

STANDARD EQUIPMENT

- Foot pedal and hand control accelerator
- Key start/stop system with auxiliary position
- Maintenance free battery 120 A
- General purpose front bucket 1,03 m³
- Backhoe electro-hydraulic shifting lock
- Swing transport lock
- Electro hydraulic differential lock
- ROPS/FOPS, cab with heater and fan
- Traffic lights, rotating beacon
- Seat belt
- Tilttable bonnet
- Electro hydraulic slide frame release lock
- Front and rear working lights
- Air cleaner, dry type, radial seal with condition indicator
- Clothes hook

- Load sensing, variable displacement axial pump
- Indicators: air cleaner service, brake on, clock hour meter, engine coolant, converter oil / temperature level, hydraulic oil level sight gauge, engine oil pressure, coolant level sight gauge, hour meter, revcounter, fuelgauge, engine water temperature
- Transmission neutrals switch
- Antifreeze -26°C
- 12V external electric plug
- Water separator
- Internal and external mirror
- Floor mat
- Front and rear windshield wipers
- Mechanical synchronised 4-speed gearbox
- Lockable internal storage compartment

OPTIONS

- Air conditioning
- LSS (Load Stabilizer System)
- Audible reversing alarm
- Attachments, front loader:
 - 4 in 1 bucket
 - Flip-over forks on 4 in 1 bucket
 - Hydraulic quick hitch
 - Concrete mixing bucket
 - Forks (for use with quick hitch)
 - Angle blade
- Additional counterweights
- Vandalism protection
- Front mud guards
- Bolt-on cutting edge
- Prop shaft guard
- Auxiliary hydraulic valves, loader:
 - auxiliary 3rd spool valve with floating function for front attachment
 - front auxiliary hydraulic pipework
- Auxiliary hydraulic lines backhoe
- Hammer pipework
- Hose burst check valves: loader/backhoe
- Telescopic dipper
- Offset boom
- Offset boom with telescopic dipper
- Return to dig
- Attachments backhoe:
 - Quick hitch: Hydraulic / Mechanical
 - Angle bucket
 - Hydraulic hammer
- 160Ah, battery
- ROPS/FOPS canopy

