

KOMATSU®

WHEEL LOADER

WA320-6

HORSEPOWER

Gross: **171 hp** (127.3 kW) @ 2,000 rpm

Net: **167 hp** (125 kW) @ 2,000 rpm

OPERATING WEIGHT

14,550 kg

BUCKET CAPACITY

2.5 m³



ORIGIN BRAZIL / KDB

Photo may include optional equipment.

WALK-AROUND



Photo may include optional equipment.

»Excellent operator environment

- »HST traction control switch.
- »Electronically controlled directional lever.
- »Tiltable steering column.
- »Low-noise designed cab.
- »Pillar-less large ROPS/FOPS level 2 cab-integrated.
- »Rear-hinged doors.

See pages 8 and 9.

»High productivity & low fuel consumption with hydrostatic transmission

- »High performance Komatsu SAA6D107E-1 engine.
- »Low fuel consumption.
- »Electronically-controlled HST with variable shift control system.
- »Variable traction control system.
- »S-mode.

See pages 3, 4 and 5.

»Environmentally friendly

- »PROCONVE/MAR-I emissions certified.
- »Low exterior noise.
- »Low fuel consumption.

»Increased reliability

- »Extremely reliable components designed and manufactured by Komatsu.
- »Sturdy main frame.
- »Maintenance-free, fully hydraulic, wet disc service and parking brakes.
- »Hydraulic hoses use flat face O-ring seals.
- »Sealed DT connectors for electrical connections.

See page 6.

»Easy maintenance

- »“EMMS” (Equipment management monitoring system).
- »Gull-wing type side doors that allow easy access to the engine.
- »Reversible and adjustable radiator fan (Manual/auto).
- »KOMTRAX® System.

See page 7.

HIGH PRODUCTIVITY AND LOW FUEL CONSUMPTION



»High performance Komatsu SAA6D107E-1 engine

»Electronic heavy duty “Common Rail” fuel injection system provides optimum fuel consumption.

This system also provides quick throttle response to match the machine’s powerful tractive effort and quick hydraulic response.

Net horsepower: 167 hp (125 kW)

»Low emission engine

»This engine is PROCONVE/MAR-I emissions certified.

»Low fuel consumption

»The high-torque engine and hydrostatic transmission (HST) with maximum efficiency in the low speed range provide low fuel consumption.

»Eco indicator

»The eco indicator helps the operator to promote energy saving operations.



»Hydrostatic transmission (HST) electronically-controlled HST using a 1-pump, 2-motor system

»The 1-pump, 2-motor system allows for high-efficiency and high tractive effort. Engine power is transmitted hydraulically to a transfer case, from where it passes mechanically to the differentials and out to the four driving wheels.

»HST provides quick travel response and aggressive drive into the pile. The variable displacement system automatically adjusts to the tractive effort demand in order to deliver maximum power and efficiency.

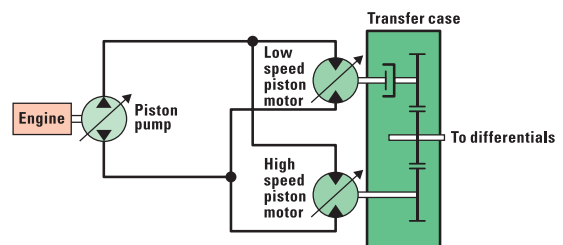
»Full auto-shifting eliminates gear shifting and kickdown operations, allowing the operator to concentrate on digging and loading.

»When high drive torque is required for digging, climbing or initiating movement, the pump feeds both motors. This combination makes the loader very aggressive and quick.

»Under deceleration, the HST system acts as a dynamic brake on the mechanical drive system. The dynamic brake can hold the loader in position on most workable slopes. This is very useful during stockpiling and ramp loading.

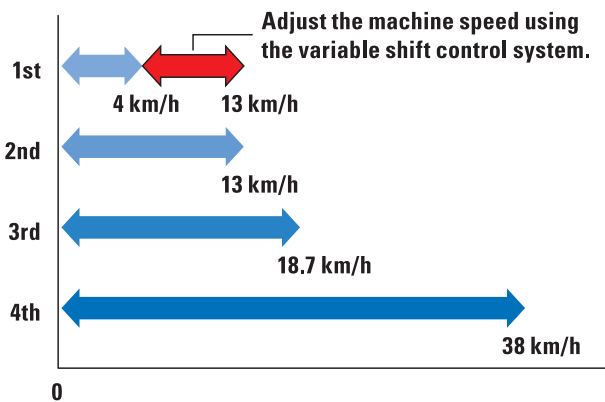
»As the machine moves and gains ground speed, the torque demand decreases and the low speed motor is effectively removed from the drive system by a clutch. When this happens, the flow goes to the high-speed motor and the low-speed motor does not adversely affect the system.

