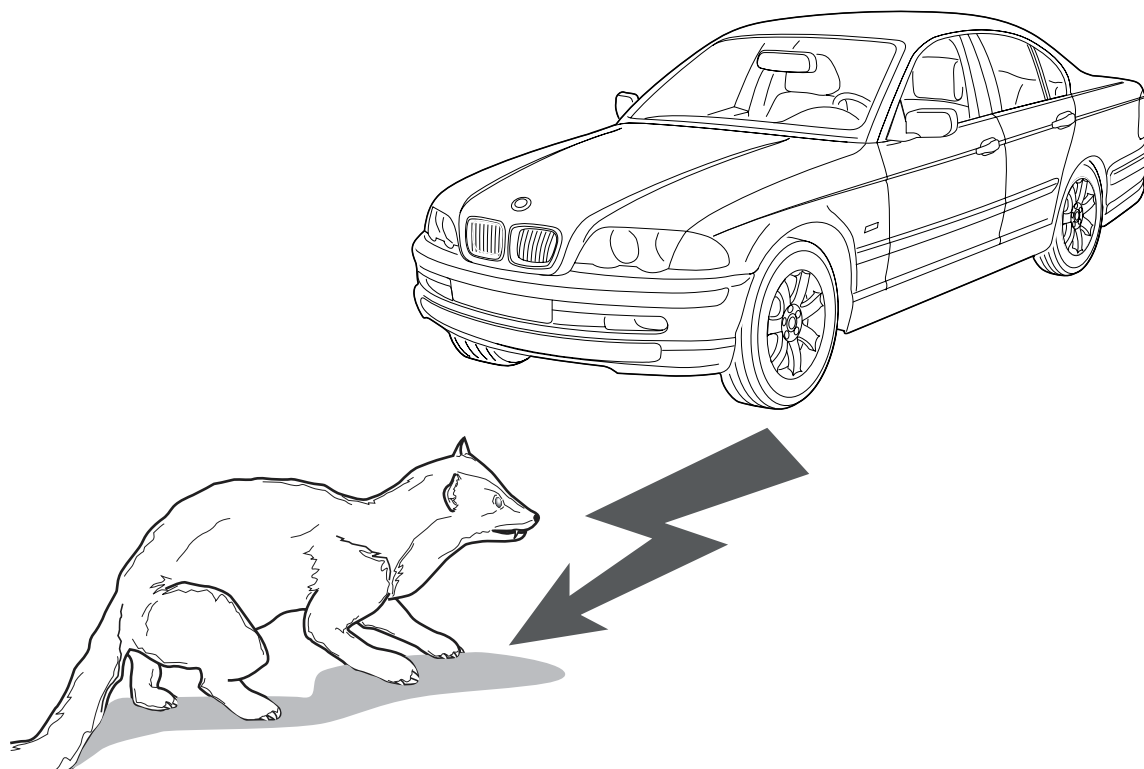




# Parts and Accessories Installation Instructions



046 0681 Z

---

## Marten Repeller System Retrofit

### BMW 3 Series (E46/2/3/4/C) Coupé, Touring, Saloon and Convertible with SI engine

The installation time is approx. 3.5 – 4.0 hours, but this may vary depending on the condition of the car and the equipment in it.

(Not in conjunction with SA 815 and SA 823)

Retrofit kit No.	82 10 9 416 928
	82 10 9 416 945

## Contents

Section	Page
Important information.....	3
1. Preparations.....	4
2. Connection diagram.....	5
3. To install the control unit.....	6
4. To connect the bonnet contact switch and control unit.....	7
5. To cut the high-voltage wire to length.....	9
6. To pre-assemble the holder/bracket.....	10
7. To prepare the underbody shield/reinforcement plate.....	11
8. To install the warning sign.....	12
9. To install the covers (only cars with underbody shield).....	13
10. To install the covers (only cars with reinforcement plate).....	14
11. To install the wire.....	16
12. Coding and concluding work.....	18
13. Circuit diagram.....	19
14. Template.....	21

## Important information

The retrofit kit is for use within the BMW dealership organisation only.  
Subject to technical modifications.

## Safety instructions



### High voltage! Danger of death!

Do not touch high-voltage wires when the marten repeller system is active. People with a sensitive cardiovascular system or wearers of pacemakers are at particular risk. ◀

## Target group

The target group for these installation instructions is specialist personnel trained on BMW cars with the appropriate specialist knowledge.

All work must be completed using the latest BMW repair manuals, circuit diagrams, servicing manuals and work instructions in a rational order using the prescribed tools (special tools) and observing current health and safety regulations.

## Installation information

All brackets and struts are identified by numbers stamped on the parts.

After installation, the high-voltage wires must be aligned so they are at least 10 mm away from all parts of the car.

Observe the tightening torque values for screw connections. The required tightening torque values are set out in the part information system (TIS).

Ensure that the cables/lines are not kinked or damaged as you install them in the car.

The installed cables/lines are to be secured with cable ties.

If the specified PIN chambers are occupied, bridges, double crimps or twin-lead terminals must be used.

## Information on operation

The marten repeller system is activated when the bonnet is closed and the ignition key is in the "0" position. It is deactivated when the ignition key is turned to "R" and beyond.

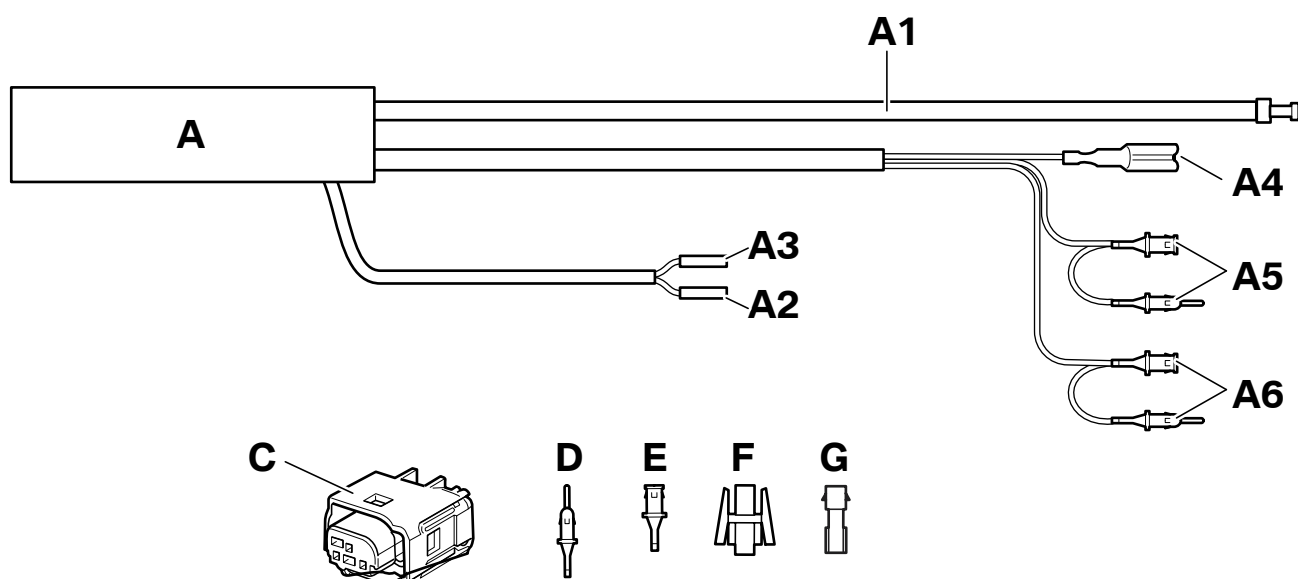
## Special tools required

DIS or MoDiC

## 1. Preparations

	TIS instruction No.
Conduct a brief test	- - -
Disconnect the negative pole of the battery	12 00 ...
<b>The following components must be removed first of all:</b>	
Battery and battery carrier plate (4-cylinder model only)	- - -
Rear underbody shield	- - -
Front underbody shield	- - -
Reinforcement plate (only Convertible and Coupé from 09/99)	51 71 374
Reinforcement cross for the front axle	31 11 005
Glove compartment	51 16 360

