

# WA320-1

## WHEEL LOADER



ROPS cab is an option.  
Photo shown may include other optional equipment.

## **KOMATSU VANGUARD SERIES**

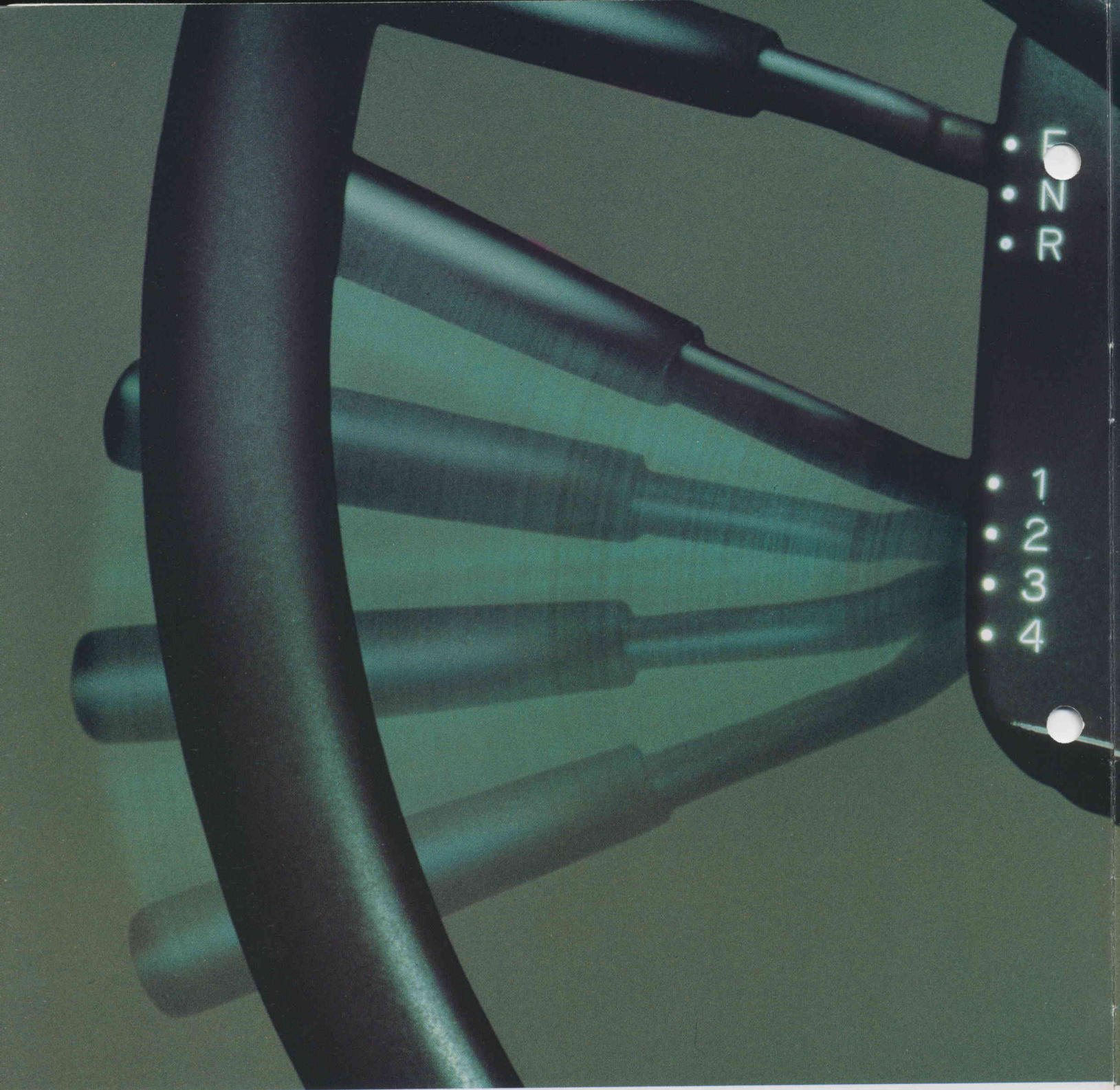
- *The powerful Komatsu S6D105 engine provides fuel-efficient operation.*
- *Z-bar loader linkage assures a large breakout force and fast cycle times.*
- *Electrically controlled transmission enables light fingertip control of all machine functions.*
- *Tiltable steering wheel and adjustable seat provide operator comfort and efficiency.*
- *Wet disc brakes and sealed loader linkage pins account for higher performance and less maintenance.*
- *An electronic display and monitoring system oversees machine operations and alerts the operator of any problems.*
- *All components are Komatsu made for superior reliability and availability.*

