

6.1.9.5 Essential information on aerodrome conditions shall include information relating to the following:

- a) construction or maintenance work on, or immediately adjacent to the movement area;
- b) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;
- c) water, snow, slush, ice or frost on a runway, a taxiway or an apron;

Note. See 6.10.5

- d) anti-icing or de-icing liquid chemicals or other contaminants on a runway, taxiway or apron;
- e) other temporary hazards, including parked aircraft and birds on the ground or in the air;

Note1. Flocks of birds or individual large birds reported or observed on or above the manoeuvring area or in the immediate vicinity of the aerodrome. When flocks of birds or single large ones are seen, the Aerodrome Authority must be informed to remove them.

Note2. See 12.1.12.1.

Note3. See Note 1 following 6.9 for obstruction runway.

Example:

*IRA123 CAUTION CONSTRUCTION WORK ADJACENT TO GATE 37
... WORK IN PROGRESS AHEAD NORTH SIDE OF TAXIWAY ALPHA
... CENTRE LINE TAXIWAY LIGHTING UNSERVICEABLE
... VASIS RUNWAY 27 UNSERVICEABLE
... LARGE FLOCK OF BIRDS NORTH OF RUNWAY 27 NEAR CENTRAL TAXIWAY
... ILS 09 UNSERVICEABLE
... RUNWAY CONDITIONS 09: AVAILABLE WIDTH 32 METRES, COVERED WITH THIN PATCHES
OF ICE,*

- f) Failure or irregular operation of part or all of the aerodrome lighting system.

Note. Defects must be passed to pilots in the form that they have been reported to the controller. Controllers should not make assumptions that a particular defect renders an associated aid unserviceable or not available. The pilot is responsible for deciding his course of action;

- g) Information on the location and operational status of relevant arresting system installation.
h) Any other pertinent information.

Note. Up-to-date information on the conditions on aprons may not always be available to the aerodrome control tower. The responsibility of the aerodrome control tower in relation to aprons is, with respect to the provisions of Para 6.1.8.1 and Para 6.1.8.2, limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

6.1.9.6 Essential information on aerodrome conditions shall be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information shall be given in sufficient time for the aircraft to make proper use of it, and the hazards shall be identified as distinctly as possible.

Note. "Other sources" include "NOTAM", "ATIS" broadcasts, and the display of suitable signals.

6.1.9.7 When a not previously notified condition pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the controller, the appropriate aerodrome authority shall be informed through ATS supervisor and operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

6.1.10 UNCERTAINTY OF POSITION ON THE MANOEUVRING AREA

In the event the aerodrome controller becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, appropriate action shall be taken immediately to safeguard operations and assist the aircraft or vehicle concerned to determine its position

6.1.11 CONTROL OF OTHER THAN AIRCRAFT TRAFFIC

6.1.11.1 ENTRY TO THE MANOEUVRING AREA

The movement of pedestrians or vehicles on the manoeuvring area shall be subject to authorization by the aerodrome control tower. Persons, including drivers of all vehicles, shall be required to obtain authorization from the aerodrome control tower before entry to the manoeuvring area. Notwithstanding such an authorization, entry to a runway or runway strip or change in the operation authorized shall be subject to a further specific authorization by the aerodrome control tower.

6.1.11.2 PRIORITY ON THE MANOEUVRING AREA

6.1.11.2.1 All vehicles and pedestrians shall give way to aircraft which are landing, taxiing or taking off, except that emergency vehicles proceeding to the assistance of an aircraft in distress shall be afforded priority over all other surface movement traffic. In the latter case, all movement of surface traffic should, to the extent practicable, be halted until it is determined that the progress of the emergency vehicles will not be impeded.

6.1.11.2.2 When an aircraft is landing or taking off, vehicles shall not be permitted to hold closer to the runway-in-use than:

- a) at a taxiway/runway intersection — at a runway-holding position; and
- b) at a location other than a taxiway/runway intersection — at a distance equal to the separation distance of the runway-holding position.

Note. See 6.1.7.2 b

6.1.11.2.3 Subject to the provisions in 6.1.11.2.1, 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.

6.1.12 WIND SHEAR

6.1.12.1 ATC ACTION

6.1.12.1.1 Whenever a pilot reports wind shear conditions to ATC, the information shall be relayed to subsequent inbound and outbound aircraft until confirmation is received that the condition no longer exists.

6.1.12.1.2 Reports from pilots should contain the following information:

- a) a warning of the presence of wind shear;
- b) the height or height band where the shear was encountered;
- c) the time at which it was encountered;
- d) details of the effect of the wind shear on the aircraft, e.g. speed gain or loss, vertical speed tendency, change in drift.

6.1.12.2 ATIS BROADCASTS

6.1.12.2.1 At aerodromes where ATIS is available wind shear information may be included in the broadcasts. Controllers should amplify the information for individual aircraft if necessary.

- a) when low level wind shear is reported by pilots, controllers must issue the alert to all arriving and departing aircraft. Controller shall continue the alert to aircraft until it is broadcast on the ATIS and pilots indicate they have received the appropriate ATIS code. A statement must be included on the ATIS until any change in wind direction and speed or any confirmation is received by pilot indicates that the condition no longer exists.

Note. Some aircraft are equipped with Predictive Wind Shear(PWS) alert systems that warn the flight crew of a potential wind shear up to 3 miles ahead and 25 degrees either side of the aircraft heading at or below 1200' AGL. Pilot reports may include warnings received from PWS systems.

- b) at aerodrome without ATIS, ATS unit shall ensure that wind shear/microburst information is broadcast to all arriving and departing aircraft following the last report or indication of wind shear. Until any change in wind direction and speed or any confirmation is received by pilot indicates that the condition no longer exists.

Phraseology:

*AT (TIME) A DEPARTING/ARRIVING (A/C TYPE) REPORTED WINDSHEAR AT (ALTITUDE).
AIRSPEED LOSS/GAIN (NUMBER) KNOTS, STRONG LEFT/RIGHT DRIFT.*

6.1.13 USE OF AMD AND RPS

Note. See 8.4.1 and 8.4.2

6.1.14 OBSERVED ABNORMALITIES

If observed by tower controller and deemed necessary or requested by a pilot, controller should inform an aircraft of any observed abnormal aircraft condition e.g. unusual smoke emissions from any part of the aircraft.

Phraseology:

(Item) APPEAR/S (observed condition).

Example:

“LANDING GEAR APPEARS UP.”

“LANDING GEAR APPEARS DOWN.”

“REAR BAGGAGE DOOR APPEARS OPEN.”

“WHITE SMOKE APPEARS OUT OF ENGINE.”

Section 2

SCOPE AND PURPOSE OF AIR TRAFFIC CONTROL CLEARANCES

6.2.1 GENERAL

6.2.1.1 Clearances are issued solely for separating and expediting air traffic and are based on known traffic conditions which affect safety in aircraft operation. Such traffic conditions include not only aircraft in the air and on the manoeuvring area over which control is being exercised, but also any vehicular traffic or other obstructions not permanently installed on the manoeuvring area in use.

6.2.1.2 If an air traffic control clearance is not suitable to the pilot-in-command of an aircraft, the flight crew may request and, if practicable, obtain an amended clearance.

6.2.1.3 The issuance of air traffic control clearances by air traffic control units constitutes authority for an aircraft to proceed only in so far as known air traffic is concerned. ATC clearances do not constitute authority to violate any applicable regulations for promoting the safety of flight operations or for any other purpose; neither do clearances relieve a pilot-in-command of any responsibility whatsoever in connection with a possible violation of applicable regulations.

6.2.1.4 ATC units shall issue such ATC clearances as are necessary to prevent collisions and to expedite and maintain an orderly flow of air traffic.

6.2.1.5 ATC clearances must be issued early enough to ensure that they are transmitted to the aircraft in sufficient time for it to comply with them.

6.2.1.6 When issuing a clearance to an airborne aircraft containing a level assignment, more than two of the following in the same transmission should not be included:

- a) frequency change.
- b) transponder change.
- c) heading.
- d) altimeter setting.
- e) traffic information containing an altitude.
- f) holding instructions.
- g) any special information.

Note. It is evident that using complementary terms e.g. "flight level", "knots", "degrees", ... Is required to avoid potential misunderstanding

6.2.2 AIRCRAFT SUBJECT TO ATC FOR PART OF FLIGHT

6.2.2.1 When a flight plan specifies that the initial portion of a flight will be uncontrolled, and that the subsequent portion of the flight will be subject to ATC, the ATS unit at departure aerodrome shall obtain clearance from the ATC unit in whose area controlled flight will be commenced.

6.2.2.2 When a flight plan specifies that the first portion of a flight will be subject to ATC, and that the subsequent portion will be uncontrolled, the aircraft shall normally be cleared to destination, it's clear that the clearance limit is the controlled airspace boundary.

6.2.2.3 In applying the provisions of 6.2.2.1 and 6.2.2.2, the related phraseologies are to be taken from chapter 14 of the present manual, for operation in uncontrolled airspace, where appropriate, to pass information to air traffic, considering the fact that they shall not be considered as clearance.

6.2.2.4 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. The phraseologies used are:

*LEAVE CONTROLLED AIRSPACE (or CONTROL ZONE) [VIA (significant point or route)] AT (level)
(or CLIMBING, or DESCENDING);
JOIN (specify) AT (significant point) AT (level) [AT (time)].*

6.2.3 FLIGHTS THROUGH INTERMEDIATE STOPS

6.2.3.1 When an aircraft files, at the departure aerodrome, flight plans for the various stages of flight through intermediate stops, the initial clearance limit will be the first destination aerodrome and new clearances shall be issued for each subsequent portion of flight.

6.2.3.2 The flight plan for the second stage, and each subsequent stage, of a flight through intermediate stops will become active for ATS and search and rescue (SAR) purposes only when the appropriate ATS unit has received notification that the aircraft has departed from the relevant departure aerodrome, except as provided for in Para 6.2.3.3.

6.2.4 EN-ROUTE AIRCRAFT

After the initial clearance has been issued to an aircraft at the point of departure, it will be the responsibility of the appropriate ATC unit to issue an amended clearance whenever necessary and to issue traffic information, if required.

Section 3

SELECTION OF RUNWAY-IN-USE

Note. Normally, an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and available instrument approach procedures or air traffic conditions determine that a different direction is preferable.

6.3.1 SELECTION

6.3.1.1 The term “runway-in-use” shall be used to indicate the runway or runways that, at a particular time, are considered by the aerodrome control tower to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome.

Note. Separate or multiple runways may be designated runway-in-use for arriving aircraft and departing aircraft.

6.3.1.2 Normally, an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and available instrument approach procedures or air traffic conditions determine that a different direction is preferable. In selecting the runway-in-use, however, the unit providing aerodrome control service shall take into consideration, besides surface wind speed and direction, other relevant factors such as the aerodrome traffic circuits, the length of runways, and the approach and landing aids available.

6.3.1.3 A runway for take-off or landing, appropriate to the operation, may be nominated for noise abatement purposes, the objective being to utilize whenever possible those runways that permit aeroplanes to avoid noise-sensitive areas during the initial departure and final approach phases of flight.

6.3.2 CONSIDERATION OF NOISE ABATEMENT IN THE SELECTION OF THE RUNWAY-IN-USE

6.3.2.1 A runway may be nominated for noise abatement purposes, the objective being to utilize whenever possible those runways that permit aeroplanes to avoid noise sensitive areas during the initial departure and final approach phases of flight.

6.3.2.2 if the pilot, prompted by safety concerns, considers that a runway offered, including those for noise abatement purposes, is not suitable, he may refuse that runway and request permission to use another. In such circumstances, controllers shall inform pilots of the expected delay necessary to facilitate a change of runway.

6.3.2.3 The aerodrome control tower should select runways for noise abatement purposes for landing operations only when they are equipped with suitable glide path guidance, e.g. ILS, or a visual approach slope indicator system for operations in VMC.

6.3.2.4 Noise abatement should not be a determining factor in runway nomination under the following circumstances:

6.3.2.4.1 if the runway surface conditions are adversely affected (e.g. by snow, slush, ice, water, mud, rubber, oil or other substances);

6.3.2.4.2 for landing in conditions:

6.3.2.4.2.1 when the ceiling is lower than 150 m (500 ft) above aerodrome elevation, or the visibility is less than 1 900 m; or

6.3.2.4.2.2 when the approach requires use of vertical minima greater than 100 m (300 ft) above aerodrome elevation and:

- a) the ceiling is lower than 240 m (800 ft) above aerodrome elevation; or
- b) the visibility is less than 3 000 m;

6.3.2.4.3 for take-off when the visibility is less than 1 900 m;

6.3.2.4.4 when wind shear has been reported or forecast or when thunderstorms are expected to affect the approach or departure; and

6.3.2.4.5 when the crosswind component, including gusts, exceeds 28 km/h (15 kt), or the tailwind component, including gusts, exceeds 9 km/h (5 kt).

6.3.3 RUNWAY CHANGES

6.3.3.1 Should a change of runway be necessary, tower controller shall:

- a) inform approach controller at least 5 minutes in advance to let the approach controller to decide the last landing and/or departing aircraft prior to the runway change. This must be planned as to be as close as practicable to the agreed time.
- b) inform the following:
 - 1. aircraft under his control;
 - 2. aerodrome fire service;
 - 3. contractors working on the aerodrome who will be affected by the change through the Marshaller;
 - 4. other agencies according to local instructions that incorporated into LATCI.

Note. Pilot of aircraft which has passed the IAF is responsible to decide which runway is suitable for landing. in any case controller shall be advised about the decision which is made.

Section 4

AERODROME INFORMATION

6.4.1 Information regarding changes in the operational status of visual or non-visual aids essential for take-off and climb should be transmitted without delay to a departing aircraft, except when it is known that the aircraft has already received the information.

6.4.2 DEPARTURE INFORMATION WHEN ATIS IS NOT AVAILABLE

Prior to taxiing for take-off, aircraft shall be advised of the following elements of information, with the exception of such elements which it is known the aircraft has already received:

- a) the runway to be used;
- b) the surface wind direction and speed, including significant variations therefrom;
- c) the QNH altimeter setting and, either on a regular basis in accordance with local arrangements or if so requested by the aircraft, the QFE altimeter setting;
- d) the air temperature for the runway to be used;
- e) the visibility representative of the direction of take-off and initial climb, if less than 10 km, or, when applicable, the RVR value(s) for the runway to be used;
- f) present weather
- g) cloud below 1500 m (5000 ft) or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available

6.4.3 DEPARTURE INFORMATION WHEN ATIS IS AVAILABLE.

Note. See Para 3.6.9.6

Section 5

TAXI AND GROUND MOVEMENT PROCEDURES

6.5.1 TRAFFIC ON THE MANOEUVRING AREA

6.5.1.1 CONTROL OF TAXIING AIRCRAFT

6.5.1.1.1 Taxi clearance

6.5.1.1.1.1 Prior to issuing a taxi clearance, the controller shall determine where the aircraft concerned is parked. Taxi clearances shall contain concise instructions and adequate information so as to assist the flight crew to follow the correct taxi routes, to avoid collision with other aircraft or objects and to minimize the potential for the aircraft inadvertently entering an active runway.

Taxi instructions issued by a controller will always contain a clearance limit, which is the point at which the aircraft must stop until further permission to proceed is given. For departing aircraft, the clearance limit will normally be the taxi-holding point of the runway in use, but it may be any other position on the aerodrome depending on the prevailing traffic circumstances.

When requested, aircraft shall be provided with a time check, such time checks shall be given to the nearest half minute.

Note. See 6.7.5.4.

6.5.1.1.1.2 When a taxi clearance contains a taxi limit beyond a runway, it shall contain an explicit clearance to cross or an instruction to hold short of that runway.

6.5.1.1.1.3 The ANSP should, whenever practicable, define in the national AIP standard taxi routes to be used at an aerodrome. Standard taxi routes should be identified by appropriate designators and should be used in taxi clearances.

6.5.1.1.1.4 Where standard taxi routes have not been published, a taxi route should, whenever possible, be described by use of taxiway and runway designators. Other relevant information, such as an aircraft to follow or give way to, shall also be provided to a taxiing aircraft.

6.5.1.1.2 Taxiing on a runway-in-use

6.5.1.1.2.1 For the purpose of expediting air traffic, aircraft may be permitted to taxi on the runway-in-use, provided no delay or risk to other aircraft will result. Where control of taxiing aircraft is provided by a ground controller and the control of runway operations by an aerodrome controller, the use of a runway by taxiing aircraft shall be coordinated with and approved by the aerodrome controller. Communication with the aircraft concerned should be transferred from the ground controller to the aerodrome controller prior to the aircraft entering the runway.

6.5.1.1.2.2 If the control tower is unable to determine, either visually or via an ATS surveillance system that a vacating or crossing aircraft has cleared the runway, the aircraft shall be requested to report when it has vacated the runway. The report shall be made when the entire aircraft is beyond the relevant runway-holding position.

6.5.2 GROUND TRAFFIC MOVEMENT

6.5.2.1 Air traffic controller shall not issue conditional clearances that are dependent upon the movement of an arrival aircraft on or approaching the runway or a departure aircraft established on a take-off roll. Do not say, "LINE UP AND WAIT BEHIND LANDING TRAFFIC," or "CROSS RUNWAY TWO-NINER BEHIND DEPARTING/LANDING A30B". The above requirements do not preclude issuing instructions to follow an aircraft observed to be operating on the movement area in accordance with an ATC clearance/instruction and in such a manner that the instructions to follow are not ambiguous.

6.5.2.2 Instructions for the purpose of runway inspection or other airport operations must ensure positive control with specific instructions to proceed on a runway or movement area, and as necessary, hold short instructions.

6.5.2.3 Controller shall not use the word "CLEARED" in conjunction with authorization for aircraft to taxi or equipment/vehicle/personnel operations. Use the prefix "TAXI," "PROCEED," or "HOLD," as appropriate, for aircraft instructions and "PROCEED" or "HOLD" for equipment/ vehicles/personnel.

Note 1. The absence of holding instructions authorizes an aircraft/vehicle to cross all taxiways that intersect the taxi route.

Note 2. Maneuvering area is that part of an aerodrome to be used for the take-off, landing and movement of aircraft under its own power on stand taxilane, Apron taxiway and taxiways which intersecting the runway, excluding aprons and any part of the aerodrome provided for maintenance of aircraft.

Note 3. Movement of aircraft or vehicles on outside the maneuvering area is the responsibility of the pilot or the aircraft operator.

Note 4. Super or Heavy aircraft should not to be given clearance or instructions that would require the use of more than normal power for taxiing or crossing the runway.

Note 5. Waiver ATC clearance that issued by tower controller, the responsibility preventing collision of an aircraft is being tow or push with other aircraft parked, vehicles, building and obstructions is with operator.

Note 6. See 6.11.1.4

Phraseologies:

[aircraft type] [wake turbulence category if "super" or "heavy"] [aircraft location] REQUEST TAXI [intentions]*;

[aircraft type] [wake turbulence category if "super" or "heavy"] [aircraft location] (flight rules) TO (aerodrome of destination) REQUEST TAXI [intentions]*;

TAXI TO HOLDING POINT [number] [RUNWAY (number)] [HOLD SHORT OF RUNWAY (number) (or CROSS RUNWAY (number))] [TIME (time)];

[aircraft type] [wake turbulence category if "super" or "heavy"] REQUEST DETAILED TAXI INSTRUCTIONS*;

TAXI TO HOLDING POINT [number] [RUNWAY (number)] VIA (specific route to be followed) [TIME (time)] [HOLD SHORT OF RUNWAY (number) (or CROSS RUNWAY (number))];

TAXI TO HOLDING POINT [number] (followed by aerodrome information as applicable) [TIME (time)];

TAKE (or TURN) FIRST (or SECOND) LEFT (or RIGHT);

TAXI VIA (identification of taxiway);

TAXI VIA RUNWAY (number);

TAXI TO TERMINAL (or other location, e.g. GENERAL AVIATION AREA) [STAND (number)];

REQUEST AIR-TAXIING FROM (or VIA) TO (location or routing as appropriate) *;

AIR-TAXI TO (or VIA) (location or routing as appropriate) [CAUTION (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)];
AIR TAXI VIA (direct, as requested, or specified route) TO (location, heliport, operating or movement area, active or inactive runway). AVOID (aircraft or vehicles or personnel);
REQUEST BACKTRACK;*
BACKTRACK APPROVED;
BACKTRACK RUNWAY (number);
*[(aircraft location)] REQUEST TAXI TO (destination on aerodrome) *;*
TAXI STRAIGHT AHEAD;
TAXI WITH CAUTION;
GIVE WAY TO (description and position of other aircraft);
GIVING WAY TO (traffic);*
TRAFFIC (or type of aircraft) IN SIGHT;*
TAXI INTO HOLDING BAY;
FOLLOW (description of other aircraft or vehicle);
VACATE RUNWAY;
RUNWAY VACATED;*
aa) EXPEDITE TAXI [(reason)];
EXPEDITING;*
[CAUTION] TAXI SLOWER [reason];
SLOWING DOWN.*

*Note. * Denotes pilot transmission.*

6.5.2.4 Aircraft/vehicles must receive a clearance for each runway their route crosses. An aircraft/vehicle must have crossed a previous runway before another runway crossing clearance may be issued.

Note 1. At aerodrome in which Ground control service is provided by a separate working position, taxi clearances shall not be included instruction to enter or cross the runways.

Note 2. A clearance is required for aircraft/vehicles to operate on any active, inactive, or closed runway except for vehicles operating on closed runways in accordance with LATCI.

Example:

Cross Runway Two–Niner Right, hold short of Runway Two–Niner Left.

Note 3. Do not use “TAXI TO HOLDING POSITION”, the correct phraseology is “TAXI TO HOLDING POINT”.

6.5.2.5 When an aircraft/vehicle is instructed to “FOLLOW” traffic and requires a runway crossing, issue a runway crossing clearance in addition to the follow instructions and/or hold short instructions, as applicable.

Examples:

Follow (traffic), cross Runway Two Niner Right. or

Follow (traffic), cross Runway Two Niner Right, hold short Runway Two Niner Left.

6.5.2.6 When the pilot/vehicle operator fails to read back a runway hold short instruction, he shall be instructed to read it back as soon as possible.

Phraseology:

READ BACK HOLD INSTRUCTIONS.

Note. This phrase may be used for any point on the movement area, when the controller believes the read back is necessary.

6.5.2.7 Controller may issue instructions to expedite a taxiing aircraft or a moving vehicle. Controller should issue instructions to aircraft/vehicle to hold short of an ILS sensitive area, if necessary.

6.5.3 GROUND OPERATIONS

6.5.3.1 Jet blast and wake turbulence application

- a) controller should avoid to issue clearances which require super or heavy jet aircraft to use greater than normal taxiing power.

Note. Use caution when taxiing smaller aircraft/helicopters in the vicinity of larger aircraft.

- b) helicopters should be kept well clear of light aircraft when hovering or while air taxiing.

Note. Helicopters produce vortices when in flight and there is some evidence that, per kilogram of gross mass, their vortices are more intense than those of fixed-wing aircraft. When hovering in ground effect or air taxiing, helicopters generate downwash producing high velocity outwash vortices to a distance approximately three times the diameter of the rotor.

6.5.3.2 In issuing clearances or instructions, air traffic controllers should take into account the hazards caused by jet blast and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

6.5.4 USE OF RUNWAY-HOLDING POSITIONS

6.5.4.1 Except as provided in Para 6.5.4.2, aircraft shall not be held closer to a runway-in-use than at a runway-holding position.

Note. Runway-holding position locations in relation to runways are specified in CS.ADR-DSN.D.340.

6.5.4.2 Aircraft shall not be permitted to line up and hold on the approach end of a runway-in-use whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding.

Phraseology:

HOLD SHORT OF RUNWAY (number)

6.5.5 CRITICAL/SENSITIVE AREA

6.5.5.1 The occurrence of interference to ILS signals is dependent on the total environment around the ILS antennas, and the antenna characteristics. Any large reflecting objects, including vehicles or fixed objects such as structures within the radiated signal coverage, will potentially cause multipath interference to the ILS course and path structure. The location and size of the reflecting fixed objects and structures in conjunction with the directional qualities of the antennas will determine the static course or path structure quality whether Category

I and II. Movable objects can degrade this structure to the extent that it becomes unacceptable. The areas within which this degradable interference is possible need to be defined and recognized to be published in AIP. For the purposes of developing protective zoning criteria, these areas can be divided into two types, i.e. critical areas and sensitive areas:

- a) the ILS critical area is an area of defined dimensions about the localizer and glide path antennas where vehicles, including aircraft, are excluded during all ILS operations. The critical area is protected because the presence of vehicles and/or aircraft inside its boundaries will cause unacceptable disturbance to the ILS signal-in-space;
- b) the ILS sensitive area is an area extending beyond the critical area where the parking and/or movement of vehicles, including aircraft, is controlled to prevent the possibility of unacceptable interference to the ILS signal during ILS operations. The sensitive area is protected against interference caused by large moving objects outside the critical area but still normally within the airfield boundary.

Note. Holding position of runways should be at the distance to prevent the possibility of unacceptable interference to the ILS.

6.5.6 ESTABLISHMENT AND IDENTIFICATION OF STANDARD ROUTES FOR TAXIING AIRCRAFT

6.5.6.1 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.

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

Section 6

PREPARATION FOR TAKE-OFF

6.6.1 GENERAL

Information regarding significant changes in the meteorological conditions in the take-off or climb-out area, obtained by the unit providing approach/aerodrome control service shall be transmitted to the aircraft without delay, except when it is known that the aircraft already has received the information, prior to take-off aircraft shall be advised of any significant changes in the surface wind direction and speed, the air temperature, and the visibility or RVR value(s) given in accordance with Chapter 3 section 4.

Note. Significant meteorological conditions in this context include the occurrence or expected occurrence of, cumulonimbus or thunderstorm, moderate or severe turbulence, wind shear, hail, moderate or severe icing, severe squall line, freezing precipitation, severe mountain waves, sandstorm, dust storm, blowing snow, tornado or waterspout in the take-off and climb-out area.

6.6.2 LINE UP AND WAIT

6.6.2.1 The intent of line up and wait is to position aircraft for an imminent departure. ATCO may authorize an aircraft to line up and wait, when take-off clearances cannot be issued because of traffic. Traffic information should be issued to any aircraft so authorized. Traffic information may be omitted when the traffic is another aircraft which has landed on or is taking off the runway and is clearly visible to the holding aircraft.

Conditional phrases such as “BEHIND LANDING TRAFFIC” or “AFTER THE DEPARTING AIRCRAFT” shall not be issued.

6.6.2.2 ATCO shall first state the runway number followed by the line up and wait clearance.

Phraseology:

RUNWAY (number), LINE UP AND WAIT.

6.6.2.3 Air traffic controller shall not authorize an aircraft to line up and wait if an aircraft has been cleared to “LAND”, “TOUCH-AND-GO”, “STOP-AND-GO”, or “LOW APPROACH” on the same runway.

6.6.2.4 Except as provided in 7.8.4.6 for calculating RVR by the pilot, an air traffic controller shall not authorize an aircraft to line up and wait when the lineup position is not visible from the tower.

6.6.2.5 When aircraft are authorized to line up and wait on runways that intersect, traffic information must be exchanged between that aircraft and the aircraft that is authorized to line up and wait, depart, or arrive to the intersecting runway(s).

6.6.2.6 When an aerodrome controller issues or amends an ATC clearance to an aircraft awaiting departure and that aircraft is holding short of a runway or is lining up on a runway, an additional instruction must be issued to prevent the possibility of the aircraft inadvertently taxiing onto the runway and/or commencing take-off roll. In such cases, append one of the following ATC instructions as appropriate:

Phraseology:

*HOLD SHORT OF RUNWAY, or
HOLD POSITION.*

6.6.2.7 When the pilot/vehicle operator fails to read back a runway hold short instruction, he shall be instructed to read it back as soon as possible.

6.6.2.8 When authorizing an aircraft to line up and wait at an intersection, state the runway intersection.

Phraseology:

RUNWAY (number) AT (taxiway designator), LINE UP AND WAIT.

6.6.3 TAKE-OFF CLEARANCE

Take-off clearance may be issued to an aircraft when there is reasonable assurance that the separation in 5.4.12, will exist when the aircraft commences take-off.

6.6.3.1 Subject to 6.6.3.3, the take-off clearance shall be issued when the aircraft is ready for take-off and at or approaching the departure runway, and the traffic situation permits.

6.6.3.2 The expression TAKE-OFF shall only be used in radiotelephony only when an aircraft is cleared for take-off, or when cancelling a take-off clearance. At other take-off times, the word “DEPARTURE” or “AIRBORNE” is used.

6.6.3.3 When an ATC clearance or any amended clearance is required prior to take-off, the take-off clearance shall not be issued until the ATC clearance or amended clearance has been transmitted to and read back by the aircraft concerned.

6.6.3.4 To reduce the potential for misunderstanding, the take-off clearance shall include the designator of the departure runway.

Phraseology:

RUNWAY (number), CLEARED FOR TAKE-OFF.

Example:

RUNWAY TWO SEVEN, CLEARED FOR TAKE-OFF.

6.6.3.5 IMMEDIATE DEPARTURE

In the interest of expediting traffic, a clearance for immediate take-off may be issued on acceptance of such clearance, and expected that the pilot shall act as follows:

- a) Before it enters the runway, the aircraft shall taxi out to the runway and take off in one continuous movement;

Note. When issuing a clearance for immediate take-off to heavy aircraft, the controller should take into account:

1. *The performance limitations that may preclude the pilot from fully complying with the clearance taken and*

2. *Caution jet blast, immediate take-off would require the use of more than normal power for entry on to the runway.*

- b) If already lined up on the runway, take-off without delay
- c) If an immediate take-off is not possible, he will advise the controller.

Phraseology:

ARE YOU READY FOR IMMEDIATE DEPARTURE?

LINE UP. BE READY FOR IMMEDIATE DEPARTURE;

6.6.3.6 When a departing aircraft taking longer to take off than anticipated, it is occasionally necessary to cancel the take-off clearance or quickly free the runway for landing traffic.

Phraseology:

TAKE OFF IMMEDIATELY OR VACATE RUNWAY [(instructions)];

TAKE OFF IMMEDIATELY OR HOLD SHORT OF RUNWAY;

6.6.3.7 INTERSECTION DEPARTURE

A controller may authorize an intersection departure if a pilot requests. When clearing an aircraft for take-off from an intersection, state the runway intersection.

Note 1. Controller shall not issue any clearance or instruction which authorizes the other aircraft, vehicle or person to cross or enter the runway behind the aircraft that is cleared for an intersection take off.

Note 2. "Declared distances" for all runways are published in AIP, so pilots are responsible for preflight performance planning. There are no special markings, signing, or lighting associated with declared distances and they do not limit the actual runway available for use by an aircraft. Therefore, they cannot be used for any air traffic control purpose. If pilots inquire about the existence of declared distances, refer them to the AIP.

Note 3. Tower controller should not clear the intersection departure for an immediate takeoff.

Phraseology:

RUNWAY (number) AT (taxiway designator) CLEARED FOR TAKE-OFF.

6.6.3.8 The controller must ensure that all runways along the taxi route that lead to the departure runway are crossed before the take-off clearance is issued.

6.6.3.9 When the aircraft is not insight of air traffic controller (e.g. In poor visibility, or when the departure point is located outside the airport) the controller shall request the pilot to report when airborne.

6.6.4 CANCELLATION OF TAKE-OFF CLEARANCE

Note. The decision to reject take off remains with the pilot.

6.6.4.1 If take-off clearance has to be cancelled before the take-off run has commenced, the pilot shall be instructed to hold position and to acknowledge the instruction.

Phraseology:

HOLD POSITION, CANCEL TAKE-OFF I SAY AGAIN CANCEL TAKE-OFF (reasons);

Example:

*IRA123 HOLD POSITION, CANCEL TAKE-OFF I SAY AGAIN CANCEL TAKE OFF VEHICLE AT THE
END OF THE RUNWAY.*

6.6.4.2 In certain circumstances the aerodrome controller may consider that it is necessary to cancel take-off clearance after the aircraft has commenced the take-off run. In this event the pilot shall be instructed to stop immediately and to acknowledge the instruction.

6.6.4.3 The cancellation of a take-off clearance after an aircraft has commenced its take-off run should only occur when the aircraft will be in serious and imminent danger should it continue. Air traffic controllers should be aware of the potential for an aircraft to overrun the end of the runway if the take-off is abandoned at a late stage; this is particularly so with large aircraft or those operating close to their performance limit, such as at maximum take-off mass, in high ambient temperatures or when the runway braking action may be adversely affected. Because of this risk, even if a take-off clearance is cancelled, the pilot-in-command may consider it safer to continue the take-off than to attempt to stop the aircraft.

6.6.4.4 Air traffic controllers should also be aware of the possibility that an aircraft that abandons its take-off may suffer overheated brakes or another abnormal situation and should be prepared to declare the appropriate category of emergency or to provide other suitable assistance.

Phraseology:

STOP IMMEDIATELY [(repeat aircraft call sign) STOP IMMEDIATELY] ;(reason)

Example:

*IRM456 STOP IMMEDIATELY IRM456 STOP IMMEDIATELY. VEHICLE AT THE MIDDLE OF THE
RUNWAY*

6.6.5 VISUAL DEPARTURE

6.6.5.1 WITHIN CONTROLLED AIRSPACE

When implemented, visual departure should be applied under the following conditions:

6.6.5.1.1 A visual departure is a departure by an IFR flight in visual reference to terrain when either part or all of an instrument departure procedure (e.g. standard instrument departure [SID]) is not completed or when there is no navigation AIDs or SID available to serve the aircraft at the departure aerodrome.

6.6.5.1.2 When traffic conditions permit, before or after departure, an IFR flight may be cleared to execute a visual departure in accordance with the following conditions:

Note. A request for visual departure implies that the pilot can maintain visual reference to the terrain up to the established altitude published in the AIP, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA) or ATCSMAC.

- a) requested by pilot;

Note. A request for Visual Departure implies that the pilot can maintain visual reference to the terrain so it is not necessary for the controller to verify it.

- b) the meteorological conditions in the direction of take-off and the following climb-out are such that they do not impair the procedure up to the established altitude published in the AIP, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA);
- c) the procedure is to be applied during the daytime;
- d) aircraft which is executing visual departure shall not be subject of vertical speed restrictions until passing the established altitude published in the AIP, e.g. minimum flight altitude (MFA) or minimum sector altitude (MSA) or ATCSMAC;
- e) the pilot shall be responsible for maintaining obstacle clearance until minimum level of the designated route;
- f) for a controlled IFR flight, it is an authorization to execute a "visual departure" to the minimum level of a designated route or any level which is specified by the controller;
- g) separation is provided between an aircraft cleared to execute a visual departure and other aircraft, in accordance with the airspace classification.
- h) flight crew acceptance of the clearance for visual departure will indicate that the aircraft take-off performance characteristics allow an early turn after take-off.
- i) Any additional local restrictions should be agreed upon in consultation between the air traffic services provider and operators.

Note. It is evident that aerodrome control tower shall coordinate with approach control unit if any. Appropriate phraseologies to be used are as follows:

Phraseology:

REQUEST VISUAL DEPARTURE [DIRECT] TO/UNTIL (navaid, waypoint)

VISUAL DEPARTURE RUNWAY (number) APPROVED, TURN LEFT/RIGHT [DIRECT] TO (navaid, waypoint) [MAINTAIN VISUAL REFERENCE UNTIL (level)]

*VISUAL DEPARTURE TO/UNTIL (navaid, waypoint) **

*Note. Denotes pilot transmission**

6.6.5.2 VISUAL DEPARTURE WITHIN UNCONTROLLED AIRSPACE

6.6.5.2.1 A visual departure is a departure by an IFR flight when either part or all of an instrument departure procedure (e.g. standard instrument departure [SID]) is not completed or when there is no navigation AIDs available to serve the aircraft at the departure aerodrome and the departure is executed in visual reference to terrain.

6.6.5.2.2 When traffic conditions permit and pilot confirms that can maintain visual reference to the terrain, before or after departure, an IFR flight may be cleared to execute a visual departure in accordance with the following conditions:

- a) requested by pilot;
- b) during daylight;
- c) the pilot shall be responsible for maintaining obstacle clearance until minimum level of the designated route;

- d) in uncontrolled aerodromes visual departure is authorized only when the reported ground visibility is 3000 meters or more.
- e) for an uncontrolled IFR flights it is an authorization to execute a "visual departure" to the minimum level of a designated route. Appropriate phraseologies to be used are as follows:

Phraseology:

*REQUEST VISUAL DEPARTURE**

VISUAL DEPARTURE APPROVED WITH VISUAL REFERENCE TO THE TERRAIN

*VISUAL DEPARTURE WITH VISUAL REFERENCE TO THE TERRAIN**

*Note. Denotes pilot transmission**

Section 7

SPACING AND SEQUENCING

6.7.1 Aerodrome control Tower can establish the sequence of arriving and departing aircraft within ATZ by requiring them to adjust flight or ground operation, as necessary, to achieve proper spacing.

Some phraseologies:

EXTEND DOWNWIND.

MAKE SHORT/LONG APPROACH.

NUMBER (landing sequence number), FOLLOW (description and location of traffic), or if traffic is utilizing another runway,

ORBIT (RIGHT, or LEFT) [FROM PRESENT POSITION];

HOLD VISUAL OVER POINT (NAME of VISUAL HOLDING POINT)

Note. The report "LONG FINAL" is made when aircraft turn on to final approach at a distance greater than 4 NM from touchdown or when an aircraft on a straight-in approach is 8 NM from touchdown. In both cases a report "FINAL" is required at 4 NM from touchdown.

6.7.1.1 Figure 6-1 depicts a sample of civil pattern to be used in reporting of aircraft positions in the traffic circuit, while figure 6-2 is a sample of military pattern normally followed by military aircraft operating in the vicinity of the aerodrome.

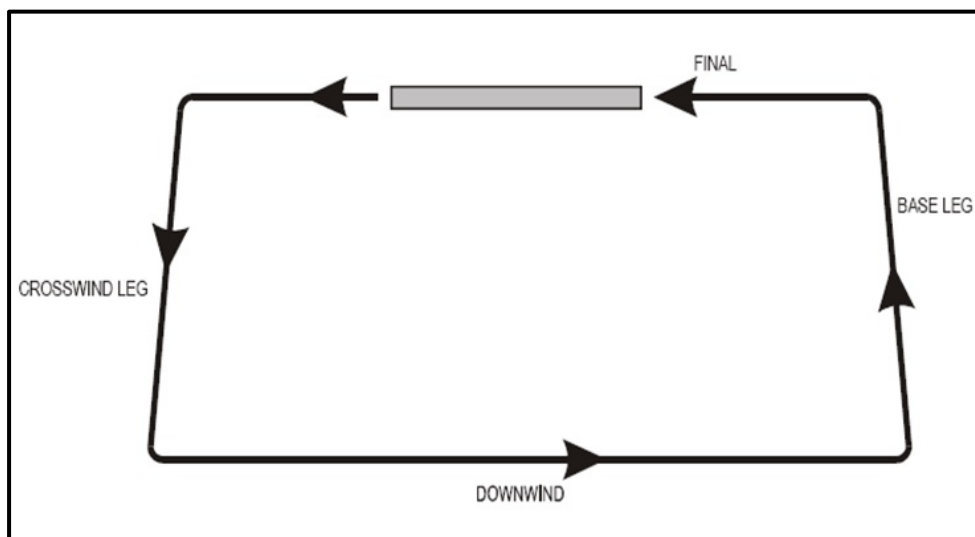


Figure 6-1 Sample of civil pattern

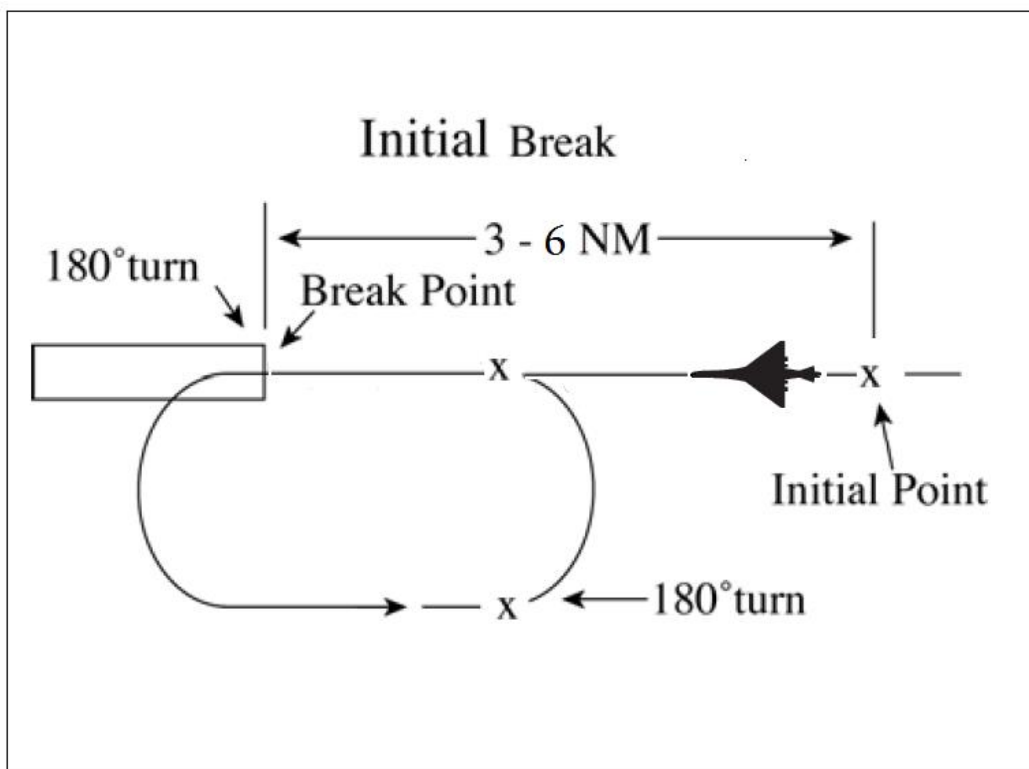


Figure 6-2 Sample of military pattern

6.7.2 TOUCH-AND-GO OR STOP-AND-GO OR LOW APPROACH

Aerodrome control Tower shall consider an aircraft cleared for “TOUCH-AND-GO”, “STOP-AND-GO”, or “LOW APPROACH” as an arriving aircraft until it touches down (for touch-and-go), or makes a complete stop (for stop-and-go), or crosses the landing threshold (for low approach), and thereafter as a departing aircraft.

Note. The conditions surrounding the permissibility of Stop and Go Landing shall be specified in the relative LATCIs.

6.7.3 SIMULTANEOUS OPPOSITE DIRECTION OPERATION

Aerodrome Control Tower shall not authorize simultaneous opposite direction operation except:

- a) If an arriving aircraft is making a straight-in approach, a departing aircraft may take off so that it is established on a track diverging by at least 45 degrees from the reciprocal of the final approach track 5 minutes before the arriving aircraft is estimated to be over the beginning of the instrument runway. and

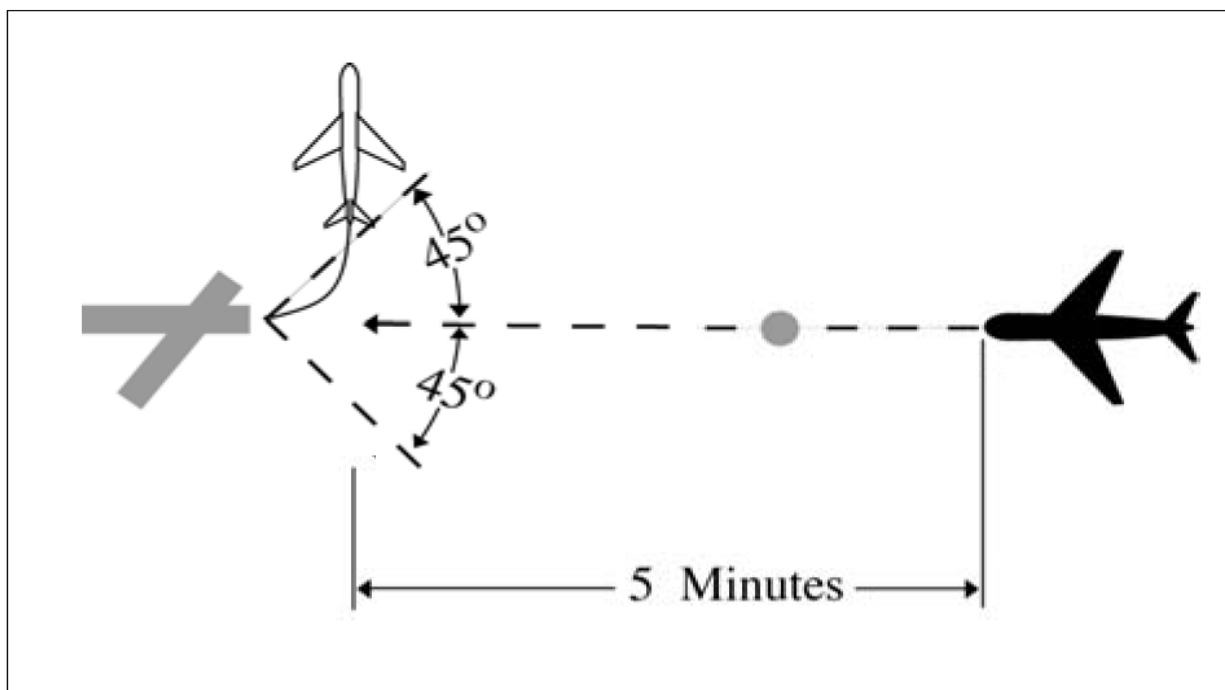


Figure 6-3 Simultaneous opposite direction operation

- b) for special circumstances if indicated in LATCI(s).

6.7.4 DEPARTURE SEQUENCE

6.7.4.1 Departing aircraft may be expedited by suggesting a take-off direction which is not into the wind. It is the responsibility of the pilot-in-command of an aircraft to decide between making such a take-off or waiting for take-off in a preferred direction.

6.7.4.2 Departures shall normally be cleared in the order in which they are ready for take-off, except that deviations may be made from this order of priority to facilitate the maximum number of departures with the least average delay. Factors which should be considered in relation to the departure sequence include, inter alia:

- a) types of aircraft and their relative performance;
- b) routes to be followed after take-off;
- c) any specified minimum departure interval between take-offs;
- d) need to apply wake turbulence separation minima;
- e) aircraft which should be afforded priority; and
- f) aircraft subject to ATFM requirements.

Note 1. If departures are delayed, the delayed flights shall normally be cleared in an order based on their estimated time of departure, except that deviation from this order may be made to:

- 1) *facilitate the maximum number of departures with the least average delay;*

- 2) *accommodate requests by an operator in respect of that operator's flights to the extent practicable.*

Note 2. For aircraft subject to ATFM requirements, it is the responsibility of the pilot and the operator to ensure that the aircraft is ready to taxi in time to meet any required departure time, bearing in mind that once a departure sequence is established on the taxiway system, it can be difficult, and sometimes impossible, to change the order.

Note 3. In calculation of departure times by an aerodrome control tower, the minimum separation applied in the upcoming airspace shall be taken into consideration.

6.7.4.3 DEPARTURE PRIORITY:

The departure sequence shall be established in a manner which will facilitate departure of the maximum number of aircraft with the least average delay. Priority shall be given to:

- a) Scramble;
- b) Special Mission (SM);

Note. The term "SM" will not be part of the call sign but may be used when the aircraft is airborne to indicate a request for any assistance as far as practicable.

- c) hospital aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention;
- d) aircraft engaged in search and rescue (SAR) operations for the purpose of ATS alerting service;
- e) Head (if mentioned in item "18" of flight plan);
- f) Firefighting aircraft;
- g) medical evacuation;
- h) Flight check;
- i) flight carrying hazardous materials.

Note. See also 3.1.6

6.7.4.4 DESIGNATED POSITIONS OF AIRCRAFT IN THE AERODROME TRAFFIC AND TAXI CIRCUITS

The following positions of aircraft in the traffic and taxi circuits are the positions where aircraft normally receive aerodrome control tower clearances. Aircraft should be watched closely as they approach these positions so that proper clearances may be issued without delay. Where practicable, all clearances should be issued without waiting for aircraft to initiate the call.

Position 1. Aircraft initiates call to taxi for departing flight. Runway-in-use information and taxi clearances given.

Position 2. If there is conflicting traffic, the departing aircraft will be held at this position. Engine run-up will, when required, normally be performed here.

Position 3. Take-off clearance is issued here, if not practicable at position 2.

Position 4. Clearance to land is issued here as practicable.

Position 5. Clearance to taxi to apron is issued here.

Position 6. Parking information issued here, if necessary.

Note 1. Arriving aircraft executing an instrument approach procedure will normally enter the traffic circuit on final except when visual manoeuvring to the landing runway is required.

Note 2. See Figure 6-4.

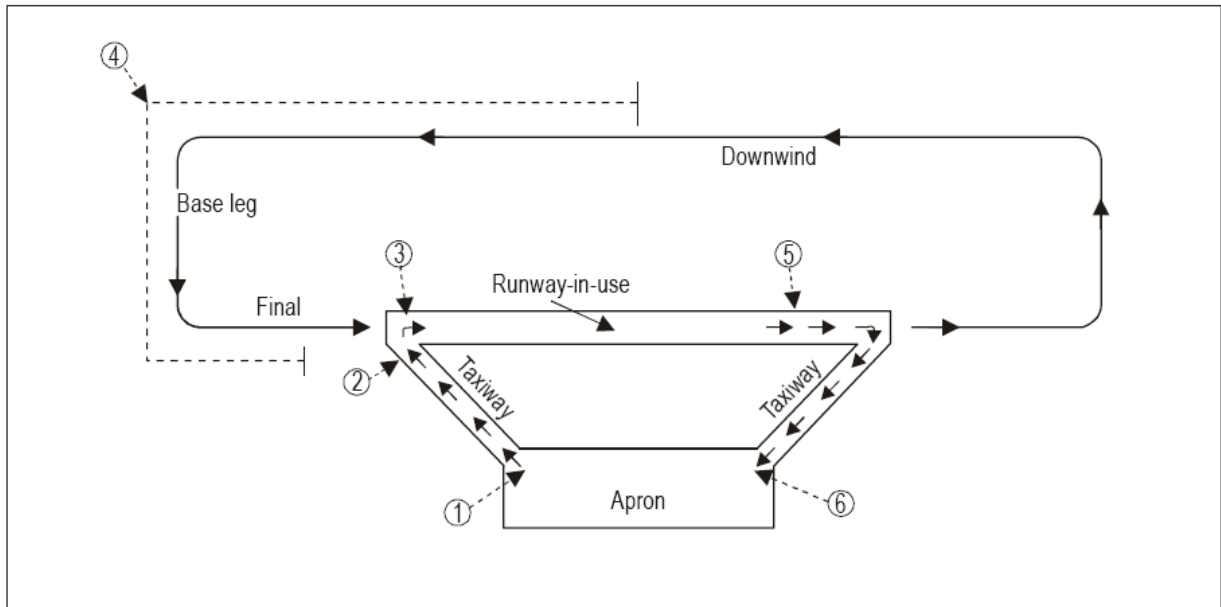


Figure 6-4 Designated positions of ACFT from TWR viewpoint

Section 8

DEPARTURE PROCEDURES AND SEPARATION

6.8.1 START UP PROCEDURE

As specified in 3.10

6.8.2 ATC CLEARANCE

6.8.2.1 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.

6.8.2.2 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.

6.8.2.3 Clearances shall contain positive and concise data and shall, as far as practicable, be phrased in a standard manner and shall be based solely on the requirements for providing air traffic control service.

6.8.2.4 Controllers should pass a clearance slowly and clearly since the pilot needs to write it down and wasteful repetition will thus be avoided. Whenever possible, ATC clearance should be passed to an aircraft prior to taxi. In any case, controllers should avoid passing a clearance to a pilot engaged in complicated taxiing manoeuvres and on no occasion should a clearance be passed when the pilot is engaged in a line up or take-off manoeuvre.

6.8.2.5 ATS unit of departure aerodrome shall issue/forward departure clearances to the aircraft with the least possible delay after receipt of approval level from Tehran ACC as mentioned in relevant LATCI and Tehran ACC Operation Manual (OM), unless otherwise specified in the relevant LOC.

6.8.2.6 CONTENTS OF CLEARANCE

6.8.2.6.1 Clearances shall contain the following:

- a) aircraft identification;
- b) clearance limit;
- c) route of flight;
- d) cleared level;
- e) allocated SSR code;
- f) any other necessary instructions or information not contained in the SID description, e.g. instructions relating to change of frequency.

Note 1. The time of expiry of the clearance indicates the time after which the clearance will be automatically cancelled if the flight has not been started.

Note 2. The use of a SID designator without a cleared level does not authorize the aircraft to climb on the SID vertical profile.

6.8.2.6.2 Clearances on a SID

6.8.2.6.2.1 Clearances to aircraft on a SID with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meanings:

a) CLIMB VIA SID TO (level):

1. climb to the cleared level and comply with published level restrictions;

follow the lateral profile of the SID; and

comply with published speed restrictions or ATC-issued speed control instructions as applicable.

b) CLIMB VIA SID TO (level), CANCEL LEVEL RESTRICTION(S):

1. climb to the cleared level; published level restrictions are cancelled;
2. follow the lateral profile of the SID; and
3. comply with published speed restrictions or ATC-issued speed control instructions as applicable.

c) CLIMB VIA SID TO (level), CANCEL LEVEL RESTRICTION(S) AT (point(s)):

1. climb to the cleared level; published level restriction(s) at the specified point(s) are cancelled;

follow the lateral profile of the SID; and

comply with published speed restrictions or ATC-issued speed control instructions as applicable.

d) CLIMB VIA SID TO (level), CANCEL SPEED RESTRICTION(S):

1. climb to the cleared level and comply with published level restrictions;

follow the lateral profile of the SID; and

published speed restrictions and ATC-issued speed control instructions are cancelled.

e) CLIMB VIA SID TO (level), CANCEL SPEED RESTRICTION(S) AT (point(s)):

1. climb to the cleared level and comply with published level restrictions;

follow the lateral profile of the SID; and

published speed restrictions are cancelled at the specified point(s).

f) CLIMB UNRESTRICTED TO (level) or CLIMB TO (level), CANCEL LEVEL AND SPEEDRESTRICTION(S):

1. climb to the cleared level; published level restrictions are cancelled;

follow the lateral profile of the SID; and

published speed restrictions and ATC-issued speed control instructions are cancelled.

Note. Cancellation of speed restriction by ATC does not include speed limitation of airspace classification, holding, IAP and minimum rate of climb based on feet per NM in SIDs.

6.8.2.6.2.2 If there are no remaining published level or speed restrictions on the SID, the phrase “CLIMB TO (level)” should be used.

6.8.2.6.2.3 When subsequent speed restriction instructions are issued, and if the cleared level is unchanged, the phrase “CLIMB VIA SID TO (level)” should be omitted.

6.8.2.6.2.4 When a departing aircraft is cleared to proceed direct to a published waypoint on the SID, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable.

6.8.2.6.2.5 When a departing aircraft is vectored or cleared to proceed to a point that is not on the SID, all the published speed and level restrictions of the SID are cancelled and the controller shall:

- a) reiterate the cleared level;
- b) provide speed and level restrictions as necessary; and
- c) notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the SID.

Note. See also Para 8.2.7.2 regarding prescribed obstacle clearance.

6.8.2.6.2.6 ATC instructions to an aircraft to rejoin a SID shall include:

- a) the designator of the SID to be rejoin, unless advance notification of rejoin has been provided in accordance with Para 6.8.2.6.2.5;
- b) the cleared level in accordance with Para 6.8.2.6.2.1; and
- c) the position at which it is expected to rejoin the SID.

Phraseologies:

[AFTER DEPARTURE] TURN RIGHT (or LEFT) HEADING (three digits) (or CONTINUE RUNWAY HEADING) (or TRACK EXTENDED CENTRE LINE) TO (level or significant point) [(other instructions as required)];

AFTER REACHING (or PASSING) (level or significant point) (instructions);

TURN RIGHT (or LEFT) HEADING (three digits) TO (level) [TO INTERCEPT (track, route, airway, etc.)];

(standard departure name and number) DEPARTURE;

TRACK (three digits) DEGREES [MAGNETIC (or TRUE)] TO (or FROM) (significant point) UNTIL (time, or REACHING (fix or significant point or level)) [BEFORE PROCEEDING ON COURSE];

CLEARED (designation) DEPARTURE;

- d) clearance to proceed direct with advance notice of a future instruction to rejoin the SID.