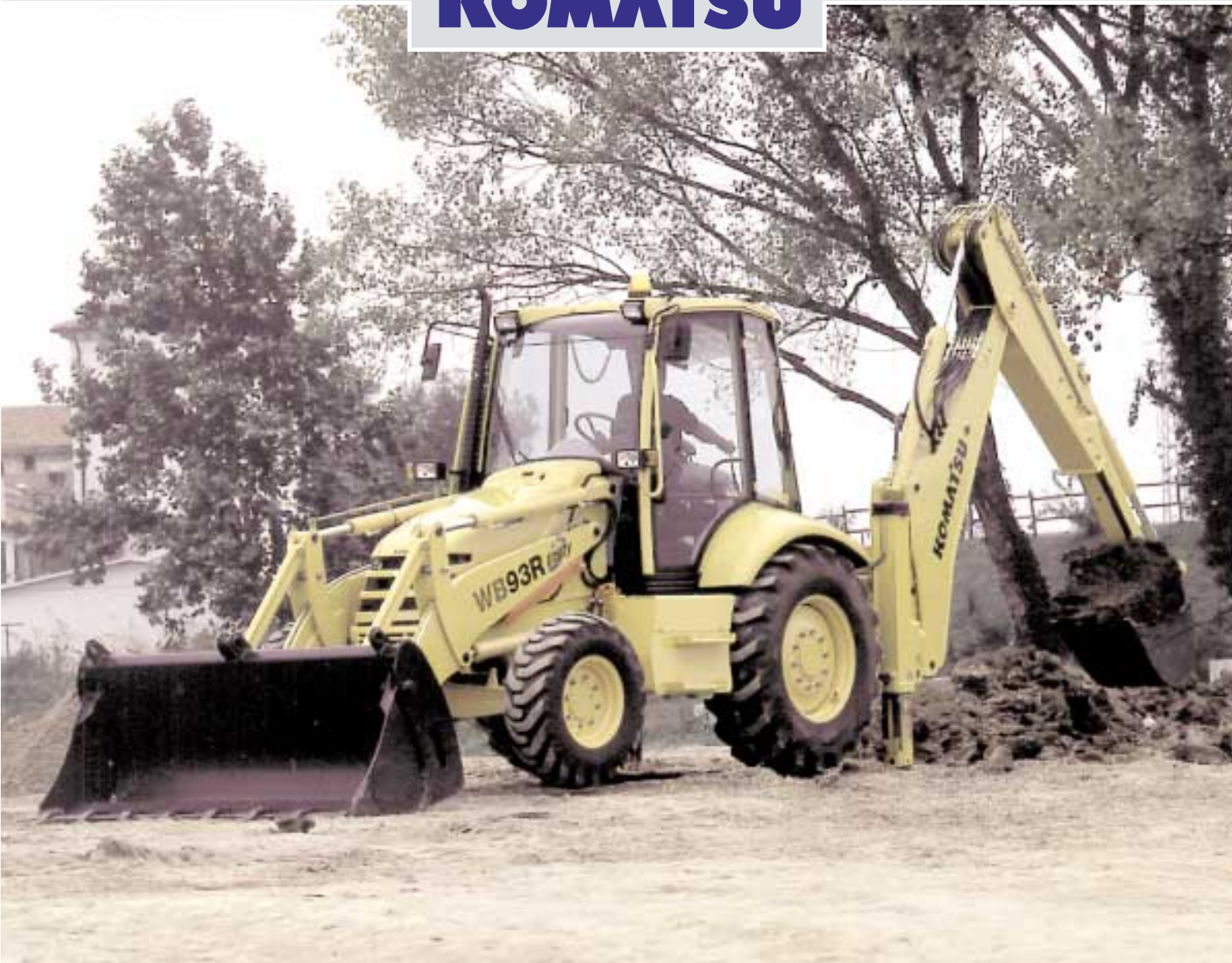


KOMATSU
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BACKHOE LOADERS WB91R-2 / WB93R-2

KOMATSU



KOMATSU
Utility

The Komatsu rigid backhoe loaders.

**The only machine that combines style,
prestige and power.**

More than 30 years of experience, and know-how, the world's finest design tradition and state-of-the-art Japanese technology have gone into the design and manufacture of the new Komatsu "Utility" range backhoe loaders.

BACKHOE LOADERS

AVANCE

WB91R-2

WB93R-2

NET

HORSEPOWER: WB91R-2 82,5 HP (SAE J 1349)
WB93R-2 97,8 HP (SAE J 1349)

**OPERATIONAL
MASS:**

from **7500** to **8580** kg

Machines built for operators with the environment in mind.



Environmentally friendly.

Respect for the environment was one of the main objectives that Komatsu designers set themselves in creating the new backhoe loaders.

The noise level of the new backhoe loaders and their exhaust emissions are among the lowest possible today, thanks to the use of new generation Komatsu engines.

AVANCE

Comfortable and simple to operate.

With a Komatsu backhoe loader, work is easy and above all, enjoyable.

The performance and productivity of a machine also depend on the operator. The person who works many hours each day at the controls of a machine is well aware of this, and so is Komatsu. This is why the new backhoe loaders have been designed for operators, in the interests of businessmen and with total respect for the environment in which the machine operates.

