INTERCEPTION OF CIVIL AIRCRAFT

AIR NAVIGATION ORDER

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A. **AUTHORITY:**

A1. This Air Navigation Order (ANO) has been issued by the Director General PCAA in pursuance of Rules 4(3), 72, 119, 146, 360, 377 and other enabling provisions of Civil Aviation Rules, 1994.

B. **PURPOSE:**

B1. In the exercise of complete and exclusive sovereignty over the airspace above its territory, Pakistan may require the landing at any designated airport of a civil aircraft flying above its territory/territorial waters without authority or if there is a reason to believe that such flight is in contravention of any provision of CARs, 94, related to safety of the flight operations or if there are reasonable grounds to conclude that it is being used for any purpose inconsistent with the aims of ICAO Convention. It may also give such aircraft any other instructions to put an end to such violation/unauthorized act.

B2. This ANO prescribes the procedures, method, requirements and basic principles to be followed, by the intercept control units, intercepting aircraft, intercepted aircraft and air traffic services units, whenever circumstances necessitate the interception of civil aircraft during its operation in the sovereign airspace of Islamic Republic of Pakistan.

B3. The procedures prescribed herein shall also help to refrain from resorting to the use of weapons against civil aircraft in flight up to maximum possible extent and that, in case of interception, the lives of persons on board and the safety of aircraft are not endangered.

*Note:* - *The procedures contained in this ANO are in line with the Articles 1, 2, 3 bis, 9 and 12 of the Convention on International Civil Aviation alongwith Annex 2, 4, 6, 7, 10, 11 and 15 to the Convention.*

C. **SCOPE:**

C1. This ANO shall be applicable only to;

a) civil aircraft and shall not be applicable to State aircraft.

b) intercepting aircraft, intercepting units and ATS units.

c) intercepted aircraft.

D. **DESCRIPTION:**

D1. **DEFINITIONS:**

*Note:* - *The word “interception” when used in this ANO does not include intercept and escort service provided, on request, to an aircraft in distress.*

D1.1 The following terms when used in this ANO, have the meanings assigned to them respectively. Any term used in this ANO but not defined, shall have the same meaning as given in Civil Aviation Ordinances 1960, 1982 and CARs, 1994.

D1.1.1 **AIR DEFENCE IDENTIFICATION ZONE (ADIZ):**

Special designated airspace of defined dimensions within which aircraft are required to comply with special identification and/or reporting procedures additional to those related to the provision of air traffic services (ATS).
D1.1.2 **AIR TRAFFIC SERVICES:**
A generic term meaning variously, flight information service, alerting service, air traffic advisory service, air traffic control service (area control service, approach control service or aerodrome control service).

D1.1.3 **AIR TRAFFIC SERVICES UNIT:**
A generic term meaning variously, air traffic control unit, flight information centre or air traffic services reporting office.

D1.1.4 **AERONAUTICAL INFORMATION PUBLICATION (AIP):**
A publication issued by or with the authority of the Director General and containing aeronautical information of a lasting character essential to air navigation.

D1.1.5 **STATE AIRCRAFT:**
The aircraft used in military, customs and police services shall deemed to be state aircraft.

D1.1.6 **PILOT IN COMMAND:**
The pilot designated by the operator, or in the case of general aviation, the owner, as being in command and charged with the safe conduct of a flight.

D1.1.7 **MILITARY AIRCRAFT:**
In relation to Pakistani aircraft, means the aircraft or any part of the Defence Forces, and includes any aircraft commanded by a member of those Forces who is detailed for the purpose, and any aircraft being constructed for any part of the Defence Forces.

D1.1.8 **PROHIBITED AREA:**
An area designated by the Director General under Rule 67 to be a prohibited area (An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is prohibited).

D1.1.9 **DANGER AREA:**
An area designated by the Director General under Rule 67 to be a danger area (An airspace of defined dimensions within which activities dangerous to the flight of aircraft may exist at specified times).

D1.1.10 **RESTRICTED AREA:**
An area designated by the Director General under Rule 67 to be a restricted area (An airspace of defined dimensions, above the land areas or territorial waters of a State, within which the flight of aircraft is restricted in accordance with certain specified conditions).

D1.1.11 **INSTRUMENT METEOROLOGICAL CONDITIONS:**
Meteorological conditions in terms of visibility and cloud amount worse than those that will permit compliance with the Visual Flight Rules.

D1.1.12 **STRAYED AIRCRAFT:**
An aircraft which has deviated significantly from its intended track or which reports that it is lost.

D1.1.13 **UNIDENTIFIED AIRCRAFT:**
An aircraft which has been observed or reported to be operating in a given area but whose identity has not been established.

**Note:** — An aircraft may be considered, at the same time, as a “strayed aircraft” by one unit and as an “unidentified aircraft” by another unit.
D2. **GENERAL PRINCIPLES:**

D2.1 **CIRCUMSTANCES WHICH MAY CAUSE INTERCEPTION:**

D2.1.1 Pilots-in-command of civil aircraft should be aware that interception may take place in the event that civil aviation, military, customs, immigration authorities or security agencies etc.;

a) are unable to secure positive identification of an aircraft observed in or entering the sovereign airspace of the Islamic Republic of Pakistan by means other than visual inspection, i.e. by co-ordination with air traffic services units and/or by secondary surveillance radar (SSR)/ADS-B;

b) observe that an aircraft without proper authorization is about to enter, or has entered, an area in which civil flights are restricted or prohibited;

c) observe that an aircraft deviates from a designated air traffic services (ATS) route, or a flight plan route outside the ATS route network, without a known or apparent valid reason for the deviation; or

d) suspect that an aircraft is engaged in illegal flight and/or transportation of illicit goods or persons, inconsistent with the aims of the Chicago Convention and contrary to the laws of Islamic Republic of Pakistan.

D2.1.2 Interception of civil aircraft may also take place if an aircraft:

a) enters the sovereign airspace of Islamic Republic of Pakistan without proper permission and fails to comply with the instructions to land or to leave the airspace;

b) enters the Pakistan airspace through different positions or routes from those stated in the over-flight permission; or

c) constitutes a safety hazard to other aircraft.

D2.2 **BASIC PRINCIPLES:**

D2.2.1 In order to ensure the safety of navigation of civil aircraft, due regard shall be given to the following principles:

a) interception of civil aircraft will be undertaken only as a last resort;

b) if undertaken, an interception will be limited to determining the identity of the aircraft, unless it is necessary:

   i. to return the aircraft to its planned track,

   ii. direct it beyond the boundaries of national airspace,

   iii. guide it away from a prohibited, restricted or danger area, or

   iv. instruct it to effect a landing at a designated aerodrome;

 c) practice interception of civil aircraft will not be undertaken;

 d) navigational guidance and related information will be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established; and

 e) in the case where an intercepted civil aircraft is required to land, the aerodrome designated for the landing is to be suitable for the safe landing of the aircraft type concerned.
D2.2.2 The aircraft intercepting a civil aircraft shall follow the manoeuvring procedures prescribed in this air navigation order, to avoid any hazard for the intercepted aircraft.

D2.2.3 The secondary surveillance radar (SSR) or ADS-B, where available, shall be used (by the intercept control units and ATS units) to identify civil aircraft in areas where they may be subject to interception.

D2.2.4 In order to eliminate or reduce the need for interception of civil aircraft;
   a) The appropriate Military and ATS Authorities shall;
      i. provide means of rapid and reliable communication between intercept control units and ATS units; and
      ii. formulate agreements concerning exchanges of information between such units on the movement of aircraft in accordance with the provision of D3.10 and D3.11
   b) intercept control units shall;
      i. make all possible efforts to secure identification of any aircraft which may be a civil aircraft; and
      ii. issue any necessary instructions or advise to such aircraft through the appropriate air traffic services unit.
   c) designated areas prohibited to all civil flights and areas, in which civil flight is not permitted without special authorization, shall be published in Aeronautical Information Publications.
   d) Civil aircraft should fly with reference to navigational aids established to define the ATS route to safely circumnavigate prohibited or restricted areas, as required.

D2.2.5 All possible efforts should be made to ensure coordinated actions by the pilot and ground units concerned to eliminate or reduce the hazards inherent in interceptions undertaken as a last resort. See also D4.1.1.1.

D3. ELIMINATION OR REDUCTION OF THE NEED FOR INTERCEPTION:

D3.1 IDENTIFICATION OF CIVIL AIRCRAFT:

D3.1.1 The need for interception of civil aircraft can be significantly reduced if aircraft operators and pilots, air traffic services authorities and units, military authorities and intercept control units are thoroughly familiar with the following provisions and if all take appropriate action to facilitate identification of all civil aircraft operating within given portions of airspace where national sovereignty and security are prime considerations.

D3.1.1.1 The appropriate actions shall include:
   a) submission and forwarding transmission of flight plans;
   b) transmission of related ATS messages;
   c) maintenance of two-way radio communications between aircraft and air traffic services units;
   d) transmission of position reports from aircraft and notification of significant deviations from planned flight track;
   e) provision of facilities for rapid and reliable communications between ATS units and between such units and intercept control units; and.
f) exchanges of information regarding civil flights either on a routine basis or on request.

**D3.2 SUBMISSION OF FLIGHT PLANS:**

D3.2.1 A flight plan shall be submitted prior to operating:

a) any flight or portion thereof to be provided with air traffic control service;

b) any IFR flight within advisory airspace;

c) any flight within or into designated areas, or along designated routes, to facilitate the provision of flight information, alerting and search and rescue services;

d) any flight within or into designated areas, or along designated routes, to facilitate co-ordination with appropriate military units or with air traffic services units in adjacent States in order to avoid the possible need for interception for the purpose of identification; and

e) any flight across international borders.

D3.2.2 Flight plan shall contain full information on all items comprised in the flight plan description, covering the whole route of a flight, or limited information required when the purpose is to obtain a clearance for a minor portion of a flight such as to cross an airway, to take off from, or to land at a controlled aerodrome.

*Note:* For further details see ANO-003-DRAN-1.0 and AIP Pakistan regarding submission of flight plan.

D3.2.3 The requirement in Para D3.2.1 d) above may originate in a decision by military authorities but will be promulgated in AIP by the appropriate ATS authority.

D3.2.4 Air traffic services authorities, to give effect to the provision in Para D3.2.1 d), shall designate any areas or routes where the requirements concerning submission of flight plans apply to all flights to ensure that pertinent data are available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

**D3.3 AIR-GROUND COMMUNICATIONS AND POSITION REPORTING:**

D3.3.1 An aircraft operated as a controlled flight shall maintain continuous air-ground voice communication watch on the appropriate communication channel of, and establish two-way communication as necessary with, the appropriate air traffic control unit, except as may be prescribed by the appropriate ATS authority in respect of aircraft forming part of aerodrome traffic at a controlled aerodrome.

D3.3.2 Although selective calling system (SELCAL) or similar automatic signalling devices satisfy the requirement to maintain a listening watch, such devices should be used with discretion in areas where there is a risk of interception.

D3.3.3 Aircraft on long over-water flights, or on flights over designated areas over which the carriage of an emergency locator transmitter (ELT) is required, shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

D3.3.4 Aircraft shall continuously guard the VHF emergency frequency 121.5 MHz in areas or over routes where the possibility of interception of aircraft or other hazardous situations exist.
D3.3.4.1 Aircraft on flights other than those specified in D3.3.3 and D3.3.4 should guard the emergency frequency 121.5 MHz to the extent possible.

D3.3.5 Unless exempted by the appropriate air traffic services Authority/unit under the conditions specified, a controlled flight shall report to the appropriate air traffic services unit, as soon as possible, the time and level of passing each designated compulsory reporting point, together with any other required information. Position reports shall similarly be made in relation to additional points when requested by the appropriate air traffic services unit. In the absence of designated reporting points, position reports shall be made at intervals prescribed by the appropriate air traffic services Authority/unit.

D3.3.5.1 Controlled flights providing position information to the appropriate air traffic services unit via data link communications shall only provide voice position reports when requested.

Note:- The conditions and circumstances in which ADS-B or secondary surveillance radar (SSR) Mode C transmission of pressure-altitude satisfies the requirement for level information in position reports as indicated in the PANS-ATM (Doc 4444), are applicable in Pakistan.

D3.3.6 VFR flights shall comply with the provisions applicable to air traffic control service (See ANO-003-DRAN-1.0) when:

a) operated in classes B, C & D airspace;

b) forming part of aerodrome traffic at controlled aerodromes; or

c) when operated as special VFR flights.

D3.3.7 A VFR flight operating outside controlled airspace but within or into designated areas, or along routes, shall maintain continuous listening watch on the appropriate radio frequency of, and report its position as necessary to, the air traffic services unit providing flight information service.

D3.3.8 An IFR flight operating outside controlled airspace but within or into designated areas, or along routes, shall maintain a listening watch on the appropriate radio frequency and establish two-way communication, as necessary, with the air traffic services unit providing flight information service.

D3.3.9 An IFR flight operating outside controlled airspace and required by the appropriate ATS authority to:

a) submit a flight plan, and

b) to maintain an air-ground voice communication watch on the appropriate communication channel (radio frequency) and establish two-way communication, as necessary, with the air traffic services unit providing flight information service,

shall report position as specified in D3.3.5 for controlled flights.

D3.3.10 Aircraft electing to use the air traffic advisory service whilst operating IFR within specified advisory airspace are expected to comply with the provisions applicable to air traffic control service (as specified in ANO-003-DRAN-1.0), except that the flight plan and changes thereto are not subjected to clearances and that two-way communication shall be maintained with the unit providing the air traffic advisory service.
D3.4 CO-ORDINATION BETWEEN ATS UNITS:

D3.4.1 COORDINATION IN RESPECT OF THE PROVISION OF AIR TRAFFIC CONTROL SERVICE:

D3.4.1.1 The coordination and transfer of control of a flight between successive ATC units and control sectors shall be effected by a dialogue comprising the following stages:

a) notification of the flight in order to prepare for coordination, as necessary;
b) coordination of conditions of transfer of control by the transferring ATC unit;
c) coordination, if necessary, and acceptance of conditions of transfer of control by the accepting ATC unit; and
d) the transfer of control to the accepting ATC unit or control sector.

