6 FURNISHING AND INTERIOR FITTINGS

Version: **1.00**



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Amendment and Revisions

Version	Date	Corrections	Remarks
1.1	JULY 2022	REVISED MANUAL	

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6.1. General Description

Interior fittings are the fittings inside the coach consisting of panels, seats, berths, windows, lights, fans, sanitary fittings etc. All coaching stock shall be furnished according to the standards laid down by the Railways/RDSO for the various types and classes of vehicles in service.

6.2. Amenity Fittings For Coaching Stock

For passenger to have a comfortable train journey various passenger amenities fittings have been provided in the trains. Schedule of amenities for coaching stock (broad gauge) is indicated in Table 1.2

Table 1.1

SCHEDULE OF PASSENGER AMENITY FITTINGS FOR BG COACHES

Description		**Non Air conditioned coaches**				
		First class	**Sleeper**	**Day coach**	**General**	**Double decker**
1) Depth of faces of partition to the edge of:						
I. Seat (for seating purpose)			560 Long 570 Trans	505	505	
II. Berth (for sleeping purpose)			560 Long 570 Trans	NA	NA	
2) Length						
I. Berth			1870	NA	1676	
3) Hip width for passenger			480	415	480	
4**) Height clearance for seat / berth**						
I. Clear space below seats			340	340	340	
II. Height of top of seat from floor			405	405	405	
III. Clear space between top of seat and bottom of upper berth bunk			900	NA	900	
5) Corridor width			575	430	570	
6) Bay width						
I. Four berths/ general component		2312	1700	1575	1575	
II. Coupe single row		1500	1050	880	880	
III. Pitching of chairs		NA	NA	NA	NA	

7) Knee room						
I. Four berther		710	535	535	535	
II. Coupe		710	450	340	340	
8) Lavatory						
I. In side area in Sq. metre		1.1	1.1	1.1	1.1	
II. Max. No. of passengers per lavatory		12	20	27	25	
9) Body side door						
I. Max. No. of passengers per door a side		40	60	60	60	
10) Electrical requirement						
A- Lighting						
i) Minimum lux at horizontal plane 840 mm above floor level						
a) Compartment		30	30	30	30	
b) Lavatory		16	-	11	11	
c) Corridor		16	-	-	-	
ii) Individual switches for ceiling light		Yes	Yes	No	No	
iii) Berth reading light with switches		Yes	No	No	No	
iv) Night light		Yes	Yes	No	No	
v) Individual switch for night light		Yes	Yes	No	No	
vi) Toilet engage light		No	No	No	No	
vii) Toilet engage sign		No	No	No	No	
viii) Socket out let 110V		No	No	No	No	
ix) Call bell push button		No	No	No	No	
B. Fannage						
i) No of fans						
a) Compartment		One per berth	3 per bay	3 per bay	3 per bay	
b) Lavatory		No	No	No	No	
ii) Size/type of fan						

a) Compartment (Swivelling = S) (Fixed = F)		400 mm (S)	400 mm (F)	400 mm (F)	400 mm (F)	
b) lavatory		No	No	No	No	
c) Regulator for fans		Yes	No	No	No	
d) On/Off switch for fans		Yes	Yes	Yes	Yes	
11) Compartment and doorway fittings						
a) Cushioned seats and back rests		Yes	Yes	Yes	No	
b) Cushioned berths		Yes	Yes	NA	NA	
c) Longitudinal luggage racks i) Light (L) ii) Sturdy (S)		L	No	S	S	
d) Folding or fixed table		Yes	No	No	No	
e) Roof ventilators						
i) Compartment		Yes	Yes	Yes	Yes	
ii) Doorway		Yes	Yes	Yes	Yes	
f) Tumbler holder		Yes	No	No	No	
g) Ash tray						
i) Compartment		Yes	Yes	Yes	Yes	
ii) Door way		Yes	Yes	Yes	Yes	
h) Waste paper basket dust bin						
i) Compartment		No	No	No	No	
ii) Door way		No	No	No	No	
i) Foot rest		No	No	No	No	
j) Notices		Yes	Yes	Yes	Yes	
k) Mirror with shelf						
i) Compartment		Yes	No	No	No	
ii) Doorway		Yes	Yes	Yes	Yes	
l) Coat hook		Yes	Yes	Yes	Yes	
m) Foot steps		Yes	Yes	Yes	NA	
n) Magazine pouch		Yes	No	No	No	
o) Wash basin						
i) Compartment		No	No	No	No	
ii) Door way		Yes	Yes	Yes	Yes	
p) Ward robe with fixed hangers		No	No	No	No	

q) Water cooler		No	No	No	No	
r) Drinking water with container		Yes	Yes	Yes	No	
s) Thali rack		Yes	Yes	Yes	Yes	
t) Linen room		No	No	No	No	
u) Rings below berths for securing luggage		Yes	Yes	No	No	
12) Lavatory fittings						
a) Shower bath		Yes	No	No	No	
b) Wash basin		Yes	Yes	Yes	Yes	
c) Towel rail		No	No	No	No	
d) Flushing commode		One	Nil	Nil	Nil	
e) Flushing pan		Except one	all	all	all	
f) Push cock for lotah filler		Yes	Yes	Yes	Yes	
g) Lotah shelf		Yes	Yes	Yes	Yes	
h) Commode rail		Yes	Yes	Yes	Yes	
i)Mirror shelf		Yes	Yes	Yes	Yes	
j) Bottle opener		No	No	No	No	
k) Coat hook		5	4	4	4	
l) Soap dish (SD), Liquid soap container (LC)		SD	SD	SD	SD	
m) Lavatory chutes should be slanting so that ground is not visible from inside and lavatory discharge does not fall on rails and track fasteners.						
n) Inter communication Inter communication doors shall be provided between the two classes of accommodation in a composite coach.						
13) External fittings						
a) Reservation display plates		Yes	Yes	Yes	Yes	
b) Destination board		Yes	Yes	Yes	Yes	
c) No. plates on mail & express trains only		Yes	Yes	Yes	Yes	

The schedule of safety items for passengers to be available in the interior of the coach is given in Table 1.2

Table 1.2

Safety requirements						
SCHEDULE OF PASSENGER AMENITY FITTINGS FOR BG COACHES						
Description		**Non Air conditioned coaches**				
			Sleeper	Day coach	General	
a) Alarm pull No. of per			-	-	-	
i) Compartment			One	One	One	
ii)Lavatory			Alarm	Altern ate	Altern ate	
iii) Corridor			Bay	Bay	Bay	
b) Internal latches at top and bottom on body side doors			Yes	Yes	Yes	
c) Provision of pad locking arrangement from outside on one body side door			Yes	NA	NA	
d) Internal latch and shout bolts with notched stopper and outside pad locking arrangement for compartment sliding door			NA	NA	NA	
e) Throw over latch and Pad Locking arrangement for sliding of vestibule			Yes	No	No	
f) Shout bolts and sliding door bolts for swing doors and pad locking for rolling shutters of vestibules			Yes	Yes	Yes	

g) Latches for windows shutters of body side doors and partition walls			Yes	Yes	Yes	
h) Fire extinguishers			No	No	No	
i) Safety bars on all window opening			Yes	Yes	Yes	
j) Windows shutters						
i) Glass shutters			Yes	Yes	Yes	
ii) Louvre shutters			No	No	No	
iii) Louvre cum gauge shutters			Yes	Yes	Yes	
iv) Frosted single glass sealed window			No	No	No	
v) Louvre cum Frosted glass liftable type shutters			Yes	Yes	Yes	

6.3. Furnishing Materials On Passenger Coaches

Furnishing materials in a coach have changed considerably over the years. Plastics, FRP and various other synthetic materials have been introduced which are light in weight and require less maintenance and give better aesthetics.

6.3.1. Roof Paneling Sheet

As per RDSO standard specification

6.3.2. Side Wall Paneling

Pre laminated shaded compreg board to RDSO specification No. RDSO/Spec C-K-513 is used for side wall penalling.

The pre-laminated panelling provide aesthetic look to the coach interior. Being the bad conductor of heat and electricity, the pre-laminated sheets prevent the radiation of heat from atmosphere to inside coach. The pre-laminated provides seating to various passenger amenity fittings such as ash tray, tumbler holder, coat hook, mirror and mirror shelf, luggage rack and news paper pocket.

6.3.3. Other Plastic Materials

Fibre Reinforced Plastic

FRP has the potential of wide range of application in coach interior. So far SMC (Sheet Moulding Compound) moulded window shutters, wall protectors and axle box front covers have been developed in FRP.

6.3.4. Metallic Push Cocks

RCF is using metallic push cocks. These push cocks are less prone to the theft.

6.3.5. Attention In Workshop

- The interior fittings should be examined for corrosion and damage during pre inspection of the coach. All missing fittings should be made good and reported, defective ones removed from the coach, repaired and refitted.
- All distorted/ damaged panels should be replaced. No patch work should be resorted to and complete panel piece should be fitted. While replacing the panels, care should be taken to match the colour and design to the extent possible.
- While renewing ceiling panels, opportunity should be taken to examine the insulation material. Full insulation should be checked when a coach is internally stripped fully after recommended interval to attend to corrosion on the roof sheets. Deficient/damaged insulation should be replaced

6.3.6. Anti-Pilferage Measures

In order to prevent theft of amenity fittings from coaches, workshop should carry out anti-pilferage measures on all coaches during POH, as prescribed by the Chief Mechanical Engineer or RDSO especially for the following items:

i. Mirror and mirror shelf.
ii. Soap dish.
iii. Ash tray.
iv. Push cock.
v. Wash basin.
vi. Tumbler holder.
vii. Hand hold.
viii. Upper berth hold.
ix. Coat hook.
x. Flushing valve.
xi. Window frame.
xii. Folding table.
xiii. Lotah cock.
xiv. Lotah shelf.
xv. Shower rose.
xvi. Wall protector.
xvii. Foothold bracket.
xviii. Fans
xix. Lights

6.3.7. Examination And Repair Practice In Carriage Maintenance Depot

Primary/Secondary examination and Schedule DA, DB & DC

- Examine laminated panels & mouldings for damages /cracks.
- Visually inspect passenger amenity fittings, replace if found damaged / deficient.
- Examine visually curtain cloth in AC coaches and attend if necessary.
- Examine ventilation grills for damages.
- Examine luggage racks / bunks for breakage.
- Examine push cock, flush valve for function.
- Check and attend leakage in pipes, fittings and shower roses in lavatory.
- Clean drain grills and drain holes in bath room and wash basin if found choke up.
- Check and replace damage/missing mirrors/shelves/soap dishes

6.4. Windows

Sealed Window Glass Unit

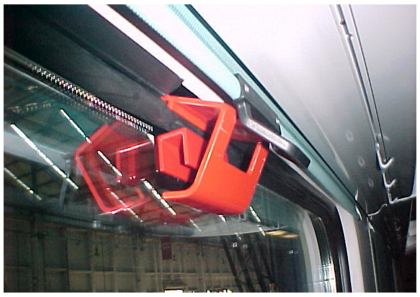
Three types of windows have been used in LHB coaches.

i. Fixed window unit with sealed glass, 12 per coach
ii. Emergency open able window, 4 per coach
iii. Hopper type windows for lavatory, 1No. for each Lavatory



Hopper Type Window

The sealed unit consists of outer 8.4 mm laminated glass and inner 4 mm tempered safety glass with 6 mm air gap with Krypton/Argon gas filling. Glasses are held by an aluminum extrusion frame with rubber profile.



