

VOLVO TRUCKS. DRIVING PROGRESS

VOLVO FM

Quick Reference 2011



VOLVO

Volvo Trucks

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CAB

SPECIFICATIONS

	DAY CAB (L1EH1)	SLEEPER (L2H1)	GLOBETROTTER (L2H2)
Bed dimensions, lower	n/a	700 x 2000 x 160 mm	700 x 2000 x 160 mm
Bed dimensions, upper	n/a	600 x 1900 x 100 mm	700 x 1900 x 80 mm
Interior height (floor to roof)	1570 mm	1570 mm	1960 mm
Interior height (on the engine compartment)	1140 mm	1400 mm	1530 mm
Door opening angle	90°	90°	90°
Cab tilt angle	68°	68°	68°
Cab tilt mechanism	Single Ram	Single Ram	Single Ram

Four-point cab suspension: Coil springs with shock absorbers and rear air suspension, or all round air suspension.

Airflow panels: Comprehensive airflow packages for roof and sides. Available in high or low configurations.

Colours: Available in approximately 350 variants.

Driver's seat: The seat's total fore-aft adjustment scope is 190mm and 100mm vertically. The driver's seat is equipped as standard with a head restraint, reclining and adjustable backrest, height and fore aft adjustment, adjustable lumbar support and seat angle adjustment.

Passenger seat: All passenger seats are fitted as standard with a head restraint.

Bench seat: Room for two passengers and is fitted with three-point seat belts. The seat base has an inside storage compartment.

Steering wheel: 450mm diameter. Steering wheel height adjustment is 90mm and angle adjustment is 28 degrees.

Climate system: There is a choice of two climate systems to cover a wide variety of needs: Air conditioning with manual control. (CU-MCC). Air conditioning with automatic temperature control. (CU-ECC).

Audio systems: Sound System Plus: Radio, CD player, controls in the steering wheel and 8 loudspeakers.

Volvo's FM is available in three cab variations – the standard day and sleeper cabs and the optional Globetrotter.

■ Day cab (L1EH1)



■ Sleeper cab (L2H1)



■ Globetrotter cab (L2H2)



AERO KIT

■ Sleeper cab with underrun protection, air intake, airflow package



SAFETY FEATURES

ACTIVE SAFETY FEATURES (ACCIDENT AVOIDANCE)

Lane Change Support (LCS)

Lane Change Support monitors traffic/movement in the blind spot on the passenger side. If there is a vehicle in the blind spot, the driver is alerted via a visual warning light (optional).

Automatic Rain Sensor

The Automatic Rain Sensor is operated via a switch on the wiper stalk and sensitivity can be set with a choice of four different levels. Wiper speed is also adjusted in response to the truck's speed (optional).

Adaptive Cruise Control (ACC)

Adaptive Cruise Control radar uses radar and on-board computers to engage engine and wheel braking systems. ACC maintains safe distances between vehicles and helps reduce the chance of collision (optional).

Adaptive Cruise Control



PASSIVE SAFETY FEATURES (INJURY REDUCTION)

Front Underrun Protection System (FUPS)

Front Underrun Protection System helps prevent vehicles wedging under trucks and reduces impact severity on both vehicles.

3-Point Seat Belt

Seat mounted 3-point seat belt provides optimal seat belt effectiveness and enhances comfort and safety.

Seat Belt Pretensioner

The Seat Belt Pretensioner is patented impact sensing technology that tightens the belt 15cm during rapid deceleration and holds the driver tight to the seat for enhanced safety in the event of a head-on collision. It provides best results in combination with the SRS airbag as the driver is in the optimum position if the airbag is activated.

SRS Airbag

The SRS airbag is mounted in the steering wheel and works in conjunction with the seat belt and seat belt pretensioner. It provides the best possible protection for the driver in the event of a head-on collision.

Volvo Cab Strength

The cabs are crash tested beyond European (ECE29) standards. The robust safety cage provides industry leading safety.

