

Kennebunkport, Maine

SPECIFICATIONS

BACKHOE

Public Works Department

Contract No. 2018-01

TOWN OF KENNEBUNKPORT
Laurie Smith, Town Manager

January 10, 2018

Public Works Department
105 Beachwood Avenue
Kennebunkport, Maine 04046
(207) 967-5728

BID DATE: Wednesday January 31, 2018, 1:00 p.m.

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INVITATION TO BID

The Town of Kennebunkport, Maine will accept sealed bids until 1:00 p.m., Wednesday, January 31, 2018 at the Town Manager's Office, 6 Elm Street, Kennebunkport, Maine for the furnishing of a Backhoe for the Public Works Department. Bids shall be submitted in sealed envelopes with the name and address of the Bidder and marked "Backhoe" on the face of the envelope. The bids will be opened and publicly read aloud at 1:00 p.m. on the same date.

A complete set of the contract documents may be downloaded from the Town of Kennebunkport website. Bids shall be submitted on the provided forms in accordance with the Information for Bidders. No Bidder may withdraw a bid within thirty (30) days after opening thereof.

The Owner reserves the right to waive any informalities in or to reject any and all bids.

Michael Claus
Director
Public Works Department
Town of Kennebunkport

GENERAL INFORMATION

SECTION 1

1.01 INFORMATION FOR BIDDERS

- A. Sealed unit price proposals will be received by the Town Manager of the Town of Kennebunkport, Maine up until 1:00 p.m., Wednesday, January 31, 2018, then to be publicly opened and read aloud for the furnishing of a Backhoe to the Public Works Department in accordance with these specifications.
- B. Bids shall be submitted on the attached "Bid Proposal Form" and shall be signed by an authorized person indicating full knowledge and acceptance of the specifications. The sealed bid shall be submitted to the Town Manager's Office and the envelope shall be clearly marked with the name and address of the bidder and the specific contract for which the bid is being submitted.
- C. No bidder may withdraw his bid within thirty (30) days after opening thereof.
- D. Qualified bids will be deemed to be only bids from Backhoe equipment manufacturer's or from authorized dealers of such manufacturers.
- E. Each Bidder shall indicate on the appropriate place on the Bid Proposal Form the manufacturer and product name for the material to be supplied under this bid. Literature describing the physical and performance characteristics of the equipment bid shall be attached and included with the bid. All such descriptive literature furnished shall be clearly marked (underline specific items in red or highlight the items) to indicate the specific equipment to be furnished under this bid. Do not submit any brochures without first marking the item to be supplied if more than one selection or option is shown in the catalog. The Town, however, reserves the right to request additional information deemed necessary for proper evaluation of bids.
- F. Each Bidder shall fully complete and submit with the bid the attached "Detailed Backhoe Specifications" form. Failure to complete and submit the attached form will be grounds for rejection of the bid.

1.02 BID COMPLIANCE

- A. The Town of Kennebunkport will regard all bids received as an agreement by the Bidder to conform to all items of these specifications. If the equipment offered differs from the provisions contained in this specification, such differences must be explained in detail, and the bid will receive careful consideration if such differences do not depart from the intent of this specification and are in the best interest of the Town.
- B. The Manufacturer's name and model designation must be shown on the bid form in the designated spaces, however, that information is not sufficient evidence that the bidder is taking exception to the detailed specification. If no exceptions or deviations are specifically shown and explained, equipment shall be furnished exactly as specified.

1.03 DELIVERY

- A. The Backhoe shall be delivered as soon as possible and guaranteed delivery may be considered in making the award. Delivery time shall be expressed on the bid proposal form in the space provided (in number of calendar days required to make delivery after receipt of a purchase order).
- B. The Backhoe shall be delivered to the Public Works Department, 105 Beachwood Avenue, Kennebunkport, Maine.

1.04 DELIVERY CONDITION

- A. The vehicle delivered shall be in strict accordance with these specifications. If the vehicle is delivered with deviations or improper servicing, the Bidder must arrange to have the necessary work done within five (5) business days after notification from the Town of Kennebunkport.
- B. Provide one (1) copy each of the maintenance and the operational manual, and a complete parts list for all electrical, mechanical and hydraulic equipment as may be furnished with the Backhoe (See Detailed Specs for further requirements)

1.05 TAX EXEMPTION

- A. The Town of Kennebunkport (a municipal government) is an exempt entity under law of the State of Maine and is, therefore, exempt from payment of the State of Maine sales or use tax on purchases made directly for its own use. These taxes are not to be included in the bid prices for any equipment, materials and supplies sold to the Town under this Contract.
- B. The Town of Kennebunkport is exempt from Federal Excise Tax and Federal Transportation Tax on all equipment, materials and supplies sold to the Town for its own use. These taxes are not to be included in the bid prices under this contract.

1.06 GUARANTEE

- A. The Bidder guarantees that the Backhoe furnished under this bid is a new and unused product of regular manufacture.
- B. The decision of the Public Works Director as to reasonable compliance with these specifications and guarantee shall be final.
- C. The manufacturer's standard warranty shall apply to the Backhoe and warranty service shall be gratis at any dealer's shop in Maine or New Hampshire.
- D. The successful Bidder shall further guarantee the Backhoe and all equipment furnished for a period of one (1) year from date of delivery in addition to any standard warranty's offered with the Backhoe. This guarantee shall include defective materials and workmanship. If, during this period, warranty repairs and/or parts replacement become necessary due to defective materials and/or workmanship, all labor and material to make satisfactory repair shall be furnished at no cost to the Town by the Bidder.

1.07 BASIS FOR AWARD

- A. The Town of Kennebunkport reserves the right to accept or reject any or all bids in whole or in part, to waive any formality and technicality in any bid, and to accept any item or items in any bid. The Town reserves the right to accept or reject any or all bids as may best serve the interest of the Town.
- B. Bids shall be submitted in a sealed envelope or package with the type of bid clearly indicated on the outside.
- C. The Town will accept the bid most advantageous to the Town, not necessarily the lowest bid. Alternative quotations will be considered only when clearly explained. They will be considered only if the specifications are met and the alternatives are submitted as an alternative bid.
- D. The Town reserves the right, at its' sole discretion, to accept or reject the Trade-In Allowance (DEDUCT Alternate No. 1) in determining the lowest responsible bid.
- E. The bid price quoted shall be the net amount and shall include all costs necessary to furnish and deliver the Backhoe as required by these specifications.
- F. Bidders who have not already provided a demonstration Backhoe shall provide a demonstration Backhoe for town equipment operators at the Kennebunkport Public Works Garage during regular working hours, M-F, 7 am to 3 pm. It is expected that the demonstration period shall be 1 to 2 hours. Demonstration Backhoe must be similar to Backhoe being bid. Bidders may supply a demonstration model at any time during the bid period or within 1 week after bids are due.

1.08 PAYMENT

- A. When the Backhoe is delivered and after inspection of the vehicle and equipment to ensure compliance with these specifications, the Town will process a request for payment. However, if poor workmanship and/or minor deviations exist, the Town may withhold up to 20% of the contract price upon delivery and delay payment of the balance until the Bidder has made all necessary corrections.
- B. The Town may withhold the full payment of the contract price if, in its opinion, the Backhoe contains major deviations from the specifications.
- C. The Town of Kennebunkport will pay the amount due upon delivery acceptance, within thirty (30) days after receipt of an invoice.

1.09 SERVICE

- A. Service by an authorized dealer of the Backhoe shall be available within a 50 mile radius of the Town of Kennebunkport or provide written notice that repair work will be done at the Public Works Garage with mobile equipment or that transport cost for service requirements will be paid for by the authorized dealer.

- B. Prior to delivery, the Backhoe furnished shall be completely serviced by the Bidder or by an authorized dealer of the manufacturer. Service will include; lubrication, wash, Maine Inspection, and all other checks and adjustments required for proper servicing of a new vehicle.
- C. It shall be the Bidder's responsibility to insure at the time of servicing that all components and accessories specified have been properly installed.
- D. It shall be the Bidder's responsibility to insure that the Backhoe is road worthy.

1.10 TRADE-IN ALLOWANCE (DEDUCT Alternate No. 1)

- A. The Town of Kennebunkport offers the following equipment for possible trade-in allowance towards the purchase of the new Backhoe.

