

# KOMATSU®

## WB97R-5

OPERATING WEIGHT

7.560 kg

RATED POWER

74 kW / 99,2 HP @ 2.200 rpm

**WB**  
**97R-5**

RIGID BACKHOE LOADER



**WB97R-5**

# WALK AROUND

The WB97R-5 belongs to the last generation of KOMATSU backhoe loaders, which have come into the market with a number of innovations.

- Ultimate Comfort
- Modern Design
- Standard PPC Controls
- Backhoe Excavator S-Shape Boom

This Series tracks its origins back to the long Komatsu tradition that brings backhoe loaders to the top of their class for performance, technology and reliability.

## **Premium Performance**

The WB97R-5 offers high productivity and top performance, with increased breakout force and lifting capacities.

The core of the KOMATSU backhoe loader hydraulics is certainly the consolidated **CLSS (Closed Load Sensing System)**. Thanks to its variable flow, the system efficiently supplies the power the machine requires, as it is needed. With two working modes, "Power" and "Economy", the operator can conveniently choose between maximum power and minimum fuel consumption.

## **Excellent Visibility**

The wide round glass surface highly increases visibility and brings the machine to the top of its class. The shape of the bonnet and the upper front window make it easy and safe to work with the front loader. On the other hand, while using the backhoe excavator, the operator can easily open the single frame window and comfortably overlook the surrounding area.

## **Total Versatility**

Several different configurations make this machine suitable for a variety of customer typologies. The wide offer of options makes for a high level of customisation: hydraulic side-shift for the backhoe, LSS, radial tyres, offset boom and quick couplers are just a few.

## **Exclusive Design**

The front loader design ensures optimal parallel lifting; in addition, the divergent shape of the arm greatly improves visibility and provides excellent loading performance.

The design of the backhoe is completely new: it features a clean and functional layout, with hydraulic piping and hoses along the boom.





**OPERATING WEIGHT**  
7,560 kg**RATED POWER**  
74 kW / 99,2 HP @ 2.200 rpm***Unique Comfort***

Ergonomics and cutting edge technology can be experienced all around the newly redesigned cab. Room for the operator and comfort are key points of the WB97R-5: our wide variety of seats can respond to the most diversified needs and also includes an air suspension fully adjustable model. The lockable storage compartments, the electric 12 V plug and many other small details put comfort at the top; standard PPC controls for both the front loader and the backhoe, not to mention an exceptionally low noise level, make working much easier and give a great contribution to production.

***Absolute Safety***

Following the long Komatsu tradition, the WB97R-5 features a full range of safety devices: safety sensors under the seat, electro-hydraulic boom lock, battery disconnect switch (optional). Moreover, for both loader and backhoe, the safety lock with electro-hydraulic switch is standard, while safety valves can be added as an option.

# OPERATOR'S ENVIRONMENT



With a ROPS and FOPS structure and a modern design, the cab features a top class automotive style. Its increased internal volume and wide round glass surface offer great comfort to the operator. The De-Luxe suspension seat is standard.

The optimal air distribution maximizes the ventilation system and the optional air conditioning system, which include ten conveniently located vents.

Complete instrumentation, easily reachable control panel and plenty of holders and storage compartments make this machine the best in its class.



# STRONG POINTS

## Engine

The WB97R-5 is fitted with a 99,2 HP turbocharged Komatsu engine, which pushes the machine up to a 40 km/h top speed. The high displacement (4.5 l) ensures exceptional power and torque and unparalleled reliability; at the same time, it meets the 97/68/EC Stage 2 emission regulations.

## S-Shape Backhoe

The rounded shape of the backhoe enhances the loading ability of the machine and its capacity to overcome obstacles, while ensuring a high breakout force.

The operator's excavator experience reaches its height thanks to the standard PPC controls, making all movements extremely smooth and precise. The long arm confers an excellent digging ability, while the telescopic and the off-set boom versions, together with a wide range of attachments, significantly increase the machine's versatility.

## Controls

The PPC servo-controls are standard for both the front loader and the backhoe excavator.

The joysticks for the backhoe excavator are mounted on two independently adjustable columns and ensure excellent controllability for the machine; moreover, the multifunctional joystick for the loader fits the controls for 4x1 bucket, differential lock, declutch, *speed-up* and *kick-down* functions. PPC controls are also standard for the rear vertical stabilisers.

## Transmission

The "Full Power Shift" transmission is controlled by a twist grip lever, with standard Automatic gear shifting. The *kick-down* function is also standard.

