

Scope of work

Name of Work: Upper gear attention work with plumbing & carpentry works and pest control treatment of MEMU coaches (MCs + TCs) for 3 years.

Schedule A 1. Upper gear attention of coaches with toilet and without toilet:

- a. Inspection & repairs of defective window louver shutters, glass shutters, single door, sliding door, coach to coach passageway through catwalk, toilet doors damaged, decolam sheets, corridor aluminum chequered sheets, ACP ropes, door stoppers, passenger door handles, toilet mirrors, footsteps, passenger seats, loco-pilot seats and guard seats of MEMU coaches.
- b. Inspection, repair & replacement of damaged flushers, taps, water filling pipes, fish tails, connecting caps of roof tank filling pipes, and attending all types of water leakages in coach toilets and roof tanks of MEMU coaches.

● **Upper Gear Maintenance: Functional check and attention of passenger amenity and furnishing items, Assemblies/Fittings in coaches**

1. Screwing or tightening of loose fittings.
2. Visual examination of all seat and attention/repair to any defect e.g., stitching of open joints, fitting of seat chains, seat holding latches, tightening of loose screws, stitching of seat rexin, replacement/repair of all passenger seat.
3. Examination of all footsteps of Motor coach and trailer coach, repair and tightening of loosen studs/bolts.
4. Functionality checks and repairs of all windows shutters of motor coaches trailer coaches, toilet, coaches, folding tables attention to any defect.
5. Functionality checks of all water taps/cocks, flush valves, fish tails attention for leakages/ required replacement if required.
6. Functionality checks of all flap doors, main doors, door handles, vestibule doors and door closures for free movement and attention for loose fitment and adjustment for proper closing of doors.
7. Visual examination of all window glasses for proper packing of rubber seal and minor attention if required changing must change. Replacement of broken/defaced window glass, compartment door glass and main door glasses of all Coaches.
8. Visual examination and tightening of loosen screws of end wall panels in coaches.
9. Repair destination board and holding bracket, replacement of destination and coach indication boards. Recording and reporting of items requires "replacement" to Railway representative, reporting of deficient items and its replenishment.
10. Replacement of fittings should be done as mentioned in Annexure-A
11. Touch up Spray / PU Painting /Manual painting of coaches, destination /indication boards etc. wherever is needed and advised by railway representative.
12. Repair and fitment of roller shutters of sliding doors.
13. Fitment of clamps for securing Fire extinguisher.
14. Inspection and repair of Emergency windows.
15. Inspection and repair of roof ventilators.
16. Inspection and fitment of door stoppers, flap door, alignment of seats and latches.
17. Inspection and repair of any other items of coach interior identified.


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18. Overhead Lavatory Water tank complete inspection (every half yearly):

- a. Open enclosure chamber and inspect for any faulty parts as pipe line, extensions etc.
- b. Change the defective parts in fitted condition.
- c. If found heavily damaged or leaky, dismantle the tank from coach, and mark for rehabilitation with advice of railway representative.
- d. Fit other serviceable tank in the coach.
- e. Clean the tank with prescribed chemicals
- f. Secure the tank with all fixtures and enclose.

19. Repair / Replacement of Seats & Back Rests :

- a. Damaged seats/back rests shall be identified by the nominated SSE/MEMU and stripped, transported, repaired, and refitted by the contractor with due care to avoid damage to coach structure.
 - b. Serviceable components shall be reused; damaged upholstery, cushions, ply, and frames shall be repaired or replaced as required. Rexene patching is not permitted.
 - c. Repair shall include frame repair, carpentry work, renewal of cushions and rexene, painting if required, and proper alignment during fitment.
 - d. All works shall be carried out as per approved drawings and latest amendments, using materials from RDSO-approved sources, and offered for Railway inspection.
 - e. Contractor shall arrange all tools, manpower, transport, safety gear, and dispose of waste responsibly. Any defect noticed at dispatch shall be rectified within one hour.
- 20.** Change of damage emergency window grill.
- 21.** Ply fitting after removal in various floor area of lavatory, compartment, doorway, gangway etc.
- 22.** Fitment of aluminum chequered sheet, Fitment of moulding of various types, Fitment of ceiling sheet of ceiling (if needed).
- 23.** Making and fitment of look out glass with all clamps, gasket and locking arrangements (as per advice of railway representative).
- 24.** Repair/Fitment of lookout Glass Cage (SS) when advised by Railway.
- 25.** Making and fitment of look out glass with all clamps, gasket and locking arrangements.

