

**EUCLID**

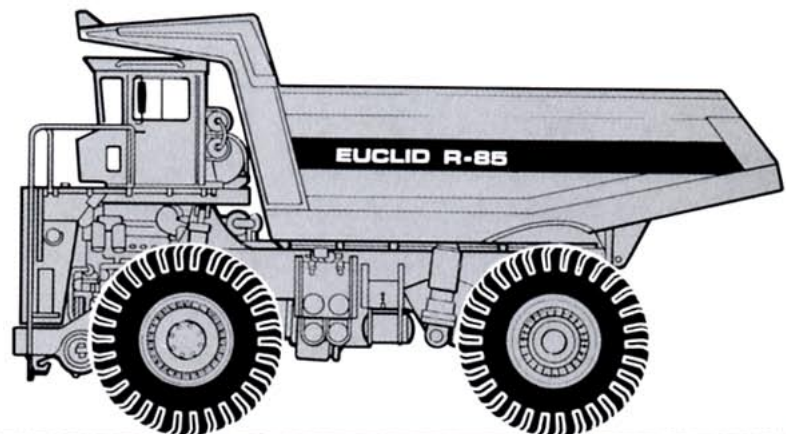
**R 85**



## **EUCLID R85 - PRODUCTIVE AND DEPENDABLE**

*Demanding transports are a test of stamina. Of both man and machine. Only the strong need apply, and here the time-tested Euclid R85 is a good example of a machine built for almost anything. It has power and reliability, but also a host of features that facilitate the work of the operator. Long haul runs, downhill and uphill grades require constant attention and control.*

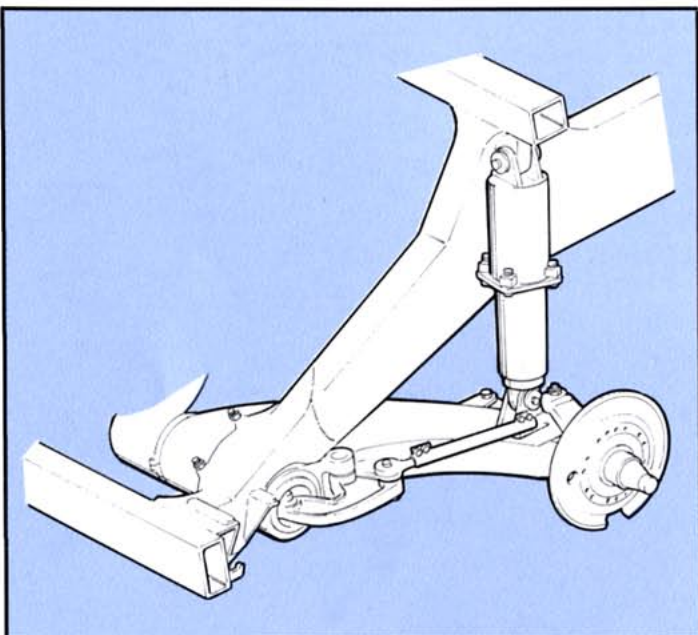
*The cab is therefore well positioned for optimum visibility and ergonomically designed to enable the operator to make optimum use of the machine's resources. This, together with an engine and transmission that deliver power to spare, enable the Euclid R85 to maintain high average speeds and thereby provide high productivity.*



### **SUSPENSION**

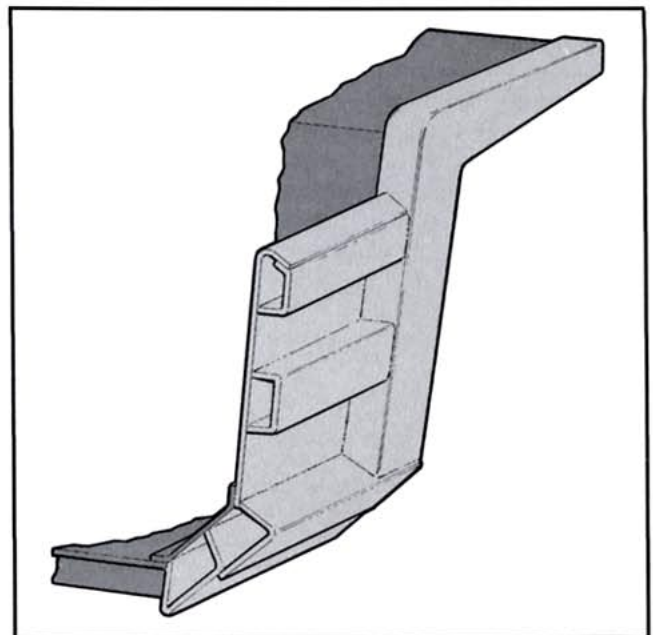
Euclid's unique trailing arm front wheel suspension absorbs haul road impact and provides independent tyre action, minimizing suspension-induced frame twisting.

