



สำนักงานการบินพลเรือนแห่งประเทศไทย
The Civil Aviation Authority of Thailand

GUIDANCE MATERIAL FOR Interception of Civil Aircraft

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Approval by

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Sarun Benjanirat

Deputy Director General acting Director General

The Civil Aviation Authority of Thailand

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0. INTRODUCTION

0.1 Terminology

The word “interception” when used in this manual does not include intercept and escort service provide, on request, to an aircraft in distress.

The terms “strayed aircraft” and “unidentified aircraft” when used in this manual have the following meanings:

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

Unidentified aircraft. An aircraft which has been observed or report 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

0.2 Circumstances in which interception may occur

Pilots-in-command of civil aircraft should be aware that interception may take place in the event that military, customs or police authorities of a State:

- (a) are unable to secure positive identification of an aircraft observed in or entering the sovereign airspace of the State by means other than visual inspection, i.e. by co-ordination with air traffic services units and/or by secondary surveillance radar;
- (b) observe that an aircraft without proper authorization is about to enter or has entered an area in its territory in which civil flights are restricted or prohibited;
- (c) observe that an aircraft within its airspace 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 State.

0.3 Purpose

To achieve the uniformity in regulation which is necessary for safety of navigation of civil aircraft. The following principles shall be followed;

- (a) The interception of civil aircraft shall be undertaken as a last resort. If undertaken, an interception will be limited to determining the identity of the aircraft, unless it is necessary to return the aircraft to its planned track, direct it beyond the boundaries of national airspace, guide it away from a prohibited, restricted or danger area or instruct it to effect a landing at a designated aerodrome;
- (b) Practice interception of civil aircraft will not be undertaken.
- (c) Navigational guidance and related information will be given to an intercepted aircraft by radiotelephony, whenever radio contact can be established.
- (d) In the case where an intercepted civil aircraft is required to land in the territory overflowed, the aerodrome designated for the landing is to be suitable for the safe landing of the aircraft type concerned.

0.4 Applicability

This guidance material shall be applicable only to the civil aircraft and shall not be applicable to State aircraft.

Note: Aircraft used in military, custom and police services shall be deemed to be State aircraft

0.5 Effective Date

31 December 2020

0.6 Reference (Refer Regulation)

- ICAO Article 3 bis (C) of the Convention on international civil aviation
- Air Navigation Act. 2497 section 18/3
- Regulation of the civil aviation board No.94, Interception section 76 section 77
- ICAO Doc 9433 manual concerning interception of civil aircraft

1. IDENTIFICATION OF CIVIL AIRCRAFT

1.1 General

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 guidance material. 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.

The actions required include:

- Submission and forward transmission of flight plans;
- Transmission of related ATS messages;
- Transmission of position reports from aircraft and notification of significant deviations from planned flight track;
- Provision of facilities for rapid and reliable communications between ATS units and between such units and intercept control units; and
- Exchanges of information regarding civil flights either on a routine basis or on request.

1.2 Submission of flight plans

1.2.1 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, when so required by the appropriate ATS authority 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, when so required by the appropriate ATS authority 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.

- 1.2.2 The term “flight plan” is used in this context to mean variously, 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.
- 1.2.3 The requirement in 1.2.1 d) above may originate in a decision by military authorities but will be promulgated by the appropriate ATS authority.
- 1.2.4 To give effect to the provision in 1.2.1 d), air traffic services authorities shall designate any areas or routes where The requirements of the Civil Aviation Authority of Thailand No. 94 (RCAB 94) 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.
- 1.2.5 For all aircraft to make a flight in The Kingdom of Thailand, a flight plan shall be made and submitted to the air traffic service unit.

1.3 Air-ground communications and position reporting

- 1.3.1 An aircraft operated as a controlled flight shall maintain continuous listening watch on the appropriate radio frequency 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.
- 1.3.2 Although a selective calling system (SELCAL) or similar automatic signaling 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.
- 1.3.3 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.

- 1.3.4 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 and a requirement has been established by the appropriate authority. Aircraft on flights other than those specified in 1.3.3 and 1.3.4 should guard the emergency frequency 121.5 MHz to the extent possible.
- 1.3.5 Unless exempted by the appropriate ATS authority or by the appropriate air traffic services unit under conditions specified by that authority, 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 ATS authority or specified by the appropriate air traffic services unit.
- 1.3.6 Visual flight rules (VFR) flights shall comply with the provisions of 1.3.1 and 1.3.5 when operated in controlled airspace (instrument/visual).
- 1.3.7 A VFR flight operating outside controlled airspace (instrument/visual) but within or into areas, or along routes, designated by the appropriate ATS authority in accordance with 1.2.1 c) or d) shall maintain continuous listening watch on the appropriate radio frequency and report its position as necessary to the air traffic services unit providing flight information service.
- 1.3.8 An instrument flight rules (IFR) flight operating outside controlled airspace but within or into areas, or along routes, designated by the appropriate ATS authority in accordance with 1.2.1 c) or d), 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.
- 1.3.9 An IFR flight operating outside controlled airspace and required by the appropriate ATS authority to submit a flight plan, maintain a listening watch on the appropriate radio frequency and establish two-way communication with the ATS unit providing flight information service, shall report position as specified in 1.3.5 for controlled flights.

1.3.10 Aircraft electing to use the air traffic advisory service whilst operating IFR within specified advisory airspace are expected to comply with the provisions of 1.3.1 and 1.3.5, except that the flight plan and changes thereto are not subjected to clearances and that two-way communication will be maintained with the unit providing the air traffic advisory service.

1.4 Co-ordination between ATS units

1.4.1 Where this is deemed necessary by the appropriate ATS authority or authorities, 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.

1.4.2 Where co-ordination of flights is effected in accordance with 1.4.1 above, 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.

1.4.3 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.

1.4.4 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.

1.4.5 ATS units providing air traffic advisory service shall apply the co-ordination procedures specified in 1.4.6 to 1.4.19 with respect to such aircraft having elected to use this type of service.