Emergency window is similar to the fixed unit. Four units are provided in each coach to allow emergency evacuation of passenger. A handle is connected to the rubber profile to open the glass unit of the emergency window. The breakage of glass unit while opening is prevented by a restraining chain.

6.4.1. Maintenance Of Windows

- Broken, cracked, defaced or scratched glass should be replaced and the window frame repaired as necessary. The rubber or felt lining between the glass and the frame should be changed every time the glass is removed.
- In case of separate outer window, before fitting it, sealing compound should be applied on the joint surfaces of the coach as well as the window to form an air-tight joint. Sun control film should be pressed on the inside of outer glass.
- The hinges of inner window frame should be checked for easy operation and well oiled before refitting. The clamping catches should be attended to and tested for proper functioning.
- The rubber beading between window and coach body should be replaced if found set, deteriorated, or damaged, to ensure air tightness.
- The damaged FRP inner frames / holding frame should be replaced. The moulding on the window space between the outer and inner windows should be replaced if found deficient or damaged.

6.4.2. Roller Blinds

Roller blinds have been provided on the windows in AC Chair cars instead of curtains. The roller blind is manually operated. These blinds have three positions i.e. full open, half open and full closed.





6.4.3. Luggage Racks

In LHB coaches, the luggage racks are made from aluminum extrusions and tempered safety glass. It can withstand distributed load of 1000 N (100 kgs) per meter length and point load of 850 N (85 Kgs) as per UIC 566.

6.4.4. Seats For Chair Car Coaches



There are 78 chairs in the II AC chair car and 56 chairs in Executive class arranged in rows of 2 and 3 chairs. Weight of a single chair car for II AC chair car is approximately 21 kg.

The height of the seat cushion above floor level (450 mm), the width between the arm rests (420mm and 500 mm in Exe.class) and the ergonomically designed upholstery allows an excellent seating comfort

Main assembly comprises –

- Welded frame with foot and wall fixing arrangement
- Seat cushion
- Steplessly inclinable backrest
- Fixed arm rest
- Foldable table and bottle holder
- Foot rest
- Magazine net

The seat frame is a welded steel pipe construction with weld-on flange plates for fixing the other seat components. The movement of the backrest is actuated by means of a gas spring fixed to the seat frame. The table board consists of a piece of cast aluminum. The table will be locked to the back rest by means of a turnable lock knob. The bottle holder consists of a bent steel wire. It has been welded on to the table bearing frame.

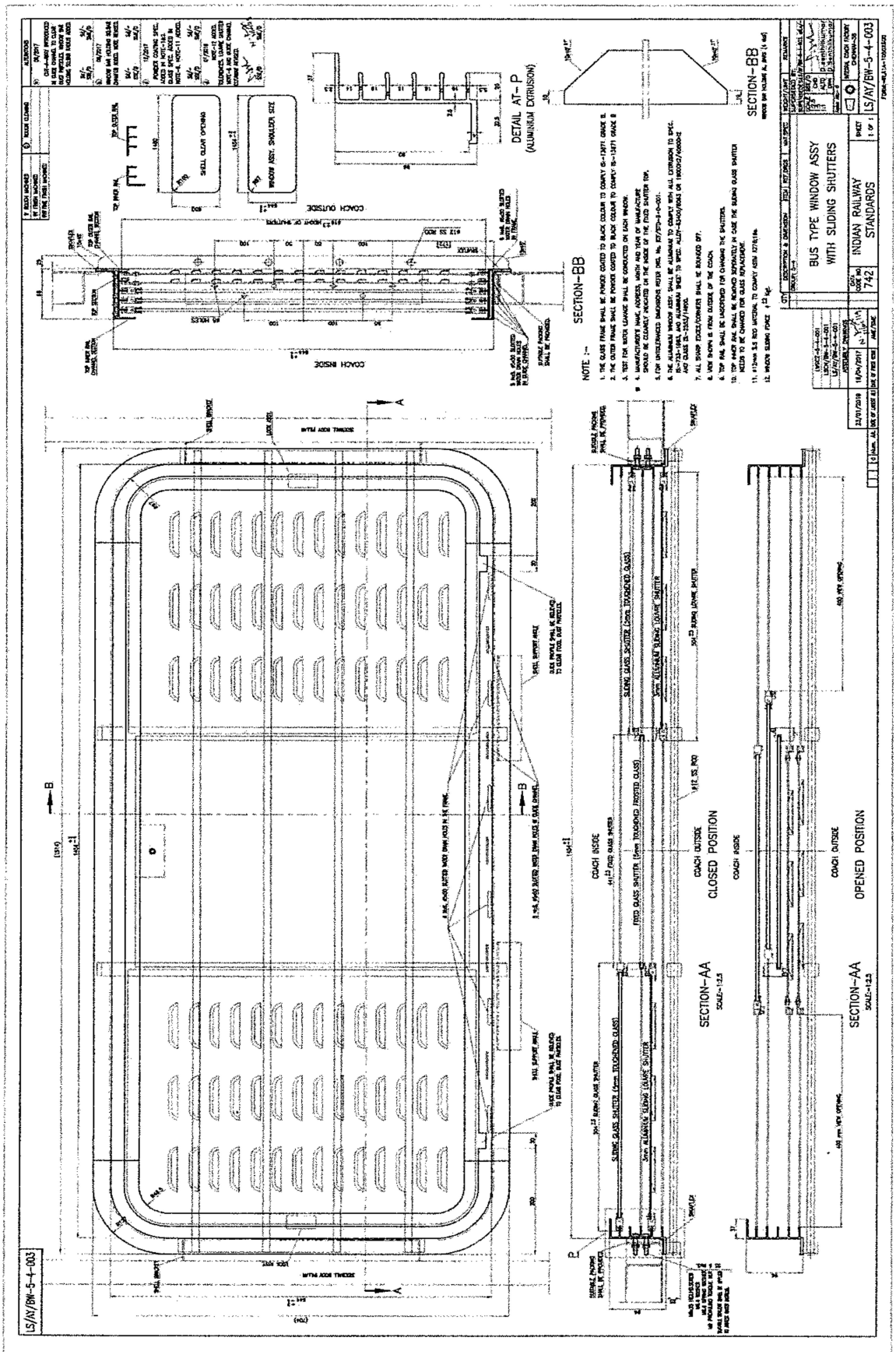
The footrest is adjustable in two positions:

1. Folded up, if the foot rest is not in use. In this case the space below the seat can be cleaned very easily
2. In the folded down position the rest is easily accessible for the passenger and offers a comfortable seating position.

6.4.5. Windows Of Non AC Coaches

The non AC coaches are provided with glass and louver shutters made out of FRP. The Glass panel of the shutter is made of safety toughened glass. The shutters work in the grooved frame work of the window assembly. To prevent the glass shutters from dropping a balancing mechanism comprising of spring, lever etc. is provided. To close the window positive force is required to be applied against the spring force. In the case of louvre shutters instead of the balancing mechanism a spring loaded safety latch is provided to prevent the louvre shutter from dropping.

