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Lecture - 02 Rules and Regulations For Civil Aviation in India Cont.

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Aircraft Rule 50

- 50. Issue of Certificate of airworthiness or Special Certificate of Airworthiness and Airworthiness Review Certificate.—
- (1) The owner or operator of an aircraft may apply to the Director-General for the issue of a certificate of airworthiness or a special certificate of airworthiness in respect of the aircraft or for the validation of a certificate of airworthiness issued elsewhere in respect of the aircraft.
- (2) The Director-General may issue a certificate of airworthiness or special certificate of airworthiness in respect of an aircraft when-
- (a) the applicant furnishes such documents or other evidence relating to the airworthiness of the aircraft as may be specified by the Director-General; and
- (b) the Director-General is satisfied that it is airworthy or in a condition for safe operation: Provided that the Director-General may impose such conditions on the special certificate of airworthiness issued as may be necessary for safe operation of the aircraft.

So, now we are on Aircraft Rule 50. Aircraft Rule 50 is for the issue of certificate of airworthiness, or special certificate of airworthiness and airworthiness review certificate. So, first of all let us see what is certificate of airworthiness.

Certificate of Airworthiness

 Certificate of <u>Airworthiness</u> (CofA), is issued for an <u>aircraft</u> by the Civil <u>aviation authority</u> in the state in which the aircraft is registered.

- •The C of A attests that the aircraft is <u>airworthy</u> as far as the aircraft conforms to its <u>type design</u>.
- •After the aircraft is registered in the name of the owner the C of A is issued in one of a number of different categories.
- •The Certificate of Airworthiness can only be issued when a Certificate of Release to Service (CRS) from the maintenance facility declares that the maintenance due has been carried out and the aircraft is then certified as being airworthy.

Certificate of airworthiness is issued for an aircraft by civil aviation authority in the state in which the aircraft is registered. The CofA attests that the aircraft is airworthy, as far as the aircraft confirms to its type design. After the aircraft is registered in the name of the owner, the CofA is issued in one of a number of different categories. The CofA can only be issued, when certificate of release to service from the maintenance facility, declares that the maintenance due has been carried out, and the aircraft is then certified as being airworthy.

So, first the aircraft has to be properly maintained. The certifying agency, the maintenance agency should issue a certificate, to an effect that the aircraft has been maintained properly as per the requirements of the manufacturer, as per the requirements of the regulatory authority. And once the aircraft is duly certified, the certificate of airworthiness can be issued.

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About a special certificate of airworthiness, there is a draft CAR by DGCA, which is very likely to be implemented. So, you can see, there is a requirement, there is a civilization requirement stating issue or renewal and suspension of special CofA.

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ARC

Airworthiness review certificate (ARC) of an aircraft signifies that the airworthiness review of the aircraft and its continuing airworthiness records has been carried out and the aircraft complies with all the airworthiness requirements. This review has to be carried out periodically and the certificate is valid for one year.

Airworthiness review certificate, we call it ARC. Airworthiness review certificate ARC of an aircraft signifies that the airworthiness review of the aircraft and its continuing airworthiness records has been carried out, and the aircraft complies with all the

airworthiness requirements. This review has to be carried out periodically and the certificate is valid for 1 year.

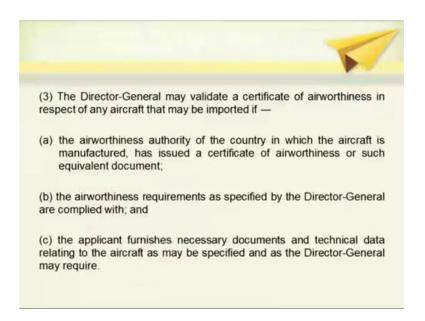
So, this review of the aircraft as well as its continuing airworthiness records has to be carried out periodically; that is almost every year. And once the aircraft is, proper maintenance has been carried out, the records are in order, the airworthiness review certificate is issued. So, as per rule 50, the owner or operator of an aircraft may apply to Director General for the issue of CofA, or a special CofA in respect of the aircraft or for the validation of a CofA issued elsewhere in respect of the aircraft.

So, in case the owner or operator of an aircraft may apply to the Director General for the issue of CofA or special CofA in respect of the aircraft. Any aircraft which is important in the country, it has to be issued with a certificate of airworthiness or a special certificate of airworthiness. Or if the certificate of airworthiness is issued by some other regulatory authority that certificate of airworthiness can be validated by the Indian regulatory authority that is DGCA.

So, in our case, the certificate of airworthiness may be issued or renewed, or a special CofA may be issued or validated, in respect of an aircraft which is, for which the CEO pay has been issued by some other regulatory authority. The Director General may issue a CofA or special CofA in respect of an aircraft when. So, these are the conditions when the CofA or a special CofA in respect of an aircraft can be issued, when the applicant furnishes such documents or other evidence relating to the airworthiness of the aircraft as may be specified by the DG. So, whatever documents are required, those documents are furnished. Evidence is given that the aircraft is airworthy. The Director General is satisfied that it is airworthy or in a condition for safe operation.

So, DGCA has to be satisfied that the aircraft is airworthy and is safe for flying, provided that DG may impose such conditions on the special CofA issued, as may be necessary for safe operation of the aircraft. And there may be conditions, when extra limitations, extra conditions may be imposed on the special CofA for the purpose of safe operation of the aircraft.

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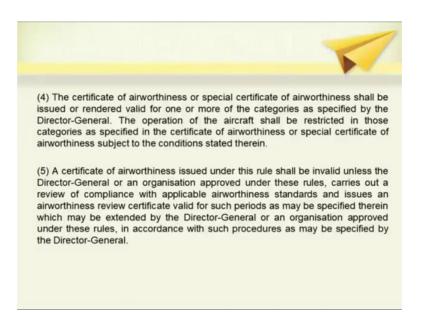


The DG may validate a certificate of airworthiness in respect of any aircraft that may be imported. So, any imported aircraft having a certificate of airworthiness issued by the regulatory authority of the country of manufacture, or from some other country that CofA may be validated by the Director General, provided the awareness authority of the country in which the aircraft is manufactured has issued a CofA or such equivalent documents, or; that means, the country where the aircraft is manufactured. The airworthiness authority of that country has first of all issued a certificate of airworthiness or any equivalent document.

And in addition to these the CofA issued by the airworthiness authority of that country, any other airworthiness requirement which is specified by the Director General in India are complied with. Plus the applicant furnishes necessary documents and technical data relating to the aircraft as may be specified and as the Director General may require.

So, there are three conditions; first, the CofA has to be issued by the regulatory authority of the country of manufacture. The requirements, the airworthiness requirements is specified by the Director General in India; that is DGCA in India are complied with, and any other document, any other technical data which the DGCA asks for is provided by the operator. So, with these three conditions, the Director General may validate the CofA in respect of any aircraft that may be imported.