2009 John Deere 310J
VIN #TO310JX171762

- B. The trade-in Backhoe may be inspected at the Public Works Department at 105 Beachwood Avenue. Arrangements for inspection should be made through Bob Pappas, Town Mechanic, at the Highway Department between 7:30 a.m. to 2:30 p.m. daily. Trade-in allowance should be made for an "as-is" condition.
- C. Include the amount to be deducted from the base bid for the new Backhoe in the Deduct Alternate No. 1 line on the Bid Proposal Form.

END OF GENERAL INFORMATION SECTION

BID PROPOSAL FORM
BACKHOE Contract No. 2017-01

SUBMIT TO: Town Manager's Office
Town of Kennebunkport
6 Elm Street
P.O. Box 566
Kennebunkport, Maine 04046

BID DATE: Wednesday, January 31, 2018, 1:00 p.m.

The undersigned hereby certifies he/she has examined and fully comprehends the requirements of these specifications for the above equipment and offers to furnish all labor, materials, equipment, supplies and related to do the work as detailed for the following lump sum price.

Model Bid _____

Bid for Specified Equipment \$ _____
(In Numbers)

Expected Delivery Time after Receipt of Purchase Order _____

Deduct Alternate No. 1 (Allowance for Trade - In, See Section 1.10)

Amount: \$ _____ (in numbers)

NAME OF FIRM: _____

ADDRESS: _____

AUTHORIZED SIGNATURE: _____

PRINT NAME AND TITLE: _____

TELEPHONE: _____ DATE: _____

Required Attachments: 1. Detailed Backhoe Manufacturer Specifications with Specified Options

Backhoe

BID LIST

Jim Swain Beauregard Equipment 14 Gibson Rd. Scarborough, ME 04074 207.885-0600 207.318.0836 (cell) jswain@beauregardequip.com	John Hayden Milton CAT 16 Pleasant Hill Rd. Scarborough, ME 04074 207.883.9586 207.615.5197 (cell) John_Hayden@miltoncat.com
Adam Brock Nortrax 396 County Rd. Westbrook, ME 04092 207.773.3777 207.894.4314 (cell) adam.brock@nortrax.com	

CASE 580SN Tier IV Final LOADER BACKHOE

The loader shall be equipped with the following features and/or specifications:

MACHINE SPECIFICATIONS

ENGINE

- Y__N__ 4-cylinder, turbocharged diesel engine with a minimum 95 net horsepower at 2,200 RPM.
Y__N__ Diesel Oxidation Catalyst with SCR
Y__N__ Engine displacement of 207 cubic inches
Y__N__ Minimum SAE net torque rating of 326 ft-lbs at 1,400 RPM.
Y__N__ Minimum torque rise at rated speed of 45%
Y__N__ Engine to be Tier 4 Final certified per Federal Emissions Standards.
Y__N__ Direct high pressure common rail fuel injection
Y__N__ Parent metal bore design
Y__N__ Internal oil cooler
Y__N__ Integral water pump
Y__N__ Engine shall be equipped with a 9 blade suction fan with minimum diameter of 19.6 inches
Y__N__ Aspirated dual-stage air cleaner
Y__N__ Poly-V belt for fan and alternator
Y__N__ Automatic self-adjusting belt
Y__N__ Vertical spin-on engine oil filter
Y__N__ Cold weather starting aid to be that of non-ether based system
Y__N__ Liquid cooled engine
Y__N__ 500-hour engine oil change interval
Y__N__ Auto Engine Protection Shutdown
Y__N__ Eco - Mode Detent on backhoe hand throttle, push switch on dash
Y__N__ Master disconnect switch and remote jump-start terminals

ELECTRICAL

- Y__N__ 12-volt electrical system
Y__N__ Factory pre-wired for communications radio
Y__N__ 160-amp alternator
Y__N__ Rotating Beacon, factory pre-wired and installed by dealer
Y__N__ Dual batteries with 850 cca (each), Glow Plugs, Block Heater

FULLY SYNCHRONIZED TRANSMISSION

- Y__N__ Torque converter drive with a fully synchronized transmission
Y__N__ Four forward and three reverse speeds on Powershift Transmission S type on Steering Column
Y__N__ Minimum forward travel speed of 24.0 MPH with standard tires
Y__N__ Minimum reverse travel speed of 28.8 MPH with standard tires
Y__N__ Planetary transmission gears
Y__N__ Clutch disconnect button on shift lever
Y__N__ Clutch disconnect button on loader control lever
Y__N__ Shall have a kickdown function for ease of operation of Powershift Transmission

DRIVE TRAIN

- Y__N__ The loader backhoe power train shall be componentized.
Y__N__ Heavy duty axles with brakes that can be serviced without removing the axle from the frame
Y__N__ On-the-go control mounted electro-hydraulic rear differential lock engagement (DELETE)
Y__N__ Lube-for-life drive shaft cross bearings
Y__N__ A single fill and check point for rear axle shall be standard equipment

Four-wheel drive units include the following features:

- Y__N__ Conventional differentials in the front axle

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- Y___N___ Conventional differentials in the rear axle
- Y___N___ On-the-go electrical four-wheel drive engagement
- Y___N___ Front and rear axles with outboard planetaries
- Y___N___ Single, double-rod steering cylinder
- Y___N___ Steering cylinder located behind the axle
- Y___N___ Lube-for-life drive shaft cross bearings

The axle load rating shall be:

- Y___N___ Front Axle (4wd) maximum static – 64,613 lbs minimum
- Y___N___ Rear Axle maximum static – 90,145 lbs minimum
- Y___N___ Front Axle (4wd) dynamic operating – 39,328 lbs minimum
- Y___N___ Rear Axle dynamic operating – 56,200 lbs minimum
- Y___N___ Front Axle (4wd) static operating – 15,732 lbs minimum
- Y___N___ Rear Axle static operating – 22,480 lbs minimum

BRAKES

- Y___N___ Outboard mounted, fully hydraulic, multiple wet disc brakes
- Y___N___ Low effort, power boosted, oil cooled brakes
- Y___N___ Brakes operated by two, suspended brake pedals
- Y___N___ Maintenance-free and self-adjusting
- Y___N___ Spring applied, hydraulically released (SAHR) parking brake

LOADER AND LINKAGE FEATURES

- Y___N___ The loader arms shall be heavy duty and in-line.
- Y___N___ Arch design for short turning circle
- Y___N___ Dual parallel lift cylinders
- Y___N___ Cushioned loader cylinders
- Y___N___ Automatic ride control with adjustable speed setting
- Y___N___ Auxiliary Hydraulics for loader-mounted equipment with thumb operated proportional control

The loader linkage shall have the following features:

- Y___N___ Dual parallel bucket cylinders
- Y___N___ Cushioned bucket cylinders
- Y___N___ Bucket cylinders with reverse linkage
- Y___N___ Dual cast dump links to bucket
- Y___N___ Full bucket rollover for dozing
- Y___N___ Full bucket rollover for stability in backhoe operation
- Y___N___ Automatic bucket self-leveling
- Y___N___ Return-to-dig

LOADER ATTACHMENTS AND BUCKET

- Y___N___ The loader bucket shall be a minimum of 93 inches wide with a 1.29 cubic yard heaped capacity.
- Y___N___ Long Lip Bucket with Pre-drilled Bolt On Edge
- Y___N___ Case CE Pallet Forks LB-LTC
- Y___N___ Case Snow Push 120" Path Width,
- Y___N___ Reversible 1.5" x 10" rubber edge on main blade,
- Y___N___ Reversible, Replaceable .75" x 6" AR400 steel wear shoes,
- Y___N___ Case 120" Pull Back Kit with Rubber Edge
- Y___N___ Heavy duty lifting eyes
- Y___N___ Bucket position indicator
- Y___N___ Minimum SAE dump cylinder breakout force of 10,947 pounds force
- Y___N___ Minimum SAE lift cylinder breakout force of 9,833 pounds force
- Y___N___ Minimum SAE lift capacity to full height of 7,044 pounds

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Y__N__ Minimum SAE dump clearance of 8 feet 9.9 inches at full height and 45 degree dump angle
Y__N__ Minimum SAE dump reach of 31.5 inches at full height and 45 degree dump angle
Y__N__ Minimum hinge pin height of 11 feet 2.5 inches
Y__N__ Minimum dig depth below ground of 6.1 inches
Y__N__ Maximum loader lowering time (power down) of 2.5 seconds
Y__N__ Maximum loader lowering time (return-to-dig) of 3.6 seconds
Y__N__ Maximum bucket dumping time of 1.8 seconds
Y__N__ Maximum bucket raising time to full height of 3.4 seconds
Y__N__ Hydraulic Coupler Engage/ Release Attachment Control from Operator's Seat
Y__N__ Case FFC Quick Attach Hydraulic Coupler

