
TECHNICAL PARAMETERS FOR 1 TO 2 TON TOUGH TERRAIN LIFT TRUCK (RTFLT)

ESSENTIAL PARAMETERS**OperationalParameters.****1. EnvironmentConditions.****(a) Temperature.**

(i) Minimumrange : (-) 5⁰C to (-) 15⁰C.

(ii) Maximumrange : 40⁰C to 45⁰C

(b) Altitude. Upto 4500 Meter above Mean Sea Level ((MSL).

2. PrimeMover. 4x4 with four wheel drive & steer.

3. Controls & Display. All controls should be provided in the cabin. Display panel should be provided for the driver to observe comfortably while driving the vehicle/load handling.

4. Capability. The load lifting capability at fully retracted boom of the equipment should be not less than two tons and not less than one ton at a forward reach of not less than two meters, at a height of not less than 3.7 Meters in both positions. The vertical (taken from the forward edge of the fork) and horizontal (taken from the front face of the fork arm shank) load centre shall be not less than 500 mm.

5. Mobility. The **RTFLT** should have adequate mobility as under at environmental conditions as at Paragraph 1 above:-

(a) Speed. The **RTFLT** should have travel speed of not less than 25 Km/hr and 10 Km/hr unladen and laden conditions respectively on black top road.

(b) CarryingDistance. Should be able to carry a load of 2 tons in fully reacted mode for a minimum distance of 1000 meters on black top road.

(c) GradientNegotiationCapacity. Should be able to negotiate a gradient of at least 20⁰ with 2 ton load on black top road over a 250 meters continuous stretch.

(d) Ground clearance of at least 250 mm.

(e) Wading depth – Not less than 300 mm without preparation in un-laden condition.

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6. Endurance. The RTFLT should be able to sustain at least six hours of continuous lift and telescoping of 1 to 2 ton load from close and up to the maximum reach & high.
7. Fuel Tank Capacity and Endurance. Fuel tank capacity should be adequate for sustaining eight hours of continuous lift operations.
8. Weight and Dimensions. The weight (not more than 5.5 Tons) and dimensions of the RTFLT should enable its transpiration by road/rail/air.
9. Attachment. The following attachments shall be provided with each RTFLT:-
 - (a) Forks. Twin forks of alloy/carbon steel of length not less than 1000 mm.
 - (b) Sleeve Fork Extension. Should be of similar materials as that of the fork and length not less than 1500 mm for handling of longer loads.
 - (c) Crane attachment to lift loads upto one ton.
 - (d) Barrel lifting attachment for lifting one 200 liter filled barrel.
 - (e) Man Platform. Enclosed platform with a reach of not less than 3.7 meters and load capacity of not less than 200 Kg.
 - (f) Quick Coupler. Universal quick coupler for ease of attaching/detaching attachments.
10. Driver/Operator's Cabin. The Rollover Protection System (ROPS) & Falling Object Protective Structure (FOPS) operation's cabin should accord unrestricted view of the lifted load and all round visibility to the operator. The cabin shall have the following:-
 - (a) The driver/operator's seat should be adjustable bucket type with safety belts.
 - (b) Bracket for replacement of driver/operator's personal weapon.
 - (c) Heating, Ventilation and Air Conditioning (HVAC) arrangements to maintain a cabin temperature of 23⁰C in operating conditions as at Para 1 above.
 - (d) Wipers electric motor operated.
 - (e) Internal lights.
 - (f) Sun visor.
 - (g) Rear view mirror - 02 Numbers.

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TechnicalParameters.

11. Engine.
 - (a) Type of Engine. Turbocharged diesel engine.
 - (b) Emission Norms. CEV Stage IV norms.
12. Steering. Power assisted steering with all wheel steer mechanism.
13. Electrical System. 12V/24V electrical system with commercially available battery. Battery isolating switch be provided.
14. Transmission. Suitable transmission system with forward and reverse gears/Selector and high-low speed selector for creep speed.
15. Axle. All wheel drive with Rear Oscillating axle with 100 mm oscillating on either side with auto/mechanical locking mechanism.
16. Boom. The boom shall be telescopic type. Its extension and retraction shall be hydraulically operated. Boom should have a marking indicating the effective length of the boom when in operation.
17. Brakes. Travelling and parking brakes as per CMVR.
18. Wheels and Tyres. Earth Moving (EM) tyres with one spare wheel.
19. Display Panel. Following devices be incorporated in display panel/suitable place in driver's cabin:-
 - (a) Hour meter.
 - (b) Digital Safe Loading Indicator (SLI) with visual display and audio visual alarm on approaching over load condition with auto-cut on overload condition and over-ride feature.
 - (c) Fuel level gauge.
 - (d) Hydraulic Oil pressure gauge.
 - (e) Engine Oil temperature gauge.
 - (f) Low engine oil pressure indicator.
 - (g) Alternator/ Battery charging indicator.
 - (h) Battery voltage indicator.

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20. Stowage. Facilities for stowage arrangements on the RTFLT shall be provided for the following :-
- (a) One 20 Litre Jerrycan.
 - (b) Tools and accessories as provided.
 - (c) First Aid Box.
 - (d) One Fire Extinguisher of capacity 02 Kgs inside the operator/ driver cabin.
21. SafetyProvisions. The RTFLT should be provided with the under mentioned safety devices :-
- (a) Locking Arrangements. Locking arrangements under all conditions to hold load, to ensure load is kept in place.
 - (b) Emergency Operations. In the event of failure of main system, an alternate facility shall be provided for lowering loads and retraction boom for putting all assemblies back to the stowage position.
 - (c) SafetyCharts/Indicators. An anodized chart showing various positions of the boom and the load which can be safely lifted at different reaches should be provided.
 - (d) LightingArrangements. In addition to standard lights as per OEM, two flood lights on cabin shall be provided.
22. OtherAccessories/Provisions.
- (a) Cold Starting facility/ device for operation of RTFLT below (-)50 C(quantities shall be mentioned in the RFP).
 - (b) 02 x Numbers cargo nets of minimum 2.5 meters x 2.5 meters for lifting loose items. The nets shall have a load lifting capacity of not less than two tons. The diagonal of the holes shall be a maximum four inches.
 - (c) Slings of similar load capacity as that of cargo nets, one each of 'two way' and 'four way' types.
 - (d) Halogen/Led search lights with 15 meter electric extension cable and tripod stand, connectable to suitable power outlets on the RTFLT - Quality 02 Nos.
 - (e) Two hook in the front & rear of capacity not less than the weight of the RTFLT as measured at Paragraph 12 above.
 - (f) Four Numbers of Metal Wheel Chokes.

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- (g) Slings/ropes for securing the RTFLT during transpiration.
- (h) One clean agent type Fire Extinguisher of capacity 02 Kgs.
- (j) Tools and accessories as per OEM.
- (k) First Aid Box.

23. ServiceLife. Not less than nine years/ 8,000 hours, whichever is earlier.

Maintenance&ErgonomicParameters

24. Lubricants. All oils and lubricants used on the equipments shall be of the standard range which are easily available in Indian Market.

25. Maintenance and Periodicity. A maintenance periodicity chart indicating maintenance points and maintenance instructions shall be provided by the side of the lubrication chart. It shall be on aluminum anodized/engraved plate.