

**TAMILNADU TOURISM DEVELOPMENT CORPORATION**  
**LIMITED, TAMILNADU TOURISM COMPLEX, No.2, WALLAJAH**  
**ROAD, CHENNAI- 600 002.**

Telephone No. 25333850 to 54 – Fax No.(044)25333043 /25333385/25333772

E-Mail: [ttdc@vsnl.com](mailto:ttdc@vsnl.com) Website <http://www.tamilnadutourism.org>

**NOTICE INVITING TENDER NO. 2426/T3 /2016 DATE :05.10.2018**

For and on behalf of Tamilnadu Tourism Development Corporation Limited, sealed tenders are invited in the prescribed tender documents from leading reputed Automobile passenger coach manufacturers / Automobile Passenger Coach Body Builders with proven track record for Supply the following.

Sl. No	PARTICULARS	QUANTITY	EARNEST MONEY DEPOSIT Rs.	COST OF TENDER DOCUMENT Rs.
1	Body Building on Ashok Leyland 5639 MM WB (222” WB) Chassis ( 35 Seater +1+1) fitted with Airconditioner	2 nos	Rs.55,000/- (Rupees Fifty Five thousand only)	Rs.1,525/- (Rupees One Thousand Five Hundred and Twenty Five Only)

Sale of Tender Documents : From the date of advertisement to 29.10.2018 on all working days (Monday to Friday) between 10 A.M. and 5.00 P.M.

Date & Time for Submission of Tender : 30.10.2018 Upto 3.00 P.M.

Date of Opening of Technical bid : 30.10.2018 at 3.30 P.M

Venue : Registered Office, TTDC Limited  
Tamilnadu Tourism Complex,  
3<sup>rd</sup> Floor, Near Kalaivanar  
Arangam, No.2, Wallajah Road,  
Chennai-600 002

Tender documents will be issued on written requisition against receipt of Demand Draft drawn in favor of “Tamilnadu Tourism Development Corporation Ltd” (payable at Chennai) for Rs.1,525/-. Tender cost is not refundable. Any Postal delay or loss in transit will not bind TTDC Ltd. The Tenders submitted beyond the date/time fixed shall be summarily rejected. The Technical bids and price bids should be submitted in separate sealed covers and the same should enclosed in another sealed cover superscribing the name of work tendered for. In the event of last date for submission/opening of tender falling on a holiday, the acceptance/opening of the tenders will be on the next working day at the same time and venue.

At any time after the issue of the tender documents and before the opening of the tender, the Tender Inviting Authority may make any changes, modifications or amendments to the tender documents and shall send intimation of such change to all those who have purchased the original tender documents and upload corrigendum for the information of those who have downloaded the tender documents from the website.

The Managing Director, TTDC Ltd., reserves the right either to accept or reject any or all the Tenders at any time prior to award of contract an postpone the due date without any reason assigned therefore.

All other details shall be obtained from the Transport Accounts Section TTDC Ltd., at Registered Office as mentioned above. You may also visit Website <http://www.tamilnadutourism.org> and [www.tenders.tn.gov.in](http://www.tenders.tn.gov.in) for down loading the tender documents free of cost.

CHAIRMAN AND MANAGING DIRECTOR



**TENDER DOCUMENT**  
**FOR**  
**ULTRA DELUXE AEROTECH BODY BUILDING**  
**ON ASHOK LEYLAND CHASSIS**

**TAMILNADU TOURISM DEVELOPMENT CORPORATION LIMITED,**  
**TAMILNADU TOURISM COMPLEX,**  
No.2, Wallajah Road, Chennai-600 002  
Telephone(s) : 25333850 to 54 – Fax No.(044)25333043/25333385/25333772  
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**No.2, WALLAJAH ROAD, CHENNAI- 600 002.**

Telephone No. 25333850 To 25333854, Fax.(044) .(044)25333049/25333385/25333772  
E-Mail: [ttdc@vsnl.Com](mailto:ttdc@vsnl.Com) Website: <http://www.tamilnadutourism.org>

**TENDER FOR CONSTRUCTION OF ULTRA DELUXE AEROTECH BUS BODY ON  
ASHOK LEYLAND CHASSIS**

BID REFERENCE : 2426 / T3 / 2016  
DATE: 05.10.2018

DATE OF COMMENCEMENT OF : From the date of Advertisement  
SALE OF BIDDING DOCUMENT :

LAST DATE FOR SALE OF BIDDING : 29.10.2018  
DOCUMENT :

LAST DATE & TIME : 30.10.2018 Upto 3.00 P.M.  
FOR RECEIPT OF BIDS :

DATE & TIME FOR OPENING OF : 30.10.2018 at 3.30 P.M  
TECHNICAL BID :

PLACE OF OPENING OF BIDS & : TTDC Limited  
ADDRESS FOR COMMUNICATION : Tamilnadu Tourism Complex,  
3<sup>rd</sup> Floor,  
Near D1 Police Station,  
No.2, Wallajah Road,  
Chennai-600 002.

**CHAIRMAN AND MANAGING DIRECTOR.**

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**TAMILNADU TOURISM DEVELOPMENT CORPORATION LIMITED****Tamilnadu Tourism Complex, 2, Wallajah Road, Chennai-2.****Nature of work : Construction of Ultra Deluxe Aerotech Bus  
Body on Ashok Leyland chassis (222" WB)****INSTRUCTIONS AND CONDITIONS TO TENDERER**

1. Sealed tenders are invited from leading reputed automobile passenger bus body builders with proven track record for construction of Ultra Deluxe Aerotech bus body on Ashok Leyland chassis to 222" WB by Tamilnadu Tourism Development Corporation Limited, Chennai upto **3.00 P.M. on 30.10.2018.**
2. Tenders should be in the prescribed form and it should be sent in separate sealed cover superscribed as "**TECHNICAL BID for construction of Ultra Deluxe Aerotech Bus body on Ashok Leyland Chassis**" and "**PRICE BID for construction of Ultra Deluxe Aerotech Bus body on Ashok Leyland Chassis with Airconditioner**" to the Chairman And Managing Director, Tamilnadu Tourism Development Corporation Limited, Chennai-2 by designation. Sealed tenders can be submitted or sent by post at the following address:

TTDC will not take any responsibility for Postal delay or loss in transit.

**Registered Office:****Tamilnadu Tourism Development Corporation Limited,  
Tamilnadu Tourism Complex, 3<sup>rd</sup> Floor,  
Near D1, Police Station, No.2, Wallajah Road,  
Chennai-600 002**

The tenders not in the prescribed form will be summarily rejected.

3. The Technical Bid must be accompanied by an **Earnest Money Deposit of Rs.55,000/-**(Rupees Fifty Five Thousand only) Payable by Crossed Demand Draft on any one of the Scheduled Banks having its office at Chennai. The Demand Draft should be drawn in favour of "Tamilnadu Tourism Development Corporation Limited". No other form of Earnest Money Deposit will be accepted.
4. The Eligibility Criteria of the tenderer is at **Annexure I**. Tenders received without Earnest Money Deposit along with Technical Bid will not be accepted and the same will be summarily rejected.