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The CofA or special CofA shall be issued or rendered valid for one or more of the categories as specified by the Director General. So, that the certificate of airworthiness or a special CofA which is issued or rendered valid, it may be done so in one category or more than one category. The operation of the aircraft shall be restricted in those categories as specified in the CofA, or special CofA subject to the conditions as stated therein.

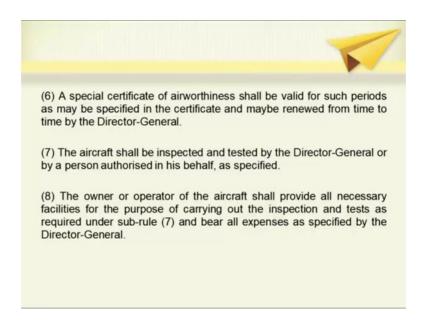
So, the category in which the CofA is issued or the special CofA is issued, the aircraft has to be operated within the limits of those category only those, that category or those categories only. A certificate of airworthiness issued under this rule shall be invalid, unless the Director General or an organization approved under these rules, carries out a review of compliance with applicable airworthiness standards and issues and airworthiness review certificate, valid for such periods as may be specified therein which may be extended by the Director General or an organization approved under these rules in accordance with such procedures as may be specified by the Director General.

So, the CofA issued will be invalid until and unless the Director General; that is the DGCA or any organisation which is approved to do so under these rules, carries out a review of the aircraft. The review of the aircraft includes the physical inspection of the aircraft, the inspection of the continuing airworthiness records, the standards. And once every the physical inspection, the records, everything is in order the air worthiness

review certificate is issued by either by the DGCA or by any organisation which is approved to issue the airworthiness review certificate.

Thus airworthiness review certificate may be valid for periods, which may be specified in the certificate. Generally it is for 1 year, it may be limited also, it may be restricted also, and this airworthiness review certificate, it can be further extended also by the Director General, or by any organisation which is approved under the rules to do so.

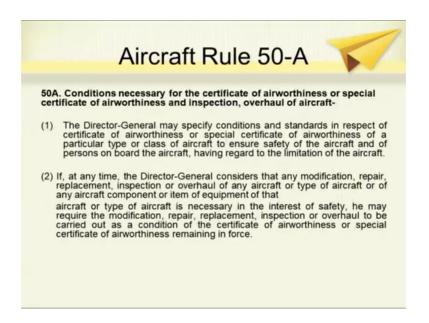
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A special CofA shall be valid for such periods as may be specified in the certificate and may be renewed from time to time by the Director General. So, again the special CofA which is issued, that has also issued for certain period which is specified in the certificate, and it may also be renewed from time to time by the Director General. The aircraft shall be inspected and tested by the Director General or by a person authorized in his behalf, for the purpose of issuing CofA, for the purpose of renewing CofA, for the purpose of validating the CofA, the aircraft may be required to be inspected and tested by the Director General DGCA or by any person who is authorized on his behalf. The owner or operator of the aircraft shall provide all necessary facilities for the purpose of carrying out the inspection and tests as required in the sub rule seven, and bear all expenses as is specified by the Director General.

So, it is the responsibility of the owner or operator of the aircraft to provide all the necessary facilities for this inspection, and all the expenses are to be borne by the operator.

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So, now Aircraft Rule 50 A, which is for the conditions necessary for the certificate of airworthiness or special certificate of airworthiness and inspection, overhaul of aircraft. So, the Director General may specify conditions and standards in respect of certificate of airworthiness, or special certificate of airworthiness of a particular type or class of aircraft, to ensure safety of the aircraft and of persons on board the aircraft, having regard to the limitation of the aircraft.

So considering the limitation of the aircraft, and for the purpose of the safety of the aircraft and persons on board. The Director General may specify certain conditions, certain requirements, certain standards to be followed for the certificate of airworthiness or the special certificate of airworthiness to be issued and to remain in force. If at any time the Director General considers that any modification, repair, replacement, inspection or overhaul of any aircraft or type of aircraft or of any aircraft component or item of equipment of that aircraft or type of aircraft is necessary in the interest of safety, he may require the modification repair replacement inspection or overhaul to be carried out as a condition of the certificate of airworthiness or special CofA remaining in force.

So, if at any point of time, the Director General considers that some modification, some repair, some replacement, some inspection or overhaul of any aircraft, type of aircraft or component or item of equipment is required for the purpose of safety of the aircraft, the passengers on board and to maintain the airworthiness of that particular aircraft or component. So, any repair, replacement, modification, inspection or overhaul may be required to be carried out, and that may be considered as a condition for the certificate of airworthiness to remain in force.

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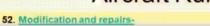


Aircraft Rule 51 is for the flight manual, where a flight manual is required to be kept in relation to an aircraft in accordance with the provisions of these rules. The Director General shall endorse the certificate of airworthiness of the aircraft accordingly.

So, there are aircrafts which are required to have flight manual on board. So, wherever the aircraft is required to have flight manual on board that requirement is endorsed on the certificate of airworthiness, and the flight manual becomes a part of the certificate of airworthiness and that requirement is endorsed on the certificate.

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Aircraft Rule 52



- (1) A person shall not carry out any modification or repair affecting safety of any aircraft in respect of which there is a valid certificate of airworthiness unless he has been required to do so in pursuance of these rules or unless he has obtained the prior approval of the Director-General.
- (2) (a) Modifications issued by the manufacturer of an aircraft, aircraft component or item of equipment of that aircraft which have been issued a Type Certificate by the Director-General or elsewhere may be deemed as approved modifications, unless otherwise specified by the Director-General.
- (b) Repair schemes issued by the manufacturer of an aircraft, aircraft component or item of equipment of that aircraft issued with a Type Certificate by the Director-General or elsewhere and other repairs carried out in accordance with standard aeronautical engineering practice may be deemed as approved unless otherwise specified by the Director-General.
- (3) The Director-General may give approval for repair or modification other than those referred to in sub rule (2), of an aircraft, aircraft component, or item of equipment of that aircraft, where the owner or operator furnishes such evidence relating to the intended modification or repair and its effect on the airworthiness of aircraft as specified by the Director-General.

This is a very important rule, Aircraft Rule 52 which is for modification and repairs. This rule gives us the requirements under which the modification and repairs can be carried out. The conditions under which the modification and repairs can be carried out; the first condition, a person shall not carry out any modification or repair, affecting safety of an e aircraft in respect of which there is a valid CofA, unless he has been required to do so in pursuance of these rules unless he has obtained the prior approval of the Director General.