The electro-hydraulic differential lock, together with the "Heavy Duty" axles, increases efficiency and confidence under any conditions. In terms of safety issues, the multi-disk hydraulic brakes are self-adjusting and can be activated by two independent pedals.

## Serviceability

The tiltable engine bonnet has been developed with a focus on accessibility and ease of service. ORFS hydraulic face seal connectors increase the reliability of the machine and allow for simple and fast replacement; in addition, the battery and a roomy toolbox are conveniently located on the side of the machine.





# SPECIFICATIONS



## ENGINE

The engine has been developed in compliance with the strictest European standards (97/68/EC - STAGE 2) on the reduction of exhaust emissions.

Model .....	Komatsu S4D104E-3
Type .....	vertical, 4-cycle water-cooled diesel engine
Displacement .....	4.485 cm <sup>3</sup>
Cyl. bore x stroke .....	104 x 132 mm
N° of cylinder .....	4
Compression ratio .....	17,5:1
Combustion .....	direct injection (DI)
Aspiration .....	turbocharged
Rated power: (EEC 80/1269) .....	74 kW / 99,2 HP / 2.200 rpm
Max torque .....	398 Nm - 1.400 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 .....	7.560 kg
Total machine weight .....	8.610 kg
operating weight increase .....	
4x1 bucket .....	250 kg
offset boom .....	150 kg
telescopic arm .....	260 kg
pallet forks .....	200 kg



## HYDRAULIC SYSTEM

SyncoSystem 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 .....	SyncoSystem
Type .....	Close Load Sensing System CLSS
Pumps type .....	Variable displacement axial pistons
Pumps control system .....	Load Sensing
Main Valve .....	LIFD (Load Independent Flow Divider)
	modular type
Max delivery .....	165 l/min
Working pressure .....	250 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 .....	160 Ah
Alternator .....	95 A
Starter .....	3 kW



## FRAME

The frame is a reinforced and closed box structure, which increases stiffness and reliability.



## 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. The control is automatic, with a knob used to select the direction of travel and the gears, at full power, without losing traction.

Travelling speeds:

GEAR	FORWARD	REVERSE
1 <sup>st</sup>	6,5	6,5
2 <sup>nd</sup>	11	11
3 <sup>rd</sup>	23	23
4 <sup>th</sup>	40	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) .....	8.500 daN
Max rear strength (Dynamic) .....	7.600 daN



## BRAKES

Oil immersed disc brakes are actuated by individual braking on each rear wheel with 2 separate pedals. Total integral braking on the 4 wheels is activated by operating the two pedals at the same time.

Disc diameter .....	300 mm
The caliper parking or safety brake is operated through a hand lever.	



## TYRES

Standard:	
front .....	12.5/80 R18 - 10 PR
rear .....	16.9 x 28 - 12 PR
Option:	
front .....	365/70 R18
	320/80 R18 IT 530
	12.5 - 20 MPT 10 PR
rear .....	18.4 x 26 - 12 PR
	440/80 R28 IT 530
	16.9 - 30 IND 10 PR



## 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 window 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.





## LOADER

The design of the front loader allows excellent 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	430 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	12,8 l
Cooling system	16,5 l
Diesel tank	150 l
Hydraulic oil tank	41 l
Hydraulic oil system capacity	97 l
Front axle oil	8,5 l
Rear axle oil	14,5 l
Gearbox oil	16 l

