

DRAFT

AUTOMOTIVE INDUSTRY STANDARD

Conformity of Production (CoP) Procedure for verifying compliance to Constant Speed Fuel Consumption Norms for ~~Heavy Duty~~ Diesel Vehicles with GVW/GCW exceeding ~~12.0~~ 3.5 tonnes

Date of hosting on website: 12th July 2018
Last date for comments: 27th July 2018

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 (CTSC). After approval, the Automotive Research Association of India, (ARAI), Pune, being the Secretariat of the AIS Committee will published this standard. For better dissemination of this information ARAI may publish this document on their Website.

Heavy Duty Diesel Vehicles Constant Speed Fuel Consumption Norms have been mandated by government vide notification S.O. 2670 dated 16th August 2017 and the subsequent notification to be issued by MoRTH. The notification calls for testing of vehicles for continued compliance. A need was felt to formulate a procedure addressing these requirements.

The AISC panel and the Automotive Industry Standards Committee responsible for preparation of this standard is given in Annexure-**IV** and Annexure-**V** respectively.

**Conformity of Production (CoP) Procedure for verifying compliance to
Constant Speed Fuel Consumption Norms for Heavy-Duty Diesel Vehicles
with GVW/GCW exceeding ~~12.0~~ 3.5 tonnes**

1.0.	Scope:
	This procedure is applicable to heavy-duty BS-IV diesel vehicles of category M2 , M3, N2 and N3 with GVW / GCW exceeding 12 3.5 tonnes for the purpose of certifying the compliance to Conformity of Production to the Constant Speed Fuel Consumption (CSFC) norms notified by the Bureau of Energy Efficiency (BEE) and / or Ministry of Petroleum and Natural Gas / Ministry of Road Transport & Highways.
	Note: This procedure contains administrative and technical guidelines for carrying out Conformity of Production tests for checking compliance to Constant Speed Fuel Consumption Norms for Heavy-Duty Diesel Vehicles with GVW / GCW exceeding 12.0 3.5 tonnes. This has to be read in conjunction with applicable notifications issued by Bureau of Energy Efficiency (BEE) of the Ministry of Power / Ministry of Road Transport and Highways (MoRTH) and the administrative order issued by MoRTH.
2.0.	Definitions: For the purpose of this standard, the following definitions shall apply.
2.1.	Definition of ‘technical characteristics of the vehicle’: vehicles of different ‘technical characteristics’ means vehicles which differ in such essential respects as trade name or mark and other technical details (requirements) as given in individual standard IS : 11921 notified under CMVR.
2.2.	Notified Standard means a standard, referred to in CMVR or notified separately under the provisions of CMVR, which specifies details of requirements to be complied with. This may be in the form of: a) An Indian Standard issued by BIS b) A Safety Standard prepared by the erstwhile Safety committee and issued by ARAI c) A standard prepared by the AISC. d) Any other standard notified by MoRT&H./ BEE / MoPN&G
2.3.	Test Agency is an organization specified in CMV Rule 126 and 126A for certification of compliance to the specified standards.
2.4.	Manufacturer , unless otherwise specified, means the vehicle manufacturer or the legal entity who is responsible for establishing compliance to CMVR / Notified norms.
2.5.	Model , means vehicles of one family with essentially same aspects of construction and design, which is of the same category, and has the same number of axles. The vehicle manufacturer designates a model. A model may include variant(s).
2.6.	Variant means a type of vehicle, which has Technical Specifications differing from that of a model, in any respects, other than those given in 2.1.2.5 Variant(s) may have different commercial names.
2.7	Nodal Agency – The Ministry of Road Transport and Highways is the nodal agency for implementation of Constant Speed Fuel Consumption Norms for Heavy-Duty Diesel Vehicles with GVW/GCW exceeding 12.0 3.5 tonnes in both its aspects of Type Approval and Conformity of Production.

