

MAHARASHTRA METRO RAIL CORPORATION LIMITED

(Jointly owned company of Government of India and Government of Maharashtra)

Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Name of Work:

Design, Manufacture, Supply, Testing, Commissioning of Passenger Rolling Stock (16 Nos of Train Sets) and Training of Personnel with Comprehensive Annual Maintenance contract (15 year) for Nagpur Metro Rail Project Phase-II.

Sr. No.	Clause No	Existing Provision	Revised Provision
1.	Part 1, Pricing Document / Corrigendum 2/Sr no 2 (Attachment-1), Cost Centre No. I	Notes: 2. Contractor shall load i. Not more than 20% of the cost centre I cost in 1st to 5th year , price shall be distributed in equal proportion ii. Not More than 45% of the cost centre I cost in 5th to 10th year . , price shall be distributed in equal proportion iii. Balance 35% in last 5 year 11th to 15th year. , price shall be distributed in equal proportion.	Notes: 2. Contractor shall load i. Not more than 20% of the cost centre I cost in 1st to 5th year, price shall be distributed in equal proportion. ii. Not More than 45% of the cost centre I cost in 6th to 10th year, price shall be distributed in equal proportion iii. Balance (not less than 35%) in last 5 year 11th to 15th year, price shall be distributed in equal proportion.
2.	Part 1, Annexure IV A, Pricing Document / Corrigendum 2/ Sr No 17, Cost Centre No. I	4. Total admissible price variation amount shall be subject to a ceiling of (+/-) 10% (Ten Percentage) of the total CAMC cost.	4. Total admissible price variation amount shall be subject to a ceiling of (+/-) 25% (Twenty Five Percentage) of the total CAMC cost.
3.	Part 2, Works Requirement - Technical Specification/Corrigendum 2 Sr No	4.14.3 Each car shall have minimum eight pairs (four per side) of electrically operated, plug type door doors.	4.14.3 Each car shall have minimum eight pairs (four per side) of electrically operated, plug type / sliding bi-parting doors

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	43 & 70, 4.14.3 and 7.2.1	(See Chapter 7) 7.2.1(i) Each car shall have minimum eight pairs (four per side) of plug type doors. The clear door opening width of each door pair shall be minimum 1400 mm and a clear height of at least 1900 mm. The doors shall be electrically driven.	(See Chapter 7). 7.2.1(i) Each car shall have minimum eight pairs (four per side) of plug type or sliding bi-parting doors . The clear door opening width of each door pair shall be minimum 1400 mm and a clear height of at least 1900 mm. The doors shall be electrically driven.
4.	Part 2, WORKS REQUIREMENTS SECTION VII-A: EMPLOYER'S REQUIREMENT – GENERAL SPECIFICATION/ Corrigendum 2 Sr no 15, 1.1.1	This Specification is for Rolling Stock for Phase II of Nagpur Metro Rail Project (NMRP). The phase I of the NMRP has already been commissioned and operational. The phase II of Nagpur Metro Project is basically extension of both lines at each ends. Therefore, the trains are required to be able to run in the whole section of phase 1 and phase 2. The bidders shall note that the design parameters of trains for Phase II shall be compatible with existing trains Systems of phase 1, for example coupler, bogie base, lifting positions, PA PIS, Signalling Interface Parameters, braking characteristics etc. The detail discussion shall be held during design stage.	This Specification is for Rolling Stock for Phase II of Nagpur Metro Rail Project (NMRP). The phase I of the NMRP has already been commissioned and operational. The phase II of Nagpur Metro Project is basically extension of both lines at each ends. Therefore, the trains are required to be able to run in the whole section of phase 1 and phase 2. The bidders shall note that the design parameters of trains for Phase II shall be compatible with existing Installed Systems of phase 1, for example coupler, bogie base, lifting positions, PA PIS, Signalling Interface Parameters, braking characteristics. The detail discussion shall be held during design stage.
5.	Part 2, Works Requirement - General	The PREB team shall consist of at least 10 fully trained staff per shift who shall be strategically located throughout the network, so as to always ensure that	The PREB team shall consist of Minimum 05 fully trained staff during revenue operational hours who shall be strategically located throughout the network, so as to always ensure that incidents will be attended by PREB

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	Specification, 16.8.2	incidents will be attended by PREB staff within 30mins of receiving a request to attend an incident.	staff within 30mins of receiving a request to attend an incident.
6.	Part 1, Bidding Procedure Section II: Bid data, ITB 1.5 (new para)	<p>1. Pursuant to the policy of the Government of India, Department of Industrial Policy and Promotion (DIPP) and Ministry of Housing and Urban Affairs (MoHUA) has issued 'Revision of Minimum Local Content (MLC) of various metro rail components under MII-PPP Order, 2017 of DPIIT vide No. K-14011/08/2017/MRTS-Coord dated 14.10.2020 (placed as Annexure-X). With respect to the above policy the minimum local content in procurement value of the Rolling Stock Tender N2-057/RS-01/2025 shall be (60%) The Bidder shall be required to provide a self-certificate or a certificate from the statutory auditor or cost auditor giving the percentage only of minimum local content and this self-certificate or certificate from statutory auditor or cost auditor shall be enclosed with the bid uploaded in technical section of e-tender portal. Only percentage values shall be mentioned in these certificates and no financial values shall be mentioned.</p> <p>2. In case only self-certificate as per para (1) above has been submitted, the Bidder shall also be required to provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or</p>	<p>Availing Purchase Preference</p> <p>All such tenderers who certify in their offer that the Local content in their offer is equal to or more than 60%, shall be treated as class I "Local Supplier" and shall be eligible for availing purchase preference as elaborated below.</p> <p>Pursuant to the policy of make in India issued by the Department for Promotion of Industry and Internal Trade (DPIIT) of Government of India, vide letter P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 and Guidelines issued by Ministry of Housing and Urban Affairs (MoHUA) h 'Revision of Minimum Local Content (MLC) of various metro rail components under MII-PPP Order, 2017 of DPIIT vide No. K-14011/08/2017/MRTS-Coord dated 14.10.2020 (letters placed as Annexure-X). compliance of following is to be ensured by the bidder</p> <p>(i) with respect to the above policy the minimum local content in procurement value of the Rolling Stock Tender N2-057/RS-01/2025 shall be (60%) Local content as defined in circular no P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 .</p>

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		<p>from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content as specified in above MoHUA referred order after the Last Date stipulated for Bid Submission but within 15 days from the Last Date stipulated for Bid Submission (For example, if the Last Date stipulated for Bid Submission is 28.04.2025 the certificate has to be submitted on or before 13.05.2025 during office hours). In case the certificate is not received within the stipulated time and duly signed by the person as above, the offer will be considered nonresponsive and rejected; and the financial bid of such bidders shall not be opened. This local content should be greater than or equal to the minimum local content specified in Para (1) above for the bid submission to be a valid offer. Only percentage values shall be mentioned in these certificates and no financial values shall be mentioned.</p> <p>This Certificate shall be submitted physically in hard copy in the office of ED(Procurement)/Nagpur duly marked "Not to be Opened by Anyone except ED (Procurement)" at the following address:</p>	<p>(ii) The bidder shall give self-certification or a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content in the quoted item (good/works/services) as specified in above MoHUA referred order at the time of tendering.</p> <p>(iii) In case only self-certificate as per para (i) above is submitted, the Bidder shall also be required to provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content as specified in above MoHUA referred order after the Last Date stipulated for Bid Submission but within 30 days from the Last Date stipulated for Bid Submission (For example, if the Last Date stipulated for Bid Submission is 28.04.2025 the certificate has to be submitted on or before 28.05.2025 during office hours). In case the certificate is not received within the stipulated time and duly signed by the person as above, the offer will be considered non-responsive and rejected; and the financial bid of such bidders shall not be opened. This local content should be</p>



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		<p>ED (Procurement)</p> <p>MAHARASHTRA METRO RAIL CORPORATION LIMITED, METRO BHAVAN, VIP ROAD, NEAR DEEKSHABHOOMI, RAMDASPETH, NAGPUR-440010 (INDIA)</p> <p>For the purpose of purchase preference to the Indian Bidders, this tender is classified as 'Non-Divisible' and point 3 and point 6 of enclosed order of MoHUA letter No. P-45021/2/2017-PP (B.E.-II) dated 19.07.2024 shall be entirely applicable along with other pertinent clauses which would be valid and fully enforceable at any stage of procurement and contract execution.</p> <p>Procedure for verification process, if needed and penalty for violation shall be applicable as per the above referred Order dated 19.07.2024.</p> <p>The technical offers of the bidders who do not comply/submit the documentation as per above point 1 & 2 with respect to enclosed order of MoHUA letter No. P-45021/2/2017-PP-B.E.-II dated 19.07.2024 shall be rejected and considered non-responsive and their financial offers shall not be opened.</p>	<p>greater than or equal to the minimum local content specified in Para (i) above for the bid submission to be a valid offer. Only percentage values shall be mentioned in these certificates and no financial values shall be mentioned.</p> <p>This Certificate shall be submitted physically in hard copy in the office of ED(Procurement)/Nagpur duly marked "Not to be Opened by Anyone except ED (Procurement)" at the following address:</p> <p>ED (Procurement)</p> <p>MAHARASHTRA METRO RAIL CORPORATION LIMITED,</p> <p>METRO BHAVAN, VIP ROAD, NEAR DEEKSHABHOOMI, RAMDASPETH, NAGPUR-440010 (INDIA)</p> <p>(iv) This procedure of Local content certification as stipulated in letter P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 will be followed for Bid Submission and also during execution of the project.</p> <p>(v) For the purpose of purchase preference to the Indian Bidders, this tender is classified as 'Non-Divisible' and point 3 and point 6 of enclosed order of MoHUA letter No. P-45021/2/2017-PP (B.E.-II) dated</p>