Pivot mounting of the front ride strut cylinders limits cylinder wall stresses by ensuring a purely axial input to the ride struts. The wide track stance of the trailing system provides a more stable, comfortable ride.



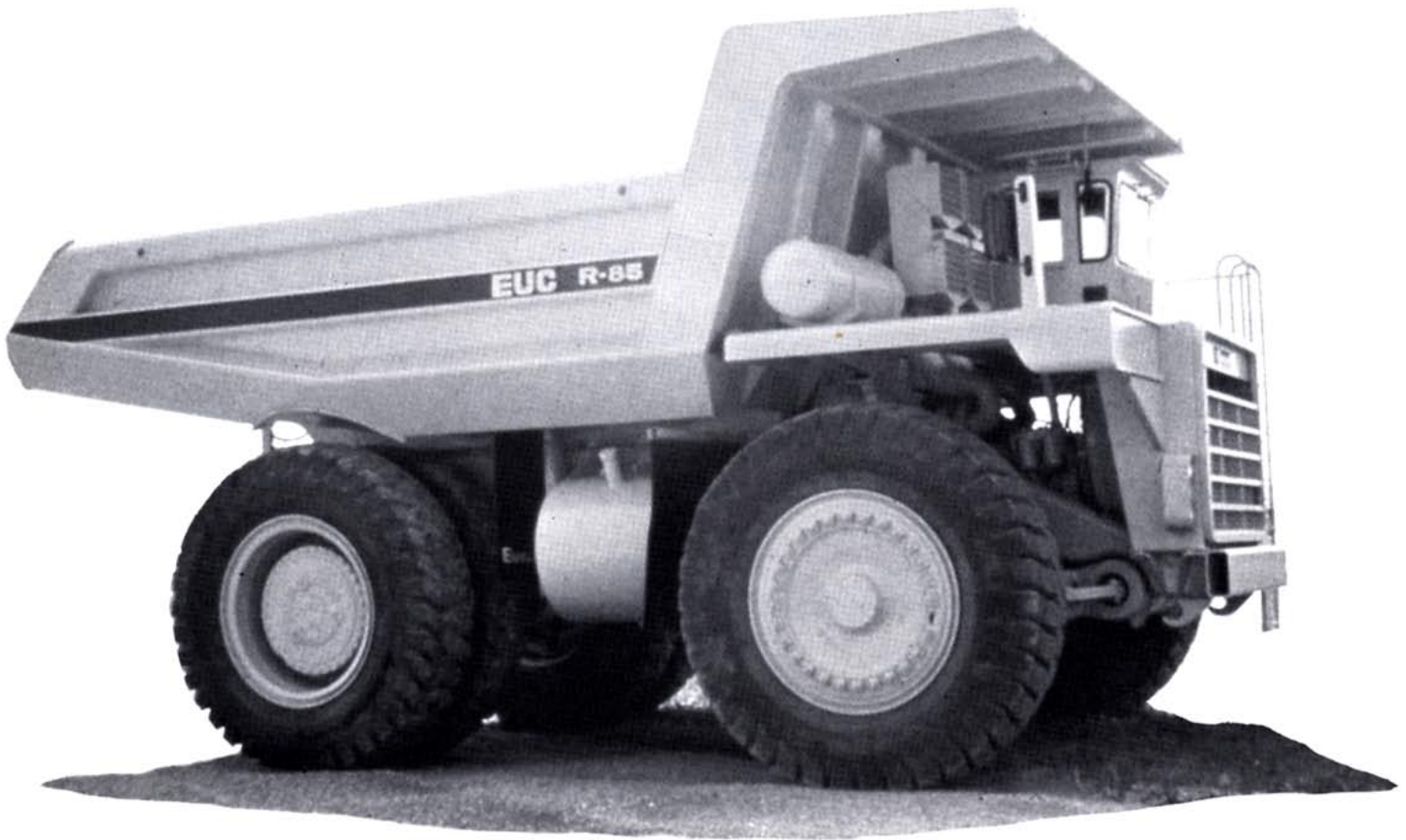
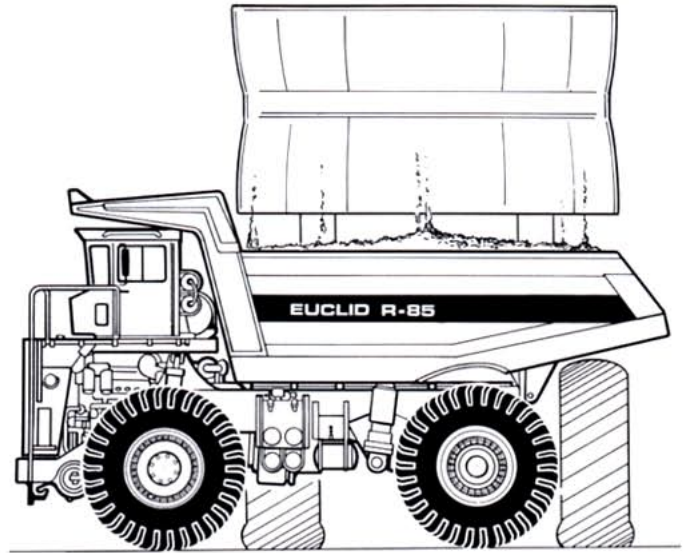
### **BODY**