»The inching pedal gives the operator excellent simultaneous control of the travel and hydraulic equipment speeds. By depressing the inching pedal, pump flow to the motors will decrease, reducing ground speed and allowing the operator to use the accelerator to increase flow to the hydraulic equipment. Depressing the inching pedal further will activate the service brakes.

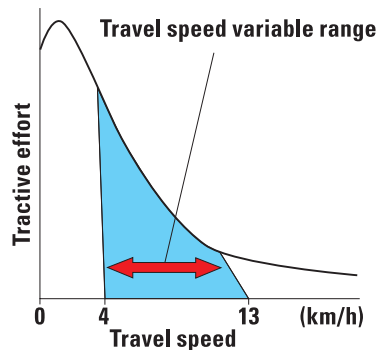


»Electronically-controlled HST with variable shift control system

»Using the speed range selector switch, the operator can choose between first, second, third or fourth gear speed. For v-cycles, the operator can set the speed control switch to 1st or 2nd gear, which provides aggressive digging, quick response and fast hydraulic reaction. For loading and hauling operations, select 3rd or 4th gear speed, which still provides aggressive digging but with much faster travel speed.

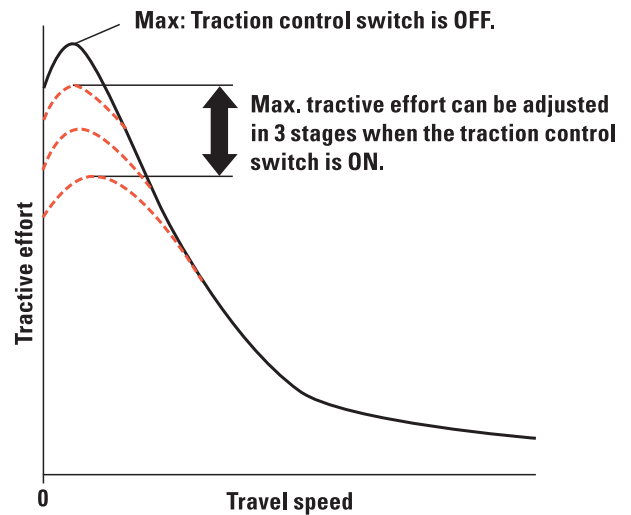


The variable shift switch allows the operator to adjust his machine speed in applications such as v-loading in confined spaces. When in 1st gear speed, the operator can adjust travel speed using the variable shift switch to match machine speed and hydraulics to the distance travelled. This feature is extremely useful when operating a sweeper or fan for snow removal operations.



»Variable traction control system

»The machine's tractive effort, when traveling at low speed, can be reduced by using the traction control switch. Combined with the torque proportioning or slip limit differentials function (Optional), causes the following effects:

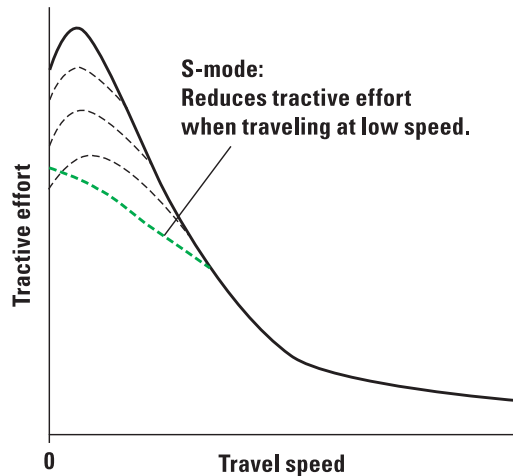


- Facilitates operation on soft ground where the tires of the machine tend to slip.
- Eliminates excessive bucket penetration and reduces tire slippage during stockpile loading to improve work efficiency.
- Reduces slippage to extend the life of tires.

Furthermore, the maximum tractive effort can be adjusted in three stages (One stage for conventional machines) when the traction control switch is ON. This allows the operator to select the optimum tractive effort according to road conditions.

