

BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL
BENCH, NEW DELHI

ORIGINAL APPLICATION NO. 717/2024

IN THE MATTER OF

News Item titled "People Are Breathing In Cancer-Causing Chemicals in their cars study find" appearing in NDTV.com dated 08.05.2024.

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Respondent No.5

Through



Gigi C. George Advocate

Standing Counsel (UOI)

Ch. No. 457, Lawyers Block,

DHC, New Delhi

Gigicgeorge.adv42@yahoo.in

M-9810625315

Date: 02.01.2025

Place: New Delhi

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL, PRINCIPAL
BENCH, NEW DELHI**

ORIGINAL APPLICATION NO. 717/2024

IN THE MATTER OF

News Item titled "People Are Breathing In Cancer-Causing Chemicals in their cars study find" appearing in NDTV.com dated 08.05.2024.

**REPLY ON BEHALF OF RESPONDENT NO. 5, MINISTRY OF ROAD,
TRANSPORT AND HIGHWAYS,**

Most Respectfully Showeth:-

1. That the Instant Original Application No. 717/2024, registered suo motu, on the basis of the news item titled "People Are Breathing In Cancer-Causing Chemicals in their cars study find" appearing in NDTV.com dated 08.05.2024.
2. That the Hon'ble Tribunal has observed and examining the issue of presence of cancer-causing chemicals in the cars. The issue has come up in the light of the news report showing that 99% of the cars contained a flame retardant called TCIPP, which is being investigated as potential carcinogen. It further involves the issue of use of two more flame retardants, TDCIPP and TCEP, which are stated to be carcinogenic.



(SUSHIL KUMAR GEEVA)
Under Secretary
Ministry of Road Transport & Highways
Govt. of India, New Delhi-1

3. That the Hon'ble Tribunal vide its order dated 12.09.2024 impleaded answering respondent and issued notice to the answering respondents for filing their response by way of an affidavit.
4. That the role of the answering respondent is confined to notifying rules and regulations under the Central Motor Vehicles Rules, 1989, as per the provisions contained in the Motor Vehicles Act, 1988. This Ministry remains committed to ensure implementation of Motor Vehicles Act, 1988 and the rules prescribed thereunder.
5. That as per Central Motor Vehicles Rules, 1989, the flammability requirements apply to the following vehicles:
 - a. Type-II & Type-III Buses as per AIS 052 (Rev-1)
 - b. Sleeper Coaches as per AIS 119 (Rev-1)
 - c. All CNG or LPG-fueled vehicles
6. That the relevant portion of the Rule of the Central Motor Vehicles Rules, 1989 are reiterated herein for the quick reference of this Hon'ble Tribunal:
 - i. As per Rule 125 of the Central Motor Vehicles Rules, 1989 as amended from time to time deals with the Safety Belt, collapsible steering column, auto dipper and paddy dash boards.

“ ...

(6) On and from the 1st day of October, 2007, the seats, their anchorages and their head restraints for M2, M3, N1, N2 and N3 Category of vehicles, shall be in accordance with AIS : 023-2005, as amended from time to time till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

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Ministry of Road Transport & Highways
Govt. of India, New Delhi-1

(7) On and after 1st October, 2014, the seats, their anchorages and head restraints for quadricycles shall be in accordance with the specifications of vehicle Group B as specified in AIS 023:2005 as amended from time to time till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

...”

- ii. As per AIS- 023 (Automotive Vehicles - Seats, their Anchorages and Head Restraints for Passenger Vehicles of Categories L7, M2, M3 and Goods Vehicles of Category N –Specifications) specifies the requirement of the flammability.

“ ...

4.2 The seat material in CNG or LPG fueled vehicles, shall comply with flammability requirements as per IS:15061-2002.

...”

- iii. As per Rule 125C of the Central Motor Vehicles Rules, 1989 deals with the “Body building and approval”.

“(1) On and after the 1st day of October, 2014, the testing and approval for body building of new models of buses with seating capacity of 13 or more passengers excluding driver shall be in accordance with AIS:052 (Revision 1)-2008, as amended from time to time, for vehicles mentioned therein, till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

...



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Under Secretary
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(5) On and after expiry of six months from the date of commencement of the Central Motor Vehicles (14th Amendment) Rules, 2016, the testing and approval for body building of sleeper coaches shall be in accordance with AIS-119 (Rev.1):2016, as amended from time to time, for vehicles mentioned therein, till the corresponding Bureau of Indian Standards specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986)

...”

- iv. As per AIS-052 (Rev 1) (code of practice for bus body design and approval) deals with buses with a seating capacity of 13 passengers or above excluding the driver.

“ ...

Table-3

...

7.0 : Flammability requirements for the foam & upholstery: As per IS 15061:2002

....”

- v. As per AIS-119 (Rev. 1) (Specific Constructional Requirements for Sleeper Coaches):

“ ...

4.12 Flammability Requirements

4.12.1 Flammability requirements for the materials used in the construction of Sleeper Coaches such as plywood, pad material,


 (SUSHIL KUMAR GEEVA)
 Under Secretary
 Ministry of Road Transport & Highways
 Govt. of India, New Delhi-1

upholstery, curtains, ABS, flooring material, side lining material, etc. shall be as per IS 15061:2002, as amended from time to time.

...”

- vi. As per Rule 115B of the Central Motor Vehicles Rules, 1989 deals with the Mass emission standards for Compressed Natural Gas (CNG) or Bio-Compressed Natural Gas (Bio-CNG) or Liquefied Natural Gas (LNG) Driven Vehicles.

“... ”

(II) For CNG or Bio-CNG or LNG dual fuel or dedicated dual fuel vehicles having GVW above 3.5 T, conversion by modification of engines of in-use diesel vehicles,

...

test procedure and safety guidelines and code of practice for dual fuel or dedicated dual fuel CNG or Bio-CNG or LNG vehicles, kit components including installation thereof, shall be as per AIS-024 and AIS-028(Rev.1)

...”

- vii. As per AIS- 024 (Safety and Procedural Requirements for Type Approval of Gaseous Fuelled Vehicles) mandates that the fire retardant material conforms to FMVSS 302 for seat / upholstery/roof & side lining shall be used in Gaseous Fuelled Vehicles (compressed natural gas systems when used as either Dedicated / Bi-fuel / Dual fuel / Dedicated dual fuel)
- viii. AIS-028 (Safety and Procedural Requirements for Type Approval of Gaseous Fuelled Vehicles) mandates that the Fire retardant material


 (SUSHIL KUMAR GEEVA)
 Under Secretary
 Ministry of Road Transport & Highways
 Govt. of India, New Delhi-1

conforms to FMVSS 302 for seat / upholstery/roof & side lining shall be used.

- ix. As per Rule 115C of the Central Motor Vehicles Rules, 1989 deals with the Mass emission standards for Liquefied Petroleum Gas driven vehicles. The relevant portion is as under:

“...

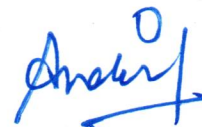
(5) For in-use BS VI gasoline vehicle of categories L, M and N with Gross Vehicle Weight (GVW) less than 3.5T

...

(b) Vehicles shall meet all the safety requirements as per AIS-025, AIS-026 & AIS-027 as applicable.

...”

- x. As per AIS-025 (Safety and Procedural Requirements for Type Approval of LPG Operated Vehicles) mandates that the Fire retardant material conforming to FMVSS 302 for seat/upholstery/roof & side lining shall be used in the vehicles operated on LPG.
- xi. As per AIS-026 (code of practice for the use of LPG fuel in internal combustion engine to power 4-wheeled vehicles and heavy motor vehicles) specifies the Flammability requirements shall be as per SAE J369a class SE/NBR.
- xii. As per AIS- 027 (code of practice for use of LPG fuel in internal combustion engine to power 2 & 3-wheeled vehicles) mandates that the Fire retardant material conforming to FMVSS 302 for seat/upholstery/roof & side lining shall be used in the vehicles operated on LPG



(SUSHIL KUMAR GEEVA)
Under Secretary
Ministry of Road Transport & Highways
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xiii. Further, it is submitted that IS:15061-2002 specifies the flammability requirements for automotive applications. The standard specifies the requirements of measurements of horizontal and vertical burning rate, tests to determine the melting behavior of the material, etc. of interior materials used in motor vehicles of category M3 carrying more than 22 passengers and urban use (city buses).

7. That there is no quantifiable data presently available regarding the carcinogenicity or the specific usage of TCIPP, TDCIPP, and TCEP in vehicle components. Addressing these concerns requires a scientifically robust approach. A comprehensive study, involving all relevant stakeholders (such as Indian Council of Medical Research, Automotive Component Manufacturers Association of India, etc), including regulatory bodies, industry experts, and environmental scientists, is necessary to examine the potential implications of these substances thoroughly. Copy of the Central Motor Vehicles Rules, 1989, along with the associated standards, is annexed herein as **Annexure-I**.

8. That the answering respondent will file additional reply/affidavit if required or directed by this Hon'ble Tribunal.


Respondent No.5
(SUSHIL KUMAR GEEVA)
Under Secretary
Ministry of Road Transport & Highways
Govt. of India, New Delhi-1

Date: 02.01.2025

Place: New Delhi

Through



GIGI.C.GEORGE

ADVOCATE

STANDING COUNSEL(UOI)

THE CENTRAL MOTOR VEHICLES RULES, 1989¹

CHAPTER I PRELIMINARY

1. Short title and commencement.—(1) These rules may be called the Central Motor Vehicle Rules, 1989.

(2) Save as otherwise provided in sub-rule (3) ²[and sub-rule (2) of rule 103,] these rules shall come into force on the 1st day of July, 1989.

(3) The provisions of ²[rule 9,] sub-rule (3) of rule 16, sub-rule (4) of rule 96, ³[* * *] sub-rule (3) of rule 105, rule 113, sub-rules (2), (3), (4) or (5) of rule 115, rules 118,122,124,125,126 and 127 shall come into force on such date as the Central Government may, by notification in the Official Gazette, appoint.

2. Definitions.—In these rules, unless the context otherwise requires—

(a) "Act" means the Motor Vehicles Act, 1988 (59 of 1988);

⁴[(b) "agricultural tractor" means any mechanically propelled 4-wheel vehicle designed to work with suitable implements for various field operations and/or trailers to transport agricultural materials. Agricultural tractor is a non-transport vehicle;

(c) "agricultural trailer" means a trailer generally left uncovered with single/double axle construction which is coupled to an agricultural tractor by means of two hooks and predominantly used for transporting agricultural materials;]

⁵[(ca) "construction equipment vehicle" means rubber tyred (including pneumatic tyred), rubber padded or steel drum wheel mounted, self-propelled, excavator, loader, backhoe, compactor roller, dumper, motor grader, mobile crane, dozer, fork lift truck, self-loading concrete mixer or any other construction equipment vehicle or combination thereof designed for off-highway operations in mining, industrial undertaking, irrigation and general construction but modified and manufactured with "on or off" or "on and off" highway capabilities.

