

KURDISTAN REGIONAL GOVERNMENT



SULAYMANIYAH INTERNATIONAL AIRPORT

MATS

CHAPTER 14

AERODROME CONTROL

**International and Local Procedures
(First Edition)**

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CHAPTER 14

AERODROME CONTROL

Note . For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP).

14.1 FUNCTIONS OF AERODROME CONTROL

14.1.1 GENERAL

14.1.1.1 Aerodrome Control Towers shall issue information 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;
- e. aircraft on the manoeuvring area and obstructions on that area.

14.1.1.2 Aerodrome Controllers shall 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. Watch shall be maintained by visual observation, augmented in low visibility conditions by an ATS surveillance system when available. Traffic shall be controlled in accordance with the procedures set forth herein and all applicable traffic rules specified by the appropriate ATS authority. 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.

Note. Provisions for the use of an ATS surveillance system in the aerodrome control service are contained in Doc4444, Chapter 8, Section 8.10

14.1.1.3 The functions of an aerodrome control tower may be performed by different control or working positions such as:

- a. ARODROME CONTROLLER:** Normally responsible for operations on the runway and aircraft flying within the area of responsibility of the aerodrome control tower;
- b. GROUND CONTROLLER:** Normally responsible for traffic on the manoeuvring area with the exception of the runways;
- c. CLEARANCE DELIVERY POSITION :** Normally responsible for delivery of start-up and ATC clearances to departing IFR flights

14.1.1.4 Where parallel or near - parallel runways are used for simultaneous operations, individual aerodrome controllers should be responsible for operations on each of the runways.

14.1.2 PROVISIONS OF SERVICES

14.1.2.1 Services Provided By Aerodrome Control Tower

The following services shall be provided by Aerodrome Controller :

- a. Aerodrome Control Service,**
- b. Alerting Service,**
- c. Flight Information Service.**

14.1.2.1.1 AERODROME CONTROL SERVICE

14.1.2.1.1.1 Aerodrome Control Service is provided to:-

- 1. all aircraft operating in, entering or leaving the aerodrome traffic circuit, and**
- 2. arriving aircraft which have been transferred by approach control, or area control with the agreement of approach control as follows:**

- a. when the aircraft is in the vicinity of the aerodrome and
 - i. it is considered that approach and landing will be completed with visual reference to the ground, or
 - ii. it has reached uninterrupted VMC, or
 - b. is at a prescribed point or level, whichever is the earliest as specified in letters of agreement or local instructions, or
 - c. has landed
- 3. departing aircraft until transferred to approach control, or area control with the agreement of approach control as follows:-
 - a. when in VMC,
 - i. before the aircraft leaves the vicinity of the aerodrome, or
 - ii. before the aircraft enters IMC, whichever is earlier, or
 - iii. is at a prescribed point or level as specified in letters of agreement or local instructions.
 - b. when in IMC,
 - i. immediately after the aircraft is airborne or

- ii. is at a prescribed point or level as specified in letters of agreement or local instructions.

Note . As a local procedures for Sulaymaniyah International Airport and unless otherwise coordinated with Kirkuk approach, Sulaymaniyah Tower shall transfer the communication and release the control of departing aircraft to Kirkuk Approach According to last letter of agreement signed with Kirkuk Approach (See Sulaymaniyah LOP Chapter 7 and Appendix 9).

14.1.2.1.2 Alerting Service provided by Aerodrome Control Tower

14.1.2.1.2.1 Aircraft which fail to report after having been transferred to an aerodrome control 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 the approach control unit, ACC or flight information centre, or to the rescue coordination centre or rescue sub-centre, in accordance with local instructions.

14.1.2.1.2.2 Aerodrome Control Tower is responsible for alerting the rescue and fire fighting 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 aerodrome control tower may have or has been impaired; or
- c. requested by the flight crew; or
- d. when otherwise deemed necessary or desirable.

14.1.2.1.2.3 Procedures concerning the alerting of the rescue and fire fighting services shall be contained in local instructions. Such instructions shall specify the type of information to be provided to the rescue and fire fighting 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.

14.1.2.1.2.4 FAILURE OR IRREGULARITY OF AIDS AND EQUIPMENT

Aerodrome control tower 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

Note 1. Aerodrome controller at Sulaymaniyah International Airport shall take actions in accordance with the relevant Local Operating Procedures (LOP) and Aerodrome Emergency Plan.

Note 2. For more details, see chapter 22 (search and Rescue) of this manual .

14.1.2.1.3 FLIGHT INFORMATION SERVICE

Note:- For details, See chapter 18 (Flight Information Service and Air Traffic Advisory Service) of this manual.

14.2 SELECTION OF RUNWAY – IN – USE

Note . For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) Chapter 5 Section 5.3.

14.2.1 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.

14.2.2 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-in-use, however the unit providing aerodrome control service shall take into consideration the following:-

- a. Surface wind speed and direction.**
- b. Runway length.**
- c. Condition of the runway including work in progress.**
- d. Approach and landing aids available especially in marginal weather conditions.**
- e. Traffic in the circuit;**
- f. Position of the sun or other weather phenomena in relation to the runway.**
- g. Local noise abatement procedures.**

Note: Conditions affecting a runway may include any or all of the following:

Standing water, construction work on or adjacent to the runway, bird activity nearby, failure or irregular operations of the airfield lighting, or any other pertinent information.

- 14.2.3 If the runway in use is not considered suitable for the operation involved, the flight crew may request permission to use another runway and, if circumstances permit, should be cleared accordingly.**

14.3 INFORMATION BY AERODROME CONTROL TOWER RELATED TO THE OPERATION OF AIRCRAFT

14.3.1 INFORMATION RELATED TO THE OPERATION OF DEPARTING AIRCRAFT

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 9.

14.3.1.1 Start -Up Time Procedures

- 14.3.1.1.1 When a start up request is not approved, and when so requested by a pilot, an expected start up time shall be given.**

- 14.3.1.1.2 When so requested by the pilot prior to engine start, an expected take-off Time should be given, unless engine start time procedures are employed.**

- 14.3.1.1.3 Start-up time procedures should be implemented where necessary to avoid congestion and excessive delays on the manoeuvring area or when warranted by ATFM regulations. Start-up time procedures should be contained in local instructions, and should specify the criteria and conditions for determining when and how start-up times shall be calculated and issued to departing flights.**

- 14.3.1.1.4** When an aircraft is subject to ATFM regulations, it should be advised to start up in accordance with its allocated slot time.
- 14.3.1.1.5** When delay for a departing aircraft is anticipated to be less than a time period specified by the appropriate ATS authority, an aircraft should be cleared to start-up at its own discretion.
- 14.3.1.1.6** When delay for a departing aircraft is anticipated to exceed a time period specified by the appropriate ATS authority, the aerodrome control tower should issue an expected start-up time to an aircraft requesting start-up.
- 14.3.1.1.7** A start-up clearance shall only be withheld under circumstances or conditions specified by the appropriate ATS authority.
- 14.3.1.1.8** If a start-up clearance is withheld, the flight crew shall be advised of the reason.
- 14.3.1.2** Prior to taxiing for take - off, aircraft shall 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 to be used,
 - b. The current surface wind direction and speed, including significant variations therefrom;
- Note:- Directional variations shall be given when the total variation is 60 degrees or more with mean speeds above 5 knots; it shall be expressed as the two extreme directions between which the wind is varying. Speed variations shall be reported only when the variation from the mean speed exceeds 10 knots; it shall be expressed as the maximum and minimum values attained. (See annex 3 Chapter 4 and Appendix 3)*
- 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,
- e. The current visibility representative of the direction of take-off and initial climb, if less than 10KM, or when applicable, the current RVR value(s) for the runway to be used,
- e. The correct time.

Note. The meteorological information listed above is to follow the criteria used for meteorological local routine and special reports, in accordance with Doc 4444, Chapter 11, 11.4.3.2.2 to 11.4.3.2.3.

14.3.1.3 Prior to take-off aircraft shall be advised of:-

- a. any significant changes in the surface wind direction and speed, the air temperature, and the visibility or RVR value(s) given in accordance with 14.3.1.2 above,
- 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.

Note:- Significant meteorological conditions in this context include the occurrence or expected occurrence of cumulonimbus or thunder storm, moderate or severe turbulence, wind shear, hail, moderate or severe icing, severe squall line, freezing precipitation, severe mountain waves, standstorm, duststorm, blowing snow, tornado or waterspout in the take-off and climb-out area.

14.3.2 INFORMATION RELATED TO THE OPERATION OF ARRIVING AIRCRAFT

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 section 7.3

14.3.2.1 Prior to entering the traffic circuit or commencing its approach to land, an aircraft shall 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 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(s).**

Note. The meteorological information listed above is to follow the criteria used for meteorological local routine and special reports, in accordance with Doc 4444, Chapter 11, 11.4.3.2.2 to 11.4.3.2.3.

14.3.2.2 In applying the provisions in 14.3.1.2, 14.3.1.3, and 14.3.2.1 above, and any elements of information contained in a current ATIS broadcast, the receipt of which has been acknowledged by the aircraft concerned, need not be included in direct transmissions to the aircraft, with the exception of the altimeter setting, which shall be provided. If an aircraft acknowledges receipt of an ATIS broadcast that is no longer current, any element of information that needs updating shall be transmitted to the aircraft without delay.

14.3.2.3 When operating under VFR, it is the responsibility of the pilot – in - command of an aircraft to avoid collision with other aircraft. However, due to the restricted pilot’s vision from the flight deck, it is often essential that traffic information be issued to aid the pilot-in-command of an aircraft to avoid collision.

14.3.3 RUNWAY INCURSION OR OBSTRUCTED RUNWAY

14.3.3.1 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.— 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. Pilots may, therefore, have to exercise their judgement in accordance with Annex 2, Section 2.4 concerning the authority of the pilot-in-command of an aircraft.

14.3.3.2 Following any occurrence involving an obstruction on the runway or a runway incursion, pilots and controllers shall complete an air traffic incident report in accordance with the ICAO model air traffic incident report form.

14.3.4 WAKE TURBULENCE AND JET BLAST HAZARDS

14.3.4.1 WAKE TURBULENCE CATEGORIES

Note. The term “wake turbulence” is used in this context to describe the effect of the rotating air masses generated behind the wing tips of large jet aircraft, in preference to the term “wake vortex ” which describe the nature of the air masses. Detailed characteristics of wake vortices and their effect on aircraft are contained in the Air Traffic Services Planning Manual (Doc 9426), Part II, Section 5.

14.3.4.1.1 Wake turbulence separation minima shall be based on a grouping of aircraft types into three categories according to the maximum certificated take - off mass as follows:

- a. **HEAVY (H)** — all aircraft types of 136 000 kg or more;
- b. **MEDIUM (M)** — aircraft types less than 136 000 kg but more than 7 000 kg; and
- c. **LIGHT (L)** — aircraft types of 7 000 kg or less.

