CAR - 66

LICENSING OF AIRCRAFT MAINTENANCE ENGINEERS

DIRECTORATE GENERAL OF CIVIL AVIATION
TECHNICAL CENTRE, OPP SAFDURJUNG AIRPORT, NEW DELHI

Salient Features of the CAR-66

The CAR-66

- has been issued in line with the current Rule 61 and to harmonize the aircraft maintenance personnel licensing system with EASA Part 66 [General]
- details, requirements for qualifying an individual to obtain an Aircraft Maintenance Engineer's Licence and extension of such licence [CAR-66]
- eliminates the system of obtaining Airframe, Engine, Electrical, Instrument and Radio System Licences separately [66.A.01]
- redefines the syllabus for basic knowledge examination in modular pattern [66.A.25]
- provides for qualifying under the existing system of obtaining the licence till December 2012 [66.A.70]
- provides for endorsement of an AME licence after successful completion of type training and the type training examination/type examination which shall consist of both theoretical and practical examinations [66.A.45 (c)]
- lists the details of practical tasks to qualify an individual to obtain a type rating [Addendum II to AMC]
- provides for acquiring group type rating of aircraft and certification privileges 66.A.45 (g)
- has a provision to convert the existing AME licence to CAR 66 licence [66.A.70] with or without limitation
- details clauses under which a licence may be revoked or suspended or withheld [66.A.95]

66.01

GENERAL

In order to harmonize Indian requirements for licensing of aircraft maintenance engineers-with international requirements; CAR-66 Rev.0 dated 11th November 2011, which is primarily based on EASA Part 66 regulation is being introduced.

This CAR is issued on the basis of amended Rule 61***(6th amendment)*** of the Aircraft Rules, 1937 as notified vide GSR 1001(E) dated 22ndDecember 2010.

This CAR is effective from 01.01.2012. However upto 31.12.2012 the existing requirements of CAR Section2 Series L will also continue for facilitating smooth transition of aircraft maintenance engineer licensing system into CAR 66 pattern.

The CAR-66 is applicable to all personnel / Organizations engaged in maintenance and /or certification of aircraft registered in India.

The Section A of CAR-66 establishes the requirements for the issue and extension of an aircraft maintenance engineer's license, conditions of its validity and use. It also has a provision for converting the aircraft maintenance engineer's (AME) license issued prior to the CAR-66 coming into force. The requirements are followed by Acceptable means of compliance (AMC) and Guidance Material (GM)

The AME licenses in CAR 66 format will be available in two different ways:
a) After conversion of existing AME licenses with applicable limitation.
b) Issue of fresh license after passing of applicable modules of Basic Knowledge Exam to be conducted by CEO.

Record of Revisions

Initial - Issue I

(Revision 0)

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SECTION A

Technical Requirements

SUBPART A

AIRCRAFT MAINTENANCE ENGINEER'S LICENCE AEROPLANES AND HELICOPTERS

66. A.01 Scope

(a) This section establishes the requirements for the issue of an aircraft maintenance engineer's licence and conditions of its validity and use for aeroplanes and helicopters of the following categories:

- Category A
- Category B1
- Category B2
- Category C

(b) Categories A and B1 are subdivided into subcategories relative to combinations of aeroplanes, helicopters, turbine and piston engines. The subcategories are:

- A1 and B1.1 Aeroplanes Turbine
- A2 and B1.2 Aeroplanes Piston
- A3 and B1.3 Helicopters Turbine
- A4 and B1.4 Helicopters Piston

66. A.10. Application

a) An application for an aircraft maintenance engineer's licence or change to such licence shall be made on CA Form 19-01/02 with necessary documents and fees to DGCA.

b) *Reserved*.

c) In addition to the documents required in points 66.A.10 (a) as appropriate, the applicant for additional categories or sub-categories to an aircraft maintenance engineer's licence shall submit his/her current original aircraft maintenance engineer's licence to the DGCA together with CA Form 19-02.

d) *Reserved*

e) *Reserved*

66. A.15.Eligibility

An applicant for an aircraft maintenance engineer's licence shall be at least 18 years of age.

66. A.20 Privileges

a) Subject to the compliance with paragraph (b), the following privileges shall apply:

1. A category A aircraft maintenance engineer's licence permits the holder to issue certificates of release to service following minor scheduled line maintenance and simple defect rectification within the limits of tasks specifically endorsed on the authorization. The certification privileges shall be restricted to work that the licence holder has personally performed in a maintenance organization approved by the DGCA.
2. A category B1 aircraft maintenance engineer's licence shall permit the holder to issue certificates of release to service following maintenance, including aircraft structure, power plant and mechanical and electrical systems. Replacement of avionic line replaceable units, requiring simple tests to prove their serviceability shall also be included in the privileges. Category B1 shall automatically include the appropriate A subcategory.
3. A category B2 aircraft maintenance engineer's licence shall permit the holder to issue certificates of release to service following maintenance on avionic and electrical systems.
4. A category C aircraft maintenance engineer's licence shall permit the holder to issue certificates of release to service following base maintenance on aircraft. The privileges apply to the aircraft in its entirety in CAR 145 organization.

Note: Category A, B1, B2 and C shall be type rated license

b) The holder of Aircraft Maintenance Engineer license may not exercise certification privileges unless:

1. ***in compliance with the applicable requirements of CAR M and/or CAR 145.***
2. in the preceding two year period he/she has either acquired six months of maintenance experience in accordance with the privileges granted by the Aircraft Maintenance Engineer's Licence or met the provision for the issue of appropriate privileges.
3. he/she is able to read, write and communicate to an understandable level in the language(s) in which the technical documentation and procedures necessary to support the issue of the certificate of release to service are written.

66. A.25 Basic Knowledge requirements:

a) The applicant must have passed 10+2 examination in Physics, Chemistry and Mathematics from a recognized board or university or its equivalent.

b) An applicant for an aircraft maintenance engineer's licence or the addition of a category or subcategory to such an aircraft maintenance engineer's licence shall demonstrate by examination, a level of knowledge in the appropriate subject modules in accordance with Appendix I to this CAR. The basic knowledge examination shall be conducted by Central Examination Organization of DGCA.

The modular system of examination will be conducted from 1.1.2013

66. A.30 Experience requirements:

a) An applicant for an aircraft maintenance engineer's licence shall have acquired:

1. for category A and sub categories B1.2 and B1.4 four years of practical aircraft maintenance experience.
2. for category B2 and sub-categories B1.1 and B1.3 five years of practical aircraft maintenance experience.
3. for Category C with respect to large aircraft:
   i. three years of experience exercising category B1.1 or B1.3 or B2 privileges on large aircraft or as CAR 145 B1.1, B1.3 or B2 support staff, or, a combination of both; or
   ii. five years of experience exercising category B1.2 or B1.4 privileges on large aircraft or as CAR 145 B1.2 or B1.4 support staff, or a combination of both; or
4. for category C with respect to non large aircraft:

   Three years of experience exercising category B1 or B2 privileges on non large aircraft or as CAR 145 B1 or B2 support staff, or a combination of both.

b) An applicant for an extension to an aircraft maintenance engineer's licence shall have a minimum civil aircraft maintenance experience requirement appropriate to the additional category or sub-category of licence applied for as defined in Appendix IV to this CAR.

c) For category A, B1 and B2 the experience must be practical which means being involved with a representative cross section of maintenance tasks on aircraft.

d) For all applicants, at least one year of the required experience must be recent maintenance experience on aircraft of the category/subcategory for which the initial aircraft maintenance engineer's licence is sought. For subsequent category /subcategory additions to an existing aircraft maintenance engineer's licence, the additional recent maintenance experience required may be less than one year, but

must be at least three months. The required experience must be dependent upon the difference between the licence category/subcategory held and applied for. Such additional experience must be typical of the new licence category/subcategory sought.

e) Twelve years of practical aircraft maintenance experience, gained outside a civil aircraft maintenance environment shall be accepted as equivalent to the requirements laid down in (1) and (2) of Paragraph (a) above, in the relevant category supplemented by at least one year of recent experience in the civil aircraft maintenance environment;

66. A.40 Continued validity of the aircraft maintenance engineer's licence

(a) The aircraft maintenance engineer's licence becomes invalid after five years of its last issue or change, unless the holder submits his/her aircraft maintenance engineer's licence to the DGCA, in order to verify the information contained in the licence is the same as that contained in the DGCA records, pursuant to point 66. B. 120.

(b) The holder of an aircraft maintenance engineer's licence shall complete the CA Form 19-03 and submit it with the holder's copy of the licence to the DGCA, unless the holder works in a maintenance organization approved in accordance with CAR 145 that has a procedure in its exposition where by such organisation may submit the necessary documentation on behalf of the aircraft maintenance engineer's licence holder.

(c) Any certification privileges based upon an aircraft maintenance engineer's licence becomes invalid as soon as the aircraft maintenance engineer's licence is invalid.

(d) The aircraft maintenance engineer's licence is only valid when issued and/or changed by DGCA and when the holder has signed the document.

66. A.45 Type/task training and ratings

(a) The holder of a category A aircraft maintenance engineer's licence may only exercise certification privileges on a specific aircraft type following the satisfactory completion of the relevant category A aircraft task training carried out by an appropriately approved CAR 145 organization. The training shall include practical hands on training and theoretical training as appropriate for each task authorized. Satisfactory completion of training shall be demonstrated by an examination and/or by workplace assessment carried out by an appropriately approved CAR 145 organization.

(b) Except as otherwise specified in paragraph (g), the holder of a category B1, B2 or C aircraft maintenance engineer's licence shall only exercise certification privileges on a specific aircraft type when the aircraft maintenance engineer's licence is endorsed with the appropriate aircraft type rating.

(c) Except as otherwise specified in paragraph (h), ratings shall be granted following satisfactory completion of the relevant category A, B1, B2 or C aircraft type training approved by DGCA.

(d) Category A, B1 and B2 approved type training shall include theoretical and practical elements and consist of the appropriate course in relation to para 66.A.20 (a) privileges. Theoretical and practical training shall comply with Appendix III to this CAR.

(e) Category C approved type training shall comply with Appendix III to this CAR

(f) Completion of approved aircraft type training, as required by paragraphs (b) to (e), shall be demonstrated by an examination. The examination shall comply with Appendix III to this CAR. The examinations in respect of category A, B1, B2 or C aircraft type ratings shall be conducted by DGCA/training organizations appropriately approved by DGCA.

(g) Notwithstanding paragraph (b), for aircraft other than large aircraft, the holder of a category B1, B2 aircraft maintenance engineer's licence may also exercise certification privileges, when the aircraft maintenance engineer's licence is endorsed with the appropriate group ratings, or manufacturer group ratings, unless DGCA has determined that the complexity of the aircraft in question requires a type rating.

1. Manufacturer group ratings may be granted after complying with the type rating requirements of two aircraft types representative of the group from the same manufacturer.

2. Full group ratings may be granted after complying with the type rating requirements of three aircraft types representative of the group from different manufacturers. However, no full group rating may be granted to B1 multiple turbine engine aeroplanes, where only manufacturer group rating applies.

3. The groups shall consist of the following:

   i. for category B1 or C

      - helicopter piston engine
      - helicopter turbine engine
      - aeroplane single piston engine – metal structure
      - aeroplane multiple piston engines – metal structure
      - aeroplane single piston engine – wooden structure
      - aeroplane multiple piston engines – wooden structure
      - aeroplane single piston engine – composite structure
      - aeroplane multiple piston engines – composite structure

- aeroplane turbine – single engine
- aeroplane turbine – multiple engine

ii. for category B2 or C:

- aeroplane
- helicopter

(h) Notwithstanding paragraph (c), ratings on aircraft other than large aircraft may also be granted, subject to satisfactory completion of the relevant category A, B1, B2 or C aircraft type examination and demonstration of practical experience on the aircraft type, unless DGCA has determined that the aircraft is complex, where paragraph (c) approved type training is required.

1.Category A, B1, B2 and C approved type examinations must consist of a mechanical examination for category A and B1 and an avionics examination for category B2 and both mechanical and avionics examination for category C.

2.The examination shall comply with Appendix III to this CAR. The examination shall be conducted by training organization appropriately approved or DGCA.

3.Aircraft type practical experience shall include a representative cross section of maintenance activities relevant to the category.

66. A.55 Evidence of qualification

Personnel exercising certification privileges must produce their licence as evidence of qualification, if required by an authorized person of DGCA, within 24 hours.

66. A.70 Conversion provisions-

a) The holder of a valid Aircraft Maintenance Engineer's Licence on the date of coming into force of this CAR may continue to exercise the privileges of his licence and shall be issued, with or without limitation and without further examination, an Aircraft Maintenance Engineer's Licence in the appropriate category subject to such conditions specified in 66. B. 300.

b) A person undergoing a qualification process, prior to the GSR No. 1001(E) dated 22.12.2010 regarding the Rule 61 of the Aircraft Rules, 1937 shall continue to be qualified till December 2012. The holder of a qualification gained following such qualification process may be issued an aircraft maintenance engineer's licence subject to the conditions specified in 66. B. 300.

c) Where necessary, the aircraft maintenance engineer's licence shall contain technical limitations in relation to the scope of the pre-existing qualification.

d) Aircraft Maintenance Engineer's Licences issued prior to this CAR coming into force in category "A" to cover Gliders, Balloons and in category "B", "D" and "X" to cover Aircraft, Engine, propeller and items of equipment to carryout mainte-

nance and issue 'Certificate of Release to Service' that could not be transferred to CAR-66 licence 'Type Rating' shall be transferred to the CAR-66 licence section XIV (a) without altering the privileges hitherto exercised by the holder.

SUBPART B

AIRCRAFT OTHER THAN AEROPLANES AND HELICOPTERS

66. A.100 General

Until such time as this CAR specifies a requirement for certifying staff of aircraft other than aeroplanes and helicopters, the existing regulation shall apply.

SUBPART C

COMPONENTS

66. A. 200 General

Until such time as this CAR specifies a requirement for certifying components, the existing regulation shall apply.

Appendix I - Basic Knowledge Requirements

1. KNOWLEDGE LEVELS - CATEGORY A, B1, B2 AND C AIRCRAFT MAINTENANCE ENGINEER's LICENCE

Basic knowledge for categories A, B1 and B2 are indicated by the allocation of knowledge levels indicators (1, 2 or 3) against each applicable subject. Category C applicant must meet either category B1 or B2 basic knowledge level.

The knowledge level indicators are defined as follows:

LEVEL 1

Familiarization with the principal elements of the subject.

Objectives: The applicant should be familiar with the basic elements of the subject.

The applicant should be able to give a simple description of the whole subject, using common words and examples.

The applicant should be able to use typical terms.

LEVEL 2

A general knowledge of the theoretical and practical aspects of the subject.

An ability to apply that knowledge.

Objectives: The applicant should be able to understand theoretical fundamentals of the subject.

The applicant should be able to give a general description of the subject using, as appropriate, typical examples.

The applicant should be able to use mathematical formulae in conjunction with physical laws describing the subject.

The applicant should be able to read and understand sketches, drawings and schematics describing the subject.

The applicant should be able to apply his 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 should know the theory of the subject and interrelationship with other subjects.

The applicant should be able to give a detailed description of the subject using theoretical fundamentals and specific examples.

The applicant should understand and be able to use mathematical formulae related to the subject.

The applicant should be able to read, understand and prepare sketches, simple drawings and schematics describing the subject.

The applicant should be able to apply his knowledge in a practical manner using manufacturer's instructions.

The applicant should be able to interpret results from various sources and measurements and apply corrective action where appropriate.

2. MODULARISATION

Qualification on basic subjects for each CAR 66 aircraft maintenance engineer's licence category or subcategory should be in accordance with the following matrix. Applicable subjects are indicated by an 'X':

Subject Modules	A or B1 aeroplane with				A or B1 helicopter with				B2
	Turbine engine (s)		Piston engine (s)		Turbine engine (s)		Piston engine (s)		Avionics
	A1	B1.1	A2	B1.2	A3	B1.3	A4	B1.4	
1	Not Applicable								
2	Not Applicable								
3	X	X	X	X	X	X	X	X	X
4		X		X		X		X	X
5	X	X	X	X	X	X	X	X	X
6	X	X	X	X	X	X	X	X	X
7	X	X	X	X	X	X	X	X	X
8	X	X	X	X	X	X	X	X	X
9	X	X	X	X	X	X	X	X	X
10	X	X	X	X	X	X	X	X	X
11	X	X	X	X					
12					X	X	X	X	
13									X
14									X
15	X	X			X	X			
16			X	X			X	X	
17	X	X	X	X					

MODULES & SYLLABUS	LEVEL		
	A	B1	B2
MODULE 1. Reserved	-	-	-
MODULE 2. Reserved	-	-	-

MODULE 3. ELECTRICAL FUNDAMENTALS	LEVEL		
	A	B1	B2
3.1 Electron Theory Structure and distribution of electrical charges within: atoms, molecules, ions, compounds; Molecular structure of conductors, semiconductors and insulators.	**1**	**1**	**1**
3.2 Static Electricity and Conduction Static electricity and distribution of electrostatic charges; Electrostatic laws of attraction and repulsion; Units of charge, Coulomb's Law; Conduction of electricity in solids, liquids, gases and a vacuum.	**1**	**2**	**2**
3.3 Electrical Terminology The following terms, their units and factors affecting them: potential difference, electromotive force, voltage, current, resistance, conductance, charge, conventional current flow, electron flow.	**1**	**2**	**2**
3.4 Generation of Electricity Production of electricity by the following methods: light, heat, friction, pressure, chemical action, magnetism and motion.	**1**	**1**	**1**
3.5 DC Sources of Electricity Construction and basic chemical action of: primary cells, secondary cells, lead acid cells, nickel cadmium cells, other alkaline cells; Cells connected in series and parallel; Internal resistance and its effect on a battery; Construction, materials and operation of thermocouples; Operation of photo-cells.	**1**	**2**	**2**
3.6 DC Circuits Ohms Law, Kirchoff's Voltage and Current Laws; Calculations using the above laws to find resistance, voltage and current; Significance of the internal resistance of a supply.	**-**	**2**	**2**
3.7 Resistance/Resistor (a) Resistance and affecting factors; Specific resistance; Resistor colour code, values and tolerances, preferred values, wattage rat-	-	2	2

MODULE 3. ELECTRICAL FUNDAMENTALS	LEVEL		
	A	B1	B2
ings; Resistors in series and parallel; Calculation of total resistance using series, parallel and series parallel combinations; Operation and use of potentiometers and rheostats; Operation of Wheatstone Bridge.			
(b) Positive and negative temperature coefficient conductance; Fixed resistors, stability, tolerance and limitations, methods of construction; Variable resistors, thermistors, voltage dependent resistors; Construction of potentiometers and rheostats; Construction of Wheatstone Bridge;	-	1	1
3.8 Power Power, work and energy (kinetic and potential); Dissipation of power by a resistor; Power formula; Calculations involving power, work and energy.	**-**	**2**	**2**
3.9 Capacitance/Capacitor Operation and function of a capacitor; Factors affecting capacitance area of plates, distance between plates, number of plates, dielectric and dielectric constant, working voltage, voltage rating; Capacitor types, construction and function; Capacitor colour coding; Calculations of capacitance and voltage in series and parallel circuits; Exponential charge and discharge of a capacitor, time constants; Testing of capacitors.	**-**	**2**	**2**
3.10 Magnetism			
(a) Theory of magnetism; Properties of a magnet Action of a magnet suspended in the Earth's magnetic field; Magnetisation and demagnetisation; Magnetic shielding; Various types of magnetic material; Electromagnets construction and principles of operation; Hand clasp rules to determine: magnetic field around current carrying conductor.	-	2	2
(b) Magnetomotive force, field strength, magnetic flux density, permeability, hysteresis loop, retentivity, coercive force reluctance, saturation point, eddy currents;	-	2	2

MODULE 3. ELECTRICAL FUNDAMENTALS	LEVEL		
	A	B1	B2
Precautions for care and storage of magnets.			
3.11 Inductance/Inductor Faraday's Law; Action of inducing a voltage in a conductor moving in a magnetic field; Induction principles; Effects of the following on the magnitude of an induced voltage: magnetic field strength, rate of change of flux, number of conductor turns; Mutual induction; The effect the rate of change of primary current and mutual inductance has on induced voltage; Factors affecting mutual inductance: number of turns in coil, physical size of coil, permeability of coil, position of coils with respect to each other; Lenz's Law and polarity determining rules; Back emf, self induction; Saturation point; Principle uses of inductors;	-	2	2
3.12 DC Motor/Generator Theory Basic motor and generator theory; Construction and purpose of components in DC generator; Operation of, and factors affecting output and direction of current flow in DC generators; Operation of, and factors affecting output power, torque, speed and direction of rotation of DC motors; Series wound, shunt wound and compound motors; Starter Generator construction.	-	2	2
3.13 AC Theory Sinusoidal waveform: phase, period, frequency, cycle; Instantaneous, average, root mean square, peak, peak to peak current values and calculations of these values, in relation to voltage, current and power Triangular/Square waves; Single/3 phase principles.	1	2	2
3.14 Resistive (R), Capacitive (C) and Inductive (L) Circuits Phase relationship of voltage and current in L, C and R circuits, parallel, series and series parallel; Power dissipation in L, C and R circuits; Impedance, phase angle, power factor and current calculations; True power, apparent power and reactive power calculations.	-	2	2
3.15 Transformers Transformer construction principles and operation;	-	2	2

MODULE 3. ELECTRICAL FUNDAMENTALS	LEVEL		
	A	B1	B2
Transformer losses and methods for overcoming them; Transformer action under load and no-load conditions; Power transfer, efficiency, polarity markings; Calculation of line and phase voltages and currents; Calculation of power in a three phase system; Primary and Secondary current, voltage, turns ratio, power, efficiency; Auto transformers.			
3.16 Filters Operation, application and uses of the following filters: low pass, high pass, band pass, band stop.	**-**	**1**	**1**
3.17 AC Generators Rotation of loop in a magnetic field and waveform produced; Operation and construction of revolving armature and revolving field type AC generators; Single phase, two phase and three phase alternators; Three phase star and delta connections advantages and uses; Permanent Magnet Generators.	**-**	**2**	**2**
3.18 AC Motors Construction, principles of operation and characteristics of: AC synchronous and induction motors both single and polyphase; Methods of speed control and direction of rotation; Methods of producing a rotating field: capacitor, inductor, shaded or split pole.	**-**	**2**	**2**

MODULE 4. ELECTRONIC FUNDAMENTALS	LEVEL		
	A	B1	B2
4.1 Semiconductors			
4.1.1 Diodes			
(a) Diode symbols; Diode characteristics and properties; Diodes in series and parallel; Main characteristics and use of silicon controlled rectifiers (thyristors), light emitting diode, photo conductive diode, varistor, rectifier diodes; Functional testing of diodes.	-	2	2
(b) Materials, electron configuration, electrical properties; P and N type materials: effects of impurities on conduction, majority and minority characters;	-	-	2

MODULE 4. ELECTRONIC FUNDAMENTALS	LEVEL		
	A	B1	B2
PN junction in a semiconductor, development of a potential across a PN junction in unbiased, forward biased and reverse biased conditions; Diode parameters: peak inverse voltage, maximum forward current, temperature, frequency, leakage current, power dissipation; Operation and function of diodes in the following circuits: clippers, clampers, full and half wave rectifiers, bridge rectifiers, voltage doublers and triplers; Detailed operation and characteristics of the following devices: silicon controlled rectifier (thyristor), light emitting diode, Shottky diode, photo conductive diode, varactor diode, varistor, rectifier diodes, Zener diode.			
4.1.2 Transistors			
(a) Transistor symbols; Component description and orientation; Transistor characteristics and properties.	-	1	2
(b) Construction and operation of PNP and NPN transistors; Base, collector and emitter configurations; Testing of transistors. Basic appreciation of other transistor types and their uses. Application of transistors: classes of amplifier (A, B, C); Simple circuits including: bias, decoupling, feedback and stabilisation; Multistage circuit principles: cascades, push-pull, oscillators, multivibrators, flip-flop circuits.	-	-	2
4.1.3 Integrated Circuits			
(a) Description and operation of logic circuits and linear circuits/operational amplifiers.	-	1	-
(b) Description and operation of logic circuits and linear circuits; Introduction to operation and function of an operational amplifier used as: integrator, differentiator, voltage follower, comparator; Operation and amplifier stages connecting methods: resistive capacitive, inductive (transformer), inductive resistive (IR), direct; Advantages and disadvantages of positive and negative feedback.	-	-	2
4.2 Printed Circuit Boards Description and use of printed circuit boards.	**-**	**1**	**2**
4.3 Servomechanisms			
(a) Understanding of the following terms: Open and closed loop systems, feedback, follow up, analogue transducers;	-	1	-

MODULE 4. ELECTRONIC FUNDAMENTALS	LEVEL		
	A	B1	B2
Principles of operation and use of the following synchro system components/features: resolvers, differential, control and torque, transformers, inductance and capacitance transmitters.			
(b)	-	-	2
Understanding of the following terms: Open and closed loop, follow up, servomechanism, analogue, transducer, null, damping, feedback, deadband;			
Construction operation and use of the following synchro system components: resolvers, differential, control and torque, E and I transformers, inductance transmitters, capacitance transmitters, synchronous transmitters;			
Servomechanism defects, reversal of synchro leads, hunting.			

MODULE 5. DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS	LEVEL			
	A	B1.1 B1.3	B1.2 B1.4	B2
5.1 Electronic Instrument Systems	**1**	**2**	**2**	**3**
Typical systems arrangements and cockpit layout of electronic instrument systems.				
5.2 Numbering Systems	**-**	**1**	**-**	**2**
Numbering systems: binary, octal and hexadecimal;				
Demonstration of conversions between the decimal and binary, octal and hexadecimal systems and vice versa.				
5.3 Data Conversion	**-**	**1**	**-**	**2**
Analogue Data, Digital Data; Operation and application of analogue to digital, and digital to analogue converters, inputs and outputs, limitations of various types.				
5.4 Data Buses	**-**	**2**	**-**	**2**
Operation of data buses in aircraft systems, including knowledge of ARINC and other specifications.				
5.5 Logic Circuits				
(a)	-	2	-	2
Identification of common logic gate symbols, tables and equivalent circuits;				
Applications used for aircraft systems, schematic diagrams.				
(b)Interpretation of logic diagrams.	-	-	-	2
5.6 Basic Computer Structure				
(a)	1	2	-	-
Computer terminology (including bit, byte, software, hardware, CPU, IC, and various memory devices such as RAM, ROM, PROM);				
Computer technology (as applied in aircraft systems).				

