Civil Aviation Safety Authority
of Papua New Guinea

Advisory Circular

AC173-5

Instrument Flight Procedure Maintenance and Periodic Review

Initial Issue

06 February 2025

GENERAL

Civil Aviation Authority Advisory Circulars (AC) contain information about standards, practices and procedures that the Director has found to be an Acceptable Means of Compliance (AMC) with the associated rule.

An AMC is not intended to be the only means of compliance with a rule, and consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices or procedures are found to be acceptable, they will be added to the appropriate Advisory Circular.

PURPOSE

This Advisory Circular provides specific guidance acceptable to the Director, for showing compliance with Civil Aviation Rule 173 Maintenance Requirements of Instrument Flight Procedures requirements and explanatory material to assist in showing compliance.

RELATED CAR

This AC relates to Civil Aviation Rule Part 173, specifically rules:

- 173.61 Maintenance of Instrument Flight Procedures
- 173.63 Error correction in promulgated procedures
- 173.65 Cancellation or withdrawal of an Instrument Flight Procedure
- 173.105 Cessation of maintenance of an Instrument Flight Procedure

CHANGE NOTICE

There was no previous issue of this AC, consequently no change is in effect.

APPROVAL

This AC has been approved for publication by the Director of Civil Aviation

Table of Content

1. General

Instrument Flight Procedures (IFPs) are kept safe, accurate, and current by the ongoing maintenance process, which also adapts to environmental changes. The activities that may make up the maintenance process are as follows:

Continuous Maintenance Process

1. **Feedback Collection:**
   - **Stakeholders** such as pilots, air traffic controllers, and airport operators provide feedback on the instrument procedures.
   - This feedback is channeled through Aeronautical Information Services (AIS).
2. **Identification of Critical Changes:**
   - **Obstacles**: Any new obstacles within a certain radius of the Aerodrome Reference Point (ARP) are identified. This could include new buildings, towers, or other structures.
   - **Navigation Aids**: Changes such as the decommissioning of a secondary navigation aid that supports the procedure.
   - **Runway Modifications**: Planned extensions or reductions of runways that could affect the procedure.
3. **Notification and Response:**
   - **AIS Notification**: AIS issues a NOTAM (Notice to Airmen) for any unplanned critical changes. This ensures that all relevant parties are immediately informed.
   - **Procedure Designer Notification**: AIS informs the procedure designer about the NOTAM and the critical change.
4. **Corrective Action:**
   - The **procedure designer** reviews the critical change and assesses its impact on the instrument procedure.
   - Necessary **revisions** are made to the procedure to ensure safety and compliance with regulations.
5. **Implementation and Monitoring:**
   - The revised procedure is **implemented** and disseminated to all stakeholders.
   - Continuous **monitoring** ensures that any further changes are promptly addressed.

Examples of Critical Changes

- **Erection of an Obstacle**: If a new building is constructed near the airport, it could interfere with the flight path. The procedure designer would need to adjust the approach or departure paths accordingly.
- **Decommissioning of a Navigation Aid**: If a VOR (VHF Omnidirectional Range) station is decommissioned, alternative navigation aids or procedures need to be established.
- **Runway Extension/Reduction**: Changes to the runway length could affect takeoff and landing distances, requiring adjustments to the procedure.

2. Subpart B — Certification Requirements

EM 173.61 Maintenance of Instrument Flight Procedures

1. **[Rule 173.61(a)] Establishing a Maintenance Process**:

   - **Objective**: Ensure that every instrument flight procedure remains accurate, safe, and compliant with regulations.
   - **Components**:
     - **Documentation**: Clearly document the maintenance process, including the steps and criteria for reviewing and updating procedures.
     - **Stakeholder Involvement**: Engage relevant stakeholders, such as pilots, air traffic controllers, and airport operators, to provide feedback and identify potential issues.

2. **[Rule 173.61(b)] Review and Validation**:

   - **Periodic Review**:
     - **Frequency**: Conduct reviews at least once every **five (5) years**.
     - **Purpose**: Ensure that the flight procedure continues to meet the applicable standards and requirements.
     - **Process**:
       - **I).** **Data Collection**: Gather all relevant data, including obstacle information, navigation aids, and runway configurations.
       - **II).** **Analysis**: Assess the data to identify any changes or discrepancies.
       - **III).** **Validation**: If necessary, perform flight validation to confirm the accuracy and safety of the procedure.
   - **Data Changes**:
     - **Trigger**: Any change in the data referred to in rule 173.53(a)(2) that may affect the integrity of the instrument flight procedure.
     - **Response**: Review and validate the procedure to ensure it remains accurate and safe.

3. **[Rule 173.61(c)] Documentation:**

   - **Grounds and Criteria**:
     - **Establishing Intervals**: Define the criteria for determining the interval between periodic maintenance reviews.
     - **Changing Intervals**: Document the grounds for changing the review intervals based on factors such as changes in the operational environment, feedback from stakeholders, and regulatory updates.