- 1.4.6 Area control centres shall forward from centre to centre, as the flight progresses necessary flight plan and control information.
- 1.4.7 The information specified in 1.4.6 shall be transmitted in sufficient time to permit reception and analysis of the data by the receiving centre and necessary co-ordination between the two centres concerned.
- 1.4.8 If the departure aerodrome of an aircraft is not a sufficient distance from the boundary of an adjacent control area to permit transmission of the necessary flight plan and control information to the accepting centre after take-off and allow adequate time for reception, analysis and co-ordination, the transferring centre shall, prior to clearing the aircraft, forward the data required by 1.4.6 to the accepting centre together with a request for acceptance in accordance with 1.4.10. In the case of an aircraft in flight requiring an initial clearance at a similar distance from the boundary of an adjacent control area, the aircraft shall be held within the transferring centre's area until flight plan and control information can be forwarded and co-ordination can be effected with the adjacent centre.
- In the case of an aircraft requesting a change in its current flight plan, or of a transferring centre proposing to change the current flight plan of an aircraft in the vicinity of the boundary in circumstances similar to that described, the revised clearance shall be withheld pending acceptance of the proposal by the adjacent centre.
- 1.4.9 When boundary estimate data are to be transmitted in the circumstances mentioned in 1.4.8, the time in respect of an aircraft not yet departed shall be based upon the estimated time of departure as determined by the ATC unit at the departure aerodrome. In respect of an aircraft in flight requiring an initial clearance, the time shall be based on the estimated elapsed time from the holding point to the boundary plus the time expected to be needed for co-ordination.
- 1.4.10 With regard to the information provided by the transferring centre in accordance with 1.4.6 and 1.4.8, the accepting centre shall notify the transferring centre either that it is able to accept the aircraft concerned under the conditions specified or it shall specify to the transferring centre which changes to the flight plan are required

so that the aircraft can be accepted; however, where special arrangements exist between the ATC units concerned, this notification shall only be required if the aircraft cannot be accepted as offered by the transferring centre.

- 1.4.11 The primary responsibility for the control of air traffic remains with the area control centre in whose control area the aircraft is operating until the time the aircraft is estimated to cross the boundary of that control area, even when control of one or more aircraft is exercised under delegation by other air traffic control units. It is emphasized that the accepting centre which is in communication with an aircraft not yet having reached the incoming transfer of control point shall not alter the clearance of such aircraft without the prior approval of the transferring centre.

Note: When so agreed between the area control centres concerned, the transfer of control point may be a point other than the control area boundary.

- 1.4.12 In order to effect the transfer of control of an aircraft, the transferring centre shall, except as provided in 1.4.13, notify the accepting centre that the aircraft is in position to be handed over to it, and that the responsibility for control should be assumed by the accepting centre, either forthwith or, if a specified transfer of control point has been established, at the time when the aircraft passes that point. If the SSR mode and code currently radiated by the aircraft are known, and the accepting centre is able to make use of these data, they should be included in such notification. If transfer of radar control is to be effected, such notification shall also include information regarding the position (and track and speed, if required) of the radar target of the aircraft. Such notification shall also include significant changes in the data transmitted in accordance with 1.4.6 which have not been previously forwarded.

- 1.4.13 Where special arrangements exist between two area control centres which are not equipped with radar and which do not employ automatic data processing equipment, the notification in 1.4.12 need only be made in circumstances where it is appropriate to forward a revision to previously transmitted current flight plan and control data at the time when the aircraft is in a position to be handed over to the accepting centre. Except when transfer of radar control is to be effected,

non-radar separation shall be established by a radar controller before an aircraft under radar control reaches the limits of that controller's area of responsibility, or before the aircraft leaves the area of radar coverage.

- 1.4.14 Where non-radar separation minima are being applied, the transfer of air-ground communications of an aircraft from the transferring to the accepting centre 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 area control centres concerned.
- 1.4.15 In circumstances where radar separation minima 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 centre shall be made immediately after the accepting centre has agreed to assume control unless the provisions of 1.4.13 are applied.
- 1.4.16 A notification from the transferring centre that the aircraft will be cleared or has already been cleared to establish radio communications with the accepting centre is only required in those cases where this has been agreed between the two area control centres concerned.
- 1.4.17 The accepting centre shall notify the transferring centre that radio communication has been established with the aircraft being transferred and control of the aircraft has been assumed, unless otherwise specified by agreement between the area control centres concerned.
- 1.4.18 In cases where a portion of a control area is so situated that the time taken by aircraft to traverse it does not permit the application of control by the centre concerned, agreement should be reached to provide for direct transfer between the centres responsible for the adjacent control areas, provided that the intermediate centre is fully informed of such traffic; it may also require the other centres to comply with any necessary requests to obviate interference with its own traffic.
- 1.4.19 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 area control centre 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, in fact, be provided to the aircraft.

1.5 Transmission of ATS messages

1.5.1 Unless repetitive flight plan procedures are being applied or current flight plan messages are being employed, FPL messages shall be transmitted for all flights for which a flight plan has been submitted with the object of being provided with air traffic control service, flight information service or alerting service along part or the whole of the route of flight.

1.5.2 An FPL message shall be originated and addressed as follows by the air traffic services unit serving the departure aerodrome or, when applicable, by the air traffic services unit receiving a flight plan from an aircraft in flight:

- a) an FPL message shall be sent to the area control centre or flight information centre serving the control area or flight information region within which the departure aerodrome is situated;
- b) unless basic flight plan data are already available as a result of arrangements made for repetitive flight plans, an FPL message shall be sent to all centres in charge of each flight information region or upper flight information region along the route, which are unable to process current data. In addition, an FPL message shall be sent to the aerodrome control tower at the destination aerodrome. If so required, an FPL message shall also be sent to flow management centres responsible for ATS units along the route;
- c) when a potential Reclearance in Flight request (RIF) is indicated in the flight plan, the FPL message shall be sent to the additional centres concerned and to the aerodrome control tower of the revised destination aerodrome;
- d) where it has been agreed to use Current Flight Plan (CPL) messages but where information is required for early planning of traffic flow, an FPL message shall be transmitted to the area control centres concerned;
- e) for a flight along routes where flight information service and alerting service only are provided, an FPL message shall be addressed to the centre in charge of

each flight information region or upper flight information region along the route and to the aerodrome control tower at the destination aerodrome.

