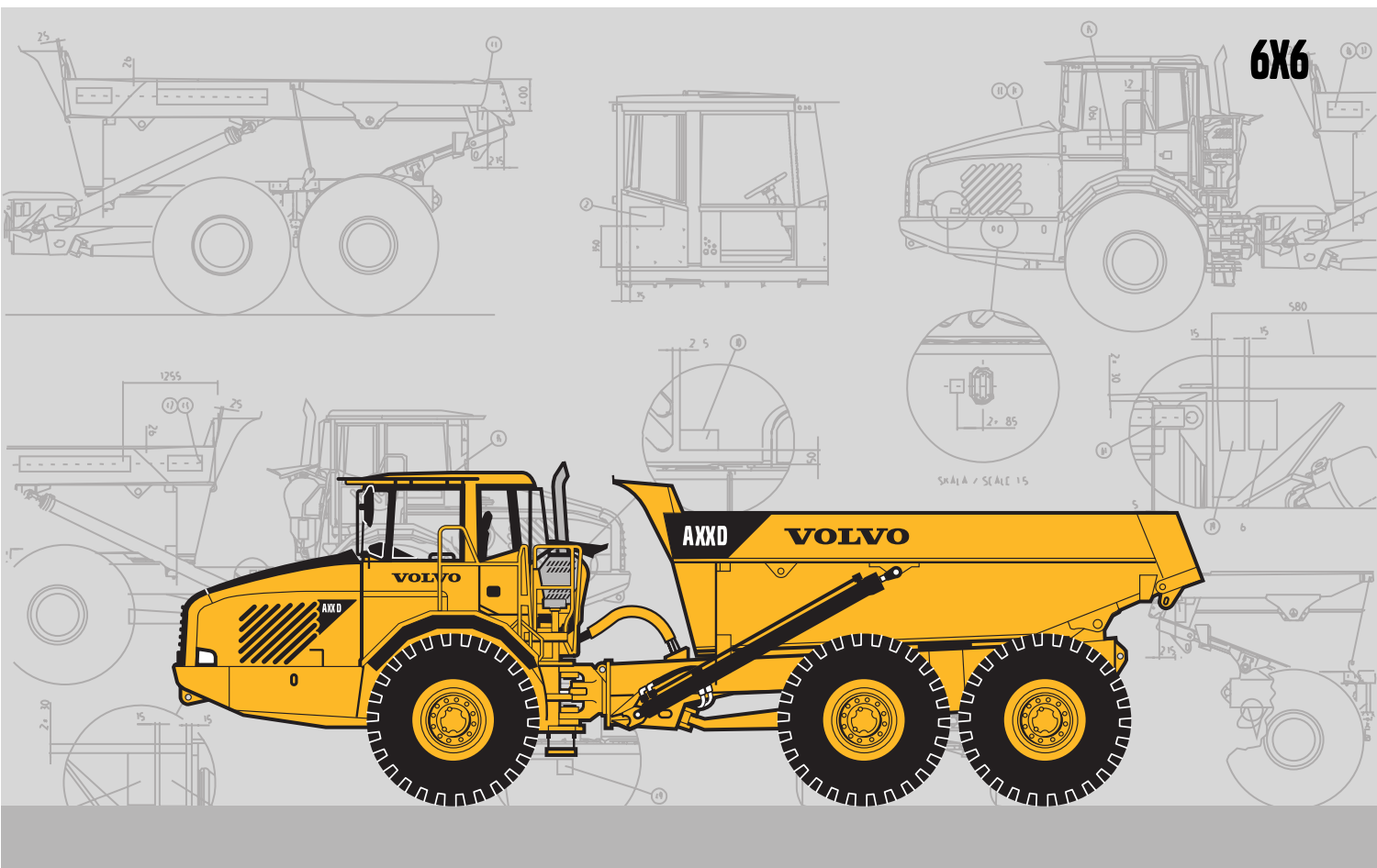


VOLVO ARTICULATED HAULER

A35D/A40D



• **Engine output:**

A35D:

SAE J1995, Gross 289 kW (393 hp)

SAE J1349, Net 285 kW (389 hp)

A40D:

SAE J1995, Gross 313 kW (426 hp)

SAE J1349, Net 309 kW (420 hp)

• **Body volume, heaped:**

A35D: 20,0 m³

A40D: 22,5 m³

• **Load capacity:**

A35D: 32,5 t

A40D: 37,0 t

• **Volvo cab**, designed for high operator visibility, ergonomics and comfort.

• **Reduced maintenance time** with no daily or weekly grease points.

• **Electronic Operator's Communication System**

• **Volvo high performance – low emission** electronically controlled, direct injected, turbocharged, intercooled diesel engine.

• **Volvo Engine Brake, VEB**

• **Fully automatic planetary transmission**, electronically controlled.

• **Hydraulic retarder** integral in transmission.

• **Dropbox with high/low function** and longitudinal differential lock

• **100% lock-up differentials.** One longitudinal and three transverse differential locks.

• **Front axle with three-point suspension.**

• **Volvo terrain bogie**, individually oscillating axles and high ground clearance.

• **Volvo Load & Dump Brake.**

VOLVO

The A35D – 40D in detail

Service

The computerized information system monitors all fluid levels, minimizing daily and weekly service times.

