

# Euclid R35



## **GROSS MACHINE WEIGHT (GMW)**

**66 200 kg  
(146 000 lb)**

## **MAX. PAYLOAD**

**37.6 t  
(41.5 sh ton)**

- *Direct-injected, turbocharged Cummins engine*
- *Automatic Transmission Electronic Control (ATEC) shift system*
- *Robust frame - smooth transitions and load-matched main rails*
- *Wet multi-plate disc brakes (with retarder function) on rear axle*
- *Front-wheel suspension with independent trailing arms*
- *Effective suspension and shock absorption - Neocon suspension units all around*



**VOLVO BM  
MICHIGAN  
EUCLID**

## ENGINE



Cummins KT 19-C, 6-cylinder, 4-stroke, turbo charged diesel engine. Electric starting.

Max. rating at SAE J1349	r/s	(r/min)	35	(2100)
	kW	(hp)	336	(450)
Flywheel rating at SAE J1349	r/s	(r/min)	35	(2100)
	kW	(hp)	321	(430)
Max. torque at SAE J1349	r/s	(r/min)	25	(1500)
	Nm	(lbf ft)	1906	(1406)
Displacement	l	(in <sup>3</sup> )	18,8	(1150)
Bore	mm	(in)	159	(6,25)
Stroke	mm	(in)	159	(6,25)

## TRANSMISSION



Allison CLT-5962. Planetary type, full automatic shift. Integral torque converter with automatic lock-up to lock-up shifting in all ranges. Remote mounted, 6 forward speeds, 1 reverse. Allison Transmission Electronic Control (ATEC) shift system.

Maximum speeds at 35 r/s (2100 r/min), governed engine speed.

Range	Gear ratio	Standard		Optional	
		3,13:1 km/h	Differential (mile/h)	2,81:1 km/h	Differential (mile/h)
1	4,00	9,6	(5,9)	10,7	(6,6)
2	2,68	14,3	(8,9)	15,9	(9,9)
3	2,01	19,1	(11,8)	21,2	(13,2)
4	1,35	28,4	(17,6)	31,6	(19,6)
5	1,00	38,3	(23,8)	42,7	(26,5)
6	0,67	57,2	(35,5)	63,7	(39,6)
R	5,12	7,5	(4,7)	8,3	(5,2)

## DRIVE AXLE



Full floating axle shafts, double reduction provided by Euclid Model 2052, differential and single reduction planetary with balanced life gears in each wheel.

Ratios	Standard	Optional
Differential	3,13:1	2,81:1
Planetary	6,00:1	6,00:1
Total reduction	18,78:1	16,86:1

Maximum speeds with 18.00-33 Tires	km/h (mile/h)	57,2 (35,5)	63,7 (39,6)
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## TIRES



Front and rear (diagonal or radial)	18.00-33 (28)
Rim width	E3 330 (13)

## LOAD CAPACITY



Body struck SAE	m <sup>3</sup>	(yd <sup>3</sup> )	17,0	(22,2)
Heaped SAE 2:1	m <sup>3</sup>	(yd <sup>3</sup> )	23,3	(30,5)
<b>Payload Max</b>	t	(sh ton)	37,6	(41,5)

## WEIGHTS



Chassis with hoists	kg	(lb)	21228	(46800)
Body	kg	(lb)	7212	(15900)
Net machine weight	kg	(lb)	28440	(62700)

Weight distribution	%	Unloaded	Loaded
Front	%	50	34
Rear	%	50	66

Gross Machine Weight (GMW) with selected tires

Tires	Max GMW	kg	(lb)	18.00-33 (28)
	Net weight	kg	(lb)	28400 (62700)
Tires	Max GMW	kg	(lb)	18.00-33 (32)
	Net weight	kg	(lb)	28580 (63000)

Machine weight based on 50% fuel.

Maximum gross machine weight not to exceed 66 200 kg (146 000 lb) including options, fuel and payload.

