

ENGINE

Make	FPT
Model	F2CFE614C
Emissions Certification	Tier 4 Interim
Type	4-stroke, turbocharged and air-to-air cooled
Cylinders	6-cylinder in-line
Bore/Stroke	6.97 x 5.31 in (177 x 135 mm)
Displacement	531 in ³ (8.7 L)
Fuel	#2 Diesel, #1 and #2 mixture permitted for cold temperature
Fuel injection	Direct injection – electronic
Fuel filter	Replaceable, full flow spin-on cartridge
Fuel pump	Bosch CP 3.3
Gradeability:	
Side-to-side	35°
Fore and aft	35°
Air filter	2-element dry-type w/ warning restriction indicator
Mid-mount cooling module:	Mid-mount air/water
Fan – hydraulic driven:	
Style	9 blade puller
Diameter	34.5 in (876 mm)
Water pump	Integral
Engine oil pump operating angles ratings:	
Side-to-side	35°
Fore and aft	35°
Oil filtration	Replaceable, full flow spin-on cartridge
Engine speeds	RPM
Rated – full load	2100
Horsepower:	
Maximum Power Mode:	
Peak gross @ 1800 RPM	320 hp (239 kW)
Net rated @ 2100 RPM	261 hp (195 kW)
Peak net @ 1800 RPM	296 hp (221 kW)
Standard Power Mode:	
Peak gross @ 1800 RPM	298 hp (222 kW)
Net rated @ 1800 RPM	274 hp (204 kW)
Peak net @ 2100 RPM	241 hp (180 kW)
Economy Power Mode:	
Peak gross @ 1400 RPM	252 hp (188 kW)
Net rated @ 1400 RPM	241 hp (180 kW)
Peak net @ 1800 RPM	241 hp (180 kW)

NOTE: Gross horsepower and torque per SAE J1995.
Net horsepower and torque per SAE J1349.

ENGINE (cont.)

Torque – peak:	
Maximum Power Mode:	
Gross @ 1100 RPM	1,091 lb-ft (1 479 N·m)
Net @ 1100 RPM	1,063 lb-ft (1 442 N·m)
Standard Power Mode:	
Gross @ 1100 RPM	1,013 lb-ft (1 374 N·m)
Net @ 1100 RPM	986 lb-ft (1 337 N·m)
Standard Power Mode:	
Gross @ 1300 RPM	948 lb-ft (1 285 N·m)
Net @ 1300 RPM	910 lb-ft (1 234 N·m)
Torque rise:	
Maximum power range	50%

NOTE: Gross horsepower and torque per SAE J1995.
Net horsepower and torque per SAE J1349.

DRIVETRAIN

Transmission:	
4F/3R Proportional w/ Electronic Control	
Module torque sensing autoshift/manual shift and modulation	
Gears	Helical cut
Torque converter:	
Stall ratio	2.09:1
Differential:	
Limited slip w/ 30% transfer on front and rear axles	
Rear axle oscillation	24° total
Front and rear axles:	
Differential ratio	4.11
Planetary ratio	6.00
Final axle ratio	24.67
Heavy-duty axles – optional:	
Front axle equipped w/ locking differential	
Rear axle equipped w/ open differential	
Planetaries	Outboard
Service brakes:	
Hydraulically actuated, maintenance-free, multiple wet disc w/ accumulator to all four wheels	
Brake surface area:	
Front hub – each	840 in ² (0.542 m ²)
Rear hub – each	721 in ² (0.465 m ²)
Parking brakes:	
Spring-applied hydraulic release disc on transmission output shaft neutralizes power flow to wheels when engaged	

Travel speeds – 4 speed transmission:		
	Forward	Reverse
	mph (kph)	mph (kph)
1st	4.8 (7.7)	4.8 (7.7)
2nd	7.8 (12.6)	7.8 (12.6)
3rd	11.7 (18.9)	16.5 (26.6)
4th	23.6 (38.0)	—

NOTE: Travel speeds at full engine throttle w/ 26.5 x 25 XHAT tires.