CLEARED DIRECT (waypoint), CLIMB TO (level), EXPECT TO REJOIN SID [(SID designator)] [AT (waypoint)], then REJOIN SID [(SID designator)] [AT (waypoint)];

CLEARED DIRECT (waypoint), CLIMB TO (level), then REJOIN SID (SID designator) AT (waypoint).

6.8.2.6.2.7 Clearances for departing aircraft shall specify, when necessary for the separation of aircraft, direction of take-off and turn after take-off; heading or track to be made good before taking up the cleared departure track; level to maintain before continuing climb to assigned level; time, point and/or rate at which a level change shall be made; and any other necessary manoeuvre consistent with safe operation of the aircraft.

6.8.2.7 CLEARANCE LIMIT

A clearance limit shall be described by specifying the name of the appropriate significant point, or aerodrome, or controlled airspace boundary.

Note. Time and level are not considered as clearance limit.

6.8.2.8 ROUTE OF FLIGHT

6.8.2.8.1 The route of flight shall be detailed in each clearance when deemed necessary. The phrase “CLEARED FLIGHT PLANNED ROUTE” may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases “CLEARED (designation) DEPARTURE” or “CLEARED (designation) ARRIVAL” may be used when standard departure or arrival routes have been established and issued in I.R AIP.

6.8.2.8.2 The phrase “CLEARED FLIGHT PLANNED ROUTE” shall not be used when granting a re-clearance.

6.8.2.8.3 Subject to airspace constraints, ATC workload and traffic density, and provided coordination can be effected in a timely manner, an aircraft should whenever possible be offered the most direct routing.

6.8.2.8.4 Following the introduction of area navigation requirements (RNAV), aircraft wishing to operate within the specified airspace must be appropriately equipped. If the aircraft is unable to comply with the RNAV requirements, then the pilot will advise the ATSU on initial contact using the phrase “NEGATIVE UNABLE RNAV”.

6.8.2.9 LEVELS

6.8.2.9.1 In an airspace where ATS Surveillance service is provided, if the clearance for the levels covers only part of the route, it is important for the air traffic control unit to specify a point to which the part of the clearance regarding levels applies whenever necessary to ensure compliance with 12.1.5.6.

6.8.2.9.2 Instructions included in clearances relating to levels shall consist of:

- a) cruising level(s) or, if necessary, the point to which the clearance is valid with regard to the level(s);
- b) levels at which specified significant points are to be crossed, when necessary;
- c) the place or time for starting climb, when necessary;
- d) the rate of climb, when necessary;
- e) detailed instructions concerning departure levels, when necessary.

6.8.2.10 ANY NECESSARY INSTRUCTIONS OR INFORMATION.

6.8.2. 10.1 At aerodromes where standard instrument departures (SIDs) have been established, departing aircraft should normally be cleared to follow the appropriate SID.

6.8.2. 10.2 When a departing aircraft on a SID is cleared to climb to a level higher than the initially cleared level or the level(s) specified in a SID, the aircraft shall follow the published vertical profile of a SID, unless such restrictions are explicitly cancelled by ATC.

Example 1:

IRA123 CLEARED TO BANDAR ABBAS VIA MEHRABAD 2A DEPARTURE UP574 AND FLIGHT PLANNED ROUTE FL330 STOP CLIMB AT FL210 REQUEST LEVEL CHANGE EN-ROUTE SQK 1522 EXPECT DEPARTURE AT 0915.

Example 2:

IRM456 CLEARED TO JADDAH VIA GADLU2A DEPARTURE W6 AND FLIGHT PLANNED ROUTE FL320 STOP CLIMB AT [ALTITUDE] 11000 FT EXPECT HIGHER AFTER PASSING 20 DME SQK6712 CLEARANCE EXPIRES 1326.

Example 3:

IRC789 CLEARED TO MASHHAD VIA G663FL310 AFTER DEPARTURE TURN LEFT CLIMB ON RADIAL 280 TO ALTITUDE 7500 FT OR ABOVE THEN TURN RIGHT TO CROSS SYZ DVOR/DME AT OR ABOVE ALTITUDE 12000 FT THEN TURN LEFT TO INTERCEPT RADIAL 029 TO KINOT SQK3212.

Example 4:

EPABC CLEARED VFR FLIGHT DIRECT TO RASHT FL 085 AFTER DEPARTURE TURN RIGHT SQK 1234.

Example 5:

*e.g. A helicopter from OIBK to South pars which is located out of controlled airspace:
EPHBU, CLEARED TO SOUTH PARS VIA DIRECT AFTER DEPARTURE TURN LEFT CLIMB TO FL55 SQK4125*

Example 6:

*e.g. IRC1375 from OIII to OIBH which is located out of controlled airspace, Tehran ACC issues an amended clearance as follows:
IRC1375, LEAVE CONTROLLED AIRSPACE VIA SESMA TO BAHREGAN DESCEND TO FL140 NO REPORTED TRAFFIC RADAR SERVICE TERMINATED REMAIN THIS FREQUENCY UNTIL FURTHER ADVICE*

Example 7:

*e.g. IRC1375 from OIBH which is located out of controlled airspace to OIII, OIBHAFIS unit issue the clearance as follows:
IRC1378 CLEARED TO OIII VIA FLIGHT PLANNED ROUTE FL280 JOIN W144 AT SESMA AT OR ABOVE FL160.*

6.8.2.11 CLEARANCE OF A REQUESTED CHANGE IN FLIGHT PLAN

- a) when issuing a clearance covering a requested change in route or level, the exact nature of the change shall be included in the clearance.
- b) when traffic conditions will not permit clearance of a requested change, the word “UNABLE” shall be used. When warranted by circumstances, an alternative route or level should be offered.
- c) when an alternative route is offered and accepted by the flight crew under the procedures described in “b” above the amended clearance issued shall describe the route to the point where it joins the previously cleared route, or, if the aircraft will not re-join the previous route, to the destination.

6.8.2.12 LATERAL AERODROME SEPARATION

6.8.2.12.1 Lateral aerodrome separation is considered to exist between an arriving aircraft that subsequently commenced final approach and the departing aircraft that has established on a track diverging by at least 45 degrees from the reciprocal of the final approach track (see figure 6-5).

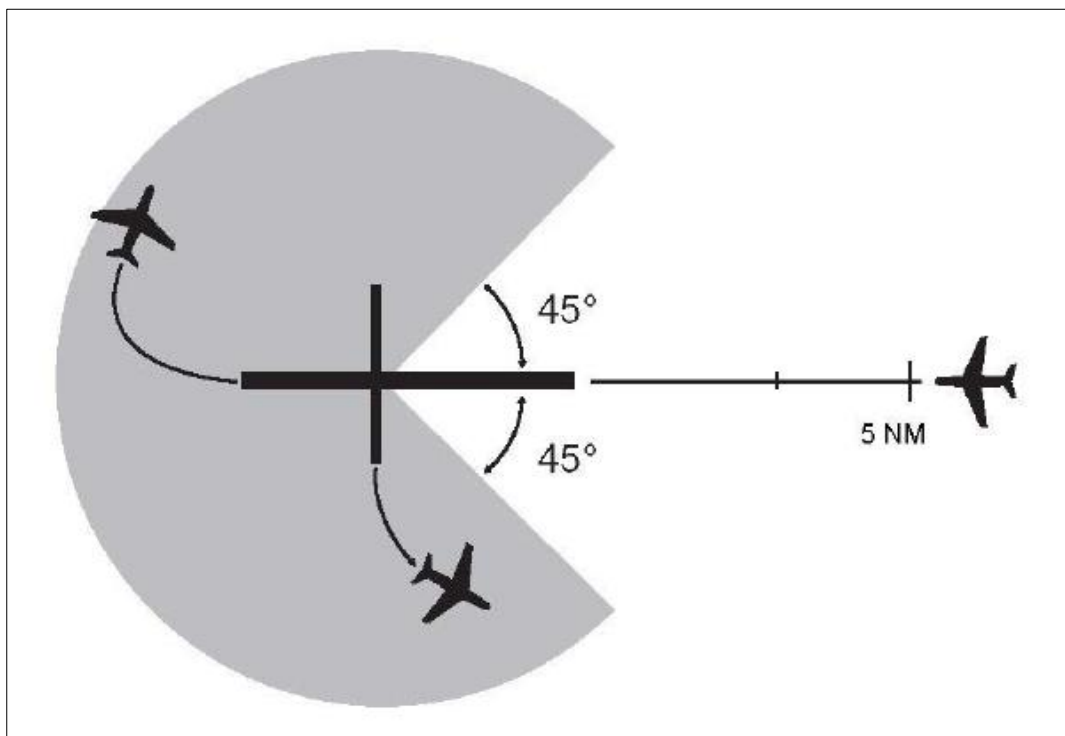


Figure 6-5 Lateral aerodrome separation

6.8.2.12.2 Departing aircraft is maintaining a radial from a VOR and arriving aircraft established on a DME arc.

6.8.2.12.3 An arriving aircraft carrying out a DME arc procedure, and a departing aircraft, established on a radial which is different by at least 45 degrees from the reciprocal of the direction of final approach track of the arriving aircraft, will be laterally separated, when

- a) the arriving aircraft is established on a DME arc of at least 10 NM using same VOR and is moving away from the track of the departing aircraft maintaining VOR radial; and
- b) the departing aircraft maintaining the VOR radial is crossing the arc of the arriving aircraft from behind; and

- c) the arriving aircraft has passed a VOR radial which is different by at least 30 degrees from the radial maintained by departing aircraft. (see figures 6-6 and 6-7)

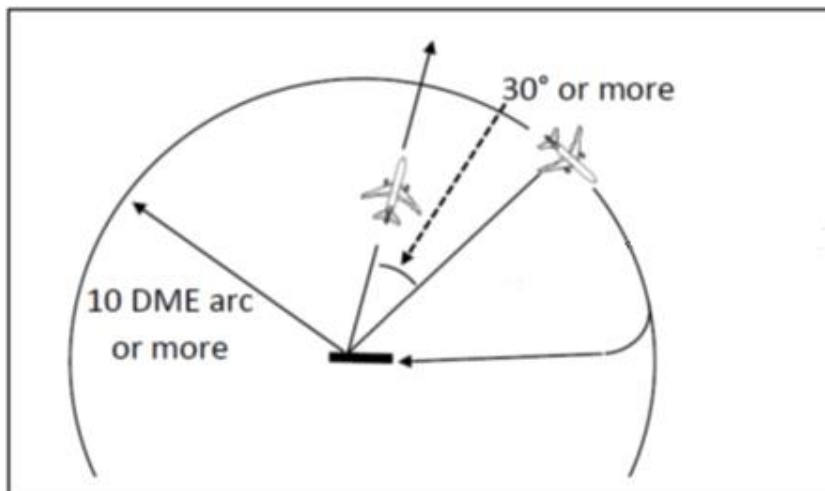


Figure 6-6 Separation of departing aircraft from arriving aircraft

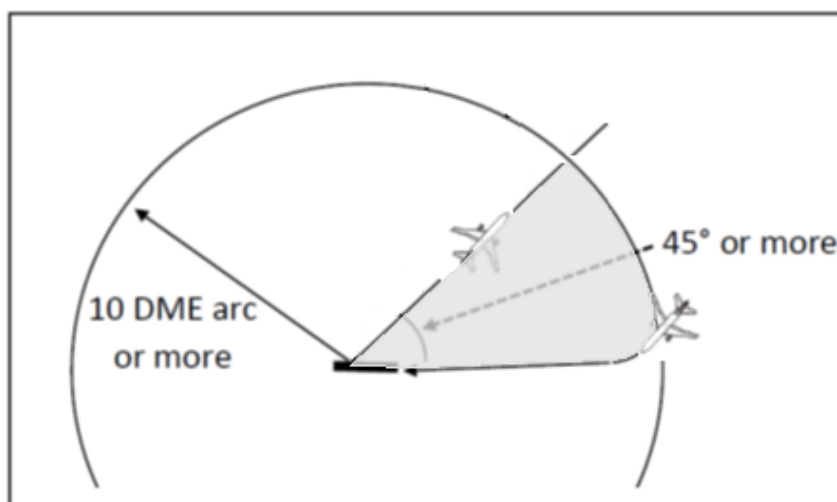


Figure 6-7 Separation of departing aircraft from arriving aircraft

6.8.3 REDUCTION IN SEPARATION MINIMA

6.8.3.1 IN THE VICINITY OF AERODROMES

6.8.3.1.1 In the vicinity of aerodromes, the separation minima specified in Chapter 5, 5.3.2, 5.4.2 and 5.4.3 may be reduced if:

- adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller; or
- each aircraft is continuously visible to flight crews of the other aircraft concerned and the pilots thereof report that they can maintain their own separation; or
- in the case of one aircraft following another. The flight crew of the succeeding aircraft reports that the other aircraft is in sight and own separation can be maintained.

Section 9

RUNWAY INCURSION OR OBSTRUCTED RUNWAY

6.9.1 In the event the aerodrome controller, after a take-off clearance or a landing clearance has been issued, becomes aware of a runway incursion or the imminent occurrence thereof, or the existence of any obstruction on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, appropriate action shall be taken as follows:

- a) cancel the take-off clearance for a departing aircraft;
- b) instruct a landing aircraft to execute a go-around or missed approach;
- c) in all cases inform the aircraft of the runway incursion or obstruction and its location in relation to the runway.

Note 1. Animals and flocks of birds may constitute an obstruction with regard to runway operations. In addition, an aborted take-off or a go-around executed after touchdown may expose the aeroplane to the risk of overrunning the runway. Moreover, a low altitude missed approach may expose the aeroplane to the risk of a tail strike. Therefore, pilots, having final authority as to the disposition of the aircraft while in command, have to exercise their own judgement as for the action to be taken.

Note 2. When aircraft, vehicles or persons have been given permission to cross or occupy a runway-in-use, the controller shall, as a positive reminder that the runway is blocked, display the adequate number of strips, markers or visual aids separately for each element that is involved, on the active part of the flight progress board. The format of most commonly used indicators shall be included in the LATCI of the aerodrome, as appropriate.

Note 3. Air traffic controllers should be aware of the potential for an aircraft to overrun the end of the runway if the take-off is abandoned at a late stage; this is particularly so with large aircraft or those operating close to their performance limit, such as at maximum take-off mass, in high ambient temperatures or when the runway braking action may be adversely affected. Because of this risk, even if a take-off clearance is cancelled, the pilot-in-command may consider it safer to continue the take-off than to attempt to stop the aircraft.

6.9.2 Air traffic controllers should also be aware of the possibility that an aircraft that abandons its take-off may suffer overheated brakes or another abnormal situation and should be prepared to declare the appropriate category of emergency or to provide other suitable assistance.

Section 10

AIRPORT CONDITIONS

6.10.1 MANEUVERING AREA INSPECTION

Maneuvering area shall be inspected according to the procedures which is mentioned in relevant LATCIs.

Note. When requested by the flight crew of a departing aircraft suspecting damage to the aircraft, the departure runway used shall be inspected without delay and the flight crew advised in the most expeditious manner as to whether any aircraft debris or bird or animal remains have been found or not.

6.10.2 BRAKING ACTION

If an air traffic services provider receives by a voice communication a special air-report concerning braking action which does not correspond to what was reported, it shall inform without delay the appropriate aerodrome operator.

6.10.3 ARRESTING SYSTEM OPERATION

- a) for normal operations, arresting systems either remotely controlled by ATC or not must remain in the retracted or down position.
- b) the aircraft arresting systems should be raised or engaged whenever requested by a pilot or military authority (Caravan).

Note. A military jet aircraft is landing with known or suspected radio failure or conditions (drag chute/hydraulic/electrical failure, etc.) that indicate an arresting system may be needed.

- c) when requested by military authority due to freezing weather conditions or malfunction of the activating mechanism, the barrier/cable, not located on the runway, may remain in a raised position provided aircraft are advised.

Phraseology

HOOK BARRIER ENGAGED ON THE STOPWAY RWY 31.

NET BARRIER OF RWY 31 IS ERECTED.

If a normal operating aircraft is engaged in a Net/hook barrier, crash alarm procedures shall be initiated immediately.

Section 11

VISUAL SIGNALS

6.11.1 COMMUNICATION REQUIREMENTS AND VISUAL SIGNALS

6.11.1.1 Controllers shall use the signaling lamp according to the following descriptive table to control aircraft when forming part of the aerodrome traffic and the movement of vehicles, equipment, and personnel on the movement area when radio communications cannot be employed.

6.11.1.2 By day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars will indicate to an unauthorized aircraft that it is flying in or about to enter a restricted, prohibited or danger area, and that the aircraft is to take such remedial action as may be necessary.

6.11.1.3 At controlled aerodromes all vehicles employed on the manoeuvring area shall be capable of maintaining two-way radio communication with the aerodrome control tower, except when the vehicle is only occasionally used on the manoeuvring area and is:

- a) accompanied by a vehicle with the required communications capability; or
- b) employed in accordance with a pre-arranged plan established with the aerodrome control tower.

6.11.1.4 In the case of radio communication failure, the signals given hereunder shall have the meaning indicated therein:

Table 6-1 Light signal from aerodrome control

Color and type of signal	Aircraft on the ground	Aircraft in flight	Movement of vehicles and personnel
Steady green	Cleared for take off	Cleared to land	Nil
Flashing green	Cleared to taxi	Return for landing*	Permission to cross landing area or to move onto taxiway
Steady red	Stop	Give way to other aircraft and continue circling	Stop
Flashing red	Taxi clear of landing area in use	Aerodrome unsafe – Do not land	Move off the landing area or taxiway and watch out for aircraft
Flashing white	Return to starting point on aerodrome	Land at this aerodrome and proceed to apron*	Vacate manoeuvring area in accordance with local instructions

* Clearances to land and to taxi will be given in due course.

6.11.1.5 In emergency conditions or if the signals in table 6-1 are not observed, flashing runway or taxiway lights, for runways or taxiways equipped with a lighting system, shall have the meaning that, vacate the runway and observe the tower for light signal.

6.11.1.6 When employed in accordance with a plan prearranged with the aerodrome control tower, constructional and maintenance personnel should not normally be required to be capable of maintaining two-way radio communication with the aerodrome control tower.

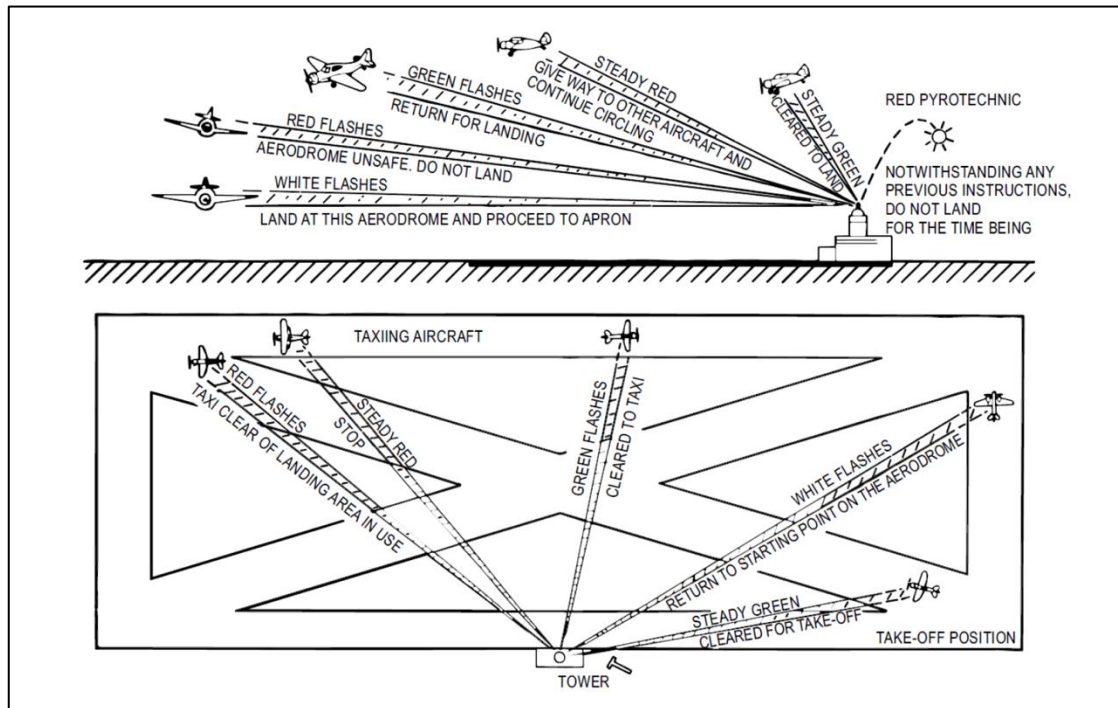


Figure 6-8 Visual signal

6.11.2 RECEIVER-ONLY ACKNOWLEDGMENT

To obtain acknowledgment from an aircraft equipped with receiver only, request the aircraft to do the following:

6.11.2.1 FIXED-WING AIRCRAFT:

a) between sunrise and sunset:

1. move ailerons or rudders while on the ground.

rock wings while in flight.

b) between sunset and sunrise:

- flash navigation or landing lights.

6.11.2.2 HELICOPTERS:

a) between sunrise and sunset:

1. while hovering turn the helicopter toward the aerodrome control Tower and flash the landing light.

while in flight flash the landing light.

b) between sunset and sunrise:

- flash landing light or search light.

Chapter 7 . ARRIVAL PROCEDURES

Section 1

GENERAL

Note. For functions of aerodrome control towers, see 6.1.1

7.1.1 GENERAL INFORMATION

7.1.1.1 As early as practicable after an aircraft has established communication with the unit providing approach control service, the information in Para 7.2.1.1 shall be transmitted to the aircraft, with the exception of such elements which it is known the aircraft has already received.

7.1.1.2 Arrival information at the commencement of final approach, the following information shall be transmitted to aircraft:

- a) significant changes in the mean surface wind direction and speed;

Note 1. Significant changes, if the controller possesses wind information in the form of components, the significant changes are:

- 1. mean headwind component: 10 kt
- 2. mean tailwind component: 2 kt
- 3. mean crosswind component: 5 kt

Note 2. If the controller does not possess wind information in the form of components, shall transmit the latest (actual) surface wind direction and speed.

- b) the latest information, if any, on wind shear and/or turbulence in the final approach area;
- c) the current visibility representative of the direction of approach and landing or, when provided, the current runway visual range value(s).

7.1.1.3 During final approach, the following information shall be transmitted without delay:

- a) the sudden occurrence of hazards (e.g. unauthorized traffic on the runway);
- b) significant variations in the current surface wind, expressed in terms of minimum and maximum values;
- c) significant changes in runway surface conditions;
- d) changes in the operational status of required visual or non-visual aids;
- e) changes in observed RVR value(s), in accordance with the reported scale in use, or changes in the visibility representative of the direction of approach and landing.

7.1.2 WIND SHEAR

7.1.2.1 Wind shear is a sustained change in the wind velocity along the aircraft flight path, which occurs significantly faster than the aircraft can accelerate or decelerate. It can occur at any level, but it is 'low level wind shear', occurring from the surface to a height of approximately 1500 feet, which can cause problems of sufficient magnitude to affect the control of aircraft in departure or final approach phases of flight (see DOC 9817-manual of low level wind shear).

7.1.2.2 Whenever a pilot reports wind shear conditions to ATC, as far as practicable the same information shall be passed to subsequent arriving and departing aircraft until either confirmation is received that the condition no longer exists or wind shear information has been included in ATIS and flight crew of the concerned aircraft reports the receipt of the appropriate ATIS designator.

7.1.2.3 Information on wind shear at all aerodromes is based upon air-reports, because it may be the only source of information, the reporting of wind shear by pilots is of vital importance in helping to safeguard other aircraft. Ideally, pilots should give the maximum amount of relevant information to help other pilots assess the likely effect of the wind shear on their own aircraft. However, it must also be appreciated that a wind shear encounter is a dynamic event involving high cockpit workload in a very short time, and to expect pilots to report in detail in all circumstances is therefore unrealistic.

7.1.2.4 Description of the event as concisely as possible, including use of the term "WIND SHEAR" and a subjective assessment of the intensity using the terms "LIGHT", "MODERATE", "STRONG" and "SEVERE", as appropriate. Alternatively, factual plain language reports (i.e. in the pilot's own words) regarding airspeed/ground speed changes and undershoot/overshoot effects may be made or, in circumstances where only minimum advice is possible, a simple report of "WIND SHEAR".

Example 1:

sufficient time and information is available:

IRA123, B722, PREVIOUSLY REPORTED WIND SHEAR, LOSS OF TWO FIVE KNOTS AT 1200 FEET.

Example 2:

sufficient time and information is available:

IRC789, MODERATE WIND SHEAR REPORTED BY B747 AT 600 FT ON FINAL RWY29 LOST 10 KT AT TIME 0915

Example 3:

sufficient time and information is available:

IRM456, MEDIUM WIND SHEAR REPORTED BY A346 AT 800 FEET 3 MILES FINAL RUNWAY 29.

Example 4:

minimum reports where time and/or information is not available to give further details:

IRA456, STRONG WIND SHEAR B738 ON APPROACH RWY29.

7.1.3 GENERAL PROCEDURE FOR ARRIVING AIRCRAFT:

7.1.3.1 Arriving aircraft may be required to report when leaving or passing a significant point or navigation aid, or when starting procedure turn or base turn, or to provide other information required by the controller, to expedite departing and arriving aircraft.

7.1.3.2 An IFR flight shall not be cleared for an initial approach below the appropriate minimum altitude as specified in the AIP nor to descend below that altitude unless:

- a) the pilot reports that the aerodrome is and can be maintained in sight; or
- b) the aircraft is conducting a visual approach; or
- c) the controller has determined the aircraft's position by the use of an ATS surveillance system, and a lower minimum altitude has been specified for use when providing ATS surveillance services.

Note. The objectives of the air traffic control service as prescribed in Annex 11 do not include prevention of collision with terrain. The procedures prescribed in this document do not relieve pilots of their responsibility to ensure that any clearances issued by air traffic control units are safe in this respect. When an IFR flight is vectored or is given a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearance will exist at all times until the aircraft reaches the point where the pilot will resume own navigation.

7.1.3.3 At aerodromes where standard instrument arrivals (STARs) have been established, arriving aircraft should normally be cleared to follow the appropriate STAR. The aircraft shall be informed of the type of approach to expect and runway-in-use as early as possible.

7.1.4 STANDARD CLEARANCES FOR ARRIVING AIRCRAFT

7.1.4.1 As early as practicable after an aircraft has established communication with the unit providing approach control service, the elements of information which is specified in Para 7.2.1.1, in the order listed, shall be transmitted to the aircraft, with the exception of such elements which it is known the aircraft has already received.

7.1.4.2 CONTENTS

Standard clearances for arriving aircraft shall contain the following items:

- a) aircraft identification;
- b) designator of the assigned STAR if applicable;
- c) runway-in-use, except when part of the STAR description;
- d) cleared level, and;
- e) any other necessary instructions or information not contained in the STAR description, e.g. change of communications.

7.1.4.3 CLEARANCES ON A STAR

7.1.4.3.1 Clearances to aircraft on a STAR with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meaning:

- a) DESCEND VIA STAR TO (level):

- 1. descend to the cleared level and comply with published level restrictions;

follow the lateral profile of the STAR; and

comply with published speed restrictions or ATC-issued speed control instructions as applicable.

b) DESCEND VIA STAR TO (level), CANCEL LEVEL RESTRICTION(S):

1. descend to the cleared level; published level restrictions are cancelled;

follow the lateral profile of the STAR; and

comply with published speed restrictions or ATC-issued speed control instructions as applicable.

c) DESCEND VIA STAR TO (level), CANCEL LEVEL RESTRICTION(S) AT (point(s)):

1. descend to the cleared level; published level restriction(s) at the specified point(s) are cancelled;

follow the lateral profile of the STAR; and

comply with published speed restrictions or ATC-issued speed control instructions as applicable.

d) DESCEND VIA STAR TO (level), CANCEL SPEED RESTRICTION(S):

1. descend to the cleared level and comply with published level restrictions;

follow the lateral profile of the STAR; and

published speed restrictions and ATC-issued speed control instructions are cancelled.

e) DESCEND VIA STAR TO (level), CANCEL SPEED RESTRICTION(S) AT (point(s)):

1. descend to the cleared level and comply with published level restrictions;

follow the lateral profile of the STAR; and

published speed restrictions are cancelled at the specified point(s).

f) DESCEND UNRESTRICTED TO (level) or DESCEND TO (level), CANCEL LEVEL AND SPEED RESTRICTION(S):

1. descend to the cleared level; published level restrictions are cancelled;

follow the lateral profile of the STAR; and

published speed restrictions and ATC-issued speed control instructions are cancelled.

Note. Cancellation of speed restriction by ATC does not include speed limitation of airspace classification, holding, IAP and minimum rate of climb based on feet per NM in SIDs.

7.1.4.3.2 If there are no remaining published level or speed restrictions on the STAR, the phrase “DESCEND TO (level)” should be used.

7.1.4.3.3 When subsequent speed restriction instructions are issued and if the cleared level is unchanged, the phrase “DESCEND VIA STAR TO (level)” should be omitted.

7.1.4.3.4 When an arriving aircraft is cleared to proceed direct to a published waypoint on the STAR, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable.

7.1.4.3.5 When an arriving aircraft is vectored or cleared to proceed to a point that is not on the STAR, all the published speed and level restrictions of the STAR are cancelled and the controller shall:

- a) reiterate the cleared level;
- b) provide speed and level restrictions as necessary; and

- c) notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the STAR.

Note. See Para 8.2.7.2 regarding prescribed obstacle clearance.

7.1.4.3.6 ATC instructions to an aircraft to rejoin a STAR shall include:

- a) the designator of the STAR to be rejoined, unless advance notification of rejoin has been provided in accordance with Para 7.1.4.3.5;
- b) the cleared level on rejoining the STAR in accordance with Para 7.1.4.3.1; and
- c) the position at which it is expected to rejoin the STAR.

Phraseologies:

CLEARED (designation) ARRIVAL;

CLEARED TO (clearance limit) (designation);

CLEARED (or PROCEED) (details of route to be followed);

clearance to proceed direct with advance notice of a future instruction to rejoin the STAR

CLEARED DIRECT (waypoint), DESCEND TO (level), EXPECT TO REJOIN STAR [(STAR designator)] AT(waypoint), then REJOIN STAR [(STAR designator)] [AT (waypoint)];

CLEARED DIRECT (waypoint), DESCEND TO (level), then REJOIN STAR (STAR designator) AT (waypoint);

CLEARED (type of approach) APPROACH [RUNWAY (number)];

CLEARED (type of approach) RUNWAY (number) FOLLOWED BY CIRCLING TO RUNWAY (number);

CLEARED APPROACH [RUNWAY (number)];

COMMENCE APPROACH AT (time);

*REQUEST STRAIGHT-IN [(type of approach)] APPROACH [RUNWAY (number)] *;*

CLEARED STRAIGHT-IN [(type of approach)] APPROACH [RUNWAY (number)];

REPORT VISUAL;

REPORT RUNWAY [LIGHTS] IN SIGHT;

*Note. Denotes pilot transmission**

7.1.4.4 DESCENT BELOW LEVELS SPECIFIED IN A STAR.

Published minimum levels based on terrain clearance shall always be applied. when an arriving aircraft on a STAR is cleared to descend to a level lower than the level or the level(s) specified in a STAR, the aircraft shall follow the published vertical profile of a STAR, unless such restrictions are explicitly cancelled by ATC according to the conditions specified in Para 7.1.3.2.

Section 2

AERODROME INFORMATION

7.2.1 ARRIVAL INFORMATION WHEN ATIS IS NOT AVAILABLE

7.2.1.1 As early as practicable after an aircraft has established communication with the unit providing approach control service, the following elements of information, in the order listed, shall be transmitted to the aircraft, with the exception of such elements which it is known the aircraft has already received:

- a) type of approach and runway-in-use;

Note. An aircraft conducting ILS approach must be advised at the time an approach clearance is issued or thereafter when the glideslope is reported out of service unless the pilot has received the information in advance.

- b) meteorological information, as follows:

- 1. surface wind direction and speed, including significant variations;

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

present weather;

cloud below 5000 ft or below the highest minimum sector altitude, whichever is greater; cumulonimbus; if the sky is obscured, vertical visibility when available;

air temperature;

dew point temperature;

altimeter setting(s);

any available information on significant meteorological phenomena in the approach area; and

- c) current runway surface conditions, in case of precipitants or other temporary hazards; (see Para 11.2.5.4.2)
 - d) changes in the operational status of visual and non-visual aids essential for approach and landing.

7.2.1.2 In applying the provisions in Para 11.2.5.4.3, it should be considered that the latest information published by NOTAM or disseminated by other means may not have been received by the aircraft prior to departure or during En-route flight.

7.2.1.3 If it becomes necessary or operationally desirable that an arriving aircraft follow an instrument approach procedure or use a runway other than that initially stated, the flight crew shall be advised without delay.

7.2.2 ATIS IS AVAILABLE.

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) designator;

- d) time of observation, if appropriate;
- e) type of approach(es) to be expected;

Note. An aircraft conducting an ILS approach must be advised at the time an approach clearance is issued or thereafter when the glideslope is reported out of service unless the pilot has received the information in advance.

- f) the runway(s) in use; status of arresting system constituting a potential hazard, if any;
- g) significant runway surface conditions and, if appropriate, braking action;
- h) holding delay, if appropriate;
- i) transition level, if applicable;
- j) other essential operational information;
- k) surface wind direction 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*;
- m) present weather*;
- n) cloud below 1500 m (5000 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 approach and climb-out areas including
- s) wind shear, and information on recent weather of operational significance;
- t) trend forecast, when available; and
- u) specific ATIS instructions.
- v) changes in the operational status of visual and non-visual aids essential for approach and landing

* These elements are replaced by the term “CAVOK”, whenever the conditions are as follows:

- a) visibility, 10 km or more, and the lowest visibility is not reported;
- b) no cloud of operational significance;
- c) no weather of significance to aviation.

Section 3

VISUAL APPROACH

7.3.1 VISUAL APPROACH WITHIN CONTROLLED AIRSPACES

Visual approach is an approach by an IFR flight when either part or all of an instrument approach procedure is not completed and the approach is executed in visual reference to terrain.

Recommendation. This type of approach may be hazardous and careful consideration should be given by pilots before flying a visual approach in preference to an instrument approach.

7.3.1.1 A Controlled IFR flight may be cleared to execute a visual approach after commencing the instrument approach procedure (from the initial approach fix or where applicable, from the beginning of a defined arrival route (STAR)), provided that:

- a) the reported weather at aerodrome has a ceiling above the level of the beginning of the initial approach segment for the aircraft so cleared;
- b) the reported ground visibility is 3000 meters or more and;
- c) the pilot can maintain visual reference to the terrain and ensures that the meteorological conditions are such that with reasonable assurance a visual approach and landing can be completed.

Note 1. A request for Visual Approach implies that the pilot can maintain visual reference to the terrain and landing can be completed, so it is not necessary for the controller to verify it.

Note 2. Execution of a visual approach to uncontrolled aerodrome which is located within a CTR is under the condition of controlled flights.

7.3.1.2 Clearance for an IFR flight to execute a visual approach may be requested by a flight crew or initiated by the controller. In the latter case, the concurrence of the flight crew shall be required.

7.3.1.3 Controller should take into consideration the weather condition when it is expected that the ground visibility may become less than 3000 meters, before clearing or initiating a visual approach.

7.3.1.4 Controllers shall exercise caution in initiating a visual approach when there is reason to believe that the flight crew concerned is not familiar with the aerodrome and its surrounding terrain. Controllers should also take into consideration the prevailing traffic when initiating visual approaches.

7.3.1.5 Separation shall be provided between an aircraft cleared to execute a visual approach and other IFR and /or Special VFR aircraft.

7.3.1.6 For successive visual approaches, radar or non-radar separation shall be maintained until the pilot of a succeeding aircraft reports having the preceding aircraft in sight. The aircraft shall then be instructed to follow and maintain own separation from the preceding aircraft. When both aircraft are of a heavy wake turbulence category, or the preceding aircraft is of a heavier wake turbulence category than the following, and the distance between the aircraft is less than the appropriate wake turbulence minimum, the controller shall issue a caution of possible wake turbulence. The pilot-in-command of the aircraft concerned shall be responsible for ensuring that the spacing from a preceding aircraft of a heavier wake turbulence category is acceptable. If it is determined that additional spacing is required, the flight crew shall inform the ATC unit accordingly, stating their requirement.

7.3.1.7 A visual approach is not an IAP and therefore has no missed approach segment, if a go around is necessary for any reason under the reported ground visibility condition of less than 5 km, aircraft operating at controlled airports will be issued an appropriate clearance/instruction by the air traffic controller to join the initial approach fix of the approach procedure which had already been cleared or any other fixes as appropriate.

7.3.1.8 In case of a go-around of a flight executing a visual approach under the reported ground visibility condition of 5 km or more, it may be cleared by air traffic controller to join the aerodrome traffic circuit or may receive the ATC clearance/ instructions to join the initial approach fix of the approach procedure which had already been cleared or any other fixes as appropriate.

7.3.1.9 For controlled aerodromes with only ATZ, an IFR flights executing Instrument Approach procedures is not considered as controlled flight while flying within that portion of procedure located outside controlled airspace so when the flight intends to execute a visual approach, shall consider the condition of visual approach in class G airspace and coordinate with the ATC unit which serves the destination aerodrome before commencing visual approach.

Note. Authorization to conduct a visual approach is an IFR authorization and does not alter IFR flight plan cancellation responsibility.

7.3.1.10 Approach control unit shall coordinate with control tower when clearing an aircraft to execute a visual approach, and if necessary accept the conditions of transfer of control.

7.3.2 VISUAL APPROACH IN CLASS G AIRSPACE (VISUAL ARRIVAL)

Note. Execution of Visual Approach in class G airspace is in fact a Visual Arrival maneuver by an IFR flight under the specified conditions and shall not be considered the same as the Visual Approach procedures in controlled airspaces.

7.3.2.1 Outside controlled airspace, IFR flights in receipt of any of the FIS is authorized to conduct a Visual Approach under the following conditions:

- a) requested by pilot;
- b) the pilot reports at any time after commencing the instrument approach procedure that the visibility will permit a visual approach and landing, and reasonable assurance exists that this can be accomplished.
- c) for the purpose of providing traffic information and alerting services, the pilot of the aircraft that are intended to execute a visual approach shall inform the AFSSOs of the intention, the position of the flight, and the flight path to be followed, before commencing the Visual Approach.
- d) the AFIS unit is not an air traffic control unit therefore no separation shall be provided by that unit; (so) it is the responsibility of pilots using the service provided by this unit to maintain proper separation in conformity with the rules of the air.

7.3.2.2 The final responsibility to approve the execution of a visual approach in class "G" airspace lies with aircraft operators themselves. To do so the aircraft operator shall consider all equipment, procedures and training required for such operations, route and/or area of operation and aerodrome information and full account shall be taken of:

- a) the type, performance and handling characteristics of the aircraft;
- b) the composition of the flight crew, their competence and experience;
- c) the dimensions and characteristics of the runways which may be selected for use;
- d) the adequacy and performance of the available visual and non-visual ground aids;

- e) the equipment available on the aircraft for the purpose of navigation, acquisition of visual references and/or control of the flight path during the approach, landing and the missed approach;
- f) the obstacles in the approach and missed approach areas;
- g) the means used to determine and report meteorological conditions;
- h) meteorological conditions at the estimated time of use will be above the operator's established aerodrome operating minima for that operation;
- i) procedures for normal, abnormal and emergency operations, including actions following engine, systems or equipment failures.

7.3.2.3 A visual approach is not an IAP and therefore has no missed approach segment. If a go around is necessary for any reason, aircraft operating at uncontrolled airports, are expected to remain clear of clouds and complete a landing as soon as possible or to join the initial approach fix of the approach procedure which had already been cleared or any other fixes as appropriate. In each case pilot shall inform aerodrome ATS unit of the intended action.

7.3.2.4 Approach control unit should inform the AFIS unit when clearing an aircraft to execute a visual approach, and if necessary accept the conditions which is determined by accepting unit.

7.3.2.5 In order that pilots may readily identify the status of the service they are receiving, the call sign "AERODROME INFORMATION" following the name of the aerodrome should be used in aeronautical mobile communications to identify a unit providing AFIS, e.g. ZZZZ AERODROME INFORMATION, this will avoid any possible confusion with a unit providing aerodrome control service which is identified by the call sign "TOWER". The word "AERODROME" may be deleted after initial contact has been established. If at any time it is apparent that the pilot is not aware that aerodrome control service is not provided, the pilot should immediately be informed of the fact using the following phraseology:

AERODROME INFORMATION SERVICE.

Section 4

INSTRUMENT APPROACH

7.4.1 The approach control unit shall specify the instrument approach procedure to be used by arriving aircraft. A flight crew may request an alternative procedure and, if circumstances permit, should be cleared accordingly.

7.4.2 If a pilot reports or it is clearly apparent to the ATC unit that the pilot is not familiar with an instrument approach procedure, the initial approach level, the point (in minutes from the appropriate reporting point) at which base turn or procedure turn will be started, the level at which the procedure turn shall be carried out and the final approach track shall be specified, except that only the last-mentioned need be specified if the aircraft is to be cleared for a straight-in approach. The frequency(ies) of the navigation aid(s) to be used as well as the missed approach procedure shall also be specified when deemed necessary.

7.4.3 If visual reference to terrain is established before completion of the approach procedure, the entire procedure must nevertheless be executed unless the aircraft requests and is cleared for a visual approach.

7.4.4 SIMULATED INSTRUMENT APPROACHES

7.4.4.1 IFR flights shall not be flown under simulated instrument flight conditions or execute simulated instrument approach procedure based on a navigation aid when its flight check is reported to be expired, or it is unserviceable, inoperative, or off the air.

7.4.4.2 A VFR flight may be cleared to fly under simulated instrument flight conditions for practice approaches when it is requested by the pilot and the related navigation aids are operational under the following conditions:

- a) Controller shall ensure that a VFR flight simulating instrument approaches does not disrupt the flow of other arriving and departing IFR or VFR flights and shall withhold authorization, withdrawal of authorization, or refusal to authorize simulated instrument approaches until the time it is ensured that traffic conditions requirements will be met. Normally, approaches in progress should not be terminated.
- b) Air traffic controller is responsible to provide standard separation between IFR and VFR aircraft simulating instrument approaches according to airspace classification.
- c) VFR aircraft are not automatically authorized to execute the missed approach procedure. This authorization must be specifically requested by the pilot and approved by the controller.
- d) ATCO shall consider an aircraft cleared for a touch-and-go, low approach, or simulated instrument approach as an arriving aircraft until that aircraft touches down or crosses the landing threshold; thereafter, consider the aircraft as a departing aircraft. Before the aircraft begins its final descent, issue the appropriate departure instructions the pilot is to follow upon completion of the approach. Climb-out instructions must include a specific heading or a route of flight and altitude, except when the aircraft will remain in traffic pattern.

Note. A simulated instrument flight is a training flight carried out by a fully functioning dual controls aircraft doing a VFR flight with a qualified pilot occupying a control seat to act as safety pilot for the person who is flying under simulated instrument conditions. Such flights shall only be carried out using normal operating navigation aids, consequently, IFR flights' requests of simulated instrument flights using unserviceable or expired navigation aids are conceptually inappropriate.

7.4.5 CIRCLING APPROACH/CIRCLE TO LAND

7.4.5.1 When an aircraft intends to land on a runway for which no instrument approach procedure exists, it may descend on the instrument approach to another runway and, provided the required visual references are established at the circling MDA/H, manoeuvre visually to align with the desired runway for a landing.

Note. This procedure is used when landing on the instrument runway is undesirable, due for example to wind conditions or work in progress.

7.4.5.2 Include in the approach clearance instructions to circle to the runway in use if landing will be made on a runway other than that aligned with the direction of instrument approach. When the direction of the circling maneuver in relation to the airport/runway is required, state the direction (eight cardinal compass points) and specify a left or right turn as appropriate.

7.4.5.3 MISSED APPROACH PROCEDURE WHILE CIRCLING

7.4.5.3.1 If visual reference is lost while circling to land from an instrument approach, the missed approach specified for that particular procedure shall be followed. The transition from the visual (circling) manoeuvre to the missed approach should be initiated by a climbing turn, within the circling area, towards the landing runway, to return to the circling altitude or higher, immediately followed by interception and execution of the missed approach procedure. The indicated airspeed during these manoeuvres shall not exceed the maximum indicated airspeed associated with visual manoeuvring.

Note 1. Side step maneuver is a kind of circle to land.

Phraseology

CIRCLE TO RUNWAY (number), or TURN LEFT/RIGHT, CIRCLE (direction using eight cardinal compass points) OF THE AERODROME FOR RUNWAY (number).

Example:

IRA 123 TURN LEFT CIRCLE SOUTH OF AERODROME FOR RUNWAY 11.

CLEARED (type of approach) RUNWAY (number) FOLLOWED BY CIRCLING TO RUNWAY (number);

Example:

Cleared I-L-S approach Runway two seven left, followed by circling to Runway two seven right."

Note 2. OCA/H of Circling approach procedure is published in Instrument Approach Procedure and differs from traffic pattern altitude.

Note 3. Circling approach procedures shall have visibility minima greater than instrument approaches and operators are to establish those minima.

7.4.5.3.2 Do not issue clearances, such as "EXTEND DOWNWIND LEG" which might cause an aircraft to exceed the circling approach area distance from the runways within which required circling approach obstacle clearance is assured.

Section 5

HOLDING

7.5.1 In the event of extended delays, aircraft should be advised of the anticipated delay as early as possible and, when practicable, be instructed or given the option to reduce speed En-route in order to absorb delay.

7.5.2 When delay is expected, the ACC/APP as appropriate shall normally be responsible for clearing aircraft to the holding fix, and for including holding instructions, and expected approach time or onward clearance time, as applicable, in such clearances.

7.5.3 After coordination with the aerodrome control tower, the approach control unit may clear an arriving aircraft to a visual holding location to hold until further advised by the aerodrome control tower.

7.5.4 Holding and holding pattern entry shall be accomplished in accordance with procedures established and published in Iran AIP. If entry and holding procedures have not been published or if the procedures are not known to a flight crew, the appropriate air traffic control unit shall specify the designator of the location or aid to be used, the inbound track, radial or bearing, direction of turn in the holding pattern as well as the time of the outbound leg or the distances between which to hold.

7.5.5 Aircraft should normally be held at a designated holding fix. The required minimum vertical, lateral or longitudinal separation from other aircraft shall be provided. Criteria and procedures for the simultaneous use of adjacent holding patterns shall be prescribed in LATCI.

7.5.6 Levels at a holding fix or visual holding location shall as far as practicable be assigned in a manner that will facilitate clearing each aircraft to approach in its proper priority. Normally, the first aircraft to arrive over a holding fix or visual holding location should be at the lowest level, with following aircraft at successively higher levels.

7.5.7 When extended holding is anticipated, turbojet aircraft should, when practicable, be permitted to hold at higher levels in order to conserve fuel, while retaining their order in the approach sequence.

7.5.8 If an aircraft is unable to comply with the published or cleared holding procedure, alternative instructions shall be issued.

7.5.9 Occasionally, for the purpose of maintaining a safe and orderly flow of traffic and for delaying purposes or to achieve a required spacing behind preceding traffic, an IFR aircraft may be instructed to make a complete turn known as an orbit or a 360 degree turn, at its present or at any other position, and if necessary determine direction of turn provided the required obstacle clearance is ensured and other restriction such as P, R, D and C areas are not infringed, as follows;

- a) in radar service above ATCSMAC, and
- b) for procedural service as following conditions
 - 1. within ACC/APP AORs, not below FL200;

on final approach segment, only requested by flight executing visual approach.

Note. The orbiting of aircraft on final approach is to be avoided whenever possible. no aircraft shall be approved an orbit inside range 4nm on final approach, and the tower controller will coordinate with approach controller before authorizing an orbit on final approach, stating the reason for the manoeuvre.

Section 6

APPROACH SEQUENCE

7.6.1 GENERAL

The following procedures shall be applied whenever approaches are in progress.

7.6.1.1 The approach sequence shall be established in a manner which will facilitate arrival of the maximum number of aircraft with the least average delay. Priority shall be given to the followings in the order listed:

- a) an aircraft which anticipates being compelled to land because of factors affecting the safe operation of the aircraft (engine failure, shortage of fuel, etc.);
- b) hospital aircraft or aircraft carrying any sick or seriously injured person requiring urgent medical attention;
- c) aircraft engaged in search and rescue (SAR) operations for the purpose of ATS alerting service;

Note. Rescue (for a flight engaged in SAR mission e.g. mountain or road rescue with Helicopter)

- d) Scramble
- e) Head (if mentioned in item “18” of flight plan);
- f) Flight check;
- g) Firefighting aircraft;
- h) flight carrying hazardous materials;
- i) medical evacuation

7.6.1.2 When EATs are required, they shall be passed sufficiently in advance to permit pilots to arrange their flight paths accordingly.

7.6.1.3 The first aircraft will descend from the lowest level of the holding stack and commence approach when instructed.

7.6.1.4 The second aircraft in the approach sequence may be instructed to descend to the level previously occupied by the first aircraft, after the first aircraft has reported vacating it. If, however, severe turbulence is known to exist, the instruction shall be withheld until the first aircraft has reported at least 1000 feet below the vacated level.

Note. See also Para 5.2.4.1

7.6.1.5 The second aircraft may be instructed to leave the holding facility and descend for approach when the required separation has been established between it and the preceding aircraft and reasonable assurance exists that a normal landing can be accomplished.

7.5.1.6 In establishing the approach sequence, the need for increased longitudinal spacing between arriving aircraft due to wake turbulence shall be taken into account.

7.6.2 HOLD FOR WEATHER IMPROVEMENT

7.6.2.1 Pilots of arriving aircraft may decide to hold for the weather to improve. In addition to passing routine weather reports, controllers are to advise pilots of other relevant meteorological information.

7.6.2.2 If the pilot of an aircraft in an approach sequence has indicated an intention to hold for weather improvement, or for other reasons, such action shall be approved. However, when other holding aircraft indicate intention to continue their approach to land, provision of standard radar or geographical separation is mandatory either by clearing the pilot desiring to hold to an adjacent holding pattern which has a standard lateral/geographical separation or by application of other separation methods.

7.6.2.3 Controllers should request the intention of any pilot if it has not already been stated.

7.6.2.4 If aircraft are making approaches in poor weather conditions the possibility of missed approaches shall be considered. The lowest holding level at a convenient holding facility shall normally be kept vacant for such eventualities.

7.6.2.5 If the pilot of an aircraft in an approach sequence has indicated an intention to hold for weather improvement, or for other reasons, such action shall be approved. However, when other holding aircraft indicate intention to continue their approach to land, the pilot desiring to hold will be:

- a) cleared to an adjacent holding pattern which has a standard lateral/ geographical separation;
- b) if there is no such holding pattern as mentioned in “a”, coordinate with adjacent ATC unit to provide standard radar or geographical separation.

Note. Coordination shall be effected with any adjacent ATC unit or control sector, when required, to avoid conflict with the traffic under the jurisdiction of that unit or sector.

7.6.2.6 When establishing the approach sequence, an aircraft which has been authorized to absorb a specified period of notified terminal delay by cruising at a reduced speed En-route, should, in so far as practicable, be credited with the time absorbed En-route.

7.6.3 SEQUENCING AND SPACING OF INSTRUMENT APPROACHES

7.6.3.1 INTERVAL BETWEEN SUCCESSIVE APPROACHES

In determining the time interval or longitudinal distance to be applied between successive approaching aircraft, the relative speeds between succeeding aircraft, the distance from the specified point to the runway, the need to apply wake turbulence separation, runway occupancy times, the prevailing meteorological conditions as well as any condition which may affect runway occupancy times shall be considered. When an ATS surveillance system is used to establish an approach sequence, the minimum distance to be established between succeeding aircraft shall be specified in LATCIs. Local instructions shall additionally specify the circumstances under which any increased longitudinal distance between approaches may be required as well as the minima to be used under such circumstances.

7.6.3.2 INFORMATION ON APPROACH SEQUENCE

Provision shall be made to ensure that the aerodrome control tower is kept informed of the sequence in which aircraft will be established on final approach for landing which are to be detailed in LATCIs.

Section 7

EXPECTED APPROACH TIME

7.7.1 An expected approach time shall be determined for an arriving aircraft that will be subjected to a delay. The expected approach time shall be transmitted to the aircraft as soon as practicable and preferably not later than at the commencement of its initial descent from cruising level. A revised expected approach time shall be transmitted to the aircraft without delay whenever it differs from that previously transmitted by 5 minutes or more.

7.7.2 An expected approach time shall be transmitted to the aircraft by the most expeditious means whenever it is anticipated that the aircraft will be required to hold for 30 minutes or more.

7.7.3 The holding fix to which an expected approach time relates shall be identified together with the expected approach time whenever circumstances are such that this would not otherwise be evident to the pilot.

7.7.4 ONWARD CLEARANCE TIME

In the event an aircraft is held En-route or at a location or aid other than the initial approach fix, the aircraft concerned shall, as soon as practicable, be given an expected onward clearance time from the holding fix. The aircraft shall also be advised if further holding at a subsequent holding fix is expected.

Note. "ONWARD CLEARANCE TIME" is the time at which an aircraft can expect to leave the fix at which it is being held.

Section 8

LANDING

7.8.1 LANDING CLEARANCE

7.8.1.1 An aircraft may be cleared to land when there is reasonable assurance that the runway separation in 5.4.12 b) will exist when the aircraft crosses the runway threshold, provided that a clearance to land shall not be issued until a preceding landing aircraft has crossed the runway threshold. To reduce the potential for misunderstanding, the landing clearance shall include the designator of the landing runway.

Note. See 5.4.12 .1.3.

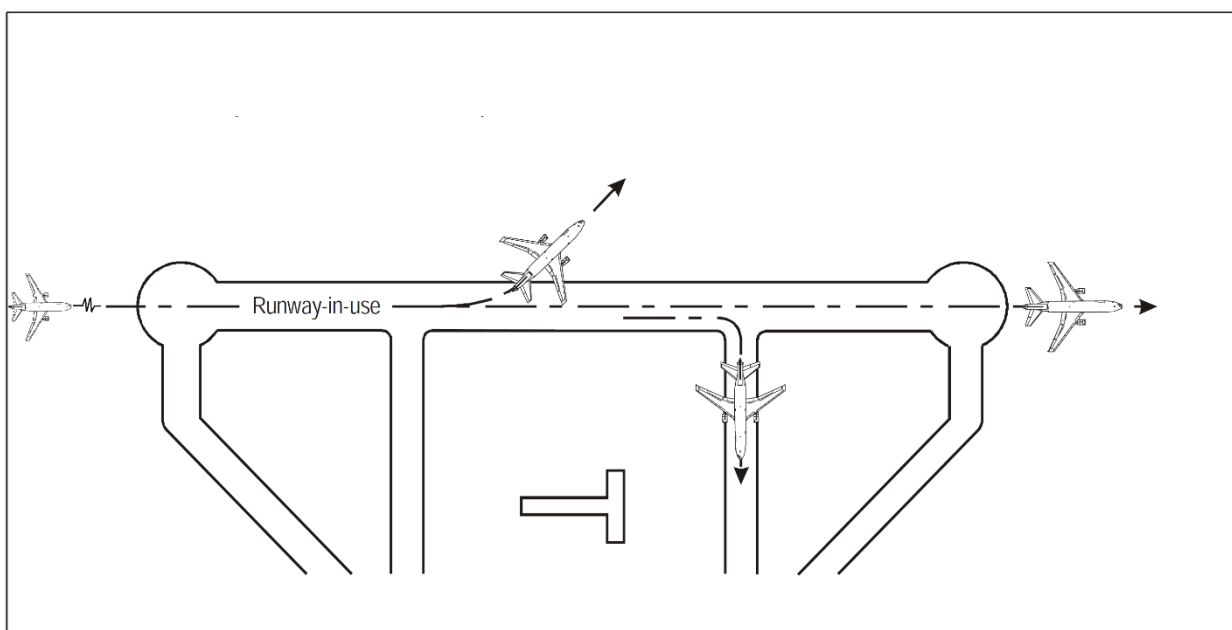


Figure 7-1 Landing clearance

7.8.1.2 Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from any part of the aircraft, is observed by or reported to the aerodrome air traffic controller or the AFIS officer, the aircraft concerned should be advised without delay.

7.8.1.3 Controllers should not transmit to an aircraft during take-off, initial climb, the last part of final approach or the landing roll, unless it is necessary for safety reasons, as it may be distracting to the pilot at a time when the cockpit workload is at its highest.

7.8.1.4 When issuing a clearance to land, first state the runway number followed by the landing clearance. If the landing runway is changed, controllers must preface the landing clearance with “RE-CLEARED RUNWAY(designator)”

7.8.2 RUNWAY EXITING, LANDING AND ROLL-OUT MANOEUVRES

Note. Conditional landing clearance shall not be issued to an aircraft.

