



VOLVO C30, S40 & V50

DRIVE



OWNERS MANUAL SUPPLEMENT

Quieter and cleaner



Environmental care is one of Volvo Car Corporation's core values which guides all our activities. This target-orientation has resulted in the DRIVe vehicle series.

The DRIVe concept is a collaboration of several different energy-saving functions: Start/Stop, Smart charging, Adapted power steering and Aerodynamics – all with the common task of reducing fuel consumption, which in turn contributes to reduced exhaust emissions.

These operating instructions cover the C30, S40 and V50 models.

Start/Stop



In addition to being equipped with a reliable and fuel-efficient diesel engine, this car's engine is equipped with a Start and Stop function which comes into action in the event of e.g. stationary traffic queues or waiting at traffic lights – see the detailed description on the next page.

The engine starting sequence runs so smoothly that it is barely noticeable that the engine has restarted after having been switched off for a while. The perception is that the engine has been running the whole time but with an extremely quiet and low idling speed.

Smart charging

The car's kinetic energy is used during engine braking by means of it being converted into electricity and stored in the car's battery.

Adapted power steering

Another DRIVe function is that the power steering's energy take-off is adapted according to requirements. By means of optimisation and the introduction of an energy saving function the energy take-off can be minimised on occasions where power assistance (help in turning the steering wheel) is not necessary.

Aerodynamics

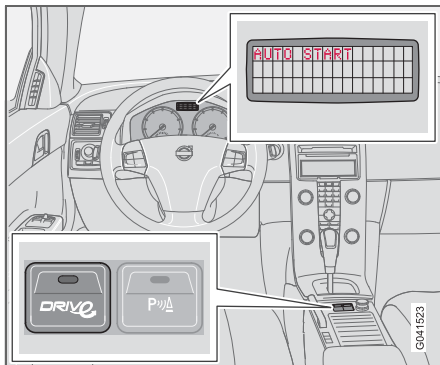
The DRIVe concept also includes a lowered chassis, front and rear spoilers with low wind resistance, as well as specially developed wheel rims¹.

¹ The range varies depending on the market.



Function and operation

Start and Stop function



On/Off button and display text **AUTO START**.

The Start/Stop system is activated automatically when the engine is started with the key. The driver is made aware of this by means of the On/Off button's green lamp being illuminated.

i NOTE

After starting with the key, and after each auto-stop, the car must first reach 5 km/h before the automatic Start/Stop function is activated – following which, certain conditions must be fulfilled, see page 4.

All the car's normal systems such as lighting, radio etc. work normally even when the engine has been stopped automatically, except that some equipment may have its function temporarily reduced, e.g. climate control fan speed or extremely high audio system volume.

Engine auto-stop

In order that the engine should stop automatically the car must be stationary:

- Set the gear lever in neutral position and release the clutch – the engine is switched off.

The display text **AUTO START** reminds – and indicates – that the engine has been stopped automatically.

Engine auto-start

The gear lever is now in the neutral position:

- Depress the clutch – the engine starts.
- Depress the accelerator pedal – the engine starts.
- On a downhill gradient: let the car roll faster than normal walking pace – the engine starts.

Following which, just engage a gear and continue the journey.

Driving style

With the Start/Stop function the driver has the opportunity for a more active environmentally-conscious driving style by being able to disengage the gear and allowing the engine to auto-stop, when this is appropriate.

Gear indicator

A significant detail in relation to environmental driving is to drive in the right gear and change gear in time.



The driver is assisted by the GSI – Gear Shift Indicator – which notifies the driver when it is most advantageous to engage the next higher or lower gear.

Indication is made with an up or down arrow in the combined instrument panel's lower information display.

Environment and economy tips

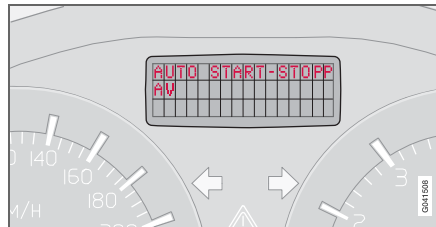
Here is some advice that reduces fuel consumption without the need to increase the travel time, or reduce the pleasure of driving.

- Space box and load carriers result in higher wind resistance, which increases fuel consumption – remove them immediately after use.

Function and operation

- Drive with the correct air pressure in the tyres (see the Section *Wheels and tyres* on page 6).
- Clear the car of unnecessary items – the more load and higher weight, the higher the fuel consumption.
- If the car is equipped with an engine block heater, always use it before cold starting – it lowers consumption and reduces emissions.
- Drive smoothly and avoid sudden braking.
- Drive in the highest possible gear – lower engine speeds result in lower fuel consumption.
- Utilise engine braking during deceleration – it generates power to start the battery at the same time.
- High speed increases consumption significantly because increased wind resistance – twice the speed increases wind resistance four times.
- Maintain the car regularly – follow Volvo's recommended service intervals.