D3.4.1.2 ATC units should, to the extent possible, establish and apply standardized procedures for the coordination and transfer of control of flights, in order, inter alia, to reduce the need for verbal coordination. Such coordination procedures shall conform to the procedures contained in the following provisions and be specified in letters of agreement and local instructions, as applicable.

D3.4.1.3 Such agreements and instructions shall cover the following as applicable:

a) definition of areas of responsibility and common interest, airspace structure and airspace classification(s);
b) any delegation of responsibility for the provision of ATS;
c) procedures for the exchange of flight plan and control data, including use of automated and/or verbal coordination messages;
d) means of communication;
e) requirements and procedures for approval requests;
f) significant points, levels or times for transfer of control;
g) significant points, levels or times for transfer of communication;
h) conditions applicable to the transfer and acceptance of control, such as specified altitudes/flight levels, specific separation minima or spacing to be established at the time of transfer, and the use of automation;
i) ATS surveillance system coordination procedures;
j) SSR code assignment procedures;
k) procedures for departing traffic;
l) designated holding fixes and procedures for arriving traffic;
m) applicable contingency procedures; and
n) any other provisions or information relevant to the coordination and transfer of control of flights.
D3.4.2 COORDINATION BETWEEN ATC UNITS PROVIDING AIR TRAFFIC SERVICE WITHIN CONTIGUOUS CONTROL AREAS:

D3.4.2.1 ATC units shall forward from unit to unit, as the flight progresses, necessary flight plan and control information. When so required by agreement between the appropriate ATS authorities to assist in the separation of aircraft, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be provided to the ATC units in charge of the flight information regions adjacent to such routes or portions of routes.

Note:- Such a route or portion of route is often referred to as an area of common interest, the extent of which is usually determined by the required separation minima.

D3.4.2.2 The flight plan and control information shall be transmitted in sufficient time to permit reception and analysis of the data by the receiving unit(s) and necessary coordination between the units concerned.

D3.4.2.3 TRANSFER OF CONTROL:

D3.4.2.3.1 The responsibility for the control of an aircraft shall be transferred from the ATC unit to the next unit at the time of crossing the common control area boundary as determined by the unit having control of the aircraft or at such other point or time as has been agreed between the two units.

D3.4.2.3.2 Where specified in letters of agreement between the ATC units concerned, and when transferring an aircraft, the transferring unit shall notify the accepting unit that the aircraft is in position to be transferred, and specify that the responsibility for control should be assumed by the accepting unit forthwith at the time of crossing the control boundary or other transfer control point specified in letters of agreement between the ATC units or at such other point or time coordinated between the two units.

D3.4.2.3.3 If the transfer of control time or point is other than forthwith, the accepting ATC unit shall not alter the clearance of the aircraft prior to the agreed transfer of control time or point without the approval of the transferring unit.

D3.4.2.3.4 If transfer of control is used to transfer an aircraft to a receiving ATC unit, responsibility for control shall not be assumed until the time of crossing the control area boundary or other transfer control point specified in letters of agreement between the ATC units.

D3.4.2.3.5 When transfer of control of identified aircraft is to be effected, the appropriate applicable handover procedures shall be applied.

D3.4.2.4 APPROVAL REQUESTS:

D3.4.2.4.1 If the flying time from the departure aerodrome of an aircraft to the boundary of an adjacent control area is less than the specified minimum required to permit transmission of the necessary flight plan and control information to the accepting ATC unit after take-off and allow adequate time for reception, analysis and coordination, the transferring ATC unit shall, prior to departure, forward that information to the accepting ATC unit together with a request for approval. The required time period shall be specified in letters of agreement or local instructions, as appropriate. In the case of revisions to a previously transmitted current flight plan, and control data being transmitted earlier than this specified time period, no approval from the accepting ATC unit shall be required.

D3.4.2.4.2 In the case of an aircraft in flight requiring an initial clearance when the flying time to the boundary of an adjacent control area is less than a specified minimum, the aircraft shall be held within the transferring ATC unit’s control area until the flight plan and control information have been forwarded together with a request for approval, and coordination effected, with the adjacent ATC unit.
D3.4.2.6 In the case of an aircraft requesting a change in its current flight plan, or of a transferring ATC unit proposing to change the current flight plan of an aircraft, and the flying time of the aircraft to the control area boundary is less than a specified minimum, the revised clearance shall be withheld pending approval of the proposal by the adjacent ATC unit.

D3.4.2.5.2 When separation minima based on ATS surveillance systems are being applied at the time of transfer of control, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made immediately after the accepting ATC unit has agreed to assume control.

D3.4.2.5.3 The accepting ATC unit shall normally not be required to notify the transferring unit that radio and/or data communication has been established with the aircraft being transferred and that control of the aircraft in flight requiring an initial clearance, the time shall be based on the estimated elapsed time from the holding fix to the boundary plus the time expected to be needed for coordination.

D3.4.2.6.1 In the case where a flight ceases to be operated as a controlled flight, i.e. by leaving controlled airspace or by cancelling its IFR flight and proceeding on VFR in airspace where VFR flights are not controlled, the ATC unit concerned shall ensure that appropriate information on the flight is forwarded to ATS unit(s) responsible for the provision of flight information and alerting services for the remaining portion of the flight, in order to ensure that such services will be provided to the aircraft.

D3.4.2.5 TRANSFER OF COMMUNICATION:

D3.4.2.4.3 The conditions, including specified flying times, under which approval requests shall be forwarded, shall be specified in letters of agreement or local instructions as appropriate.

D3.4.2.4.4 Except when separation minima based on ATS surveillance systems are being applied, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made five minutes before the time at which the aircraft is estimated to reach the common control area boundary, unless otherwise agreed between the two ATC units concerned.

D3.4.2.4.5 When separation minima based on ATS surveillance systems are being applied at the time of transfer of control, the transfer of air-ground communications of an aircraft from the transferring to the accepting ATC unit shall be made immediately after the accepting ATC unit has agreed to assume control.

D3.4.2.5.1 An aircraft may be permitted to communicate temporarily with a control unit other than the unit controlling the aircraft.

D3.4.2.6 TERMINATION OF CONTROLLED FLIGHT:

D3.4.3 COORDINATION BETWEEN A UNIT PROVIDING AREA CONTROL SERVICE AND A UNIT PROVIDING APPROACH CONTROL SERVICE:

D3.4.3.1 DIVISION OF CONTROL:
D3.4.3.1.1 Except when otherwise specified in letters of agreement or local instructions, or by the ACC concerned in individual cases, a unit providing approach control service may issue clearances to any aircraft released to it by an ACC without reference to the ACC. However, when an approach has been missed the ACC shall, if affected by the missed approach, be advised immediately and subsequent action coordinated between the ACC and the unit providing approach control service as necessary.

D3.4.3.1.2 An ACC, after affecting coordination with the unit providing approach control service, may release aircraft directly to aerodrome control towers, if the entire approach will be made under visual meteorological conditions.

D3.4.3.2 **TAKE-OFF AND CLEARANCE EXPIRY TIMES:**

D3.4.3.2.1 Time of take-off shall be specified by the ACC when it is necessary to:

a) coordinate the departure with traffic not released to the unit providing approach control service; and

b) provide en-route separation between departing aircraft following the same track.

D3.4.3.2.2 If time of take-off is not specified, the unit providing approach control service shall determine the take-off time when necessary to coordinate the departure with traffic released to it.

D3.4.3.2.3 A clearance expiry time shall be specified by the ACC if a delayed departure would conflict with traffic not released to the unit providing approach control service. If, for traffic reasons of its own, a unit providing approach control service has to specify in addition its own clearance expiry time, this shall not be later than that specified by the ACC.

D3.4.3.3 **EXCHANGE OF MOVEMENT AND CONTROL DATA:**

D3.4.3.3.1 The unit providing approach control service shall keep the ACC promptly advised of pertinent data on controlled traffic such as:

a) runway(s)-in-use and expected type of instrument approach procedure;

b) lowest vacant level at the holding fix available for use by the ACC;

c) average time interval or distance between successive arrivals as determined by the unit providing approach control service;

d) revision of the expected approach time issued by the ACC when the calculation of the expected approach time by the unit providing approach control service indicates a variation of five minutes or such other time as has been agreed between the two ATC units concerned;

e) arrival times over the holding fix when these vary by three minutes, or such other time as has been agreed between the two ATC units concerned, from those previously estimated;

f) cancellations by aircraft of IFR flight, if these will affect levels at the holding fix or expected approach times of other aircraft;

g) aircraft departure times or, if agreed between the two ATC units concerned, the estimated time at the control area boundary or other specified point;

h) all available information relating to overdue or unreported aircraft; and

i) missed approaches which may affect the ACC.
D3.4.3.2 The ACC shall keep the unit providing approach control service promptly advised of pertinent data on controlled traffic such as:

a) identification, type and point of departure of arriving aircraft;
b) estimated time and proposed level of arriving aircraft over holding fix or other specified point;
c) actual time and proposed level of arriving aircraft over holding fix if aircraft is released to the unit providing approach control service after arrival over the holding fix;
d) requested type of IFR approach procedure if different to that specified by the approach control unit;
e) expected approach time issued;
f) when required, statement that aircraft has been instructed to contact the unit providing approach control service;
g) when required, statement that an aircraft has been released to the unit providing approach control service including, if necessary, the time and conditions of release; and
h) anticipated delay to departing traffic due to congestion.

D3.4.3.3 Information on arriving aircraft shall be forwarded not less than fifteen minutes before estimated time of arrival and such information shall be revised as necessary.

D3.4.4 COORDINATION BETWEEN CONTROL POSITIONS WITHIN THE SAME UNIT:

D3.4.4.1 Appropriate flight plan and control information shall be exchanged between control positions within the same air traffic control unit, in respect of:

a) all aircraft for which responsibility for control will be transferred from one control position to another;
b) aircraft operating in such close proximity to the boundary between control sectors that control of traffic within an adjacent sector may be affected; and
c) all aircraft for which responsibility for control has been delegated by a controller using procedural methods to a controller using an ATS surveillance system, as well as other aircraft affected.

D3.4.4.2 Procedures for coordination and transfer of control between control sectors within the same ATC unit shall conform to the procedures applicable to ATC units.

D3.4.4.3 FAILURE OF AUTOMATED COORDINATION:

D3.4.3.1 The failure of automated coordination shall be presented clearly to the controller responsible for coordinating the flight at the transferring unit. This controller shall then facilitate the required coordination using prescribed alternative methods.

D3.4.5 CO-ORDINATION IN RESPECT OF THE PROVISION OF FLIGHT INFORMATION SERVICE AND ALERTING SERVICE:

D3.4.5.1 Co-ordination between ATS units providing flight information service in adjacent flight information regions (FIRs) shall be effected in respect of IFR and VFR flights, in order to ensure continued flight information service to such aircraft in specified areas or along specified routes. Such co-ordination shall be effected in accordance with an agreement between the ATS units concerned.
D3.4.5.2 Where co-ordination of flights is effected in accordance with D3.4.2.1, this shall include transmission of the following information on the flight concerned:

   a) appropriate items of the current flight plan; and
   b) the time at which last contact was made with the aircraft concerned.

D3.4.5.3 This information shall be forwarded to the air traffic services unit in charge of the next flight information region in which the aircraft will operate prior to the aircraft entering such flight information region.

D3.4.5.4 When so required by agreement between the appropriate ATS authorities to assist in the identification of strayed or unidentified aircraft and thereby eliminate or reduce the need for interception, flight plan and flight progress information for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be provided to the air traffic services units in charge of the flight information regions adjacent to such routes or portions of routes.

D3.4.5.5 In circumstances, where an aircraft is experiencing an emergency or has declared minimum fuel, or in any other situation wherein the safety of the aircraft is not assured, the type of emergency and the circumstances experienced by the aircraft shall be reported by the transferring unit to the accepting unit and any other ATS unit that may be concerned with the flight and to the associated rescue coordination centres, if necessary.

D3.4.6 CO-ORDINATION IN RESPECT OF THE PROVISION OF AIR TRAFFIC ADVISORY SERVICE:

D3.4.6.1 ATS units providing air traffic advisory service shall apply the co-ordination procedures specified in D3.4.1 to D3.4.4.3 with respect to such aircraft having elected to use this type of service.

D3.4.7 COORDINATION BETWEEN AIR TRAFFIC SERVICES UNITS AND AERONAUTICAL TELECOMMUNICATION STATIONS:

D3.4.7.1 ATS units shall ensure that the aeronautical telecommunications stations serving the centres concerned are informed regarding transfers of communications contact by aircraft. Unless otherwise provided, information to be made available shall comprise the identification of the aircraft (including SELCAL code, when necessary), the route or destination (where necessary), and the expected or actual time of communications transfer.

D3.5 TRANSMISSION OF ATS MESSAGES:

D3.5.1 Filed flight plan (FPL) messages, Current flight plan (CPL) messages, Departure (DEP) messages, Estimate (EST) messages shall be handled in accordance with the procedures prescribed in ATS Standards Manual.

D3.6 FACILITIES FOR COMMUNICATIONS BETWEEN ATS UNITS:

   Note:- “Instantaneous” is intended to refer to communications which effectively provide for immediate access between controllers, “fifteen seconds” to accept switchboard operation and “five minutes” to mean methods involving retransmission.

D3.6.1 The ATC units shall have facilities for communications with each other to effect coordination:

   a) the area control centre, unless collocated;
   b) approach control unit;
c) aerodrome control towers; and

d) air traffic services reporting offices, when separately established.

D3.6.2 The communication facilities required shall include provisions for:

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

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

D3.6.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.

D3.6.4 The communication facilities required for appropriate military units, the meteorological office serving the centre, appropriate operators offices, rescue coordination centres or in the absence of such centre, any other appropriate emergency service and the international NOTAM office serving the centre shall include provisions for communications by direct speech arranged for conference communications.

D3.6.5 All facilities for direct-speech or data link communications between air traffic services units, and between air traffic services units and appropriate military/other units shall be provided with automatic recording. All such recordings shall be retained for a period of at least 30 days.