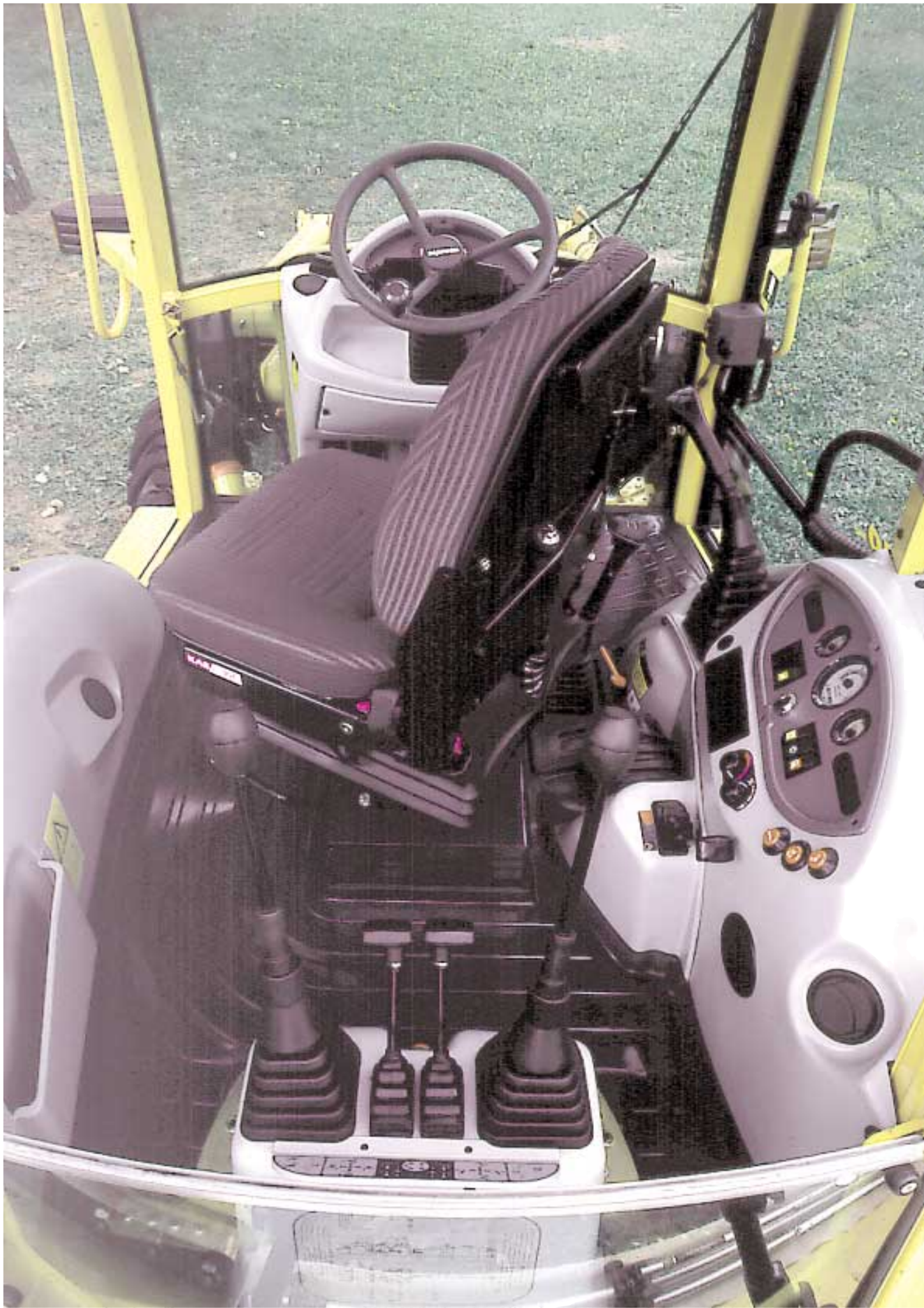
Anyone who's not already a

skilled operator will very soon become one with the new generation of Komatsu backhoe loaders.

The ergonomically designed controls offer ease of operation, using a hydraulic system that responds smoothly and precisely.

The cab allows all-round visibility and it is very quiet. The ergonomically designed seat is comfortable and fully adjustable. Meanwhile, the machine works quickly and powerfully, reducing operator fatigue and improving productivity.





