

1. SCOPE

This specification covers the technical requirements of design, manufacture, testing at manufacturer's works, packing, forwarding, supply and unloading at store/site of Mobile Elevating Work Platform (MANLIFTER) mounted on DEISEL Vehicle having hydraulic lift operation for safeguarding persons and objects in man basket against the risk of accidents associated with the operation of Mobile Elevating Work Platforms along with all necessary accessories required for trouble free operation and imparting necessary training for trouble free & efficient operation to ensure performance.

It is not the intent to specify completely herein all the details of technical design and construction of material. However, the material shall conform in all respects to high standards of engineering, design and workmanship and shall be capable of performing in continuous commercial operation in manner acceptable to the purchaser, who will interpret the meanings of drawings and specification and shall have the power to reject any work or material which, in his judgment is not in accordance therewith. The offered material shall be complete with all components necessary for their effective and trouble free operation. Such components shall be deemed to be within the scope of Bidder's supply irrespective of whether those are specifically brought out in this specification and/or the commercial order or not.

2. APPLICABLE STANDARDS

The equipment covered by this specification shall unless otherwise stated, be designed, manufactured and tested in accordance with the latest editions of the following Indian, International Standards and shall conform to the regulations of the local authorities:

EN 280 : 2013	Mobile Elevating Work Platforms - Design Calculations -Stability Criteria - Construction - Safety - Examinations And Test
IS 14469 : 1997	Mobile cranes determination of stability
IS 14470: 1997	Cranes test procedure
IS 18752	Hoses for handling Hydraulics
IS 8434-1	Hydraulic Fittings

3. CLIMATIC CONDITIONS OF THE INSTALLATION:

SL. NO.	CONDITONS	VALUES
1	Max. altitude above sea level	1200m
2	Max. Ambient Temperature	50 °C
3	Max. Daily average ambient temp	35 °C

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4	Min Ambient Temp	0 °C
5	Maximum temperature attainable by an object exposed to sun	60 °C
6	Maximum Humidity	95%
7	Minimum Humidity	10%
8	Average No. of thunderstorm days per annum	70
9	Average Annual Rainfall	150 cm
10	Average No. of rainy days per annum	120
11	Thermal Resistivity of soil	150 Deg. Ccm/W
12	Wind Pressure	126 kg/sq. m up to an elevation of 10 meter.
14	Earthquakes of intensity in horizontal direction	equivalent to seismic acceleration of 0.3g
15	Earthquakes of intensity in vertical direction	equivalent to seismic acceleration of 0.15g
16	Wind velocity	300 km/hr.

TPCODL/TPNODL/TPSODL/ TPWODL service area has heavy saline conditions along the coast and High cyclonic Intensity winds with speed up to 300 Km ph. The atmosphere is generally laden with mild acid and dust in suspension during the dry months and is subjected to fog in cold months.

4. GENERAL TECHNICAL REQUIREMENTS:

SL. NO.	TECHNICAL PARTICULARS	DESIRED VALUE
A)	HYDRAULIC PLATFORM	
4.1	Max working height	14 M
4.2	Minimum height of base of cage from ground in fully elevated position	13.5 M + 100mm (tolerance)
4.3	Safe working load/ Cage capacity	250 kg at the Highest Cage Height. (Two person working with tools & accessories)
4.4	Workmen cage/bucket insulation	1.1kV
4.5	Workmen cage/bucket material	Reinforced fiberglass cage, Non-slip floor, drain holes, mounted on a high tensile steel cradle. The Cage/ Bucket shall remain level in anyboom position.
4.6	Cage Size	1100 x 700 x 1100mm Minimum

