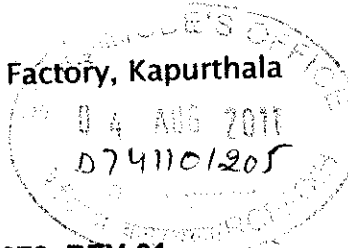


Rail Coach Factory, Kapurthala

R.C.F.

MD35131



Dated: 03.08.2011

Sub: Issue of specification no. **MDTS 070 REV-01**

Ref: **CDE'S approval on NP-3 of loose case no MD46211 dated 30.07.2011**

With reference to above, please find enclosed a copy of specification or it's related information as dealt point wise below, for kind information and necessary action at your end.

Specification no. **MDTS-070**

rev.-01

"Schedule of Technical requirements for Luggage Rack Modules for ALSTOM-LHB Design Coaches"


03/8/11
SME/Dev-I

CQM, CEE, CPLE, CWE, CMM, CMT, CME/MP

✓ SSE/LIB. DESIGN (WITH ORIGINAL SPECIFICATION

SSE/RECORD, SSE/DESIGN/RCF/TKJ

Copy for kind information to:

Dy CME/D1, Dy CME/D2, Dy CME/D3,

CDE



Spec issue mdts070.doc

RAIL COACH FACTORY, KAPURTHALA

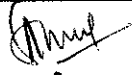



(MECHANICAL DESIGN DEPARTMENT)

SCHEDULE OF TECHNICAL REQUIREMENTS FOR LUGGAGE RACK MODULES FOR ALSTOM-LHB DESIGN COACHES


MDTS 070

REV.- 01

DATED : 21.07.2011

NAME	DESIGNATION	SIGNATURE	DATE	LEVEL
AJAY PARSHAD	SSE/FD		21/7/11	Prepared
PRADEEP SHARMA	SME/DEV-1		25/7/11	Agreed
PRASHANT KUMAR	DY.CME/D-1		29/7/11	Reviewed
PARAMANAND SINGH	CDE		30/7/11	Approved

Issue/Rev	Details of Changes	Date
Rev-01	<ol style="list-style-type: none"> 1. Para 3.3 modified. 2. Annexure numbers revised. 3. List of applicable drawings added in annexure-1. 	21.07.2011


21/7/11

PREPARED BY



AGREED BY



R.C.F.

SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 1 of 7
		Date:21/07/2011

1. Scope:

This specification covers the general and technical requirements of luggage rack assemblies for ALSTOM-LHB Design chair cars. The general arrangement and mounting of the luggage rack is given in drawing no. 1 10113.0.25.320.001. The scope of supply of the supplier of luggage racks extends to item nos. 1 to 17, 41 to 46 as appearing in the bill of materials of drawing no. 1 10113.0.25.320.001.

2. Applicability:

These luggage rack modules are to be fitted in Executive & Second class AC Chair car coaches of ALSTOM-LHB Design.

3. Functional Requirements:

1. The final finish & design of the luggage rack assembly should be such as to give an aesthetic appearance to the interior of the coach. The finish & colour of the various components of the assembly must confirm to the overall colour scheme of the passenger coach as per the "colour & finish chart" at annexure 2.
2. The finished assembly must fulfil the basic function i.e. to safely & securely accommodate hand luggage pieces of various sizes and shapes.
3. The luggage rack assembly will have integrated reading lamps with one reading lamp assigned to every seat. Supplier must ensure that luggage rack assembly is compatible to reading lights to drawing numbers LW76071 for 2 Seater and LW76072 for 3 Seater

4. Description & Technical Requirements:

1. The luggage rack assembly framework is assembled from aluminium alloy extrusions and castings. The total length of the framework of one module depends on the window pitch of the passenger area and is thus fixed. In one coach, 8 modules of the luggage racks, each of approximately 1995 mm length are arranged longitudinally on either side of the passenger area. The general layout of the Executive & Second class AC chair car coaches of ALSTOM-LHB design are as per annexure-1.
2. The framework of one luggage rack module will be as per drg. no. LW61111. The framework components appearing in the above drawing are listed item-wise with their detailed specifications in the table below:

[Signature]
21/7/11
Prepared By

[Signature]
Agreed By



SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 2 of 7
		Date:21/07/2011

Item	Description	Drawing no.	Material Spec.	Qty.per module
1.	Front Profile	LW62105/Length=1945	IS:733-83 63400 WP	1
2.	Rear Profile	LW62106/Length=1945	-do-	1
3.	Top fixing profile	LW62107/Length as per drg. no.3.0677.24.00	-do-	1
4.	Cover Profile	LW62108/Length as per drg. no. 2.0677.22.00	-do-	1
5.	Cantilever Left	Drg.no.1.0677.20.00	IS:617-94 4528 T-6	1
6.	Cantilever Right	Drg.no.1.0677.20.00	-do-	1
7.	Tempered Safety Glass	6 mm thick, cut to size to fit frame.	IS:2553-92 Pt-2	1
8.	Rubber Profile	Cross section as indicated in drg.no.LW 61111/Length = 2000	* see below	
9.	Rubber Profile	One side adhesive strip size 2x20x2000	** See below	1
10.	Screw M 4 x 8	DIN- 7991 -A2-70	-	6
11.	Screw M 8 x 25	DIN- 7500 -A2-70	-	10
12.	Polycarbonate cover sheet	Cross section as per drg.no. 3.0677.25.00/Length= 2000	GE Plastics grade Lexan 950 A	1
13.	Sealing material light grey	Sikaflex 221 or equivalent	-	As reqd.

* Material properties of rubber profile (item 8)

<u>S.no.</u>	<u>Description</u>	<u>Values Required</u>
1.	Base Elastomer	Silicon Rubber
2.	Colour	Grey
3.	Specific gravity	1.0gm/cm ³
4.	Hardness	40 Shore
5.	Tensile strength	160 Kg/cm ²
6.	Elongation at tear	500%
7.	Compressive set	24%
8.	Temperature range	-40 to 85 ° C
9.	Ozone resistance	satisfactory

Prepared By

Agreed By



SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 3 of 7
		Date:21/07/2011

10. After heat aging at 70° C
- Change in hardness +2%
 - Change in tear strength -9%
 - Change in elongation at tear -7%

** Material properties of rubber profile one side adhesive (item 9)

S.No.	Description	Values Required
1.	Base Elastomer	Silicon Rubber
2.	Specific gravity	1.21 gm/cm ³
3.	Hardness	69 Shore
4.	Tensile Strength	7 N/mm ²
5.	Elongation at tear	220%
6.	Compressive set	36%

- The rear profile is required to conceal the edges of the ceiling panel above the rack and also incorporate the roller blind and coat hooks below to give a homogeneous outer appearance.
- The framework of the rack assembly is to be strongly connected with the coach structure .
- All screwed connections and other separable connections of the assembly are to be arranged such that they cannot be accessed by passengers.
- Sharp corners and edges are to be avoided to prevent injury to passengers.
- The extrusions and the side cheeks are to be powder coated as per the finish requirements indicated in annexure 2.
- The wiring of the reading lamp will be totally concealed and will be routed through the side brackets to the corresponding cable connecting points of the reading lights. Provision must be made to disassemble the rack for wiring & maintenance purposes.

5. Interfaces with the carbody:

The luggage rack is to be mounted in the interior of the coach as indicated in Drg. no.1 10113.0.25.320.001. The fixing dimensions, tolerances and mounting arrangement is also indicated in the Drg.no.1 10113.0.25.320.001.

Prepared By *[Signature]*
21/7/11

Agreed By *[Signature]*



SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 4 of 7
		Date:21/07/2011

6. Mechanical strength requirements:

1. The mechanical strength of the luggage rack has to meet the requirements of UIC 566. According to this, the design and fastening of the luggage rack can withstand static line loads of 1000 N/m and lumped load of 850 N/m without leading to any deformation or damage.
2. The passenger coaches running on Indian Railways are designed for a service life of 30 years. The luggage racks are to be developed and assembled accordingly.
3. Resistance to vermin:
Selection of the materials(insulation, sealant, rubber, etc.), should be done with due consideration to their resistance to vermin(e.g. termites).