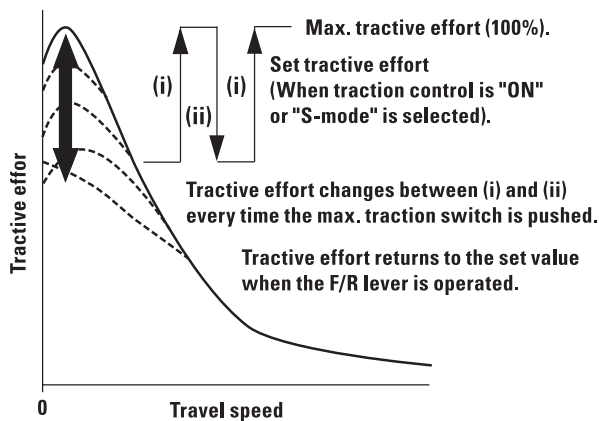
»S-mode

»Setting the switch to S-mode allows the machine to obtain the optimum drawbar pull for operations on slippery surfaces, such as snow removal on snow-covered surfaces, which reduces tire slippage and makes the operation easier. Unexpected tire slippage on slippery road surfaces is suppressed by controlling the engine speed and HST motor when traveling at low speed, (S-mode is effective only in forward traveling.)



»Maximum traction switch

»Max. traction switch is located on the work equipment control lever. When this switch is ON or S-mode is selected, the traction adjustment can be temporarily canceled and the tractive force increased to 100% of its value. Then, pushing the max. traction switch again or operating the F/R lever returns the tractive effort to the set value automatically. This switch is useful for operations such as stockpiling, where large tractive effort is required temporarily.



»Sensitive control of the HST using the accelerator pedal

»The HST system control is accurately adjusted according to the application angle of the accelerator pedal, which reduces shocks and allows smoother travelling and better energy-saving operation.



»Maximum dumping clearance and reach

»The long lift arms provide high dumping clearances and maximum dumping reach. The operator can distribute and level loads on the body of a dump truck easily and efficiently.

Dumping clearance: 2,850 mm / 9'4".

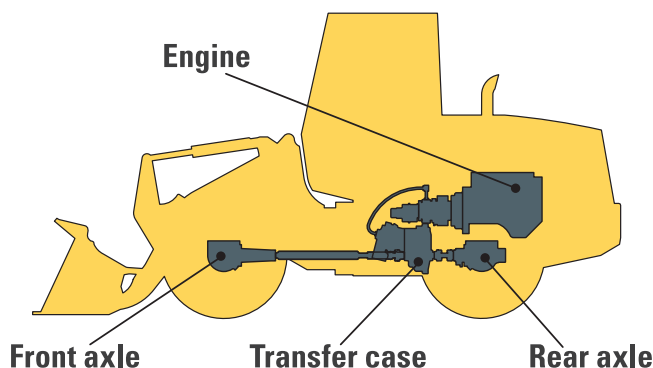
Dumping reach: 1,035 mm / 3'5".

(2.5 m³ bucket with B.O.C.)

I INCREASED RELIABILITY

»Komatsu components

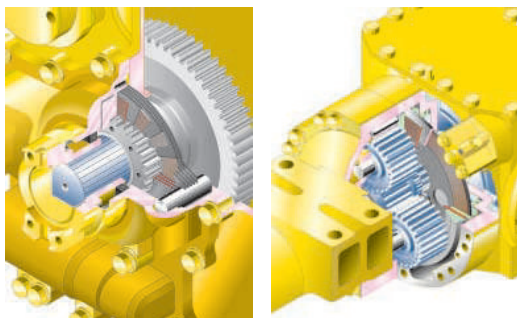
»Komatsu manufactures the engine, transfer case, axles and hydraulic components on this wheel loader. Komatsu loaders are manufactured within an integrated production system under a strict quality control.



»Fully hydraulic wet multiple-disc brakes

»This system represents lower maintenance costs and higher reliability. Wet multiple disc brakes are completely sealed and do not require adjustments, which reduces contamination levels, wear and maintenance costs. The brake is also adjustment free, so it requires less maintenance.

The new parking brake also has maintenance-free multiple wet discs, for higher reliability and longer life. Added reliability is designed into the braking system by the use of two independent hydraulic circuits, providing hydraulic backup if one of the circuits fails. Fully hydraulic brakes mean no air system to bleed, and no condensation of water in the system that can lead to contamination, corrosion and premature wear.



