GOVERNMENT OF INDIA
OFFICE OF THE DIRECTOR GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP SAFDARJUNG AIRPORT, NEW DELHI

CIVIL AVIATION REQUIREMENTS
SECTION 8 – AIRCRAFT OPERATIONS
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SUBJECT: REQUIREMENTS FOR OPERATIONOF AIRCRAFT IN NORTH ATLANTIC HIGH LEVEL AIRSPACE (NAT HLA)

1. INTRODUCTION

1.1 Sub rule 3 of Rule 9 and Rule 57 of the Aircraft Rules, 1937 stipulate that every airplane shall be fitted with instrument and equipment, including radio apparatus and special equipment, as may be specified according to the use and circumstances under which the flight is to be conducted.

1.2. In accordance with the NAT HLA to PBN Transition Plan for the ICAO North Atlantic Region, with effect from 04 February 2016 that airspace formerly known as the "North Atlantic Minimum Navigational Specifications Airspace" (MNPSA), but excluding the BOTA (Brest Oceanic Transition Area) and SOTA (Shannon Oceanic TransitionArea) areas and with the addition of the BODO Oceanic FIR (FL285-420 inclusive), is re-designated as the **"North Atlantic High Level Airspace" (NAT HLA).**

1.3. The CAR lays down the requirements concerning operations and airworthiness approval of navigation equipment in NAT HLA Airspace. The requirements stipulated in this CAR must be complied with by operators intending to operate their airplanes in NAT HLA airspace.

1.4. The CAR is consistent with Sub rule 3 of Rule 9, Rule 57 of the Aircraft Rules 1937 and is issued under the provisions of Rule 133A of the Aircraft Rules, 1937 for information, guidance and compliance by the concerned commercial and general aviation operators operating to, through and within the NAT HLA airspace. The contents of this CARare consistent with the provisions of ICAO Annex 6, ICAO Doc 4444 and ICAO Doc 7030 on the subject.

1.5. Reference and Documentation:

- NAT Doc 004, Version 1.6, March 2024: NAT Common Aeradio Communications Interface Control Document – NAT SPG

Conclusion 60/3 refers. (Note: to be effective from AIRAC 21 MAR 2024).

- NAT Doc 006 Part I, 2nd Edition, Amendment 2, January 2024: NAT Air Traffic Management Operational Contingency Plan – NAT SPG Conclusion 60/6 refers.
- NAT Doc 006 Part II, Edition 2.2.0, January 2024: Volcanic Ash Contingency Plan, Europe and North Atlantic Regions (EUR/NAT VACP) – NAT SPG Conclusion 60/6 refers.
- NAT Doc 007, V.2024-1 (Applicable from March 2024)
- NAT Doc 008, 1st Edition, Amendment 13, January 2024: Application of Separation Minima – North Atlantic Region – NAT SPG Conclusion 60/7 refers.
- Doc 7030, NAT SUPPs Web Copy, Ed. 5, Amd 9, January 2024: NAT SUPPS Working Copy, Annotated with explanatory notes – NAT SPG Conclusion 60/4 refers.
- NAT OPS Bulletins Checklist – as updated on 22 January 2024; and
- NAT OPS Bulletin - NAT Oceanic Clearance Removal – Revision 01 (Serial no: 2023_001_ Rev 1) – NAT IMG/NAT SOG approval by correspondence by 15 January 2024 refers.

Operator shall ensure revision of documentation and operational procedures in accordance to revisions issued from time to time.

2. NAT HLA AIRSPACE

2.1 A large portion of the airspace of the North Atlantic Region, through which the majority of these North Atlantic crossings route between FLs 285 and 420 inclusive, is designated as the NAT High Level Airspace (NAT HLA). Within this airspace a formal Approval Process by the State of Registry of the aircraft or the State of the Operator ensures that aircraft meet defined NAT HLA Standards and that appropriate crew procedures and training have been adopted. The lateral dimensions of the NAT HLA airspace include the following ControlAreas (CTAs):

REYKJAVIK, SHANWICK (excluding SOTA & BOTA), GANDER, SANTA MARIA OCEANIC, BODO OCEANIC and the portion of NEW YORK OCEANIC EAST which is north of 27°N.