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4.7	Boom Length: with a max. allowable deviation of 10 mm	Boom Length Centre to centre	LEVO 14
		Lower boom	1880
		Main Boom	3090
		Tele Boom	3010
4.8	Slew	360 degree continuous or non-continuous on either direction. Slewing shall be provided with hydraulically powered slewing rams. The slewing structure shall be provided with large bearings to ensure smooth operation.	
4.9	Type of stabilizers	Fully hydraulic “A/H” fame design. The Stabilizers shall be flush with the chassis when retracted. Able to level the vehicle on uneven ground. The Stabilizer should take full load of vehicle with lift and while working the vehicle wheels shall be slightly above ground level.	
4.10	No of stabilizers	4	
4.11	No. of articulated telescopic Booms	3 (Min.)	
4.12	Hydraulic oil tank capacity	35 liters or as per design	
4.13	Oil to be used	Hydraulic Oil ISO 68 grade (recommended makes Indian Oil or Apar make), also easily available in Local Market	
4.14	Control	1. Dual control required one at base LHS side & one at operator’s cage. 2. Vehicle on off control in the basket and at base both required 3. All control switches shall be sturdy joysticks with smooth operation.	
4.15	Boom/bucket reach on sides	Min. 5.5 meter with >10% safety factor from tipping point (As per EN280)	
4.16	Boom/bucket reach at back (behind vehicle)	Min. 5.5 meter with >10% safety factor from tipping point (As per EN280)	
4.17	Safety factor/stability design	>10% safety factor from tipping point at any working point in 360 degree radius at height of 12m & 7.5m. Stability chart/calculations must comply EN280 requirements.	
4.18	Working gradient on slopes with safety	Minimum 3 degree for road inclination (The platform should stabilize at horizontal position). The platform must have Inclinator of reputed make.	
4.19	Emergency & Safety Operation	Manual lowering Hand Pump mechanism to be provided in case of failure of hydraulics system as mandatory item. The cage and stabilizers shall stand still in position in case of any hydraulic failure while working.	

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4.20	Emergency Switch	Emergency switch to be provided to hold cage in fix position after reaching top and while work in progress. This switch shall help to stop lowering cage in any unforeseen situation while working.
4.21	Material of construction	High tensile steel (Bidder to declare the grade intender offer)
4.22	Horizontal outreach or working radius	6m (or better)
4.23	Hydraulic Oil working Pressure	Bidder to update
4.24	Overall height of the complete machine in transportation	<3800mm
4.25	Overall width during transportation	Same as original vehicle
4.26	Overall length during transportation	All boom and bucket should rest within the body of the vehicle. (articulated/telescopicbooms to be used for achieving same width)
4.27	Total weight of Hydraulic lifting arrangement with cage	To be specified by bidder
4.28	Total GVW of Vehicle	To be specified by bidder
4.29	EN 280 Conformity	The design should have conformity to EN280
B	Vehicle	
4.30	Type of Vehicle	Model: To be confirmed by Bidder as per EN280 Standards. Vehicle also complying BS VI DEISEL Engine
4.31	Fuel of vehicle	DEISEL
4.32	Weight margin over Gross Vehicle Weight with lift arrangement. i.e. = Vehicle GVW – final weight of vehicle with hydraulic lift and other fabrication accessory	to be specified by bidder
4.33	Vehicle length with bucket and boom	The vehicle length should not increase over the original vehicle length. The cage or bucket should rest inside the original dimensions of vehicle. If required articulated be provided to achieve the same.
4.34	Vehicle Registration	TPCODL/TPNOL/TPSODL/TPWODL shall get necessary documents from bidder once finalized while vehicle transport from warehouse with necessary company documents. Any observation of RTO office during registration have to be complied by bidder.
4.35	Vehicle wheel breaks while engine off	Breaks shall be applicable while on gradients

