



Australian Government

Civil Aviation Safety Authority

ADVISORY CIRCULAR

AC 145-04 **Control and delivery of training by a Part** **145 AMO**

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:

- holders of a maintenance organisation approval issued under Part 145 of the *Civil Aviation Safety Regulations 1998 (CASR)*
- licenced aircraft maintenance engineers (LAMEs).

Purpose

This AC provides guidance and information to Part 145—approved maintenance organisations (AMOs) on the training they may provide within their organisation.

For further information

For further information on this AC, contact the Civil Aviation Safety Authority's (CASA's) Certification and Airworthiness Standards branch (telephone 131 757).

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

Status

This version of the AC is approved by the Executive Manager, Standards Division.

Version	Date	Details
V2.2		<p>The following changes have been made to this AC:</p> <ul style="list-style-type: none"> • Appendix A in previous versions has been deleted as it duplicates Table 2 to Appendix IX of the Part 66 Manual of Standards. Appendix B has now become Appendix A. • previous Annexes A and B have been spilt out and are now standalone documents with the inclusion of a new Annex C. • inclusion of a sample Permitted Training Manual as Annex C, which was previously published as a sample training manual in Civil Aviation Advisory Publication (CAAP) 104-1.
v2.1	May 2014	<p>The following changes have been made to this AC:</p> <ul style="list-style-type: none"> • replacement of reference to AC 66-2 in paragraph 8.2 with reference to Appendix IX of the Part 66 MOS as a result of the aircraft type ratings information being migrated out of the AC into an Appendix of the Part 66 MOS • amendment to the tables in Appendix A to update the list of aircraft for which CASA approves a Part 145 AMO to select or control aircraft type training.
(1)	May 2013	AC 66-1(0) and dealt with aircraft type training but the scope of this AC has now been expanded to deal with other forms of training that may be provided or controlled by the AMO. In light of that change the AC has been numbered in the CASR Part 145 series.
(0)	March 2012	Initial issue of this AC.

Contents

1	Reference material	4
1.1	Acronyms	4
1.2	Definitions	4
1.3	References	5
1.4	Forms	5
2	Background	6
3	Category A	8
3.1	Training and authorisation	8
3.2	Acceptable means of compliance	8
3.3	Practical element — assessment standard	9
3.4	Preparation of training rooms and equipment	10
3.5	Preparation of workshops/maintenance facilities and equipment	10
3.6	Conduct of category A type and task practical training	10
3.7	Records of training carried out	10
4	Permitted training	11
4.1	Overview	11
5	Control or delivery of aircraft type training by a Part 145 AMO	12
5.1	Systems-based, manufacturer's or exclusion removal training – permitted training	12
6	Control or delivery of aircraft type training by a CAR 30 COA holder	13
6.1	Systems-based, manufacturer's or exclusion removal training – permitted training	13
Appendix A	Systems-based training in a Part 145 AMO	14
ANNEX A	Experience analysis record (example)	A1
ANNEX B	Syllabus/record of theory/practical	B1
ANNEX C	SAMPLE - Permitted training manual	C1

1 Reference material

1.1 Acronyms

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

Acronym	Description
AMC	Acceptable Means of Compliance
AME	Aircraft Maintenance Engineer
AMO	Approved Maintenance Organisation
CAMO	Certified Airworthiness Management Organisation.
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
COA	Certificate of Approval
GM	Guidance Material
LAME	Licensed Aircraft Maintenance Engineer
MOS	Manual of Standards
MTO	Maintenance Training Organisation
NDI	Non-Destructive Inspection
RTO	Registered Training Organisation
SMT	Special maintenance task

1.2 Definitions

Terms that have specific meaning within this AC are defined in the table below.

Term	Definition
COA holder	A person who holds a certificate of approval under regulation 30 of CAR for maintenance of aircraft, aircraft components or aircraft materials.
Employee	Any individual who is performing or certifying for maintenance on behalf of and under the control of the COA holder.
Excluded system	An excluded system mentioned in Appendix VII of the Part 66 MOS.
In a COA	In an organisation approved to perform maintenance under regulation 30 of the <i>Civil Aviation Regulations 1988 (CAR)</i> .
LAME	The holder of an aircraft maintenance engineer licence issued under Part 66 of CASR.

1.3 References

Regulations

Regulations are available on the ComLaw website <http://www.comlaw.gov.au/Home>

Document	Title
Part 66	Continuing airworthiness – aircraft engineer licences and ratings
Part 145	Continuing airworthiness – Part 145 approved maintenance organisations
Part 145 MOS	Part 145 Manual of Standards
Part 147	Continuing airworthiness - maintenance training organisations
CASA Instrument CASA 129/13	Authorisation – Category A maintenance authority holder in a CAR 30 organisation – Exemption – from regulation 66.130 of CASR 1998
Part 66 MOS	Part 66 Manual of Standards
Regulation 30 of <i>the Civil Aviation Regulations 1988 (CAR)</i>	Certificates of approval
Civil Aviation Order (CAO) 104.0	Certificates of approval – application, grant and conditions

Advisory material

CASA's Advisory Circulars are available at <http://www.casa.gov.au/AC>

Document	Title
AC 66-07	Practical training options for aircraft type training – POC & OTJ, and the recording of evidence of recent work experience

1.4 Forms

CASA's forms are available at <http://www.casa.gov.au/forms>

Form number	Title
Form 465	Part 147 Maintenance Training Organisation and Part 145 Approved Maintenance Organisation Notification of Training Outcomes

2 Background

An approved maintenance organisation (AMO) has various training obligations as set out in Table 1:

Note: Not all training obligations result from aviation regulations.

Table 1: Training obligations of an AMO

Type of training and applicable MOS reference	Exposition & examples	Exposition changes
General Training	OH&S	Non-significant change
Training for employees who provide maintenance services . Paragraph 145.A.35 (b) of the Part 145 MOS ¹ - an employee issued with an authorisation to provide maintenance services on aircraft or aeronautical products so that they have up-to-date knowledge.	Paragraphs 145.A.35 (d) and (e) of the Part 145 MOS require provision of up-to-date knowledge of: <ul style="list-style-type: none"> • technology relevant to the person's functions in the AMO • AMO's procedures • human factors principles This information must be received by CASA prior to providing certifications for maintenance. The AMO must provide continuation training covering the same topics every 24 months.	Non-significant change
Aeronautical Product Employee Training. Subparagraph 145.A.35 (b) 2 of the Part 145 MOS	Arrangements for training associated with the competency of employees to maintain aeronautical products under the approval certificate (aligned with capability list).	Non-significant change
Special maintenance task (SMT) Employee Training. Subparagraph 145.A.35 (b) 3 of the Part 145 MOS.	Trained such that the employee has an adequate understanding of: <ul style="list-style-type: none"> • the aircraft or aeronautical product to be maintained • airworthiness implications and requirements relevant to any maintenance for which they will certify the AMO's procedures • regulations under which they will be providing maintenance services. <p>Notes:</p> <ol style="list-style-type: none"> a. Arrangements for training of SMT employees to standards where defined e.g. NDI² standards; and/or b. internal processes for training SMT employees (e.g. boroscope processes and control system rigging). 	Non-significant change

¹ Manual of Standards.

² Non-Destructive Inspection.

Type of training and applicable MOS reference	Exposition & examples	Exposition changes
Category A licence holder training for line maintenance. Paragraph 145.A.37 (e) of the Part 145 MOS.	Details of training syllabus and training and assessment procedures need to be set out in AMO exposition.	Non-significant change
Pilot and/or Flight Engineer. Paragraph 145.A.37 (f) of the Part 145 MOS.	AMO to include provision in the exposition to provide training when requested by CAMO ³ that describes the assessment process; and syllabus of training. Regulation 42.630 – AMO trains and assesses. Subregulation 42.630 (1) – the CAMO authorises.	Non-significant change
Permitted Training in an AMO. Paragraphs 145.A.37 (b) and (c) of Part 145 MOS (includes exclusion removal training and manufacturers' training).	As provided for by paragraphs 145.A.37 (b) and (c) of the Part 145 MOS for: <ul style="list-style-type: none"> • removal of exclusions from licence • grant of type rating post AMO controlled or delivered training; and • must meet the standard set out in the exposition or AMC⁴ for permitted training as assessed by CASA operations. 	Significant change

³ Certified airworthiness management organisation.

