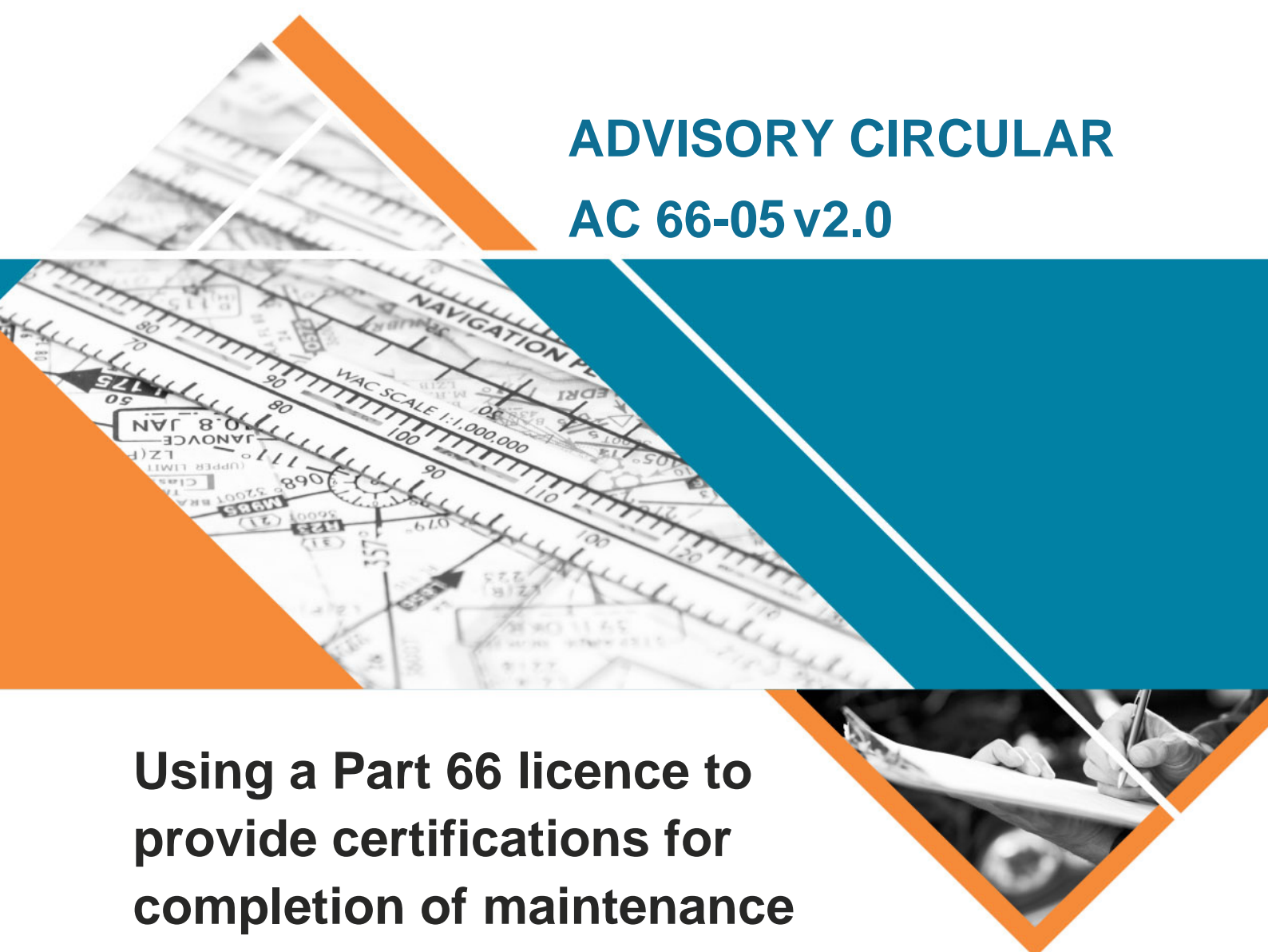




ADVISORY CIRCULAR AC 66-05 v2.0

The background features a collage of aviation-related images. On the left, there is a close-up of an aircraft's wing and fuselage. In the center, a navigation chart is visible with text such as 'NAVIGATION P...', 'WAC SCALE 1:1,000,000', and 'JANOVCE LZ (F)'. On the right, a person's hands are shown writing on a document with a pen. The entire page is framed by large, overlapping geometric shapes in orange and teal.

Using a Part 66 licence to provide certifications for completion of maintenance under the *Civil Aviation Regulations* 1988

Date	November 2017
File ref	D17/163573

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:

- licenced aircraft maintenance engineers (LAMEs)
- regulation 30 of the *Civil Aviation Regulation 1988* (CAR) certificate of approval holders for aircraft maintenance.

Purpose

The Part 66 of CASR licence may be used to meet maintenance certification airworthiness obligations set out under Part 4 of CAR. For aircraft to which the airworthiness obligations remain under Part 4 of CAR, this advisory circular (AC) provides information and guidance on the requirement for the certification of the completion of maintenance. The advice describes the preferred method of complying with regulation 42ZE of Part 4A of CAR.

For further information

For further information, contact CASA's Airworthiness and Engineering 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 Manager, Airworthiness and Engineering Branch.

Note: Changes made in the current version are not annotated. The document should be read in full.

