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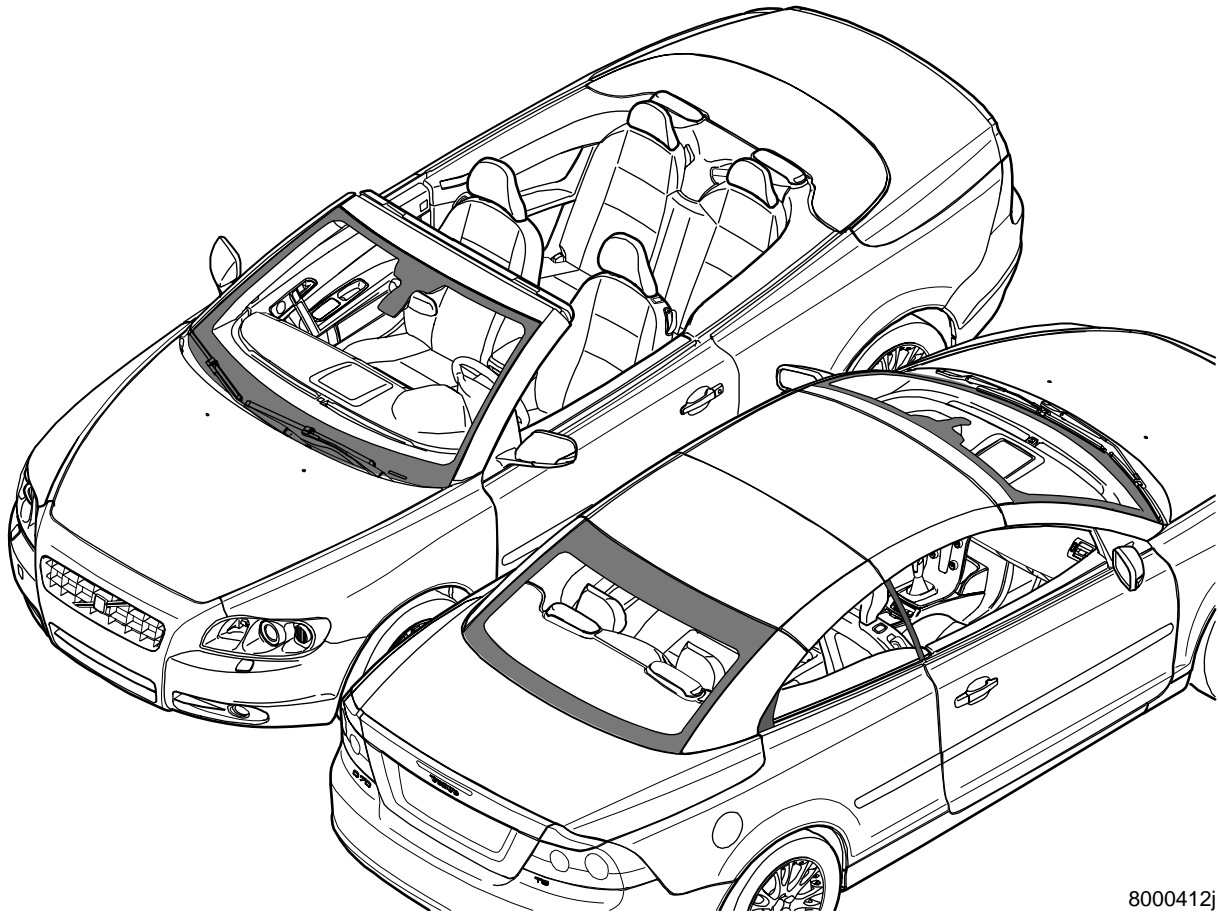
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FlexiFuel, S40/V50

FlexiFuel – B4184S8	60
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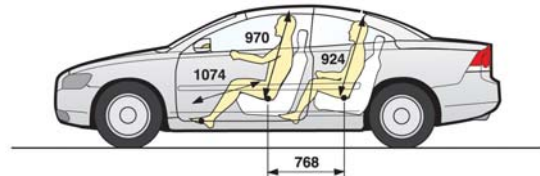
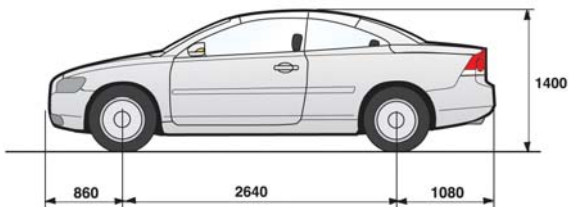
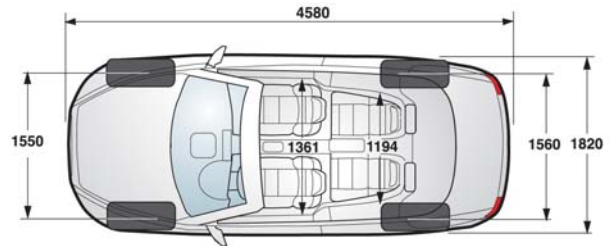
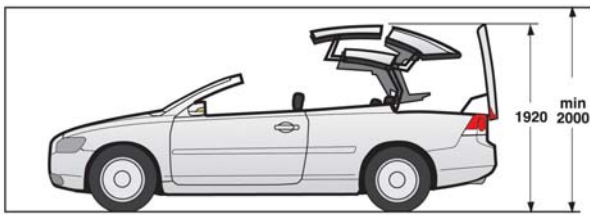
Introduction C70

The new C70

- The new C70 is a new coupé/convertible that replaces the previous C70 models
- The C70 has a new design, the car is based on the S40/V50 and at the same time has many of the characteristics and functions found in these cars.
- The C70 has a lot of new technology but much of the technology is in principle the same as in the S40/V50.

The launch

- The C70 was exhibited at the motor show in Frankfurt (Germany) at the start of September 2005. The date when the cars are available for the customer varies depending on market.
For precise information on dates, contact your own sales department.



Dimensions, weight

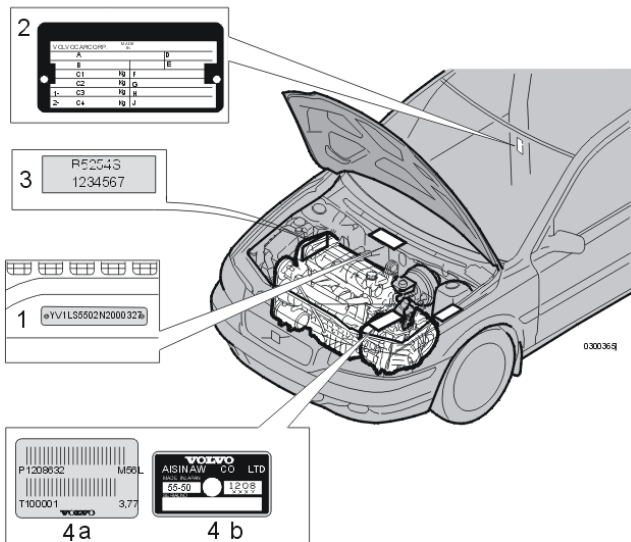
Compared with the old C70 the new C70 is shorter, wider and lower. The interior of the car is slightly lower in terms of height, the front section of the interior is slightly narrower, and the rear section is wider

Dimensions	C70	The new C70 compared with the "old" C70
Length ¹⁾	4580 mm	- 136 mm
Width	1820 mm	+ 3 mm
Height	1400 mm	-29 mm
Wheelbase	2640 mm	-24 mm
Track, front ²⁾	1550 mm	+ 29 mm
Track, rear ²⁾	1560 mm	+ 42 mm

Notes:

1)	The new C70 is shorter than the "old" C70.
2)	The wheel offset is unique to the C70, which means that it has unique wheels

Plates, decals



1. VIN – number

Stamped in the engine compartment below the windscreen.

Note: The VIN number can also be read via the Infotainment Control Module (ICM) display.

2. Product data plate

By the door, on the right-hand B-pillar.

3. Engine type designation, serial and part number

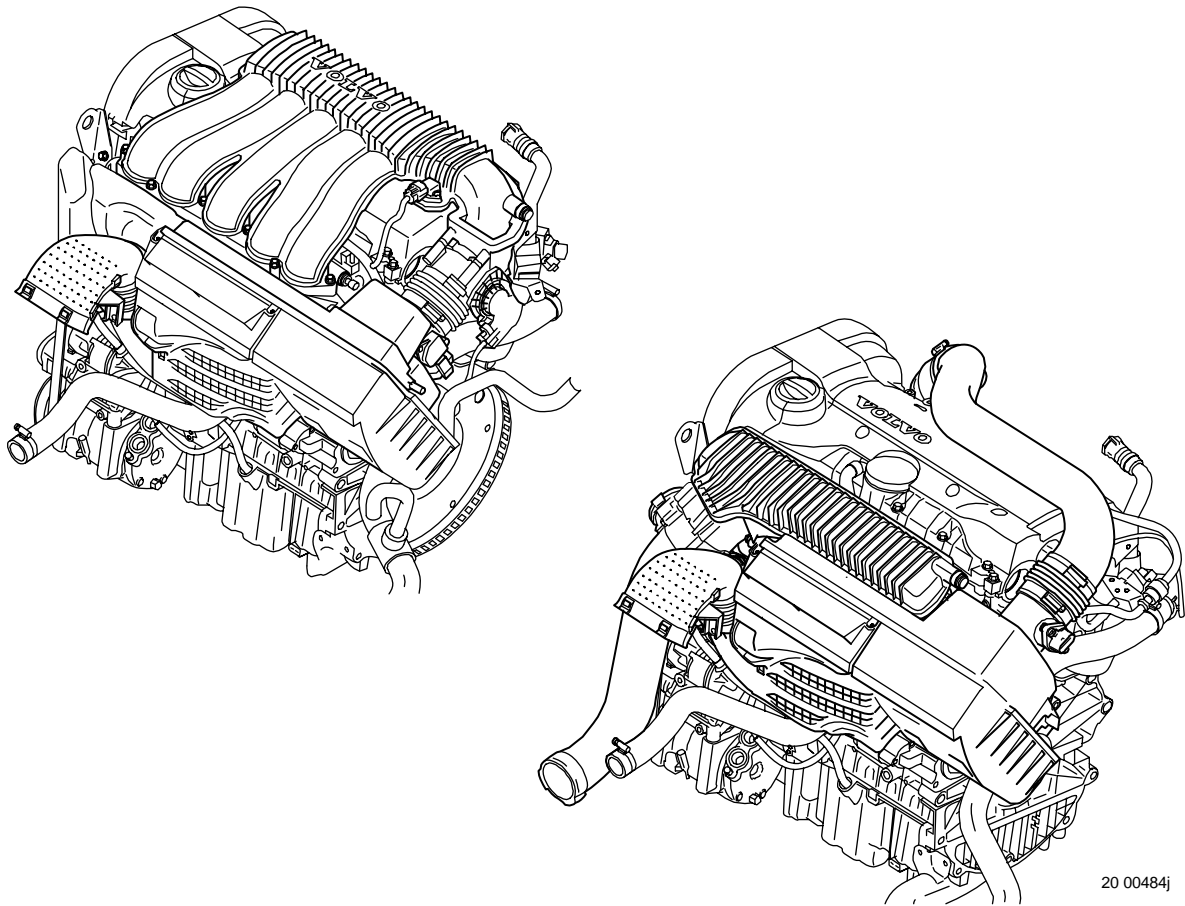
Stamped into the engine body on the right-hand side.

In addition, decal on timing cover.

4. Gearbox type designation, serial and part number

a. Manual gearbox = decal on front.

b. Automatic gearbox = plate on top.



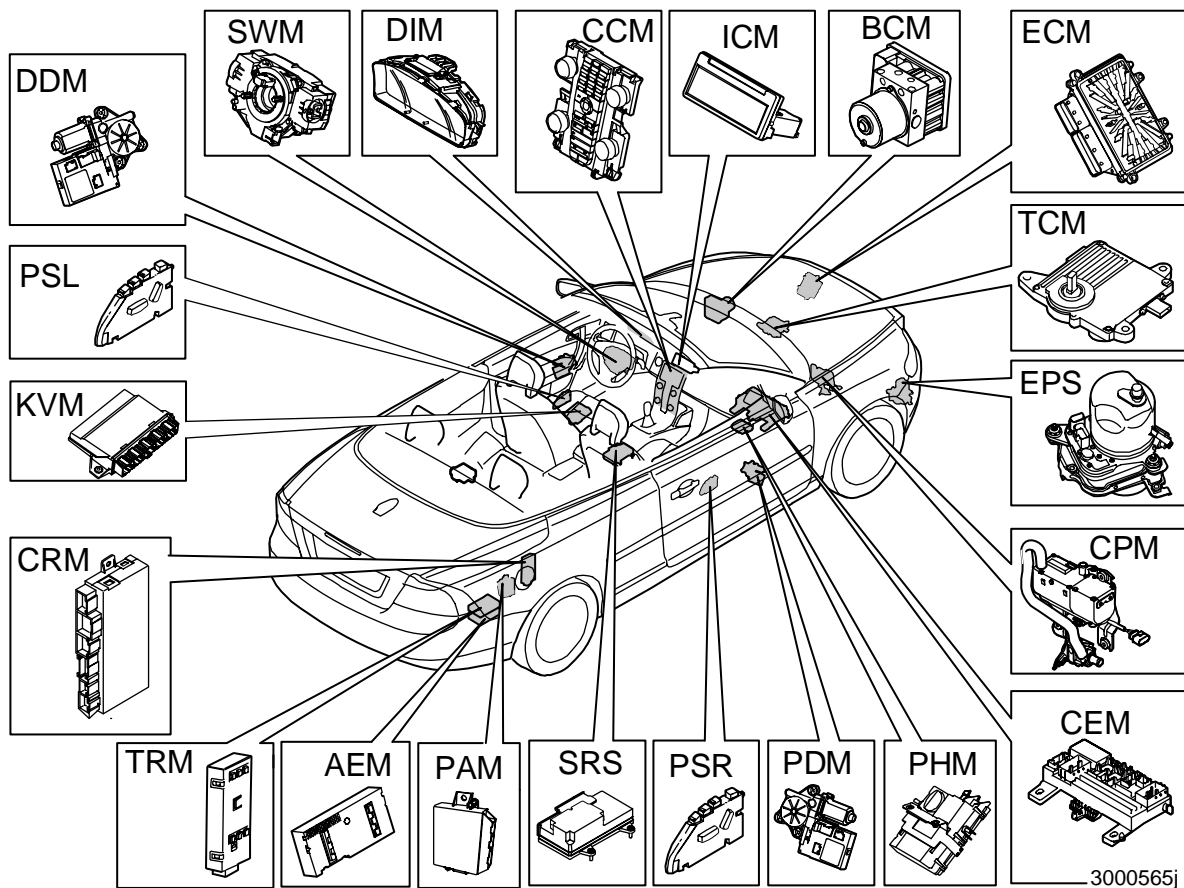
Section 2 Engine

Overview

The C70 is equipped with two different naturally aspirated engines and one turbocharged engine.

Engine	2.4 (B5244S5)	2.4i (B5244S4)	T5 (B5244T3)
<i>Top speed:</i>			
Manual gearbox	205 km/h	220 km/h	240 km/h
Automatic gearbox	200 km/h	215 km/h	235 km/h
<i>0-100 km/h:</i>			
Manual gearbox	11.0 seconds	9.1 seconds	7.6 seconds
Automatic gearbox	11.8 seconds	10.0 seconds	8.0 seconds
<i>Maximum torque</i>	220 Nm at 4000 rpm	230 Nm at 4400 rpm	320 Nm at 1500-4800 rpm
<i>Maximum output</i>	103 kW (140 hp) at 5000 rpm	125 kW (170 hp) at 6000 rpm	162 kW (220 hp) at 5000 rpm

For further information see "New Car Features 0338-0347", "New Car Features 0420" and "New Car Features 0446", S40/V50, Section 2 Engine.



Section 3 Electrical system

Design

Network

The network in the C70 is based on the same principle as the S40/V50:

CAN-HS 500 kbps

CAN-LS 125 kbps

MOST, audio system 24.8 Mbps

LIN, serial communication 9.6 kbps

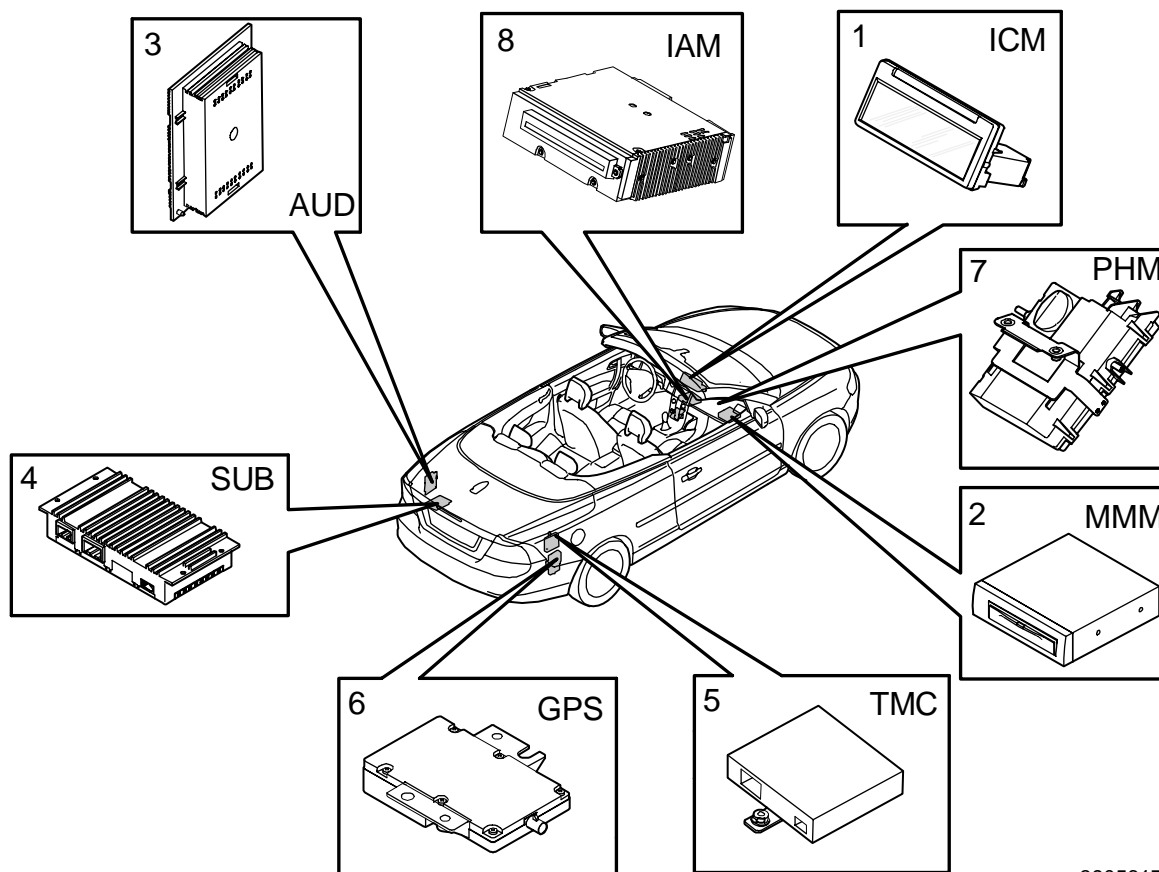
To prevent electrical reflections and interference in the CAN network there are termination resistors that bridge over CAN HS and CAN LS. One in each endpoint on both the high and low speed side of the network. Each termination resistor has a resistance of 120 Ω.

For CAN HS there are termination resistors located in SWM and in the ECM. For CAN LS there are termination resistors located in the DIM and in the SRS Module.

Both termination resistors create a parallel circuit. If the CAN network is not damaged then the resistance in each side of the network is approx. 60 Ω.

Control modules in the CAN network.

Control module	Description	Network	
AEM	Accessory Electronic Module	LS CAN	Accessory
BCM	Brake Control Module	HS CAN	Has Body Sensor Cluster (BSC) as slave control module.
CCM	Climate Control Module	LS CAN	
CEM	Central Electronic Module	HS CAN/ LS CAN	
CPM	Combustion Pre-heater Module	LS CAN	Accessory/option. Market dependent
CRM	Convertible Roof Module	LS CAN	
DDM	Driver Door Module	LS CAN	
DIM	Driver Information Module	LS CAN	
ECM	Engine Control Module	HS CAN	Different versions depending on engine alternative
EPS	Electronic Power Steering Module	HS CAN	
ICM	Infotainment Control Module	LS CAN (MOST)	
KVM	Keyless Vehicle Module	LS CAN	Option
PAM	Parking Assistance Module	LS CAN	Option/accessory
PDM	Passenger Door Module	LS CAN	
PHM	Phone Head Module	LS CAN (MOST)	Option/accessory
PSL	Power Seat Left	LS CAN	Option in C70. Note: PSL does not control seat heating and SIPS bag function.
PSR	Power Seat Right	LS CAN	Option in C70. Note: PSR does not control seat heating and SIPS bag function.
SRS	Supplemental Restraint System	LS CAN	Has OWS (Occupant Weight Sensor) as slave control module, to check whether anyone is sitting in the passenger seat (only on certain markets).
SWM	Steering Wheel Module	HS CAN	
TCM	Transmission Control Module	HS CAN	Only cars with automatic gearbox.
TRM	Trailer Module	LS CAN	Option Only on vehicles with towbar



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MOST

The MOST network can consist of up to eight different control modules.