⁴ Acceptable means of compliance.

3 Category A

3.1 Training and authorisation

- 3.1.1 Before a category A licence holder can carry out and certify for any of the category A licence tasks listed within Appendix II of the Part 145 MOS, they must be type and task trained and authorised by the Part 145 AMO. Type and task training may be carried out by the Part 145 AMO or a Part 147 maintenance training organisation (MTO). In either case, the way in which the category A is to be type and task trained and subsequently authorised needs to be described within the Part 145 AMO's exposition.
- 3.1.2 A holder of a Certificate of Approval (COA) issued under regulation 30 of the *Civil Aviation Regulations 1988 (CAR)* may also utilise the services of category A licence holders to carry out and certify for any of the category A licence tasks listed within Appendix II of the Part 145 MOS. The COA holder needs to seek CASA delegations and authorisations to authorise category A personnel post type and task training.⁵

3.2 Acceptable means of compliance

- 3.2.1 An AMC, when describing delivery of category A type and task training, is to provide:
- a description of the authorisation processes, including:
 - o a situation in which the quality and assurance responsible manager only authorises the holder of a category A licence if the Licensed Aircraft Maintenance Engineer (LAME) has completed type and task training (theoretical knowledge and practical training) appropriate to any task mentioned in Appendix II of the Part 145 MOS, for which the LAME is to be authorised
 - o controlled use of authorisations within the company, including any constraints or limits that apply to use of the authorisation and reporting paths and responsibilities
 - o where access to the technical and administrative material required for the exercise of the authorisation (and updates to such material) can be obtained
 - a description of the way in which instructor selection and management is carried out, that includes:
 - o the instructor qualification requirements are: Holder of a B1 or B2 category licence; an appropriate aircraft type rating; and hold a certificate in train the trainer or certificate in training and assessment or equivalent qualification or experience)
 - o a list or cross reference to a list of instructional and examination staff
 - o a record of trainer skills/qualifications and responsibility for maintenance of the record
 - a description of the training processes, including:
 - o training conduct (type and task specific) and per address of each facility (where the course will be conducted)

⁵ In accordance with CASA Exemption Instrument 129/13.

- o course plans for each aircraft type and task:
 - objectives/learning outcomes
 - topics to be covered
 - the method selected by the organisation for assessing that the course objectives have been met by a student
 - student to instructor ratios
 - conditions under which the course will be conducted
- o training assessment
- o delivery of training at the different locations (facility locations)
- o training records
- o responsibilities for the preparation of course material
- a description of course content including:
 - o topics to be covered (including a brief overview of the airframe, required systems and/or powerplants relevant to the scope of the tasks to be authorised) – cross referencing information from the systems description section of the aircraft maintenance manual may be utilised
 - o course objectives - for example, on completion of the training, the student will be able to:
 - state safety precautions related to the airframe, its systems and powerplant
 - identify maintenance practices important to the airframe, its systems and powerplant
 - describe the general layout of the aircraft's major systems
 - describe the general layout and characteristics of the powerplant
 - identify and use tooling and test equipment required for the aircraft type and tasks being taught
 - source and reference documents that will be utilised for the training and assessments.
- an explanation to the student of the scope and limitations of the authorisation(s) to be made after training and assessment is complete.

Note: Scope and limitations will be determined by the Part 66 MOS and the extent of training provided by the AMO.

3.3 Practical element — assessment standard

3.3.1 Practical assessment will determine a person's capability to perform a task. The assessment may be oral, written or practical assessment based, or a combination of all of these. Conduct of the assessment method must be described and carried in accordance with the AMO's exposition. The Part 66 MOS requires that a written report must be made by the assessor to explain why the candidate has passed or failed. The assessment must ensure that the following objectives are met:

- accurately and confidently discuss the aircraft and its systems
- ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, and the particular task(s) for which the course is provided
- correctly use all technical literature and documentation for the aircraft

- correctly use specialist and special tooling and test equipment, perform removal and replacement of components and modules unique to type.

3.4 Preparation of training rooms and equipment

- 3.4.1 If theory training is required for the specific task training, a room will be set aside with sufficient seating and any necessary projection equipment, whiteboards manuals, training aids. The responsibility for ensuring that the room utilised is suitable for the purpose resides with the Quality Manager.

3.5 Preparation of workshops/maintenance facilities and equipment

- 3.5.1 The trainer is responsible for the preparation of the maintenance area and availability of tooling and equipment to perform the tasks.

3.6 Conduct of category A type and task practical training

- 3.6.1 The trainer will review or develop the training material, prior to course commencement. The Quality Manager should confirm the suitability of the material prior to its use.
- 3.6.2 When all training and assessment is complete, the trainer forwards the results to Training Manager (if any) for action by Quality Manager and would normally result in issue of the relevant authorisation.

3.7 Records of training carried out

- 3.7.1 The Technical Training Manager is responsible for creating and controlling all training documents relating to the program. Records should be retained as per the relevant corporate policy.

4 Permitted training

4.1 Overview

- 4.1.1 When a new aircraft type comes into service, CASA will assess the aircraft and decide whether it is of sufficient complexity to warrant type training. If so, CASA will add it to the list of type rated aircraft in Table 1 of Appendix IX of the Part 66 MOS.
- 4.1.2 Due to the time and costs involved in obtaining CASA approval of a type course, MTOs may not have sufficient resources to develop a course for a type rated aircraft prior to it entering service, or may determine that demand is insufficient to justify the costs involved. In some cases, training courses for older type rated aircraft may be deleted by registered training organisations (RTOs) on similar economic grounds.
- 4.1.3 To accommodate the gap between the supply and demand of aircraft type training, innovative maintenance training products have been established by CASA. Flexible training options, supported by experienced in-house AMO personnel, have been made available under Part 145 and Part 66, and extended to the CAR 30 COA, as described in chapters 5 and 6.

5 Control or delivery of aircraft type training by a Part 145 AMO

5.1 Systems-based, manufacturer's or exclusion removal training – permitted training

- 5.1.1 CASA has provided for AMO controlled or delivered training for those aircraft listed within Table 2 of [Appendix IX of the Part 66 MOS](#). In accordance with subparagraphs 66.A.45 (h) 2 and 3 of the Part 66 MOS, a Part 145 AMO may be approved to control or provide maintenance training for the listed aircraft for each category to the limit set out in that table.
- 5.1.2 If a Part 145 AMO is contemplating delivering/controlling aircraft type training that either results in a type rating, removes type rating exclusions, or utilises manufacturer training, then the AMO exposition will need to incorporate control procedures for that activity. Annex C to this advisory circular (AC) provides a document that is an acceptable means of compliance with these requirements.
- 5.1.3 In accordance with subparagraph 66.A.45 (h) 1 of the Part 66 MOS, an AMO may deliver excluded system training and assessment. Details of excluded systems (exclusions on any aircraft type ratings) suitable for provision of training, assessment and authorisation by the AMO and controlled by procedures outlined in their exposition, can be found in Appendix VII of the Part 66 MOS.
- 5.1.4 A list of theory/practical training elements that can be selected to be provided to candidates by the Part 145 AMO is provided in Annex B to this AC. The list is a guide to assist in preparation of a training course, and only the relevant elements should be selected after assessing the needs of an individual and the specific training requirements for a particular aircraft or system.
- 5.1.5 In preparing a training course, the AMO should focus the training effort on those aspects of an aircraft or system that are sufficiently unique in their design, complexity or maintenance requirements, that a LAME would require special training in order to safely maintain the aircraft or system. It is not necessary to train the LAME in aspects of the aircraft that they would encounter in their normal course of duties on other aircraft such as replacing navigation light bulbs, tyre inspection or brake pad replacement.

