RAAP 16

Pilot Maintenance

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Recreational Aviation Advisory Publication

RECREATIONAL AVIATION AUSTRALIA

RECREATIONAL AVIATION ADVISORY PUBLICATION—RAAP 16

INFORMATION FOR PILOTS CONDUCTING PILOT MAINTENANCE

This RAAP provides advisory information to members in support of a particular CASA regulation or Tech Manual requirement. The RAAP provides background, additional clarity or 'how to' information not found in the source regulation or the Tech Manual. RAAus RAAPs must always be read in conjunction with the relevant regulations/ orders/tech manual/flight operations manual and additional guidance material referenced in this RAAP.

AUDIENCE

This RAAP applies to:

- CASA licensed aircraft maintenance engineers (LAMEs); and
- RAAus Authorised Maintainers, as appropriate (other than a LAME); and
- certificate of approval holders; and
- certificate of registration holders; and
- registered operators; and
- pilots-in-command.

REFERENCES

RAAus Tech Manual	Issue 4.3 December 2024
Part 4A of CAR 1988	Maintenance
CASR Part 41	Maintenance schedule and maintenance instructions
CAAP 41-02v1.1	Maintenance requirements for CLASS B aircraft
CAAP 42ZC-01 v4.1	The Pilot Maintenance Schedule - guidance for pilots and Part 66 licence holders
CAAP 43-01 v2.1 Dec 2022	Maintenance Release
Schedule 5 of CAR	CASA Maintenance Schedule (Appendix 1)
Schedule 6 of CAR	CASA System of certification of completion of maintenance
Regulation 37 of CAR	Permissible unserviceabilities
Division 9 of Part 4A of CAR	Maintenance Releases
Regulation 133 of CAR	Conditions to be met before Australian aircraft may fly.
Regulation 174A of CAR	Equipment of aircraft for VFR flight
Regulation 248 of CAR	Reporting of defects CAO 20.18 Aircraft equipment - basic operational requirements
Instrument CAO 95.55	Certain Light Sport Aircraft, Lightweight Aeroplanes and Ultralight Aeroplanes
Instrument CAO 20.2	Safety precautions before flight
Instrument 2014 CAO 100.5	General requirements in respect of maintenance of Australian aircraft 2011
CASA instrument 147/11	Appointment of authorised persons to issue maintenance release
CASA instrument 148/11	Appointment of authorised persons to endorse or cancel endorsements on MR
CASA Publication	Maintenance guide for owners/operators

FORMS

CASA Form 918	Maintenance Release (MR)
TECH Form 121	RAAus Hours and Maintenance Record (HMR)
Alternative Form	MR or HMR (paper or electronic) if accepted by CASA or RAAus.

1- Definitions

Defect - is broadly segregated into major and minor. CASA AC 20-06 and the RAAus Technical Manual Issue 4.3 defines a major defect as 'a defect of such a kind that it may affect the safety of the aircraft or cause the aircraft to become a danger to persons or property'. A minor defect is a defect that is not a major defect. For example: Elevator cable has snapped -major defect; landing light has failed - minor defect.

Fluids – for the purposes of this RAAP, fluids refer to fuel, oil, hydraulic fluid, coolant, grease, sealers, heat transfer paste, anti-seize and cleaning agents.

MR - means the maintenance release form approved by CASA comprising of Parts 1, 2 and 3, including any supplementary pages attached in accordance with clause 8 of this RAAP.

HMR - means the hours and maintenance record approved by RAAus and referenced in the RAAus technical manual.

Schedule 8 (Modified for RAAus use) – means maintenance mentioned in Part 1 of Schedule 8 of Civil Aviation Regulations (CAR), with the exception of items which do not apply to RAAus listed aircraft.

NOTE: Reference to a maintenance release (MR) in this RAAP is also taken to be referring to an Hours and Maintenance Record (HMR) and vice versa. Instruction for the completion of each maintenance document is specific to that document.