### Optional equipment

Liners (A)	kg	(lb)	2350	(5180)
Liners (B)	kg	(lb)	3100	(6835)
Top extension	kg	(lb)	400	(880)

### Liners

	(A)	(B)
Plate thickness		
floor	mm (in) 10 (0,4)	12 (0,5)
front	mm (in) 6 (0,24)	8 (0,3)
sides	mm (in) 6 (0,24)	8 (0,3)
corners	mm (in) 6 (0,24)	12 (0,5)
canopy	mm (in) 6 (0,24)	6 (0,24)
top rails	mm (in) 10 (0,4)	10 (0,4)

## STEERING SYSTEM



Hydraulic steering with two double-acting steering cylinders.

Open-centre system with separate hydraulic tank and independent gear pump.

Supplementary steering provided by electric motor/pump in accordance with SAE J53 and ISO 5010.

Pump output	l/min	129
	(US gal/min)	(34)
at	r/s (r/min)	35 (2100)
Relief pressure	kPa (psi)	13790 (2000)

## STANDARD EQUIPMENT

### Safety & comfort

Ashtray  
Ergonomically designed, adjustable operator seat  
Operator seat belt  
Cab interior light  
Passenger seat and belt  
Cigarette lighter  
Rubber floor mat  
Heater and defroster  
Sun visor  
Tinted windshield  
Windscreen washers  
Windscreen wipers  
Dual air horns  
Mud flaps  
Neocon suspension  
Body down indicator, mechanical  
Downshift inhibitor  
Radiator grill guard  
Reverse alarm  
Body prop cable  
Rock ejector bars  
Electric start  
Supplementary steering system, electric  
Fan guard  
Tow hooks, front  
Rearview mirrors, right and left  
Continuously exhaust heated body

### Engine & electrical system

Lights  
four headlights  
back-up light  
dual combination stop and tail lights  
Instrument lighting, variable  
Indicator lights  
torque converter, lock-up  
rear brake malfunction and parking brake applied  
high oil temperature, retarder  
steering system malfunction  
steering system filter  
engine oil pressure  
hydraulic oil filter  
air cleaner  
torque converter oil temperature  
high beams  
ATEC transmission  
transmission filter  
Gauges  
ammeter  
speedometer  
air pressure gauge  
clutch pressure gauge  
tachometer and hour meter  
coolant temperature  
Visual alarm for low air pressure

### Transmission

Allison Transmission Electronic Control (ATEC)

## OPTIONAL EQUIPMENT

### Engine equipment

Cold starting aid  
Engine heater

### Electrical equipment

Direction indicators

### Cab equipment

Air conditioning  
Tachograph, 24-hour recording  
Alarm system, four functions:  
low oil pressure  
high coolant temperature  
low coolant level  
high converter temperature  
Operator seat, air ride

### Protective equipment

Transmission guard  
Guard rails  
Hood sides

### Body equipment

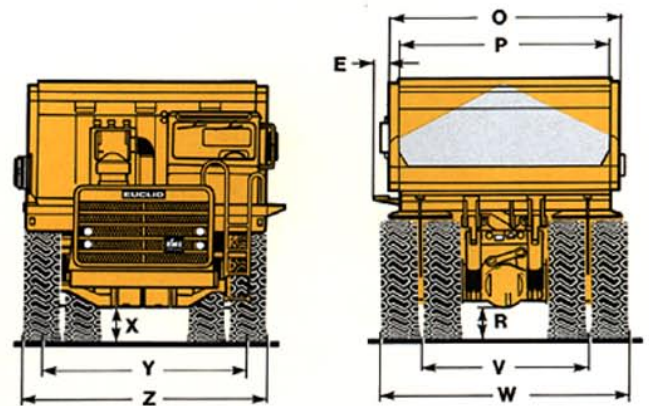
Body liners  
Top extensions  
Rubber body

