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Ref.: AN 13/2.5 - 19/32

28 March 2019

**Subject:** Proposed amendments to PANS-ATM relating to reduced separation minima, special procedures for in-flight contingencies in oceanic airspace and SLOP arising from the second meeting of the Separation and Airspace Safety Panel (SASP/2)

**Action required:** Comments to reach Montréal by 5 July 2019

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission, at the seventh meeting of its 210th Session held on 7 March 2019, considered proposals developed by the second meeting of the Separation and Airspace Safety Panel (SASP/2) to amend the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444). The Commission authorized their transmission to Member States and appropriate international organizations for comments.
2. The proposals for amendment to the PANS-ATM are contained in Attachment A and relate to reduced separation minima, special procedures for in-flight contingencies in oceanic airspace and strategic lateral offset procedures (SLOP).
3. To facilitate your review of the proposed amendments, rationales have been provided in a text box immediately following each proposal throughout Attachment A. In examining the proposed amendment, you should not feel obliged to comment on editorial aspects, as such matters will be addressed by the ANC during its final review of the draft amendment.
4. May I request that any comments you wish to make on the amendment proposals be dispatched to reach me not later than 5 July 2019. To facilitate the processing of replies with substantive comments, I invite you to submit an electronic version in Microsoft Word format to [icaohq@icao.int](mailto:icaohq@icao.int). The Air Navigation Commission has asked me to specifically indicate that comments received after the due date may not be considered by the Commission and the Council. In this connection, should you anticipate a delay in the transmission of your reply, please let me know in advance of the due date.

5. The proposed amendments to the PANS-ATM are envisaged for applicability on 5 November 2020. Any comments you may have thereon would be appreciated.

6. The subsequent work of the Air Navigation Commission and the Council would be greatly facilitated by specific statements on the acceptability or otherwise of the amendment proposals.

7. Please note that, for the review of your comments by the Air Navigation Commission and the Council, replies are normally classified as “agreement with or without comments”, “disagreement with or without comments” or “no indication of position”. If in your reply the expressions “no objections” or “no comments” are used, they will be taken to mean “agreement without comment” and “no indication of position”, respectively. In order to facilitate proper classification of your response, a form has been included in Attachment B which may be completed and returned together with your comments, if any, on the technical content of the proposals in Attachment A.

Accept, Sir/Madam, the assurances of my highest consideration.

Fang Liu  
Secretary General

**Enclosures:**

- A — Proposed amendment to PANS-ATM
- B — Response form

**ATTACHMENT A** to State letter AN 13/2.5 - 19/32

**PROPOSED AMENDMENT TO THE PANS-ATM**

**NOTES ON THE PRESENTATION OF THE AMENDMENT**

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1. ~~Text to be deleted is shown with a line through it.~~ text to be deleted
2. **New text to be inserted is highlighted with grey shading.** new text to be inserted
3. ~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is **highlighted with grey shading.** new text to replace existing text

**PROPOSED AMENDMENT TO**  
***PROCEDURES FOR AIR NAVIGATION SERVICES —***  
***AIR TRAFFIC MANAGEMENT***  
**(Doc 4444)**

**INITIAL PROPOSAL 1**

**Chapter 5**

**SEPARATION METHODS AND MINIMA**

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**5.2 PROVISIONS FOR THE SEPARATION OF CONTROLLED TRAFFIC**

...

**5.2.1 GENERAL**

5.2.1.3 Larger separations than the specified minima should be applied whenever exceptional circumstances, such as unlawful interference, meteorological conditions where deviations are considered likely, or navigational difficulties call for extra precautions. This should be done with due regard to all relevant factors so as to avoid impeding the flow of air traffic by the application of excessive separations.

<i>Origin:</i>  SASP/2	<i>Rationale:</i>  The development of the reduced separation minima by the Separation and Airspace Safety Panel (SASP) revealed that adverse meteorological conditions, especially convective weather, are a major source of deviation events which can have a significant effect on the safe application of separations. The group noted repeatedly that the use of minimum separation may not always be advisable under such conditions. This lead the group to conclude that the recommendation should be expanded to include adverse meteorological conditions.
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<b>INITIAL PROPOSAL 2</b>
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**Table 5-2. Lateral separation of aircraft on parallel or non-intersecting tracks or ATS routes**

<i>Minimum Spacing Between Tracks</i>		<i>Performance Requirements</i>			<i>Additional Requirements</i>
<i>Airspace where SLOP is not authorized, or is only authorized up to 0.5 NM</i>	<i>Airspace where SLOP up to 2 NM is authorized</i>	<i>Navigation</i>	<i>Communication</i>	<i>Surveillance</i>	
93 km (50 NM)	93 km (50 NM)	RNAV 10 (RNP 10) RNP 4 RNP 2	Types of communication other than direct controller-pilot VHF voice		
37 km (20 NM)	42.6 km (23 NM)	RNP 4 RNP 2	RCP 240	RSP 180	Conformance monitoring shall be ensured by establishing an ADS-C event contract specifying a lateral deviation change event with a maximum of 5 NM threshold and a waypoint change event
37 km (20 NM)	42.6 km (23 NM)	RNP 2 or GNSS equipage	Types of communication other than direct controller-pilot VHF voice		While one aircraft climbs/descends through the level of another aircraft remaining in level flight
27.8 km (15 NM)	<del>N/A</del> 33.4 km (18 NM)	RNP 2 or GNSS equipage	Direct controller-pilot VHF voice communication		
16.7 km (9 NM)	<del>N/A</del> 22.3 km (12 NM)	RNP 4 RNP 2	RCP 240	RSP 180	While one aircraft climbs/descends through the level of another aircraft remaining in level flight
13 km (7 NM)	<del>N/A</del> 19 km (10 NM)	RNP 2 or GNSS equipage	Direct controller-pilot VHF voice communication		While one aircraft climbs/descends through the level of another aircraft remaining in level flight

...

