



MISSOURI DEPARTMENT OF TRANSPORTATION
EXTRA HEAVY DUTY BACKHOE, LOADER WITH EXTENDABLE DIPPERSTICK

ENGINE - Diesel, minimum net SAE HP 95 turbo, 110-volt block heater, vertical muffler with curved stack to prevent rain entry.

TRANSMISSION - Torque converter drive, forward/reverse power shuttle shift, with 4-speed synchronized manual or power shift transmission, operator selectable clutch disconnect.

STEERING - Full power, hydrostatic.

BRAKES - Minimum performance criteria in accordance with the latest SAE standards.

SERVICE - Hydraulic, self-adjusting with two foot pedals which operate independently or together. Brake pedals shall be capable of locking together for road travel.

PARKING - Mechanical acting, capable of holding stopped vehicle in stationary position.

GRILL GUARD - Factory installed front grill protector/guard (rubber) to prevent damage when loading trucks.

TOOLBOX - Factory installed lockable toolbox.

ELECTRICAL SYSTEM - 12 volt with dual batteries, 90-amp minimum alternator, starter and key ignition switch, electronic hour meter.

LIGHTS AND SIGNALS - Minimum of 4 front facing headlights, minimum of 4 rear facing work lights, tail and stop lights, flashing directional signals. If LED lights are available for the tail lights, stoplights, and directional signals, they must be supplied.

BACKUP ALARM - Unit shall have a reverse signal alarm horn that sounds when transmission is shifted into reverse gear. Alarm shall meet all applicable OSHA standards.

HORN - The horn shall be distinguishable from surrounding noise level and the horn switch shall be mounted within easy reach of operator.

BEACON WIRING/SWITCH - Unit shall have factory installed beacon switch and circuit protection with wiring harness routed to the rear of the cab roof to facilitate later installation of warning lights.

AXLES AND DIFFERENTIAL - Full driving rear axle with operator selectable hydraulically applied differential lock. Front axle shall have mechanical front wheel assist and limited slip differential.

TIRES AND WHEELS - Tubeless type tires shall be supplied. The front tire size shall be not less than 14-17.5, 8PR, L1 tread type and the rear tire size shall be not less than 21L x 24 10 PR, R4 tread type. Tires, wheels and rims shall be as recommended in the latest Tire and Rim Association Standards. No fluid filled tires will be accepted. All wheels shall include stem guards.

WHEEL - Spare: One extra front wheel (less tire and tube) to be furnished.

CAB AND ROLLOVER PROTECTIVE STRUCTURE - **ROPS** minimum performance criteria in accordance with ISO 3471 Standards.

All weather, fully enclosed, welded steel, with tempered glass. The cab shall be fully insulated with sound suppressing materials, have all-around visibility, integral roll-over protective structure (ROPS), flat deck operator platform, front and rear HD electric windshield wiper with washer, HD HVAC system consisting of heat, defrost, and air conditioning with multi-speed fan. Adjustable deluxe suspension upholstered operators seat with armrests (*must be an upgrade from the standard seat*)



and retractable seat belt. AM/FM radio with concealed or brush resistant antenna. In cab adjustable sun visor. The cab shall have full access LH door with swing-out window. Window shall latch back for full ventilation. Unit shall have one window opposite of the full access door to serve as an emergency exit. Window shall swing open and latch back for ventilation. The cab, canopy and ROPS structure will have a common structural design. The cab shall have mounts between cab and frame to help reduce noise and vibration. It shall meet OSHA 90 DBA sound level requirements for eight hours.

All components must be positioned in such a manner that will not create a hazard to the operator when entering or leaving the cab or while operating the backhoe.

All steps and handholds shall be positioned to allow for 3 points of contact at all times while entering or exiting the cab. All steps shall have a non-skid surface.

VANDALISM PROTECTION - To have lockable cab doors and engine panels. The hydraulic oil reservoir cap, radiator filler cap and fuel tank cap will also be lockable, if not otherwise protected.

HYDRAULIC SYSTEM: - Backhoe shall be of hydraulic lift, lower, dump, rollback and float. The boom lift and bucket mechanisms shall be operated by double acting hydraulic cylinders. Steering system shall be operated by single acting hydraulic cylinders. All hydraulic cylinders shall have chrome plated or nitride coated rods fitted with seals and dust protectors. All hydraulic hoses and lines within the operator's station must be enclosed to prevent oil spray on the operator if a hose or line failure occurs. Hydraulic reservoir must have fluid level sight gauge, easily readable and shatterproof.

EXTENDABLE DIPPERSTICK - To have not less than 15'10", IEMC rated 24" level bottom, digging depth capacity and an extendable dipperstick capable of a minimum 19'10" total digging depth capacity, meeting IEMC rated 24" level bottom. It shall be fully hydraulic with a minimum of 180 degrees horizontal swing angle. Fully extended boom will crane a minimum of 2,500 pounds from ground level. Backhoe will be controlled by standard two-lever configuration. Backhoe shall be equipped with a manual, universal quick connector with pin.

LOADER - Bucket to be a general-purpose automatic leveling type with not less than 1.5 cubic yard struck capacity. Dumping height of a minimum 8'4" at 45 degree dump angle.

RIDE CONTROL - Loader shall be equipped with a ride control system consisting of a gas-charged hydraulic accumulator plumbed into the loader lift circuit. Ride control may be either operator selected or automatically controlled by the loader electronic control system. Ride control should have the ability to be disabled at slow ground speeds for digging or loading operations

STABILIZERS - Hydraulic stabilizers with standard type street pads shall be provided for stabilizing and leveling the equipment during operation. Stabilizer cylinders shall be equipped with cylinder rod guards.

COLOR - Color to be manufacturer's standard safety or industrial yellow over a prime coat.

A certification must be furnished denoting that safety installations meet requirements before an award will be made and purchase order issued.

The Missouri Department of Transportation Commission reserves the right to waive technicalities and to reject any or all bids. No bid is final until formally accepted by the commission.