

**SPECIFICATION OF TRUCK MOUNTED MOBILE OIL SPILL RECOVERY UNIT**  
**MOSRU® - 6000 Lts.**

**GENERAL:-**

The Vehicle Mounted Suction Unit shall be robust in construction and shall be used to create a vacuum for syphoning out oil, water, grit etc. from slope tanks and leaking pipelines besides various others. The unit shall be capable of syphoning out material from a depth of 9 mtrs. The unit shall be such that 1 driver assisted by two helpers shall be adequate for all operations 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) Derrick Arm (Hydraulic Syphon Boom).
- e) Suction Hose.
- f) Hydraulic Plant.
- g) Piping.
- h) Control Panel.
- i) Emergency Lighting System.
- j) Accessories.
- k) Other Accessories.
- l) Suitable Indian Vehicle Chassis.

The above equipment shall be mounted on chassis like TATA / ASHOK Leyland / Eicher or equivalent. Bidder shall furnish full details of vehicle chassis. 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 its P.T.O. (Power Take Off Unit) supplied by 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 (approx 40 hp at 1400 rpm at PTO output shaft)

## **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 vaulted bottom and 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 section. 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 side hinges. 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" along with Ø 12" sludge trap mounted on bottom of the rear door for discharge of all the sucked material into the tank and
2. Drain off valve Ø 4" for only water separated in the sludge section, which shall be located above the upper half of the door.

Tank shall also be provided with tipping arrangement. The tipping angle shall be minimum 20° to the horizontal and shall be effected using hydraulic system (hydraulic plant).

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 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 (Battioni, Italy or reputed imported equivalent 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 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 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-sucking. A safety pot with lateral cleaning flap and outlet valve with additional suction filter shall be provided.

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

**d) DERRICK ARM (HYDRAULIC SYPHON BOOM) :-**

Hydraulically operated derrick arm (boom) shall be capable of rotating in 270° with a lift of 1 mtr. On panel board there shall be a provision for 'lifting' and 'lowering' of the boom. All these operations except swivelling of boom shall be done by means of hydraulic plant with suitable controls.

A hydraulic operated shut-off valve shall be provided on suction hose line to the boom.

**e) 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.

**f) HYDRAULIC PLANT :-**

A Hydraulic Pump shall be capable of developing a pressure of about 120 -150 bar approx, powered by P.T.O. The entire hydraulic plant will consist of oil reservoir, pipeline with connected hoses, filter, control valve for operation of hydraulic function, etc. It shall be suitably laid along the entire length of the tank and cabin thereby avoiding additional space for the plant.

**g) PIPING :-**

All piping subjected to high pressure shall be fabricated from extra strong pipes and all fittings shall be forged steel. All pipings shall be laid out such that they can drain by gravity or through suitable plugged openings to drain water, when purged with air.

**h) CONTROL PANEL :-**

A control panel shall be provided and located conveniently. All gauges, switches, acceleration lever, control panel lamp, (including appropriate wiring) necessary for the operation of the unit shall be grouped in this control panel so that the operator can have complete control of the operation as follows:

- (i) Tipping
- (ii) Boom lifting / lowering
- (iii) Boom Valve open / close
- (iv) Acceleration lever
- (v) Control Panel lamp

**i) EMERGENCY LIGHTING SYSTEM :-**

Emergency lighting system shall consist of mechanically operated light mast to be rigidly fixed at the convenient location. Mast to be of maximum height of 4.5 meters vertically at full length from ground level fixed with 2 x 250 Watt HPMV lamps. Flood lights provided on top

of mast shall have arrangement for rotating by 180 degrees. These lights to be operated with 2.4 KVA generator with control panel mounted on it.

Portable 250 Watt FLP Search Light with adjustable tripod stand with 30 meter cable to be operated by generator. Suitable provision shall be provide for winding and rewinding of the cable. The cabling of Emergency Lighting system shall be 1.5mm, 3 core armoured cable

The emergency lights and switch gear shall be flame proof & weather proof

Generator Set shall be of reputed make like Honda / Kirloskar / equivalent

FLP Torches – 4 Nos.

#### **j) ACCESSORIES :-**

- i) 100 mm dia x 3 mtrs length I D suction hose – double spring steel wire wound with quick coupling arrangement – 8 Nos.
- ii) A reducer of 100mm x 50mm – 2 nos. The reducer should have compatible coupling arrangement to couple with 100mm suction / discharge end of MOSRU tank at one end and 2” coupling arrangement at other end to couple with 2” hoses.
- iii) 2 flexible hoses (50mm dia) of 10 mtr. length each having coupling arrangement at one end for coupling with 50mm end of reducer.
- iv) 50 mm dia, 20 mtrs filler hose
- v) Traffic Control Equipment:-  
100 meter cordoning rope made out of nylon of 16 mm dia. M.S. pipe of 3 feet height at a distance of 2 meter with provision to run the nylon cordoning rope. M S pipe will be 2” dia with a base plate for nesting and fixing cordon. M S pipe to be painted with red and white colour reflective paint.

#### **K) OTHER ACCESSORIES:-**

The following accessories shall be supplied alongwith each unit.

- i. Oil puddle sucker for removal of oil puddles from road, open gutters, etc.-1 No.
- ii. Reverse audio visual horn – 1No.
- iii. Mud flaps - 4 Nos.
- iv. Al. chequered plate special maintenance platform with railing between cabin and tank – 1No
- v. Al. chequered plate catwalk with ladder – 1No.
- vi. Rotating beacon with cabling – 1No
- vii. Al. chequered plate lockable tool box – 1No.
- viii. Al. chequered plate hose box – 1No.
- ix. Mud guard – 2 Nos.
- x. Public Address System : For a radius of 50 meters, two tone hooter mike system with amplifier and microphone to be provided in the driver's cabin. Speakers / horn to be mounted on the roof of cabin – 1No.
- xi. First Aid Kit – 1No.
- xii. Spark Arrestor: Spark arrestor shall be provided at exhaust of the vehicle to avoid sparks. The exhaust pipe of the vehicle shall be re-routed to bring the exhaust just ahead of front wheels. The exhaust should be fitted with CCOE approved spark arrestor – 1No..

### **k) VEHICLE CHASSIS:-**

The complete equipment shall be mounted on a suitable Euro III chassis i.e Tata LPT 1613 or Ashok Leyland 1616 or Eicher 20.16 with 4800 Wheel Base with standard day cabin & PTO to be supplied by the purchaser. 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 general specifications :

Wheel Base	4800 / 5200 mm (approx.)
Overall length	7710 mm (approx)
Max. Width	2300 mm (approx)
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 supplier shall get the paints and shades approved from the Engineer.

### **TESTING AND INSPECTION:-**

- (i) Tests on equipment at manufacturer's premises as required will be carried out in accordance with the manufacturer's 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.