

WA320-3

KOMATSU® *avance* **plus**

BUCKET CAPACITIES

2.75 – 4.2 yd³

2.1 – 3.2 m³



WA320-3

WHEEL LOADER
avance plus

WA320-3 *avance plus* Wheel Loader Features:

WALK-AROUND

Komatsu-integrated design offers the best value, reliability, and versatility. Hydraulics, power train, frame, and all other major components are engineered by Komatsu. You get a machine whose components are designed to work together for higher production, greater reliability, and more versatility.

***plus* New larger cab increases operator productivity.** New operator's cab provides better visibility, increased comfort, see-at-a-glance console, two-door walk-through, and finger-touch shifting. See page 5.

Underhood mounted muffler provides operator with great rearward vision.

***plus* Quieter operator's environment.**

***plus* New electrically heated rear window.**

***plus* New operator's seat** with optional air ride.

***plus* New rear lights** have been raised to reduce potential for damage.

***plus* New larger rear-mounted fuel tanks** allow for ground level fueling and larger capacity.

***plus* New toolbox** for grease gun and tool storage.

Low mount battery boxes for easy checking and servicing.

Ground level greasing reduces and simplifies maintenance. See page 8.



NET HORSEPOWER
162 HP 121 kW @ 2380 rpm

OPERATING WEIGHT
31,200 lb 14150 kg

BUCKET CAPACITY
2.75 – 4.2 yd³
2.1 – 3.2 m³

plus *New larger 3.5 yd³ stock pile bucket.*

plus *Higher dumping clearance.*

Optional bucket teeth meet the demands of the toughest applications.

Komatsu S6D114E-1 diesel power provides greater productivity and reliability. See page 6.



Special rubber-mounted cab improves productivity. Special silicone-filled rubber cab mounts reduce vibration and noise that can fatigue the operator and reduce his efficiency. See page 4.

Easy access to engine for servicing. Large gull-wing hood doors lock with cab key. Easy access to all engine and fuel filters.

plus *New Optional Electrically Controlled Suspension System.*

Takes the bounce out of travel on rough ground surfaces. Provides greater comfort and confidence for the operator as well as increased travel speed and steering stability, while improving the material retention in the bucket. Here's how it works. A switch in the operator's compartment initiates the electrical circuit that actuates the solenoid selector valves for the boom cylinders as well as pressure switches for the accumulators. This allows the accumulators to absorb the shocks during roading.

plus *New larger brake capacity.*

plus *New automatic transmission* with kick-down switch is another valuable option. See page 7.

It all adds up to more value and better return for your investment. It's what you should expect when you select Komatsu.

OPERATOR'S COMPARTMENT

Ask the man who runs one—he will tell you the operator's cab sets the Komatsu Wheel Loader apart from the others. That's a productivity feature you can't ignore. No matter how a machine specs out, or how much is promised for productivity, unless the operator can work a full shift without becoming fatigued, you will never get the full measure of promised productivity.

The cab improvements on the WA320-3 go beyond providing a large cab with a comfortable seat. Improvements include these production-enhancing standard and optional features:

Cloth covered high-back bucket seat features:

- *Low frequency mechanical suspension, with helical springs and double acting hydraulic dampers.*
- *An air suspension fabric seat is optional.*



The WA320-3 has one of the largest cabs ever offered on a Komatsu wheel loader. A **large glass windshield** provides the operator an unobstructed view of the working area and attachment.

Two-door walk-through cab.

Good for ventilation as well as easy entry and exit from either side of the cab.

Silicone-filled rubber mounts dampen noise and vibration,

reducing fatigue caused by noise. Helps keep the operator productive, all day.

Low-effort brake pedals actuate fully hydraulic brakes. Both the service and parking brakes are wet disc type.

Steer with ease. Komatsu's fully hydraulic steering provides fast response with low effort, even at low engine rpm.

See the monitor through the steering wheel, not around it. A specially designed two-spoke steering wheel allows the operator to easily see the instrument panel.



Kick-down switch is conveniently located on the boom lever. A simple motion of the thumb actuates this valuable productivity feature.