Version	Date	Details
v2.0	November 2017	<p>The following change has been made to this version of the AC:</p> <ul style="list-style-type: none"> • replacement of reference to CASA instrument (CASA 129/13) at subparagraph 3.1.2 with an updated CASR reference. Information previously contained in this now expired instrument is found under transitional regulations 202.341, 202.342 and 202.343 of CASR (as referenced in this subparagraph by footnote 1). • the entire AC has been reformatted , resulting in revised numbering throughout the document.
v1.3	February 2016	<p>The following changes have been made to this version of the AC:</p> <ul style="list-style-type: none"> • provide an explanation of core licence privileges for both the B1 and B2 licence, a term sometimes used when describing LAME licence privileges.
v1.2	June 2014	<p>The following changes have been made to this version of the AC:</p> <ul style="list-style-type: none"> • update made to information contained in the sixth dot point – Maintenance Release Issue, under section 13 to correct an anomaly.
v1.1	May 2014	<p>The following changes have been made to this version of the AC:</p> <ul style="list-style-type: none"> • updates to the acronym list in Section 4 • update of Part 66 MOS reference in paragraph 8.3 • updates to the definitions of “simple test” and 'troubleshooting' in paragraph 8.3 • update of reference in paragraphs 10.3 and 15.10 for transitional privileges • replacement of reference to AC 66-2 in paragraphs 12.1 and 12.7 with a reference to Appendix IX of the Part 66 MOS as a result of the aircraft type ratings information being transferred out of the AC into the Part 66 MOS.
(0)	October 2012	<p>The certification of completion of maintenance information previously published in CAAP 42ZE-2 is now published in this AC.</p>

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1 Reference material

1.1 Acronyms

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

Acronym	Description
AME	aircraft maintenance engineer
ATA	Air Transport Association of America
AC	advisory circular
AD	airworthiness directive
BITE	built-in test equipment
CAO	Civil Aviation Order
CAR	<i>Civil Aviation Regulations 1988</i>
CASR	<i>Civil Aviation Safety Regulations 1998</i>
COA	certificate of approval
CoR	certificate of registration
CRS	certificate of release to service
EDTO	extended diversion time operations
LAME	licensed aircraft maintenance engineer
LRU	line replaceable unit
MEL	minimum equipment list
MOS	Manual of Standards
NDT	non-destructive testing

1.2 Definitions

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

Term	Definition
ATA	Alphanumeric specification numbering designator; issued by Airlines for America, which was formerly known as the ATA.
licensed aircraft maintenance engineer	An individual who holds an aircraft engineer licence that is in force. Aircraft engineer licences are issued under regulation 66.025 of CASR.
final certification for completion of maintenance	The final certification for completion of maintenance is a term used and explained with Schedule 6 of CAR – CASA system of certification for the completion of maintenance. The term is used generically within this AC and can be read to mean any equivalent final certification made within an approved system of certification under regulation 42ZF of CAR. Under Civil

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Term	Definition
	Aviation Order (CAO) 100.5 the aircraft log book or alternative to an aircraft log book must have provision for the recording and certification of maintenance carried out on the aircraft. The final certification for completion of maintenance is made in the aircraft log book.
CAR 30 aircraft maintenance organisation.	The holder of a certificate of approval (COA) for aircraft maintenance, issued under regulation 30 of CAR.
simple test	A test described in maintenance data that meets all of the following criteria: <ul style="list-style-type: none"> • the serviceability of the system can be verified using aircraft controls, switches, built-in test equipment (BITE), central maintenance computer (CMC) or external test equipment not involving special training • the outcome of the test is a unique go/no-go indication or parameter. No interpretation of the test result or interdependence of different values is allowed (Part 66 Manual of Standards (MOS))
troubleshooting	The published approved fault isolation maintenance procedures and actions outlined in maintenance data, used as necessary in order to identify the root cause of a defect or malfunction. It may include the use of BITE or external test equipment. Troubleshooting may involve avionic LRU changes; however it does not involve multiple avionic LRU changes in pursuit of a system fault, unless the changes are made in accordance with a published approved fault isolation maintenance procedure (e.g. Troubleshooting Manual, Fault Isolation Manual procedure).(Part 66 Manual of Standards).

1.3 References

Regulations

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

Instruments are available on the CASA website at <https://www.casa.gov.au/standard-page/non-legislative-instruments>

Document	Title
Part 42 of CASR	Continuing airworthiness requirements for aircraft and aeronautical products
Subpart 42.H of CASR	Maintenance certification and certificate of release to service
Part 66 of CASR	Continuing airworthiness—aircraft engineer licences and ratings
Part 202 of CASR	Transitional
Part 66 MOS	Part 66 Manual of Standards
Part 145 MOS	Part 145 Manual of Standards
Part 4 of CAR	Airworthiness requirements
Regulation 30 of CAR	Certificate of approval
Regulation 31 of CAR (repealed)	Aircraft maintenance engineer licences
Regulation 33 B of CAR	Airworthiness authorities

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Document	Title
Regulation 33 C of CAR	Application for aircraft welding authority
Regulation 42ZC of CAR	Maintenance on Australian aircraft in Australian territory
Regulation 42ZE of CAR	Regulation 42ZE of CAR
Regulation 42ZG of CAR	Approval of system of certification
Regulation 42ZN fo CAR	Certification of maintenance outside Australian territory
Regulation 43 of CAR	Maintenance releases in respect of Australian aircraft
Regulation 45 of CAR	Suspension or cancellation of maintenance release
Regulation 47 of CAR	Maintenance release to cease to be in force
Regulation 48 of CAR	Maintenance release to recommence to be in force
Schedule 6 of CAR	CASA system of certification of completion of maintenance
CAO 82.0	Civil Aviation Order 82.0 Instrument 2014
CAO 100.90	Civil Aviation Order 100.90 Instrument 2015
147/11	Appointment of authorised persons to issue maintenance releases (revokes CASA 127/95)
148/11	Appointment of authorised persons to endorse or cancel endorsements on maintenance releases (revokes CASA 128/95)

Advisory material

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

CASA's Civil Aviation Advisory Publications are available at <http://www.casa.gov.au/CAAP>

Document	Title
AC 66-4	Maintenance of aircraft composite structures in a maintenance organisation
AMC/GM CASR Part 42	Continuing airworthiness requirements for aircraft and aeronautical products

2 Background

This AC provides guidance on the scope of each licence issued under Part 66 of the *Civil Aviation Safety Regulations 1988* (CASR) and describes certification matters relevant to the airworthiness obligations set under Part 4 of the *Civil Aviation Regulations 1988* (CAR). It describes the way in which the holder of a Part 66 licence is able to certify completion of maintenance on an aircraft in a manner that is compliant with the requirements of regulation 42ZE of CAR. It also provides guidance about licences and ratings that the certifier is required to hold.

