Australian Government
Civil Aviation Safety Authority

PROTOCOL

(OPS.03) Prescribed single-engine aeroplane (PSEA)

December 2023

Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and their continuing connection to land, water and community, and pays respect to Elders past, present and emerging.

Inside front cover artwork: James Baban.

1. Purpose

This protocol is for the assessment of prescribed single-engine aeroplanes (PSEA) under Part 119 and Part 138 of the *Civil Aviation Safety Regulations 1998* (CASR).

Single-engine aeroplanes operated in air transport operations under Part 135 of CASR, and aerial work operations under Part 138 of CASR, should only be operated in conditions of weather and light that allow for a safe forced landing to be executed in the event of engine failure. Operations under the visual flight rules (VFR) at night or in instrument meteorological conditions (IMC) will severely diminish the ability to navigate and land an aeroplane in the event of partial or full power loss. Operations in such conditions may be approved by CASA if the aeroplane type has been assessed to meet a minimum reliability standard of which the operator can maintain the approved configuration, as well as an acceptable standard of aeroplane reliability. The operator is required to have documented practices in normal and emergency procedures, along with ongoing competency requirements.

The approval of PSEA operations is established through approval of the operator's exposition/operations manual as follows:

1. For Part 119 Australian air transport operators approved under regulation 119.075 – if CASA issues the air operator's certificate, CASA is taken to have approved the exposition.
2. For Part 138 aerial work operators approved under regulation 138.045 – if CASA issues the certificate, CASA is taken to have approved the operations manual.
3. If an approval is required under these regulations, the inspector must also approve the significant change.

2. Concept and philosophy

Modern aeroplane propulsion systems generally have highly reliable systems that provide an acceptable level of assurance that a power loss event is categorised as remote (i.e. an engine failure rate of 1 per 100,000 engine hours). This is particularly true of turbine powered aeroplanes.

By assessing the aeroplane type against global reliability failure data supplied by the manufacturer, CASA can approve certain types for operation at night or in IMC conditions. Upon satisfactory assessment, the approval of the type is added to the Type Certificate (TC), Type Acceptance Certificate (TAC) or Supplemental Type Certificate (STC) as appropriate.

Once the type is approved, an operator can use the aeroplane for night and IMC operations if they can show the capability to manage continuing airworthiness, including a reliability program, and maintain the aeroplane configuration established through certification of the type (i.e. aircraft modifications do not invalidate the eligibility for PSEA operations).

3. Process

All administration tasks should follow standard regulatory service administration procedures (as applicable), in addition to the following:

a. For an initial issue:
    i. Air operator certificate (AOC) operators will submit the Air Operator's Certificate / Associated Approvals form (CASA-04-5515) to CASA for an approval under regulation 119.065.
    ii. Aerial work certificate (AWC) operators will submit the Aerial Work Operations form (CASA-04-5505) to CASA for an approval under regulation 138.035.
b. For a significant change:
    i. AOC operators will submit Air Operator's Certificate / Associated Approvals form (CASA-04-5515) to CASA for an approval under regulation 119.090
    ii. AWC operators will submit the Aerial work operations form (CASA-04-5505) to CASA for an approval under regulation 138.062.

b. Regservices will create a case in EAP to be assigned to a CASA inspector as either the project manager or the assessor, depending on the application.

c. Regservices and the inspector should confirm that an EAP stop alert is not active.

d. If required, the project manager will review the application and form a project team to conduct the assessment.

e. All associated CASA staff must be knowledgeable of, and competent with, Principle (OPS.03) Prescribed Single- Engine Aeroplane (PSEA), which provides details for the complete assessment of the application.

f. The aeroplane type will be assessed by the Airworthiness and Engineering Branch (AEB) against minimum baseline design requirements and must be approved for the type. Worksheet A (OPS.03) – PSEA type compliance assessment must be used for the assessment and approval of the type.

g. Global reliability data for a type approved in item (g) above, that is provided by the manufacturer, must be reviewed bi-annually by AEB. Refer to Work Instruction (OPS.03) – PSEA airworthiness biannual assessment..