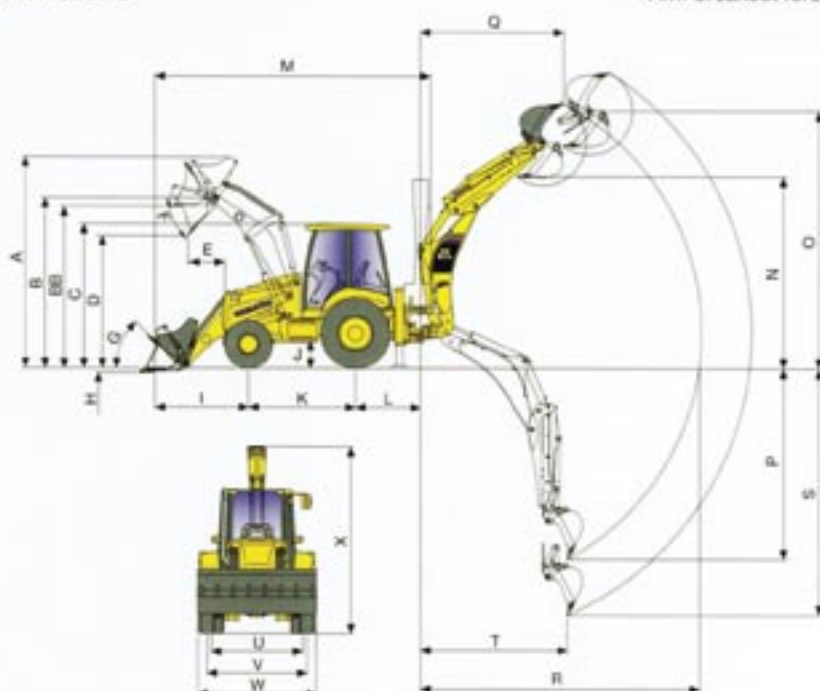


## BACKHOE

The boom has a reinforced structure and allows 180° rotation, still preserving high torque. The casted swing support and arm ends ensure high fatigue resistance. Vertical outriggers with adjustable wear device.

Bucket breakout force (ISO 6015)	5.980 daN (6.100 kg)
Arm breakout force (ISO 6015)	3.920 daN (4.000 kg)

## Dimensions



A. max height	4.290 mm
B. pin height	3.375 mm
BB. forks loading max height	3.175 mm
C. cab height	2.750 mm
D. max dumping height	2.720 mm
E. max dumping reach (45°)	750 mm
F. dumping angle	45°
G. rollback angle	45°
H. digging depth	130 mm
I. bucket reach (in transport)	1.930 mm
J. ground clearance	400 mm
K. wheel base	2.175 mm
L. backhoe swing centre distance	1.320 mm
M. transport length	5.895 mm
N. dumping height SAE	4.000 mm
max dumping height	4.385 mm
- with extended telescopic SAE	4.675 mm
- with extended telescopic max	5.148 mm
O. max digging height	6.015 mm
- with extended telescopic	6.675 mm

P. digging depth SAE	4.840 mm
- with extended telescopic	6.080 mm
Q. reach at max height	3.045 mm
- with extended telescopic	4.235 mm
R. max reach from swing centre	6.035 mm
- with extended telescopic	7.175 mm
S. max digging depth	5.290 mm
- with telescopic	6.465 mm
T. digging reach	2.320 mm
U. rear tread	1.800 mm
V. front tread	1.934 mm
W. overall width (with bucket)	2.320 mm
X. transport hoe height	3.710 mm
- with telescopic	3.780 mm
Y. side shift	605 mm
YY side shift with off-set	1.080 mm
Z. telescopic stroke	1.240 mm



# RIGID BACKHOE LOADER

## STANDARD EQUIPMENT

<ul style="list-style-type: none"> <li>• Komatsu Stage 2 Turbo engine</li> <li>• Power Shift transmission with Automatic shifting and kick-down</li> <li>• Load Sensing, variable displacement axial piston pump</li> <li>• Side by side radiator</li> <li>• 4 wheel drive</li> <li>• De-Luxe mechanical suspension seat</li> <li>• Electro-hydraulic 100% differential lock</li> <li>• Declutch switch</li> <li>• Foot pedal and hand control accelerator</li> <li>• Horn</li> </ul>	<ul style="list-style-type: none"> <li>• Maintenance free battery 160 Ah</li> <li>• 12 V external electric plug</li> <li>• 12 V internal electric plug</li> <li>• Antifreeze (-36 °C)</li> <li>• Front and rear working lights</li> <li>• Road homologation</li> <li>• Lights for road travel</li> <li>• Rotating beacon</li> <li>• Rear view mirrors</li> <li>• ROPS/FOPS cab with heater and fan</li> <li>• Tinted glass</li> <li>• Adjustable steering column</li> <li>• Adjustable seat with safety belt</li> <li>• Cup-holder</li> </ul>	<ul style="list-style-type: none"> <li>• Front and rear washer and windshield wipers</li> <li>• Internal storage compartments (two lockable)</li> <li>• Sun visor</li> <li>• Radio pre-setting</li> <li>• Fully opening bonnet</li> <li>• External lockable toolbox</li> <li>• Dry type air cleaner with clogging indicator</li> <li>• Fuel filter with integrated water separator</li> </ul>	<ul style="list-style-type: none"> <li>• Gauges &amp; Indicators: transmission oil temperature, 4WD engagement, brake oil level, differential lock, fuel level, hour meter, preheating, engine speed, engine coolant temperature, engine oil pressure, air filter clogging</li> <li>• Safe Position seat sensor</li> <li>• PPC lock switch</li> <li>• 12.5/80 R18 - 10 PR Front Wheels</li> <li>• 16.9 x 28 - 12 PR Rear Wheels</li> </ul>
<b>LOADER</b>			
<ul style="list-style-type: none"> <li>• PPC servo-controls</li> <li>• Speed-up function</li> </ul>	<ul style="list-style-type: none"> <li>• Heavy duty safety bar</li> <li>• Self-levelling</li> </ul>	<ul style="list-style-type: none"> <li>• General purpose bucket with standard teeth</li> </ul>	
<b>BACKHOE</b>			
<ul style="list-style-type: none"> <li>• PPC servo-controls</li> <li>• Power/Economy working modes</li> </ul>	<ul style="list-style-type: none"> <li>• Electro-hydraulic backhoe boom lock</li> <li>• Backhoe swing transport lock</li> </ul>	<ul style="list-style-type: none"> <li>• Electro-hydraulic backhoe slide frame release lock</li> </ul>	<ul style="list-style-type: none"> <li>• PPC servo-control for stabilisers</li> <li>• Hydraulic cushions</li> </ul>

