

DRAFT

AUTOMOTIVE INDUSTRY STANDARD

**Criteria for
Vehicle Types, Variants and Versions**

(Revision 1)

ARAI

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

Sr. No.	Corrigenda	Amendment	Revision	Date	Remark

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 erstwhile Ministry of Surface Transport (MOST) has constituted a permanent Automotive Industry Standards 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 (CMVR-TSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the Secretariat of the AIS Committee, will publish this standard. For better dissemination of this information ARAI may publish this document on their Web site.

Background on New model/old model definitions

Original plan was to cover the new model old definition and its treatment in AIS-017 (Rev.1) However, the roadmap for completing this revision is still not clear.

It may become necessary to expedite this part (e.g. implementation for BS IV norms for two and three wheelers or passive safety norms for 4 wheelers).

All the clauses in AIS-017 draft related to this subject, have been captured in the attached document.

Based on final decision in AISC, this may be released as a separate part of revision of AIS-017.

Criteria for Vehicle Types, Variants and Versions

Extract of clauses from AIS-017 Revision draft regarding new model/existing model

2.0 DEFINITIONS

2.8* **‘Manufacturer’** means the person or body who is responsible to the approval authority for all-aspects of the type-approval and for ensuring conformity of production, and in whose name the whole vehicle certificate of compliance to CMVR is issued.

It is not essential that the person or body be directly involved in all stages of the construction and sale of the-vehicle, system, component or separate technical unit which has been offered for approval.

2.10 **‘Model (Type of vehicle)’** means a group of vehicles, constructed by the same manufacturer, including variants and versions of a particular category which do not differ in at least the essential respects specified in **Annex A**.

A type of vehicle may contain variants and versions.

Note: A change in company’s name of manufacturer or a change in the legal form of ownership of the company or mere transfer of certification of a model to other company are not considered as a change of manufacturer.

2.10.1 **‘New Model (Type of vehicle)’** means vehicle model (s) belonging to ‘Model (Type of vehicle), as defined in 2.10, type approved after New Model implementation date.

2.10.2 **‘New model implementation date’** means the date specified for the applicability of the provision for “New Model (Type of vehicle) for a provision.

2.10.3 **‘Existing model (type of vehicle)’** means vehicle belonging to ‘Model (Type of vehicle), as defined in 2.10, type approved on or before the New Model implementation date.

2.10.4 **‘Existing model (type of vehicle) implementation date’** means the date specified for the applicability of the provision for Existing model (type of vehicle) for a provision.

Note 1 In the past, various expressions were used to indicate “New Model Type of vehicle)” and “Old Model Type of Vehicle”. Wherever such expressions are used to indicate different dates of implementation for “New Model Type of vehicle)” and “Old Model Type of Vehicle”, the above definition shall apply. These conditions apply irrespective of date of manufacture of the vehicle.

A compilation of such examples of such expressions is given in Appendix A for illustration.

* Note : Clause numbers are retained with reference to Draft AIS-017 (Rev.1) (Part 1)/D1/Dec. 2013 for ease of matching the clause numbers of this draft standard and Draft AIS-017 (Rev.1) (Part 1)/D1/Dec.2013.

- 2.10.5 **Mass in running order’ means the kerbmass +75kg**
- 2.10.6 **‘Variant’** means within a Model (Type of vehicle) shall include vehicles which have all of the features in common as a group as specified in Annex A.
Manufacturer, at his option may designate a version as a variant.
- 2.10.7 'Version' of a variant means vehicles, which consist of a combination of parameters given in AIS 007
- 2.10.7.1 A version may have multiple entries for parameters specified in AIS 007, subject to any limitation specified in Annex A if any for the applicable category
- 2.10.8 Manufacturer shall identify in the document submitted for type approval, the Model (Type of vehicle), variant and version by suitable codes of his choice.
- 2.12 **Provisions** mean the requirements related to the construction of motor vehicles notified in the CMVR, either directly or through a reference to Notified Standards.

