Vehicle mounted with knuckle boom crane having workman basket

Crane boom and man basket requirement:

1. Working height : 13 m
2. Outreach at 13 m height :5 m
3. Maximum height (completely retracted) : 4m from ground
4. 2 stabilizing legs on each side
5. Stabilizer spread of inner set : 3.5 m
6. Stabilizer spread of outer set (to be used only when needed) : 5 m
7. Slewing angle: 360 degrees
8. Maximum lifting capacity (at retracted stage): 3000 kg
9. Maximum lifting capacity at 13 m height and 5m outreach : 200 kg
10. Hydraulic pump: 25-35 l/mm
11. Operating pressure 320 bar
12. Hydraulic system maximum operating pressure: 500 bar
13. Man basket : platform size large enough to accommodate two people.
14. Workman basket load capacity : 200kg
15. Workman basket entrance width: 500 – 550 mm
16. Workman basket should have an automatic leveling system
17. Workman basket should have an integrated tool box
18. Safety belt for the people standing in the basket

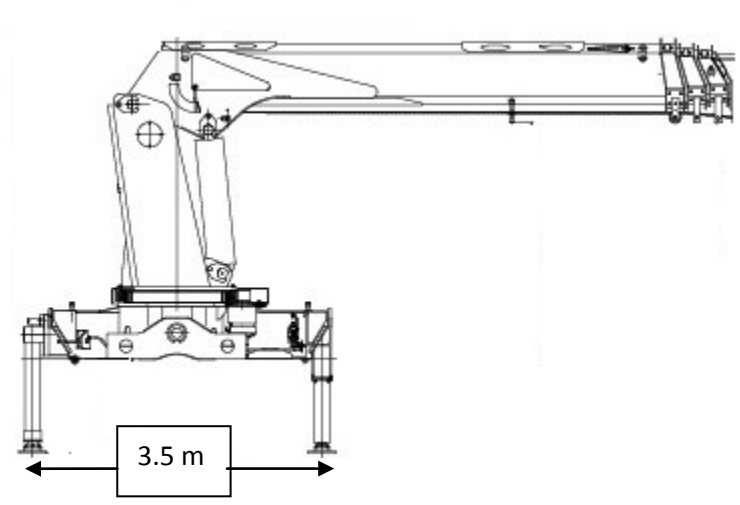

Figure 1. Schematic of the crane

Other features and accessories of crane:

- Should be high on strength and durability
- Should meet EN 12999 and 14502 standards
- Crane and workman basket designed in accordance with EN 280
- Crane should be provided to control from floor
- The workman basket should be able to completely control the operation of the crane at any time and should have priority over the control from floor
- Suitable capacity of hydraulic power pack
- Hose brake valve option to stop crane in case of failure in hose
- Load holding valves should be provided to prevent normal load lifting and lowering of crane due to internal leakage in the control valve and hydraulic system.
- Man basket should have railings high enough (minimum 3 ft) to ensure safety of the person standing in it.
- Hydraulic system should be able to draw power from engine and hydraulic power pack
- Automatic switch over to workman basket control during failures
- A hand pump ensuring the complete operation of equipment during the engine / pump failures
- Cabin should be spacious to accommodate traffic data collection equipments
- Continuous seat in the drivers cabin to keep the equipments

Details of Vehicle requirement:

- Truck Chasis GVW: minimum 7 T
- 4 Wheeler with a wheel base of 4m
- Diesel engine with a power rating of around 120-130 hp and a peak torque of around 400 Nm
- Maximum speed: Around 90- 100 kmph
- Power steering
- Air suspension
- Push type clutch with hydraulic actuation and clutch booster
- Dual air brake with spring actuated parking brake
- Battery: 12 V – 100 AH
- Radial Tires
- Should be compatible with the crane boom and vehicle and crane should be delivered as an integrated unit (Minimum vehicle frame thickness of 6mm)
- Overturning should not happen due to crane weight in its extended position
- Cabin should have air-conditioner and power socket
- Flexibility of modifying vehicle body to fit the traffic sensors
- Crane to be fixed between cabin and load body as shown in Figure below

Other dimensions (Approximate):

1. Wheel base: 4000 mm
2. Front over hang: maximum 1400 mm
3. Rear Over hang: maximum 1800 mm
4. Overall length: 7000 to 7500 mm
5. Overall width: 2200 to 2300 mm
6. Front track: 1900 – 2000 mm
7. Rear track: 1600 – 1700 mm
8. Turning diameter: 13000 mm
9. Minimum ground clearance: 200 – 250 mm

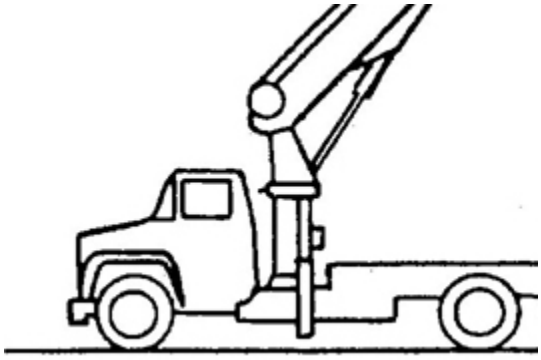

Figure 2. Expected layout of vehicle with crane

General Conditions

- Quote should be for on-road condition for the vehicle with crane, with necessary RTO registration and insurance for 1 year. IIT Madras will provide necessary documents for these.
- 2 years warranty should be provided and service should be provided within 24 hours of problem reporting. Four free services per year should be provided during the warranty period.
- AMC proposal for 2 years after the warranty period to be included in the quote as a separate optional item.
- Company should have service centers in all cities of Tamil Nadu and all major cities in South India.