5. The successful bidder shall be intimated on his selection for the award of contract.
6. The successful tenderer should furnish bid security equivalent to 5% of tender value either by cash or by Bank Guarantee from a Nationalised Bank/Scheduled Bank valid for two months over and above the guarantee period of two years within one week from the date of receipt of letter from TTDC intimating the selection of the bidder for award of contract. The successful tenderer shall also execute the agreement in the proforma prescribed by the TTDC along with the Bid security.
7. Earnest Money Deposit of the successful bidder shall be forfeited in the event of withdrawal of his bid, before the bid validity period or in the event of the failure of successful bidder to furnish the bid security or to execute the agreement within the specified period. In addition to the forfeiture of Earnest Money Deposit, steps will be taken to ban the defaulter from future business dealings with TTDC.
8. The tenderer (Authorised signatory of the Company) should sign at the bottom space of all the pages of this tender document and return along with the Technical bid.
9. The rates tendered shall be inclusive of Sales Tax and other taxes if any, that may be levied by the appropriate authorities. The breakup details such as Basic price, Excise duty, Sales Tax, Insurance, A/c Component & make seat model etc. Transportation and other charges if any, etc. should be indicated separately in the Annexure to the Price Bid Schedule. The price bids are at **Annexure III**.
10. The Technical Bids will be opened at the Registered Office of TAMILNADU TOURISM DEVELOPMENT CORPORATION Ltd., III Floor, Tamil Nadu Tourism Complex, No.2, Wallajah Road, Chennai-2 on **30.10.2018 at 3.30 P.M.** The qualified tenderers Price Bids will be opened on a date and time which will be intimated to the technically qualified tenderers. Both the Bids will be opened in the presence of tenderers or their authorised representative who choose to be present at that time.
- 11 **Evaluation of bids**
  - (i) The Technical bid will be evaluated with reference to the eligibility Criteria prescribed in the Technical bids. The price bids of the qualified bidders will be opened on a specified date to be intimated to all successful tenderers.

- (ii) The evaluation of price bids shall include all duties and taxes. In a tender where tenderers are both from Tamilnadu as well as from outside the State of Tamilnadu, the Sales tax / GST shall be excluded from evaluation of price.
  - (iii) 15% Price preference for domestic Small Scale Industries units and 10% price preference for Public Sector Undertakings of Tamilnadu Government in respect of products manufactured by them shall be given.
12. The Earnest Money Deposit of unsuccessful tenderers will be refunded after a decision is taken on the tender. For the successful tenderer Earnest Money Deposit will be refunded after delivery of all built vehicles in good condition as per the specifications.
13. The amount deposited as Earnest Money Deposit as required in Sl.No. 3 above will not carry any interest.
14. Successful tenderer will be intimated about the acceptance. Hence no enquiry in this regard need be made.
15. All columns in the tender schedule shall be duly, properly and exhaustively filled in ink. The rate shall be entered in words also underneath the figures. No alteration in the description of the schedule shall be permitted. All corrections should be authenticated under the full signature of the tenderer. In case of variations in the rate quoted in words and in figures, the rate quoted in words only will be taken into consideration.
16. The tender shall be valid for 120 days from the date of opening of Price Bid.
17. The fully built vehicles complete in all respect should be delivered at TAMILNADU TOURISM DEVELOPMENT CORPORATION, Garage, Chennai -9 as per the delivery schedule indicated below:

**Delivery Schedule:**

18. The Tenderers should initially construct and deliver one ultra deluxe body on 222" WB Ashok Leyland chassis with A/C fitment and deliver the coach within **60 days** from the date of receipt of intimation on availability of chassis. He shall take delivery of chassis within 5 days from the date of receipt of



intimation of availability of chassis. The remaining one coach should be delivered within 50 days from the date of receipt of approval for the supply of the first Coach. If the first coach delivered by the successful Tenderer needs minor modification as per the technical specifications, the same shall be done by the tenderer at his cost. If the coach delivered is not as per tendered specifications, the same will be rejected, order will be cancelled along with forfeiture of EMD and bid security. Similarly if the remaining coach after acceptance of 1<sup>st</sup> coach is not as per tendered specifications it will be rejected along with forfeiture of EMD and bid security.

19. Delay in supply will lead to penalty @ 1% of the value of body building work for every week of delay or part thereof. (i.e. exceeding three days will be calculated as one week)
20. If delay in supply exceeds 30 days from the delivery schedule, the acceptance order for body building will be liable for cancellation, in total or partial. Liquidated damages will be levied to the extent of 10% value of built vehicle cancelled in addition to forfeiture of EMD. The supplier will be banned from business dealings in future.
21. The built coaches should give a minimum guarantee period of two years for structural stability, general workmanship, corrosion to body parts, etc. from the date of delivery at TAMILNADU TOURISM DEVELOPMENT CORPORATION Garage, Chennai-9
22. The audited balance sheet for the three preceding financial years should be produced along with the technical bid.
23. The tenderer shall be solely responsible for the payment of GST and other taxes, if any levied by the Government and other local bodies.
24. The Technical Bid and Price bid for each work should be submitted in separate sealed cover along with a covering letter.
25. The tenderer should enclose the brochure, sketch, detailed drawings, catalogue and previous copies of indent orders for body building of Ultra Deluxe Aerotech coaches received from various customers and their certificate of performance etc. along with the Technical bid.

26. **Fixed Price:** Prices quoted by the Bidder shall be fixed during the Bidder's performance of the contract and not subject to variation on any account. A bid submitted with an adjustable price quotation will be treated as non-responsive and rejected.
27. The Bidder shall furnish, as part of its bid, documents establishing the conformity to the bidding documents of all goods and services which the bidder proposed to supply under the contract.
28. In exceptional circumstances, TTDC may solicit the bidders consent to an extension of the period of validity. The request and the responses thereto shall be made in writing (or by E.mail or Fax). The bid Security provided shall be suitably extended to cover the Guarantee period. A bidder may refuse the request without forfeiting its bid security. A bidder granting the request is not required or permitted to modify his bid.
29. Bids must be received by TTDC at the address specified not later than the time and date specified in the Invitation of Bids. In the event of the specified date for the submission of bids being declared a holiday for the TTDC, the bids will be received upto the appointed time on the next working day.
30. TTDC may, at its discretion, extend the deadline for submission of bids by amending the bid documents. In which case all rights and obligations of the TTDC and bidders previously subject to the deadline will thereafter be subject to the deadline as extended.
31. During evaluation of bids, the TTDC may, at its discretion, ask the bidder for clarification of its bid. The request for clarification and the response shall be in writing.
32. TTDC will scrutinise the bids to determine whether they are complete, whether any computational errors have been made, whether required sureties have been furnished, whether the documents have been properly signed, and whether the bids are generally in order. Bids from Representatives, without proper authorisation from the tenderer shall be treated as non-responsive.
33. No bidder shall contact the TTDC on any matter relating to its bid, from the time of bid opening till the contract is awarded.
34. Any effort by a bidder to influence the TTDC in the TTDC's bid evaluation, bid comparison or contract award decisions may result in rejection of the bidders bid.