1.5.3 In the case of a flight through intermediate stops, where flight plans for each stage of the flight are filed at the first departure aerodrome, the following procedure shall be applied:

- a) the air traffic services reporting office at the first departure aerodrome shall transmit an FPL message for the first stage of flight in accordance with 1.5.2 and a separate FPL message for each subsequent stage of flight, addressed to the air traffic services reporting office at the appropriate subsequent departure aerodrome;
- b) the air traffic services reporting office at each subsequent departure aerodrome shall take action on receipt of the FPL message as if the flight plan has been filed locally.

1.5.4 When so required by agreement between the appropriate ATS authorities to assist in the identification of flights and thereby eliminate or reduce the need for interceptions in the event of deviations from assigned track, FPL messages for flights along specified routes or portions of routes in close proximity to flight information region boundaries shall also be addressed to the centres in charge of each flight information region or upper flight information region adjacent to such routes or portions of routes.

1.5.5 FPL messages shall normally be transmitted immediately after the filing of the flight plan. However, if a flight plan is filed more than 24 hours in advance of the estimated off-block time of the flight to which it refers, that flight plan shall be held in abeyance until at most 24 hours before the flight begins so as to avoid the need for the insertion of a date group into that flight plan. In addition, if a flight plan is filed early and the provisions of 1.5.2 b) or e) or 1.5.3 apply, transmission of the FPL message may be withheld until one hour before the estimated off-block time, provided that this will permit each air traffic services unit concerned to receive the information at least 30 minutes before the time at which the aircraft is estimated to enter its area of responsibility

- 1.5.6 Unless basic flight plan data have already been distributed (FPL or RPL) which will be supplemented by coordination data in the estimate message, a CPL message shall be transmitted by each area control centre to the next area control centre and from the last area control centre to the aerodrome control tower at the destination aerodrome, for each controlled flight, and for each flight provided with air traffic advisory service along routes or portions of routes where it has been determined by the appropriate ATS authority that adequate point-to-point communications exist and that conditions are otherwise suitable for forwarding current flight plan information.
- 1.5.7 When an aircraft traverses a very limited portion of a control area where, by agreement between the appropriate ATS authorities concerned, co-ordination of air traffic through that portion of the control area has been delegated to and is effected directly by the two centres whose control areas are separated by that portion, CPLs shall be transmitted directly between such units.
- 1.5.8 A CPL message shall be transmitted in sufficient time to permit each air traffic services unit concerned to receive the information at least 20 minutes before the time at which the aircraft is estimated to pass the transfer of control point or boundary point at which it comes under the control of such unit, unless another period of time has been prescribed by the appropriate ATS authority. This procedure shall apply whether or not the ATS unit responsible for origination of the message has assumed control of, or established contact with, the aircraft by the time the transmission is to be effected.
- 1.5.9 When a CPL message is transmitted to a centre which is not using automatic data processing equipment, the period of time specified in 1.5.8 may be insufficient, in which case an increased lead-time shall be agreed.
- 1.5.10 A CPL message shall include only information concerning the flight from the point of entry into the next control area or advisory airspace to the destination aerodrome.
- 1.5.11 Unless otherwise prescribed on the basis of regional air navigation agreements, a departure (DEP) message shall be transmitted immediately after the departure of an aircraft for which basic flight plan data have been previously distributed.

- 1.5.12 The DEP message shall be transmitted by the ATS unit serving the departure aerodrome to all recipients of basic flight plan data.
- 1.5.13 On the basis of regional air navigation agreement, DEP messages may be omitted for IFR flights operated within areas or along routes designated by mutual agreement between the States concerned, provided reliable ATS speech circuits exist between successive ATS units.
- 1.5.14 When basic flight plan data for a flight have been provided, an estimate (EST) message shall be transmitted by each area control centre or flight information centre to the next area control centre or flight information centre along the route of flight.
- 1.5.15 An EST message shall be transmitted in sufficient time to permit the air traffic services unit concerned to receive the information at least 20 minutes before the time at which the aircraft is estimated to pass the transfer of control point or boundary point at which it comes under the control of such unit, unless another period of time has been prescribed by the appropriate ATS authority. This procedure shall apply whether or not the area control centre or flight information centre responsible for origination of the message has assumed control of, or established contact with, the aircraft by the time the transmission is to be effected.
- 1.5.16 When an EST message is transmitted to a centre which is not using automatic data processing equipment, the period of time specified in 1.5.15 may be insufficient, in which case an increased lead-time shall be agreed.

1.6 Facilities for communications between ATS units

- 1.6.1 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 unit;
 - c) Aerodrome control tower.
- 1.6.2 An area control centre, in addition to being connected to the flight information centre, shall have facilities for communications with the following units providing a service within its area of responsibility:

- a) Approach control unit;
- b) Aerodrome control towers;
- c) Air traffic services reporting officer, when separately established.

1.6.3 The communication facilities required under 1.6.1 and 1.6.2 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.

1.6.4 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.

Note: The requirements for communication between ATS units and military units are given in 1.8.

1.6.5 The communication facilities required in accordance with 1.6.1 and 1.6.2 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.

1.6.6 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.

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

- a) 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.

- b) 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 communications with automatic recording, 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.

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 the previous paragraph shall include provisions for direct- speech communications. The communication facilities shall be provided with automatic recording. These communication facilities should permit communications to be established normally within fifteen seconds.

- 1.6.8 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.

- 1.6.9 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.

- 1.6.10 The communication facilities in 1.6.8 and 1.6.9 should include provisions for communications by direct speech with automatic recording, 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.

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

1.6.12 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.

