

SCOPE OF WORK- INSOURCING OF MEMU ROOF ASSEMBLY

Brief Description of the Scope of Work:

The vendor has to do welding as per drawing and required grinding to suit on Next Assembly, inspect as per the Inspection Check Sheets and supply Roof Assembly for MEMU DM Shells

All the Input Components and Weld Fixtures required for Manufacturing of Roof Assembly will be supplied by BEML.

The work involves assembly of the components on weld fixtures by MIG/ MAG Welding Process with required Quality and Suitable Grinding and Spatter Removal etc. Some of the area is not accessible to MIG/MAG Welding Torch, in which SMAW (Shielded Metal Arc Welding) Process to be carried out.

Final Deliverables and Quantities:

Vendor has to refer the below mentioned 4 drawings to **Manufacture, Inspect and Supply** the Roof Assemblies.

Table No- 1					
S. No	Drawing Number	Description	Qty/ Shell (Nos)	PR Qty (Nos)	Delivery/ Month
1	84946004	ROOF ASSEMBLY	1	35	8 Nos
2	84956015	ARRGT.OF SUPPORTING BRACKETS-HT ROOM ROOF CABLE DUCT	1	35	8 Nos
3	84931201	INSTALLATION OF ROOF SUPPORT BRACKET-DMC	1	35	8 Nos
4	84940101	LAYOUT OF TUBES FOR ALARM CHAIN	1	35	8 Nos

BEML Scope :

- 1) All the detail Level Input components as per Annexure – A (Refer Item Scope)
- 2) Drawings mentioned in Annexure – A (i.e., 84946004, 84956015, 84931201 and 84940101)
- 3) Weld Fixtures
- 4) SMAW (shielded Metal Arc Welding) Machine
- 5) SS Welding Coils (1.0 mm Dia/ 1.2 mm Dia) and MS Welding Coils (1.2 mm Dia), Electrodes, Anti Spatters Spray and Gases
- 6) Electric power & Lighting
- 7) Pedestal Grinding Machines
- 8) Assistance for movement of Materials through Forklift and Cranes
- 9) Required Cotton Waste/ Banian Cloth etc to clean Oil Surface before welding
- 10) Required Thinner and Chalk Powder to Check Roof Leak Test on Welded joints
- 11) Passivation Gel (Scale Remover)
- 12) Canteen facilities will be provided for workers and amount will be deducted at actuals as per attendance register signed at the gate

Vendor Scope:

- 1) All Welding, Grinding, Gas Cutting and Trimming Works
- 2) Certified Welders in the following category to be engaged for the welding
 - a) MS to MS for 2F Position, Electrode: ER70S-6, (1.2 mm Dia) Shielding Gas: Co2/ ACM
 - b) SS to MS for **2F Position**, Electrode: **ER309L (1.0 mm Dia/ 1.2 mm Dia)**, Shielding Gas: **AoM)**
 - c) Sheet thickness range: 1.6 mm to 16 mm