### Wheel equipment

Tires 18.00-33 XRB  
Rims with wooden protection

### Other equipment

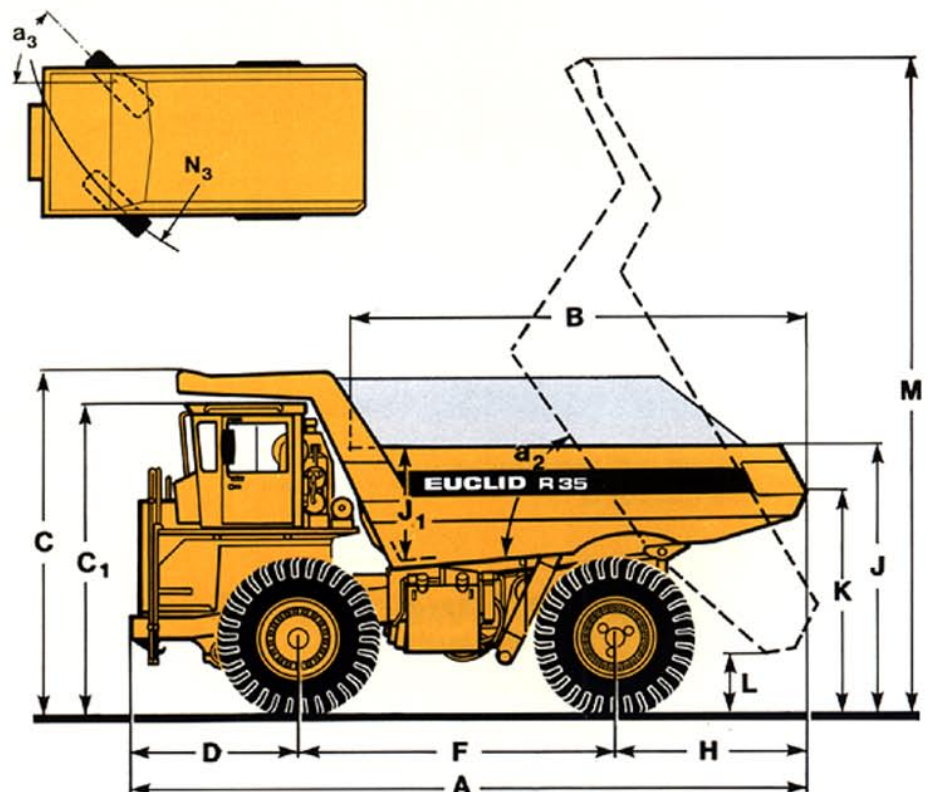
Optional differentials



## DIMENSIONAL DATA EUCLID R35

A	mm (ft in)	8200	(26'11")
B	mm (ft in)	5490	(18'0")
C	mm (ft in)	4140	(13'7")
C <sub>1</sub>	mm (ft in)	3710	(12'2")
D	mm (ft in)	2160	(7'1")
E	mm (ft in)	300	(1'0")
F	mm (ft in)	3730	(12'3")
H	mm (ft in)	2310	(7'7")
J	mm (ft in)	3220	(10'7")
J <sub>1</sub>	mm (ft in)	1220	(4'0")
K	mm (ft in)	2625	(8'7")
L	mm (ft in)	690	(2'3")
M	mm (ft in)	7920	(26'0")
N <sub>3</sub>	mm (ft in)	8075	(26'6")
O	mm (ft in)	3760	(12'4")
P	mm (ft in)	3480	(11'5")
R	mm (ft in)	530	(1'9")
V	mm (ft in)	2540	(8'4")
W	mm (ft in)	3680	(12'1")
X	mm (ft in)	610	(2'0")
Y	mm (ft in)	3100	(10'2")
Z	mm (ft in)	3660	(12'0")
a <sub>2</sub>	°	60	
a <sub>3</sub>	°	42	

**Note:** Dimensions shown are for empty vehicle with 18.00-33 tires.



## FRAME



Box section main rails bridged by three cross members, front bumper and front suspension tube. Rail depth is constant taper rear to front.

Two rear cross members are castings with integral body, suspension and drive axle mountings. Cross member to frame junction use larger radii to minimize stress. Frame utilizes 310 N/mm<sup>2</sup> (45000 psi) yield strength alloy steel.