Explanation.—A construction equipment vehicle shall be a non-transport vehicle the driving on the road of which is incidental to the main off-highway function and for a short

¹ Vide G.S.R. 590 (E), dated 2-6-1989, published in the Gazette of India, Ext., Pt. II, S. 3, dated 2-6-1989.

² Inserted by G.S.R. 933(E), dated 28-10-1989 (w.e.f. 28-10-1989).

³ The words and figures "sub-rule (3) of rule 103" omitted by G.S.R. 221(E), dated 28-3-2001 (w.e.f. 28-3-2001).

⁴ Inserted by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

⁵ Inserted by G.S.R. 642(E), dated 28-7-2000 (w.e.f. 28-7-2000).

duration at a speed not exceeding 50 kms per hour, but such vehicle does not include other purely off-highway construction equipment vehicle designed and adopted for use in any enclosed premises, factory or mine other than road network, not equipped to travel on public roads on their own power;]

⁶[⁷(d)] "financier" means a person or a title holder-cum-dealer who lets a motor vehicle on hire under an agreement of hire purchase or lease or hypothecation to the operator with a permission to get it registered in operator's name as registered owner;]

⁸[(e)] "Form" means a Form appended to these rules;

⁸[(f)] "section" means a section of the Act;

⁹[(g)] "trade certificate" means a certificate issued by the registering authority under rule 35;

⁹[(h)] "non-transport vehicle" means a motor vehicle which is not a transport vehicle.

¹⁰[(i)] "Category L-1" means a motorcycle as defined in sub-section (27) of section 2 of the Act, with maximum design speed not exceeding 45 km/hour and engine capacity not exceeding 50 cc, if fitted with a thermic engine;

(j) "Category L-2" means a motor cycle as defined in sub-section (27) of section 2 of the Act, with maximum design speed exceeding 45 km/hour and engine capacity exceeding 50 cc, if fitted with a thermic engine;

(k) "Category M" means a motor vehicle with at least four wheels used for the carriage of passengers and their luggage;

(l) "Category M-1" means a motor vehicle used for the carriage of passengers and their luggage and comprising no more than eight seats in addition to the driver's seat;

(m) "Category M-2" means a motor vehicle used for the carriage of passengers and their luggage and comprising more than eight seats in addition to the driver's seat and having a maximum mass not exceeding 5 tonnes;

(n) "Category M-3" means a motor vehicle used for the carriage of passengers and their luggage and comprising more than eight seats in addition to the driver's seat and having a maximum mass exceeding 5 tonnes;

⁶ Cl. {aa) inserted by G.S.R. 933(E), dated 28-10-1989 (w.e.f. 28-10-1989), relattered as Cl. (d) by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

⁷ Substituted by G.S.R. 111(E), dated 10-2-2004, for Cl. (d) (w.e.f. 10-2-2004).

⁸ Cls. (b) and (c) relattered as Cls. (e) and (l), respectively by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

⁹ Cls. (d) and (e) relattered as Cls. (g) and (h), respectively by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

¹⁰ Inserted by G.S.R. 400(E), dated 31-5-2002 (w.e.f. 31-5-2002).

(o) "Category N" means a motor vehicle with at least four wheels used for the carriage of goods;

(p) "Category N-1" means a motor vehicle used for the carriage of goods and having a maximum mass not exceeding 3.5 tonnes;

(q) "Category N-2" means a motor vehicle used for the carriage of goods and having a maximum mass exceeding 3.5 tonnes but not exceeding 12 tonnes;

(r) "Category N-3" means a motor vehicle used for the carriage of goods and having a maximum mass exceeding 12 tonnes;

¹¹[(s) "Smart Card" means a device capable of storing data and executing commands which is a microprocessor chip mounted on a plastic card and the dimensions of the card and chip are specified in the International Organization for Standardization (ISO)/International Electro Technical Commission (IEC) 7816 specifications, as may be amended from time to time, and shall be as per the specifications specified in Annexure XI.

Explanation.—For the purposes of this clause, microprocessor chip shall have non-volatile re-writable memory capacity of minimum 4 Kilo Byte consisting of application data, file headers, security definitions, and a maximum of 350 bytes for Operating System Interfacing, as specified by the Ministry of Road Transport and Highways from time to time for Driving Licence and Registration Certificate applications;

¹²[(r) "International Driving Permit" means the licence issued by a licensing authority in India under Chapter II of the Act to an Indian National authorising the person specified therein to drive any categories of motor vehicles as specified in Form 6-A in the areas or territories of countries other than India but excluding the countries with whom there are no diplomatic relations;]

¹³[(u) "Battery Operated Vehicle" means a vehicle adapted for use upon roads and powered exclusively by an electric motor whose traction energy is supplied exclusively by traction battery installed in the vehicle:

Provided that if the following conditions are verified and authorised by any testing agency specified in rule 126, the battery operated vehicle shall not be deemed to be a motor vehicle.

(i) the thirty minutes power of the motor is less than 0.25 kW.;

(ii) the maximum speed of the vehicle is less than 25 km/h;

¹¹ Substituted by G.S.R. 513(E), dated 10-8-2004 (w.e.f. 10-9-2004).

¹² Inserted by G.S.R. 720(E), dated 10-9-2003 (w.e.f. 10-10-2003).

¹³ Inserted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

(iii) bi-cycles with pedal assistance which are—(a) equipped with an auxiliary electric motor having a thirty minute power less than 0.25 kW, whose output is progressively reduced and finally cut off as the vehicle reaches a speed of 25 km/h, or sooner, if the cyclist stops pedaling; and (b) fitted with suitable brakes and retro-reflective devices, *i.e.*, one white reflector in the front and one red reflector at the rear.

Explanation.—The thirty minute power of the motor is defined in AIS: 049:2003 and method of verification is prescribed in AIS: 041:2003, till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986);

(v) "Power tiller" means an agricultural machinery used for soil preparation having a single axle in which the direction of travel and its control for field operation is performed by the operator walking behind it. This equipment may or may not have a riding attachment and when coupled to a trailer can be used for the transportation of goods. The maximum speed of the power tiller when coupled to a trailer, shall not exceed 22 km/h. The maximum haulage capacity of the Power tiller coupled to a trailer shall not exceed 1.5 tons.]

CHAPTER II LICENSING OF DRIVERS OF MOTOR VEHICLES

General

3. General.—The provisions of sub-section (1) of section 3 shall not apply to a person while receiving instructions or gaining experience in driving with the object of presenting himself for a test of competence to drive, so long as—

(a) such person is the holder of an effective learner's licence issued to him in Form 3 to drive the vehicle;

(b) such person is accompanied by an instructor holding an effective driving License to drive the vehicle and such instructor is sitting in such a position to control or stop the vehicle; and

(c) there is painted, in the front and the rear of the vehicle or on a plate or card affixed to the front and the rear, the letter "L" in red on a white background as under:—



Note.—The painting on the vehicle or on the plate or card shall not be less than 18 centimeters square and the letter "L" shall not be less than 10 centimeters high, 2 centimeters thick and 9 centimeters wide at the bottom:

Provided also that where the exhaust gases are discharged to the left of the vehicle the inclination of exhaust pipe should not cross 30 degrees in downward and 30 degrees in left direction against the vertical plane which includes the vehicle centre line, provided the exhaust gases do not take up any dust when the vehicle is stationary and engine running:

²⁵⁵[Provided further that in the case of agricultural tractors, vertical or horizontal] exhaust pipe may be provided and outlet of this pipe should be so directed that the driver of the tractor is not exposed to exhaust gases by locating the outlet over or to the side of head-level of the driver as per Indian Standards IS: 12239 (Part 1)—1988:]

²⁵⁶[Provided also that in the case of construction equipment vehicle vertical exhaust pipe may be fitted and outlet of this pipe shall be so directed that the driver of the vehicle is not exposed to exhaust gases.]

113. Location of exhaust pipes.—On and from the date of commencement of this sub-rule, ²⁵⁷[no exhaust pipe of a motor vehicle including construction equipment vehicle] shall be located within a distance of 35 millimeters from the fuel line connecting to the fuel tank and engine.

114. Exhaust pipes of public service vehicles.—The exhaust pipe of every public service vehicle shall be so fitted or shielded that no inflammable material is thrown upon it from any other part of the vehicle and that it is not likely to cause a fire through proximity to any inflammable material on the vehicle.

Emission of smoke, vapour, etc., from motor vehicles

115. Emission of smoke, vapour, etc. from motor vehicles.— ²⁵⁸[(1) Every motor vehicle other than motor cycles of engine capacity not exceeding 70 cc, manufactured prior to the first day of March 1990, shall be maintained in such condition and shall be so driven so as to comply with the standards prescribed in these rules.]

²⁵⁹[(2) On and after 1st October, 2004, every motor vehicle operating on—

(i) Petrol/CNG/LPG shall comply with the idling emission standards for Carbon monoxide (CO) and Hydrocarbon (HC) given in the Table below:—

²⁵⁵ Substituted by G.S.R. 111(E), dated 10-2-2004, for "Provided further that in the case of tractors, vertical" (w.e.f. 10-8-2004).

²⁵⁶ Inserted by G.S.R. 642(E), dated 28-7-2000 (w.e.f. 28-7-2000).

²⁵⁷ Substituted by G.S.R. 116(E), dated 27-2-2002, for "no exhaust pipe" (w.e.f. 27-8-2002).

²⁵⁸ Substituted by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

²⁵⁹ Sub-R. (2) substituted by G.S.R. 111(E), dated 10-2-2004 (w.e.f. 10-8-2004) and as corrected by *vide* G.S.R. 176(E), dated 5-3-2004

TABLE
PETROL/CNG/LPG DRIVEN VEHICLES

Sl. No.	Vehicle Type	Co %	*HC(n-hexane equivalent) ppm
1.	2 and 3-Wheelers (2/4-stroke) (Vehicles manufactured on and before 31st March, 2000)	4.5	9000
2.	2 and 3-Wheelers (2-stroke) (Vehicles manufactured after 31st March, 2000)	3.5	6000
3.	2 and 3-Wheelers (4-stroke) (Vehicles manufactured after 31st March, 2000)	3.5	4500
4.	Bharat Stage II compliant 4-wheelers	0.5	750
5.	4-Wheelers other than Bharat Stage II compliant	3.0	1500

Note.—The test shall be carried out using the instrument type approved as per rule 116(3) of the Central Motor Vehicles Rules, 1989 (CMVR) with the vehicle engine warmed up after a run of minimum 15 minutes on a variable course under normal traffic condition. During the test the vehicle engine shall be running at idling speed and the sampling probe shall be inserted into the vehicle exhaust system to a depth not less than 300mm. In case CO and/or HC emission values recorded during the test are not within the limits, the testing shall be discontinued and the vehicle owner shall be advised to resubmit the vehicle after repair/service.