So, any aircraft which is having a valid CofA cannot be repaired or modified until and unless that repair or modification is required as per these rules, or the that particular specific modification and repair has been approved, there is a prior approval by the DGCA. Modifications issued by the manufacturer of an aircraft, aircraft component or item of equipment of that aircraft, which have been issued a type certificate by the Director General or elsewhere, may be deemed as approved modifications, unless otherwise specified by the Director General.

So, any modification which is issued by the manufacturer of an aircraft or aircraft component or item of equipment which has been issued with a type certificate by any regulatory authority, by the Director General or any other regulatory authority can be considered, can be deemed to be as an approved modification, until and unless it has been specified by the DGCA.

There, similarly the repair schemes issued by the manufacturer of an aircraft, aircraft component or item of equipment of that aircraft, issued with a type certificate by the Director General or elsewhere, and other repairs carried out in accordance with standard aeronautical engineering practice may be deemed as approved, unless otherwise specified by the Director General.

Similarly as for the modifications the repair schemes which are issued by the manufacturers of the aircraft, aircraft component or item of equipment, which are issued with the type certificate by any regulatory authority by the Director General DGCA, or by any other regulatory authority, those repairs are considered to be approved, until and unless it has been, specifically specified by the Director General or any standard aeronautical engineering practice is being followed that is considered to be approved. The Director General may give prior approval for repair or modification other than those referred to in sub rule 2.

Apart from the modifications and repairs which are issued by the manufacturers. There may be modifications and repairs which are required to be carried out which are not given by the manufacturers. In that case those modifications and repairs are required to be approved by the DGCA. So, the Director General may give approval for repair or modification other than those referred to in sub rule 2 of an aircraft, aircraft component or item of equipment of that aircraft, where the owner or operator furnishes such evidence relating to the intended modification or repair, and its effect on the airworthiness of aircraft as is specified by the Director General.

So, the owner or operator who wishes to have the repair or modification approved by the Director General, has to provide evidence, regarding the intended modification or repair and has to specify that it is not going to affect the airworthiness of the aircraft as is specified by Director General. So, proper evidence has to be provided by the operator.

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- (4) Modifications which have been approved by the Director-General for one aircraft, aircraft component, item of equipment may be incorporated in others of the same type provided it is within the terms of approval.
- (5) (a) While an aircraft has been modified or repaired after a major damage or major defect, the aircraft shall not be flown until an appropriately licensed engineer or an authorised person has certified in the manner specified by the Director-General that the aircraft is in a fit condition to be flown for purpose of experiment or test, as the case may be.
- (b) While an aircraft component or item of equipment has to be modified or repaired, it shall not be released until it is certified by an appropriately licensed engineer or an authorised person as may be specified by the Director-General.
 (6) The form and manner of distribution of the certicate and its copies referred to in the above sub-rules and preservation thereof shall be as may be specified by the Director-General.
- (7) A certificate in pursuance of the preceding sub-rules shall not be issued unless the materials, parts, method comply with such designs, drawings, specifications or instructions as may be issued by the manufacturers or as may be specified or approved by the Director-General. The method and the workmanship shall be in accordance with standard aeronautical practice or as may be approved by the Director-General.

Modifications which have been approved by the Director General for one aircraft, aircraft component, item of equipment may be incorporated and others of the same type, provided it is within the terms of approval. So, any modification which is approved by the DGCA for one aircraft or aircraft component or item of equipment, it can be incorporated on the same type of aircraft or aircraft component, provided it is within the terms of approval. While an aircraft has been modified or repaired after a major damage or major defect, the aircraft shall not be flown until an appropriately licensed engineer or an authorized person has certified in the manner, specified by the Director General that the aircraft is in a fit condition to be flown for purpose of experiment or test as the case may be.

So, any aircraft which has been modified or repaired, after a major damage or a major defect, it cannot be flown, until and unless an appropriately licensed engineer or an authorized person has certified the aircraft as per the rules, and the aircraft is in a fit condition to be flown for the purpose of experiment or test as the case may be. While in aircraft component or item of equipment has to be modified or repaired, it shall not be released until it is certified by an appropriately licensed engineer or an authorised person as may be specified by the Director General.

Similarly, in the case of any aircraft component or item of equipment which has to be modified or repaired, it should not be released, until and unless it is certified by an appropriately licensed engineer or an authorized person, as for the requirements specified by the Director General. The form and manner of distribution of the certificate and its copies referred to in the above sub rules, and preservation thereof shall be, as may be specified by the Director General.

So, the format of the certificate, the distribution of the certificate and its copies should be as per the requirements specified by the DGCA. A certificate in pursuance on the proceeding sub rules shall not be issued, unless the materials, parts method comply with such designs drawings, specifications or instructions, as may be issued by the manufacturers or as may be specified or approved by the Director General.

So, the above aircraft or the aircraft components, they cannot be released, they cannot be certified, until and unless the materials, parts and methods comply with the designs and drawings, specifications or instructions issued by the manufacturer or by the DGCA. So, any maintenance which has to be carried out for the purpose of modification or repair on any aircraft, aircraft component, item of equipment, during that maintenance the parts the methods, the materials, they should comply with all the designs, drawings, specifications or instructions issued by the manufacturers or by the DGCA.

The method and workmanship shall be in accordance with the standard aeronautical practices or as may be approved by the Director General. In doing the modification and repair, the methods and the workmanship to be followed, shall be in accordance with the standard aeronautical practices, or as per the practices which are approved by the DGCA.

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Aircraft Rule 53

- 53. Use of materials, processes, parts and periodical overhaul of aircraft-
- (1) Every aircraft required under these rules to be provided with a certificate of airworthiness and aircraft components and items of equipment on such aircraft shall periodically be inspected, overhauled and certified on completion of the prescribed flight time or calander time or on the basis of any other stipulated condition in accordance with the approved maintenance schedules or approved maintenance system. Such inspection and certification shall be effected by appropriately licensed engineers or authorised persons as may be specified by the Director-General.
- (2) A certificate to be issued in pursuance of sub-rule (1) shall not be issued unless the materials, processes, parts, method comply with such designs, drawings, specifications or instructions as may be issued by the manufacturers or as may be specified or approved by the Director-General. The method and workmanship shall be in accordance with standard aeronautical practice or as may be approved by the Director-General.
- (3) Notwithstanding the foregoing provisions, the Director-General may grant exemption by general or special order in writing to any person or class of persons from the operation of the foregoing sub-rules either wholly or partly, subject to such conditions, if any, as may be specified in such order.

Now, coming to Aircraft Rule 53. Rule 53 is for use of materials, processes, parts and periodical overhaul of aircraft. Every aircraft required under these rules to be provided with a certificate of airworthiness, and aircraft components and items of equipment on such aircraft shall periodically be inspected, overhauled and certified on completion of the prescribed right time or calendar time, or on the basis of any other stipulated condition in accordance with the approved maintenance schedules or approved maintenance system.

