

Date of hosting on website: 30th August 2018
Last date for comment: 14th September 2018

**CHECK LIST FOR PREPARING AMENDMENT TO
AUTOMOTIVE INDUSTRY STANDARD (AIS)
Amd. No 02 to AIS-123 Part 1**

SR. NO.	PARTICULARS	REMARKS
1.0	Is the amendment related to : i) Changes in technical requirements; ii) Corrigendum iii) Any other (Pl. specify)	Amendment is to add provision for L category of vehicles
2.0	Indicate details of base reference standard (amendments).	AIS 123 (Part 1)
3.0	Add an explanatory note indicating deviations from the above base referred standard (amendments) in Sr. 2.	NA
4.0	If amendment is for provisions in technical requirements :	No
4.1	a) Does amendment call for re-type approval of component / vehicle, which is already type approved? b) Is amendment applicable to fresh type approval of component / vehicle c) Do components / vehicles manufacturers / Test agencies require lead time to meet requirements of amendment?	No No No
4.2	If amendment is related to corrigendum : a) Whether changes are required in previous approvals	No
5.0	What are the test equipments for establishing compliance to amendment?	As per AIS-123 (Part 1)
6.0	If possible, identify such facilities available in India.	ARAI, iCAT, CIRT, VRDE
7.0	Are there any points on which special comments or information is to be invited from AISC/ CMVR-TSC If yes, are they identified?	No
8.0	Recommendation of date for implementation of amendment.	With date of approval in AISC

Explanatory note based on ECE/EEC Directive practices:

1. Amend.X = an amendment issued to the text of the AIS.
2. Rev.X = a Revision of the text comprising all previous text(s) of the AIS.
3. Corr.X = a Corrigendum consists of editorial corrections of errors in the issued texts.

DRAFT AMENDMENT 2

To

AIS 123 (PART 1): CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg

1.0	Page I, Title Substitute following title for existing title, AIS 123 (PART 1): CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg and L Category. <i>{Justification: To Add L Category Vehicles}</i>
2.0	Page III, Introduction, Substitute the following text for existing text of Paragraph 2, This standard prescribes the CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg and L Category.
3.0	Page IV, Title Substitute following title for existing title, AIS 123 (PART 1): CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg and L Category.
4.0	Page V, Annexure I, Substitute the following text for existing text, Composition of AISC panel on CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg and L Category.
5.0	Page 1/52, Title Substitute following title for existing title, AIS 123 (PART 1): CMVR Type Approval of Hybrid Electric System Intended for Retro-fitment on Vehicles of M and N Category having GVW \leq 3500 Kg and L Category.
6.0	Page 1/52, SCOPE, Substitute the following text for existing text, This standard lays down the requirements specific to vehicles retrofitted with Hybrid Electric System (HES) of L , M1, M2 and N1 category of vehicles, which i) Comply to BS-II or subsequent emission norms, ii) Operate on either petrol or diesel or bio-diesel or ethanol except gaseous fuels such as CNG, LPG and LNG, iii) Have GVW not exceeding 3500 kg, iv) Have not been retro-fitted earlier or are not operating on any gaseous fuels.