BACKHOE AND CONTROLS

Y__N__ Grease pins in the swing tower to boom base
Y__N__ Replaceable bushings in the swing tower to boom base mounting pins
Y__N__ Wainroy 2XLS Swinger Coupler System
Y__N__ Extendible exterior dipper stick
Y__N__ Extendible dipper stick can be pinned to prevent movement
Y__N__ Internal bolt-on, replaceable wear strip for extendible dipper stick
Y__N__ Minimum 700-pound front-mounted counterweight for Extendahoe
Y__N__ Stabilizers fully retractable within the width of the tires
Y__N__ Over-center backhoe design for improved balance during transport and roading
Y__N__ Pro Control system to provide precise control and eliminate over-swing
Y__N__ Standard serrated teeth on dipper arm for gripping objects
Y__N__ Hardened steel bolt on gripper teeth
Y__N__ The backhoe controls shall be of an ergonomic design with low lever effort.
Y__N__ Factory two lever Pilot Controls with control pattern change switch
Y__N__ Pilot Controls shall have fore aft and lateral position adjustment
Y__N__ Pilot controls must have wrist, infinite distance adjustments with reach of the operator
Y__N__ Pilot Controls shall be equipped with "auto up" stabilizers
Y__N__ Hydraulic lockout activation and pattern changer mounted to the pilot control tower within operator reach.

BACKHOE ATTACHMENTS AND BUCKETS

Y__N__ All Buckets Main Hydraulic Pin compatible with Wain-Roy Thumb
Y__N__ 24" Wain-Roy XLS Trenching Bucket
Y__N__ 12" Wain-Roy XLS Trenching Bucket
Y__N__ 48" Wain-Roy XLS Ditching and Grading Bucket
Y__N__ Wain-Roy HD1 Extendahoe Backhoe Hydraulic Thumb
Y__N__ compatible with Wainroy 2XLS Swinger Coupler System

TRACTOR DIMENSIONS AND TIRES

Y__N__ Maximum wheel base of 84.0 inches
Y__N__ Maximum overall transport width of 7 feet 1.5 inches
Y__N__ Maximum height of 8 feet 11 inches to top of cab / 8 feet 8.8 inches to top of canopy
Y__N__ Maximum height to top of exhaust stack 8 feet 6.9 inches
Y__N__ Maximum transport height of 11 feet 0.5 inches
Y__N__ Front 12.5/80-18 Michelin All Season Radial or equivalent (Note if not Michelin)
Y__N__ Rear 19.5L x 24.0 Michelin All Season Radial or equivalent (Note if not Michelin)

BACKHOE - Extendahoe

Y__N__ Minimum SAE dig depth with over-center Extendahoe® extended for 24-inch flat bottom of 17 feet 9.8 inches
Y__N__ Auxiliary backhoe unidirectional hydraulics

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Y__N__ Button operated for pilot controls includes unidirectional and bidirectional
Y__N__ Power Lift feature
Y__N__ Minimum digging force, bucket cylinder, 13,576 pounds force (retracted)
Y__N__ Minimum digging force, bucket cylinder, 13,576 pounds force (extended)
Y__N__ Minimum digging force, dipper cylinder, 8,657 pounds force (retracted)
Y__N__ Minimum digging force, dipper cylinder, 6,305 pounds force (extended)
Y__N__ Maximum stabilizer spread in operating position of 9 feet 7.2inches
Y__N__ Minimum boom lift capacity at 10 feet of 3,281 pounds (retracted)
Y__N__ Minimum boom lift capacity at 10 feet of 2,593 pounds (extended)
Y__N__ Minimum boom lift capacity at 12 feet of 3,201 pounds (retracted)
Y__N__ Minimum boom lift capacity at 12 feet of 2,536 pounds (extended)
Y__N__ Minimum dipper lift capacity at 10 feet of 5,399 pounds (retracted)
Y__N__ Minimum dipper lift capacity at 10 feet of 3,984 pounds (extended)
Y__N__ Minimum dipper lift capacity at 12 feet of 5,618 pounds (retracted)
Y__N__ Minimum dipper lift capacity at 12 feet of 4,046 pounds (extended)
Y__N__ Minimum boom lift capacity at 10 feet of 3,566 pounds (retracted), Power Lift option
Y__N__ Minimum boom lift capacity at 10 feet of 2,818 pounds (extended), Power Lift option
Y__N__ Minimum boom lift capacity at 12 feet of 3,479 pounds (retracted), Power Lift option
Y__N__ Minimum boom lift capacity at 12 feet of 2,757 pounds (extended), Power Lift option
Y__N__ Minimum dipper lift capacity at 10 feet of 5,399 pounds (retracted), Power Lift option
Y__N__ Minimum dipper lift capacity at 10 feet of 3,984 pounds (extended), Power Lift option
Y__N__ Minimum dipper lift capacity at 12 feet of 5,618 pounds (retracted), Power Lift option
Y__N__ Minimum dipper lift capacity at 12 feet of 4,046 pounds (extended), Power Lift option

OPERATOR ENVIRONMENT

Y__N__ Speed Selectable Auto Ride Control
Y__N__ Comfort Steering with momentary latching switch, two speed steering pump and 3rd/4th gear cutout
Y__N__ Rops/Fops Certified Protected Cab
Y__N__ Floor Mat
Y__N__ Pull Down Sun Visor
Y__N__ Front and Rear Window Washer
Y__N__ Air Conditioning
Y__N__ The loader backhoe shall have a cab with one door on the left side of machine.
Y__N__ Power Lift option to increase backhoe hydraulic pressure to increase lift capacity while reducing the engine
Y__N__ RPM decreasing the dBa and fuel consumption.
Y__N__ Minimum of four isolation mounts
Y__N__ Insulation for maximum temperature and sound control
Y__N__ Sound level maximum of 72 dBa
Y__N__ Suspended brake pedals
Y__N__ Suspended accelerator
Y__N__ Electro-hydraulic differential lock
Y__N__ Transmission shift lever within easy reach of the operator and integrated clutch disconnect button
Y__N__ All glass surfaces free of rubber moldings
Y__N__ Rear side glass swing open 180 degrees (both sides)
Y__N__ Front and rear windshield wipers
Y__N__ Interior dome light
Y__N__ Interior rear view mirror
Y__N__ Retractable seat belt
Y__N__ Air Ride suspension seat with flip up armrests, 180 swivel, cloth, electric height adjustment
Y__N__ adjustable back rest and lumbar support
Y__N__ Radio, AM/FM Stereo/WB, MP3 Auxiliary input
Y__N__ Built-in molded cup holder

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- Y__N__ Front console storage area
- Y__N__ Single handle loader control with top-mounted clutch cut-out button
- Y__N__ Auxiliary loader hydraulic control built into the single handle loader control
- Y__N__ Forward/reverse power shuttle lever mounted on the steering column
- Y__N__ Parking brake switch located within easy reach to the right of the operator
- Y__N__ Operator warning system that alerts the operator with an audible alarm when the parking brake is applied and the operator engages the forward/reverse lever
- Y__N__ Instrumentation located to the right of the operator
- Y__N__ OEM front fenders, articulating with the tires for maximum coverage, shall be dealer installed and delivered with machine.
- Y__N__ OEM rear fender extensions shall be dealer installed and delivered with the machine.
- Y__N__ Factory Installed plug in block heater
- Y__N__ Two accessory power plugs

The loader backhoe cab also shall have the following for backhoe operation:

- Y__N__ Easy-to-swing seat to access backhoe controls
- Y__N__ Audible alarm to alert operator of transmission engagement when swinging seat
- Y__N__ Over-center backhoe release inside the cab
- Y__N__ Rotary throttle control located within easy reach to the left of the operator
- Y__N__ Stabilizer controls located together to permit one-hand operation
- Y__N__ Flip Over Stabilizer Pads
- Y__N__ Pilot Operated Control System

