Please note all changes to original specifications are red. The only addition to the specs is a Backhoe Bucket Size of 24 inches wide.

### BACKHOE LOADER

One backhoe loader with extending hoe, hydraulic thumb and four wheel drive.

The following brands of backhoe loader will be accepted

<table>
<thead>
<tr>
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<tr>
<td>CATERPILLAR 430</td>
<td></td>
<td>CASE 590</td>
<td></td>
<td>JOHN DEERE 410</td>
</tr>
</tbody>
</table>

### BACKHOE LOADERS

**BID SPECIFICATION** One backhoe loader with extending hoe, hydraulic thumb and four wheel drive.

The following brands of backhoe loaders will be accepted

CATERPILLAR 430  CASE 590  JOHN DEERE 410

**Compliant?**

<table>
<thead>
<tr>
<th>Requirement</th>
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</tr>
</thead>
<tbody>
<tr>
<td>Backhoe shall have a minimum digging depth of 15'5&quot; (4698 mm) with standard stick and 19' 6&quot; (5951 mm) with extendable stick.</td>
<td>Y</td>
</tr>
<tr>
<td>Turbocharged engine net flywheel horsepower shall be at least 95 HP according to SAE J1349.</td>
<td>Y</td>
</tr>
<tr>
<td>General purpose loader bucket SAE heaped capacity rating shall be a minimum of 1.25 cubic yards (0.96 cubic meters).</td>
<td>Y</td>
</tr>
<tr>
<td>Unit shall have a maximum turning radius 15ft 0in</td>
<td>Y</td>
</tr>
<tr>
<td>Unit shall have a maximum overall top of cab height of 9 ft 4 in with standard tires.</td>
<td>Y</td>
</tr>
<tr>
<td>Maximum overall transport length shall less than 24'</td>
<td>Y</td>
</tr>
<tr>
<td>Unit shall have a minimum wheelbase of 7'0&quot;</td>
<td>Y</td>
</tr>
<tr>
<td>Unit shall have a maximum width of 7'11&quot; with a general purpose bucket.</td>
<td>Y</td>
</tr>
<tr>
<td>Standard operating weight shall be less than 16,500lbs.</td>
<td>Y</td>
</tr>
</tbody>
</table>

**ENGINE**

<table>
<thead>
<tr>
<th>Requirement</th>
<th>Compliant?</th>
</tr>
</thead>
<tbody>
<tr>
<td>Engine shall be protected to a minimum -34 degrees F (-36.7 degrees C) with extended life antifreeze that needs not to be replaced for 5 years.</td>
<td>Y</td>
</tr>
<tr>
<td>Engine cooling fan shall have a heavy-duty guard that fully prevents human contact while in operation.</td>
<td>Y</td>
</tr>
<tr>
<td>Radiator shall have a heavy-duty guard to resist continued impact at low speeds.</td>
<td>Y</td>
</tr>
<tr>
<td>Engine shall be equipped with an alternator that has a charging capacity of minimum 75 amperes.</td>
<td>Y</td>
</tr>
</tbody>
</table>
Office of Contract Administration

Y____ N____ Engine shall be equipped with one maintenance-free 880 CCA battery, with the option for two such batteries.

Y____ N____ Engine shall be equipped with a 12-volt direct-electric starting and charging system.

Y____ N____ Engine shall have an internally-mounted, dry type, radial-seal, air cleaner with an air service indicator to monitor air filter condition.

Y____ N____ Engine air filter shall have an automatic integrated dust ejection system that prevents the contaminates from embedding in the filter media.

Y____ N____ Engine shall have a water separator style fuel filter with water separator service indicator light.

Y____ N____ Engine shall have variable-speed, hand and foot governor controls.

Y____ N____ Engine shall have a full flow spin-on type oil filter that is vertically mounted

Y____ N____ Engine shall come standard with glow plug, starting aid or pre heater for cold weather

Y____ N____ Units shall be equipped with a turbocharged, four cylinder, direct injection diesel engine isolation mounted and shall be designed and built by the manufacturer

Y____ N____ Engine shall be current production, electronic controlled, meeting all emission standards at time of production. Shall be at rated horse power at elevations ranging from 4000ft to 10,000ft.

Y____ N____ Shall be fully compliant with Federal emission standards at time of production.
Note: certified with exceptions does not meet the fully compliant criteria.

Y____ N____ Engine shall be a min. 95 hp.

POWERTRAIN/TRANSMISSION

Y____ N____ 4WD able to be engaged "on-the-go" while under load or any operating condition.

Y____ N____ 4WD guard shall be made by the OEM and provide full coverage between the frame rails to protect the front drive shaft.

Y____ N____ Unit shall be able to change direction and travel speed on-the-go.