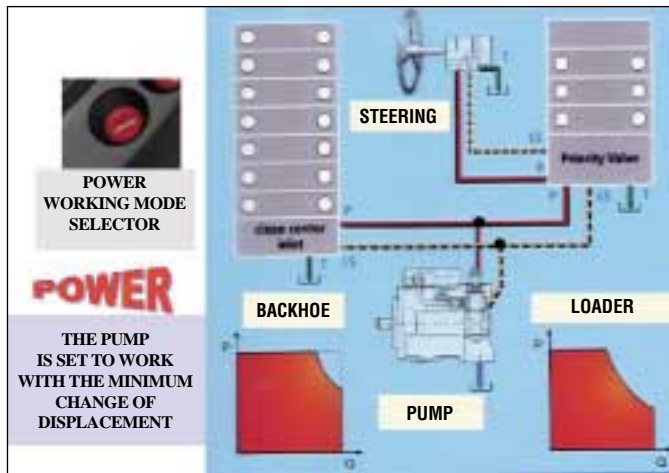
Maximum performance and perfect control from the hydraulic "SyncroSystem".

Tremendous hydraulic power under your complete control.

The new Komatsu backhoe loaders are equipped with the new exclusive hydraulic "SyncroSystem"

valve block, the speed of each movement is completely independent from that of the others, and the proportions between the various movements remain constant even when the

The exclusive "Syncro-System" is also equipped with two working mode selections: "**Std (normal) mode**" and "**Power mode**". The former is used for general operations and precision work, whilst ensuring maximum power but saving fuel. The "Power" mode lets the operator maximise the hydraulic power to increase the performance of the machine and achieve unequalled results. Hoses and piping are equipped with the special ORFS connections normally used for large size machines. The O-ring seal prevents oil leaks and it can be easily replaced.



The system consists of a single variable flow hydraulic pump and an "intelligent" hydraulic circuit that allows the machine to adapt instantaneously to the specific operation being carried out. The **CLSS (Close Load Sensing System)** type circuit, together with the variable flow pump, means that only the amount of oil strictly necessary for ensuring high operating pressure is generated and used.

This guarantees greater efficiency, lower fuel consumption and quiet operation. Even a relatively unskilled operator can work with unequalled precision and control using all the functions at the same time. Thanks to the innovative **LIFD (Load Independent Flow Divider)** hydraulic

resistance load varies. The new hydraulic system ensures not just excellent performance, but also shorter cycle times and thus greater productivity.





Excellent performance.

Komatsu rear excavator. Power, strength and efficiency.

The power and efficiency of the hydraulic "Syncro-System" are seen at their best in the rear excavator. Clearly it is robust and offers high performance owing to its newly designed box section with cast pivot points. The new geometry results in excellent dump heights and dig depths, whilst ensuring good soil retention and excellent visibility.

A handy device, electro-hydraulically controlled from the operator's cabin, locks the boom when required. End damping on the cylinders reduces shock during operation. The hydraulic piping is located mostly inside the structure for maximum protection, and incorporate screw connections to ensure easy replacement without dismantling the cylinders.

Locking of the backhoe side shift on the support chassis can be regulated, while the stabilisers incorporate special devices to compensate for wear.

The Komatsu rear excavator offers not just performance and robustness but also extreme versatility. Options include a telescopic dipper, boom off-set system and/or a combination of both.

The machine can also be equipped with a wide range of attachments.

Front loader. Exclusive new design of the front loader.

The new design of the front loader has tremendous breakout and lift performance. A dedicated switch called "**Speed-up**" located on the multifunction loader control, increases the front loader speed. The new geometry reduces stress in the loader arms improves dump height and visibility, it also ensures parallel lift and incorporates few grease points for easy maintenance. These features, together with the advanced hydraulic system, make the front loader even more versatile: it can operate with many different types of equipment, including pallet forks, 4 x 1 bucket, sweeper attachment and many others.



As an option, it is available the **LSS (Load Stabiliser System)** acting on loader lifting cylinders.

This system confers an unbeatable stability of the front loader (less vibrations, less material spillage and more operator's com-

fort) during load and carry operations or simply travelling on the road.



