

WA320-3

KOMATSU

BUCKET CAPACITIES

3.0 - 4.2 yd³

2.3 - 3.2 m³



WHEEL LOADER
WA320

WA320-3

H u m a n F i r s t



WA320-3 WHEEL LOADER

Flywheel Horsepower:
162 HP @ 2380 RPM

Bucket Capacities:
3.0 - 4.2 yd³
2.3 - 3.2 m³

Operating Weight:
29,443 lb
13355 kg

- **Operator Comfort**

All controls are ergonomically designed so that operator fatigue is minimized. The new *Avance Dash-3* technology has the comfort of a luxury car with the productivity of a state-of-the-art wheel loader.

- **Comfortable Operator's Seat**

The fabric covered operator's seat has a reclining suspension design with headrest for support and maximum comfort.



E n g i n e e r i n g



- **Light-touch Operations**

The work equipment uses a hydraulic pilot *PPC* (Proportional Pressure Control) valve. When compared to the mechanical type, the operating effort is lighter and lever travel is shorter.

- The boom lever is equipped with a quick kickdown switch. This means that there is no need to operate the range lever between second and first gears, thus making it possible to carry out loading operations with minimum effort and maximum productivity and control.



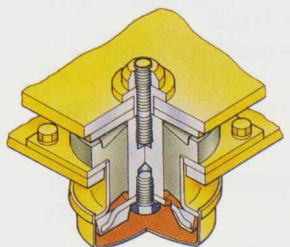
- **Unique Two-Lever Design**

Komatsu's two-lever design makes shifting gears effortless. The gear shift levers are designed to be adjustable in length and customized to the operator. Therefore, the operator can shift gears without removing a hand from the steering wheel; a feature unique to Komatsu.



- **Adjustable Steering Column**

The steering column angle can be easily changed to the most comfortable position with a lever. The two-spoke design ensures clear visibility of the monitors.



- **Low Vibration and Noise**

The floor is supported by viscous dampening hydro-mounts. Hydro-mounts feature a rubber housing filled with silicon oil to dampen vibration and noise. In addition, all hydraulic equipment is mounted on high-resistance rubber to further minimize vibration and noise.

- **Easy Maintenance**

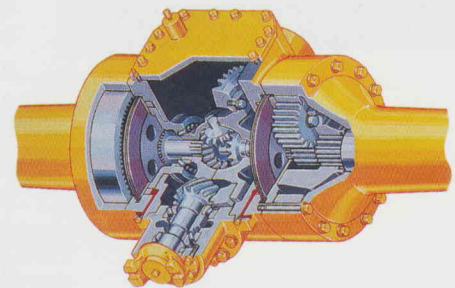
The *EDIMOS II* (Electronic Display Monitoring System) instrument gauge cluster has a well-equipped diagnostic display and a functional design. Main and maintenance monitors are conveniently located and highly visible on the instrument panels for a quick view of all critical machine functions.



- **Dependable Braking System**

The service brake system employs two independent hydraulic brake circuits. In addition, the service brake system and parking brake are the wet disc type. Wet disc brakes are fully sealed, locking out contaminants and are adjustment-free.

Since the braking system does not use air, water corrosion is not a problem. There is a reduction in pedal effort and charging time after engine start-up.



Features at a Glance



WA320-3 WHEEL LOADER

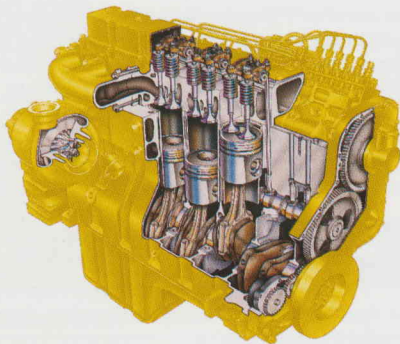
- APS - Automatic Power Speed Hydraulic System
- Low Effort PPC Hydraulic Controls
- Cab - Full View with Integrated ROPS/FOPS
- Halogen Lights
- Steering Wheel, Two Spoke, Tilttable
- Unique Transmission Controls - Two Lever Design
- New Digital Heater/Air Conditioner Controls
- Maintenance Monitor, Electronic Diagnostic Display – EDIMOS II
- Transmission Kick-Down Switch
- Cab Hydro-Mounts
- Komatsu S6D114E-1 8.3 Liter Direct-Injection Engine
 - Horsepower: 162 HP @ 2380 RPM
 - Meets 1997 EPA Emission Regulations
- Torque Proportioning Differentials (Standard)
- Limited-Slip Differentials (Optional)
- Z-Bar Loader Linkage

- **Komatsu Engine**

Komatsu's S6D114E-1 turbocharged engine has all the capabilities needed for today's tough operations, including meeting the 1997 EPA emission regulations in North America.