MODULE 5. DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS	LEVEL			
	A	B1.1 B1.3	B1.2 B1.4	B2
(b) Computer related terminology; Operation, layout and interface of the major components in a micro computer including their associated bus systems; Information contained in single and multiaddress instruction words; Memory associated terms; Operation of typical memory devices; Operation, advantages and disadvantages of the various data storage systems.	-	-	-	2
5.7 Microprocessors Functions performed and overall operation of a microprocessor; Basic operation of each of the following microprocessor elements: control and processing unit, clock, register, arithmetic logic unit.	-	-	-	2
5.8 Integrated Circuits Operation and use of encoders and decoders Function of encoder types Uses of medium, large and very large scale integration.	-	-	-	2
5.9 Multiplexing Operation, application and identification in logic diagrams of multi-plexers and demultiplexers.	-	-	-	2
5.10 Fibre Optics Advantages and disadvantages of fibre optic data transmission over electrical wire propagation; Fibre optic data bus; Fibre optic related terms; Terminations; Couplers, control terminals, remote terminals; Application of fibre optics in aircraft systems.	-	1	1	2
5.11 Electronic Displays Principles of operation of common types of displays used in modern aircraft, including Cathode Ray Tubes, Light Emitting Diodes and Liquid Crystal Display.	-	2	-	2
5.12 Electrostatic Sensitive Devices Special handling of components sensitive to electrostatic discharges; Awareness of risks and possible damage, component and personnel anti-static protection devices.	1	2	2	2

MODULE 5. DIGITAL TECHNIQUES ELECTRONIC INSTRUMENT SYSTEMS	LEVEL			
	A	B1.1 B1.3	B1.2 B1.4	B2
5.13 Software Management Control Awareness of restrictions, airworthiness requirements and possible catastrophic effects of unapproved changes to software programmes.	-	2	1	2
5.14 Electromagnetic Environment Influence of the following phenomena on maintenance practices for electronic system: EMC-Electromagnetic Compatibility EMI-Electromagnetic Interference HIRF-High Intensity Radiated Field Lightning/lightning protection	-	2	2	2
5.15 Typical Electronic/Digital Aircraft Systems General arrangement of typical electronic/digital aircraft systems and associated BITE (Built In Test Equipment) testing such as: ACARS-ARINC Communication and Addressing and Reporting System ECAM-Electronic Centralised Aircraft Monitoring EFIS-Electronic Flight Instrument System EICAS-Engine Indication and Crew Alerting System FBW-Fly by Wire FMS-Flight Management System GPS-Global Positioning System	-	2	2	2

MODULE 6. MATERIALS AND HARDWARE	LEVEL		
	A	B1	B2
6.1 Aircraft Materials — Ferrous			
(a) Characteristics, properties and identification of common alloy steels used in aircraft; Heat treatment and application of alloy steels;	1	2	1
(b) Testing of ferrous materials for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.2 Aircraft Materials — Non-Ferrous			
(a) Characteristics, properties and identification of common non-ferrous materials used in aircraft; Heat treatment and application of non-ferrous materials;	1	2	1

MODULE 6. MATERIALS AND HARDWARE	LEVEL		
	A	B1	B2
(b) Testing of non-ferrous material for hardness, tensile strength, fatigue strength and impact resistance.	-	1	1
6.3 Aircraft Materials - Composite and Non- Metallic			
6.3.1 Composite and non-metallic other than wood and fabric			
(a) Characteristics, properties and identification of common composite and non-metallic materials, other than wood, used in aircraft; Sealant and bonding agents.	1	2	2
(b) The detection of defects/deterioration in composite and non-metallic material. Repair of composite and non-metallic material.	1	2	-
6.3.2 Wooden structures Construction methods of wooden airframe structures; Characteristics, properties and types of wood and glue used in aeroplanes; Preservation and maintenance of wooden structure; Types of defects in wood material and wooden structures; The detection of defects in wooden structure; Repair of wooden structure.	**1**	**2**	**-**
6.3.3 Fabric covering Characteristics, properties and types of fabrics used in aeroplanes; Inspections methods for fabric; Types of defects in fabric; Repair of fabric covering.	**1**	**2**	**-**
6.4 Corrosion			
(a) Chemical fundamentals; Formation by, galvanic action process, microbiological, stress;	1	1	1
(b) Types of corrosion and their identification; Causes of corrosion; Material types, susceptibility to corrosion.	2	3	2
6.5 Fasteners			
6.5.1 Screw threads Screw nomenclature; Thread forms, dimensions and tolerances for standard threads used in aircraft; Measuring screw threads;	**2**	**2**	**2**

MODULE 6. MATERIALS AND HARDWARE	LEVEL		
	A	B1	B2
6.5.2 Bolts, studs and screws Bolt types: specification, identification and marking of aircraft bolts, international standards; Nuts: self locking, anchor, standard types; Machine screws: aircraft specifications; Studs: types and uses, insertion and removal; Self tapping screws, dowels.	**2**	**2**	**2**
6.5.3 Locking devices Tab and spring washers, locking plates, split pins, palnuts, wire locking, quick release fasteners, keys, circlips, cotter pins.	**2**	**2**	**2**
6.5.4 Aircraft rivets Types of solid and blind rivets: specifications and identification, heat treatment.	**1**	**2**	**1**
6.6 Pipes and Unions			
(a) Identification of, and types of rigid and flexible pipes and their connectors used in aircraft;	2	2	2
(b) Standard unions for aircraft hydraulic, fuel, oil, pneumatic and air system pipes.	2	2	1
6.7 Springs Types of springs, materials, characteristics and applications.	**-**	**2**	**1**
6.8 Bearings Purpose of bearings, loads, material, construction; Types of bearings and their application.	**1**	**2**	**2**
6.9 Transmissions Gear types and their application; Gear ratios, reduction and multiplication gear systems, driven and driving gears, idler gears, mesh patterns; Belts and pulleys, chains and sprockets.	**1**	**2**	**2**
6.10 Control Cables Types of cables; End fittings, turnbuckles and compensation devices; Pulleys and cable system components; Bowden cables; Aircraft flexible control systems.	**1**	**2**	**1**

MODULE 6. MATERIALS AND HARDWARE	LEVEL		
	A	B1	B2
6.11 Electrical Cables and Connectors Cable types, construction and characteristics; High tension and co-axial cables; Crimping; Connector types, pins, plugs, sockets, insulators, current and voltage rating, coupling, identification codes.	1	2	2

MODULE 7. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2
7.1 Safety Precautions-Aircraft and Workshop Aspects of safe working practices including precautions to take when working with electricity, gases especially oxygen, oils and chemicals. Also, instruction in the remedial action to be taken in the event of a fire or another accident with one or more of these hazards including knowledge on extinguishing agents.	3	3	3
7.2 Workshop Practices Care of tools, control of tools, use of workshop materials; Dimensions, allowances and tolerances, standards of workmanship; Calibration of tools and equipment, calibration standards.	3	3	3
7.3 Tools Common hand tool types; Common power tool types; Operation and use of precision measuring tools; Lubrication equipment and methods. Operation, function and use of electrical general test equipment;	3	3	3
7.4 Avionic General Test Equipment Operation, function and use of avionic general test equipment.	-	2	3
7.5 Engineering Drawings, Diagrams and Standards Drawing types and diagrams, their symbols, dimensions, tolerances and projections; Identifying title block information Microfilm, microfiche and computerised presentations; Specification 100 of the Air Transport Association (ATA) of America; Aeronautical and other applicable standards including ISO, AN, MS, NAS and MIL; Wiring diagrams and schematic diagrams.	1	2	2

MODULE 7. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2
7.6 Fits and Clearances Drill sizes for bolt holes, classes of fits; Common system of fits and clearances; Schedule of fits and clearances for aircraft and engines; Limits for bow, twist and wear; Standard methods for checking shafts, bearings and other parts.	**1**	**2**	**1**
7.7 Electrical Wiring Interconnection System (EWIS) Continuity, insulation and bonding techniques and testing; Use of crimp tools: hand and hydraulic operated; Testing of crimp joints; Connector pin removal and insertion; Co-axial cables: testing and installation precautions; Identification of wire types, their inspection criteria and damage tolerance. Wiring protection techniques: Cable looming and loom support, cable clamps, protective sleeving techniques including heat shrink wrapping, shielding. EWIS installations, inspection, repair, maintenance and cleanliness standards.	**1**	**3**	**3**
7.8 Riveting Riveted joints, rivet spacing and pitch; Tools used for riveting and dimpling; Inspection of riveted joints.	**1**	**2**	**-**
7.9 Pipes and Hoses Bending and belling/flaring aircraft pipes; Inspection and testing of aircraft pipes and hoses; Installation and clamping of pipes.	**1**	**2**	**-**
7.10 Springs Inspection and testing of springs.	**1**	**2**	**-**
7.11 Bearings Testing, cleaning and inspection of bearings; Lubrication requirements of bearings; Defects in bearings and their causes.	**1**	**2**	**-**
7.12 Transmissions Inspection of gears, backlash; Inspection of belts and pulleys, chains and sprockets; Inspection of screw jacks, lever devices, push-pull rod systems.	**1**	**2**	**-**
7.13 Control Cables Swaging of end fittings;	**1**	**2**	**-**

MODULE 7. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2
Inspection and testing of control cables; Bowden cables; aircraft flexible control systems.			
7.14 Material handling			
7.14.1 Sheet Metal	**-**	**2**	**-**
Marking out and calculation of bend allowance; Sheet metal working, including bending and forming; Inspection of sheet metal work.			
7.14.2 Composite and non-metallic	**-**	**2**	**-**
Bonding practices; Environmental conditions Inspection methods			
7.15 Welding, Brazing, Soldering and Bonding			
(a)	-	2	2
Soldering methods; inspection of soldered joints.			
(b)	-	2	-
Welding and brazing methods; Inspection of welded and brazed joints; Bonding methods and inspection of bonded joints.			
7.16 Aircraft Weight and Balance			
(a)	-	2	2
Centre of Gravity/Balance limits calculation: use of relevant documents;			
(b)	-	2	-
Preparation of aircraft for weighing; Aircraft weighing;			
7.17 Aircraft Handling and Storage	**2**	**2**	**2**
Aircraft taxiing/towing and associated safety precautions;			
Aircraft jacking, chocking, securing and associated safety precautions; Aircraft storage methods; Refuelling/defuelling procedures; De-icing/anti-icing procedures; Electrical, hydraulic and pneumatic ground supplies. Effects of environmental conditions on aircraft handling and operation.			
7.18 Disassembly, Inspection, Repair and Assembly Techniques			
(a)	2	3	2
Types of defects and visual inspection techniques. Corrosion removal, assessment and reprotection.			
(b)	-	2	-
General repair methods, Structural Repair Manual;			

MODULE 7. MAINTENANCE PRACTICES	LEVEL		
	A	B1	B2
Ageing, fatigue and corrosion control programmes;			
(c)	-	2	1
Non destructive inspection techniques including, penetrant, radiographic, eddy current, ultrasonic and boroscope methods.			
(d)	2	2	2
Disassembly and re-assembly techniques.			
(e)	-	2	2
Trouble shooting techniques			
7.19 Abnormal Events			
(a)	2	2	2
Inspections following lightning strikes and HIRF penetration.			
(b)	2	2	-
Inspections following abnormal events such as heavy landings and flight through turbulence.			
7.20 Maintenance Procedures	**1**	**2**	**2**
Maintenance planning;			
Modification procedures;			
Stores procedures;			
Certification/release procedures;			
Interface with aircraft operation;			
Maintenance Inspection/Quality Control/Quality Assurance;			
Additional maintenance procedures.			
Control of life limited components			

MODULE 8. BASIC AERODYNAMICS	LEVEL		
	A	B1	B2
8.1 Physics of the Atmosphere	**1**	**2**	**2**
International Standard Atmosphere (ISA), application to aerodynamics.			
8.2 Aerodynamics	**1**	**2**	**2**
Airflow around a body;			
Boundary layer, laminar and turbulent flow, free stream flow, relative airflow, upwash and downwash, vortices, stagnation;			
The terms: camber, chord, mean aerodynamic chord, profile (parasite) drag, induced drag, centre of pressure, angle of attack, wash in and wash out, fineness ratio, wing shape and aspect ratio;			
Thrust, Weight, Aerodynamic Resultant;			
Generation of Lift and Drag: Angle of Attack, Lift coefficient,			
Drag coefficient, polar curve, stall;			
Aerofoil contamination including ice, snow, frost.			

8.3 Theory of Flight Relationship between lift, weight, thrust and drag; Glide ratio; Steady state flights, performance; Theory of the turn; Influence of load factor: stall, flight envelope and structural limitations; Lift augmentation.	**1**	**2**	**2**
8.4 Flight Stability and Dynamics Longitudinal, lateral and directional stability (active and passive).	**1**	**2**	**2**

MODULE 9. HUMAN FACTORS	**LEVEL**		
	A	**B1**	**B2**
9.1 General The need to take human factors into account; Incidents attributable to human factors/human error; 'Murphy's' law.	**1**	**2**	**2**
9.2 Human Performance and Limitations Vision; Hearing; Information processing; Attention and perception; Memory; Claustrophobia and physical access.	**1**	**2**	**2**
9.3 Social Psychology Responsibility: individual and group; Motivation and de-motivation; Peer pressure; 'Culture' issues; Team working; Management, supervision and leadership	**1**	**1**	**1**
9.4 Factors Affecting Performance Fitness/health; Stress: domestic and work related; Time pressure and deadlines; Workload: overload and underload; Sleep and fatigue, shiftwork; Alcohol, medication, drug abuse.	**2**	**2**	**2**
9.5 Physical Environment Noise and fumes; Illumination;	**1**	**1**	**1**

MODULE 9. HUMAN FACTORS	LEVEL		
	A	B1	B2
Climate and temperature; Motion and vibration; Working environment.			
9.6 Tasks Physical work; Repetitive tasks; Visual inspection; Complex systems.	**1**	**1**	**1**
9.7 Communication Within and between teams; Work logging and recording; Keeping up to date, currency; Dissemination of information.	**2**	**2**	**2**
9.8 Human Error Error models and theories; Types of error in maintenance tasks; Implications of errors (i.e accidents) Avoiding and managing errors.	**1**	**2**	**2**
9.9 Hazards in the Workplace Recognising and avoiding hazards; Dealing with emergencies.	**1**	**2**	**2**

MODULE 10. AVIATION LEGISLATION	LEVEL		
	A	B1	B2
10.1 Regulatory Framework Role of International Civil Aviation Organisation; The Aircraft Act and Rules made there under Role of the DGCA; Relationship between CAR-21, CAR-M, CAR-145, CAR-66, The Aircraft Rules (Applicable to Aircraft Maintenance and Release) Aeronautical Information Circulars (Applicable to Aircraft Maintenance and Release) CAR Sections 1 and 2	**1**	**1**	**1**
10.2 CAR-66 Certifying Staff - Maintenance Detailed understanding of CAR-66.	**2**	**2**	**2**
10.3 CAR-145 — Approved Maintenance Organisations Detailed understanding of CAR-145.	**2**	**2**	**2**

MODULE 10. AVIATION LEGISLATION	LEVEL		
	A	B1	B2
10.4 Aircraft Operations Commercial Air Transport/Commercial Operations Air Operators Certificates; Operators Responsibilities, in particular regarding continuing airworthiness and maintenance; Documents to be carried on board; Aircraft Placarding (Markings);	**1**	**1**	**1**
10.5 Aircraft Certification			
(a) General Certification rules: such as FAA & EACS 23/25/27/29; Type Certification; Supplemental Type Certification; CAR-21 Design/Production Organisation Approvals. Aircraft Modifications and repairs approval and certification Permit to fly requirements	-	1	1
(b) Documents Certificate of Airworthiness; Certificate of Registration; Noise Certificate; Weight Schedule; Radio Station Licence and Approval.	-	2	2
10.6 CAR-M Detailed understanding of CAR-M.	**2**	**2**	**2**
10.7 Applicable National and International Requirements			
(a) Maintenance Programme, Maintenance checks and inspections; Master Minimum Equipment Lists, Minimum Equipment List, Dispatch Deviation Lists; Airworthiness Directives; Service Bulletins, manufacturers service information; Modifications and repairs; Maintenance documentation: maintenance manuals, structural repair manual, illustrated parts catalogue, etc.;	1	2	2
(b) Continuing airworthiness; Test flights; ETOPS, maintenance and dispatch requirements; RVSM, maintenance and dispatch requirements RNP, MNPS Operations All Weather Operations, Category 2/3 operations and minimum equipment requirements.	-	1	1

MODULE 10. AVIATION LEGISLATION	LEVEL		
	A	B1	B2
10.8 Safety Management System State Safety Programme Basic Safety Concepts Hazards & Safety Risks SMS Operation SMS Safety performance Safety Assurance	**2**	**2**	**2**
10.9 Fuel Tank Safety Special Federal Aviation Regulations (SFARs) from 14 CFR SFAR 88 of the FAA and of JAA TGL 47 Concept of CDCCL, Airworthiness Limitations Items (ALI)	2	2	2

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
11.1 Theory of Flight		
11.1.1 Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers; — pitch control: elevators, stabilators, variable incidence stabilisers and canards; — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels;	1	2
11.1.2 High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number, compressibility buffet, shock wave, aerodynamic heating, area rule; Factors affecting airflow in engine intakes of high speed aircraft; Effects of sweepback on critical Mach number.	1	2
11.2 Airframe Structures — General Concepts		
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts;	2	2

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision. Aircraft bonding		
(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding Methods of surface protection, such as chromating, anodising, painting; Surface cleaning. Airframe symmetry: methods of alignment and symmetry checks.	1	2
11.3 Airframe Structures — Aeroplanes		
11.3.1 Fuselage (ATA 52/53/56) Construction and pressurisation sealing; Wing, stabiliser, pylon and undercarriage attachments; Seat installation and cargo loading system; Doors and emergency exits: construction, mechanisms, operation and safety devices; Windows and windscreen construction and mechanisms.	1	2
11.3.2 Wings (ATA 57) Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.	1	2
11.3.3 Stabilisers (ATA 55) Construction; Control surface attachment.	1	2
11.3.4 Flight Control Surfaces (ATA 55/57) Construction and attachment; Balancing — mass and aerodynamic.	1	2
11.3.5 Nacelles/Pylons (ATA 54) Construction; Firewalls; Engine mounts.	1	2

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
11.4 Air Conditioning and Cabin Pressurisation (ATA 21)		
11.4.1 Air supply Sources of air supply including engine bleed, APU and ground cart;	1	2
11.4.2 Air Conditioning Air conditioning systems; Air cycle and vapour cycle machines Distribution systems; Flow, temperature and humidity control system.	1	3
11.4.3 Pressurisation Pressurisation systems; Control and indication including control and safety valves; Cabin pressure controllers.	1	3
11.4.4 Safety and warning devices Protection and warning devices.	1	3
11.5 Instruments/Avionic Systems		
11.5.1 Instrument Systems (ATA 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems; Other aircraft system indication.	1	2
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of; Auto Flight (ATA 22); Communications (ATA 23); Navigation Systems (ATA 34).	1	1
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection. External/Ground power;	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
11.7 Equipment and Furnishings (ATA 25)		
(a) Emergency equipment requirements; Seats, harnesses and belts.	2	2
(b) Cabin lay-out; Equipment lay-out; Cabin Furnishing Installation; Cabin entertainment equipment; Galley installation; Cargo handling and retention equipment; Airstairs.	1	1
11.8 Fire Protection (ATA 26)		
(a) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	1	3
(b) Portable fire extinguisher	1	1
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic, electrical, fly-by-wire; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks systems; Balancing and rigging; Stall protection/warning system.	1	3
11.10 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling; Longitudinal balance fuel systems.	1	3
11.11 Hydraulic Power (ATA 29) System lay-out;	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.		
11.12 Ice and Rain Protection (ATA 30) Ice formation, classification and detection; Anti-icing systems: electrical, hot air and chemical; De-icing systems: electrical, hot air, pneumatic and chemical; Rain repellant; Probe and drain heating. Wiper systems	1	3
11.13 Landing Gear (ATA 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering.	2	3
11.14 Lights (ATA 33) External: navigation, anti-collision, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	2	3
11.15 Oxygen (ATA 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings;	1	3
11.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3

MODULE 11A. TURBINE AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A1	B1.1
11.17 Water/Waste (ATA 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	2	3
11.18 On Board Maintenance Systems (ATA 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	1	2

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVELL	
	A2	B1.2
Note: The scope of this Module should reflect the technology of aeroplanes pertinent to the A2 and B1.2 subcategory.		
11.1 Theory of Flight		
11.1.1 Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers; — pitch control: elevators, stabilators, variable incidence stabilisers and canards; — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices, slots, slats, flaps, flaperons; Drag inducing devices, spoilers, lift dumpers, speed brakes; Effects of wing fences, saw tooth leading edges; Boundary layer control using, vortex generators, stall wedges or leading edge devices; Operation and effect of trim tabs, balance and antibalance (leading) tabs, servo tabs, spring tabs, mass balance, control surface bias, aerodynamic balance panels;	**1**	**2**
11.1.2 High Speed Flight — N/A —	-	-
11.2 Airframe Structures — General Concepts		
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary;	2	2

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVELL	
	A2	B1.2
Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision. Aircraft bonding		
(b)	1	2
Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning, anti-corrosive protection, wing, empennage and engine attachments; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning; Airframe symmetry: methods of alignment and symmetry checks.		
11.3 Airframe Structures — Aeroplanes		
11.3.1 Fuselage (ATA 52/53/56)	**1**	**2**
Construction and pressurisation sealing; Wing, tail-plane pylon and undercarriage attachments; Seat installation; Doors and emergency exits: construction and operation; Window and windscreen attachment.		
11.3.2 Wings (ATA 57)	**1**	**2**
Construction; Fuel storage; Landing gear, pylon, control surface and high lift/drag attachments.		
11.3.3 Stabilisers (ATA 55)	**1**	**2**
Construction; Control surface attachment.		
11.3.4 Flight Control Surfaces (ATA 55/57)	**1**	**2**
Construction and attachment; Balancing — mass and aerodynamic.		
11.3.5 Nacelles/Pylons (ATA 54)		
(a)	1	2
Nacelles/Pylons:		

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVELL	
	A2	B1.2
— Construction; — Firewalls; — Engine mounts.		
11.4 Air Conditioning and Cabin Pressurisation (ATA 21) Pressurisation and air conditioning systems; Cabin pressure controllers, protection and warning devices.	**1**	**3**
11.5 Instruments/Avionic Systems		
11.5.1 Instrument Systems (ATA 31) Pitot static: altimeter, air speed indicator, vertical speed indicator; Gyroscopic: artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Angle of attack indication, stall warning systems. Other aircraft system indication.	**1**	**2**
11.5.2 Avionic Systems Fundamentals of system lay-outs and operation of: — Auto Flight (ATA 22); — Communications (ATA 23); — Navigation Systems (ATA 34).	**1**	**1**
11.6 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; Voltage regulation; Power distribution; Circuit protection; Inverters, transformers.	**1**	**3**
11.7 Equipment and Furnishings (ATA 25)		
(a) Emergency equipment requirements; Seats, harnesses and belts.	2	2
(b) Cabin lay-out; Equipment lay-out; Cabin Furnishing Installation (level 2); Cabin entertainment equipment; Galley installation;	1	1

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVELL	
	A2	B1.2
Cargo handling and retention equipment; Airstairs.		
11.8 Fire Protection (ATA 26)		
(a) Fire extinguishing systems; Fire and smoke detection and warning systems; System tests.	1	3
(b) Portable fire extinguisher.	1	3
11.9 Flight Controls (ATA 27) Primary controls: aileron, elevator, rudder; Trim tabs; High lift devices; System operation: manual; Gust locks; Balancing and rigging; Stall warning system.	**1**	**3**
11.10 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	**1**	**3**
11.11 Hydraulic Power (ATA 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical; Pressure Control; Power distribution; Indication and warning systems.	**1**	**3**
11.12 Ice and Rain Protection (ATA 30) Ice formation, classification and detection; De-icing systems: electrical, hot air, pneumatic and chemical; Probe and drain heating; Wiper systems.	**1**	**3**

MODULE 11B. PISTON AEROPLANE AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVELL	
	A2	B1.2
11.13 Landing Gear (ATA 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, brakes, antiskid and autobraking; Tyres; Steering.	2	3
11.14 Lights (ATA 33) External: navigation, anti collision, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	2	2
11.15 Oxygen (ATA 35) System lay-out: cockpit, cabin; Sources, storage, charging and distribution; Supply regulation; Indications and warnings;	1	3
11.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine/APU, compressors, reservoirs, ground supply; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	1	3
11.17 Water/Waste (ATA 38) Water system lay-out, supply, distribution, servicing and draining; Toilet system lay-out, flushing and servicing; Corrosion aspects.	2	3

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
12.1 Theory of Flight — Rotary Wing Aerodynamics Terminology; Effects of gyroscopic precession; Torque reaction and directional control; Dissymmetry of lift, Blade tip stall; Translating tendency and its correction; Coriolis effect and compensation; Vortex ring state, power settling, overpitching;	1	2

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
Auto-rotation; Ground effect.		
12.2 Flight Control Systems Cyclic control; Collective control; Swashplate; Yaw control: Anti-Torque Control, Tail rotor, bleed air; Main Rotor Head: Design and Operation features; Blade Dampers: Function and construction; Rotor Blades: Main and tail rotor blade construction and attachment; Trim control, fixed and adjustable stabilisers; System operation: manual, hydraulic, electrical and flyby-wire; Artificial feel; Balancing and Rigging.	**2**	**3**
12.3 Blade Tracking and Vibration Analysis Rotor alignment; Main and tail rotor tracking; Static and dynamic balancing; Vibration types, vibration reduction methods; Ground resonance.	**1**	**3**
12.4 Transmissions Gear boxes, main and tail rotors; Clutches, free wheel units and rotor brake. Tail rotor drive shafts, flexible couplings, bearings, vibration dampers and bearing hangers	**1**	**3**
12.5 Airframe Structures		
(a) Airworthiness requirements for structural strength; Structural classification, primary, secondary and tertiary; Fail safe, safe life, damage tolerance concepts; Zonal and station identification systems; Stress, strain, bending, compression, shear, torsion, tension, hoop stress, fatigue; Drains and ventilation provisions; System installation provisions; Lightning strike protection provision.	2	2
(b) Construction methods of: stressed skin fuselage, formers, stringers, longerons, bulkheads, frames, doublers, struts, ties, beams, floor structures, reinforcement, methods of skinning and anti-corrosive protection.	1	2

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
Pylon, stabiliser and undercarriage attachments; Seat installation; Doors: construction, mechanisms, operation and safety devices; Windows and windscreen construction; Fuel storage; Firewalls; Engine mounts; Structure assembly techniques: riveting, bolting, bonding; Methods of surface protection, such as chromating, anodising, painting; Surface cleaning. Airframe symmetry: methods of alignment and symmetry checks.		
12.6 Air Conditioning (ATA 21)		
12.6.1 Air supply Sources of air supply including engine bleed and ground cart;	**1**	**2**
12.6.2 Air Conditioning Air conditioning systems; Distribution systems; Flow and temperature control systems; Protection and warning devices.	**1**	**3**
12.7 Instruments/Avionic Systems		
12.7.1 Instrument Systems (ATA 31) Pitot static:altimeter, air speed indicator, vertical speed indicator; Gyroscopic:artificial horizon, attitude director, direction indicator, horizontal situation indicator, turn and slip indicator, turn coordinator; Compasses: direct reading, remote reading; Vibration indicating systems — HUMS; Other aircraft system indication.	**1**	**2**
12.7.2 Avionic Systems Fundamentals of system layouts and operation of: Auto Flight (ATA 22); Communications (ATA 23); Navigation Systems (ATA 34).	**1**	**1**
12.8 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation, AC power generation; Emergency power generation; Voltage regulation, Circuit protection.	**1**	**3**

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
Power distribution; Inverters, transformers, rectifiers; External/Ground power.		
12.9 Equipment and Furnishings (ATA 25)		
(a) Emergency equipment requirements; Seats, harnesses and belts; Lifting systems.	2	2
(b) Emergency flotation systems; Cabin lay-out, cargo retention; Equipment lay-out; Cabin Furnishing Installation.	1	1
12.10 Fire Protection (ATA 26) Fire and smoke detection and warning systems; Fire extinguishing systems; System tests.	**1**	**3**
12.11 Fuel Systems (ATA 28) System lay-out; Fuel tanks; Supply systems; Dumping, venting and draining; Cross-feed and transfer; Indications and warnings; Refuelling and defuelling.	**1**	**3**
12.12 Hydraulic Power (ATA 29) System lay-out; Hydraulic fluids; Hydraulic reservoirs and accumulators; Pressure generation: electric, mechanical, pneumatic; Emergency pressure generation; Pressure Control; Power distribution; Indication and warning systems; Interface with other systems.	1	3
12.13 Ice and Rain Protection (ATA 30) Ice formation, classification and detection; Anti-icing and de-icing systems: electrical, hot air and	**1**	**3**

