

AUTOMOTIVE INDUSTRY STANDARD

**Procedure for Type Approval and
 Certification of Vehicles for
 Compliance to Central Motor Vehicles
 Rules**

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ON BEHALF OF :
MINISTRY OF COMMERCE & INDUSTRY
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AND
MINISTRY OF SURFACE TRANSPORT
GOVERNMENT OF INDIA

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Status chart of the Standard to be used by the purchaser
for updating the record

Sr. No.	Corr- igenda.	Amend- ment	Revision	Date	Remark	Misc.

General remarks :

Introduction

The Government of India felt the need for a permanent agency to expedite the publication of standards and development of test facilities in parallel when the work on the preparation of the standards is going on, as the development of improved safety critical parts can be undertaken only after the publication of the standard and commissioning of test facilities. To this end, the Ministry of Surface Transport (MOST) has constituted a permanent Automotive Industry Standard Committee (AISC) vide order No.RT-11028/11/97-MVL dated September 15, 1997. The standards prepared by AISC will be approved by the permanent CMVR Technical Standing Committee (CTSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the secretariat of the AIS Committee, has published this standard. For better dissemination of this information ARAI may publish this document on their Web site.

In the joint meeting of the vehicle manufacturers and test agencies held at ARAI in April 1997, it was agreed that there is a necessity for a detailed testing procedure for certification of compliance to CMVR to be prepared, which will cover the following:

- Tests to be carried
- Changes to vehicle model (Criterion for Extension of Approval)
- Extension Certificates
- Standard formats for certificates
- List of agencies whose test reports would be accepted for various parts for which standards are notified etc.

This document also serves the purpose of all the information related to CMVR certification in document and will serve as guide for the vehicle manufacturer to get the details of references to all applicable regulations and standards at one place.

A draft prepared by the a panel, constituted by ARAI, was submitted to the AISC and had discussed the issues in several meetings

In the meeting of AISC held on 15th February 2000 it was decided to implement this standard with immediate effect.

AISC has already finalized the technical specification formats indicating the technical details of the vehicle to be type approved in the form of AIS 007 and has already been implemented.

In case of models, which have been type approved before this procedure comes into effect, where the consolidated certificates of compliance may not have been issued or the Technical Specifications may not have been in the format prescribed in this procedure, the certificates already issued would continue to be valid till a fresh consolidated certificate is issued due to requirement of any fresh CMVR compliance.

This document at present does not cover the procedures for the following:

- Haulage trailers
- Farm and construction equipment vehicles,(such as agricultural tractors, power tillers etc.)
- Type approval of tractor trailer combinations
- Vehicles operating on alternate fuels such as CNG/LPG (For vehicles operating on CNG, the details covered in the current notification are included)
- Electric vehicles
- Approval for bodies for trucks and buses after body building

Formulation of appropriate rules and procedures for all the above are under various stages of preparation by the committees appointed by MoST. These will be incorporated in to this document, as and when they are finalized.

This document consolidates the procedures to be followed for the Type Approval of a vehicle. Amendments to Central Motor Vehicles Rules (CMVR) upto notification GSR. No. 99(E) dated 9th Feb. 2000 have been taken into consideration.

Any subsequent amendments to the CMVR may need consequential amendments to this document. Till such amendments are issued, the Test Agencies shall follow appropriate applicable methods for establishing compliance and certification.

The Committee responsible for preparation of this standard is given in Annexure- D.

Procedure for Type Approval and Certification of Vehicles for Compliance to Central Motor Vehicles Rules.

0. Following are the **ABBREVIATIONS** used in this document:

AIS	Automotive Industry Standards
AISC	Automotive Industry Standards Committee
ARAI	Automotive Research Association of India
BIS	Bureau Of Indian Standards
BSI	British Standards Institute
CEA	Criterion for Extension of Approval
COP	Conformity of Production
CMVR	Central Motor Vehicles Rules
CTSC	CMVR Technical Standing Committee
DIN	Deutsche Institut fur Normung
ECE	Economic Commission for Europe
EEC	European Economic Community
GCW	Gross Combination Weight
GVW	Gross Vehicle Weight
IEC	International Electrotechnical Commission
ISO	International Organization for Standardization
JIS	Japanese Industrial Standard
MOST	Ministry of Surface Transport
SIAM	Society of Indian Automobile Manufacturers
SS	Safety Standard
TA	Type Approval

1.0 SCOPE

- 1.1 This document describes the procedure to be followed for evaluating the vehicle model and its variant(s) for issue of a Certificate of Compliance as notified by Rule No. 126 of the CMVR.
- 1.2 This procedure is not applicable for evaluation and certification of Conformity of Production. (The procedure for COP will be covered by a separate procedure.)

2.0 DEFINITIONS

- 2.1 Model means vehicles of one family with essentially same aspects of construction and design, which is of the same category, and has the same number of axles. The vehicle manufacturer designates a model. A model may include variant(s).

2.2 Variant is a type of vehicle, which has Technical Specifications differing from that of a model, in any respects, other than those given in 2.1. Variant(s) may have different commercial names.

A variant shall need a type approval. (See para 7.1)

2.3 Criterion for Extension of Approval (CEA) is the guidelines to be followed:

- a) for considering whether a change in the Technical Specifications affects the compliance adversely or not, and
- b) if the change affects the compliance adversely, to decide the tests to be carried out for establishing compliance.

Criterion for Extension of Approval is also to be used for:

- a) selection of the base model(s) for establishing compliance from a number of models/variants at the time of Type Approval
- b) Deciding on the extension of Type Approval when changes are made in the Technical Specification.
- c) Deciding on approval for new variants.

2.4 Type Approval (TA) is the establishment of initial compliance of a model/variant(s) to the provisions of CMVR

2.5 Conformity of Production (COP) is the establishment of compliance of a model/variant(s) when serially produced, to the provisions of CMVR, applicable on the date of manufacture.

2.6 Provisions mean the requirements related to the construction of motor vehicles notified in the CMVR, either directly or through a reference to Notified Standards.

2.7 Notified Standard means a standard, referred to in CMVR or notified separately under the provisions of CMVR, which specifies details of requirements to be complied with. This may be in the form of

- An Indian Standard issued by BIS
- A Safety Standard prepared by the erstwhile Safety committee and issued by ARAI
- A standard prepared by the AISC
- Any other document notified by MOST.

2.8 Testing Agency is an organization specified in Rule 126 of CMVR for certification of compliance to the provisions.

2.9 Base model is the model/variant(s) whose performance results can be used to represent a range of model/variant(s) considering the CEA for any of the provisions.

Note: To represent an entire range of model/variant(s), declared by the manufacturer, for all the provisions of CMVR, tests on more than one base model may be necessary, considering the CEA.

3.0 APPLICATION FOR TYPE APPROVAL

While applying for the Type Approval, the application shall be accompanied by the following documents, as applicable to the provisions for which such compliance is sought:

- a) List of provisions for which compliance is sought to be established.
- b) All the relevant information specified in document AIS 007/1998, “Information on Technical Specifications to be submitted by Manufacturer”.
- c) Copies of certificates or test reports of compliance to various provisions, which may have already been obtained from other recognized (see 4.3.1) Testing Agencies.
- d) Copies of test reports for other models/variants, if any, which can be used for establishing compliance of the model to be type approved, with a note explaining the details.
- e) Copy of certificate of incorporation of the manufacturer, if not already submitted.
- f) Publications available (Owner's Manual and service/workshop manual)

Note: In case these publications are not available at the time of submitting the prototype vehicle, they shall be submitted by the manufacturer as and when they are ready but not later than beginning of commercial production. In case these publications are not available at the time of prototype testing, the relevant information required by the Testing Agency, shall be provided by the manufacturer.