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			<p>19.07.2024 shall be applicable along with other pertinent clauses which would be valid and fully enforceable at any stage of procurement and contract execution. Procedure for verification process, if needed and penalty for violation shall be applicable as per the above referred Order dated 19.07.2024</p> <p>(vi) The technical offers of the bidders who has claimed price preference but who do not comply/submit the documentation as per above point i, ii & iii with respect to enclosed order of MoHUA letter No. P-45021/2/2017-PP-B.E.-II dated 19.07.2024 shall be rejected and considered non-responsive and their financial offers shall not be opened</p> <p>(vii) For the purpose of verification of minimum local content of 60%, Cost of Cost Center I i.e CAMC will be excluded.</p>
7.	Part 1, Bidding Procedure Section II: Bid data, ITB 14.5 (new para) .	For price adjustment / variation, refer to instructions / conditions contained in the Pricing Document (Section IV: Bidding Forms (Form 3; Annexure IV-A)	For price adjustment / variation, refer to instructions / conditions contained in the Pricing Document (Annexure IV-A)
8.	Part 1, Bidding Procedure Section	Pursuant to the policy letter of Ministry of Urban Development MRTS Coord no. F.No. K-14011/9/2014/UT-II/MRTS-Coord dated 11th April	Pursuant to the policy letter of Ministry of Urban Development MRTS Coord no. F.No. K-14011/9/2014/UT-II/MRTS-Coord dated 11th April 2018 & 28th Nov 2019 and

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	II: Bid data, ITB 1.6 (new para)	<p>2018 (28th Nov 2019) and Mandatory conditions/guidelines applicable to Metro Rail Projects vide MOHUA letter no. K-14011/26/2018-MRTS-II dated 27.07.2018, the following has been mandated to be necessarily complied for manufacturing of metro cars:</p> <p>i. Minimum 75% of the tendered quantity amounting to shall be manufactured indigenously with progressively increased indigenous content either by establishing facility in India or in Partnership with Indian reputed manufacturers.</p> <p>ii. To facilitate ease in maintenance and easy availability of spares during post warranty period, an identified list of critical equipment/subsystems in included in tender as Cost centre G/spares of "Pricing Document". 25% quantity of these items must be indigenously manufactured in India either by OEM themselves by establishing a wholly owned subsidiary in India or through a suitable Indian reputed manufacturer.</p>	<p>Mandatory conditions/guidelines applicable to Metro Rail Projects vide MOHUA letter no. K-14011/26/2018-MRTS-II dated 27.07.2018 (enclosed at Annx-X), the following has been mandated to be necessarily complied for manufacturing of metro cars:</p> <p>(i) Minimum 75% of the tendered quantity shall be manufactured indigenously with progressively increased indigenous content either by establishing facility in India or in Partnership with suitable Indian reputed manufacturers.</p> <p>(ii) To facilitate ease in maintenance and easy availability of spares during post warranty period, an identified list of critical equipment/subsystems in included in tender as Cost centre G/spares of "Pricing Document". 25% quantity of these items must be indigenously manufactured in India either by OEM themselves by establishing a wholly owned subsidiary in India or through a suitable Indian reputed manufacturer. Compliance of above should be included in bidding form 4.2 " Method Statement"</p>
9.	Part 1, Bidding Procedure Section	Bids to be submitted through e-tender portal of MAHA-METRO only. (No physical submission of bid is allowed)	Bids to be submitted through https://mahatenders.gov.in/nicgep/app only. (No physical submission of bid is allowed)



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	II: Bid data, ITB 20.1		
10.	Part 1, Bidding Procedure Section II: Bid data, ITB 20.2	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: A written power of attorney authorizing the signatories of the Bid to commit each member of the JV. The power of attorney(ies) shall be substantially in the format provided under Section IV: Bidding Forms (Form 9) of these Bidding Documents. The entire bid documents along with the corrigendum/ addendum issued from time to time & requisite enclosures signed by authorized signatory of bidder shall be uploaded on e-tender portal of MAHA-METRO, failing which the bid shall be considered as nonresponsive.	The written confirmation of authorization to sign on behalf of the Bidder shall consist of: A written power of attorney authorizing the signatories of the Bid to commit each member of the JV. The power of attorney(ies) shall be substantially in the format provided under Section IV: Bidding Forms (Form 9) of these Bidding Documents. The entire bid documents along with the corrigendum/ addendum issued from time to time & requisite enclosures signed by authorized signatory of bidder shall be uploaded on https://mahatenders.gov.in/nicgep/app .
11.	Part 1, Bidding Procedure Section II: Bid data, ITB 21.4 (new para)	Bids shall be submitted through e-tender portal of MAHA-METRO only with clearly marked 'Pre-qualification & Technical Proposal', containing documents comprising the Technical Proposal in accordance with the provisions of ITB 16, and the other clearly marked 'Financial Proposal', containing Schedule of Prices or the Pricing Documents in accordance with the provisions of ITB 14.	Bids shall be submitted through e-tender portal of https://mahatenders.gov.in/nicgep/app only with clearly marked 'Pre-qualification & Technical Proposal', containing documents comprising the Technical Proposal in accordance with the provisions of ITB 16, and the other clearly marked 'Financial Proposal', containing Schedule of Prices or the Pricing Documents in accordance with the provisions of ITB 14.

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12.	Part 1, Bidding Procedure Section II: Bid data, ITB 22.1	<p>Bid must be submitted online on eTender portal as bid schedule. The electronic bidding submission procedures shall be as per Annexure II-A (toolkit for using MAHA-METRO e-tender portal) The Bidder shall, on or before the date and time given in the Notice inviting Bid, upload his Bid on e-tendering portal https://mahatenders.gov.in/. Bidders may refer to e-tender procedures (Toolkit for using e-tender portal) at Annexure II-A. The Bidders shall furnish the information strictly as per the formats given in the Bid documents without any ambiguity. The MAHA-METRO shall not be held responsible if the failure of any Bidder to provide the information in the prescribed formats results in a lack of clarity in the interpretation and consequent disqualification of its Bid. In case of support or help required during online submission or difficulty encountered during online submission, the Bidders may contact the following officials: (Helpline for online submission of Bid only) Tender Executive – 07122812200 (extension-559)</p>	<p>Bid must be submitted online on eTender portal as bid schedule. The electronic bidding submission procedures shall be as per Annexure II-A. The Bidder shall, on or before the date and time given in the Notice inviting Bid, upload his Bid on e-tendering portal https://mahatenders.gov.in/. Bidders may refer to e-tender procedures (Toolkit for using e-tender portal) at Annexure II-A. The Bidders shall furnish the information strictly as per the formats given in the Bid documents without any ambiguity. The MAHA-METRO shall not be held responsible if the failure of any Bidder to provide the information in the prescribed formats results in a lack of clarity in the interpretation and consequent disqualification of its Bid. In case of support or help required during online submission or difficulty encountered during online submission, the Bidders may contact the following officials: (Helpline for online submission of Bid only) Tender Executive – 07122812200 (extension-559)</p>
13.	Part 1, Bidding Procedure Section	<p>The final bid submitted to the e-tender portal of MAHA-METRO, after all the reworks shall be considered valid and only the same shall be considered for evaluation. The bids, which are not full/</p>	<p>The final bid submitted to the e-tender portal of https://mahatenders.gov.in/nicgep/app, after all the reworks shall be considered valid and only the same shall be considered for evaluation. The bids, which are not full/</p>



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	II: Bid data, ITB 25.2	complete in any manner, shall not be considered for evaluation.	complete in any manner, shall not be considered for evaluation.
14.	Part 1, Bidding Procedure Section II: Bid data, ITB 29.2.1 (new para)	<p>Evaluation of qualifying conditions: Bids that include qualifications which:</p> <ol style="list-style-type: none">1. seek to shift to the Employer, another government Employer or another contractor all or part of the risk and/or liability allocated to the Contractor in the Bidding Documents; or2. which includes a deviation from the Bidding Documents which would render the Works, or any part thereof, unfit for their intended purpose; or3. fails to submit a workable methodology to suit the local conditions; or <p>which fails to commit to the date specified for the completion of the Works as specified under Section IX. Particular Conditions (PC) Part A – Contract Data 'Table: Summary of Sections' will be deemed non-conforming and shall be rejected.</p>	<p>Evaluation of qualifying conditions: Bids that include qualifications which:</p> <ol style="list-style-type: none">1. Seek to shift to the Employer, another government Employer or another contractor all or part of the risk and/or liability allocated to the Contractor in the Bidding Documents; or2. Includes a deviation from the Bidding Documents which would render the Works, or any part thereof, unfit for their intended purpose; or3. Fails to submit a workable methodology to suit the local conditions; or4. Fails to commit to the date specified for the completion of the Works as specified under Section IX. Particular Conditions (PC) Part A – Contract Data 'Table: Summary of Sections'. <p>will be deemed non-conforming and shall be rejected.</p>
15.	Part 1, Bidding Procedure Section II: Bid data, ITB 31.2 (new para)	<p>Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer on the following basis:</p>	<p>Bids determined to be substantially responsive will be checked by the Employer for any arithmetic errors. Errors will be corrected by the Employer on the following basis:</p>