MODULE 12. HELICOPTER AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL	
	A3 A4	B1.3 B1.4
chemical; Rain repellant and removal; Probe and drain heating. Wiper system		
12.14 Landing Gear (ATA 32) Construction, shock absorbing; Extension and retraction systems: normal and emergency; Indications and warning; Wheels, tyres, brakes; Steering; Skids, floats.	**2**	**3**
12.15 Lights (ATA 33) External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	**2**	**3**
12.16 Pneumatic/Vacuum (ATA 36) System lay-out; Sources: engine, compressors, reservoirs, ground supply.; Pressure control; Distribution; Indications and warnings; Interfaces with other systems.	**1**	**3**

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL
	B2
13.1 Theory of Flight	
(a) Aeroplane Aerodynamics and Flight Controls Operation and effect of: — roll control: ailerons and spoilers; — pitch control: elevators, stabilators, variable incidence stabilisers and canards; — yaw control, rudder limiters; Control using elevons, ruddervators; High lift devices: slots, slats, flaps; Drag inducing devices: spoilers, lift dumpers, speed brakes; Operation and effect of trim tabs, servo tabs, control surface bias.	1
(b) High Speed Flight Speed of sound, subsonic flight, transonic flight, supersonic flight, Mach number, critical Mach number.	1

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL B2
(c) Rotary Wing Aerodynamics Terminology; Operation and effect of cyclic, collective and anti-torque controls.	1
13.2 Structures — General Concepts	
(a) Fundamentals of structural systems.	1
(b) Zonal and station identification systems; Electrical bonding; Lightning strike protection provision.	2
13.3 Autoflight (ATA 22) Fundamentals of automatic flight control including working principles and current terminology; Command signal processing; Modes of operation: roll, pitch and yaw channels; Yaw dampers; Stability Augmentation System in helicopters; Automatic trim control; Autopilot navigation aids interface; Autothrottle systems. Automatic Landing Systems: principles and categories, modes of operation, approach, glideslope, land, goaround, system monitors and failure conditions.	**3**
13.4 Communication/Navigation (ATA 23/34) Fundamentals of radio wave propagation, antennas, transmission lines, communication, receiver and transmitter; Working principles of following systems: — Very High Frequency (VHF) communication; — High Frequency (HF) communication; — Audio; — Emergency Locator Transmitters; — Cockpit Voice Recorder; — Very High Frequency omnidirectional range (VOR); — Automatic Direction Finding (ADF); — Instrument Landing System (ILS); — Microwave Landing System (MLS); — Flight Director systems; Distance Measuring Equipment (DME); — Very Low Frequency and hyperbolic navigation (VLF/Omega); — Doppler navigation; — Area navigation, RNAV systems;	**3**

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL B2
— Flight Management Systems; — Global Positioning System (GPS), Global Navigation Satellite Systems (GNSS); — Inertial Navigation System; — Air Traffic Control transponder, secondary surveillance radar; — Traffic Alert and Collision Avoidance System (TCAS); — Weather avoidance radar; — Radio altimeter; — ARINC communication and reporting;	
13.5 Electrical Power (ATA 24) Batteries Installation and Operation; DC power generation; AC power generation; Emergency power generation; Voltage regulation; Power distribution; Inverters, transformers, rectifiers; Circuit protection; External/Ground power.	3
13.6 Equipment and Furnishings (ATA 25) Electronic emergency equipment requirements; Cabin entertainment equipment.	3
13.7 Flight Controls (ATA 27)	
(a) Primary controls: aileron, elevator, rudder, spoiler; Trim control; Active load control; High lift devices; Lift dump, speed brakes; System operation: manual, hydraulic, pneumatic; Artificial feel, Yaw damper, Mach trim, rudder limiter, gust locks. Stall protection systems.	1
(b) System operation: electrical, fly by wire.	2
13.8 Instrument Systems (ATA 31) Classification; Atmosphere;	2

MODULE 13. AIRCRAFT AERODYNAMICS, STRUCTURES AND SYSTEMS	LEVEL B2
Terminology; Pressure measuring devices and systems; Pitot static systems; Altimeters; Vertical speed indicators; Airspeed indicators; Machmeters; Altitude reporting/alerting systems; Air data computers; Instrument pneumatic systems; Direct reading pressure and temperature gauges; Temperature indicating systems; Fuel quantity indicating systems; Gyroscopic principles; Artificial horizons; Slip indicators; Directional gyros; Ground Proximity Warning Systems; Compass systems; Flight Data Recording systems; Electronic Flight Instrument Systems; Instrument warning systems including master warning systems and centralised warning panels; Stall warning systems and angle of attack indicating systems; Vibration measurement and indication.	
13.9 Lights (ATA 33) External: navigation, landing, taxiing, ice; Internal: cabin, cockpit, cargo; Emergency.	3
13.10 On board Maintenance Systems (ATA 45) Central maintenance computers; Data loading system; Electronic library system; Printing; Structure monitoring (damage tolerance monitoring).	2

MODULE 14 PR..OPULSION	LEVEL B2
14.1 Turbine Engines	
(a)	1
Constructional arrangement and operation of turbojet, turbofan, turboshaft and turbopropeller engines;	
(b)	2
Electronic Engine control and fuel metering systems (FADEC).	
14.2 Engine Indicating Systems	**2**
Exhaust gas temperature/Interstage turbine temperature systems;	
Engine speed;	
Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems;	
Oil pressure and temperature;	
Fuel pressure, temperature and flow;	
Manifold pressure;	
Engine torque;	
Propeller speed.	

MODULE 15. GAS TURBINE ENGINE	LEVEL A1 A3	LEVEL B1.1 B1.3
15.1 Fundamentals	**1**	**2**
Potential energy, kinetic energy, Newton's laws of motion, Brayton cycle;		
The relationship between force, work, power, energy, velocity, acceleration;		
Constructional arrangement and operation of turbojet, turbofan, turboshaft, turbo-prop.		
15.2 Engine Performance	**X**	**2**
Gross thrust, net thrust, choked nozzle thrust, thrust distribution, resultant thrust, thrust horsepower, equivalent shaft horsepower, specific fuel consumption;		
Engine efficiencies;		
By-pass ratio and engine pressure ratio;		
Pressure, temperature and velocity of the gas flow;		
Engine ratings, static thrust, influence of speed, altitude and hot climate, flat rating, limitations.		
15.3 Inlet	**2**	**2**
Compressor inlet ducts		
Effects of various inlet configurations;		
Ice protection.		
15.4 Compressors	**1**	**2**
Axial and centrifugal types;		
Constructional features and operating principles and applications;		
Fan balancing;		
Operation:		

MODULE 15. GAS TURBINE ENGINE	LEVEL	
	A1 A3	B1.1 B1.3
Causes and effects of compressor stall and surge; Methods of air flow control: bleed valves, variable inlet guide vanes, variable stator vanes, rotating stator blades; Compressor ratio.		
15.5 Combustion Section Constructional features and principles of operation.	1	2
15.6 Turbine Section Operation and characteristics of different turbine blade types; Blade to disk attachment; Nozzle guide vanes; Causes and effects of turbine blade stress and creep.	2	2
15.7 Exhaust Constructional features and principles of operation; Convergent, divergent and variable area nozzles; Engine noise reduction; Thrust reversers.	1	2
15.8 Bearings and Seals Constructional features and principles of operation.	X	2
15.9 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.		
15.10 Lubrication Systems System operation/lay-out and components.	1	2
15.11 Fuel Systems Operation of engine control and fuel metering systems including electronic engine control (FADEC); Systems lay-out and components.	1	2
15.12 Air Systems Operation of engine air distribution and anti-ice control systems, including internal cooling, sealing and external air services.	1	2
15.13 Starting and Ignition Systems Operation of engine start systems and components; Ignition systems and components; Maintenance safety requirements.	1	2

MODULE 15. GAS TURBINE ENGINE	LEVEL	
	A1 A3	B1.1 B1.3
15.14 Engine Indication Systems Exhaust Gas Temperature/Interstage Turbine Temperature; Engine Thrust Indication: Engine Pressure Ratio, engine turbine discharge pressure or jet pipe pressure systems; Oil pressure and temperature; Fuel pressure and flow; Engine speed; Vibration measurement and indication; Torque; Power.	1	2
15.15 Power Augmentation Systems Operation and applications; Water injection, water methanol; Afterburner systems.	-	1
15.16 Turbo-prop Engines Gas coupled/free turbine and gear coupled turbines; Reduction gears; Integrated engine and propeller controls; Overspeed safety devices.	1	2
15.17 Turbo-shaft engines Arrangements, drive systems, reduction gearing, couplings, control systems.	1	2
15.18 Auxiliary Power Units (APUs) Purpose, operation, protective systems.	1	2
15.19 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	1	2
15.20 Fire Protection Systems Operation of detection and extinguishing systems.	1	2
15.21 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Trend (including oil analysis, vibration and boroscope) monitoring; Inspection of engine and components to criteria, tolerances and data specified by engine manufacturer;	1	3

MODULE 15. GAS TURBINE ENGINE	LEVEL	
	A1 A3	B1.1 B1.3
Compressor washing/cleaning; Foreign Object Damage.		
15.22 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/ systems.	-	2

MODULE 16. PISTON ENGINE	LEVEL	
	A2 A4	B1.2 B1.4
16.1 Fundamentals Mechanical, thermal and volumetric efficiencies; Operating principles — 2 stroke, 4 stroke, Otto and Diesel; Piston displacement and compression ratio; Engine configuration and firing order.	1	2
16.2 Engine Performance Power calculation and measurement; Factors affecting engine power; Mixtures/leaning, pre-ignition.	1	2
16.3 Engine Construction Crank case, crank shaft, cam shafts, sumps; Accessory gearbox; Cylinder and piston assemblies; Connecting rods, inlet and exhaust manifolds; Valve mechanisms; Propeller reduction gearboxes.	1	2
16.4 Engine Fuel Systems		
16.4.1 Carburetors Types, construction and principles of operation; Icing and heating.	1	2
16.4.2 Fuel injection systems Types, construction and principles of operation.	1	2
16.4.3 Electronic engine control Operation of engine control and fuel metering systems including electronic engine control (FADEC); Systems lay-out and components.	1	2
16.5 Starting and Ignition Systems Starting systems, pre-heat systems; Magneto types, construction and principles of operation;	1	2

MODULE 16. PISTON ENGINE	LEVEL A2 A4	LEVEL B1.2 B1.4
Ignition harnesses, spark plugs; Low and high tension systems.		
16.6 Induction, Exhaust and Cooling Systems Construction and operation of: induction systems including alternate air systems; Exhaust systems, engine cooling systems — air and liquid.	**1**	**2**
16.7 Supercharging/Turbocharging Principles and purpose of supercharging and its effects on engine parameters; Construction and operation of supercharging/turbocharging systems; System terminology; Control systems; System protection.	**1**	**2**
16.8 Lubricants and Fuels Properties and specifications; Fuel additives; Safety precautions.	**1**	**2**
16.9 Lubrication Systems System operation/lay-out and components.	**1**	**2**
16.10 Engine Indication Systems Engine speed; Cylinder head temperature; Coolant temperature; Oil pressure and temperature; Exhaust Gas Temperature; Fuel pressure and flow; Manifold pressure.	**1**	**2**
16.11 Powerplant Installation Configuration of firewalls, cowlings, acoustic panels, engine mounts, anti-vibration mounts, hoses, pipes, feeders, connectors, wiring looms, control cables and rods, lifting points and drains.	**1**	**2**
16.12 Engine Monitoring and Ground Operation Procedures for starting and ground run-up; Interpretation of engine power output and parameters; Inspection of engine and components: criteria, tolerances, and data specified by engine manufacturer.	**1**	**3**

MODULE 16. PISTON ENGINE	LEVEL	
	A2 A4	B1.2 B1.4
16.13 Engine Storage and Preservation Preservation and depreservation for the engine and accessories/ systems	-	2

MODULE 17. PROPELLER	LEVEL	
	A1 A2	B1.1 B1.2
17.1 Fundamentals Blade element theory; High/low blade angle, reverse angle, angle of attack, rotational speed; Propeller slip; Aerodynamic, centrifugal, and thrust forces; Torque; Relative airflow on blade angle of attack; Vibration and resonance.	1	2
17.2 Propeller Construction Construction methods and materials used in wooden, composite and metal propellers; Blade station, blade face, blade shank, blade back and hub assembly; Fixed pitch, controllable pitch, constant speeding propeller; Propeller/spinner installation.	1	2
17.3 Propeller Pitch Control Speed control and pitch change methods, mechanical and electrical/electronic; Feathering and reverse pitch; Overspeed protection.	1	2
17.4 Propeller Synchronising Synchronising and synchrophasing equipment.	-	2
17.5 Propeller Ice Protection Fluid and electrical de-icing equipment.	1	2
17.6 Propeller Maintenance Static and dynamic balancing; Blade tracking; Assessment of blade damage, erosion, corrosion, impact damage, delamination; Propeller treatment/repair schemes; Propeller engine running.	1	3
17.7 Propeller Storage and Preservation Propeller preservation and depreservation	1	2

1. Standardization Basis for Examinations

1.1 All basic examinations must be carried out using the multiple choice question.

1.2 Each multiple choice questions must have more than two alternative answers of which only one must be the correct answer and the candidate must be allowed a time per module which is based upon a nominal average of 75 seconds per question.

1.3 The pass mark for CAR-66 module and sub-module multiple choice part of the examination is 75%.

1.4 Penalty marking systems is not used to determine whether a candidate has passed.

1.5 All CAR-66 modules that make up a complete CAR-66 aircraft maintenance engineer's licence category or subcategory must be passed within a time period ***of*** 5 years of passing the first module except in the case specified in paragraph 1.6. A failed module may not be retaken for at least 90 days following the date of the failed module examination, except in the case of an approved maintenance training organisation which conducts a course of retraining tailored to the failed subjects in the particular module. In such case, the failed module may be retaken after 30 days.

1.6 The 5 year time period specified in paragraph 1.5 does not apply to those modules which are common to more than one CAR-66 aircraft maintenance engineer's licence category or subcategory and which were previously passed as part of another such category or subcategory examination.

2. Question Numbers and Examination Duration for the CAR-66 Appendix I Modules

Module		Category	Multiple choice Questions	Time allowed (Minutes)
No.	Subject			
1	Mathematics	All Categories	Not Applicable	
2	Physics	All Categories	Not Applicable	
3	Electrical Fundamentals	A	20	25
		B1	50	65
		B2	50	65
4	Electronic Fundamentals	A	Not Applicable	
		B1	20	25
		B2	40	50
5	Digital Techniques/Electronic	A	16	20

Module		Category	Multiple choice Questions	Time allowed (Minutes)
No.	Subject			
	Instrument Systems	B1.1, B1.3	40	50
		B1.2,B1.4	20	25
		B2	70	90
6	Materials and Hardware	A	50	65
		B1	70	90
		B2	60	75
7	Maintenance Practices	A	70	90
		B1	80	100
		B2	60	75
8	Basic Aerodynamics	A	20	25
		B1	20	25
		B2	20	25
9	Human factors	A	20	25
		B1	20	25
		B2	20	25
10	Aviation Legislation	A	30	40
		B1	40	50
		B2	40	50
11A	Turbine Aeroplane Aerodynamics, Structures and Systems	A1	100	125
		B1.1	130	165
		B2	0	0
11B	Piston Aeroplane Aerodynamics, Structures and Systems	A2	70	90
		B1.2	100	125
		B2	0	0
12	Helicopter Aerodynamics, Structures and Systems	A3 / A4	90	115
		B1.3 / B1.4	115	145
		B2	0	0

Module		Category	Multiple choice Questions	Time allowed (Minutes)
No.	Subject			
13	Aircraft Aerodynamics, Structures and Systems	A	0	0
		B1	0	0
		B2	130	165
14	Propulsion	A	0	0
		B1	0	0
		B2	25	30
15	Gas Turbine Engine	A	60	75
		B1	90	115
		B2	0	0
16	Piston Engine	A	50	65
		B1	70	90
		B2	0	0
17	Propeller	A	20	25
		B1	30	40
		B2	0	0

3. ISSUANCE OF CERTIFICATE

Applicants who have passed all basic knowledge examination modules in respect of a particular category/ sub-category of AME licence may apply to CEO, DGCA on Form CA 19-11 for the issuance of Basic Knowledge Examination Certificate.

Appendix III - Type training and Examination Standard

1. Type training levels

The three levels listed below define the objectives that a particular level of training is intended to achieve.

Level 1 General familiarization

A brief overview of the airframe, systems and powerplants as outlined in the Systems Description Section of the Aircraft Maintenance Manual.

1. Course objectives: Upon completion of the course, the student will be able to identify safety precautions related to the airframe, its systems and powerplant.
2. Identify maintenance practices important to the airframe, its systems and powerplant.
3. Define the general layout of the aircraft's major systems.
4. Define the general layout and characteristics of the powerplant.
5. Identify special tooling and test equipment used with the aircraft.

Level 2 Ramp and transit

Basic system overview of controls, indicators, principal components including their location and purpose, servicing and minor troubleshooting.

Course objectives: In addition to the information contained in the Level 1 General Familiarization course, at the completion of this Level 2 Ramp and Transit training, the student will be able to:

1. Recall the safety precautions to be observed when working on or near the aircraft, powerplant and systems.
2. Demonstrate knowledge of the main ramp and transit (through-flight) activities of the following:
   (a) Doors, windows and hatches.
   (b) Electrical power supplies.
   (c) Fuel.
   (d) Auxiliary power unit.
   (e) Powerplant.
   (f) Fire protection.
   (g) Environmental Control Systems.
   (h) Hydraulic power.
   (i) Landing gear.
   (j) Flight controls.
   (k) Water/waste.
   (l) Oxygen.

(m) Flight and service interphone.
(n) Avionics.
(o) Cabin equipment/furnishings.

3. Describe systems and aircraft handling particularly access, power availability and sources.
4. Identify the locations of the principal components.
5. Explain the normal functioning of each major system, including terminology and nomenclature.
6. Perform the procedures for ramp and transit servicing associated with the aircraft for the following systems: Fuel, Power Plants, Hydraulics, Landing Gear, Water/Waste, Oxygen.
7. Demonstrate proficiency in use of crew reports and on-board reporting systems (minor troubleshooting) and determine aircraft airworthiness per the MEL/CDL.
8. Identify and use appropriate documentation.
9. Locate those procedures for replacement of components for ramp and transit activities identified in objective 2.

Level 3 Line and base maintenance training

Detailed description, operation, component location, removal/installation and bite and troubleshooting procedures to maintenance manual level.

Course objectives: In addition to the information contained in Level 1 and Level 2 training, at the completion of Level III Line and Base Maintenance training, the student will be able to:

(a) Perform system, engine, component and functional checks as specified in the maintenance manual.
(b) Correlate information for the purpose of making decisions in respect of fault diagnosis and rectification to maintenance manual level.
(c) Describe procedures for replacement of components unique to aircraft type.

2. Type training standard

Type training must include a theoretical and practical element.

2.1. Theoretical element

As a minimum the elements in the Syllabus below that are specific to the aircraft type must be covered. Additional elements introduced due to technological changes shall also be included.
Training levels are those levels defined in paragraph 1 above.
Personnel desirous of obtaining Category / Sub-category "A" licence with type rating shall pass appropriate type examination conducted by DGCA or where applicable shall success-

fully complete an approved type training. Under the later circumstances the level of training shall be a level lower than the one described below for a B1 Category type course.

After the first type course for category C certifying staff, all subsequent courses for extension in the same category need only be to level 1.

Introduction Module Title	
General Aircraft(dimensions/weights MTOW etc)	
Time limits/maintenance checks	
Leveling and weighing	
Towing and taxiing	
Parking/mooring	
Servicing	
Standard practices-only type particular	
Fuel tank Safety	
B2 module-safety items/mechanical interface	
B1 module-safety items/avionics interface	

	Aeroplanes Turbine		**Aeroplane Piston**		**Helicopter turbine**		**Helicopter Piston**		**Avionics**
	B1	C	B1	C	B1	C	B1	C	B2
Blade tracking and vibration analysis	–	–	–	–	3	1	3	1	–
Transmissions	–	–	–	–	3	1	3	1	–
Airframe structure	–	–	–	–	3	1	3	1	1
Main rotor	–	–	–	–	3	1	3	1	–
Tail rotor/rotor drive	–	–	–	–	3	1	3	1	–
Rotor flight control	–	–	–	–	3	1	3	1	–
Airframe Structure	3	1	3	1	–	–	–	–	1
Fuselage Doors	3	1	3	1	–	–	–	–	–
Fuselage	3	1	3	1	–	–	–	–	–
Fuselage Windows	3	1	3	1	–	–	–	–	–
Wings	3	1	3	1	–	–	–	–	–
Stabilizers	3	1	3	1	–	–	–	–	–
Flight Control Surfaces	3	1	3	1	–	–	–	–	–
Nacelles/Pylons	3	1	3	1	–	–	–	–	–

	Aeroplanes Turbine		Aeroplane Piston		Helicopter turbine		Helicopter Piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Zonal & Station Identification Systems	1	1	1	1	1	1	1	1	1
Air Supply	3	1	3	1	3	1	3	1	1
Air Conditioning	3	1	3	1	3	1	3	1	1
Pressurization	3	1	–	–	–	–	–	–	1
Safety & Warning Devices	3	1	–	–	–	–	–	–	1
Instrument Systems	3	1	3	1	3	1	3	1	3
Avionics Systems	2	1	2	1	2	1	2	1	3
Electrical Power	3	1	3	1	3	1	3	1	3
Equipment & Furnishings	3	1	3	1	3	1	3	1	–
Electronic Emergency Equip. & Cabin Entertainment Equipment	–	1	–	–	–	–	–	–	3
Fire Protection	3	1	3	1	3	1	3	1	1
Flight Controls	3	1	3	1	3	1	3	1	2
Sys. Operation: Electrical/Fly-by-Wire	3	1	–	–	–	–	–	–	3
Fuel Systems	3	1	3	1	3	1	3	1	1
Hydraulic Power	3	1	3	1	3	1	3	1	1
Ice & Rain Protection	3	1	3	1	3	1	3	1	1
Landing Gear	3	1	3	1	3	1	3	1	1
Lights	3	1	3	1	3	1	3	1	3
Oxygen	3	1	3	1	–	–	–	–	1
Pneumatic/Vacuum	3	1	3	1	3	1	3	1	1
Water/Waste	3	1	3	1	–	–	–	–	1
On-board Maintenance Systems	3	1	3	1	–	–	–	–	3
Turbine Engines:									
Constructional arrangement and operation	–	–	–	–	–	–	–	–	1
Engine Performance	3	1	–	–	3	1	–	–	1
Inlet	3	1	–	–	3	1	–	–	–
Compressors	3	1	–	–	3	1	–	–	–
Combustion Section	3	1	–	–	3	1	–	–	–
Turbine Section	3	1	–	–	3	1	–	–	–
Exhaust	3	1	–	–	3	1	–	–	–
Bearings and Seals	3	1	–	–	3	1	–	–	–

	Aeroplanes Turbine		Aeroplane Piston		Helicopter turbine		Helicopter Piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Lubricants and Fuels	3	1	–	–	3	1	–	–	–
Lubrication Systems	3	1	–	–	3	1	–	–	–
Fuel Systems	3	1	–	–	3	1	–	–	1
Engine controls	3	1	–	–	3	1	–	–	1
FADEC	2	1	–	–	2	1	–	–	3
Air Systems	3	1	–	–	3	1	–	–	–
Starting & Ignition Systems	3	1	–	–	3	1	–	–	–
Engine Indicating Systems	3	1	–	–	3	1	–	–	3
Power Augmentation Systems	3	1	–	–	–	–	–	–	–
Turbo-prop Engines	3	1	–	–	–	–	–	–	–
Turbo-shaft Engines	–	–	–	–	3	1	–	–	–
Auxiliary Power Units (APUs)	3	1	–	–	–	–	–	–	1
Powerplant Installation	3	1	–	–	3	1	–	–	–
Fire Protection Systems	3	1	–	–	3	1	–	–	1
Engine Monitoring and Ground Operation	3	1	–	–	3	1	–	–	–
Engine Storage and Preservation	3	1	–	–	3	1	–	–	–
Piston Engines:									
Engine Performance	–	–	3	1	–	–	3	1	1
Engine Construction	–	–	3	1	–	–	3	1	1
Engine Fuel Systems	–	–	3	1	–	–	3	1	1
Carburetors	–	–	3	1	–	–	3	1	–
Fuel injection systems	–	–	3	1	–	–	3	1	–
Engine controls	3	1	–	–	3	1	–	–	–
FADEC	–	–	2	1	–	–	2	1	3
Starting and Ignition Systems	–	–	3	1	–	–	3	1	–
Induction, Exhaust and Cooling Systems	–	–	3	1	–	–	3	1	–
Supercharging / Turbocharging	–	–	3	1	–	–	3	1	–
Lubricants and Fuels	–	–	3	1	–	–	3	1	–
Lubrication Systems	–	–	3	1	–	–	3	1	–

	Aeroplanes Turbine		Aeroplane Piston		Helicopter turbine		Helicopter Piston		Avionics
	B1	C	B1	C	B1	C	B1	C	B2
Engine Indication Systems	–	–	3	1	–	–	3	1	3
Power plant Installation	–	–	3	1	–	–	3	1	–
Engine Monitoring and Ground Operation	–	–	3	1	–	–	3	1	–
Engine Storage and Preservation	–	–	3	1	–	–	3	1	–
Propellers:									
Propeller — General	3	1	3	1	–	–	–	–	1
Propeller Construction	3	1	3	1	–	–	–	–	–
Propeller Pitch Control	3	1	3	1	–	–	–	–	–
Propeller Synchronizing	3	1	3	1	–	–	–	–	–
Propeller Electronic control	2	1	2	1	–	–	–	–	3
Propeller Ice Protection	3	1	3	1	–	–	–	–	–
Propeller Maintenance	3	1	3	1	–	–	–	–	–

2.2. Practical element

The practical training element must consist of the performance of representative maintenance tasks and their assessment in order to meet the following objectives:

a) Ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, etc, if required.

b) Correctly use all technical literature and documentation for the aircraft.

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

3. Type training examination standard

Where aircraft type training is required, the examination must be written and comply with the following:

1) Format of the examination is of the multiple-choice type. Each multiple-choice question must have more than two alternative answers of which only one must be the correct answer. The time for answering is based upon a nominal average of 120 seconds per level 3 question and 75 seconds per level 1 or 2 question.

2) The examination must be of the closed book type. No reference material is permitted. An exception will be made for the case of examining a B1 or B2 candidate's ability to interpret technical documents.

3) The number of questions must be at least one question per hour of instruction subject to a minimum of two questions per Syllabus subject. DGCA will assess number and level of questions on a sampling basis when approving the course.

4) The examination pass mark is 75%.

5) Penalty marking is not to be used to determine whether a candidate has passed.

6) End of module phase examinations cannot be used as part of the final examination unless they contain the correct number and level of questions required.