Bus type window assy with sliding shutters

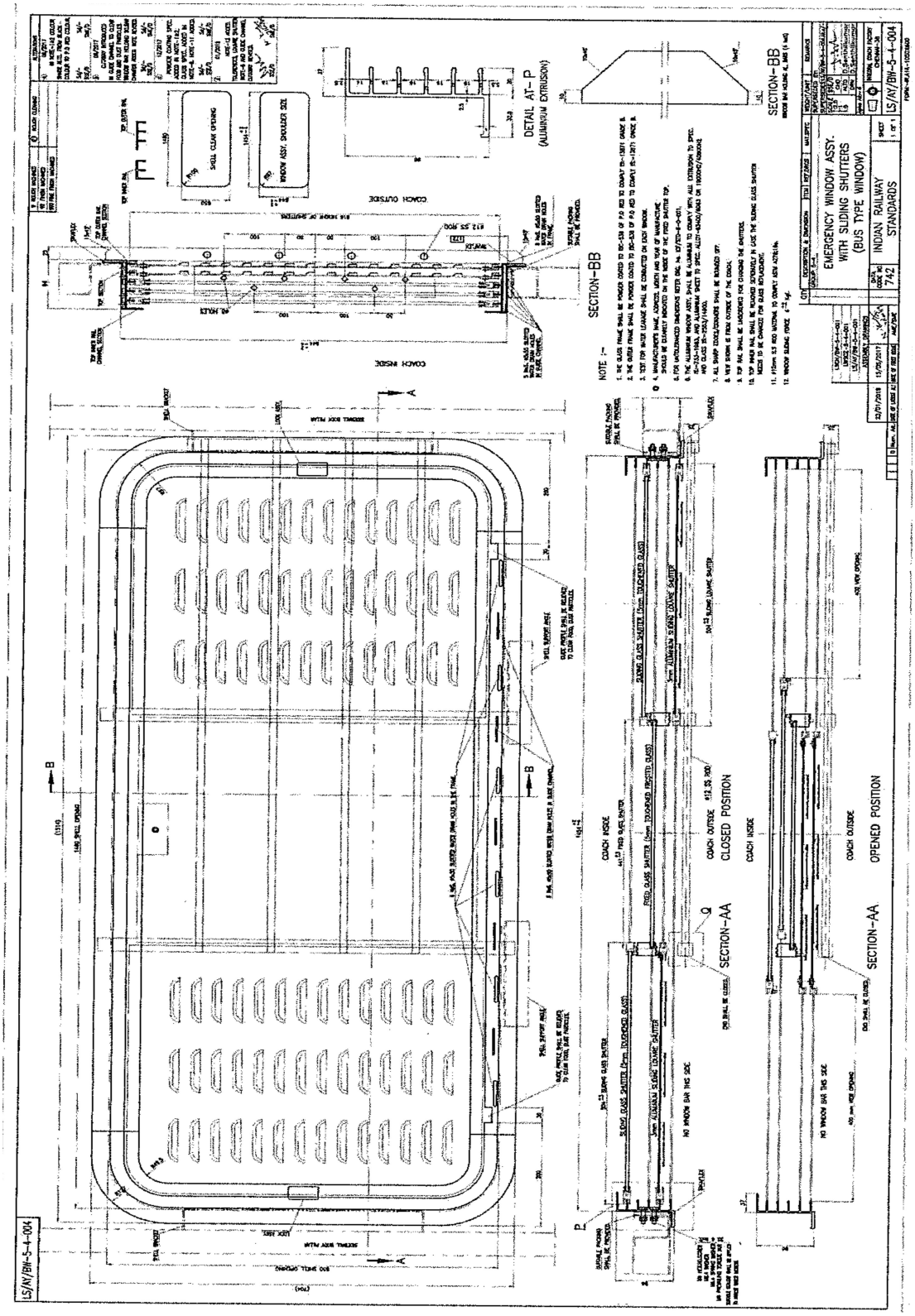


6.4.6. Emergency Open Able Windows

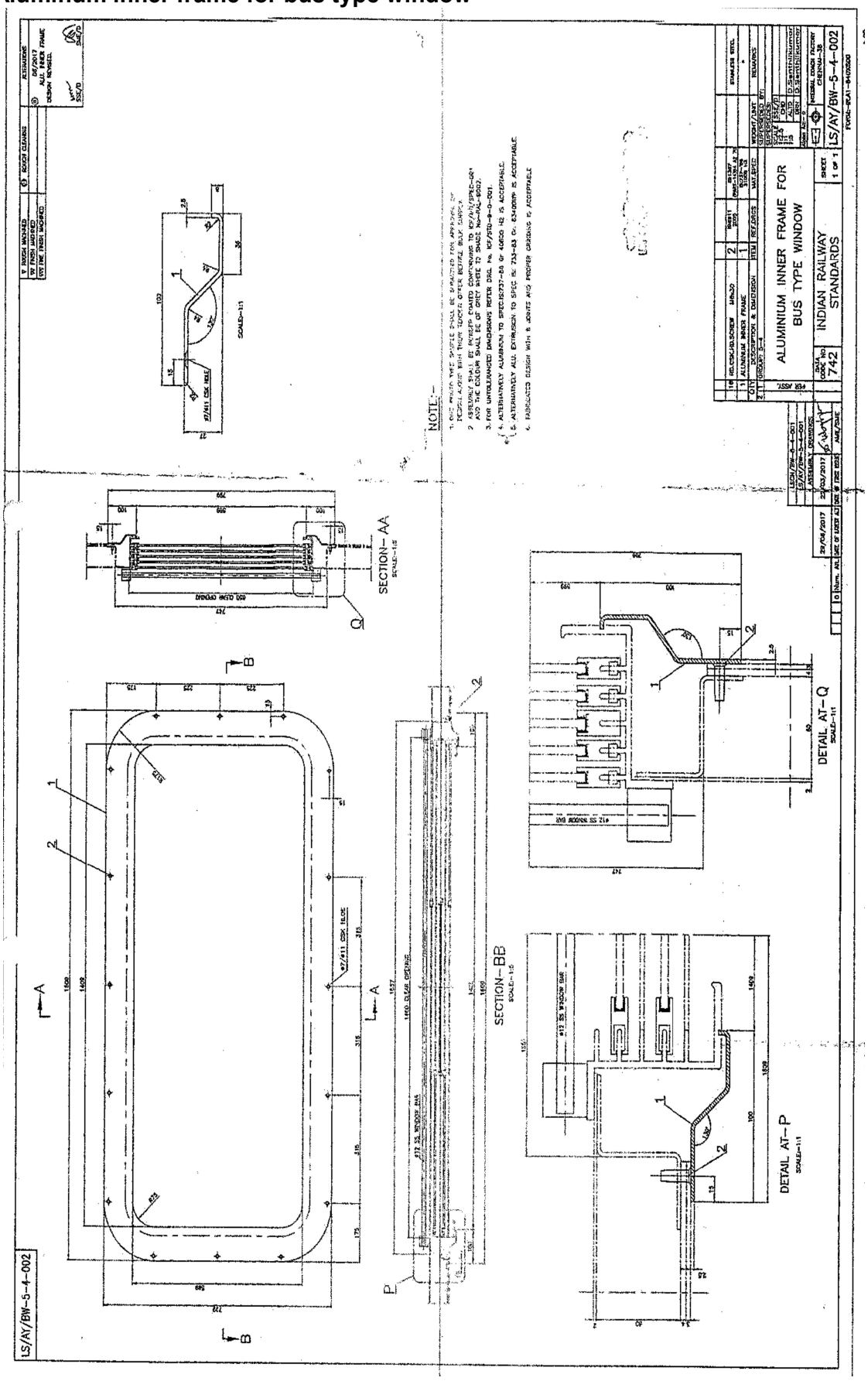
(for Non- AC Coaches – *RCF drawing No. LS54103, Alt-a should be followed.*

NPP	5	5	PP	NPP	5	8	PP
	5	5			8	6	
	LHB GS			LHB SCN			

Emergency window assy. with sliding shutters (Bus type window)



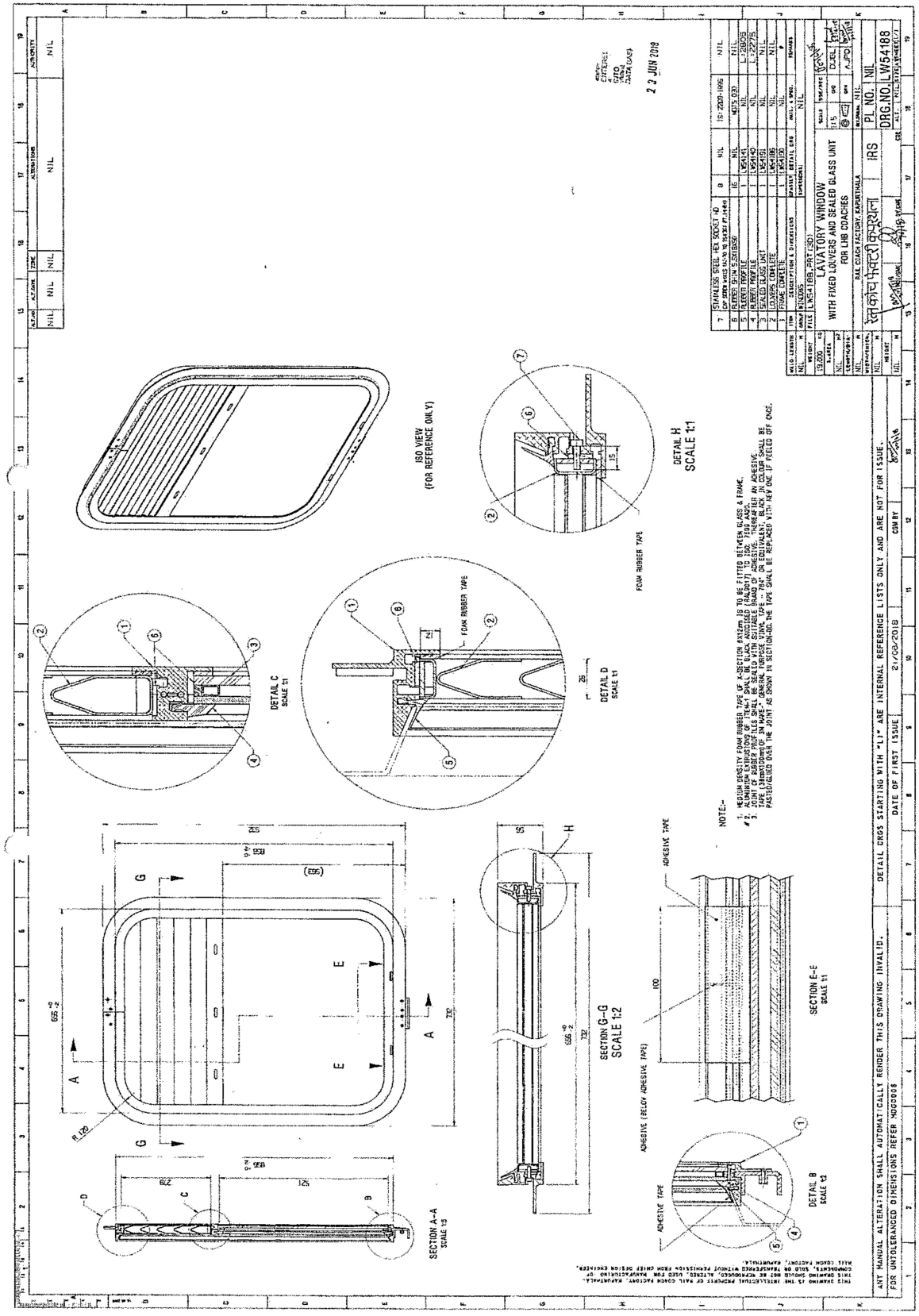
Aluminum inner frame for bus type window



6.4.7. Lavatory Windows

Lavatory Windows are fitted as per Specification No. LZ54114, Alt nil

Lavatory window with fixed louvers and sealed glass unit



Maintenance of Windows of Non AC Coaches (RCF drg. no. LS54109 for SCN, LG54002 for GS & LJ54002 for non AC Chair Car) in workshops

- All window shutters should be fully removed from the body shell at every second POH and also when they are found defective during pre inspection.
- When windows are not removed, the shutters should be checked for easy working by lifting and lowering them. The safety catches should also be checked to ensure that they are in working order and that, once they are engaged, the shutter should not be unlocked and opened. Their rubber channels, if deteriorated or torn, should be replaced.
- The entire window assembly should be dismantled and shutters removed. Presently windows are fitted with glass and louver shutters having FRP shutter frames and louvers. The shutters and other fittings on the newly built coaches should be cleaned with detergent only at the first POH. In subsequent POHs, these items should be painted with matching shades of paints, after painting oiling should be done on all the safety catches. Steel components should be cleaned of dust and dirt. The glass panes should be cleaned with lime and spirit. Broken or cracked glasses should be replaced with safety toughened glass. Under no circumstances should an ordinary glass sheet be used in shutters. Holes in the frames for safety catches, which have become oblong should either be bushed or plugged and re drilled.
- The shutters should be checked for easy working in grooves after rubber channels are replaced. Balancing mechanism for the shutters should be dismantled, cleaned and examined. All its worn out components like brass/nylon rollers should be repaired/replaced as required. Pin should be lightly greased. Backside and other portions of window frame which get covered up when fitted on the coach should be painted before the balancing mechanism is reassembled.
- Spring tension should be correctly adjusted such that the shutter can be easily lifted and positioned wherever required.
- A coat of mastic compound should be applied on the contact surface of rubber channels for keeping them in position.