14.3.4.2 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 kilograms of gross mass, their vortices are more intense than those of fixed - wing aircraft.

Note 2. The provisions governing wake turbulence non radar and radar separation minima are set forth in Section 14.10.4 and Chapter 16 (Surveillance Services) of this manual respectively.

14.3.4.3 For aircraft in the heavy wake turbulence category the word “ Heavy ” shall be included immediately after the aircraft call sign in the initial radiotelephony contact between such aircraft and ATS units.

Note. Wake turbulence categories are specified in the instructions for completing Item 9 of the flight plan.

14.3.4.4 Aerodrome controller shall, when applicable, apply the wake turbulence separation minima specified in Section 14.10.4 of this manual. Whenever the responsibility for wake turbulence avoidance rests with the pilot - in - command, aerodrome controller shall, to the extent practicable, advise aircraft of the expected occurrence of hazards caused by turbulent wake.

Note. 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. Information on hazards due to wake vortices is contained in the Air Traffic Services Planning Manual (Doc 9426), Part II, Section 5.

14.3.4.5 In issuing clearances or instructions, air traffic controller 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.

Note. Jet blast 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.

14.3.5 ABNORMAL AIRCRAFT CONFIGURATION AND CONDITION

14.3.5.1 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 aerodrome controller, the aircraft concerned shall be advised without delay.

14.3.5.2 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.

14.3.6 ESSENTIAL INFORMATION ON AERODROME CONDITIONS

Note. See DOC 4444, Chapter 11, Section 11.4.3.4 regarding messages containing information on aerodrome conditions.

14.3.6.1 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.

14.3.6.2 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. 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 aerodrome control tower. The responsibility of the aerodrome control tower in relation to aprons is, with respect to the provisions of Sections 14.3.6.1 and 14.3.6.2, of this manual limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

14.3.6.3 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

14.3.6.4 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 and operations on that part of the manoeuvring area terminated until otherwise advised by the appropriate aerodrome authority.

14.3.7 ESSENTIAL LOCAL TRAFFIC INFORMATION

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 section 7.1.4.

14.3.7.1 Essential local traffic shall be considered to consist of 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.

14.3.7.2 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 judgment of the aerodrome controller, such information is necessary in the interest of safety, or when requested by aircraft.

14.3.7.3 Whenever essential local traffic messages are transmitted they shall contain the following information in the order listed:-

- a. Identification of the aircraft to which the information is transmitted,**
- b. The words “ TRAFFIC IS ” or “ ADDITIONAL TRAFFIC IS ”, if necessary,**
- c. Description of the essential local traffic in terms that will facilitate recognition of it by the pilot, example: type, speed category and/or colour of aircraft, type of vehicle, number of persons, etc.,**
- d. Position of the essential local traffic relative to the aircraft concerned, and direction of movement.**

14.3.7.4 In the event the Aerodrome Controller observes, after a take - off or landing clearance has been issued, any obstruction on the runway likely to affect the safety of an aircraft taking off or landing, such as a runway incursion by an aircraft or vehicle, or animals or flocks of birds on the runway, appropriate action shall be taken as follows:

- a. inform the aircraft concerned of the obstruction and its location on the runway;**
- b. cancel the take-off clearance for an aircraft which has not started to roll;**
- c. instruct a landing aircraft to go around.**

14.4 PROCEDURES FOR LOW VISIBILITY OPERATIONS

14.4.1 Control of aerodrome surface traffic in conditions of low visibility

Note. These procedures apply whenever conditions are such that all or part of the manoeuvring area cannot be visually monitored from the control tower. Additional requirements which apply when category II/III approaches are being conducted are specified in Section 14.4.2 of this manual.

14.4.1.1 When there is a requirement for traffic to operate on the manoeuvring area in conditions of visibility which prevent the aerodrome control tower from applying visual separation between aircraft, and between aircraft and vehicles, the following shall apply:

14.4.1.1.1 At the intersection of taxiways, an aircraft or vehicle on a taxiway shall not be permitted to hold closer to the other taxiway than the holding position limit defined by a clearance bar, stop bar or taxiway intersection marking according to the specifications in Annex 14, Volume I, Chapter 5.

14.4.1.1.2 The longitudinal separation on taxiways shall be as specified for each particular aerodrome by the appropriate ATS authority. This separation shall take into account the characteristics of the aids available for surveillance and control of ground traffic, the complexity of the aerodrome layout and the characteristics of the aircraft using the aerodrome.

Note. The Manual of Surface Movement Guidance and Control Systems (SMGCS) (Doc 9476) provides guidance on surface movement guidance and control components and procedures for low visibility operations.

14.4.2 Procedures For Control Of Aerodrome Traffic When Category II/III Approaches Are In Use

14.4.2.1 The appropriate ATS authority shall establish provisions applicable to the start and continuation of precision approach category II/III operations as well as departure operations in RVR conditions less than a value of 550 m.

14.4.3 Low visibility operations shall be initiated by or through the aerodrome control tower.

14.4.4 The aerodrome control tower shall inform the approach control unit concerned when procedures for precision approach category II/III and low visibility operations will be applied and also when such procedures are no longer in force.

14.4.5 Provisions regarding low visibility operations should specify:

- a. the RVR value(s) at which the low visibility operations procedures shall be implemented;**
- b. the minimum ILS/MLS equipment requirements for category II/III operations;**
- c. other facilities and aids required for category II/III operations, including aeronautical ground lights, which shall be monitored for normal operation;**
- d. the criteria for and the circumstances under which downgrading of the ILS/MLS equipment from category II/III operations capability shall be made;**
- e. the requirement to report any relevant equipment failure and degradation, without delay, to the flight crews concerned, the approach control unit, and any other appropriate organization;**
- f. special procedures for the control of traffic on the manoeuvring area, including;**
 - 1. the runway-holding positions to be used;**
 - 2. the minimum distance between an arriving and a departing aircraft to ensure protection of the sensitive and critical areas;**
 - 3. procedures to verify that aircraft and vehicles have vacated the runway;**
 - 4. procedures applicable to the separation of aircraft and vehicles;**
- g. applicable spacing between successive approaching aircraft;**
- h. action(s) to be taken in the event low visibility operations need to be discontinued, e.g. due to equipment failures; and**
- i. any other relevant procedures or requirements.**

Note. Further information regarding the requirements for low visibility operations can be found in the Air Traffic Services Planning Manual (Doc 9426) and the All Weather Operations Manual (Doc 9365).

14.4.6 The aerodrome control tower shall, prior to a period of application of low visibility procedures, establish a record of vehicles and persons currently on the manoeuvring area and maintain this record during the period of application of these procedures to assist in assuring the safety of operations on that area.

Note. See also Section 14.6 of this manual.

14.5 Designated positions of aircraft in the Aerodrome Traffic and Taxi Circuits

14.5.1 Aerodrome controller shall maintain a continuous watch on all visible flights, operations on and in the vicinity of an aerodrome, including aircraft, vehicles and personnel on the manoeuvring area, and shall control such traffic in accordance with the procedures set forth herein and all applicable traffic rules.

14.5.2 The following positions of aircraft in the traffic and taxi circuits are the positions where the 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. See Fig 14 - 1 and Fig 14 - 2.

- Position 1** Aircraft initiates call to taxi for departing flights. Runway-in-use information and taxi clearance 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** Aircraft reports downwind. Clearance to base leg, or final, or to land issued.
- Position 5** If instructed aircraft reports base leg here. Clearance to final or to land is issued.
- Position 6** Clearance to land issued, if not already given.
- Position 7** Clearance to taxi to apron is issued here.
- Position 8** Parking information issued here if necessary.

Note. For ICAO Designated Positions in the aerodrome traffic and taxi circuits, see Doc 4444 Section 7.6.2.

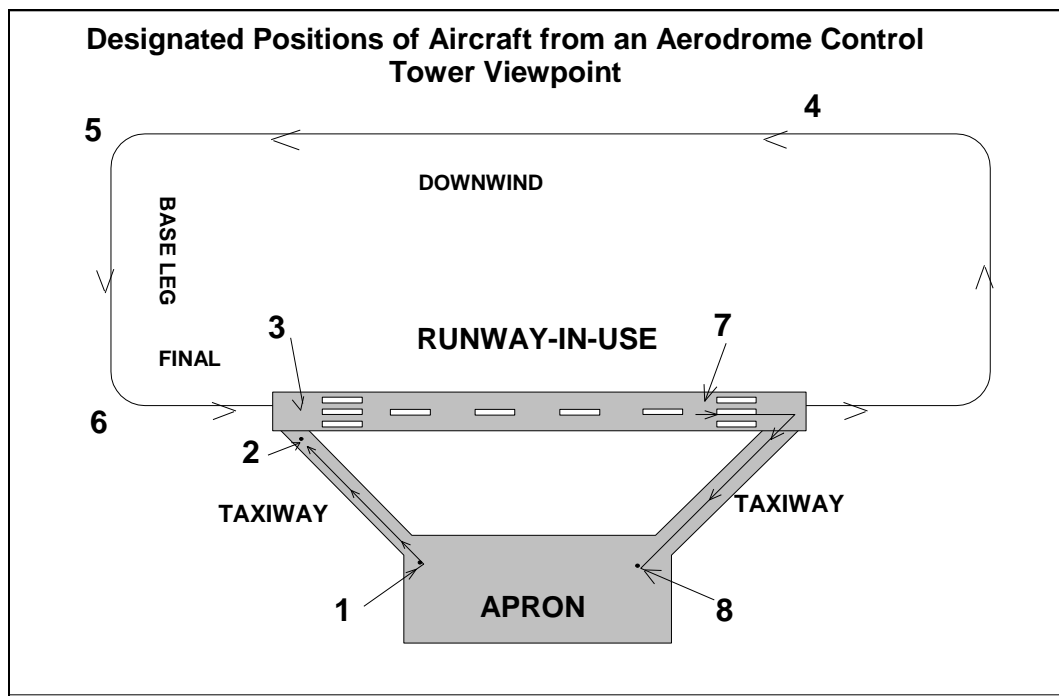


Fig 14 - 1

Note. For ICAO Designated Positions in the aerodrome traffic and taxi circuits, see Doc 4444 Section 7.6.2.