ENGINES

SPECIFICATION	D13C (SCR)	D11C (SCR)
Horsepower range	460, 500	330, 370, 410, 450
Max power	338, 360 kW (at 1400-1800 rpm)	243, 272, 302, 332 kW (at 1600-1900 rpm)
Max torque	2300, 2500 Nm (at 1050-1400 rpm)	1600, 1750, 1950, 2150 Nm (at 950-1400 rpm)
Emissions	Euro 5 Euro 5 + EEV	Euro 5 Euro 5 + EEV (450 hp only)
Displacement	12.8 litres	10.8 litres
Stroke	158 mm	152 mm
No. of cylinders	6	6
Bore	131 mm	123 mm
Compression ratio	18.1 : 1	18.3 : 1
Economy rev range	1000-1500 rpm	1050-1500 rpm
Exhaust brake effect at 2800 rpm	170 kW	160 kW
Engine brake effect at 2300 rpm	375 kW	290 kW
Oil filters	2 full flow, 1 bypass	2 full flow, 1 bypass
Oil-change volume, including filter	33 litres	36 litres
Cooling system, total volume	38 litres	36 litres
Volvo Engine Brake	VEB+	VEB (VEB+ optional)



What is EEV?

Enhanced Environmentally-friendly Vehicle or EEV is a voluntary code adopted in Europe and consists of a software upgrade that can be made to Euro 5 (mandatory) engines. EEV further reduces emissions of smoke and particulates.

It is available through our Australian factory or can be retrofitted by your local Volvo dealer.

POWER TRANSMISSION

I-SHIFT

Splitter and range-change transmission with automatic gear changing system.

AT2612D 12-speed, top gear is a direct ratio. Dimensioned for engine torque of 2600 Nm and a gross combination mass of 70 tonnes

I-Shift is available with the following program packages: Distribution & Construction, Long Haul Fuel & Economy and Heavy GCM Control.

POWERTRONIC

Fully automated planetary transmission.

V2106PT 6-speed and dimensioned for engine torque of 2000 Nm. On 11L only.

MANUAL GEARBOXES

V2214B 14-speed splitter and range-change gearbox. 4 reverse gears. Top gear is a direct ratio. Max. torque is 2200 Nm.

V2514B 14-speed splitter and range-change gearbox. 4 reverse gears. Top gear is a direct ratio. Max. torque is 2500 Nm.

The gearboxes are factory-prepared for installation of a compact retarder, power take-off, emergency power-steering pump, oil cooler and oil temperature monitoring.



■ Volvo I-Shift

CLUTCH

CS43B-O Drag-type single-disc clutch.

CD40B-O Drag-type twin-disc clutch.

The disc linings in the O variants are free from asbestos and lead (O - Organic).

I-SHIFT PROGRAM PACKAGES

FUNCTIONS*	BASIC	DISTRIBUTION & CONSTRUCTION**	LONG HAUL & FUEL ECONOMY	HEAVY GCM CONTROL
Basic Shift Strategy	o	o	o	o
Performance Shift	o	o	o	o
Basic Gear Selection Adjustment	o	o	o	o
Gearbox Oil Temperature Monitor	o	o	o	o
Enhanced Shift Strategy		o	o	o
Launch Control		o	o	o
I-Roll		o	o	
Smart Cruise Control			o	o
Heavy Duty GCM Control				o
Available options:				
Enhanced PTO Functions	o	o	o	o
Enhanced Gear Selection Adjustment, incl. Kickdown		o	o	o
Enhanced performance – Bad roads		o	o	o

* Functions are determined and selected in consultation with your local Volvo dealer
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Explanation of the various functions

Basic Shift Strategy: Automatic selection of the right starting ratio (1st – 6th gear). The choice of starting gear is influenced by gross weight and road gradient.

Performance Shift: Gives faster and gentler changes through intelligent utilisation of the engine brake, the vehicle's clutch and a special transmission brake.

Basic Gear Selection Adjustment: Makes it possible to adjust gear selection via the gear lever's buttons during engine braking in automatic mode.

Gearbox Oil Temperature Monitor: Shows the gearbox oil's temperature in the information display.

Enhanced Shift Strategy: By interacting with EBS and ECS, starting and close quarter manoeuvring are made easier. Maximises the VEB retarder's braking effect by automatically selecting the right gear so that the engine operates at high revs. When changing gear during engine braking, the wheel brakes are activated to compensate the braking moment.