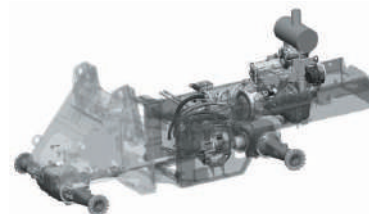
»Overrun prevention system

»When the machine descends a slope of six degrees or less, maximum travel speed is automatically restricted to approximately **23 mph** (38 km/h) by the travel speed and pump discharge flow control sensors to protect the power train and brake components. When the machine descends a steep slope and the travel speed reaches **22 mph** (36 km/h), the caution lamp lights up to alert the operator to reduce the travel speed.

Note: When the machine descends a steep slope, the use of the service brake is necessary to limit travel speed.

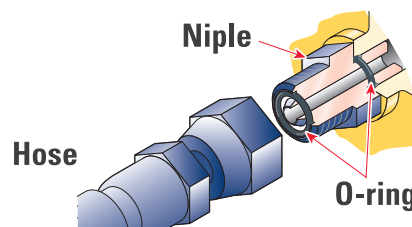
»High-rigidity frames and loader linkage

»The front and rear frames and the loader linkage have a high rigidity to provide greater resistance to tension. Frame and loader linkage are designed to withstand real work loads and are supported by simulated computer tests.



»Flat face-to-face o-ring seals

»Flat face-to-face O-ring seals are used to securely seal hydraulic hose connections.



»Sealed DT connectors

»Main harnesses and controller connectors are equipped with sealed DT connectors providing high reliability and higher dust and corrosion resistance.



EASY MAINTENANCE



Photo may include optional equipment.

»EMMS (Equipment management monitoring system)

»Monitor panel is installed in front of the operator for easy view, allowing the operator to easily check gauges and warning lights.



A specially designed two-spoke steering wheel allows the operator to easily see the panel.

Maintenance control and troubleshooting functions

•Action code display function

If an abnormality occurs, the monitor displays action details on the character display located at the lower central part of the monitor.

•Monitoring function

Controller monitors engine oil pressure and level, coolant temperature, air cleaner clogging, etc. If the controller finds abnormalities, the error is displayed on the LCD.

•Replacement time notice function

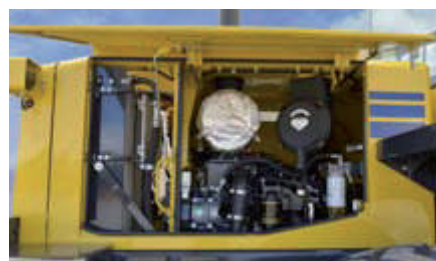
When replacement intervals are reached, monitor informs replacement time of oil and filters on the LCD.

•Trouble data memory function

Monitor stores abnormalities for effective troubleshooting.

»Gull-wing type engine side doors with wide opening range

»Daily inspections, such as engine maintenance, can be performed more easily due to the gull-wing type doors that can be fully opened from the side and are supported by a gas spring.



»Easy cleaning of the radiator

»If the machine is operating in adverse conditions, the operator can reverse the hydraulic cooling fan from inside the cab by turning on a switch on the control panel.

»Automatic reversible fan

»The engine fan is driven hydraulically and can be operated in reverse automatically. When the switch is in the automatic reverse position, the fan rotates in reverse for 2 minutes every 2 hours intermittently (Default setting).



B: Manual reverse mode.

A: Normal rotation mode.

C: Auto reverse mode.

OPERATOR ENVIRONMENT

»Easy operation



»Electronically controlled directional lever

»The operator can change direction with a touch of his fingers without removing his hand from the steering wheel, thanks to the solid state electronic technology.



»Tiltable steering column

»The operator can tilt the steering column to provide a comfortable working position.



»Multi-function work equipment control lever with directional selector and maximum traction switch

»The new multifunction control lever, with directional selector switch integrated, allows the operator to easily control the work equipment to reduce fatigue and increase controllability. The adjustable wrist rest gives the operator a variety of comfortable operating positions.



»Right-side control panel

»The operator can select the speed range and maximum travel speed in 1st. In addition, the tractive effort and the rotation of the cooling fan can be adjusted.

- 1 Speed range selector switch.
- 2 Variable shift switch.
- 3 Traction control switch.

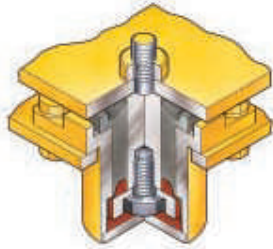
- 4 Max. traction switch.
- 5 Fan reverse switch.
- 6 Directional selector switch.