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WORKS SCHEDULE FOR REPLACEMENT OF FITTINGS IN COACHES

SN	Fitting	Work Schedule
1.	Bottle Holder	<ul style="list-style-type: none"> • Unscrew and remove the damaged amenity item • Fit the new bottle holder at the marked location and secure it properly using prescribed fasteners.
2.	Mug with Chain / Toilet Door Handles / Swing Door Handles / Soap Container	<ul style="list-style-type: none"> • Unscrew and remove the damaged amenity item. • Fit and screw the new item properly and check smooth operation.
3.	Odonil Container	<ul style="list-style-type: none"> • Provide a suitable pocket/container on the lavatory wall. • Unscrew and remove the damaged amenity item, if any. • Fit and screw the new container securely.
4.	Wash Basin Grid and Waste Pipe Set	<ul style="list-style-type: none"> • Remove the old wash basin grid and waste pipe. • Fit and screw the new set properly. • Apply silicone sealant to ensure leak-proof joints.
5.	Alarm Pull Handle	<ul style="list-style-type: none"> • Uncouple and remove the damaged alarm pull handle from the alarm chain/rope. • Couple the new alarm pull handle with the chain/rope using ring and brazing as indicated in the relevant drawing.
6.	Gravity Cock / Push Cock	<ul style="list-style-type: none"> • Unscrew and remove the defective cock from the pipeline. • Clean the pipeline threads thoroughly and apply approved sealant. • Screw the new cock into position ensuring a fully watertight joint. • Check for smooth and free operation.
7.	Toilet Ground Water Pipeline - Plumbing Work Complete	<ul style="list-style-type: none"> • Remove clamps of the leaking pipe and the ceiling NFTC sheet piece from above. • Disengage worn worm-drive hose clips and remove the pipe. • Separate elbows, connectors, gravity cock / push cock and pipe pieces. • Replace defective components and reassemble using approved thread sealing compound. • Refit the pipeline, clamps, and ceiling NFTC sheet piece.
8.	Toilet Flushing Pipe - Plumbing Work Complete	<ul style="list-style-type: none"> • Remove clamps of the leaking pipe and ceiling NFTC sheet piece from above. • Disengage worn worm-drive hose clips and remove the pipe. • Separate elbows, connectors, cock, and pipe pieces. • Replace defective components and reassemble using approved thread sealing compound. • Refit the pipe, clamps, and ceiling NFTC sheet piece.

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9.	Angle Section Mouldings at LP Sheet Corner Joints	<ul style="list-style-type: none"> • Unscrew and remove damaged/corroded moulding. • Fit the new moulding and screw it to the wall to cover the joint.
10.	Flat Section Mouldings at LP Sheet Joints	<ul style="list-style-type: none"> • Unscrew and remove damaged/corroded moulding. • Fit the new moulding and screw it to the wall to cover the joint.
11.	Z-Section Mouldings at Wall to Floor Skirt Joints	<ul style="list-style-type: none"> • Unscrew and remove damaged/corroded moulding. • Ensure proper tucking-in of PVC flooring where moulding covers PVC floor skirt to LP side panel joint. • Fit the moulding and screw it to the wall to cover the joint.
12.	Patching of Roof Sheet / LP Sheet	<ul style="list-style-type: none"> • Cut a suitably sized roof sheet / LP sheet patch. • Patch size shall be at least 10 cm larger than the damaged area on all sides. • Fix the patch using screws/pop rivets to completely cover the damaged surface. • Do not patch over an existing patch; instead of multiple small patches, use a single larger patch.
13.	Rolling Shutters	<ul style="list-style-type: none"> • Unscrew and remove the inspection cover of the rolling shutter. • Disengage the shutter from mounting brackets and remove it. • Replace damaged shutter, locking barrels, and studs as required. • Apply suitable lubricant to the spring and ensure smooth functioning. • Remount the shutter, ensure smooth operation and proper locking, and refit the inspection cover.
14.	Sealed Window Glass / Sealing Rubber / Weather Strip	<ul style="list-style-type: none"> • Unscrew and remove palmate and FRP housing. • Remove inside locking rubber, glass set, and outside sealing rubber/weather strip as per design. • Clean dust and moisture from glass seating area and glasses. • Fit cleaned/new glass with new sealing rubbers/weather strips, applying silicone sealant at joints. • Refit FRP housing and palmate securely.
15.	Window Exterior Glass Sealing Arrangement	<ul style="list-style-type: none"> • Disengage and remove the safety lock housing. • Unscrew and remove palmate and hinges of the glass assembly. • Open the glass assembly frame and separate all components. • Remove the external sealing rubber and thoroughly clean the seating area on the coach body. • Clean the frame and glass panels and reassemble using new or serviceable cleaned glass with new fixing rubbers. • Fix the external sealing rubber and mount the glass assembly in position. • Fit and tighten hinges and palmate, ensuring smooth operation and proper functioning of barrel bolts. • Refit and lock the safety lock housing. • Apply silicone sealant from the exterior side.