2.2 The main reference document for operations in NAT HLA is NAT Doc 007 - Guidance concerning Air Navigation in and above the NAT HLA which is required to be complied by all operators in this airspace.

3. GENERAL REQUIREMENTS:

3.1 No person or operator shall operate Indian registered aircraft in air space designated as NAT HLA unless:

(a) The operator is authorised by DGCA to perform such operations.

(b) The aircraft has approved navigation performance capability to maintain within the requirements laid down for NAT HLA in NAT Doc 007 - Guidance concerning Air Navigation in and above the NAT HLA (latest edition).

(c) The crew have been trained for NAT HLA and RVSM operations.

3.2 Presently NAT HLA requirements are applicable in the North Atlantic Airspace (NAT). However, NAT HLA requirements may be imposed in any other airspace by the ATS providers. Specifications may not be exactly similar to that of NAT HLA. To meet, the accuracy requirements for navigation in the particular NAT HLA Airspace, appropriateequipment shall be installed for such operations. Individual approval is required for each aircraft and the operator to operate in each NAT HLA airspace as and when such areas are notified and operator wishes to operate in such airspace.

3.3 Special arrangements for the penetration of NAT HLA airspace by non-NAT HLA approved aircraft shall be in accordance with NAT Doc 007 (latest version).

3.4 Special arrangements for the penetration of NAT HLA airspace by non-RVSM approved aircraft shall be in accordance with NAT Doc 007 (latest version).

3.5 Oceanic clearance requirements shall be in accordance with NAT HLA Doc 007 (latest version).

3.6 Rules and procedures for the operation of an aircraft following a radio communications failure (RCF) shall be in accordance with NAT HLA Doc 007 (latest version).

4. HORIZONTAL NAVIGATION REQUIREMENTS FOR UNRESTRICTED MNPS AIRSPACE OPERATIONS

4.1 Longitudinal Navigation

4.1.1 Time-based longitudinal separations between subsequent aircraft following the same track (in-trail) and between aircraft on intersecting tracks in the NAT HLA are assessed in terms of differences in ATAs/ETAs at common points. The time-based longitudinal separation minima currently used in the NAT HLA are thus expressed in clock minutes. The maintenance of in-trail separations is aided by the application of the Mach Number Technique (MNT). However, aircraft clock errors resulting in waypoint ATA errors in position reports can lead to an erosion of actual longitudinal separations between aircraft. It is thus vitally important that the time-keeping device intended to be used to indicate waypoint passing times is accurate and synchronised to an acceptable UTC time signal before commencing flight in the NAT HLA. In many modern aircraft, the Master Clock can only be reset while the aircraft is on the ground. Thus the pre-flight procedures for any NAT HLA operation must include a UTC time check and resynchronisation of the aircraft Master Clock (typically the FMS). Lists of acceptable time sources for this purpose have been promulgated by NAT ATS provider States. A non-exhaustive list is shown in Chapter 6 of NAT Doc 007.

4.1.2 Operations without an assigned fixed speed (OWAFS) were

implemented in July 2019. This implementation allows ATC to issue the clearance RESUME NORMAL SPEED after oceanic entry that allows the flight crew to select a cost index (ECON) speed instead of a fixed Mach number with the condition that ATC must be advised if the speed changes by plus or minus Mach .02 or more from the last assigned Mach number.

4.2 Lateral Navigation

Lateral Navigation shall be in accordance with NAT HLA Doc 007 (latest version).