D3.7  COMMUNICATIONS WITHIN A FLIGHT INFORMATION REGION:

D3.7.1 COMMUNICATIONS BETWEEN AIR TRAFFIC SERVICES UNITS:

D3.7.1.1 A flight information centre shall have facilities for communications with the following units providing a service within its area of responsibility:

a) the area control centre, unless collocated;

b) approach control units;

c) aerodrome control towers.

D3.7.1.2 An area control centre, in addition to being connected to the flight information centre as prescribed in D3.7.1.1, shall have facilities for communications with the following units providing a service within its area of responsibility:

a) approach control units;

b) aerodrome control towers;

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

D3.7.1.3 An approach control unit, in addition to being connected to the flight information centre and the area control centre as prescribed in D3.7.1.1 and D3.7.1.2, shall have facilities for communications with the associated aerodrome control tower(s) and, when separately established, the associated air traffic services reporting office(s).

D3.7.1.4 An aerodrome control tower, in addition to being connected to the flight information centre, the area control centre and the approach control unit as prescribed in D3.7.1.1, D3.7.1.2 and D3.7.1.3, shall have facilities for communications with the associated air traffic services reporting office, when separately established.
D3.7.2 COMMUNICATIONS BETWEEN AIR TRAFFIC SERVICES UNITS AND OTHER UNITS:

D3.7.2.1 A flight information centre and an area control centre shall have facilities for communications with the following units providing a service within their respective area of responsibility:

a) appropriate military units;

b) the meteorological office serving the centre;

c) the aeronautical telecommunications station serving the centre;

d) appropriate operator’s offices;

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

f) the international NOTAM office serving the centre.

D3.7.2.2 An approach control unit and an aerodrome control tower shall have facilities for communications with the following units providing a service within their respective area of responsibility:

a) appropriate military units;

b) rescue and emergency services (including ambulance, fire, etc.);

c) the meteorological office serving the unit concerned;

d) the aeronautical telecommunications station serving the unit concerned;

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

D3.7.2.3 The communication facilities required under D3.7.2.1 a) and D3.7.2.2 a) shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.

D3.7.3 DESCRIPTION OF COMMUNICATION FACILITIES:

D3.7.3.1 The communication facilities required under D3.7.1, D3.7.2.1 a) and D3.7.2.2 a), b) and c) shall include provisions for:

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

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

D3.7.3.2 In all cases not covered by D3.7.3.1, the communication facilities should include provisions for:

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

b) printed communications, when a written record is required; the message transit time for such communications being no longer than five minutes.
D3.7.3.3 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording shall be provided.

D3.7.3.4 The communication facilities required in accordance with D3.7.1 and D3.7.2 should be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

D3.7.3.5 The communication facilities required under D3.7.2.2 a), b) and c) shall include provisions for communications by direct speech arranged for conference communications.

D3.7.3.6 The communication facilities required under D3.7.2.2 d) should include provisions for communications by direct speech arranged for conference communications, whereby the communications can normally be established within fifteen seconds.

D3.7.3.7 All facilities for direct-speech or data link communications between air traffic services units and between air traffic services units and other units described under D3.7.2.1 and D3.7.2.2 shall be provided with automatic recording.

D3.7.3.8 Recordings of data and communications as required in D3.7.3.3 and D3.7.3.7 shall be retained for a period of at least thirty days.

D3.8 COMMUNICATIONS BETWEEN FLIGHT INFORMATION REGIONS:

D3.8.1 Flight information centres and area control centres shall have facilities for communications with all adjacent flight information centres and area control centres.

D3.8.1.1 These communication facilities shall in all cases include provisions for messages in a form suitable for retention as a permanent record, and delivery in accordance with transit times specified by regional air navigation agreements.

D3.8.1.2 Unless otherwise prescribed on the basis of regional air navigation agreements, facilities for communications between area control centres serving contiguous control areas shall, in addition, include provisions for direct speech and, where applicable, data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

D3.8.1.3 When so required by agreement between the States concerned in order to eliminate or reduce the need for interceptions in the event of deviations from assigned track, facilities for communications between adjacent flight information centres or area control centres other than those mentioned in D3.8.1.2 shall include provisions for direct speech alone, or in combination with data link communications. The communication facilities shall be provided with automatic recording.

D3.8.1.4 The communication facilities in D3.8.1.3 should permit communications to be established normally within fifteen seconds.

D3.8.2 Adjacent ATS units should be connected in all cases where special circumstances exist.

*Note*: Special circumstances may be due to traffic density, types of aircraft operations and/or the manner in which the airspace is organized and may exist even if the control areas and/or control zones are not contiguous or have not (yet) been established.

D3.8.3 Wherever local conditions are such that it is necessary to clear aircraft into an adjacent control area prior to departure, an approach control unit and/or aerodrome control tower should be connected with the area control centre serving the adjacent area.
D3.8.4 The communication facilities in D3.8.2 and D3.8.3 should include provisions for communications by direct speech alone, or in combination with data link communications, with automatic recording, whereby for the purpose of transfer of control using radar, ADS-B or ADS-C data, the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds.

D3.8.5 In all cases where automatic exchange of data between air traffic services computers is required, suitable facilities for automatic recording shall be provided.

D3.8.6 Recordings of data and communications as required in D3.8.5 shall be retained for a period of at least thirty days.

D3.9 PROCEDURES FOR DIRECT-SPEECH COMMUNICATIONS:

D3.9.1 Appropriate procedures for direct speech communications should be developed to permit immediate connections to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

D3.10 CO-ORDINATION BETWEEN MILITARY AND ATS AUTHORITIES/UNITS:

D3.10.1 Air traffic services authorities shall establish and maintain close co-operation with military authorities responsible for activities that may affect flights of civil aircraft.

D3.10.2 Co-ordination of activities potentially hazardous to civil aircraft shall be effected in accordance with D3.4 & D3.10

D3.10.3 Arrangements shall be made to permit information relevant to the safe and expeditious conduct of flights of civil aircraft to be promptly exchanged between air traffic services units and appropriate military units.

D3.10.4 Air traffic services units shall, either routinely or on request, in accordance with locally agreed procedures, provide appropriate military units with pertinent flight plan and other data concerning flights of civil aircraft. In order to eliminate or reduce the need for interceptions. Air traffic services authorities shall designate any areas or routes where the requirements of ANO-003-DRAN-1.0. Rules of the air, concerning flight plans, two-way communications and position reporting apply to all flights to ensure that all pertinent data are available in appropriate air traffic services units specifically for the purpose of facilitating identification of civil aircraft.

D3.10.5 Special procedures shall be established in order to ensure that:

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

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

Note:- Appendix A contains a model operational letter of agreement between an ATS unit and a military unit.

D3.11 FACILITIES FOR COMMUNICATIONS BETWEEN ATS UNITS AND MILITARY UNITS:

Note:- “Instantaneous” is intended to refer to communications which effectively provide for immediate access between controllers, “fifteen seconds” to accept switchboard operation and “five minutes” to mean methods involving retransmission.

D3.11.1 A flight information centre, an area control centre, an approach control office and an
aerodrome control tower shall have facilities for communications with appropriate military units providing a service within their respective area of responsibility.

D3.11.2 The communication facilities required shall include provisions for rapid and reliable communications between the air traffic services unit concerned and the military unit(s) responsible for control of interception operations within the area of responsibility of the air traffic services unit.

D3.11.3 The communication facilities required shall include provisions for:

a) communications by direct speech, whereby for the purpose of transfer of radar control the communications can be established instantaneously and for other purposes the communications can normally be established within fifteen seconds; and

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

D3.11.4 In all cases where automatic transfer of data to and/or from air traffic services computers is required, suitable facilities for automatic recording should be provided.

D3.11.5 The communication facilities required should be supplemented, as and where necessary, by facilities for other forms of visual or audio communications, for example, closed circuit television or separate information processing systems.

D3.11.6 The communication facilities between approach control unit and aerodrome control tower shall include provisions for communications by direct speech arranged for conference communications.

D3.11.7 All facilities for direct-speech communications between air traffic services units and between air traffic services units and appropriate military units shall be provided with automatic recording.

D3.11.8 Appropriate procedures for direct-speech communications should be developed to permit immediate connexions to be made for very urgent calls concerning the safety of aircraft, and the interruption, if necessary, of less urgent calls in progress at the time.

D3.12 ACTION BY ATS UNITS IN RESPECT OF UNIDENTIFIED AIRCRAFT:

D3.12.1 As soon as an air traffic services unit becomes aware of an unidentified aircraft in its area, it shall endeavour to establish the identity of the aircraft whenever this is necessary for the provision of air traffic services or required by the appropriate military authorities in accordance with locally agreed procedures. To this end, the air traffic services unit shall take such of the following steps as are appropriate in the circumstances:

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

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

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

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

D3.12.2 The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.
D3.13 IDENTIFICATION OF AIRCRAFT BY USING ATS SURVEILLANCE SYSTEMS:

D3.13.1 METHODS OF IDENTIFICATION:

Identification shall be established by at least one of the method specified here under:

D3.13.1.1 Where PSR is used for identification, aircraft may be identified by one or more of the following procedures:

a) by correlating a particular radar position indication with an aircraft reporting its position over, or as bearing and distance from, a point shown on the situation display, and by ascertaining that the track of the particular radar position is consistent with the aircraft path or reported heading;

Note 1: Caution must be exercised when employing this method since a position reported in relation to a point may not coincide precisely with the radar position indication of the aircraft on the situation display. The appropriate ATS authority may, therefore, prescribe additional conditions for the application of this method, e.g.:

i. a level or levels above which this method may not be applied in respect of specified navigation aids; or

ii. a distance from the radar site beyond which this method may not be applied.

Note 2: The term “a point” refers to a geographical point suitable for the purposes of identification. It is normally a reporting point defined by reference to a radio navigation aid or aids.

b) by correlating an observed radar position indication with an aircraft which is known to have just departed, provided that the identification is established within 2 km (1 NM) from the end of the runway used. Particular care should be taken to avoid confusion with aircraft holding over or overflying the aerodrome, or with aircraft departing from or making a missed approach over adjacent runways;

c) by transfer of identification (see D3.14);

d) by ascertaining the aircraft heading, if circumstances require, and following a period of track observation:

— instructing the pilot to execute one or more changes of heading of 30 degrees or more and correlating the movements of one particular radar position indication with the aircraft's acknowledged execution of the instructions given; or

— correlating the movements of a particular radar position indication with manoeuvres currently executed by an aircraft having so reported.

When using these methods, the controller shall:

i. verify that the movements of not more than one radar position indication correspond with those of the aircraft; and

ii. ensure that the manoeuvre(s) will not carry the aircraft outside the coverage of the radar or the situation display.

Note: Caution must be exercised when employing these methods in areas where route changes normally take place.
D3.13.1.11 Use may be made of direction-finding bearings to assist in identification of an aircraft. This method, however, shall not be used as the sole means of establishing identification, unless so prescribed by the appropriate ATS authority for particular cases under specified conditions.

D3.13.1.12 ADDITIONAL IDENTIFICATION METHOD:

When two or more position indications are observed in close proximity, or are observed to be making similar movements at the same time, or when doubt exists as to the identity of a position indication for any other reason, changes of heading should be prescribed or repeated as many times as necessary, or additional methods of identification should be employed, until all risk of error in identification is eliminated.

D3.13.2 Where SSR is used for identification, aircraft may be identified by one or more of the following procedures:

a) recognition of the aircraft identification in a radar label;

Note:- The use of this procedure requires that the code/call sign correlation is achieved successfully, taking into account the Note following b) below.

b) recognition of an assigned discrete code, the setting of which has been verified, in a radar label;

Note:- The use of this procedure requires a system of code assignment which ensures that each aircraft in a given portion of airspace is assigned a discrete code.

c) direct recognition of the aircraft identification of a Mode S-equipped aircraft in a radar label;

Note:- The aircraft identification feature available in Mode S transponders provides the means to identify directly individual aircraft on situation displays and thus offers the potential to eliminate ultimately the recourse to Mode A discrete codes for individual identification. This elimination will only be achieved in a progressive manner depending on the state of deployment of suitable ground and airborne installations.

d) by transfer of identification (see D3.14);

e) observation of compliance with an instruction to set a specific code;

f) observation of compliance with an instruction to squawk IDENT.

Note 1:- In automated radar systems, the “IDENT” feature may be presented in different ways, e.g. as a flashing of all or part of the position indication and associated label.

Note 2:- Garbling of transponder replies may produce “IDENT”-type of indications. Nearly simultaneous “IDENT” transmissions within the same area may give rise to errors in identification.

D3.13.2.1 When a discrete code has been assigned to an aircraft, a check shall be made at the earliest opportunity to ensure that the code set by the pilot is identical to that assigned for the flight. Only after this check has been made shall the discrete code be used as a basis for identification.
D3.13.3 Where ADS-B is used for identification, aircraft may be identified by one or more of the following procedures:

a) direct recognition of the aircraft identification in an ADS-B label;

b) transfer of ADS-B identification (see D3.14);

c) observation of compliance with an instruction to TRANSMIT ADS-B IDENT

**Note:** In automated systems, the “IDENT” feature may be presented in different ways, e.g. as a flashing of all or part of the position indication and associated label

D3.14 TRANSFER OF IDENTIFICATION:

D3.14.1 Transfer of identification from one controller to another should only be attempted when it is considered that the aircraft is within the accepting controller’s surveillance coverage.

D3.14.2 Transfer of identification shall be effected by one of the following methods:

a) designation of the position indication by automated means, provided that only one position indication is thereby indicated and there is no possible doubt of correct identification;

b) notification of the aircraft’s discrete SSR code or aircraft address;

**Note 1:** The use of a discrete SSR code requires a system of code assignment which ensures that each aircraft in a given portion of airspace is assigned a discrete code.

