

WA 470-3 *active plus* The Advantages at a Glance.

AMS: The AMS Application Mode Selection enables the operator to adjust the machine optimally to the requirements of each operation. Highest performance or lowest fuel consumption are therefore guaranteed.

Spacious ROPS/FOPS operator's cab on hydrobearings. Low interior noise level. $L_{pA} = 75 \text{ dB(A)}$ (95/27/EC).

APS: the Automatic Power Speed system matches the hydraulic operating parameters to the actual working conditions. "Fast" for short working cycles. "Power" when moving right into the material.

Driving functions and control data are monitor-displayed in the operator's field of vision and are easy to check by the service staff using the memory function.

High-torque low-emission KOMATSU engine 194 kW/263 hp (ISO 9249). Fulfills all future exhaust and noise regulations. $L_{wA} = 109 \text{ dB(A)}$ (95/27/EC).

ALS-Electronic: Dampens vibrations and protects operator and machine under different load and speed conditions (option).

Rugged KOMATSU axles in full floating design for all tasks and applications, for a lifetime's operation.

Fully capsuled multiple wet-disk parking brake, integrated into the transmission.

Fully-automatic transmission with electrical "kick-down" and "gear-hold".

Locking differentials for better traction with a locking value of 45 % (option). Or alternatively series-fitted TPD torque-proportioning differentials.

Perfectly designed rear for excellent orientation and to facilitate the piling up of material.

KOMATSU wheel loaders: The best of both worlds.

Wheel loaders of the WA 3-series were the first products developed and built in Hanover for Europe. The new *active plus*-series is the logical further development of this successful series.

Apart from the construction of wheel loaders, the plant in Hanover is also specialized in the design and fabrication of waste compactors, axles and transmissions.

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KOMATSU



WA 470-3

active plus

Maximum power, superior service life
and superb operator comfort.

Engine output: 194 kW/263 hp (ISO 9249)
Bucket sizes: 4.2 – 4.9 m³
Operating weight: 23.5 t

Loads better comfort • Loads better for the environment • Loads better performance

Maximum power and sturdiness – whether in quarrying, in mining or in industry.

For a lifetime of work.

The WA470-3 wheel loader combines all the features of a reliable machine: sturdy, rugged construction, powerful KOMATSU engine, "intelligent" hydraulics for high performance (see page 6) and bucket capacities from 3.8 to 6.5 m³. A synthesis geared to meeting the hardest demands, whilst maintaining full performance and avoiding down-time. Longevity is the key!

Comfort? At its best!

Of course, no corners have been cut where comfort is concerned. Extremely low noise, air conditioning and ideal ergonomic cab design are combined with driving comforts similar to those of a car. High shock absorption, and with well-balanced weight distribution.

Care has been taken to create the best possible conditions for the operator allowing him to work effectively and in comfort throughout a long working day.



In a quarry or at the coal face: The WA470-3 takes it all in its stride.

The WA470-3 wheel loader is in its element whenever the going gets tough and where power and manoeuvrability are required. Outstanding lifting and breakout forces make it ideal for working in a quarry, for mining and for civil engineering work. The mark of a true professional.

More for your money.

If you're looking for a reliable investment for your money, the WA470-3 wheel loader is one with a high return. Not just because of its excellent



equipment and performance features, but also for its extremely easy maintenance, economy and high quality enabling it to meet the highest demands. The scales are always tipped in its favour - and, therefore, in yours as well.

Fast and powerful in building material processing-recycling.

The end justifies the form.

A typical design feature of the WA series is its slanting rear. However, this is no mere designer's wish than the frameless panoramic front wind-screen or the ergonomically designed steps. The slanting rear allows for optimised

stockpiling, as the machine can reverse right into the material almost up to the rear wheels. Another functional feature is the entry into the cab through wide opening doors and the step-like ascent. The integrated ROPS/FOPS system gives a high level of security on the

one hand and the lowest overall machine height of its class, on the other.



What a work place: climb in and feel at home.



Ergonomically designed main monitor.

Climb in and feel at home.

The design of the workplace is decisive for an employee's commitment. Everybody who feels good, works better. Whether earning his pay at a desk or on a machine. That is why everything has been done on the WA470-3 to create an ideal workplace.

