

CITY OF HELENA, ALABAMA

BID SPECIFICATIONS

HYDRAULIC KNUCKLEBOOM BRUSH AND LIMB LOADER WITH DUMP BODY, AND CHASSIS

INTENT:

This specification describes a hydraulically operated knuckleboom brush and limb loader, body, and chassis with the following minimum specifications necessary to perform the work assigned. The loader shall be capable of collecting brush, limbs, and other curbside debris and then loading the material into a receiving collection body by means of hydraulically lifting the material by a boom / grapple arrangement. It is to be mounted behind the cab for loading of bulk waste into suitably designed body attached to the chassis.

GENERAL TERMS:

All equipment furnished under this contract shall be new, unused and the same as the manufacturer's current production model. Accessories not specifically mentioned herein, but necessary to furnish complete unit ready for use, shall also be included. Unit shall conform to the best practice known to the body trade in design, quality of material and workmanship. Assemblies, sub-assemblies and component parts shall be standard and interchangeable throughout the entire quantity of units as specified in this invitation to bid. The unit may be manufactured in an ISO 9001:2000 certified facility, and/or wherever applicable, manufactured to specifications that are in accordance with ASME/ANSI standards for a loader crane.

GUARANTEE:

Bidder shall state his normal warranty and extended warranty where available.

PARTS MANUAL:

Bidder shall furnish a complete parts, maintenance, and operator's manual with each body sold.

Bidder shall complete every space in the specification bidders proposal column with a check mark to indicate if the item being bid is exactly as specified. If not, the "NO" column must be checked and a detailed description of the deviation from the specification to be supplied.

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YES NO OFFERED

I. LOADER

Unit manufactured to specifications that are in accordance with ASME/ANSI standards for a loader crane.

Unit manufactured in an ISO 9001 Certified facility

State location & distance to service facility:

BOOM

Boom length to be minimum 16' with 4' telescoping section to minimum 20'

Capable of lifting 4500 lbs. @ 20'

Boom pedestal to be constructed of high strength steel, providing a 3:1 safety factor.

All hydraulic hoses located at the operator position (boom pedestal) must be enclosed in the pedestal base. Access provided by an easily removable steel cover

Boom pivot shall be mounted to the pedestal by means of a slewing ring/bearing that has a minimum capacity of 513,000 lbs. static load and 186,000 ft/lbs moment. Slewing ring shall be 3 1/2" thick and have an O.D. of 25 3/4". Boom pivot shall be constructed with a 9" O.D. safety retaining tube. The boom pivot safety retaining tube shall be a minimum of 12" long and confine all hoses which pass through the pedestal/boom pivot assembly.

Boom rotation of 270° minimum with mechanical stops for safety. Stops must be welded into machined recesses to ensure non-movement. Pedestal stop must have a minimum of three (3) square inches and have a nylon contact with pivot stops and a minimum width of five (5) inches.

Boom rotation shall be accomplished by a direct hydraulic swing drive through a slewing (bearing) ring and planetary gearbox capable of producing 250,000 inch-pounds torque.

Entire boom assembly shall be designed with a tensile strength to provide a safety factor of 3 to 1 at the rated load capacity.

Main boom shall be constructed of two (2) 4" x 8" high strength steel tubing.

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Tip boom shall be constructed from a 5" x 7" high strength steel tube.
3/8" wall.

Main boom shall be equipped with mechanical stops to prohibit
hydraulic cylinders from bottoming out. Extend boom stops must be
easily accessible and removable for service.

Boom pedestal to be mounted directly to the chassis frame rails.
Mounting must include inside frame rail supports at the mounting points.

The entire boom must be serviceable down to the component level,
E.G., every hydraulic hose, fluid tubes, bracket, pin, etc. having to
replace subassemblies in order to repair a component will not be
acceptable.

Telescopic tip extension shall be equipped with replaceable nylon
bearings on all 3 sides with roller on bottom. Bearings must be easily
accessible for replacement and have "auto-hose-slack" take-up.