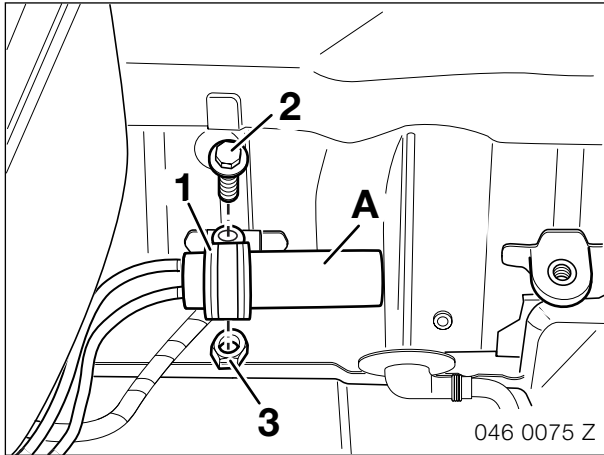
## 2. Connection diagram



046 0720 Z

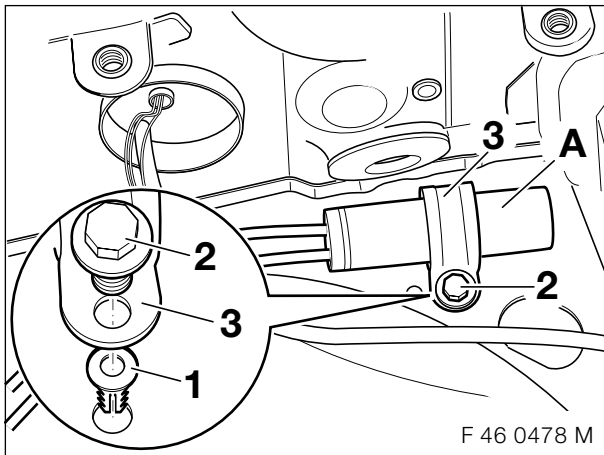
Item	Description	Signal	Cable colour / Cross-section	Connection location in the car	Abbreviation / Slot
A	Control unit	---	---	---	---
A1	High-voltage line	---	SW	To high-voltage wire on the rear underbody shield	S*
A2	Socket contact	---	BR/SW 0.75 mm <sup>2</sup>	<b>Cars without alarm system</b> To bonnet contact switch <b>Cars with alarm system</b> To bonnet contact switch	X161 PIN 1  X161 PIN 3
A3	Socket contact	---	BR 0.75 mm <sup>2</sup>	<b>Cars without alarm system</b> To bonnet contact switch <b>Cars with alarm system</b> Insulate and tie back to wiring harness	X161 PIN 2
A4	Joint connector contact	---	BR 0.75 mm <sup>2</sup>	To joint connector above the fuse holder	X219
A5	Socket contact with cable bridge and plug contact	Terminal R	VI/WS 0.75 mm <sup>2</sup>	To outgoing cable VI/GE of fuse F10 (5 A), fuse holder	X10016 PIN 20
A6	Socket contact with cable bridge and plug contact	Terminal 30	RT/WS 0.75 mm <sup>2</sup>	To outgoing cable RT/GE/WS of fuse F43 (5 A), fuse holder	X10015 PIN 6
C	3-pin socket casing	---	---	To bonnet contact switch	X161
D	Plug contact	---	---	To separated standard wiring harness	---
E	Socket contact	---	---	To separated standard wiring harness	---
F	Socket casing	---	---	To branches <b>A5</b> and <b>A6</b>	---
G	Plug casing	---	---	To branches <b>A5</b> and <b>A6</b>	---

### 3. To install the control unit



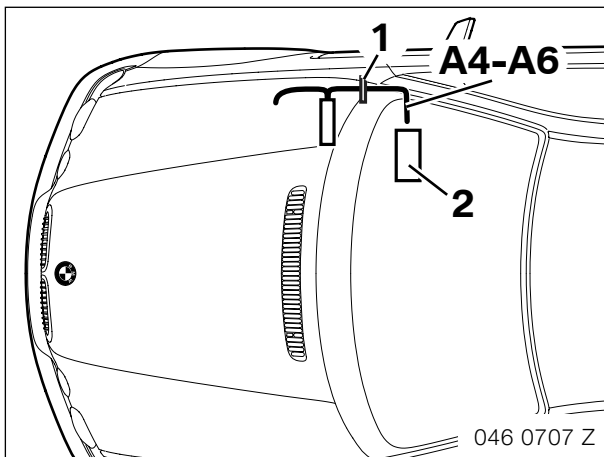
#### 6-cylinder models only

Screw the control unit **A** into the engine compartment on the right using pipe clip (1), hexagonal screw M6x25 (2) and nut M6 (3).



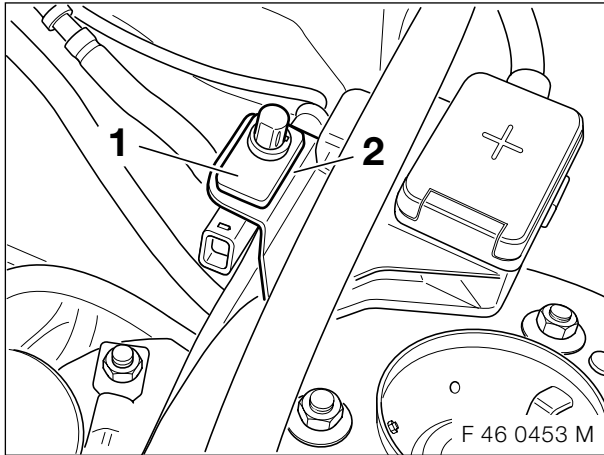
#### 4-cylinder models only

Attach the control unit **A** using stopper (1), hexagonal screw (2) and pipe clip (3).



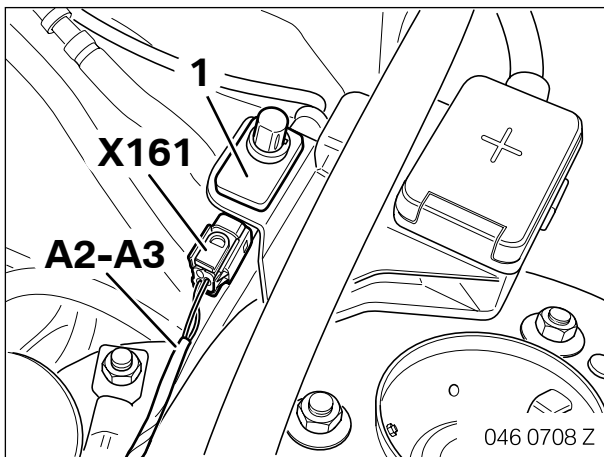
Route branches **A4 – A6** along the standard wiring harness through the rubber grommet (1) to the fuse holder (2).

#### 4. To connect the bonnet contact switch and control unit



##### Cars without alarm system only

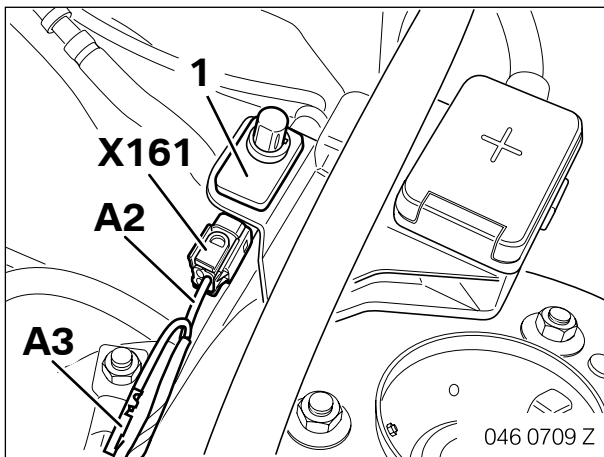
Insert the bonnet contact switch (1) into the holder (2) provided.



