CIVIL AVIATION AUTHORITY
OF NEW ZEALAND

Advisory Circular
AC66-2.20

Revision 4

18 September 2017

Aircraft Maintenance Engineer Licence—Examination Subject 20 Air Law—Written

General

Civil Aviation Authority advisory circulars contain guidance and information about standards, practices, and procedures that the Director has found to be an **acceptable means of compliance** with the associated rules and legislation.

However the information in the advisory circular does not replace the requirement for participants to comply with their own obligations under the Civil Aviation rules, the Civil Aviation Act 1990 and other legislation.

An advisory circular reflects the Director's view on the rules and legislation. It expresses CAA policy on the relevant matter. It is not intended to be definitive. Consideration will be given to other methods of compliance that may be presented to the Director. When new standards, practices, or procedures are found to be acceptable they will be added to the appropriate advisory circular. Should there be any inconsistency between this information and the rules or legislation, the rules and legislation take precedence.

An advisory circular may also include **guidance material** generally, including guidance on best practice as well as guidance to facilitate compliance with the rule requirements. However, guidance material should not be regarded as an acceptable means of compliance.

An advisory circular may also include **technical information** that is relevant to the standards or requirements.

Purpose

This advisory circular provides an acceptable means of compliance for recommended study material in respect of written examinations for Subject 20 (Air Law – Written).

Related Rules

This advisory circular relates specifically to Civil Aviation Rule Part 66 Subpart B *Aircraft Maintenance Engineer Licence.*

Change Notice

Revision 4 updates:

- the publication list under the 'required study material' section by adding two advisory circulars AC21-9 *Special Flight Permits* and AC100-1 *Safety Management*

Published by
Civil Aviation Authority
PO Box 3555
Wellington 6140

Authorised by
Manager International and Regulatory Strategy

- the syllabus subject topic no. 13 ‘internal quality assurance’ and its subjects matter(s) by adding safety management.

Table of Contents

Rule 66.53 Eligibility Requirements

Rule 66.53(a) (2) requires an applicant for an AMEL to have passed written examinations that are acceptable to the Director, and relevant to the duties and responsibilities of an aircraft maintenance engineer in the category of licence sought.

The written examinations acceptable to the Director for Subject 20 (Air Law - Written) should comply with the syllabus contained in this advisory circular. Each examination will cover all topics and may sample any of the sub-topics.

The syllabus has been developed after extensive industry consultation and the objectives reflect the knowledge required of current aviation law and international best work practice.

Examination Overview: Subject 20

Subject 20 (Air Law – Written) is a 2 hour open book written examination comprised of 50 questions. The pass mark is 70 %.

Application to sit an examination may be made directly to ASPEQ. Refer to: http://caanz.aspeqexams.com for examination information.

General examining objective

The objective of the examination is to determine that the applicant for an AMEL has adequate knowledge of civil aviation regulatory requirements (Air Law) to permit the proper performance, supervision and certification of aircraft maintenance at a level commensurate with the privileges of the various AMEL categories.

Knowledge levels

Level 1: A familiarisation with the principal elements of the subject

Objectives: The applicant should be:

1) familiar with the basic elements of the subject

2) able to give simple descriptions of the whole subject, using common words and examples

3) able to use typical terms.

Level 2: A general knowledge of the theoretical and practical aspects of the subject

An ability to apply the knowledge.

Objectives: The applicant should be able to:

1) understand the theoretical fundamentals of the subject

2) give a general description of the subject using, as appropriate, typical examples

3) use mathematical formulae in conjunction with physical laws describing the subject

4) read and understand sketches, drawings and schematics describing the subject

5) apply his/her knowledge in a practical manner using detailed procedures

Level 3: A detailed knowledge of the theoretical and practical aspects of the subject.

A capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.

Objectives: The applicant must

1) know the theory of the subject and the interrelationships with other subjects

2) be able to give a detailed description of the subject using theoretical fundamentals and specific examples

3) understand and be able to use mathematical formulae related to the subject

4) be able to read, understand and prepare sketches, simple drawings and schematics describing the subject

5) be able to apply his/her knowledge in a practical manner using manufacturer's instructions

6) be able to interpret results and measurements from various sources and apply corrective action where appropriate.

Required study material

The documents listed below contain all of the information covered in the syllabus for Subject 20 (Air Law - Written).

The candidate may bring to the examination room any or all of the listed publications and refer to them when answering questions. Printed material only may be taken into the examination room. The printed material may be tabbed or indexed but no hand written material or study notes are permitted.

All of the publications identified below may be printed directly off the NZ Civil Aviation Authority web site at www.caa.govt.nz . From the "Quick Links" column on home page, click on the link to "Rules", "Advisory Circulars" or "Airworthiness Directives" as appropriate. Downloading Acrobat Reader software is essential to read or print the material.

***Caution:** If the publications have been obtained from any other source, such as a training school or have been passed on from a previous examination candidate, candidates should ensure each of the documents is checked against the revision status indicated on the CAA website to ensure that they have latest revision.*

Publication list

Ref. Number	Document Number	Document Title
1	**CAR Part 1**	Definitions and Abbreviations
2	**CAR Part 12**	Accidents, Incidents and Statistics
3	AC12-1	Mandatory occurrence notification and information
4	AC12-2	Incident investigation
5	**CAR Part 19**	Transition Rules
6	AC00-1	Acceptability of parts
7	AC00-2	Storage and distribution of aeronautical supplies
8	**CAR Part 21**	Certification of Products and Parts
9	AC21-1	Product certification – Type certificates and type acceptance certificates