Time to next service and the status of vital vehicle systems is shown to the operator on a display in the instrument panel.

Service accessibility: Fold-down front grill with access ladder to remote filter bank, located in front of engine. Large, 90° opening hood for total engine access. Remote drain hoses and swing-out radiator for easy cleaning.

Fill capacities

	A35D	A40D
Crankcase.....	50 l.....	50 l
Fuel tank	480 l.....	480 l
Cooling system	117 l.....	117 l
Transmission total	48,5 l.....	48,5 l
Dropbox.....	10,5 l.....	10,5 l
Per axle	48 l.....	55 l
Brake cooling tank.....	- - -	103 l
Hydraulic tank	250 l.....	250 l

Engine

Volvo inline 6-cylinder, direct injected electronically controlled, turbocharged, intercooled 4-stroke low-emission diesel engine with wet replaceable cylinder liners.

Fan: Hydrostatically driven, thermostatically controlled variable speed radiator fan consuming power only when needed.

Engine brake: VEB (Volvo Engine Brake) includes compression and exhaust brake.

A35D

Make, model	Volvo D12C ABE2*
Make, model	Volvo D12C ADE2**
Max power at	30 r/s (1 800 r/min)
SAE J1995 Gross	289 kW (393 hp)
Flywheel power at	30 r/s (1 800 r/min)
SAE J1349 Net, DIN 6271***	285 kW (388 hp)
Max torque at	20 r/s (1 200 r/min)
SAE J1995 Gross	1 950 Nm
SAE J1349 Net, DIN 6271***	1 915 Nm
Displacement total	12 l

*** A35D) With fan operating at full speed, the flywheel power is 277 kW (377 hp) and maximum torque is 1 860 Nm which corresponds to DIN 70020.

A40D

Make, model	Volvo D12C AAE2*
Make, model	Volvo D12C ACE2**
Max power at	30 r/s (1 800 r/min)
SAE J1995 Gross	313 kW (426 hp)
Flywheel power at	30 r/s (1 800 r/min)
SAE J1349 Net, DIN 6271***	309 kW (420 hp)
Max torque at	20 r/s (1 200 r/min)
SAE J1995 Gross	2 100 Nm
SAE J1349 Net, DIN 6271***	2 056 Nm
Displacement total	12 l

*** A40D) With fan operating at full speed, the flywheel power is 301 kW (409 hp) and maximum torque is 2 010 Nm which corresponds to DIN 70020.

*) Meets US (EPA) step 2, California (CARB) step 2 and Europe (EU) step 2.

**) Meets Europe (EU) step 2.

The D12C engine is emission certified as a Family Engine with the following output data:

Rated power at	31,7 r/s (1 900 rpm)
SAE J1995 Gross	280 kW (381 hp)
Max torque at	20 r/s (1 200 r/min)
SAE J1995 Gross.....	2100 Nm



Electrical system

All cables, sockets and pins are identified. Cables are enclosed in plastic conduits and secured to main frame. Halogen lights. Prewired for options. Connectors meet IP67 standard for waterproofing as necessary.

Voltage	24 V
Battery capacity	2x170 Ah
Alternator.....	1,54 kW (55 A)
Starter motor.....	7,2 kW (10 hp)

Drivetrain

Volvo components, specifically designed for hauler applications.

Torque converter: Single-stage with free-wheeling stator and automatic lock-up on all gears.

Transmission: Electronically controlled, fully automatic planetary transmission with six forward gears and two reverse gears, with an integral variable hydraulic retarder.

Dropbox: Volvo design with high and low with a built-in variable hydraulic retarder. 100% lock-up function. Separate dropbox oil cooling.

A40D: Automatic upshift low range to high range in 6th gear.

Axes: Volvo design with fully floating axle shafts and planetary type hub reductions.

Differential locks: One longitudinal and three transverse with 100% lock-up function, operator selectable on the move.

Configuration: 6x4 or 6x6 drive, operator selectable on the move.

	A35D	A40D
Torque converter.....	1,95:1.....	1,95:1
Transmission, Volvo	PT 1860.....	PT 1860
Dropbox, Volvo	FL 852.....	FL 862
Axes, Volvo	AH 64.....	AHW 71

Speed:

	A35D	A40D
Low gear forward		
1	5 km/h	6 km/h
2	8 km/h	9 km/h
3	15 km/h	16 km/h
4	21 km/h	24 km/h
5	27 km/h	31 km/h
6	35 km/h	41 km/h
Automatic upshift to 6th gear, High range		55 km/h

	A35D	A40D
High gear forward		
1	9 km/h	9 km/h
2	13 km/h	13 km/h
3	23 km/h	23 km/h
4	34 km/h	33 km/h
5	43 km/h	42 km/h
6	56 km/h	55 km/h

	A35D	A40D
Low gear reverse		
1	5 km/h.....	6 km/h
2	9 km/h.....	10 km/h
High gear reverse		
1	8 km/h	8 km/h
2	14 km/h	14 km/h

Brake system

A35D

Fully hydraulic brakes on all axles. Two circuits. Well protected components. Meets ISO 3450 and SAE J1473 at total machine weight.