Route branches **A2 – A3** to the bonnet contact switch (1) and connect to plug **X161** as follows:

- Branch **A2** (BR/SW cable) in PIN 1
- Branch **A3** (BR cable) in PIN 2

Connect plug **X161** to the bonnet contact switch (1).



##### Cars with alarm system only

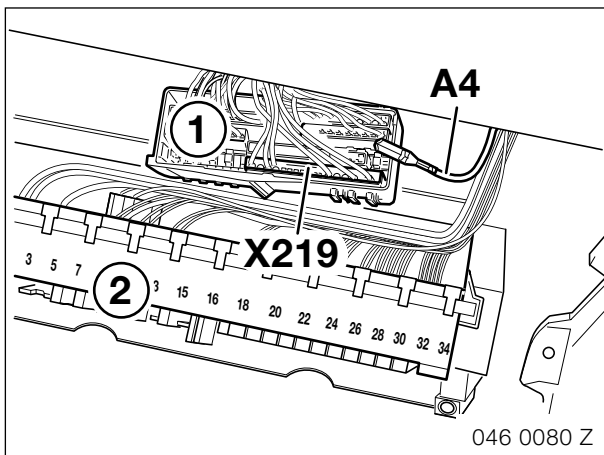
Route branches **A2 – A3** to the bonnet contact switch (1).

Disconnect plug **X161** from the bonnet contact switch (1).

Connect branch **A2** (BR/SW cable) to PIN 3 of plug **X161**.

Insulate branch **A3** (BR cable) and tie it back.

Connect plug **X161** to the bonnet contact switch (1).

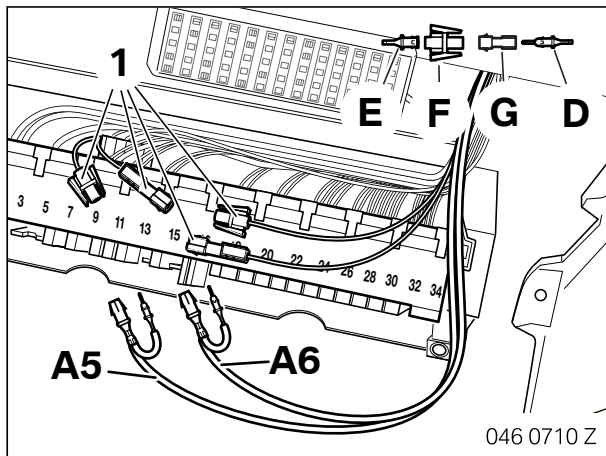


##### All cars

Unclip the joint connector box (1) above the fuse holder (2) and insert branch **A4** (BR cable) into joint connector **X219**.

Clip the joint connector box (1) into the fuse holder (2).

4. To connect the bonnet contact switch and control unit



Cut through the VI/GE cable from fuse F10 and the RT/GE/WS cable from fuse F43 at a suitable point.

Crimp the supplied socket/plug contacts **D–E** onto the cut cables (1) and connect plug casings **F–G**.

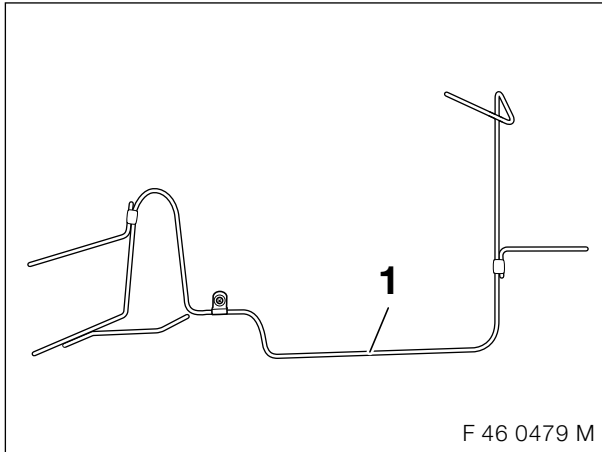
Connect plug casings **F–G** to branches **A5** and **A6**.

Connect branch **A5** (VI/WS cable) to the socket/plug contacts of the VI/GE cable.

Connect branch **A6** (RT/WS cable) to the socket/plug contacts of the RT/GE/WS cable.

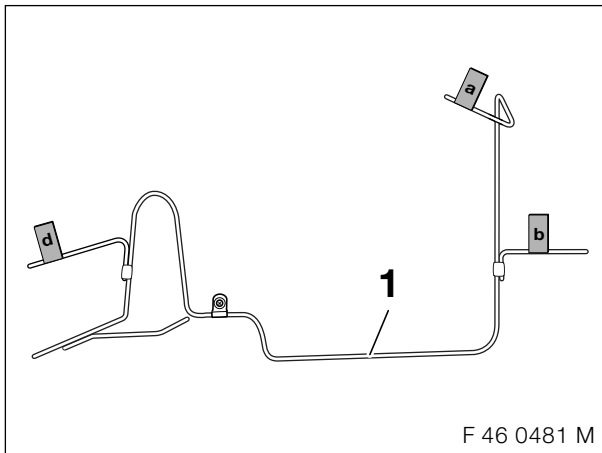


## 5. To cut the high-voltage wire to length



### 4-cylinder models only

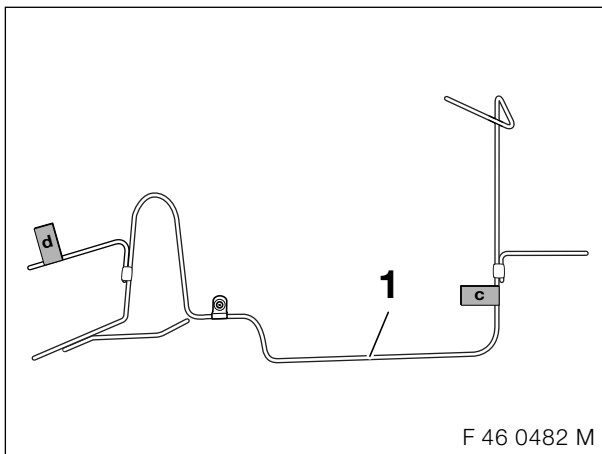
The wire (1) is not cut to length.



### 6-cylinder models with manual gearbox only

Cut the wire (1) to length as follows:

- Cut off arm **a** (green) including the marking
- Remove arm **b** (blue) entirely
- Remove arm **d** (red) entirely

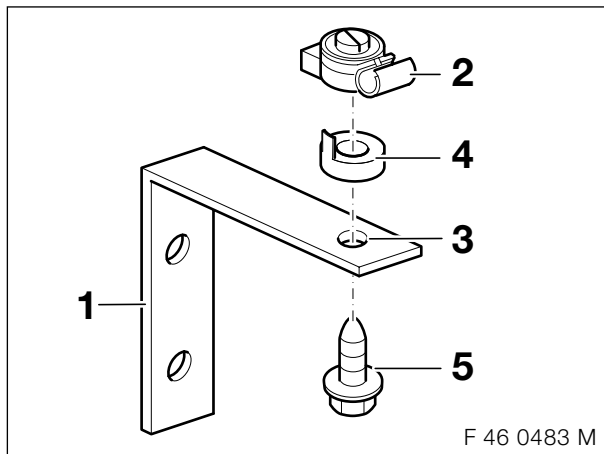


### 6-cylinder models with automatic gearbox only

Cut the wire (1) to length as follows:

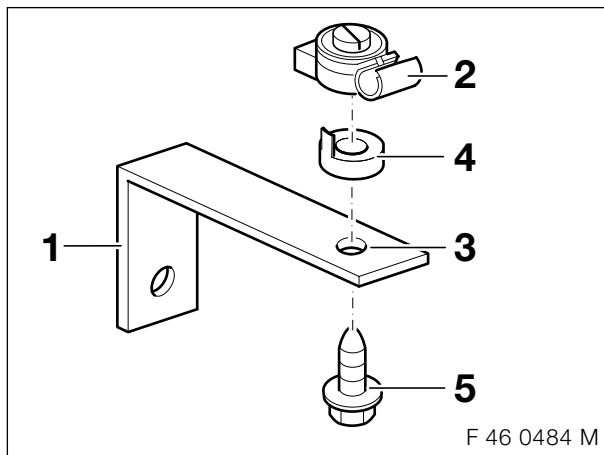
- Cut off arm **c** (yellow) including the marking
- Remove arm **d** (red) entirely

## 6. To pre-assemble the holder/bracket



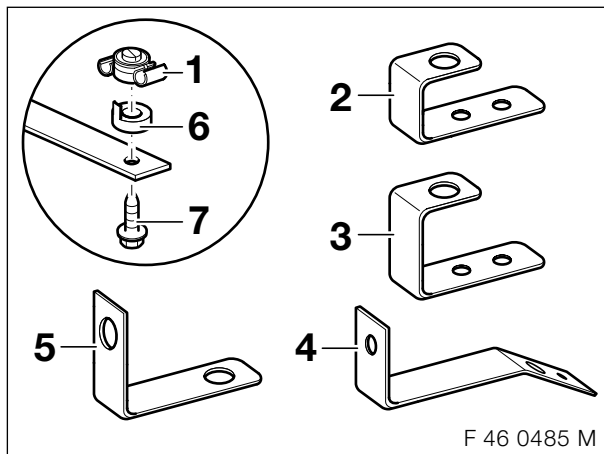
### Not for Convertible and Coupé up to 09/99

- Attach a single retaining clip (2) to the 6 mm hole (3) in both holders **no. 1** with spacer (4) and hexagonal self-tapping screw (5).
- Line up/turn the single retaining clip (2) as illustrated.



### Only Convertible and Coupé from 09/99

- Attach a single retaining clip (2) to the hole (3) in both brackets **no. 1** with spacer (4) and hexagonal self-tapping screw (5).
- Line up/turn the single retaining clip (2) as illustrated.



### 4-cylinder models:

In addition, attach one retaining clip (1) each to holder **no. 4** and holder **no. 5** with spacer (6) and hexagonal self-tapping screw (7).

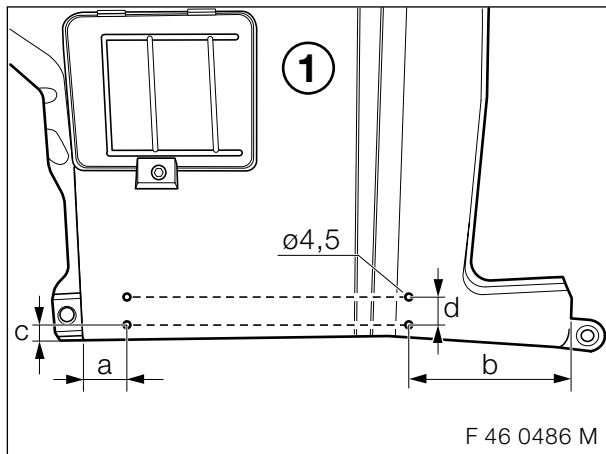
### 6-cylinder models (manual gearbox):

In addition, attach one retaining clip (1) each to holder **no. 3** and holder **no. 5** with spacer (6) and hexagonal self-tapping screw (7).

### 6-cylinder models (automatic gearbox):

In addition, attach a retaining clip (1) to holder **no. 2** with spacer (6) and hexagonal self-tapping screw (7).

## 7. To prepare the underbody shield/reinforcement plate

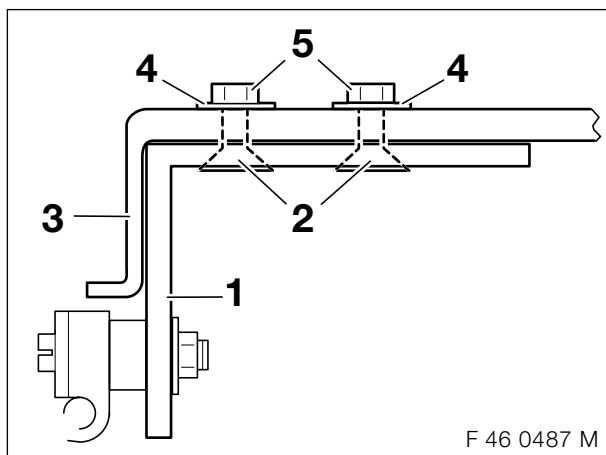


### Cars with underbody shield only

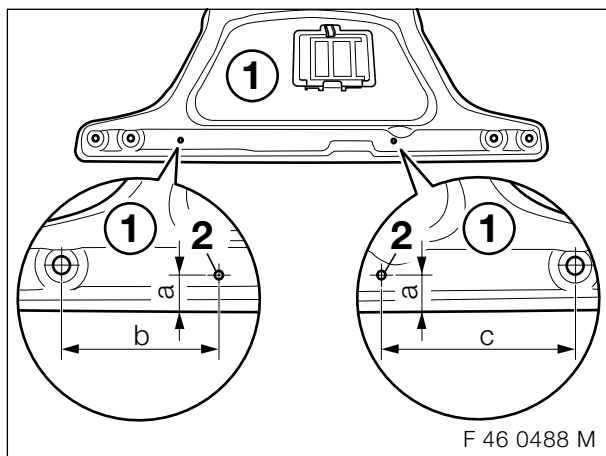
Transfer dimensions **a – d** to the underbody shield (1) and drill four 4.5 mm holes.

Dimensions:

- **a** = 50 mm
- **b** = 160 mm
- **c** = 20 mm
- **d** = 27 mm



Attach two holders **no. 1** to the underbody shield (3) using two countersunk screws (2), two washers (4) and two hexagonal nuts (5).

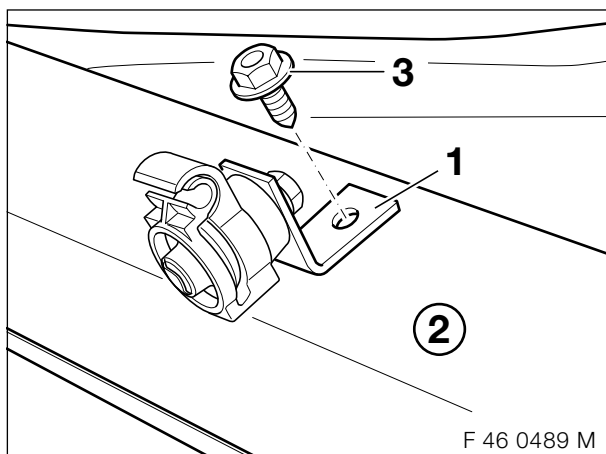


### Cars with reinforcement plate only

Transfer dimensions **a – c** to the reinforcement plate (1) and drill two 4.5 mm holes.