**Note 2:** Aircraft address would be expressed in the form of the alphanumerical code of six hexadecimal characters.

c) notification that the aircraft is SSR Mode S-equipped with an aircraft identification feature when SSR Mode S coverage is available;

d) notification that the aircraft is ADS-B-equipped with an aircraft identification feature when compatible ADS-B coverage is available;

e) direct designation (pointing with the finger) of the position indication, if the two situation displays are adjacent, or if a common “conference” type of situation display is used;

**Note:** Attention must be given to any errors which might occur due to parallax effects.

f) designation of the position indication by reference to, or in terms of bearing and distance from, a geographical position or navigational facility accurately indicated on both situation displays, together with the track of the observed position indication if the route of the aircraft is not known to both controllers;

**Note:** Caution must be exercised before transferring identification using this method, particularly if other position indications are observed on similar headings and in close proximity to the aircraft under control. Inherent radar deficiencies, such as inaccuracies in bearing and distance of the radar position indications displayed on individual situation displays and parallax errors, may cause the indicated position of an aircraft in relation to the known point to differ between the two situation displays. The appropriate ATS authority may, therefore, prescribe additional conditions for the application of this method, e.g.:

i. a maximum distance from the common reference point used by the two controllers; and
D3.16 TRANSPONDER OPERATING PROCEDURES:

D3.16.1 To ensure the safe and efficient use of SSR, pilots and controllers should strictly adhere to published operating procedures. In particular, standard radiotelephony phraseology shall be used and the correct setting of modes and codes in transponders and ground decoding equipment shall be ensured at all times.

D3.15 SSR CODES:

D3.15.1 The specific codes to be applied should be agreed between the administrations concerned, taking into account other users of the system.

D3.15.2 The appropriate ATS authority shall establish procedures for the allotment of SSR codes in conformity with regional air navigation agreements. These procedures should be based on the following principles:

D3.15.2.1 The number of code changes required of a pilot should be kept to the minimum consistent with the essential needs of ATS.

D3.15.2.2 Where there is a need for individual identification and ground equipment permits its employment, each aircraft should be assigned a different code.

D3.15.2.3 The procedures (for code assignment) should be compatible with those practised in adjacent areas.

D3.15.3 A controller shall only assign codes in accordance with the procedures laid down by the appropriate ATS authority.

D3.15.4 Whenever a code is assigned to an aircraft, the setting of this code shall be verified by the controller at the earliest opportunity.

D3.15.5 Code 7700 shall be used on Mode A to provide recognition of an aircraft in an emergency.

D3.15.6 Code 7600 shall be used on Mode A to provide recognition of an aircraft with radio-communication failure.

D3.15.7 Code 7500 shall be used on Mode A to provide recognition of an aircraft which is being subjected to unlawful interference.

D3.15.8 Appropriate provisions should be made in the ground equipment to ensure immediate recognition of Codes 7500, 7600, and 7700.

D3.15.9 Code 0000 should be reserved for allocation subject to regional agreement, as a general purpose code.

D3.15.10 Code 2000 shall be reserved for use on Mode A to provide recognition of an aircraft which has not received any instructions from air traffic control units to operate the transponder.

D3.16 TRANSPONDER OPERATING PROCEDURES:

D3.16.1 To ensure the safe and efficient use of SSR, pilots and controllers should strictly adhere to published operating procedures. In particular, standard radiotelephony phraseology shall be used and the correct setting of modes and codes in transponders and ground decoding equipment shall be ensured at all times.

Note:- Use of procedures g) and h) requires prior coordination between the controllers, since the indications to be observed by the accepting controller are of short duration.
D3.16.2 When an aircraft carries a serviceable transponder, the pilot shall operate the transponder at all times during flight, regardless of whether the aircraft is within or outside airspace where SSR is used for ATS purposes.

D3.16.3 In the event of transponder failure, the pilot should inform the appropriate ATS units.

D3.16.4 Except as specified in D3.17.1, D3.17.2 and D3.17.3 in respect of emergency, radio-communication failure or unlawful interference, the pilot shall:

   a) operate the transponder and select Mode A codes as directed by the ATC unit with which contact is being made; or
   
   b) operate the transponder on Mode A codes as prescribed on the basis of regional air navigation agreements; or
   
   c) in the absence of any ATC directions or regional air navigation agreements, operate the transponder on Mode A Code 2000.

D3.16.5 When the aircraft carries serviceable Mode C equipment, the pilot shall continuously operate this mode, unless otherwise directed by ATC.

D3.16.6 Whenever Mode C is operated, pilots shall, in air-ground voice communications where level information is required, give such information by stating their level to the nearest full 30 m or 100 ft as indicated on the pilot's altimeter.

D3.16.7 When requested by ATC to specify the capability of the transponder aboard the aircraft, pilots shall indicate this in item 10 of the flight plan by inserting the appropriate letter prescribed for the purpose.

D3.16.8 When requested by ATC to CONFIRM SQUAWK (code), the pilot shall:

   a) verify the Mode A code setting on the transponder;
   
   b) reselect the assigned code if necessary; and
   
   c) confirm to ATC the setting displayed on the controls of the transponder.

D3.16.9 Pilots shall not operate the SSR SPI feature unless requested by ATC.

   Note:- Although a low sensitivity feature is not required in SSR airborne equipment by the specification of Annex 10, it is known that some equipment still in use does have this feature. Pilots of aircraft fitted with such equipment should not use the low sensitivity feature except when requested by ATC.

D3.16.10 It should be noted that the use by civil aircraft of SSR transponders which do not conform to the specifications in Annex 10 may result in misidentification of the aircraft.

D3.17 EMERGENCY PROCEDURES:

D3.17.1 The pilot of an aircraft in a state of emergency shall set the transponder to Mode A Code 7700 unless ATC has previously directed the pilot to operate the transponder on a specified code. In the latter case, the pilot shall continue to use the specified code unless otherwise advised by ATC. However, a pilot may select Mode A Code 7700 whenever there is a specific reason to believe that this would be the best course of action.
D3.17.2 RADIOCOMMUNICATION FAILURE PROCEDURES:

D3.17.2.1 The pilot of an aircraft losing two-way communications shall set the transponder to Mode A Code 7600.

**Note:** A controller who observes an SSR response indicating selection of the communications failure code will determine the extent of the failure by instructing the pilot to SQUAWK IDENT or to change code. If it is determined that the aircraft receiver is functioning, further control of the aircraft will be continued using code changes or IDENT transmission to acknowledge receipt of clearances. Different procedures may be applied to Mode S equipped aircraft in areas of Mode S coverage.

D3.17.3 UNLAWFUL INTERFERENCE WITH AIRCRAFT IN FLIGHT:

D3.17.3.1 If there is unlawful interference with an aircraft in flight, the pilot-in-command shall attempt to set the transponder to Mode A Code 7500 in order to indicate the situation. If circumstances so warrant, Code 7700 should be used instead.

D3.17.3.2 Should an aircraft in flight be subjected to unlawful interference, the pilot-in-command shall endeavour to set the transponder to Mode A Code 7500 to give indication of the situation unless circumstances warrant the use of Code 7700.

D3.17.3.3 If a pilot has selected Mode A Code 7500 and has been requested to confirm this code by ATC (in accordance with D3.16.7), the pilot shall, according to circumstances, either confirm this or not reply at all.

**Note:** If the pilot does not reply, ATC will take this as confirmation that the use of Code 7500 is not an inadvertent false code selection.

D3.17.4 IDENTIFICATION BY VISUAL MEANS:

D3.17.4.1 In daytime and good visibility, identification of a civil aircraft is possible by observing the aircraft type and the nationality and registration marks painted on the aircraft or affixed by other means. At night and in reduced visibility conditions, the installation of a special spotlight on interceptor aircraft will greatly assist in locating and reading civil aircraft registration marks.

D3.17.4.2 The nationality and registration marks on lighter-than-air aircraft (other than balloons) shall be visible both from the sides and from the ground and that the height of the marks shall be at least 50 centimetres. On heavier-than-air aircraft, the marks shall appear once on the lower surface of the wing structure and either on each side of the fuselage or on the upper halves of the vertical tail surfaces, and that the height of the marks shall be at least 50 centimetres on the wings and at least 30 centimetres on the fuselage or tail surfaces.

D3.17.4.3 The provisions of Para D3.17.4.2 specify only the minimum size of the registration marks. However, it is necessary also to consider the size, colour contrast and precise position of the fuselage marking in relation to easy visual recognition by an intercepting aircraft from the Phase II intercept position.

D3.17.4.4 At night and in poor visibility, identification of a civil aircraft may be enhanced by illumination of the airline logos and/or the nationality and registration marks. Operators whose aircraft operate in areas, where there is a risk of interception should therefore consider equipping new aircraft with logo lights and requiring illumination of such lights, where fitted, at all times during flight or at least during periods of twilight, darkness and poor visibility and while flying in cloud.

D3.17.4.5 The visibility of nationality and registration marks, and other markings, which might identify the aircraft as civil, would be enhanced by the use of reflective paint or other marking material.
D3.18.4.6 Pilots of intercepting aircraft should be aware that, due to the leasing of aircraft, flights conducted by an operator and using the radiotelephony call sign of that operator might be using aircraft carrying the logo of another operator.

D3.18.4.7 Identification of an aircraft as a civil aircraft may also be enhanced by switching on all cockpit and cabin lights.

D3.18 NAVIGATION ASPECTS:

D3.18.1 GENERAL:

D3.18.1.1 Modern navigation systems are very accurate and reliable. However, experience shows that the superior performance of such systems may induce complacency, which, together with any lapse in the meticulous care required for operating such systems, may lead to serious navigation errors. Vigilance and adherence to established procedures are essential elements for accurate navigation and when combined with the provisions contained in this ANO will reduce the possibility of interception of civil aircraft.

D3.18.2 AIRBORNE NAVIGATION EQUIPMENT:

D3.18.2.1 RULES APPLICABLE TO ALL IFR FLIGHTS:

D3.18.2.1 Aircraft shall be equipped with suitable instruments and with navigation equipment appropriate to the route to be flown.

D3.18.2.2 INTERNATIONAL COMMERCIAL AIRCRAFT:

D3.18.2.2 An aeroplane shall be provided with navigation equipment which will enable it to proceed:

a) in accordance with its operational flight plan; and

b) in accordance with the requirements of air traffic services; except when, if not so precluded by the appropriate authority, navigation for flights under the visual flight rules is accomplished by visual reference to landmarks.

D3.18.2.3 INTERNATIONAL GENERAL AVIATION AIRCRAFT:

D3.18.2.3 An aeroplane shall be provided with navigation equipment which will enable it to proceed:

a) in accordance with the flight plan; and

b) in accordance with the requirements of air traffic services; except when, if not so precluded by the appropriate authority, navigation for flights under the visual flight rules is accomplished by visual reference to landmarks at least every 110 km (60 NM).

D3.18.3 ADHERENCE TO FLIGHT PLAN:

D3.18.3.1 Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:

a) when on an established ATS route, operate along the defined centre line of that route; or

b) when on any other route, operate directly between the navigation facilities and/or points defining that route.
D3.18.3.2 Deviation from the requirements in D3.18.3.1 shall be notified to the appropriate air traffic services unit.

D3.18.3.3 INADVERTENT CHANGES:

D3.18.3.3.1 In the event that a controlled flight inadvertently deviates from its current flight plan, the following action shall be taken:

a) **Deviation from track:** if the aircraft is off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable;

b) **Variation in true airspeed:** if the average true airspeed at cruising level between reporting points varies or is expected to vary by plus or minus 5 per cent of the true airspeed, from that given in the flight plan, the appropriate air traffic services unit shall be so informed.

c) **Change in time estimate:** if the time estimate for the next applicable reporting point, flight information region boundary or destination aerodrome, whichever comes first, is found to be in error in excess of 3 minutes from that notified to air traffic services, or such other period of time as is prescribed by the appropriate ATS authority or on the basis of air navigation regional agreements, a revised estimated time shall be notified as soon as possible to the appropriate air traffic services unit.

D3.18.3.2 Additionally, when an ADS agreement is in place, the air traffic services unit (ATSU) shall be informed automatically via data link whenever changes occur beyond the threshold values stipulated by the ADS event contract.

D3.18.4 PROHIBITED AND RESTRICTED AREAS:

D3.18.4.1 Aircraft shall not be flown in a prohibited area, or in a restricted area, the particulars of which have been duly published in AIP Pakistan, except in accordance with the conditions of the restrictions or by permission of the Authority over whose territory the areas are established.

D3.18.5 NAVIGATIONAL ASSISTANCE BY ATS UNITS:

D3.18.5.1 As soon as an air traffic services unit becomes aware of a strayed aircraft, it shall take all necessary steps as outlined in D3.18.5.2 and D3.18.5.3 to assist the aircraft and to safeguard its flight.

**Note:** Navigational assistance by an air traffic services unit is particularly important if the unit becomes aware of an aircraft straying, or about to stray, into an area where there is a risk of interception or other hazard to its safety.

D3.18.5.2 If the aircraft’s position is not known, the air traffic services unit shall:

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

b) use all available means to determine its position;

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

d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning the strayed aircraft; and
e) request from the units referred to in c) and d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

*Note:* The requirements in d) and e) apply also to ATS units informed in accordance with c).

D3.18.5.3 When the aircraft’s position is established, the air traffic services unit shall:

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

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

D3.18.5.4 The information provided by ATS surveillance systems and presented on a situation display may be used to perform the following functions in the provision of air traffic control service:

a) maintain flight path monitoring of air traffic; and

b) maintain a watch on the progress of air traffic, in order to provide the air traffic control unit concerned with:

c) improved position information regarding aircraft under control;

d) supplementary information regarding other traffic; and

e) information regarding any significant deviations by aircraft from the terms of their respective control clearances, including their cleared routes as well as levels, when appropriate.

D3.18.5.5 An identified aircraft observed to deviate significantly from its intended route or designated holding pattern shall be advised accordingly. Appropriate action shall also be taken if, in the opinion of the controller, such deviation is likely to affect the service being provided.

D3.18.5.6 Except when transfer of control is to be effected, aircraft shall not be vectored closer than 4.6 km (2.5 NM) or, where the minimum permissible separation is greater than 9.3 km (5 NM), a distance equivalent to one-half of the prescribed separation minimum, from the limit of the airspace for which the controller is responsible, unless local arrangements have been made to ensure that separation will exist with aircraft operating in adjoining areas.

D3.18.5.7 Controlled flights shall not be vectored into uncontrolled airspace except in the case of emergency or in order to circumnavigate adverse meteorological conditions (in which case the pilot should be so informed), or at the specific request of the pilot.