4.0 METHODS OF ESTABLISHING COMPLIANCE

- 4.1 Depending upon the provision, the compliance can be established by either comparison of the values declared in the Technical Specifications with those in the provisions of CMVR, or checking the fitment of part(s) on the vehicle or by testing, as applicable.

Applicability of rules, method of establishing the compliance and details of the test procedures are given in Annexure A.

Note: The applicability of rules given in Annex A is only given as a ready reckoner. Method of establishing compliance to provisions and details of test procedure are given for provisions covered by the notification as indicated in Para 0.

Explanatory Notes:

- (1) Comparison of values declared in the Technical Specifications with those in the provisions of CMVR, is applicable to rules such as dimensions, load rating of tyres etc.

- (2) Checking the fitment of part(s) on the vehicle is applicable to rules calling for fitment of components/systems such as lamps, horns, rear view mirrors etc.

The compliance of such items to any provisions shall be established independently as called for in the respective provision.

4.2 In case the compliance is established by testing:

- 4.2.1 The tests may be carried out either at the premises of the Testing Agencies or at the manufacturer's premises. When the tests are carried out at the manufacturers' premises, the manufacturer shall demonstrate the adequacy of the test facilities for carrying out the tests as per the provisions.

The Testing Agency may also, at the request of the manufacturer, certify, in advance, the adequacy of the test facilities at his premises, in such cases verification of routine calibration of the equipment etc. will be needed at the time of testing.

- 4.2.2 During the testing, if any of the requirements are not met, the manufacturer may request for a retest after carrying out necessary rectifications.

If the rectification involves changes in the Technical Specifications, as declared by the manufacturer (Para 3b) tests shall be repeated for all those characteristics where the changes are not within the limits of Criteria for Extension of Approval.

If the rectification does not involve a change in the Technical Specifications, the tests already completed satisfactorily, need not be repeated.

- 4.2.3 When the maximum rated FAW and RAW add up to a figure greater than the GVW, during testing the load distribution of axles shall be adjusted proportionately. Formulae for calculating the FAW and RAW under testing conditions, are given below:

$$FAW_{test} = \frac{FAW_{max} * GVW}{FAW_{max} + RAW_{max}}$$

$$RAW_{test} = GVW - FAW_{test}, \text{ where}$$

$$FAW_{max} = \text{Maximum rated load on front axle}$$

$$RAW_{max} = \text{Maximum rated load on rear axle}$$

$$GVW = \text{The maximum gross vehicle weight}$$

$$FAW_{test} = \text{Weight on Front axle for test under GVW condition}$$

$$RAW_{test} = \text{Weight on Rear axle for test under GVW condition}$$

This shall be applied for all tests to be carried out in the laden condition, except in the case of test for steering effort, where the tests will have to be conducted with the maximum rated load on the steered axle.

4.3 In case the compliance is established by verification of documentation:
The compliance to individual provisions can also be established by verifying the documents submitted by the manufacturer such as certificates or test reports,

- a) issued by other recognized agencies listed in para 4.3.1
- b) issued by recognized agencies listed in para 4.3.1 for another model/variant, the Technical Specifications of which are comparable to those of the model sought to be type approved, and the changes are within the limits prescribed in the Criteria for Extension of Approval.

4.3.1 Certificates or test reports of compliance to any of the provisions of CMVR, issued by the following agencies would be considered valid:

- a) Any Testing Agency notified under CMVR
- b) Any testing agency or laboratory duly authorized by BIS for carrying out certification work for the standards issued by BIS. (The CMVR Technical Standing Committee may issue instructions regarding disqualifying the test reports from any such agency.)
- c) Any other testing agency approved by the CMVR Technical Standing Committee
- d) Authorized certifying agency or accredited certifying agency of the country of origin of the international/foreign national standards notified as alternate standards by Government of India.

4.4 Incompletely built vehicles

In case of vehicles which are not complete, such as a drive away chassis, certain provisions can not be verified, as these would be built in only at the time of body building. Such provisions, for which verification has not been carried out, shall be indicated in the certificate and are to be verified by the registering authority.

5.0 USE OF OTHER STANDARDS

Test reports or certificates of compliance to standards, issued by agencies listed in para 4.3.1, other than the notified standards, shall be considered as proof of compliance to the notified standards, in the following cases:

- a)The alternate standard has been approved by the Government of India.
- b)The standard is a conversion of a notified standard to an Indian Standard, but is pending for notification, approved by AISC/CSTC.
- c)The alternate standard is a revision of the notified standard, but is pending for notification, approved by AISC/CSTC.

Explanatory Note:

Such standards may comprise an international standard (e.g. those issued by EEC, ECE, ISO, IEC etc.), a foreign national standard (such as those issued by DIN, JIS, BSI etc.) or an Indian standard prepared as a conversion of SS or AIS or a revision of an already notified Indian Standard.

6.0 CERTIFICATE OF COMPLIANCE

6.1 After compliance is established for all the provisions, applicable to that model/variant(s), a Certificate of Compliance consolidating all applicable provisions, subject to para 7.2.3, shall be issued by the Testing Agency. The Brief Technical Specifications as declared by the manufacturer (Table B3 of Annexure B) shall be counter signed by the Testing Agency and shall be attached to the certificate of compliance.

Note: The expression “Consolidated certificate” used in this document refers to such a certificate of compliance, referred above. Format of certificate is given in Annexure B.

6.2 In order to ensure that all the related verification activities are completed, the Testing Agency may use an appropriate check list.

6.3 The Testing Agency shall issue two sets of the Certificate of Compliance, in original, to the vehicle manufacturer.

6.4 The Testing Agency shall also issue reports of all tests conducted by that agency to the vehicle manufacturer. For the purpose of records, the detailed specification submitted by the manufacturer (As per Table 1 to 6, as applicable) shall also be counter signed by the Testing Agency and given to the manufacturer. The test report shall indicate the identification number, of the relevant technical specifications submitted by the manufacturer as per AIS 007/1998.

6.5 The Testing Agency shall maintain confidentiality of the certificates, test reports and test data. However, if required, these may be given to the Ministry of Surface Transport and Ministry of Industry. The compiled test data without indicating the name of the manufacturer or model may be given to appropriate inter-ministerial Working Groups or Committees dealing with the subject as and when needed, and on request, to SIAM.

6.6 In the case of applications for compliance to individual provision(s), the test report(s) issued by the Testing Agency (4.3.1) shall be considered as proof of compliance for issuing the Consolidated Certificate.

In such cases, the test report shall indicate:

- whether compliance has been established or not
- the provision(s) for which compliance is established
- the list of variant(s), if any, for which compliance is established

6.7 Refusal of Type Approval:

In case, a Testing Agency has refused approval of a vehicle this should be informed to the vehicle manufacturer and other Testing Agencies.

If the changes are in parameters related to the provisions, the Testing Agency, which has issued the certificate of compliance, may then consider, whether,

- a) the model with the changed specifications still complies with provisions;
- or,
- b) any further verification is required to establish compliance.

7.0 EXTENSIONS OF TYPE APPROVAL

Type Approval already granted shall need revalidation, by an extension of the Type Approval whenever the Technical Specifications, already attested by Testing Agency are amended by the manufacturer or whenever there are changes in the provisions.