2.8	The Standing Committee on implementation of Constant Speed Fuel Consumption Norms for Heavy Duty Diesel Vehicles with GVW / GCW exceeding 12.0 3.5 tonnes will be CMVR – Technical Standing committee (CMVR-TSC) constituted by the MoRTH under the Chairmanship of Joint Secretary – MoRTH, to advise the Nodal agency in such implementation.
3.0.	COP TEST AGENCY
3.1.	The test agencies specified in CMV Rule 126 and 126(A) will be responsible for carrying out the COP tests in addition to the Type Approval tests.
3.2.	Initially the vehicle Manufacturer has the option of choosing the Test Agency for Type Approval of its specific model from among those listed in CMV Rule 126. On completion of first COP by the same test agency, the manufacturer can change the test agency if so desired.
3.3.	In case the vehicle manufacturer desires to change the COP Test Agency, a formal request shall be made to the new test agency under intimation to the previous Test Agency and nodal agency. This request should be made at least one month before the beginning of the next COP period along with all relevant documents concerning type approval/previous COP and also the latest information as per paragraph 4.7 of the procedure.
3.4.	On receipt of intimation of requests for a change, the previous COP Test Agency will authenticate all the relevant documents of that model and its variants and forward to the new test agency. The new test agency will carry out the process of selection and testing of the vehicle for the COP as per the procedure and will consult the previous Test Agency if required about the test findings and results before issuing the final COP Certificate.
3.5.	No change of Test Agency will be allowed in the cases where COP test and extended COP tests are under process.
4.0.	Responsibility of the Vehicle Manufacturer
4.1.	In discussion with test agency, the COP tests may be conducted at the manufacturer's test facility instead of testing at test agency premises. For doing so, the following conditions are to be satisfied: the test track facilities, on which tests are to be conducted shall be approved by one of the test agencies referred to in Rule 126 of CMVR. The test track facility shall be re-certified for every 3 years by the respective / concerned test agency.
4.1.1	The vehicle manufacturer is having a valid certificate of compliance to ISO 9001–2008 or equivalent for the test track facility used for COP tests.
4.1.2	The test track facilities, on which tests are conducted have been approved by one of the test agencies referred to in Rule 126 of CMVR.
4.1.3	The test track facility shall be re-certified for every 3 years by the respective / concerned test agency.
4.2	The manufacturer will submit each any one model/variant per GVW/GCW Tonnage band/class notified by BEE (in same vehicle category), in every two years' period for COP evaluation at the premises of the testing agencies or at the manufacturer's test facility. The random selection of the model/ variant among all the base models / variants

	in the same tonnage band will be at the discretion of the test agency. Two One random samples of the vehicle model type approved will be selected by the test agency for the COP test, before the completion of the COP period defined in Para 5. One This vehicle shall be subjected to the fuel efficiency Constant Speed Fuel Consumption test while the other vehicle shall be kept as a standby to take care of any unforeseen incidences during running in of the vehicle. Based on COP results of tested vehicle, all the models and variants in the particular GVW/GCW band shall be approved by test agency.
4.3	A vehicle is considered to be produced when the vehicle has passed the final inspection stage as declared by the manufacturer.
4.4	The vehicle manufacturer should inform the concerned Test Agency;
4.4.1	Production/ Import plan for each model including its variants (with respect to the Type Approval Certificates and the previous COP Certificate) within 8 weeks from the start of production of type approved vehicle model or resumption of production of a vehicle or start of the COP period for that model.
4.4.2	Production/ Import plan for each model including its variants (with respect to the Type Approval Certificates and the previous COP Certificate) within 8 weeks from the start of production of type approved vehicle model or resumption of production of a vehicle or start of the COP period for that model.
4.4.3	Any subsequent change in such Production/ Import Plan, which would affect time schedule for random selection referred to in Para 4.8.
4.4.4	Likely and approximate last date before which COP will have to be completed, at least one to two months before such a date is likely to arrive.
4.4.5	Stoppage of production/ Import of a specific model, in case this has not been anticipated at the start of the COP period. This should be intimated well in advance so that COP selection of vehicle can be completed by the test Agency before stoppage of production/ Import.
4.5	Manufacturer should request the Test Agency when they would like to make random selection of vehicles and to seek their time table for completing the COP test.
4.6	Manufacturer should provide all the assistance required by the Test Agency for completing the tests.
4.7	The latest updated technical specifications, procedure of Pre-Delivery Inspection (PDI), running-in and servicing of the vehicle, shall also be submitted before the vehicle/engine selection, if there has been revisions after the previous COP/Type Approval. The vehicle manufacturer shall submit the technical specifications of the model / variants along with the CoP test request to the concerned test agency in accordance with the procedures followed for obtaining CMVR Type Approval and as per AIS: 007 as revised / amended from time to time.
4.7.1	The vehicle manufacturer shall submit the brief technical specifications of the model / variants in accordance with Annexure – I along with the CoP test request to the concerned test agency.
4.7.2	After the selection of the sample for CoP, manufacturer, on request of test agency, shall submit the detailed specifications, as per AIS: 007 as revised / amended from time to time, of the selected samples.