Service brakes: Dry discs on all wheels.

A40D

Fully hydraulic brakes with enclosed, forced oil-cooled multiple discs on all axles. Two circuits. Separate brake cooling for each axle. Meets ISO 3450 and SAE J1473 at total machine weight.

Service brakes: Wet multiple disc brakes on all wheels.

Circuit division: One circuit for front axle and one for bogie axles.

Weights			Ground Pressure					Load Capacity		
Operating weight includes all fluids and operator			At 15% sinkage of unloaded radius and specified weights.					Body volume according to SAE 2:1		
	A35D	A40D		A35D		A40D			A35D	A40D
Tires	26,5R25*	29,5R25**	Tires	26,5R25	775/65R29	29,5R29	875/65R29			
Operating weight unloaded			Unloaded					Std. Body		
Front	15 320 kg	16 300 kg	Front	128 kPa	110 kPa	115 kPa	100 kPa	Load capacity	32 500 kg	37 000 kg
Rear	12 980 kg	14 970 kg	Rear	54 kPa	46 kPa	53 kPa	47 kPa	Body, struck	15,2 m ³	16,9 m ³
Total	28 300 kg	31 270 kg	Loaded					Body, heaped	20,0 m ³	22,5 m ³
Payload	32 500 kg	37 000 kg	Front	149 kPa	128 kPa	135 kPa	118 kPa	With overhung tailgate		
Total weight			Rear	180 kPa	153 kPa	172 kPa	150 kPa	Body, struck	15,5 m ³	17,2 m ³
Front	17 770 kg	19 170 kg						Body, heaped	20,7 m ³	23,2 m ³
Rear	43 030 kg	49 100 kg								
Total	60 800 kg	68 270 kg								
*) A35D with tires 775/65R29, add 200 kg/ axle										
**) A40D with tires 875/65R29, add 300 kg/ axle										

Parking brake: Spring-applied disc brake on the propeller shaft, designed to hold a loaded machine on a grade up to 18%. When the parking brake is applied, the longitudinal differential is locked.

Compressor: Gear-driven by engine transmission.

Retarder: Hydraulic, infinitely variable, integrated in transmission. Total retarding capability including transmission retarder and exhaust retarder, see graph.

Volvo Engine Brake: Standard. Operator selectable application together with service brakes or when accelerator pedal is released. Always engaged together with retarder. Total retarding capability including transmission retarder and engine brake, VEB, see graph.

Steering system

Hydro-mechanical self-compensating articulated steering for safe and accurate high-speed hauling. Fast acting, low effort steering with 3,4 turns lock-to-lock for slow speed maneuverability.

Cylinders: Two double-acting steering cylinders.

Secondary steering: Meets ISO 5010 at total machine weight.

Steering angle: ±45°

Suspension

Volvo's unique maintenance-free 3-point suspension system. The axles are suspended at three points, which results in independent movement needed in rough terrain.

Front axle: The front suspension consists of one rubber spring, a stabilizer and three shock absorbers on each side.

Bogie: Volvo's unique terrain bogie permits long suspension travel and independent wheel movement, keeps the body level, retaining the load.

Cab

Volvo cab, ergonomically designed for high operator comfort and excellent visibility. Wide threshold-free door opening and ergonomic cab entrance. Insulating rubber pads to reduce vibrations. Tilt/ telescopic steering wheel. Overhead console for radio and storage. Dash-mounted Operator's Communication System. Storage bins.

Standard: ROPS/FOPS tested and approved. (ISO 3471, SAE J1040) / (ISO 3449, SAE J231) standards.

Heater and defroster: Filtered fresh air, four-speed fan and pressurized cab to maintain a clean operating environment. Multi-level air outlets and separate defroster vents for all windows.

Operator's seat: Adjustable air suspension operator's seat with flameproof upholstery. Retractable seat belt.

Trainer seat: Standard, with seat belt and back rest.

Sound level in cab: ISO 6396 .. 72 dB (A) at max. speed 76 dB (A)

Hydraulic system

Load-sensing variable displacement piston pumps consume power only when needed.

Pumps: Seven engine-driven, variable displacement, load-sensing piston pumps driven by the flywheel PTO. One ground-dependent piston pump for secondary steering mounted on the dropbox.

Filtration: Through two glass fibreglass with magnetic cores.

Pump capacity per pump:

Engine-dependent..... 143 l/min
Ground-dependent 202 l/min
at shaft speed 47,5 r/s (2 850 r/min)
Working pressure 25 MPa