Such inspection and certification shall be effected by a property license engineers or authorized persons as may be specified by the Director General. So, every aircraft which is required to have a certificate of airworthiness and aircraft components items of equipment on such aircraft they are required to be periodically inspected, overhauled and certified on completion of the prescribed flight time, calendar time or on the basis of any other stipulated condition, and accordance with the approved maintenance schedules or approved maintenance system. So, all the components, items of equipment which are used on the aircraft, have a certain life. Generally we call it a tho that is the time between overhaul.

So, once that life is completed, that life may be in the form of flying hours, it may be in the form of calendar time, it may be in the form of cycles, it may be in the form of landings. So, whatever is the prescribed life of that particular component or equipment, it needs to be inspected or overhauled or certified and certified sorry, after that inspection or overhaul. And that has to be done in accordance with the approved schedules and the approved maintenance system. Such inspections and certifications shall be effected by appropriately licensed engineers or authorized persons as may be specified by the Director General.

So, this inspection and certification has to be done by appropriately licensed engineers or authorized persons as specified by the DGCA. Or certificate to be issued in pursuance of sub rule 1, shall not be issued unless the materials, processes, parts, method, comply with such designs drawings specifications or instructions as may be issued by the manufacturers or as may be specified or approved by the Director General.

Like in the previous rule, similarly in this rule also, any maintenance, any overhaul, any inspection which is carried out, has to be in that maintenance, the materials being used the processes, the parts, the methods should comply with all the designs, drawings, specifications or instructions which are issued by the manufacturers, or as may be specified by the Director General.

The method and workmanship shall be in accordance with the standard aeronautical practices or as may be approved by the Director General. Notwithstanding the foregoing provisions, the Director General may grant exemption by general or special order in writing to any person or class of persons from the operation of the foregoing sub rules in their wholly or partly, subject to such conditions if any as may be specified in such order. So, the Director General has the powers to exempt any of the condition, either wholly or partly. The Director General may grant exemption to any person or class of persons from the operation of the foregoing sub rules, either wholly or partly. So, the above requirements may be waived off wholly or partly and that powers are with the DGCA.

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Aircraft Rule 53-A



53A. Manufacture, storage and distribution of all aircraft- The manufacture, storage and distribution of aircraft, aircraft components and items of equipment or any other material used or intended to be used in an aircraft, whether or not a certificate of airworthiness has been or is required to be issued, renewed or rendered valid for such aircraft, under these rules, shall be undertaken and certified only by approved organisations, by licensed engineers or by authorised persons in this behalf. The form and manner and the distribution of the certificate and its copies and preservation thereof shall be as may be specified by the Director-General.

Aircraft Rule 53 A is for the manufacture, storage and distribution of all aircraft. The manufacture, storage and distribution of aircraft, aircraft components and items of equipment of any other material, used or intended to be used in an aircraft, whether or not a CofA has been or is required to be issued, renewed or rendered valid for such aircraft under these rules, shall be undertaken and certified only by approved organizations by licensed engineers or by authorized persons in this behalf. The form and manner and a distribution of the certificate, and its copies and preservation thereof shall be as specified by the Director General.

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Aircraft Rule 54



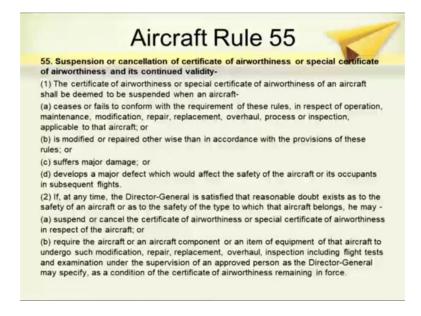
54. Persons authorised to certify- The certification required under Parts VI, XIIB, and XIIIA of these rules shall be signed by appropriately licensed engineers or authorised persons qualified under the terms and conditions of the licence, authorisation or approval, as the case may be, to carry out or inspect the manufacture, process, modification, repair, replacement, overhaul or maintenance, to which the certificate relates or by an approved person or by a person or persons holding written authorisation for certification from an approved organization in accordance with the criterion specified by the Director-General and the certificate is signed as per the authorisation, or when these have been carried out at a suitably equipped Indian Air Force Establishment, by its Officer-In-Charge:

Provided that in one or more class of aircraft, such of the work, if performed in accordance with approved procedures, practices and methods as may be specified by the Director-General, need not be supervised or certified by the approved organisation, licensed engineers or authorised persons in this behalf.

Aircraft Rule 54 is for the persons who are authorized to certify. The certification required under parts 6 12 B and 13 A of these rules, shall be signed by appropriately licensed engineers or authorized persons, qualified under the terms and conditions of the license authorization or approval as the case may be, to carry out or inspect the manufacture, process, modification, repair, replacement, overhaul or maintenance, to which the certificate relates or by an approved person or by a person or persons holding written authorization for certification from an approved organization in accordance with the criteria specified by the Director General and a certificate is signed as per the authorization or when these have been carried out at a suitably equipped Indian air force establishment by its officer in charge.

So, any manufacture, process, modification, repair, replacement, overhaul or any maintenance, it can be. It has to be certified by appropriately licensed engineers or authorized persons who are qualified to do so, under the conditions specified on the licenses or the authorizations or approvals. These persons these approved persons, presence having license should have written authorizations for certification, from an approved organization in accordance with the criteria specified by the DGCA. Provided that in one or more class of aircraft subject of the work, such of the work, if performed in accordance with approved procedures, practices and methods as specified, as may be specified by the DG, need not be supervised or certified by the approved organization, licensed engineers or authorized persons in this behalf.

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Aircraft Rule 55 is for suspension or cancellation of CofA or special CofA and its continued validity. The certificate of airworthiness or special CofA of an aircraft shall be deemed to be suspended, when an aircraft ceases or fails to confirm when the requirements of these rules in respect of operation, maintenance, modification, repair, replacement, overall, process or inspection applicable to that aircraft or is modified or repaired; otherwise than in accordance with the provisions of these rules or suffers major damage or develops a major defect, which would affect the safety of the aircraft or its occupants in subsequent flights.

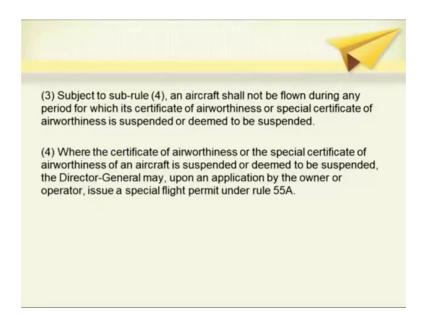
The CofA or special CofA can be considered to be suspended or deemed to be suspended or cancelled, if it is not maintained or if it does not confirm to the requirements in respect of the operation, maintenance, modification, repair, replacement, overall, process or inspection, as per the manufacturers guidelines or as per the regulatory requirements, or if that aircraft is modified or repaired other than the conditions which are specified in these rules, or the requirements specified by the manufacturers or the aircraft suffers major damage or the aircraft develops a major defect, which affects the safety of the aircraft or its com occupants.