ELECTRICAL

Voltage	24 Volts, negative ground
Alternator	95 amp
Batteries (2)	12-volt

OPERATOR ENVIRONMENT

ROPS cab w/ heat and air conditioning; Key start; Articulated power steering w/ tilt column; Fully adjustable, suspension seat, cloth-covered; 2 in (51 mm) retractable seat belt; Foot throttle; Single lever 2-function loader control; w/ wrist rest; Cup holder; Coat hook; (1) Interior rearview mirror; Storage tray behind seat; Lunch box compartment; Single brake pedal; F/N/R shuttle switch; Glove box; Pressurized air filtering; Anti-glare window strip; Defroster; Side window, partial/fully open; Dome light; Wipers, rear and intermittent front; Windshield washers, front and rear; Rubber floor mat; Horn.

Displays/Gauges :

Analogue:

Engine coolant temperature; Fuel level; Transmission oil temperature; Hydraulic oil temperature.

LCD screen:

Hour meter; Time; FNR indication; Trip computer; Metric/english; Differential lock*; Joystick steering indicator*; Engine speed; Automatic trans indication; DeClutch indication; Fuel consumption; Engine diagnostics; Error reporting; Travel speed; Current gear selection; Engine mode indication; Multiple languages; Transmission diagnostics; DEF (diesel exhaust fluid) gauge; Engine oil temperature; Oil pressure; Coolant temperature; Transmission oil temperature; Transmission sump oil temperature; Hydraulic oil temperature; System voltage; Turbocharger air temperature; Fuel level percentage; Warning prompts.

Audible/Visual alarms:

Warning lights:

Main warning; Low fuel; Turn signals; Four-way flashers; High beam lights; Grid heater*; Low brake pressure; Low steering pressure; Parking brake.

Caution alarm:

Parking brake; Coolant temperature; Hydraulic oil temperature; Transmission oil temperature; Air filter; Transmission filter; Hydraulic filter; Alternator; Low fuel.

Critical alarm:

Engine oil pressure; Brake pressure; Steering pressure – w/ aux. steering*; Coolant temperature; Hydraulic oil temperature; Transmission oil temperature.

Backup alarm

NOTE: *If equipped w/ option.

OPERATING WEIGHT

Z-Bar

Unit equipped w/ ROPS cab w/ heater and A/C; Standard counterweight; 23.5R25 XHA2 tires; 5.5 yd³ (4.2 m³) GP pin-on w/ bolt on edge; Full fuel; 175 lb (79 kg) operator:

53,791 lb (24 399 kg)

XR

Unit equipped w/ ROPS cab w/ heater and A/C; Standard counterweight; 26.5R25 XHA2 tires; 5.5 yd³ (4.2 m³) HD pin-on w/ bolt on edge; Full fuel; 175 lb (79 kg) operator:

56,632 lb (25 688 kg)

HYDRAULICS

Pump – steering/implement:

Closed center pressure/flow compensated

Variable displacement – load-sensing:

50 gpm @ 2000 RPM
(190 L/min @ 2000 RPM)

Loader control valve:

Closed-center, sectional 2, 3 or 4-function w/ pilot control for lift, tilt and auxiliary hydraulics, electromagnetic detents in float, raise and rollback

Loader auxiliary steering:

Hydraulic orbital center-pivot articulating w/ on-demand oil flow

High pressure standby:

Implement 3,649 psi (25 165 kPa)
Steering 3,494 psi (24 097 kPa)

Filtration:

Filtered vent w/ relief on hydraulic reservoir, maintains 3-5 psi on reservoir, 10-micron, return filter furnishes only clean oil to all components of the system

SERVICE CAPACITIES

Fuel tank 125 gal (473.0 L)

DEF tank – Diesel Exhaust Fluid

Usable capacity 17.1 gal (64.7 L)
Total 24 gal (90.8 L)

