

Original BMW Accessories.

Installation Instructions.



BMW Integrated Navigation.

BMW 1 Series (F20, F21)

BMW 2 Series (F22, F23, F45, F46)

BMW 3 Series (F30, F31, F34, F35)

BMW 4 Series (F32, F33, F36)

BMW X1 (F48, F49)

BMW X3 (F25)

BMW X4 (F26)

BMW 5 Series (F10, F11, F18)

Retrofit kit number

65 90 2 410 420	ECE navigation unit retrofit kit
65 90 2 410 421	CN navigation unit retrofit kit
65 90 2 410 422	NA navigation unit retrofit kit
65 90 2 410 423	Controller mount set (high-speed CAN)
65 90 2 410 425	Controller mount set (low-speed CAN)
65 90 2 410 426	Wiring harness set
65 90 2 414 644	Installation tools

Installation time

The installation time is **approx. 1.5 hours**. This may vary depending on the condition of the vehicle and the equipment in it. The installation time shown does not include any time spent on programming/coding.

The calculation of the total costs for the programming time must be factored into the calculation of retrofitting costs (no invoicing via warranty).

Important information

These installation instructions are primarily designed for use within the BMW dealership organisation and by authorised BMW service companies.

These installation instructions are intended for use by qualified specialist staff trained on BMW vehicles with the relevant expert knowledge.

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

If you experience installation or function problems, restrict troubleshooting to approx. 0.5 hours for mechanical work and 1.0 hour for electrical work.




To avoid unnecessary extra work and/or costs, send an inquiry straight away to the technical parts support team via the Aftersales Assistance Portal (ASAP).

Quote the following information:


- Chassis number,
- Retrofit kit part number,
- A detailed description of the problem,
- Any work already carried out.

Do not archive the hard copy of these installation instructions since daily updates are provided via ASAP!

Pictograms

-  Denotes instructions that draw your attention to dangers.
-  Denotes instructions that draw your attention to special features.
-  Denotes the end of the instruction or other text.

Warning instructions for vehicles with knee airbag

-  Work carried out on pyrotechnic objects must only be carried out by authorised and trained personnel. Untrained working can lead to significant dangers.

Other people are forbidden from working on this system.

Note and comply with the safety instructions on how to use airbag modules and pyrotechnic belt tensioners. Incorrect handling can trigger the airbag and cause injuries.

The installation of the retrofit system must never impair the function of the knee airbag. When routing cables, ensure that no cables from the retrofit system touch or are secured to parts of the airbag system.

Installation information

Ensure that the cables and/or lines are not kinked or damaged as you install them in the car. Costs arising from this will not be reimbursed by BMW AG.

Additional cables/wires that you install must be secured with cable ties. If the specified PIN chambers are occupied, bridges, double crimps, or twin-lead terminals must be used.

All pictures show LHD cars; proceed accordingly on RHD cars.

After the installation work, the retrofit must be programmed / coded via the – **Conversions** – path.

Ordering instructions

The parts required for retrofitting depend on the country version and the production date of the vehicle in question. A vehicle-specific check via the EPC must be carried out for this.

List of special equipment

The following special equipment must be taken into consideration when installing:

SA 358 Air-conditioned comfort windscreen

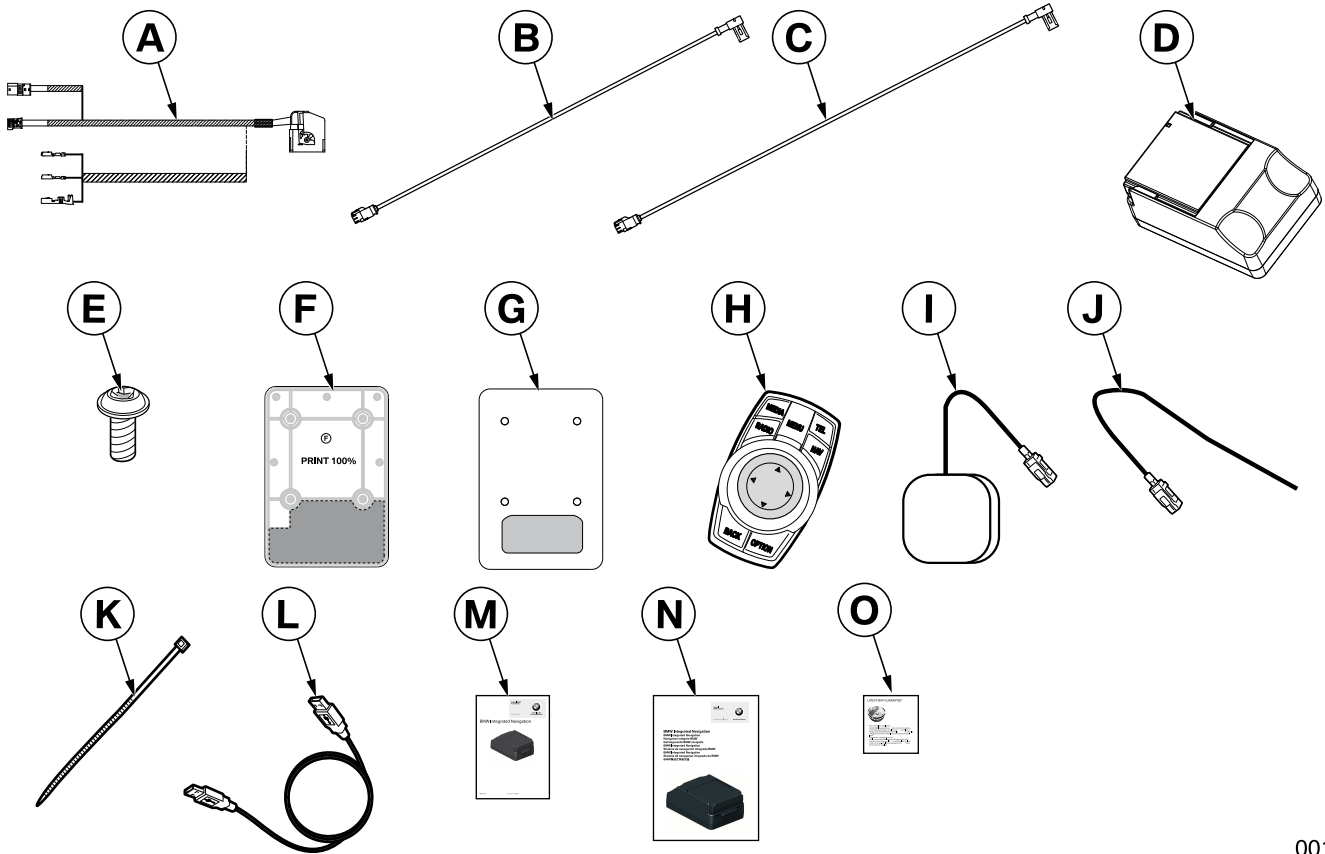
Special tools required

Details of the special tool required can be found in the relevant ISTA repair manual.

