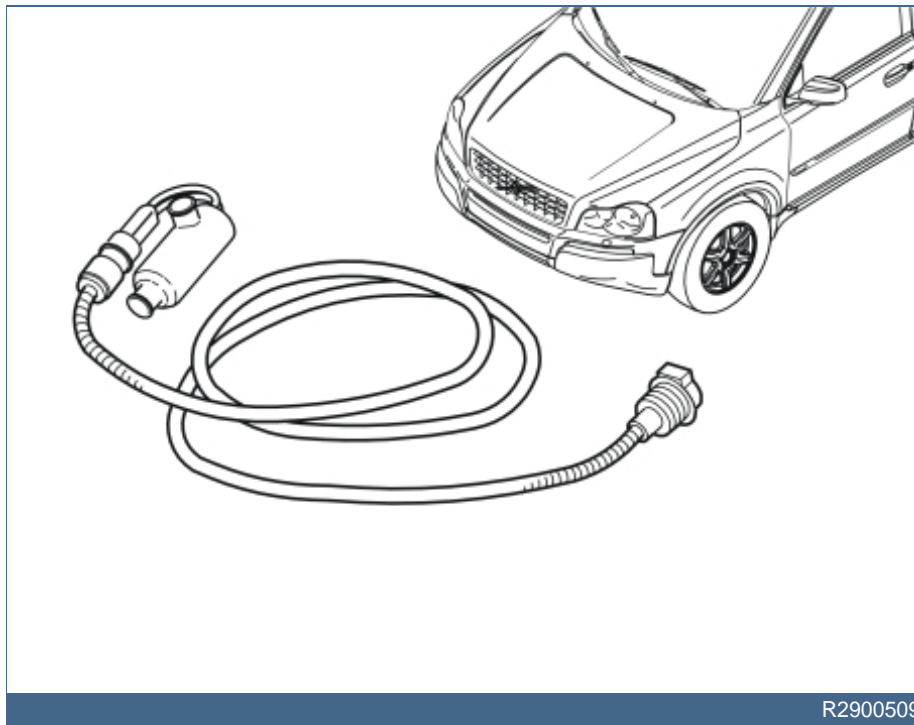




## V70 (00-08) / V70 XC (01-) / XC70 (-07) / XC90

Section	Group	Weight(Kg/Pounds)	Year	Month
8	87		2004	09

V70 (00-08) 2004 D5244T AW50/51 AWD, V70 (00-08) 2004 D5244T M66 AWD, V70 (00-08) 2005 D5244T AW50/51 AWD, V70 (00-08) 2005 D5244T M66 AWD, V70 (00-08) 2006 D5244T AW50/51 AWD, V70 (00-08) 2006 D5244T M66 AWD, V70 XC (01-) / XC70 (-07) 2004 D5244T AW50/51 AWD, V70 XC (01-) / XC70 (-07) 2004 D5244T M66 AWD, V70 XC (01-) / XC70 (-07) 2005 D5244T AW50/51 AWD, V70 XC (01-) / XC70 (-07) 2005 D5244T M66 AWD, V70 XC (01-) / XC70 (-07) 2006 D5244T AW50/51 AWD, V70 XC (01-) / XC70 (-07) 2006 D5244T M66 AWD, XC90 2004 D5244T AW50/51 AWD, XC90 2004 D5244T M66 AWD, XC90 2005 D5244T AW50/51 AWD, XC90 2005 D5244T M66 AWD, XC90 2006 D5244T AW50/51 AWD, XC90 2006 D5244T M66 AWD