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4.36	Vehicle axle capacity	Front Axle – to be specified by bidder Rear Axle - to be specified by bidder
4.37	Vehicle axle Loading with lift	Front Axle – to be specified by bidder as per design Rear Axle - to be specified by bidder as per design
4.38	Working radius/ reach radius of vehicle	Working Radius to be specified by bidder along with drawings and stability charts at all sides
4.39	Vehicle shall have back to back warranty of the OEM	Bidder shall facilitate to get the same for TPCODL/TOSODL/TPNODL/TPWODL
4.40	Vehicle servicing	If any free servicing of vehicle falls before delivery as per OEM schedule then bidder should get servicing time to time till the delivery of the vehicle till actual handover to TPCODL. After Delivery and handover to TPCODL, Bidder shall arrange to share all details of servicing center and facilitate smooth handling over for first or next servicing & warranty claims. Any damage before delivery, to be attended by bidder.
C	Safety features	
4.41	Inter-locking is required between stabilizers and boom whereby it will not be possible.	
a.	To raise the booms when the stabilizers are not extended.	
b.	To drive the vehicle when the stabilizers are extended.	
c.	To retract the stabilizers, until the booms have been lowered.	
d.	Interlock between inclinometer/platform level which hydraulic lift functioning	
4.42	The hydraulic motor will be provided with a brake valve to prevent uncontrolled movement of the booms on slope.	
4.43	Counter balance check valve on all cylinders is required to hold the booms in position in unlikely event of hose failure.	
4.44	Over load protection is required.	A buzzer alarm to be provided if the vehicle bucket gets overloaded.
4.45	Manual hand pump is required for lowering the boom in case of breakdown	With manual lowering option.
4.46	Safety belt anchoring points to be provided in the bucket	To be provided in bucket
4.47	Warning lights shall be provided to indicate when both stabilizers are in operation.	To be provided on cabin on rear side.
4.48	Fixed ladder arrangement to climb in vehicle deck/platform	A metallic ladder to be fixed at the back side of the vehicle to ease in climbing in platform/deck.

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4.49	Automatic stop to prevent operator inadvertently reaching unsafe areas.	Auto restriction of boom if going in unstable zone.
4.50	Safety Interlock between Low Hydraulic Oil Pressure and Boom Operation.	The booms should not operate in case of low oilpressure.
4.51	Low Hydraulic Oil Level indicator	Indicator to be provided
4.52	Low Hydraulic Oil Pressure Annunciation/ Alarm/ Interlock	Annunciation to be provided and/ or interlockwith machine to not perform any work
4.53	Emergency stop switches at base and operators cage to isolate boom hydraulic functionsincluding restoration switch.	To be provided
4.54	Boom controls	All boom and rotation movements shall be controlled electro-hydraulically by means of servo valves
4.55	Safety in hydraulic cylinders	All load bearing hydraulic cylinders shall be fitted with lock valves directly integrated into the cylinder structure to prevent the booms, the working cage or the outriggers from retracting in case of a pipe or hose failure. NRV in stabilizers to be provided.
4.56	Drivers cabin safety	Inadvertent damaging of the drivers cabin by the first boom shall be prevented by a systempreventing lowering of the first boom and rotation movement when the first boom is near the drivers cabin
4.57	Emergency Switch	An emergency stop switch shall be fitted atboth boom control panels to provide immediate and complete “freezing” of all systems in case of an unexpected emergency
4.58	Hydraulic pump mounting	Hydraulic pump should be mounted such waythat the arrangement should not loose with vibration, self-locking nuts or equivalent to beprovided on fixing arrangements of pump & Cylinders.
4.59	The hydraulic arrangement like pressure switch etc. near bucket	All hydraulic switches and wiring harness etc. near bucket and near bucket boom should be concealed
4.60	The beacon lights on operator cabin	The Beacon light to be provided on operator cabin which can illuminate when the hydraulic Lift is functional
D	Other features	

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4.61	The bidder should have workshop in or around TPCODL Service Area or tie up with workshop	For any maintenance, works of vehicle the bidder should have workshop or tie up with workshop.
4.62	The tool box/sitting arrangement on the rear platform	The Tool Box platform should have 1.5 feet high X 1.5 feet width metallic box and length shall be around 3 feet such that it should be suitable for sitting three persons on box. The base of the box shall be slightly lifted from platform base level to avoid any water ingress.
4.63	On the rear side provisions	Provision for keeping water jug secured in the truck platform. A permanent bracket to be fixed on platform for keeping water jug of 15 liters securely while transport.
4.64	Inverter and Battery housing	The inverter and battery shall be provided with a box secured from any water ingress etc. The outgoing shall come through conduit pipe of PE material.
4.65	The rear body side shield (behind driver cabin)	The rear part shall be covered from both sides with suitable MS or aluminum sheet such that passerby should not steal material on rear body easily and material should not fall down due to vehicle movement and jerks.