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>The collision risk modelling for the reduced lateral separation Standards below 23 NM to facilitate climb and descent through the level of another aircraft included the allowance for full (up to 2 NM) strategic lateral offset procedures (SLOP) application, as defined under Section 16.5 of the <i>Procedures for Air Navigation Services — Air Traffic Management</i> (PANS-ATM, Doc 4444).</p> <p>These separations were previously circulated via State letter 17/85; however, it was noted that Section 16.5 prohibited full SLOP below 23 NM and, consequently, the Standards were not published.</p> <p>Initial Proposal 8 amends Section 16.5, reducing the 23 NM lateral limitation to 15 NM, and again further to 10 NM, where one aircraft climbs through the level of another. This allows the reduced lateral separation minima to be “re-proposed” for amendment as a consequence of amending the SLOP provisions.</p>

**INITIAL PROPOSAL 3**

**5.4.2 Longitudinal separation**

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**5.4.2.1 LONGITUDINAL SEPARATION APPLICATION**

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5.4.2.3.4.2 *Aircraft on reciprocal tracks.* Aircraft utilizing on-track DME and/or collocated waypoint or same waypoint may be cleared to climb or descend **to or** through the levels occupied by other aircraft utilizing on-track DME and/or collocated waypoint or same waypoint, provided that it has been positively established that the aircraft have passed each other and are at least 10 NM apart, or such other value as prescribed by the appropriate ATS authority.

<i>Origin:</i>	<i>Rationale:</i>
SASP/2	<p>It was noted that the provisions of PANS-ATM in paragraphs 5.4.2.5.7, 5.4.2.6.3.4 and 5.4.2.9.3 allow aircraft to <i>climb or descend <b>to or through</b> the levels occupied by another aircraft</i>, whereas the separation Standard in paragraph 5.4.2.3.4.2 only allows the aircraft to <i>climb or descend <b>through</b> the levels occupied by other aircraft</i>. It was also noted that some States currently allow climb/descent <b>to</b> the level of another aircraft using this separation.</p> <p>Subsequent investigation indicated that there was no reason for not allowing <i>climb or descent <b>to</b> [...] in this provision</i>, since this would also align with the provision in 5.4.2.2.3.</p>

**INITIAL PROPOSAL 4**

**5.4 HORIZONTAL SEPARATION**

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**5.4.2.4 LONGITUDINAL SEPARATION MINIMA  
WITH MACH NUMBER TECHNIQUE BASED ON TIME**

5.4.2.4.1 ~~Turbojet a~~Aircraft subject to Mach number technique shall adhere to the true Mach number approved by ATC and shall request ATC approval before making any changes thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

...

5.4.2.4.3 When the Mach number technique is applied and provided that:

- a) the aircraft concerned have reported over the same common point and follow the same track or continuously diverging tracks until some other form of separation is provided; or
- b) if the aircraft have not reported over the same common point and it is possible to ensure, by radar, ADS-B or other means, that the appropriate time interval will exist at the common point from which they either follow the same track or continuously diverging tracks;

minimum longitudinal separation between ~~turbojet~~ aircraft on the same track, whether in level, climbing or descending flight shall be:

...

**5.4.2.5 LONGITUDINAL SEPARATION MINIMA WITH MACH NUMBER TECHNIQUE  
BASED ON DISTANCE USING RNAV**

*Note.— Guidance material on RNAV operations is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).*

5.4.2.5.1 ~~Turbojet a~~Aircraft subject to Mach number technique shall adhere to the true Mach number approved by ATC and shall request ATC approval before making any changes thereto. If it is essential to make an immediate temporary change in the Mach number (e.g. due to turbulence), ATC shall be notified as soon as possible that such a change has been made.

<i>Origin</i>	<i>Rationale</i>
SASP/2	Speed measurement and maintenance of a Mach setting is not a function of the method of aircraft propulsion.  Consequently, Initial Proposal 4 removes the turbojet requirement from the Mach number technique longitudinal separation Standard.

<b>INITIAL PROPOSAL 5</b>
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## Chapter 5

### SEPARATION METHODS AND MINIMA

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#### 5.4.2.9 PERFORMANCE-BASED LONGITUDINAL SEPARATION MINIMA

*Note.*— *Guidance material for implementation and application of the separation minima in this section is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869), the Global Operational Data Link (GOLD) Manual (Doc 10037), the Satellite Voice Operations Manual (SVOM) (Doc 10038) and the Guidelines Manual on for the Implementation of Performance-based Longitudinal Separation Minima (Circular 343 Doc 10120), and the Manual on Monitoring the Application of Performance-Based Horizontal Separation Minima (Doc 10063).*

5.4.2.9.1 Within designated airspace, or on designated routes, separation minima in accordance with the provisions of this section may be used.