Table of contents

Section	Page
1. Parts list for retrofit kit	4
2. Preparatory work	5
3. Retrofit wiring harness connection diagram	6
4. Connection diagram of HSD cables	7
5. Installation and cabling diagram	8
6. Installing the navigation unit (F10, F11, F18 cars only)	9
7. Installing the navigation unit (F20, F21, F22, F23 cars only)	11
8. Installing the navigation unit (F30, F31, F32, F33, F34, F35, F36 cars only)	13
9. Installing the navigation unit (F25, F26 cars only)	15
10. Installing the navigation unit (F45, F46 cars only)	16
11. Installing the navigation unit (F48, F49 cars only)	18
12. Routing and connecting the retrofit wiring harness	20
13. Concluding work and coding	23
14. Wiring diagram	24
15. Template	25

1. Parts list for retrofit kit



001 1054 Z

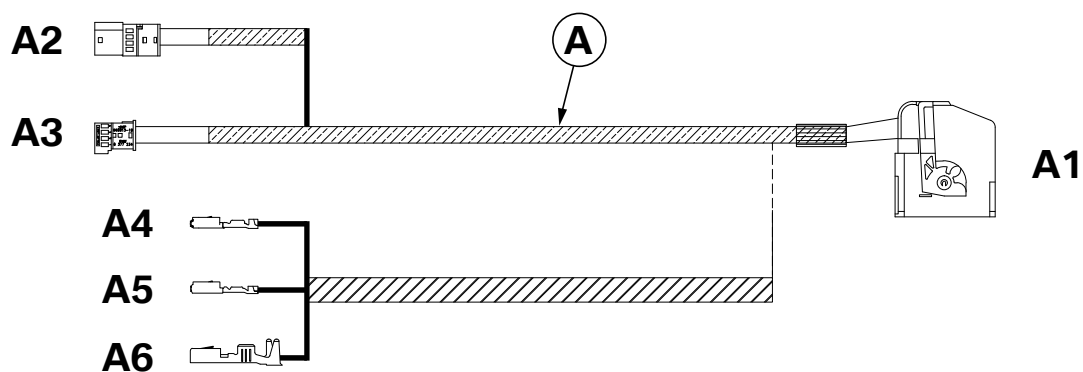
Legend

- A** Retrofit wiring harness
- B** Head unit HSD cable
- C** Display HSD cable
- D** Navigation unit
- E** Screws (4 x)
- F** Template (found at the end of these installation instructions, to be printed out)
- G** Installation tools
- H** Controller
- I** GPS antenna
- J** TMC antenna
- K** Cable tie (not supplied in the retrofit kit)
- L** USB cable **(to be given to the customer)**
- M** Quick Guide **(to be given to the customer)**
- N** Operating instructions **(to be given to the customer)**
- O** Flyer **(to be given to the customer)**

2. Preparatory work

	ISTA No.
Disconnect the negative battery cable	61 20 900
The following components must be removed first of all	
Bottom right dashboard trim	51 45 195
Glove box	64 11 380
Head unit	65 12 320
Central information display	65 50 057
Controller (no longer required)	61 31 195

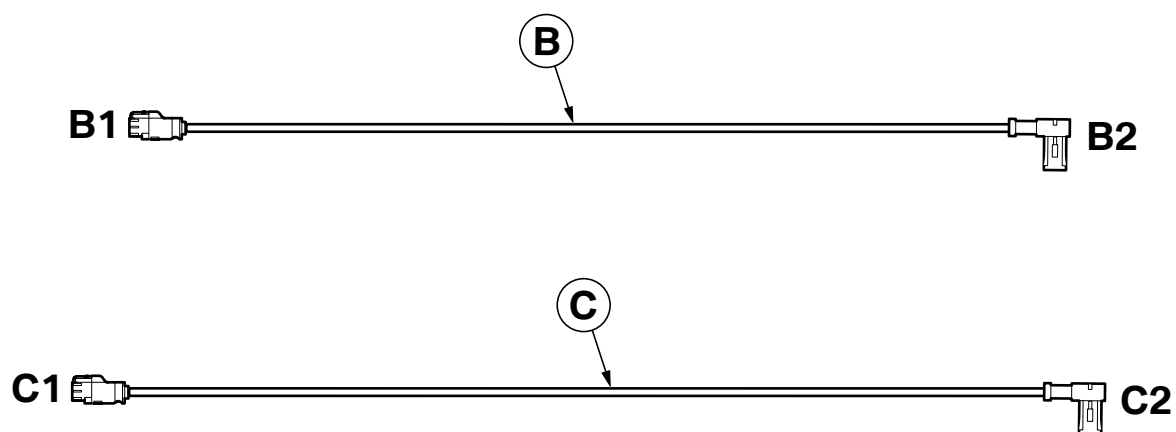
3. Retrofit wiring harness connection diagram



001 1043 Z

Item	Designation	Signal	Cable colour/ cross-section	Connection location in the car	Abbreviation/ slot
A	Retrofit wiring harness	---	---	---	---
A1	SW 18-pin socket casing	---	---	To navigation unit D	---
A2	SW 4-pin plug casing	---	---	To centre console plug	A88*1B
A3	SW 4-pin socket casing	---	---	To controller H	A88
A4	Socket contact	TEL_LF_-	OR 0.50 mm ²	To the plug of head unit A42	A42*1B PIN 40
A5	Socket contact	TEL_LF_+	VI 0.50 mm ²	To the plug of head unit A42	A42*1B PIN 34
A6	Socket contact	MUTE	WS 0.50 mm ²	To the plug of head unit A42	A42*1B PIN 10

