

# SWEDEN

## Volvo 4140 Series of 4 × 4 and 6 × 6 Cross Country Vehicles

### DEVELOPMENT

In the early 1960s the Swedish Army Material Department drew up its requirements for a new generation of tactical vehicles for the 1970s and 1980s. In 1966 Volvo was awarded the development contract for the Class 1 and 2 vehicles in the 1000 to 2500 kg range and Saab-Scania the contract for the heavier Class 3 and 4 vehicles, subsequently known as the SBA (4 × 4) and SBA (6 × 6).

Primary requirements were a high power-to-weight ratio, forward control cab, good angle of approach and departure, high ground clearance, tough suspension, chassis which could be adapted to accept a wide variety of bodies, commercial components to be used wherever possible, ease of repair and maintenance, low training requirement and a minimum total service life cost.

During the development stage it was decided to increase the payload of the 4 × 4 version to 2000 kg and of the 6 × 6 model to 2500 kg. An 8 × 6 version was built to the prototype stage but was not placed in production.

### DESCRIPTION

4 × 4 4140/4141 (or C303)

The first prototypes completed in 1966 were powered by a B-20 (94 hp) engine which was subsequently replaced by the more powerful B-30 (145 hp) engine. First deliveries were made to the Swedish Army in 1974. First civilian vehicles were completed in 1976.

Two basic models were built, the 4140 cargo and the 4141 fully enclosed, or hardtop. Both have a two-door fully enclosed cab which can be split above the waist line. The cargo model has an all-steel rear cargo area with a drop tailgate, removable bows and a tarpaulin cover. The hardtop model has a fully enclosed steel rear body with an aluminium roof, and a large door at the rear and a door in each side.

All-wheel drive is engaged by a press-button in the high range and automatically when low range is engaged. Both front and rear axles have vacuum-operated mechanical differential locks which can be engaged separately or together. The chassis consists of box side members with tubular cross-members welded into position. The chassis is torsionally stiff to avoid stressing the superstructure.

The front suspension consists of underslung semi-elliptical leaf springs carried in rubber mountings, hollow-rubber springs and double-acting telescopic shock absorbers. The rear suspension consists of overslung semi-elliptical leaf springs carried in rubber mountings, hollow-rubber springs and double-acting telescopic shock absorbers. The main brakes are

vacuum-hydraulic drum type, dual circuit, with one vacuum cylinder per circuit.

The handbrake is mechanical and acts on the propeller shaft. Optional equipment includes an air-conditioning system, electric engine heater, electric compressor with ten metres of hose for pumping tyres, PTO, protective wooden floor ribs, roof ventilator, tow hook, trailer electrical socket, Webasto engine and passenger area heater and a 2200/3000 kg capacity winch. The basic model is fitted with a thermostatically controlled heater, defroster system and a two-speed blower in the cab with a heater and two-speed blower for the rear compartment.

The C304 (4 × 4) version is almost identical to the C303 but has a wheelbase of 2.53 metres.

6 × 6 4143 (or C306)

The 6 × 6 model is based on the 4 × 4 model and has the same engine, gearbox, transfer box and cab. The

vehicle can be fitted with a variety of bodies including cargo, fully enclosed and ambulance. The cargo model has drop sides, drop tailgate, removable bows and a tarpaulin cover. The fully enclosed body version has a large door in the rear and a door in each side, and can be used for a variety of roles including radio/command.

The front suspension consists of underslung semi-elliptical leaf springs, hollow-rubber springs and double-acting telescopic shock absorbers. The rear suspension is of the double cantilever type with parabolic springs with progressively acting hollow-rubber springs and double-acting telescopic shock absorbers. The main brakes are vacuum-hydraulic drum type, with the mechanical parking brake operating on the transfer box output shaft. Optional equipment is similar to that available for the 4 × 4 version.

A 6 × 6 amphibious model with a payload of 1000 kg has been developed to the prototype stage but has not been placed in production.

### SPECIFICATIONS

Model	C303 hardtop	C304 chassis and cab	C306 chassis and cab
Cab seating	1 + 6	1 + 1	1 + 1
Configuration	4 × 4	4 × 4	6 × 6
Weight (empty)	2250 kg	1940 kg	2400 kg
(loaded)	3450 kg	3900 kg	5500 kg
Weight on front axle (loaded)	1650 kg	1800 kg	1000 kg
Weight on rear axles (loaded)	1800 kg	2100 kg	1800 kg
Max load	1200 kg	1960 kg	3100 kg
		(inc body)	(inc body)
Towed load	2500 kg	2500 kg	2500 kg
Load area	2.25 × 1.8 m	n/app	n/app
Length	4.25 m	4.28 m	5.735 m
Width	1.8 m	1.87 m	1.88 m
Height (cab)	2.13 m	2.13 m	2.13 m
(load area)	0.83 m	n/app	n/app
Ground clearance	0.386 m	0.386 m	0.386 m
Track	1.54 m	1.54 m	1.54 m
Wheelbase	2.3 m	2.53 m	2.72 m + 1.05 m
Angle of approach/departure	45°/45°	45°/45°	45°/40°
Max speed (road)	120 km/h	100 km/h	90 km/h
Fuel capacity	83 litres	125 litres	150 litres
Max gradient	100%	100%	100%
Max side slope	40%	40%	40%
Fording (without preparation)	0.7 m	0.7 m	0.7 m
Engine	Volvo B-30 in-line 6-cylinder OHV petrol developing 125 hp at 4250 rpm	all have manual gearbox with 4 forward and 1 reverse gears	
Gearbox	single dry plate	single dry plate	single dry plate
Clutch	2-speed	2-speed	2-speed
Transfer box	all cam and roller type		
Steering	5.77 m	5.73 m	8.25 m
Turning radius	8.90 × 16	8.90 × 16	8.90 × 16
Tyres	4 + 1 spare	4 + 1 spare	6 + 1 spare
Number of tyres	12 V	12 V	12 V
Electrical system	1 × 12 V, 60 Ah	1 × 12 V, 60 Ah	1 × 12 V, 60 Ah
Batteries			





*Volvo 4141 (4 × 4) fully-enclosed version*



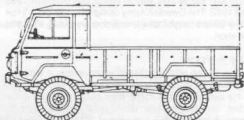
*Malaysian Army Volvo 4143 (6 × 6) cargo truck (Simon Glen)*

#### STATUS

Production complete in Sweden. In service with the Swedish Army and Malaysia (4 × 4 and 6 × 6).

#### MANUFACTURER

Volvo AB, Göteborg, Sweden.



*Volvo 4140 (4 × 4) cargo truck*

## Volvo 4151 (4 × 4) Anti-tank Vehicle

#### DESCRIPTION

The Volvo 4151 was primarily designed to succeed the Volvo L3304 as an anti-tank and reconnaissance vehicle for the Swedish Army. It was not available on the civilian market.

The vehicle shares the mechanical components with the Volvo C303 (4 × 4) cross-country vehicle with a special superstructure supplied by Hägglund in northern Sweden. This superstructure consists of a metal bodywork up to waist level, and an upper part made from canvas, which can be easily folded down when the Bofors 1110 90 mm recoilless rifle is used. When travelling the gun is lowered, but it can easily be raised for use.

The engine is mounted in the forward part of the vehicle and while travelling the crew is protected by an anti-roll bar.

#### SPECIFICATIONS

In most respects, these are similar to the C303's.

#### STATUS

Production complete. In service with the Swedish Army.

#### MANUFACTURER

Volvo AB, Göteborg, Sweden.



*Volvo 4151 (4 × 4) anti-tank vehicle with canvas top in position*