Ref. Number	Document Number	Document Title
10	AC 21-1 Appendix 2	Product certification – Type certificates and type acceptance certificates – Appendix 2
11	AC21-2	Product Certification – Airworthiness certificates in the standard and restricted categories
12	AC21-3	Product certification – Airworthiness certificates in the special category
13	AC21-6	Identification of products and parts – Identification information, provision and replacement
13a	AC 21-9	Special Flight Permits
14	**CAR Part 39**	Airworthiness Directives
15	**CAR Part 43**	General Maintenance Rules
16	AC43-1	Aircraft maintenance
17	AC43-2	Aircraft weight and balance control
18	AC43-3	Parts documentation – CAA Form One and CAA Form Two
19	AC43-4	On-condition maintenance
20	AC43-5	Engine and propeller overhaul and testing
21	AC43-6	Emergency equipment
22	AC43-7	Calibration of compasses and surveying compass swing sites
23	AC43-8	Non-destructive Testing
24	AC43-9	Modifications, repairs, and the form CAA 337
25	AC43-10	Aircraft radio station – Form CAA 2129
26	AC43-11	Emergency locator transmitters
27	AC43-12	Non-aeronautical lead acid batteries
28	AC43-14	Avionics installations – Acceptable technical data
29	AC43-21	Escape and egress systems
30	**CAR Part 47**	Aircraft Registration and Marking
31	AC47-1	Aircraft registration and marking
32	**CAR Part 66**	Aircraft Maintenance Personnel Licensing
33	AC66-1	Aircraft maintenance engineer licensing
34	**CAR Part 91**	General Operating and Flight Rules
35	AC91-4	Reduced vertical separation minima (RVSM)
36	AC91-7 AC91-10	Required Navigation Performance 10 (RNP 10) Required Navigational Performance 4 (RNP 4) Operational Approval
37	AC91-6	Technical log
38	AC91-12	Aircraft maintenance programmes
39	**CAR Part 119**	Air Operator – Certification
40	AC119-1	Air operator certification
41	AC00-3 AC100-1	Internal quality assurance Safety Management

Ref. Number	Document Number	Document Title
42	AC121-1	Extended-range twin-engine operations (ETOPS)
43	**CAR Part 135**	Air Operations – Helicopters and Small Aeroplanes
44	**CAR Part 145**	Aircraft Maintenance Organisations – Certification
45	AC145-1	Aircraft maintenance organisations
46	**Airworthiness Directives (ADs)**	The candidate requires Airworthiness Directives for the following aircraft types. · Cessna 182 series, Cessna 185 series, Cessna 206 series · Cessna 402 series · Beech 95 series · NZ Aerospace Airtourer · Hiller FH1100 helicopter · Hughes 369 series
47	**Civil Aviation Act 1990**	Section 72I Link to CAA Act 1990
48	**CAA website**	www.caa.govt.nz

Syllabus layout

Topic numbering – left hand column

Objective description – middle column

Knowledge levels – right hand column

Note: *the knowledge levels indicate the depth of knowledge required NOT its safety importance.*

Syllabus: Subject 20 (Air Law - Written)

1. Definitions and Abbreviations – Part 1		
1.1. Definitions		
	Study Ref. 1	
1.1.1	Define the meaning of the following definitions and describe the relevance of each to aircraft maintenance: a. Accident b. Aeronautical product c. Aeroplane d. Aircraft e. Aircraft category f. Aircraft engine g. Aircraft radio station h. Air operation i. Air transport operation j. Airworthiness certificate k. Airworthiness data l. Airworthiness directive m. Airworthy condition n. Appliance o. Commercial agricultural aircraft operation p. Commercial transport operation q. Component r. Condition monitored maintenance s. Date of manufacture t. Defect u. Design change v. Detailed inspection w. Document x. Emergency airworthiness directive y. Emergency locator transmitter z. Empty weight aa. Fit and proper person bb. Flight manual cc. Flight time dd. ICAO Contracting State ee. IFR flight ff. Incident gg. Instructions for continuing airworthiness hh. Lifed	1

1.1.2	Define the meaning of the following definitions and describe the relevance of each to aircraft maintenance: a. Maintenance b. Maintenance logbook c. Maintenance manual d. Major modification e. Major repair f. Manufacturer's maintenance programme g. Maximum certificated take-off weight h. Maximum zero fuel weight i. Modification j. New Zealand registered aircraft k. New Zealand register of aircraft l. New Zealand certificate of registration m. Operable n. Operating cycle o. Overhaul p. Owner q. Pressure altitude r. Priority part s. Product t. Progressive inspection u. Propeller v. Rating w. Repair x. Required inspection y. Rotorcraft z. Routine inspection aa. Specification bb. State of design cc. Technical arrangement dd. Technical data ee. Technical log ff. Time in service gg. Turbine powered hh. Type ii. Valid jj. VFR flight	1
1.1.3	Describe what is meant by the term "standard part" and be able to relate aeronautical specifications to the various standards setting organisations associated with aircraft design, manufacture and maintenance.	2
1.2. Abbreviations		
	Study Ref. 1	
1.2.1	Interpret the following abbreviations as they pertain to aircraft maintenance and operation: a. AD, ACAS, ADF, AEDRS b. DME c. ELT, ETOPS, EPIRB d. FAR e. GPS, GPWS f. HF g. ICAO h. IFR, IMC i. MCTOW, MEL j. NZPMA, NZTSO k. QFE, QNH l. STPD, STC m. TCAS, TSO, TAWS, TBO n. UHF o. VFR, VMC, VSWR	1

2. Accidents, Incidents and Statistics – Part 12		
2.1. Definitions		
	Study Ref. 2	
2.1.1	Distinguish between the following terms relating to aircraft accidents and incidents and give practical examples of where each may be encountered in an aviation maintenance or operational environment: a. Aircraft incident b. Defect incident c. Occurrence d. Serious incident e. Serious injury	2
2.2. Notification, Investigation and Reporting of Occurrences		
	Study Ref. 2 Subpart B; Ref.3	
2.2.1	Describe the following in regard to incidents required to be notified, details to be provided and investigation reports to be submitted: a. The correct CAA form to use b. Who has responsibility for notification and providing details of a defect incident c. Time limitations for notifying the Authority and providing details of a defect incident d. Time limitations for the submission of reports relating to the investigation of occurrences e. Where guidance material may be found for conducting an incident investigation	2
2.2.2	From given examples of defects, determine if a requirement exists to submit a defect report to CAA.	3
2.3. Preservation of Aircraft, Contents and Records		
	Study Ref. 2 Subpart C	
2.3.1	Describe the following conditions relating to an engineer's attendance at an incident or accident scene: a. Requirements relating to the securing and preservation of wreckage, cargo or equipment b. Removal of items from the scene c. Moving the aircraft d. Taking of notes and sketches	3
2.3.2	Describe the requirements and time limitations relating to the preservation of records relating to the operation of maintenance of aircraft that have been subject to an accident or incident.	3
2.3.3	Describe the requirements relating to the retention of products and components that have been the subject of a defect incident report to CAA.	3
2.4. Incident Investigation		
	Study Ref. 4	
2.4.1	Describe the following criteria relating to the reporting and investigation of incidents: a. Report findings b. Analysis of findings c. Causal factors d. Organisation failure definitions e. Selection of failure codes	2
2.4.2	Describe the latent failure models and how they may be applied to occurrence investigation and the prevention of incidents.	1