Dimensions:

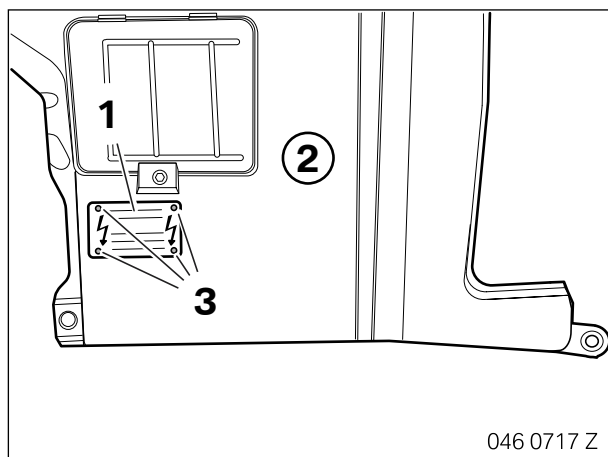
- **a** = 38 mm
- **b** = 172 mm
- **c** = 245 mm



Apply anti-corrosion measures as set out in BMW specifications. ◀

Attach two brackets **no. 1** to the reinforcement plate (2) using two hexagonal screws 5.5 x 19 (3) each.

## 8. To install the warning sign

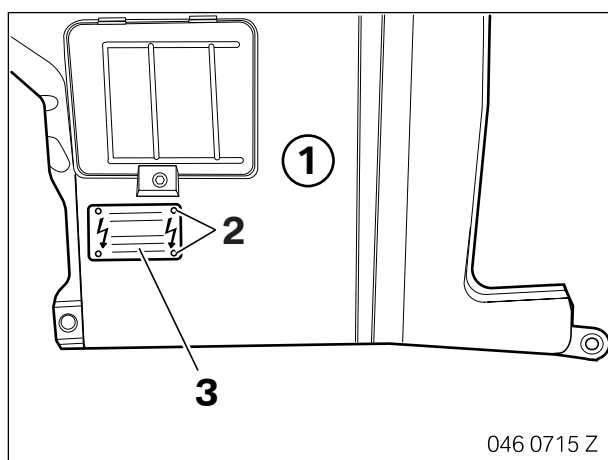


Position the warning sign (1) at a suitable point on the outside of the front underbody shield (2).

Mark the holes (3) on the underbody shield (2).

Drill the holes (3) in the underbody shield (2) using a 4.1 mm twist drill bit.

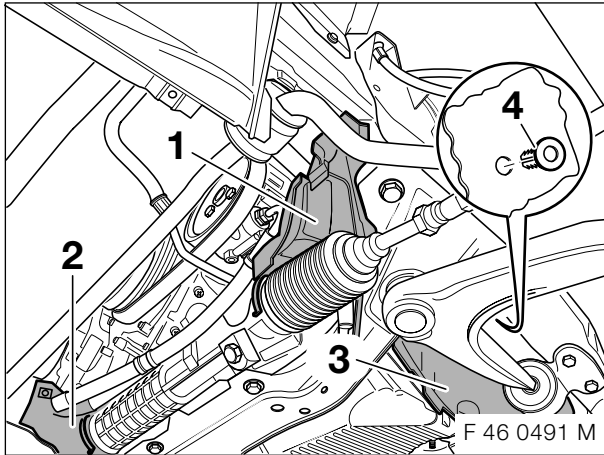
Proceed similarly in cars with a reinforcement plate.



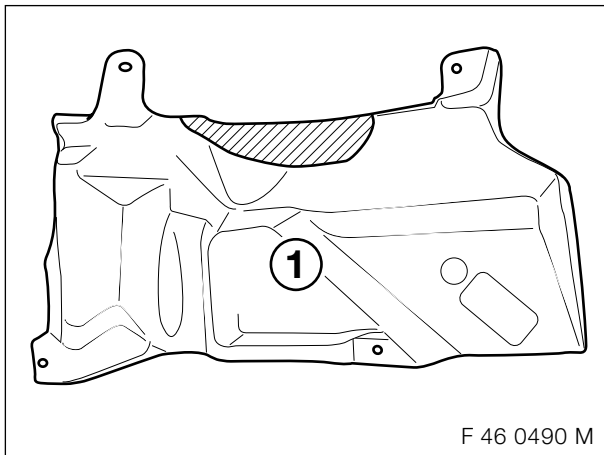
Attach the warning sign (3) to the outside of the front underbody shield (1) using 4 blind rivets (2).

Proceed similarly in cars with a reinforcement plate.

## 9. To install the covers (only cars with underbody shield)

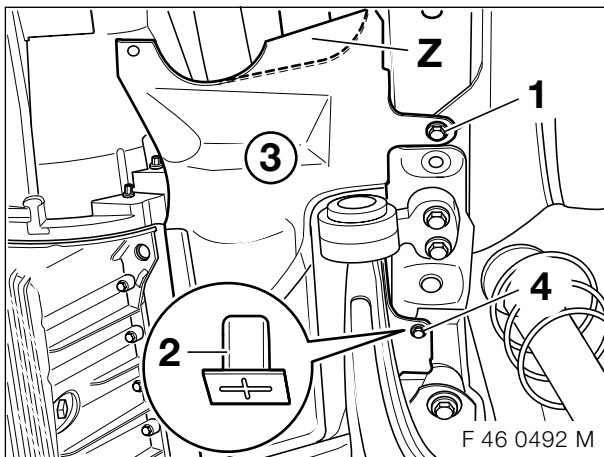


- Insert the left steering gear cover (1).
- Insert the right steering gear cover (2).
- Insert cover (3) and secure it with rivets (4).



### Cars with M54 only

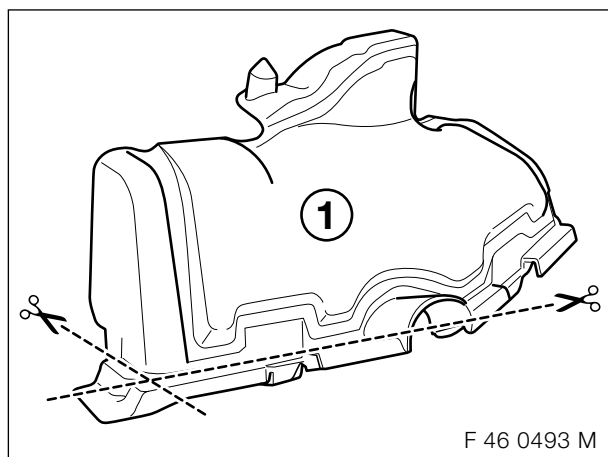
Cut out the heat shield (1) as indicated by the hatched area in the figure.



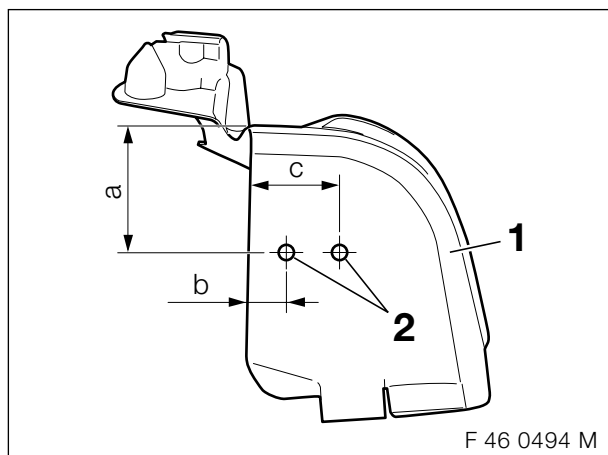
### All cars

- Unscrew and remove the hexagonal self-tapping screw (1).
- Insert the clip (2) into the frame.
- Insert the exhaust system shield (3) with hexagonal self-tapping screw ST4.8 (4).
- Adapt the opening for the 2nd exhaust pipe (Z), deburr the edges and attach the exhaust system shield (3) using hexagonal self-tapping screws (1 and 4).

## 10. To install the covers (only cars with reinforcement plate)



Trim the cover (1) as shown in the figure.



