AUTOMOTIVE INDUSTRY STANDARD

Code of Practice for Type Approval of Modular Hydraulic Trailers towed by Puller Tractor of Category N3

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ON BEHALF OF
AUTOMOTIVE INDUSTRY STANDARDS COMMITTEE

UNDER
CENTRAL MOTOR VEHICLE RULES – TECHNICAL STANDING COMMITTEE

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

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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, has published this standard. For better dissemination of this information ARAI may publish this document on their Web site.

The need for transportation of heavy and over-dimensional cargo is increasing continuously due to big projects and advancement in technology. Multi axle modular hydraulic trailer (MHT) is trailer module intended for transportation of indivisible heavy or over-dimensional cargo.

Ministry had received representations from Hydraulic Trailers Owners Association (HTOA) regarding the difficulties in registration of operation of their trailers in various states. Accordingly, MORTH directed to modify CMVR provisions. Committee formed under Director ARAI formulated the norms, these norms are issued in the form of notifications by MORTH viz. GSR 212 (E) and SO 1434 (E) and are established under CMVR. Notification SO 1434 (E) is superseded by SO 3467(E) dated 16th July 2018 and SO 3881 (E) dated 6th August 2018.

MORTH further directed to formulate Automotive Industry Standard on the subject.

While formulating AIS, to have combination of puller tractor and modular hydraulic trailer more road worthy and to facilitate administrative procedures following minimum requirements are added compared to the above notifications:

1. Maneuverability requirements
2. Draw bar Coupling
3. Draw Bar Eye
4. EMC/EMI: If fitted with electronic components
5. Technical specifications to be submitted while type approval
6. Clarity on registration procedure

Considering 25 km/h max. speed of puller tractor, speed of combination will not exceed 25 km/h, hence ABS requirement for MHT is not mandated presently.

The AISC panel and the Automotive Industry Standards Committee (AISC) responsible for preparation of this standard are given in Annexure-3 and Annexure-4.

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Code of Practice for Type Approval of Modular Hydraulic Trailers towed by Puller Tractor of Category N3

1.0 SCOPE

This standard lays down the requirements applicable to Modular Hydraulic Trailers (MHT) towed by Puller Tractor of Category N3. This code is applicable to modular hydraulic trailers upto and including single module of eight axle lines with two axles in a row.

Note: This code is not applicable to larger combination with more than eight axle lines, its movement shall be subjected to approval from concerned authorities.

2.0 REFERENCES

2.1 GSR 212 (E) dated 20th March 2015

2.2 SO 3467(E) dated 16th July 2018 and SO 3881 (E) dated 6th August 2018.

3.0 DEFINITIONS: For the purposes of this standard following definitions shall apply

3.1 **"Modular Hydraulic Trailer*"** means a trailer module intended for carrying indivisible heavy or over-dimensional cargo and having the following features namely:-

(i) Swing axles with hydraulic suspension;

(ii) Independently steerable axles;

(iii) Two or more axle rows;

(iv) Suitable arrangement for joining such modules; Longitudinally or laterally or both;

(v) Suitable provision for joining such separate modules with spacer beam arrangement or by bolster arrangement or by girder bridge arrangement or by loading deck arrangement;

(vi) Suitable drawbar arrangement for being pulled or pushed or self-propelled;

(vii) Fitted with suitable braking system.

(viii) May also be fitted with a Goose-neck Coupling and loading arrangement on the fifth wheel of the puller tractor, intended to provide an alternative to the separate ballast weight requirement on puller tractor.

***Note:** Modular Hydraulic Trailer or MHT or trailer mentioned in this standard has the same meaning.

Explanation: For the purpose of this clause, the expressions, -

(i) "spacer beam arrangement" shall mean the arrangement of rigid steel frame used for joining two separate modular hydraulic trailer units to form a single rigid chassis for movement of long indivisible cargo.

(ii) "bolster arrangement" shall mean the arrangement of two separate units of modular hydraulic trailer mounted with turn tables and the cargo rests on the turn tables, whereby cargo structure itself acts as long member of trailer chassis.

(iii) "girder bridge arrangement" shall mean the arrangement of two separate units of modular hydraulic trailers mounted with turn tables, and cargo is placed on a steel girder, which is then mounted on modular hydraulic trailer, whereby the steel girder acts as the long member of the trailer chassis.

(iv) "loading deck arrangement" shall mean the arrangement of two separate units of modular hydraulic trailers mounted with turn tables, and cargo is placed on a loading deck, which is then mounted on both modular hydraulic trailers, whereby the loading deck acts as the long member of the modular hydraulic trailer chassis.

3.2 **"Puller Tractor"** means a multi-axle haulage tractor of category N3 vehicle as defined in GSR 212 (E) dated 20th March 2015.

4.0 GENERAL REQUIREMENTS

4.1 **Axle Loading:** The permissible load on the axles of puller tractor and modular Hydraulic Trailer shall be as per notifications SO 3467(E) dated 16th July 2018 and SO 3881(E) dated 6th August 2018.