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		<p>if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;</p> <p>If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and</p> <p>If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetical error, in which case the amount in figures shall prevail subject to (A) and (B) above.</p> <p>If the Bidder does not accept the corrected Bid, its Bid will be rejected and the Bid Security forfeited.</p>	<p>A) if there is a discrepancy between the unit price and the total price that is obtained by multiplying the unit price and quantity, the unit price shall prevail and the total price shall be corrected, unless in the opinion of the Employer there is an obvious misplacement of the decimal point in the unit price, in which case the total price as quoted shall govern and the unit price shall be corrected;</p> <p>B) If there is an error in a total corresponding to the addition or subtraction of subtotals, the subtotals shall prevail, and the total shall be corrected; and</p> <p>C) If there is a discrepancy between words and figures, the amount in words shall prevail, unless the amount expressed in words is related to an arithmetical error, in which case the amount in figures shall prevail subject to (A) and (B) above.</p> <p>If the Bidder does not accept the corrected Bid, its Bid will be rejected and the Bid Security forfeited.</p>
16.	Part 1, Bidding Procedure Section II: Bid data, ITB 33.1	Refer to '3. Domestic Preference' under Section III. Evaluation and Qualification Criteria	Refer ITB 1.5(New para) & Annexure-X

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17.	Part 1, Bidding Procedure Section II: Bid data, ITB 35.2	<p>Replace the existing ITB 35.2 with the following: In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price as follows:</p> <p>A. making any corrections for errors pursuant to ITB 31.2; making appropriate adjustments for conditions, qualifications, deviations, etc. pursuant to ITB BDS 14.12. price adjustment due to unconditional discounts offered in accordance with ITB 11.5.1 (D) converting the amount resulting from applying (A) and (C) above to a single currency in accordance with ITB 32.1; Bidders may refer to "Notes" to Cost Centre "G" in the "Pricing documents" for further details regarding evaluation with respect to price quoted under Cost Centre "G".</p>	<p>Replace the existing ITB 35.2 with the following: In evaluating the Bids, the Employer will determine for each Bid the evaluated Bid price by adjusting the Bid price as follows:</p> <p>A. making any corrections for errors pursuant to ITB 31.2; B. Making appropriate adjustments for conditions, qualifications, deviations, etc. pursuant to ITB BDS 14.12. C. price adjustment due to unconditional discounts offered in accordance with ITB 11.5.1 (D) and converting the amount resulting from applying (A) and (C) above to a single currency in accordance with ITB 32.1; Bidders may refer to "Notes" to Cost Centre "G" in the "Pricing documents" for further details regarding evaluation with respect to price quoted under Cost Centre "G".</p>
18.	Part 1, Bidding Procedure Section II: Bid data, ITB 39.3 (new para)	<p>In case, Successful Bidder is a Consortium, then the Performance Security may be furnished on behalf of the Consortium either by the Lead Member or by all the Members of such Consortium in such proportion as may be agreed to between them.</p>	<p>In case, Successful Bidder is a JV/Consortium, then the Performance Security may be furnished on behalf of the JV/Consortium either by the Lead Member or by all the Members of such JV/Consortium in such proportion as may be agreed to between them.</p>

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19.	Part 1, Bidding Procedure Section II: Bid data, ITB 40.5 (new para)	<p>In the event of award of the Contract, the following will be the sequence of events in the order given below:</p> <ul style="list-style-type: none">• Approval by Competent Authority;• Letter of Acceptance;• Notice to Proceed;• Signing of Contract• Concurrence of funding Employer (wherever required at different stages) <p>The Employer may seek suitable amendments to the Contract if such amendments are desired by funding Employer and are acceptable to the Employer.</p>	<p>In the event of award of the Contract, the following will be the sequence of events in the order given below:</p> <ul style="list-style-type: none">• Approval by Competent Authority;• Letter of Acceptance;• Notice to Proceed;• Signing of Contract• Concurrence of funding Agency (wherever required at different stages) <p>The Employer may seek suitable amendments to the Contract if such amendments are desired by funding Agency and are acceptable to the Employer.</p>
20.	Part 1, Section III. Evaluation and Qualification Criteria,	<p>This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 35 and ITB 37, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.</p> <ul style="list-style-type: none">• For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective calendar year issued by RBI (Reserve Bank of India).• Value of single contract - Exchange rate prevailing on the date of the contract*.	<p>This Section contains all the criteria that the Employer shall use to evaluate bids and qualify Bidders. In accordance with ITB 35 and ITB 37, no other factors, methods or criteria shall be used. The Bidder shall provide all the information requested in the forms included in Section IV, Bidding Forms.</p> <ul style="list-style-type: none">• For construction turnover or financial data required for each year - Exchange rate prevailing on the last day of the respective financial year issued by RBI (Reserve Bank of India).



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Sr. No.	Clause No	Existing Provision	Revised Provision
		<p>Exchange rates shall be taken from the publicly available source identified in the ITB 32.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer.</p> <p>Note:-</p> <p>*Date of contract means :-</p> <p>1- Closer date of the contract if contract is of BOQ or Lumpsum with PVC. or</p> <p>2- Start date of the contract if contract is Lumpsum without PVC.</p>	<p>• Value of single contract - Exchange rate prevailing on the date of the contract*.</p> <p>Exchange rates shall be taken from the publicly available source identified in the ITB 32.1. Any error in determining the exchange rates in the Bid may be corrected by the Employer.</p> <p>Note:-</p> <p>*Date of contract means:</p> <p>1. Start date of the contract if contract is of BOQ or Lumpsum with PVC. Or</p> <p>2. Closer date of the contract if contract is Lumpsum without PVC.</p>
21.	Part 1, Section IV Bidding forms, 5.13 Form EXP.- 4.2 (a)	<p>Notes.</p> <p>Value of successfully completed portion of any on-going work up to date of Bid submission will also be considered for qualification of work experience criteria.</p>	<p>Notes.</p> <p>Value of successfully completed portion of any on-going work up to date of Bid submission will also be considered for qualification of work experience criteria. Bidder to also mention that contract is with PVC & lumpsum contract or Contract without PVC in column of "contract amount in respective currency" in above form.</p>
22.	"Part 3, Section IX: Particular Conditions of Contract (PCC), 66. Additional	<p>1. Pursuant to the policy of the Government of India, and Department of Industrial Policy and Promotion (DIPP Ministry of Housing and Urban Affairs (MoHUA) has issued 'revision of Minimum Local Content (MLC) of various metro rail components under MII-PPP</p>	<p>(I) Availing Purchase Preference</p> <p>(A) All such tenderers who certify in their offer that the Local content in their offer is equal to or more than 60%, shall be treated as class I "Local Supplier" and shall be</p>



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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
	Clause: Local Value Added"	<p>Order,2017 of DPIIT vide No. K-14011/08/2017/MRTS- Coord dated 14th October 2020; (placed as Annexure-X in Bidding Procedure). With respect to the above policy the minimum local content in procurement value of the Rolling Stock Tender N2-057/RS-01/2025 shall be 60%. The above minimum local content would be from Class-I local supplier under MII-PPP Order of DPIIT. For Class-II local supplier, the minimum local content should be kept at 20% for all components as mentioned in extent MII-PPP Order of DPIIT.</p> <p>2. For the purpose of purchase preference to the Indian Bidders, this tender is classified as 'Non-Divisible' and point 3 and point 6 of enclosed order of MoHUA letter No. P-45021/2/2017-B.E.-II dated 16th Sep 2020 shall be entirely applicable along with other pertinent clauses which would be valid and fully enforceable at any stage of procurement and contract execution. Procedure for verification process, if needed and penalty for violation shall be applicable as per the above referred Order dated 16th Sep 2020.</p> <p>3. Superseding Point no. 6 of enclosed order of Ministry of Industrial Policy and Industry and Department of Industrial Policy and Promotion (DIPP) public Procurement (Preference to Make in India)</p>	<p>eligible for availing purchase preference as elaborated below.</p> <p>Pursuant to the policy of make in india issued by the Department for Promotion of Industry and Internal Trade (DPIIT) of Government of India, vide letter P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 and Guidelines issued by Ministry of Housing and Urban Affairs (MoHUA) h 'Revision of Minimum Local Content (MLC) of various metro rail components under MII-PPP Order, 2017 of DPIIT vide No. K-14011/08/2017/MRTS-Coord dated 14.10.2020 (letters placed as Annexure-X). compliance of following is to be ensured by the bidder</p> <p>(i) with respect to the above policy the minimum local content in procurement value of the Rolling Stock Tender N2-057/RS-01/2025 shall be (60%) Local content as defined in circular no P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 .</p> <p>(ii) The bidder shall give self-certification or a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content in the quoted item (good/works/services)</p>