The force of peace.

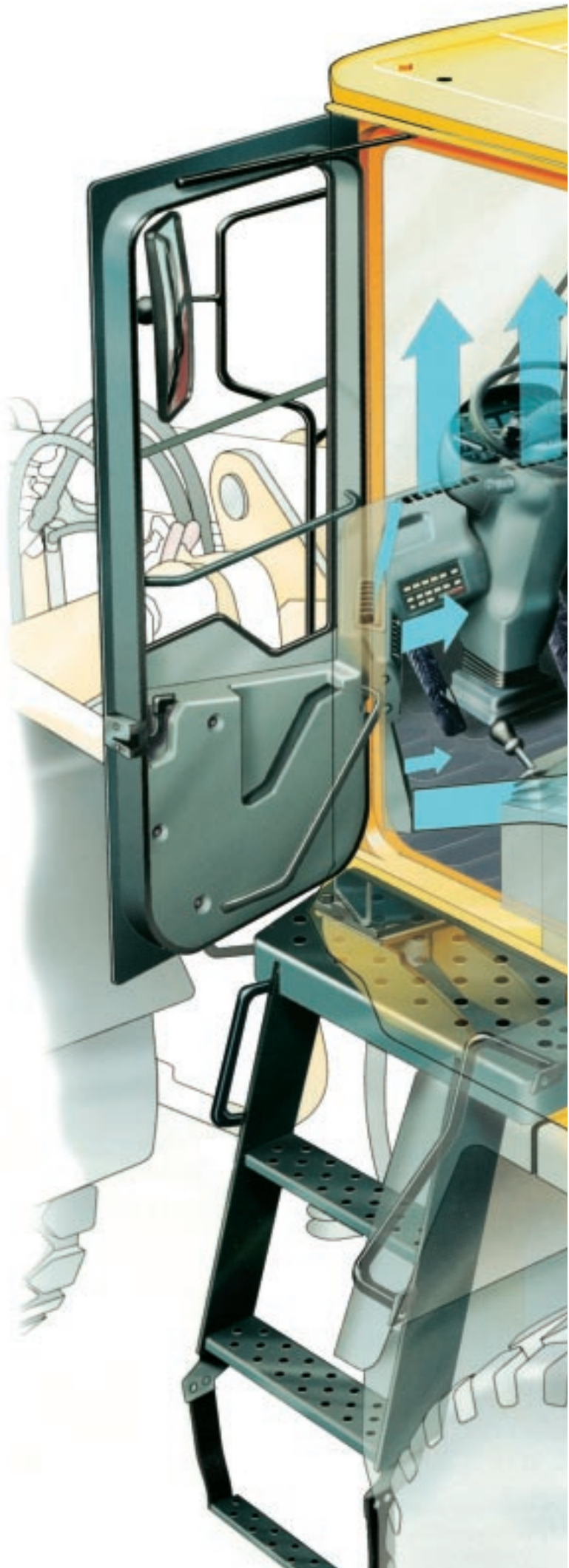
The low noise level inside the cab results from special design features: the operator's cab is connected to the chassis by hydrobearings, the transmission "floats" on rubber buffers. The transmission of structure-borne noise from the drive units is prevented or reduced to a minimum.

