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VOLVO

NEW CAR FEATURES 0420

SECTIONS 0 - 9
TECHNICAL PRESENTATION
S40, V50, S60, V70, XC70, S80, XC90

VCM COMPETENCE DEVELOPMENT

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S60



V70



XC70


Exterior, interior - S60, V70, XC70, S80, XC90

External modifications – S60, V70

- New design grille/front section/front bumper – *not applicable to R-cars*.
  The grille is a different design depending on the model, this is to emphasise the different characters of the models.
- New design rear bumper.
  New design exhaust end pipe – *only cars with 5-cylinder petrol engines*.
- New projector headlamps, both halogen and Bi-Xenon - *not applicable to R-cars*.
  The headlamp casing has different colours depending on model – black for S60 and silver grey for V70.
  The headlamp lens is clear, made of plastic and cleaning is by high-pressure washing.
- New rear lamps with clear lens.
  The rear lamps for the V70 have 4 LEDs as rear side marker lights.
- Options – *not applicable to R-cars*.
  Colour matched spoilers and lower side mouldings. If this is selected then chrome inserts can also be specified front and rear.
- Colour matching of more parts – *only R-cars*.
  The additional parts are corner mouldings on bumpers, side, door and sill mouldings.

External modifications – XC70

- New grille design.
- New headlamps and rear lamps– as for V70.
- New skid plates front and rear.
  The skid plates are now standard.
- New colour option for bumpers, wheel housing mouldings and side mouldings.
  The blue colour has been discontinued and is replaced by a grey colour ("Slate Grey").
- Roof rails in brushed aluminium.

Miscellaneous

Six new aluminium rims

The aluminium rims are adapted for different models, to emphasis the character of the different models.

The rims used for each model can vary depending on variant and market.

Five new colours

Some of the colours can only be obtained for certain models, in addition the total colour programme may vary depending on market. For more information on colour programme see the sales material for each market.

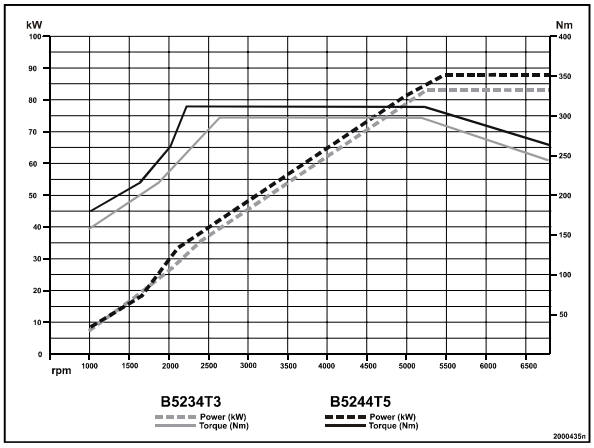
Colour code	Colour
465	Cedar Green, pearl
466	Barents Blue, pearl
467	Magic Blue, pearl
468	Lava Sand, pearl
469	Lunar Gold, pearl

Interior modifications – S60, V70, XC70

- Modified centre console.
- New tunnel console with cup holder and multi-functional armrest (one/two cup holders, table, compartment etc). On the S60, V70 the front compartment is covered by a roll-front. The XC70 has an open front compartment and a grab rail of real aluminium.
- Option – new rear centre armrest with integral cup holder.
- Option now also for V70 - "Space Ball" gear lever.
- Option – insert in door panels etc. There are now three different inserts to choose from - walnut (genuine wood) and fine patterned light and dark aluminium.
- New foil on the top of the instrument panel and door panels (same type of film used on the XC90). The foil raises the impression of quality and also reduces reflections in the windscreen.
- Textile upholstery on A-pillar panels and on sun visors.
- Improved design of inner door handles.
- New design of front seats.
  The controls for adjusting seats are similar to the S40/V50, i.e. with "pump levers" on manual seats for height adjustment and angling the cushion. Lower height position is the same level as before but the upper height position is 12 mm higher.
  The head restraints are slightly narrower than before, this is to provide a better view both back and forward.
- Some new upholstery alternatives.
- Auto-up function standard for front passenger door window.
- 12V power outlet in rear section of tunnel console as standard.

Section 2 Engine - S60, V70, XC70, S80, XC90

B5244T5, new engine version – S60, V70



B5244T5 is based on and replaces engine B5234T3. The engine code is 54.

Compared with the B5234T3 the B5244T5 has:

- Higher output (+ over 7 hp).
- Higher torque (+ 20 Nm).
- Lower fuel consumption (approx. 0.1 l/100 km).
- Sportier throttle characteristics.
- Faster response to accelerator pedal application.

Performance improvements have mainly been obtained by means of:

- Increased cylinder volume.
- New cylinder head, turbocharger and manifold - same components as for the R engine.
- New air filter and housing and new charge air pipe.
  The air filter and housing are the same components used for the R engine. The charge air pipe has the same route as on the R but is made of plastic.
- Adapted software in ECM.

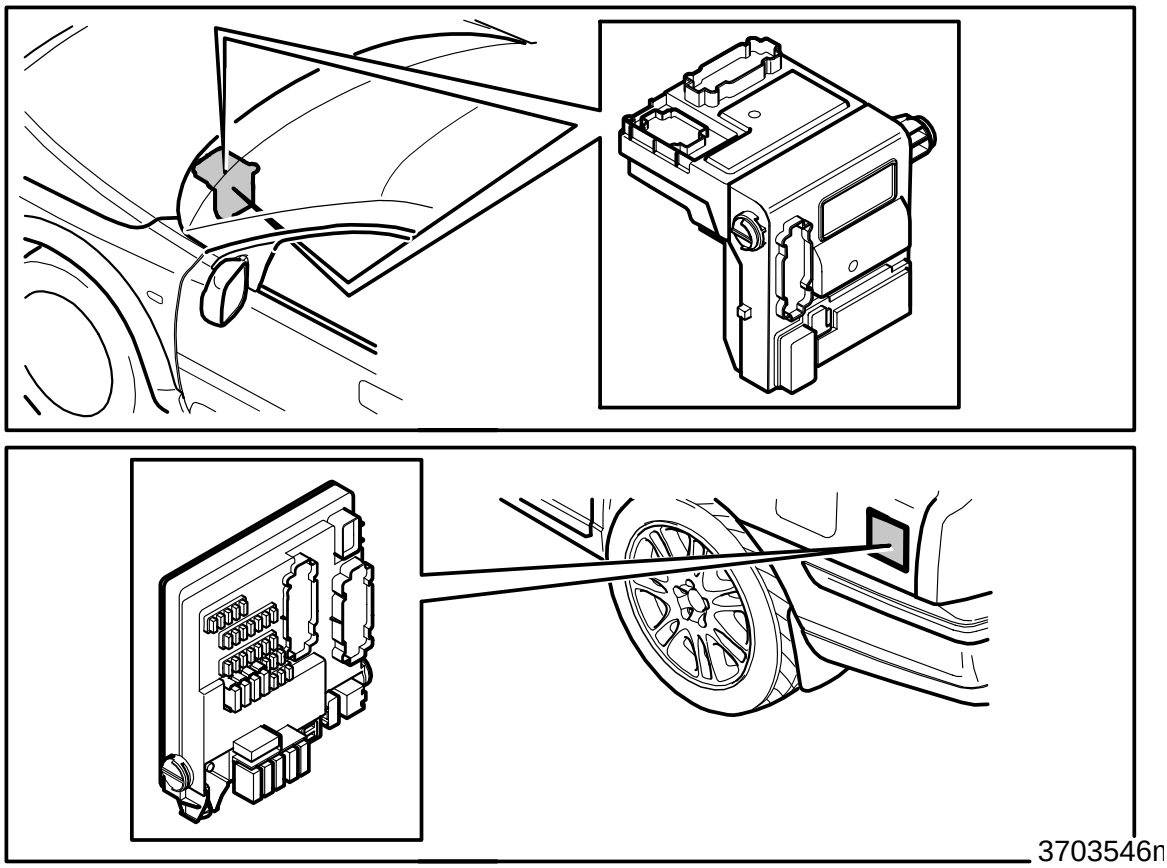
Other modifications in connection with the introduction of the B5244T5

- Larger front brakes – only for Europe.
  Brake discs with bigger diameter - 316 mm (previously 286 mm).
  Larger brake caliper – as used for the XC90.
- Manual gearbox M66W replaces M56L.
  W = Wide. W is designed for cars with petrol engine, fuel economy and driveability have been prioritised with the selection of ratios.

Modifications to other engine versions

Engine version B5204T5

- New cylinder head (same cylinder head as for the R engine).



Section 3 Electrical system - S60, V70, XC70, S80, XC90

Electrical system - new architecture

New version of CEM and REM

- Faster (new processors), more robust version, higher quality and lower production cost.
- Higher speed on the CAN high-speed network – now 500 kbps, previously 250 kbps.
- All diagnostic communication between VADIS and the car takes place as before via the CEM but now only via the CAN high-speed network. *Introduced due to legal requirements*.
- There are no longer any "loose" relays in the CEM or REM – reduced risk of contact problems.
  Several relays have been replaced by FET transistors and other relays are soldered within the CEM and REM. Consequently they cannot be replaced separately.
  FET = Field Effect Transistor.
- Main responsibility for alarm functions has been moved from the CEM to the REM.
  Alarm activation causes are therefore now read from the REM.
- The CEM now has two connectors. One connected from the engine compartment and one connected from the passenger compartment.
- New adapters are required to connect the CEM and/or the REM to the break-out box.

New version of SWM and SAS

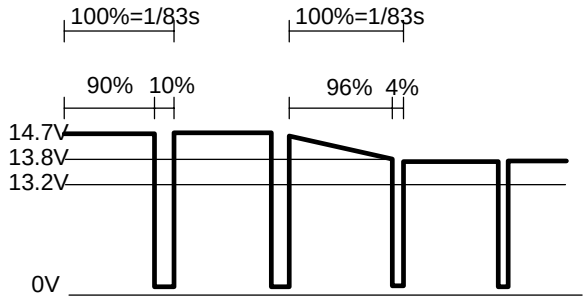
- The SWM and SAS are now integrated into one unit.
- The SWM section is connected to and communicates with the CEM via a LIN bus.
  The SAS section is connected to the high-speed network.

New version of DDM and PDM

- New hardware with new processors and new adapted software.

PWM control of voltage feed to lamps

- Introduced to increase the service life of the lamps.
- The lamps controlled by a PWM signal are parking lights, brake lights, direction indicators and dipped beam.



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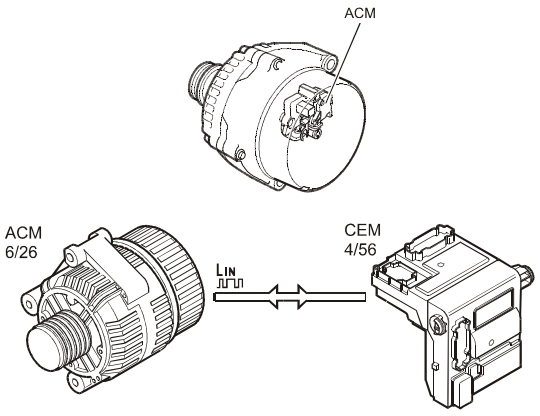
The voltage to the lamps is limited by FET transistors.
The output signal has a fixed frequency of 83 Hz but the pulse ratio varies depending on the system voltage. This way the voltage to the lamps is limited to max. approx. 13.2 V.
The FET transistors also operate as automatic fuses. I.e. they break the circuit in the event of a short circuit and automatically reset when the short circuit has been rectified.