All boom connections requiring pins shall be equipped with replaceable
bushings and heat treated pins.

All operating functions shall be hydraulically controlled from the
operator station located both on the left and right hand side of the
loader

Two stage tandem pump allows for multiple function control of the
loader.

Operator controls shall be hydraulic operated joystick type. The body
dump control lever must be visually different in color from the main
crane controls. Outrigger controls must be separated from the loader
controls. All controls shall be clearly identified as to function.

Wrap around hand rail and deep steps to aid in entry to aid in ground
entry to operator station

Main boom and tip boom cylinders must incorporate integral holding
valves. Externally mounted holding valves are not acceptable.

TRASH GRAPPLE/BUCKET

Bucket shall have a 360° continuous rotating grapple with a replaceable
hydraulic swivel. Swivel shall not be welded or be an integral part of the
grapple.

Bucket is to be opened and closed by two (2) hydraulic cylinders with a
closing force/"bite" of 3,600 lbs.

Bucket is to be 4' long and capable of opening to 60" from lip to lip.

Bucket shall be fabricated with a bolt on replaceable H.S.H.C. steel
cutting edge.

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Bucket cylinders and hoses shall be enclosed by a removable steel cover.

HYDRAULICS

Reservoir shall be a minimum of 45 gallons. It shall have a dual level/oil temperature gauge on side of tank. An in-tank suction strainer is included.

Filter shall be a 10-micron, return line replaceable filter mounted on outside of reservoir.

Cut-off valves are to be provided for both pressure and suction lines.

Main boom, tip boom and outrigger hydraulic cylinders shall contain pilot operated check valves as an integral part of each cylinder to prevent boom movement in the event of hydraulic hose failure. Bolt on pilot operated check valves will not be permissible.

All hoses shall be rated at 4,000 PSI working pressure.

Port tubing through the main boom shall be zinc plated.

Control valves shall have a 20 GPM rating.

Successful bidder must provide a computer printout at time of delivery showing particle testing of the hydraulic oil done just prior to the unit being shipped order to illustrate cleanliness of hydraulic system. Please include a sample copy with bid submittal.

POWER SOURCE

Unit to be mounted on any chassis that meets the manufacturer recommended specification with a heavy-duty clutch style hot shift PTO and a heavy-duty bi-rotational tandem hydraulic pump.

THROTTLE CONTROL

Unit to have an electric operated throttle control to maintain proper engine speed when loader is operated under load. Switch for throttle control to be mounted on operator's platform for operator's convenience.

Throttle speed-up shall operate only when the transmission in the neutral position.

OUTRIGGERS

Outriggers shall be extendable to a distance that will resist loads of 85% of the tipping moment under maximum rated load.

The outriggers are to be equipped with smooth pads to cause minimum damage to contacted surface.

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	<u>YES</u>	<u>NO</u>	<u>OFFERED</u>
Outriggers shall telescope horizontally in and out; and vertically up and down and operate independently by means of individual mechanical linkage controls. Controls must be located a distinctive distance from the main boom controls.			_____
Outrigger cylinders for stabilizing loader shall be mounted inside telescoping legs.			_____
Outriggers shall be "H" style and retract to within the maximum highway width and will extend to a maximum width to resist the design load moment.			_____
Outrigger cylinders shall contain holding valves on extend and retract functions to prevent outrigger lead down.			_____
LIGHTS AND REFLECTORS			
Shall conform to current state and federal standards.			_____
PAINT			
Loader shall receive one (1) coat of high-grade primer and two (2) coats of high-grade enamel paint (manufacture's standard colors)			_____
TRASH BODY			
30 Cubic yard capacity			_____
20 Foot body length			_____
Body floor shall be made of single piece 7 gauge steel			_____
Body walls to be constructed with 10 gauge sheet steel. Wall stiffeners to be 3" x 4" minimum, 11 gauge formed channels placed on approximately 24" centers.			_____
Body walls shall have a top rail formed from 11 gauge minimum steel in such manner as to encapsulate top end of vertical wall stiffeners and edge of wall sheet.			_____
Wall stiffeners will be welded to top rail, and wall skins and floor bumper rail. Body shall have continuous welds.			_____
Front body wall to be 42" high. Side walls transition from 42" at the front to 72" high, 8 foot from the front.			_____
Body full-length main structural channel sills to be 8" @ 11.5 lbs/ft. Cross sills to be 4" @ 5.4 lbs/ft structural channel. Cross sills to be placed on 12" centers.			_____
Body shall have a one piece door 5' with three (3) heavy-duty hinges with 1" diameter pin and allow for lubrication.			_____