So, in either of these conditions, the CofA of the aircraft is deemed to be suspended or it can be cancelled. If at any time the Director General is satisfied that reasonable doubt exists as to the safety of an aircraft or as to the safety of the type, to which the aircraft belongs, he may suspend or cancel the CofA of or special CofA in respect of the aircraft or required the aircraft or an aircraft component or an item of equipment of that aircraft to undergo such modification, repair, replacement, overhaul, inspection including practice and examination, under the supervision of an approved person as the Director General may specify, as a condition of the certificate of airworthiness remaining in force.

So, if it effect any point of time, the Director General, the DGCA is satisfied that there is a reasonable doubt that the aircraft operation is not safe, the aircraft safety is in is doubtful, the CofA may be suspended or cancelled, or the special CofA may be suspended or cancelled in respect of that aircraft. The DGCA may require that the aircraft or aircraft component or item of equipment of that aircraft should undergo modification, repair, replacement, overhaul, inspection, including flight tests and examination under the supervision of approved persons as the Director General may

specify. So, these conditions may be imposed so that the certificate of airworthiness can be considered to be remaining in force.

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Subject to sub rule 4; an aircraft shall not be flown during any period for which its CofA or special CofA is suspended or deemed to be suspended. Where the CofA or the special CofA of an aircraft is suspended or deemed to be suspended, the DG may upon an application by the owner or operator issue a special flight permit under rule 55 A. A special flight permit under rule 55 A may be issued if required, when the CofA or special CofA is suspended or deemed to be suspended.

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Aircraft Rule 55-A



55A. Issue of Special Flight Permit-

- (1) The Director-General may issue a special flight permit when an aircraft is not fully in compliance with the airworthiness requirements but is in a condition for safe operation subject to such conditions as are specified in the special flight permit.
- (2) The owner or operator of an aircraft may apply to the Director-General for the issue of a special flight permit in respect of the aircraft for any of the purposes as specified by the Director-General.
- (3) The Director-General may issue a special flight permit in respect of an aircraft when, —
- (a) an applicant furnishes such documents as may be specified by the Director-General; and
- (b) the Director-General is satisfied that the aircraft is in a condition for safe operation.

Aircraft Rule 55 A is for the issue of special flight permit. The Director General may issue a special flight permit when an aircraft is not fully in compliance with the airworthiness requirements, but it is in a condition for safe operation, subject to such conditions as are specified in the special flight permit.

We have just seen in the above rule that there may be conditions where the CofA may be suspended or deemed to be suspended in that, that is the case when the aircraft is not fully in compliance with the airworthiness requirements, but it may be in a condition for safe operation. In these conditions the Director General may issue a special flight permit, the owner or operator of an aircraft may apply to Director General for the issue of a special flight permit in respect of the aircraft for any of the purposes as is specified by the Director General. So, the owner or operator of an aircraft can request the Director General for issue of a special flight permit in any of the conditions.

The Director General may issue a special flight permit in respect of an aircraft, when an applicant furnishes such documents as may be specified by the DG, and the DG is satisfied that the aircraft is in a condition for safe operation. So, in the request to the DGCA, the applicant has to furnish documents as required by the DGCA, and the DGCA has to be convinced, has to be satisfied that the aircraft is in a condition for safe operation.

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Aircraft Rule 56



56. Indian aircraft operating outside India- Where an aircraft registered in India is operating in a country outside India, the aircraft, or any of its components or items of equipment shall not be modified, repaired, replaced, inspected or overhauled except by or under the supervision of, and certified by –

- (a) in the case of a Contracting State, a person who is approved for the purpose by the appropriate authority of Contracting State in accordance with the minimum requirements adopted in pursuance of the Convention and recognized by the Director-General as sufficient for the purpose;
- (b) in the case of a country other than a Contracting State, a person who possesses qualifications which are recognized by the Director-General as sufficient for the purpose. Note:- For the purpose of this rule, foreign aircraft falling under sub-rule(3) of rule 1 shall be deemed as aircraft registered in India and Indian aircraft falling under sub-rule(4) of rule 1 shall be deemed as aircraft not registered in India.

Coming to Aircraft Rule 56. This is for the Indian aircrafts operating outside India. When an aircraft registered in India is operating in a country outside India, the aircraft or any of its components or items of equipment shall not be modified, repaired, replaced, inspected or overhaul, except by or under the supervision of and certified by. So, any of our aircraft, any of the aircraft is registered in India is operating outside India.

In that case to the aircraft or any of its components or items of equipment cannot be modified, repaired, replaced, inspected or overhauled except by or under the supervision of and certified by. In the case of a contracting state, a person who is approved for the purpose by the appropriate authority of contracting state in accordance with the minimum requirements adopted in pursuance of the convention and recognized by the Director General as sufficient for the purpose.

In case the aircraft is operating in a contracting state, then the, if required the repair, the replacement, inspection, overhaul or modification can be done by the person who is approved for that purpose by the regulatory authority of that contracting state, in accordance with the minimum requirements that are adopted in pursuance of the convention, and those requirements have to be recognized by the Director General as sufficient for that purpose.

In the case of a country other than contracting state. In case, or the Indian registered aircraft is operating in a country other than the contracting state. A person who possesses

qualifications which are recognized by the Director General as sufficient for the purpose; so, in case an Indian registered aircraft is operating in a country other than a contracting state, then any repair, replacement, modification, inspection or overhaul, if required can be carried out by a person who possesses qualifications which are recognized by the DGCA, for the purpose of this rule foreign aircraft following under sub rule 3 of rule 1, shall be deemed as aircraft registered in India, and Indian aircraft falling under sub rule 4 of rule 1, shall be deemed as aircraft not registered in India.

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Coming to Aircraft Rule 57 which is for instruments and equipments. Every aircraft shall be fitted at equipped with the instrument and equipment, including radio apparatus and special equipment as may be specified by the Director General, according to a news and circumstances under which the flight is to be conducted. So, every aircraft which is fitted and equipped with the instruments and equipments, which including radio operators and special equipment should be as specified by the Director General, according to the requirement the circumstances under which the flight has to be conducted. Such instruments and equipments shall be of an approved type and installed in a manner, in an approved manner and shall be maintained in a serviceable condition.

