



ADVISORY CIRCULAR AC 43-02v1.0

Inspection of aircraft – requirements

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Advisory circulars are intended to provide advice and guidance to illustrate a means, but not necessarily the only means, of complying with the Regulations, or to explain certain regulatory requirements by providing informative, interpretative and explanatory material.

Advisory circulars should always be read in conjunction with the relevant regulations.

Audience

This advisory circular (AC) applies to:

- registered operators
- CAR 30 organisations
- Part 145 Approved Maintenance Organisations
- licensed aircraft maintenance engineers
- aircraft maintenance engineers

Purpose

This AC provides guidance on the inspection schedule requirements for aircraft, depending on the complexity of the aircraft and its intended use.

For further information

For further information, contact CASA's Airworthiness and Engineering Branch (telephone 131 757).

Status

This version of the AC is approved by the Branch Manager, Airworthiness and Engineering.

Version	Date	Details
v1.0		Initial AC.

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

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1 Reference material

1.1 Acronyms

The acronyms and abbreviations used in this AC are listed in the table below.

Acronym	Description
AC	advisory circular
AIP	approved inspection program
AMO	approved maintenance organisation (approved under CAR 30 or CASR Pt 145)
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
IA	inspection authorisation issued under Part 43
ICA	instructions for continuing airworthiness
MOS	manual of standards
RO	registered operator
SOM	system of maintenance (approved under 42M of the CAR 1988)

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below. Where definitions from the civil aviation legislation have been reproduced for ease of reference, these are identified by 'grey shading'. Should there be a discrepancy between a definition given in this AC and the civil aviation legislation, the definition in the legislation prevails.

Term	Definition
Australian aircraft	Australian aircraft means aircraft registered in Australia; and aircraft in Australian territory, other than foreign registered aircraft and state aircraft.

1.3 References

Legislation

Legislation is available on the Federal Register of Legislation website <https://www.legislation.gov.au/>

Document	Title
Part 43 of CASR	Maintenance of Aircraft
Part 43 MOS	Maintenance of Aircraft

Advisory material

CASA's advisory materials are available at <https://www.casa.gov.au/publications-and-resources/guidance-materials>

Document	Title
AC 43-01	Registered operator - responsibilities under Part 43
AC 43-06	Inspection authorisations - issue, privileges and limitations
AC 43--07	Aircraft maintenance technicians - maintenance of aircraft and aeronautical products
AC 43-09	Maintenance Records
CAAP 42B-1	CASA Maintenance Schedule

2 Responsibilities of the Registered Operator¹

2.1 General

The registered operator (RO) of an Australian aircraft, to which Part 43 of the Civil Aviation Safety Regulations (CASR) applies, is responsible for ensuring that an aircraft is regularly inspected in accordance with the:

- Part 43 MOS, Schedule 1
or
- aircraft manufacturer's inspection schedule
or
- an approved inspection program (AIP).

An inspection for the purpose of issuing a certificate of airworthiness for an aircraft will satisfy the annual inspection requirement.

2.2 Aircraft engaged in aerial work, and flight training

If an aircraft is being inspected annually and is engaged in aerial work in which a person other than a crew member is carried for payment, or flight training, it must also be inspected at 100-hourly intervals. A 100-hour inspection may be combined with an annual inspection; however, a 100-hour inspection may not be substituted for an annual inspection unless it is recorded in the maintenance records as an annual inspection and approved for return to service by the holder of an inspection authorisation (IA)².

A 10-hour planning tolerance is permitted for 100-hourly inspections; however, if the time interval for an inspection is extended by up to 10 hours, the time interval to the next inspection must be reduced by the same amount of time.

¹ For more information on RO responsibilities, refer to AC 43-01.

² For more information on inspection authorisations, refer to AC 43-06.

3 Inspections

3.1 Annual Inspection

An aircraft that is being inspected annually must be inspected in accordance with a checklist based on Schedule 1 of the Part 43 MOS.

The annual inspection schedule must include a records check for determining that:

- the aircraft:
 - continues to conform to its certification basis,
 - complies with any relevant ADs.
- any major repairs or major modifications:
 - have been carried out in accordance with data approved under regulation 21.009 of CASR
 - have been properly recorded and
 - the approved data is attached to the records or if the data is publicly available, sufficient details are provided so that a person can locate the data.
- any placards required by the aircraft TCDS are in place
- the documentation required by the TCDS for the operation of the aircraft is current and readily available to the pilot in command.