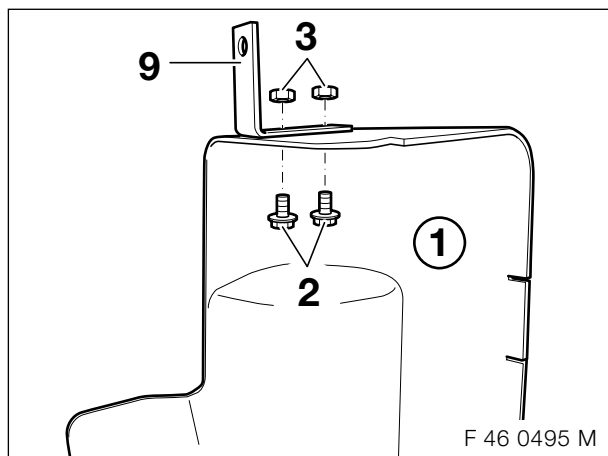
Transfer dimensions **a-c** to the cover (1) and drill two 4.5 mm holes (2).

Dimensions:

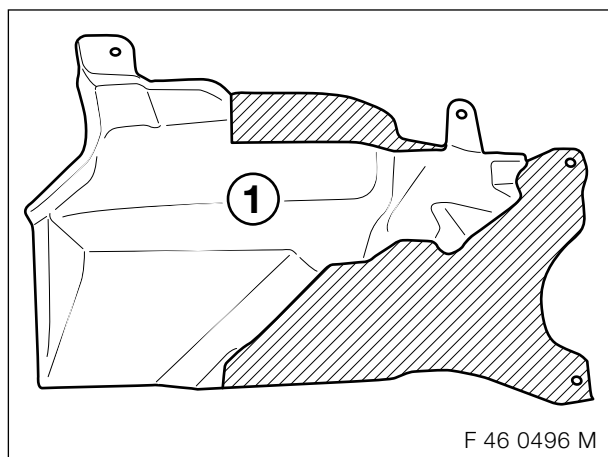
**a** = 45 mm

**b** = 13 mm

**c** = 30 mm

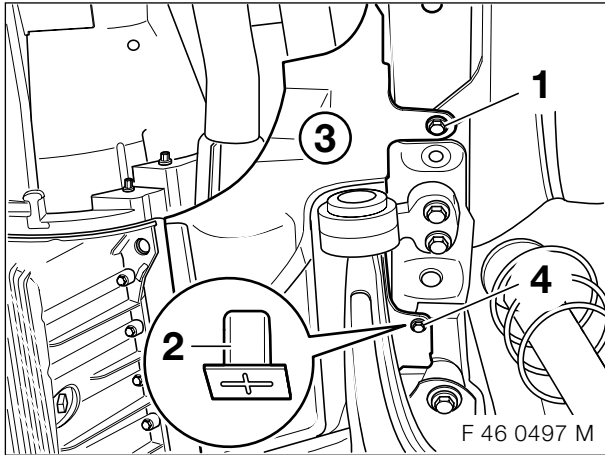


Attach bracket **no. 9** to the cover (1) using two M5 x 12 screws (2) and two M5 hexagonal nuts (3).

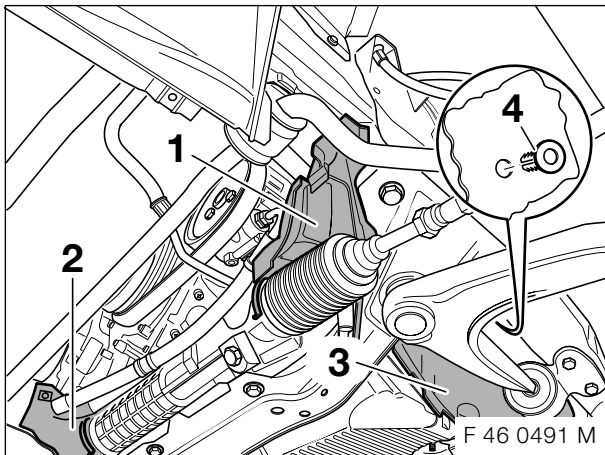


Cut out the heat shield (1) as indicated by the hatched areas in the figure.

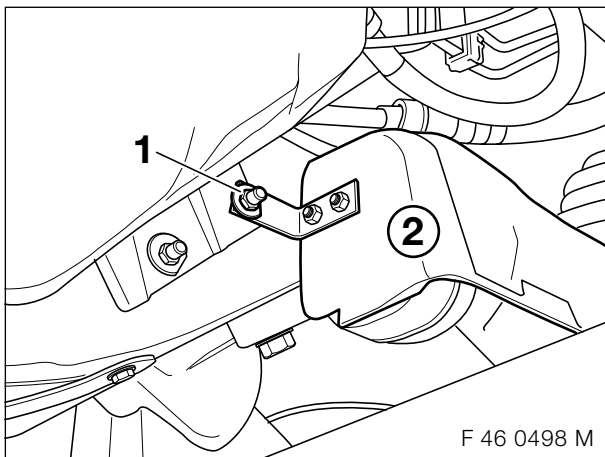
10. To install the covers (only cars with reinforcement plate)



- Unscrew and remove the hexagonal self-tapping screw (1).
- Insert the clip (2) into the frame.
- Insert the exhaust system shield (3) with hexagonal self-tapping screw ST4.8 (4).
- Attach the exhaust system shield (3) with hexagonal self-tapping screws (1 and 4).

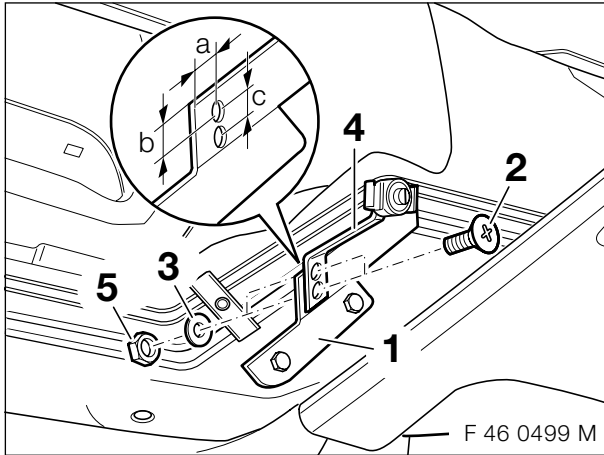


- Insert the left steering gear cover (1).
- Insert the right steering gear cover (2).
- Insert cover (3) and secure it with rivets (4).



- Remove the existing nut (1).
- Attach the bracket of cover (2) to the existing body stud using the removed nut (1).

## 11. To install the wire



### 4-cylinder models only

Remove the holder (1).

Transfer dimensions **a – c** to the holder (1) and drill two 4.5 mm holes.

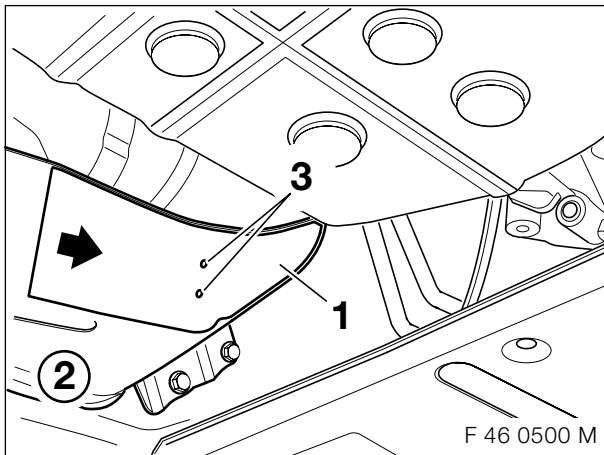
Dimensions:

**a** = 25 mm

**b** = 7 mm

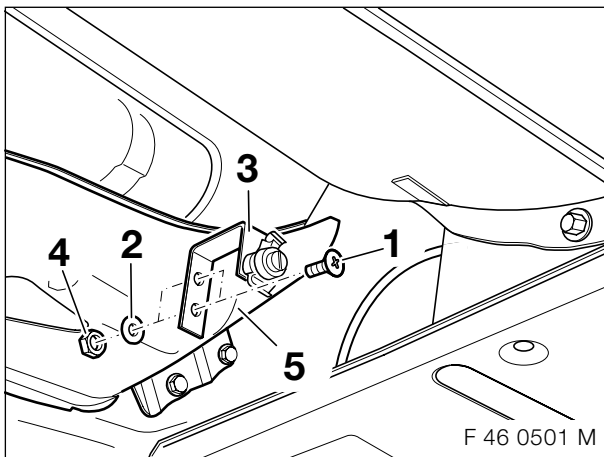
**c** = 11 mm

Attach the holder **no. 4** with countersunk screws (2), washers (3) and hexagonal nuts (5).