**Flywheel horsepower: 150 HP (112 kW) @ 2350RPM**

**Bucket capacities: 2.1 – 3.2 m<sup>3</sup> (2.75–4.2 yd<sup>3</sup>)**

**Operating weight: 12800 kg (28220 lb)**





**Light fingertip controls**

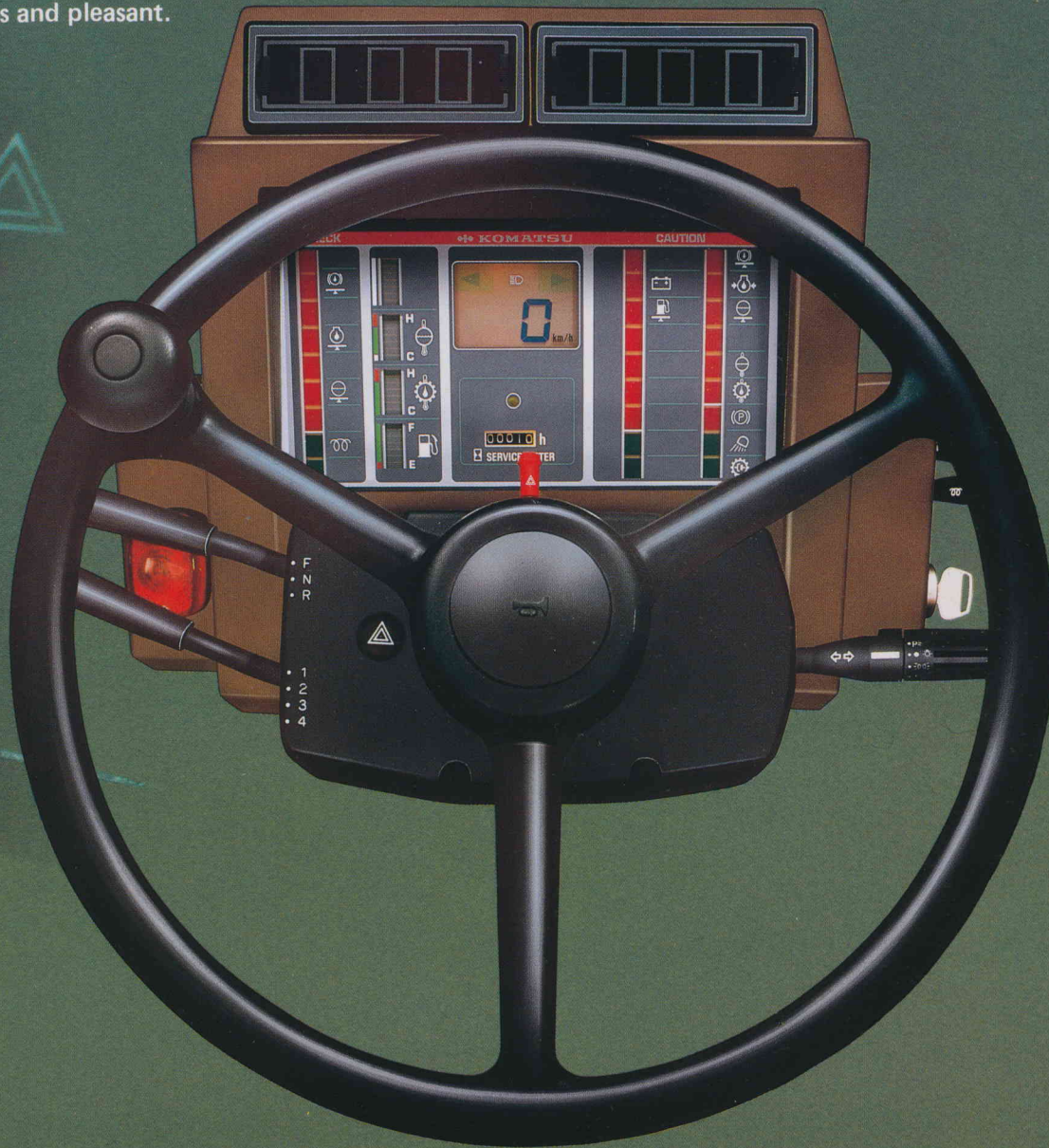
The electrically controlled transmission reduces the shifting effort to only 0.6 kg (1.3 lb). This makes gear changing as easy as flicking a turn signal. And the operator never has to take his hand off the wheel.





