Australian Government
Civil Aviation Safety Authority

PRINCIPLE

(OPS.137) Aerial application operations - other than rotorcraft

January 2025

Acknowledgement of Country

The Civil Aviation Safety Authority (CASA) respectfully acknowledges the Traditional Custodians of the lands on which our offices are located and the places to which we travel for work. We also acknowledge the Traditional Custodians' continuing connection to land, water and community. We pay our respects to Elders, past and present.

Artwork: James Baban.

Contents

Terminology

Acronyms and abbreviations

Table 1. List of acronyms and abbreviations

Acronym/abbreviation	Description
AAAA	Aerial Application Association of Australia
AC	advisory circular
AFM	aircraft flight manual
AIP	Aeronautical Information Publication
ATC	air traffic control
ATS	air traffic services
ATSB	Australian Transport Safety Bureau
AWI	airworthiness inspector
CAO	Civil Aviation Orders
CASA	Civil Aviation Safety Authority
CASR	Civil Aviation Safety Regulations 1998
CEO	chief executive officer
EFB	electronic flight bag
FCOM	flight crew operating manual
FOI	flying operations inspector
HOFO	head of flight operations
MEL	minimum equipment list
MOS	manual of standards
MTOW	maximum take-off weight
OEM	Original Equipment Manufacturer
OPC	operator proficiency check
PIC	pilot in command
POH	pilot operating handbook
NAA	national aviation authority
NAIPS	National Aeronautical Information Processing System

Acronym/abbreviation	Description
VFR	visual flight rules

Definitions

Table 2. List of definitions

Term	Definition
aerial application operation	has the meaning given by regulation 137.010
application material	means fertiliser, trace elements, seeds, baits, water, pesticides or other material
direct supervision	means doing the following: (a) performing the tasks involved in indirect supervision of the pilot; (b) being present and able to monitor and assess the safety of the flight and communicate directly with the pilot; (c) selecting and planning the area in which the flight is conducted; (d) authorising the pilot to conduct the flight; (e) providing direction to ensure the safety of the flight.
GPS marking system	means a system that uses global positioning system equipment to show the flight path required for an aeroplane when applying application material
indirect supervision	means doing the following: (a) conducting frequent surveillance of the performance of the pilot; (b) periodically reviewing the performance of the pilot in the planning and conduct of the flight; (c) providing feedback on the performance of the pilot; (d) knowing the pilot's area of operations; (e) acting as a mentor to the pilot.
landing area	means a place, whether or not an aerodrome, where an aeroplane is able to take off and land
operations manual	in relation to an operator or an application operation carried out by an operator, means: (a) the manual, and the schedule of differences (if any), approved under regulation 137.050; and (b) any amendments approved under regulation 137.080, 137.085 or 137.090, as appropriate.
resting time	for a pilot, means any time during a tour of duty when the pilot: (a) has no duties to perform; and (b) has access to accommodation that is conducive to rest and includes a comfortable chair
role equipment	means equipment fitted to an aeroplane for an application operation, including booms, spreaders and mirrors

Term	Definition
schedule of differences	or an operator, means the schedule prepared by the operator under paragraph 137.045(3)(c) and approved by CASA under regulation 137.050
sleeping time	for a pilot, means any time during a tour of duty when the pilot: (a) has no duties to perform; and (b) has access to a comfortable room that: (i) is subject to minimal noise levels; and (ii) is well ventilated; and (iii) is equipped with a method of controlling the entry of light; and (iv) is equipped with a comfortable bed and chair.
standard operations manual	means an operations manual approved under regulation 137.040
work area	in relation to an application operation, means: (a) the area of ground or water where application material is to be applied; and (b) the area over which the aeroplane concerned flies as it approaches and departs from the area mentioned in paragraph (a).

Reference to regulations

Unless specified otherwise, all subregulations, regulations, Divisions, Subparts and Parts referenced in this Principle are references to the *Civil Aviation Safety Regulations 1998* (CASR).

Revision history

Amendments/revisions for this principle are recorded below in order of the most recent first.

Table 3. Revision history table

Version No.	Date	Parts / Sections	Details
1.0	January 2025	All	First issue

1. Assessment scope

1.1 Assessment of initial application

Inspectors use this protocol document suite to assess an application for, or transition to, an aerial application operations air operating certificate (AOC) under *Part 137—Aerial application operations*. The assessment will also include relevant regulations in *Part 91—General operating and flight rules*.

Section 28 of the *Civil Aviation Act 1988* (the Act) states CASA must issue an AOC, only if it is satisfied about the matters outlined in paragraphs 28(1) (a) and 28(1)(b) of the Act. Therefore, the primary reason for the assessment of an AOC application is to establish or otherwise this required level of satisfaction for CASA.

Regulation 11.055 states that if an application is submitted for an authorisation in accordance with these regulations, CASA may grant the authorisation if the applicant meets the criteria specified in the regulations. This provision does not refer to the assessment of the AOC but to approvals that can be issued under Part 137.

1.2 Assessment of a variation

Inspectors will also use this protocol suite to assess an AOC application which will result in the issue of a new AOC with a variation or an approval that is not covered by its own specific protocol, such as addition of an aircraft. In this instance, the inspector will define the scope of the assessment in the *Assessment summary* tab of the worksheet (OPS.137). Only those sections of the worksheet that address the new activity or aircraft need be completed.

1.3 Aerial application operations outside the Australian territory

A Part 137 AOC permits the conduct of aerial work activities outside Australian territory, for example over the high seas. However, this does not supplant any specific regulatory requirements and authorisations of a foreign country national aviation authority (NAA) when an Australian operator is operating within that country's territory and areas of aviation safety regulatory responsibility. Those operations would require the approval of the foreign NAA.

Note: An AOC holder will need to gain authorisation from a foreign NAA for the conduct of aerial application operation in their territory.

Example

If an operator was contracted to operate an aerial application activity on behalf of a foreign country, for example firebombing operations in Turkey, the operator would need approval from the foreign NAA to conduct those operations. In this case the operator would need to transit to and from the foreign country under Part 91 of CASR, and then conduct the aerial application operations under the foreign NAA authorisations and approvals.

Note:

If an operator intends to conduct application operations over the high seas outside a foreign NAA airspace, the AOC will be subject to the following condition:

"International operations are limited to operations that do not transit or enter the territory of a foreign state."

1.4 Assessment worksheet user instructions

An AOC application will require assessment by both a flying operations inspector (FOI) and an airworthiness inspector (AWI). A project manager will be appointed to manage the worksheet and ensure all tasks are completed.

This Principle provides guidance to the inspectors when using the associated Worksheet (137) Aerial application operations - other than rotorcraft. The worksheet provides inspectors with a regulation-based tool for recording the outcomes of the assessment.

The worksheet is set out as follows:

- User instructions
- Assessment summary
- Approval data sheet
- Assessment worksheets
  - Applicant
  - Aircraft operations
- Additional assess
- Rev. history.

Some of the worksheet areas may point to another protocol suite to cover that topic. Once the inspector has completed that assessment the results can be recorded in the relevant section of the worksheet (OPS.137).

In this principle, chapters 2–3 provide specific guidance that aligns to the associated sections (tabs) in the assessment worksheets.

1.5 AOC project management

Most AOC applications for aerial application operations will be assessed by both an FOI and an AWI forming the project team. In this case, one of the inspectors will be appointed as the project manager. Depending on the aircraft and aerial application operation proposed, the project team may need to consult with other technical disciplines during the assessment process.

