

# KOMATSU

*Utility*

**WB**  
**97R-2**



WB97R-2

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BACKHOE LOADER

NET POWER  
SAE J1349  
73 kW - 97,8 HP

OPERATING WEIGHT  
From 7.500 kg  
to 8.580 kg

## SPECIFICATIONS



### ENGINE

A new generation engine developed to comply with the strictest emissions controls.

Model .....	Komatsu S4D106-1FA
Type .....	vertical, 4-cycle water-cooled diesel engine
Displacement .....	4.412 cm <sup>3</sup>
Cyl. bore x stroke .....	106x125 mm
N° of cylinder .....	4
Compression ratio .....	17,5:1
Combustion .....	direct injection (DI)
Aspiration .....	turbocharged
Max power .....	67,7 kW
Rated power :	
(SAE J 1349) .....	73 kW / 97,8 HP / 2.200 rpm
(80/1269/EC) .....	72 kW / 96,5 HP / 2.200 rpm
Max torque .....	375 Nm - 1.500 rpm
Cooling system .....	radiator
Air filter .....	dry filter with safety element
Starting system .....	electric motor with pre-heating air system for cold climate



### OPERATING WEIGHT

Standard machine operating weight .....	7.500 kg
Total machine weight .....	8.580 kg

operating weight increase	
4x1 bucket .....	250 kg
offset boom .....	150 kg
telescopic arm .....	260 kg
pallet forks .....	200 kg



### HYDRAULIC SYSTEM

*SyncroSystem* hydraulics allows the operator very precise and simultaneous movements. This system incorporates two different working modes: Power and Economy. The advanced hydraulic system includes also the function "*Speed Up*" to increase the working speed of the front loader.

System .....	<i>SyncroSystem</i>
Type .....	Close Load Sensing System CLSS
Pumps type .....	Variable displacement axial pistons
Pumps control system .....	Load Sensing
Main Valve (backhoe) .....	LIFD ( <i>Load Independent Flow Divider</i> ) modular type
Max delivery .....	165 l/min
Working pressure .....	200 bar



### ELECTRIC SYSTEM

The electric system is easily accessible and protected: connections are sealed and waterproof, and comply with the strictest international safety rules.

Voltage .....	12 V
Battery .....	120 Ah
Alternator .....	60 A
Starter .....	3 kW



### FRAME

The frame is modular and has been developed for computer based welding processes; every main element is bolted directly to the frame to improve maintenance and to reduce down time.



### STEERING

The front steering wheels are controlled by a hydrostatic "*Load Sensing*" with steering priority valve system.

Turning radius (without using brakes):	
at the corner of the bucket .....	5.450 mm
at outer edge of front tyre .....	4.000 mm
Turning radius (using brakes):	
at the corner of the bucket .....	4.950 mm
at outer edge of front tyre .....	3.400 mm



### TRANSMISSION

Electronically-controlled, four-wheel drive, "*Full Power Shift*" transmission. EGM (*Electronic Gear Management*) gear controls for changing driving direction and gears, in automatic or semi-automatic mode (using two buttons), at full power without disengaging the drive. Other functions incorporated: system self-diagnosis, automatic connection/disconnection of the four-wheel drive, and activation of the anti-theft alarm using a PIN code.

Travelling speed:		
GEAR	FORWARD	REVERSE
1 <sup>a</sup>	6,5	6,5
2 <sup>a</sup>	12	12
3 <sup>a</sup>	23	23
4 <sup>a</sup>	40	-



### AXLES

"Heavy duty" axles with planetary reduction gears in the wheel hubs. Front axle total oscillation angle 20°. Differential total lock in the rear axle controlled by a switch on the loader's lever.

Max front strength (Dynamic) .....	6.300 daN
Max rear strength (Dynamic) .....	12.000 daN



### BRAKES

Oil immersed disc brakes are actuated by individual braking on each rear wheel with 2 separate pedals. Total integral braking (4<sup>th</sup> gear) on the 4 wheels is activated by operating the two pedals at the same time.

Disc diameter .....	270 mm
Total friction area .....	2.310 cm <sup>2</sup>

The parking or safety brake acts on the service brakes through a hand operated lever.



### TYRES

Standard:	
front .....	12,5/80 R18 - 10 PR
rear .....	16.9 x 28 - 10 PR
Option:	
front .....	365/70 R18
rear .....	18.4 x 26 - 12PR



### CAB

ROPS (ISO 9249, SAEJ1040) and FOPS (ISO 3449, SAEJ 231) cab designed in order to offer the best visibility, ergonomics, low noise and comfort. Two doors, full opening rear windows with front and rear windscreen wipers. Internal lay out includes full adjustable seat, fresh filtered air intake ventilation and easy to read front and side dash board.