Hydraulic system:

Reservoir 35.4 gal (134 L)
Total 66 gal (250 L)

Transmission:

Service w/ filter 12 gal (45.4 L)

Front and rear axle:

Front axle 48 qt (45.7 L)
Rear axle 48 qt (45.7 L)

Engine oil w/ filter 32 qt (30.3 L)

Cooling system 15 gal (56.8 L)

OTHER SPECIFICATIONS

Lift cylinder:

Bore diameter 7.00 in (177.8 mm)
Rod diameter 4.50 in (114.3 mm)
Stroke 30.73 in (780.6 mm)

Dump cylinder – Z-Bar and XR:

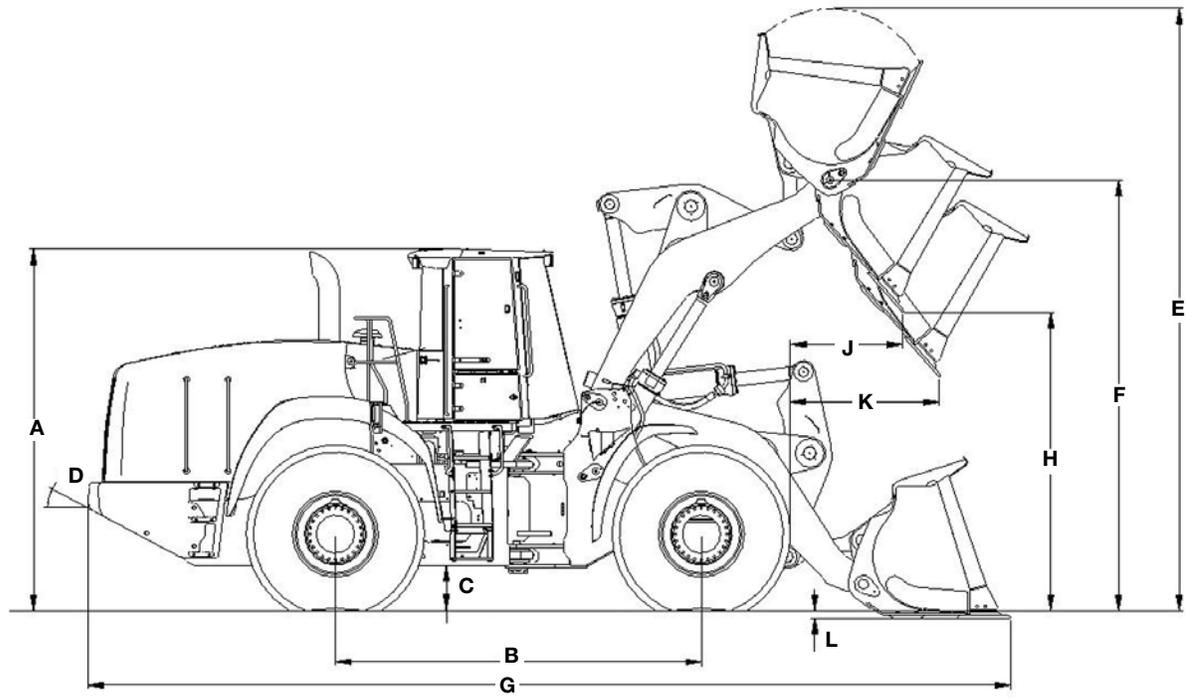
Bore diameter 8.00 in (203.2 mm)
Rod diameter 5.00 in (127.0 mm)
Stroke 22.91 in (581.9 mm)

Loader:

Z-Bar loader linkage; Single control for lift and tilt; Positive hold float; Automatic return-to-dig; Automatic height control; Automatic return-to-travel; Brake pedal transmission disconnect; Bucket position indicator on bucket.