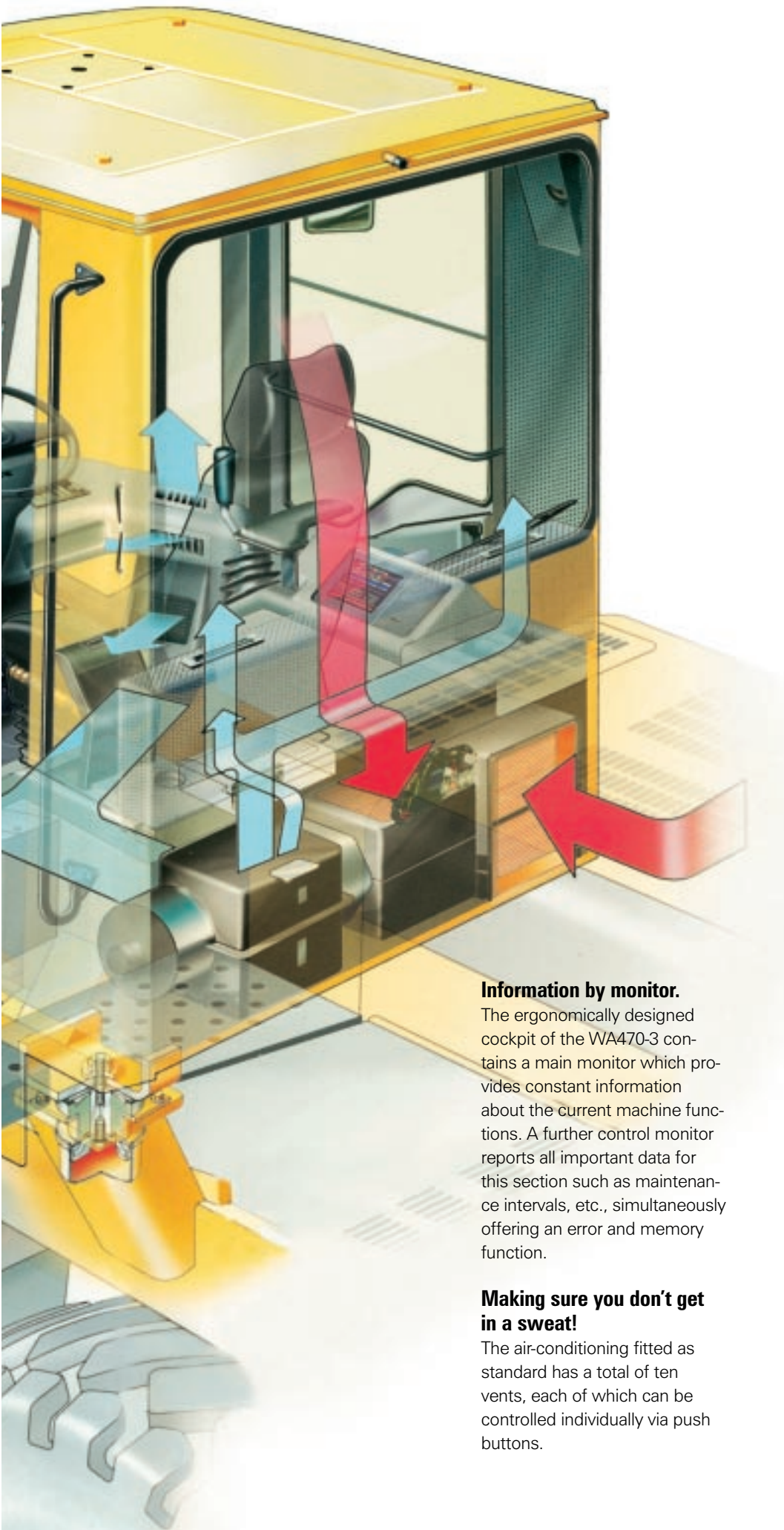
Everything in view, everything within reach.

The first thing you notice inside the operator's cab is the expanded legroom and the ergonomically arranged control elements. The steering column including the monitor panel can easily be adjusted to perfectly suit the driver's position. The sitting position on the standard air suspension seat is high, providing complete all round vision and a direct view of the front wheels through the tinted windows.

The precision two-lever hydraulic control (optional single-lever or multi-function-lever operation) is servo controlled and coupled with the jerk-free automatic transmission and enables speeds to be adjusted to individual working conditions with ease.

The "kick-down" function makes work even easier. It is topped off by the "gear-hold" switch which allows the operator to use the braking effect of the engine when driving downhill.





Information by monitor.

The ergonomically designed cockpit of the WA470-3 contains a main monitor which provides constant information about the current machine functions. A further control monitor reports all important data for this section such as maintenance intervals, etc., simultaneously offering an error and memory function.

Making sure you don't get in a sweat!

The air-conditioning fitted as standard has a total of ten vents, each of which can be controlled individually via push buttons.



Ergonomic ascent and a spacious cab further improve operating comfort.

In each situation the right mode: On button pressure or automatically.

ALS ELECTRONIC

The electronic Automatic Load Stabiliser system protecting man and machine (optional extra).

Structural reduced vibrations and jolts thanks to the ALS electronic.