6 Control or delivery of aircraft type training by a CAR 30 COA holder

6.1 Systems-based, manufacturer's or exclusion removal training – permitted training

- 6.1.1 Civil Aviation Order (CAO) 104.0 allows permitted training to be carried out by a CAR 30 COA holder if they seek and gain approval from CASA to do so.
- 6.1.2 Under Part 4A of the CAR, there are no provisions in regulation 30 of CAR for a COA holder to issue certification authorisations. In order to issue a certification authorisation as required by the permitted training provisions, a COA holder must hold a CASA delegation issued under subregulation 42ZC (6) of CAR.
- 6.1.3 Before issuing the certification authorisation, the COA holder must be satisfied that the employee has successfully completed the training and assessment (provided by the COA holder or the aircraft or aircraft engine manufacturer) for the systems based, manufacturer's or exclusion removal training, to perform maintenance on the aircraft or aircraft engine.
- 6.1.4 If a CAR 30 COA is contemplating delivering/controlling aircraft type training and assessment that removes type rating exclusions; utilises manufacturer training; or trials the use of systems based type rating training, then the training and assessment must be in accordance with the COA holders quality control manual as approved in writing by CASA for training and assessment under subsection 7 of CAO 104.0.
- 6.1.5 The sample permitted training manual provided at Annex C to this AC, if prepared and used in accordance with the instructions provided, meets the requirements of subsection 7 of CAO 104.0.
- 6.1.6 CAO 104 prescribes that the COA holder must give a notice of completion of training and assessment (in the approved form) to the employee and to CASA as soon as the employee has successfully completed the training and assessment and has provided maintenance services including certification of maintenance or issued certificates of release to service for a period of 6 months after commencement of the authorisation.
- 6.1.7 Once notice of completion of training and assessment is provided, CASA will be able to consider removal of the relevant exclusion or rating from the individual's licence, or issue of the relevant rating.

Appendix A

Systems-based training in a Part 145 AMO

A.1 Overview

A.1.1 Systems-based training, delivered by a Part 145 AMO, incorporates theory exchange delivered by a manufacturer or an experienced LAME to the candidate and on the job training gained in the workplace on aircraft.

A.1.2 Theory

A.1.2.1 The theoretical aspect of any system, category or exclusion being trained for may be satisfied by the use of manufacturer's training or by having an LAME holding the relevant rating provide their knowledge of the relevant system. The manner of theory delivery that has been selected needs to be described within the exposition and signed off within the student syllabus/record of theory/practical.⁶

A.1.2.2 The mechanics of the theory delivery is not prescribed but an AMC may include methodology that includes:

- direct supervision of student maintenance of the relevant system
- a joint review of the continuing airworthiness instructions
- providing opportunity for an exchange of views and questions related to the maintenance of the relevant system.

A.1.3 Practical on the job training

A.1.3.1 The objective of on the job training is to gain the required competence and experience in performing safe maintenance and may use a structured learning process. This is usually peer to peer training and needs to take place on an aircraft, or component, or at the workplace involving actual work task performance. On the job training includes both line and base maintenance tasks.

A.1.3.2 The systems-based/exclusion training and supporting on the job training covers a cross section of tasks representative of the aircraft and systems both in complexity and in the technical input required to complete that task. While relatively simple tasks may be included, other more complex maintenance tasks shall also be incorporated and undertaken as appropriate to the aircraft type. At the completion of the systems-based/exclusion training and supporting on the job training the candidate will be expected to be able to:

- ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements and functional checks
- correctly use all technical literature and documentation for the aircraft
- correctly use specialist and special tooling and test equipment, perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

A.1.3.3 The systems-based/exclusion training and supporting on the job training needs to cover any relevant tasks for the aircraft type concerned.

⁶ For further information refer to Part 145 MOS.

- A.1.3.4 On completion of the systems-based/exclusion training and supporting on the job training course, the student shall be able to demonstrate detailed theoretical knowledge of the aircraft's applicable systems, structure, operations, maintenance, repair, and troubleshooting according to approved maintenance data. The student shall be able to demonstrate the use of manuals and approved procedures, including the knowledge of relevant inspections and limitations.

A.2 AMC

- A.2.1 An AMC – for describing the way in which permitted training will be delivered or controlled by a Part 145 AMO, is to provide detail of the following in the AMO exposition:

A.2.2 Permitting training

- A.2.2.1 Permitted training is described by section 145.A.37 of the Part 145 MOS. This permitted training is subject to compliance with Part 145, the Part 145 MOS and the exposition.
- A.2.2.2 The permitted training program comes under the control of the manager responsible for training described in the exposition.

A.2.3 Experience analysis

- A.2.3.1 Before permitted training is delivered or controlled, the training and authorisation manager should conduct an experience analysis. This process aims to give the individual LAME appropriate credit for their experience. It should identify if any other practical experience is required, in addition to the minimum level provided by the permitted training course and service familiarisation. The analysis is carried out on all persons prior to their permitted training course attendance and ensures the course entry criteria are satisfied by the proposed trainee.

A.2.4 Individual course design

- A.2.4.1 Using Annex B to this AC (and any course syllabus from a manufacturer's course) – the AMO can select the permitted training course elements of training. If the manufacturer's training does not cover all the required training then the AMO will need to add supplemental elements of training that will be delivered by the AMO itself.
- A.2.4.2 Annex C to this AC is a sample manual that meets the requirements of paragraph 145.A.37 (a) of the Part 145 MOS and may be used by an AMO or a COA holder.

A.2.5 Training facilities

- A.2.5.1 CASA recognises that much of the training will be conducted in the workplace. For theory delivery and any assessments that are not on the aircraft, the location is to be conducive for student concentration (free of distractions to the extent possible).

A.2.6 Permitted trainer

A.2.6.1 The permitted training course will be led and supervised by a LAME who:

- is licensed in the category for more than 5 years and has held the type rating for more than 18 months
- has recent maintenance experience in that rating
- has completed a recognised 'Train the Trainer' course (or held a teaching post, or holds a similar qualification military or civil, or has been assessed by the Quality Manager as being capable of successfully delivering the theory and supervising the on the job training)
- understands the way in which the permitted training and authorisation system works within the AMO.

Note: The introduction of B1 and B2 licences means that being previously licenced under regulation 31 of CAR will satisfy the licenced in category more than 5 years requirement.

A.3 Assessment of the systems-based/exclusion training and supporting on the job training

A.3.1 The final assessment that systems-based/exclusion training and supporting on the job training has been satisfactorily completed needs to be certified by the Part 145 AMO Quality Manager.⁷

A.3.2 The assessment may be performed task by task or conducted as a final assessment at the end of the systems-based/exclusion training and supporting on the job training.

A.3.3 For assessment of practical elements of type training, the assessment may be oral, written or practical assessment based, or a combination of all of these.

A.3.4 The assessment is conducted using Annex A to this AC. For each element of training, the student must demonstrate where they can find the relevant maintenance data for the system and can describe the operation of the system. Select a range of tasks (based on a sample of subjects drawn from the on the job training task list – found in Appendix B of AC 66-07) for practical assessment, with an aim to determine the candidate's competence to perform a task.

A.3.5 A written report should be made by the assessor to explain why the candidate has passed or failed.

A.3.6 The assessment should ensure that the following objectives are met:

- accurately and confidently discusses the aircraft and its systems
- ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example, troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run etc. (if required)
- correctly use all technical literature and documentation for the aircraft

⁷ For further information refer to Part 145 MOS.

- correctly use specialist and special tooling and test equipment, and perform removal and replacement of components and modules unique to type, including any on-wing maintenance activity.