The horizontal stiffener design of the Euclid body minimizes stress concentrations, distributing load shocks and impacts over the entire body length. The closely-spaced floor stiffeners provide additional protection.



## **LOADER MATCHING**

The long, low-profile body allows maximum compatibility with popular loader sizes. The body is designed and built in such a way as to permit single spot loading, reducing loading times and increasing overall production.



**Safe, efficient and comfortable** are the key words for the Euclid cab. It is offset to the left and positioned well forward for maximum operator visibility. Glass area totals 2.11 m<sup>2</sup> (22.7 ft<sup>2</sup>). Operator controls and instrumentation are simple and within easy reach. Thick foam insulation, tinted safety glass and an adjustable driver's seat combined to form a comfortable operator environment.

Euclid's serviceability is also a part of total comfort. Examples of this are:

- The open frame design, providing easy accessibility to the engine and drivetrain.
- The front ride struts can be changed without wheel/tyre removal.
- Lubrication and fill points are easy to reach from ground level.
- The Euclid design philosophy of functional simplicity is apparent throughout.



## ENGINE

Cummins VTA-1710-C, 12-cylinder, 4-stroke turbocharged diesel engine.

Max. rating at SAE	rps (rpm)	35 (2100)
	kW (hp)	596 (800)
Flywheel rating at SAE	rps (rpm)	35 (2100)
	kW (hp)	562 (755)
Max. torque at SAE	rps (rpm)	25,8 (1550)
	Nm (lbtft)	2983 (2200)
Displacement	dm <sup>3</sup> l (in <sup>3</sup> )	28 (1710)
Bore	mm (in)	140 (5,5)
Stroke	mm (in)	152 (6)

### Alternative engine

Detroit Diesel 16V-92T, 16-cylinder, 2-stroke diesel engine.

Max. rating at SAE	rps (rpm)	35 (2100)
	kW (hp)	641 (860)
Flywheel rating at SAE	rps (rpm)	35 (2100)
	kW (hp)	610 (818)
Max. torque at SAE	rps (rpm)	23,4 (1400)
	Nm (lbtft)	3216 (2372)
Displacement	dm <sup>3</sup> l (in <sup>3</sup> )	24,1 (1472)
Bore	mm (in)	123 (4,84)
Stroke	mm (in)	127 (5)



## ELECTRICAL SYSTEM

Two 12V batteries connected in series. Transistorized voltage regulator.