Equipment

4.2.1 There are two navigational equipment requirements for aircraft planning to operate in the NAT HLA. One refers to the navigation performance that should be achieved, in terms of accuracy. The second refers to the need to carry standby equipment with comparable performance characteristics (ICAO Annex 6 (Operation of Aircraft)).

4.2.2 The navigation system accuracy requirements for NAT HLA operation shall be based on the PBN specifications, RNP 10 (PBN application of RNAV 10) or RNP 4. Although when granting consequent approval for operations in NAT HLA, DGCA may take account of the RNP 10 time limits for aircraft equipped with dual INS or inertial reference unit (IRU) systems. All approvals issued after 04 February 2016 will be designated as "NAT HLA" approvals.

Note 1: With respect to RNAV 10/RNP 10 operations and approvals the nomenclature "RNAV 10 (RNP 10)" is now used throughout this document for consistency with ICAO PBN Manual Doc 9613. As indicated in the PBN Manual RNAV 10 has, and is being, designated and authorized as "RNP 10" irrespective of the fact that such "RNP 10" designation is inconsistent with formal PBN RNP and RNAV specifications, since "RNP 10" already issued operational approvals and "RNP 10" currently designated airspaces in fact do not include any requirements for on-board performance monitoring and alerting. The justification for continuing to use this "RNP 10" nomenclature being that renaming current "RNP 10" routes and/or operational approvals, etc., to an "RNAV 10" designation would be an extensive and expensive task, which is not cost-effective. Consequently, any existing or new RNAV 10 operational approvals will continue to be designated "RNP 10", and any charting annotations will be depicted as "RNP 10".

Note 2: RNP 10 time limits are discussed in Doc 9613, Part B, Volume II, Chapter 1.

4.2.3 While seeking approval for operations in NAT HLA airspace on the basis of PBN navigational standards, Operator shall ensure that in-flight operating drills are approved by DGCA, which include mandatory navigation cross-checking procedures aimed at identifying navigation errors in sufficient time to prevent the aircraft inadvertently deviating from the ATC-cleared route.

5. AIRCRAFT SYSTEM/EQUIPMENT REQUIREMENTS:

In order to consider each aircraft for unrestricted operation in the NAT HLA DGCA approval may presently be granted to an aircraft equipped as follows:

(a) with at least two fully serviceable Long Range Navigation Systems (LRNSs). A LRNS may be one of the following:

- one Inertial Navigation System (INS);
- one Global Navigation Satellite System (GNSS); or
- one navigation system using the inputs from one or more Inertial Reference System (IRS) or any other sensor systemcomplying with the NAT HLA requirement.

Note 1: Currently the only GNSS system fully operational and for which approval material is available, is GPS.

Note 2: FAA Advisory Circular (AC) 20-138() provides guidance on airworthiness approval for positioning and navigation systems, to include GPS. AC 90-105() provides guidance on operational approval for RNP operations in oceanic airspace, to include the requirements for RNP 10 (RNAV 10) and RNP 4 applicable to NAT HLA operations. Equivalent EASA documents are provided in Easy Access Rules for Airborne Communications, Navigation and Surveillance (CS-ACNS).

Note 3: Currently equivalent approval material for GLONASS is not under development but it will need to be available prior to approval of any GLONASS equipped aircraft for NAT HLA operations.

(b) each LRNS must be capable of providing to the flight crew a continuous indication of the aircraft position relative to desired track.

(c) it is also highly desirable that the navigation system employed for the provision of steering guidance is capable of being coupled to the autopilot.

Note : Some aircraft may carry two independent LRNS but only one FMCS. Such an arrangement may meet track keeping parameters but does not provide the required redundancy (in terms of continuous indication of position relative to track or of automatic steering guidance) should the FMCS fail; therefore, in order to obtain NAT HLA certification, dual FMCS is required to be carried. For example: a single INS is considered to be one LRNS; and an FMCS with inputs from one or more IRS/ISS is also considered to be a single LRNS.