Body

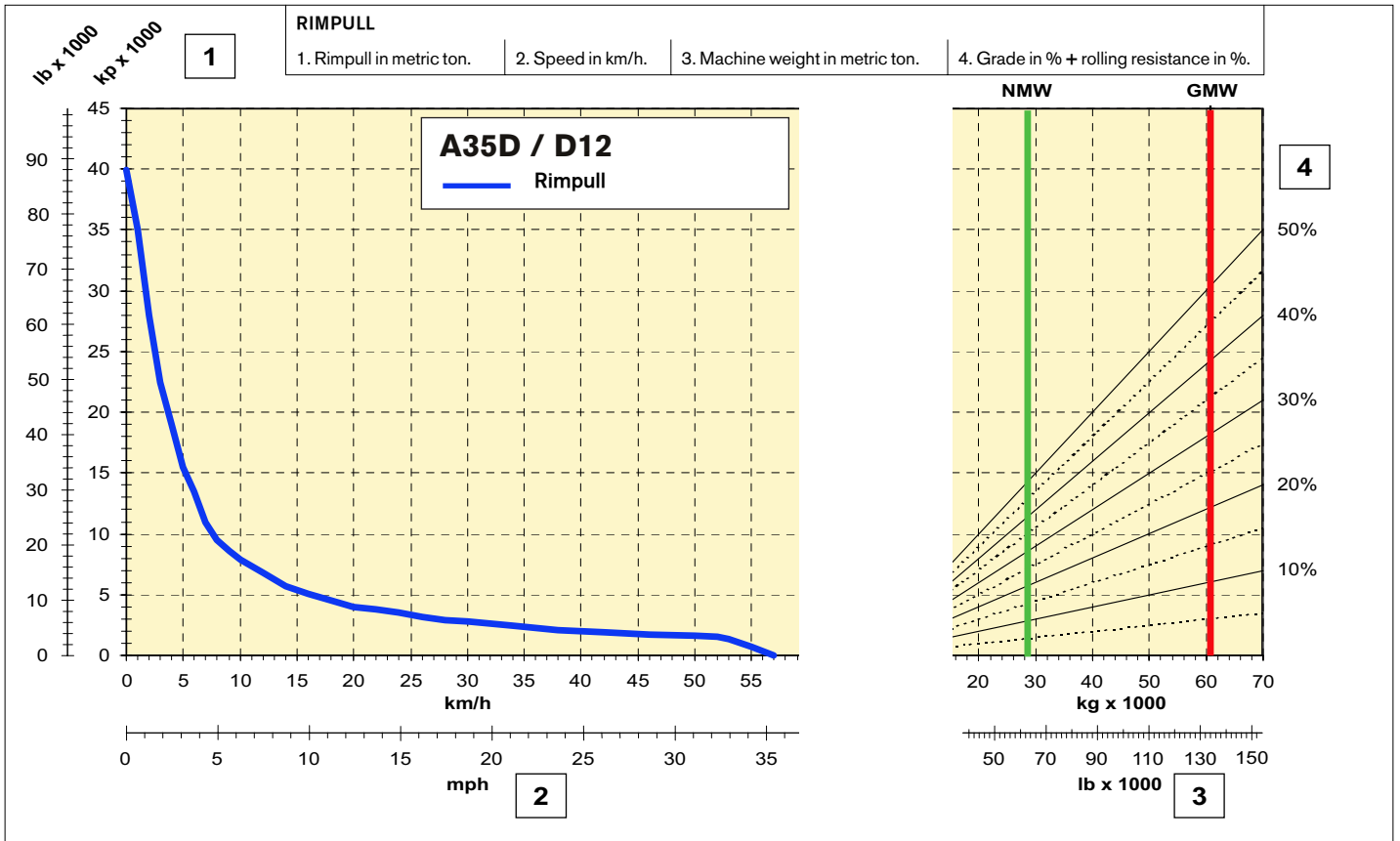
Load and dump brake: With the engine running, the service brakes on bogie axles are applied and transmission is shifted to neutral.

Body material: Hardened and tempered steel body, flat plate design made of high-strength steel.

Front..... 8 mm
Sides..... 12 mm
Bottom/ Chute 16 mm
Yield strength 1 000 N/mm²
Tensile strength..... 1 250 N/mm²
Hardness min 400 HB

Dump Cylinders: Two single-stage double-acting cylinders.