Voltage	V	24
Alternator	A	50



## DRIVE TRAIN

**Torque converter:** Integral with transmission with automatic lock-up in all ranges.

**Transmission:** Full powershift transmission of planetary type.

**Axles:** Fully-floating axle shafts with planetary-type hub reduction in each wheel. Differential: Euclid modell 2650.

Transmission	Allison DP-8962
Speeds	
standard differential	3,73:1
1	km/h (mile/h) 8,8 (5,5)
2	km/h (mile/h) 15,9 (9,9)
3	km/h (mile/h) 22,0 (13,7)
4	km/h (mile/h) 28,6 (17,8)
5	km/h (mile/h) 37,5 (23,3)
6	km/h (mile/h) 51,3 (31,9)
Reverse	km/h (mile/h) 6,4 (4,0)
Ratios	
1	4,24
2	2,34
3	1,70
4	1,31
5	1,00
6	0,73
Reverse	5,75
Speeds	
optional differential	3,15:1
1	km/h (mile/h) 10,5 (6,5)
2	km/h (mile/h) 18,8 (11,7)
3	km/h (mile/h) 26,1 (16,2)
4	km/h (mile/h) 33,9 (21,1)
5	km/h (mile/h) 44,4 (27,6)
6	km/h (mile/h) 60,7 (37,7)
Reverse	km/h (mile/h) 7,6 (4,7)
Total ratio	
with standard differential	25,59:1
with optional differential	21,61:1
Tyres	24.00-49(42PR)E-3



## FRAME

Frame of formed "C" section main beams interconnected by four cross members, front bumper and front suspension tube. Junctions between cross members and frame use large radii to minimize stress concentrations. The frame is made of steel with a yield strength of 310 N/mm<sup>2</sup> (45 000 psi).



## SUSPENSION

**Front axle:** Independent trailing arm for each front wheel. Hydropneumatic ride struts mounted between trailing arm and frame. Automatic rebound feature.

**Rear axle:** The variable-rate energy-absorbing rubber elements mounted within the rearmost cross member of the frame suspend the rear axle. Two radius rods and rectangular rear suspension pistons maintain axle alignment.



## BRAKES

Dual-circuit brake system that fulfils the requirements of SAE J1224. The brakes are applied manually or automatically.

**Service brakes:** Air/oil actuated, free-floating, internal expanding two-shoe type with manual adjusters. Hand lever on steering column for application of drive wheel brakes under slippery road conditions.

**Parking brake:** Drum with two internally expanding shoes mounted around the driveline behind the transmission. Automatically applied if air pressure is lost. Manually controlled from instrument panel.

**Retarder:** Hand-operated valve controls the oil flow to the paddlewheel-type retarder, integral with the transmission. Provides constant speed in downhill driving. The retarder is applied automatically if air pressure is lost.

Compressor capacity		
Detroit Diesel	dm <sup>3</sup> l/s (cfm)	5,7 (12,0)
Cummins	dm <sup>3</sup> l/s (cfm)	6,2 (13,2)
Pressure	kPa (psi)	860 (125)
Tank volume	dm <sup>3</sup> (ft <sup>3</sup> )	170 (6,0)
Front axle		
Outside diameter	mm (in)	660 (26)
Inside diameter	mm (in)	203 (8)
Brake area	cm <sup>2</sup> (in <sup>2</sup> )	5550 (860)
Rear axle		
Outside diameter	mm (in)	762 (30)
Inside diameter	mm (in)	254 (10)
Brake area	cm <sup>2</sup> (in <sup>2</sup> )	8070 (1250)
Total brake area,	cm <sup>2</sup> (in <sup>2</sup> )	13 610 (2110)
Parking brake		
Outside diameter	mm (in)	438 (17,25)
Inside diameter	mm (in)	102 (4)
Brake area	cm <sup>2</sup> (in <sup>2</sup> )	1230 (190)
Retarder		
Max. braking effort		
(incl. engine friction)		
at	rps (rpm)	37,5 (2250)
	kW (hp)	1324 (1775)



## STEERING

Hydraulic steering with two double-acting steering cylinders. Open-centre system with separate hydraulic tank and gear pump. Supplementary steering is standard.

Pump output	dm <sup>3</sup> l/min	114
	(USgal)/min	(30)
at	rps (rpm)	35 (2100)
Relief pressure	MPa (lbf/in <sup>2</sup> )	17 238 (2500)



## CAB

Euclid steel cab 1420 mm (4'8") wide, offset to the left of the vehicle.