The idling emission standards for vehicles when operating on Compressed Natural Gas (CNG), shall contain Non-Methane Hydrocarbon (NMHC) in place of Hydrocarbon (HC) and shall be estimated by the following formula: $NMHC=0.3 \times HC$

Where HC= Total Hydrocarbon measured as n-hexane equivalent. Similarly idling emission standards for vehicles when operating on Liquefied Petroleum Gas (LPG) shall contain Reactive Hydrocarbon (RHC) in place of Hydrocarbon (HC) and shall be estimated by the following formula:

$$RHC=0.5 \times HC$$

Where HC= Total Hydrocarbon measured as n-hexane equivalent:

Provided that in case of Petrol vehicles fitted with three-way closed loop catalytic converters operating in a specific city or area, the Government of the respective State or Union Territory Administration, as the case may be, may, by notification in the Official Gazette, specify the introduction of measurement of LAMBDA (dimensionless value

representing burning efficiency of an engine in terms of the air/fuel ratio in the exhaust gases) and tighter emission norms for in-use vehicles with such periodicity as may be warranted, after ensuring that gas analyzers capable of measuring the values, duly approved by the testing agencies, are available in such city or area, as the case may be: Provided further that testing procedures are prescribed in TAP documents Nos. 115 and 116 as amended from time to time:

Provided also that the compliance to the limits prescribed in the above proviso shall be included in the certificate issued by the vehicle manufacturer in Form 22 or Form 22-A, as applicable for the vehicle manufactured on or after 1st October, 2004.

(ii) Smoke density for all diesel-driven vehicles shall be as follows:—

TABLE
DIESEL VEHICLES

Method of Test	Maximum Smoke Density	
	Light absorption coefficient (1/m)	Mar tidge units
Free acceleration test for turbo charged engine and naturally aspirated engine	2.45	65

The free acceleration test shall be carried out using the instrument type approved as per CMVR 116(3) with the vehicle engine warmed up to attain oil temperature of minimum 60°C. During each free acceleration, maximum no load speed reached shall be within bandwidth of ± 500 rpm of the average value in respect of 3-wheeler vehicles and ± 300 rpm of the average value for all other categories of vehicles. The free acceleration test shall be repeated till the peak smoke density values recorded in four successive accelerations meeting the above maximum no load rpm criteria are situated within a bandwidth of 25% of the arithmetic mean (in m-1 unit) of these values or within a bandwidth 0.25 K, whichever is higher and do not form a decreasing sequence. The smoke density to be recorded shall be arithmetic mean of these four readings. In case the valid readings are not obtained within 10 free accelerations or the smoke density recorded is not within the limits, the testing shall be discontinued and the vehicle owner shall be advised to resubmit the vehicle after repair/ service.]

(3) On and from the date²⁶⁰ of commencement of this sub-rule, all petrol-driven vehicles shall be so manufactured that they comply with the mass emission standards as specified at Annexure I. The breakdown of the operating cycle used for the test shall be

²⁶⁰ Brought into force on 1st day of April, 1991 vide S.O.869(E), dated 27-10-1989.

as specified at Annexure II, and the reference fuel for all such tests shall be specified in Annexure III to these rules.

(4) On and from the date²⁶¹ of commencement of this sub-rule, all diesel-driven vehicles shall be so manufactured that they comply with the standards based on exhaust gas opacity as specified at Annexure IV to these rules.

(5) On and from the date²⁶² of commencement of this sub-rule, all petrol-driven vehicles shall be so manufactured that they comply with the following levels of emissions²⁶³[when tested as per test cycle specified in Annexure V]:—

Mass of Carbon Monoxide (HQ)	Mass of Hydrocarbons (CO)	Mass of Nitrogen Oxides (NO)
Maximum grams per KW1T	Maximum grams per KWH	Maximum grams per KWH
14	3.5	18

²⁶⁴[Provided the standards for exhaust gas emissions applicable to agricultural tractors shall be notified separately.]

(6) Each motor vehicle manufactured on and after the dates specified in sub-rule (2), (3), (4) or (5), shall be certified by the manufacturers to be conforming to the standards specified in the said sub-sections, and further certify that the components liable to effect the emission of gaseous pollutants are so designed, constructed and assembled as to enable the vehicle, in normal use, despite the vibration to which it may be subjected, to comply with the provisions of the said sub-rule.

²⁶⁵[(7) After the expiry of a period of one year from the date on which the motor vehicle was first registered, every such vehicle shall carry a valid "Pollution under control" certificate issued by an agency authorised for this purpose by the State Government. The validity of the certificate shall be for ²⁶⁶[six months] and the certificate shall always be carried in the vehicle and produced on demand by the officers referred to in sub-rule (1) of rule 116.

(8) The certificate issued under sub-rule (7) shall, while it remains effective, be valid throughout India.]

²⁶¹ Brought into force on 1st day of April, 1991 *vide* S.O.869(E), dated 27-10-1989.

²⁶² Brought into force on 1st day of April, 1992 *vide* S.O.869(E), dated 27-10-1989.

²⁶³ Substituted by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

²⁶⁴ Inserted by G.S.R 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

²⁶⁵ Added by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

²⁶⁶ Substituted by G.S.R 111(E), dated 10-2-2004, for "six months or any lesser period as may be specified by die State Government from time to time" (w.e.f. 10-8-2004).

²⁶⁷[(9) Mass emission standard for diesel vehicles

Type approval tests

Vehicle Category	HC* (g/KWH)	CO* (g/KWH)	NOx (g/KWH)	Smoke
Medium & Heavy over 3.5 Ton/GVW	2.4	11.2	14.4	***
Light diesel upto 3.5 Ton/GVW or	2.4	11.2	14.4	***
Reference mass R(Kg)	CO** g/KM		HC+NOx g/KM	***
R<1020	5.0		2.0	
1020<R<1250	5.7		2.2	
1250<R< 1470	6.4		2.5	
1470<R< 1700	7.0		2.7	
1700<R<1930	7.7		2.9	
1930<R<2150	8.2		3.5	
R<2150	9.0		4.0	

Note:

*The test cycle is as per 13 mode cycle on dynamometer.

** The test should be as per Indian driving cycle with cold start.

***The emissions of visible pollutants (smoke) shall not exceed the limit value to smoke density. When expressed as light absorption coefficient given below for various nominal flows when tested as constant speeds over full load. (As indicated at Annexure I).

COP STANDARDS

*10% relaxation in the standards for HC, CO and NOx would be given. **10% relaxation in the standards for CO and combined HC+NOx would be given.

²⁶⁸[Mass emission standard for petrol-driven vehicles—Effective from 1st April, 1998

(i) *Passenger Cars—*

<i>Type approval tests</i>				
Cubic Capacity (cm ³)	Carbon Monoxide (gm/km)		HC+NOx (gm/km)	
	Passenger cars fitted with catalytic converter	Passenger cars not fitted with catalytic converter	Passenger cars fitted With catalytic converter	Passenger cars not fitted with catalytic converter
<1400	4.34	8.68	1.50	3.00
>1400<2000	5.60	11.20	1.92	3.84
>2000	6.20	12.40	2.18	4.36

²⁶⁷ Substituted by G.S.R. 163(E), dated 29-3-1996 (w.e.f. 1-4-1996). Earlier sub-R. (9) was added by G.S.R. 609(E), dated 15-9-1993 (w.e.f. 15-9-1993).

²⁶⁸ Substituted by G.S.R. 46(E), dated 21-1-1998 (w.e.f. 1-4-1998).

Notes.—1. The tests will be as per Indian driving cycle with warm start. However, with effect from 1st April, 1998, the test will be as per Indian driving cycle with cold start for catalytic converter fitted vehicles as:—

Soak Temperature	=	20°-30°C
Soak Period	=	6.30 hrs
Preparatory running before sampling	=	4 cycles
Number of test cycles	=	6
Break down of cycles	=	Indian driving cycle as per Annexure II

2. For passenger cars not fitted with catalytic converters, the test will continue to be with warm start as per existing procedure, till 1-4-2000.

3. There should be no crankcase emission.

4. Evaporative emission should not be more than 2.0g/test.

5. COP standards: 20% relaxation in the standards for Carbon Monoxide and combined ITC + NOx would be given.

6. For vehicles fitted with catalytic converter a deterioration factor of 1.2 on Type-Approval Limits will be applicable for durability.]

(ii) Three-Wheelers (for all categories)—

CO	gms/km	6.75
HC + NOx	gms/km	5.40

Note:

1. The test will be as per Indian driving cycle with warm start. However, with effect from 1st April, 1998, the test will be as per Indian driving cycle with cold start.

2. COP standards: 20% relaxation in the standards for Carbon Monoxide and combined HC + NOx would be given.

(iii) Two-Wheelers (for all categories)—

CO	gms/Km	4.50
HC + NOx	gms/Km	3.60

Note:

1. The test will be as per Indian driving cycle with warm start. However, with effect from 1st April, 1998, the test will be as per Indian driving cycle with cold start.

2. COP standards: 20% relaxation in the standards for Carbon Monoxide and combined HC+NOx would be given.

ANNEXURE I

Nominal Flow G(l/2)	Light Absorption (K(l/m))	Nominal Flow G(l/2)	Light Absorption (K(l/m))
42	2.26	120	1.37
45	2.19	125	1.345
50	2.08	130	1.32
55	1.985	135	1.30
60	1.90	140	1.27
65	1.84	145	1.25
70	1.775	150	1.205
75	1.72	160	1.19
80	1.665	165	1.17
85	1.62	170	1.155
90	1.575	175	1.14
95	1.535	180	1.125
100	1.495	185	1.11
105	1.465	190	1.095
110	1.425	195	1.08
115	1.395	200	1.065]

²⁶⁹²⁷⁰[(10) Mass Emission Standards for vehicles manufactured on and after 1st June, 1999 in case of National Capital Region of Delhi and in other cases on and after 1st April, 2000]

A. For Petrol-Driven Vehicles

(1) Passenger Cars	CO(g/km)	HC+NOx(g/km)
Type Approval	2.72	0.97
Conformity of Production	3.16	1.13

Notes.—The test shall be as per the modified Indian driving cycle, with cold start, as specified in Annexure IV-B, on Chassis Dynamometer.

There should be no crankcase emission.

Evaporative emission should not be more than 2.0g/test.

For vehicles fitted with catalytic converter, a deterioration factor of 1.2 on Type Approval Limits will be applicable for durability.

Commercial fuel shall be as notified by the Ministry of Environment and Forests *vide* Notification No. G.S.R. 176(E), dated the 2nd April, 1996.

Reference test fuel shall be as specified in Annexure IV-C.

2-Wheelers and 3-Wheelers	CO(g/km)		HC+NOx(g/km)	
	2-Wheeler	3-Wheeler	2-Wheeler	3-Wheeler
Type Approval	2.0	4.0	2.0	2.0
Conformity of Production	2.4	4.8	2.4	2.4

²⁶⁹ Sub-R (10) inserted by G.S.R. 493(E), dated 28-8-1997 (w.e.f. 1-4-2000).

²⁷⁰ Substituted by G.S.R. 399(E), dated 1-6-1999, for "10. Mass Emission Standards for vehicles manufactured on and after 1st April, 2000" (w.e.f. 1-6-1999).

Notes.—The test shall be as per the Indian driving cycle, with cold start, on Chassis Dynamometer as specified in Annexure IV-B to the principal rules.

Commercial fuel shall be as notified by the Ministry of Environment and Forests *vide* Notification No. G.S.R. 176(E), dated the 2nd April, 1996.