This outstanding shock reduction system works with big volume accumulators and is automatically activated at 5 km/hour. Vibrations and jolts are reduced to a minimum. The result: reduced stress for man and

machine for instance under fast load & carry conditions over uneven ground. The electronic system senses input parameters covering travelling speed and gearing. The system adjusts automatically to constantly-changing operating conditions and pays for itself by increased operating performance.

APSI SYSTEM

*The Automatic Power-Speed-System – speed or power?
The system decides.*

Extremely flexible.

The APS system is a hydraulic system which automatically adjusts to individual operating conditions. The system decides for itself when power is called for or when speed would be more advantageous.

Actually quite simple why things are going so fast all of a sudden.

“Fast” hydraulics are required when you need to have short loading cycles in extremely restricted spaces. Main and alternating pump together supply a

Actually quite simple why power is concentrated all of a sudden.

During heavy tear-out and lifting work, the resistance acting on the hydraulic system rises. At this point, the alternating pump switches off automatically and the main pump alone will supply a reduced oil flow-rate of 284 l/min.

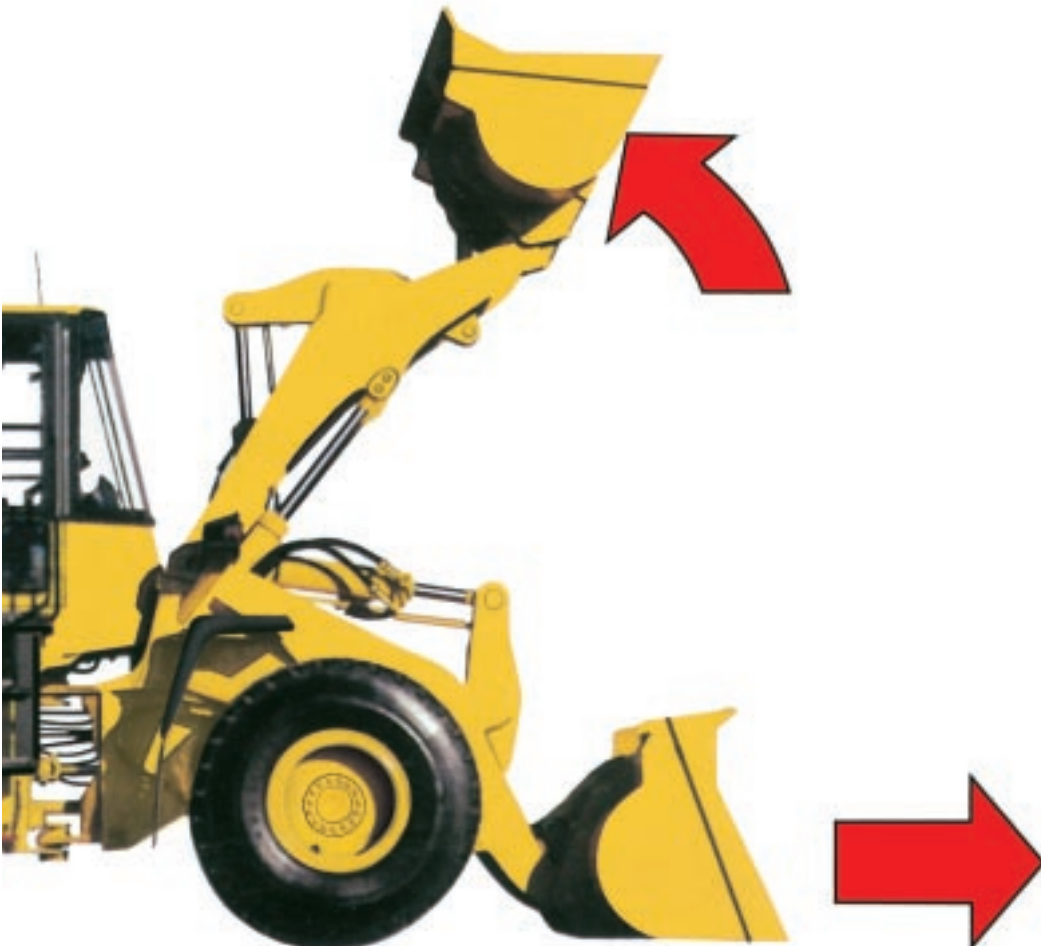
The system pressure rises to a maximum of 210 bar, and the entire power is transferred to the bucket, or provides the transmission with maximum traction power.