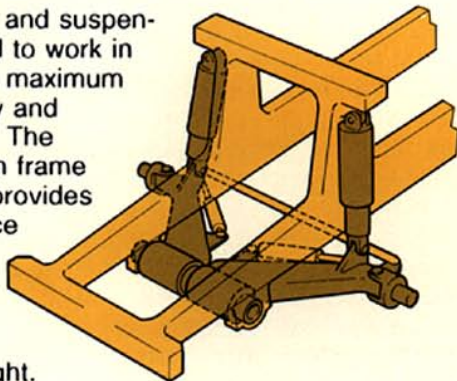
## SUSPENSION



**Front axle:** Independent trailing arm for each front wheel. Neocon struts containing energy absorbing gas and compressible Neocon-x fluid mounted between trailing arm and frame.

**Rear axle:** "A" frame structure, integral with axle housing, links drive axle to frame at forward center point with pin and spherical bushing. Track rod provides rear link between frame and drive axle. Rear mounted Neocon struts suspend drive axle from frame. Neocon struts provide variable damping and rebound feature.

The Euclid frame and suspension are designed to work in unison to provide maximum structural integrity and operator comfort. The tapered box beam frame rail construction provides superior resistance to bending and torsional loads while eliminating unnecessary weight.



Long frame fatigue life is achieved through proven design and manufacturing practices. Smooth frame transitions minimize stress concentrations and steel castings effectively distribute input loads. Frame life is further enhanced by utilizing fatigue resistant weld joints and locating welds in low stress areas.

The unique trailing arm front suspension absorbs haul road input, minimizing suspension-induced frame twisting while simultaneously providing independent, fully vertical and parallel wheel movements. Ride struts are mounted with spherical bushings, eliminating extreme sidewall forces by insuring a purely axial input to the ride strut. The wide track stance of the trailing arm design and long wheel base assure a more stable, comfortable ride.

The suspension struts employ gas and Neocon-x fluid as the energy-absorbing media. This suspension continues to absorb energy when extremely high loads are generated which significantly contributes to improved isolation of the operator and machine components.

## BODY

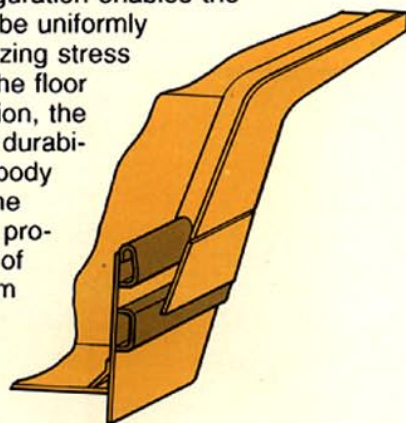


**Body:** Flat floor, sloped tailchute, continuously exhaust heated. Floor, front, sides and canopy made of high-grade steel. Body is rubber cushioned on frame.

Body				
tensile strength	N/mm <sup>2</sup>		1250	
hardness, min	HB		360-440	
Plate thickness				
floor	mm	(in)	16	(0,6)
front	mm	(in)	8	(0,3)
sides	mm	(in)	8	(0,3)
canopy	mm	(in)	6	(0,24)

The horizontal stiffener design of the Euclid body is specifically designed to minimize stress concentrations in any one area. Horizontal side rails dissipate load shocks over the entire body length.

The flat floor configuration enables the floors stiffeners to be uniformly spaced thus equalizing stress levels throughout the floor plate area. In addition, the flat floor increases durability and augments body liner installation. The sloped floor profile provides a low center of gravity for maximum stability.



## CAB



Euclid steel cab 1420 mm (4'8") wide, offset to the left of the machine. Three-point rubber mounted to isolate the operator from vibrations. Safety glass throughout, tinted windshield with 5° slant. The cab is fully insulated for noise and temperature control and airtight. Filtered pressurized air in cab. Meets OSHA sound limitations with door and vents closed under normal conditions. Ladder and catwalk entry.