# WB97R-2 BACKHOE LOADER



## LOADER

The design of the front loader allows an excellent tensile strength distribution and the upkeep of movement parallelism when lifting and lowering the bucket. Furthermore, thanks to the linkage geometry the greasing points have been reduced.

Standard bucket width .....	2.320 mm
Standard bucket capacity (ISO 7546) .....	1,03 m <sup>3</sup>
STD bucket weight .....	450 kg
Lifting capacity	
at maximum height: .....	3.820 daN (3.900 kg)
Lifting capacity	
at ground level (ISO 8313) .....	5.195 daN (5.300 kg)
Breakout force (ISO 8313) .....	6.383 daN (6.500 kg)
4x1 bucket width .....	2.340 mm
4x1 bucket capacity (ISO 7546) .....	1,0 m <sup>3</sup>



## REFILLS

Engine oil .....	8,6 ℓ
Cooling system .....	18 ℓ
Diesel tank .....	130 ℓ
Hydraulic oil tank .....	92 ℓ
Front axle oil .....	8,5 ℓ
Rear axle oil .....	17,5 ℓ
Gearbox oil .....	16 ℓ

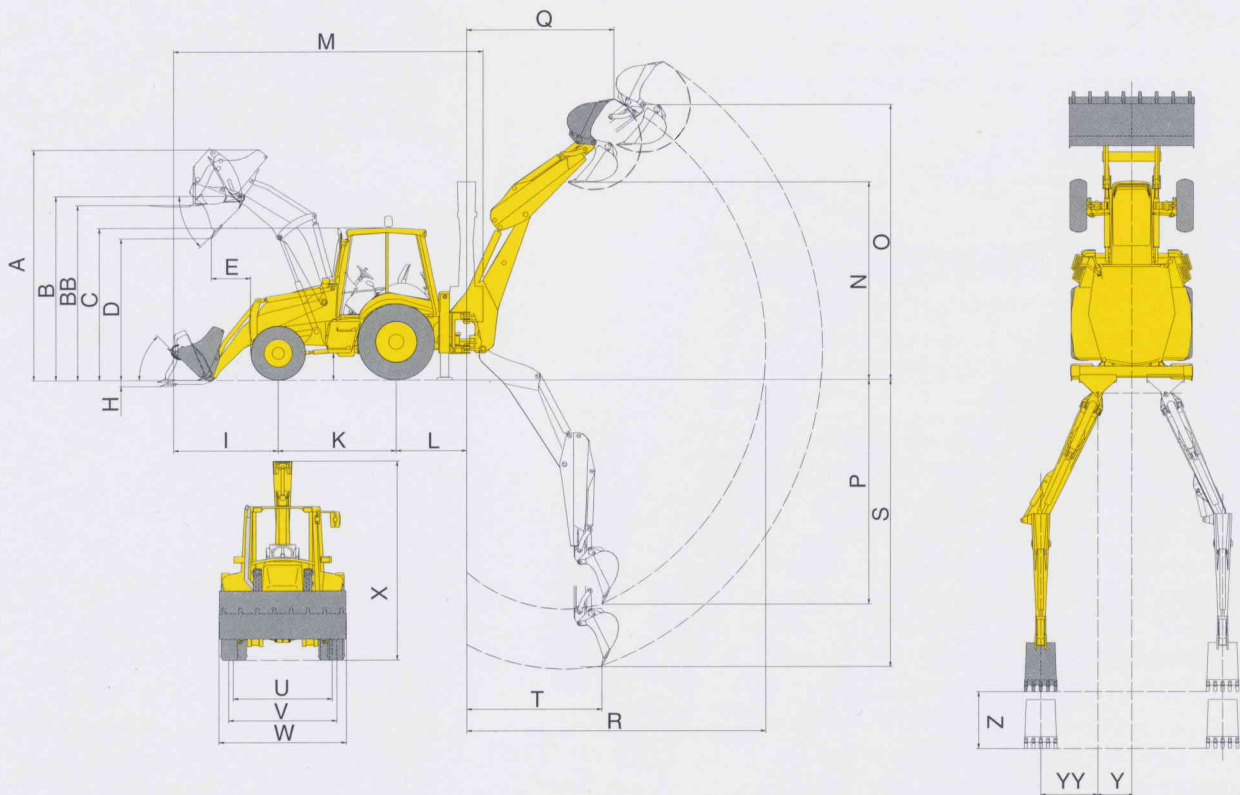


## BACKHOE

The main boom has a reinforced structure built with cast ends, allows 180° rotations, always main-taining high rotation torque. Vertical outriggers with adjustable wear device.