When the vehicle is equipped with SUB (Subwoofer Module), in addition to ICM (Infotainment Control Module), the AUD (Audio Control Module) is also included as standard in the MOST network.

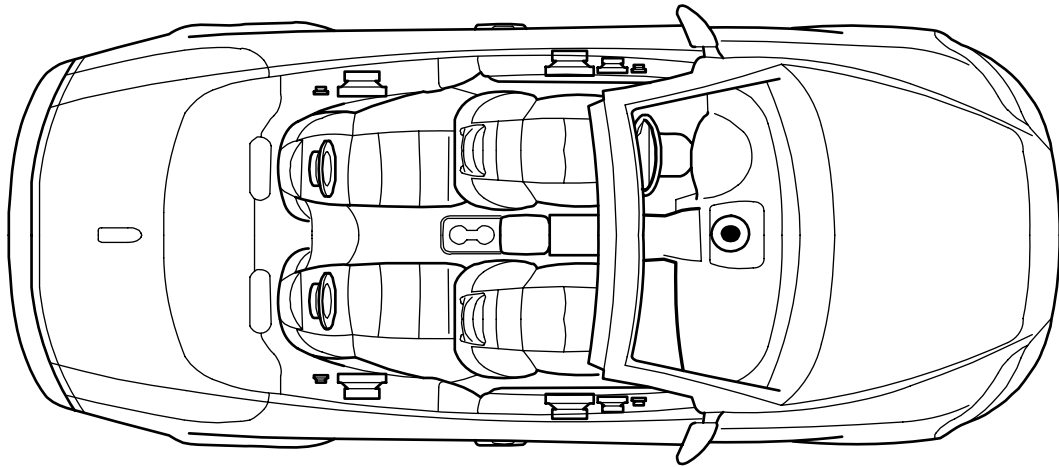
The simplest variant is when the vehicle is only equipped with IAM (Integrated Audio Module) as well as ICM (Infotainment Control Module).

Control modules in the MOST network

1	ICM	Included in the standard set-up of the MOST network.
2	MMM	Option, accessory
3	AUD2 AUD5	Included in the option High Performance. Included in the option Premium Sound
4	SUB	Option to High Performance and Premium.
5	TMC	Included in option MMM for EU
6	GPS	Included in option MMM and/or TEM.
7	PHM	Option (with or without Volvo On Call)
8	IAM	Included in the standard set-up of the MOST network.

For further information on MOST, see "New Car Features 0338-0347, S40/V50".

Notes:



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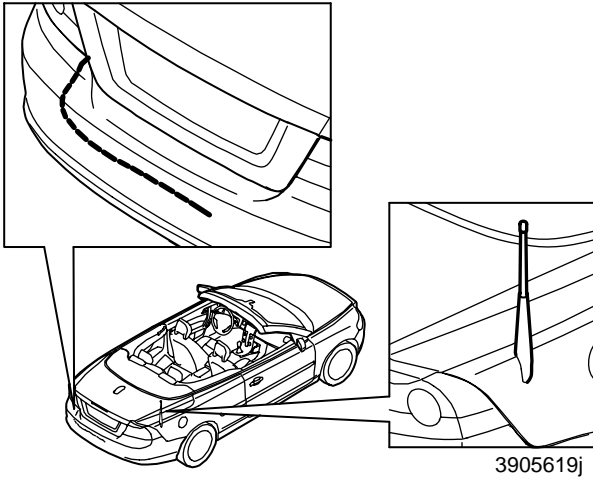
Audio system, specifications

	Performance	High Performance	Premium Sound
Radio/Amplifier	4x20W	4x40W	4x130W+1x130W
Surround System	No	No	Dolby Pro Logic II
Standard CD player	1 CD	1 CD	1 CD
Option, CD player	No	6 CD changer	6 CD changer
Speakers	Harman/Becker	Harman/Becker	Dynaudio
Dashboard	No	No	3" Bass/mid-range + 1" treble
Front doors	6.5" Full range + 1" treble	6.5" Bass + 1" treble	8" Bass + 4" mid-range + 1.5" treble
Rear seat side panel	6.5" Full range	6.5" Bass + 1" treble	6.5" Bass + 1.5" treble
Subwoofer	No	2x8", Amplifier 1x130W	2x8", Amplifier 2x130W

Special functions

The audio system adapts and adjusts volume, bass and treble depending on whether the roof is up or down. The Infotainment Control Module (ICM) receives information on roof status from the Convertible Roof Module (CRM) and adjustment takes place automatically.

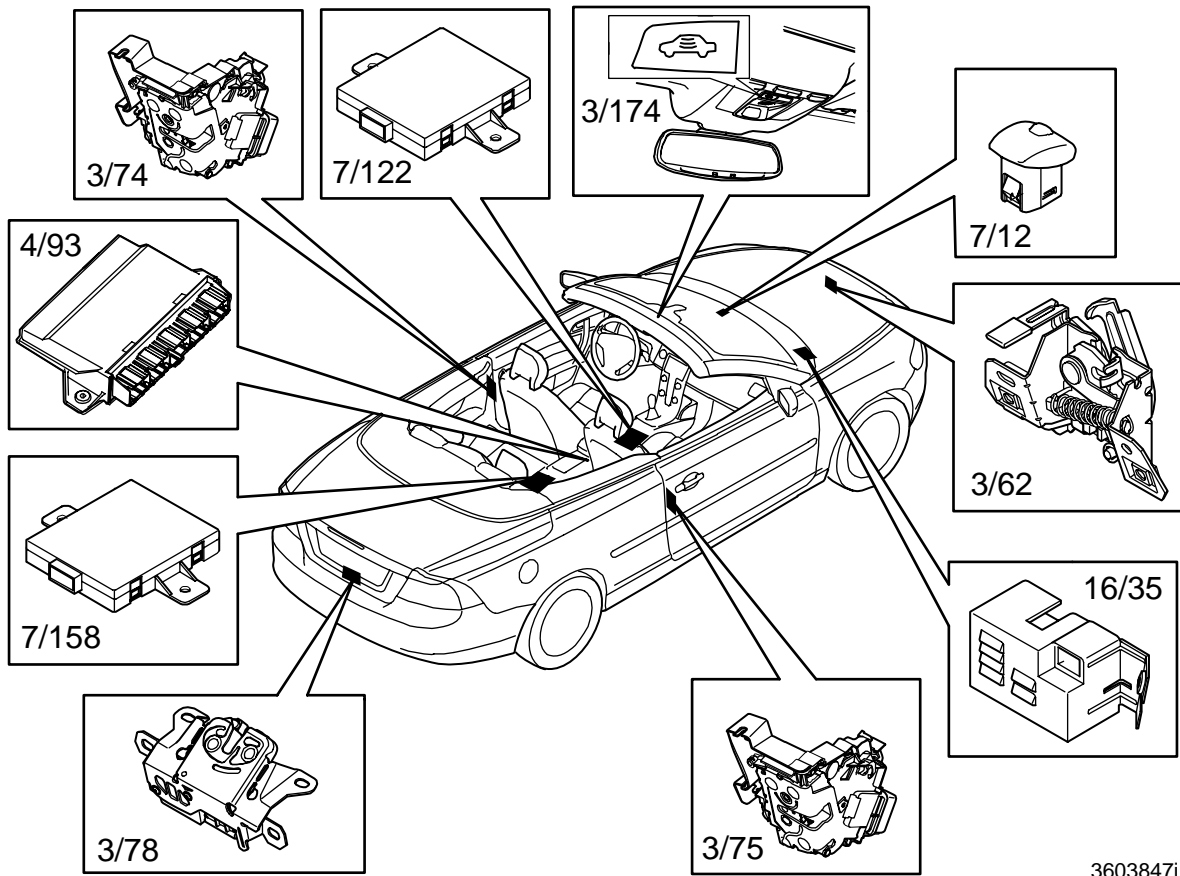
Besides that, if the roof is not locked and the car's speed is higher than 2 km/h, ICM emits a warning signal through AUD on the speakers. At the same time, a message is shown on the DIM.



Antennas

The antenna system consists of a main antenna for AM/FM and a sub-antenna for FM in the bumper. The antennas are connected to their respective antenna amplifiers.

Both antenna amplifiers are connected to the Integrated Audio Module (IAM) with a coaxial cable. The "Shark fin antenna", that is fitted on top of the boot lid, is composed by two antennas. One is used as a GPS antenna for the RTI system and the other as a telephone antenna(option).



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Alarm

3/62	Unclosed position sensor, bonnet	4/93	KVM
3/74	Unclosed position sensor, driver's door	7/12	Alarm indicator, status
3/75	Unclosed position sensor, passenger door	7/122	MMS front
3/78	Unclosed position sensor, boot lid	7/158	MMS rear
3/174	Switch, reduced alarm	16/35	SCM

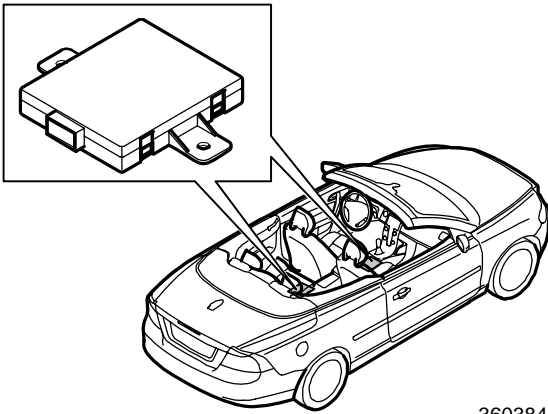
Configurations

Level 1. Body Protection. This configuration includes unclosed position sensors in the lock motors, alarm LED and Siren Control Module (SCM) without vehicle tilt sensor.

Level 2. Is equivalent to the level 1 plus MMS (Mass Movement Sensor Module).

Level 3. Is equivalent to the level 2 plus SCM (Siren Control Module) with vehicle tilt sensor.

For further information, see "New Car Features 0338-0347" and "New Car Features 0420", S40/V50.

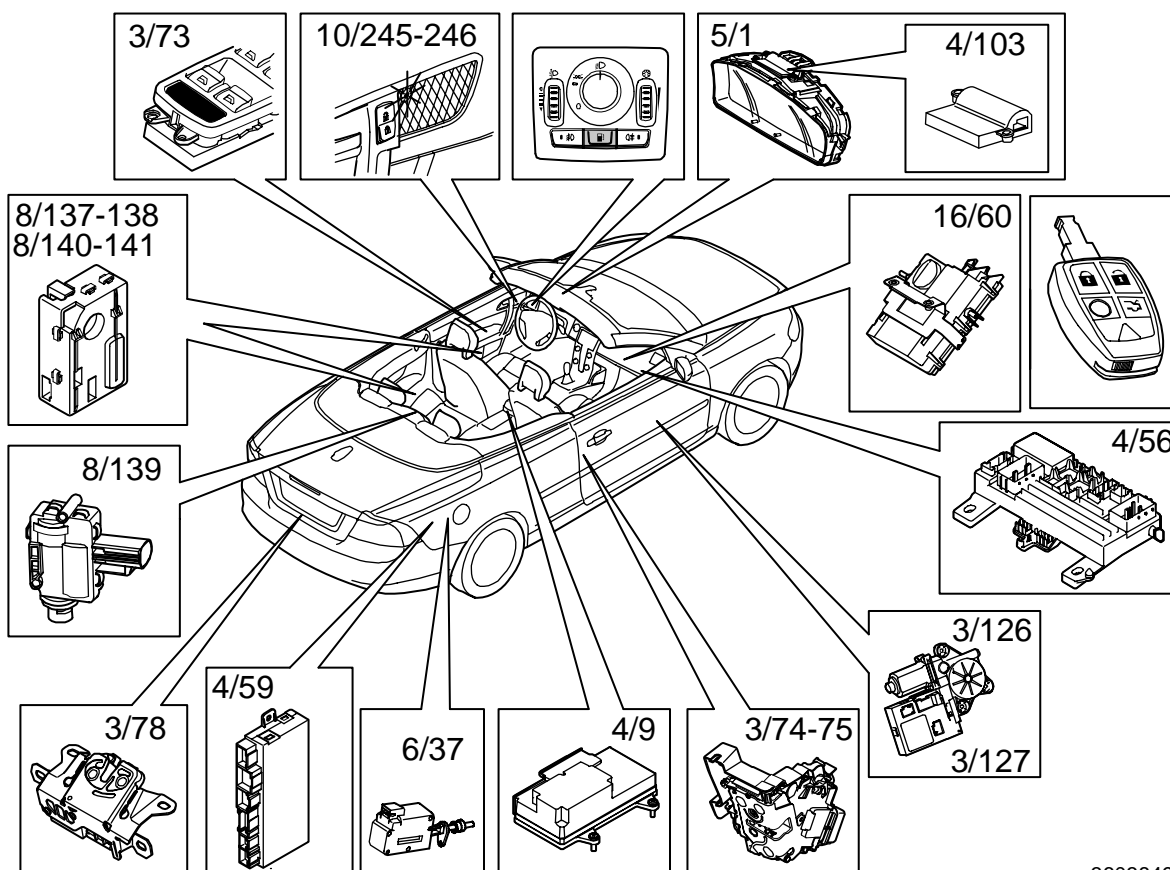


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MMS

There are two Mass Movement Sensor Modules (MMS). One is located under the cup holder in the tunnel console and the other under the rear centre seat.

The Mass Movement Sensor Module (MMS) works equally as well whether the roof is open or closed. By means of using microwaves the system is more robust and this helps to avoid false alarms. For example, the microwaves are not changed by different air layer temperatures inside a vehicle standing in the sun



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Central locking system

3/73	Central locking switch	4/103	Remote control signal receiver
3/74-3/75	Unclosed position sensor, driver's door/passenger door	5/1	DIM
3/78	Lock motor, boot lid	6/37	Lock motor, fuel filler flap
3/126-3/127	Lock motor, driver's door/passenger door	8/137-8/138	Motor, storage compartment, driver's door/passenger door
		8/140-8/141	Motor, storage compartment, side panel, left-hand rear/right-hand rear
4/9	Supplemental Restraint System Module (SRS)	8/139	Motor, ski hatch
4/56	CEM	10/245-10/246	LEDs, local locking
4/59	CRM	16-60	PHM

Functions

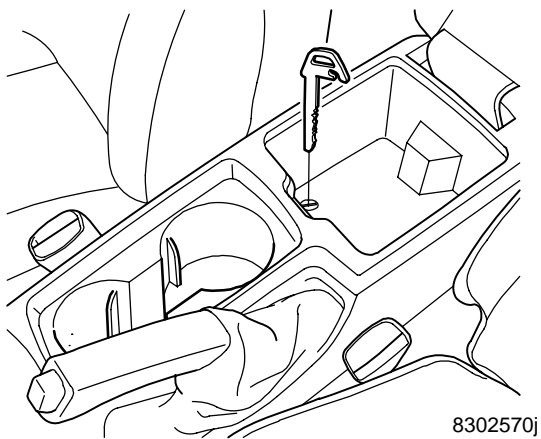
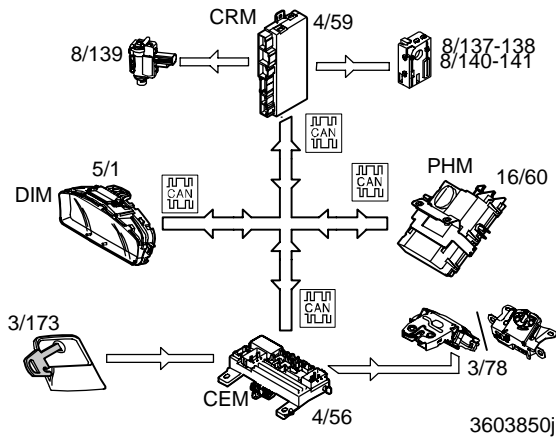
The central locking system functions in the same way as in the S40/V50. For further information, see "New Car Features 0338-0347, S40/V50". See below for description of special functions in the C70.

Standard locking function

The standard locking function unlocks the side doors and activates the lock button in the boot lid so that it can be opened. The function also unlocks the storage compartments as well as the lock for the ski hatch and can be activated with total or 2-stage unlocking.

Unlocking with the key

The doors can be locked and unlocked with the detachable key located in the remote control. If the doors are unlocked with the keys then the alarm is triggered. The alarm can then be deactivated with the "unlock" button on the remote control or with the ignition key on position II.



Private locking mode

Glovebox, cargo compartment, storage compartments and the middle section of the rear seat backrest can be locked in a "private" mode. This function is used to prevent access to these areas if the vehicle is parked with open roof for example.

The private locking is activated by turning the key blade 180 degrees clockwise in the glovebox lock. The remote control can now only be used to unlock the doors and to drive the car.

Unlocking the boot lid

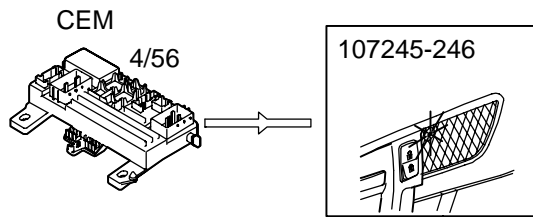
The boot lid is "locked" and "unlocked" at the same time as the doors if an unlock command is received from the remote control. The boot lid can also be unlocked separately using a special button on the remote control.

The switch on the boot lid is directly connected to KVM and the CEM.

Mechanical locking/unlocking of boot lid

To enable access to the cargo compartment when the power in the vehicle is disconnected for example, there is a lock cylinder under the CD compartment in the tunnel console which is mechanically connected to the boot lid lock.

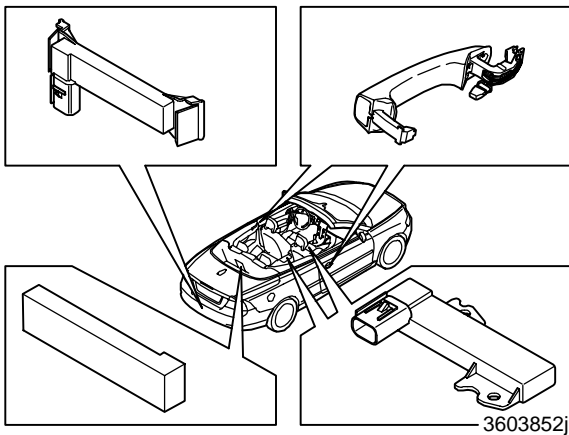
The locking cylinder is covered. This cover must be removed in order to have access to the lockcylinder.



Local locking, indication

Normally there are lock buttons in the doors, but these are not in the C70. Instead the vehicle is equipped with LEDs that indicate whether or not the vehicle is locked. The LEDs will be lit during approx. 5 minutes after the vehicle has been locked. The LEDs are located on each respective door and are directly connected to CEM.

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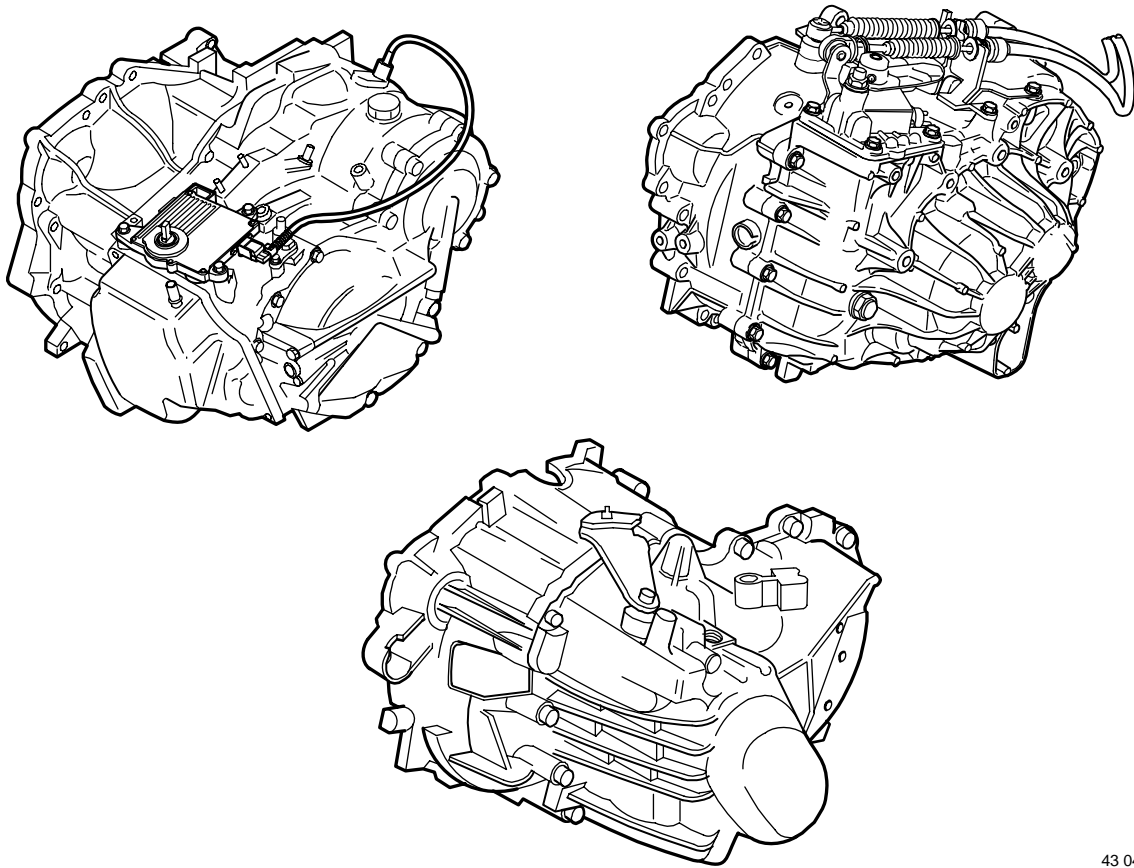
Keyless Vehicle Module (KVM)

The Keyless Vehicle Module (KVM) operates under the same principle as in the S40/V50.