5.4.2.9.2 The following separation minima may be used for aircraft cruising, climbing or descending on:

- a) the same track; or
- b) crossing tracks, provided that the relative angle between the tracks is less than 90 degrees.

<i>Separation minima</i>	<i>RNP</i>	<i>RCP</i>	<i>RSP</i>	<i>Maximum ADS-C periodic reporting interval</i>
93 km (50 NM)	10	240	180	27 minutes
	4	240	180	32 minutes
55.5 km (30 NM)	2 or 4	240	180	12 minutes
37 km (20 NM)	2 or 4	240	180	192 seconds (3.2 minutes)
5 minutes	2 or 4 or 10	240	180	14 minutes

*Note.*— *Detailed information on the analysis used to determine these separation minima monitoring procedures is contained in the Guidelines for the Implementation of Performance-based Longitudinal Separation Minima (Circular 343).*

...

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>Amendment 7-A of the PANS-ATM, published in November 2016, included a performance-based 30 NM longitudinal separation minimum. This was based on collision risk modelling results presented to the SASP. This same collision risk modelling also included results for a theoretical 20 NM longitudinal separation which was not forwarded by the panel for inclusion in the PANS-ATM amendment because the required ADS-C periodic reporting interval was not thought to be feasible.</p> <p>Subsequent work by the ICAO APAC/NAT Inter-regional ADS-C Reporting Interval Task Force (ADS-C RITF/1) showed that periodic intervals as short as 64 seconds can be provided with the current system, consequently, a longitudinal separation minimum of 20 NM was deemed not only feasible but also desirable.</p> <p>The above-mentioned data was subsequently presented to the SASP and, as a result, Initial Proposal 5 provides a proposed 20 NM performance-based longitudinal separation minimum based on detailed analyses supported by updated sophisticated mathematical collision risk modelling.</p>

**INITIAL PROPOSAL 6**

**Chapter 8**

**ATS SURVEILLANCE SERVICES**

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**8.7.2 Separation application**

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8.7.2.1 Except as provided for in 8.7.2.8, 8.7.2.9 and 8.8.2.2, the separation minima specified in 8.7.3 and 8.7.4 shall only be applied between identified aircraft when there is reasonable assurance that identification will be maintained.

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*Insert new text as follows*

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**8.7.4 Separation minima using ATS surveillance systems  
where VHF voice communication is not available**

8.7.4.1 Where direct controller-pilot VHF voice communication is not available, separation minima described in 8.7.4.2, 8.7.4.3 and 8.7.4.4 may be applied utilizing positioning information derived from an ATS surveillance system, provided the following requirements are met:

- a) a navigational performance of RNP 4 or RNP 2 shall be prescribed;
- b) the communication system shall satisfy RCP 240;
- c) an alternate means of communication shall be available so as to allow the controller to intervene and resolve a conflict within a total time of nine minutes, should the normal means of communication fail; and

*Note.— The total time specified in c) includes the four minutes allocated to RCP 240.*

- d) route conformance monitoring shall be ensured by the use of ATS surveillance system lateral deviation alerts with a warning threshold normally set at a maximum 3 NM.
  - 1) Warning thresholds greater than 5.6 km (3.0 NM) may be set, provided the lateral separation minima in 8.7.4.2 a) and 8.7.4.3 are increased by 1.9 km (1.0 NM) for each 1.9 km (1.0 NM) that the warning threshold is increased; and
  - 2) ATS surveillance systems shall provide for the display of alerts in a clear and distinct manner, to enable immediate action by the controller in the event of a lateral deviation.

8.7.4.2 Unless otherwise prescribed in accordance with 8.7.4.3 and 8.7.4.4, the separation minima shall be:

- a) 35.2 km (19.0 NM) lateral spacing between parallel or non-intersecting tracks;
- b) 35.2 km (19.0 NM) lateral separation of aircraft operating on intersecting tracks applied in accordance with section 5.4.1.2.1.8 a) and b);
- c) 31.5 km (17.0 NM) longitudinal separation of aircraft operating on same tracks or crossing tracks applied in accordance with section 5.4.2.9.5 provided that the relative angle between the tracks is less than 90 degrees; and
- d) opposite direction aircraft on reciprocal tracks may be cleared to climb or descend to or through the levels occupied by another aircraft, provided that surveillance position reports have been received from both aircraft demonstrating the aircraft have passed each other by 9.3 km (5.0 NM).

8.7.4.3 The separation minimum in 8.7.4.2 a) may, if so prescribed by the appropriate ATS authority, be reduced, but not below 27.8 km (15.0 NM), provided either:

- a) the density of traffic in the airspace, as measured by occupancy, is less than 0.6; or
- b) the proportion of total flight time spent by aircraft off the cleared track does not exceed the following:
  - 1) for aircraft deviating 13.0 km (7.0 NM) or more off the cleared track,  $3 \times 10^{-5}$  per flight hour; and

- 2) for aircraft deviating 20.4 km (11.0 NM) or more off the cleared track,  $1 \times 10^{-5}$  per flight hour.

8.7.4.4 The separation minimum in 8.7.4.2 c) may be reduced to 26 km (14 NM), provided that the relative angle between the tracks is less than 45 degrees.