New automatic transmission. Automatic shift control gives the operator maximum control with minimum effort. The transmission hold switch allows the operator to select either automatic or manual shifting. The unique combination of the hold and kick-down switches, located on the hydraulic boom lever, offers the operator optimum control in all conditions.

At-a-glance instrument monitor. Monitor is mounted in front of the operator and is tilted for easy view, allowing the operator to easily check gauges and warning lights.

The **EDIMOS II instrument gauge cluster** has a well-equipped diagnostic display and a functional display which is only a glance away on the side panel.

Value Options

Value options for productivity and those little added touches that make work a little easier.

Keep cool, keep productive with a **five-mode air conditioner**. Nine strategically-located vents direct cool air to the operator, keeping him productive on the hottest days.

There's nothing more refreshing than a cold drink on a hot day. The **cool box** will help keep your lunch and beverage cool. That's something to look forward to at lunch or break-time.

Make the time go faster with an auto-tuning **AM/FM cassette radio** with a digital clock.

Five-mode air conditioner



Cool box



AM/FM cassette radio



KOMATSU DESIGNED POWER TRAIN

Engine

The Komatsu S6D114E-1 delivers the power and efficiency to get the job done quickly and cost effectively while meeting off road emission requirements.

Komatsu S6D114E-1 is a water-cooled, four-stroke cycle, six-cylinder in-line, turbo-charged direct injection engine that produces high performance and excellent fuel economy.

The **gear pump-driven force lubrication** has full flow filtration while all fuel and oil filters are spin-on for easy maintenance.

Komatsu S6D114E-1 features include:

- Environmentally friendly meets EPA and EV emission standards for NOX, CO, and HC.
- Large capacity double wrapped muffler mounted under the hood reduces noise and increases operator visibility.

- Wet-type cylinder lines dissipate heat better and are replaceable for easier engine rebuild.
- Dry, two-stage cyclonic air cleaner with a centrifugal-type precleaner (optional).

Large gull-wing doors allow easy access to the engine and radiator for routine maintenance and cleaning.

Spin-on filters and easily accessible lubrication points reduce maintenance time and the chance of missing maintenance items.

With a piston displacement of 505 in³ 8.3 liter, the Komatsu S6D114E-1 has a net flywheel horsepower of 162 HP at 2380 rpm.

Komatsu integrated design means components are matched to provide most efficient use of power whether you're working the face of a material bank or traveling with a loaded bucket.



APS—Automatic Power Speed Hydraulic System

Four-Speed Automatic Transmission

Provides maximum speed of **21.1 mph** 34.0 km/h in forward and **21.7 mph** 35.0 km/h in reverse. The transmission is a full power shift, countershaft transmission.

Other features include:

- **Gear indicator** conveniently located on the monitor panel allows the operator to easily check gear-shifts during operations.
- **Automatic gear selection** with a hold switch on the boom control lever provides control with low effort.
- **Four forward and four reverse gears** help match cycle conditions, providing increased efficiency and fuel economy.
- **Fingertip-shifting** from forward to reverse or from one gear to another.

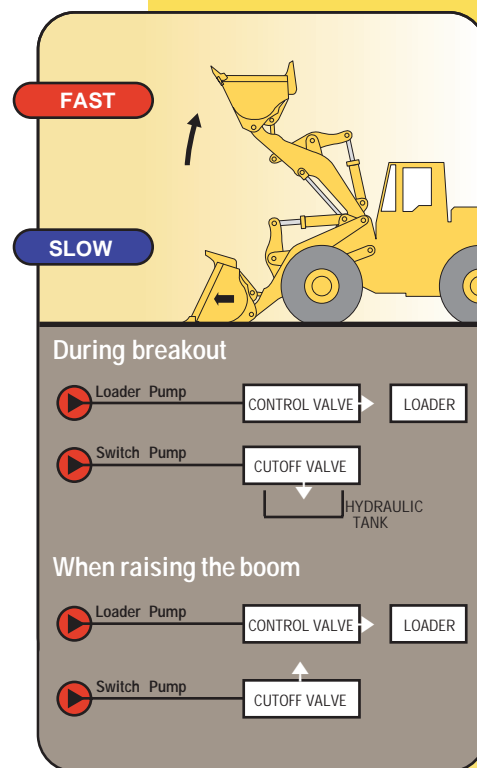
Consider this valuable feature for added productivity. With the touch of a finger, the kick-down switch automatically downshifts from second to first when beginning the digging cycle. It automatically upshifts from first to second when the direction control lever is placed in reverse. This results in increased rim pull for better bucket penetration and reduced cycle times for higher productivity.