There are three external antennas (one in each door handle and one in the rear bumper).

There are three internal antennas which are located under the carpet between the front seats, under the carpet on top of the tunnel console in front of the rear seat, and in the cargo compartment.

For further information, see "New Car Features 0420, S40/V50, KVM".



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Section 4 Power transmission

Gearbox

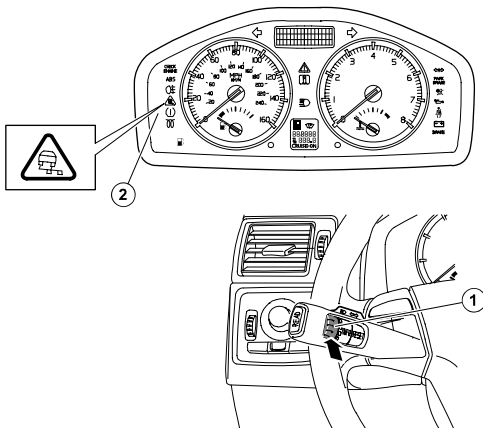
Combinations engines/gearboxes:

Engine	Gearbox	Final drive
B5244S5	M56L	4,00:1
	AW55/51	2,44:1
B5244S4	M56H	4,25:1
	AW55/51	2,44:1
B5254T3	M66W	3,77:1
	AW55/51	2,27:1

For further information on gearboxes, see "New Car Features 0338-0347, S40/V50, Section 4".

Section 5 Brakes

DSTC



Function

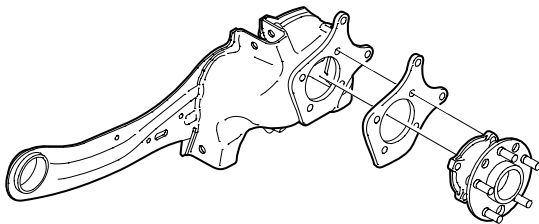
DSTC is always activated when the ignition is turned on. By turning the control wheel on the blinker's lever, the different menu functions are shown. DSTC ON/OFF is activated or deactivated by using the RESET button.

Activation/deactivation of the DSTC is confirmed by means of a message in DIM.

In the event of DTCs in the BCM a message is shown in the DIM.

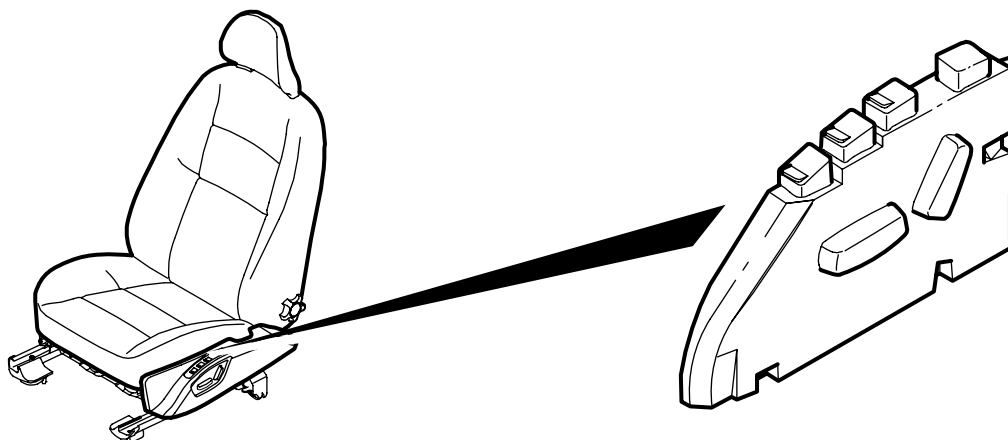
Section 6 Suspension

Rear suspension



Track

The rear suspension is the same as for the S40/V50 apart from it being widened by 7 mm each side to increase the track. A spacer is positioned between support arm and hub.



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Section 8 Body and Interior equipment

Front seats, Power Seat Module, Left (PSL)/Power Seat Module, Right (PSR)

Power Seat Module, Left (PSL) and Power Seat Module, Right (PSR) are designed to handle the functions for seat control and storing memory positions. The control modules are located on the outside of the front seats and are integrated with the control panels. They communicate both with directly connected components and with other control modules via CAN communication.

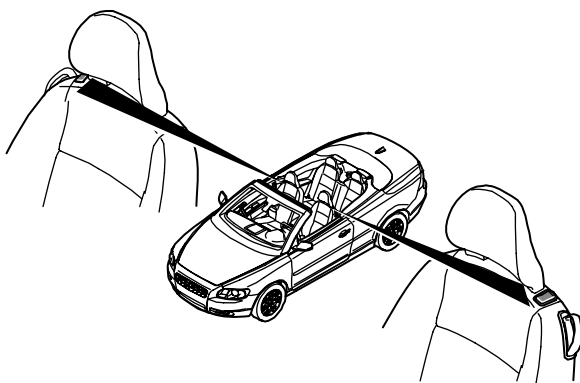
In a vehicle with power seats without memory the control panel is directly connected to the motors and does not have Power Seat Module, Left (PSL)/Power Seat Module, Right (PSR).

Function

Same as in the S40/V50, Power Seat Module (PSM). See "New Car Features 0338-0347, S40/V50" for further information.

Easy Entry

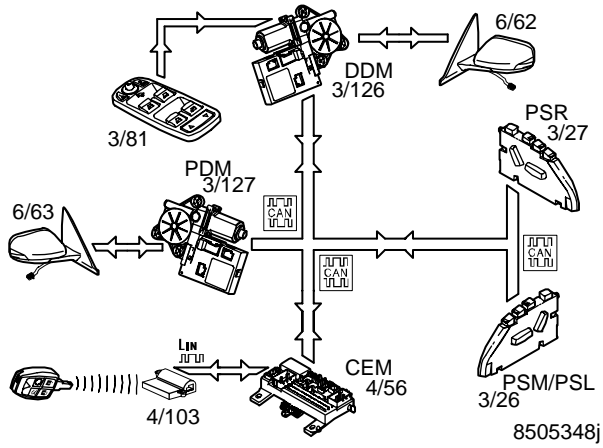
To enable passengers to step into the rear seat of the vehicle more easily there is the "Easy Entry" function. The seat is moved forward and down so that it is easy to step into the rear seat.



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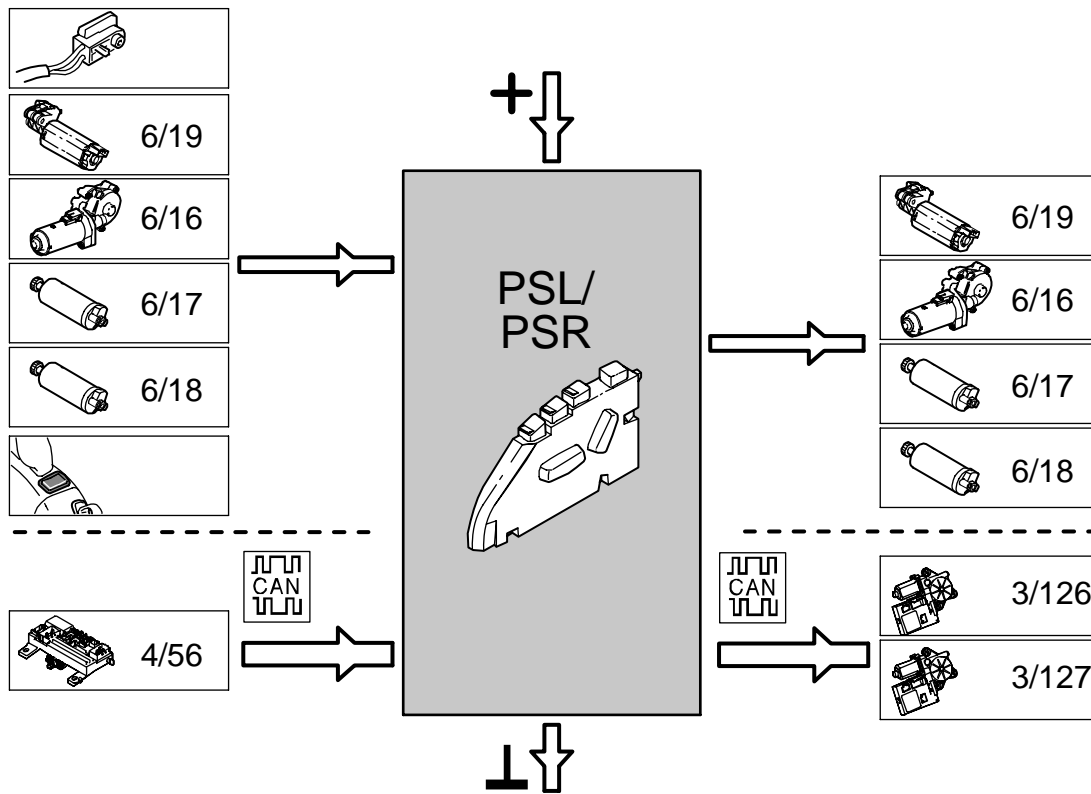
Easy Entry is controlled using a switch located on the top outside edge of the front seats.

The switch is directly connected to the Power Seat Module, Left (PSL)/Power Seat Module, Right (PSR), which activates the motors controlling the longitudinal and vertical movement of the seat (6/18, 6/19).



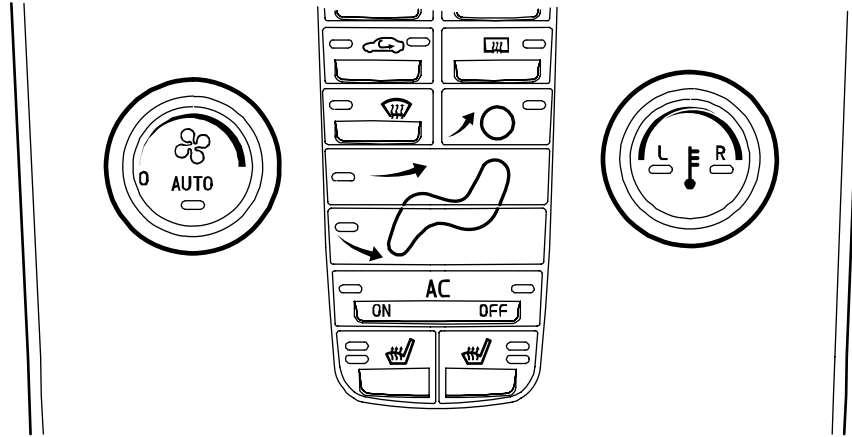
Memory position, power seats and door mirrors

When the vehicle is equipped with rearview mirrors with memory function, pressing the required memory button also sets the programmed rearview mirror position. This means that information is sent from the Power Seat Module, Left (PSL)/Power Seat Module, Right (PSR) to the Passenger Door Module (PDM) and the Driver Door Module (DDM), to set the rearview mirrors to programmed position. The rearview mirror position stored is the position the rearview mirrors had when the seat position was programmed. The driver's rearview mirror position is stored in the Driver Door Module (DDM) and the passenger rearview mirror position is stored in the Passenger Door Module (PDM).



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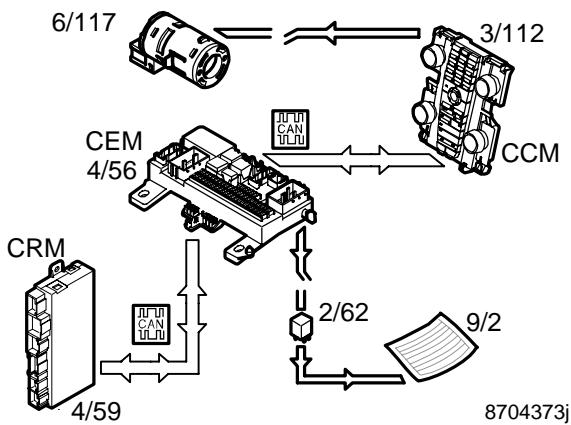
<i>Input signals</i>		<i>Output signals</i>	
no number	Hallsensor, backrest folded/upright	3/126	Driver Door Module (DDM)
no number	Switch for Easy Entry	3/127	Passenger Door Module (PDM)
4/56	CEM	6/16	Seat motor, backrest
6/16	Hall sensor integrated in seat motor	6/17	Seat motor, up/down front edge
6/17	Hall sensor integrated in seat motor	6/18	Seat motor, up/down rear edge
6/18	Hall sensor integrated in seat motor	6/19	Seat motor, forward/back
6/19	Hall sensor integrated in seat motor		



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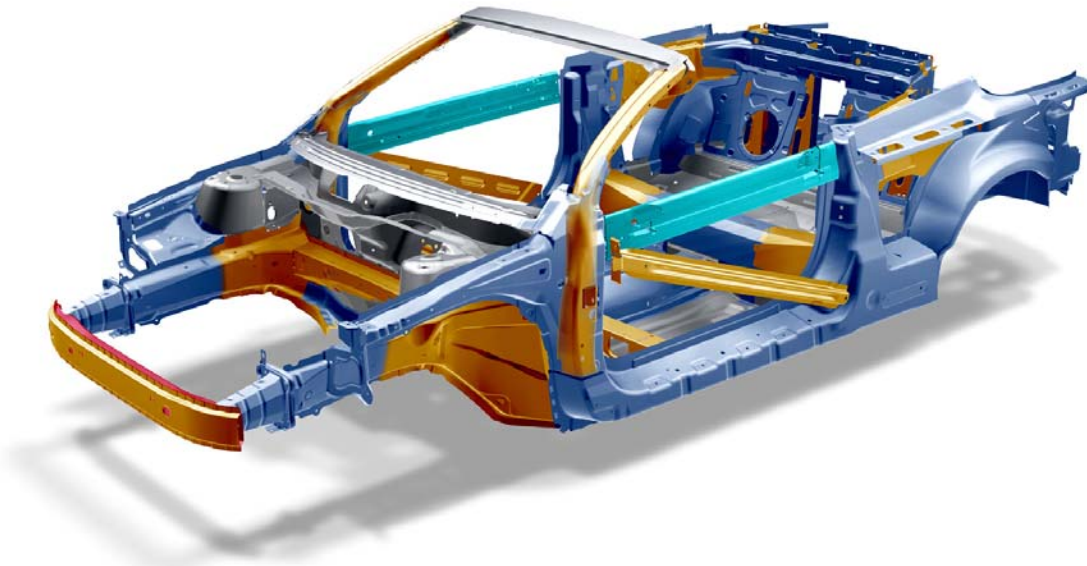
Climate control

Climate control is only available with ECC and operates in the same way as in the S40/V50. For further information, see "New Car Features 0338-0347, S40/V50", Section 8.



Controlling the passenger compartment climate

There is a slight difference in climate control when the electrically operated roof is lowered. When the roof is opened the rear window defroster is switched off (9/2). When the roof is then closed the defroster is switched on again. When the roof is open and climate control is in auto mode the passenger compartment temperature sensor is deactivated (6/117).



Body

General

With the "new C70" Volvo is continuing its new application of high-strength steel.

The body is significantly reinforced in the A-pillar, door sill and in the horseshoe shaped wall between rear seat and cargo compartment.

The A-pillar is reinforced with a hydroformed tube that runs the whole way from the windscreen roll bar down into the door sill.

A strong aluminium member is located in the upper section of the doors. In the event of a frontal collision this helps to direct the impact force from the A-pillar and on to the B-pillar. It also helps to absorb impact force in the event of a side collision.

There is a double panel wall with reinforcements between the rear seat and cargo compartment. This helps to absorb impact forces from behind.

There are four types of steel used in the body for the C70. In the event of a collision the different materials work together to optimally absorb and disperse the forces.

Steel grades

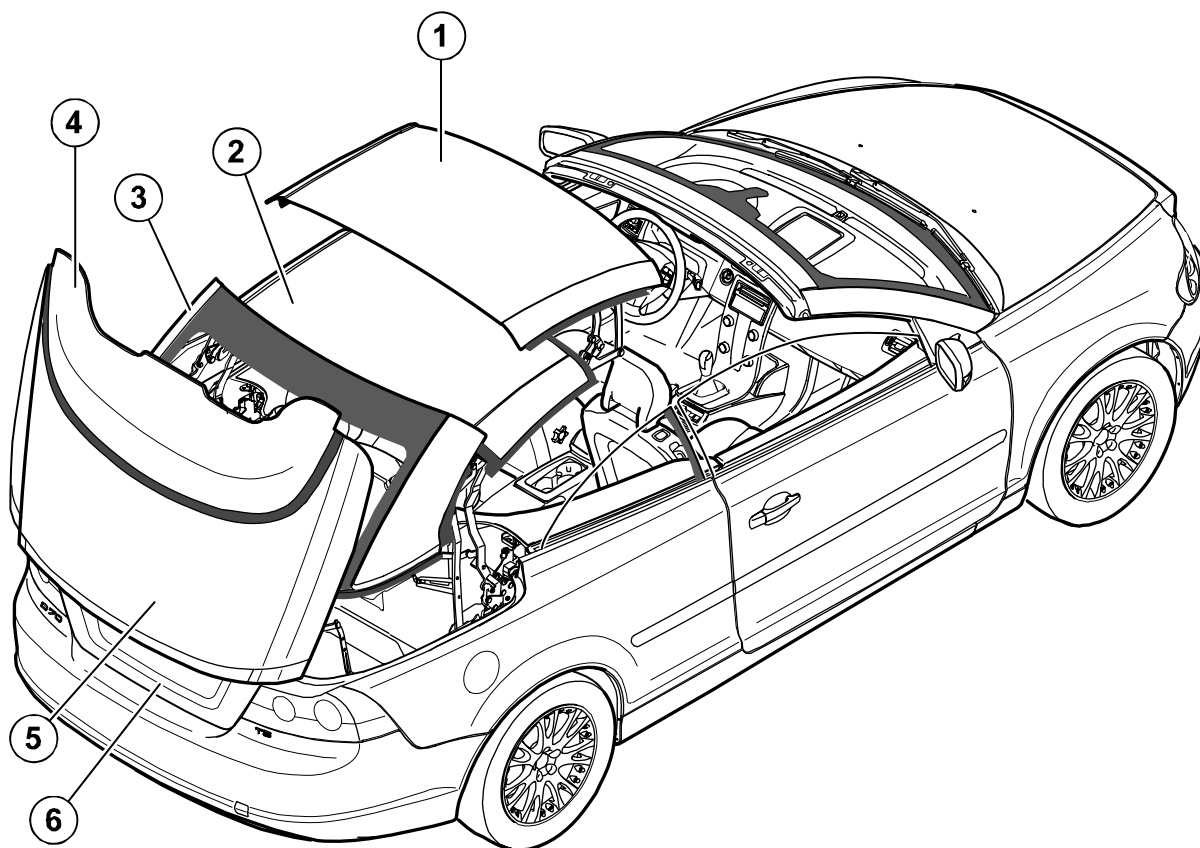
Steel used is as follows:

- Mild Steel (MS). Grey
- High Strength Steel (HHS). Blue
- Extra High Strength Steel (EHSS). Yellow
- Ultra High Strength Steel (UHSS). Red

HSS is used in the front section of the front side members, door sills and door sill reinforcements, the horseshoe shaped upper member behind the rear seat, the wall between the rear seat and the rear side members amongst other things.

EHSS is used in the rear section of the front side members, the crossmember on the bulkhead, the hydroformed tubes in the A-pillars, door members and reinforcements in the horseshoe shaped wall between rear seat and cargo compartment.

UHSS (boron steel) is used in the inner sections of the bumper rails.