Bucket breakout force (ISO 6015) .....	5.780 daN (5.900 kg)
Dipper digging force (ISO 6015) .....	3.780 daN (3.850 kg)

## DIMENSIONS



A. max height .....	4.220 mm	P. digging depth SAE .....	4.500 mm
B. pin height .....	3.400 mm	- with extended telescopic .....	5.650 mm
BB. forks loading max height .....	3.200 mm	Q. reach at max height .....	2.500 mm
C. cab height .....	2.750 mm	- with extended telescopic .....	3.500 mm
D. max dumping height .....	2.750 mm	- with extended off-set .....	2.510 mm
E. max dumping reach (45°) .....	750 mm	R. max reach from swing centre .....	5.550 mm
F. dumping angle .....	45°	- with extended telescopic .....	6.550 mm
G. rollback angle .....	45°	S. max digging depth .....	4.950 mm
H. digging depth .....	110 mm	- with telescopic .....	6.100 mm
I. bucket reach (in transport) .....	1.930 mm	T. digging reach .....	2.750 mm
J. ground clearance .....	470 mm	U. rear tread .....	1.800 mm
K. wheel base .....	2.175 mm	V. front tread .....	1.920 mm
L. backhoe swing centre distance .....	1.320 mm	W. overall width (with bucket) .....	2.320 mm
M. transport length .....	5.895 mm	X. transport hoe height .....	3.660 mm
N. dumping height SAE .....	3.700 mm	- with telescopic .....	3.700 mm
max dumping height .....	3.950 mm	- with off-set .....	3.760 mm
- with extended telescopic SAE .....	4.830 mm	Y. side shift .....	605 mm
- with extended telescopic max .....	5.050 mm	YY side shift with off-set .....	1.080 mm
O. max digging height .....	5.510 mm	Z. telescopic stroke .....	1.150 mm
- with extended telescopic .....	6.510 mm		

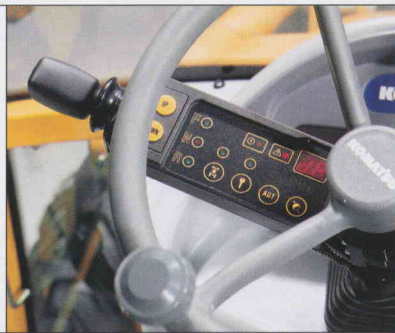


## UNIQUE STYLE

Comfort and operational simplicity. With a KOMATSU backhoe loader work is simple and above all pleasant.

### Engine

The WB97R-2 uses a KOMATSU 97.8 HP turbocharged engine. The high displacement of this engine (4.4 l) guarantees extensive reserve torque and power and above all exceptional reliability. Furthermore, the modern technology used ensures minimum gas emissions, thanks to a high-efficiency combustion system and exceptionally low noise.



### Transmission

The WB97R-2 is fitted with "Full Power Shift" transmission, which guarantees permanent traction of the wheels, even during gear changes, and makes it possible to reach a maximum speed of 40 km/h. The **EGM (Electronic Gear Management)** electronically controls the transmission and the selection of the gears, in either automatic or semi-automatic mode.

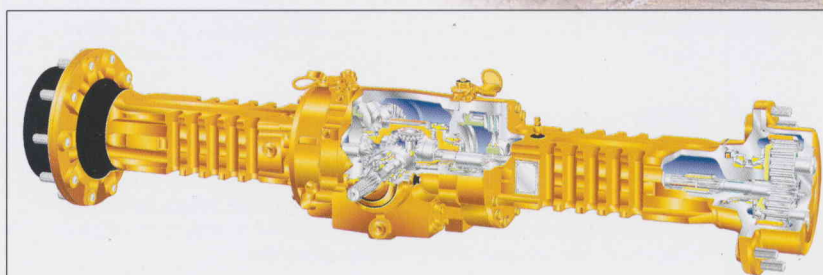
The EGM system not only manages the commands sent to the transmission, but also provides other important functions, such as:

- system self-diagnosis
- automatic engagement and disengagement of the 4-wheel drive
- activation of the anti-theft alarm system with customised code

### Axles and Brakes

The sturdiness and efficiency of the transmission are further enhanced by the adoption of "Heavy-Duty" axles and of an electro-hydraulic differential lock control positioned comfortably on the loader lever.