7.8.2.1 All communications associated with the operation of aircraft on runways shall be on the same tower frequency as utilized for the take-off and landing of aircraft, except for flights on UHF frequency.

Example:

IRA123 WHEN VACATED CONTACT GND 121.700

7.8.2.2 If the control tower is unable to determine that a vacating or crossing aircraft has cleared the runway, e.g. due to low visibility conditions, a landing or a taxiing aircraft should be instructed to report when a runway has been vacated.

Note. The runway is clear when the entire aircraft is beyond the relevant runway-holding position

7.8.2.3 When the pilot/vehicle operator fails to read back a runway hold short instruction, he shall be instructed to read it back as soon as possible.

Phraseology:

READ BACK HOLD INSTRUCTIONS.

Note. This phrase may be used for any point on the movement area, when the controller believes the read back is necessary.

7.8.2.4 Runway exiting or taxi instructions to vacate the runway shall be issued to an aircraft only when the landing is completed. However, when necessary or desirable in order to expedite traffic, a landing aircraft beyond 4 NM from touchdown, may be requested to:

- a) hold short of an intersecting runway after landing;
- b) vacate the runway at a specified exit taxiway;
- c) expedite vacating the runway.
- d) land beyond the touchdown zone of the runway; only if pilot request.

In requesting a landing aircraft to perform a specific landing and/or roll-out manoeuvre, the type of aircraft, runway length, location of exit taxiways, reported braking action on runway and taxiway, and prevailing meteorological conditions shall be considered. A SUPER or HEAVY aircraft shall not be authorized to land beyond the touchdown zone of a runway.

If the pilot-in-command considers that he or she is unable to comply with the requested operation, the controller shall be advised without delay.

7.8.3 LOW APPROACH AND LOW PASS

7.8.3.1 Low approach is a manoeuvre for training or any other purposes, in which a pilot may request permission to make an approach along, or parallel to the runway, descending to an agreed minimum level without landing.

Phraseology:

REQUEST LOW APPROACH (reasons);

CLEARED LOW APPROACH [RUNWAY (number)] [(altitude restriction if required) (go around instructions)];

7.8.3.2 Controller shall not clear an aircraft to “LAND”, “TOUCH-AND-GO”, or “STOP-AND-GO” on occupied runway.

In VMC, If the runway in use is occupied by vehicles or personnel, an approaching aircraft that has requested a low approach, may be cleared to carry out a low approach restricted to a height not below 500 feet above the threshold elevation. In such circumstances, the pilot is to be informed of the location of the vehicles or personnel on the runway. Additionally, vehicles or personnel on the runway is to be informed of the aircraft carrying out the low approach in sufficient time.

Note1. The 500 feet restriction is a minimum. Higher altitudes should be used when warranted. For example, 1 000 feet is more appropriate for heavy aircraft operating over unprotected personnel on or near the runway.

Note2. Refer to LATCI, for military flights restriction.

Note3. For aircraft operating on the aerodrome QNH, the low approach altitude restriction is to be based on 500ft plus threshold elevation, rounded up to the nearest 50ft.

The runway in use shall be kept clear of aircraft, vehicles and personnel if an approaching aircraft is likely to descend below 500 feet above the threshold elevation.

IRA123, runway 27R cleared low approach, not below 500 feet, vehicle at the end of runway, QNH 1010.

7.8.3.3 **Low pass**, To fly past the control tower or other observation point for the purpose of visual inspection by persons on the ground

Phraseology:

REQUEST LOW PASS (reasons);

CLEARED LOW PASS [RUNWAY (number)] [(altitude restriction if required) (go around instructions)];

7.8.3.4 If the low pass is made for the purpose of observing the undercarriage, one of the following replies could be used to describe its condition (these examples are not exhaustive):

LANDING GEAR APPEARS DOWN;

RIGHT (or LEFT, or NOSE) WHEEL APPEARS UP (or DOWN);

WHEELS APPEAR UP;

RIGHT (or LEFT, or NOSE) WHEEL DOES NOT APPEAR UP (or DOWN).

7.8.4 AERODROME OPERATING MINIMA

7.8.4.1 Aerodrome Operating Minima is the limits of usability of an aerodrome for either take-off or landing that usually expressed in terms of Visibility/RVR, Decision Altitude/Height (DA/H) for precision approaches or approach with vertical guidance and Minimum Descent Altitude/ Height (MDA/H) for non-precision or circling approach.

Ref CAT.OP.MPA.110 (a) CAA.IRI AIROPS; it is required that all operators establish Aerodrome Operating Minima for each aerodrome to be used in operations. The method of determination of such minima must be acceptable to CAA.IRI. Such minima shall not be lower than those established for such aerodromes, in Iran AIP or in special circumstances specified by CAA.IRI.

7.8.4.2 Under the provisions of the CAA.IRI , IFR flight shall observe AOM when conducting an approach to a runway with a notified Instrument Approach Procedure (IAP). CAA.IRI Regulation on Air operation and associated Acceptable Means of Compliance and Guidance Material are available at www.caa.gov.ir.

7.8.4.3 All flight operations by aircraft within the Tehran Flight Information Region (FIR) are to operate with AOM no lower than calculated using CAA.IRI Air OPS.

7.8.4.4 It should be noted that the privileges of pilot licenses, Rules of the Air and limitations in the aircraft Flight Manual can be more restrictive than the AOM contained in this section. In establishing the AOM that will apply, full account must be taken of:

- a) the type and handling characteristics of the aircraft;
- b) the composition of the flight crew and their competence and experience;
- c) the dimensions and characteristics of the runway which may be selected for use;
- d) the adequacy and performance of the available visual and non-visual ground aids;
- e) the equipment available on the aircraft for the purpose of navigation and/or control of the flight path, as appropriate, during the take-off, the approach, the flare, the landing, roll-out and missed approach;
- f) the obstacles in the approach, and missed approach and climb-out areas required for the execution of contingency procedures and necessary clearance;
- g) the obstacle clearance altitude/height for the instrument approach procedures; and
- h) the means to determine and report meteorological conditions.

7.8.4.5 Controllers are not responsible for determining, passing or enforcing a pilot's Aerodrome Operating Minima. However, controllers should report any occurrence which they consider has endangered, or if not corrected would have endangered an aircraft, its occupants, or any other person.

7.8.4.6 A controller is not responsible for ensuring that pilots observe their Aerodrome Operating Minima and is not to query the right of a pilot to attempt a landing or take-off.

Note. When RVR is not reported an aircraft should be instructed to line up the runway for determining RVR if requested by the pilot.

Chapter 8 . USE OF ATS SURVEILLANCE IN ATS

Section 1

GENERAL PRINCIPLES

8.1.1 GENERAL PROVISIONS OF ATS SURVEILLANCE SERVICE

8.1.1.1 ATS surveillance systems used in the provision of air traffic services shall have a very high level of reliability, availability and integrity. The possibility of system failures or significant system degradations which may cause complete or partial interruptions of service shall be very remote. Backup facilities shall be provided.

8.1.1.2 ATS surveillance systems should provide for the display of safety-related alerts and warnings, including conflict alert, minimum safe altitude warning, conflict prediction and unintentionally duplicated SSR codes and aircraft identification.

Note. The absence of such safety-related alerts and warnings will adversely affect human performance as well as capacity in provision of ATS surveillance services.

8.1.1.3 Information derived from ATS surveillance systems, including safety-related alerts and warnings such as conflict alert and minimum safe altitude warning, should be used to the extent possible in the air traffic control service provision in order to improve capacity and efficiency as well as to enhance safety.

8.1.1.4 ATS surveillance systems, such as primary surveillance radar (PSR) and secondary surveillance radar (SSR) may be used either alone or in combination in the provision of air traffic services, including in the provision of separation between aircraft, provided:

- a) reliable coverage exists in the area; and
- b) the probability of detection, the accuracy and the integrity of the ATS surveillance system(s) are satisfactory.

8.1.1.5 PSR systems should be used in circumstances where SSR alone would not meet the air traffic services requirements.

8.1.1.6 The provision of ATS surveillance services shall be limited when position data quality degrades below a level specified in the Tehran ACC Operation Manual (OM) and the relevant LATCIs.

8.1.1.7 Where PSR and SSR are required to be used in combination, SSR alone may be used in the event of PSR failure to provide separation between identified transponder equipped aircraft, provided the accuracy of the SSR position indications has been verified by monitor equipment.

8.1.1.8 The number of aircraft simultaneously provided with ATS surveillance services, for being safely handled under the prevailing circumstances, may vary taking into account:

- a) the structural complexity of the control area or sector concerned;
- b) the functions to be performed within the control area or sector concerned;
- c) assessments of controller workloads, taking into account different aircraft capabilities, and sector capacity; and
- d) the degree of technical reliability and availability of the primary and backup communications, navigation and surveillance systems, both in the aircraft and on the ground.

8.1.2 TYPES OF ATS SURVEILLANCE SERVICES

The airspace within which the aircraft is flying determines the type of surveillance service available, as shown in the table below.

Table 8-1 Types of ATS surveillance services

Type of ATS surveillance services	Type of airspace
ATS surveillance control service	Controlled airspaces (A,B,C,D,E)
ATS surveillance information service	Outside controlled airspace (F,G)

Note. The provision of radar control service has priority over the provision of a radar flight information service.

8.1.2.1 SITUATION DISPLAY

8.1.2.1.1 A situation display providing surveillance information to the controller shall, as a minimum, include position indications, map information required to provide ATS surveillance services and, where available, information concerning the identity of the aircraft and the aircraft level.

8.1.2.1.2 The ATS surveillance system shall provide for a continuously updated presentation of surveillance information, including position indications.

8.1.2.1.3 Position indications may be displayed as:

- a) individual position symbols, e.g. PSR, SSR, ADS-B or MLAT symbols, or combined symbols;
- b) PSR blips; and
- c) SSR responses.

8.1.2.1.4 When applicable, distinct symbols should be used for presentation of:

- a) unintentionally duplicated SSR codes and/or aircraft identification that are unintentionally duplicated;
- b) predicted positions for a non-updated track; and
- c) plot and track data.

8.1.2.1.5 Where surveillance data quality degrades such that services need to be limited, symbology or other means shall be used to provide the controller with an indication of the condition.

8.1.2.1.6 Reserved SSR codes, including 7500, 7600 and 7700, operation of IDENT, ADS-B emergency and/or urgency modes, safety-related alerts and warnings as well as information related to automated coordination shall be presented in a clear and distinct manner, providing for ease of recognition.

8.1.2.1.7 Labels associated with displayed targets should be used to provide, in alphanumeric form, relevant information derived from the means of surveillance and, where necessary, the flight data processing system.

8.1.2.1.8 Labels shall, as a minimum, include information relating to the identity of the aircraft, e.g. SSR code or aircraft identification and, if available, pressure-altitude-derived level information. This information may be obtained from SSR Mode A, SSR Mode C, SSR Mode S and/or ADS-B.

8.1.2.1.9 Labels shall be associated with their position indications in a manner precluding erroneous identification by or confusion on the part of the controller. All label information shall be presented in a clear and concise manner

8.1.3 FUNCTIONS

8.1.3.1 An air traffic services provider may use ATS surveillance systems in the provision of air traffic services. In such case, the air traffic services provider shall specify the functions for which ATS surveillance information is used.

8.1.3.2 The information provided by ATS surveillance systems and presented on a situation display may be used to perform one or more of the following functions in the provision of area control service or approach control service:

- a) provide ATS surveillance services as necessary in order to improve airspace utilization, reduce delays, provide for direct routings according to airspace classification and more optimum flight profiles, as well as to enhance safety;
- b) provide vectoring to departing aircraft for the purpose of facilitating an expeditious and efficient departure flow and expediting climb to cruising level;
- c) provide vectoring to aircraft for the purpose of resolving potential conflicts;
- d) provide vectoring to arriving aircraft for the purpose of establishing an expeditious and efficient approach sequence;
- e) provide vectoring to assist pilots in their navigation;
- f) provide separation and maintain normal traffic flow when an aircraft experiences communication failure within the area of coverage;
- g) maintain flight path monitoring of air traffic, except for final approach, where the ATS surveillance system being used is not qualified for provision of ATS in that segment.
- h) as specified in 8.4.1, maintain a watch on the progress of air traffic, in order to provide a procedural controller with:
 - 1) improved position information regarding aircraft under control;
 - 2) supplementary information regarding other traffic; and

- 3) information regarding any significant deviations by aircraft from the terms of their respective air traffic control clearances, including their cleared routes as well as levels, when appropriate.

Note. To be considered "Significant" an aircraft's track deviation should be sufficient to take it beyond the boundary of the route being followed or be assessed by the radar controller as liable to take it beyond the edge of the protected airspace of the route being followed.

- i) provide flight information service and alerting service.
- j) provide all possible assistance, including the provision of radar service to an emergency aircraft.

8.1.3.3 An air traffic services provider shall, in accordance with the functions for which ATS surveillance information is used in the provision of air traffic services, establish procedures for:

- a) establishing identification of aircraft;
- b) providing position information to aircraft;
- c) vectoring aircraft;
- d) providing navigation assistance to aircraft;
- e) providing information regarding adverse weather, if applicable;
- f) transferring of control of aircraft;
- g) failure of ATS surveillance system or systems;
- h) SSR transponder failure;
- i) ATS surveillance-based safety-related alerts and warnings, when implemented;
- j) interruption or termination of ATS surveillance service.

8.1.4 ESTABLISHING A SERVICE

8.1.4.1 In an ATC unit designated as an ATS surveillance service provider, the provision of ATS surveillance service has priority over the provision of procedural control service.

8.1.4.2 The provision of radar service to aircraft is subject to:

- a) communication system availability and reliability; and
- b) radar equipment availability and limitations.

8.1.5 LIMITATIONS OF SERVICES

The provision of ATS surveillance service may be limited due to any reason resulting in degradation of the system. In such a case, the controller will inform the pilot of the nature of the limitation that may affect the service being provided.

8.1.6 SSR OPERATING PROCEDURES

8.1.6.1 All aircraft flying within Tehran FIR are required to be equipped with SSR transponder having a combined Mode A/3, 4096 Codes capability and a Mode C automated altitude reporting capability.

8.1.6.2 The use of SSR transponder is mandatory for all aircraft flying within controlled airspaces, unless otherwise agreed by prior coordination or instructed by ATS unit.

8.1.6.3 To ensure the safe and efficient use of Secondary Surveillance Radar (SSR) pilot and controllers shall strictly adhere to published operating procedures and standard radiotelephony phraseology shall be used. The correct setting of transponder codes and/or aircraft identification shall be ensured at all times.

8.1.6.4 After selection of mode/code specified by ATC, the transponder should be adjusted on the “ON” or normal operating procedure as late as practicable prior to take off and to “OFF” or “STANDBY” as soon as practicable after completing the landing roll.

8.1.6.5 USE OF SSR WITHOUT PRIMARY RADAR

8.1.6.5.1 SSR information may be used alone in the provision of separation between aircraft provided; each aircraft is assigned a discrete SSR codes.

8.1.6.5.2 Procedural separation will be applied between transponder-equipped aircraft and an aircraft without a SSR transponder or with a non-functioning SSR transponder.

8.1.6.5.3 To reduce pilot and ATCO workload and the need for ATCO/pilot communications, the number of code changes required of the pilot should be kept to the minimum.

8.1.7 SSR CODE MANAGEMENT

8.1.7.1 SAFETY THROUGH UNIQUENESS AND CONTINUITY:

Uniqueness and continuity criteria are used to provide permanent visibility and identification of individual flights with a minimum of errors and of interruptions.

Uniqueness: Only one aircraft should respond on a given code in any particular area and at any given time. This measure provides an unambiguous code/call-sign association and consequently an easy identification of flights.

Continuity: A code assigned to a flight will be retained as long as possible (preferably for the entire duration of the flight). This measure secures permanent display of individual flights, especially for control transfers between adjacent units.

8.1.7.2 SPECIFIC FAMILY CODES ARE RESERVED FOR SPECIAL PURPOSES AS FOLLOWS:

- a) Code 0000 is available as a general-purpose code for domestic use to indicate a transponder malfunction;
- b) Code 2000 is reserved for use by flight crew in the absence of any Air Traffic Control (ATC) instructions or operating in the non-mandatory area, unless the conditions for the use of codes 7000, 7500, 7600 and 7700 apply.
- c) Code 1200 shall be set by VFR flights in the absence of code assignment instructions or when the aircraft is operating in an area in which the code setting is not mandatory, unless the conditions for the use of codes 7500, 7600 and 7700 apply;
- d) Code 7500 is reserved for use in the event of unlawful interference;
- e) Code 7600 is reserved for use in the event of radio communications failure;
- f) Code 7700 is reserved for use in the event of emergencies and interception;
- g) Code 7776 and Code 7777 are reserved for SSR ground transponder monitoring; and
- h) Code 7601-7612 are reserved for flights with humanitarian purposes, e.g. medical aircraft operating in areas of international armed conflict.
- i) activate the appropriate emergency and/or urgency capability of ADS-B or ADS-C;
- j) transmit the appropriate emergency message via CPDLC.

8.1.7.3 INTERNATIONAL AND DOMESTIC CODES:

As defined in Tehran ACC Operations Manual (OM) and the relevant LATCIs

8.1.8 OPERATION OF SSR TRANSPONDERS

8.1.8.1 When it is observed that the Mode A code shown on the situation display is different to what has been assigned to the aircraft, the pilot shall be requested to confirm the code selected and, if the situation warrants (e.g. not being a case of unlawful interference), to reselect the correct code.

8.1.8.2 If the discrepancy between assigned and displayed Mode A codes still persists, the pilot may be requested to stop the operation of the aircraft's transponder. The next control position and any other affected unit using SSR in the provision of ATS shall be informed accordingly.

8.1.9 PERFORMANCE CHECKS

8.1.9.1 The air traffic controller, FIS officer, and AFIS officer shall adjust the situation display(s) and carry out adequate checks on the accuracy thereof, in accordance with the technical instructions contained in the Tehran ACC Operations Manual (OM) chapter 6, 6.4.13.6 and the relevant LATCIs.

8.1.9.2 The air traffic controller, FIS officer, and AFIS officer shall be satisfied that the available functional capabilities of the ATS surveillance system as well as the information presented on the situation display(s) is adequate for the functions to be performed. If a controller is unable to provide a service, he shall inform the supervisor, for him to take appropriate subsequent actions.

8.1.9.3 The controller shall report, in accordance with local procedures contained in the Tehran ACC Operation Manual (OM) and the relevant LATCIs, any fault in the equipment, or any incident requiring investigation, or any circumstances which make it difficult or impractical to provide ATS surveillance services.

Section 2

PROVISION OF SERVICE

8.2.1 LEVEL INFORMATION BASED ON THE USE OF PRESSURE ALTITUDE INFORMATION:

8.2.1.1 VERIFICATION OF ACCURACY OF LEVEL INFORMATION

8.2.1.1.1 The tolerance value used to determine that pressure altitude-derived level information displayed to the controller is accurate shall be ± 200 ft in all airspaces. Geometric height information shall not be used for separation.

8.2.1.1.2 Verification of pressure altitude-derived level information displayed to the controller shall be effected at least once by each suitably equipped ATC unit on initial contact with the aircraft concerned or, if this is not feasible, as soon as possible thereafter. The verification shall be effected by simultaneous comparison with altimeter-derived level information received from the same aircraft by radiotelephony. The pilot of the aircraft whose pressure altitude-derived level information is within the approved tolerance value need not be advised of such verification. Geometric height information shall not be used to determine if altitude differences exist.

8.2.1.1.3 If the displayed level information is not within the approved tolerance value or when a discrepancy in excess of the approved tolerance value is detected subsequent to verification, the pilot shall be advised accordingly and requested to check the pressure setting and confirm the aircraft's level.

8.2.1.1.4 If, following confirmation of the correct pressure setting the discrepancy continues to exist, the following action should be taken according to circumstances:

- a) request the pilot to stop Mode C or ADS-B altitude data transmission provided this does not cause the loss of position and identity information; or
- b) inform the pilot of the discrepancy and request that the relevant operation continue in order to prevent loss of position and identity information of the aircraft and a squawk code change to 0000;
- c) instruct the aircraft to leave RVSM airspace, if relevant; and
- d) notify the next control position or ATC unit concerned with the aircraft of the action taken.

Note. Sample phraseologies to be used are:

IRA376, REPORT LEVEL.

MAINTAINING FL340, IRA376.

IRA376, RECEIVING FL337, CHECK ALTIMETER SETTING AND CONFIRM FL340.

ALTIMETER CHECKED, MAINTAINING FL340, IRA376.

IRA376, ADVISE TRANSPONDER CAPABILITY.

TRANSPONDER C, IRA376.

TRANSPONDER A, IRA376.

IRA376, STOP SQUAWK CHARLIE, WRONG INDICATION.

IRA376, WRONG INDICATION, SQUAWK 0000.

Note. It should be highlighted that the airborne collision avoidance system (ACAS) will accept Mode C replies that are erroneous, and it is possible to issue a resolution advisory (RA) based on these inputs. When the measures described in point 8.2.1.1.4 (a) cannot be implemented, the air traffic controller should take into account the likelihood of generating ACAS RA in the air traffic services provision.

8.2.1.1.5 When an aircraft is experiencing mode C malfunctioning, vertical separation shall be applied based on level information received by radiotelephony.

8.2.1.1.6 Only verified pressure-altitude-derived level information shall be used to determine that aircraft performed either of the following actions:

- a) maintain a level;
- b) vacate a level;
- c) pass a level in climb or descent;
- d) reach a level.

8.2.2 DETERMINATION OF LEVEL OCCUPANCY

8.2.2.1 The criterion which shall be used to determine that a specific level is occupied by an aircraft shall be ± 200 ft in all airspaces.

8.2.2.2 AIRCRAFT MAINTAINING A LEVEL.

An aircraft is considered to be maintaining its assigned level as long as the pressure altitude-derived level information indicates that it is within ± 200 ft of the assigned level.

8.2.2.3 AIRCRAFT VACATING A LEVEL.

An aircraft cleared to leave a level is considered to have commenced its manoeuvre and vacated the previously occupied level when the pressure altitude-derived level information indicates a change of more than 300 ft in the anticipated direction from its previously assigned level.

8.2.2.4 AIRCRAFT PASSING A LEVEL IN CLIMB OR DESCENT.

An aircraft in climb or descent is considered to have crossed a level when the pressure altitude-derived level information indicates that it has passed this level in the required direction by more than 300 ft.

8.2.2.5 AIRCRAFT REACHING A LEVEL.

An aircraft is considered to have reached the level to which it has been cleared when the elapsed time of three display updates, three sensor updates or 15 seconds, whichever is the greater, has passed since the pressure altitude-derived level information has indicated that it is within ± 200 ft of its assigned level.

Note 1. See also Tehran ACC Operation Manual (OM) chapter 6, 6.8.2.5 and the relevant LATCIs.

Note 2. For familiarity with the symbol used in the radar label indicating an aircraft has reached a level, see Tehran ACC Operations Manual (OM) and the relevant LATCIs.

8.2.2.6 Intervention by a controller shall only be required if differences in between that displayed to the controller and that used for control purposes are in excess of the values stated above.

8.2.3 IDENTIFICATION OF AIRCRAFT

8.2.3.1 Before providing ATS surveillance service to an aircraft, identification shall be established and the pilot informed. Thereafter, identification shall be maintained until termination of the ATS surveillance service.

8.2.3.2 If identification is subsequently lost, the pilot shall be informed accordingly and, when applicable, appropriate instructions issued.

8.2.4 ESTABLISHMENT OF IDENTIFICATION

8.2.4.1 SSR IDENTIFICATION PROCEDURES

Note. For more details, see Tehran ACC Operation Manual and the relevant LATCIs.

8.2.4.1.1 Where SSR and/or MLAT is used for identification, aircraft may be identified by one or more of the following procedures:

- a) recognition of the aircraft identification in a SSR and/or MLAT label;

Note. The use of this procedure requires that the code/call sign correlation is achieved successfully, taking into account the Note following b) below.

- b) recognition of an assigned discrete code, the setting of which has been verified, in a SSR and/or MLAT label;

Note1: The use of this procedure requires a system of code assignment which ensures that each aircraft in a given portion of airspace is assigned a discrete code.

Note2: In some airports the use of discrete SSR code for radar identification may not be authorized. For this information see the relevant LATCIs.

- c) by transfer of identification;
- d) direct recognition of the aircraft identification of a Mode S-equipped aircraft in an SSR and/or MLAT label
- e) observation of compliance with an instruction to set a specific code;
- f) observation of compliance with an instruction to "SQUAWK IDENT";

Note 1. In automated radar systems, the "IDENT" feature may be presented in different ways, e.g. as a flashing of all or part of the position indication and associated label.

Note 2. Garbling of transponder replies may produce "IDENT"-type of indications. Nearly simultaneous "IDENT" transmissions within the same area may give rise to errors in identification.

Note 3. To alleviate doubtful identification, using method e) above should only be used within the AoR of the relevant sector.

8.2.4.1.2 When a discrete code has been assigned to an aircraft, a check shall be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the flight. Only after this check has been made shall the discrete code be used as a basis for identification.

8.2.4.2 PSR IDENTIFICATION PROCEDURES:

Note. Caution is to be exercised when employing this method since a position reported in relation to a point may not coincide precisely with the radar position indication of the aircraft on the situation display. The air traffic services provider may, therefore, prescribe additional conditions for the application of this method, e.g.

- (1) a level or levels above which this method may not be applied in respect of specified navigation aids;
or
- (2) a distance from the radar site beyond which this method may not be applied.

The term 'a point' refers to a geographical point suitable for the purposes of identification. It is normally a reporting point defined by reference to a radio navigation aid or aids.

8.2.4.2.1 Where PSR is used for identification, aircraft may be identified by one or more of the following procedures:

a) position report method:

By correlating a particular radar position indication with an aircraft reporting its position over or as bearing and distance from, a point shown on the situation display; and by ascertaining that the track of the particular radar position is consistent with the aircraft path or reported heading.

Note. The term “a POINT” refers to a geographical point suitable for the purposes of identification. It is normally a reporting point defined by reference to a radio navigation aid or aids.

b) departing aircraft method:

By correlating an observed radar position indication with an aircraft which is known to have just departed, provided that the identification is established within 1 NM from the end of the runway used. Particular care should be taken to avoid confusion with aircraft holding over or overflying the aerodrome, or with aircraft departing from or making a missed approach over adjacent runways.

c) by transfer of identification.

d) the turn method:

1. an aircraft may be identified by ascertaining the aircraft heading, if circumstances require, and following a period of track observation:
 - i. instructing the pilot to execute one or more changes of heading of 30 degrees or more and correlating the movements of one particular radar position indication with the aircraft's acknowledged execution of the instructions given; or
 - ii. correlating the movements of a particular radar position indication with manoeuvres currently executed by an aircraft having so reported.

When using these methods, the air traffic controller/FIS officer/AFIS officer shall:

- i. verify that the movements of not more than one radar position indication correspond with those of the aircraft; and
- ii. ensure that the manoeuvre(s) will not carry the aircraft outside the coverage of the radar or the situation display.

Note. Caution must be exercised when employing these methods in areas where route changes normally take place.

8.2.4.3 ADS-B IDENTIFICATION PROCEDURES:

Where ADS-B is used for identification, aircraft may be identified by one or more of the following procedures:

- a) direct recognition of the aircraft identification in an ADS-B label;
- b) transfer of ADS-B identification; and
- c) observation of compliance with an instruction to ‘TRANSMIT ADS-B IDENT’.

8.2.4.4 SURFACE MOVEMENT IDENTIFICATION PROCEDURES:

Where an ATS surveillance system is used in surface movement control or management, the air traffic controller/AFISO may identify aircraft by one or more of the following procedures:

- a) correlating a particular position indication with an:

- i. aircraft position visually observed by the air traffic controller/AFIS officer; or
 - ii. aircraft position reported by the pilot; or
 - iii. identified position indication displayed on a situation display;
- b) transfer of identification when authorized by CAA.IRI; and
- c) automated identification procedures when authorized by CAA.IRI.

8.2.4.5 DOUBTFUL IDENTIFICATION

8.2.4.5.1 When two or more position indications are observed in close proximity, or are observed to be making similar movements at the same time, or when doubt exists as to the identity of a position indication for any other reason, changes of heading should be prescribed or repeated as many times as necessary, or additional methods of identification should be employed, until all risk of error in identification is eliminated.

8.2.4.5.2 If identification is doubtful due to any reason, an air traffic controller/FIS officer/AFIS officer shall terminate the radar service then take immediate action to re-identify the aircraft.

8.2.5 TRANSFER OF RADAR IDENTIFICATION

8.2.5.1 Transfer of identification from one air traffic controller/FIS officer/AFIS officer to another should only be attempted when it is considered that the aircraft is within the accepting air traffic controller's/FIS officer's/AFIS officer's surveillance coverage.

8.2.5.2 Transfer of identification shall be effected by one of the following methods:

- a) designation of the position indication by automated means, provided that only one position indication is thereby indicated and there is no possible doubt of correct identification;
- b) notification of the automated or system-to-system aircraft address
- c) notification that the aircraft is SSR Mode S-equipped with an aircraft identification feature when SSR Mode S coverage is available;
- d) notification that the aircraft is ADS-B-equipped with an aircraft identification feature when compatible ADS-B coverage is available;
- e) direct designation (pointing with the finger) of the position indication if the two situation displays are adjacent or if a common 'conference' type of situation display is used;
- f) notification of the aircraft's discrete SSR code;

Note. The use of a discrete SSR code requires a system of code assignment which ensures that each aircraft in a given portion of airspace is assigned a discrete code.

- g) designation of the position indication by reference to, or in terms of bearing and distance from, a geographical position or navigational facility accurately indicated on both situation displays, together with the track of the observed position indication if the route of the aircraft is not known to both air traffic controllers/FIS officers/AFIS officers.
 - 1. the radar position indication, as seen by the accepting air traffic controllers/FIS officers/AFIS officers, must be within 3 miles of the position stated. the distance between the aircraft and the reference point must not exceed:
 - i. 30 miles, if the aircraft is flying along a published ATS route or direction is given as a bearing in degrees;

- ii. 15 miles in other circumstances.

Note. Caution must be exercised before transferring identification using this method, particularly if other position indications are observed on similar headings and in close proximity to the aircraft under control. Inherent radar deficiencies, such as inaccuracies in bearing and distance of the radar position indications displayed on individual situation displays and parallax errors, may cause the indicated position of an aircraft in relation to the known point to differ between the two situation displays. The air traffic services provider may therefore prescribe additional conditions for the application of this method, e.g.:

2. a maximum distance from the common reference point used by the affected air traffic controller(s)/FIS officer(s)/AFIS officer(s), as applicable; and
 3. a maximum distance between the position indication as observed by the accepting air traffic controller/FIS officer/AFIS officer and the one stated by the transferring air traffic controller/FIS officer/AFIS officer.
- h) where applicable, issuance of an instruction to the aircraft by the transferring air traffic controller/FIS officer/AFIS officer to change SSR code and the observation of the change by the accepting controller; or
- i) issuance of an instruction to the aircraft by the transferring air traffic controller/FIS officer/AFIS officer to squawk/transmit “IDENT” and observation of this response by the accepting air traffic controller/FIS officer/AFIS officer;

Note1. Use of procedures d) and e) requires prior coordination between the air traffic controllers/FIS officers/AFIS officers, since the indications to be observed by the accepting air traffic controller/FIS officer/AFIS officer are of short duration.

Note 2. When applying this method of identification, the air traffic controller/FIS officer/AFIS officer should consider that some aircraft equipped with first generation ADS-B avionics do not have the capability of squawking IDENT while the emergency and/or urgency mode is selected.

8.2.6 POSITION INFORMATION

8.2.6.1 An aircraft provided with ATS surveillance service should be informed of its position in the following circumstances:

- a) upon identification, except when the identification is established:
 1. based on the pilot’s report of the aircraft position or within one nautical mile of the runway upon departure and the observed position on the situation display is consistent with the aircraft’s time of departure; or by use of ADS-B aircraft identification, Mode S aircraft identification or assigned discrete SSR codes and the location of the observed position indication is consistent with the current flight plan of the aircraft; or by transfer of identification;
- b) when the pilot requests this information;
- c) when a pilot’s estimate differs significantly from the controller’s estimate based on the observed position;
- d) when the pilot is instructed by the air traffic controller to resume own navigation after vectoring if the current instructions had diverted the aircraft from a previously assigned route,
- e) when air traffic control service is provided immediately before termination of ATS surveillance service, if the aircraft is observed to deviate from its intended route.

8.2.6.2 Position information shall be passed to aircraft in one of the following forms:

- a) as a well-known geographical position;
- b) magnetic track and distance to a significant point, an En-route navigation aid, or an approach aid;
- c) direction (using points of the compass) and distance from a known position;
- d) distance to touchdown, if the aircraft is on final approach; or
- e) distance and direction from the centre line of an ATS route.

8.2.6.3 Whenever practicable, position information shall relate to positions or routes pertinent to the navigation of the aircraft concerned and shown on the situation display map.

8.2.6.4 When so informed, the pilot may omit position reports at compulsory reporting points or report only over those reporting points specified by the air traffic services unit concerned, including points at which air-reports are required for meteorological purposes, pilots shall resume voice reporting:

- a) when so instructed;
- b) when advised that the ATS surveillance service has been terminated; or
- c) when advised that identification is lost.

8.2.7 VECTORING

8.2.7.1 Vectoring shall be achieved by issuing to the pilot specific headings which will enable the aircraft to maintain the desired track. When vectoring an aircraft, a controller shall comply with the following:

- a) whenever practicable, the aircraft shall be vectored along tracks on which the pilot can monitor the aircraft position with reference to pilot-interpreted navigation aids (this will minimize the amount of navigational assistance required and alleviate the consequences resulting from an ATS surveillance system failure);
- b) when an aircraft is given its initial vector diverting it from a previously assigned route, the pilot should be informed what the vector is to accomplish, and the limit of the vector should be specified when the assigned heading is such that a loss of communications may result in a safety risk (e.g. to ... position, for ... approach);

Note. CAA.IRI ATM/ANS ATS.OR.200 — Safety Management defines a safety risk as the predicted probability and severity of the consequences or outcomes of a hazard.

- c) Except when transfer of control is to be effected, aircraft should not be vectored closer than 5 NM or, where the minimum permissible separation is greater than 10 NM, a distance equivalent to one-half of the prescribed separation minimum, from the limit of the airspace for which the air traffic controller is responsible, unless local arrangements have been made to ensure that separation will exist with aircraft operating in adjoining areas;

note. the establishment of a limit of the airspace beyond which aircraft should not be vectored is to ensure that the prescribed separation minimum is achieved between controlled flights within adjoining volumes of controlled airspace without the need to effect coordination. Where a volume of controlled airspace is adjacent to uncontrolled airspace, there is no requirement to apply such a limit. However, competent authorities may set a limit beyond which aircraft should not be vectored in order to mitigate the risk of collision resulting from airspace infringement and the likelihood of ACAS nuisance alerting against aircraft operating close to the airspace boundary in uncontrolled airspace.

- d) controlled flights shall not be vectored into uncontrolled airspace except in the case of emergency or in order to circumnavigate adverse meteorological conditions (in which case the pilot should be so informed), or at the specific request of the pilot; and

Note 1. Flights may be vectored into “D and C” areas when they are not active.

Note 2. Flights may be vectored into the “R” areas according to the procedures indicated in the AIP and LATCIs.

Note 3. When a controlled flight has been vectored into uncontrolled airspace in an emergency or in order to circumnavigate adverse meteorological conditions, air traffic controllers may provide advice or issue clearances to the extent necessary to:

- (1) assist the aircraft in a state of emergency; or*
- (2) to permit the aircraft to rejoin controlled airspace once clear of the adverse meteorological conditions.*

Note 4. When an aircraft has been cleared to follow own navigation or accepts a vector in order to avoid adverse meteorological conditions, it should be requested to report when able to return its current flight plan.

- e) when an aircraft has reported unreliable directional instruments, the pilot shall be requested, prior to the issuance of manoeuvring instructions, to make all turns at an agreed rate and to carry out the instructions immediately upon receipt.

8.2.7.2 When vectoring an IFR flight and giving an IFR flight a direct routing which takes the aircraft off an ATS route, the controller shall issue clearances such that the prescribed obstacle clearances will exist at all times until the aircraft reaches the point when pilot resumes his own navigation.

Note. When an IFR flight is being vectored, the pilot may be unable to determine the aircraft’s exact position and consequently the altitude which provides the required obstacle clearance.

8.2.7.3 In terminating vectoring of an aircraft, the controller shall instruct the pilot to resume own navigation, giving the pilot the aircraft’s position and appropriate instructions, as necessary, in the form prescribed in position information procedures, if the current instructions had diverted the aircraft from a previously assigned route.

8.2.7.4 Special VFR flights should not be vectored unless special circumstances, such as emergencies, dictate otherwise.

8.2.7.5 Air traffic controllers should exercise caution when vectoring VFR flights so as to ensure that the aircraft concerned does not inadvertently enter instrument meteorological conditions (IMC).

8.2.7.6 When ATC provides vectors to a VFR flight or SVFR, the pilot retains responsibility for terrain clearance.

8.2.8 NAVIGATION ASSISTANCE

8.2.8.1 An identified aircraft observed to deviate significantly from its intended route or designated holding pattern shall be advised accordingly. Appropriate action shall also be taken if, in the opinion of the air traffic controller/FIS officer/AFIS officer, such deviation is likely to affect the service being provided.

8.2.8.2 The pilot of an aircraft requesting navigation assistance from an air traffic control unit providing ATS surveillance services shall state the reason (e.g. unreliable navigational instruments) and shall give as much information as possible in the circumstances.

8.2.8.3 Navigation assistance may be provided to VFR/SVFR flight as flight information service if so requested, provided that

- a) VFR flights must realize that they are responsible for remaining in VMC and meeting the obstacle clearance while receiving the service;
- b) SVFR flights must realize that they are responsible to maintain in visual reference terrain the obstacle clearance while receiving the service;
- c) navigational assistances issued to VFR aircraft normally include the phrase "Maintain VFR" at the end to reinforce the requirement.

Note1. ATC may not see an aircraft due to equipment limitation of either the radar system or the lack of transponder on an aircraft.

Note2. See 12.1.6 concerning procedures for Assistance to VFR flights.

Note 3. To provide Navigational Assistance to VFR/SVFR flights, if so requested by the pilot, radar vectors may be provided by the air traffic controller/FIS officer/AFIS officer. Sample phraseology may be:

FOR NAVIGATIONAL ASSISTANCE TURN LEFT 20 DEGREES REPORT WHEN (location) IN SIGHT.

8.2.9 INTERRUPTION OR TERMINATION OF ATS SURVEILLANCE SERVICE

8.2.9.1 An aircraft which has been informed that it is provided with ATS surveillance service should be informed immediately when, for any reason, the service is interrupted or terminated, except otherwise specified in Tehran ACC OM or LATCIs.

Note. A departing aircraft following a published SID may be identified below ATCSMAC and ATS surveillance control service will be provided above ATCSMAC, while other departure flights' identification shall be withheld until reaching the relevant ATCSMAC limitations.

8.2.9.2 When the control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, the radar air traffic controller/FIS officer/AFIS officer shall ensure that appropriate procedural separation is established between that aircraft and any other controlled aircraft before the transfer is affected.

8.2.10 MINIMUM LEVELS

8.2.10.1 The controller shall at all times be in possession of full and up-to-date information regarding:

- a) established minimum flight altitudes within the area of responsibility;
- b) the lowest usable flight level or levels determined.
- c) established minimum altitudes applicable to procedures based on tactical vectoring and direct routing, including the necessary temperature correction or method to correct the effect of low temperatures on minimum altitudes.

8.2.11 INFORMATION REGARDING ADVERSE WEATHER

8.2.11.1 If radar systems within Tehran FIR are not capable of detecting and displaying areas of adverse weather, circumnavigation of the adverse weather is the responsibility of the pilots. Pilots are required to advise air traffic controllers before any circumnavigation and returning to its cleared route.

8.2.11.2 If radar systems are capable of detecting and displaying areas of adverse weather:

- a) Information that an aircraft appears likely to penetrate an area of adverse weather should be issued in sufficient time to permit the pilot to decide on an appropriate course of action, including that of requesting advice on how best to circumnavigate the adverse weather area, if so desired.
- b) Depending on the capabilities of the ATS surveillance system, areas of adverse weather may not be presented on the situation display. An aircraft's weather radar will normally provide better detection and definition of adverse weather than radar sensors in use by air traffic services.
- c) In vectoring an aircraft for circumnavigating any area of adverse weather, the air traffic controller should ascertain that the aircraft can be returned to its intended or assigned flight path within the coverage of the ATS surveillance system and, if this does not appear possible, inform the pilot of the circumstances.

8.2.12 SEPARATION APPLICATION

Note 1. Factors which the controller using an ATS surveillance system must take into account in determining the spacing to be applied in particular circumstances in order to ensure that the separation minimum is not infringed include aircraft relative headings and speeds, ATS surveillance system technical limitations, controller workload and any difficulties caused by communication congestion.

Note 2. When necessary, the minimum radar separation values indicated below may be increased by Air Traffic Controllers in accordance with the traffic density and performance level of the radar equipment in use.

8.2.12.1 Except as provided for in Para 8.2.12.5, Para 8.2.12.6 and Para 8.5.1.5.2, the separation minima specified in Para 8.2.13 shall only be applied between identified aircraft when there is reasonable assurance that identification will be maintained.

8.2.12.2 When control of an identified aircraft is to be transferred to a control sector that will provide the aircraft with procedural separation, such separation shall be established by the transferring controller before the aircraft reaches the limits of the transferring controller's area of responsibility, or before the aircraft leaves the relevant area of surveillance coverage.

8.2.12.3 Separation based on the use of SSR and/or PSR position symbol and/or PSR blips shall be applied so that the distance between the centres of the position symbols and/or PSR blips, representing the positions of the aircraft concerned, is never less than a prescribed minimum.

8.2.12.4 In no circumstances shall the edges of the position indications touch or overlap unless vertical separation is applied between the aircraft concerned, irrespective of the type of position indication displayed and separation minimum applied.

8.2.12.5 In the event that the controller has been notified of a controlled flight entering or about to enter the airspace within which separation minima specified in 8.2.13 is applied, but has not identified the aircraft, the controller may continue if so prescribed by the air traffic services provider to provide ATS surveillance service to identified aircraft provided that:

- a) reasonable assurance exists that the unidentified controlled flight will be identified using SSR and/or ADS-B and/or MLAT or the flight is being operated by an aircraft of a type which may be expected to give an adequate return on primary radar in the airspace within which the separation is applied; and

- b) the separation is maintained between identified flights and any other observed ATS surveillance system position indications until either the unidentified controlled flight has been identified or procedural separation has been established.

8.2.12.6 The separation minima specified in Para 8.2.13 may be applied between an aircraft taking off and a preceding departing aircraft or other identified traffic provided there is reasonable assurance that the departing aircraft will be identified within 1 NM from the end of the runway, and that, at the time, the required separation will exist.

8.2.12.7 Separation minima specified in Para 8.2.13 shall not be applied between aircraft holding over the same holding fix. When applying radar separation between holding aircraft and other flights, the controller shall maintain identity of holding aircraft for the provision of separation minima based on radar to other flights. No doubt shall exist about the identity of holding aircraft for any reason when such separation is applied. The controller shall also keep in mind the likely manoeuvres of the holding aircraft during application of such separation.

8.2.13 SEPARATION MINIMA BASED ON ATS SURVEILLANCE SYSTEMS

8.2.13.1 En-route Separation except Para 8.2.13.2 Horizontal Separation: The minimum horizontal radar separation shall be 10NM except:

- a) the minimum radar longitudinal separation of 20NM shall be applied between aircraft cruising at the same flight level on the same route (in-trail) except some area as defined in Tehran ACC Operation Manual (OM) 10NM separation are authorized;
- b) the minimum radar separation for descending or climbing aircraft on the same tracks shall be 10 NM.

8.2.13.2 ESFAHAN, MASHHAD, SHIRAZ AND TEHRAN TMA/CTR SEPARATION.

Horizontal Separation: The minimum horizontal separation within 30 NM from TMA reference point (within “Tehran TMA/CTR” 40 NM) shall be 5 NM and beyond that up to TMA boundary shall be 10 NM.

Note. When necessary, the minimum radar separation values indicated in above paragraph may be increased by Air Traffic Controllers taking into account:

- a) the average runway occupancy time;
- b) braking action on the runway surface;
- c) wake turbulence criteria based on time;
- d) speed of flights on the final approach segment; and
- e) weather conditions including visibility and wind shear.

8.2.13.2.1 The following distance-based wake turbulence separation minima shall be applied to aircraft being provided with an ATS surveillance service in the approach and departure phases of flight in the circumstances given in 8.2.13.2.1.1.

Table 8-2 Wake turbulence separation based on distance

Aircraft category		Distance-based wake turbulence separation minima
Preceding aircraft	Succeeding aircraft	
Super	Heavy	5 NM
	Medium	7 NM
	Light	8 NM
Heavy	Heavy	4 NM
	Medium	5 NM
	Light	6 NM
Medium	Light	5 NM

8.2.13.2.1.1 The minima set out in Para 8.2.13.2.1 shall be applied when:

- an aircraft is operating directly behind another aircraft at the same altitude or less than 1000 ft below; or
- an aircraft is crossing behind another aircraft, at the same altitude or less than 1000 ft below.

Note. See figures 8-1.

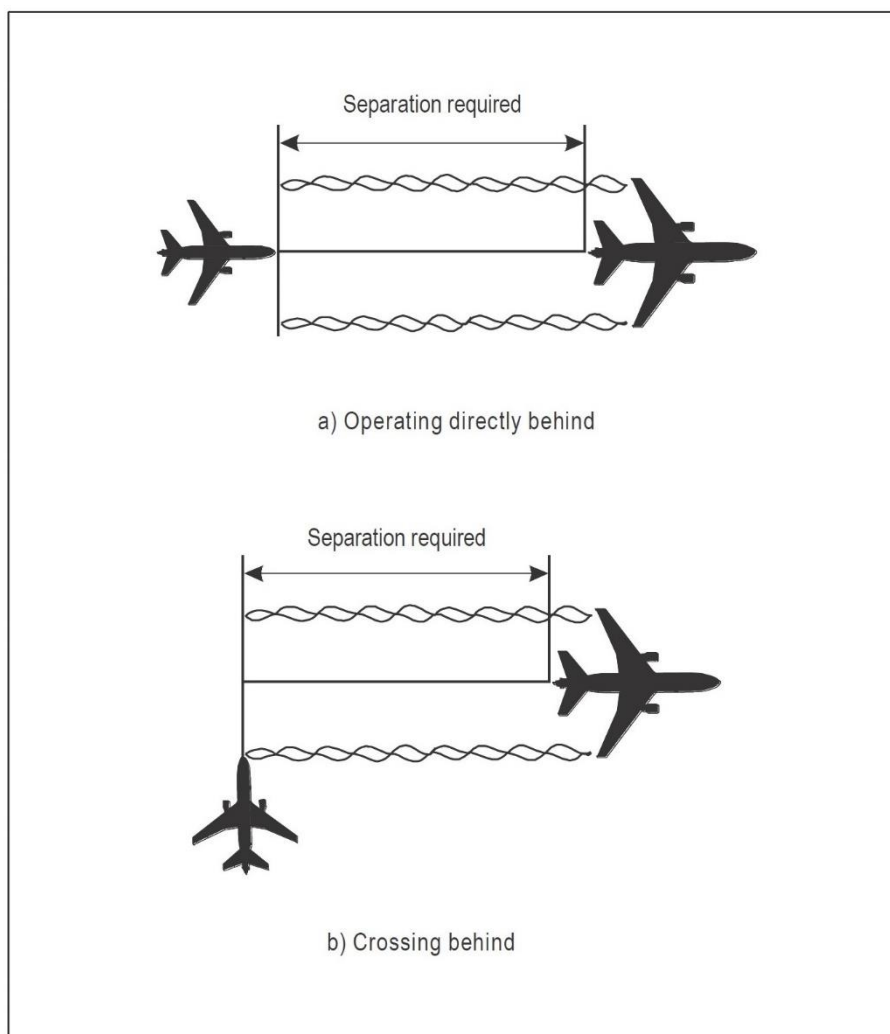


Figure 8-1 Operating directly behind or crossing behind

8.2.14 TRANSFER OF CONTROL

8.2.14.1 Where ATS surveillance service is being provided, transfer of control should be effected, whenever practicable, so as to enable the uninterrupted provision of ATS surveillance service.

8.2.14.2 Where SSR and/or ADS-B and/or MLAT is (are) used and the display of position indications with associated labels is provided for, transfer of control of aircraft between adjacent control positions or between adjacent ATC units may be effected without prior coordination, provided that:

- updated flight plan information on the aircraft about to be transferred, including the discrete assigned SSR Code or, with respect to Mode S and ADS-B, the aircraft identification, is provided to the accepting controller prior to transfer;
- radar coverage provided to the accepting controller is such that the aircraft concerned is presented on the situation display before the transfer is effected and is identified on, but preferably before, receipt of the initial call;
- when the controllers are not physically adjacent, two-way direct speech facilities, which permit communications to be established instantaneously, are available between them at all times;

Note. "Instantaneous" refers to communications which effectively provide for immediate access between controllers.

- d) the transfer point or points and all other conditions of application, such as direction of flight, specified levels, transfer of communication points, and especially an agreed minimum separation between aircraft, including that applicable to succeeding aircraft on the same route, about to be transferred as observed on the situation display, have been made the subject of specific instructions (for intra-unit transfer) or of a specific letter of agreement between two adjacent ATC units;
- e) the instructions or letter of agreement specify explicitly that the application of this type of transfer of control may be terminated at any time by the accepting controller, normally with an agreed advance notice; (for details see Tehran ACC operation manual (OM) and the relevant LATCIs).
- f) the accepting controller is informed of any level, speed or vectoring instructions given to the aircraft prior to its transfer and which modify its anticipated flight progress at the point of transfer.
- g) 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.

8.2.14.3 The minimum agreed separation between aircraft about to be transferred (Para 8.2.14.2 “d” refers) and the advance notice (Para 8.2.14.2 “e” refers) shall be determined taking into account all relevant technical, operational and other circumstances. If circumstances arise in which these agreed conditions can no longer be satisfied, controllers shall revert to the procedure in Para 8.2.14.4 until the situation is resolved. (for details see Tehran ACC operation manual (OM) and the relevant LATCIs).

8.2.14.4 Where primary radar is being used, and where SSR is employed but the provisions of Para 8.2.14.2 are not applied, the transfer of control of aircraft between adjacent control positions or between two adjacent ATS units may be effected, provided that:

- a) identification has been transferred to or has been established directly by the accepting controller;
- b) when the controllers are not physically adjacent, two-way direct-speech facilities between them are at all times available which permit communications to be established instantaneously;
- c) separation from other controlled flights conforms to the minima authorized for use during transfer of control between the sectors or units concerned;
- d) the accepting controller is informed of any level, speed or vectoring instructions applicable to the aircraft at the point of transfer;
- e) radio-communication with the aircraft is retained by the transferring controller until the accepting controller has agreed to assume responsibility for providing the ATS surveillance service to the aircraft. Thereafter, the aircraft should be instructed to changeover to the appropriate channel and from that point is the responsibility of the accepting controller.

8.2.14.5 Transfer of control based on the procedures specified in above may be carried out without systematic use of the bidirectional speech facilities available between the adjacent units concerned, provided that:

- a) the detailed conditions applicable for the transfer are the subject of a bilateral agreement; and
- b) the minimum distance between successive aircraft during the period of transfer is agreed as one of the following values:
 - i. 19 km (10 NM) when SSR information is used in accordance with the provisions of 8.2.14 , transfer of control , provided that an overlapping radar coverage of at least 56 km (30 NM) between units involved exists; or
 - ii. 9.3 km (5 NM) when the conditions of point (b)(1) apply and both units involved possess electronic aids for immediate recognition of release and acceptance of aircraft under radar transfer.

8.2.15 SPEED CONTROL

8.2.15.1 Radar controller, in order to facilitate sequencing and to facilitate a safe and orderly flow of traffic or to reduce the need for vectoring, may instruct aircraft to adjust their speed in a specified manner.

8.2.15.2 Speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum or spacing. Instructions involving frequent changes of speed, including alternate speed increases and decreases, should be avoided.

8.2.15.3 At levels below FL250, speed adjustments should be expressed in multiples of 10 kt based on indicated airspeed (IAS).

Note. When an aircraft is heavily loaded and at a high level, its ability to change speed may, in cases, be very limited.

8.2.15.4 Aircraft shall be advised when a speed control restriction is no longer required.

Phraseology:

NO [ATC] SPEED RESTRICTIONS.

Note. Cancellation of speed restriction by ATC does not include speed limitation of airspace classification, holding, IAP and minimum rate of climb based on feet per NM in SIDs.

8.2.15.5 In order to establish a desired spacing between two or more successive aircraft, the controller should first reduce the speed of the last aircraft, or increase the speed of the lead aircraft, then adjust the speed(s) of the other aircraft in order.

Note 1. For the purpose of calculating a desired speed differential between two succeeding aircraft, 6 kt IAS per 1000 ft height difference may be used as a general rule. At levels below 8000 ft the difference between IAS and TAS is negligible for speed control purposes.

Note 2. Time and distance required to achieve a desired spacing will increase with higher levels, higher speeds, and when the aircraft is in a clean configuration.

Note 3. The speed which is shown on the Radar label is the ground speed (GS).

8.2.15.6 An arriving aircraft may be instructed to maintain its “MAXIMUM SPEED”, “MINIMUM CLEAN SPEED”, “MINIMUM SPEED”, or a specified speed.

Note. “MINIMUM CLEAN SPEED” signifies the minimum speed at which an aircraft can be flown in a clean configuration, i.e. without deployment of lift-augmentation devices, speed brakes or landing gear.

8.2.15.7 Speed reductions to less than 250 kt IAS for turbojet aircraft during initial descent from cruising level should be applied only with the concurrence of the flight crew. An IAS not less than 210 knots, except when the aircraft is within 20 flying miles of the runway threshold of the airport of intended landing, an IAS not less than

- a) 90 knots for aircraft category A,
- b) 120 knots for aircraft category B,
- c) 160 knots for aircraft category C,
- d) 185 knots for aircraft category D/E

8.2.15.8 Instructions for an aircraft to simultaneously maintain a high rate of descent and reduce its speed should be avoided as such maneuvers are normally not compatible. Any significant speed reduction during descent may require the aircraft to temporarily level off to reduce speed before continuing descent.

8.2.15.9 Arriving aircraft should be permitted to operate in a clean configuration for as long as possible. Below FL 150, speed reductions for turbojet aircraft to not less than 220 kt IAS, which will normally be very close to the minimum speed of turbojet aircraft in a clean configuration, may be used.

8.2.15.10 Only minor speed adjustments not exceeding plus/minus 20 kt IAS should be used for aircraft on intermediate and final approach.

Section 3

USE OF RADAR IN THE APPROACH CONTROL SERVICE

8.3.1 GENERAL PROVISION

8.3.1.1 ATS surveillance systems used in the provision of approach control service shall be appropriate to the functions and level of service to be provided.

In addition to the functions listed in point 8.1.3.3 the position indications presented on a situation display may be used to perform one or more of the following functions in the provision of approach control service:

- a) provide vectoring of arriving traffic on to pilot-interpreted final approach aids;
- b) provide flight path monitoring of parallel ILS approaches and instruct aircraft to take appropriate action in the event of possible or actual penetrations of the no transgression zone (NTZ);
- c) provide vectoring of arriving traffic to a point from which a visual approach can be completed;
- d) provide vectoring of arriving traffic to a point from which a surveillance radar approach can be made;
- e) provide flight path monitoring of other pilot-interpreted instrument approach procedure;
- f) in accordance with prescribed procedures, conduct surveillance radar approaches; and
- g) provide separation between:
 - i. succeeding departing aircraft;
 - ii. succeeding arriving aircraft; and
 - iii. a departing aircraft and a succeeding arriving aircraft.

8.3.2 GENERAL APPROACH CONTROL PROCEDURES USING ATS SURVEILLANCE SYSTEMS:

8.3.2.1 The aerodrome controller shall be kept informed of the sequence of arriving aircraft by the approach radar controller, as well as any instructions and restrictions which have been issued to such aircraft in order to maintain separation after transfer of control to the aerodrome controller.

8.3.2.2 Prior to, or upon commencement of, vectoring for approach, the pilot shall be advised of the type of approach as well as the runway to be used.

