

IF BID IS NOT COMPLIANT, STATE SPECIFICALLY ITEM BEING OFFERED. IT IS THE INTENTION OF THE WALTHAM COUNTY BOARD OF SUPERVISORS TO SOLICIT COMPETITIVE BIDS ON COMPARABLE EQUIPMENT SO AS TO NOT EXCLUDE VENDORS BY NARROWLY DRAWING THESE SPECIFICATIONS.

The following are the suggested approximate specifications for one or more new or unused backhoes. All bids must be equal in performance and quality pursuant to the bid specifications below, which are not intended to exclude any manufacturer's standard deviation. Any reference to manufacture's make or series of equipment stated in the following specifications is intended only to establish an acceptable standard and is not intended to limit the bidding and comparable products may be substituted.

Engine:

The backhoe-loader shall have a 4-cylinder, Tier 4 Final certified turbo-charged, charge air-cooled, direct inject diesel engine with an approximate 74 gross HP, 68.4 net HP @ 2200rpm. The engine shall provide an approximate peak torque rating of 316 Nm (233 lb. ft.) at 1400 RPM.

The engine also shall have the following approximate or equivalent specifications:

Displacement: 3.4 L (207 cu.in.)

Bore and Stroke: 99 mm X 110 mm (3.9 in X 4.33 in)

Fuel Injection: Direct HPCR with Diagnostic Features

Full flow engine oil filter

Aspirated air cleaner

Air Cleaner — Replaceable dry type with radial seal

Diesel Oxidation Catalyst (DOC) - Spark Arresting

Fuel Tank — useable capacity 129 liters (34.07 US gal)

Fuel Filter w/ Water Trap

Radiator with De-Aeration bottle

Antifreeze -37 C (-34 F)

Electronic Throttles, both hand and foot

Self-Adjusting Belt

Power Train:

The backhoe loader power train shall be componentized.

The power train shall consist of a torque converter drive with a fully synchronized transmission.

The standard Power Shuttle transmission shall also provide the following:

- Four forward speeds

- Four reverse speeds

- Approximate forward travel speed of approximately 21.1 MPH with 16.9-28 rear tires

- Electric Forward and Reverse Shuttle Control

- Single lever F-N-R control with safety detent with right hand gear shift lever

Front Axle

- 4WD Heavy Duty Mechanically driven with 12.5/80-18 IND Tires (BKT)

Rear Axle

- Heavy Duty outboard Planetary drive with 16.9-28 Tires (BKT)

The power train shall also have the following:

- No differential lock

- 300 mm Torque Converter

2-4WD Mode Selector

Brakes:

The backhoe loader brakes shall be hydraulic actuated wet disk brakes, self-adjusting, and self-filling.

The brakes shall also have the following features:

- Wet, internal, multiple disc brakes with 2 plates per side on rear axle

- Each disc has approximately 28.6 cu. in. (184.5 cu. cm) of area per surface; total area is approximately 228 cu. in. (1476 cu. cm)

- Pedals operated independently for steering assistance or locked together for simultaneous operation

- Parking brakes: Mechanically actuated caliper type brake pack on Rear axle input shaft

- Performance: Braking performance comply with ISO 3450

Loader and Linkage Features:

The loader arms shall be heavy duty and straight-arm design.

The loader arms shall also have the following features:

- Straight-arm design

- Double-acting lift cylinders with friction-welded rod ends

The loader linkage shall have the following features:

- 4-bar bucket linkage for maximum breakout force

- Double-acting bucket cylinders

- Four position loader valve (raise, neutral, lower, float, curl, dump)

- Hydro-mechanical self-leveling

- Return-to-dig feature

Loader Bucket:

The loader bucket shall be an approximate 89 inches wide with an approximate 1.3 cubic yard heaped capacity.

The bucket shall also have the following features:

- Heavy duty

- Welding on cutting edge

- Factory Option - multi-purpose (4 x 1) loader bucket with Edge

Backhoe:

The backhoe shall be of an integral mainframe, curved boom, double clevis, center-pivot type design, with double-acting boom, crowd, bucket, swing, and stabilizer cylinders.

The backhoe shall also have the following features:

- Sealed backhoe pivot pins

- Foot operated unidirectional Auxiliary Hydraulics with low flow from 0 to 160 l/min (42.27 gal/min)

- Manual cable activated transport lock

- Dirt stabilizer pads

- Excavator-style bucket pin retainers

- Optional hydraulically extendable, internal slide, dipper stick design

Performance:

The specified loader shall be a fully serviced unit that includes all standard equipment, standard loader bucket, standard backhoe, standard dipper stick, and ROPS/CAB. The unit will weigh approximately 16,416 pounds.