16.	Footboard	<ul style="list-style-type: none"> • Uncouple and remove the defective footboard at the doorway by removing fasteners. • Fit the new footboard using prescribed fasteners and ensure firm fitment.
17.	Cushioned seat	<ul style="list-style-type: none"> • Unscrew and remove the defective seat. • Take out the seat. • Fit the repaired/new unit and fasten bolts after ensuring proper alignment and firmness.
18.	Banjo Shutter	<ul style="list-style-type: none"> • Unscrew and remove the defective banjo shutter or its frame, as applicable. • Fit the new banjo shutter/frame and secure it properly with screws.
19.	Fire Extinguishers (when advised by Railway)	<ul style="list-style-type: none"> • Check validity of fire extinguishers; if due for periodical refilling, replace with a refilled extinguisher. • Keep the removed extinguisher at the nominated place for refilling. • Check the condition of clamps and tighten if found loose. • Replace broken or defective clamps with new ones.

Note: In case any new design in Passenger Amenity works in MEMU coaches is introduced or any item identified by Railway Supervisor during rake maintenance during the currency of the contract, the Contractor shall be responsible for providing necessary on-job training to his staff for execution of such works, in liaison with the Railway authorities, at no extra cost to the Railway.

Schedule A 2:- . Supply and fixation of rexine/mat with all fitting accessories on floor in TC & MC of MEMU rake (Fire Retardant Vinyl Coated Fabric as per RDSO Spec. No. RDSO/2008/CG-07, Rev. 0 Aug 2008).

● **Instructions for Fixation and Finishing of Rexine and Floor Mat Work in Coaches:**

1. Execution of Work:

- The fixation and finishing of rexine work shall be executed by the contractor immediately after placement of the rake, as per requirement and booking.
- Floor mat work will be carried out in each coach individually.
- The removal, fixation, and finishing of floor mat/rexine work shall be completed within **3 hours per coach.**

2. Quality Requirements:

- All work should be executed neatly, ensuring **no gaps between joints or holes**, particularly at the **seat stands.**
- Proper care should be taken to prevent water from entering through joints. All gaps and joints must be properly sealed.
- Adhesive and tape should be applied wherever necessary to seal joints.

3. Tools and Materials:

- All required tools and plants shall be provided by the contractor.
- **Prior approval from the Railway representative is mandatory** if any glue or adhesive is to be used.

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4. Supervision and Records:

- The Railway Supervisor will oversee the work.
- Proper records/registers should be maintained by the Contractor with supervision of section in charge.
- For work carried out in coaches, the work register should be **jointly signed by the representative of the Railway and the representative of the contractor.**

5. Execution Instructions:

- The fixation of rexine and mat work should be executed as per the instructions of the nominated official of **Sr. DEE/TRS/BIA.**
- If the work is found unsatisfactory, **no payment will be made**, and the contractor will be required to **re-execute the work at no extra cost.**

Schedule B 1:- Pest control treatment to MEMU coaches (MCs + TCs).

● Pest Control Guidelines for MEMU Coaches

1. Approved Chemicals/Insecticides

- Contractors must use only chemicals/pesticides approved for household use under the Insecticides Act 1968 and Insecticides Rules 1971.
- Chemicals must be rotated quarterly to prevent insects from developing immunity.
- Contractors must submit a detailed methodology for rotation and pest control.

1.1 Chemicals Effective on Bed Bugs and Cockroaches

Chemical	Form/Concentration
Fenthion	20% spray
Malathion	20%
Propoxur	20% EC
Pirimiphos-methyl	1% spray
Pirimiphos-methyl	10% spray
Proteamphos	1% spray

1.2 Smoke Generators for Hidden Areas

Chemical	Form/Concentration
Cypermethrin	3% smoke generator
Cyfluthrin + Transfluthrin	0.025% + 0.047% aerosol
Imiprothrin + Cypermethrin	0.7% + 0.2% aerosol

1.3 Additional Optional Insecticides

- Deltamethrin 2.5% EC (KOBOL/KOTHRIN)
- Fenthion 82.5% EC (BAYE)
- Beta Cyfluthrin 2.15% SC (RESPONDER)

Contractors may select any 3-4 of the above chemicals for rotation during treatment of coach interiors and hidden areas.

2. Treatment Methodology

2.1 Interior Spray

- Flushing agents: ROACHEX™, SOLFAC 050EW, DEVIKOL
- Dilution: 100 mL insecticide : 4.5 liters water
- Dose per coach: 4.6 liters of solution
- Spray cracks, crevices, toilets, and other vulnerable areas to force cockroaches out.

2.2 Fogging for Hidden Areas

• Machines: Fogging machines

• Chemicals (rotation):

- Propoxur 20% EC (BLATTANEX CONC)
- Deltamethrin 1.25% ULV (KING FOG)

- Process: Use annular space between side walls and floor holes for fumigation.
- Smoke generator treatment: Use CANON (125 gm) or equivalent; seal coach for 1 hour after lighting.

2.3 Timing of Treatment

- Treatment may begin immediately after MEMU train arrival at shed post-cleaning.
- Coaches are opened only when maintenance begins; contractor cannot claim insufficient chemical action time.