8.3.2.3 The controller shall advise an aircraft being vectored for an instrument approach of its position at least once prior to commencement of final approach.

8.3.2.4 When giving distance information, the controller shall specify the point or navigation aid to which the information refers.

8.3.2.5 The initial and intermediate approach phases of an approach executed under the direction of a controller comprises those parts of the approach from the time vectoring is initiated for the purpose of positioning the aircraft for a final approach, until the aircraft is on final approach and:

- a) established on the final approach path of a pilot-interpreted aid; or
- b) reports that it is able to complete a visual approach; or
- c) ready to commence a surveillance radar approach.

8.3.2.6 Aircraft vectored for final approach should be given a heading or a series of headings calculated to close with the final approach track. The final vector shall enable the aircraft to be established on the final approach track prior to intercepting the specified or nominal glide path, of the approach procedure from below and should provide an intercept angle with the final approach track of 45 degrees or less.

8.3.2.7 Whenever an aircraft is assigned a vector which will take it through the final approach track, it should be advised accordingly, stating the reason for the vector.

8.3.3 VECTORIZING TO PILOT-INTERPRETED FINAL APPROACH AID

8.3.3.1 An aircraft vectored to intercept a pilot-interpreted final approach aid shall be instructed to report when established on the final approach track. Clearance for the approach should be issued prior to when the aircraft reports established, unless circumstances preclude the issuance of the clearance at such time. Vectoring will normally terminate at the time the aircraft leaves the last assigned heading to intercept the final approach track.

When clearance for the approach is issued, aircraft is expected maintain the last assigned level until intercepting the specified or nominal glide path of the approach procedure. If ATC requires an aircraft to intercept the glide path at a level other than a level flight segment depicted on the instrument approach chart, ATC shall instruct the pilot to maintain the particular level until established on the glide path.

8.3.3.2 The controller shall be responsible for maintaining separation specified in 8.2.13.2 between succeeding aircraft on the same final approach.

8.3.3.3 Transfer of control of succeeding aircraft on final approach to the aerodrome controller shall be effected in accordance with procedures prescribed in the relevant LATCIs.

Note. See also Para 8.2.9.2.

8.3.3.4 Transfer of communications to the aerodrome controller should be effected at such a point or time that clearance to land or alternative instructions can be issued to the aircraft in a timely manner.

8.3.4 VECTORIZING FOR VISUAL APPROACH

8.3.4.1 The controller may initiate vectoring of an aircraft for visual approach provided the reported ceiling is above the minimum altitude applicable to vectoring and meteorological conditions are such that, with reasonable assurance, a visual approach and landing can be completed.

8.3.4.2 Clearance for visual approach shall be issued only after the pilot has reported the aerodrome or the preceding aircraft in sight, at which time vectoring would normally be terminated.

Section 4

USE OF ATS SURVEILLANCE SYSTEMS IN THE AERODROME CONTROL SERVICE

8.4.1 Where deemed necessary, in the absence of visual observation of all or part of the manoeuvring area or to supplement visual observation, advanced surface movement guidance and control systems (A-SMGCS) or other suitable surveillance equipment, shall be utilised by the air traffic services unit in order to:

- a) monitor the movements of aircraft and vehicles on the manoeuvring area;
- b) provide directional information to pilots and vehicle drivers as necessary;
- c) provide advice and assistance for the safe and efficient movement of aircraft and vehicles on the manoeuvring area.

8.4.2 The information displayed on an SMR display may be used to assist in:

- a) monitoring of aircraft and vehicles on the manoeuvring area for compliance with clearances and instructions;
- b) determining that a runway is clear of traffic prior to a landing or take-off;
- c) providing information on essential local traffic on or near the manoeuvring area;
- d) determining the location of aircraft and vehicles on the manoeuvring area;
- e) providing directional taxi information to aircraft when requested by the pilot or deemed necessary by the air traffic controller. Except under special circumstances, e.g. emergencies, such information should not be issued in the form of specific heading instructions; and
- f) providing assistance and advice to emergency vehicles.

8.4.3 When authorised and subject to conditions prescribed by CAA.IRI, the information provided on an A-SMGCS display may be used for the purpose of:

- a) determining the location of aircraft on the movement area and vehicles on the manoeuvring area. Where visual observation by the aerodrome air traffic controller is not possible, or whenever deemed beneficial by the aerodrome air traffic controller, the information provided by A-SMGCS may be used to replace visual observation;
- b) monitoring of aircraft and vehicles on the manoeuvring area for compliance with clearances and instructions;
- c) determining that a runway is clear of traffic or assisting in the assessment that a runway will be clear of traffic prior to a landing or take-off;
- d) providing information on essential local traffic on or near the manoeuvring area;
- e) providing directional taxi information to aircraft when requested by the pilot or deemed necessary by the air traffic controller. Such information should not be issued in the form of specific heading instructions (except in special circumstances, e.g. emergencies); and
- f) providing assistance and advice to emergency vehicles.

8.4.4 Functions in the aerodrome control service

8.4.4.1 When authorised and subject to procedures and conditions prescribed by the air traffic services provider, ATS surveillance systems may be used in the provision of aerodrome control service to perform the following functions:

- a) flight path monitoring of aircraft on final approach;
- b) flight path monitoring of other aircraft in the vicinity of the aerodrome;
- c) establishing an appropriate longitudinal and/or distance-based separation based on ATS surveillance systems in between succeeding departing aircraft;
- d) maintaining separation between succeeding aircraft on the same final approach; and
- e) providing navigation assistance to VFR flights

8.4.4.2 In prescribing conditions and procedures for the use of ATS surveillance systems in the provision of aerodrome control service, the air traffic services provider should ensure that the availability and use of an ATS surveillance system will not be detrimental to visual observation of aerodrome traffic.

Section 5

PROVISION OF ATS SURVEILLANCE SERVICE IN ABNORMAL SITUATION

8.5.1 EMERGENCIES, HAZARDS AND EQUIPMENT FAILURES

8.5.1.1 EMERGENCIES

8.5.1.1.1 In the event of an aircraft in, or appearing to be in, any form of emergency, every assistance shall be provided by the air traffic controller/FIS officer/AFIS officer, and the procedures prescribed herein may be varied according to the situation.

8.5.1.1.2 The progress of an aircraft in emergency shall be monitored and (whenever possible) plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system, and position information shall be provided to all air traffic services units which may be able to give assistance to the aircraft. Transfer to adjacent sectors shall also be effected when appropriate.

Note. If the pilot of an aircraft encountering a state of emergency has previously been directed by ATC to select a specific transponder code, that code/mode will normally be maintained unless, in special circumstances, the pilot has decided or has been advised otherwise. Where ATC has not requested a code or emergency mode to be set, the pilot will set the transponder to Mode A Code 7700 emergency mode.

8.5.1.2 UNLAWFUL INTERFERENCE AND AIRCRAFT BOMB THREAT

8.5.1.2.1 Air traffic services personnel shall be prepared to recognize any indication of the occurrence of unlawful interference with an aircraft.

8.5.1.2.2 Whenever unlawful interference with an aircraft is suspected, and where automatic distinct display of SSR Mode A Code 7500 and Code 7700 is not provided, the air traffic controller/FIS officer/AFIS officer shall attempt to verify any suspicion by setting the SSR decoder to Mode A Code 7500 and thereafter to Code 7700.

Note. An aircraft equipped with an SSR transponder is expected to operate the transponder on Mode A Code 7500 to indicate specifically that it is the subject of unlawful interference. The aircraft may operate the transponder on Mode A Code 7700, to indicate that it is threatened by grave and imminent danger and requires immediate assistance. An aircraft equipped with other surveillance system transmitters, including ADS-B and ADS-C, might send the emergency and/or urgency signal by all of the available means.

8.5.1.2.3 Whenever unlawful interference with an aircraft is known or suspected or a bomb threat warning has been received, ATS units shall promptly attend to requests by, or to anticipated needs of, the aircraft, including requests for relevant information relating to air navigation facilities, procedures and services along the route of flight and at any aerodrome of intended landing, and shall take such action as is necessary to expedite the conduct of all phases of the flight.

8.5.1.2.3.1 ATS units shall also:

- a) transmit, and continue to transmit, information pertinent to the safe conduct of the flight, without expecting a reply from the aircraft;
- b) monitor and plot the progress of the flight with the means available, and coordinate transfer of control with adjacent ATS units without requiring transmissions or other responses from the aircraft, unless communication with the aircraft remains normal;

- c) inform, and continue to keep informed, appropriate ATS units, including those in adjacent FIRs, which may be concerned with the progress of the flight;

Note. In applying this provision, account must be taken of all the factors which may affect the progress of the flight, including fuel endurance and the possibility of sudden changes in route and destination. The objective is to provide, as far in advance as is practicable in the circumstances, each ATS unit with appropriate information as to the expected or possible penetration of the aircraft into its area of responsibility.

- d) notify:

1. the operator or its designated representative;
2. the appropriate rescue coordination centre in accordance with appropriate alerting procedures;
3. the appropriate authority designated by the State;

Note. It is assumed that the designated security authority and/or the operator will in turn notify other parties concerned in accordance with pre-established procedures.

- e) relay appropriate messages, relating to the circumstances associated with the unlawful interference, between the aircraft and designated authorities.

Note. These messages include, but are not limited to initial messages declaring an incident; update messages on an existing incident; messages containing decisions made by appropriate decision makers; messages on transfer of responsibility; messages on acceptance of responsibility; messages indicating that an entity is no longer involved in an incident; and messages closing an incident.

8.5.1.2.4 The following additional procedures shall apply if a threat is received indicating that a bomb or other explosive device has been placed on board a known aircraft. The ATS unit receiving the threat information shall:

- a) if in direct communication with the aircraft, advise the flight crew without delay of the threat and the circumstances surrounding the threat; or
- b) if not in direct communication with the aircraft, advise the flight crew by the most expeditious means through other ATS units or other channels.

8.5.1.2.5 The ATS unit in communication with the aircraft shall ascertain the intentions of the flight crew and report those intentions to other ATS units which may be concerned with the flight.

8.5.1.2.6 The aircraft shall be handled in the most expeditious manner while ensuring, to the extent possible, the safety of other aircraft and that personnel and ground installations are not put at risk.

8.5.1.2.7 Aircraft in flight shall be given re-clearance to a requested new destination without delay. Any request by the flight crew to climb or descend for the purpose of equalizing or reducing the differential between the outside air pressure and the cabin air pressure shall be approved as soon as possible.

8.5.1.2.8 An aircraft on the ground should be advised to remain as far away from other aircraft and installations as possible and, if appropriate, to vacate the runway. The aircraft should be instructed to taxi to a designated or isolated parking area in accordance with local instructions. Should the flight crew disembark passengers and crew immediately, other aircraft, vehicles and personnel should be kept at a safe distance from the threatened aircraft.

8.5.1.2.9 ATS units shall not provide any advice or suggestions concerning action to be taken by the flight crew in relation to an explosive device.

8.5.1.2.10 An aircraft known or believed to be the subject of unlawful interference or which for other reasons needs isolation from normal aerodrome activities shall be cleared to the designated isolated parking position. Where such an isolated parking position has not been designated, or if the designated position is not available, the aircraft shall be cleared to a position within the area or areas selected by prior agreement with the aerodrome authority. The taxi clearance shall specify the taxi route to be followed to the parking position. This route shall be selected with a view to minimizing any security risks to the public, other aircraft and installations at the aerodrome.

8.5.1.3 SHORT-TERM CONFLICT ALERT (STCA) PROCEDURES

Note 1. The generation of short-term conflict alerts is a function based on surveillance data, integrated into an ATC system. The objective of the STCA function is to assist the controller in preventing collision between aircraft by generating, in a timely manner, an alert of a potential or actual infringement of separation minima.

Note 2. In the STCA function the current and predicted three-dimensional positions of aircraft with pressure-altitude reporting capability are monitored for proximity. If the distance between the three-dimensional positions of two aircraft is predicted to be reduced to less than the defined applicable separation minima within a specified time period, an acoustic and/or visual alert will be generated to the controller within whose jurisdiction area the aircraft is operating.

8.5.1.3.1 Local instructions concerning use of the STCA function are specified in the Tehran operation manual and LATCIs, inter alia:

- a) the types of flight which are eligible for generation of alerts;
- b) the sectors or areas of airspace within which the STCA function is implemented;
- c) the method of displaying the STCA to the controller;
- d) in general terms, the parameters for generation of alerts as well as alert warning time;
- e) the volumes of airspace within which STCA can be selectively inhibited and the conditions under which this will be permitted;
- f) conditions under which specific alerts may be inhibited for individual flights; and
- g) procedures applicable in respect of volume of airspace or flights for which STCA or specific alerts have been inhibited.

8.5.1.3.2 In the event an STCA is generated in respect of controlled flights, the controller shall without delay assess the situation and, if necessary, take action to ensure that the applicable separation minimum will not be infringed or will be restored.

8.5.1.3.3 Following the generation of an STCA, controllers should be required to complete an air traffic incident report only in the event that a separation minimum was infringed.

8.5.1.4 MINIMUM SAFE ALTITUDE WARNING (MSAW) PROCEDURES

Note 1. The generation of minimum safe altitude warnings is a function of an ATC radar data-processing system. The objective of the MSAW function is to assist in the prevention of controlled flight into terrain accidents by generating, in a timely manner, a warning of the possible infringement of a minimum safe altitude.

Note 2. In the MSAW function, the reported levels from aircraft with pressure-altitude reporting capability are monitored against defined minimum safe altitudes. When the level of an aircraft is detected or predicted to be less than the applicable minimum safe altitude, an acoustic and visual warning will be generated to the controller within whose jurisdiction area the aircraft is operating.

8.5.1.4.1 Local instructions concerning use of the MSAW function are specified in the Tehran operation manual and LATCIs, inter alia:

- a) the types of flight which are eligible for generation of MSAW;
- b) the sectors or areas of airspace for which MSAW minimum safe altitudes have been defined and within which the MSAW function is implemented;
- c) the values of the defined MSAW minimum safe altitudes;
- d) the method of displaying the MSAW to the controller;
- e) the parameters for generation of MSAW as well as warning time; and
- f) conditions under which the MSAW function may be inhibited for individual aircraft tracks as well as procedures applicable in respect of flights for which MSAW has been inhibited.

8.5.1.4.2 In the event an MSAW is generated in respect of a controlled flight, the following action shall be taken without delay:

- a) if the aircraft is being vectored, the aircraft shall be instructed to climb immediately to the applicable safe level and, if necessary to avoid terrain, be assigned a new heading;
- b) in other cases, the flight crew shall immediately be advised that a minimum safe altitude warning has been generated and be instructed to check the level of the aircraft.

8.5.1.4.3 Following an MSAW event, controllers should complete an air traffic incident report only in the event that a minimum safe altitude was unintentionally infringed with a potential for controlled flight into terrain by the aircraft concerned.

8.5.1.5 COLLISION HAZARD INFORMATION

8.5.1.5.1 When an identified controlled flight is observed to be on a conflicting path with an unknown aircraft deemed to constitute a collision hazard, the pilot of the controlled flight shall, whenever practicable:

- a) be informed of the unknown aircraft and if so requested by the controlled flight or, if in the opinion of the controller the situation warrants, a course of avoiding action should be suggested; and
- b) be notified when the conflict no longer exists.

8.5.1.5.2 When an identified IFR flight operating outside controlled airspace is observed to be on a conflicting path with another aircraft, the pilot should:

- a) be informed as to the need for collision avoidance action to be initiated, and if so requested by the pilot or if, in the opinion of the controller, the situation warrants, a course of avoiding action should be suggested; and
- b) be notified when the conflict no longer exists.

8.5.1.5.3 In both cases mentioned in Para 8.5.1.5.1 and Para 8.5.1.5.2 the decision whether to comply with ATC suggestion or not, rests with the pilot.

8.5.1.5.4 Information regarding traffic on a conflicting path should be given, whenever practicable, in the following form:

- a) relative bearing of the conflicting traffic in terms of the 12-hour clock;

Note. In cases where using the terms of the 12-hour clock is not practicable, like when the aircraft is turning, the direction of the unknown aircraft may be given by compass points, e.g. northwest, south, etc.

- b) distance from the conflicting traffic in nautical miles;
- c) direction in which the conflicting traffic appears to be proceeding; such as closing (from left/right), opposite (or same) direction, overtaking, crossing left to right (or right to left),
- d) level, climbing or descending and type of aircraft or, if unknown, relative speed of the conflicting traffic, e.g. slow moving, fast moving.

Note. The level may be described either as a flight level, altitude or height, or as a relative vertical distance from the aircraft provided with traffic information (e.g. 1 000 ft above or 1 000 ft below).

8.5.1.5.5 Pressure altitude-derived level information, even when unverified, should be used in the provision of collision hazard information because such information, particularly if available from an otherwise unknown aircraft (e.g. a VFR flight) and given to the pilot of a known aircraft, could facilitate the location of a collision hazard.

8.5.1.5.5.1 When the pressure altitude-derived level information has been verified, the information shall be passed to pilots in a clear and unambiguous manner. If the level information has not been verified, the accuracy of the information should be considered uncertain and the pilot shall be informed accordingly.

8.5.1.6 FAILURE OF EQUIPMENT

Note. Detailed procedures regarding failure of equipment are contained in the Tehran operational manual (OM) and relevant LATCIs.

8.5.1.6.1 Aircraft Radio Transmitter Failure

8.5.1.6.1.1 If two-way communication is lost with an aircraft, the air traffic controller/FIS officer/AFIS officer should determine whether or not the aircraft's receiver is functioning by instructing the aircraft on the channel so far used to acknowledge by making a specified manoeuvre and by observing the aircraft's track, or by instructing the aircraft to operate IDENT or to make SSR code transmission changes.

Note. Transponder-equipped aircraft experiencing radio-communication failure will operate the transponder on Mode A Code 7600.

8.5.1.6.1.2 If the action prescribed in Para 8.5.1.6.1.1 is unsuccessful, it shall be repeated on any other available channel on which it is believed that the aircraft might be listening.

8.5.1.6.1.3 In both the cases covered by Para 8.5.1.6.1.1 and Para 8.5.1.6.1.2, any manoeuvring instructions shall be such that the aircraft would regain its current cleared track after having complied with the instructions received.

8.5.1.6.1.4 Where it has been established by the action in Para 8.5.1.6.1.1 that the aircraft's radio receiver is functioning, continued control can be effected using "SSR code transmission changes" or "IDENT" transmissions to obtain acknowledgement of clearances issued to the aircraft.

8.5.1.6.2 Aircraft Transponder Failure:

8.5.1.6.2.1 When an aircraft experiencing transponder failure after departure the ATC units concerned should endeavour to provide for continuation of the flight to the aerodrome of first intended landing in accordance with the flight plan. However, in certain traffic situations, either in terminal areas or En-route, continuation of the flight may not be possible, particularly when failure is detected shortly after take-off. The aircraft may then be required to return to the departure aerodrome or to land at the nearest suitable aerodrome acceptable to the operator concerned and to ATC.

8.5.1.6.2.2 In case of a transponder failure which is detected before departure from an aerodrome where it is not practicable to effect a repair, the aircraft concerned should be permitted to proceed, as directly as possible, to the nearest suitable aerodrome where repair can be made. When granting clearance to such aircraft, ATC should take into consideration the existing or anticipated traffic situation and may have to modify the time of departure, flight level or route of the intended flight. Subsequent adjustments may become necessary during the course of the flight.

8.5.1.6.3 ATS surveillance system failure:

8.5.1.6.3.1 In the event of complete failure of the ATS surveillance system where air-ground communications remain, the controller shall determine the position of all aircraft already identified, take the necessary action to establish procedural separation between the aircraft and, if necessary, limit the number of aircraft permitted to enter the area.

8.5.1.6.3.2 As an emergency measure, in the event of complete failure of the ATS surveillance system, where air-ground communications remain, use of flight levels spaced by half the applicable vertical separation minimum may be resorted to temporarily if standard procedural separation cannot be provided immediately.

8.5.1.6.4 Degradation of aircraft position source data:

8.5.1.6.4.1 In order to reduce the impact of a degradation of aircraft position source data, for example, a receiver autonomous integrity monitoring (RAIM) outage for GNSS, the air traffic services provider shall establish the contingency procedures that are detailed in the Tehran operational manual (OM) and relevant LATCIs and will be followed by ATC units.

8.5.1.6.5 Ground radio failure:

8.5.1.6.5.1 In the event of complete failure of the ground radio equipment used for control, the controller shall, unless able to continue to provide the ATS surveillance service by means of other available communication channels, proceed as follows:

- a) without delay inform all adjacent control positions or ATC units, as applicable, of the failure;
- b) appraise such positions or units of the current traffic situation;
- c) request their assistance, in respect of aircraft which may establish communications with those positions or units, in establishing and maintaining separation between such aircraft; and
- d) instruct adjacent control positions or ATC units to hold or reroute all controlled flights outside the area of responsibility of the position or ATC unit that has experienced the failure until such time that the provision of normal services can be resumed.

Section 6

USE OF ATS SURVEILLANCE SYSTEMS IN THE FLIGHT INFORMATION SERVICE

8.6.1 The information presented on a situation display may be used to provide identified aircraft with information:

- a) regarding any aircraft observed to be on a conflicting path with the identified aircraft and suggestions or advice regarding avoiding action;
- b) on the position of significant weather and, as practicable, advice to the aircraft on how best to circumnavigate any such areas of adverse weather. When doing so, attention is to be paid to the fact that under certain circumstances the most active area of adverse weather may not be displayed; and
- c) to assist the aircraft in its navigation.

Note. The use of ATS surveillance system in the provision of flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities, including the final decision regarding any suggested alteration of the flight plan. The pilot must advise the air traffic controllers/FIS officer/AFIS officer before changing level or route.

8.6.2 Radar information Service is a service in which the air traffic controllers/FIS officer/AFIS officer will inform identified aircraft of the bearing, distance, and, if known, the level of the conflicting traffic. Avoiding action may be offered. The pilot is wholly responsible for maintaining separation from other aircraft whether or not the air traffic controllers/FIS officer/AFIS officer has passed traffic information, and also remains responsible for terrain clearance.

8.6.3 When an identified IFR flight operating outside controlled airspace is observed to be on a conflicting path with another aircraft, the pilot should:

- a) be informed as to the need for collision avoidance action to be initiated, and if so requested by the pilot or if, in the opinion of the controller, the situation warrants, a course of avoiding action should be suggested; and
- b) be notified when the conflict no longer exists.

8.6.4 Radar information service to VFR flight should only be provided upon the request of the pilot and concurrence of the air traffic controllers/FIS officer/AFIS officer.

Note 1. Since ATS surveillance systems in Tehran FIR are not capable of detecting and displaying areas of adverse weather including CB and TCU clouds as well as their relative and exact positions, circumnavigating the adverse weather areas is the responsibility of pilots.

Note 2. See 8.2.8.3

Chapter 9 . VISUAL FLIGHT RULES (VFR)

Section 1

FIXED WINGS AIRCRAFT

9.1.1 Except when operating as a special VFR flight, VFR flights shall be conducted so that the aircraft is flown in conditions of visibility and distance from clouds equal to or greater than those specified in table 9-1.

9.1.2 Except when a special VFR clearance is obtained from an air traffic control unit, VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

- a) when the ceiling is less than 1500 FT; or
- b) when the ground visibility is less than 5 km.

Note. See also table 1 in AIP ENR 1-2.

9.1.3 In controlled aerodromes with only ATZ, fixed wing VFR flights shall not take off or land, enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

- a) the ceiling is less than 450 m (1 500 ft); or
- b) the ground visibility is less than 5 km

9.1.4 VFR operation at night

VFR flights shall not be operated at night. VFR flights may be authorized to operate during night subject to prior coordination with the CAA.IRI.

Note. See also SIRA.5005.

Note1. Night means The hours between the end of evening civil twilight and the beginning of morning civil twilight.

Note2. Civil twilight ends in the evening when the centre of the sun's disc is 6 degrees below the horizon and begins in the morning when the centre of the sun's disc is 6 degrees below the horizon, for Morning/ Evening Twilight tables see AIP, GEN 2.7.

9.1.5 Unless authorized by the CAA.IRI, VFR flights shall not be operated:

- a) Above FL 200;
- b) At transonic and supersonic speeds.

Note 1. No VFR flights is permitted into RVSM airspace.

Note 2. See also SIRA.

9.1.6 Except when necessary for take-off or landing, or except by permission from the CAA.IRI, a VFR flight during daylight shall not be flown:

- a) Over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300m (1000 FT) above the highest obstacle within a radius of 600 M from the aircraft;
- b) Elsewhere than as specified above at a height less than 150m (500 FT) above the ground or water, or 150m (500 ft) above the highest obstacle within a radius of 150m from the aircraft.

9.1.7 Except when necessary for take-off or landing, or except by permission from the CAA.IRI, a VFR flight at night shall not be flown:

- a) over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;
- b) elsewhere than as specified in a), at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.

9.1.8 Except where otherwise indicated in air traffic control clearances or specified by ANSP, VFR flights in level cruising flight when operated above 3000 FT from the ground or water shall be conducted at a flight level appropriate to the track as specified in the tables of cruising levels.

9.1.9 VFR flights shall comply with the provisions of air traffic control service:

- a) when operating within Classes “B”, “C” and “D” airspaces;
- b) when forming part of aerodrome traffic at controlled aerodromes; or
- c) when operating as special VFR flights.

9.1.10 VFR flights operating in class G airspace shall comply with the provisions of Chapter 11, Section 1 and 2.

9.1.11 An aircraft operating in accordance with the visual flight rules which wish to change to compliance with the instrument flight rules shall communicate the necessary changes to be effected to its current flight plan for the approval by the related ATS unit.

Table 9-1 Fixed wings aircraft

Altitude band	Airspace class	Flight visibility	Distance from cloud
At and above 10000 ft AMSL	A (**) B C D E F G	8 km	1500 m horizontally 1000 ft vertically
Below 10000 ft AMSL, and above 3000 ft AMSL, or above 1000 ft above terrain, whichever is the higher	A (**) B C D E F G	5 km	1500 m horizontally 1000 ft vertically
At and below 3000 ft AMSL, or 1000 ft above terrain, whichever is the higher.	A (**) B C D E	5 km	1500 m horizontally 1000 ft vertically
	F, G	5 km	Clear of cloud and with the surface in sight

**When the height of the transition altitude is lower than 10000 ft AMSL, FL100 should be used in lieu of 10000 ft*

(**) The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.

Note. Operator/pilot shall use "RMK/ Night VFR" for Night VFR flight in —ITEM 18: OTHER INFORMATION" of flight plan.

9.1.12 Ground visibility is not considered within classes F, G airspaces

9.1.13 SUSPENSION OF VISUAL FLIGHT RULES OPERATIONS

9.1.13.1 Any or all VFR operations on and in the vicinity of an aerodrome may be suspended by any of the following units, persons or authorities whenever safety requires such action:

- a) the approach control unit or the Tehran ACC;
- b) the aerodrome control tower;
- c) CAA.IRI.

9.1.13.2 All such suspensions of VFR operations shall be accomplished through or notified to the aerodrome control tower.

9.1.13.3 The following procedures shall be observed by the aerodrome control tower whenever VFR operations are suspended:

- a) hold all VFR departures;
- b) recall all local flights operating under VFR or obtain approval for special VFR operations;
- c) notify the approach control unit or ACC as appropriate of the action taken;
- d) notify all operators, or their designated representatives, of the reason for taking such action, if necessary or requested.

Note. VFR flights shall avoid to penetrate an aerodrome traffic zone unless prior permission has been obtained from the relevant ATS unit. Controllers may advise pilots to change to the published aerodrome RT frequency.

Section 2

HELICOPTERS

9.2.1 Rotary-wing flight characteristics mean that helicopter operations at aerodromes can differ significantly from fixed-wing operations. These paragraphs describe standard phraseology and procedures to address the different requirements for a helicopter lifting, taxiing, taking-off, and landing (including the approach and departure phases), particularly at aerodromes where rotary-wing and fixed-wing operations are integrated.

9.2.2 Standard phraseology should be used in all situations for which it is specified. When standard phraseology cannot serve an intended transmission, plain language should be used. The use of plain language may further assist when describing rotary-wing aircraft manoeuvres. Care should be exercised to ensure that all parties involved achieve clear understanding.

9.2.3 Phraseology and procedures are described below for helicopters taxiing for departure, or after landing, or for general manoeuvring on the aerodrome. Phraseology and procedures for specific manoeuvring on the aerodrome, for example for training purposes, should be described in relevant LATCIs.

9.2.4 “HOVER” describes a manoeuvre where the helicopter holds position whilst airborne in ground effect, waiting to proceed. Hover allows spot/axial turns (i.e. about the central axis of the helicopter). When required, further instructions should subsequently be transmitted to permit the helicopter to proceed.

9.2.5 The term “AIR TAXI” shall be used when it is necessary for a helicopter to proceed at a slow speed above the surface, normally below 20 knots and in ground effect.

Note. Helicopters will be routed to avoid over flying parked aircraft, vehicles or loose ground equipment.

9.2.6 When necessary for a wheeled helicopter to taxi on the surface The instruction “GROUND TAXI” shall be used for the movement of a helicopter, in contact with the surface of the aerodrome, under its own power to reduce rotor downwash.

Note 1. Ground taxiing uses less fuel than air-taxiing and minimizes air turbulence. However, under certain conditions, such as rough, soft or uneven terrain, it may become necessary to air-taxi for safety considerations. Helicopters with articulating rotors (usually designs with three or more main rotor blades) are subject to “ground resonance” and may, on rare occasions, suddenly lift off the ground to avoid severe damage or destruction.

Note 2. Air-taxiing consumes fuel at a high burn rate, and helicopter downwash turbulence (produced in ground effect) increases significantly with larger and heavier helicopters.

Note 3. Helicopters produce vortices when in flight and there is some evidence that, per kilogram of gross mass, their vortices are more intense than those of fixed-wing aircraft. When hovering in ground effect or air taxiing, helicopters generate downwash producing high velocity outwash vortices to a distance approximately three times the diameter of the rotor.

9.2.7 An instruction to “TAXI” leaves the pilot free to select the most appropriate method, either ground taxi or air taxi. Pilots and controllers should use air taxi or ground taxi when required to differentiate between air taxiing and ground taxiing (for helicopters equipped with wheels). Air taxiing helicopters shall be issued with detailed taxi routes and instructions as appropriate to prevent collisions with other aircraft and vehicles. Helicopters are expected to follow procedures/routes on aerodromes appropriate to aeroplanes unless otherwise authorized.

9.2.8 ATC units should avoid issuing instructions that result in taxiing helicopters coming into close proximity with small aircraft or other helicopters and should give consideration to the effect of turbulence from taxiing helicopters on arriving and departing light aircraft.

9.2.9 For a helicopter taxiing, the instruction “HOLD” shall indicate a requirement to come to a standstill. A helicopter air taxiing and instructed to “HOLD”, may hold in the hover or may touch down and hold on the ground at the pilot’s discretion.

9.2.10 A frequency change should not be issued to single-pilot helicopters hovering or air-taxiing. Whenever possible, control instructions from the next ATS unit should be relayed as necessary until the pilot is able to change frequency.

Note. Most light helicopters are flown by one pilot and require the constant use of both hands and feet to maintain control during low-altitude/low-level flight. Although flight control friction devices assist the pilot, changing frequency near the ground could result in inadvertent ground contact and consequent loss of control.

9.2.11 The air traffic controller should clear a helicopter for take-off and landing exclusively on designated runways, helipads or authorized predetermined areas defined in the relevant LATCIs for use by helicopters at an aerodrome.

Note. Helipad is a designated area, on a heliport, movement area of an aerodrome or any other place used for take-off and landing of helicopters as defined in the AIP.

Phraseology:

AIR TAXI (location).

AIR-TAXI TO (or VIA) (location or routing as appropriate) [CAUTION (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)];

AIR TAXI VIA (direct, as requested, or specified route) TO (location, heliport, operating or movement area, active or inactive runway). AVOID (aircraft or vehicles or personnel);

GROUND TAXI (location).

RUNWAY (designator) CLEARED FOR TAKE-OFF (surface wind).

(Designated point on the manoeuvring area) CLEARED FOR TAKE-OFF (surface wind).

RUNWAY (designator) CLEARED TO LAND (surface wind).

(Designated point on the manoeuvring area) CLEARED TO LAND (surface wind).

9.2.12 Helicopter landing and take-off on any location other than those mentioned in 9.2.11 shall be subject to the pilot’s discretion. It does not include areas located inside of aerodromes. During night periods, take-off and landing of helicopters on unlit helipads and areas also shall be subject to the pilot’s discretion.

NO TRAFFIC REPORTED , REPORT WHEN AIRBORNE.

NO TRAFFIC REPORTED , REPORT ON THE GROUND.

9.2.13 A clearance to land leaves the pilot of a helicopter free to either enter a low hover, or to touch down, as appropriate.

9.2.14 Except when operating as a special VFR flight, VFR flights shall be conducted so that the aircraft is flown in conditions of visibility equal to or greater than those specified in table 9-2.

9.2.15 Except when a special VFR clearance is obtained from an air traffic control unit, helicopter VFR flights shall not take off or land at an aerodrome within a control zone, or enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

- a) The ceiling is less than 450 m (1 500 ft); or
- b) The ground visibility is less than 3000 m during daylight and 5 km at night.

9.2.16 In controlled aerodromes with only ATZ, helicopter VFR flights shall not take off or land, enter the aerodrome traffic zone or aerodrome traffic circuit when the reported meteorological conditions at that aerodrome are below the following minima:

- a) The ceiling is less than 450 m (1 500 ft); or
- b) The ground visibility is less than 3000 m during daylight and 5 km at night

9.2.17 Helicopters are not required to effect prior coordination with CAA.IRI. for VFR operations at night.

9.2.18 Except when necessary for take-off or landing, or except by permission from CAA.IRI, a VFR flight in daylight shall not be flown:

- a) Over the congested areas of cities, towns or settlements or over an open-air assembly of persons at a height less than 300 m (1000 FT) above the highest obstacle within a radius of 600 m from the aircraft;
- b) Over the historical buildings and ancient monuments at a height less than 2000 FT above the highest obstacle within a radius of 600 m from the aircraft;
- c) Elsewhere than as specified above at a height less than 150 m (500 FT) above the ground or water, or 150m (500 ft) above the highest obstacle within a radius of 150 m from the aircraft.

9.2.19 Except when necessary for take-off or landing, or except by permission from CAA.IRI, a VFR flight at night shall not be flown:

- a) Over high terrain or in mountainous areas, at a level which is at least 600 m (2 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft;
- b) Over the historical buildings and ancient monuments at a height less than 2000 FT above the highest obstacle within a radius of 600 m from the aircraft;
- c) Elsewhere than as specified above, at a level which is at least 300 m (1 000 ft) above the highest obstacle located within 8 km of the estimated position of the aircraft.

9.2.20 All requirements in CAA.IRI.ADR and CAD 4314 regarding heliport lighting system for night VFR operations shall be met.

9.2.21 Except where otherwise indicated in air traffic control clearances or specified in AIP ENR 3, VFR flights in level cruising flight when operated above 3000 ft from the ground or water shall be conducted at a flight level appropriate to the track as specified in the tables of cruising levels.

9.2.23 VFR flights shall comply with the provisions of air traffic control service:

- a) when operating within Classes “B”, “C” and “D” airspaces;
- b) when forming part of aerodrome traffic at controlled aerodromes; or
- c) when operating as special VFR flights.

9.2.24 Ground visibility is not considered within classes F, G airspaces.

9.2.25 Helicopters operating in accordance with the visual flight rules which wish to change to compliance with the instrument flight rules shall communicate the necessary changes to be effected to its current flight plan for the approval by the related ATS unit.

9.2.26 All helicopter operations shall be subject to rules and procedures approved by Iran Civil Aviation Authority including CAD 4314, CAA.IRI AIR OPS.

9.2.27 Helicopter operators are required to provide individual flight plan or flight schedule for all operations, taking into account procedures contained in Iran AIP ENR 1.10.

Table 9-2 Visibility limitations for VFR helicopter operation

Altitude band*	Airspace class	Flight visibility	Distance from cloud
At and above 10000FT AMSL	A**,B,C,D,E,F G	8 km	1500M horizontally 1000FT vertically
Below 10000FT AMSL and above 3000FT AMSL, or above 1000FT above terrain, whichever is the higher.	A**,B,C,D,E,F G	5 km	1500M horizontally 1000FT vertically
At and below 3000FT AMSL, or 1000FT above terrain, whichever is the higher.	A**,B,C,D,E	3000 m**** in daylight	1500M horizontally 1000FT vertically
		5 km at night	
	F,G***	1500 m**** in daylight	Clear of cloud and with the surface in sight
		5 km at night	

(*) When the height of the transition altitude is lower than 3 050 m (10 000 ft) AMSL, FL 100 shall be used in lieu of 10 000 ft.

(**) The VMC minima in Class A airspace are included for guidance to pilots and do not imply acceptance of VFR flights in Class A airspace.

(****) Helicopters may be permitted for operating in flight visibility reduced to not less than 3000m in classes B, C, D, E and 1500m in classes F and G:

(1) at speeds of 140 kts IAS or less to give adequate opportunity to observe other traffic or any obstacles in time to avoid collision; or

(2) in circumstances in which the probability of encounters with other traffic would normally be low, e.g. in areas of low volume traffic and for aerial work at low levels.

Note1. In case no meteorological station is exist at a specific helipad, the basis for reporting the visibility shall be the information received from the pilot of aircraft concerned.

Note2. Operator/pilot shall use" RMK/ Night VFR" for Night VFR flight in —ITEM 18: OTHER INFORMATION" of flight plan.

9.2.28 SUSPENSION OF VISUAL FLIGHT RULES OPERATIONS

Note. See Para 9.1.13

Section 3

SPECIAL VFR FLIGHTS

9.3.1 AUTHORIZATION

9.3.1.1 In aerodrome which is located within CTR, special VFR flights may be authorized to enter a control zone for the purpose of landing, take off and depart from a control zone, cross a control zone or operate locally within a control zone the following provisions:

- a) during daylight;
- b) the ground visibility, in intended direction of flight is not less than 1500 meters;
- c) the ceiling is not less than 180 m (600 ft).
- d) requested individually by the Pilot;
- e) traffic conditions permit; and
- f) approved by unit providing approach control service.
- g) fly at a speed of 140 kts IAS or less to give adequate opportunity to observe other traffic and any obstacles in time to avoid a collision;

Note1- Military operations are exempted from speed limitation prescribed in g).

Note2- see also SIRA.5010.

9.3.1.2 the flight visibility is not less than 1 500 m or, for helicopters, not less than 800 m;

9.3.1.3 SVFR flight outside ATZ which is reported entering VMC will continue according to VFR.

9.3.1.4 The pilots of VFR flights, when operating on a special clearance, shall comply with ATC instructions and remain at all times in flight conditions, which enable the pilot to determine his flight path and to keep clear of obstacles and cloud with the surface in sight.

9.3.1.5 When requesting or approving special VFR operation, the pilot and air traffic controller should take weather forecasts, if any, into consideration.

9.3.1.6 A special VFR clearance within a control zone does not absolve the pilot from the responsibility for avoiding an aerodrome traffic zone unless prior permission to penetrate the ATZ has been obtained from the relevant ATC unit.

9.3.1.7 No special VFR operation shall be authorized in any aerodrome traffic circuit.

9.3.1.8 In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace or by cancelling its IFR flight and proceeding on VFR in airspace where VFR flights are not controlled, the air traffic control unit concerned should ensure that appropriate information on the flight is forwarded to air traffic services unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

9.3.1.9 Except when permitted by the CAA.IRI for helicopters in special cases such as, but not limited to, police, medical, search and rescue operations and fire-fighting flights are exempted from conditions prescribed in 9.3.1

9.3.2 PRIORITY

- a) SVFR flights may be approved only if arriving and departing IFR aircraft are not delayed.
- b) inform an aircraft of the anticipated delay when a SVFR clearance cannot be granted because of IFR traffic.

Note. The priority afforded IFR aircraft over SVFR aircraft is not intended to be so rigidly applied that inefficient use of airspace results. The controller has the privilege of permitting completion of a SVFR operation already in progress when an IFR aircraft becomes a factor if better overall efficiency will result. The specific limitations, if any, should be defined in the relevant LATCIs.

9.3.3 SEPARATION

9.3.3.1 ATC unit shall apply non-radar or radar separation between:

- a) SVFR aircraft; and
- b) SVFR aircraft and IFR aircraft; as follows:

9.3.3.2 APPLICATION BETWEEN SVFR FLIGHTS

9.3.3.2.1 provision of separation between SVFR aircraft are only subject to geographical separation.

9.3.3.2.2 For provision of geographical separation, the second aircraft should be cleared for leaving the visual holding points only when the first aircraft has landed.

Note 1. For applying geographical separation, geographically separated areas should be established and published in the relevant LATCIs.

Note 2. For applying geographical separation between two arriving special VFR aircraft, a number of predefined visual holding points shall be established at the distance of 15NM or more from the aerodrome and be published in the relevant LATCIs.

9.3.3.3 APPLICATION BETWEEN IFR AND SVFR FLIGHTS

9.3.3.3.1 Non radar separation

9.3.3.3.1.1 Provision of separation between IFR and SVFR aircraft are only subject to geographical and vertical separation.

9.3.3.3.1.2 SVFR aircraft shall not have given a specified level to fly but vertical separation from aircraft flying above can be achieved by requiring the Special VFR flight to fly not above a specified level i.e. the IFR flight shall not be cleared to levels below SVFR aircraft.

9.3.3.3.2 Radar separation

9.3.3.3.2.1 If necessary and/or whenever the geographical separation is not applicable, the radar approach controller shall use ATS surveillance system for the provision of standard radar separation as defined in 8.2.13.2.

9.3.3.3.2.2 Special VFR flights should not be vectored unless special circumstances, such as emergencies, dictate otherwise.

Phraseology:

- a) when the destination is located outside the control zone

(CALL-SIGN) CLEARED SPECIAL VFR UPTO CTR BOUNDARY TOWARD (DESTINATION) VIA [SECTOR]NOT ABOVE (LEVEL) INSIGHT OF SURFACE.

- b) when the destination is located within the control zone

(CALL-SIGN) CLEARED SPECIAL VFR WITHIN CONTROL ZONE TO (DESTINATION) VIA [SECTOR]NOT ABOVE (LEVEL) INSIGHT OF SURFACE.

Section 4

TRAFFIC INFORMATION BROADCASTS BY AIRCRAFT (TIBA)

9.4.1 Introduction and applicability of broadcasts

9.4.1.1 Traffic information broadcasts by aircraft are intended to permit reports and relevant supplementary information of an advisory nature to be transmitted by pilots on a designated VHF radiotelephone (RTF) frequency for the information of pilots of other aircraft in the vicinity.

9.4.1.2 TIBAs should be introduced only when necessary and as a temporary measure.

9.4.1.3 The broadcast procedures should be applied in designated airspace where:

- a) there is a need to supplement collision hazard information provided by air traffic services outside controlled airspace; or
- b) there is a temporary disruption of normal air traffic services.

9.4.1.4 Such airspaces should be identified by the States responsible for provision of air traffic services within these airspaces, if necessary with the assistance of the appropriate ICAO Regional Office(s), and duly promulgated in aeronautical information publications (AIP) or NOTAM, together with the VHF RTF frequency, the message formats and the procedures to be used. Where, in the case of 9.4.1.3 a), more than one State is involved, the airspace should be designated on the basis of regional air navigation agreements and promulgated in Doc 7030.

9.4.1.5 When establishing a designated airspace, dates for the review of its applicability at intervals not exceeding 12 months should be agreed by ANSP.

9.4.2 Details of broadcasts

9.4.2.1 VHF RTF frequency to be used

9.4.2.1.1 The VHF RTF frequency to be used should be determined and promulgated on a regional basis. However, in the case of temporary disruption occurring in controlled airspace, the States responsible may promulgate, as the VHF RTF frequency to be used within the limits of that airspace, a frequency used normally for the provision of air traffic control service within that airspace.

9.4.2.1.2 Where VHF is used for air-ground communications with ATS and an aircraft has only two serviceable VHF sets, one should be tuned to the appropriate ATS frequency and the other to the TIBA frequency.

9.4.2.2 Listening watch

A listening watch should be maintained on the TIBA frequency 10 minutes before entering the designated airspace until leaving this airspace. For an aircraft taking off from an aerodrome located within the lateral limits of the designated airspace, listening watch should start as soon as appropriate after take-off and be maintained until leaving the airspace.

9.4.2.3 Time of broadcasts

A broadcast should be made:

- a) 10 minutes before entering the designated airspace or, for a pilot taking off from an aerodrome located within the lateral limits of the designated airspace, as soon as appropriate after take-off;
- b) 10 minutes prior to crossing a reporting point;
- c) 10 minutes prior to crossing or joining an ATS route;
- d) at 20-minute intervals between distant reporting points;
- e) 2 to 5 minutes, where possible, before a change in flight level;
- f) at the time of a change in flight level; and
- g) at any other time considered necessary by the pilot.

9.4.2.4 Forms of broadcast

9.4.2.4.1 The broadcasts other than those indicating changes in flight level, i.e. the broadcasts referred to in 9.4.2.3 a), b), c), d) and g), should be in the following form:

ALL STATIONS (necessary to identify a traffic information broadcast)

(call sign)

FLIGHT LEVEL (number) (or CLIMBING* TO FLIGHT LEVEL (number))

(direction)

(ATS route) (or DIRECT FROM (position) TO (position))

POSITION (position**) AT (time)

ESTIMATING (next reporting point, or the point of crossing or joining a designated ATS route) AT (time)

(call sign)

FLIGHT LEVEL (number) (direction)

Fictitious example:

“ALL STATIONS WINDAR 671 FLIGHT LEVEL 350 NORTHWEST BOUND DIRECT FROM PUNTA SAGA TO PAMPA POSITION 5040 SOUTH 2010 EAST AT 2358 ESTIMATING CROSSING ROUTE LIMA THREE ONE AT 4930 SOUTH 1920 EAST AT 0012 WINDAR 671 FLIGHT LEVEL 350 NORTHWEST BOUND OUT”

9.4.2.4.2 Before a change in flight level, the broadcast (referred to in 9.4.2.3 e)) should be in the following form:

ALL STATIONS

(call sign)

(direction)

(ATS route) (or DIRECT FROM (position)

TO (position)) LEAVING FLIGHT LEVEL (number) FOR FLIGHT LEVEL (number) AT (position and time)

9.4.2.4.3 Except as provided in 9.4.2.4.4, the broadcast at the time of a change in flight level (referred to in 9.4.2.3 f)) should be in the following form:

ALL STATIONS

(call sign)

(direction)

(ATS route) (or DIRECT FROM (position) TO (position))

LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number)

followed by:

ALL STATIONS

(call sign)

MAINTAINING FLIGHT LEVEL (number)

9.4.2.4.4 Broadcasts reporting a temporary flight level change to avoid an imminent collision risk should be in the following form:

ALL STATIONS

(call sign)

LEAVING FLIGHT LEVEL (number) NOW FOR FLIGHT LEVEL (number)

followed as soon as practicable by:

ALL STATIONS

(call sign)

RETURNING TO FLIGHT LEVEL (number) NOW

9.4.2.5 Acknowledgement of the broadcasts

The broadcasts should not be acknowledged unless a potential collision risk is perceived.

9.4.3 Related operating procedures

9.4.3.1 Changes of cruising level

9.4.3.1.1 Cruising level changes should not be made within the designated airspace, unless considered necessary by pilots to avoid traffic conflicts, for weather avoidance or for other valid operational reasons.

9.4.3.1.2 When cruising level changes are unavoidable, all available aircraft lighting which would improve the visual detection of the aircraft should be displayed while changing levels.

9.4.3.2 Collision avoidance

If, on receipt of a traffic information broadcast from another aircraft, a pilot decides that immediate action is necessary to avoid an imminent collision risk, and this cannot be achieved in accordance with the right-of-way provisions of Annex 2, the pilot should:

- a) unless an alternative manoeuvre appears more appropriate, immediately descend 150 m (500 ft), or 300 m (1 000 ft) if above FL 290 in an area where a vertical separation minimum of 600 m (2 000 ft) is applied;
- b) display all available aircraft lighting which would improve the visual detection of the aircraft;
- c) as soon as possible, reply to the broadcast advising action being taken;
- d) notify the action taken on the appropriate ATS frequency; and
- e) as soon as practicable, resume normal flight level, notifying the action on the appropriate ATS frequency.

9.4.3.3 Normal position reporting procedures

Normal position reporting procedures should be continued at all times, regardless of any action taken to initiate or acknowledge a traffic information broadcast.

Chapter 10 . COORDINATION

Section 1

GENERAL PRINCIPLES

10.1.1 General procedure for coordination in respect of the provision of air traffic control service

10.1.1.1 The coordination and transfer of control of a flight between successive ATC units and control sectors shall be effected by a dialogue comprising the following stages:

- a) notification of the flight in order to prepare for coordination, as necessary;
- b) coordination of conditions of transfer of control by the transferring ATC unit;
- c) coordination, if necessary, and acceptance of conditions of transfer of control by the accepting ATC unit; and
- d) the transfer of control to the accepting ATC unit or control sector.

10.1.1.2 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.

10.1.1.3 ATC units should, to the extent possible, establish and apply standardized procedures for the coordination and transfer of control of flights, in order, inter alia, to reduce the need for verbal coordination. Such coordination procedures shall conform to the procedures contained in the following provisions and be specified in letters of agreement and instructions contained in Tehran ACC OM and LATCIs, as applicable.

10.1.1.4 Such agreements and instructions shall cover the following as applicable:

- a) definition of areas of responsibility and common interest, airspace structure and airspace classification(s);
- b) any delegation of responsibility for the provision of ATS;
- c) procedures for the exchange of flight plan and control data, including use of automated and/or verbal coordination messages;
- d) means of communication;
- e) requirements and procedures for approval requests;
- f) significant points, levels or times for transfer of control;

- g) significant points, levels or times for transfer of communication;
- h) conditions applicable to the transfer and acceptance of control, such as specified altitudes/flight levels, specific separation minima or spacing to be established at the time of transfer, and the use of automation;
- i) ATS surveillance system coordination procedures;
- j) SSR Code assignment procedure;
- k) procedures for departing traffic;
- l) designated holding fixes and procedures for arriving traffic;
- m) applicable contingency procedures; and
- n) any other provisions or information relevant to the coordination and transfer of control of flights.

Note. Relevant information contained in letters of agreement should be included in the operation manual of the air traffic services units concerned.

10.1.1.5 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;
- 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.

10.1.1.6 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.

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.

10.1.1.7 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.

Section 2

CONTIGUOUS CONTROL AREAS

10.2.1 Coordination between ATCUs providing ATS within contiguous control areas

10.2.1.1 ATC units shall forward from unit to unit, as the flight progresses, necessary flight plan and control information. When so required by agreement between the ANSPs to assist the separation of aircraft, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be provided to the ATC units in charge of the flight information regions adjacent to such routes or portions of routes.

Note1. ATC units shall forward from unit to unit, as the flight progresses, necessary flight plan and control information when aircraft operating in such close proximity to the boundary between AOR that control of traffic within an adjacent sector may be affected.

Note 2. Such a route or portion of route is often referred to as an area of common interest, the extent of which is usually determined by the required separation minima.

10.2.1.2 The flight plan and control information shall be transmitted in sufficient time to permit reception and analysis of the data by the receiving unit(s) and necessary coordination between the two units concerned.

10.2.1.3 APPROVAL REQUEST

10.2.1.3.1 If there is no specific coordination procedures between relevant ATC units, when the flying time from the departure aerodrome of an aircraft to the boundary of an adjacent control area is less than the specified minimum required to permit transmission of the necessary flight plan and control information to the accepting ATC unit after take-off and allow adequate time for reception, analysis and coordination, the transferring ATC unit shall, prior to clearing the aircraft, forward that information to the accepting ATC unit together with a request for approval. The required time period shall be specified in letters of agreement or local instructions, as appropriate.

10.2.1.3.2 In the case of revisions to a previously transmitted current flight plan, and control data being transmitted earlier than this specified time period, no approval from the accepting control unit should be required.

10.2.1.3.3 In the case of an aircraft in flight requiring an initial clearance when the flying time to the boundary of an adjacent control area is less than a specified minimum, the aircraft should be held within the transferring air traffic control unit's control area until the flight plan and control information have been forwarded together with a request for approval, and coordination effected with the adjacent air traffic control unit.

10.2.1.3.4 In the case of an aircraft requesting a change in its current flight plan except level, or of a transferring ATC unit proposing that change, the revised clearance shall be withheld pending approval of the proposal by the adjacent ATC unit. In case of any change in coordinated level of flight the transferring ATS unit shall comply with the related coordination procedure.

10.2.1.3.5 When boundary estimate data is to be transmitted for approval by the accepting control unit, the time in respect of an aircraft not yet departed should be based on the estimated time of departure as determined by the air traffic control unit in whose area of responsibility the departure aerodrome is located. In respect of an aircraft in flight requiring an initial clearance, the time should be based on the estimated elapsed time from the holding fix to the boundary plus the time expected to be needed for coordination.

10.2.1.4 TRANSFER OF CONTROL

10.2.1.4.1 The responsibility for the control of an aircraft shall be transferred from one ATC unit to the next unit at the time of crossing the common control area boundary as determined by the unit having control of the aircraft or at such other point or time as has been agreed between the two units.

10.2.1.4.2 Where specified in LOA/LOC between the ATC units/sector concerned, and when transferring an aircraft, the transferring unit shall notify the accepting unit that the aircraft is in position to be transferred and specify that the responsibility for control should be assumed by the accepting unit, forthwith at the time of crossing the control boundary or other transfer control point specified in letters of agreement between the ATC units or at such other point or time coordinated between the two units.

10.2.1.4.3 If the transfer of control time or point is other than 10.2.1.4.2, the accepting ATC unit shall not alter the clearance of the aircraft prior to the agreed transfer of control time or point without the approval of the transferring unit.

10.2.1.4.4 If transfer of communication is used to transfer an aircraft to an accepting ATC unit, responsibility for control shall not be assumed until the time of crossing the control area boundary or other transfer of control point specified in letters of agreement between the air traffic control units unless otherwise specified in related coordination procedure.

10.2.1.5 TRANSFER OF COMMUNICATION

10.2.1.5.1 The transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made immediately after the accepting ATC unit has agreed to assume control according to the related coordination procedure.

10.2.1.5.2 The accepting ATC unit shall normally not be required to notify the transferring unit that radio communication has been established with the aircraft being transferred and that control of the aircraft has been assumed. The accepting ATC unit shall notify the transferring unit in the event that communication with the aircraft is not established as expected.

10.2.1.5.3 Standardized phraseology shall be used in the coordination between air traffic services units or sectors, or both. Only when standardized phraseology cannot serve an intended transmission, plain language shall be used.

10.2.1.5.4 In cases where a portion of a control area is so situated that the time taken by aircraft to traverse it is of a limited duration, agreement should be reached to provide for direct transfer of communication between the units responsible for the adjacent control areas, provided that the intermediate unit is fully informed of such traffic. The intermediate unit shall retain responsibility for coordination and for ensuring that separation is maintained between all traffic within its area of responsibility.

10.2.1.5.5 An aircraft may be permitted to communicate temporarily with a control unit other than the unit controlling the aircraft.

10.2.1.6 TERMINATION OF CONTROLLED FLIGHT

10.2.1.6.1 In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace, the ATC unit concerned shall ensure that appropriate information on the flight is forwarded to ATS unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

10.2.1.7 DIVISION OF CONTROL BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE

10.2.1.7.1 Except when otherwise specified in letters of agreement or local instructions, or by the ACC concerned in individual cases, a unit providing approach control service may issue clearances to any aircraft released to it by an ACC without reference to the ACC. However, when an approach has been missed, the ACC should, if affected by the missed approach, be advised immediately and subsequent action should be coordinated between the ACC and the unit providing approach control service as necessary.

10.2.1.7.2 An ACC may, after coordination with the unit providing approach control service, release aircraft directly to aerodrome control towers if the entire approach will be made under VMC.

10.2.1.8 DIVISION OF CONTROL BETWEEN A UNIT PROVIDING APPROACH CONTROL SERVICE AND A UNIT PROVIDING AERODROME CONTROL SERVICE

10.2.1.8.1 A unit providing approach control service should retain control of arriving aircraft until such aircraft have been transferred to the aerodrome control tower and are in communication with the aerodrome control tower. Letters of agreement or local instructions, appropriate to the airspace structure, terrain, meteorological conditions and air traffic services facilities available, should establish rules for the transfer of arriving aircraft.

10.2.1.8.2 A unit providing approach control service may authorize an aerodrome control tower to release an aircraft for take-off subject to the discretion of the aerodrome control tower with respect to arriving aircraft.