## OPTIONAL EQUIPMENT

<ul style="list-style-type: none"> <li>• Air conditioning</li> <li>• Additional front counterweights (150 kg, 375 kg)</li> <li>• De-Luxe pneumatic suspension seat</li> <li>• Drive shaft guard (front)</li> <li>• Cold area arrangement (-30 °C) with 185 Ah battery and pre-heating systems</li> <li>• High ambient/altitude arrangement</li> </ul>	<ul style="list-style-type: none"> <li>• TÜV + TSG 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>• Hydraulic oil filter clogging indicator</li> <li>• Air cyclone pre-filter</li> <li>• Fuel filling pump</li> <li>• Four additional working lights on cab</li> <li>• Radio</li> <li>• Backup alarm</li> <li>• Front mud-guards</li> </ul>	<ul style="list-style-type: none"> <li>• Front tires:               <ul style="list-style-type: none"> <li>- 365/70 R18</li> <li>- 320/80 R18 IT 530</li> <li>- 12.5 - 20 MPT 10 PR</li> </ul> </li> <li>• Rear tires:               <ul style="list-style-type: none"> <li>- 18.4 x 26 - 12 PR</li> <li>- 440/80 R28 IT 530</li> <li>- 16.9 - 30 IND 10 PR</li> </ul> </li> </ul>
<b>LOADER</b>			
<ul style="list-style-type: none"> <li>• LSS (Load Stabiliser System)</li> <li>• Safety valve deactivation switch</li> <li>• Auxiliary hydraulic circuits:               <ul style="list-style-type: none"> <li>- floating function</li> <li>- front auxiliary hydraulic circuit</li> <li>- floating function and "Return-To-Dig"</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>- 4x1 bucket with pre-setting for cutting edge on teeth</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- flip-over forks and angle opening indicator</li> <li>- flip-over forks on 4x1 bucket</li> <li>- hydraulic and mechanical quick hitch</li> <li>- forks (for quick hitch)</li> </ul>	<ul style="list-style-type: none"> <li>- general purpose bucket (for quick hitch)</li> <li>- 4x1 bucket (for quick hitch)</li> <li>- dozer blade</li> <li>- snow blade</li> <li>- hand hammer</li> </ul>
<b>BACKHOE</b>			
<ul style="list-style-type: none"> <li>• Alternative control pattern</li> <li>• Hydraulic backhoe side-shift</li> <li>• Auxiliary hydraulic circuits:               <ul style="list-style-type: none"> <li>- 2-way circuit for attachments (auger, tilting bucket)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- hammer circuit</li> <li>• Offset boom</li> <li>• Telescopic arm</li> <li>• Offset boom and telescopic arm</li> </ul>	<ul style="list-style-type: none"> <li>• Attachments:               <ul style="list-style-type: none"> <li>- ditch cleaning bucket (1.400 mm)</li> <li>- full range of buckets (300 mm ÷ 900 mm)</li> </ul> </li> </ul>	<ul style="list-style-type: none"> <li>- ditch digging bucket (1.000 mm)</li> <li>- mechanical quick hitch (for std buckets)</li> <li>- hydraulic hammer</li> </ul>



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