Power reversal via Z-kinematics.

The Z-kinematics are characterised by a high-tear-out and rapid bucket discharge. This is achieved by power reversal in the tilt cylinder. When filling the bucket (tear-out) the oil pressure acts on the large piston surface, whereas it acts on the smaller, differential surface of the piston during the dumping process. This empties the bucket extremely rapidly and largely prevents the adhesion of cohesive material. Due to the double-sealed bearing-joints, extremely long maintenance intervals are also achieved.

Torsion-free frame.

The frame is very stable due to large distances between joints. This grants maximum safety of the overall construction and reduces the load on the articulated joint. The 40° turning angle gives the machine its extremely high manoeuvrability.



IN



Efficiency – by the press of a button.

The operator adapts the wheel loader to each operation by button pressure. Ergonomically integrated into the instrument panel all important main components such as engine, transmission and hydraulic system are adjusted optimally to the wishes of the operator and the requirements of the job.

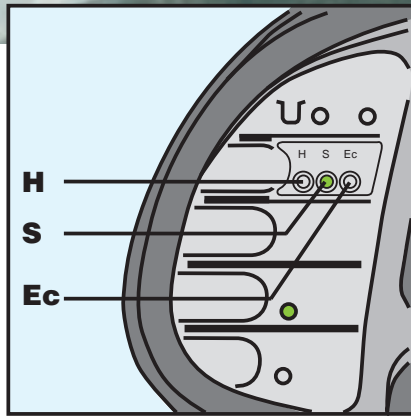
Selected modes

High:

Powerful for fast V-shape loading, for example for the loading of trucks. The APS 2-stage hydraulic system and a maximum engine rpm guarantee fast hydraulic cycle times. The “late” gear shift from the 2nd to the 3rd gear ensures the maximum tractive power and fast loading and dumping sequences. This mode should be selected when maximum performance is required .

Standard:

Smooth for road travel as well as slow V-shape loading and “load & carry”. The “early” gear shift reduces engine rpm and fuel consumption. The permanent disconnection of the switch pump reduces hydraulic loss and therefore fuel consumption. The reduced engine speed at “load & carry” means reduced engine wear and a reduction of noise level. The maximized engine rpm guarantees fast travel speed on the road.



Powerful, smooth or efficient – make your own choice.

Economy:

Efficient for Load & Carry and light duty job applications. This selected mode provides lowest operating costs and highest efficiency. Further to the adaptations carried out to the transmission and hydraulic systems the engi-

ne management is controlled. The reduction of the engine rpm effected with this selected mode leads to a further reduction of fuel consumption when accelerating.



To steer with the little finger.

A further innovative feature is the optional joy stick. Integrated into the arm of the operator’s seat it provides the operator easy and low effort steering during reversing in a loading operation. “To steer with the little finger” saves a thousand turns of the steering wheel every day and keeps the operator fit.

All-round toughness: a powerful engine, a robust chassis and ruggedly-built axles.

The heart of the machine: An engine of 194 kW (263 hp) To move 24 tons.

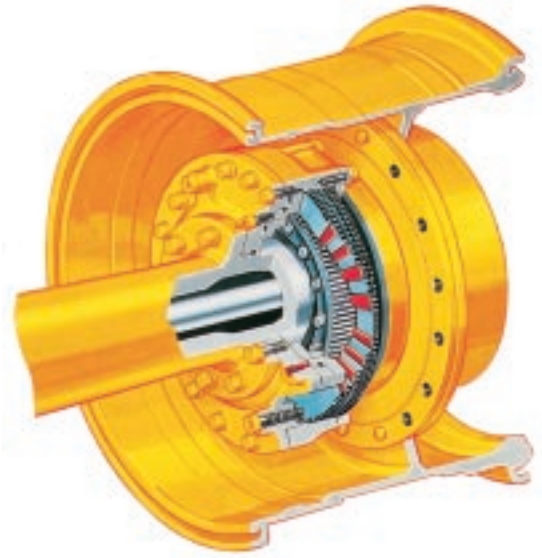
A heavy-duty modern 6-cylinder low-emission KOMATSU engine gives the WA470-3 the rugged power to propel its 24 tons operating weight.