10.2.1.8.3 Aerodrome control towers should, when so prescribed in letters of agreement or local instructions, obtain approval from the unit providing approach control service prior to authorizing operation of special VFR flights.

10.2.1.9 TRANSFER OF FLIGHTS BETWEEN ACC AND AERODROME CONTROL TOWER

Even though there is an approach control unit, control of certain flights may be transferred directly from an ACC to an aerodrome control tower and vice versa, subject to prior arrangement between the units concerned for the relevant part of approach control service to be provided by the ACC or the aerodrome control tower, as applicable.

10.2.1.10 COORDINATION OF STANDARD CLEARANCES FOR ARRIVING AIRCRAFT

10.2.1.10.1 Wherever possible, the air traffic services providers concerned should establish standardized procedures for transfer of control between the air traffic control units concerned and standard clearances for arriving aircraft.

10.2.1.10.2 Where standard clearances for arriving aircraft are in use and, provided no terminal delay is expected, clearance to follow the appropriate standard instrumental arrival (STAR) will normally be issued by the ACC without prior coordination with or approval from the approach control unit or the aerodrome control tower, as applicable.

10.2.1.10.3 Prior coordination of clearances should be required only in the event that a variation to the standard clearance or the standardized transfer of control procedures is necessary or desirable for operational reasons.

10.2.1.10.4 Provision should be made to:

- a) ensure that the approach control unit is at all times kept informed of the sequence of aircraft following the same STAR; and
- b) display the designators of assigned STARs to the ACC, the approach control unit and/or the aerodrome control tower, as applicable.

10.2.1.11 COORDINATION OF STANDARD CLEARANCES FOR DEPARTING AIRCRAFT

10.2.1.11.1 Wherever possible, the air traffic services providers concerned should establish standardized procedures for transfer of control between the air traffic control units concerned and standard clearances for departing aircraft.

10.2.1.11.2 Where standard clearances for departing aircraft have been agreed to between the units concerned, the aerodrome control tower will normally issue the appropriate standard clearance without prior coordination with or approval from the approach control unit or ACC.

10.2.1.11.3 Prior coordination of clearances should be required only in the event that a variation to the standard clearance or the standardized transfer of control procedures is necessary or desirable for operational reasons; for example, in the case of a change on the cleared initial flight level.

10.2.1.11.4 Provision should be made to:

- a) ensure that the approach control unit at all times is kept informed of the sequence in which aircraft will depart as well as the runway to be used; and
- b) display the designators of assigned standard instrumental departures (SIDs) to the aerodrome control tower, the approach control unit and/or the ACC as applicable.

10.2.1.12 COORDINATION BETWEEN CONTROL POSITIONS WITHIN THE SAME UNIT

Appropriate flight plan and control information should be exchanged between control positions within the same air traffic control unit, in respect of:

- a) all aircraft for which responsibility for control will be transferred from one control position to another;
- b) aircraft operating in such close proximity to the boundary between control sectors that control of traffic within an adjacent sector may be affected;
- c) all aircraft for which responsibility for control has been delegated by an air traffic controller using procedural methods to an air traffic controller using an ATS surveillance system, as well as other aircraft affected.

10.2.1.13 COORDINATION BETWEEN AIR TRAFFIC CONTROL UNITS PROVIDING AIR TRAFFIC SERVICES WITHIN CONTIGUOUS CONTROL AREAS — GENERAL

10.2.1.13.1 Air traffic control units should forward from unit to unit, as the flight progresses, necessary flight plans and control information. When so required by agreement between air traffic services providers concerned, flight plans and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region (FIR) boundaries should also be provided to the air traffic control units in charge of the FIRs adjacent to such routes or portions of routes.

10.2.1.13.2 The flight plan and control information should be transmitted in sufficient time to permit reception and analysis of the data by the receiving unit(s) and necessary coordination between the units concerned.

10.2.1.14 EXCHANGE OF MOVEMENT AND CONTROL DATA BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE

10.2.1.14.1 The unit providing approach control service should keep the ACC promptly advised of pertinent data on controlled traffic.

10.2.1.14.2 The ACC should keep the unit providing approach control service promptly advised of pertinent data on controlled traffic.

10.2.1.14.3 The ACC should normally forward to the unit providing approach control service information on arriving aircraft not less than 15 minutes before the estimated time of arrival and should revise such information as necessary.

10.2.1.15 EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING APPROACH CONTROL SERVICE TO A UNIT PROVIDING AREA CONTROL SERVICE

Pertinent data on controlled traffic should include:

- a) runway(s)-in-use and expected type of instrument approach procedure;
- b) lowest vacant level at the holding fix available for use by the ACC;
- c) average time interval or distance between successive arrivals as determined by the unit providing approach control service;
- d) revision of the expected approach time issued by the ACC when the calculation of the expected approach time by the unit providing approach control service indicates a variation of 5 minutes or such other time as has been agreed between the two air traffic control units concerned;
- e) arrival times over the holding fix when these vary by 3 minutes, or such other time as has been agreed between the two air traffic control units concerned, from those previously estimated;
- f) cancellations by aircraft of IFR flight if these will affect levels at the holding fix or expected approach times of other aircraft;
- g) aircraft departure times or, if agreed between the two air traffic control units concerned, the estimated time at the control area boundary or other specified point;
- h) all available information relating to overdue or unreported aircraft; and
- i) missed approaches which may affect the ACC.

10.2.1.16 EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING AREA CONTROL SERVICE TO A UNIT PROVIDING APPROACH CONTROL SERVICE

Pertinent data on controlled traffic should include:

- a) identification, type and point of departure of arriving aircraft;
- b) estimated time and proposed level of arriving aircraft over holding fix or other specified point;
- c) actual time and proposed level of arriving aircraft over holding fix if the aircraft is released to the unit providing approach control service after arrival over the holding fix;
- d) requested type of IFR approach procedure if different from that specified by the approach control unit;
- e) expected approach time issued;
- f) when required, statement that an aircraft has been instructed to contact the unit providing approach control service;
- g) when required, statement that an aircraft has been released to the unit providing approach control service including, if necessary, the time and conditions of release; and
- h) anticipated delay to departing traffic due to congestion.

10.2.1.17 EXCHANGE OF MOVEMENT AND CONTROL DATA BETWEEN A UNIT PROVIDING APPROACH CONTROL SERVICE AND A UNIT PROVIDING AERODROME CONTROL SERVICE

10.2.1.17.1 An aerodrome control tower should keep the unit providing approach control service promptly advised of pertinent data on relevant controlled traffic.

10.2.1.17.2 The unit providing approach control service should keep the aerodrome control tower promptly advised of pertinent data on controlled traffic.

10.2.1.18 EXCHANGE OF MOVEMENT AND CONTROL DATA FROM AN AERODROME CONTROL TOWER TO A UNIT PROVIDING APPROACH CONTROL SERVICE

Pertinent data on controlled traffic should include:

- a) arrival and departure times;
- b) when required, statement that the first aircraft in an approach sequence is in communication with and is sighted by the aerodrome control tower, and that reasonable assurance exists that a landing can be accomplished;
- c) all available information relating to overdue or unreported aircraft;
- d) information concerning missed approaches; and
- e) information concerning aircraft that constitute essential local traffic to aircraft under the control of the unit providing approach control service.

10.2.1.19 EXCHANGE OF MOVEMENT AND CONTROL DATA FROM A UNIT PROVIDING APPROACH CONTROL SERVICE TO AN AERODROME CONTROL TOWER

Pertinent data on controlled traffic should include:

- a) estimated time and proposed level of arriving aircraft over the aerodrome, at least 15 minutes prior to estimated arrival;
- b) when required, a statement that an aircraft has been instructed to contact the aerodrome control tower and that control shall be assumed by that unit; and
- c) anticipated delay to departing traffic due to congestion

10.2.1.20 COORDINATION BETWEEN AIR TRAFFIC CONTROL UNITS FOR TAKE-OFF AND CLEARANCE EXPIRY TIMES

10.2.1.20.1 The take-off time should be specified by the ACC when it is necessary to:

- a) coordinate the departure with traffic not released to the unit providing approach control service; and
- b) provide en-route separation between departing aircraft following the same track.

10.2.1.20.2 If the take-off time is not specified, the unit providing approach control service should determine it when necessary to coordinate the departure with traffic released to it.

10.2.1.20.3 A clearance expiry time should be specified by the ACC if a delayed departure would conflict with traffic not released to the unit providing approach control service. If, for traffic reasons of its own, a unit providing approach control service has to specify in addition its own clearance expiry time, this should not be later than that specified by the ACC.

Section 3

COORDINATION BETWEEN ATCUS AND AFISUs

10.3.1 GENERAL

10.3.1.1 Where necessary, letters of agreement/coordination should be developed between the appropriate ATC units and the AFIS units for the control of arriving and departing aircraft. The procedures in Para 10.3.1.2 and Para 10.3.1.3 may be used as a template for the inter unit liaison detailed within such a letter of agreement/coordination.

10.3.1.2 ARRIVING TRAFFIC

10.3.1.2.1 For arriving IFR traffic the appropriate ATC unit shall provide an estimated time of arrival (ETA) to the AFIS unit. The ETA message shall if possible be provided at least 15 minutes before the ETA. Revisions to the ETA shall be provided when the time difference is 3 minutes or more.

10.3.1.2.2 When the AFIS unit has received an ETA for an arriving IFR aircraft, it shall provide the ATC unit with information about known traffic which the arriving aircraft should be aware of before transfer of communication to the AFIS unit. The information shall be provided in such a time as being relevant and should be revised as necessary. The ATC unit shall relay the information to the arriving aircraft.

10.3.1.2.3 AFIS aerodrome below or in close proximity to controlled airspace

10.3.1.2.3.1 Where relevant, the AFIS unit should provide the ATC unit with QNH. The ATC unit shall relay this information to the aircraft.

10.3.1.2.3.2 Transfer of communications shall be achieved not later than when the aircraft passes the controlled airspace boundary, if no other agreement has been made between the units concerned or in local instructions.

Note. See also 10.3.1.3.3 "a".

10.3.1.2.3.3 If the aircraft fails to establish communications with the AFIS unit within 5 minutes after the latest received ETA, the AFIS unit shall inform the ATC unit concerned.

10.3.1.2.3.4 When the AFIS aerodrome is situated below a TMA, the AFIS unit shall as soon as possible inform the ATC unit about local traffic concerned as follows:

- a) when necessary, inform the ATC unit when the first aircraft in a sequence is in contact with and is seen by the AFIS unit and there is a reasonable assurance that it will land or has landed, depending on what occurs first;
- b) missed approach, if the aircraft will leave the area of responsibility of the AFIS unit or when the missed approach may affect other arriving traffic;
- c) any aircraft on or near the manoeuvring area, or operating in the vicinity of the aerodrome, which may constitute a hazard to an arriving aircraft still under the control of the ATC unit.

10.3.1.2.3.5 When an ATC unit is providing approach control to arriving aircraft within a terminal area the following applies:

- a) information about an approach with position information shall be given to the AFIS unit in time for the AFIS unit to be able to inform other traffic concerned and to ensure that the runway is free for landing as regards vehicle movements or work on the runway;

Note. Suitable distance at which report of an approach will be given is normally established in local instructions.

- b) if the ATC unit is vectoring aircraft for a straight in approach, the AFIS unit shall be timely informed of this fact;
- c) the AFIS unit shall provide information on relevant local traffic to the ATC unit which shall relay this information to the aircraft concerned.

10.3.1.3 DEPARTING TRAFFIC

10.3.1.3.1 AFIS unit shall provide the appropriate ATC unit with:

- a) actual time of departure (ATD);
- b) when necessary, runway-in-use; and

10.3.1.3.2 The ATC unit shall provide the AFIS unit with:

- a) ATC clearance when required as well as actual traffic information about such known traffic that the departing aircraft will need to be informed of before departure, and transponder code;
- b) the AFIS unit shall read-back the ATC clearance received;
- c) the AFIS unit shall relay the ATC clearance provided, traffic information and transponder code to the aircraft before departure and in exactly the form it was received.

10.3.1.3.3 If no agreement to the contrary, the transfer of communication from the AFIS unit to the ATC unit shall be made as follows:

- a) as soon as safely possible and not more than 2 minutes after departure when the AFIS unit is located below or in close proximity to a controlled airspace and the aircraft will climb into this controlled airspace;
- b) in other cases, at a time suitable taking into consideration the traffic in the ATZ;
- c) in all cases, transfer of communication shall be made not later than when the aircraft is estimated to exit the ATZ.

10.3.1.4 READ-BACK OF CLEARANCE

10.3.1.4.1 When relaying ATC clearances, the AFISO shall ensure that the flight crew read back the 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; and
- b) runway-in-use, altimeter settings, SSR codes, newly assigned communication channels, level instructions and speed instructions and, whether issued by the ATC unit or contained in automatic terminal information service (ATIS) broadcasts.

Note. If the level of an aircraft is reported in relation to standard pressure 1013.2 hPa, the words "FLIGHT LEVEL" precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word "FEET" as appropriate.

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

10.3.1.4.1.2 The AFISO 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.

Section 4

OTHER COORDINATION PROCEDURES

See the related coordination procedures in LATCIs and Tehran ACC Operation Manual (OM).

Chapter 11 . FLIGHT INFORMATION SERVICE, AFIS & ALERTING SERVICE AND AIR TRAFFIC ADVISORY SERVICE

Section 1

FLIGHT INFORMATION SERVICE

11.1.1 RESPONSIBILITY FOR THE PROVISION OF FLIGHT INFORMATION SERVICE

11.1.1.1 Flight information service shall be provided as follows:

- a) within a flight information region (FIR): by area control centre (Tehran ACC) except in “b” and “c”
- b) within controlled airspace and at controlled aerodromes: by the relevant air traffic control units (ATCU).
- c) within uncontrolled aerodromes: by the relevant air traffic service units (AFIS)

11.1.1.2 FIS PHRASEOLOGY

The existing phraseology in this chapter may be used by an FIS unit, where appropriate, to pass information to air traffic, considering the fact that any advice given by FIS units are only suggestions and they shall not be considered as CLEARANCE.

11.1.1.3 Transfer of responsibility for the provision of flight information service:

The responsibility for the provision of flight information service to a flight normally passes from the transferring ATS unit to the accepting ATS unit at the time of crossing the COP. However, when coordination is required but communication facilities are inadequate, the former ATS unit shall, as far as practicable, continue to provide flight information service to the flight until it has established two-way communication with the accepting ATS unit.

11.1.1.4 In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace or by cancelling its IFR flight and proceeding on VFR in airspace where VFR flights are not controlled, the air traffic control unit concerned should ensure that appropriate information on the flight is forwarded to air traffic services unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

11.1.2 SCOPE OF FLIGHT INFORMATION SERVICE

11.1.2.1 Flight information service shall include the provision of pertinent:

- a) weather conditions reported or forecast at departure, destination and as appropriate, alternate aerodromes such as “METAR”, “SPECI”, “AIRMET” “SIGMET”, “AREA FORECAST”, “TAF”, etc.;
- b) information on changes in the availability of radio navigation services;
- c) 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;
- d) information on unmanned free balloons;
- e) information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds;
- f) information concerning the release into the atmosphere of radioactive materials or toxic chemicals;
- g) collision hazards, to aircraft operating in airspace Classes C, D,E,F and G; and
- h) any other information likely to affect safety.
- i) 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.

Note 1. The information in g), in respect of unknown aircraft might constitute a collision hazard to the aircraft informed, will sometimes be incomplete and air traffic services cannot assume responsibility for its issuance at all times or for its accuracy. See also 8.5.1.5.

Note 2. 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.

Note 3. When there is a need to supplement collision hazard information provided in compliance with g), or in case of temporary disruption of flight information service, traffic information broadcasts by aircraft may be applied in designated airspaces. Guidance on traffic information broadcasts by aircraft and related operating procedures is contained in Chapter 9 section 4.

11.1.2.2 Flight information service provided to VFR flights shall include, in addition to that outlined in 11.1.2.1, 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.

11.1.3 APPLICATION

11.1.3.1 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.

Note. Flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities and the pilot-in-command has to make the final decision regarding any suggested alteration of flight plan.

11.1.3.2 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.

Note. It is recognized that in certain circumstances aircraft on final approach, landing, take-off and climb may require to receive without delay essential information other than that pertaining to the provision of air traffic control service.

11.1.4 RECORDING AND TRANSMISSION OF INFORMATION ON THE PROGRESS OF FLIGHTS

11.1.4.1 Information on the actual progress of flights receiving air traffic services shall be:

- a) recorded by the air traffic services units within which the aircraft is flying in such a manner that it is available for reference and in case it is requested for search and rescue action;
- b) transmitted by the air traffic services unit receiving the information to other air traffic services units concerned, when so required.

11.1.5 TRANSMISSION OF INFORMATION

11.1.5.1 MEANS OF TRANSMISSION

11.1.5.1.1 Except as provided in Para 11.1.5.2.1, information shall be disseminated to aircraft by one or more of the following means:

- a) the preferred method of directed transmission on the initiative of the appropriate ATS unit to an aircraft, ensuring that receipt is acknowledged; or
- b) a general call, unacknowledged transmission to all aircraft concerned; or
- c) broadcast; or

Note. It should be recognized that in certain circumstances, e.g. during the last stages of a final approach, it may be impracticable for aircraft to acknowledge directed transmissions.

11.1.5.1.2 The use of general calls shall be limited to cases where it is necessary to disseminate essential information to several aircraft without delay, e.g. the sudden occurrence of hazards, a change of the runway-in-use, or the failure of a key approach and landing aid.

11.1.5.2 TRANSMISSION OF SIGMET, AIRMET INFORMATION AND SPECIAL AIR-REPORTS:

11.1.5.2.1 SIGMET and AIRMET Information is disseminated H24, in addition to directed transmissions to aircraft general calls, as an aeronautical or radio broadcast:

- a) by the Tehran Area Control Centre for Tehran FIR;
- b) by the ATS units for their own area of responsibility

11.1.5.2.2 AIRMET information passed to aircraft shall cover a portion of the route up to one hour's flying time ahead of the aircraft.

11.1.5.2.3 The special air-report, AIRMET information to be passed to aircraft on ground initiative should cover a portion of the route up to one hour's flying time ahead of the aircraft.

11.1.5.2.4 SIGMET information to be passed to aircraft on ground initiative should cover a portion of the route up to two hours' flying time ahead of the aircraft.

11.1.5.3 TRANSMISSION OF INFORMATION CONCERNING VOLCANIC ACTIVITY

Information concerning pre-eruption volcanic activity, volcanic eruptions and volcanic ash clouds (position of clouds and flight levels affected) shall be disseminated to aircraft by one or more of the means specified in Para 11.1.5.1.1.

11.1.5.4 TRANSMISSION OF INFORMATION CONCERNING RADIOACTIVE MATERIALS AND TOXIC CHEMICAL CLOUDS:

Information on the release into the atmosphere of radioactive materials or toxic chemicals which could affect airspace within the area of responsibility of the ATS unit shall be transmitted to aircraft by one or more of the means specified in Para 11.1.5.1.1.

11.1.5.5 TRANSMISSION OF SPECI AND AMENDED TAF

11.1.5.5.1 Special reports in the SPECI code form and amended TAF shall be transmitted on request and supplemented by:

- a) directed transmission from the appropriate air traffic services unit of selected special reports and amended TAF for the departure, destination and its alternate aerodromes, as listed in the flight plan; or
- b) a general call on appropriate frequencies for the unacknowledged transmission to affected aircraft of selected special reports and amended aerodrome forecasts; or
- c) continuous or frequent broadcast to make available current METAR and TAF in areas where traffic congestion dictates.

11.1.6 Operational flight information service broadcasts

11.1.6.1 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.

Note1. 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.

Note2. 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. (See also 6.4.2 , 7.2.1 and 3.6.9)

11.1.6.2 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.

Section 2

AERODROME FLIGHT INFORMATION SERVICE (AFIS)

11.2.1 APPLICATION

11.2.1.1 Aerodrome flight information service (AFIS) is the term used to describe the provision of advice and information useful for the safe and efficient conduct of aerodrome traffic, at those aerodromes where where CAA.IRI determines that the provision of aerodrome control service is either not justified, or is not justified on a 24-hour basis.

11.2.1.2 In determining whether aerodrome control service or AFIS should be provided at a given aerodrome, the appropriate authorities are expected to give due consideration to the type(s) of air traffic involved, the density and complexity of air traffic, the topographical and meteorological conditions, and such other factors as may be pertinent to safety and efficiency, including the language or languages to be used in air-ground communications.

Note. At locations where the CAA.IRI has determined that AFIS should be provided, this section outlines conditions in which aircraft should be delivered the service.

11.2.1.3 The CAA.IRI determines AFIS hours of operation and airspace classification, which is normally class G, and specifies the lateral and vertical limits of such airspace.

11.2.1.4 AFIS should be provided by a unit located at the aerodrome and identified as an "AFIS unit". An AFIS unit will provide flight information service and alerting service to aerodrome traffic.

11.2.1.5 When AFIS is provided from a tower, the location should ensure the best possible view of the aerodrome, the surrounding area and, in particular, the manoeuvring area. AFIS could also be provided from a room in a comparable location, facing the aerodrome, with large unobstructed windows and allowing visibility of at least the approach ends of the runway. AFIS services that are delivered remotely should be capable of providing the level of information necessary for the conduct of safe and efficient aircraft operation at or around the aerodrome.

11.2.1.6 To the extent possible, the minimum equipment in the AFIS unit should be the same as that required for an aerodrome control tower at an aerodrome with light traffic density or as determined necessary by CAA.IRI.

11.2.1.7 The AFIS unit is not an air traffic control unit. Except for cases when relaying clearances from air traffic control (ATC), AFISOs only provide advice and information to pilots. It is therefore the responsibility of pilots using the service provided by this unit to maintain proper separation in conformity with the rules of the air.

11.2.1.8 Pilots operating within an AFIS area must, on the basis of the information received from the AFIS unit and combined with their own knowledge and observations, decide on the course of action to be taken to ensure separation from other aircraft, ground vehicles and obstacles. As such, pilots are expected to conduct their flight in accordance with SIRA.3225.

11.2.2 SAFETY MANAGEMENT SYSTEM (SMS)

11.2.2.1 AFIS SMS should be conducted in accordance with CAA.IRI ATM/ANS ATS.OR.200, Safety Management.

11.2.3 PROCEDURES FOR AFIS

11.2.3.1 GENERAL

11.2.3.1.1 AFIS units should provide information to aircraft within its area of responsibility to achieve a safe, orderly and expeditious flow of aerodrome traffic on and in the vicinity of an aerodrome, assisting pilots in avoiding collisions where applicable and assisting with situational awareness regarding:

- a) aircraft flying within the vicinity of designated area of responsibility of the AFIS unit, including aerodrome traffic circuits;
- b) aircraft operating on the manoeuvring area;
- c) aircraft landing and taking off;
- d) aircraft and vehicles operating on the manoeuvring area;
- e) aircraft on the manoeuvring area and obstructions in these areas.

11.2.3.1.2 AFISOs should maintain a continuous watch on all flight operations on and in the vicinity of an aerodrome as well as vehicles and personnel on the manoeuvring area by visual observation, and where applicable, by using an ATS surveillance system. (see 11.2.8).

11.2.3.2 SELECTION OF RUNWAY

11.2.3.2.1 The term “runway-in-use” should be used to indicate the runway or runways that, at a particular time, are considered by the AFIS unit to be the most suitable for use by the types of aircraft expected to land or take off at the aerodrome.

Note. Separate or multiple runways may be designated for arriving aircraft and departing aircraft.

11.2.3.2.2 Normally, an aircraft will land and take off into wind unless safety, the runway configuration, meteorological conditions and available instrument approach procedures or air traffic conditions determine that a different direction is preferable.

In selecting the runway, the primary consideration is normally wind speed and direction; however, the unit providing AFIS should take into consideration:

- a) calm wind runway and aircraft direction of flight
- b) aerodrome traffic circuits
- c) runway lengths
- d) approach and landing aids available
- e) ground traffic
- f) cross wind component
- g) noise abatement procedures

11.2.3.2.3 A pilot-in-command can refuse a runway-in-use suggested by an AFISO. In such circumstances, AFISOs should provide detailed information on other local traffic that is utilizing the runway-in-use to assist the pilot in ensuring that safe operations are maintained when using an alternative runway.

11.2.3.2.4 RUNWAY CHANGES

11.2.3.2.4.1 Should a change of runway be necessary, AFISO shall:

- a) inform related approach controller if any at least 5 minutes in advance to let the approach controller to decide the last landing and/or departing aircraft prior to the runway change. This must be planned as to be as close as practicable to the agreed time.
- b) inform the following:
 - 1. aircraft operating in the aerodrome;
 - 2. aerodrome fire service;
 - 3. contractors working on the aerodrome who will be affected by the change through the Marshaller;
 - 4. other agencies according to local instructions that incorporated into LATCI.

Note. Pilot of aircraft which has passed the IAF is responsible to decide which runway is suitable for landing. in any case AFISO shall be advised about the decision which is made.

11.2.3.3 INITIAL CALL TO AFIS

11.2.3.3.1 For aircraft being provided with aerodrome flight information service, the initial call by the pilot should contain:

- a) designation of the ground station being called;
- b) call sign, type of aircraft and, for aircraft in the heavy wake turbulence category, use the word "HEAVY or SUPER" as applicable;
- c) position;
- d) level, if applicable;
- e) intentions; and
- f) additional elements, as required by the ANSP.

11.2.3.4 INFORMATION RELATED TO THE OPERATION OF AIRCRAFT – GENERAL

11.2.3.4.1 TRAFFIC INFORMATION TO AIRCRAFT

11.2.3.4.1.1 The following information should be provided as appropriate:

- a) direction of flight of aircraft concerned
- b) type and wake turbulence category (if known and required) of aircraft concerned;
- c) level of aircraft concerned, including eventual changes;
- d) position of the aircraft concerned in terms of:
 - 1) the 12-hour clock as well as distance from the conflicting traffic; or
 - 2) actual or estimated position of the aircraft concerned

Note. the position of the aircraft may be included in conjunction with the direction of flight, if preferred.

- e) any other information considered relevant (e.g. approaching, crossing the AFIS area, estimated take-off or landing time).

11.2.3.4.2 LOCAL TRAFFIC INFORMATION

11.2.3.4.2.1 Information regarding local traffic should be issued in a timely manner, either directly or through the unit providing approach control service when, in the judgement of the AFIS unit, such information is necessary in the interests of safety, or when requested by aircraft.

11.2.3.4.2.2 Local traffic should be described so as to be easily identified by the pilot.

11.2.3.4.3 RUNWAY STATUS INFORMATION

11.2.3.4.3.1 AFISOs should provide information to departing and arriving aircraft on aerodrome traffic or obstructions known to be on the runway or closer to the runway than a distance specified in CAA.IRI ADR.

11.2.3.4.4 UNCERTAINTY OF POSITION ON THE MANOEUVRING AREA

11.2.3.4.4.1 Except as provided for in 11.2.4.4.2, a pilot in doubt as to the position of the aircraft with respect to the manoeuvring area should immediately:

- a) stop the aircraft; and
- b) simultaneously notify the AFIS unit of the circumstances (including last known position).

11.2.3.4.4.2 In those situations where a pilot is in doubt as to the position of the aircraft with respect to the manoeuvring area, but recognizes that the aircraft is on a runway, the pilot should immediately:

- a) notify the AFIS unit of the circumstances (including the last known position);
- b) if able to locate a nearby suitable taxiway, vacate the runway as expeditiously as possible, and then stop the aircraft.

11.2.3.4.4.3 A vehicle driver in doubt as to the position of the vehicle with respect to the manoeuvring area should immediately:

- a) notify the AFIS unit of the circumstances (including the last known position);
- b) simultaneously, unless otherwise instructed by the AFIS unit, vacate the landing area, taxiway, or other part of the manoeuvring area, to a safe distance as expeditiously as possible, and then stop the vehicle.

11.2.3.4.4.4 In the event the AFIS unit becomes aware of an aircraft or vehicle that is lost or uncertain of its position on the manoeuvring area, appropriate information should be provided immediately to other pilots affected and assistance provided to the aircraft or vehicle concerned to determine its position.

11.2.3.4.5 WAKE TURBULENCE AND JET BLAST HAZARDS

11.2.3.4.5.1 The responsibility for wake turbulence avoidance rests entirely with the pilot-in-command. AFIS units should, to the extent practicable, advise aircraft of the expected occurrence of hazards caused by wake turbulence. Such information will be provided by the warning 'caution wake turbulence' and may also include relevant information on the aircraft concerned.

Note. Occurrence of wake turbulence hazards cannot be accurately predicted and AFIS units cannot assume responsibility for the issuance of advice on such hazards at all times, nor for its accuracy.

11.2.3.4.5.2 In providing information, AFIS units should take into account the hazards caused by jet blast, helicopter downwash turbulence and propeller slipstream to taxiing aircraft, to aircraft taking off or landing, particularly when intersecting runways are being used, and to vehicles and personnel operating on the aerodrome.

Note. Jet blast, helicopter downwash turbulence and propeller slipstream can produce localized wind velocities of sufficient strength to cause damage to other aircraft, vehicles and personnel operating within

the affected area. Further guidance on these effects are contained in the ICAO Air Traffic Services Planning Manual (Doc 9426), Part II, Section 5, Chapter 3.

11.2.3.4.6 ESSENTIAL INFORMATION ON AERODROME CONDITIONS

11.2.3.4.6.1 Essential information on aerodrome conditions is information necessary to safety in the operation of aircraft, which pertains to the movement area or any facilities usually associated therewith. For example, construction work on a taxi strip not connected to the runway-in-use would not be essential information to any aircraft except one that might be taxied in the vicinity of the construction work. As another example, if all traffic must be confined to runways, that fact should be considered as essential aerodrome information to any aircraft not familiar with the aerodrome.

11.2.3.4.6.2 Essential information on aerodrome conditions should include information relating to the following:

- a) construction or maintenance work on, or immediately adjacent to the movement area;
- b) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;
- c) snow, slush or ice on a runway, a taxiway or an apron;
- d) water on a runway, a taxiway or an apron;
- e) snow banks or drifts adjacent to a runway, a taxiway or an apron;
- f) other temporary hazards, including parked aircraft and birds on the ground or in the air;
- g) failure or irregular operation of part or all of the aerodrome lighting system;
- h) any other pertinent information.

Note. Up-to-date information on the conditions on aprons may not always be available to the AFIS unit. The responsibility of the AFIS unit in relation to aprons is, with respect to the provisions of 11.2.3.4.6.1 and 11.2.3.4.6.2, limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

11.2.3.4.6.3 Essential information on aerodrome conditions should be given to every aircraft, except when it is known that the aircraft already has received all or part of the information from other sources. The information should be given in sufficient time for the aircraft to make proper use of it, and the hazards should be identified as distinctly as possible.

Note. "Other sources" include NOTAM, ATIS broadcasts, and the display of suitable signals.

11.2.3.4.6.4 When a condition not previously notified pertaining to the safe use by aircraft of the manoeuvring area is reported to or observed by the AFIS unit, the appropriate aerodrome authority should be informed and, if necessary, operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

11.2.3.4.7 ABNORMAL AIRCRAFT CONFIGURATION AND CONDITION

11.2.3.4.7.1 Whenever an abnormal configuration or condition of an aircraft, including conditions such as landing gear not extended or only partly extended, or unusual smoke emissions from any part of the aircraft, is observed by or reported to the AFIS unit, the aircraft concerned should be advised without delay.

11.2.3.4.7.2 When requested by the flight crew of a departing aircraft suspecting damage to the aircraft, the departure runway used should be inspected without delay and the flight crew advised in the most expeditious manner as to whether any aircraft debris or bird or animal remains have been found or not.

Note. Refer to 11.2.7 for additional information on handling abnormal conditions or emergencies.

11.2.3.4.8 AIR TRAFFIC INCIDENTS

11.2.3.4.8.1 An air traffic incident report should be submitted for incidents specifically related to the provision of air traffic services in accordance with the requirements of the ANSPs and regulatory agencies.

11.2.3.5 INFORMATION RELATED TO THE OPERATION OF AIRCRAFT DEPARTING TRAFFIC

11.2.3.5.1 START-UP TIME PROCEDURES

11.2.3.5.1.1 Start-up time procedures should be implemented when warranted by air traffic flow management (ATFM) regulations. ATFM procedures are determined by the ANSP and should specify the criteria associated with flow management procedures.

11.2.3.5.1.2 When so requested by the pilot prior to engine start, an expected take-off time should be provided if applicable.

11.2.3.5.1.3 All IFR flights shall inform appropriate ATS unit of departure aerodrome 5 to 10 minutes before ready to start up.

11.3.5.1.4 Issued start up approval by ATS unit is valid up to 10 minutes from the time of start up approval granted to the pilot.

11.3.5.1.5 In so far as practicable, ATC clearance should be issued to the aircraft prior to taxi.

Note 1. Aircraft are required to request taxi during the validity time (10 minutes after start up approval).

Note 2. If the pilot is not able to make start up by the first start up approval for any reason, only another request can be accepted during the validity of the flight plan.

Note 3. It is required to submit a new flight plan if an aircraft fails to depart after two start up approval. Departure should not be made more than 10 minutes before EOBT.

11.2.3.5.2 DEPARTURE INFORMATION

11.2.3.5.2.1 Prior to taxiing for take-off, aircraft should be advised of the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

- a) the runway in use;
- b) the surface wind direction and speed, including significant variations therefrom;
- c) the QNH altimeter setting and, if requested, the QFE altimeter setting;
- d) Where required or upon request, the air temperature for the runway to be used, in the case of turbine- engine aircraft;
- e) Traffic information including both aircraft and ground traffic where required;
- f) Supplementary information such as:
 - 1) the correct time,
 - 2) equipment status,
 - 3) wake turbulence cautionaries,
 - 4) visibility or RVR where required,
 - 5) aerodrome conditions,

- 6) weather conditions,
- 7) Any other information required to ensure flight safety

11.2.3.5.2.2 Prior to take-off aircraft should be advised of:

- a) any significant changes in the surface wind direction and speed, the air temperature where required, and the visibility or RVR value(s)
- b) significant meteorological conditions in the take-off and climb-out area, except when it is known that the information has already been received by the aircraft. This information may have been provided with the standard departure information or via electronic means.
- c) updates on any significant changes to previously provided information.

Note. Significant meteorological conditions in this context include the occurrence or expected occurrence of cumulonimbus or thunderstorm, moderate or severe turbulence, wind shear, hail, moderate or severe icing, severe squall line, freezing precipitation, severe mountain waves, sandstorm, dust storm, blowing snow, tornado or waterspout in the take-off and climb-out area.

11.2.3.6 INFORMATION RELATED TO THE OPERATION OF AIRCRAFT –ARRIVING TRAFFIC

11.2.3.6.1 ARRIVAL INFORMATION

11.2.3.6.1.1 Prior to entering the traffic circuit or commencing its approach to land, an aircraft should be provided with the following elements of information, in the order listed, with the exception of such elements which it is known the aircraft has already received:

- a) the runway-in-use;
- b) the surface wind direction and speed, including significant variations therefrom;
- c) the QNH altimeter setting and, if appropriate, the QFE altimeter setting;
- d) Traffic information including both aircraft and ground traffic where required;;
- e) Supplementary information such as:
 - 1) equipment status,
 - 2) wake turbulence cautionaries,
 - 3) visibility or RVR where required,
 - 4) aerodrome conditions,
 - 5) weather conditions,
 - 6) Any other information required to ensure flight safety.

Note.regarding the provision of altimeter setting, see paragraph 11.2.3.8.3.2.

11.2.3.6.1.2 Arriving IFR traffic that intends to conduct an instrument approach may also receive additional meteorological elements of information, where required by the ANSP, with the exception of such elements which it is known the aircraft has already received:

- a) present weather;
- b) 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;
- c) air temperature;
- d) dew point temperature, inclusion determined on the basis of a regional air navigation agreement;

Note 1. Regarding the provision of altimeter setting, see paragraph 11.2.3.8.3.2.

- e) significant meteorological phenomena in the approach area; and
- f) trend-type landing forecast, when available.

11.2.3.6.1.3 In applying the provisions in 11.2.3.6.1 and 11.2.3.6.2, it should be recognized that information published by NOTAM or disseminated by other means may not have been received by the aircraft prior to departure or during en-route flight.

11.2.3.6.1.4 At the commencement of final approach, the following information should be transmitted to aircraft:

- a) significant changes in the mean surface wind direction and speed.

Note. Significant changes are specified in CAA.IRI ATM/ANS MET.TR.205. However, if the AFISO possesses wind information in the form of components, the significant changes are

— Mean headwind component: 10 kt

— Mean tailwind component: 2 kt

— Mean crosswind component: 5 kt

- b) reports of any wind shear and/or turbulence in the final approach area;
- c) the current RVR value(s) and the trend where required.
- d) Any significant changes in runway surface conditions, operational status of visual or non-visual aids
- e) updates on any significant changes to previously provided information.

11.2.3.6.2 VISUAL SIGNALS

11.2.3.6.2.1 When conditions make it necessary, an AFIS unit may use the signal below to aircraft in the air to indicate that the aerodrome is unsafe.

Light signal	Meaning
Red flashes to aircraft in the air	Aerodrome unsafe

11.2.3.7 COORDINATION WITH OTHER ATS UNITS

11.2.3.7.1 GENERAL

11.2.3.7.1.1 Where necessary, letters of agreement or arrangement should be developed between the appropriate ATS units and the AFIS unit for the establishment of procedures and exchange of information regarding arriving and departing aircraft. The procedures in paragraphs 11.2.4.7.2 and 11.2.4.7.3 below may be used as a template regarding such agreements or arrangements.

11.2.3.7.2 ARRIVING TRAFFIC

11.2.3.7.2.1 For arriving IFR traffic the appropriate ATC unit should provide an estimated time of arrival (ETA) to the AFIS unit. The ETA message should if possible be provided at least 15 minutes before the ETA. Revisions to the ETA should be provided when the time difference is 5 minutes or more.

11.2.3.7.2.2 When the AFIS unit has received an ETA for an arriving IFR aircraft, it should provide the ATC unit with information about known traffic which the arriving aircraft should be aware of before transfer of communication to the AFIS unit. The information should be provided in such a time as being relevant and should be revised as necessary. The ATC unit should relay the information to the arriving aircraft if required.

11.2.3.7.2.3 AFIS aerodrome below or in close proximity to controlled airspace

11.2.3.7.2.3.1 Where relevant, the AFIS unit should provide the ATC unit with QNH and transition level. The ATC unit should relay this information to the aircraft.

11.2.3.7.2.3.2 Transfer of communications should be achieved not later than when the aircraft passes the controlled airspace boundary, if no other agreement has been made between the units concerned or in local instructions.

Note. See also 11.2.3.7.3.3 a).

11.2.3.7.2.3.3 Should the aircraft fail to establish communications with the AFIS unit within 5 minutes after the latest received ETA, the AFIS unit should inform the ATC unit concerned.

11.2.3.7.2.3.4 When the AFIS aerodrome is situated below a TMA or CTA, the AFIS unit should as soon as possible inform the ATC unit about local traffic concerned as follows:

- a) when necessary, inform the ATC unit when the first aircraft in a sequence is in contact with and is seen by the AFIS unit and there is a reasonable assurance that it will land or has landed, depending on what occurs first;
- b) missed approach, if the aircraft will leave the area of responsibility of the AFIS unit or when the missed approach may affect other arriving traffic;
- c) any aircraft on or near the manoeuvring area, or operating in the vicinity of the aerodrome, which may constitute a hazard to an arriving aircraft still under the control of the ATC unit.

11.2.3.7.2.3.5 When an ATC unit is providing approach control to arriving aircraft within a terminal area the following applies:

- a) information about an approach with position information should be given to the AFIS unit in time for the AFIS unit to be able to inform other traffic concerned and to ensure that the runway is free or available for landing as regards vehicle movements or work on the runway;

Note. Suitable distance at which report of an approach will be given is normally established in local instructions.

- b) if the ATC unit is vectoring aircraft for a straight in approach, the AFIS unit should be informed of this fact in a timely manner;
- c) the AFIS unit should provide information on relevant local traffic to the ATC unit which should relay this information to the aircraft concerned.

11.2.3.7.3 DEPARTING TRAFFIC

11.2.3.7.3.1 AFIS unit should provide the appropriate ATC unit with:

- a) estimated time of departure (ETD) and any revisions of 5 minutes or more;
- b) when necessary, runway-in-use; and
- c) when requested, actual time of departure (ATD).

11.2.3.7.3.2 The ATC unit should provide the AFIS unit with:

- a) ATC clearance when required as well as actual traffic information about such known traffic that the departing aircraft will need to be informed of before departure, and transponder code;
- b) the AFIS unit should read-back the ATC clearance received unless delivered electronically and not required by CAA.IRI;

- c) the AFIS unit should relay the ATC clearance provided, traffic information and transponder code to the aircraft before departure and in exactly the form it was received.

11.2.3.7.3.3 If no agreement to the contrary, the transfer of communication from the AFIS unit to the ATC unit should be made as follows:

- a) as soon as safely possible and not more than 2 minutes after departure when the AFIS unit is located below or in close proximity to a terminal control area (TMA) and the aircraft will climb into this TMA;
- b) in other cases, at a time suitable taking into consideration the traffic in the area; and
- c) in all cases, transfer of communication should be made not later than when the aircraft is estimated to exit the AFIS area.

11.2.3.7.4 READ-BACK OF CLEARANCE

11.2.3.7.4.1 When relaying ATC clearances, the AFISO shall ensure that the flight crew read back the 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; and
- b) runway-in-use, altimeter settings, SSR codes, newly assigned communication channels, level instructions, heading and speed instructions and, whether issued by the ATIS unit or contained in automatic terminal information service (ATIS) broadcasts, transition levels.

Note. If the level of an aircraft is reported in relation to standard pressure 1013.2 hPa, the words "FLIGHT LEVEL" precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word "METRES" or "FEET", as appropriate.

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

11.2.3.7.4.1.2 The AFISO 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.

11.2.3.8 ALTIMETER SETTING PROCEDURES

11.2.3.8.1 EXPRESSION OF VERTICAL POSITION OF AIRCRAFT

11.2.3.8.1.1 For flights in the vicinity of aerodromes and within the local area the vertical position of aircraft should except as provided for in 11.2.3.8.1.2, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position should be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

11.2.4.8.1.2 When an aircraft is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft should be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it should be expressed in terms of height above runway threshold elevation:

- a) for instrument runways, if the threshold is 2m (7ft) or more below the aerodrome elevation; and
- b) for precision approach runways.

11.2.3.8.2 DETERMINATION OF THE TRANSITION LEVEL

11.2.3.8.2.1 The ATS unit responsible for the airspace should establish the transition level to be used in the vicinity of the aerodrome concerned for the appropriate period of time on the basis of QNH (altimeter subscale setting to obtain elevation when on the ground) reports and forecast mean sea level pressure, if required.

11.2.3.8.2.2 The transition level should be the lowest flight level available for use above the transition altitude established for the aerodrome concerned. Where a common transition altitude has been established for two or more aerodromes which are so closely located as to require coordinated procedures, the appropriate ATS units should establish a common transition level to be used at any given time in the vicinity of the aerodrome and, when relevant, in any affected adjacent airspace concerned.

11.2.3.8.3 PROVISION OF ALTIMETER SETTING INFORMATION

11.2.3.8.3.1 Where required, the flight crew should be provided with the transition level in due time prior to reaching it during descent. This may be accomplished by voice communications, ATIS broadcast or data link.

11.2.3.8.3.2 A QNH altimeter setting should be provided before descent to an altitude below the transition level or before entering the AFIS area, and before taxiing for departing aircraft, except when it is known that the aircraft has already received the information in a direct transmission.

11.2.3.8.3.3 A QFE altimeter setting should be provided to aircraft on request or on a regular basis in accordance with local arrangements; it should be the QFE for the aerodrome elevation except for:

- a) non-precision approach runways, if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and
- b) precision approach runways;

in which cases the QFE for the relevant runway threshold should be provided.

11.2.3.8.3.4 Altimeter settings provided to aircraft should be rounded down to the nearest lower whole hectopascal.

11.2.3.9 RECORDING AND RETENTION OF DATA FOR INVESTIGATIVE PURPOSES

11.2.3.9.1 Paper flight progress strips should normally be retained for a period of at least 30 days. Radio-telecommunications, electronic flight progress, coordination and ATS surveillance system data should be recorded and retained for at least the same period of time. Retention of the aforementioned items may be extended as required by investigations or regulations.

Note. Requirements for retention of all automatic recordings of communications in ATS are specified in CAA.IRI ATM/ANS, ATS.OR.455.

11.2.4 AERODROME TRAFFIC

11.2.4.1 GENERAL

11.2.4.1.1 As the view from the flight deck of an aircraft is normally restricted, information provided by the AFISO which require the flight crew to employ visual detection, recognition and observation will be phrased in a clear, concise and complete manner.

11.2.4.2 TRAFFIC ON THE MANOEUVRING AREA

11.2.4.2.1 TAXIING AIRCRAFT

11.2.4.2.1.1 On receiving information that an aircraft is about to taxi, the AFIS unit should determine where the aircraft concerned is parked. Relevant information on local traffic and aerodrome conditions should be provided to assist the flight crew in selecting taxi routes to avoid collision with other aircraft or objects. Information should include other factors affecting safety such as turbulence generated by other aircraft.

Note. When hovering in ground effect or air taxiing, helicopters generate downwash producing high velocity outwash vortices to a distance of approximately three times the diameter of the rotor.

11.2.4.2.1.2 Taxiing on a runway

11.2.4.2.1.2.1 If the AFISO is unable to determine that a vacating or crossing aircraft has cleared the runway, the aircraft should be requested to report when it has vacated the runway. The report is to be made when the entire aircraft is beyond the relevant runway-holding position.

11.2.4.2.2 MANAGEMENT OF GROUND VEHICLES AND PERSONNEL

11.2.4.2.2.1 Entry to the manoeuvring area

11.2.4.2.2.1.1 The movement of persons or vehicles, including towed aircraft, on the manoeuvring area should be subject to authorization by the AFIS unit. In such cases, persons, including drivers of all vehicles, should be required to obtain authorization from the AFIS unit before entering, and to report exiting, the manoeuvring area, except when prescribed by the ANSP and/or the aerodrome operator which approved by CAA.IRI.

11.2.4.2.2.2 Communication requirements and visual ground signals

11.2.4.2.2.2.1 All vehicles employed on the manoeuvring area should be capable of maintaining two-way radio-communication with the AFIS unit, except when the vehicle is only occasionally used on the manoeuvring area and is:

- a) accompanied by a vehicle with the required communications capability; or
- b) employed in-accordance-with a pre-arranged plan established by the AFIS unit.

11.2.4.2.2.2.2 Visual ground signals listed in Table 6-1, may be displayed by an AFIS unit.

11.2.4.2.2.2.3 When employed in accordance with a plan prearranged with the AFIS unit, construction and maintenance personnel should not normally be required to maintain two-way radio-communication with the AFIS unit. Communication may be accomplished through a vehicle operator who assumes responsibility for the construction and maintenance personnel. Arrangements for the management of constructional and maintenance personnel should be detailed within local instructions.

11.2.4.2.3 TAKE-OFF

11.2.4.2.3.1 When a pilot reports 'ready for departure' AFISOs should provide pilots with pertinent information on local traffic, aerodrome conditions and any other factors likely to affect the safety of the departing aircraft. Such information should be updated by the AFISO when required or when requested by the pilot.

11.2.4.2.3.2 When an AFIS unit is required to obtain or relay an ATC clearance prior to take-off (see 11.2.3), it should be requested and, once received, forwarded to the aircraft with the least possible delay either after receipt of a request made by a pilot, or prior to such request if practicable. The AFISO should ensure that the ATC clearance has been transmitted to and acknowledged by the aircraft concerned either before, or immediately after, the pilot has reported 'ready for departure', and before the AFISO has provided the information detailed in 11.2.4.2.3.1.

11.2.4.2.3.3 On the basis of the information received from the AFIS unit, combined with their own knowledge and observations, the pilot will determine when to proceed past the runway-holding position and will take-off at their own discretion.

11.2.4.2.4 ARRIVING AIRCRAFT

11.2.4.2.4.1 When a pilot reports 'final', AFISOs should provide pilots with pertinent information on local traffic, aerodrome conditions and any other factors likely to affect the safety of the aircraft. Such information should be updated by the AFISO when required or when requested by the pilot.

11.2.4.2.4.2 On the basis of the information received from the AFIS unit, combined with their own knowledge and observations, the pilot will determine whether to land or go-around. A landing aircraft will not normally cross the runway threshold on its final approach until the preceding departing aircraft has crossed the end of the runway-in-use, or has started a turn, or until all preceding landing aircraft have vacated the runway-in-use.

11.2.4.2.4.3 When necessary or desirable, e.g. due to low visibility conditions, a landing or a taxiing aircraft may be requested to report when a runway has been vacated. This report will be made when the entire aircraft is beyond the relevant runway holding position.

11.2.4.2.5 RUNWAY INCURSION OR OBSTRUCTED RUNWAY

11.2.4.2.5.1 AFISOs, when aware of actual or imminent runway incursions, or the existence of obstructions on or in close proximity to the runway likely to impair the safety of an aircraft taking off or landing, should inform the aircraft of the hazard and its location in relation to the runway and request the pilot's intentions.

11.2.4.2.5.2 Pilots and AFISOs should report any occurrence involving an obstruction on the runway or a runway incursion and may use the ICAO Model Runway Incursion Initial Report Form. The form, instructions for its completion and further information regarding the reporting of runway are contained in the Manual on the Prevention of Runway Incursions (Doc 9870).

11.2.4.2.5.3 The aerodrome operator should designate, whenever necessary, a location or several locations on the movement area of the aerodrome as hot spot(s). The hot spot(s) should be charted in accordance with AMC1 AIS.OR.325.

11.2.4.3 AERONAUTICAL GROUND LIGHTS

The guidance in this Section applies to all aerodromes, whether or not AFIS or aerodrome control service is provided. In addition, the procedures in 11.2.4.3.1.1 apply to all aeronautical ground lights, whether or not they are on or in the vicinity of an aerodrome.

11.2.4.3.1 GENERAL

11.2.4.3.1.1 Procedures should be adopted that are in accordance with Chapter 3, Section 9, in locations where AFIS personnel are responsible for the operation of aeronautical ground lights.

11.2.4.3.2 MONITORING OF VISUAL AIDS

11.2.4.3.2.1 AFISOs should make use of automatic monitoring facilities, when provided, to ascertain whether the lighting is in good order and functioning according to selection.

11.2.4.3.2.2 In the absence of an automatic monitoring system or to supplement such a system, the AFISO should visually observe such lighting as can be seen from the AFIS unit and use information from other sources such as visual inspections or reports from aircraft to maintain awareness of the operational status of the visual aids.

11.2.4.3.2.3 On receipt of information indicating a lighting fault, the AFISO should take such action as is warranted to safeguard any affected aircraft or vehicles, and initiate action to have the fault rectified.

11.2.5 PHRASEOLOGY AND AFIS REQUIREMENTS FOR COMMUNICATIONS

11.2.5.1 COMMUNICATION PROCEDURES

11.2.5.1.1 The communications procedures for AFIS operations should be in accordance with 11.2.5.3 and Chapter 3, Section 2. Therefore, pilots, ATS personnel, and other ground personnel should be thoroughly familiar with the radiotelephony procedures contained therein.

Note. See also SIRA Section 14.

11.2.5.2 GENERAL

Note. This chapter contains phraseologies unique to AFIS operations, it avoids the replication of existing air traffic services phraseologies and procedures contained within Chapter 14 and Chapter 3, Section 2.

11.2.5.2.1 All phraseologies should be used in conjunction with call signs (aircraft, ground vehicle, AFIS or other) as appropriate. In order that the phraseologies listed should be readily discernible, most phraseologies contained in this Chapter show the text of a complete message without call signs. They are not intended to be exhaustive, and when circumstances differ, pilots, ATS personnel and other ground personnel will be expected to use plain language, which should be as clear and concise as possible.

11.2.5.2.2 The language that is normally used in all air-ground communications shall be English language while in some cases, for the purpose of better mutual understanding of Persian speaking parties, such as unusual situations, Persian language may also be used.

11.2.5.2.3 The call sign of the AFIS unit should be the name of the aerodrome followed by "INFORMATION".

11.2.5.2.4 Where procedures have been authorized by the appropriate authorities concerning the movement of vehicles on the manoeuvring area, the word "PROCEED" should be used where required.

11.2.5.2.5 For aircraft in the super or heavy wake turbulence categories the word "SUPER" or "HEAVY" should be included, as appropriate, immediately after the aircraft call sign in the initial radiotelephony contact between such aircraft and ATS units.

11.2.5.2.6 If at any time it is apparent that the pilot is not aware that aerodrome control service is not provided, the pilot should immediately be informed of this fact using the following phraseology: "AERODROME CONTROL SERVICE NOT, REPEAT NOT, PROVIDED."

11.2.5.3 PHRASEOLOGIES FOR USE ON AND IN THE VICINITY OF THE AERODROME

Note. Words in parentheses indicate that specific information, such as a level, a place or a time, etc., must be inserted to complete the phrase, or alternatively that optional phrases may be used. Words in square parentheses indicate optional additional words or information that may be necessary in specific instances.

11.2.5.3.1 STARTING PROCEDURES ... to request permission to start engines <i>Note. When local procedures so prescribe, authorization for start up should be obtained from the AFIS unit....</i> ... at AFIS aerodromes with start up procedures, AFIS replies ... at aerodromes without start up procedures, AFIS replies	*a) [aircraft location] REQUEST START UP; *b) [aircraft location] REQUEST START UP, INFORMATION (ATIS identification); c) START UP APPROVED; d) START UP AT (time) e) ROGER f) START UP AT OWN DISCRETION; g) EXPECT DEPARTURE (time) START UP AT OWN DISCRETION. h) START UP AT OWN DISCRETION (local information) h) EXPECT DEPARTURE (time) START UP AT OWN DISCRETION * Denotes pilot transmission.
11.2.5.3.2 PUSHBACK PROCEDURES <i>Note. When local procedures so prescribe, authorization for pushback should be obtained from the AFIS unit.</i> ... aircraft/AFIS	*a) [aircraft location] REQUEST PUSHBACK; b) PUSHBACK AT OWN DISCRETION; c) EXPECT (number) MINUTES DELAY DUE (reason). * Denotes pilot transmission.
11.2.5.3.3 TAXI ... aircraft/AFIS	*a) READY TO TAXI (position) b) [TRAFFIC (details)] [AERODROME CONDITIONS (details)] RUNWAY (number) *c) WILL TAXI TO HOLDING POINT (name) [RUNWAY (number)] VIA TAXIWAY (name) *d) HOLDING * Denotes pilot transmission.

<i>11.2.5.3.4 RELAYING CLEARANCE</i> ... AFIS ... confirmation or otherwise of the readback of clearance	a) (ATC unit) CLEARS (details of clearance) b) [THAT IS CORRECT] [READBACK CORRECT} (or NEGATIVE) [I SAY AGAIN] ... (as appropriate);
<i>11.2.5.3.5 TAKE-OFF</i>	a) [REPORT READY] *b) READY FOR DEPARTURE c) TRAFFIC (details) d) NO REPORTED TRAFFIC RUNWAY (number) e) RUNWAY (number) OCCUPIED (or BLOCKED) BY (aircraft or vehicles or persons)] *f) HOLDING; *g) WILL LINE UP RUNWAY (number) [VIA BACKTRACK]; *g) WILL TAKE OFF RUNWAY (number). * Denotes pilot transmission.
<i>11.2.5.3.6 AFTER TAKE-OFF</i> ... to request airborne time	a) REPORT AIRBORNE; b) AIRBORNE (time); c) AFTER PASSING (LEAVING, THROUGH, EXITING THE ZONE, CLEAR OF THE ZONE) (level) (contact instructions);

11.2.5.3.7 ENTERING AN AERODROME TRAFFIC CIRCUIT ... when ATIS information is available	*a) [aircraft type] (position) (level) FOR LANDING; b) ROGER [(direction of circuit in use)] [RUNWAY (number)] [SURFACE] WIND (direction and speed) (units) [TEMPERATURE [MINUS] (number)] QNH (or QFE) (number) [(units)] [TRAFFIC (detail)]; *c) (aircraft type) (position) (level) INFORMATION (ATIS identification) FOR LANDING; d) ROGER (circuit in use) [RUNWAY (number)] QNH (or QFE) (number) [(units)] [TRAFFIC (detail)]. * Denotes pilot transmission.
11.2.5.3.8 IN THE CIRCUIT	*a) (position in circuit, e.g. (DOWNWIND/FINAL); b) ROGER, NO REPORTED TRAFFIC RUNWAY (number) or [TRAFFIC (detail) [additional information if required]]. * Denotes pilot transmission.
11.2.5.3.9 APPROACH Note. The report "LONG FINAL" is made when aircraft turn on to final approach at a distance greater than 7 km (4 NM) from touchdown or when an aircraft on a straight- in approach is 15 km (8 NM) from touchdown. In both cases a report "FINAL" is required at 7 km (4 NM) from touchdown.	a) REPORT BASE (or FINAL, or LONG FINAL); *b) BASE [or FINAL, or LONG FINAL]; c) TRAFFIC (details); d) NO REPORTED TRAFFIC RUNWAY (number); e) [RUNWAY (number) OCCUPIED (details)]; *e) WILL LAND [RUNWAY (number)]; *f) GOING AROUND. * Denotes pilot transmission

<i>11.2.5.3.10 RUNWAY VACATING AND COMMUNICATIONS AFTER LANDING</i>	a) TRAFFIC (details) or NO REPORTED TRAFFIC b) YOUR STAND (or GATE) (designation);

11.2.5.4 PHRASEOLOGY FOR VEHICLES/PERSONS ON THE MANOEUVRING AREA

11.2.5.4.1 TO BE DEVELOPED.

11.2.5.5 COORDINATION BETWEEN ATS UNITS

11.2.5.5.1 The coordination between AFIS and other ATS units should be in accordance with Chapter 14.

11.2.6 ALERTING SERVICE

Note. See also Chapter 11 , Section 3– Alerting service.