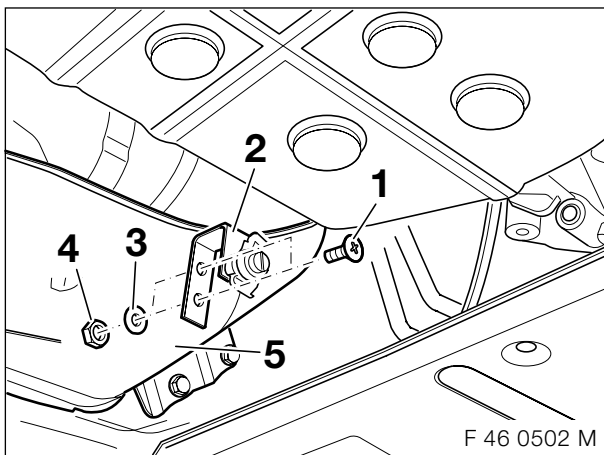
### 6-cylinder models only

- Hold the template (1) against the shield (2) with the arrow pointing in the driving direction and mark the drilling points (3).
- Drill 4.5 mm holes (3).



### 6-cylinder models with manual gearbox only

Attach the holder **no. 3** to the shield (5) with countersunk screws (1), washers (2) and hexagonal nuts (4).

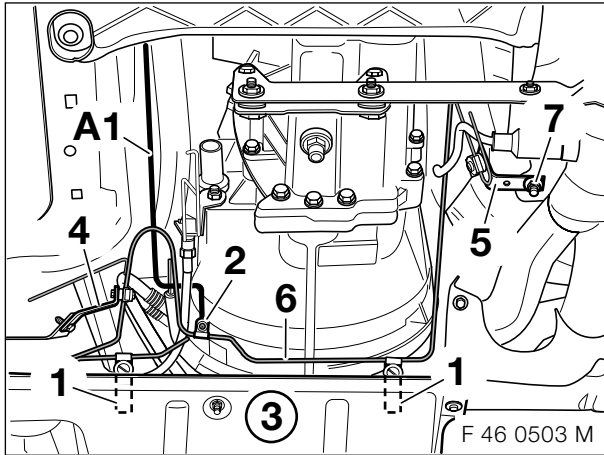


### 6-cylinder models with automatic gearbox only

Attach the holder **no. 2** to the shield (5) with countersunk screws (1), washers (3) and hexagonal nuts (4).



## 11. To install the wire

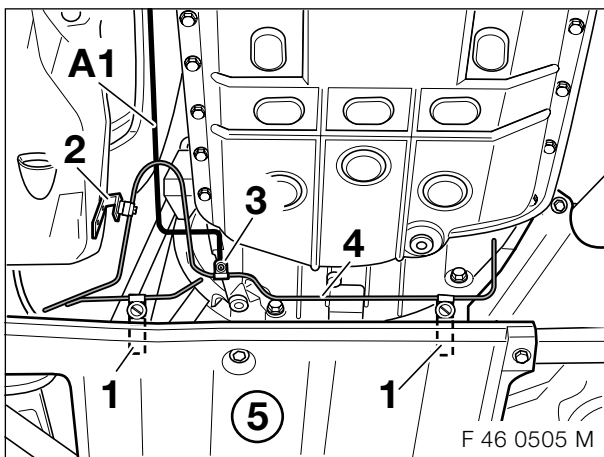


### Cars with manual gearbox only



The figure shows the installation procedure in cars with an underbody shield. Proceed similarly in cars with a reinforcement plate. ◀

- Unscrew the speed nut (7).
- Place the holder **no. 5** on the coarse stud bolt and secure it with speed nut (7).
- Install the reinforcement (front axle) and underbody shield (3) with holders **no. 1**.
- Insert the wire (6) and press into the wire attachment of holders (1, 4 and 5).
- Connect the round plug of the high-voltage line **A1** to the thread of the connection piece (2).
- Line up the wire (6) so it is at least 10 mm from any adjacent parts. Bend or shorten the wire if necessary.



### 6-cylinder models with automatic gearbox only



The figure shows the installation procedure in cars with an underbody shield. Proceed similarly in cars with a reinforcement plate. ◀

- Install the reinforcement (front axle) and underbody shield (5) with holders **no. 1**.
- Insert the wire (4) and press into the wire attachment of holders (1 and 2).
- Connect the round plug of the high-voltage line **A1** to the thread of the connection piece (3).
- Line up the wire (4) so it is at least 10 mm from any adjacent parts. Bend or shorten the wire if necessary.

## 12. Coding and concluding work

This system does not require coding.



### **High voltage! Danger of death!**

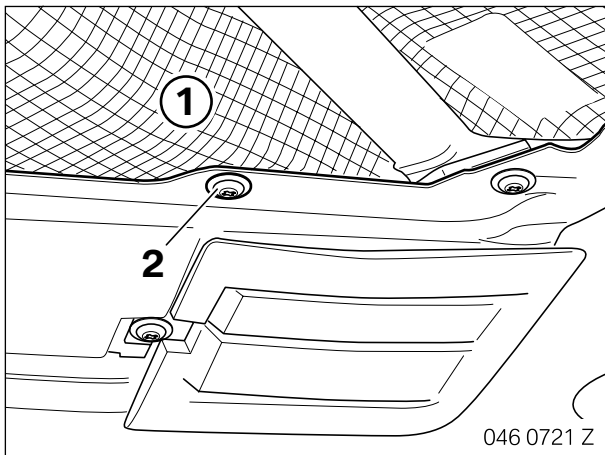
Do not touch high-voltage wires when the marten repeller system is active. ◀

Perform a function test of the marten repeller system:

- Connect the negative pole of the battery
- Shut the bonnet
- Turn the ignition key to the “0” position
- Move the high-voltage wire so the spark gap between the wire and the body is about 1 – 2 mm
- You should see a spark jump from the wire to earth at intervals of 1 – 1.5 seconds.

Perform the test separately for **each** wire.