Three-point rubber-mounted to isolate the operator from vibration.

Safety glass throughout, tinted windshield with 5° slant.

The cab is insulated and airtight. Filtered pressurized air in cab meets OSHA sound limitations with door and vents closed.



## HOIST AND BODY

**Hoist:** Two Euclid 2-stage, double-acting cylinders, inverted.

**Hydraulic system:** Separate hydraulic oil tank and gear pump.

**Body:** Floor, front, sides and canopy made of high-grade steel, yield point 1310 N/mm<sup>2</sup> (190 000 psi) and 400 BHN. Stiffeners of steel with yield strength of 551 N/mm<sup>2</sup> (80 000 psi). Body is rubber cushioned on frame. Exhaust-heated body.

Hoist		
Body raise time	s	17
Hydraulic system		
Output	dm <sup>3</sup> l/min	360
	(USgal)/min	(95)
at engine speed	rps (rpm)	35 (2100)
Relief pressure	kPa (psi)	17 238 (2500)
Body		
Plate thickness		
floor	mm (in)	19 (0,75)
front	mm (in)	10 (0,375)
sides	mm (in)	10 (0,375)
canopy	mm (in)	5 (0,18)



## WEIGHTS

Chassis with hoists	kg (lb)	38 000 (83 800)
Chassis with hoists	kg (lb)	15 105 (33 300)
Net weight	kg (lb)	53 200 (117 100)
Front axle	kg (lb)	24 000 (52 900)
Rear axle	kg (lb)	29 200 (64 200)
Payload	kg (lb)	77 100 (170 000)
Gross weight	kg (lb)	130 300 (287 100)
Front axle	kg (lb)	41 400 (91 100)
Rear axle	kg (lb)	88 900 (196 000)

## WEIGHT INCREASE WITH OPTIONS

Body liners, complete	kg (lb)	3552 (7830)
floor	mm (in)	10 (0,39)
sides	mm (in)	6 (0,24)
corners	mm (in)	10 (0,39)
end protection	mm (in)	13 (0,51)
stiffeners	mm (in)	10 (0,39)

Body liners, complete	kg (lb)	5670 (12500)
sides	mm (in)	10 (0,39)
front	mm (in)	10 (0,39)
stiffeners	mm (in)	10 (0,39)
canopy	mm (in)	6 (0,24)

Tyres 24.00-49 (42 PR) E-4	kg (lb)	662 (1458)
Tyres 24.00-49 (48 PR) E-4	kg (lb)	1026 (2262)



## LOAD CAPACITY

Specifications according to SAE 2.1: For cargo space with volume struck measure of 10 m<sup>3</sup> or more, heaped measure is given to the nearest whole m<sup>3</sup>. Volume struck measure is given in m<sup>3</sup> to one decimal place.

The Euclid Field Heap illustrated in the side view shown below maintains a 2:1 heap ratio from the floor/tail chute junction to the peak of the load. The SAE 2:1 ratio is actually a 1:1 heap ratio from the floor/tail chute junction to the top body edge, then switches to a 2:1 heap ratio to the load peak. The Euclid Field Heap is more representative of field loading practices and payload distribution. Euclid body capacity ratings are based on the field heap philosophy.

Load capacity	kg (sh tons)	77100 (85)
Body struck SAE	m <sup>3</sup> (yd <sup>3</sup> )	37,5 (49,0)
heaped SAE 2:1	m <sup>3</sup> (yd <sup>3</sup> )	50,9 (66,5)
heaped 3:1	m <sup>3</sup> (yd <sup>3</sup> )	46,5 (60,8)
Euclid Field Heap	m <sup>3</sup> (yd <sup>3</sup> )	46,9 (61,3)