Komatsu designed axles and final drives provide rugged reliability with low maintenance. Axle shafts are semi-floating. The front axle is fixed, while the rear axle is a center-pin support design that provides a total oscillation of up to 30 degrees.

The differential reduction gear is a heavy-duty spiral bevel gear for strength and reliable performance. Rugged, inboard planetary final drives carry the total gear reduction of the drive train to the wheel which is mounted to the axle hub.

Wet multi-disc brakes (front and rear) are fully sealed. Contaminants are kept out, reducing wear and maintenance. Brakes require no adjustments for wear, further reducing maintenance costs. There is no air system to bleed, which eliminates the condensation of water in the system that can lead to contamination and corrosion. Braking system reliability is increased with the use of two independent hydraulic circuits, providing hydraulic back-up should one circuit fail.

The parking brake is also an adjustment-free, wet multi-disc with increased reliability and long life.



APS—Automatic Power Speed Hydraulic System, is a dual-hydraulic speed system from Komatsu, which increases operational efficiency by matching the hydraulic demands to work conditions.

Oil from the switch pump is completely returned to the tank when digging and breaking out, therefore hydraulic flow to the loader is reduced and pressure is increased. This reduces horsepower demand from the engine and makes the operation more efficient. The result of this new Avance Dash-3 technology is greater productivity at the lowest operating cost.

EASY MAINTENANCE

Servicing With a Smile

It would be better if most of us approached routine maintenance and service as something that made us smile. That's why Komatsu designed the WA320-3 Wheel Loader to make servicing as easy as possible. We know by doing this, routine maintenance and servicing are less likely to be skipped, which can mean a reduction in costly downtime later on. Here are some of the many service features found on the WA320-3:

- Large gull-wing service doors provide easy access to the engine compartment.
- Ground Level Greasing—all grease points are easily reached from ground level and grease banks are provided in strategic areas to reduce maintenance time.
- Full hydraulic service and parking brakes eliminate air system maintenance.
- Batteries are located next to the counterweight for ground level access.
- Large platforms provide easy access to cab windows.
- Sealed Loader Linkage Pins—designed to keep grease contained longer and prevent the entrance of dust, thereby lengthening greasing intervals.
- Easy to reach toolbox for grease gun and tool storage.
- Optional centrifugal type engine precleaner.



SPECIFICATIONS



ENGINE

Model	Komatsu S6D114E-1
Type	Direct injection
Aspiration	Turbocharged
Number of cylinders	6
Bore x stroke	4.5" 114 mm x 5.3" 135 mm
Piston displacement	505 in ³ 8.27 ltr
Governor	All-speed mechanical
Horsepower rating @ 2380 rpm	
Gross horsepower*	173 HP 129 kW
Net flywheel horsepower	162 HP 121 kW

*Gross horsepower output for complete engine operating under SAE J1995 conditions.

Meets EPA emissions regulations

Gear pump-driven force-lubrication with full-flow filters. All filters are spin-on for easy maintenance. Dry, two-stage cyclonic air cleaner for longer element service intervals.

Electric starting motor	24V/7.5 kW
Alternator	24V/50A
Batteries	2 x 12V/150 Ah



TRANSMISSION

Three-element, single-stage, single-phase torque converter. Full power shift, countershaft transmission. A modulating function assures smooth speed and directional changes. An electrically-controlled transmission allows fingertip control with speed and directional change levers. A neutral safety circuit allows starting only when the directional control lever is in neutral. The transmission kick-down switch allows the operator to downshift from second to first gear without taking a hand off the work control levers.