Examination and Repair Practice in Carriage Maintenance Depot

i) Primary/Secondary examination and Schedule DA, DB & DC

- Examine window shutters of non AC coaches for smooth movement in railing to prevent rattling and disengaging of catches on run.
- Window frame on non AC coaches should not be broken and its glass, and venetian louver should be in proper condition.
- Check window balancing mechanism on non AC coaches for proper function.
- Examine window safety catches for proper engagement in their slots.
- Check lavatory banjo shutters for damage/missing.
- Examine window frame and rubber profile of sealed windows in AC coaches for damages and attend if needed.
- Window bars should be provided and fixed in prescribed manner and replaced if damaged.

6.5. Floor

Flooring arrangement for various Non AC Coaches is as under

i) LG 41138 Alt nil- LHB Second class (GS)
ii) LG 41117 Alt nil – LHB Non AC Sleeper (SCN) LR 41136 Alt nil – LHB DSLR Coach

iii) LJ 41125 Alt nil – LHB Non AC Chair Car VP 41107 Alt nil – LHB Parcel van
iv) 12 mm compreg board in all LHB Non AC coaches to RDSI specification No. C-9407(Rev-03 is provided

6.5.1. Procedure For Laying PVC Flooring In Passenger Coaches

Flooring to be done as per RDSO specification No. RDSO/2008/CG/CMI-0

6.5.2. Material Description

- 12 mm Compreg floor board to RDSO Specification C-9407 (Revised) type –II (Rev-03) shall be used for all Non AC LHB coaches or used for coaches whenever floor boards of complete coach require replacement.
- When only part of the floor is to be replaced, repair to floor shall be carried out for protection against fungi, termite, marine borers and other insecticides and requirements of preservative treatment to IS: 5539.
- **PVC Flooring** – 2 mm thick homogeneous Vinyl flooring, preferably, in roll foam to RDSO specification No. RDSO/2006/CG-12(Rev-1) If laminated flooring is used, the top layer shall be of 1 mm hard wearing surface.
- **Adhesive** - Adhesive to fix PVC flooring to plywood Compreg will be Neoprene based rubber adhesive details given in RDSO specification No. RDSO/2008/CG/CMI-04

05 mm thick aluminium chequered sheet as per RDSO specification No. C-8217(Rev-2) is being fitted in luggage compartment of LHB DSLR, LHB Power car, LHB Parcel van and in generator room of LHB Power car directly over shell supporting member without any floor board and PVC sheet

6.5.3. Attachment And Fixing

i) Laying procedure for Sub-flooring

- 12 mm Compreg floor board to RDSO Specification C-9407 (Revised) type –II(Rev-03) should be laid properly in level (ensure level by suitable packing, if required) to the cross members/trough floor. Before laying, the joining edges of compreg sheet shall be coated with water sealing compound to specification No.IS:7084 - 1973. This is essential to ensure effective sealing at the joining edges to prevent any seepage of water.
- Drill holes on the compreg floor board and cross members/trough floors and fix it by self tapping counter sunk screws as per relevant drawings.
- Joints between compreg floor board should be minimum and if any gaps exist, the same should be filled with epoxy putty. (see note)

Note:-5 Kgs*. of Epoxy putty is prepared to the following combination:*

Table 1.3

French Chalk	2.1 Kg.
Resin HSK	2.1 Kg.
Acetone commercial	0.4 Kg.
Accelerator	0.2 Kg
Catalyst	0.2 Kg
Total	**5.0 Kg.**

- The self tapping screw head shall also be levelled by applying epoxy putty. This will ensure smooth level for effective laying of PVC flooring sheet and also avoid water seepage through screw holes.
- Scrap away excess putty, if any.
- Sweep and clean the coach floor thoroughly before laying the PVC floor sheets/rolls.

6.5.4. Laying Of PVC Flooring:

(As per RDSO specification No. RDSO/2008/CG/CMI-04 (Rev.3)

- Spread open the PVC roll/sheet on half the width of coach (inside the coach)and leave it for some time (30 to 40 minutes approx.) to enable it to lie flat on the floor.
- Mark properly the position of the pillars, seat frames etc. on the PVC rolls/sheet and cut neatly around the pillars and frames.
- Fold the roll half way and spread a thin and even layer of adhesive with a notched trowel (serrator) on the compreg sub-floor. The recommended adhesive is non-inflammable polymeric aqueous adhesive to ICF specification no. ICF/MD/Spec 075.
- Also apply adhesive on the rough reverse side of PVC flooring thinly and evenly as above.
- Allow some time for solvent evaporation (30 minutes approx.) to prevent solvent vapours being entrapped. As soon as the adhesive becomes touch dry, both on the floor and the PVC flooring, press down the sheet in position gently and gradually from one end taking care to prevent air from being entrapped. Follow same procedure for the other half of the same roll.
- No welding operation is allowed during laying of PVC, since the adhesive is flammable agent.
- After adhesive work of the 1st roll is over, apply pressure on the flooring with a steel roller of 25 kgs. (approx.) so as to obtain perfect adhesion between PVC flooring and compreg sub floor and to eliminate air being entrapped.
- The second roll shall be laid in position, overlapping the Ist sheet by about 5 to
- 10 mm (see Fig.7.1) while spreading the roll, ensure the cuts on the PVC flooring match with pillars of partition and seat frames.
- "Trim in" the length by placing a straight edge along the centre of the Over-lapping edges, and with a sharp knife, cut through both thickness of PVC flooring at the same time. Pull out the overlapping edges of top and bottom of PVC flooring and press the same to the compreg floor to obtain perfect butt joint.

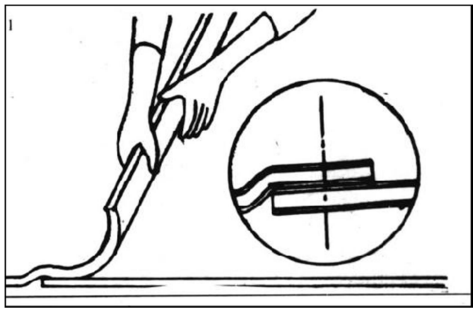


Figure 1.1

6.5.5. Thermo-Welding (Hot Air Welding)

Proper thermo-welding of PVC flooring is utmost necessary for obtaining satisfactory bonding/results. Thermo-welding of PVC flooring provides impervious continuous floor surface.

6.5.6. Grooving

A grooving tool (hand or automatic) along with a Straight edge/scale **(see Figure 1.2)** is used to groove the butting edges of the seam to approximately two third of the thickness of the wear layer of PVC flooring. This will leave a semi-circular groove for thermo welding **(see Figure 1.3 & 1.4).**



Figure 1.2

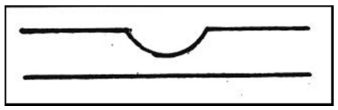


Figure 1.3

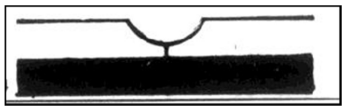


Figure 1.4

Note:-A deep groove cut ***(Figure 7.5)*** *into the PVC flooring will result in an unsupported weld which may split in use.*

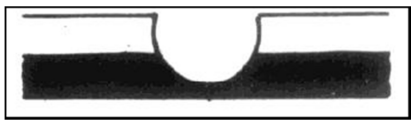


Figure 1.5

6.5.7. Welding

Seams are thermo-welded with a hot-air gun using flexible transparent Vinyl welding cord **(Figure 1.6)**. Details of welding equipment and PVC welding cord are given in the pare 1105f. To ensure a thermo-welded seam of maximum strength, the gun must be held at the correct angle to the flooring and used at the correct speed. The correct angle is achieved when the `foot' of the welding nozzle is parallel to the surface of the flooring. Start to weld the flexible cord into the PVC flooring at the most even and efficient rate to ensure the correct fusion of materials. Finish off as near to the end of the groove as possible. Welding of the ends of grooves on PVC flooring can be carried out with the use of hand roller.

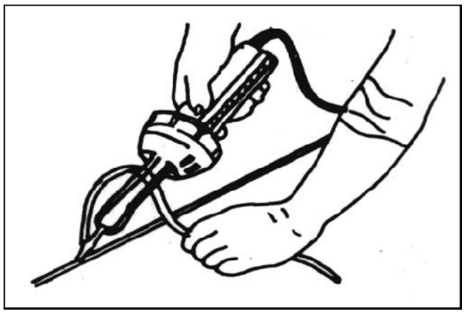


Figure 1.6

6.5.8. Trimming

When the weld has cooled to room temperature, it should be trimmed off flush to the surface of the material with a trimming Spatula **(Figure 1.7**). If trimming is done before the welding cord has cooled, it will shrink below the surface of the flooring. If at this stage, the spatula disturbs the weld, this indicates that a positive joint has not been achieved. The existing weld should then be removed and the seam must be re-welded. To ensure that proper bond of PVC flooring to compreg base floor is obtained, allow it to dry for **24 hrs**. in normal atmospheric temperature. All the edges of PVC flooring in the compartments should be sealed with water sealing compound to avoid seepage of water.

In the door way and gang way of all Non AC LHB coaches, an aluminum chequered sheet to RDSO/specification No. C-8217(Rev-2) should be provided and properly anchored over PVC flooring to avoid any damage to PVC flooring.

Water sealing compound shall be used all around the aluminum chequered sheet as well as in the CSK screws to prevent seepage of water.

Lavatory Flooring

All new coaches are provided with stainless steel inlay pasted with single piece PVC sheet. RCF is using SS inlays to Drawing No. RP-63124, RP-63123 & RP-63117 in GS, SCN, LWSCZ coaches in lavatories. Coaches having other types of lavatory floorings should be provided with stainless steel lavatory inlays during POH. The cracked, damaged or worn out PVC sheets should be removed and a new single piece PVC sheet should be pasted over stainless steel inlay.

No patchwork should be done in the lavatory flooring.

6.5.9. Special Tools And Equipments

PVC Flooring

PVC flooring shall be to RDSO Schedule of Requirement No.RDSO/2006/CG-12 (Rev-01)

HOT AIR WELDING EQUIPMENT

i) Hot air welding equipment -
750 watts capacity with air control device on the torch.

ii) Roller with handle for pressing the weld deposits.

iii) Welding Rod **2mm dia**. PVC Electrode

iv) Recommended procedure for welding of flexible PVC **-** to IS : 8002 – 1976

v) Adhesive
- Dunlop adhesive S-758
- Fevicol SR - 998

vi) Water proof sealing compound - Water proof sealing compound to IS: 1580- 1960.