7.1 Changes in the Technical Specifications of the model/variant(s) already Type Approved:

7.1.1 Every modification pertaining to the information, even if the changes are not technical in nature (such as change of model name etc.) declared in accordance with Para 3 shall be intimated by the manufacturer to the certifying agency.

Note: The changes in the details given as per Table 13 of document AIS007/98, may be informed to the Testing Agency periodically.

If the changes are in parameters not related to the provisions, no further action need be taken.

7.1.2 For considering whether testing is required or not, guidelines given in Annexure C (Criteria for Extension of Approval) shall be used.

7.1.3 In case of 7.1.1 b), tests for only those parameters which are affected by the modifications need be carried out.

7.1.4 In case of fulfillment of criterion of para 7.1.1a) or after results of further verification as per para of 7.1.1 b) are successful, the approval of compliance shall be extended for the changes carried out.

7.1.5 With reference to the performance parameters related to the notified provisions, in order to facilitate the processing of extension certificate, the manufacturer shall submit declaration based on the requests by the Test Agency.

7.2. Changes in the Provisions

For every subsequent change/addition in the provisions, the vehicle manufacturer shall get the Certificate of Compliance extended from any of the Testing Agencies. The procedure of establishing compliance shall be as per Para 4.0

7.2.1 In case testing is required for establishing compliance,

- a) tests need be carried out only for those parameters, which are required to establish compliance to the new/changed provision. If, for the purpose of complying with the new provisions, changes are made in the Technical Specifications of the model/variant, the additional verifications shall be as per Para 7.1
- b) If requirements of new/changed provisions were already satisfied in the previous Type Approval it is not necessary to carry out further verification/tests.

7.2.2 In cases where the provision relates to fitment of a component and the compliance is to be established by merely checking fitment on the vehicle, (as per para 4.1), it is not necessary for the Testing Agency to verify the fitment if the following conditions are satisfied:

- a) The manufacturer gives an undertaking that the necessary fitments will be carried out by him from the date of applicability of provision
- b) Submits the details of the provisions made in the vehicle for fitment of the item.
- c) Submits test reports for the individual requirements, if any, specified for the components.
- d) The vehicle manufacturer possesses a valid certificate of compliance to ISO 9001-1994 or ISO 9002-1994 or equivalent for the plant where the model in question is manufactured,

After implementing the necessary fitments in production, the manufacturer shall inform the Test Agency who had issued the certificate of compliance, the date on which they have been introduced in production, within 4 weeks of date of such provision becoming mandatory.

7.2.3 In case of notified provisions, which are to come into effect at a later date, the manufacturer, may get the Type Approval in advance, which could be along with an original Type Approval or an extension

Note: In such cases, once the manufacturer implements the modified specification in production, the COP would be as per the new provision to the extent of implementation. Till then COP would be conducted based on the procedure for COP applicable at the time of manufacture of the vehicle.

8.0 ISSUE OF EXTENSION OF TYPE APPROVAL

The extension of Type Approval may be communicated by the Testing Agency to the manufacturer in the following manner.

- 8.1 For incorporation of compliance to a new/changed provision, or inclusion of variant(s), a fresh consolidated certificate shall be issued.
- 8.2 In case of changes to the Brief Technical Specification, which is an enclosure to the original certificate, also a fresh consolidated certificate shall be issued .
- 8.3 In other cases, compliance of changes in the Technical Specifications shall be communicated by the Testing Agency to the vehicle manufacturer in the format given in Annexure B.

9.0 AMENDMENTS/REVISIONS OF NOTIFIED STANDARDS

9.1 Amendments:

Amendments issued to the notified standard are generally in the nature of editorial corrections and have no significance on certification.

However for the purpose of establishing compliance the amendments issued to the notified standards would become applicable from date of issue of the amendment.

In case, if it is considered by test agency or the manufacturer that such an amendment, due to it not being in the nature of editorial correction, has an effect on certification, the matter shall be taken up with AISC.

9.2 Revisions:

The revisions of notified standards shall become applicable only from the date notified in the CMVR or its related notifications. In such cases, procedure given in Para 7.2 shall apply.

10.0 RESOLVING OF OPERATIONAL DIFFICULTIES

In case of difficulties arising out of an interpretation of the provisions and other operational difficulties, the Testing Agency and the manufacturer shall endeavour to resolve these by mutual discussions, within the frame work of CMVR and related procedures. However, if these cannot be resolved mutually, the matter shall be referred by the vehicle manufacturer under intimation to the Testing Agency, to the CMVR Technical Standing Committee for a final decision and implementation.

11. TEST FACILITIES

If the test facilities for any of the provisions/notified standards are not available at any of the Testing Agencies, (as defined in para 4.3.1), SIAM will bring it to the notice of AISC and request for a postponement of the implementation of such provisions/notified standards, taking into account the time for development, testing and certification after the facilities are fully commissioned. In case the postponement is not agreed to, the Testing Agencies may be authorized to implement alternative arrangements for establishing compliance.

Annexure A (See Para 4.1)**List of Applicable Rules and Method of Establishing Compliance.**

The method to be followed for verification of compliance to various provisions are given below. (Refer to Para No. 4.1)

Rule	Sub-rule	Subject	Method Of Verification	Applicability
93	1 to 7	Overall Dimension	Test	All vehicles
94	1,2,3	Condition of tyres	Checking Fitment	All vehicles
95	1	Size & Ply rating of tyres	Comparison of Specification	All vehicles
	2	Load rating of axles and GVW		
	3	Ply rating		
96	1,2,3,7	Brakes fitments requirements	Checking Fitment	All vehicles
96	4	Performance as per IS:10376:1982	Test as per IS:14121:1995	2 Wheelers with engine capacity not exceeding 50cc
		Performance as per IS:11716:1986		2 Wheelers with engine capacity exceeding 50cc
		Performance as per IS:13670:1992		3 Wheelers with GVW not exceeding 1000kg, including tractors for trailers
		Performance as per IS:11852	Test as per IS:11852 part 8	All other vehicles.
96	5,6	Parking brakes fitment	Checking Fitment	All vehicles other than 2 wheelers
98	1	Steering gear- Back lash	Checking Fitment	All vehicles fitted with steering wheel
98	2	Turning circle dia as per IS:12222:1987	Test	All vehicles other than 2 and 3 wheelers
98	3	Steering effort as per IS:11948:1986	Test	All vehicles other than 3 wheelers with engine capacity not exceeding 500cc and 2 wheelers, invalid carriages.
98	4	Fitment of power steering	Checking Fitment (See also 98-3)	Heavy passenger motor vehicles manufactured from 25 th July 2000
99	--	Fitment of reverse gear		All vehicles other than 2 wheelers , 3 wheeled invalid carriage

Rule	Sub-rule	Subject	Method of Verification	Applicability
100	1	Windscreen and windows	Checking Fitment	All vehicles other than 2 wheelers
100	2	Light transmission through windows (IS:2553 Part 2:1992)	Test	Vehicles with glass windows
100	3	Laminated safety glass for windscreen	Checking Fitment	All vehicles other than 2 wheelers
100	3	Compliance to IS:2553 Part 2:1992)	Test	--do--
101	1	Fitment of Wind screen wiping system (power operated)	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc, 3wheeled invalid carriage and 2 wheelers
101	2	Performance of wind screen wiping system as per ARAI/005/CMVR/101-(2)/ December- 92.	Tests	All vehicles other than 3 wheelers not exceeding 500cc wheeled invalid carriage and 2 wheelers
101	3	Fitment of Wind screen wiping system (power operated or hand operated)	Checking Fitment	3 wheelers not exceeding 500cc
102	1	Turn signal	Checking Fitment & test for flashing rate	All vehicles, other than 2 wheelers of engine capacity not exceeding 70cc.
102	2	Stop light on actuation of foot operated service brake	Checking Fitment	All vehicles other than 2 wheelers
102	2,3	Stop light on actuation of controls actuating rear brakes/front brake	Checking Fitment	All 2 wheelers
103	1	Position of indicators	Checking Fitment	All vehicles, other than 2 wheelers of engine capacity not exceeding 70cc.
103	2	Hazard warning lamp	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc and 2 wheelers
104	1	Fitment of red reflex reflector	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc

Rule	Sub-rule	Subject	Method of Verification	Applicability
104	1-proviso	Reflective Tape	Checking Fitment	All goods vehicles other than 3 wheelers not exceeding 500cc and 2 wheelers
104	2	White reflex reflectors	Checking Fitment	All goods vehicles other than 3 wheelers not exceeding 500cc.
104	4	Reflectors to conform to or IS:8339:1993	Test	All vehicles.IS:8339:1976 will be allowed till the lead time as per notification GSR. No.214(E) dated 18th March 1999.
104	5	Amber Reflex reflectors	Checking Fitment	All vehicles and trailers exceeding 6 m
105	1,2,3,4,5 and 6	Head lamps and tail lamps	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc.
105	7	Reversing light	Checking Fitment	All vehicle other than 2 wheelers
106	--	Dip beam	Test	All vehicles
107		Top lights	Checking Fitment	All goods vehicles other than 3 wheelers and vehicles with width not exceeding 2.1m
108	--	White light/ Red light	Checking Fitment	All vehicles
109	--	Parking light	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc and 2 wheelers
111	---	Prohibition of spot lights etc.	Checking Fitment	All vehicles
110	--	Lamps on 3 wheelers	Checking Fitment	3 wheelers not exceeding 500cc
112	The main rule and 2nd proviso	Exhaust gas	Checking Fitment	All vehicles
112	First proviso	Exhaust gas	Checking document & check fitment	Tankers carrying explosive and inflammable goods.

Rule	Sub-rule	Subject	Method of Verification	Applicability
115	2,9/10	Emission tests as per Doc.No. MOST/CMVR/ TAP 115 /116 and SCOE minutes dated 10th June 1996	Test	All vehicles, as applicable
115	2,9,11 (A), (B)	--do--	Test	From 1.4.2000, following type of vehicles in the National Capital Region of Delhi: <ul style="list-style-type: none"> • Motor Cars with seating capacity of and upto 6 persons (including driver) and Gross Vehicle Mass not exceeding 2500kg • Four wheeled passenger vehicles equal to or less than 3500kg and designed carry more than 6 persons (including driver) and Gross Vehicle Mass exceeding 2500kg
115B	--	Emission tests	Tests	For vehicles operating on CNG
117	1	Speedometer	Checking Fitment	All vehicles, other than invalid carriage or a vehicle the designed speed of which does not exceed 30km/h.
117	2	Compliance to IS:11086 or IS:11827:1995 as applicable	Test	All vehicles
119	1	Fitment of horns	Checking Fitment	All vehicles
119	2	Compliance to IS:1884: 1993	Test	All vehicles. IS:1884:1981 will be allowed till the lead time as per notification GSR. No.214(E) dated 18 th March 1999.
120	2	Noise test as per IS:3028:1980	Test	All vehicles

Rule	Sub-rule	Subject	Method of Verification	Applicability
123	--	Safety devices for motor cycles	Checking Fitment	2 wheelers
124-1	IS:1606:1979	Specified Auto lamps	Test for specified clauses	All vehicles
124-2	IS:7079:1979	Hydraulic Brake Hose	Test	All vehicles, where used
124-3	IS:8654:1986	Brake fluid	Test	All vehicles, where used
124-5	IS:11939:1987	Steering impact	Test	Vehicle with steering wheel and GVW less than 4000kg.
124-6	IS: 12009:1995	Side door strength	Test	Passenger Cars
124-7	IS: 12056:1987	Fuel Tank	Test	All vehicles other than 3 wheelers not exceeding 500cc engine capacity and 2 wheelers
124-8	IS: 9436:1980/ IS:9438:1980	Wheel rims	Test	As specified in the Indian Standards IS:9436/9438
124-9	Cl. 4 of IS: 10791:1983	Control cable	Test	2 wheelers with engine capacity less than 50cc
124-10	IS: 10792:1984	Pneumatic Coupling	Test	All vehicles where used
124-11	IS:13942:1994	External Projection	Checking Fitment/Test	All vehicles other than 3 wheelers not exceeding 500cc engine capacity and 2 wheelers
124-12	IS:13944:1994	Bus window retention	Test	Buses
124-13	IS:13943:1994	Wheel guards	Checking Fitment	Passenger cars.
124-14	IS:13941:1994	Wheel Nuts, Wheel discs etc.	Checking Fitment/Test	Cars , Light and heavy commercial vehicles
124-15	IS:14283:1995	Acc. Control System	Test	All vehicles other than 3 wheelers not exceeding 500cc engine capacity and 2 wheelers
124-16	IS:14225:1995	Door locks	Test	Cars and light passenger and commercial vehicles
124-17	IS:14226:1995	Hood latch	Test	Cars and commercial vehicles

Rule	Sub-rule	Subject	Method of Verification	Applicability
124-18	SS: 11.1	Tell Tales and Controls	Checking Fitment	3 Wheelers with handle bar and 2 wheelers
124-19	SS: 12.1	Tell Tales and Controls	Checking Fitment	All vehicles other than 3 Wheelers with handle bar, 2 wheelers.
124-20	SS: 15.1	Lighting and signaling system	Test	All vehicles other than 3 wheelers not exceeding 500cc engine capacity, 2 wheelers.
124-21	SS: 21.1	EMI	Test	All vehicles fitted with spark ignition engine
124-22	SS: 33.1	Towing devices	Test	Used on motor vehicles, trailers and transport tractors from 2 tons to 35 tons gross mass
125	1	Seat belt	Checking Fitment	All vehicles other than 3 wheelers not exceeding 500cc and 2 wheelers
125	2	Rear view mirror	Checking Fitment	All vehicles
*	--	Engine power	Test	All vehicles other than 2 wheelers not exceeding 200cc
*	--	Fuel Consumption (Driving Cycle)	Test	All passenger cars, two and three wheelers
*	--	Fuel Consumption (Constant Speed)	Test	All vehicles other than 2 and 3 wheelers
*	--	Gradeability	Test as per AIS 003	All vehicles
	--	Additional requirements for CNG operated vehicles	Tests as per notification GSR No. 99(E) of 9 th Feb. 2000.	CNG operated vehicles

* Indicates additional tests as per letter no. RT-11036/16/97-MVL dated 11.6.97 from MOST. Till AIS/Indian Standards are issued for the testing procedure, the test shall be conducted as per the details given in Annexure B2.

The Engine power test for diesel engines and Fuel consumption test as per Driving Cycle, shall be conducted along with the related emission tests specified in rule 115.

Annexure B

(See Para 6)

FORMATS FOR CERTIFICATE OF COMPLIANCE

- B1.** The format of the Certificate of compliance consolidating all applicable provisions is given in Table B1.
- B2.** The format of the Annexure 1, listing the applicable rules is given in Table B2 for complete vehicles and Table B3 for incomplete vehicles..
- B3.** The format for the Brief Technical Specification is given in Table B4.
- B4.** The format for extension approval of changes in specification is given in Table B5, and the Annexure 1 listing the details of changes etc is given in Table B6.
- B5.** These formats are intended to cover a majority of cases. If necessary, depending on the requirements of individual cases, the Testing Agency may include additional information or modify the format, as required.
- B6.** In these formats for better clarity, examples of information to be filled up are also indicated in italicized font, which is only for information and guidance, as this information will be differing from case to case

TABLE B1
Format For Certificate of Compliance to the Central Motor Vehicles Rules.