HYDRAULICS

- Y__N__ The loader hydraulics shall be closed center and allow for smooth loader operation.
- Y__N__ The backhoe hydraulics shall be variable volume and allow for smooth backhoe operation.
- Y__N__ Variable displacement axial piston pump, transmission mounted
- Y__N__ Total pump flow to be 40 GPM at 2,340 psi available to the loader valve and backhoe valve
- Y__N__ Anti-cavitation valves in the dipper and loader circuit
- Y__N__ Pilot-operated check valves for stabilizers and boom circuit
- Y__N__ Anti-rebound valve for backhoe swing precision
- Y__N__ Factory installed backhoe auxiliary hydraulics to be of a uni-directional or combo directional design with adjustable flow control

SERVICEABILITY

- Y__N__ The loader backhoe shall be easy to service from ground level
- Y__N__ Tilt hood that permits access to the engine with the loader arms raised or lowered
- Y__N__ Remote hydraulic test ports for ground level service diagnosis
- Y__N__ Optional remote battery disconnect switch and jump start
- Y__N__ Minimum 35 gallon side-mounted fuel tank
- Y__N__ Minimum hydraulic system (total) fill of 125 quarts (standard hoe) / 131 quarts (extendahoe)
- Y__N__ Minimum transmission total system fill of 18.0 quarts (2WD) / 19 quarts (4WD)
- Y__N__ Minimum engine oil fill (with filter) of 8.5 quarts
- Y__N__ Minimum 53 quarts hydraulic reservoir (with filter)
- Y__N__ Minimum window washer reservoir fill of 3 quarts
- Y__N__ Lube for life drive line components
- Y__N__ Remote front axle pivot lubrication fitting
- Y__N__ 500 hour service interval for engine oil

WARRANTY

- Y__N__ Full machine warranty of 12 months, unlimited hours
- Y__N__ Engine warranty of two years or 2,000 hours
- Y__N__ Power train warranty of two years or 2,000 hours

Bid specifications for Deere 310SL HL or similar Backhoe Loader

Compliance

Engine	
yes___ no___	Four Cylinder, turbocharged, isolation mounted diesel engine and shall be designed and built by the manufacturer
yes___ no___	Engine shall be certified to EPA Final Tier 4 / EU Stage IV
yes___ no___	Engine shall have a individually replaceable, wet-sleeve cylinder liner design to dissipate heat for reduced ring wear and oil breakdown.
yes___ no___	Engine displacement shall be no less than 4.5 liters (276 cu. in.)
yes___ no___	Net Peak Power (ISO 9249) 75 kW (100 hp) at 2,240 rpm
yes___ no___	Engine shall develop at least a 21% torque rise and should have at least 315 lb-ft (427 Nm) net torque @ 1400 rpm
yes___ no___	Daily check points shall be accessible from the right side of the engine and shall be done from ground level
yes___ no___	Engine shall have a serpentine belt with automatic belt tensioner reducing required maintenance
yes___ no___	Under-hood engine air cleaner shall be dry type, dual element with evacuator valve, restriction sensor and in-cab restriction warning light
yes___ no___	The backhoe shall have a one-piece tilt hood for easy engine access without having to remove engine side shields.
yes___ no___	Engine shall have no more than 30-micron rated primary fuel filter with water separator

Cooling	
yes___ no___	Engine coolant shall be rated to -40 degrees (-40 C)
yes___ no___	The backhoe shall be equipped with an oil-to-water engine oil cooler
yes___ no___	Unit shall have a coolant recovery tank provided
yes___ no___	Unit shall have a electronically-controlled, variable rate suction-type fan with fan-guard
yes___ no___	The AC condenser will be swing-out for fast radiator clean-out. Remote mounted transmission and hydraulic coolers will offer better air exchange and fewer stacked cores.
yes___ no___	The hydraulic and transmission circuits will be water cooled for fast winter warm-up for increased productivity

Power Train	
yes___ no___	The transmission shall be a hydraulically actuated powershift with torque converter clutch-free; fully synchronized five forward (automatically shifts between 4th and 5th gear), three reverse speeds.
yes___ no___	The sealed axle, with no breather, will be mechanical -front-wheel-drive with traction control limited-slip differential with electric on/off control
yes___ no___	The machine will disengage MFWD in 4th gear to allow for longer life of tires and drive train but will engage MFWD when brakes are applied for four wheel braking
yes___ no___	The axle will be sealed to protect against contamination
yes___ no___	The driveshaft will be painted for protection, and will have a factory installed, full guard.
yes___ no___	The clutch engaged MFWD can be engaged on the fly during operation.
yes___ no___	The transmission shall be isolation mounted to the mainframe to minimize shock load stress
yes___ no___	The rear axle shall have a differential lock, electric foot-actuated as standard equipment.
yes___ no___	The single electric Transmission Control lever will have gear selection fully integrated in the lever as well as forward, neutral and reverse (FNR power shuttle).
yes___ no___	Transmission oil cooler shall be provided as standard equipment

Bid specifications for Deere 310SL HL or similar Backhoe Loader

Compliance

- yes___ no___ The backhoe shall have hydrostatic power steering with emergency manual mode
- yes___ no___ The machine will have a dial throttle that will allow the operator to road the machine on cruise control. Upon engagement of the brake pedal, the engine RPMs return to idle
- yes___ no___ The final drives shall be heavy-duty outboard planetary distributing loads over three gears sealed in cooling oil bath for long-life and trouble free service.
- yes___ no___ The front axle shall have remote grease bank for front axle for easy access.
- yes___ no___ The rear axle bearings shall be self-lubricating and shall not need to be greased
- yes___ no___ The service brakes shall be inboard, wet-multiple disk, self-adjusting and self equalizing and hydraulically actuated for a long and trouble-free life, sealed from water, mud and dust contamination
- yes___ no___ MFWD shall have a driveshaft guard
- yes___ no___ The parking brake shall be independent of service brakes, spring applied, hydraulically released, wet multi-disk, and sealed from water, mud and dust contamination.

Hydraulic System

- yes___ no___ Hydraulic cooler will have an independent reservoir for continuous running of attachments at high ambient outside air temperatures
- yes___ no___ The hydraulic fittings shall have "O"-ring face seal connectors to secure a tight, leak-free seal
- yes___ no___ Machine shall be equipped with Auto Idle to lower rpm when hydraulics are not active to conserve fuel and reduce noise levels.
- yes___ no___ Machine shall be equipped with Economy Mode with dual feature that can be applied to backhoe or loader functions separately or together for improved fuel economy.
- yes___ no___ The hydraulic filter shall be no more than 6 micron and will be vertically mounted, spin on design for ease of installation and leak-free replacement.
- yes___ no___ An automatic bucket return-to-dig control will be standard
- yes___ no___ Hydraulic pump shall be 42 gpm (159L/min.) @ 2,200 rpm at 3,625 psi (24 993 kPa) closed center hydraulic pressure compensated load sensing (PSLS), axial piston driven

Electrical

- yes___ no___ The backhoe shall have a 12 volt system with 120 amp alternator
- yes___ no___ Dual maintenance free batteries shall be included, 300-min reserve rated capacity, 1900 CCA with battery disconnect and jump posts.
- yes___ no___ Factory Installed plug in block heater
- yes___ no___ The machine shall have blade type, multi-fused circuits
- yes___ no___ The starter shall have a bypass start safety cover
- yes___ no___ Cab will be factory pre-wired for communications radio
- yes___ no___ Cab will be pre-wired for rotating beacon and radio-ready
- yes___ no___ Rotating Beacon installed by dealer
- yes___ no___ Unit shall be equipped with 10 halogen driving/working lights, (4) front driving/working; (4) rear; (2) side docking lights The front lights shall be adjustable and the bulbs shall be no less than 32,500 candlepower each.
- yes___ no___ Unit shall be equipped with two front and two rear turn signal/flashing and two rear stop and tail lights and two rear reflectors
- yes___ no___ Unit shall be equipped with a 3-year JDLINK Ultimate Telematics systems that can provide fleet management, logistics and remote diagnostics capabilities.