11.2.6.1 GENERAL

11.2.6.1.1 In so far as practicable, an AFIS unit should provide alerting service to aircraft operating at an AFIS aerodrome and within the airspace associated with that aerodrome.

11.2.6.1.2 In the event of a state of emergency arising to an aircraft while it is in contact with an AFIS unit, such unit should notify immediately the flight information centre or area control centre responsible which will in turn notify the rescue coordination centre.

Note. Flight information centres or area control centres 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.

11.2.6.1.3 Nevertheless, whenever the urgency of the situation so requires, the responsible AFIS unit should first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

11.2.6.2 EMERGENCY PHASES

11.2.6.2.1 Procedures relating to the notification of rescue coordination centres should be in accordance with *Chapter 11 , Section 3.*

11.2.6.3 ALERTING SERVICE PROVIDED BY AFIS UNITS

11.2.6.3.1 AFIS units are responsible for alerting the rescue and firefighting services whenever:

- a) an aircraft accident has occurred on or in the vicinity of the aerodrome; or
- b) information is received that the safety of an aircraft which is or will come under the jurisdiction of the AFIS unit may have or has been impaired; or
- c) requested by the flight crew; or
- d) when otherwise deemed necessary or desirable.

11.2.6.3.2 Procedures concerning the alerting of the rescue and firefighting services should be contained in local instructions. Such instructions should specify the type of information to be provided to the rescue and firefighting services, including type of aircraft and type of emergency and, when available, number of persons on board, and any dangerous goods carried on the aircraft.

11.2.6.3.3 Aircraft which fail to report after having been transferred to an AFIS unit, or, having once reported, cease radio contact and in either case fail to land five minutes after the expected landing time, should be reported to the approach control unit, ACC or flight information centre, or to the rescue coordination centre or rescue sub-centre, in accordance with local instructions

11.2.7 EMERGENCIES, COMMUNICATION FAILURE AND CONTINGENCIES

11.2.7.1 EMERGENCY PROCEDURES

11.2.7.1.1 GENERAL

11.2.7.1.1.1 Procedures relating to the handling of aircraft in a state of emergency should be adopted that are in accordance with Chapter 12.

11.2.7.2 AIR-GROUND COMMUNICATIONS FAILURE

Note. See 12.1.5, for additional information regarding air-ground communications failure.

11.2.7.2.1 When unable to maintain two-way communication with an aircraft operating in an AFIS area, the AFIS unit should inform the associated ATC unit immediately.

11.2.7.2.2 As soon as it is known that two-way communication has failed, action should be taken to ascertain whether the aircraft is able to receive transmissions from the AFIS unit by requesting it to transmit, if possible, a specified signal in order to indicate acknowledgement, or to execute a specific manoeuvre which can be observed by the AFIS unit.

11.2.7.2.3 If the aircraft fails to indicate that it is able to receive and acknowledge transmissions, assume that the aircraft will continue its flight in accordance with 12.1.5.6.

11.2.7.2.4 As soon as it is known that two-way communication has failed, appropriate information describing the action taken by the AFIS unit should be transmitted blind for the attention of the aircraft concerned on the frequencies available on which the aircraft is believed to be listening, including the voice frequencies of available radio navigation or approach aids.

11.2.7.2.5 Pertinent information should be given to other aircraft in the vicinity of the presumed position of the aircraft experiencing the failure.

11.2.7.2.6 As soon as it is known that an aircraft operating in the vicinity of an AFIS aerodrome is experiencing a radio-communication failure, information concerning the radio-communication failure should be forwarded to the associated FIC/ATC unit.

11.2.7.3 FUEL EMERGENCY AND MINIMUM FUEL

Note 1. General procedures to be applied when a pilot reports an emergency situation are contained in 11.2.7.1.1.

Note 2. The words MAYDAY FUEL describe the nature of the distress condition as required in 3.2.13.3.1 b) 3.

Note 3. The declaration of MINIMUM FUEL informs AFIS that all planned aerodrome options have been reduced to a specific aerodrome of intended landing, and any change to the existing plan may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

11.2.7.4 AFIS CONTINGENCIES

The various circumstances surrounding each contingency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined below are intended as a general guide to AFIS personnel.

11.2.7.4.1 RADIO-COMMUNICATIONS CONTINGENCIES

11.2.7.4.1.1 General

AFIS contingencies related to communications, i.e. circumstances preventing a AFISO from communicating with aircraft in its area of responsibility, may be caused by either a failure of ground radio equipment, a failure of airborne equipment, or by the frequency being inadvertently blocked by an aircraft transmitter. The duration of such events may be for prolonged periods and appropriate action to ensure that the safety of aircraft is not affected should therefore be taken immediately.

11.2.7.4.1.2 Ground radio failure

11.2.7.4.1.2.1 In the event of complete failure of the ground radio equipment used , the AFISO should:

- a) where aircraft are required to keep a listening watch on the emergency frequency 121.5 MHz, attempt to establish radio-communications on that frequency;
- b) without delay inform the associated FIC or ATC unit, as applicable, of the failure;
- c) appraise such units of the current traffic situation

11.2.8 USE OF ATS SURVEILLANCE SYSTEMS IN THE AERODROME FLIGHT INFORMATION SERVICE

11.2.8.1 GENERAL

11.2.8.1.1 if an aerodrome has a capability of use of ats surveillance system or are planning to use an ATS surveillance system in the provision of AFIS the procedures shown below should be applied.

11.2.8.2 FUNCTIONS

11.2.8.2.1 When authorized by and subject to conditions prescribed by CAA.IRI, the information presented on a situation display may be used in the provision of AFIS to perform the following functions:

- a) flight path monitoring of aircraft on final approach;
- b) flight path monitoring of other aircraft in the vicinity of the aerodrome;
- c) providing navigation assistance to VFR flights.

11.2.8.2.2 In addition, the information presented on a situation display may be used to provide identified aircraft with:

- a) information regarding any aircraft observed to be on a conflicting path with the identified aircraft;
- b) information on the position of significant weather;
- c) information to assist the aircraft in its navigation.

11.2.8.2.3 In prescribing conditions and procedures for the use of ATS surveillance systems in the provision of AFIS, CAA.IRI should ensure that the availability and use of an ATS surveillance system will not be detrimental to visual observation of aerodrome traffic.

11.2.8.3 IDENTIFICATION METHODS

Note. The procedures described below are only intended as guidance for CAA.IRI intending to develop procedures for local use of an ATS surveillance service. Other methods of identification are described in 8.2.4.

11.2.8.3.1 Before providing an ATS surveillance service to an aircraft, identification should be established and the pilot informed. Thereafter, identification should be maintained until termination of the ATS surveillance service.

11.2.8.3.2 If identification is subsequently lost, the pilot should be informed accordingly.

11.2.8.3.3 Identification should be established by at least one of the methods specified in 11.2.8.3.4 and 11.2.8.3.5.

11.2.8.3.4 Where ADS-B is used for identification, aircraft may be identified by one or more of the following procedures:

- a) direct recognition of the aircraft identification in an ADS-B label;
- b) transfer of ADS-B identification;
- c) observation of compliance with an instruction to TRANSMIT ADS-B IDENT.

Note. In automated systems, the "IDENT" feature may be presented in different ways, e.g. as a flashing of all or part of the position indication and associated label.

11.2.8.3.5 Where SSR is used for identification, aircraft may be identified by one or more of the following procedures:

- a) recognition of the aircraft identification in a radar label;

Note. The use of this procedure requires that the code/call sign correlation is achieved successfully, taking into account the Note following b) below.

- b) recognition of an assigned discrete code, the setting of which has been verified, in a radar label;

Note. The use of this procedure requires a system of code assignment which ensures that each aircraft in a given portion of airspace is assigned a discrete code.

- c) direct recognition of the aircraft identification of a Mode S-equipped aircraft in a radar label;
- d) by transfer of identification;
- e) observation of compliance with an instruction to set a specific code;
- f) observation of compliance with an instruction to squawk IDENT.

11.2.8.3.6 When a discrete code has been assigned to an aircraft, a check should be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the flight. Only after this check has been made should the discrete code be used as a basis for identification.

11.2.8.4 PILOT RESPONSIBILITIES

11.2.8.4.1 The use of an ATS surveillance system in the provision of aerodrome flight information service does not relieve the pilot-in-command of an aircraft of any responsibilities

11.2.9 PILOT PROCEDURES ON AFIS AERODROMES

11.2.9.1 GENERAL

11.2.9.1.1 A pilot-in-command, prompted by safety concerns, can refuse a runway offered.

11.2.9.1.2 For aircraft in the heavy and super wake turbulence category, the word “Heavy” and “Super” should be included in all communications with AFIS.

11.2.9.1.3 An air traffic incident report should be submitted, normally to the air traffic services unit concerned, for incidents specifically related to the provision of air traffic services involving such occurrences as aircraft proximity (AIRPROX), or other serious difficulty resulting in a hazard to aircraft, caused by, among others, faulty procedures, non-compliance with procedures, or failure of ground facilities.

11.2.9.2 INITIAL CALL TO AFIS

11.2.9.2.1 For aircraft being provided with aerodrome flight information service, the initial call should contain:

- a) designation of the station being called;
- b) call sign and, for aircraft in the heavy wake turbulence category, the word “Heavy” and for aircraft in the super wake turbulence category, the word “Super”;

Note. See also paragraph 11.2.9.1.2.

- c) position;
- d) level;
- e) intention; and
- f) additional elements, as required by the ANSP.

11.2.9.3 ALTIMETER SETTING PROCEDURES

11.2.9.3.1 Expression of vertical position of aircraft

11.2.9.3.1.1 For flights in the vicinity of aerodromes and within the AFIS area, the vertical position of aircraft should, except as provided for in 11.2.9.3.1.2, be expressed in terms of altitudes at or below the transition altitude and in terms of flight levels at or above the transition level. While passing through the transition layer, vertical position should be expressed in terms of flight levels when climbing and in terms of altitudes when descending.

11.2.9.3.1.2 When an aircraft is completing its approach using atmospheric pressure at aerodrome elevation (QFE), the vertical position of the aircraft should be expressed in terms of height above aerodrome elevation during that portion of its flight for which QFE may be used, except that it should be expressed in terms of height above runway threshold elevation:

- a) for instrument runways, if the threshold is 2 m (7 ft) or more below the aerodrome elevation; and
- b) for precision approach runways.

11.2.9.4 AERODROME TRAFFIC

11.2.9.4.1 Taxiing aircraft

11.2.9.4.1.1 Use of runway-holding positions

11.2.9.4.1.1.1 Aircraft should not hold closer to a runway-in-use than at a runway-holding position.

Note. Runway-holding position locations in relation to runways are specified in CAA.IRI ADR CS.ADR-DSN.D.340.

11.2.9.4.1.1.2 Aircraft should not line up and hold on the approach end of a runway whenever another aircraft is effecting a landing, until the landing aircraft has passed the point of intended holding.

11.2.9.4.1.2 *Uncertainty of position on the manoeuvring area*

11.2.9.4.1.2.1 Except as provided for in 11.2.9.4.1.2.2 below, a pilot in doubt as to the position of the aircraft with respect to the manoeuvring area should immediately:

- a) stop the aircraft; and
- b) simultaneously notify the AFIS unit of the circumstances (including the last known position).

11.2.9.4.1.2.2 In those situations where a pilot is in doubt as to the position of the aircraft with respect to the manoeuvring area, but recognizes that the aircraft is on a runway, the pilot should immediately:

- a) notify the AFIS unit of the circumstances (including the last known position);
- b) if able to locate a nearby suitable taxiway, vacate the runway as expeditiously as possible, unless otherwise informed by the AFIS unit; and then,
- c) stop the aircraft.

11.2.9.4.2 *Order of priority for arriving and departing aircraft*

11.2.9.4.2.1 An aircraft landing or in the final stages of an approach to land should normally have priority over an aircraft intending to depart from the same or an intersecting runway.

11.2.9.4.2.2 When necessary or desirable, e.g. due to low visibility conditions, a landing or a taxiing aircraft may be requested to report when a runway has been vacated. The report should be made when the entire aircraft is beyond the relevant runway-holding position.

11.2.9.5 READ-BACK OF CLEARANCE

11.2.9.5.1 The flight crew should read back to the AFIS unit safety-related parts of ATC clearances and instructions which are transmitted by voice. The following items should always be read back:

- a) ATC route clearances; and
- b) runway-in-use, altimeter settings, SSR codes, newly assigned communication channels, level instructions, heading and speed instructions and, whether issued by the ATS unit or contained in automatic terminal information service (ATIS) broadcasts, transition levels.

Note. If the level of an aircraft is reported in relation to standard pressure 1013.2 hPa, the words "FLIGHT LEVEL" precede the level figures. If the level of the aircraft is reported in relation to QNH/QFE, the figures are followed by the word "METRES" or "FEET", as appropriate.

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

Section 3

ALERTING SERVICE

11.3.1 RESPONSIBILITY FOR THE PROVISION OF ALERTING SERVICE

11.3.1.1 ALERTING SERVICE SHALL BE PROVIDED AS FOLLOWS:

- a) within a flight information region (FIR): by area control centre (Tehran ACC) or FIC except in “b” and “c”.
- b) within controlled airspace and at controlled aerodromes: by the relevant air traffic control units (ATCU).
- c) within uncontrolled aerodromes: by the relevant air traffic service units (AFIS)

Note. The General Director of ATS designated Tehran Area Control Centre (ACC) as Rescue Coordination Centre (RCC) to coordinate jointly as a SAR single point of contact (SPOC) for Search and Rescue Region. Tehran Area Control Centre (ACC) or FIC shall alert the relevant Search and rescue units upon receipt of any information on an accident or emergency situation of an aircraft. ATS units shall determine the emergency phases and forward appropriate notification together with all information available to Rescue Coordination Centre (RCC) units without delay.

11.3.1.2 TRANSFER OF RESPONSIBILITY FOR THE PROVISION OF ALERTING SERVICE:

The responsibility for the provision of alerting service to a flight normally passes from the transferring ATS unit to the accepting ATS unit according to the relevant LOA and LOC.

11.3.2 APPLICATION

Note. Whenever applied, the procedures for the provision of air traffic control service take the place of the following procedures, except when relevant procedures do not call for more than hourly position reports, in which case the operations normal procedure applies.

11.3.2.1 aircraft shall report during the period ten to forty minutes following the time of last contact, whatever the purpose of such contact, merely to indicate that the flight is progressing according to plan, such report to comprise identification of the aircraft and the words “OPERATIONS NORMAL” or the signal “QRU”.

11.3.2.2 The “OPERATIONS NORMAL” message shall be transmitted air-ground to an appropriate air traffic services unit.

11.3.2.3 It may be advisable, in case of a SAR operation of a substantial duration, to promulgate by NOTAM the lateral and vertical limits of the area of SAR action, and to warn aircraft not engaged in actual SAR operations and not controlled by air traffic control to avoid such areas unless otherwise authorized by the appropriate ATS unit.

11.3.2.4 Alerting service shall be provided:

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

- b) in so far as practicable, to all 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.

11.3.2.5 Tehran ACC or FIC 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 (FIR) or control area concerned and for forwarding such information to the appropriate rescue coordination centre.

11.3.2.6 In the event of a state of emergency arising to an aircraft while it is in contact with an ATS unit, such unit shall notify immediately Tehran ACC or FIC according to the emergency plan.

11.3.2.6.1 Nevertheless, whenever the urgency of the situation so requires, the responsible ATS unit shall first alert and take other necessary steps to set in motion all appropriate local rescue and emergency organizations which can give the immediate assistance required.

11.3.3 EMERGENCY PHASES

11.3.3.1 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 later,
- 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 which 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.

11.3.3.2 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 it was determined;
- g) colour and distinctive marks of aircraft;
- h) dangerous goods carried as cargo;
- i) any action taken by the reporting office;
- j) other pertinent remarks.

Note. Such part of the information specified in 11.3.3.2, 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.

11.3.3.3 Further to the notification in 11.3.3.2, 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.

Note. The cancellation of action initiated by the rescue coordination centre is the responsibility of that centre.

11.3.4 ALERTING SERVICE PROVIDED BY ATS UNITS

11.3.4.1 ATS units are responsible for alerting the appropriate authorities according to airport emergency plan.

11.3.4.2 Procedures concerning the alerting of the rescue and firefighting services shall be contained in local instructions LATCIs.

11.3.4.3 Aircraft which fail to report after having been transferred to an ATS unit, or, having once reported, cease radio contact and in either case fail to land five minutes after the expected landing time, shall be reported to ACC, in accordance with local instructions.

11.3.5 USE OF COMMUNICATION FACILITIES

ATS 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.

11.3.6 PLOTTING AIRCRAFT IN A STATE OF EMERGENCY

When a state of emergency is considered to exist, the flight of the aircraft involved should be plotted as far as practicable 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.

11.3.7 INFORMATION TO AIRCRAFT OPERATING IN THE VICINITY OF AN AIRCRAFT IN A STATE OF EMERGENCY

11.3.7.1 When it has been established by an ATS 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 Para 11.3.7.2, be informed of the nature of the emergency as soon as practicable.

11.3.7.2 When an ATS 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.

11.3.8 INFORMATION TO THE OPERATOR

11.3.8.1 When an ATS unit decides that an aircraft is in the uncertainty or the alert phase, when practicable, advise the operator prior to notifying RCC.

Note. If an aircraft is in the distress phase, the rescue coordination centre has to be notified immediately in accordance with 11.3.3.1.

11.3.8.2 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.

Note .See also SIRA.7005

11.3.9 ACTION BY AIR TRAFFIC SERVICES UNITS

11.3.9.1 When no report from an aircraft has been received within a reasonable period of time after a scheduled or expected reporting time, the ATS unit shall, within the stipulated period of thirty minutes, endeavour to obtain such report in order to be in a position to apply the provisions relevant to the “Uncertainty Phase” should circumstances warrant such application.

11.3.9.2 The unit responsible for alerting service, shall:

- a) notify units providing alerting service in other affected FIRs or control areas of the emergency phase or phases, in addition to notifying the rescue coordination centre associated with it;
- b) request those units to assist in the search for any useful information pertaining to the aircraft presumed to be in an emergency, by all appropriate means;
- c) collect the information gathered during each phase of the emergency and, after verifying it as necessary, transmit it to the rescue coordination centre;
- d) announce the termination of the state of emergency as circumstances dictate.

Section 4

AIR TRAFFIC ADVISORY SERVICE

11.4.1 AIR TRAFFIC ADVISORY SERVICE IMPLEMENTATION

Class F airspace should only be implemented where the air traffic services are inadequate for the provision of air traffic control service and the limited advice on collision hazards otherwise provided by flight information service is not adequate. Where air traffic advisory service is implemented, this should be considered as a temporary measure only until such time as it can be replaced by air traffic control service or, in cases where the traffic situation changes such that advisory service is no longer required, replaced by flight information service.

11.4.2 COORDINATION IN RESPECT OF THE AIR TRAFFIC ADVISORY SERVICE PROVISION

Air traffic services units providing air traffic advisory service should apply the coordination procedures in 3.1.8 and ATS.OR.150 with respect to such aircraft having elected to use this type of service.

11.4.3 AIR TRAFFIC ADVISORY SERVICE

- a) The air traffic advisory service within airspace class F should be provided with the objective of making information on collision hazards more effective than it would be in the mere flight information service provision.
- b) The air traffic advisory service may be provided to aircraft conducting instrument flight rules (IFR) flights in advisory airspace or on advisory routes (class F airspace), specified by the CAA.IRI.
- c) Air traffic advisory service does not afford the degree of safety and cannot assume the same responsibilities as air traffic control service in respect of the avoidance of collisions, since information regarding the disposition of traffic in the area concerned available to the unit providing air traffic advisory service may be incomplete.
- d) The efficiency of air traffic advisory service will depend largely on the procedures and practices in use. Its establishment in line with the organization, procedures and equipment of area control service, taking into account the basic differences of the two services, will help to ensure a high degree of efficiency and promote uniformity in the various provisions of air traffic advisory service. For example, exchange of information by the units concerned on the progress of an aircraft from one advisory area into an adjacent control area or terminal control area (TMA), and vice versa, will help to relieve pilots from repeating details of their flight plans already filed; also, use of standard ATC phraseology, preceded by the verbs 'suggest' or 'advise', will facilitate the pilot's understanding of air traffic advisory service intelligence.
- e) Air traffic services units providing air traffic advisory service:

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- 1) advise the aircraft to depart at the time specified and to cruise at the levels indicated in the flight plan if they do not foresee any conflict with other known traffic;
 - 2) suggest to aircraft a course of action by which a potential hazard may be avoided, giving priority to an aircraft already in advisory airspace over other aircraft desiring to enter such advisory airspace; and
 - 3) pass on to aircraft traffic information comprising the same information as that prescribed for area control service.
- f) The criteria used as a basis for action under points (e)(2) and (e)(3) should be at least those laid down for aircraft operating in controlled airspace and should take into account the limitations inherent in the provision of air traffic advisory service, navigation facilities and air-ground communications prevailing in the region.

11.4.4 DURATION OF TEMPORARY MEASURE

- a) When establishing Class F airspace, its intended temporary duration after which it should be replaced by an alternative classification should be specified in the Iran AIP.
- b) The intended temporary duration of Class F airspace should not be longer than 3 years.

Chapter 12 . PROCEDURES RELATING TO EMERGENCIES, COM FAILURE AND CONTINGENCIES

Section 1

EMERGENCY PROCEDURES

12.1.1 GENERAL

12.1.1.1 The various circumstances surrounding each emergency situation preclude the establishment of exact detailed procedures to be followed. The procedures outlined herein are intended as a general guide to air traffic services personnel and may be varied according to the situation. Air traffic control units shall maintain full and complete coordination, and personnel shall use their best judgement in handling emergency situations.

12.1.1.2 In case of an aircraft known or believed to be in a state of emergency, including being subjected to unlawful interference, ATS units shall give the aircraft maximum consideration, assistance and priority over other aircraft, as may be necessitated by the circumstances.

12.1.1.3 Subsequent ATC actions shall be based on the intentions of the pilot, the overall air traffic situation and the real-time dynamics of the contingency.

Note 1. The progress of an aircraft in emergency shall be monitored and (whenever possible) plotted on the situation display until the aircraft passes out of coverage of the ATS surveillance system, and position information shall be provided to all air traffic services units which may be able to give assistance to the aircraft. Transfer to adjacent sectors shall also be effected when appropriate.

Note 2. If the pilot of an aircraft encountering a state of emergency has previously been directed by ATC to select a specific transponder code, that code will normally be maintained unless, in special circumstances, the pilot has decided or has been advised otherwise. Where ATC has not requested a code to be set, the pilot will set the transponder to Mode A Code 7700.

12.1.1.4 When an emergency is declared by an aircraft, the ATS unit should take appropriate and relevant action as follows:

- a) unless clearly stated by the flight crew or otherwise known, take all necessary steps to ascertain aircraft identification and type, the type of emergency, the intentions of the flight crew as well as the position and level of the aircraft;
- b) decide upon the most appropriate type of assistance which can be rendered;

- c) enlist the aid of any other ATS unit or other services which may be able to provide assistance to the aircraft;
- d) provide the flight crew with any information requested as well as any additional relevant information, such as details on suitable aerodromes, minimum safe altitudes, weather information;
- e) obtain from the operator or the flight crew such of the following information as maybe relevant: number of persons on board, amount of fuel remaining, possible presence of hazardous materials and the nature thereof; and
- f) notify the appropriate ATS units and authorities as specified in local instructions.

12.1.1.5 Changes of radio frequency and SSR code should be avoided if possible and should normally be made only when or if an improved service can be provided to the aircraft concerned. Manoeuvring instructions to an aircraft experiencing engine failure should be limited to a minimum. When appropriate, other aircraft operating in the vicinity of the aircraft in emergency should be advised of the circumstances.

Note. Requests to the flight crew for the information contained in Para 12.1.1.4 “e” will be made only if the information is not available from the operator or from other sources and will be limited to essential information.

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

Note— Guidance material on Human Factors principles can be found in the Human Factors Training Manual (Doc 9683).

12.1.2 PRIORITY

12.1.2.1 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.

12.1.3 UNLAWFUL INTERFERENCE AND AIRCRAFT BOMB THREAT

12.1.3.1 Air traffic services personnel shall be prepared to recognize any indication of the occurrence of unlawful interference with an aircraft.

Note. An aircraft equipped with an SSR transponder is expected to operate the transponder on Mode A Code 7500 to indicate specifically that it is the subject of unlawful interference. The aircraft may operate the transponder on Mode A Code 7700, to indicate that it is threatened by grave and imminent danger and requires immediate assistance.

12.1.3.2 Whenever unlawful interferences with an aircraft is known or suspected or a bomb threat warning has been received, ATS units shall promptly attend to requests by, or to anticipated needs of, the aircraft, including requests for relevant information relating to air navigation facilities, procedures and services along the route of flight and at any aerodrome of intended landing, and shall take such action as is necessary to expedite the conduct of all phases of the flight, especially the safe landing of the aircraft.

12.1.3.2.1 ATS units shall also:

- a) transmit, and continue to transmit, information pertinent to the safe conduct of the flight, without expecting a reply from the aircraft;
- b) monitor and plot the progress of the flight with the means available, and coordinate transfer of control with adjacent ATS units without requiring transmissions or other responses from the aircraft, unless communication with the aircraft remains normal;
- c) inform, and continue to keep informed, appropriate ATS units, including those in adjacent FIRs, which may be concerned with the progress of the flight;

Note. In applying this provision, account must be taken of all the factors which may affect the progress of the flight, including fuel endurance and the possibility of sudden changes in route and destination. The objective is to provide, as far in advance as is practicable in the circumstances, each ATS unit with appropriate information as to the expected or possible penetration of the aircraft into its area of responsibility.

- d) notify:
 - 1. the operator or its designated representative; the appropriate rescue coordination centre in accordance with appropriate alerting procedures; appropriate authority designated by the state;
- e) relay appropriate messages, relating to the circumstances associated with the unlawful interference, between the aircraft and designated authorities.

Note. It is assumed that the designated security authority and/or the operator will in turn notify other parties concerned in accordance with pre-established procedures.

12.1.3.4 The following additional procedures shall apply if a threat is received indicating that a bomb or other explosive device has been placed on board a known aircraft. The ATS unit receiving the threat information shall:

- a) if in direct communication with the aircraft, advise the flight crew without delay of the threat and the circumstances surrounding the threat; or
- b) if not in direct communication with the aircraft, advise the flight crew by the most expeditious means through other ATS units or other channels.

12.1.3.5 The ATS unit in communication with the aircraft shall ascertain the intentions of the flight crew and report those intentions to other ATS units which may be concerned with the flight.

12.1.3.6 The aircraft shall be handled in the most expeditious manner whilst ensuring, to the extent possible, the safety of other aircraft and that personnel and ground installations are not put at risk.

12.1.3.7 Aircraft in flight shall be given re-clearance to a requested new destination without delay. Any request by the flight crew to climb or descend for the purpose of equalizing or reducing the differential between the outside air pressure and the cabin air pressure shall be approved as soon as possible.

12.1.3.8 An aircraft on the ground should be advised to remain as far away from other aircraft and installations as possible and, if appropriate, to vacate the runway. The aircraft should be instructed to taxi to a designated or isolated parking area in accordance with local instructions. Should the flight crew disembark passengers and crew immediately, other aircraft, vehicles and personnel should be kept at a safe distance from the threatened aircraft.

12.1.3.9 ATS units shall not provide any advice or suggestions concerning action to be taken by the flight crew in relation to an explosive device.

12.1.3.10 An aircraft known or believed to be the subject of unlawful interference or which for other reasons needs isolation from normal aerodrome activities shall be cleared to the designated isolated parking position. Where such an isolated parking position has not been designated, or if the designated position is not available, the aircraft shall be cleared to a position within the area or areas selected by prior agreement with the aerodrome authority.

12.1.3.11 The taxi clearance shall specify the taxi route to be followed to the parking position. This route shall be selected with a view to minimizing any security risks to the public, other aircraft and installations at the aerodrome.

12.1.3.12 The following procedures are intended as guidance for use by aircraft when unlawful interference occurs and the aircraft is unable to notify an ATS unit of this fact.

- a) If the pilot-in-command cannot proceed to an aerodrome, they should attempt to continue flying on the assigned track and at the assigned cruising level at least until able to notify an ATS unit or until within radar or ADS-B coverage.
- b) When an aircraft subjected to an act of unlawful interference must depart from its assigned track or its assigned cruising level without being able to make radiotelephony contact with ATS, the pilot-in-command should, whenever possible:
 - i. attempt to broadcast warnings on the VHF channel in use or the VHF emergency frequency, and other appropriate channels, unless considerations aboard the aircraft dictate otherwise. Other equipment such as on-board transponders and data links should also be used when it is advantageous to do so and circumstances permit; and
 - ii. proceed in accordance with applicable special procedures for in-flight contingencies, where such procedures have been established and promulgated in the Regional Supplementary Procedures (Doc 7030); or
 - iii. if no applicable regional procedures have been established, proceed at a level which differs from the cruising levels normally used for an IFR flight by:
 1. 150 m (500 ft) in an area where a vertical separation minimum of 300 m (1 000 ft) is applied
 2. 300 m (1 000 ft) in an area where a vertical separation minimum of 600 m (2 000 ft) is applied

12.1.3.13 An aircraft which is being subjected to unlawful interference shall endeavour to set the transponder to Code 7500 and notify the appropriate ATS unit of any significant circumstances associated therewith and any deviation from the current flight plan necessitated by the circumstances, in order to enable the ATS unit to give priority to the aircraft and to minimize conflict with other aircraft.

12.1.3.14 If an aircraft is subjected to unlawful interference, the pilot -in-command shall attempt to land as soon as practicable at the nearest suitable aerodrome or at a dedicated aerodrome assigned by CAA.IRI , unless considerations aboard the aircraft dictate otherwise.

12.1.3.15 When an occurrence of unlawful interference with an aircraft takes place or is suspected, air traffic services 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.

12.1.3.16 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 aircraft operator or its designated representative.

12.1.3.17 Verbal reference to unlawful interference should not be made by the controller unless it is first made by the pilot in a radio communication transmission, since it might attract the attention of the hijacker (or of other aircraft) and have detrimental consequences.

12.1.4 EMERGENCY DESCENT

12.1.4.1 When an aircraft operated as a controlled flight experiences sudden decompression or a malfunction requiring an emergency descent, the aircraft should, if able:

- a) navigate as deemed appropriate by the pilot;
- b) advise the appropriate ATC unit as soon as possible of the emergency descent;
- c) set transponder to Code 7700 and select the emergency mode on the automatic dependent surveillance/controller-pilot data link communications (ADS/CPDLC) system, if applicable;
- d) turn on aircraft exterior lights;
- e) watch for conflicting traffic both visually and by reference to airborne collision avoidance system (ACAS) (if equipped); and
- f) coordinate its further intentions with the appropriate ATC unit.

12.1.4.2 The aircraft is not to descend below the lowest published minimum altitude that will provide a minimum vertical clearance of 300 m (1 000 ft) or, in designated mountainous terrain, of 600 m (2 000 ft) above all obstacles located in the area specified.

12.1.4.3 Immediately upon recognizing that an emergency descent is in progress, ATC units are to acknowledge the emergency on radiotelephony. In particular, when recognizing that an emergency descent is in progress, ATC may, as required by the situation:

- a) suggest a heading to be flown, if able, by the aircraft carrying out the emergency descent in order to achieve separation from other aircraft concerned;
- b) state the minimum altitude for the area of operation, only if the level-off altitude stated by the pilot is below such minimum altitude, together with the applicable QNH altimeter setting; and
- c) as soon as possible, provide separation from conflicting traffic, or issue essential traffic information, as appropriate.

When deemed necessary, ATC will broadcast an emergency message, or cause such message to be broadcast, to other aircraft concerned to warn them of the emergency descent.

12.1.4.4 Unless specifically instructed by the ATC unit to clear the area or threatened by immediate danger, the pilot of the aircraft receiving emergency descent broadcast shall take the following actions:

- a) continue according to current clearance and maintain listening watch on the frequency in use for any further instructions from the ATC unit; and
- b) watch for conflicting traffic both visually and by reference to ACAS (if equipped).

Phraseology:

ATTENTION ALL AIRCRAFT IN THE VICINITY OF [or AT] (significant point or location) EMERGENCY DESCENT IN PROGRESS FROM (level) (followed as necessary by specific instructions, clearances, traffic information, etc.).

12.1.5 AIR-GROUND COMMUNICATIONS FAILURE

12.1.5.1 COMPLETE AIRCRAFT COMMUNICATION FAILURE PROCEDURE WHEN PROVIDING ATS SURVEILLANCE SERVICES:

12.1.5.1.1 When a controlled aircraft experiencing complete communication failure is operating or expected to operate in an area and at flight levels where an ATS surveillance service is applied, separation specified in Para 8.2.13 may continue to be used. However, if the aircraft experiencing the communication failure is not identified, separation shall be applied between identified aircraft and all unidentified aircraft observed along the expected route of the aircraft with the communication failure, until such time as it is known, or can safely be assumed, that the aircraft with radio communication failure has passed through the airspace concerned, has landed, or has proceeded elsewhere.

Note. An aircraft equipped with an SSR transponder is expected to operate the transponder on Mode A Code 7600 to indicate that it has experienced air-ground communication failure.

12.1.5.2 COMMUNICATION FAILURE PROCEDURE CONCERNING DEPARTING AIRCRAFT:

12.1.5.2.1 Clearances for departing aircraft may specify a cleared level other than that indicated in the filed flight plan for the en-route phase of flight, without a time or geographical limit for the cleared level. Such clearances will normally be used to facilitate the application of tactical control methods by ATC, normally through the use of an ATS surveillance system.

12.1.5.2.2 Where clearances for departing aircraft containing no time or geographical limit for a cleared level, action to be taken by an aircraft experiencing air-ground communication failure in the event the aircraft has been radar vectored away from the route specified in its current flight plan should be included in the SID description or published in I.R. AIP.

12.1.5.3 COMMUNICATION FAILURE PROCEDURE CONCERNING AIRCRAFT OPERATING ON RNAV ROUTES:

During the application of the 50 NM separation, when an aircraft fails to report its position, the controller shall take action within 3 minutes to establish communication. If communication has not been established within 8 minutes of the time the report should have been received, the controller shall take action to apply an alternative form of separation.

12.1.5.4 Action by air traffic control units when unable to maintain two-way communication with an aircraft operating in a control area or control zone shall be as outlined in the paragraphs which follow.

12.1.5.5 As soon as it is known that two-way communication has failed, action shall be taken to ascertain whether the aircraft is able to receive transmissions from the air traffic control unit by requesting it to execute a specified manoeuvre which can be observed by radar in order to indicate acknowledgement.

12.1.5.6 If the aircraft fails to indicate that it is able to receive and acknowledge transmissions, separation shall be maintained between the aircraft having the communication failure and other aircraft, based on the assumption that the aircraft will:

- a) if in visual meteorological conditions:
 - 1. continue to fly in visual meteorological conditions;
 - land at the nearest suitable aerodrome; and
 - report its arrival by the most expeditious means to the appropriate air traffic control unit; or

- b) if in instrument meteorological conditions or when conditions are such that it does not appear feasible to likely that the pilot will complete the flight in accordance with “a”:
1. in airspace where procedural separation is being applied, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 20 minutes following the aircraft’s failure to report its position over a compulsory reporting point and thereafter adjust level and speed in accordance with the filed flight plan; or,
 2. in airspace where an ATS surveillance system is used in the provision of air traffic control, maintain the last assigned speed and level, or minimum flight altitude if higher, for a period of 7 minutes following:
 - i. the time the last assigned level or minimum flight altitude is reached; or
 - ii. the time the transponder is set to Code 7600 to indicate the loss of air-ground communications; or
 - iii. the aircraft’s failure to report its position over a compulsory point;whichever is later and thereafter adjust level and speed in accordance with the filed flight plan;
 3. when being vectored or having been directed by ATC to proceed offset using RNAV without a specified limit, proceed in the most direct manner possible to rejoin the current flight plan route not later than the next significant point, taking into consideration the applicable minimum safe level;
 4. proceed according to the current flight plan route to the appropriate designated navigation aid or fix serving the destination aerodrome and, when required to ensure compliance with “5” below, hold over this aid or fix until commencement of descent;
 5. commence descent from the navigation aid or fix specified in “4” at, or as close as possible to, the expected approach time last received and acknowledged; or, if no expected approach time has been received and acknowledged, at, or as close as possible to, the estimated time of arrival resulting from the current flight plan;
 6. complete a normal instrument approach procedure as specified for the designated navigation aid or fix; and
 7. land, if possible, within 30 minutes after the estimated time of arrival specified in “5” or the last acknowledged expected approach time, whichever is later.

Note 1. Minimum levels. See AIP GEN 3.3 and ENR 1.3

Note 2. As evidenced by the meteorological conditions prescribed therein, Para 12.1.5.6 “a” relates to all controlled flights, whereas Para 12.1.5.6 “b” relates only to IFR flights.

Note 3. See also Para 8.2.7.1 “d” concerning the requirement for the flight crew to be informed of what a vector is to accomplish and the limit of the vector.

12.1.5.7 Action taken to ensure suitable separation shall cease to be based on the assumption stated in Para 12.1.5.6 when:

- a) it is determined that the aircraft is following a procedure differing from that in Para 12.1.5.6; or
- b) through the use of electronic or other aids, air traffic control units determine that action differing from that required by Para 12.1.5.6 may be taken without impairing safety; or
- c) positive information is received that the aircraft has landed.

12.1.5.8 As soon as it is known that two-way communication has failed, appropriate information describing the action taken by the air traffic control unit, or instructions justified by any emergency situation and meteorological conditions at suitable aerodromes, shall be transmitted blind for the attention of the aircraft concerned, on the frequencies available on which the aircraft is believed to be listening, including the voice frequencies of available radio navigation or approach aids.

12.1.5.9 Pertinent information shall be given to other aircraft in the vicinity of the presumed position of the aircraft experiencing the failure.

12.1.5.10 As soon as it is known that an aircraft which is operating in its area of responsibility is experiencing an apparent radio communication failure, an air traffic services unit shall forward information concerning the radio communication failure to all air traffic services units concerned along the route of flight. The ACC in whose area the destination aerodrome is located shall take steps to obtain information on the alternate aerodrome(s) and other relevant information specified in the filed flight plan, if such information is not available.

12.1.5.11 If circumstances indicate that a controlled flight experiencing a communication failure might proceed to (one of) the alternate aerodrome(s) specified in the filed flight plan, the air traffic control unit(s) serving the alternate aerodrome(s) and any other air traffic control units that might be affected by a possible diversion shall be informed of the circumstances of the failure and requested to attempt to establish communication with the aircraft at a time when the aircraft could possibly be within communication range. This shall apply particularly when, by agreement with the operator or a designated representative, a clearance has been transmitted blind to the aircraft concerned to proceed to an alternate aerodrome, or when meteorological conditions at the aerodrome of intended landing are such that a diversion to an alternate is considered likely.

12.1.5.12 When an air traffic control unit receives information that an aircraft, after experiencing a communication failure has re-established communication or has landed, that unit shall inform the air traffic services unit in whose area the aircraft was operating at the time the failure occurred, and other air traffic services units concerned along the route of flight, giving necessary information for the continuation of control if the aircraft is continuing in flight.

12.1.5.13 If the aircraft has not reported within thirty minutes after:

- a) the estimated time of arrival furnished by the pilot;
- b) the estimated time of arrival calculated by Tehran ACC; or
- c) the last acknowledged expected approach time,

whichever is latest, pertinent information concerning the aircraft shall be forwarded to aircraft operators, or their designated representatives, and pilots-in-command of any aircraft concerned and normal control resumed if they so desire. It is the responsibility of the aircraft operators, or their designated representatives, and pilots-in-command of aircraft to determine whether they will resume normal operations or take other action.

12.1.6 ASSISTANCE TO VFR FLIGHTS

12.1.6.1 Strayed VFR flights and VFR flights encountering adverse meteorological conditions

Note. A strayed aircraft is an aircraft which has deviated significantly from its intended track or which reports that it is lost.

12.1.6.2 A VFR flight reporting that it is uncertain of its position or lost, or encountering adverse meteorological conditions, should be considered to be in a state of emergency and handled as such. The controller shall, under such circumstances, communicate in a clear, concise and calm manner and care shall be taken, at this stage, not to question any fault or negligence that the pilot may have committed in the preparation or conduct of the flight. Depending on the circumstances, the pilot should be requested to provide any of the following information considered pertinent so as to better provide assistance:

- a) aircraft flight conditions;
- b) position (if known) and level;
- c) airspeed and heading since last known position, if pertinent;
- d) pilot experience;
- e) navigation equipment carried and if any navigation aid signals are being received;
- f) SSR Mode and code selected if relevant;
- g) departure and destination aerodromes;
- h) number of persons on board;
- i) endurance.

12.1.6.3 If communications with the aircraft are weak or distorted, it should be suggested that the aircraft climb to a higher level, provided meteorological conditions and other circumstances permit.

12.1.6.4 Navigation assistance to help the pilot determine the aircraft position may be provided by use of ATS surveillance system, navigation aids or sighting by another aircraft.

Note. The possibility of a VFR flight becoming strayed as a result of encountering adverse meteorological conditions must be recognized.

12.1.6.5 The pilot should be provided with reports and information on suitable aerodromes in the vicinity where visual meteorological conditions exist.

12.1.6.6 If reporting difficulty in maintaining or unable to maintain VMC, the pilot should be informed of the minimum flight altitude of the area where the aircraft is, or is believed to be. If the aircraft is below that level, and the position of the aircraft has been established with a sufficient degree of probability, a track or heading, or a climb, may be suggested to bring the aircraft to a safe level.

12.1.6.7 Assistance to a VFR flight should only be provided using an ATS surveillance system upon the request or concurrence of the pilot. The type of service to be provided should be agreed with the pilot.

12.1.7 OTHER IN-FLIGHT CONTINGENCIES

12.1.7.1 STRAYED OR UNIDENTIFIED AIRCRAFT

Note 1. 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.

Note 2. An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.

Note 3. A strayed or unidentified aircraft may be suspected as being the subject of unlawful interference.

12.1.7.1.1 As soon as an air traffic services unit becomes aware of a strayed aircraft, it shall take all necessary steps as outlined in Para 12.1.7.1.1.1 and Para 12.1.7.1.1.2 to assist the aircraft and to safeguard its flight.

Note. Navigational assistance by an air traffic services unit is particularly important if the unit becomes aware of an aircraft straying, or about to stray, into an area where there is a risk of interception or other hazard to its safety.

12.1.7.1.1.1 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 the 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.

Note. The requirements in “d” and “e” apply also to ATS units informed in accordance with “c”.

12.1.7.1.1.2 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.

12.1.7.1.2 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 FIR 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 FIRs 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.

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

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

12.1.8 INTERCEPTION OF CIVIL AIRCRAFT

12.1.8.1 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 on any available frequency, including the emergency 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 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 unit and the intercepted aircraft, as necessary;
- e) in close coordination with the intercept unit take all necessary steps to ensure the safety of the intercepted aircraft; and
- f) inform ATS units serving adjacent FIRs if it appears that the aircraft has strayed from such adjacent FIRs.

12.1.8.2 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 12.1.8.1;
- b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept unit or the intercepting aircraft.

12.1.9 FUEL DUMPING

12.1.9.1 GENERAL

12.1.9.1.1 An aircraft in an emergency or other urgent situation may need to dump fuel so as to reduce to maximum landing mass in order to effect a safe landing.

12.1.9.1.2 An aircraft in either VFR or IFR should be permitted for fuel dumping during En-route, if traffic conditions required;

12.1.9.1.3 An aircraft in either VFR or IFR may be permitted for fuel dumping within TMA, CTR or ATZ based on local procedure if available, otherwise within a "SUITABLE AREA" determined by air traffic controller.

12.1.9.1.4 When an aircraft operating within controlled airspace needs to dump fuel, the flight crew shall advise ATC. The ATC unit should then coordinate with the flight crew the following:

- a) the route to be flown, which, if possible, should be clear of cities and towns, preferably over water and away from areas where thunderstorms have been reported or are expected;
- b) the level to be used, which should be not less than 6000 ft AGL; and
- c) the duration of the fuel dumping.

12.1.9.2 SEPARATION

12.1.9.2.1 Other known traffic should be separated from the aircraft dumping fuel by:

- a) at least 10 NM horizontally, but not behind the aircraft dumping fuel;
- b) vertical separation if behind the aircraft dumping fuel within a distance of 50 NM by;
 - 1. at least 1000 ft if above the aircraft dumping fuel; and

at least 3000 ft if below the aircraft dumping fuel.

Note. The horizontal boundaries of the area within which other traffic requires appropriate vertical separation extend for 10 NM either side of the track flown by the aircraft which is dumping fuel, from 10 NM ahead, to 50 NM along track behind it (including turns).

12.1.9.3 COMMUNICATIONS

12.1.9.3.1 If the aircraft will maintain radio silence during the fuel dumping operation, the frequency to be monitored by the flight crew and the time when radio silence will terminate should be agreed.

12.1.9.4 INFORMATION TO OTHER ATS UNITS AND NON-CONTROLLED TRAFFIC

12.1.9.4.1 A warning message shall be broadcast on appropriate frequencies for non-controlled traffic to remain clear of the area concerned. Adjacent ATC units and control sectors should be informed of the fuel dumping taking place and requested to broadcast on applicable frequencies an appropriate warning message for other traffic to remain clear of the area concerned.

Phraseology:

ATTENTION ALL AIRCRAFT, FUEL DUMPING IN PROGRESS OVER (location) AT (level) BY (type of aircraft) (flight direction)

12.1.9.4.2 Upon completion of the fuel dumping, adjacent ATC units and control sectors should be advised that normal operations can be resumed. A terminating message should be broadcasted on appropriate frequencies when the fuel dumping operation is completed.

Phraseology:

ATTENTION ALL AIRCRAFT, FUEL DUMPING OVER (location) TERMINATED.

12.1.10 FUEL EMERGENCY AND MINIMUM FUEL

Note. The words "MAYDAY FUEL" describe the nature of the distress condition as detailed in Para 3.2.13.

12.1.10.1 When a pilot reports a state of minimum fuel, the controller shall inform the pilot as soon as practicable of any anticipated delays or that no delays are expected.

Note. The declaration of "MINIMUM FUEL" informs ATC that all planned aerodrome options have been reduced to a specific aerodrome of intended landing, and any change to the existing clearance may result in landing with less than planned final reserve fuel. This is not an emergency situation but an indication that an emergency situation is possible should any additional delay occur.

12.1.11 INFLIGHT EQUIPMENT MALFUNCTIONS

12.1.11.1 When a pilot reports an inflight equipment malfunction, ATCO should determine the nature and extent of any special handling desired.

Note. Inflight equipment malfunctions include partial or complete failure of equipment, which may affect either safety, separation standards, and/or the ability of the flight to proceed under IFR, or in RVSM airspace. Controllers may expect reports from pilots regarding VOR, NDB, TACAN, GNSS, RVSM and impairment of air-ground communications capabilities, or other equipment deemed appropriate by the pilot (e.g., airborne weather radar). Pilots should report the nature and extent of any assistance desired from ATC.

12.1.11.2 ATCO should provide the maximum assistance possible consistent with equipment, workload, and any special handling requested.

12.1.11.3 ATCO shall relay to other controllers or ATS units who will subsequently handle the aircraft, all pertinent details concerning the aircraft and any special handling required or being provided.

12.1.12 BIRD ACTIVITY INFORMATION

12.1.12.1 ATCO should issue information on pilot-reported or tower-observed, bird activity. Include position, species or size of birds, if known, course of flight, and altitude. Do this for at least 15 minutes after receipt of such information from pilots or from adjacent ATS unit unless visual observation or subsequent reports reveal the activity is no longer a factor.

Example 1:

FLOCK OF GEESE, ONE O'CLOCK, SEVEN MILES, NORTHBOUND, LAST REPORTED AT FOUR THOUSAND."

Example 2:

FLOCK OF SMALL BIRDS, SOUTHBOUND ALONG LEFT DOWNWIND, LAST REPORTED AT FIVE THOUSAND.

Example 3:

NUMEROUS FLOCKS OF DUCKS, ON LONG FINAL, ALTITUDE UNKNOWN.

12.1.12.2 ATCO should relay bird activity information to adjacent ATS unit whenever it appears it will become a factor in their areas.

12.1.12.3 ATCO shall complete the bird strike associated form when necessary according to the relevant procedure.

Section 2

CONTINGENCY PROCEDURES

12.2.1 WEATHER DEVIATION PROCEDURES

12.2.1.1 GENERAL

Note. The following procedures are intended for deviations around adverse meteorological conditions.

12.2.1.1.1 When the pilot initiates communications with ATC, a rapid response may be obtained by stating “WEATHER DEVIATION REQUIRED” to indicate that priority is desired on the frequency and for ATC response. When necessary, the pilot should initiate the communications using the urgency call “PAN PAN” (preferably spoken three times).

12.2.1.1.2 The pilot shall inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to its cleared route.

12.2.1.2 ACTIONS TO BE TAKEN WHEN CONTROLLER-PILOT COMMUNICATIONS ARE ESTABLISHED

12.2.1.2.1 The pilot should notify ATC and request clearance to deviate from track, advising, when possible, the extent of the deviation expected.

12.2.1.2.2 ATC should take one of the following actions:

- a) when appropriate separation can be applied, issue clearance to deviate from track; or
- b) if there is conflicting traffic and ATC is unable to establish appropriate separation, ATC shall:
 - 1. advise the pilot of inability to issue clearance for the requested deviation;

advise the pilot of conflicting traffic; and

request the pilot's intentions.

12.2.1.2.3 The pilot should take the following actions:

- a) comply with the ATC clearance issued; or
- b) advise ATC of intentions and execute the procedures detailed in Para 12.2.3.3

12.2.1.3 ACTIONS TO BE TAKEN IF A REVISED ATC CLEARANCE CANNOT BE OBTAINED

Note. The provisions of this section apply to situations where a pilot needs to exercise the authority of a pilot-in-command in which the pilot shall, whether manipulating the controls or not, be responsible for the operation of the aircraft in accordance with the rules of the air, except that the pilot-in-command may depart from these rules in circumstances that render such departure absolutely necessary in the interests of safety.

12.2.1.3.1 If the aircraft is required to deviate from track to avoid adverse meteorological conditions and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received the pilot shall take the following actions:

- a) if possible, deviate away from an organized track or route system;

- b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, position (including ATS route designator or the track) and intentions, on the frequency in use and on 121.5 MHz (or, as a back-up, on the inter-pilot air-to-air frequency 123.45 MHz);
- c) watch for conflicting traffic both visually and by reference to ACAS;

Note. If, as a result of actions taken under the provisions of 12.2.1.3.1 b) and c) above, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.

- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);
- e) for deviations of less than 10 NM remain at a level assigned by ATC;
- f) for deviations greater than 10 NM, when the aircraft is approximately 10 NM from track, initiate a level change in accordance with table shown below;

Table 12-1 Actions by aircraft, if a revised ATC clearance cannot be obtained

Route centre Line track	Deviations 10NM	Level change
East 000-179 magnetic	Left Right	Descend 300 ft Climb 300 ft
West 180-359 magnetic	Left Right	Climb 300 ft Descend 300 ft

- g) when returning to track, be at its assigned flight level when the aircraft is within approximately 10 NM of the centre line; and
- h) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

12.2.2 ATS CONTINGENCIES

Note. The various circumstances surrounding each contingency situation preclude the establishment of exact detailed procedures to be followed. Detailed Local instructions concerning the communication, navigation, surveillance and evacuation shall be contained in the relevant LATCIs and Tehran ACC operation manual (OM).

12.2.2.1 COMPLETE GROUND RADIO FAILURE

12.2.2.1.1 In the event of complete failure of the ground radio equipment used for air traffic control service, the air traffic controller should:

- (i) attempt to establish radio communications on the emergency frequency 121.500 MHz;
- (ii) without delay inform all adjacent control positions or air traffic control units, as applicable, of the failure;
- (iii) apprise such positions or units of the current traffic situation;
- (iv) request their assistance, in respect of aircraft which may establish communications with those positions or units, in establishing and maintaining separation between such aircraft; and

(v) instruct adjacent control positions or air traffic control units to hold or re-route all controlled flights outside the area of responsibility of the position or air traffic control unit that has experienced the failure until such time that the provision of normal services can be resumed,

unless able to continue to provide air traffic services by means of other available communication channels.

12.2.2.2 GENERAL PROCEDURES FOR NAVAID MALFUNCTIONS

12.2.2.2.1 When an aircraft reports a ground-based NAVAID malfunction, take the following actions:

- a) request a report from a second aircraft.
- b) if the second aircraft reports normal operations, continue use and report to the first aircraft and the ATS supervisor to inform the airworthiness watch office.
- c) if the second aircraft confirms the malfunction or in the absence of a second aircraft, report to the ATS supervisor to inform the maintenance unit.

12.2.2.2.2 When an aircraft reports a GNSS anomaly, request the following information and/or take the following actions:

- a) record the following minimum information:
 1. aircraft type and call sign.
 2. location or position, and level at the time where GNSS abnormally was observed.
 3. date/time of occurrence.
- b) request a report from a second aircraft and if it confirms the abnormally record on the incident form.
- c) inform other aircraft and the relevant ATS units of the abnormally as reported.

Phraseology:

ATTENTION ALL AIRCRAFT, GNSS ANOMALY REPORTED IN THE VICINITY/AREA (position).

Example:

ATTENTION ALL AIRCRAFT, GNSS ANOMALY REPORTED IN THE AREA 30 NM EAST OF ISN DVOR.

12.2.2.3 EMERGENCY SEPARATION

12.2.2.3.1 If, during a contingency situation, it is not possible to ensure that the applicable horizontal separation can be maintained, emergency separation of half the applicable vertical separation minimum may be used, i.e. 500 ft between aircraft in airspace where a vertical separation minimum of 1000 ft is applied, and 1000 ft between aircraft in airspace where a 2000 ft vertical separation minimum is applied.

12.2.2.3.2 When emergency separation is applied the flight crews concerned shall be advised that emergency separation is being applied and informed of the actual minimum used. Additionally, all flight crews concerned shall be provided with essential traffic information.

12.2.2.4 *BLOCKED FREQUENCY*

12.2.2.4.1 Direct communications between pilots and ATSU's can be adversely affected by simultaneous transmissions which, effectively, block all or part of intended messages. Moreover, whilst the situation may be apparent to the controller or another pilot, the individuals who inadvertently make such transmissions may be unaware. On hearing a simultaneous transmission, it can be helpful for the controller (or another pilot if it is the controller's transmission which has been blocked) to draw attention to the situation using the word 'blocked'.

12.2.2.4.2 In the event that the control frequency is inadvertently blocked by an aircraft transmitter, the following additional steps should be taken:

- a) attempt to identify the aircraft concerned;
- b) if the aircraft blocking the frequency is identified, attempts should be made to establish communication with that aircraft, e.g. on the emergency frequency 121.5 MHz, by SELCAL, through the aircraft operator's company frequency if applicable, on any VHF frequency designated for air-to-air use by flight crews or any other communication means or, if the aircraft is on the ground, by direct contact;
- c) if communication is established with the aircraft concerned, the flight crew shall be instructed to take immediate action to stop inadvertent transmissions on the affected control frequency.

