Kockum 425 B

E 162 B

Kockum 425 B

PAYLOAD CAPACITY

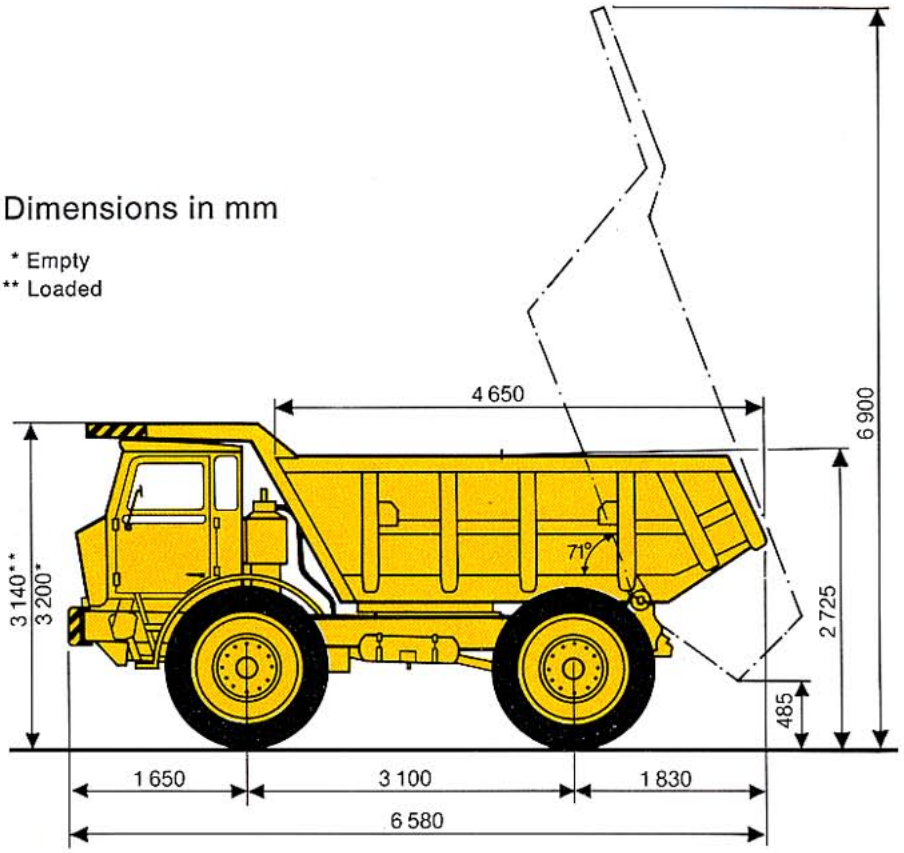
Payload	25 tons	(22.500 kg)
Payload volume, struck (SAE)	11.0 m³	14.4 cu.yd.
heaped 2:1 (SAE)	15.0 m³	19.6 cu.yd.
heaped 1:1 (SAE)	18.0 m³	23.5 cu.yd.

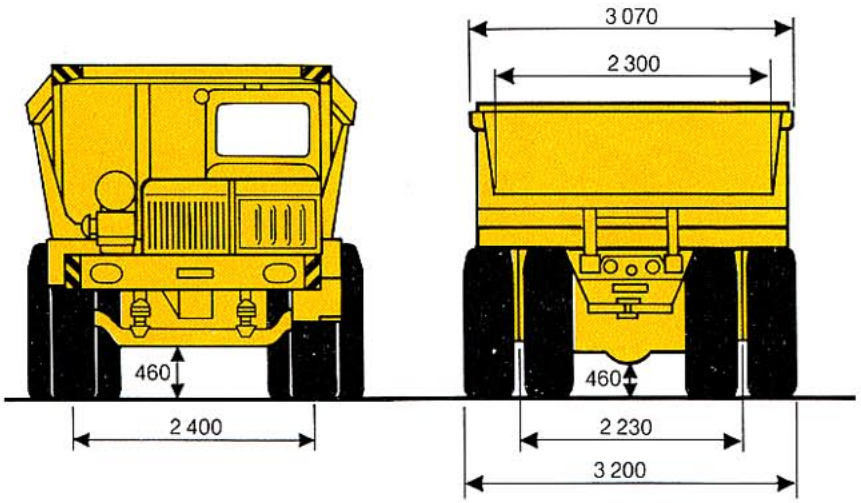
WEIGHT DISTRIBUTION

		Front axle	Rear axle	Total
Empty	kg	7.900	8.500	16.400
	lb	17.400	18.700	36.100
Loaded	kg	13.000	25.900	38.900
	lb	28.600	57.000	85.600

Dimensions in mm

* Empty
** Loaded





Engine

Type	Scania DS 11,6-cylinder, 4-stroke direct injection diesel engine with turbo-charger
Max. output	213 kW (290 hp) SAE at 2.100 rpm
Max. torque	1.180 Nm (120 kpm) SAE at 1.300 rpm
Bore	127 mm
Displacement	11.0 dm³ (litres)
Compression ratio	15

Volumes dm³ (litres)

Engine, lubricating system	20
cooling system	55
Gear-box	50
Hydraulic system, hoist	70
steering	9
Rear axle	26
Fuel tank	250

Converter — gear-box

Type	Allison CLBT 754 Automatic gear-box Converter with "lock-up" Retarder
Torque conversion	Max. 2,46
Ratios	1 5,18 2 3,19 3 2,07 4 1,40 5 1,00 Reverse 9,45

Rear axle

Type	Fully floating drive shafts. Final reduction in differential and wheel hubs (planetary gears)
Reduction	Total 9,78 Option: 11,42

Front axle

Type	Forged I-section. Carried on leaf springs and reaction rods. Hydraulic shock absorbers and rubber bumpers

Wheels

Rims	11.25—25
Tyres	16.00—25/28 PR

Brakes

Service brakes, 1	Dual-circuit compressed air actuated drum brakes
Service brakes, 2	Hydrodynamic brake (retarder) incorporated in gear-box. Max. braking power 295 kW (400 hp)
Parking brake	Pneumatically controlled with spring action directly on rear wheels

Steering

Type	Hydraulic power steering with mechanical return system
Pump	Separate, gear-type, direct-driven, mounted on engine
Steering wheel turns, lock to lock	6

Hoist

Pump	Gear-type, direct-driven from the gear-box
Hoisting cylinder	3-stage double-acting telescopic cylinder
Dumping angle	71°
Dumping time	11 seconds

Electrical system

Voltage	24 V
Batteries	Two 12 V batteries, total 150 Ah
Alternator	35 A
Starter	4,4 kW (6 hp)
Lights	Headlights with full and dipped beam (Halogen H4 75/70 W) Parking light Direction indicators Brake lights Tail lights Hazard flashers for reversing Reversing lights (2 halogen H3 70 W) Hazard flashers Cab light Instrument lights

Frame

Type	All-welded frame. U-section with reinforcing cross members

Body

Type	All-welded construction with wrap-around ribs. Sandwich-type bottom
Sides and front	Wear plate of toughened 10 mm steel Hardness 360 Brinell. Yield strength 110 kp/mm²
Bottom	Wear plate of toughened 12 mm steel. Hardness 360 Brinell. Yield strength 110 kp/mm² Bottom plate 8 mm Bottom fill of 50 mm wood
Weight	5.500 kg

Cab

Type	All-steel cab, mounted on rubber bumpers Heat and sound insulated Heater and defroster equipment Adjustable driver's seat

Other standard equipment

Instruments	Speedometer/Odometer Revolution counter Hour counter Oil pressure gauge, engine Coolant temperature gauge, engine Oil temperature gauge, gear-box Oil pressure gauge, gear-box Air pressure gauge
Control lamps	Hazard flashers Parking brake Full beam Direction indicators Battery charging Oil pressure, engine Dump body and hoisting hydraulics
Miscellaneous	Cold starting device on engine Windscreen wipers, compressed air Windscreen washer, electric Horn, electric Buzzer for air pressure Cigarette lighter Ash-tray Coat hook Box for manuals etc. Compressed air outlet External rear-view mirrors Rock ejectors, rear wheels Hand throttle Silencer