3. Transition Rules – Part 19		
3.1. General Definitions		
	Study Ref. 5 Subpart A and Subpart B	
3.1.1	Describe the purpose of a release note.	1
3.1.2	Identify non International System Units that are approved for use in New Zealand.	1
3.2. Supply Organisation Approvals		
	Study Ref. 5, Subpart F	
3.2.1	Identify standard facility requirements needed for the proper storage of aeronautical products and parts.	1
3.2.2	Describe supply control procedures for aeronautical products and parts with particular regard to the following: a. Inspection and testing of product b. Identification of product c. Conformance with aeronautical standards d. Consignment of product e. Preservation of product f. Segregation of product g. Release note procedures including required release note information h. The identification and retention of the required the records necessary to ensure each aeronautical product conforms to airworthiness standards.	2
3.2.3	Describe the contents of the exposition required by this part.	2
3.3. Re-examination of Maintenance Personnel Licences		
	Study Ref 5, Subpart I	
3.3.1	Detail the conditions and requirements pertaining to re-examination of AME licence holders by the Director of Civil Aviation and the possible actions the Director may take against an errant licence holder.	3
3.4. IFR Operations – Global Navigation Satellite Systems (GNSS)		
	Study Ref 5, Subpart D	
3.4.1	Identify the equipment requirements for operating an aircraft under IFR using GPS equipment as a primary means of navigation.	1

4. Aeronautical Parts and Supplies		
4.1. Acceptable Parts		
	Study Ref. 6	
4.1.1	Describe common New Zealand and overseas release documentation that would normally identify the acceptability and airworthiness status of the following: a. Engines b. Propellers and rotors c. Finite life components d. Other components	2
4.1.2	Describe the conditions and criteria that would make a part or product unacceptable for use on an aircraft.	2
4.1.3	Identify additional overseas reference information that may be used to establish the authenticity of parts.	2
4.1.4	Describe the information that would normally provide traceability of parts through the supply train and provide purchasers with confidence in the authenticity of these parts.	2
4.1.5	Describe the factors to be taken into account when dealing with a supplier and establishing the acceptability of parts.	2
4.1.6	Describe special requirements relating to the following: a. Records supplied with parts b. Life-limited components c. Salvaged parts d. Unsalvageable parts e. Surplus parts	2
4.2. Ex-Military Parts		
	Study Ref. 6	
4.2.1	Describe special conditions and limitations pertaining to the use of ex-military parts	2
4.2.2	Describe the conditions relating to the interchangeability of ex-military and civilian parts.	2
4.3. Pooling of Parts		
	Study Ref. 6	
4.3.1	Describe special conditions and precautions pertaining to the pooling of parts by aircraft operators.	1
4.4. Installation of Parts		
	Study Ref 6	
4.4.1	Detail the conditions and responsibilities relating to the eligibility and installation of parts.	3
4.5. Disposal of Parts		
	Study Ref. 6	
4.5.1	Describe the special requirements relating to the disposal of aircraft parts with particular emphasis on the prevention of finite-life components re-entering service.	2

4.6. Storage Conditions of Aeronautical Supplies		
	Study Ref. 7	
4.6.1	Describe the general storage conditions for aeronautical supplies	1
4.6.2	Describe the particular storage conditions for specific materials and parts.	1
4.6.3	Describe the particular storage requirements relating to aircraft piston engines:	1
4.6.4	Describe the particular storage requirements relating to aircraft turbine engines:	1
4.6.5	Describe the particular storage requirements relating to aircraft propellers:	1
4.7. Aeronautical Stores System		
	Study Ref. 7	
4.7.1	Describe the operation of a typical stores system with particular regard to the following items and activities: a. Segregation of non-approved items b. Identification labels and documentation c. Control of items in a quarantine store d. Control of items in a bond store e. Receipt inspection f. Rejection of items failing conformity g. Use of technical directives	1
4.7.2	Describe the use of the following stores records giving typical information that may be found on the records and practical examples of where each record could be used: a. Shelf life register b. Special storage conditions and inspections while in storage c. Stock recording d. Issue documentation register e. Goods-in register f. Technical directive register	1
4.7.3	Describe the following: a. Despatch inspection b. Release documentation c. Duties and responsibilities of stores personnel	1

5. Certification of Products and Parts – Part 21		
5.1. Definitions		
	Study Ref.8, Subpart A	
5.1.1	Define what is meant by a 'critical part' and give examples of where these items may be found on aeroplanes and rotorcraft.	2
5.1.2	Describe the relevance and importance of a 'type certificate' (TC) and identify the documents and data a TC normally includes.	2
5.1.3	Describe the meaning of the term 'required design change' and give examples of when the Director may require design changes to be made to a product.	1
5.2. Type Certificates and Type Acceptance Certificates		
	Study Refs.8 Subpart B, 9 & 10	
5.2.1	Distinguish between a type certificate and a type acceptance certificate (TAC) with particular regard to the following: a. Relevance to aircraft on the New Zealand register b. Issue requirements relating to both certificates c. Categories of TC and TAC d. Application criteria e. Certificate issue requirements f. Airworthiness requirements relating to a TAC for a "first of type", imported aircraft g. Data to be supplied when importing a "first of type" aircraft h. Identification of equivalent standards for TAC i. Ownership of both certificates j. Information contained on a type certificate data sheet (TCDS)	2
5.2.2	From information contained in the relevant Advisory Circular, identify the make and model of aircraft having type acceptance certificates and determine the original overseas type certificate ID.	1
5.2.3	Identify the type certificate reference codes pertaining to various overseas Civil Aviation Authorities.	1
5.3. Design Changes		
	Study Ref.8, Subpart C	
5.3.1	Describe what constitutes a design change and how it may be approved or accepted by the Director.	2
5.3.2	Describe the requirements for the approval of design and manufacturing organisations certified under Rule Parts 146 and 148.	1
5.4. Supplemental Type Certificates		
	Study Ref.8, Subpart E	
5.4.1	In relation to a Supplemental Type Certificate (STC), describe the following: a. Purpose b. Ownership c. Issue requirements d. Responsibilities of the certificate holder	1