Cycle time:

Raise w/ rated bucket load 6.2 sec
Dump w/ rated bucket load 1.3 sec
Power down 2.8 sec
Float down 2.6 sec



Line drawings are for illustrative purpose only and may not be exact representation of unit.

DIMENSIONS

A. Height to top of ROPS cab	140.7 in (3 573 mm)
Height to drawbar	44.8 in (1 139 mm)
B. Wheelbase	139.8 in (3 550 mm)
C. Ground clearance	17.1 in (435.1 mm)
D. Angle of departure	32°
Width:	
Overall* without bucket	117.7 in (2 990 mm)
Centerline tread	88.6 in (2 250 mm)
Turning radius* – outside	250.8 in (6 370 mm)
Turning angle:	
From center	40°
Total angle	80°
Rear axle oscillation, total	26°

NOTE: *Dimensions taken with 26.5R25 Michelin XHA2 tires. Additional dimensions on pages 4 and 5.

WEIGHT ADJUSTMENTS

Equipped With	Weight Adjustment	Tipping Load Adjustment Straight	Tipping Load Adjustment 40° Turn
26.5 x 25 L3 Goodyear	-284 lb (-129 kg)	-128 lb (-58 kg)	-326 lb (-148 kg)
26.5 x 25 L4 Goodyear	+880 lb (+399 kg)	+1,305 lb (+592 kg)	+1,179 lb (+535 kg)
26.5 x 25 L5 Goodyear	+1,307 lb (+593 kg)	+2,048 lb (+929 kg)	+2,028 lb (+920 kg)

NOTE: Unit equipped with Z-Bar loader arms, 5.5 yd³ (4.2 m³) pin on bucket w/ bolt-on edge, 26.5R25 Michelin XHA2 tires, ROPS cab with heater and A/C, full counterweight, front and rear fenders, full fuel and 175 lb (75 kg) operator. Adjust select options from rated weight.

PERFORMANCE DATA

1021F Z-Bar*	4.75 yd³ GP Pin On (3.6 m³) Bucket with Bolt-on Edge	4.75 yd³ GP Pin On (3.6 m³) Bucket with Teeth Only	5.5 yd³ GP Pin On (4.2 m³) Bucket with Bolt-on Edge
SAE bucket capacity – struck	4.07 yd ³ (3.11 m ³)	3.87 yd ³ (2.96 m ³)	4.75 yd ³ (3.63 m ³)
Heaped	4.75 yd ³ (3.63 m ³)	4.56 yd ³ (3.49 m ³)	5.49 yd ³ (4.20 m ³)
Bucket width – outside	125.8 in (3 195 mm)	125.8 in (3 195 mm)	125.8 in (3 195 mm)
Bucket weight	4,762 lb (2 160 kg)	4,725 lb (2 143 kg)	5,040 lb (2 286 kg)
E. Operating height – fully raised with spillguard	223.5 in (5 676 mm)	223.5 in (5 676 mm)	228.3 in (5 800 mm)
F. Hinge pin height – fully raised	167.0 in (4 243 mm)	167.0 in (4 243 mm)	167.0 in (4 243 mm)
G. Overall length – bucket level on ground	345.4 in (8 774 mm)	352.6 in (8 955 mm)	350.1 in (8 892 mm)
Dump angle – fully raised	53°	53°	53°
H. Dump height – fully raised, 45° dump	124.1 in (3 151 mm)	119.5 in (3 035 mm)	121.1 in (3 075 mm)
J. Bucket reach – fully raised, 45° dump	46.3 in (1 175 mm)	51.7 in (1 313 mm)	49.8 in (1 265 mm)
K. Bucket reach – 7 ft 0 in (2.13 m) height, 45° dump	72.0 in (1 828 mm)	75.5 in (1 918 mm)	74.3 in (1 887 mm)
Operating load – SAE	17,661 lb (8 011 kg)	17,805 lb (8 076 kg)	17,500 lb (7 938 kg)
Maximum material density – SAE	3,720 lb/yd ³ (2 207 kg/m ³)	3,905 lb/yd ³ (2 317 kg/m ³)	3,186 lb/yd ³ (1 890 kg/m ³)
Tipping load – SAE:			
Straight	42,293 lb (19 184 kg)	42,626 lb (19 335 kg)	41,989 lb (19 046 kg)
40° turn	35,320 lb (16 021 kg)	35,607 lb (16 151 kg)	35,001 lb (15 876 kg)
Lift capacity:			
Full height	31,180 lb (14 143 kg)	31,151 lb (14 130 kg)	30,924 lb (14 027 kg)
Maximum reach	44,580 lb (20 221 kg)	44,650 lb (20 253 kg)	44,300 lb (20 094 kg)
Ground	52,686 lb (23 898 kg)	53,255 lb (24 156 kg)	51,617 lb (23 413 kg)
Breakout force with tilt cylinder	49,860 lb (22 616 kg)	53,806 lb (24 406 kg)	45,098 lb (20 456 kg)
Maximum rollback:			
Ground	45°	45°	45°
Carry position	49°	49°	49°
@ Maximum reach	69°	69°	69°
@ Full height	65°	65°	65°
L. Dig depth	5.0 in (126 mm)	5.0 in (126 mm)	5.0 in (126 mm)
Maximum grading angle with bucket – back dragging	61°	60°	60°
Loader clearance circle	555.8 in (14 117 mm)	559.6 in (14 213 mm)	558.2 in (14 179 mm)