CASA assessment of an AOC application must be treated as a project. It means CASA must have:

- a formal and structured method of managing the certification activities
- activities that have specifically defined outputs that are to be delivered according to a set schedule agreed to by CASA and the applicant
- a clear definition of roles and responsibilities of the resources involved.

It is important that the roles and responsibilities of both CASA and the applicant are clearly understood. It is not the role of the CASA project manager to manage the applicant's project.

1.5.1 Project manager

The project manager is responsible for managing the overall assessment process, coordinating the project team members and ensuring that sufficient resources will be available for CASA to meet the project plan (formerly known as schedule of events). When the project manager is satisfied that the operator can meet the requirements of section 28 of the Act and Part 137 to issue an AOC, the project manager will make a recommendation to the national manager.

The project manager must:

- chair the pre-application and formal application meetings (if required)
- coordinate the creation of the task lists and hours for the estimate
- monitor the progress of work of all team members against projected delivery timeframes and availability of resources

- monitor progress of work of all team members against the estimated cost of work and ensure any projected or actual increase in cost to the applicant, above what was provided in the original estimate, is communicated to the applicant
- ensure the communication protocol enables a free flow of information between CASA and the applicant, including regular meetings with the applicant
- arbitrate in any dispute between CASA and the applicant
- provide a formal point of contact between CASA and the applicant
- keep the certificate team manager informed on the progress of the project
- maintain records of all formal meetings
- following the document evaluation and inspection phases, review the recommendations of the project team, and complete the assessment summary and approval data sheet located in Worksheet (OPS.137) – Aerial application operations - other than rotorcraft

1.5.2 Project team

Flying operations inspector (FOI)

If conducting an inflight assessment from a control seat, the FOI must be listed on the national operations register (NOR) and:

- be qualified under Part 61 for the aircraft type
- meet recent experience requirements.

The FOI will conduct the flight assessment in accordance with the requirements contained in the Flying Qualification & Training Handbook.

If an FOI cannot meet the above requirements and there is no other person qualified, an FOI who has experience on an aircraft type which is substantially similar can be used for the assessment. If there is no FOI that has 'substantially similar' experience, the project manager will consult the national manager to determine who is the most appropriate FOI to conduct the flight assessment.

Airworthiness inspector (AWI)

The AWI must be familiar with the aircraft types that the applicant proposes for the aerial application operation.

Where the applicant requires minimum equipment lists (MELs), system of maintenance, approved maintenance plan (AMP) or reliability programs approved by CASA:

- the AWI must assess those approvals in accordance with the applicable protocol suites
- the AWI must have training or experience on the actual aircraft type or a similar type to carry out those assessments
- prior to carrying out these assessments, the AWI must have undertaken CASA training for these types of assessments.

If an AWI cannot meet the above requirements and there is no other person qualified, an AWI who has experience on an aircraft type which is substantially similar can be used for the assessment. If there is no AWI that has 'substantially similar' experience, the project manager will consult the national manager to determine who is the most appropriate AWI to conduct the assessment.

1.5.3 Project team guidelines

It is in the best interest of CASA and the applicant to ensure that the assessment of the AOC application is conducted smoothly and expediently. The following must be observed:

- the project team and the applicant must maintain ongoing contact to keep abreast of any changes that impact the project

- inadequacies must be documented in CASA records and communicated to the applicant at the earliest possible stage
- the applicant must inform CASA of any changes to the schedule of events, addressing deficiencies or ready for the verification and testing phase. CASA must remind the applicant that schedule changes can affect completion of necessary reviews and result in delays
- much of the communication between CASA and the applicant will be informal and verbal. Project team members must ensure that any commitments or deficiencies are notified and confirmed in writing in a timely manner. The project manager must be notified of these actions
- the project manager must keep the project team members informed of negotiations and significant developments.
- disputes must be arbitrated expeditiously – where an agreement cannot be reached between CASA and the applicant, the matter, along with recommendations, must be documented and referred initially to the national manager.

1.6 Onsite inspections and verification

The requirement for an onsite inspection will depend on the nature and complexity of the system being assessed. To ensure a system is suitable, the inspector may need to interview staff, observe a process or inspect facilities.

1.6.1 Work health and safety

Inspectors conducting an industry onsite visit must assess potential work health and safety (WHS) risks for the site and take steps to mitigate identified risks. If clarification is required on the site WHS risks or mitigations, confirm with site contacts prior to the visit. In addition, inspectors must receive a work health and safety briefing/induction to the location and confirm emergency procedures and access to first aid treatment. Identified risks must be documented on your worksheet along with the steps taken to mitigate them.

For a list of identified potential onsite WHS risks and the controls that are part of CASA's WHS management system refer to WHS Checklist for 3rd party workplaces and consider which risks are relevant to the site being visited. Ensure you have appropriate personal protective equipment (PPE) where required.

1.7 Demonstration flight

The purpose of a demonstration flight is to ensure the applicant can conduct the proposed aerial application operation safely. The demonstration flight is normally an aerial application operation scenario based process and would include such things as:

- planning the aerial application activity
- compiling and managing the operational risks assessment and pre-flight risk review for the aerial application activity
- aerial application risk assessments (if applicable)
- conduct of the aerial application operation.

A demonstration of the proposed aerial application operation would normally be the last part of an assessment to occur before a recommendation is made to a delegate to issue a new AOC.

> Note: A demonstration flight is not to test the competency of the flight crew which is managed under Part 61.

A demonstration flight differs from a proving flight in that the inspectors will normally observe the proposed aerial application operation from the ground.

If the AOC applicant cannot successfully demonstrate their ability to conduct the aerial application operation through a demonstration flight, the demonstration flight will need to be repeated.

The requirement for demonstration flights and what form a demonstration flight must take are at the discretion of CASA.

1.7.1 Decision to conduct a demonstration flight

The project manager should take into account the following as to whether a demonstration flight is required:

- first issue of an AOC for Part 137 operations
- previous aerial application experience of the HOFO

1.7.2 Demonstration flight notification

If CASA determines that a demonstration flight is required the project manager will decide, after consultation with the project team, if the AOC applicant is ready. The demonstration flight must be conducted in accordance with the procedures outlined in the applicant's operations manual, therefore, any outstanding issues in relation to the operations manual must be resolved to CASA's satisfaction prior to the conduct of the demonstration flight.

CASA must provide written notice of the requirement for a demonstration flight the notice will contain:

- proposed date for the conduct of the demonstration flight
- objectives of the demonstration flight
- process CASA will use to conduct the demonstration flight
- safety considerations and conditions that must be observed during the demonstration flight
- means of assessment including the use of test scenarios.

After receiving the notice, the AOC applicant must provide a detailed plan for the conduct of the proposed demonstration flight.

1.7.3 Assessment of the demonstration flight

At the completion of the demonstration flight, the project team (FOI) will meet to decide whether further demonstration flights are required and the need for, and extent, of corrective action required by the AOC applicant.

The project team must agree on the result and rate the AOC applicant against one of the outcomes listed below.

a. The project team finds deficiencies in the AOC applicant's compliance with operations manual processes and procedures or regulatory requirements that do not demonstrate present and suitable (not compliant). If the project manager determines the deficiencies are such that on-ground testing would not be appropriate to verify the AOC applicant has satisfactorily addressed the deficiencies, then the applicant will be deemed to have failed the demonstration flight and a further demonstration flight will be necessary.

b. The project team finds deficiencies in the AOC applicant's compliance with operations manual processes and procedures or regulatory requirements that demonstrate procedures are present but not suitable (not compliant). If the CASA project manager determines a ground exercise can verify the outcome of remedial action, additional demonstration flights may not be required. The AOC applicant will rectify the deficiencies and CASA will verify the deficiencies have been addressed satisfactorily before the AOC is issued.

c. The demonstration flight demonstrated that the operator's procedures are both present and suitable and therefore compliant. Some deficiencies are to be expected during the demonstration flight and all deficiencies will require rectification. The project team will recommend the delegate issue the AOC.