»Comfortable operation

»Low-noise design

»Dynamic noise level (Outside): 108 dB(A).

The large cab is mounted on Komatsu's exclusive ROPS/FOPS viscous mount design. The low-noise engine, hydraulically driven fan, and hydraulic pumps are mounted on rubber cushions. This, together with the cab sealing provide a comfortable, pressurized, quiet and low-vibration operating environment.



»Pillar-less large cab

»The wide, pillar-less, flat glass offers excellent front visibility. The wiper arm covers a large area to provide great visibility even on rainy days. The large cab area provides maximum space for the operator. The front mounted air conditioner increase seat reclining and backward slide adjustment.



»Rear-hinged full open cab doors

»The large cab doors are rear-hinged to open fully offering easy access/exit. This box-type staircase design allows the operator to enter and exit the machine easily without losing visibility during operations with the doors latched open. Access is only on the left side, since the right door works only as an emergency exit.



Photo may include optional equipment.

SPECIFICATIONS



ENGINE

MODEL	Komatsu SAA6D107E-1.
TYPE	Water-cooled, 4-cycle.
ASPIRATION	Turbocharged and aftercooled.
NUMBER OF CYLINDERS	6.
BORE X STROKE	107 mm x 124 mm.
PISTON DISPLACEMENT	6.69 ltr.
GOVERNOR	All-speed, electronic.
HORSEPOWER:	
SAE J1995	Gross 171 hp (127.3 kW).
ISO 9249/SAE J1349	Net 167 hp (125 kW).
RATED RPM	2,000 rpm.
FAN DRIVE METHOD	
FOR RADIATOR COOLING	Hydraulic.
FUEL SYSTEM	Direct injection.
LUBRICATION SYSTEM:	
METHOD	Gear pump, force-lubrication.
FILTER	Full-flow type.
AIR CLEANER	Dry type with double elements and dust evacuator, plus dust indicator.

*PROCONVE/MAR-1 emissions certified.



TRANSMISSION

TYPE: Hydrostatic, 1 pump, 2 motors with speed range selector.

TRAVEL SPEED: **km/h**
MEASURED WITH 20.5-25 TIRES

	1st	2nd	3rd	4th
Both forward and reverse	4.0 - 13.0	13.0	18.7	38.0



AXLES AND FINAL DRIVES

DRIVE SYSTEM	Four-wheel drive.
FRONT	Fixed, semi-floating.
REAR	Center pin support, semi-floating and 30° total oscillation.
REDUCTION GEAR	Spiral bevel gear.
DIFFERENTIAL GEAR	Torque proportioning.
FINAL REDUCTION GEAR	Planetary gear, single reduction.



BRAKES

SERVICE BRAKES	Wet multiple-disc brakes, hydraulically actuated on four wheels.
PARKING BRAKE	Wet, multiple-disc brake, actuated on transfer case output shaft.
EMERGENCY BRAKE	Parking brake is commonly used.



STEERING SYSTEM

TYPE	Articulated type, full-hydraulic power steering.
STEERING ANGLE	38.5° each direction (40° end stop).
MINIMUM TURNING RADIUS AT THE CENTER OF OUTSIDE TIRES	5,380 mm.



HYDRAULIC SYSTEM

STEERING SYSTEM:	
HYDRAULIC PUMP	Gear type pump.
CAPACITY	172 ltr/min at rated rpm.
RELIEF VALVE SETTING	20.6 MPa (210 kgf/cm²).
HYDRAULIC CYLINDERS:	
TYPE	Double-acting, piston type.
NUMBER OF CYLINDERS	2.
BORE X STROKE	70 mm x 453 mm.
LOADER CONTROL:	
HYDRAULIC PUMP	Gear type pump.
CAPACITY	61 ltr/min.
RELIEF VALVE SETTING	20.6 MPa (210 kgf/cm²).
HYDRAULIC CYLINDERS:	
TYPE	Double-acting, piston type.
NUMBER OF CYLINDERS - BORE X STROKE:	
LIFT CYLINDER	2 - 140 mm x 740 mm.
BUCKET CYLINDER	1 - 160 mm x 532 mm.
CONTROL VALVE	2-spool type.
CONTROL POSITIONS:	
BOOM	Raise, hold, lower and float.
BUCKET	Tilt-back, hold and dump.
HYDRAULIC CYCLE TIME (RATED LOAD IN BUCKET):	
RAISE	6.1 seconds.
DUMP	1.2 seconds.
LOWER (EMPTY)	3.3 seconds.

