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## IMPLICATIONS OF REMOVING CONVENTIONAL NAVIGATION EQUIPMENT

### 1 — INTRODUCTION

As of 25 July 2008, the requirements for navigation equipment, as defined in ICAO Annex 6 Part I, paragraph 7.2.1, are changed as follows:

§ 7.2.1. *An aeroplane shall be provided with navigation equipment which will enable it to proceed:*

- *in accordance with its operational flight plan; and*
- *in accordance with the requirements of air traffic services (ATS);*

*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.*

Aircraft in the Amsterdam FIR are therefore no longer required to carry conventional navigation equipment like VOR, DME and ADF for IFR operations.

In the Netherlands ATS routes and ATS procedures are formally approved and established by the Ministers of Defence and Transport, Public Works and Water Management. Publication has been done in the AIP Netherlands. In this publication the relevant navigation equipment needed to fly each (part of the) ATS route or ATS procedure has been published.

The above mentioned ICAO rule has been adopted but is slightly adjusted to fit national legislation and can be found in the regulation 'Regeling navigatie- en telecommunicatie-installaties'.

The aforementioned change in ICAO requirements may seem clear, but have caused some uncertainty by pilots and operators. The purpose of this AIC is to offer some clarification on the matter.

### 2 — OPERATIONAL IMPLICATIONS

Up to 25 July 2008, IFR flights in the Amsterdam FIR were required to carry conventional navigation equipment like VOR, DME and ADF, and for flights above FL 100 two VOR sets. As a result of the new ICAO requirements, some operators have chosen not to install, or remove, conventional navigation equipment like VOR, DME and ADF. In particular for aircraft equipped with GNSS (GPS) this is considered by some good practise. However, this may be a legal course of action considering the new ICAO requirements, the legal and operational implications for RNAV (GNSS) operations can be serious.

Let's consider what the implications are for an IFR flight when VOR, DME and ADF equipment are removed from the aircraft:

- Currently, an aircraft equipped with only GNSS is not allowed to fly IFR on ATS routes and ATS procedures (e.g. SIDs, transitions and approaches) that are based on conventional NAVAIDs. An IFR flight in the Amsterdam FIR will at some stage of the flight use a route (segment) or procedure that requires a conventional NAVAID. For example, RNAV (GNSS) approaches may use conventional NAVAIDs for a missed approach.
- It is possible to fly a conventional approach procedure when the GNSS receiver's database contains the conventional procedure, or just the NDB/locator position. However, the PANS-OPS requirements for flying conventional procedures using RNAV equipment, such as a GNSS receiver, are defined in ICAO PANS-OPS DOC 8168 Vol. I paragraph 1.4.1 as follows:

§ 1.4.1. *Where FMS/RNAV equipment is available, it may be used to fly conventional procedures provided:*

- *the procedure is monitored using the basic display normally associated with that procedure; and*
- *the tolerances for flight using raw data on the basic display are complied with.*

In practical terms this means that, in order to meet the legal requirements, conventional navigation equipment is still needed to monitor instrument approaches.

**Pilots and operators are therefore urged not to fly conventional procedures using only the stored procedures from the on board GNSS receiver's database, unless they can monitor the procedure using conventional basic displays i.e. conventional navigation equipment.**

### 3 — ADDITIONAL INFORMATION

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