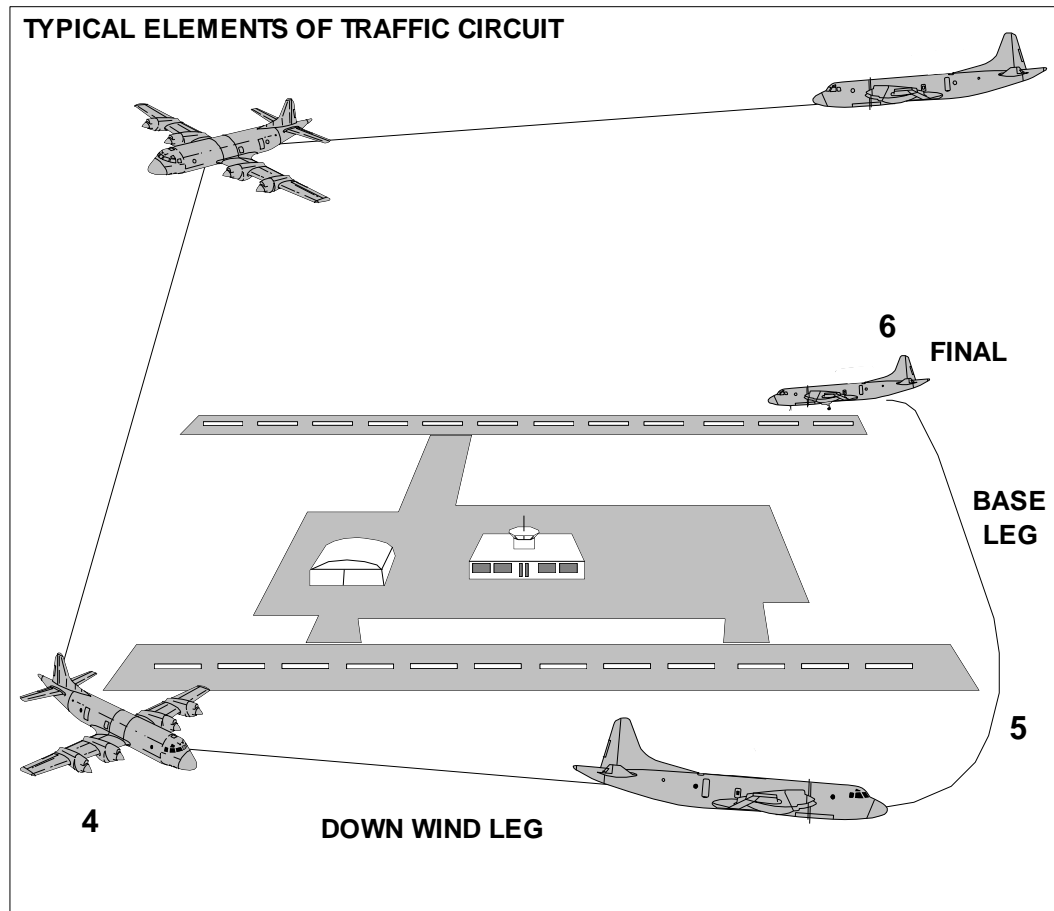


Fig 14 - 2

Note. For ICAO Designated Positions in the aerodrome traffic and taxi circuits, see Doc 4444 Section 7.6.2.

14.6 CONTROL OF OTHER THAN AIRCRAFT TRAFFIC ON THE MANOEUVRING AREA

Note. For Sulymaniyah International Airport, see Local Operating Procedures (LOP) Appendix 11.

14.6.1 Entry To The Manoeuvring Area

14.6.1.1 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.

14.6.2 Priority On The Manoeuvring Area

14.6.2.1 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.

14.6.2.2 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.

14.6.3 Communication Requirements And Visual Signals

14.6.3.1 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.**

14.6.3.2 When communications by a system of visual signals is deemed to be adequate, or in the case of radio communication failure, the signals given hereunder shall have the meaning indicated therein:

**Light signal from
aerodrome control**

Meaning

Green flashes

Permission to cross landing area or to move onto Taxiway

Steady red

Stop

Red flashes

Move off the landing area or taxiway and watch out for aircraft

White flashes

Vacate manoeuvring area in accordance with local instructions

14.6.3.3 In emergency conditions or if the signals in 14.6.3.2 are not observed, the signal given hereunder shall be used for runways or taxiways equipped with a lighting system and shall have the meaning indicated therein.

Light signal

Meaning

Flashing runway or taxiway lights**Vacate the runway and observe the tower for light signal**

14.6.3.4 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.

**14.7 SUSPENSION OF VFR OPERATIONS / AUTHORIZATION
OF SPECIAL VFR OPERATIONS BY AERODROME
CONTROL TOWER**

Note. For local procedures at Sulymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 5 section 5.4 and Section 5.5.

14.7.1 VFR Suspension

14.7.1.1 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 appropriate area control center
- b. The aerodrome control tower.
- c. The appropriate ATS Authority.

14.7.1.2 All such suspensions of VFR operations shall be accomplished through or notified to the Aerodrome Control Tower.

14.7.1.3 The following procedures shall be observed by the Aerodrome controller whenever Visual Flight Rules 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 area control center 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.**

14.7.2 Authorization of Special VFR Flights

14.7.2.1 When traffic conditions permit, SVFR flights may be authorized subject to the approval of the unit providing Approach Control Service and the provisions of Section 14.7.2.3 and Section 14.7.2.4. below.

14.7.2.2 Requests for such authorization shall be handled individually.

14.7.2.3 Separation shall be effected between all IFR flights and special VFR flights in accordance with separation minima in Chapters 11 (Separation standards and applications) and Chapter 14 Section 14.10 of this manual, when so prescribed by the appropriate ATS authority, between all special VFR flights in accordance with separation minima prescribed by that authority.

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 6 Section 6.4 and Chapter 7 Sections 7.2.13.2 and 7.3.5.2

14.7.2.4 When the ground visibility is not less than 1 500 m, 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.

Note. Requirements for two - way communications between controlled flights and the appropriate air traffic control unit are contained in Annex 2, Section 3.6.5

14.8 CONTROL OF AERODROME TRAFFIC

14.8.1 General

14.8.1.1 As the view from the flight deck of an aircraft is normally restricted, the controller shall ensure that instructions and information which require the flight crew to employ visual detection, recognition and observation are phrased in a clear, concise and complete manner.

14.8.2 CONTROL OF DEPARTING AIRCRAFT

Note. For local procedures at Sulymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 sections 7.2.

14.8.2.1 CONTROL OF TAXIING AIRCRAFT

14.8.2.1.1 Taxi Clearance

14.8.2.1.1.1 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 (mistakenly) entering an active runway.

14.8.2.1.1.2 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. (see Fig. 14 - 3)

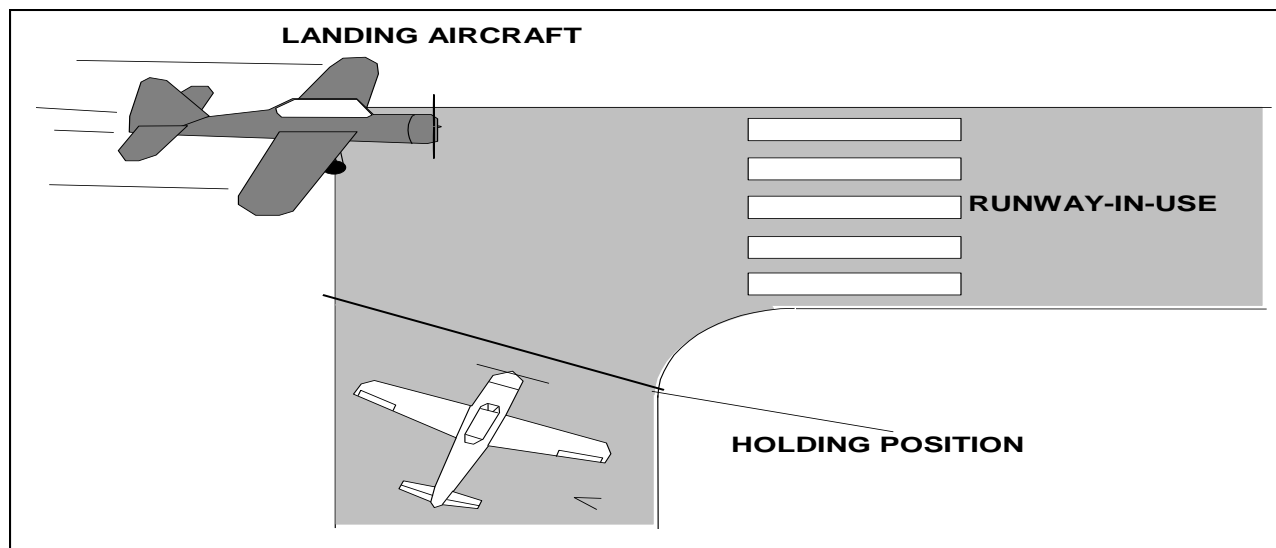


Fig 14 – 3

14.8.2.1.1.3 The appropriate ATS authority should whenever practicable publish 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.

14.8.2.1.1.4 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.

14.8.2.1.1.5 Standard taxi routes should be identified by appropriate designators and should be used in taxi clearances.

14.8.2.1.2 TAXIING ON THE RUNWAY –IN-USE

14.8.2.1.2.1 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. Communications with the aircraft concerned should be transferred from the Ground Controller to the Aerodrome Controller prior to the aircraft entering the runway.

14.8.2.1.2.2 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.

14.8.2.1.3 Conditional phrases, such as " behind landing aircraft " or " after departing aircraft" shall not be used for movements affecting the active runway(s), except when the aircraft or vehicles concerned are seen by the appropriate controller and pilot. In all cases a conditional clearance shall be given in the following order and consist of:

- a. Identification;
- b. The condition (specify);
- c. The clearance.

Example :- "IAW 017, behind DC 9 on final, line up and wait ...".

Note. This implies the need for the aircraft receiving the conditional clearance to identify the aircraft or vehicle causing the conditional clearance.

14.8.2.1.4 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.

14.8.2.1.5 HELICOPTER TAXIING OPERATIONS

14.8.2.1.5.1 When necessary for a wheeled helicopter or vertical take - off and landing (VTOL) aircraft to taxi on the surface, the following provisions are applicable.

Note. 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.

14.8.2.1.5.2 When it is requested or necessary for a helicopter to proceed at a slow speed above the surface, normally below 37 km/h (20 kt) and in ground effect, air taxiing may be authorized.

Note. Air – taxiing consumes fuel at a high burn rate, and helicopter downwash turbulence (produced in ground effect) increases significantly with larger and heavier helicopters.

14.8.2.1.5.3 Instructions which require small aircraft or helicopters to taxi in close proximity to taxiing helicopters should be avoided and consideration should be given to the effect of turbulence from taxiing helicopters on arriving and departing light aircraft.

14.8.2.1.5.4 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.

14.8.2.2 USE OF RUNWAY - HOLDING POSITIONS

14.8.2.2.1 Except as provided in 14.8.2.2.2 or as prescribed by the appropriate ATS authority, 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 Annex 14, Volume I, Chapter 5.

14.8.2.2.2 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.

Note. See Figure 14 – 3.

14.8.2.3 Departure Sequence

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 sections 7.2.12 and 7.2.13.

14.8.2.3.1 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. 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.

14.8.2.3.2 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.

14.8.2.3.3 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:

- a. facilitate the maximum number of departures with the least average delay;
- b. accommodate requests by an operator in respect of that operator's flights to the extent practicable.