Travel Speed*	Forward	Reverse
1st	4.7 mph 0-7.5 km/h	4.8 mph 0-7.8 km/h
2nd	7.5 mph 0-12.0 km/h	7.8 mph 0-12.5 km/h
3rd	13.0 mph 0-21.0 km/h	13.7 mph 0-22.0 km/h
4th	21.1 mph 0-34.0 km/h	21.7 mph 0-35.0 km/h

*with 20.5/25-12PR (L2)



AXLES AND FINAL DRIVES

Four-wheel drive system. Semi-floating front axle is fixed to the front frame. Center-pin supported, semi-floating rear axle has 30° of oscillation. Spiral bevel gear for reduction and planetary gear for final reduction. Front and rear torque proportioning axles minimize tire slippage on soft or wet terrain.



BRAKES

Service brakes: Hydraulically-actuated, in-board mounted, wet disc brakes actuate all four wheels. Two brake pedals are provided. Either can be used for normal braking; however, the left pedal can also be used for braking and transmission neutralizing simply by actuating a switch.

Parking brake: Spring applied, hydraulically released wet disc located inside the transmission case (adjustment free).



STEERING SYSTEM

Center-pivot frame articulation. Full-hydraulic power assisted steering independent of engine rpms. A wide articulation angle of 40° on each side allows a minimum turning radius of 19'11" 6080 mm at the outside corner of the bucket with bolt-on cutting edge.



BOOM AND BUCKET

Z-bar loader linkage is designed for maximum rigidity and offers powerful breakout. Rap-out loader linkage design enables shock dumping for removing sticky materials. Sealed loader linkage pins with dust seals extend greasing intervals. The bucket is made of high-tensile-strength steel.



BUCKET CONTROLS

The use of a PPC hydraulic control valve offers lighter operating effort for the work equipment control levers. The reduction in the lever force and travel make it easy to operate in the work environment.

Control positions:

Boom	Raise, hold, lower, and float
Bucket	Roll-back, hold, and dump



HYDRAULIC SYSTEM

The dual hydraulic speed system makes it possible to reduce cycle times.

- Powerful rim pull is maintained when entering the pile, so the digging capacity is increased.
- Boom speed is increased while raising the boom to minimize cycle time.

Capacity (discharge flow) @ engine 2380 rpm

Loader pump	43.6 gal/min	165 ltr/min
Steering pump	20.3 gal/min	77 ltr/min
Switch pump	20.3 gal/min	77 ltr/min
Pilot pump	12.9 gal/min	49 ltr/min

(Gear pumps)

Relief valve setting

Loader	3000 psi 210 kg/cm ²
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Control valves:

A two-spool control valve and a steering valve with a demand valve provides optimum flow.

Hydraulic cylinders	Number of cylinders	Bore	Stroke
Boom	2	5.5" 140 mm	2'3" 703 mm
Bucket	1	6.3" 160 mm	1'7" 489 mm
Steering	2	2.8" 70 mm	1'6" 460 mm

Hydraulic cycle time (rated load in bucket): Total **10.3 sec**
 Raise...**5.8 sec**/Dump...**1.2 sec**/Lower (empty)...**3.3 sec**

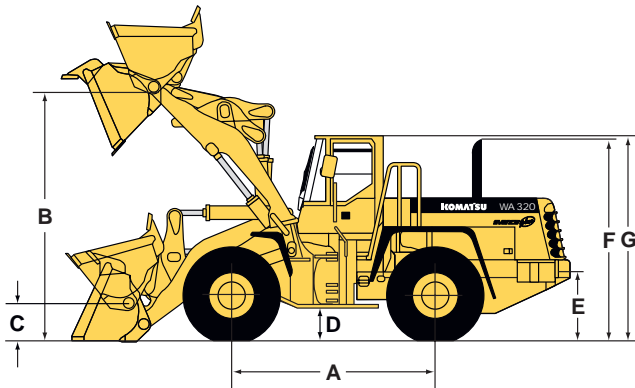


SERVICE REFILL CAPACITIES

Cooling system	7.9 gal	30 ltr
Fuel tank	65.5 gal	248 ltr
Engine	5.1 gal	19 ltr
Hydraulic system	30.6 gal	116 ltr
Axle (each front and rear)	6.6 gal	24 ltr
Torque converter and transmission	10.5 gal	40 ltr