Characteristic features of the power unit are its smooth running, high torque with great flexibility. The engine represents excellent combustion, low fuel consumption, and low emissions.

Easily accessible maintenance points ensure fast and easy servicing. Just what you need in day to day work.

Rugged, axles designed for a lifetime's performance.

The rugged, floating axles have oil-immersed disc brakes in the wheel hubs and are designed for long-term, heavy-duty work. They are completely maintenance-free. Due to the enclosed construction in the oil bath, the brakes stand for maximum



Multiple wet disc parking brake.



operating safety combined with an extremely long service life. The fully hydraulic brakes additionally offer a maximum degree of easy maintenance. Reduction units mounted in the wheel hubs - e.g. where maximum torque is required - ensure that pre-mounted components, such as semi-axes and the differential, are subjected only to low torsional forces. The rigid chassis lacks nothing by comparison and is also designed to provide a lifetime's performance.

Multiple wet disc parking brake.

The parking brake is of the multi-disc type and completely integrated into the transmission. The brake is fully capsuled, e.g. prevents wear and is completely maintenance-free. The braking system is fully hydraulic giving a further step towards a maintenance free machine.

Central greasing factory fitted.

The standard KOMATSU-central greasing system in the particularly robust heavy-duty design provides clean maintenance and low down time even in the heaviest operations. Steel pipings and borings to the bucket pins render possible a clean and extremely long lasting design of the system in order to increase the availability of the machine.

Making sure the wheels always grip.

Locking differentials front and rear (option) with a locking value of 45% are a guarantee for good traction at all times, even on soft ground, for heavy pushing work, or on slopes. Together with the APS 2-stage hydraulic system, this will increase the pushing power thus facilitating bucket filling.

"Kick down" and smooth gear-changing.

Four forward and four reverse gears with ratios selected to meet real working conditions. Smooth gear-changing and reversing even under full load conditions. The handling characteristics of the machine are thus ideal. In addition there is the "kick-down" gear-shift, which allows the operator to change instantly to 1st gear, in order to drive at full power into

Exhaust limit values in g/kWh in accordance with ISO 8178

	9,2	0,7	1,3	5,0
	8,12	0,12	0,36	1,19
	NO _x	PM	HC	CO

EC limit values
Actual values of the WA470-3 active plus

the material. Furthermore the new AMS-systems provides for optimized gear shifts and increased efficiency.

In harmony with the environment - not only due to the low exhaust values.

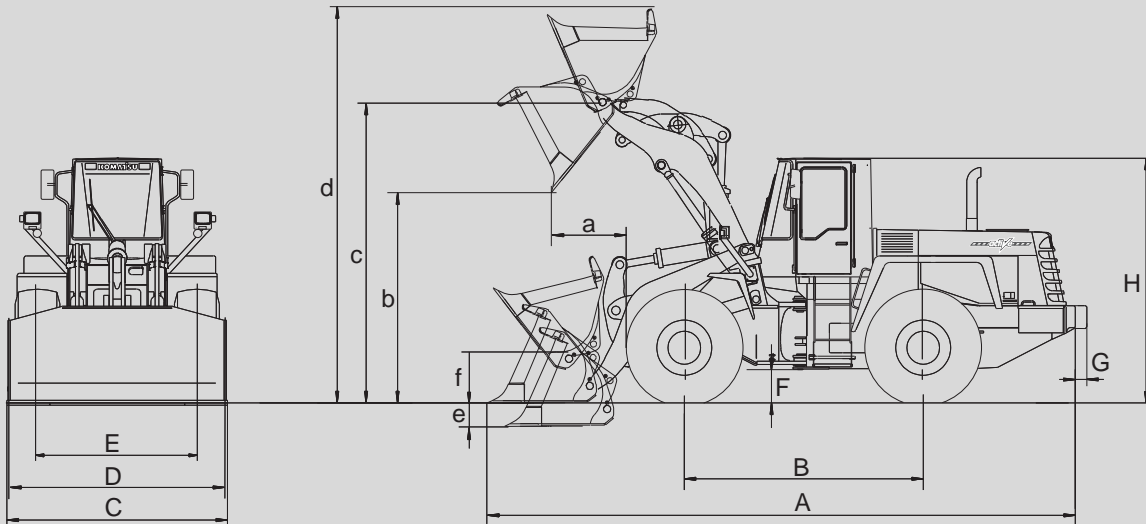
It goes without saying that our low emission engines have exhaust values far below those of the future European and international emission directives. The high-pressure injection plus a modified turbo-charger give the wheel loader low-noise force and staying power. The hydraulic system operates with optional bio-oil and is thus in perfect harmony with the environment, for instance in water-protection areas. Taken altogether - an investment which pays for itself in the shortest of time.