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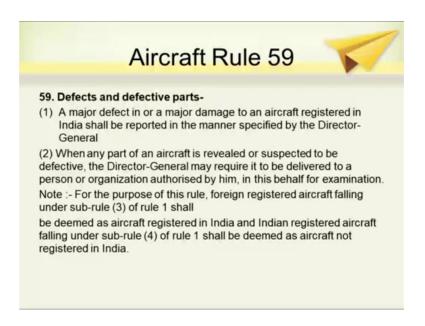
Aircraft Rule 58 is for weight and balance. So, every aircraft shall be weighed and appropriately marked and center of gravity determined. The weight schedule and a load sheet indicating the calculated center of gravity position, relating to the required configuration shall be displayed or carried on board an aircraft, subject to such conditions as may be specified by the Director General.

So, every aircraft has to be weighed and it has to be properly marked, appropriately marked. The weight has to be marked on the aircraft, the center of gravity has to be determined and the weight schedule and a load sheet which indicates the calculated center of gravity positions, relating to the required configuration they. It has to be carried on board, the weight schedule has to be properly displayed in the aircraft. An aircraft shall not attempt to take off fly or land at a weight in excess of the maximum permissible weight, as is specified in the certificate of airworthiness or as authorized by the Director General.

So, no aircraft should attempt to fly, should attempt to take off or land beyond the weight, in excess of the maximum permissible weight as specified in the CofA. The load of an aircraft throughout a flight including takeoff and landing shall be so distributed, that the cg position of the aircraft falls within the limitations, specified or approved by the Director General.

So, the load of an aircraft through which throughout the flight, which includes your takeoff and landings should be. So distributed that the cg position of the aircraft is false within the limitations specified or approved by the DG; provided by the Director General may by special order in writing and subject to such conditions as may be specified in that order, exempt any aircraft from the operation of this rule. So, the DGCA has the power to exempt any aircraft from this rule.

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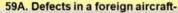


Aircraft Rule 59; defects and defective parts; a major defect in or a major damage to an aircraft registered in India shall be reported in the manner specified by the Director General. So, any major defect or any major damage on the aircraft registered in India has to be reported to the Director General. When any part of an aircraft is revealed or suspected to be defective; the DG may require it to be delivered to a person or organisation authorized by him in this behalf for examination.

So, any aircraft which is suspected or revealed to be defective, the DGCA may require it to be delivered to a person or organization for the purpose of examination. So, that person or organization may be authorized by the DGCA.

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Aircraft Rule 59-A



- (1) When an aircraft registered outside India, whilst in Indian territory sustains major damage or a major defect is found, the Director-General, on ascertaining that fact, may prohibit the aircraft from flying.
- (2) Where, in pursuance of sub-rule (1), the Director-General prohibits an aircraft from flying, he shall furnish to the appropriate authority of the country of registration of the aircraft information of the action which he has taken and a report of the damage suffered or defect found.
- (3) The prohibition imposed in pursuance of sub-rule (1) shall not be removed until the appropriate authority of the country of registration of the aircraft notifies to the Director-General-
- (a) that the damage or defect suffered or ascertained has been removed;
- (b) that the damage suffered or defect found or ascertained is not of such a nature as to prevent minimum requirements of safety adopted in pursuance of the Convention; or
- (c) that in the circumstances of a particular case, the aircraft should be permitted to fly without passengers to a place at which it can be restored to an airworthy condition.

Coming to Rule 59 A defects in a foreign aircraft. So, any aircraft which is operating in our country, but is not registered in India, in case if that aircraft encounters any defect then what is the rule in that case. So, Rule 59 A deals with the defects in a foreign aircraft, when an aircraft registered outside India, list in Indian territory, sustains major damage or a major defect is found. The Director General on ascertaining that fact may prohibit the aircraft from flying.

So, any aircraft which is registered outside India, but is operating within the Indian territory, sustains major damage or major defect, the Director General the DGCA after ascertaining that fact may prohibit that aircraft from flying in the Indian territory. Where in pursuance of sub rule 1 the Director General prohibits an aircraft from flying, he shall furnish to the appropriate authority of the country of registration of the aircraft, information of the action which he has taken and a report of the damage suffered or defect found. In the case when the foreign registered aircraft is restricted, is prohibited from flying in the Indian territory.

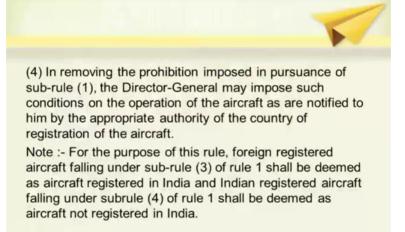
In that case DGCA will report to the appropriate authority of the country of that, of the registration of that aircraft, information of the action. The DGCA will inform that regulatory authority about the grounding of the aircraft, the prohibition of on flying of the aircraft, and the report of the damage suffered or defect found will also be forwarded to that regulatory authority. The prohibition imposed in pursuance of the sub rule 1, shall

not be removed until the appropriate authority of the country of registration of the aircraft notifies to the Director General. So, this prohibition shall not be removed until the appropriate authority of that country of manufacture, that country of registration of the aircraft notifies DGCA that the damage or defect suffered or ascertained has been removed.

So, first the regulatory authority of the country of registration needs to satisfy itself that the aircraft which had suffered, damage or defect that is air worthy. And that the damage suffered or defect found or ascertained is not of such a nature as to prevent minimum requirements of safety adopted in pursuance of the convention. Either that regulatory authority has to ensure that the damage or defect suffered or ascertained has been removed or they have to certify, they have to mention that the damage suffered or defect found or ascertain is not of such a nature, that prevents minimum requirements of safety adopted in pursuance of the convention, or that in the circumstances of a particular case the aircraft should be permitted to fly without passengers to a place at which it can be restored to an air worthy condition.

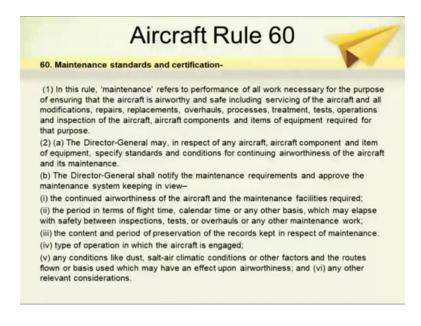
Or there may be condition, there may be circumstances where the aircraft may be required to fly without passengers to a place where the aircraft can be restored to an air worthy condition. So, the regulatory authority of the country of registration of that aircraft, needs to inform DGCA, whether the damage or defect ascertained or suffered has been removed, or the damage suffered or defect found is the nature that prevents minimum requirements of safety adopted in pursuance of the convention. Or there is a condition that the aircraft needs to be flown without passenger to a place where it can be restored to an air worthy condition. So, the regulatory authority of the country of registration needs to inform the Director General.

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In removing the prohibition imposed in pursuance of the rule 1, the Director General may impose such conditions on the operation of the aircraft as are notified to him, by the appropriate authority of the country of registration of the aircraft. So, in order to remove that prohibition imposed on flying of the foreign registered aircraft. DGCA may impose certain conditions on the operation of the aircraft, which are notified to DGCA by the appropriate authority of the country of registration of the aircraft.