1.7.4 Post demonstration flight

The project team will meet with the AOC applicant to provide a debriefing on the outcome of the demonstration flight. The debriefing should allow the project team to deliver their findings against the measure of present and suitable. CASA and the applicant should agree on the corrective action required to

address any deficiencies. If required, the project team will discuss the time of verification activities to ensure corrective actions have addressed the deficiencies.

The applicant should be given an opportunity to provide feedback on the conduct of the demonstration flight and clarify any concerns they may have with the process.

2. Applicant

2.1 General

To issue an AOC for Part 137 operations CASA must be satisfied, specifically that:

- the applicant's proposed operations manual complies with regulation 137.035
- the applicant can conduct the proposed operations safely and in accordance with their operations manual and legislative/regulatory requirements
- the Chief Executive Officer (CEO), other key personnel, and directors of a corporate applicant, each individually meet the requirements to be considered a fit and proper person
- each member of the key personnel meets the stipulated qualification and experience requirements.

The application form (CASA-04-5643) for aerial application operations requires the applicant to make a statement about their history. The history should include any accidents or incidents or CASA enforcement action that occurred within the previous 10 years.

The concept of a 'fit and proper' person is a fundamental one in many professions, jurisdictions and organisations as it is used to determine a person's honesty, integrity and reputation in order to confirm that they are fit and proper for the role they are undertaking.

Subregulations 11.055(4) describe the matters CASA may consider in deciding whether a person is a fit and proper person.

2.1.1 Fitness and propriety

CASA must be satisfied that each of the proposed key personnel are fit and proper persons to be appointed to the position.

In assessing fitness and propriety, CASA may take into account a number of matters including the following:

- the nominee's record of compliance with regulatory requirements (in Australia or elsewhere) relating to aviation safety and other transport safety
- the applicant's demonstrated attitude towards compliance with regulatory requirements (in Australia or elsewhere) relating to aviation safety and other transport safety
- the applicant's experience (if any) in aviation
- the applicant's knowledge of the regulatory requirements applicable to civil aviation in Australia
- the applicant's history (if any) of serious behavioural problems
- any conviction (other than a spent conviction, within the meaning of Part VIIC of the Crimes Act 1914) of the applicant (in Australia or elsewhere) for a transport safety offence
- any evidence held by CASA that the applicant has contravened:
  - the Act or these Regulations
  - a law of another country relating to aviation safety
  - another law (of Australia or of another country) relating to transport safety.
- any other matter relating to the fitness of the applicant to hold the authorisation.

If any matter is identified that raises concerns as to whether the nominee is a fit and proper person, the inspector must request a peer review by their manager and Legal, International, and Regulatory Affairs (LIRA) before proceeding with any action that would cancel or refuse the application.

3. Assessment

3.1 Operator certification and supervision

3.1.1 Permitted categories of aircraft

The inspector should confirm that the aircraft proposed to be used by the operator are type certified in the normal, restricted or utility category.

3.1.2 Drug and alcohol management plan

Use Protocol suite (OPS.99) DAMP (under development).

3.1.3 Organisational structure

Before a recommendation can be made for the issue of an AOC, inspectors must verify that the AOC applicant is capable of satisfying the applicable matters referred to in subparagraphs 28(1)(b)(i) and (ii) of the Act and Part 137 aerial application operations.

The size and scope of the aerial application operation will determine the required management structure. For example, a small single aeroplane operation may consist of a single person who both manages and conducts the aerial application operation.

The inspector should consider the potential impact on any person holding a managerial position who may be involved with any other legal entity and the impact that involvement may have on their ability to manage the AOC effectively.

Part 137 does not restrict a person holding more than 1 key personnel position or a person being employed on a part time basis to occupy a key personnel position. To be considered suitable the inspector should consider:

- the size nature and scope of application operations
- number of aeroplanes used in application operations
- geographic are of operation.

3.1.3.1 Chain of command

If the organisational structure involves more than 1 individual, the structure must demonstrate the organisational chain of command. The chain of command provides the reporting structure of the organisation and must be appropriate to ensure that the activities can be conducted safely.

The applicant's CEO should be positioned at the pinnacle of the organisational hierarchy, demonstrating the overall responsibility and accountability of the position.

The applicant should demonstrate that clearly defined reporting and communication lines exist between key personnel, management, supervisors and other personnel.

To ensure that each managerial position has a suitable span of control, the applicant's organisational structure should demonstrate that the number of managerial positions is appropriate to the size and scope of the proposed operations.

3.1.3.2 Chief executive officer (CEO)

The CEO is responsible to ensure that all aerial application operations and aeroplane maintenance are carried out to the standard required by the regulations. The operations manual may include a statement of the responsibilities of the CEO including such matters as:

- ensuring that, for the safe conduct of the operator's aerial application operations in accordance with the operator's AOC and operations manual, and the civil aviation legislation, the operator:
  - has sufficient suitably experienced, qualified and competent personnel; and

  - has a suitable management structure; and
  - is adequately financed and resourced.
- ensuring that the operator:
  - sets and maintains standards for the operations in accordance with the operator's operations manual; and
  - complies with the civil aviation legislation; and
  - for each foreign registered aircraft (if any) used in the operations—maintains the aircraft in accordance with the law of the country in which the aircraft is registered; and
- ensuring that the operator's operations manual or schedule of differences is monitored and managed for continuous improvement
- ensuring that key personnel satisfactorily carry out the responsibilities of their positions in accordance with:
  - the operator's operations manual; and
  - the civil aviation legislation

Use Protocol suite (OPS.10) - Key personnel assessment.

3.1.3.3 Head of flight operations (HOFO)

The duties of the head of flight operations must include being responsible for the following:

- monitoring the operator's compliance with the Act, the Regulations and the conditions to which the operator's AOC is subject, and reporting on compliance to the operator's CEO;
- monitoring the adequacy of the operator's systems and procedures to ensure safe operations under the operator's AOC, and reporting on the adequacy of the systems and procedures to the CEO;
- arranging rosters for the pilots employed to carry out application operations for the operator;
- maintaining an efficient system for recording flight and duty times for each pilot;
- maintaining up-to-date records of all licences, ratings, medical certificates and endorsements held by each pilot;
- maintaining a system that will ensure compliance with the relevant loading procedures for each type of aeroplane used in operations carried out under the operator's AOC;
- ensuring that the operator keeps any documents required by the Act, these Regulations and the conditions of the operator's AOC;
- setting and monitoring the standard of application operations, including activities on the ground, carried out under the operator's AOC;
- ensuring that the checking required by Subpart 137.N is carried out and, if a pilot fails a check, that the appropriate retraining and re-checking are carried out;
- allocating an aeroplane for use in each operation carried out under the operator's AOC.

Use Protocol suite (OPS.10) - Key personnel assessment.

3.1.3.4 Head of aeroplane maintenance control (HAMC)

The HAMC is responsible for ensuring the operator complies with Subpart 137.M Aeroplane maintenance which is limited to the fitting and removal of role equipment.

In addition to the Subpart 137.M the operator may also elect to make the HAMC responsible for the continuing airworthiness of the aeroplane. In this case the duties and responsibilities of the HAMC for the management of continuing airworthiness should be included in the operations manual.

Use Protocol suite (OPS.13) Managing continuing airworthiness for assessment

3.1.3.5 Replacement of key personnel

An operator must advise CASA of a proposed change to key personnel as soon as practical. Unlike other regulations, Part 137 does not permit the application operation to continue if a key personnel position is vacant.