1.7 Co-ordination between military and ATS authorities/units

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

1.7.2 Co-ordination of activities potentially hazardous to civil aircraft shall be effected.

1.7.3 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. ATS unit shall, either routinely or on request accordance with locally agreed procedure, provide appropriate military units with pertinent flight plan and other data concerning civil aircrafts flight. In order to eliminate or reduce the need for interceptions, ATS authorities shall designate any area or routes where the requirements concerning flight plans, two way communications and position reporting apply to all flights to ensure that all pertinent data are available in appropriate ATS units specifically for the purpose of facilitating identification of civil aircraft.

Special procedure shall be established in order to ensure that:

- a) air traffic services units are notified if a military unit observes that an aircraft which is, or might be, a civil aircraft is approaching, or has entered, any area in which interception might become necessary;
- b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

1.8 Facilities for communications between ATS units and military units

Note: Indication by time of the speed with which the communication should be established is provided as a guide to communication services, particularly to determine the types of communication channels required, e.g. that “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.

- 1.8.1 A flight information centre and an area control centre shall have facilities for communications with appropriate military units providing a service within their respective area of responsibility.
- 1.8.2 An approach control unit and an aerodrome control tower shall have facilities for communications with appropriate military units providing a service within their respective area of responsibility.
- 1.8.3 The communication facilities required under 1.8.1 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.
- 1.8.4 The communication facilities required under 1.8.1 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.
- 1.8.5 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.
- 1.8.6 The communication facilities required in accordance with 1.8.1 and 1.8.2 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.

- 1.8.7 The communication facilities required under 1.8.2 shall include provisions for communications by direct speech arranged for conference communications.
- 1.8.8 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.
- 1.8.9 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.

1.9 Action by ATS units in respect of unidentified aircraft

- 1.9.1 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.
- 1.9.2 The air traffic services unit shall, as necessary, inform the appropriate military unit as soon as the identity of the aircraft has been established.

Note: Requirements for co-ordination between military authorities and air traffic services are specified in 1.7.

1.10 Identification by means of radar

Transponder Operating Procedure

- 1.10.1 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.
- 1.10.2 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.
- 1.10.3 In the event of transponder failure, the pilot should inform the appropriate ATS units.
- 1.10.4 Except as specified in Emergency Procedure, Radio communication Failure Procedure and Unlawful Interference with Aircraft in Flight in respect of emergency, radio communication failure or unlawful interference, the pilot shall:
- operate the transponder and select modes and codes as individually directed by the ATC unit with which the pilot is in contact; or
 - operate the transponder on modes and codes as prescribed on the basis of regional air navigation agreements; or
 - in the absence of any ATC directions or regional air navigation agreements, operate the transponder on Mode A Code 2000.
- 1.10.5 When the aircraft carries serviceable Mode C equipment, the pilot shall continuously operate this mode, unless otherwise directed by ATC.
- 1.10.6 Whenever Mode C is operated, pilots shall, in air-ground voice communications wherein the transmission of 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.
- 1.10.7 When requested by ATC to specify the type of transponder carried aboard the aircraft, pilots shall indicate this by using the characters prescribed for insertion of this information in the flight plan, e.g. "TRANSPONDER C (spoken as Charlie)".

1.10.8 When requested by ATC to “RECYCLE (mode, code)” the pilot shall reselect the assigned mode and code.

1.10.9 When requested by ATC to “CONFIRM THAT YOU ARE SQUAWKING ASSIGNED CODE [mode] (assigned code)” the pilot shall verify the mode and code setting on the transponder and confirm to ATC the setting displayed on the controls of the transponder.

1.10.10 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.

1.10.11 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.

Emergency Procedure

1.10.12 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.

Communication Failure Procedure

1.10.13 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.*

Unlawful Interference with Aircraft in Flight

1.10.14 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.

1.10.15 If a pilot has selected Mode A Code 7500 and has been requested to confirm this code by ATC (in accordance with 1.10.7), 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.

1.11 Identification by Visual Means

1.11.1 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.

1.11.2 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 centimeters. 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 centimeters on the wings and at least 30 centimeters on the fuselage or tail surfaces.

- 1.11.3 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.
- 1.11.4 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.
- 1.11.5 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.
- 1.11.6 Identification of an aircraft as a civil aircraft may also be enhanced by switching on all cockpit and cabin lights.

2. NAVIGATION ASPECTS

2.1 General

2.1.1 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 document will reduce the possibility of interception of civil aircraft.

2.1.2 Guidance relating to the use of long range navigation systems is contained in the North Atlantic MNPS Airspace Operations Manual (Doc NAT 007) and Performance Based Navigation Manual (Doc 9613).

2.2 Airborne Navigation Equipment

2.2.1 For all IFR flight an aircraft shall be equipped with suitable instruments and with navigation equipment appropriate to the route to be flown.

2.2.2 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;

For international commercial aircraft, except when, it not so precluded by the appropriate authority, navigation for flights under the visual flight rules is accomplished by visual reference to landmarks.

For international general aviation aircraft, 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).

2.2.3 Aeronautical information publications specify the navigation equipment to be carried on particular routes.

2.3 Adherence to Flight Plan

- 2.3.1 Unless otherwise authorized by the appropriate ATS authority, or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:
- when on an established ATS route, operate along the defined centre line of that route; or
 - when on any other route, operate directly between the navigation facilities and/or points defining that route.
- 2.3.2 Deviation from the requirements in 2.3.1 shall be notified to the appropriate air traffic services unit.
- 2.3.3 In the event that a controlled flight inadvertently deviates from its current flight plan or off track, action shall be taken forthwith to adjust the heading of the aircraft to regain track as soon as practicable.

2.4 Prohibited and Restricted Areas

- 2.4.1 Aircraft shall not be flown in a prohibited area, or in a restricted area, the particulars of which have been duly published, except in accordance with the conditions of the restrictions or by permission of the State over whose territory the areas are established.
- 2.4.2 The phrase “duly published” in this context is understood to mean published in accordance with the provisions of Annex 15.

2.5 Navigational assistance by ATS units

- 2.5.1 As soon as an air traffic services unit becomes aware of a strayed aircraft, it shall take all necessary steps as the following outlines 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.