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(d) Since MNPS Airspace is now designated as RVSM airspace at all levels (i.e. FL 290-410 inclusive) **specific State RVSM Approval is also required to operate within NAT HLA**. RVSM approvals prescribe both airworthiness requirements to ensure aircraft height-keeping performance in accordance with the RVSM Minimum Aircraft System Performance Specification (MASPS),

and also operational approval for crew operating procedures.

(e) Aircraft operating in RVSM Airspace are required to be compliant with the altimetry MASPS and hold an issued approval. RVSM operations are required to be conducted in MNPS airspace and the following additional equipment shall also be installed.

i) Two fully serviceable independent primary altitude measurement systems;
ii) One automatic altitude-control system;
iii)One altitude-alerting device; and
iv) A functioning Mode-C SSR Transponder.
v) ADS-C and CPDLC (for RLatSM)

(f) Carriage of standby navigation equipment shall be governed by ICAO Annex 6 Part I and Part II – Chapter 7

(g) Any other equipment which meets MNPSA accuracy criteria and is acceptable to DGCA may be installed.

6. OPERATIONAL REQUIREMENT:

6.1 Each operator shall develop NAT HLA operational procedures in accordance with NAT Doc 007 - Guidance concerning Air Navigation in and above the NAT HLA (latest version).

6.2 Each operator shall have a system of evaluation and recording Inertial Navigation System radial errors and ensure that such defects when reported are duly rectified.

7. TRAINING REQUIREMENTS

7.1 Introduction

7.1.1 The operating crew shall be adequately trained and kept proficient for operation of aircraft in NAT HLA and shall be fully aware of the procedures to be followed. During operations in NAT HLA if there is any failure, the pilot shall inform the concerned ATC immediately and comply with their instructions. Operators shall ensure that appropriate guidance is provided to all flight dispatchers in accordance with NAT Doc 007 (latest version).

7.1.2 All initial NAT HLA training courses must be approved by the FSD, DGCA prior to use and the syllabus incorporated in the Operations Manual. Recurrent training is required on an annual basis. The items detailed below should be standardized and incorporated into training programmes and operating practices and procedures.

7.2 Flight Crew Training

The following items shall be included in flight crew training (initial and recurrent) programmes (but not limited to):

(a) Knowledge, understanding and compliance of standard ATC phraseology and track messages used in each area of operations;

(b) MNPS procedures for NAT (and other areas when applicable)

(c) Changes to charting and documents to reflect MNPS.

(d) Navigation equipment required to be operational for flight in designated MNPS airspace, limitations associated with the RNAV equipment;

(e) Flight planning requirements;

(f) Entry, in-flight and exit requirements and procedures

(g) Contingency procedures for system failures or navigation inaccuracies

(h) Position error log and notification requirements;

(i) Operations Manual shall contain all relevant information and procedures

8. MAINTENANCE REQUIREMENTS:

8.1 All equipment/systems pertaining to NAT HLA shall be maintained in accordance with the manufacturers approved maintenance program.

8.2 Aircraft Maintenance Engineers (AME) shall scrutinize the Flight Reports for pilot reported Inertial Navigation System radial errors or failures and ensure that such defects are promptly rectified.

9. MINIMUM EQUIPMENT LIST (MEL)

Each operator shall reflect requirements of minimum navigation systems for NAT HLA in their MEL.

10. VALIDATION FLIGHT(S)

Operational validation flight(s) as required by DGCA, shall be performed on proposed route(s) that the operator intends to operate, as detailed in its NAT HLA specific approval request, validation flight is subject to the assessment by DGCA.

11. APPROVAL

Approval to operate in NAT HLA will be endorsed on the operations specification, AOC issued by the DGCA for commercial operators and a Letter of Authorisation for General Aviation operators. Each aircraft for which the operator is granted authority will be listed.

12. FEES

Fees for NAT HLA approval on first aircraft type with the operator shall be INR. Ten Thousand only.

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