Depending on the size of the operator, in addition to the substantive key personnel, the operations manual may include standby or alternate key personnel. To be suitable standby or alternate key personnel must be assessed by CASA as suitable as if they held the substantive position.

The operator must also nominate these persons to be appointed to their key personnel positions within their organisation and notify CASA of these nominations.

3.1.4 Operations manual

An operations manual is a document, or set of documents, which describes how an operator will conduct its operations safely. It sets out, both for CASA and for operator personnel involved in the operation, how to comply with all applicable legislative requirements and manage the safety of the operation, as well as details of each plan, process, procedure, program and system implemented.

If structured as a set of documents, the operations manual might include a principal/primary document which contains all the common information applicable to operator activities. Separate manuals can then be established for specific aspects of certain activities, and the associated systems and procedures applicable to those activities. These separate manuals form part of the operator operations manual.

In constructing the operations manual content, the operator should refer specifically to the list of items in the regulation to ensure completeness of the operations manual. In addition, regulation 137.035(1)(a) requires the operator to include all procedures to be followed by crew members and other persons to ensure the safety of operations. Therefore, even though a particular regulation may not state that the procedures must be set out in the operations manual, the inspector should consider additional procedures are included that may impact safety. Regulation 137.020 states that, "If a provision in these Regulations is inconsistent with a provision in this Part, the provision in this Part prevails to the extent of the inconsistency".

The effect of this regulation is to give relief from many of the Part 91 requirements to the extent that Part 137 provides another requirement.

The operations manual does not need to include Part 91 General operating and flight rules that are intrinsic to the operation of an aircraft and may rely on the Australian Aeronautical Information Publication (AIP).

> The key reason for a Part 137 rule to differ from a Part 91 rule is when the specialised nature of aerial application operations makes it necessary to enable them to be conducted.

To be suitable, the operations manual must be managed under a document control system that allows personnel to readily identify the current version. When assessing the content of the operations manual the inspector should ensure that the quality, readability and usability is fit for purpose.

> If CASA approves an AOC or variation to an AOC, CASA is taken to have approved the operations manual.

Standard operations manual

Regulation 137.040 provides for the approval of a standard operations manual. (SOM). Where an operator adopts a SOM approved under regulation 137.040 the inspector must confirm that the intended aerial application operation sits with in the scope of the SOM.

Operators who utilise SOM must include a schedule to the SOM providing the names of the proposed key personnel and if applicable their alternates.

The operator must also provide a schedule detailing any differences from the SOM that are applicable to their application operations. To be suitable the inspector must be satisfied that the schedule of differences is not such that the original SOM becomes invalid. The schedule should provide additional information as required within the scope of the original SOM.

Operators must submit an amendment to the schedule of differences to CASA for approval before implementing the change.

3.1.5 Reference library

The operations manual must include a reference library in accordance with section 28BH of the Act. An important part of the reference library is access to up-to-date information. Operators may choose to use an electronic flight bag (EFB) to provide their reference library. There are commercial products that will keep these documents up to date or the operator may develop their own EFB program. In either case the operations manual must explain how the reference library will be maintained.

3.1.6 Managing continuing airworthiness

Operators must manage continuing airworthiness in accordance with the requirements of Part 4A - Maintenance and Part 4B - Defect reporting of the Civil Aviation Regulations 1988 (CAR). Use Protocol suite (OPS.13) Managing continuing airworthiness for the assessment.

Addition of a new aeroplane type

The operations manual should include a process for the introduction of new aeroplane. From an airworthiness perspective, to be suitable, the process should include the following:

- ensuring that the CofA is valid for the intended operation
- ensuring that the aircraft is registered
- determining whether the operator is/needs to be the RO
- reviewing historical records of the aircraft
- ensuring that the maintenance schedule is appropriate and complete for aircraft and equipment
- inspecting the aircraft for obvious defects and ensuring that all defects are actioned appropriately
- verifying the aircraft equipment meets all regulatory requirements
- checking that any role, emergency and survival equipment is installed and included in the maintenance schedule
- ensuring that the (aircraft flight manual) AFM is current and contains the correct supplements •
- verifying any modifications are approved, and the continuing airworthiness inspections are included in the maintenance schedule
- verifying all required placards and decals are fitted (refer to the AFM for the minimum requirements)
- ensuring that any maintenance training is completed
- ensuring that a maintenance provider has been selected
- ensuring that an MEL, if required, has been approved prior to commencing the use of the aircraft on an operation for which an MEL is required
- ensuring that a reliability program, if one is required, has been approved prior to commencing the use of the aircraft on an operation for which the program is required.

Section 27AC of the Act provides for CASA to undertake an inspection or test.

The requirement for an aircraft inspection will depend on the complexity of the aircraft and the operator's experience. Inspectors will use Protocol suite (OPS.26) Onsite inspection checklists for aircraft inspections.

3.2 Operational procedures

3.2.1 Operations in foreign airspace and on the high seas

If the operator conducts aerial application operations in an Australian aeroplane outside Australian territory in a foreign jurisdiction, their operations manual must provide instructions for PICs to operate their aeroplane in accordance with the rules of the foreign country. A suitable operations manual may include those rules, or it may refer PICs to foreign regulation documents.

Regulation 91.140 requires that an Australian aircraft operated over the high seas must be operated in accordance with ICAO Annex 2— Rules of the air. A Part 137 operation is considered over the high seas if it conducts an aerial application operation outside the 12nm territorial limit.

Example

A Part 137 operator may be engaged to apply oil dispersant to an oil slick located outside Australian territorial limits

In this case the ICAO Annex 2 states in section 3.1.4:

3.1.4 Dropping or spraying

Nothing shall be dropped or sprayed from an aircraft in flight except under conditions prescribed by the appropriate authority and as indicated by relevant information, advice and/or clearance from the appropriate air traffic services unit.

ICAO Annex 2 defines the "appropriate authority" and the "appropriate ATS authority" as:

Appropriate authority.

a) Regarding flight over the high seas: The relevant authority of the State of Registry.

b) Regarding flight other than over the high seas: The relevant authority of the State having sovereignty over the territory being overflown.

Appropriate ATS authority.

The relevant authority designated by the State responsible for providing air traffic services in the airspace concerned.

Regulation 91.695 (1) and Chapter 23 of the Part 91 MOS prescribes the requirements for the interception of an aircraft. For operations over the high seas the operations manual should include the procedures mentioned in:

- ICAO Annex 2 – Appendix 1 – Signals – Section 2 – Signals for use in the event of interception; and
- ICAO Annex 2 – Appendix 2 – Interception of Civil Aircraft, Attachment A – Interception of Civil Aircraft.

Note: Where an operator intends to conduct application operations over the high seas, the AOC should include the following condition:
"International operations are limited to operations that do not transit or enter the territory of a foreign state."

3.2.2 Weather assessment

Aerial application operations must be conducted in VMC. If an operator is planning an application operation more than 50nm from the departure aerodrome the PIC must obtain a weather report prepared by the Bureau of Meteorology or if this is not available may use their own observations or obtain weather information from another source.

The operations manual must detail the procedures an operator uses to obtain weather assessments for a flight. For example:

- positioning flights from one operating base to another are conducted under Part 91 and therefore the PIC must comply with Chapter 7 of the Part 91 MOS;
- flights which involve travel from a landing area to a work area and back are an aerial application operation and must meet the Part 137 requirements in regulation 137.100 of CASR;
- for application operations the PIC may use National Aeronautical Information Processing System (NAIPS) or if unavailable other weather applications such as "windy weather";
- observations made by a reliable person at the location of the application operation.