2.4 Coordinated Treatment

- Treat all coaches of a rake together to prevent cross-infestation.
- Spare coaches in the shed must also be treated according to frequency schedules.
- Monthly intensive cleaning is recommended; operational constraints may extend intervals.

3. Contractor Responsibilities

3.1 Reporting & Supervision

- Maintain liaison with Railway representatives for effective pest control.
- Submit joint inspection reports with Railway staff whenever required.
- Ensure records of chemical consumption are maintained and available for inspection.
- Stickers should be affixed in coaches mentioning the date of pest control.

3.2 Storage & Safety

- Railways provide free storage space for chemicals and records.
- Maintain one-month inventory in storage space.
- Storage space cannot be used for other purposes.
- Safe working practices must be followed to avoid risk to passengers, children, or staff.

3.3 Quality Assurance

1. Railway reserves the right to randomly test insecticides in government-approved labs; testing costs borne by contractor.

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4. Measurement of Infestation

- Contractor and Railway staff will jointly record infestation levels at various stages.
- Goal: Reduce/eliminate infestation in coaches.
- Methodology and results must be documented for all stages of the contract.

5. Tender Submission Requirements

Contractor must specify before commencement of work:

1. Chemicals to be used (with brand names).
2. Concentration/dilution ratios.
3. Dose per coach/treatment for different coach categories.
4. Methodology and rotation plan to ensure maximum efficacy.

Note: Schedule B 1 to be completed in all respect within 04 hours after handing over of MEMU Rake.


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Schedule C :- Heavy repair/replacement:

SN	Description of Work	Schedule
1.	Tank Rehabilitation: Cleaning, repairing, and testing of overhead Aluminium water tank of MEMU Coaches	As per requirement
2.	Full window assembly change or change of glass shutter or change of louver shutter	As per requirement
3.	Lavatory door complete change/repair with all amenities.	As per requirement
4.	Repair and fitment of compartment/main door/End sliding vestibule door/sliding door	As per requirement
5.	Fitting of mirror in lavatory area and outside basin area.	As per requirement
6.	Repair/replacement of side filling, lota pipe, wash basin pipe inside, outside and clamping properly	As per requirement
7.	Stripping & fitting of squirting pan/commode	As per requirement
8.	Supply and Application of Stickers with retro reflective sheet, ultralight and high intensity grade with digital print and UV protect (Content and design approval by Consignee) for Making and Fitment of Destination Boards, LV Boards for MEMU Coaches	As per requirement
9.	Repair/replacement of flush pipe with push type flush valve with all attachment.	As per requirement
10.	Repair/change of wash basin with dustbin in inside or outside lavatory with drain pipe and jali.	As per requirement

SN	Fitting/work	Work Schedule
1	Tank Rehabilitation: Cleaning, repairing, and testing of overhead Aluminium water tank of MEMU Coaches.	<ul style="list-style-type: none"> • Dismantling of all necessary pipe fittings from tank by opening Arch and ceiling. • Unload the Aluminium tank. • Transport the tank to specified cleaning and testing place. • After cleaning and testing reload the tank. • Assemble all pipe fitting to tank and screw if needed. • Check all rubber hose pipe and change if needed. <p>Note :- Tank cleaning to be done with Orthophosphoric acid and the same to be supplied by the firm.</p>
2	Full window assembly change or change of glass shutter or change of louver shutter.	<ul style="list-style-type: none"> • Unscrew and remove the window frame and tangent board. • Take out the complete window assembly. • Replace glass shutter, louver shutter, or both as required. • Replace the complete window assembly if the frame is badly damaged. • Refit and screw the window frame and tangent board properly.
3	Lavatory door complete change/repair with all amenities.	<ul style="list-style-type: none"> • Drop the defective lavatory door by unscrewing hinges. • For new door, ensure correct size and fit all components such as over-catch, hinges, barrel bolt, handles, coat hook, and ventilator. • Fit the door with proper alignment. • Screw hinges and ensure smooth operation of hinges, barrel bolt, and over-catch, and ensure no gaps on either side of the door. • Strip the door closure.