Optional equipment

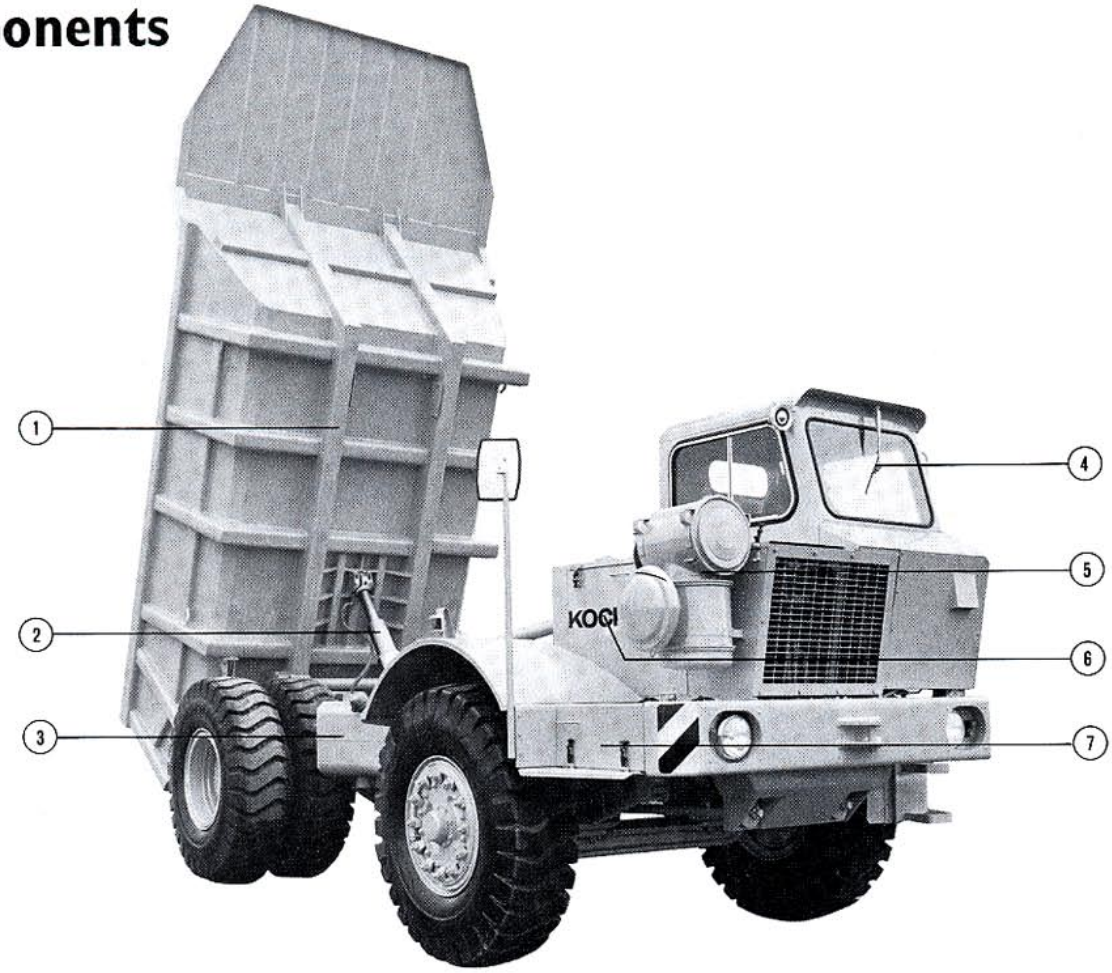
Recording tachograph
Exhaust-heated body
Body rubber lining
Air conditioning
Elevated intake for air cleaner
Electrical engine heater
Increased body height for light materials
Spare wheel
Guard for fuel tank and air tanks
Electric "Telma"-brake
Emergency steering

Operating data

Operating speed	Max. 60 km/h (Option: 52 km/h)
Minimum turning radius	7.000 mm
Minimum swept radius	7.600 mm

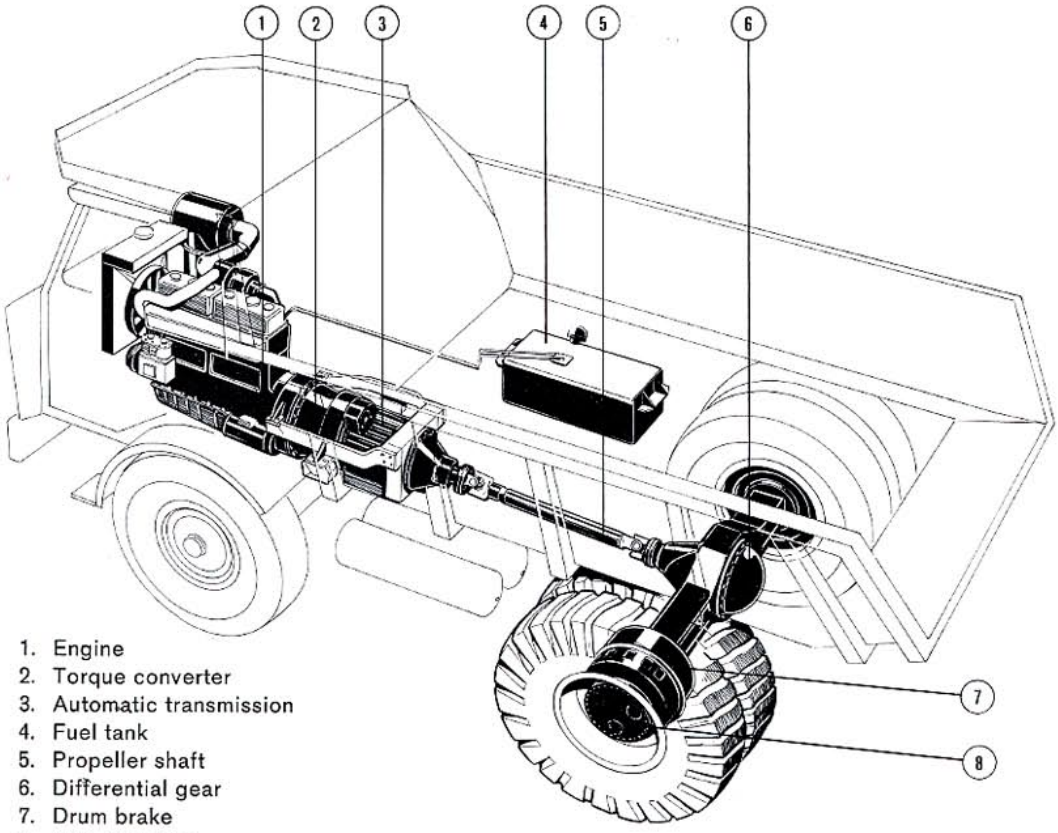
Dimensions and weights to tolerances of ±3 %.
Specifications subject to change without notice.

