



WB  
93R-2



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RIGID BACKHOE LOADER

**NET POWER**  
SAE J1349  
73 kW - 97,8 HP

**OPERATING WEIGHT**  
From 7.590 kg  
to 8.630 kg

# POWERED BY COMFORT

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

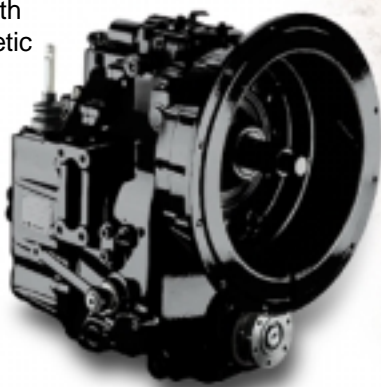
## Engine

The WB93R-2 uses a KOMATSU 97.8 HP turbocharged engine. The high displacement of this engine (4.4  $\lambda$ ) guarantees extensive reserve torque and power and above all exceptional reliability. Furthermore, the modern technology used ensures minimum gas emissions, in compliance with the strict European STAGE 2 standards, thanks to the high efficiency and low noise combustion system.



## Transmission

The WB93R-2 is fitted with "Power Shuttle" hydrokinetic transmission and direction reverser. With 4 forward and 4 reverse gears, this machine can comfortably reach a maximum speed of 40 km/h.



## 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 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. The brand-new **PPC** proportional servo controls (optional) are fitted on two fully adjustable columns. They offer the maximum as to comfort and ergonomics, as well as more precision in the movements than traditional controls.

## Backhoe

Thanks to the sturdiness of the structure and the effectiveness of the hydraulic system, the backhoe 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.





# SPECIFICATIONS



## ENGINE

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

Model .....Komatsu S4D106-2SFA  
 Type .....vertical, 4-cycle water-cooled diesel engine  
 Displacement .....4.412 cm<sup>3</sup>  
 Cyl. bore x stroke .....106 x 125 mm  
 N° of cylinders .....4  
 Compression ratio .....17,5:1  
 Combustion .....direct injection (DI)  
 Aspiration .....turbocharged  
 Gross power .....74,5 kW  
 Maximum 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 .....378 Nm - 1.600 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 .....7.590 kg  
 Total machine weight .....8.630 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 .....*SyncroSystem*  
 Type .....Close Load Sensing System CLSS  
 Pumps type .....Variable displacement axial pistons  
 Pumps control system .....*Load Sensing*  
 Main Valve (backhoe) .....LIFD "*Load Independent Flow Divider*" modular type  
 Max delivery .....165 /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 .....155 Ah  
 Alternator .....80 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

Switching between 4WD and 2WD is obtained through an electro-hydraulic system. The 4 speed mechanical shift is synchronised. The transmission is operated through a torque converter and a power shuttle reversing shift "*Power Shuttle*" type.

Travelling speed:

GEAR	FORWARD	REVERSE
1 <sup>st</sup>	6,5	6,5
2 <sup>nd</sup>	12	12
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.

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 - 12 PR

Option:

front .....365/70 R18  
 rear .....18.4 x 26 - 12 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 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