14.8.2.3.4 Air traffic control units should when practicable advise aircraft operators or their designated representatives when anticipated delays are expected to exceed 30 minutes.

14.8.2.4 Take – Off Clearance

14.8.2.4.1 Take-off clearance may be issued to an aircraft when there is reasonable assurance that the separation in Section 14.10.6.1 of this manual or prescribed in accordance with Section 14.10.7 of this manual, will exist when the aircraft commences take-off.

14.8.2.4.2 When an Air Traffic Control Clearance from an ACC and/or approach is required prior to take - off, the take-off clearance shall not be issued until the ATC clearance has been transmitted to and acknowledged by, the aircraft concerned.

14.8.2.4.3 Subject to 14.8.2.4.2 , the take-off clearance shall be issued when the aircraft is ready for departure and at or approaching the departure runway, and the traffic situation permits. To reduce the potential for misunderstanding, the take-off clearance shall include the designator of the departure runway.

14.8.2.4.4 Clearance for take-off shall be issued only when the runway to be used is clear of obstructions. Any such clearances issued shall take account of the approved priorities and separation standards specified by the appropriate ATS authority and any restrictions required by approach control.

14.8.2.4.5 After a landing aircraft has been cleared to land, a departing aircraft awaiting take-off clearance shall not be permitted to enter the runway-in-use until such time as the landing aircraft has passed the point at which the departing aircraft is holding, or has landed and turned off the runway.

14.8.2.4.6 In the interest of expediting traffic a clearance for “IMMEDIATE TAKE-OFF” may be issued to an aircraft before it enters the runway. On acceptance of such clearance the aircraft shall taxi out to the runway and take-off in one continuous movement.

14.8.2.4.7 Elements of a Take-Off Clearance

14.8.2.4.7.1 A take-off clearance shall contain such of the following elements as are necessary and shall be transmitted in the order shown using standard phraseology:-

- a. Aircraft call sign,
- b. Any significant change in the surface wind direction and/or speed, visibility or air temperature from that given in the taxi instructions,
- c. Runway surface conditions, (e.g. presence of water) and/or other temporary hazards (e.g. birds),
- d. Special instructions or other pertinent information,
- e. Direction of turn after take-off,
- f. Cautionary advice of wake turbulence,
- g. Take-off clearance with runway – in – use .

Note. The phraseology. "... (callsign) RUNWAY WIND ...CLEARED FOR TAKE - OFF." shall be used when clearing an aircraft for take-off.

14.8.2.4.8 When it is necessary to specify a direction of turn after take – of which is different from the circuit direction in force, or when such a turn is requested by a pilot, the phraseology “...RIGHT (or LEFT) TURN APPROVED” shall be used in the take - off clearance.

14.8.2.4.9 When it is necessary to advise the pilot - in - command during the take -off run that a potentially hazardous situation has arisen, the aircraft shall be called, using its RTF callsign, followed immediately by the advice of the nature of the hazard, using the minimum number of words possible. The call shall be made only when, in the judgment of the aerodrome controller, a continuation of the take-off could place the aircraft in imminent danger.

Note:- It is entirely the responsibility of the pilot - in - command as to the action to be taken to avoid any such hazardous situation.

14.8.2.4.10 Restrictions to Take - Off Clearance

14.8.2.4.10.1 When approach control requires a restriction placed on the take-off of an IFR flight, instruction to this effect will be given to aerodrome control in one of the following forms:-

- a. When it is required that an aircraft not take-off before a specified time, the instruction will state, “Release not before ... (time).”
- b. When it is required that an aircraft not be cleared for take-off until approval is given by approach control, the instruction will state, “Release subject to approach/approach radar.”
- c. When it is required that an aircraft not take - off until a specified time has elapsed after a preceding aircraft has taken off, the instruction will state, “Release...(time interval) after... (preceding aircraft).”

- d. When the separation of a departing IFR flight from an arriving IFR flight is delegated to aerodrome control, the instruction will state “Release subject your discretioncall-sign” { RSYD (call-sign) }. In this case the departing aircraft shall not be cleared for take - off unless an approved aerodrome control separation standard can be maintained or standard IFR separation is provided.

14.8.3 CONTROL OF ARRIVING AIRCRAFT

14.8.3.1 CONTROL OF TRAFFIC IN THE TRAFFIC CIRCUIT

Note. For local procedures at Sulymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 sections 7.3.

14.8.3.1.1 General

14.8.3.1.1.1 Aircraft in the traffic circuit shall be controlled to provide the separation minima outlined in Sections and 14.10.4, 14.10.5, 14.10.6.1 and 14.10.7 of this manual except that:

- a. aircraft in formation are exempted from the separation minima respect to separation from other aircraft of the same flight;
- b. aircraft operating in different areas or different runways on aerodromes suitable for simultaneous landings or take-offs are exempted from the separation minima;
- c. separation minima shall not apply to aircraft operating under military necessity in accordance with Chapter 16, Section 16.1 (Doc 4444).

14.8.3.1.1.2 Sufficient separation shall be effected between aircraft in flight in the traffic circuit to allow the spacing of arriving and departing aircraft as outlined in Sections 14.10.4, 14.10.5, 14.10.6.1 and 14.10.7 of this manual.

14.8.3.1.2 Entry Into The Traffic Circuit

14.8.3.1.2.1 On receipt of a request from an arriving aircraft to join the traffic circuit, the Aerodrome Controller shall issue instructions governing the aircraft's joining of the traffic circuit or shall issue instructions to delay the aircraft's joining and/or instruct the aircraft when to call again.

14.8.3.1.2.2 An aircraft may be authorized to join on the downwind leg, or on a base leg, or make a straight-in approach, provided:-

a. no conflict with other traffic will result and

b. when applying approved priorities, no delay to other flights will result.

14.8.3.1.2.3 An aircraft shall not be authorized to join the circuit on a base leg or make a straight-in approach unless reasonable assurance exists that a landing will be possible from that approach.

14.8.3.1.2.4 While authorizing aircraft to join the traffic circuit, aerodrome controllers shall bear in mind the ability of the pilot to adjust his flight path to comply with the instructions and to sight and maintain adequate spacing from other aircraft.

14.8.3.1.2.5 If it is necessary to delay an aircraft's joining the traffic circuit to avoid congestion, delaying instructions using standard phraseologies specified in Chapter 21 (Radio Telephony Procedures and Phraseologies) of this manual shall be used.

14.8.3.1.2.6 An arriving aircraft executing an instrument approach shall normally be cleared to land straight in unless visual manoeuvring to the landing runway is required.

14.8.3.1.3 Elements of Circuit Joining Instructions

14.8.3.1.3.1 Traffic circuit joining instructions shall contain standard elements and standard phraseologies as specified in Chapter 21 (Radio Telephony Procedures and Phraseologies) of this manual.

14.8.3.1.3.2 When it is desired that an aircraft join the traffic circuit at a specified level, the level shall be specified in the instructions, e.g. "... (callsign) JOIN TRAFFIC CIRCUIT AT ... (altitude)".

14.8.3..1.4 ESTABLISHMENT OF IDENTITY

14.8.3.1.4 .1 Aerodrome controller shall, as early as practicable, establish the identity of aircraft entering the traffic circuit and shall maintain identity of all traffic operating in the traffic circuit. Binoculars may be used to assist in determining identity.

14.8.3.1.4.2 Identification of aircraft shall be established by:-

- a. relating an aircraft's position report and direction of flight or reported manoeuvre to a particular aircraft and/or,
- b. identifying the aircraft type and any distinctive markings when other aircraft of the same type are operating in the vicinity and/or,
- c. at night, requesting an aircraft to show a distinctive light, e.g. "... (callsign) SHOW LANDING LIGHTS".

14.8.3.1.5 SEQUENCING OF AIRCRAT

14.8.3.1.5.1 When two or more arriving aircraft will be in the traffic circuit at the same time, the aerodrome controller shall determine as early as practicable the landing sequence which will afford the most expeditious movement of the traffic concerned, taking into account the approved priorities as defined in Section 14.8.3.4 of this manual.

Pilots shall be advised of their turn to land and those other than number one in the sequence shall be advised of the aircraft type landing ahead of them. This advice shall include instructions to follow or position behind such aircraft as may be appropriate and information on the position of the aircraft concerned.

EXAMPLES :-

“ IAW 017 NUMBER TWO TO LAND, POSITION BEHIND B737 ON FINAL”.

OR

“ IAW 017 NUMBER THREE TO LAND. POSITION BEHIND C 130 ON DOWNWIND LEG”

14.8.3.1.5.2 When issuing instructions for an aircraft to follow or position behind another aircraft in the landing sequence, aerodrome controller shall bear in mind the possible limitations in the pilot's ability to comply, such as:-

- a. The field of vision from the cockpit.**
- b. The contrast formed by an aircraft and its background.**
- c. Glare from the sun.**
- d. Restricted visibility caused by haze or other phenomenon; and if there is any doubt as to the ability of the pilot to comply, or if the pilot reports difficulty in sighting the aircraft concerned, the aerodrome controller shall take such action as necessary to ensure that separation is maintained e.g. consult approach radar.**

14.8.3.1.5.3 The sequencing of aircraft in the traffic circuit shall be achieved by issuing one or more of the following instructions:-

- a. Enter the traffic circuit at a specified position and/or altitude.**
- b. Follow a specified traffic circuit or portion thereof.**
- c. Hold over a specified position.**

d. Orbit (right or left) from present or specified position.

e. Make short approach or extend downwind.

f. Follow any other specified manoeuvre commensurate with safety.

14.8.3.1.5.4 To assist in establishing and maintaining a proper sequence and Spacing in the circuit, take – offs of aircraft on local circuits and landings should, if necessary, be regulated in such a way as to avoid congestion and the need for delaying manoeuvres in the air.

14.8.3.1.5.5 Sequencing of aircraft suffering radio failure in flight shall be Achieved to the extent possible by the use of visual light signals. If necessary, to avoid the possibility of collision, a radio equipped aircraft should be instructed to give way.

14.8.3.2 SPACING OF AIRCRAFT

14.8.3.2.1 In determining the spacing of aircraft in flight, aerodrome controller shall rely primarily on separation in azimuth as viewed from the tower and not by distance. Experience has shown that a controller's visual determination of the relative distance of aircraft approaching from the same direction close to each other can be seriously in error, even to the extent of reversing the position of the two aircraft. This is particularly so when two aircraft of different sizes are being considered at night.

14.8.3.2.2 Corroborative evidence from the pilot of one aircraft of the relative position of another aircraft shall be obtained whenever possible.