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		<ul style="list-style-type: none"> • Remove defective door by unscrewing hinges. • Fit the new/repared door ensuring proper alignment and screw the hinges. • Ensure all drops and hinges are working smoothly. • Refit the door closure and check proper operation.
4	Repair and fitment of compartment/main door/End sliding vestibule door/sliding door.	<ul style="list-style-type: none"> • Unscrew and remove the palmate. • Disengage the top roller from the top rail and remove the sliding door. • Dismantle the top roller assembly and replace defective components. • Replace the door panel and bottom guide, if required. • Inspect the top rail and bottom guide and replace if found defective. • Remount the sliding door, apply suitable lubricant, and ensure smooth operation. • Fit and screw palmate and provide latches on inside and outside for OPEN and CLOSED positions. • Remove the ceiling short piece from inside the lavatory on the left side of the sliding door. • Disengage the top roller and remove the sliding door. • Inspect the top and bottom rails; repair or replace as required. • Dismantle top roller assemblies, replace defective parts, and refit if required. • Replace the sliding door panel if found defective. • Mount the sliding door on top and bottom rollers, ensure correct alignment, apply suitable lubricant, and confirm smooth and free operation. • Fit safety latches in both OPEN and CLOSED positions and refit the ceiling short piece.
5	Fitting of mirror in lavatory area and outside basin area.	<ul style="list-style-type: none"> • Unscrew the mirror frame and remove the mirror. • Replace the mirror, mirror frame, or both as required. • Fix and screw properly ensuring firm fitment.
6	Repair/replacement of side filling, lota pipe, wash basin pipe inside, outside and clamping properly.	<ul style="list-style-type: none"> • Remove clamps of the leaking pipe and ceiling NFTC sheet piece from above. • Disengage worn worm-drive hose clips and remove the pipe. • Separate elbows, connectors, cock, and pipe pieces. • Replace defective components and reassemble using approved thread sealing compound. • Refit the pipe, clamps, and ceiling NFTC sheet piece. • Remove ceiling piece above the leaking/defective side filling pipe and its clamps. • Cut the supporting bracket welded to the underframe, if required. • Open worn worm-drive hose clips and disconnect the hose. • Separate pipe pieces, replace defective components, and reassemble using suitable thread sealing compound and jute/thread sealing tape. • Fit the assembly, clamp pipes, fit worm-drive hose clips, weld the supporting bracket, and refit the ceiling. • Fill the water tank and check for leaks.

7	Stripping & fitting of squirting pan/commode.	<ul style="list-style-type: none"> • Cut/open the bolts and dismantle the defective commode chute. • Fit the new commode chute ensuring proper alignment. • Weld brackets, if required, and securely fasten all nuts and bolts. • Access (to be done by Railway representative) the damage squirting pan. • Stripping the squirting pan. • Fitting new Squirting pan with proper screwing.
8	Supply and Application of Stickers with retro reflective sheet, ultralight and high intensity grade with digital print and UV protect (Content and design approval by Consignee) for Making and Fitment of Destination Boards, LV Boards for MEMU Coaches.	<ul style="list-style-type: none"> • The work shall include design, manufacture, supply, fitment, testing and commissioning of Destination Boards, Destination Board Glass, LV (Last Vehicle) Boards, Caution Boards and Log Book Boxes for MEMU coaches. • Making and supply of Destination Boards, Destination Board Glass, LV (Last Vehicle) Boards, Caution Boards and Log Book Boxes of approved size, colour, lettering style and font, suitable for MEMU coaches as per Railway representative advice. • Destination Board Glass, LV (Last Vehicle) Boards, Caution Boards and Log Book Boxes shall be made of approved material (FRP / Aluminium / Acrylic / as specified) with smooth finish and weather resistance as per Railway representative advice. • Lettering and markings shall be clear, legible, durable and non-fading. • Provision of all fixing arrangements, including clamps, fasteners, screws, rivets, gaskets, etc. • Making and supply of toughened / laminated safety glass for destination boards, as per Railway specifications as per Railway representative advice. • Glass shall be of uniform thickness, free from scratches, bubbles or distortions. • Provision of rubber beading / gasket, sealing compound and locking arrangements. • Proper fitment ensuring no rattling, water ingress or sharp edges. • Replacement of damaged or cracked glass wherever required. • Lettering shall be reflective / luminous, as applicable for LV board. • LV Boards shall be weatherproof and suitable for outdoor service conditions. • Complete fitment with approved clamps, bolts and fasteners as per designated locations. • Application of Stickers with retro reflective sheet, ultralight and high intensity grade with digital print and UV protect.
9	Repair/replacement of flush pipe with push type flush valve with all attachment.	<ul style="list-style-type: none"> • Open the clamps of the fishtail flushing pipe. • Uncouple and remove the defective flush valve. • Fit the new flush valve and connect the flush-out pipe with fishtail. • Clamp and secure the pipes properly and check for leakage.

10	Repair/change of wash basin with dustbin in inside or outside lavatory with drain pipe and jali.	<ul style="list-style-type: none"> • Dismantle damaged wash basin, dustbin, drain pipe and jali carefully without damaging surrounding fittings. • Remove old sealant, fasteners and dispose of unserviceable materials as per Railway norms. • Provide and fix new wash basin and dustbin (inside/outside as required) as per approved Railway drawing/specification. • Supply and fix new drain pipe and stainless steel jali/waste coupling with approved clamps and fasteners. • Apply suitable sealant to ensure leak-proof joints. • Connect inlet and outlet properly and ensure smooth drainage. • Conduct leakage test and complete the work to the satisfaction of the supervising Railway official.
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Schedule-D:-Material required for replacement on conditional basis for plumbing, carpentry works:-**1. For conventional MEMU Rakes are given below:**