8.7.4.5 Vectoring shall not be used in the application of these separation minima.

*Note 1.— Guidance material for the implementation of the navigation capability supporting the separation minima in 8.7.4.2, 8.7.4.3 and 8.7.4.4 is contained in the Performance-based Navigation (PBN) Manual (Doc 9613).*

*Note 2.— Guidance material for the implementation of communication and surveillance capability supporting the separation minima in 8.7.4.2, 8.7.4.3 and 8.7.4.4 is contained in the Performance-based Communication and Surveillance (PBCS) Manual (Doc 9869) and the Global Operational Data Link (GOLD) Manual (Doc 10037).*

*Note 3.— Detailed information on the analysis used to determine these separation minima, as well as their implementation considerations, tolerable values for occupancy and deviation rates and associated monitoring procedures, are contained in the Manual for Separation Minima Using ATS Surveillance Systems Where VHF Voice Communication is not Available (Doc 10116).*

*Note 4.— Application of the separation minima in 8.7.4.2, 8.7.4.3 and 8.7.4.4 includes elements of both procedural control and ATS surveillance services; refer to Annex 1 — Personnel Licensing for applicable air traffic controller rating requirements.*

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*Editorial Note.—* Renumber subsequent paragraphs accordingly while verifying references.

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<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>The advent of space-based automatic dependent surveillance broadcast (ADS-B) into oceanic and remote areas introduces the availability of ATS surveillance into airspace where routine communications are provided primarily by controller-pilot data link communications (CPDLC) and supported by third party HF radio and satellite voice communications (SATVOICE).</p> <p>It was determined that placement of the separation Standards in Chapter 8, ATS SURVEILLANCE SERVICES, of the PANS-ATM would facilitate the inclusion of other surveillance technologies. This rationale was based on available performance data which confirmed the capability of an ADS-B system operated via a satellite-based platform and which falls within the parameters of an ATS surveillance system. This approach offers the additional benefit of making the separations described in this paper available for implementation using other ATS surveillance systems (e.g. radar and multi-lateration).</p> <p>Initial Proposal 6 provides proposed lateral and longitudinal separation minima Standards based on detailed analyses supported by sophisticated mathematical collision risk modelling. The proposed separation minima allows ANSPs to take full advantage of advanced surveillance technology, such as space-based ADS-B, and therefore enhance general safety while remaining an efficient enabler of civil aviation.</p>

**INITIAL PROPOSAL 7**

**15.2 SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES IN OCEANIC AIRSPACE**

**15.2.1 Introduction**

15.2.1.1 Although all possible contingencies cannot be covered, the procedures in 15.2.2 and 15.2.3 and 15.2.4 provide for the more frequent cases such as:

- a) the inability to comply with assigned clearance due to meteorological conditions, aircraft performance or pressurization failure (15.2.4 refers);
- b) en-route diversion across the prevailing traffic flow (for example, due to medical emergencies (15.2.2. and 15.2.3 refer)); and
- c) the loss of, or significant reduction in, the required navigation capability when operating in an airspace where the navigation performance accuracy is a prerequisite to the safe conduct of flight operations, or pressurization failure (15.2.2. and 15.2.3 refer).

*Note.— Chapter 5, Section 5.2.2 contains procedures for degraded navigation capabilities.*

15.2.1.2 ~~With regard to 15.2.1.1 a) and b), the procedures are applicable primarily when descent and/or turnback or diversion is required.~~ The pilot shall take action as necessary to ensure the safety of the aircraft, and the pilot’s judgement shall determine the sequence of actions to be taken, having regard to the prevailing circumstances. Air traffic control shall render all possible assistance.

<i>Origin</i>	<i>Rationale</i>
SASP/2	The amendments to 15.2.1.1 provide updated cross referencing.  The deleted text in 15.2.1.2 is considered to be adequately covered in the new 15.2.3.

**15.2.2 General procedures**

*Note.— Figure 15-1 provides an aid for understanding and applying the contingency procedures contained in Sections 15.2.2 and 15.2.3.*

15.2.2.1 If an aircraft is unable to continue the flight in accordance with its ATC clearance, ~~and/or an aircraft is unable to maintain the navigation performance accuracy specified for the airspace,~~ a revised clearance shall be obtained, whenever possible, prior to initiating any action.

15.2.2.2 ~~The radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times shall be used as appropriate. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and the overall air traffic situation.~~

~~15.2.2.3~~ If prior clearance cannot be obtained, ~~until a revised clearance is received~~ the following contingency procedures should be employed until a revised clearance is received ~~and the pilot shall advise air traffic control as soon as practicable, reminding them of the type of aircraft involved and the nature of the problem.~~ In general terms, the aircraft should be flown at an offset flight level and on an offset track where other aircraft are least likely to be encountered. Specifically, the pilot shall:

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>The deleted text in 15.2.2.1 is considered unnecessary <u>as the requirement to attempt to obtain a revised clearance prior to deviating holds true regardless of the reason. Consequently, the deleted words were deemed superfluous.</u></p> <p>The deleted text in 15.2.2.2 is relocated to new 15.2.2.1 h) and k).</p> <p>Existing 15.2.2.3 is incorporated into new 15.2.2.1 bullets b) to k).</p>

a) leave the ~~assigned cleared route or track or ATS route~~ by initially turning at least 45~~30~~ degrees to the right or to the left, in order to ~~acquire~~ establish and maintain a parallel, ~~a same or opposite~~ direction track or ATS route offset 45.0 NM (289.3 km) ~~from the assigned track centreline. When possible, †~~The direction of the turn should be based on one or more of the following factors ~~determined by the position of the aircraft relative to any organized route or track system. Other factors which may affect the direction of the turn are:~~