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

- a) attempt to establish two-way communication with the aircraft, unless such communication already exists;
- b) use all available means to determine its position;
- c) inform other ATS units into whose area the aircraft may have strayed or may stray, taking into account all the factors which may have affected the navigation of the aircraft in the circumstances;
- d) inform, in accordance with locally agreed procedures, appropriate military units and provide them with pertinent flight plan and other data concerning the strayed aircraft;
- e) request from the units referred to in c) and d) and from other aircraft in flight every assistance in establishing communication with the aircraft and determining its position.

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

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

- a) advise the aircraft of its position and corrective action to be taken; and
- b) provide, as necessary, other ATS units and appropriate military units with relevant information concerning the strayed aircraft and any advice given to that aircraft.

2.5.2 The information presented on a radar display may be used to perform the following functions in the provision of air traffic control service:

- a) maintain a watch on the progress of air traffic in order to provide the air traffic control unit concerned with:
 - i). improved position information regarding aircraft under control,
 - ii). supplementary information regarding other traffic,
 - iii). information regarding any significant deviations, by aircraft, from the terms of their respective air traffic control clearances, including their cleared routes;

Note: Where tolerances regarding such matters as adherence to path, speed or time have been prescribed by the appropriate ATS authority, deviations are not considered significant until such tolerances are exceeded.

b) maintain radar monitoring of air traffic in order to provide aircraft concerned with information or advice relative to any significant deviations from the terms of their air traffic control clearances, including their cleared routes;

2.5.3 An identified controlled aircraft observed to deviate significantly from its intended route or designated holding pattern should be advised accordingly. Appropriate action should also be taken if, in the opinion of the controller, such deviation is likely to affect the control being exercised.

2.5.4 Except when transfer of radar control is to be effected, navigational assistance should normally be provided in such a manner as to ensure that the aircraft will not be less than 4.6 km (2.5 NM) from the limit of the controlled airspace unless local arrangements have been made so that separation minima would exist between radar-controlled aircraft operating in adjoining areas.

2.5.5 Controlled aircraft should not be vectored into uncontrolled airspace except in case of emergency or in order to circumnavigate severe weather (in which cases the pilot should be so informed), or at the specific request of the pilot.

2.5.6 Use of radar in the flight information service, the information presented on a radar display may be used to provide identified aircraft with information to assist the aircraft in its navigation.

2.6 Navigational assistance by military units

2.6.1 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;
- b) all possible efforts are made to confirm the identity of the aircraft and to provide it with the navigational guidance necessary to avoid the need for interception.

2.6.2 It is expected that navigational guidance will be provided through the appropriate air traffic services unit.

2.6.3 Visual signal used to warn an unauthorized aircraft flying in, or about to enter a restricted, prohibited or danger area, 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.

3. PROMULGATION OF INFORMATION

3.1 Promulgation in aeronautical information publication (AIP)

- 3.1.1 Annex 15 requires a description in AIPs of the air traffic services provided and, where necessary, graphic portrayal of flight information regions, controlled airspaces, advisory areas, designated areas and designated routes.
- 3.1.2 A description in the RAC part of the AIP of the procedures governing the operation of SSR transponders, the system of SSR code assignment, and the specific code groups allocated for use within the State, will assist intercept control units in their attempts to identify radar responses as those of civil aircraft.
- 3.1.3 Annex 15 also requires a description or identification in AIPs of designated areas or routes where the requirements of Annex 2 concerning flight plans, two-way communications and position reporting apply to all flights in order to eliminate or reduce the need for interceptions.
- 3.1.4 Description and graphic portrayal, where appropriate, of prohibited, restricted and danger areas shall be given in AIPs and shall include, as appropriate:
 - a) Identification;
 - b) Geographical coordinates, lateral and vertical limits;
 - c) Type of restriction or nature of hazard;
 - d) Risk of interception in the event of penetration;
 - e) Any other pertinent details.

3.2 Promulgation by NOTAM

- 3.2.1 A NOTAM shall be originated and issued promptly whenever the information to be disseminated is of a temporary nature, or is issued under the AIRAC system, or would not be made available with sufficient rapidity by the issue of, or amendment to, an AIP.
- 3.2.2 A NOTAM shall be originated and issued whenever the establishment or discontinuance (including activation or de-activation) as applicable, or changes in the status of prohibited, restricted or danger areas is of direct operational significance.

The information to be provided in AIRAC NOTAM

3.2.3 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) and ADIZ.

3.2.4 The establishment and withdrawal of, and premeditated significant changes to temporary danger, prohibited and restricted areas and navigational hazards, military exercises and mass movements of aircraft.

3.3 Depiction on aeronautical charts

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

3.3.2 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.

3.3.3 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.

4. ELIMINATION OR REDUCTION OF HAZARDS IN THE EVENT OF INTERCEPTION

4.1 Interception manoeuvre

A standard method should be established for the manoeuvring of aircraft intercepting a civil aircraft in order to avoid any hazard for the intercepted aircraft. Such method should take due account of the performance limitations of civil aircraft, the need to avoid flying in such proximity to the intercepted aircraft that a collision hazard may be created and the need to avoid crossing the aircraft's flight path or to perform any other manoeuvre in such a manner that the wake turbulence may be hazardous, particularly if the intercepted aircraft is a light aircraft.

4.2 Action by intercepted aircraft

4.2.1 The pilot-in-command of a civil aircraft, when intercepted, shall comply with the Standards in 4.3.2 and 4.3.5, interpreting and responding to visual signals as specified in 4.4.

4.2.2 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 4.4;
- 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.

4.2.3 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.

