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Amendment to NAMCATS Parts 91, 121 and 135

INTRODUCTION

1. In terms of NAMCAR 11.03.2 this AIC is published to advise of an amendment to Technical Standards as listed in paragraph 3. below.

2. AIC 08/16 advised of the intention to amend NAMCATS Part 91, 121 and 135. Interested parties were invited to comment on the proposal. The period for comment closed on 12 October 2016. No comments were received. Cancel AIC 08/16.

3. This AIC advises of the amendment to NAMCATS Part 91, 121 and 135. viz:

   CATS 91.05.1, 6.2, 6.5, 6.9 (Communications Equipment) – removal of existing rules
   CATS 91.05.1, 6.2, 6.5, 6.9 (Communications Equipment) –introduction of new rules
   CATS 121.05.40, 6.2, 6.5, 6.9 (Communications Equipment) – removal of existing rules
   CATS 121.05.40, 6.2, 6.5, 6.9 (Communications Equipment) – introduction of new rules
   CATS 135.05.29, 6.2, 6.5, 6.9 (Communications Equipment) – removal of existing rules
   CATS 135.05.29, 6.2, 6.5, 6.9 (Communications Equipment) – introduction of new rules

APPLICABILITY

4. This amendment is applicable to fixed wing aircraft operations within Namibia.
5. This amendment is not applicable to PART 127 Operations as these procedures have not yet been implemented within Namibia.
6. The current technical standards refer to GPS in lieu of GNSS and includes these as communication equipment due to the equipment being previously considered a receiver unit only and not used primarily for navigation. As new developments have improved GNSS technology it is the intention of the Directorate to revise regulatory requirements pertaining to GNSS operations and develop stand-alone regulations for such. In the

Interim these amendments will allow operators within Namibia to continue using GNSS facilities particularly for RNP APCH.

BACKGROUND

7. Namibia has embarked on the implementation of Performance Based Navigation (PBN) which includes RNP APCH instrument approach procedures.
8. These RNP APCH procedures use Global Navigation Satellite System (GNSS) as the sensor input for aircraft navigation during these procedures. RNP APCH afford improved safety for aircraft and passengers
9. Current NAM CATS 91, 121 and 135 inter alia state that GPS must not be used for instrument approaches.

   The proposal is in the interests of aviation safety and applies to all mentioned CATS and sub parts stated.

   In accordance with NAMCARS Part 11. 01.2 the Director issues this AIC prior to the gazetting of proposed amendments as indicated herein as an acceptable manner for purposes of compliance to associated regulations in general, particularly in reference to ICAO-issued Standards And Recommended Practices (SARPS), regarding PBN. Thus, this AIC is published pending the updating of the NAMCATS for publication via the Government Gazette.
10. Additional information is written to the existing Technical Standards to enable the use of GNSS derived distance information in lieu of Distance Measuring Equipment (DME) derived distance information, while conducting ILS, LOC or VOR instrument approaches which also have a DME requirement. This will allow an approach to be conducted if the DME ground facility fails, the aircraft on-board DME receiver fails, or the aircraft is not equipped with DME.
11. To demonstrate GNSS derived distance is at least as good as DME derived distance the following tolerances are reproduced from ICAO Circular 322, *Guidelines for the Implementation of GNSS Lateral Separation Minima based on VOR Separation Minima;*

    3.5.1.9 The navigational accuracies were set as:
    a) VOR cross-track: minimum of ±1 NM and ± 5.2 degrees;
    b) NDB cross-track; minimum of ± 1 NM and ± 6.9 degrees;
    c) DME along-track: 0.25 NM plus 1.25 per cent of the slant range; and
    d) GNSS: ± 1 NM (cross-track) and ± 0.124 NM (along-track).
    These are 95th percentile values. Results were calculated using both Gaussian and Double Exponential distributions and then shown separately in tables.