6.5.10. Maintenance Instructions

i) All coaches, non-AC, except the luggage compartment portion of SLR coaches, are provided with compreg flooring having a PVC sheet pasted on it. The cracked, damaged or worn out PVC flooring sheets should be removed. Swollen or otherwise damaged floor boards should be renewed and a new PVC patch of same colour should be pasted. The joints of PVC patch should be properly thermo-welded to prevent seepage of water. For laying and repair of PVC flooring over compreg, the procedure detailed in RDSO pamphlet no. RDSO/2008/CG/CMI-04 should be follow

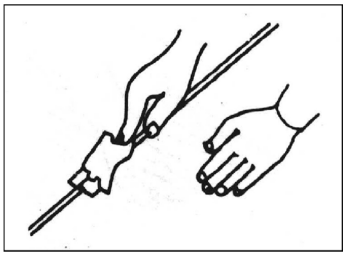


Figure 1.7

ii) The coaches undergoing corrosion repair should be provided with PVC flooring as per RDSO pamphlet no. C-9001.

iii) The coaches undergoing normal repairs may continue with the flooring arrangement as existing, ie., PVC flooring.

iv) Railway Board vide their letter No. 88/M©/137/35 dated 06.02.89 approved the use of flexible PVC flooring on all types of lower class coaches i.e. GSCN,GS, as per detail given in RDSO/2008/CG/CMI-04

Examination and repair practice in Carriage Maintenance Depot

i) Primary/Secondary examination, Schedule DA and DB examination

- Visually examine floor for any damages.

6.5.11. Schedule 'DC' Examination

- Inspect and attend torn/damage/ cracked PVC flooring.
- Examine and attend opened PVC joints.
- Examine Drain holes in trough floor for accumulation of water due to clogging if noticed, inspect affected area for corrosion

6.6. Seats And Berths

Cushioned Seats and Berths

i) The upholstery materials used for seats and berths of different classes of coaches is given in the following specification.

- Non AC Coaches (LGCN, LGS, & DSLR) – Upholstery – RDSO/2008/CG- 07, Cushion-RDSO/Spec C-K607.
- Nom AC Chair Cars- Upholstery- RDSO/2008/CG-07, Cushion-RDSO/2007/CG-04

For stitching the furnishing cloth, cotton sewing thread no. 30 is used, thread no. 40 for curtains. Cotton padding to Specification no. G/TEX/C - 1813 is used to give even shape to the cushion.

Sewing thread – IS:4229-92 6.6, VAR.L2 Cotton thread- @3 to IS: 1720-78

6.6.1. Maintenance In Workshops

i) The berths and seats found defective due to opening of stitches, cracked / torn / faded rexine or sagged cushion should be removed from coach and sent to trimming shop for repairs. Otherwise they should be cleaned in position with a suitable detergent or interior cleaning agent which does not damage/discolor and does not require water for rinsing.

ii) After stripping the seats, backrests, berths, arm rests, etc., completely; the frame should be examined for distortion/crack. These should be first got repaired in fitting section or carpentry section as the case may be. The wooden battens of the frame for fixing the rexine should be examined and replaced if damaged / broken. The steel members should be painted and the wooden members varnished after repairs before doing upholstery repair work.

Compreg penal below cushion- RDSO specification No. C-9407, Type-1

iii) Following measures may be taken to improve the quality of upholstery work:

- Rounding of corners of berths and seats: This eliminates corner folds where the rexine gets torn often for old design of berth.
- Use of sewing thread IS: 4229-92 6.6 VAR.L2: Nylon thread has higher

strength than cotton threads and hence reduces incidence of opening of stitches.

- Use of straight edge rexine cutting machine: This helps in cutting rexine in a batch for improved repair work productivity
- Use of pneumatic staplers: Pneumatic staplers can be used instead of nailing.

Felt padding to avoid cutting of upholstery as per drawing to specification No. IS: 1719-88 TAB-1, medium.

6.6.2. Reclining Seats Of Chair Cars

(Ref: Specification No. MDTS-219)

- The reclining chairs should be removed from the chair cars in every POH and sent to Fitting and Trimming shops for overhaul.
- Strip the chairs with adjustable backrests and replace worn out gear wheels and other components including bottom rail. The moving parts should be oiled and the assembly checked for even sliding before it is refitted. The upholstery portion should be repaired as given in section 1105c. The chrome plated legs, where provided, should be examined and re-chrome plated, if necessary. After the chairs are repaired and assembled, they should be tested for easy movement and firm securing in all reclining positions.
- Strip the reclining mechanism gear, and replace worn / defective parts. The components should be painted all over except sliding and rotating surfaces, which should be well greased. After assembly the chair should be tested for ease of rotation and proper locking.
- The folding table, if provided, on the base of the back- rest should be examined for loose or damaged hinges, broken of cracked moldings or damage to table top. Replace table if found damaged. Hinges and locking catch should be lightly oiled and examined and attended for proper operation.

6.6.3. Examination And Repair Practice In Carriage Maintenance Depot

i) Primary/Secondary examination

- Examine middle and upper berth chains.
- Examine the holding / securing brackets for seat and berths and attend if necessary.
- Examine snack table in upper class coaches for damages and rectify if necessary.
- Examine and repair damaged upholstery cushions and curtains.
- Wooden seats and frame should be cleaned

6.6.4. Schedule DA And DB Examination

- Examine as per (i) above.
- Wooden seats and frames should be disinfected.

6.6.5. Schedule DC Examination

- Examine as per (ii) above.
- Examine reclining mechanism on chair cars for proper functioning and attend if necessary.

6.7. Doors

6.7.1. Doors For LHB Coaches

The various kind of doors used in LHB coaches are-

i. Entrance doors
ii. Saloon doors
iii. End wall doors

iv. Pantry doors
v. Lavatory doors
vi. Switch board doors

Their detailed description and maintenance requirement are given below.

6.7.2. Entrance Doors

Construction

Entrance Door comprises of single shutter open able towards the inside of Coach with manual handling, along with pivot pins fitted on the top and bottom of the door frame.

Door leaf of Entrance door has Sandwich construction with stainless steel frame.
The external surface is made by painted stainless steel sheet.
The internal surface is made up of glass filled reinforced plastic sheet with gel coating finish.

The core is composed of thermo reactive foam filled between the internal and external surface.



The door is equipped with releasing double bolt type lock controlled by a middle lock. The lock is operated by means of brass casting handles. The door can be locked from the interior as well as exterior side with the help of a square key.

The door-window is comprised of fixed type tempered glass, alongwith internal safety glass glued to the frame by means of sika flux.

The steps is comprise of aluminum channels covered with stainless steel sheet on the both sides and is having a sandwich construction of thermo reactive foam placed between external and internal sheets.

6.7.3. Maintenance Instructions

Procedure for checking the integrity of the door assembly:

- Check the mechanical structure of the doors and check the integrity,
- Verify the correct tightness of all the bolts and nuts,
- Ensure smooth opening of the door lock by the handle. Verify the smoothness and the correct alignment of the door alongwith insertion of the locking cam top and locking pin bottom with the lower locking provided on the door frame. If it is necessary, set the shutter (diagonally and vertically).
- Check the square lock device by means of square key.

- Keep the lock greased from the pockets provided on the side of the lock.

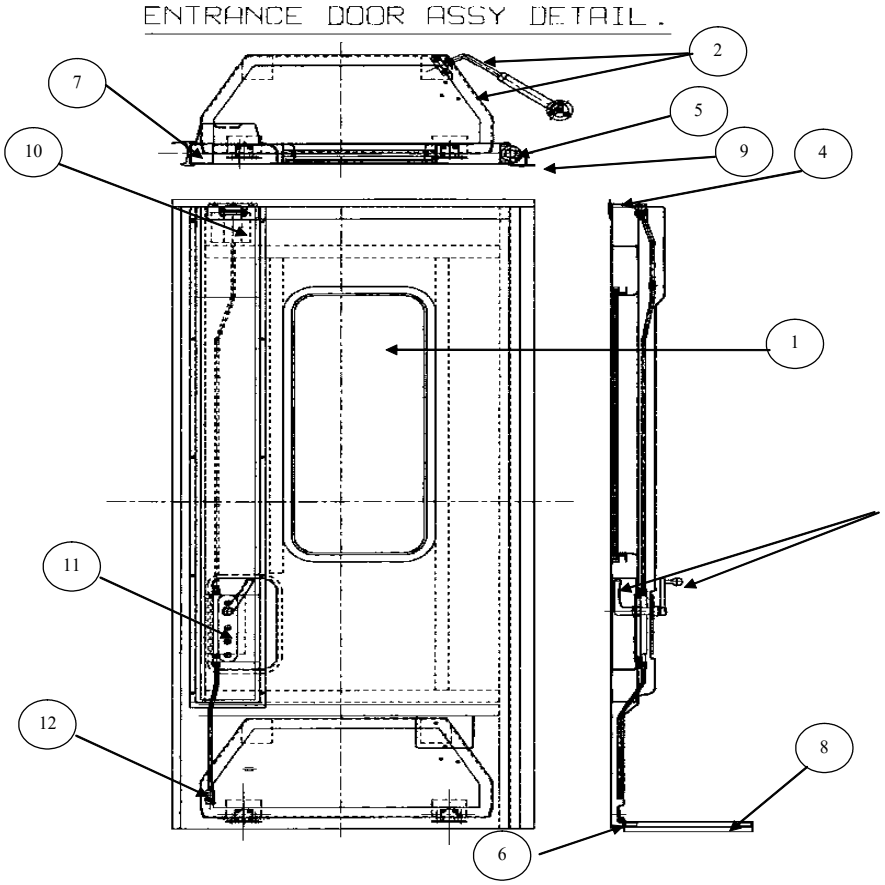


Figure 1.8

Spare Parts for Entrance Door

S.No.	Descriptions	Qty./Door
1	Glass	1
2.	Pivoted Arm Complete	2
3	Handle Assembly	1
4.	Facing Brick Gasket	2
5.	Pivot Pin Top Assembly	2
6.	Pivot Pin Bottom Assembly	2
7.	Hand Safe Gasket	2
8.	Gasket Foot Step	2
9.	Gasket Hinge	3
10.	Locking Set Top	1
11.	Locking Set Middle	1
12.	Locking Set Bottom	1

6.7.4. Saloon Doors

Saloon sliding door comprises of sliding shutter operated by manual handling and has automatic return movement.