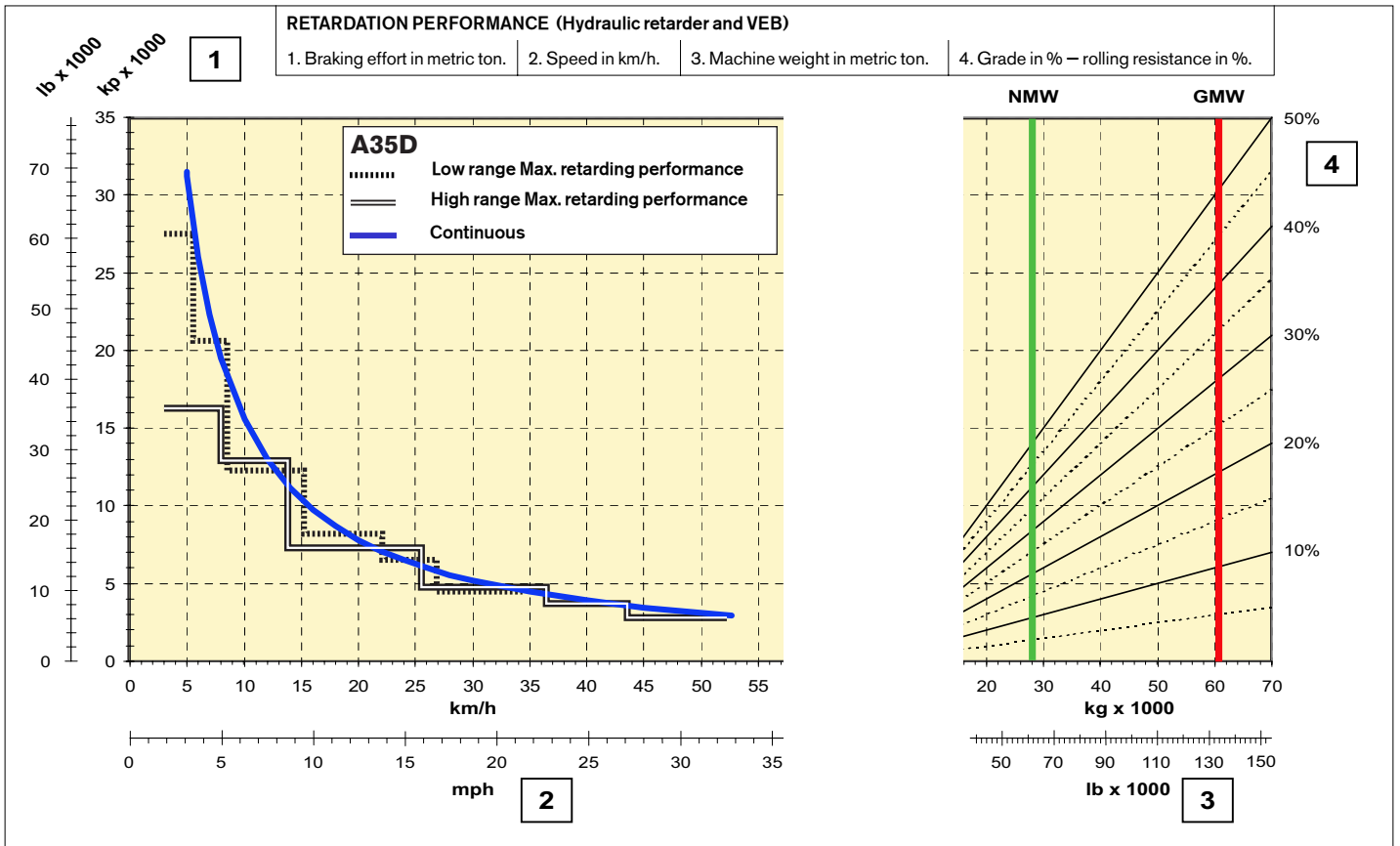
Tipping angle 70°
Tipping time with load 12 s
Lowering time 10 s