This AC does not deal with compliance requirements for maintenance certification and certificate of release to service (CRS) as set under Subpart 42.H of Part 42 of CASR (for aircraft operated in regular public transport to which Part 42 applies). Subpart 42.H of CASR provides the detail of the requirements and the Part 42 Acceptable Means of Compliance/Guidance Material (AMC/GM) contains the detailed explanation of that maintenance certification system.

Under the CAR, there were various references to the categories of the previous regulation 31 of CAR licence system – electrical, instrument, radio, airframe and engine.

Table 1 compares the terminology previously used under the CAR to the Part 66 of CASR terminology:

- The first row of the table shows the Part 66 of CASR categories as column headings.
- The second row details the maintenance scope associated with each licence category.
- The third row describes the maintenance scope of the previous licence scheme (under regulation 31 of CAR).
- The fourth row describes the use of exclusions i.e. conditions on a Part 66 licence that allow the Part 66 licence to be matched with what was previously held under the old licence system.

Table 1: Terminology differences between Part 66 of CASR and regulation 31 of CAR

CASR 66 licence category	A	B1		B1 or B2	B1/B2 share equally	B2
CASR 66 terminology	Category A licence tasks	Aircraft systems designated structural, powerplant or mechanical	Avionic LRU	Electrical or instrument sub-systems of mechanical, powerplant or structural systems	Electrical	Avionics - any level of maintenance

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CASR 66 licence category	A	B1			B1 or B2	B1/B2 share equally	B2	
Regulation 31 of CAR licence terminology	Aircraft pre-flight, transit, overnight checks, minor scheduled line maintenance	Airframe	Engine	Instrument or Radio LRU	Electrical or Instrument aspect of airframe or engines systems (an electrical or instrument category privilege under Regulation 31 of CAR)	Electrical (generation, distribution and lighting)	Instrument	Radio
Regulation 31 of CAR lower group ratings	The regulation 31 of CAR lower group ratings were converted to the relevant B1 subcategories B1.1, B1.2, B1.3 and B1.4 and to the B2 category. Conversion of the regulation 31 of CAR licences and endorsed categories and lower group ratings resulted in differences which were managed by the use of exclusions (licence limitations). Exclusions limited the scope of the Part 66 licence to match the scope of the regulation 31 licence and its endorsed categories and lower group ratings.							

3 Scope and privilege of licences

3.1 Category A licences

- 3.1.1 Category A licences are issued with one or more of the subcategories A1, A2, A3, A4. Category A licences are not endorsed with specific aircraft type ratings.
- 3.1.2 The holder of a subcategory A1, A2, A3 or A4 licence who has been type and task trained and then authorised by the CAR 30 COA, may certify for completion of maintenance and issue a final certification for completion of maintenance for an aircraft and endorse a maintenance release for an aircraft, following completion of specific and limited maintenance activities mentioned in the category A licence tasks listed in Appendix II to the Part 145 MOS.¹
- 3.1.3 Before the CAR 30 COA holder can conduct the category A type and task training and associated authorisations; the COA holder needs to have sought and gained CASA approval. Regulation 30A of CAR provides for the change to the COA and the change would be described within subregulation 30 (2D) of CAR procedures. In addition, depending on whether the aircraft to which the category A authorisation will be utilised are class A or class B aircraft, a CASA delegation or authorised person approval, under subregulation 42ZC (6) or (7) of CAR will be required, for category A authorisation purposes.
- 3.1.4 The task training of the category A licence holder must include delivery and assessment of theoretical knowledge and practical training appropriate to the task.

3.1.5 Limitations or restrictions of Category A licence holders

- 3.1.5.1 Category A licence holders may not supervise the work of others for maintenance certification purposes. A second person could be present during the maintenance task and simply assisting the category A licence holder.
- 3.1.5.2 If a Category B1 or Category B2 licence holder has issued maintenance certifications for maintenance they have carried out on the aircraft, then the category A licence holder is not permitted to issue a final certification for maintenance.
- 3.1.5.3 Category A licence holders may only make a final certification for completion of maintenance when all of the maintenance certifications for the maintenance have been performed only by category A licence holders.

3.2 Category B1 licences

- 3.2.1 Category B1 licences are issued with one or more of the subcategories B1.1, B1.2, B1.3, B1.4. The holder of a subcategory B1.1, B1.2, B1.3, or B1.4 licence may certify for completion of maintenance for maintenance work carried out within the scope of the licence and issue a final certification for completion of maintenance for the aircraft following completion of all maintenance certifications.

¹ See transitional regulations 202.341, 202.342 and 202.343 of CASR.

3.2.2 Each of the B1 subcategories covers aircraft structural, powerplant, mechanical and electrical systems including replacement of avionic line replaceable units (LRU). As per section 66.A.20 of the Part 66 MOS, unless the licence is specifically subject to an avionics LRU exclusion, the B1 licence holder may carry out replacement of an avionic LRU that requires only simple tests to prove its serviceability (whose correct functioning and serviceability can be demonstrated by use of an operational check, built-in test equipment, or the aircraft's central maintenance computer). The B1 may also carry out functional checks of avionic systems that can be conducted as a simple test.

3.2.3 As per paragraph 66.5 (b) of the Part 66 MOS, in relation to the privileges of category B1 licences holders:

- **simple test** means a test described in maintenance data that meets all of the following criteria:
 - o the serviceability of the system can be verified using aircraft controls, switches, built-in test equipment (BITE), central maintenance computer (CMC) or external test equipment not involving special training
 - o the outcome of the test is a unique go/no-go indication or parameter. No interpretation of the test result or interdependence of different values is allowed.
- **troubleshooting** means the published approved fault isolation maintenance procedures and actions outlined in maintenance data, used as necessary in order to identify the root cause of a defect or malfunction. It may include the use of BITE or external test equipment. Troubleshooting may involve avionic LRU changes; however it does not involve multiple avionic LRU changes in pursuit of a system fault, unless the changes are made in accordance with a published approved fault isolation maintenance procedure (e.g. Troubleshooting Manual, Fault Isolation Manual procedure).