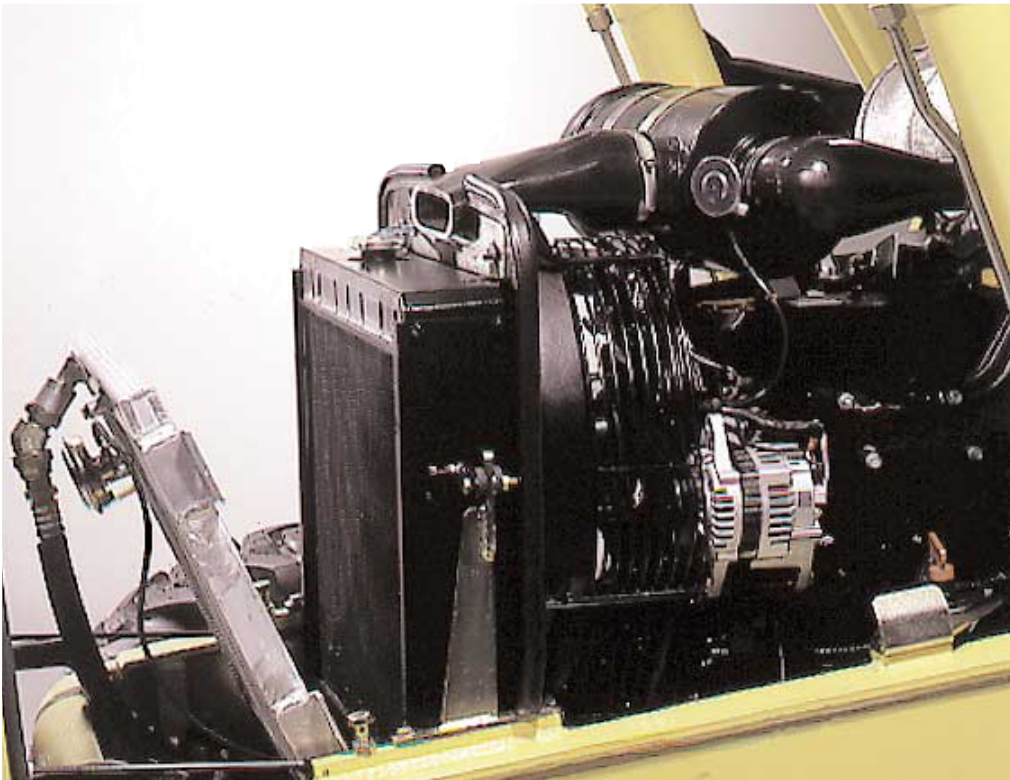
Engine. Clean, powerful and quiet.

The WB91R-2 and WB93R-2 models are powered by new generation Komatsu engines. Two engines are available: the 82,5 HP naturally aspirated and the 97,8 HP turbo versions.

The large cubic displacement of these engines, 4.4 litres, ensures high torque and power, and above all exceptional reliability. Modern design and construction technologies also ensure minimum exhaust emissions and low noise.

Transmission. Efficient, reliable and safe.

The WB91R-2 and WB93R-2 models are equipped with a Power Shuttle transmission with a "Power shift" inverter. They have four forward and four reverse synchronised gears with a top speed of 40 km/h. The "Power shuttle" transmission of the new Komatsu backhoe loaders is simple and reliable, ensuring excellent cycle times and remarkable tractive effort. It helps maximise productivity, and protects your investments. The robustness and efficiency of the transmission is increased by the use of Heavy Duty type axles, with planetary hub reductions and electrohydraulically operated diff-lock.



Maximum operating safety is also guaranteed by the excellent braking system. Oil immersed multidisc brakes can be independently operated by either of the two foot pedals. Pressing both pedals together automatically activate four wheel drive.

Steering angle.
Excellent manoeuvrability.

The hydraulic controlled steering circuit is fed via a load sensing priority valve, this allows smooth and precise driving. Even in confined spaces, the new Komatsu backhoe loaders move in a safe and agile way thanks to a high steering angle of 50°.

The double acting steering cylinder is housed in a

protected position behind the front axle.

Safety and reliability of the system are guaranteed in all conditions.

AVANCE



Modern and functional design.

Unmistakable style.

The new Utility range Komatsu backhoe loaders are designed like a tailor made suit.