4.2 **Dimensional Requirements:** The overall dimensional requirements for puller tractor and modular Hydraulic trailers shall be as under :

4.2.1 **Overall Length**: As defined under CMV Rule 93:

Overall length of puller tractor : 10 m maximum

Overall length of modular Hydraulic trailers, any single module with maximum eight axle rows : 19 m maximum

Overall length of puller tractor and modular hydraulic trailer combination shall not exceed 29 metres

Note: The overall length of combination is measured between the fronts of the puller tractor to the rear most part of the trailer. However when pushing tractor are provided the overall length of combination is measured between the fronts of the puller tractor to the rear most part of the pushing tractor.

4.2.2 **Overall Height**: 4.75 m maximum for modular Hydraulic trailers in travel mode

4.2.3 **Overall Width** : 3 m maximum as specified under CMV Rule 93 (1C)

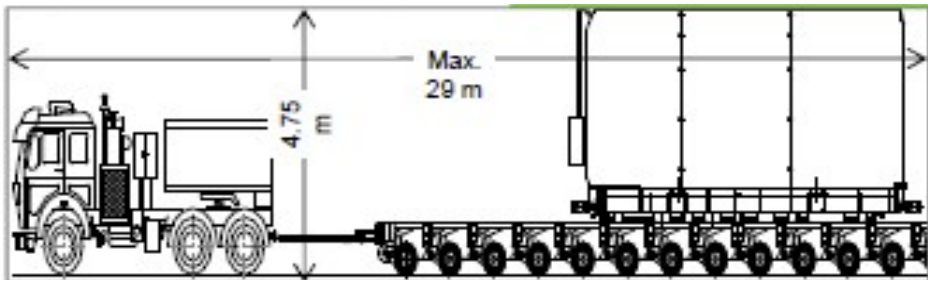

Figure 1
Schematic for height and length as example

4.3 **Rear Under run Protection:** The requirements of rear under run protection is not applicable to modular Hydraulic trailers.

4.4 **Lateral Under run Protection:** The requirements of lateral under run protection is not applicable to modular Hydraulic trailers.

4.5 **Use of beacon or blinking lamp on puller tractor:-** The puller tractor shall be fitted with two beacon or blinking lamps, which are amber in color, on top of the cabin.

5.0 TECHNICAL REQUIREMENTS: During type approval of Modular Hydraulic Trailer following requirements are to be complied with

	CMV Rule or standard	Requirements to be complied with
5.1	Limited road trials Rule 95 D	Hydraulic Modular Trailer with GVW or max load to run for 100 km preferably on plain road with speed less than 10 km/hr.
5.2	Light Installation as per Rule 102 sub-rule (4), (i) as per AIS-008(Rev. 1)	Two electrical stop lamp required, it shall be red coloured and fitted on left and right side at rear of Hydraulic Trailer.
5.3	Light Installation as per Rule 102 sub rule (4), (ii) as per AIS-008(Rev. 1)	Stop lamp should light up on actuation of service brakes controls from puller tractor.
5.4	Light Installation as per Rule 102 sub rule (4), (iii) as per AIS-008(Rev. 1)	Two direction indicators of amber colour at rear shall be fitted , illumination- area-60 sq. cm
5.5	Retro reflective tape installation. Rule 104 D (1) AIS-090:2005	Reflective tape width min- 50 mm complying to AIS-090:2005 Two red reflective tapes at rear and front. Amber reflective tape on sides.
5.6	Reflex reflector installation. Rule 104 D (2) AIS-057:2005	Reflex reflector area min- 28.5 sq.cm complying to AIS-057:2005 Two red Reflex reflectors at rear and front on left hand side and right hand side. Amber Reflex reflectors on sides close to front end and rear end.
5.7	Trailer Identification plate As per Rule 122 (1B)	As per Annexure 1B of this standard

6.0 APPROVAL OF SAFETY COMPONENTS*: Safety components used for construction of Modular Hydraulic Trailer shall be in accordance with following requirements

6.1	Tyres*	IS 15636:2005. Max load of trailer should be with tyre loading limits
6.2	Wheel rims	IS 9438:1980
6.3	Reflective tapes	Red and Amber should comply to AIS:090:2005
6.4	Reflex reflectors	Red and Amber should comply to AIS:057:2005
6.5	Rear Marking plate	AIS:089
6.6	T- Signs	IS:9942:1981
6.7	Reverse lamp	AIS-008(Rev. 1)
	Rear registration plate lamp	
	End outline marker lamp	
	Front position lamp	

*** Note:** 1. For compliance to this clause, any equivalent national or international standards IS / AIS /UN Regulation/ Japan Automobile Tyre Manufacturers Association (JATMA)/ European Tyre and Rim Technical Organisation (ETRTO)/ The Tyre and Rim Association Inc. (TRA)/ Indian Tyre Technical Advisory Committee (ITT'AC), etc. may be referred.

2. The tyre of modular hydraulic trailers shall have load carrying capacity as specified by the tyre manufacturer, however, the maximum load specified by the modular hydraulic trailers manufacturer shall not be greater than that permitted by the tyre manufacturer.

7.0 SERVICE BRAKES FOR MODULAR HYDRAULIC TRAILERS – CONSTRUCTIONAL AND FUNCTIONAL REQUIREMENTS

7.1 Service brakes of modular hydraulic trailers shall comply with provisions specified in CMV Rule 97, Sub-rule (1)

8.0 ADDITIONAL REQUIREMENTS COMPARED TO GSR 212 (E)

8.1 **Draw bar Coupling:** The draw bar and draw bar coupling shall comply with the requirements specified in AIS-091(Part 1) as amended from time to time.