- 1) aircraft position relative to any organized track or ATS route system;
- 2) the direction of flights and flight levels allocated on adjacent tracks;
- 3) the direction to an alternate airport;
- 2) terrain clearance;
- 34) any strategic lateral offset being flown; and
- 5) terrain clearance;

~~4) the flight levels allocated on adjacent routes or tracks;~~

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>Turn direction factors are reordered for operational consideration and organized track system (OTS) is added as a necessary consideration.</p> <p>With the reduction of the recommended offset distance to 5 NM (necessitated by reduced lateral separations), the recommended turn angle has been reduced to 30 degrees to minimize overshoot possibilities.</p>

~~b) having initiated the turn:~~

- ~~1) if unable to maintain the assigned flight level, initially minimize the rate of descent to the extent that is operationally feasible (pilots should take into account the possibility that aircraft below on the same track may be flying a 1 or 2 NM strategic lateral offset procedure (SLOP)) and select a final altitude which differs from those normally used by 150 m (500 ft) if at or below FL 410, or by 300 m (1 000 ft) if above FL 410; or~~
- ~~2) if able to maintain the assigned flight level, once the aircraft has deviated 19 km (10 NM) from the assigned track centreline, climb or descend to select a flight level which differs from those normally used by 150 m (500 ft), if at or below FL 410, or by 300 m (1 000 ft) if above FL 410;~~
- ~~e) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals on 121.5 MHz (or, as a backup, on the inter pilot air to air frequency 123.45 MHz) and where appropriate on the frequency in use: aircraft identification, flight level, position (including the ATS route designator or the track code, as appropriate) and intentions;~~

<i>Origin</i>	<i>Rationale</i>
SASP/2	The intent of the deleted text in existing b) and c) is incorporated into the new 15.2.3.

- ~~b) maintain a watch for conflicting traffic both visually and by reference to ACAS (if equipped), leaving ACAS in RA mode at all times, unless aircraft operating limitations dictate otherwise;~~
- ~~c) turn on all aircraft exterior lights (commensurate with appropriate operating limitations); and~~
- ~~d) keep the SSR transponder on at all times and, when able, squawk 7700, as appropriate and, if equipped with ADS-B or ADS-C, select the appropriate emergency functionality;~~
- ~~e) as soon as practicable, advise air traffic control of any deviation from their assigned clearance;~~
- ~~f) use means as appropriate (i.e. voice and/or CPDLC) to communicate during a contingency or emergency;~~
- ~~g) if voice communication is used, the radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times, shall be used, as appropriate;~~
- ~~h) when emergency situations are communicated via CPDLC, the controller may respond via CPDLC. However, the controller may also attempt to make voice contact with the aircraft;~~

*Note.— Guidance on emergency procedures for controllers, radio operators, and flight crew in data link operations can be found in the Global Operational Data Link (GOLD) Manual (Doc 10037).*

- ~~i) establish communications with and alert nearby aircraft by broadcasting on the frequencies in use~~

and at suitable intervals on 121.5 MHz (or, as a backup, on the inter-pilot air-to-air frequency 123.45 MHz): aircraft identification, the nature of the distress condition, intention of the pilot, position (including the ATS route designator or the track code, as appropriate) and flight level; and

- j) the controller should attempt to determine the nature of the emergency and ascertain any assistance that may be required. Subsequent ATC action with respect to that aircraft shall be based on the intentions of the pilot and overall traffic situation.

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>Additional text f) to k) is sourced from existing (deleted) text elsewhere and incorporated into a rationalized list of procedures to follow (i.e. aviate, navigate, communicate) if unable to comply with an ATC clearance, with additional factors sourced from <i>the Global Operational Data Link (GOLD) Manual</i> (Doc 10037) to incorporate CPDLC.</p> <p>Additionally, in new j), the order of the elements broadcast were amended to match that outlined in Annex 10 — <i>Aeronautical Telecommunications, Volume II — Communication Procedures including those with PANS status</i>, Section 5.3.3.1.1 and in the <i>Manual of Radiotelephony</i> (Doc 9432).</p>

~~15.2.2.3.1 When leaving the assigned track:~~

- ~~a) if the intention is to acquire a same direction offset track, the pilot should consider limiting the turn to a 45 degree heading change, in order not to overshoot the offset contingency track; or~~
- ~~b) if the intention is to acquire and maintain an opposite direction offset track, then:~~
  - ~~1) operational limitations on bank angles at cruising altitudes will normally result in overshooting the track to be acquired. In such cases a continuous turn should be extended beyond 180 degrees heading change, in order to re-intercept the offset contingency track as soon as operationally feasible; and~~
  - ~~2) furthermore, if executing such a turnback in a 56 km (30 NM) lateral separation route structure, extreme caution pertaining to opposite direction traffic on adjacent routes must be exercised and any climb or descent, as specified in 15.2.2.3 b) 2), should be completed preferably before approaching within 19 km (10 NM) of any adjacent ATS route.~~