DIMENSIONS



Tires	20.5/25-12PR (L2)
Tread	6'9" 2050 mm
Width over tires	8'6" 2585 mm
A Wheelbase	9'11" 3030 mm
B Hinge pin height, maximum height	12'9" 3885 mm
C Hinge pin height, carry position	1'6" 450 mm
D Ground clearance	1'4" 400 mm
E Hitch height	3'11" 1190 mm
F Overall height, top of stack	10'5" 3220 mm
G Overall height, ROPS cab	10'10" 3315 mm

Bucket		General Purpose with Bolt-on Cutting Edge		Excavating with Bolt-on Teeth		Light Material with Bolt-on Cutting Edge	
Bucket capacity	SAE rated	3.5 yd ³	2.7 m ³	2.75 yd ³	2.1 m ³	4.20 yd ³	3.2 m ³
	Struck	3.0 yd ³	2.3 m ³	2.25 yd ³	1.7 m ³	3.65 yd ³	2.8 m ³
Bucket width		9'0"	2740 mm	9'1"	2760 mm	9'0"	2740 mm
Bucket weight		2,800 lb	1270 kg	2,670 lb	1210 kg	3,150 lb	1430 kg
Static tipping loads	Straight	27,695 lb	12560 kg	27,585 lb	12510 kg	26,745 lb	12130 kg
	Full turn (40°)	24,055 lb	10910 kg	23,945 lb	10860 kg	23,220 lb	10530 kg
Dump clearance, maximum height and 45° dump angle		9'4"	2850 mm	9'4"	2840 mm	8'10"	2695 mm
Reach at 7' 2130 mm cut edge clearance and 45° dump angle		5'2"	1570 mm	5'2"	1565 mm	7'2"	2180 mm
Reach at maximum height and 45° dump angle		3'5"	1035 mm	3'4"	1025 mm	3'11"	1190 mm
Reach with boom horizontal and bucket level		7'10"	2395 mm	7'10"	2400 mm	8'7"	2610 mm
Operating height	Fully raised	17'3"	5265 mm	16'8"	5090 mm	18'8"	5380 mm
Overall length	Bucket ground	24'9"	7555 mm	24'5"	7435 mm	25'6"	7770 mm
	Bucket at carry	24'8"	7520 mm	24'5"	7440 mm	25'2"	7665 mm
Turning radius*		19'11"	6080 mm	19'10"	6055 mm	20'2"	6140 mm
Digging depth	0°	3.5"	90 mm	4.1"	105 mm	3.5"	90 mm
	10°	11.6"	295 mm	1'0"	310 mm	1'1"	335 mm
Breakout force (bucket cylinder)		27,560 lb	12500 kg	33,960 lb	15400 kg	23,150 lb	10500 kg
Operating weight		31,200 lb	14150 kg	31,070 lb	14090 kg	31,555 lb	14310 kg

● Static tipping load and operating weight shown include lubricants, coolant, full fuel tank, ROPS cab, front fenders, optional counterweight, 20.5/25-12PR (L2) tubeless tires, and operator. Machine stability and operating weight are affected by counterweight, tire size, and other attachments. **Do not use tire ballast with optional counterweight.** Add the following weight changes to operating weight and static tipping load.