14.8.3.3 REPORTS OF POSITION IN THE TRAFFIC CIRCUIT

14.8.3.3.1 Aircraft are required to report their position in the traffic circuit as follows:-

- a. DOWNWIND** - When abeam the upwind end of the runway – in – use .
- b. BASE LEG** - When so requested by ATC, this report is made immediately on completion of the turn on to base.
- c. FINAL** - When so required by ATC prior to issuance of a landing clearance. This report is made on completion of the turn on to final approach at a range of not more than 4 NM from touchdown.
- d. LONG FINAL** - Aircraft making a straight – in – approach and/or aircraft instructed to extend down wind leg are required to make this report on completion of a turn on to final approach in excess of 4 NM from touchdown.

14.8.3.3.2 Reports additional to those listed above may be specified if required.

14.8.3.4 PRIORITY FOR LANDING

14.8.3.4.1 If an aircraft enters an aerodrome traffic circuit without proper authorization, it shall be permitted to land if its actions indicate that it so desires. If circumstances warrant, aircraft which are in contact with the controller may be instructed by the controller to give way so as to remove as soon as possible the hazard introduced by such unauthorized operation. In no case shall permission to land be withheld indefinitely.

14.8.3.4.2 In cases of emergency it may be necessary, in the interests of safety, for an aircraft to enter a traffic circuit and effect a landing without proper authorization. Controllers should recognize the possibilities of emergency action and render all assistance possible.

14.8.3.4.3 Priority shall be given to:

- 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 persons requiring urgent medical attention;
- c. aircraft engaged in search and rescue operations; and
- d. other aircraft as may be determined by the appropriate authority.

Note. An aircraft which has encountered an emergency is handled as outlined in Chapter 19 of this manual.

14.8.3.5 CLEARANCE TO LAND

14.8.3.5.1 An aircraft may be cleared to land when there is reasonable assurance that the separation in 14.10.5 of this manual, or prescribed in accordance with 14.10.7 of this manual 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. cleared the runway – in - use threshold or until the preceding departing aircraft has crossed the end of the runway – in – use, or has stated turn. To reduce the potential for misunderstanding, the landing clearance shall include the designator of the landing runway.

14.8.3.5.2 Clearance to land shall not be issued unless the runway to be used is clear of obstructions.

14.8.3.5.3 A clearance to land shall contain such elements as are applicable in the order and using the standard phraseologies as specified in Chapter 21 (Radio Telephony Procedures and Phraseologies) of this manual.

14.8.3.5.4 If a clearance to land cannot be issued when an aircraft is on final approach but reasonable assurance exists that the aircraft will be able to continue a normal approach and land, the aircraft shall be cleared to continue approach until a clearance to land can be given or alternative instructions become necessary.

14.8.3.5.5 When an aircraft has been cleared to continue approach, it shall be watched closely and a clearance to land or instructions to go around shall be issued in sufficient time for the aircraft to be able to comply with this instruction safely.

Note. Whenever possible the reason/s for instruction shall be given.

14.8.3.5.6 When an aircraft reports downwind and it is known or estimated that separation would be infringed if the aircraft continued to make a normal approach, instructions shall be issued to adjust or delay the aircraft's approach as follows:-

- a. (callsign) **MAKE SHORT APPROACH**, when it is desired that an aircraft expedite its landing by shortening the downwind leg. In using this instruction the aircraft's performance characteristics must be taken into account.
- b. ... (callsign) **EXTEND DOWNWIND**, when it is desired that an aircraft extend its downwind leg to position behind another aircraft and/or increase the spacing of aircraft in the landing sequence or avoid undue holding of an aircraft awaiting take-off clearance.
- c. .. (callsign) **ORBIT (LEFT or RIGHT) FROM PRESENT POSITION** (or other specified position) if required to delay an aircraft. This instruction may be used to avoid excessive extension of the downwind leg or when it is more expeditious than requiring the aircraft to go around. It may also be used to delay an aircraft's entry into the traffic circuit if this is necessary to avoid congestion. In using this instruction, aerodrome controller shall ensure that confliction with other traffic will not result and shall have regard to the aircraft's performance and characteristics.

14.8.3.5.7 If, at any time, it is necessary to cancel a clearance to land, the aircraft shall be instructed to "... (callsign) **GO AROUND**..."

Note:- When canceling a clearance to land, the pilot shall be advised of the reason if this is not obvious.

14.8.3.6 LANDING AND ROLL – OUT MANOEUVRES

14.8.3.6.1 When necessary or desirable in order to expedite traffic, a landing aircraft may be requested to:

- a.** hold short of an intersecting runway after landing;
- b.** land beyond the touchdown zone of the runway;
- c.** vacate the runway at a specified exit taxiway;
- d.** expedite vacating the runway.

14.8.3.6.2 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 **HEAVY** aircraft shall not be requested to land beyond the touchdown zone of a runway.

14.8.3.6.3 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.

14.8.3.6.4 When necessary or desirable, e.g. due to low visibility conditions, a landing or a taxiing aircraft may be instructed to report when a runway has been vacated. The report shall be made when the entire aircraft is beyond the relevant runway-holding position.

14.8.4 CONTROL OF ARRIVING AND DEPARTING AIRCRAFT

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) chapter 7 sections 7.4.

14.8.4.1 If an aircraft in the take - off position has been cleared for take - off but delays its take-off, and separation from an approaching aircraft is likely to be infringed unless the take-off is commenced immediately, the aircraft shall:

- a. If using the same runway as the arriving aircraft, be instructed to “... (callsign) TAKE – OFF IMMEDIATELY OR VACATE THE RUNWAY.” or
- b. If using a different runway from arriving aircraft, be instructed to “..... (callsign) TAKE – OFF IMMEDIATELY OR HOLD POSITION.” and in either case shall be advised of the reason for the instruction.

14.8.4.2 If an aircraft at the holding point or taxiing to take - off position has been cleared for take – off but delays its movement from the holding point, or on to the runway, and separation from an approaching aircraft is likely to be infringed unless the take - off is commenced without further delay, the aircraft shall be instructed to

“... (callsign)TAKE-OFF IMMEDIATELY OR HOLD POSITION.”
Or
“... (callsign)TAKE-OFF IMMEDIATELY OR HOLD AT ...(position)”
as appropriate.

14.8.4.3 ORDER OF PRIORITY FOR ARRIVING AND DEPARTING AIRCRAFT

14.8.4.3.1 An aircraft landing or in the final stages of an approach to land shall normally have priority over an aircraft intending to depart from the same or an intersecting runway.

14.9 CO-ORDINATION BETWEEN TOWER CONTROL AND APPROACH CONTROL

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) Chapter 7 and Appendix 9.

14.9.1 GENERAL

14.9.1.1 Aerodrome Control shall comply with the co-ordination instructions issued by Approach Control. Aerodrome Control shall keep Approach Control promptly advised of the following data on controlled flights:-

- a. Departure times (also relayed to area control).**
- b. When requested, aerodrome control shall advise approach control that the first aircraft in an approach sequence is in sight 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.**
- e. Information concerning aircraft that constitute essential local traffic to aircraft under the control of approach control.**
- f. Information concerning suitable visual holding points for arriving VFR aircraft, if required.**

14.9.2 TRANSFER OF CONTROL OF IFR FLIGHTS

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) Chapter 7 and Appendix 9.

14.9.2.1 Arriving Aircraft: The responsibility for the control of IFR flights approaching to land shall be transferred from approach control to aerodrome control when the aircraft:-

- a. is in the vicinity of the aerodrome, and**
 - i. it is considered that approach and landing will be completed with visual references to the ground; or**

ii. it has reached uninterrupted VMC; or

b. is at a prescribed point or level, whichever is the earliest as specified in letter of agreement or local instructions, or

c. has landed; whichever is earlier.

Note. Where a transfer of control is to be effected after an aircraft has landed, approach control shall obtain a landing clearance from aerodrome control prior to clearing an aircraft to land.

14.9.2.2 Departing Aircraft: The responsibility for control of a departing aircraft shall be transferred from the unit providing aerodrome control service to the unit providing approach control service:-

a. when VMC prevail in the vicinity of the aerodrome,

i. prior to the time the aircraft leaves the vicinity of the aerodrome, or

ii. prior to the aircraft entering IMC, whichever is earlier.

iii. is at a prescribed point or level, whichever is the earliest as specified in letter of agreement or local instructions

b. when IMC prevail at the aerodrome

i. immediately after the aircraft is airborne.

ii. is at a prescribed point or level, as specified in letter of agreement or local instructions

Note . According to the local procedures of Sulaymaniyah International Airport and unless otherwise coordinated with Kirkuk approach, Sulaymaniyah Tower shall transfer the communication and release the control of departing aircraft to Kirkuk Approach according to last letter of agreement signed with KIRKUK Approach. (See Sulaymaniyah LOP Chapter 7 and Appendix 9).

14.9.3 TRANSFER OF CONTROL OF SPECIAL VFR FLIGHT

14.9.3.1 The responsibility for the control of SVFR flights shall be transferred from approach control to aerodrome control when the aircraft:

- a. is in the vicinity of the aerodrome and is sighted by the aerodrome controller; or**
- b. has landed.**

14.9.3.2 If the aircraft requests a clearance from aerodrome control to enter the control zone SVFR the aerodrome controller shall either:-

- a. refer the request to approach control and/or instruct the aircraft to contact approach control on the appropriate frequency; or**
- b. obtain a clearance from approach control and pass it to the aircraft.**

14.9.3.3 If the aircraft remains on the aerodrome control frequency, the aerodrome controller shall pass clearance and instructions received from approach control to the aircraft and pass information and requests received from the aircraft to approach control.

14.10 SEPARATION STANDARDS

Note. For local procedures at Sulaymaniyah International Airport, see Sulaymaniyah Local Operating Procedures (LOP) Chapter 6 and Chapter 7.

14.10.1 REDUCTION IN SEPARATION MINIMA IN THE VICINITY OF AERODROMES

14.10.1.1 The separation minima detailed in Chapter 11 of this manual may be reduced in the vicinity of aerodromes if:

- a. adequate separation can be provided by the aerodrome controller when each aircraft is continuously visible to this controller; or
- b. 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
- c. in the case of one aircraft following another, the flight crew of the succeeding aircraft reports that the other aircraft is in sight and separation can be maintained..

14.10.2 COMPOSITE VISUAL SEPARATION

14.10.2.1 For the purposes of these instructions, composite visual separation is the application of the principle of visual separation in circumstances when only one aircraft is visible to the controller but both the position and track of a conflicting aircraft are known and the application of geographical separation is not practicable.

14.10.2.2 An aerodrome controller may use composite visual separation to separate an aircraft which is in sight from one which is not in sight, provided:-

- a. the route and intentions of the aircraft not in sight are known and its position can be confirmed by radar or other means; and

b. instructions are issued to the aircraft in sight which will ensure that adequate separation is maintained.

14.10.2.3 For purposes of applying visual separation and composite visual separation, the term “adequate separation” means the spacing required to maintain the safe operation of aircraft or to achieve runway separation without the need for sudden or violent manoeuvres.