35. TTDC reserves the right at the time of award of contract to increase or decrease the quantity of goods and services originally specified in the schedule of requirements without any change in unit price or other terms and conditions.
36. The notification of award will constitute the formation of the contract.
37. In the event of TTDC terminating the Contract in whole or in part, for non supply of fully build vehicles per delivery schedule the TTDC may construct the body upon terms and in such manner as it deems appropriate. Similar to technical specification prescribed in tender and the Supplier shall be liable to the TTDC for any excess costs incurred by TTDC for such construction. However, the Supplier shall continue the performance of the Contract to the extent not terminated.
38. The Tenders submitted beyond the date and time fixed shall be summarily rejected.
39. Any postal delay or loss in transit will not bind TTDC Ltd.
40. The Managing Director, Tamilnadu Tourism Development Corporation Ltd., reserves the right either to accept or reject any or all the tenders at any time prior to award of contract.
41. Evaluation of tenders would be in accordance with the provisions of Tamil Nadu Transparency in Tenders act 1998 and the Tamilnadu Transparency in tender rules 2000 and subsequent amendments thereon.
42. Disputes if any arises, will be subject to Chennai jurisdictions.

**Terms of Payment:**

43. No advance payment will be made. 100% payment will be made against Bid Security only after effecting delivery of the built coaches and verification of the quality as per the tendered specifications at TTDC Garage, Chennai.

CHAIRMAN AND MANAGING DIRECTOR

SIGNATURE OF TENDERER

DATE:

TAMILNADU TOURISM DEVELOPMENT CORPORATION LTD.CHENNAI-2

**TECHNICAL BID****Eligibility Criteria for the tender: (Documentary proof to be attached for every condition)**

1. Bidder should be registered as a company incorporated under companies Act having atleast 10 years experience in the field (copy of certificate of incorporation to be enclosed) and hold an accreditation certificate from ARAI / CIRT that they are recognised for Body Building as per the Bus Body code 052 (member).
2. Bidder should have the experience of fabricating at least 100 coaches per annum of these type of latest state of the art buses during the preceding two financial years. 2016-17 & 2017-18 (copy of work orders to be enclosed).
3. a) Bidder should have built at least two Hitech coaches for State Tourism development corporations or other State Government Undertakings / Departments or Public Limited Companies during the past two financial years proceeding the current financial year 2018-19 (copy of work order to be enclosed).  
  
b) Previous record of belated delivery or delivery of poor quality coaches to TTDC if any, within a period of five years preceding the current Financial year would result in disqualification of tenderer.
4. Should have fabricated such buses for export (copy of work order to be enclosed).
5. Should have the required facilities to build a highly standardised body with interchangeable parts having modular construction.
6. Body builder should give a minimum guarantee for three years for structural stability, general workmanship, corrosion to body parts etc.
7. Should have an average annual turnover of Rs. 10 crores in the preceding three financial years (Viz 2015-2016, 2016-2017 & 2017-2018) (copy of audited annual reports to be enclosed. In case of unaudited accounts for 2017-18, turnover certified by the statutory auditors of the company to be furnished).

SIGNATURE OF THE TENDERER:

DATE:

**ANNEXURE - II**  
**TECHNICAL SPECIFICATION/ STAGE OF INSPECTION -**

**SPECIFICATION FOR CONSTRUCTION OF ALL METAL ULTRA DELUXE  
AEROTECH BODIES ON 2 NOS ASHOK LEYLAND 5639 MM WHEEL  
BASE CHASSIS (35 SEATER +1+1) FITTED WITH AIRCONDITIONER**

1. The coach should be most up to date and ultra modern and should conform to the modern trend in design in the automobile coach building line.
2. The Coach should have very attractive and elegant look and should be a streamlined one incorporating maximum luxury comfort and facilities to tourists.
3. The coach body construction should comply in all respects with the Central motor vehicle rules and Tamilnadu Motor Vehicle Rules and Act and Bus Body code 052 and other prevailing statutory provisions.
4. All the materials used in the Bus body fabrication should conform to IS, BIS and ASRTU specifications and they should be manufactured by reputed companies and items for spares mentioned in the Bud Body Code to be procured from supplier approved by ARAI / CIRT and as per specifications approved by them.
5. Easy Access must be provided for removal of Engine, Gear Box, Wiper Motor, Spring Assemblies, etc and for checking injection timings, greasing various points etc.

**Bus Body Construction:**

Sl.No	Description	Specification for All metal body
1	Platform	<p>The platform channel to be provided with 100 x50mm ISMC MS channel in two layers. The bottom layer with about 1200mm length (at top) is to be mounted on base plate. The top layer (main cross bar) for full length the platform is to be properly welded with bottom layer. The MS channel to be mounted on 8mm thick MS plate over the 6mm canvas / Balatta in single piece. M.S Base plate of size minimum 150mm x150mm x 8mm / 150mmx 300mm x 8mm be welded to the MS channels at the bottom. Diagonal holes or straight holes of 16mm diameter be drilled for these base plate for fitment of U Bolts. The Main cross bearer ends should be fully welded with MS end plates of thickness 6mm on either ends of the channel for mounting of main and stump pillars. The platform channels are to be provided without any drilling on the chassis members. MS high tensile galvanized U bolts of size 16mm be used to fasten the floor structure to the chassis with heavy duty self locking nyloc nuts. The U bolts should not project more than 6mm above the nyloc nuts when fully tightened. Necessary aluminium die cast packing and tubular inter postings of suitable dimensions be provided while clamping the U bolts. Wherever not possible to provide die cast, 6mm balata/canvas alone can be used. Stepped platform i.e sunken platform to be provided. Stepped platform (structural stage) may be maintained at a height of about 364mm from the chassis top surface in the seat position and about 214 mm in the gang way. The platform channel – 14 Nos should be spaced at suitable interval. The sole bar to be provided with 35x35x6mm MS angle. The platform to be raised for 150 mm at seat portion with 35x35x6mm MS angle for vertical member (3 number is each side). Two runner on each side with 40x40x6mm MS angle to be given in seat leg area to fix the seat frame. Z section to be provided at gangway for full length. Cross support by 35x35x6mm connecting Z section and pillars to be given. The MS angle/ Z section should be provided such that the bottom of the seat leg must</p>

		<p>be seated over the MS angle/ Z runner. The sides of the gangway should be with MS pressed Z section of 2.50mm thick MS C.R sheet. The collars of the Z section should be 65 x 150 x 40 x 2.5mm. Necessary 3 mm MS gusset plate to be provided. Suitable driver platform structures with MS channel/ MS angle/ MS flat should be given. In wheel arch portion, 250mm x 250mm x2mm box type gusset to be provided.</p> <p>Suitable MS angle to be provided to maintain left hand side passenger seat raised floor for full floor width. The raised portion be tapered from gear box trap and a taper to be given to match gang level.</p> <p>The chassis members should not be cut at the end for rear dickey or for any other purpose.</p> <p>Care should be taken that there should not be any projection of angle section/ bolt above the wheels.</p>
2	Structural	<p>All metal body with 60mm x 40mm x 2.0mm MS C.R. rectangular ERW tube for main pillars. The stump pillars to be given with 40x40x 2mm MS C.R square ERW tube. The main pillars and stump pillars be mounted vertically with each cross beam. The runners at Waist slab to be given with 60mm x 40mmx 2.0mm MS CR ERW rectangular tube. Necessary gussets are to be welded at bottom corners of waist slab with side and stump pillars. One row of MS CR ERW tubular square section of size 60x40x2mm be provided for body rail for fixing waist (stretched panel) and skirt panel. Proper anodized aluminium hinges to be used for bottom door panel. The sole rail of 35x35x3mm to be used to mount side structure on floor structure and it should be welded properly. In truss panel, for reinforcement, 40x30x1.6mm MS CR ERW tube to be provided in all bays. Skirt rail be of MS CR ERW tubular square section of size 40x40x2mm for LHS structure and 40x20x2mm for RHS structure welded to the side pillars bottom right round. Vent rail with 40 x 40 x 2mm MS ERW square tube and Cant rail with 60x 40x 2.0mm MS CR ERW rectangular tube to be provided. Necessary gusset plate to be provided with 3mm MS sheet. The inner dimension between waist rail and vent rail to be provided to suit glass height of 605mm.</p>

