IFALPA
THE GLOBAL VOICE OF PILOTS
SAFETY BULLETIN

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Strategic Lateral Offset Tracking

The attached document was produced by the International Civil Aviation Organization (ICAO)

With the publication of Guidelines on the use of strategic lateral offsets by the International Civil Aviation Organization (ICAO), IFALPA policy concerning offset tracking has been achieved to a large extent.

While ICAO Annex 2 (paragraph 3.6.2) requires aircraft to operate 'along the defined centre line of ATS routes' it was recognised that due to the increasing number of aircraft operating with highly accurate navigation systems, collison risk in case of loss of vertical separation has increased dramatically during the last decade. The ICAO Separation and Airspace Safety Panel (SASP) has been developing guidelines for lateral offsets over the last couple of years, examining all safety relevant aspects.

IFALPA policy had been established more than 20 years ago and was updated several times since. The main elements, as contained in IFALPA Annex 2, are reproduced below. Some additional details can be found in policies within Annex 11 and Appendix RAC-A.

- IFALPA believes that the availability of accurate airborne navigation systems with the capability to navigate automatically along lateral offset tracks should be used so as to reduce the collision risk in the case of possible loss of vertical separation in suitable ATS environments.
- Consequently, aircraft with navigation equipment certified and operated to Precision RNAV Standards should be allowed and required to navigate offset ... right of centreline.
- Furthermore, because of the high accuracy and increased risk of head-on collision invoked by Global Navigation Satellite Systems (GNSS), IFALPA requires that GNSS referenced airborne navigation systems have an embedded default lateral offset.

The safety assessments performed by the ICAO SASP aimed for maximum standardization world-wide. The restrictions contained in the guidelines had been very deliberately chosen to achieve a procedure that can be used in most circumstances.

High density continental airspace with closely spaced ATS routes (especially when under radar surveillance) might not be suitable for offsets of up to two nautical miles without additional considerations. Pilots are therefore advised to carefully check whether offset tracking has been authorised in a particular airspace.

The new strategic lateral offset procedure has already been authorized for the North Atlantic (NAT) region. Some other ICAO regions are currently finalising administrative arrangements.

IFALPA will promote implementation of the strategic lateral offset guidelines in all appropriate airspaces to provide pilots with a legal basis for this safety-enhancing procedure.

Assistance?

For further details, please contact:

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Ref.: AN 13/11.6-04/85

27 August 2004

Subject: Revised guidelines on the use of strategic lateral offsets

Action required: As indicated in paragraphs 5 and 6

Sir/Madam,

1. I have the honour to invite your attention to the attached revised guidelines on the use of strategic lateral offsets as a safety measure to reduce the risk of collision in the event of loss of vertical separation. On 3 August 2004, the Air Navigation Commission approved the circulation of these guidelines to States and international organizations.

2. You will recall that the use of lateral offsets has been the subject of two previous State letters, AN 13/11.6-00/96 of 3 November 2000 and AN 13/11.6-02/21 of 31 May 2002. The guidelines contained in these letters were, in both cases, based on safety studies undertaken by the Separation and Airspace Safety Panel (SASP). Work has continued in the panel to evaluate the safety of the application of strategic lateral offsets in circumstances other than those permitted by the previous guidelines. As a result of these studies, it has been possible to develop revised guidelines which are less restrictive than the guidelines contained in the previous two State letters.

3. The previous guidelines restricted the offset to 1 NM to the right of track, and limited the use of offsets to global navigation satellite system (GNSS) equipped aircraft. The further safety analyses showed that, in oceanic and remote continental airspace under the conditions specified in the revised guidelines, the application of offsets of up to 2 NM right of track and the use of offsets by all suitably equipped aircraft were acceptable.

4. Annex 2 — *Rules of the Air*, Chapter 3, paragraph 3.6.2.1.1, states: "Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable: a) when on an established ATS route, operate along the defined centre line of that route; or b) when on any other route, operate directly between the navigation facilities and/or points defining that route". As a consequence, the application of strategic lateral offsets in controlled airspace requires authorization by the appropriate air traffic services (ATS) authority. This can be achieved by initial publication of the

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approved offset procedures by NOTAM, followed subsequently by their incorporation in the Aeronautical Information Publication (AIP).

5. As it is desirable that offset procedures be standardized to the maximum extent possible, in order to reduce the likelihood of pilots inadvertently applying procedures different from those specified for the airspace in which they are operating, it is recommended that these strategic lateral offset procedures be implemented on a regional basis, after coordination among all States involved. Action should also be taken to incorporate the procedures and details of the airspace where the procedures will be applied in the *Regional Supplementary Procedures* (Doc 7030).

6. As the studies undertaken by SASP showed that the application of these procedures would result in an overall increase in the safety of operations in remote and oceanic airspace, all States who are responsible for the provision of air traffic services in such airspace are urged to authorize the use of strategic lateral offsets in accordance with these guidelines.