14.10.3 RUNWAY SEPARATION

14.10.3.1 Runway separation minima shall be applied between aircraft landing or taking off by controlling their movements in the circuit and on the manoeuvring area in the manner prescribed in this section .

14.10.3.2 Single Runway - When wake turbulence is not a factor, an aircraft shall not be cleared for take-off until:-

a. a preceding aircraft has crossed the upwind end of the runway-in-use or has started a turn;

b. all preceding landing aircraft are clear of the runway-in-use.

14.10.3.3 Crossing Runways - When wake turbulence is not a factor, an aircraft shall not be cleared for take-off until:-

a. a preceding aircraft taking – off on a crossing runway has crossed the intersection;

b. a preceding aircraft landing on a crossing runway has crossed and is clear of the intersection; or

c. a preceding aircraft which has landed on a crossing runway has stopped short of and is clear of the intersection.

14.10.3.4 An aircraft shall not be permitted to enter a runway and line up when another aircraft on a crossing runway is taking off, or is lined up for take – off, unless specific holding instructions are issued and acknowledged.

14.10.3.5 A landing aircraft shall not be permitted any closer to the threshold than the prescribed local minima when aircraft operations are taking place on crossing runways until:-

- a. a preceding aircraft taking off on a crossing runway has crossed the intersection,**
- b. a preceding aircraft landing on a crossing runway has stopped short of and is clear of the intersection.**

Note. The prescribed minima are published in the Tower Section of the appropriate airport.

14.10.4 WAKE TURBULENCE AND JET BLAST SEPARATION

14.10.4.1 Wake turbulence is the air turbulence behind an aircraft caused by contra rotating vortices from the wingtips. It is particularly severe when generated by large, heavy, wide - bodied jet aircraft, and it is most dangerous to following aircraft during take - off, initial climb final approach and landing. Vortex wake generation begins on rotation when the nose wheel lifts off the runway and ends when the nose wheel touches down on landing. The vortex system tends to drift down, and when close to the ground, move sideways from the generating aircraft's track, and sometimes rebounds upwards. Special attention needs to be paid to the dangers of wake turbulence during light wind conditions because the turbulence will remain in the approach and runway touchdown areas for longer periods before dissipating.

14.10.4.2 Jet blast 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.

14.10.4.3 In issuing clearances or instructions, Controller 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.

14.10.4.4 Application of Wake Turbulence Minima

14.10.4.4.1 Wake turbulence minima is intended to minimize the potential hazards of wake turbulence. When the separation minima normally required for IFR purposes is greater than that for wake turbulence, such IFR minima will apply.

14.10.4.4.2 Wake turbulence minima may be applied for any situation not covered by the specific minima whenever a controller believes there is a potential hazard due to wake turbulence. Since wake turbulence is invisible, its presence and exact location cannot be determined with precision. Consequently, controllers as well as pilots should thoroughly understand the likely situations where hazardous wake turbulence may be encountered.

14.10.4.4.3 The ATC unit concerned shall not be required to apply wake turbulence separation :

- a.** for arriving VFR flights landing on the same runway as a preceding landing HEAVY or MEDIUM aircraft, and
- 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.

14.10.4.4.4 The ATC unit shall, in respect of the flights specified in 14.10.4.4.3 (a) and (b) above, 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.

14.10.4.5 Separation Minima Applicable When Wake Turbulence Exists**14.10.4.5.1 Arriving Aircraft**

14.10.4.5.1.1 Except as provide for in section 14.10.4.4.3 (a) and (b) above, the following minima shall be applied:

- a. MEDIUM aircraft behind HEAVY aircraft 2 minutes.**
- b. LIGHT aircraft behind a HEAVY or MEDIUM aircraft 3 minutes.**

14.10.4.5.2 Departing Aircraft

14.10.4.5.2.1 A minimum separation of 2 minutes shall be applied between a LIGHT or MEDIUM aircraft taking off behind a HEAVY aircraft or a LIGHT aircraft taking off behind a MEDIUM aircraft when the aircraft are using:

- 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. (See Fig. 14-4 and Fig. 14-5).**

14.10.4.5.2.2 A separation minimum of THREE minutes shall be applied between a LIGHT or MEDIUM aircraft when taking off behind a HEAVY aircraft or a LIGHT aircraft when taking off behind a MEDIUM aircraft from :

- a. an intermediate part of the same runway; or**
- b. an intermediate part of a parallel runway separated by less than 760 m (2 500 ft) (See Fig. 14 – 6).**