A.4 AMO authorisation

- A.4.1 Once trained and assessed, the AMO may authorise the LAME to make certifications for the system or aircraft that has been taught using the permitted training regime.
- A.4.2 Six months from the successful completion of the systems-based/exclusion training and supporting on the job training, the AMO needs to complete and submit Form 465 to CASA.

ANNEX A TO AC 145-04

Experience analysis record (example)

PERMITTED TRAINING - EXPERIENCE SUMMARY RECORD				
Name:		ARN:		Base:
Category:		Rating or exclusion removal sought:		
B1/B2 Licence rating endorsements held				
B1 – Airframe (Engine)s		B2 – Avionic		
Category Experience - Years holding an aircraft type rating				
Previous work environments – aircraft (engine) types - list by type				
Transits and Daily Checks (list type only)		Scheduled Maintenance Checks (>100 hr cycle by type and category)		Heavy Maintenance areas or Engine/Module changes
Summary of Experience on type for rating from workplace exposure & experience records				
Verified by (workplace supervisor):				Date
Name:.....		Signature		
Position:.....				

PERMITTED TRAINING EXPERIENCE ANALYSIS RECORD		
Name:	ARN:	Base:
Category:	Rating Sought:	
REDUCTIONS OR SUPPLEMENTARY TASKS REQUIRED AFTER CONDUCT OF EXPERIENCE ANALYSIS		
Assessed by		
Name:.....	Signature	Date
Position:.....		

ANNEX B TO AC 145-04

Syllabus/record of theory/practical

Use only those portions relevant to the category, systems or exclusion that the candidate is being trained for. AMO quality assessor is to determine which aspects are to be included for an aircraft type.

AMO and location _____

AMO Quality Assessor _____

Aircraft type _____

Name of Trainee AME _____ ARN _____

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
05		Time limits and maintenance checks			
06		Dimensions and areas, for example weights, maximum take-off weight (MTOW)			
07		Lifting and shoring			
08		Levelling and weighing			
09		Towing and taxiing			
10		Parking, mooring, storing and return to service			
11		Placards and markings			
12		Servicing			
		Standard practices — only type particular			
Helicopters					
18		Vibration and noise analysis (blade tracking)			
25		Emergency flotation equipment			
53		Airframe structure (helicopter)			

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
60		Standard practices rotor			
62		Rotor(s)			
62A		Rotors – Monitoring and indicating			
63		Rotor drive(s)			
63A		Rotor drive(s) – Monitoring and indicating			
64		Tail rotor			
64A		Tail rotor – Monitoring and indicating			
65		Tail rotor drive– Monitoring and indicating			
65A		Tail rotor drive			
66		Folding blades and pylon			
67		Rotors flight control			
Aircraft structures					
27A		Flight control surfaces (all)			
51		Standard practices and structures (damage classification, assessment and repair)			
52		Doors			
53		Fuselage			
54		Nacelles and pylons			
55		Stabilisers			
56		Windows			
57		Wings			
		Zonal and station			

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
		identification systems			
Aircraft systems					
21		Air-conditioning			
21A		Air supply			
21B		Pressurisation			
21C		Safety and warning devices			
22		Autoflight			
23		Communications			
24		Electrical power			
25		Equipment and furnishings			
25A		Electronic equipment including emergency equipment			
26		Fire protection			
27		Flight controls			
27A		Systems operation: electrical and fly-by-wire			
28		Fuel systems			
28A		Fuel systems monitoring and indicating			
29		Hydraulic power			
29A		Hydraulic power monitoring and indicating			
30		Ice and rain protection			
31		Indicating and recording systems			
31A		Instrument systems			

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
32		Landing gear			
32A		Landing gear monitoring and indicating			
33		Lights			
34		Navigation			
35		Oxygen			
36		Pneumatic			
36A		Pneumatic monitoring and indicating			
37		Vacuum			
38		Water and waste			
41		Water ballast			
42		Integrated modular avionics			
44		Cabin systems			
45		On Board maintenance systems (except if the element is covered in the element for ATA chapter 31)			
46		Information systems			
50		Cargo and accessory compartments			
Turbine engines					
49		Auxiliary power (APUs)			
70		Standard practices-engines			
70A		Constructional arrangement and operation (installation, inlet, compressors,			

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
		combustion section, turbine section, bearings and seals, lubrication systems)			
70B		Engine performance			
71		Powerplant			
72		Engine turbine and turboprop and ducted fan and unducted fan			
73		Engine fuel and control			
73A		FADEC			
74		Ignition			
75		Air			
76		Engine controls			
77		Engine indicating systems			
78		Exhaust			
79		Oil			
80		Starting			
82		Water injections			
83		Accessory gearboxes			
84		Propulsion augmentation			
Piston engines					
70		Standard practices-engines			
70A		Constructional arrangement and operation (carburettors, fuel injection systems, induction, exhaust and cooling			

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
		systems, supercharging/ turbocharging, lubricating systems)			
70B		Engine performance			
71		Powerplant			
73		Engine fuel and control			
73A		FADEC			
74		Ignition			
76		Engine control			
77		Engine indicating Systems			
79		Oil			
80		Starting			
81		Turbines			
82		Water injection			
83		Accessory gearboxes			
84		Propulsion augmentation			
Aeroplane propellers					
60A		Standard practices – propellers			
61		Propellers/ Propulsion			
61A		Propeller construction			
61B		Propeller pitch control			
61C		Propeller synchronising			
61D		Propeller electronic control			

CONTROL AND DELIVERY OF
TRAINING BY A PART 145 AMO

ATA chapter	Required? Y/N	Elements	Theory Assessment Person/Sign/ Date	Practical Assessment Person/Sign/ Date	Quality Assurance Person/Sign/ Date
61E		Propeller ice protection			
61F		Propeller maintenance			

ANNEX C TO AC 145-04

Permitted training manual

SAMPLE

Permitted training manual

About this Manual

This manual template has been prepared to guide and assist an approved maintenance organisation (AMO) who proposes to use the permitted training provisions of paragraph 145.A.37 (a) of the Part 145 Manual of Standards (MOS).

It is also structured so that it may be used by Certificate of Approval (COA) holders who propose to train and authorise maintenance certification staff under the provisions of Civil Aviation Order (CAO) 104.0.

The procedures set out in this manual represent a standard that meets the requirements set out in the legislation.

How to use this sample manual

This manual is made up of five general and four training topics:

General:

- **Sections 1 to 5** – describes the general administration and management processes applicable to the manual.

Training:

- **Section 6** – contains the training plan
- **Section 7** – provides practical performance assessment guidelines. If you propose to use this manual you should read it carefully and ensure that you are able to incorporate the manual into your organisational procedures. Once approved, you will be required by regulation 11.077 of *the Civil Aviation Safety Regulations 1998 (CASR)* to comply with the manual. Therefore, you need to ensure that it is specific to your operations, not just a generic manual with your name on the cover page.

Important note (COA holders only): When assessing an application for a delegation under subregulation 42ZC (6) of *Civil Aviation Regulation 1988 (CAR)* for the purpose of utilising permitted training under CAO 104.0, the Civil Aviation Safety Authority (CASA) will refuse the application if the required manual does not meet these minimum requirements.

Wherever a blank space appears, you will be required to ensure that you insert the appropriate information. Depending on context, the required information may be any of the following:

- your name or the name that is shown on your COA
- your Aviation Reference Number (ARN)
- the identifying details of an aircraft as shown in the Part 66 MOS
- the name of the person responsible for managing the training program
- the name of an employee under training.

If a phrase, position name or title is shown with multiple options (e.g. Training/Quality Manager) you should remove all but the correct option for your organisation. If the position is held under a different title in your organisation - use that title.