Certificate Of Compliance To The Central Motor Vehicles Rules					
<i>ARAI/CMVR/(Ref. -----)/2000-(Sr. No.)</i>			<i>Date : 28/09/2000</i>		
<i>M/s Paragon Ltd., Chandrapura Industrial Estate, Chikhali - 389 350, Dist. Pune, <u>MAHARASHTRA.</u></i>					
1. Based on the verification of documents and trials conducted on the base model <i>##@@## ##\$\$## DLX</i> , utility vehicle with catalytic converter, with 2560 kg. GVW, manufactured by <i>M/s Paragon Ltd.</i> , it is certified that the following base model and its variants / <i>listed in Annexure - II</i> , comply with the provisions of the Central Motor Vehicles Rules, 1989, as amended up-to-date, as detailed at <u>Annexure</u> -					
Declared By	Base Model	GVW kg.	Seating Capacity (Incl. Driver)	Load Carrying Capacity *	
Mfgr.	TYPE				
	: <i>##@@## ##\$\$## DLX</i>				
	: <i>UTILITY VEHICLE with CATALYTIC CONVERTER</i>	2560	8 Persons	136	
C M V R Classification : <i>L C V PASSENGER / Goods</i>					
Variants	i.	<i>##@@# ##\$\$ - 1, 4X2 "MICRO VAN</i>	2560	2 Persons	544
Annex - II	ii.	<i>##@@# ##\$\$ -2, 5 Door "ADVANTAGE "</i>	2560	5 Persons	340
*-considering average weight of person as 68 kg, as per Maharashtra Motor Veh. R- 79 (7) . -To be given in case of (1) Goods, (2) Passenger where, seating capacity is affected.					
2. The brief technical specifications (<i>No. 001 234 005</i>), of the base model and its variants, as declared by the vehicle manufacturer, are enclosed herewith.					
3. This certificate is issued as per CMV Rule 126, to establish compliance with the Central Motor Vehicles Rules, 1989, and shall not be construed as a certificate of compliance to any rules other than those listed in <u>Annexure-1</u> .					
4. (Additional Clarification to be given where necessary e. g.) . <i>The above base model and its variants complying with the Mass Emission Standards, Rule 115(10), (India Stage I, Ref : GSR No. 493(E) dated 28.08.1997 w.e.f. 01.04.2000), also meet the requirements of Rule 115(11), (Bharat Stage II, Ref: GSR No. 77(E) dated 31.01.2000 w.e.f. 01.04.2000).</i>					
AUTHORISED SIGNATORY,					

Table B2: Format For Annexure - I For Complete Vehicles

ANNEXURE - I TO CMVR CERTIFICATE No. ARAI/CMVR/(Ref. -----)/2000-(Sr. No.)Dated : 28/09/2000	
Following rules are verified and found to be complying.	
Rule No.	Sub Rules
93 - Overall dimension of motor vehicles	(1), (2), (4), (6) & (7)
94 - Condition of tyres	(1), (2) & (3)
95 - Size & Ply rating of tyres	165/80 R 14 Opt. : 185/70 R 14
96 - Brakes	(1), (2), (3), (4)(iii), (5), (6), (7)(a) & (8)
98 - Steering gear	(1), (2) & (3)
99 - Forward and backward motion	---
100 - Safety glass	(1), (2) & (3)
101 - Windscreen wiper	(1) & (2)
102 - Signalling devices, direction indicators and stop lights	(1) & (2)
103 - Position of the indicator	(1) & (2)
104 - Fitment of reflectors	(1) & (4) *
105 - Lamps	(1), (2), (3), (4) & (7)
106 - Deflection of lights	(1)
108 - Use of red or white lights	---
109 - Parking light	---
111 - Prohibition of spotlights etc.	---
112 - Exhaust gases	---
113 - Location of exhaust pipes	---
115 - Emission of smoke, vapour, etc. from motor vehicle	(1), (2)(a), (9)(i), (10)(A) & (11)(A)
117 - Speedometer	(1) & (2) *
119 - Horns	(1) * & (2)
120 - Silencers	(1) & (2)
124 - Safety standards of components as applicable (Ref. S. O. No. 873(E) dated 15.12.1997)	(1), Sr. No. 1, 2, 3, 6, 7, 8, 11, 13 to 17, 19, 20, 21 of the Notification
125 - Safety belt, Collapsible steering column, auto dipper and padded dashboards.	(1) & (2)
Gradeability, Fuel Consumption & Engine Power	
Authorised Signatory,	
ELTR No : TA ----/ELTR/-----/--- dt. ____.	
* Meets the requirements of GSR NO. 214 (E) dated 18.03.1999 effective from the dates notified for the respective rules	

Table B3: Format For Annexure - I For Incomplete Vehicles

ANNEXURE - I TO	
CMVR CERTIFICATE No.ARAI/CMVR/----/2000-(Sr. No.)Dated : 28/09/2000	
Following rules are verified and found to be complying.	
Part I : Following rules are verified and found to be complying	
Rule No.	Sub Rules
93 – Overall dimension of motor vehicles	(1), (2), (4), (6) & (7)
94 – Condition of tyres	(1), (2) & (3)
95 – Size & Ply rating of tyres Front : Single, Rear: Dual	7.50 x 16 - 14 PR Opt. : 7.50 X 14 , 16 PR
96 – Brakes	(1), (2), (3), (4)(iii), (5), (6), (7)(a) & (8)
98 - Steering gear	(1), (2) & (3)
99 - Forward and backward motion	---
100 - Safety glass	(1), (2) & (3)
101 - Windscreen wiper	(1) & (2)
102 - Signalling devices, direction indicators and stop lights	(1) & (2)
103 - Position of the indicator	(1) & (2)
104 - Fitment of reflectors (5 if variants with overall length >6 m)	(1) & (4) *
105 – Lamps	(1), (2), (3), (4) & (7)
106 - Deflection of lights	(1)
107 - Top lights (for variants if overall width > 2.1 m)	---
108 - Use of red or white lights	---
109 - Parking light	---
111 - Prohibition of spotlights etc.	---
112 - Exhaust gases	---
113 - Location of exhaust pipes	---
115 - Emission of smoke, vapour, etc. from motor vehicle	(1), (2)(a), (9)(i), (10)(A) & (11)(A)
117 – Speedometer	(1) & (2) *
119 – Horns	(1) * & (2)
120 – Silencers	(1) & (2)
124 - Safety standards of components as applicable (Ref. S. O. No. 873(E) dated 15.12.1997)	(1), Sr. No. 1, 2, 3, 7, 8, 14, 15, 16, 19, & 20, of the Notification
125 - Safety belt, Collapsible steering column, auto dipper and padded dashboards.	(1) & (2)
Gradeability, Fuel Consumption & Engine Power	
Part II: Following rules are to be verified after body building, at the time of registration.	
93 - Overall dimension of motor vehicles	(1), (2), (4), (6) & (7)
102 - Signalling devices, direction indicators and stop lights	(1) & (2)
104 - Fitment of reflectors (5 if variants with overall length >6 m)	(4) & 5
105 – Lamps	(1),(2),(3),(4) & (7)
108 - Use of red or white lights	---
124 – Safety standards of components as applicable (Ref. S. O. No. 873(E) dated 15.12.1997)	Sr. No. 11 of the Notification
Authorised Signatory, ELTR No : TA ----/ELTR/----/--- dt	
* Meets the requirements of GSR NO. 214 (E) dated 18.03.1999 effective from the dates notified for the respective rules	

Table B4
Format for the Brief Technical Specifications

- 1 Manufacturer's name & address
- 2 Model
- 3 Variants
- 4 Vehicle type(goods/passenger/both/others)
- 5 Example of Chassis Number
- 6 Example of Engine Number

In the case of Engine and Chassis number, indicate the characters which are constant and the characters which vary to indicate the individual engine/chassis to be shown as *****.