4. Type Examination Standard

Where type training is not required, the examination must be oral, written or practical assessment based, or a combination thereof.

Oral examination questions must be open.

Written examination questions must be multiple-choice questions.

Practical assessment must determine a person's competence to perform a task.

Examination subjects must be on a sample of subjects drawn from paragraph 2 type training/examination syllabus, at the indicated level.

The examination must ensure that the following objectives are met:

(a) Properly discuss with confidence the aircraft and its systems.

(b) Ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example troubleshooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, etc, if required.

(c) Correctly use all technical literature and documentation for the aircraft.

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

A written report must be made by the examiner to explain why the candidate has passed or failed.

Appendix IV - Experience requirements for extending a CAR-66 Aircraft Maintenance Engineer's Licence

The table below shows the experience requirements for adding a new category or sub-category to an existing CAR-66 licence.

The experience must be practical maintenance experience on an operating aircraft in the subcategory relevant to the application.

The experience is to be signed by the post holder only and this procedure is to be re-flected in MOE

To:	**A1**	**A2**	**A3**	**A4**	**B1.1**	**B1.2**	**B1.3**	**B1.4**	**B2**
From	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**	**-**
A1	X	6 months	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A2	6 months	X	6 months	6 months	2 years	6 months	2 years	1 year	2 years
A3	6 months	6 months	X	6 months	2 years	1 year	2 years	6 months	2 years
A4	6 months	6 months	6 months	X	2 years	1 years	2 years	6 months	2 years
B1.1	NONE	6 months	6 months	6 months	X	6 months	6 months	6 months	1 year
B1.2	6 months	NONE	6 months	6 months	2 years	X	2 years	6 months	2 years
B1.3	6 months	6 months	NONE	6 months	6 months	6 months	X	6 months	1 year
B1.4	6 months	6 months	6 months	NONE	2 years	6 months	2 years	X	2 years
B2	6 months	6 months	6 months	6 months	1 year	1 year	1 year	1 year	X

Appendix V –Applications and Formats

APPLICATION FOR INITIAL ISSUE OF CAR- 66 AIRCRAFT MAINTENANCE ENGINEER'S LICENCE	DGCA INDIA CA Form 19-01

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

1. PERSONAL DETAILS

CEO Computer No											Affix recent pass-port size photo graph duly at-tested on the front side
*Name in full											
*Date of birth									* Nationality		
*Educational Qualification		* Details of Fees Paid ……									

*Permanent address……

……PIN Code……

*Address for Communication *(if different from above)*……

……PIN Code……

Applicant Contact Phone Number …… E-mail……

Name of the Current Employer……

Contact Phone Number of Employer …… E-mail……

2. *APPLICATION

I wish to apply for initial CAR-66 Aircraft Maintenance Engineer's License as indicated and confirm that the information contained in this form was correct at the time of application (Specify the category A1,A2,A3,A4.. B1.1,B1.2,1.B1.3, B1.4, B2, C and required type ratings as per addendum I to AMC of CAR – 66)

Category/Sub-category of License applied for	**A**	**B**
Mechanical		
Avionic		

3. *DETAILS OF CREDIT SOUGHT

I wish to claim the following credits (if applicable) *Please enclose all relevant certificates:*

Experience credit by virtue of passing approved aircraft maintenance training/Engineering degree examination/ defence experience……

Examination credit due equivalent exam certificates……

4. *SUMMARY OF EXPERIENCE - (Attach additional sheet indicating detail of practical experience obtained in cross representation section of maintenance task as per Addendum II to AMC of CAR 66)

Date		Aircraft Engine(s) and /or Equipment	Organisation	Description of Work
From	To			

5.* Details of basic knowledge certificate if any issued by CEO/DGCA

Category	Sub-category	Modules Passed

5a.* Details of Type Rating courses certificates

Aircraft Type / Series	Engine	Type course approval details

5b. *Details of skill test passed

Aircraft Type / Series	Date of Exam	Name of DGCA office that conducted the test

*Relevant certificates/documents required to be submitted as enclosures in Section 7

6. PHYSICAL DISABILITY / DISORDER (nown Physical disability or disorder	

7.*DECLARATION

I hereby confirm that: i) I apply for initial issue of CAR-66 Aircraft Maintenance Engineer's Licence as indicated and confirm that the information contained in this form was correct at the time of application. ii) I never had a CAR 66 AME Licence issued which was revoked or suspended by DGCA iii) I am not in possession of any other AME Licence issued by DGCA. iv) I did not apply earlier to the office of DGCA for issue of my AME Licence and the request was not turned down.

PLACE		SIGNATURE	
DATE		NAME	

Instruction and Checklist

CHECKLIST 8.DETAILS OF ENCLOSURES			Enclosure No.	Enclosure Page No.	DGCA Remarks Sat/Unsat
A. Certified true copy proof of Date of Birth certificate			I		
B. Certified true copy of 10+2 with Physics, Chemistry, Mathematics or equivalent			II		
C. Certified true copy of Passport or any photo identity card issued by the Government			III		
D. Certified true copy of Course completion from approved aircraft maintenance training organization / Degree in Engineering certificate if applicable / Defence experience certificate and organisation approval certificate			IV		
E. Certified true copies of basic knowledge examination result sheet / certificate if any issued by CEO			V		
Module No.	Session No. passed	Roll No.	-	-	-
3. Electrical Fundamentals			V (3)		
4. Electronic Fundamental			V (4)		
5.Digital Techniques/ Electronic instrument Systems			V (5)		
6. Materials & Hardwares			V (6)		
7. Maintenance Practices			V (7)		
8. Basic Aerodynamics			V (8)		
9. Human Factors			V (9)		
10. Aviation Legislation			V (10)		
11A. Turbine Engine Aeroplane Aerodynamics, Structures and Systems			V (11A)		
11B. Piston Engine Aeroplane Aerodynamics, Structures and Systems			V (11B)		
12. Helicopter Aerodynamics, Structures and Systems			V (12)		
13. Aircraft Aerodynamics, Structures and Systems			V (13)		
14. Propulsion			V (14)		
15. Gas Turbine Engine			V (14)		
16. Piston Engine			V (16)		
17. Propeller			V (17)		
F. Type course examination result sheet, course completion certificate and organisation approval certificate.			VI		
G. Certified true copy of skill test result			VII		
H. Certified true copies of Logbook / Work records on CA form 19-10			VIII		
I. Medical fitness certificate issued by MBBS doctor on CA form 19-06			IX		
J. Two copies of the recent photographs with the name of the applicant on the back side					
K. Fees as specified in Rule 62					

INSTRUCTION TO CA FORM 19-01

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or extension of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable, to administrative/legal action as per Aircraft Rule 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

Please refer to current notification for details of fees required. All original documents if required to be submitted, will be returned through the self addressed cover affixed with necessary postal stamp (Speed post) provided by the applicant.

Completed application with the checklist should be posted along with the required documentation to: The Directorate General of Civil Aviation, Opposite Safdarjung Airport, New Delhi 110003

Notes: Having clear concise supporting data will enable DGCA to issue licences more effectively and with less risk of errors or rejections. DGCA will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

In order that DGCA can process the licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentats enclosed. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of the application and the fees submitted will be utilized towards processing the application

Section 2: Indicate what type of licence you are applying for indicating Airframe or Engine as per Addendum I to AMC of CAR-66

Section 3: Credit claimed for exemptions from passing module or experience**.**

Section 4: This section is required for DGCA record purposes and should provide a brief summary of experience applicable to your application. You will still need to submit detailed maintenance experience records in addition to this information, please refer to CAR-66.A.25 and CAR-66.A.30. The detail of experience should indicate practical experience obtained in cross representation section of Maintenance task as per Addendum II to AMC of CAR-66.

Section 5: Indicate the subject modules passed or basic knowledge certificate issued by CEO (DGCA)

Section 5a: Indicate details of type rating courses completed for covering aeroplane/engine/helicopter.

Section 5b: Indicate details of name of the DGCA office conducted the skill test.

Section 6: State the details of existing known physical disability or disorder

Section 7: By signing the declaration you are confirming that all of the information is correct and true.

Section 8: Assign annexure number as indicated and continuous page numbers to the enclosures and indicate it under column 3 against each item

APPLICATION FOR EXTENSION OF CAR- 66 AIRCRAFT MAINTENANCE ENGINEER'S LICENCE	DGCA INDIA CA Form 19-02

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

1. PERSONAL DETAILS

*Name in full		Computer No.	
***AME LICENCE No**		*Fees Paid	

Permanent address…… ……
……PIN Code……

Address for Communication *(if different from above)*……
……PIN Code……

Applicant Contact Phone Number …….. E-mail……

Name of the Current Employer……

Contact Phone Number of Employer…….. E-mail……

2. *APPLICATION

I wish to apply for extension of CAR-66 Aircraft Maintenance Engineer's License as indicated and confirm that the information contained in this form was correct at the time of application (Specify the category A1,A2,A3,A4.. B1.1,B1.2,1.B1.3, B1.4, B2, C and required type ratings as per addendum I to AMC of CAR – 66)

Category/Sub-category of License applied for	**A**	**B**
Mechanical		
Avionic		

3. *DETAILS OF CREDIT SOUGHT

I wish to claim the following credits (if applicable) *Please enclose all relevant certificates:*
Experience credit by virtue of passing approved aircraft maintenance training/defence experience……
Examination credit due equivalent exam certificates……

4. *SUMMARY OF EXPERIENCE - (Attach additional sheet indicating detail of practical experience obtained in cross representation section of maintenance task as per Addendum II to AMC of CAR 66)

Date		Aircraft Engine(s) and /or Equipment	Organisation	Description of Work
From	To			

5.* Details of basic knowledge certificate if any issued by CEO/DGCA

Category	Sub-category	Modules Passed

5a.* Details of Type Rating courses certificates

Aircraft Type / Series	Engine	Type course approval details

5b. *Details of skill test passed

Aircraft Type / Series	Date of Exam	Name of DGCA office that conducted the test

*Relevant certificates/documents required to be submitted as enclosures in Section 7

6. PHYSICAL DISABILITY / DISORDER (nown Physical disability or disorder	

7.*DECLARATION

I hereby confirm that: i) I apply for extension of CAR-66 Aircraft Maintenance Engineer's Licence as indicated and confirm that the information contained in this form was correct at the time of application. ii) I never had a CAR 66 AME Licence issued which was revoked or suspended by DGCA iii) I am not in possession of any other AME Licence issued by DGCA. iv) I did not apply earlier to the office of DGCA for extension of my AME Licence and the request was not turned down.

PLACE		SIGNATURE	
DATE		NAME	

INSTRUCTION AND CHECKLIST

8. **CHECKLIST TO CA FORM 19-02** DETAILS OF ENCLOSURES			Enclosure No.	Enclosure Page No.	DGCA Remarks Sat/Unsat
A. Original CAR-66 Aircraft Maintenance Engineer's licence			I		
B. Certified true copies of basic knowledge examination result sheet / certificate issued by CEO			II		
C. Certified true copy of Passport or any photo identity card issued by the Government			III		
Module No	Session No. passed	Roll No.			
			IV(a)		
			IV(b)		
			IV(c)		
D. Type course examination result sheet, course completion certificate and organisation approval certificate			V		
E. Certified true copy of skill test and oral cum practical examination			VI		
F. Certified true copies of Logbook / Work records on CA form 19-					
G. Fees					

INSRUCTION TO CA FORM 19-02

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or extension of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/legal actions as per Aircraft Rules 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

Please refer to current notification for details of fees required. All original documents if required to be submitted, will be returned through the self addressed cover affixed with necessary postal stamp (Speed post) provided by the applicant.

Completed application with the checklist should be posted along with the required documentation to the respective Regional / Sub-Regional Airworthiness Office

Notes: Having clear concise supporting data will enable Regional / sub-regional offices of DGCA to extend the licences more effectively and with less risk of errors or rejections. DGCA office will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

In order that DGCA can process the licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation enclosed. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of the application and the fees submitted will be utilized towards processing the application.

Section 2: Indicate what type of licence you are applying for and indicate Airframe -Engine combination as per Addendum I to AMC of CAR 66

Section 3: credit claimed for exemptions from passing module or experience.

Section 4: This section is required for DGCA record purposes and should provide a brief summary of experience applicable to your application. You will still need to submit detailed maintenance experience records in addition to this information, please refer to CAR-66.A.25 and CAR-66.A.30. The detail of experience should indicate practical experience obtained in cross representation section of Maintenance task as per Addendum II to AMC of CAR 66.

Section 5: Indicate the subject modules passed or basic knowledge certificate issued by CEO (DGCA)

Section 5a: Indicate details of type rating courses completed covering aeroplane/engine/helicopter.

Section 5b: Indicate details of Name of the DGCA office conducted the skill test.

Section 6: State the details of existing known physical disability or disorder

Section 7: By signing the declaration you are confirming that all the information is correct and true.

Section 8: Assign annexure number as indicated and continuous page numbers to the enclosures and indicate it under column 3 against each item

CAR- 66 AIRCRAFT MAINTENANCE ENGINEER'S LICENCE	

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

1. PERSONAL DETAILS

AME Licence No.								Expiry Date										
*Name in full																		
Details of Fees																		

*Permanent address (in case of any change) .....
..... PIN Code .....

*Address for Communication .....
..... PIN Code .....

Applicant Contact Phone Number ..... E-mail.....
Name of the Current Employer .....
Contact Phone Number of Employer ..... E-mail.....

2. *APPLICATION

I wish to apply for Renewal of CAR-66 Aircraft Maintenance License as indicated and confirm that the information contained in this form was correct at the time of application

3. *SUMMARY OF AERONAUTICAL EXPERIENCE PRECEEDING TWENTY FOUR MONTHS

Date		Organisation	Aircraft	Description of Work
From	To			

*Relevant certificates/documents required to be submitted as enclosures in Section 5

4. DETAILS OF REFRESHER COURSE ATTENDED

4.*DECLARATION

I hereby confirm that: i) I apply for renewal of CAR-66 Aircraft Maintenance Engineer's Licence as indicated and confirm that the information contained in this form was correct at the time of application. ii) I never had a CAR 66 AME Licence issued which was revoked or suspended by DGCA iii) I did not apply earlier to the any other office of DGCA for renewal of my AME Licence and the request was not turned down.

PLACE		SIGNATURE	
DATE		NAME	

INSTRUCTION AND CHECKLIST

CHECKLIST TO CA FORM 19-03 DETAILS OF ENCLOSURES	Enclosure No.	Enclosure Page No.	DGCA Remarks Sat/Unsat
1. Original CAR 66 Aircraft Maintenance Engineer's licence	I		
2. Certified true copies of Logbook / Work records for the corresponding period	II		
3. Medical fitness certificate	III		
4. Copies of refresher training corresponding to the previous five years	IV		
4. Fee paid			

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or extension of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/Legal action n as per Aircraft Rule 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

Please refer to current notification for details of fees required. All original documents if required to be submitted, will be returned through the self addressed cover affixed with necessary postal stamp (Speed post) provided by the applicant.

Completed application with the checklist should be posted along with the required documentation to the respective Regional / Sub-Regional Airworthiness Office

Notes: Having clear concise supporting data will enable DGCA office to renew the licenses more effectively and with less risk of errors or rejections. DGCA office will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

In order that DGCA can process the licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation enclosed. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of the application and the fees submitted will be utilized towards processing the application

Section 1: Indicate personal details as required.
Section 3: Indicate aircraft maintenance and certification work done during the period.

APPLICATION FOR CONVERSION/REMOVAL OF LIMITATIONS OF CAR- 66 AIRCRAFT MAINTENANCE ENGINEER'S LICENCE	DGCA INDIA CA Form 19-04

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

***1. PERSONAL DETAILS**

AME Licence No.									Expiry Date								
Name									Nationality								
Date of birth									Computer No.								

Permanent Address ……

……PIN Code……

Address for Communication *(if different from above)*……

……PIN Code……

Applicant Contact Phone Number ……E-mail……

Name of the Current Employer ……

Contact Phone Number of Employer……E-mail……

***2(a) AME LICENCE HELD**		**2(b) DETAILS OF CAR-66 AME LICENCE APPLIED FOR**		
Category	Type Rating	Category	A/c Type Rating	Limitation Code

*3. DETAILS OF LIMITATION CODE TO BE REVOKED

License Held		Limitation Code Endorsed	Examination Module Completed
Category	Type Rating		

*4. **SUMMARY OF AERONAUTICAL EXPERIENCE GAINED WITH RESPECT TO THE LIMITATION OF AME Licence**

Date		Organisation	Aircraft	Description of Work
From	To			

5.DECLARATION

I hereby confirm that: i) I apply for Conversion/Removal of limitation as indicated and confirm that the information contained in this form was correct at the time of application.

PLACE		SIGNATURE	
DATE		NAME	

INSTRUCTION AND CHECKLIST

CHECKLIST TO CA FORM 19-04 **DOCUMENTS ENCLOSED**	Enclosure No.	Enclosure Page No.	DGCA Remarks Sat/Unsat
1. Original Pre - CAR 66 AME licence.	I		
2. Two copies of passport size photograph duly attested on its back side. (for conversion)	II		

3. Certified true copies of Knowledge Examination modules (where applicable) result sheets/ certificates.	III		
4. Certified true copies of documentary evidence of experience, skill test (where applicable).	IV		
5. Type course completion certificate, where applicable.	V		
6. Copy of skill test result relating to the limitation of the licence	VI		
7. Certified true copies of Logbook / Work records as applicable.	VII		

Instruction to complete CA Form 19-04

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or extension of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/legal actions as per Aircraft Rules 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

All original documents if required to be submitted, will be returned through the self addressed cover affixed with necessary postal stamp (Speed post) provided by the applicant.

Completed application with the checklist should be posted along with the required documentation to: The Directorate General of Civil Aviation, Opposite Safdarjung Airport, New Delhi 110003

Notes: Having clear concise supporting data will enable DGCA to issue licences more effectively and with less risk of errors or rejections. DGCA will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

In order that DGCA can process the licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation enclosed. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of the application and the fees submitted will be utilized towards processing the application

Section 2: Indicate category & type rating of licence held/and the category and typerating applied for with or without limitation.

Section 3: This section should be used if applying for the removal of limitation(s) from type rating(s), and should detail aircraft types by airframe/engine combination. Please enter the limitation (s) in the appropriate column. Enter only one airframe/engine per line.

Section 4: Provide details of experience gained corresponding to the limitation code & aircraft type.

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY
1. PERSONAL DETAILS
*Name in full
AME Licence No.
*Permanent address …… ……PIN Code……
*Address for Communication *(if different from above)*…… ……PIN Code……
Applicant Contact Phone Number ……E-mail…… Name of the Current Employer …… Contact Phone Number of Employer ……E-mail……
2. *APPLICATION
I wish to apply for issue of Duplicate CAR-66 Aircraft Maintenance License as indicated and the information contained in this form was correct at the time of application.

3. *Reason for issue of duplicate AME Licence(Mark √ as applicable)	LOST		MUTILATED	

If the licence was lost provide a brief account of circumstances under which the licence was lost:
4.*DECLARATION I hereby confirm that: i) I apply for issue of duplicate CAR-66 Aircraft Maintenance Engineer's Licence as indicated and confirm that the information contained in this form is correct at the time of application. ii) My CAR 66 AME Licence not suspended / cancelled by DGCA and no disciplinary case is pending against me iii) I did not apply earlier to the office of DGCA for issue of my duplicate AME Licence and the request was not turned down.

PLACE		SIGNATURE	
DATE		NAME	

5.DETAILS OF DOCUMENTS, PHOTOGRAPH AND FEE ENCLOSURES	Enclosure No.	Tick Mark	DGCA Remarks

1.Original Mutilated AME Licence or Affidavit duly notarized by Authorized notary in case of loss of AME Licence	I		
2. Copy of FIR lodged with the police station in case of loss of AME Licence	II		
3. Copy of AME Licence if available in case of loss	III		
4. Two copy of recent photograph	IV		
5. Details of fee paid as per Rule 62	V		

Please refer to current notification for details of fees required. All original documents submitted will be returned through the self addressed cover affixed with necessary postal stamp (for speed post).
Completed application should be posted along with the required documentation to: Licensing & Training Standards, Directorate General of Civil Aviation, Opposite Safdarjung Airport, New Delhi 110003,

Notes: Having clear concise supporting data will enable DGCA to issue licences more effectively and with less risk of errors or rejections. Licensing & Training Standards will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

Instruction on how to complete CAR-66 Licence issue of duplicate Application Form (CA Form 19-05).
In order that DGCA can process your licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation submitted. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application and the fees submitted will be utilized towards processing the application.

Section 2: Indicate what type of licence you are applying for.
Section 3: Tick whether the AME Licence is lost or mutilated
Section 4: By signing the declaration you are confirming that all of the information is correct and true.

MEDICAL CERTIFICATE (To be provided by a Registered Medical Practitioner holding at least MBBS)	**DGCA INDIA** **CA Form 19-06**

Mr. / Ms _____ whose signature is appended below, has been medically examined for any known disability or disorder which may become an hindrance to perform the normal functions of an Aircraft Maintenance Engineer.

He/She has ..... physical disabilities or disorder / no physical disabilities or disorder.

He/She has been assessed medically fit / unfit to function as an Aircraft Maintenance Engineer.

(Strikeout whichever is not applicable)

Signature of the Doctor.....

Registration No.

Designation

Signature of the Applicant with date

Date

MEDICAL CERTIFICATE FOR COLOUR VISION

I, Dr. _____ hereby certify that I have examined Mr. /Ms _____ whose signature is appended below, and certify that his colour vision is Normal/Defective safe/Defective unsafe.

The colour vision has been tested with,

(1) Pseudo – Isochromatic plates

(2) Approved Lantern test

(3) Any other test applicable

(Strikeout whichever is not applicable)

Signature of the Doctor.....

Registration No.

Designation

Signature of the Applicant with date

Date

APPLICATION FOR ALLOTMENT OF COMPUTER NUMBER FOR APPEARING IN AME LICENCE EXAMINATIONS	DGCA INDIA CA Form 19-07

Paste recent passport size photograph * (attested partly covering photograph & Page of this application)	Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY **FOR OFFICE USE - Computer Number Allotted** ***(Allotment of Computer Number does not indicate the acceptance of the applicant's candidature in Basic Knowledge Examination)*** **E-**	Paste recent passport size photograph (WITHOUT ATTESTATION) ……. **SIGNATURE**

1.*PERSONAL DETAILS

*Name in full	FIRST NAME	MIDDLE NAME	SURNAME	Fathers Name

*Date of Birth		* Nationality		SEX (Male/ Female)	

*Permanent address …….

……PIN Code……

*Address for Communication *(if different from above* address) ……

……PIN Code……

*Applicant Contact Phone Number…… E-mail……

Employer/ Training School Contact Phone Number …… E-mail……

*Subject studied and passed in 10+2 or equivalent	Year of Passing	Name of the Education Board	Details of the School
Physics, Chemistry & Mathematics			

2. * AIRCRAFT MAINTENANCE EXPERIENCE / DURATION OF STUDY IN AN APPROVED TRAINING ESTABLISHMENT

Maintenance Organization/ Approved Institute	**Type of aircraft/ engine/ system**	**Duration**		
		From	**To**	**Period in months**

3. *DECLARATION

I hereby declare that the information provided in this form is correct in every respect to the best of my knowledge and belief and that nothing has been concealed or withheld by me. I understand that if any of my particulars/ entries are found false or incorrect before or after the examination, my candidature shall be rejected and further action can be taken against me by DGCA as deemed fit. Further, I declare that I have read and understood the INSTRUCTIONS.

PLACE		SIGNATURE	
DATE		NAME	

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable, on summary conviction, to a fine of one Lakh Rupees and/or imprisonment for a term not exceeding three months. Further, it renders the person permanently ineligible to have an Aircraft Maintenance Engineer's Licence.

***CERTIFICATE** [To be certified by QM/ CI/ Chief Engg. Officer(in case of serving defence candidates)]

It is certified that the particulars claimed by Mr. / Ms _____ has been verified by me and found correct.

DATE: PLACE:	(SEAL OF ORGANISATION)	SIGNATURE…… NAME ……. Designation……

4.*DETAILS OF DOCUMENTS, PHOTOGRAPH AND FEE ENCLOSURES	Enclosure No.	Tick Mark	DGCA Remarks
1. Certified true copy proof of Date of Birth certificate	I		
2. Certified true copy of 10+2 with Physics, Chemistry, Mathematics or equivalent	II		
3. Certified true copy of Passport or any photo identity card issued by the Government	III		
4. Certified true copy of Course completion from AME institute/ Degree in Engineering certificate is applicable	IV		

Completed application should be posted along with the required documentation to the Central Examination Organisation, O/o the Directorate General of Civil Aviation, East block II, R K Puram, New Delhi 110066.

Failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application.

Instruction to complete application for allotment of computer No. for appearing in CAR-66 basic knowledge examination (CA Form 19-07).

In order that CEO can process your licence application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documents submitted.

APPLICATION FOR APPEARING IN WRITTEN PAPER(S) OF CAR 66 BASIC KNOWLEDGE EXAMINATION	DGCA INDIA CA Form 19-08 *A*

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

1.* FEE DEAILS:

Amount (in Rs.)		Demand Draft/ Banker's Cheque No.	
Name of Bank		Date of Issue	

2.*PERSONAL DETAILS

COMPUTER NO:									**EXAMINATION SESSION & CENTRE**		
E-									**MONTH**	**YEAR**	**CENTRE**

NAME:

FIRST NAME	MIDDLE NAME	SURNAME

***CATEGORY/ SUB-CATEGORY OF EXAMINATION (Tick appropriate box(s)**

Category	**A**		**B**	
Aeroplane Turbine	A1		B1.1	
Aeroplane Piston	A2		B1.2	
Helicopter Turbine	A3		B1.3	
Helicopter Piston	A4		B1.4	
Avionic			B2	

3. *EXAMINATION PAPERS (Please tick box(es) against the module(s) you wish to take at this examination)

Module	✓	**Module**	✓
3. Electrical Fundamentals		11A. Turbine Engine Aeroplane Aerodynamics, Structures and Systems	
4. Electronic Fundamental		11B. Piston Engine Aeroplane Aerodynamics, Structures and Systems	
5.Digital Techniques/ Electronic instrument Systems		12. Helicopter Aerodynamics, Structures and Systems	
6. Materials & Hardwares		13. Aircraft Aerodynamics, Structures and Systems .(Please tick (√)the appropriate box)	
		Excluding 13.5,13.9 / Excluding 13.8 / Excluding 13.4 / Excluding 13.5,13.6,13.8&13.9 / Excluding 13.4,13.5&13.9 / Excluding 13.4&, 13.8	
7. Maintenance Practices		14. Propulsion	
8. Basic Aerodynamics		15. Gas Turbine Engine	

9. Human Factors		16. Piston Engine	
10. Aviation Legislation		17. Propeller	

4. * DETAILS OF AERONAUTICAL ENGINEERING EXPERIENCE:

Type of aircraft/ engine/ system	Organization/ Approved Institute	Area or Work	Duration		
			From	To	Period in months

5.* DECLARATION (delete as appropriate)

I hereby declare that the information provided in this form is correct in every respect to the best of my knowledge and belief and that nothing has been concealed or withheld by me. I understand that if any of my particulars/ entries are found false or incorrect before or after the examination, my candidature shall be rejected and further action can be taken against me by DGCA as deemed fit. Further, I declare that I have read and understood the INSTRUCTIONS.