Launch Control: Optimises gear selection and EBS functions for manoeuvring at low speeds. Among other things, ensures that the Hill Start Aid function is only activated on uphill gradients.

I-Roll: Automatic engagement and disengagement of a freewheel function for the purpose of reducing fuel consumption. I-Roll is used when neither engine power nor engine braking is needed, for instance on flat roads.

Smart Cruise Control: Interacts with the vehicle's Brake Cruise and ensures that the auxiliary brakes are not activated unnecessarily. The freewheel function can thus be utilised to an even greater extent.

Heavy Duty GCM Control: Optimises gear selection for high gross combination weights, 85-180 tonnes, for certain engine/gearbox combinations.

Enhanced PTO Functions: Several functions that make power take off use easier.

Enhanced Gear Selection Adjustment incl. Kickdown: Makes it possible to adjust gear selection via the gear lever's buttons during start and when driving in automatic mode. The kickdown function selects the right gear for maximum acceleration.

Enhanced performance – Bad roads: Several functions that adapt gearchanging and aid starting off and driving on rough terrain and hilly roads.

POWER TAKE-OFFS FOR MANUAL GEARBOXES AND I-SHIFT

For powering of ancillary equipment, there is a wide range of clutch-independent and clutch-dependent power take-offs.

CLUTCH-INDEPENDENT POWER TAKE-OFF

PTOENG-R Direct-mounted at the back of the engine for direct drive of a hydraulic pump.

PTPT-D/F Intended for Powertronic and driven directly from engine via the torque converter housing. DIN coupling or connecting flange coupling.

CLUTCH-DEPENDENT POWER TAKE-OFF

PTR-FL/FH Linked by a connecting flange, choice of low-speed or high-speed.

PTR-D Low-speed with DIN coupling for direct connection of a hydraulic pump.

PTR-DM Medium-speed with DIN coupling for direct connection of a hydraulic pump.

PTRD-F High-speed with connection flange coupling for direct-mounted propshaft.

PTRD-D High-speed with dual drive. DIN coupling front and rear for direct connection of hydraulic pumps.

PTRD-D1 High-speed with dual drive. Connecting flange coupling rear and DIN coupling front.

PTR-F Low-speed with flange coupling for direct-mounted propshaft.

PTR-DH High-speed with DIN connection for direct connection of a hydraulic pump.

REAR AXLES

All rear axles have maintenance free wheel bearings.

		RATIOS		MAX TORQUE	MAX AXLE/BOGIE PRESSURE	MAX GROSS COMBINATION MASS
RS1356SV	Solo axle with single reduction of hypoid type.	3.10 : 1 3.67 : 1	2.79 : 1 3.44 : 1	2400/2800 Nm	13 tonne (axle)	56/44 tonne
RTS2370B	Tandem axle with single reduction gears of hypoid type.	2.43 : 1 2.83 : 1 3.40 : 1 4.13 : 1 5.14 : 1	2.57 : 1 3.09 : 1 3.78 : 1 4.50 : 1	3150 Nm	23 tonne (bogje)	70 tonne
RTH2610B	Tandem axle with gears of hypoid type and hub reductions.	3.34 : 1 3.76 : 1 4.55 : 1	3.46 : 1 4.12 : 1 5.41 : 1	3150 Nm	26 tonne (bogje)	100 tonne

CHASSIS

FRONT AXLES

FA-LOW: for low front axle and medium chassis heights available in 6x4 and 8x4 configurations up to 13 tonnes.

FA-HIGH: for high front axle and high chassis heights available in 6x4 configurations up to 13 tonnes.