- **Engine Power**

The Komatsu S6D114E-1 is a 4-stroke, inline-6 cylinder, water cooled, overhead valve direct-injection, turbocharged diesel engine. The S6D114E-1 engine has been specifically designed with both performance and heavy-duty features to maximize power and reliability, and to minimize both operating cost and noise.



- **Reliable Power**

Engine and drivetrain components, such as torque converter, transmission, hydraulic equipment and electrical parts, undergo strict quality control checks to ensure reliability and durability. Komatsu-designed components are matched to ensure maximum performance.

Engine access and daily service checks are made simple by the gull-wing side covers which open and close in a one-touch operation. This allows the exposed engine and filters to be easily serviced from the ground.

- **High-Strength Frames**

The high-strength low-alloy, solid plate frames and loader linkages are designed with structural box sections to resist loading stress and shock, providing maximum rigidity and endurance in all operating conditions.

- **Z-Bar Loader Linkage**

Z-bar loader linkage is made of high-tensile strength steel to ensure maximum strength and life. Sealed loader linkage pins provide longer greasing intervals.

- **Torque Proportioning Differentials - Standard**

Torque proportioning axles are standard, front and rear, which provides better traction, and reduced tire slippage.

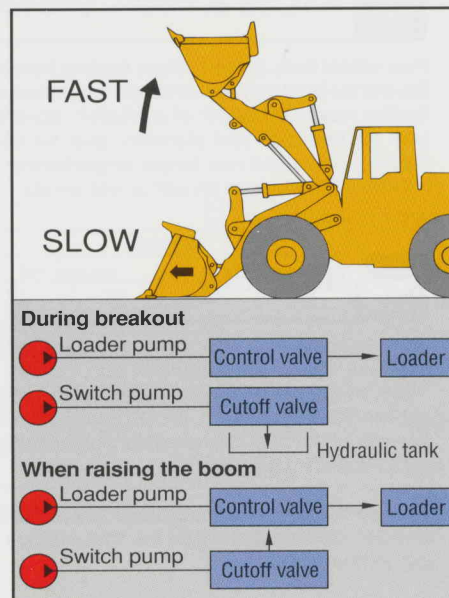
- **Limited Slip Differentials - Optional**

For the toughest operating conditions, there are optional limited slip differential axles, which are capable of maintaining maximum control and productivity by supplying power to both wheels.

- **APS - Automatic Power Speed Hydraulic System**

APS, Automatic Power Speed Hydraulic System, is a dual-hydraulic speed system from Komatsu which increases operational efficiency by matching the hydraulic demands to the actual 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 *Advance Dash-3* technology means greater productivity at the lowest operating cost.



Specifications



ENGINE

- Model Komatsu S6D114E-1
- Type Direct-Injection
- Aspiration Turbocharged
- No. of cylinders 6
- Bore x Stroke 4.5" 114 mm x 5.3" 135 mm
- Piston displacement 505 in³ 8.27 ltr.
- Governor All-speed mechanical

Horsepower Rating @ 2380 RPM

| | HP | kW |
|-------------------|-----|-----|
| Gross power | 173 | 129 |
| Net Power | 162 | 121 |

SAE J1349

Meets 1997 EPA emission regulations.

Gear pump-driven force-lubrication with full-flow filters. All filters are spin-on type for easy maintenance. Dry, 2-stage Cyclopac[®] air cleaner for longer element service intervals. 24V/7.5 kW electric starting motor; 24 V/50 A alternator, 2 x 12 V/150 AH batteries.