- 3) Welder Qualification certificates for the welders deployed for manufacturing of Roof Structure with Skinning Assy to be provided.
- 4) The vendor shall engage dedicated supervisory staff 1 each for production and Quality related work in each shift (I and II shift). The staff should be Technically Qualified (Degree in Mechanical/Production Engineering with 3 years experience OR Diploma with 5 years experience) in similar nature of work. The proof of Qualification & work experience should be submitted to BEML at the time of Quote.
- 5) The supervisory staffs deployed by the firm should monitor the Production, Perform internal inspection, preparation of Inspection reports and Co-ordinate with BEML Staff for movement of Materials etc
- 6) **MIG/ MAG Welding Machines** - with Suitable Plugs for tapping of Power from existing Power points in BEML Shop floor. The existing Power points in BEML for welding Machine is **3 phase 415V**. The welding Machines should be calibrated and in proper working condition. The firm should submit calibration report of the welding machines to BEML before starting Production. The required Welding cables, Power cables, Regulators/ Flow meter and Spares and Consumables (Welding Tip, Tip Adaptor, Gas Nozzles and Insulator etc) are to be arranged by Vendor.
- 7) Only Calibrated Measuring instruments shall be used for Inspection.
- 8) Accessories like coveralls, safety kits, Welding Shield, Welding Glass, welding Leather Gloves, Leather Apron and Any other Personal Protective Equipment (PPE) etc. are to be arranged by the Vendor. Vendor has to ensure workers are wearing **necessary PPE's** inside BEML Premises
- 9) COVID-19 Protocol is to be strictly followed by workers deputed inside BEML Premises
- 10) Chipping Hammers, Wire Brush, Paint Brush, Portable/ Angle Grinding Machines and Grinding wheels etc
- 11) Minor grinding Operation is to be carried out wherever required to suit the next Level Assy
- 12) Vendor has to ensure optimum utilization of welding Consumables without wastages (i.e., Welding Coils, Electrodes, Anti Spatters Spray, Gases and Passivation Gel etc) provided by BEML.
- 13) Pickling and passivation of all MS to SS weld joints are to be carried out by the vendor.
- 14) Vendor should pay ESI/ PF for their employees deputed in BEML Premises at par with the minimum wages specified by the Government and submit proof of remittance every month for clearance of the bills. Personnel with valid ESI number only will be allowed to work inside BEML premises.
- 15) Vendor has to fulfil other statutory/ ISO requirement as per procedure of the company
- 16) Material Arrangements pertaining to Roof Structure with Skinning Assembly Components are to be ensured at work Place.
- 17) Housekeeping to be ensured in Work Place

Quality Requirements:

- 1) Vendor has to offer the Roof Assemblies to BEML Quality in Tack weld Condition after Installing all the Items as given in the Annexure - A. Full welding to be carried out after getting necessary approval from BEML-Quality. The completed roof assemblies should be free from weld defects, spatters, unwanted weld lumps, sharp or gas cut edges etc.
- 2) All the welded Joints of Roof Wall Assembly should be water Tight and this should be ensured by Vendor by doing Leak Test (i.e., Chalk powder with thinner) and there should not be any leakage in weld joints.
- 3) BEML will provide the quality check sheet format, which is to be followed for every Roof Assy.
- 4) Before taking up manufacturing activity, Self-Inspect BEML supplied components well in advance. In case of any defects same has to be informed to BEML Staff well in advance in order to provide Replacement.
- 5) Neat Storage of Completed Roof Assemblies to be ensured by Vendor in BEML

6) Register to be maintained and updated every day to keep records of Completion of Roof Structure with Skinning Assemblies with Sl. Nos (Serial No. to be punched on every completed Roof Assembly)

7) Vendor shall offer the Roof Assembly completed in all respect to BEML- Quality along with Inspection Report / Dimension Check-Sheets mentioning the PO number for Inspection.

8) BEML Quality will co-ordinate in the register after the acceptance of the assembly. Further, Planning / Progress will co-ordinate in the Register for physical receipt of the assembly and movement to the designated area. This is to be mandatorily maintained by the Vendor to forward/ Process the Payment of bills.

9) Vendor shall ensure the proper fitment of aggregates during shell integration. In case of any fitment issues, vendor has to engage their workmen for necessary correction and implementation of those corrections in further supplies

10) Any minor scope Changes/ Modifications in drawing or during inspection if any to be taken up by vendor without any additional cost

11) Vendor Invoice shall mention the PO number, quantity with Serial Numbers of the Accepted Roof Assemblies.