D3.18.5.8 **USE OF RADAR IN THE FLIGHT INFORMATION SERVICE:**

D3.18.5.8.1 The information presented on a situation display may be used to provide identified aircraft with:

a) information regarding any aircraft observed to be on a conflicting path with the identified aircraft and suggestions or advice regarding avoiding action;

b) information on the position of significant weather and, as practicable, advice to the aircraft on how best to circumnavigate any such areas of adverse weather; and

c) information to assist the aircraft in its navigation.
D3.18.6 NAVIGATIONAL ASSISTANCE BY MILITARY UNITS:

D3.18.6.1 Special procedures shall be established in order to ensure that:

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

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

D3.18.6.2 Navigational guidance should be provided through the appropriate air traffic services unit as far as practicable.

D3.18.6.3 Visual signals used to warn an unauthorized aircraft flying in, or about to enter a restricted, prohibited or danger area

D3.18.6.3.1 By day and by night, a series of projectiles discharged from the ground at intervals of 10 seconds, each showing, on bursting, red and green lights or stars will indicate to an unauthorized aircraft that it is flying in or about to enter a restricted, prohibited or danger area, and that the aircraft is to take such remedial action as may be necessary.

D3.19 PROMULGATION OF INFORMATION:

D3.19.1 PROMULGATION IN AERONAUTICAL INFORMATION PUBLICATION (AIP):

D3.19.1.1 AIR TRAFFIC SERVICES SYSTEM:

D3.19.1.1.1 A description of the air traffic services provided and, where necessary, graphic portrayal of flight information regions, controlled airspaces, advisory areas, designated areas and designated routes shall be published in AIP.

D3.19.1.1.2 A description of the procedures, governing the operation of SSR transponders, the system of SSR code assignment, and the specific code groups allocated for use shall be described in the ENR part of the AIP, to assist intercept control units in their attempts to identify radar responses as those of civil aircraft.

D3.19.1.1.3 A description or identification of designated areas or routes where the requirements concerning flight plans, two-way communications and position reporting apply to all flights, shall be published in AIP, in order to eliminate or reduce the need for interceptions.

D3.19.2 PROHIBITED, RESTRICTED AND DANGER AREAS:

D3.19.2.1 Description, supplemented by graphic portrayal where appropriate, of prohibited, restricted and danger areas together with information regarding their establishment and activation, including:

a) identification, name and geographical coordinates of the lateral limits in degrees, minutes and seconds if inside and in degrees and minutes if outside control area/control zone boundaries;

b) upper and lower limits;

c) remarks, including time of activity; and

d) type of restriction or nature of hazard and risk of interception in the event of penetration must be indicated in the remarks column;

shall be published in ENR section of AIP.
D3.19.3 PROMULGATION BY NOTAM:

D3.19.3.1 A NOTAM shall be originated and issued promptly whenever the information to be distributed is of a temporary nature and of short duration or when operationally significant permanent changes, or temporary changes of long duration are made at short notice, except for extensive text and/or graphics.

D3.19.3.2 A NOTAM shall be originated and issued whenever the following information is of direct operational significance:

a) presence of hazards which affect air navigation (including obstacles, military exercises, displays, races and major parachuting events outside promulgated sites);

b) establishment or discontinuance (including activation or deactivation) as applicable, or changes in the status of prohibited, restricted or danger areas; and

c) establishment or discontinuance of areas or routes or portions thereof where the possibility of interception exists and where the maintenance of guard on the VHF emergency frequency 121.5 MHz is required;

D3.19.3.3 INFORMATION TO BE NOTIFIED BY AIRAC NOTAM:

D3.19.3.1 The establishment, withdrawal of, and premeditated significant changes (including operational trials) to limits (horizontal and vertical), regulations and procedures applicable to:

a) flight information regions;

b) control areas;

c) control zones;

d) advisory areas;

e) ATS routes;

f) permanent danger, prohibited and restricted areas (including type and periods of activity when known);

g) ADIZ; and

h) permanent areas or routes or portions thereof where the possibility of interception exists.

D3.19.3.2 The establishment and withdrawal of, and premeditated significant changes to:

a) temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft; and

b) temporary areas or routes or portions thereof where the possibility of interception exists.

D3.19.4 DEPICTION ON AERONAUTICAL CHARTS:

D3.19.4.1 PROHIBITED RESTRICTED AND DANGER AREAS:

D3.19.4.1.1 Prohibited, restricted and danger areas shall be depicted with their identification and vertical limits on Enroute Charts — ICAO and Area Charts — ICAO. They shall also be shown on World Aeronautical Charts — ICAO 1:1 000 000 and Aeronautical Charts — ICAO 1:500 000.

D3.19.4.1.2 Additionally, prohibited, restricted and danger areas should be shown on Aeronautical Navigation Charts — ICAO Small Scale, when considered to be of importance to air navigation.
D3.19.4.2 AIR TRAFFIC SERVICES SYSTEM:

D3.19.4.2.1 The components of the established air traffic services system shall be shown on Enroute Charts — ICAO, where appropriate, and on Area Charts — ICAO, Standard Departure Charts — Instrument (SID) — ICAO and Standard Arrival Charts — Instrument (STAR) — ICAO.

D3.19.4.2.2 Significant elements of the air traffic services system shall be shown on World Aeronautical Charts — ICAO 1:1 000 000 and Aeronautical Charts — ICAO 1:500 000 and shall include, where practicable, control zones, aerodrome traffic zones, control areas, flight information region boundaries, controlled airspace (instrument/visual), and other controlled airspace in which VFR flights operate.

D3.19.4.2.3 Annex 4 further recommends that significant elements of the air traffic services system should be shown on Aeronautical Navigation Charts — ICAO Small Scale, when considered to be of importance to air navigation.

D4. ELIMINATION OR REDUCTION OF HAZARDS IN THE EVENT OF INTERCEPTION:

D4.1 INTERCEPTION:

D4.1.1 ACTION BY OPERATORS, ATS PROVIDERS AND INTERCEPTING UNITS/ AUTHORITIES:

D4.1.1.1 In order to ensure coordinated actions by the pilots and ground units concerned, and to eliminate or reduce the hazards inherent in interceptions undertaken as a last resort; the Authority shall ensure that aircraft operators, air traffic services and Intercepting units/authorities take the following steps:

a) all pilots of civil aircraft are fully aware of the actions to be taken by them and the visual signals to be used, as specified in D4.4 and D4.5;

b) operators or pilots-in-command of civil aircraft implement the provisions of D4.6.1.2 & D4.6.1.3 regarding the capability of aircraft to communicate on 121.5 MHz & emergency locator transmitter (ELT); and ensure the availability of interception procedures and visual signals on board aircraft;

c) all air traffic services personnel are fully aware of the actions to be taken by them in accordance with the provisions of D4.8;

d) all pilots-in-command of intercepting aircraft are aware of the general performance limitations of civil aircraft and of the possibility that intercepted civil aircraft may be in a state of emergency due to technical difficulties or unlawful interference;

e) clear and unambiguous instructions are issued to intercept control units and to pilots-in-command of potential intercepting aircraft, covering interception manoeuvres, guidance of intercepted aircraft, action by intercepted aircraft, air-to-air visual signals, radio-communication with intercepted aircraft, and the need to refrain from resorting to the use of weapons;

f) intercept control units and intercepting aircraft are provided with radiotelephony equipment compatible with the prescribed technical specifications which enable them to communicate with intercepted aircraft on the emergency frequency 121.5 MHz;

g) secondary surveillance radar and/or ADS-B facilities are made available to the extent possible to permit intercept control units to identify civil aircraft in areas where they might otherwise be intercepted. Such facilities should permit recognition of aircraft identity and immediate recognition of any emergency or urgency conditions, including immediate recognition of Mode A, Codes 7500, 7600 and 7700.
D4.2 INTERCEPTION MANOEUVRES:

D4.2.1 Interception manoeuvres specified in Para 4.3.1.1, D4.3.1.2 & D4.3.1.3 shall be followed as far as practicable, in order to avoid any hazard for the intercepted aircraft.

Note:- See recommended method in D4.3.1.1, D4.3.2.1 and D4.3.2.3.

D4.3 ACTION BY INTERCEPTING AIRCRAFT:

D4.3.1 MANOEUVRES FOR VISUAL IDENTIFICATION:

D4.3.1.1 The following method is recommended for the manoeuvring of intercepting aircraft for visually identifying a civil aircraft:

D4.3.1.1.1 Phase I: The intercepting aircraft should approach the intercepted aircraft from astern. The element leader, or the single intercepting aircraft, should normally take up a position on the left (port) side, slightly above and ahead of the intercepted aircraft, within the field of view of the pilot of the intercepted aircraft, and initially not closer to the aircraft than 300 metres. Any other participating aircraft should stay well clear of the intercepted aircraft, preferably above and behind. After speed and position have been established, the aircraft should, if necessary, proceed with Phase II of the procedure.

D4.3.1.1.2 Phase II: The element leader, or the single intercepting aircraft, should begin closing in gently on the intercepted aircraft, at the same level, until no closer than absolutely necessary to obtain the information needed. The element leader, or the single intercepting aircraft, should use caution to avoid startling the flight crew or the passengers of the intercepted aircraft, keeping constantly in mind the fact that manoeuvres considered normal to an intercepting aircraft may be considered hazardous to passengers and crews of civil aircraft. Any other participating aircraft should continue to stay well clear of the intercepted aircraft. Upon completion of identification, the intercepting aircraft should withdraw from the vicinity of the intercepted aircraft as outlined in Phase III.

D4.3.1.1.3 Phase III: The element leader, or the single intercepting aircraft, should break gently away from the intercepted aircraft in a shallow dive. Any other participating aircraft should stay well clear of the intercepted aircraft and rejoin their leader.

D4.3.1.2 The recommended method is illustrated in Figure 1 below.

![Figure 1. Manoeuvres for visual identification](image_url)
D4.3.2 MANOEUVRES FOR NAVIGATIONAL GUIDANCE:

D4.3.2.1 If, following the identification manoeuvres in Phase I and Phase II above, it is considered necessary to intervene in the navigation of the intercepted aircraft, the element leader, or the single intercepting aircraft, should normally take up a position on the left (port) side, slightly above and ahead of the intercepted aircraft, to enable the pilot-in-command of the latter aircraft to see the visual signals given.

D4.3.2.2 It is indispensable that the pilot-in-command of the intercepting aircraft be satisfied that the pilot-in-command of the intercepted aircraft is aware of the interception and acknowledges the signals given. If repeated attempts to attract the attention of the pilot-in-command of the intercepted aircraft by use of the Series 1 signal in D4.5.2.1 are unsuccessful, other methods of signalling may be used for this purpose, including as a last resort the visual effect of the reheat/afterburner, provided that no hazard is created for the intercepted aircraft.

D4.3.2.3 Meteorological conditions or terrain may occasionally make it necessary for the element leader, or the single intercepting aircraft, to take up a position on the right (starboard) side, slightly above and ahead of the intercepted aircraft. In such case, the pilot-in-command of the intercepting aircraft must take particular care that the intercepting aircraft is clearly visible at all times to the pilot-in-command of the intercepted aircraft.

D4.3.2.4 The recommended manoeuvres are illustrated in Figure 2 below.

![Figure 2. Manoeuvres for navigational guidance](image)

D4.3.3 ATTRACTING ATTENTION BY VISUAL MEANS:

D4.3.3.1 It must be recognized that, even in visual meteorological conditions in day time, it may take several minutes before the flight crew of a civil aircraft notice an intercepting aircraft within their normal limited field of view. This may be particularly true even more so in the case of a civil transport aircraft operating on an IFR flight plan at night under air traffic control service in a low traffic density area.

D4.3.3.2 It is indispensable that the pilot-in-command of the intercepting aircraft be satisfied that the pilot-in-command of the intercepted aircraft is aware of the interception and acknowledges the signals given.
D4.3.3.3 The visual signal recommended for use to attract the attention of the pilot-in-command of the intercepted aircraft is the Series 1 signal in D4.5 If repeated attempts to attract attention by use of this signal are unsuccessful, other methods of signalling may be used for this purpose, including as a last resort the visual effect of the reheat/afterburner, provided that no hazard, including hazardous effects of wake turbulence, is created for the intercepted aircraft.

D4.3.3.4 During daytime, the use of smoke-producing devices, such as those used during aerobatic displays, producing smoke of a vivid colour may have the desired effect. During daytime as well as at night, the use of high-power strobe lights, whenever installed on the intercepting aircraft for collision avoidance purposes, would also be of assistance.

D4.3.3.5 As a very last resort, and if directed carefully, the use of reheat/afterburner may achieve the desired result. This method is clearly most effective at night but can be both disturbing and noisy for the intercepted aircraft, especially if used during Phase II, i.e. well within 300 metres. Reheat/afterburner must therefore be used with great caution.

D4.3.3.6 The use of tracer bullets to attract attention is hazardous and should be used as a last resort so that the lives of persons on board and the safety of the aircraft are not endangered. The potential hazards to persons and property on the ground are additional factors that must be taken into account.

D4.3.3.7 In view of the practical difficulty of attracting the attention of an intercepted aircraft by visual means, training programmes for interceptor crews should include practice interceptions of military transport aircraft, with the object of practicing the most visible and attention-getting positioning of the intercepting aircraft. Under no circumstances should practice interception of civil aircraft be undertaken.

D4.3.4 GUIDANCE OF AN INTERCEPTED AIRCRAFT:

D4.3.4.1 Navigational guidance and related information should be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established.

D4.3.4.2 When navigational guidance is given to an intercepted aircraft, care must be taken that the aircraft is not led into conditions where the visibility may be reduced below that required to maintain flight in visual meteorological conditions and that the manoeuvres demanded of the intercepted aircraft do not add to already existing hazards in the event that the operating efficiency of the aircraft is impaired.

D4.3.4.3 It must be realized that failure to comply with instructions given does not necessarily indicate unfriendly intentions. In fact, there are many reasons why an intercepted civil aircraft may not be able to comply with the instructions given by an intercepting aircraft visually or by radio. The most obvious of these are that the aircraft is in a state of emergency due to aircraft malfunctioning or hijacking. In the latter case, the intercept control unit and/or the appropriate ATS unit may be able to confirm the situation by observing that the aircraft is squawking the emergency SSR Code 7700 or the hijacked code 7500. The intercepted aircraft may also have flight technical problems which are not in the nature of an emergency but which, in the opinion of the pilot-in-command, would make it hazardous to comply with the instructions given. An example of such problems is inadequate fuel to proceed to a designated aerodrome.