5. GENERAL CONSTRUCTIONS:

- 1) Tower wagon that is intended to move persons to working positions where they are carrying out work from the work platform with the intention that persons having dual control from cage & base and which consists as a minimum of a work platform with controls, an extending structure and a chassis. In this standard, the abbreviation MEWP is used for mobile elevating work platform. The elevating platform will be articulation/telescopic type and can be stopped at any desired height. The action of the boom shall be controlled with operation by hydraulic device. The complete unit shall be fully equipped with hydraulic outriggers 4 numbers points to stabilize the unit during operation and shall also include all necessary accessories & control devices to ensure maximum maneuverability and safety of operation. The control panels at base and in basket to be with sturdy joystick having smooth operations.
- 2) Emergency stop button on control panels.
- 3) Outriggers should be within the vehicle body during transport. The dimension's to be mentioned in drawings.
- 4) Safe and Reliable electric & hydraulic system. There shall be a full back up system for all boom movements and outrigger movement in case of failure of main system.
- 5) Lock valves on outriggers to be provided for emergency.
- 6) The vehicle should be provided with Leveling Indicator
- 7) Differential Pressure Indicator across Hydraulic Oil Filters to be provided with industrial grade pressure gauge of steel material casing.
- 8) Suction filter/ strainers will be provided in the power pack.

- 9) Hydraulic cylinder will be of Double Acting type provided with double check valves. Hydraulic cylinders will be made of ST 52 Grade tubes. Should be of reputed make like Young and Franklin, Rexroth, Caterpillar, megha, dantal or equivalent.
- 10) Tandem, fully independent parallel links to ensure rigidity and leveling cage shall be provided.
- 11) The Seals used will be of Busak, Shamban and merkel make imported from Germany/ USA.
- 12) CK 45N grade or equivalent hard chrome plated piston rods of 25 micron plating thickness will be used as standard.
- 13) Control valves of imported Italian Hydro, Irma, Waloil or equivalent make will be provided in the hydraulic circuit for safe, accurate and precise boom movement.
Pressure relief valves and power pack accessories will be of polyhydron, Bosch and Hydroline make or equivalent.
- 14) All pivot bushes will be of self-lubricating type.
- 15) Anti-corrosive paint shall be done after necessary Pretreatment/ sand blasting of our equipment structure.
- 16) Reinforced fibre glass cage shall be mounted on rigid insulated or cradle for safe working.
- 17) Non-slip floor with water drain hole in the cage shall be provided.
- 18) Hydraulic stabilizers with swivel pads operated by hydraulic power shall be provided.
- 19) Booms fabricated from pressed high tensile steel sections and the whole assembly mounted on a large diameter tubular column forming part of the slewing mechanism.
- 20) "A/H" frame design stabilizers shall form as an integral part of the slewing assembly. Each stabilizer should be operated independently to allow leveling on uneven ground. These stabilizers may flush with the sides of the decking in stowed condition and left the wheels of vehicle with vehicle parallel to ground.
- 21) Tandem fully independent twin links shall be provided to ensure that the cage always remain in level and horizontal to the ground.
- 22) Hydraulic Hose of Synthetic oil resistant rubber, double wire braided. R2 grade, working pressure 4500 psi, testing pressure 9000 psi, bursting pressure 18000 psi. Make Gate/ Markwel/Parker
- 23) All pins used shall be of En8, hard chrome plated & ground.
- 24) Hydraulic Pump should be of reputed make like Vikers
- 25) Hydraulic Motor should be of reputed make like Eaton/M+S
- 26) A 2 point control valve with relief valve for independent operation of each stabilizer. A 3 point control valve with relief valve fitted at base on slew column for lifting, lowering & rotation of booms. Another set of control valve shall be provided inside the cage for boom & slew operation. Reputed makes like Hydro Controls/ Walvoil or equivalent.
- 27) All the surfaces of interior and exterior panels which are hidden and remain unseen shall be covered with a coat of suitable anti corrosive paint. The entire surface of the body below the floor which is exposed to the ground shall be sprayed with a coat of rubber seal black compound. The final finish shall be done with two coats of glossy finish of superior paint of reputed brand in golden yellow or as per the color preference of TPCODL.
- 28) A metallic ladder to be fixed at the back side of the vehicle to ease in climbing in platform/deck.
- 29) Reflectors should be provided at the workmen cage and boundary of vehicle platform on all sides for warning the oncoming traffic/drivers. The Driver cabin shall have beacon light on top to indicate the vehicle man basket operation is operational.
- 30) Provision for safety belt hooks in the cage is required.
- 31) The main frame shall be fixed onto the chassis frame with bolts in such a way that chassis performance and durability are maintained. The front fixing bolts shall be fitted with springs to