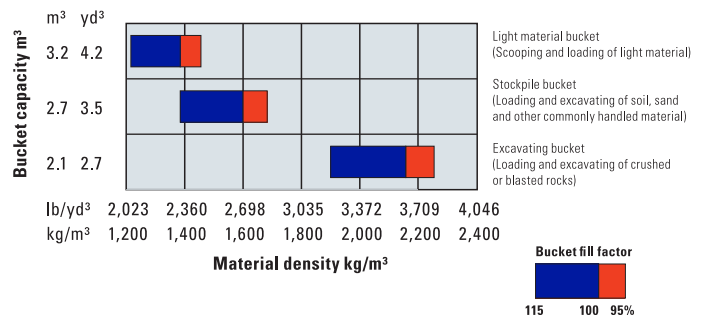


SERVICE REFILL CAPACITIES

COOLING SYSTEM	25 ltr.
FUEL TANK	245 ltr.
ENGINE	23 ltr.
HYDRAULIC SYSTEM	89 ltr.
AXLE (EACH FRONT AND REAR)	24 ltr.
TRANSFER CASE	6.5 ltr.

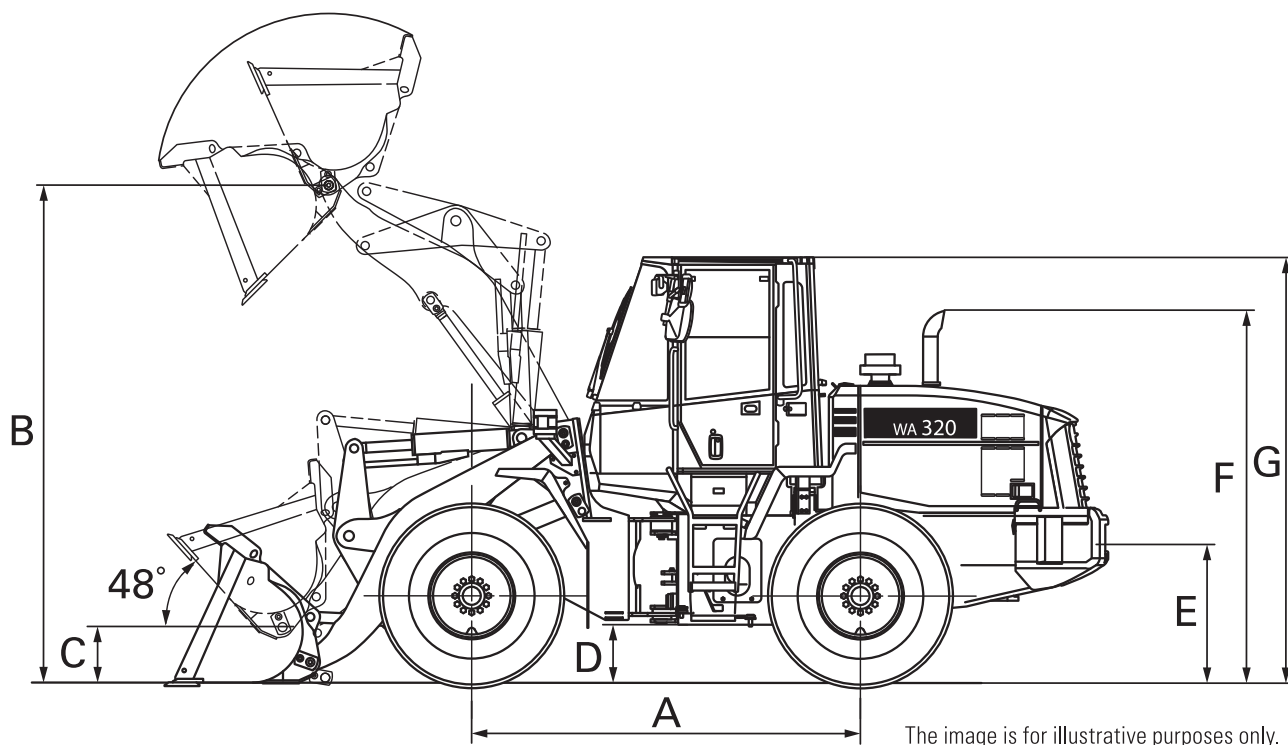


BUCKET SELECTION GUIDE





DIMENSIONES



	Tread	2,050 mm / 6'9"
	Width over tires	2,585 / 8'5"
A	Wheelbase	3,030 / 9'11"
B	Max. hinge pin height	3,905 / 12'10"
C	Hinge pin height, carry position	480 / 1'7"
D	Ground clearance	425 / 1'5"
E	Hitch height	1,095 / 3'7"
F	Overall height, top of the exhaust pipe	3,130 / 10'3"
G	Overall height, ROPS cab	3,200 / 10'5"