5.5. Standard, Restricted and Provisional Category Airworthiness Certificates		
	Study Refs.8 Subpart H, & 11	
5.5.1	State the categories and sub categories of airworthiness certificates that may be granted by the Director and describe the classification requirements of each.	1
5.5.2	Describe the requirements for the issue of each category of airworthiness certificate including the following criteria: a. Type, or type acceptance certification b. Conformity of modifications or repairs c. AD compliance d. Flight manual; CAA acceptance, applicability, document origin and revision e. Maintenance documentation f. Identification of aircraft and aircraft components g. Registration and registration markings h. Required maintenance prior to the issue of the certificate, including lapsed time limitations i. Overall physical condition of the aircraft j. Long distance ferry flights k. Duration and limitations of the certificate l. CAA application, notification periods, inspection and certification requirements m. The applicable forms required for the type of application.	1
5.6. Special Category Airworthiness Certificates		
	Study Refs.8 Subpart H & 12	
5.6.1	State the purpose and issue requirements relating to the three special category airworthiness certificates. Give examples of when CAA would most likely issue each certificate.	1
5.6.2	State the limitations and restrictions relating to the operation of an aircraft on a special category airworthiness certificate.	1
5.7. Special Category - Special Flight Permit Airworthiness Certificates		
	Study Ref.8 Subpart I & 13a	
5.7.1	Describe the following criteria relating to special flight permit airworthiness certificates and special flight permit continuing airworthiness certificates: a. Purpose b. Limitations and restrictions c. AD compliance or non-compliance requirements d. Conditions relating to ferry flights e. Continuing authorisation certificate f. Certificate of fitness for flight g. Wording of a certificate of fitness for flight h. Inspection of the aircraft prior to issue of the certificate	1

5.8. Special Category - Experimental Airworthiness Certificate		
	Study Refs.8 Subpart H & 12	
5.8.1	Describe the purpose of an experimental airworthiness certificate and the conditions under which one would be issued.	2
5.8.2	Describe using examples aircraft types normally eligible for an experimental certificate.	1
5.8.3	Describe the conditions under which an ex military aircraft may be eligible for a standard category airworthiness certificate.	1
5.8.4	Describe the requirements for the provision and use of maintenance manuals for aircraft operated on an experimental certificate.	1
5.8.5	Describe the requirements relating to the approval of a maintenance programme for aircraft operated on an experimental certificate.	2
5.8.6	Describe how experimental aircraft are correctly identified and marked.	1
5.8.7	Describe the placard that must be displayed in an experimental aircraft.	2
5.8.8	Describe the conditions relating to finite lives for components fitted to experimental category aircraft.	2
5.8.9	Describe the conditions relating to modification of experimental category aircraft.	2
5.9. Materials, Parts, Processes and Appliances		
	Study Ref.6, 8, Subpart K & 18	
5.9.1	Describe the requirements relating to the installation of materials, parts and appliances into a type-certificated product various, with regard to the following: a. Authorisation by the holder of type certificate b. Manufacture during maintenance c. Use of CAA Form One d. Use of release notes e. Use of standard parts f. Use of imported parts	2
5.10. Identification of Products and Parts		
	Study Ref.8 Subpart Q & 13	
5.10.1	Describe the need for products and parts to be properly identified.	2
5.10.2	Describe the criteria for identifying aircraft, engines and propellers, with regard to the following: a. General marking requirements b. Fireproof marking methods c. Location of aircraft identification plates d. Identification of modular engines e. Identification of propellers, blades and hubs f. Minimum identification information g. Removal, alteration, and replacement of identification information h. Removal and reinstallation of data plates during certain maintenance operations i. Identification of critical parts j. Identification of replacement or modified parts	2

6. Airworthiness Directives (ADs) – Part 39		
6.1. Purpose and Origin of Airworthiness Directives		
	Study Ref. 14,47,48	
6.1.1	Describe the conditions under which the Director may issue an Airworthiness Directive, with reference to section 72I(3A–3C) of the Civil Aviation Act 1990.	2
6.2. AD Compliance		
	Study Refs. 14, 46, 47, 48	
6.2.1	Detail the responsibilities of an aircraft operator in relation to compliance with ADs, with particular regard to the following: a. Compliance date b. On-going compliance c. Alternative means of compliance (AMOC) d. Aircraft in excess of 5,700 kg MCTOW	3
6.2.2	From AD schedules identified in Ref. 46, extract pertinent information relating to AD compliance for a given aircraft or aircraft component.	3
6.2.3	Describe conditions relating to the deferment of inspection intervals for ADs requiring the performance of repetitive inspections.	2