1021F XR	4.75 yd³ GP Pin On (3.6 m³) Bucket with Bolt-on Edge	4.75 yd³ GP Pin On (3.6 m³) Bucket with Teeth Only	5.5 yd³ GP Pin On (4.2 m³) Bucket with Bolt-on Edge
E. Operating height – fully raised with spillguard	246.4 in (6 258 mm)	246.4 in (6 258 mm)	251.3 in (6 382 mm)
F. Hinge pin height – fully raised	190.0 in (4 825 mm)	190.0 in (4 825 mm)	190.0 in (4 825 mm)
G. Overall length – bucket level on ground	365.8 in (9 292 mm)	373.0 in (9 473 mm)	370.5 in (9 410 mm)
Dump angle – fully raised	50°	50°	50°
H. Dump height – fully raised, 45° dump	147.0 in (3 733 mm)	142.4 in (3 617 mm)	144.0 in (3 657 mm)
J. Bucket reach – fully raised, 45° dump	46.7 in (1 187 mm)	52.2 in (1 326 mm)	50.3 in (1 277 mm)
K. Bucket reach – 7 ft 0 in (2.13 m) height, 45° dump	90.3 in (2 294 mm)	94.1 in (2 391 mm)	92.8 in (2 357 mm)
Operating load – SAE	15,029 lb (6 817 kg)	15,141 lb (6 868 kg)	14,830 lb (6 727 kg)
Maximum material density – SAE	3,165 lb/yd ³ (1 878 kg/m ³)	3,320 lb/yd ³ (1 970 kg/m ³)	2,700 lb/yd ³ (1 602 kg/m ³)
Tipping load – SAE:			
Straight	36,087 lb (16 369 kg)	36,359 lb (16 492 kg)	35,666 lb (16 178 kg)
40° turn	30,056 lb (13 633 kg)	30,285 lb (13 737 kg)	29,661 lb (13 454 kg)
Lift capacity:			
Full height	28,078 lb (12 736 kg)	28,065 lb (12 730 kg)	27,813 lb (12 616 kg)
Maximum reach	38,565 lb (17 493 kg)	38,651 lb (17 532 kg)	38,277 lb (17 362 kg)
Ground	42,450 lb (19 255 kg)	42,860 lb (19 441 kg)	41,575 lb (18 858 kg)
Breakout force with tilt cylinder	50,358 lb (22 842 kg)	54,344 lb (24 650 kg)	45,550 lb (20 661 kg)
Maximum rollback:			
Ground	42°	42°	42°
Carry position	48°	48°	48°
@ Maximum reach	67°	67°	67°
@ Full height	66°	66°	66°
L. Dig depth	5.1 in (129 mm)	5.1 in (129 mm)	5.1 in (129 mm)
Maximum grading angle with bucket – back dragging	63°	62°	62°
Loader clearance circle	575.3 in (14 613 mm)	579.8 in (14 726 mm)	578.2 in (14 687 mm)