Door leaf built by stainless steel sheet sections welded by Tig welding, having sandwich construction filled with thermo reactive foam alongwith hardened safety

glass applied to the frame by means of EPDM rubber gasket with locking string.

The shutter carries external and internal handles of stainless steel sheet metal/pipe along with handsafe gasket.

Ventilation grid made up of Aluminum extrusion is provided for air passage applied on the bottom of the shutter by means of EPDM rubber gasket alongwith screws.

The shutter has a lock, for the locking of door in closed and opened position, actuated by square key.

On the external side, it's possible to lock the door by applying external lock with the brackets provided on the top of the door leafs.

Lower Guidance comprises of MS 'T' section, hard chrome plated, which is fixed in the floor by means of screws.

Sliding Mechanism consists of

- Supporting MS plate with power coating.
- Steel pulleys.
- Aluminum guide assembled with linear motion bearings travels on chromated steel bar.
- Nylon String with Natural Rubber Strands and Nylon Sheath.
- The movement of the shutter is carried by means of the nylon string assembled in the pulleys.

Braking cylinder acts as pneumatic brake in opposition of backward movement of the doors obtained by an elastic rope. The backward movement can be adjusted by means of unidirectional flow regulation valve fitted with the short circuit pipe which connects the cylinder chamber realising the short circuit and allow the automatic controlled movement of shutters.

Periodic inspection

- Check the mechanical structure of the doors and check the integrity, especially in connection with the drag suspension support.
- Verify the correct tightness of all the bolts and nuts, especially concerning the fixing of the supporting shaft, the basement plate of the upper guidance and the pulleys support.
- Open and close by the handle verifying the smoothness and the correct insertion of the hand safe gasket with the sheet metal profile fixed on the side wall. If it is necessary, set the shutter (diagonally and vertically) by the suspension support / shutter bolt.
- Check the square lock device by means of square key.
- Execute carefully a visual check of the braking cylinder (connections, pipe and valve).
- Check the integrity of the elastic thread.
- Check the functioning of self backward system by opening and closing the door several times.
- Keep the lower guidance cleaned.
- Keep the guidance shaft cleaned by a clean cloth and liquid detergent. After cleaning, dry the shaft surface well.

Note: *The guidance shaft doesn't need greasing and / or lubrication. The use of greasing or lubrication keeps the dust over the shaft.*

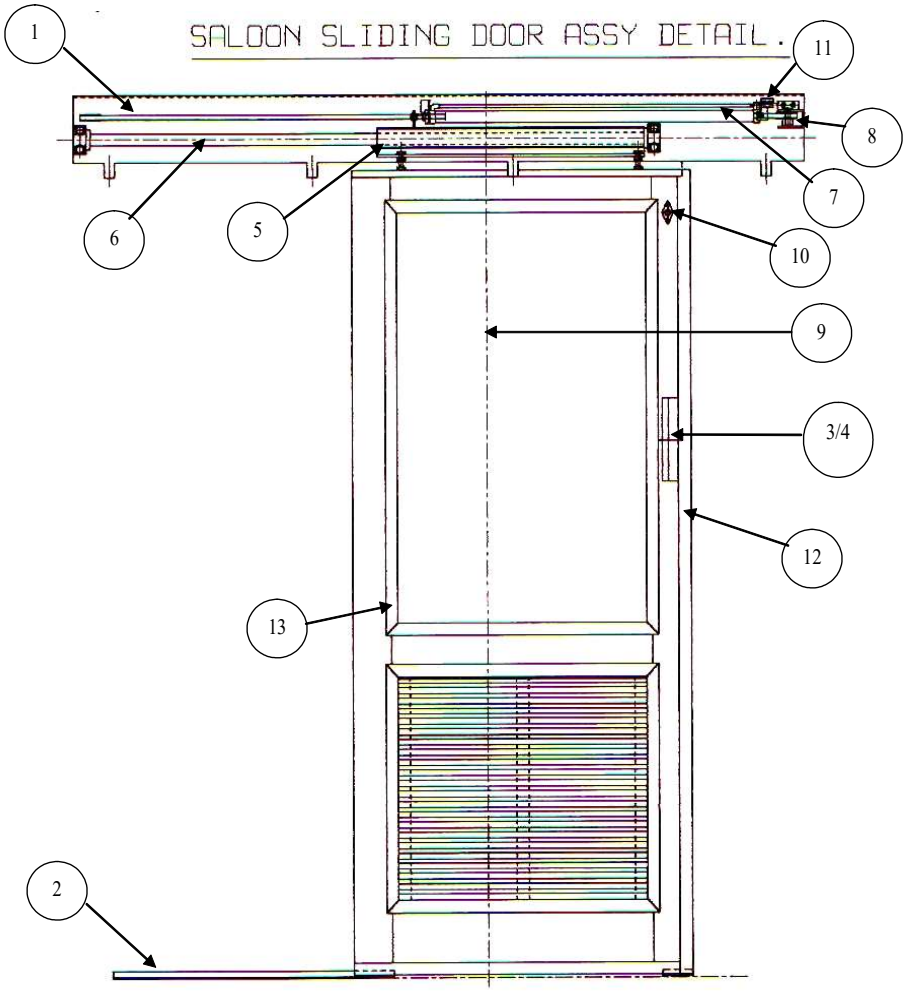


Figure 1.9

Spare Parts for Saloon Sliding Door

Sl No	Description	Qty. / door
1	Elastic Wire	3
2	T-rail / Guide Rail	2
3	Internal Handles	1
4	External Handles	1
5	Guide Complete with LM Bearing	1
6	Chromated Shaft	1
7	Pneumatic Cylinder	1
8	Pulley Nylon String	4
9	Toughened Glass	2
10	Lock Set	1
11	Cylinder Mounting Bracket	2
12	Hand safe Gasket	2
13	Glass Gasket	4

6.7.5. End Wall Doors

Endwall doors comprise of two sliding shutters operated by manual handling and have automatic return movement.

Door leaf of Endwall door has Sandwich construction with a AISI 304 stainless steel frame. External and internal surface in stainless steel have sandwich construction of Thermo Reactive foam.

One of the two shutters has a lock, for locking of the door, actuated by square key.

Each shutter has a replaceable toughened and transparent glass window, with stainless steel frame riveted with the front sheet.

Lower guides Comprise of MS 'T' section, hard chrome plated, which is fixed in the floor by means of screws.

Sliding Mechanism consists of

- Supporting MS plate with powder coating.
- Steel pulleys .
- Aluminum guide assembled with linear motion bearings, travels on chromated steel bar.
- Nylon String with Natural Rubber Strands and Nylon Sheath
- Serrated belt of 5 mm pitch made up of polyurethane material is reinforced with steel strands.
- The simultaneous movement of the two shutters is carried by means of the serrated belt assembled in pulleys.

A Braking cylinder acts as pneumatic brake in opposition of backward movement of the doors obtained by an elastic rope. The backward movement can be adjusted by means of unidirectional flow regulation valve, fitted with the short circuit pipe, which connects the cylinder chamber realising the short circuit, and allow the automatic controlled movement of shutters.

Periodic Inspection

- Check the mechanical structure of the doors and check the integrity, especially in connection with the drag suspension support.
- Verify the correct tightness of all the bolts and nuts, especially concerning the fixing of the supporting shaft, the basement plate of the upper guidance and the pulleys support.
- Open and close by the handle, verifying the smoothness and the correct insertion of the male / female gaskets.
- Check the square lock device by means of square key.
- Check the functioning of self backward system by opening and closing the door several times.
- Check the belt tensioning. If necessary, adjust by means of the setting screw on the setting pulley.
- Examine the Braking cylinder mechanism for correct functioning and any loose connections.
- Keep the lower guide rails cleaned. Do not apply grease or oil as it leads to accumulation of dust.
- Keep the guidance shaft clean by a cloth and liquid detergent. After cleaning, dry the shaft surface well.

Note: *The guidance shaft doesn't need greasing and / or lubrication*.

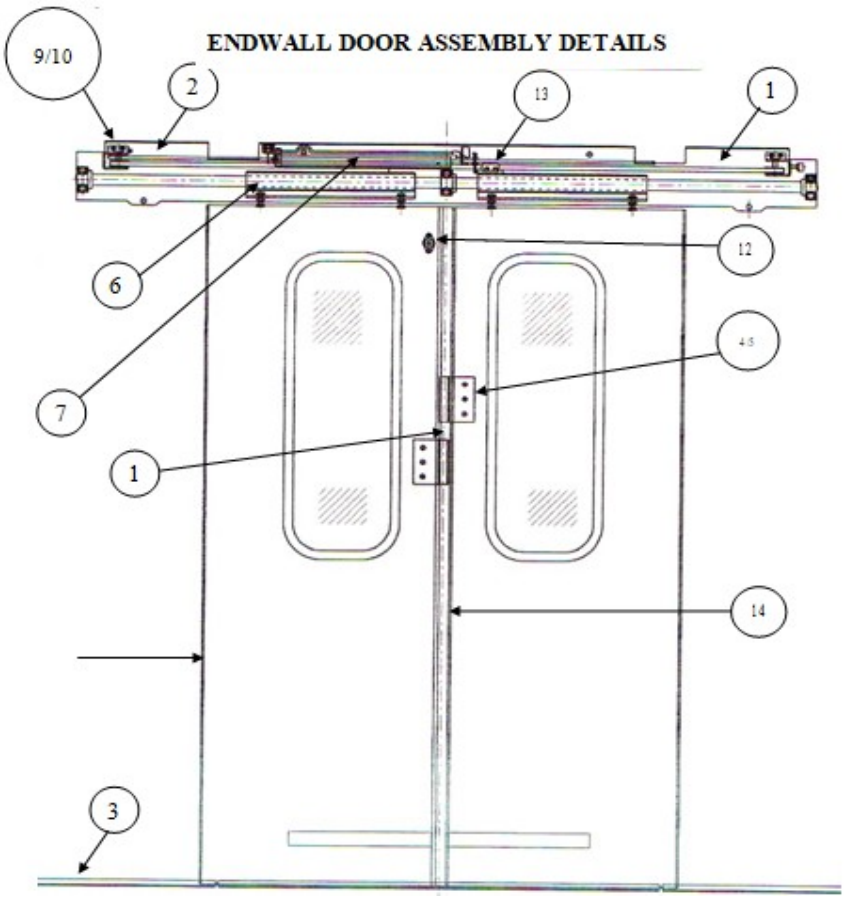


Figure 1.10

Spare Part list for End wall Door

Sl No	Description	Qty. / door
1	Reinforced Serrated Belt Pitch 5mm	3
2	Elastic Wire	3
3	T-rail / Guide Rail	2
4	Internal Handles	1
5	External Handles	1
6	Guide Complete with LM Bearing	1
7	Chromated Shaft	1
8	Pneumatic Cylinder	1
9	Pulley Serrated Belt	4
10	Pulley Nylon String	4
11	Toughened Glass	2
12	Rod for Pad Locking	1
13	Lock Set	1

14	Internal Drag Plate	2
15	Handsafe gasket Male / Female	2
16	Wiper Gasket	2

6.7.6. Pantry Doors

Pantry door comprise of two sliding shutters operated by manual handling and have automatic return movement.