Operator Station

- yes___ no___ Unit shall be equipped with isolation mounted modular design ROPS/FOPS canopy and molded roof

Bid specifications for Deere 310SL HL or similar Backhoe Loader

Compliance

- yes___ no___ Access to the cab shall be from the right and left side with protected, wide, rigid, slip-resistant steps and ergonomically located hand-holds
- yes___ no___ 3" (76mm) retractable seat belt shall be provided
- yes___ no___ Coat hook, built-in beverage holder, operator manual storage compartment, interior rearview mirror and two 12 volt outlets shall be provided
- yes___ no___ Unit shall be equipped with illuminated electronic gauges with audible warning for: engine coolant temperature, oil temperature and fuel level.
- yes___ no___ Machine manufacturer will provide a factory installed onboard security system for total machine integration. System will have the ability to accommodate no less than ten operator codes.
- yes___ no___ The monitor system shall have audible and visual warnings: engine air restriction, low alternator voltage, engine oil pressure and temperature, hydraulic filter restriction, parking brake on/off, and low brake pressure. The seat belt will have a digital warning.
- yes___ no___ The keyless start will have an electric fuel shut-off and ability to have auto shutdown setup in monitor
- yes___ no___ The monitor will have a multi-language (English, French and Spanish) digital monitor for diagnostics (including diagnostic messages and fault code readings), calibrations and machine information.
- yes___ no___ Unit will have a machine security electronic protection system provided through the monitor or sealed switch module.
- yes___ no___ Unit will have a sealed switch module for easy location of controls on the right hand console and increased durability.
- yes___ no___ Unit shall have digital display for: engine rpm, engine hours, system voltage, and hydraulic oil temperature.
- yes___ no___ The foot throttle shall be suspended
- yes___ no___ Lockable left hand storage with cupholders
- yes___ no___ Outside Rearview Mirrors and Interior Frontview Mirrors
- yes___ no___ AM/ FM Weatherband Radio
- yes___ no___ The machine will have a factory installed cab air conditioner.
- yes___ no___ The seat shall be air suspension, cloth, swivel, with fully adjustable armrests and lumbar support.

General Specifications

- yes___ no___ Vandal protection shall cover the instrument panel (canopy only). Engine hood, toolbox, hydraulic reservoir, and fuel filler shall be lockable.
- yes___ no___ The tilt hood shall have two service positions for easy operation
- yes___ no___ An easy to read periodic maintenance and grease chart shall be easily accessible on the machine.
- yes___ no___ Fuel tank capacity shall be no less than 37 gallons (140.1 L) and shall be accessible from the ground and lockable. DEF tank to be no less than 4 gallons and accessible from ground and lockable.
- yes___ no___ Factory installed fluid sampling valves will be available.
- yes___ no___ Front 12.5/80-18 Michelin All Season Radial or equivalent (Note if not Michelin)
- yes___ no___ Rear 19.5L x 24.0 Michelin All Season Radial or equivalent (Note if not Michelin)
- yes___ no___ Operating weight shall be no more than 18,231 lbs without optional equipment.

Frames and Structures

- yes___ no___ The mainframe shall be a one-piece unitized construction for maximum strength
- yes___ no___ Unit shall have four built-in vehicle tiedowns, two in front and two in rear for safe transport between jobs

Bid specifications for Deere 310SL HL or similar Backhoe Loader

Compliance

- yes___ no___ The side plate thickness on the loader boom, backhoe boom and mainframe shall be 4.5 mil or greater
- yes___ no___ Machine shall be equipped with an exterior mounted, ground level accessed and lockable storage compartment
- yes___ no___ OEM front fenders, articulating with the tires for maximum coverage, shall be dealer installed and delivered with machine.
- yes___ no___ OEM rear fender extensions shall be dealer installed and delivered with the machine.

Backhoe

- yes___ no___ The backhoe with standard dipperstick digging depth shall be at least 14 ft 10in (4.51 m)
- yes___ no___ The lift capacity at ground level with standard dipperstick shall be no less than 3045 lb (1381kg)
- yes___ no___ Maximum SAE dig depth with extendable dipperstick extended shall be no less than 18 ft12 in (5.52m)
- yes___ no___ 340 kg. (750 lb.) front counterweight
- yes___ no___ The lift capacity at full height with standard dipperstick shall be no less than 3745 lb (1699 kg)
- yes___ no___ The swing lock pin shall be stored in the operator's station
- yes___ no___ Machine shall be equipped with a lift mode to increase craning capacity
- yes___ no___ The stabilizer shall have reversible pads
- yes___ no___ Extendible dipperstick shall extend no less than 3 ft 6 in (1.07 m)
- yes___ no___ the backhoe boom shall be a curved design.
- yes___ no___ The backhoe boom shall be a power curve design, hourglass shape for maximum strength and optimized visibility to the work tool.
- yes___ no___ Digging force with standard backhoe, bucket cylinder shall be at least 15,947 lb (70.9 kN)
- yes___ no___ The backhoe shall be equipped with a rubber bumper/linkage style boom locks to keep the backhoe from vibrating on the swing frame
- yes___ no___ Unit shall be equipped with pilot backhoe controls with integral pattern select
- yes___ no___ Wainroy 2XLS Swinger Coupler System
- yes___ no___ All Buckets Main Hydraulic Pin compatible with Wain-Roy Thumb
- yes___ no___ 24" Wain-Roy XLS Trenching Bucket
- yes___ no___ 12" Wain-Roy XLS Trenching Bucket
- yes___ no___ 48" Wain-Roy XLS Ditching and Grading Bucket
- yes___ no___ Wain-Roy HD1 Extendahoe Backhoe Hydraulic Thumb
- yes___ no___ compatible with Wainroy 2XLS Swinger Coupler System
- yes___ no___ The swing casting shall have dual yokes: on top and on the bottom

Loader

- yes___ no___ Ride Control
- yes___ no___ Lift Capacity with 1.3 cu yd at full height shall be at least 7181 lbs (3257 kg)
- yes___ no___ Dump Clearance @ 45 deg. shall be no less than 8 ft 9 in (2.67 m)
- yes___ no___ Digging depth below ground, bucket level shall be no less than 6.6 in. (168mm)
- yes___ no___ Bucket breakout force shall be no less than 10,587 lb (47.1 kN)
- yes___ no___ Single, greaseless bucket tilt cylinder and bucket level indicator
- yes___ no___ The loader shall have hydraulic self-leveling and bucket-level indicator.
- yes___ no___ The loader shall have divergent loader arms for excellent visibility to the bucket
- yes___ no___ For truck loading, the loader arms will have a curved-knee design for loading into the center of the truck bed
- yes___ no___ Loader shall have a single cylinder and linkages for tilt and curl on bucket.

Bid specifications for Deere 310SL HL or similar Backhoe Loader

Compliance

- yes___ no___ The loader control will be single-lever with electric clutch disconnect
- yes___ no___ John Deere Quik-Tatch Attachment System compatable with all loader attachments
- yes___ no___ John Deere 1.3 CY Long Lip Bucket with Bolt On Cutting Edge
- yes___ no___ John Deere Worksite Pro Rail Style 48 inch Pallet Forks
- yes___ no___ John Deere SP10 120" Snow Pusher with Rubber Edge Package
and replaceable steel wear shoes
- yes___ no___ The loader shall have a non-removable, hinged loader boom service lock.

Warranty

- yes___ no___ Full machine warranty of 12 months, unlimited hours
- yes___ no___ Engine warranty of two years or 2,000 hours
- yes___ no___ Power train warranty of two years or 2,000 hours

Section 3.03

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BASIC SPECIFICATIONS

Y___ N___	Backhoe shall have a minimum digging depth of 14'4" (4360 mm) with standard stick and 17' 11" (5442 mm) with extendible stick.
Y___ N___	Turbocharged engine net flywheel horsepower shall be at least 93 HP (69 kW) according to SAE J1349.
Y___ N___	Engine net peak power @ 1800 rpm shall be at least 105 HP (78kW) according to SAE J1349.
Y___ N___	Machine to be equipped with an economy control function for maximum fuel efficiency
Y___ N___	Unit shall have a maximum overall transport height of 11 ft 9 in (3577 mm) with standard tires and standard stick.
Y___ N___	Unit shall have a maximum overall transport height of 11 ft 11 in (3631 mm) with standard tires and extendible stick.
Y___ N___	Unit shall have a maximum height to the top of the canopy of 9 ft 3 in (2819 mm) with standard tires.
Y___ N___	Maximum overall transport length shall be 23'11" (7282 mm) with standard tires and standard stick
Y___ N___	Maximum overall transport length shall be 23'11" (7288 mm) with standard tires and extendible stick
Y___ N___	Unit shall have a maximum width of 7'7" (2322 mm) with a general-purpose bucket.
Y___ N___	Unit shall have a minimum wheelbase of 7'3" (2200 mm).