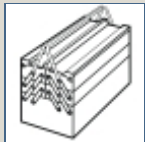


# Installation instructions, accessories - Electric engine block heater

Volvo Car Corporation Göteborg, Sweden



## Required tools



A0000162

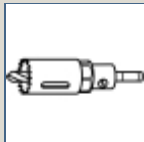


A0000163

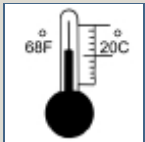


Nm  
lbf.ft

A0000161



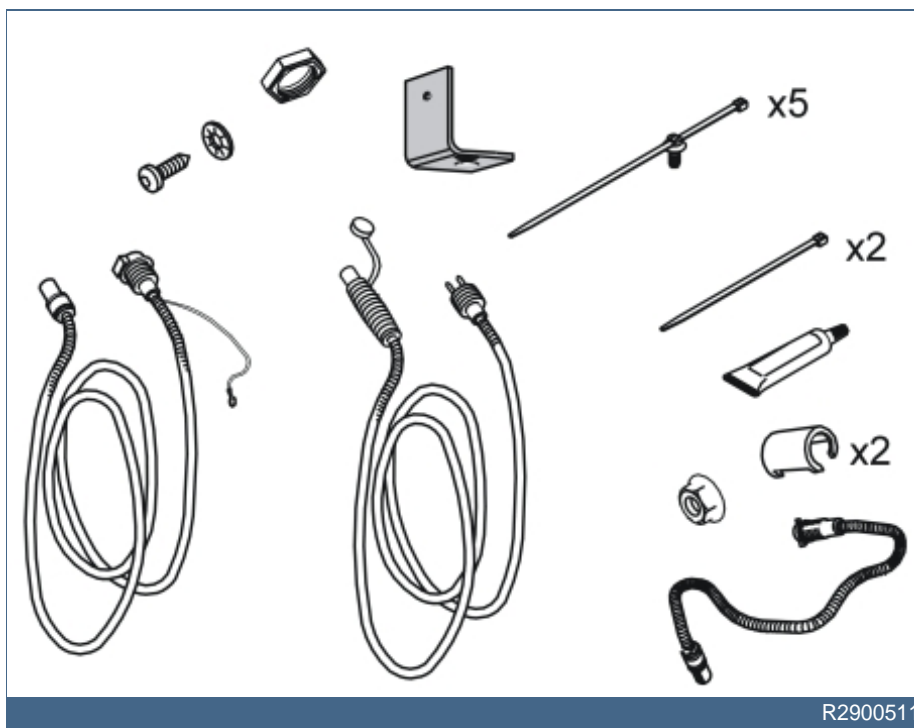
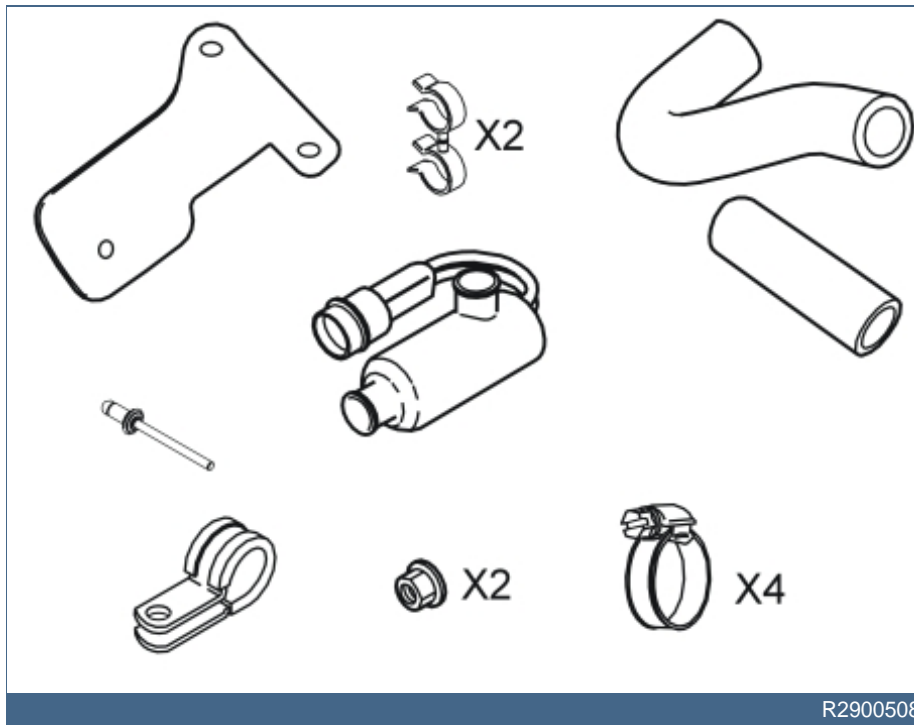
A0000180



M0000232



A0000172





Any comments on this publication? Please contact your nearest dealer. Thank you!

Publication no: MA30730076, Issue: 2004-09
Comments:..... ..... ..... ..... ..... ..... .....
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Telephone no:.....
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## INTRODUCTION

- **NOTE! Read through the entire text before carrying out any work.**
- The front page gives the date of this edition and the edition it replaces
- The second page shows the tools needed for the installation and the contents of the installation kit
- The illustrations display the procedure in order of operation. The order of operation is repeated in the text section
- Cut out the text page in order to follow the illustrations and text at the same time.

## Electric engine block heater

### Note!

S60 up to and including model year -2004 = CH -424999

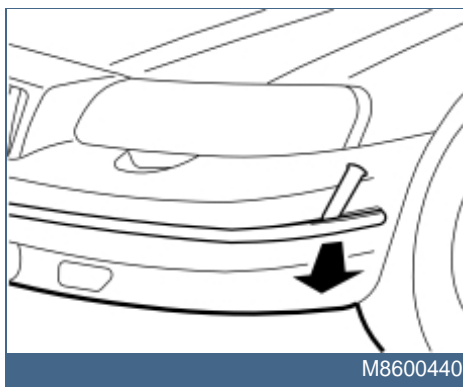
S60 from model year 2005- = CH 425000-

V70 up to and including model year -2004 = CH -458999

V70 from model year 2005- = CH 459000



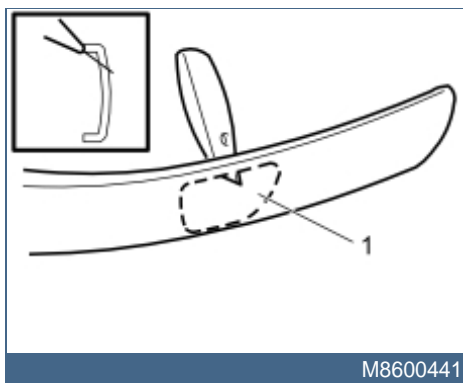
1



## Applies to the S60 and V70 up to and including model year -2004 Preparations

- Remove the over-rider moulding from the bumper by prizing up the moulding at one corner using a weatherstrip tool, and then pull the whole moulding away.

2



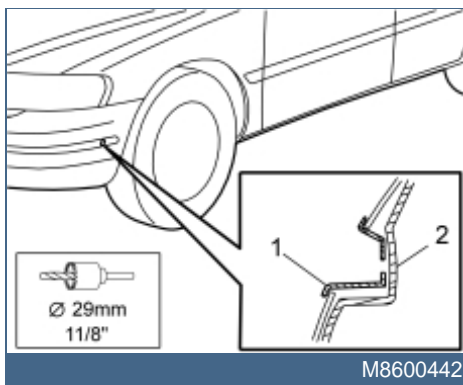
## Applies to the S60 and V70 up to and including model year -2004

- Cut holes in the over-rider moulding in accordance with the marking (1) on the back of the moulding using a utility knife or similar. Cut with a margin and fine tune with a file.

### Note!

When cutting along the upper horizontal line, angle the knife towards the upper edge of the moulding. Guide the knife along the moulding. This is so that the cut is not positioned in the centre of the curvature of the moulding.