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Coming to aircraft rule 60 which is for maintenance standards and certification. In this rule maintenance refers to performance of all work necessary for the purpose of ensuring, that the aircraft is air worthy and safe, including servicing of the aircraft and all modifications, repairs, replacements, overalls, processes, treatment, tests, operation and inspection of the aircraft, aircraft components and items of equipment required for that purpose.

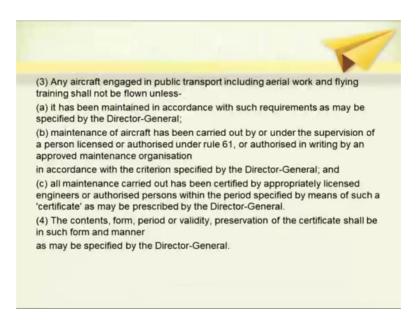
The Director General may in respect of any aircraft, aircraft component and item of equipment specify standards and conditions for continuing airworthiness of the aircraft and its maintenance. The Director General shall notify the maintenance requirements and approve the maintenance system, keeping in view the continued airworthiness of the aircraft and the maintenance facilities required.

The period in terms of flight time calendar time or any other basis which may elapsed with safety between inspections tests or overalls or any other maintenance work. The content and period of preservation of the records captain respect of maintenance, type of operation in which the aircraft is engaged. Any conditions like dust salt air climatic conditions, or other factors and the routes flown or bases used, which may have an effect upon air worthiness and any other relevant considerations.

So, you have seen that the Director General can notify maintenance requirements and can approve the maintenance system, keeping and view the following conditions, where the continued airworthiness of the aircraft and maintenance facilities, whatever the facilities are required, what continued airworthiness of the aircraft is required. The period in terms of flight time, calendar time or any other basis which may elapse with safety between inspections tests or overalls or any other maintenance work.

The content and the period of preservation of records in respect of maintenance. Type of operation in which the aircraft is engaged, and the conditions in which the aircraft is being operated. Like dust conditions, salt air climatic conditions or the routes which are being followed.

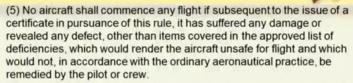
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Any aircraft engaged in public transport including aerial work and flying training, shall not be flown unless it has been maintained in accordance with such requirements as may be specified by the Director General.

Maintenance of aircraft has been carried out, by or under the supervision of a person licensed or authorized under rule 61, or authorized in writing by an approved maintenance organization, in accordance with the criteria specified by the Director General. And all maintenance carried out has been certified by appropriately licensed engineers or authorized persons within the period specified by means of such a certificate as may be prescribed by the Director General. The contents, form, period or validity, reservation of the certificate shall be in such form and manner as may be specified by the Director General.

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(6) Microlight, light sport aircraft, gyroplane, glider, balloon or an airship shall be certified by an aircraft maintenance engineer holding a licence in Category A or Category B1 or Category B3 or an authorised person subject to the requirements as specified by the Director-General. Provided that the Director-General may, by general or special order and subject to such conditions as may be specified in that order, exempt any aircraft from the operation of this rule.

So, you can see no aircraft shall commence any flight, if subsequent to the issue of a certificate in pursuance of this rule has suffered any damage or revealed any defect, other than items covered in the approved list of deficiencies, which would render the aircraft unsafe for flight, and which will not in accordance with the ordinary aeronautical practice, be remedied by the pilot or crew.

In this condition, the aircraft should not be flown. Microlight light, sport aircraft, gyroplane glider balloon or an airship, shall be certified by an aircraft maintenance engineer, holding a license and category A or category B 1 or category B 3, or an authorized person subject to the requirements as specified the general. Provided that the Director General may by general or special order, and subject to such conditions as may be specified in that order, exempt any aircraft from the operation of this rule.

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C.A.R Sections



- Section 1 General
- Section 2 Airworthiness
- Section 3 Air Transport
- Section 4 Aerodrome Standards and Licensing
- Section 5 Air Safety
- . Section 6 Design Standards and Type Certification
- · Section 7 Flight Crew Standards, Training and Licensing
- · Section 8 Aircraft Operations
- . Section 9 Air Space and Air Navigation Services Standards
- Section 10 Aviation Environment Protection
- . Section 11 Safe Transport of Dangerous Goods by Air

Now, coming to CAR, we can see, we have just concluded the part 6 of the Indian aircraft rules; that was airworthiness, which was from rule number 49 to rule number 60. The, then as a traffic rule 61 and 62 also in the airworthiness section.

Now we are seeing similar aviation requirements, you can see there are various sections and CAR. Section 1 is for general, section 2 is air worthiness, section 3 air transport, section 4 aerodrome standards and licensing, section 5 air safety, section 6 design standards and type certification, section 7 flight crew standards training and licensing, section 8 aircraft operations, section 9 airspace and air navigation service standards, section 10 aviation environmental protection, section 11 safe transport of dangerous codes by air.

So, there are various sections, section 1 to section 11 in the CAR. We are mainly concerned with section 2 which is the air worthiness.

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Civil Aviation Requirements (CAR) Applicable to Airworthiness

- ➤ CAR- M CONTINUING AIRWORTHINESS REQUIREMENTS
 Link= (http://dgca.nic.in/rules/car-ind.htm)
- ➤ CAR-145 APPROVAL OF MAINTENANCE ORGANISATIONS

 Link= (http://dgca.nic.in/rules/car-ind.htm)
- ➤ CAR-21 CERTIFICATION PROCEDURES FOR AIRCRAFT AND RELATED PRODUCTS AND PARTS Link= (http://dgca.nic.in/rules/car-ind.htm)
- > CAR- 147 APPROVED BASIC MAINTENANCE TRAINING ORGANISATION, Link= (http://dgca.nlc.in/rules/car-ind.htm)
- ➤ CAR-66 LICENSING OF AIRCRAFT MAINTENANCE ENGINEERS, Link= (http://dgca.nic.in/rules/car-ind.htm)

In addition to this, there are more similar aviation requirements which are applicable to airworthiness part. One is CAR M, this is just a many. We are just mentioning the different CAR's here. We have provided a link also, you can see CAR M which is continuing awareness requirements. The link has been provided for CAR M, for details you can go to this link. See CAR 145 which is for approval of maintenance organizations. CAR 25 which is certification procedures for aircraft and related products and parts, the link has been provided. CAR 147 which is for approved basic maintenance training organization, and CAR 66 is for licensing of aircraft maintenance engineers.