Reference test fuel shall be as specified in Annexure FV-C.

²⁷¹[For 2-wheelers and 3-wheelers fitted with catalytic converter, a deterioration factor of 1.2 on Type Approval Limits, will be applicable for durability:

Provided that the vehicle manufacturers may opt for an ageing test of 30,000 kms for evaluating deterioration factor, as per procedure that may be laid down by the Central Government.]

B. For Diesel Vehicles (Including Two and Three-Wheelers)

I. Vehicles with GVW exceeding 3.5 ton

Pollutants	Limits for	
	Type Approval	Conformity of Production
CCX g/KWn	4.5	4.9
HCfe/kWh	1.1	1.23
NOxfe/kWh	8.0	9.0
FM(g/k Wh) for engines with power exceeding 85kW	0.36	0.4
PM(g/k Wh) or engines with power not exceeding 85k W	0.36	0.4

II. Vehicles with G VW equal to or less than 3.5 ton

Pollutants	Limits for	
	Type Approval	Conformity of Production
CO(g/kWh)	4.5	4.9
HC(g/kWh)	1,1	1.23
NOx (g/kWh)	8.0	9.0
PM(g/k Wh) for engines with power exceed ing 85kW	0.36	0.4
PM(g/ k Wh) for engines with power equal to or less than 85kW	0.61	0.68

Or Chassis Dynamometer Test

Reference Mass (kg)	Limits for Type Approval gm/km			Limits for conformity of Production gm/km		
	CO	HC+NOx	PM	CO	HC+NOx	PM
R<1250	2.72	0.97	0.14	3.16	1.13	0.18
1250<R<1700	5.17	1.40	0.19	6.0	1.60	0.22
1700<R	6.90	1.70	0.25	8.0	2.0	0.29

Notes.—The test for vehicles with GVW equal to or less than 3.5 ton shall be as per the 13 mode cycle on engine dynamometer specified in Annexure IV-A to the principal rules.

²⁷¹ Inserted by G.S.R. 400(E), dated 31-5-2002 (w.e.f. 31-5-2002).

Class	Ref. Mass(rw) kg	Limit Values for Type Approval (TA) as well as COP				
		Mass of C	0(g/km)	Mass of HC+NOx(g/km)		Mass of PM(g/km)
		Case line	Diesel	Gasoline	Diesel	Diesel
I	rw<1250	2.2	1.0	0.5	0.7	0.08
II	125U<rw<1700	4.0	1.25	0.6	1.0	0.12
III	1700<rw	5.0	1.5	0.7	1.2	0.17

Notes:—

1. The test including driving cycle shall be as per sub-rule (10), with the modifications that:—

- (i) there shall be no relaxation of norms for COP purposes,
- (ii) the tests shall be on Chassis dynamometer,
- (iii) the driving cycle shall be at a maximum speed of 90 kmph, and
- (iv) the reference fuel shall be of a maximum of 0.05% sulphur content.

2. Commercial fuel for meeting above norms shall be upto 0.05% mass maximum sulphur content.

3. There shall be no crankcase emissions for petrol-driven vehicles.

4. Evaporative emission shall not be more than 2.0g/ test from petrol-driven vehicles.

5. For the above vehicles when fitted with catalytic converter deterioration factor shall be as follows:—

Gasoline engines: CO=1.2; (HC+NOx)=1.2;

Diesel engines: CO=1.1; (HC+NOx)=1.0; PM=1.2:

Provided that the vehicle manufacturers may opt for an ageing test of 80,000 kms for evaluating deterioration factor, as per procedure that may be laid down by the Central Government.

6. For diesel engine vehicles, the emission of visible pollutants (smoke) shall not exceed the limit value to smoke density, when expressed as light absorption coefficient for various nominal flows as in Annexure I to rule 115(9) when tested at constant speeds over full load.]

²⁷⁴[(C) Four-Wheeled Vehicles (other than passenger vehicles) with GVW equal to or less than 3500 kg shall conform the following norms:—

²⁷⁴ Inserted by G.S.R. 286(E), dated 24-4-2001 published in the Gazette of India, dated 24-4-2001, Ext., Pt. II, S. 3(z), Sl. No. 198. In the National Capital Territory of Delhi in respect of Vehicles manufactured on or after six months from the date of publication in

Engine Dynamometer Test

Limit Values for Type Approval (TA) as well as (COP)

CO(g/kWh)	HC (g/kWh)	NO _x (g/kWh)	PM (g/kWh)
4.0	1.1	7.0	0.15

Or Chassis Dynamometer Test

Class	Ref. Mass (RM) Kg	Mass of CO (g/km)		Mass of HC+NQ _x (g/km)		Mass of PM(g/km)
		Gasoline	Diesel	Gasoline	Diesel	
I	RM < 1250	2.2	1.0	0.5	0.7	0.08
II	1250 < RM < 1700	4.0	1.25	0.6	1.0	0.12
III	1700 < RM	5.0	1.5	0.7	1.2	0.17

Notes:

1. (a) There shall be no relaxation for COP purposes.
(b) The tests shall be carried out on the engine dynamometer operation as specified in Annexure IV-A of the rules. The tests on Chassis dynamometer shall be as per the driving cycle given in Note of clause (B) of sub-rule (11) of rule 115.
(c) The reference fuel shall be of a maximum of 0.05% mass sulphur content.
2. Commercial fuel for meeting above norms shall be up to 0.05% maximum mass sulphur content.
3. For diesel engine vehicles the emission of visible pollutants (smoke) shall not exceed the limit value to smoke density, when expressed as light absorption coefficient for various nominal flows as in Annexure I to sub-rule (9) of rule 115 when tested at constant speeds over full load. These smoke limits are without correction factor and engines are to be tested with conditioned air supplied to the engine to maintain atmospheric factor of 0.98 to 1.02.
4. For diesel engined vehicles, the free acceleration smoke for naturally aspirated and turbo-charged engines shall not exceed the smoke density limit value as in clause (c) of sub-rule (2) of rule 115.

the Official Gazette, *i.e.*, 24-4-2001 and in respect of the "Four-Wheeled Transport Vehicles" which are plying on Inter-State Permits or on National Permits or on All India Tourist Permits within the jurisdiction of National Capital Territory of Delhi, and in respect of any Vehicles in other areas of country, from such date as the Central Government may, by notification appoint in the Official Gazette, and different dates may be appointed for different areas.

5. There shall be no crankcase emissions for petrol engined vehicles.
6. Evaporative emission shall not be more than 2.0g/test from petrol engined vehicles.

(D) Vehicles with GVW exceeding 3500kg shall conform the following norms:—

Limit Values for Type Approval (TA) as well as (COP)			
CO(g/kWh)	HC(g/kWh)	NOx(g/kWh)	PM(g/kWh)
4.0	1.1	7.0	0.15

Notes:

- (a) There shall be no relaxation for COP purposes.
(b) The tests shall be carried out on the engine dynamometer operation as specified in Annexure IV-A of the rules.
(c) The reference fuel shall be of a maximum of 0.05% mass sulphur content.
- Commercial fuel for meeting above norms shall be up to 0.05% mass maximum sulphur content.
- For diesel engined vehicles, the emission of visible pollutants (smoke) shall not exceed the limit value to smoke density, when expressed as light absorption coefficient for various nominal flow as in Annexure I to sub-rule (9) of rule 115 when tested at constant speeds over full load. These smoke limits are without correction factor and engines are to be tested with conditioned air supplied to the engine to maintain atmospheric factor of 0.98 to 1.02.
- For diesel engined vehicles, the free acceleration smoke for naturally aspirated and turbo-charged engines shall not exceed the smoke density limit value as in clause (c) of sub-rule (2) of rule 115.]

²⁷⁵[(12) Mass emission standards (Bharat Stage II) for two-wheeler and three-wheeler manufactured on and from 1st April, 2005 shall be as follows, namely:—

TABLE

Vehicle Category	Pollutants	TA=COP norms g/km	TA = COP D.F. (*)
(1)	(2)	(3)	(4)
Two-wheeler (Petrol)	CO	1.50	1.2
	HC+NOx	1.50	1.2
Three-wheeler (Petrol)	CO	2.25	1.2
	HC+NOx	2.00	1.2
Two-wheeler and three-wheeler (Diesel)	CO	1.00	1.1
	HC+NOx	0.85	1.0
	PM	0.10	1.2

Deterioration Factor, see para (c) below.

²⁷⁵ Inserted by G.S.R. 720(E), dated 10-9-2003.

(a) The test shall be as per the Indian Driving Cycle with cold start on chassis dynamometer as specified in the Table given below by testing agencies, namely:—

TABLE

Test Cell Conditions	Petrol two-wheeler and three-wheeler	Diesel two-wheeler and three-wheeler
(1)	(2)	(3)
Soak Temperature	20-30° C	20-30° C
Soak period	6-30 hours	6-30 hours
Preparatory running before sampling	Idling of 40 seconds and 4 cycles	Idling of 40 seconds
No. of test cycles	6	6
Breakdown of cycles	Indian Driving Cycle as per Annexure II to principal rule	Indian Driving Cycle as per Annexure II to principal rule

(b) Reference fuel for testing shall be in line with that in the ECE;

(c)(i) For all types of two-wheeler and three-wheeler petrol vehicles, a deterioration factor as specified in column (4) in the Table in this sub-rule shall be applicable for durability:

Provided that the vehicle manufacturer may opt for an ageing test of 30,000 kms for evaluating deterioration factor, as per procedure that may be laid down by the Central Government from time to time;

(ii) For all types of two-wheeler and three-wheeler diesel vehicles, a deterioration factor as specified in column (4) in the Table in this sub-rule shall be applicable for durability:

Provided that the vehicle manufacturer may opt for an ageing test of 30,000 kms for evaluating deterioration factor, as per procedure that may be laid down by the Central Government from time to time;

(d) For diesel engine vehicles, the emission of visible pollutants (smoke) shall not exceed the limit value to smoke density, when expressed as light absorption co-efficient for various nominal flow as indicated in Annexure I to sub-rule (9) of rule 115 when tested at constant speed over full load;

(e) COP frequency and samples:—

Sl. No.	Type of Vehicle	Annual Production		COP Frequency
		Exceeding	Upto	
(1)	(2)	(3)	(4)	(5)
1.	Two-wheeler and three-wheeler	250 per 6 months	10000 per year	Once every year
2.	Two-wheeler	100000 per year	150000 per 6 months	Once every 6 months
3.	Two-wheeler	150000 per 6 months	—	Once every 3 months
4.	Three-wheeler	10000 per year	75000 per 6 months	Once every 6 months
5.	Three-wheeler	75000 per 6 months	—	Once every 3 months

For production volumes of less than 250 per 6 months the method as prescribed in the proviso to rule 126-A shall apply;

(f) Testing procedures shall be in accordance with the reference document MOST/CMVR/TAP-115/116 as amended from time to time by the Government of India in the Ministry of Road Transport and Highways:]

²⁷⁶[Provided that Mass Emission Standards (Bharat Stage II) for diesel driven two-wheeler and three-wheeler shall come into force on the dates specified against each of the States in Table below:—

TABLE

Sl. No. (1)	State (2)	Date (3)
1.	Rajasthan	1st June, 2005
2.	Uttar Pradesh— Mathura, Kannauj, Muzaffarnagar, Aligarh, Farukkabad, Saharanpur, Badaun, Barreily, Moradabad, Hathras, Rampur, Bijnor, Agra, Pilibhit, J.P. Nagar, Mainpuri, Lalitpur, Hardoi, Firozabad, Jhansi, Shahjahanpur, Etah wall, Jalon, Lakhirnpur Kheri, Etah, Mahoba and Sitapur	1st June, 2005
3.	Uttaranchal	1st July, 2005
4.	Madhya Pradesh	1st September, 2005
5.	Himachal Pradesh	1st October, 2005
6.	Jammu and Kashmir	1st October, 2005
7.	Punjab	1st October, 2005.]