Main components



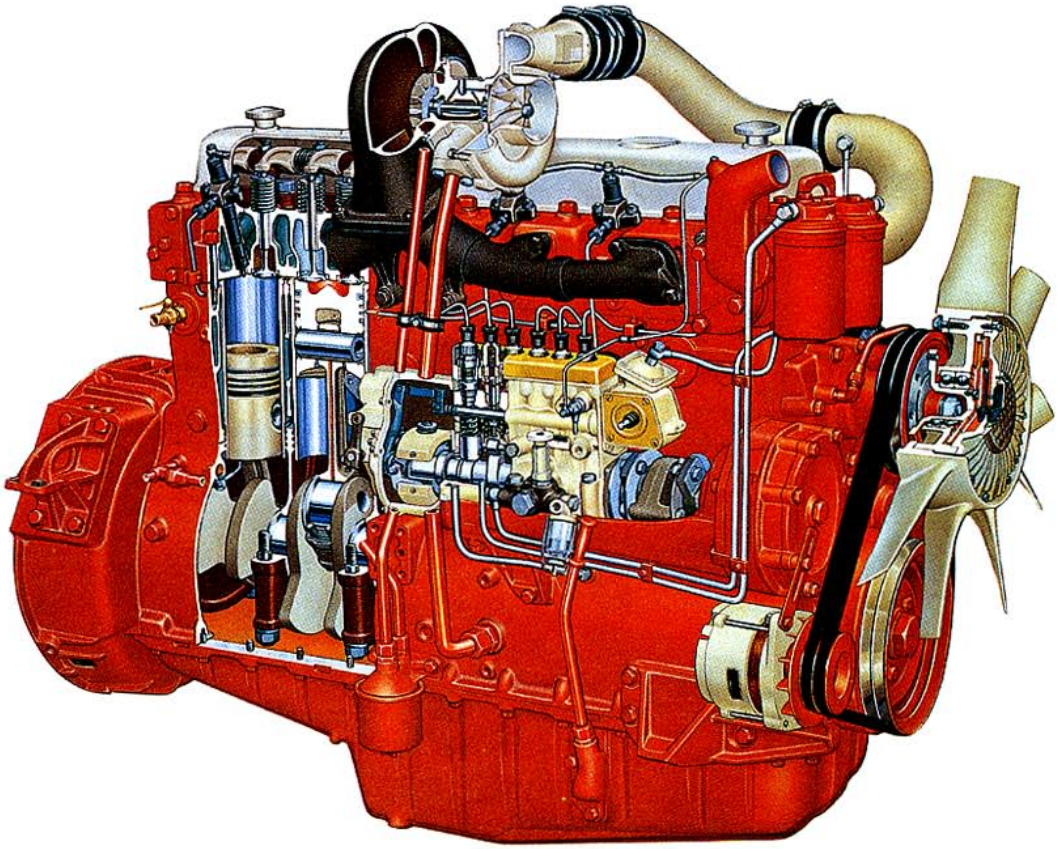
1. Dump body
2. Hoisting cylinder
3. Fuel tank
4. Cab
5. Air cleaner
6. Engine
7. Batteries

Power train



1. Engine
2. Torque converter
3. Automatic transmission
4. Fuel tank
5. Propeller shaft
6. Differential gear
7. Drum brake
8. Hub reduction

Engine



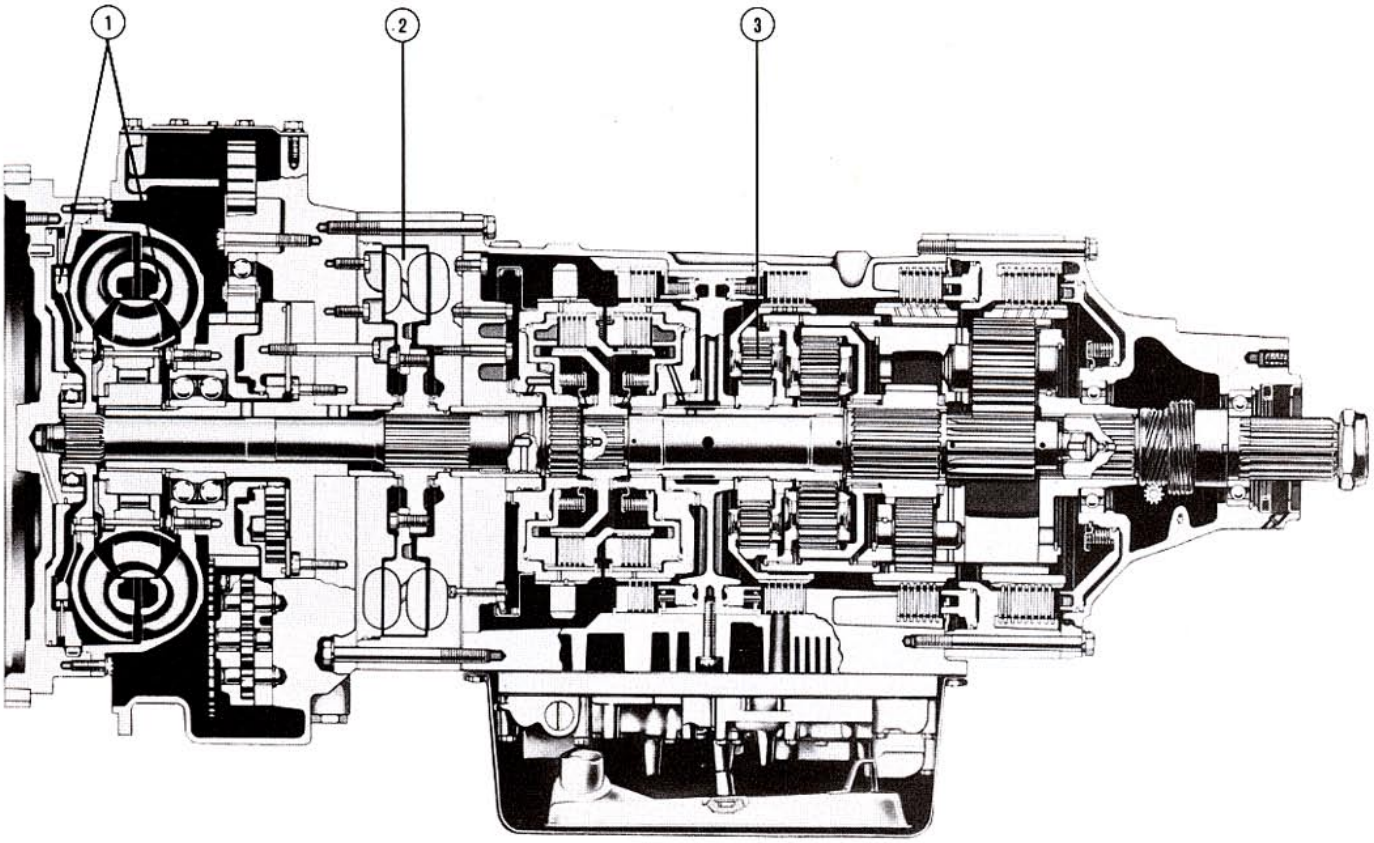
KOCKUM 425 B has a 4-stroke diesel engine, type Scania DS 11 with 6 cylinders, turbo-charged and with direct injection.

Maximum torque 1180 Nm (120 kpm) SAE at 1.300 rpm.

Maximum output 213 kW (290 hp) SAE at 2.100 rpm.