h. Worksheet B (OPS.03) – PSEA continuing airworthiness assessment provides the detailed steps for the complete technical assessment of the configuration requirements of the type design, continuing airworthiness and reliability program. All steps must be confirmed by a competent airworthiness inspector as satisfactory (or otherwise).

i. Worksheet C (OPS.03) – PSEA flight operations assessment is used by a flying operations inspector to determine that the operational procedures for normal and emergency operation are suitable. The operator must also have a system of flight crew training, assessing and maintaining the competencies to operate the PSEA.

j. For approval of the minimum equipment list use Protocol suite (OPS.01) – Minimum Equipment List (MEL).

k. The relevant sections (determined by scope) of the worksheet(s) must be completed by the CASA inspector and saved as a PDF document in RMS, including:

   i. the assessment summary

   ii. the approval data sheet.

l. If the application is a significant change, the inspector must complete the relevant section on the approval data sheet and provide the revision details for the exposition.

m. The inspector must complete EAP in accordance with the EAP OAS Case Management - Regulatory Oversight Division (ROD) handbook (CASA-03-550).

4. List of supplements

Only the following supplements may be used in support of this protocol. The most recently approved versions will be found on the CASA intranet website. Approved forms are located on CASA's external website.

- Principle (OPS.03) Prescribed single-engine aeroplane (PSEA)
- Worksheet B (OPS.03) PSEA continuing airworthiness assessment
- Worksheet C (OPS.03) PSEA flight operations assessment

For use by AEB only:

- Worksheet A (OPS.03) PSEA Type Compliance Assessment
- Worksheet D (OPS.03) PSEA Airworthiness – biannual assessment
- Work Instruction (OPS.03) PSEA Airworthiness – biannual assessment

5. Scope

This protocol considers both the technical airworthiness and flying operations assessment for PSEA aeroplanes, including the initial review of type by AEB and the validation of a specific aeroplane and operational procedures undertaken by CASA inspectors.

6. Competency requirements

To conduct the assessment, inspectors must have successfully completed the foundation training and advanced regulatory assessment training programs. Inspectors must conduct their first assessment under the supervision of a senior flying operations inspector or senior airworthiness inspector as required.

7. Associated legislation

Table 1. Legislation associated with this protocol

Document	Title
Part 119 of CASR	Australian air transport certification and management
Part 135 of CASR	Australian air transport operations – smaller aircraft
Part 138 of CASR	Aerial work operations
Subpart 121Z of CASR	Certain single-engine aeroplanes
Subpart 42.J of CASR	Approval of maintenance programs and variations of approved maintenance programs
Subpart 42.L of CASR	Approval of reliability programs and variations of approved reliability programs
Regulation 42M of CAR	System of maintenance: approval
Chapter 8 of the Part 135 MOS	Prescribed single-engine aeroplanes
Chapter 7 of the Part 138 MOS	Operations manual
CAO 100.5	General requirements in respect of maintenance of Australian aircraft

8. Guidance references

Table 2. Guidance material relevant to this protocol

Document	Title
AC 42-3(0)	Reliability Programs
AC 135-13v1.0	Prescribed Single Engine Aeroplane
AMC/GM Part 135	Australian air transport operations - smaller aeroplanes

Document	Title
Protocol (MP.01)	Approval of Maintenance Programs
Protocol (MP.02)	Approval of Reliability Programs
Protocol (OPS.01)	Minimum Equipment Lists

9. ICAO references

Table 3. ICAO references applicable to this protocol

Document	Title
Annex 6 Part I, Chapter 5 Section 5.3 & Appendix 3	Operation of Aircraft - Aeroplane performance operating limitations
Annex 6 Part 1, Attachment G	Additional guidance for approved operations by single-engine turbine-powered aeroplanes at night and/or in instrument meteorological conditions (IMC)

10. Revision history

Amendments/revisions of this protocol are recorded below in order of most recent first.

Table 4. Revision history table

Version No.	Date	Parts/Sections	Details
2.1	December 2023	All	Updated to new style template. Process section updated to reflect current process. Minor editorial changes throughout.
2.0	June 2022	All	Added flight operations assessment components (major change). Legislative description (name) has changed from ASETPA to PSEA.
1.1	March 2021	6. Competency Requirements	Added ability for approval of competence on a case-by-case basis.
1.0	June 2020	All	First issue