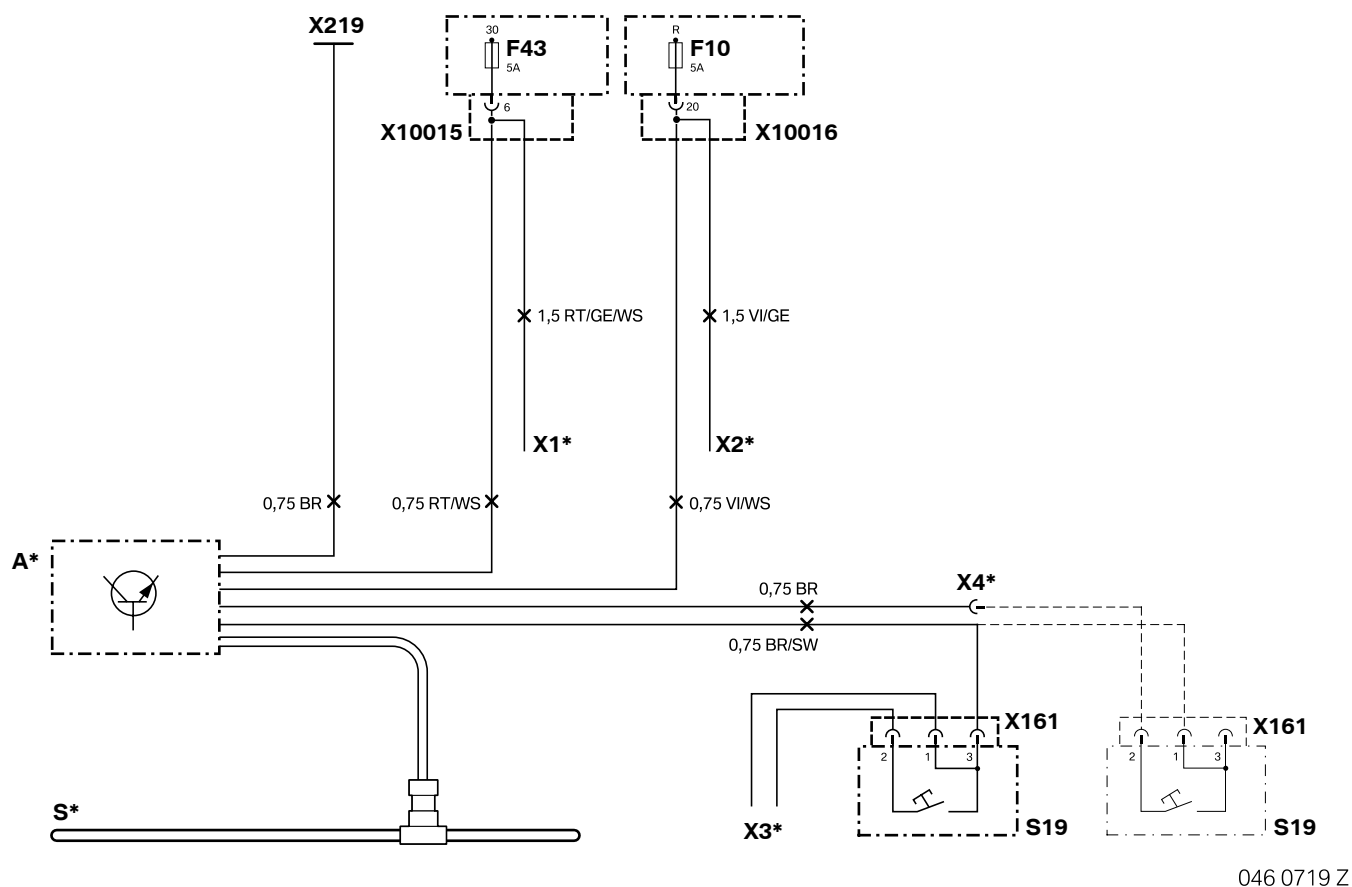
The marten repeller system must be deactivated when the bonnet is open or when the ignition key is turned to the “R” position or beyond.



### **Cars with underbody shield only**

- If necessary, attach the heat shield (1) using the new screw plug (2) from the installation kit.
- Re-assemble the car.

## 13. Circuit diagram



046 0719 Z

## 13. Circuit diagram

### Legend

<b>A*</b>	Control unit
<b>S*</b>	High-voltage wire
<b>S19</b>	Bonnet contact switch (cars with alarm system)
<b>X1*</b>	Standard wiring harness
<b>X2*</b>	Standard wiring harness
<b>X3*</b>	Standard wiring harness
<b>X4*</b>	Tied back to wiring harness (cars with alarm system)
<b>X161</b>	3-pin plug, bonnet contact switch
<b>X219</b>	Joint connector above glove compartment
<b>X10015</b>	Fuse holder above glove compartment
<b>X10016</b>	Fuse holder above glove compartment

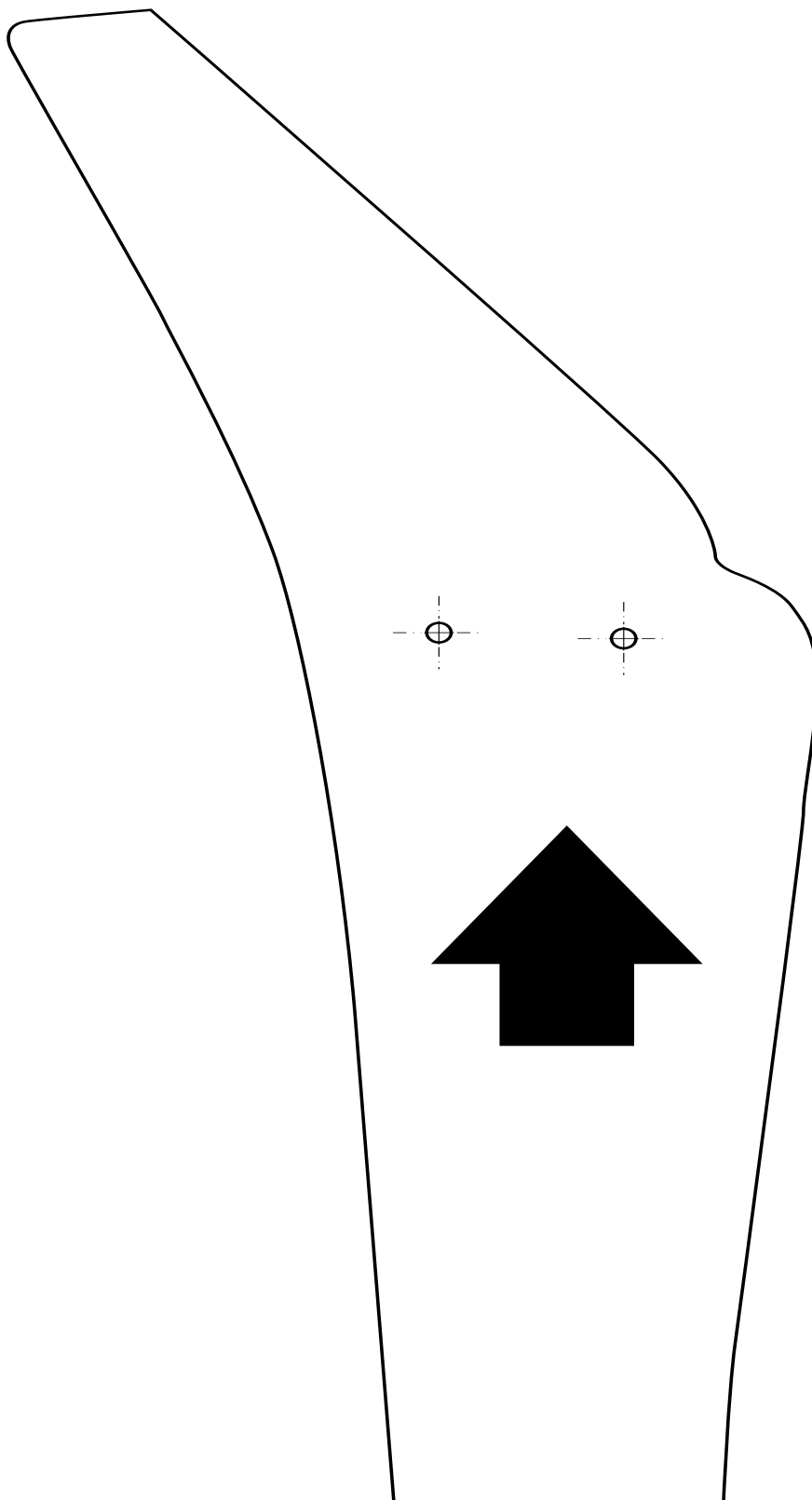
All the designations marked with an asterisk (\*) apply only to these installation instructions.

### Cable colours

BR	brown
GE	yellow
GR	grey
RT	red
SW	black
VI	violet
WS	white

## 14. Template

The template shown here is not original size and must not be used.  
The original template is supplied in the installation kit.



F 46 0507 M