3.2.4 B1 subcategory licence holders may also undertake any work covered by a subcategory A1, A2, A3 or A4 included on the licence. The licence holder may supervise others for maintenance certification purposes; and if the maintenance is for a type-rated aircraft, they must hold the appropriate aircraft type rating.

3.2.5 Core licence privileges

3.2.5.1 When describing the privileges of a B1 licence the term '*core licence privileges*' may sometimes be used. The term means the licence category privileges prescribed under subparagraph 66.A.20 (a) 4 of the Part 66 MOS for a B1.1, B1.2, B1.3 or B1.4 licence. Whilst the privileges of the licence are provision of maintenance certification and CRS, in this instance the term has been used generically to describe core licence scope.

3.2.5.2 For each of the B1 subcategories, these *core licence privileges* cover the following:

- Maintenance on aircraft structural, powerplant, mechanical and electrical systems
- Replacement of avionic LRU (in accordance with 66.A.20 (a) 4 (ii) (B)) unless the licence is endorsed with the E6 – excluding avionics LRU exclusion
- Updating software in an avionic system (in accordance with 66.A.20 (a) 4 (ii) (BA))
- Category A licence tasks (in accordance with 66.A.20 (a) 4 (ii) (C))
- Functional checks of avionic systems that can be conducted as a simple test

- Troubleshooting of avionics systems that can be conducted as a simple test
- Daily or manufacturers' equivalent inspection (refer to 66.A.20 (a) 4 (ii) (F)).

3.2.5.3 Further, B1 licence core privileges on aircraft structural, powerplant, mechanical and electrical systems are provided by Table 1 of section 66.A.20 of the Part 66 MOS, which designates aircraft systems (and ATA chapter reference) as one of those systems. The table also has a column called *Conditions or Limitations*, and these are presented as either positive or negative licence conditions as described in the following examples taken from the Table 1 of section 66.A.20 of the Part 66 MOS:

- in ATA21 the B2 has a condition that provides the inclusion of mechanical scope for pressurisation control systems i.e. [positive licence condition]
- in ATA25 the B1 has a condition that provides all of ATA25 except ELT & underwater locating beacon = [limitation or negative licence condition]
- in ATA27 the B1 has a condition that limits him/her to mechanical aspects and the B2 is limited to avionics aspects
- in ATA34 the B2 has full scope (as this system is designated as an avionics B2 system) and the B1 has a condition that limits him/her to compass swings, if endorsed on the licence = [so, both a positive and negative licence condition]
- in ATA35 the B1 has the system (as this system is designated as a mechanical B1 system) and so does the B2 if they were converted from having an instrument licence in the old regulation 31 of CAR licence scheme = [a positive condition but limited to those who were converted from the old scheme where it was within airframe scope]
- in ATA51 the closing of cowlings and re-fitment of quick access inspection panels is a positive condition for the B2
- in ATA61 the B1.1 licence holder has propeller system included but only if they have completed the relevant training.

3.3 Category B2 licences

- 3.3.1 The holder of a category B2 licence may certify for completion of maintenance for maintenance work carried out within the scope of the licence and issue a final certification for completion of maintenance for the aircraft following completion of all maintenance certifications. The scope of the B2 licence includes avionic, electrical systems and the instrument and electrical subsystems of mechanical, powerplant and structural systems. The licence holder may supervise others for maintenance certification purposes and requires a rating for type-rated aircraft.
- 3.3.2 The category A line maintenance, specified in Appendix II to the Part 145 MOS is within the scope of the B2 licence. This certification privilege is restricted to work that the licence holder has personally performed in the maintenance organisation which issued the related certification authorisation and is limited to the type ratings for a large aircraft endorsed in the B2 licence. The holder of a category B2 aircraft maintenance licence may only exercise the certification privileges after they have received the relevant category A aircraft task training; and have obtained 6 months of documented practical experience covering the scope of the authorisation that is to be issued.

3.3.3 As per paragraph 66.A.45 (a) of the Part 66 MOS the relevant category A aircraft task training must include practical hands on training, and theoretical training, as appropriate for each task authorised. Satisfactory completion of training must be demonstrated by an examination or by workplace assessment. Task training and the examination or assessment is controlled or delivered by the maintenance organisation issuing the certifying staff authorisation or by an MTO approved to do so.

3.3.4 Core licence privileges

3.3.4.1 When describing the privileges of a B2 licence the term '*core licence privileges*' may sometimes be used. The term means the licence category privileges prescribed under subparagraph 66.A.20 (a) 6 of the Part 66 MOS for a B2 licence. Whilst the privileges of the licence are provision of maintenance certification and CRS, in this instance the term has been used generically to describe core licence scope.

3.3.4.2 For the B2 category licence, these *core licence privileges* cover the following:

- Maintenance on aircraft avionics and electrical systems.
- Maintenance on instrument and electrical subsystems of structural, powerplant and mechanical systems.
- Replacement of avionic LRU (in accordance with 66.A.20 (a) 6 (ii) (D)) unless the licence is endorsed with the E6 – excluding avionics LRU exclusion.
- Category A licence tasks (in accordance with 66.A.20 (a) 6 (ii) (C)).
- Daily or manufacturers' equivalent inspection (refer to 66.A.20 (a) 6 (ii) (E)).

3.3.4.3 Further, B2 licence core privileges on aircraft avionic and electrical systems are provided by Table 1 of section 66.A.20 of the Part 66 MOS which designates aircraft systems (and ATA chapter reference) as one of those systems. The table also has a column called *Conditions or Limitations*, and these are presented as either positive or negative licence conditions as shown in the examples taken from the Table in paragraph 8.6 above.

3.4 Category C licences

3.4.1 Category C licences are not relevant to meeting the obligations set out under Part 4 of CAR. Category C licences only apply for large (type rated) aircraft in a Part 145 of CASR approved maintenance organisation, permitting the licence holder to issue a CRS for large aircraft following base maintenance for which Part 42 of CASR applies.