EM 173.63 Error correction in promulgated procedures

1. [Rule 173.63(a)] Establishing an Error Correction Process:

- **Objective**: Ensure that any identified errors or non-conformances in flight procedures are recorded, investigated, corrected, and reported in accordance with Part 12.
- **Components**:
  - **Recording**: Document any identified errors or non-conformances.
  - **Investigating**: Conduct a thorough investigation to understand the cause and impact of the error or non-conformance.
  - **Correcting**: Implement corrective actions to address the error or non-conformance.
  - **Reporting**: Report the error or non-conformance as required by Part 12.

2. [Rule 173.63(b)] Ensuring Safety and Compliance:

- **Immediate Withdrawal**:
  - **Action**: Withdraw the flight procedure from operational use if the error or non-conformance affects or may affect the safety of aircraft operations.
- **Correction and Certification**:
  - **Action**: Correct the error or non-conformance and have it certified by a senior person authorized under rule 173.56.
- **Promulgation of Corrections**:
  - **Action**: Clearly identify and promulgate the correction by the most appropriate means relative to the operational significance of the error or non-conformance.
- **Source Identification and Prevention**:
  - **Action**: Identify the source of the error or non-conformance and, if possible, eliminate it to prevent recurrence.
  - **Preventive Action**: Ensure that the source of the error or non-conformance has not affected the integrity of any other flight procedure.
- **Authority Notification**:
  - **Action**: Notify the Authority of a promulgated information incident relating to the error or non-conformance in accordance with Part 12.

EM 173.65 Cancellation or Withdrawal of an Instrument Flight Procedure

1. [Rule 173.65(a)(1)] Error Detection and Immediate Withdrawal:

- **Objective**: Ensure the safety of air navigation by addressing errors in visual and instrument flight procedures.
- **Process**:
  - **Immediate Withdrawal**:

- **Action**: If an error is detected that can affect the safety of air navigation, immediately withdraw the use of the procedure until the error is corrected.

- **Request for Cancellation**:
  - **Action**: If the error cannot be corrected, request the Director to cancel the procedure.

2. [Rule 173.65(a)(2)] Inability to Maintain Procedure:

- **Objective**: Ensure that all instrument procedures are maintained in accordance with the established standards.
- **Process**:
  - **Request for Cancellation**:
  - **Action**: If an instrument procedure cannot be maintained in accordance with rule 173.61, request the Director to cancel the procedure.

3. Subpart C — Operating Requirements

EM 173.105 Cessation of Maintenance

1. [Rule 173.105] Notification of Discontinuation:

- **Objective**: Ensure that the Director is informed well in advance if the maintenance of an instrument flight procedure is to be discontinued. This allows for any necessary adjustments or considerations to be made to maintain the safety and efficiency of air navigation.

- **Process**:
  - **Written Notification**:
  - **Action**: The holder of an instrument flight procedure service certificate must notify the Director in writing of the proposal to discontinue maintenance.
  - **Timing**: This notification must be provided at least 60 days before the maintenance ceases.
  - **Content**: The notification should include:
    - The specific instrument flight procedure that will no longer be maintained.
    - The reasons for discontinuing the maintenance.
    - The proposed date when the maintenance will cease.
    - Any potential impacts on air navigation and how they will be mitigated.

- **Key Considerations**
  - **Impact Assessment**: It is crucial to assess the potential impacts of discontinuing the maintenance of an instrument flight procedure. This includes evaluating how the change will affect air traffic, safety, and efficiency.
  - **Stakeholder Communication**: Effective communication with all relevant stakeholders, including pilots, air traffic controllers, and airport operators, is essential to ensure a smooth transition.

- **Mitigation Measures**: Implementing measures to mitigate any negative impacts on air navigation is critical. This may involve providing alternative procedures or additional training for affected personnel.

4. Maintenance & Periodic Review of Instrument Flight Procedures

Periodic Review and Document Retention

1. **Periodic Review:**
   - Published instrument flight procedures must undergo a periodic review to ensure they comply with changing criteria and meet user requirements.
   - The maximum interval for this review is five years.
2. **Document Retention:**
   - All documents related to the instrument flight procedure design should be retained in the procedure design office.
   - These documents assist in recreating the procedure in case of incidents and for periodic review and maintenance.
   - The retention period should be at least the operational lifetime of the procedure.

Maintenance

1. **Maintenance Activities:**
   - Maintenance of an Instrument Flight Procedure (IFP) includes:
     - General text and data amendments.
     - Redesign to conform with changes to design standards.
     - Provision of advice regarding obstructions near the aerodrome or procedure.
     - Redesign or amendment due to changes to critical obstacles.
     - Changes as directed by CASA.
   - Note: This excludes the periodic flight revalidation of procedures.
2. **Safety Procedures for Aerodrome Aeronautical Study:**
   - If written notification about an aerodrome aeronautical study is received from CASA under Part 139, the following safety procedures must be followed:
     - Withdrawal of the IFP design for the aerodrome.
     - Written notification to the aerodrome operator that the IFP design has been withdrawn because the aerodrome was not certified or registered.