Charging system, new strategy – all 5 and 6 cylinder engines



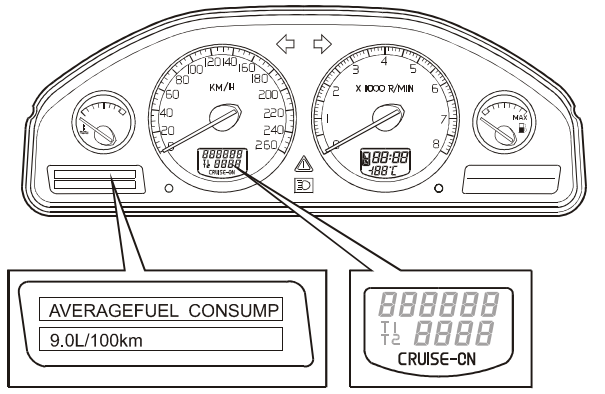
3200177m

Within the alternator is a control module (ACM = Alternator Control Module) which is controlled by the CEM via a LIN bus.
The CEM calculates appropriate charging voltage from the temperature of the battery. Included in the calculation are parameters such as outside temperature and running time ("radiant heat from the exhaust system").
As before, the alternator starts to supply current a couple of seconds after the engine has been started. Following which the charging is increased to the level required.

If there is no communication with the ACM

- After starting the alternator first charges at an engine speed of approx. 2100 rpm. In addition, the charging does not follow a charging curve but the alternator provides either 0% or 100% of its capacity.
- Fault tracing on the ACM and the communication with the CEM can be performed with VADIS via the CEM.
- The ACM can be replaced separately. A software download is not required after replacement.

Combined instrument panel



3801133m

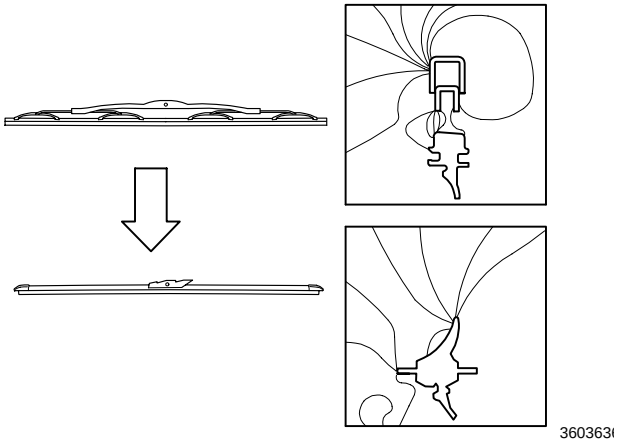
Trip computer

Trip computer is now standard for all models.
Note: *Not for Bi-Fuel cars.*

Cruise control – new text information

The text "CRUISE" lights up as before when the switch is set to the ON position.
What is new is that when the function is activated – by pressing "+", "-" or "RESUME" – in addition the text "ON" lights up.

Wipers, washing, rain sensor



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Low flat windscreen wipers

Same version as previously used on the S80 (2004-) and S40/V50 is now introduced on all models.
Also includes new wiper arms.

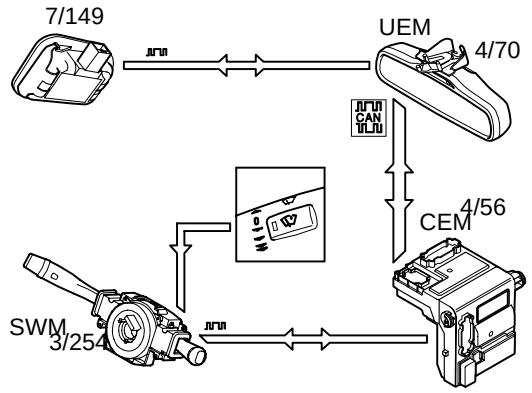
Washing, new logic – S60, V70, XC70

These cars now have high-pressure headlamp washing. In connection with this the volume of the washing fluid reservoir has been increased from 4.5 to 6.4 litres.

In addition, the logic for headlamp washing has been modified.

- Headlamp washing takes place when the washer lever is actuated for more than 0.4 seconds. A shorter time only activates windscreen washing.
- If the lever is actuated again within 10 minutes then only windscreen washing is activated.
- If the lever is actuated more than 5 times within 10 minutes then both windscreen and headlamp washing is activated. The counter is reset to zero after 10 minutes of inactivity.

The S80, S60R and V70R have kept the previous headlamp wiper and washer system.

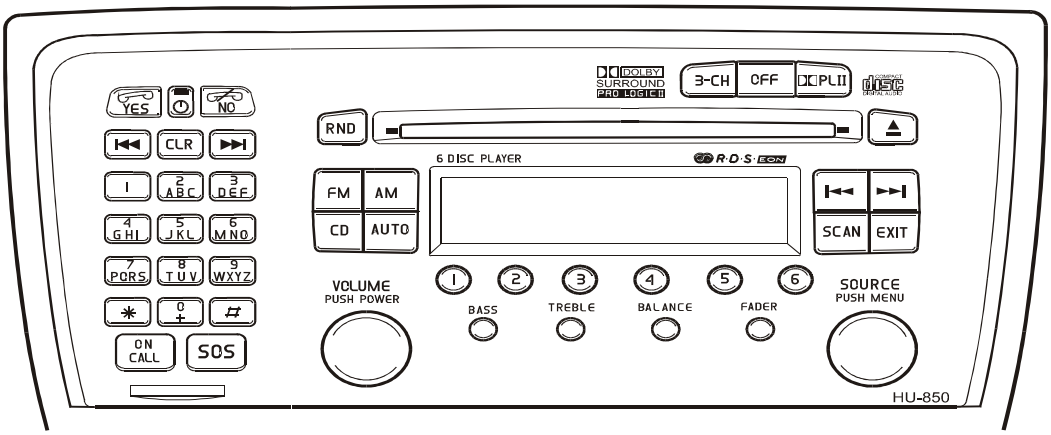


Rain sensor, modified functionality

The rain sensor is now activated by a button in the wiper lever. A green LED in the button indicates that the rain sensor is activated.
The sensitivity is set as before using the ring on the wiper lever.
In addition, when the rain sensor is activated, single wiper sweeps can be manually activated by pressing the wiper lever up.

The rain sensor can be deactivated in 5 different ways:

1. Press the button in the wiper lever.
2. Move the wiper lever to the intermittent, low or high speed position.
3. Turn the ignition key to position 1 and leave it in this position for more than 5 minutes.
   Note: If it rains the rain sensor will remain activated and will be deactivated after 5 minutes of inactivity.
4. Turn the ignition key to position 0 and leave it in this position for more than 5 minutes.
5. Take out the ignition key.



New audio units

More logical functions, easier to understand and use.

HU-X50 (450 + 650 + 850)

- Global radio receiver = no requirement for downloading software for adaptation to market specific frequency steps.
  The radio receives information on the current market via the car configuration which is stored in the CEM.
- Prepared for radio reception via Sirius satellite system (only valid for USA).
- Buttons for function selection to the left of the text window.
  FM, AM, Tape and AUTO for HU-450.
  FM, AM, CD and AUTO for HU-650 and HU-850.
- Menu selection is moved to right-hand knob control.

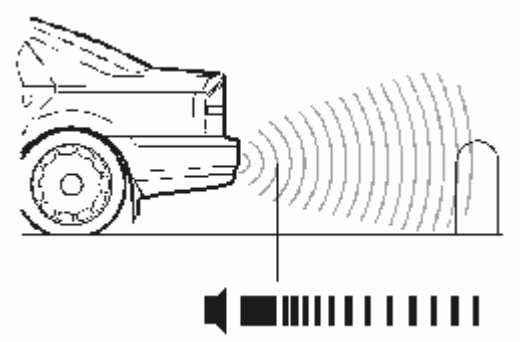
HU-650

- Cassette player replaced by CD player.
- 6 buttons for storing and selecting stored stations.
  Total 18 FM and 18 AM stations can be stored under each button - *see text under HU-850*.

HU-850

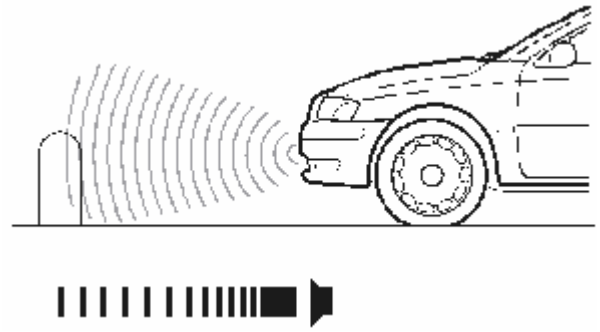
- The CD changer has been upgraded to a 6 disk changer.
  If an external 10 disk changer is connected then this is selected by a second press on the "CD" button.
- 6 buttons for storing and selecting stored stations.
  By pressing the "FM" button several times "FM1", "FM2" and "FM3" can be selected. For each one of these, 6 stations can be stored and selected. The same applies for the "AM" button.

Parking Assistance System (PAS)



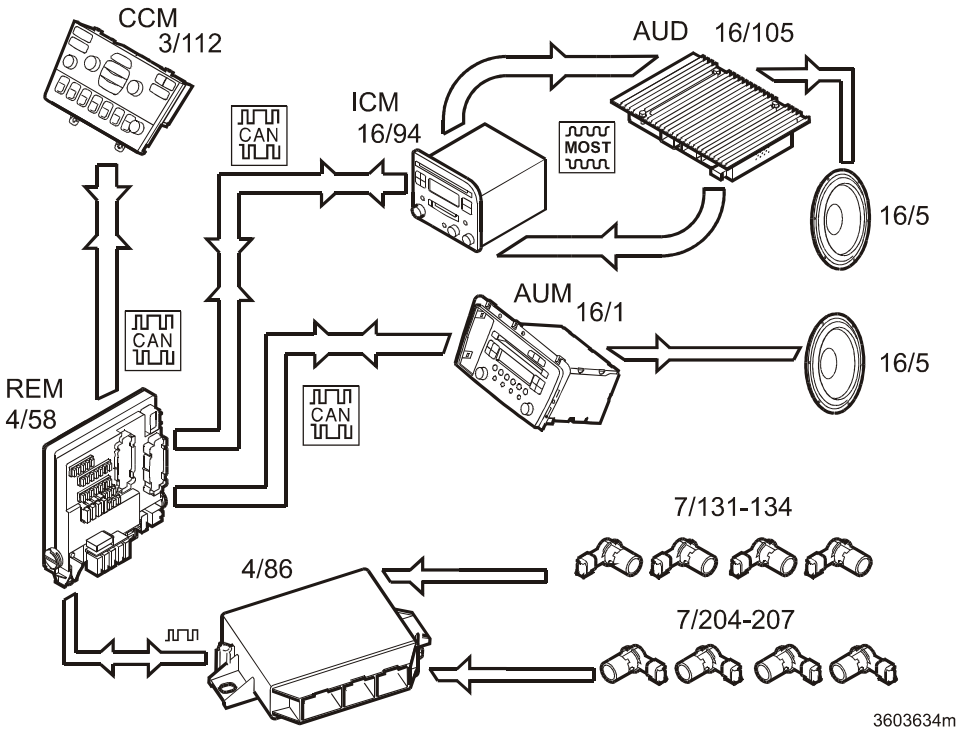
PAS - rear

The system is now an option for all models.
If necessary, PAS rear can be switched off with a switch in the CCM. If the car also has PAS front then this is switched off at the same time.
PAS – rear was previously only available as an option for the S80 and XC90.