Y____ N____ Units shall be equipped with a transmission disconnect button on the gear shifter and loader control to allow full engine power to the loader.

Y____ N____ Transmission shall be made, serviced and supported by the machine manufacturer.

Y____ N____ Unit shall have transmission oil cooler

Y____ N____ Transmission shall have an electric, neutral lock switch on the front console.

Y____ N____ Transmission shall have spin-on type oil filter vertically mounted.

Y____ N____ The automatically shifting transmission shall have a manual override switch to allow the operator full control over the gear selection.

Y____ N____ Unit shall have a single stage torque converter

Y____ N____ Unit shall have a high gear speed of no less than 20 mph

Y____ N____ Unit shall have 4 forward gears and a fully synchronized transmission

Y____ N____ Unit shall have a single electric FNR lever with gear selection integrated in the lever

STEERING

Y____ N____ Machine shall have hydrostatic steering with emergency manual mode.

Y____ N____ Steering cylinder shall be double acting with a 50 degree steering angle.

Y____ N____ Ride-Control shall smooth the ride under all operating conditions.

BRAKES
Y____ N____ Brake mode selector switch shall allow 2WD travel with 4WD automatically engaged for braking.

Y____ N____ Parking/secondary brakes shall be independent of the service brake system, allow operator complete control for a modulated stop, and shall be mechanically applied and adjusted from the cab without the need for tools.

Y____ N____ Foot-operated brake pedals shall be able to be interlocked for roading.

Y____ N____ Service brakes shall be boosted for low pedal efforts.

Y____ N____ Service brakes shall be fully self-adjusting.

HYDRAULIC SYSTEM

Y____ N____ Hydraulic system shall include high pressure hoses consisting of 4 overlapping insulated spiral wires on all high pressure lines.

Y____ N____ Machine shall be able to reach maximum lift capacity at any engine speed.

Y____ N____ Maximum hydraulic pump pressure shall be at least 3,600 psi (24,845 kPa) for both backhoe and loader.

Y____ N____ Hydraulic pump shall be both load sensing and pressure compensating.

Y____ N____ Hydraulic system shall have a replaceable 5 micron vertically mounted, spin-on filter that is accessible from under the main frame.

Y____ N____ Hydraulic pump shall be rated at 42 gpm at 2,200 rpm.Min.

Y____ N____ Hydraulic tank shall be mounted towards the rear of the engine above the pump, enabling the hood of the machine to slope downward for visibility and to keep positive pressure into the pump supply hose.

Y____ N____ Supply hose to the pump shall be protected high within the chassis and not vulnerable to puncture.

Y____ N____ Backhoe hydraulic lines shall be fastened and constrained from hanging low within the chassis, preventing hoses from damage.

Y____ N____ All hydraulic hoses restrained by rubber grommets and steel band clamps shall have full protective coverage by the rubber grommet, preventing cuts and chaffing by the band clamps.

Y____ N____ Hose routing shall be in such a way that no chafing protection material is needed around hoses in any area.

AXLES / BRAKE

Y____ N____ Rear axle shall have foot activated differential lock with "on-the-go" engagement.

Y____ N____ Machine shall have 4 wheel drive.

Y____ N____ Final drives shall be heavy duty outboard planetary in oil bath

Y____ N____ Park brakes are independent of the service brakes and spring applied

WHEELS

Y____ N____ Standard tires shall be no less than 12.5/80-18 10PR (front) and 19.5 x 24 12PR (rear) with radial tires and other sizes available.

Y____ N____ Front tires shall ride inside loader bucket cutting width.