allow the chassis frame beams to flex when the outriggers are fully down, thus avoiding any stress concentration in the chassis beams. The actual main frame shall be fully welded rectangular steel structure providing high stiffness and thus maximum comfort-ability and operational safety. At each end of the main frame there shall be integrated housings for outriggers.

- 32) The frame for the bodywork shall be made of welded high tensile steel profile sections bolted together for easy maintenance if required. All parts of the frame shall be painted or galvanized for long life. The frame shall be covered by non-slip aluminum plate strong enough to allow free movement of persons on it
- 33) The hydraulic cylinders shall be double acting with hard chrome-plated piston rods and they shall be fastened by means of self-aligning ball bearings to prevent lateral forces from damaging the seals or piston rods of the cylinders.
- 34) The bidder shall procure Vehicle in name of TPCODL and arrange for RC registration. Only Insurance shall be in TPCODL scope.
- 35) Working range stability diagrams to be fixed near the turntable, One in the working cage.
- 36) Marking of safe working load in the working cage.
- 37) Warning labels and instruction plates to be provided in secured position at rear platform.
- 38) AC Power supply inlet port at platform & 230V AC compliant outlet is required to be provided on rear platform in special weatherproof casing with pad lock arrangement. Three pin socket & MCB at the bucket. Wiring shall run through PE pipes (insulated) on boom support.
- 39) Operating mechanism enclosure must be powder coated with WHITE COLOR for easy identification of leakages & Levers.

6. MARKING/ PAINTING:

A stainless steel rating plate, of at least 1 mm thickness, shall be fitted to each lift in a visible position and shall carry all the information as specified in the standards. Equipment shall have a name plate clearly visible and effectively secured against removal and distinctly marked with all essential particulars as per relevant standards and safety marking etc. along with the following.

- a) Manufacturer Name
- b) Model no./Type
- c) Serial number
- d) Month and Year of manufacture
- e) Property of "TPCODL"
- f) Guarantee period
- g) GVW of vehicle
- h) PO Number

PAINTING: Before painting all surfaces of steel structures shall be carefully, shot blasted after which they shall be primed. After the final top paint, the thickness of the paint film shall be 150 microns. All booms shall be painted up to the same specifications from inside. Vehicle cabin color should be white. The side barrier at rear should be white color painted Without any messages.

External body of the Vehicle to be of "White" colour.

Also provide company logo and name In Blue colour as follows:

TPCODL

TP CENTRAL ODISHA DISTRIBUTION LIMITED

(A Tata Power and Odisha Government Joint Venture).