Preparation

1. An aircraft should be assessed and determinations made as to which items listed in Tables 1 to 9 are relevant to the aircraft.
2. The trainee should be assessed to determine their training needs taking into account relevant experience and qualifications.
3. Delete those tables and/or table items that are not relevant.
4. Assess whether additional knowledge topics or maintenance tasks need to be added to the tables.

Assessment

5. Assess trainee against each task using the Trainee Objectives Assessment Form at Table 11.
6. As each task is completed satisfactorily, enter the details in the appropriate columns in the training plan.

Note: The completed training plan is an acceptable means for recording accomplishment of the practical task details and if fully completed, may be used in place of a log of industrial experience.

Contents

1	Applicability statement and responsible manager certification	5
2	Distribution List	6
2.1	List of Effective Pages	6
2.2	Amendment Record	7
2.3	Manual Holders acknowledgement of receipt of amendment	7
3	Introduction	8
3.1	Acronyms and abbreviations	8
3.2	Definitions	8
4	Training program management	10
4.1	Quality Manager qualifications	10
4.2	Quality Manager responsibilities	10
4.3	Trainee eligibility assessment guidelines	11
5	Training procedures	12
5.1	Training providers	12
5.2	Third party training	12
5.4	Assessment for issue of a certification authorisation	13
5.5	Issue of a WHR certification authorisation (Not applicable to AMOs)	13
5.6	Issue of an excluded type certification authorisation	13
5.7	Notification to CASA	13
6	Training plan	14
6.1	Objectives and outcomes	14
6.2	Reference material	14
6.3	Processes	14
6.4	Explanation of knowledge levels	14
7	Practical performance assessment	27
Appendix A	Certification authorisation form	29
Appendix B	List of WHR aircraft	32

1 **Applicability statement and responsible manager certification**

This manual has been generated to meet the Part 145 / CAO 104.0 (*delete as applicable*) requirements for the purpose of providing maintenance training and issuing certification authorisations.

This manual sets out the procedures and assessment guidelines for the issue of certification authorisations that will be followed by (name of organisation) working under the COA number.....

This manual forms part of the (name of organisation) Quality and Procedures Manual, as approved by CASA. Amendments to this manual will only be made by the Quality Manager, in accordance with the procedures set out in this manual.

Authorised by (signature): Quality Manager

Date

Revision: 1.0

2 Distribution List

Copy number	Manual holder
1	
2	
3	
4	
5	
6	
7	
8	

2.1 List of Effective Pages

Page	Issue date
Cover page	
Page 1	
Page 2	
Page 3	
Page 4	
Page 5	
Page 6	
Page 7	
Page 8	
Page 9	
Page 10	
Page 11	
Page 12	
Page 13	
Page 14	
Page 15	
Page 16	
Page 17	

(Adjust to suit finished document)

2.2 Amendment Record

Amendment issue number	Date
Initial Issue	

2.3 Manual Holders acknowledgement of receipt of amendment

It is a requirement of the Part 145 MOS that each manual holder, on receipt of an amendment, must return to the Quality manager, a signed confirmation that the amendment has been received, read and the manual has been updated accordingly.

See 0 for a sample form that may be copied and used for this purpose.

3 Introduction

This document sets out the procedures, processes and documentation that will be followed for the purpose of training maintenance personnel in the maintenance of excluded aircraft systems and excluded aircraft types as listed in Appendix VII or Table 2 of Appendix IX of the Part 66 MOS.

This document also sets out the procedures that will be followed by a COA holder for training and authorising Licensed Aircraft Maintenance Engineers (LAMEs) to maintain and certify for maintenance of Warbird, Historic and Replica aircraft (WHR) as described in Section 8 of CAO 104.0.

Following these procedures, an AMO or COA holder's maintenance training staff will be able to:

- provide training
- assess an employee's competencies
- where appropriate, issue a certification authorisation.

3.1 Acronyms and abbreviations

Acronym	Description
AMO	Approved Maintenance Organisation
CAO	Civil Aviation Order
CAR	<i>Civil Aviation Regulations 1988</i>
CASA	Civil Aviation Safety Authority
CASR	<i>Civil Aviation Safety Regulations 1998</i>
COA	Certificate of Approval
LAME	Licensed Aircraft Maintenance Engineer
MOS	Manual of Standards
MTO	Maintenance Training Organisation
WHR	Warbird, Historic and Replica aircraft

3.2 Definitions

Term	Definition
COA holder	A person who holds a certificate of approval under regulation 30 of CAR for maintenance of aircraft, aircraft components or aircraft materials.
Employee	Any individual who is performing or certifying for maintenance on behalf of and under the control of the COA holder.
Excluded system	An excluded system mentioned in Appendix VII of the Part 66 MOS.

Term	Definition
Excluded type	A type of aircraft or aircraft engine mentioned in Table 2 of Appendix IX of the Part 66 MOS.
In a COA	In an organisation approved to perform maintenance under regulation 30 of the <i>Civil Aviation Regulations 1988 (CAR)</i> .
LAME	The holder of an aircraft maintenance engineer licence issued under Part 66 of CASR.
Warbird, Historic and Replica aircraft (WHR)	An aircraft that is: <ul style="list-style-type: none">a. either:<ul style="list-style-type: none">i manufactured in accordance with the requirements of, and accepted for use by, an armed force; or Note: Such an aircraft is colloquially known as a warbird.ii an historic or replica aircraft that CASA or an authorised person is satisfied 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); andb. issued with either:<ul style="list-style-type: none">i a special certificate of airworthiness for limited category aircraft under regulation 21.189 of CASRii an experimental certificate for aircraft under paragraph 21.191 (d) or (e).

4 Training program management

This program will be managed by the Quality Manager or a person appointed to act as the Training Manager.

Note: The terms Quality Manager and Training Manager are used throughout this document, however responsibility for many of the functions described in the document could be assigned to other persons such as a training manager, aircraft maintenance manager or chief engineer. The user should ensure that the correct title is substituted where such differences occur.

4.1 Quality Manager qualifications

A Quality Manager must have the following attributes:

- an understanding of the Part 66 licence regulations
- an understanding of workplace training and assessment processes
- credentials in quality management, acceptable experience in a training or quality management role, or acceptable experience in a maintenance supervision role
- a high level of understanding of the procedures set out in this training and assessment manual.

Additionally, for a Quality Manager in a COA:

- a high level of understanding of the maintenance regulations in Parts 4 and 4A of CAR
- a high level of understanding of the provisions and application of CAO 104.0
- a high level of understanding of the responsibilities of the person administering the subregulation 42ZC (6) delegation on behalf of the COA holder.

4.2 Quality Manager responsibilities

The Quality Manager will have the following responsibilities (which may be allocated to a responsible person):

- supervision of training delivery under the provisions of Part 145 MOS or CAO 104.0
- assessment of training providers using the guidelines set out in Section 5 of this manual
- if external training providers are to be engaged, assessment of the external provider to ensure that the provider is able to deliver the required training outcomes as set out in this manual
- ensuring that each training plan is configured to:
 - adequately meet the trainee's identified training needs
 - provide training in all aspects of the aircraft/engine that would be unlikely to be encountered during normal exercising of the trainee's licence privileges.
- if third party training is provided:
 - ensure that the training is delivered in accordance with this approved training manual
 - maintain a record of the training provided under such arrangements and the training outcomes.
- review training results for each trainee and determine whether the training objectives have been satisfactorily achieved

- issue certification authorisations once the trainee has satisfactorily completed the training and assessment
- notify CASA if, in the opinion of the manager, the trainee has successfully completed the training and certification period of not less than 6 months
- monitor the training program for effectiveness and amend the program if deficiencies are identified
- notify CASA of any amendments to the training programs set out in this manual and provide CASA with copies of the amended pages with the changes highlighted with change bars.

Additionally, for a Quality Manager in a COA:

- ensure that certification authorisations are only issued or re-issued while the COA holder holds a CASA delegation under subregulation 42ZC (6) of CAR to issue certification authorisations to employees for the purpose of paragraph 42ZC (4) (e) of CAR.