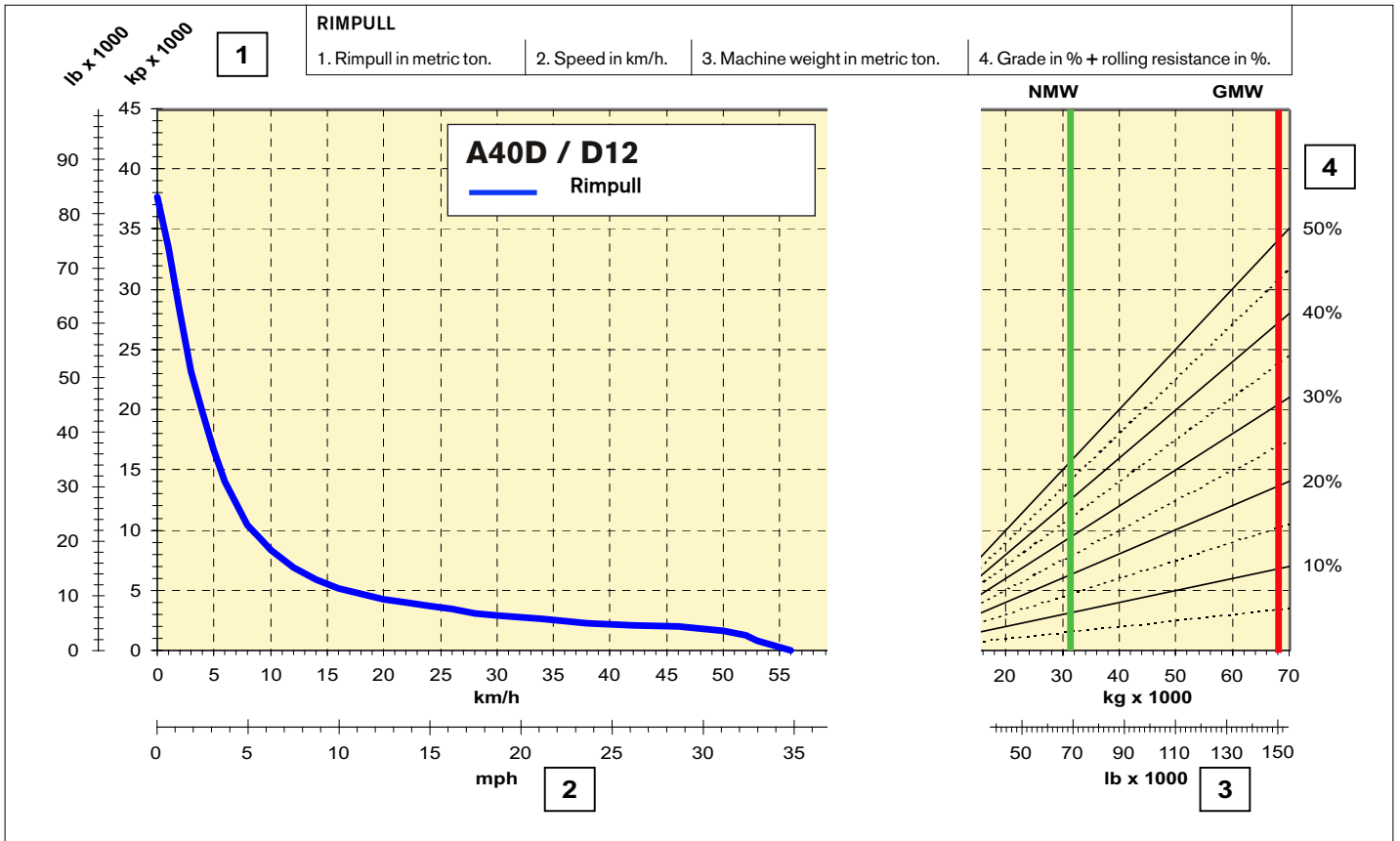


Instructions

Diagonal lines represent total resistance (grade % ± rolling resistance %). Charts based on 0% rolling resistance, standard tires and gearing, unless otherwise stated.

- Find the diagonal line with the appropriate total resistance on the right-hand edge of the chart.
- Follow the diagonal line downward until it intersects the actual machine weight line, NMW or GMW.
- Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.