	<p>For roof shoulder panel support, 12x25x1.6mm C section to be welded with cant rail for full length in outer portion.</p> <p>CR MS ERW rectangular tubular roof stick of size 60x40x2mm thickness with proper contour Intermediate also to be provided with 60x 40x 2mm thickness ERW MS tube. The roof sticks be mounted on the cant rail and fully welded. The curvature of the roof sticks be well finished and there should not be any wrinkles. The roof sticks be mounted on each main pillar and in between main pillars having both sides “L” cleats. The roof sticks be joined with minimum 5 rows (one row at the center and two rows on either side) of roof longitudinal. All five runners be provided with CR MS pressed top hat sections of side 25x60x50x60x25x2mm thickness. Except the middle runner, remaining 4 runners be placed open upward. All the above longitudinal must be welded to the respective roof sticks with box type MS gussets of size 20x50x20x2mm. The joint of the roof structure and cant rail be provided with MS pressed angle of size 45x45x2mm thickness to the full length of the body on both sides of inside corners as reinforcement. For mounting of roof luggage carrier 50x100x6mm MS plate be welded in the roof sticks as reinforcement.</p> <p>Additional MS angle/ MS flat/ MS ERW tube at platform level and for side body to be provided wherever necessary.</p> <p>Proper MS / GI sheet cover to be provided in all around of mud guard to avoid dust and water proof in wheel arch portion.</p> <p>Suitable structure to be given for side dickey, rear dickey, battery box, stepney carrier, tool box, inspection cover for air suspension unit with 35x35x6mm MS angle, 32x6mm MS flat and with suitable MS frame works. Safety guard to avoid glass breakage behind rear seats to be provided.</p> <p>Front end structure to be fabricated to have an elegant look to suit latest type grill and grill pan. Front outrigger to be made of ISMC 75x40x5mm with 40x40x2mm MS CR ERW tube structure. Front wind screen pillar to be provided with 60x40x2mm MS ERW pipe. The cross members be provided with 40x40x2mm MS CR ERW tube for top and bottom of wind screen glasses. MS angle 25x25x3mm (top and sides) and 35x35x3mm (at bottom) frame be welded to the wind screen pillar with MS flat reinforcement for fixing front wind screen pillar with MS flat reinforcement for fixing</p>
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		<p>front wind shield glass. Proper support should be mounted to the front end structure for fitment of front show grill. All joints in the front end structure be provided with ample dimension of gussets/ cleat of 3mm or 2.5mm thick MS plate.</p> <p>50 x 6mm MS flat to be provided on first post both sides of main pillar for the fitment of Side View mirror</p> <p>The rear end structure be fabricated by using MS ERW 60x40x2mm for main pillar and also for cant rail. The cross bar to be provided with 40x40x2mm MS CR ERW tube. Corner doom support pipe be provided with 60x30x2mm MS CR ERW tube to connect rear structure and side structure. In rear structure, rear dicky above pipe to be integrated with rear row seat floor structure with 2mm MS sheet. At top a doom to be provided over the rear glass to fix 3 numbers danger light. Provision to be given for rear route board below the rear wind screen.</p> <p>The driver partition structure to be provided with 30x 30 x2mm tube. In the partition suitable sliding glasses with curtains to be provided under the T.V.area. Partition single door be fabricated with 25x25x2mm MS tube.</p> <p>Suitable structure to be provided for wheel arch and mud guard for both front and rear wheel and arches be mounted and welded with a minimum height of 250mm measured from the top level of the tyre.</p> <p><b>For A/C Coaches</b></p> <p>Provision has to be given in roof for fixing a Air-Condition Unit as per AC manufacturers detailed drawing and not to exceed an approximate weight of 250 kg, length 4500 mm, Breath 1850mm,depth 200mm</p> <p>Suitable structure to be provided for fixing of compressor with engine for Air-Condition unit per bus.</p> <p>20 x 40 x 80 x 40 x20 x 2.5 mm thick M.S.C.R. Hat Section to be used 2 nos per side structure as main pillar for routing the refrigerant holes.</p> <p>40 x 10 x 1.6 / 2mm thick tube to be fitted in waist rail for full length on both sides for the fitment of stretch panel.</p>
3	Ducting arrangement ( For A/C Coaches)	Proper provisions are to be made at structure and paneling stage as to mount the same as prescribed by the A.C manufacturers. A.C installation and ducting arrangements carried out by Manufacturer for Air flow with air vent

		<p>design to matching the requirement of bus with 35 seats A .C. Manufacturer is responsible to run the AC and satisfy the TTDC Officials.</p> <p>The Ducts to be fabricated by using 16G Aluminum sheet with proper insulation, avoiding water condensation or leak. Proper vent to be provided in ducting for even distribution of cold air. Along with vent, reading lights and speaker to be provided. The ducts and joint should be well sealed with silicon sealant. The ducts and joint should not overlap each other to avoid leakage of air as well as water in condensation. All the insulation material which is going to the used in the Ac buses shall be get approved by TTDC authorized person before use and also necessary certificate for the capability of the insulation material for this should produced by the manufacture .</p>
4	A/C Assembly Unit for A/C Coaches	<p>Thermo King/Carrier make or equivalent A/C Assembly unit (Manufacture should have minimum 5 years experience). Air conditioner consisting of Roof Top system with Non corrosive FRP Frame work and light weight construction. A/c Unit with compressor, condenser, evaporator and electrical controls to be provided. Components to be of one manufacturer only including Compressor. The Cooling capacity of the Passenger compartment should be 20,000 to 25,000 K.CAL/HR or 75,000 to 90,000 BTU/HR which will be approximately 6.5 to 7.5 ton capacity. The capacity of A/C unit should bring the cabin capacity to 15°C to 20°C less than the atmospheric temperature. The A/C Unit should be capable of cooling a maximum of 36 persons. Local power pack consisting of separate 4 cylinders or suitable engine with liquid cooling with a 12 Volt 65 amps, Lucas or equivalent alternator. The A.C control panel /switches to be fitted in the left side of the driver seat to prevent rain water seepage.</p>
5	Paneling	<p>Above the rub rail, Paneling with 20 g G.I/ Zintec single stretched sheets for both sides (waist paneling) to the full body length. Sika flex paste 212 fcs/ 221 grey or equivalent quality to be used to fix the sheet in waist paneling. Below the rubrail (skirt paneling), 12g Aluminium sheet to be given. The skirt panel be folded 35mm at bottom. For front and rear 18 g G.I sheet for paneling. Covered with suitable decorative show beedings wherever necessary.</p> <p>Paneling with 24 GP sheet inside the see through glass portion (over hat rack) to avoid breakage of see through</p>