CYLINDER BLOCK	Of alloy cast-iron with replaceable wet-type cylinder liners. The main bearing caps are steel forgings.
CYLINDER HEADS	In two parts, each covering three cylinders. Steel plate gasket. Valve seats made of special alloy.
VALVES	Made of heat-resistant steel with stellite-faced heads. The valve stems are chromium-plated and have replaceable hardened steel caps. Two springs to every valve.
CAMSHAFT	Drop-forged of alloy steel, hardened, ground and polished. Carried in bushings in the cylinder block. The camshaft is driven from the crankshaft through silent-running helical gearing.
PISTONS	Made of light alloy. The groove for the top compression ring reinforced with a cast-iron insert. Compression and oil rings of alloy cast-iron. Top compression ring chromium-plated. Floating piston pins of case-hardened chromium steel. Piston cooled from inside by lubricating oil, sprayed from a nozzle in the cylinder block.
CRANKSHAFT	Drop-forged in alloy steel, with surface-hardened and polished bearing surfaces, and statically and dynamically balanced. Seven main bearings with replaceable bearing shells. Viscous-type vibration damper at the front.
CONNECTING RODS	Drop-forged in alloy steel. The small-end of the connecting rod is wedge shaped to give a large bearing surface.
FLYWHEEL	Made of cast-iron with ring gear shrunk on.
LUBRICATION	The oil is forced by a gear-wheel pump to the lubricating points. The oil pressure is controlled by a relief valve. The lubricating system is provided with an electrical contact which energizes a warning lamp if the oil pressure should be too low. The lubricating oil is cleaned before the pump by a strainer in the oil sump and after the pump by a patented cleaner consisting of a cyclone and a centrifugal cleaner. Extra oil filter for the turbo-charger. Oil cooler connected to the engine cooling system.
COOLING SYSTEM	The water pump is of the centrifugal type. A fan is mounted on the pump shaft, which is vee-belt-driven from the crankshaft. The cooling-water supply is thermostatically controlled.
FUEL SYSTEM	The injection pump is driven from the crankshaft. The fuel is forced by the feed pump to the injection pump through two paper filters connected in parallel. The camshaft of the injection pump has a special shape preventing the engine from running backwards. A cold-starting device provides extra fuel for starting at low temperatures, and has an automatic cut-out.
TURBO-CHARGER	Consisting of single-stage radial turbine and single-stage centrifugal compressor. The turbine is driven by the exhaust gases of the engine, so that its speed will automatically adjust to the load on the engine. The unit is connected to the lubricating system of the engine through a separate lubricating filter.

Automatic transmission



ALLISON CLBT 750

C for Converter (1)
L for Lock-up (1)
B for Retarder Brake (2)
T for automatic Transmission (3)

KOCKUM 425 B is as standard equipped with an Allison CLBT-754 fully automatic gearbox, directly flanged to the engine flywheel housing.

The CLBT-754 provides built-in inhibitors to protect against harmful downshifts,.excessive engine overspeeding and shifts to reverse at excessive speeds.

The converter has two functions. It multiplies torque for maximum rimpull and also works as a fluid coupling. It is equipped with automatic lock-up, i.e. with direct drive efficiency in each gear for higher speed.

The automatic gearbox eliminates costly mechanical clutch repairs or replacements and protects expensive power train components, reducing non-productive downtime.

The CLBT-754 has:

– Five forward ranges, one reverse

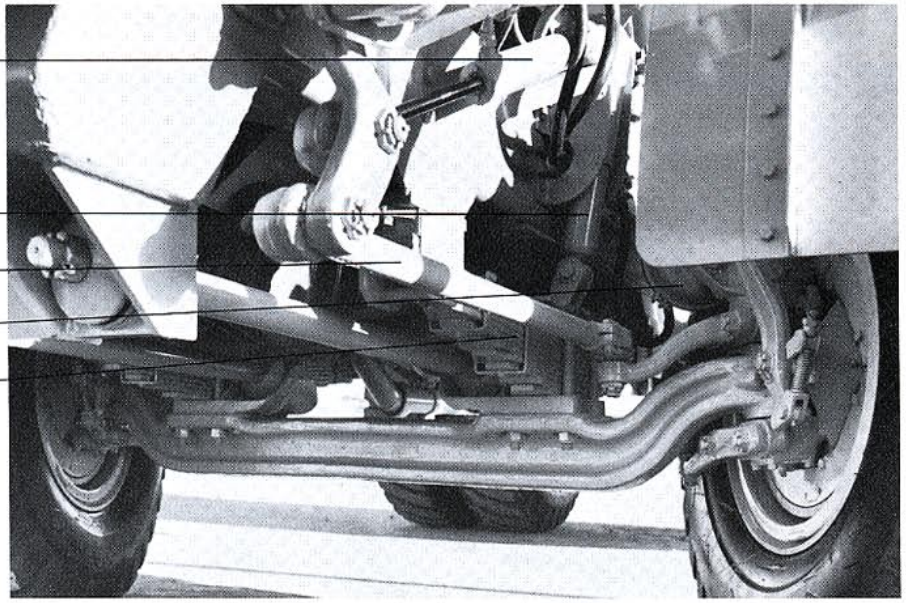
– Mechanical shift modulation control

– Driver controlled hydraulic retarder

The retarder is the main service brake and is incorporated in the transmission. The retarder consists of a bladed rotor, operating between vaned stators. A foot-operated valve fills or exhausts the cavity in which the rotor operates. When the retarder is applied the rotor runs in oil and absorbs power. When released the oil is exhausted and the rotor runs free. Thus you brake with oil, instead of wearing the brake linings.

The retarder is especially useful in rugged applications, such as down-hill hauls in open pit mining and construction work, where severe grades are encountered. It improves braking capability and service brake life, gives better downhill stability and increases engine life.

Axles



FRONT AXLE

The front axle is forged in one piece. It is fastened to the springs by four bolts and is fixed to the frame by two reaction rods. Each main spring is laterally fixed to the corresponding frame beam.

The spring assembly consists of 11 spring leaves which, together with two strong rubber buffers, provide a comfortable ride whether the dump truck is loaded or not. Furthermore the front axle has a hydraulic shock absorber on each side.

REAR AXLE

Power is transmitted to planetary final drives in wheel hubs, driven by fully floating shafts from hypoid differentials. The rear axle is attached to the frame and has no springs, which offers certain advantages, such as:

– Increased stability

– Lower loading height

– Lower weight, which means increased payload capacity

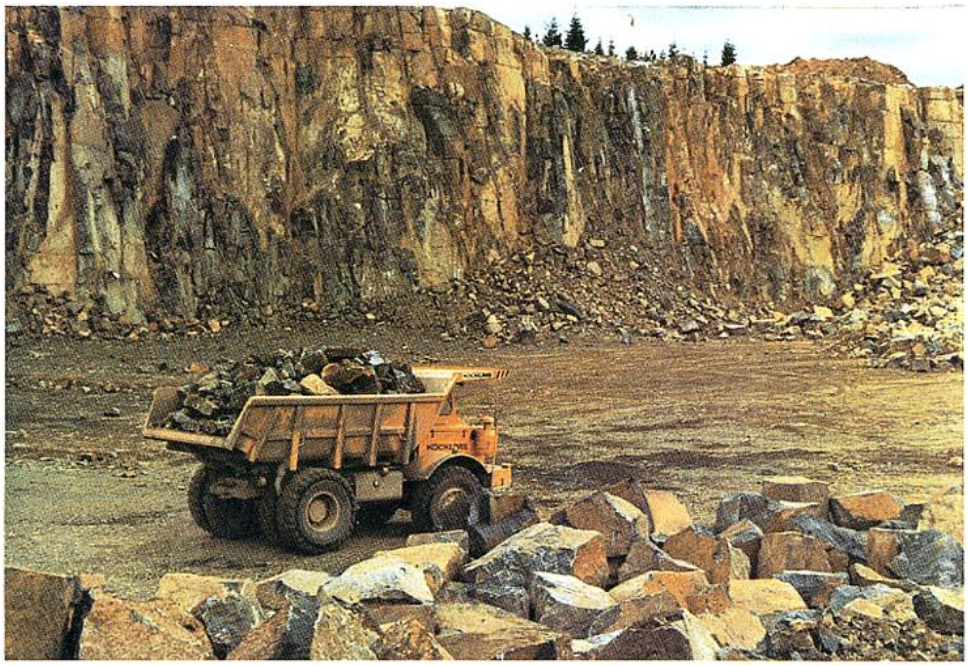
– No maintenance

Wheels

KOCKUM 425 B wheels are of the same size front and rear. Tyre size 16.00–25/28 PR. Alternative tyres can be supplied on request. The excellent ground clearance, max. 460 mm, is always a big advantage on site or quarry work.

The rear dual wheels are equipped with rock ejectors to remove stones stuck between the wheels.

Kockum 425B is in operation in more than 30 countries round the world, for instance . . .