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1	Front roof section	4	Cover panel
2	Centre roof section	5	Upper section, boot lid
3	Rear roof section	6	Lower section, boot lid

RHT (Retractable Hard Top)

General

The Volvo C70 is a coupé with a triple-section steel plate roof. By pressing a button the sections of the roof are folded together and stored in the cargo compartment at which point the car is transformed into a convertible.

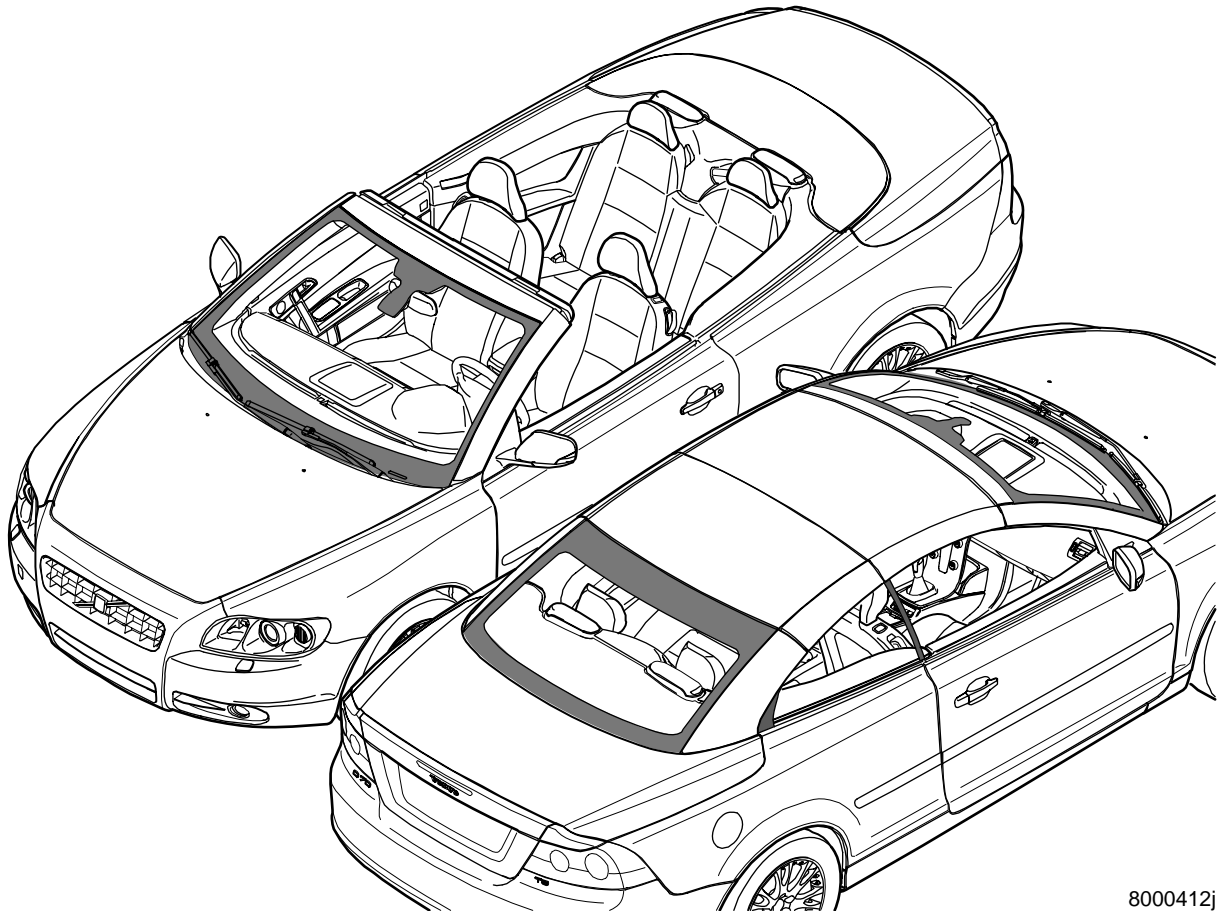
The roof consists of a front, centre and rear roof section.

The boot lid consists of two sections, an upper and a lower section. When the roof is opened and closed the upper section opens at the front edge.

When the roof is open (the roof is stored in the cargo compartment) the space between boot lid and passenger compartment is covered by a moving cover panel.

When the roof is closed the cover panel is retracted and stored under the upper section of the boot lid.

The operation and control of roof, cover panel and boot lid is mainly by means of mechanical links, arms and catches, so-called kinematics.



8000412j

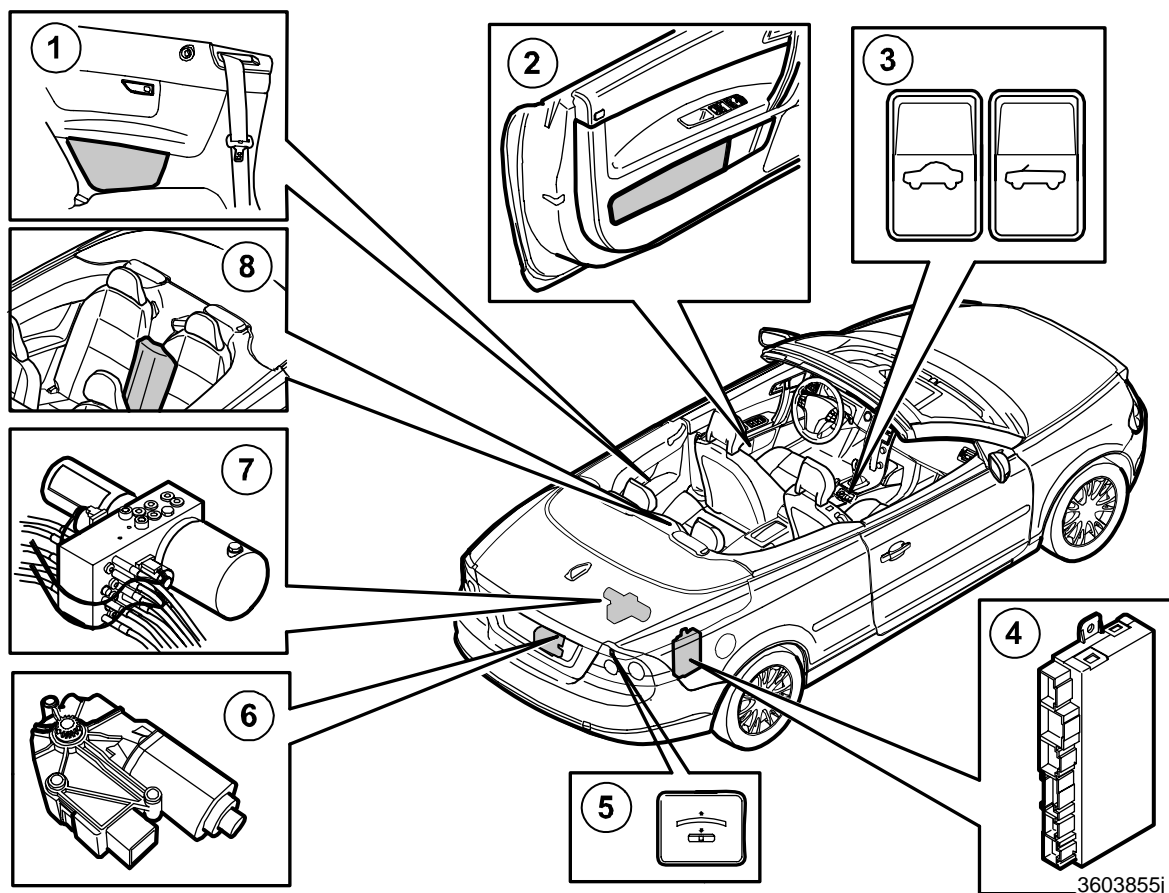
Hydraulic cylinders open, close and lock the roof, open and close the upper section of the boot lid and move the cover panel from its extended or retracted position.

An electric latch bolt motor locks the upper section of the boot lid to the boot lid hinges using cables.

The Convertible Roof Module (CRM) electrically controls the hydraulic system and the electric latch bolt motor.

By means of a number of input signals the Convertible Roof Module (CRM) receives information including:

- whether the roof should be opened or closed
- the current mode/position for the roof sections, position for the upper section of the boot lid and the position for the cover panel.
- whether the locks are in locked or unlocked mode.



3603855j

1	Side compartment, rear	5	Switch, loading assistance
2	Side compartment, front doors	6	Electric latch bolt motor
3	Switch, closing and opening the roof	7	Unit, hydraulic pump
4	Convertible Roof Module (CRM)	8	Hatch, long load

Operating the roof

Function, overview

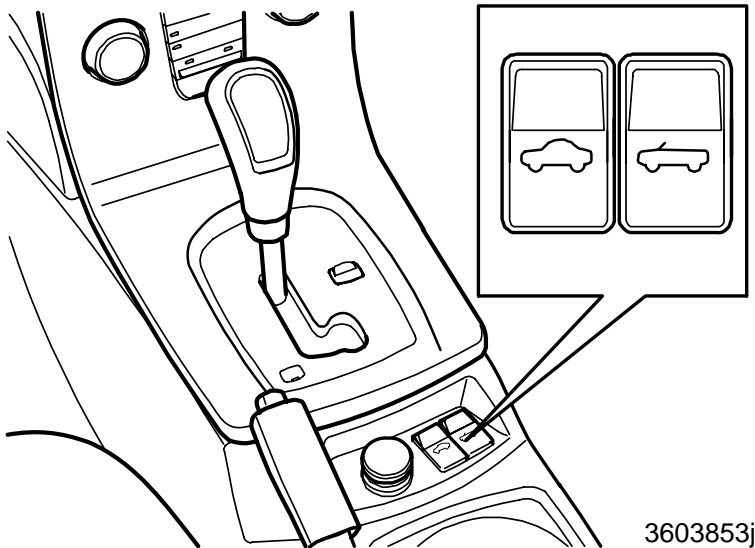
In order to control the hydraulic operation of roof, cover panel and boot lid an electrical system is required that reads/registers the movement/position of the roof sections during opening and closing.

The Convertible Roof Module (CRM), controls when/how the hydraulic unit's electrically controlled hydraulic valves should be activated. The position of the hydraulic valves in turn affects the movement of the hydraulic cylinders.

In addition to directly controlling the function of the roof, boot lid and cover panel as well as the loading assistance function, the Convertible Roof Module (CRM) also controls:

- Lockable storage compartments (side compartment, rear **1**, and side compartment, front **2**, as well as the hatch for long loads, **8**) by means of electric motors.
- The locking function for the boot lid by means of the electric latch bolt motor, **6**. Takes place by means of internal relay in the Convertible Roof Module (CRM).

Operating, opening/closing



3603853j

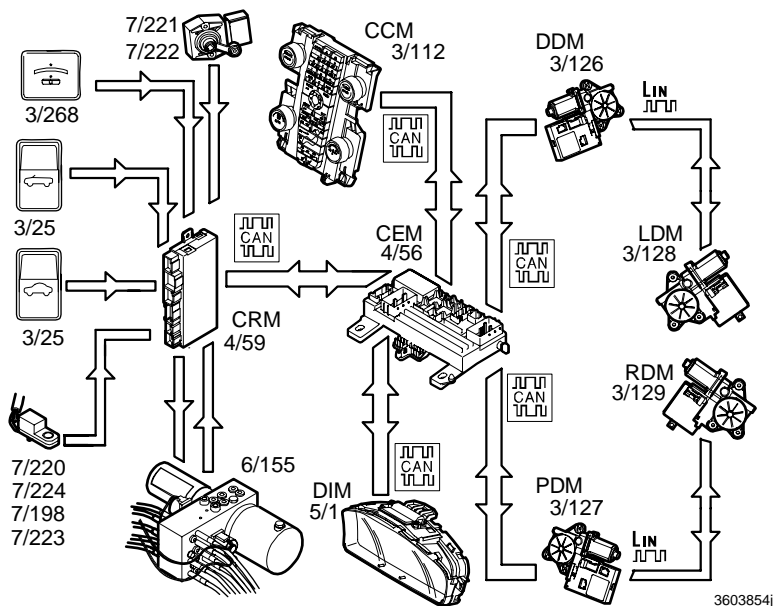
Roof operation takes place by means of two switches, one for opening and one for closing. The switches are directly connected to the Convertible Roof Module (CRM).

When opening/closing the switch must be held depressed during the whole opening/closing process and the brake pedal must be activated. For information see the driver's instructions.

During opening/closing, the Convertible Roof Module (CRM) continuously transmits the current position of the roof as a message on the CAN network.

The Driver Information Module (DIM) uses the signal to advise the status of the roof by means of text messages.

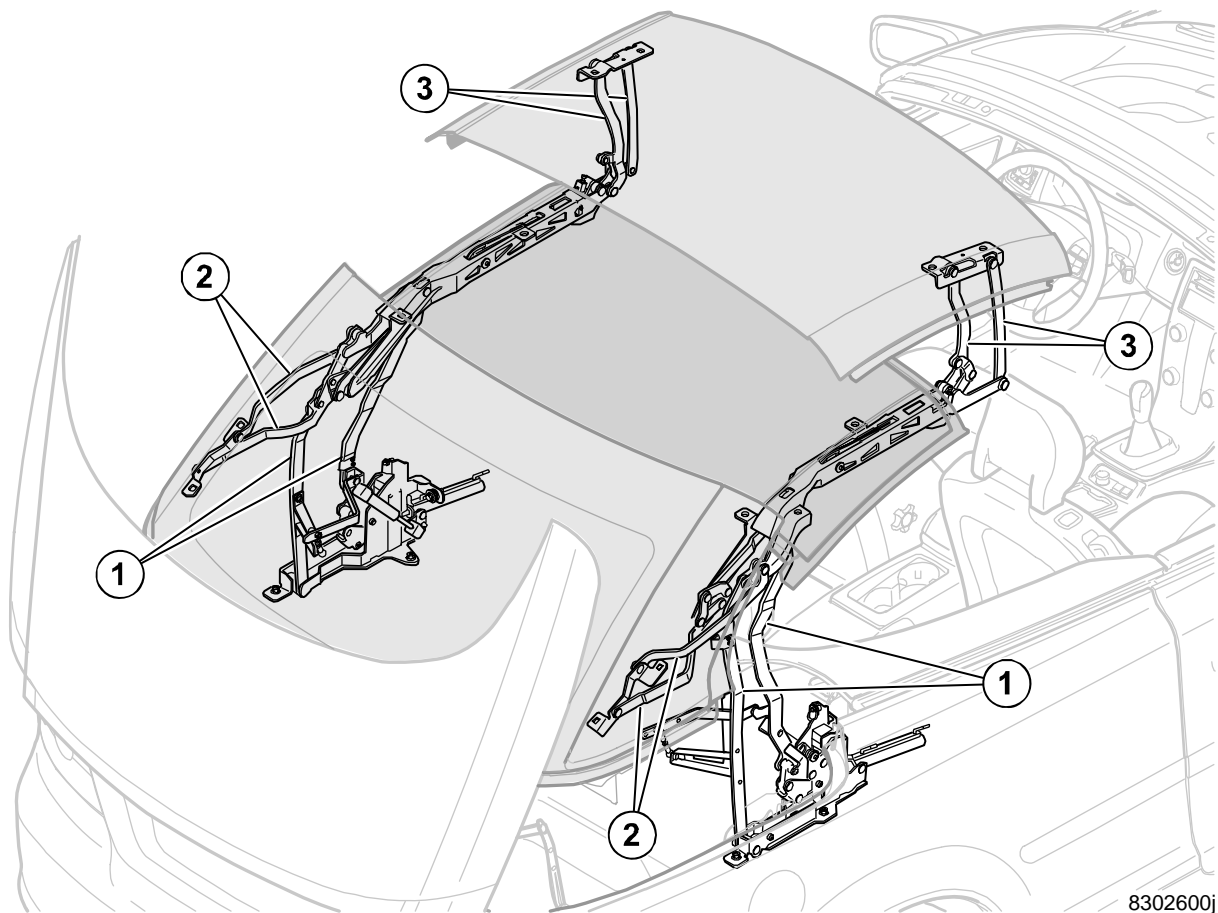
The Infotainment Control Module (ICM) uses the signal to adapt the audio signals.



3603854j

When the switch for opening or closing is activated a signal is sent to the Convertible Roof Module (CRM). The following action is taken:

- The Convertible Roof Module (CRM) sends a signal to the Driver Door Module (DDM) and Passenger Door Module (PDM) to lower the side windows approx. 80 mm. The request is sent through the CAN.
- In turn the Driver Door Module (DDM) and Passenger Door Module (PDM) send the request to the Left Rear Door Module (LDM) and Right Rear Door Module (RDM) to lower the rear side windows approx. 80 mm. Takes place through the LIN.
- By means of lowering the side windows, friction between windows and roof when the roof is opened/closed is eliminated.
- The Convertible Roof Module (CRM) activates the electric latch bolt motor, the electric motor for the hydraulic pump and the electrically controlled hydraulic valves. The hydraulic cylinders start to work and the roof starts to move.
- The roof is opened or closed in accordance with a procedure programmed into the Convertible Roof Module (CRM). A number of sensors, (14 hall sensors divided into groups (7/220, 7/224, 7/198 and 7/223) as well as two position sensors (7/221 and 7/222)), provide feedback to the Convertible Roof Module (CRM) on whether the movement of the roof is correct or defective.
- When one of the processes of opening/closing is complete a signal sounds and a text message is shown in the Driver Information Module (DIM).



8302600j

Kinematics

Roof

The three sections of the roof are secured on a frame structure, i.e. kinematics.

The main link arms, **1**, are attached to the body at the rear edge.

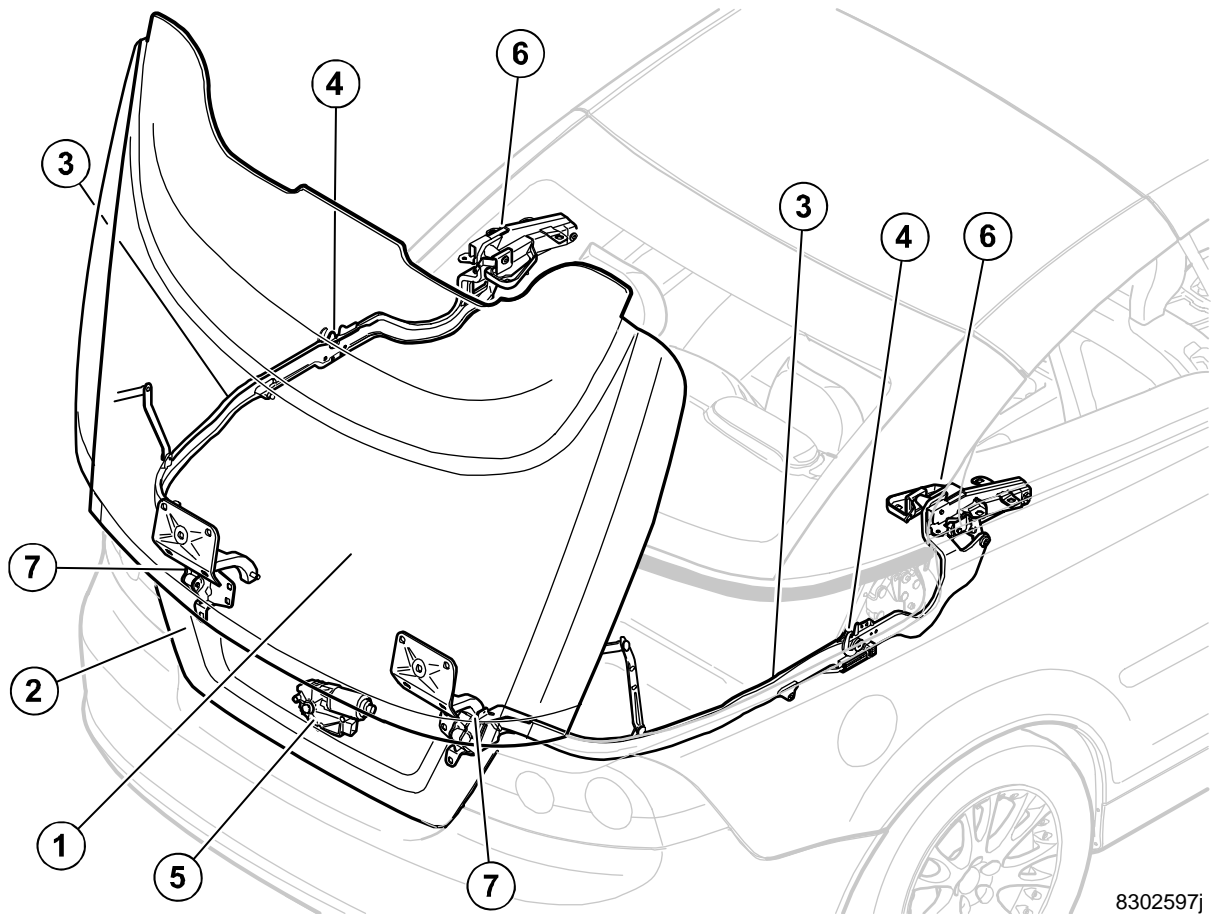
The centre roof section is fitted on the main link arms.