8.2 **Draw Bar Eye:** The draw bar eye shall meet the requirements of AIS-091 (Part 1) as amended from time to time.

8.3 **EMC/EMI requirements:** If electronic components are fitted, they shall comply with provisions of AIS-004 (Part 3).

8.4 **Maneuverability requirements:** Tractor-Trailer combination shall comply with the maneuverability requirements, as laid down under clause 5.0 of IS 12222:2011 as amended from time to time.

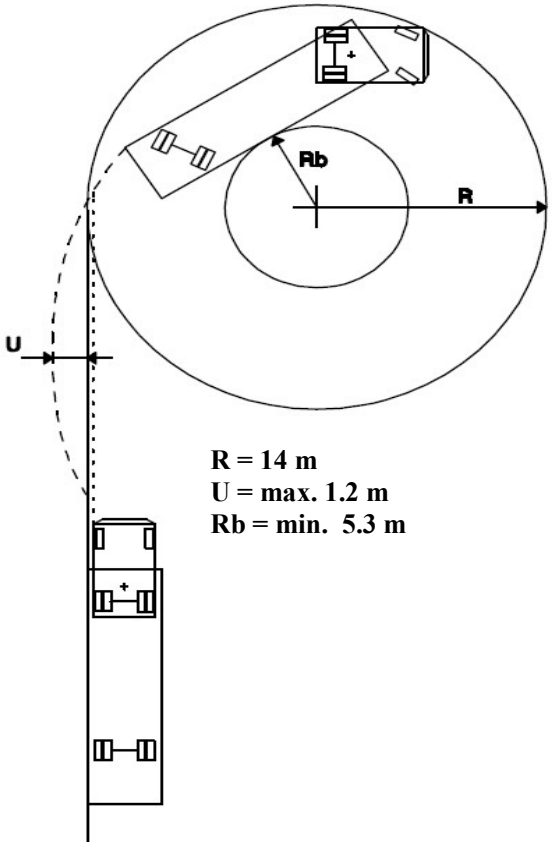

Figure-2 :
Vehicle Maneuverability

8.5 **Lashing arrangement -** MHT must be equipped with lashing arrangement on both sides across the length of trailer at a maximum gap of every 3 meters. Lashing arrangement shall comply with provisions of BS-EN-12640:2001 or suitable IS/ISO.

8.6 **Parking Brake** - MHT shall be equipped with a mechanical parking brake system which is to be used when trailer is in idle condition whether empty or loaded.

8.7 **Hydraulic Oil Tank** - MHT shall be equipped with a tank of minimum 100 litres capacity for storage of hydraulic oil and fitments for connection with power pack and pipe line for hydraulic mechanism of the trailer.

8.8 **Hose pipe:** Hose pipes used in modular hydraulic trailer shall be IS 7079: 2008 compliant. To safeguard modular hydraulic trailer from the hose pipes burst or damage minimum two number of hose burst valves / safety valves per axle line shall be provided.

9.0 TYPE APPROVAL OF TRAILERS

9.1 The modular hydraulic trailer manufacturers shall have their prototype model of trailer approved from any of the test agencies referred in Rule 126 of Central Motor Vehicle Rules, 1989.

9.2 The type approval shall be offered by the testing agencies after necessary compliance to the requirements stated in this standard.

10.0 TECHNICAL INFORMATION TO BE SUBMITTED BY MHT MANUFACTURER OR IMPORTER

10.1 The modular hydraulic trailer manufacturer or importer shall submit the necessary technical details of the trailers to the test agencies as per Annexure-1 and as per provisions of this standard. While registration of MHT, Annexures 1A and 1B to be submitted to registering authority.

10.2 The modular hydraulic trailer manufacturer or importer shall submit the details of Trailer Identification Number as per paragraph 5.7 of this standard. It should be punched at the readily accessible position on a part which is normally not likely to be replaced during use.

10.3 Other necessary details regarding compliance to the relevant Indian Standards for the safety critical components shall also be submitted to the testing agencies.

11.0 CHANGES IN TECHNICAL SPECIFICATIONS ALREADY TYPE APPROVED

11.1 Every modification pertaining to the information declared in accordance with clause 11 shall be intimated by the manufacturer to the certifying agency.

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

If the changes are in parameters related to the provisions, the Testing Agency shall then consider, whether,

a) the model with the changed specifications still complies with provisions;

or

b) any further verification is required to establish compliance.

For considering whether any further verification is required or not, guidelines given in respective standard shall be used.

11.3 In case of 11.2 (b), verification for only those parameters which are affected by the modifications needs to be carried out

11.4 In case of fulfillment of criterion of clause 11.2 (a) or after results of further verification as per clause 11.2 (b) are successful, the approval of compliance shall be extended for the changes carried out.