Operating clauses

- 3.4.3 Where New model implementation date and Existing model implementation date are prescribed in the provision
- 3.4.3.1 **Applicability of date for new Model (Type of vehicle) :**
The date of implementation for vehicle shall be applicable to vehicles of same type, as defined in **2.10.1**, shall be the New model implementation date (**2.10.2**).
- 3.4.3.2 **Applicability of date for existing models”/existing Model (Type of vehicle):**
- 3.4.3.2.1 The date of implementation for Existing Model (Type of vehicle) (**2.10.3**) shall be the existing model implementation date (**2.10.4**).
- 3.4.3.2.2 Approvals for changes in the parameters declared as per AIS 007, which does not constitute change to a “New type” applicable to the category to which the vehicle belongs, shall be extended, as per provisions applicable for the existing Model (Type of vehicle), till the existing model implementation date for that provision.
- 3.4.3.2.3 Conditions of 3.4.3.2.2 are applicable irrespective of whether the changes in parameters are related to the provision being implemented or not.
- 3.5 When a vehicle falls into several categories because of its maximum mass or the number of seating positions or both, the manufacturer may select to use the criteria of one or the other vehicle category for the definition of the variants and the versions. This provision shall not be applicable for changes from M to N categories or vice versa.”

Administrative clauses for certification

It is necessary that certificate issued at various time should have a feel indicating the Type.

This may be achieved by changes in:

- The certificate numbering system
- The format of certificates

General discussion in the panel TO BE DRAFTED IN CONSULTION WITH ARAI AND iCAT

Currently different expressions have been used in CMVR for indicating the differential dates of implementation. Some such instances are compiled in Appendix A.

It will be necessary to have a clarification that all these expressions are replaced by the terms as per this final document.

Annex-A

DEFINITION OF TYPE/VERSION/VARIANT

A-1.0 For M1 category

A-1.1 Parameters for Model (Type of vehicle)

A-1.1.1 Construction and design in chassis / floor pan (obvious and fundamental changes).

By derogation from point (c) above, following requirements shall apply:

- 1) When the manufacturer uses the floor portion of the body structure as well as the essential elements forming the front part of the body structure located in front of the windscreen bay, in the construction of different kinds of body styles (as mentioned in variant definition), those vehicles may be considered as belonging to the same type.
- 2) Following design changes to an already approved type shall not result in a change of type
 - a.) Minor modifications made to the design, shape and/or dimensions/material of chassis/floor pan to build different variants / versions including but not limited to facelifts.
 - b.) Increase / decrease of wheelbase and/or vehicle outer dimensions (e.g. overhangs etc.), or
 - c.) Changes made in chassis / floor pan necessary for adoption of different axle / suspension designs (e.g. solid axle, parallel linkage, Panhard bar, etc).
- 3) Any other change in chassis / floor pan, which is not considered a fundamental change, shall be considered under the same type at the discretion of the test agency who has already approved the type.

A-1.2 Parameters for Variant

- a) body style (e.g. saloon, hatchback, coupe, convertible, station-wagon, multi-purpose vehicle),
- b) power plant:
- c) working principle (2-stroke, 4-stroke, etc),
- d) number and arrangement of cylinders,
- e) power differences of more than 30 % (the highest is more than 1,3 times the lowest),
- f) capacity differences of more than 20 % (the highest is more than 1,2 times the lowest),
- g) powered axles (number, position, interconnection),
- h) steered axles (number and position)

A-1.3 With reference to **2.10.7**, only one value shall be quoted for a version for the following parameters

- a) technically permissible maximum laden mass,
- b) engine capacity,
- c) maximum net power,
- d) type of gearbox and number of gears,
- e) maximum number of seating positions³

A-2.0 For M2 and M3 category

A-2.1 Parameters for Model (Type of vehicle)

- (a) the Category
Category changes from N2 and N3 to M2 or M3 will constitute a new type.
Category change from M3 to M2 or vice versa will not constitute a new type.
- (b) the no. of sections (rigid/articulated)
- (c) number of axles,
- (d) the mode of energy supply (on-board or off-board);
- (e) in the case of multi-stage built vehicles, the manufacturer and the type of the previous stage vehicle.