The loader performance shall include the following:

- Approximate SAE dump cylinder breakout force of 13,778 pounds force
- Approximate SAE lift cylinder breakout force of 11,276 pounds force
- Approximate SAE lift capacity to full height of 8,157 pounds
- Approximate SAE dump clearance of 8 feet 11.5 inches at full height and 45 degree angle
- Approximate SAE dump reach of 3 feet 9 inches at full height and 45 degree angle
- Approximate hinge pin height of 11 feet 8 inches
- Approximate loader lowering time (return-to-dig) of 3.2 seconds
- Approximate bucket dumping time of 1.8 seconds
- Approximate loader raising time to full height of 5.9 seconds

Tractor dimensions:

- Approximate wheel base of 85.6 inches
- Approximate overall transport width of 7 feet 6 inches
- Approximate height to top of cab of 9 feet 3 inches

Standard Backhoe:

- Approximate SAE dig depth with standard over-center backhoe with 14ft dipper for 24 inch flat bottom of 14 feet, 3 inches.
- Approximate transport height of 12 feet 7 inches
- Approximate digging force, bucket cylinder, 12,598 pounds force
- Approximate digging force, dipper cylinder 9,631 pounds force
- Approximate truck loading height of 11 feet 11 inches
- Approximate stabilizer spread in transport position of 7 feet 6 inches with standard flip-over pads
- Approximate backhoe dipper lift capacity at 8 feet per SAE J31 - 5,438 pounds
- Approximate bucket rotation of 204 degrees

Steering performance:

- 3.75 steering wheel revolutions from stop to stop, 4WD
- 22 degrees of axle oscillation
- 55 degree steering angle

Operator Environment:

- Tachometer/hour meter
- Voltmeter
- Backlight gages with illuminated pointers
- Warning Lights
- A/C Low High Pressure (if machine equipped with HVAC)
- Battery Charging
- Cold Start/Pre-Heater
- Transmission Oil Level
- Brake Oil Level
- Position Light

Engine Oil Pressure
High Beam
Parking Brake Engagement
High Coolant Temperature
Hydraulic Filter Clog
Air Cleaner Restriction
Low Fuel
Water in Fuel
Master Warning
Master Stop
Audible Warning Alarm for:
Cold Start/Pre-Heater
Transmission Oil Temperature
Brake Oil Level
Engine Oil Pressure
Parking Brake Engagement
High Coolant Temperature
Hydraulic Filter Clog
Reverse Alarm
Horn, Dual Switched @ Front and Rear
Turn Signal indicators with switch
Hazard Indicator with Switch

Electrical:

12 V Systems

Single 12V, 110Ah, 800 CCA Battery
Alternator 120 Amp
Key Start
Lights — Cab Front:
 2 Amber Turn/flasher lights (21 W) with integrates red stops (21 W Stop - 10 W Position)
 4 Individual 55W work lights
License Plate Lamp
Neutral Start Switch
Electronic Foot and Rotary Hand Throttle Controls
Electronic Hand Throttle Setting Cancelled with Brake Pedal Application
Power Plugs - 1 (10 Amp Total)
USB Plug - 1
Radio Ready
Dome Light Controlled by Switch on Light.
Sealed Fuse/Relay Enclosures Located in Front and Side Console & Engine Compartment

Hydraulics:

The loader backhoe hydraulics with manual controls shall include the following features:

Dual gear hydraulic pump system rated approximately 123 l/min @ 2200 rpm (32.49 gal/min)

Approximate system relief pressure: 3,045 PSI
Heavy duty Hydraulic oil cooler
Hydrostatic steering with priority
Boom Priority (Simultaneous Operation) Functionality in Back-Hoe Valve
10 Micron Spin-On Return Line oil filter with clogging indicator
O-Ring Face Seals (ORFS) connections used throughout hydraulic system
Quick connect type diagnostic port connectors
Approximate 7-micron spin-on filter element
Standard Oil/Fluid: HV68
Unidirectional Auxiliary Hydraulics as standard
Variable flow adjustable at the valve — flow setting between 0 to 42 g/min (160 l/min)
Pedal switch to activate solenoid
Optional 3rd spool for front loader auxiliary hydraulics (used for 4x1 bucket and other attachments)
Includes second control arm to operate

Serviceability:

Loader shall be easy to service from ground.

The loader backhoe service shall also include the following:

- Approximate 34.07 gallon capacity fuel tank
- Approximate 28.2 gallon capacity with sight glass line hydraulic oil tank
- Engine oil change — 500 hour interval
- Hydraulic oil change — 1000 hour interval

Warranty:

The loader backhoe warranty shall include the following:

- Coverage by a 12 month warranty for parts and labor
- Available extendable warranty:
 - Full machine
 - Powertrain only
 - Powertrain and hydraulics