7. Warranty :

The supplier shall give warranty for the complete or part of luggage rack, for failing or proving unsatisfactory in service due to defective design, material, or workmanship, within 36 months from the date of regular supply and shall replace the same at his own cost and risk.

8. Documents to be submitted by supplier for prototype approval :

The following documentations for the assembly of the luggage racks are to be prepared by the supplier for submission along with the prototype assembly.

1. A set of drawings consisting of drawings and parts lists.
2. The documentation of the design in form of plots on paper and as CAD data in IGES file format.
3. Clearly organised instructions for mounting and adjusting the luggage racks, changing the luggage racks and wearing parts.
4. Maintenance and repair instructions.
5. Technical description of the luggage rack.

9. Testing of prototype and regular production assemblies :

The supplier shall supply one prototype of luggage rack module along with the documents indicated above for approval before commencing bulk supply. This prototype and drawings shall be examined from all view points and suppliers shall incorporate changes suggested by RCF in the prototype as well as bulk supply. The


Prepared By


Agreed By



SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 5 of 7
		Date:21/07/2011

bulk manufacture shall be undertaken only after the approval of prototype. The type test shall include checking of dimensions as mentioned in the drawing no.LW61111.

Testing of the luggage rack shall be done in the same condition as fixed in the coaches. The following static load test shall be applied to prototype samples:

Uniform distributed load --- 1000N/m length
Point load on the front profile --- 850N

Results:

Drop of back fixing profile : approx 3.5 to 4.2 mm
Drop of cantilever brackets : approx 12 mm
Max. deflection of front profile : approx 12 mm

After unloading of the luggage rack, there should be no permanent deformation.

This clause is applicable for first supply of a supplier. However, RCF shall have the right to repeat prototype approval process in subsequent order also. In this regard RCF decision shall be final.

[Signature]
Prepared By

[Signature]
Agreed By

Ⓢ

SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 6 of 7
		Date:21/07/2011

Annexure-1

List of applicable drawings:

S.No.	Description	Drg.No.
1.	Luggage Rack Arrangement and Mounting	1 10113.0.25.320.001
2.	Layout of AC Chair Car Second Class	1 10113.0.01.000.001
3.	Layout of AC Chair Car Executive Class	1 10112.0.01.000.001
4.	Framework Design for Luggage Rack Module	LW61111
5.	Front Profile	LW62105
6.	Rear Profile	LW62106
7.	Top Fixing Profile	LW62107
8.	Cover Profile	LW62108
9.	Polycarbonate Cover Sheet	3.0677.25.00
10.	Cantilever Left	1.0677.20.00
11.	Cantilever Right	1.0677.20.00
12.	Reading Light, Two Seater for LHB Chair Car	LW76071
13.	Reading Light, Three Seater for LHB Chair Car	LW76072

Prepared By 

Agreed By 



SPECIFICATION	Technical Specifications for Luggage Rack Modules for ALSTOM-LHB design Coaches	MDTS:070 REV:1 Page 7 of 7
		Date:21/07/2011

Annexure-2

Colour scheme of the luggage rack:

S. No	Item	Finish	Colour
1.	Aluminium Extrusion and casting	Smooth, glossy*	RAL-9006
2.	Toughened Glass Pane	Plain finish	Transparent
3.	Rubber Profile	Glossy	Grey
4.	Lexan Sheet	Glossy finish	RAL-1706010
5.	Switches	Glossy finish	White
6.	Knobs	Glossy finish	Yellow to RAL- DS-08070 88

*** Powder coating on aluminium extrusions and casting:**

S. No.	Description	Values Required	Specification
1.	Colour	RAL 9006(White aluminium)	-----
2.	Thickness	75-80 microns	-----
3.	Specific Gravity	1.3 to 1.7 gm/cm ³	-----
4.	Gloss	85	ISO-2813
5.	Impression Hardness	≥80	ISO-2815

Prepared By *[Signature]*

Agreed By *[Signature]*