²⁷⁷[(14) Mass Emission Standards (Bharat Stage III).—The Mass Emission Standards for Bharat Stage III shall be as under:—

(A) Motor cars with seating capacity of and up to six persons (including driver) and Gross Vehicle Weight not exceeding 2500 kg.

Vehicles with	Limit Values for Type Approval (TA) as well as COP (g/km)				
	CO	HC	NOx	HC+NOx	PM
Gasoline	2.30	0.20	0.15	-	-
Diesel engine	0.64	-	0.50	0.56	0.05

²⁷⁶ Inserted by G.S.R. 200(E), dated 1-4-2005 (w.e.f. 1-4-2005).

²⁷⁷ Inserted by G.S.R. 686(E), dated 20-10-2004. Brought into force—(a) in the National Capital Region and the cities of Mumbai, Kolkata, Chennai, Bangalore, Hyderabad including Secundrabad, Ahmedabad, Pune, Surat, Kanpur and Agra in respect of four-wheeled vehicles manufactured on and from 1st April 2005, except in respect of four-wheeled transport vehicles plying on Inter-State Permits or National Permits or All India Tourist Permits within the jurisdiction of these cities; and (b) in other areas of the country, from such date as may be notified by the Central Government. Here "National Capital Region" shall have the same meaning as assigned to it in clause (l) of section 2 of the National Capital Region Planning Board Act, 1985 (2 of 1985).

(B) Four-Wheeler Passenger Vehicles with Gross Vehicle Weight equal to or less than 3500 kg and designed to carry more than six persons (including driver) or 3000 kg.

and

(C) Four-wheeled Vehicle (other than passenger vehicles) with Gross Vehicle Weight equal to or less than 3500 kg shall conform to the following norms:—

		Limit Values for Type Approval (TA) (g/km) as well as COP								
		CO		HC		NO _x		HC+NO _x		PM
Class	Ref. Mass (rw) kg	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel	Gasoline	Diesel	Diesel
I	rw<1305	2.30	0.64	0.20	—	0.15	0.50	—	0.56	0.05
II	1305<rw<1760	4.17	0.80	0.25	—	0.18	0.65	—	0.72	0.07
III	1760<rw	5.22	0.95	0.29	—	0.21	0.78	—	0.86	0.10

13 In case of diesel vehicles, the engine power shall be measured on engine dynamometer and the measured power shall not differ from the specified power as given below:

(i) For Type approval: $\pm 5\%$ at maximum power point and $\pm 10\%$ at other measurement points for single cylinder engines. $\pm 2\%$ at maximum power point and $+6\%$ and -2% at other measurement points for all other engines.

(ii) Testing procedures shall be in accordance with Chapter 6 of Part IV of the reference document MOST/CMVR/TAP-115/116 as amended from time to time by the Government of India in the Ministry of Shipping, Road Transport and Highways.

14. The vehicles described in clauses (A), (B) and (C) of this sub-rule should comply with rule 115(2).

(D) Diesel vehicles with GVW exceeding 3500 kg shall conform to the following norms:—

Engine category	Deterioration factors				
	CO	HC	NO _x	HC+NO _x	PM
Gasoline/Gas Engine	1.2	1.2	1.2	-	-
Diesel Engine	1.1	—	1.0	1.0	1.2

11. In case of diesel vehicles, the engine power shall be measured on engine dynamometer and the measured power shall not differ from the specified power as given below:

(i) For Type approval: $\pm 2\%$ at maximum power point and $+6\%$ and -2% at other measurement points.

(ii) For conformity of production: $-5\%/+8\%$ at maximum power point.

(iii) Testing procedures shall be in accordance with Chapter 6 of Part TV of the reference document MOST/CMVR/TAP-115/116 as amended from time to time by the Government of India in the Ministry of Shipping, Road Transport and Highways.

12. The vehicles mentioned in clause (D) shall also comply with rule 115(2).

(E) Diesel vehicles with GVW exceeding 3500 kg. and fitted with advanced exhaust after treatment system including De-NOx catalyst and/or particulate trap shall additionally conform to the following norms:—

Limit Values for Type Approval (TA) as well as (COP)			
Engine Transient Cycle (ETC)			
CO(g/kWh)	HC (g/kWh)	NOx (g/kWh)	PM (g/kWh)
5.45	0.78	5.0	0.16/0.21 ¹³¹

(1) For engines having swept volume of less than 0.75 litre per cylinder and a rated power speed of more than 3000 rpm.

(2) For diesel engines only. *Notes.*—

1. The test shall be on engine dynamometer.
2. There shall be no relaxation of norms for COP purposes.
3. The gaseous and particulate emissions are to be determined on the ESC test as described in EEC document 1999/96/EC.
4. The smoke opacity is to be determined on the ELR test as described in EEC document 1999/96/EC.
5. In case of vehicles operating on CNG or LPG mode all the provisions prescribed in rules 115-B and 115-C shall be respectively applicable, except that limiting value shall be as per clause (D) above.
6. The reference fuel shall be as specified in Annexure IV-F, Annexure 1V-II and Annexure rV-I for diesel, LPG and CNG, respectively.
7. The Conformity of Production (COP) testing procedure shall be as described in section 9 of Annexure I of EEC Directive 88/77/EEC last amended by 1999/96/EC.
8. The COP frequency and samples:—
 - (i) The COP period for each engine model including its variants shall be once in a year.
 - (ii) For production volume of less than 250 for six months, the method as prescribed in the provisos to rule 126-A shall apply.
9. For diesel engine vehicles, the emission of visible pollutants (smoke) shall not exceed the limit value of smoke density, as per Annexure I to rule 115(9). These smoke limits

are without correction factor and engines are to be tested with conditioned air supplied to the engine to maintain atmospheric factor of 0.98 to 1.02.

10. The vehicles meeting the above norms shall use commercial fuel as per BIS specification IS:1460-2000 (Amendment No. I—January, 2003) (Fourth Revision) for Diesel and IS:2796-2000 (Amendment No. II—February, 2003) (Third Revision) for Gasoline.

11. In case of diesel vehicles, the engine power shall be measured on engine dynamometer and the measured power shall meet the requirements as given below:

(i) For Type approval: $\pm 2\%$ at maximum power point and $+6\%$ and -2% at other measurement points.

(ii) For conformity of production: $-5\%/+8\%$ at maximum power point.

(iii) Testing procedures shall be in accordance with Chapter 6 of Part IV of the reference document MOST/CMVR/TAP-115/116 as amended from time to time by the Government of India in the Ministry of Shipping, Road Transport and Highways.

12. The vehicles mentioned in clause (E) shall also comply with rule 115(2).]

²⁷⁸**[115-A. "[Emission of smoke and vapour from agricultural tractors, power tillers and construction equipment vehicles driven by diesel engines.—(1) Every ^[agricultural tractor and construction equipment vehicle] manufactured on and from the date of commencement of this rule shall be maintained by its owner in such condition and shall be so used that visible and gaseous pollutants emitted by them comply with the standards as prescribed in this rule.**

(2) Every manufacturer of an ²⁷⁹[agricultural tractor and construction equipment vehicle] shall comply with the standards for visible pollutants, emitted by it, when tested as per the procedure described in Indian Standards IS: 12062:1987.

(3) The emission of visible pollutants shall not exceed the limit values given below when tested on engine dynamometer at eighty per cent load at six equally spaced speeds, namely:—

(a) Fifty-five per cent of rated speed declared by the manufacturer or one thousand r.p.m., whichever is higher; or

(b) rated speed declared by the manufacturer.

²⁷⁸ Inserted by G.S.R. 627(E), dated 8-9-1999 (w.e.f. 1-10-1999).

²⁷⁹ Substituted by G.S.R. 589(E), dated 16-9-2005, for the heading (w.e.f. 16-9-2005).

Maximum Smoke Density	
Light absorption coefficient (Im)	Hartridge units
3.25	75

(4) Every diesel driven ⁹³²⁸⁰[construction equipment vehicles] shall be so manufactured and produced by its manufacturer that it complies with the following standards of gaseous pollutants, emitted by them in addition to those of visible pollutants as provided in sub-rule (2) when tested as per the procedures described in ISO 8178-4 "CI" 8 mode cycle, namely:—

The weighted average Mass of Carbon Monoxide (CO), Hydrocarbons (HC) and Mass Oxides of Nitrogen (NOx) in gram or ²⁸¹[per] kilo watt. Irr. emitted during the test shall not exceed the limits given below, both for type approval and Conformity On Production tests, namely:—

Mass of Carbon Monoxide (CO)	—	14.0 gram or ²⁸¹ [per] kilo watt. hr.
Mass of Hydrocarbon (HC)	—	3.5 gram or ²⁸¹ [per] kilo watt. hr.
Mass of Oxides of Nitrogen (NOx)	—	18.0 gram or ²⁸¹ [per] kilo watt, hr.]

²⁸²[(5) Every diesel driven agriculture tractor and power tiller shall be so manufactured and produced by the manufacturer that it complies with the following standards of gaseous pollutants emitted by them in addition to those of visible pollutants as provided in sub-rule (2) when tested as per the procedure prescribed in ISO 8178-4 "CI" 8 mode cycle, namely:—

The weighted average Mass of Carbon Monoxide (CO), Hydrocarbon (HC) and Oxides of Nitrogen (NOx) and Particulate Matter (PM) in gram per kilo watt hour emitted during the test shall not exceed the limits given below in the Table for Type Approval (TA) and Conformity of Production (COP) tests, namely:—

TABLE

	Bharat (Term) Stage II norms	Bharat (Term) Stage III norms
(1)	(2)	(3)
	TA=COP	TA=COP
Mass of Carbon Monoxide (CO)	9.0	5.5
Mass of Hydrocarbons (HC)	15.0	9.5
Mass of Oxides of Nitrogen (NOx)		
Mass of Particulate Matter	1.0	0.8]

²⁸⁰ Substituted by G.S.R. 83(E), dated 5-2-2003, for "agricultural tractor and construction equipment vehicle" (w.e.f. 1-6-2003).

²⁸¹ Corrected by G.S.R. 800(E), dated 3-12-1999.