4.8	The Test Agency will inform the vehicle Manufacturer, its time schedule for the selection of random sample and for carrying out the COP tests. If the vehicle manufacturer has a problem for this time table for reason such as that particular model is not likely to be scheduled for production at that time, or enough number of vehicles may not be available etc., the time schedule should be modified based on mutual convenience of the manufacturer and test agency.
5.0.	COP PERIOD AND SELECTION OF RANDOM SAMPLE
5.1.	The COP for every vehicle model and its variants shall be carried out once in the period of two years, viz. 1 st April of first year to 31 st March of third year.
5.2.	The period between commencement of production/import of a new model and beginning of next rationalized COP period is less than 2 months; the same would be merged with the rationalized COP period.
5.3.	<p>The number of a specific vehicle model and its variants produced/ imported were less than 250 in any consecutive period of six months in a year, COP should be carried out as per clause No. 6 of this standard.</p> <p>Provided that in case the number of vehicles sold in India for a given base model and its variants (manufactured in India or imported to India) are less than 250 in any consecutive period of six months in a year, then such base model and its variants need not be subjected to the above test, if at least one model or its variants manufactured or imported by that manufacturer or importer, as the case may be, is subjected to such tests at least once in two years;</p> <p>Provided further that, in case the number of base models and its variants manufactured / imported is more than one and if the individual base model and its variants are less than 250 in any consecutive period of six months in a year, then the testing agencies shall pick up one of the vehicles out of such models and their variants once in two years for carrying out COP test.</p>
5.4	If manufacturer produces a vehicle model in more than one plant, the test agency may randomly choose one plant for COP compliance checking among all the plants in which model is produced. Sample selection for COP and extended COP tests shall be from the same plant. When a vehicle model is approved for COP in one plant, it shall be deemed to be compliant to COP in all the plants in which it is produced. Similarly, when a vehicle model failed to meet COP in one plant, it shall be deemed to be failed to meet COP in all the plants in which it is produced. To the extent possible, the test agency shall select successive vehicle models for COP compliance checking from different plants at random in order to cover all plants of the company in the shortest time possible.
6.0.	CHECKS ON CONFORMITY OF PRODUCTION BY THE TESTING AGENCY
6.1.	<p>General :</p> <p>These requirements are consistent with the test to be held to check conformity of production according to this procedure. The CoP shall be applicable to every model and its variant as per the Type Approval obtained by the Vehicle Manufacturer with the test agency.</p>
6.2.	Running in :

	The randomly selected vehicle shall be run in by the vehicle manufacturer as recommended by the concerned vehicle manufacturer under strict supervision and control, before the vehicles are tested by the respective test agency. After this, the manufacturer will be permitted by the test agency to carry out all the adjustments recommended in his user's/service manual and as amended and intimated to the concerned test agency from time to time, under the control of test agency.
[6.2.1	As an alternative to the running in procedure, manufacturer can use a fixed evolution coefficient (EC) of 0.92 and multiply all values of CSFC measured at zero km by this factor.]
6.3.	<p>Testing procedure :</p> <p>The test procedure shall be as described in IS 11921. Fully built vehicles shall be tested in the fully built form as submitted by the vehicle manufacturer. In case of incompletely built vehicles, the tests shall be conducted on the vehicle with the fitment of a test cabin and load body as recommended by the vehicle manufacturer.</p>
6.4.	<p>Sampling :</p> <p>Two vehicles has to be randomly chosen from a sample size of at least 5 vehicles. One vehicle will be subjected to test while the second vehicle will be kept as standby.</p>
7.0	Extended COP Tests
7.1	If the first sample tested for COP fails to meet COP requirements as mentioned in clause 8, the test agency shall select 2 additional samples (i.e., cumulative sample of 3 vehicles including the first vehicle) and conduct extended COP test. Table-2 shall be followed for sample selection and to decide pass/fail of COP tests in conjunction with clause 8.
7.1.1	In the case of 10.1, the samples should be offered for random selection within four weeks of start of production / import without implementing any design / production modifications which would affect performance.
7.1.2	The test agency shall endeavour to complete further testing of the samples of the vehicles selected according to 10.2 within 6 weeks from the date of selection of the samples. If the vehicle selected as per 10.2 meets the requirements of COP as per sampling plan prescribed in the Table 2, the test agency will issue a COP test report and COP certificate to the manufacturer.
7.2	<p>For each of the tests, the following procedure is used where the test statistic is the number of vehicles which have not met the limit criteria as mentioned in clause 8 for the tests:</p> <p>(i) If the test statistic does not exceed the pass decision number for the sample size given in the following table, a pass decision is reached for the test,</p> <p>(ii) If the test statistic equals or exceeds the fail decision number for the sample size given in the following table, a fail decision is reached for the test,</p> <p>(iii) Otherwise, an additional vehicle is tested and the procedure is applied to the sample with one extra unit.</p>