OPERATORS STATION
Y____ N____ Shall have a fully enclosed cab with factory A/C and heat controls
Y____ N____ Cab shall have an air conditioner that provides the operator with a choice of fresh outside air drawn through filters or recirculation cab air.
Y____ N____ The backhoe Pilot Controls locking switch shall always indicate the correct state of the controls, "locked" or "unlocked," and be lighted when "locked".
Y____ N____ Cab shall be equipped with two doors and five opening windows and floor mat.
Y____ N____ Machine shall come standard with horn, audible back up alarm and electric fuel system shut off.
Y____ N____ Operator's compartment shall feature laminated safety glass on front, windshield and tempered glass on all other windows.
Y____ N____ The governor pedal shall be hinged and mounted to the floor for maximum pedal positioning control.
Y____ N____ Cab shall include factory-installed A/C/ heater/defroster with multiple speed blower with the control in reach from the front and rear of the machine.
Y____ N____ Side instruments shall include and not limited to tachometer, fuel gauge, transmission/converter oil temperature gauge and coolant temperature gauge.
Y____ N____ Unit shall have a lighted instrument panel located on the right side of the cab so that it is visible from both loader and backhoe operating positions.
Y____ N____ Unit shall include two front and two rear roading lights.
Y____ N____ Machine shall have stop and turn signals with flashing hazard lamps visible from front and rear.
Y____ N____ In addition to head and tail lights, the machine shall include 2 front and 2 rear halogen work lights actuated by separate switches.
Y____ N____ 12v 30amp fused power supply keyed shall be in cab for use with CB and company radio
Y____ N____ Electric auxiliary wiring shall be available on roof for connection to items such as a rotating beacon.
Y____ N____ A switch, accessible to the operator from the seat, shall control the auxiliary wiring, primarily used for beacon operation.
Y____ N____ OSHA approved ROPS/FOPS shall be integral with cab.
Y____ N____ Air-suspension seat shall come with a vertical adjustment and adjustable flip-up armrests.
Y____ N____ Operator's compartment shall come equipped with a standard air suspension seat that can be adjusted in the fore/aft position and has a lever that controls the release for rotation at 180 degree swivel from anywhere on a sliding track mechanism.
Y____ N____ Standard seat shall be available with vinyl or cloth covering.
Y____ N____ Equipped with the standard steering wheel, the seat shall be able to swivel in a single motion without contacting the steering wheel or pilot control pods.
Y____ N____ Hour meter shall be functional with key in off position and visible from ground level.
Y____ N____ Cab shall be insulated for noise reduction and vibration dampened for operator comfort.
Y____ N____ Stabilizer controls shall be pilot operated and conveniently located.
Y____ N____ Tilt steering wheel shall be standard for operator comfort.
Y____ N____ Steering wheel shall come with a standard spinner knob for turning ease.
Y____ N____ An optional, lockable, vandalism cover will be available which protects the instrument gauges, key switch and electrical switches on the right console.
### Loader and Backhoe