A-2.2 Parameters for Variant

- (a) the manufacturer's model designation,
- (b) the category (Category changes from M2 to M3 or vice versa will constitute a new variant)
- (c) the number of decks (single or double);
- (d) the type of bodywork
(eg low floor, open-deck, bus-chassis)
- (e) the working principle of power plant including retrofitted power plants:
(e.g., positive ignition/compression ignition/hybrid/electric)
- (f) the number and arrangement of cylinders in the case of internal combustion engine (L6, V8 or other) ,
- (g) location of power plant (front, mid, rear),
- (h) the design and construction of the essential constituent elements forming the body structure in the case of a self-supporting body
- (i) Arrangement of axles

A-3.0	For Categories N2 and N3 category
A-3.1	Parameters for Model (Type of vehicle)
(a)	the category, Category changes from M2, M3 to N2 or N3 will constitute a new type.
(b)	number of axles,
(c)	in the case of multi-stage built vehicles, the manufacturer and the type of the previous stage vehicle.
A-3.2	Parameters for Variant
(a)	the manufacturer's model designation
(b)	the category (category changes from N2 to N3 or vice versa will constitute a new variant)
(c)	Type of superstructure (such as Haulage, Tipper, Garbage, Cement-Mixer, Tanker)
(d)	Cabin Structural Change without chassis change (such as SFC to Flat front, change in bodywork type)
(e)	Extent of Completion (such as drive-away-chassis, Cab Chassis, fully-built)
(f)	the type of energy supply (internal combustion / electric motor or other).
(g)	the working principle (positive ignition, compression ignition or other)
(h)	number and arrangement of cylinders in the case of internal combustion engine (L6, V8 or other),
A-4.0.	For N1 category
A-4.1	Parameters for Model (Type of vehicle)
(a)	Category change of M1 to N1 is not considered a type change
(b)	in the case of multi-stage built vehicles, the manufacturer and the type of the previous stage vehicle.
A-4.2	Parameters for Variant
(a)	the manufacturer's model designation
(b)	the category (category changes from M1 to N1, N2 to N1 will constitute a new variant)
(c)	Type of superstructure (such as Haulage, Tipper, Garbage, urban delivery configuration)
(d)	Extent of Completion (such as drive-away-chassis, Cab Chassis, glider, fully-built)
(e)	Cabin Structural Change without chassis change (eg standard cab to

	crew cab, OR change in no. of lateral doors, OR SFC to Flat front)
(f)	Chassis Structural Change for body-on-frame
(g)	Cabin Structural Change for integral bodies (ahead of windscreen)
(h)	the type of energy supply (internal combustion/electric motor or other).
(i)	the working principle (positive ignition, compression ignition or other)
(j)	number and arrangement of cylinders in the case of internal combustion engine (L3, V4 or other),
(k)	Number and arrangement of axles

A-5.0 For L1 & L2 category

A-5.1 Parameters for Model (Type of vehicle)

- a) belong to a single category as defined in AIS 053
- b) frame construction is same::
step-through/ scooter type or step-over type will constitute different type
See figure #1 for illustration of two wheelers with these type of frames
- c) engine operating cycle is the same
2 stroke/4 stroke/Spark Ignition/Compression Ignition if a combustion engine is part of the propulsion will constitute different types
- d) The number of cylinders in case of IC Engine
- e) The type of gearbox is same. Manual or automatic transmission will constitute different types.
- f) The difference in the cylinder capacity of the power unit (in the case of a combustion unit) between the lowest value and the highest value does not exceed 30 % of the lowest value;
- g) The difference in the power output of the power unit between the lowest value and the highest value does not exceed 30 % of the lowest value;

A-5.2 Parameters for Variant

- (a) they have the same shape of bodywork (basic characteristics);
- (b) within the group of vehicles (versions) the difference in the mass in running order between the lowest value and the highest value does not exceed 20% of the lowest value;
- (c) within the group of vehicles (versions) the difference in the maximum permissible mass between the lowest value and the highest value does not exceed 20% of the lowest value;
- (d) In case of a multi-cylinder engine, have the same arrangement of cylinders;
- (e) Power train hybrid/electrical/IC engine
- (f) Change in commercial name of the model including rechristening or accompanied by engineering changes is treated as a different variant.