3

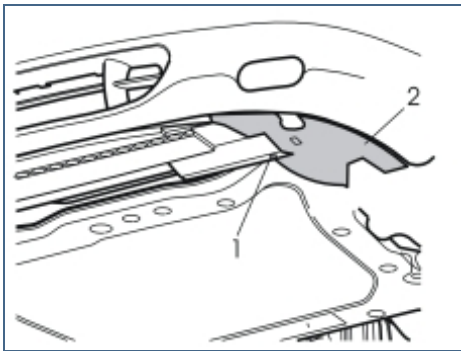


## Applies to the S60 and V70 up to and including model year -2004

- Reinstall the over-rider moulding.
- Install the front socket's protective cover (1) in the over-rider moulding.
- Mark out the hole in the bumper cover (2) using a  $\text{Ø}29 \text{ mm}$  (1 1/8") diameter hole saw and its central drill bit.
- Remove the protective cover and drill out with the  $\text{Ø}29 \text{ mm}$  (1 1/8") diameter hole saw.
- Remove any swarf.
- Reinstall the protective cover.



4

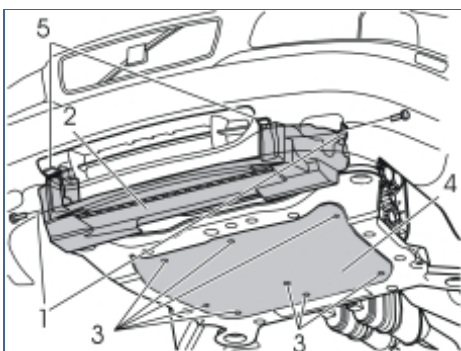


D2000257

**Applies to the S60 and V70 up to and including model year -2004**

- Raise the car.
- **Remove:**
  - the screw (1) from the left-hand air baffle (2).
  - the left-hand air baffle by pulling it backwards.
  - the right-hand air baffle in the same way.

5

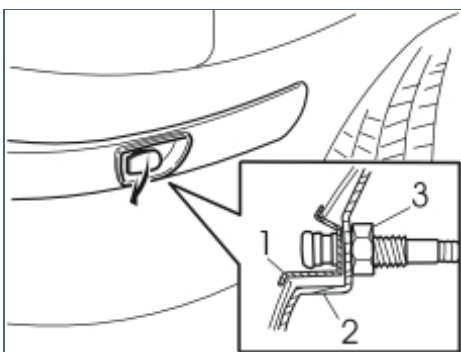


D2000231

**Applies to the S60 and V70 up to and including model year -2004**

- **Remove:**
  - the air baffle (2) by undoing the screws (1), pressing up the catches (5) and moving the air baffle down and back.
  - the engine splash guard (4) by undoing the screws (3).

6



M2900133

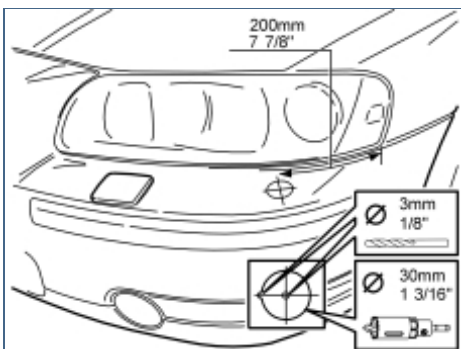
**Applies to the S60 and V70 up to and including model year -2004**  
**Installing the front engine block heater socket**

- Route the cable belonging to the front socket through the protective cover (1) and the bumper cover (2).
- Install the plastic nut (3) from the kit on the front socket and tighten. The cover fits horizontally and opens forwards.

The nut is difficult to access. It can be easier to screw in with the cable instead.

- Route the cables down along the left-hand side of the left-hand side member.

7



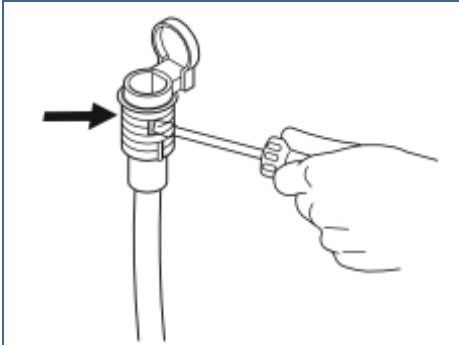
M8601194

**Applies to the S60 and V70 from model year 2005-**  
**Preparations**

- Measure out the hole for the front socket as illustrated. The measurement between the centre of the hole and the corner of the headlamp must be **200 mm (7 7/8")**. Measure out the hole's centre so that it is symmetrically located on the top of the bumper.
- Pre-drill the hole using a **Ø3 mm (1/8")** bit.
- Drill out the hole. Use a **Ø30 mm (1 3/16")** diameter hole saw.
- Remove any swarf.



8

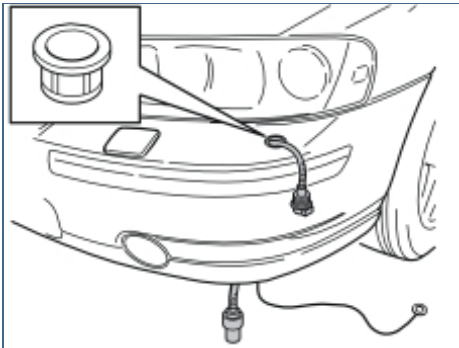


M3703484

**Applies to the S60 and V70 from model year 2005-**

- Open the drainage holes on both sides of the connector. Use a screwdriver and press with manual force in the markings.

9

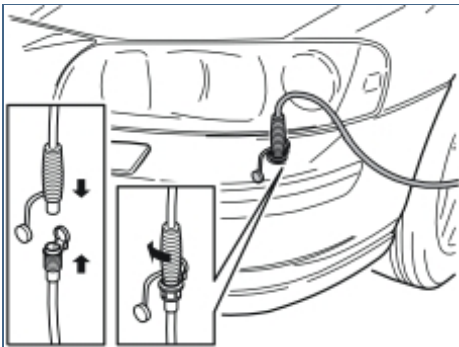


M8601252

**Applies to the S60 and V70 from model year 2005-**

- Install the expander nut in the hole, with the guide pin in the guide hole.
- Route through the cable from the front socket, including the ground cable, from above and down. Let them hang down.