		glasses with suitable MS reinforcement. Water channel beading to be provided in the right and left side for the whole body.
6	Top Roof	<p>20 g G.I sheet should be laid in the top of roof. Top shoulder panel is also to be provided with 20 g G.I sheet.</p> <p>The exterior panels be in length wise of the vehicles. The overlap joint in roof should be MIG welded completely. The roof panel be stitch welded with roof longitudinal MS hat section and ERW tubes. Utmost care should be taken while welding roof panels to avoid seepage of water. After welding the joints to be applied with sealant to arrest leakages through joints.</p> <p>Roof panel be covered with Roof shield rubber mat (Water proofing tar felt) of not less than 2mm thickness of reputed make along with center of the roof panel covering a width of 60". The Tar felt be pasted with Tar plastic roofing compound manufactured by reputed make or any other latest materials of good quality.</p> <p>Water channel may be provided if found necessary.</p>
7	Front and rear portion	<p>Front cowl with latest elegant look should be provided. Bumper with necessary MS angles and GP sheet.</p> <p>For rear portion, Integrated bumper with MS structure and GP sheet to be provided. (FRP should be avoided)</p>
8	Flooring	<p>Flooring with 15 mm BWR chequered plywood. In saloon portion, the sheet to be finished with 1.5mm thick stud vinyl flooring of approved colour and design by using synthetic rubber based adhesive of reputed make adhesive solution. In driver cabin, the chequered plywood is to be covered with 1.2 mm aluminium chequered sheet over the plywood upto foot board. The saloon flooring be laid and fastened to make the flooring entirely dust proof. Aluminium step edge extrusion be provided on the raised floor gang way sides.</p>
9	Foot board	<p>Fabricated with suitable MS structure with 35x35x6mm MS angle/ 32x6mm MS flat to provide Swing in door. Foot board bottom skirt to be ISMC 75x40x5mm. Step covered with 15mm chequered plywood and over the plywood 1.2mm Aluminium chequered sheet. Rises of the steps and Side portion to be covered with stainless steel sheet with suitable reinforcement. 40mm Foot step beeding to be provided for edges. The rise of the first step to be provided with foldable arrangement made of 25x25x2 mm tube with two pin type hinges so as to carry maintenance for the swinging mechanism of Swing in door. ERW 25 mm pipe to be fitted for handles in the side of steps.</p>

10	Passenger door	At front only – Swing in door (Pneumatic with control switch on the dash Board near the Driver) with suitable MS structures using 30x30x2mm tube with reinforcement of MS sheet of 3.14mm / 6mm. Swinging mechanism, locking arrangement, handles, see through glass at top and with aluminium paneling for both sides to be provided. Additional heavy duty tower bolts to be provided in the bottom and slidable step to protrude out when door is opened for easy access.
11	Driver door	The driver door should be flap type hinged in the front and should be fitted with heavy duty standard quality with reputed make lock. This lock should comprise of cup and handles. One number 6” aluminium handle at door inside and 12” aluminium handle at outside be provided. The door be fitted with 2 numbers MS forged Hinges of latest type with reinforcement. One latch lock Railway type and one brass tower bolt also to be provided. Driver door glasses should be movable in vertical position preferably without rotating handle.
12	Emergency exit	The last window of driver side to be converted as emergency exit. At bottom inside tight fitted locking arrangement be made. The emergency exit should be made for easy operation and water leak/ dust proof. Suitable provision to be made for opening from outside also.
13	Top ceiling and sides	For saloon area, 3mm thick ACP ( Aluminum, Composite Panel ) sheets for the entire side portion and for the whole length of the bus. Ceiling with 3mm Multi colour ACP sheets with flower design to be provided ( design to be approved by TTDC). Attractive design and colour to be provided for ACP ceiling. The ACP to be fixed to the roof structure by using powder coated screw. There should not be any loose fitment of ACP and thermocole sheet. The design pattern and colour will be chosen by the Corporation officials. Beedings for joints may be fitted wherever necessary. Provision for LED tube light inverter- 5nos in saloon area to be given in the ceiling. In the driver cabin, ceiling with ACP/ FRP to be provided and provision for fitting 2 numbers of Tube-light inverter. The screws should not be get loose on running.

14	Insulation	Thermocole sheet 40 mm thick to be provided between inner and outer roof paneling. In between the panels in truss paneling themocole of size 40 mm thickness be provided.
15	Hat rack	At both sides for full length to be provided. The size is about 23" width without damaging see through glass. The rack main frame be fabricated with 40x20x2mm thick MS tube, MS pressed G section of size 20x15x25x15x2mm and GI sheet 22g. Necessary other MS structural be used. Modern type brackets be provided and welded to roof stick and side pillars. The rack flooring and rear be covered with 22 g GI sheet. The GI sheet be covered with rubber mat and carpet fabric inside the rack. Bottom finished with 3mm thick ACP panels with suitable design works. ACP panels should accommodate reading lamp with switches. The height of the rack (clearance) to roof ceiling should not be less than 10". Reading Light to be provided for all the seats underneath the hat-rack. Also air –duct to be provided in the hat-rack for the A/C Coach and it should be of adjustable type. Exterior side of the Hat rack to be covered by leather cloth packing.
16	Truss paneling	Provided with 4mm thickness BWR plywood of reputed make. Plywood to be screwed to the side structure over which 3mm thickness ACP sheet of specially mould be provided and be pasted neatly. The joint must be neatly finished. All-round the window and see through glass-covering with same colour ACP sheet.
17	Curtain provision and screen cloth	Curtains to be provided preferably with good quality stainless steel rods and brass fittings for fixing curtain to be given. Curtains to be with attractive design for side windows and for rear wind screen glass. Sample Curtain cloth and fittings to be approved by TTDC.
18	Window frame	With Powder coated Mazda Aluminium extrusions heavy duty and weighing minimum 2.50 kg per 12 ft with good quality nylon flocked rubber channels. The side windows shall be of unit construction in the form of bent frame to match the profile contour of the side body structure so that the whole window frame assembly can be easily fixed on to the body by using rubber packing and fasteners rigidly. The window frame should be black powder coated. The window frame corner joints be welded and at corners aluminium L

		cleats be riveted. The window frame at bottom be provided with slot holes at sides and center to drain out the water. Below the window frame, before fitment, 18g aluminium Z section be provided at waist rail level by using PU sealant.
19	Glasses	<p>Front wind shield glass should be one piece laminated made of 2 glasses of each 4 mm thickness with laminated film in between the glasses confirming to CMVR rule 100 sub rule 2&amp;3</p> <p>For window glass – toughened 4.8 mm light blue tinted curved glass with sweeping beeding and all glasses to be provided with metallic lock and handles and ensure easy movement.</p> <p>For rear glass – toughened 4.8 mm toughened smoke glass.</p> <p>For see through glass (top fixed glasses) - toughened about 4.8 mm green glass.</p> <p>For passenger door- clear glass 5.0mm thick</p>
20	Rubber beeding	<p>For rear glass – 40mm EPDM rubber</p> <p>For front wind screen glass- 50mm EPDM rubber</p> <p>For window mounting 25 x 6mm rubber beeding to be provided.</p> <p>Rubber beedings are to be provided wherever necessary to avoid rattling/ for sound insulation.</p>
21	Battery box	<p>In the left side of the body to fit 2 numbers 12V 25 Plate batteries with facility to check distilled water and with necessary door &amp; locking arrangement with key, concealed type lock is preferable. Gas spring to be given for the door. The sides are to be covered with 18 g GI sheet and bottom flooring with 16g aluminium chequered sheet riveted/ bolted/ welded to the structure rigidly. The batteries be kept on the platform with 15mm thick good quality wood. one main cable cut off switch be provided on the driver seat frame near to the driver for easy operation. The length of the cable from battery to the startor should be in one length and without any joints. Similar provision for additional battery for AC Buses also to be provided.</p>
22	Stepney box	<p>In the left side of the body to place stepney tyre (spare wheel carrier) with necessary door and gas spring. Locking arrangement with key is necessary. The door should be reinforced inside to avoid twisting of the door. The size of</p>