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

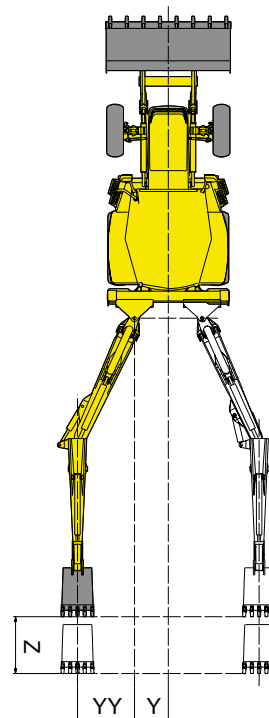
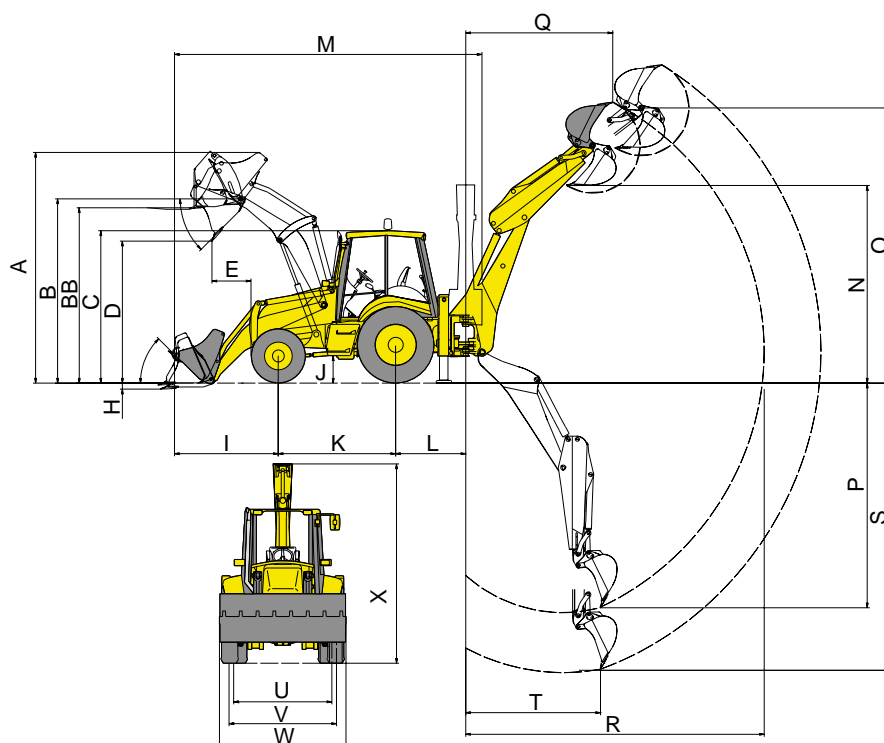


## BACKHOE

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

Bucket breakout force (ISO 6015) .....	5.780 daN (5.900 kg)
Arm breakout 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 .....	430 mm	U. rear tread .....	1.780 mm
K. wheel base .....	2.175 mm	V. front tread .....	1.934 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		

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## STANDARD EQUIPMENT

<ul style="list-style-type: none"> <li>• Turbo STAGE 2 Komatsu engine</li> <li>• <i>Power shuttle</i> transmission with 4 synchronised gears</li> <li>• 4 wheel drive</li> <li>• Electro-hydraulic 100% differential lock</li> <li>• Declutch switch</li> <li>• Foot pedal and hand control accelerator</li> <li>• Horn</li> <li>• Maintenance-free battery 155 Ah</li> <li>• 12 V external electric plug</li> <li>• 12 V power outlet in the cab</li> <li>• Antifreeze (-36°C)</li> <li>• Front and rear working lights</li> </ul>	<ul style="list-style-type: none"> <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>• <i>Load Sensing</i>, 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>• <i>Speed-up</i> switch</li> <li>• Lifting cylinder safety lock</li> <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> <li>• Backhoe swing transport lock</li> <li>• Electro-hydraulic backhoe slide frame release lock</li> </ul>		

## OPTIONAL EQUIPMENT

<ul style="list-style-type: none"> <li>• PPC proportional servo controls</li> <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> </ul>	<ul style="list-style-type: none"> <li>• Cold area arrangement (-30°C) and 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> </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 (including clamshell bucket with hydraulic swing)</li> </ul> </li> </ul>		
<ul style="list-style-type: none"> <li>• Offset boom</li> <li>• Telescopic arm</li> <li>• Offset boom with telescopic arm</li> <li>• Attachments: <ul style="list-style-type: none"> <li>- mechanical quick hitch (for std buckets)</li> </ul> </li> </ul>		
<ul style="list-style-type: none"> <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>		

# KOMATSU

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