<table>
<thead>
<tr>
<th>Item</th>
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<tr>
<td>Y/N All rear window sections shall open upwards and store overhead with outside portion facing upwards to keep water droplets and dirt from falling on operator.</td>
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</tr>
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<td>Y/N With an enclosed cab, front and rear windshield wipers/washers shall be standard.</td>
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<td>Y/N Access to cab shall be from the left and right side with steps and hand-holds</td>
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<td>Y/N Seat belts shall be provided</td>
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<tr>
<td>Y/N Unit shall have a factory installed pilot backhoe controls with integral pattern select</td>
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</tr>
<tr>
<td>LOADER AND BACKHOE</td>
<td></td>
</tr>
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<td>Y/N Backhoe shall come standard with a curved boom for its ability to work in confined areas and to reach over obstacles</td>
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</tr>
<tr>
<td>Y/N Per SAE standards, rated bucket digging force shall be a minimum of 13,875 lb (61.7 ken).</td>
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</tr>
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<td>Y/N Per SAE standards, stick digging force shall be a minimum of 8,400 lbs with a standard stick or a retracted extendible stick.</td>
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</tr>
<tr>
<td>Y/N Backhoe reach, from the swing pivot, shall be no less than 19'8&quot; with a standard stick</td>
<td>Backhoe reach, from the swing pivot, shall be no less than 19'8&quot; with a standard stick</td>
</tr>
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<td>Y/N Backhoe shall have a loading height of no less than 12'0&quot; with a standard stick.</td>
<td>Backhoe shall have a loading height of no less than 12'0&quot; with a standard stick.</td>
</tr>
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<td>Y/N Backhoe bucket shall have a minimum of 200 degrees of bucket rotation in one pin position.</td>
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</tr>
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<td>Y/N Backhoe shall have a minimum cushioned swing arc of 180 degrees.</td>
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</tr>
<tr>
<td>Y/N Backhoe stick lifting ability at 8 ft (2438 mm) shall be no less than 5494 lb with a standard stick or retracted, extendible stick.</td>
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</tr>
<tr>
<td>Y/N Backhoe boom lifting at 8 feet (2438 mm) shall be no less than 3120 lbs with a standard stick or retracted, extendible stick.</td>
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</tr>
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<td>Y/N Extendible stick shall be available.</td>
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</tr>
<tr>
<td>Y/N Optional extendible stick shall be field adjusted in less than 30 minutes to eliminate excessive clearance, using simple hand tools such as hex head and allen head wrenches.</td>
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<td>Y/N Extendible stick shall have serrated edges to help clamp objects securely with bucket.</td>
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<td>Y/N Extendible stick shall be thumb-ready with thumb cylinder mounts and stops standard.</td>
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<td>Y/N Extendible stick shall be self-lubricating, adjusted with shims, and require no grease.</td>
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<td>Y/N Backhoe shall be center-pivot type complete with hydraulic stabilizers.</td>
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<tr>
<td>Y/N Boom cylinder shall be exterior mounted for serviceability.</td>
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<td>Y/N Stick cylinder shall be exterior mounted for serviceability.</td>
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</tr>
<tr>
<td>Y/N Boom and stick shall be weld repairable.</td>
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<td>Y/N Backhoe shall be equipped with a swing transport lock.</td>
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<td>Y/N Backhoe shall be equipped with a boom lock that can be controlled from the seat.</td>
<td>Backhoe shall be equipped with a boom lock that can be controlled from the seat.</td>
</tr>
<tr>
<td>Y/N Pattern changer shall be available for switching Backhoe and Excavator control patterns with an electric switch, located within the operator's station.</td>
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</tr>
<tr>
<td>Y/N Backhoe controls shall be available as pilot operated joystick controls with a standard pattern changer for SAE excavator or ISO backhoe control patterns.</td>
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</tr>
<tr>
<td>Y/N Backhoe shall be controlled with excavator style pilot operated joystick controls.</td>
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</tr>
<tr>
<td>Y/N Loader dump clearance shall be a min. of 8'-4&quot;</td>
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</tr>
</tbody>
</table>
Loader arms shall be divergent for bucket visibility
Loader arms shall be curved for loading clearance and for its ability to work in confined areas and to reach over obstacles
Loader bucket shall not roll back, and must not move under normal dig operations.
Loader shall have positive down pressure sufficient to lift tractor front end off level ground.
Conventional loader breakout force shall be no less than 10,225 lbs for any OEM bucket offered.
Conventional loader shall have a lift capacity of no less than 6356 lbs at full height with a general purpose bucket.
Loader shall be equipped with a return-to-dig mechanism.
Loader shall be equipped with a lift cylinder brace to mechanically hold the loader arms in the raised position.
Loader shall incorporate a bumper system between the loader arms and chassis to absorb side loading and reduce pin joint stress
Loader arm torque tube shall be constructed such that it is welded to each side of each loader arm section, providing maximum strength with minimal weld stress.
Loader bucket shall be suitable for general purpose with heavy-duty characteristics including high strength wear material in the leading edges of the lower side corners, equaling the material properties of the base cutting edge.
Loader breakout force shall be a min, 10,200lbs
Loader bucket base cutting edge shall be specially hardened steel, achieving Rockwell hardness of 50 or greater.
Loader bucket shall have a 2-piece or 3-piece bolt-on cutting edge for serviceability.
Loader bucket shall be self-leveling for truck loading spoil and equipped with a bucket tilt indicator.
Auto-up stabilizer controls shall be available.
Stabilizers shall be pilot operated for low efforts and located on the side console for easy access whether facing front or rear.
Backhoe shall have stabilizer lock valves as standard equipment (anti drift)
Flip over stabilizer pads shall have a dirt grouser and an asphalt pad.
Stabilizers shall have cylinder guards installed
Stabilizers shall be able to lift the machine high enough to clear tires, on concrete with street pads.
Backhoe bucket digging force shall be a min. 14,000lbs.
Unit shall be equipped with two lever backhoe controls
Backhoe bucket width should be 24"

The OEM shall offer buckets in varying widths and capacities.

Buckets shall be equipped with pin-on tooth tips that are exchanged whereby the pin retainers are diagonal or vertical, allowing them to be extracted or inserted with a hammer and punch only.
Backhoe thumb shall be hydraulic and available from the factory, with parts and service support from the OEM. No linkage operated thumbs will be accepted.

Y____ N____

All dipper sticks shall be made thumb-ready, allowing bolt-on installation of thumbs, cylinder, hydraulics and hardware without welding.

Y____ N____

IT tool carrier

SERVICEABILITY

Y____ N____
Engine oil, transmission oil, hydraulic oil, brake fluid, washer fluid, coolant, engine air filter, and engine air filter monitor shall all be consolidated service points, accessible under the hood with loader arms down with sample ports for all fluids.

Y____ N____
Water and sediment shall be drained from the fuel / water filter without raising the hood or opening an access panel.

Y____ N____
All fluid levels shall be visually accessible from ground

ADDITIONAL FEATURES

Y____ N____
Optional front fenders shall be available from the OEM, articulating with the tires for maximum coverage.

Y____ N____
An optional protective shield shall be available from the OEM for flying object applications, such as hammer use.

Y____ N____
Hydraulic quick couplers shall be provided near bucket for accessory tools

Price

Options

extended warranty

IT carrier with Bucket

All service and parts manual shall be provided at time of delivery

A mandatory pre-build meeting will be held at the R&B shop in Rifle CO with the truck manufacturer, body builder and the R&B before any assembly