- 4.2.4 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
- 4.2.5 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 in the following table and transmitting each phrase twice:

<i>Phrases for use by INTERCEPTING aircraft</i>			<i>Phrases for use by INTERCEPTED aircraft</i>		
<i>Phrase</i>	<i>Pronunciation¹</i>	<i>Meaning</i>	<i>Phrase</i>	<i>Pronunciation¹</i>	<i>Meaning</i>
CALL SIGN	<u>KOL</u> SA-IN	What is your call sign?	CALL SIGN (call sign) ²	<u>KOL</u> SA-IN (call sign)	My call sign is (call sign)
FOLLOW	<u>FOL</u> -LO	Follow me	WILCO	<u>VILL</u> -KO	Understood Will comply
DESCEND	DEE- <u>SEND</u>	Descend for landing	CAN NOT ⁴	<u>KANN</u> NOTT	Unable to comply
YOU LAND	<u>YOU</u> LAAND	Land at this aerodrome	REPEAT ⁴	<u>REE</u> - <u>PEET</u>	Repeat your instruction
PROCEED	PRO- <u>SEED</u>	You may proceed	AM LOST	<u>AM</u> LOSST	Position unknown
			MAYDAY	MAYDAY	I am in distress
			HIJACK ³	<u>HI</u> - <u>JACK</u>	I have been hijacked
			LAND (place name)	LAAND (place name)	I request to land at (place name)
			DESCEND	DEE- <u>SEND</u>	I require descent

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.

4.3 Air-to-air visual signals

4.3.1 it is essential for the safety of flight that any visual signals employed in the event of an interception which should be undertaken only as a last resort be correctly employed and understood by civil and military aircraft. When adopting the visual signal, the state aircraft should be strictly adhered to the visual signal in 4.4.2 and 4.4.3.

4.3.2 Signals initiated by intercepting aircraft and responses by intercepted aircraft:

Series	INTERCEPTING aircraft signals	Meaning	INTERCEPTED aircraft responds	Meaning
1	<p>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.</p> <p><i>Note 1.— Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.</i></p> <p><i>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.</i></p>	You have been intercepted. Follow me.	<p>DAY or NIGHT — Rocking aircraft, flashing navigational lights at irregular intervals and following.</p> <p><i>Note.— Additional action required to be taken by intercepted aircraft is prescribed in Annex 2, Chapter 3, 3.8.</i></p>	Understood, will comply.
2	<p>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.</p>	You may proceed	DAY or NIGHT — Rocking the aircraft.	Understood, will comply
3	<p>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.</p>	Land at this aerodrome	<p>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.</p>	Understood, will comply.

4.3.4 Signals initiated by intercepted aircraft and responses by intercepting aircraft:

<i>Series</i>	<i>INTERCEPTED aircraft signals</i>	<i>Meaning</i>	<i>INTERCEPTING aircraft responds</i>	<i>Meaning</i>
4	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 (1 000 ft) but not exceeding 600 m (2 000 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.	Aerodrome you have designated is inadequate.	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. If it is decided to release the intercepted aircraft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.	Understood, follow me. Understood, you may proceed.
5	DAY or NIGHT — Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply.	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.	Understood.
6	DAY or NIGHT — Irregular flashing of all available lights.	In distress.	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft.	Understood.

4.4 Air-ground communication

4.4.1 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.

4.4.2 The frequency of 121.5 MHz shall be available to intercept control units where considered necessary for the purpose specified in 4.4.1 c).

4.4.3 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.

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, and a requirement has been established by the appropriate authority.

Aircraft on flights other than those specified in the above paragraph should guard the emergency frequency 121.5 MHz to the extent possible.

4.4.4 Communication equipment for international commercial aeroplane, an aircraft shall be provided with radiocommunication 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 may be prescribed by the appropriate authority.

Note: The requirements of 4.4.4 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

The radiocommunication equipment required in accordance with 4.4.4 shall provide for communications on the aeronautical emergency frequency 121.5 MHz.

4.4.5 Communication equipment for international general aviation aircraft, an aeroplane to be operated in accordance with the instrument flight rules or at night shall be provided with radiocommunication equipment. Such equipment shall be capable of conducting two-way communication with those aeronautical stations and on those frequencies prescribed by the appropriate authority.

Note: The requirements of 4.4.5 are considered fulfilled if the ability to conduct the communications specified therein is established during radio propagation conditions which are normal for the route.

When compliance with 4.4.5 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.

4.4.6 Communication equipment for international general aviation aircraft, an aircraft 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 radiocommunication equipment capable of conducting two-way communication at any time during flight with such aeronautical stations and on such frequencies as may be prescribed by the appropriate authority.

An aircraft to be operated on a flight to which the provisions of Annex 6, Part II, 6.3.3 or 6.4 or Part III, Section III, 4.3 or 4.4 apply 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 may be prescribed by the appropriate authority.

4.4.7 The radio communication equipment required in accordance with 4.4.5 to 4.4.6 shall provide for communication on the aeronautical emergency frequency 121.5 MHz.

4.4.8 Communication equipment for ATS and other ground units, 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 unit 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 4.4.1.

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

4.4.9 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 4.4.1. All military interception control units should be equipped with the frequency of 121.5 MHz.

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

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

4.5 Action by intercept control units

4.5.1 Radio communication between the interception control unit or the intercepting aircraft and the intercepted aircraft. When an interception is being made, the intercept control unit and the intercepting aircraft will:

- a) normally 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) If item a) fail, They will 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).

4.5.2 Co-ordination between intercept control units and air traffic service units, it is essential that close co-ordination 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.

4.6 Action by ATS units in the event of interception

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

- a) attempt to establish two-way communication with the intercepted aircraft on any available frequency, including the emergency frequency 121.5 MHz, unless such communication already exists;
- b) inform the pilot of the intercepted aircraft of the interception;
- c) establish contact with the intercept 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.

4.6.2 As soon as an air traffic services unit learns that an intercepted aircraft is required by the State 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 State authorities concerned, any air traffic control clearance or routing instructions necessary for the aircraft to proceed to the designated aerodrome.

- 4.6.3 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 4.6.1; and
 - b) relay messages between the intercepted aircraft and the appropriate ATS unit, the intercept control unit or the intercepting aircraft.