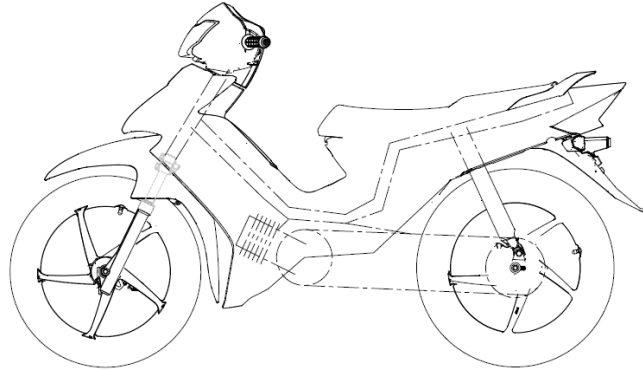
A-5.3 'version' means a vehicle of the same type and variant but which may incorporate any of the equipment, components or systems listed in applicable tables of AIS 007.

A-5.3.1 With reference to 2.10.7, only one value shall be quoted for a version for the following parameters

- a) the mass in running order;
- b) the maximum permissible mass;
- c) the power output of the power unit;
- d) the cylinder capacity of the power unit

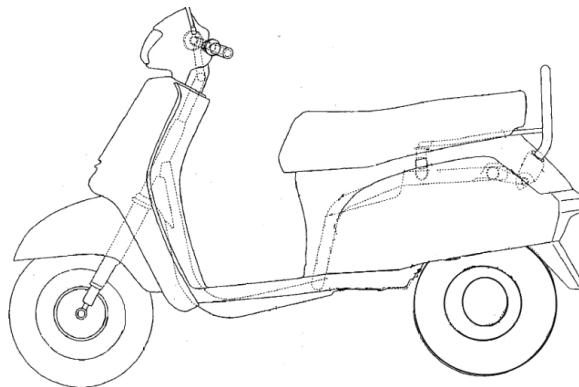
Figure #1
Illustration of typical L1 & L2 category vehicles with step through, scooter
and step over type frames

L1 & L2 category vehicles with step-through type frame



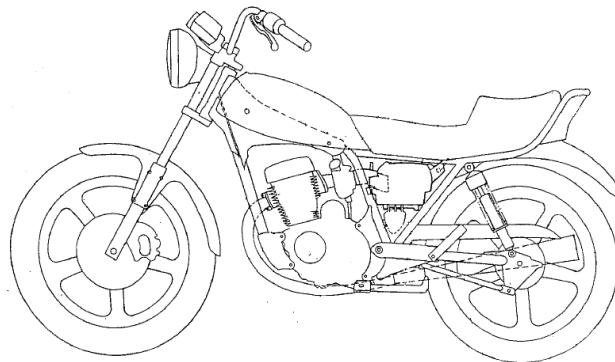
For mounting the vehicle, the rider can step through the low structure and rider's foot rests are mounted on chassis/engine

L1 & L2 category vehicle with Scooter type frame



The rider can step through to mount the vehicle having platform/floorboard, and foot rests for the rider are integral with platform/footboard

L1 & L2 category vehicle with a step over type frame



The rider has to step over the vehicle to mount.

A-6.0 For L5 category

A-6.1 Parameters for Model (Type of vehicle)

- (a) belong to a L5 category as defined in AIS 053
- (b) engine operating cycle is the same i.e. 2 stroke/4 stroke/Spark Ignition/Compression Ignition / if a combustion engine is part of the propulsion.
- (c) The same number of cylinders in case of IC Engine
- (d) The type of gearbox Manual or fully automatic
- (e) The difference in the cylinder capacity of the power unit (in the case of a combustion unit) between the lowest value and the highest value does not exceed 30 % of the lowest value;
- (f) The difference in the power output of the power unit between the lowest value and the highest value does not exceed 30 % of the lowest value;

A-6.2 Parameters for variant

- (a) Shape of bodywork (basic characteristics);

- A. Passenger vehicle- Small – L5M
- B. Passenger vehicle- Large – L5M
- C. Goods vehicle- Pick up van – L5N
- D. Goods vehicle – Delivery van – L5N
- E. Passenger vehicle – DAC – L5M
- F. Goods vehicle – DAC – L5N
- G. Other Specific bodywork / application not covered above.

See figure #2 for illustration of three wheelers with the shape of bodywork.