When completing an annual inspection, the IA holder must use a checklist appropriate to the aircraft being inspected. The checklist which must as a minimum be based on Schedule 1 of the MOS may be:

- a. the IA holder's own design
- b. a checklist provided by the aircraft manufacturer
- c. a checklist from another source (one published by an owner's association for example).

The annual inspection will fall due by the end of the 12th month from when the previous inspection was completed. For example, an aircraft that had an annual inspection and was approved for return to service on 10 January 2020, will have the next inspection fall due on or before 31 January 2021.

However, CASA has provided for a 10-day planning tolerance that may be utilised by the RO, in which case the previously described aircraft would be required to have the next annual inspection commenced by no later than 10 February 2021. The extra days, if used, do not need to be 'paid back' from the following calendar period.

Note: The 10-day planning tolerance does not permit an aircraft to exceed the flying time limitations described above if the applicable aircraft is also subject to 100-hourly inspections.

3.2 Progressive Inspection

The registered operator (RO) may elect to have the aircraft inspected under a progressive inspection schedule. Schedule 2 of the Part 43 MOS details how to establish a progressive inspection schedule. The progressive inspection schedule must contain details of the inspection

authorisation (IA) holder who will oversee the inspections and set out the details of the various inspection tasks and the times at which they must be completed.

The progressive inspection of the whole aircraft must be completed within a 12-month cycle and each inspection task in the progressive inspection schedule must be repeated within a 12-month cycle.

3.3 Large aeroplanes and turbine powered multi-engine aeroplanes

If an aircraft is a large aeroplane or a multi-engine turbine powered aeroplane, it must be inspected in accordance with an approved inspection program which covers the aeroplane, its engines, propellers, components and survival and emergency equipment.

A turbine powered helicopter may be inspected in accordance with Schedule 1 of the Part 43 MOS; or in accordance with an inspection program which covers the helicopter and its engines, rotors, components and emergency and survival equipment.

If a helicopter is inspected in accordance with Schedule 1 of the Part 43 MOS, additional requirements apply for the rotor components, drive shaft components, and main transmissions. These components must be inspected in accordance with the manufacturer's inspection limits.

3.4 Turbine engines in helicopters and single engine aeroplanes

Aircraft that are being inspected in accordance with Schedule 1 of the Part 43 MOS or under a progressive schedule are required to have their turbine engines inspected in accordance with a manufacturer's recommended progressive inspection or an annual checklist provided by the manufacturer.

3.5 Manufacturers recommended inspection program

The RO of an aircraft may choose to use the aircraft manufacturer's recommended inspection program, this does not require CASA approval. The RO must nominate the manufacturer's recommended inspection program in the aircraft records and include the details of the IA holder who would normally oversee implementation of the program.

3.6 Inspection program—requirements

An inspection program may be one of the following:

- an inspection program recommended by the aircraft manufacturer
- an inspection program approved by CASA or an authorised person
- a system of maintenance (SOM) previously approved under regulation 42M of the Civil Aviation Regulations (CAR)
- a continuous airworthiness inspection program that is part of a continuous airworthiness maintenance program

An inspection program that is submitted to CASA or an authorised person for approval must set out:

- the details of the aircraft to which it applies and a listing of all required inspections, tests and checks
- the schedules for performing the inspections, checks and tests expressed as operating time in service, calendar time, cycles or number of operations or any combination of these times.

The RO must include in the inspection program, the name and address of the person responsible for scheduling the inspections required by the program. Under the CAR 1988, this person was required for transport category aircraft and was referred to as a 'maintenance controller'.

If an inspection program is for a small aircraft, the RO must include the details of the IA holder who will ensure compliance with the program

Notes:

1. If a manufacturer provides a recommended inspection program that includes maintenance actions, an RO can apply for approval of an inspection program that does not include the maintenance actions unless they are an airworthiness limitation or mandated by an airworthiness directive.
2. Existing Systems of Maintenance or approved maintenance schedules will be preserved under the new regulations.

