NORTH ATLANTIC REGION UPDATE

Background

The ICAO Separation and Airspace Safety Panel (SASP) has developed "Advanced Surveillance-Enhanced Procedural Separation minima" ASEPS. These separation minima would be based on the use of Automatic Dependent Surveillance Broadcast (ADS-B) whether the ADS-B is ground based or space based and without having VHF voice communications available. The SASP agreed on amendments to the Procedures for Air Navigation Services – Air Traffic Management (PANS-ATM; Doc 4444) with anticipation that these amendments will become effective on November 5, 2020.

Based on these developments and the availability of Space Based (SB) ADS-B in the North Atlantic Region (NAT), the NAT System Planning Group (NAT SPG) decided to implement an operational trial utilizing the ASEPS separations within the NAT commencing on March 28, 2019. While ASEPS addresses both longitudinal and lateral separation oniy the reduced longitudinal separation will be used initially with the possibility of using the reduced lateral separation at some time in the future. Shanwick, Gander and Santa Maria Oceanic Control Areas will commence the trial implementation of the following longitudinal separations. Application of the ATS surveillance based procedural longitudinal separation will be as per the PANS ATM, Doc 4444 proposal for amendment from the ICAO SASP, as paraphrased below:

- 17 NM longitudinal separation of aircraft operating on same track or intersecting tracks provided that the relative angle between the tracks is less than 90 degrees;
- 14 NM provided the relative angle between the tracks is less than 45 degrees
- Opposite-direction aircraft on reciprocal tracks may be cleared to climb or descend to or through the levels occupied by another aircraft provided that the aircraft have reported by ADS-B having passed each other by 5 NM.

A trial implementation of lateral ASEPS will commence no earlier than 6 months after the commencement of the longitudinal separation operational trial. Operators will be advised via Aeronautical Information Circular (AIC) a minimum two AIRAC cycles prior to the commencement of lateral ASEPS implementation trial.

NAT Operational Trial

To be eligible for participation in the operational trial the flights must meet the following requirements:

a) RVSM/HLA approval
b) ADS-B, with dedicated 1090 MHz out capability
c) Aircraft meeting the specifications for RNP 4
d) Aircraft meeting the specifications for RCP 240 and RSP 180

There is no requirement to register for the trial participation. If the flight satisfies all of the requirements and the equipment and capabilities are correctly indicated on the filed flight plan the reduced separations may be utilized by air traffic control.

To show that the aircraft meets the equipage and capabilities requirements you should insure the following:

a) Field 10a (Radio communication, navigation and approach aid equipment and capabilities):
   1) Insert “J5” to indicate CPDLC FANS 1/A SATCOM (Inmarsat) or “J7” to indicate CPDLC FANS 1/A SATCOM (Iridium) data link equipment;
   2) Insert “P2” to indicate RCP 240 approval;
b) Field 10b (Surveillance equipment and capabilities):
   1) Insert “D1” to indicate ADS with FANS 1/A capabilities; and
   2) B1 or B2 to indicate ADS-B
c) Field 18 (Other Information): insert the characters “PBN/” followed by “L1” for RNP 4 and SUR/RSP180
d) There will be no change to non-VHF direct controller-pilot communications infrastructure or procedures using CPDLC, as contained in the Global Operations Data Link (GOLD) Manual (Doc 10037), and Satellite Voice Operations Manual (Doc 10038).
e) Flight crews are expected to comply with normal non-surveillance procedures, which include position reports via voice or ADS-C, and all other operator specific procedures currently used.

The existing FANS1/A infrastructure, including ADS-C waypoint change event contracts, vertical and lateral event contracts and CPDLC confirm assigned route [UM137/DM40], will continue to be utilized to extract intent data (NEXT and NEXT+1) from the flight’s FMS as part of conformance monitoring.

The Strategic Lateral Offset Procedures (SLOP), implemented as a standard operating procedure in the NAT Region since 2004, remain unchanged.

NAT Contingency Procedures

The special procedures for in-flight contingencies in the NAT implemented on March 28, 2019 as listed below are taken directly from the North Atlantic Operations and Airspace manual (NAT Doc 007). These procedures along with the revised weather deviation procedures will be utilized for the duration of the trial and until such time as they are published in ICAO Doc 4444.

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. 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, same 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;

Special Procedures for In-Flight Contingencies

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 and 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.

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 in 13.3.2 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).

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.