ENGINE

Y___ N___	Engine must comply with U.S. EPA Tier 4 Final / EU Stage IV off road emission requirements.
Y___ N___	Machine shall utilize Selective Cataytic Reduction (SCR)
Y___ N___	Engine shall have an economy mode to help maximize fuel efficiency, while maintaining backhoe performance
Y___ N___	Turbocharged engine net flywheel horsepower shall be at least 93 HP (69 kW) @ 2200 RPM according to SAE J1349.
Y___ N___	Turbocharged engine net flywheel horsepower shall be at least 94 HP (70 kW) @ 2200 RPM according to ISO9249.
Y___ N___	Turbocharged engine net peak flywheel horsepower shall be at least 105 HP (78 kW) @ 1800 RPM according to SAE J1349.
Y___ N___	Turbocharged engine net peak flywheel horsepower shall be at least 106 HP (79 kW) @ 1800 RPM according to ISO 9249.
Y___ N___	Net peak torque at 1400 rpm shall be not less than 322 ft-lb (436 N-m) with 46% torque rise.
Y___ N___	Engine compartment side panels shall have standard noise reduction and heat control insulation.
Y___ N___	Units shall be equipped with a turbocharged, four cylinder, direct injection diesel engine with high strength, cast iron alloy single block design for high strength and long life.
Y___ N___	The engine shall have three-ring pistons made of lightweight, silicon/aluminum alloy for strength and maximum thermal conductivity.
Y___ N___	The engine shall have a forged chrome/molybdenum-steel crankshaft with salt bath nitro carburized pins and journals.
Y___ N___	The engine shall have front and rear crankshaft oil seals that are "lip" type Viton and PTFE designs featuring an integral dust lip.
Y___ N___	The engine shall have nitrided, martensitic chrome silicon steel inlet valves and nitrided, austenitic chrome manganese-nickel steel exhaust valves for durability.
Y___ N___	The engine shall have a high strength, deep skirt cylinder block that is a cast iron alloy, monobloc design for increased strength and long life.
Y___ N___	The engine shall have a high strength cylinder head that is a cast iron alloy construction with extra duty wall and deck thickness, including intake and exhaust ports that are precision cast to promote optimum gas flow.
Y___ N___	The engine shall have a high pressure, direct injection fuel system providing accurate fuel delivery with a mechanically driven fuel transfer pump for reliability.
Y___ N___	Engine shall have a fuel filtration rating of no more than 10-micron for the primary fuel filter / water separator.
Y___ N___	Engine shall have a secondary fuel filter with a rating of no more than 4-microns.
Y___ N___	Engine shall have a vertical spin-on fuel filters.
Y___ N___	Engine shall be equipped with electric fuel priming pump as standard equipment.
Y___ N___	Engine shall have a water/sediment bowl with water separator service indicator light.
Y___ N___	The engine shall have an internally mounted, dry-type, perimeter seal air cleaner with an integral precleaner, automatic dust ejection system, and filter condition indicator.
Y___ N___	The engine will have a standard glow plug starting aid for efficient cold weather starting to -20 degrees F (-28 degrees C) without using ether.
Y___ N___	The engine shall have a high contact ratio gear train, peripheral fixed isolation top cover and open deck block design to reduce bare engine noise.
Y___ N___	Heat exchangers shall be located within the engine compartment for easy service access.
Y___ N___	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.
Y___ N___	Engine shall be protected to a minimum -58 degrees F (-50 degrees C) with extended life antifreeze that does not need to be replaced for 5 years.
Y___ N___	Engine cooling fan shall have a heavy-duty guard that fully prevents human contact while in operation.
Y___ N___	Radiator shall have a heavy-duty guard to resist continued impact at low speeds.
Y___ N___	Coolant circulation shall be provided by a gear-driven water pump, not solely belt driven, to prevent accessory belt slip and continue coolant circulation in the event of a belt failure.
Y___ N___	Engine shall be equipped with an alternator that has a charging capacity of minimum 150 amperes.
Y___ N___	Engine shall be equipped with 2 (two) maintenance-free 880 CCA batteries.
Y___ N___	Engine shall be equipped with a 12-volt direct-electric starting and charging system.
Y___ N___	Factory Installed plug in block heater

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Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___

Machine shall be equipped with a standard battery disconnect switch
Engine shall be equipped with a single, automatically tensioned, serpentine accessory belt.
Engine air filter shall have a pre-cleaner and a dust ejector.
Engine shall have variable-speed, hand and foot governor controls.
Engine shall have a full flow spin-on type oil filter that is vertically mounted below the crankshaft centerline.
Engine shall have replaceable valve guides and valve seats for extended service life.
Backhoe joystick shall be equipped with a quick idle down feature that lowers the engine speed to 1,000 rpm
Machine shall have Automatic Engine Speed Control that reduces engine speed when the backhoe is not in use. This will conserve fuel and lower emission noise

POWERTRAIN/TRANSMISSION

Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___

Transmission shall have an electric, neutral lock switch on the front console to prevent driveline engagement
Transmission, differentials, and hydraulics shall have separate fluid reservoirs.
4WD shall be pendulum mounted, grease-free with sealed for life kingpins, able to be engaged "on-the-go" while under load or any operating condition.
4WD shall be engaged at anytime by activating switch on front console. An operator shall be able to activate the switch while the machine is moving or stopped, also with or without a load
4WD guard shall provide full coverage between the frame rails to protect the front drive shaft.
Unit shall be able to change direction and travel speed on-the-go.
Forward/reverse shuttle shall be a contactless unit for reliability.
Units shall be equipped with a transmission disconnect button on the gear shifter and loader control to allow full engine power to the loader.
Transmission shall be made, serviced and supported by the machine manufacturer.
Transmission shall have spin-on type oil filter vertically mounted.
Differential lock shall be located on the loader joystick control
The automatically shifting transmission shall have a manual override switch to allow the operator full control over the gear selection.
Unit shall be equipped with a digital torque converter temperature.
Unit shall have a single stage torque converter of no less than 2.63:1 stall ratio.
Unit shall have a high gear speed of no less than 25 mph (40.0 kph).
Unit shall have 4 forward gears, 4 reverse gears, and a fully synchronized Power-Shuttle transmission coupled with electro-hydraulically shifted forward and reverse shuttle clutches.
Planetary Drive shall have four reduction (sun gears) in the front drive.

STEERING

Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___

Oscillation shall be no less than 11 degrees each side direction from centerline.
Machine shall have hydrostatic steering.
Steering cylinder shall be double acting with a 52-degree steering angle.
Standard variable speed steering for quicker turning
Unit shall have a minimum 4WD steering cylinder size of 2.6" (65mm) bore, 4.7" (120 mm) stroke, and 1.42" (36mm) rod diameter.

BRAKES

Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___

Brake mode selector switch shall have a 3 position switch allowing 2WD, 2WD travel with 4WD braking and full time four wheel drive.
Two wheel drive with four wheel braking must be available at all speeds and when the machine is in any gear.
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.
Foot-operated brake pedals shall be able to be interlocked for roading.
Service brakes shall be hydraulically boosted for low pedal efforts.
Service brakes shall be completely enclosed and sealed using Kevlar as brake pad media.
Brakes shall be outboard oil-immersed, hydraulically actuated, multiple discs on final drive input drive shaft.
Service brakes shall be fully self-adjusting.

HYDRAULIC SYSTEM

Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___
Y___ N___

Hydraulic system shall include high-pressure hoses consisting of 4 layers of overlapping insulated spiral wire matrix.
A single, auxiliary hydraulic circuit shall be capable of operating hammers, compactors, cold planers, augers, thumbs, side tilt couplers and other work tools
Machine must have adjustable auxiliary flow control for better controllability of attachments
Machine shall be able to reach maximum lift capacity at any engine speed.
Maximum hydraulic pump pressure shall be at least 3,600 psi (25, 000 kPa) for the backhoe and at least 3,600 psi (25, 000 kPa) for the loader
Hydraulic system shall have a replaceable 6-micron vertically mounted, bowl and cartridge filter that is accessible from under the main frame.
Hydraulic pump shall be rated at 43 gpm (163 lpm)

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Y___ N___

Machine shall have an electronically controlled variable displacement load sensing, axial piston pump for low idle lifting and maximum durability.