4.3 Trainee eligibility assessment guidelines

The following course entry requirements will be applied:

- the trainee must hold a valid CASA Part 66 licence in the applicable subcategory for the aircraft for which training is to be provided
- if training is for an excluded type or a WHR certification authorisation, the trainee's licence must not be affected by an exclusion which would disallow maintenance of the particular aircraft (i.e. E2 – Mechanical or structural systems, E3 – powerplant systems, E12–propellers)
- if training is for removal of an exclusion on a type rating, the trainee must first have had the relevant exclusion removed from the category of the licence.

5 Training procedures

Training will be given in an on-the-job format or a combination of on-the-job and theoretical training. The makeup of the training will be decided by the training manager, based on an assessment of the needs of the individual trainee and the complexity of the particular aircraft

A record of completed training and assessment will be retained in the personnel file of the individual and maintained by the Quality Manager.

Training records will be made available to CASA for review, as required by CASA.

5.1 Training providers

Instruction will be provided by personnel experienced or qualified in the type of maintenance training being given under this training plan.

Training may be given by approved licence holders or task specialists with recognised skills and experience in the relevant discipline. In the case of ex-military aircraft, training may also be provided by non-licenced individuals who have provided or supervised maintenance for a particular aircraft in the military environment or provided maintenance training for the particular aircraft in the military environment.

Training personnel will be listed in a register of trainers contained in section 6 of this manual (see Table 10) and be revised as instructors are added or removed.

The register will detail the names of approved trainers and their qualifications for the role.

5.2 Third party training

Third party training providers such as proprietary theory training organisations, manufacturer's training or training in a specialised work environment (such as an overhaul facility) may be used at the discretion of the Quality Manager if in the opinion of the Quality Manager, the training would enhance the skill or knowledge levels of the employee under training.

Guidance note: Use of the sample training plan

(delete this information box when completed)

The training plan should be varied as required to reflect the individual's training needs and specific requirements of the aircraft, engine or system for which training is to be given.

For a WHR or excluded type trainee, tables 1 to 8 are to be used, however if the electrical or avionics systems of a particular aircraft are common to non-WHR or non-type rated aircraft, the relevant tables (7 or 8) may be deleted.

For an engine-only excluded type trainee, tables 2 and 6 are to be used.

It should be noted that the training plan is aimed only at training an LAME in the differences that are unique to the aircraft/engine in which training is being given. When drawing up a training plan, the tables should be amended as required by either inserting additional training tasks or deleting tasks that are not required for the particular aircraft or trainee.

5.3 Assessment for issue of a certification authorisation

On successful completion of training, a trainee will be assessed in accordance with the assessment guidelines set out in Section 7 of this manual. Assessment will be made by the training provider conducting the training. The results will be reviewed by the Quality Manager.

If the Quality Manager is satisfied that the trainee has achieved an acceptable level of competency in all knowledge topics maintenance tasks listed in tables 3 to 9 (as applicable), the trainee may be issued with a certification authorisation for the aircraft in which the training and assessment was given.

Personnel holding current Part 66 licences or a CASA issued maintenance authorisation issued under regulation 33B or subregulation 42ZC (6) of CAR that covers a particular WHR aircraft may be issued with a WHR certification authorisation without further training.

5.4 Issue of a WHR certification authorisation (Not applicable to AMOs)

A WHR authorisation may be issued for a period of not more than 2 years. The certification authorisation form at Appendix A of this sample manual will be completed by the training or quality manager and issued to the employee. A copy will be retained by the employer for a period of 12 months after an employee ceases to be employed.

Re-issue of a WHR certification authorisation

At the end of a 2 year period since issue or reissue of a certification authorisation, the Quality Manager must assess the trained WHR employee for re-issue of the certification authorisation for a further 2 years.

If, in the view of the Quality Manager, no additional or refresher training is required, the certification authorisation may be reissued accordingly.

Certification authorisations held by employees on the basis of a CASA issued authorisation or type rating, may be reissued without further assessment at the Quality Manager's discretion.

5.5 Issue of an excluded type certification authorisation

A certification authorisation for an excluded type or excluded system on an aircraft type will be issued with no expiry date. A written authorisation will be handed to the employee and a copy will be retained on file by the Quality Manager.

5.6 Notification to CASA

At the completion of 6 months from the date of issue of a certification authorisation to an employee, if satisfied that the employee has successfully completed training and assessment, the Quality Manager will forward the notification to CASA Permission and Application Centre (PAC) in the approved form.

The Quality Manager will also hand a signed and dated copy of the completed notification to the trainee.

6 Training plan

6.1 Objectives and outcomes

The Quality Manager will ensure that a person is properly trained in the knowledge elements and maintenance procedures that are specific to the type of aircraft.

On completion of the training, the trainee will have demonstrated the competencies required to maintain the type of aircraft to an acceptable standard of airworthiness in accordance with the relevant instructions for continuing airworthiness.

6.2 Reference material

The following material may be used by the operator when collating a training plan:

- Subsection 66.A.45 (h) of the Part 66 MOS
- Appendix VII and Table 2 of Appendix IX of the Part 66 MOS
- Subsection 145.A.37 (a) of the Part 145 MOS
- AMC/GM 145.A.37
- Part 4 and 4A of CAR
- CAO 104.0 Applicable aircraft or system maintenance data
- FAA Advisory Circular AC 43-13.

6.3 Processes

This training plan is based on the use of on-the-job training that will be provided using the aircraft and maintenance facilities of *[Insert name of organisation]*.

6.4 Explanation of knowledge levels

6.4.1 Level 1

The trainee will be:

- familiar with the basic elements of the topic
- able to give a simple description of the topic, using common words and examples
- able to use typical terms.

6.4.2 Level 2

A general knowledge of the theoretical and practical aspects of the topic and an ability to apply that knowledge, such that the following trainee objectives are met:

- understand the theoretical fundamentals of the topic
- give a general description of the topic using, as appropriate, typical examples
- demonstrate awareness of practical applications of the topic.

6.4.3 Level 3

A detailed knowledge of the theoretical and practical aspects of the topic, and a capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner, such that the following trainee objectives are met:

- describe the underlying intent and implications of the topic
- give a detailed description of the topic using theoretical fundamentals and specific examples
- explain, in detail, the theoretical and practical application of the topic.

The employee (all trade categories) is required to demonstrate a comprehensive understanding of the maintenance manuals and other data related to the aircraft on which training is being given.

Table 1: Data knowledge elements

Aircraft data knowledge	Knowledge level	Satisfactory Y/N	Date & Signature
Source appropriate data references for each maintenance task	N/A		
Demonstrate an understanding of where to find:			
inspection wear limits	2		
damage limits	2		
acceptable repair practices	2		
service life limitations	2		
maintenance instructions	2		
special inspections	2		

Table 2: Turbine engine theory

(Not applicable if manufacturer or Part 147 MTO provides theory training and assessment)

Element	Knowledge level	Satisfactory /Pass Y/N	Date & Signature
Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.			
Auxiliary power (APUs)	2		
Internal airflows and pressures	2		
Constructional arrangement and operation (installation, inlet, compressors, combustion section, turbine	2		

Element	Knowledge level	Satisfactory /Pass Y/N	Date & Signature
section, bearings and seals, lubrication systems)			
Functions of bleed air valves	3		
Bearing locations and construction	2		
Engine performance	3		
Engine fuel and control	3		
FADEC	2		
Ignition	3		
Air	2		
Engine controls	3		
Engine indicating systems	2		
Exhaust	2		
Oil	2		
Starting	3		
Water injections	2		
Accessory gearboxes	2		
Propulsion augmentation	2		

Table 3: Maintenance procedures - general

General	OJT Aircraft Details		Competent
	VH-..... or serial number	Y/N	Date and Signature
	Comments		
Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.			
Demonstrate location and use of:			
• mooring points			
• earth points			
• towing and turning limits			
• ground power starting (if applicable)			