# Quality Machines Elevate Driving Feel

The WA320-1 incorporates the latest in advanced technologies and systems—light lever controls, comfortable suspension seat, electronic monitoring, digital meters and others. Driving is made effortless and pleasant.



## Advanced monitoring system

The operator conducts all daily checks from his seat and gets an immediate reading on each machine function. A warning light and buzzer alert the operator of any malfunctions. Checks are further simplified with a digital speedometer and bar graph gauges.

CHECK MONITOR		
Brake oil level	Engine cooling water temperature gauge	Turn signal lamp
Engine oil level	Torque converter oil temperature gauge	High beam pilot lamp
Radiator coolant level	Fuel gauge	Speedometer
Engine pre-heating		Service meter

CAUTION MONITOR		
Charge monitor	Radiator coolant level	Parking brake pilot lamp
Fuel level	Coolant temperature	Pilot lamp for working lamp
Brake line failure	Torque converter oil temperature	Transmission cut-off selector
Engine oil pressure		



# State-of-the-art Equipment Embodies Quality

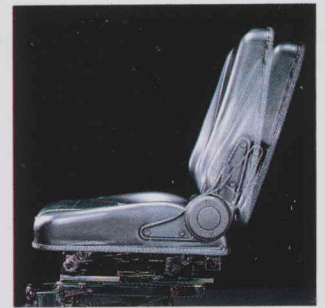


## Spacious, comfortable cab

The optional cab is designed and laid out for maximum comfort and efficiency. The compartment features a wide field of vision, plenty of work space and logically arranged instruments, levers and pedals. Vibration and noise are kept to a minimum.



The adjustable steering wheel tilts within a 100 mm (4") range for operator convenience.



The oil-suspension seat (optional) is fully adjustable for maximum operator comfort.



## High performance for greater production

The WA320-1's outstanding bucket and loader performance and fast, smooth movement account for greater productivity.



High dumping clearance, long dumping reach and excellent visibility enable easy loading of the dump truck.

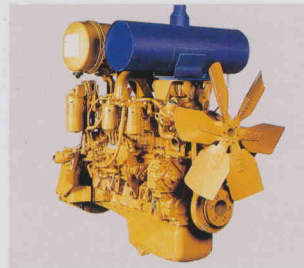


Faster cycle times are achieved with a breakout force of 13,340 kg (29,410 lb) and a rim pull of 13,600 kg (29,990 lb). The Z-bar loader linkage assures powerful excavations.

A center pin-supported rear axle with a  $\pm 15^\circ$  oscillation range, extra-long wheel base, wide tread and a  $40^\circ$  articulation angle assure stability over the roughest terrain.

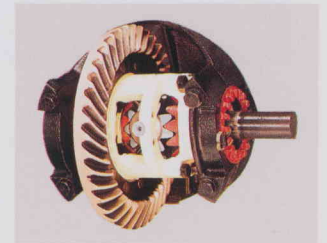
## Downtime reduced with reliable komatsu components

All Komatsu Components are designed and manufactured for maximum quality and reliability. Komatsu's service program also emphasizes the immediate availability of components and parts.



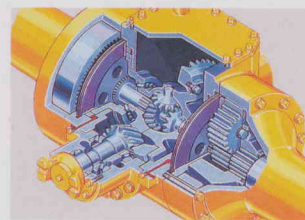
The S6D105 turbo-charged diesel engine delivers 150 HP (112 kW). At the same time, the six cylinder, water-cooled, direct injected diesel engine is fuel efficient, decreasing fuel consumption per hour of production. The full powershift, countershaft type transmission is suited for all jobsite conditions.

The steering demand valve employs a two-pump system for supplying oil to the steering and work equipment circuits, resulting in light steering and high reliability.

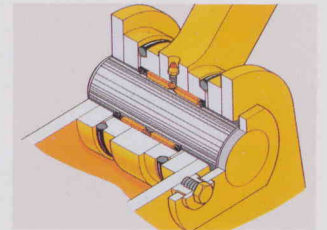


The torque proportioning differentials minimize slippage, improve traction and increase the service life of tires.

## Foolproof operations and minimal maintenance



Adjustment-free wet disc brakes assure braking performance even on muddy terrain. They are sealed to remain free from dirt and other contaminants.