Y___ N___

Closed-center implement valves shall be standard

Y___ N___

Unit shall contain flow sharing valves to allow for machine multifunction

Y___ N___

Machine shall be equipped with an electronic pump torque limiter

Y___ N___

Hose fitting shall have O-ring face seal connections for maximum seal reliability.

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___

Hydraulic tank shall be made of non-metallic material to eliminate both weld shop contamination and the possibility of rust formation.

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___

Combination auxiliary lines shall be available for both one way or two way flow

Y___ N___

All implement hydraulic lines will incorporate hoses with a high wear resistant coating.

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.

AXLES

Y___ N___

Front axle shall be pendulum mounted, permanently sealed and lubricated

Y___ N___

Rear axle shall have differential lock with "on-the-go" engagement.

Y___ N___

2WD front axle shall have a minimum static load rating of 50582 lbs (22964 kg).

Y___ N___

2WD front axle shall have a minimum dynamic load rating of 20233 lbs (9186 kg).

Y___ N___

4WD front axle shall have a minimum static load rating of 50582 lbs (22964 kg).

Y___ N___

4WD front axle shall have a minimum dynamic load rating of 20233 lbs (9186 kg).

Y___ N___

Rear axle shall have a minimum static load rating of 50582 lb (22964 kg).

Y___ N___

Rear axle shall have a minimum dynamic load rating of 20233 lbs (9186 kg).

Y___ N___

The final drives shall be heavy-duty outboard planetary type, distributing loads over three gears sealed in separate oil compartments for long-life and minimum service

Y___ N___

Heavy-duty rear axle shall be semi-floating with self-adjusting inboard brakes.

WHEELS/TIRES

Y___ N___

Machine shall have 4WD.

Front 12.5/80-18 Michelin All Season Radial or equivalent (Note if not Michelin)

Rear 19.5L x 24.0 Michelin All Season Radial or equivalent (Note if not Michelin)

Y___ N___

4WD Tires shall be no less than 12.5/80-18 12PR (front) and 19.5 – 24 12PR (rear) with radial tires.

Y___ N___

All valve stems to be protected by metal valve stem covers

Y___ N___

Front tires shall ride inside loader bucket cutting width.

OPERATORS STATION

Y___ N___

OSHA approved ROPS/FOPS shall be integral with cab and canopy.

Y___ N___

Operator shall have complete control to disable, or lock, the backhoe Pilot Controls with a single switch on the console.

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___

Pilot Controls for the backhoe shall be adjustable fore/aft, side to side and actuated by a foot control

Y___ N___

Machine shall come standard with horn, audible back up alarm and electric fuel system shut off.

Y___ N___

The governor pedal shall be hinged and mounted to the floor for maximum pedal positioning control.

Y___ N___

Engine RPM shall also be controlled by electronic rotary dial

Y___ N___

Side instruments shall include a premium gauge cluster consisting of LCD Information screen and LCD warnings. LDC warns shall include; Engine Oil Pressure, Machine Locked, Service Due, Air Filter Blocked, High Coolant Temperature, Auto Idle Shutdown, High Torque Converter Temperature and Hydraulic Filter Bypass

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. Indicator lights to include, Water in Fuel, Remote dial throttle active, engine warning, warning lamp, emissions module malfunction, AESC active, Regen Inhibited, Low battery/charging system warning, high hydraulic oil temperature, Wait to start and Eco Mode Active

Y___ N___

Canopy machines shall include two front and two rear working lights.

Y___ N___

Cab machines shall include four front and four rear working lights.

Y___ N___

Machine shall have stop and turn signals with flashing hazard lamps visible from front and rear.

Y___ N___

Roof cab shall be factory pre-wired for communications radio.

Y___ N___

Roof cab shall be pre-wired for rotating beacon.

Y___ N___

Rotating Beacon installed by Dealer.

Y___ N___

A switch, accessible to the operator from the seat, shall control the beacon operation.

Y___ N___

Cargo net liner shall be available for additional storage

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.

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Y___ N___

Equipped with the standard steering wheel, the seat shall be able to swivel 180 degrees in a single motion without contacting the steering wheel or pilot control pods.

Y___ N___

Standard seat shall be covered with vinyl with open canopy models or cloth covered Mylar in enclosed cab models.

Y___ N___

With doors and windows closed, machine operating at maximum governed speed unit shall have a maximum operator sound exposure Leq of 79 dB(A) according to SAE J1166.

Y___ N___

Stabilizer controls shall be conveniently located to the operator's left side/hand.

Y___ N___

Tilt steering wheel shall be standard for operator comfort.

Y___ N___

Tilt and telescoping steering wheel shall be available for additional operator comfort

Y___ N___

Cab shall have an air conditioner that provides the operator with a choice of fresh outside air drawn through filters or recirculating cab air with HVAC recirculation selector

Y___ N___

Cab shall have heat settings

Y___ N___

Cab shall be equipped with two doors and 6 opening windows and floor mat.

Y___ N___

Operator's compartment shall feature laminated safety glass on front, windshield and tempered glass on all other windows.

Y___ N___

Cab shall include factory-installed heater/defroster with multiple speed blower with the control in reach from the front and rear of the machine.

Y___ N___

Heater will have a minimum rated capacity of 28,742 BTU and be equipped with a 365 cfm fan.

Y___ N___

All removable glass panels shall be flat glass for easy and low cost service

Y___ N___

All rear window sections shall stow overhead, inside the cab for maximum visibility, ventilation and operator comfort.

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.

Y___ N___

Each side of the cab shall have two windows sharing a common hinge that are of approximately equal size, can be fastened together, then swung to either a front or rear securing point to maximize cross flow ventilation.

Y___ N___

Unit shall have a pantography front windshield wiper and intermittent rear windshield wiper

Y___ N___

Enclosed cab shall have a front window visor that extends entire width of window

Y___ N___

Exhaust stack shall be located to the side an aligned with ROPS as to not obstruct operators vision.

BACKHOE

Y___ N___

Backhoe shall be center-pivot type complete with hydraulic stabilizers.

Y___ N___

Maximum boom width shall be no wider than 10 inches (254 mm).

Y___ N___

Backhoe shall come standard with a curved boom for its ability to work in confined areas and to reach over obstacles, allowing a minimum of 10.5" (265 mm) of clearance as measured in the deepest point from a plane, subtended through the axis of the rotation

Y___ N___

Per SAE standards, rated bucket digging force shall be a minimum of 14,431 lb (64.19 kN) with a standard stick and 14,228 lb (63.29 kN) with an extendible stick.

Y___ N___

Per SAE standards, stick-digging force shall be a minimum of 9,781 lbs (43.5 kN) with a standard stick and 9,757 lb (43.4 kN) with a fully retracted extendible stick.

Y___ N___

Backhoe reach, from the swing pivot, shall be no less than 18'5" (5612 mm) with a standard stick and 21'10" (6652 mm) with a fully extended, extendible stick.

Y___ N___

Backhoe shall have a loading height of no less than 11'11" (3642 mm) with a standard stick.

Y___ N___

Backhoe shall have a loading height of no less than 13'8" (4169 mm) with a extended extendible stick

Y___ N___

Backhoe bucket shall have a minimum of 205 degrees of bucket rotation in a single pin position.

Y___ N___

Backhoe shall have a minimum cushioned swing arc of 180 degrees.

Y___ N___

Per SAE J31, backhoe stick lifting ability at 8 ft (2438 mm) shall be no less than 5961 lb (2704 kg) with a standard stick.

Y___ N___

Per SAE J31, backhoe stick lifting ability at 8 ft (2438 mm) shall be no less than 5493 lb (2492 kg) with a fully retracted extendible stick.

Y___ N___

Per SAE J31, backhoe boom lifting at 8 feet (2438 mm) shall be no less than 3700 lbs (1678 kg) with a standard stick.

Y___ N___

Per SAE J31, backhoe boom lifting at 8 feet (2438 mm) shall be no less than 3241 lbs (1470 kg) with a fully retracted extendible stick.

Y___ N___

Extendible stick shall be included.

Y___ N___

Extendible stick shall be field adjusted in less than 30 minutes to eliminate excessive clearance, using simple hand tools

Y___ N___

All sticks shall have serrated edges, at least 28" (760 mm) long, to help clamp objects securely with bucket.

Y___ N___

All sticks shall be thumb-ready with thumb cylinder mounts and stops standard. Thumb must be able to be added without welding.

Y___ N___

Extendible stick shall be self-lubricating, adjusted with shims, and require no grease.