- (b) within the group of vehicles (versions) the difference in the mass in running order between the lowest value and the highest value does not exceed 30% of the lowest value;
- (c) within the group of vehicles (versions) the difference in the maximum permissible mass between the lowest value and the highest value does not exceed 30% of the lowest value;
- (d) In case of a multi-cylinder engine, have the same arrangement of cylinders;

Change in commercial name of the model including rechristening or accompanied by engineering changes is treated as a different variant.

A-6.3 'version' means a vehicle of the same type and variant but which may incorporate any of the equipment, components or systems listed in applicable tables of AIS 007.

A-6.3.1 With reference to 2.10.7, only one value shall be quoted for a version for

the following parameters

- a) the mass in running order;
- b) the maximum permissible mass;
- c) the power output of the power unit;
- d) the cylinder capacity of the power unit

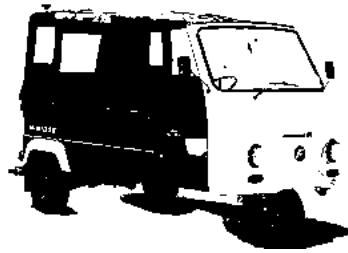
Figure #2
Illustration of typical L5 category vehicle bodyworks

Passenger vehicle – small (*L5M*)



These vehicle types are with small bodywork and intended for carriage of passengers.

Passenger vehicle - large (*L5M*)



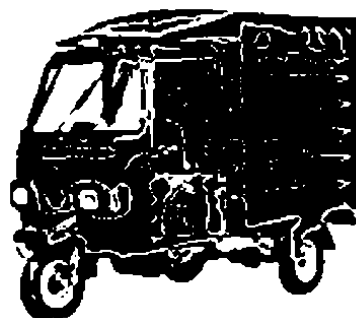
These vehicle types are with large bodywork and intended for carriage of passengers.

Goods vehicle – Pick up van (*L5N*)



These vehicle types are with pick up load platform bodywork and intended for carriage of goods.

Goods vehicle – Delivery van (*L5N*)



These vehicle types are with delivery deck bodywork and intended for carriage of goods.

Passenger vehicle – DAC (*L5M*)



These vehicle types are without bodywork and intended for carriage of passengers.

Goods vehicle – DAC (*L5N*)



These vehicle types are without pick up load platform or delivery deck bodywork and intended for carriage of goods.

APPENDIX A			
Summary of New model. Existing Model related terms in various CMVR documents.			
Sl.No	Ref Doc	Terms	
		New Model	Existing Model
1	GSR 412 dated 19 th May 2015 – Flexi fuel	Newly manufactured gasoline vehicles fitted with...
2	GSR 487 dated 12 th June 2015. BS IV for 3W	New vehicle models of three wheelers manufactured on or after	Existing vehicle models of three wheelers manufactured on or after
3	S.O 1139 dated 28 th April 2015 – crash standards notification	New models	All models
4	S.O 1140 dated 30 th April 2015 – Exemption of bus body code.	...	Existing models of buses with seating capacity
5	GSR 431 dated 04 th July 2014 – BS IV 2W	two wheelers manufactured on and after the 1st April 2016 for new types of vehicle models	From the 1st April, 2017 for existing types of vehicle models
6	GSR 287 dated 22 Apr 2014. – Bus body code	On and after the 1st day of October, 2014 the testing and approval for body building of new models of buses
7	GSR 291 dated 24 th April 2014 – notification of Horn, Speedo etc.	New models.	Existing models.
8	GSR 692 dated 17 th Oct 2013 – draft bus body code.	On and after the 1st day of April, 2014, the testing and approval for body building of new models of buses shall.....	Provisions of this rule shall be applicable for the existing models on and after the 1st day October, 2014...
9	S.O 436 dated 15 Mar 2012 – EMC, Brake hose, tell tale, spray suppression....	New models.	Existing models.
10	S.O 2714 dated 04 Nov 2010 – defrost and demist	New models.	Existing models.
11	CMV Rule 117	New models	Existing models.

1. Various terminologies used for New models:

- i. New models
- ii. Newly manufactured vehicles
- iii. New vehicle models
- iv. New types of vehicle models.

2. Various terminologies used for existing models:
 - i Existing models
 - ii Existing vehicle models
 - iii All models
 - iv Existing types of vehicle models