They fit specific customer requirements like a glove and they offer the best solution to the working applications.

All-round visibility, compactness and maximum accessibility for maintenance.

No other backhoe loader offers comparable visibility: maximum glass surface, extended front windscreen in the upper part, a slim even strong cab frame, a sharply sloping front hood, completely free from obstacle (the exhaust pipe is located in line with the front upright) and the specially designed loader arms.

Easy and rapid maintenance. Maximum operating economy.

Periodic maintenance of the new Komatsu backhoe loaders takes only a few minutes, is very easy to carry out and requires no special tools.

The intervals for lubrication and hydraulic and engine oil changes have actually been doubled, giving a reduction in the owning and operator costs.

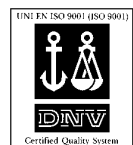
Reliability and long life are guaranteed.

For design, the most up to date technologies are used, from the 3D CAD/CAM system to the use of finite element calculation systems. Before starting the production of a new model, it is subject to a long series of severe experimental tests. Production is highly auto-



mated with cutting, manufacturing and welding operations carried out by robots.

All machine components are pre-painted to guarantee the best protection, and each machine produced is subject to careful testing and pre-delivery inspection.



KOMATSU UTILITY EUROPE S.p.A.



SPECIFICATIONS



ENGINE

A new generation engine developed to comply with stricter emissions controls.

Model (WB91R-2)	Komatsu 4D106-1FA
(WB93R-2)	Komatsu S4D106-1FA
Type	vertical, 4-cycle water-cooled diesel engine
Displacement	4412 cm ³
Cyl. bore x stroke	106x125 mm
N° of cylinders	4
Compression ratio	17,5:1
Combustion	direct injection (DI)
Aspiration (WB91R-2)	natural aspiration
(WB93R-2)	turbocharged
Max power (WB91R-2)	67,7 kW
(WB93R-2)	84,2 kW
Rater power (WB91R-2) :	
(SAE J 1349)	61,5 kW / 82,5 HP / 2200 rpm
(80/1269/EC)	61 kW / 82 HP / 2200 rpm
Max torque	310 Nm - 1500 rpm
Rater power (WB93R-2) :	
(SAE J 1349)	73 kW / 97,8 HP / 2200 rpm
(80/1269/EC)	72 kW / 96,5 HP / 2200 rpm
Max torque	375 Nm - 1500 rpm
Cooling system	radiator
Air filter	dry filter with safety element
Starting system	electric motor with pre-heating air system for cold climate



HYDRAULIC SYSTEM

SyncroSystem hydraulics allows the operator very precise and simultaneous backhoe movements. This system is energy efficient and incorporates two different working modes: maximum power and constant power. 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 with working/power selector switch
Pumps type	Variable displacement axial pistons type
Pumps control system	Load Sensing set to adjust the hydraulic power
Distributor	LIFD "load independent flow divider" modular type
Max delivery	165 ℓ/min
Work pressure (WB91R-2)	185 bar
(WB93R-2)	200 bar



FRAME

The re-designed 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.



TRANSMISSION

Switching between 4WD and 2WD is achieved through an electro-hydraulic system. The transmission is operated through a torque converter and a power shift reversing shuttle; the mechanical 4-speed gearbox is synchronised.

Travel speed:			
SPEED	FORWARD		REVERSE
1°	6,5		6,5
2°	12		12
3°	23		23
4°	40		40



STEERING

The front steering wheels are controlled by a hydrostatic load sensing with steering priority valve system.

Turning radius:	
at the corner of the bucket	5450 mm
at outer edge of front tyre	4000 mm
Turning radius (using brakes):	
at the corner of the bucket	4950 mm
at outer edge of front tyre	3400 mm



BRAKES

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

Disc diameter	270 mm
Total friction area	2310 cm ²

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



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 electro-hydraulic system with a switch on loader lever.

Max front strength (Dynamic)	6300 daN
Max rear strength (Dynamic)	12000 daN



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

New ROPS (ISO 9249, SAEJ1040) FOPS (ISO 3449, SAEJ 231) cab designed in order to offer the best visibility, ergonom-
my, low noise and comfort. Two doors, full opening 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.