Deactivating the Start/Stop function



The information display shows here that the Start/Stop function has been disengaged.

In some situations it may be desirable to temporarily disengage the automatic Start/Stop function – this is carried out with a press on this button.



A disengaged Start/Stop function is indicated by the information display's text message **AUTO START-STOP OFF** for about 5 seconds – while the button's lamp goes out.

The Start/Stop function is disengaged until it is reactivated with the button or until the next time the engine is started with the key.



Limitations

The engine does not auto-stop

Although the Start/Stop function is activated, the engine does not stop automatically if:

- the driver has unbuckled the seatbelt.
- the car has not stopped – however, the Start/Stop function does accept slow rolling, corresponding to a normal walking pace.
- a temporary high power take-off exists, or if the battery is heavily discharged.
- the engine does not have normal operating temperature.
- outside temperature is below 0 or above 30 °C.
- the environment in the passenger compartment differs from the preset values – indicated by the ventilation fan having a high rotation speed.
- car has reversed and reverse gear is disengaged.
- the battery's temperature exceeds 55 °C.

The engine starts automatically without driver intervention

An engine that has been stopped automatically can, in some cases, restart without the driver having decided that the journey should continue.

In the following cases, the engine starts automatically even if the driver has not depressed the clutch in order to engage a gear:

- Mist forms on the windows.
- Outside temperature is below 0 or above 30 °C.
- Battery capacity is below the minimum permitted level.
- The car rolls faster than a normal walking pace.
- Repeated pumping of the brake pedal.



WARNING

Do not open the bonnet when the engine has been stopped automatically – the engine may suddenly start automatically.

- In order to avoid auto-start with raised bonnet – first engage a gear and apply the parking brake or turn the remote control key to position 0.

The engine does not auto-start

In the following cases, the engine does not start automatically after having been stopped automatically:

- The driver's seatbelt has been unbuckled – a display text prompts the driver to start the engine using the key.
- A gear has been engaged without declutching – a display text prompts the driver to set the gear lever in neutral, in order to enable auto-start.

Involuntary engine stop

In the event that a start-up fails and the engine stops, proceed as follows:

- Depress the clutch pedal again – the engine starts automatically after the gear lever has been set in neutral position. At the same time, the information display shows the text **PUT GEAR IN NEUTRAL TO START**.

Limitations

Text message

The Start/Stop function can display several text messages on the display information for certain situations. For some of them there is a recommended action that should be performed.

Message	Info/action
AUTO START-STOP ON	Illuminates for around 5 seconds after the function has been activated.
AUTO START-STOP OFF	Illuminates for around 5 seconds after the function has been deactivated.
TURN KEY TO START	The engine will not start automatically ¹ – perform a normal start using the key.
PUT GEAR IN NEUTRAL TO START	Set the gear lever in neutral position ² .
AUTO START	The engine is ready to auto-start – waiting for declutching.
AUTO START-STOP SERVICE REQUIRED	The Start/Stop function is disengaged. Contact a workshop.

¹Occurs if the seatbelt is unbuckled after the engine has been stopped automatically, for example.

²Occurs if a gear is engaged without declutching after the engine has been stopped automatically.

If a message is not cleared after the action has been implemented then a workshop should be contacted – an authorised Volvo workshop is recommended.



Specifications

Engine

Diesel	1.6D
Engine designation ¹	D4164T
Power output (kW/rpm)	80/4000
Power output (hp/rpm)	109/4000
Torque (Nm/rpm)	240/1750
No. of cylinders	4
Bore (mm)	75
Stroke (mm)	88,3
Swept volume (litres)	1,56
Compression ratio	18,3:1

¹Engine type designation, part and manufacturing number can be read on the engine, see the location in the normal owner's manual.

Gearbox

Manual 5-speed (MTX75).

Consumption and emissions

Model		CO ₂
C30	3,8	99
S40	3,9	104
V50	3,9	104

Table symbols



: Consumption (litres/100 km)



: Emissions of carbon dioxide (g/km)

Trailer with DRIVE Start/Stop

Max weight (kg)	Braked trailer	Unbraked trailer
C30 ¹	–	–
S40	1300	650
V50	1300	700
Towball load	50	50

¹Cannot be equipped with towbar.

The car is optimised for driving without a trailer.

When driving with a trailer an increase in speed, the gradient of the road, altitude, ambient temperature, towing weight etc. may cause a certain functionality to be temporarily reduced, e.g. the climate control system's cooling capacity and engine power.