2- Pilot Maintenance

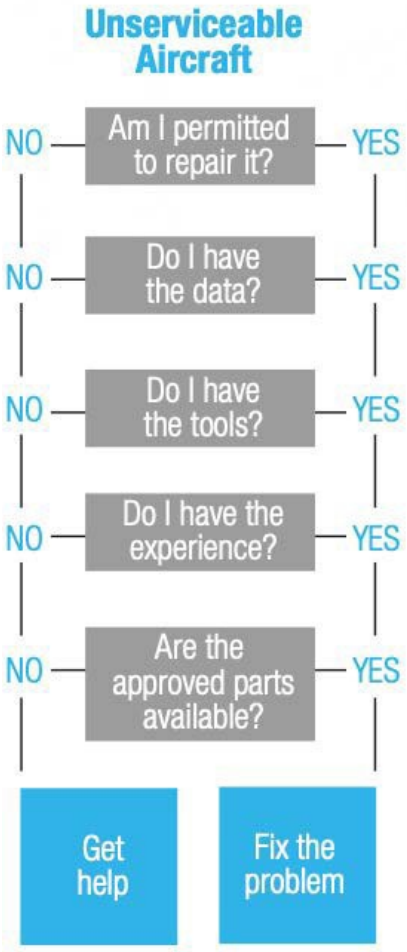
As a pilot you should be aware that you are only permitted to carry out some maintenance on your aircraft. You must be a person who holds an RAAus issued Recreational Pilot Certificate (RPC) for the applicable aircraft group and you must be competent and current to fly the aircraft that you wish to maintain.

Before you rush in to do any maintenance, you should ask yourself a few questions. These are represented in the diagram below.

Pilot approved maintenance tasks are listed in section 12.7 of the RAAus Technical Manual.
Schedule 8, modified for RAAus purposes, has been reproduced as Appendix 1 to this RAAP. As an RPC holder who is not the owner or registered operator of the aircraft you must obtain permission from the owner or registered operator before performing any maintenance on the aircraft.

Before you undertake ANY maintenance, you must familiarise yourself with the aircraft's approved system of maintenance, relevant CASA legislation and/or the RAAus Technical Manual, and other approved data specific to your aircraft. It is recommended that you refer to and familiarise yourself with the 'references' provided in this RAAP.

You are also responsible for ensuring that you have been properly trained to carry out the task you perform (refer to the general competency rule). There are various avenues available to RAAus pilots to obtain maintenance task training, e.g. one on one training from your L2 (or higher) maintainer, or your LAME or a maintenance training provider.



Source: CASA maintenance guide for pilots

3- Use of approved data, parts, and fluids

You must perform all maintenance tasks in accordance with the aircraft's maintenance manual (or other approved data). Civil Aviation Regulations and the RAAus Tech Manual mandate that maintenance can only be performed by personnel with access to approved data, so if you don't have the data, you cannot do the maintenance.

All parts used in RAAus registered aircraft must be approved by the aircraft manufacturer or the component manufacturer for use in the aircraft. For some aircraft this will also apply to fluids, lubricants, greases, and cleaning agents. You must use manufacturer approved parts and fluids.

You are not permitted to manufacture a replacement part for the fitment to an aircraft as part of pilot maintenance.

4- Tools

Tools must be serviceable and appropriate for the task. Some tasks require the use of calibrated tools. Calibrated tools must be used when specified by the aircraft manufacturer to deliver accurate and repeatable results. Calibration ensures the accuracy of tools, such as torque wrenches, used to maintain aircraft and aeronautical products. e.g. installing engine spark plugs. Recommended reading – CASA AC 21-35(1.1): Calibration of inspection and test equipment.

If tooling is to be used that requires calibration, it is the responsibility of the person using the tooling to ensure that the tooling is within its calibration tolerance and calendar test period at the time of use.

5- Reporting defects

Defects develop in aircraft and these need to be corrected to ensure continued safe operation. Repair of a defective item, even to an as new standard, may not prevent recurrence of the defect.
When a defect is found or where a maintenance schedule or flight manual is deficient, then a defect report must be submitted. A defect is any fault in the design and/or construction of an aircraft, the function or qualitative characteristic of an item fitted to an aircraft which differs from the manufacturer's specification, the drawing, or recognised standard of good workmanship, for that item other than what might be classified as fair wear and tear within a manufacturer's published limits.

