



Civil Aviation Advisory Publication

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This Civil Aviation Advisory Publication (CAAP) provides guidance, interpretation and explanation on complying with the *Civil Aviation Regulations 1988* (CAR) or a Civil Aviation Order (CAO).

This CAAP provides advisory information to the aviation industry in support of a particular CAR or CAO. Ordinarily, the CAAP will provide additional 'how to' information not found in the source CAR, or elsewhere.

A CAAP is not intended to clarify the intent of a CAR, which must be clear from a reading of the regulation itself, nor may the CAAP contain mandatory requirements not contained in legislation.

Note: Read this advisory publication in conjunction with the appropriate regulations/orders.

Maintenance of Warbird, Historic and Replica Aircraft

This Civil Aviation Advisory Publication will be of interest to

This CAAP applies to:

- owners, restorers and maintainers of Warbird, Historic and Replica aircraft (WHR)
- organisations providing maintenance services on WHR.

Why this publication was written

This CAAP provides information and guidance about the amended provisions of CAO 104.0 and Directions Instrument number CASA xxx/13.

These provisions concern maintenance training and authorisation procedures for B1 and B2 licence holders, and holders of other Civil Aviation Safety Authority (CASA)-issued authorisations, for carrying out WHR maintenance.

This CAAP also details the requirements, for the holder of a Certificates of Approval (COA) for maintenance of aircraft (i.e. the COA holder), when proposing to train and authorise WHR maintainers in accordance with the provisions of CAO 104.0.

Status of this CAAP

This is the first CAAP to be issued on this subject.

For further information

For application and policy advice contact CASA's Self-Administering Sport Aviation Organisations Office (Telephone 131 757).

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1. The relevant regulations and other references

- Civil Aviation Act 1988 (the Act)
- CAO 104.0: Certificates of approval – application, grant and conditions.
- Directions Instrument: Maintenance on warbird and historic and replica aircraft (WHR) – directions and licence condition.
- Regulation 21.189 of the *Civil Aviation Safety Regulations 1998 (CASR)*: Special certificate of airworthiness for limited category aircraft.
- Part 42 of CASR: Continuing airworthiness requirements for aircraft and aeronautical products.
- Part 45 of CASR: Display of nationality and registration marks and aircraft registration identification plates.
- Subregulation 66.010 (1) of CASR.
- Part 147 of CASR: Continuing airworthiness – maintenance training organisations.
- Regulation 30 of CAR: Certificates of approval.
- Regulation 33B of CAR: Airworthiness authorities.
- Regulation 33D of CAR: Grant of aircraft welding authority.
- Part 4A of CAR: Maintenance. Specifically:
 - Subregulation 42G (2) of CAR.
 - Subregulation 42G (5) of CAR.
 - Subregulation 42ZC (4) of CAR.
 - Subregulation 42ZC (6) of CAR.
- Schedule 7 of CAR: Maintenance that must not be carried out on a Class B aircraft by a person referred to in paragraph 42ZC (4) (b).
- Schedule 8 of CAR: Maintenance that may be carried out on a Class B aircraft by a pilot entitled to do so under Subregulation 42ZC (4).

2. Acronyms

AC	Advisory Circular
AD	Airworthiness Directive
AMO	Approved Maintenance Organisation
AEL	Aircraft Engineer Licence
CAAP	Civil Aviation Advisory Publication
CAO	Civil Aviation Order
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
CofA	Certificate of Airworthiness
COA	Certificates of Approval
LAME	Licensed Aircraft Maintenance Engineer
MA	Maintenance Authority
OJT	On-the-job Training
WHR	Warbirds, Historic aircraft and Replica aircraft

3. Definitions

3.1 For the purpose of this publication, the following definitions apply:

CAR means the *Civil Aviation Regulations 1988*.

CASR means the *Civil Aviation Safety Regulations 1998*.

Category B1 licence holder has the same meaning as in subregulation 66.010 (1) of CASR.

Category B2 licence holder has the same meaning as in subregulation 66.010 (1) of CASR.

CASA issued authorisation for maintenance means an authorisation issued under one of the following:

- regulation 33B of CAR (Airworthiness authority for maintenance or non-destructive testing)
- regulation 33D of CAR (Welding Authority)
- a maintenance authorisation issued under subregulation 42ZC (6) of CAR for the maintenance of a particular WHR aircraft.

COA holder means a person who holds a COA, under regulation 30 of CAR, for maintenance of aircraft, aircraft components or aircraft materials.