General	OJT Aircraft Details	Competent	
<ul style="list-style-type: none"> • • • (Insert additional specific items if required)			

Table 4: Maintenance procedures – inspections

Inspections	OJT Aircraft Details		Competent	
	VH-..... or serial number	Y/N	Date and Signature	
Comments				
Perform under supervision:				
• daily inspection				
• 25 hour inspection and service				
• 50 hour inspection and service				
• annual inspection				
• periodic inspection				
<ul style="list-style-type: none"> • (Insert additional specific items if required)				

Table 5: Maintenance procedures – airframe

Airframe	OJT Aircraft Details		Competent	
	VH-..... or serial number	Y/N	Date and Signature	
Comments				
Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.				
Jacking and levelling				
Demonstrate knowledge of location and use of:				
• jacking points				
• levelling points				
• bonding points				

Airframe	OJT Aircraft Details	Competent	
<p>Control surface travel checks</p> <p>Demonstrate an understanding of control surface travel limits, and competency in the use of any aircraft specific travel measuring equipment such as travel gauges etc</p> <p><i>(Delete if only standard tools and procedures required)</i></p>			
<p>Undercarriage functional tests</p> <p><i>(Only applicable if special jacking, ballasting or operating techniques are involved)</i></p>			
<p>Strut charging</p> <p>Demonstrate use of any aircraft specific strut charging equipment or techniques</p> <p><i>(Delete if only standard tools and procedures required)</i></p>			
<p>Flight control system rigging</p> <p>Flight control system (if applicable), demonstrate competency in aircraft specific techniques required when removing, replacing or adjusting thesystem</p> <p><i>(Delete if only standard tools and procedures required)</i></p>			
<p>Pressurisation tests (if applicable)</p> <p>Demonstrate competency in setting up and operating ground pressurisation unit and an understanding of any aircraft specific safety requirements</p> <p><i>(Delete if no specific differences to other pressurised aircraft)</i></p>			
<p>Pneumatic system (if applicable)</p> <p>Demonstrate knowledge of the locations and functions of the pneumatic system components.</p>			

Airframe	OJT Aircraft Details	Competent	
<p>Explosive devices</p> <p><i>(Delete if no explosive devices fitted)</i></p> <p>Demonstrate comprehensive understanding of safety requirements and maintenance procedures related to:</p>			
<ul style="list-style-type: none"> • ground safety-disarming 			
<ul style="list-style-type: none"> • safety requirements before entering cockpit 			
<ul style="list-style-type: none"> • flight arming 			
<ul style="list-style-type: none"> • removing and installing ejection seats 			

Table 6: Maintenance tasks for helicopters

Use in conjunction with Tables 3,4,5 and 7 (if applicable)			
<p>Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.</p> <p><i>(Delete tasks that do not apply to the particular aircraft.)</i></p>	OJT Aircraft Details	Competent	
	VH-..... or serial number	Y/N	
	Comments		Date and Signature
General:			
<ul style="list-style-type: none"> Analyse vibration problems 			
Main rotor:			
<ul style="list-style-type: none"> remove /install rotor assembly 			
<ul style="list-style-type: none"> blade removal/replacement 			
<ul style="list-style-type: none"> blade damper removal/replacement 			
<ul style="list-style-type: none"> replace TT straps/ blade grip bearings/elastomeric bushes 			
<ul style="list-style-type: none"> blade alignment 			
<ul style="list-style-type: none"> balance main rotor 			
<ul style="list-style-type: none"> blade tracking 			
<ul style="list-style-type: none"> test/adjust autorotation RPM 			
<ul style="list-style-type: none"> troubleshoot rotor system 			
Stabiliser bar (if applicable):			
<ul style="list-style-type: none"> balance stabiliser 			
<ul style="list-style-type: none"> remove/replace damper 			
<ul style="list-style-type: none"> test/adjust damper timing 			
Rotor drive:			
<ul style="list-style-type: none"> remove/install mast 			
<ul style="list-style-type: none"> remove/install transmission 			
<ul style="list-style-type: none"> remove/install drive coupling 			
<ul style="list-style-type: none"> remove/install clutch/freewheel unit 			
<ul style="list-style-type: none"> remove/install drive belt 			

Use in conjunction with Tables 3,4,5 and 7 (if applicable)			
Main rotor drive monitoring and indicating:			
• inspect/function test monitoring and indicating systems			
• check chip detectors			
Tail Rotor:			
• remove/install TR blades			
• remove/replace TR blade bearings			
• check/adjust TR tracking			
Tail rotor drive:			
• remove/inspect/install drive shafts			
• replace driveshaft hanger bearing			
• remove/install bevel gearbox			
• remove/install right angle gearbox			
• drive train alignment check/adjust			
• replace drive belt			
Tail rotor drive monitoring and indicating:			
• inspect/function test TR monitoring/indicating system			
Notar system:			
• rig directional control system			
• inspect Notar fan			
• remove/install Notar fan			
Flight controls:			
• remove /install pitch change links			
• remove/install swashplate			
• inspect/replace scissor links			
• remove/install cyclic servo			
• remove/install collective servo			
• remove/install irreversible valves			

Use in conjunction with Tables 3,4,5 and 7 (if applicable)			
• rig cyclic flight control system			
• rig collective system			
• rig tail rotor controls			

Table 7: Maintenance procedures – Engine

Engine Details: Manufacturer	Model		
Task List <i>Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.</i>	Job details	Supervisor	
	Aircraft VH..... or Engine S/no.....or Job No.....	Competent Y/N	Signature and date
General			
Read and understand maintenance schedule			
Read and understand maintenance records			
Determine life limits of components			
Locate inspection limits			
Assemble work package			
Locate appropriate data for tasks			
Properly complete maintenance recording at end of each task			
Carry out compressor and turbine wash-demonstrate engine-specific precautions (if any)			
Engine mounting			
Inspect for correct attachment and security			
Explain any special precautions relating to working around engine installation			
Induction system			
Demonstrate location of filtration system elements and explain any special precautions			
Inspect ducting for damage			

Engine Details: Manufacturer	Model		
Inspect compressor bleed valves and lines			
Inspect/remove/replace particle separator			
Inspect/replenish propulsion augmentation system			
Fuel system			
Demonstrate location of fuel system filters			
Inspect fuel control unit for leaks and security			
Conduct fuel control system rigging			
Adjust droop compensator (if applicable)			
Demonstrate location of high and low pressure fuel pumps, as applicable, and explain any special precautions associated with maintenance of the fuel delivery and control systems			
Remove, clean, replace fuel nozzle			
For multi-engine aircraft:			
Carry out engine trimming/balancing			
Engine control system			
Engine control linkages adjust and match levers if multi engine			
Remove/replace FADEC system			
Ignition system			
Make ignition system safe for removal of igniter			
Remove, inspect and replace igniter			
Remove/replace igniter			
Inspect igniter lead and connections			
Perform functional test/troubleshoot			
Starter Generator			
Explain any special precautions to be observed when removing or replacing starter generator			
Carry out functional check			
Reduction/accessory gear casings			
Describe location of engine driven accessories			
Explain process to:			
• check and replenish engine oil			
• remove, clean and replace oil screen			

Engine Details: Manufacturer	Model		
<ul style="list-style-type: none"> remove and inspect chip detector and interpret findings, clean and reinstall 			
Hydraulic system if applicable			
Remove and replace hydraulic pump			
Remove and replace hydraulic filters			
Check and replenish system			
Inspect/charge/adjust accumulator			
Drive shaft if applicable			
Remove, inspect and replace drive shaft			
Inspect/replace driveshaft flex couplings			
Inspect oil seals			
Hot section			
Conduct borescope inspection			
Inspect exhaust ducting			
Inspect duct seals			
Carry out or demonstrate hot start check			
Engine Run			
Prepare area ensuring safety			
Anchor aircraft (if applicable)			
Conduct ground run and power checks in conjunction with pilot			
Additional specific items			
Remove /replace propeller output shaft			
Prop governor (If integrated)			
Prop gearbox mountings			
Shaft seals			
Propeller (if applicable)			
Check/balance propeller			
Assess blade damage			
Troubleshoot			