Sealed loader linkage pins require less maintenance. Bucket hinges and linkage pins are protected by dust seals and cord rings so that lubrication intervals are greatly extended.



The tiltback engine hood provides spacious work area for simplified engine checks, changing of elements and other required maintenance work.

# SPECIFICATIONS



## ENGINE

The Komatsu S6D105 is a 4-stroke, water-cooled, overhead valve, direct-injection turbocharged diesel engine. It includes six cylinders with a 105 mm (4.1") bore x 125 mm (4.9") stroke and a 6.49 ltr. (396 cu.in) piston displacement.

Flywheel horsepower:

150 HP (112kW) at 2350 RPM (SAE J1349)

152 PS at 2350 RPM (DIN 6270 NET)

Direct-injection fuel system. All-speed mechanical governor. Gear-pump-driven force-lubrication with full-flow filters. All filters are spin-on type for easy maintenance. Dry, cyclo-pack air cleaner for longer element service. 24 V/5.5 kW electric starting motor. 24 V/25 A alternator. 2 x 12 V/140 Ah batteries.



## TRANSMISSION

3-element, single-stage, single-phase torque converter. Full powershift, countershaft type transmission. A modulating function assures shockless speed and directional changes without braking. 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.

Travel speed km/h (MPH)

	Forward	Reverse
1st	0-6.7 (4.2)	0-7.0 (4.3)
2nd	0-10.2 (6.3)	0-10.5 (6.5)
3rd	0-18.1 (11.2)	0-18.6 (11.6)
4th	0-34.0 (21.1)	0-35.1 (21.8)



## AXLES & FINAL DRIVES

Four-wheel drive system. A semi-floating front axle is fixed to the front frame. Center-pin-supported, semi-floating rear axle with a large oscillation of  $\pm 15^\circ$ . A spiral bevel gear for reduction and a planetary gear for final reduction. Front and rear torque proportioning differentials minimize tire slippage on soft or wet terrain.



## BRAKES

**Service brakes:** Hydraulically actuated, inboard-mounted, wet, disc brakes actuate all four-wheels. Two brake pedals provided. The right for normal braking; the left offers not only normal braking but also braking + transmission neutralizing in case the transmission cut-off switch is turned on.

**Parking brake:** Dry disc type applied on front output coupling of transmission.



## TIRES

Front and rear: 17.5-25-12PR (L-2).

Rims: 14.00 x 25 WTB



## STEERING SYSTEM

Center-pivot frame articulation. Mechanical follow-up type, full-hydraulic power assisted steering independent of engine RPMs. A wide articulation angle of  $40^\circ$  on each side for a

minimum turning radius of 6045 mm (19'10") at the outside corner of the bucket.



## BOOM & BUCKET

Z-bar loader linkage are designed for maximum rigidity and offer powerful excavation. Rap-out loader linkage design enables shock dumping for removing sticky materials. Sealed loader linkage pins with dust seals extend greasing intervals. Bucket corner teeth (optional) not only minimize bucket wear but also increase penetrating force.



## BUCKET CONTROLS

Light effort is required to operate the bucket and boom control levers, assuring smooth, responsive bucket/boom action. In addition, the bucket positioner and the boom kickout device (optional) facilitate repeated digging/loading operations.

**Control positions:**

Boom . . . . . Raise, hold, lower and float  
Bucket . . . . . Tilt-back, hold and dump



## HYDRAULIC SYSTEM

Two gear pumps for loader and steering control.

Capacity (discharge flow) at engine 2350RPM

Loader pump . . . . . 120 ltr. (31.7 U.S.gal)/min.

Steering pump . . . . . 97 ltr. (25.6 U.S.gal)/min.

**Relief valve setting.** . . . . . 210 kg/cm<sup>2</sup> (2990 PSI/20.6 MPa)

**Control valves:**

A 2-spool type control valve and a steering valve with a demand valve.

Hydraulic cylinders	Number of cylinders	Bore	Stroke
Boom	2	140 mm (5.51")	695 mm (2'3")
Bucket	1	160 mm (6.3")	468 mm (1'6")

Hydraulic cycle time (rated load in bucket):

Raise...6.0 sec./Dump...1.3 sec./Lower (empty)...3.0 sec.