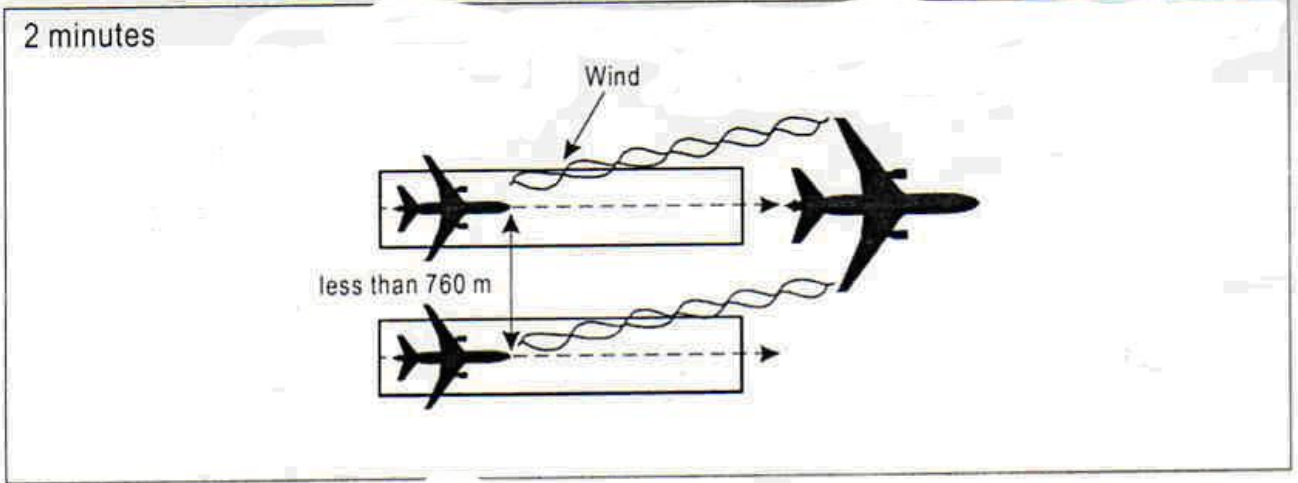


Fig. 14 - 4 Two-minute separation for following aircraft

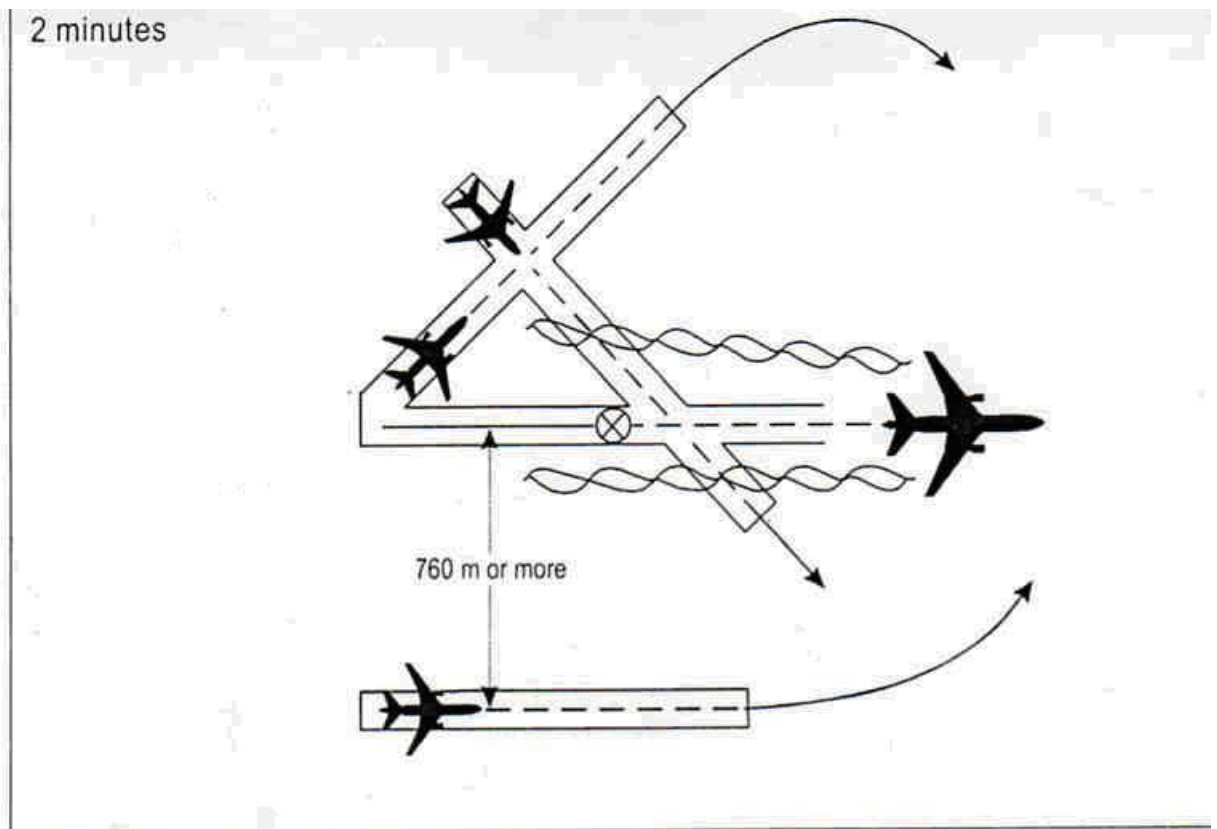


Fig. 14 - 5 Two-minute wake turbulence separation for crossing aircraft

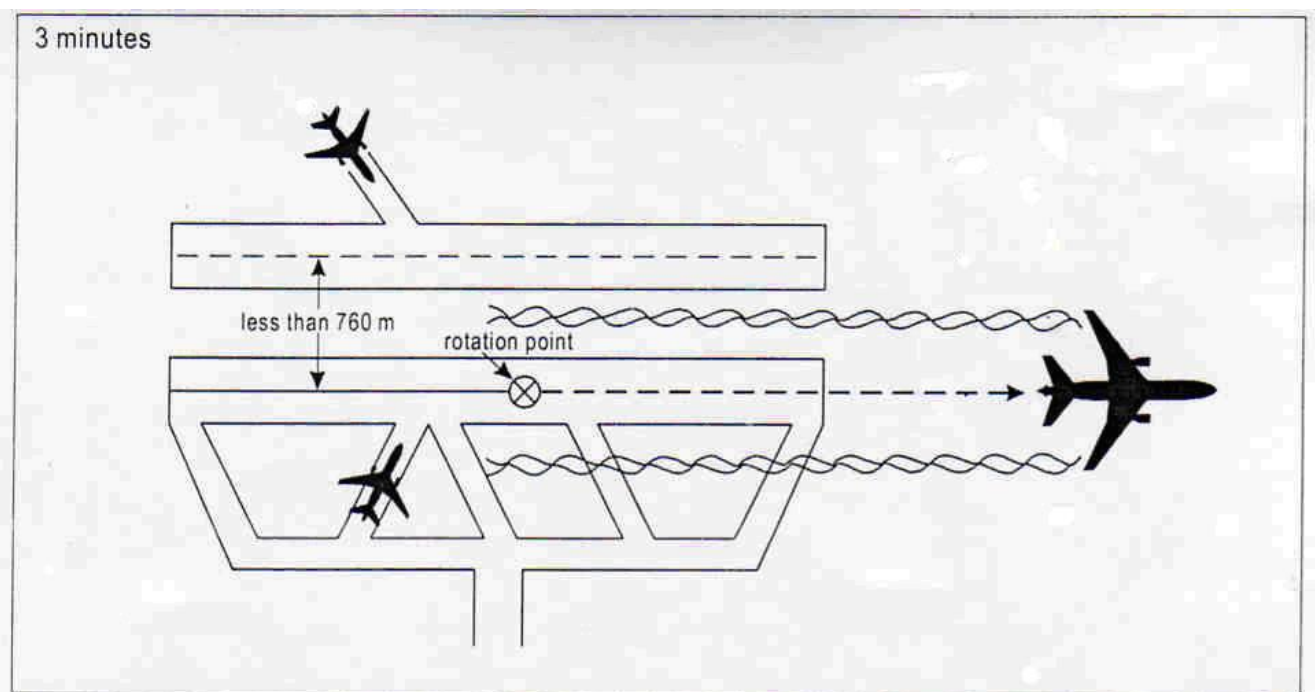


Fig. 14-6 Three-minute wake turbulence separation for following aircraft

14.10.4.6 Displaced Landing Threshold

- 14.10.4.6.1 A separation minimum of TWO minutes shall be applied between a LIGHT or MEDIUM aircraft and a HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when operating on a runway with a displaced landing threshold when :

- a. a departing LIGHT or MEDIUM aircraft follows a HEAVY aircraft arrival and a departing light aircraft follows a MEDIUM aircraft arrival; or**
- b. an arriving LIGHT aircraft or MEDIUM aircraft follows a HEAVY aircraft departure and an arriving LIGHT aircraft follows a MEDIUM aircraft departure if the projected flight paths are expected to cross.**

14.10.4.7 Opposite Direction

14.10.4.7.1 A separation minimum of TWO minutes shall be applied between a LIGHT or MEDIUM aircraft and HEAVY aircraft and between a LIGHT aircraft and a MEDIUM aircraft when the heavier aircraft is making a low or missed approach and the lighter aircraft is :

- a. utilizing an opposite – direction runway for take – off (See Fig 14-7); or**
- b. landing on the same runway in the opposite direction, or on a parallel opposite – direction runway separated by less than 760 m (2500 ft) (See Fig. 14 – 8).**

14.10.4.8 CAUTIONARY ADVICE OF WAKE TURBULENCE

14.10.4.8.1 Controller should not be inhibited from passing cautionary advice to pilots if they consider wake turbulence could be a hazard in any situation.

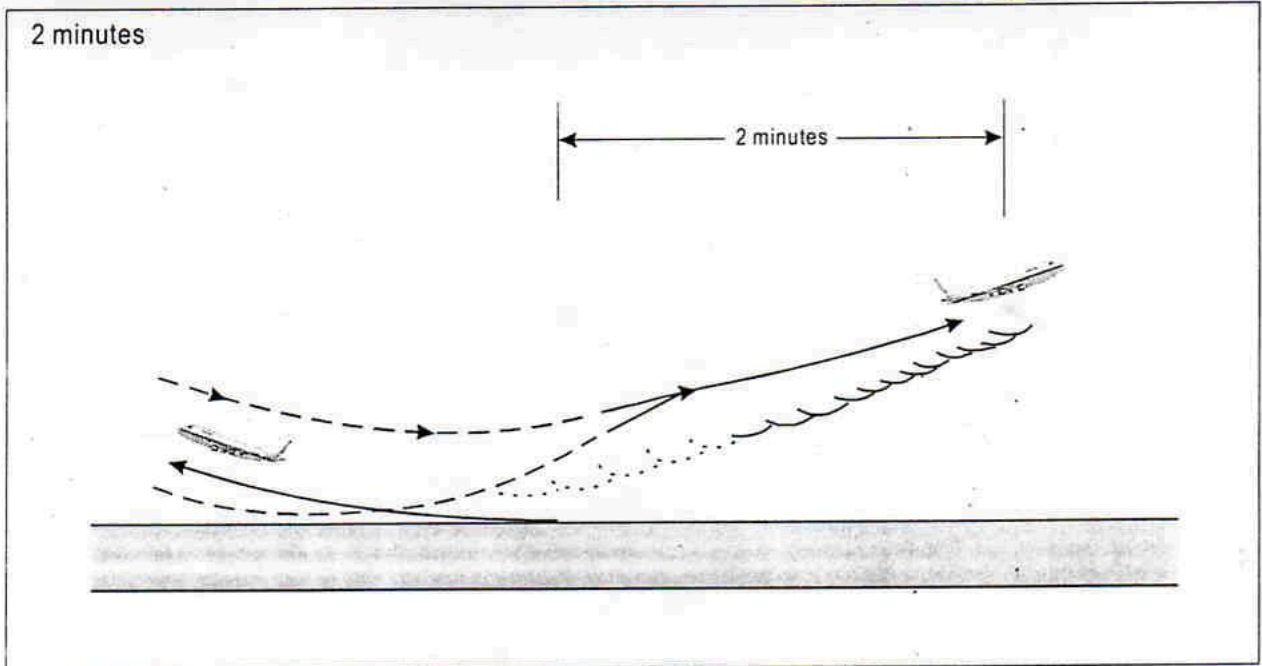


Fig. 14 - 7 Two-minute wake turbulence separation for opposite direction take-off

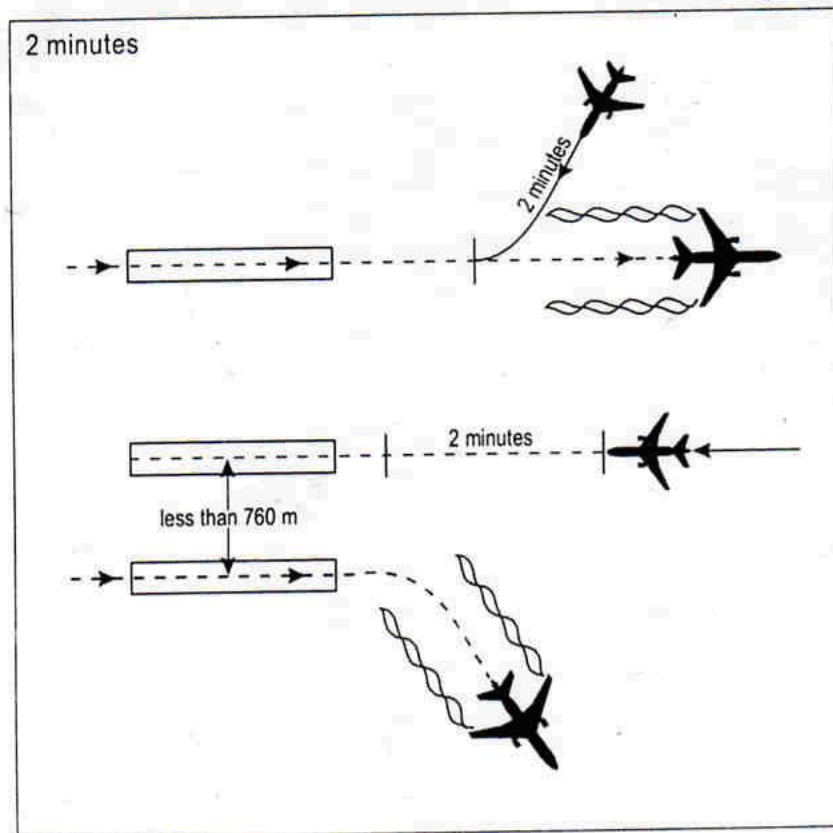


Fig. 14 - 8 Two-minute wake turbulence separation for opposite direction landing

14.10.5 SEPARATION OF LANDING AIRCRAFT AND PRECEDING LANDING AND DEPARTING AIRCRAFT USING THE SAME RUNWAY

14.10.5.1 Except as provided in Sections 14.10.4 and 14.10.7 of this manual a landing aircraft will not normally be permitted to 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 are clear of the runway-in-use.

Note 1. Wake turbulence categories of aircraft and longitudinal Separation minima are contained in Section 14.3.4.1.1 and 14.10.4 of this manual respectively.

Note 2. See Section 14.8.2.1.2.2 of this manual.

14.10.6 SEPARATION OF DEPARTING AIRCRAFT

14.10.6.1 Except as provided in Sections 14.10.4 and 14.10.7 of this manual a departing aircraft will not normally be permitted to commence take - off 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 are clear of the runway-in-use.

Note 1. Wake turbulence categories and longitudinal separation minima are contained in Sections 14.3.4.1.1 and 14.10.4 of this manual respectively.

Note 2. See Section 14.8.2.1.2.2 of this manual.

14.10.7 REDUCED RUNWAY SEPARATION MINIMA BETWEEN AIRCRAFT USING THE SAME RUNWAY

Note. See Doc 4444 Section 7.11.

- 14.10.7.1** Provided that an appropriate, documented safety assessment has shown that an acceptable level of safety can be met, lower minima than those in Sections 14.10.5 and 14.10.6 of this manual may be prescribed by the appropriate ATS authority, after consultation with the operators. The safety assessment shall be carried out for each runway for which the reduced minima are intended, taking into account factors such as:
- a. runway length;
 - b. aerodrome layout; and
 - c. types/categories of aircraft involved.
- 14.10.7.2** All applicable procedures related to the application of reduced runway separation minima shall be published in the Aeronautical Information Publication as well as in local air traffic control instructions. Controllers shall be provided with appropriate and adequate training in the use of the procedures.
- 14.10.7.3** Reduced runway separation minima shall only be applied during the hours of daylight from 30 minutes after local sunrise to 30 minutes before local sunset. (See Doc 4444 Section 7.11.3).
- 14.10.7.4** For the purpose of reduced runway separation, aircraft shall be classified as follows:
- a. **Category 1 aircraft:** single – engine propeller aircraft with a maximum certificated take – off mass of 2 000 Kg or less;
 - b. **Category 2 aircraft:** single-engine propeller aircraft with a maximum certificated take-off mass of more than 2 000 kg but less than 7 000 kg; and twin-engine propeller aircraft with a maximum certificated take-off mass of less than 7 000 kg;
 - c. **Category 3 aircraft:** all other aircraft.