The rear roof section is fitted on separate link arms, **2**. These link arms are in turn secured to the main link arms.

The front roof section is also fitted on link arms, **3**, secured to the main link arms.

The movement of the centre roof section and rear roof section is created by means of the kinematics being acted on by two hydraulic cylinders called the "Master cylinders".

The movement of the front roof section is actuated by two other hydraulic cylinders called "Roof cylinders, front roof".



8302597j

1	Boot lid, upper section	5	Electric latch bolt motor
2	Boot lid, lower section	6	Joint hinges
3	Front hinge, boot lid	7	Rear hinge, boot lid upper section
4	Front catch, boot lid		

Boot lid

The boot lid consists of two sections, an upper section and a lower section. The sections are moveable and are fitted on the left and right-hand hinges.

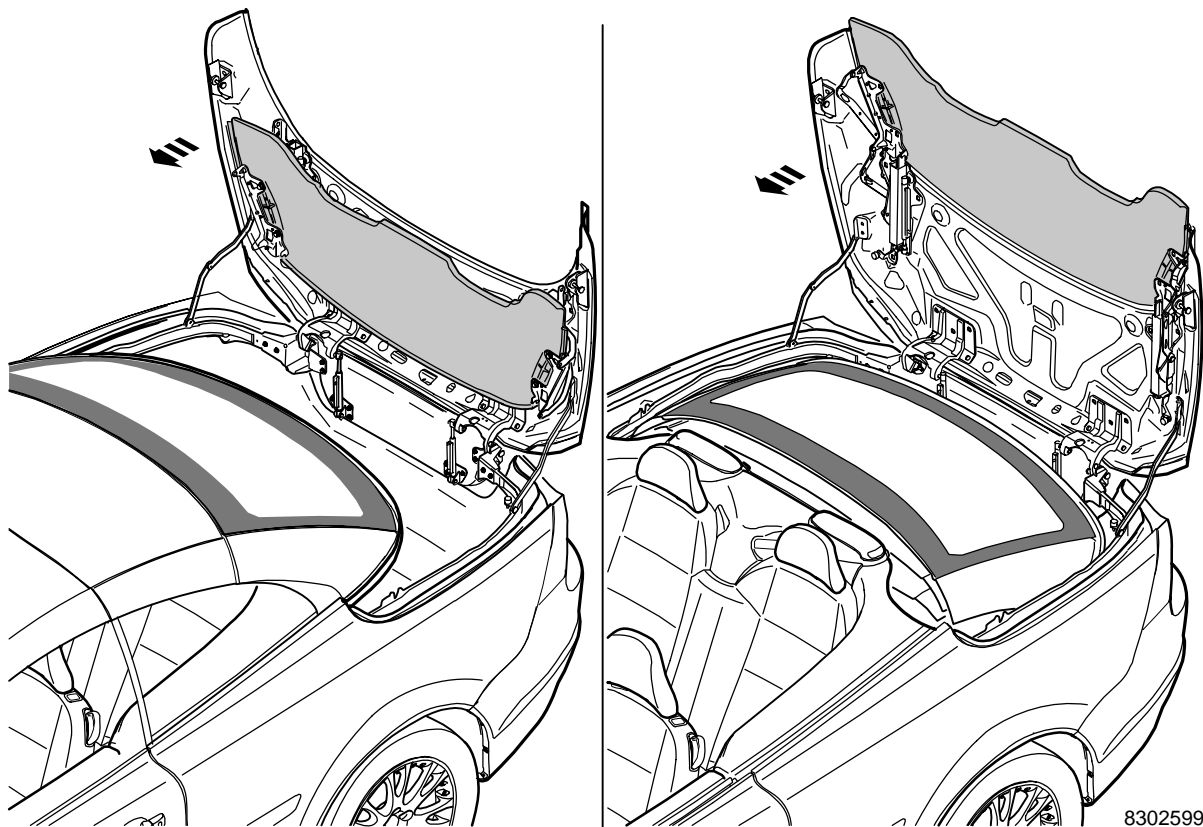
The boot lid is opened in a conventional manner in the front edge at the joint 6.

When the roof is opened/closed the boot lid's upper section opens at the front edge. Two hydraulic cylinders that are located on the lower section open/close the boot lid.

When the upper section is in closed position (i.e. the boot lid is one unit) the upper section is locked by an electric latch bolt motor. The latch bolt motor locks the upper section to the frame structure by means of two latch bolts.

The electric latch bolt motor is located on the lower section of the boot lid and with the assistance of a gear operates two cables that lock/unlock the latch bolts.

A hall sensor registers the movement of the motor shaft and sends a pulsed signal to the Convertible Roof Module (CRM). The Convertible Roof Module (CRM) can determine the position/movement of the motor from this signal and thereby the status of the latch bolts, locked or unlocked.



8302599j

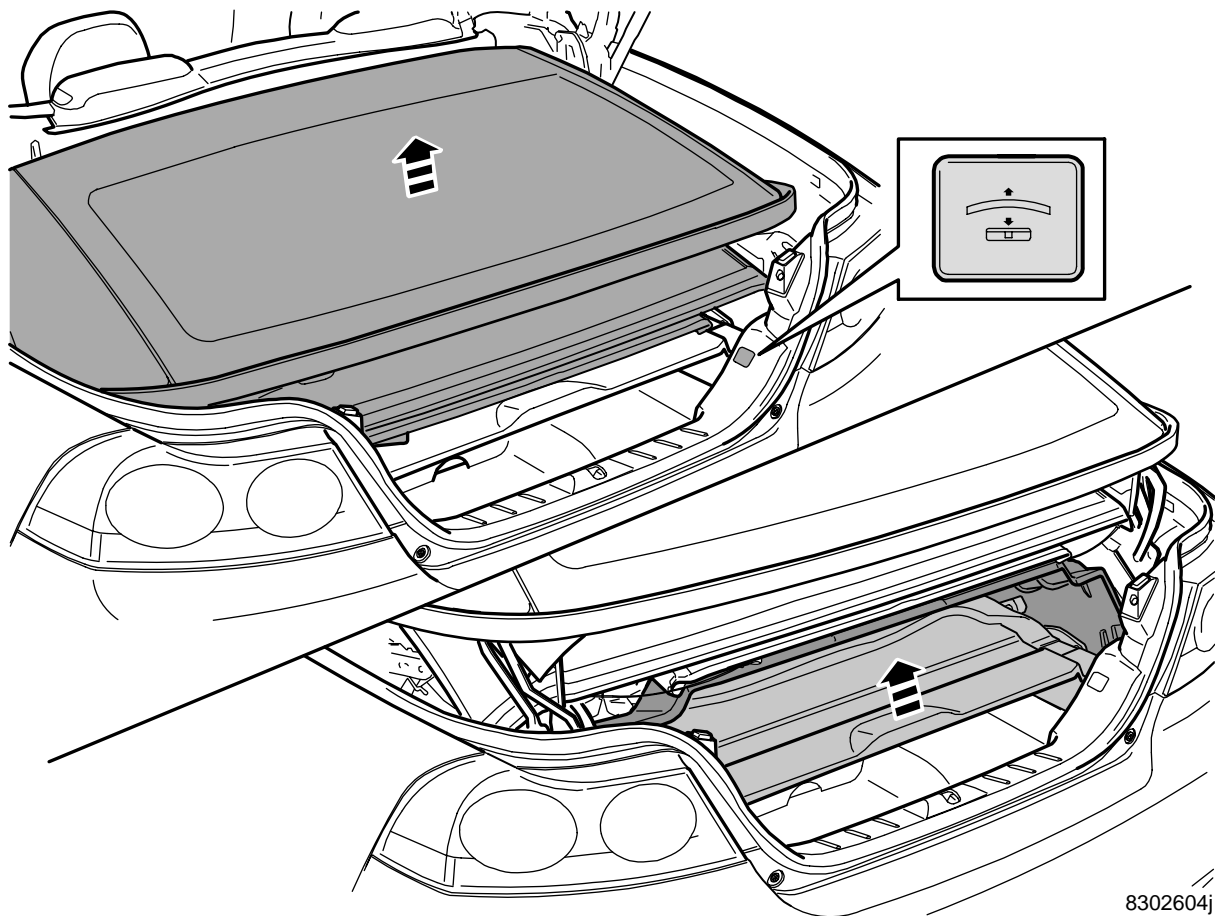
Cover panel

When the roof is stored in the cargo compartment the cover panel covers the front section of the cargo compartment. This takes place by means of the cover panel adopting its extended position.

When the roof is closed the cover panel is in its retracted position and is located under the upper section of the boot lid.

The cover panel is in its extended position during roof operation.

The movement of the cover panel is actuated by means of a link system that is acted on by two hydraulic cylinders called "Cylinders, cover panel".



8302604j

Loading assistance

Cargo divider and loading assistance

The cargo compartment is divided into two sections by means of a moveable cargo divider. The upper area is designed for the roof sections and the lower area for luggage.

There is a loading assistance function available in order to facilitate loading with the roof open (i.e. when the roof is located in the cargo compartment). Lifting the sections of the roof enables an increase in cargo compartment height of up to 300 mm. This function is initiated by means of a switch in the cargo compartment and is governed/controlled by the Convertible Roof Module (CRM).

Only one press of a button (one impulse) is required for the roof to move from the lower end position to the upper end position, or from the upper end position to the lower end position.

A larger cargo opening is obtained by means of lifting the cargo divider when the roof is at the upper limit position, and this provides improved accessibility for loading and unloading.

The cargo divider must be in its lower end position for roof operation to be permitted. The position is registered by a hall sensor whose signal is sent to the Convertible Roof Module (CRM).

The following applies if more than one press of a button takes place when the roof is moving from its lower position to its upper position:

- The first press means that the movement is stopped.
- The next press means that the roof is lowered.
- The next press means that the movement is stopped again.
- The next press means that the roof is raised again.

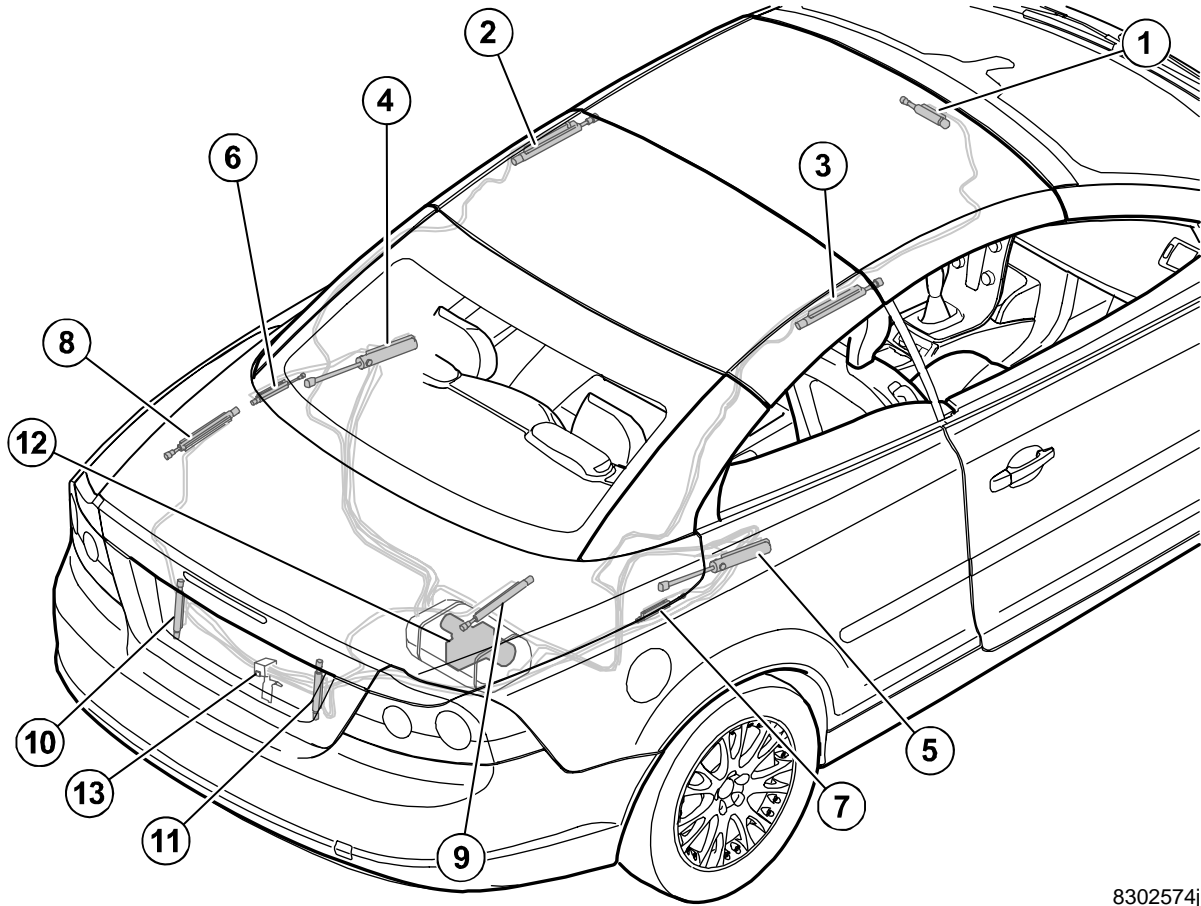
Continued pressing follows the schedule above, i.e. the movement of the roof is stopped-lowered-stopped-raised and so on.

The following applies if more than one press of a button takes place when the roof is moving from its upper position to its lower position:

- The first press means that the movement is stopped.
- The next press means that the roof is raised.
- The next press means that the movement is stopped again.
- The next press means that the roof is lowered again.

Continued pressing follows the schedule above, i.e. the movement of the roof is stopped-raised-stopped-lowered and so on.

The upper end position of the roof is a pre-programmed position stored in the Convertible Roof Module (CRM). The Convertible Roof Module (CRM) can determine when the correct position has been reached based on the signal from one position sensor.

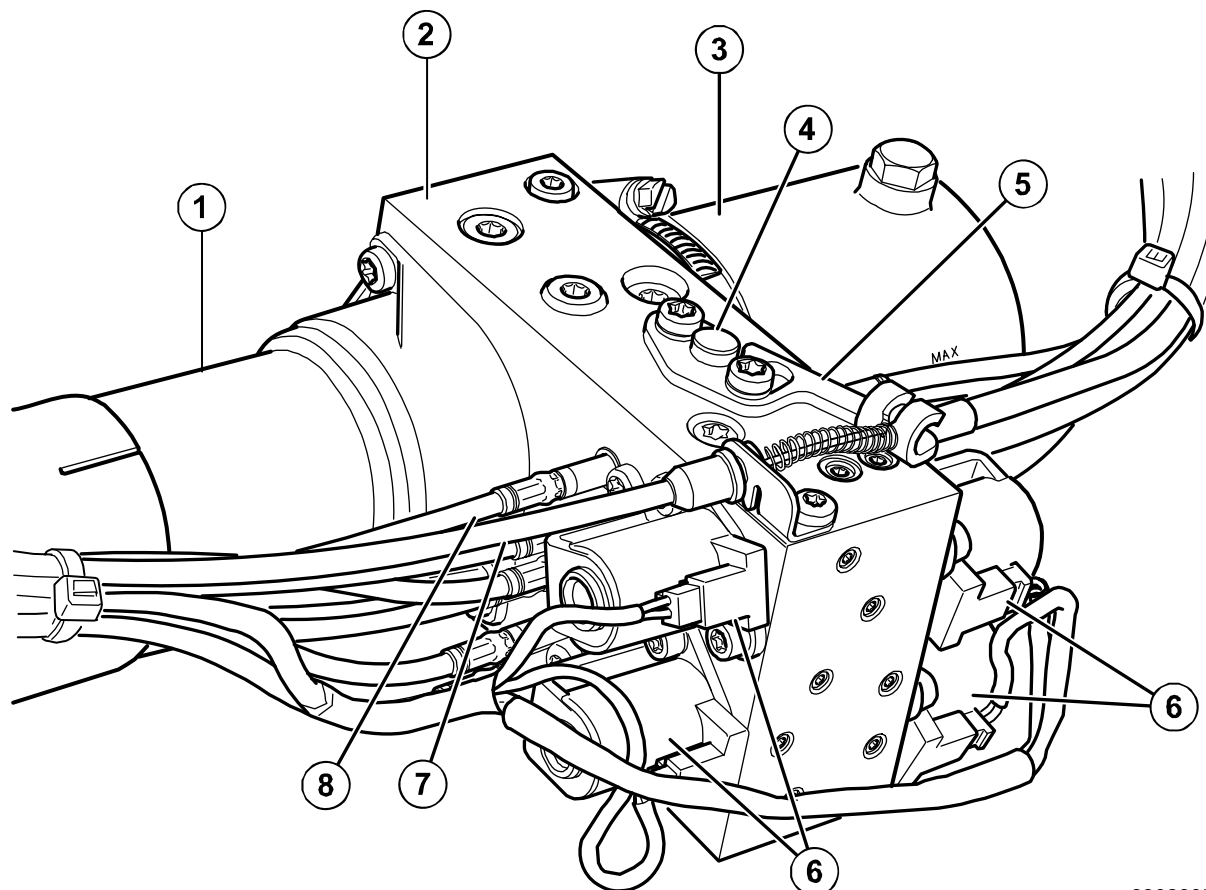


8302574j

Hydraulics

Components

1	Lock cylinder, front roof	8	Cylinder, cover panel, left
2	Roof cylinder, left	9	Cylinder, cover panel, right
3	Roof cylinder, right	10	Cylinder, boot lid, left
4	Master cylinder, left	11	Cylinder, boot lid, right
5	Master cylinder, right	12	Unit, hydraulic pump
6	Lock cylinder, rear roof, left	13	Distribution box
7	Lock cylinder, rear roof, right		

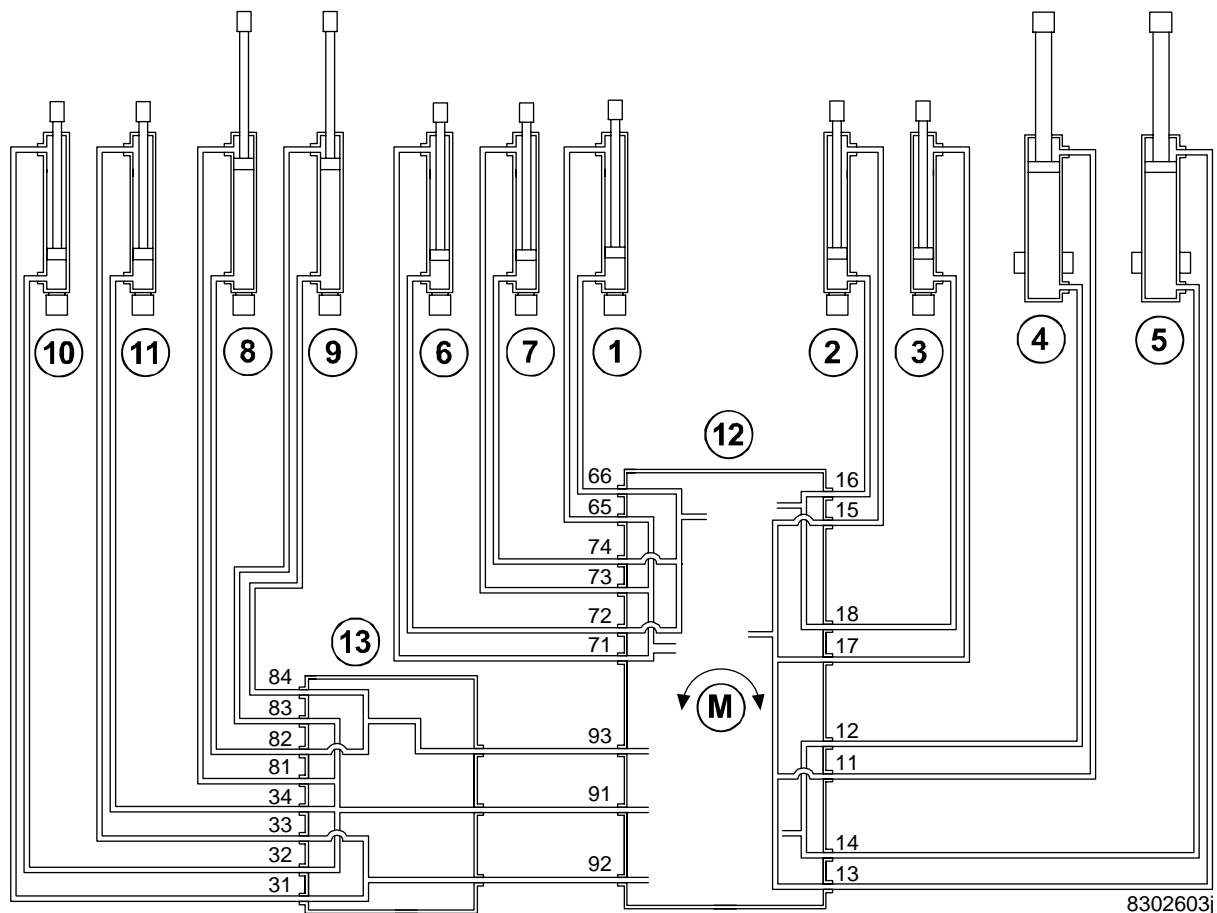


8302605j

1	Electric motor that drives the hydraulic pump	5	Catch for relief valve
2	Housing	6	Electrically controlled hydraulic valves, x 4
3	Oil reservoir	7	Cable for releasing the relief valve catch
4	Relief valve	8	Hydraulic hoses

Hydraulic unit

- The Convertible Roof Module (CRM) controls the electric motor which drives the hydraulic pump clockwise or anticlockwise. The direction of rotation depends on the sequence/position of the roof during opening/closing.
The hydraulic system has a maximum working pressure of 140 bar.
- There is a temperature sensor in the electric motor. The sensor is directly connected to the Convertible Roof Module (CRM). At high temperatures the Convertible Roof Module (CRM) limits the functionality of the hydraulic pump in order to avoid damage to the system.
- There are ducts in the housing through which the oil passes to/from the hydraulic pump, to/from the four electrically controlled hydraulic valves, to/from the hydraulic cylinders and to/from the oil reservoir.
- The hydraulic valves are controlled electrically by the Convertible Roof Module (CRM). The different hydraulic cylinders' positions (and thereby also the roof sections' positions) are controlled by opening/closing the valves in different patterns.
- The relief valve releases the pressure in the system when it is lifted. The ducts containing pressure are then connected with the return ducts, at which point the pressure in the system decreases. In order to be able to lift the valve the catch must first release the valve. This is done by pulling the cable, the handle for which is located under the rear seat cushion.
- The hydraulic hoses are "inserted" in the housing with O-rings as seals. The hoses are secured with screws.
The hoses and housing have corresponding numbering for easy identification.