<p>7.0</p>	<p>Page 2/52, Clause No.4.1,</p> <p>Substitute the following table for existing table</p> <table border="1" data-bbox="354 304 1377 787"> <thead> <tr> <th data-bbox="354 304 516 415">Vehicle Category</th> <th data-bbox="516 304 662 415">ULW (kg)</th> <th data-bbox="662 304 1003 415">Permissible increase in ULW (%)</th> <th data-bbox="1003 304 1377 415">Remarks</th> </tr> </thead> <tbody> <tr> <td data-bbox="354 415 516 489">L1, L2 and L5M</td> <td data-bbox="516 415 662 489">-</td> <td data-bbox="662 415 1003 489">25%</td> <td data-bbox="1003 415 1377 489">--</td> </tr> <tr> <td data-bbox="354 489 516 600">L5N</td> <td data-bbox="516 489 662 600">-</td> <td data-bbox="662 489 1003 600">25%</td> <td data-bbox="1003 489 1377 600">Payload shall be reduced to the extent of HES weight.</td> </tr> <tr> <td data-bbox="354 600 516 638">M1/M2</td> <td data-bbox="516 600 662 638"><= 1100</td> <td data-bbox="662 600 1003 638">21</td> <td data-bbox="1003 600 1377 638">--</td> </tr> <tr> <td data-bbox="354 638 516 676">M1/M2</td> <td data-bbox="516 638 662 676">> 1100</td> <td data-bbox="662 638 1003 676">17</td> <td data-bbox="1003 638 1377 676">--</td> </tr> <tr> <td data-bbox="354 676 516 787">N1</td> <td data-bbox="516 676 662 787">--</td> <td data-bbox="662 676 1003 787">Equal to weight of HES</td> <td data-bbox="1003 676 1377 787">Payload shall be reduced to the extent of HES weight.</td> </tr> </tbody> </table>	Vehicle Category	ULW (kg)	Permissible increase in ULW (%)	Remarks	L1, L2 and L5M	-	25%	--	L5N	-	25%	Payload shall be reduced to the extent of HES weight.	M1/M2	<= 1100	21	--	M1/M2	> 1100	17	--	N1	--	Equal to weight of HES	Payload shall be reduced to the extent of HES weight.
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N1	--	Equal to weight of HES	Payload shall be reduced to the extent of HES weight.																						
<p>8.0</p>	<p>Page No 7/52, Clause No. 22.1</p> <p>Add following Note { Note: In case of L category vehicle, extension of HES kit tested and approved for two stroke model can be extended to other two stroke models only and HES kit tested and approved for four stroke model can be extended to other four stroke models only meeting above criteria }</p>																								
<p>9.0</p>	<p>Page No 7/52 , Clause No 22.3</p> <p>Replace Clause No 22.3 with following test</p> <p>“Type approval of hybrid electric system as per this standard shall permit retro-fitment of vehicles which are manufactured between the year of manufacture of the prototype retrofitted vehicle on which such kit has been tested and type approved and the date of validity of applicable emission norms prescribed for such category of vehicles. However in case of M1,M2 and N1 category vehicle, if the vehicle which has been submitted and tested for Type Approval is of the model year 2015 or earlier (for BS-IV) / 2012 or earlier (for BS-III), then the Type Approval shall permit retro-fitment of vehicles, of the same emission norms, which belong to any model year. ”</p> <p>However in case of For L1/L2 and L5 category vehicle, if the vehicle which has been submitted and tested for Type Approval is of the model year 2007 or earlier (for BS-II)/ 2013 or earlier (for BS-III) , then the Type Approval shall permit retro-fitment of vehicles, of the same emission norms, which belong to any model year”.</p>																								
<p>10.0</p>	<p>Page 9/52, Clause No. A-2.1.2.1</p> <p>Replace existing title with “M and N Category vehicle with Compression Ignition Engine”</p>																								

11.0	<p>Page 9/52, Clause No. A-2.1.2.2</p> <p>Replace existing title with “M and N Category vehicle with Positive Ignition Engine”</p>
12.0	<p>Page 9/52, add new Clause No. A-2.1.2.3 as below</p> <p>A-2.1.2.3 L category Driving Cycle for L category vehicle shall be as given below</p> <p>(a) With design maximum speed not greater than 50 km/h: IDC defined in Annexure II of CMVR 1989</p> <p>(b) With design maximum speed greater than 50km/h: (i) For compliance with BSII and BSIII norms: IDC as defined in Annexure II of CMVR 1989 or applicable parts of WMTC as defined in TAP document MORTH/CMVR/TAP-115/116, as per manufacturer’s option.</p> <p>(ii) For compliance with BSIV norms: Applicable parts of WMTC as defined in applicable TAP document MORTH/CMVR/TAP-115/116”</p>
13.0	<p>Page 10/52, Clause No. A-2.1.4.4.2 Replace first paragraph as below</p> <p>Sampling shall begin (BS) before or at the initiation of the vehicle start up procedure and continue over a number of repeat test cycles. It shall end on conclusion of the final idling period in:</p> <p>In case of M1, M2 and N1 category vehicle, the first extra-urban (Part Two) cycle, In case of L category, the end of an IDC or part of WMTC during which the battery reached the minimum state of charge according to the criterion defined below (end of sampling (ES)). <i>{Justification: To Add L Category Vehicles}</i></p>
14.0	<p>Page 10/52, Clause No. A-4.2 Add text below first paragraph</p> <p>In case of L category vehicles, preconditioning as per A-2.1.2.3 are carried out without soak.</p>
15.0	<p>Page 20/52, Clause No. 3.2</p> <p>Substitute following text for existing text:</p> <p>Separate values of Q shall be logged over the Part One (urban driving) and Part Two (extra-urban driving) of the MIDC driving cycle in case of M and N category vehicles.</p> <p>In case of L category vehicles, for IDC, Q shall be logged over complete driving cycle and for WMTC, Q shall be logged separately for each part. <i>{Justification: To Add L Category Vehicles}</i></p>
16.0	<p>Page 26/52, Clause No. C-4.2.2.1.1,</p> <p>Substitute following text for existing text:</p>

