



VOLVO C30, S40 & V50

DRIVE



Supplement to owner's manual

About this supplement

This publication

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

In the event of uncertainty over any of the car's functions: First refer to the owner's manual.

For answers to further questions we recommended contact with a distributor or a representative for Volvo Car Corporation.

Internet

The development of environmentally friendly technologies is continuously evolving and printed information can quickly become obsolete or out-of-date.

We recommend a visit to Volvo's website www.volvocars.com - which has the latest and most up-to-date information about your car.

Changes

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

We reserve the right to make modifications without prior notice.

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General

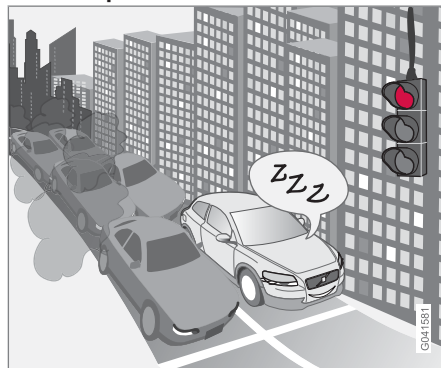
Quieter and cleaner



Environmental care is one of Volvo Car Corporation's core values and it influences all of our operations. This target-orientation has resulted in the DRIVe vehicle series whose concept consists of an interaction between several separate energy-saving functions, all with the common purpose 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's automatic restart sequence runs so smoothly that it is barely noticeable that the engine has actually been switched off. The perception is that the engine has been running the whole time but with an extremely quiet and low idling speed.

With the Start/Stop DRIVe 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.

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.

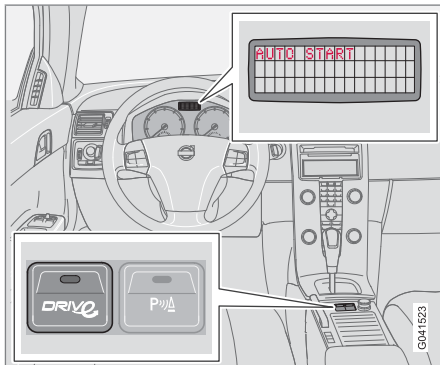
Aerodynamics

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 illuminating.

i NOTE

After starting on the key and every auto stop, the car first has to reach 5 km/h before the automatic Start/Stop function is reactivated. After that, certain conditions also have to be met; for these, see the heading "The engine does not auto-stop".

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

With the gear lever in neutral position:

- Depress the clutch pedal - the engine starts.
- or
- Depress the accelerator pedal - the engine starts.

If the car is on a downhill gradient:

- Release the foot brake and let the car roll faster than normal walking pace - the engine starts.

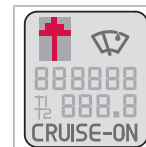
After starting the engine:

- Engage a suitable gear and continue the journey.

Driving style

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 an indicator which notifies the driver when it is most advantageous to engage the next higher or lower gear - GSI (Gear Shift Indicator).

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.

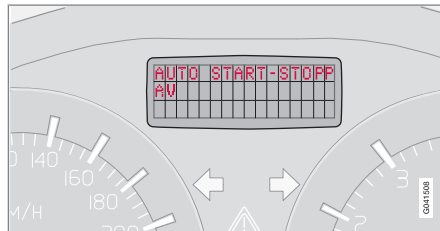
- Space box and load carriers result in higher wind resistance, which increases fuel consumption - remove them immediately after use.
- Drive with the correct air pressure in the tyres (see the section "Wheels and tyres").



Function and operation

- 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 the battery used for starting at the same time.
- High speed increases consumption significantly because of increased wind resistance - twice the speed increases wind resistance four times.
- Service 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.

Daytime running lights during daytime - DRL

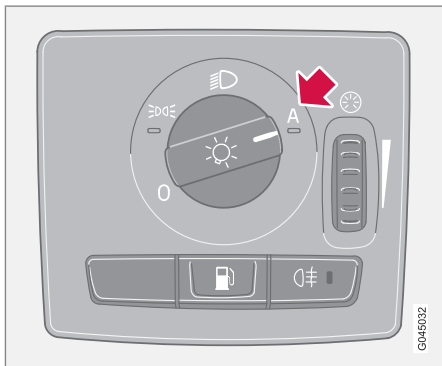
In order to save fuel the daytime running lights (Daytime Running Light) can be selected during the daytime, instead of the more energy-intensive dipped beam. The daytime running lights mounted in the spoiler work with bright and low-power diode technology.



NOTE

To achieve minimal energy consumption, the rear lights are also switched off when switching automatically from dipped beam to DRLs.

Function and operation



Position A provides automatic daytime running lights during daytime.

With the headlamp switch in position **A** the daytime running lights are automatically activated during daytime. This is regulated by a light sensor which switches from daytime running lights to the headlamps' dipped beam at twilight or when daylight is too weak.

**WARNING**

This system help to save energy - it cannot determine in all situations when daylight is too weak or sufficiently strong, e.g. in mist and rain.

The driver is always responsible for ensuring that the car is driven with its lights in a correct state and in accordance with applicable traffic regulations.



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.
- battery capacity is below the minimum permitted level.
- 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.
- the car has reversed and reverse gear is disengaged.
- battery temperature is below 0 °C or above 55 °C.

The engine auto-starts without driver intervention

An auto-stopped engine may restart in certain cases without the driver having decided that the journey should continue.