7. TESTS:

Routine, Acceptance & Type tests shall be carried out in accordance with the relevant IS/IEC/ International standard. Acceptance tests shall be witnessed by TPCODL/TPNODL/TPSODL/TPWODL's authorized representative. Following tests shall be necessarily conducted on the DMC insulator additions to others specified in IS/IEC/ANSI standards. Type tests shall be conducted from CPRI/ERDA/Any Govt. Lab. only.

*In case of any conflict on any technical particular in the specification, the stricter requirement mentioned in the relevant standard shall be valid.

7.1 ACCEPTANCE TESTS

- 1) Visual inspection of all parts
- 2) Dimensions
- 3) Hydraulic pressure test on cylinder, hosepipes, tubes etc.
- 4) Overload protection test
- 5) Emergency switch and manual lowering & manual stabilizer movement.
- 6) Thickness test of chrome plated rods of 25 micron
- 7) All Inter-locking tests between stabilizers ,boom and vehicle
- 8) Stability testing with operation at any height in 360 degree
- 9) Stability check in roads with gradients/slopes .Testing on floor with gradients to check stability in working zone.
- 10) High tensile steel sourcing document verification
- 11) Test certificates for components like Hydraulic Cylinder, Pressure Pipes, Pressure Tubes, Electrical and Control Cable, Control/ relief Valves as per the relevant corresponding standards

7.2 ROUTINE TESTS

- 1) Insulation test
- 2) Visual Examination
- 3) Dimensions
- 4) Routine mechanical and hydraulic system tests

7.3 TYPE TESTS

EN 280 conformity certificate to be submitted.

8. TYPE TEST CERTIFICATES:

Bidder shall furnish the type test report of DMC Insulator for the tests as mentioned in Clause no. 7 of this specification and as per reference standards.

Test Laboratories: Complete set of Type Tests shall be conducted at certified test laboratories, which are CPRI / ERDA/Any Govt. Lab.

Type test should have been conducted in certified test laboratories during the period not exceeding 5 years from the date of opening the bid. In the event of any discrepancy in the test reports i.e. any

test report not acceptable or any/all type tests (including additional type tests, if any) not carried out, same shall be carried out without any cost implication to TPCODL/TPNODL/TPSODL/TPWODL.

9. PRE DISPATCH INSPECTION:

The material shall be subject to inspection by a duly authorized representative of the TPCODL/TPNODL/TPSODL/TPWODL. Inspection may be made at any stage of manufacture at the discretion of the purchaser and the equipment, if found unsatisfactory as to workmanship or material, the same is liable to rejection. Bidder shall grant free access to the places of manufacture to TPCODL/TPNODL/TPSODL/TPWODL's representatives at all times when the work is in progress. Inspection by the TPCODL/TPNODL/TPSODL/TPWODL or its authorized representatives shall not relieve the bidder of his obligation of furnishing equipment in accordance with the specifications. Material shall be dispatched after specific MDCC (Material Dispatch Clearance Certificate) is issued by TPCODL/TPNODL/TPSODL/TPWODL.

Following documents shall be sent along with material.

- a) Test reports
- b) MDCC issued by TPCODL/TPNODL/TPSODL/TPWODL
- c) Invoice in duplicate
- d) Packing list
- e) Delivery Challan
- f) Other Documents (as applicable).

10. INSPECTION AFTER RECEIPT AT STORES:

The material received at TPCODL/TPNODL/TPSODL/TPWODL, Odisha store will be inspected for acceptance and shall be liable for rejection, if found different from the reports of the pre-dispatch inspection and one copy of the report shall be sent to Engineering department.

11. GUARANTEE:

Bidder shall confirm for guarantee towards design, material, workmanship & quality of process/ manufacturing for integrated product delivered under the contract. In the event any defect is found by TPCODL/TPNODL/TPSODL/TPWODL, up to a period of at least 12 months from the date of commissioning or 24 months from the date of last supplies made under the contract whichever is earlier, bidder shall be liable to undertake to replace/rectify such defects at its own costs, within mutually agreed time frame, and to the entire satisfaction of TPCODL/TPNODL/TPSODL/TPWODL, failing which TPCODL/TPNODL/TPSODL/TPWODL will be at liberty to get it replaced/rectified at Bidder's risks and costs and recover all such expenses plus the TPCODL/TPNODL/TPSODL/TPWODL's own charges (@ 20% of expenses incurred), from the Bidder or from 'Security cum Performance Deposit' as the case may be.