14.10.7.5 Reduced runway separation minima shall not apply between a departing aircraft and a preceding landing aircraft.

14.10.7.6 Reduced runway separation minima shall be subject to the following conditions:

- a. wake turbulence separation minima shall be applied;**
- b. visibility shall be at least 5 km and ceiling shall not be lower than 300 m (1 000 ft);**
- c. tail wind component shall not exceed 5 kt;**
- d. there shall be available means, such as suitable landmarks, to assist the controller in assessing the distances between aircraft. A surface surveillance system that provides the air traffic controller with position information on aircraft may be utilized, provided that approval for operational use of such equipment includes a safety assessment to ensure that all requisite operational and performance requirements are met;**
- e. minimum separation continues to exist between two departing aircraft immediately after take-off of the second aircraft;**
- f. traffic information shall be provided to the flight crew of the succeeding aircraft concerned; and**
- g. the braking action shall not be adversely affected by runway contaminants such as ice, slush, snow, water, etc.**

14.10.7.7 Reduced runway separation minima which may be applied at an aerodrome shall be determined for each separate runway. The separation to be applied shall in no case be less than the following minima:

a. landing aircraft:

- 1. a succeeding landing Category 1 aircraft may cross the runway threshold when the preceding aircraft is a Category 1 or 2 aircraft which either:**

3. an aircraft may be cleared for take-off when a preceding departing Category 3 aircraft is airborne and has passed a point at least 2 400 m from the position of the succeeding aircraft.

14.10.7.8 Consideration should be given to increased separation between high performance single-engine aircraft and preceding Category 1 or 2 aircraft.

14.11 AERONAUTICAL GROUND LIGHTS

Note. See Doc 4444 Section 7.15.

14.11.1 Operation

- 14.11.1.1 The procedures in this Section apply to all aerodromes, whether or not aerodrome control service is provided. In addition, the procedures in 14.11.2.1 of this manual apply to all aeronautical ground lights, whether or not they are on or in the vicinity of an aerodrome.

14.11.2 General

- 14.11.2.1 All aeronautical ground lights shall be operated, except as provided in 14.11.2.2 and 14.11.3 of this manual :
 - a. continuously during the hours of darkness or during the time the centre of the sun's disc is more than 6 degrees below the horizon, whichever requires the longer period of operation, unless otherwise provided hereafter or otherwise required for the control of air traffic;
 - b. at any other time when their use, based on meteorological conditions, is considered desirable for the safety of air traffic.

14.11.2.2 Lights on and in the vicinity of aerodromes that are not intended for en-route navigation purposes may be turned off, subject to further provisions hereafter, if no likelihood of either regular or emergency operation exists, provided that they can be again brought into operation at least one hour before the expected arrival of an aircraft.

14.11.2.3 At aerodromes equipped with lights of variable intensity a table of intensity settings, based on conditions of visibility and ambient light, should be provided for the guidance of air traffic controllers in effecting adjustment of these lights to suit the prevailing conditions. When so requested by an aircraft, further adjustment of the intensity shall be made whenever possible.

14.11.3 Approach lighting

14.11.3.1 Approach lighting includes such lights as simple approach lighting systems, precision approach lighting systems, visual approach slope indicator systems, circling guidance lights, approach light beacons and runway alignment indicators

14.11.3.2 In addition to 14.11.2.1 of this manual approach lighting shall also be operated:

a. by day when requested by an approaching aircraft;

b. when the associated runway lighting is operated.

14.11.3.3 The lights of a visual approach slope indicator system shall be operated during the hours of daylight as well as of darkness and irrespective of the visibility conditions when the associated runway is being used.

14.11.4 Runway Lighting

14.11.4.1 Runway lighting includes such lights as edge, threshold, centre line, end, touchdown zone and wing bar lights.

14.11.4.2 Runway lighting shall not be operated if that runway is not in use for landing, take-off or taxiing purposes, unless required for runway inspection or maintenance.

14.11.4.3 If runway lighting is not operated continuously, lighting following a take-off shall be provided as specified below:

- a. at aerodromes where air traffic control 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;
- b. at aerodromes without air traffic control 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.

Note. Where obstacle lighting is operated simultaneously with runway lighting as provided in 14.11.8.1 of this manual, particular care should be taken to ensure that it is not turned off until no longer required by the aircraft.

14.11.5 Stopway Lighting

14.11.5.1 Stopway lights shall be operated whenever the associated runway lights are operated.

14.11.6 Taxiway Lighting

14.11.6.1 Taxiway lighting includes such lights as edge lights, centre line lights, stop bars and clearance bars.

14.11.6.2 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.

14.11.7 Stop Bars

14.11.7.1 Stop bars shall be switched on to indicate that all air traffic shall stop and switched off to indicate that traffic may proceed.

Note. Stop bars are located across taxiways at the point where it is desired that traffic stop, and consist of lights, showing red, spaced across the taxiway.

14.11.8 Obstacle Lighting

14.11.8.1 Obstacle lighting includes such lights as obstacle and unserviceability lights and hazard beacons.

14.11.8.2 Obstacle lighting associated with the approach to or departure from a runway or channel, where the obstacle does not project through the inner horizontal surface, as described in Annex 14, Volume I, Chapter 6, may be turned off and on simultaneously with the runway or channel lights.

14.11.8.3 Unserviceability lights may not be turned off as permitted under 14.11.2.2 of this manual while the aerodrome is open.

14.11.9 Monitoring of visual aids

14.11.9.1 Aerodrome controllers shall make use of automatic monitoring facilities, when provided, to ascertain whether the lighting is in good order and functioning according to selection.

14.11.9.2 In the absence of an automatic monitoring system or to supplement such a system, the aerodrome controller shall visually observe such lighting as can be seen from the aerodrome control tower 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.

- 14.11.9.3** On receipt of information indicating a lighting fault, the aerodrome controller shall take such action as is warranted to safeguard any affected aircraft or vehicles, and initiate action to have the fault rectified.

14.12 SIGNALS FOR AERODROME TRAFFIC

Note. See Annex 2 Appendix 1 Section 4.

14.12.1 Light and Pyrotechnic Signals

- 14.12.1.1** Light signals issued from a control tower shall have the meanings as indicated in the following table:-

Note. Lights shall be directed towards aircraft concerned.

LIGHT	FROM AERODROME CONTROL TO :-	
	AIRCRAFT IN FLIGHT	AIRCRAFT ON GROUND
Steady green	Cleared to land	Cleared for take-off
Steady red	Give way to other aircraft and continue circling	Stop
Series of green flashes	Return for landing	Cleared to taxi
Series of red flashes	Aerodrome unsafe, do not land	Taxi clear of landing area in use
Series of white flashes	Land at this aerodrome and proceed to apron	Return to starting point on the aerodrome
Red pyrotechnic	Notwithstanding any previous instructions, do not land for the time being	-----

14.12.1.2 Acknowledgment by an Aircraft

a. When in flight:

i. During the hours of daylight:

- by rocking the aircraft's wings.

Note. This signal should not be expected on the base and final legs of the approach.

ii. During the hours of darkness :

- by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

b. When on the ground:

i. During the hours of daylight:

- by moving the aircraft's ailerons or rudders.

ii. During the hours of darkness:

- by flashing on and off twice the aircraft's landing lights or, if not so equipped, by switching on and off twice its navigation lights.

14.12.2 Visual Ground Signals and Markings

Note. For details of visual ground aids, see Annex 14 and Annex 2 Appendix 1 Section 4.2.

14.12.2.1 Ground signals may be displayed for the guidance of air traffic. Such signals will normally be displayed in the Signals Area as near as possible to the TWR.

14.12.2.2 Commonly used signals and their meanings are defined below:-**a. Closed Runways or Taxiways:**

Crosses of a single contrasting colour, yellow or white, displayed horizontally on runways and taxiways, or parts thereof, indicate an area unfit for movement of aircraft.

(See Fig 14 - 9)

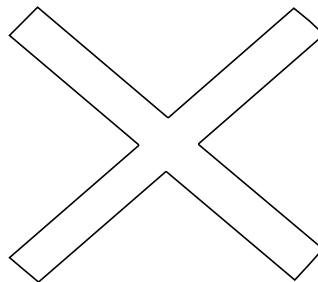


Fig 14 – 9

b. Helicopters :

When helicopters are required to take-off or land within a specified area at an aerodrome which is also used by aeroplanes, there shall be displayed a letter “H”. (See Fig 14 – 10)

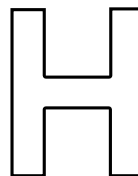


Fig 14 – 10

c. ATS Reporting Office :

The letter “C” displayed vertically in black against a yellow background indicates the location of the ATS reporting office. (See Fig 14 – 11)

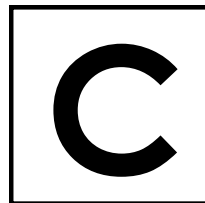


Fig 14 – 11

d. Directions for landing or take-off :

A horizontal white or orange landing **T** (Fig 14 – 12) indicates the direction to be used by aircraft For landing and take-off, which shall be in a direction parallel to the shaft of the **T** towards the cross arm.

*Note. When used at night, the landing **T** is either illuminated or outlined in white lights.*

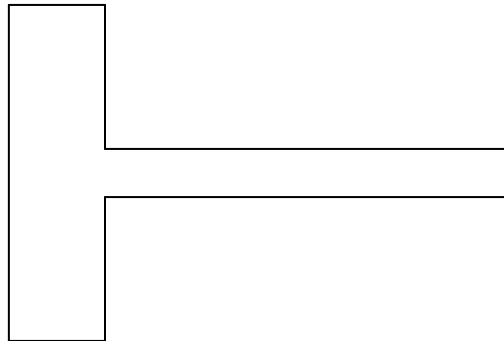


Fig 14 – 12

e. Direction of take – off :

A set of two digits (Fig 14 – 13) displayed vertically at or near the aerodrome control tower indicates to aircraft on the manoeuvring area the direction for take-off, expressed in units of 10 degrees to the nearest 10 degrees of the magnetic compass.

31

Fig 14 – 13

f. Right-hand traffic

When displayed in a signal area, or horizontally at the end of the runway or strip in use, a right – hand arrow of conspicuous colour (Fig 14 – 14) indicates that turns are to be made to the right before landing and after take – off.

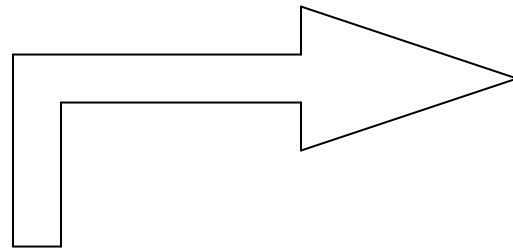


Fig 14 – 14

E N D