SPECIFICATION OF TRUCK MOUNTED SUCTION UNIT CESS TANK® 6000 Lts.

GENERAL :-

The Vehicle Mounted Suction Unit shall be robust in construction and shall be used to create a vacuum for syphoning out mud and slurry, grit and other material from sanitary, storm and sewerage systems. The unit shall be capable of syphoning out material from a depth of 8 mtr. The unit shall be such that 1 driver assisted by two helpers shall be adequate for all operation of the unit. The unit shall consist of :

a) Prime mover - engine of the chassis shall be used for driving other units through appropriate power take-off unit. (PTO).

b) Sludge Tank

c) Vacuum Pump.

d) Suction Hose.

e) Control Panel .

f) Accessories.

g) Suitable Indian Vehicle Chassis with Cabin & PTO

The above equipment shall be mounted on chassis like TATA / ASHOK Leyland / Eicher or equivalent. Bidder shall furnish full details of vehicle chassis. Bidder shall also make arrangements to procure the vehicle with cabin form the manufacturer. The client will make direct payment to the chassis manufacturer / their dealer against Proforma Invoice to avail Govt. rate. The standard tools accessories and spares supplied with the chassis shall be handed over to the client at the time of delivery of the unit.

The Bidder shall make arrangements for mounting equipment on the chassis according to the rules laid down by the Regional transport Office, and loads recommended by the chassis manufacturer on the front and rear axles. The client shall make arrangements for registration of the complete unit with the Regional Transport Office, The Government fees required for registration of the units shall be paid by the client.

a) PRIME MOVER :-

The suction unit (vacuum pump, hydraulic pump etc.) shall be run on the power transmitted from vehicle engine through the side P.T.O. (Power Take Off Unit) provided by the chassis manufacturer. The P.T.O shall be of sturdy design of reputed make and should be able to provide sufficient power to run the vacuum system in compressor mode.

b) TANK :-

The tank shall be cylindrical in shape and shall be fabricated from mild steel sheets as per IS:2062 and shall be electrically welded with suitable reinforcement to prevent from collapse and elongation in vacuum and pressure conditions.

Vacuum and pressure limitation valves shall be suitable provided the system to take care of the excessive vacuum and pressure developed by the system.

The effective volume of the tank shall not be less than 6 cubic meters for sludge. Tank shall be fabricated out of mild steel sheets, which in no case shall be less than 5 mm thick.

The tank shall be provided with emptying rear cover at the rear, which shall be opened and closed on hinges, manually. The locking of the rear cover shall be effected by robust hand wheels. The rear cover shall be free from any mounting except,:

1. Suction / drain off valve Ø 4" for suction / discharge of all the sucked material from the tank. This shall be located at the bottom of the door, and
2. Drain off valve Ø 2" for only water separated in the sludge section, which shall be located above the upper half of the door.

A suitable full-length acrylic sight glass, integrated with the tank (not a separate tube) shall be provided to observe the sewage level in the sludge section of the tank. The tank shall be tested for leakage at a pressure of 1 bar.

The tank shall be mounted on auxiliary frame and on two bearings at the rear and a solid seat at the front. The tank shall be inclined at 2^{0} for emptying out the sludge by gravity.

The suction operation shall be carried out from suction / drain off valve Ø 4" situated at the rear door.

The tank shall be provided with suitable abrasive resistant, tamper-proof, anti-corrosive treatment internally, which shall be suitable for normal sewage.

c) VACUUM PUMP :-

A rotary positive displacement type dual cooled (air + water cooled combined system) vacuum pump shall be of imported Battioni, Italy make having displacement capacity of minimum 720 cubic metre/hr at about 1400-1500 r.p.m. and capable of producing 630 mm of Hg. Vacuum and 1 bar discharge pressure shall be provided. Basically, the vacuum pump shall be designed to create vacuum, as well as work as air compressor for blow back during discharge. The vacuum pump shall be capable to run 10 minutes without interruption (Max) and produce 95% vacuum in the tank. The pump shall be driven through Power Take-Off unit.

The vane blades for the vacuum pump shall be of heat / spark resistant material. The pump shall incorporate dual cooling system (air-cooled + water-cooled), to avoid overheating in tropical conditions. The vacuum pump shall be designed for 30 min. continuous running without interruption, manufacturers certificate to this effect must be enclosed with the offer.

The vacuum pump shall be suitably located on the chassis with provision for stopping the vacuum pump without stopping the prime mover. A hand operated manifold Valve for switching from suction to pressure shall be provided at the discharge of the vacuum pump and the valve shall be suitably located for ease of operation. Corrosion resistant ball float valve shall be provided to prevent over-filling. A safety pot with lateral cleaning flap and outlet valve shall be provided.

The Vacuum Pump shall be equipped with overpressure relief valve for protection, cooling and life extension of vacuum pump.

d) SUCTION HOSE :-

3 Nos. of non-collapsible, flexible suction hoses of 100 mm. Internal dia. and 3 mts in length shall be provided with the unit. Quick-fix “Muller” design coupling (male-female) shall be provide for these hoses. One end suction hose of 100 mm internal dia and 2 mts. long with 1 mtr. long steel pipe at one end and quick fix coupling (female part) at the other end shall be provided with each unit.

e) CONTROLS :-

All controls shall be provided and located conveniently. All gauges, switches, levers, etc. necessary for the operation of the unit shall be placed such, so that the operator can have complete control of the operation.

The following operation points shall be included:

(i) Acceleration lever
(ii) Control panel lamp
(iii) Gauges

f) ACCESSORIES :-

The following accessories shall be supplied alongwith each unit.

i) Reverse audio visual horn – 1 No.
ii) Mud flaps. – 4 Nos
iii) Mud guard – 2 Nos.

g) VEHICLE CHASSIS:-

The complete equipment shall be mounted on a suitable chassis with standard day cabin & PTO to be supplied by the purchaser (Ashok Leyland / TATA / Eicher). The chassis should be provided with front and rear shock absorbers with five forward and one reverse constant mesh gear box, complete original front show with headlights, starter, dynamo with batteries and fuel tank.

The truck chassis shall have the following approximate specifications :

Wheel Base	4225	mm
Overall length	7710	mm
Max. Width	2310	mm
Max. GVW	16200	kgs.

PAINTING:-

The entire unit shall be painted with two coats of superior quality anti-corrosive primer with two coats of approved quality paint. The bidder shall get the paints and shades approved from the Engineer.

TRAINING:-

The successful bidder shall arrange at his own cost to train client's operators for operating and maintaining the unit. The training period shall be 1 week.

TESTING AND INSPECTION:-

(i) Tests on equipment at manufacturer's premises as required will be carried out in accordance with the manufacturers standard. All inspection, examination and testing shall be carried out in presence of the Engineer's representative in accordance with the specification.

(ii) If the Engineer's Representative witnesses a test he shall be given a copy of the test results and certificates, upon request.