DIMENSIONES

Comparisons made on machines equipped with 20.5-R25-16PR (L3) tires and ROPS/FOPS cab level 2.

		Stockpile bucket
		Bolt-on cutting edges and teeth
Bucket capacity:	Heaped	2.5 m ³ / 3.27 yd ³
	Struck	2.1 m ³ / 2.74 yd ³
Bucket width		2,770 mm / 9'1"
Bucket weight		1,240 kg / 2,734 lb
Dumping clearance, max. height and 45° dump angle*		2,850 mm / 9'4"
Reach at max. height and 45° dump angle*		1,035 mm / 3'5"
Reach at 2,130 mm / (7') and 45° dump angle*		1,570 mm / 5'1"
Reach with arm horizontal and bucket leveled*		2,420 mm / 7'9"
Operating height (Fully raised bucket)		5,330 mm / 17'5"
Overall length		7,540 mm / 24'6"
Loader clearance circle (Bucket at carry, outside corner of bucket)		12,520 mm / 41'1"
Digging depth:	0°	85 mm / 3,3"
	10°	296 mm / 1'0"
Static tipping load	Straight	13,525 kg / 29,818 lb
	38° full turn	12,030 kg / 26,522 lb
Breakout force		13,180 kgf / 129 kN / 29,060 lb
Operating weight		14,550 kg / 32,077 lb

*At the end of tooth or B.O.C.

All dimensions, weights, and performance values are based on SAE J732c and J742b standards.

Static tipping load and operating weight shown include lubricant, coolant, full fuel tank, ROPS cab, and operator. Machine stability and operating weight affected by counterweight, tire size, and other attachments.

Apply the following weight changes to operating weight and static tipping load.



WEIGHT CHANGES

(Unit: kg)

Tire	Change in operating weight	Change in tipping load	
		Straight	Full turn
(Radial) 20.5 R25 XHA2 L3 TL* 186 A2 Michelin	+32	+24	+21



EQUIPAMIENTO ESTÁNDAR

- »2-spool valve for boom and bucket controls.
- »Air conditioner.
- »Alternator, 60 A.
- »Automatic boom kickout.
- »Auto shift hydrostatic transmission (HST) with mode select system.
- »Back-up alarm.
- »Back-up lamp.
- »Batteries, 150 Ah/2 x 12 V.
- »Bucket positioner.
- »Counterweight, standard and additional (520 kg).
- »Directional signal.
- »Large size radiator grill.
- »Engine shut-off system, electric.
- »Cab floor mat.
- »Fuel prefilter with water separator.
- »Hydraulic-driven fan with reverse rotation.
- »KOMTRAX® system.
- »Lift cylinders and bucket cylinder.
- »Loader linkage with standard lift arm.
- »Main monitor panel with EMMS (Equipment management monitoring system).
- »Multifunctional control, mono lever.
- »Radiator mask, grid type.
- »Engine pre-cleaner with extension.
- »Rearview mirrors (1 inside and 2 outside).
- »Rear and front window washer and wiper.
- »Tires (20.5-R25-16PR, L3 tubeless) and rims.
- »ROPS/FOPS level 2 cab.
- »Seat belt.
- »Service brakes, wet disc type.
- »Starting motor 24 V, 5.5 Kw.
- »Steering wheel, tiltable.
- »Sun visor.
- »Transmission, 4 forward and 4 reverse.
- »Machine identification plate light.
- »Grease gun holder.
- »Cutting edge and bucket teeth (Bolt-on type).
- »Reversible and adjustable radiator fan (Manual/auto).
- »Variable traction control system.
- »Engine, Komatsu SAA6D107E-1 diesel (PROCONVE-MAR-I emissions certified).



OPTIONAL EQUIPMENT

- »3-spool valve.
- »ECSS (Electronically controlled suspension system).
- »Cutting edge (Bolt-on and reversible type).
- »20.5 R25 XHA2 L3 TL* 186 A2 radial Michelin tires.