10

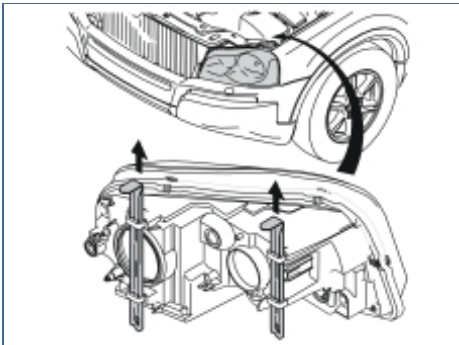


M8601253

**Applies to the S60 and V70 from model year 2005-  
Installing the front engine block heater socket**

- Connect the cable to the front socket. Press down and turn the cable clockwise so that the expander nut expands.
- Align the cable from the front socket so that the hinge points to the headlamp. Remove the cable.

11



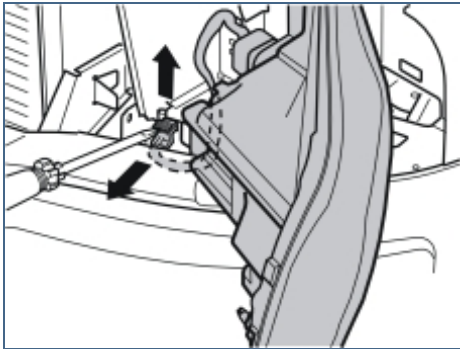
R3501343

**Applies to the XC90  
Preparations**

- Detach the left-hand headlamp by pulling up the two locking pins and then carefully pulling away the headlamp forwards.



12

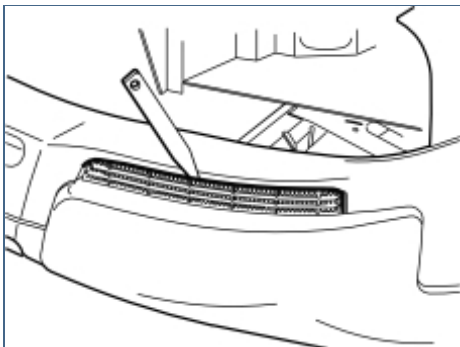


R3501493

## Applies to the XC90

- Carefully prize up the catch on the connector for the headlamp with a screwdriver.
- Pull the catch up completely, detach the connector and place the headlamp to one side.

13

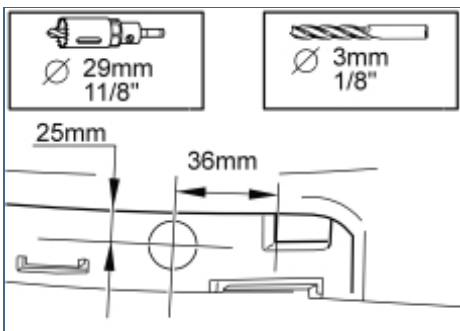


R8600944

## Applies to the XC90

- Remove the left-hand grille from the bumper by carefully prizing it away with a weatherstrip tool.

14

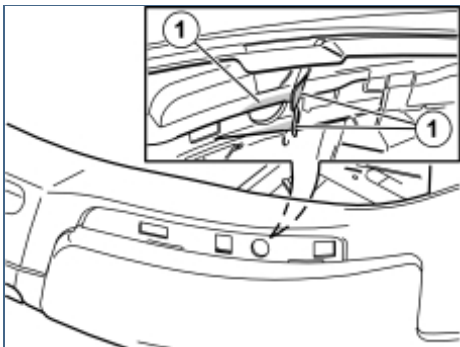


R8600921

## Applies to the XC90

- Measure out for drilling the front socket hole as illustrated.
- Pre-drill the hole using a  $\text{Ø}3 \text{ mm}$  ( $1/8$ " ) bit.
- Drill out the hole. Use a  $\text{Ø}29 \text{ mm}$  ( $1 \ 1/8$ " ) diameter hole saw.
- Remove any swarf.

15



R8600945

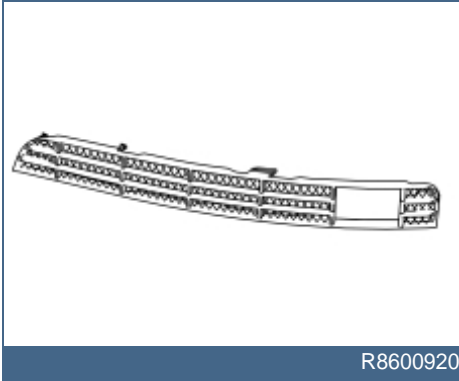
## Applies to the XC90

- Take a utility knife and cut out the discs (1) in such a way that they are equally as high. The plastic nut for the front socket then has a flat surface to be tightened against.





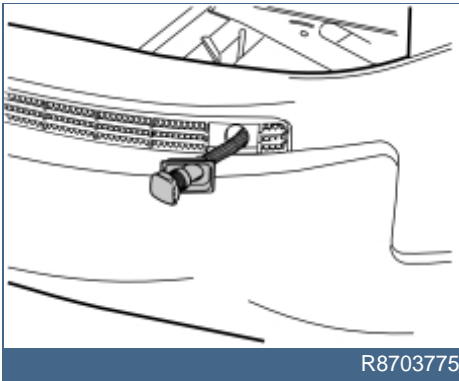
16



## Applies to the XC90

- Saw or cut out for the front socket connector in the second hole from the left in the left-hand grille of the bumper.
- Smooth off the edges.
- Press the grille into the bumper.