In each case the obligation is on the PIC to be satisfied that it is safe to use the observations.

3.2.3 Safety of persons other than crew

The operations manual must include procedures to ensure the safety of persons on the ground during an application operation.

To be suitable the inspector should consider the following matters are addressed by the operations manual:

- specifications and descriptions of the application equipment that must be used for the operation;
- instructions on installing and checking the serviceability of the application equipment on the aircraft;
- normal and emergency procedures for the operation of application equipment;
- instructions for ground personnel (if any) involved in the operation;
- a description of the operational routes permitted for operations, including minimum heights and distances from persons, populous areas, public gatherings, buildings and other structures, and vessels;
- a description of any operational restrictions (if any) with which FCMs must comply during the operation;
- if required the operator's risk assessment procedures.

3.2.4 Safe refuelling of aircraft

An operations manual must include procedures to ensure its aircraft are only refuelled with the approved type of fuel (e.g. JetA1, AVGAS 100 and AVGAS 100LL) and not with any fuel that is prohibited for use by the manufacturer. It must also include procedures to ensure that its aircraft is not loaded with contaminated or degraded fuel. If fuel checks are conducted by a person other than the PIC then the procedure must include how the person advises the PIC that fuel checks have been completed.

An operations manual must include procedures to ensure aircraft are fuelled safely. Aircraft refuelling may be conducted from either:

- a fixed refuelling station and bowser;
- a refuelling tanker;
- fuel drums.

The instructions should ensure that the requirements of regulations 91.470 through to 91.490 are met.

Where fuelling operations are conducted from drums the operations manual will include instructions to ensure the firefighting equipment required by regulation 91.475 is available at the location. Specific instructions must include how to position the drum and ensure that there are no fire hazards.

To be suitable, an inspector should ensure the procedures are appropriate for maintaining the safety of all persons in the vicinity of the aircraft, along with the aircraft itself including:

- communication with ground handling personnel;
- actions required of ground personnel in the event of a fire;
- cessation and removal of ground handling equipment near the aircraft;
- the operation of low-risk electronic devices.

3.2.5 HOT refuelling

The AFM must not prohibit HOT refuelling. Before authorising the hot fuelling of an aircraft, the operator must develop procedures to ensure that the fuelling can be carried out safely. To be considered suitable procedures should include:

- the operational circumstances in which hot refuelling can take place;
- how the refuelling will be conducted considering the aircraft position in relation to the refuelling point;
- any specific requirements in the aircraft's flight manual or equivalent data;
- any requirements of the aerodrome operator;
- procedures for communication between the PIC and the person refuelling the aircraft.

3.2.6 Inflight fuel management

Regulation 137.150 requires the operations manual to include procedures to ensure the aeroplane carries sufficient fuel for the flight and inflight fuel checks and management. The operations manual must specify acceptable methods an operator can use for fuel consumption data to calculate the fuel load for a flight. To be suitable, the operations manual should include a statement that if manufacturer data as presented in the AFM is used, then the data must be used exactly as per manufacturer instructions.

To be suitable the operations manual should include:

- the amount of fuel that must be carried onboard an aircraft for a flight;
- procedures for monitoring the amount of fuel onboard the aircraft during a flight;
- procedures to be considered in determining whether an aircraft has sufficient fuel to complete a flight to the destination safely with the required reserve amount remaining;
- procedures to be followed when the fuel reaches certain specified amounts in flight;
- the regulatory requirement for a PIC to adhere to the approved operator fuel policy.

3.2.7 Documents to be carried on a flight

The operator must ensure that a copy of the aeroplanes flight manual or an approved alternative document is carried on each flight. However, if the operations manual states that only specific parts of the flight manual or other approved document is carried those parts are on board.

To be suitable, the inspector must be satisfied that all parts of the flight manual or approved alternative that are required to support the safety of application operations are carried.

In addition to the above, if a flight proceeds further than 1 hour's flight time from its principle operating base or substitute base the following documents must be carried:

- the flight and maintenance records (maintenance release);
- the aeroplane's certificate of registration or copy;
- the aeroplane's certificate of airworthiness or copy (or, if applicable, special flight permit) or copy;
- the current medical certificate for, and licence of, the pilot or copy.

> A substitute base is where an aeroplane is located for more than 7 days.

To be suitable the operations manual should include instructions to ensure the PIC has the required documents on board or if at a substitute base, the documents are transported to the substitute base and stored in a safe place accessible to the PIC.

3.2.8 Carraige of passengers

As an aerial application operator, the carriage of passengers is prohibited unless the person is a CASA officer, flight examiner who is on board to carry out their duties. A person may also be carried to:

- identify the area where the application material is to be applied, when no application material is applied during the operation, or
- carry out duties associated with their employment.

In each case the person will only be carried as a passenger if:

- the PIC is satisfied it is safe to do so;
- the flight manual permits the carriage of a passenger;
- the aircraft equipment is suitable for the carriage of passengers.

To be suitable, if a person is carried as a passenger the operations manual must provide instructions to ensure the passenger receives a safety briefing which is compliant with the requirements of regulation 91.565 of CASR and section 20.6 of the Part 91 MOS. For example, this briefing may include all or some of the following matters:

- the rules about smoking during the flight;
- when seatbelts must be worn during the flight, and how to use them;
- how and when to adopt the brace position;
- where the emergency exits are, and how to use them;
- how and where to stow, or otherwise secure, carry-on baggage and personal effects
- if survival equipment is carried, and it is intended that a passenger is to use the equipment — where the equipment is carried, and how to use it;
- if life jackets or life rafts are carried — where the jackets or rafts are located, and how to use them;
- the requirement that life jackets must not be inflated inside the aircraft;
- the limitations imposed on the use of portable electronic devices during different stages of the flight.

3.2.9 Application operations over a populous area

In some circumstances an operator may receive a request to conduct application operations over a populous area. For an operator to accept such a request their operations manual must include the procedures for the safe conduct of the application operation.

To be suitable the inspector should confirm the operators process includes:

- who can make the request;
- the planning process for the conduct of the application operation.

A suitable process may include a risk assessment that is scalable according to the nature, size, and complexity of the application operation.

A risk assessment should inform mitigating actions that help limit risks to an acceptable or tolerable level. It is based on the evaluation of the following criteria:

- the severity/consequences of a hazard;
- the likelihood of its occurrence;
- tolerability of its effects.

The significant difference between a routine application operation and application operation over a populous area is close proximity to persons or infrastructure that may be harmed as a result of a mishap or an emergency situation, if they were to occur.

The operator's procedures should outline to the pilot in command, their policy and procedure for ensuring compliance with regulation 91.055 in general and specifically, in regard to preventing the potential to create hazard to persons or property during these operations.

3.3 Aeroplane performance

3.3.1 Take-off

An operator must ensure that the PIC takes reasonable steps to ensure an aeroplane can take-off safely. To be suitable the operations manual should provide the performance data to its pilots which comes from an approved source. If the performance data from the AFM instructions is used (as approved under Part 21), then the data will meet the requirements of an approved source.

The operations manual should include instructions to the PIC for the calculation of the maximum take-off weight based on the lesser of:

- the maximum permitted take-off weight;
- the performance limited take-off weight.

The PIC must take into account the following:

- the take-off distance available;
- the pressure altitude and temperature;
- the gradient of the runway in the direction of the take-off;
- the wind direction, speed and characteristics;
- the obstacles in the vicinity of the take-off flight path.