ANNEXURE – 1
(See 10.1)

TECHNICAL INFORMATION ON MODULAR HYDRAULIC TRAILERS TO BE SUBMITTED BY THE TRAILER MANUFACTURER OR IMPORTER TO TESTING AGENCY

1.0	**Details of Trailer manufacturer**	
1.1	Name & registered address of the trailer manufacturer or importer	
1.2	Telephone No.	
1.3	Fax. No.	
1.4	E-mail address	
1.5	Contact person	
1.6	Address of the Plant(s)of manufacture - if different from 1.1 above	
2.0	**General details of the trailer:**	
2.1	Model name of the trailer	
2.1.1	Number of rows in a single module (max 8 rows only)	
2.2	Type & Brief Description of the MH trailer	
2.3	General arrangement drawing of MH trailer with dimensions mentioned in specs.	
2.4	GVW of the trailer, (kg) per module	
2.4.1	Loads, (kg) :	
2.4.2	Max Permissible weight of trailer, (kg)	
2.4.3	Un-laden weight of trailer, (kg)	
2.4.4	Compatible Puller Tractor Configurations - As per Rule 2 sub-rule (y) of CMVR,1989	
2.5	Maximum Gross Combination Weight (GCW) of the tractor/puller and modular hydraulic trailer, (kg)	
2.5.1	Axles : (Make)	
2.5.2	Number of axles on each row and Description -	Row 1- Row 2- Row 3- Row 4- Row 5- Row 6- Row 7- Row 8-

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2.6	Suspension - Make	
2.6.1	Suspension - Type and Description	
2.6.2	Hydraulic cylinder stroke	
2.6.3	Ride height	
2.6.4	Diameter of cylinder (in mm)	
2.6.5	Suspension configuration-Single	
3.0	**Modular Hydraulic Trailer Dimensions, (mm)**	
3.1	Length of module, (mm)	
3.2	Length with drawbar, (mm)	
3.3	Distance between front bolt-ear coupling and rear bolt ear coupling, (mm)	
3.4	Max Height with max suspension position (un-laden condition), (mm)	
3.5	Min Height with min suspension position (un-laden condition), (mm)	
3.6	Max Height of front bolt-ear coupling in un-laden condition, (mm)	
3.7	Max Height of rear bolt-ear coupling in un-laden condition, (mm)	
3.8	Width of module, (mm)	
3.9	Wheel Track of single axle, (mm)	
3.9.1	Front Body overhang, (mm)	
3.9.2	Rear Body overhang, (mm)	
3.9.3	Distance between center of two axles in one row (provide dimensional drawing), (mm)	
4.0	Draw bar	
4.1	Draw bar pull make	
4.2	Draw bar dimensional drawing	

5.0	**Tyres**	
5.1	Tyre make	
5.2	Size of tyre with speed and load rating.	
5.3	Number of tyres on each axle	
5.4	Number of tyres in each row	
5.5	Tyre type (Radial/cross ply)	
5.6	Static rolling radius	
5.7	Dynamic rolling radius	
5.8	Inflation pressure – Unladen in kg/cm^2 or (kPa)	
5.8.1	Inflation pressure –laden in kg/cm^2 or kPa	
5.9	No. and arrangement of wheels	
5.9.1	1st row	
5.9.2	2nd row	
5.9.3	3rd row	
5.9.4	4th row	
5.9.5	5th row	
5.9.6	6th row	
5.9.7	7th row	
5.9.8	8th row	
6.0	**Chassis Frame**	
6.1	Type	
6.2	Drawing with dimensions	
6.3	Type of loading platform	

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7.0	**Brakes**	
7.1	Type and Brief Description	
7.2	Service brakes	
7.2.1	Make & Model	
7.2.2	Type (Mechanical/hydraulic/air assisted/ vacuum assisted/others)	
7.2.3	Control system & braking wheel	
7.2.4	Schematic layout indicating method of split of brake system, location of valves, reservoirs etc.	
7.3	Anti-Lock braking system Provided (Yes/No)	
7.4	Schematic layout of the brake system	
7.5	Brake lining (or) Pad	
7.5.1	Nominal Dimensions, (mm) (Length x Width x thickness)	
7.5.2	Effective Braking area per axle (cm^2)	
7.5.3	Others (in case of other arrangement, give axle wise data)	
7.5.4	Material	
7.5.5	Make and specification	
7.5.6	Whether asbestos or asbestos-free?	
7.6	Brake drum or disc	
7.6.1	Effective diameter, (mm)	
7.7	Nominal air pressure (P2 as per IS 11852-2001)	
7.7.1	Cut in air pressure	
7.7.2	Cut out air pressure	
7.7.3	Type of vacuum pump or air compressor	

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7.7.4	Type of pressure regulator	
7.7.5	No. of tanks	
7.7.6	Tank Capacity, lit.	
7.7.6.1	Tank 1	
7.7.6.2	Tank 2	
7.7.6.3	Tank 3	
7.7.6.4	Tank 4	
7.8	Brake Chamber	
7.8.1	Make and type	
7.8.2	Size, (mm)	
7.8.3	Internal diameter, (mm)	
7.8.4	Stroke, (mm)	
7.9	Slack adjuster –Automatic	
7.9.1	Make	
7.9.2	Lever length in (mm)	
7.10	Load sensing valve	
7.10.1	Make	
7.10.2	Model No.	
7.10.3	Set pressure, un-laden in kg/cm^2	
8.0	**Axle Steering system**	
8.1	Steering system make	
8.2	Steering system type and description	
8.3	Maximum steering angle in degrees in all heights of a single axle	