		the nut to be provided to keep the spare wheel should be equivalent to wheel nut. The structure should be welded strongly to carry tyre load. The stepney should not be welded with chassis member.
23	Luggage carrier and dickey	<p>Luggage carrier is to be provided at top with necessary structural works for a length of 6.00 metres. The top luggage carrier to be fabricated with suitable hat section and U section, 25x25x3mm MS angle, 32x32x3mm MS angle, 110x110x2mm thick MS plate. All sides be covered with pressed type 20g GI sheet. The bottom sheet be 20G Corrugated GI sheet. 12mm diameter with 150mm long hook to be provided in both sides at suitable intervals. Necessary ladder with 25mm dia ERW pipe to be fabricated and supplied separately. Side sliding carrier to be fabricated with 25mm dia and 20mm dia pipes and fitted in left side without affecting the window glasses.</p> <p>One more box to place luggages to be provided in the rear side with gas spring, necessary door &amp; locking arrangement with key (concealed lock is preferable). The bottom and side of the luggage booth should be covered with GI sheet 20g and at bottom of the luggage dickey 12mm chequered plywood to be provided and over that finished with 1.2mm thick aluminium chequered sheet. Side to be finished carpet/vinyl sheet wherever necessary. The chassis member should not be cut for rear dickey. Necessary reinforcement to be given for doors. LED Lighting arrangements to be given for the luggage booth with switches. The boxes must be made dust and leak proof by applying PU sealant. Additional padlock type arrangement for locking with separate locks may also be provided. Water channel beading to be provided over the dicky opening to prevent rain water inside.</p>
24	Air suspension unit inspection door	Inspection door to be given in the side bodies to enable to maintain the Air suspension unit.
25	Fuel tank door	One number fuel tank flap door in 12 g aluminium sheet to be provided with latches.
26	Tool box	Near the Driver seat with necessary door and locking arrangement
27	Dash Board	The dash board be extended and connected to the front end structure. The dash board be fabricated with 35x35x3mm MS angle and with other structural members to the full

		width of the body and upto the front end structure. The specially Moulded FRP with suitable design with MS structural reinforcement including dash board instruments to be provided rigidly for dash board. Provision for water filling for radiator and service for power steering oil to be given. Meter board to be fitted on the dash board with removal type properly.
28	Bonnet	The Bonnet supplied with the chassis should be modified to suit for easy maintenance and providing with Cavity foam padded and velvet fabric cloth. Stainless sheet be provided in the bonnet to improve the look. PVC moulded with attractive design may also be provided. The bonnet must be heat proof and no hot air should come out.
29	Electrification	<p>Concealed wiring with 4mm, 6mm, 8mm LT cable for Audio system/ Tube light inverter/ Parking lights/ Head light/ side top light/ Bulbs at Hatracks/ footstep lightings / mini oscillating fans, Wi-Fi etc. Necessary switches for lights are to be provided. Switches of highly reliable latest type be fitted properly in order to operate freely above the driver seat on the right hand side. All switches are to be labeled. All electrical connections should be controlled by a master switch.</p> <p>Main control switch for fan and hatrack light to be provided at driver cabin and individual switches near hatrack light</p> <p>The wiring shall be done at suitable place keeping in view of easy maintenance. The wiring be provided with plastic sheathing /PVC flex pipe / PVC Grommets. The wiring be invariably laid just above the hat rack and at cant rail level. Wherever any of the wire passes through a hole in a panel or sheet of metallic components, a rubber grommet of suitable size shall be provided for protection of the insulation. Only reputed make cables are to be used having tinned conductors annealed copper of size commensurate with the estimated current loading.</p>
30	Headlight	Lucas-TVS make – 4 numbers
31	Bulbs	5 numbers LED light with inverter for inside bus/ 1 number blue colour dim tube light with inverter for inside. Parking light-4nos/ indicator light-4nos/ brake light-2nos and 2 in Luggage Compartment, / top roof light-6 nos / hatrack lights-36 nos foot-step light- one number to be provided ( All in LED types)



		Halogen bulb for head light – 4 nos The parking light/ head lights supplied with chassis to be returned.
32	Fans	Not less than 15 numbers of 24v 200mm mini oscillating fan of Remi make. The fans to be fitted in the pillars. Of this one fan to be provided at driver cabin.
33	Wiper motor	One number heavy duty 24v electro mechanical wiper motor with wiper arm and twin long blade. The wiper motor supplied along with chassis are to be returned. The wiping area should be ensured in such a way that the driver's visibility during rain is very clear.
34	Bulb Horn	One number bulb horn to be provided. One more Air horn to be provided at suitable place in the front end structure and operating handle to be fitted nearer to the steering column. The noise level in decibels should be within the norm as prescribed in the latest MV rules/ Tamilnadu Pollution Control Board
35	Driver seat	Harita make wire type seat to be provided for the drivers with seat belt.
36	Crew berth	Crew berth to be provided by utilizing the space available between the Driver's seat and Driver's portion, using 12 MM BWR Plywood to make Box type Berth. The Box to be made of lid type by fixing hinges. The Box to be covered with anti skid Vinyal material used for floor and covered with American velvet cloth.
37	First Aid box	One first aid box with aluminium sheet at front to be provided along with basic medicines. The lid be provided with hasp and staple with good quality lock and two keys. The box be provided with lettering and red cross mark sticker.
38	Fire Extinguisher	One number 1kg Dry chemical powder fire extinguisher to be provided in driver cabin.
39	Rear view mirror	2no Extended hanging type rear view mirror to be provided. In addition to this, 2 more round type may also to be provided.
40	Seat number plate	Plastic seat number plate to be provided with a mark of Window/ Aisle.