Maximum operating safety is also guaranteed by the excellent braking system, featuring multiple-disk service brakes in oil bath with independent circuits activated by two separate pedals.





## Hydraulic System

The KOMATSU backhoe loaders are equipped with the tried and tested "Syncro System" hydraulic system. The heart of the system is the variable flow-rate pump that feeds the exclusive **CLSS (Closed Load Sensing System)**. This system ensures that only the power strictly necessary is delivered and used, as well as guaranteeing high operating efficiency in all conditions. Furthermore, the innovative **LIFD distributor (Load Independent Flow Divider)** allows the speed of each movement to be completely independent from that of the others, and the proportionality remains unchanged even when the resisting load changes. Basically, the hydraulic system ensures, as well as excellent performance, shorter working cycles and thus greater productivity. The two operating modes, "Power" and "Economy", ensure maximum power when required, or alternatively reduced power to save fuel when performing more general operations or finishing-off.







### Cab

No backhoe loader can rival its visibility: maximum window area, front windscreen extension at the top, less bulky and better positioned uprights, a steeply inclined front hood free of all obstacles (the exhaust pipe has been positioned next to the front upright). The ergonomic layout of the controls in the cab allows the operator to comfortably manage all the machine's functions. Ample space ensures optimum comfort inside the cab; the new air-conditioning system, available upon request, provides the ideal temperature in all weather conditions, thus guaranteeing maximum comfort for the operator.

### Rear Excavator

Thanks to the sturdiness of the structure and the effectiveness of the hydraulic system, the rear excavator provides significant tearout and digging force. The functional geometry ensures excellent dumping height and digging depth, while at the same time guaranteeing minimum encumbrance on the road and perfect visibility of the work area. Performance and sturdiness combined with extreme versatility, enhanced by the availability of the telescopic arm or the device to dig beyond the wheel outline, as well as the combination of the two. To complete all these versatile characteristics, there is also the possibility to fit the machine with a wide range of buckets and special equipment.

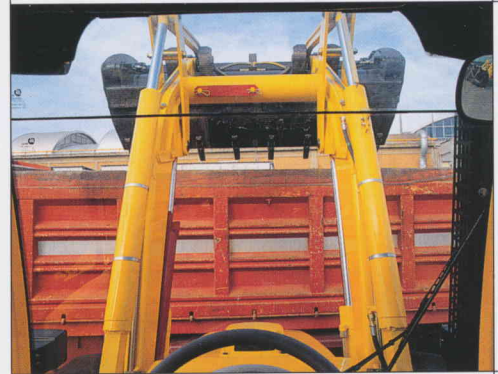




## Loader

The divergent geometry of the loader arm ensures excellent dumping height and above all perfect visibility. Furthermore, the specific kinematic motion guarantees excellent parallelism. These characteristics, together with the innovative hydraulic system, ensure exceptional tearout and lifting force values.

A special "Speed Up" button instantly increases the speed of the loader. The possibility to use numerous attachments, such as the 4x1 bucket and the forks, highlights the versatility of this front loader. The optional **LSS** device (**Load Stabiliser System**) provides exceptional stability and comfort during material loading and transfer operations and when driving on the road.



## Maintenance

Checks and routine maintenance on the KOMATSU backhoe loaders take just a few minutes, and are extremely simple to perform, without requiring any special equipment.

The extended greasing intervals reduce running costs and service times, and increase the returns on the investment.