FRONT AXLE LOADS

Tractors & Rigid 9 tonnes

Rigids - dual front axles: 8x4 13 tonnes

REAR SUSPENSION

RAD-A4: 4x2 air suspension, single reduction 13 tonnes

BOGIE	CONFIGURATION	SUSPENSION	BOGIE TYPE	BOGIE PRESSURE
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RADD-BR: for single reduction and hub reduction	6x4 8x4	Leaf springs	Parabolic	17/19/21 tonnes
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RADD-TR1: for hub reduction	6x4 8x4	Leaf springs	Conventional	23/26 tonnes
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RADD-A8: for single reduction and hub reduction	6x4 8x4	Air suspension		17/21 tonnes
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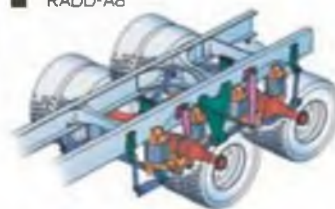
CHASSIS HEIGHT

High Approx 1080mm

Medium Approx 980mm

Tractor: 4x2 and 6x4 **Rigid:** 6x4 and 8x4

■ RADD-A8



■ RADD-BR



Fuel Tanks

Aluminium tanks, up to 1380 litre capacity depending on specification.

AdBlue Tanks

Volumes: 60, 125, 140 or 180L (model restrictions apply).

Electrical System

2 batteries with battery capacity 150 Ah, alternators available with 80A and 110A capacity with 120A as an option on the 13L engines. ADR-encapsulated wiring.

Alternators: FM11 110 (120 option)
FM13 120 (110 and 150 option)

Electrical Distribution Unit

An electrical distribution unit under the instrument panel houses all the fuses and relays. The electrical distribution unit for the body is located at foot level in front of the passenger seat.

BRAKES

Volvo EBS (Electronic Braking System) disc brakes are available with the Standard and Medium program packages. Semi-trailers also come with a Trailer package.

EBS PROGRAM PACKAGE

FUNCTION	EBS-MED	EBS-HIG	TRAILER
Anti-lock Braking System	o	o	
Brake Blending	o	o	
Brake Temperature Warning	o	o	
Diagnosis via TEA	o	o	
Diff Lock Syncro	o	o	
External Brake Demand	o	o	
Lining Wear Control	o	o	
Lining Wear Sensing	o	o	
Traction Control System	o	o	
Brake Assistant	o	o	
Diff Lock Control	o	o	
Drag Torque Control	o	o	
EBS Status Recorder	o	o	
Hill Start Aid	o	o	
Lining Wear Analysis	o	o	
Poor Brake Performance Warning	o		
Wheel Brake Monitoring		o	
Electronic Stability Program		o	
Coupling Force Control			o
Trailer Brake			o

Anti-Lock Braking System (ABS):

Prevents the brakes from locking during application.

Brake Blending: Auxiliary brakes that are activated to support the wheel brakes.

Brake Temperature Warning:

Alerts the driver to the temperature of the brakes.

Diagnosis via TEA: Diagnosis via the TEA on-board electronic system.

Diff Lock Syncro: The speed of the driven wheels is synchronised prior to engagement of the differential lock.

External Brake Demand (EBD):

External brake control via other systems.

Lining Wear Control (LWC): System to minimise brake wear, evens out wear between the different axles' brake linings.

Lining Wear Sensing (LWS): Indicates when 20% of the brake lining remains.

Traction Control System (TCS):

Anti-spin and synchronising effect - distributes traction between the driven wheels.

Brake Assistant: Panic braking assistance - increases brake pressure to cut the stopping distance.

Diff Lock Control (DLC): Automatic differential lock engagement at low speeds.

Drag Torque Control: Prevents the driven wheels from locking on a slippery surface when the accelerator pedal is released.

EBS Status Recorder: EBS status monitoring via TEA and VCADS Pro.

Hill Start Aid: The brakes are released only when sufficient engine torque has built up to get the truck off to a safe and secure start.

Poor Brake Performance Warning: Warns if retardation is too low in relation to pedal pressure.

Wheel Brake Monitoring: Continuously checks brake function.

Electronically controlled Brake System (EBS): Electronically controlled disc brakes.

Coupling Force Control (CFC): Automatic brake force allocation between tractor and trailer.

Trailer Brake: Makes it possible to carry out a safety check when switching trailers.

Electronic Stability Program (ESP): Advanced stability-enhanced system (coming mid 2009).

Conventional drum brakes vs disc brakes and disc brakes with EBS.

Rigid truck, fully laden. Stopping distance from 80km/hr.