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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
		<p>order 2017 Dated 16th Sep 2020 the margin of purchase preference would be 20%. Provision of additional bank guarantee of 10% to be submitted by the firm(s) availing margin of purchase preference criteria.</p> <p>4. The minimum local content will further be certified for compliance of indigenous content by successful bidder and reviewed during the design finalization stage.5. The MOHUA policy letter no: K-14011/09/2014-MRTS-Coord dated 28.11.2019 makes it mandatory that...a. Minimum 75% of the tendered quantity of cars shall be manufactured indigenously with progressively increased indigenous content either by establishing facility in India or in Partnership with Indian reputed manufacturers. b. To facilitate ease in maintenance and easy availability of spares during post warranty period, an identified list of critical equipment / sub-systems shall be included in the tender document. Indigenous manufacturing of the listed items shall be ensured for manufacturing of minimum 25% of the tendered quantity of metro cars. This may either be achieved by the OEM themselves by establishing a wholly owned subsidiary in India or through a suitable Indian reputed manufacturers.6- K-14011/10/2020-UT-V Dated 14-08-2020 and F.no06/18/2019-PPD Dated 23.07.2020 policy/directive on</p>	<p>as specified in above MoHUA referred order at the time of tendering.</p> <p>(iii) In case only self-certificate as per para (i) above is submitted, the Bidder shall also be required to provide a certificate from the statutory auditor or cost auditor of the company (in case of companies) or from a practicing cost accountant or practicing chartered accountant (in respect of suppliers other than companies) giving the percentage of local content as specified in above MoHUA referred order after the Last Date stipulated for Bid Submission but within 30 days from the Last Date stipulated for Bid Submission (For example, if the Last Date stipulated for Bid Submission is 28.04.2025 the certificate has to be submitted on or before 28.05.2025 during office hours). In case the certificate is not received within the stipulated time and duly signed by the person as above, the offer will be considered non-responsive and rejected; and the financial bid of such bidders shall not be opened. This local content should be greater than or equal to the minimum local content specified in Para (i) above for the bid submission to be a valid offer. Only percentage values shall be mentioned in these certificates and no financial values shall be mentioned.</p> <p>This Certificate shall be submitted physically in hard copy in the office of ED(Procurement)/Nagpur duly marked "Not</p>



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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
		Countries sharing Land Border with India Note:-This is non divisible contract	<p>to be Opened by Anyone except ED (Procurement)" at the following address:</p> <p>ED (Procurement) MAHARASHTRA METRO RAIL CORPORATION LIMITED, METRO BHAVAN, VIP ROAD, NEAR DEEKSHABHOOMI, RAMDASPETH, NAGPUR-440010 (INDIA)</p> <p>(iv) This procedure of Local content certification as stipulated in letter P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 will be followed for Bid Submission and also during execution of the project.</p> <p>(v) For the purpose of purchase preference to the Indian Bidders, this tender is classified as 'Non-Divisible' and point 3 and point 6 of enclosed order of MoHUA letter No. P-45021/2/2017-PP (B.E.-II) dated 19.07.2024 shall be applicable along with other pertinent clauses which would be valid and fully enforceable at any stage of procurement and contract execution. Procedure for verification process, if needed and penalty for violation shall be applicable as per the above referred Order dated 19.07.2024.</p> <p>(Vi) The technical offers of the bidders who has claimed price preference but who do not comply/submit the documentation as per above point i, ii & iii with respect to enclosed order of MoHUA letter No. P-45021/2/2017-PP-</p>

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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
			<p>B.E.-II dated 19.07.2024 shall be rejected and considered non-responsive and their financial offers shall not be opened.</p> <p>(vii) For the purpose of verification of minimum local content of 60%, Cost of Cost Center I i.e CAMC will be excluded.</p> <p>(II) Indigenization</p> <p>Pursuant to the policy letter of Ministry of Urban Development MRTS Coord no. F.No. K-14011/9/2014/UT-II/MRTS-Coord dated 11th April 2018 & 28th Nov 2019 and Mandatory conditions/guidelines applicable to Metro Rail Projects vide MOHUA letter no. K-14011/26/2018-MRTS-II dated 27.07.2018 (enclosed at Annx-X), the following has been mandated to be necessarily complied for manufacturing of metro cars:</p> <p>(i) Minimum 75% of the tendered quantity shall be manufactured indigenously with progressively increased indigenous content either by establishing facility in India or in Partnership with suitable Indian reputed manufacturers.</p> <p>(ii). To facilitate ease in maintenance and easy availability of spares during post warranty period, an identified list of critical equipment/subsystems is included in tender as Cost centre G/spares of "Pricing Document" 25% quantity</p>

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Corrigendum – 4

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Sr. No.	Clause No	Existing Provision	Revised Provision
			<p>of these items must be indigenously manufactured in India either by OEM themselves by establishing a wholly owned subsidiary in India or through a suitable Indian reputed manufacturer.</p> <p>Compliance of above should be included in bidding form 4.2 " Method Statement".</p> <p>(iii) K-14011/10/2020-UT-V Dated 14-08-2020 and F.no06/18/2019-PPD Dated 23.07.2020 policy/directive on Countries sharing Land Border with India (Annexure-X) are applicable to this tender.</p> <p>1.2 Indigenization</p> <p>1.2.1 The Tenderer are advised to survey manufacturing facilities already existing in India and make use of the same, if considered useful by them. While selecting the manufacturing facilities for the carbody manufacturers, it shall be ensured that the carbody manufacturing line shall be exclusively dedicated to stainless steel / aluminium carbody manufacturing.</p> <p>Welding and shall be physically totally partitioned from manufacturing related works with any other varieties of steel / aluminium. This shall specifically be certified and</p>

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Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
			<p>committed while deciding local manufacture of carbody and its components.</p> <p>1.2.2 The items given in Table 1.4 of Employer's Requirements-General Specifications shall be indigenised and sourced from India to meet the required performance requirements and quality standards.</p> <p>Contractor and the selected and approved OEMs shall either choose their partner in India or pen a wholly owned subsidiary in India for manufacture of all such items that are listed in Table1.4. The Contractor as well as the OEMs (as the case may be) shall arrange granting of unqualified licenses to their chosen Indian partners to manufacture and sell such indigenized items for other than contract requirements also. The tenderer shall certify in its tender that the 'Local Content' (LC) shall meet the requirement for 'Class-I Local Supplier' as defined in the order no. P-45021/2/2017-PP(BE-II)-PART(4) VOL.II Dated 19 July 2024 of the Department for Promotion of Industry and Internal Trade (DPIIT) as amended up to date of tender submission duly considering the items listed in Table1.4 A&B. Maha Metro also expects that efforts will be made by the contractor to indigenise items given in Table 1.4 B. During vendor approval stage, the Contractor shall also submit a commitment from the approved vendors that in</p>

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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
			<p>case of any future procurement action by Maha Metro, they shall quote directly to Maha Metro.</p> <p>Contractor shall submit comprehensive proposal indicating details of the Indian Partner(s), the place of manufacture in India, work schedule etc. for the above identified items for indigenization within 06 (six) months of the Commencement date for approval by the Employer.</p> <p>An approved comprehensive proposal for indigenisation of items shall be a pre-requisite for finalisation of Final Design. Maintaining quality standards, ensuring performance requirements and timely delivery shall be the sole responsibility of the contractor.</p> <p>Contractor shall ensure that indigenisation content in the train sets is progressively increased.</p> <p>1.2.3 To facilitate ease in maintenance and easy availability of spares, MAHA-METRO is keen for standardization and requires Contractor to make efforts to source maximum number of equipments and materials from within India. MAHA-METRO expects that efforts will be made by the Contractor to indigenise items given in Table 1-4 B. The Tenderers are also advised to look for indigenization of those items that are regularly required for the routine maintenance of the subsystems of Rolling Stock.</p>



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Corrigendum – 4

Tender No. N2-57/RS-01/2025, Dated 07.03.2025

Sr. No.	Clause No	Existing Provision	Revised Provision
			Table 1-4: Mandatory Items for Indigenization- Refer attachment 1 of this corrigendum
23.	Part 1, Annexure-1, Cost Centres / Corrigendum-2 Sr. No. 10	Cost Centre G: Annexure GA 5	Refer Attachment-2 of this Corrigendum
24.	Part 2, Chapter 15, Inspection test and Trials, 15.6	Integrated Testing and Commissioning	Add 15.6.7: Refer Attachment -3 of this Corrigendum

The other conditions shall remain same. Further modifications/amendments (if any) regarding aforesaid tender will be uploaded as and when required.