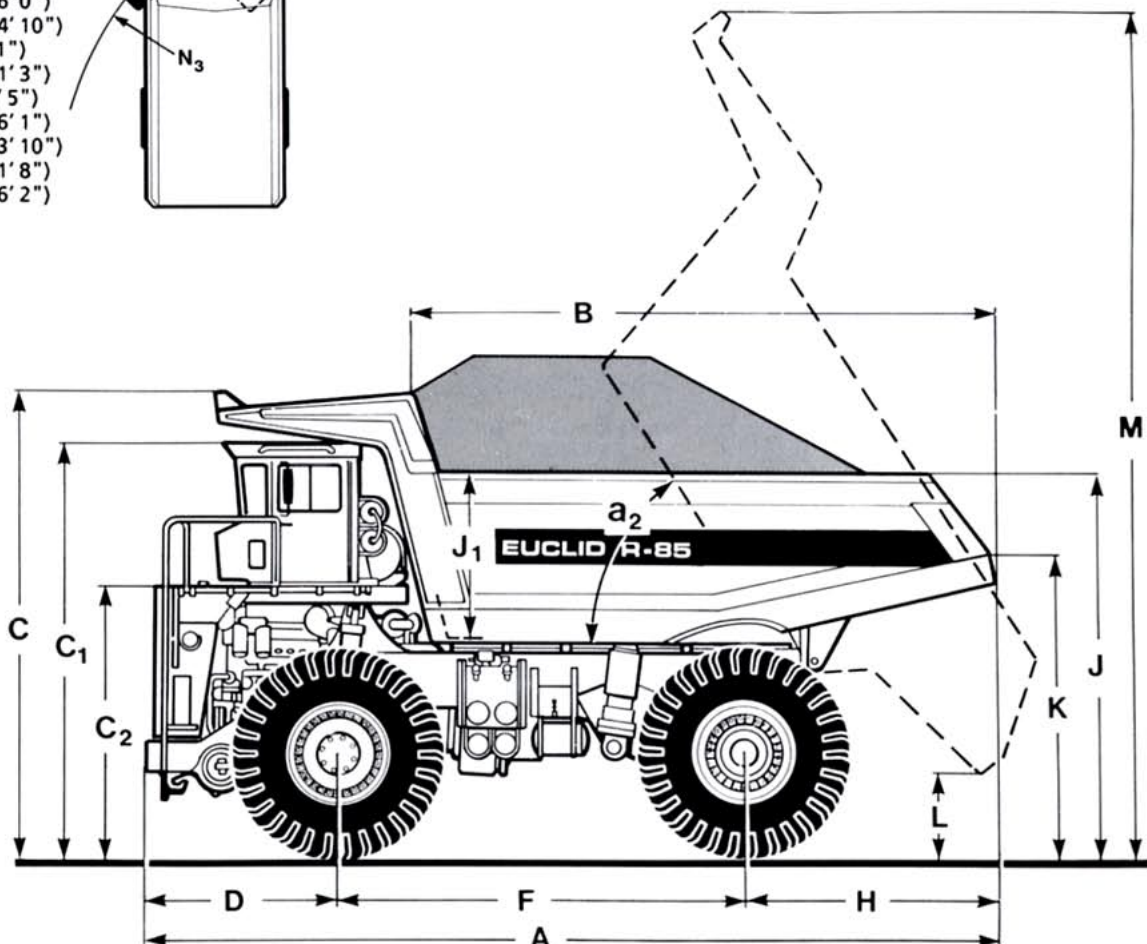
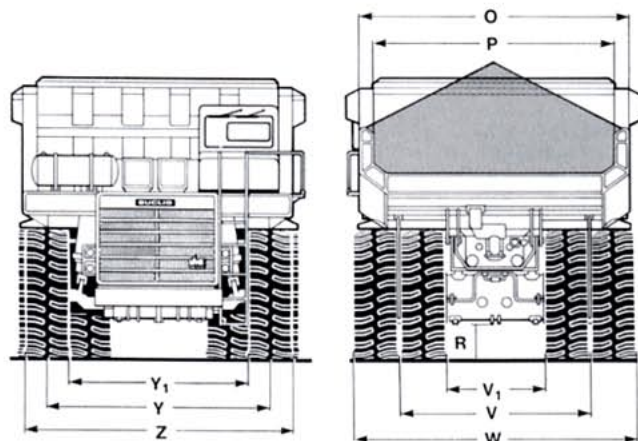
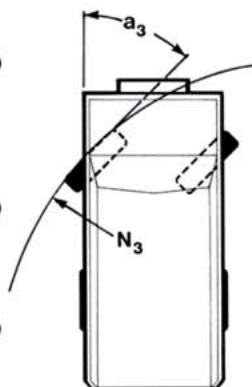