PAS - front

Now available as an accessory for all models.
PAS front can only be fitted on cars which have PAS rear. The sensors are connected to the same control module –PAM (Parking Assistance Module).



Section 7 Suspension, wheels - S60, V70, XC70, S80, XC90

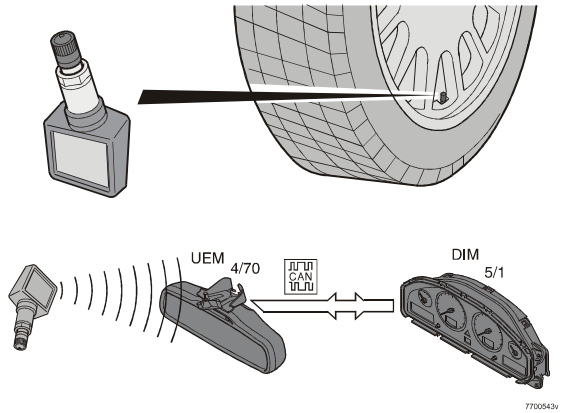
Suspension

Active chassis – Four C

Four C is now introduced as an option also for S60, V70 and XC70.
The system has two settings – COMFORT and SPORT. The settings are selected using a switch in the CCM panel.
The same type of system exists for the S80.

Wheels and tyres

Tyre Pressure Monitoring System (TPMS) - *Only for XC90 USA*



In each wheel is a pressure sensor which is integrated with the air valve (the valve stem is aluminium coloured, on a normal valve the stem is black).
The sensor is activated by an integral accelerometer at speeds above 40 km/h. This then transmits information on tyre pressure, via radio waves, to the UEM.
If the pressure is 25 % lower than the stored reference value then the UEM sends a request to the DIM to display a text message to inform the driver.

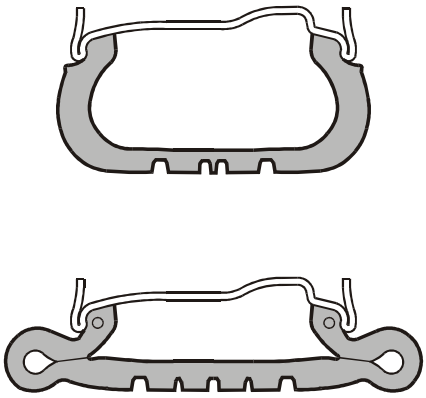
The sensor is driven by an integral battery with an estimated service life of 10 years. The battery cannot be replaced separately and in the event of low battery voltage the complete sensor must be replaced.

The value for the current battery voltage is included in the information the sensor transmits to the UEM. If the voltage is too low then a fault code is stored and the driver is alerted via a text message in the DIM.

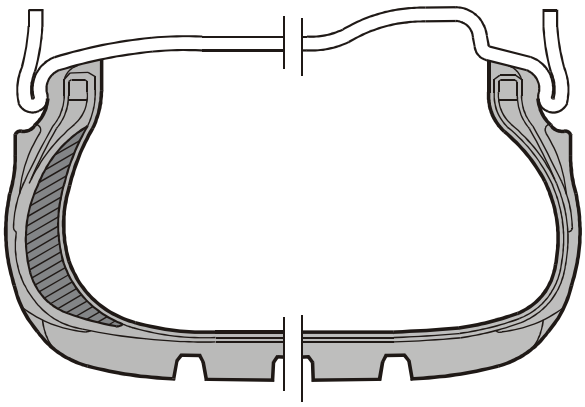
The function of the sensors can be checked when the car is stationary using a diagnostic function in VADIS and a special tool which activates the sensors.

Self Supporting Tyres (SST) - Option and only for S60, V70 and S80 USA

Cannot be specified together with Four C!



Punctured SST tyre
Punctured normal tyre



SST tyre ***Normal tyre***

The tyre has reinforced side walls and is fitted on a specially shaped rim – ORESTES 17".
The ORESTES rim can also be used for normal tyres, but SST tyres must not be fitted on normal rims.

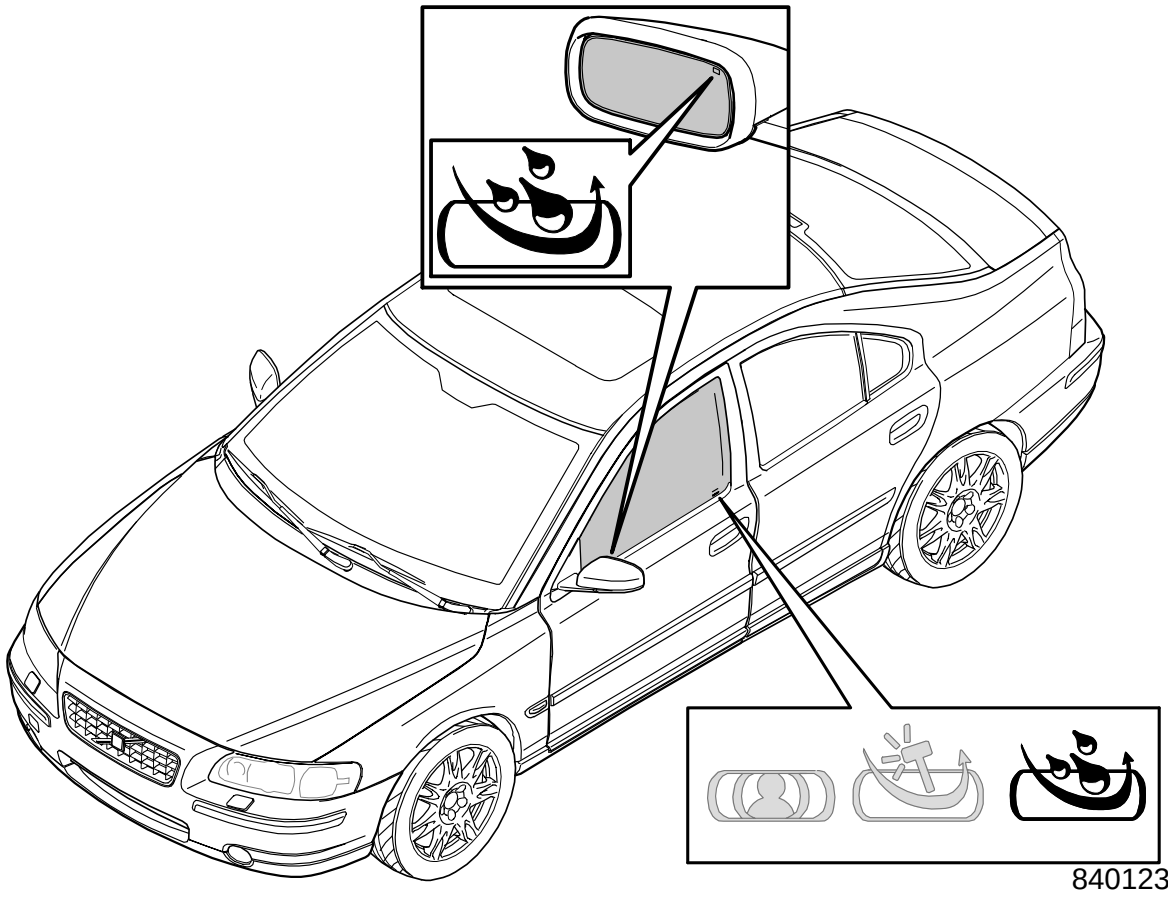
Together the tyre and rim mean that the car can also be driven with a punctured tyre.

However, on a deflated tyre the maximum speed is 80 km/h and the driving distance limited depending on load:

- 1-3 passengers – driving distance max. 160 km.
- Fully laden car – driving distance max. 80 km.

The driving characteristics with a deflated tyre are almost equivalent to those with an inflated tyre. For this reason cars with SST always have TPMS in addition, which informs the driver in the event of low pressure in a tyre.

A punctured SST tyre must always be replaced.
Note: An air valve with a sensor takes more space inside the tyre than a normal air valve. When replacing tyre make sure that the sensor is not damaged.



Section 8 Body and interior equipment - S60, V70, XC70, S80, XC90

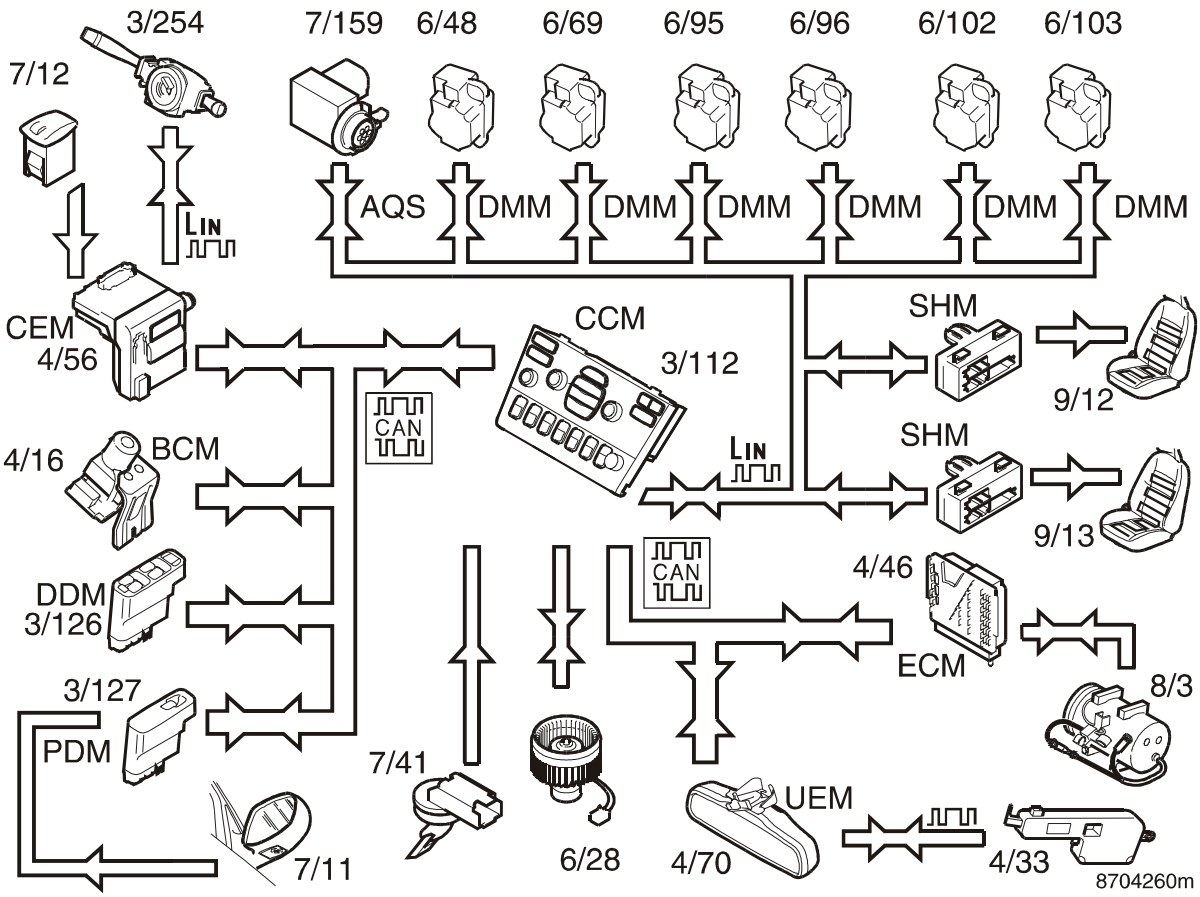
Water Repellent Glass (WRG)

WRG – front side windows

- Accessory, only in combination with laminated windows.
  Cannot be obtained together with tinted windows on the XC90.
- Windows with WRG are marked with a "see-through" symbol.
- The windows are surface treated with a water-repellent agent.
  The surface treatment means that the water is bound up into small drops which can easily run off/be blown off by the wind.
  How long the effect lasts varies depending on wear and external influences (detergent, washing method, ice scraping etc.).
- A kit for treatment is available for service. This treatment is estimated to last at least 1 year.

