



MISSOURI DEPARTMENT OF TRANSPORTATION
HEAVY-DUTY FOUR-WHEEL DRIVE ARTICULATING LOADER W/QUICK COUPLER FORKLIFT
ATTACHMENT SPECIFICATIONS

ENGINE - Diesel, minimum net SAE HP 110, turbo-charged, 110-volt block heater, dual element air filter, etc.

TRANSMISSION - Power shift with 4 speeds forward, 3 speed reverse, torque converter and clutch disconnect.

STEERING - Full hydraulic power with accumulator backup.

BRAKES, POWER -

Service - Four-wheel foot controlled full hydraulic power actuated wet disc, self-adjusting type.

Parking/Emergency - Mechanical acting, capable of holding stopped vehicle in stationary position. Manual application from operator's seat or applied automatically in the event of any single failure of the service system.

ELECTRICAL SYSTEM - Complete 12 or 24- volt with dual batteries, minimum 65-amp alternator, starter and key ignition switch, electronic hour meter.

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

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.

AXLES AND DIFFERENTIALS - Full driving axles with conventional or limited slip differentials. No-spin or self-locking differentials are not acceptable in any axle.

TIRES - Not less than 17.5 x 25, 12 ply tubeless radial standard. Tire ballast not acceptable. Rims, valves and cap to conform to the standards of the Tire and Rim Association. Tire and rim assembly to be interchangeable on all wheels. All wheels shall include stem guards.

CAPACITIES - Minimum standard operating weight 22,000 lbs., and minimum standard static tipping load at 0 degrees 19,500 lbs and minimum dump height with bucket at 45 degrees dump angle 100". Auxiliary counterweight will be provided if manufacturer recommends it.

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 loader.

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.



CONTROLS AND INSTRUMENTS - In cab mounted, easily accessible to operator, including fuel gauge.

HYDRAULIC SYSTEM: - Loader 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.

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.

HYDRAULIC QUICK COUPLER ATTACHMENT – Loader shall be equipped with a hydraulically actuated quick coupler system. All hydraulic valves, hoses, cylinders and in-cab controls required to operate the quick coupler must be included. The quick coupler attachment shall be designed for quick changing of all attachments to the loader arms using hydraulically actuated pins.

BUCKET WITH QUICK COUPLER BRACKETS - General-purpose type, not less than 2.0 cubic yard struck capacity with automatic leveling and returns to dig capability. Bucket shall be supplied with a reversible bolt-on cutting edge. Unit shall also be delivered with one extra reversible bolt-on cutting edge. The quick coupler bucket attachment shall be designed so that no modifications are needed when changing between the forklift attachment and bucket.

Unit must be delivered with adequate counter weight for the bucket size and boom length supplied.

FORKLIFT ATTACHMENT WITH QUICK COUPLER BRACKETS - To include two (2) forged one-piece steel 48" length forks with 60" lateral adjustments. The quick coupler forklift attachment should be designed for quick attachment to the loader arms using hydraulic actuated bucket pins or equal type coupler after the bucket has been removed. The quick coupler forklift attachment shall be designed so that no modifications are needed when changing between the forklift attachment and bucket. The forklift attachment should have a minimum of 7,000 pounds lifting capacity at 8' lift height and 24" load center.

FENDERS, FRONT AND REAR - The rear fenders are to be constructed of all steel material. The front fenders shall have a poly shell. Fenders shall provide protection to the vehicle from material and objects thrown by the tires. The protection may be accomplished by design and structure of the vehicle or as a fender attachment. All steps, including ladders, tops of fenders used for service and/or operation must be non-skid surface. All steps and handholds shall be positioned to allow for 3 points of contact at all times.

LIGHTS AND SIGNALS - Driving Lights with guards, front and rear work lights, tail and stoplights, flashing directional signals. If LED lights are available for the tail lights, stoplights, and directional signals, they must be supplied.

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.

VANDALISM PROTECTION - To have lockable cab doors, engine panels, hydraulic oil reservoir cap, radiator filter cap and fuel tank cap. All locks to be keyed alike.

NOTE: Complete machine must be manufactured in accordance with the latest adopted OSHA or SAE Standards and amendments thereto.

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



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