12.2.2.5 *UNAUTHORIZED USE OF ATC FREQUENCY*

12.2.2.5.1 Instances of false and deceptive transmissions on ATC frequencies which may impair the safety of aircraft can occasionally occur. In the event of such occurrences, the ATC unit concerned should:

- a) correct any false or deceptive instructions or clearances which have been transmitted;
- b) advise all aircraft on the affected frequency(ies) that false and deceptive instructions or clearances are being transmitted;
- c) instruct all aircraft on the affected frequency(ies) to verify instructions and clearances before taking action to comply;
- d) if practical, instruct aircraft to change to another frequency; and
- e) if possible, advise all aircraft affected when the false and deceptive instructions or clearances are no longer being transmitted.

12.2.2.5.2 Flight crews shall challenge or verify with the ATC unit concerned any instruction or clearance issued to them which they suspect may be false or deceptive.

12.2.2.5.3 Collect and report pertinent information regarding the incident and notify the operational supervisor of the false, deceptive transmission.

12.2.3 **PROCEDURES IN REGARD TO AIRCRAFT EQUIPPED WITH (ACAS)**

12.2.3.1 The procedures to be applied for the provision of air traffic services to aircraft equipped with ACAS shall be identical to those applicable to non-ACAS equipped aircraft. In particular, the prevention of collisions, the establishment of appropriate separation and the information which might be provided in relation to conflicting traffic and to possible avoiding action shall conform with the normal ATS procedures and shall exclude consideration of aircraft capabilities dependent on ACAS equipment.

12.2.3.2 When a pilot reports an ACAS resolution advisory (RA), the controller shall not attempt to modify the aircraft flight path until the pilot reports “CLEAR OF CONFLICT”.

12.2.3.3 Unless informed by the pilot, ATC does not know when ACAS issues RAs. It is possible for ATC to issue instructions that are unknowingly contrary to ACAS RA indications. Therefore, it is important that ATC be notified when an ATC instruction or clearance is not being followed because it conflicts with an RA.

12.2.3.4 Pilots should use appropriate procedures by which an aeroplane climbing or descending to an assigned altitude or flight level may do so at a rate less than 8 m/s (or 1 500 ft/min) throughout the last 300 m (or 1 000 ft) of climb or descent to the assigned altitude or flight level when the pilot is made aware of another aircraft at or approaching an adjacent altitude or flight level, unless otherwise instructed by ATC. These procedures are intended to avoid unnecessary ACAS II RAs in aircraft at or approaching adjacent altitudes or flight levels. For commercial operations, these procedures should be specified by the operator.

12.2.3.5 Once an aircraft departs from its ATC clearance or instruction in compliance with an RA, or a pilot reports an RA, the controller ceases to be responsible for providing separation between that aircraft and any other aircraft affected as a direct consequence of the manoeuvre induced by the RA. The controller shall resume responsibility for providing separation for all the affected aircraft when:

- a) the controller acknowledges a report from the flight crew that the aircraft has resumed the current clearance; or
- b) the controller acknowledges a report from the flight crew that the aircraft is resuming the current clearance and issues an alternative clearance which is acknowledged by the flight crew.

Note. Pilots are required to report RAs which require a deviation from the current ATC clearance or instruction. This report informs the controller that a deviation from clearance or instruction is taking place in response to an ACAS RA.

12.2.3.6 PROCEDURE FOR REPORTING RA'S:

ATS supervisor shall be informed of reports that made by aircraft on RA to be entered in the log book.

12.2.4 GROUND PROXIMITY WARNING SYSTEM

A controller is not to dissuade a pilot from climbing his aircraft upon receipt of a ground proximity warning. The message should be acknowledged and if appropriate QNH setting should be passed for confirmation.

12.2.5 CHANGE OF RADIOTELEPHONY CALL SIGN FOR AIRCRAFT

Note. See also Para 3.2.9.4

12.2.5.1 An ATC unit may instruct an aircraft to change its type of RTF call sign (e.g. to registration mark), in the interests of safety, when similarities between two or more aircraft RTF call signs are such that confusion is likely to occur.

Note. In case of existence of call sign similarity, if the controller decides not to change the type of either of the call signs, he may warn pilots concerned by using one of the following phrases:

- a) “[1st call sign] be advised [2nd call sign] also on frequency” or
- b) “[call sign] [call sign] [instruction]”

12.2.5.1.1 Any such change to the type of call sign shall be temporary and shall be applicable only within the airspace(s) where the confusion is likely to occur.

12.2.5.1.2 To avoid confusion, the ATC unit should, if appropriate, identify the aircraft which will be instructed to change its call sign by referring to its position and/or level.

12.2.5.2 When an ATC unit changes the type of call sign of an aircraft, that unit shall ensure that the aircraft reverts to the call sign indicated by the flight plan when the aircraft is transferred to another ATC unit, except when the call sign change has been coordinated between the two ATC units concerned.

Phraseology:

CHANGE YOUR CALL SIGN TO (new call sign) [UNTIL FURTHER ADVISED];

12.2.5.3 The appropriate ATC unit shall advise the aircraft concerned when it is to revert to the call sign indicated by the flight-plan.

Phraseology:

REVERT TO FLIGHT PLAN CALL SIGN (call sign) [AT (significant point)].

Chapter 13 . SPECIAL FLIGHTS

Section 1

GENERAL PRINCIPLES

13.1.1 FLIGHT PLANNING PROCEDURE

Remarks and status indicator expressing the reasons for special handling by ATS, type of in section and any other accomplishment by special flight must be inserted in “Item 18” of flight plan.

13.1.2 SPECIAL OPERATIONS CLEARANCES

As far as practicable the aircraft should be cleared according to pilot request.

Section 2

TYPE OF SPECIAL FLIGHTS

Note. See also Tehran ACC OM, Chapter 7.

13.2.1 FLIGHT CHECK

13.2.1.1 Flight check aircraft engaged in operational trial and evaluation shall be provided with maximum possible assistance according to flight plan. Unless otherwise agreed, direct communications and exchange of information regarding known traffic in the area and intentions shall be maintained.

Note 1. Many Flight Checks require an uninterrupted flight for successful completion of the mission.

Note 2. Flight Check operations which require special participation of ground personnel, specific communications, or radar operation capabilities are considered to require special handling. These flights are coordinated with appropriate ATS unit before departure.

13.2.1.2 Flight check aircraft should not be subject to ATC delays except to preclude emergency situations.

13.2.1.3 Radar accuracy flight check shall not be advised to change the previously assigned discrete code.

13.2.2 AIRCRAFT CARRYING DANGEROUS GOODS

13.2.2.1 Aircraft carrying dangerous goods shall indicate this nature by insertion of STS/HAZMAT in item 18 of their flight plans for the provision of special handling.

Note. Certain types of flights carrying dangerous materials require strict adherence to regulations, permission and flight planning as approved by appropriate authority along carefully selected routes.

13.2.2.2 Procedures concerning the alerting of the rescue and firefighting services shall be contained in local instructions. Such instructions shall specify the type of information to be provided to the rescue and firefighting services, including type of aircraft and type of emergency and, when available, number of persons on board, and any dangerous goods carried on the aircraft.

13.2.2.3 If it becomes necessary to issue a clearance to amend the previously assigned route/level, the following action shall be taken by controller:

- a) inform the pilot of:
 1. the proposed change, and
 2. the expected delay if it is necessary to maintain the present route/level.
- b) when an amending clearance is not suitable to the pilot-in-command, the flight crew shall advise if the traffic delay is acceptable or an alternate desired route/level. In such cases, all possible assistance should be offered.
- c) when an aircraft is provided an en-route descent, shall not be vectored from the planned route unless the pilot concurs.
- d) use special patterns and routings in areas where they have been developed for these flights. If special patterns and routings have not been developed, employ normal procedures.
- e) notify the accepting unit and any other unit concerned.

13.2.3 HEAD FLIGHTS

13.2.3.1 flights are considered as head flights when:

- the word “HEAD” has been already included in FPL status “ITEM 18” which is issued by IRH (Islamic republic hanger) or;
- specified call signs issued by IRH in official letter or;
- approved by CAA.IRI.

13.2.3.2 ATCO shall report supervisor to inform ADOC about Head flight ETA.

13.2.3.3 ADOC shall be informed about entering Head flights as soon as possible.

Note. Receiving politics messages transmitted by foreign Head over flights shall be withheld until coordination with supervisor for the purpose of recording.

13.2.4 PHOTOGRAPHY FLIGHT

Photography flight operation is permitted only after pre-coordination with military and civil authorities as appropriate.

13.2.5 AGRICULTURE FLIGHT

Agriculture flight operation is permitted only after pre-coordination with authorities as appropriate.

13.2.6 RAMADAN TIMING (NEW MOON(CRESCENT) OBSERVATION) FLIGHT

When so requested in advance, an authorization for new moon observation flights may be issued.

13.2.7 CLOUD SEEDING FLIGHT

The route and timing of these flights are determined by movement of the cloud area and not by traffic flow. ATCO should advise aircraft to contact nearest ATC unit if he suspects that two-way communication on ACC frequency is lost.

13.2.8 RESPONSIBILITY IN REGARD TO MANNED AND UNMANNED FREE BALLOONS

On receipt of notification and after launch of the intended flight of a medium or heavy unmanned free balloon, the ATCO shall inform all ATS unit concerned.

13.2.9 MILITARY FLIGHT ACTIVITY

Note. The phrase “APPROPRIATE MILITARY UNITS” in this context is taken to mean any permanently established military units controlling activities that may affect flights of civil aircraft. It is recommended, however, that the same requirement be applied also to temporarily established or mobile military units conducting potentially hazardous activities.

Note 2. For more information about coordination between military authorities and air traffic services see also CAA.IRI ATM/ANS article 3b.

13.2.9.1 It is recognized that some military aeronautical operations necessitate non-compliance with certain air traffic procedures. In order to ensure the safety of flight operations the appropriate military authorities according to the civil-military coordination procedure shall coordinate with appropriate ATS unit prior to undertaking such manoeuvres.

13.2.9.2 By prior acknowledgment of approval receipt, the military aircraft is required to wait for an air traffic control clearance before to proceeding under conditions requiring compliance with air traffic procedures. The following actions shall be taken, if necessary:

- a) flight plan shall be submitted prior departure and should contain supplementary information deemed necessary by ATC unit concerned;
- b) request pilot's estimate for crossing route/points, the range of blocked levels and cruising flight level for the entire route or part thereof and changes of levels if required;
- c) the vacant cruising flight level shall be assigned due to the factors influencing the nature of the flight and lack of communication;
- d) military flight may be exempted from the requirement to make position report at each reporting point.

Note. More details are contained in the civil-military coordination procedure and the relevant LATCIs.

13.2.9.3 SCRAMBLE FLIGHTS.

13.2.9.3.1 Definition:

Scramble is an armed fighter for air combat with the mission of air defense in order to prevent a hostile fighter attacking Iranian airspace boundaries or a flight on ADOC decision and efforts for identification, interception, fight and if necessary destruction of an enemy fighter. The command for Scramble flight is issued by ADOC regional operation centres and the flight is controlled by ADOC radars from the beginning to the end of mission as indicated by ADOC.

13.2.9.3.1.1 Initial information on a scramble flight including, its initial direction and level, will be provided for to ATS units by the command post (CP) of the relevant air base, through recordable means of communication.

13.2.9.3.1.2 Scramble flight has priority over all other flights.

Note. In case, an arriving emergency aircraft on final approach segment is in critical situation, it may be granted priority, provided it is agreed upon by the scramble flight.

13.2.9.3.2 Procedure of Scramble flights

13.2.9.3.2.1 Scramble flight will contact ADOC radars immediately after departure.

13.2.9.3.2.2 ADOC regional radar after receipt of information from ATS units will direct the Scramble flight with regard to other flights, also in the defined region by ADOC, ATS units will try to have close coordination with ADOC.

13.2.9.3.2.3 On return, the Scramble like other armed military flights will contact approach unit and will be given priority for landing.

13.2.9.3.2.4 Close coordination between ATS units and ADOC and relevant airbase command post (CP) in expedition of performing the Scramble flight is necessary. For airspace security of the country and safety of flight operations these units shall have close coordination.

13.2.9.3.2.5 In case of scramble flight for interception of civil aircraft ADOC shall inform Tehran ACC.

13.2.9.4 COMBAT AIR PATROL (CAP):

13.2.9.4.1 Definition:

A Fighter with combat equipment for air coverage and prevention of possible penetration of enemy fighters to the airspace boundaries of the region, and the flight is performed for interception, fight and if necessary destruction of the enemy fighter before fulfilling its goals.

13.2.9.4.2 Procedure of CAP flights:

13.2.9.4.2.1 Initial information on CAP flight will be provided for ATS units by the relevant command centre of the airbase in the region by the fastest recordable mean.

13.2.9.4.2.2 With the coordination of ATS units, CAP flight will contact ADOC radar after departure.

13.2.9.4.2.3 While in contact with ADOC regional radars, CAP flights will operate in the defined level and region and any change of level or flight area will be coordinated with ATS units.

13.2.9.4.2.4 On return, the mentioned flight will contact approach unit like other armed military flights and will be given priority for landing as far as practicable.

13.2.9.5 SPECIAL MISSION FLIGHTS (SM).

13.2.9.5.1 Definition:

Military flights for cross-border operations or recognition, photography, eavesdropping and electronic war, confidential and flying radars are also in this category.

13.2.9.5.2 Procedure of SM flight:

13.2.9.5.2.1 SM flights for cross-border operations will be done without submission of flight plan and radio communication, other SM flights will submit a flight plan via command post (CP) to the related ATS unit.

13.2.9.5.2.2 Coordination with ATS units for SM flights is done by the relevant command post (CP) in joint civil-military airports.

13.2.9.5.2.3 SM flights will operate on ADOC radar FRQs and required coordination will be effected with the related ATS units.

13.2.9.5.2.4 SM flights information will be passed to the relevant ATS units "5" minutes before crossing of airways or control areas by the pilot or ADOC radars.

13.2.9.6 RADAR CHECK FLIGHTS

13.2.9.6.1 Definition:

Military flights with mission of checking ADOC radars, FRQs, equipment and ground to air armaments. They shall be done according to the predetermined parameters such as time, level, direction, starting and end points based on the accepted form.

13.2.9.6.2 Procedure for radar check flights:

13.2.9.6.2.1 The time sensitivity of radar check flights are same as SM flights.

13.2.9.6.2.2 The flight information shall be provided via close coordination by ADOC to the relevant ATS unit.

13.2.9.6.2.3 Up to “4” radar check flight operation is acceptable during 24 hours (0000-2359) except when pre coordination is made through ADOC with the relevant ATS unit.

13.2.9.6.2.4 Only one radar check flight is acceptable to operate in each ATS unit/sector AoR.

13.2.9.6.2.5 As far as practicable military radar check flights should reach to the assigned flight level within TMA/CTR or related restricted area to be transferred to ADOC radar by the relevant ATS unit.

13.2.9.6.2.6 It is necessary to assign the requested flight level which is submitted in flight plan by the concerned ATS units.

13.2.9.7 AIR REFUELING FLIGHTS:

13.2.9.7.1 Definition:

A flight with air refueling mission of fighters or military cargo aircraft.

13.2.9.7.2 Procedure of air refueling flights

13.2.9.7.2.1 Air refueling flights will operate in B, C, E and K area as defined in the relevant LATCI and Tehran ACC OM.

13.2.9.7.2.2 If necessary for air refueling in other areas, an advance coordination with Tehran ACC is mandatory.

13.2.9.7.2.3 Submission of flight plan is mandatory for air refueling flight operations.

13.2.9.8 FUNCTIONAL CHECK FLIGHTS (FCF):

13.2.9.8.1 Definition:

A flight for flight approval after maintenance on the aircraft which needs more supervision and control.

13.2.9.8.2 Procedure for FCF:

13.2.9.8.2.1 Command post(CP) shall use “STS/ TEST” for functional check flight (FCF) in “ITEM 18: OTHER INFORMATION” of flight plan.

13.2.9.8.2.2 ATS unit shall clear the FCF flights for the requested flight level as submitted in flight plan.

13.2.9.8.2.3 In joint airports coordination procedures between air base and ATS unit will be prepared and inserted in relevant LATCI.

13.2.9.9 SEA SEARCH FLIGHT

13.2.9.9.1 ATCO is responsible for provision of ATS, only when such aircraft has established two-way communication.

13.2.9.9.2 CPL shall not be closed until the transfer of control to destination has been done.

13.2.9.9.3 Sea search flights are considered as VFR flight while performing search mission.

13.2.9.10 MILITARY AIR TRANSPORT (CROSS COUNTRY) FLIGHT

Military air transport flight are required to get special permission from the appropriate military authority prior entering Tehran FIR.

13.2.9.11 FORMATION FLIGHTS

13.2.9.11.1 The formation flight operates as a single aircraft with regard to navigation and position reporting;

13.2.9.11.2 Separation between aircraft in the flight shall be the responsibility of the flight leader and the pilots-in-command of the other aircraft in the flight and shall include periods of transition when aircraft are manoeuvring to attain their own separation within the formation and during join-up and breakaway;

Note. For more details, see the relevant LATCIs.

13.2.9.11.3 A distance not exceeding 0.5 NM laterally and longitudinally and 100 ft vertically from the flight leader will be maintained by each aircraft; and

Note. Separation responsibility between aircraft within the formation during transition to individual control rests with the pilots concerned until approved separation has been attained.

13.2.9.11.4 Formation flight including join-up and breakaway is only authorized in VMC.

13.2.9.12 MILITARY AND CIVIL FORMATION FLIGHTS IN RVSM AIRSPACE

13.2.9.12.1 Utilize RVSM separation standards for a formation flight, which consists of all RVSM approved aircraft.

13.2.9.12.2 Utilize non-RVSM separation standards for a formation flight above FL290, which does not consist of all RVSM approved aircraft.

Chapter 14 . ATC PHRASEOLOGIES

Section 1

GENERAL

14.1.1 Most phraseologies contained in this manual show the text of a complete message without call signs. They are not intended to be exhaustive, and when circumstances differ, pilots, ATS personnel and other ground personnel will be expected to use plain language, which should be as clear and concise as possible, to the level specified in the ICAO language proficiency requirements, in order to avoid possible confusion by those persons using a language other than one of their national languages.

14.1.2 The phraseologies are grouped according to types of air traffic service for convenience of reference in “CHAPTER 14”. However, some phraseologies are grouped according to the subject in the body of this manual.

14.1.3 Words in parentheses indicate that specific information, such as a level, a place or a time, etc., must be inserted to complete the phrase, or alternatively that optional phrases may be used. Words in square parentheses indicate optional additional words or information that may be necessary in specific instances.

14.1.4 This chapter contains typical phraseologies to be used in the provision of air traffic services, arranged in groups to relate to the particular phase of air traffic services with which they are generally employed.

Note 1. More examples of the application of the phraseologies may be found in the Manual of Radiotelephony (Doc 9432).

Note 2. See 3.2.11.2.

Table 14-1 General ATS phraseologies

Row	Circumstances	Phraseologies	Example
14.1.5	DESCRIPTION OF LEVELS (SUBSEQUENTLY REFERRED TO AS “(LEVEL)”)	FLIGHT LEVEL (<i>number</i>);	FLIGHT LEVEL160
		(<i>number</i>) FEET	8000 FEET
14.1.6	LEVEL CHANGES, REPORTS AND RATES	CLIMB (or DESCEND) TO (<i>level</i>)	CLIMB TO FL280

	... instruction that a climb (or descent) to a level within the vertical range defined is to commence	CLIMB (or DESCEND) TO AND MAINTAIN BLOCK (level) TO (level)	CLIMB TO AND MAINTAIN BLOCK 8000 FT TO 10000 FT
		CLIMB (or DESCEND) TO REACH (level) AT (or BY) (time or significant point)	DESCEND TO REACH FL 180 BY SAV CLIMB TO REACH 9000 FT AT 46
		CLIMB (or DESCEND) REPORT LEAVING (or REACHING, or PASSING) (level)	REPORT REACHING FL250 REPORT LEAVING FL250 REPORT PASSING FL250
		CLIMB (or DESCEND) AT (number) FEET PER MINUTE [OR GREATER (or OR LESS)]	DESCEND TO 8000 FT AT 1000 FEET PER MINUTE OR GREATER DESCEND TO 9000 FT AT 1000 FEET PER MINUTE OR LESS
		REQUEST LEVEL (or FLIGHT LEVEL or ALTITUDE) CHANGE FROM (name of unit) [AT (time or significant point)];	REQUEST LEVEL CHANGE FROM TEHRAN ACC REQUEST LEVEL CHANGE FROM SHIRAZ APP AT 46
		STOP CLIMB (or DESCENT) AT (level);	STOP DESCENT AT ONE ZERO THOUSAND FEET
		CONTINUE CLIMB (or DESCENT) TO (level);	CONTINUE DESCENT TO FL130
		EXPEDITE CLIMB (or DESCENT) [UNTIL PASSING (level)];	EXPEDITE CLIMB UNTIL PASSING FL 180
		WHEN READY CLIMB (or DESCEND) TO (level);	WHEN READY DESCEND TO 7000 FT
		EXPECT CLIMB (or DESCENT) AT (time or significant point);	EXPECT DESCENT AT LVA
		REQUEST DESCENT AT (time) *	
	... to require action at a specific time or place	IMMEDIATELY	DESCEND IMMEDIATELY TO FL 200 DUE TRAFFIC
		AFTER PASSING (significant point)	AFTER PASSING ASNIT DESCEND TO FL150
		AT (time or significant point);	
	... to require action when convenient	WHEN READY (instruction);	WHEN READY DESCEND TO 3000 FT

	... to require an aircraft to climb or descend maintaining own separation and VMC	MAINTAIN OWN SEPARATION AND VMC [FROM <i>(level)</i>] [TO <i>(level)</i>];	MAINTAIN OWN SEPARATION AND VMC FROM 8000 FT TO 4000 FT
		MAINTAIN OWN SEPARATION AND VMC ABOVE (or BELOW, or TO) <i>(level)</i> ;	MAINTAIN OWN SEPARATION AND VMC BELOW 9000 FT
	... when there is doubt that an aircraft can comply with a clearance or instruction	IF UNABLE <i>(alternative instructions)</i> AND ADVISE	IF UNABLE MAINTAIN FL150 AND ADVISE
	when a pilot is unable to comply with a clearance or instruction	UNABLE*	
	... after a flight crew starts to deviate from any ATC clearance or instruction to comply with an ACAS resolution advisory (RA) (Pilot and controller interchange)	TCAS RA*	
		ROGER	
	... after the response to an ACAS RA is completed and a return to the ATC clearance or instruction is initiated (Pilot and controller interchange)	CLEAR OF CONFLICT, RETURNING TO <i>(assigned clearance)</i> ; *	
		ROGER <i>(or alternative instructions)</i> ;	
	... after the response to an ACAS RA is completed and the assigned ATC clearance or instruction has been resumed (Pilot and controller interchange)	CLEAR OF CONFLICT <i>(assigned clearance)</i> RESUMED*	
		ROGER <i>(or alternative instructions)</i> ;	
	... after an ATC clearance or instruction contradictory to the ACAS RA is received, the flight crew will follow the RA and inform ATC directly (Pilot and controller interchange)	UNABLE, TCAS RA*	
		ROGER	
	... clearance to climb on a SID which has published level and/or speed restrictions, where the pilot is to	CLIMB VIA SID TO <i>(level)</i> .	

climb to the cleared level and comply with published level restrictions, follow the lateral profile of the SID and comply with published speed restrictions or ATC issued speed control instructions as applicable.		
... clearance to cancel level restriction(s) of the vertical profile of a SID during climb	[CLIMB VIA SID TO <i>(level)</i>], CANCEL LEVEL RESTRICTION(S);	
... clearance to cancel specific level restriction(s) of the vertical profile of a SID during climb	[CLIMB VIA SID TO <i>(level)</i>], CANCEL LEVEL RESTRICTION(S) AT <i>(point(s))</i> ;	
... clearance to cancel speed restrictions of a SID during climb	[CLIMB VIA SID TO <i>(level)</i>], CANCEL SPEED RESTRICTION(S);	
... clearance to cancel specific speed restrictions of a SID during climb	[CLIMB VIA SID TO <i>(level)</i>], CANCEL SPEED RESTRICTION(S) AT <i>(point(s))</i> ;	
... clearance to climb and to cancel speed and level restrictions of a SID	CLIMB UNRESTRICTED TO <i>(level)</i> (or) CLIMB TO <i>(level)</i> , CANCEL LEVEL AND SPEED RESTRICTIONS;	
... clearance to descend on a STAR which has published level and/or speed restrictions, where the pilot is to descend to the cleared level and comply with published level restrictions, follow the lateral profile of the STAR and comply with published speed restrictions or ATC issued speed control instructions.	DESCEND VIA STAR TO <i>(level)</i> ;	
... clearance to cancel level restrictions of a STAR during descent	[DESCEND VIA STAR TO <i>(level)</i>], CANCEL LEVEL RESTRICTION(S);	
... clearance to cancel specific level restrictions of a STAR during descent	[DESCEND VIA STAR TO <i>(level)</i>], CANCEL LEVEL RESTRICTION(S) AT <i>(point(s))</i> ;	

	... clearance to cancel speed restrictions of a STAR during descent	[DESCEND VIA STAR TO <i>(level)</i>], CANCEL SPEED RESTRICTION(S);	
	... clearance to cancel specific speed restrictions of a STAR during descent	[DESCEND VIA STAR TO <i>(level)</i>], CANCEL SPEED RESTRICTION(S) AT <i>(point(s))</i> ;	
	... clearance to descend and to cancel speed and level restrictions of a STAR	DESCEND UNRESTRICTED TO <i>(level)</i> or DESCEND TO <i>(level)</i> , CANCEL LEVEL AND SPEED RESTRICTIONS.	
14.1.7	MINIMUM FUEL	MINIMUM FUEL*	
	... indication of minimum fuel	ROGER [NO DELAY EXPECTED or EXPECT <i>(delay information)</i>].	ROGER EXPECT 5 MINUTES DELAY
14.1.8	TRANSFER OF CONTROL AND/OR FREQUENCY CHANGE	CONTACT <i>(unit call sign) (frequency)</i> [NOW];	CONTACT TEHRAN CENTRE 125 DECIMAL 7
		AT <i>(or OVER) (time or place) [or WHEN]</i> [PASSING/LEAVING/REACHING <i>(level)</i>] CONTACT <i>(unit call sign) (frequency)</i> ;	PASSING FL195 CONTACT TEHRAN ACC 126 DECIMAL 9
		IF NO CONTACT <i>(instructions)</i> ;	IF NO CONTACT BACK TO THIS FREQUENCY
	Note. An aircraft may be requested to "STAND BY" on a frequency when it is intended that the ATS unit will initiate communications soon and to "MONITOR" a frequency when information is being broadcast thereon.	STAND BY FOR <i>(unit call sign) (frequency)</i> ;	
		REQUEST CHANGE TO <i>(frequency)</i> *	
		FREQUENCY CHANGE APPROVED	
		MONITOR <i>(unit call sign) (frequency)</i> ;	MONITOR ATIS 128 DECIMAL 250
		MONITORING <i>(frequency)</i> ; *	
		WHEN READY CONTACT <i>(unit call sign) (frequency)</i> ;	WHEN READY CONTACT KISH TOWER 118 DECIMAL 450
		REMAIN THIS FREQUENCY	
14.1.9	CHANGE OF CALL SIGN	CHANGE YOUR CALL SIGN TO <i>(new call sign)</i> [UNTIL FURTHER ADVISED];	IRA711 CHANGE YOUR CALL SIGN TO EPIFA UNTIL FURTHER ADVISED
	... to instruct an aircraft to change its type of call sign		
	... to advise an aircraft to revert to the call sign indicated in the flight plan	REVERT TO FLIGHT PLAN CALL SIGN <i>(call sign)</i> [AT <i>(significant point)</i>].	EPIFA REVERT TO FLIGHT PLAN CALL SIGN IRA711
14.1.10	TRAFFIC INFORMATION	TRAFFIC <i>(information)</i> ;	TRAFFIC FOKKER100 ON FINAL
	... to pass traffic information	NO REPORTED TRAFFIC	

	... to acknowledge traffic information	LOOKING OUT*	
		TRAFFIC IN SIGHT*	
		NEGATIVE CONTACT [reasons] *	
		[ADDITIONAL] TRAFFIC (direction) BOUND (type of aircraft) (level) ESTIMATED (or OVER) (significant point) AT (time);	ADDITIONAL TRAFFIC WEST BOUND AIRBUS320 FL240 ESTIMATED ZANJAN AT 46
		TRAFFIC IS (classification) UNMANNED FREE BALLOON(S) WAS [or ESTIMATED] OVER (place) AT (time) REPORTED (level(s)) [or LEVEL UNKNOWN] MOVING (direction) (other pertinent information, if any).	TRAFFIC IS LIGHT UNMANNED FREE BALLOON ESTIMATED OVER BANDARABBAS AT 46 REPORTED LEVEL UNKNOWN MOVING WEST
14.1.11	METEOROLOGICAL CONDITIONS	[SURFACE] WIND (number) DEGREES (speed) (units);	WIND 270 DEGREES 8 KNOTS
		WIND AT (level) (number) DEGREES (number) KILOMETRES PER HOUR (or KNOTS); <i>Note. Wind is always expressed by giving the mean direction and speed and any significant variations thereof.</i>	WIND AT FL350 , 270 DEGREES 80 KNOTS
		VISIBILITY (distance) (units) [direction];	VISIBILITY 4000 METERS
		RUNWAY VISUAL RANGE (or RVR) [RUNWAY (number)] (distance) (units);	RVR RWY27L 800 METERS
		RUNWAY VISUAL RANGE (or RVR) RUNWAY (number) NOT AVAILABLE (or NOT REPORTED);	RVR RUNWAY 27L NOT AVAILABLE
	... for multiple RVR observations	RUNWAY VISUAL RANGE (or RVR) [RUNWAY (number)] (first position) (distance) (units), (second position) (distance) (units), (third position) (distance) (units); <i>Note 1. Multiple RVR observations are always representative of the touchdown zone, midpoint zone and the roll-out/stop end zone, respectively.</i> <i>Note 2. Where reports for three locations are given, the indication of these locations may be omitted, provided that the reports are passed in the order of touchdown zone, followed by the midpoint zone and ending with the roll-out/stop end zone report.</i>	RVR RWY27L 800 METERS 1000 METERS 1200 METERS
	... in the event that RVR information on any one position is not available this information will be	RUNWAY VISUAL RANGE (or RVR) [RUNWAY (number)] (first position) (distance) (units), (second position) NOT AVAILABLE, (third position) (distance) (units);	RVR RWY27L TOUCHDOWN ZONE 800 METERS, MIDPOINT ZONE NOT AVAILABLE ROLL-OUT ZONE 1200 METERS

	included in the appropriate sequence		
		PRESENT WEATHER (<i>details</i>);	PRESENT WEATHER MIST
		CLOUD (<i>amount, [(type)] and height of base (units) (or SKY CLEAR)</i>);	CLOUD SCT CUMOLONIMBOS 3500 FEET
		CAVOK; <i>Note.CAVOK pronounced CAV-O-KAY.</i>	
		TEMPERATURE [MINUS] (<i>number</i>) (<i>and/or</i> DEWPOINT [MINUS] (<i>number</i>));	TEMPERATURE 25 DEWPOINT 12
		QNH (<i>number</i>) [<i>units</i>];	QNH 1025 HECTOPASCAL
		QFE (<i>number</i>) [<i>(units)</i>];	QNH 2995 INCHES
		(<i>aircraft type</i>) REPORTED (<i>description</i>) ICING (<i>or</i> TURBULENCE) [IN CLOUD] (<i>area</i>) (<i>time</i>);	AIRBUS340 REPORTED SEVER ICING 30 NM EAST OF ZANJAN AIRBUS340 REPORTED SEVER TURBULENCE EAST OF ZANJAN
14.1.12		REPORT FLIGHT CONDITIONS	
	POSITION REPORTING	NEXT REPORT AT (<i>significant point</i>);	NEXT REPORT AT ZANJAN
	... to omit position reports until a specified position	OMIT POSITION REPORTS [UNTIL (<i>specify</i>)]; RESUME POSITION REPORTING.	
14.1.13	ADDITIONAL REPORTS	REPORT PASSING (<i>significant point</i>);	REPORT PASSING ZANJAN
	... to request a report at a specified place or distance	REPORT (<i>distance</i>) MILES (GNSS or DME) FROM (<i>name of DME station</i>) (<i>or significant point</i>);	REPORT 20 MILES GNSS FROM ZANJAN REPORT 20 MILES DME FROM ZANJAN
	... to report at a specified place or distance	(<i>distance</i>) MILES (GNSS or DME) FROM (<i>name of DME station</i>) (<i>or significant point</i>)*	
		REPORT PASSING (<i>three digits</i>) RADIAL (<i>name of VOR</i>) VOR;	REPORT PASSING 180 RADIAL ZANJAN VOR;
	... to request a report of present position	REPORT (GNSS or DME) DISTANCE FROM (<i>significant point</i>) (<i>or name of DME station</i>);	REPORT GNSS DISTANCE FROM ZANJAN
	... to report present position	(<i>distance</i>) MILES (GNSS or DME) FROM (<i>name of DME station</i>) (<i>or significant point</i>)*	REPORT DME DISTANCE FROM ZANJAN DME
14.1.14	AERODROME INFORMATION	[(<i>location</i>)] RUNWAY (<i>number</i>) SURFACE CONDITION [CODE (<i>three-digit number</i>)]	

	<i>Note. This information is provided for runway thirds or the full runway, as applicable.</i>	followed as necessary by: 1. ISSUED AT (date and time UTC); 2. DRY, or WET ICE, or WATER ON TOP OF COMPACTED SNOW, or DRY SNOW, or DRY SNOW ON TOP OF ICE, or WET SNOW ON TOP OF ICE, or ICE, or SLUSH, or STANDING WATER, or COMPACTED SNOW, or WET SNOW, or DRY SNOW ON TOP OF COMPACTED SNOW, or WET SNOW ON TOP OF COMPACTED SNOW, or WET, or FROST; 3. DEPTH ((depth of deposit) MILLIMETRES or NOT REPORTED); 4. COVERAGE ((number) PER CENT or NOT REPORTED); 5. ESTIMATED SURFACE FRICTION (GOOD, or GOOD TO MEDIUM, or MEDIUM, or MEDIUM TO POOR, or POOR, or LESS THAN POOR); 6. AVAILABLE WIDTH (number) METRES; 7. LENGTH REDUCED TO (number) METRES; 8. DRIFTING SNOW; 9. LOOSE SAND; 10. CHEMICALLY TREATED; 11. SNOWBANK (number) METRES [LEFT, or RIGHT or LEFT AND RIGHT] [OF or FROM] CENTRELINE; 12. TAXIWAY (identification of taxiway) SNOWBANK (number) METRES [LEFT, or RIGHT or LEFT AND RIGHT] [OF or FROM] CENTRELINE; 13. ADJACENT SNOWBANKS; 14. TAXIWAY (identification of taxiway) POOR; 15. APRON (identification of apron) POOR; 16. Plain language remarks	
		[(location)] RUNWAY SURFACE CONDITION RUNWAY (number) NOT CURRENT;	
		LANDING SURFACE (condition);	
		CAUTION CONSTRUCTION WORK (location);	CAUTION CONSTRUCTION WORK NEAR TWY ALPHA

		CAUTION (<i>specify reasons</i>) RIGHT (or LEFT), (or BOTH SIDES) OF RUNWAY [<i>number</i>];	CAUTION CONSTRUCTION WORK RIGHT SIDES OF RUNWAY 27
		CAUTION WORK IN PROGRESS (or OBSTRUCTION) (<i>position and any necessary advice</i>);	
		BRAKING ACTION REPORTED BY (<i>aircraft type</i>) AT (<i>time</i>) GOOD (or GOOD TO MEDIUM, or MEDIUM, or MEDIUM TO POOR, or POOR);	BRAKING ACTION REPORTED BY MD82 AT 0946 GOOD TO MEDIUM
		TAXIWAY (<i>identification of taxiway</i>) WET [<i>or STANDING WATER, or SNOW REMOVED (length and width as applicable), or CHEMICALLY TREATED, or COVERED WITH PATCHES OF DRY SNOW (or WET SNOW, or COMPACTED SNOW, or SLUSH, or FROZEN SLUSH, or ICE, or WET ICE, or ICE UNDERNEATH, or ICE AND SNOW, or SNOWDRIFTS, or FROZEN RUTS AND RIDGES or LOOSE SAND)</i>];	
		TOWER OBSERVES (<i>weather information</i>);	TOWER OBSERVES SNOW
		PILOT REPORTS (<i>weather information</i>).	PILOT REPORTS SNOW
14.1.15	OPERATIONAL STATUS OF VISUAL AND NON-VISUAL AIDS	(<i>specify visual or non-visual aid</i>) RUNWAY (<i>number</i>) (<i>description of deficiency</i>);	
		(<i>type</i>) LIGHTING (<i>unservicability</i>);	
		GBAS/SBAS/ILS CATEGORY (<i>category</i>) (<i>serviceability state</i>);	
		TAXIWAY LIGHTING (<i>description of deficiency</i>);	
		(<i>type of visual approach slope indicator</i>) RUNWAY (<i>number</i>) (<i>description of deficiency</i>).	
14.1.16	REDUCED VERTICAL SEPARATION MINIMUM (RVSM) OPERATIONS ... to ascertain RVSM approval status of an aircraft	CONFIRM RVSM APPROVED	
	... to report RVSM approved status	AFFIRM RVSM*	
	... to report RVSM non-approved status followed by supplementary information	NEGATIVE RVSM [(<i>supplementary information, e.g. State aircraft</i>)]*	

	... to deny ATC clearance into RVSM airspace	UNABLE ISSUE CLEARANCE INTO RVSM AIRSPACE, MAINTAIN [or DESCEND TO, or CLIMB TO] (<i>level</i>);	
	... to report when severe turbulence affects the capability of an aircraft to maintain height-keeping requirements for RVSM	UNABLE RVSM DUE TURBULENCE*	
	... to report that the equipment of an aircraft has degraded below minimum aviation system performance standards	UNABLE RVSM DUE EQUIPMENT*	
	...to request an aircraft to provide information as soon as RVSM-approved status has been regained or the pilot is ready to resume RVSM operations	REPORT WHEN ABLE TO RESUME RVSM	
	... to request confirmation that an aircraft has regained RVSM-approved status or a pilot is ready to resume RVSM operations	CONFIRM ABLE TO RESUME RVSM;	
	... to report ability to resume RVSM operations after an equipment or weather-related contingency	READY TO RESUME RVSM*	
14.1.17	GNSS SERVICE STATUS	GNSS REPORTED UNRELIABLE (or GNSS MAY NOT BE AVAILABLE [DUE TO INTERFERENCE]) IN THE VICINITY OF (<i>location</i>) (<i>radius</i>) [BETWEEN (<i>levels</i>)];	
		GNSS REPORTED UNRELIABLE (or GNSS MAY NOT BE AVAILABLE [DUE TO INTERFERENCE]) IN THE AREA OF (<i>description</i>) (or IN (<i>name</i>) FIR) [BETWEEN (<i>levels</i>)];	
		BASIC GNSS (or SBAS, or GBAS) UNAVAILABLE FOR (<i>specify operation</i>) [FROM (<i>time</i>) TO (<i>time</i>) (or UNTIL FURTHER NOTICE)];	

		BASIC GNSS UNAVAILABLE [DUE TO <i>(reason, e.g. LOSS OF RAIM or RAIM ALERT)</i>] *	
		GBAS (or SBAS) UNAVAILABLE*	
		CONFIRM GNSS NAVIGATION	
		AFFIRM GNSS NAVIGATION*	
14.1.18	DEGRADATION OF AIRCRAFT NAVIGATION PERFORMANCE	UNABLE RNP (<i>specify type</i>) (or RNAV) [DUE TO <i>(reason, e.g. LOSS OF RAIM or RAIM ALERT)</i>].	

Section 2

AREA CONTROL SERVICES

Table 14-2 Phraseologies for Area Control Services

Row	Circumstances	Phraseologies	Example
14.2.1	ISSUANCE OF A CLEARANCE	(name of unit) CLEARS (aircraft call sign);	Tehran ACC CLEARS IRA123
		(aircraft call sign) CLEARED TO	IRA123 CLEARED TO;
		RECLEARED (amended clearance details) [REST OF CLEARANCE UNCHANGED];	RECLEARED VIA UL124 TO ZANJAN REST OF CLEARANCE UNCHANGED
		RECLEARED (amended route portion) TO (significant point of original route) [REST OF CLEARANCE UNCHANGED];	
		ENTER CONTROLLED AIRSPACE (or CONTROL ZONE) [VIA (significant point or route)] AT (level) [AT (time)];	ENTER CONTROL ZONE VIA SESMA AT FL150
		LEAVE CONTROLLED AIRSPACE (or CONTROL ZONE) [VIA (significant point or route)] AT (level) (or CLIMBING, or DESCENDING);	LEAVE CONTROLLED AIRSPACE AT FL170 DESCENDING
		JOIN (specify) AT (significant point) AT (level) [AT (time)].	JOIN P574 AT PEKAM
14.2.2	INDICATION OF ROUTE AND CLEARANCE LIMIT	FROM (location) TO (location);	FROM MEHRABAD TO RASHT
		TO (location), DIRECT;	TO MELMI DIRECT
		TO (location), VIA (route and/or significant points);	TO MELMI VIA W10
		TO (location), FLIGHT PLANNED ROUTE;	TO CHABAHAR FLIGHT PLANNED ROUTE
		TO (location), VIA (distance) DME ARC (direction) OF (name of DME station);	
		(route) NOT AVAILABLE DUE (reason) ALTERNATIVE[S] IS/ARE (routes) ADVISE	T215 NOT AVAILABLE DUE GUN FIRING ALTERNATIVE IS P574 ADVISE
14.2.3		MAINTAIN (level) [TO (significant point)];	MAINTAIN FL200 TO LVA

	MAINTENANCE OF SPECIFIED LEVELS <i>Note. The term "MAINTAIN" is not to be used in lieu of "DESCEND" or "CLIMB" when instructing an aircraft to change level.</i>	MAINTAIN (level) UNTIL PASSING (significant point);	MAINTAIN FL250 UNTIL PASSING ALMOB
		MAINTAIN (level) UNTIL (minutes) AFTER PASSING (significant point);	MAINTAIN FL210 UNTIL 5minutes AFTER PASSING BJD
		MAINTAIN (level) UNTIL (time);	MAINTAIN FL130 UNTIL 46
		MAINTAIN (level) UNTIL ADVISED BY (name of unit);	MAINTAIN FL200 UNTIL ADVISED BY Tehran ACC
		MAINTAIN (level) UNTIL FURTHER ADVISED;	MAINTAIN FL200 UNTIL FURTHER ADVISED;
		MAINTAIN (level) WHILE IN CONTROLLED AIRSPACE;	MAINTAIN FL180 WHILE IN CONTROLLED AIRSPACE;
14.2.4	SPECIFICATION OF CRUISING LEVELS	CROSS (significant point) AT (or ABOVE, or BELOW) (level);	CROSS BOXAM ABOVE, FL200
		CROSS (significant point) AT (time) OR LATER (or BEFORE) AT (level);	CROSS RARTA AT 46 OR LATER AT FL160
		CRUISE CLIMB BETWEEN (levels) (or ABOVE (level));	
		CROSS (distance) MILES, (GNSS or DME) [(direction)] OF (name of DME station) OR (distance) [(direction)] OF (significant point) AT (or ABOVE or BELOW) (level).	CROSS 30 MILES DME NORTH OF YSJ BELOW FL160
14.2.5	EMERGENCY DESCENT	EMERGENCY DESCENT (intentions)*	
		ATTENTION ALL AIRCRAFT IN THE VICINITY OF [or AT] (significant point or location) EMERGENCY DESCENT IN PROGRESS FROM (level) (followed as necessary by specific instructions, clearances, traffic information, etc.).	ATTENTION ALL AIRCRAFT IN THE VICINITY OF SYZ EMERGENCY DESCENT IN PROGRESS FROM FL250
14.2.6	IF CLEARANCE CANNOT BE ISSUED IMMEDIATELY UPON REQUEST	EXPECT CLEARANCE (or type of clearance) AT (time).	EXPECT CLEARANCE AT 46
14.2.7	WHEN CLEARANCE FOR DEVIATION CANNOT BE ISSUED	UNABLE, TRAFFIC (direction) BOUND (type of aircraft) (level) ESTIMATED (or OVER) (significant point) AT (time) CALL SIGN (call sign) ADVISE INTENTIONS.	UNABLE, TRAFFIC EAST BOUND MD88 FL310 OVER TBS AT 46 CALL SIGN IRM456 ADVISE INTENTIONS.
14.2.8	SEPARATION INSTRUCTIONS	CROSS (significant point) AT (time) [OR LATER (or OR BEFORE)];	CROSS SBZ AT 46 OR LATER
		ADVISE IF ABLE TO CROSS (significant point) AT (time or level);	ADVISE IF ABLE TO CROSS MAH AT FL130

		MAINTAIN MACH (<i>number</i>) [OR GREATER (or OR LESS)] [UNTIL (<i>significant point</i>)];	MAINTAIN MACH 0.81 OR LESS UNTIL BONAM
		DO NOT EXCEED MACH (<i>number</i>).	DO NOT EXCEED MACH 0.79
		CONFIRM ESTABLISHED ON THE TRACK BETWEEN (<i>significant point</i>) AND (<i>significant point</i>) [WITH ZERO OFFSET];	CONFIRM ESTABLISHED ON THE TRACK BETWEEN GESIP AND DAPOG WITH ZERO OFFSET
		ESTABLISHED ON THE TRACK BETWEEN (<i>significant point</i>) AND (<i>significant point</i>) [WITH ZERO OFFSET];*	MAINTAIN TRACK BETWEEN ZAJ AND DASIS REPORT ESTABLISHED ON THE TRACK
		MAINTAIN TRACK BETWEEN (<i>significant point</i>) AND (<i>significant point</i>). REPORT ESTABLISHED ON THE TRACK;	
		ESTABLISHED ON THE TRACK*	
		CONFIRM ZERO OFFSET	
		AFFIRM ZERO OFFSET.	
14.2.9	INSTRUCTIONS ASSOCIATED WITH FLYING A TRACK (OFFSET), PARALLEL TO THE CLEARED ROUTE	ADVISE IF ABLE TO PROCEED PARALLEL OFFSET;	
		PROCEED OFFSET (<i>distance</i>) RIGHT/LEFT OF (<i>route</i>) (<i>track</i>) [CENTRE LINE] [AT (<i>significant point or time</i>)] [UNTIL (<i>significant point or time</i>)];	PROCEED OFFSET 5 MILES RIGHT/LEFT OF UT36 CENTRE LINE AT ENEDA
		CANCEL OFFSET (<i>instructions to rejoin cleared flight route or other information</i>).	CANCEL OFFSET <i>rejoin</i> UT36 AT DEPSU

Section 3

APPROACH CONTROL SERVICES

Table 14-3 Phraseologies for approach control services

Row	Circumstances	Phraseologies	Example
14.3.1	DEPARTURE INSTRUCTIONS	[AFTER DEPARTURE] TURN RIGHT (or LEFT) HEADING (three digits) (or CONTINUE RUNWAY HEADING) (or TRACK EXTENDED CENTRE LINE) TO (level or significant point) [(other instructions as required)];	AFTER DEPARTURE TURN RIGHT HEADING 270 TO DHN
		AFTER REACHING (or PASSING) (level or significant point (instructions));	AFTER REACHING 120 TURN LEFT CLIMB TO FL 280
		TURN RIGHT (or LEFT) HEADING (three digits) TO (level) [TO INTERCEPT (track, route, airway, etc.)];	TURN RIGHT HEADING 030 TO FL 160 TO INTERCEPT W130
		(standard departure name and number) DEPARTURE;	KUGVO 1A DEPARTURE;
		TRACK (three digits) DEGREES [MAGNETIC (or TRUE)] TO (or FROM) (significant point) UNTIL (time, or REACHING (fix or significant point or level)) [BEFORE PROCEEDING ON COURSE];	TRACK 090 DEGREES MAGNETIC TO PEKAM UNTIL REACHING TO FL230 BEFORE PROCEEDING ON COURSE
		CLEARED (designation) DEPARTURE	CLEARED SESMA2A DEPARTURE
	...clearance to proceed direct with advance notice of a future instruction to rejoin the SID	CLEARED DIRECT (waypoint), CLIMB TO (level), EXPECT TO REJOIN SID [(SID designator)] [AT (waypoint)], then REJOIN SID [(SID designator)] [AT (waypoint)];	CLEARED TO SAV VIA SAV2B ARRIVAL;
		CLEARED DIRECT (waypoint), CLIMB TO (level), then REJOIN SID (SID designator) AT (waypoint).	
14.3.2	APPROACH INSTRUCTIONS ...clearance to proceed direct with advance notice of a future	CLEARED (designation) ARRIVAL;	CLEARED LABOT2B ARRIVAL
		CLEARED TO (clearance limit) (designation);	CLEARED TO VR VIA SAV2B ARRIVAL;
		CLEARED (or PROCEED) (details of route to be followed);	CLEARED VIA W32 TO OVHD

	instruction to rejoin the STAR	CLEARED DIRECT (waypoint), DESCEND TO (level), EXPECT TO REJOIN STAR [(STAR designator)] AT (waypoint), then REJOIN STAR [(STAR designator)] [AT (waypoint)];	
		CLEARED DIRECT (waypoint), DESCEND TO (level), then REJOIN STAR (STAR designator) AT (waypoint);	
		CLEARED (type of approach) APPROACH [RUNWAY (number)];	CLEARED VOR APPROACH RUNWAY 35;
		CLEARED (type of approach) RUNWAY (number) FOLLOWED BY CIRCLING TO RUNWAY (number);	CLEARED NDB APPROACH RUNWAY 30 FOLLOWED BY CIRCLING TO RUNWAY 12;
		CLEARED APPROACH [RUNWAY (number)];	CLEARED APPROACH RUNWAY 31L
		COMMENCE APPROACH AT (time);	COMMENCE APPROACH AT 10:05
		REQUEST STRAIGHT-IN [(type of approach)] APPROACH [RUNWAY (number)]*	
		CLEARED STRAIGHT-IN [(type of approach)] APPROACH [RUNWAY (number)];	
		REPORT VISUAL;	
		REPORT RUNWAY [LIGHTS] IN SIGHT;	
	... when a pilot requests a visual approach	REQUEST VISUAL APPROACH*	
		CLEARED VISUAL APPROACH RUNWAY (number);	
	... to request if a pilot is able to accept a visual approach	ADVISE ABLE TO ACCEPT VISUAL APPROACH RUNWAY (number);	
	... in case of successive visual approaches when the pilot of a succeeding aircraft has reported having the preceding aircraft in sight	CLEARED VISUAL APPROACH RUNWAY (number), MAINTAIN OWN SEPARATION FROM PRECEDING (aircraft type and wake turbulence category as appropriate) [CAUTION WAKE TURBULENCE];	CLEARED VISUAL APPROACH RUNWAY 32, MAINTAIN OWN SEPARATION FROM PRECEDING A30B HEAVY CAUTION WAKE TURBULENCE
		REPORT (significant point); [OUTBOUND, or INBOUND];	
		REPORT COMMENCING PROCEDURE TURN;	
		REQUEST VMC DESCENT*	
		MAINTAIN OWN SEPARATION	
		MAINTAIN VMC;	

		ARE YOU FAMILIAR WITH (name) APPROACH PROCEDURE	
		REQUEST (type of approach) APPROACH [RUNWAY (number)]*	
		REQUEST (RNAV plain-language designator)*	
		CLEARED (RNAV plain-language designator)	
14.3.3	HOLDING CLEARANCES ... visual	HOLD VISUAL [OVER] (position), (or BETWEEN (two prominent landmarks));	HOLD VISUAL OVER POINT "H"
	... published holding procedure over a facility or fix	CLEARED (or PROCEED) TO (significant point, name of facility or fix) [MAINTAIN (or CLIMB or DESCEND TO) (level)] HOLD [(direction)] AS PUBLISHED EXPECT APPROACH CLEARANCE (or FURTHER CLEARANCE) AT (time);	CLEARED TO BUZ [MAINTAIN FL170 HOLD AS PUBLISHED EXPECT APPROACH CLEARANCE AT 03:45
		REQUEST HOLDING INSTRUCTIONS*	
	... when a detailed holding clearance is required	CLEARED (or PROCEED) TO (significant point, name of facility or fix) [MAINTAIN (or CLIMB or DESCEND TO) (level)] HOLD [(direction)] [(specified) RADIAL, COURSE, INBOUND TRACK (three digits) DEGREES] [RIGHT (or LEFT) HAND PATTERN] [OUTBOUND TIME (number) MINUTES] EXPECT APPROACH CLEARANCE (or FURTHER CLEARANCE) AT (time) (additional instructions, if necessary);	
		CLEARED TO THE (three digits) RADIAL OF THE (name) VOR AT (distance) DME FIX [MAINTAIN (or CLIMB or DESCEND TO) (level)] HOLD [(direction)] [RIGHT (or LEFT) HAND PATTERN] [OUTBOUND TIME (number) MINUTES] EXPECT APPROACH CLEARANCE (or FURTHER CLEARANCE) AT (time) (additional instructions, if necessary);	
	14.3.4	EXPECTED APPROACH TIME	
		NO DELAY EXPECTED;	
		EXPECTED APPROACH TIME (time);	
		REVISED EXPECTED APPROACH TIME (time);	

		DELAY NOT DETERMINED (reasons).	DELAY NOT DETERMINED DUE TO EMERGENCY FLIGHT.