## SERVICE REFILL CAPACITIES

Cooling system . . . . . 38 ltr. (10.0 U.S.gal)

Fuel tank . . . . . 200 ltr. (52.8 U.S.gal)

Engine . . . . . 19 ltr. ( 5.0 U.S.gal)

Brake oil tank . . . . . 1 ltr. ( 0.3 U.S.gal)

Hydraulic system . . . . . 60 ltr. (15.9 U.S.gal)

Axle (each front and rear) . . . . . 24 ltr. ( 6.3 U.S.gal)

Torque converter and transmission . . . . . 31 ltr. ( 8.2 U.S.gal)



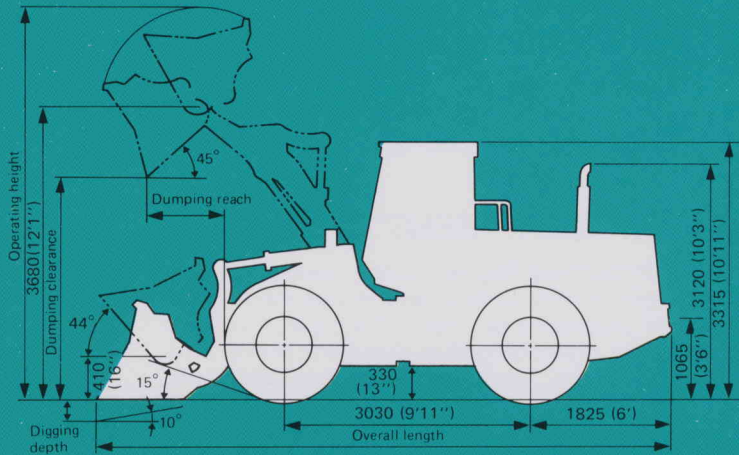


# DIMENSIONS

Unit: mm(ft.in)

### Dimensions vary with tires

Tire size	17.5-25	20.5-25
Tread	2050 mm (6'9")	2050 mm (6'9")
Width over tires	2530 mm (8'4")	2585 mm (8'6")
Change in vertical dimension	0	+70 mm (2.76")
Change in reach	0	-75 mm (2.95")
Change in digging depth		
0°	0	-70 mm (2.76")
10°	0	-70 mm (2.76")
Change in overall length		
Bucket on ground	0	-60 mm (2.36")
Bucket at carry	0	-40 mm (1.51")

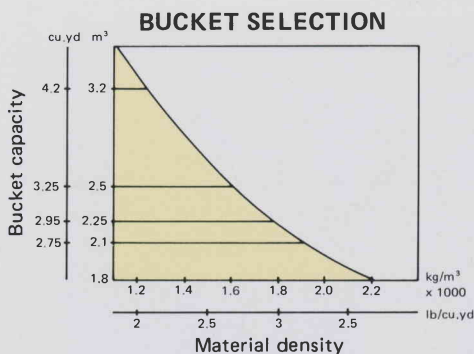


Bucket type		Loose material	Excavating	
			Bolt-on cutting edge	Bolt-on teeth
Bucket capacity	SAE rated	2.5 m <sup>3</sup> (3.25 cu.yd)	2.1 m <sup>3</sup> (2.75 cu.yd)	2.25 m <sup>3</sup> (2.95 cu.yd)
	Struck	2.1 m <sup>3</sup> (2.75 cu.yd)	1.8 m <sup>3</sup> (1.35 cu.yd)	2.0 m <sup>3</sup> (2.6 cu.yd)
Bucket width		2740 mm (9')	2760 mm (9'1")	2740 mm (9')
Bucket weight		1140 kg (2510 lb)	1160 kg (2560 lb)	1185 kg (2610 lb)
Static tipping load	Straight	9860 kg (21740 lb)	10040 kg (22140 lb)	9890 kg (21810 lb)
	Full turn	8280 kg (18260 lb)	8435 kg (18600 lb)	8310 kg (18320 lb)
Dumping clearance, max. height and 45° dump angle		2695 mm (8'10")	2630 mm (8'8")	2730 mm (8'11")
Reach at 2130 mm (7') cut edge clearance and 45° dump angle		1530 mm (5')	1415 mm (4'8")	1510 mm (4'11")
Reach at max. height and 45° dump angle		1125 mm (3'8")	1170 mm (3'10")	1090 mm (3'7")
Reach with arm horizontal and bucket level		2345 mm (7'8")	2420 mm (7'11")	2295 mm (7'6")
Operating height (fully raised)		4985 mm (16'4")	4885 mm (16')	4885 mm (16')
Overall length	Bucket on ground	7300 mm (23'11")	7375 mm (24'2")	7250 mm (23'9")
	Bucket at carry	7240 mm (23'9")	7305 mm (24')	7210 mm (23'8")
Turning radius (bucket at carry, outside corner of bucket)		6045 mm (19'10")	6080 mm (19'11")	6035 mm (19'10")
Digging depth	0°	160 mm (6.3")	175 mm (6.9")	160 mm (6.3")
	10°	355 mm (14")	385 mm (15.2")	345 mm (13.6")
Breakout force (bucket cylinder)		13340 kg (29410 lb)	15470 kg (34110 lb)	13990 kg (30850 lb)
Operating weight		12800 kg (28220 lb)	12720 kg (28050 lb)	12825 kg (28280 lb)