3.5 Exclusions

3.5.1 An exclusion for an aircraft system or subset of an aircraft system means the licence holder does not have maintenance certification privileges for that system, e.g. excluding propellers means you may not certify for maintenance on a propeller system.

3.5.2 Exclusions applied to licences and ratings

3.5.2.1 CASA applies '*exclusions*' to the Part 66 licence in order to match the scope of the previous regulation 31 of CAR and the current (Part 66) licences. Exclusions can also

be applied for those aircraft system privileges that are optional to gaining a licence e.g. propellers, wood structures and fabric surfaces.

- 3.5.2.2 Licence scope (Table 1 of the Part 66 MOS) and many of the aircraft system exclusions are described in terms of the Air Transport Association (ATA) chapter numbering e.g. E7 is: Excluding Instrument aspects of avionics systems – ATA 22, 27, 31, 34 and 42. Exclusions may be applied to the licence or aircraft type ratings and if applied at the licence level will apply to every aircraft type rating endorsed on the licence. Table 1 of the Part 66 MOS shows that ATA 22, 27, 31, 34 and 42 are autopilot, flight control systems, indicating and recoding systems, navigation systems and integrated modular avionics.
- 3.5.2.3 Transitional privileges have been granted to those licensed aircraft maintenance engineers (LAME) who qualified under regulation 31 of CAR. The transitional privileges can be seen in Table 2 of the Part 66 MOS and override any exclusions that limit the licence or aircraft type ratings.
- 3.5.2.4 An explanation of the exclusions that may be applied to a licence and aircraft type ratings can be seen at Appendix A. The explanation/comparison is in terms of the previous regulation 31 of CAR system.

4 Licences and type-rated aircraft

4.1 Licence endorsement requirements

- 4.1.1 The holder of a subcategory B1.1, B1.2, B1.3, B1.4 or category B2 or C licence, must only exercise his/her certification privileges on a type rated aircraft or a type rated aircraft engine when the licence is endorsed with the appropriate aircraft type rating or aircraft engine type rating, following completion of relevant theory training and practical experience for that aircraft type or engine type.

4.2 Type rated aircraft

- 4.2.1 Aircraft that require the aircraft engineer licence holder to have a type rating are listed in Appendix IX of the Part 66 MOS. Type-rated aircraft include large aircraft – aeroplanes over 5,700 kg MTOW, multi-engine helicopters and aircraft (including, where appropriate, a particular engine type) that CASA has designated as requiring a type rating.
- 4.2.2 CASA designates type ratings for small aircraft or for specific engines, if CASA considers that type training would enhance safety, taking into account issues such as complexity, new technology, ATSB recommendations or other safety issues.
- 4.2.3 Aeroplanes below 5,700 kg are generally covered by category B1 and category B2 licences within the scope of the licence, unless CASA has type rated the aircraft.
- 4.2.4 The definition of *aircraft type* in Part 66 of CASR means:
- a. a particular type, or type and model, of large aircraft with a particular type of aircraft engine
or
 - b. a large aircraft with a particular type of aircraft engine
or
 - c. a small aircraft with a particular type of aircraft engine.
- 4.2.5 Aircraft type examples for paragraph (a) include the Airbus A310 (GE CF6) and Boeing 747-400 (RR RB211). Examples for paragraph (b) include non-rated aircraft (PWC PT6) and non-rated aircraft (Honeywell TPE331). Examples for paragraph (c) include small aircraft (PWC PT6) and small aircraft (Honeywell TPE331).
- 4.2.6 Permission for the B1 licence holder to provide maintenance certifications for the completion of maintenance for the powerplant of aircraft types (b) and (c) above is gained by holding those aircraft type ratings. A B1 licence holder (assuming no E3 – Excluding powerplant systems limits the licence or aircraft type ratings) is permitted to work on the mechanical, electrical and structural systems of those aircraft via the holding of the appropriate licence e.g. sub-category B1.1. Holding ratings for the aircraft types (b) and (c) is not relevant to B2 and C licence holders.

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- 4.2.7 Due to the differences in the way in which aircraft were type rated in the two regulatory systems some aircraft previously covered by lower group ratings in a category now require a type rating. The list of aircraft which have been type rated can be seen in Appendix IX of the Part 66 MOS.

5 The CAR certification and maintenance release systems

5.1 Types of certifications

- 5.1.1 Regulation 43 and Schedule 6 of CAR describes a number of forms of certifications used to control maintenance and release aircraft from maintenance.
- 5.1.2 **Certification for completion of maintenance.** The way in which a person who has carried out maintenance certifies that the maintenance is complete.
- 5.1.3 **CAR 42G Independent Certification.** A certification for completion of maintenance that is to be made after an independent inspection has been carried out on a flight control system following maintenance. Regulation 42G and Schedule 6 of CAR require 2 certifications for completion of maintenance, one by the person who performed the maintenance and one by the person performing the duplicate/independent inspection.
- 5.1.4 **Stage of maintenance.** A certification to be made for the completion of a maintenance task or stage.
- 5.1.5 **Co-ordination.** A certification to be made when more than one person or more than one licence category was involved in a maintenance event. If one person certifies for all maintenance in all categories then co-ordination is not required.
- 5.1.6 **Final Certification.** A certification that must be made after all maintenance has been completed and all other certifications including co-ordination have been made. The final certification for completion of maintenance is made in the aircraft log book (or alternative to aircraft log book).