3.3.2 Landing

The operator must ensure the PIC takes reasonable steps to ensure the aeroplane can be landed safely. To be suitable the operations manual should provide instructions to the PIC for the calculation of the maximum landing weight based on the lesser of:

- the maximum permitted landing weight;
- the performance limited landing weight.

The PIC must take into account the following:

- the landing distance available;
- the pressure altitude and temperature;
- the gradient of the runway in the direction of the landing;
- the wind direction, speed and characteristics;
- the obstacles in the vicinity of the approach flight path.

3.4 Weight and balance

3.4.1 Weight limitations

The provisions of regulation 137.190 are exempted for the operator of an aeroplane that has a permanently installed jettison system to allow the pilot in command of the aeroplane to jettison, in flight, the contents of a hopper or vessel permanently installed in the aeroplane subject to the following conditions:

The pilot in command must not commence a take-off of the aeroplane if the aeroplane's gross weight exceeds the highest of the following:

- the maximum gross weight shown in the aeroplane's flight manual, as it exists from time to time;
- any maximum gross weight that:
  - has been established for that type of aeroplane by a flight test supervised by CASA; and

  - is shown on a placard, as it exists from time to time, which is approved in writing by CASA and displayed in the aeroplane's cockpit;
- the maximum gross weight shown on the type certificate, or foreign type certificate, for the aeroplane, as it exists from time to time.

The pilot in command of the aeroplane must calculate its take-off weight by a method that involves calculating the total of the following:

- the weight of the crew and any equipment carried on the aeroplane;
- the weight of the aeroplane's fuel and load;
- the empty weight of the aeroplane, as determined under Civil Aviation Order 100.7, as in force from time to time.

The operations manual should include instructions to the PIC on how they calculate the weight for different types of application material. To be suitable the operations manual could include a table listing the product density or specific gravity to be used for weight calculations.

Materials may have different product density (solids) or specific gravity (liquids).

3.4.2 Loading supervision

The operations manual must include procedures for the safe handling and loading of application material. [r137.035(1)(a)] Normally ground support crew will conduct the activity under the supervision of the PIC. To be suitable, procedures should include:

- who can conduct the loading of the application material
- positioning of the aeroplane during loading operations
- serviceability checks of the loading equipment
- training requirements of the ground crew
- the personnel protective equipment required.

3.5 Instruments and equipment

Aeroplanes engaged in aerial application operations are required to comply with the instrument and equipment requirements of Subpart 137.K. The requirements include that all the equipment is serviceable unless operations are permitted under an MEL or permissible unserviceability (PU).

To be suitable the operations manual will include the airworthiness requirements for prescribed equipment usually through their approved maintenance plan or system of maintenance. Use Protocol suite (OPS.13) Managing continuing airworthiness for the assessment.

The inspector must be satisfied the aircraft is fitted with the required equipment and the operator's operations manual ensures the aircraft meets the requirements prior to flight.

3.6 Aeroplane maintenance

Subpart 137.M only refers to the fitting and removal of role equipment for which the HAMC is responsible. For all other airworthiness matters refer to section 3.1.5 of this principle. To be suitable the operations manual should provide instructions as to who can fit and remove role equipment as well as what training must be completed. A suitable process would include what training records are required and certification from the HAMC that the person has completed the training.

3.7 Pilots

3.7.1 Pilot in command qualifications

The operator must ensure that all pilots conducting aerial application operations are authorised under Part 61 to conduct the activity. Depending on the size scope and complexity of the operation, this may be as simple as a manual tracking tool such as a white board detailing each crew members qualification through to an automated software based rostering system and qualification tracking system that ensures flight crew are qualified for a flight.

For a manual tracking system to be suitable the inspector should consider the number of flight crew employed and number of different activities conducted. The inspector should consider 10 flight crew across a simple operation not involving multiple approvals as suitable for a manual tracking tool.

In the case of complex operators with more than 10 flight crew or multiple types there are a number of software programs designed to Manage flight crew rostering available on the market. To be considered suitable the inspector should ensure the software is:

- tailored to the operators' requirements;
- able to flag a flight crew member approaching and or exceeding a defined qualification or recency requirement;
- able to prevent an unqualified flight crew member being rostered for a duty. In either case the inspector needs to understand the system in place to ensure compliance.

The operations manual must detail the types of application operations the operator conducts and the qualification requirements of their pilots. For example:

- Aerial application rating;
- Aeroplane aerial application endorsement;
- Aeroplane firefighting endorsement;
- Night aeroplane aerial application endorsement.

Where an operator conducts multiple aerial application activities, to be suitable, the inspector must verify the operators process for assigning pilots to an application operation.

The operations manual should include the process for ensuring pilots hold a valid aerial application proficiency check before being assigned a duty.

3.7.2 Alternative training pathway for Part 61 qualifications

3.7.2.1 CASA 31/23

Instrument CASA 31/23 provides an alternative pathway for pilots to gain an aerial application rating or firefighting endorsement under Part 61. The instruments approve Part 137 operators to conduct flight training and assessment for the grant of an aerial application rating and firefighting endorsement. The instruments remove the need for CASA to issue individual approvals to training pilots exercising the privileges granted by the instrument.

The instruments enable pilots who hold a low-level rating to achieve the endorsement through their Part 137 employer.

The instrument also enables highly experienced and competent aerial application pilots to be approved to conduct flight training, testing and grant specialised activity endorsements and aerial application ratings when engaged by a Part 137 operator with an approved syllabus of training. An operator may use the standard CASA syllabus of training when available for a particular endorsement.

Given the variation in how pilots log or record experience conducting specialised operations, the experience used to satisfy the minimum requirements should be relevant to the activities authorised by the endorsement and proposed training activities. That is, the operator nominating an experienced pilot must be satisfied the pilot has accumulated relevant experience to satisfy the applicable prerequisite experience requirements, to conduct the flight training activities.

To exercise the privileges of CASA 31/23, the training pilot must be employed by, assessed as competent, and approved by the Part 137 operator.

The HOFO must have a mechanism to show they are satisfied the training pilot is competent to conduct training, and, if applicable, nominated them to conduct flight tests for which they are approved under the instrument. A copy of the examiner workbook prepared by the training pilot covering each test they conduct is an appropriate ancillary record to hold with the HOFO approval

Qualifications and experience

The operations manual must include the following minimum qualifications and experience:

Trainee pilot

- 200 hours as PIC of an aeroplane and
- a low level rating, and
- a low level endorsement for an aeroplane

Training pilot

- a commercial pilots licence (CPL) or an air transport pilot licence (ATPL) with an aerial application and firefighting endorsement
- 300 hours conducting firefighting operations, of which at least 50 hours must be conducted as PIC of an aeroplane
- 2 years operational experience conducting firefighting operations
- qualified in principle and methods of instruction via:
  - an approved course of training in principles and methods of instruction delivered by a Part 141 operator or
  - a Certificate IV in Training and Assessment or
  - a tertiary qualification in teaching
- completed a course of instructor delivered by a Part 141 operator that:
  - includes 5 hours dual flight training in a non-pilot in command seat and
  - is delivered by a flight instructor who holds:
    - » a grade 1 training endorsement or an instructor rating training endorsement and
    - » a low-level rating training endorsement or an aerial application rating (day) training endorsement (category specific) and
    - » involves an assessment by the flight instructor of the pilot's competency to deliver flight training; and
- has successfully completed the e-learning modules of the flight examiner rating course, prepared by CASA
- complete a recurrent check every 2 years in conducting flight training, assessed by a flight instructor who holds:
  - a grade 1 training endorsement or an instructor rating training endorsement; and
  - a low-level rating training endorsement or an aerial application rating (day) training endorsement (category specific)

Syllabus

The operations manual must contain a description of the flight training activities (syllabus) and who may conduct them. Any changes to the operations manual is a significant change.