²⁸² Sub-R. (5) substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

(PM)		
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Notes.—

(1) The norms mentioned in column (2) of the said Table which are applicable for agricultural tractor with effect from the 1st day of June, 2003, shall be applicable for power tillers from the 1st day of October, 2006.

(2) The norms mentioned in column (3) of the said Table shall be applicable for agricultural tractor with effect from the 1st day of October, 2005 and for power tillers from the 1st day of April, 2008.]

²⁸³[115-B. Mass emission standards for Compressed Natural Gas Driven Vehicles.—

²⁸⁴[Mass emission standards for vehicles when operating on Compressed Natural Gas (hereinafter in this rule referred to as "CNG") shall be the same as are applicable for gasoline vehicles with the exception that HC shall be replaced by Non-Methane Hydrocarbon (NMHC), where NMHC = 0.3 x HC]

A. Original Equipment/Converted Gasoline Vehicles:

(1) For gasoline vehicles with Original Equipment (hereinafter in this rule referred to as O.E.) fitment.—²⁸⁵[(a) In case of CNG fitments by vehicle manufacturers on new petrol vehicles, each model manufactured by vehicle manufacturers shall be type approved as per the prevailing mass emission norms as applicable for the category of new vehicles in respect of the place of its use;]

Explanations.—In the case of O.E. or conversion of "In-Use" Gasoline Vehicles,—

(a) For the purposes of granting Type Approval to a CNG kit, the tests shall be carried out as per the Table below by the test agencies.

TABLE

	Test	Reference Document
	(1)	(2)
(i)	Mass emission tests	MOST/CMVR/TAP-115/116 and notifications issued by the
(ii)	Engine performance tests on engine dynamometer applicable for OE only Constant speed fuel consumption test	Government of India in this respect IS: 14599-1999 IS: 11921,1986 (for 4-wheelers) IS: 10944,1983 (for mopeds) IS: 10881,1984 (for motor cycles and scooters)

(b) The test procedure and safety guidelines for CNG vehicles, kit components including installation thereof, shall be as per A1S 024, as amended from time to time, till such time as corresponding BIS specifications are notified.

²⁸³ R. 115-B substituted by G.S.R. 853(E) dated 19-11-2001 (w.e.f. 19-5-2002).

²⁸⁴ Substituted by G.S.R. 111(E), dated 10-2-2004 (w.e.f. 10-8-2004).

²⁸⁵ Cl. (a) substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

(c) For OE fitment and retrofitment on "in-use" vehicles, the responsibility to Type Approval shall be that of the vehicle manufacturer and kit manufacturer or supplier respectively.

(d) The Type Approval of CNG kit for "retrofitment" shall be valid for three years from the date of issue of such approval and shall be renewable for three years at a time.

(e) The retrofitment of CNG kits on in-use vehicles shall be carried out by workshops authorized by the kit manufacturer/supplier or vehicle manufacturers, as the case may be.

(f) The test agency shall complete the test and give necessary certificate within a period of three months from the date of receiving the kits.

(g) The kit manufacturer/supplier shall provide a layout plan for retrofitment of CNG kit in the respective models on which any approved kit is to be installed, to the test agency for vetting and approval. The retrofitment of the kit shall be on the basis of such approved layout plan only. Testing agencies will be required to indicate specifically, the models and their variants on which the certificate will be valid.

²⁸⁶[* * *]

B. O.E. CNG Vehicles/Converted Diesel Vehicle:

(I) *For O.E. CNG Dedicated Vehicle (including drive-away chassis) made by vehicle manufacturers.*—²⁸⁷[(a) In case of CNG fitments by vehicle manufacturers on new diesel vehicles, each model manufactured by vehicle manufacturers shall be type approved as per the prevailing mass emission norms as applicable for the category of new vehicles in respect of the place of its use;]

(b) O.E. CNG engine approved for specific engine capacity can be installed on the base model and its variants complying with the requirements under these rules as applicable;

(c) Tests for particulate matter and emission of visible pollutants (smoke) under these rules shall not be applicable;

(d) Prevailing COP procedure will also be applicable.

(II) *For conversion by modification of engines of In-use Diesel Vehicles.*— (A) Type approval for diesel vehicle retrofitted/modified for dedicated CNG operation shall be given for specific make and model of the vehicle, in view of major changes or modifications involved in the CNG kit and diesel engine depending upon make and model of the vehicle;

²⁸⁶ Item A, Cl. (III) omitted by G.S.R. 111(E), dated 10-2-2004 (w.e.f. 10-8-2004).

²⁸⁷ Cl. (a) substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

(b) CNG kit approved on the vehicle for specific engine capacity can be installed on the base model and its variants fitted with the same capacity engine;

²⁸⁸[(c) The in-use vehicles when converted to operate on CNG shall meet the type approval norms of diesel vehicles corresponding to the year of their manufacture subject to the following minimum norms:—

(i) for the vehicles manufactured up to the 31st day of March, 2000, the type approval norms equivalent to India-2000 (India Stage I) norms as applicable under these rules;

(a) for the vehicles manufactured on and after the 1st day of April, 2000, the type approval norms as specified in the Bharat Stage II norms, till the validity of such Bharat Stage II norms;

(iii) for the vehicles manufactured on and after the 1st day of April, 2005, the type approval norms as applicable subject to minimum of Bharat Stage III emission norms in case of four-wheelers and Bharat Stage II emission norms for two and three-wheelers till the validity of these norms;]

(d) Vehicles offered for Type Approval to the testing agency referred in rule 126 of the Central Motor Vehicles Rules, 1989 shall have to comply with fitness requirement, as applicable under these rules;

(e) Tests for particulate matter and emission of visible pollutants (smoke) under these rules shall not be applicable;

(f) Separate Type Approval is required for mechanically controlled and electronically controlled diesel fuel injected vehicles when retrofitted/ modified for CNG operation.

Explanations.—In the case of O.E. or conversion of "In-Use" vehicles by modification—

(a) for the purpose of granting Type Approval to the vehicle fitted with CNG engine (converted from diesel engine) as O.E., or conversion by modification of "In-Use" diesel vehicles, performance tests shall be carried out as per the Table given below by the test agencies, namely:—

	(1)	(2)
(iv)	Electro Magnetic Interference (EMI)	In accordance with notification issued under rule 124 of Central Motor Vehicles Rules, 1989
(v)	Range test of at least 250 km for buses	—
(vi)	Cooling Performance	IS: 14557,1998
(vii)	Constant speed fuel consumption	IS: 11921,1986 (for 4-wheelers) IS: 10944,1983 (for mopeds) IS: 10881,1984 (for motor cycles and scooters)

Explanation.—

²⁸⁸ Cl. (c) substituted by G.S.R 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

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(a) Vehicles offered for Type Approval to the testing agency referred in rule 126 shall have to comply with fitness requirement, as applicable under these rules.

(b) Test procedure and safety guidelines for such CNG vehicles, kit components including installation thereof shall be as per AIS 024, as amended from time to time, till such time as corresponding BIS specifications are notified.

(c) The test agency shall complete the test and give necessary certificate within three months of the same being submitted for tests.

(d) Testing agencies will be required to indicate specifically, the models and their variants on which the replacement of new engine will be valid.

D. Applicable Emission Norms

Category of Engines	Applicable Emission Norms
(i) Fitted in vehicles with CVW equal to or less than 3.5 ton	<ul style="list-style-type: none"> •For gasoline vehicles converted to CNG, Prevailing gasoline engine norms for chassis dynamometer test •For diesel vehicles converted to CNG, prevailing diesel engine norms for chassis dynamometer test
(ii) Fitted in vehicles with CVW greater than 3.5 ton	Prevailing diesel engine emission norms based on 13-mode steady-state engine dynamometer test.

E. CNG vehicle/s kit components including installation shall comply the Safety Checks as given in Annexure IX.

F. Testing agencies shall issue every Type Approval certificate containing the "Safety and Procedural Requirements for Type Approval of CNG and LPC Operated Vehicles" for CNG vehicles and conversion kits, as mentioned in Annexure X.

Note:—

1. For the purpose of these rules, "O.E. fitment" means the vehicles which are manufactured for CNG operation by the vehicle manufacturer prior to their first registration.

2. "Conversion of In-use Gasoline Vehicle" means a vehicle already registered as a gasoline vehicle and is subsequently converted for operation on CNG by fitting the conversion kit and carrying out the other necessary changes.

3. "O.E. CNG Dedicated Vehicles" means the vehicles which are manufactured for CNG operation by the vehicle manufacturer prior to their first registration.

4. "Converted diesel vehicle" means a vehicle already registered as a diesel vehicle and is subsequently converted for operation on CNG by modifying the diesel engine fitted on that vehicle by fitting the conversion kit and carrying out the other necessary changes.

5. "Retro fitment" (or replacement) of diesel vehicle means a vehicle already registered as a diesel vehicle and is subsequently converted for operation on CNG fitting a new engine adapted to operate on CNG.

6. The AIS or IS specifications may be amended from time to time.

²⁸⁹[7. In case of conversion kits on in-use gasoline vehicles or converted diesel vehicles, the validity of the type approval certificate issued by the testing agencies shall cover vehicles manufactured between the year of manufacture of the vehicle, on which such kit has been tested and date of the validity of the applicable norms prescribed for such category of vehicles as per clause (a) of Item (II) of part A of rule 115-B. Testing agencies shall be required to indicate specifically the model and their variants for diesel vehicles and capacity range of gasoline vehicles on which the certificate shall be valid for conversion.]

²⁹⁰[115-C Mass emission standards for Liquefied Petroleum Gas (hereinafter in this rule referred to as LPG), driven vehicles.—²⁹¹[(1) Mass emission standards for vehicles when operating on Liquefied Petroleum Gas (hereinafter in this rule referred to as "LPG") shall be same as are applicable for gasoline vehicles with the exception that HC shall be replaced by Reactive Hydrocarbon (RHC), where $RHC=0.5 \times HC$]

(2) For *gasoline vehicles with Original Equipment (hereinafter in this rule referred to as O.E.) Fitment*,—

(a) In case of LPG fitment done by vehicle manufacturers on new petrol vehicles, each model made by vehicle manufacturer shall be as type approved as per prevailing type approval emission norms and these rules as applicable;

(b) base model and variants of such vehicle shall conform to these rules as applicable and type approval emission norms in petrol mode as specified in these rules. In the case of LPG mode, it shall meet mass emission norms as specified in rule 115 only excluding crankcase and evaporative emission norms;

(c) a vehicle base model and its variants fitted with petrol tank of capacity not exceeding 5 litres, 3 litres and 2 litres on 4-wheeler, 3-wheeler and 2-wheeler respectively, shall be exempted from mass emission tests, crankcase emission test and evaporative emission test in petrol mode as specified in these rules, but shall comply with other provisions of these rules as applicable;

²⁸⁹ Note 7 substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

²⁹⁰ Inserted by G.S.R. 284(E), dated 24-4-2001 (w.e.f. 24-5-2001).

²⁹¹ Substituted by G.S.R. 111(E), dated 10-2-2004 (w.e.f. 10-8-2004).

(d) such vehicle shall be capable of bi-fuel operation such as LPG and petrol;
 (e) prevalent Conformity of Production (hereinafter in this rule referred to as the COP) procedure shall also be applicable.