7. General Maintenance Rules – Part 43		
7.1. Persons to Perform Maintenance		
	Study Refs. 15 Subpart B; 16	
7.1.1	Determine the qualifications and/or conditions relating to a person performing maintenance on an aircraft.	3
7.1.2	Identify the qualifications and conditions relating to persons, other than appropriately rated LAMEs or equivalent, performing maintenance on an aircraft.	2
7.1.3	Detail the requirements for the direct supervision of maintenance in terms of: a. physical presence on the work site b. active participation in the work process c. knowing when the work is being undertaken d. inspection of work at crucial stages e. extent and nature of supervision	3
7.2. Performance of Maintenance		
	Study Refs. 15 Subpart B; 16	
7.2.1	Detail the conditions relating to familiarity with the aircraft or component on which maintenance is being performed. This should include conditions that go beyond simply holding a type or group rating for the aircraft or component and should include the following: a. Liaison with other competent staff b. Use of publications c. Continuation training d. Level of previous experience	3
7.2.2	Detail the following requirements associated with the performance of maintenance: a. Housing and facilities. b. Methods, techniques and practices. c. Materials and parts. d. Tools, equipment and test equipment. e. Test equipment and special test equipment specified by the manufacturer. f. Compliance with airworthiness requirements and limitations. g. On the completion of maintenance. h. Duty time requirements.	3
7.2.3	Detail the criteria in relation to equivalent methods, techniques and practices that are acceptable to the Director and identify foreign source documentation that has been accepted as “standard practice” for the maintenance of NZ aircraft and components.	2
7.2.4	Describe the information that is typically contained in the airworthiness limitations section (ATA Chapter 4) of a manufacturer’s ‘instructions for continued airworthiness’.	2
7.2.5	Detail the criteria that apply to materials, parts and appliances in relation to determining its original or properly modified condition.	3
7.2.6	Detail the criteria that apply to the performance of maintenance on aircraft under Part 145, with particular respect to the following: a. Air transport operations b. MCTOW c. Seating configuration	3
7.2.7	Detail criteria that apply to the performance of maintenance aircraft or component maintenance activities that shall be performed under Part 145.	3
7.2.8	Describe the aircraft or component maintenance activities, requirements and limitations that specifically apply to aircraft issued with a special category airworthiness certificate.	2

7.3. Recording of Overhaul		
	Study Refs. 15 Subpart B; 16	
7.3.1	Detail the conditions and limitations relating to the certification of an overhauled part or product, in particular, the recording of zero life.	3
7.4. Non-Destructive Testing		
	Study Refs. 15 Subpart B; 16; 23	
7.4.1	Describe the qualification requirements relating to persons authorised to perform each of the non-destructive testing methods in both Part 43 and Part 145 organisations.	2
7.5. Maintenance Records		
	Study Refs. 15 Subpart B; 16	
7.5.1	Detail the requirements to record information in the appropriate maintenance logbook after maintenance including the details of: a. Maintenance performed. b. Component changes completed. c. Test results. d. Altimeter tests. e. AD complied with. f. Location and facility where the maintenance was completed. g. Reason for performing the maintenance.	3
7.5.2	Describe the use of maintenance records with particular regard to the following: a. Logbook summary and cross referencing when using maintenance documentation such as worksheets. b. Technical log entries relating to defect rectification and inspection. c. Recording of personal information to identify those performing maintenance. d. Time in service recorders, and the tampering of these recorders. e. Legibility, accuracy and permanency of entries. f. Use of loose-leaf log entries or similar records. g. Computerised records.	2
7.6. Release-to-service		
	Study Refs. 15 Subpart C; 16	
7.6.1	Detail persons who are authorised to certify 'release-to-service' after the performance of maintenance on aircraft or components.	3
7.6.2	Detail conditions and requirements that must be complied with for a 'release-to-service' certification to be made, including: a. Operational flight checks. b. Modifications and repairs.	3
7.6.3	When a 'release-to-service' statement is made and certified, describe the implied condition of the aircraft or aircraft component.	2
7.6.4	Determine the requirements of a legally correct 'release-to-service' statement after maintenance that includes the following: a. Prescribed wording. b. Details of the certifying person. c. Correct format.	3
7.6.5	Detail the requirements when an aircraft is released-to-service with inoperative equipment.	3
7.6.6	Detail the requirements when the existence of defects on an aircraft or component does not permit certification of release-to-service after maintenance.	3
7.6.7	Detail the relieved from duty requirements, before a release to service certification can be made, on an aircraft or component.	3

7.7. Duplicate Safety Inspection of Controls		
	Study Refs. 15 Subpart C; 16	
7.7.1	Detail the maintenance tasks performed on a control system that requires the performance of a duplicate safety inspection.	3
7.7.2	Detail the persons who may perform the first and second inspections on a control system.	3
7.7.3	Describe what would be termed 'adequate training, knowledge and experience' for a person selected to perform the second inspection on a control system.	2
7.7.4	Detail the types of control systems on an aeroplane, rotorcraft, powerplant, and propeller that would require a duplicate safety inspection if disturbed.	3
7.7.5	Detail the extent to which a control system must be inspected if disturbed.	3
7.7.6	Describe, with practical examples, the items to be inspected, when checking a control system for the following: a. Functions correctly. b. Assembled correctly. c. Required locking mechanisms are in place.	3
7.7.7	Determine the requirements of a legally correct statement for the certification of a duplicate safety inspection that includes the following: a. Prescribed wording b. Scope and extent of the safety inspection c. Details of the certifying persons d. Correct format	3
7.8. Engine Performance Checks		
	Study Refs. 15 Subpart C; 16	
7.8.1	Describe the requirements for engine performance checks on piston and turbine engines after maintenance.	2
7.8.2	State the items to be tested or observed during engine performance checks.	1

7.9. Review of Airworthiness and Maintenance Review		
	Study Ref. 15 Subpart D; 16, 43 Subpart G.	
7.9.1	Describe the qualifications of persons authorised to conduct: a. Review of airworthiness. b. Maintenance Review.	2
7.9.2	Describe the specific requirements when carrying out a review of airworthiness.	2
7.9.3	Describe the requirements of a legally correct logbook statement for the completion of a review of airworthiness.	1
7.9.4	Describe how defects must be handled when found as a result of a review of airworthiness.	2
7.9.5	Describe the difference between review of airworthiness and a maintenance review. State where each may be performed.	2
7.9.6	Distinguish between aircraft requiring a maintenance review and those that may have a review of airworthiness.	2
7.10. Certifying Conformity following Major Modification or Major Repair		
	Study Refs. 1, 15 Subpart E; 16, 24	
7.10.1	Describe using examples of, major modifications and major repairs.	2
7.10.2	Detail the qualifications of a person permitted to certify conformity following a major modification or major repair.	3
7.10.3	Describe the requirements to be considered when a conformity inspection and certification is performed.	2