D4.3.4.4 It must also be realized that failure by the intercepted aircraft to comply with instructions given may be due to general confusion as to the reasons for the interception, inability to interpret visual signals correctly, linguistic misunderstanding of radio messages and, in rare cases, hypoxia.

D4.3.4.5 In the event that an intercepted aircraft fails to respond to repeated attempts to convey instructions by visual signals or radiotelephony, the intercepting aircraft should continue to observe the intercepted aircraft until it lands or leaves the restricted or prohibited airspace. A full report on the incident should then be submitted to the appropriate ATS Authority and shall be forwarded to the State of registry for action.
**Note:** Possibility of manoeuvres by the intercepted aircraft in response to resolution advisories provided by an airborne collision avoidance system (ACAS) also needs to be taken into account. If the intercepted aircraft is so equipped, the ACAS may perceive the interceptor as a collision threat and thus provide a resolution advisory for avoidance. Therefore, care must be taken that such an avoidance manoeuvre(s), if undertaken before the pilot-in-command of the intercepted aircraft is aware of the interception, is not misinterpreted as an indication of unfriendly intentions. This situation can be avoided if the interceptor suppresses the transmission of pressure-altitude information in its SSR transponder replies within a range of at least 20 NM (approximately 30 seconds) of the aircraft being intercepted. This prevents the ACAS in the intercepted aircraft from using resolution advisories in respect of the interceptor, while the ACAS traffic advisory information will remain available.

**D4.3.5 PROVISION OF INFORMATION FOR LANDING:**

**D4.3.5.1** In the exceptional case where an intercepted over-flying civil aircraft is required to land in Pakistan, care must also be taken that:

a) the designated aerodrome is suitable for the safe landing of the aircraft type concerned, especially if the aerodrome is not normally used for civil air transport operations;

b) the surrounding terrain is suitable for circling, approach and missed approach manoeuvres;

c) the intercepted aircraft has sufficient fuel remaining to reach the aerodrome;

d) if the intercepted aircraft is a civil transport aircraft, the designated aerodrome has a runway with a length equivalent to at least 2 500 m at mean sea level and a bearing strength sufficient to support the aircraft; and

e) whenever possible, the designated aerodrome is one that is described in detail in the Aeronautical Information Publication Pakistan.

**D4.3.5.2** When requiring a civil aircraft to land at an unfamiliar aerodrome, it is essential that sufficient time be allowed it to prepare for a landing, bearing in mind that only the pilot-in-command of the civil aircraft can judge the safety of the landing operation in relation to runway length and aircraft mass at the time.

**D4.3.5.3** It is particularly important that all information necessary to facilitate a safe approach and landing be given to the intercepted aircraft by radiotelephony.

**D4.3.5.4** Ideally, the intercepted aircraft should be requested to obtain the necessary information and ATC clearance for flight to the designated aerodrome from the appropriate ATS unit and, in due course, to establish direct contact with the aerodrome control tower at the designated aerodrome either on one of the normal control tower frequencies or on 121.5 MHz. If such direct communication is not possible, the necessary information to enable the intercepted aircraft to make a safe landing should be relayed through any other unit or any other aircraft that may be in contact with the intercepted aircraft. If this fails, the information should be transmitted blind on 121.5 MHz and any other available frequency on which the aircraft might be listening, including available voice channel(s) on local approach and landing aids such as VOR and ILS.

**D4.3.5.5** If all else fails, the pilot of the intercepting aircraft is expected to use discretion with regard to the use of hand signals and/or Morse signals to supplement the Series 3 visual signal in D4.5.2.
D4.4 ACTION BY INTERCEPTED AIRCRAFT:

D4.4.1 The pilot-in-command of a civil aircraft, when intercepted, shall comply with the Standards prescribed in this ANO, interpreting and responding to visual signals as specified in D4.5.

D4.4.2 An aircraft which is intercepted by another aircraft shall immediately:

a) follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications in D4.5;

b) notify, if possible, the appropriate air traffic services unit;

c) attempt to establish radio-communication with the intercepting aircraft or with the appropriate intercept control unit, by making a general call on the emergency frequency 121.5 MHz, giving the identity of the intercepted aircraft and the nature of the flight; and if no contact has been established and if practicable, repeating this call on the emergency frequency 243 MHz because some military aircraft may not have a VHF capability; and

d) if equipped with SSR transponder, select Mode A Code 7700, unless otherwise instructed by the appropriate air traffic services unit.

e) if equipped with ADS-B or ADS-C, select the appropriate emergency functionality, if available, unless otherwise instructed by the appropriate air traffic services unit.

D4.4.3 If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals, the intercepted aircraft shall request immediate clarification while continuing to comply with the visual instructions given by the intercepting aircraft.

D4.4.4 If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by radio, the intercepted aircraft shall request immediate clarification while continuing to comply with the radio instructions given by the intercepting aircraft.

D4.4.5 RADIO-COMMUNICATION DURING INTERCEPTION:

D4.4.5.1 If radio contact is established during interception but communication in a common language is not possible, attempts shall be made to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations given in the Table-1 and transmitting each phrase twice.
TABLE-1

<table>
<thead>
<tr>
<th>Phrases for use by INTERCEPTING aircraft</th>
<th>Phrases for use by INTERCEPTED aircraft</th>
</tr>
</thead>
<tbody>
<tr>
<td>Phrase</td>
<td>Pronunciation1</td>
</tr>
<tr>
<td>CALL SIGN</td>
<td>KOL-SA-IN</td>
</tr>
<tr>
<td>FOLLOW</td>
<td>FOL-LO</td>
</tr>
<tr>
<td>DESCEND</td>
<td>DEE-SEND</td>
</tr>
<tr>
<td>YOU LAND</td>
<td>YOU LAAND</td>
</tr>
<tr>
<td>PROCEED</td>
<td>PRO-SEED</td>
</tr>
<tr>
<td>AM LOST</td>
<td>AM LOSST</td>
</tr>
<tr>
<td>HIJACK3</td>
<td>HI-JACK</td>
</tr>
<tr>
<td>DESCEND</td>
<td>DEE-SEND</td>
</tr>
</tbody>
</table>

1. In the second column, syllables to be emphasized are underlined.
2. The call sign required to be given is that used in radiotelephony communications with air traffic services units and corresponding to the aircraft identification in the flight plan.
3. Circumstances may not always permit, nor make desirable, the use of the phrase “HIJACK”.
4. The phrases CAN NOT and REPEAT are used in this particular context, rather than the normal phrases UNABLE and SAY AGAIN, in order to facilitate understanding.

D4.5 AIR-TO-AIR VISUAL SIGNALS:

D4.5.1 It is essential for the safety of flight that the visual signals, prescribed in Para 4.5.2.1 employed in the event of an interception, be correctly used, understood and be strictly adhered by civil and military aircraft.
### SIGNALS FOR USE IN THE EVENT OF INTERCEPTION:

#### D4.5.2.1 Signals initiated by intercepting aircraft and responses of intercepted aircraft:

<table>
<thead>
<tr>
<th>Series</th>
<th>INTERCEPTING aircraft signals</th>
<th>Meaning</th>
<th>INTERCEPTED aircraft responds</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DAY or NIGHT — Rocking aircraft and flashing navigational lights at irregular intervals (and landing lights in the case of a helicopter) from a position slightly above and ahead of, and normally to the left of, the intercepted aircraft (or to the right if the intercepted aircraft is a helicopter) and, after acknowledgement, a slow level turn, normally to the left, (or to the right in the case of a helicopter) on the desired heading.</td>
<td>You have been intercepted. Follow me.</td>
<td>DAY or NIGHT — Rocking aircraft, flashing navigational lights at irregular intervals and following.</td>
<td>Understood, will comply.</td>
</tr>
<tr>
<td>2</td>
<td>DAY or NIGHT — An abrupt break-away manoeuvre from the intercepted aircraft consisting of a climbing turn of 90 degrees or more without crossing the line of flight of the intercepted aircraft.</td>
<td>You may proceed.</td>
<td>DAY or NIGHT — Rocking the aircraft.</td>
<td>Understood, will comply.</td>
</tr>
<tr>
<td>3</td>
<td>DAY or NIGHT — Lowering landing gear (if fitted), showing steady landing lights and overflying runway in use or, if the intercepted aircraft is a helicopter, overflying the helicopter landing area. In the case of helicopters, the intercepting helicopter makes a landing approach, coming to hover near to the landing area.</td>
<td>Land at this aerodrome.</td>
<td>DAY or NIGHT — Lowering landing gear, (if fitted), showing steady landing lights and following the intercepting aircraft and, if, after overflying the runway in use or helicopter landing area, landing is considered safe, proceeding to land.</td>
<td>Understood, will comply.</td>
</tr>
</tbody>
</table>

#### Note 1: Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.

#### Note 2: If the intercepted aircraft is not able to keep pace with the intercepting aircraft, the latter is expected to fly a series of race-track patterns and to rock the aircraft each time it passes the intercepted aircraft.

#### D4.5.2.2 Signals initiated by intercepted aircraft and responses by intercepting aircraft:

<table>
<thead>
<tr>
<th>Series</th>
<th>INTERCEPTED aircraft signals</th>
<th>Meaning</th>
<th>INTERCEPTING aircraft responds</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>DAY or NIGHT — Raising landing gear (if fitted) and flashing landing lights while passing over runway in use or helicopter landing area at a height exceeding 300 m (1000 ft) but not exceeding 600 m (2000 ft) (in the case of a helicopter, at a height exceeding 50 m (170 ft) but not exceeding 100 m (330 ft)) above the aerodrome level, and continuing to circle runway in use or helicopter landing area. If unable to flash landing lights, flash any other lights available.</td>
<td>Aerodrome you have designated is inadequate.</td>
<td>DAY or NIGHT — If it is desired that the intercepted aircraft follow the intercepting aircraft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft.</td>
<td>Understood, follow me.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.</td>
<td>Understood, you may proceed.</td>
</tr>
<tr>
<td>5</td>
<td>DAY or NIGHT — Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.</td>
<td>Cannot comply.</td>
<td>DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.</td>
<td>Understood.</td>
</tr>
<tr>
<td>6</td>
<td>DAY or NIGHT — Irregular flashing of all available lights.</td>
<td>In distress.</td>
<td>DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.</td>
<td>Understood.</td>
</tr>
</tbody>
</table>
D4.6 AIR-GROUND COMMUNICATIONS:

D4.6.1 USE OF THE EMERGENCY CHANNEL:

D4.6.1.1 The emergency channel (121.5 MHz) shall be used only for genuine emergency purposes, as broadly outlined in the following:

a) to provide a clear channel between aircraft in distress or emergency and a ground station when the normal channels are being utilized for other aircraft;

b) to provide a VHF communication channel between aircraft and aerodromes, not normally used by international air services, in case of an emergency condition arising;

c) to provide a common VHF channel for communication between civil aircraft and intercepting aircraft or intercept control units and between civil or intercepting aircraft and air traffic services units in the event of interception of the civil aircraft;

d) to provide air-ground communication with aircraft when airborne equipment failure prevents the use of the regular channels;

Note: The use of the frequency 121.5 MHz for the purpose outlined in c) is to be avoided if it interferes in any way with the efficient handling of distress traffic.

D4.6.1.2 The frequency of 121.5 MHz shall be available to intercept control units where considered necessary for the purpose specified in D4.6.1.1 c).

D4.6.1.3 Aircraft on long over-water flights, or on flights over designated areas over which the carriage of survival radio equipment or emergency locator transmitter (ELT) is required, shall continuously guard the VHF emergency frequency 121.5 MHz, except for those periods when aircraft are carrying out communications on other VHF channels or when airborne equipment limitations or cockpit duties do not permit simultaneous guarding of two channels.

D4.6.13.1 Aircraft shall continuously guard the VHF emergency frequency 121.5 MHz while entering the territorial limits of Pakistan, crossing ADIZs, near prohibited/restricted/danger areas, near common borders and over routes, where the possibility of interception of aircraft or other hazardous situations exist.

D4.6.132 Aircraft on flights other than those specified in D4.6.1.3 and D4.6.1.3.1 should guard the emergency frequency 121.5 MHz to the extent possible.

D4.6.2 COMMUNICATION EQUIPMENT FOR INTERNATIONAL COMMERCIAL AEROPLANES:

D4.6.2.1 An aircraft/helicopter shall be provided with radio-communication equipment capable of:

a) conducting two-way communication for aerodrome control purposes;

b) receiving meteorological information at any time during flight;

c) conducting two-way communication at any time during flight with at least one aeronautical station and with such other aeronautical stations and on such frequencies as prescribed in the AIP Pakistan by the appropriate authority.

Note:- The requirements of D4.6.2.1 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

D4.6.2.1.1 The radio-communication equipment required in accordance with D4.6.2.1 shall provide for communications on the aeronautical emergency frequency 121.5 MHz.
D4.6.3 COMMUNICATION EQUIPMENT FOR INTERNATIONAL GENERAL AVIATION AIRCRAFT:

D4.6.3.1 An aeroplane/helicopter to be operated in accordance with the instrument flight rules or at night shall be provided with radio-communication equipment. Such equipment shall be capable of conducting two-way communication with those aeronautical stations and on those frequencies as prescribed in AIP Pakistan by the appropriate authority.

*Note:* The requirements of D4.6.3.1 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

D4.6.3.2 When compliance with D4.6.3.1 requires that more than one communication equipment unit be provided, each shall be independent of the other or others to the extent that a failure in any one will not result in failure of any other.

D4.6.3.3 An aircraft/helicopter to be operated in accordance with the visual flight rules, but as a controlled flight, shall, unless exempted by the appropriate authority, be provided with radio-communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as prescribed in AIP Pakistan by the appropriate authority.

D4.6.3.4 An aircraft/helicopter to be operated on an extended flight on long over water, or over land designated areas; to which the provisions of operations of aircraft apply, unless exempted by the appropriate authority, be provided with radio-communication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as prescribed in AIP Pakistan by the appropriate authority.