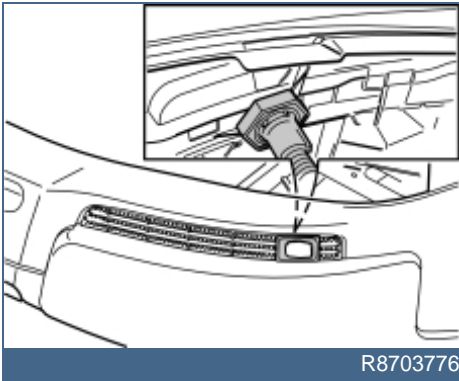
17A



## Applies to the XC90 Installing the front engine block heater socket Illustration A

- Take the front socket, protective cover and plastic nut from the kit.
- Fit the protective cover on the front socket's connector and turn the connector so that the cover is opened to the left-hand side of the car as illustrated.

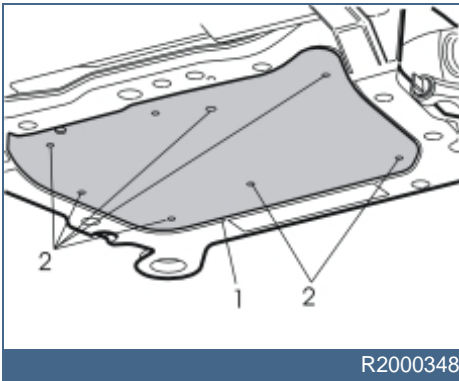
17B



## Illustration B

- Install the plastic nut.
- Tighten the plastic nut firmly. Connect the cable to the front socket for counterholding when the plastic nut is tightened.
- Route the cables down along the left-hand side of the left-hand side member.

18

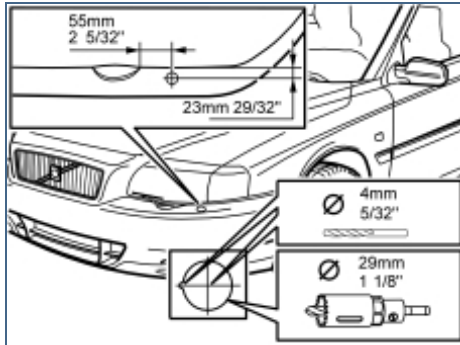


## Applies to the XC90

- Remove the engine splash guard (1) by first removing the screws (2).



19

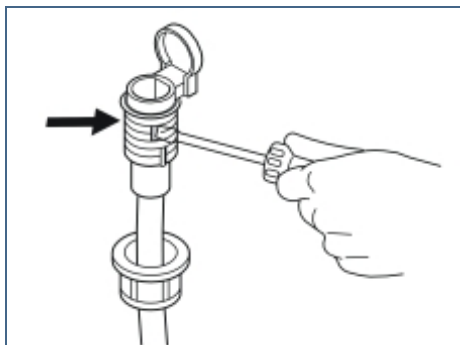


D8600337

## Applies to the S80 Preparations

- Install the adhesive template and mark out the holes on the bumper in accordance with the template.
- Drill a hole using a  $\varnothing 4 \text{ mm}$  ( $5/32''$ ) bit.
- Drill a hole at right angles to the surface using a  $\varnothing 29 \text{ mm}$  ( $1 \text{ 1/8}''$ ) diameter hole saw.
- Adjust the guide hole with a round file.
- In addition, adjust the lead-through hole if required.

20

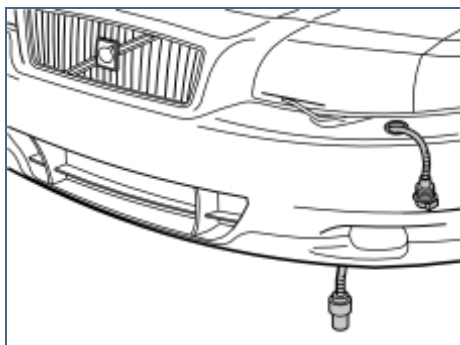


D3701818

## Applies to the S80

- Open the drainage holes on both sides. Use a screwdriver and press with manual force in the markings.

21

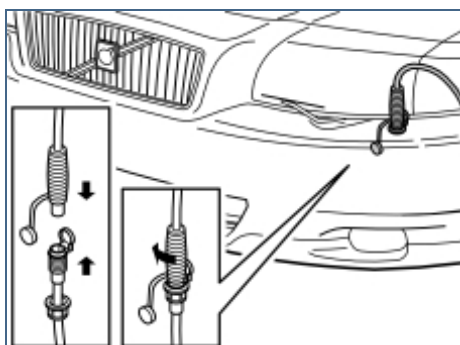


D8600338

## Applies to the S80 Installing the front engine block heater socket

- Install the expander nut in the hole, with the guide pin in the guide hole.
- Route through the cable from the front socket, including the ground cable, from above and down. Let them hang to the ground.

22



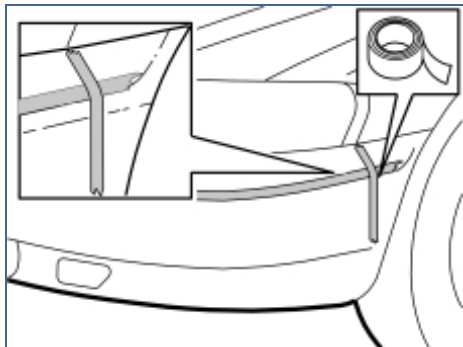
D8600339

## Applies to the S80

- Connect the cable to the front socket.
- Press down and turn the cable clockwise so that the expander nut expands.
- Align the cable from the front socket so that the hinge points to the headlamp.
- Remove the connecting cable.



23

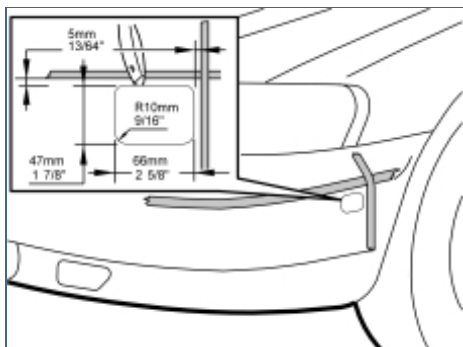


M8600602

## Applies to the XC70 Preparations

- Clean the bumper cover where the two pieces of tape shall be adhered.
- Install the two pieces of tape for marking the holes for the engine block heater connector (use narrow tape). One piece of tape is fitted at the rear edge, under the corner of the indicator lamp, and vertically down. The second piece of tape's lower edge is fitted along the upper radius of the bumper cover as illustrated.