7.11. Form CAA 337		
	Study Refs. 8 Subpart N & App. D;15 Subpart E; 24; 28	
7.11.1	Identify who is responsible for determining if a conformity inspection is required for repairs or modifications carried out on an aircraft.	2
7.11.2	Identify the ways aircraft and other type certified products could be changed.	2
7.11.3	Specify the occasions when a form 337 must be used.	2
7.11.4	Describe using practical examples what is considered to be technical data.	2
7.11.5	Distinguish between acceptable and approved data.	2
7.11.6	Describe the process by which technical data may be approved.	1
7.11.7	Identify organisations and persons who may approve data and describe the requirements for a statement of compliance.	1
7.11.8	Describe with specific examples what is considered to be acceptable technical data.	2
7.11.9	Describe specific technical data requirements relating to avionics modifications.	1
7.11.10	Describe the following criteria in relation to the Form CAA 337: a. Who would normally raise the form b. What information is contained on the form c. Persons who are required to sign the form d. Distribution of the form, including any specified time frames	2
7.12. Weight and Balance Control/Procedures		
	Study Refs. 17; 34 Subpart B & G *Note: reference AC66-2.4 Topic 9 for weight and balance theory and calculations*	
7.12.1	Detail the requirements for aeroplane weight and balance control.	3
7.12.2	Describe the following criteria relating to weight and balance control: a. Weighing standards b. Weighing periods c. Reasons for a re-weigh d. Recalculation of empty weight changes e. Completion and use of the form CAA 2102 f. Completion and use of form CAA 2173	2
7.13. On Condition Maintenance		
	Study Ref. 19	
7.13.1	Describe the following maintenance terms: a. Airworthiness Limitations b. Hard-time maintenance c. On-condition maintenance	2
7.13.2	Describe examples and limitations associated with each of these forms of maintenance.	1
7.13.3	Describe how the condition of a component may be assessed under an on-condition maintenance plan.	1

7.14. Engine and Propeller Overhaul and Testing		
	Study Ref. 20; 34 Subpart G	
7.14.1	Detail the overhaul requirements for engines and propellers fitted to air transport aircraft.	3
7.14.2	In regard to engine and propeller overhaul, describe the following requirements: a. Overhaul procedures b. Part 91 – Operation considerations	2
7.15. Parts Documentation – CAA Form One		
	Study Ref. 15 Subpart C;18	
7.15.1	Describe the purpose of a CAA Form 1.	2
7.15.2	Describe the limitations on the use of the CAA Form 1.	2
7.15.3	Identify the information that is contained on a CAA Form 1.	2
7.15.4	Describe the distribution of the CAA Form 1.	2
7.16. CAA Form Two		
	Study Ref. 15 Subpart C;18	
7.16.1	Describe the purpose of a CAA Form 2.	2
7.16.2	Describe the limitations on the use of the CAA Form 2	2
7.16.3	Identify the information and certification that is contained on a CAA Form 2.	2
7.16.4	Describe the distribution of the CAA Form 2.	2
7.17. Emergency Equipment		
	Study Ref. 21; 34 Subpart G	
7.17.1	Describe the following criteria in regard to the maintenance of emergency equipment: a. Maintenance requirements and documentation b. Checks and inspections for first aid kits c. Checks and inspections for floatation equipment d. Checks and inspections for portable fire extinguishers	2
7.18. Calibration of Compasses		
	Study Ref 22; 34 Subpart G *Note: reference AC66-2.16 for compass calibration theory and calculations*	
7.18.1	Detail the requirements for the calibration of compasses.	3
7.18.2	Describe the following criteria in regard to the calibration of compasses a. Occasions for calibration b. Maintenance records and certification	2

7.19. Aircraft Radio Station – Form CAA 2129		
	Study Ref. 25; 34 Subpart B	
7.19.1	Define the approval levels for radio equipment	2
7.19.2	Describe the following criteria in regard to the use of the form CAA 2129 a. Raising a new form b. Radio equipment to be included c. Determination and recording of approval levels d. Certification	2
7.19.3	Extract equipment approval information from source data contained in the relevant AC.	1
7.20. Emergency Locator Transmitters		
	Study Refs. 15 Subpart B, Appendices A & F; 26 *Note: Study Ref 26 currently in DRAFT so will effect this sub topic objective*	
7.20.1	Describe the following criteria in relation to emergency locator transmitters: a. The requirement to have a serviceable ELT in an aircraft b. Installation, mounting and connection requirements c. Antenna locations on aeroplanes and helicopters d. Approved battery types e. Battery life and life recording f. Authorised ELT test times and frequency g. Certification of ELT installations h. Operational check intervals i. Bench testing intervals j. Requirements for changing or charging batteries k. Operation of an aircraft with the ELT temporarily removed	2
7.21. Non-Aeronautical Lead Acid Batteries		
	Study Ref. 27	
7.21.1	Describe the conditions relating to the use of non-aeronautical lead acid batteries in aircraft.	1
7.21.2	Identify acceptable standards for the development modifications to use non-aeronautical batteries.	1

8. Aircraft Registration and Marking – Part 47		
8.1. Aircraft Registration and Certification		
	Study Refs. 30; 31	
8.1.1	State the requirements relating to the legal operation of a New Zealand or foreign registered aircraft.	1
8.1.2	Describe the conditions relating to the lawful ownership of an aircraft.	2
8.1.3	Describe the provisions pertaining to the operation of hired aircraft.	2
8.1.4	Describe the following in regard to the registration of aircraft in New Zealand: a. Requirements for registration b. Application for registration c. Change of ownership d. Carriage of the certificate of registration e. Period in which to acquire a certificate of registration f. Duration of the certificate of registration g. Cancellation of registration	1
8.2. Aircraft Marking		
	Study Refs. 30; 31	
8.2.1	Describe the following requirements relating to the registration marking of aircraft: a. General requirements for marking aircraft b. Nationality and registration marks c. Identifiable paint schemes and markings d. Display of marks e. Location of marks f. Specifications of marks g. Measurement of marks	2
8.3. Identification Plate		
	Study Ref. 30	
8.3.1	Describe the information that must be contained on an identification plate.	1
8.3.2	Describe the conditions relating to the construction and display of aircraft registration plates.	1