3.7 Transport category aircraft

Aircraft certified in the transport category, Part 25 for aeroplanes and Part 29 for helicopters, must have all inspections and scheduled maintenance carried out under the control of an AMO.

However, minor maintenance and minor repairs to transport category aircraft may be carried out by the independent LAME when directed by the RO. Minor maintenance includes such tasks as:

- oil and filter changes
- wheel and brake changes
- lightning and bird strike inspections
- MEL 'M' items
- other similar 'line' maintenance items which can be performed using simple methods and processes.

Appendix A

100 Hour/Annual inspection checklist guide

A.1 How to use this guide

A.1.1 Registered operator

- a. The inspection checklist for an eligible aircraft must, as a minimum, be based on the inspection actions in this guide as they relate to the individual aircraft.
- b. Delete sections that are not relevant to a particular aircraft (for instance, floats and skis in the case of an aircraft with wheel landing gear).
- c. In consultation with the inspecting LAME/IA holder, review the aircraft details, its equipment fit, operational environment and any known failure history and adjust the checklist accordingly.
- d. Insert extra lines as necessary to include items on a particular aircraft that are not listed in this guide, such as high-lift devices, role equipment, external cargo pods or external video cameras.
- e. For turbine engines, insert or attach the recommended engine inspection schedule or checklist sourced from, in order of precedence:
 - i. the aircraft manufacturers ICAs
 - ii. the engine manufacturers ICAs
 - or
 - iii. a schedule or a checklist provided in a service instruction, service bulletin or any other document provided by the aircraft or engine manufacturer.

Note: *Eligible aircraft* means a:

- helicopter
- small aeroplane
- single engine turbine-powered aeroplane.

A.1.2 LAME/IA

- a. Refer to manufacturers ICAs for inspection limits for each item being inspected.
- b. Using the inspection checklist provided by the registered operator, tick off each item as it is completed.
- c. List any defects or other matters requiring attention.
- d. Should a defect be found in an item of equipment that is not listed in the checklist, insert an extra line, record the item and describe the defect.
- e. For 100-hour inspections, delete the document review section.

A.1.3 Aircraft details

To be completed by LAME/IA completing the inspection.

Note: It is a requirement that the maintenance record for an inspection must include details of each person involved in the inspection. You can add or delete lines from the table below to meet your requirements.

Inspection checklist VH-				
Aircraft Make:		Aircraft Model:		Aircraft Serial number:
Date inspection completed:				
Airworthy:				
<input type="checkbox"/> Yes <input type="checkbox"/> No				
If <u>not</u> airworthy				
List of defects provided to registered operator:				
<input type="checkbox"/> Yes <input type="checkbox"/> No				
Inspector 1	Name:	ARN:	Licence:	IA:
Inspector 2	Name:	ARN:	Licence:	IA:
Inspector 3	Name:	ARN:	Licence:	IA:
Inspector 4	Name:	ARN:	Licence:	IA:

A.1.4 Annual/100-hour inspection items

Amend as required for each aircraft.

Cabin and cockpit

Inspect the following components and systems of the cabin and cockpit of the aircraft as follows:

- a. Generally, inspect the cabin and cockpit of the aircraft for uncleanliness that might foul the controls or loose equipment that might interfere with the controls.

Inspection items

- a. Seats and safety belts (for poor condition and apparent defects).
- b. Windows and windshields (for deterioration and breakage).
- c. Instruments (for poor condition, mounting, marking, and (where practicable) improper operation).
- d. Flight and engine controls (for improper installation and improper operation).
- e. Batteries (for improper installation and improper charge).
- f. All systems (for improper installation, poor general condition, apparent and obvious defects, and insecurity of attachment).

Flight controls

Inspect flight control systems as follows:

- a. All control systems for proper operation.
- b. Cables for wear, fraying, and proper adjustment.
- c. Cable ends for corrosion, cracking and missing or improper safetying.
- d. Cable pulleys for binding, inspect fairleads for wear.
- e. Pushrods for binding or fretting, rod ends for insecurity, wear, corrosion and cracking.
- f. Quadrants and bellcranks for wear, looseness, binding, and corrosion.