5.2 Maintenance release

- 5.2.1 **Maintenance Release Issue.** The issue of maintenance releases is controlled under regulation 43 of CAR and via a CASA appointment instrument. Refer to instrument [CASA 147/11](#) for details of the classes of authorised persons and conditions but generally, a Part 66 licence holder with a category or subcategory appropriate for the maintenance release inspection who has certified for the completion of maintenance for the aircraft for which the maintenance release is required, may sign a maintenance release on behalf of the certificate of approval (COA) holder, under the conditions of that instrument. A maintenance release may be issued by the COA holder if:
- a Maintenance Release Inspection (see subregulation 47 (6) of CAR) has been carried out i.e. an inspection carried out on an aircraft for the purpose of determining whether a maintenance release for the aircraft should be issued; (the maintenance release inspection is nominated in the aircraft's approved System of Maintenance or in the aircraft's Log Book Statement)
 - all maintenance in respect of the aircraft required to be carried out has been certified

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- maintenance carried out has not adversely affected, to such an extent as to affect the safety of the aircraft, the flight characteristics of the aircraft or the operating characteristics of any aircraft component, or of any system of aircraft components, installed in the aircraft, and
 - the aircraft is free of damage and defects (that are not permissible unserviceabilities).
- 5.2.2 Endorsement on a maintenance release that an aircraft is not airworthy and cancellation of such an airworthy endorsement.
- 5.2.3 These endorsements on a maintenance releases are controlled under regulations 47 and 48 of CAR, and via CASA appointment instrument 148/11. Refer to the instrument 147/11 for the detail of the classes of authorised persons, specific provision of the CAR and conditions; but generally a Part 66 licence holder who is responsible for ensuring certification of completion of maintenance under regulation 42ZE of CAR (in Australian territory) or 42ZN of CAR (external to Australian territory) is appointed as an authorised person to make and cancel endorsements that an aircraft is unairworthy, on a maintenance release by that instrument.
- 5.2.4 Suspension or cancellation of a maintenance release by CASA is dealt with by regulation 45 of CAR.
- 5.2.5 Where multiple certifications are necessary for the completion of maintenance, whether an individual task, a series of tasks in a licence category or a multiple of licence categories, a certification for the completion and co-ordination of that maintenance is to be made by a person who has certified for part of that maintenance.
- 5.2.6 If only one person certified for maintenance then a co-ordination certification is not required.
- 5.2.7 The person co-ordinating maintenance is required to ensure that where any maintenance performed has invalidated a certification previously made, all necessary maintenance has been carried out and re-certified.
- 5.2.8 A person certifying for completion of a maintenance task within an aircraft engineer licence category may accept the certification made by other aircraft engineer licence holders for subtasks within that category provided such certifications are made on a maintenance document which identifies the maintenance to which it relates and, where the maintenance was an inspection, the certification contains details of any damage or defect found and rectifications made as a result of that inspection.
- 5.2.9 A final certification for completion of maintenance is made in the aircraft log book after any required co-ordination certification is made.

6 Certification of completion of maintenance under CAR

6.1 42ZE of CAR certifications

- 6.1.1 Regulation 42ZE of CAR prescribes the requirements that must be complied with when certifying for completion of maintenance on an Australian aircraft in Australian territory.
- 6.1.2 This AC guidance relates to compliance with the system of certification described within Schedule 6 of CAR. An alternative system of certification may be approved under regulation 42ZG of CAR.
- 6.1.3 The completion of all maintenance for non RPT aircraft is certified in accordance with the directions of subregulation 42ZE (1) and Schedule 6 of CAR, by a LAME that has performed or supervised the maintenance being certified. When carrying out maintenance in a regulation 30 of CAR COA or if carrying out maintenance independently (as determined by paragraph 42ZC (4) (b) and Schedule 7 of CAR) the LAME can use their Part 66 licence to certify for the completion of maintenance.
- 6.1.4 Except where otherwise approved or directed by CASA, a certification for the completion of maintenance will be made by:
- the holder of a valid appropriate aircraft engineer licence employed by a CAR 30 COA
 - the holder of a valid appropriate aircraft engineer licence carrying out maintenance other than the maintenance listed in Schedule 7 of CAR on a class B aircraft [independent LAME]
 - the holder of a valid appropriate airworthiness authority (maintenance or non-destructive testing (NDT)) under regulation 33B of CAR, or a welding authority under regulation 33C of CAR
 - a pilot (paragraph 42ZC (3) (c) of CAR [as per approved system of maintenance] or paragraph 42ZC (4) (d) [Schedule 8 of CAR]
 - a person authorised by the holder of the COA under paragraph 42ZC (4) (b) of CAR to certify for completion of maintenance, to the extent of that authorisation.

7 Other CAR certification matters

The following are other matters that may need to be considered for certification during an aircraft maintenance event.

7.1 Assessment flights

7.1.1 If the maintainer considers an assessment flight is necessary - following the certification of any maintenance that may have an adverse effect on the flight or operating characteristics of the aircraft; notification procedures need to be in place for the aircraft operator.

7.2 Defects

7.2.1 A person is not to certify a defect as acceptable within the provisions of the system of maintenance, or the minimum equipment list (MEL) for an aircraft unless:

- the defect has no adverse effect on the aircraft, other than as allowed by the system of maintenance or the MEL
- the maintenance procedures required by the system of maintenance or the MEL have been satisfied.

7.3 Non-destructive testing

7.3.1 A certification, within a licence category, for completion of an inspection involving the use of a NDT method is to be made by the holder of a valid appropriate aircraft engineer licence ensuring:

- the NDT method has been performed and certified to have been completed to approved maintenance data by:
 - o the holder of a valid appropriate NDT authority
 - o the holder of a valid appropriate aircraft maintenance engineer (AME) licence, limited to liquid penetrant inspections utilising aerosol packed materials
- that any defects indicated are assessed for further maintenance and recorded as appropriate.

7.3.2 Where a certification is to be made for the completion of an NDT inspection and the procedure to be observed is not specified, a procedure approved for the purpose by CASA or an authorised person will be observed for the inspection.

7.4 Welding

7.4.1 A certification, within a licence category, for the completion of a repair or modification of an aircraft or an aircraft component involving manual welding, including braze welding, must be made by the holder of a valid appropriate aircraft engineer licence ensuring that the welding has been performed and certified, to have been completed to approved data, by the holder of a valid appropriate welding authority issued by CASA.