9. Aircraft Maintenance Engineer Licensing – Part 66		
9.1. AME Licensing – General and Licence		
	Study Refs. 32 Subpart A & B; 33	
9.1.1	Describe the following criteria relating to general AME licensing requirements: a. Categories of licence and certificates b. Application process c. Issue requirements d. Duration of licences and certificates e. Examinations f. Cheating or other unauthorised conduct g. Offences involving alcohol or drugs h. Medical requirements	2
9.1.2	Describe the following criteria relating to the AME license a. Eligibility requirements b. Examinations required for the issue of a basic licence in the respective categories c. Validity period for examination passes d. Required experience for the grant of a licence e. Required experience for the grant of additional categories f. Reduced experience concession for additional categories g. Concurrency of experience h. Privileges and limitations of a licence i. Familiarity requirements relating to the supervision and certification of maintenance on aircraft or aircraft components j. Conditions relating to the use of a licence and ratings in a Part 145 organisation k. Qualification to use special test equipment l. Recent experience requirements m. Category demarcations	2
9.1.3	Define the component or systems that form the basis of each category demarcation.	2
9.1.4	Describe the additional avionics privileges that may be associated with the various categories	2
9.1.5	Describe, giving examples of: a. ‘Line replaceable unit (LRU)’ b. ‘Special test equipment’.	2
9.2. Aircraft Maintenance Engineer Ratings		
	Study Refs. 32 Subpart C & Appendix B & C; 33	
9.2.1	Describe the following criteria relating to AME licence ratings: c. Structure of rating groups d. Difference between a group and type rating e. Eligibility requirements f. Practical experience requirements g. Practical Training Record h. Identification of pre-requisite basic examinations i. Examination requirements j. Course requirements k. Validity of rating courses l. Technical oral examination m. Component ratings n. Rating privileges	2
9.2.2	Describe the aircraft, component or systems that form the basis of each rating group.	2
9.2.3	Describe the specific aircraft, components or systems that are classified under the various group or type rating designators.	2

9.3. Certificates of Maintenance Approval		
	Study Refs. 32 Subpart D; 33	
9.3.1	Describe the following criteria relating to certificates of maintenance approval: a. Eligibility requirements b. Examination requirements c. Training course requirements d. Practical experience requirements e. Restrictions on privileges	2
9.3.2	Describe occasions when a certificate of maintenance approval may be issued and identify the various privileges that may be granted on the certificate.	2
9.3.3	State the normal validity periods of a maintenance approval when issued for maintenance of either; type certificated aircraft or components, or experimental category aircraft.	2
9.4. Certificate of Inspection Authorisation (IA)		
	Study Refs. 32 Subpart E; 33	
9.4.1	Describe the privileges and limitations of a certificate of inspection authorisation and describe situations when an IA holder may work in conjunction with a certifying engineer during the performance and certification of maintenance.	2

10. Aircraft Maintenance Programmes		
10.1. General Maintenance Programme requirements		
	Study Refs. 34 Subpart G (91.605); 38	
10.1.1	Describe the objectives of a maintenance programme.	2
10.1.2	In regard to maintenance programmes, define the following terms: a. Damage tolerant b. Inherent level of reliability and safety c. Maintenance significant items d. Safe-life e. Scheduled maintenance f. Unscheduled maintenance	1
10.1.3	Describe the following maintenance processes: a. Hard-time limit b. On-condition c. Condition-monitored	1
10.1.4	Describe the necessary provisions that should be included in a maintenance programme.	1
10.1.5	Describe factors that should be taken into consideration when establishing a maintenance programme.	1
10.1.6	Identify sources of information that may be used in the development of a maintenance programme.	1
10.1.7	Describe the types of inspections and actions normally performed under the requirements of a maintenance programme.	1
10.1.8	Describe how servicing latitudes are normally administered in order to maintain the integrity of a maintenance programme.	1
10.2. New Zealand Maintenance Programme requirements		
	Study Refs. 34 Subpart G (91.605, 607, 609, 611); 38; 15 Appendix A, B, D, E, and F	
10.2.1	Describe the following criteria in relation to New Zealand maintenance programmes: a. Operator's maintenance manual (Exposition) b. Fitted and role equipment c. Abnormal occurrence inspections d. Compliance with programme	2
10.2.2	Describe the requirements relating to CAA approval of a maintenance programme or subsequent programme changes and variations.	2

11. General Operating and Flight Rules – Part 91		
11.1. Operating Rules associated with Aircraft Airworthiness		
	Study Ref. 34 Subpart B	
11.1.1	Describe the following criteria in relation to an operator's responsibilities for the operation of an aircraft: a. Aircraft airworthiness b. Aircraft registration c. Aircraft flight manual d. Documents to be carried in the aircraft e. Daily flight records	2
11.2. Flight Rules		
	Study Ref. 34 Subpart C, D, and E	
11.2.1	Identify the following general, visual and instrument flight rules that has an airworthiness implication: a. Familiarity with operating limitations and equipment b. Aircraft lights c. Time-in-service recorder operation d. Operating in snow and ice conditions	1
11.3. Instrument and Equipment Requirements		
	Study Ref. 34 Subpart F & Appendix A	
11.3.1	Describe the following equipment requirements: a. Type and number of instruments and equipment b. Instrument and equipment design and installation standards c. Operable condition of instruments and equipment d. Location of instruments and equipment e. Seating and restraints f. Passenger information g. Time-in-service recorders. h. Carbon monoxide detectors.	2
11.3.2	Describe the following flight requirements relating to instruments and equipment: a. Minimum instruments and equipment required for VFR flight b. Minimum instruments and equipment required for Night VFR flight c. VFR Communications equipment d. Requirements relating to VFR flight over water e. Minimum instruments and equipment required for IFR flight f. IFR Communications and navigation equipment g. Emergency equipment h. Aircraft operations over water i. Emergency locator transmitter j. Oxygen requirements	2
11.4. Inoperative Instruments and Equipment		
	Study Ref. 34 Subpart F	
11.4.1	Describe the following requirements relating to the serviceability of instruments and equipment: a. Conditions relating to operation of an aircraft with inoperative instruments and equipment b. Placarding of inoperative instruments and equipment c. Approval of minimum equipment lists (MEL) d. Release-to-service with inoperative instruments and equipment e. Conditions relating to the operations of aircraft below 5700 kg MCTOW	2