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The rear door shall serve as the grapple rest and have a slot 25" wide x 12" tall. The door shall have a 7 gauge skin with 4" x 2" x 1/4" rectangular tubing reinforcement to support weight of grapple.

Door latch shall be cam operated from the driver's side and provide a safety lock. A provision shall be made to allow the door to be opened and rotate against passenger side of the body wall with latch to hold open while dumping body.

BODY HOIST

The hoist system shall be scissor style lift rated @ 3,000 PSI working pressure and mounted to provide a minimum 45 degree dump angle

LIGHTS AND REFLECTORS

Shall conform to current state and federal standards.

LED lights shall be provided. One marker and strobe light on left and right top of rear body posts and two (2) additional strobes on a lower rear door posts. Also, provide one light on left and right rear under body for backup and brake/turn in metal box. There shall be three (3) marker lights mounted on rear of body centered. All lighting to be DOT standards.

Reflective safety tape shall be on both sides and on rear of body.

BODY PAINT

Body exterior shall receive one (1) coat of high-grade primer and two (2) coats of high-grade enamel paint.

Body interior shall receive one (1) coat of high-grade primer

BUMPER

Body shall have a rear safety bumper to meet U.S. Department of Transportation Federal Motor Carrier Safety Administration part 571.233 for rear impact guards and part 571.224 for rear impact protection.

SAETY PROPS

Two- (2) body safety props shall be installed one on each side of the body frame rails.

WARRANTY

Bidder must provide all warranties required below. Failure to provide such warranties may result in your bid being deemed non-responsive.

Loader warranty:

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	<u>YES</u>	<u>NO</u>	<u>OFFERED</u>
One (1) year parts and labor			_____
Two (2) year slewing ring and gear box			_____
Three (3) year structural warranty			_____
Trash body warranty:			
One (1) year parts and labor			_____
Three (3) year structural			_____
CHASSIS			
GENERAL			_____
New &Unused, Current year model			_____
Conventional Cab			_____
ENGINE &EQUIPMENT			
300 HP Engine			_____
2010 Engine emission standards			_____
860 lb/ft Torque @ 1400RPM			_____
Turbo exhaust brake			_____
Diagnostic plug for data link			_____
Oil cooler			_____
Aluminum flywheel housing			_____
Cruise control			_____
Engine protection shut down system			_____
Cummins 18.7 DFM air compressor			_____
Dry-type firewall mounted air cleaner with filter restriction indicator			_____
1000 sq/in Cooling module			_____
Radiator bug screen on front of grill			_____
RH Under cab SCR with single vertical RH side of cab tailpipe			_____
Fleet-guard filter/water separator with water in filter sensor			_____
Engine block heater			_____