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

for Taïeb Chérif
Secretary General

Enclosure:
Revised guidelines on the use of lateral offsets and the effect on airspace safety

ATTACHMENT to State letter AN 13/11.6-04/85

REVISED GUIDELINES ON THE USE OF STRATEGIC LATERAL OFFSETS AND THE EFFECT ON AIRSPACE SAFETY

1. INTRODUCTION

1.1 These guidelines are based on studies carried out by the ICAO Separation and Airspace Safety Panel (SASP) to address airspace safety issues associated with pilots applying lateral offsets when operating aircraft with automatic offset tracking capability. The intent of offset procedures is to reduce the risk of collision due to a loss of planned vertical separation. The impact of the use of lateral offsets on overall airspace safety has been evaluated and SASP has carried out a technical analysis of safety-related issues. These guidelines are based on the results of this analysis and are provided to assist States and regional planning groups to identify air traffic services (ATS) routes and airspace where authorization of the use of strategic lateral offsets would enhance existing levels of safety.

1.2 The SASP studies took into account the effects of lateral offsets on the safety of parallel routes with a 60 NM route spacing where compliance with the minimum navigation performance specification (MNPS) is required; with a 50 NM route spacing where RNP 10 is specified; and a 30 NM route spacing where RNP 4 is specified, as well as in crossing track situations where navigational accuracies ranging from RNP 4 to RNP 20 were assumed.

1.3 In accordance with Annex 2 — *Rules of the Air*, intentional deviation from the centre line of an ATS route requires authorization. Annex 2, Chapter 3, paragraph 3.6.2.1.1, states:

> "Unless otherwise authorized or directed by the appropriate air traffic control unit, controlled flights shall, in so far as practicable:
>
> a) when on an established ATS route, operate along the defined centre line of that route; or
>
> b) when on any other route, operate directly between the navigation facilities and/or points defining that route."

1.4 As a consequence of this, the implementation of strategic lateral offset procedures requires authorization by the appropriate ATS authority.

2. AIRCRAFT NAVIGATION PERFORMANCE AND AIRSPACE SAFETY

2.1 ICAO separation minima, including lateral route spacings, are based on the assumption that aircraft operate on the centre line of a route. In general, unauthorized deviations from this requirement could compromise safety. However, the use of highly accurate navigation systems (such as global navigation satellite system (GNSS)) reduces the magnitude of lateral deviations from the route centre line and consequently increases the probability of a collision if a loss of vertical separation between aircraft on the same route occurs.

2.2 By using offsets to provide lateral spacing between aircraft, the effect of this reduction in random lateral deviations can be mitigated, thereby reducing the risk of collision. These guidelines provide information on how such a strategic lateral offset procedure should be implemented.

2.3 As the application of strategic lateral offsets, limited in magnitude and direction as prescribed in these guidelines, has the potential to reduce the risk of collision due to a loss of planned vertical separation, ATS authorities are encouraged to authorize the use of such offsets in oceanic and remote continental airspace.

3. IMPLEMENTATION CONSIDERATIONS FOR ATS AUTHORITIES

3.1 The following considerations shall be taken into account when planning authorization of the use of strategic lateral offsets in a particular airspace:

a) strategic lateral offsets shall only be authorized in en-route oceanic or remote continental airspace. Where part of the airspace in question is within radar coverage, transiting aircraft should normally be allowed to initiate or continue offset tracking;

b) strategic lateral offsets may be authorized for the following types of routes (including where routes or route systems intersect):

1) uni-directional and bi-directional routes; and

2) parallel route systems where the spacing between route centre lines is not less than 55.5km (30 NM);

c) in some instances it may be necessary to impose restrictions on the use of strategic lateral offsets, e.g. where their application may be inappropriate for reasons related to obstacle clearance;

d) these offset procedures should be implemented on a regional basis after coordination between all States involved;

e) the routes or airspace where application of strategic lateral offsets is authorized, and the procedures to be followed by pilots, shall be promulgated in aeronautical information publications (AIPs); and

f) air traffic controllers shall be made aware of the airspace within which strategic lateral offsets are authorized.

4. LATERAL OFFSET PROCEDURES TO BE APPLIED BY PILOTS

4.1 In the application of strategic lateral offsets, pilots should take the following points into consideration:

a) offsets shall only be applied in airspace where this has been approved by the appropriate ATS authority;

b) offsets shall be applied only by aircraft with automatic offset tracking capability;

c) the decision to apply a strategic lateral offset is the responsibility of the flight crew;

d) the offset shall be established at a distance of one or two nautical miles to the right of the centre line relative to the direction of flight;

e) the strategic lateral offset procedure has been designed to include offsets to mitigate the effects of wake turbulence of preceding aircraft. If wake turbulence needs to be avoided, one of the three available options (centreline, 1 NM or 2 NM right offset) shall be used;

f) in airspace where the use of lateral offsets has been authorized, pilots are not required to inform air traffic control (ATC) that an offset is being applied; and

g) aircraft transiting areas of radar coverage in airspace where offset tracking is permitted may initiate or continue an offset.

— END —