ANNEXURE - A

84946004- ROOF ASSEMBLY- BoM and Scope of Supply						
Level	Part Number	Description	Qty/ Roof	Item Scope	Thick	Process
1	84946004	ROOF ASSEMBLY	1	Vendor	Assy	Welding
2	84946005	CANTRAIL ASSEMBLY LH	1	Vendor	Assy	Welding
3	84946012	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	EM16148	CANTRAIL PART IN DOOR WAY	1	BEML	BC-BO	Welding
3	84946013	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	EM16147	CANTRAIL PART IN DOOR WAY	3	BEML	BC-BO	Welding
3	84946014	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	84946015	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	84946016	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
2	84946006	CANTRAIL ASSEMBLY RH	1	Vendor	Assy	Welding
3	84946017	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	EM16148	CANTRAIL PART IN DOOR WAY	1	BEML	BC-BO	Welding
3	84946018	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	EM16147	CANTRAIL PART IN DOOR WAY	3	BEML	BC-BO	Welding
3	84946019	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	84946020	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
3	84946021	CANTRAIL ASSEMBLY	1	BEML	BC-BO	Welding
2	84946007	ROOF SHEET ASSEMBLY	1	BEML	Assy	To be welded by BEML
3	84946022	ROOF SHEET ASSY	1	BEML	RC-II-I/H	Foil Roll welding
3	84946023	ROOF SHEET ASSY	1	BEML	RC-II-I/H	Foil Roll

						welding
3	84946024	ROOF SHEET ASSY.	1	Vendor	Assy	Welding
4	84946134	ROOF SHEET	2	BEML	1.6-MS	SH-FO
4	84946135	ROOF SHEET	1	BEML	3.15-MS	SH-DR
4	84946151	ROOF SHEET	1	BEML	3.15-MS	PL
3	84946025	ROOF SHEET ASSY.	1	Vendor	Assy	Welding
4	84946136	ROOF SHEET	2	BEML	1.6-MS	SH-FO
4	84946137	ROOF SHEET	1	BEML	3.15-MS	PL
4	84946146	ROOF SHEET	1	BEML	3.15-MS	SH
3	84946026	ROOF SHEET ASSY	1	BEML	RC-II-I/H	Foil Roll welding
3	84946027	ROOF SHEET ASSY.	1	BEML	RC-II-I/H	Foil Roll welding
3	84946028	ROOF SHEET ASSY.	1	BEML	RC-II-I/H	Foil Roll welding
3	84946029	ROOF SHEET ASSY	1	BEML	RC-II-I/H	Foil Roll welding
3	84946030	ROOF SHEET ASSY	1	BEML	RC-II-I/H	Foil Roll welding
2	EM16224	CARLINE FOR DISHED ROOF	11	Vendor	Assy	Welding
3	EM1622401	CARLINE	11	BEML	3.15-MS	PL-FO
3	EM1622402	FLAT	22	BEML	3.15-MS	SH
3	EM1622403	FLAT	22	BEML	3.15-MS	SH
3	EM1622404	FLAT	22	BEML	3.15-MS	SH
2	EM16163	COVER SHEET	1	Vendor	Assy	Welding
3	EM1616301	END COVER SHEET	2	BEML	2-MS	PL
3	EM1616302	MIDDLE COVER SHEET	1	BEML	2-MS	PL
3	CC15168	CLSOING PLATE	3	BEML	2-MS	SH-DR
3	CC15169	PAD	3	BEML	8-MS	FC-DB-DR-TAP
3	RFS6250510	SLOTTED CHEESE HD SCREW 5X10	12	BEML	Hardware	Hardware
2	CC16206	CARLINE	39	BEML	2-MS	PL-FO
2	CC16431	GRILL COMPLETE FOR ROOF VENTILATOR	6	BEML	Assy	Welding
3	RFS8720813	CROSS RECESSED PAN HEAD TAPPING SCREW -S	18	BEML	Hardware	Hardware
2	CC16429	RING COMPLETE FOR ROOF VENTILATOR	6	BEML	Assy	Welding
2	WLRRM41641203	CHANNEL ASSY	24	BEML	Assy	Welding
3	CFN0110652	HEX. NUT M6	48	BEML	Hardware	Hardware
2	84946102	L-STIFFENER	2	BEML	1.6-MS	SH-DR-FO
2	EM16115	L-STIFFENER	2	Vendor	Assy	Welding
3	EM16181	L-STIFFENER	2	BEML	1.6-MS	PL-FO
3	AE16294	ANGLE	2	BEML	3.15-MS	SH-DR-FO
2	84946123	L-STIFFENER LH	1	BEML	1.6-MS	PL-FO
2	84946125	L-STIFFENER RH	1	BEML	1.6-MS	PL-FO
2	84946127	L-STIFFENER	2	BEML	2-MS	SH-NIBB-FO
2	EM16114	L-STIFFENER	2	BEML	2-MS	PL-FO
2	84946156	L-STIFFENER	1	BEML	2-MS	PL-FO