SN	Description	Unit	Qty (Quarterly)	Qty for 3 Years
1	Thermostatic Plastic hose pipe 50 mm	Mtr	10	120
2	CF outlet pipe 1"	No.	20	240
3	Gravity Cock 1/2"	No.	150	1800
4	Hinges 3"	No.	100 (Half yearly)	600
5	Hinges 100mm	No.	20	240
6	Turnover Latch / Inside toilet door latch	No.	150	1800
7	Pipe clamp 1"	No.	30	360
8	Pipe clamp 1/2"	No.	30	360
9	Pipe clamp 3/4"	No.	30	360
10	Joint 'T' 1/2"	No.	30	360
11	Socket 1/2"	No.	30	360
12	Union 1/2"	No.	30	360
13	Nipple 1/2"	No.	30	360
14	Running socket 1/2"	No.	20	240
15	Tap 1/2"	No.	50	600
16	Jubilee clamp 31.50mm	No.	10	120
17	Jubilee clamp 50mm	No.	10	120
18	Complete set of water inlet pipe nozzle with elbow and reducer	No.	50	600
19	Toilet Grab Handle	No.	8	96
20	Door handle for inside and outside of toilet	No.	25	300
21	Flush Out Valve	No.	75	900
22	Flush out valve outlet arrangement (with fish tail)	Set	25	300
23	Barrel Bolt (Chitkini) - 150 mm	No.	75	900
24	Toilet floor drain sink cover	No.	75	900
25	Stainless Steel Dustbin	No.	80	960
26	Chain to fix the dustbin	No.	80	960
27	C-Clamp	No.	150	1800
28	40 mm elbow and its short piece (Nipple)	No.	200	2400
29	40 mm flexible extension pipe (Hose Pipe)	Metre	40	480
30	25 mm elbow and its short piece (Nipple)	No.	20	240
31	25 mm flexible extension pipe (Hose Pipe)	Metre	30	360
32	Jubilee Clamp - 25 mm elbow	No.	15	180
33	20 mm elbow and its short piece (Nipple)	No.	4	48
34	20 mm flexible extension pipe (Hose Pipe)	Metre	25	300
35	Jubilee Clamp for 20 mm elbow and its short piece (Nipple)	No.	10	120
36	1/2" T-type joint	No.	10	120
37	1/2" flexible extension pipe (Hose Pipe)	Metre	25	300
38	1/2" flexible pipe Jubilee clamp	No.	15	180
39	1/2" elbow and its short piece (Nipple)	No.	15	180
40	1/2" Hose Connector (Tail Piece)	No.	20	240
41	3/4" Hose Connector (Tail Piece)	No.	10	120
42	Supply and fixing of soap dispenser in toilets	No.	100	1200
43	Refilling of Liquid soap	No.	1062	12744

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44	Supply and fixing of Mirror in toilet	No.	15	180
45	Switch covers	No.	100	1200
46	Switches	No.	100	1200
47	Mobile charging sockets	No.	100	1200
48	Complete switch board with cover, switches and charging sockets as per prescribed design to be given by Railway	No.	50	600
49	Mug with chain	No.	120	1440
50	Dustbin with chain and garbage bag	No.	80	960
51	Odonil pocket	No.	120	1440
52	Grab handle	No.	100	1200
53	Indian commode pan	No.	1	12
54	Wash basin	No.	3	36
55	Water filling nozzle	No.	10	120
56	Sliding door roller	No.	20	240
57	Aluminium patti for toilet door 2"	Meter	50	600
58	Hexagonal Nipple 1.25"	No.	10	120
59	Locking arrangement for panel of MC & TC	No.	50	600
60	Screw set (3/2", 1", 3/4", 1/2")	Set	200	2400

2. For Three phase Rakes are given below:

SN	Description	Unit	Qty (Quarterly)	Qty for 3 Years
1	Thermostatic Plastic hose pipe 50 mm	Mtr.	5 mtr	60
2	Modular push type Flush Valve	No.	50	600
3	CF outlet pipe 1"	No.	5	60
4	Modular water tap ½"	No.	100	1200
5	Turnover Latch / Inside toilet door latch	No.	30	360
6	Socket ½"	No.	5	60
7	Union ½"	No.	5	60
8	Nipple ½"	No.	20	240
9	Running socket ½"	No.	10	120
10	Main Door latch (Inner/Outer)	No.	10	120
11	Bathroom door latch (Inside/Outside)	No.	10	120
12	Jublee clamp 60mm	No.	10	120
13	Modular Door lock for sliding door	No.	10	120
14	Screw set SS (3/2", 1", 3/4", 1/2")	Set	50	600
15	Door closure	No.	20 (Half yearly)	120
16	Toilet floor mat	Sq mtr	50 sq mtr	600
17	Modular wash basin tap	No.	50	600
18	Toilet spray jet gun (complete set)	No.	50	600
19	Western commode pan	No.	1	12
20	Indian commode pan	No.	1	12
21	Wash basin	No.	1	12
22	Flexible pipe size in set (3/2", 1", ½")	mtr	10 mtr	120
23	Water filling nozzle	No.	5	60
24	Poly carbonate adhesive for seat rexine fixing	Litre	5	60
25	Overhead Water tank as per specification to be given by Railway	No.	1	12

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SGE (MEMU)

RESOURCE SPECIFICATION

Tools, Tackles & equipment as listed below will be procured by the contractor for maintaining MEMU trains. To increase efficiency and quality of work, contractor may use additional tools not specified hereunder with the prior approval of DEE/MEMU or his nominated SSE of Shed.