(3) *For in-use gasoline vehicles,—*

²⁹² [(a) On and after expiry of one year from the date of publication of the Central Motor Vehicles (Fifth Amendment) Rules, 2005 in the Official Gazette, the in-use vehicles fitted with LPG kits shall meet the type approval emission norms specified in these rules for gasoline vehicles as applicable to the corresponding year of manufacture of such vehicle, subject to the following minimum norms:

- (i) for the vehicles manufactured up to the 31st day of March, 2000, the type approval norms equivalent to India-2000 (India Stage I) norms as applicable under these rules;
- (ii) for the vehicles manufactured after the 1st day of April, 2000, the type approval norms as specified in the Bharat Stage II norms, till the validity of such Bharat Stage II norms;
- (iii) for the vehicles manufactured after the 1st day of April, 2005, the type approval norms as applicable subject to minimum of Bharat Stage III emission norms in case of four-wheelers and Bharat Stage II emission norms for two and three-wheelers:

Provided that in respect of vehicle model/conversion kits/engine replacements type approved and certified under rule 115-C prior to commencement of these rules (as per notification number G.S.R. 284(E), dated the 24th April, 2001), such certificates shall cease to be valid after one year from the date of publication of the Central Motor Vehicles (Fifth Amendment) Rules, 2005, in the Official Gazette notwithstanding the period of validity specified in such certificates. Such certificates need to be revalidated by testing agencies in terms of these rules:

Provided further that respective kit manufacturer/retrofitter/converters shall be free to obtain from testing agencies type approval in terms of new rules even prior to commencement of these rules;]

(h) for purposes of LPG kit approval, kit manufacturer or supplier shall obtain the certificate from any of the test agencies authorised under rule 126 based on capacity of vehicle, in the following manner, namely:—

²⁹² CI. (a) substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

(i) LPG kit for the vehicles shall be type approved for vehicles irrespective of make and model based on engine capacity in cubic cm. Such a kit shall be considered fit for retrofitment in any vehicle having engine capacity within a range of $\pm 25\%$ tolerance;

(ii) for carbureted and Multi-point fuel injection fitted vehicles, separate type approval shall be necessary.

(4)(a) For the purpose of granting type approval to LPG kit the following performance tests shall be carried out by the test agencies:—

(i) Mass emission tests.

(ii) Engine performance tests.

(iii) Constant speed fuel consumption test;

(b) the tests specified under sub-clause (it) of clause (a) shall be carried out either on engine dynamometer or chassis dynamometer as applicable under these rules. However, in case of vehicle above 100 HP the tests shall be only on engine dynamometer;

(c) the safety checks for such kit components including installation shall be as per the norms and standards given in the Annexure VIII, apart from detailed test procedure or safety guidelines contained in AIS 025 DI, as approved by the Central Government from time to time;

(d) for OE fitment and retro fitment on "in-use" vehicles, the responsibility of Type Approval shall be that of the vehicle manufacturer and kit manufacturer or supplier, respectively;

(e) the Type Approval of LPG kit for retrofitment shall be valid for three years from the date of issue of such approval and shall be renewable for three years at a time;

(f) the retrofitment of LPG kits on in-use vehicles, shall be carried out by workshops authorised by the kit manufacturer/kit supplier or vehicle manufacturers, as the case may be;

(g) the test agency shall complete the test and give necessary certificate within a period of three months from the date of receiving the kits;

(h) the kit supplier/manufacturer shall provide a layout plan for retrofitment of LPG kit in the respective models on which any approved kit is to be installed, to the test agency for vetting and approval. The retrofitment of the kit shall be on the basis of such approved layout plan only.

²⁹³[* * *]

²⁹⁴[(6) For Diesel Vehicles with Original Equipment fitment.—²⁹⁵ [(i) In case of LPG fitments by vehicles manufacturers on new diesel vehicles, each model manufactured by vehicle manufacturers shall be type approved as per the prevailing mass emission norms as applicable for the category of new vehicles in respect of the place of its use;]

(ii) O.E. fitment LPG engine approved for specific appropriate engine capacity can be installed on the vehicle base model and its variants complying with the other requirements under these rules as applicable;

(iii) Tests for particulate matter and emission of visible pollutants (smoke) under these rules shall not be applicable; and

(iv) Prevailing COP procedures shall also be applicable;

(v) In case of limits for Hydrocarbons, the mass emission standards formula as specified in sub-rule (1) shall be applicable.

Explanation.—In the case of O.E. fitment vehicles:—

(a) For the purpose of granting Type Approval to the vehicle manufactured by O.E., in addition to the tests as specified in Central Motor Vehicles Rules, 1989, following performance tests shall be carried out, as per the Table given below by the test agency, namely:—

TABLE

Sl. No.	Test	Reference Document (as amended from time to time)
(1)	(2)	(3)
1.	Mass emission tests	MOST/CMVR/TAP-115/116 and notification issued by the Government of India in this respect
2.	Engine performance tests	IS: 14599-1999
3.	Gradeability test	In accordance with notification issued under rule 124 of Central Motor Vehicles Rules, 1989
4.	Constant speed fuel consumption test	IS: 11921-1986 (for four-wheelers) IS: 10944-1983 (for mopeds) IS: 10881-1984 (for motor cycles and scooters) AIS 054 (for three-wheelers)
5.	Electro-Magnetic Interference (EMI)	In accordance with notification issued under rule 124 of Central Motor Vehicles Rules, 1989
6.	Range test of at least 250 km for buses. For other vehicle categories range test to be carried out and test results to be reported.	AIS 055
7.	Cooling performance	IS:14557-1998

²⁹³ Sub-rule (5) omitted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

²⁹⁴ Inserted by G.S.R 788(E), dated 27-11 -2002 (w.e.f. 2-6-2003).

²⁹⁵ . Cl. (i) substituted by G.S.R.589(E), dated 16-9-2005(w.e.f. 16-9-2006).

Note.—The mass emission tests shall be carried out either on engine dynamometer or chassis dynamometer, as applicable;

(b) Test procedure and safety guidelines for LPG vehicles, kit components including installation thereof, shall be as per A IS 025, AIS 026, AIS 027 as amended from time to time, till such time as corresponding BIS specifications are notified and shall be as given in Annexure-VIII in addition to the detailed procedure of Safety Checks contained in AIS 025, AIS 026, AIS 027;

(c) For O.E. fitment manufactured vehicles, the responsibility of Type Approval shall be that of the vehicle manufacturer;

(d) The test agency shall complete the test and give necessary certificate within a period of three months from the date of receiving the kits.

²⁹⁶[(7) *Replacement of In-use Diesel Engine by new LPG Engine*.—For type approval of in-use vehicle having diesel engine replaced by new Liquefied Petroleum Gas engine it shall meet the prevailing emission norms as applicable to the category of vehicles in respect of its place of use subject to the tests mentioned in the Table given below]:—

TABLE

Sl. No.	Test	Reference Document (as amended from time to time)
(1)	(2)	(3)
1.	Mass emission tests	MCST/CMVR/TAP-115/116 and notification issued by the Government of India in this respect
2.	Engine performance tests	IS: 14599-1999
3.	Gradeability test	In accordance with notification issued under rule 124 of Central Motor Vehicles Rules, 1989
4.	Constant speed fuel consumption test	IS: 11921-1986 (for four-wheelers) IS: 10944-1983 (for mopeds) IS: 10881-1984 (for motor cycles and scooters) AIS 054 (for three-wheelers)
5.	Electro-Magnetic Interference (EMI)	In accordance with notification issued under rule 124 of Central Motor Vehicles Rules, 1989
6.	Range test of at least 250 km for buses. For other vehicle categories range test to be carried out and test results to be reported.	AIS 055
7.	Cooling performance	IS: 14557-1998

Explanation.—(a) In case of in-use vehicles offered for Type Approval to the test agency referred to in rule 126, it shall have to comply with fitness requirement, as applicable under these rules and the said test agency may, if it thinks so, verify the same;

²⁹⁶ Sub-R. (7) substituted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

(b) In case of non-transport vehicles offered for retrofitment as per the tests mentioned in the Table, it shall be the responsibility of the retrofitter to make necessary inspection/checks regarding fitness of the such vehicles as applicable under these rules: In the case of retrofitment of in-use transport vehicles offered for the tests mentioned in the Table, the certificate of fitness granted under section 56 of the Act, shall be essential before the vehicle is accepted for retro fitment/conversion;

(c) Test procedure and safety guidelines for such LPG vehicles, kit components including installation thereof shall be as per AIS 025, as amended from time to time, till such time as corresponding BIS specifications are notified and shall be as given in Annexure VIII in addition to the detailed procedure or Safety checks contained in AIS 025;

(d) The test agency shall complete the test and give necessary certificate within a period of three months from the date of the vehicle being submitted for tests; and

(c)The test agency shall be required to indicate specifically, the models and their variants on which the replacement of new engine shall be valid.

(8) *Applicable emission norms.*—The emission norms as mentioned in column (3) of the Table below excluding particulate matter shall be applicable to the corresponding categories of engines as mentioned against them in column (2) of the said Table.

TABLE

SI. No. (1)	Category of Engines (2)	Applicable Emission Norms (3)
1.	Fitted in vehicles with G VW equal to or less than 3.5 ton	<ul style="list-style-type: none"> • For gasoline vehicles converted to LPG, prevailing gasoline engine norms for chassis dynamometer test • For diesel vehicles converted to LPG, prevailing diesel engine norms for chassis dynamometer test
2.	Fitted in vehicles with G VW greater than 3.5 ton	<ul style="list-style-type: none"> • Prevailing diesel engine emission norms based on 13-mode steady-state engine dynamometer test

(9) LPG vehicle/kit components including installation shall comply with the Safety Checks as given in Annexure VIII.

(10) The test agency shall, in addition to the Type Approval Certificate, issue Safety and Procedural Requirements for Type Approval Certificate containing the Safety and Procedural Requirements for Type Approval of CNG and LPG Operated Vehicles, for LPG vehicles and conversion kits, as mentioned in Annexure X.

Note:—For the purposes of these rules,—

- (1) "OE fitment" means the vehicle engines which are manufactured for LPG operation by the vehicle manufacturer prior to their first registration;
- (2) "Conversion of In-use gasoline vehicle" means a vehicle already registered as a gasoline vehicle and subsequently converted for operation on LPG by fitting the conversion kit and carrying out the other necessary changes;
- (3) "O.E. fitment LPG dedicated vehicle" means a vehicle which is manufactured for LPG operation by the vehicle manufacturer prior to their first registration;
- (4) "Type approval of In-use vehicle having diesel engine replaced by new LPG engine" means a vehicle already registered as a diesel vehicle and is subsequently converted for operation on LPG by fitting a new engine adapted for operation on LPG;
- (5) The AIS or IS specifications may be as amended and notified from time to time.]