2	84946126	L-STIFFENER LH	1	BEML	2-MS	SH-NIBB-FO
2	84946157	L-STIFFENER RH	1	BEML	2-MS	SH-NIBB-FO
2	EM16183	L-STIFFENER	4	BEML	2-MS	PL-FO
2	EM16140	ANGLE	4	BEML	2-MS	SH-FO
2	84946103	L-STIFFENER	2	BEML	2-MS	PL-FO
2	ICFSTD1603601	FLAT	28	BEML	2-MS	SH
2	84946010	LOCATION OF SUPPORT AND BKTS FOR ROOF	1	Vendor	Assy	Welding
3	MEMUDMC16010C1	FAN BRACKET	2	BEML	Assy	Welding
3	MEMUDMC16010C2	FAN BRACKET	5	BEML	Assy	Welding
3	MEMUDMC16010C3	FAN BRACKET	5	BEML	Assy	Welding
3	MEMUDMC16010C4	FAN BRACKET	8	BEML	Assy	Welding
3	84946041	FAN BRACKET	2	BEML	Assy	Welding
3	84946042	FAN BRACKET	2	BEML	Assy	Welding
3	84946043	FAN BRACKET	6	BEML	Assy	Welding
3	84946044	FAN BRACKET	1	BEML	Assy	Welding
3	84946045	FAN BRACKET	1	BEML	Assy	Welding
3	ICFSTD16032C6	GRABRAIL BRACKET	26	BEML	Assy	Welding
4	ICFSTD16032P2	FLAT	26	BEML	10-MS	FC-DB
4	ICFSTD16032P33	CHANNEL	52	BEML	3.15-MS	SH-Tap-FO
3	84946166	ANGLE	2	BEML	2-MS	SH-FO
3	84946168	SUPPORT	8	BEML	2-MS	SH
3	84946169	SUPPORT	6	BEML	2-MS	SH
3	84946172	SUPPORT	2	BEML	3.15-MS	SH
3	84946173	SUPPORT	6	BEML	3.15-MS	SH
3	84946174	ANGLE LH	2	BEML	3.15-MS	PL-FO
3	84946175	ANGLE RH	2	BEML	3.15-MS	PL-FO
3	84946176	ANGLE	2	BEML	3.15-MS	SH-FO
3	84946177	ANGLE	3	BEML	3.15-MS	SH-FO
3	CC16367	ANGLE	58	BEML	3.15-MS	SH-FO. To be welded after Coach Erection
3	84946035	LAYOUT OF DUCT ANGLES AND LAMP BRACKETS	1	Vendor	Assy	Welding
4	DMUTC5165071	ANGLE	22	BEML	3.15-MS	SH-FO
4	DMUTC5165073	ANGLE	22	BEML	3.15-MS	SH-FO
4	DMUTC1016004P4	FLAT	11	BEML	2-MS	SH
4	DMUTC1016004P5	FLAT	6	BEML	2-MS	SH
4	84946033	LAMP BRACKET	14	BEML	Assy	Welding-DR
5	84946147	ANGLE	28	BEML	3.15-MS	SH-FO
5	84946148	ANGLE	28	BEML	3.15-MS	SH-FO
5	84946149	NUT PLATE	168	BEML	5-MS	SH
4	84946034	LAMP BRACKET	6	BEML	Assy	Welding-DR
5	84946152	ANGLE	12	BEML	3.15-MS	PL-FO
5	84946150	HAT STRIP	12	BEML	3.15-MS	SH-FO
5	84946149	NUT PLATE	24	BEML	5-MS	SH
4	84946036	LAMP BRACKET	8	BEML	Assy	Welding-DR
5	84946183	ANGLE	16	BEML	2-MS	SH-FO

