

**SPECIFICATION FOR 2 SEATER / 3 SEATER RECLINING CHAIRS  
FOR AC CHAIR CAR & II CLASS CHAIR CAR (NON AC)**

ICF/MD/SPEC-119

Issue status :01

Rev.04

Page 6 of 6

**6 WARRANTY:**

The chair shall be warranted for a period of 36 months from the date of supply or 24 months from commissioning whichever is later for any part of the chair failing due to defective design, material or manufacturing.

**7 PACKING:**

- 7.1 Each chair set shall carry identification mark of manufacturer along with batch order and year.
- 7.2 The chair shall be supplied in properly packed condition so as to avoid any damage during transit, handling and storage. If any plastic material is used for packing, the thickness of the packing material shall not be less than 20 microns.

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ICF/MD/SPEC-119

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Rev.04

Page 5 of 6

- 3.2 Scope of supply shall cover reclining chairs, hardware items, snack table arrangement and footrest. With each set of chairs, the supplier shall supply 2m x 1m size of upholstery cloth, exactly the same which has been provided in the chairs.

**4 SUBMISSION OF PROTO-TYPE & DRAWINGS:**

- 4.1 The manufacturer shall supply one 3-seater and one 2-seater as proto-type for inspection and approval by ICF. Series production shall be undertaken only after the approval of the proto-type.
- 4.2 The supplier also shall supply two sets of assembly and detail drawings including reclining mechanism along with the proto-type. Once the proto-type is approved, two sets of revised drawing incorporating all the modifications suggested by ICF and five sets of maintenance manual shall be supplied along with regular supply.

**5 INSPECTION AND TESTING:**

- 5.1 Testing of chairs shall be done in the same condition as fixed in the coaches. The following static load test shall be applied to proto-type samples of chairs.
- a. 100 Kgf vertical load to be applied to each seat cushion by using hard board of circular area 615 Sq.cm in the location of sitting area.
  - b. 50 Kgf of horizontal load to be applied to the frame at the top aisle side corner of backrest of seat sets.
  - c. 50 Kgf load applied at the center of each backrest by using hard board of circular area 615 sq.cm. normal to the surface.
  - d. 25 Kg load applied at the center of the snack table.
- 5.2 The above tests shall not give rise to any deformation or cracks in any components.
- 5.3 Once a type approval for the chairs has been granted based on the proto-type results, the design of the same shall not be changed without the specific and written approval of ICF.

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ICF/MD/SPEC-119

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Rev.04

Page 4 of 6

- 4. Light metal snack table lock - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 5. Snack table arm - Black
- 6. Reclining mechanism cover - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 7. Magazine Bag - Phirozi Blue – Shade No. 176 of IS-5

**2.18.2 NON- AC chair car**

- 1. Steel Frame - Black
- 2. Snack table housing - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 3. Snack table - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 4. Light metal snack table lock - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 5. Reclining mechanism cover - Silver Gray similar to "Shade No. 7508 of Marpol powder coating"
- 6. Magazine Bag - Phirozi Blue – Shade No. 176 of IS-5

2.18.3 Colour of upholstery for AC Chair car seats and Second class chair car (Non-AC) shall be as approved by ICF.

2.19 The manufacturer shall affix name plate indicating manufacturer's name and year of manufacture at suitable visible location. Size of the name plate shall not exceed 25 x 50 mm.

2.20 Instructions for the users with regard to operation of reclining mechanism, snack table etc. shall be affixed on the snack table housing in a position easily visible to the users.

**3 SUBMISSION OF QUOTATION:**

3.1 While submitting quotation, tenderer shall provide clausewise comments as mentioned from 2.1 to 2.20 above and deviations, if any, should be brought out clearly. The tenderer also shall submit one 3 seater / 2 seater along with their offer for assessment.

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Rev.04

Page 3 of 6

- 2.14 Suitable spring to Specn. IS:4454-81 Gr.II shall be provided below the cushion for seat and backrest for better cushioning.
- 2.15 The Upholstery for conventional AC Chair car & Non AC Chair Car shall conform to RDSO Spec.C-9503 Type.II.
- 2.15.1 For AC chair car, of special rakes, the upholstery shall be velvette fabric with mass of 500 gm/sq.m & with minimum tensile strength of 1000N(warp)&500N(weft). The fabric shall be abrasion resistant and shall have fire retardant quality conforming to Federal Motor Vehicle Safety Standards (FMVSS) 302.
- 2.16 Moulded polyurethane foam cushion to IS:8255-76 shall be provided for seat and backrest with following indentation hardness values:
- For Seats - @ 25% 15 - 18  
                  @ 40% 21 - 24  
For Backrest - @ 25% 11 - 14  
                  @ 40% 17 - 20
- PU foam cushion shall have fire retardant quality conforming to Federal Motor Vehicles Safety Standards No.302.
- 2.16.1 Fibreglass woven cloth as per IS:11273-92 having minimum density of 200 gm/Sq.m or alternate fabric made out of flame resistant fibre shall be provided all around PU foam including between upholstery and cushion as a fire prevention measure.
- 2.17 Arm Rest shall be PU filled material as per Specn. No. ICF/M/D/Spec-102.
- 2.18 Colour scheme for chairs shall be as given below:
- 2.18.1 AC chair car
1. Steel Frame - **Black**
  2. Snack table housing - **Silver Gray** similar to "Shade No. 7508 of Marpol powder coating"
  3. Snack table - **Silver Gray** similar to "Shade No. 7508 of Marpol powder coating"