## ELECTRICAL SYSTEM



Two 12 V batteries connected in series. Alternator with integral transistorized voltage regulator.

Voltage	V	24
Battery capacity	Ah	205
Alternator rating	W/A	2100/75

## BRAKES



**Service:** Air/oil actuated front disc brakes with one caliper per front disc. Calipers are internally ported, each containing three pairs of opposing pistons. Rear brakes are oil-cooled wet discs. Provide stopping capability conforming to SAE J1473.

**Secondary:** Two independent circuits within the service brake system provide secondary stopping capability conforming to SAE J1473. System is manually or automatically applied to stop machine within prescribed braking distance.

**Parking brake:** Drum, two shoe internal expanding type mounted behind transmission. Automatically applied if air pressure is lost. Manually controlled from instrument panel.

**Retarder:** Foot operated valve controls air/oil- actuation of oil-cooled wet disc brakes on rear axle. System provides constant speed control on downhill hauls.

### Service air

Compressor capacity	l/s	(ft <sup>3</sup> /min)	6,2	(13,2)
Pressure	kPa	(psi)	860	(125)
Tank volume	l	(ft <sup>3</sup> )	150	(5,3)

### Front axle

#### Dry Disc

Disc diameter each	mm	(in)	635	(25)
Lining area per axle	cm <sup>2</sup>	(in <sup>2</sup> )	968	(150)
Max. brake pressure	kPa	(psi)	14273	(2070)

### Rear axle

#### Oil Cooled Wet Disc

Brake surface area per axle	cm <sup>2</sup>	(in <sup>2</sup> )	37318	(5784)
Max. brake pressure	kPa	(psi)	6895	(1000)
Brake cooling pump Output	l/min		197	
	(US gal/min)			(52)

### Parking brake

Size	mm		305x127	
	(in)			(12x5)
Lining area	cm <sup>2</sup>	(in <sup>2</sup> )	968	(150)

### Retarder

Capacity (continuous)	kW	(hp)	434	(582)
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## WET DISC BRAKE



The Euclid wet disc brake is engineered for long service life even in the most extreme environments. The wet disc brakes are located on the rear axle and provide service braking, emergency braking and retarding. The brakes are of a multi-plate design, constantly oil-cooled. The sealed design protects against environmental contamination for prolonged service life. Both application and release of the brake is accomplished through a hydraulically controlled piston. This simplified system does not require springs or other mechanical components resulting in reduced maintenance.

As a service brake, it incorporates Euclid's philosophy of system separation; the service brake actuation is totally separate from the retarder actuation. Both service braking and retarder functions are accomplished utilizing separate pedals. This allows the operator to activate the brakes or the retarder without removing his hands from the steering wheel.

The R35 utilizes dry disc front brakes in conjunction with the wet disc rear brakes for proportioned braking action.