Table-2 Sampling Plan for Extended COP Tests and Pass/Fail Decisions

Cumulative Sample Size	Pass Decision Number (i.e., if no. of samples failed do not exceed these numbers)	Fail Decision Number (i.e., if no. of samples failed equals or exceeds these numbers)
1	0	-
3	1	-
4	1	-
5	1	5
6	2	6
7	2	6
8	3	7
9	4	8
10	4	8
11	5	9
12	5	9
13	6	10
14	6	11
15	7	11
16	8	12
17	8	12
18	9	13
19	9	13
20	11	12

8.0	COP REQUIREMENTS
8.1	The vehicle model shall meet the prescribed Constant Speed Fuel Consumption limits defined in the BEE notification carried out as per notification and Advisory note of MoRTH.
8.2	A tolerance of +10 percent (on account of vehicle & test variations, atmospheric conditions, calibrations & test equipment accuracies) shall be allowed on the CSFC limits (in L/100km) notified by BEE for type approval to judge whether the test value of the sample meets the requirements of CSFC limits as stated in 8.1 above. This tolerance shall also be applicable to all the samples in the extended COP tests done as per para 7.0.
9.0	COP CERTIFICATE

	If the vehicle meets the requirements of COP, the test agency will issue a COP certificate to the manufacturer. The certificate for COP will cover the vehicle model and its variants produced/planned to be produced during the COP interval. The CoP report and CoP certificate shall be as per the format given in Annexures II and III respectively.
10.0	CONSEQUENCES OF FAILURE / NON COMPLIANCE / NON SUBMISSION
10.1.	If the vehicle fails to meet the requirements of COP (including extended COP tests), the testing agency shall send the copies of the test report to the nodal agency and the vehicle manufacturer. The nodal agency will make a decision and convey the same to the manufacturer and test agencies within 4 weeks of the receipt of the failure report of the COP, after calling for a Standing Committee meeting to discuss and advise the nodal agency. The vehicle manufacturer will be given an opportunity to present his case to the committee before advising the nodal agency. Based on the recommendations of the committee, the nodal agency may issue the order for withdrawal of type approval certificate and stop dispatch of the vehicles by the manufacturer from his works.
10.2.	<p>In case the type approval certificate has been withdrawn as per Para 10.1 above, the manufacturer can subsequently identify the reason for not meeting the COP and necessary corrective measures. Then they should inform the same to the Nodal and concerned test Agency and offer the rectified vehicle for testing. The test agency will carry out a complete test as per the relevant type approval procedure on this rectified vehicle. If the modifications are only in the production process without involving any model change, it should meet the COP norms. If the modifications call for changes resulting in a model change, it should meet the type approval norms. If the modified vehicle passes the relevant norms, the manufacturer will write to the Nodal and concerned Test</p> <p>Agency which has carried out the test, the modifications which are to be finally carried out on the vehicles to be produced/ Imported in future and the vehicles which require retrofitting/rectifications. Type approval will be restored by the nodal agency subject to Para 10.5. Further, a special COP will be carried out within a month, if a regular COP is not scheduled within that period. If the regular COP is scheduled within that period, a special COP need not be carried out.</p>
10.3.	The manufacturer can also offer the rectified vehicle from serially produced vehicles, for random selection if the changes do not constitute a model change. In case the manufacturer offers serially produced vehicle for random selection instead of a submitted sample, the special COP mentioned above need not be carried out.
10.4.	If a manufacturer identifies the reason for not meeting the COP and the necessary corrective actions (if the corrective measures do not constitute a model change), when actions under preceding 7.1 to 10.3 are on-going, the manufacturer should inform the same to the Nodal and concerned test Agency and request to abort the actions on-going under Para 7.1 to 10.3 and offer the vehicle for carrying out the tests as per Para 10.2 and 10.3 Then the testing agency will carry out the test as per Para 10.2 and 10.3 and report the results to the nodal agency. If the vehicle meets the requirements, then the nodal agency will instruct the test agency to issue the COP certificate along with instructions to the manufacturer to carry out corrective actions, if any, within a stipulated period as per Para 10.5. The COP certificate will be issued by the test agency after the special COP vehicle meets the requirements, if the case calls for it. If the vehicle does not meet the requirements, action under Para 10.1 will follow.
10.5.	It is the responsibility of the manufacturer to ensure at his cost that the modifications / modified components are carried out / retrofitted, within a period specified by the nodal