Flight Re-Validation of a Procedure

1. **Conduct of Flight Re-Validation:**
   - Flight re-validation of instrument flight procedures must be conducted at intervals not exceeding three years.
   - The aim is to ensure the safety and continuing viability of published procedures.
2. **Goals of Flight Re-Validation:**
   - Confirm the performance of conventional navaids, as navaid calibration checks are conducted on a two-yearly cycle.

- Ensure the adequacy of obstacle clearance in each procedure.
- Locate any new obstacles and/or excessive tree growth.

3. Flight Check Methodology:

- Pending the issue of formal flight check methodology, flight checks are limited to executing the specific procedure.
- The flight crew must include a person with the experience detailed in AC 173-3.

4. Record Keeping:

- A record of these validation checks must be kept by CASA PNG and relevant stakeholders.
- The record will specify the date on which each check is due, the date on which it is conducted, and the result of the check.
- The basis of this report will be a report by the flight crew and IFPSC Organisation, on a form furnished by CASA PNG as per Appendix A

5. APPENDIX A - IFP MAINTENANCE AND PERIODIC REVIEW VALIDATION CHECKLISTS & REPORT FORMS TEMPLATES

A01. Flight Validation Report

Categorising the need for changes into two categories:

Essential (E)

- **Definition:** Changes that are critical and must be implemented to ensure safety, compliance, or operational efficiency.
- **Examples:**
  - Correcting errors that affect the safety of flight operations.
  - Updating procedures to comply with new regulatory requirements.
  - Addressing critical obstacles or changes in the operational environment

Desirable (D).

- **Definition**: Changes that are beneficial but not critical. These changes can improve efficiency, user experience, or operational convenience.
- **Examples**:
  - Enhancing procedures based on user feedback to improve usability.
  - Implementing new technologies or practices that streamline operations.
  - Making adjustments that enhance overall efficiency but are not immediately necessary for safety or compliance

FLIGHT VALIDATION EVALUATION DETAILS			
Test date /No		**ACFT type & Tail No**	
FMS type model		**FMS software/ Release or verification**	
GPWS/ EGPWS DB		**Additional details**	
PIC		**Contact details**	
FO		**Contact details**	
IFPSC Designer		**Contact details**	

Complete this report to record the results of the flight validation. Those segments that do not apply should be so annotated.

	PARAMETERS	**NEED for CHANGE Essential (E) or Desirable (D)**	**COMMENTS**
1.	**COMMON SEGMENTS**		
	SEGMENTS		
	Circling	☐ E ☐ D	
	25/10NM MSA	☐ E ☐ D	
2.	**APPROACH PROCEDURE NAME:**		
	SEGMENTS		
	Initial	☐ E ☐ D	
	Intermediate	☐ E ☐ D	
	Final	☐ E ☐ D	
	Missed Approach	☐ E ☐ D	

	PARAMETERS	NEED for CHANGE Essential (E) or Desirable (D)	COMMENTS
	Holding	☐ E ☐ D	
3.	**APPROACH PROCEDURE NAME:**		
1.	**SEGMENTS**		
	Initial	☐ E ☐ D	
	Final	☐ E ☐ D	
	Missed Approach	☐ E ☐ D	
	Holding	☐ E ☐ D	
4.	**STAR PROCEDURE NAME:**		
2.	**SEGMENTS**		
	En-Route Transition	☐ E ☐ D	
	Initial	☐ E ☐ D	
	Intermediate	☐ E ☐ D	
	Final	☐ E ☐ D	
	Approach Transition	☐ E ☐ D	
5.	**SID PROCEDURE NAME:**		
3.	**SEGMENTS**		
	Initial Climb Segment	☐ E ☐ D	
	Departure Route Segment	☐ E ☐ D	
	Transition Segment	☐ E ☐ D	
6.	**PinS PROCEDURE NAME:**		
	SEGMENTS		
	Initial	☐ E ☐ D	
	Intermediate	☐ E ☐ D	
	Final	☐ E ☐ D	
	Visual	☐ E ☐ D	
	Missed Approach	☐ E ☐ D	

UNIDENTIFIED OBSTACLES			
DESCRIPTION	**APPROXIMATE ELEVATION**	**LOCATION** *latitude/longitude or radial/bearing and distance from a known navigation aid or waypoint.*	**OWNER (if known)**

Certification

1. The specified altitudes of the above instrument procedures have been checked and the procedures are acceptable subject to the above-mentioned changes (if any) being incorporated.

2. The specified altitudes of the SID/STAR have been checked and the procedure is acceptable subject to the above-mentioned changes (if any) being incorporated.

3. The aerodrome is currently certified/registered/other.

4. The WDIs are suitable for straight-in approaches to runways …… and unsuitable for straight-in approaches to runways ……. The suitable WDIs are/are not illuminated.

5. The approach procedures were/were not found to be operationally suitable for straight-in minimas.

(Signature of validation pilot) (Signature of Flight Procedure Designer)