11.5. Instrument and Equipment Specifications		
	Study Ref. 34 Appendix A	
11.5.1	Describe data and specifications in regard to the following: a. Markings and placards b. Fuel and oil markings c. Seating d. Restraints e. Aircraft lights f. Time-in-service recorders g. Pressure altimeters h. Communication and navigation equipment i. First aid kits j. Fire extinguishers k. Emergency equipment l. Emergency locator transmitters m. Oxygen systems and equipment n. Transponder equipment o. Altitude equipment	1
11.6. Operator Maintenance Requirements		
	Study Ref. 34 Subpart G	
11.6.1	Describe the maintenance requirements before flight	2
11.6.2	Describe the general maintenance requirements an operator has in regard to the following: a. Airworthy condition b. Airworthiness Directives (ADs) c. Inspection, maintenance and release-to-service d. Defects e. Inoperative equipment f. Airworthiness limitations g. Manufacturer's recommended overhaul intervals	2
11.6.3	Describe the following requirements in relation to maintenance programmes and schedules a. Programme options b. Minimum inspection intervals c. Radio station tests and inspections d. Altimeter system and altitude reporting equipment tests and inspections e. SSR transponder tests and inspections f. ELT tests and inspections g. Compasses h. First Aid Kits i. Portable Fire Extinguishers j. Flotation equipment k. Weighing l. Programme identification, persons responsible, providing copy of programme m. Approval of maintenance programmes n. Changes to maintenance programmes o. Inspection planning latitudes	2
11.6.4	Describe the specific maintenance requirements an operator has in regard to the following: a. Operational flight checks b. Review of airworthiness c. Maintenance logbooks and records d. Transfer of maintenance records e. Retention of records	2

11.7. Technical Log		
	Study Refs. 34 Subpart G; 37	
11.7.1	Describe the following in regard to technical logs: a. Purpose b. Carriage of the document in an aircraft c. Responsibility for recording information on the log d. Period a log may remain in use e. Approved content of a technical log f. Technical log in relation to a logbook g. Concessions for air transport operators h. Concessions for fixed base operators i. Retention of technical logs j. Transferring information to the aircraft logbook including the use of block entries for hours k. Use of CAA Form CA 006 l. Pilot's responsibility to enter information	1

12. Air Operator Certification – Part 119		
12.1. Air Operator Certification		
	Study Refs. 39; 40	
12.1.1	State the purpose of this Rule in respect of the certification of air operators.	1
12.1.2	Specify the conditions and limitations relating to the certification air operators with particular regard to operations using aeroplanes and helicopters of varying MCTOW and seating configuration.	1
12.1.3	Identify the various Rule Parts appropriate to the certification of an operator under the above conditions.	1
12.2. Air Operator maintenance requirements		
	Study Refs. 39; 40	
12.2.1	Describe the *Airline Air Operator* and *General Aviation Air Operator* requirements for maintenance procedures and maintenance programmes	1
12.2.2	Describe the requirements of a *General aviation air operator* exposition that is relevant to the maintenance of their aircraft.	2

13. Internal Quality Assurance and Safety Management		
13.1. Quality (Safety) Management System		
	Study Ref. 41	
13.1.1	In regard to a quality management /safety management systems, describe the following: a. Importance of the quality management approach to aviation safety b. The components of a quality management system c. Role of the CAA in ensuring air operator safety d. Objective of quality assurance procedures e. The purpose of safety management	2
13.1.2	Describe the following terms associated with a quality management system: a. Evidence b. Controls c. Finding d. Concern e. Root cause f. Inspection g. Audit h. Safety policy i. Corrective action j. Preventive action k. Management review l. Audit programme m. Quality indicators n. Quality assurance procedures o. Management representative p. Hazard identification q. Risk identification r. Risk mitigation s. Risk management	1

14. Air Operations - Helicopters and Small Aeroplanes – Part 135		
14.1. General Maintenance Requirements		
	Study Ref 43 Subpart G	
14.1.1	Describe the options that Part 135 certificated air operator has in relation to the maintenance requirements	2
14.1.2	Specify who is responsible for maintenance of aircraft flown under an air operator's certificate.	2
14.1.3	Describe the requirements of a maintenance review.	1
14.1.4	Specify the reporting requirements to the Director for conditioned monitored maintenance programmes.	1

15. Certificated Aircraft Maintenance Organisations – Part 145		
15.1. General and Certification Requirements		
	Study Refs. 44; 45	
15.1.1	Describe the Part 145 maintenance ratings that are appropriate for various types of aircraft or aircraft component work.	2
15.1.2	State the qualification and experience requirements specified for persons to hold senior positions in a Part 145 maintenance organisation.	1
15.1.3	State the normal validity period of a Part 145 certificate.	1
15.1.4	Describe the duty time limitations for authorised staff	2
15.1.5	Describe the facility requirements for all maintenance activities.	1
15.1.6	Describe the equipment, tools and material requirements	1
15.1.7	Identify the maintenance control procedures requirements	1
15.2. Company Authorisation Procedures		
	Study Refs. 44; 45	
15.2.1	Describe the various maintenance activities that company authorisations are required for.	2
15.2.2	Describe the qualification, training and assessment requirements for the issue of a company authorisation for the release-to-service of aircraft and aircraft components.	2
15.2.3	State the training course and examination requirements for certifying staff.	2
15.2.4	Describe the requirements for persons to certify conformity of major repair or major modification.	2
15.2.5	Describe the recent experience requirements pertaining to the holder of a company authorisation.	2
15.3. Records, Internal Quality Assurance and Exposition		
	Study Refs. 44; 45	
15.3.1	Describe the records that a Part 145 organisation is required to keep in regard to: a. Certifying personnel b. Maintenance c. Equipment and tools	1
15.3.2	Describe the essential requirements of a quality assurance system for a Part 145 organisation.	1
15.3.3	Identify components of a Company Exposition that would be relevant to an engineer working within a Part 145 organisation.	1