- 7 Engine type
- 8 Number of cylinders
- 9 Max. Net Power, kW (HP/PS)
- 10 Cubic capacity, cc
- 11 Nominal Dimensions, mm
 - 11.1 Overall length
 - 11.2 Overall width
 - 11.3 Overall height
 - 11.4 Rear overhang
- 12 Weights
 - 12.1 Kerb weight, kg
 - 12.2 Maximum Permissible GVW, kg
 - 12.3 Maximum Permissible GCW (In case of Tractor-trailer combination),kg

Test Agency	Manufacturer	Document No.(indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	
Date	Date	Sheet No.----- of ----

- Notes The values which are common for all variants may be indicated only once. In case the values are different for different variants, they should be appropriately indicated, if necessary in a tabular form.
- While filling up the format, depending on space requirements, more than one serial number may be written in one horizontal line.

Table B5: Format for Extension of Approval

<p align="center">Extension Of Approval For Compliance To The Central Motor Vehicles Rules.</p> <p>Ref : ARAI/CMVR/(Ref. -----)/2000-(Sr. No.) Extension - 1 to Certificate Dt : 28/12/2000</p> <p><i>M/s Paragon Ltd.</i> <i>Chandrapura Industrial Estate, Chikhali - 389 350,</i> <i>Dist. Pune, <u>MAHARASHTRA.</u></i></p> <p>1. Based on the verification of documents and additional trials conducted on the variants / base model "<i>###@### ##\$## DLX</i>", <i>utility vehicle with catalytic converter, with 2560 kg. GVW, manufactured by M/s Paragon Ltd.,</i> it is declared that the compliance to the provisions of CMVR, 1989, as per the certificate / (s) listed below is also applicable to the endorsed changes in technical specifications.</p> <p>2. Reference CMVR Certificate number (s)</p> <p>2.1 ARAI/CMVR/(Reference No...)/2000-009 Dt : 21-05-99</p> <p>2.2 ARAI/CMVR/(Reference No...)/2000-234 Dt : 15-01-00</p> <p>2.3 ARAI/CMVR/(Reference No...)/2000-296 Dt : 25-07-00</p> <p>3. The brief nature of the changes in the specification are:</p> <ul style="list-style-type: none"> • <i>Inclusion of Alternate sources for carburettor and Catalytic converter</i> • <i>Aesthetic changes</i> <p>4. The changes in the Technical Specifications, of the base model and its variants, as declared by the vehicle manufacturer, are given in Annexure - I.</p> <p>5. The extensions issued earlier will continue to be valid, except for No. _____, which are superseded by this extension. (..... wherever applicable)</p> <p align="right">AUTHORISED SIGNATORY</p> <p><i>(The matters given in this font are examples of the details to be filled up.)</i></p>
--

Table B6: Format for Annexure to Extension of Approval

ANNEXURE - I				
To Extension - 1 Dated . 28/09/2000, to				
Certificate FOR COMPLIANCE TO THE CENTRAL MOTOR VEHICLES RULES.				
Details of change in Technical Specification				
1	Name of Vehicle Manufacturer : <i>M/s Paragon Ltd., Chandrapura Industrial Estate, Chikhali - 389 350, Dist. Pune, MAHARASHTRA</i>			
2	Reference CMVR Certificate number (s)			
2.1	<i>ARAI/CMVR/(Reference No...)/2000-009 Dt : 21-05-99 (001 234 005</i>			
2.2	<i>ARAI/CMVR/(Reference No...)/2000-234 Dt : 15-01-00 (001 235 005)</i>			
2.3	<i>ARAI/CMVR/(Reference No...)/2000-296 Dt : 25-07-00 (001 234 006</i>			
3	Specification / Document Number (Referred in base Certificate)			<i>(No. 001 234 005)</i>
3.1	Specification / Document Number at the time of last approval			<i>No. 001 234 006 Rev-2</i>
3.2	Document / Specification Number (Extension -1) . . now approved			<i>No. 001 234 017</i>
4	Nature of change (Give a brief description)			<i>Inclusion of Alternate sources for -- carburettor and Cat-Con, -- Aesthetic changes.</i>
5	Changes in the Specification			
Sr. No.	Specs.	Description	Parameter	Parameter
5.1	<i>A- 15</i>	<i>Carburettor</i>	<i>EARLIER</i>	<i>NEW</i>
	<i>A- 15.2</i>	<i>Make</i>	<i>ENG, HSD</i>	<i>ENG, HSD, PAT</i>
	<i>A- 15.8</i>	<i>Jet size</i>	<i>52</i>	<i>52, 55</i>
5.2	<i>C - 30</i>	<i>Cat-Con</i>		
	<i>C- 30.1</i>	<i>Make</i>	<i>KCV, KVR</i>	<i>KVR, SAN, TUF</i>
<i>(The matters given in this font are examples of the details to be filled up.)</i>				

Test Agency	Manufacturer	Document No.(indicating also revision status)
Signature	Signature	
Name	Name	
Designation	Designation	
Date	Date	Sheet No.----- of ----

Annexure C (See para 7.1.2)
Criterion for Extension of Approval (CEA)

Preamble

This Annexure gives factors to be considered while selecting a vehicle to represent a range of variants for establishing compliance of a model for Type Approval. This is also applicable to:

- Extension of Type Approval for changes in Technical Specifications of an already Type Approved model.
- Establishing compliance of new models/variant(s) based on an already Type Approved model.

In general, when changes in Technical Specifications of a model/variant do not affect the performance adversely, and are still within the stipulated limits, the Type Approval can be extended without further verification. If the changes affect some of the performance parameters, tests shall be carried out only for those parameters.

The changes in parameters, with respect to the vehicle tested, as declared in the Technical Specifications (AIS 007) that are deemed to adversely affect the performance in respect of various provisions/notified standards and the tests to be performed, if any, for extending the Type Approval are given below. Changes other than those given against each provision/notified standard considered to be having no adverse effect on the compliance to the provision/notified standard to the satisfaction of the Test Agency. Decision on any such parameter shall be informed by that Testing Agency to other Testing Agencies, SIAM and other AISC members giving the logic for such a consideration.

Such details are already specified in some of the notified standards. In such cases only the reference of such standard is indicated in this Annexure. It is planned to incorporate such details in all the notified standards in due course of time and as and when these are incorporated, details specified in such standards would automatically supersede those given in this Annexure.

C0.0 Guide Lines For Applying CEA

C0.1 If the manufacturer has indicated a range of models/variant(s) to be certified, at the time of initial type approval, necessary base model(s) shall be selected from this range to represent the entire range, considering the CEA of each of the provisions. It may be necessary to have more than one base model/variant(s) to represent the entire range and all the provisions.

The details of tests to be carried out on each of these base models and the provisions for which each of variant(s)/model can be certified, shall also be worked out.