Door leaf of Pantry door has Sandwich construction with Aluminium Extrusion Frame. External and internal surface is covered with Aluminium Sheet and have sandwich made of Thermo Reactive foam.

The shutter carries external handles of stainless steel sheet metal and internal handles in bronze along with handsafe gaskets.

Ventilation grids made up of Aluminum extrusion are also provided for the air passage applied on both the shutters by means of screws.

One of the two shutters has a lock for the locking of the door, actuated by square key. On the external side it's possible to lock the door by applying external lock with the brackets provided on the top of the door leafs.

Lower guides comprise of MS 'T' section, hard chrome plated, which is fixed in the floor by means of screws.

Sliding mechanism consists of

- Supporting MS plate with powder coating.
- Steel pulleys
- Aluminum guide assembled with linear motion bearings, travels on chromated steel bar.
- Nylon String with Natural Rubber Strands and Nylon Sheath
- Serrated belt of 5 mm pitch made up of polyurethane material, reinforced with steel strands.
- Simultaneous movement of the two shutters is carried by means of the serrated belt assembled in pulleys.

A Braking cylinder acts as pneumatic brake in opposition of backward movement of the doors obtained by an elastic rope. The backward movement can be adjusted by means of unidirectional flow regulation valve, fitted with the short circuit pipe, which connects the cylinder chamber realizing the short circuit and allows the automatic controlled movement of shutters.

Periodic Inspection

- Check the mechanical structure of the doors and check the integrity, especially in connection with the drag suspension support.
- Verify the correct tighten of all the bolts and nuts, especially concerning the fixing of the supporting shaft, the basement plate of the upper guidance and the pulleys support.
- Open and close by the handle, verifying the smoothness and the correct insertion of the male / female gaskets.
- Check the square lock device by means of square key.

- Check the self backward system by opening and closing the door several times.
- Check the belt tensioning. If necessary, adjust by means of the setting screw on the setting pulley.
- Examine the Braking cylinder mechanism for correct functioning and any loose connections.
- Keep the lower guide rails cleaned.
- Keep the guidance shaft cleaned by a clean cloth and liquid detergent. After cleaning dry the shaft surface well.

***Note**: The guidance shaft doesn't need greasing and / or lubrication*

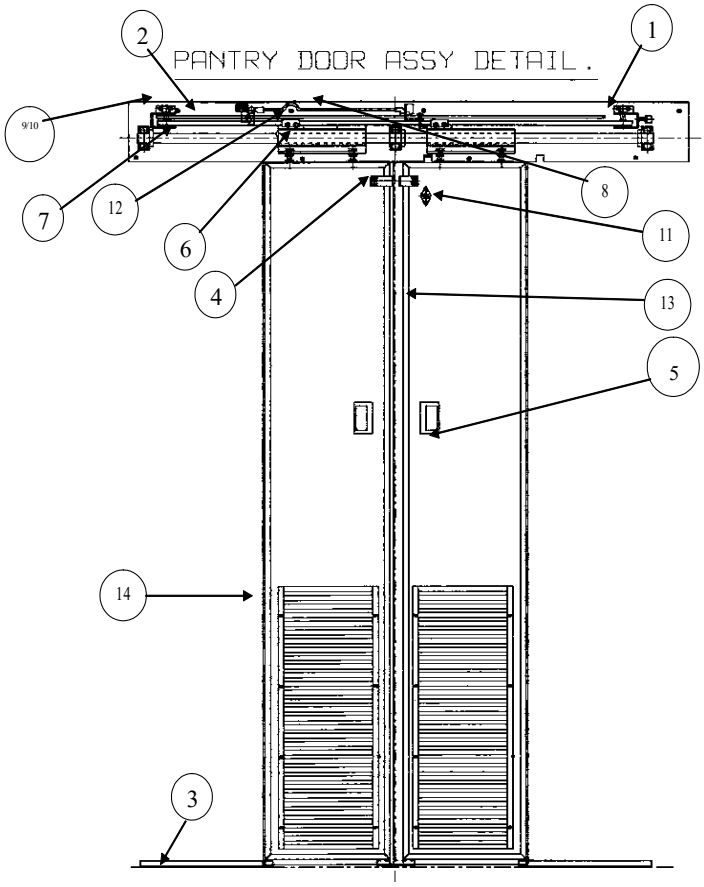


Figure 1.11

Spare Part list for Pantry Door

Sl No	Description	Qty. / door
1	Reinforced Serrated Belt Pitch 5mm	3
2	Elastic Wire	2
3	T-rail / Guide Rail	1
4	Lock Bracket	1
5	External Handles	1
6	Guide Complete with LM Bearing	1
7	Chromated Shaft	1
8	Pneumatic Cylinder	4
9	Pulley Serrated Belt	2

10	Pulley Nylon String	1
11	Lock Set	2
12	Internal Drag Plate	2
13	Handsafe Gasket Male / Female	2
14	Wiper Gasket	2

6.7.7. Lavatory Doors

Lavatory door comprises of two folding shutters for closing of the Lavatory room, operated by manual handling, and have movement along the pivot pin made up of stainless steel material, fitted along the extrusion block middle of the door leafs

Door leaf is built by aluminum extrusion frame by TIG welding, having sandwich construction filled with thermo reactive foam, along with covering of Aluminum sheet fitted in the extrusion on both side.

The shutter carries external and internal handles of brass casting along with hand safe gasket.

Ventilation grid made up of Aluminum extrusion is provided for the air passage, applied on the bottom of both the shutters by means of screws.

The door is equipped with release lock which can be closed from inside by knob and outside by square key.

The movement of the door is guided by 'U' linear guide and by a support with a nylon roller fixed on the door.

Periodic Inspection

- Check the mechanical structure of the doors and check the integrity,
- Verify the correct tightness of all the bolts and nuts,
- Open and close the door by the handle, verifying the smoothness and the correct alignment of the hand safe gasket and insertion of the locking pins top and bottom with the frame, and also insertion of the limit switch actuating rod in the side wall.
- Check the smoothness of the door by opening and closing the door several times.
- Check the lock device by means of square key.
- Keep the frame extrusions cleaned to avoid hindrance to the door with the frame.
- Keep the lock greased from the pockets provided on the side of the aluminum extrusion frame.

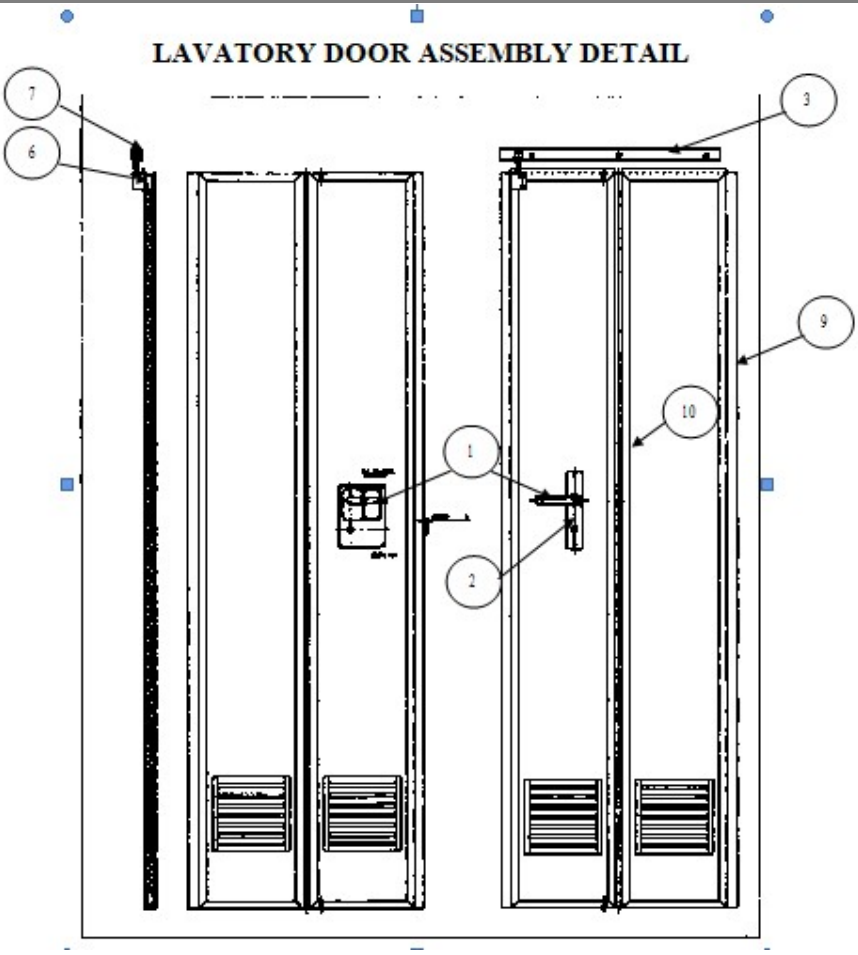


Figure 1.12

Spare Part list for Lavatory Door

S.No.	Description	Qty/Door
1.	Handle Assembly	2
2.	Lock assembly	1
3.	U Frame Roller Guide	1
4.	Pivot Top	1
5.	Pivot Assembly Bottom	1
6.	Nylon Rollers	1
7.	Roller Block Assembly	1
8.	Frame Assembly with locking Plates	1
9.	Hand Safe Gasket	4
10.	Gasket Hinges	4
11.	Limit Switch	2

6.7.8. Switch Board Doors

Switch board door is of wooden sandwich construction of High pressure laminated sheet on wooden board, with properties like termite resistant, water resistant and weather resistance. The door is foldable in a zip construction towards the inside of the panel with manual handling along the double stainless steel hinges fitted on the side and middle of the two door leafs. The door is fitted with brass handle embedded in wooden leaf.

The door contains releasable double bolt type lock, controlled by a middle lock.The lock is operated by means of square key.The door can be locked from the exterior side with the help of a square key.

The door is comprised of two nos. moveable type tempered glass.

Rubber protection beading is also provided along the wooden door frame, glued to the frame by means of self adhesive tape.