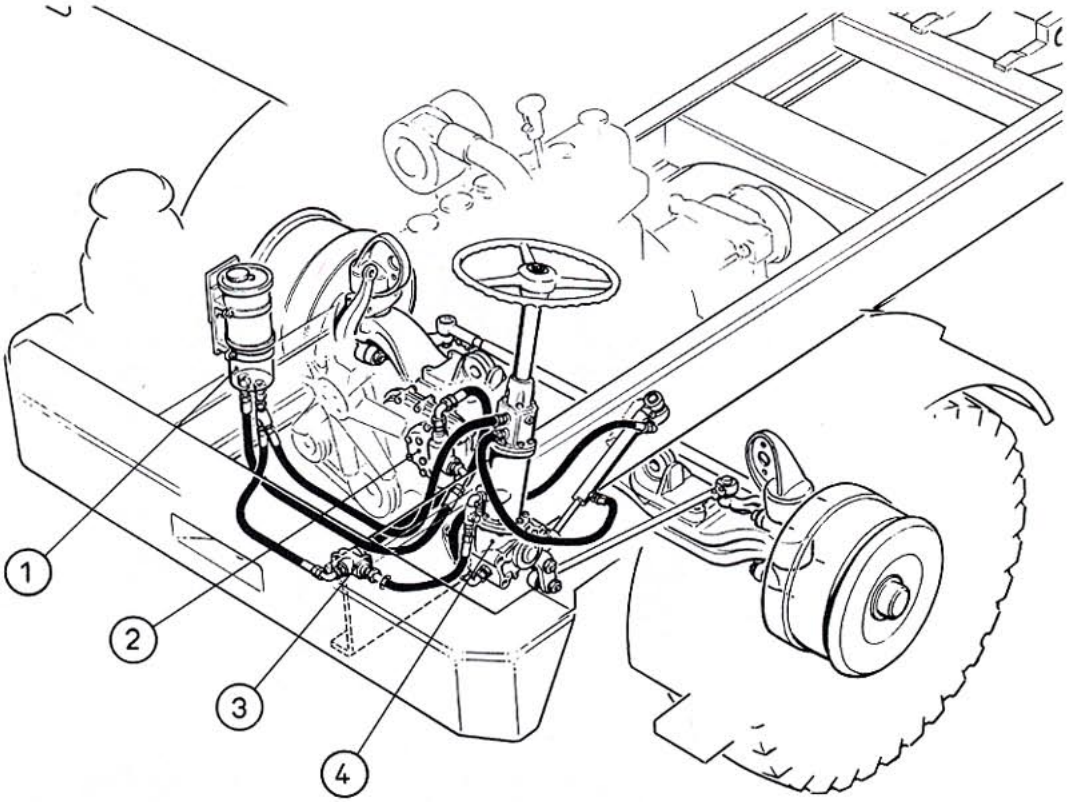
. . . in West Germany

. . . in Australia

. . . in Norway

. . . in Peru.

Steering



1. Oil tank
2. Pump
3. Feeding and pressure regulating valve
4. Steering mechanism

PUMP

The gear-type pump of the steering system has an output of 24 dm³/min (litres/min) at 1000 rpm and is directly powered by the engine.

The guiding device directs the oil flow to one or the other side of the piston of the double-acting steering cylinder.

The guiding device thus works as a control valve, but it also has mechanical transmission to the axle.

REGULATING VALVE

KOCKUM 425 B has a smooth servo action on the steering, independent of the engine revolutions. Through the regulating valve the oil flow is reduced to 30 dm³/min (litres/min), which the pump produces at low revolutions. The pressure is reduced to 100 bar (kp/cm²).

STEERING MECHANISM

The steering mechanism works via a hydraulic cylinder operated by turning the steering wheel, hydraulic power being transmitted to the servo cylinder and steering arm simultaneously. The steering mechanism is also connected to the steering arm mechanically.

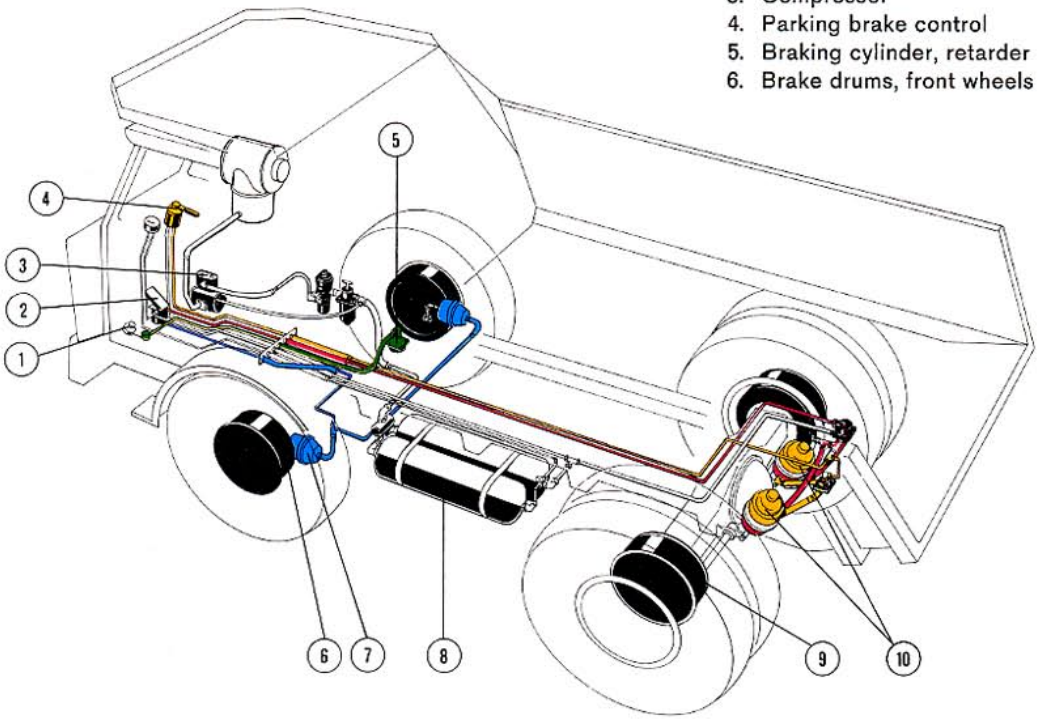
Emergency steering can be installed for extra safety.

Electrical system

KOCKUM 425 B has an alternator with a capacity of 35A and alltransistorized charging regulator. The truck has a 4,4 kW (6,0 hp) electric starter.
The capacity of the batteries (two 12 V batteries connected in series) is 150 Ah. Voltage 24 V.

Dual circuit braking system

1. Retarder brake
2. Brake pedal
3. Compressor
4. Parking brake control
5. Braking cylinder, retarder
6. Brake drums, front wheels



Brake circuit, parking brake
Brake circuit, front wheels
Brake circuit, rear wheels
Retarder

7. Braking cylinder, front wheels
8. Air tanks
9. Brake drums, rear wheels
10. Braking cylinders, rear wheels

SERVICE BRAKES

KOCKUM 425 B has dual-circuit drum brakes, pneumatically operated, with separate circuits for front and rear wheels.
The rear wheel brakes are controlled by a relay valve, which leads the air from the air tank directly to the brake chambers, thus shortening the time for the brakes to become effective.

The hydrodynamic brake, the retarder, is incorporated in the transmission. It is extremely useful in rugged applications, where severe grades are encountered. It improves braking capability and service brake life, gives better downhill stability and increases engine life.