	agency, on all the vehicles produced /dispatched in the period between the dates of which the COP became due as per Para 4.0 and restoration of the type approval by the nodal agency as per Para 10.2 or when the nodal agency has informed the test agency and the manufacturer as per Para 10.4.
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ANNEXURE – I

Brief technical specifications of the model / variants to be submitted by vehicle
manufacturer

(To be included))

ANNEXURE – II

Format for CoP report

(To be included))

ANNEXURE – III

Format for CoP certificate

(To be included))

~~ANNEXURE – I~~ ANNEXURE – IV

(See Introduction)
COMPOSITION OF AISC PANEL*

Panel convenor	
Mrs. Rashmi Urdhwareshe	Director, ARAI
Members	Representing
Shri Sumant Kumar	PCRA
Shri. Rajiv Khanna	PCRA
Shri Prashant Rawat	PCRA
Shri Rajiiv Mishra	PCRA
Shri Saurabh Diddi	BEE
Shri Sumit Solanki	BEE
Shri A. A. Badusha	ARAI
Shri K. Srinivas	ARAI
Shri M. V. More	ARAI
Shri Kamalesh Patil	ARAI
Shri N. H. Walke	ARAI
Shri Samir Sattigeri	CIRT
Shri Manohar Choudhari	CIRT
Shri Vaibhav Yadav	ICAT
Shri Vinod Kumar	VRDE
Shri Kannan	VRDE
Shri Atanu Ganguli	SIAM
Shri Dr. A. K. Jindal	SIAM (Tata Motors Ltd.)
Shri P. S. Gowrishankar	SIAM (Tata Motors Ltd.)
Shri Dr. P. Sivakumar	SIAM (Tata Motors Ltd.)
Shri K. Veeramani	SIAM (Tata Motors Ltd.)
Shri S. Ravishankar	SIAM (Ashok Leyland Ltd.)
Shri. D. Balakrishnan	SIAM (Ashok Leyland Ltd.)
Shri M. Ravi	SIAM (Ashok Leyland Ltd.)
Shri D. Karthikeyan	SIAM (Daimler India Commercial Veh. Pvt. Ltd.)
Shri V. G. Kulkarni	SIAM (Mahindra & Mahindra Ltd. -Truck & Bus Division)
Shri Milind Deshmukh	SIAM (Mahindra & Mahindra Ltd.)
Shri Deepak Vashista	SIAM (SML Isuzu Ltd.)
Shri Sachin Bhat	SIAM (SML Isuzu Ltd.)
Shri Mohit Gupta	SIAM (SML Isuzu Ltd.)

Shri Ashish Moholkar	SIAM (VE Commercial Vehicles Ltd.)
Shri Vinod R. Pawar	SIAM (VE Commercial Vehicles Ltd.)
Shri Anuradda Ganesh	Cummins India
Shri Jugal Mittal	Cummins India

~~ANNEXURE – II~~ ANNEXURE – V

(See Introduction)

COMMITTEE COMPOSITION *

Automotive Industry Standards Committee

To be included

* At the time of approval of this Automotive Industry Standard (AIS)