**Optional equipment may not be available in your country.
Please contact your Distributor for further information.**



SATELLITE MONITORING SYSTEM

KOMTRAX PLUS is a revolutionary tracking system designed to save time and money. Nowadays, the equipment can be tracked anytime and anywhere. This valuable data, received via the KOMTRAX website, can be used to optimize planning of the movements and performance of the equipment.

FEATURES

»LOCATION

KOMTRAX uses a satellite positioning network to inform the location of the equipment.

»GEOFENCE

In partnership with their Komatsu Distributor, owners can create virtual fences (Geo) to receive alerts when the equipment enters or leaves the designated range for operations.

»SERVICE METER READING

Daily report of the equipment's working hours, which allows planning maintenance and replacement of components.

»KOMTRAX OPERATION MAPS

In the operation maps you can check the times of the day when the equipment is in operation and if the workers are performing their duties in the stipulated times.

»FUEL MEASUREMENT LEVEL

Shows the amount of fuel at the end of the working day.

»WATER TEMPERATURE DAILY RECORD

Constant record of the increase of engine water temperature with a daily report at the end of the day.

»CAUTIONS

If a light turns on in the cab of the equipment, it indicates that a problem occurs. From the website of the application you can check the reason for the problem, the time it occurred and a record number will be generated.

»ABNORMALITY CODES

Abnormality codes are transmitted to the Komatsu Distributor for troubleshooting before technicians arrive at the workplace. An email notification is also sent with the code of what happened.

»NOTICE OF MAINTENANCE REPLACEMENT

The system generates alerts to inform that the equipment requires replacement of elements like filters and oil.

»EQUIPMENT KEY HOURS

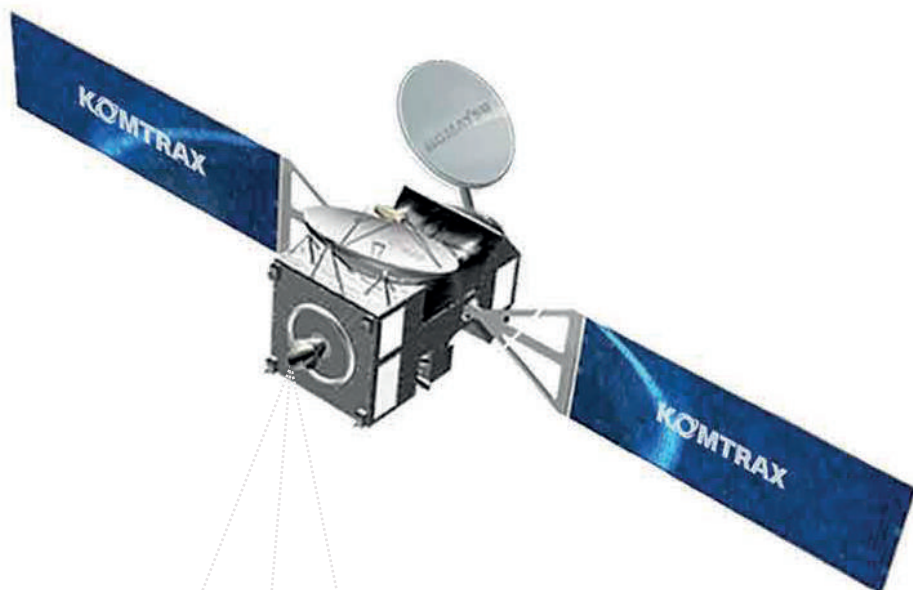
Detailed information on key equipment hours such as excavation, travel, unloading and elevation. This can help to monitor and compare equipment performance, in addition to working hours and idle times.

»LOADING FREQUENCY

Information on the load factor of the equipment to know if it is performing in a light, medium or heavy work.

»ANTI-THEFT ENGINE LOCK

KOMTRAX has a system to lock and unlock the motor of the equipment, which will allow the operation only on preset days, hours and areas.



FEATURES

»FUEL CONSUMPTION

On new Komatsu equipment, you can get the actual status of the fuel gallons consumed, besides an average of the fuel spent per hour during the period of operation.

»MONTHLY AND ANNUAL DATA REPORTS

KOMTRAX generates summaries of all critical system data to help with analysis of fleet utilization, equipment scheduling, future equipment purchases, labor costs, etc.

**Check with your Komatsu dealer for the information available
for your model and service availability in your country.**



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