²⁹⁷[(6) In case of conversion kits on in-use gasoline vehicles or replacement of in-use diesel engines by new LPG engines, the validity of the type approval certificates issued by the testing agencies shall cover vehicles manufactured between the year of manufacture of the vehicle, on which such kit had been tested and the date of validity of the norms prescribed for such category of vehicles as per clause (a) of sub-rule (3) of rule 115-C. Testing agencies shall be required to indicate specifically, the model and their variants for diesel vehicles and capacity range of gasoline vehicles on which the certificate shall be valid for conversion.]

116. Test for smoke emission level and carbon monoxide level for motor vehicles.—

²⁹⁸[(1) Notwithstanding any thing contained in sub-rule (7) of rule 115 any officer not below the rank of Sub-Inspector of Police or the Inspector of Motor Vehicles who has reason to believe that a motor vehicle is not complying with the provisions of sub-rule (2) or sub-rule (7) of rule 115, may, in writing, direct the driver or any person incharge of the vehicle to submit the vehicle for conducting the test to measure the standards of emission in any one of the authorized testing stations, and produce the certificate to an authority at the address mentioned in the written direction within 7 days from the date of conducting the check.

(2) The driver or any person incharge of the vehicle shall upon such direction by the officer referred to in sub-rule (1) submit the vehicle for testing for compliance of the

²⁹⁷ Note 6 inserted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2006).

²⁹⁸ Substituted by G.S.R. 338(E), dated 26-3-1993(w.e.f. 26-3-1993).

specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

(2) The lighting and signaling devices shall be in accordance with AIS:062:2004 as amended from time to time, till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

(3) The safety and comfort of the operator of a power tiller shall be in accordance with IST2239 (Part 3):1996, as amended from time to time.

(4) The gradeability of a power tiller coupled to a trailer under the declared combination weight by the manufacturer shall be in accordance with IS:9980:1988, as amended from time to time.]

³⁴⁰[125. Safety belt, collapsible steering column, autodipper and padded dash boards.—

³⁴¹[(1)] One year from the date of commencement of the Central Motor Vehicles (Amendment) Rules, 1993, the manufacturer of every motor vehicle other than motor cycles and three-wheelers of engine capacity not exceeding 500 cc, shall equip every such vehicle with a seat belt for the driver and for the person occupying the front seat.

³⁴²[(1-A) The manufacturer of every motor vehicle of M-I category shall equip every motor vehicle with a seat belt for a person occupying the front facing rear seat:

Provided that the specifications of Safety Belt Assemblies and Safety Belt Anchorages in motor vehicles shall conform to AIS: 005-2000 and AIS: 015-

2000 specifications, respectively, as may be amended from time to time, till such time as corresponding Bureau of Indian Standards specifications are notified:

Provided further that on and after 1st October, 2002, the specification of Safety Belt Assemblies and Safety Belt Anchorages in motor vehicles shall conform to AIS: 005-2000 and AIS: 015-2000 specifications, respectively.]

(2) Six months from the date of commencement of the Central Motor Vehicles (Amendment) Rules 1993, all motor vehicles shall be equipped with rear view mirror.

³⁴³[Provided that ³⁴⁴[on and from 1st May, 2003], the rear view mirror specifications and installation requirements shall be as specified by AIS: 001-

³⁴⁰ R. 125 substituted by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

³⁴¹ R. 125 renumbered as sub-R. (1) thereof by G.S.R. 720(E), dated 10-9-2003 (w.e.f. 10-10-2003).

³⁴² Sub-R. (1-A) substituted by G.S.R. 400(E), dated 31 -5-2002 (w.e.f. 31-5-2002).

³⁴³ Inserted by G.S.R. 400(E), dated 31-5-2002 (w.e.f. 31-5-2002).

³⁴⁴ Substituted by G.S.R. 845(E), dated 27-12-2002, for "on and from 1st January, 2003" (w.e.f. 27-12-2002).

2001 and AIS: 002-2001 respectively, as may be amended from time to time, till such time as corresponding Bureau of Indian Standards specifications are notified.]

³⁴⁵[* * *]

³⁴⁶[* * *]

³⁴⁷[(5) On and after 1st January, 2003, the size and specifications on seats, their Anchorages and Head Restraints (excluding luggage retention) on M-I vehicle category shall conform to AIS : 016-2000 specifications, as may be amended from time to time, till such time as corresponding Bureau of Indian Standards specifications are notified.]

³⁴⁸[(6) On and from the 1st day of October, 2007, the seats, their anchorages and their head restraints for M2, M3, N1, N2 and N3 category of vehicles, shall be in accordance with AIS:023:2005 as amended from time to time till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).]

³⁴⁹[125-A. Safety belt, etc., for construction equipment vehicles.—One year from the date of commencement of the Central Motor Vehicles (Sixth Amendment) Rules, 2000, the manufacturer of every construction equipment vehicle other than an agriculture tractor shall equip every such vehicle with a seat belt for the driver and for the person occupying the front seat, and with a rear view mirror.]

³⁵⁰[125-B. Special requirements for transport vehicles that are driven on hills.—(1) On and from the 1st day of October, 2006, such four wheeled transport vehicles as may be notified by State Governments in the Official Gazette plying on such routes or areas in hilly terrains shall be fitted with fog lamp, power steering, defogging and demisting system and that the State Government would provide a lead time of six months for this purpose.

(2) Anti-Lock Braking System shall be introduced in all M-2 category buses including those plying on All India Tourist Permit on and from the 1st day of October, 2007 in hill areas.

125-C. Body building and approval.—(1) On a date to be notified, the testing and approval for body building of buses shall be accordance with AIS:052:2001 as amended

³⁴⁵ Sub-R. (3) omitted by G.S.R. 29(E), dated 15-1-1998 (w.e.f. 15-1-1998).

³⁴⁶ Sub-R. (4) omitted by G.S.R. 659(E), dated 12-9-2001 (w.e.f. 12-9-2001).

³⁴⁷ Inserted by G.S.R. 400(E), dated 31-5-2002 (w.e.f. 31-5-2002).

³⁴⁸ Sub-R. (6) inserted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

³⁴⁹ Inserted by G.S.R. 642(E), dated 28-7-2000 (w.e.f. 28-7-2000).

³⁵⁰ Rr. 125-B and 125-C inserted by G.S.R. 589(E), dated 16-9-2005 (w.e.f. 16-9-2005).

from time to time for vehicles mentioned therein, till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).

(2) The testing and approval for the body building of school buses shall be in accordance with AIS:063:2005 as amended from time to time for vehicles mentioned therein, till the corresponding BIS specifications are notified under the Bureau of Indian Standards Act, 1986 (63 of 1986).]

³⁵¹[126. Prototype of every motor vehicle to be subject to test.—On and from the date of commencement of Central Motor Vehicles (Amendment) Rules, 1993, every ⁷¹ [manufacturer or importer] of motor vehicles other than trailers and semi-trailers shall submit the prototype of the vehicle ⁷²[to be manufactured or imported by him] for test by the Vehicle Research and Development Establishment of the Ministry of Defence of the Government of India or Automotive Research Association of India, Pune, or the Central

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71. Substituted by G.S.R. 111(E), dated 10-2-2004, for "manufacturer" (w.e.f. 10-8-2004).

72. Substituted by G.S.R. 111(E), dated 10-2-2004, for "to be manufactured by him" (w.e.f. 10-8-2004).

Machinery Testing and Training Institute, Budni (MP), or the Indian Institute of Petroleum, Dehradun, and such other agencies as may be specified by the Central Government for granting a certificate by that agency as to the compliance of provisions of the Act and these rules:]

³⁵²[Provided that the procedure for type approval of certification of motor vehicles for compliance to these rules shall be in accordance with the AIS: 017-2000, as amended from time to time:]

³⁵³[Provided further that in respect to the vehicles imported into India as completely built units (CBU), the importer shall submit a vehicle of that particular model and type to the

³⁵¹ R. 126 substituted by G.S.R. 338(E), dated 26-3-1993 (w.e.f. 26-3-1993).

³⁵² Inserted by G.S.R. 642(E), dated 28-7-2000 (w.e.f. 28-7-2000).

³⁵³ Inserted by G.S.R. 111(E), dated 10-2-2004 (w.e.f. 10-8-2004).

AIS-023

AUTOMOTIVE INDUSTRY STANDARD

**Automotive Vehicles -
Seats, their Anchorages and
Head Restraints for Passenger Vehicles of
Categories M2, M3 and Goods Vehicles of
Category N - Specifications**

PRINTED BY
THE AUTOMOTIVE RESEARCH ASSOCIATION OF INDIA
P.B. NO. 832, PUNE 412 004

ON BEHALF OF
AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE

UNDER
CENTRAL MOTOR VEHICLE RULES - TECHNICAL STANDING COMMITTEE

SET-UP BY
MINISTRY OF SHIPPING, ROAD TRANSPORT & HIGHWAYS
(DEPARTMENT OF ROAD TRANSPORT & HIGHWAYS)
GOVERNMENT OF INDIA

September 2005

4.2.2.2 The front passenger seat (individual or bench) shall meet the dimensional requirements of passenger seats as specified in para. 4.4.2.2.1, 4.4.2.2.2, 4.4.2.2.3, 4.2.1.3 and the vehicle controls such as gear shift lever, pedals, steering wheel, etc., and dash-board shall not intrude into the space specified in Fig.7. If the seat is adjustable, then these requirements shall be met for the specified range of adjustments.

4.2.3 Performance and Strength Requirements

4.2.3.1 Both driver and front passenger seats and their head restraints (if provided) shall meet the requirements laid down in para. 5 “Tests” (except para. 5.9.3.4) of "AIS-016/2000-Automotive Vehicles - Seats, Their Anchorages and Head Restraints for Category M1- Specifications".

4.2.3.2 However, for the purposes of this standard, para. 5.3.1 of AIS-016/2000 shall be read as –

"A longitudinal horizontal deceleration corresponding to the deceleration pulse given in Fig. 2 of AIS-023 shall be applied to the relevant portion of the shell of the vehicle in the forward and rearward directions, one after the other, in accordance with requirements of para. 5.3.3 of AIS-016/2000".

4.3 Passenger Seats (other than front passenger seat) for Passenger Vehicles of Group A

4.3.1 Dimensional Requirements

4.3.1.1 Width of the seat cushion (2F) (Ref. Fig.3)

The minimum width of the seat cushion (2F) shall be:

Class I	: 400 mm
M2 and Class II	: 400 mm
Class III	: 450 mm

4.3.1.2 The minimum width of available space for each seating position (2G) (Ref. Fig.3) :

The minimum width of the available space for each seating position (2G), measured from a vertical plane passing through the centre of that seating position between heights of 270 mm and 650 mm (B and C respectively in Fig. 3) above the uncompressed seat cushion, shall be :

500 mm in the case of individual seats, and
450 mm in the case of bench seats.

4.3.1.3 The minimum backrest height (H) (Ref. Fig.3):

This is expressed as the vertical distance between the floor and the top of the seat or headrest.

Class I	: 800 mm
M2 and Class II	: 1000 mm
Class III	: 1100 mm

AUTOMOTIVE INDUSTRY STANDARD

Specific Constructional Requirements for Sleeper Coaches

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Fig 2:
Pictorial illustrations for Restraint Systems