Independent maintainer means a person mentioned in paragraph 42ZC (4) (b) of CAR, being a person who holds a maintenance licence or an airworthiness authority and who is performing maintenance covered by that licence or authority independently of a COA holder.

Quality control manual for a COA holder means the manual, as approved in writing by CASA, for the maintenance of aircraft in relation to the following activities:

- training and assessment
- certification authorisation for, the maintenance of aircraft, including a WHR where applicable.

WHR means an aircraft that meets one of the following criteria:

- (a) is manufactured in accordance with the requirements of, and accepted for use by, an armed force;
- (b) is an historic or replica aircraft of which CASA or an authorised person is satisfied that it meets the airworthiness requirements for the issue of a standard certificate of airworthiness (except any requirements that are inappropriate for the special purpose for which the aircraft is to be used); and
- (c) issued with:
 - i. a special certificate of airworthiness for limited category aircraft under regulation 21.189 of CASR 1998; or
 - ii. an experimental certificate for aircraft under paragraphs 21.191 (d) or (e) of CASR 1998.

WHR employee means an employee of a COA holder who is either of the following:

- a category B1 licence holder in a subcategory that is applicable to the WHR on which they propose to carry out maintenance
- a category B2 licence holder.

4. Background

4.1 Unless otherwise permitted under the regulations, the supervision and certification of aircraft maintenance may only be carried out by a:

- Licensed Aircraft Maintenance Engineer (LAME) holding a Part 66 Aircraft Engineer Licence (AEL) with the appropriate category and subcategory
- person holding a CAR 33B Airworthiness Authority
- person holding a CAR 33D Welding Authority
- person holding a maintenance authorisation, issued under subregulation 42ZC (6) of CAR.

4.2 These authorities can generally be described as an authority for maintenance.

4.3 The limited category aircraft dealt with in this CAAP and CAO 104.0 are class B aircraft subject to the maintenance regulations in Part 4A of CAR, except where exempted or directed otherwise by CASA.

4.4 Maintenance licensing under Part 66 of CASR does not specifically cater for aircraft that have a special CofA; such as WHR. CASA's past practice has been to issue individual maintenance authorities (MA) under regulation 33B of CAR or subregulation 42ZC (6) of CAR. The practice of issuing an MA will eventually be discontinued in conjunction with any wider implementation and application of Parts 42 and 145 of CASR.

4.5 In order to provide a sustainable means of training and authorising WHR maintainers, CASA has introduced an in-house training and authorisation program for delivery by COA holders. In the longer term, CASA expects that a similar program will be continued under Part 149 of CASR.

4.6 CAO 104.0 sets out the requirements, procedures and limitations applicable to training that is provided in this manner, and the authorisations resulting from that training. This CAAP describes the types of aircraft governed by the provisions of CAO 104.0 (and accompanying Directions Instrument), the training requirements for maintainers, and the scope and limitations that apply to authorisations granted under CAO 104.0.

5. What are Warbirds, Historic aircraft and Replica aircraft?

5.1 A WHR is an aircraft that is covered by Regulation 21.189 of CASR and specified in section 8 of CAO 104.0. WHR are classified as one of the following:

- an ex-armed forces (Warbird) aircraft, as described in subparagraph 21.189 (1) (a) (ii) of CASR
- an historic aircraft, as mentioned in Paragraph 21.189 (3) (a) of CASR
- a replica aircraft, as mentioned in Paragraph 21.189 (3) (f) of CASR.

6. Classifications of WHR

6.1 As set out in CAO 104.0, WHR are grouped into three classifications:

- **Part 1 WHR:** Those aircraft for which the maintenance provider is required to train and authorise B1 and B2 licence holders (WHR employees) in accordance with a procedure approved by CASA. Holders of the other authorisations for maintenance, issued by CASA, do not need extra training for Part 1 WHR, but still require authorisation in accord with the authorisation procedure.
- **Part 2 WHR:** Those aircraft that may be maintained, without special training and authorisation, by an appropriately rated LAME or by a person holding a CASA issued authorisation for maintenance.
- **Unspecified WHR:** Those aircraft that have not been classified as either Part 1 WHR or Part 2 WHR.

6.2 Part 1 WHR and Part 2 WHR groupings are listed in Tables 1 and 2, respectively, of Annex 3 to CAO 104.0. For ease of reference, these tables are reproduced at Appendix 1 of this CAAP.