24

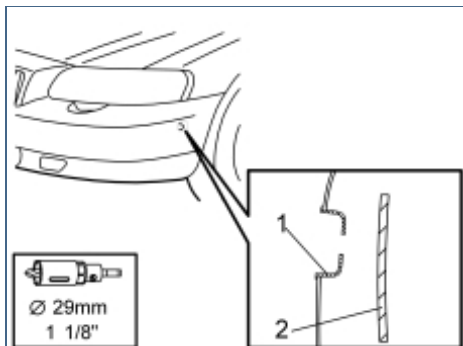


M8600603

## Applies to the XC70

- Mark up a rectangle, in accordance with the measurements in the figure, on the inside of the corner of the point of intersection of the two pieces of tape. The distance from the tape edges must be 5 mm (13/64").
- Protect the bumper cover by applying tape to the surface to be cut.
- Carefully cut out from the bumper cover in accordance with the marking. Use a utility knife or similar.
- Smooth off the edges.

25



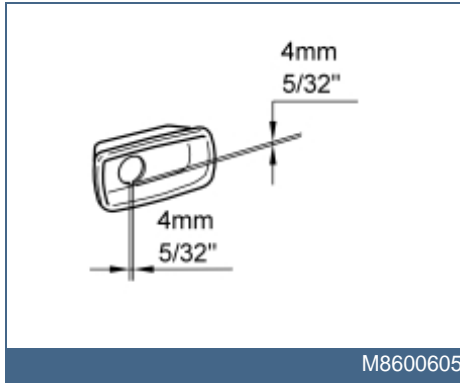
M8600604

## Applies to the XC70 Installing the front engine block heater socket

- Remove the pieces of tape.
- Take the front socket's protective cover (1) from the kit and press it into the recess. The part of the protective cover where the hole is closer to the edge must point forward.
- Mark out the hole in the bracket (2) inside the bumper cover. Use a **Ø29 mm (1 1/8")** diameter hole saw without central drill bit.
- Remove the protective cover and drill out with the **Ø29 mm (1 1/8")** diameter hole saw.
- Remove any swarf.



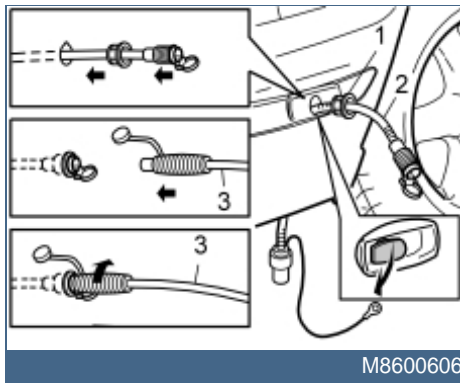
26



### Applies to the XC70

- File out a small recess, 4 x 4 mm (5/32" x 5/32"), in the lower edge of the hole in the protective cover. The hole is designed for the pin on the expander nut, which is used for tightening the front socket.
- Reinstall the protective cover.

27



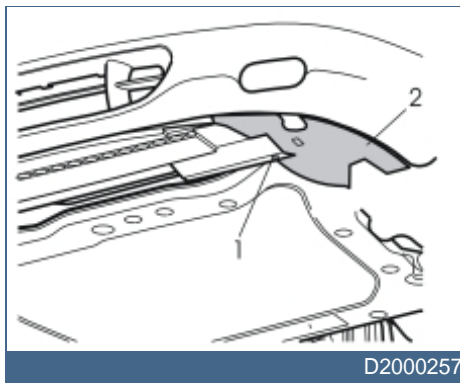
### Applies to the XC70

- Install the expander nut (1) in the hole.
- Guide down the enclosed cable (2), including the ground cable, through the hole.
- Take the connecting cable (3) from the kit. Fit it together with the cable at the expander nut. Screw clockwise so that the expander nut expands.
- Remove the connecting cable.

#### Note!

Ensure that the drainage hole for the front engine block heater socket is open.

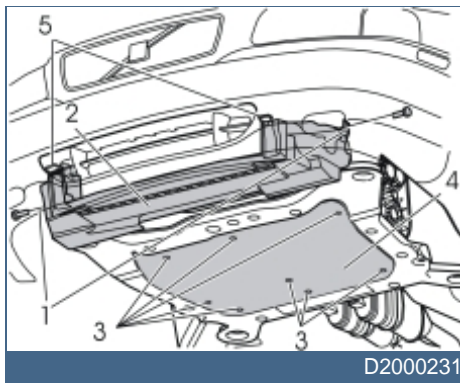
28



### Applies to the XC70 and S80

- Raise the car.
- Remove the screw (1) in the left-hand air baffle (2) for the front brake.
- Remove the left-hand air baffle by pulling it backwards.
- Remove the right-hand air baffle in the same way.

29

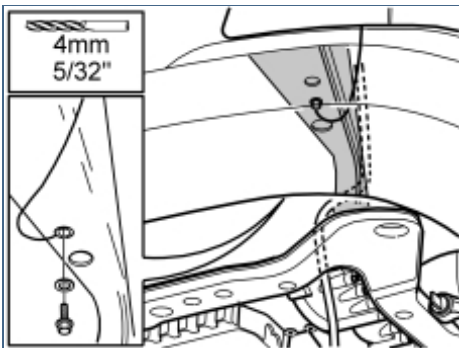


### Applies to the XC70 and S80

- Remove the screws (1) and remove the air baffle (2).
- Remove the screws (3) and remove the engine splash guard (4).