Y___ N___

Boom cylinder shall be exterior mounted for serviceability.

Y___ N___

Stick cylinder shall be exterior mounted for serviceability.

Y___ N___

Boom and stick shall be weld repairable.

Y___ N___

Backhoe shall be equipped with a swing transport lock.

Y___ N___

Backhoe shall be equipped with a boom lock that can be controlled from the seat.

Y___ N___

Pattern changer shall be available for switching Backhoe and Excavator control patterns with an electric switch, located within the operator's station

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.

Y___ N___

Backhoe shall be controlled with adjustable excavator style pilot operated joystick controls.

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Y___ N___	Auxiliary controls shall be controlled by a electro-hydraulic thumb roller
Y___ N___	Auto-up stabilizer controls shall be available.
Y___ N___	Stabilizers shall be located on the side console for easy access whether facing front or rear.
Y___ N___	Stabilizer guards shall be available to protect stabilizer cylinders from damage
Y___ N___	Backhoe shall have stabilizer lock valves as standard equipment.
Y___ N___	Flip over stabilizer pads shall have a dirt grouser.
Y___ N___	Stabilizer spread in the operating position to the center of the pad shall be at least 10'10" (3310 mm).
Y___ N___	Stabilizers shall be able to lift the machine high enough to clear tires, on concrete with street pads.
Y___ N___	Swing trunnion shall be supported on each side by two bolts loaded in tension .
Y___ N___	Wainroy 2XLS Swinger Coupler System
Y___ N___	All Buckets Main Hydraulic Pin compatible with Wain-Roy Thumb
Y___ N___	24" Wain-Roy XLS Trenching Bucket
Y___ N___	12" Wain-Roy XLS Trenching Bucket
Y___ N___	48" Wain-Roy XLS Ditching and Grading Bucket
Y___ N___	Wain-Roy HD1 Extendahoe Backhoe Hydraulic Thumb
Y___ N___	compatible with Wainroy 2XLS Swinger Coupler System
Y___ N___	All backhoe sticks shall be made thumb-ready, allowing bolt-on installation of thumbs, cylinder, hydraulics and hardware without welding.
Y___ N___	347 kg. (765 lb.) front counterweights

LOADER

Y___ N___	Ride Control
Y___ N___	Integrated Tool Carrier loader shall be controlled by pilot operated controller
Y___ N___	A continuous flow button for the Integrated Tool Carrier shall be available to allow the operator to set the auxiliary hydraulic flow at any flow setting needed.
Y___ N___	Machine shall have parallel lift for better load retention and improved material handling
Y___ N___	Loader parallelism must be accomplished mechanically for reliability. Controlling the tilt cylinder for parallelism is not acceptable
Y___ N___	Loader frame/linkage shall be of a tool carrier desing including a hydraulic quick coupler actuated from inside the cab
Y___ N___	Operator shall be able to easily remove the loader bucket attachment and quickly couple a fork carriage, material handling arm, broom, or other various attachments without leavign the cab except to connect hydraulic lines
Y___ N___	Loader bucket shall not roll back, and must not move under normal dig operations.
Y___ N___	Loader shall have positive down pressure sufficient to lift tractor front end off level ground.
<u>Y___ N___</u>	Caterpillar 1.31 CYD (1.00 m3) Long Lip bucket with bolt on 2 piece cutting edge.
Y___ N___	Loader shall be equipped with a return-to-dig mechanism.
Y___ N___	Loader shall be equipped with a lift cylinder brace to mechanically hold the loader arms in the raised position.
Y___ N___	Multi-Purpose bucket shall be operated by a thumb control on the loader joystick
Y___ N___	Loader shall incorporate a steel bumper system to protect battery and engine components.
Y___ N___	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.
Y___ N___	Loader linkage shall incorporate a single, full width main tower pin for maximum strength and load distribution.
Y___ N___	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.
Y___ N___	Loader bucket base cutting edge shall be specially hardened steel, achieving Rockwell hardness of 50 or greater.
Y___ N___	Loader bucket shall have a 2-piece bolt-on cutting edge for serviceability.
Y___ N___	Loader bucket dump time shall be no more than 3.0 seconds at full raised position.
Y___ N___	Loader bucket shall be self-leveling for truck loading spoil and equipped with a bucket tilt indicator.
Y___ N___	Loader bucket lower time from full raised position to digging position shall be no more than 3.2 seconds.
Y___ N___	Loader bucket raise time to full height shall be no more than 4.0 seconds.
Y___ N___	Caterpillar 120" Snow Pusher with Steel Skid Shoes, Trip Edge, Profiled Mold Board, and Quick-Attach
Y___ N___	Caterpillar 48" Pallet Forks - Quick-Attach
Y___ N___	Caterpillar Quick-Attach coupler system shall be compatable with all buckets and loader attachments.

SERVICEABILITY

Y___ N___	Hood release to be lockable and easily accessible from inside the cab.
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.
Y___ N___	Entire machine cooling package, including radiator, transmission oil cooler, hydraulic oil cooler, fuel cooler and ATAAC shall be easily accessible without use of tools.
Y___ N___	Water and sediment shall be drained from the fuel / water filter from a standing position without tools.
Y___ N___	The batteries shall be accessible without the use of hand tools to remove panels, toolboxes, etc.
Y___ N___	Unit shall come standard with machine jump posts
Y___ N___	The swing frame shall have replaceable bushings installed in the pin joints for the boom, swing cylinder rod ends and swing post.

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Y___ N___	Swing cast shall utilize serrated pins and dimpled bearings for grease rotation
Y___ N___	Machine shall have easily accessible jumper posts to aid in jump-starting machine or other machines.
Y___ N___	The hydraulic tank shall be drained through a petcock and drain hose, without need for hand tools.
Y___ N___	The rear axle shall have brake wear check ports, allowing access to inspect brake pad wear.
Y___ N___	The machine will be equipped with an electronic diagnostic port within the operator station, allowing service codes to be downloaded and electronic parameters to be adjusted.
Y___ N___	Fuel tank shall contain a debris screen
Y___ N___	Machine fault codes shall be accessible from LCD screen
Y___ N___	The unit shall be provided with a master electrical disconnect switch.
Y___ N___	Extendible stick shall be field adjustable using common hand tools.

MINIMUM SERVICE FILL CAPACITIES

Y___ N___	Standard front axle capacity (4WD) shall not be less than 2.9 gallons (11 L), with planetary capacity no less than 0.2 gallons (0.7L).
Y___ N___	Standard rear axle capacity shall not be less than 4.4 gallons (16.5 L).
Y___ N___	Standard high-ambient cooling system capacity shall not be less than 5.9 gallons (22.5 L).
Y___ N___	Standard engine oil with filter capacity shall not be less than 2.3 gallons (8.8 L).
Y___ N___	Standard fuel tank capacity shall not be less than 42 gallons (160 L)
Y___ N___	Standard diesel exhaust fluid tank capacity shall not be less than 5 gallons (19 L)
Y___ N___	Standard hydraulic system capacity shall not be less than 25.1 gallons (95 L).
Y___ N___	Standard hydraulic tank capacity shall not be less than 10.6 gallons (40 L).
Y___ N___	Standard transmission (4WD, Power Shuttle) capacity shall not be less than 4.0 gallons (15 L)

OWNING AND OPERATING COSTS

Y___ N___	Front axles shall have sealed king pin and center pendulum bearings.
Y___ N___	Driveshaft universal joints shall be maintenance free.
Y___ N___	Standard fill hydraulic oil must be Advanced HYDO 10 with up to 6000hr service interval in typical applications.
Y___ N___	Load Sensing Variable Displacement pump shall be standard for optimized fuel efficiency and performance.
Y___ N___	Front and Rear Axle Oil change shall have a 1000- hour change interval for lowering operating maintenance cost
Y___ N___	Cooling System shall have a 12,000-hour change interval for lowering operating maintenance cost
Y___ N___	Engine shall have a 500-hour oil change interval for lowering operating maintenance cost.

ADDITIONAL FEATURES

Y___ N___	OEM front fenders, articulating with the tires for maximum coverage, shall be dealer installed and delivered with machine.
Y___ N___	OEM rear fender extensions shall be dealer installed and delivered with the machine.
Y___ N___	Full machine warranty of 12 months, unlimited hours
Y___ N___	Engine warranty of two years or 2,000 hours
Y___ N___	Power train warranty of two years or 2,000 hours