PLACE		SIGNATURE	
DATE		NAME	

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable, on summary conviction, to a fine of one Lakh Rupees and/or imprisonment for a term not exceeding three months. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

***CERTIFICATE** [To be certified by QM/ CI/ Chief Engg. Officer(in case of serving defence candidates)]

It is certified that the particulars claimed by Mr. / Ms _____ has been verified by me and found correct.

		SIGNATURE	
		NAME	
DATE:	(SEAL OF ORGANISATION)	Designation	

Instruction to complete application form for CAR-66 AME Licence Knowledge (written) examination (CA Form 19-08 *A*).
In order that DGCA (CEO) can process your application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation submitted. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application and the fees submitted will be utilized towards processing the application.

*Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY*											
1.* FEE DEAILS:											
Amount (in Rs.)								*Demand Draft/ Banker's Cheque No.*			
Name of Bank								*Date of Issue*			
2.*PERSONAL DETAILS											
COMPUTER NO:								***EXAMINATION SESSION & CENTRE***			
E-									***MONTH***	***YEAR***	***CENTRE***

FIRST NAME	*MIDDLE NAME*	*SURNAME*

****CATEGORY/ SUB-CATEGORY OF EXAMINATION (Please tick (√) the appropriate Category/Categories)***

Category	***A***		***B***	
Aeroplane Turbine	*A1*		*B1.1*	
Aeroplane Piston	*A2*		*B1.2*	
Helicopter Turbine	*A3*		*B1.3*	
Helicopter Piston	*A4*		*B1.4*	
Avionic			*B2*	

3. *DETAILS OF BASIC KNOWLEDGE EXAMINATION PAPERS PASSED PERTAINING TO THE CATEGORY (Please tick (√)against the module(s) , enclose attested true copies of result cards)

Module		***Module***	
3. Electrical Fundamentals		*11A. Turbine Engine, Aeroplane Aerodynamics, Structures and Systems*	
4. Electronic Fundamental		*11B. Piston Engine, Aeroplane Aerodynamics, Structures and Systems*	
5.Digital Techniques/ Electronic instrument Systems		*12. Helicopter Aerodynamics, Structures and Systems*	
6. Materials & Hardwares		*13. Aircraft Aerodynamics, Structures and Systems (Please tick (√)the appropriate box(es))*	

Excluding 13.5 & 13.9	*Excluding 13.8*	*Excluding 13.4*	*Excluding 13.5, 13.6, 13.8 & 13.9*	*Excluding 13.4, 13.5 & 13.9*	*Excluding 13.4 & 13.8*	

7. Maintenance Practices		*14. Propulsion*			
8. Basic Aerodynamics		*15. Gas Turbine Engine*			
9. Human Factors		*16. Piston Engine*			
10. Aviation Legislation		*17. Propeller*			

4. *Type of Applicant (Please tick (√) the appropriate type)	***AME TRG***	***DEF***	***AEG***	***GEN***

5.*Type of Aircraft, Engine for Type Examination (As per the Addendum I to AMC of CAR-66)	

6. * DETAILS OF TOTAL AERONAUTICAL ENGINEERING EXPERIENCE:

Type of aircraft/ engine/ system	*Organization/ Approved Institute*	*Area or Work*	*Duration*		
			From	*To*	*Period in months*

7.*DETAILS OF TYPE RATED EXPERIENCE

Type of Aircraft, Engines, Systems	*Organisation/ Approved Institute*	*Area of Work*	*Duration*		*Periods in Months*	*Brief Details of Experience*
			From	*To*		

8.* Name of the Approved Institute/Sponsoring Organization/Employer	

9.* DECLARATION *(delete as appropriate)*

I hereby declare that the information provided in this form is correct in every respect to the best of my knowledge and belief and that nothing has been concealed or withheld by me. I understand that if any of my particulars/ entries are found false or incorrect before or after the examination, my candidature shall be rejected and further action can be taken against me by DGCA as deemed fit. Further, I declare that I have read and understood the INSTRUCTIONS.

PLACE		*SIGNATURE*	
DATE		*NAME*	

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/ Legal action as per Aircraft rule 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

***CERTIFICATE** [To be certified by QM/ CI/ Chief Engg. Officer(in case of serving defence candidates)]*

It is certified that the particulars claimed by Mr. / Ms _____ has been verified by me and found correct.

DATE:	*(SEAL OF ORGANISATION)*	*SIGNATURE*	
		NAME	
		Designation	

FOR OFFICIAL USE ONLY

CATEGORIES ACCEPTED				***ROLL NO ALLOTED***	
A		***B***		***REASONS FOR REJECTION, IF ANY:***	
A1		***B1.1***			

A2		***B1.2***		
A3		***B1.3***		
A4		***B1.4***		
		B2		
			NAME OF THE DGCA OFFICER	
			SIGNATURE OF THE DGCA OFFICER	

Instruction to complete application form for CAR-66 AME Licence Type examination (CA Form 19-08 B).

In order that DGCA (RAO) can process your application as quickly as possible, it is important that all sections marked with an asterisk on the application form are completed and the required supporting documentation submitted. Please note failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application and the fees submitted will be utilized towards processing the application.

**AEG-Aeronautical Engineering Graduate & Graduates of other allied field of Engineering.*

APPLICATION FOR APPEARING IN SKILL TEST OF CAR-66 AME LICENCE	**DGCA INDIA CA Form 19-09**

Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY

Roll Number Allotted		**COMPUTER No.**	**E**								

1.*PERSONAL DETAILS			**Licence No. (If held)**	
FIRST NAME	MIDDLE NAME	SURNAME	AME Licence	
			RTR	

2. DETAILS OF LICENCE HELD (If held)

CAT/ SUB-CAT	AIRCRAFT TYPE	CAT/ SUB-CAT	AIRCRAFT TYPE

3.*DETAILS OF SKILL TEST APPLIED FOR:

CAT/ SUB-CAT	AIRCRAFT TYPE	EXAMINATION CENTRE

1.1 ***DETAILS OF PREVIOUS SKILL TEST (For the same Airframe and Engine combination):**

CAT/ SUB-CAT	AIRCRAFT TYPE	DATE of EXAMINATION	CENTRE

4.*EXAMINATION MODULE(S) passed relevant to Cat/ Sub-Cat applied for)

Module	Session	Module	Session	Module	Session

5.*DETAILS OF SPECIFIC PAPER / OF TYPE COURSE PASSED:

CAT/ SUB-CAT	AIRCRAFT TYPE	SESSION / Name of the Approved Or-ganisation	Level of the Course	MARKS secured	RESULT

6. * DETAILS OF AIRCRAFT TYPE MAINTENANCE EXPERIENCE

Type of aircraft/ engine/ system	Organization	Area or Work	Duration		
			From	To	Period in months

7. *FEE DEAILS:		**ROLL NUMNER ALLOTED**	
Fees		Demand Draft/ Banker's Cheque No.	
Date of Issue		Name of Bank	

8. *DECLARATION (delete as appropriate)

I hereby declare that the information provided in this form is correct in every respect to the best of my knowledge and belief and that nothing has been concealed or withheld by me. I understand that if any of my particulars/ entries are found false or incorrect before or after the examination, my candidature shall be re-jected and further action can be taken against me by DGCA as deemed fit. Further, I declare that I have read and understood the INSTRUCTIONS.

PLACE		SIGNATURE	
DATE		NAME	

9.*DETAILS OF ENCLOSURES	Enclosure No	Tick Mark	DGCA Re-marks
1. Details of DGCA Examinations passed.	I		

Module No. and Paper	Session No. passed	Roll No.			
3. Electrical Fundamentals			I(1)		
4. Electronic Fundamental			I(2)		
5.Digital Techniques/ Electronic instrument Systems			I(3)		
6. Materials & Hardwares			I(4)		
7. Maintenance Practices			I(5)		
8. Basic Aerodynamics			I(6)		
9. Human Factors			I(7)		
10. Aviation Legislation			I(8)		
11A. Turbine Engine Aeroplane Aerodynamics, Structures and Systems			I(9)		
11B. Piston Engine Aeroplane Aerodynamics, Structures and Systems			I(10)		
12. Helicopter Aerodynamics, Structures and Systems			I(11)		
13. Aircraft Aerodynamics, Structures and Systems			I(12)		
14. Propulsion			I(13)		
15. Gas Turbine Engine			I(14)		
16. Piston Engine			I(15)		
17. Propeller			I(16)		
2. Type course completion certificate with examination result sheet			II		
3. Certified true copy of previous skill test result, if any			III		
4. Certified true copies of Logbook / Work records on CA Form 19-10			IV		

Please refer to current notification for details of fees required. All original documents if required to be submitted, will be returned through the self addressed cover affixed with necessary postal stamp (for speed post). Completed application should be posted along with the required documentation to the respective regional / sub-regional office.

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/legal actions as per Aircraft Rules 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

Notes: Having clear concise supporting data will enable regional office to process the application more effectively and with less risk of errors or rejections. Regional office will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.

Failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application and fee submitted would be utilized for processing the application**.**

FOR OFFICIAL USE			
NAME OF CANDIDATE		**ROLL NUMBER**	
CAT/ SUB-CAT		**AIRCRAFT TYPE**	

Candidate was examined on the following topics:
Candidate was found weak in the following topics:
Percentage marks awarded in the Skill Test and Results:

Date of Skill Test	Cat/ Sub-Cat	Aircraft Type	% Marks	Pass/ Fail

Issue/ Extension/ of AME licence in respect of Sh. _____ is recommended only in Cat/ Sub-Cat_____ to cover _____ (Aircraft).

(Signature) Member of Examination Board	**(Signature) Member of Examination Board**	**(Signature) Member of Examination Board**
Name:	**Name:**	**Name:**
Date:	**Date:**	**Date:**

FORMAT OF AIRCRAFT MAINTENACE ENGINEER WORK RECORD / LOG BOOK	**DGCA INDIA CA Form 19-10**
1. PERSONAL DETAILS	Affix recent passport size photo graph duly attested on the front side
CEO Computer No.	

*Name in full					
*Date of birth			* National-ity		
*Educational Qualification		GENDER	M / F	AME Licence No.	
*Permanent Address…… ……PIN Code……					
Changed Permanent Address					
*Address for Communication *(if different from above)*…… ……PIN Code……					
Changed Address for Communication:					
Applicant Contact Phone Number …… E-mail…… Name of the Current Employer…… Contact Phone Number of Employer …… E-mail……					
Log Book Owners Name…… Signature ……					

2. Record of Training:				
Training Completed	Training Establish-ment and Location	From	To	Result

3. (i) Details of Employer / Organisation at which engaged in Aircraft Maintenance			
Employer / Organisation:			
FROM	To	Position	Nature of Work

Types of Aircraft or other products			
Confirmation of the Organisation			
NAME	SIGNATURE	POSITION & STAMP	DATE
3 (ii). Details of Employer / Organisation at which engaged in Aircraft Maintenance			
Employer / Organisation:			
FROM	To	Position	Nature of Work
Types of Aircraft or other products			
Confirmation of the Organisation			
NAME	SIGNATURE	POSITION & STAMP	DATE
3 (iii) . Details of Employer / Organisation at which engaged in Aircraft Maintenance			
Employer / Organisation:			
FROM	To	Position	Nature of Work
Types of Aircraft or other products			
Confirmation of the Organisation			
NAME	SIGNATURE	POSITION & STAMP	DATE

4.BASIC SKILL					
***Typical Maintenance Tasks (1)**	**CATEGORY**	**Aircraft Reg. No & Type (2)**	**Date on which per-formed (3)**	**Organization (4)**	**Supervisor Name and AME Li-cence No.**

I. Time limit/ Maintenance					
#					
#					
LV .Accessory Gear Box					
c. *Check Chip detector					

- All the applicable aircraft maintenance tasks listed under Addendum II to AMC of CAR-66 should be re-produced under column (1).
- Details of tasks performed should be furnished under column 2, 3, 4 and 5
- Maintenance tasks not performed should be indicated as " NOT PERFORMED"

5.*DECLARATION

I hereby confirm that the information contained in this form was correct at the time of application.

PLACE		SIGNATURE	
DATE		NAME	

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/legal actions as per Aircraft Rules 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

APPLICATION FOR ISSUE OF BASIC KNOWLEDGE EXAMINATION CERTIFICATE	**DGCA INDIA CA Form 19-11**
Please complete the form in BLOCK CAPITALS using black or dark blue ink after reading the attached guidance notes. Fields marked with an asterisk * are mandatory and must be completed in all cases. Use Date Format – DD-MM-YYYY	

1. *PERSONAL DETAILS										
CEO Computer No.										
*Name in full										
*Permanent address …….. …….. PIN Code.....										
*Address for Communication *(if different from above)* …….. …….. PIN Code.....										
Applicant Contact Phone Number ……..E-mail…….. Name of the Current Employer…….. Contact Phone Number of Employer ……..E-mail……										

2. *APPLICATION

I hereby request DGCA to issue of basic knowledge examination certificate as indicated and confirm that the information contained in this form was correct at the time of application (Specify the required category / sub-category of basic knowledge certificate)

Category/Sub-category of License applied for	**A**	**B**
Mechanical		
Avionic		

3. *Details of basic modules/papers relevant to modules passed					
Category/sub-category	Module No.	Exam Session in which Passed	Category/sub-category	Module No.	Exam Session in which Passed

4 *FEE DEAILS:

Fees		Demand Draft/ Banker's Cheque No.	
Date of Issue		Name of Bank	

5.*DECLARATION

I hereby confirm that: i) I apply for issue of basic knowledge certificate as indicated and confirm that the information contained in this form was correct at the time of application ii) I did not apply earlier to the office of DGCA for issue of basic knowledge certificate and the request was not turned down.

PLACE		SIGNATURE	
DATE		NAME	

It is an offence to make, with intent to deceive, any false representations for the purpose of procuring the grant, issue, renewal or variation of any certificate, licence, approval, permission or other document. Persons doing so render themselves liable to administrative/legal actions as per Aircraft Rules 1937. Further the licence is liable for revocation / cancellation / suspension or permanently makes the person ineligible to have an Aircraft Maintenance Engineer's Licence.

5.*DETAILS OF DOCUMENTS, PHOTOGRAPH AND FEE ENCLOSURES			Enclosure No.	Tick Mark	DGCA Remarks
Details of DGCA Examinations passed :			I		
Module No. and Paper	Session No. passed	Roll No.			

3. Electrical Fundamentals			I (a)		
4. Electronic Fundamental			I (b)		
5.Digital Techniques/ Electronic instrument Systems			I (c)		
6. Materials & Hardwares			I (d)		
7. Maintenance Practices			I (e)		
8. Basic Aerodynamics			I (f)		
9. Human Factors			I (g)		
10. Aviation Legislation			I (h)		
11A.Turbine Engine Aeroplane Aerodynamics, Structures and System			I (i)		
11B. Piston Engine Aeroplane Aerodynamics, Structures and Systems			I (j)		
12. Helicopter Aerodynamics, Structures and Systems			I (k)		
13. Aircraft Aerodynamics, Structures and Systems			I (l)		
14. Propulsion			I (m)		
15. Gas Turbine Engine			I (n)		
16. Piston Engine			I (o)		
17. Propeller			I (p)		

Please refer to current notification for details of fees required. All original documents submitted will be returned through the self addressed cover affixed with necessary postal stamp (for speed post).
Completed application should be posted along with the required documentation to the Central Examination Organisation, O/o the Directorate General of Civil Aviation, East block II, R K Puram, New Delhi 110066.

Notes: Having clear concise supporting data will CEO to issue licences more effectively and with less risk of errors or rejections. CEO will not contact you for clarification of details on applications and therefore it is most important that you have the correct information before applying.
Failure to submit a correctly completed application form and the required documentation will lead to the rejection of your application and the fee will be utilized for processing the application.

DGCA INDIA
CA Form 19-12

DIRECTORATE GENERAL OF CIVIL AVIATION
CENTRAL EXAMINATION ORGANIZATION

East Block III, RK Puram, New Delhi 110066

Aircraft Maintenance Engineer's Basic Knowledge Examination Certificate

This is to certify that Mr./Ms _____

Computer Number._____ has passed the following subjects/module/ papers examinations conducted by this office in partial fulfillment of requirements for grant of Aircraft Maintenance Engineer's License.

Stream/Category/Papers/ Module names: _ _____ Session _____in which

Passed.

Seal

Signatures
(Head, Central Examination Organization)
For the Director General of Civil Aviation

Appendix VI - Aircraft Maintenance Engineer's Licence referred to in Rule 61 of the Aircraft Rules, 1937-CA Form 26

GOVERNMENT OF INDIA

DIRECTORATE GENERAL

OF

CIVIL AVIATION

CAR-66

AIRCRAFT MAINTENANCE ENGINEER's LICENCE

I	GOVERNMENT OF INDIA DIRECTORATE GENERAL OF CIVIL AVIATION	IX. CONDITIONS
II	Aircraft Maintenance Engineer's Licence	a. Certified that the holder is authorized to exercise the privileges of the licence as given in Rule 61 of the Aircraft Rules, 1937 subject to complying with the said rule and the licence holder is familiar with all the relevant information relating to the maintenance and airworthiness of the particular aircraft for which the licence holder is signing a Maintenance Release, or such airframe, powerplant, aircraft system or component and aircraft avionic system or component which the licence holder is certifying as being airworthy. b. Endorsement of aircraft types on the page (s) entitled LICENCE (SUB) CATEGORIES means the holder is qualified to issue a certificate of release to service for such aircraft from the date of endorsement in conjunction with a valid approved maintenance organization's authorisation or so authorized by the Director General. c. Holder of this licence shall not exercise the privileges of the licence and related ratings at any time when he/she is aware of any decrease in medical fitness which might render him/her unable to safely and properly exercise these privileges. d. This licence is not valid unless it bears the signature of the holder. e. This licence remains current until the expiry date specified at item XIV ~~(c)~~ whilst in compliance with the Aircraft Rule 61 and CAR-66 unless previously suspended or revoked. f. This licence when endorsed with an aircraft type rating meets the intent of ICAO Annex 1 g. No entry, endorsement or alteration in the licence shall be made by any person not specially authorized for this purpose by the Director General. **LIC No.** 2
III	Licence number	
IV	Name of holder in fu	STAMP SIZE PHOTO
IVa	Date of birth	
V	Address of holder	
VI	Nationality	
VII	Signature of Holder	
VIII	Issued in accordance with the provisions of the Aircraft Act 1934, the Aircraft Rules 1937 for the time being in force and in conformity with ICAO Annex 1 to the convention on International Civil Aviation signed on 7th December 1944.	
X	Signature of Issuing Authority ..... Date of Issue: . .2011 (for the Director General of Civil Aviation)	
XI	Stamp of the Issuing Authority :	

XII. LICENCE (SUB) CATEGORIES					
CATEGORIES	A	B1	B2	C	DATE
AEROPLANES TURBINE	A1				
AEROPLANES PISTON	A2				
AEROPLANES TURBINE		B1			
AEROPLANES PISTON		B2			
HELICOPTERS TURBINE	A3				
HELICOPTERS PISTON	A4				
HELICOPTERS TURBINE		B3			
HELICOPTERS PISTON		B4			
AVIONICS			B2		
AIRCRAFT				C	
LIC No. 3					

XII. AIRCARFT TYPE RATING		
A/c TYPE OR GROUP	ATEGOR	STAMP & DATE
LIC No. 4		

XII. AIRCARFT TYPE RATING		
A/c TYPE OR GROUP	ATEGOR	STAMP & DATE
LIC No.: 5		

XII. AIRCARFT TYPE RATING		
A/c TYPE OR GROUP	CATEGORY	STAMP & DATE
LIC No. 6		

XIII. LIMITATIONS				*XIV.* LICENCE VALIDITY		
A/c TYPE OR GROUP	Category	Limitation Code	Signature with Date [Removal of limitation]	DATE OF EXPIRY	SIGNATURE WITH DATE	SEAL
LIC No.:	7			**LIC No.**	8	

XIV *(a)* ANNEXURE TO THE LICENCE PRIVILEGES INHERITED FROM THE AME LICENCE HELD PRIOR TO CAR-66 LICENCE				XIV *(b)* ANNEXURE FOR AIRCARFT TYPE RATING ENDORSEMENTS IN RESPECT OF OBSOLETE TYPES OF AIRCRAFT NOT LISTED IN THE CAR-66			
A/c TYPE OR GROUP	Category	Limitation Code	Signature with Date Removal of limitation	A/c TYPE OR GROUP	Category	Limitation Code	Signature with Date [Removal of limitation]
LIC No.:	9			**LIC No.:**	10		

1. The aircraft maintenance engineer's licence once issued is required to be kept by the person to whom it applies in good condition and who shall remain accountable for ensuring that no unauthorized entries are made.
2. Failure to comply with paragraph 1 may invalidate the document and could lead to the holder not being permitted to hold any CAR -145 certification authorization
3. Failure to comply with paragraph 1 may also result in prosecution under relevant Indian Penal Code.
4. Each page issued shall be in this format and contain the specified information for that page.
5. If there are no limitations applicable, the LIMITATIONS page will be issued stating 'No limitations'.

Acceptable Means of Compliance (AMC) to SECTION A of CAR 66

This chapter contains Acceptable Means of Compliance (AMC) to CAR - 66 Section A– Technical Requirements. Acceptable Means of Compliance (AMC) illustrate a means, or several alternative means, but not necessarily the only possible means by which a requirement can be met.

SECTION A
TECHNICAL REQUIREMENTS

AMC 66.A.10 Application

1. Maintenance experience should be written in a manner that the reader has a reasonable understanding of where, when and what maintenance constitutes the experience. A task by task account is not necessary but at the same time a blank statement "X year's maintenance experience completed" is not acceptable. A log book of maintenance experience is desirable and be kept. It is acceptable to cross refer in the CA Form 19-01 to other documents containing information on maintenance.

2. Applicants claiming the maximum reduction in 66.A.30 (a) total experience based upon having successfully completed approved basic training should include the certificate of approval with its validity schedule of the training establishment.

3. Applicants claiming reduction in 66.A.30 (a) total experience based upon having successfully completed technical training in an organization or institute recognized by DGCA as a competent organization or institute should include the relevant certificate of successful completion of training.

AMC 66.A.20 (a) Privileges

The following definition of line and base maintenance should apply:

Line maintenance is any maintenance that is carried out before flight to ensure that the aircraft is fit for the intended flight. It may include:

- trouble shooting;
- defect rectification;
- Component replacement with use of external test equipment if required. Component replacement may include components such as engines and propellers;
- Scheduled maintenance and/or checks including visual inspections that will detect obvious unsatisfactory conditions/discrepancies but do not require extensive in depth inspection. It may also include internal structure, systems and power plant items which are visible through quick opening access panels/doors;

- minor repairs and modifications which do not require extensive disassembly and can be accomplished by simple means;

For temporary or occasional cases (airworthiness directives, hereinafter AD; service bulletins, hereinafter SB) the quality manager may accept base maintenance tasks to be performed by a line maintenance organization provided all requirements are fulfilled. Conditions under which these tasks may be performed shall form part of the Approved Maintenance Organization's Exposition. Maintenance tasks falling outside these criteria are considered to be base maintenance.

Note: Aircraft maintained in accordance with "progressive" type programmers need to be individually assessed in relation to this paragraph. In principle, the decision to allow some "progressive" checks to be carried out is determined by the assessment that all tasks within the particular check can be carried out safely to the required standards at the designated line maintenance station.

Note 2: For the operation of the Aircraft Radio equipment personnel should possesses RT (Aero) License issued by the Ministry of Communication.

AMC 66.A.20 (b) (2) Privileges

The 6 months maintenance experience in 2 years should be understood as consisting of two elements, duration and nature of the experience. The minimum to meet the requirements for these elements may vary depending on the size and complexity of the aircraft and type of operation and maintenance.

1. Duration:

Within an approved maintenance organization:

- 6 months continuous employment within the same organisation; or
- 6 months split up into different blocks, employed within the same or in different organisations.

The 6 months period can be replaced by 100 days of maintenance experience in accordance with the privileges, whether these have been performed within an approved organisation or as independent certifying staff according to M.A.801 (b) 2 or as a combination thereof.

When certifying staff maintains and releases aircraft in accordance with M.A.801 (b) 2, in certain circumstances this number of days may even be reduced by 50% when agreed in advance by the DGCA. These circumstances consider the cases where the holder of a CAR-66 licence happens to be the owner of an aircraft and carries out maintenance on his own aircraft, or where a licence holder maintains an aircraft operated for low utilization, that does not allow the licence holder to accumulate the required experience. This reduction should not be combined with the 20% reduction permitted when carrying out technical support, or maintenance planning, continuing airworthi-

ness management or engineering activities. To avoid a too long period without experience, the working days should be spread over the intended 6 months period.

2. Nature of the experience:

Depending on the category of the aircraft maintenance engineer's licence, the following activities are considered relevant for maintenance experience:

- Servicing;

- Inspection;

- Operational and functional testing;

- Trouble-shooting;

- Repairing;

- Modifying;

- Changing component;

- Supervising these activities;

- Releasing aircraft to service.

For category A certifying staff, the experience should include exercising the privileges, by means of performing tasks related to the authorization on at least one aircraft type for each licence subcategory. This means tasks as mentioned in AMC 145.A.30 (g), including servicing, component changes and simple defect rectifications.

For category B1 and B2, for every aircraft included in the authorization the experience should be on that particular aircraft or on a similar aircraft within the same licence subcategory. Two aircraft can be considered as similar when they have similar technology, construction and comparable systems, which means equally equipped with the following (as applicable to the licence category):

(a) Propulsion systems (piston or turboprop or turbofan or turboshaft or jet-engine or push propellers); and

(b) Flight control systems (only mechanical controls or hydro-mechanically powered controls or electro-mechanically powered controls); and

(c) Avionic systems (analog systems or digital systems); and

(d) Structure (manufactured of metal or composite or wood).

As an alternative to the above:

- In the case of B1 licence endorsed with group ratings (either manufacturer group or full group) as defined in 66.A.45(g) the holder may show experience on at least one aircraft type per group and per aircraft structure (metal, composite, wood).
- In the case of a B2 licence endorsed with group ratings (either manufacturer group or full group) as defined in 66.A.45 (g) the holder may show experience on at least one aircraft type per group.

For category C, the experience should cover at least one of the aircraft types endorsed on the authorization.

For a combination of categories, the experience should include some activities of the nature shown in paragraph 2 in each category.

A maximum of 20% of the experience duration required may be replaced by the following relevant activities on an aircraft type of similar technology, construction and with comparable systems:

- Aircraft maintenance related training as an instructor/assessor or as a student;
- Maintenance technical support/engineering;
- Maintenance management/planning.

The experience should be documented in an individual log book or in any other recording system (which may be an automated one) containing the following data:

(a) Date and time;

(b) Aircraft type;

(c) Aircraft identification i.e. registration;

(d) ATA chapter;

(e) Operation performed i.e. 100 FH check, MLG wheel change, engine oil check and complement, SB embodiment, trouble shooting, structural repair, STC embodiment…;

(f) Type of maintenance i.e. base, line;

(g) Type of activity i.e. perform, supervise, release;

(h) Category used A, B1, B2 or C.

Remark: This experience requirement does not apply to:

- Certifying staff issuing a certificate of release of aircraft as per M.A.607 (b);
- Pilot-owner certifying tasks according to M.A.803; and

– Certifying staff according to 145.A30 (j) and Appendix IV of CAR-145.

Experience should be supported by documentary evidence.

AMC 66.A.25 Basic knowledge requirements

To prove the equivalence to 10 +2, the applicant is required to submit a certificate from a competent authority such as Association of Indian Universities (AIU).