Overview

1. Lock cylinder, front roof. Locks the front section of the roof to the windscreen frame.

2 and 3. Roof cylinders, left and right. Have several functions:

- They move the front section of the roof during opening and closing.
- They lock the roof's front section rear edge to its centre section front edge.
- They lock the roof's centre section rear edge to its rear section front edge.

4 and 5. Master cylinders, left and right. They move the centre roof section and the rear roof section during the opening and closing of the roof.

6 and 7. Lock cylinders rear roof section, left and right. They lock the roof (i.e. the roof's rear section) into the body.

8 and 9. Cylinders, cover panel, left and right. They move the cover panel to extended or retracted position.

10 and 11. Cylinders, boot lid, left and right. They open and close the upper section of the boot lid.

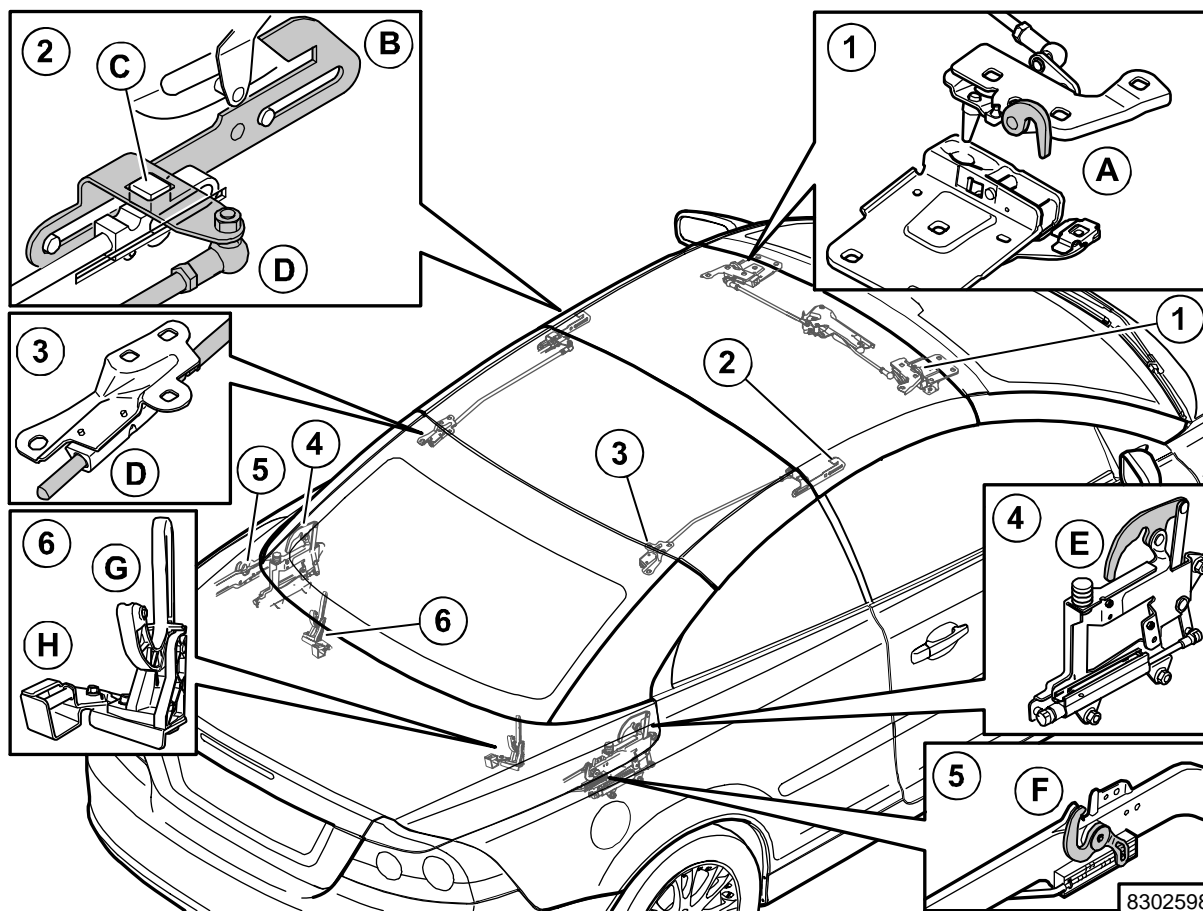
12. Hydraulic unit. Amongst other things, this contains electric motor driven hydraulic pump, four electrically controlled hydraulic valves and connections for hydraulic cylinders and distribution box.

13. Distribution box. Distributes hydraulic oil to the boot lid and cover panel hydraulic cylinders.

The illustration shows the position of the hydraulic cylinders with closed roof.

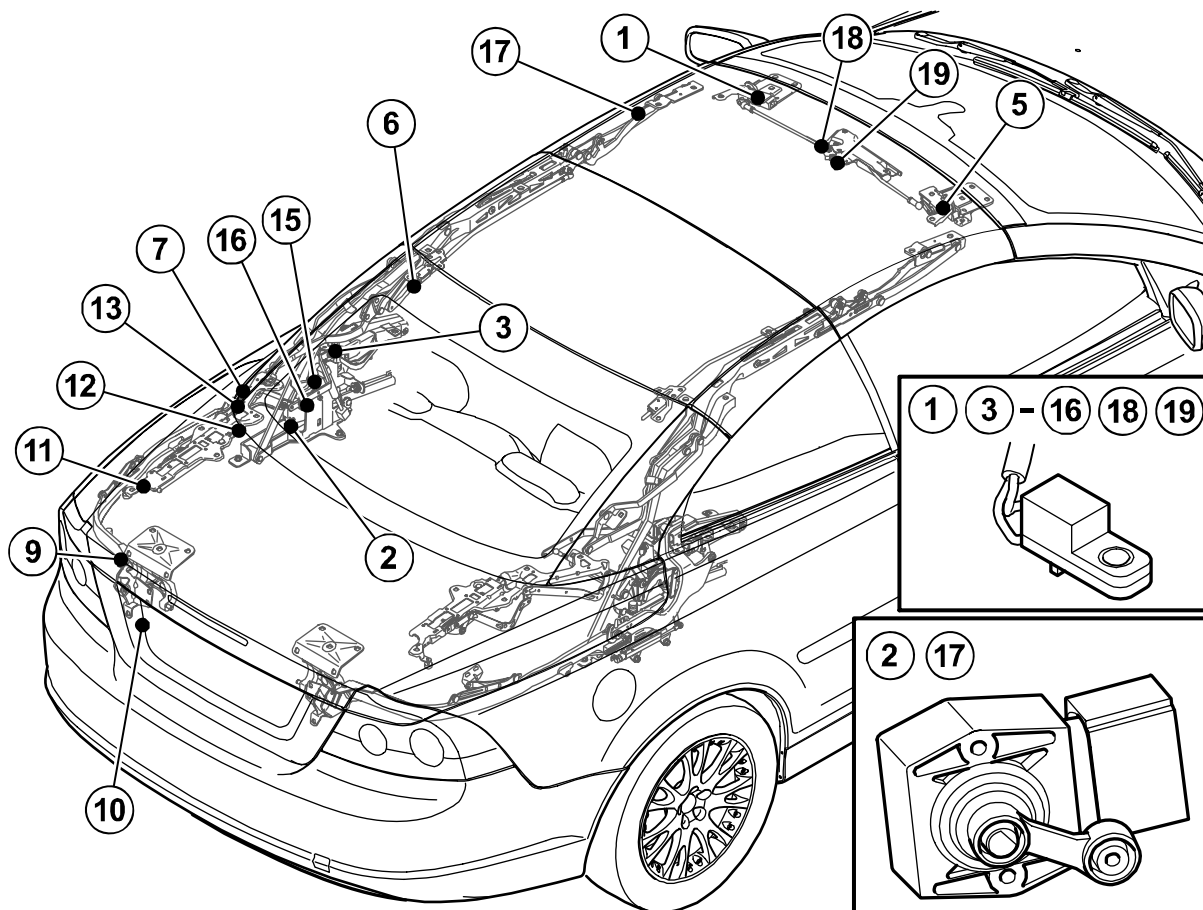
All hydraulic cylinders are double acting cylinders with single-sided piston rod. The hoses are secured with quick-release connectors.

NOTE. Only use hydraulic oil intended for this hydraulic system. See the service literature for the correct part number.



Locking the roof and boot lid

1. Two catches, **A**, lock the front roof section to the windscreen frame. Takes place with assistance from the lock cylinder for the front roof.
2. Two latch bolts, **B**, lock the roof's front section rear edge to its centre section front edge. Takes place with assistance from the two roof cylinders **C**.
3. Two rods, **D**, lock the roof's centre section rear edge to its rear section front edge. Takes place with assistance from the roof cylinders **C**.
4. Two latch bolts, **E**, lock the roof's rear section rear edge to the body. Takes place with assistance from the two lock cylinders for the rear roof.
5. Two latch bolts, **F**, lock the boot lid's upper section front edge to the boot lid frame. Takes place with assistance from the electric latch bolt motor via cables.
6. When the roof is located in the cargo compartment the front section of the roof is controlled by means of the moving clamp **G**. When the roof has reached the correct "rest position" the roof's front section lock cylinder locks the front latch bolts, **A**, around the latch pins **H**.



Electrical sensors/detectors

Position	Sensor/detector	Location	Comments
1	Hall sensor S1	Windscreen frame, left	Detects whether the roof is correctly locked to the windscreen frame.
2	Position sensor S2	By the main link arm for the centre roof section.	Provides information for the Convertible Roof Module (CRM) on the roof's movement sequences (centre and rear roof section).
3	Hall sensor S3	By the link system/frame for the boot lid.	Detects whether the boot lid is fully open before the loading assistance function is permitted.
5	Hall sensor S5	Windscreen frame, right	Detects whether the roof is correctly locked to the windscreen frame.
6	Hall sensor S6	Rear roof section, left front	Detects whether the centre roof section is correctly locked to the rear roof section.
7	Hall sensor S7	By the lock mechanism for the upper section of the boot lid.	Detects whether the upper section of the boot lid is correctly locked to the boot lid frame.

9	Hall sensor S9	By the kinematics (hinge) for the upper section of the boot lid.	Detects whether the upper section of the boot lid is correctly opened before roof opening/closing is permitted.
10	Hall sensor S10	By the cargo divider's left-hand rear attachment point to the floor.	Detects whether the cargo divider is correctly secured in its lower end position.
11	Hall sensor S11	By the link system for the cover panel.	Detects whether the cover panel is in its fully retracted position.
12	Hall sensor S12	By the link system for the cover panel.	Detects whether the cover panel is in its fully extended position.
13	Hall sensor S13	By the stop plate for the upper section of the boot lid.	Detects whether the upper section of the boot lid is correctly closed before it is locked.
15	Hall sensor S15	By the lock mechanism for the rear roof section to the body, left-hand side	Detects whether the rear roof section is correctly locked to the body.
16	Hall sensor S16	By the lock mechanism for the rear roof section to the body, left-hand side	Detects whether the rear roof section is correctly unlocked from the body.
17	Position sensor S17	By the link system for front roof section.	Provides information for the Convertible Roof Module (CRM) on the roof's movement sequences (front roof section).
18	Hall sensor S18	By the link system for the front roof section lock cylinder.	Detects whether the lock cylinder is in its open position, i.e. roof unlocked from the windscreen frame.
19	Hall sensor S19	By the link system for the front roof section lock cylinder.	Detects whether the lock cylinder is in its closed position, i.e. roof locked to the windscreen frame.

Hall sensors

The hall sensors have their own electronics and send a current/voltage signal to the Convertible Roof Module (CRM).

The signals are used by the Convertible Roof Module (CRM) to be able to determine the particular phase the roof is in.

The signal from the sensors is either active or passive. Activation takes place when a metal object such as a latch bolt passes the sensor body itself. This applies to all hall sensors apart from S13 which is activated by a magnet. The magnet is located on the left-hand front edge of the boot lid's upper section.

The sensors have an output signal to the Convertible Roof Module (CRM) which is approx. 3.6 volts when passive and approx. 0.8 volts when active.

The sensors are connected in groups with one power supply cable per group in accordance with the following:

- S1 and S5
- S10
- S3, S7, S9, S11, S12 and S13
- S6 and S18
- S15, S16 and S19

Each sensor has a supply voltage of 12 volts, i.e. the car's system voltage

Position sensor

The position sensors function in accordance with the hall principle. They also have their own electronics and send a current/voltage signal to the Convertible Roof Module (CRM). The signals are used by the Convertible Roof Module (CRM) to be able to determine the angle of the roof's link arms during operation.

The position sensors have reversed signal characteristics.

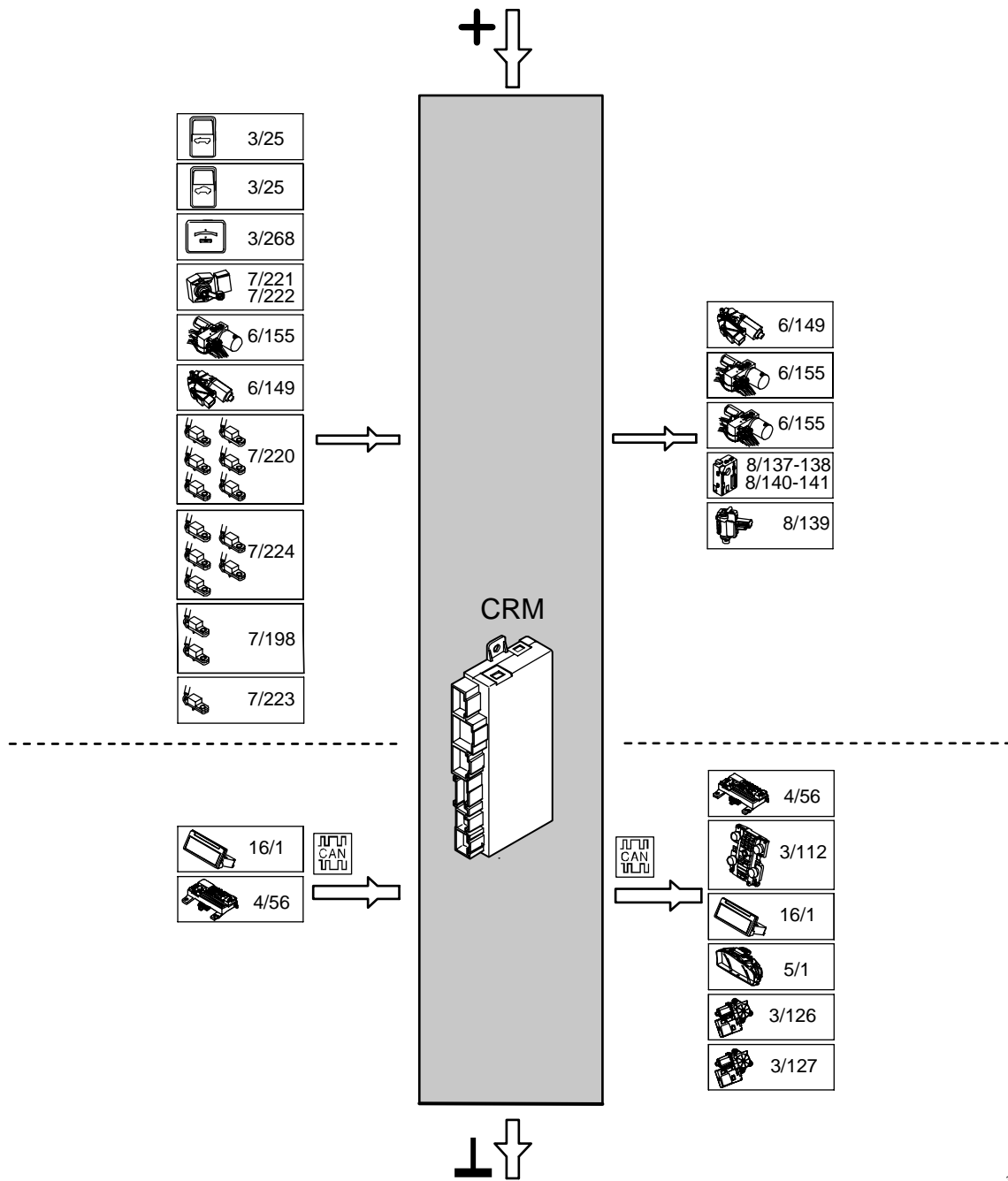
Position sensor S2 (centre roof section) has a high voltage, approx. 4.5 volts, when the roof is fully closed. The voltage decreases gradually to approx. 0.5 volts when the roof is fully open.

Position sensor S17 (front roof section) has a low voltage, approx. 0.5 volts when the roof is fully closed. Following which, the voltage increases gradually to approx. 4.5 volts when the roof is fully open.

The position sensors have a supply voltage equivalent to approx. 5 volts.

The position sensors must be calibrated through VIDA after replacement.

Input and output signals



3603856j

Input signals, directly connected

- Switch for opening roof (3/25)
- Switch for closing roof (3/25)
- Switch for loading assistance (3/268)
- Position sensor, centre/rear roof sections (7/221)
- Position sensor, front roof section (7/222)
- Temperature sensor for hydraulic pump electric motor. (6/155)
- Electric latch bolt motor (6/149)
- Hall sensors. Total, x 14 (7/198, 7/220, 7/223 and 7/224)

Output signals, directly connected

- Electric latch bolt motor (6/149)
- Hydraulic valves, x 4 (6/155)
- Hydraulic pump electric motor (6/155)
- Electric motors for lockable storage compartments
 - Driver's door (8/137)
 - Passenger door (8/138)
 - Side panel, passenger side rear (8/140)
 - Side panel, driver's side rear (8/141)
- Electric motor for hatch for long loads (8/139)

Input signals via CAN

- Infotainment Control Module (ICM) (16/1)
- Central Electronic Module (CEM) (4/56)

Output signals via CAN

- Central Electronic Module (CEM) (4/56)
- Climate Control Module (CCM) (3/112)
- Infotainment Control Module (ICM) (16/1)
- Driver Information Module (DIM) (5/1)
- Driver Door Module (DDM) (3/126)
- Passenger Door Module (PDM) (3/127)

Functions, miscellaneous

Lowering of side windows, so-called "Short drop"

In order to prevent interference between roof sections and windows all side windows are lowered approx. 80 mm from their top position (fully closed) during roof operation. This function is called "Short drop".

This function is also used during the opening and closing of the doors. The difference then is that the windows are lowered and raised respectively approx. 4 mm in order that the windows will be inside the rubber strip when the door is closed.

Passenger Door Module (PDM), Driver Door Module (DDM), Left Rear Door Module (LDM) and Right Rear Door Module (RDM) receive a message from Convertible Roof Module (CRM) via CAN and LIN in order to initiate the function during roof operation.

If the window is already lower than the "Short drop" position then this function is ignored.

All other window operations are deactivated during the period for which "Short drop" is active.

Deactivating the rear window defroster

When the roof is fully open and folded in the cargo compartment the rear window defroster and passenger compartment fan output are deactivated. It is the Climate Control Module (CCM) that controls this function on command from the Convertible Roof Module (CRM). Takes place by means of a message on the CAN network.