Executive Director
(Procurement)
Maha Metro

Corrigendum 4

Attachment-1

Table-1.4 a Mandatory Items for Make In India

1	Pantograph with base insulators and its control panel
2	Vacuum Circuit Breaker
3	HV cable and Surge arrestor
4	Transformer
5	Auxiliary Converter (SIV)
6	Driver Desk Panel
7	Battery Box ,
8	Heating, Ventilation and Air-Conditioner (HVAC)
9	Luminaries
10	Headlights
11	LED Head Light & Saloon Light
12	Stainless Steel sheets
13	Axle Bearing
14	Axle Box with earth return brush
15	Gear Drive
16	Bogie Frame
17	Wheel Flange lubricator
18	Pneumatic Pipings - Stainless Steel
19	FRP Panels
20	FRP Passenger Seats and Air Duct
21	All types of Glasses (Set of glasses of Door, Window & Windshield glass for 1 trainset)
22	Axle Brake System
23	Electrical Coupler
24	Air Reservoir for Secondary Suspension
25	Ni-Cd Battery

Table-1.4 b Recommended Items for Make In India

1	Pantograph with base insulators and its control panel
2	Vacuum Circuit Breaker
3	HV cable and Surge arrestor
4	Transformer
5	Auxiliary Converter (SIV)
6	Driver Desk Panel
7	Battery Box ,
8	Heating, Ventilation and Air-Conditioner (HVAC)
9	Luminaries
10	Headlights
11	LED Head Light & Saloon Light
12	Stainless Steel sheets
13	Axle Bearing
14	Axle Box with earth return brush
15	Gear Drive

Corrigendum-4

Attachment-2

COST CENTRE No. G: Unit Exchange Spares, Mandatory Spares, Recommended Spares, Special tools, testing and diagnostic equipment. Special jigs, fixtures and gauges for repair and maintenance and Intermediate Overhauling Spares

This Cost Centre comprises of all different types of spares.

This includes but is not limited to:

1. Unit exchange spares, Mandatory Spares, Recommended Spares.
2. consumable spares up to expiry of Defect Liability Period.
3. Special tools, testing and diagnostic equipment.
4. Special jigs, fixtures and gauges for repair and maintenance.
5. Intermediate Overhauling Spares
6. Any other item considered necessary to comply with the scope of works.

Notes:

1. Bidder shall furnish the list and unit price for each item.
2. Cost of entire Cost centre G will be considered for price bid evaluation .
3. Contractor to furnish current price of the spares in BID. The spares of cost centre G will be purchased after CAMC period (with PVC as per clause A.1 Price variation of part-1 Bidding procedure- Annexure -IV A- Pricing Document) .
4. The costs indicated in this Cost Centre for **Milestones G1** shall be the actual costs and not the apportioned costs.
5. Milestone and supply date will be finalised before 6 month of expiry of CAMC period.

COST CENTRE No. G: Unit Exchange Spares, Mandatory Spares, Recommended Spares.

Milestone No.	Work Description	Foreign Currency	Indian Rupees	Weeks from Commencement Date
	Milestone Activity	Column A	Column B	
	Obtain the “Notice of No Objection” or “Notice of No Objection Subject to _____” from the Engineer for the delivery of the following:			
G1	Unit Exchange Spares (Details to be given as per Annexure GA1)			
G2	Mandatory Spares (Details to be given as per Annexure GA2)			
G3	Recommended Spares (As per Chapter 8 of the Employer’s requirement – General Specifications) (Details to be given as per Annexure GA3)			
G4	Consumable Spares for tendered quantity for period upto expiry of Defect Liability Period: (Details to be given as per Annexure GA4)			
G5	Special Tools, Jigs, Fixtures, Gauges, Testing and Diagnostic Equipment: (Details to be given as per Annexure GA5)			
G6	Intermediate Overhauling Spares for 1 Train Set of 3-cars (Details to be given as per Annexure GA6)			
	COST CENTRE TOTAL			

SIGNATURE OF BIDDER

Annexure GA1

Unit Exchange Spares

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
1	Transformer		Set	1				
2	Traction Motor with half coupling		No.	2				
3	Power Converter and Inverter		Set	1				
4	Auxiliary Power Supply with Battery Charger		Set.	1				
5	Vacuum Circuit Breaker		No.	4				
6	All type of Complete Motored Bogie equipped with Traction Motors with power and earthing cables, Connector, Pins, required crimping tools, pin removal tool ,wheel sets and brake units etc.		Set	1				
7	All types of Complete Trailer Bogie equipped with earthing cables, Connector, Pins, required crimping tools , pin removal tool, Wheel Sets and brake units etc.		Set	1				
8	Battery cell for 3-car unit with inter connectors and nozzles		Set	2				
9	Pantograph with base insulators, control panel & all bus bar and connecting cables with lugs and crimping tools.		Set	3				
10	All electrical monitoring control and protection panels / cubicles etc. comprising of relays, MCBs, switches, displays, pneumatic gauges, sensors duly wired used therein as applicable including Pins, connector & its Crimping and pin removal tools (list to be furnished by the Bidder)		Set	1				
11	Complete assembly of Couplers: Automatic, Semi-permanent (Each)		No.	1				
12	Gangways (set comprising of single type (used within unit) and two-halves used between unit) along with covers.		No.	2				
13	Master Controller & Mode Selector		Set.	2				
14	PWM Generator with interface panel		Set	1				
15	Complete Main Compressor Set for pneumatic system with Starter box / Control box		Set	2				
16	Complete Auxiliary motor compressor set		Set	6				
17	Air dryer		Set	1				
18	Filters for compressed air lines (Each type) (Bidder to specify)		Set	4				
19	Secondary suspension (air suspension)		No.	6				
20	Primary suspension (each type)		No.	8				
21	Disc brake unit with callipers, pads complete set excluding disc (LHS & RHS Each)		No.	4				
22	Brake control unit (electronic and pneumatic) (Each)		No	4				
23	Complete PA/PIS and CCTV set including NVR/DVR, connectors (Male & female), cards		Set	2				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
24	Complete saloon door operating mechanism (Including different parts like motors, shaft etc.) (Bidder to specify)		No	8				
25	Saloon air-conditioning Unit		No.	4				
26	Cab air-conditioning unit		No.	4				
27	TCMS Equipment set		Set	1				
28	Surge Arrester		Nos.	4				
29	Complete battery control box		No.	2				
30	All type of boxes hang underframe (like BCU, battery box, ACCB box, CI, etc.)		Set	1				

Note: **Contractor to submit the list for Engineer's review and Engineer may add/delete/modify the list as per requirement.