Ventilation grid made up of Aluminum extrusion is provided for the air passage, applied on the bottom of both the shutters by means of screws.

Periodic Inspection

- Check the structure of the doors for integrity,
- Verify the correct tightness of all the bolts and nuts.
- Ensure smooth opening of the door lock by the square key. Verify the smoothness and the correct alignment of the door along with insertion of the locking pin top and locking pin bottom with the locking plate provided on the coach
- Check the smoothness of the door by opening and closing the door several times.
- Check the square lock device by means of square key.
- The Rubber extrusions to be cleaned with care to avoid damage.
- Keep the lock greased from the pockets provided on the side of the lock.

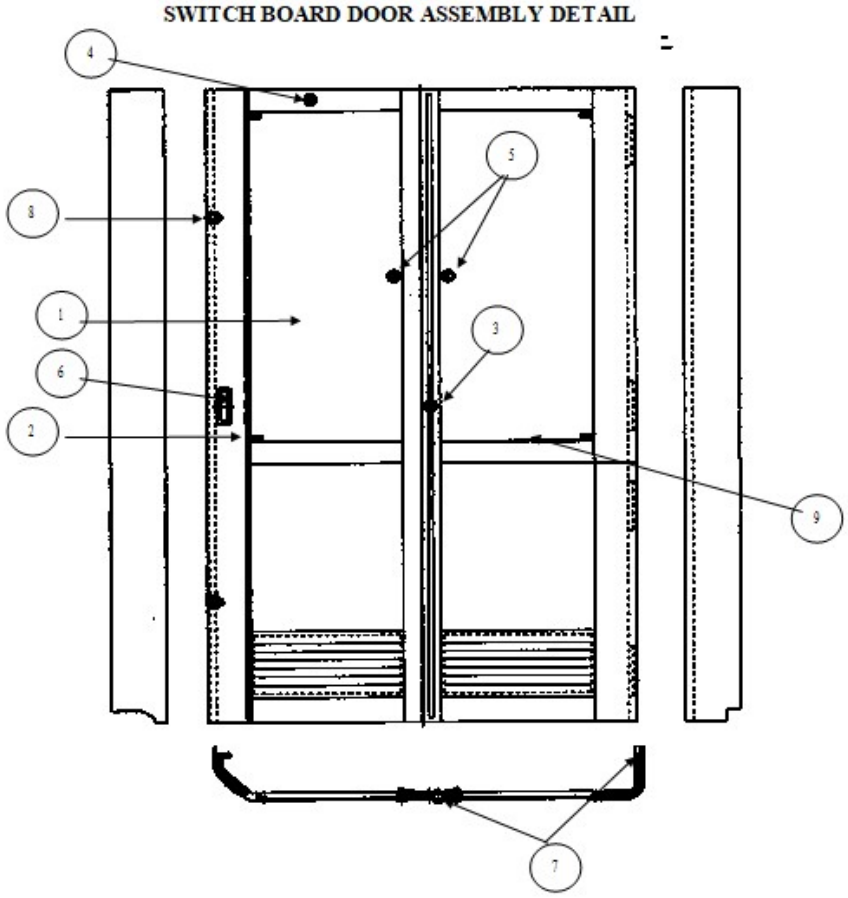


Figure 1.13

Sl No	Description	Qty. / door
1	Toughened Glass	2
2	Glass Hinge	4
3	Lock Assembly Middle	1
4	Lock Assembly Top	2
5	Lock Glass	2
6	Handle	1
7	Hinge Assembly	2
8	Ball Catchers	4
9	Glass Protection Gasket	2

Spare Parts for Switch Board Door

6.7.9. Body Side Doors

- Doors should be checked for ease of working and corrosion, especially on the bottom side of the panels. If found heavily corroded, they should be removed and repaired as per RDSO Technical pamphlet C-7602 (Rev.1).
- The top and the bottom bearing pivots should be checked for worn ridges. If ridges are found they should be removed and if the condition warrants, the pivots should be replaced.
- The door handles, guard key locks and safety latches on the doors should be checked for smooth and easy working. The bent parts should be straightened or renewed as required. Pad locking plates on the doors.
- Dust excluding device in the form of a rubber tube is fitted all around on the door. This should be checked and if perished, or torn or decayed, should be renewed.
- If door safety latches are found bent or jammed, they should be repaired ensuring proper working.

6.7.10. Sliding Doors

Sliding doors of upper class compartments

- Sliding doors should be removed in every POH. Top roller race and top guide rails should be checked for smooth working and replaced when worn more than 1 mm on each part. The door stops at the top and bottom should be checked and adjusted. The ball bearings in the top guide rollers should be checked, greased and refitted or replaced as necessary. The ridges from the roller `V' surfaces should be removed or, if worn too small the rollers should be replaced.
- The automatic lock, specially its lock casing, should be checked for cracks at its flanges. If cracked, it should be replaced.
- If the door operating rod is broken, it should be replaced.
- The coach door should be checked for wear. If worn more than 1 mm, it should be replaced.
- The pins of the lock should be cleaned, oiled and refitted.
- The internal door locking latches (parrot latches) and the tower bolts should be checked for ease of working and replaced if required.
- While fitting the door, it should be ensured that the gap between the door and the panel does not exceed 4.5 mm.

6.7.11. Sliding Doors Of Luggage Vans - RCF/ BEML Design (TLR-5-8-001)

- Sliding doors should be removed at every POH. All corroded and damaged panels, louvres and members should be cut out and replaced.
- Roller assembly should be removed and stripped. Replace rollers if found worn beyond 3 mm, otherwise they should be reused after smoothening ridges or dents formed at the rolling surface. Similarly, other components should be examined and repaired or replaced as required. Perished / torn rubber sealing shall be

replaced. After assembling the components, the moving parts of the assembly should be greased before fitting them in position on the door.

- The bottom guide, door handle and door locking arrangements should be examined and repaired or replaced to ensure smooth working in operation and effective locking from inside and outside. The inside and outside locking arrangement shall be to sketch 75118 and 75210 respectively.
- The door assembly, after repairs should be checked, preferably in a fixture, for its alignment of the top rollers and the bottom guide. The alignment should be corrected as required before the door assembly is passed for fitting on the coach.
- Inspection door & pocket in partition for sliding door shall be provided as per ICF drawing TLR-4-2-717, SLR-4-2-002 & WLLRM-4-2-605 in respective coaches.

6.8. Vestibule Doors

Sliding doors - These should be attended as per instructions circulated by RCF
It should be ensured that the locking arrangements for the sliding doors are provided and are in working order.

6.8.1. Examination And Repair Practice In Carriage Maintenance Depot

i. Primary/Secondary examination, Schedule DA, DB and DC Examination

- Examine body side doors for working/ damages.
- Inspect door handles for damages/missing.
- Examine door for proper functioning. Also check that door is properly secured with hinges and pivots and should not be grazing with floor or door sill plates.
- Examine that the door locks and latches are firmly secured with correct sized screws and are properly engaging in their slot. The tongue of gravity type latch should be in proper alignment with its slot plate.
- Thorough inspection and repair of sliding doors in SLR coaches should be undertaken.
- Check lavatory hinge door for proper functioning.
- Examine lavatory door latches/ tower bolts for proper function.

6.8.2. Vestibule:

(LHB Drawing No. 1 10113.0.24.100.001 Alt. –'R' Is Applicable For Rubber Vestibule With Foot Plat Arrangement For All LHB AC & Non AC Coaches

UIC type rubber vestibule (1 10113.0.24.100.001 alt. –'R1') and Foot Plate arrangement

Conversion to UIC type vestibule

The existing stock can be provided with UIC type vestibule as per. 1 10113.0.24.100.001 **alt. –'R1'**

The following items/components are required for conversion.

Sr. No.	Description of item/ component	No. of / assy.	Drawing No.
1	Flange complete	1	2 10113.0,24.110.001
2	Flange complete	1	2 10113.0,24.110.002
3	Flange complete	1	2 10113.0,24.110.003
4	Gangway bridge mounting	1	2 10113.0,24.110.001
5	Sealing profile	2	LW25101
6	Sealing profile	1	LW25101

7	Flat rubber 8 x 60 x 140	2	MDTS030, Shor Hardness 40, Black colour
8	Stainless steel stud M 10x40 (A2-70 TO IS :1367 PT.14	17	IS: 1862-1975 Type- A
9	Stainless steel HEX NUT M 10 (A2- 70 TO IS :1367 PT.14	17	IS: 1364 PT 3-2002 ISO-4032
10	Spring washer B10	17	IS: 3063-1994

Maintenance during POH

- Examine the steel frame complete for deformation, corrosion, welding crack. Repair the defective components. Straighten the deformed vertical channels by heating and pulling inwards by suitable chain & screw tensioning mechanism.
- Examine the LP sheet on the inside of frame. Wash and clean if found stained and dirty. Replace if found broken or cracked. For vestibules without LP sheet, painting may be done.
- Examine the condition of upper and lateral rubber flanges (bellows) for wear or cuts. The cracked portion up to 300 mm on lateral side flange may be repaired by rubber patch and rubber solution. Replace if found beyond repair.
- Examine the fixing screws and nuts for rubber flanges. Tighten if found loose or replace if found missing.
- Examine the support brackets for foot plate. The deformed or corroded brackets which are beyond repair, should be replaced in position. See that the foot plate rests evenly on both the brackets. Replace the perished or missing rubber sheet on the support brackets with rubber adhesive.
- Clean the foot plate with wire brush to remove muck, dirt, etc. accumulated on the foot plate surfaces. Examine the foot plate arrangement for wear, deformation or corrosion. Replace the foot plate if found beyond repair. Remove the sharp corners of the foot plate. Replace the worn out or broken wearing piece. Examine the condition of holding brackets and pins for wear, broken or welding crack. Replace if foot plate brackets and pins are found beyond repair. Paint foot plate with anti-corrosive paint.
- Examine the holding device for foot plate. Replace or repair if found defective. examine the hand rail for breakage, etc.
- Examine the bracket assembly and connecting components (if provided) for coupling the UIC vestibule with conventional vestibule. Replace the deformed or missing components.
- After completion of the repairs, all components should be painted with one coat of red oxide zinc chromate primer.

6.8.3. Examination And Repair Practice In Carriage Maintenance Depot

i. Primary/Secondary examination, Schedule DA, DB & DC examination'

- Examine visually rolling shutters/sliding doors of vestibule for smooth working.
- Inspect vestibule and its Rubber fittings for damages /missing components. Repair if necessary.
- Visually check vestibule fall plate, mounting brackets, pins and lock lever for ease of operation, damages/ deficiency.