7.5 Aircraft composite structures

7.5.1 Composite structures maintenance and certification is covered by Advisory Circular (AC 66-4).

7.6 Certification of Australian aircraft outside of Australian Territory

7.6.1 In accordance with regulation 42ZN, the Certificate of Registration (CoR) holder of the aircraft is responsible for ensuring that all maintenance performed on the aircraft outside of Australian Territory is certified in accordance with the system for certification of the maintenance organisation performing the maintenance or; alternatively, in accordance with Schedule 6 of CAR by:

- the pilot-in-command, for maintenance they have been authorised to perform
- the holder of a valid appropriate Australian aircraft engineer licence
- the holder of a valid appropriate Australian maintenance or welding authority
- the holder of a valid appropriate aircraft maintenance licence issued by the appropriate authority in the Contracting State in which the maintenance is being performed
- an employee appropriately authorised by an organisation to perform maintenance on the aircraft, engine or system type as approved by the appropriate authority in the Contracting State in which the maintenance is being performed; and that the maintenance has been performed in accordance with the CoR holder's System of Maintenance.

7.6.2 The CoR holder or the pilot-in-command is responsible for ensuring that certification for the completion of maintenance has been correctly made in the appropriate log book, maintenance release or alternative document prior to flight.

7.7 Release of an IFR capable aircraft for VFR operations only

7.7.1 Under the previous regulation 31 of CAR licencing system it was understood by industry that it was permissible for airframe or engine category licence holder to carry out and certify for much of the electrical, instrument and radio maintenance – within the limits set by CAO 100.90 – as long as the aircraft was released from maintenance only for VFR operations.

7.7.2 For those personnel who qualify or qualified under the regulation 31 of CAR system that permission has been retained using the transitional privileges outlined in Table 2 of the Part 66 MOS.

7.8 Inspection after maintenance on extended diversion time operation (EDTO) approved aircraft

- 7.8.1 Special guidelines and requirements apply to aircraft approved for EDTO flights. To maximise safety margins, maintenance tasks on multiple identical systems should not be performed by the same individual - refer to Subparagraph 9 (2) (c) of CAO 82.0. Independent inspections are not a mandatory requirement of the CAO but wherever it is not possible to avoid a person performing multiple identical maintenance tasks on an aircraft, an equivalent level of safety assurance may be achieved by the use of independent inspections by one or more appropriately qualified individuals.

8 Certifications documentation

8.1 Content of certifications

8.1.1 This section specifies the general requirements for the content of certifications in the appropriate log book or alternative document following the completion of maintenance. An alternative approved system of certification can be expected to be similar to the details listed below.

Note: Refer to Schedule 6 of CAR for complete details of the CASA system of certification. If the maintenance organisation has an alternative system of certification, then consult that system for the details.

8.1.2 Certifications require a description of the maintenance performed and need to include, as appropriate, the following details:

- the date the certification was made
- the total time-in-service of the aircraft or component at which the maintenance was completed
- the signature and licence or authority number, whether issued by the CASA or COA holder under regulation 42ZC of CAR, of the person making the certification
- where the above person is, or is employed by, the holder of an appropriate COA or other appropriate person covering the maintenance, the certification will include:
 - o the name of the person or organisation that carried out the maintenance
 - o the COA or licence number of that person or organisation, as applicable
- in relation to the maintenance:
 - o the current approved maintenance data used
 - o any exemption or variation granted against a requirement
 - o if applicable, a record of any weight and balance changes
- the results obtained where the maintenance is, or includes, an inspection that specifies limits and the damage or defect is within those limits
- where the maintenance is, or includes, an inspection using an NDT method, the:
 - o NDT method used
 - o approved procedure used
 - o results obtained.

8.1.3 Where the maintenance carried out includes the fitting of a repaired component (supplied by another person) the Authorised Release Certificate (ARC) number must be including in the certification for a stage of maintenance.

8.1.4 Where the maintenance carried out includes the fitting or replacement of a time lified component the following information must be including in the certification for a stage of maintenance, as appropriate:

- part name
- model
- part number
- serial number
- AD compliance
- ARC number (if the component was supplied by another person)

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- where the component is subject to an overhaul life, the:
 - o total time-in-service
 - o total cycles-in-service
 - o time-since-new
 - o time-since-overhaul
 - where the component is subject to a retirement life, the total time in-service or cycles of the component
 - for an engine, the test performance figures.
- 8.1.5 Where a component is replaced with one of a different AD status, a certification will need to be made to reflect that change in status.
- 8.1.6 Where damage or a defect is found when complying with an AD, a certification that such damage or defect is not major, will only be made in those cases where the AD specifies limits, and the damage or defect is within those limits.

Appendix A

Explanation/comparison of regulation 31 of the CAR system to Part 66 of CASR exclusions/limitations

A.1 Transitioning from regulation 31 of CAR to Part 66 of CASR – exclusions

- A.1.1 Due to the difference between the two licensing systems (i.e. the five category licence system under regulation 31 of CAR and the two category licence system under Part 66 of CASR), and CASA’s assurance that no existing regulation 31 of CAR licence holder would lose any of his/her existing licence privileges, a licence “exclusions” system was created and applied to all regulation 31 of CAR licences at transition so that the privileges of the old and new licences matched.
- A.1.2 Under the regulation 31 of CAR licence system, licence privileges were defined and endorsed on the licence as “group ratings”. Each licence category (i.e. airframe, engine, electrical, instrument and radio) was divided into group ratings which, as training was completed for a group rating, gave licence privilege for a particular system or subsystem on the aircraft e.g. the airframe licence category had group ratings for air-conditioning systems, pressurisation systems, wooden airframe structures etc and the radio category licence had group ratings for VHF radio systems, HF radio systems etc.
- A.1.3 As each regulation 31 of CAR licence and its group rating endorsements were transitioned over to a Part 66 licence, an exclusion may or may not have been applied to the Part 66 licence to ensure licence privilege remained the same.
- A.1.4 At the same time (the licence transitional period), a few licence “inclusions” were also used for certain privileges some regulation 31 of CAR licence holders had on their licence and when re-issued as a Part 66 licence, ensured a person’s licence privileges remained the same.
- A.1.5 Table 2 shows the various licence category/group and type ratings under the regulation 31 of CAR licensing system and illustrates the licence categories/ratings that resulted on conversion to a Part 66 licence, and the exclusion that was applied on the licence if a particular regulation 31 of CAR category/rating was not held at the time of conversion.
- A.1.5.1 The Table compares the terminology previously used under the CAR to the Part 66 of CASR terminology:
- the first column of the Table shows the regulation 31 of CAR category/group and type ratings held
 - the second column shows the Part 66 of CASR category/subcategory/type ratings that would be applied at the time of conversion
 - the third column shows the exclusions that would be applied to the Part 66 licence if the particular regulation 31 of CAR category/group and type ratings were not held.