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>With the advent of reduced lateral separation, and consequent reduction of the recommended offset distance to 5 NM (necessitating the 30 degree turn angle recommendation), the text in existing 15.2.2.3.1 b) is no longer relevant as 180 degree turn backs can no longer be wholly contained within the lateral separation distance.</p> <p>The new Section in 15.2.3 provides appropriate recommended actions to encompass the turn back.</p>

~~15.2.2.4 EXTENDED RANGE OPERATIONS BY AEROPLANES  
WITH TWO TURBINE POWER UNITS (ETOPS)~~

~~If the contingency procedures are employed by a twin engine aircraft as a result of an engine shutdown or failure of an ETOPS critical system, the pilot should advise ATC as soon as practicable of the situation, reminding ATC of the type of aircraft involved, and request expeditious handling.~~

<i>Origin</i>	<i>Rationale</i>
SASP/2	The existing Section 15.2.2.4 is considered unnecessary as ATC response is not predicated on ETOPS, noting also that aircraft type information is readily available to the controller.

**15.2.3 Actions to be taken once offset from track**

*Note. — The pilot's judgement of the situation and the need to ensure the safety of the aircraft will determine the actions outlined to be taken. Factors for the pilot to consider when deviating from the cleared track or ATS route or level without an ATC clearance include, but are not limited to:*

- a) operation within a parallel track system;*
- b) the potential for user preferred routes (UPRs) parallel to the aircraft's track or ATS route;*
- c) the nature of the contingency (e.g. aircraft system malfunction); and*
- d) weather factors (e.g. convective weather at lower flight levels).*

<i>Origin</i>	<i>Rationale</i>
SASP/2	The factors listed in 15.2.3.1 differ from those in 15.2.2.1 a) in that they are specific to the decision to divert without an ATC clearance, not the direction of the turn applied.

15.2.3.1. If possible, maintain the assigned flight level until established on the 9.3 km (5.0 NM) parallel, same direction track or ATS route offset. If unable, initially minimize the rate of descent to the extent that is operationally feasible.

15.2.3.2 Once established on a parallel, same direction track or ATS route offset by 9.3 km (5.0 NM), either:

- a) descend below FL 290, and establish a 150 m (500 ft) vertical offset from those flight levels normally used, and proceed as required by the operational situation or if an ATC clearance has been obtained, in accordance with the clearance; or

*Note 1. — Flight levels normally used are those contained in Annex 2 — Rules of the Air, Appendix 3.*

*Note 2. — Descent below FL 290 is considered particularly applicable to operations where there is a predominant traffic flow (e.g. east-west) or parallel track system where the aircraft's diversion path will likely cross adjacent tracks or ATS routes. A descent below FL 290 can decrease the likelihood of conflict with other aircraft, ACAS RA events and delays in obtaining a revised ATC clearance.*

<i>Origin</i>	<i>Rationale</i>
SASP/2	In a closely spaced OTS situation with busy traffic flow (such as in the NAT airspace), descent below the busiest airspace is consistent with the existing recommendation that the aircraft should be flown at a flight level and on an offset track where other aircraft are least likely to be encountered.

- b) establish a 150 m (500 ft) vertical offset (or 300 m (1000 ft) vertical offset if above FL 410) from those flight levels normally used, and proceed as required by the operational situation, or if an ATC clearance has been obtained, in accordance with the clearance.

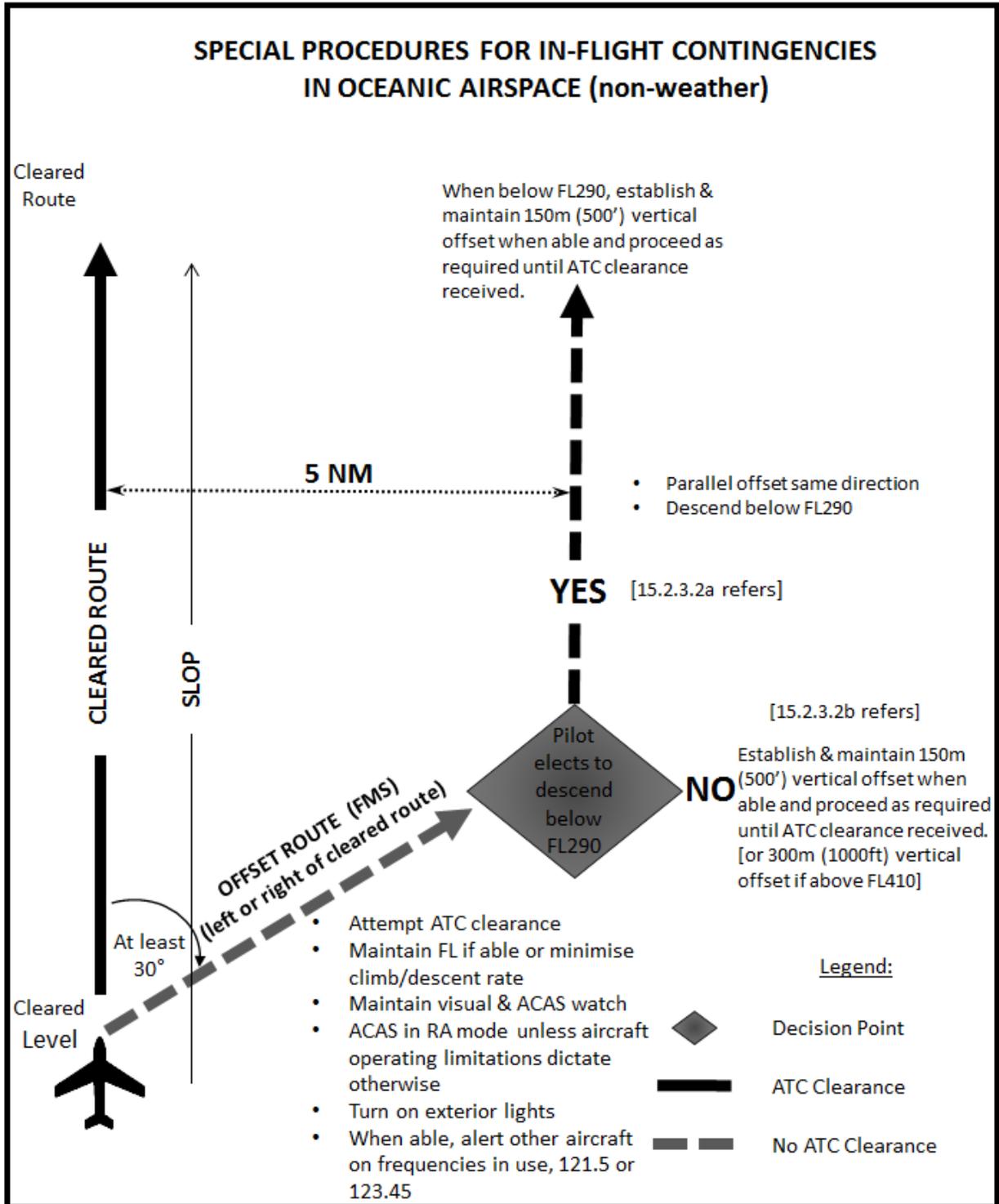
*Note.* — *Altimetry system errors (ASE) may result in less than 150 m (500 ft) vertical spacing (less than 300 m (1000 ft) above FL410) when the above contingency procedure is applied.*