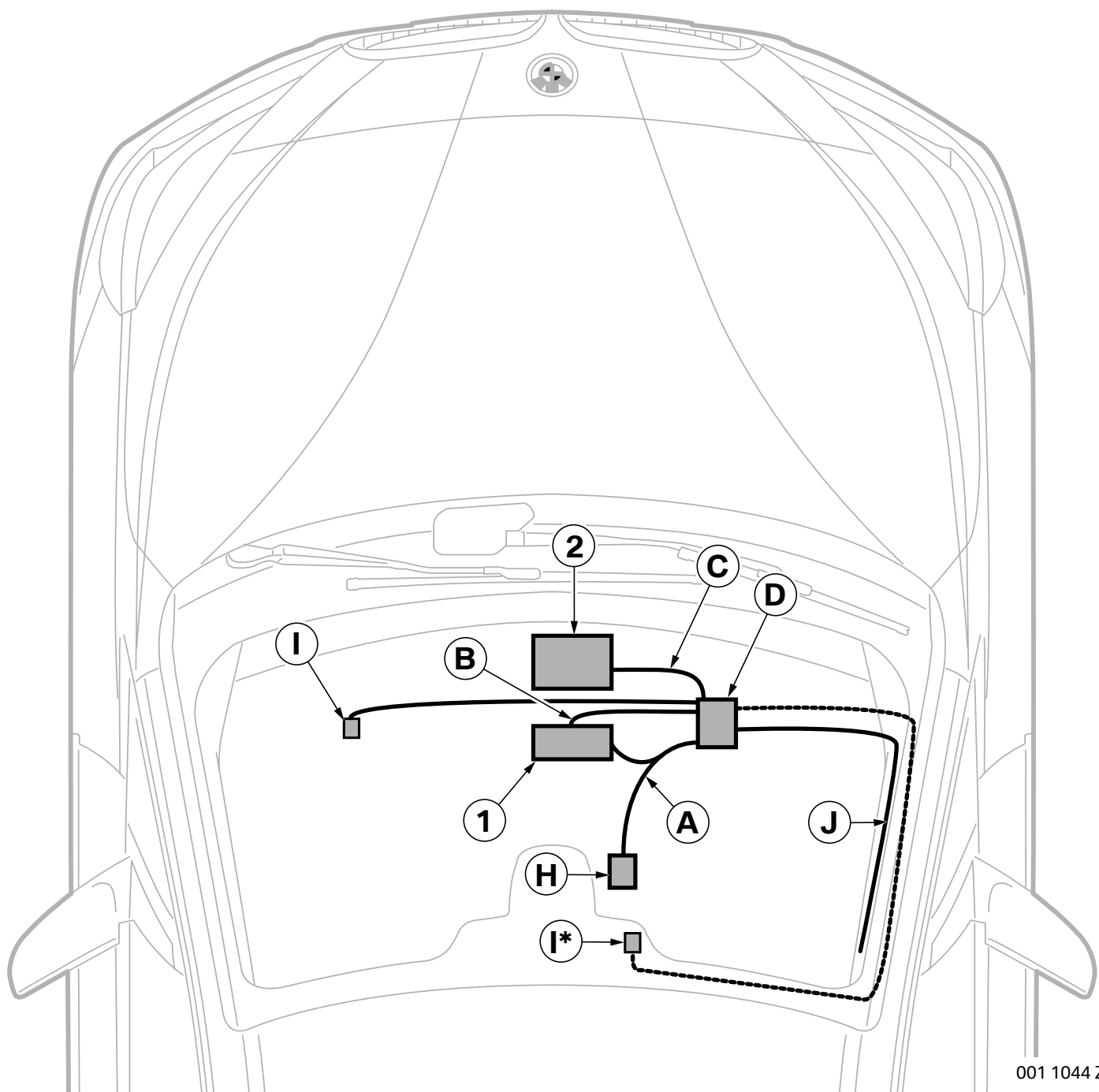
4. Connection diagram of HSD cables



001 1042 Z

Item	Designation	Signal	Cable colour/ cross-section	Connection location in the car	Abbreviation/ slot
B	Head unit HSD cable	---	---	---	---
B1	HSD plug 4-pin VI straight	---	---	To navigation unit D	---
B2	HSD plug 4-pin VI angled	---	---	To head unit A42	A42*5B
C	Display HSD cable	---	---	---	---
C1	HSD plug 4-pin WS straight	---	---	To navigation unit D	---
C2	HSD plug 4-pin VI angled	---	---	To CID A12	A12*1B

5. Installation and cabling diagram

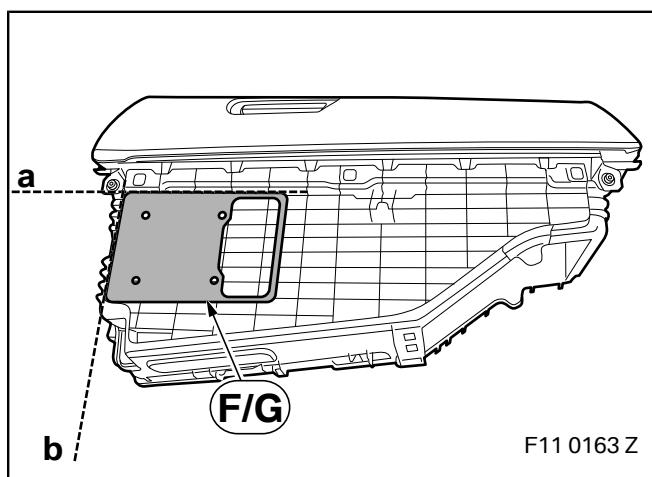


001 1044 Z

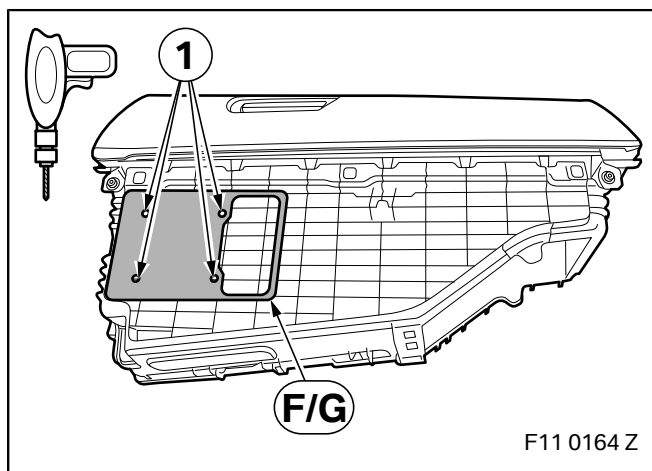
- A** Retrofit wiring harness
- B** Head unit HSD cable
- C** Display HSD cable
- D** Navigation unit
- H** Controller
- I** GPS antenna (only cars without SA 358)
- I*** GPS antenna (only cars with SA 358)
- J** TMC antenna

- 1** Head unit **A42**
- 2** Central information display **A12**

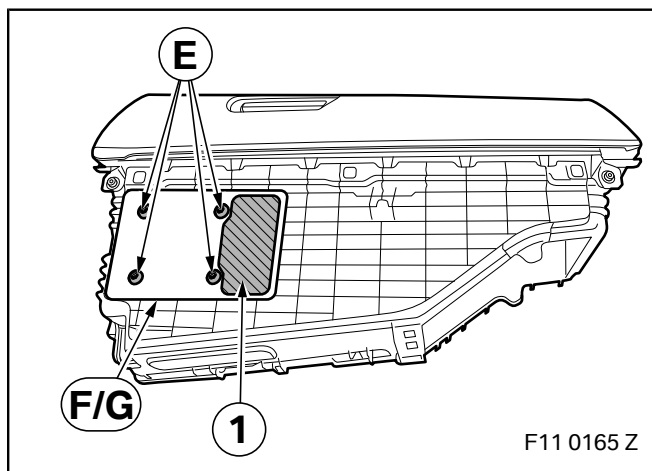
6. Installing the navigation unit (F10, F11, F18 cars only)



Place template **F** or installation tool **G** on edge **a** and edge **b** of the glove box.