WRG – door mirrors

- Included as standard for most versions of door mirrors. Can be ordered as an option for others.
- Mirrors with WRG are marked with a "drop" symbol.
- With normal wear the surface treatment/effect is estimated to last the whole service life of the car.



Climate control

LIN communication

Basically same solution as used on the S40/V50.

- Flap motors (DMM), air quality sensor (AQS) and control modules for electrically heated seats (SHM) are in a new version. They are connected to and communicate with the CCM via two LIN buses.
- The function of the LIN buses can be checked via a command in VADIS vehicle communication.
- DMM must be identified by the CCM:
  - after downloading new software to CCM.
  - after replacing a DMM.
  Identification is started via a command in VADIS vehicle communication.

Flap motors (DMM)

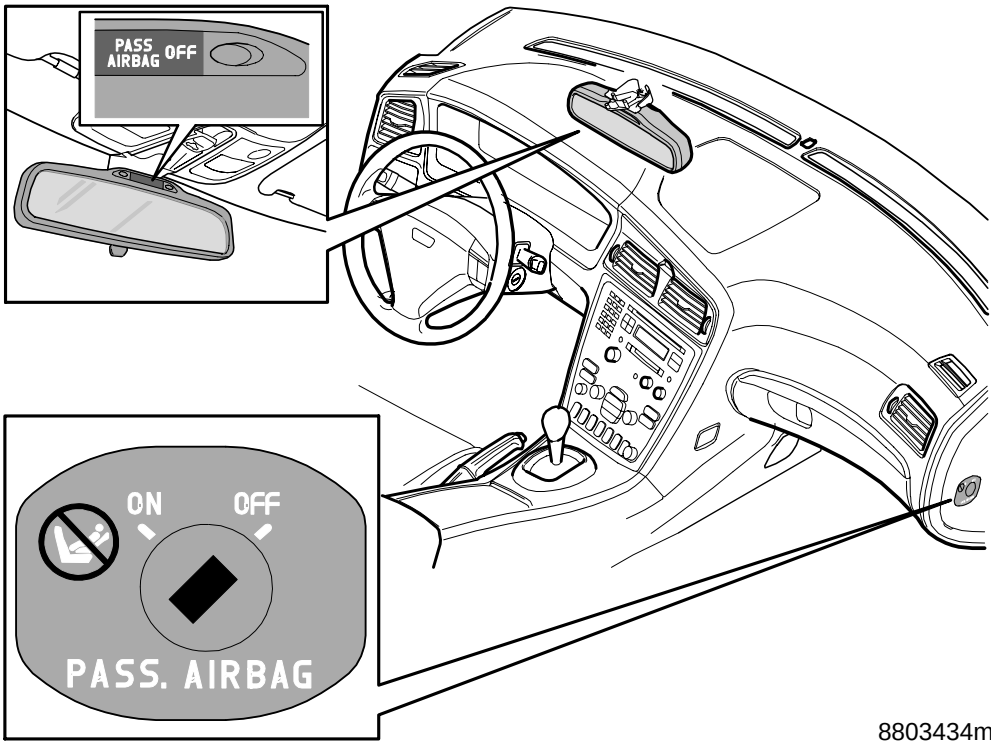
DMM is available in two variants with different shape of the motor axle. Also different arms are used depending on location of DMM.

When replacing DMM it is important to use the correct DMM and the correct arms.

Sun sensor and twilight sensor

Same solution which is used on the S40/V50.

- The twilight sensor is now located in the same housing as the sun sensor.
- Both sensors are connected to the CEM.

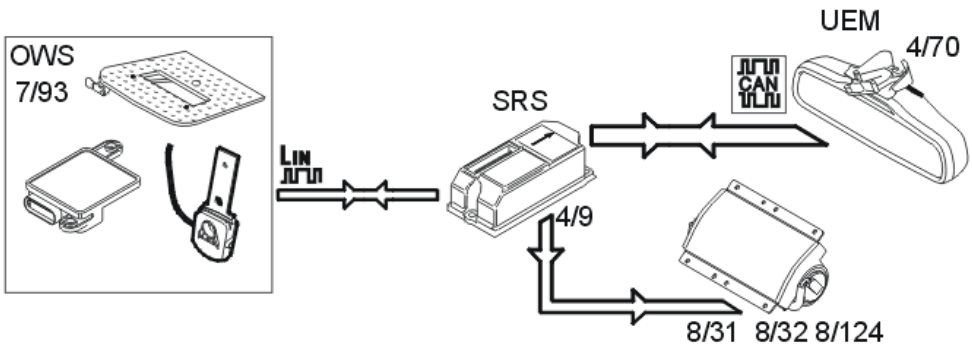


Safety systems

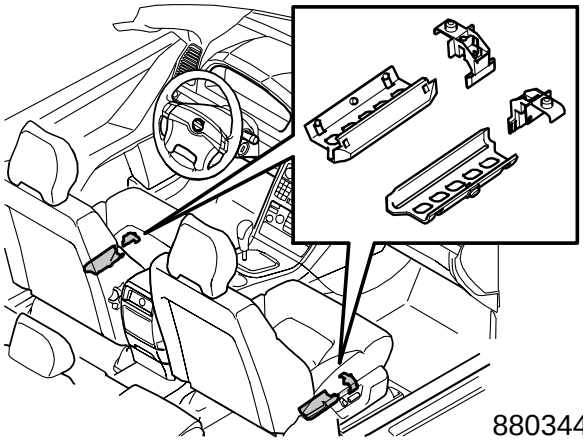
Passenger Airbag Cut Off Switch (PACOS) – not USA/CDN

- The passenger airbag can be disengaged/engaged with the switch as required.
- The switch is located in the end of the dashboard on the passenger side. Consequently it is accessible when the door is open. The normal ignition key is used to reset the switch.
- Airbag status – ON/OFF – is indicated by the position of the switch.
  In addition, a disengaged airbag is indicated via warning text in the interior rear view mirror.

Occupant Weight Sensor (OWS) – V70, XC70 and XC90 for USA/CDN

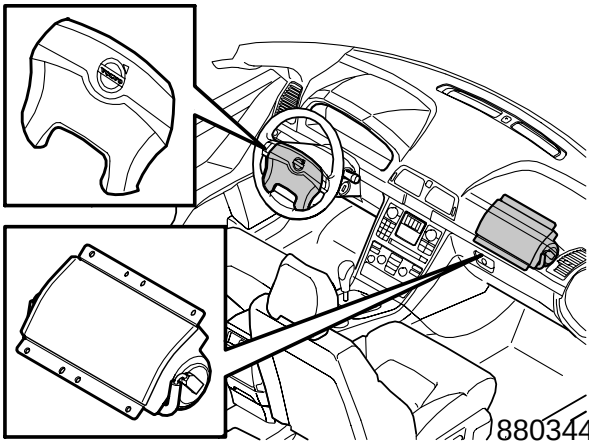


- OWS for automatic engagement/disengagement of passenger airbag.
- In principle the same version used for the S40/V50. The differences are:
  - the communication between the OWS and the SRS takes place via a LIN bus.
  - a disengaged airbag is indicated via a warning text in the interior rear view mirror.



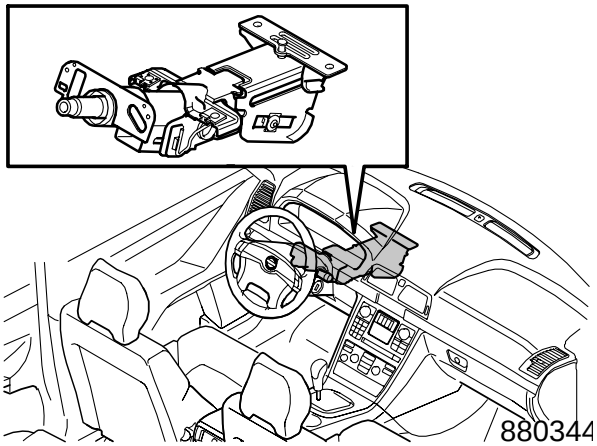
Seat position sensor – XC90 USA/CDN

Hall sensor, one under each front seat, which senses the position of the seat.
The sensors are connected to the CEM. The information is sent via the CAN network to the SRS control module. The SRS adapts the function of the airbags based on the "seats' positions".
The same type of solution and function as on the S40/V50.



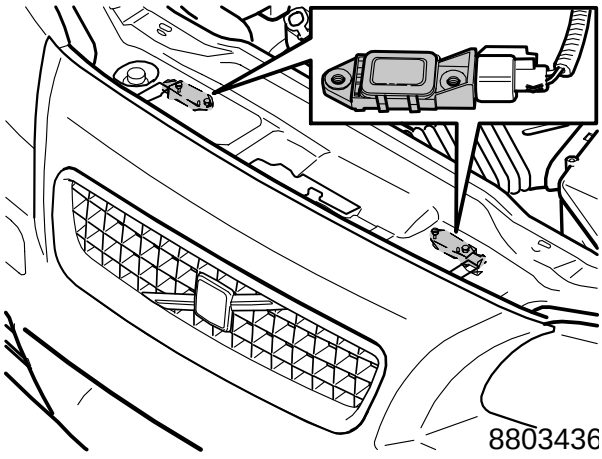
Airbags with 3 stages – XC90 USA/CDN

Applies to both driver and passenger airbag.
The first two stages are the same as with previous versions.
The third stage is also pyrotechnical and is controlled by the SRS control module. When stage 3 is activated a valve on the airbag is opened, this means that the airbag pressure/volume is reduced.
The SRS determines when stage 3 shall be activated based on information from:
- the OWS.
- seat position sensor.
- impact sensor.



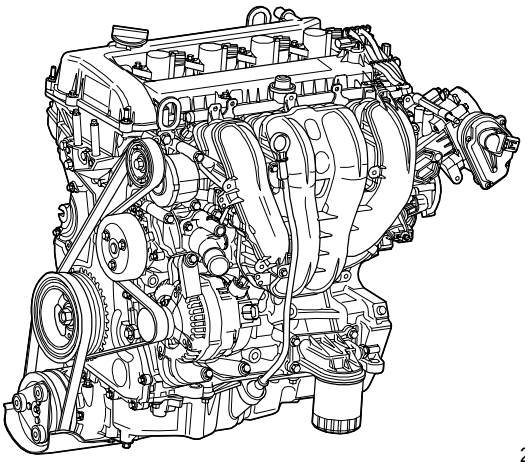
Adaptive steering column – XC90 USA/CDN

There is a pyrotechnical charge in the steering column, controlled via the SRS control module.
When the charge is deployed the force required to deform the steering column is reduced. This reduces the force against the chest.
The same type of solution and function as on the S40/V50.