Low voltage

The Central Electronic Module (CEM) signals low battery voltage on the CAN network to the Convertible Roof Module (CRM). The Convertible Roof Module (CRM) prevents roof operation.

The Convertible Roof Module (CRM) also measures battery voltage internally to prevent roof operation when the voltage is low. The limit for low voltage is approx. 9 volts.

Tip: The roof can be closed and loading assistance lowered once in the event of low battery voltage.

Roof operation in the event of a roof fault

Roof operation in the event of a roof fault is a function that enables roof operation despite certain sensors signalling errors. If the signal pattern from the sensors does not correspond with that of the programmed position then the movement of the roof is stopped. This is to prevent the roof sections from colliding.

However, it is possible to operate the roof (depending on diagnostic trouble code (DTC) generated) by holding one of the opening/closing buttons depressed for longer than 5 seconds. This is called "Electrical Override" and requires that great attention is paid to the roof and its movement so that the roof sections do not collide and sustain damage.

Resetting the Convertible Roof Module (CRM)

The Convertible Roof Module (CRM) returns to "normal status" by means of removing the power supply to the Convertible Roof Module (CRM) (simplest method is to remove the battery negative cable) following the generation of a diagnostic trouble code (DTC) that limits roof functionality for example. The Convertible Roof Module (CRM) then assumes that the system is fault-free.

Following "reset" the Convertible Roof Module (CRM) activates the electric latch bolt motor in the "opening-closing-opening" sequence. This is to check the movement/position of the electric motor and that the cable system and latch bolts/sensors are fault-free.

Temperature compensation, temperature sensor, hydraulic unit electric motor

An NTC type temperature sensor is located in the hydraulic unit electric motor. The temperature of the electric motor is registered by the Convertible Roof Module (CRM).

The Convertible Roof Module (CRM) limits are based on the electric motor temperature and pump functionality in accordance with the table.

Temperature range	Functionality
Lower than 90°C	Full hydraulic pump functionality.
90°C-120°C	Only one roof closure or loading assistance retraction.
Higher than 120°C	No functionality permitted at all.
Lower than -9°C	Only one roof closure is permitted.
Lower than -11°C	No functionality permitted at all.

In the event of limited functionality a text message is shown regarding status in the Driver Information Module (DIM).

Loading assistance

Before the roof is raised the front roof cylinder unlocks the front roof section catch from the body.

At the same time all latch bolts for the rear roof section are unlocked which takes place "blind" (the roof is of course in the cargo compartment).

As the hydraulic sequence is the same as when the roof is closed the boot lid hydraulic cylinders are also activated. However, the lock for the boot lid upper section is not unlocked (the latch bolt motor has not been activated). This means that the hydraulic cylinder pistons are working and attempt to open the boot lid.

The result is that the lower section of the boot lid moves in relation to its upper section. This is a design characteristic and consequently not a fault.

Manual roof operation

Closing the roof

If the roof cannot be operated in the normal manner then it can be closed manually.

The description will be available in VIDA.

A summary:

Two people are required to move the roof.

1. Lower the side windows to their lower limit position.
2. Open the boot lid "as normal". Unlock the lock for the boot lid upper section by rotating the latch bolt motor. If required, remove the cover so that the recess for the hexagon socket is accessible.
3. Release the hydraulic pressure by pulling the cable to release the relief valve. Make sure that the relief valve adopts its upper position.
4. Close the boot lid. Now open the upper section of the boot lid (at the front edge).
5. In the passenger compartment, push in the long load cover so that it is possible to access the front roof section in the cargo compartment.
6. Remove the cover for the links of the front roof section's hydraulic cylinder. Make sure that the recess for the hexagon socket is accessible. Unlock the lock for the front roof section by turning the roof cylinder's links to their open position (anticlockwise). The roof is then released from the body.
7. Unlock the latch bolts for the roof's rear catch to the body by moving the pistons for the lock cylinders to their front position. If this is not done then the roof will not adopt closed position correctly.
8. Lift the roof assembly to the position where the rear roof section is highest.
9. Lift the front roof section forward to its closed position while the centre roof section and rear roof section adopt their closed positions.
10. Move the cover panel to its retracted position and close the upper section of the boot lid.

NOTE. This is an outline description. Take great care that the roof sections do not collide.

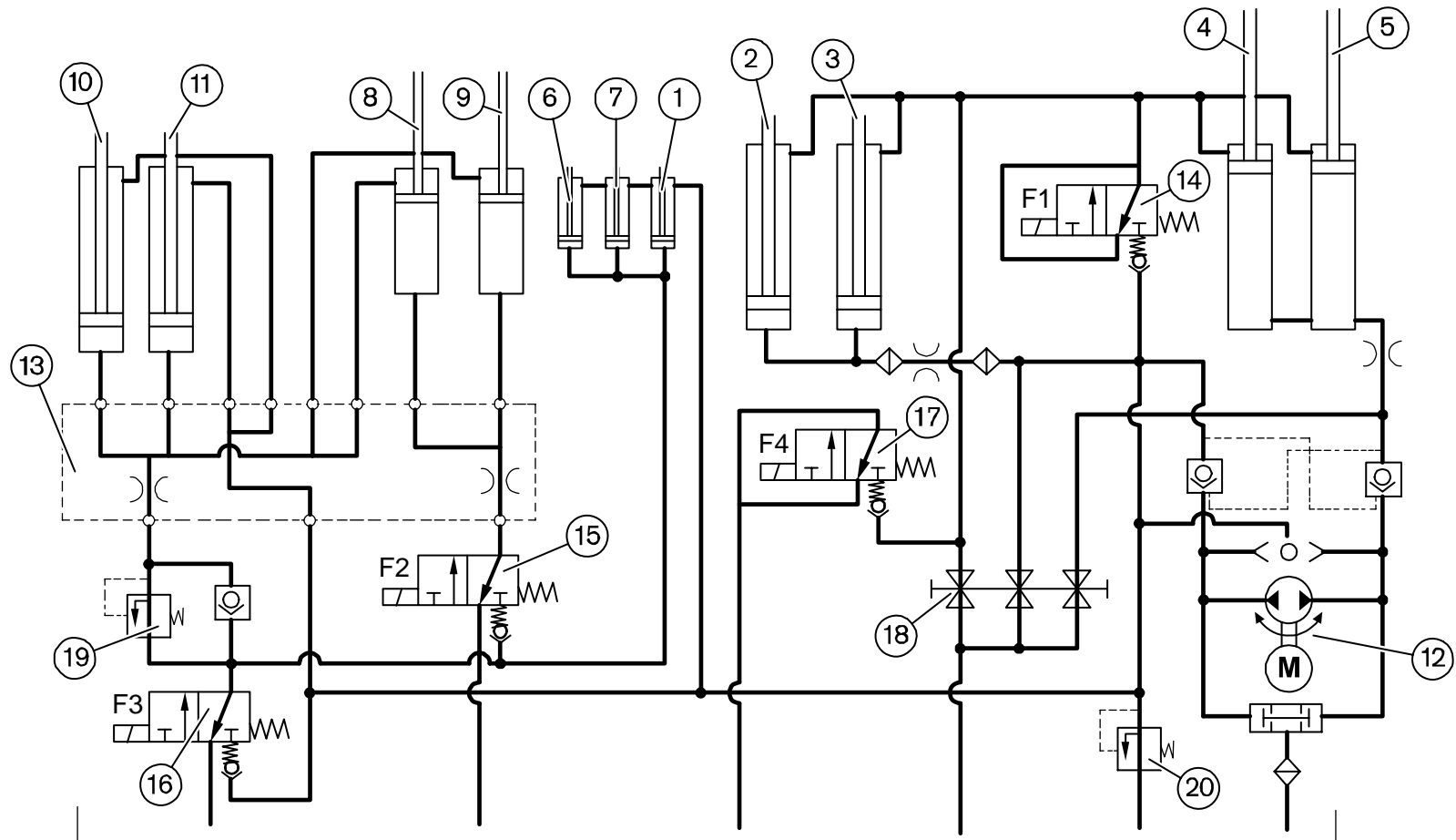
Opening the roof

In principle roof opening takes place in reverse order to closing. However, the critical point is unlocking the catches between the roof's front section rear edge and its centre section front edge, and between the roof's centre section rear edge and its rear section front edge. This takes place by means of pulling the roof cylinders towards their extended position. This requires that the headlining is uncovered to provide access to the roof cylinders.

Notes

Hydraulics

Hydraulic diagram

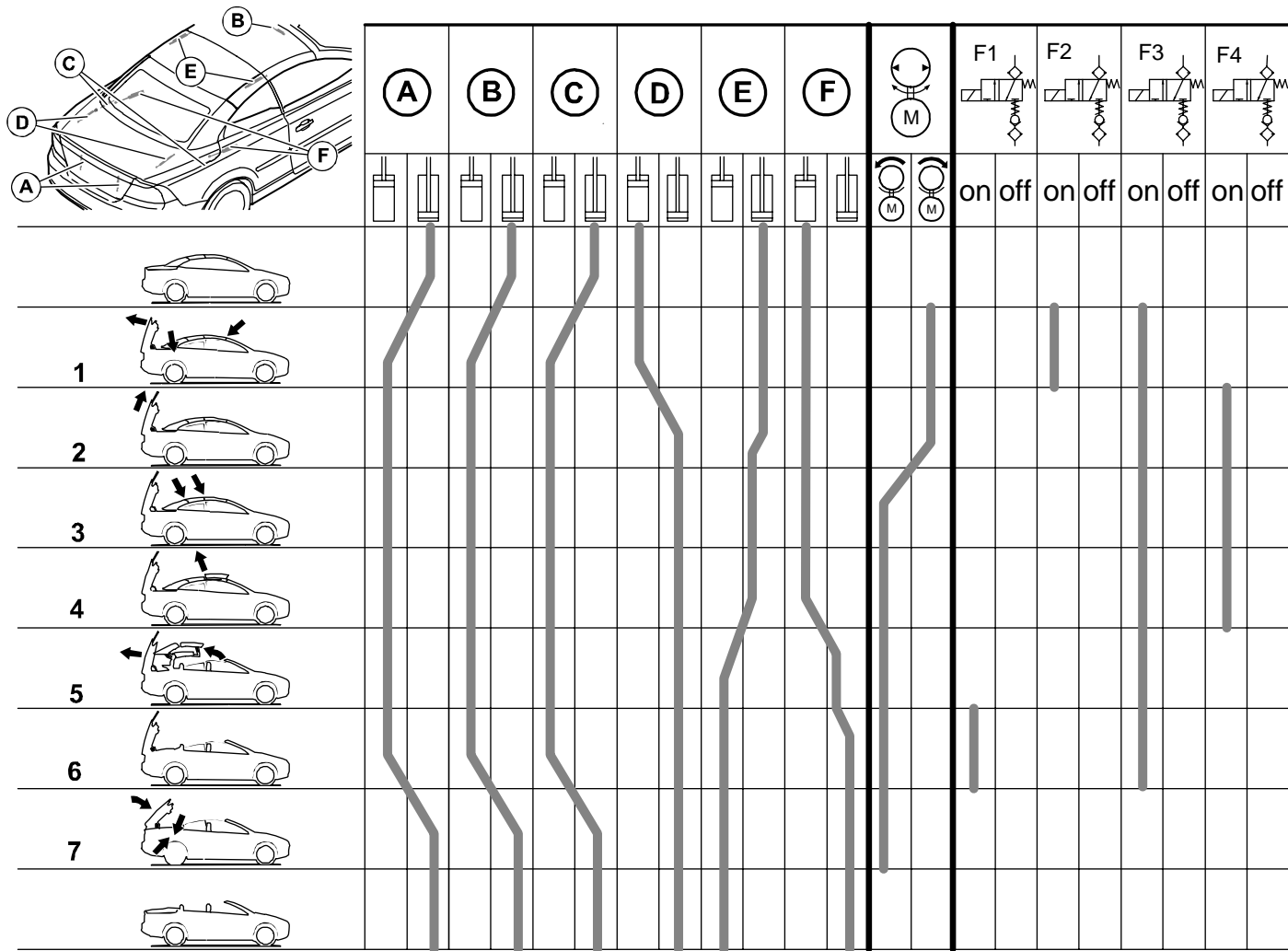


3603873j

1	Lock cylinder, front roof	11	Cylinder, boot lid, right
2	Roof cylinder, left	12	Electric motor driven pump with two flow directions and constant displacement
3	Roof cylinder, right	13	Distribution box
4	Master cylinder, left	14	F1, electrically controlled valve with two positions
5	Master cylinder, right	15	F2, electrically controlled valve with two positions
6	Lock cylinder, rear roof, left	16	F3, electrically controlled valve with two positions
7	Lock cylinder, rear roof, right	17	F4, electrically controlled valve with two positions
8	Cylinder, cover panel, left	18	Relief valves for depressurising the system
9	Cylinder, cover panel, right	19	Pressure limiting valve, opening pressure 35 (+/-7) bar
10	Cylinder, boot lid, left	20	Pressure limiting valve, opening pressure 140 (+/-10) bar

The hydraulic pressure in the system is 140 bar apart from the boot lid cylinders. These operate with a pressure of 35 (+/-7) bar. This is in order to enable the operation of the loading assistance function.

Opening the roof



8302571j

The position of the roof is controlled by the Convertible Roof Module (CRM) based on the request from one of the switches, "Open" or "Close". The sequence continues as long as the switch is depressed.

When the Convertible Roof Module (CRM) has registered that the roof is closed and locked and that the boot lid is closed, the Convertible Roof Module (CRM) starts the opening procedure. The following action takes place in chronological order:

Preparations:

The Convertible Roof Module (CRM) requests that the front and rear side windows are lowered.

The Convertible Roof Module (CRM) unlocks the boot lid (upper section) at the front edge by means of the electrical latch bolt motor.

1. Opens the boot lid at the front edge by means of the two hydraulic cylinders. Unlocks the roof at the rear edge from the body by means of the lock cylinders for the rear roof. Unlocks the roof at the windscreen frame by means of the lock cylinder for the front roof.
2. Moves the cover panel to its extended position by means of the hydraulic cylinders.
3. Unlocks the joint between the roof's front and centre sections as well as the catch between the roof's centre and rear sections by means of the roof cylinders.
4. Raises the front roof section.
5. Raises the roof's front, centre and rear sections. Initially takes place by means of both roof cylinders and master cylinders. The sequence is concluded by means of the master cylinders alone.
6. The roof reaches its position in the cargo compartment by means of the master cylinders.
7. The front roof section is locked at the front edge to the body by means of the lock cylinder for the front roof. At the same time the lock cylinders also lock the rear roof's latch bolts (takes place "blind"). The boot lid is closed by means of its cylinders.

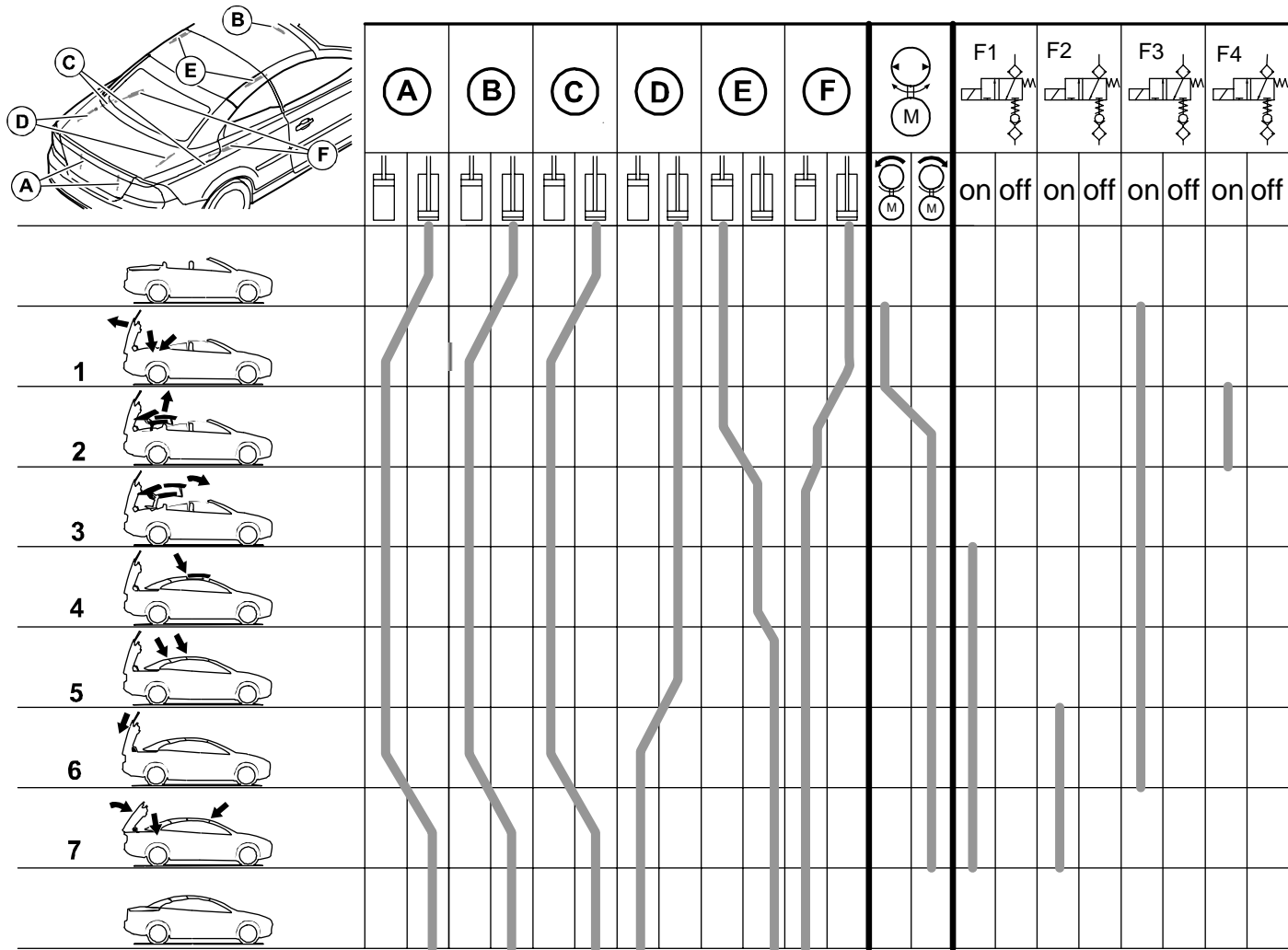
Conclusion:

The Convertible Roof Module (CRM) locks the boot lid by means of the electric latch bolt motor.

The Convertible Roof Module (CRM) requests that the front and rear side windows are raised.

The Convertible Roof Module (CRM) requests an audio signal and text message as acknowledgement that the opening procedure is completed.

Closing the roof



8302572j

The position of the roof is controlled by the Convertible Roof Module (CRM) based on the request from one of the switches, "Open" or "Close". The sequence continues as long as the switch is depressed.

When the Convertible Roof Module (CRM) has registered that the roof is open and locked and that the boot lid is closed, the Convertible Roof Module (CRM) starts the closing procedure. The following action takes place in chronological order:

Preparations:

The Convertible Roof Module (CRM) requests that the front and rear side windows are lowered.

The Convertible Roof Module (CRM) unlocks the boot lid (upper section) at the front edge by means of the electrical latch bolt motor.

1. Opens the boot lid at the front edge by means of the two hydraulic cylinders. Unlocks the front roof section from the body by means of the lock cylinder for the front roof.
The lock cylinders for the rear roof also unlock the latch bolts for the rear roof (takes place "blind").
2. Raises the roof by means of the master cylinders.
3. The master cylinders continue to raise the roof while the roof cylinders start to close the front roof section.
4. The roof's rear and centre sections reach their closed positions at which the roof cylinders continue to close the front roof section completely.
5. The roof cylinders continue their movement which locks the centre roof section to both the front and rear roof sections.
6. The cover panel is pulled to its retracted position by means of its hydraulic cylinders.
7. The roof is locked to the windscreen by means of the lock cylinder for the front roof and at the rear edge to the body by means of the lock cylinders for the rear roof. The boot lid is closed by means of its cylinders.