D4.6.3.5 The radio-communication equipment required in accordance with D4.6.3.1 to D4.6.3.4 shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

D4.6.4 COMMUNICATION EQUIPMENT FOR INTERCEPT CONTROL UNITS AND INTERCEPTING AIRCRAFT:

D4.6.4.1 Intercept control units and intercepting aircraft shall be provided with radiotelephony equipment compatible with the technical specifications prescribed by the Authority which could enable them to communicate with intercepted aircraft on the emergency frequency 121.5 MHz.

D4.6.5 COMMUNICATION EQUIPMENT FOR ATS AND OTHER GROUND UNITS:

D4.6.5.1 The frequency of 121.5 MHz shall be provided at:

a) all area control centres and flight information centres; and

b) aerodrome control towers and approach control offices serving international aerodromes and international alternate aerodromes; and

c) any additional location designated by the appropriate ATS authority,

where the provision of that frequency is considered necessary to ensure immediate reception of distress calls or to serve the purposes specified in D4.6.1.

*Note:* Where two or more of the above facilities are collocated, provision of 121.5 MHz at one would meet the requirement.

D4.6.5.2 The frequency of 121.5 MHz should be provided at any additional locations where such provision is considered necessary to ensure immediate reception of distress calls or to serve the purposes specified in D4.6.1.
D4.52.1 All military intercept control units should be equipped with the frequency of 121.5 MHz.

D4.6.3 The emergency channel shall be guarded continuously during the hours of service of the units at which it is installed.

D4.6.4 The emergency channel shall be guarded on a single channel simplex operation basis.

D4.7 ACTION BY INTERCEPT CONTROL UNITS:

D4.7.1 RADIO-COMMUNICATION BETWEEN THE INTERCEPT CONTROL UNIT OR THE INTERCEPTING AIRCRAFT AND THE INTERCEPTED AIRCRAFT:

D4.7.1.1 When an interception is being made, the intercept control unit and the intercepting aircraft should:

a) first attempt to establish two-way communication with the intercepted aircraft in a common language on the emergency frequency 121.5 MHz, using the call signs “INTERCEPT CONTROL”, INTERCEPTOR (call sign) and “INTERCEPTED AIRCRAFT” respectively; and

b) failing this, attempt to establish two-way communication with the intercepted aircraft on such other frequency or frequencies as may have been prescribed by the appropriate ATS authority, or to establish contact through the appropriate ATS unit(s).

D4.7.1.2 If radio contact is established during interception but communication in a common language is not possible, attempts must be made to convey instructions, acknowledgement of instructions and essential information by using the phrases and pronunciations prescribed in Table -1 and transmitting each phrase twice.

D4.7.2 CO-ORDINATION BETWEEN INTERCEPT CONTROL UNITS AND AIR TRAFFIC SERVICES UNITS:

D4.7.2.1 It is essential that close coordination be maintained between an intercept control unit and the appropriate air traffic services unit during all phases of an interception of an aircraft which is, or might be, a civil aircraft, in order that the air traffic services unit is kept fully informed of the developments and of the action required of the intercepted aircraft.

D4.8 ACTION BY ATS UNITS IN THE EVENT OF INTERCEPTION:

D4.8.1 As soon as an air traffic services unit learns that an aircraft is being intercepted in its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

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

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

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

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

e) in close co-ordination with the intercept control unit take all necessary steps to ensure the safety of the intercepted aircraft; and
f) inform ATS units serving adjacent flight information regions if it appears that the aircraft has strayed from such adjacent flight information regions.

D4.8.2 As soon as an air traffic services unit learns that an aircraft is being intercepted outside its area of responsibility, it shall take such of the following steps as are appropriate in the circumstances:

a) inform the ATS unit serving the airspace in which the interception is taking place, providing this unit with available information that will assist in identifying the aircraft and requesting it to take action in accordance with D4.8.1; and

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

D4.8.3 As soon as an air traffic services unit learns that an intercepted aircraft is required by the authorities concerned to make a landing in the territory overflown, it shall take such of the following steps as are appropriate in the circumstances:

a) inform the pilot of the intercepted aircraft of the requirement to make a landing at the designated aerodrome;

b) provide the intercepted aircraft with all necessary information regarding flight to and landing at the designated aerodrome, including established instrument approach procedures; and

c) issue, following co-ordination with the authorities concerned, any air traffic control clearance or routing instructions necessary for the aircraft to proceed to the designated aerodrome.

D4.9 AVAILABILITY OF INFORMATION:

D4.9.1 PROMULGATION OF INFORMATION IN AERONAUTICAL INFORMATION PUBLICATIONS (AIP):

D4.9.1.1 A complete statement of procedures and visual signals to be used in the event of interception shall be included in the ENR part of AIP Pakistan.

D4.9.1.2 Any differences from the ICAO provisions, and/or any additional procedures or signals to be used shall be clearly indicated in AIP Pakistan.

D4.9.1.3 Complete information regarding designated selected aerodromes for use in the event that intercepted aircraft are required to land shall be included in the AIP Pakistan and specifically mentioned in the section dealing with interception.

D4.10 CARRIAGE OF INFORMATION ON BOARD AIRCRAFT:

D4.10.1 An operations manual, for commercial air transport operations, which may be issued in separate parts corresponding to specific aspects of operations, shall contain at least:

a) procedures, as prescribed in D4.4 above for pilots-in-command of intercepted aircraft; and

b) visual signals for use by intercepting and intercepted aircraft, as contained in D4.5 above.

D4.10.2 Aircraft, on all flights in general aviation operations, shall carry the information identified in D4.10.1 a) and b) above.

D4.10.3 Examples of flash cards, which may be used by pilots, are shown at Appendix B.
D4.10.4 For flights conducted in the vicinity of areas where there is a risk of interception, available illustrations of the markings of interceptor aircraft used by the military aircraft should be carried on board the civil aircraft. Markings of military aircraft are shown in Figure 3.

![Figure 3](image)

D4.10.5 For flights conducted in the vicinity of restricted or prohibited areas or other areas where unplanned incursion may result in an interception, and/or a requirement to land in the territory overflown, appropriate aerodrome information and approach charts for aerodromes likely to be used should be carried on board the aircraft.

D4.10.6 Interceptor pilots should be provided with illustrations of nationality and registration markings, which appear on aircraft belonging to operators conducting regular flights in, or in the immediate vicinity of, the territory of Pakistan. Operators should provide information on the various markings and insignias on State aircraft used for interception for use by civil flight crews.

D5. DESIGNATED AREAS:

D5.1 GENERAL:

D5.1.1 Areas prohibited to civil flights and areas in which civil flight is not permitted without special authorization shall be clearly promulgated in ENR part of aeronautical information publication (AIP) in accordance with the applicable provisions, together with the risk, if any, of interception in the event of penetration of such areas. When delineating such areas in close proximity to promulgated ATS routes, or other frequently used tracks, the availability and over-all systems accuracy of the navigation systems to be used by civil aircraft and their ability to remain clear of the delineated areas should take into account; and

D5.1.2 The establishment of additional navigation aids should also be considered where necessary and possible to ensure that, civil aircraft are able safely to circumnavigate prohibited, restricted or danger areas as required.

D5.2 PROHIBITED, RESTRICTED AND DANGER AREAS:

D5.2.1 No aircraft shall operate in/over the prohibited areas unless specifically authorized by the authorities concerned and Air Traffic Services.

D5.2.2 All aircraft shall comply with the restrictions and conditions specified in AIP Pakistan while operating through restricted and danger areas.
D5.2.3 The location, designation, activities and restrictions of designated prohibited, restricted and danger areas are published in AIP Pakistan.

D5.3 AIR DEFENCE IDENTIFICATION ZONES:

D5.3.1 Air Defence Identification Zones (ADIZs) as indicated hereunder have been established.

D5.3.1.1 ADIZ SOUTH:

D5.3.1.1.1 An area bounded from point 2545N 6140E then along FIR boundary to 250442N 613248E then 2440N 6120E then straight line to south 2330N 6120E then straight line to East 2330N 6805E then along FIR boundary to 2340N 6810E then a straight line to North joining 2421N 6810E then 2418N 6755E then 2458N 6738E then 2600N 6651E then 255730N 6358E then 2454N 6222E then straight line joining to 2454N 6140E.

D5.3.1.2 ADIZ EAST:

D5.3.1.2.1 Area bounded from a point 2340N 6810E along Pakistan border to 3318N 7408E then straight line joining to 3318N 7313E then 3225N 7353E then 3120N 7351E then 2822N 711930E then 2838N 7007E then 2713N 6856E then 2629N 6855E then 2610N 6931E then 2538N 6931E then 2453N 7019E then 2445N 6810E then 2421N 6810E then joining to 2340N 6810E.

D5.3.1.3 ADIZ NORTH:

D5.3.1.3.1 Area bounded from a point 3318N 7408E along Pakistan border to 3400N 6955E then straight line joining to 3348N 7137E then 3510N 7220E then 3555N 7208E then 3624N 7456E then 3508N 7554E then 3518N 7420E then 3458N 7308E then 3409N 731030E then straight line joining to 3318N 7313E.

D5.3.1.4 ADIZ WEST:

D5.3.1.4.1 Area bounded from a point 3400N 6955E then along Pakistan border to 2545N 6140E then straight line joining 2545N 6222E then 2551N 6222E then 2616N 6340E then 2715N 6358E then 275230N 6324E then 2835N 6322E then 2852N 6241E then 2852N 6431E then 292230N 6632E then 2943N 6657E then 3034N 6657E then 3111N 6925E then straight line joining to 3348N 7137E.

D5.3.2 REQUIREMENT FOR AIR DEFENCE CLEARANCE (ADC):

D5.3.2.1 No Pakistani or foreign, Civil/Military flight originating from within ADIZs defined under Para D5.3.2 above and those penetrating into these ADIZs are permitted without prior Air Defence Clearance. Aircraft operating without Air Defence Clearance or failing to comply with any restriction or deviating from flight plan will be liable to identification and interception procedures promulgated in part 2, ENR 1.12 of AIP Pakistan.

D5.3.3 PROCEDURES FOR ISSUE OF AIR DEFENCE CLEARANCE (ADC):

D5.3.3.1 Except local flights conducted within an aerodrome traffic zone of an aerodrome within an ADIZ, aircraft when operating to, through or within ADIZs shall obtain an ADC before take off through the ATS unit concerned.

D5.3.3.2 ADC shall be valid for the entire route irrespective of intermediate halts for flights originating in one ADIZ/ FIR and transiting through other ADIZ/ FIR.

D5.3.3.3 All flights shall obtain ADC from respective ACC at least 15 minutes prior to entering Pakistan airspace/ ADIZ.

D5.3.3.4 ADC shall be obtained before departure for a flight operating/ passing through ADIZ and in the event of departure being delayed for more than one hour at the intermediate halts or aerodrome of
origin, a fresh ADC shall be obtained. In case of communication difficulty or delay in receipt of ADC or non existence of communication at the place of departure the aircraft equipped with radio may be allowed to take off with instructions to obtain ADC immediately after airborne from the ACC concerned.

D5.3.3.5 Scheduled aircraft or flying club aircraft returning to the aerodrome of departure on the same day may be issued with ADC for the return flight on request, provided that a fresh ADC shall be obtained in the event of delay for more than thirty minutes in excess of the estimated departure time of the return flight.

D5.3.3.6 Arriving aircraft must report estimate for the established ADIZ entry point. Aircraft must arrive within 5 Minutes of estimates passed, unless these are duly revised and notified.

D5.4 DESIGNATED AERODROMES:

D5.4.1 JIAP Karachi and AllAP Lahore are designated International Aerodromes for landing of International flights in case of interception unless exceptional circumstances dictate landing at any other suitable aerodrome.

D6. ATS STANDARDS MANUAL:

D6.1 The Director General may, in order to ensure uniform application of standards and recommended practices contained in this ANO, prescribe and issue complimentary procedures, specifications and requirements, through Directives or in the form of ATS Standards Manual as deemed appropriate.

D6.2 ATS Authorities/Providers/Units shall ensure compliance with such Standards and Directives.

D6.3 Aircraft operators should ensure that the flight crew are familiar with the ATS procedures being employed by the Air Traffic Services.

E. EVIDENCES (ACRONYMS / RECORDS / REFERENCES):

E1. ACRONYMS:

ACC : AREA CONTROL CENTRE
ADC : AIR DEFENCE CLEARANCE
ADIZ : AIR DEFENCE IDENTIFICATION ZONE
ADS-B : AUTOMATIC DEPENDENT SURVEILLANCE - BROADCAST
ADS-C : AUTOMATIC DEPENDENT SURVEILLANCE - CONTRACT
AIP : AERONAUTICAL INFORMATION PUBLICATION
ANO : AIR NAVIGATION ORDER
ANS : AIR NAVIGATION SERVICES
ATS : AIR TRAFFIC SERVICES
ENR : ENROUTE
EST : ESTIMATE/ESTIMATE MESSAGE
ICAO : INTERNATIONAL CIVIL AVIATION ORGANIZATION
IFR : INSTRUMENT FLIGHT RULES
MHZ : MEGA Hertz
PCAA : PAKISTAN CIVIL AVIATION AUTHORITY
SELCAL : SELECTIVE CALLING SYSTEM
SSR : SECONDARY SURVEILLANCE RADAR
VFR : VISUAL FLIGHT RULES
VHF : VERY HIGH FREQUENCY

E2. RECORDS:
E2.1 NIL

E3. REFERENCES:
E3.1 Civil Aviation Ordinance, 1960.
E3.2 Civil Aviation Authority Ordinance, 1982.
E3.3 Civil Aviation Rules 1994.
E3.4 Annex-2
E3.5 Annex-4
E3.6 Annex-6
E3.7 Annex-7
E3.8 Annex-10
E3.9 Annex-11
E3.10 Annex-15
E3.11 Doc 4444
E3.12 Doc 7300
E3.13 Doc 8168 Vol. I
E3.14 Doc 9433
E3.15 AIP Pakistan

IMPLEMENTATION:
This ANO shall be applicable with effect from 4th December, 2009.