Front impact sensors – V70 and XC70 USA/CDN

The sensors are located next to the left and right-hand headlamps.
The same type of solution and function as on the XC90 for example.



Section 2 Engine – S40, V50

B4184S11, new engine – only for certain markets

General

B4184S11 is only available in combination with manual gearbox MTX75.

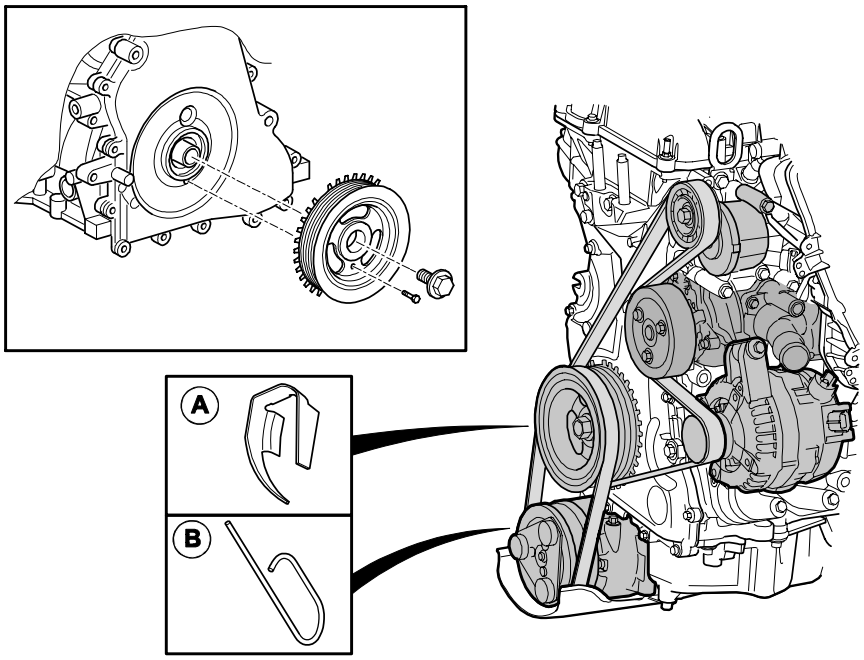
Some characteristics of the engine are:

- Four cylinder in-line engine, 1.8 litre (1798 cm^3) with 4 valves/cylinder.
  The tappets are mechanical.
  Note: The cylinders are numbered with cylinder 4 closest to the flywheel.
- Double overhead camshafts, chain driven.
  The chain is tensioned automatically by the engine's oil pressure via a hydraulic tensioner.
- Cylinder block and cylinder head produced in aluminium alloy.
- Piston cooling from nozzles injecting oil on the underside of the pistons.
- Oil pan in aluminium alloy with the AC compressor bolted to the underside of the oil pan.
  Note: Due to integration the oil pan is low. This means that the distance between max. and min. on the dipstick is small – equating to approx. 0.5 litres.
- Inlet manifold with pipes of variable length and with swirl plates. The inlet manifold is made of plastic.
- Dual mass flywheel.
- Catalytic converter built together with the exhaust manifold (CCC = Closed Coupled Catalyst).
  Two heated oxygen sensors, one before the catalytic converter and one after the catalytic converter.
- Water cooled EGR valve. The EGR system is controlled by the engine control unit (ECM).
- The engine fulfils the EURO 4 / ULEV emission requirements.

Output, torque, performance

Max. output	92 kW (125 hp) at 6000 rpm
Max. torque	165 Nm at 4000 rpm
Maximum speed, S40 and V50	200 km/h
Acceleration 0 – 100 km/h, S40 / V50	10.9 s / 11.0 s

Working on the engine



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Drive belt for alternator and coolant pump

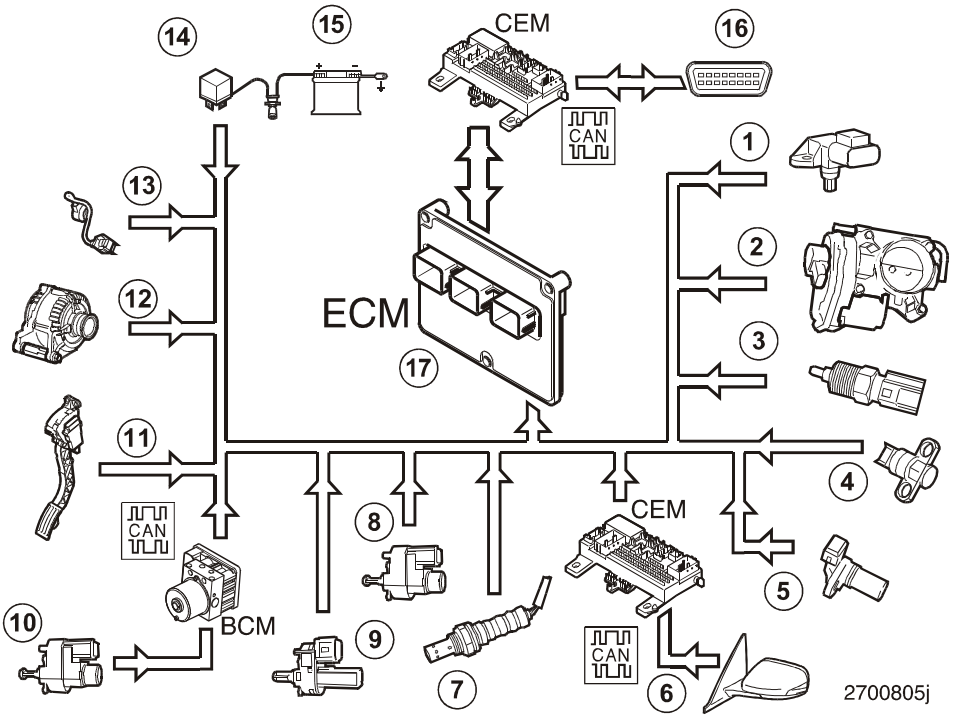
Traditional Poly-V-belt which is tensioned by a mechanical belt tensioner.

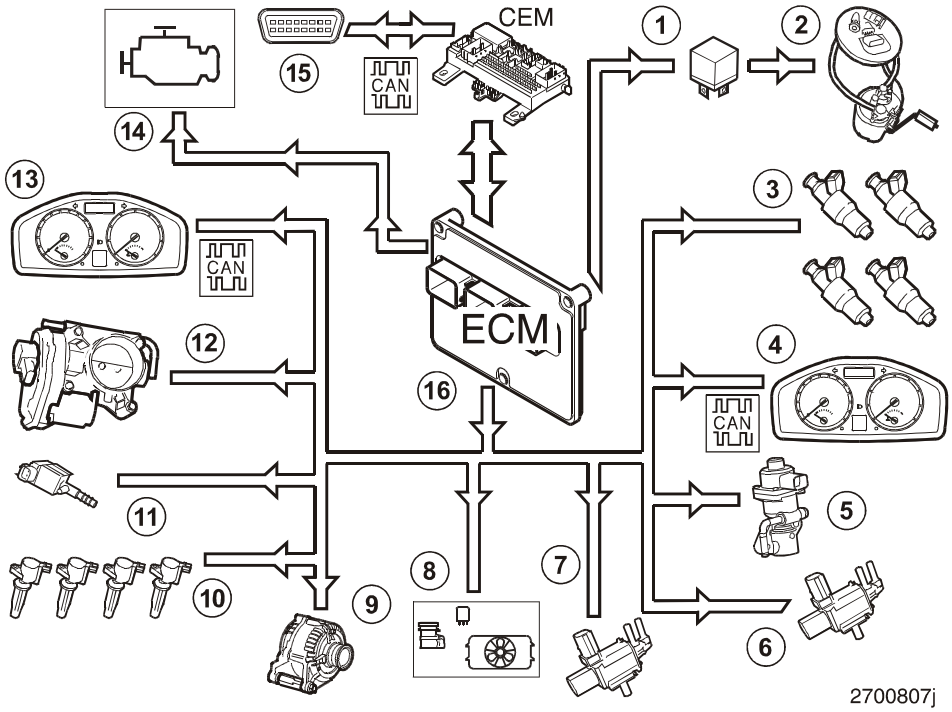
Drive belt for AC compressor

Elastic Poly-V-belt ("Flexy belt") without belt tensioner.

Note: The belt must only be fitted once.
The elasticity fades with a second fitting and slippage can occur.

A new belt must be fitted using special tools (A + B).

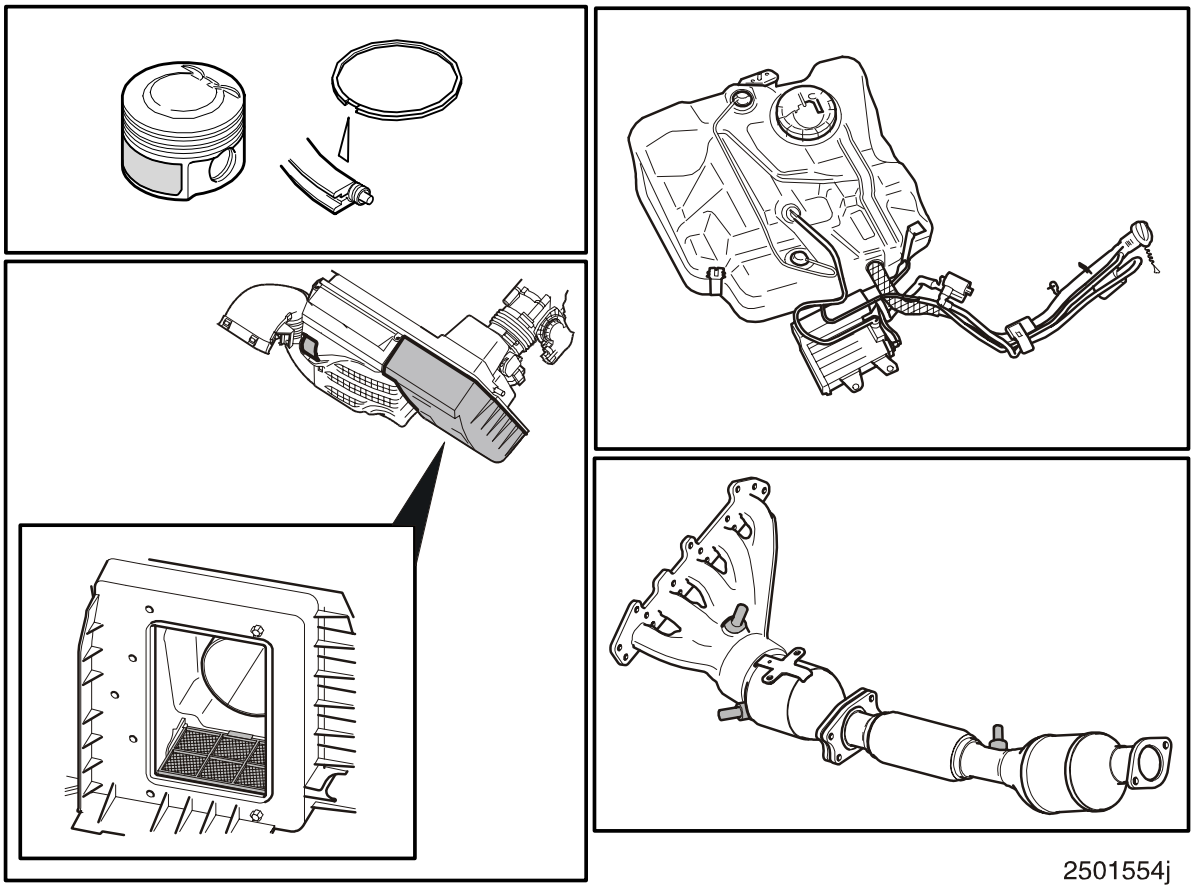




Engine management system

Some characteristics of the system are:

- Combined fuel/ignition system, the type is the Visteon system 7.
  The system is very similar to the Denso engine management system.
- Electronically controlled throttle.
- Separate ignition coils fitted directly on the spark plugs.
- Integrated diagnostic functions. The diagnostic information can be read off via VADIS.