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

- Misting forms on the windows.
- Outside temperature is below 0 or above 30 °C.
- There is a temporarily high current take-off or battery capacity has dropped to the minimum permitted level.
- The car is rolling faster than the equivalent normal walking pace.
- Repeated pumping of the brake pedal.



WARNING

Do not open the bonnet when the engine has auto-stopped - the engine may suddenly auto-start. In order to avoid auto-starting with raised bonnet:

- First engage a gear and apply the parking brake or take the remote control key from the ignition switch.

The engine does not auto-start

In the following cases the engine does not auto-start after having auto-stopped:

- The driver's seatbelt buckle has been opened - a display text prompts the driver to start the engine normally.
- A gear is engaged without declutching - a display text prompts the driver to set the gear lever in neutral position 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. Prior to this the information display showed the text **PUT GEAR IN NEUTRAL TO START**

Text message

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

Limitations

Message	
AUTO START-STOP ON	Illuminates for about 5 seconds after the function has been activated.
AUTO START-STOP OFF	Illuminates for about 5 seconds after the function has been deactivated.
TURN KEY TO START	The engine will not start automatically ^A - perform a normal start using the key.
PUT GEAR IN NEUTRAL TO START	Set the gear lever in neutral position ^B .
DEPRESS CLUTCH PEDAL TO 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.

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

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

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



Specifications

Engine

Diesel	D2
Engine designation ^A	D4162T
Output (kW/rpm)	84/3600
Output (hp/rpm)	115/3600
Torque (Nm/rpm)	270/1750-2500
No. of cylinders	4
Bore (mm)	75
Stroke (mm)	88.3

Diesel	D2
Swept volume (litres)	1.56
Compression ratio	16.0:1

^A The engine type designation, component and serial numbers can be read on the engine, for location see the normal owner's manual.

Gearbox

Manual 6-speed (B6).

Trailer with DRIVE Start/Stop

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

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.

Specifications

Consumption and emissions





Model	A		B		C	
	CO ₂		CO ₂		CO ₂	
C30	112	4.3	92	3.5	99	3.8
S40	112	4.3	92	3.5	99	3.8
V50	112	4.3	92	3.5	99	3.8

Table symbols

 : Emissions of carbon dioxide (g/km)

 : Consumption (litres/100 km)

A = city driving

B = driving on main roads

C = combined driving

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 195/65 R15 and 205/55 R16 dimensions generally provide a slightly lower consumption than 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 decal with the recommended tyre pressure adjacent to the driver's door pillar.

¹ The pressure recommended at maximum load.



Specifications

Batteries

The car is equipped with two 12 V batteries - an extra heavy-duty battery for starting and a support battery which assists the Start/Stop function's starting sequence.

Battery	Start	Support
Cold start capacity, CCA ^A (A)	760	120
Capacity (Ah)	70	8
Size ^B , L×W×H (mm)	278×175×190	150×88×105

^A In accordance with the SAE standard.

^B Largest possible size.

NOTE

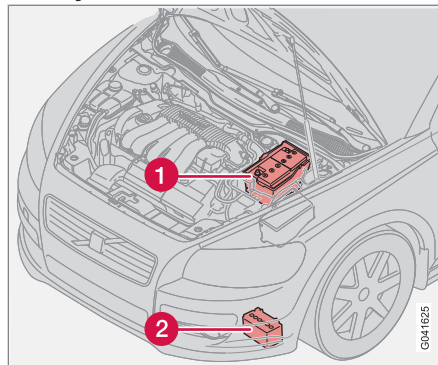
The higher the current take-off in the car (extra cooling/heating, etc.) the more the batteries must be charged = increased fuel consumption.

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

Temporarily disconnected Start/Stop function due to high current take-off means:

- The engine does not auto-stop.
- The engine starts automatically² 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 support battery is located under the left-hand headlamp and does not normally require service.

IMPORTANT

If the following instruction is not observed then the Start/Stop function may cease to work after the temporary connection of an external battery or battery charger:

- The negative battery terminal on the car's battery must **never** be used for connecting an external battery or battery charger - only the **car chassis** may be used as the grounding point.

See the normal owner's manual section "Start assistance" in "Starting and driving" - where there is a description of how the cable clamps must be fitted.

² Auto-start can only take place if the gear lever is in neutral position.

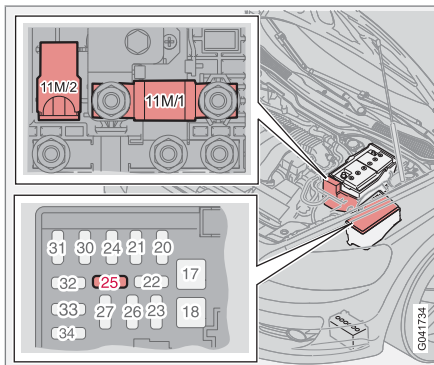
i NOTE

If the battery has become so discharged that everything is "black" and in principle the car does not have all the normal electrical functions and the engine is subsequently started using an external battery or battery charger, then the Start/Stop function will be activated. It will then be possible for the engine to be auto-stopped but in the event of an auto-stop the Start/Stop function may fail to auto-start the engine due to inadequate capacity in the battery.

The battery must first be charged in order to ensure a successful auto-start after an auto-stop. 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 that the battery is charged using an external battery charger.

If this is not possible then the recommendation is to temporarily deactivate the function until the battery has been adequately recharged.

For more information about recharging the battery - see the normal owner's manual section "Battery" in the chapter "Maintenance and service".

Fuses

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.



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