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9.0	**Draw bar eye**	
9.1	Size	
9.2	Drawings with dimensions	
9.3	Compliance to IS :12807 or AIS-091(Part 1) (Yes/ No)	
10.0	**Towing devices, if any**	
10.1	Type	
10.2	Name of manufacturer	
10.3	Capacity	
11.0	**Coupling devices, if any**	
11.1	Name of the manufacturer	
11.2	Identification mark	
12.0	Type of coupling device for electrical connections	
12.1	Type of coupling device for brake connections	
13.0	**Safety Critical Components**	
13.1	Wheel rim	
13.1.1	Size	
13.1.2	Name of manufacturer	
13.1.3	Identification mark	
13.1.4	Number of mounting bolts	
13.1.5	Material (Steel/Aluminum alloy etc.)	
13.1.6	Lashing arrangement	
13.1.7	Type of lashing arrangement and numbers	
13.1.8	Capacity of type of Lashing arrangement	

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14.	**Reflector and reflective tapes**	
14.1	Reflector :	
14.1.1	Rear reflector	
14.1.1.1	Make	
14.1.1.2	Type	
14.1.1.3	Identification: TAC No./BIS Licence No./E-Marking	
14.1.1.4	Number and colour of Lens	
14.1.1.5	Reflective Surface Area	
14.1.1.6	Shape(Square/Rectangular/Circular/Elliptical/Other)	
14.1.2	Side reflectors	
14.1.2.1	Make	
14.1.2.2	Type	
14.1.2.3	Identification: TAC No./BIS Licence No./E-Marking	
14.1.2.4	Number and colour of Lens	
14.1.2.5	Reflective Surface Area	
14.1.2.6	Shape(Square/Rectangular/Circular/Elliptical/Other)	
14.2	Reflective tape :	
14.2.1	Rear	
14.2.1.1	Make	
14.2.1.2	Type	
14.2.1.3	Identification: TAC No./BIS Licence No./E-Marking	
14.2.1.4	Width in (mm)	

15.0	**T-sign (as per IS 9942)**	
15.1	Make	
15.2	Identification mark	
16.0	**Rear Marking plate (as per AIS-089)**	
16.1	Make	
16.2	Identification mark	
17.0	**Electrical items**	
17.1	Rear Fog Lamp :	
17.1.1	Make	
17.1.2	Type of lens (Glass / Plastic)	
17.1.3	Identification: TAC No./BIS Licence No./E-Marking	
17.1.4	Number and Colour of Lens	
17.2	Registration Plate lamp :	
17.2.1	Make	
17.2.2	Type of lens (Glass / Plastic)	
17.2.3	Identification: TAC No./BIS Licence No./E-Marking	
17.2.4	Number and colour of Lens	
17.3	Rear Position Lamp	
17.3.1	Make	
17.3.2	Type of lens (Glass / Plastic)	
17.3.3	Identification: TAC No./BIS Licence No./E-Marking	
17.3.4	Number and colour of Lens	
17.4	Rear Parking Lamp	
17.4.1	Make	
17.4.2	Type of lens (Glass / Plastic)	
17.4.3	Identification: TAC No./BIS Licence No./E-Marking	
17.4.4	Number and colour of Lens	

17.5	Stop lamp (S1 / S2)	
17.5.1	Make	
17.5.2	Type of lens (Glass / Plastic)	
17.5.3	Identification: TAC No./BIS Licence No./E-Marking	
17.5.4	Number and colour of Lens	
17.6	Reversing lamp :	
17.6.1	Make	
17.6.2	Type of lens (Glass / Plastic)	
17.6.3	Identification: TAC No./BIS Licence No./E-Marking	
17.6.4	Number and colour of Lens	
17.7	Direction indicator Lamp :	
17.7.1	Rear	
17.7.1.1	Make	
17.7.1.2	Type of lens (Glass / Plastic)	
17.7.1.3	Identification: TAC No./BIS Licence No./E-Marking	
17.7.1.4	Number and colour of Lens	
17.7.2	Side	
17.7.2.1	Make	
17.7.2.2	Type of lens (Glass / Plastic)	
17.7.2.3	Identification: TAC No./BIS Licence No./E-Marking	
17.7.2.4	Number and colour of Lens	
17.7.3	Type of flasher	

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17.8	Hazard warning signal :	
17.8.1	Rear	
17.8.1.1	Make	
17.8.1.2	Type of lens (Glass / Plastic)	
17.8.1.3	Identification: TAC No./BIS Licence No./E-Marking	
17.8.1.4	Number and colour of Lens	
17.8.2	Side	
17.8.2.1	Make	
17.8.2.2	Type of lens (Glass / Plastic)	
17.8.2.3	Identification: TAC No./BIS Licence No./E-Marking	
17.8.2.4	Number and colour of Lens	
17.9	Side Marker lamps	
17.9.1	Make	
17.9.2	Identification: TAC No. / BIS License No. / E-Marking	
17.9.3	Number and Colour of Lens	
18.0	Any other details, please specify	
19.0	**Automotive bulbs :**	
19.1	Parking Lamp bulb – Rear	
19.1.1	Make	
19.1.2	Designation as per AIS-034	
19.1.3	Identification: TAC No./BIS Licence No./E-Marking	
19.2	Direction indicator lamp bulb -rear	
19.2.1	Make	
19.2.2	Designation as per AIS-034	
19.2.3	Identification: TAC No./BIS Licence No./E-Marking	