7. Maintenance requirements

7.1 Part 1 WHR

7.1.1 Due to the complexity of these aircraft, all maintenance, except unscheduled field maintenance, must be performed under the control of a COA holder whose certificate of approval covers the work. The work must be carried out or supervised by a specially trained category B1/B2 Part 66 AEL holder.

7.1.2 The category B1/B2 Part 66 AEL holder must be issued with a certification authorisation, permitting certification on behalf of the COA holder for maintenance carried out on a particular aircraft. The other maintenance authorisations (i.e. airworthiness authority for maintenance or NDT, welding authority and 42ZC (6) authorisation) are unaffected by CAO 104.0 and the Directions Instrument. These authorisations remain subject to any specified condition or limitation.

7.1.3 An independent maintainer may perform any unscheduled maintenance that is not listed in Schedule 7 of CAR.

7.2 Part 2 WHR

7.2.1 This class of aircraft may be maintained by the holder of a Part 66 AEL or CASA-issued authorisation for maintenance, where the licence or authorisation covers the class of aircraft. As per Part 1 WHR, other authorisations for maintenance (i.e. airworthiness authority for maintenance or NDT, welding authority and 42ZC (6) authorisation) are unaffected by CAO 104.0 and the Directions Instrument.

7.2.2 An independent maintainer may perform any maintenance that is not listed in Schedule 7 of CAR. All maintenance listed in Schedule 7 of CAR must be carried out by a COA holder whose approval covers the type of maintenance being performed. Additionally, the work must be supervised and certified by a person whose licence or MA covers the type of maintenance being performed.

7.3 Unspecified WHR

7.3.1 If a WHR is not listed in Part 1 or 2 of Appendix 3 to CAO 104.0, then it must be maintained as if it were a Part 1 WHR until such time as it is classified otherwise in Appendix 3 to CAO 104.0.

7.4 Field maintenance by an independent engineer on Part 1 WHR

7.4.1 Unscheduled field maintenance not listed in Schedule 7 of CAR may be carried out on a Part 1 WHR at any location, in order to allow retrieval of an aircraft that has become unserviceable away from home base.

7.4.2 The COA holder or registered operator of the aircraft must permit the independent engineer to carry out the maintenance.

7.4.3 The independent engineer providing the maintenance is not required to be an employee of a COA holder nor have been specifically trained and authorised in the particular aircraft type in accordance with section 8 of CAO 104.0. The independent engineer will, however, need to ensure that they have sufficient data, knowledge and experience to perform the work safely.

7.5 Pilot Maintenance Schedule

7.5.1 Maintenance, carried out in accordance with Schedule 8 of CAR, is unaffected by the provisions of CAO 104.0 and the associated Directions Instrument. The permission that category B1/B2 Part 66 AEL holders have been granted to carry out Schedule 8 (pilot) maintenance (a separate instrument issued by CASA) is also unaffected.

8. Training for Part 1 WHR maintenance

8.1 A COA holder may submit a Part 1 WHR training plan to CASA for approval.

8.2 The training plan does not need to include matters that are common to other aircraft classes. Rather, the plan should focus on those systems, fits and tolerances, techniques, special tools and processes that are unique to the particular aircraft. Training may be delivered through on-the-job training (OJT), or a combination of OJT and training delivered by an approved training organisation (recognised under Part 147 of CASR).

8.3 The training plan must describe training objectives and outcomes and methodology for assessing LAME competence. The plan must also identify the person(s) responsible for managing the training and assessment program.

8.4 Once approved, the organisation should include the training plan with their quality control manual. The training plan must not be varied without CASA's approval.

8.5 Before commencement of training and assessment (or re-assessment), the COA holder must be a CASA delegate for the purpose of authorising a person to carry out maintenance on Part 1 WHR.

Notes:

(1) *Subregulation 42ZC (6) of CAR provides for CASA (or a delegate of CASA) to authorise a person for the purpose of paragraph 42ZC (4) (e) of CAR.*

(2) *Paragraph 42ZC (4) (e) is an authorisation for a person to perform maintenance.*

8.6 When an employee of a COA holder has completed the WHR training and successfully met the assessment requirements set by the training plan, the COA holder must provide the employee with a notice of successful completion of training and assessment.

8.7 At the expiration of two years from successful assessment, the WHR employee must be re-assessed in accordance with the procedures set out in the COA holder's quality manual. Upon successful re-assessment, the COA holder must issue the employee with a notice of completion of re-assessment.