A. CARPENTER'S TOOLS		
S.N	Description of Item	Quantity
1	Electric Operated Portable Hand Drilling Machine	1 per batch
2	Battery Operated Portable Hand Drilling Machine	1 per batch
3	Manual Pop-Revit Machine	1 per batch
4	Portable Circular Hand Saw	1 per batch
5	Portable Variable Speed Jig Saw	1 per batch
6	Hot Air Welding Gun	1 per batch
7	Hand Saw Cross Cut - 18"	1 per batch
8	Claw Pein Hammer with Handle (500 gms)	1 per batch
9	Screw Driver - 8"	1 per batch
10	Screw Driver - 12"	1 per batch
11	PVC Coated Cutting Pliers - 6"	1 per batch
12	Pin Punch - 4"	1 per batch
13	Try Square - 8"	1 per batch
14	Hexagonal Chisel - 6"	1 per batch
15	Carpenter's Brace - 250 mm	1 per batch
16	Triangular File - 6"	1 per batch
17	Half Round File - 16" (Bastard)	1 per batch
18	Measuring Tape - 3 meter	1 per batch
19	Pincer - 200 mm	1 per batch
20	"C" Clamp - 100 mm	1 per batch
21	Foot Rule (Folding)	1 per batch
22	Scissor - 10"	1 per batch
23	Knife for PVC Cutting	1 per batch
24	PVC Weed Trimming Knife	1 per batch
25	Tool for Grooving PVC Edge	1 per batch
26	Hack Saw with Blade	1 per batch
27	Plane - Try Plane	1 per batch
28	Plane - Smoothing Plane	1 per batch
29	Star Type Screw Driver	1 per batch
30	Socket Spanner 12.5 mm (22 sockets) with accessories	1 per batch
31	LED Headlight / Torch	1 per batch
32	Tool Bag	1 per batch
33	Grinding Stone - 8"	1 per batch
34	Diamond Cotter	1 per batch
35	Ladder with Platform (5-6 feet)	1 per batch
36	Allen Key Set	1 per batch
37	Wooden Wedges	1 per batch

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SSE(MEMU)

B. PLUMBER'S TOOLS		
S.N	Description of Item	Quantity
1	Hack Saw with Blade	1 per batch
2	Pipe Wrench – 18"	1 per batch
3	Screw Driver – 8"	1 per batch
4	Screw Driver – 10"	1 per batch
5	Centre Punch – 8" & 12"	1 per batch
6	Spanner Set	1 per batch
7	Ball Pein Hammer (800 gms)	1 per batch
8	Measuring Tape – 2 meter	1 per batch
9	Double Ended Open Spanner (Various sizes)	1 per batch
10	Single Open End Slogging Spanner (30-36 mm)	1 per batch
11	Adjustable Spanner – 12"	1 per batch
12	Star Type Screw Driver	1 per batch
13	Helmet	1 per batch
14	Hand Gloves	1 per batch
15	LED Headlight / Torch	1 per batch
16	Tool Bag	1 per batch
17	Allen Key Set	1 per batch
18	Wire Brush	1 per batch

C TRIMMER'S TOOLS		
S.N	Description of Item	Quantity
1	Bent Needle	1 per batch
2	Cutting Pliers	1 per batch
3	Hammer with Wooden Handle (500 gms)	1 per batch
4	Hot Air Gun for PVC Flooring	1 per batch
5	Straight Needle	1 per batch
6	Measuring Tape – 40"	1 per batch
7	Paint Brush for Patching – 3"	1 per batch
8	Scissors – 10"	1 per batch

D. WELDING TOOLS		
S.N	Description of Item	Quantity
1	Single/Three phase portable welding machine (for SS/MS/Aluminum)	1 per batch
2	Welding Helmet	1 per batch
3	Goggles	1 per batch
4	Angle Grinder	1 per batch
5	Speed Squares	1 per batch
6	Wire Brush	1 per batch
7	"C" Clamp	1 per batch
8	Pliers	1 per batch
9	Hand Gloves	1 per batch
10	Spanners	1 per batch
11	Hammers	1 per batch

Note: Additional tools/consumables shall be arranged by contractor as per scope of work.