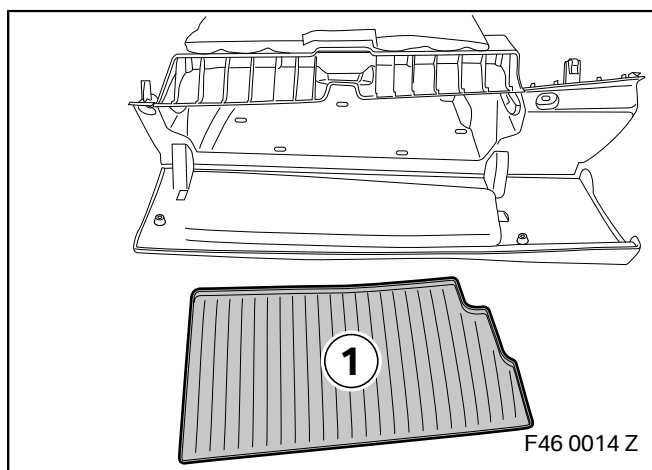


Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.



Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

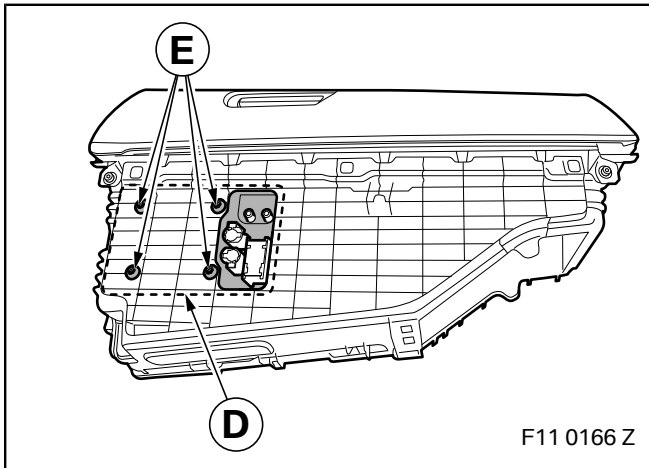
Remove template **F** or installation tool **G** and screws **E**.



Place the rubber mat (1) in the glove box.

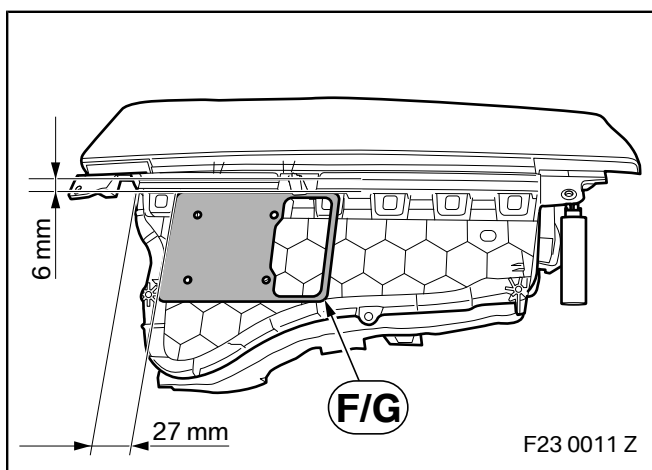
Transfer the previously cut-out section of the glove box to the rubber mat (1) and cut out.

6. Installing the navigation unit (F10, F11, F18 cars only)

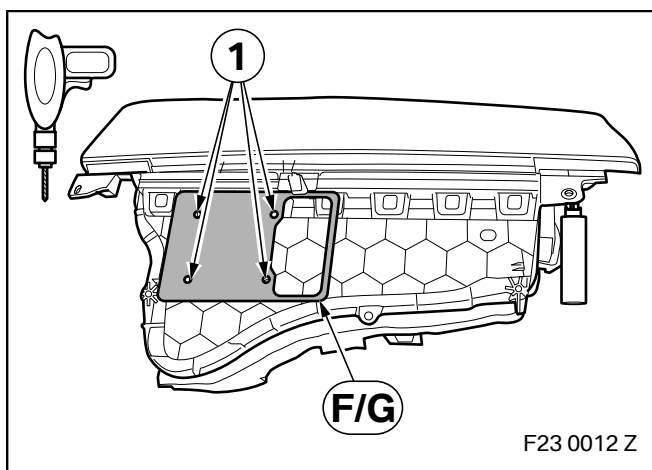


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.

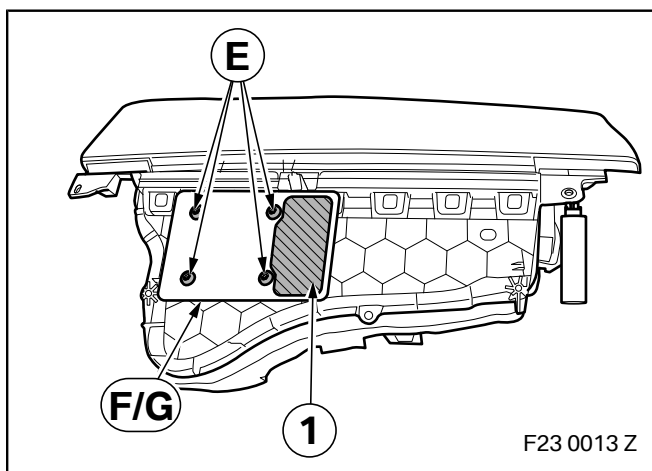
7. Installing the navigation unit (F20, F21, F22, F23 cars only)



Place template **F** or installation tool **G** on the glove box as per the dimensions.

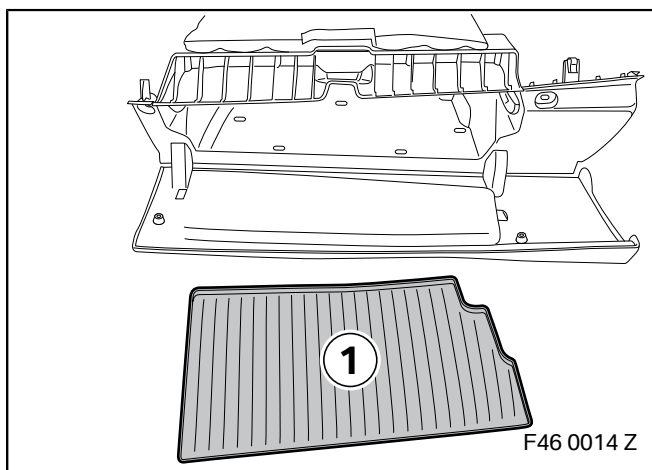


Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.



Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

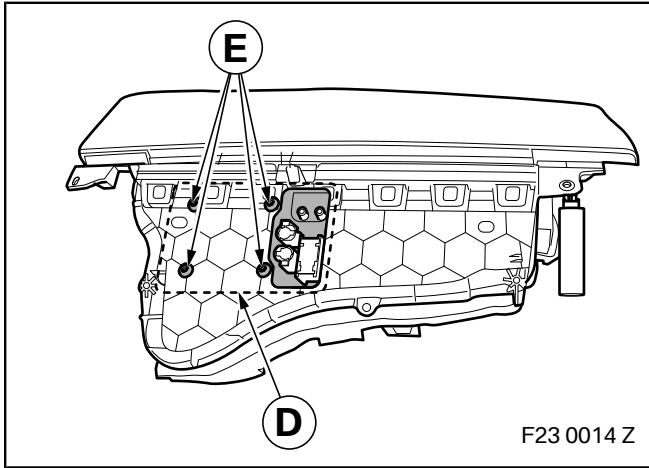
Remove template **F** or installation tool **G** and screws **E**.



Place the rubber mat (1) in the glove box.

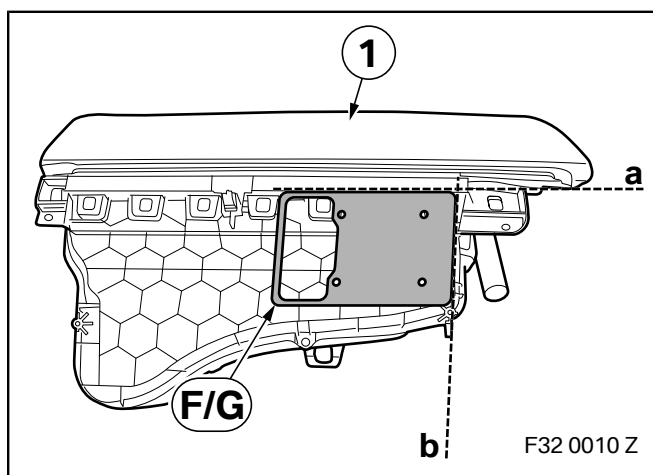
Transfer the previously cut-out section of the glove box to the rubber mat (1) and cut out.

7. Installing the navigation unit (F20, F21, F22, F23 cars only)

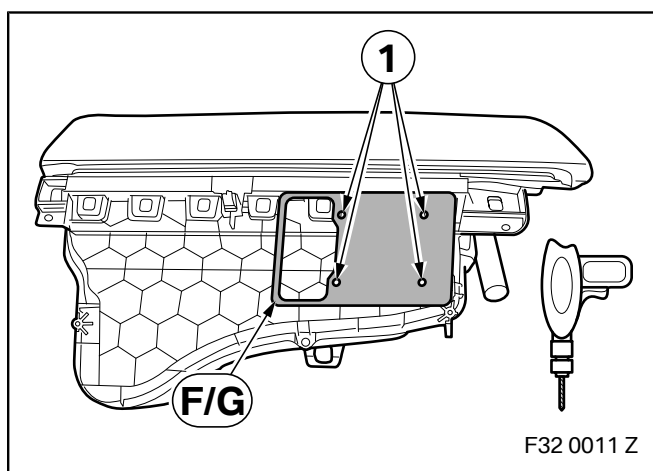


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.

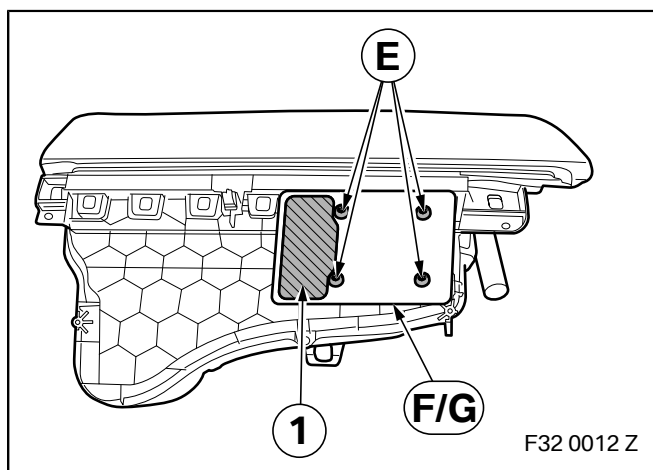
8. Installing the navigation unit (F30, F31, F32, F33, F34, F35, F36 cars only)



Place template **F** or installation tool **G** on edge **a** and edge **b** of the glove box.

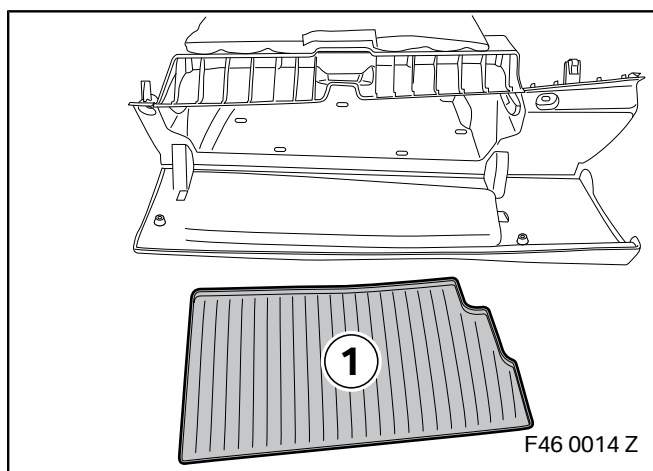


Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.



Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

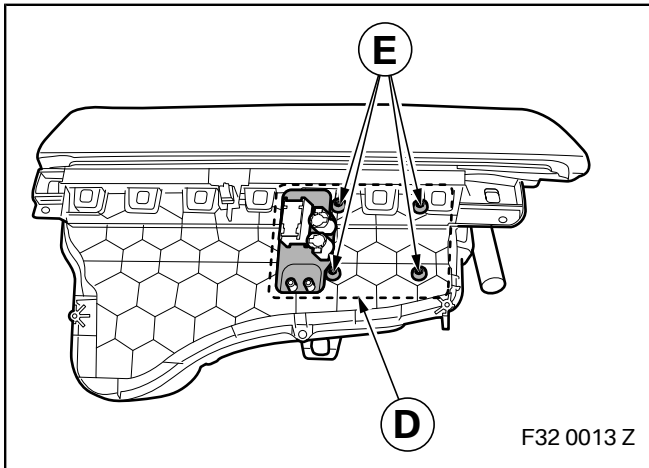
Remove template **F** or installation tool **G** and screws **E**.