5	84946206	PLATE	16	BEML	5-MS	SH
5	84946207	COVER STRIP	16	BEML	2-MS	SH
4	DMUTC5165071	ANGLE	2	BEML	3.15-MS	SH-FO
4	DMUTC5165073	ANGLE	2	BEML	3.15-MS	SH-FO
4	84946051	SPEAKER BRACKET ASSY	1	Vendor	Assy	Welding
5	84946200	STRIP	2	BEML	3.15-MS	SH
5	84946202	STRIP	2	BEML	3.15-MS	SH
5	84946203	STRIP	1	BEML	3.15-MS	PL
5	84946149	NUT PLATE	4	BEML	5-MS	SH
4	84946204	LED CLUSTER LIGHT BRACKET	1	BEML	3.15-MS	PL
4	84931109	SPOT LIGHT BRACKET	1	BEML	2-MS	PL
4	84946208	PLATE	2	BEML	3.15-MS	SH
3	84946052	FAN BRACKET	1	BEML	Assy	LC-FO-WD-DR-Tap
2	84946011	BRACKETS OVER ROOF	1	Vendor	Assy	Welding
3	84946187	PVT BRACKET	1	BEML	16-MS	FC-DB-Tap
3	84946188	BASE PLATE FOR PT GLAND	1	BEML	8-MS	FC-DB-Tap
3	84946189	SURGE ARRESTOR BRACKET	2	BEML	16-MS	FC-DB-Tap
3	84946190	HVT BRACKET	1	BEML	16-MS	FC-DB-Tap
3	84946191	PANTO INSULATOR BRACKET	4	BEML	16-MS	FC-DB-Tap
3	84946046	BBR JUNCTION BOX FRAME	1	BEML	Assy	Welding
4	8494604601	CHANNEL	2	BEML	3.15-MS	SH-DR-FO
4	8494604602	CHANNEL	2	BEML	3.15-MS	SH-DR-FO
3	84946047	BBR BRACKET	1	BEML	Assy	Welding
4	8494604701	CHANNEL	2	BEML	5-MS	FC-DB-DR
4	8494604702	CHANNEL	2	BEML	3.15-MS	SH-FO
3	84946048	EARTHING SWITCH & VCB BRACKET	1	BEML	Assy	Welding-TAP
4	8494604801	PLATE	2	BEML	16-MS	FC-DB
4	8494604802	PLATE	2	BEML	16-MS	FC-DB
4	8494604803	PLATE	1	BEML	16-MS	FC-DB-MILL
3	84946192	ANTENNA MOUNTING PLATE	1	BEML	8-MS	FC-DB-DR-TAP
2	EM16121	L-STIFFENER	6	BEML	1.6-MS	PL-FO
2	EM16123	L-STIFFENER	10	BEML	1.6-MS	SH-DR-FO
2	EM16132	ANGLE	4	BEML	1.6-MS	SH-FO
2	EM16178	ANGLE	4	BEML	1.6-MS	SH-FO
2	84946107	L-STIFFENER	2	BEML	1.6-MS	PL-FO
2	84946180	L-STIFFENER	26	BEML	1.6-MS	PL-FO
2	EM16176	L-STIFFENER	10	BEML	1.6-MS	PL-FO
2	EM16164	COVER SHEET	1	Vendor	Assy	Welding
3	EM1616401	END COVER SHEET	2	BEML	2-MS	PL
3	EM1616402	MIDDLE COVER SHEET	1	BEML	2-MS	PL
2	84946108	U - STIFFENER	6	Vendor	Assy	Welding
3	84946USTIFF	U STIFFENER L-1200MM	6	BEML	1.6-MS	SH-FO