12. In future, ILS and VOR instrument approach charts will carry a notice to this effect. An example is given below:

GNSS permitted in lieu of DME Reference waypoint WHV VOR

13. Where the VOR is collocated with the DME facility, the reference waypoint will be the VOR.

14. When using GNSS derived distance information on an ILS, LOC or VOR instrument approach procedure, the pilot in command must ensure:
    a. that the GNSS distance information is based on the coordinates of the DME that is associated with the current published instrument approach procedure; and
    b. that current data for the DME coordinates is permanently stored in the GNSS database.

Ms Angeline Simana

Acting Executive Director

Namibian Civil Aviation Authority

EXPLANATORY NOTE:

_____ Words underlined with solid line indicate insertions

[ ] Words in bold type in square brackets indicate omissions

Section 6.2 of NAMCATS 91.05.1 is amended as follows –

6.2 Purpose

(1) This paragraph prescribes the requirements for the use of **[a GPS]** GNSS within Namibian airspace, for the purpose of -

(a) position fixing;

(b) long range navigation including operations on designated RNAV routes;

(c) deriving distance information, for en route navigation, traffic information, **[and]** ATC separation; and instrument approaches; and

(d) application of RNAV based separation.

(2) **[GPS]** GNSS must not be used as a sole means navigation system **[or for instrument approaches]**.

(3) **[GPS]** GNSS may **[continue to]** be used as an en route supplemental navigation aid.

6.5 Airworthiness requirements

The following airworthiness requirements must be satisfied:

(1) **[GPS navigation equipment must have US FAA Technical Standard Order (TSO) C-129 (or CAD approved equivalent) authorisation]**; GNSS navigation equipment must have EU EUROCAE Technical Standard Order (E/TSO) or US FAA Technical Standard Order (TSO) C129a, C145a or C146a (or CAD approved equivalent) authorisation;

[(2) if the GPS is installed in such a way that it is integrated with the aircrafts autopilot and navigation system, the GPS must be de-energised when ILS is selected;]

[(3)] (2) the aircraft must be placarded that the **[GPS]** GNSS is not approved as a sole navigation aid **[and/or approach aid];** and

(4) automatic barometric aiding function, as provided by E/TSO C-129, must be connected.

Notes: 1. Owners, operators and pilots-in-command should be aware that ***[not all]*** *TSO C129 receivers* ***[will meet the requirements for future non-precision approaches, other than "GPS Arrivals", and "DME or GPS Arrivals"]*** *may not be able to take advantage of future enhanced GNSS capabilities, such as wide area or local area augmentation systems (SBAS or GBAS).*

[2. Owners, operators and pilots-in-command should also be aware that TSO C-129 receivers may not be able to take advantage of future enhanced GPS capabilities, such as wide area or local area augmentation systems (WAAS or LAAS).]

[3. Owners, operators and pilots-in-command should ensure that receivers are upgradable to accommodate future augmentation which will be required in terminal areas and for approaches.]

6.9 **[GPS]** GNSS distance information to air traffic service units

Add new point 7 after existing point 6

(7) The pilot-in-command must, when using GNSS derived distance information on an ILS/DME or LOC/DME or VOR/DME instrument approach procedure, ensure —

(1) that the GNSS distance information is based on the co-ordinates of the DME that is associated with the current published instrument approach procedure; and

(2) that current data for the DME co-ordinates is permanently stored in the GNSS database.

Section 6.2 of NAMCATS 121.05.40 is amended as follows –

6.2 Purpose

(1) This paragraph prescribes the requirements for the use of **[a GPS]** GNSS within Namibian airspace, for the purpose of -

(a) position fixing;

(b) long range navigation including operations on designated RNAV routes;

(c) deriving distance information, for en route navigation, traffic information**, [and]** ATC separation; and instrument approaches; and

(d) application of RNAV based separation.

(2) **[GPS]** GNSS must not be used as a sole means navigation system **[or for instrument approaches]**.