PERFORMANCE DATA

1021F Z-Bar*	5.5 yd³ GP Pin On (4.2 m³) Bucket with Teeth Only
SAE bucket capacity – struck	4.56 yd ³ (3.49 m ³)
Heaped	5.31 yd ³ (4.06 m ³)
Bucket width – outside	125.8 in (3 195 mm)
Bucket weight	5,000 lb (2 268 kg)
E. Operating height – fully raised with spillguard	228.3 in (5 800 mm)
F. Hinge pin height – fully raised	167.0 in (4 243 mm)
G. Overall length – bucket level on ground	357.2 in (9 073 mm)
Dump angle – fully raised	53°
H. Dump height – fully raised, 45° dump	116.5 in (2 959 mm)
J. Bucket reach – fully raised, 45° dump	55.3 in (1 404 mm)
K. Bucket reach – 7 ft 0 in (2.13 m) height, 45° dump	77.7 in (1 974 mm)
Operating load – SAE	17,639 lb (8 001 kg)
Maximum material density – SAE	3,322 lb/yd ³ (1 971 kg/m ³)
Tipping load – SAE:	
Straight	42,313 lb (19 193 kg)
40° turn	35,278 lb (16 002 kg)
Lift capacity:	
Full height	30,900 lb (14 016 kg)
Maximum reach	44,370 lb (20 126 kg)
Ground	52,159 lb (23 659 kg)
Breakout force with tilt cylinder	48,330 lb (21,922 kg)
Maximum rollback:	
Ground	45°
Carry position	49°
@ Maximum reach	69°
@ Full height	65°
L. Dig depth	5.0 in (126 mm)
Maximum grading angle with bucket – back dragging	60°
Loader clearance circle	562.1 in (14 278 mm)

1021F XR	5.5 yd³ GP Pin-On (4.2 m³) Bucket with Teeth Only
E. Operating height – fully raised with spillguard	251.3 in (6 382 mm)
F. Hinge pin height – fully raised	190.0 in (4 825 mm)
G. Overall length – bucket level on ground	377.6 in (9 591 mm)
Dump angle – fully raised	50°
H. Dump height – fully raised, 45° dump	139.4 in (3 541 mm)
J. Bucket reach – fully raised, 45° dump	55.7 in (1 416 mm)
K. Bucket reach – 7 ft 0 in (2.13 m) height, 45° dump	96.5 in (2 451 mm)
Operating load – SAE	14,943 lb (6 778 kg)
Maximum material density – SAE	2,815 lb/yd ³ (1 670 kg/m ³)
Tipping load – SAE:	
Straight	35,931 lb (16 298 kg)
40° turn	29,886 lb (13 556 kg)
Lift capacity:	
Full height	27,805 lb (12 612 kg)
Maximum reach	38,363 lb (17 401 kg)
Ground	41,963 lb (19 034 kg)
Breakout force with tilt cylinder	48,815 lb (22 142 kg)
Maximum rollback:	
Ground	42°
Carry position	48°
@ Maximum reach	67°
@ Full height	66°
L. Dig depth	5.1 in (129 mm)
Maximum grading angle with bucket – back dragging	62°
Loader clearance circle	582.7 in (14 801 mm)

NOTE: *Z-Bar performance data shown w/ standard counterweight.

Performance data unit equipped with 26.5R25 Michelin XHA2 tires, ROPS cab w/ heater and A/C, standard counterweight, full fuel and 175 lb (75 kg) operator. Specifications per SAE J732, J1234, J695, J742, and J818.