- All dimensions, weights and performance values based on SAE J-732C and J742b standards.
- Concerning increases or decreases according to tire size, refer to the table in DIMENSIONS.
- Static tipping load and operating weight shown include 17.5-25-12PR (L-2) tubeless tires with 520 kg (1150 lb) ballast in rear, lubricants, coolant, full fuel tank, ROPS cab and operator. Machine stability and operating weight are affected by counterweight, tire size and other attachments. Use either tire ballast or counterweight, not both. Add the following weight changes to operating weight and static tipping load.

### Weight changes

Tires and options	Change in operating weight	Change in tipping load	
		Straight	Full turn
17.5-25-12PR (L-2) tubeless tires without ballast	-520 kg (1150 lb)	-790 kg (1740 lb)	-655 kg (1440 lb)
20.5-25-12PR (L-3) tubeless tires with ballast	+340 kg (750 lb)	+235 kg (520 lb)	-195 kg (430 lb)
20.5-25-12PR (L-3) tubeless tires without ballast	-335 kg (740 lb)	-645 kg (1420 lb)	-535 kg (1180 lb)
Remove ROPS cab	-510 kg (1120 lb)	-475 kg (1050 lb)	-395 kg (970 lb)
Install ROPS canopy	-265 kg (580 lb)	-230 kg (510 lb)	-190 kg (420 lb)
Additional counterweight in place of ballast	-215 kg (470 lb)	0	0



2.5 m<sup>3</sup>  
(3.25 cu.yd)

**Loose material bucket with bolt-on cutting edge:** (Loading and excavating of soil, sand and a variety of other commonly handled materials.)

2.25 m<sup>3</sup>  
(2.95 cu.yd)

**Excavating bucket with bolt-on cutting edge:**

2.1 m<sup>3</sup>  
(2.75 cu.yd)

**Excavating bucket with bolt-on teeth** (Loading and excavating crushed rock and blasted rock.)

3.2 m<sup>3</sup>  
(4.2 cu.yd)

**Light material bucket with bolt-on cutting edge:** (A lighter-weight, large capacity bucket.)

## STANDARD EQUIPMENT

KOMATSU S6D105 diesel engine, battery, electric starting system, alternator, 4 forward & 4 reverse powershift transmission, torque proportioning type differential, hydraulic power steering, wet type disc brakes, automatic bucket positioner, engine key stop, fan guard, adjustable seat, hitch,

rops brackets, electronic display/monitoring system, electrical transmission control, tiltable steering wheel, lighting system (head lights, rear working lights, stop & tail lights, turn indicators), speedometer, ladders (right & left), 17.5-25-12PR (L-2) tires.

## OPTIONAL EQUIPMENT

### Work equipment:

Cutting edge (Bolt-on type)

Bucket teeth (Bolt-on type)

Bucket teeth (tip type)

Additional counterweight

Hydraulic adapter kit

3-spool valve

### Operator's compartment:

ROPS canopy

ROPS cab

Air conditioner

Car radio

Floor mat

Heater and defroster

Rear wiper

Rear window washer

Seat belt

Sun visor

Suspension seat

Electric fan

Rear view mirror

### Tires:

17.5-25-12PR (L-3)

20.5-25-12PR (L-2)

20.5-25-12PR (L-3)

### Others:

Backup alarm

Backup lamp

Emergency steering

Emergency red fusee

Front fender

Fire extinguisher

Glass wool exhaust

Front working light for cab

License plate lamp

Yellow warning lamp

Red warning lamp

Vandalism protection kit

Instrument panel cover

Power train guard

Mono lever

Rear frame side cover

Boom kickout

Tool kit

Ordinary spare parts

This specification sheet may contain attachments and optional equipment that are not available in your area. Please consult your local Komatsu distributor for those items you may require. Materials and specifications are subject to change without notice.

**KOMATSU**

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