B5244S7, new engine version – only for California

General

The engine has been introduced in order to fulfil the emission requirements in accordance with PZEV (Partial Zero Emission Vehicle).
It is based on the existing B5244S6 used in the S60/V70 but has been adapted for mounting in the S40/V50.

The B5244S7 can only be obtained in combination with the automatic gearbox, AW 55-51.

The engine code is 39.

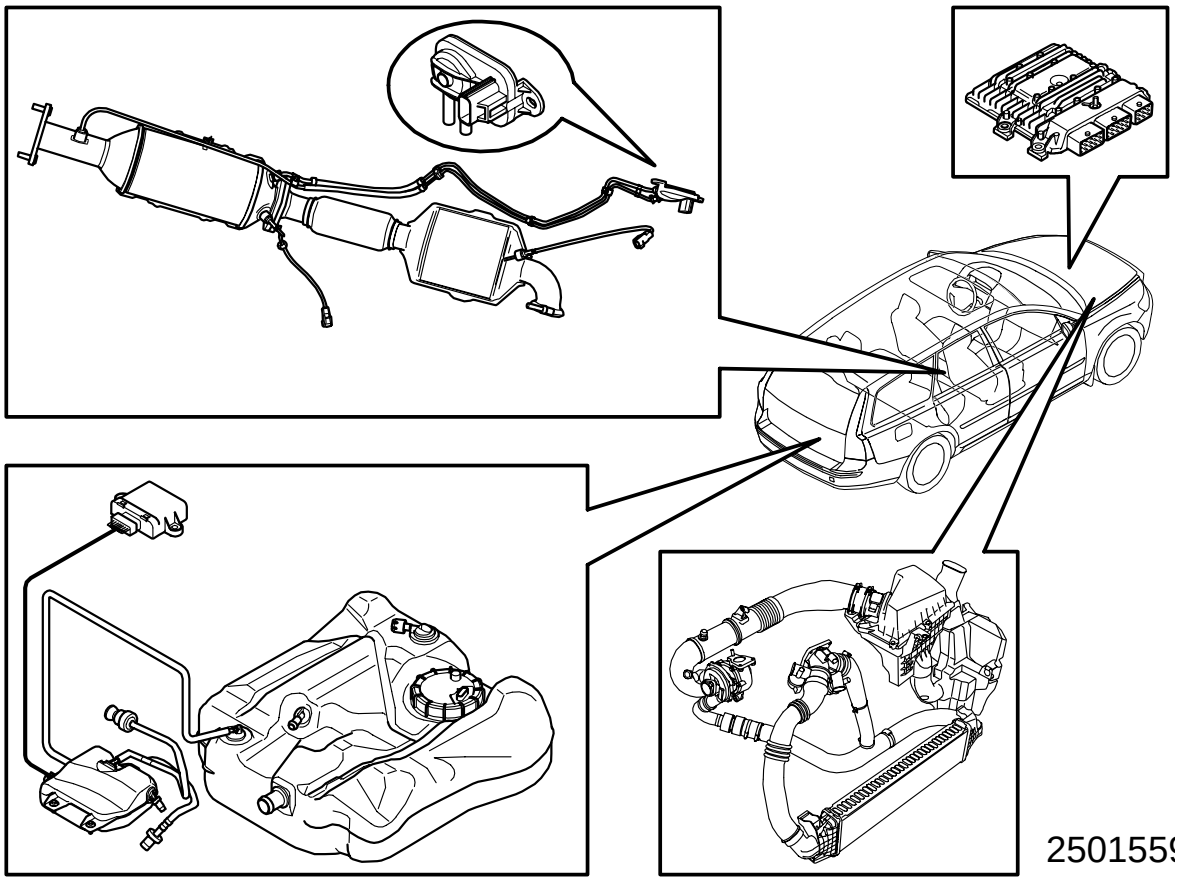
Max. output is 123 kW (167 hp) and max. torque is 225 Nm.

Engine B5244S7 has (as does B5244S6):

- Graphite coated pistons with twin-section oil ring.
- Carbon filter integrated in the air filter housing.
  Results in reduced evaporation via the air filter with switched off engine.
- Two catalytic converters and three heated oxygen sensors.

Fuel tank

- Fuel tank, pump housing cover and the nut for the cover are made of zinc and nickel treated steel.
  The roll-over valves are integrated in the tank.
- The fuel filling pipe is made of steel. The pipe is connected to the tank with a hose.
- Two carbon filters which are integrated into one unit. The flash chamber is located before the carbon filters.



D4204T with particle filter

General

The particle filter has mainly been introduced to fulfil the emission requirements in accordance with EURO 4.

The filter traps particles in the exhaust gases. The collected particles are then regularly burned away – this is called regeneration. How long the intervals are depends on the driving conditions amongst other things, but it normally varies between 300 – 1,000 km.

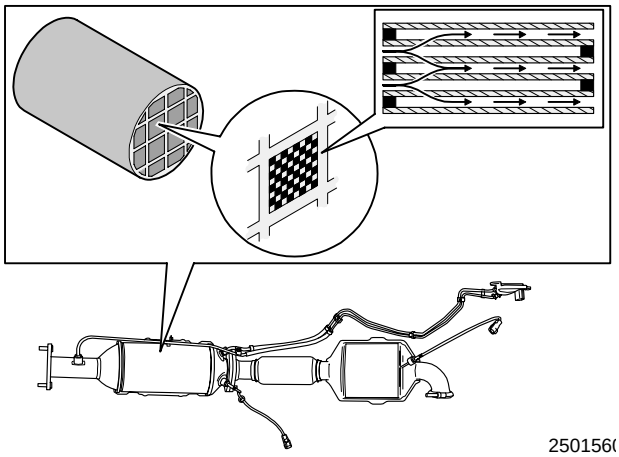
Note: When regeneration takes place a certain amount of smoke can arise. The smoke mainly comprises water vapour and sulphur.

In order to lower the temperature required for regeneration an additive is used in the fuel. The additive is kept in a separate tank and is injected and mixed with the fuel in the normal fuel tank after refuelling. The quantity filled is controlled by a separate control module – ADM (Additive Dosing Module).

Note: Filling with at least 10 litres of diesel is recommended when refuelling. If less than 5 litres is filled then there is no dosage of additive.

Other modifications in connection with the particle filter.

- Double throttle housing – intake air can now, depending on requirements, either be directed via the intercooler or directly from the turbocharger to the inlet pipe.
- Two temperature sensors connected to the ECM.
  The sensors are NTC type and measure the temperature before the catalytic converter and before the particle filter respectively.
- A differential pressure sensor connected to the ECM.
  The sensor measures the pressure drop over the particle filter – compared with the pressure before and after the filter.
- Adapted software in ECM.



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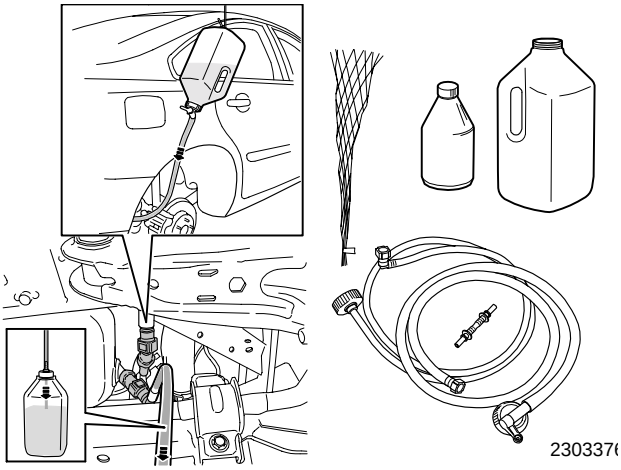
Particle filter replacement interval

The particles are burned away during regeneration but a quantity of ash is also formed.
The ash stays in and fills the filter. This means that the particle filter must be replaced regularly – the intervals are 100,000 km. The filter is available as an exchange system.
After replacement the ECM counter must be reset to zero – by means of vehicle communication in VADIS.



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Filling additive

The additive quantity is normally sufficient for over 60,000 km driving. Low level is indicated by means of a text message in the combined instrument. If no filling takes place or if the tank becomes empty then a new text message is displayed and the MIL lamp comes on.

Filling must be performed at a workshop and there is a service kit developed especially for the purpose. The service kit is disposable and excess material must be scrapped.

After filling the ADM counter must be reset to zero – by means of vehicle communication in VADIS.

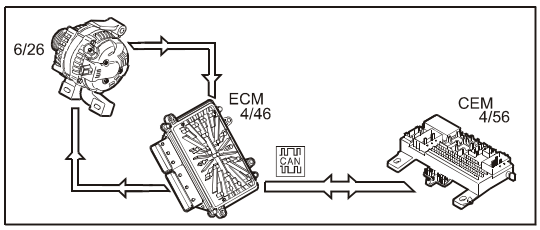
The additive is not poisonous but can cause skin irritation as with many other substances such as diesel. For this reason protective gloves and safety glasses are recommended for handling additives.

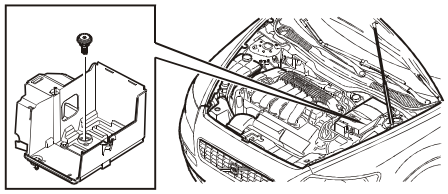
Replacing additive system components

- The system (feed hose to fuel tank) must be filled up after component replacement.
  The filling is performed via a command in VADIS vehicle communication.
- The length or dimension of the feed hose must not be changed.
  Any change can result in incorrect quantity of additive being filled.
- The mixing ratio of additive/fuel is different for different variants of car. For this reason software must be downloaded after replacement of the control module (ADM).
- Moving the control module to another car, for fault tracing for example, can result in incorrect additive dosage, which affects emissions.

Section 3 Electrical system – S40, V50

Charging system





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Temperature sensor for battery

The sensor is located on the battery shelf under the battery where it has been located since production start for the S40/V50.
The signal from the sensor is used for two functions:

- To shut down the ICM in the event of low system voltage.
- To adjust the charging voltage depending on battery temperature.

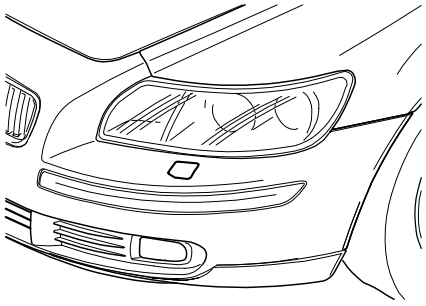
Shutting down the ICM in the event of low system voltage

- The ICM is shut down if the battery voltage falls below approx. 11.8 V.
  The exact voltage depends on the existing current consumption and battery temperature.
- This function is standard in all S40/V50.