CAPACITIES

Engine oil	8,6 ℓ
Cooling system	18 ℓ
Diesel tank	130 ℓ
Hydraulic oil tank	92 ℓ
Front axle oil	8,2 ℓ
Rear axle oil	18,5 ℓ
Gearbox oil	16 ℓ



WEIGHT (ISO 6016)

Operating standard machine weight	7500 kg
Total machine weight	8580 kg

OPERATING WEIGHT INCREASE

4 IN BUCKET	250 kg
OFFSET BOOM	150 kg
TELESCOPIC ARM	260 kg
PALLETS FORKS	200 kg



NOISE LEVEL

Dynamic test:

Sound power level	LwA 103 dB(A) (cab)
Sound pressure level	LpA 77 dB(A) (cab)

The values are given according to the directive EC 89/514
and EC 95/27.



LOADER

The new design of the front loader allows a better 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 dramati-
cally reduced.

Standard bucket width	2320 mm
Capacity (ISO 7546)	1,03 m3
STD bucket weight	450 kg
Lifting capacity at maximum height:	
(WB91R-2)	3538 daN (3610 kgf)
(WB93R-2)	3820 daN (3900 kgf)
Lifting capacity at ground level (ISO 8313):	
(WB91R-2)	4700 daN (4785 kgf)
(WB93R-2)	5195 daN (5300 kgf)
Breakout force (ISO 8313):	
(WB91R-2)	5963 daN (6085 kgf)
(WB93R-2)	6383 daN (6500 kgf)



BACKHOE

The new boom has a rounded profile and a reinforced struc-
ture built with cast ends, allows 180° rotations, always main-
taining high rotation torque. Vertical outriggers with
adjustable wear device.

Bucket breakout force (ISO 6015):

(WB91R-2)	5450 daN (5550 kgf)
(WB93R-2)	5780 daN (5900 kgf)

Dipper digging force (ISO 6015):