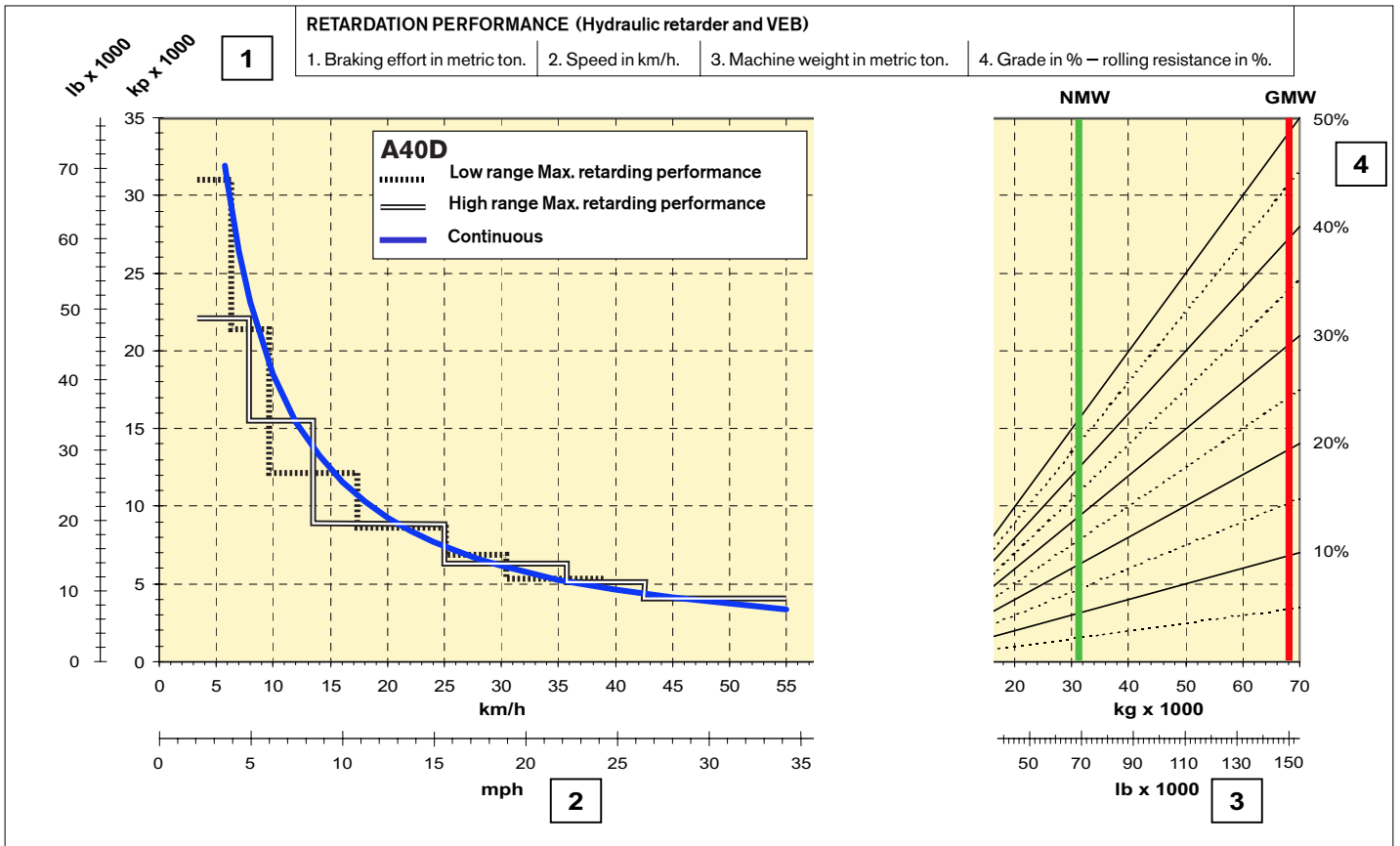




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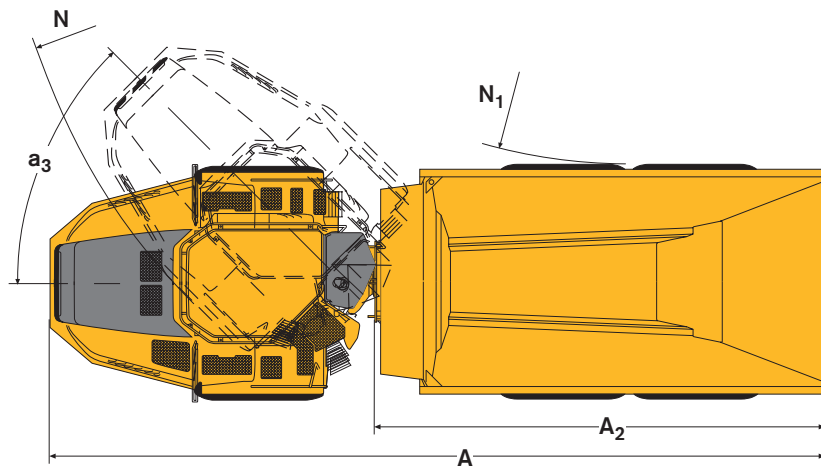
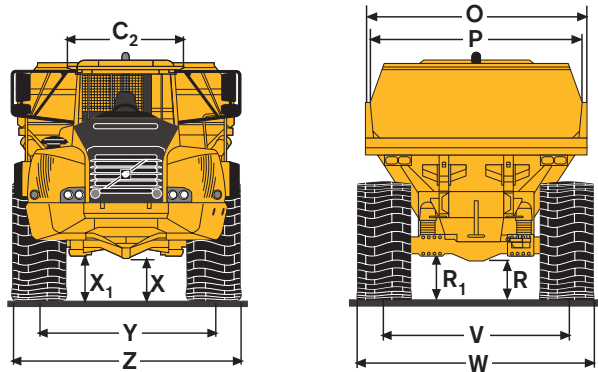
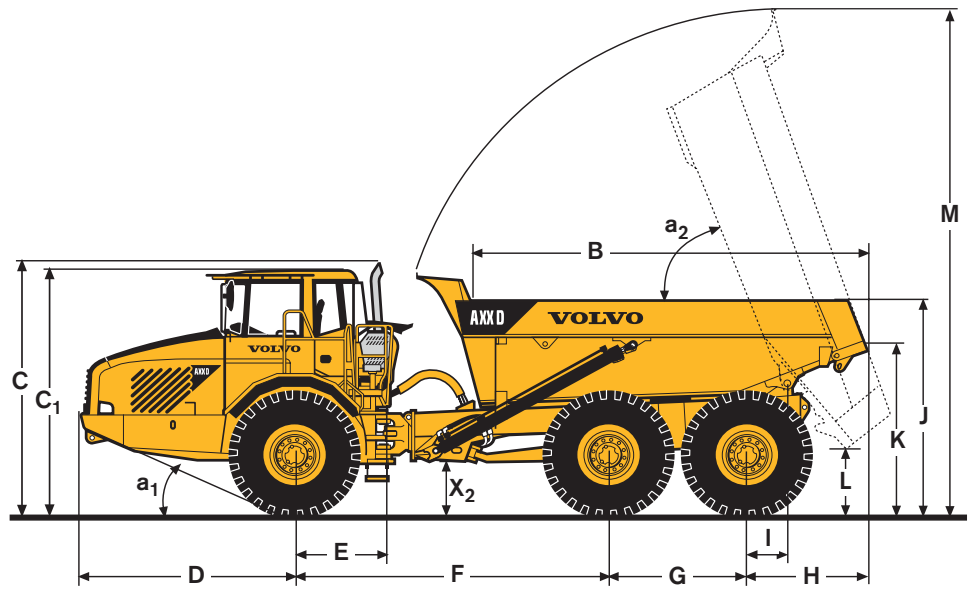
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- Draw a new line horizontally to the left from the point of intersection until the new line intersects the rimpull or retardation curve.
- Read down for vehicle speed.