Annexure GA2

Mandatory Spares

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
1	Air Conditioning Unit							
2	Microprocessor based control unit (Each type)		Nos.	4				
3	Set of temperature sensor (Each type)		No.	6				
4	Humidity Sensor		Nos.	6				
5	Smoke Sensor (Each type)		Nos.	8				
6	Fresh & Return air Damper motors (Each)		Nos.	4				
7	Compressor unit with motor and mounts (Each type)		Nos.	4				
8	Condenser & Evaporator fans with motor (Each type)		Nos.	4				
9	Emergency Inverter with control unit		Nos.	4				
10	Transformer		No.	4				
11	Heating Coil		No.	4				
12	Condenser Coil set		Nos.	2				
13	Evaporator Coil		Nos.	2				
14	HVAC filter frame (Each type)		Set	2				
15	High pressure switch with transducer		Nos.	2				
16	Low pressure switch with transducer		Nos.	2				
17	DC-DC Converter (Each type)		Nos.	4				
18	Line filter		Nos.	6				
19	Differential Pressure Valve		Nos.	6				
20	Expansion Valve (Each type)		Nos.	6				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
21	Set of MCBs, contactor, relays, lugs, pins, etc. (Each type)		Set	2				
22	Drain plugs (Each type)		Set	4				
23	Cab HVAC booster fan assembly		No.	4				
24	HVAC Cover rubber gasket		Mtr	30				
25	Booster Fan for cab Ventilation		No	2				
26	Thermal Magnetic Circuit Breaker		No	2				
27	Speed regulating transformer for cab Ventilation		No	2				
28	Control switch for Cab ventilation		No	2				
2	Brake & Pneumatics							
1	PCB cards of all types for Brake electronic control unit (Each)		No.	10				
2	Speed Sensor		No.	8				
3	Set of pneumatic valves (Each type) (Bidder to specify)		Set	1				
4	Set of magnet valves (Each type) (Bidder to specify)		Set	1				
5	Set of safety valves (Each type) (Bidder to specify)		Set	1				
6	Set of gauges (Each type) (Bidder to specify)		Set	2				
7	Set of sensors (Each type) (Bidder to specify)		Set	2				
8	Set of Pressure switches / Governor (Each type) (Bidder to specify)		Set	2				
9	Set of all types of isolating cocks (Each type) (Bidder to specify)		Set	1				
10	Driver's brake valve (BP backup brake control unit)		No.	2				
11	Analogue Converter/ Charging Venting Valve/ Digital Control Loop		No.	4				
12	Set of Pneumatic Pipe fittings (Each type) (Bidder to specify)		Set	1				
13	STV Valve		No.	10				
14	PRV Valve		No.	4				
15	EBCU Memory Card		No.	8				
16	Horn Assembly with magnet valve (Low & High) (Each)		No.	2				
17	Reservoirs drain cocks (Each Type)		Set	2				
18	ADPS with control card		No.	4				
19	PBMV		No.	4				
20	All type of hoses (Bidder to specify)		Set	2				
21	Compressor Fan		Set	2				
22	Remote control for emergency release of parking brake		No.	4				
23	Timer card for Air dry unit		No	2				
3	PA / PIS & CCTV							
1	Front Train Number/ Destination Indicator		No.	4				
2	Passenger Information Board (External side display board)		No.	8				
3	Noise Monitor		No.	4				
4	Speaker (Cab, Internal & External) (Each)		No.	8				
5	Main operating Panel with Microphone		No.	4				
6	Auxiliary operating panel		No.	4				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
7	Passenger emergency activation device		No.	8				
8	LCD based Route map & displays (DRM)		No.	20				
9	DRM Pins, connectors (male & female), crimping tool & Pin removal tool		Set	2				
10	Saloon, Front, Cab and rear-view cameras complete with hardware.		Set	1				
11	SLCD		No.	20				
12	SLCD Pins, connectors (Male & Female), crimping tool & Pin removal tool		Set	2				
13	NVR Hard Disk		No.	10				
14	Passenger emergency activation device indicator light		No	8				
15	SLCD AD Card		No	5				
16	MDS (CCTV Monitor)		No	2				
4	Doors							
1	Door control unit (Each Type)		No.	8				
2	Door leaves (LHS & RHS) (Each Type)		No.	4				
3	Set of rollers (Each Type)		Set	1				
4	Set of sensors /Limit switches of saloon doors, Cab Door (Each Type)		No	4				
5	Cab-saloon partition door panels locking mechanism		No.	6				
6	Set of sensors / switches of emergency doors		Set	4				
7	Cab door operating & locking mechanism		No.	6				
8	Complete Cab Door with operating and locking mechanism and hardware		Set	1				
9	Cab-saloon partition door panels with locking mechanism		Set	1				
10	Partition door limit switch		No	20				
11	Cab door, saloon door and partition door locking, Bowden cables and fittings (Each type)		Set	2				
12	Led Strip (Saloon Door)		Set	1				
13	External indicator Lamp		Set	1				
14	Complete Emergency door unit with mechanism		Set	2				
15	Emergency door operating mechanism, ratchet handle and sockets (each type)		No	4				
16	Emergency door all damper (Each type)		No	8				
17	Emergency door connecting rod and support (each type)		Set	2				
18	Circlip/ End fittings		Set	2				
19	Door connectors, pins (Male and female), terminal block, pin removal tool and crimping tool (Each Type)		Set	2				
20	Emergency door limit switch with mounting (Each type)		No.	8				
21	EED Device assembly		No	4				
22	End Unlocking device		No	4				
23	Door leaf carrier		No	4				
24	Finger protection rubber		No	10				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
25	Peripheral Rubber		No	10				
26	Front Door Rubber		No	10				
27	Swing arm body assembly, Left and Right		No	4				
28	Buffer Stop (Buffering head on door leaf carrier)		No	20				
29	DCU MCB		No	4				
30	Isolating lock assembly		No	4				
31	EAD Device assembly		No	4				
32	Emergency evacuation ramp assembly		No	4				
33	Emergency door Locking Fork		No	4				
34	Emergency door Hinge pin		No	4				
35	Emergency door Support leg rod		No	4				
36	Emergency door Door lock component		No	4				
37	Partition Door Limit switch		No	10				
38	Partition Door EED Device assembly		No	10				
39	Partition Door lock assembly		No	10				
40	Partition Door Hinge		No	4				
41	Cab Door Closed switch		No	4				
42	Cab Door Isolation switch		No	4				
43	All type Square key lock assembly		No	30				
5	Converter / Inverter							
1	Set of PCB cards		Set	2				
2	Converter Power Unit		No.	2				
3	Set of contactors		Set	2				
4	Current transformer		No.	4				
5	Potential transformer		No.	4				
6	Inverter Power Unit		No.	2				
7	Gate Control Unit		No.	2				
8	DC link Charging circuit module		No.	4				
9	DC link capacitor		No.	4				
10	Earthing protection circuit module		No.	4				
11	All types of sensors used (traction motor, transformer, etc.)		Set	2				
6	Auxiliary Power Supply							
1	Set of PCB cards		Set	2				
2	Auxiliary Power Supply Unit		No.	2				
3	Set of Contactor (Each Type)		Set	4				
4	Battery Charger Unit		No.	2				
5	Gate Control Unit		No.	2				
6	ACC filter capacitor unit		No.	2				
7	Discharging switch (Ground Switch)		No.	2				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
8	Shore supply cable with connector		No.	2				
9	Power Extension box		No.	2				
10	Shore supply box		No.	2				
11	All types of sensors used in battery and APS		Set	2				
7	Transformer							
1	Oil pump		No.	4				
2	Radiator blower including fan		No.	4				
3	Set of valves and relays		Set	2				
4	Set of sensors / gauges		Set	2				
5	Breather		No.	20				
6	Dial type thermometer		No	4				
7	Complete ACCB box		No.	2				
8	TCMS							
1	Set of PCB cards (CCU, CN, RIO) (Each type)		Set	2				
2	Display Unit		No.	6				
3	Backlight of Display Unit		No.	10				
4	Ethernet cable connecting other sub system with connector, pins, crimping tool and pin removal tool		Set	1				
9	Master Controller							
1	Set of switches		Set	2				
2	Potentiometer		set	2				
10	Pantograph							
1	Control panel		No.	4				
2	Regulator, filter, magnetic valve, pressure switches etc--(Each type)		No.	4				
3	Overhead detection valve MED and ADD (Each type)		No.	4				
4	Pantograph pan		No.	10				
5	Pantograph raising cylinder		No.	4				
6	Air feed insulator pipe		Set	4				
7	Pantograph foot insulator		No.	6				
8	Suspension plate		No.	8				
9	Damper (Each Type)		No.	4				
10	Lower supporting rod		No.	4				
11	Upper supporting rod		No.	4				
12	Shunting wires (Each Type)		No.	10				
13	Inter locking key box and mechanism		Set	4				
14	Aluminium Horn (Each Type)		Set	2				
15	Lower arm end stop		No	6				
16	Upper arm end stop		No	6				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
17	Collector head end stop		No	6				
18	ADD valve assembly		No	6				
19	Auxiliary Compressor		No	5				
11	Vacuum Circuit Breaker							
1	Control box including auxiliary contact, pressure regulator etc.		Nos.	4				
2	VCB pressure regulator		Nos	10				
12	Coupler							
1	Proximity Sensor (each type)		Set	2				
2	Set of Pneumatic hoses		Set	2				
3	Set of electrical jumpers with connectors		Set	2				
4	MR and BP Valve (Each Type) and its gaskets (each type)		No's	4				
5	Semi-permanent coupler supporting plate with hardware		Nos	8				
6	Spring each type		Nos	2				
7	Muff coupler fixing hardware		Set	2				
13	Bogie							
1	Set of hydraulic dampers (each type)		Set	2				
2	Reaction rod / traction links / axle box links/anti-roll bar/safety rope etc.		Set	1				
3	Complete WFL Control Unit with cable connectors, piping, hoses and pins		Set	2				
4	Levelling rod		No	4				
5	WFL nozzle		No	20				
6	WFL hoses		Set	2				
7	WFL electromagnetic valves		Set	2				
8	WFL oil pump		No	4				
9	WFL distributor valve		No.	4				
10	Backstop both side		No.	8				
11	Earth cable bogie (Each type)		Set	1				
12	Temperature Sensor (Traction Motor)		No	4				
13	PG sensor (Traction Motor)		No	4				
14	Heat detector (Traction Motor Terminal Box)		No	4				
14	Electrical/Lighting system							
1	Set of luminaires – Saloon Light, Grab pole light , Flasher light, console light, Cab light and gangway light etc.		Set	1				
2	Set of DC-DC converter (Each Type)		Set	1				
3	Saloon light inverter / choke (Each Type)		Set	1				
4	Cab light inverter/ choke (Each Type)		Set	1				
5	Connectors, pins (Male and female), terminal block, pin removal tool and crimping tool (Each Type) (Bidder to specify)		Set	2				
6	Set of MCBs all type (Each type)		Set	2				
7	Automatic power controller sensor, Dimming Controller (each type)		No.	4				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
8	Set of housing – Saloon Light, Grab pole light, Flasher light, console light, Cab light and gangway light etc. (Each Type)		Set	1				
9.	Head Light (Complete Unit)		Set	2				
10.	Tail Light (Complete Unit)		Set	2				
11.	Marker Light (Complete Unit)		Set	2				
12.	Flasher Light (Complete Unit)		Set	2				
13.	Cab Light		No	4				
14.	Saloon door state indication lamp internal		No	10				
15.	Battery temperature sensor		No	5				
16.	Battery Fuse		No	5				
17.	Battery Braker		No	2				
18.	Battery Voltage Sensor		No	2				
19.	Set of Battery Box Diode		Set	2				
20.	Safety Key Box		No	2				
21.	Diode box assembly		No	1				
22.	Mobile/laptop charging power socket		Set	2				
23.	Earthing ground switch		Nos	4				
24.	Current Transformer		No.	2				
25.	Potential Transformer		No.	2				
15	Wiper System							
1.	Complete Wiper Assembly Set (Including Motor, Switch, Connecting rods, Tank)		Set	4				
2.	Wiper motor		No.	6				
3.	Wiper Pump		No.	20				
4.	Wiper Sélector switch		No	10				
5.	Wiper Tank		Set	2				
6.	Wiper operating mechanism (including connecting rod, hardware, crank, water pipe, etc.)		Set	2				
7.	Wiper DC-DC convertor (Each Type)		No.	4				
8.	Wiper Nozzle (Each Type)		No.	20				
16	Miscellaneous Items							
1	Set of all hardware – mounting, bolts, washers etc. for converter / inverter		Set	2				
2	Set of all hardware – mounting, bolts, washers etc. for auxiliary converter power supply		Set	2				
3	Set of all hardware – mounting, bolts, washers, pads, etc. for pneumatic compressor		Set	2				
4	Set of all hardware – mounting, bolts, washers etc. for transformer		Set	2				
5	Set of all hardware – mounting, bolts, washers etc. for Air reservoirs		Set	2				
6	Set of all hardware – mounting, bolts, washers etc. for valve boxes		Set	2				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
7	Set of all hardware – mounting, bolts, washers etc. for Door		Set	2				
8	Set of all hardware – mounting, bolts, washers etc. for Air conditioning unit		Set	4				
9	Set of all hardware – mounting, bolts, washers etc. for Traction Motor		Set	4				
10	Set of all connectors with pins of Make A, B, ... (Bidder to specify)		Set	1				
11	Set of all relays of Make A, B, ... (Bidder to specify)		Set	1				
12	Set of all push buttons of Make A, B, ... (Bidder to specify)		Set	1				
13	Set of all contactors of Make A, B, ... (Bidder to specify)		Set	1				
14	Set of all MCBs of Make A, B, ... (Bidder to specify)		Set	1				
15	Set of all indicators of Make A, B, ... (Bidder to specify)		Set	1				
16	Set of all fuses of Make A, B, ... (Bidder to specify)		Set	1				
17	Set of all type of Terminal blocks (Bidder to specify)		Set	1				
18	Set of All type of Diodes used in VCC (Bidder to specify)		Set	1				
19	Set of all type of resistors used in VCC (Bidder to specify)		Set	1				
20	Set of glasses of window (Each Type)		Set	3				
21	Set of glasses of door (cab, saloon and emergency)		Set	1				
22	Windshield glass		Set	10				
23	Draught screen including Glass & Fitting		Set	1				
24	Set of selector switches (Each Type) (Bidder to specify)		Set	2				
25	Set of Cable Glands (Each Type) (Bidder to specify)		Set	1				
26	Set of Connectors (Each Type) (Bidder to specify)		Set	1				
27	Set of Connector crimping pins(male and female), pin removal tool		Set	1				
28	Set of all Push Button cover (Each Type) (Bidder to specify)		Set	2				
29	All type of car to car inter connections jumper câbles,		Set	2				
30	All type of car to car inter connections jumper cables pins, crimping tools and pin removal tools .		Set	1				
31	Pneumatic Test fitting adopter for guage connection (each type)		Nos	8				
32	TO seats and assistant TO seats with complete mechanism in cab (Each Type)		Set	2				
33	TO seat footrest complete assembly		Set	2				
34	Sun Blind complete assembly		Set	2				
35	TO seat footrest spring and hardware (Each Type)		No.	10				
36	Sun blind assembly supporting components (Each Type)		No.	10				
37	TO seat different parts and hardwares (Each Type)		Set	1				
38	Sqaure key lock (Each Type)		No.	20				
39	Sqaure Keys (Each Type)		No.	40				
40	All type of hardwares used in primary spring along with tools (Each type)		No.	2				
41	Gangway components (Each type) (Bidder to specify)		Set	1				