<i>Origin</i>	<i>Rationale</i>
SASP/2	Acknowledging that circumstances may preclude descent below FL 290, it is prudent to ensure awareness of the effect of ASE on emergency vertical separations.

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*Insert new figure as follows*

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**Figure 15-1. Visual aid for contingency procedures guidance**

Origin SASP	Rationale The provision of a quick reference card/figure provides an operationally useful summary of the (amended) contingency procedures.
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**15.2.34 Weather deviation procedures**

15.2.34.1 GENERAL

*Note.— The following procedures are intended for deviations around adverse meteorological conditions.*

15.2.34.1.1 When weather deviation is required, the pilot should initiate communications with ATC via voice or CPDLC. A rapid response may be obtained by either:

- a) stating “WEATHER DEVIATION REQUIRED” to indicate that priority is desired on the frequency and for ATC response; or
- b) requesting a weather deviation using a CPDLC lateral downlink message.

15.2.4.1.2 When necessary, the pilot should initiate the communications using the urgency call “PAN PAN” (preferably spoken three times) or by using a CPDLC urgency downlink message.

15.2.34.1.23 The pilot shall inform ATC when weather deviation is no longer required, or when a weather deviation has been completed and the aircraft has returned to its cleared route.

15.2.34.2 ACTIONS TO BE TAKEN WHEN CONTROLLER-PILOT COMMUNICATIONS ARE ESTABLISHED

15.2.34.2.1 The pilot should notify ATC and request clearance to deviate from track or ATS route, advising, when possible, the extent of the deviation expected requested. The flight crew will use whatever means are appropriate (i.e. voice and/or CPDLC) to communicate during a weather deviation.

*Note.— Pilots are advised to contact ATC as soon as possible with requests for clearance in order to provide adequate time for the request to be assessed and acted upon.*

<b>Origin</b>	<b>Rationale</b>
SASP	Existing Section 15.2.3.1.1 and 15.2.3.2.1 are amended to incorporate guidance regarding communication between the pilot and ATC via CPDLC.

15.2.34.2.2 ATC should take one of the following actions:

- a) when appropriate separation can be applied, issue clearance to deviate from track; or
- b) if there is conflicting traffic and ATC is unable to establish appropriate separation, ATC shall:
  - 1) advise the pilot of inability to issue clearance for the requested deviation;
  - 2) advise the pilot of conflicting traffic; and

- 3) request the pilot's intentions.

15.2.34.2.3 The pilot should take the following actions:

- a) comply with the ATC clearance issued; or
- b) advise ATC of intentions and execute the procedures detailed in 15.2.34.3.