The flight training must meet the following requirements:

- the aeronautical knowledge training, practical flight training and assessments must comply with the Part 61 MOS;
- the practical flight training for a firefighting endorsement must include:
  - at least 5 hours of authorised dual flight in an aircraft of the relevant category while receiving training in firefighting operations that involve the dispensing or application, below 500 feet AGL, of water or retardant for fire suppression; and
  - at least 3 flights that:
    - » include at least 1 simulated firefighting operation during the flight; and
    - » are conducted in an aircraft of the same type as that to be used for firefighting operations mentioned in subparagraph (i) following the successful completion of the training; and
  - at least 5 simulated firefighting operations conducted during the total of the conducted flights;

Flight tests

A pilot conducting a flight test under the approval must comply with the following requirements and obligations of Part 61 of CASR as if the pilot were a flight examiner:

- Subregulation 61.1275(2) and (3)
- paragraphs 61.1280(2)(c) and (3)(c)
- subregulations 61.1300(4) and (5)
- the pilot must be registered with FTM and use the FTM as the method of flight test notification for the flight test.

> Pilots who do not hold a flight examiner rating with the relevant flight test endorsement are not covered by CAAP ADMIN-1 indemnity when conducting a flight test

Training records

The operator must issue a trainee who successfully completes the flight training with a certificate of completion which:

(a) identifies the operator and the trainee; and

(b) records the trainee's marks for each of the aeronautical knowledge assessments, the practical flying assessment and the overall assessment

The operator must prepare as soon as practicable, and retain in safe custody for at least 3 years from their creation, the following records for each trainee:

- the trainee's name, ARN, and dates of commencement and ending of training;
- for each flight training activity for the grant of an aeroplane firefighting endorsement, and each practical flying assessment, details of the following:
  - the location;
  - the date;
  - the aircraft type, and nationality and registration marks;
  - the name and ARN of the instructor conducting the flight training activity;
  - the name and ARN of the person conducting the practical flying assessment;
  - the flight time, and whether the flight was dual, solo or PICUS;
  - the record and results of the trainee's performance against the relevant competencies mentioned at Unit AA4 – Aeroplane firefighting operation, under Aerial Application Rating in Schedule 2 of the Part 61 MOS;
- the results for each of the aeronautical knowledge assessments.

- a copy of the certificate of completion for the relevant training.

3.7.2.2 CASA 56/24

Instrument CASA 56/24 provides an alternative pathway for pilots to gain a firefighting endorsement under Part 61. The approval is only available to operators who for the previous 3 or more years:

- held an AOC authorising the person to undertake aerial application operations in an aeroplane; and
- had an operations manual containing procedures for aeroplane firefighting operations; and
- had annually conducted aeroplane firefighting operations under the written authorisation of the National Aerial Firefighting Centre or of a State or Territory fire control authority.

The instrument removes the need for CASA to issue individual approvals to pilots exercising the privileges granted by the instrument.

If using CASA 56/24 as the alternative training pathway, the training must be delivered by the operator's HOFO or a nominated senior pilot. Both the HOFO and the nominated senior pilot must be authorised under Part 61 to exercise the privileges of the relevant aeroplane rating or endorsement. In addition, the senior pilot must have a record in their pilot's logbook stating that the pilot has been authorised by the operator's HFO to conduct the training.

Unlike CASA 31/23, CASA 56/24 requires the trainee hold a valid aerial application rating to enter the alternative training pathway.

For Part 137 operators, CASA 56/24 is limited to flight training for a firefighting endorsement.

Inspectors will use the following guidance when assessing the suitability of an operator's application to conduct alternative pathway training.

Qualifications and experience

The operations manual must include the following minimum qualifications and experience

Trainee pilot

- a commercial pilots licence (CPL) with an aerial application rating
- 250 hours of experience conducting aerial application operations in aeroplanes.

Training pilot

- If the flight training is delivered by an HFO, the operator must ensure that, at the time of delivering the flight training, the HFO is authorised under regulation 61.1125 of CASR to exercise the privileges of the aeroplane firefighting endorsement.
- If the flight training is delivered by a nominated senior pilot, the operator must ensure that, at the time of delivering the flight training:
  - the pilot is authorised under regulation 61.1125 of CASR to exercise the privileges of the aeroplane firefighting endorsement; and
  - a record exists in the pilot's logbook stating that the pilot has been authorised by the operator's HFO to conduct the training.

Syllabus

The operations manual must contain a description of the flight training activities (syllabus) and who may conduct them. Any changes to the operations manual are a significant change.

The flight training must be conducted in accordance with the with a course of training prepared by the operator that:

- covers the matters mentioned in CASA 56/24 Schedule 1; and
- includes appropriate information about the pass standards for the aeronautical knowledge assessments, the practical flying assessment and the overall assessment.
- both the theoretical and practical components of the flight training must be conducted in a suitable ground environment and airspace, with appropriate facilities and training resources;
- the aircraft used for the flight training must be airworthy and suitable for the training
- the person conducting the training must be competent to conduct the flight training (including assessment).

Recognition of prior learning (RPL) - aeronautical knowledge

The CASA 56/24 allows the operator to consider RPL for the aeronautical knowledge component of the syllabus. To be suitable the operations manual must include the following criteria for RPL.

- on or after 1 September 2014, the trainee has successfully completed a fire awareness training course for firefighting pilots (a prior learning course) conducted by:
  - a State or Territory fire control authority; or
  - the Aerial Application Association of Australia; and
- the trainee provides the operator with a certified true copy of a certificate of completion of the prior learning course which identifies the training organisation and shows the date of completion of the course; and
- the operator is satisfied, on the basis of reasonable inquiry and evidence, that the prior learning course included training that covered the course subject matters mentioned in clauses 1 and 2 of Schedule 1; and
- the operator is satisfied with the trainee's aeronautical knowledge on the basis of 2 aeronautical knowledge assessments that are:
  - comparable and consistent with the aeronautical knowledge assessments mentioned in clause 3 of Schedule 1; and
  - conducted under the supervision of the operator's HFO.

Training records

The operator must issue a trainee who successfully completes the flight training with a certificate of completion which:

(a) identifies the operator and the trainee; and

(b) records the trainee's marks for each of the aeronautical knowledge assessments, the practical flying assessment and the overall assessment

The operator must prepare as soon as practicable, and retain in safe custody for at least 3 years from their creation, the following records for each trainee:

- the trainee's name, ARN, and dates of commencement and ending of training;
- for each flight training activity for the grant of an aeroplane firefighting endorsement, and each practical flying assessment, details of the following:
  - the location;
  - the date;
  - the aircraft type, and nationality and registration marks;
  - the name and ARN of the instructor conducting the flight training activity;
  - the name and ARN of the person conducting the practical flying assessment;

  - the flight time, and whether the flight was dual, solo or PICUS;
  - the record and results of the trainee's performance against the relevant competencies mentioned at Unit AA4 – Aeroplane firefighting operation, under Aerial Application Rating in Schedule 2 of the Part 61 MOS;
- the results for each of the aeronautical knowledge assessments;
- a copy of the certificate of completion for the relevant training

3.7.3 Pilot supervision

Regulation 61.1130 places limitations on the exercise of the privileges of aerial application endorsements. Prior to conducting unsupervised aerial application operations, a pilot who holds an aerial application endorsement must have previously conducted at least 110 hours of aerial application operations below 500ft.