4.7 Promulgation of information in aeronautical information publications (AIP)

- 4.7.1 A complete statement of procedures and visual signals to be used in the event of interception shall be included in the RAC part of each AIP.
- 4.7.2 A sample statement reflecting the current ICAO provisions without change is contained in the Aeronautical Information Services Manual (Doc 8126) and is reproduced at Appendix A for convenience.
- 4.7.3 It is particularly important to indicate clearly any national differences from the ICAO provisions, and/or any additional procedures or signals to be used.
- 4.7.4 In the event that a State has determined that interceptions will not be undertaken, a statement to that effect in the AIP will be sufficient.
- 4.7.5 Where a State has designated selected aerodromes for use in the event that intercepted aircraft are required to land in the territory overflown, it is important that complete information regarding these aerodromes be included in the AIP and specifically mentioned in the section dealing with interception.

4.8 Carriage of information on board aircraft

- 4.8.1 For international commercial air transport operations, an operations manual, which may be issued in separate parts corresponding to specific aspects of operations, shall contain at least:
 - a) procedures, as prescribed in 4.3 above for pilots-in-command of intercepted aircraft; and
 - b) visual signals for use by intercepting and intercepted aircraft, as contained in 4.4 above.
- 4.8.2 Annex 6, Part II and Part III, Section III, applicable to international general aviation operations, specify that all aircraft on all flights shall carry the information identified in 4.9.1 a) and b) above.
- 4.8.3 Examples of flash cards which may be used by pilots are shown at Appendix B.
- 4.8.4 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 State(s) concerned should be carried on board the civil aircraft.

- 4.8.5 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.
- 4.8.6 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 their State. Operators should provide information on the various markings and insignias on State aircraft used for interception for use by civil flight crews.

APPENDIX A

SAMPLE STATEMENT OF PROCEDURES AND VISUAL SIGNALS FOR INCLUSION IN AERONAUTICAL INFORMATION PUBLICATIONS

AIP.....

RAC 8-1

<u>INTERCEPTION PROCEDURE</u>																				
<p>The following procedures and visual signals apply over the territory and territorial waters of in the event of interception*of an aircraft.</p>																				
<p>1) An aircraft which is intercepted by another aircraft shall immediately:</p> <ol style="list-style-type: none"> a) follow the instructions given by the intercepting aircraft, interpreting and responding to visual signals in accordance with the specifications on pages RAC 8-2 and RAC 8-3; b) notify, if possible, the appropriate air traffic services unit; c) attempt to establish radiocommunication 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, by repeating this call on the emergency frequency 243 MHz; d) if equipped with SSR transponder, select Mode A, Code 7700, unless otherwise instructed by the appropriate air traffic services unit. <p>2) 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 in the following table and transmitting each phrase twice:</p>																				
Phrase	Pronunciation ¹	Meaning																		
CALL SIGN (call sign ²)	<u>KOL</u> -SA-IN	My call sign is (call sign)																		
WILCO	<u>VILL</u> -KO	Understood. Will comply																		
CAN NOT	<u>KANN</u> -NOTT	Unable to comply																		
REPEAT	<u>REE</u> -PEET	Repeat your instruction																		
AM LOST	<u>AM</u> LOSST	Position unknown																		
MAYDAY	<u>MAYDAY</u>	I am in distress																		
HIJACK ³	<u>HI</u> -JACK	I have been hijacked																		
LAND (place name)	LAAND (place name)	I request to land at (place name)																		
DESCEND	<u>DEE</u> SEND	I require descent																		
<p>2.1) The following phrases shall be used by the intercepting aircraft and transmitted twice in the circumstances described in the preceding paragraph:</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: center;">Phrase</th> <th style="text-align: center;">Pronunciation¹</th> <th style="text-align: center;">Meaning</th> </tr> </thead> <tbody> <tr> <td>CALL SIGN</td> <td style="text-align: center;"><u>KOL</u> SA-IN</td> <td>What is your call</td> </tr> <tr> <td>FOLLOW</td> <td style="text-align: center;"><u>FOL</u>-LO</td> <td>Follow me</td> </tr> <tr> <td>DESCEND</td> <td style="text-align: center;"><u>DEE</u>-SEND</td> <td>Descend for</td> </tr> <tr> <td>YOU LAND</td> <td style="text-align: center;"><u>YOU</u> LAAND</td> <td>Land at this aerodrome</td> </tr> <tr> <td>PROCEED</td> <td style="text-align: center;"><u>PRO</u>-SEED</td> <td>You may proceed</td> </tr> </tbody> </table> <p>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.</p> <p>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.</p> <p>5) The visual signals are detailed in the table on pages RAC 8-2 and RAC 8-3.</p> <p>* The word "interception" in this context does not include intercept and escort service provided, on request, to an aircraft in distress, in accordance with the Search and Rescue Manual (Doc 7333).</p> <ol style="list-style-type: none"> 1. 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 phase "HIJACK". 			Phrase	Pronunciation ¹	Meaning	CALL SIGN	<u>KOL</u> SA-IN	What is your call	FOLLOW	<u>FOL</u> -LO	Follow me	DESCEND	<u>DEE</u> -SEND	Descend for	YOU LAND	<u>YOU</u> LAAND	Land at this aerodrome	PROCEED	<u>PRO</u> -SEED	You may proceed
Phrase	Pronunciation ¹	Meaning																		
CALL SIGN	<u>KOL</u> SA-IN	What is your call																		
FOLLOW	<u>FOL</u> -LO	Follow me																		
DESCEND	<u>DEE</u> -SEND	Descend for																		
YOU LAND	<u>YOU</u> LAAND	Land at this aerodrome																		
PROCEED	<u>PRO</u> -SEED	You may proceed																		

RAC 8-2

AIP.....