	When the vehicle is not able to meet the target curve up 50 km/h (30 km/h, in case of L category vehicle with IDC)
17.0	<p>Page 27/52, Clause No. D-1,</p> <p>Add following text at the end of first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, emission of carbon dioxide (CO₂) and fuel consumption shall be determined separately for each part.</p>
18.0	<p>Page 27/52, Clause No. D-2.2,</p> <p>Add following text at the end of first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, the electricity balance is to be determined separately for each part.</p>
19.0	<p>Page 28/52, Clause No. D-3.2,</p> <p>Replace “IDC” with “IDC/WMTC” in first paragraph</p>
20.0	<p>Page 28/52, Clause No. D-3.3,</p> <p>Add following text below first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, fuels consumption correction coefficient shall be determined for the fuel consumption values measured over each part of WMTC respectively.</p>
21.0	<p>Page 29/52, Clause No. D-4.2,</p> <p>Add following text below first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, fuels consumption at zero energy balance shall be determined separately for fuel consumption values measured over each part of WMTC respectively.</p>
22.0	<p>Page 29/52, Clause No. D-5.1,</p> <p>Replace “IDC” with “IDC/WMTC” in first paragraph</p>
23.0	<p>Page 29/52, Clause No. D-5.3,</p> <p>Add following text below first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, separate CO₂-emission corrections coefficients shall be determined for the CO₂-emission values measured over each part of WMTC respectively.</p>
24.0	<p>Page 30/52, Clause No. D-5.6,</p>

	<p>Add following text below first paragraph:</p> <p>In case of L category vehicle with WMTC driving cycle, CO₂-emission at zero energy balance shall be determined separately for CO₂-emission values measured over each part of WMTC respectively.</p>
25.0	<p>Page 32/52, ANNEXURE E, Clause No. 4,</p> <p>Add following text g. Software version</p>
26.0	<p>Page 34/52, ANNEXURE E, Clause No. 11,</p> <p>Add following text d. Software version:</p>
27.0	<p>Page 35/52, ANNEXURE E, Clause No. 12,</p> <p>Add following text d. Software version: e. Communication protocol:</p>
28.0	<p>Page 38/52, ANNEXURE F, Clause No. 1.0,</p> <p>Replace clause 1.0 with below</p> <p>1.1 Vehicle Make / Model: 1.2 Vehicle Type: 1.3 Year and Month of Manufacture: 1.4 Engine No.: 1.5 Chassis No.: 1.6 Type of hybrid vehicle (Externally chargeable/Not externally chargeable): 1.7 Hybrid Configuration: 1.8 Mode selection switch provided: Yes/No 1.9 If yes, the modes available:</p>
29.0	<p>Page 39/52, ANNEXURE G, Clause No. 1.0,</p> <p>Substitute following text for existing text:</p> <p>This code of practice may be called as "Code of Practice for Use of Hybrid Electric System retrofitted in Internal Combustion Engine Vehicles". This code of practice is applicable for L, M1/M2 and N1 category vehicles.</p>