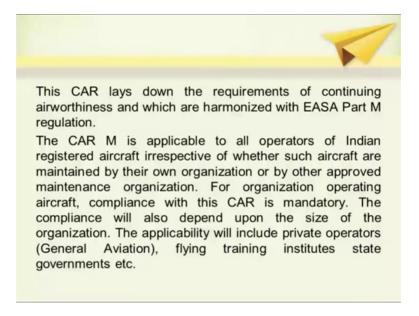
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CAR – M CONTINUING AIRWORTHINESS REQUIREMENTS

CAR-M specifies certain technical requirements to be complied by organisations and personnel involved in the maintenance of aircraft and aeronautical products, parts and appliances in order to demonstrate the capability and means of discharging the obligations and associated privileges thereof. The CAR-M also specifies conditions of issuing, maintaining, amending, suspending or revoking certificates attesting such compliance.

We will see what is CAR M continuing awareness requirements. CAR M specifies certain technical requirements to be complied by organizations and personnel involved in the maintenance of aircraft and aeronautical products, parts and appliances, in order to demonstrate the capability and means of discharging the obligations, and associated privileges thereof. The CAR M also specifies conditions of issuing, maintaining, amending, suspending or revoking certificates, attesting such compliance.

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This CAR lays down the requirements of continuing air worthiness, and which are harmonized with EASA upon M regulation. The CAR M is applicable to all operators of Indian registered aircraft, irrespective of whether such aircraft are maintained by their own organization or by other approved maintenance organization, or organization operating aircraft compliance with this CAR is mandatory. The compliance will also depend upon the size of the organization. The applicability will include private operators, general aviation, flying training institutes, state governments etcetera.

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CAR - 145

APPROVAL OF MAINTENANCE ORGANISATIONS

CAR 145 was introduced on 26th January 2005 in order to harmonize requirements for approval of aircraft maintenance organizations with that of international requirements, which was primarily based on EASA Part-145 regulation. Since the initial issue of CAR 145, it has been revised from time to time to synchronize with EASA Part145.

CAR 145 is applicable for Organisations involved in the maintenance of complex motor powered aircraft or of aircraft used for commercial air transport, and components intended for fitment thereto, shall be approved in accordance with the provisions of this CAR.

Now coming to CAR 145 which is for approval of maintenance organizations. CAR 145 was reintroduced on 26th January 2005 in order to harmonize requirements for approval of aircraft maintenance organizations, with that of international requirements, which was primarily based on EÁSÁ part 145 regulation.

Since the initial issue of car 145, it has been revised from time to time to synchronized with EÁSÁ part 145. C A R 145 is applicable for organizations, involved in the maintenance of complex motor powered aircraft, or of aircraft used for commercial air transport and components, intended for fitment thereto, shall be approved in accordance with the provisions of this CAR.

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CAR – 21 CERTIFICATION PROCEDURES FOR AIRCRAFT AND

CAR21 prescribes procedural requirements for issue of type certificates and changes to these certificates, issue of certificate of airworthiness, issue of noise certificate and issue of export airworthiness certificate. It covers matters related to design, manufacture and all other issues related to airworthiness including continued airworthiness, repairs, etc. CAR 21 also contains requirements for approval of design and production organisations as per the provisions of Rule 133B.

RELATED PRODUCTS AND PARTS

Coming to CAR 21, which is certification procedures for aircraft and related products and parts. CAR 21 prescribes procedural requirements for issue of type certificates and changes to these certificates, issue of certificate of airworthiness, issue of noise certificate, issue of export air worthiness certificate.

It covers matters related to design, manufacture and all other issues related to air worthiness, including continued air worthiness, repairs etc. CAR 21 also contains requirements for approval of design and protection organizations as per of the provisions of rule 133B.

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CAR – 147 APPROVED BASIC MAINTENANCE TRAINING ORGANISATION

CAR-147 (Basic) specifies the requirements to be met by organizations seeking approval to conduct aircraft maintenance training and examination as specified in <u>CAR 66</u>. The CAR 147 (Basic) specifies conditions for issue, renewal, suspension and revocation of certificates attached to the approval and privileges thereof. Initially the basic knowledge examination will be conducted by DGCA, however, once the systems and procedures are well established and the DGCA is confident that the institutes are mature to conduct the knowledge examination, they may be allowed to conduct knowledge examinations in phased manner, on behalf of DGCA. This CAR provides the technical standards and guidelines for the approval of aircraft maintenance training organizations.

CAR 147 which is for approved basic maintenance training organisation. CAR 147 basic specifies the requirements to be met by organizations, seeking approval to conduct aircraft maintenance training and examinations as is specified in CAR 66. The CAR 147 specifies conditions for issue, renewal, suspension and revocation of certificates, attached to the approval and privileges there off.

Initially the basic knowledge examination will be conducted by DGCA; however, once the systems and procedures are well established and the DGCA is confident, that the institutes are mature to conduct the knowledge examination, they may be allowed to conduct knowledge examinations and phased manner on behalf of DGCA. This CAR provides the technical standards and guidelines for the approval of aircraft maintenance training organizations.

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CAR – 66 LICENSING OF AIRCRAFT MAINTENANCE ENGINEERS

In order to harmonize Indian requirements for licensing of aircraft maintenance engineers with international requirements; CAR-66 dated 11th November 2011, was introduced..

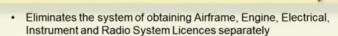
The CAR-66 is applicable to all personnel / Organizations engaged in maintenance and /or certification of aircraft registered in India

The CAR-66 details, requirements for qualifying an individual to obtain an Aircraft Maintenance Engineer's Licence and extension of such licence [CAR-66]

Coming to CAR 66 which is for licensing of aircraft maintenance engineers. In order to harmonize Indian requirements for licensing of aircraft maintenance engineers with international requirements; CAR 66 dated 11th November 2011 was introduced. The CAR 66 is applicable to all personnel/ organizations engaged in the maintenance and/ or certification of aircraft registered in India.

The CAR 66 details requirements for qualifying an individual to obtain an aircraft maintenance engineers license and extension of such license.

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- Redefines the syllabus for basic knowledge examination in modular pattern
- 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
- Lists the details of practical tasks to qualify an individual to obtain a type rating
- Provides for acquiring group type rating of aircraft and certification privileges
- Has a provision to convert the existing AME licence to CAR 66 Licence with or without limitation

This is about, you can see these are. This is about the CAR 66 it mentions that it eliminates the system of obtaining airframe, engine, electrical instrument and radio system licenses separately. It redefines the syllabus for basic knowledge examination and modular pattern provides for endorsement of an AME license after successful completion of type training. And the type training examination, type examination which shall consist of both theoretical and practical examinations, lists the details of practical tasks to qualify an individual to obtain a type creating.

Provides for acquiring group type rating of aircraft, and certification privileges, has a provision to convert the existing AME license to CAR 66 license with or without limitation.