The format for submitting the information necessary for working out the above is given in Tables 8,9,10 and 12 of AIS007 .

If there is not a range of models/variant(s) to be certified, at the time of initial type approval, the model tested initially shall be treated as the base model.

The interrelationship between CEA and CMVR are tabulated and enclosed as Appendix C1, to act as a ready reckoner.

- C0.2 When the validity of the certificate is to be extended for changes in the technical specification, the manufacturer shall declare the changes and the base models to be considered and the details given in the appropriate tables of AIS 007. The Testing Agency shall evaluate changes in the system and vehicle related parameters with respect to the test results of the applicable base model based on CEA, and where applicable, decide the new base model(s) , and tests to be carried out on them which are required to establish compliance.
- C0.3 If tests are carried out, they shall be also treated as those of a base model, for future evaluations.
- C0.4 The definitions of the type and variant(s) for engine, steering and brakes are given in Appendix C2 as a ready reckoner for evaluating the effects of changes.

C1.0 Brake System (Rule No. 96(4))

- C1.1 For vehicles coming under the purview of Indian standards IS:13670, IS:11716, and IS:10376, the details given in IS: 14121 shall be followed.
- C1.2 For other vehicles, in the cases of following changes, tests which are necessary for establishing compliance are listed below:

Parameter and change	Tests to be conducted
Change of vehicle Category (as defined in IS:11852)	If the requirement of new category is more arduous, all applicable tests to be done. If the earlier test results are meeting arduous requirements, test need not be repeated.
Increase in GVW not exceeding 10%	If the deceleration calculated from the previous Type P engine disconnected test, corrected for new GVW, using the formula given in C.1.2.1 is within limits, no tests need be done. Otherwise all dynamic tests.
Increase in GVW exceeding 10%	All dynamic tests
Change in number of axles	All tests
Unladen weight	All dynamic tests in the unladen condition, if the ratio (in unladen condition)of front axle weight to rear axle weight is increased in excess of 10%.
Suspension changes affecting the axle load distribution or control of load sensing valves	Same as above for unladen weight.
Decrease in wheel base	All dynamic tests
Increase in wheel base	Reaction time and depletion tests. (These tests may be conducted on a shorter wheelbase variant by simulating the piping for the longer wheelbase

Parameter and change	Tests to be conducted
Maximum speed	All P and F type tests, if the test speed is increased in excess of 6%.
Engine, gear box, overall transmission ratio	If the contribution of the engine braking effect is reduced, such as change from CI to SI engine, decrease in number of cylinders, changes in transmission to decrease the engine rpm at the test speed in excess of 8%, all F type and if applicable H type test to be conducted.
Changes in the brake transmission components, affecting the performance	All tests which are affected. For alternative make of valves etc. only static tests need be done.
Reservoir capacity	If increased, charging time to be tested. If decreased, depletion tests to be done.
Compressor	If capacity is decreased, charging time.
Tyres: Increase in rolling radius in excess of 5%, or High aspect ratio to low aspect ratio	All dynamic tests to be done
Tyres : Changes affecting adhesion such as change from radial ply to cross ply	All P type tests to be done
Supplementary braking system: if performance is reduced	Type H test to be conducted
Brake lining material, foundation brake, and changes in line pressure not in excess of 15%	Either, a) All applicable dynamic tests on vehicle or b) Verification on inertia dynamometer: If the performance of brake lining for which type approval is to be extended, and established on inertia dynamometer is within $\pm 15\%$ of the performance of the lining already type approved, as established on inertia dynamometer, no tests need be conducted on the vehicle.
Vacuum booster ratio decrease	All P type tests, except the booster disconnected test.

C.1.2.1 The stopping distance or the mean fully developed deceleration shall be corrected to the condition of new specified mass by following formulae.

$$S_{\text{ext}} = \{(S_{\text{ta}} - 0.1 V_s) \times (M_{\text{ext}} / M_{\text{ta}})\} + 0.1 V_s$$

$$d_{\text{ext}} = d_{\text{ta}} \times M_{\text{ta}} / M_{\text{ext}}, \quad \text{Where,}$$

S_{ta} = Stopping distance reported in the earlier Type Approval test

S_{ext} = Stopping distance calculated for the new GVW for which extension is sought.

M_{ta} = Mass (kg) specified for the earlier Type Approval test.

M_{ext} = Mass (kg) for which extension is sought.

d_{ta} = Mean fully developed deceleration (m/s^2) reported in the earlier Type Approval test

d_{ext} = Mean fully developed deceleration (m/s^2) calculated for the new GVW for which extension is sought.

V_s = The specified test speed.

Note: This table is derived from IS:11852 Part 8. As this Indian standard does not include the limits for various changes, these details have been included in this. An amendment/revision in the Indian Standard is being processed and till such an amendment/revision is published this is to be followed.

C2.0 Steering Torque (Rule No. 98(2), IS:11948)

The details given in IS: 11948-1998 shall be followed.

C3.0 Laminated Safety Glass (Rule No. 100(2) & (3), IS:2553P2-1992)

C3.1. In the cases of following changes, all tests are necessary for establishing compliance.

- Thickness of glass (sandwich)
- Material of plastic layer

C3.2. In the cases of following changes, test of light transmissibility and distortion is necessary for establishing compliance

- Any decrease in radius of curvature
- Change of tint

C4.0 Emission (Rule No. 115)

Details given in the document No. MOST/CMVR/ TAP 115/116 shall be followed.

C5.0 Speedometer Calibration (Rule No. 117(2), IS:11827)

C5.1 In the cases of following changes, tests are necessary for establishing compliance:

- Location of the Speedometer that affects the parallax from the driver's seat, if indicating a lower speed in new location.
- Tyre size other than ply rating.
- Ratio of speed-drive transmission that changes the number of rotations of the speed-cable per kilometer travelled by the vehicle. (See C5.2)
- Speedometer ratio, which changes the number of rotations of the cable needed per kilometer

C5.2. In the case of changes in the drive ratio of speed-drive transmission/ speedometer ratio, if the error calculated from the previous test using the new ratio, is within limits, a re-test need not be done.

C6.0 Sound level (Rule No. 120(2), IS:3028)

The details given in IS: 3028-1998 shall be followed.

C7.0 Hydraulic brake hose (Rule No. 124-2, IS:7079)

C7.1 In the cases of following changes, tests which are necessary for establishing compliance are listed below:

Parameter and change	Tests to be conducted
Change of material of hose or type of braiding	Burst test and whipping test to be conducted
Increase in length	Whipping test to be conducted
Section dimensions of the hose	Burst test and whipping test to be conducted
Change in bore dia	All tests except salt spray
End fittings	Salt spary test

C8.0 Fuel Tank (Rule No. 124-7, IS:12056)

C8.1 In the cases of following changes, all tests are necessary for establishing compliance:

- Fuel cap design
- Seating arrangement of the cap on the neck
- Venting system.

C8.2 In the cases of following changes, pressure test is necessary for establishing compliance:

- Reduction in wall thickness
- Increase in volume

C9. EMI (Rule No. 124-21, SS21.1)

Details given in the document No.SS21.1 shall be followed.