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[(2) if the GPS is installed in such a way that it is integrated with the aircrafts autopilot and navigation system, the GPS must be de-energised when ILS is selected;]

[(3)] (2) the aircraft must be placarded that the **[GPS]** GNSS is not approved as a sole navigation aid **[and/or approach aid];** and

(4) automatic barometric aiding function, as provided by E/TSO C-129, must be connected.

*Notes: 1. Owners, operators and pilots-in-command should be aware that **[not all]** TSO C129 receivers **[will meet the requirements for future non-precision approaches, other than AGPS Arrivals, and ADME or GPS Arrivals]** may not be able to take advantage of future enhanced GNSS capabilities, such as wide area or local area augmentation systems (SBAS or GBAS).*

[2. Owners, operators and pilots-in-command should also be aware that TSO C-129 receivers may not be able to take advantage of future enhanced GPS capabilities, such as wide area or local area augmentation systems (WAAS or LAAS).]

[3. Owners, operators and pilots-in-command should ensure that receivers are upgradable to accommodate future augmentation which will be required in terminal areas and for approaches.]

6.9 **[GPS]** GNSS distance information to air traffic service units

Add new point 7 after existing point 6

(7) The pilot-in-command must, when using GNSS derived distance information on an ILS/DME or LOC/DME or VOR/DME instrument approach procedure, ensure —

(1) that the GNSS distance information is based on the co-ordinates of the DME that is associated with the current published instrument approach procedure; and

(2) that current data for the DME co-ordinates is permanently stored in the GNSS database.

Section 6.2 of NAMCATS 135.05.29 is amended as follows –

6.2 Purpose

(1) This paragraph prescribes the requirements for the use of **[a GPS]** GNSS within Namibian airspace, for the purpose of -

(a) position fixing;

(b) long range navigation including operations on designated RNAV routes;

(c) deriving distance information, for en route navigation, traffic information**, [and]** ATC separation; and instrument approaches; and

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(2) **[GPS]** GNSS must not be used as a sole means navigation system **[or for instrument approaches]**.

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The following airworthiness requirements must be satisfied:

(1) **[GPS navigation equipment must have US FAA Technical Standard Order (TSO) C-129 (or CAD approved equivalent) authorisation]**; GNSS navigation equipment must have EU EUROCAE Technical Standard Order (E/TSO) or US FAA Technical Standard Order (TSO) C129a, C145a or C146a (or CAD approved equivalent) authorisation;

[(2) if the GPS is installed in such a way that it is integrated with the aircrafts autopilot and navigation system, the GPS must be de-energised when ILS is selected;]

[(3)] (2) the aircraft must be placarded that the **[GPS]** GNSS is not approved as a sole navigation aid **[and/or approach aid];** and

(4) automatic barometric aiding function, as provided by E/TSO C-129, must be connected.

*Notes: 1. Owners, operators and pilots-in-command should be aware that **[not all]** TSO C129 receivers **[will meet the requirements for future non-precision approaches, other than AGPS Arrivals≅ and ADME or GPS Arrivals≅]** may not be able to take advantage of future enhanced GNSS capabilities, such as wide area or local area augmentation systems (SBAS or GBAS).*

[0. Owners, operators and pilots-in-command should also be aware that TSO C-129 receivers may not be able to take advantage of future enhanced GPS capabilities, such as wide area or local area augmentation systems (WAAS or LAAS).]

[1. Owners, operators and pilots-in-command should ensure that receivers are upgradable to accommodate future augmentation which will be required in terminal areas and for approaches.]

6.9 **[GPS]** GNSS distance information to air traffic service units

Add new point 7 after existing point 6

(7) The pilot-in-command must, when using GNSS derived distance information on an ILS/DME or LOC/DME or VOR/DME instrument approach procedure, ensure —

(1) that the GNSS distance information is based on the co-ordinates of the DME that is associated with the current published instrument approach procedure; and

(2) that current data for the DME co-ordinates is permanently stored in the GNSS database.