STANDARD EQUIPMENT

OPERATOR ENVIRONMENT

ROPS/FOPS cab structure
See page 1

ENGINE

Case/FPT F2CFE614C
Tier 4 interim certified
Selectable work modes
Maximum power
Automatic power
Standard power
Economy power
Automatic shutdown – idle reduction device
Turbocharger
Charge air cooling
Automatic fan belt tensioner
Integral engine oil cooling
Fuel filter with water trap
Dual-element dry-type air cleaner
Hydraulic-driven cooling fan
Liquid-cooled radiator
Rear-mounted cooling module
Common rail electronic fuel injection

POWERTRAIN

4-wheel drive
4F/3R selectable autoshift/manual shift transmission
Electronic control module – programmable, computer controlled proportional shifting with programmable gear selection
Onboard diagnostics
Single lever electronic shift control
F/N/R switch in loader control handle
Downshift button
Torque converter
Outboard planetary axles
Transmission oil cooler
Brake pedal transmission disconnect
Hydraulic wet disc brakes
Spring-applied hydraulic release parking brake
Limp-Home Mode
Greaseable rear axle trunnion

HYDRAULICS

Single lever 2-function loader control valve
Low-effort steering
Hydraulic driven fan
(8) Diagnostic quick couplers
Split flange hydraulic connections – 1 inch or greater
Hydraulic oil cooler

ELECTRICAL

95 amp alternator and voltage regulator
Electrical disconnect switch
(2) 900 CCA 12-volt batteries
Electric starter
Lights:
Front and rear halogen flood lights
Tail lights and stop lights combined
2 Front driving headlights – high/low beam
2 Front flood
2 Rear flood
2 LED stop/tail lights
Front and rear turn signal/flash
Key start/stop switch
Centrally located fuse box with all electrical circuits protected

LOADER

See page 2

OTHER

Electric hood lift
Front and rear fenders
Standard counterweight
Drawbar hitch
Articulation locking bar
Lift arm locking bar
Lift and tie-down points – front/rear
Backup alarm
Remote drain points
3-piece rims

TELEMATICS

CASE SiteWatch™ Telematics – includes hardware and a 3-yr Advanced data subscription

OPTIONAL EQUIPMENT

OPERATOR ENVIRONMENT

Heated cloth-covered air-suspension seat
3 in (76 mm) seatbelt
Sound Shield noise suppression package
Radio, 12V AM/FM with auxiliary input
Radio-ready (12 or 24-volt) with 2 auxiliary power (12-volt) outlets
Cab convenience package
Rotating beacon
Second brake pedal
Joystick steering, with extra FNR, kickdown buttons
External rear view mirrors
Rear view camera with accessory mount
Extra front-facing work lights

POWERTRAIN

Special application axles with locking front differential
Axle oscillation stops
Cold weather package
Engine block heater
Fuel heater
Hydraulic oil cooler bypass
Low temperature hydraulic oil
Grid heater
Ejector type pre-cleaner
Remote jump start receptacle

HYDRAULICS

Auxiliary hydraulics
Ride Control
Secondary steering
3 or 4-function loader valves with 2 or 3-lever loader control
Variable speed hydraulic reversing fan

LOADER

Extended reach XR
Attachment auxiliary hydraulics
Buckets – see pages 4 & 5

TIRES

26.5 x 25 L3 Bias
26.5 R25 L3 Radial
26.5 x 25 L5 Bias
26.5 R25 L5 Radial

OTHER

Special paint
Full coverage fenders
Tool box
Fire extinguisher
Side guards for rear frame
License plate brackets, front and rear
12 mph (20 kph) maximum speed control
Wheel chocks



NOTE: All specifications are stated in accordance with SAE Standards or Recommended Practices, where applicable.

NOTE: All engines meet current EPA emissions requirements.

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