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Special condition to be followed:

- i. Deployment for staff should be sufficient to complete work within 4 hours per rake, as of now for required staff strength per day (02 to 03 rakes) is as : 03 skilled staff (1 plumber/ITI, 1 carpenter/ITI, 1 welder/ITI) + 09 unskilled staff as helper + 01 Supervisor (Diploma/Graduate), total 13 staff.
- ii. There will be 02 gangs: 1. Plumber+ helpers 2. Carpenter+helpers + welder. Welder should be in coordination with plumber and carpenter gang.
- iii. Additional manpower may be required for Schedule B1 and C1 if detected during inspection or offered by railway. Bidder should study thoroughly about man power deployment before participating into bidding. Contractor shall finalize required man power after discussion with Railway representative as per work.
- iv. Man power should be made available 365 days including NH, Sundays or rest. Hence rest giver or reserve man power is to be maintained by contractor for uninterrupted service.
- v. Attendance sheet will be maintained on daily basis for Gang wise deputed man power. Railway representative shall verify and acknowledge this sheet on daily basis.
- vi. All works under schedule A,B and C(if required), have to be carried out simultaneously with prescribed time period as mentioned in Sr.No1 of STC of contract Annexure-III.
- vii. Initial inspection will be carried out between contractor supervisor and railway representative after arrival of rake at washing line or when offered by Railway. This will be recorded in Inspection Book prepared and presented by contractor with suggestion of Railway representative. This book will contain details of attention required to various parts/equipments/components of coaches under schedule A, B and C.
- viii. All work (plumbing and carpentry) has to be completed within **04 to 06 hours** for each rake depending upon type of inspection. For daily inspection rakes, this will take not more than 04 hours.
- ix. Supervisor is to ensure proper methodology and procedures for safe working. If working on look out glass, line isolation must be ensured by coordinating with Railway Supervisor
- x. **All staff should be conversant about rules regarding working under OHE, necessary training and counseling will be imparted by Railway.**
- xi. Staff should have proper PPEs as gloves, shoes and goggle (welder and carpenter if required) and proper uniform with ID card when working.
- xii. All staff should use prescribed tools/accessories prescribed.
- xiii. After completion of work, work done will be recorded in Inspection Book and will be signed by Contractor supervisor and Railway Representative. Scoring will be done as prescribed in appendix-I.
- xiv. Stock will be maintained as prescribed in Schedule-D. Minimum stock of supply items to be maintained at Shed. Storage of supply material is to maintained by contractor suitably as per Railway instructions and standards. Storage and availability of material to be verified by Railway representative on fort nightly basis. Proper record sheet to be maintained for this.
- xv. **Tools will be maintained and kept as per Annexure-B**
- xvi. **The contractor shall ensure availability of manpower at any hours when required as per rake availability or work arising, including nights to attend scheduled maintenance as well as emergency failures.**
- xvii. **Emergency complaints, en-route failures, and passenger-reported defects shall be attended immediately on line with no extra payment and rectified within the time limits prescribed by Railways. Contractor shall arrange vehicle (pick up van etc.) for mobilizing his staff with tools and equipments with Railway representative to reach site for attention on line.**
- xviii. The contractor shall not cite manpower shortage, shift constraints, or holidays as a reason for delay or non-attendance.
- xix. Failing to any of above will cause imposition of penalty as per penalty clause no.9 of STC of contract annexure-III.

वरिष्ठ मण्डल विद्युत अभियन्ता (क0 च0 स्टा0), भिलाई
(भारत के राष्ट्रपति के लिए तथा उनकी ओर से)

Sample of Score Card for satisfactory execution of work

Name of work:- Upper gear attention work with plumbing & carpentry works and pest control treatment of MEMU coaches (MCs + TCs) for 3 years.

Sl. No. - Date:..... Shift:..... Place:

Rake No- MC/.....

Manpower Deployed: Carpenter gang- Plumber gang- Welder-.....

SN	Coach no.	Type	Carpentry	Plumbing	Pest control	Total Obtained Score	Score%
1							
2							
3							
4							
5							
6							
7							
8							
9							
10							
11							
12							

Signature of Railway Supervisor

Name

Designation

Signature of Contractor Supervisor

Name

Designation

Note: These formats should be printed in booklet form and numbered serially.

ADME (MEMU)

SSE (MEMU)

Description of work evaluation	Score
Not attended	0
Extremely unsatisfactory	1
Poor	2
Average	3
Satisfactory	4
Extremely satisfactory	5

Score%	Penalty/Deduction
≥90%	Nil
85-90%	2%
80-85%	5%
70-80%	10%
60-70%	20%
50-60%	40%
40-50%	70%
<40%	100%

- Note:** -1. Scoring should be based on quality and quantity of work done.
2. Max. Value of each box for which scoring will be done is 5..

$$\text{3.Score\%} = \frac{\text{Total obtained Score}}{\text{Total score (15)}} \times 100$$

Calculation of Payment should be based on coach wise.

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SSF (MEMU)