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The purpose of this North Atlantic Operations Bulletin (NAT OPS) Bulletin is to inform North Atlantic (NAT) operators of upcoming changes to contingency and weather deviation procedures. These procedures are applicable in the NAT Region 28th of March 2019, coincident with the trial of Advanced Surveillance-Enhanced Procedural Separation (ASEPS) using Automatic Dependent Surveillance- Broadcast (ADS-B) in the Shanwick, Gander and Santa Maria Oceanic Control Areas, and will subsequently replace those currently published in the PANS ATM (ICAO Doc 4444).

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NAT OPERATIONS BULLETIN – SPECIAL PROCEDURES FOR IN-FLIGHT CONTINGENCIES IN OCEANIC AIRSPACE

1. Introduction

1.1 These procedures are applicable in the NAT Region 29th of March 2019, coincident with the trial of Advanced Surveillance-Enhanced Procedural Separation (ASEPS) using Automatic Dependent Surveillance- Broadcast (ADS-B) in the Shanwick, Gander and Santa Maria Oceanic Control Areas, and will subsequently replace those currently published in the PANS ATM (ICAO Doc 4444).

1.2 Although all possible contingencies cannot be covered, the procedures in paragraphs 2, 3 and 4 provide for the more frequent cases such as:

- a) inability to comply with assigned clearance due to meteorological conditions, (paragraph 4 refers);
- b) en-route diversion across the prevailing traffic flow (for example, due to medical emergencies (paragraphs 2 and 3 refer)); and
- c) 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 (paragraphs 2 and 3 refer).

Note.— Guidance on procedures to follow when an aircraft experiences a degradation in navigation capabilities can be found in PANS-ATM, Chapter 5, section 5.2.2.

1.3 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.

2. General procedures

Note.— Figure 1 provides an aid for understanding and applying the contingency procedures contained in paragraphs 2 and 3.

2.1 If an aircraft is unable to continue the flight in accordance with its ATC clearance, a revised clearance shall be obtained, whenever possible, prior to initiating any action.

2.2 If prior clearance cannot be obtained, the following contingency procedures should be employed until a revised clearance is received:

- a) leave the cleared route or track by initially turning at least 30 degrees to the right or to the left, in order to intercept and maintain a parallel, direction track or route offset 9.3 km (5.0 NM). The direction of the turn should be based on one or more of the following:
 - 1) aircraft position relative to any organized track or route system,
 - 2) the direction of flights and flight levels allocated on adjacent tracks,
 - 3) the direction to an alternate airport;
 - 4) any strategic lateral offset being flown, and
 - 5) terrain clearance;
- b) the aircraft should be flown at a flight level and an offset track where other aircraft are less likely to be encountered.
- c) 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;

- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);
- e) keep the SSR transponder on at all times and, when able, squawk 7700, as appropriate;
- f) as soon as practicable, the pilot shall advise air traffic control of any deviation from assigned clearance;
- g) use whatever means is appropriate (i.e. voice and/or CPDLC) to communicate during a contingency or emergency;
- h) if voice communication is used, the radiotelephony distress signal (MAYDAY) or urgency signal (PAN PAN) preferably spoken three times, shall be used, as appropriate;
- i) when emergency situations are communicated via CPDLC, the controller may respond via CPDLC. However, the controller may also attempt to make voice communication contact with the aircraft;

Note.— Additional 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).

- j) 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, the nature of the distress condition, intention of the person in command, position (including the ATS route designator or the track code, as appropriate) and flight level; and
- k) 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.

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 whether the actions outlined in 3.2 a) or b), will be taken. Factors for the pilot to consider when diverting from the cleared route or track 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 route,
- c) the nature of the contingency (e.g. aircraft system malfunction) and
- d) weather factors (e.g. convective weather at lower flight levels).