19.3	Direction indicator lamp bulb -side	
19.3.1	Make	
19.3.2	Designation as per AIS-034	
19.3.3	Identification: TAC No./BIS Licence No./E-Marking	
19.4	Rear Position Lamp (tail lamp)Bulb	
19.4.1	Make	
19.4.2	Designation as per AIS-034	
19.4.3	Identification: TAC No./BIS Licence No./E-Marking	
19.5	Stop lamp bulb	
19.5.1	Make	
19.5.2	Designation as per AIS-034	
19.5.3	Identification: TAC No./BIS Licence No./E-Marking	
19.6	Number plate lamp bulb	
19.6.1	Make	
19.6.2	Designation as per AIS-034	
19.6.3	Identification: TAC No./BIS Licence No./E-Marking	
19.7	End out Marker bulb	
19.7.1	Make	
19.7.2	Designation as per AIS-034	
19.7.3	Identification: TAC No./BIS Licence No./E-Marking	
19.8	Reversing lamp bulb	
19.8.1	Make	
19.8.2	Designation as per AIS-034	
19.8.3	Identification: TAC No./BIS Licence No./E-Marking	
19.9	Stop Lamp Bulb (S3)	
19.9.1	Make	
19.9.2	Designation as per AIS-034	
19.9.3	Identification: TAC No./BIS Licence No./E-Marking	

19.10	Rear Fog Lamp Bulb	
19.10.1	Make	
19.10.2	Designation as per AIS-034	
19.10.3	Identification: TAC No./BIS Licence No./E-Marking	
19.11	Side Marker Lamp Bulb	
19.11.1	Make	
19.11.2	Designation as per AIS-034	
19.11.3	Identification: TAC No./BIS Licence No./E-Marking	

Manufacturer :	**Document No :**	**Test Agency :**	**Cert No :**
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		Name	
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ANNEXURE – 1A
(See 10.1)

BRIEF SPECIFICATIONS FOR MODULAR HYDRAULIC TRAILERS TO BE SUBMITTED BY THE TRAILER MANUFACTURER OR IMPORTER TO THE REGISTERING AUTHORITY

1.0	**Details of Trailer manufacturer**			
1.1	Name & address of the trailer manufacturer or importer			
1.2	Telephone No.			
1.3	Fax. No.			
1.4	E-mail address			
1.5	Contact person			
1.6	Address of the Plant(s)of manufacture or importer			
2.0	**General details of the trailer:**			
2.1	Model name of the trailer			
2.1.1	Number of rows (max 8 rows only) in a single module			
2.2	Type & Brief Description of the MH trailer			
2.3	General arrangement drawing of MH trailer with dimensions mentioned in specs.			
2.4	GVW of the trailer, (kg) per module			
2.4.1	Loads, (kg) :			
2.4.2	Max Permissible weight of trailer, (kg) as independent module			
2.4.3	Un-laden weight of trailer, (kg)			
2.4.4	Compatible Puller Tractor Configurations - As per Rule 2 sub-rule (y) of CMVR, 1989			
2.5	Maximum Gross Combination Weight (GCW) of the tractor/puller and modular hydraulic trailer, (kg)			
2.5.1	Axles : (Make)			
2.5.2	Number of axles on each row and Description -	Row 1- Row 3- Row 5- Row 7-	Row 2- Row 4- Row 6- Row 8-	

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3.0	**Modular Hydraulic Trailer Dimensions, (mm)**	
3.1	Length of module, (mm)	
3.2	Length with drawbar, (mm)	
3.3	Max Height with max suspension position (un-laden condition), (mm)	
3.4	Min Height with min suspension position (un-laden condition), (mm)	
3.5	Width of module, (mm)	
3.6	Wheel Track of single axle, (mm)	
3.6.1	Front Body overhang, (mm)	
3.6.2	Rear Body overhang, (mm)	
4.0	Colour of the trailer	
4.1	Draw bar	
4.1.1	Make	
4.1.2	Model	
4.1.3	Length (in mm)	
5.0	**Tyres**	
5.1	Tyre make	
5.2	Size of tyre with speed and load rating.	
5.3	Inflation pressure – Unladen in kg/cm^2 or (kPa)	
5.3.1	Inflation pressure –laden in kg/cm^2 or kPa	
6.0	**Brakes**	
6.1	Type and Brief Description	
6.2	Service brakes	
6.2.1	Name of producer	
6.2.2	Type (Mechanical/hydraulic/air assisted/ vacuum assisted/others)	
6.3	Brake lining (or) Pad	
6.3.1	Nominal Dimensions, (mm) (Length x Width x thickness)	
6.3.2	Effective Braking area per axle (cm^2)	

Manufacturer :	**Document No :**	**Test Agency :**	**Cert No :**
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7.0	**Axle Steering system**	
7.1	Steering system type and description	
8.0	Draw bar eye	
8.1	Size	
8.3	Compliance to AIS-091(Part 1) (Yes/ No)	
9.0	Towing devices, if any (Provide details)	

Manufacturer :	**Document No :**	**Test Agency :**	**Cert No :**
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ANNEXURE 1- B