41	Sun visor	One number 3 feet Sun visor to be provided in the front wind screen glass.
42	Mirror	One quality mirror with size of 3'X1' may be provided over passenger door
43	Wall clock	One Digital wall clock to be provided in driver partion with view for passengers
44	Mudguard flaps	4 numbers of mud-flaps to be provided for mudguard. Mud guard flap to be provided with 6mm thickness (Rubber-Sheathing reinforced canvas) for full width of the wheels and bolted with aluminium flat beeding. For the rear wheel, the mud flap should be provided from the top level of the air balloon itself. The bolt or sheet should not damage the Air balloon and adequate distance should be maintained between the Air balloon and mud flap to avoid damage to the Air balloon while in moving / jerking
45	Hub caps	Latest design hub caps in FRP / metal to be provided for all wheels
46	Carpet	Carpet to be provided inside Hatrack and for ceiling of rear dicky and wherever necessary.
47	Luxury Executive Deluxe seat frame and Upholstery for seat	<p>Luxury Executive type seats of Haritha Grammer or equivalent make with wider hand rests to be provided. Ergonomically contoured Deluxe Reclining Seat, Push back luxury deluxe two-seater assembly with good quality piston to be used. The seating capacity is 36 including one single seat for the guide</p> <p>Seat frame structure is made in combination of 25.4mm x 2mm thick square ERW tube/ 30x20x2mm rectangular ERW tube and 22mm/32mm dia round tube, Sheet metal Pressed components with minimum thickness of 2mm, MS pressed angles and proper reinforcement and 4mm thick gusset to support the structure.</p> <p>The ERW pipes and tubes should be ISI and pipes and tubes are to be chromium plated/ powder coated wherever necessary.</p> <p>Suitable fixed leg rest to be given in the seat frame. Seat belts to be provided for all the seats.</p>

		<p>The inclination for push back seat should not disturb the passenger sitting in next row. Same reclining angle to be maintained for last row also. Reclining angle may be maintained at about 25 degree</p> <p>The width of the Retractable Arm rest with PU skin moulded arm rest may be maintained at 45mm plus or minus 5mm. All 3 hand rests are to be in Movable type including last row 4 seats. Heavy duty gas spring piston to be fitted.</p> <p>The side cover to be provided with 2mm thick FRP and be painted with silver cloud colour</p> <p>The overall width of twin seater is about 1010mm and height about 1080 mm.</p> <p>PU foam both for sitting seat (bucket type) and back rest covered with Cavity foam, gada cloth and American velvet cloth/ Fabric cloth/ Dobby cloth/ Flat laminated synthetic Jacquard as per the design chosen. The cloth used should be easily washable. The minimum size for the sitting seat be 470mm x 465mm and for the back rest cushion is about 440mm x 750 mm. Minimum thickness for sitting seat cushion is 100mm at edges and 75mm at centre. Minimum thickness for back rest is 95mm at edges and 35mm at centre. Profile to be given for the back rest such that the profile should be convenient to travel and back pain should be avoided. Solo bottom cushion and back rest for individual passengers to be provided. Suitable bottom support with plastic moulded sheet to be provided for sitting seat and it should bear the weight of the passengers. The sitting seat should be designed such that passengers should not slip while traveling.</p> <p>Head rest cover with cushion padding to be provided for each seat. Apart from this cushion pad cover, two more cover in white cloth to be provided for each seat.</p> <p>The rear side of the back rest to be covered with ABS or plastic moulded sheet of about 2mm thick. Provision to be given for holding 1 litre water bottle at the rear side of the seat. Also Magazine Pouch to be provided behind the seats so as to keep magazines. Grab handle also to be provided.</p> <p>Seat frames should be pretreated such as De-greasing, De-rusting, Phosphating and Black powder coating before assemble the seat. The DFT powder coating to be maintained min 40microns. Welding process to be done with MIG-CO2</p>
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		<p>The seat to be mounted on necessary canvas belt and bolted to the supporting angle.</p> <p>One sample seat with upholstery, to be used in construction, should be got approved by TTDC.</p>
48	Primer	<p>All MS tubes must be hot phosphated with seven tank process before put into use.</p> <p>All the structural MS components i.e tubular sections, hat section, Z section, C section, L section etc of pressed MS components are to be chemically treated by Hot phosphating conform to IS 3618 of 1966. After drying of these components it should spary painted with reputed make company, Epoxy primer with Zinc phosphate paint. After completion of the structure, the complete structure be painted with the solution comprising of Eurohard, Eurosolv and Pipcothane mixed in the ratio of 1: 0.25 : 0.05 should be applied on the entire structure covering all the welded joints. The longer size of the MS components be painted with the solution comprising of Eurohard, Eurosolv and Pipcothane mixed in the ratio of 1: 0.25 : 0.05. i.e. cold processing to be done The thickness of this PU paint be minimum 200-300 microns. The paneling work be done only after drying of P.U.Paint.</p> <p>(or)</p> <p>The inside surface of the ERW tubes should be coated with Red-Oxide Epoxy primer over which a filament of wax should be given to prevent rusting/ corrosion, before fabrication. After welding, grinding and alignment of the structure, the same be chemically treated. For degreasing and De-rusting, Dominator plus chemical solution be applied. On this cleaned surface, one coat of Polyurethane black chemical solution be applied. Above this surface the solution comprising of Eurohard, Eurosolv and Pipcothane mixed in the ratio of 1:0.25:0.05 should be applied on the entire structure covering all the welded joints. The thickness of this P.U. paint be min 200-300 microns. The paneling work be done only after drying of PU paint.</p> <p>(or)</p> <p>All the structural MS components i.e tubular sections, top hat section, 'Z' section, 'C' section, 'L' section etc, of pressed MS components are to be chemically treated by Hot phosphating confirm to IS-3618 of 1966. After drying of</p>

		<p>these components it should spray painted with 2 component Zinc phosphate epoxy primer with a 2:1 or 3:1 mixing ratio from reputed make company. After completion of the structure, the complete structure, wherever welding work has been carried out should be retouched up with Zinc epoxy primer. After complete drying of the 2 component Zinc phosphate primer, a top coat of 2K H.S. Epoxy paint with anti-corrosion, salt resistance and sound deadener property should be sprayed with a minimum thickness of 200 microns. The combination of 2K epoxy primer and 2K epoxy top coat should passes a minimum of 1000 hrs of salt spray cycle test.</p> <p>The complete under chassis be painted with polyurethane synthetic chassis anti corrosive black paint.</p>
49	Paintings	<p>Using 2-K (Two component) High solid PU solid paint.</p> <p>Dry sand the GI sheet, FRP and aluminium surface with recommended emery paper sanding sheet. Degrease the surface using wet and dry cloth method with anti static degreaser</p> <p>Apply 2-K putty on bare metal wherever necessary to correct the minor defects of leveling in the metal sheet. Putty should be applied first in thin coat holding the putty blade at 90 degree angle. Subsequent coats can be applied in thick coats. Mixing ratio of the putty is 100:2 or 3 (2% to 3% hardener)</p> <p>Dry sanding or wet sanding be done after 30 minutes of putty application.</p> <p>Sanding of putty be done with P80 wet or dry sheets and subsequently with P150/ 180 and final with P220. Ensure that a fine feather edging is achieved.</p> <p>Degrease with degreaser or silicon remover, and spray Zinc rich 2-K PU primer at a mixing ratio of 3:1</p> <p>Top coat the PU primed surface with High solid primer surfacer. Mixing ratio 3 parts of High solid surfacer and one part of fast hardener. Two coats to be applied with 10% 2-K acrylic thinner to achieve a even film thickness of 100 microns.</p> <p>Wet or dry sand the surfacer after 8 hours of drying at an ambient room temperature of 25 degree with P600 and final with P800 wet or dry sanding sheet. Before painting ensure that the surface is again degreased with anti static degreaser and cleaned by using a tack coat cloth to remove fine dust particle on the surface.</p> <p>Spray the PU paint in two even wet coat with a flash time of 15 minutes between each coat. After the painting is over the bus should be backed at a temperature of 50 degree for 60</p>