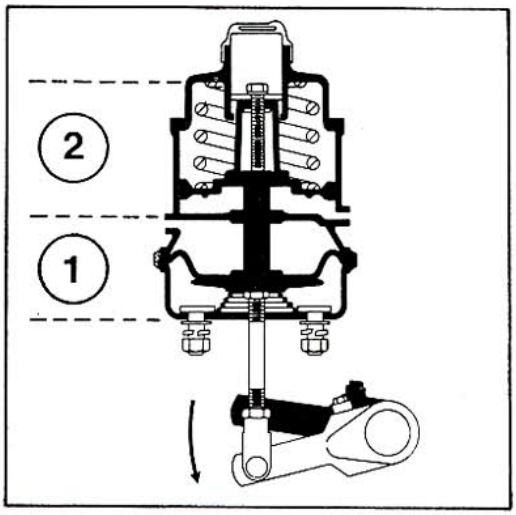
A buzzer in the cab indicates low air pressure in the braking system.

As optional equipment the 425B can be equipped with an electric "Telma" brake.

PARKING BRAKES

The parking brake is separately operated by compressed air and acts directly on the rear wheels.

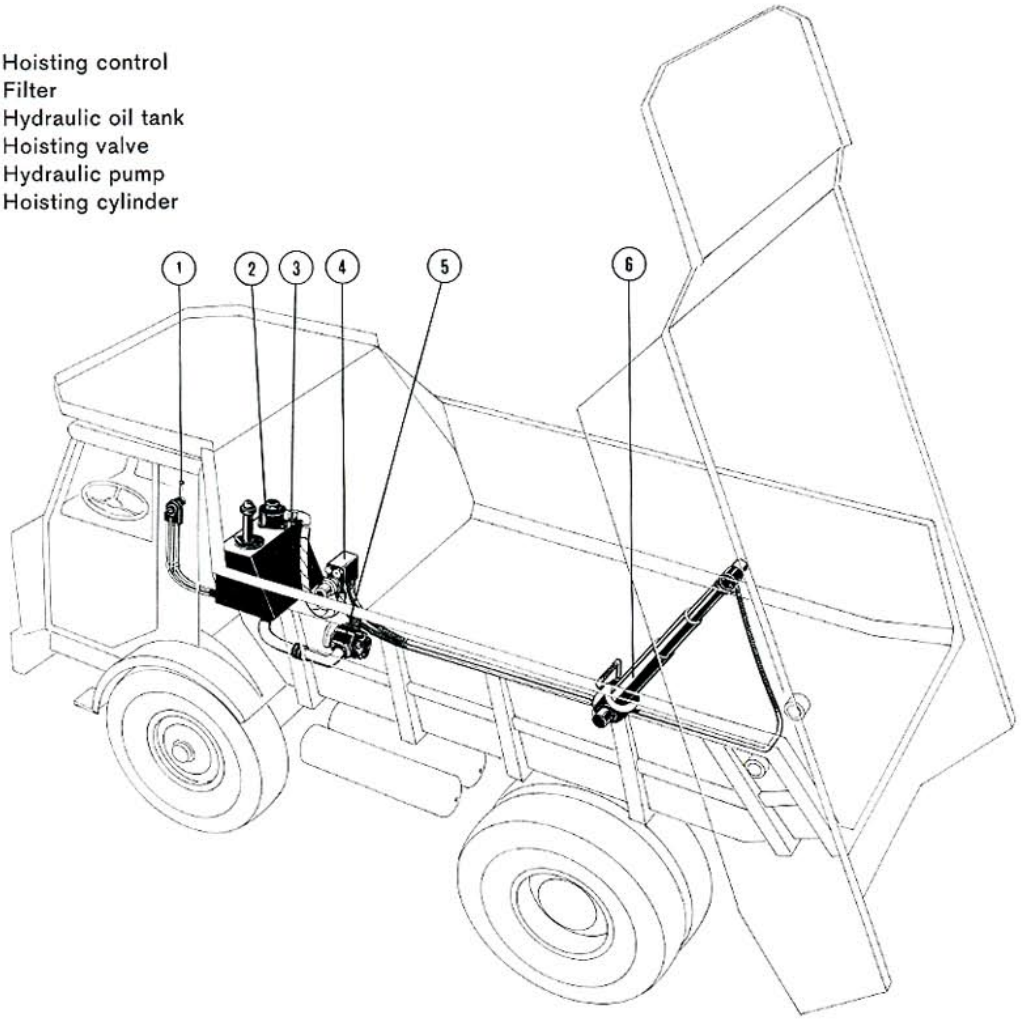
The braking cylinders on the rear axle have a built-in fail-safe parking brake. As long as the air pressure is lower than 70 lbs p.s.i./5 bar (kp/cm²) the brakes remain engaged and the control lamp for the parking brakes stays alight.



Braking cylinder, rear axle
1. Cylinder for drum brakes
2. Cylinder for parking brake.

Hoist

1. Hoisting control
2. Filter
3. Hydraulic oil tank
4. Hoisting valve
5. Hydraulic pump
6. Hoisting cylinder



HYDRAULIC PUMP

The pump is of gear type and direct-driven from the gear-box. Output 145 dm³/min (litres/min) at 2100 rpm.

CONTROL VALVE

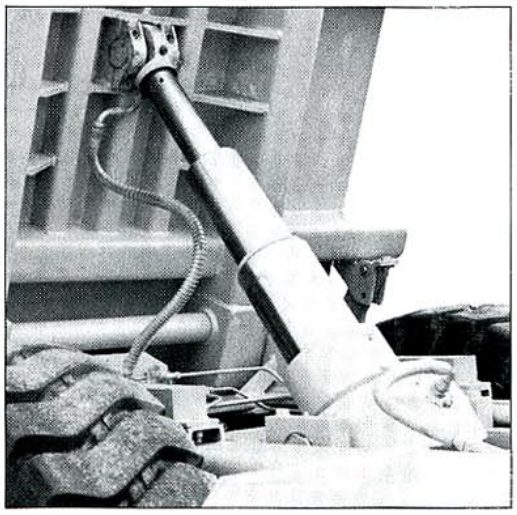
The control valve has a primary and a secondary relief valve. It controls the operating pressure and protects the system against overloading.

HOISTING CYLINDER

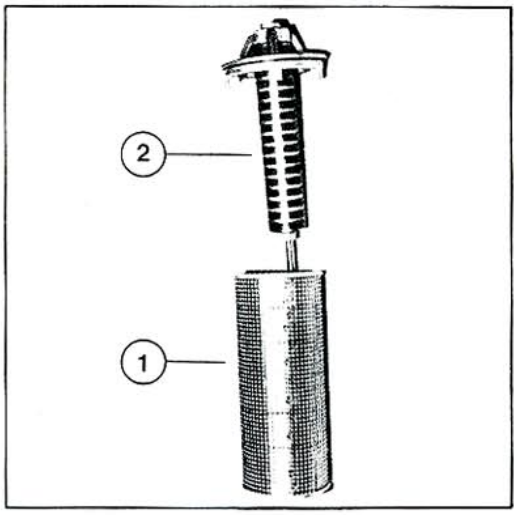
KOCKUM 425 B has a 3-stage telescopic cylinder where the two inner stages are double-acting. When the cylinder is totally raised the oil goes through a discharge valve direct to the tank.

FILTER

On the return flow line to the oil tank there is a filter, equipped with a replaceable insert and a strong magnetic rod. The magnet extracts all steel particles, thus reducing wear on the hydraulic components and prolonging their operating life.



Hoisting cylinder



1. Filter insert
2. Magnetic rod

Body

Rock body is standard on the KOCKUM 425 B. The body is made of special-alloy, abrasion resistant steel: yield strength 110 kp/mm²; hardness 360 Brinell and has sandwich-type bottom. Thickness of plates: bottom 12 mm, sides and front 10 mm. Bottom plate 8 mm. Bottom fill of 50 mm wood. All-welded construction with wrap-around ribs.

Payload volume: struck SAE 11,0 m³, heaped 2:1 15,0 m³. With full load, 25 tons, the dump body is tipped to 71° in 11 seconds.

The body is designed for one-point loading and holds the loads even on steep uphill hauls.