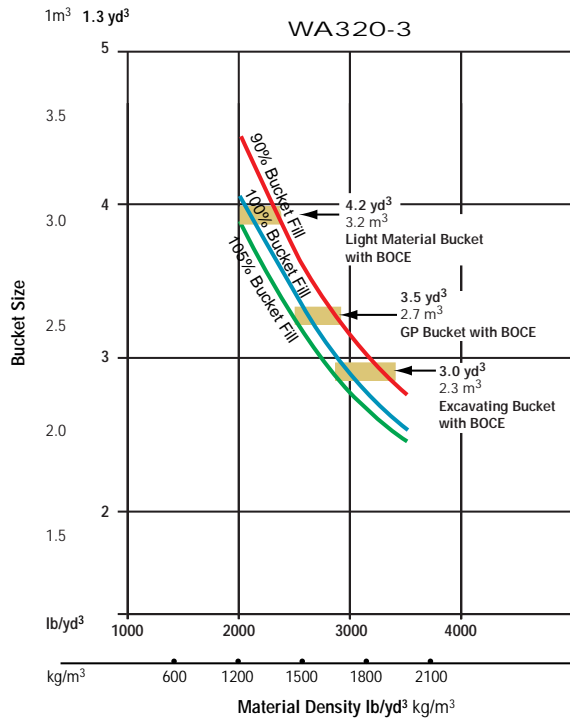
Weight Changes

Tire and Options	Change in Operating Weight				Change in Static Tipping Load							
					Straight				Full Turn (40°)			
	No Ballast		Ballast		No Ballast		Ballast		No Ballast		Ballast	
lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	lb	kg	
17.5/25-12PR (L2)	-364	-165	+66	+30	-287	-130	-309	-140	-254	-115	-187	-85
17.5/25-12PR (L3)	-121	-55	+309	+140	-99	-45	-121	-55	-88	-40	-22	-10
20.5/25-12PR (L2)	0	0	+772	+350	0	0	+496	+225	0	0	+518	+235
20.5/25-12PR (L3)	+408	+185	+1,179	+535	+320	+145	+816	+370	+287	+130	+805	+365
Opt. Cwt. Removed	-717 lb -325 kg				-1,830 lb -830 kg				-1,521 lb -690 kg			
ROPS Canopy (instead of cab)	-375 lb -170 kg				-342 lb -155 kg				-265 lb -120 kg			

● All dimensions, weights, and performance values based on SAE J-732C and J-742B standards.
* Turning radius measured with bucket at carry position, outside corner of bucket.



BUCKET SELECTION GUIDE



Material (loose weight)	lb/yd³	kg/m³
Clay and gravel, dry	2,400	1420
Clay and gravel, wet	2,600	1540
Coal, anthracite, broken	1,850	1100
Coal, bituminous, broken	1,400	830
Earth, dry, packed	2,550	1510
Earth, loam	2,100	1250
Earth, wet, excavated	2,700	1600
Granite, broken or large crushed	2,800	1660
Gravel, dry	2,550	1510
Gravel, dry 1/2" to 2" 13 to 50 mm	2,850	1690
Gravel, pit run (graveled sand)	3,250	1930
Gravel, wet 1/2" to 2" 13 to 50 mm	3,400	2020
Limestone, broken or crushed	2,600	1540
Phosphate rock	2,160	1280
Sand and gravel, dry	2,900	1720
Sand and gravel, wet	3,400	2020
Sand, dry	2,400	1420
Sand, wet	3,100	1840
Stone, crushed	2,700	1600
Topsoil	1,600	950

* This guide, representing bucket sizes not necessarily manufactured by Komatsu, will help you select the proper bucket size for material density, loader configuration, and operating conditions. Optimum bucket size is determined after adding or subtracting all tipping load changes due to optional equipment. Bucket fill factors represent the approximate amount of material as a percent of rated bucket capacity. Fill factors are primarily affected by material, ground conditions, breakout force, bucket profile, and the cutting edge of the bucket used.



STANDARD EQUIPMENT

ENGINE AND ITS RELATED ITEMS:

- Air cleaner, dry-type, two-stage
- Air conditioner drive pulley
- Cooling fan, blower
- Electrical shut off with key
- Engine, KOMATSU S6D114E-1, 6 cylinder, turbocharged, diesel, shut down key-type
- Gross horsepower:
173 HP 129 kW @ 2380 rpm
- Net horsepower:
162 HP 121 kW @ 2380 rpm
- Ether starting aid
- Exhaust pipe, curved

ELECTRICAL SYSTEM:

- Alternator, 50 ampere
- Back-up alarm
- Back-up light, rear
- Batteries, **2 x 12 volt** 150 Ah
- Horn, electric
- Lights:
 - Stop and tail
 - Turn signal, (2 front, 2 rear) with hazard switch
 - Working lights, halogen (2 front, high low beam with indicator, 2 rear) (outside)
 - Working lights in cab, halogen (2 front) inside top windshield mount
- Starting motor, 24V, 7.5 kW direct electric

POWER TRAIN AND CONTROLS:

- Differentials, torque proportioning
- Parking brake, wet disc

- Service brakes, hydraulic, wet multiple-disc, axle by axle (inboard)
- Transmission control, electric two lever type with kick-down switch
- Transmission, full power shift, automatic, F4-R4 softshift, countershaft

OPERATOR ENVIRONMENT:

- Adjustable wrist rest
- Cigarette lighter/ashtray
- Dome light
- Electrically heated rear window
- Floor mat
- Front and rear wiper/washer
- Main monitor—electronic display:
 - Central warning lamp for check items
 - Central warning lamp for caution items
 - Head lamp high beam pilot
 - Service meter
 - Speedometer mph
 - Transmission shift indicator
 - Turn signal pilot
- Maintenance monitor—electronic display:
 - Air cleaner check
 - Battery charge
 - Brake oil pressure
 - Engine oil level
 - Engine oil pressure
 - Engine water level
 - Engine water temperature
 - Fuel gauge
 - Parking brake warning light
 - Torque converter temperature
- Rearview mirrors, inside cab mount
- ROPS cab (shipped loose)
- Seat belt—retractable, 3" wide

- Seat, suspension, reclining, with armrests (fabric), and a document holder
- Steering, full hydraulic power, steering wheel tiltable
- Sun visor

HYDRAULICS AND CONTROLS:

- Automatic power speed hydraulic system
- Hydraulic oil cooler
- Two-spool valve for boom and bucket controls with PPC
- Two-stage hydraulic system

SPECIAL ARRANGEMENTS:

- Engine water conditioner

OTHER STANDARD EQUIPMENT:

- Boom kick-out, automatic
- Bucket leveler, automatic
- Counterweight, standard
- Fenders, full front and partial rear with steps
- Hand rails, front, LH and RH
- Lifting eyes
- Tires, 20.5/25-12PR (L2), tubeless and rims (4 each)
- Toolbox
- Vandalism protection
 - Caplock and cover for fuel tank
 - Padlocks:
 - Battery boxes
 - Brake oil tank
 - Engine hood side panel
 - Radiator cap cover
 - Radiator tank
 - Transmission oil filler cover



OPTIONAL EQUIPMENT

- Air conditioner with cool box
- Air ride seat
- Auxiliary steering
- Bucket teeth
- Centrifugal-type engine precleaner
- Counterweight, additional option
- ECSS (Electronically Controlled Suspension System)
- Excavating bucket with teeth, **2.75 yd³** 2.1 m³
- Excavating bucket with BOCE*, **3.0 yd³** 2.3 m³
- General purpose bucket with BOCE*, **3.5 yd³** 2.7 m³
- Light material bucket with BOCE*, **4.2 yd³** 3.2 m³

- Fenders, full front and rear
- Heater and defroster
- Hydraulic adapter kit, three-spool with piping
- JRB Coupler System
- Limited-slip differential, front and rear
- Lubrication system, automatic
- Mono-lever, loader control for two-spool valve
- Mono-lever, loader control (plus one lever for three-spool valve)
- Radio with cassette stereo, auto tuning
- Rearview mirror (outside cab mount)
- ROPS/FOPS canopy
- Three-spool valve (add-on valve)

- Tires:
 - Bias ply:
 - 17.5/25-12PR (L2)
 - 17.5/25-12PR (L3)
 - 20.5/25-12PR (L3)
 - 20.5/25-16PR (L3)
 - Radial ply:
 - 17.5/R25 XHA 1-Star (L3) Michelin
 - 20.5/R25 XTLAT 1-Star (L2) Michelin
 - 20.5/R25 XHA 1-Star (L3) Michelin

*Bolt-On Cutting Edge

KOMATSU®

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