Table 8: Maintenance procedures – Electrical (B1/B2)

Electrical	OJT Details		Competent
	VH-..... or serial number Comments	Y/N	Date & Signature
Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.			
Electrical systems and interface with other systems:			
Demonstrate required knowledge of:			
<ul style="list-style-type: none"> propeller electrical control systems trouble shooting and brush inspections 			
<ul style="list-style-type: none"> location and function of landing gear indication switches and sensors 			
<ul style="list-style-type: none"> location of aircraft batteries and vent system components and any associated hazards 			
<ul style="list-style-type: none"> location of fire detection and extinguishing systems for engine, cargo and wheel well (if applicable) 			
<ul style="list-style-type: none"> understanding of electrical aspects of fuel feed system and troubleshooting 			
Operational check of:			
<ul style="list-style-type: none"> emergency bus indication 			
<ul style="list-style-type: none"> emergency bus isolation 			
<ul style="list-style-type: none"> fuel shutoff valves 			
<ul style="list-style-type: none"> rotor brake switch assemblies 			

Table 9: Maintenance procedures – Avionics (B1/B2)

Instrument	OJT Aircraft Details		Competent
	VH..... or system	Y/N	Date & Signature
Note: Differences training only: delete any items that are not unique to the particular aircraft for which training is being given.			
Demonstrate knowledge of:			
<ul style="list-style-type: none"> auto flight functions, operations and component changes 			

Instrument	OJT Aircraft Details	Competent	
<ul style="list-style-type: none"> location of vacuum supply pumps, filters and indicators (if fitted) for servicing and calibration 			
<ul style="list-style-type: none"> radio interaction with navigation systems including GPS, VOR/ILS and G/S 			
Functional checks of:			
<ul style="list-style-type: none"> ADF, VOR, GPS, Marker, localiser, glideslope 			
<ul style="list-style-type: none"> weather radar 			
<ul style="list-style-type: none"> autoflight, autohover, autostability 			
<ul style="list-style-type: none"> rescue hoist electrical system 			
<ul style="list-style-type: none"> hoist bonding 			
<ul style="list-style-type: none"> emergency flotation electrical system 			
Carry out compass swing, standby and remote			
Update GPS data			

At the successful completion of the training and assessment in all selected tasks, the Quality Manager will be notified that the trainee is eligible for issue of a certification authorisation.

Table 10: Training providers

Name	Authorised to provide training in/on:	Qualifications

7 Practical performance assessment

To be used when assessing an employee in accordance with sections 2, 4 and 5 of this manual

Trainee.....

AIRCRAFT type/registration.....

Table 11: Trainee Objectives Assessment Form (For Use By The Assessor)

USE REPORTS & INDICATIONS	PERFORMANCE ASSESSMENT				
	ATTEMPTS			RESULT *	
	1st	2nd	3rd	U	S
Trainee reads the available reports and indications (maintenance task) Trainee interprets the reports and indications correctly (opens proper manuals/takes correct actions to start the process)					
FIND & USE AIRCRAFT DOCUMENTATION	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee reads the available reports and indications (maintenance task) Trainee interprets the reports and indications correctly (opens proper manuals/takes correct actions to start the process)					
CORRECTLY PERFORM ACTIONS	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee follows the procedure steps Trainee make sure that actions are properly done Trainee uses required tooling					
OPERATE IN COMPLIANCE WITH ENVIRONMENT	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee scans the environment before starting the task to ensure safety Trainee reads/interprets safety warnings correctly Trainee informs people of his/her work, if necessary Trainee continuously scans environment during task performance Trainee reacts properly to changes during task performance to ensure safety					
SYSTEM INTERACTION	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee 'analyses' the consequences of other systems before performing an action (trainee can do this him/herself or by asking the assessor or a knowledgeable colleague) Trainee takes other systems into account when acting on a system					
PERFORMS AIRCRAFT FINAL / CLOSE-UP	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee restores the aircraft back to initial condition (or appropriate condition depending on the circumstances)					
REPORTS IN MAINTENANCE RECORDS	ATTEMPTS			RESULT	
	1st	2nd	3rd	U	S
Trainee fills the proper field in the maintenance record Trainee uses proper references and descriptions in the maintenance record					

Coaching comments

Assessors Name

1st attempt

2nd attempt

3rd attempt

RESULT OF THE ASSESSMENT

Succeeded Remedial

TRAINEE NAME:

DATE:

TRAINEE SIGNATURE:

ASSESSOR NAME:

DATE:

ASSESSOR SIGNATURE:

Unsatisfactory

Observed performance not adequate/ had
safety implications

Satisfactory

Observed performance was adequate

Appendix A

Certification authorisation form

XXXXX Maintenance.

COA no

Certification authorisation

Issued pursuant to subsection 5/6/7/8/10 of CAO 104-1 *(delete whichever does not apply)*

Issued to

(Name of holder)is authorised to carry out maintenance and perform maintenance certification for the following Part 1 WHR aircraft / excluded aircraft type/ excluded system on behalf of xxxxxx Maintenance

Aircraft	System
1.....	
1.....	
2.....	
2.....	

(strike out or delete any not applicable)

This authorisation expires at midnight on *(date)*..... or

upon issue by CASA of an amended licence showing addition of the type rating or removal of the exclusion.

Issued by.....

Position: Quality Manager/Chief Engineer/Training Manager. *(delete all which do not apply)*

Signed.....

Date.....

CAO 104.0 training manual amendment-acknowledgement

Amendment Number..... Date.....

Manual Number..... Manual Holder.....

I have actioned the amendment and have read and understand the change(s)

Signed..... Date.....

Each manual holder, on receipt of a manual amendment must action the amendment as required (pen amendment or page insertion/replacement) and having done so, return this signed acknowledgement to

The acknowledgement may be returned to via post, courier or emailed as a PDF document.

Appendix B

List of WHR aircraft

Table 12: List of WHR aircraft

Aircraft		Licence Categories	Suggested identification for a certification authorisation ¹
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	B1.3; B2	AH-1G
Bell Iroquois Huey	Lycoming T53-L-11	B1.3; B2	UH series
CAC Sabre	RR Avon	B1.1; B2	Sabre
Cessna Dragonfly	General Electric J85-GE-17A	B1.1; B2	Dragonfly
DH 115 Vampire	DH Goblin	B1.1; B2	DH115
English Electric/Handley Page Canberra	RR Avon	B1.1; B2	Canberra
Folland Gnat	BS Orpheus	B1.1; B2	Gnat
Fouga CM 170 Magister	Turbomeca Marbore	B1.1; B2	CM 170
Gloster Meteor	RR Derwent	B1.1; B2	Meteor
Hawker Hunter	RR Avon	B1.1; B2	Hunter
Lockheed P2v Neptune	Wright R-3350 and Westinghouse J 34	B1.1; B1.2; B2	Neptune Note 3
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
Savoia Marchetti S211	P&W JT15D-4C	B1.1; B2	S211
Soko Galeb	A-S/RR Viper	B1.1; B2	Galeb
TS-11 Iskra	WSK SO-3	B1.1; B2	TS-11

Note 1: Only a type rating holder, a holder of a valid maintenance authorisation or an employee, issued with a certification authorisation, may carry out maintenance on these aircraft.

Note 2: Training and certification authorisation with respect to the Neptune is only required for certification of the Westinghouse J34 engine.

¹ The 'Suggested identification for a certification authorisation' (if any) refers to a suggested means of identifying certification authorisations for CAO 104.0. It is included here for information only.