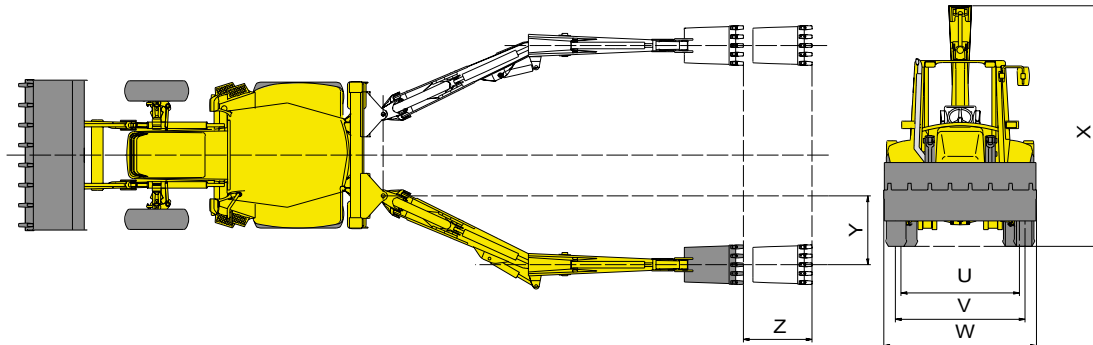
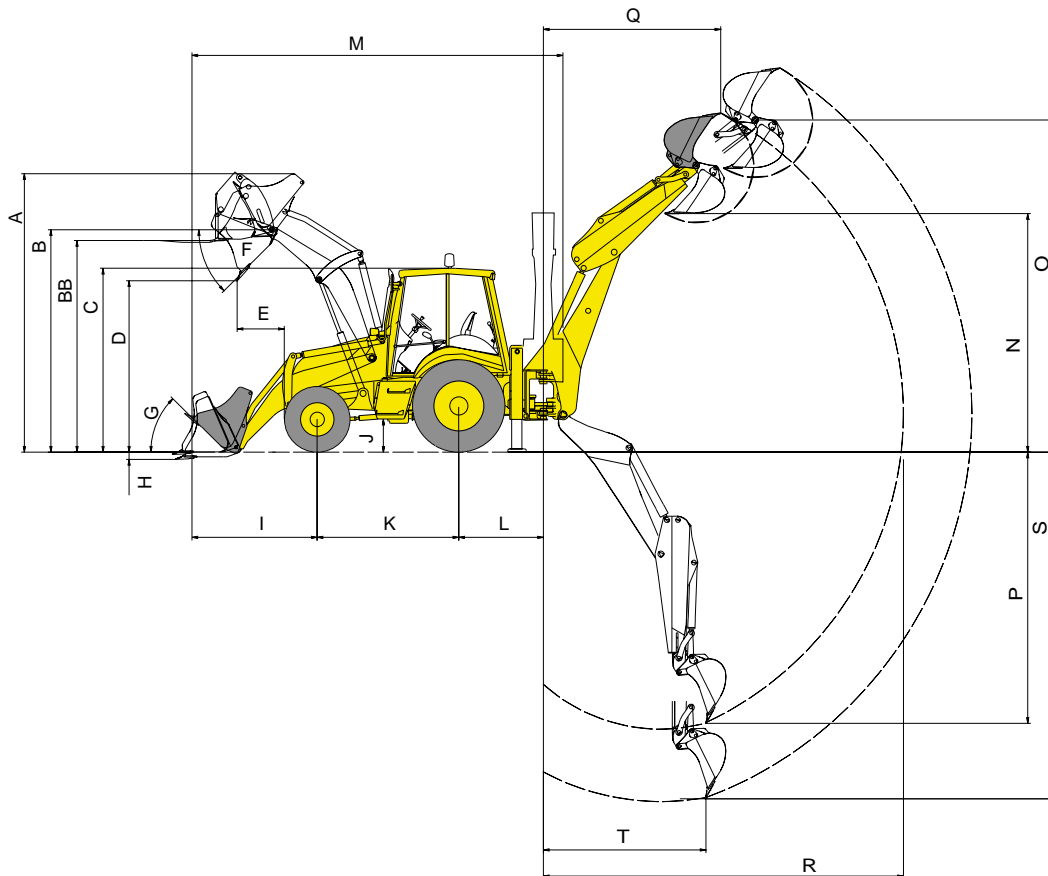
(WB91R-2)	3510 daN (3570 kgf)
(WB93R-2)	3780 daN (3850 kgf)



ELECTRIC SYSTEM

Electric circuit with protected connections in all exposed
areas.

Voltage	12 V
Battery	120 Ah
Alternator	60 A
Electric starting	3 kW



DIMENSIONS

A. max. height	4220 mm	P. digging depth SAE	4500 mm
B. pin height	3400 mm	- with telescopic	5650 mm
BB. forks loading height	3200 mm	Q. reach at max height	2500 mm
C. cab height	2750 mm	- with telescopic	3500 mm
D. dumping height	2750 mm	- with off-set	2510 mm
E. dumping reach (45°)	750 mm	R. max reach from swing centre	5550 mm
F. dumping angle	45°	- with telescopic	6550 mm
G. rollback angle	45°	S. max digging depth	4950 mm
H. digging depth	110 mm	- with telescopic	6100 mm
I. bucket reach (in transport)	1930 mm	T. digging reach	2750 mm
J. ground clearance	430 mm	U. rear tread	1800 mm
K. wheel base	2175 mm	V. front tread	1920 mm
L. backhoe swing centre distance	1320 mm	W. overall width (with bucket)	2320 mm
M. transport length	5895 mm	X. transport hoe height	3660 mm
N. dumping height SAE	3700 mm	- with telescopic	3700 mm
max dumping height	3950 mm	- with off-set	3760 mm
- with telescopic SAE	4830 mm	Y. off-set	1080 mm
- with telescopic max	5050 mm	Z. telescopic stroke	1150 mm
O. max digging height	5510 mm		
- with telescopic	6510 mm		