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Rev.04

Page 2 of 6

- 2.9 For AC Chair Car, gas filled reclining mechanism shall be provided for 2 seater and 3 seater to cater for the continuous backrest movement with stop at any desirable position and fitment of the mechanism shall be sturdy and shall be capable of being replaced as a unit in case of failure. The reclining mechanism shall be provided to cater for backrest movement with in dimension shown in drg. No.ICF/SK-6-1-394. The recliner knob shall be push-type with indication mark. The gas spring shall be completely maintenance free while in operation. The arrangement shall be leak proof during the entire operational period. Reclining mechanism shall ensure smooth operation for a period of 5 years or 1.5 lakh cycle of operations without any maintenance problem or failure. Endurance test report shall be submitted along with the tender for the gas filled mechanism proposed for fitment on this backrest arrangement. The mechanism shall be suitably concealed against any dust ingress.
- 2.10 For AC Chair Car, all bearing points shall be provided with bushes of good nylon material with self lubricating quality.
- 2.11 The snack table arrangement shall be sturdy with spring loaded locking arrangement for proper holding of snack table.. Snack table locking arrangement shall be made of light alloy metal with powder coating to suit the colour scheme. Snack table housing on backrest shall be made out of FRP of not less than 2 mm thickness. Snack table housing shall be provided with suitable metal inserts with nuts for fixing snack table lock and magazine bag. Snack table shall be made out of die-cast light alloy with adequate strength to withstand severe service conditions. The snack table shall be powder coated to suit the colour scheme and the snack table top shall be of matt finish with depression to place a cup and the top shall be easily cleanable.
- 2.12 The backrest cover shall be of FRP moulded type with minimum thickness of 2 mm and shall have smooth surface finish and pleasing appearance with no sharp edges and burrs.
- 2.13 Magazine bag shall be made out of knitted nylon wire with suitable curtain spring covered with lining on the top to avoid sagging in service.

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Page 1 of 6

**1.0 SCOPE:**

This Specification covers the requirements for manufacture and supply of 2-seater & 3-seater with reclining arrangement for AC Chair Car and without reclining arrangement for II Class Chair Car (Non AC).

**2.0 DESIGN REQUIREMENTS:**

- 2.1 The Chairs shall generally conform to arrangement shown in Drg. No.ICF/SK-6-1-394 for AC Chair Car & ICF/SK-6-1-395 for II Class Chair Car (Non AC).
- 2.2 Fixing & mounting arrangement of chairs in the coach shall be as per Drg. No.ICF/SK-6-1-394 & ICF/SK-6-1-395.
- 2.3 The dimensions marked  thus shall be strictly maintained.
- 2.4 The chair shall be provided with footrest arrangement as shown in Drg.No.ICF/SK-6-1-394 & ICF/SK-6-1-395.
- 2.5 Bottle holder to accommodate 1 litre water bottle shall be provided at the rate of 1 number per seat and shall be snugly fitted to snack table arm for AC Chair Car & back rest for II Class Chair Car (Non AC). Bottle holder shall be made out of 5 mm dia. stainless steel wire.
- 2.6 All fasteners shall be electro plated and metal parts shall be suitably concealed and aesthetically flushed. The chairs shall have no sharp edges or corners anywhere.
- 2.7 The profile dimensions shown in the drawings are only indicative. However, the manufacturer shall provide ergonomically designed contour for the seat and backrest to ensure maximum seating comfort.
- 2.8 The steel frames for the seat and backrest shall be of sturdy design. The steel tubes used for frames shall conform to Specn. IS: 1161-98 or IS: 3074-79 or IS: 4923-85. The manufacturer shall mention the Specification of the Tube while quoting for supply of chairs.

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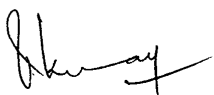
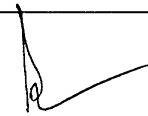
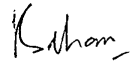
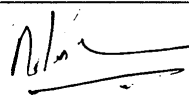
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