## SERVICE REFILL CAPACITIES

Crankcase (incl. filter)		
Detroit Diesel	dm <sup>3</sup> l (USgal)	68,1 (18,0)
Cummins	dm <sup>3</sup> l (USgal)	79,5 (21,0)
Fuel tank	dm <sup>3</sup> l (USgal)	1003,0 (265,0)
Cooling system	dm <sup>3</sup> l (USgal)	219,5 (58,0)
Transmission (incl. filter)	dm <sup>3</sup> l (USgal)	113,6 (30,0)
Drive axle	dm <sup>3</sup> l (USgal)	124,9 (33,0)
Hydraulic tank steering	dm <sup>3</sup> l (USgal)	73,8 (19,5)
Hydraulic tank hoist	dm <sup>3</sup> l (USgal)	219,5 (58,0)

## DIMENSIONS EUCLID R-85

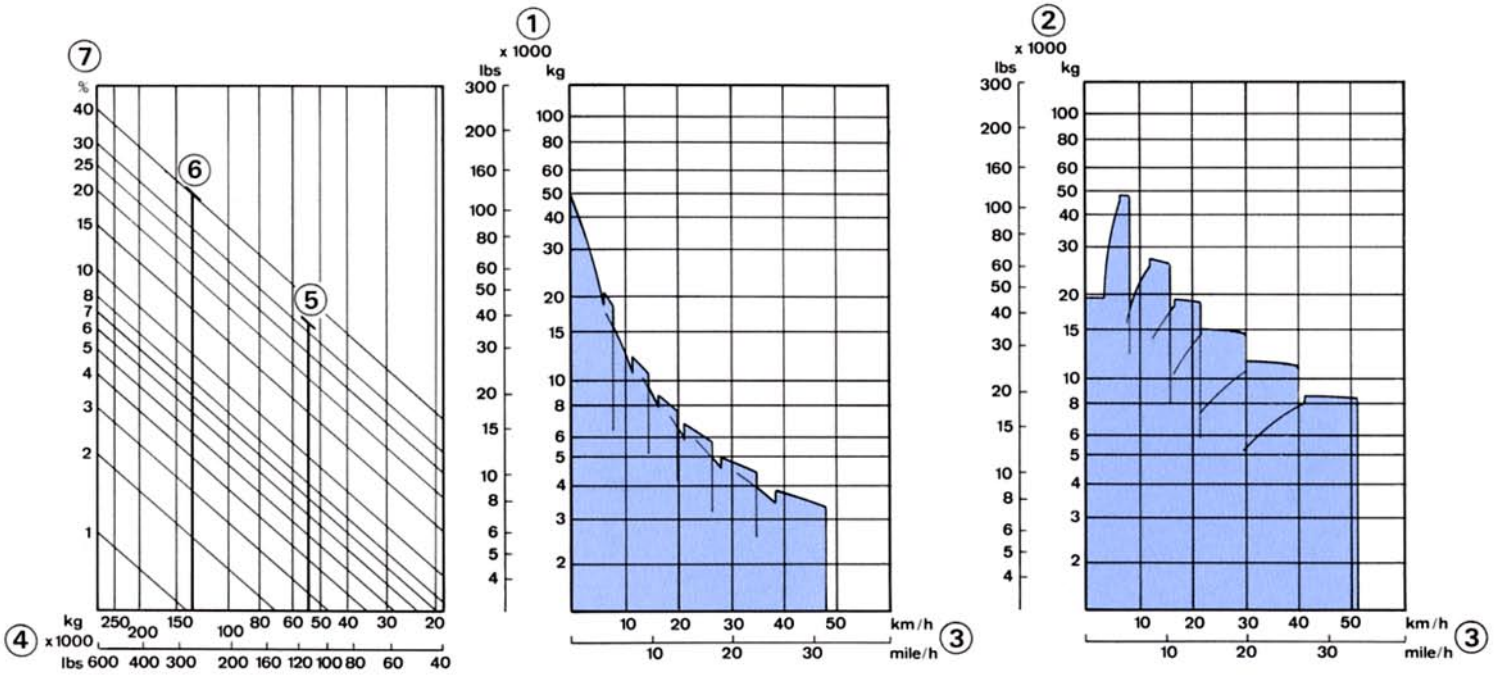
A	mm (ft in)	9630 (31' 7")
B	mm (ft in)	6730 (22' 1")
C	mm (ft in)	5020 (16' 6")
C <sub>1</sub>	mm (ft in)	4370 (14' 4")
C <sub>2</sub>	mm (ft in)	2840 (9' 4")
D	mm (ft in)	2110 (6' 11")
F	mm (ft in)	4420 (14' 6")
H	mm (ft in)	3100 (10' 2")
J	mm (ft in)	4190 (13' 9")
J <sub>1</sub>	mm (ft in)	3330 (10' 11")
K	mm (ft in)	1470 (4' 10")
L	mm (ft in)	560 (1' 10")
M	mm (ft in)	9140 (30' 0")
N <sub>3</sub>	mm (ft in)	23500 (77')
O	mm (ft in)	4880 (16' 0")
P	mm (ft in)	4520 (14' 10")
R	mm (ft in)	630 (2' 1")
V	mm (ft in)	3430 (11' 3")
V <sub>1</sub>	mm (ft in)	1960 (6' 5")
W	mm (ft in)	4900 (16' 1")
Y	mm (ft in)	4220 (13' 10")
Y <sub>1</sub>	mm (ft in)	3560 (11' 8")
Z	mm (ft in)	4930 (16' 2")
a <sub>2</sub>	°	60
a <sub>3</sub>	°	38