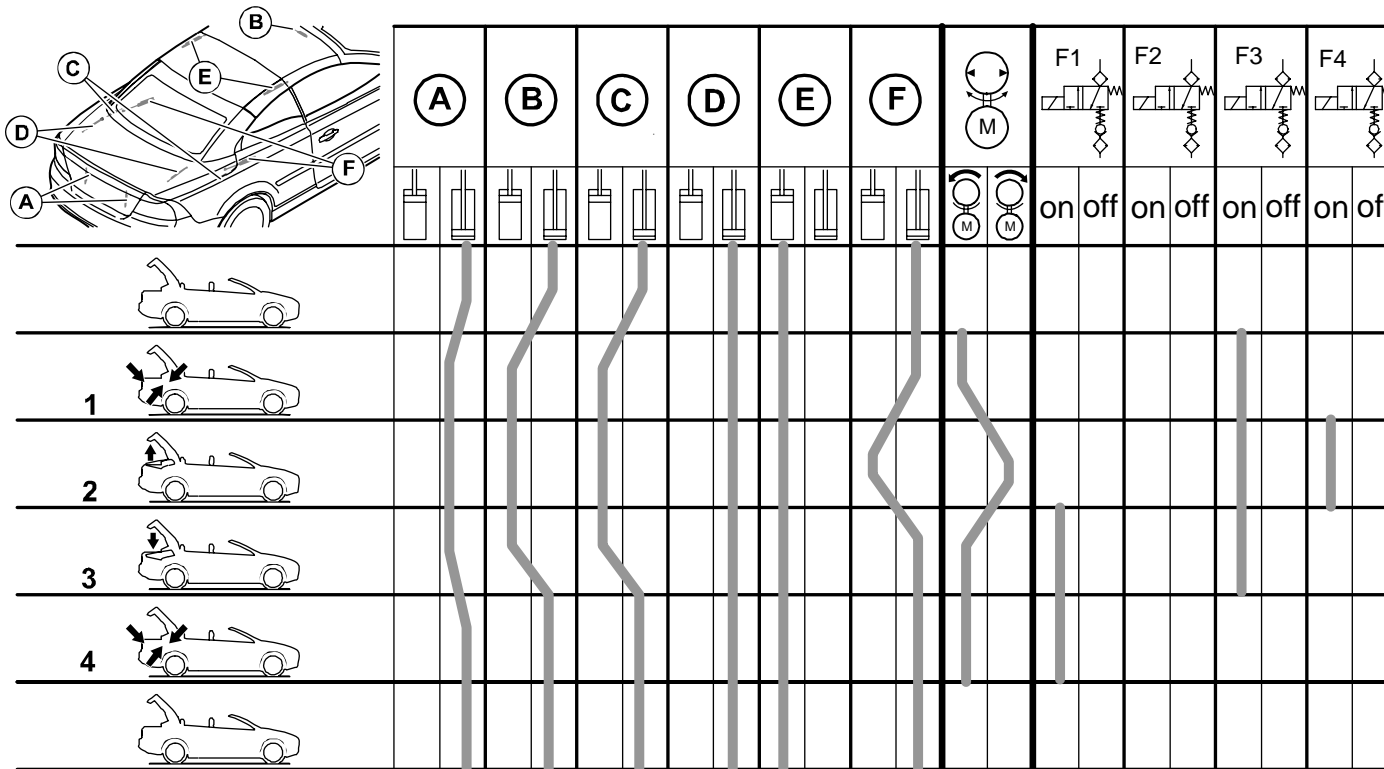
Conclusion:

The Convertible Roof Module (CRM) locks the boot lid by means of the electric latch bolt motor.

The Convertible Roof Module (CRM) requests that the front and rear side windows are raised.

The Convertible Roof Module (CRM) requests an audio signal and text message as acknowledgement that the closing procedure is completed.

Loading assistance



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The position of the roof is controlled by the switch for loading assistance.

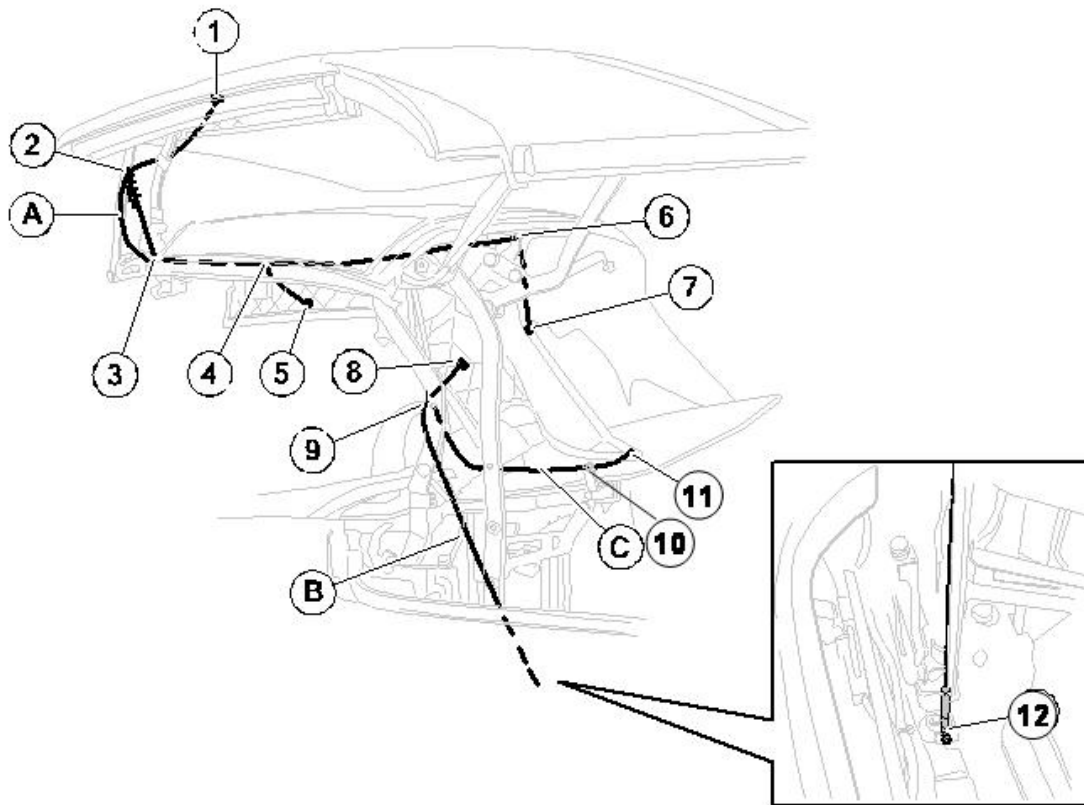
The Convertible Roof Module (CRM) registers

- That the roof is fully open
- That the boot lid is fully open (at the rear edge). Takes place by means of the hall sensor located by the link system for the boot lid, left-hand side.

After which, the following takes place:

1. Unlocks the roof's latch bolts from the body. Takes place by means of the lock cylinder for the front roof.
The lock cylinders for the rear roof also unlock the latch bolts for the rear roof, which takes place "blind".
The boot lid cylinders attempt to open the boot lid at the front edge, which cannot take place as the latch bolt motor has not unlocked the boot lid front lock.
2. The roof is raised by means of the master cylinders. The movement is registered by the position sensor for the main link arms. When the roof has reached its end position, calculated by the Convertible Roof Module (CRM), the movement is stopped.
3. The next press of a button means that the roof is lowered, which takes place by means of the master cylinders.
NOTE The divider in the cargo compartment must be in its lower position. Registered by the divider's hall sensor.
When the roof has reached its end position ("rest position"), calculated by the Convertible Roof Module (CRM) based on the signal from the position sensor for the main link arms, the movement is stopped.
4. The front roof section latch bolts are locked at the front edge to the body by means of the lock cylinder for the front roof. At the same time the latch bolts for the rear roof are also locked "blind" by the lock cylinders for the rear roof. The boot lid cylinders also close the boot lid at the front edge "blind".

The sequence is completed.



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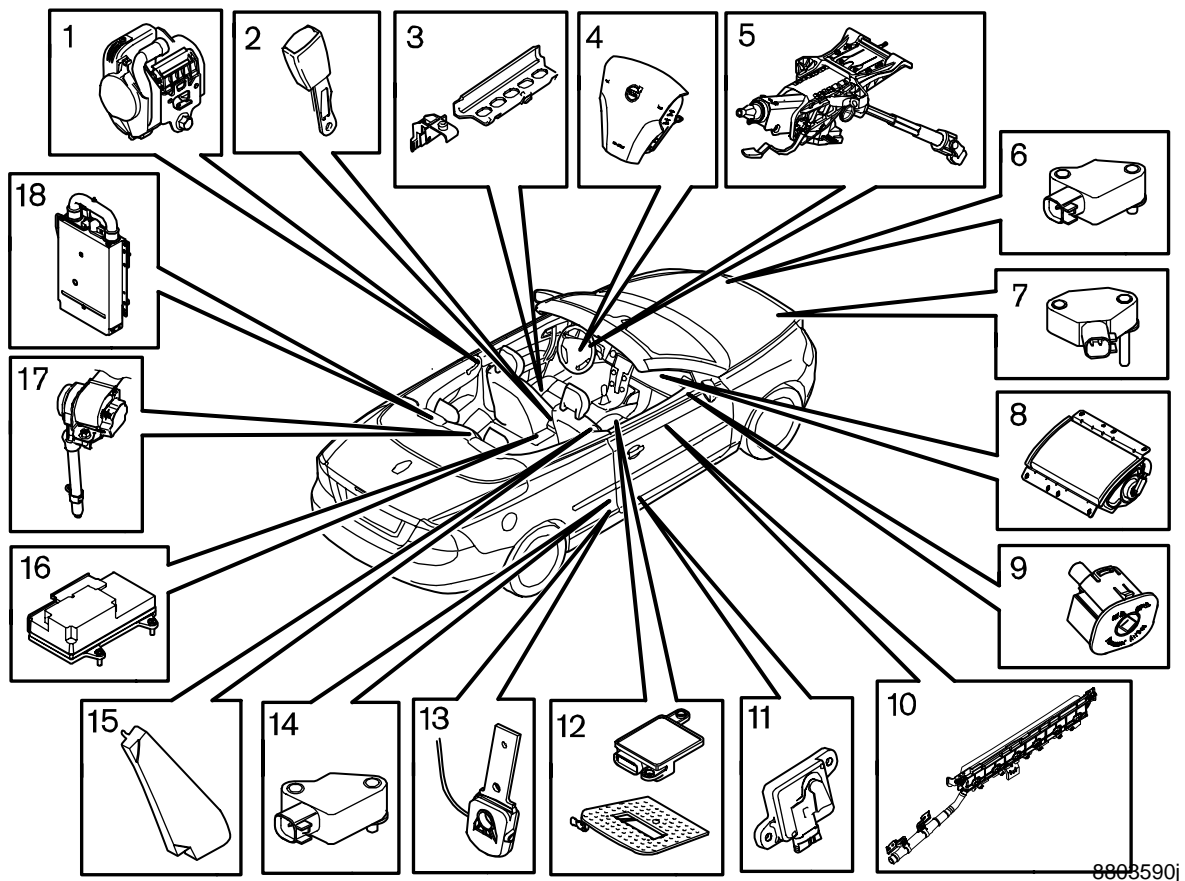
Wires

The wires to the headlining consist of three wire groups, in accordance with the illustration A, B and C. A consists of three wires and B and C consist of one wire each. Points that have both sliding eye and mounting are one and the same part.

Wire	Wire	Wire	Wire
A	A consists of three wires, A1, A2 and A3. Wire A1 "front headlining", runs between point 1-3 Wires A2 and A3, headlining intermediate section and upper section "C-pillar", run between point 2 and 5/7	B	Wire between bracket "C-pillar" and the bracket for RHT, between point 8 and 12
C	Wire "C-pillar", between point 9 and 11		

Fixed and sliding points

Point		Point	
1	Wire A1, mounting front headlining	2	Wire A1; sliding eye Wire A2/A3, mounting with spring
3	Wire A1, mounting Wire A2/A3, sliding eye	4	Wire A2/A3, sliding eye
5	Wire A2, mounting headlining intermediate section	6	Wire A3, sliding eye
7	Wire A3, mounting headlining "C-pillar"	8	Wire B, mounting headlining bracket "C-pillar"
9	Wire B, sliding eye Wire C, mounting with spring	10	Wire C, sliding eye
11	Wire C, mounting headlining	12	Wire B, mounting



Safety system

Included in the C70 safety system are a large number of components and functions, including "Hip strap tensioner" (Hip strap tensioner not shown in illustration above).

Most components function as in the Volvo S40/V50 for example.

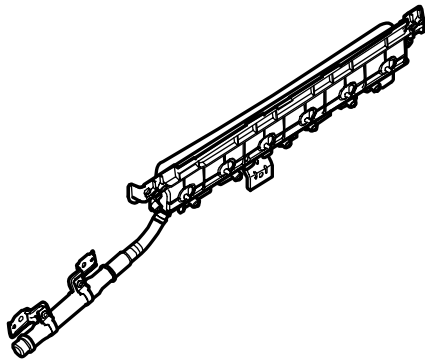
Several components are completely new – some of these are market dependent.

In table on the next page the new components and the components with new functions are marked in **bold**.

Components

1	Front seatbelts with pyrotechnic belt tensioners and mechanical force limiters	Excluding USA/Can
1	Front seatbelts with pyrotechnic belt tensioners and adaptive pyrotechnic force limiters	Only USA/Can
2	Seatbelt buckle, front seats	
3	Seat position sensor, front seats	
4	Airbag, driver	
5	Adaptive steering column	Only USA/Can
6	Front impact sensor, left-hand side	
7	Front impact sensor, right-hand side	
8	Airbag, passenger	
9	Switch Off/On, airbag, passenger, front	Excluding USA/Can
10	Door mounted inflatable curtains	
11	Side impact sensors in doors	
12	Function, passenger weight OWS (Occupant Weight System)	Only USA/Can
13	Belt tensioner BTS (Belt Tension Sensor), included in OWS	Only USA/Can
14	Side impact sensors in B-pillars	
15	Side airbag, front seats	
16	Supplemental Restraint System Module (SRS)	
17	Rear seatbelts with pyrotechnic belt tensioners	
18	ROPS (Roll Over Protection System)	

New components/components with new functions

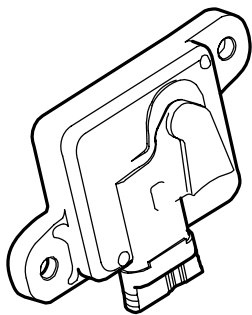


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Door mounted inflatable curtain

On the new C70 the inflatable curtain function with lowered roof has been resolved by locating the inflatable curtain in the door panels. The solution is to change the direction in the event of deployment. The inflatable curtain is deployed from below and up.

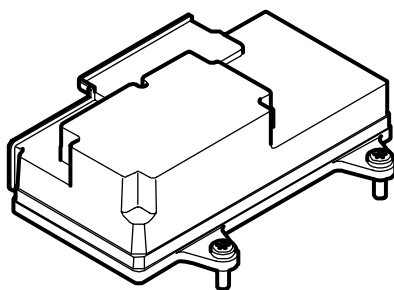
The airbag is deployed in the event of side impact and overturning.



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Pressure sensor

- The pressure sensor is located inside the side doors.
In the event of a collision the door panel is pressed in which changes the air pressure in the doors.
In the event of a pressure change the pressure sensor sends the information to the Supplemental Restraint System Module (SRS).
- The Supplemental Restraint System Module (SRS) determines whether the SRS components should be deployed based on the nature of the information.

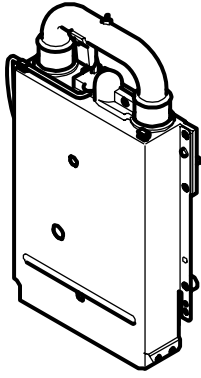


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Supplemental Restraint System Module (SRS)

New functions in the Supplemental Restraint System Module (SRS) are:

- Gyro and acceleration gauges are located in the Supplemental Restraint System Module (SRS).
In the event of overturning (roll) information from the gyro is used. The gyro measures the angle of acceleration (degrees per second). The angle is calculated (integrated) based on this. Both angle of acceleration and angle are used as conditions for deploying ROPS.
- In the event of a side-impact accident the Supplemental Restraint System Module (SRS) always deploys the inflatable curtain, SIPS and the front seatbelts if the occupants are using them
- In the event of a rear-end collision the Supplemental Restraint System Module (SRS) deploys ROPS and the front seatbelts if the occupants are using them.



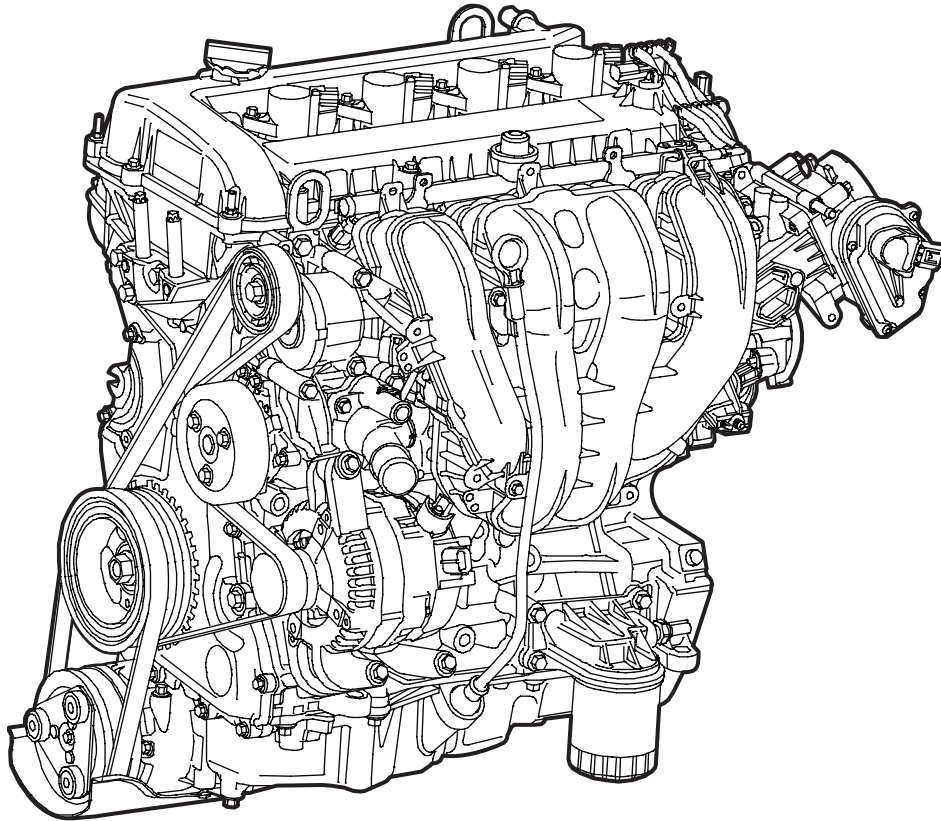
8803589j

ROPS

The ROPS unit in the new C70 has, in principle, the same function as the unit in the old C70.

The differences are:

- ROPS is deployed by a signal from the Supplemental Restraint System Module (SRS) to the pyrotechnically controlled mechanism that releases the roll bar.
- More powerful springs that force the roll bar up so that it has the force to break the rear window upon deployment
- A pointed tip is located on the roll bar to further facilitate the breaking of the window



21 03294j

FlexiFuel, S40/V50

FlexiFuel – B4184S8

The B4184S8 FlexiFuel engine is based the B4184S11 engine (for further information see NCF 0420, Theoretical Sessions).

The engine is adapted for a mixture of 85% ethanol and 15% 95-octane petrol, i.e. E85 fuel.

However, the engine can manage everything from 100% petrol to a mixture of 85% ethanol and 15% petrol (i.e. E85) (and all mixture ratios in between).

The modifications are as follows:

- Engine Control Module (ECM) with unique software adapted for the B4184S8.
- Adapted cylinder head. Inlet valve valve seats have harder surface coating.
- Injectors with greater flow capacity. Compared with pure petrol E85 has less energy content per unit of weight. This means that a greater amount of E85 fuel must be injected into the engine per work cycle to achieve the same torque (as petrol).
- Larger valve clearance.
- The fuel rail is coated with nickel on the inside to prevent corrosion.

- As E85 at temperatures lower than approx. -15°C has worse cold start properties than petrol the engine is equipped with an electrical engine block heater. The heater body for the engine is fitted at the factory while the front engine block heater socket and cables are fitted at the dealer before delivery to the customer.
- The mixture ratio of ethanol and petrol is detected by means of the Engine Control Module (ECM) "normal" adaptation strategies. This takes place by means of evaluating the lambda-sond signals. For example, "a lot of" ethanol results in a weak fuel/air mixture. The Engine Control Module (ECM) compensates "as usual" by increasing the quantity of injected fuel so that the correct lambda value is achieved.
In this way the Engine Control Module (ECM) adapts the quantity of injected fuel depending on the proportion of ethanol in the fuel.
- As the engine is powered by E85 (i.e. a mixture of 85% ethanol and 15% petrol) the fuel consumption is approx. 35% higher compared with running on pure petrol. This is due to the lower energy content of ethanol.
- Corrosion is prevented by means of applying a continuous alternating voltage over the fuel level sensor's resistor.
- The fuel lines are manufactured in stainless steel.
- The service interval is 10 000 km or 1 year, included in which is the change of engine oil and oil filter.
- The engine oil grade is WSS-M2C913-B, viscosity 5W-30.
- Ethanol is termed carbon dioxide neutral. This is because the carbon dioxide released during combustion is reabsorbed by vegetation and plants. This is different from fossil fuels that only produce carbon monoxide.
Running on E85 is therefore considered as environmentally friendly.