C10.0 Wheel Guard (Rule No. 124-13, IS:13943:1994)

C10.1 In the cases of following changes, tests are necessary for establishing compliance:(Refer fig 1 of IS:13943:1994)

- Any decrease in tyre size that makes the distance 'c' > (2r-5mm)
- Depth 'p' is less than 35mm
- Any decrease in overall width 'q', or increase in 'b' or 't' that makes $q < (b-5\text{mm})$ for single tyre and $q < (t-10\text{mm})$ for dual tyres, between radial planes 30° and 50° rear of center of wheels
- Any change in the wheel guard such that it terminates above a horizontal plane 140mm above the axis of rotation of wheels

- Any reduction of distance of point A from median longitudinal plane of single tyre (or median longitudinal plane of outermost tyre for twin wheels) such that it has a value less than 10mm.

C11. Fuel consumption as per driving cycle

If the changes call for a re-test of mass emission as per para C4, fuel consumption tests also to be carried out along with mass emission tests.

C12. Fuel consumption at constant speed

C12.1. In case of following changes, tests are necessary for establishing the constant speed fuel consumption.

- Change in excess of 10% vehicle test weight (GVW/Reference mass as applicable)
- Change in the Engine type, swept volume in excess of 10%, number and arrangement of cylinders
- Change in engine power or torque in excess of 5%
- Change in the fuel system such as carburettor to fuel injection or vice-versa.
- Change in type of transmission(Manual to automatic/semi-automatic or vice versa)
- Change from radial ply to cross ply tyres or vice versa
- Change in the overall transmission ratio (in the gear used for test) and change in rolling radius of tyre, which changes the engine rpm at the test speed in excess of 8%. (If both parameters are changed, the combined effect on engine rpm at the test speed should be considered)
- Change in body shape which increases the frontal area (If the coast down test has been conducted, and the change in road load at the test speeds is not in excess of 10%, the constant speed fuel consumption test need not be repeated)
- Change of fuel type (petrol/diesel etc.)
- No. of axles
- Change in ignition/injection timing, in excess of 2⁰
- No. of tyres
- Change of a tyre size, which is not permitted on the rim originally used
- Air intake system (Naturally aspirated to super/turbo charged or vice versa.
- Changes in the Engine Control Unit (ECU), including calibration

C13. Engine Power

C13.1 Diesel engines: If the changes call for a re-test of visible pollutants, as per para C4, engine power is to be tested for establishing compliance. This test is, in any case carried out along with the smoke emission tests.

C13.2 Petrol Engines: Tests are to be conducted if the value declared by the manufacturer changes in excess of 5%.

C14. Gradeability

The details given in AIS-003/1999 shall be followed.

C15. Change of name of model/manufacturer

In case of change of the commercial name of the model, change of name of manufacturer, additional manufacturer under technical collaboration for an already approved model, fresh certificate of compliance is necessary. Decisions on any re-tests to be done will depend on the other changes in the Technical Specification, if any, based on the CEA detailed in this Annexure.

Appendix C1 . INTER-RELATIONSHIP BETWEEN CEA AND CMVR (See para C0.2)

Rules →																
Parameters changed, others remaining same ↓	96-4, Brake	98-3 Steering effort (IS:1948-1998)	101(3) Wiping system	102 to 110 Lights installation	115 Emission - driving cycle	115 Emission13 mode	117 Speedo calibration(IS 11827)	120 Noise (IS 3028-1998)	124 Strg.Col. Impact	124 Side door impact	124 Hood latch	124 EMI	Gradeability	Engine power	FC - driving cycle	FC Const. Speed
Vehicle Category ⁽¹⁾	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y	Y
Vehicle Classification ⁽²⁾	Y	Y	n	P	P	n	n	Y	Y	Y	Y	n	n	n	P	Y
GVW	Y	Y	n	n	Y	P	n	n	P	n	n	n	Y	n	Y	Y
FAW (Laden)	Y	Y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
RAW (Laden)	Y	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
ULW	Y	n	n	n	Y	n	n	Y	Y	P	n	n	n	n	Y	n
Engine Type	Y	n	n	n	Y	Y	n	Y	n	n	n	Y	Y	Y	Y	Y
Ignition, Cooling & Exhaust system	P	n	n	n	Y	Y	n	Y	n	n	n	Y	n	Y	Y	Y
Engine Power	P	n	n	n	Y	Y	n	Y	n	n	n	Y	Y	Y	Y	Y
No. of Axles	Y	Y	n	n	n	n	n	Y	n	n	n	n	n	n	n	Y
Wheel drive (No. of permanent driven axles)	Y	P	n	n	n	n	n	Y	n	n	n	n	Y	n	n	Y
No. of steered axles	n	Y	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Tyre size/ no.s	Y	Y	n	P	Y	n	Y	Y	n	n	n	n	Y	n	Y	Y
Transmission ratio	Y	n	n	n	Y	n	P	Y	n	n	n	n	Y	n	Y	Y
Width, height & length	P	P	n	Y	Y	n	n	P	n	n	n	n	n	n	n	n
Wheel base	Y	Y	n	n	n	n	n	P	n	n	n	n	n	n	n	n
Body design ⁽⁴⁾	n	P	Y	Y	n	n	n	Y	Y	Y	Y	Y	n	n	n	n
Frontal area ⁽³⁾	P	n	n	n	P	n	n	n	n	n	n	n	n	n	P	P
No. of doors	n	n	n	n	n	n	n	n	n	Y	n	n	n	n	n	n
Brake system	Y	n	n	n	n	n	n	n	n	n	n	n	n	n	n	n
Steering system	n	Y	n	n	n	n	n	n	P	n	n	n	n	n	n	n

Legends:

Y: May affect, CEA to be studied in detail	P: May not affect directly. But consequential changes (for e.g. pipe lengths, vehicle classification, coast down values etc. may have an effect on CEA) or may affect only under limited circumstances.	n: No Effect
(1) Vehicle Category: 2 wheelers, 3 wheelers below 1.5t GVW, and M/N vehicles.	(2) Vehicle classification: Classification within M/N such M1, N1 etc.	
(3) Includes shape change affecting the air resistance	(4) Does not include frontal area and shape affecting the air resistance	

Appendix C2 . Definitions of type and variant for major systems.

(See para C0.4)

- (a). **Type of engine:** Means a family of engines, which does not differ in parameters listed in the following paragraphs of AIS007-1998:

In the case of 2 and 3 wheelers:	7.3, 7.5, 7.6, 7.13, 14.1, 15 or 16, 21, 30
In case of other vehicles:	A4.3, A4.5, A4.6, C1.1, C11, C11.1, C2/ C3, C8.1, C9 or C10, C15 and C24

- (b) **Variant of Engine:** Means Engines of the same type, as defined in para (a) (i.e. there are no changes in the above parameters) but varies in respect of the other system related parameters described in AIS007/1998

- (c) **Type of Braking:** Means a braking system, which does not differ in parameters listed in the following paragraphs of AIS007-1998:

In the case of 2 & 3 wheelers:	36.1, 36.3, 36.3.1, 36.3.2, and 36.3.3
In case of other vehicles	D1.2, D1.3, D1.4, D2.1, D3.1, D4.2, D5.2, D6.2, D7, D15 to D19.1, D10.2, and D11.1

- (d) **Variant of Braking system:** Means braking system of the same type, as defined in para (c) (i.e. there are no changes in the above parameters) but varies in respect of the other system related parameters described in AIS007/1998

- (e) **Type of Steering system:** Means a Steering system, which does not differ in parameters listed in the following paragraphs of AIS007-1998:

In the case of 3 wheelers:	35.1 and 35.4.5
In case of other vehicles	B3.1, B3.5.1, B3.7, and B3.7.1

- (f) **Variant of Steering system:** Means steering system of the same type, as defined in para ((e) (i.e. there are no changes in the above parameters) but varies in respect of the other system related parameters described in AIS007/1998.

(See Introduction)
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