Place the rubber mat (1) in the glove box.

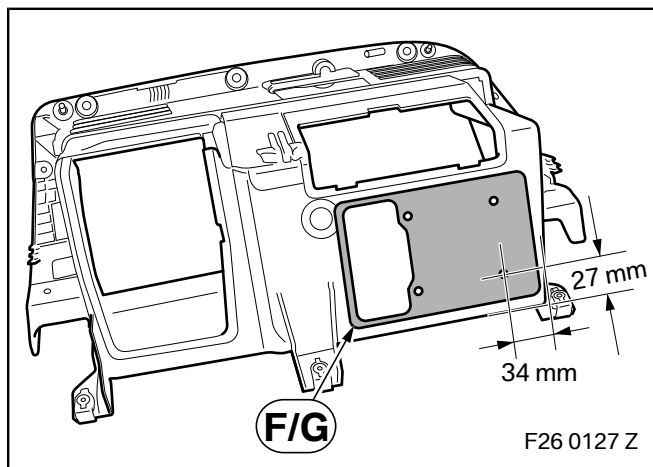
Transfer the previously cut-out section of the glove box to the rubber mat (1) and cut out.

8. Installing the navigation unit (F30, F31, F32, F33, F34, F35, F36 cars only)

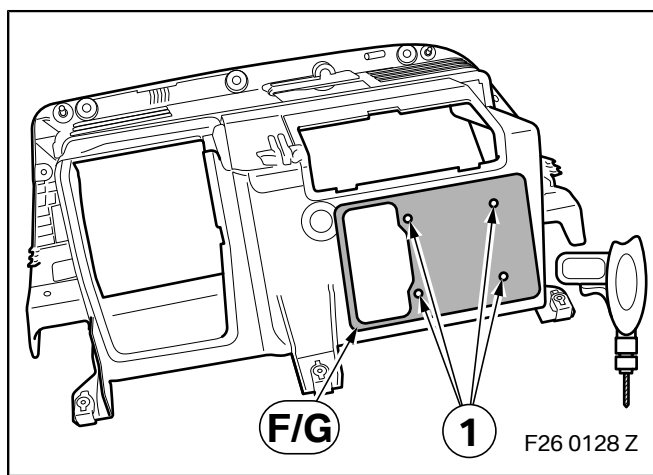


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.

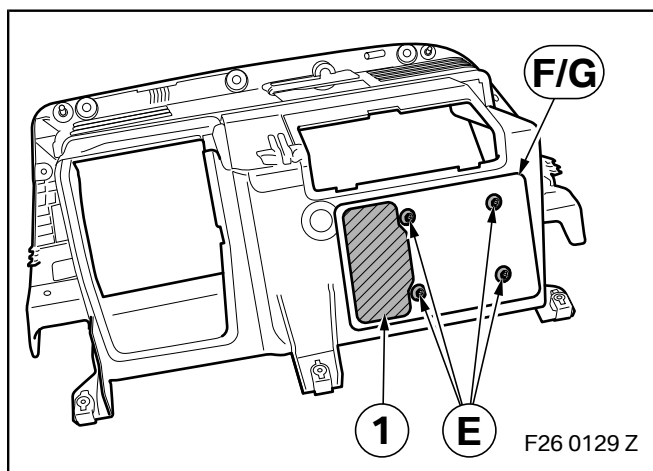
9. Installing the navigation unit (F25, F26 cars only)



Place template **F** or installation tool **G** on the glove box as per the dimensions.

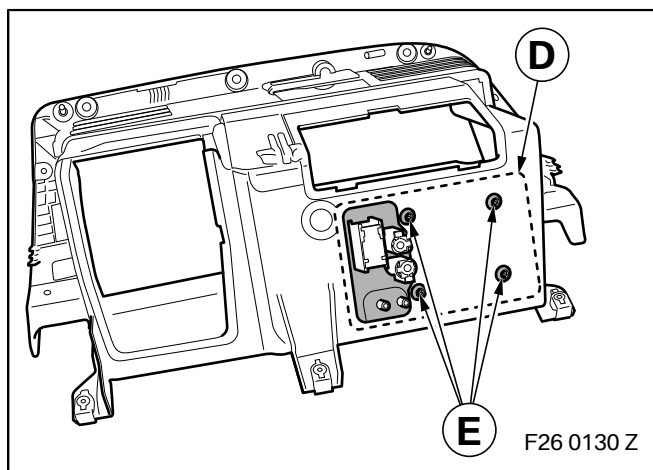


Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.



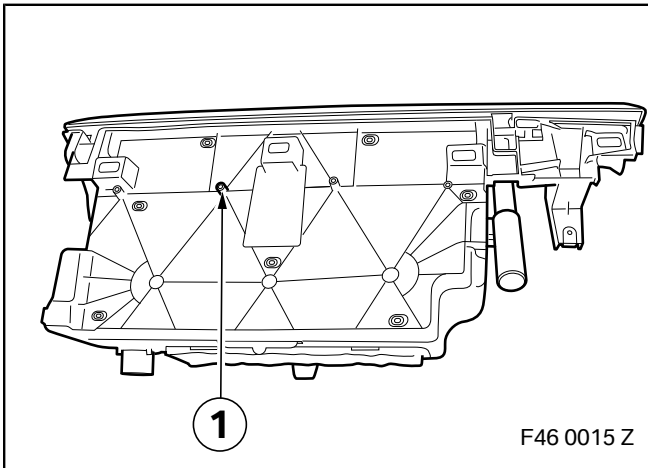
Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

Remove template **F** or installation tool **G** and screws **E**.

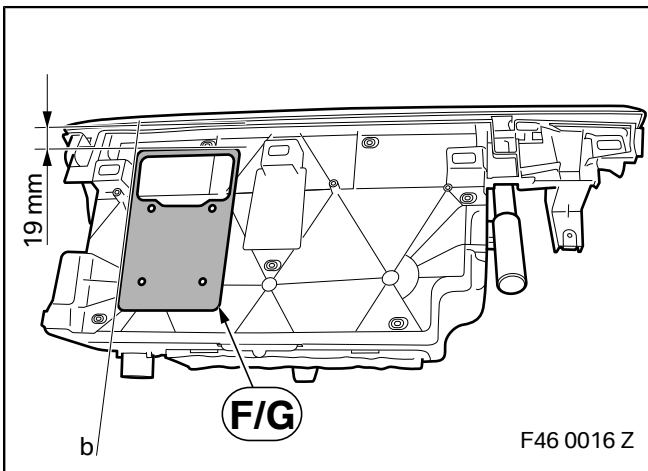


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.