For pilots who do not meet the experience requirements the operator must ensure they are supervised in accordance with paragraph 61.1130(2)(b) by

- the operator's HOFO, or
- a flight examiner who holds an aerial application rating flight test endorsement, or
- the holder of an approval under 61.040 to supervise the operation.

Supervision

includes both direct and indirect supervision as defined in subregulation 61.1130(3).

To be suitable the operator should have a process in their operations manual that ensures new pilots who do not meet the experience requirements are appropriately supervised, prior to release to unsupervised operations.

3.7.4 Pilot night recency

Regulation 61.1135 places a limitation on the exercise of the privileges of night aerial application endorsements.

The holder of a night aerial application endorsement is authorised to exercise the privileges of the endorsement in an aircraft of a type covered by the endorsement only if, within the previous 45 days

- the holder has conducted a night aerial application operation below 500 ft AGL that includes a take-off and landing at night; or
- the holder has, in an aircraft of the same type or an approved simulated training device for the purpose:
  - completed a flight of at least 1 hour's duration that commenced no later than 20 minutes before night; and
  - practised the necessary manoeuvres involved in the operation in an unladen aircraft at night or in the simulated training device; and
  - conducted at least 3 take-offs and 3 landings at night.

To be suitable, an operator who conducts aerial application operations at night should have a process in their operations manual to manage the recency of their pilots.

3.7.5 Use of a synthetic training device

Some operators may choose to use of an approved simulator training device (flight simulator or flight training device) for:

- an operator proficiency check
- night aerial application recency requirements.

To use a synthetic training device, the operator must apply for approval under regulation 60.055. The synthetic training device the operator is seeking approval to use must be qualified under either:

- regulation 60.035 for a device located in Australia
- if located outside of Australia, under the regulations of a recognised foreign State overseeing the operation of the device. In this case, the operator will need to:
  - provide CASA with a copy of a qualification certificate that meets the requirements of regulation 60.010
  - include details of the device in the operations manual, including how they ensure the device continues to remain qualified by the regulator of the foreign State.

The operations manual should include a list of the approved synthetic training device and what training and checking activities can be conducted in the device. To be suitable, the operations manual should include a process to make sure the synthetic training device is qualified at the time of the training and checking event. The operations manual should include instructions to ensure that personnel verify that any defects on the synthetic training device will not affect its qualification for the conduct of the training and checking activities.

3.7.6 Operator proficiency check

The operations manual must include procedures that ensure each pilot conducting application operations holds a valid operator proficiency check (OPC). For Part 137 operations an OPC is valid from 12 months from the day the check was completed, however if the OPC is conducted within 3 months of the expiry day the OPC is valid for 12 months from the expiry day.

An OPC can be conducted by the HOFO, an instructor or examiner authorised under Part 61 to conduct application operations. However, if the pilot has completed less than 50 hours of application operations in the previous 12 months the OPC must be conducted by an instructor or examiner.

The OPC for the HOFO must be conducted by

- an instructor or examiner or
- the HOFO of another aerial application operator[1].

The check in dot point 2 is subject to the requirement, the head of flight operations of the other operator, must notify CASA, in writing, of the check.

If an OPC is used to meet the requirements of an aerial application proficiency check (APC) the check must be conducted by the HOFO of the aerial application operator or a flight examiner authorised under Part 61.

The inspector must be satisfied that the operators procedures for tracking pilot recency and hours conducting application operations are suitable to ensure each pilot assigned an application operation is qualified.

The operations manual must detail the content of the OPC. To be suitable the OPC should consist of the following:

- review recent job history using data logs if available or by observation and check the following:
  - evidence of hazard checks before commencing the application operation,
  - consistent manipulation of the aeroplane within safe parameters
  - evidence of extra hazard check prior to clean-up runs
- observation of an actual application operation or a flight test which covers at least the following:
  - planning the application activity
  - conducting the application activity including hazard checks
  - demonstrated knowledge of the emergency procedures for the aeroplane (aural or practical)

———

[1] Refer CASA EX32/24

- a planning exercise which demonstrates risk management and selection of suitable loads for the application operation.

> Note: If the aeroplane is only fitted with 1 seat the OPC can be conducted by observation of an application operation from the ground.

3.8 Manuals, logs, and records

3.8.1 Flight manual

The operator must maintain a flight manual or other approved alternative document for each aeroplane. The flight manual or approved alternative form part of the operation's manual suite.

To be suitable, the flight manual must be managed under a document control system that allows personnel to readily identify the current version.

3.8.2 Checking records

The operator must have an appropriate system that maintains records of training and checking events conducted, and results of the events. To be suitable, the inspector should determine that the operator's operations manual describes the operation of this system and clearly defines the administrative processes involved in maintenance of the records and access to the data when required.

The operator's operations manual must include a description of how the operator ensures their personnel complete training and checking. The description should focus on the administrative tasks to ensure personnel comply with all regulatory requirements. Specific personnel or position holders should be nominated to conduct required actions. These should include items such as:

- personnel or position holder assignment to specific duties;
- responsibilities and accountabilities for ensuring activities are conducted in accordance with the operations manual;
- a process to ensure only appropriately trained and checked personnel are released for duty.

To be suitable, the inspector must determine that the procedures are appropriate for managing the amount of training and checking events conducted, the operations conducted, and the fleet composition and disposition of the operator. In addition, the system must be capable of preventing personnel being assigned a duty when a training or checking activity has not successfully been completed. The inspector should verify that if a person does not complete a training or checking activity, there is a process to ensure they are not available for application operations until the activity is completed.

3.8.3 Maintenance records

Regulation 137.255 and CAO 100.5 details the requirements for maintenance records. To be suitable, the inspector should confirm that procedures are documented to ensure accurate time in service recording and complete, up-to-date, and accurate maintenance records are retained for the periods specified, including:

- acknowledgment of the operator's responsibility to keep and maintain records including logbooks (refer to regulations 50A to 50D of CAR);
- a nominated person to be responsible for keeping or managing maintenance records
- the infrastructure necessary to implement and manage the system and ensure the accuracy and integrity of time in service and maintenance records
- specific procedures to transfer the maintenance records to a new operator;
- procedures in the event of aircraft disposal;
- if applicable, contractual arrangements for outsourcing maintenance record keeping;

- making records available to Australian Transport Safety Bureau (ATSB) and CASA in the event of an incident or accident.

An operator must retain all maintenance records for at least 90 days the aeroplane is no longer capable of future flight, i.e. irreparably destroyed.

The operations manual should include a process to transfer the aeroplane maintenance records (or copies) when an aeroplane becomes surplus to requirements and is transferred to another operator.

3.8.4 Document retention periods

The inspector must confirm the process for the making of records includes a policy to retain the records for the period mentioned in Table 137.255. If kept electronically, to be suitable, the operator should ensure the records are backed up.

3.9 Flight and duty time limitations and rest periods

The operations manual must include a process a process to ensure that pilots assigned a duty meet the flight and duty requirements of Subpart 137Q.

Depending on the size scope and complexity of the operation, this may be as simple as a manual tracking tool such as a white board through to an automated software based rostering system and flight and duty time tracking tool that ensures flight crew are rested for a flight.

For a manual tracking system to be suitable the inspector should consider the number of pilots employed and number of different activities conducted. The inspector should consider 10 pilots across a simple operation not involving multiple approvals as suitable for a manual tracking tool.

In the case of complex operators with more than 10 pilots or multiple aerial application types there are a number of software programs designed to manage pilot rostering available on the market. To be considered suitable the inspector should ensure the software is:

- tailored to the operators' requirements;
- able to flag a pilot approaching and or exceeding a defined flight and duty limitation.

In either case the inspector needs to be satisfied that the system in place will ensure compliance.