TRANSMISSION

3-element, single-stage, single-phase torque converter. Full powershift, countershaft type 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 kickdown 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 km/h | 7.8 MPH 0-12.5 km/h |
| 3rd | 13.0 MPH 0-21 km/h | 13.7 MPH 0-22 km/h |
| 4th | 21.1 MPH 0-34 km/h | 21.7 MPH 0-35 km/h |

* with 20.5-25-12PR (L2)



AXLES & 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, inboard-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 type 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 19'8" 6005 mm at the outside corner of the bucket with bolt-on cutting edge.



BOOM & 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 the work equipment.

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 Type Pumps)

Relief valve setting:

| | | |
|--------|----------|------------------------|
| Loader | 3000 PSI | 210 kg/cm ² |
|--------|----------|------------------------|

Control valves:

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

| Hydraulic cylinders | Number of cylinders | Bore | Stroke |
|---------------------|---------------------|------------|-------------|
| Boom | 2 | 5.5" 140mm | 2'3" 703 mm |
| Bucket | 1 | 6.3" 160mm | 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.

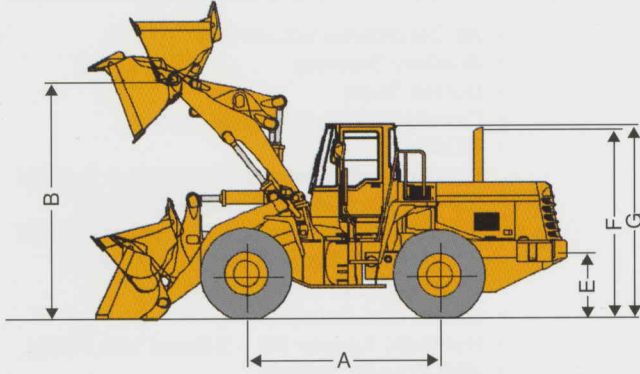


SERVICE REFILL CAPACITIES

| | | |
|---|----------|----------|
| Cooling system | 7.9 gal | 30 ltr. |
| Fuel tank | 58.4 gal | 221 ltr. |
| Engine | 5.1 gal | 19 ltr. |
| Hydraulic system | 30.6 gal | 116 ltr. |
| Axle (each front & rear) | 6.6 gal | 25 ltr. |
| Torque converter and transmission | 10.5 gal | 40 ltr. |

WA320-3
WHEEL LOADER

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, max. height | 12'6" 3815 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 Type | | General Purpose w/Bolt-on Cutting Edge | | Excavating w/Bolt-on Cutting Edge | | Light Material w/Bolt-on Cutting Edge | |
|--|-----------------|---|--------------------|--------------------------------------|--------------------|--|--------------------|
| Bucket Capacity | SAE Rated | 3.3 yd³ | 2.5 m ³ | 3.0 yd³ | 2.3 m ³ | 4.2 yd³ | 3.2 m ³ |
| | Struck | 2.8 yd³ | 2.1 m ³ | 2.6 yd³ | 2.0 m ³ | 3.7 yd³ | 2.8 m ³ |
| Bucket Width | | 9'0" | 2740 mm | 9'0" | 2740 mm | 9'0" | 2740 mm |
| Bucket Weight | | 2,723 lb | 1235 kg | 2,910 lb | 1320 kg | 3,153 lb | 1430 kg |
| Static Tipping Loads | Straight | 25,441 lb | 11540 kg | 25,254 lb | 11455 kg | 24,394 lb | 11065 kg |
| | Full Turn (40°) | 22,046 lb | 10000 kg | 21,859 lb | 9915 kg | 21,087 lb | 9565 kg |
| Dump Clearance, max. height and 45° dump angle | | 9'4" | 2840 mm | 9'5" | 2865 mm | 8'7" | 2625 mm |
| Reach at 7' 2130 mm 45° dump angle | | 4'11" | 1490 mm | 4'10" | 1475 mm | 5'2" | 1585 mm |
| Reach at max. height and 45° dump angle | | 3'4" | 1005 mm | 3'1" | 950 mm | 3'11" | 1190 mm |
| Reach with arm horizontal and bucket level | | 7'6" | 2275 mm | 7'4" | 2225 mm | 8'5" | 2560 mm |
| Operating Height | Fully raised | 16'10" | 5120 mm | 16'6" | 5020 mm | 17'4" | 5295 mm |
| Overall Length | Bucket ground | 23' 8" | 7215 mm | 23'7" | 7195 mm | 24'8" | 7530 mm |
| | Bucket at carry | 23' 8" | 7210 mm | 23'7" | 7195 mm | 24'3" | 7400 mm |
| Turning Radius* | | 19'10" | 6040 mm | 19' 9" | 6040 mm | 20'0" | 6110 mm |
| Digging Depth | 0° | 3.5" | 90 mm | 3.5" | 90 mm | 3.5" | 90 mm |
| | 10° | 11" | 285 mm | 11" | 275 mm | 1'1" | 335 mm |
| Breakout Force | | 28,770 lb | 13050 kg | 30,887 lb | 14010 kg | 23,080 lb | 10450 kg |
| Operating Weight | | 29,443 lb | 13355 kg | 29,630 lb | 13440 kg | 29,873 lb | 13550 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 & 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.