AMC 66.A.30 (a) Experience requirements

Provided that the experience requirement specified at 66.A.30.a.(1) and (2) shall be reduced by one year in case of an applicant who has satisfactorily completed training in any training organization approved under rule 133B or who has acquired a Degree in an allied field of Engineering from a recognized University;

While an applicant to a CAR-66 Category C licence may be qualified by having 3 years experience as category B1 or B2 certifying staff only in line maintenance, it is however essential that any applicant to a category C holding a B1 or B2 licence demonstrate at least 12 months experience as a B1 or B2 base maintenance support staff.

AMC 66.A.30 (a).3 Experience requirements

'Large aircraft' means an aircraft, classified as an aeroplane with a maximum take-off mass of more than 5700 kg, or a multi engine helicopter.

AMC 66.A.30 (d) Experience requirements

To be considered as recent experience; at least 50% of the required 12 month experience should be gained within the 12 month period prior to the date of application for the CAR-66 aircraft maintenance license. The remainder of the experience should have been gained within the **7** year period prior to application.

AMC 66.A.30 (e) Experience requirements

1. For category A the additional experience of civil aircraft maintenance should be a minimum of 6 months. For category B1 or B2 the additional experience of civil aircraft maintenance should be a minimum of 12 months.
2. Aircraft maintenance experience gained outside a civil aircraft maintenance environment can include aircraft maintenance experience gained in armed forces, coast guards, police etc. or in aircraft manufacturing.

AMC 66.A.45 (a) Type/task training and ratings

1. For category A certifying staff specific training on each aircraft type will be required reflecting the authorized task(s) as indicated under 66.A.20 (a) 1.

2. Appropriately approved CAR-145 organisation means compliance with the applicable paragraphs of AMC 66. A. 45.

AMC 66.A.45 (d) Type/task training and ratings

1. The training should give adequate detailed theoretical knowledge of the aircraft, its main parts, systems, equipment, interior and applicable components, including training in the systems in use for technical manuals and maintenance procedures.

   The course should also take into account the following:

   a) in service experience on the aircraft type;

   b) feedback from in-service difficulties/occurrence reporting etc;

   c) significant airworthiness directives and/or service bulletins;

   d) Known human factors issues associated with the particular aircraft type.

2. Theoretical training should be supported by training aids such as aircraft system components. Ground simulator time, engine ground running and computer-based training (CBT) etc may also be utilized.
3. Theoretical and practical training should also take into account the critical aspects of Fuel Tank Safety (FTS) airworthiness limitation items (ALI) including Critical Design Configuration Control Limitations (CDCCL).
4. Knowledge is also recommended of relevant inspections and limitations as applicable to the effects of environmental factors such as cold and hot climates, wind, moisture, etc.
5. The practical training should comprise a period of four months for applicants with no recent recorded previous practical experience of aircraft of comparable construction and systems, including the engines, but this can be reduced to a minimum of two weeks for applicant with such previous experience.
6. A programme of structured on-job-training (OJT) may be prepared to satisfy the practical training requirement.

   Where the practical training element is conducted by or under the responsibility of the training organization under DGCA approval or a direct type course approval, it should be considered as part of the approved course and as such, its acceptance by DGCA should be supported by a detailed syllabus showing its content and duration. The individual practical training records should be designed in a manner that they demonstrate compliance with the detailed practical training syllabus. Such records may take the form of an individual training logbook. The logbook should be designed such that tasks may be countersigned by the training school or other course provider.

Where the practical training element is conducted by a maintenance organization approved under CAR-145, under its own responsibility, its acceptance by DGCA should be supported by a detailed syllabus showing its content and duration. The individual practical training records should be designed in a manner that they demonstrate compliance with the detailed practical training syllabus.

Alternatively, the practical training element may consist of a structured OJT programme. In this case the maintenance organization approved under CAR-145 should provide applicants for a type rating a logbook indicating a list of tasks to be performed under supervision. The logbook should be designed such that tasks may be countersigned by the supervisor. The list of tasks should be accepted directly for each individual, depending on the individual's previous experience, or indirectly through the acceptance of a procedure giving delegation to the maintenance organization.

In all cases the practical element should include an acceptable cross section of maintenance tasks, which, in the case of a structured OJT, can be tailored to accommodate the operating profile of the CAR-145 organization whilst also supplementing the theoretical course elements. The means by which, the practical element is supervised and the control of the standard should be acceptable to DGCA. The duration of the practical type training element should take into account significant differences between types and be acceptable to DGCA. These differences will require considerably more practical training for certifying staff who are not familiar with the new techniques and technologies. Some examples of differences may include, but are not limited to, the following elements: Fly by wire, glass cockpit avionics, significant structural differences, etc.

7. Before grant of the aircraft type, the applicant should be able to:

   a) demonstrate by knowledge examination a detailed understanding of applicable systems, their operation and maintenance;

   b) ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks, as appropriate, for the type of aircraft. For example trouble shooting, repairs, adjustments, replacements, rigging and functional checks such as engine run, etc, if required;

   c) correctly use all technical literature and documentation for the aircraft;

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

8. The practical assessment should also ensure safe performance of maintenance, inspections and routine work according to the maintenance manual and other relevant instructions and tasks as appropriate for the type of aircraft, for example trouble

shooting, repairs, adjustments (rigging), replacements and functional/operational checks etc including engine operation (ground running) if required.

AMC 66.A .45(e) Type/task training and ratings

Category C certifying staff may not carry out the duties of category B1 or B2, or equivalent within base maintenance, unless they hold the relevant B1 or B2 category and have passed type training corresponding to the relevant B1 or B2 category.

AMC 66.A.45 (g) Type/task training and ratings

1. "Aircraft types representative of a group" means that:

   – for the B1 category the aircraft type should include typical systems and engines relevant to the group (e.g. retractable undercarriage, pressurization, variable pitch propeller, etc. for the single piston engine metal subgroup) and,

   – for the B2 category the aircraft type should include complex avionics systems such as radio coupled autopilot, EFIS (Electronic flight instrument system), flight guidance systems, etc

2. A "multiple engines" group automatically includes the corresponding "single engine" group.

AMC 66.A.45 (h) Type/task training and ratings

1. Type experience should cover an acceptable cross section of tasks from Addendum II to AMC. For the first aircraft type of each manufacturer group, at least 50% of the Addendum II to AMC tasks, as applicable to the concerned aircraft type and licence category should be performed. For the second aircraft type of each manufacturer group, this should be reduced to 30%. For subsequent aircraft types of each manufacturer group, this should be reduced to 20%.

2. Type experience should be demonstrated by the submission of records or logbook showing the Addendum II to AMC tasks performed by the applicant as specified by DGCA.

AMC 66.A.70 Conversion provisions

Technical limitations will be deleted, as appropriate, when an applicant has satisfactorily fulfilled the relevant conversion examination and gained relevant experience.

Addendum I to AMC of CAR-66

AIRCRAFT TYPE RATINGS

FOR CAR-66 AIRCRAFT MAINTENANCE ENGINEER'S LICENCE

The following aircraft type ratings should be used to ensure a common standard throughout India.

The inclusion of an aircraft type in the licence does not indicate that the aircraft type has been granted a type certificate under the Aircraft Rule No. 49A and CAR-21, this list is only intended for the maintenance purposes.

In order to keep this list current and type ratings consistent, such information should be first passed on to the DGCA daw@dgca.nic.in by affected personnel or organizations to issue a type rating that is not included in this list.

Notes:

When a modification is introduced to an aircraft type rating or to an engine designation in the rating which affect licences already issued, the ratings on the AME licences may be modified at next renewal or when the licence is received for endorsement /re-issued.

In the following table, the groups of aircraft are defined as follows:

List No.	Aircraft:
1	Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating
2	Aeroplanes of 5700 kg and below, requiring type training and individual type rating (A-tr)
3	Aeroplanes multiple turbine engines (AMTE) of 5700 kg and below, eligible for type examinations and manufacturer group ratings
4	Aeroplanes single turbine engine (ASTE) of 5700 kg and below, eligible for type examinations and group ratings
5	Aeroplane multiple piston engines – metal structure (AMPE-MS), eligible for type examinations and group ratings
6	Aeroplane single piston engine – metal structure (ASPE-MS), eligible for type examinations and group ratings

7 Aeroplane multiple piston engines – wooden structure (AMPE-WS), eligible for type examinations and group ratings

8 Aeroplane single piston engine – wooden structure/metal tube-fabric (ASPE-WS), eligible for type examinations and group ratings

9 Aeroplane multiple piston engines – composite structure (AMPE-CS) ,eligible for type examinations and group ratings

10 Aeroplane single piston engine – composite structure (ASPE- CS), eligible for type examinations and group ratings

11 Multi- engine helicopters (MEH , requiring type training and individual type rating

12 Helicopters – Single turbine engine (HSTE , eligible for type examinations and group ratings

1 3 Helicopters – Single piston engines(H SPE) , eligible for type examinations and group ratings

Column 1 includes the TC holder as defined in the TCDS (EASA, FAA or other).

For aeroplanes of group 1 and 2 and helicopters, the Column 2 includes the aircraft models as defined in the relevant TCDS (EASA, FAA or other).

The following column includes the “commercial designation” when available.

Column 3 includes the relevant individual type rating. Only the designations of ratings in column 3 should be used for endorsing individual type ratings on CAR-66 licences.

Note: aircraft STC data are not included in this table.

1. Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating			
1. TC holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type Rating Endorsement**
Airbus	A310-304		Airbus A310 (GE CF6)
	A310-324		Airbus A310 (PW 4000)
	A318-110 series		Airbus A318/A319/A320/A321 (CFM56)
	A319-110 series		
	A320-111		
	A320-210 series		
	A321-110 series		
	A321-210 series		
	A319-130 series		Airbus A319/A320/A321 (IAE V2500)
	A320-230 series		
	A321-130 series		
	A321-230 series		
	A330-200 series		Airbus A330 (GE CF6)
	A330-300 series		
	A330-220 series		Airbus A330 (PW 4000)
	A330-320 series		
AIRCRAFT INDUSTRIES	L-410 UVP-E9	Turbolet	Let L-410 (Walter M601)
ATR-GIE Avions de Transport Régionals	ATR 42-200		ATR 42-200/300 series (PWC PW120)
	ATR 42-320		
	ATR 72-212		ATR 72-200 series (PWC PW120)
	ATR 42-500	42-500	ATR 42-400/500/72-212A (PWC PW120)
	ATR 72-212 A	72-500	
BAE SYSTEMS	AVRO 146-RJ70		BAe 146/ AVRO 146-RJ (Honeywell ALF500 Series)

1. Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating			
1. TC holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type Rating Endorsement**
	HS.748 Series 1		HS748 (RRD Dart)
	HS.748 Series 2		
	HS 748 Series 2A		
	HS 748 Series 2B		
Boeing	B737-200		Boeing 737-/200 (PW JT8D)
	B737-400		Boeing 737-400 (CFM56)
	B737-700		Boeing 737-700/800/900 (CFM56)
	B737-800		
	B737-900		
	B737-900ER		
	B747-400		Boeing 747-400 (PW 4000)
	B747-400F/SF(BCF)		
	B757-200		Boeing 757-200/300 (PW 2000)
	B757-200PF		
	B757-300		
	B757-200		Boeing 757-200 (RR RB211)
	B777-200		Boeing 777-200/300 (GE 90)
	B777-200LR		
	B777-300ER		
	B777-200		Boeing 777-200/300 (PW 4000)
	B777-300		
BOMBARDIER	BD-100-1A10	Challenger 300	Bombardier BD-100-1A10 (Honeywell AS907)
	BD-700-1A10	Global Express	Bombardier BD-700 Series (RRD BR710)

1. Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating			
1. TC holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type Rating Endorsement**
	BD-700-1A11	Global 5000	
	CL-600-2B16 (CL 604 Variant)	Challenger-604 (MSN < 5701)	Bombardier CL-600-2B16 (variant CL 604) (GE CF34}
	CL-600-2B16 (CL 604 Variant)	Challenger-605 (MSN > 5701)	
	CL-600-2B19	Regional Jet Series 100/200	Bombardier CL-600-2B19 (GE CF34)
	CRJ 200		Bombardier CRJ 200(GE CF34)
	CL-600-2C10	Regional Jet Series 700/701/702	Bombardier CL-600-2C10/-2D15/-2D24/-2E25 (GE CF34)
	CL-600-2D15	Regional Jet Series 705	
CESSNA AIRCRAFT Company	525B	Citation Jet CJ3	Cessna 525B/C (Williams FJ 44)
	525C	Citation Jet CJ4	
	550	Citation Bravo	Cessna 550/560 (PWC PW530/535)
	560	Citation Encore	
	560	Citation Encore +	
	550	Citation II	Cessna 550/560 (PWC JT15D)
	S550	Citation S/II	
	560	Citation V	
	560	Citation Ultra	
	560XL	Citation Excel	Cessna 560XL/XLS (PWC PW545)
	560 XLS	Citation XLS	
	650	Citation III – VI IV	Cessna 650 (Honeywell TFE731)
	650	Citation VII	
Dassault Aviation	Falcon 900EX		Falcon 900EX (Honeywell TFE731)
	Falcon 900EX	F900EX EASy	Falcon 900EX EASy (Honeywell TFE731)
	Falcon 900EX	F900DX	
	Falcon 900EX	F900LX	

1. Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating			
1. TC holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type Rating Endorsement**
	Falcon 2000		Falcon 2000 (CFE 738)
	Falcon 2000EX		Falcon 2000EX (PWC PW308)
	Falcon 2000EX	F2000EX EASy	Falcon 2000EX EASy (PWC PW308)
	Falcon 2000EX	F2000DX	
	Falcon 2000EX	F2000LX	
	Falcon 7X		Falcon 7X (PWC PW307A)
RUAG Aerospace GmbH (DORNIER)	228-200 series		Dornier 228 (Honeywell TPE331)
EMBRAER	EMB-135BJ	Legacy 600 Legacy 650	Embraer EMB-135 (RR Corp AE3007A)
	ERJ 170-100 LR	ERJ-170	Embraer ERJ-170 (GE CF34)
FOKKER SERVICES	F27 Mark 100	Friendship	Fokker F27 / Fairchild F-27/FH-227 (RRD Dart)
	F27 Mark 200	Friendship	
	F27 Mark 300	Friendship	
	F27 Mark 400	Friendship	
	F27 Mark 500	Friendship	
GULFSTREAM AEROSPACE LP (GALP) c/o Israel Aircraft Industries	Gulfstream 200 / Galaxy	Galaxy 200	Gulfstream (IAI) 200/Galaxy (PWC PW306)
HAWKER BEECHCRAFT Corporation	HS.125 series 700	"Hawker Siddeley"	BAe 125 Series 700 (Honeywell TFE731)
	Hawker 750	Hawker 750	BAe 125 Series 750/800XP/850XP/900XP (Honeywell TFE731)
	Hawker 800XP	Hawker 800XP	
	Hawker 850XP	Hawker 850XP	
	Hawker 900XP	Hawker 900XP	
	300	Super King Air	Beech 300 Series (PWC PT6)
	300LW	Super King Air	

1. Large aircraft (LA). Aeroplanes with a maximum take-off mass of more than 5700 kg, requiring type training and individual type rating			
1. TC holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type Rating Endorsement**
	B300	Super King Air 350	
	B300C	Super King Air 350 C	
	400	Beechjet	Beech 400 / Mitsubishi MU-300 (PWC JT15)
	400A	Beechjet (Hawker 400XP)	
	1900	Airliner	Beech 1900 (PWC PT6)
	1900C	Airliner	
	1900D	Airliner	
	4000	Hawker 4000	Hawker 4000 (PWC PW308)
Lear Jet	Learjet 45	LJ45	Learjet Model 45 (Honeywell TFE731)
	Learjet 40	LJ45	

2. Aeroplanes of 5700 kg and below, requiring type training and individual type rating (A-tr)			
1 TC Holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type rating endorsement**
AIRCRAFT INDUSTRIES	L-410M	Turbolet	Let L-410 LW (Walter M601)
	L-410 UVP	Turbolet	
Cessna Aircraft Company	525	Citation Jet CJ1	Cessna 525/525A (Williams FJ 44)
	525A	Citation Jet CJ2	
EMBRAER Empresa Brasileira de Aeronautica	EMB-500	Phenom 100	Embraer EMB-500 (PWC PW617)
HAWKER BEECHCRAFT Corporation	65-90	King Air	Beech 90 Series (PWC PT6)
	C90	King Air	
	C90A	King Air	
HAWKER BEECHCRAFT Corporation (cont.)	B200		Beech 200 Series (PWC PT6)
	B200C		
	B200GT		
	390	Premier 1, 1A	Beech 390 (Williams FJ44)
PIAGGIO Aero Industries	P180	Avanti	Piaggio P180 Avanti/Avanti II (PWC PT6)
	P180	Avanti II	
PILATUS AIRCRAFT	PC-12		Pilatus PC-12 (PWC PT6)
VIKING AIR (Bombardier) (De Havilland)	DHC-6-1	Twin Otter	De Havilland DHC-6 (PWC PT6)
	DHC-6-100/110	Twin Otter	
	DHC-6-200/210	Twin Otter	
	DHC-6-300/310/320	Twin Otter	
	DHC-6-400	Twin Otter	

3. Aeroplanes multiple turbine engines (AMTE) of 5700 kg and below, eligible for type examinations and manufacturer group ratings	
TC holder	**Type rating endorsement**
B-N GROUP Ltd. (Britten-Norman)	Britten-Norman BN2T Series (RR Corp 250)
PIPER AIRCRAFT Corporation	Piper PA-31TSeries (PWC PT6)

4. Aeroplanes single turbine engine (ASTE) of 5700 kg and below, eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
CESSNA AIRCRAFT Company	Cessna 208 Series (PWC PT6)
PILATUS AIRCRAFT	Pilatus PC-6 Series (PWC PT6)
	Pilatus PC-6 Series (Turbomeca Astazou)
	Pilatus PC-6 Series (Honeywell TPE 331)

5. Aeroplane multiple piston engines – metal structure (AMPE-MS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
AEROSTAR AIRCRAFT Corporation	Piper PA-60/61 Series (Lycoming)
CESSNA AIRCRAFT Company/ REIMS AVIATION	Cessna 310/320 Series (Continental)
	Cessna 336 (Continental)
	Cessna 421 (Continental)
	Cessna T303 (Continental)
	Beech 55 Series (Continental)
	Beech 58 Series (Continental)
	Beech 58P (Continental)
	Beech 65-80 Series (Lycoming)
	Beech 76 (Lycoming)
	Beech 95 Series (Lycoming)
Piper Aircraft	Piper PA-30 Series (Lycoming)

5. Aeroplane multiple piston engines – metal structure (AMPE-MS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
	Piper PA-31 Series (Lycoming)
	Piper PA-31P (Lycoming)
	Piper PA-34 Series (Lycoming)
	Piper PA-34 Series (Continental)
VULCANAIR	Vulcanair P.68 Series (Lycoming)
Dakota	Dakota DC-3 (PW R-1830-92)

6. Aeroplane single piston engine – metal structure (ASPE-MS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
CESSNA AIRCRAFT Company/ REIMS AVIATION	Cessna 150 Series (Rotax)
	Cessna/Reims-Cessna 150/F150 Series (Continental)
	Cessna/Reims-Cessna 152/F152 Series (Lycoming)
	Cessna/Reims-Cessna 172/F172 Series (Lycoming)
	Cessna/Reims-Cessna 172/F172 Series (Continental)
	Cessna 172 Series (Thielert)
	Cessna 175 Series (Lycoming)
	Cessna 175 Series (Continental)
	Cessna 177 Series (Lycoming)
	Cessna 180 Series (Continental)
	Cessna/Reims-Cessna 182/F182 Series (Lycoming)
	Cessna/Reims-Cessna 182/F182 Series (Continental)
	Cessna/Reims-Cessna 182/F182 Series (SMA)
	Cessna 185 Series (Continental)
	Cessna 206 Series (Continental)
	Cessna 206 Series (Lycoming)
HAWKER BEECHCRAFT Corporation	Beech 35 Series (Continental)
	Beech 36 Series (Continental)
LAVIA Argentina S.A (Laviasa)	Piper PA-25 Series (Lycoming)

6. Aeroplane single piston engine – metal structure (ASPE-MS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
PILATUS AIRCRAFT	Pilatus PC-6 Series (Lycoming)
PIPER AIRCRAFT	Piper PA-24 Series (Lycoming)
	Piper PA-28 Series (Lycoming)
	Piper PA-28 Series (Continental)
	Piper PA-28 Series (Thielert)
	Piper PA-32 Series (Lycoming)
	Piper PA-36 Series (Lycoming)
	Piper PA-36 Series (Continental)
SKY Int	Aviat Husky A (Lycoming)
Zlin Aircraft (Moravan Aviation)	Zlin Z-143 L (Lycoming)
	Zlin Z-242 L (Lycoming)

7. Aeroplane multiple piston engines – wooden structure (AMPE-WS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
No aircraft in this list.	

8. Aeroplane single piston engine – wooden structure/metal tube-fabric (ASPE-WS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
No Aircraft in this list	

9. Aeroplane multiple piston engines – composite structure (AMPE-CS), eligible for type examinations and group ratings	
TC holder	**Type rating endorsement**
DIAMOND AIRCRAFT Industries	Diamond DA42 Series (Thielert)
	Diamond DA42 Series (Austro Engine)

10. Aeroplane single piston engine – composite structure (ASPE-CS), eligible for type examinations and group ratings	
TC Holder	**Type Rating Endorsement**
CIRRUS Design Corporation	Cirrus SR20 (Continental)
	Cirrus SR22 Series (Continental)
DIAMOND AIRCRAFT Industries	Diamond DA40 (Lycoming)
	Diamond DA40 D (Thielert)
	Diamond DA40 (Austro Engine)
NATIONAL AEROSPACE LABORATORIES	Hansa 3 (Rotax)

11. Multi-engine helicopters (MEH), requiring type training and individual type rating			
1 TC Holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type rating endorsement**
AGUSTA	A109E		Agusta A109 Series (PWC PW206/207)
	A109S		
	AW109SP		
	A109		Agusta A109 Series (RR Corp 250)
	A109A		
	AW139		Agusta AW139 (PWC PT6)
BELL HELICOPTER TEXTRON	212		Bell 212 / Agusta AB212 (PWC PT6)
	412		Bell 412 / Agusta AB412 (PWC PT6)
	412EP		
	412CF		
BELL HELICOPTER CANADA	427		Bell 427 (PWC PW207D)
	222		Bell 222 (Honeywell LTS 101)
	222B		
	222U		
	230	230 Executive	Bell 230 (RR Corp 250)
		230 Utility	
		230 EMS	
	429		Bell 429 (PWC PW207D)
	430		Bell 430 (RR Corp 250)
EUROCOPTER	AS 355 E		Eurocopter AS 355 (RR Corp 250)
	AS 355 F		
	AS 355 F1		
	AS 355 F2		
Eurocopter Cont…	AS 355 N		Eurocopter AS 355 (Turbomeca Arrius 1)

11. Multi-engine helicopters (MEH), requiring type training and individual type rating			
1 TC Holder	**2 Aeroplanes Model**	**Commercial Designation**	**3 Type rating endorsement**
	AS 355 NP		
	SA 365 N	Dauphin	Eurocopter SA 365 N (Turbomeca Arriel 1)
	SA 365 N1	Dauphin	Eurocopter SA 365 N1, AS 365 N2 (Turbomeca Arriel 1)
	AS 365 N2		
	AS 365 N3	Dauphin	Eurocopter AS 365 N3 (Turbomeca Arriel 2C)
	EC 155 B		Eurocopter EC 155 (Turbomeca Arriel 2)
	EC 155 B1		
EUROCOPTER Deutschland GMBH	EC 135 P1 Series		Eurocopter EC 135 (PWC PW206)
	EC 135 P2 Series		
	EC 635 P2+		
	MBB-BK 117 C2	EC145	Eurocopter MBB-BK 117 C2 (Turbomeca Arriel 1)
HINDUSTAN AERONAUTICS Ltd.	DHRUV		DHRUV
MD HELICOPTERS, INC.	MD900		MD Helicopters MD900 (PWC PW206/207)
MOSCOW HELICOPTERS PLANT	MI 172		M1 172 - Klimo TV/TB-3-117 VM/BM
SIKORSKY AIRCRAFT	S-76C	S-76C+	Sikorsky S-76C(Turbomeca Arriel 2)
	S-76C	S-76C++	
	S-76C		Sikorsky S-76C(Turbomeca Arriel 1)

12. Helicopters – Single turbine engine (HSTE), eligible for type examinations and group ratings			
1 TC Holder	**2 Helicopter Model**	**Commercial Designation**	**3 Type Rating Endorsement**
AGUSTA	A119	Koala	Agusta A119/ (PWC PT6)
BELL HELICOPTER CANADA	407		Bell 407 (RR Corp 250)
AGUSTA	AB 206A		Agusta AB206 / Bell 206 (RR Corp 250)
	AB 206B		
BELL HELICOPTER TEXTRON CANADA LIMITED	206 series from A to L		
THE ENSTROM HELICOPTER CORPORATION	480		Enstrom 480 (RR Corp 250)
	480B		
EUROCOPTER	AS 350	Ecureuil	Eurocopter AS 350 (Turbomeca Arriel 1)
	AS 350 B1		
	AS 350 B2		
	AS 350 BA		
	AS 350 BB		
	AS 350 B3		Eurocopter AS 350 (Turbomeca Arriel 2B)
	AS 350 D		Eurocopter AS 350 (Honeywell LTS 101)
	EC 120 B	Colibri	Eurocopter EC 120 (Turbomeca Arrius 2F)
	EC 130 B4		Eurocopter EC 130 (Turbomeca Arriel 2B)
	SA 315 B	Lama	Eurocopter SA 315B (Turbomeca Artouste)
	SA 316 B	Alouette III	Eurocopter SA 316 B (Turbomeca Artouste)
MD HELICOPTERS INC. (MDHI)	500N		MD Helicopters 500N N/ AMD500N (RR Corp 250)
	MD 60N		MD 60N (ALLISON 250-C47M)

13. Helicopters – Single piston engines (HSPE), eligible for type examinations and group ratings			
1 TC Holder	**2 Helicopter Model**	**Commercial Designation**	**3 Type rating endorsement**
THE ENSTROM HELICOPTER CORPORATION	F-28 series		Enstrom F-28 (Lycoming)
SEI (BREDA-NARDI)	NH 300C	Model 300C	Schweizer / Breda Nardi (Hughes) 269/300 (Lycoming)
SCHWEIZER AIRCRAFT CORPORATION	269A		
	269B		
	269C		
ROBINSON HELICOPTER COMPANY	R 44		Robinson R44 Series (Lycoming)

Addendum II to AMC of CAR-66

Aircraft type practical experience list of tasks

I **Time limits/Maintenance checks**

a. 100 hour check (general aviation aircraft).
b. ***"A"*** check (transport category aircraft).
c. Review records for compliance with airworthiness directives.
d. Review records for compliance with component life limits.
e. Procedure for Inspection following heavy landing.
f. Procedure for Inspection following lightning strike.

II **Dimensions/Areas**

a. Locate component(s) by station number.
b. Perform symmetry check.

III **Lifting and Shoring**

Assist in :

a. Jack aircraft nose or tail wheel.
b. Jack complete aircraft.
c. Sling or trestle major component.

IV **Leveling /Weighing**

a. Level aircraft.
b. Weigh aircraft.
c. Prepare weight and balance amendment.
d. Check aircraft against equipment list.

V **Towing and Taxiing**

a. Tow aircraft.
b. Be part of aircraft towing team.