2	84946109	U - STIFFENER	4	Vendor	Assy	Welding
3	84946USTIFF	U STIFFENER L-1200MM	16	BEML	1.6-MS	SH-FO
2	84946110	U - STIFFENER	6	Vendor	Assy	Welding
3	84946USTIFF	U STIFFENER L-1200MM	72	BEML	1.6-MS	SH-FO
3	84946USTIFF	U STIFFENER L-1200MM	3	BEML	1.6-MS	SH-FO
2	EM36345	HORN MOUNTING BRACKET	2	Vendor	Assy	Welding
3	EM36346	HORN MOUNTING BRACKET	2	Vendor	Assy	Welding
4	EM36347	MOUNTING BRACKET	2	BEML	5-MS	FL-DB-DR-TAP-FO
4	RPF2610010	SOCKET 10MM BORE	2	BEML	Hardwares	BS-DR
2	EM16222	BACK PIECE	2	BEML	5-MS	FC-DB
2	84946111	L-STIFFENER	2	BEML	1.6-MS	PL-FO
2	84946112	ANGLE	2	BEML	1.6-MS	SH-FO
2	84946153	CHANNEL	2	BEML	3.15-MS	SH-FO
2	84946154	CHANNEL	2	BEML	3.15-MS	PL-FO
2	84946155	CHANNEL	2	BEML	3.15-MS	PL-FO
2	84946162	CHANNEL	2	BEML	3.15-MS	PL-FO
2	84946181	L-STIFFENER	2	BEML	2-MS	SH-FO
2	84946158	LAMP BRACKET	2	BEML	2-MS	SH-FO
2	AW16150	CONNECTING PIECE	90	BEML	1.6-MS	SH-FO
2	84946197	CLOSING PIECE	2	BEML	3.15-MS	PL
2	RPF2610010	SOCKET 10MM BORE	3	BEML	Hardwares	BS-DR

84956015- ARRGT.OF SUPPORTING BRACKETS-HT ROOM ROOF CABLE DUCT - BoM and Scope of Supply						
Level	Part Number	Description	Qty/ Roof	Item Scope	Thick	Process
1	84956015	ARRGT.OF SUPPORTING BRACKETS-HT ROOM ROOF CABLE DUCT	1	Vendor	Assy	Welding
2	8495601501	FLAT 594X40X3T	2	BEML	3-SS	PL
2	8495601502	FLAT 854X40X3T	1	BEML	3-SS	PL
2	8495601503	FLAT 680X40X3T	1	BEML	3-SS	PL
2	8495601504	FLAT 531X40X3T	2	BEML	3-SS	PL
2	8495601505	FLAT 576X40X3T	4	BEML	3-SS	PL
2	8495601506	FLAT 356X40X3T	2	BEML	3-SS	PL
2	8495601507	FLAT 571X40X3T	2	BEML	3-SS	PL
2	8495617302	RAIL BRACKET L=100 MM	60	BEML	2-SS	LC-FO
2	8495617301	RAIL BRACKET L=80 MM	3	BEML	2-SS	LC-FO
2	84921137	EARTHING BLOCK M8	10	BEML	12.5-SS	LC-DR-TAP
2	8495601511	ANGLE	1	BEML	3-SS	PL-FO