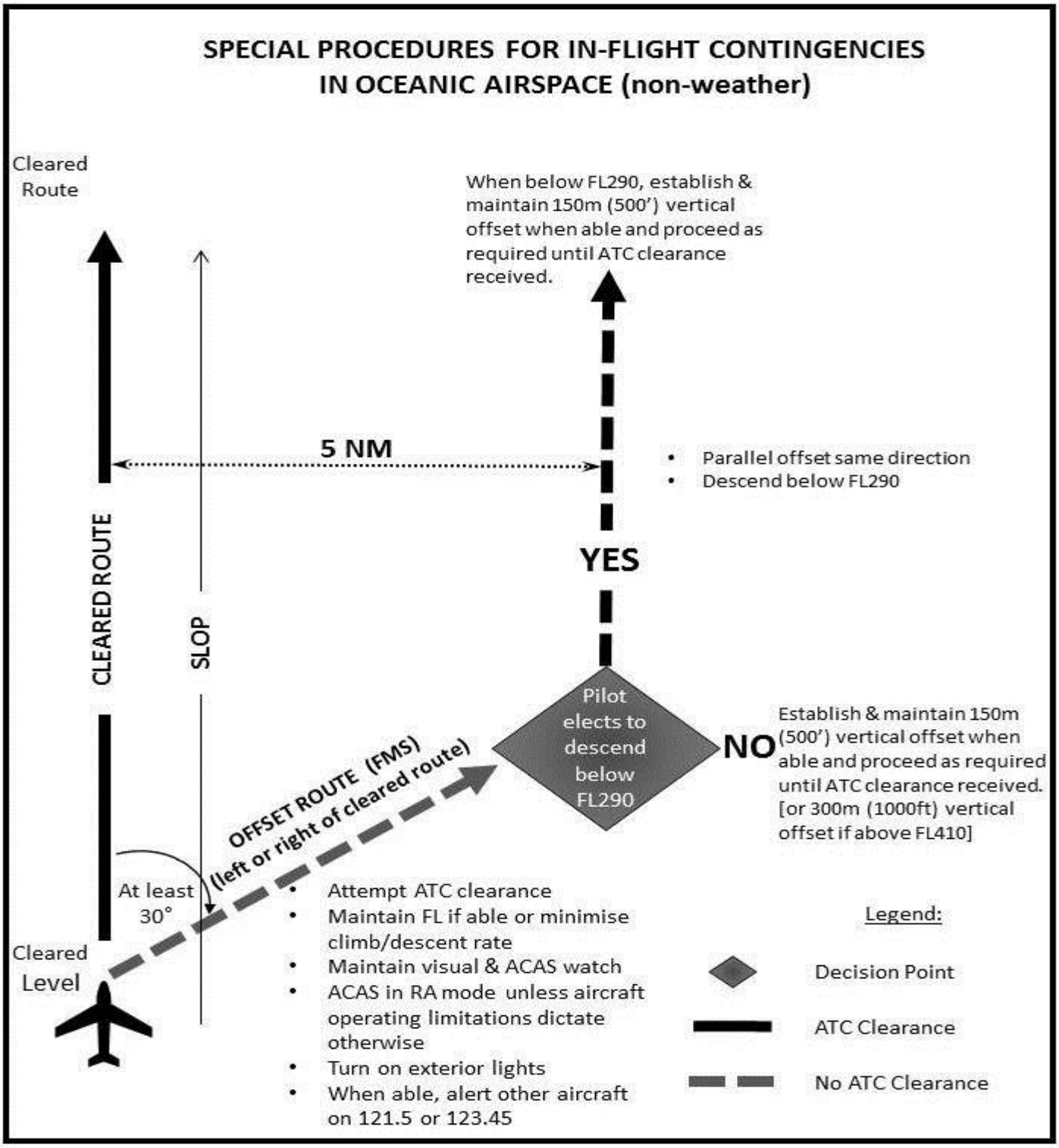
Once established on a parallel, same direction track or route offset by 9.3 km (5.0 NM), either:

a) descend below FL 290, and establish a 150 m (500 ft) vertical offset from those flight levels normally used, then 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 procedures above are applied. In addition, with the 500 ft vertical offset applied, ACAS RAs may occur.



Visual aid for understanding and applying the contingency procedures guidance.

NAT Weather Deviation Procedures

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

When weather deviation is required, the pilot should contact ATC via CPDLC or voice. A rapid response may be obtained by requesting a weather deviation using a CPDLC downlink message (Doc 4444, Appendix 5, Lateral Downlinks (LATD) refers) or stating "WEATHER DEVIATION REQUIRED" to indicate that priority is desired on the frequency and for ATC response. When necessary, the pilot should initiate the communications using CPDLC downlink message (Doc 4444, Appendix 5, Emergency/urgency downlink (EMGD) refers) or by using the urgency call "PAN PAN" (preferably spoken three times).

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.

ACTIONS TO BE TAKEN WHEN CONTROLLER-PILOT COMMUNICATIONS ARE ESTABLISHED

The pilot should contact ATC and request clearance to deviate from track or route, advising the extent of the deviation requested. The flight crew will use whatever means is appropriate (i.e., CPDLC and/or voice) 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.

ATC should take one of the following actions:

a) when appropriate separation can be applied, issue clearance to deviate from track or route; 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.

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

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.

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);

Note. — If, as a result of actions taken under the provisions of 13.4.6 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 9.3 km (5 NM) from the originally cleared track or route remain at a level assigned by ATC;

f) for deviations of more than 9.3 km (5 NM) from the originally cleared track or route, when the aircraft is approximately 9.3 km (5 NM) from track or route, initiate a level change in accordance with Table below;

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 a 300 ft vertical offset from normal cruising levels in accordance with Table 13-1 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 NM) of the center 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.

Originally cleared track or route center line	Deviations ≥ 9.3 km (5.0 NM)	Level Change
EAST 000°- 179° magnetic	LEFT RIGHT	DESCEND 300 ft. (90 m) CLIMB 300 ft. (90 m)
WEST 180°- 359°magnetic	LEFT RIGHT	CLIMB 300 ft. (90 m) DESCEND 300 ft. (90 m)