VI **Parking and mooring**

a. Tie down aircraft.
b. Park, secure and cover aircraft.
c. Position aircraft in dock.
d. Secure rotor blades.

VII **Placards and Markings**

a. Check aircraft for correct placards.
b. Check aircraft for correct markings.

VIII **Servicing**

a. Refuel aircraft.
b. Defuel aircraft.
c. Check tire pressures.
d. Check oil level.
e. Check hydraulic fluid level.
f. Check accumulator pressure.
g. Charge pneumatic system.
h. Grease aircraft.
i. Connect ground power.
j. Service toilet/water system
k. Perform pre-flight/daily check

IX **Vibration and Noise Analysis**

a. Analyze helicopter vibration problem.
b. Analyze noise spectrum.

X **Air Conditioning**

a. Replace combustion heater.
b. Replace outflow valve.
c. Replace vapour cycle unit.
d. Replace air cycle unit.
e. Replace cabin blower.
f. Replace heat exchanger.
g. Replace pressurization controller.
h. Clean outflow valves.
i. Check operation of air
j. conditioning/heating system
k. Check operation of pressurization system
l. Troubleshoot faulty system

XI **Auto flight**

a. Install servos.
b. Rig bridle cables
c. Replace controller.
d. Replace amplifier.
e. Check operation of auto-pilot.
f. Check operation of auto-throttle.
g. Check operation of yaw damper.

h. Check and adjust servo clutch.
i. Perform autopilot gain adjustments.
j. Perform mach trim functional check.
k. Troubleshoot faulty system.
l. Check auto land system
m. Check flight management systems
n. Check stability augmentation system

XII **Communications**

a. Replace VHF com unit.
b. Replace HF com unit.
c. Replace existing antenna.
d. Replace static discharge wicks.
e. Check operation of radios.
f. Perform antenna VSWR check.
g. Perform Selcal operational check.
h. Perform operational check of
i. passenger address system.
j. Functionally check audio integrating system.
k. Repair co-axial cable.
l. Troubleshoot faulty system.

XIII **Electrical Power**

a. Charge lead/acid battery.
b. Charge ni-cad battery.
c. Check battery capacity.
d. Deep-cycle ni-cad battery.
e. Replace generator/alternator.
f. Replace switches.
g. Replace circuit breakers.
h. Adjust voltage regulator.
i. Amend electrical load analysis report.
j. Repair/replace electrical feeder cable.
k. Troubleshoot faulty system

XIV **Equipment/Furnishings**

a. Replace pets
b. Replace crew seats.
c. Replace passenger seats.
d. Check inertia reels.
e. Check seats/belts for security.
f. Check emergency equipment.
g. Check ELT for compliance with regulations.
h. Repair toilet waste container.
i. Repair upholstery.
j. Change cabin configuration.

XV **Fire protection**

a. Check fire bottle contents.
b. Check operation of warning system.
c. Check cabin fire extinguisher contents.
d. Check lavatory smoke detector system.
e. Install new fire bottle.
f. Replace fire bottle squib.
g. Troubleshoot faulty system.
h. Inspect engine fire wire detection systems

XVI **Flight Controls**

a. Replace horizontal stabilizer.
b. Replace elevator.
c. Replace aileron.
d. Replace rudder.
e. Replace trim tabs.
f. Install control cable and fittings.
g. Replace flaps.
h. Replace powered flying control unit
i. Replace flat actuator
j. Adjust trim tab.
k. Adjust control cable tension.
l. Check control range and sense of movement.
m. Check for correct assembly and locking.
n. Troubleshoot faulty system.

XVII **Fuel**

a. Replace booster pump.
b. Replace fuel selector.
c. Replace fuel tank cells.
d. Check filters.
e. Flow check system.
f. Check calibration of fuel quantity gauges.
g. Check operation feed/selectors
h. Troubleshoot faulty system.

XVIII **Hydraulics**

a. Replace engine driven pump.
b. Replace standby pump.
c. Replace accumulator.

d. Check operation of shut off valve.
e. Check filters.
f. Check indicating systems.
g. Perform functional checks.
h. Troubleshoot faulty system.

XIX **Ice and rain protection**

a. Replace pump.
b. Replace timer.
c. Install wiper motor.
d. Check operation of systems.
e. Troubleshoot faulty system.

XX **Indicating/recording systems**

a. Replace flight data recorder.
b. Replace cockpit voice recorder.
c. Replace clock.
d. Replace master caution unit.
e. Replace FDR.
f. Perform FDR data retrieval.
g. Troubleshoot faulty system.
h. Implement ESDS procedures
i. Inspect for HIRF requirements

XXI **Landing Gear**

a. Build up wheel.
b. Replace main wheel.
c. Replace nose wheel.
d. Replace shimmy damper.
e. Rig nose wheel steering.
f. Replace shock strut seals.
g. Replace brake unit.
h. Replace brake control valve.
i. Bleed brakes.
j. Test anti skid unit.
k. Test gear retraction.
l. Change bungees.
m. Adjust micro switches.
n. Charge struts.
o. Troubleshoot faulty system.
p. Test out brake system

XXII **Lights**

a. Repair/replace rotating beacon.
b. Repair/replace landing lights.
c. Repair/replace navigation lights.
d. Repair/replace interior lights.
e. Repair/replace emergency lighting system.
f. Perform emergency lighting system checks.
g. Troubleshoot faulty system

XXIII **Navigation**

a. Calibrate magnetic direction indicator.
b. Replace airspeed indicator.
c. Replace altimeter.
d. Replace air data computer.
e. Replace VOR unit.
f. Replace ADI.
g. Replace HSI.
h. Check pitot static system for leaks.
i. Check operation of directional gyro.
j. Functional check weather radar.
k. Functional check Doppler.
l. Functional check TCAS.
m. Functional check DME
n. Functional check ATC Transponder
o. Functional check flight director system.
p. Functional check inertial nav system.
q. Complete quadrantal error correction of ADF system.
r. Update flight management system database.
s. Check calibration of pitot static instruments.
t. Check calibration of pressure altitude reporting system.
u. Troubleshoot faulty system
v. Check marker systems
w. Compass replacement direct/indirect
x. Check Satcom
y. Check GPS
z. Test AVM

XXIV **Oxygen**

a. Inspect on board oxygen equipment.
b. Purge and recharge oxygen system.
c. Replace regulator.
d. Replace oxygen generator.
e. Test crew oxygen system.

f. Perform auto oxygen system deployment check.
g. Troubleshoot faulty system.

XXV **Pneumatic systems**
a. Replace filter.
b. Replace compressor.
c. Recharge desiccators.
d. Adjust regulator.
e. Check for leaks.
f. Troubleshoot faulty system.

XXVI **Vacuum systems**
a. Replace vacuum pump.
b. Check/replace filters.
c. Adjust regulator.
d. Troubleshoot faulty system.

XXVII **Water/Waste**
a. Replace water pump.
b. Replace tap.
c. Replace toilet pump.
d. Troubleshoot faulty system.

XXVIII **Central Maintenance System**
a. Retrieve data from CMU.
b. Replace CMU.
c. Perform Bite check.
d. Troubleshoot faulty system.

XXIX **Airborne Auxiliary power**
a. Install APU.
b. Inspect hot section.
c. Troubleshoot faulty system.

XXX **Structures**
a. Sheet metal repair.
b. Fibre glass repair.
c. Wooden repair.

XXXI **Fabric repair.**
a. Recover fabric control surface.
b. Treat corrosion.
c. Apply protective treatment.

XXXI **Doors**
a. Rig/adjust locking mechanism.
b. Adjust air stair system.
c. Check operation of emergency exits.
d. Test door warning system.
e. Troubleshoot faulty system.

XXXII **Windows**
a. Replace windshield.
b. Replace window.
c. Repair transparency.

XXXIII **Wings**
d. Skin repair.
e. Recover fabric wing.
f. Replace tip.
g. Replace rib.
h. Check incidence/rig.

XXXIV **Propeller**
a. Assemble prop after transportation.
b. Replace propeller.
c. Replace governor.
d. Adjust governor.
e. Perform static functional checks.
f. Check operation during ground run.
g. Check track.
h. Check setting of micro switches.
i. Dress out blade damage.
j. Dynamically balance prop.
k. Troubleshoot faulty system.

XXXV **Main Rotors**
a. Install rotor assembly.
b. Replace blades.
c. Replace damper assembly.
d. Check track.
e. Check static balance.
f. Check dynamic balance.
g. Troubleshoot.

XXXVI **Rotor Drive**
a. Replace mast.
b. Replace drive coupling.
c. Replace clutch/freewheel unit
d. Replace drive belt.
e. Install main gearbox.
f. Overhaul main gearbox.
g. Check gearbox chip detectors.

XXXVII **Tail Rotors**
a. Install rotor assembly.
b. Replace blades.
c. Troubleshoot.

XXXVIII **Tail Rotor Drive**
a. Replace bevel gearbox.
b. Replace universal joints.

c. Overhaul bevel gearbox.
d. Install drive assembly.
e. Check chip detectors.

XXXIX **Rotorcraft flight controls**

a. Install swash plate.
b. Install mixing box.
c. Adjust pitch links.
d. Rig collective system.
e. Rig cyclic system.
f. Rig anti-torque system.
g. Check controls for assembly and locking.
h. Check controls for operation and sense.
i. Troubleshoot faulty system.

XL **Power Plant**

a. Build up ECU.
b. Replace engine.
c. Repair cooling baffles.
d. Repair cowling.
e. Adjust cowl flaps.
f. Repair faulty wiring.
g. Troubleshoot.

XLI **Piston Engines**

a. Remove/install reduction gear.
b. Check crankshaft run-out.
c. Check tappet clearance.
d. Check compression.
e. Extract broken stud.
f. Install helicoil.
g. Perform ground run.
h. Establish/check reference RPM.
i. Troubleshoot.

XLII **Turbine Engines**

a. Replace module.
b. Hot section inspection.
c. Engine ground run.
d. Establish reference power.
e. Trend monitoring/gas path analysis.
f. Troubleshoot.

XLIII **Fuel and control, piston**

a. Replace engine driven pump.
b. Adjust AMC.
c. Adjust ABC.
d. Install carburetor/injector.
e. Adjust carburetor/injector.
f. Clean injector nozzles.
g. Replace primer line.
h. Check carburetor float setting.
i. Troubleshoot faulty system.

XLIV **Fuel and control, turbine**

a. Replace FCU.
b. Replace engine driven pump.
c. Clean/test fuel nozzles.
d. Clean/replace filters.
e. Adjust FCU.
f. Troubleshoot faulty system.

XLV **Ignition systems, piston**

a. Change magneto.
b. Change ignition vibrator.
c. Change plugs.
d. Test plugs.
e. Check H.T. leads.
f. Install new leads.
g. Check timing.
h. Check system bonding.
i. Troubleshoot faulty system.

XLVI **Ignition systems, turbine**

a. Check glow plugs/ ignitors.
b. Check H.T. leads.
c. Check ignition unit.
d. Replace ignition unit.
e. Troubleshoot faulty system.

XLVII **Engine Controls**

a. Rig thrust lever.
b. Rig RPM control.
c. Rig mixture HP cock lever.
d. Rig power lever.
e. Check control sync (multi-eng).
f. Check controls for correct assembly and locking.
g. Check controls for range and sense of operation.
h. Adjust pedestal micro-switches.
i. Troubleshoot faulty system.

XLVIII **Engine Indicating**

a. Replace engine instruments(s).
b. Replace oil temperature bulb.
c. Replace thermocouples.
d. Check calibration.
e. Troubleshoot faulty system.

XLIX **Exhaust, piston**

a. Replace exhaust gasket.
b. Inspect welded repair.
c. Pressure check cabin heater muff.
d. Troubleshoot faulty system.

L **Exhaust, turbine**
a. Change jet pipe.
b. Change shroud assembly.
c. Install trimmers.

LI **Oil**
a. Change oil.
b. Check filter(s).
c. Adjust pressure relief valve.
d. Replace oil tank.
e. Replace oil pump.
f. Replace oil cooler.
g. Replace firewall shut off valve.
h. Perform oil dilution.
i. Troubleshoot faulty system.

LII **Starting**
a. Replace starter.
b. Replace start relay.
c. Replace start control valve.
d. Check cranking speed.
e. Troubleshoot faulty system.

LIII **Turbines, piston engines**
a. Replace PRT.
b. Replace turbo-blower.
c. Replace heat shields.
d. Replace waste gate.
e. Adjust density controller.

LIV **Engine water injection**
a. Replace water/methanol pump.
b. Flow check water/methanol system.
c. Adjust water/methanol control unit.
d. Check fluid for quality.
e. Troubleshoot faulty system

LV **Accessory gear boxes**
a. Replace gearbox.
b. Replace drive shaft.
c. Check Chip detector

Addendum III to AMC of CAR-66

Reserved

Addendum IV to AMC of CAR- 66. A. 45(d)

Fuel Tank Safety training

This appendix includes general instructions for providing training on Fuel Tank Safety issues.

1. Level of training required by this Annex is only level 2.

Level 2 Detailed training

Objectives:

The attendant should, after the completion of the training:

1. know the history and the theoretical and practical elements of the subject, have an overview of Special Federal Aviation Regulations (SFARs) from 14 CFR SFAR 88 of the FAA and of JAA TGL 47, be able to give a detailed description of the concept of CDCCL, Airworthiness Limitations Items (ALI) and using theoretical fundamentals and specific examples,
2. have the capacity to combine and apply the separate elements of knowledge in a logical and comprehensive manner.
3. have detailed information on how the above items affect the aircraft in the scope of the activity of the organisation or in the fleet.
4. understand and carry out activities with the use of manufacturer and regulatory authority data providing instructions on design and maintenance, such as Service Bulletins, Airworthiness Directives, Aircraft Maintenance Manual, Component Maintenance Manual etc.
5. use easily the manufacturer's documentation from various sources and apply corrective action where appropriate.
6. identify the components or parts or the aircraft subject to FTS from the manufacturer's documentation, plan the action or apply a Service Bulletin and an Airworthiness Directive.

Continuing training

The interval between continuing training shall be established by the organisation employing such personnel, but should not exceed two years. The continuing training shall include knowledge on evolution of material, tools, documentation and manufacturer's or DGCA directives.

2. The personnel directly involved in Fuel Tank Safety (FTS) systems shall be qualified according to the following table:

Organisation	Personnel	Level of knowledge	Continuing training
Part-66 licence holders in a continuing airworthiness management organisation	The airworthiness review staff as required by M.A.707.	2	Yes
Part-66 licence holders in aircraft and component maintenance organisations	Maintenance organisation support and certifying staff	2	Yes

3. General requirements

The training for the personnel designated in table above has to be carried out before any airworthiness review certificate is issued or any maintenance task is certified on an aircraft or a component.

The training should be made in appropriate facilities containing examples of components, systems and parts affected by FTS issues and having access to aircraft or component where typical examples of FTS issues can be shown. The use of pictures, films and practical examples of the maintenance on fuel tank system is recommended. The training shall include a representative number of repair and inspections as required by the maintenance programme showing the necessity of using the manufacturer's data.

4. Characteristics of the training

The following characteristics shall be taken into consideration when the level 2 training programme are being established:

(a) understanding of the background and concepts of fuel tank safety as developed during the last 10 years, and

(b) how in maintenance organisations mechanics can recognize, interpret and handle the improvements that have been made or are being made during fuel tank system maintenance,

(c) awareness of any hazards working on the Fuel System, and especially with a Flammability Reduction System using nitrogen.

a), b) and c) should be introduced in the training programme addressing the following issues:

i) The theoretical background behind the fuel tank safety: the explosions of mixtures of fuel and air, the behavior of those mixtures in an aviation environment, the effects of temperature and pressure, energy needed for ignition etc, the 'fire triangle', - Explain 2 concepts to prevent explosions: (1) ignition source prevention and (2) flammability reduction,

ii) The major accidents and accident investigations and their conclusions,

iii) SFARs from 14 CFR SFAR 88 of the FAA and JAA Internal Policy INT POL 25/12: reason of these documents, and what was the ultimate goal, margins of fuel system safety improvements (from 10-6 to 10-9, in fact improvement by a factor 100-1000, to identify unsafe conditions and to correct them, to systematically improve fuel tank maintenance),

iv) Explain the concepts that are being used: the results of SFAR 88 of the FAA and JAA INT/POL 25/12: modifications, airworthiness limitations and CDCCL,

v) Where relevant information can be found by the mechanics and how to use and interpret this information (maintenance manuals, component maintenance manuals)

vi) Fuel Tank Safety and Maintenance: fuel tank entry and exit procedures, clean working environment, what is meant by configuration control, wire separation, bonding of components etc,

vii) Flammability reduction systems: reason for their presence, their effects, the hazards of an FRS using nitrogen for maintenance, safety precautions in maintenance/working with an FRS,

viii) Recording maintenance actions, recording measures and results of inspections.

Guidance Material (GM) to SECTION A of CAR-66

GM 66.A.20 (a) 1 Privileges

1. The following titles shown against each category designator below are intended to provide a readily understandable indication of the job function:

   Category A: Line maintenance certifying engineer

   Category B1: Maintenance certifying engineer- Mechanical.

   Category B2: Maintenance certifying engineer- Avionic.

   Category C: Base maintenance certifying engineer

2. Individual aircraft maintenance engineer's licence holders need not be restricted to a single category. Provided that each qualification requirement is satisfied, any combination of categories may be granted.

GM 66.A.20 (a) 2 Privileges

1. Tasks permitted by 66.A.20 (a) 1. to be certified under the category A certification authorisation as of minor scheduled maintenance or simple defect rectification are as specified in CAR-145 and agreed by DGCA. CAR-145 contains a typical example list of such tasks.

2. For the purposes of category A minor scheduled line maintenance means any minor check up to but not including the A check where functional tests can be carried out by the aircrew to ensure system serviceability. In the case of an aircraft type not controlled by a maintenance programme based upon the A/B/C/D check principle, minor scheduled line maintenance means any minor checks up to and including the weekly check or equivalent.

3. The category B1 licence also permits the certification of work involving avionic systems, provided the serviceability of the system can be established by a simple self-test facility, other on-board test systems/equipment or by simple ramp test equipment. Defect rectification involving test equipment which requires an element of decision making in its application - other than a simple go/no-go decision - cannot be certified. The category B2 will need to be qualified as category A in order to carry out simple mechanical tasks and be able to make certifications for such work.

4. The category C certification authorization permits certification of scheduled base maintenance by the issue of a single certificate of release to service for the complete aircraft after the completion of all such maintenance. The basis for this certification is that the maintenance has been carried out by competent mechanics and both category B1 and B2 staff have signed for the maintenance under their respective specialization. The principal function of the category C certifying staff is to ensure that all required maintenance has been called up and signed off by the category B1 and B2 staff before issue of the certificate of release to service. Category C personnel

who also hold category B1 or B2 qualifications may perform both roles in base maintenance.

GM 66. A. 20 (b) 3. Privileges

1. Holders of a **Part**-66 aircraft maintenance licence may not exercise certification privileges unless they have a general knowledge of the language used within the maintenance environment including knowledge of common aeronautical terms in the language. The level of knowledge should be such that the licence holder is able to:
   - read and understand the instructions and technical manuals in use within the organisation;
   - make written technical entries and any maintenance documentation entries, which can be understood by those with whom they are normally required to communicate;
   - read and understand the maintenance organisation procedures;
   - communicate at such a level as to prevent any misunderstanding when exercising certification privileges.
2. In all cases, the level of understanding should be compatible with the level of certification privileges exercised.

GM 66.A.25 (a) Basic knowledge requirements

The levels of knowledge are directly related to the complexity of certifications appropriate to the particular Category A, which means that Category A must demonstrate a limited but adequate level of knowledge, whereas Category B1 and B2 must demonstrate a complete level of knowledge in the appropriate subject modules. Category C certifying staff must meet the relevant level of knowledge for B1 or B2.

GM 66.A.30 (a) Experience requirements

Practical Aircraft Maintenance experience means the experience of being involved in maintenance tasks on aircraft which are being operated by airlines, air taxi organizations, etc. The point being to gain sufficient experience in the environment of commercial maintenance as opposed to only the training school environment. Such experience may be combined with approved training so that periods of training can be intermixed with periods of experience rather like the apprenticeship.

GM 66.A.40 Continued validity of the aircraft maintenance licence

Validity of the Part-66 aircraft maintenance licence is not affected by recency of maintenance experience whereas the validity of the 66.A.20 privileges is affected by maintenance experience as specified in 66.A.20 (a).

GM 66.A.45 (d) Type/task training and ratings

1. The required duration of practical training should be accepted on a case-by-case basis by the DGCA prior to the type rating endorsement. It is strongly recommended that the agreement on the practical training duration be reached before the training starts. For applicants from a CAR-145 organisation, the required duration may be approved through the organization's MOE procedures.

2. While it is not feasible to establish a formula giving the required training duration in all cases, the following may be used as a guideline:

   (a) For a first type training course with no recent recorded maintenance experience four months practical training is required.

   (b) Some factors that may lead to a reduction in the maximum duration of 4 months practical training required are as follows:

   – experience on aircraft type of a similar technology, construction and systems including engines;

   – recency on type;

   – the quantity of the practical experience. For example experience gained will depend upon the environment e.g. line maintenance environment with one aircraft per week would permit limited experience compared with the constant base maintenance check environment;

   – the quality of the practical experience. The type of tasks carried out. These tasks should reflect, at a minimum, those tasks specified by the practical training needs matrix developed by the approved training organisation.

3. The minimum two weeks practical training is normally required for all type training courses. This includes the addition of similar type ratings on a CAR-66 licence (differences courses). There may be cases where the practical differences training required is less than two weeks for example an engineer with a CAR-66 type licence in category B2 on an Airbus A330 with PW 4000 engines who takes a differences course to an Airbus A330 with Rolls Royce Trent engines.

   It should be noted however that while AMC 66. A. 45(d) specifies a practical training duration between 2 weeks and 4 months, in the case of a structured OJT performed at line stations, due to the availability of aircraft its duration may need be subsequently extended in order to fulfill the required list of supervised tasks.

4. Except in those cases where the approved training organisation determines the practical training required, it is the responsibility of the maintenance organisation to determine that the duration of practical training is commensurate with the candidate's recency and experience. However, in either case DGCA should approve the duration of practical training for adding a type rating.

   Limited avionics system training should be included in the category B1 type training as the B1 privileges include the replacement of avionic line replaceable units. Electrical systems should be included in both type training categories.

GM 66.A.45 (d) and (e) Type/task training and ratings

CAR-66 Section A Appendix III type training levels are based upon ATA 104 (Air Transport Association) corresponding type training levels.

GM 66.A.45 (f) Type/task training and ratings

The examinations in respect of category A, B1 or B2 or C aircraft type ratings may be conducted by training organizations appropriately approved, or an organisation accepted by DGCA to conduct such examination.

GM 66.A.70 Conversion provisions

For example a technical limitation could be where a person holds a pre Part-66 national licence or authorisation limited to the release of the airframe and engine but not the electrical power system. This person would be issued with an Part-66 aircraft maintenance licence in the B1 category with a limitation excluding electrical power systems.

SECTION B

Procedures for CAR-66 Section B – Licensing of Aircraft Maintenance Engineers
Sub Part A

General

1) 66. B.05 Scope

This section establishes the administrative requirements to be followed by the Directorate General of Civil Aviation (DGCA) for the application and the enforcement of the requirements in Section A, "Technical Requirements" of CAR-66 – Licensing of Aircraft Maintenance Engineers.

Note: CAR 66 does not include requirements for the licensing of persons to certify certain aircraft including balloons, airships, microlight aircraft and gliders. It also does not cover authorisations for persons who certify for components. Licensing and or authorisations for aircraft and components not covered under CAR-66 will continue to be processed in accordance with CAR Section 2 Series L Part IX or Part X as applicable.

2) 66. B.10 Responsible authority – Role of the Directorate General of Civil Aviation

General

The DGCA is empowered by the Central Government to perform oversight of aircraft related safety functions, including the licensing of aircraft maintenance engineers in accordance with CAR-66.

Resources

The DGCA employs administrative and technical staff to administer applications for licences and conduct examinations. The staff are deployed in the Airworthiness Directorate Headquarters, Regional Offices and the Central Examination Organisation.

Procedures

The licensing process is carried out in accordance with detailed procedures contained in the Airworthiness Procedures Manual and these will be referred to in the applicable paragraphs of this procedure. The procedures are subject to periodic review and revision, as required, to ensure continued compliance with CAR-66.

3) 66. B.15 Acceptable means of compliance

Acceptable means of compliance (AMC) to Section A of CAR-66 has been published by the DGCA. Where the acceptable means of compliance are complied with, the related requirements of CAR-66 are considered to be met.

4) 66B.20 Record-keeping

Records pertaining to the licensing of aircraft maintenance engineers are kept by the DGCA for traceability and accountability purposes.

The records kept are listed below:

a) The application for an aircraft maintenance licence or change to that licence, including all supporting documentation;

b) A copy of the aircraft maintenance licence including any changes;

c) Copies of all relevant correspondence;

d) Details of any enforcement actions;

e) Records of examinations conducted by the DGCA;

f) Aircraft maintenance licence conversion reports;

Records referred to in a) to d) above will be retained for at least five years after the end of the licence validity.

Records relating to in e) above will be retained for at least five years after the date of the examination.

Records referred to in f) will be retained indefinitely.

Records are kept at both DGCA Headquarters and at Regional and Sub Regional Offices.

Detailed procedures for the retention of records are published in Chapter 16 and Chapter 17 of the Airworthiness Procedures Manual.

5) 66. B.25 Mutual exchange of information

Reserved

6) 66. B.30 Exemptions

No exemptions will be issued by the DGCA against the requirements of CAR-66.

SUB PART B

ISSUE OF AN AIRCRAFT MAINTENANCE ENGINEER'S LICENCE

7) 66. B.100 Procedure for the issue of an aircraft maintenance engineer's licence

a) An application for an initial licence is made on DGCA CA Form 19-01. On receipt of the CA Form 19-01 it will be checked by Airworthiness Directorate in DGCA Headquarters for completeness, including the required supporting documents and that the applicant's experience meets CAR-66 requirements.

b) The Airworthiness Directorate will also verify that the applicant has provided evidence that he has passed examinations for the basic knowledge requirements and type training requirements.

c) The designated officer in the Airworthiness Directorate will complete the DGCA remarks column on the CA Form 19-01 "Instruction and Checklist" to record the assessment of the application.

d) If an application does not meet the requirements of CAR-66 the application will be rejected by the DGCA and returned to the applicant with a covering letter explaining the reason for rejection.

e) When satisfied that the applicant meets the standards of knowledge and experience required by CAR-66 the DGCA shall issue the relevant aircraft maintenance engineer's licence to the applicant. All information pertaining to the application will be retained on file in DGCA Headquarters. Detailed procedures for the production of the licence are published in Chapter 17 of the Airworthiness Procedures Manual.