Standard Equipment

- Alternator, **50 amp**
- **APS**- Automatic Power Speed Hydraulic System
- Back-up Alarm and Light
- Batteries, **2 x 12V/150AH**
- Blower Fan
- Boom Kick-out, Automatic
- Bucket Positioner, Automatic
- Counterweight, Standard
- Dome Light
- Electric Horn
- Electrical Shut-Off (w/ key)
- Engine, Komatsu **S6D114E-1**
162 HP @ 2380 RPM Turbocharged diesel
- Engine Shut-down System - (key-type)
- Engine Water Conditioner
- Ether Starting Aid
- Exhaust Pipe, Curved
- Floor Mat
- Front Fenders, Partial Rear w/Steps
- Hydraulic Oil Cooler
- Lifting Eyes
- Lighter and Ashtray
- Lights: Stop & Tail with Hazard Switch
 - Turn Signals (2 Front, 2 Rear)
 - Halogen Work Lights (2 Front, 2 Rear)
- Main Monitor Panel - Electronic Display
- Maintenance Monitor Panel -
Electronic EDIMOS II Monitor
- Rearview Mirror (inside cab mount)
- ROPS/FOPS Cab w/ Inside Halogen Work Lights
- Seat, Suspension/Reclining Type w/Armrests and
Headrest, Seatbelt, Retractable
- Service Brakes, Wet Multiple-Disc Type, Inboard
- Starting Motor, **24V**
- Steering Wheel, Tilttable
- Storage Box
- Sun Visor
- Tires and Rims (**20.5-25-12PR, L2**)
- Torque Proportioning Differentials
- Transmission Control, Electric w/Kickdown Switch
- Transmission, 4F-4R Soft Shift, Countershaft Type
- 2-Spool Valve, Standard w/**PPC** Controls
- Vandalism Protection Kit
- Window Washer/Wiper, Front and Rear
- Z-bar Loader Linkage

*ROPS Canopy or ROPS Cab must be ordered for all machines. (SAE J1040)

Optional Equipment

- Air Conditioner w/Cold Box
- Auxiliary Steering
- Bucket Teeth
- Counterweight, Additional Option
- **ECSS**
(Electronically Controlled Suspension System)
- **3.0 yd³** Excavating Bucket with BOCE
- **3.3 yd³** General Purpose Bucket with BOCE
- **4.2 yd³** Light Material Bucket with BOCE
- Fenders, Full Front and Rear
- Heater and Defroster
- Hydraulic Adapter Kit – 3-Spool with Piping
- JRB Coupler System
- Limited-Slip Differential, Front and Rear
- Lubrication System, Automatic
- Mirror, Outside Cab
- Mono-Lever, Loader Control for 2-Spool Valve
- Mono-Lever, Loader Control
(plus one lever for 3-spool valve)
- Radio with Cassette Stereo, Auto Tuning
- Rearview Mirror (outside cab mount)
- ROPS/FOPS Canopy
- 3-Spool Valve (add-on type valve)
- Tool Kit

Optional 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 XHAT 1-Star (L3)
- 20.5-R25 XTLAT 1-Star (L2)
- 20.5-R25 XHAT 1-Star (L3)

BOCE – Bolt-On Cutting Edge.

Photos shown may include optional equipment.

Materials and specifications are subject to change without notice.

AESS400-01 C-2/96

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