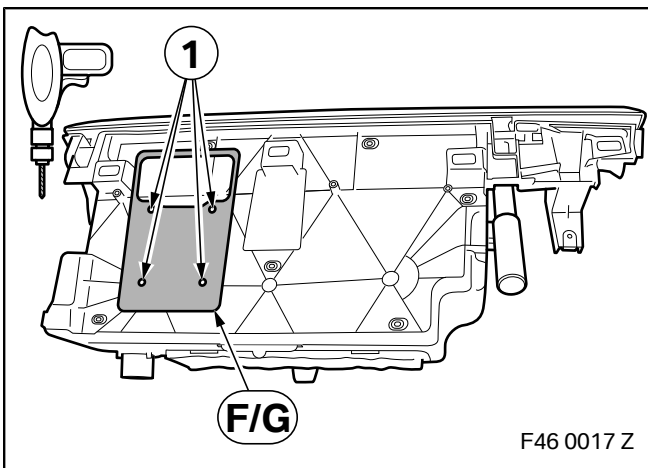
10. Installing the navigation unit (F45, F46 cars only)



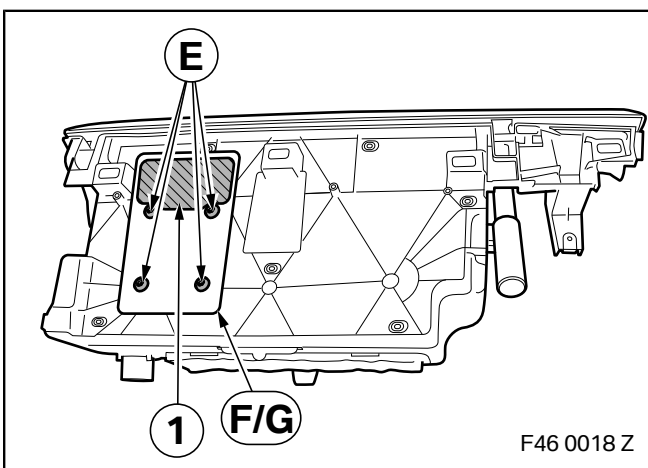
Cut off the plastic guide (1).



Place template **F** or installation tool **G** on the glove box as per the dimensions.



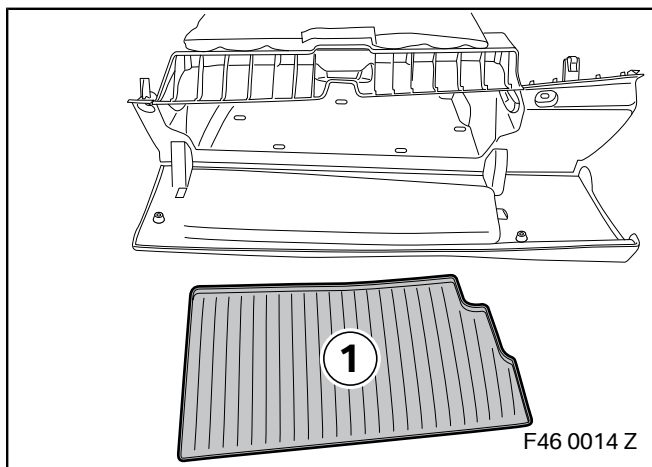
Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.



Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

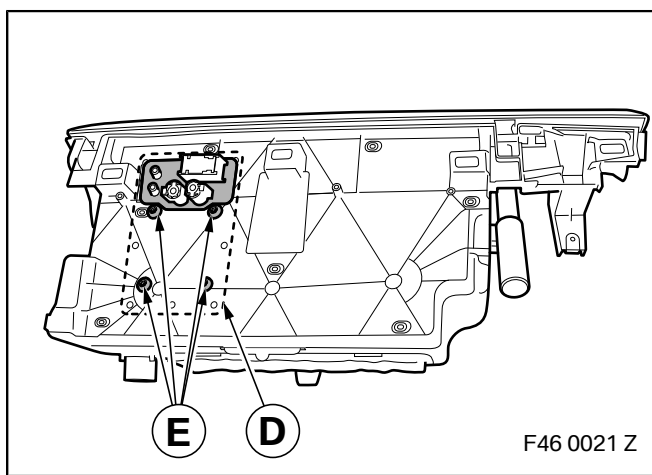
Remove template **F** or installation tool **G** and screws **E**.

10. Installing the navigation unit (F45, F46 cars only)



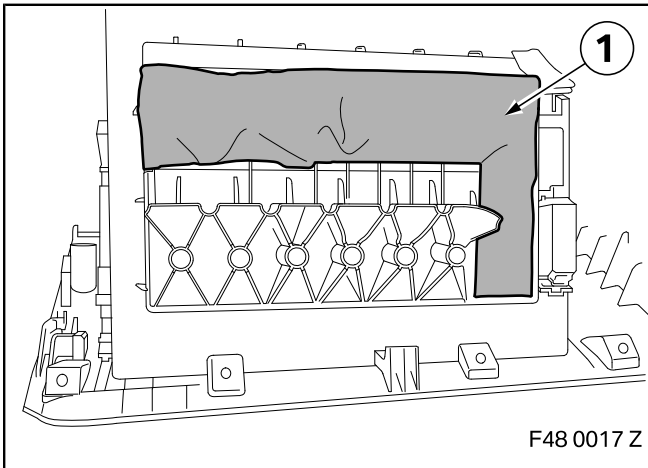
Place the rubber mat (1) in the glove box.

Transfer the previously cut-out section of the glove box to the rubber mat (1) and cut out.

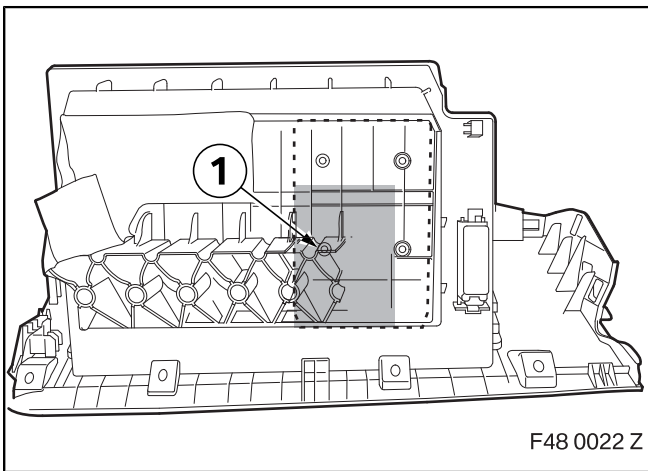


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.