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

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

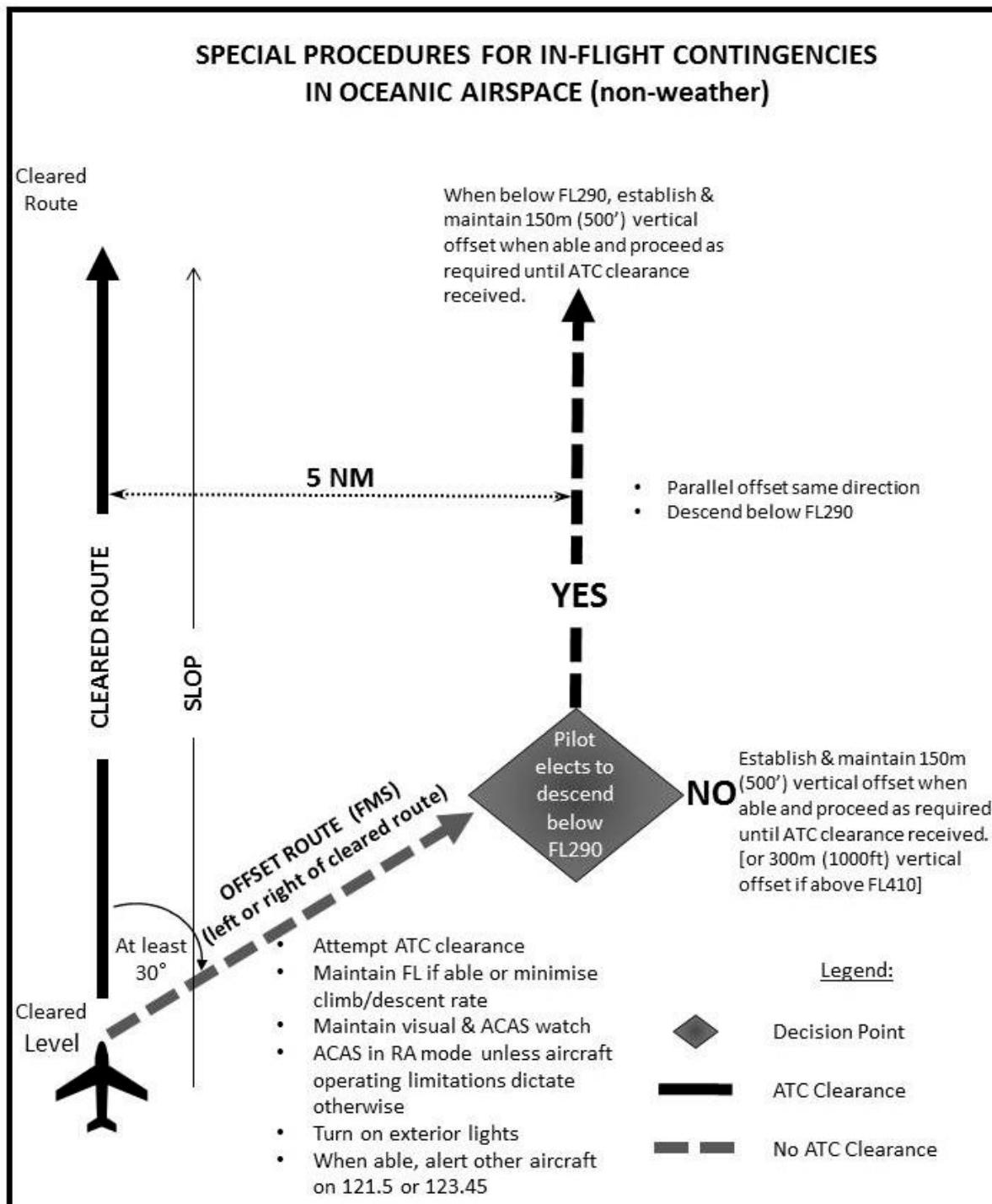
- a) descend below FL 290, and establish a 150 m (500 ft) vertical offset from those flight levels normally used, and proceed as required by the operational situation or if an ATC clearance has been obtained, proceed in accordance with the clearance; or

Note. — 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 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.

- 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, proceed in accordance with the clearance.

Note.— Altimetry System Error may lead to less than actual 500 ft vertical separation when the above procedure is applied. In addition, with the 500 ft vertical offset applied, ACAS RAs may occur.

Figure 1. Visual aid for understanding and applying the contingency procedures guidance.



4. Weather deviation procedures

4.1 GENERAL

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

4.1.1 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.

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.

4.1.3 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.

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

4.2.1 The pilot should notify ATC and request clearance to deviate from track or route, advising, when possible, the extent of the deviation requested. The flight crew will use whatever means is 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 time for the request to be assessed and acted upon.

4.2.2 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.

4.2.3 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 paragraph 4.3.

4.3 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.

4.3.1 If the aircraft is required to deviate from track or 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 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);
- d) turn on all aircraft exterior lights (commensurate with appropriate operating limitations);

- e) for deviations of less than 9.3 km (5.0 NM) from the originally cleared track or route remain at a level assigned by ATC;
- f) for deviations greater than or equal to 9.3 km (5.0 NM) from the originally cleared track or route, when the aircraft is approximately 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 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 1 before deviating beyond the cleared distance.
- h) when returning to track or route, be at its assigned flight level when the aircraft is within approximately 9.3 km (5.0 NM) of the centre line; and
- i) 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 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 1

Originally cleared track or route center line	Deviations \geq 9.3 km (5.0 NM)	Level change
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)

5. Websites

5.1 The ICAO EUR/NAT Office Website is at: www.icao.int/eurnat. Click on **EUR & NAT Documents** >> **NAT Documents** to obtain NAT Operations and NAT Region Update Bulletins and related project documents.

6. Contacts

6.1 The following may be contacted for information or to provide feedback:
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