15.2.34.3 ACTIONS TO BE TAKEN IF A REVISED  
ATC CLEARANCE CANNOT BE OBTAINED

*Note.— The provisions of this section apply to situations where a pilot needs to exercise the authority of a pilot-in-command under the provisions of Annex 2, 2.3.1.*

15.2.4.3.1 If the aircraft is required to deviate from track or ATS route to avoid adverse meteorological conditions and prior clearance cannot be obtained, an ATC clearance shall be obtained at the earliest possible time. Until an ATC clearance is received, the pilot shall take the following actions:

- a) if possible, deviate away from an organized track or ATS route system;
- b) establish communications with and alert nearby aircraft by broadcasting, at suitable intervals: aircraft identification, flight level, position (including ATS route designator or the track code) and intentions, on the frequency in use and on 121.5 MHz (or, as a backup, on the inter-pilot air-to-air frequency 123.45 MHz);
- c) watch for conflicting traffic both visually and by reference to ACAS (if equipped);

*—Note.— If, as a result of actions taken under the provisions of 15.2.3.3.1 b) and c), the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.*

- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);
- e) for deviations of less than ~~19 km (10 NM)~~ 9.3 km (5.0 NM) from the originally cleared track or ATS route, remain at a level assigned by ATC;
- f) for deviations greater than, or equal to ~~19 km (10 NM)~~ 9.3 km (5 NM) from the originally cleared track or ATS route, when the aircraft is approximately ~~19 km (10 NM)~~ 9.3 km (5.0 NM) from track, initiate a level change in accordance with Table 15-1;
- g) if the pilot receives clearance to deviate from cleared track or ATS route for a specified distance and, subsequently, requests, but cannot obtain a clearance to deviate beyond that distance, the pilot should apply an altitude offset in accordance with Table 15-1 before deviating beyond the cleared distance;

- gh) when returning to track or ATS route, be at its assigned flight level when the aircraft is within approximately ~~19 km (10 NM)~~ 9.3 km (5.0 NM) of the centre line; and
- hi) if contact was not established prior to deviating, continue to attempt to contact ATC to obtain a clearance. If contact was established, continue to keep ATC advised of intentions and obtain essential traffic information.

*Note.— If, as a result of actions taken under the provisions of 15.2.4.3.1, the pilot determines that there is another aircraft at or near the same flight level with which a conflict may occur, then the pilot is expected to adjust the path of the aircraft, as necessary, to avoid conflict.*

**Table 15-1**

<i>Route centre line track Originally cleared track or ATS route centre line</i>	<i>Deviations &gt; <del>19 km (10 NM)</del> 9.3 km (5.0 NM)</i>	<i>Level change</i>
EAST (000° – 179° magnetic)	LEFT	DESCEND 90 m (300 ft)
	RIGHT	CLIMB 90 m (300 ft)
WEST (180° – 359° magnetic)	LEFT	CLIMB 90 m (300 ft)
	RIGHT	DESCEND 90 m (300 ft)

<i>Origin</i>	<i>Rationale</i>
SASP/2	<p>With the continued reduction of lateral separation Standards, it has become necessary to revise the recommended lateral offset distance, consistent with that provided elsewhere in this initial proposal.</p> <p>Table 15-1 is also formatted slightly differently for clarity.</p>

**INITIAL PROPOSAL 8**

**16.5 STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)**

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*Note.— Information concerning the implementation of strategic lateral offset procedures is contained in the Implementation of Strategic Lateral Offset Procedures (Circular ~~334~~354).*

16.5.2 Strategic lateral offsets shall be authorized only in en-route airspace as follows:

- a) where the lateral separation minima or spacing between route centre lines is ~~42.6 km (23 NM)~~ 28 km (15 NM) or more, offsets to the right of the centre line relative to the direction of flight in tenths of a nautical mile up to a maximum of 3.7 km (2 NM); and
- b) where the lateral separation minima or spacing between route centre lines is 19 km (10 NM) or more and less than 28 km (15 NM), while one aircraft climbs/descends through the level of another aircraft, offsets to the right of the centre line relative to the direction of flight in tenths of a nautical mile up to a maximum of 3.7 km (2 NM); and
- b) where the lateral separation minima or spacing between route centre lines is 11.1 km (6 NM) or more and less than ~~42.6 km (23 NM)~~ 28 km (15 NM), offsets to the right of the centre line relative to the direction of flight in tenths of a nautical mile up to a maximum of 0.9 km (0.5 NM).

*Note.— Refer to 5.4.1.2.1.6 for lateral separation of aircraft on parallel or non-intersecting tracks or ATS routes.*

<i>Origin</i>	<i>Rationale</i>
SASP/2	Collision risk modelling by SASP incorporating updated actual and theoretical navigation performance not only supports the reduction of lateral separation Standards, but also the application of full (3.7 km, 2 NM) SLOP below the current limitation of 42.6 km (23 NM).

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ATTACHMENT B to State letter AN 13/2.5 - 19/32

**RESPONSE FORM TO BE COMPLETED AND RETURNED TO ICAO TOGETHER WITH ANY COMMENTS YOU MAY HAVE ON THE PROPOSED AMENDMENT**

To: The Secretary General  
International Civil Aviation Organization  
999 Robert-Bourassa Boulevard  
Montréal, Quebec  
Canada, H3C 5H7

(State) \_\_\_\_\_

Please make a checkmark (✓) against one option for each amendment. If you choose options “agreement with comments” or “disagreement with comments”, **please provide your comments on separate sheets.**

	<i>Agreement without comments</i>	<i>Agreement with comments*</i>	<i>Disagreement without comments</i>	<i>Disagreement with comments</i>	<i>No position</i>
Amendment to PANS-ATM (Attachment A refers)					

\*“Agreement with comments” indicates that your State or organization agrees with the intent and overall thrust of the amendment proposal; the comments themselves may include, as necessary, your reservations concerning certain parts of the proposal and/or offer an alternative proposal in this regard.

Signature: \_\_\_\_\_ Date: \_\_\_\_\_

— END —