Specifications A35D – A40D

Pos	Metric (mm)		Imperial (Feet)	
	A35D	A40D	A35D	A40D
A	11 178	11 287	36'8"	37'0"
A ₂	6 224	6 428	20'5"	21'1"
B	5 527	5 730	18'2"	18'10"
C	3 681	3 746	12'1"	12'3"
C ₁	3 560	3 626	11'8"	11'11"
C ₂	1 768	1 768	5'10"	5'10"
C ₃	3 987	4 093	13'1"	13'5"
D	3 103	3 103	10'2"	10'2"
E	1 275	1 275	4'2"	4'2"
F	4 501	4 448	14'9"	14'7"
G	1 820	1 940	6'0"	6'4"
H	1 754	1 796	5'9"	5'11"
I	725	638	2'5"	2'1"
J	2 912	3 075	9'7"	10'1"
K	2 302	2 492	7'7"	8'2"
L	915	906	3'0"	3'0"
M	7 242	7 384	23'9"	24'3"
N	8 720	8 863	28'7"	29'1"
N ₁	4 397	4 238	14'5"	13'11"
O	3 103	3 268	10'2"	10'9"
P	2 870	3 078	9'5"	10'1"
R	584	654	1'11"	2'2"
R ₁	670	751	2'2"	2'6"
U	3 528	3 590	11'7"	11'9"
V	2 515	2 636	8'3"	8'8"
V*	2 625	-----	8'7"	-----
W	3 208	3 432	10'6"	11'3"
W*)**	3 410	3 570	11'2"	11'9"
X	572	617	1'11"	2'2"
X ₁	606	639	1'0"	2'1"
X ₂	720	765	2'4"	2'6"
Y	2 515	2 636	8'3"	8'8"
Y*	2 625	-----	8'7"	-----
Z	3 208	3 432	10'6"	11'3"
Z*)**	3 410	3 570	11'2"	11'9"
a ₁	23°	25°	23°	25°
a ₂	70°	70°	70°	70°
a ₃	45°	45°	45°	45°

A35D: Unloaded machine with 26,5R25
A40D: Unloaded machine with 29,5R29
*) A35D with optional 775/65R29 tires
**) A40D with optional 875/65R29 tires



STANDARD EQUIPMENT A35D - A40D

Safety

ROPS/ FOPS cab
Anti-slip material on fenders and hood
Dump body lock
Hazard flashers
Handrails on fenders
Horn
Protective grille for rear window
Rear-view mirrors
Retractable 3-inch wide seat belt
Secondary steering
Service platform for ease of service
Steering joint locking assembly
Windshield wipers with interval function
Windshield washers

Comfort

Tilt/ telescopic steering wheel
Ashtray
Cab heater with filtered fresh air and defroster
Can holder / storage tray
Cigarette lighter
Heated and air suspended fully adjustable operator's seat
Instructor seat with backrest and retractable seat belt
Overhead console for radio and storage
Space for lunch cooler
Storage box
Sun visor, front window
Tinted glass

Engine

Direct injected, electronically controlled
Volvo Engine Brake, VEB
Coolant filter
Intercooler, air-to-air cooler
Remote oil filters, for ease of access
Remote oil drain plug and hose
Preheater for easier cold starts
Turbocharged

Electrical system

Alternator
Battery disconnect switch
Electrical outlets, 24V in cab
Lights:
• Headlights, main/dipped
• Parking lights
• Direction indicators
• Rear lights
• Back-up lights
• Brake lights
• Cab lighting
• Instrument lighting
• Control panel lighting
Pilot lights for all switches

Operator information interface

Gauges:
• Speedometer
• Tachometer
• Brake pressure
• Fuel
• Transmission oil temperature

Warning lights grouped and easy to read
Central warning (3 levels) for all vital functions

Central positioned information display:
• Automatic pre-start checks
• Operation information, easy-to-find menu
• Troubleshooting diagnostics
• Hour meter
• Clock
• Machine settings

Drivetrain

Automatic transmission, electronically controlled
Torque converter with automatic lock-up
Variable hydraulic transmission retarder
Dropbox with high/low range
6x4 or 6x6 operator selectable drive modes
100% longitudinal differential lock
100% differential locks in all axles

Brakes

A35D
Two circuit, fully hydraulic disc brakes on all axles.
A40D
Two circuit, fully hydraulic brakes with enclosed, forced oil-cooled multiple discs on all axles.
Separate brake cooling for each axle.

Volvo Engine Brake (VEB) activation in brake pedal
Parking brake on prop shaft

Body

Body prepared for exhaust heating
Load and Dump brake

Tires

A35D: 26,5R25
A40D: 29,5R25

Other

Air drier
Tool box

OPTIONAL EQUIPMENT A35D - A40D

(Standard on certain markets)

Safety

Fire-extinguisher and first aid kit

Service and maintenance

Tool kit with tire inflation unit
Electrical hood opening

Engine

Extra air cleaner, heavy-duty
Engine coolant pre-heater (120V or 240V)
External emergency stop
Delayed engine stop

Electrical

Work lights, roof-mounted
Work lights, rear-facing, fender-mounted
Rotating beacon, collapsible mount
Back-up alarm
Rear vision system
Anti-theft system (prevents engine start)
Headlights for left-hand traffic

Cab

Air conditioning
Armrests
Head restraint
Cable kit for cab heater (120V or 240V)
Electrically heated rear-view mirrors
Radio installation kit
Radio
Window tint film, side windows

Brakes

A35D: Fully hydraulic, forced oil-cooled wet disc brakes

Body

Body exhaust heating kit
Extra front spillguard
Overhung tailgate, wire operated
Wear plates, kit delivery
Upper side extension, 200 mm

Tires

A35D: 775/65R29
A40D: 875/65R29

External

A40D: Mudguard wideners (for 875/65R29 tires)
Rear mudflaps

Other

Synthetic hydraulic oil (biologically degradable)
Arctic oil kit

Under our policy of continual 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.

VOLVO

Construction Equipment

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Sweden 2003-04 ART
Volvo Växjö