## Cummins VTA 1710C

### Rimpull

### Braking effort



### INSTRUCTIONS:

Diagonal lines represent total resistance (grade resistance % plus rolling resistance %).  
The charts are based on 0% rolling resistance, standard tyres and gearing.

- Find the total resistance on the vertical scale at the left.
- Follow the diagonal line downward until it intersects the NVW or GVW weight line.
- Go from this intersection horizontally to the right to the intersection with the rimpull or braking effort curve.
- Read off the vehicle speed on the x axis vertically underneath this point.

- Rimpull in kg and lb
- Braking effort in kg and lb
- Speed in km/h and mile/h
- Vehicle weight in kg and lb
- NVW in kg and lb
- GVW in kg and lb
- Total resistance (grade resistance % plus rolling resistance %)

## STANDARD EQUIPMENT

### Safety and comfort

Cab  
Ashtray  
Operator seat belt  
Cab interior light  
Passenger seat  
Cigarette lighter  
Downshift inhibitor  
Heater and defroster  
Sun visor  
Operator seat, adjustable  
Tinted windshield  
Windshield washers  
Windshield wipers

Dual air horns  
Body down indicator, mechanical  
Body prop cable  
Rearview mirrors, right and left  
Mud flaps  
Reverse alarm  
Rock ejector bars  
Emergency stop switch for engine  
Hand-operated valve for rear brakes  
Parking brake control  
Supplementary steering system, electric

### Engine and electrical system

Lights  
four headlights  
back-up lights  
dual combination stop and tail lights  
Indicator lights  
air filter  
torque converter lock-up  
high beams  
hydraulic oil filter  
parking/hand brake applied  
rear brake malfunction retarder on steering system filter

### Gauges

ammeter  
speedometer  
air pressure gauge  
clutch pressure gauge  
tachometer and hour meter  
coolant temperature  
start air pressure gauge  
engine oil pressure  
clutch oil pressure  
torque converter oil temperature  
service air pressure gauge  
Rheostat for instrument lights

## OPTIONAL EQUIPMENT (Standard on certain markets).

### Service and maintenance equipment

Automatic lubrication system  
Centralized lubrication  
Fast fuelling system

### Engine equipment

Radiator fan with thermostat  
Radiator shutters  
Antifreeze container  
Cold start aid  
Electric start  
Fan guard  
Kim hot start  
L&M (Mesabi) radiator

### Electrical equipment

Reverse arm  
Position lights  
Direction indicators

### Transmission equipment

Differential, no spin  
Differential, 3.15:1 ratio

### Cab equipment

Air conditioning  
Air dryer  
Tachograph  
Hubodometer  
Multifunction alarm systems  
Air cleaners  
Passenger seat belt  
Reverse kickout

### Protective equipment

Engine/transmission guard  
Guard rails  
Canopy spill guard extension  
Hub side guards

### Body equipment

Body liner plates  
Body up light  
Canopy spill guard  
Elevated sideboards

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine..

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