30



R8600915

## Installing the engine block heater, applies to all car models

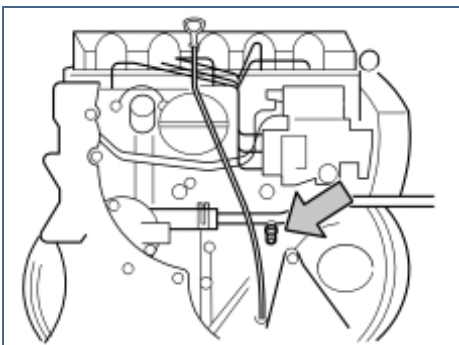
- Drill a hole in the front/lower edge of the side member with a **Ø4 mm (5/32")** bit.
- Apply anti-corrosion agent and secure the ground cable with the enclosed **Ø4.8 mm (3/16")** flanged screw and toothed washer (under the screw head).

### Note!

Connect the ground lead to the side member, not to the sub-frame.

- Secure the excess ground cable with a tie strap.

31

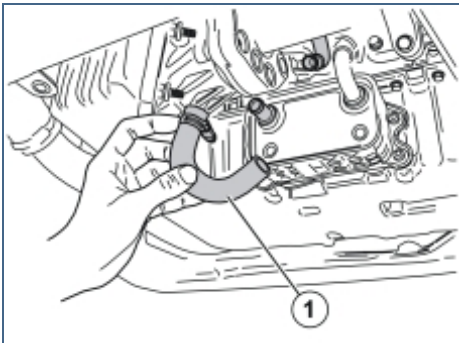


A8701899

## Installing the engine block heater, applies to all car models Installing the hose heater

- Open the cap for the radiator's expansion tank.
- Position a collection container under the engine and open the coolant cock.
- Drain the coolant and close the cock.

32

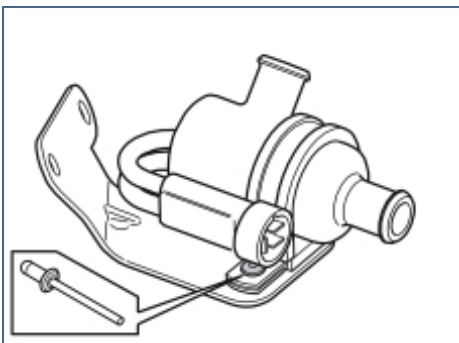


R2900479

## Installing the engine block heater, applies to all car models

- Detach the hose clamps and remove the hose (1). Place the hose to one side. It shall not be re-used.

33



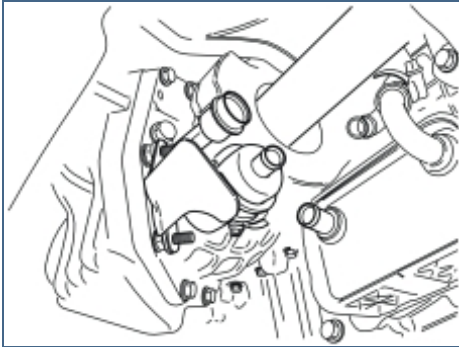
R2900494

## Installing the engine block heater, applies to all car models

- Take the bracket and the heater from the kit. Secure the heater to the bracket as illustrated with a pop rivet from the kit.



34



R2900480

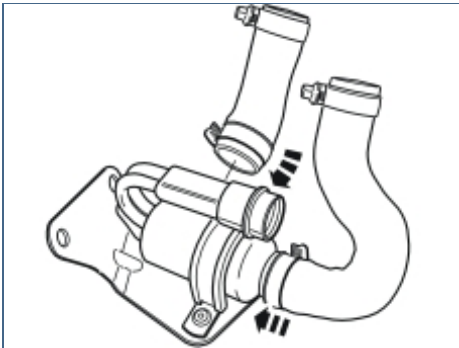
## Installing the engine block heater, applies to all car models

- Test mount the heater with the bracket on the existing protruding studs but without tightening the nuts.

The heater and bracket should be fitted as illustrated to ensure correct function and so that the hoses fit.

- Remove the heater with bracket from the studs.

35

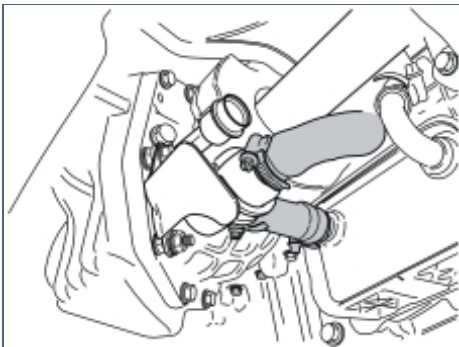


R2900482

## Installing the engine block heater, applies to all car models

- Take the hoses from the kit and install them as illustrated.
- Use tie straps from the kit to fit the hoses securely on the heater's connections.

36

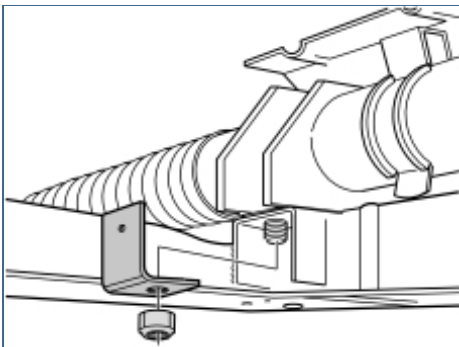


R2900481

## Installing the engine block heater, applies to all car models

- Install the heater with bracket on the studs.
- Fit the loose hose ends on the car's connections and tighten the hose clamps.
- Secure the bracket with nuts from the kit and tighten to **24 Nm (18 lbf.ft)**.

37



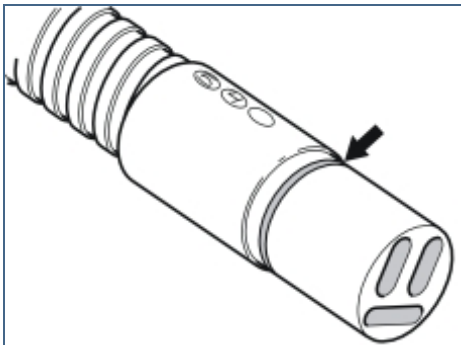
D2900051

## Installing the engine block heater, applies to all car models

- Remove the existing nut from the steering gear.
- Install the bracket for mounting the branching connector and cables.
- Install the enclosed lock nut. Tighten to **48 Nm (36 lbf.ft)**.