8) 66. B.105

Reserved

9) 66. B.110 & 66.B.115 Procedure for the change of an aircraft maintenance engineer's licence to include an additional category or subcategory type rating or group rating

a) An application for a change to a licence is made on DGCA CA Form 19-02. On receipt of the CA Form 19-02 it will be checked by the respective Regional or Sub Regional Office for completeness, including the required supporting documents and that the applicant's experience meets CAR-66 requirements.

b) The Regional or Sub Regional Office will also verify that the applicant has provided evidence that he has passed examinations for the basic knowledge requirements and type training requirements.

c) The Regional or Sub Regional Office will complete the DGCA remarks column, Section 8 on the CA Form 19-02 "Instruction and Checklist" to record the assessment of the application.

d) If an application does not meet the requirements of CAR-66 the application will be rejected by the DGCA and returned to the applicant with a covering letter explaining the reason for rejection.

e) When satisfied that the applicant meets the standards of knowledge and experience required by CAR-66, the DGCA Regional or Sub Regional Office shall endorse the aircraft maintenance engineer's licence with the applicable changes and return it to the applicant. All information pertaining to the application for a change will be retained on file in the DGCA Regional or Sub Regional Office. A copy of the licence with the applicable changes will be sent to DGCA Headquarters. Detailed procedures for the production of the licence are published Chapter 17 of the Airworthiness Procedures Manual.

10) 66. B.120 Procedure for the renewal of an aircraft maintenance engineer's licence validity

a) An application for a renewal to a licence is made on DGCA CA Form 19-03. On receipt of the CA Form 19-03 it will be checked by the respective Regional or Sub Regional Office for completeness, including the required supporting documents and that the applicant's experience meets CAR-66 requirements. Applicants working overseas may send their application for renewal of a license to DGCA headquarters.

b) The DGCA will also compare the applicant's aircraft maintenance engineer's licence with the DGCA records and verify any pending revocation, suspension or change action pursuant to paragraph 15 (66.B.500).

c) If the DGCA records are different from the aircraft maintenance licence held by the licence holder:
   i) the DGCA will investigate the reasons for such differences and may choose not to renew the aircraft maintenance engineer's licence;
   ii) the DGCA will inform the licence holder and any known maintenance organisation approved in accordance with CAR M Subpart F or CAR 145 that may be directly affected of such fact;
   iii) the DGCA will, if necessary, take action in accordance with paragraph 15 (66.B.500) to revoke, suspend or change the licence in question

d) If the documents are identical and no action is pending pursuant to paragraph 15 (66.B.500), the DGCA will complete the DGCA remarks column on the CA Form 19-03 "Instruction and Checklist" to record the assessment of the application.

e) An application to renew a licence that has expired will be accepted for up to five years after the date of expiry of the licence. The applicant is required to submit certified evidence of 6 months actual relevant aircraft experience within the 24 months prior to their application. Licences expired for more than five years will not be renewed and applicants will need to meet all of the applicable requirements for the issue of a licence in accordance with CAR-66.A.25 and 66.A.30.

f) When satisfied that the applicant meets the requirements for licence renewal as required by CAR-66, the DGCA Headquarters, Regional or Sub Regional Office as applicable, shall renew the aircraft maintenance engineer's licence for a period of five years. All information pertaining to the application for renewal is retained on file in DGCA Headquarters, Regional or Sub Regional Office as applicable. A copy of a licence renewed by the Regional or Sub Regional Office will be sent to DGCA Headquarters for file. Detailed procedures for the production of the licence are published in Chapter 17 of the Airworthiness Procedures Manual.

11) Procedure for the issue of a duplicate aircraft maintenance engineer's licence. (National requirement)

a) An application for the issue of a duplicate licence is to be made on DGCA CA Form 19-05. On receipt of the CA Form 19-05 it will be checked by the designated Airworthiness Directorate officer in DGCA Headquarters for completeness, including the required supporting documents.

b) An application may be made in respect of a lost licence or a mutilated/damaged licence. The DGCA Headquarters will complete the DGCA remarks column on the CA Form 19-05 "Details of Documents and Enclosures" to record the assessment of the application.

c) When satisfied that all of the details are correct the DGCA Headquarters will issue a duplicate licence valid for the period remaining before its expiry. . All information pertaining to the application is retained on file in the Airworthiness Directorate at DGCA Headquarters. A copy of the duplicated licence will be sent to the Regional or Sub Regional Office where the licensed engineer is based. Additional procedures for the duplication of licences are published in the CAR Section 2, Series L, Part XIII

SUBPART C

EXAMINATIONS

12) 66. B.200 Examination by the DGCA

a) The DGCA Airworthiness Directorate, Central Examination Organization (CEO), is responsible for conducting basic written examinations for the issue of aircraft maintenance engineer's licenses. Detailed procedures for the establishment of questions, preparation and printing of examination papers together with their security are published in Chapter 13 of the Airworthiness Procedures Manual. The conduct of examinations at the Regional examination centres is published in Chapter 12 of the Airworthiness Procedures Manual. A summary of the relevant procedures is provided in this paragraph.

b) Access to the question bank is limited to designated senior officers within the CEO.

c) Each examination centre has a designated Superintendant who is responsible for examinations. He can supervise/invigilate the exam himself or appoint a supervi-

sor. Additional invigilators can be used as required by the number of examination candidates.

d) The basic examination is carried out in accordance with the standards specified in Appendix I and Appendix II to CAR-66

e) The type examination is carried out in accordance with the standards specified in Appendix III to CAR-66

f) All examination papers will be handed out to the candidate together with an answer sheet at the start of the examination and handed back to the examiner at the end of the allotted time period. No examination paper may be removed from the examination room during the examination.

g) Apart from specific documentation needed for type examinations, only the examination paper and answer paper will be available to the candidate during the examination.

(h) Examination candidates will be separated from each other so that they cannot read each other's examination papers. They may not speak to any person other than the supervisor/invigilator.

(i) Candidates who are proven to be cheating will be banned from taking any further examination within 12 months of the date of the examination in which they were found cheating. This period may be increased by the DGCA for repeat offences by candidates.

A. Basic examination

i) Prior to applying to take a basic examination, an applicant is required to submit DGCA CA Form 19-07, Application for allotment of computer number to appear in an examination. On receipt of the CA Form 19-07, it will be checked by the DGCA Central Examination Organisation (CEO for completeness, including the required supporting documents.

ii) The CEO will complete the DGCA "Remarks" column, Section 4 of DGCA CA Form 19-07, to record the assessment of the application.

iii) When satisfied that the application is correct, the DGCA CEO will allocate a unique computer registration number and the applicant will be advised of the allotted number by access to the DGCA web site. The applicant is to use this allotted computer number on all subsequent applications to the DGCA for examination.

iv) An application for basic examination is made on DGCA CA Form 19-08A. On receipt of the CA Form 19-08A it will be checked by the DGCA Central Examination Organisation (CEO) for completeness, including the required supporting documents and that the applicant is eligible to take the examination

v) Applicants can track their licence applications on the DGCA web site Licensing/Applications together with the results of their examinations.

B Type Training and Examinations

i) Specified aircraft require a type-training course to be completed and an individual type rating will be issued for these aircraft.

ii) The type training, together with the type examination for these types will be carried out by an approved training organisation or in accordance with a course of type training and examination specifically approved by the DGCA.

iii) A list of aircraft that require approved type training and examination is published as Addendum 1 to AMC of CAR-66.

iv) Type examinations for aircraft that do not require approved type training will be conducted by the DGCA.

C Type examination by DGCA

i) An applicant for a type examination should have passed the associated basic examination within five year preceding the date of the application.

ii) An application for type examination is made on DGCA CA Form 19-08B. On receipt of the CA Form 19-08B it will be checked by the DGCA designated officer at the Regional or Sub Regional Office for completeness, including the required supporting documents and that the applicant is eligible to take the examination.

iii) When satisfied that the application is acceptable the DGCA Regional or Sub Regional Office will advise the applicant and provide him with a date to sit the type examination.

iv) The candidate will be advised in writing of the result after the paper has been marked by the DGCA Regional or Sub Regional Office.

v) Records of the examination and all correspondence will be retained on file at the respective Regional and Sub Regional Offices and a copy will be sent to DGCA headquarters.

D Skill test

i) Skill test shall be performed to demonstrate, the ability to perform the functions applicable to the privileges to be granted.

ii) Skill test shall be conducted by a board constituted by Director of Airworthiness of regional office/Dy. Director of Airworthiness of sub regional office as per the procedure laid down in chapter 19 of Airworthiness Procedure Manual.

SUB PART D & SUB PART E

CONVERSION OF LICENCES ISSUED PRIOR TO CAR-66 AND EXAMINATION CREDITS

13) 66. B.300 and 66.B.400 Conversion and credits general

The DGCA has prepared a conversion process in accordance with the provisions of CAR-66.A.70. The purpose of this is to enable holders of Indian aircraft maintenance engineer's licences issued prior to the implementation of CAR-66 to be issued with a CAR-66 licence. The privileges of the CAR-66 licence will reflect the privileges of the licence that is converted. Where applicable, the DGCA will include technical limitations on the CAR-66 licence for those applicants whose licence does not meet the full requirements at the time of conversion.

The DGCA will only give credits for examinations and tests prior to the implementation of CAR-66 in accordance with paragraph 14 B, C and D below.

14) 66. B.305 and 66.B.405 Conversion of type rated AME Licence and credit for erstwhile licence examination papers and examination credits.

A. Conversion of Type Rating

1. An application by holders of a type rated AME licence is made on DGCA CA Form 19-04 On receipt of the CA Form 19-04 it will be checked by Airworthiness Directorate in DGCA Headquarters for completeness including the required supporting documentation for conversion of their AME licence to a CAR-66 AMEL. No fee will be charged for conversion of old licences into new CAR-66 format.
2. CAR-66.A.70 has provision for conversion of an existing Aircraft Maintenance Engineer's Licence into a CAR-66 Aircraft Maintenance Engineer Licence (CAR-66 AMEL). The conversion process will confer the privileges exercised by an AME Licence holder prior to the introduction of CAR-66.
3. All existing Type rated AME Licences shall be converted into either full or restricted CAR-66 AMEL depending upon the type ratings already endorsed on these licences.
4. Knowledge Examination Modules that are deemed to have been covered by virtue of the existing Licence held by the AME and those required to be covered to meet the requirements of CAR-66 AMEL are given in "Table 2" and "Table 3" belowin respect of Category B1 and B2 respectively.
5. Table 2 & 3" establish the credits that can be claimed by the holders of Basic Aircraft Maintenance Engineer's Licence / Basic Aircraft Maintenance Engineer Certificate.
6. Applicants requesting to convert their AME licence to a CAR-66 Licence shall meet the requirements specified in the corresponding "Table 1" of this appendix.
7. Where an applicant does not meet the full requirements of "Table 2" or "Table 3" below, the converted Licence would be issued with "Limitation(s)". The limitation(s) shall be removed after the applicant has fully met the requirements of Knowledge Examination, Experience, Training and Skill Test pertaining to the imposed limitation(s).

8. To remove limitations imposed on CAR-66 licence, where an existing AME licence does not directly convert to a full CAR-66 Category/sub-category licence, the relevant conversion module examinations must be passed and appropriate experience requirements as in addendum II to AMC of CAR-66 are met. Applications to remove limitations on a basic Category/ sub-category must cover all the limitations. Knowledge Paper Modules/sub-modules required to be completed for removing these limitation(s) are specified in "Table 5" below. Codes pertaining to Limitations endorsed on the converted Licences are detailed in "Table 6" below.

9. To receive the full certification privileges exercised by the AME prior to the CAR-66 coming into force, the applicants are required to provide full details of type endorsement held and privileges exercised by them in the application form along with supporting documentary evidence. Categories/ Ratings held on the existing Licences will be transferred with or without limitation under appropriate category or Section XIV(b) of the CAR-66 licence.

10. Endorsements of Type Ratings in existing "A","B","D" and "X" Category of Licences covering Gliders, Balloons, Aircraft, Engine, Propeller and items of equipment that are not covered by CAR-66, shall be transferred to Section XIV(b) of the "CAR-66 AMEL" along with privileges to issue CRS.

11. Licences with open rating shall be converted with appropriate group rating provided the holder of such licence produces suitable evidence of having exercised the licence privileges on various aircraft types. Otherwise, the open rated AME licence will be converted to a CAR-66 licence conferring the privileges exercised by the AME in the past on specific aircraft.

12. Endorsements of Type Ratings in respect of obsolete types of aircraft not listed in the CAR66 will not be transferred to the new Licence. However, to recognize such qualification, the same shall be recorded in Column XIV(b) of new Licence indicating that the holder had these Type Ratings endorsed in his earlier Licence.

13. Cut-off date for conversion of the existing Licences is 31st December 2012. All existing Licence holders will continue to exercise the privileges of old Licences until this cut-off date, after which they will cease to hold the privileges unless converted into CAR-66 AMEL. However, there is no time limit for removal of limitations on converted Licences.

14. Once an AME Licence is converted into a CAR-66 AMEL the previously held AME Licence will be rendered invalid.

15. If an application does not meet the requirements for conversion to CAR-66 the application will be rejected by the DGCA and returned to the applicant with a covering letter explaining the reason for rejection.

16. When satisfied that the applicant meets the requirements for conversion specified in CAR-66 the DGCA shall issue the CAR-66 aircraft maintenance engineer's licence to the applicant. All information pertaining to the application is retained on file in DGCA Headquarters, Airworthiness Directorate Detailed procedures for the production of the licence are published in Chapter 17 of the Airworthiness Procedures Manual

17. The applicant should review the CAR-66 aircraft maintenance engineer's licence on receipt and raise any questions relating to the conversion process to the Airworthiness Directorate in DGCA Headquarters within one month of receipt.

B. Credits for paper 1,2 and 3 of erstwhile AME Licence examination

Credit shall be given to an applicant who has passed basic knowledge examination papers 1, 2 and 3 of the erstwhile AME Licence qualifying system are given in Table 4.

C. Credit for Type Training/ Type Examination

An applicant who has passed the requisite knowledge examination papers, Type Training /Type Examination prior to December 2012 shall be eligible for CAR-66 AMEL. The applicant will need to provide evidence of his pass at the time of application.

D Credit for Skill Test

An applicant who has passed the skill test prior to December 2012 shall be eligible for CAR-66 AMEL.

Table 1

REQUIREMENTS FOR ISSUE OF CAR 66 LICENSE																		TABLE - 1	
Category		Description	BASIC KNOWLEDGE EXAMINATION MODULES															Practical Maintenance experience	Type Training	Skill Test
			3	4	5	6	7	8	9	10	11A	11B	12	13	14	15	16	17			
A	A1	Aeroplanes Turbines	X		X	X	X	X	X	X	X					X		X	4 years/3 Years as per para a1 of CAR 66.A.30	Ref. : CAR 66 Appendix III/. CAR 66 AMC Appendix II	✓
	A2	Aeroplanes Piston	X		X	X	X	X	X	X		X					X	X			
	A3	Helicopters Turbines	X		X	X	X	X	X	X			X			X					
	A4	Helicopters Piston	X		X	X	X	X	X	X			X				X				
B1	B1.2	Aeroplanes Piston	X	X	X	X	X	X	X	X		X					X	X			
	B1.4	Helicopters Piston	X	X	X	X	X	X	X	X			X				X				
	B1.1	Aeroplanes Turbines	X	X	X	X	X	X	X	X	X					X		X	5 years/ 4 Years as per para (a) (2) of CAR 66.A.30		
	B1.3	Helicopters Turbines	X	X	X	X	X	X	X	X			X			X					
B2		Avionics	X	X	X	X	X	X	X	X				X	X						
C		----------																	5 years/3 Years as per para (a)(3) of CAR 66.A.30**		✓

<u>For Large Aircraft</u>

(i) 3 years of experience in exercising category B1.1, B1.3 or B2 privileges on Large Aircraft or as support staff in base maintenance or a combination of both OR

(ii) 5 years of experience in exercising B1.2 or B1.4 privileges on Large Aircraft or as support staff in base Maintenance or a combination of both.

<u>For Non Large Aircraft</u>

3 years of experience category B1 or B2 privileges on Non Large Aircraft or as support staff in base maintenance or a combination of both.

***Note** : 12 months of Recent Experience as B1 or B2 Base Maintenance support staff.*

Conversion of DGCA AME Licences to CAR-66 Licences

The tables below have been established to take account of the subjects covered by the basic knowledge examinations conducted by the DGCA. The subjects and the syllabus have been compared with the modular syllabus of CAR 66 to identify the common elements. Where not all of the subjects have been covered, limitations will be included to the converted licence.

Table 2 Limitations codes applicable to a converted licence

Code No	Limitation code and restriction on the certification privilege of the converted licence
1	Excluding airframe depending upon category/sub-category of licence (Refer Table 3)
2	Excluding engine depending upon category/sub-category of licence (Refer Table 3)
3	Excluding electrical power generation & distribution systems.
4	Excluding instrument systems, INS/IRS and Flight Directors systems, autopilot systems on aeroplanes/helicopters, automatic landing and auto throttle systems on aeroplanes
5	Excluding radio communication/navigation and radar systems.
6	Excluding electrical power generation & distribution systems on aircraft above 5700 Kgs
7	Excluding avionic line replaceable units
8	Excluding avionic line replaceable units on aircraft above 5700 Kgs

Limitations may be applied singly or in combination. Endorsement of the 'Limitation Code' on a CAR-66 Converted Licence implies that, the holder is not authorized to exercise the privileges of the licence on specific system denoted (in the 3rd column of Table 3)by the 'Limitation Code' of the particular type of aircraft.

Table 3 Conversion and Limitations

Pre – CAR 66 License	CAR-66 License	Limitation Code	Limitation(s)	Module or sub module to be passed to remove CAR-66 license limitations
1. Cat "A" & "C" (Heavy Aircraft & Jet Engine - Aeroplane)	B1.1	3 7	Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units	4 (all) and, 11.5, 11.6 & 11.14 of 11A 5 (all)
2. Cat "A" & "C" (Light Aircraft & Jet Engine)	B1.1	1 6 8	Excluding airframe on aircraft above 5700 Kg Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	11A (all) 4 (all) and 11.5, 11.6 & 11.14 of 11A. 5 (all),
3. Cat "A" (Heavy Aircraft - Aeroplane)	B1.1	2 3 7	Excluding engine. Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units	15 (all) & 17 (all) 4 (all) & 11.5, 11.6 & 11.14 of 11A. 5 (all)
4. Cat "C" (Jet Engine - Aeroplane)	B1.1	1 3 7	Excluding airframe. Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units	11A (all) 4 (all) and 11.5, 11.6 & 11.14 of 11A 5 (all)
5. Cat "A" & "C" (Light Aircraft & Piston Engine - Aeroplane)	B1.2	6 8	Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	4 (all) and 11.5, 11.6 & 11.14 of 11B. 5 (all)
6. Cat "A" (Light Aircraft - Aeroplane)	B1.2	2 6 8	Excluding Engine Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	16 (all), & 17 (all) 4 (all) and 11.5, 11.6 & 11.14 of 11B 5 (all)

7. Cat "C" (Piston Engine - Aeroplane)	B1.2	1 3 7	Excluding airframe Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units.	11B (all) 4 (all) and 11.5, 11.6 & 11.14 of 11B 5 (all)
8. Cat "A" & "C" (Helicopter & Jet Engine)	B1.3	6 8	Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	4 (all), 12.7. 12.8 & 12.15 5 (all)
9. Cat "A" (Helicopter)	B1.3	2 6 8	Excluding Engine Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	15 (all) 4 (all) 12.7. 12.8 & 12.15 5 (all)
10. Cat "C" (Jet Engine - Helicopter)	B1.3	1 3 7	Excluding airframe Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units.	12 (all) 4 (all) 12.7. 12.8 & 12.15 5 (all)
11. Cat "A & C" (Helicopter & Piston Engine)	B1.4	6 8	Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	4 (all) 12.7. 12.8 & 12.15 5 (all)
12. Cat "A" (Helicopter)	B1.4	2 6 8	Excluding Engine Excluding electrical power generation & distribution systems on aircraft above 5700 Kg Excluding avionic line replaceable units on aircraft above 5700 Kg	16 (all) 4 (all), 12.7. 12.8 & 12.15 5 (all)
13. Cat "C" (Piston Engine - Helicopter)	B1.4	1 3 7	Excluding airframe Excluding electrical power generation & distribution systems. Excluding avionic line replaceable units.	12 (all) 4 (all), 12.7. 12.8 & 12.15 5 (all)

14. Cat. "V" (Avionics) / "E,I,R" (Electrical, Instrument & Radio) • *See Note 1 of Table 3*	B2	Nil	Nil	Nil
15. Cat "E" (Electrical) • *See Note 1 of Table 3*	B2	4 5	Excluding instrument systems, INS/IRS and Flight Directors systems, autopilot systems on aeroplanes/helicopters, automatic landing and auto throttle systems on aeroplanes. Excluding radio communication/ navigation and radar systems.	13,3, 13.7, & 13.8 14 (all) 13.4 & 13.6,
16. Cat "I" (Instrument)	B2	3 5	Excluding electrical power generation & distribution systems. Excluding radio communication/ navigation and radar systems.	13.5 & 13.9 13.4 & 13.6,
17. Cat "R"(Radio Navigation)	B2	3 4	Excluding electrical power generation & distribution systems. Excluding instrument systems, INS/IRS and Flight Directors systems, autopilot systems on aeroplanes/helicopters, automatic landing and auto throttle systems on aeroplanes.	13.5 & 13.9 13.3, 13.7 & 13.8 14 (all)
18. Cat "E & I" (Electrical & Instrument)	B2	5	Excluding radio communication/ navigation and radar systems.	13.4 & 13.6
19. Cat "E & R" (Electrical & Radio Navigation)	B2	4	Excluding instrument systems, INS/IRS and Flight Directors systems, autopilot systems on aeroplanes/helicopters, automatic landing and auto throttle systems on aeroplanes.	13.3, 13.7 & 13.8 14 (all)
20. Cat "I & R" (Instrument & Radio Navigation)	B2	3	Excluding electrical power generation & distribution systems.	13.5 & 13.9

Notes applicable to Table 3

1 Category V & Cat E Licence holder who are certifying electrical systems related to airframe and engine presently on aircraft above 5700 Kg AUW will continue to do so under the privileges of Category B2 Licence holders.

2 Table 3 provides a matrix for most of the categories of licences issued by the DGCA. Any questions relating to the conversion of licences that do not appear in Table 3 should be referred to the DGCA for assessments and resolution.

3 Where the column 3 & 4 limitation excludes "Engines", this includes the associated systems.

4 Where the column 3 & 4 limitation excludes "Airframe", this includes the associated systems.

Removal of limitations from a licence

Table 3 column 5 shows the basic knowledge requirement examinations that must be passed to satisfy the theoretical element for removing a limitation. The examination will comprise the subjects of the modules or sub-modules as specified in table 3 and Appendix 1 to CAR-66. The applicant will also be required to provide evidence that they meet the appropriate experience requirements relating to the subjects of the modules or sub-modules as specified in the table 3 and Appendix 1 to CAR-66.

In addition to passing the relevant basic knowledge examination, limitations on a type rating can only be removed by completing an approved conversion course covering the differences or a full B1 or B2 type course as appropriate. This training must be conducted by an organisation approved by the DGCA. The type training is to be supplemented by type experience covering the differences. The additional experience will typically be 6 months appropriate to the basic category or sub-category which are not covered on the converted licence. The experience requirement to remove the engine and airframe limitations from a converted Category "V" or "E" licence will be 1 year.

It should be noted that conversion to the full CAR-66 licence standard is optional.

Notes: -

- *11.6 is related to Electrical power generation & distribution, it covers* Capacitance/Capacitor, Magnetism , Inductance/Inductor , DC Motor/Generator Theory , AC Theory , Resistive (R), Capacitive (C) and Inductive (L) Circuits , Transformers , Filters , AC Generators , AC Motors *of Level-3 knowledge it will covers 11.6 in place 3.9 to 3.18*.
- *Module 14 has been considered to be covered by license B2.*

TABLE 4 CREDITS FOR PAPER 1, 2 & 3

Paper Passed		MODULES DEEMED COVERED															
			3	4	5	6	7	8	9	10	11A	11B	12	13	14	15	16	17
1		9 ,10							X	X								
2		3,6,7,8,	X			X	X	X										
1, 2		3,6,7,8,9, 10	X			X	X	X	X	X								
3	HA	3,6,7,8,9, 10, 11A	X			X	X	X	X	X	X 11.5, 11.6, 11.14							
	LA	3,6,7,8,9, 10, 11B	X			X	X	X	X	X		X 11.5, 11.6, 11.14						
	RA	3,6,7,8, 9, 10, 12	X			X	X	X	X	X			X 12.7, 12.8, 12.15					
	JE	3,6,7,8, 9,10, 15, 17	X			X	X	X	X	X						X		X
	PE	3,6,7,8, 9,10, 16, 17	X			X	X	X	X	X							X	X
	ES	3,4,5,6,7, 8, 9,10,13.5, 13.9	X	X	X	X	X	X	X	X				X 13. 5,1 3.9				
	IS	3,4,5,6,7, 8, 9,10,13.3, 13.7,13.8	X	X	X	X	X	X	X	X				X 13.3, 13.7, 13.8	X			
	RN	3,4,5,6,7, 9,8, 9,10,13.4, 13.6	X	X	X	X	X	X	X	X				X 13.4, 13.6				

X - Modules deemed Covered

- Modules to be covered

SUBPART F

ENFORCEMENT ACTION

15) 66. B.500 Revocation, suspension or limitation of the aircraft maintenance engineer's license

Provisions for enforcement action against licence holders are made in the Aircraft Rules 1937, Rule 19. Where enforcement has been taken, the person affected has a right to appeal under Rule 3B of the Aircraft Rules.

Authorised Officials of the DGCA may, after due enquiry and giving reasonable opportunity of being heard, take action to suspend, cancel or vary an aircraft maintenance engineer's licence where DGCA has identified a safety issue or it has clear evidence that the person has carried out or been involved in one or more of the following activities:

a) obtaining the aircraft maintenance licence and/or the certification privileges by falsification of submitted documentary evidence.
b) failing to carry out requested maintenance combined with failure to report such fact to the organisation or person who requested the maintenance.
c) failing to carry out required maintenance resulting from own inspection combined with failure to report such fact to the organisation or person for whom the maintenance was intended to be carried out.
d) negligent maintenance.
e) falsification of the maintenance record.
f) issuing a certificate of release to service knowing that the maintenance specified on the certificate of release to service has not been carried out or without verifying that such maintenance has been carried out.
g) carrying out maintenance or issuing a certificate of release to service when adversely affected by alcohol or drugs.
h) issuing certificate of release to service while not in compliance with this Part

Detailed procedures be followed by Authorised Officials of the DGCA for investigations and enforcement action are published in the Airworthiness Procedures Manual Chapter 10.

The licence holder subject to the enquiry will be advised in writing of the enforcement action to be taken together with the reasons for the action.

A copy of all correspondence relating to enforcement action, including reports and other evidence, will be retained on the individual file of the licence holder and as specified in the Airworthiness Procedures Manual Chapter 10.

Appendix 1

DGCA application forms for licenses and examinations

Form No	Description
CA Form 19-01	Application For Initial Issue Of CAR- 66 Aircraft Maintenance Engineer's Licence
CA Form 19-02	Application for extension of CAR- 66 aircraft maintenance engineer's licence
CA Form 19-03	Application for renewal of CAR- 66 aircraft maintenance engineer's licence
CA Form 19-04	Application for conversion/removal of limitations of CAR- 66 aircraft maintenance engineer's licence
CA Form 19-05	Application for issue of duplicate CAR- 66 aircraft maintenance engineer's licence
CA Form 19-06	Medical certificate
CA Form 19-07	Application for allotment of computer number for appearing in AME licence examinations
CA Form 19-08A	Application for appearing in written paper(s) of CAR 66 basic knowledge examination
CA Form 19-08B	*Application for appearing in CAR 66 type examination*
CA Form 19-09	Application for appearing in skill test of CAR-66 AME licence
CA Form 19-10	Format of aircraft maintenance engineer work record / log book
CA Form 19-11	Application for issue of basic knowledge examination certificate

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