As optional equipment the 425B can be equipped with:
– body rubber lining
– exhaust heated body
– increased body height for light materials

Cab

KOCKUM 425 B has an all-steel cab, fully separated from the engine compartment. The cab rests on four vibration-absorbers. Safety glass throughout. The large windows and the high, front-mounted cab ensure excellent visibility.

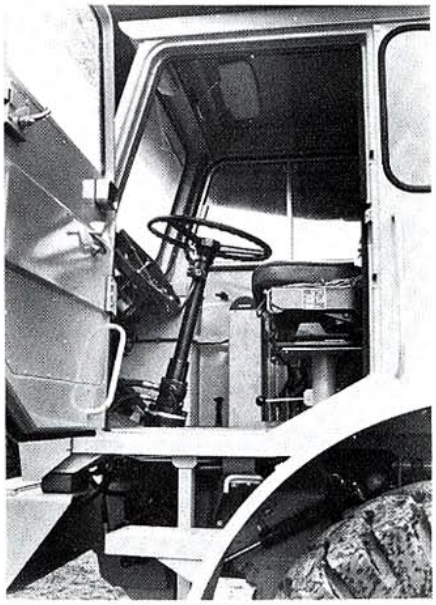
The cab is noise insulated and is fitted with heating and defrosting equipment, built for use also in very low temperatures.

A separate fresh air intake accounts for good ventilation.

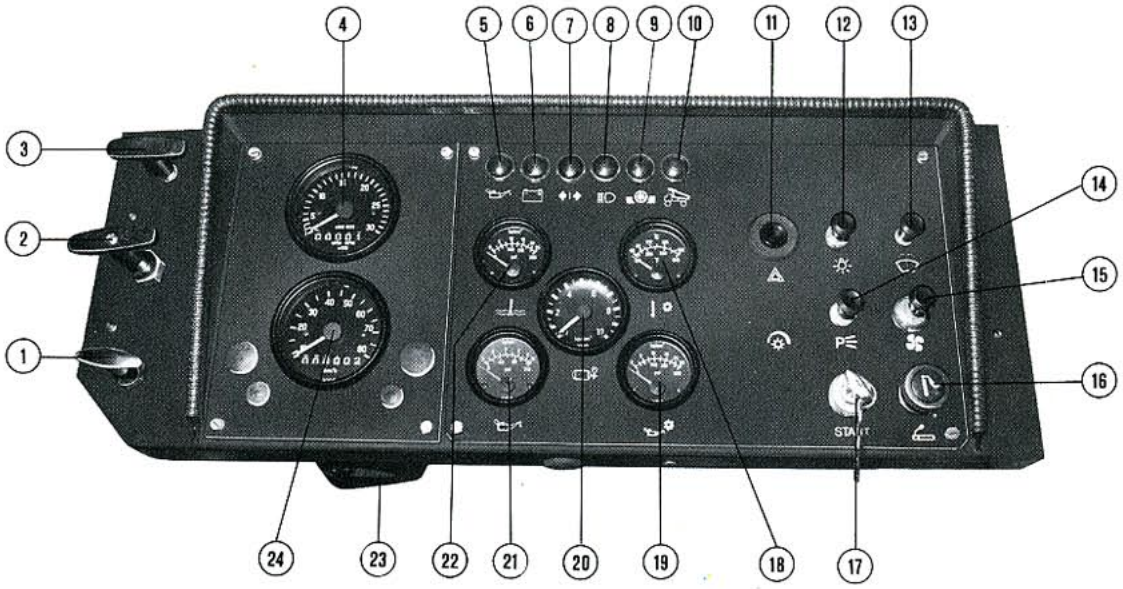
The driver's seat is of the latest design for maximum comfort. The cab interior is so designed that all controls and levers are within easy reach, for good vehicle control. The floor is even.

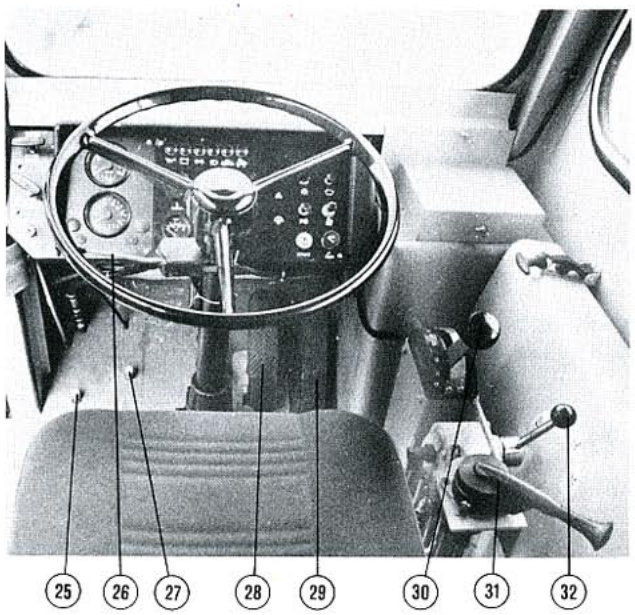
Windscreen washer and windscreen wipers are standard, as well as silencer.

Radio and air conditioning are available as optional equipment.



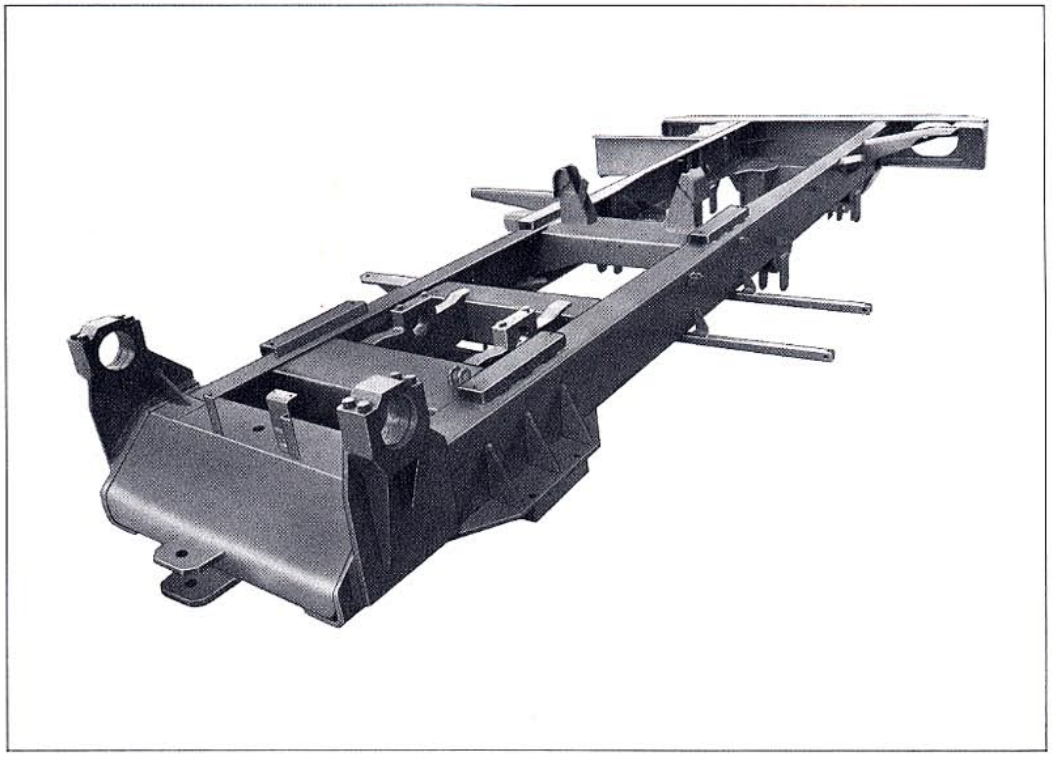
Instruments and controls





1. Stop lever
2. Hand throttle
3. Cab heating
4. Revolution counter
5. Control lamp, engine oil pressure
6. Control lamp, battery charging
7. Control lamp, turn indicators
8. Control lamp, full beam
9. Control lamp, parking brake
10. Control lamp, dump body and hoisting hydraulics
11. Hazard flashers
12. Headlights, parking light
13. Windscreen washer
14. Parking light
15. Fan (heating)
16. Cigarette lighter
17. Key switch
18. Oil temperature gauge, gearbox
19. Oil pressure gauge, gearbox
20. Air pressure gauge
21. Oil pressure gauge, engine
22. Coolant temperature gauge, engine
23. Hour counter
24. Speedometer/odometer
25. Switch, full and dipped beam
26. Direction indicators, horn
27. Retarder brake
28. Brake pedal
29. Foot throttle
30. Gear lever
31. Parking brake lever
32. Hoist lever