Section 4

PHRASEOLOGIES FOR USE ON AND IN THE VICINITY OF THE AERODROME

Table 14-4 Phraseologies for use on and in the vicinity of the aerodrome

Row	Circumstances	Phraseologies	Example
14.4.1	IDENTIFICATION OF AIRCRAFT	SHOW LANDING LIGHTS	
14.4.2	ACKNOWLEDGEMENT BY VISUAL MEANS	ACKNOWLEDGE BY MOVING AILERONS (or RUDDER);	
		ACKNOWLEDGE BY ROCKING WINGS;	
		ACKNOWLEDGE BY FLASHING LANDING LIGHTS.	
14.4.3	STARTING PROCEDURES	[aircraft location] REQUEST START UP*	STAND NO:102 REQUEST START UP;
	... to request permission to start engines	[aircraft location] REQUEST START UP, INFORMATION (ATIS identification)*	STAND NO:102 REQUEST START UP, INFORMATION D
	... ATC replies	START UP APPROVED;	
		START UP AT (time);	START UP AT 46
		EXPECT START UP AT (time);	EXPECT START UP AT 46
		START UP AT OWN DISCRETION;	
		EXPECT DEPARTURE (time) START UP AT OWN DISCRETION.	EXPECT DEPARTURE 46 START UP AT OWN DISCRETION.
14.4.4	PUSHBACK PROCEDURES	[aircraft location] REQUEST PUSHBACK*	STAND NO:102 REQUEST PUSHBACK
	<i>Note. When local procedures so prescribe, authorization for pushback should be obtained from the control tower.</i>	PUSHBACK APPROVED	
		STAND BY;	
		PUSHBACK AT OWN DISCRETION;	
	... aircraft/ATC	EXPECT (number) MINUTES DELAY DUE (reason).	EXPECT 5 MINUTES DELAY DUE TRAFFIC
14.4.5	TOWING PROCEDURES	REQUEST TOW [company name] (aircraft type) FROM (location) TO (location);	REQUEST TOW KARUN F100 FROM EAST RAMP TO STAND NO:102
	... ATC response	TOW APPROVED VIA (specific routing to be followed);	TOW APPROVED VIA TAXIWAY A

		HOLD POSITION;	
		STAND BY	
14.4.6	TO REQUEST TIME, CHECK AND/OR AERODROME DATA FOR DEPARTURE	REQUEST TIME CHECK*	
		TIME (time);	TIME 46, TIME 1246,
	... when no ATIS broadcast is available	REQUEST DEPARTURE INFORMATION*	
		RUNWAY (number), WIND (direction and speed) (units) QNH (or QFE) (number) [(units)] TEMPERATURE [MINUS] (number), [VISIBILITY (distance) (units) (or RUNWAY VISUAL RANGE (or RVR) (distance) (units))] [TIME (time)].	RUNWAY 27, WIND 150degrees 08knot QNH 996 Hectopascals TEMPERATURE MINUS 02, VISIBILITY 6 Kilometers
14.4.7	TAXI PROCEDURES ... for departure	[aircraft type] [wake turbulence category if "super" or "heavy"] [aircraft location] REQUEST TAXI [intentions];	Airbus320 Stand102 REQUEST TAXI
		[aircraft type] [wake turbulence category if "super" or "heavy"] [aircraft location] (flight rules) TO (aerodrome of destination) REQUEST TAXI [intentions]*	Ilyushin76 heavy yashi ramp VFR TO VR REQUEST TAXI
		TAXI TO HOLDING POINT [number] [RUNWAY (number)] [HOLD SHORT OF RUNWAY (number) (or CROSS RUNWAY (number))] [TIME (time)];	
	... where detailed taxi instructions are required	[aircraft type] [wake turbulence category if "super" or "heavy"] REQUEST DETAILED TAXI INSTRUCTIONS*	Airbus 30B heavy REQUEST DETAILED TAXI INSTRUCTIONS
		TAXI TO HOLDING POINT [number] [RUNWAY (number)] VIA (specific route to be followed) [TIME (time)] [HOLD SHORT OF RUNWAY (number) (or CROSS RUNWAY (number))];	TAXI TO HOLDING POINT RUNWAY 27L VIA TAXI WAY A CROSS RUNWAY 27R
	... where aerodrome information is not available from an alternative source such as ATIS	TAXI TO HOLDING POINT [number] (followed by aerodrome information as applicable) [TIME (time)];	
		TAKE (or TURN) FIRST (or SECOND) LEFT (or RIGHT);	
		TAXI VIA (identification of taxiway);	TAXI VIA A
		TAXI VIA RUNWAY (number);	TAXI VIA RUNWAY 27

		TAXI TO TERMINAL (or other location, e.g. GENERAL AVIATION AREA) [STAND (number)];	
	... for helicopter operations	REQUEST AIR-TAXIING FROM (or VIA) TO (location or routing as appropriate)*	
		AIR-TAXI TO (or VIA) (location or routing as appropriate) [CAUTION (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)];	AIR-TAXI TO EAST RAMP CAUTION taxiing light aircraft
		AIR TAXI VIA (direct, as requested, or specified route) TO (location, heliport, operating or movement area, active or inactive runway). AVOID (aircraft or vehicles or personnel);	AIR TAXI VIA direct TO heliport AVOID vehicles and personnel
	... after landing	REQUEST BACKTRACK*	
		BACKTRACK APPROVED	
		BACKTRACK RUNWAY (number);	
	... general	[(aircraft location)] REQUEST TAXI TO (destination on aerodrome)*	
		TAXI STRAIGHT AHEAD	
		TAXI WITH CAUTION	
		GIVE WAY TO (description and position of other aircraft);	GIVE WAY TO F100 on your left
		GIVING WAY TO (traffic)*	
		TRAFFIC (or type of aircraft) IN SIGHT*	TRAFFIC F100 IN SIGHT;
		TAXI INTO HOLDING BAY	
		FOLLOW (description of other aircraft or vehicle);	FOLLOW MD88 Ahead
		VACATE RUNWAY	
		RUNWAY VACATED*	
		EXPEDITE TAXI [(reason)];	
		EXPEDITING;	
		[CAUTION] TAXI SLOWER [reason];	
		SLOWING DOWN*	
14.4.8	HOLDING	HOLD (direction) OF (position, runway number, etc.);	

	Requires specific acknowledgement from the pilot. Denotes pilot transmission. The procedure words ROGER and WILCO are insufficient acknowledgement of the instructions HOLD, HOLD POSITION and HOLD SHORT OF (position). In each case the acknowledgement shall be by the phraseology HOLDING or HOLDING SHORT, as appropriate.	HOLD POSITION	
		HOLD (distance) FROM (position);	
		HOLD SHORT OF (position);	
		HOLDING;	
		HOLDING SHORT	
14.4.9	TO CROSS A RUNWAY	REQUEST CROSS RUNWAY (number)* <i>Note. If the control tower is unable to see the crossing aircraft (e.g. night, low visibility), the instruction should always be accompanied by a request to report when the aircraft has vacated the runway.</i>	
		CROSS RUNWAY (number) [REPORT VACATED];	
		EXPEDITE CROSSING RUNWAY (number) TRAFFIC (aircraft type) (distance) KILOMETRES (or MILES) FINAL	EXPEDITE CROSSING RUNWAY 27 TRAFFIC RJ1H 6 MILES FINAL
		TAXI TO HOLDING POINT [number] [RUNWAY (number)] VIA (specific route to be followed), [HOLD SHORT OF RUNWAY (number)] or [CROSS RUNWAY (number)];	TAXI TO HOLDING POINT RUNWAY 27L VIA TAXI WAY A and C HOLD SHORT OF RUNWAY 27R
	<i>Note. The pilot will, when requested, report "RUNWAY VACATED" when the entire aircraft is beyond the relevant runway-holding position.</i>		
		RUNWAY VACATED*	
14.4.10	PREPARATION FOR TAKE-OFF	UNABLE TO ISSUE (designator) DEPARTURE (reasons);	
		REPORT WHEN READY [FOR DEPARTURE];	
		ARE YOU READY [FOR DEPARTURE]?;	
		ARE YOU READY FOR IMMEDIATE DEPARTURE?;	
		READY;	

	... clearance to enter runway and await take-off clearance	LINE UP [AND WAIT];	
		LINE UP RUNWAY <i>(number)</i> ;	
		LINE UP. BE READY FOR IMMEDIATE DEPARTURE	
	... confirmation or otherwise of the read-back of conditional clearance	[THAT IS] CORRECT <i>(or NEGATIVE)</i> [I SAY AGAIN] ... <i>(as appropriate)</i> .	
14.4.11	TAKE-OFF CLEARANCE	RUNWAY <i>(number)</i> CLEARED FOR TAKE-OFF [REPORT AIRBORNE];	RUNWAY 27 CLEARED FOR TAKE-OFF
	... when reduced runway separation is used	<i>(traffic information)</i> RUNWAY <i>(number)</i> CLEARED FOR TAKE-OFF;	<i>traffic Piper28 Right Downwind</i> RUNWAY 27 CLEARED FOR TAKE-OFF
	... when take-off clearance has not been complied with	TAKE OFF IMMEDIATELY OR VACATE RUNWAY <i>[(instructions)]</i> ;	TAKE OFF IMMEDIATELY OR VACATE RUNWAY VIA TWY D
		TAKE OFF IMMEDIATELY OR HOLD SHORT OF RUNWAY;	
	... to cancel a take-off clearance	HOLD POSITION, CANCEL TAKE-OFF I SAY AGAIN CANCEL TAKE-OFF <i>(reasons)</i> ;	HOLD POSITION, CANCEL TAKE-OFF I SAY AGAIN CANCEL TAKE-OFF UNAUTHORIZED CAR ON THE RUNWAY
		HOLDING*	
	... to stop a take-off after an aircraft has commenced take-off Roll	STOP IMMEDIATELY <i>[(repeat aircraft call sign)]</i> STOP IMMEDIATELY;	
		STOPPING*	
	... for helicopter operations	CLEARED FOR TAKE-OFF [FROM <i>(location)</i>] <i>(present position, taxiway, final approach and take-off area, runway and number)</i> ;	
		REQUEST DEPARTURE INSTRUCTIONS*	
		AFTER DEPARTURE TURN RIGHT <i>(or LEFT, or CLIMB)</i> <i>(instructions as appropriate)</i> .	
14.4.12	TURN OR CLIMB INSTRUCTIONS AFTER TAKE-OFF	REQUEST RIGHT <i>(or LEFT)</i> TURN*	
		RIGHT <i>(or LEFT)</i> TURN APPROVED	

		WILL ADVISE LATER FOR RIGHT (or LEFT) TURN	
	... to request airborne time	REPORT AIRBORNE	
		AIRBORNE (time);	
		AFTER PASSING (level) (instructions);	AFTER PASSING FL110 Turn Left Direct To SAV
	... heading to be followed	CONTINUE RUNWAY HEADING (instructions);	
	... when a specific track is to be followed	TRACK EXTENDED CENTRE LINE (instructions);	
		CLIMB STRAIGHT AHEAD (instructions).	
14.4.13	ENTERING AN AERODROME TRAFFIC CIRCUIT	[aircraft type] (position) (level) FOR LANDING*	
		JOIN [(direction of circuit)] (position in circuit) (runway number) [SURFACE] WIND (direction and speed) (units) [TEMPERATURE [MINUS] (number)] QNH (or QFE) (number) [(units)] [TRAFFIC (detail)];	
		MAKE STRAIGHT-IN APPROACH, RUNWAY (number) [SURFACE] WIND (direction and speed) (units) [TEMPERATURE [MINUS] (number)] QNH (or QFE) (number) [(units)] [TRAFFIC (detail)];	
	... when ATIS information is available	(aircraft type) (position) (level) INFORMATION (ATIS identification) FOR LANDING*	Piper28 15DME 7000 Feet FOR LANDING
		JOIN (position in circuit) [RUNWAY (number)] QNH (or QFE) (number) [(units)] [TRAFFIC (detail)].	JOIN left downwind runway 27 SURFACE WIND 220 10knots TEMPERATURE 27 QNH 1012 TRAFFIC Cesena172R Left Base Runway 27
14.4.14	IN THE CIRCUIT APPROACH INSTRUCTIONS <i>Note. The report "LONG FINAL" is made when aircraft turn on to final approach at a distance greater than 4 NM from touchdown or when an aircraft on a straight-in approach is 8 NM from touchdown. In both cases a report</i>	(position in circuit, e.g. DOWNWIND/FINAL)*	
		NUMBER ... FOLLOW (aircraft type and position) [additional instructions if required].	NUMBER 3 FOLLOW Falcon20 Extend Downwind.
14.4.15		MAKE SHORT APPROACH	
		MAKE LONG APPROACH (or EXTEND DOWNWIND);	
		REPORT BASE (or FINAL, or LONG FINAL);	
		CONTINUE APPROACH [PREPARE FOR POSSIBLE GO AROUND].	

		<i>"FINAL" is required at 4 NM from touchdown.</i>	
14.4.16	LANDING CLEARANCE	RUNWAY (number) CLEARED TO LAND;	
	... when reduced runway separation is used	(traffic information) RUNWAY (number) CLEARED TO LAND;	
	... special operations	[RUNWAY (number)] CLEARED TOUCH AND GO;	
		MAKE FULL STOP;	
	... to make an approach along, or parallel to a runway, descending to an agreed minimum level	REQUEST LOW APPROACH (reasons)*	
		CLEARED LOW APPROACH [RUNWAY (number)] [(altitude restriction if required) (go around instructions)];	
	... to fly past the control tower or other observation point for the purpose of visual inspection by persons on the ground	REQUEST LOW PASS (reasons)*	
		CLEARED LOW PASS [RUNWAY (number)] [(altitude restriction if required) (go around instructions)];	
	... for helicopter operations	REQUEST STRAIGHT-IN (or CIRCLING APPROACH, LEFT (or RIGHT) TURN TO (location)) * MAKE STRAIGHT-IN (or CIRCLING APPROACH, LEFT (or RIGHT) TURN TO (location, runway, taxiway, final approach and take-off area)) [ARRIVAL (or ARRIVAL ROUTE) (number, name, or code)]. [HOLD SHORT OF (active runway, extended runway centre line, other)]. [REMAIN (direction or distance) FROM (runway, runway centre line, other helicopter or aircraft)]. [CAUTION (power lines, unlighted obstructions, wake turbulence, etc.)]. CLEARED TO LAND.	CIRCLING APPROACH LEFT TURN CAUTION power lines CLEARED TO LAND.
14.4.17	DELAYING AIRCRAFT	CIRCLE THE AERODROME;	
		ORBIT (RIGHT, or LEFT) [FROM PRESENT POSITION];	
		MAKE ANOTHER CIRCUIT.	
14.4.18	MISSED APPROACH	GO AROUND;	
		GOING AROUND*	
14.4.19	INFORMATION TO AIRCRAFT		

	... when pilot requested visual inspection of landing gear	LANDING GEAR APPEARS DOWN;	
		RIGHT (or LEFT, or NOSE) WHEEL APPEARS UP (or DOWN);	
		WHEELS APPEAR UP;	
		RIGHT (or LEFT, or NOSE) WHEEL DOES NOT APPEAR UP (or DOWN);	
	... wake turbulence	CAUTION WAKE TURBULENCE [FROM ARRIVING (or DEPARTING) (type of aircraft)] [additional information as required];	
	... jet blast on apron or taxiway	CAUTION JET BLAST;	
	... propeller-driven aircraft slipstream	CAUTION SLIPSTREAM.	
14.4.20	RUNWAY VACATING AND COMMUNICATIONS AFTER LANDING	CONTACT GROUND (frequency);	
		WHEN VACATED CONTACT GROUND (frequency);	
		EXPEDITE VACATING;	
		YOUR STAND (or GATE) (designation);	
		TAKE (or TURN) FIRST (or SECOND, or CONVENIENT) LEFT (or RIGHT) AND CONTACT GROUND (frequency);	
	... for helicopter operations	AIR-TAXI TO HELICOPTER STAND (or) HELICOPTER PARKING POSITION (area);	
		AIR-TAXI TO (or VIA) (location or routing as appropriate) [CAUTION (dust, blowing snow, loose debris, taxiing light aircraft, personnel, etc.)];	
		AIR-TAXI VIA (direct, as requested, or specified route) TO (location, heliport, operating or movement area, active or inactive runway). AVOID (aircraft or vehicles or personnel).	

Section 5

COORDINATION BETWEEN ATS UNITS

Table 14-5 Coordination between ATS units

Row	Circumstances	Phraseologies	Example
14.5.1	ESTIMATES AND REVISIONS	ESTIMATE <i>[direction of flight]</i> (<i>aircraft call sign</i>) [SQUAWKING (<i>SSR code</i>)] (<i>type</i>) ESTIMATED (<i>significant point</i>) (<i>time</i>) (<i>level</i>) (or DESCENDING FROM (<i>level</i>) TO (<i>level</i>)) [SPEED (<i>filed TAS</i>)] (<i>route</i>) [REMARKS];	ESTIMATE IRM051 SQUAWKING 3215 A30B ESTIMATED KAVOT 0643 FL280 UP574
	... sending unit	ESTIMATE (<i>significant point</i>) ON (<i>aircraft call sign</i>);	
	... receiving unit reply (if flight plan details are not available)	NO DETAILS;	
	... receiving unit reply (if flight plan details are available)	(<i>aircraft type</i>) (<i>destination</i>);	
	... sending unit reply	[SQUAWKING (<i>SSR code</i>)] [ESTIMATED] (<i>significant point</i>) (<i>time</i>) AT (<i>level</i>);	
	Note. In the event that flight plan details are not available the receiving station shall reply to b) NO DETAILS and transmitting station shall pass full estimate	ESTIMATE UNMANNED FREE BALLOON(S) (<i>identification and classification</i>) ESTIMATED OVER (<i>place</i>) AT (<i>time</i>) REPORTED FLIGHT LEVEL(S) (<i>figure or figures</i>) [or FLIGHT LEVEL UNKNOWN] MOVING (<i>direction</i>) ESTIMATED GROUND SPEED (<i>figure</i>) (<i>other pertinent information, if any</i>); REVISION (<i>aircraft call sign</i>) (<i>details as necessary</i>).	
14.5.2	TRANSFER OF CONTROL	REQUEST RELEASE OF (<i>aircraft call sign</i>);	
		(<i>aircraft call sign</i>) RELEASED [AT (<i>time</i>)] [<i>conditions/restrictions</i>];	CPN037 SQUAWKING 4312 B747 FROM CHABAHAR RELEASED AT 0740 CLEARED TO AND ESTIMATING RADAL 0745 AT FL 280 CONTACT AT 0740
		IS (<i>aircraft call sign</i>) RELEASED [FOR CLIMB (or DESCENT)];	
		(<i>aircraft call sign</i>) NOT RELEASED [UNTIL (<i>time or significant point</i>)];	

		UNABLE (<i>aircraft call sign</i>) [TRAFFIC IS (<i>details</i>)].	
14.5.3	CHANGE OF CLEARANCE	MAY WE CHANGE CLEARANCE OF (<i>aircraft call sign</i>) TO (<i>details of alteration proposed</i>);	
		AGREED TO (<i>alteration of clearance</i>) OF (<i>aircraft call sign</i>);	
		UNABLE (<i>aircraft call sign</i>);	
		UNABLE (<i>desired route, level, etc.</i>) [FOR (<i>aircraft call sign</i>)] [DUE (<i>reason</i>)] (<i>alternative clearance proposed</i>).	
14.5.4	APPROVAL REQUEST	APPROVAL REQUEST (<i>aircraft call sign</i>) ESTIMATED DEPARTURE FROM (<i>significant point</i>) AT (<i>time</i>);	
		(<i>aircraft call sign</i>) REQUEST APPROVED [(<i>restriction if any</i>)];	
		(<i>aircraft call sign</i>) UNABLE (<i>alternative instructions</i>).	
14.5.5	INBOUND RELEASE	[INBOUND RELEASE] (<i>aircraft call sign</i>) [SQUAWKING (SSR code)] (<i>type</i>) FROM (<i>departure point</i>) RELEASED AT (<i>significant point, or time, or level</i>) CLEARED TO AND ESTIMATING (<i>clearance limit</i>) (<i>time</i>) AT (<i>level</i>) [EXPECTED APPROACH TIME or NO DELAY EXPECTED] CONTACT AT (<i>time</i>).	
14.5.6	HANDOVER	HANDOVER (<i>aircraft call sign</i>) [SQUAWKING (SSR code)] POSITION (<i>aircraft position</i>) (<i>level</i>).	HANDOVER IZG4041 POSITION BOXAM FL280
14.5.7	EXPEDITION OF CLEARANCE	EXPEDITE CLEARANCE (<i>aircraft call sign</i>) EXPECTED DEPARTURE FROM (<i>place</i>) AT (<i>time</i>);	EXPEDITE CLEARANCE TBZ5251 EXPECTED DEPARTURE FROM TABRIZ AT 2330
		EXPEDITE CLEARANCE (<i>aircraft call sign</i>) [ESTIMATED] OVER (<i>place</i>) AT (<i>time</i>) REQUESTS (<i>level or route, etc.</i>).	EXPEDITE CLEARANCE TBN6268 OVER ZANJAN AT 0750 REQUESTS FL310
14.5.8	REDUCED VERTICAL SEPARATION MINIMUM (RVSM) OPERATIONS ... to verbally supplement estimate messages of aircraft non-approved for RVSM or to verbally supplement an automated estimate message exchange that does not automatically transfer information	NEGATIVE RVSM [(<i>supplementary information, e.g. State aircraft</i>)];	

	from Item 18 of the flight plan followed by supplementary information, as appropriate		
	... to communicate the cause of a contingency relating to an aircraft that is unable to conduct RVSM operations due to severe turbulence or other severe meteorological phenomena or equipment failure, as applicable	UNABLE RVSM DUE TURBULENCE (or EQUIPMENT, as applicable).	

Section 6

GENERAL ATS SURVEILLANCE SERVICE PHRASEOLOGIES

Table 14-6 General ATS surveillance service phraseologies

Row	Circumstances	Phraseologies	Example
14.6.1	IDENTIFICATION OF AIRCRAFT	REPORT HEADING [AND FLIGHT LEVEL (or ALTITUDE)];	
		FOR IDENTIFICATION TURN LEFT (or RIGHT) HEADING (three digits);	
		TRANSMIT FOR IDENTIFICATION AND REPORT HEADING;	
		RADAR CONTACT [position];	
		IDENTIFIED [position];	
		NOT IDENTIFIED [reason], RESUME (or CONTINUE) OWN NAVIGATION].	
		CLIMB (or DESCEND) AT (number) FEET PER MINUTE [OR GREATER (or OR LESS)]	
14.6.2	POSITION INFORMATION	POSITION (distance) (direction) OF (significant point) (or OVER or ABEAM (significant point)).	
14.6.3	VECTORIZING INSTRUCTIONS	LEAVE (significant point) HEADING (three digits);	
		CONTINUE HEADING (three digits);	
		CONTINUE PRESENT HEADING;	
		FLY HEADING (three digits);	
		TURN LEFT (or RIGHT) HEADING (three digits) [reason];	
		TURN LEFT (or RIGHT) (number of degrees) DEGREES [reason];	
		STOP TURN HEADING (three digits);	
		FLY HEADING (three digits), WHEN ABLE PROCEED DIRECT (name) (significant point);	
		HEADING IS GOOD.	
14.6.4	TERMINATION OF VECTORIZING	RESUME OWN NAVIGATION (position of aircraft) (specific instructions);	

		RESUME OWN NAVIGATION [DIRECT] (<i>significant point</i>) [MAGNETIC TRACK (<i>three digits</i>) DISTANCE (<i>number</i>) KILOMETRES (or MILES)].	
14.6.5	MANOEUVRES	MAKE A THREE SIXTY TURN LEFT (or RIGHT) [<i>reason</i>];	
		ORBIT LEFT (or RIGHT) [<i>reason</i>];	
	... (in case of unreliable directional instruments on board aircraft) <i>Note. When it is necessary to specify a reason for vectoring or for the above manoeuvres, the following phraseologies should be used:</i> a) DUE TRAFFIC; b) FOR SPACING; c) FOR DELAY; d) FOR DOWNWIND (or BASE, or FINAL).	MAKE ALL TURNS RATE ONE (or RATE HALF, or (<i>number</i>) DEGREES PER SECOND) START AND STOP ALL TURNS ON THE COMMAND “NOW”;	
		TURN LEFT (or RIGHT) NOW;	
		STOP TURN NOW	
14.6.6	SPEED CONTROL	REPORT SPEED	
		SPEED (<i>number</i>) KILOMETRES PER HOUR (or KNOTS)*	
		MAINTAIN (<i>number</i>) KILOMETRES PER HOUR (or KNOTS) [OR GREATER (or OR LESS)] [UNTIL (<i>significant point</i>)];	
		DO NOT EXCEED (<i>number</i>) KILOMETRES PER HOUR (or KNOTS);	
		MAINTAIN PRESENT SPEED	
		INCREASE (or REDUCE) SPEED TO (<i>number</i>) KILOMETRES PER HOUR (or KNOTS) [OR GREATER (or OR LESS)];	
		INCREASE (or REDUCE) SPEED BY (<i>number</i>) KILOMETRES PER HOUR (or KNOTS);	
		RESUME NORMAL SPEED	
		REDUCE TO MINIMUM APPROACH SPEED	
		REDUCE TO MINIMUM CLEAN SPEED	
		RESUME PUBLISHED SPEED	
		NO [ATC] SPEED RESTRICTIONS	

14.6.7	POSITION REPORTING ... to omit position reports	OMIT POSITION REPORTS [UNTIL (<i>specify</i>)];	
		NEXT REPORT AT (<i>significant point</i>);	
		REPORTS REQUIRED ONLY AT (<i>significant point(s)</i>);	
		RESUME POSITION REPORTING.	
14.6.8	TRAFFIC INFORMATION AND AVOIDING ACTION	TRAFFIC (<i>number</i>) O'CLOCK (<i>distance</i>) (<i>direction of flight</i>) [<i>any other pertinent information</i>]: 11) UNKNOWN; 12) SLOW MOVING; 13) FAST MOVING; 14) CLOSING; 15) OPPOSITE (<i>or</i> SAME) DIRECTION; 16) OVERTAKING; 17) CROSSING LEFT TO RIGHT (<i>or</i> RIGHT TO LEFT); 18) (<i>aircraft type</i>); (... (if known)) 19) (<i>level</i>); 10) CLIMBING (<i>or</i> DESCENDING);	
		REQUEST VECTORS*	
		DO YOU WANT VECTORS?;	
		CLEAR OF TRAFFIC [<i>appropriate instructions</i>];	
		TURN LEFT (<i>or</i> RIGHT) IMMEDIATELY HEADING (<i>three digits</i>) TO AVOID [UNIDENTIFIED] TRAFFIC (<i>bearing by clock-reference and distance</i>);	
		TURN LEFT (<i>or</i> RIGHT) (<i>number of degrees</i>) DEGREES IMMEDIATELY TO AVOID [UNIDENTIFIED] TRAFFIC AT (<i>bearing by clock-reference and distance</i>).	
14.6.9	COMMUNICATIONS AND LOSS OF COMMUNICATIONS	[IF] RADIO CONTACT LOST (<i>instructions</i>);	
		IF NO TRANSMISSIONS RECEIVED FOR (<i>number</i>) MINUTES (<i>or</i> SECONDS) (<i>instructions</i>);	
		REPLY NOT RECEIVED (<i>instructions</i>);	
	... if loss of communications suspected	IF YOU READ [<i>manoeuvre instructions or SQUAWK (code or IDENT)</i>];	
		(<i>manoeuvre, SQUAWK or IDENT</i>) OBSERVED. POSITION (<i>position of aircraft</i>). [<i>(instructions)</i>].	

14.6.10	TERMINATION OF RADAR SERVICE	RADAR SERVICE (or IDENTIFICATION) TERMINATED [DUE <i>(reason)</i>] <i>(instructions)</i> ;	
		WILL SHORTLY LOSE IDENTIFICATION <i>(appropriate instructions or information)</i> ;	
		IDENTIFICATION LOST <i>(reasons)</i> <i>(instructions)</i> .	
14.6.11	RADAR EQUIPMENT DEGRADATION	SECONDARY RADAR OUT OF SERVICE <i>(appropriate information as necessary)</i> ;	
		PRIMARY RADAR OUT OF SERVICE <i>(appropriate information as necessary)</i> ;	

Section 7

RADAR IN APPROACH CONTROL SERVICE

Table 14-7 Radar in approach control service

Row	Circumstances	Phraseologies	Example
14.7.1	VECTORIZING FOR APPROACH	VECTORIZING FOR (type of pilot-interpreted aid) APPROACH RUNWAY (number);	VECTORIZING FOR ILS APPROACH RUNWAY 27L
		VECTORIZING FOR VISUAL APPROACH RUNWAY (number) REPORT FIELD (or RUNWAY) IN SIGHT;	VECTORIZING FOR VISUAL APPROACH RUNWAY 27L REPORT RUNWAY IN SIGHT
		VECTORIZING FOR (positioning in the circuit);	VECTORIZING FOR DOWNWIND
		VECTORIZING FOR SURVEILLANCE RADAR APPROACH RUNWAY (number);	VECTORIZING FOR SURVEILLANCE RADAR APPROACH RUNWAY 27L
		VECTORIZING FOR PRECISION APPROACH RUNWAY (number);	
		(type) APPROACH NOT AVAILABLE DUE (reason) (alternative instructions).	ILS APPROACH NOT AVAILABLE DUE FLIGHT CHECK EXPIRED VECTORIZING FOR VOR/DME
14.7.2	VECTORIZING FOR ILS AND OTHER PILOT-INTERPRETED AIDS	POSITION (number) KILOMETRES (or MILES) from (fix). TURN LEFT (or RIGHT) HEADING (three digits);	POSITION 55 MILES from ISN TURN LEFT HEADING 125
		YOU WILL INTERCEPT (radio aid or track) (distance) FROM (significant point or TOUCHDOWN);	YOU WILL INTERCEPT LOC 6 MILES FROM TOUCHDOWN
	... when a pilot wishes to be positioned a specific distance from touchdown	REQUEST (distance) FINAL*	
		CLEARED FOR (type of approach) APPROACH RUNWAY (number);	CLEARED FOR ILS APPROACH RUNWAY 27L
		REPORT ESTABLISHED ON [ILS] LOCALIZER (or ON GBAS/SBAS APPROACH COURSE);	REPORT ESTABLISHED ON LOCALIZER
		CLOSING FROM LEFT (or RIGHT) [REPORT ESTABLISHED];	CLOSING FROM LEFT REPORT ESTABLISHED
		TURN LEFT (or RIGHT) HEADING (three digits) [TO INTERCEPT] or [REPORT ESTABLISHED];	TURN LEFT HEADING 325 TO INTERCEPT

		EXPECT VECTOR ACROSS (<i>localizer course or radio aid</i>) (<i>reason</i>);	EXPECT VECTOR ACROSS LOCALIZER COURSE DUE TRAFFIC
		THIS TURN WILL TAKE YOU THROUGH (<i>localizer course or</i> <i>radio aid</i>) [<i>reason</i>];	THIS TURN WILL TAKE YOU THROUGH LOCALIZER COURSE DUE HIGH ALTITUDE
		TAKING YOU THROUGH (<i>localizer course or radio aid</i>) [<i>reason</i>];	
		MAINTAIN (<i>altitude</i>) UNTIL GLIDE PATH INTERCEPTION;	
		REPORT ESTABLISHED ON GLIDE PATH;	
		INTERCEPT (<i>localizer course or</i> <i>radio aid</i>) [REPORT ESTABLISHED].	
14.7.3	MANOEUVRE DURING INDEPENDENT AND DEPENDENT PARALLEL APPROACHES	CLEARED FOR (<i>type of approach</i>) APPROACH RUNWAY (<i>number</i>) LEFT (<i>or RIGHT</i>);	
		YOU HAVE CROSSED THE LOCALIZER (<i>or GBAS/SBAS</i> FINAL APPROACH COURSE). TURN LEFT (<i>or RIGHT</i>) IMMEDIATELY AND RETURN TO THE LOCALIZER (<i>or GBAS/SBAS</i> FINAL APPROACH COURSE);	
		ILS RUNWAY (<i>number</i>) LEFT (<i>or</i> <i>RIGHT</i>) LOCALIZER FREQUENCY IS (<i>frequency</i>);	
	... for avoidance action when an aircraft is observed penetrating the NTZ	TURN LEFT (<i>or RIGHT</i>) (<i>number</i>) DEGREES (<i>or HEADING</i>) (<i>three</i> <i>digits</i>) IMMEDIATELY TO AVOID TRAFFIC [DEVIATING FROM ADJACENT APPROACH], CLIMB TO (<i>altitude</i>);	
	... for avoidance action below 120 m (400 ft) above the runway threshold elevation where parallel approach obstacle assessment surfaces (PAOAS) criteria are being applied	CLIMB TO (<i>altitude</i>) IMMEDIATELY TO AVOID TRAFFIC [DEVIATING FROM ADJACENT APPROACH] (<i>further</i> <i>instructions</i>).	

Section 8

SURVEILLANCE RADAR APPROACH

Table 14-8 Surveillance radar approach

Row	Circumstances	Phraseologies	Example
14.8.1	PROVISION OF SERVICE	THIS WILL BE A SURVEILLANCE RADAR APPROACH RUNWAY <i>(number)</i> TERMINATING AT <i>(distance)</i> FROM TOUCHDOWN, OBSTACLE CLEARANCE ALTITUDE <i>(or HEIGHT)</i> <i>(number)</i> METRES <i>(or FEET)</i> CHECK YOUR MINIMA [IN CASE OF GO AROUND <i>(instructions)</i>];	IN CASE OF GO AROUND SET HEADING 260 CLIMB TO 7000 FT CONTACT 119.7
		APPROACH INSTRUCTIONS WILL BE TERMINATED AT <i>(distance)</i> FROM TOUCHDOWN.	
14.8.2	ELEVATION	COMMENCE DESCENT NOW [TO MAINTAIN A <i>(number)</i> DEGREE GLIDE PATH];	
		<i>(distance)</i> FROM TOUCHDOWN ALTITUDE <i>(or HEIGHT)</i> SHOULD BE <i>(numbers and units)</i> .	
14.8.3	POSITION	<i>(distance)</i> FROM TOUCHDOWN	
14.8.4	CHECKS	CHECK GEAR DOWN [AND LOCKED];	
		OVER THRESHOLD.	
14.8.5	COMPLETION OF APPROACH	REPORT VISUAL	
		REPORT RUNWAY [LIGHTS] IN SIGHT;	
		APPROACH COMPLETED [CONTACT <i>(unit)</i>].	

Section 9

SECONDARY SURVEILLANCE RADAR (SSR)

Table 14-9 Secondary surveillance radar (SSR)

Row	Circumstances	Phraseologies	Example
14.9.1	TO REQUEST THE CAPABILITY OF THE SSR EQUIPMENT	ADVISE TRANSPONDER CAPABILITY	
		TRANSPONDER (<i>as shown in the flight plan</i>)*	
		NEGATIVE TRANSPONDER*	
14.9.2	TO INSTRUCT SETTING OF TRANSPONDER	FOR DEPARTURE SQUAWK (<i>code</i>);	
		SQUAWK (<i>code</i>).	
14.9.3	TO REQUEST THE PILOT TO RESELECT THE ASSIGNED MODE AND CODE	RESET SQUAWK [(<i>mode</i>)] (<i>code</i>);	
		RESETTING (<i>mode</i>) (<i>code</i>) *	
14.9.4	TO REQUEST RESELECTION OF AIRCRAFT IDENTIFICATION	RE-ENTER [ADS-B or MODE S] AIRCRAFT IDENTIFICATION	
14.9.5	TO REQUEST THE PILOT TO CONFIRM THE CODE SELECTED ON THE AIRCRAFT'S TRANSPONDER	CONFIRM SQUAWK (<i>code</i>);	
		SQUAWKING (<i>code</i>)*	
14.9.6	TO REQUEST THE OPERATION OF THE IDENT FEATURE	SQUAWK [(<i>code</i>)] [AND] IDENT	
		SQUAWK LOW;	
		SQUAWK NORMAL;	
14.9.7	TO REQUEST TEMPORARY SUSPENSION OF TRANSPONDER OPERATION	SQUAWK STANDBY	
14.9.8	TO REQUEST EMERGENCY CODE	SQUAWK MAYDAY [CODE SEVEN-SEVEN-ZERO-ZERO].	
14.9.9	TO REQUEST TERMINATION OF TRANSPONDER	STOP SQUAWK	
14.9.10	TO REQUEST TRANSMISSION OF PRESSURE-ALTITUDE	SQUAWK CHARLIE	
		TRANSMIT ADS-B ALTITUDE	

14.9.11	TO REQUEST PRESSURE SETTING CHECK AND CONFIRMATION OF LEVEL	CHECK ALTIMETER SETTING AND CONFIRM <i>(level)</i> .	
14.9.12	TO REQUEST TERMINATION OF PRESSURE-ALTITUDE TRANSMISSION BECAUSE OF FAULTY OPERATION	STOP SQUAWK CHARLIE WRONG INDICATION	
		STOP ADS-B ALTITUDE TRANSMISSION [(WRONG INDICATION, <i>or reason</i>)].	
14.9.13	TO REQUEST LEVEL CHECK	CONFIRM <i>(level)</i> .	

Section 10

ALERTING PHRASEOLOGIES

Table 14-10 Alerting phraseologies

Row	Circumstances	Phraseologies	Example
14.10.1	LOW ALTITUDE WARNING	<i>(aircraft call sign)</i> LOW ALTITUDE WARNING, CHECK YOUR ALTITUDE IMMEDIATELY, QNH IS <i>(number)</i> [<i>(units)</i>]. [THE MINIMUM FLIGHT ALTITUDE IS <i>(altitude)</i>].	EP-ASB LOW ALTITUDE WARNING, CHECK YOUR ALTITUDE IMMEDIATELY, QNH IS 1021 HECTOPASCAL
14.10.2	TERRAIN ALERT	<i>(aircraft call sign)</i> TERRAIN ALERT, <i>(suggested pilot action, if possible)</i> .	EP-ATC TERRAIN ALERT

APPENDIX 1

AERODROME

1.1 COMMON REFERENCE SYSTEMS

1.1.1 HORIZONTAL REFERENCE SYSTEM

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

Note. Comprehensive guidance material concerning WGS-84 is contained in the World Geodetic System — 1984 (WGS-84) Manual (Doc 9674).

1.1.2 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.

Note 1. The geoid globally most closely approximates MSL. It is defined as the equipotential surface in the gravity field of the Earth which coincides with the undisturbed MSL extended continuously through the continents.

Note 2. Gravity-related heights (elevations) are also referred to as orthometric heights while distances of points above the ellipsoid are referred to as ellipsoidal heights.

1.1.3 TEMPORAL REFERENCE SYSTEM

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

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

1.2 REFERENCE CODE

1.2.1 An aerodrome reference code — code number and letter — which is selected for aerodrome planning purposes shall be determined in accordance with the characteristics of the aeroplane for which an aerodrome facility is intended.

1.2.2 The aerodrome reference code numbers and letters shall have the meanings assigned to them in table Appendix 1-1.

1.2.3 The code number for element 1 shall be determined from table appendix 1-1, column 1, selecting the code number corresponding to the highest value of the aeroplane reference field lengths of the aeroplanes for which the runway is intended.

1.2.4 The code letter for element 2 shall be determined from table 3-23, column 3, by selecting the code letter which corresponds to the greatest wingspan, or the greatest outer main gear wheel span, whichever gives the more demanding code letter of the aeroplanes for which the facility is intended.

Table Appendix 1-1 Aerodrome reference code

Code element 1			Code element 2	
Code number (1)	Aeroplane reference field length (2)	Code letter (3)	Wingspan (4)	Outer main gear wheel span*
1	Less than 800 m	A	Up to but not including 15 m	Up to but not including 4.5 m
2	800 m up to but not including 1200 m	B	15 m up to but not including 24 m	4.5 m up to but not including 6 m
3	1200 m up to but not including 1800 m	C	24 m up to but not including 36 m	6 m up to but not including 9 m
4	1800 m and over	D	36 m up to but not including 52 m	9 m up to but not including 14 m
		E	52 m up to but not including 65 m	9 m up to but not including 14 m
		F	65 m up to but not including 80 m	14 m up to but not including 16 m

*Distance between the outside edges of the main gear wheels.

1.3 AERODROME DATA

1.3.1 AERODROME REFERENCE POINT

1.3.1.1 An aerodrome reference point shall be established for an aerodrome.

1.3.1.2 The aerodrome reference point shall be located near the initial or planned geometric centre of the aerodrome and shall normally remain where first established.

1.3.2 AERODROME AND RUNWAY ELEVATIONS

1.3.2.1 The aerodrome elevation and geoid undulation at the aerodrome elevation position shall be measured to the accuracy of one-half meter or foot and reported to the aeronautical information services authority.

1.3.2.2 For an aerodrome used by international civil aviation for non-precision approaches, the elevation and geoid undulation of each threshold, the elevation of the runway end and any significant high and low intermediate points along the runway shall be measured to the accuracy of one-half meter or foot and reported to the aeronautical information services authority.

1.3.2.3 For precision approach runway, the elevation and geoid undulation of the threshold, the elevation of the runway end and the highest elevation of the touchdown zone shall be measured to the accuracy of one-quarter meter or foot and reported to the aeronautical information services authority.

1.3.3 AERODROME REFERENCE TEMPERATURE

An aerodrome reference temperature shall be determined for an aerodrome in degrees Celsius.

1.3.4 AERODROME DIMENSIONS AND RELATED INFORMATION

The geographical coordinates of each threshold shall be measured and reported to the aeronautical information services authority in degrees, minutes, seconds and hundredths of seconds.

1.3.5 STRENGTH OF PAVEMENTS

1.3.5.1 The bearing strength of a pavement shall be determined.

1.3.5.2 The bearing strength of a pavement intended for aircraft of apron (ramp) mass greater than 5700 kg shall be made available using the aircraft classification number — pavement classification number (ACN-PCN) method by reporting all of the following information:

- a) the pavement classification number (PCN);
- b) pavement type for ACN-PCN determination;
- c) subgrade strength category;
- d) maximum allowable tire pressure category or maximum allowable tire pressure value; and
- e) evaluation method.

1.3.5.3 Information on pavement type for ACN-PCN determination, subgrade strength category, maximum allowable tire pressure category and evaluation method shall be reported using the following codes:

- a) Pavement type for ACN-PCN determination:

Table Appendix 1-2 Pavement type for ACN-PCN

Pavement type for ACN-PCN	Code
Rigid pavement	R
Flexible pavement	F
<i>Note. If the actual construction is composite or non-standard, include a note to that effect (see example below).</i>	

- b) Subgrade strength category:

Table Appendix 1-3 Subgrade strength

Subgrade strength	Code
High strength: Characterized by K = 150 MN/m ³ and representing all K values above 120 MN/m ³ for rigid pavements, and by CBR = 15 and representing all CBR values above 13 for flexible pavements.	A
Medium strength: Characterized by K = 80 MN/m ³ and representing a range in K of 60 to 120 MN/m ³ for rigid pavements, and by CBR = 10 and representing a range in CBR of 8 to 13 for flexible pavements	B

Low strength: Characterized by $K = 40 \text{ MN/m}^3$ and representing a range in K of 25 to 60 MN/m^3 for rigid pavements, and by $\text{CBR} = 6$ and representing a range in CBR of 4 to 8 for flexible pavements.	C
Ultra-low strength: Characterized by $K = 20 \text{ MN/m}^3$ and representing all K values below 25 MN/m^3 for rigid pavements, and by $\text{CBR} = 3$ and representing all CBR values below 4 for flexible pavements.	D

c) Maximum allowable tire pressure category:

Table 0 Appendix 1-4 Maximum allowable tire pressure

Maximum allowable tire pressure	Code
Unlimited: no pressure limit	W
High: pressure limited to 1.75 MPa	X
Medium: pressure limited to 1.25 MPa	Y
Low: pressure limited to 0.50 MPa	Z

d) Evaluation method:

Table Appendix 1-5 Evaluation method

Evaluation method	Code
Technical evaluation: representing a specific study of the pavement characteristics and application of pavement behavior technology.	T
Using aircraft experience: representing a knowledge of the specific type and mass of aircraft satisfactorily being supported under regular use.	U

Example:

If the bearing strength of a rigid pavement, resting on a medium strength subgrade, has been assessed by technical evaluation to be PCN 80 and there is no tire pressure limitation, then the reported information would be:

PCN 80 / R / B / W / T

1.4 PHYSICAL CHARACTERISTICS

1.4.1 RUNWAYS

1.4.1.1 Actual length of runways:

The actual runway length to be provided for a primary runway should be adequate to meet the operational requirements of the aeroplanes for which the runway is intended and should be not less than the longest length determined by applying the corrections for local conditions to the operations and performance characteristics of the relevant aeroplanes.

Note. When performance data on aeroplanes for which the runway is intended are not known, guidance on the determination of the actual length of a primary runway by application of general correction factors is given in the Aerodrome Design Manual (Doc 9157), Part 1.

1.4.1.2 Width of runways:

The width of a runway should be not less than the appropriate dimension specified in the following tabulation:

Table Appendix 1-6 Width of runways

Code number	Code letter					
	A	B	C	D	E	F
1*	18 m	18 m	23 m	—	—	—
2*	23 m	23 m	30 m	—	—	—
3	30 m	30 m	30 m	45 m	—	—
4	—	—	45 m	45 m	45 m	60 m

**The width of a precision approach runway should be not less than 30 m where the code number is 1 or 2.*

1.4.1.3 Longitudinal slopes:

The slope computed by dividing the difference between the maximum and minimum elevation along the runway centre line by the runway length should not exceed:

- 1 per cent where the code number is 3 or 4; and
- 2 per cent where the code number is 1 or 2.

1.4.1.4 Transverse slopes:

To promote the most rapid drainage of water, the runway surface should, if practicable, be cambered except where a single cross fall from high to low in the direction of the wind most frequently associated with rain would ensure rapid drainage. The transverse slope should ideally be:

- 1.5 percent where the code letter is C, D, E or F; and
- 2 percent where the code letter is A or B;

but in any event should not exceed 1.5 per cent or 2 per cent, as applicable, nor be less than 1 per cent except at runway or taxiway intersections where flatter slopes may be necessary.

1.4.1.5 Runway strips:

A runway and any associated stop-ways shall be included in a strip.

1.4.1.5.1 Length of runway strips

A strip shall extend before the threshold and beyond the end of the runway or stop-way for a distance of at least 360 m.

1.4.1.5.2 Width of runway strips

A strip including a precision approach runway shall, wherever practicable, extend laterally to a distance of at least:

- a) 150 m where the code number is 3 or 4; and
- b) 75 m where the code number is 1 or 2;

on each side of the centre line of the runway and its extended centre line throughout the length of the strip.

1.5 OBSTACLE RESTRICTION AND REMOVAL

1.5.1 OBSTACLE LIMITATION SURFACES

1.5.1.1 Outer horizontal surface

Note. Guidance on the need to provide an outer horizontal surface and its characteristics is contained in the Airport Services Manual (Doc 9137), Part 6.

1.5.1.2 Conical surface

1.5.1.2.1 Description - Conical surface.

A surface sloping upwards and outwards from the periphery of the inner horizontal surface.

1.5.1.2.2 Characteristics:

1.5.1.2.2.1 The limits of the conical surface shall comprise:

- a) a lower edge coincident with the periphery of the inner horizontal surface; and
- b) an upper edge located at a specified height above the inner horizontal surface.

1.5.1.2.2.2 The slope of the conical surface shall be measured in a vertical plane perpendicular to the periphery of the inner horizontal surface.

1.5.1.3 Inner horizontal surface:

1.5.1.3.1 Description - Inner horizontal surface.

A surface located in a horizontal plane above an aerodrome and its environs.

1.5.1.3.2 Characteristics:

1.5.1.3.2.1 The radius or outer limits of the inner horizontal surface shall be measured from a reference point or points established for such purpose.

1.5.1.3.2.2 The height of the inner horizontal surface shall be measured above an elevation datum established for such purpose.

1.5.1.4 Approach surface

1.5.1.4.1 Description - Approach surface:

An inclined plane or combination of planes preceding the threshold.

1.5.1.4.2 Characteristics:

1.5.1.4.2.1 The limits of the approach surface shall comprise:

- a) an inner edge of specified length, horizontal and perpendicular to the extended centre line of the runway and located at a specified distance before the threshold;
- b) two sides originating at the ends of the inner edge and diverging uniformly at a specified rate from the extended centre line of the runway;
- c) an outer edge parallel to the inner edge; and
- d) the above surfaces shall be varied when lateral offset, offset or curved approaches are utilized, specifically, two sides originating at the ends of the inner edge and diverging uniformly at a specified rate from the extended centre line of the lateral offset, offset or curved ground track.

1.5.1.4.2.2 The elevation of the inner edge shall be equal to the elevation of the midpoint of the threshold.

1.5.1.5 *Inner approach surface*

1.5.1.5.1 Description - Inner approach surface.

A rectangular portion of the approach surface immediately preceding the threshold.

1.5.1.5.2 Characteristics:

The limits of the inner approach surface shall comprise:

- a) an inner edge coincident with the location of the inner edge of the approach surface but of its own specified length;
- b) two sides originating at the ends of the inner edge and extending parallel to the vertical plane containing the centre line of the runway; and
- c) an outer edge parallel to the inner edge.

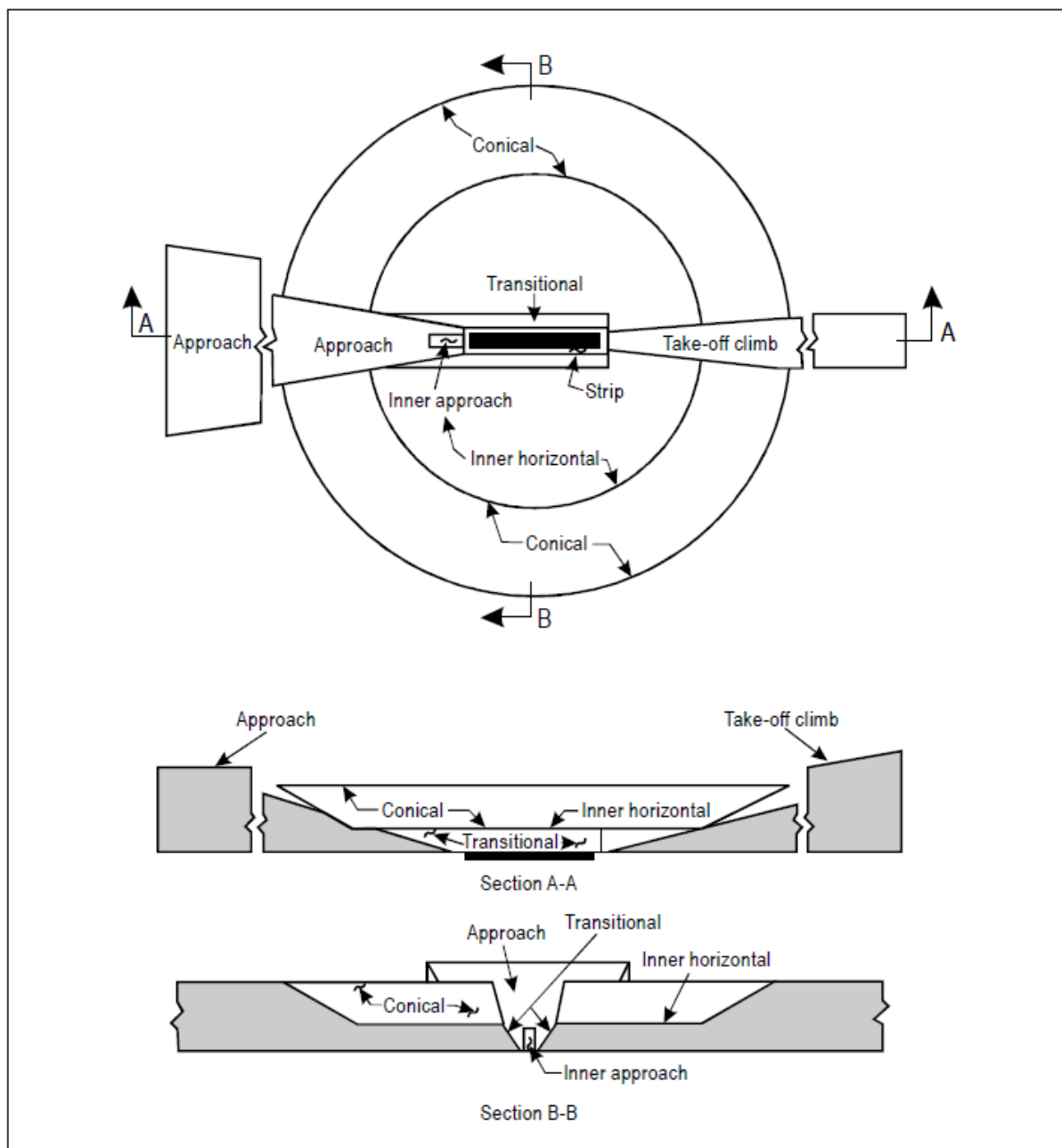


Figure 0 Appendix 1-1 Obstacle limitation surfaces

1.5.1.6 Transitional surface

1.5.1.6.1 Description - Transitional surface.

A complex surface along the side of the strip and part of the side of the approach surface, that slopes upwards and outwards to the inner horizontal surface.

1.5.1.6.2 Characteristics:

1.5.1.6.2.1 The limits of a transitional surface shall comprise:

- a) a lower edge beginning at the intersection of the side of the approach surface with the inner horizontal surface and extending down the side of the approach surface to the inner edge of the approach surface and from there along the length of the strip parallel to the runway centre line; and
- b) an upper edge located in the plane of the inner horizontal surface.

1.5.1.6.2.2 The elevation of a point on the lower edge shall be:

- a) along the side of the approach surface — equal to the elevation of the approach surface at that point; and
- b) along the strip — equal to the elevation of the nearest point on the centre line of the runway or its extension.

1.5.1.6.2.3 The slope of the transitional surface shall be measured in a vertical plane at right angles to the centre line of the runway.

1.5.1.7 Inner transitional surface

1.5.1.7.1 Description - Inner transitional surface.

A surface similar to the transitional surface but closer to the runway.

1.5.1.7.2 Characteristics:

1.5.1.7.2.1 The limits of an inner transitional surface shall comprise:

- a) a lower edge beginning at the end of the inner approach surface and extending down the side of the inner approach surface to the inner edge of that surface, from there along the strip parallel to the runway centre line to the inner edge of the balked landing surface and from there up the side of the balked landing surface to the point where the side intersects the inner horizontal surface; and
- b) an upper edge located in the plane of the inner horizontal surface.

1.5.1.7.2.2 The elevation of a point on the lower edge shall be:

- a) along the side of the inner approach surface and balked landing surface — equal to the elevation of the particular surface at that point; and
- b) along the strip — equal to the elevation of the nearest point on the centre line of the runway or its extension.

1.5.1.7.2.3 The slope of the inner transitional surface shall be measured in a vertical plane at right angles to the centre line of the runway.

1.5.1.8 Take-off climb surface

1.5.1.8.1 Description - Take-off climb surface.

An inclined plane or other specified surface beyond the end of a runway or clearway.

1.5.1.8.2 Characteristics:

1.5.1.8.2.1 The limits of the take-off climb surface shall comprise:

- a) an inner edge horizontal and perpendicular to the centre line of the runway and located either at a specified distance beyond the end of the runway or at the end of the clearway when such is provided and its length exceeds the specified distance;
- b) two sides originating at the ends of the inner edge, diverging uniformly at a specified rate from the take-off track to a specified final width and continuing thereafter at that width for the remainder of the length of the take-off climb surface; and
- c) an outer edge horizontal and perpendicular to the specified take-off track.

1.5.1.8.2.2 The elevation of the inner edge shall be equal to the highest point on the extended runway centre line between the end of the runway and the inner edge, except that when a clearway is provided the elevation shall be equal to the highest point on the ground on the centre line of the clearway.

1.5.1.8.2.3 In the case of a straight take-off flight path, the slope of the take-off climb surface shall be measured in the vertical plane containing the centre line of the runway.

1.5.1.8.2.4 In the case of a take-off flight path involving a turn, the take-off climb surface shall be a complex surface containing the horizontal normal to its centre line, and the slope of the centre line shall be the same as that for a straight take-off flight path.

Table Appendix 1-7 Dimensions & slopes of obstacle limitation surfaces- Approach RWY

Surface and dimensions ^a (1)	RUNWAY CLASSIFICATION									
	Non-instrument Code number				Non-precision approach Code number			Precision approach category		
	1	2	3	4	1,2	3	4	I Code number	II or III Code number	
	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)
CONICAL										
Slope	5%	5%	5%	5%	5%	5%	5%	5%	5%	5%
Height	35 m	55 m	75 m	100 m	60 m	75 m	100 m	60 m	100 m	100 m
INNER HORIZONTAL										
Height	45 m	45 m	45 m	45 m	45 m	45 m	45 m	45 m	45 m	45 m
Radius	2 000 m	2 500 m	4 000 m	4 000 m	3 500 m	4 000 m	4 000 m	3 500 m	4 000 m	4 000 m
INNER APPROACH										
Width	—	—	—	—	—	—	—	90 m	120 m ^e	120 m ^e
Distance from threshold	—	—	—	—	—	—	—	60 m	60 m	60 m
Length	—	—	—	—	—	—	—	900 m	900 m	900 m
Slope								2.5%	2%	2%
APPROACH										
Length of inner edge	60 m	80 m	150 m	150 m	150 m	300 m	300 m	150 m	300 m	300 m
Distance from threshold	30 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m	60 m
Divergence (each side)	10%	10%	10%	10%	15%	15%	15%	15%	15%	15%
First section										
Length	1 600 m	2 500 m	3 000 m	3 000 m	2 500 m	3 000 m	3 000 m	3 000 m	3 000 m	3 000 m
Slope	5%	4%	3.33%	2.5%	3.33%	2%	2%	2.5%	2%	2%
Second section										
Length	—	—	—	—	—	3 600 m ^b	3 600 m ^b	12 000 m	3 600 m ^b	3 600 m ^b
Slope	—	—	—	—	—	2.5%	2.5%	3%	2.5%	2.5%
Horizontal section										
Length	—	—	—	—	—	8 400 m ^b	8 400 m ^b	—	8 400 m ^b	8 400 m ^b
Total length	—	—	—	—	—	15 000 m	15 000 m	15 000 m	15 000 m	15 000 m
TRANSITIONAL										
Slope	20%	20%	14.3%	14.3%	20%	14.3%	14.3%	14.3%	14.3%	14.3%
INNER TRANSITIONAL										
Slope	—	—	—	—	—	—	—	40%	33.3%	33.3%
BALKED LANDING SURFACE										
Length of inner edge	—	—	—	—	—	—	—	90 m	120 m ^e	120 m ^e
Distance from threshold	—	—	—	—	—	—	—	c	1 800 m ^d	1 800 m ^d
Divergence (each side)	—	—	—	—	—	—	—	10%	10%	10%
Slope	—	—	—	—	—	—	—	4%	3.33%	3.33%

- a. All dimensions are measured horizontally unless specified otherwise.
b. Variable length (see 4.2.9 or 4.2.17).
c. Distance to the end of strip.
d. Or end of runway whichever is less.

- e. Where the code letter is F (Column (3) of Table 1-1), the width is increased to 155 m. For information on code letter F aeroplanes equipped with digital avionics that provide steering commands to maintain an established track during the go-around manoeuvre, see Circular 301 — *New Larger Aeroplanes — Infringement of the Obstacle Free Zone: Operational Measures and Aeronautical Study*.

END