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	<u>YES</u>	<u>NO</u>	<u>OFFERED</u>
160 AMP Alternator	_____	_____	_____
Two (2) batteries – 1400 total CCA	_____	_____	_____
12-Volt light system with circuit protection	_____	_____	_____
12-Volt Starter	_____	_____	_____
Battery disconnect switches – two, at battery box	_____	_____	_____
Body builder harness to end of frame	_____	_____	_____
Frame mounted jump start terminals, frame mounted behind cab	_____	_____	_____
TRANSMISSION & EQUIPMENT			
Allison 3500 RDS 6-speed	_____	_____	_____
Heat exchanger	_____	_____	_____
Oil level sensor	_____	_____	_____
Auto neutral for Allison – single input	_____	_____	_____
Transynd transmission fluid	_____	_____	_____
FRONT AXLE & EQUIPMENT			
16,000 lb. Front axle – Dana Spicer	_____	_____	_____
16 ½" x 6" Cast drum brakes	_____	_____	_____
Iron 10-bolt hub pilot LMS hubs with hub caps	_____	_____	_____
Front oil seals	_____	_____	_____
Front slack adjusters	_____	_____	_____
16,000 lb. Taperleaf front springs	_____	_____	_____
Front shock absorbers	_____	_____	_____
Radiator mounted air to oil power steering cooler	_____	_____	_____
REAR AXLE & EQUIPMENT TANDEM			
40,000 lb. Rear axle	_____	_____	_____
Rear axle ratio: 6.17 (65 MPH max.)	_____	_____	_____
16 ½" x 7" Cast drum brakes	_____	_____	_____
Iron 10-bolt hub pilot hubs	_____	_____	_____

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Rear slack adjusters			_____
Rear oil seals			_____
Bendix 4S/4M Anti-lock brake system with air traction control			_____
40,000 lb. Multileaf suspension – Hendrickson RT403			_____
TIRES &WHEELS			
Front tires: Two (2) 315/80R22.5 18-Ply			_____
Rear tires: Eight (8) 11R22.5 14-Ply			_____
Front wheels: Two (2) 22.5x8.25 Heavy duty, 5 hand-hole hub pilot mount, white e-coat			_____
Rear wheels: Eight (8) 22.5x8.25 5 hand-hole hub pilot mounted, steel white e-coat			_____
FRAME &EQUIPMENT			
CA – 210”; AF – 96”			_____
10 5/8” x 3 1/2” x 5/16” Steel frame			_____
120,000 PSI Yield heat treated steel			_____
RBM – 2,850,000 in-lbs Minimum			_____
Partial steel inserts under cab to end of frame			_____
Aerodynamic bumper; painted			_____
Two removable front tow hooks			_____
Front mud flaps			_____
Aluminum battery box with fiberglass cover; LH			_____
FUEL TANK &EQUIPMENT			
56 Gallon aluminum fuel tank			_____
Fuel tank mounted LH under cab			_____
9 Gallon DEF tank - LH			_____
CAB &EQUIPMENT			
Aluminum & fiberglass fully huck-bolted cab			_____
Aluminum bulkhead doors			_____

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	<u>YES</u>	<u>NO</u>	<u>OFFERED</u>
Continuous stainless steel piano-style door hinges			_____
Single electric horn			_____
Heater with integral defroster and A/C			_____
Adjustable telescoping tilt steering column			_____
Dash mounted air filter restriction gauge			_____
Speedometer			_____
Tachometer			_____
Fuel gauge			_____
Engine coolant temperature gauge			_____
Engine oil pressure gauge			_____
Voltmeter			_____
Primary and secondary air reservoir gauges and air application gauge			_____
Air driver seat - Vinyl			_____
Two (2) man bench rider seat - Vinyl			_____
AM/FM/WB Radio			_____
Cab access grab handles, LH &RH			_____
Daylight doors with RH peeper window			_____
Single air horns, LH top of roof			_____
Dual 7" x 16" polished stainless steel mirrors; thermostatically controlled with dual 7 1/2" convex mirrors-cowl mounted			_____
Single convex mirror, 8 1/2" x 4 7/16" located on rider side			_____
Dual halogen headlights			_____
Roof mounted marker lights (five)			_____
Rotating amber light bar			_____
Fender mounted turn signal lights			_____
Circuit breakers replacing all but 5-amp fuses			_____
Bendix AD-SP air dryer, heated			_____
Triangle reflector kit			_____

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	<u>YES</u>	<u>NO</u>	<u>OFFERED</u>
5lb Fire extinguisher			_____
WARRANTY			
One year unlimited mileage			_____
PAINT			
Color: white			_____