8.8 An employee holding a CASA-issued authorisation for maintenance for a WHR is deemed to have met the training requirements of section 8 of CAO 104.0.

8.9 The COA holder is required to retain a record of all employees who have been trained and authorised under these provisions. The record for each employee must be retained for at least two years after the employee ceases to be employed with the COA holder.

9. Certification authorisations

9.1 The holder of a B1/B2 Part 66 AEL, or a CASA-issued authorisation for maintenance, may only act on behalf of a COA holder to certify maintenance carried out on a Part 1 WHR if the employee has been issued with a written certification authorisation. The authorisation must set out the certifications that the employee is authorised to make on the COA holder's behalf.

9.2 The WHR to which the certification authorisation relates must be covered by a B1 or B2 Part 66 AEL, or CASA-issued authorisation for maintenance.

9.3 A certification may only be issued for a maximum period of 2 years. When an authorisation expires, the COA holder must assess the employee for the required levels of competency before re-issuing the certification authorisation. An employee who holds a CASA issued authorisation for maintenance does not require re-assessment before his or her certification authorisation may be renewed as CASA provides this function as part of CASA's renewal process. An issue or renewal of an authorisation must be notified to the employee in writing.

10. Independent inspection

10.1 A person carrying out independent inspection of a flight control system, in accordance with subregulation 42G (2) of CAR, does not have to have been trained, assessed or authorised in accordance with section 8 of CAO 104.0, if that person meets at least one of the criteria detailed in subregulation 42G (5) of CAR.

11. Points to remember

11.1 Part 1 WHR may only be maintained by a COA holder whose approval includes the type of WHR aircraft.

11.2 Part 1 WHR maintenance certifications may only be made by an employee of a COA holder who holds a certification authorisation issued by that COA holder. The employee must also meet one of the following criteria:

- hold a CASA-issued authorisation for maintenance that covers maintenance of the particular aircraft
- be a category B1/B2 Part 66 AEL holder, who has been trained in the maintenance of the particular aircraft and authorised by the COA holder to conduct that maintenance.

11.3 Part 1 WHR

11.3.1 A B1/B2 Part 66 AEL holder may be trained and assessed for the purpose of performing and certifying maintenance (on a Part 1 WHR) if the maintenance falls within the scope of their category B1 or B2 licence.

11.3.2 A COA holder must not issue a certification authorisation to a category B1 or B2 AEL holder, or holder of a CASA-issued authorisation for maintenance, in relation to a Part 1 WHR unless the COA holder is a 42ZC (6) delegate of CASA for this purpose.

11.3.3 An independent maintainer may carry out unscheduled maintenance on a Part 1 WHR at any location, in order to allow the aircraft to be returned to its home base and provided that the maintenance is not listed within Schedule 7. Furthermore, an independent maintainer is not required to be specifically trained and authorised by a COA holder to carry out maintenance on an affected WHR.

11.4 Part 2 WHR

11.4.1 Maintenance certifications for Part 2 WHR may be issued by a LAME whose licence subcategory is applicable to the aircraft being maintained, or by the holder of a CASA-issued authorisation for maintenance of the aircraft.

11.4.2 A COA holder is not required to issue its employees with certification authorisations for Part 2 aircraft.

11.4.3 A B1 or B2 AEL holder does not need to be trained and assessed to carry out maintenance on Part 2 WHR.

11.4.4 An independent maintainer may carry out any maintenance on a Part 2 WHR, so long as Schedule 7 of CAR does not stipulate that the maintenance must be carried out under the control of a COA holder.