Adjusting the charging voltage depending on battery temperature

- The ECM controls alternator charging, this is to prevent the battery from "boiling" for example due to high charging voltage at high battery temperature.
- The function for adapting the charging voltage is standard on:
  - all 4-cylinder petrol and diesel engines.
  - 5-cylinder petrol engines 0420-.

Headlamp washing



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New logic for washing

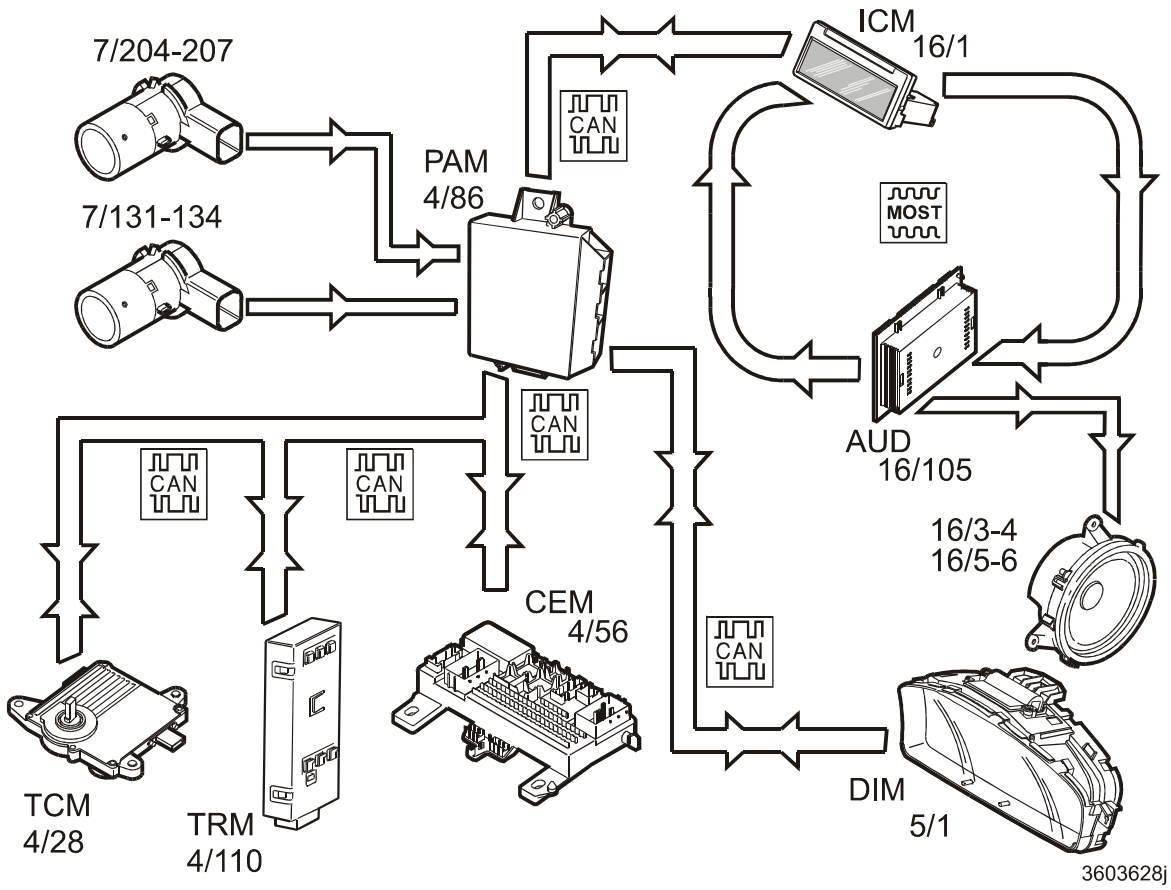
The logic is slightly different depending on whether the car has halogen or Bi-Xenon headlamps.

Halogen headlamps

- Washing can only take place with the light switch in dipped/main beam position.
- Headlamp washing takes place every 5th time the washer lever is actuated for more than 0.2 seconds.
  The counter is reset to zero 10 minutes after the latest washing.

Bi-Xenon headlamps

- Washing can take place irrespective of light switch position.
- Headlamp washing takes place every 5th time the washer lever is actuated for more than 0.2 seconds.
  With the light switch in position 0 or 1 the counter is not reset to zero.
  With the light switch in the dipped/main beam position the counter is reset to zero 10 minutes after the latest washing.



Parking Assistance System (PAS)

PAS - rear

Previously separate system has been replaced by one new system integrated with the normal electrical system in the car. E.g. the car's normal speakers are now used for warning signals.

PAS – rear is available as an option and accessory. Software must be downloaded after installation.
Note: The new system is only suitable for cars produced 0420-.

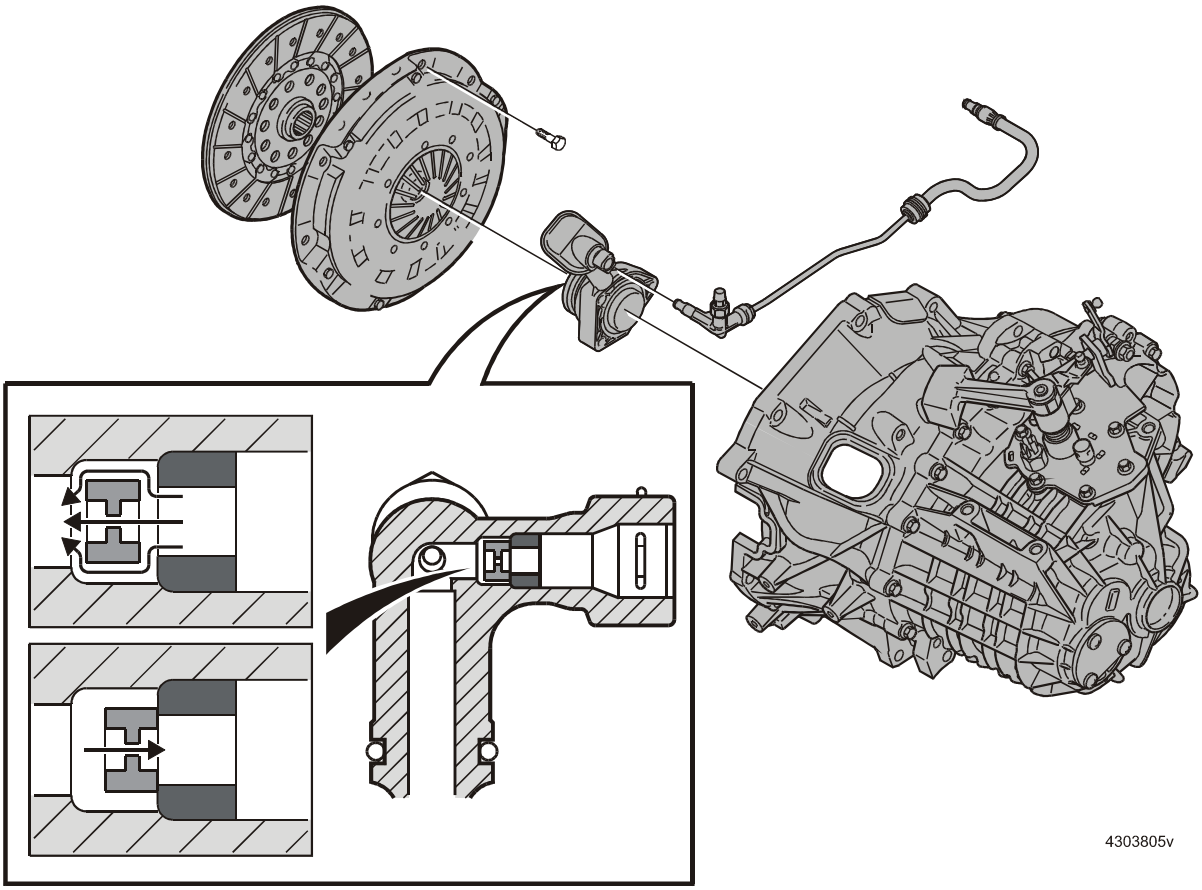
The function can be switched off manually via menu options in the ICM display.
The function is switched off automatically, via TRM (TRailer Module), when a trailer is connected.

PAS - front

Only available as an accessory.
Note: Only suitable together with the new version of PAS – rear.

The kit comprises 4 sensors which are connected to a common control module (PAM) with PAS – rear. Software must be downloaded following installation.

The function can be switched off manually via menu options in the ICM display.



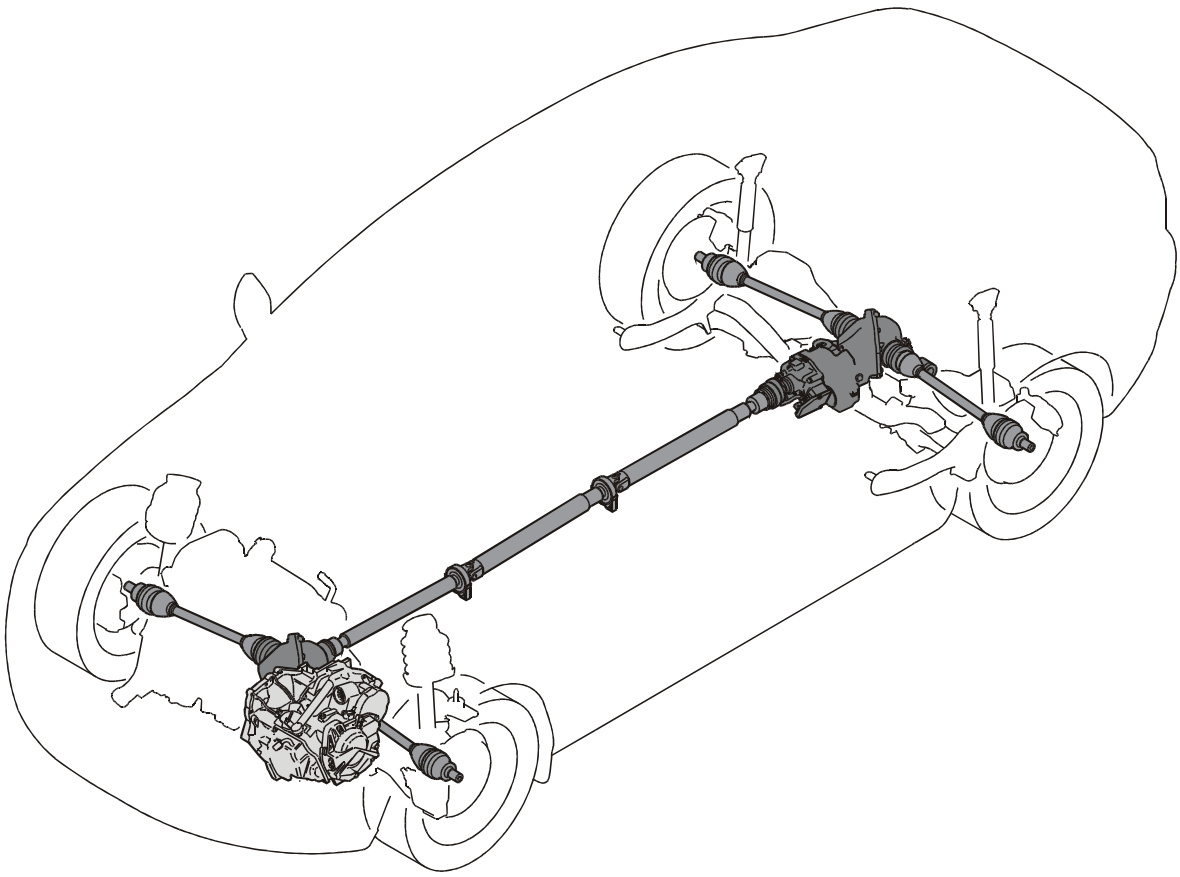
Section 4 Transmission – S40, V50

MTX75, new 5-speed manual gearbox

General

MTX75 is only available in combination with engine B4184S11.
Some characteristics of MTX75 are:

- Gearbox built together with final drive in a common housing.
- The gearbox has two shafts – input and output.
- The transmission fluid is synthetic and does not normally need to be changed.
  Type = Castrol BOT 130M. Volume = 1.9 litres.
- Hydraulic clutch control.
- Throwout bearing with integrated concentric slave cylinder (CSC).
- Driven plate without damping function.
- Dual mass flywheel (with damping function).