Frame

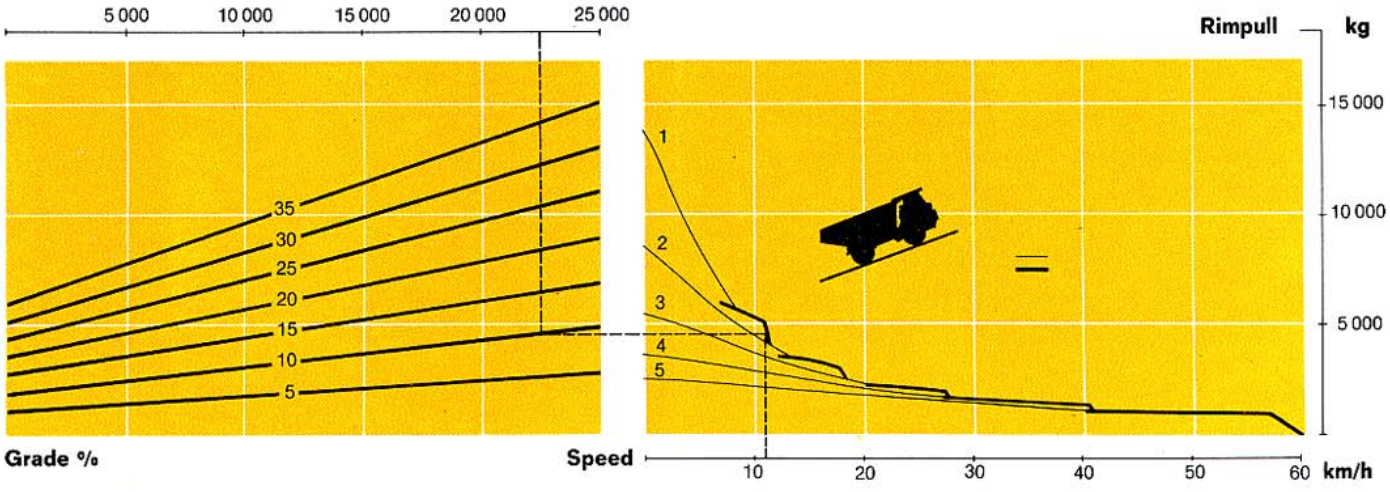


The frame is made of welded U-sections with reinforcing crossmembers. The box-type construction at the front protects the front axle and the steering mechanism.

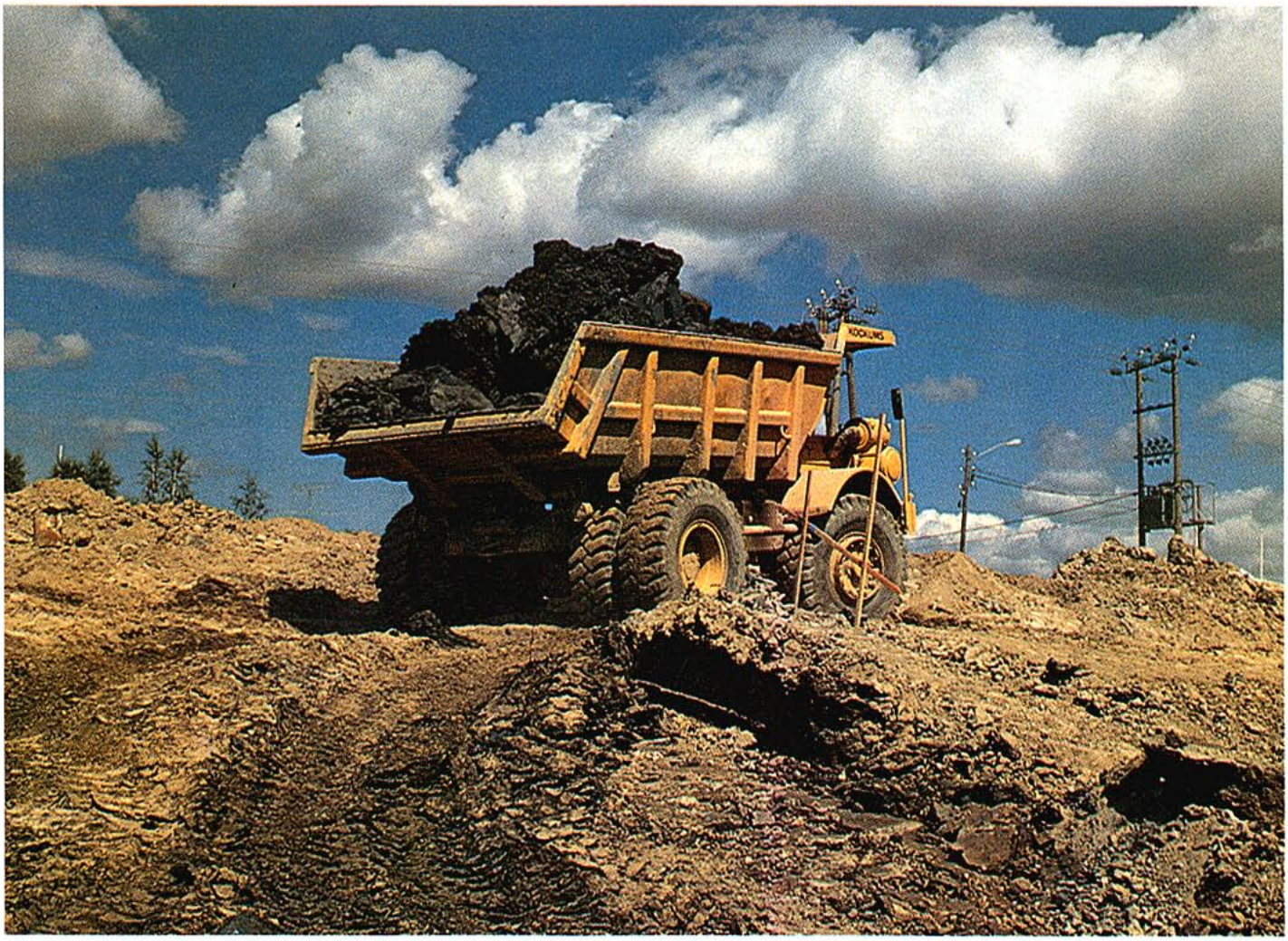
The fuel tank is attached to the right side of the frame. It contains 250 liters. On the left side there are two air tanks, 60 litres each.

Gradeability – Speed – Rimpull

Payload Ex: Payload 22.500 kg, 10 % grade.



The values include a rolling resistance of 2 %.



The KOCKUM 425 B – for efficient and profitable haulage

- Compact design for all-round application
- Low net weight for more payload
- Low loading height for fast loading times
- Short swept radius, for exceptional manœuverability
- Sturdy engine for economic and easy service
- Fully floating drive shafts, for low maintenance costs and reliable operation
- Rock body of high quality steel, with sandwich-type bottom, for longer operating life
- Safe, comfortable cab with optimum visibility for operator comfort and vehicle control
- Automatic transmission for less driver fatigue

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