ab filter, engine and transmission make service work



Dimensions and Operating Data.



These values refer to machines fitted with 26.5 R 25 L-3 tires.

Buckets (capacities according to ISO 7546) m ³		4.2	4.3	4.6	4.7
Specific density	t/m ³	1,8	1,75	1,6	1,55
Bucket weight without teeth	kg	2240	2320	2365	2445
Static tipping load (straight)	kg	18310	18220	18120	18130
Static tipping load (at a 40° angle)	kg	16090	16000	15900	15900
Breakout force, hydraulic	kN	182	183	172	177
Hydraulic lifting capacity, on ground	kN	241	247	241	244
Operating weight	kg	23370	23450	23490	23570
a Reach at 45°	mm	1276	1266	1326	1301
b Dumping height at 45°	mm	3000	3005	2938	2963
c Lift height, hinge pin	mm	4220	4220	4220	4220
d Height to upper edge of bucket	mm	5880	5844	5914	5910
e Digging depth	mm	57	57	57	57
f Bucket height when travelling	mm	425	425	425	425
A Overall length	mm	8594	8584	8669	8634
B Wheelbase	mm	3400	3400	3400	3400
C Bucket width	mm	3000	3170	3000	3170
D Width across tires	mm	2885	2885	2885	2885
E Track	mm	2210	2210	2210	2210
F Ground clearance	mm	490	490	490	490
H Overall height	mm	3475	3475	3475	3475

Special bucket:
 3.8 m³ – V-shape bucket
 4.1 m³ – HD bucket
 4.25 m³ – HD bucket with bolt-on cutting edge
 6.5 m³ – light-material bucket

The 4.2/4.3/4.6/4.7 m³ series buckets shown in the table are also available with bolt-on cutting edges to increase capacities 4.3/4.5/4.75/4.9 m³.

Data will be modified according to:

	Additional counter-weight	Tire filling 26.5 R 25
Weight	+ 400 kg	+ 1,560 kg
Tipping-load		
0°	+ 1,090 kg	+ 2,480 kg
40°	+ 900 kg	+ 2,190 kg
Overall length (G)	+ 210 mm	

Bucket type	Capacities in m ³	
V-shape bucket	3.8	
Bucket	4.1	
Bucket	4.2	
Bulk mat. bucket	4.6	
Light mat. bucket	6.5	
Density	in (t/m ³)	0,9 1,0 1,1 1,2 1,3 1,4 1,5 1,6 1,7 1,8 1,9 2,0

The actual volume will usually exceed the ISO/SAE classification. The table shows optimum bucket data, depending on the material involved.

Material	Bucket contents %	Density t/m ³
Earth	100–115	1.5–1.6
Clay	110–120	1.5–1.7
Sand	100–110	1.4–1.8
Gravel	85–110	1.5–2.0
Rock	75–100	1.6–2.0

Not economical Recommended Full utilisation

Technical Data at a Glance.



Engine

Make	KOMATSU low-emission engine
Model	SA6D125E
Type	Diesel
Power output at engine speed	194 kW/263 hp (ISO 9249) 2200 rpm
Max. torque	1049 Nm/1400 rpm
No. of cylinders	6
Bore/stroke	125/150 mm
Displacement	11045 cm ³
Fuel injection	direct
Cooling system	Dual-circuit, thermostatically controlled liquid cooling
Electrical system	24 volt
Batteries	2 x 12 volt, 143 amp/h
Alternator	50 amp/h
Air filter	HD dry-air filter