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
42	All type of buzzer (Bidder to specify)		Set	2				
43	Center Pivot Bolt-washer		No.	12				
44	Fire Extinguisher (Cab and saloon)		Set	2				
45	230v power socket (Each Type)		Set	2				
46	First Aid box		No.	8				
47	Grab Handle		Set	2				
48	All push Button Cover		Set	4				

**Contractor to submit the list for Engineer's review and Engineer may add/delete/modify the list as per requirement.

*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No', it means 'Numbers'.

Annexure GA3

Recommended Spares

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
...								
...								

Annexure GA4**Consumable Spares for a period up to expiry of Defect Liability Period**

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
...								
...								

Annexure GA5**Special Tools, Jig, Fixtures, Gauges, Testing and Diagnostic Equipment**

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

(A) Mandatory special tools, jigs, fixtures, gauges, testing and diagnostic equipment

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
1.	Pantograph	Pantograph test bench equipped with contact pressure measuring system, raising & lowering times, alignment fixtures etc.		No.	2				
2.		Movable Trolley/stand with roller		No.	8				
3.		Panto lifting jig along with slings with hardware		No.	2				
4.		Consolidate Functional test system capable for testing all LRUs and LLRUs at high voltage levels which includes but not limited to HV controllers, inverters, power distribution units etc.,		No.	1				
5.	VCB	VCB test bench with handling trolley including jigs and fixtures		Set	2				
6.		VCB stand/trolley with roller		No.	4				
7.	Main transformer	BDV Kit		No.	0				

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
8.	Converter Inverter	Mounting / dismounting trolley & tools		No.	0				
9.	Traction Motor	Test bench complete with hardware / software. Assembly / disassembly tools		No.	2				
10.		Dust Blowing Kit		No.	2				
11.		Fiber scope camera for Rotor hole inspection		No.	2				
12.		Traction Motor stand		No.	2				
13.	Auxiliary power supply with hardware / software	Portable test unit & repair jigs with tools and Test Bench for post repair commissioning.		No.	0				
14.		Mounting / dismounting trolley & tools		No.	2				
15.	Battery	Capacity measuring instrument of battery bank, charging and discharging equipment		No.	2				
16.		Insulated torque wrench		No.	2				
17.		Automatic Battery water topping up machine with pressure measuring device		No.	2				
18.		Battery Cell stand with roller		No.	2				
19.		Tool to measure the electrolyte level		No.	2				
20.		Battery cell lifting tool for removal		No.	2				
21.	Main Compressor, air supply unit, pneumatic & brakes	Compressor test bench & overhauling tools including air quality test facilities of complete system.		No.	2				
22.		Automatic Pneumatic valve test bench complete with brake electronics, Calibration		No.	2				
23.		Brake Calliper test bench		No.	2				
24.		Main compressor stand		No.	2				
25.		Main compressor trolley for mounting/dismounting in Inspection bay and repair bay. (Each)		No.	2				
26.		Pressure Regulator (0-10 Bar)		No	4				
27.	Axle	Ultrasonic testing machine for UST of axles, go gauge / no go gauge for end screw		No.	1				
28.	PA/PIS & CCTV	Portable test unit, software for PIS/CCTV changes (application level)		No.	2				
29.	Air Conditioning equipment	Portable test unit and leakage detectors		No.	2				
30.		Lifting jig / tackles along with slings and hardwares		No.	2				
31.		Oil less refrigerated changing / reclaiming unit including vacuum pump, suction equipment, leakage detector etc.		No.	2				
32.		Pressure measuring gauges		No.	2				
33.		Equipment for duct cleaning		No.	2				
34.		Air conditioning unit stand		No.	2				

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
35.	Door	Air condition unit handling trolley with roller		No.	2				
36.		Air conditioning functional test bench (Automated BTE) with complete software and hardware solutions.		No.	1				
37.		Portable test unit including drive control unit		No.	2				
38.		Alignment tool		No.	2				
39.		Special tools, pins, connectors, crimping tool, pin removal tool, Vacuum cup tool for door maintenance (Bidder to specify the list)		No.	2				
40.		Door leaf stand vertical with rollers		No.	2				
41.	Coupler	Door functional test bench (Automated BTE) for electromechanical door operator and associated equipment.		No.	1				
42.		Profile/ Wear/alignment checking gauge		No.	2				
43.		Coupler Stand		No.	2				
44.	Bogie	Assembly / disassembly tools / jig		No.	1				
45.		Battery operated tools for Assembly / Disassembly of Bogie suspensions, WFL, bearings, Components including rubber items used in transmission & suspension, connecting rods, gear case with transmission arrangement mounted on wheel set etc.		No.	2				
46.	Wheel	Jig along with slings for lifting bogie (Each Type)		No.	2				
47.		Laser Profile checking gauge with memory and card to card compatibility, Measurement gauges for wheel, back to back, brake disc thickness, diameter of wheel, flange width, flange height, etc.		No.	2				
48.	Secondary suspension	Suspension lifting jig along with slings movable		No.	1				
49.		Secondary Suspension stand		No.	2				
50.	Gangway	Gangway lifting jig along with slings		No.	2				
51.		Gangway handling trolley with roller		No.	2				
52.	Master Controller	Assembly / disassembly tools with calibration and test facilities		No.	1				
53.	Programming & Diagnostic tools	Laptop, Interface boards / accessories / software and any other item required for meeting specification requirements, uploading/down loading & trouble shooting of propulsion, Door, HVAC, Brake, PAPIS, CI, APS, WFL, Event recorder, TCMS, etc.		No.	2				
54.		Door software having facilities to edit the parameters along with laptop compatible with the		No.	2				