Wheels & tyres

An important detail in connection with environmentally conscious driving is to use the right type of tyres and to drive with the correct air pressure inside them.

Dimensions

When fitting new tyres, the same type and brand as the car was equipped with from the factory are recommended – they are designed for low fuel consumption.

The sizes of 195/65 R15 and 205/55 R16 generally provide slightly lower consumption than the wider variants.

Air pressure

Inadequately inflated tyres increase fuel consumption. For this reason, check the pressure in the tyres regularly.

By using so-called ECO pressure¹ fuel consumption is minimised. A certain impact on ride comfort, road noise and steering characteristics may be experienced, but this does not affect safety.

See the label with the recommended tyre pressure adjacent to the driver's door pillar.

¹The pressure recommended at maximum load.

Specifications

Batteries

The car is equipped with two 12 V batteries – one extra powerful battery for starting and one standby battery that helps during the Start/Stop function's starting sequence.

	Start	Standby
Cold start capacity, CCA ¹ (A)	760	120
Capacity (Ah)	70	8
Size ² , LxBxH (mm)	278x175x190	150x88x105

¹In accordance with the SAE standard.

²Largest possible size.

i NOTE

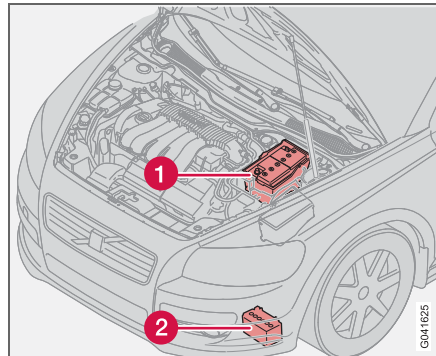
The higher the power take-off in the car (extra cooling/heating, etc.) the more the batteries must be recharged = Increased fuel consumption.

- When the battery needs charging the Start/Stop function is temporarily disengaged.

Temporarily disengaged Start/Stop function due high power take-off means:

- The engine does not auto-stop.
- The engine starts automatically¹ without the driver depressing the clutch.

Battery locations



1. Battery 2. Support battery.

The battery used for starting is described in detail in the normal owner's manual.

The standby battery is located under the left-hand headlamp and does not normally require service.

¹ Auto-start can only take place if the gear lever is in neutral position.

i IMPORTANT

In the event of the temporary connection of an external battery for starting or a battery charger, the car's negative battery terminals must **never** be used for connection – only the chassis may be used as a grounding point.

- See the owner's manual – this describes where and how the cable clamps should be fitted.

i NOTE

If the battery for starting the car has been so discharged that everything is "black" and the car, in principle, lacks all the normal electrical functions, and the engine is then started using an external battery or battery charger, then the Start/Stop function will be activated. It will then be possible to stop the engine automatically, but the Start/Stop function may fail to start the engine automatically in the event of a stop.

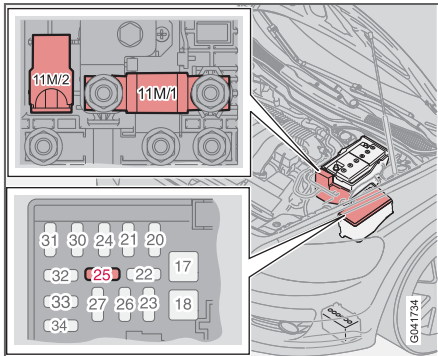
To ensure successful automatic starting after a stop, the battery must first be charged. At an outside temperature of +15 °C the battery needs to be charged for at least 1 hour. At a lower outside temperature, a charging time of 3–4 hours is recommended. The recommendation is to charge the battery with an external battery charger.

For more information on the charging the battery, see the owner's manual.



Specifications and general information

Fuses, Start/Stop function



Locations, Start/Stop fuses.

No.	Component	A
11M/1	Engine compartment, electrical distribution unit	125
11M/2	Sensor, battery monitoring	15
25	CEM, diesel engine	10

! IMPORTANT

A blown fuse may only be replaced with a fuse of the same colour and amperage.

This publication

These operating instructions are a supplement to the car's normal owner's manual.

In the event of uncertainty regarding any of the car's functions: consult the owner's manual first.

For answers to further questions, contacting a dealer or a representative of Volvo Car Corporation is recommended.

Internet

Development within environmentally friendly technologies is continuously evolving and printed information can quickly become obsolete or outdated.

We recommend visiting Volvo's Internet page, www.volvocars.com – which contains the latest and most relevant information on your car.

Changes

The specifications, design data and illustrations contained in this supplement are not binding.

We reserve the right to make changes without notice.

Volvo. for life

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