Defect reports are collected by RAAus and maintained in a database. It is of benefit to RAAus, CASA and the recreational aviation sector that information reported is timely, accurate and relevant. Also, Part 4B of CAR states that those who own, operate, or maintain Australian aircraft (RAAus Group G) must advise CASA of the existence of any:

- major defect related to an aircraft.
- defect discovered while complying with an AD or a direction given by CASA.
- defect in an aircraft or an aircraft component that if installed in an aircraft would affect its safety or result in a danger to person or property.

This obligation for defect reporting, with respect to a LWA transferred from the VH register to RAAus remains extant for Part 4B of CAR, even though the aircraft has been listed with RAAus.
The pilot in command of an aircraft is defined by legislation and the RAAus Tech Manual as a responsible person who has a legal obligation to report a defect.

6- Certifying for maintenance

In the case of pilot maintenance, certifying for maintenance is usually made on the maintenance release (MR), or the hours and maintenance record (HMR), or in the aircraft logbook. Certification for maintenance is more than a simple signature. It requires a detailed explanation of the problem and the actions taken to rectify the problem.

e.g. Rotax engine water temp over heating during run-up. After checking and removing debris from the radiator air intake, and topping up the engine coolant, the engine was ground run, and the engine coolant temperature is stable and within Rotax engine operating limits.

In signing off the defect the words "radiator inspected, and debris removed from air intake. Coolant qty checked and found low. Coolant reservoir topped up with same manufacturer recommended premix coolant. Engine ground run and coolant temp found to be stable and within Rotax recommended temp operating range." The pilot who inspected the radiator, removed the debris, and checked and topped up the engine coolant with the same coolant that is in the engine, then certifies the MR or HMR. This is a permitted Schedule 8 (modified for RAAus use) maintenance task.

7- Certification for independent inspection of flight controls

The holder of a recreational pilot certificate or a pilot licence, may be asked from time to time to perform an independent inspection. This type of inspection is required each time any part of an aircraft's flight control system is assembled, adjusted, modified, or replaced. This type of inspection is maintenance and must be certified for in the MR, HMR or in the aircraft logbook.

8- Supervision

A pilot, or a recreational pilot certificate (RPC) holder may NOT supervise another person performing maintenance on a RAAus listed aircraft or aircraft component and must not certify for work performed by any other person.

9- Remember

Pilot maintenance:

- Must be performed in a systematic and thorough manner.
- You must use manufacturer data, approved parts, and fluids.
- Must be certified (signed) for on a document approved for the purpose and as directed.
- Can only be performed by a person who holds at least an RAAus issued recreational pilot certificate (RPC) or a CASA Recreational Pilot Licence (RPL) and who is endorsed and current to fly the aircraft that is being maintained.
- Calibrated tools must be used when specified by the aircraft manufacturer.
- The general competency rule applies.

Civil Aviation Regulations 1988 - Schedule 8 (modified for RAAus)

APPENDIX 1

Warning: This is a modified copy of Part 1 of Schedule 8 of CAR 1988. Schedule 8 maintenance that may be carried out on a RAAus registered Group G lightweight aircraft by a person entitled to do so under CASR subregulation 42ZC (4), and the RAAus Technical Manual. Schedule 8 (as modified for RAAus use) may also be used by a person entitled to do so for maintenance on a RAAus registered ultralight aircraft (Groups A, B & D) where relevant.

APPROVED LIST OF TASKS

1. Removal or installation of landing gear tyres
2. Repair of pneumatic tubes of landing gear tyres
3. Servicing of landing gear wheel bearings
4. Replacement of defective safety wiring or split pins
5. Replacement of side windows
6. Replacement of seats
7. Repairs to the upholstery or decorative furnishings of the interior of the cabin or cockpit.
8. Replacement of seat belts or harnesses
9. Replacement or repair of signs and markings
10. Replacement of bulbs, reflectors, glasses, lenses and lights
11. Replacement, cleaning, or setting gaps of spark plugs
12. Replacement of batteries
13. Changing oil filters or air filters
14. Changing engine oil
15. Lubrication of components
16. Changing hydraulic fluid
17. Changing engine coolant
18. Application of preservative or protective materials
19. Removal or replacement of glider tow hooks
20. Carrying out of a duplicate inspection of a flight control system that has been assembled, adjusted, repaired, modified, or replaced
21. Carrying out of a daily inspection of an aircraft