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
		available operating software and required hardwares/ cables/ accessories for investigation purpose							
55.		PAPIS software having facilities to edit the parameters along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
56.		HVAC software having facilities to edit the parameters along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
57.		Brake software along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
58.		CI software along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
59.		APS software along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
60.		TCMS software along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
61.		Event Recorder software along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
62.		WFL software having facilities to edit the parameters along with laptop compatible with the available operating software and required hardwares/ cables/ accessories for investigation purpose		No.	2				
63.	TCMS	Ethernet Cable Analyzer		No	2				
		Test programs software compatible to ATS500 Functional Test System or equivalent to be		No	10				

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
		developed for minimum 10 different PCBs (LRUs/LLRUs) at car body levels, which includes but not limited to controllers, information systems, network devices and signage etc.”							
64.	Brake system	Hygrometer (for measuring relative humidity)		No	2				
65.	Vehicle control circuit	Pin Crimping tools for All type connectors Pins (Male and Female) used in VCC (Each Type) (Bidder to specify)		No	2				
66.	Vehicle control circuit	Pin Removal tools for All type connectors Pins used in VCC (Each Type) (Bidder to specify)		No	2				
67.	Miscellaneous	All special Sealant Gun required for glass replacement		No	2				
68.		Sound level meter digital		No	2				
69.		Air flow meter digital		No	2				
70.		Lux level meter digital		No	2				
71.		Laser temperature thermometer		No	2				
72.		Laser distance measuring device		No	2				
73.		Digital depth gauge		No	2				
74.		Pressure Gauge for Pneumatic testing along with QRC		No	2				
75.		Variable DC power supply 110-0 volt		No	2				
76.		Megger 500V - 5KV		No	2				
77.		Vibration meter		No	2				
78.		Bearing puller for HVAC motors		No	2				
79.	Supply, Installation, Testing and Commissioning of of Test & Repair facilities for all type of Printed Circuit Board.	i. Pro rack 128-128/4 system – 128 digital channels, Digital and Analog testing, Programmable power supply, Boundary scan software, Test Sequencer, IDTE Software, External Controller, Oscilloscope 2 channel 200Mhz, TPS and Test fixture set for PCBs. ii. Handheld digital Multimeter- 750 v dc, 1000 V ac, 600 Ohm to 60 MOhm, 600 Micro Amp to 20 A, 60 Hz to 10 Mhz iii. 3 D engineering Microscope- 2D/3D angel lens with 360 degree rotation 1:7 Zoom ratio, lens assembly, VGA/HDMI Monitor, camera and OSD. iv. EPROM Programmer with two type adapter- Vcc from 1.2 V to 5 V, file support up to 256 GB with OV and OC protection. v. EPROM Programmer with two type adapter- Vcc from 1.2 V to 5 V, file support up to 256		Set	1				

SN	System	Equipment	Part No.	Unit	Qty	Unit Cost		Total Cost	
						FC	LC (INR)	FC	LC (INR)
		GB with OV and OC protection. LCR meter tweezer type- with test frequency 100 Hz, 120 Hz, 1 Khz, 10 Khz, 100 khz, 100 ohms impedance, Test voltage 0.2 Vrms, 0.5 Vrms, 100kHz, Resistance- 20 mili ohm to 10 Mega ohm. vii. Complete work station model viii. D-soldering station through hole component. ix. 1 KVA ups with 30 Min back up x. ESD safe wrist wrap- Anti static xi. Shoe cover dispenser xii. ESD checker and neutralizer- +/- 1999 V, +/- 10% accuracy. xiii. ESD safe Trolley xiv. ESD safe chair with IEC 61340-5-1 or equivalent compactible. xv. ESD Rack- 1200 L X 600 W X 1800 H xvi. ESD work station- W- 1500 X D 600 X H 1920 approx. xvii. ESD knee length coats- Polyester + carbon filament, with surface resistivity 105-107 Ohm/Sq. xviii. ESD PVC slip on made of polyurethane with person to ground resistance less than 36 Mega ohms. xix. Antistatic cloth gloves Coating solvent base, Foamed polyutherene, Nylon fabric. xx. ESD compatible brush with handle- 130 mm dimension with bristle 15 h X 90 l X 20 W mm. xxi. 2 channel Mixed signal Oscilloscope – 300 MHz, 2 GSa/s. xxii. 60 MHz Dual Channel Function generator. xxiii. HV DC regulated Power Supply 230 V-150 v Dc, 0 to 30 A. xxiv. LCR Meter- 20Hz-300kHz xxv. DC electronics Load- 600 W, 120 v, 120 A. xxvi. Conformal Coating Removal Machine Model Turbo Max CCR Part No. CCR-Max-CE							

**Contractor to submit the list for Engineer's review and Engineer may add/delete/modify the list as per requirement.

Annexure GA6

Intermediate Overhauling Spares for 1 train set of 3-car

(*Wherever the Unit is mentioned as 'Set', it means '3-Car Train Set' and wherever it is mentioned as 'No. / Nos.', it means 'Numbers')

SN	Description	Part No.	Unit*	Qty	Unit Cost		Total Cost	
					FC	LC (INR)	FC	LC (INR)
...								
...								

Corrigendum 4 Attachment 3

15.6.7 Details required:			
Required data and/or assets that are required from Major System Suppliers like PA-PIS, HVAC, TCMS, Propulsion System, Auxiliary system, Brake System, High Voltage equipment etc. before the commissioning of Last trainset.			
ID	Description of Data Item or Hardware Asset	Information Required (Example)	Intended use by Maha-Metro
1	Preliminary I/O specification	I/O count with signal class, voltage/current/frequency ranges	Specification of CBTE architecture and ITA design (prior to CBTE PDR)
2	Preliminary LRU/LLRU Schematics	System, subsystem and internal circuit interconnections	Specification of CBTE architecture and ITA design (prior to CBTE PDR)
3	System Functional Description (SFD)	Functional description for each UUT, theory of operation for system, software SCI information, software interfaces	Specification of CBTE architecture and ITA design (prior to CBTE PDR)
4	System Schematics	System interconnection	Basic design information for CBTE hardware, software and TPS.
5	Software Documentation (SDD)	For all LRU/LLRU: I/O count with signal class, voltage/current/frequency ranges.	Full understanding of LRU/LLRU functionality. Design of TPS interaction with the system's onboard diagnostics and software-controlled functions.
6	Final I/O specification	Primarily SRS and SDD for all SCIs	Final design of CBTE, instruments and Universal ITA. Design of UUT-specific ITA. Development of TPS.
7	Programmable Device Data	Devices include ROM, PROM, FPGA, CPLD, etc. Detail on function and pin configuration for each device. Device schematic and/or drawing where appropriate. Data-sheets for non-commercial devices. Firmware revisions, procedures for how to update firmware including any OS and bootloader details. Also need to know what external programming tools are required	Detailed design development of TPS to meet fault detection requirements.
8	Drawing Package and BOM	Assembly and layout drawings for LRU. For PCB LLRU, drawings show component placement (similar to silkscreen layer).	CBTE and ITA mechanical design, TPS development

Corrigendum 4
Attachment 3

9	PTE Software Documentation	SFD, SRS and SDD for system supplier's PTE application.	PTE application software may be called by CBTE to download device memory (log) data, command on-board tests, manipulate control signals, reprogram UUT software, etc.
10	Communications Protocol	Data structure for any communications ports used on the LRU/LLRU. UUT command and telemetry list.	Design of TPS stimulation and measurement with each UUT.
11	Final Connector Hardware	BOM for COTS connectors. For custom connectors, provide four sets of each and mates for each LRU/LLRU.	CBTE and ITA mechanical design and fabrication.
12	Recommended Test Procedures	Production verification tests with acceptance criteria for LRU/LLRU. Copies of source code for LRU and LLRU factory tests	TPS development, limits selection
13	Calibration Requirements	Detailed procedure for any UUT requiring periodic calibration	CBTE compliance with Support, Test and Diagnostic Requirements
14	Any other materials that may be required to understand UUT operation, function, form, fit and other items required to meet customer requirements	Per CBTE integrator request	Per CBTE integrator request
15	Preliminary Hardware for BTE Integration	Minimum one set of LRU and LLRUs. Should be functional units, not required to be production units.	Integration of test and diagnostics applications. Must be provided Prior to subsystem CDR.
16	Final Hardware for BTE Integration	Minimum one set of LRU and LLRUs. Should be production units.	Integration and certification of Test and diagnostics applications. Must be provided prior to subsystem FAI.
17	Final Hardware for BTE FAI & Commissioning (Requirement shall change)	Minimum one set of LRU and LLRUs. Should be production units.	Integration and certification of Test and diagnostics applications. Must be provided prior to subsystem FAI.