Engines general

Inspection items:

- a. Engine section (for visual evidence of excessive oil, fuel, or hydraulic leaks, and sources of such leaks).
- b. Studs and nuts (for improper torquing and obvious defects).
- c. Internal engine (for cylinder compression and for metal particles or foreign matter on screens and sump drain plugs. If there is weak cylinder compression, for improper internal condition and improper internal tolerances).
- d. Engine mount (for cracks, looseness of mounting, and looseness of engine to mount).
- e. Flexible vibration dampeners (for poor condition and deterioration).
- f. Engine controls (for defects, improper travel and improper safetying).
- g. Lines, hoses, and clamps (for leaks, unsafe condition and looseness).
- h. Exhaust stacks (for cracks, defects, and unsafe attachment).
- i. Accessories (for apparent defects in security of mounting).
- j. All systems (for unsafe installation, poor general condition, defects, and insecure attachment).
- k. Cowling (for cracks and defects).

Turbine Engine

Inspect in accordance with aircraft or engine manufacturers ICAs.

Landing gear

Inspection items:

- a. All units (for poor condition and insecurity of attachment)

- b. Shock absorbing devices (for deterioration of rubber components and, if the landing gear has oleo struts, improper oleo fluid level)
- c. Linkages, trusses, and members (for undue or excessive wear fatigue, and distortion)
- d. Retracting and locking mechanism (for improper operation)
- e. Hydraulic lines (for leakage)
- f. Electrical system (for chafing and improper operation of switches)
- g. Wheels (for cracks, defects, and condition of bearings)
- h. Tires (for wear and cuts)
- i. Brakes (for wear and improper adjustment)
- j. Floats and skis (for insecure attachment and obvious or apparent defects).

Wings and centre section

Inspection items:

- a. All components of the wing and centre section of the aircraft for poor general condition, fabric or skin deterioration, distortion, evidence of failure, and insecurity of attachment.
- b. Attached components including flaps, control surfaces, struts for wear at attachment points, damage and missing fastenings or rivets.
- c. Generally for unsafe component installation and unsafe component operation.

Empennage

Inspection items:

- a. Inspect all components and systems that make up the complete empennage of the aircraft for poor general condition, fabric or skin deterioration, distortion, evidence of failure, insecure attachment, unsafe component installation, and unsafe component operation.

Propellers

Inspection items:

- a. Propellers (for cracks, nicks, binds, and oil leakage).
- b. Bolts (for improper torqueing and safetying).
- c. Anti-icing devices (for unsafe operation and obvious defects).
- d. Control mechanisms (for operation, insecure mounting, and restricted travel).

Helicopter rotors and controls

Using manufacturer's inspection instructions, inspect rotors and systems as follows:

- a. Main rotor for improper installation or insecurity.
- b. Hub for damage, cracks or fretting.
- c. Blades for damage, insecurity.
- d. Mast for damage.
- e. Transmissions for obvious defects and leaks.
- f. Drive shafts and flexible couplings for damage.
- g. Auxiliary rotor for defects, binding, blade damage or fretting.
- h. Flight controls for damage, safetying, wear or fretting and proper function.

Radio communication and navigation systems

Inspect the following components of the radio communication and navigation systems of the aircraft as follows:

- a. Radio and electronic equipment (for unsafe installation and insecure mounting).
- b. Wiring and conduits (for unsafe routing, insecure mounting, and obvious defects).
- c. Bonding and shielding (for unsafe installation and poor condition).
- d. Antenna including trailing antenna (poor condition, insecure mounting, and unsafe operation).

Other installed items

Inspect each installed miscellaneous item that is not otherwise covered by this guide for unsafe installation and unsafe operation.

Document review

Conduct a review of the maintenance records for the aircraft to check that:

- a. the aircraft continues to comply with its type certification basis as properly modified
- b. applicable ADs have been complied with.

If a major modification or major repair has been carried out on the aircraft, aircraft engine, or aircraft propeller:

- a. The major modification or major repair has been certified by a person who holds an inspection authorisation or by a Part 145 organisation as conforming to the technical data approved by CASA under Part 21 of CASR for the major modification or major repair.
- b. The certification provides details of the technical data approved under Part 21 of CASR under which the major modification or major repair was carried out.