# WB97R-2 BACKHOE LOADER

## STANDARD EQUIPMENT

<ul style="list-style-type: none"> <li>• Turbo engine</li> <li>• "Full Power Shift" with electronic control (EGM):             <ul style="list-style-type: none"> <li>- automatic or semi-automatic shifting</li> <li>- direction and gear indicator</li> <li>- anti-theft system</li> </ul> </li> <li>• Kick-down function</li> <li>• 4 wheel drive</li> <li>• Electro-hydraulic 100% differential lock</li> <li>• Transmission neutral switch</li> <li>• Foot pedal and hand control accelerator</li> <li>• Horn</li> <li>• Maintenance-free battery 120Ah</li> <li>• 12V external electric plug</li> <li>• Antifreeze (-36°C)</li> </ul>	<ul style="list-style-type: none"> <li>• Front and rear working lights</li> <li>• Road homologation</li> <li>• Lights for road travel</li> <li>• Rotating beacon</li> <li>• Internal and external mirrors</li> <li>• ROPS/FOPS cab with heater and fan</li> <li>• Tinted glass</li> <li>• Adjustable steering wheel</li> <li>• Adjustable seat with safety belt</li> <li>• Front and rear windshield wipers</li> <li>• Lockable internal storage compartment</li> <li>• Clothes hook and cup-holder</li> <li>• Fully opening bonnet</li> <li>• Air cleaner, dry type, radial seal with clogging indicator</li> </ul>	<ul style="list-style-type: none"> <li>• Fuel filter with water separator</li> <li>• Load sensing, variable displacement axial pump</li> <li>• Indicators: transmission oil temperature, 4WD engagement, brake oil level, differential lock, fuel level indicator, hour meter, engine tank reservoir, preheating, engine speed, engine coolant temperature, engine oil pressure, air filter clogging</li> </ul>
<b>LOADER</b> <ul style="list-style-type: none"> <li>• Speed-Up</li> </ul>	<ul style="list-style-type: none"> <li>• Lifting cylinder safety lock</li> </ul>	<ul style="list-style-type: none"> <li>• General purpose bucket with bolted teeth</li> </ul>
<b>BACKHOE</b> <ul style="list-style-type: none"> <li>• Electro-hydraulic backhoe shifting lock</li> </ul>	<ul style="list-style-type: none"> <li>• Backhoe swing transport lock</li> </ul>	<ul style="list-style-type: none"> <li>• Electro-hydraulic backhoe slide frame release lock</li> </ul>

## OPTIONAL EQUIPMENT

<ul style="list-style-type: none"> <li>• Air Conditioning</li> <li>• Additional front counterweights (150 kg, 300 kg, 300 + 170 kg)</li> <li>• De-Luxe seat with 3" retractable safety belt</li> <li>• Drive shaft guard</li> <li>• Optional tyres</li> <li>• Bumpers</li> <li>• Cold area arrangement (-22°C)</li> <li>• Cold area arrangement (-30°C) and</li> </ul>	<ul style="list-style-type: none"> <li>engine pre-heater</li> <li>• TÜV + TBG version (20 km/h or 40 km/h)</li> <li>• Battery disconnection safety switch</li> <li>• Rubber pads for stabilisers</li> <li>• Hose burst valves:             <ul style="list-style-type: none"> <li>- loader arm</li> <li>- backhoe</li> <li>- stabilisers</li> </ul> </li> <li>• Hydraulic biodegradable oil</li> </ul>	<ul style="list-style-type: none"> <li>• Hydraulic hand hammer circuit</li> <li>• Air cyclone pre-filter</li> <li>• Fuel filling pump</li> <li>• Additional toolbox</li> <li>• Additional rear view mirror (right)</li> <li>• Radio</li> <li>• Backup alarm</li> <li>• Mud-guards</li> </ul>
<b>LOADER</b> <ul style="list-style-type: none"> <li>• LSS (<i>Load Stabiliser System</i>)</li> <li>• Auxiliary hydraulic circuits:             <ul style="list-style-type: none"> <li>- auxiliary 3rd spool valve with floating function</li> <li>- auxiliary 3rd spool valve with floating function and "return-to-dig"</li> <li>- front auxiliary hydraulic circuit</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- additional front auxiliary hydraulic circuit (6-way valve)</li> <li>• Attachments:             <ul style="list-style-type: none"> <li>- bolt-on cutting edge</li> <li>- cutting edge on teeth</li> <li>- 4x1 bucket</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- flip-over forks on 4x1 bucket</li> <li>- hydraulic and mechanic quick hitch</li> <li>- forks (for quick hitch)</li> <li>- gen. purpose bucket (for quick hitch)</li> <li>- 4x1 bucket (for quick hitch)</li> <li>- angle-dozer blade (for quick hitch)</li> </ul>
<b>BACKHOE</b> <ul style="list-style-type: none"> <li>• Alternative control pattern</li> <li>• Auxiliary hydraulic circuits:             <ul style="list-style-type: none"> <li>- hammer aux. circuit</li> <li>- auger aux. circuit</li> <li>- 2-way aux. circuit for hydraulic attachments</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>(including clamshell bucket with hydraulic swing)</li> <li>• Offset boom</li> <li>• Telescopic arm</li> <li>• Offset boom with telescopic arm</li> <li>• Attachments:</li> </ul>	<ul style="list-style-type: none"> <li>- mechanical quick hitch (for std buckets)</li> <li>- range of buckets (300 mm - 900 mm)</li> <li>- ditch cleaning bucket (1.400 mm)</li> <li>- ditch digging bucket (1.000 mm)</li> <li>- hydraulic hammer</li> </ul>

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