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Appendix 1 – Lists of WHR

Part 1 WHR

Aircraft		Licence Categories	Suggested identification for a certification authorisation
Airframe	Engine type		
Aero Vodochody L 29 Delphin	Motorlet M-701C 500	B1.1; B2	L29
Aero Vodochody L 39 Albatross	Ivchenko AI-25TL	B1.1; B2	L 39
BAC Jet Provost	A-S Viper	B1.1; B2	Jet Provost
BAC Strikemaster	Rolls-Royce Viper Mk.535 turbojet	B1.1; B2	Strikemaster
Bell Cobra	Lycoming T53-L-13	B1.2; B2	AH-1G
Bell Iroquois Huey	Lycoming T53-L-11	B1.2; B2	UH series
CAC Sabre	RR Avon	B1.1; B2	Sabre
Consolidated Catalina	PW R1830	B1.2; B2	PB-Y
DH 115 Vampire	DH Goblin	B1.1; B2	DH115
Douglas DC4	PW R 2000	B1.2; B2	DC4
English Electric Canberra	RR Avon	B1.1; B2	Canberra
Fouga CM 170 Magister	Turbomeca Marbore	B1.1; B2	CM 170
Gloster Meteor	RR Derwent	B1.1; B2	Meteor
Grumman Avenger	Wright R 2600	B1.2; B2	Avenger
Grumman S2 Tracker	Wright R 1820	B1.2; B2	S2
Hawker Sea Fury	Bristol Centaurus	B1.2; B2	Fury
Lockheed C121 Constellation	Wright R 3350-DA3	B1.2; B2	Constellation
Lockheed P2v Neptune	Wright R 3350 and Westinghouse J 34	B1.1; B2	Neptune
Mikoyan Mig 15	Klimov VK 1	B1.1; B2	Mig 15
Mikoyan Mig 17	Klimov VK-1F	B1.1; B2	Mig 17
Mikoyan Mig 21	Tumansky	B1.1; B2	Mig 21
North American F86 Sabre	Avon 26	B1.1; B2	F86
Savoia Marchetti S211	P&W JT15D-4C	B1.1; B2	S211
TS-11 Iskra	WSK SO-3	B1.1; B2	TS-11

Notes:

- (1) Only the holder of a CASA issued authorisation for maintenance or a specially trained category B1/B2 Part 66 AEL holder, holding a current certification authorisation, may carry out scheduled and unscheduled maintenance on these aircraft. An independent engineer (not specifically trained and authorised) may only perform maintenance certification for unscheduled maintenance on these aircraft.
- (2) The “Suggested identification for a certification authorisation” (if any) mentioned in column 3 of the tables refers to a suggested means of identifying certification authorisations for CAO 104.0.

Part 2 Aircraft

Aircraft		Licence Categories
Airframe	Engine type	
AESL CT4/CT6	Cont IO-360	B1.2; B2
Antonov AN2 Colt	Shvetsov ASh-62IR	B1.2; B2
Beech 18	PW R 985	B1.2; B2
CAC Boomerang	P&W R-1830	B1.2; B2
CAC Mustang	RR/Packard Merlin	B1.2; B2
CAC Winjeel	P&W R-985	B1.2; B2
CAC Wirraway	P&W R-1340	B1.2; B2
Cessna Dragonfly	General Electric J85-GE-17A	B1.1; B2
Cessna O2A/B	Cont. IO-360	B1.2; B2
Cessna L19/305 Bird Dog	Cont. O-470	B1.2; B2
CJ6 Nanchang	Zhouzhou HS6A	B1.2; B2
Convair CV340	R-2800 CB-17	B1.1; B2
Curtis P 40	Allison V-1710 RR/Packard Merlin	B1.2; B2
Dh 87 Tiger Moth	Gypsy Major 1C	B1.2; B2
Dh 94 Moth Minor	Gypsy Minor	B1.2; B2
DHA3 Drover	Gypsy Major 10	B1.2; B2
DHC1 Chipmunk	Gypsy Major 10 Mk2	B1.2; B2
DHC 4	PW R2800	B1.1; B2
Douglas B- 26Invader	PW R 2800	B1.2; B2
Douglas C47/DC3	PW R 1830 Wright R 1820	B1.2; B2
Fiat G59	RR/Packard Merlin	B1.2; B2
Lockheed Hudson	Wright R-1820	B1.2; B2
North American Mustang	RR/Packard Merlin	B1.2; B2
North American T28	Wright R-1820	B1.2; B2
North American T6/SNJ/Harvard	P&W R-1340	B1.2; B2
Percival Provost Mk1	Alvis Leonides 126	B1.2; B2
STM Ryan	Menasco Pirate, Gypsy Major	B1.2; B2
Supermarine Spitfire	RR/Packard Merlin	B1.2; B2
Vultee BT 13	P&W R-985-AN-1	B1.2; B2
Yakovlev Yak 50	Klimov VK-1	B1.2; B2
Yakovlev Yak 52	Vedeneyev M-14P	B1.2; B2

Note: The holder of a CASA-issued authorisation for maintenance, B1/B2 employees and independent engineers (whether specifically trained or not) may carry out maintenance and provide maintenance certifications on these aircraft. A current certification authorisation is not required for these aircraft.