AWD (All Wheel Drive) – new S40 and V50 variant

General

AWD is introduced in combination with engine B5254T3 and gearbox M66W and AW55-51.
TRACS for front and rear wheels is standard.

DSTC is available as an option or standard depending on market. For AWD cars with DSTC a longitudinal accelerometer is added in the body stability sensor (BSC).

AWD system

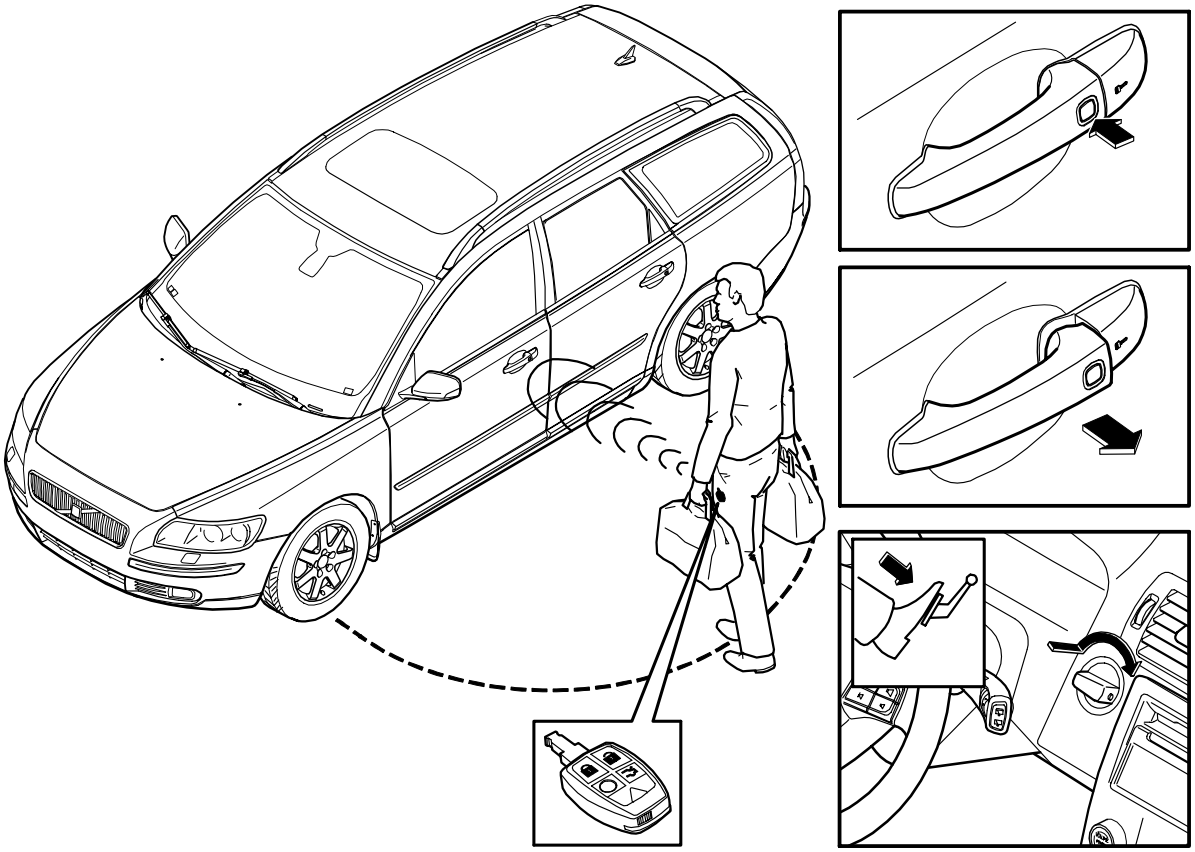
In principle the same AWD system which is used for the S60 and V70 for example. The main differences are:

- Angle gear with straight mating face and cover on the side.
- Triple-section propeller shaft (only complete propeller shaft as spare part).
- Adapted software in the control module.

Raised body, space limitation

The body is raised 15 mm front and 20 mm rear compared to a front wheel drive car.
The increase in height has been achieved by:

- Front = longer bushings in the subframe and spacer on upper bearing, spring strut.
- Rear = unique subframe and longer springs.



Section 8 Body and interior equipment – S40, V50

Keyless Drive – option, not for USA/CDN

Introduction

The system makes it possible to unlock, start and lock the car without using remote control or key. All that is required is for the remote control to be present in a pocket or in a bag for example.

The remote control appears, and can be used, as before but contains an extra circuit for the keyless system.

The system is controlled by a control module (KVM) which verifies that the remote control present is approved (programmed).

Unlocking

Unlocking is activated by pulling one of the door handles out or by actuating the switch at the boot lid/tailgate. An approved key must be present outside the car within approx. 1.5 metre's distance from the actuated handle in order for unlocking to take place.

The doors/hatches unlocked depend on the selected setting. The setting can be selected via VADIS or the menu function in Infotainment. The available options are:

1. Total unlocking – all doors and boot lid/tailgate unlocked.
2. One of the front doors (the front door with actuated handle is unlocked).
3. Both front doors.
4. Both doors on the same side (the doors on the side with the actuated handle).

Comments for option 2 – 4:

- Other doors/hatches are unlocked with the remote control or with the lock switches inside the car.
- Only the boot lid/tailgate is unlocked when the switch at the tailgate/boot lid is actuated.

Locking

Locking is activated by pressing the lock button on one of the outer door handles. An approved key must be present outside the car within approx. 1.5 metre's distance from the handle where the lock button is actuated in order for locking to take place.

The switch for the boot lid/tailgate has no lock button so the car cannot be locked from there.
In connection with locking the KVM deactivates any keys remaining in the car, and they cannot then be used for locking, unlocking or starting the car. The keys are reactivated when unlocking takes place.

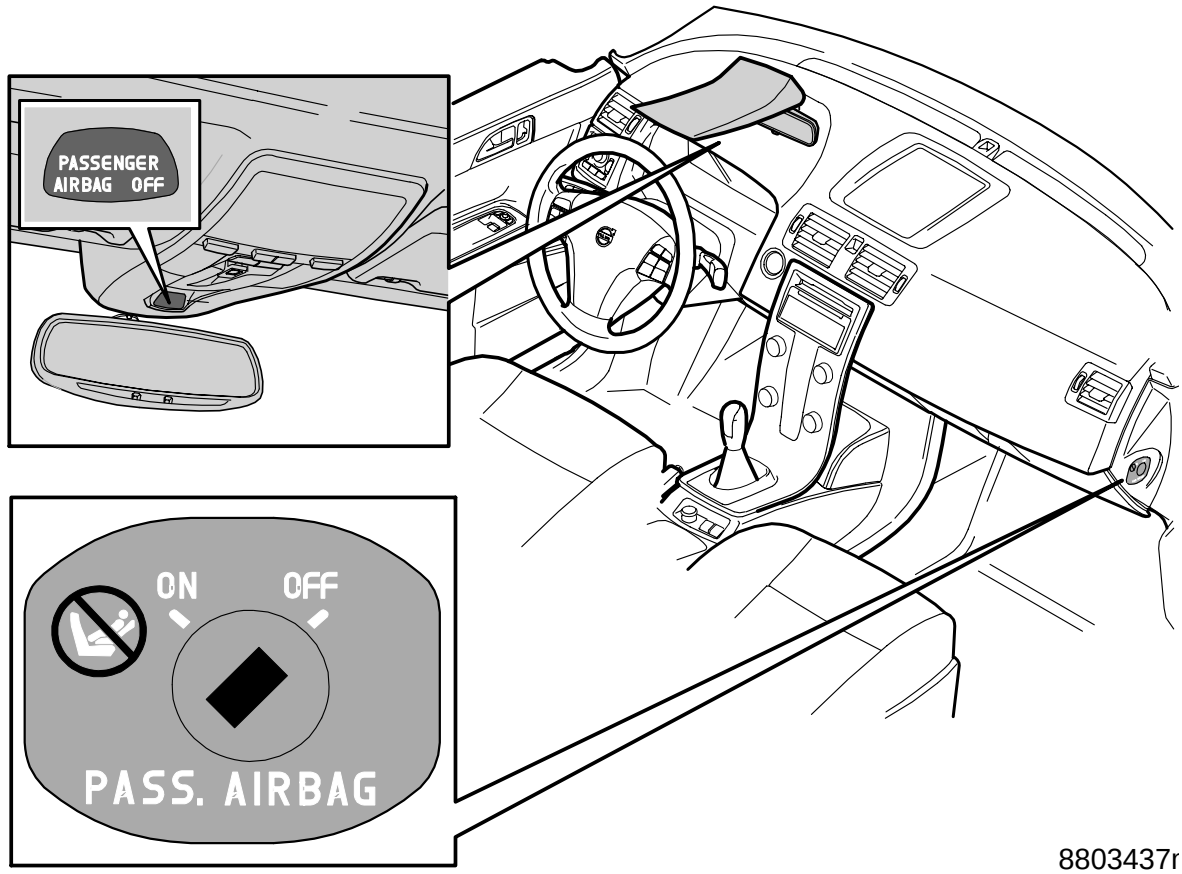
If a deactivated key is removed from the car then it will not work. The key must be inside the car during unlocking so that it can be used again.

Passive starting

Starting is initialised by pressing down the brake pedal in cars with automatic transmission, and the clutch pedal (to at least 90 %) on cars with manual transmission, or by pressing in the ignition switch.

During initialisation the KVM searches for a valid key in the passenger compartment and cargo compartment. When a valid key has been located it is validated and the car can be started by turning the ignition switch.
Note that validation only applies for a limited time. If the car is not started within this time then the validation runs out and a new initialisation must be performed.

If the key which is validated and "used" to start the car is removed from the car then the driver is informed via a text message in the combined instrument. In addition, the immobilizer system is activated so that the engine cannot be restarted if it is switched off.
When the engine is running a search is made for the validated key each time a door/hatch is opened and closed again.



Safety systems

Passenger Airbag Cut Off Switch (PACOS) – not USA/CDN

- The passenger airbag can be disengaged/engaged with the switch as required.
- The switch is located in the end of the dashboard on the passenger side. Consequently it is accessible when the door is open. The normal ignition key is used to reset the switch.
- Airbag status – ON/OFF – is indicated by the position of the switch.
  In addition, a disengaged airbag is indicated via warning text in the roof console.

The same function as in the S60 for example, the only difference is the location of the warning text.

VOLVO

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