Transmission

Make	KOMATSU
Type	Fully-automatic 4-speed full powershift transmission with "kick-down" and "gear-hold"
Converter type	TCA 38-42
Conversion ratio	3.15:1



Steering

Type	hydrostatic
System	articulated
Articulated joint	needs no readjustment
Steering angle	40° each side, hydraulically limited
Steering pump operating pressure delivery	210 bar 124 l/min
Minimum turning radius outside edge, wheel	6,175 mm
outside edge, standard bucket	6,777 mm
Emergency steering	via additional pump



Filling capacities

Fuel	390 l
Engine oil	33 l
Cooling system	68 l
Converter transmission/powershift transmission	52 l
Front axle	65 l
Rear axle	65 l
Operating hydraulics/brake system	240 l



Hydraulic system

System	2-stage, 3-pump system with main and 2 switch pumps
Operating pressure stage 1	160 bar
stage 2	210 bar
Operating flow stage 1	397 l
stage 2	284 l
Loading times lift (full load)	6.8 sec
dump	1.4 sec
lower	3.7 sec
Automatic boom kick-out automatic return-to-dig	



Axles

System	All-wheel drive, planetary reduction in the wheel hobs
Front axle	Planetary axle with TPD torque proportioning differential
Rear axle	Planetary axle with TPD torque proportioning differential, oscillating
Oscillating angle	15° each side
Tires	26.5 R25 XHA L3, Michelin 26.5 R25 VLT L2/3, Bridgestone 26.5 R25 SPT 7LD, L3, Dunlop 26.5-25 PG 6S, 20PR, L3, Dunlop 26.5-25 PG 9SD 24 PR, L5, Dunlop 26.5 R25 XRD 1A, L4, Michelin 26.5 R25 XLD 2A, L5, Michelin 26.5 R25 RL-2+, L2/3, Goodyear



Travel speeds

Forward	1st gear 0 - 6.4 km/h 2nd gear 0 - 11.7 km/h 3rd gear 0 - 21.0 km/h 4th gear 0 - 39.0 km/h
Reverse	1st gear 0 - 6.7 km/h 2nd gear 0 - 12.3 km/h 3rd gear 0 - 22.0 km/h 4th gear 0 - 37.5 km/h



Brakes

Operating brakes	Hydraulic pump accumulator brake system, with torque-multi disc brakes in wheel hobs (all-wheel brake)
Hand brake	Wedge-type multi-disc brake in transmission, spring-loaded, opening hydraulically



Standard equipment

Low-emission engine • 2-door noise insulated high-comfort cab (equipped with ROPS/FOPS) • air conditioning • air suspension operator's seat • openable door windows • stereo cassette radio • two halogen main lights • two halogen worklights each, front and rear • central lubrication system • vandalism protection • AMS Application Mode Selection (H, S, Ec selected mode) • automatic transmission with additional kick-down and gear-hold • two-lever hydraulic operation • torque proportioning differential in front and rear axle • emergency steering • electronic checking system (EDIMOS II) • Automatic Power-Speed Hydraulic System (APS-system) • automatic return-to-dig • automatic boom-kickout • 26.5 R 25 radial tires • all loading kinematics and bearing points sealed • integrated noise insulation.

Noise values: $L_{wA} = 109$ dB(A), $L_{pA} = 75$ dB(A).

The WA470-3 is equipped in accordance with professional safety regulations and fulfils the low-emission directive of ISO 8178 and the directives 95/27/EC.



Optional equipment

High-lift attachment • fold-down radiator grill • self-locking differential, front and rear • StVZO (German road safety compliance) • Electronically Controlled Load Stabiliser (ALS-Electronic) • 3-spool-valve • single-lever hydraulic control • weighing facility • backup alarm • additional counterweight (400 kg) • additional counter weight II (640 kg) • special colour • rock and special buckets • special tires (e.g. rock, recycling, sand, clay, etc.) • tire chains • protective grill for wind-screen • catalyst • speed limitation • TURBO II air-pre-cleaner • multi-function-lever for transmission and hydraulic control • anti theft device • handrails for working in a quarry • hydraulic quick coupler • equipment for the wood industry (log clamp, light material- and high tip bucket) • additional working lights • roof railing • 3rd and/or 4th spool valves for additional hydraulic functions • heated operator's seat.