DETAILS OF LOCATION OF MODULAR HYDRAULIC TRAILER IDENTIFICATION NUMBER AND CODE FOR MONTH AND YEAR OF MANUFACTURE

Name of the Trailer Manufacturer & Address :	
Name of the basic model :	
Name of Variants, if any :	
Place of embossing or etching the trailer identification number details by drawing or pictures may be provided if necessary	
Position of the code for month of production in the Modular Hydraulic Trailer Identification Number	
Position of the code for year of production in the Modular Hydraulic Trailer Identification Number	
Height of the Modular Hydraulic Trailer Identification Number – Min. 7 (mm)	

Month	Code used	Year	Code used
January	A	2016	16
February	B	2017	17
March	C	2018	18
April	D	2019	19
May	E	2020	20
June	F	2021	21
July	G	2022	22
August	H	2023	23
September	J	2024	24
October	K	2025	25
November	L	2026	26
December	M	2027	27
	codes are examples manufacturer can use own letters		codes are examples manufacturer can use own letters

Below plate on trailer chassis needs to be permanently fixed.

In case of any wrong punching, the procedure for making the correction as indicated in AIS-065 shall be followed.

NAME OF THE MODULAR HYDRAULIC TRAILER MANUFACTURER	
Type Approval Number:	**Trailer Identification Number**
Model Name	**No of rows in independent module**
Date of Manufacturing Month and Year	**Max permissible weight of independent module**

Manufacturer :	**Document No :**	**Test Agency :**	**Cert No :**
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MODULAR HYDRAULIC TRAILER IDENTIFICATION NUMBER

1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
Mfr. Name			Trailer Abbreviation			Axles		No. of rows in Indepe-ndent module	Overall Length	Month	Year		Serial Number			
EXAMPLE																
T	**D**	**L**	**M**	**H**	**T**	**0**	**5**	**8**	**F**	**K**	**0**	**8**	**1**	**2**	**3**	**4**

Manufacturers Name:

It is a three letter code, which can be assigned to respective trailer manufacturer and registered to BIS through ISO. (Or) the respective trailer manufacturer may assign as per his own choice.

For Overall Length (in mm):

Sr. No.	Overall Length of module (mm)	Code
1)	Upto 3000	A
2)	3000 -4500	B
3)	4500-6000	C
4)	6000-7500	D
5)	7500-9000	E
6)	9000-10500	F
7)	10500-12000	G
8)	12000-13500	H
9)	13500-15000	J
10)	15000-16500	K
11)	16500-18000	L
12)	18000-19000	M

For Month: A – January; B – February ; C- March; D - April ; E- May ; F - June ; G – July ; H - August; J – September ; K – October ; L – November ; M – December.

ABBREVIATIONS:

2.1	Modular Hydraulic Trailer	MHT

Manufacturer :	**Document No :**	**Test Agency :**	**Cert No :**
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ANNEXURE - 2

GUIDELINES FOR REGISTRATION OF MODULAR HYDRAULIC TRAILERS (MHT)

a) Trailer manufacturer or importer would submit trailer(s) for testing at an approved test agency (as notified under Rule 126 of CMVR). For Type Approval purpose, arrangement of puller tractor would have to be made by MHT manufacturer.

b) Test agency will issue the type approval certificate to manufacturer or importer, in accordance with procedure laid down in this standard.

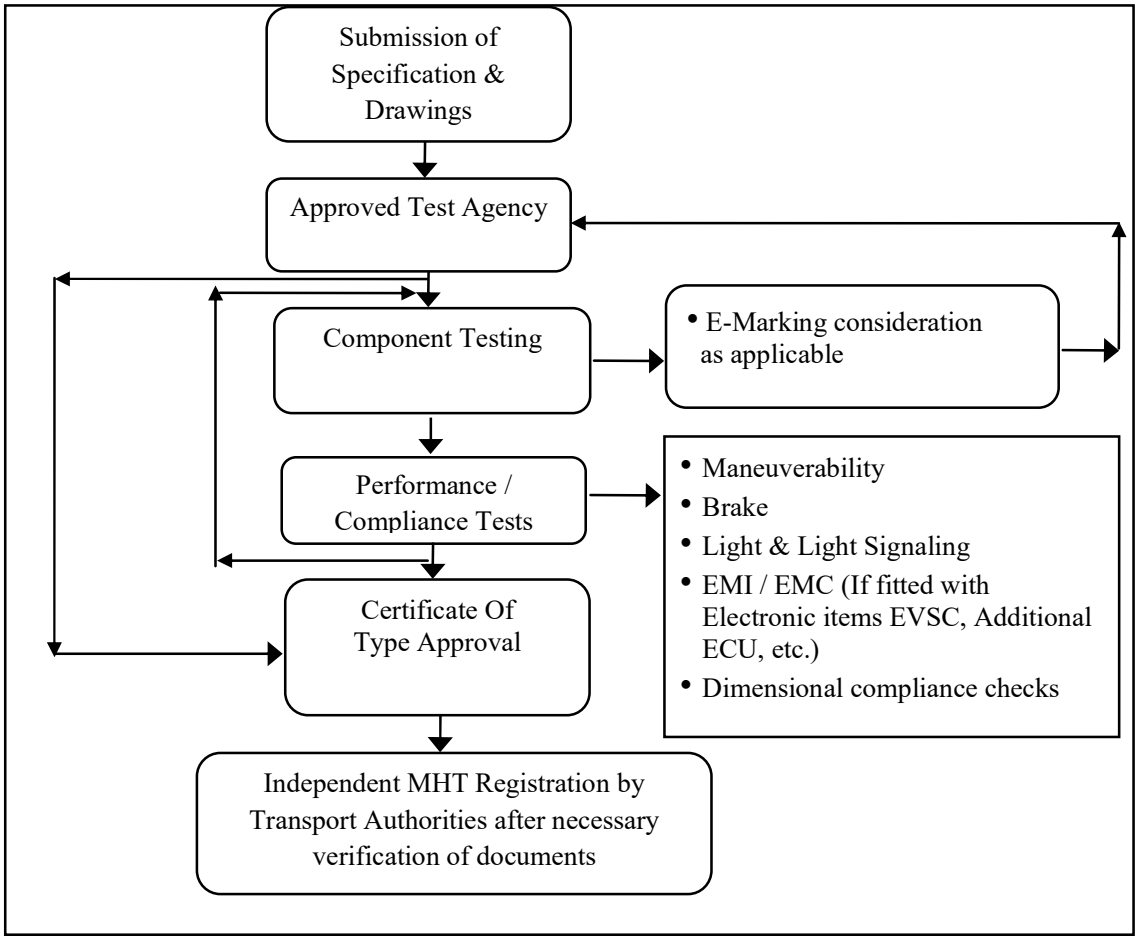
c) Thereafter, MHT manufacturer or importer would submit notarized copies of the Compliance Certificate to the Registering Authorities of respective States, for registration purpose.