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Table 2: Regulation 31 of CAR to Part 66 of CASR—licence transition table

Regulation 31 of CAR category/group & type rating held	CASA licence conversions result	Exclusion on Part 66 licence if regulation 31 of CAR category/ group/type rating not held	E#
Electrical category and type rating	Subcategory B1.x, category B2 and type rating	Excluding electrical systems	E1
Airframe category and type rating	Subcategory B1.x and type rating	Excluding mechanical or structural	E2
Engine category and engine type rating	Subcategory B1.x and type rating	Excluding powerplant systems	E3
Electrical category and type rating	Subcategory B1.x and type rating	Excluding electrical sub-system of mechanical, powerplant or structural systems	E4
Instruments category rating	Subcategory B1.x	Excluding instrument sub-system of mechanical, powerplant or structural systems.	E5
Regulation 31 of CAR cross category privilege for engine/airframe; or Regulation 31 of CAR licence with radio or instruments categories	Subcategory B1.x, category B2, type rating	Excluding avionic LRUs	E6
Regulation 31 of CAR licence with instruments category rating	category B2, type rating	Excluding instrument aspect of avionics systems - ATA 22, 27, 31 and 34	E7
Regulation 31 of CAR licence with radio category rating	category B2, type rating	Excluding radio aspect of avionics systems - ATA 23, 34 and 44	E8
Airframe group 4	Subcategory B1.2	Excluding fabric surfaces	E9
Airframe group 3	Subcategory B1.2	Excluding wooden structures	E10
Radio group 2 or radio group 20	Subcategory B1.x or category B2	Excluding audio CVR systems	E11
Engine group 1 or holds Airframe group 20 aircraft with propellers	Subcategory B1.1 or B1.2	Excluding propellers	E12
Airframe group 5, 19 or 20	Subcategory B1.x	Excluding hydraulics - ATA 29	E13
Airframe group 6 or airframe group 20 fitted with air-conditioning systems	Subcategory B1.x	Excluding vapour cycle air-conditioning aspects of ATA 21	E14
Airframe group 6 or airframe group 20 type rating for aircraft fitted	Subcategory B1.x	Excluding air-conditioning aspects of ATA 21	E15

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Regulation 31 of CAR category/group & type rating held	CASA licence conversions result	Exclusion on Part 66 licence if regulation 31 of CAR category/ group/type rating not held	E#
with air-conditioning			
Airframe group 10 or airframe group 20 fitted with pressurisation control	Subcategory B1.x	Excluding pressurisation aspects of ATA 21	E16
Radio group 3 or radio group 20	Category B2	Excluding ADF systems	E18
Radio group 4 or radio group 20	Category B2	Excluding VOR systems	E19
Radio group 5 or radio group 20	Category B2	Excluding ILS systems	E20
Radio group 6 or radio group 20	Category B2	Excluding weather radar systems	E21
Radio group 7 or radio group 20	Category B2	Excluding ATC transponder systems	E22
Radio group 9 or radio group 20	Category B2	Excluding radio altimeter systems	E23
Radio group 10 or radio group 20	Category B2	Excluding DME systems	E24
Radio group 11 or radio group 20 (where applicable)	Category B2	Excluding Doppler systems	E25
Radio group 12 or radio group 20	Category B2	Excluding satellite navigation systems	E26
Instruments (group 3, 5 or 7) or relevant instrument group 20	Category B2	Excluding autopilots	E27
Instruments (group 5 or 7) or relevant instrument group 20	Category B2	Excluding multi-axis autopilots	E28
Instruments group 8 or instrument group 20	Category B2	Excluding remote indicating compass systems	E29
Instruments group 9 or relevant instrument group 20	Category B2	Excluding inertial navigation and reference systems	E30
Instruments group 10 or relevant instrument group 20	Category B2	Excluding pressurisation systems	E31
Electrical group 2 or electrical group 20	Category B2	Excluding electrical systems in aircraft equipped with multi-generator power systems	E32

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Regulation 31 of CAR category/group & type rating held	CASA licence conversions result	Exclusion on Part 66 licence if regulation 31 of CAR category/ group/type rating not held	E#
Engine group 3 or piston engine group 21	Subcategory B1.2 or B1.4	Excluding all supercharging systems	E33
Regulation 31 of CAR licence with a digital limitation	Subcategory B1.x, category B2	Excluding digital systems	E34
Airframe group 1	Subcategory B1.x	Excluding pressurised structures	E35
Engine group 1	Subcategory B1.x	Excluding carburettor systems	E36
Engine group 1	Subcategory B1.x	Excluding fuel injection systems	E37
Engine group 1	Subcategory B1.x	Excluding turbo supercharging systems	E38
Airframe group 1	Subcategory B1.x	Excluding airframe ice protection systems	E39
Airframe group 1	Subcategory B1.x	Excluding airframe fire protection systems	E40
Instrument or airframe group 1	Subcategory B1.x, category B2	Excluding oxygen systems	E41
Airframe group 1	Subcategory B1.x	Excluding landing gear retraction systems	E42
Airframe group 4	Subcategory B1.x	Excluding fabric other than flight controls	E43
Electrical group 1 or 2	Subcategory B1.x	Excluding wiring repairs	E44