38



D3601932

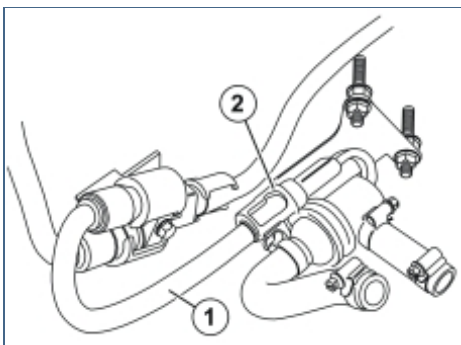
## Installing the engine block heater, applies to all car models

- Lubricate the O-ring on the connector for the heater's jointing cable with low temperature grease (part no. 1161417-9).

### Note!

Do not get any grease on the surfaces of the connector.

39

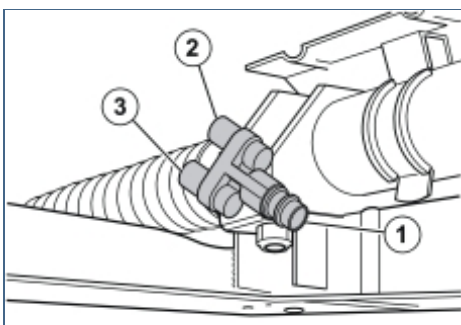


R2900492

## Installing the engine block heater, applies to all car models

- Connect the jointing cable (1) to the heater's connector.
- Install the locking sleeve (2) from the kit over the joint between the heater and the cable.

40



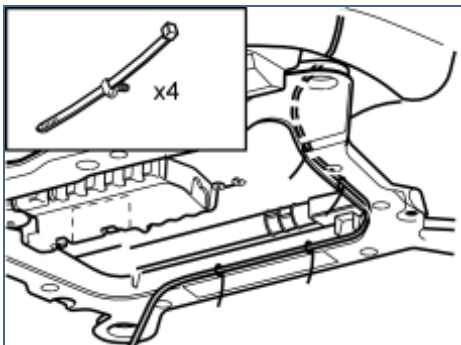
R2900226

## Installing the engine block heater, applies to all car models

### Applies if engine block heater and passenger compartment connector shall be fitted at the same time

- Install the branching connector on the bracket with screw and nut from the kit.
- Grease in the O-rings with low temperature grease (part no. 1161417-9) (see step 15).
- Connect the cables from the front socket (1), the passenger compartment socket (2) and the engine block heater (3) to the branching connector.
- Tighten the branching connector to the bracket for the steering gear.

41



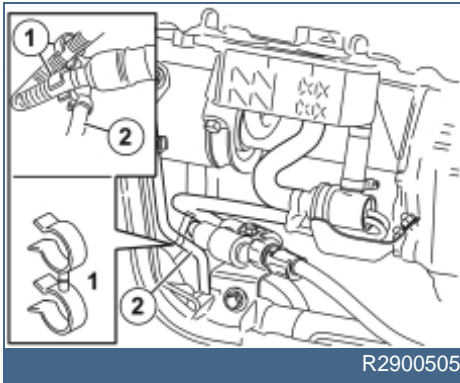
R8703667

## Connection and finishing work, applies to all

- Take four tie straps from the kit and press them into the holes on the inside of the subframe.
- Route the cable from the front socket above the front edge of the subframe and back to the cable from the engine block heater.
- Clamp the cable securely into the fitted tie straps.
- Grease in the O-rings on the connector with low temperature grease (part no. 1161417-9) (see step 15).



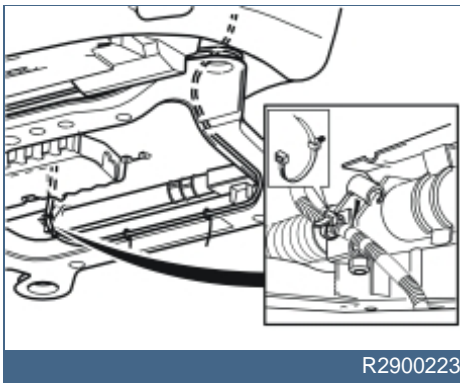
42



## Connection and finishing work, applies to all

- Take the two attaching clamps (1) from the kit. Use them to secure the cable from the engine block heater at the servo line pipe (2). This prevents the cable and pipe chafing against each other.

43



## Connection and finishing work, applies to all

- Connect the cable from the front socket to the cable from the engine block heater, or to the branching connector.
- Take the locking sleeves from the kit and press them in over the joints.
- Take a clamp from the kit and press it into the hole on the previously installed bracket.
- Clamp the cable in at the bracket as illustrated.

### Caution!

The cable must not be secured to the drive shaft, to the fuel lines, air conditioning (A/C) pipes or brake pipes. Ensure that the cable is not rubbing against any sharp edges and that it is not too close to the turbocharger (TC) or exhaust pipe to prevent damage from radiant heat.

44

## Connection and finishing work, applies to all Applies to S60 and V70 (00-)

- Reinstall the central air baffle.
- Reinstall the two air baffles at the sides.

45

## Connection and finishing work, applies to all Applies to the XC90

- Reinstall the engine splash guard.
- Connect the headlamp and reinstall it.

46

## Connection and finishing work, applies to all Applies to the S80 and XC70

- Reinstall the air baffles and the engine splash guard.
- Torque tighten the engine splash guard's screws to **80 Nm (60 lbf.ft.)** and screws and nuts to **60 Nm (43 lbf.ft.)**.





47

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**Connection and finishing work, applies to all  
Applies to all models**

- Fill with coolant, drive to normal operating temperature and check for any leaks.
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