84931201- INSTALLATION OF ROOF SUPPORT BRACKET-DMC- BoM and Scope of Supply

Level	Part Number	Description	Qty/ Roof	Item Scope	Thick	Process
1	84931201	INSTALLATION OF ROOF SUPPORT BRACKET-DMC	1	Vendor	Assy	Welding
2	84931003	JUNCTION BOX MOUNTING BRACKET ASSY	8	Vendor	Assy	WD-DR- TAP
3	8493100301	CHANNEL	16	BEML	3.15-MS	SH-FO
3	8493100302	PLATE	16	BEML	3.15-MS	SH
3	84931104	SQUARE PLATE	32	BEML	3.15-MS	SH
2	84931004	JUNCTION BOX MOUNTING BRACKET ASSY	2	Vendor	Assy	WD-DR- TAP
3	8493100401	CHANNEL	4	BEML	3.15-MS	SH-FO
3	8493100302	PLATE	4	BEML	3.15-MS	SH
3	84931104	SQUARE PLATE	8	BEML	3.15-MS	SH
2	84931002	CLAMP ASSY. DIA 40(2 CONDUITS)	24	BEML	BC-BO	WD
2	94331002	CLAMP ASSY. DIA 40	28	BEML	BC-BO	WD
2	94356230	CLAMP ASSY. DIA 40	28	BEML	BC-BO	WD
2	84931001	CLAMP ASSY DIA 25 (TRIPLE)	56	BEML	BC-BO	WD
2	94331003	CLAMP ASSY. DIA 29	24	BEML	BC-BO	WD
2	84931005	ROOF ANGLE ASSY	32	BEML	Assy	WD-DR- TAP
3	8493100501	ANGLE PLATE	32	BEML	2-MS	SH-FO
3	84931104	SQUARE PLATE	32	BEML	3.15-MS	SH
2	84931006	ROOF ANGLE ASSY	18	BEML	Assy	WD-DR- TAP
3	8493100601	ANGLE PLATE	18	BEML	2-MS	SH-FO
3	84931104	SQUARE PLATE	18	BEML	3.15-MS	SH
2	84931010	CHANNEL ASSY FOR PIS DB- DMC	4	Vendor	Assy	WD-DR- TAP
3	8493101001	CHANNEL	4	BEML	3.15-MS	SH-FO
3	8493101002	PLATE	4	BEML	3.15-MS	SH
2	84931102	CHANNEL	4	BEML	2-MS	PL-DR-FO
2	84931105	SUPPORT CHANNEL	3	BEML	2-MS	PL-DR-FO
2	84921137	EARTHING BLOCK M8	40	BEML	12.5-SS	LC-DR-TAP
2	84931007	ANGLE ASSY	18	BEML	Assy	WD-DR- TAP
3	8493100701	BRACKET	18	BEML	2-MS	SH-FO
3	84931104	SQUARE PLATE	18	BEML	3.15-MS	SH

84940101- LAYOUT OF TUBES FOR ALARM CHAIN- BoM and Scope of Supply

Level	Part Number	Description	Qty/ Roof	Item Scope	Thick	Process
1	84940101	LAYOUT OF TUBES FOR ALARM CHAIN	1	Vendor	Assy	Welding
2	ICFSTD1001844	TUBE	1	BEML	15.9 Dia Pipe	Flaring. To be welded inside Coaches

2	ICFSTD1001845	TUBE	2	BEML	15.9 Dia Pipe	Flaring
2	ICFSTD1001837	TUBE	1	BEML	15.9 Dia Pipe	Flaring
2	ICFSTD1001826	TUBE	1	BEML	15.9 Dia Pipe	Flaring
2	ICFSTD1001801	TUBE	1	BEML	15.9 Dia Pipe	Flaring
2	ICFSTD1001843	TUBE	1	BEML	15.9 Dia Pipe	Flaring. To be welded inside Coaches
2	ICFSTD1001210	LUG	2	BEML	5-MS	FC-DB. To be welded inside Coaches
2	ICFSTD1001882	TUBE	1	BEML	15.9 Dia Pipe	Flaring
2	ICFSTD1101230	BOSS	2	BEML	BC-BO	BS-DR
2	ICFSTD1001812	TUBE	1	BEML	15.9 Dia Pipe	Flaring