12. PACKING:

Rail/ Road transportation: The bidder shall ensure that the equipment covered under this specification shall be prepared for rail/road transport in a manner so as to protect the equipment

from damage in transit. Packaging shall be as per climate change perspective. TPCODL/TPNODL/TPSODL/TPWODL encourages to use environment friendly packaging.

Note: Single use plastic not to be used for packing of the material.

13. TENDER SAMPLE:

The participant's bidders has to contact Engineering department for demo presentation of the offered product along with offered drawing. The bidder has to provide demo presentation of the design offered within one week of the bid submission to Engineering or any decided site, successfully with all technical details.

14. QUALITY CONTROL:

The bidder shall submit with the offer Quality Assurance Plan indicating the various stages of inspection, the tests and checks which will be carried out on the material of construction, components during manufacture and bought out items and fully assembled component and equipment after finishing. As part of the plan, a schedule for stage and final inspection within the parameters of the delivery schedule shall be furnished. The Purchaser's engineer or its nominated representative shall have free access to the manufacturer's/sub-supplier's works to carry out inspections. The bidder shall ensure that the material supplied is as per the Guaranteed Technical Particulars as specified in the specifications.

15. TESTING FACILITIES:

Bidder shall have adequate in-house testing facilities for carrying out all routine tests & acceptance tests as per relevant International / Indian standards.

16. MANUFACTURING ACTIVITIES:

CAT-B/CAT-A approval is mandatory to start manufacturing works.

17. SPARES, ACCESSORIES AND TOOLS

The bidder should submit a comprehensive BOM list and price list for required spares for trouble free operation to be provided along with bid.

1. One set of standard tool kit shall be supplied along with each vehicle. Carrying case or cover.
2. Tool box
3. Fuses, relays & oil Seals 1 Set.
4. Fault finding guides
5. Manual set in Hindi and English each vehicle in tool box.
6. Maintenance chart/catalogue for vehicle and hydraulic lift arrangement

TRAINING: Operation & Maintenance Training to be provided at
TPCODL/TPNODL/TPSODL/TPWODL's Premises

18. DRAWINGS AND DOCUMENTS

A. Following documents shall be submitted along with the bid:

1. Completely filled-in clause wise compliance of the specification.
2. Type test Certificates for each specified test

3. General arrangement drawing of tower wagon
4. Drawing showing all Dimension in transportation mode after compression
5. Drawing showing all Dimension in working mode after extension of stabilizers & boom
6. Stability calculations & drawing with dimension and axis at both heights on sideway working, back working and front working or stable working envelope drawing
7. Experience List

B. Following documents shall be submitted after the placement of RC/PO:

1. Completely filled-in clause wise compliance of the specification.
2. Type test Certificates for each specified test if not submit during technical evaluation
3. General arrangement drawing of tower wagon
4. Drawing showing all Dimension in transportation mode after compression
5. Drawing showing all Dimension in working mode after extension of stabilizers & boom
6. Stability calculations & drawing with dimension and axis at both heights on sideway working, back working and front working or stable working envelope drawing
7. Compliances of undertaking submitted during Technical Evaluation

All the Documents and Drawings shall be in English Language.

19. SCHEDULE- “A” GUARANTEED TECHNICAL PARTICULARS

Bidder to submit completely clause wise compliance of this specification.

20. SCHEDULE “B” DEVIATIONS:

(TO BE ENCLOSED WITH TECHNICAL BID)

All deviations from this specification shall be set out by the Bidders, clause by Clause in this schedule. Unless specifically mentioned in this Schedule, the tender shall be deemed to confirm the purchaser's specifications: