

## FIJI AERONAUTICAL INFORMATION CIRCULAR



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**AIC 05/09**  
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**OPS**

**THIS AIC REPLACES AIC 03/04, WHICH IS HEREBY CANCELLED**

### USE OF GPS IN THE FIJI ISLANDS

#### 1. Objective

- 1.1 The purpose of this AIC is to detail the current Authority policy relating to the use of GPS in the Fiji Islands domestic airspace and airspace administered by the Fiji Islands.

*Note: This AIC does not describe the requirements for GPS that is used to determine the aircraft's position as part of an Automatic Dependent Surveillance – Broadcast (ADS-B) surveillance system. The requirements for GPS for ADS-B are specified in Airworthiness Notice 01/08.*

#### 2. Definitions

- 2.1 Fiji has adopted the ICAO definitions relating to the approval of GPS. These are:

*Primary-Means Navigation System* – A navigation system approved for a given operation or phase of flight that must meet accuracy and integrity requirements, but need not meet full availability and continuity of service requirements. Safety is achieved by limiting flights to specific time periods, and through appropriate procedural restrictions.

There is no requirement to have a sole means navigation system on board to support a primary means system.

*Sole-Means Navigation System* – A sole means navigation system for a given phase of flight must enable the aircraft to meet, for that phase of flight, all four navigation system performance requirements: accuracy, integrity, availability, and continuity of service. ADF, VOR, DME and INS are approved sole means navigation systems.

This does not exclude the carriage of other navigation systems. Any sole-means navigation system could include one (stand alone installation) or several sensors, possibly of different types (multi sensor installation).

*Supplemental-Means Navigation System* – A navigation system that must be used in conjunction with a sole means navigation system. Approval for supplemental-means for a given phase of flight requires

that a sole-means navigation system for that phase of flight must be on board and available.

Amongst the navigation system performance for a given phase of flight, a supplemental-means navigation system must meet the same accuracy and integrity requirements as a sole-means system; there is no requirement for a supplemental-means navigation system to meet availability and continuity requirements. Operationally, while accuracy and integrity requirements are being met, a supplemental-means system can be used without any crosscheck against the sole-means system.

Any navigation system approved for supplemental-means could involve one (stand-alone installation) or several sensors, possibly of different types (multi sensor installation).

GPS may be used as a supplemental means en-route IFR navigation aid to provide navigation information for that part of the flight which is outside the rated coverage of conventional navigation aids and to which Dead Reckoning (DR) navigation techniques would otherwise be applied.

### **3. Approval for use**

- 3.1 GPS receivers meeting the requirements of TSO C-129 A1 and TSO C-129a A1 or equivalent approved by the Authority may be used as a *Primary Means Navigation System* to fly any en-route and any approved non-precision GPS (GNSS) approach, in Fiji domestic airspace.
- 3.2 GPS receivers meeting the requirements of TSO C-129 A2 and TSO C-129a A2 or equivalent approved by the Authority, may be used as a *Primary Means Navigation System* to fly en-route only. Cloudbreak procedures are considered as a redefining of an en-route segment of flight

### **4. Airworthiness**

- 4.1 The installation of GPS navigation equipment into aircraft is a modification as defined in Fiji ANR 22 (5) and in order to gain airworthiness approval the equipment and its installation will need to meet the following criteria:
  - (a) Stand-alone equipment must comply with FAA TSO C-129 Class A and meet the installation requirements defined in FAA Advisory Circular 20-138A or its replacement or equivalent.
  - (b) Multi Sensor Equipment must comply with FAA TSO C-129 Class B or C and meet the installation requirements defined in FAA Advisory Circular 20-138 A or its replacement or equivalent.

### **5. Operational Conditions**

- 5.1 A pilot-in-command may use GPS as a navigation system for an oceanic or domestic en-route phase of flight when promulgated waypoint data is available from a data card or is promulgated data that is manually entered in the receiver database.

Manually entered data may be used only if the data entries:

- (a) have been cross-checked for accuracy by at least 2 flight crew members and have been further checked by ensuring that sequential waypoints produce route track and distance segments corresponding to those on the promulgated route; or
- (b) for single pilot operations – have been checked independently against other aeronautical information, such as current maps and charts carried in the aircraft in accordance with ANR 23 (6) Scale A (2)

Where aircraft are regularly flown over any particular route, the operator is expected to ensure that the aircraft's GPS database gives the pilot-in-command the capability of selecting the route to be flown instead of having to compile a route from waypoints. This process will further mitigate any risk from manual data entry.

- 5.2 A pilot-in-command may use GPS as a navigation aid for an oceanic phase of flight only if an appropriate en-route prediction analysis conducted before the flight ensures that GPS availability will provide a useable service.
- 5.3 Operations below the promulgated MSA are not permitted except in accordance with a GPS procedure acceptable to or approved by the Authority.
- 5.4 The aircraft must be equipped with an approved and operational alternative navigation system for use in the event of the failure of the GPS system. It is not necessary for this system to be monitored unless the GPS system fails.
- 5.5 Where GPS is used for IFR navigation to a destination not equipped with a ground based navigation aid, an aerodrome equipped with a ground based air or forecast to have VFR conditions must be nominated as an alternate.

Both the pilot and the operator are responsible for ensuring compatibility of the ground aid and aircraft equipment and that the pilot is appropriately qualified and current

## **6. GPS (GNSS) Non-Precision Approach (NPA)**

- 6.1 GPS (GNSS) NPA charts for Fiji aerodromes, when produced and published, may be used by flight crew who are qualified, and hold the appropriate instrument rating and aid endorsement, in their pilot's licence.

6.2 A GPS (GNSS) NPA may not be conducted unless that instrument approach procedure can be retrieved from a current data card or GPS navigation database.

## 7. Pilot Requirements

7.1 A GPS (GNSS) NPA instrument rating endorsement in the pilot's licence is required, to conduct GPS (GNSS) approaches in IMC.

7.2 A Flight Test is required for an initial GPS endorsement and for regular renewals, as with any other navigation aid. The flight test shall be conducted by a CAAFI authorised examiner.

## 8. Training

8.1 Flight crew wishing to include the GPS NPA instrument rating endorsement in their licence must complete an approved ground training syllabus for GPS before commencing flight training.

## 9. Air Traffic Control Requirements

9.1 Pilots intending to operate over GPS routes are to insert "GPS" in field 18 (other information) of the flight plan form.

9.2 Pilots intending to use GPS on training or test flights utilising abbreviated flight planning or flights utilising Repetitive flight plans are to advise ATC when establishing RT contact prior to taxiing.

9.3 Within controlled airspace, aircraft equipped with GPS may be cleared for a GPS step descent provided:

- (a) the aircraft is on track
- (b) traffic permits

9.4 GPS bearings and distances will be treated in the same way as VOR radials and DME distances by ATC for separation purposes.

9.5 Aircraft may be cleared by ATC for a GPS approach; **however** the onus is upon the pilot to fly the GPS approach procedure appropriate to the limitations of the GPS receiver installed on board. (Refer paragraph 3 - Approval for use).

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