## HYDRAULIC SYSTEM



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

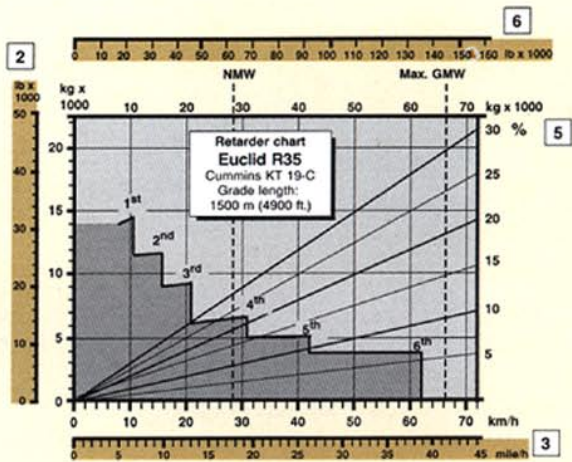
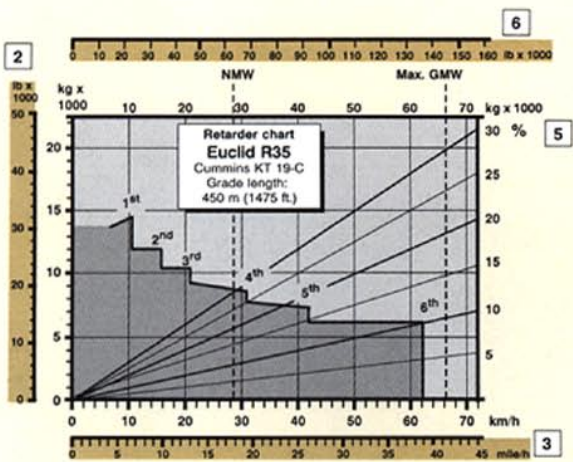
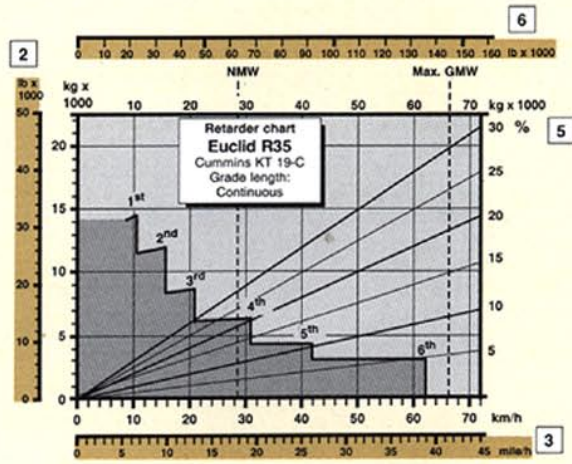
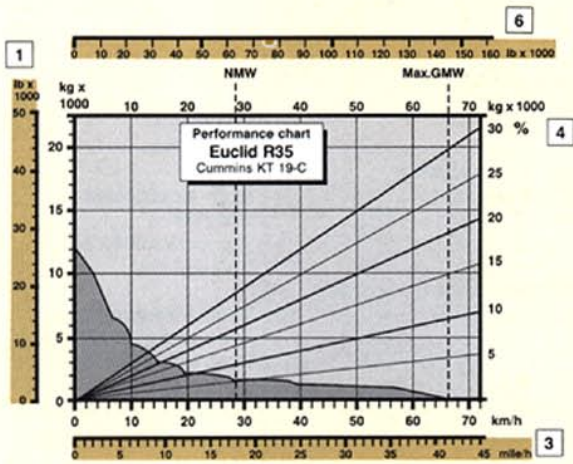
**Hydraulic system:** Separate hydraulic oil tank and independent tandem gear pump. Control valve mounted on hydraulic oil tank.

Hoist				
Body raise time	s		11	
Hydraulic system				
Output	l/min		299	
	(US gal/min)			(79)
at engine speed	r/s	(r/min)	35	(2100)
Relief pressure	kPa	(psi)	17237	(2500)

## SERVICE REFILL CAPACITIES



Crankcase (incl filters)	l	(US gal)	59	(15,6)
Transmission (incl filter)	l	(US gal)	70	(18,5)
Cooling system	l	(US gal)	140	(37)
Fuel tank	l	(US gal)	454	(120)
Hydraulic tank, hoist	l	(US gal)	174	(46)
Hydraulic tank steering	l	(US gal)	98	(26)
Drive axle	l	(US gal)	53	(14)



**INSTRUCTIONS:**

Diagonal lines represent total resistance (Grade % plus rolling resistance %). Charts based on 0% resistance, standard tires and gearing.

- A Find the total resistance on diagonal lines on the right-hand border of performance or retarder chart.
- B Follow the diagonal line downward and intersect the NMW or GMW weight line.
- C From intersection, read horizontally right or left to intersect the performance or retarder curve.
- D Read down for machine speed.

- 1 Rimpull in kg (lb)
- 2 Braking effort in kg (lb)
- 3 Speed in km/h (mile /h)
- 4 Inclination resistance + rolling resistance in %.
- 5 Inclination resistance - rolling resistance in %.
- 6 Gross machine weight (GMW) in kg (lb)

*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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