		<p>minutes for curing. Complete PU paint to be used from primer stage to final coat.</p> <p>The painting processes be done as prescribed by manufacturer.</p> <p>Colour scheme will have to be approved by TTDC Ltd.</p>
50	Stickers	<p>Sun control film at the top and bottom of the front wind screen glass should be fixed and over that lettering in reflective stickers for the total area of about 15 sqft to be provided such as TTDC Ltd. In rear side and left side also reflective stickers has to be provided fixing of laminated vinyl digital pictures on 3 sides of the Coach ( left, right and rear) based on the digital pictures approved by TTDC) pictures of Tourist places to be affixed in the interior side of the coach after approval by TTDC.</p>
51	Video and Audio System	<p>In the driver partition, suitable box to be provided for fitting Audio System. DVD Player (12 V DC) and Ahuja make Audio system Amplifier) with one number similar mike to be provided. Preferably with the left side opening for easy operation by guide. 32” LED TV of Samsung or equivalent make to be fitted behind driver partition with suitable clamps. The individual speakers to be provided in the hat rack for each seat Assembly and one number in Driver’s Cabin.</p> <p>Access for operating this to be provided in the front left side, for guide to operate. Separate provision to be made for holding the mike.</p>
52	Bolts and nuts	All bolts and nuts should be of high tensile.
53	Locks	<p>Passenger door, Driver door, Battery box, side luggage dicky, spare wheel to be provided with lock and key with good quality concealed type like Tata lock. For partition door, SGI lock be fitted. For Rear dicky, heavy duty 6” lock to be used.</p>
54	Welding	<p>All joints in the bus body structural stage should be properly notched and matched, with the rest of the main structural components to ensure perfectly plain surface and then the joints should be rigidly welded to ensure against any distortion in the completed structure assemblies and the shell work. The alignment of the body should also be checked before taking up paneling work. Welding seeds should be eliminated by grounding or by chipping smoothly. Un-necessary drilling in the structure should be avoided. Improper notching of main and subassemblies and its gaps filled with metallic pieces will not be allowed. The square and rectangular tubes should be MIG welded and in other structures wherever necessary to form a high strength. Welding/ drilling should not be done in the chassis frame.</p>

55	Registration plate	Reflective base yellow sticker to be provided in the front, rear and both sides to fix Registration numbers both in English and Tamil. Suitable size according to the RTO specification be maintained. Rear registration plate to be illuminated.
56	Leak proof testing	Before the delivery of the completed bus, the body be checked for roof and sides water leakages.
57	General	<p>Proper precaution to be taken to avoid damages to any original equipment / assembly of chassis. The body builder should check up the battery charging, engine oil level in the sump, power steering oil level, oil level in the gear box as well as in the differential. Due care should be taken to re connect all the parts and assemblies disconnected while in fabrication and tyre inflation should be maintained. The pedal removed also be refitted properly.</p> <p>Care should be taken to avoid entry of any particles into the functional area which affects vehicle operation.</p> <p>The completed bus body should invariably be delivered to the receiving end in TIP-TOP good condition after thoroughly cleaning the bus body including the under chassis and should be free from dust and dirt.</p> <p>The coach should be most upto date and ultra modern and should conform to the modern trend in design in the automobile coach building line. The Coach should have very attractive, elegant and streamlined appearance incorporating the maximum comforts and facilities for the passengers. Only the materials certified by ISI should be used wherever possible and for which there is no ISI certification, good quality materials of reputed firms shall be used for the bus body construction. Wherever necessary, ERW pipes are to be powder coated/ chromium plated/ sleeved. The construction should conform to the Central Motor Vehicle Acts and Tamilnadu Motor Vehicle Acts and rules and prevailing statutory provisions.</p>
58	Note	<p>Easy access must be provided for the following:</p> <p>Removal of engine, gearbox, alternator etc., radiator hoses / pipes Fan belt adjustment/ replacement, removal of exhaust pipe mounting nuts. Checking of injection timing at fuel pump and flywheel battery and stator motor terminals</p> <p>Checking and topping up of engine coolant and lubricating oils Priming of fuel pump removal of air cleaner, oil filter and fuel filter elements Greasing of various points like spring eye bush, propeller shaft/ joints. A minimum of 50mm clearance to be maintained between the engine and bonnet for effective heat dissipation.</p> <p>The maintenance to the Power steering pump should be easy.</p>
59	Specification for the sizes	Rear side overhang is 60%. The overall width of the bus should not exceed 2600mm. The overall height may be maintained around 3300 mm (excluding luggage carrier).

		The passenger door opening should not be less than 800 mm. The first step from ground level should not exceed 400mm and each step height may be maintained at 225mm. The ground clearance of about 400mm to be given. Interior height in the gang way not less than 1930 mm and not more than 2000mm. The height between platform and bottom of hatrack should not less than 1350mm. Minimum gang way should be provided for 450 mm. Seating space must be 450mm x 450mm. may be maintained at 1000mm x 500 mm. Seat pitch - not less than 800mm and not more than 900mm. Additional step to be provided such that it slides out while opening the door for easy entry of aged to passengers.
60	Delivery of bus	The completed bus body should be delivered to the receiving end in Tip-top good condition after thoroughly cleaning the bus body including the under chassis and should be free from dust and dirt.

### **Standard Fittings**

- Provision for fixing Tourism Board ( indicating the name of Tour)
- A document frame to be located near the Seat of Driver for keeping Vehicle documents.
- Sun Control Film to be fixed in the front glass for apply 15'' width and TTDC's Logo (Umbrella) and TTDC to be shown in Golden letters and similar fleet graphic sticker on both sides of the bus.
- Grab rail to be provided on hat rack of both side rigidly with 25mm power coated ERW pipe -16G
- Mobile charging points with mobile holder arrangements ( one for each pair of seats and one extra behind Driver partition and 2 in Driver Cabin) to be provided. Care should be taken to conceal the provision so that it is not protruding from the Body.
- Wi-Fi equipments ( Router) to be provided.
- CCTV Camera to be provided in the passenger cabin and its controlling monitor to be fixed on the dash board to have a close watch by the Driver.
- Rear view Camera one number with a display on a monitor in dash board to be provided.

Note : One sample seat, all type of Locks, Handles, Curtains, Stickers Lighting, P.A. System upholstery used in construction should be got approved by TTDC Ltd.

### **STAGE OF INSPECTION:**

- I. Stage : After completion of structure construction.  
 II Stage : After completion of Panelling  
 III. Stage : At the time of painting  
 IV. Stage : Final inspection  
 V. Stage : Delivery Ex- Chennai by Body builder.



## ANNEXURE III

TAMILNADU TOURISM DEVELOPMENT CORPORATION LIMITED CHENNAI-2

**CONSTRUCTION OF ULTRA DELUXE AEROTECH COACHES ON ASHOK LEYLAND CHASSIS WITH AIRCONDITIONER.****TENDER SCHEDULE – PRICE BID**

Sl No	Name of the work	Specification	Quantity	Unit Price (Nett) (Rate per Coach)
1.	Body building of Ultra Deluxe Aerotech Coaches on Ashok Leyland 5639 MM Wheel base chassis (35 +1+1 seats) fitted <b>with</b> Air conditioner	As per in the Annexure II	2 Nos.	Rs. (Rupees)

SIGNATURE OF THE TENDERER

DATE AND SEAL