Signals initiated by intercepting aircraft and responses by intercepted aircraft

Series	INTERCEPTING Aircraft signal	Meaning	INTERCEPTED Aircraft Respond	Meaning
1	<p>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.</p> <p>Note 1.— Meteorological conditions or terrain may require the intercepting aircraft to reverse the positions and direction of turn given above in Series 1.</p> <p>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.</p>	<p>You have been intercepted. Follow me.</p>	<p>DAY or NIGHT — Rocking aircraft, flashing navigational lights at irregular intervals and following.</p> <p>Note.— Additional action required to be taken by intercepted aircraft is prescribed in Annex 2, Chapter 3, 3.8.</p>	<p>Understood, will comply.</p>
2	<p>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.</p>	<p>You may proceed.</p>	<p>DAY or NIGHT — Rocking the aircraft.</p>	<p>Understood, will comply.</p>
3	<p>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.</p>	<p>Land at this aerodrome.</p>	<p>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.</p>	<p>Understood, will comply.</p>

(date)

(Name of Publishing Authority)

AIP.....

RAC 8-3

Signals initiated by intercepting aircraft and responses by intercepting aircraft

Series	INTERCEPTING Aircraft signal	Meaning	INTERCEPTED Aircraft Respond	Meaning
4	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 (1 000 ft) but not exceeding 600 m (2 000 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 run-way in use or helicopter landing area. If unable to flash landing lights, flash any other lights available	Aerodrome you have designated is inadequate	DAY or NIGHT — If it is desired that the intercepted aircraft follow the intercepting air-raft to an alternate aerodrome, the intercepting aircraft raises its landing gear (if fitted) and uses the Series 1 signals prescribed for intercepting aircraft. If it is decided to release the intercepted air-raft, the intercepting aircraft uses the Series 2 signals prescribed for intercepting aircraft.	Understood, follow me Understood you may proceed.
5	DAY or NIGHT — Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft	Understood
6	DAY or NIGHT — Irregular flashing of all available lights.	In distress	DAY or NIGHT — Use Series 2 signals prescribed for intercepting aircraft	Understood.

(Name of Publishing Authority)

(date)

APPENDIX B

EXAMPLES OF FLASH CARDS FOR USE BY PILOTS IN THE EVENT OF INTERCEPTION

RECTO

INTERCEPTION PROCEDURES				
	Phrase	Pronunciation	Meaning	
1. Follow the instructions given by the intercepting aircraft and respond to visual signals given. 2. Notify the appropriate air traffic services unit. 3. Attempt to establish radiocommunication 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. 4. If equipped with SSR transponder, select Mode A, Code 7700. 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: 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.	WILCO	<u>VILL-KO</u>	Understood Will comply	
	CAN NOT	<u>KANN NOT</u>	Unable to comply	
	REPEAT	<u>REE-PEET</u>	Repeat your instruction	
	AM LOST	<u>AM LOSST</u>	Position unknown	
	MAYDAY	MAYDAY	I am in distress	
	HIJACK	<u>HI-JACK</u>	I have been hijacked	
	LAND (place name)	LAAND (place name)	I request to land at (place name)	
	DESCEND	<u>DEE SEND</u>	I require descent	

FOLD

FOLD

VERSO

INTERCEPTION VISUAL SIGNALS				
No	INTERCEPTING aircraft signals	Meaning	INTERCEPTED aircraft responds	Meaning
1	DAY — Rocking wings from a position in front and normally to the left of intercepted aircraft and, after acknowledgement, a slow level turn, normally to the left, on to the desired heading.	You have been intercepted. Follow me.	DAY — Rocking wings and following.	Understood, will comply.
	NIGHT — Same and, in addition, flashing navigational lights at irregular intervals.		NIGHT — Same and, in addition, flashing navigational lights at irregular intervals.	
2	DAY or NIGHT — An abrupt breakaway consisting of a climbing turn of 90 degrees or more.	You may proceed.	DAY or NIGHT — Rocking wings.	Understood, will comply.
3	DAY — Circling aerodrome, lowering landing gear and overflying runway in direction of landing.	Land at this aerodrome.	DAY — Lowering landing gear, following the intercepting aircraft and, if after overflying the runway landing is considered safe, proceeding to land.	Understood, will comply.
	NIGHT — Same and, in addition, showing steady landing lights.		NIGHT — Same and, in addition, showing steady landing lights (if carried).	
No	INTERCEPTED aircraft signals	Meaning	INTERCEPTING aircraft responds	Meaning
4	DAY — Raising landing gear while passing over landing runway at a height exceeding 300 m (1 000 ft) but not exceeding 600 m (2 000 ft) above the aerodrome level and continuing to circle the aerodrome.	Aerodrome you have designated is inadequate.	DAY or NIGHT — If it is desired that the intercepted aircraft follow to an alternate aerodrome, raise landing gear and use No. 1 signals prescribed for intercepting aircraft.	Understood, follow me.
	NIGHT — Flashing landing lights while passing over landing runway and continuing to circle the aerodrome. If unable to flash landing lights, flash any other lights available.		If it is decided to release the aircraft, use No. 2 signals prescribed for intercepting aircraft.	
5	DAY OR NIGHT — Regular switching on and off of all available lights but in such a manner as to be distinct from flashing lights.	Cannot comply.	DAY or NIGHT — Use No. 2 signals prescribed for intercepting aircraft.	Understood.
6	DAY or NIGHT — Irregular flashing of all available lights.	In distress.	DAY or NIGHT — Use No. 2 signals prescribed for intercepting aircraft.	Understood.

FOLD

FOLD

RECTO

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:		SEE OPPOSITE SIDE FOR EXPLANATION OF VISUAL SIGNALS
<i>Phrase</i>	<i>Pronunciation</i>	<i>Meaning</i>
CALL SIGN (call sign)	<u>KOL SA-IN</u>	My call sign is (call sign)
WILCO	<u>VILL-KO</u>	Understood/Will comply
CAN NOT	<u>KANN NOT</u>	Unable to comply
REPEAT	<u>REE-PEET</u>	Repeat your instructions
AM LOST	<u>AM LOSST</u>	Position unknown
MAYDAY	MAYDAY	I am in distress
HIJACK	<u>HI-JACK</u>	I have been hijacked
LAND (place name)	LAAND	I request to land at (place name)
DESCEND	<u>DEE-SEND</u>	I require descent

FOLD

FOLD