Dated: 04th December, 2009

(M. JUNAID AMEEN)
Air Commodore (Retd)
Director General
Pakistan Civil Aviation Authority

(SYED YOUSUF ABBAS)
Director Air Navigation & Aerodrome Regulations
Dated: 04th December, 2009
File No. HQCAA/6426/1/2/ANX-2A/ANS
1. INTRODUCTION

1.1 Effective date

1.1.1 This Letter of Agreement shall become effective on ________________.

1.2 Objective

1.2.1 The objective of this Letter of Agreement is to establish co-ordination procedures for the exchange of information between (ATS unit) and (military unit), relating to flights by civil aircraft operating on ATS routes in the area specified at Annex 1. The object of this Letter of Agreement is to achieve identification of aircraft which have deviated from their assigned flight plan, thus eliminating or reducing the need to have recourse to interception and, consequently, the inherent risks that this might entail.

1.3 Scope

1.3.1 The procedures contained in this Letter of Agreement supplement or refine the provisions prescribed in ANO-004-DRAN-1.0 with respect to interception of civil aircraft and shall be applicable to the flights specified in the previous paragraph.

2. CO-ORDINATION PROCEDURES

2.1 Exchange of information

2.1.1 From (military unit) to (ATS unit)

2.1.1.1 (The military unit) shall notify (the ATS unit) if an unidentified aircraft is observed to approach or to have penetrated the area(s) contained in Annex 1 to this Letter of Agreement.

2.1.2 From (ATS unit) to (military unit)

2.1.2.1 The information to be supplied by (the ATS unit) to (the military unit) with respect to flights on the ATS route(s) associated with the area(s) specified in Annex 1 to this Letter of Agreement shall include:

   a) identity of the aircraft;
   b) assigned SSR code (if applicable);
   c) flight level; and
   d) estimated time of passing a mutually agreed upon point.

2.1.2.2 Should (the ATS unit) become aware of a strayed aircraft:

   a) if the aircraft’s position is not known, it shall notify (the military unit), providing pertinent flight plan and other data concerning the strayed aircraft; and
   b) when the aircraft’s position is established, it shall provide (the military unit), as necessary, with relevant information concerning the strayed aircraft and any advice/instructions given to it.

2.1.2.3 Should (the ATS unit) become aware of unidentified aircraft in, or in the vicinity of the critical area(s) specified in Annex 1 to this Letter of Agreement, it shall notify (the military unit), as well as when the identity of the aircraft has been established.
2.1.2.4 Should (the ATS unit) become aware that an aircraft is being intercepted:
   
a) within its area of responsibility:
   
1) it shall establish contact with (the intercept control unit) maintaining two-way communication with the intercepted aircraft and shall provide all available information concerning the aircraft; and

2) it shall retransmit, as necessary, messages between the intercepting aircraft or (the intercept control unit) and the intercepted aircraft; and

b) outside its area of responsibility, it shall inform, as necessary, (the military unit), providing it with all available information concerning the aircraft and the co-ordination measures carried out.

3. COMMUNICATION FACILITIES

3.1 Communications between (ATS unit) and (military unit)

3.1.1 To allow effective compliance with co-ordination procedures, the units involved shall use or shall install the communications facilities detailed in Annex-2 to this Letter of Agreement. These facilities shall permit the establishment, within 15 seconds, of communications by direct speech arranged for conference communications, with automatic recording.

3.2 Emergency channel (121.5 MHz)

3.2.1 For communications between civil and/or intercepting aircraft and (the ATS unit) and (intercept control unit) the 121.5 MHz frequency shall be used.

4. REVISIONS

4.1 This Letter of Agreement shall be revised when the procedures contained herein or in its appendices are affected by amendments to ICAO Standards, supplementary procedures and regional plans, and subsequent revision to this ANO or when new facilities are commissioned by the units involved. In the case of new facilities and/or the modification of existing facilities, it is the responsibility of the unit originating these to initiate the action; in all other cases, the unit concerned shall propose the pertinent amendment.

4.2 If the amendment affects only the information given in the appendices, the new revised appendices shall be incorporated into this Letter of Agreement to be effective on a mutually agreed date.

5. TRANSITION PROVISIONS

From the effective date shown in 1.1 above, the co-ordination procedures relating to exchange of information described in this Letter of Agreement supersede any other procedure applied by common agreement between (the ATS unit) and (the military unit).

MODEL OPERATIONAL LETTER OF AGREEMENT
CONCLUDED BETWEEN (ATS UNIT) AND (MILITARY UNIT)

Annex-1
1. Specific airspace or areas covered are:
2. ATS routes covered are:

Annex-2
1. Required communication facilities:
**Examples of Flash Cards for Use by Pilots in the Event of Interception**

<table>
<thead>
<tr>
<th>INTERCEPTION PROCEDURES</th>
<th>Phrase</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Follow the instructions given by the intercepting aircraft and respond to visual signals given.</td>
<td>WILCO</td>
<td>VILL-KO</td>
<td>Understood Will comply</td>
</tr>
<tr>
<td>2. Notify the appropriate air traffic services unit.</td>
<td>CAN NOT</td>
<td>KANN NOT</td>
<td>Unable to comply</td>
</tr>
<tr>
<td>3. Attempt to establish radio-communication with the intercepting aircraft or with the appropriate intercept control unit on frequency 121.5 MHz. If no contact is established, repeat this call on frequency 243 MHz.</td>
<td>REPEAT</td>
<td>REE-PEET</td>
<td>Repeat your instruction</td>
</tr>
<tr>
<td>4. If equipped with SSR transponder, select Mode A, Code 7700.</td>
<td>AM LOST</td>
<td>AM LOSST</td>
<td>Position unknown</td>
</tr>
<tr>
<td>5. If radio contact with the intercepting aircraft is established but communication in a common language is not possible, attempt to convey essential information and acknowledge instructions by using the following phrases and pronunciations:</td>
<td>MAYDAY</td>
<td>MAYDAY</td>
<td>I am in distress</td>
</tr>
<tr>
<td>6. If any instructions received by radio from any sources conflict with those given by the intercepting aircraft by visual signals or by radio, request immediate clarification while continuing to comply with the visual or radio instructions given by the intercepting aircraft.</td>
<td>HIJACK</td>
<td>HI-JACK</td>
<td>I have been hijacked</td>
</tr>
<tr>
<td></td>
<td>LAND</td>
<td>LAAND</td>
<td>I request to land at (place name) (place name)</td>
</tr>
<tr>
<td></td>
<td>DESCEND</td>
<td>DEE SEND</td>
<td>I require descent</td>
</tr>
</tbody>
</table>

**APPENDIX “B”**
## INTERCEPTION VISUAL SIGNALS

<table>
<thead>
<tr>
<th>No.</th>
<th>INTERCEPTING aircraft signals</th>
<th>Meaning</th>
<th>INTERCEPTED aircraft responds</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>DAY — Rocking wings from a position in front and normally to the</td>
<td>You have been intercepted. Follow me.</td>
<td>DAY — Rocking wings and following.</td>
<td>Understood, will comply.</td>
</tr>
<tr>
<td></td>
<td>left of intercepted aircraft and, after acknowledgement, a slow</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>level turn, normally to the left, on to the desired heading.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIGHT — Same and, in addition, flashing navigational lights at</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>irregular intervals.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>2</td>
<td>DAY or NIGHT — An abrupt breakaway consisting of a climbing</td>
<td>You may proceed.</td>
<td>DAY or NIGHT — Rocking wings.</td>
<td>Understood, will comply.</td>
</tr>
<tr>
<td></td>
<td>turn of 90 degrees or more.</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td>DAY — Circling aerodrome, lowering landing gear and overflying</td>
<td>Land at this aerodrome.</td>
<td>DAY — Lowering landing gear, following the intercepting</td>
<td>Understood, will comply.</td>
</tr>
<tr>
<td></td>
<td>runway in direction of landing.</td>
<td></td>
<td>aircraft and, if after overflying the runway landing is</td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>considered safe, proceeding to land.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIGHT — Same and, in addition, showing steady landing lights.</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>No.</th>
<th>INTERCEPTED aircraft signals</th>
<th>Meaning</th>
<th>INTERCEPTING aircraft responds</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>4</td>
<td>DAY — Raising landing gear while passing over landing runway at a</td>
<td>Aerodrome you have designated is inadequate.</td>
<td>DAY or NIGHT — If it is desired that the intercepted aircraft</td>
<td>Understood, follow me.</td>
</tr>
<tr>
<td></td>
<td>height exceeding 300 m (1 000 ft) but not exceeding 600 m (2 000</td>
<td></td>
<td>follow to an alternate aerodrome, raise landing gear and use</td>
<td></td>
</tr>
<tr>
<td></td>
<td>ft) above the aerodrome level and continuing to circle the aerodrome.</td>
<td></td>
<td>No. 1 signals prescribed for intercepting aircraft.</td>
<td></td>
</tr>
<tr>
<td></td>
<td>NIGHT — Flashing landing lights while passing over landing runway</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>and continuing to circle the aerodrome. If unable to flash landing</td>
<td></td>
<td>If it is decided to release the aircraft, use No. 2 signals</td>
<td>Understood, you may proceed.</td>
</tr>
<tr>
<td></td>
<td>lights, flash any other lights available.</td>
<td></td>
<td>prescribed for intercepting aircraft.</td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>DAY OR NIGHT — Regular switching on and off of all available</td>
<td>Cannot comply.</td>
<td>DAY or NIGHT — Use No. 2 signals prescribed for intercepting</td>
<td>Understood.</td>
</tr>
<tr>
<td></td>
<td>lights but in such a manner as to be distinct from flashing lights.</td>
<td></td>
<td>aircraft.</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>DAY or NIGHT — Irregular flashing of all available lights.</td>
<td>In distress.</td>
<td>DAY or NIGHT — Use No. 2 signals prescribed for intercepting</td>
<td>Understood.</td>
</tr>
</tbody>
</table>
**IN CASE OF INTERCEPTION BY AIRCRAFT**

1. **RESPOND TO VISUAL SIGNALS AND INSTRUCTIONS FROM INTERCEPTING AIRCRAFT.**
2. **NOTIFY AIR TRAFFIC SERVICES.**
3. **ATTEMPT TO CONTACT INTERCEPTOR ON 121.5 or 243 MHz.**
4. **SSR TRANSPONDER TO MODE A CODE 7700.**
5. **IF INSTRUCTIONS BY RADIO FROM OTHER SOURCES CONFLICT WITH THOSE OF THE INTERCEPTING AIRCRAFT, COMPLY WITH THE AIRCRAFT AND REQUEST CLARIFICATION.**
6. **IF THERE ARE LANGUAGE PROBLEMS IN COMMUNICATING BY RADIO, USE THE PHRASES BELOW:**

<table>
<thead>
<tr>
<th>Phrase</th>
<th>Pronunciation</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>CALL SIGN</td>
<td>KOL SA-IN</td>
<td>My call sign is (call sign)</td>
</tr>
<tr>
<td>WILCO</td>
<td>VILL-KO</td>
<td>Understood/Will comply</td>
</tr>
<tr>
<td>CAN NOT</td>
<td>KANN NOT</td>
<td>Unable to comply</td>
</tr>
<tr>
<td>REPEAT</td>
<td>REE-PEET</td>
<td>Repeat your instructions</td>
</tr>
<tr>
<td>AM LOST</td>
<td>AM LOSST</td>
<td>Position unknown</td>
</tr>
<tr>
<td>MAYDAY</td>
<td>MAYDAY</td>
<td>I am in distress</td>
</tr>
<tr>
<td>HIJACK</td>
<td>HI-JACK</td>
<td>I have been hijacked</td>
</tr>
<tr>
<td>LAND (place name)</td>
<td>LAAND</td>
<td>I request to land at (place name)</td>
</tr>
<tr>
<td>DESCEND</td>
<td>DEE-SEND</td>
<td>I require descent</td>
</tr>
</tbody>
</table>

SEE OPPOSITE SIDE FOR EXPLANATION OF VISUAL SIGNALS
<table>
<thead>
<tr>
<th>FROM intercepting aircraft</th>
<th>Meaning</th>
<th>YOUR response</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>ROCKS WINGS and starts LEVEL TURN.</td>
<td>You have been intercepted. Follow me.</td>
<td>ROCK WINGS and FOLLOW.</td>
<td>Understood. Will comply.</td>
</tr>
<tr>
<td>NIGHT — Same, but flashes navigation light at irregular intervals.</td>
<td>NIGHT — Same and flash YOUR navigational lights in similar response.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BREAKS AWAY to CLIMBING TURN.</td>
<td>You may proceed.</td>
<td>ROCK WINGS.</td>
<td>Understood. Will comply.</td>
</tr>
<tr>
<td>CIRCLES aerodrome, LOWERS LANDING GEAR and OVERFLYS runway.</td>
<td>Land at this aerodrome.</td>
<td>FOLLOW interceptor, LOWER landing gear, INSPECT runway on over-flight and LAND if runway appears safe.</td>
<td>Understood. Will comply.</td>
</tr>
<tr>
<td>NIGHT — Same, but shows steady landing lights.</td>
<td>NIGHT — Same, also showing steady landing lights.</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>FROM intercepted aircraft</th>
<th>Meaning</th>
<th>THEIR response</th>
<th>Meaning</th>
</tr>
</thead>
<tbody>
<tr>
<td>RAISE landing gear during runway over-flight at height between 300 m (1 000 ft) and 500m (2 000 ft) and CIRCLE the aerodrome.</td>
<td>Aerodrome you have designated is inadequate.</td>
<td>RAISES gear, repeats INTERCEPT and FOLLOW ME signals OR BREAKS AWAY to a climbing turn.</td>
<td>Understood. Follow me.</td>
</tr>
<tr>
<td>NIGHT — Same, but with flashing landing or other available lights.</td>
<td></td>
<td>You are released.</td>
<td></td>
</tr>
<tr>
<td>DAY or NIGHT — Regular SWITCHING ON and OFF of all available lights. (Use different sequence than that of normal flashing lights.)</td>
<td>Cannot comply.</td>
<td>ROCKS wings.</td>
<td>Understood.</td>
</tr>
<tr>
<td>DAY or NIGHT — FLASH all available lights in an irregular sequence</td>
<td>In distress.</td>
<td>ROCKS wings.</td>
<td>Understood.</td>
</tr>
</tbody>
</table>