d) Based on the above, said MHT(s) would be registered at respective States, for practical purposes.

e) With the approval for compliance to this standard, by the test agencies as referred under Rule No. 126 of CMVR, no further approval from any other agency will be required.

f) The activities involved in the approval and registration of MHT are as indicated in the flow chart below.

Flow Chart of Type approval and Registration for trailers



ANNEXURE 3
PANEL COMPOSITION*

Chairman	
Shri A. A. Badusha	ARAI
Members	**Representing**
Shri V. V. Shinde / Shri N.S Mahagaonkar	ARAI
Shri V. P. Rawal	ARAI
Shri S. N. Dhole	CIRT
Shri Prashant Vijay / Shri Mayank	ICAT
Shri R. R. Singh	BIS
Shri S. Ravishankar / Shri V. Faustino	SIAM (Ashok Leyland Ltd)
Shri V. G. Kulkarni	SIAM (Mahindra Truck & Bus Division)
Shri Mahesh Patil	SIAM (Man Trucks)
Shri Kedar Malwade	SIAM (Man Trucks)
Shri P. S. Gowrishankar / Shri Bhole S. S.	SIAM (Tata Motors Ltd.)
Shri Rahul Jain / Shri Vikrant Lokhande	SIAM (VE Commercial Vehicles Ltd.)
Shri Sameer Parikh	Hydraulic Trailer Owners Association
Shri Jignesh Patel	Hydraulic Trailer Owners Association
Shri Manish Kataria	Hydraulic Trailer Owners Association
Shri Zarksis J Parabia	Hydraulic Trailer Owners Association
Dr. Jochen Landes	TII India Pvt. Ltd.
Shri Fabian Waigat	TII India Pvt. Ltd.
Shri Vivek Dashora	TII India Pvt. Ltd.
Shri Neeraj Srivastava	TII India Pvt. Ltd.
Shri Dhaval R. Jadhav / Shri Rajiv Bhagat	BPW
Shri Kiran N. Kadam / Shri Nitin Nijhawan	York India
Shri Raghavendra V. A	Francis Klein
Shri Sandeep Adhav / Shri Amol Salunke	Tata DLT
Shri B. Ramesh	SDR Auto Pvt. Ltd.

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

ANNEXURE 4
(See Introduction)

COMMITTEE COMPOSITION *
Automotive Industry Standards Committee

Chairperson	
Mrs. Rashmi Urdhwareshe	Director The Automotive Research Association of India, Pune
Members	**Representing**
Representative from	Ministry of Road Transport and Highways (Dept. of Road Transport and Highways), New Delhi
Representative from	Ministry of Heavy Industries and Public Enterprises (Department of Heavy Industry), New Delhi
Shri S. M. Ahuja	Office of the Development Commissioner, MSME, Ministry of Micro, Small and Medium Enterprises, New Delhi
Shri Shrikant R. Marathe	Former Chairman, AISC
Shri R.R. Singh	Bureau of Indian Standards, New Delhi
Director	Central Institute of Road Transport, Pune
Director	Global Automotive Research Centre
Director	International Centre for Automotive Technology, Manesar
Director	Indian Institute of Petroleum, Dehra Dun
Director	Vehicles Research and Development Establishment, Ahmednagar
Director	Indian Rubber Manufacturers Research Association
Representatives from	Society of Indian Automobile Manufacturers
Shri R. P. Vasudevan	Tractor Manufacturers Association, New Delhi
Shri Uday Harite	Automotive Components Manufacturers Association of India, New Delhi
Shri K. V. Krishnamurthy	Indian Construction Equipment Manufactures' Association (ICEMA), New Delhi

Member Secretary
Shri Vikram Tandon
Dy. General Manager
The Automotive Research Association of India, Pune

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