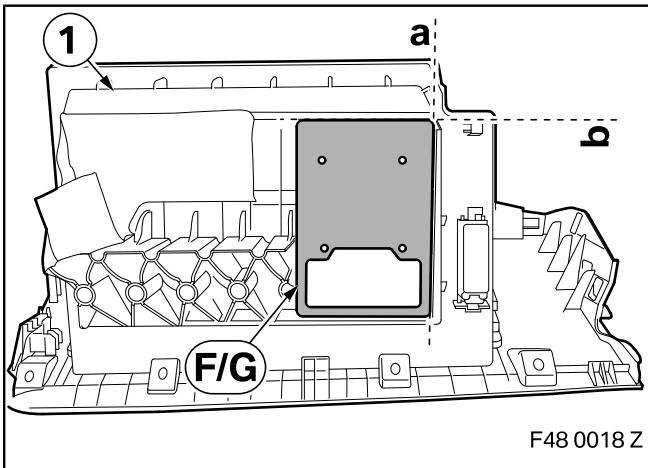
11. Installing the navigation unit (F48, F49 cars only)



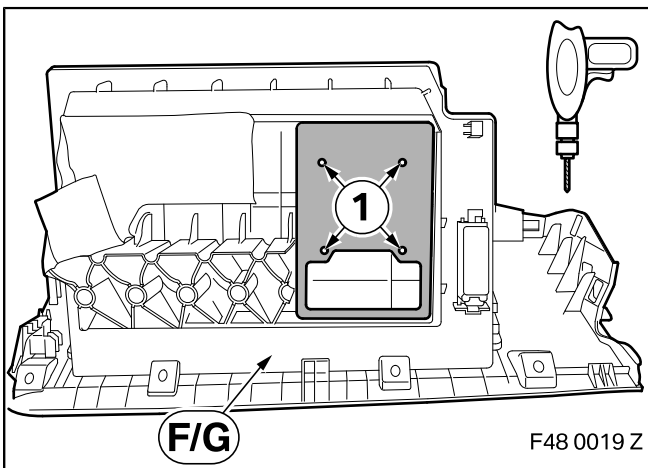
Move the sound insulation (1) to the side.



Move the plastic ribbing in the area (1).

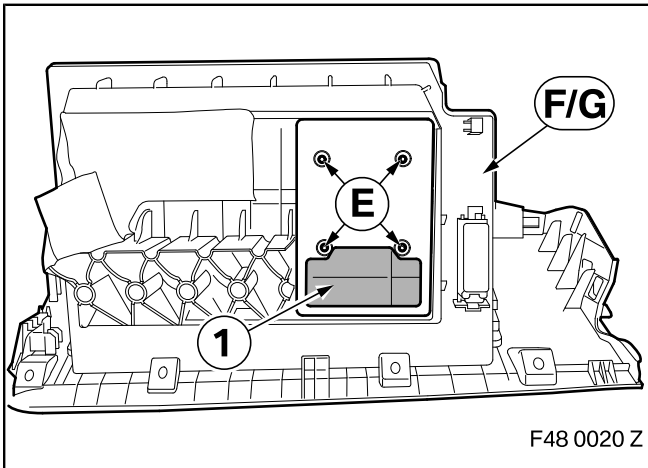


Place template **F** or installation tool **G** on edge **a** and edge **b** of the glove box (1).



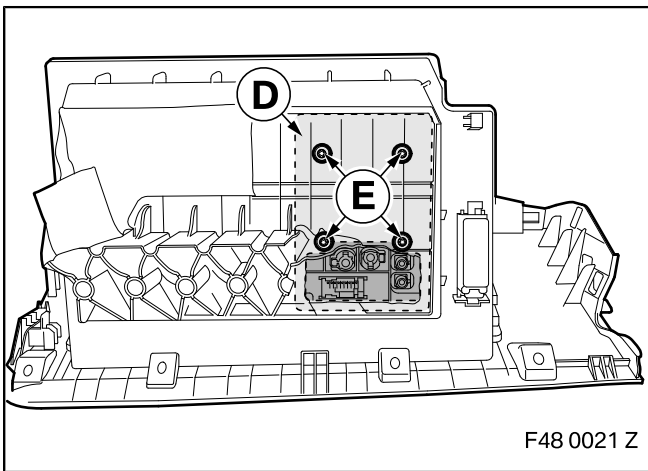
Drill through the openings (1) on template **F** or installation tool **G** using a 5 mm diameter drill bit.

11. Installing the navigation unit (F48, F49 cars only)

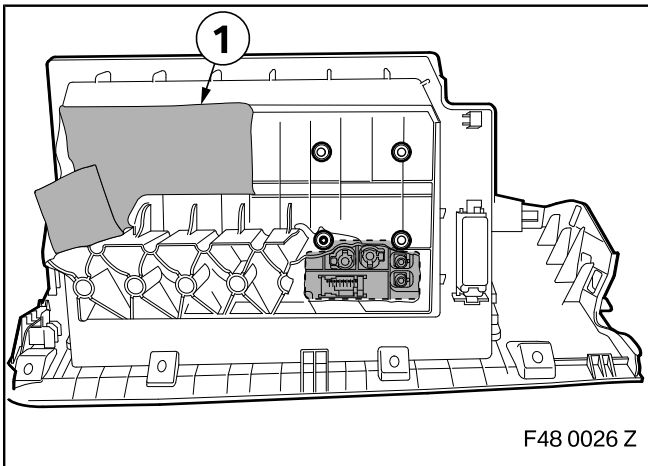


Secure template **F** or installation tool **G** using screws **E** and cut out the opening (1) using a suitable tool.

Remove template **F** or installation tool **G** and screws **E**.

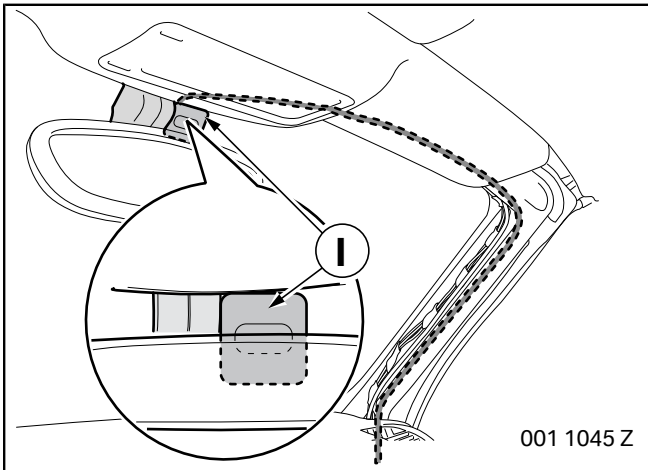


Position navigation unit **D** in the inside of the glove box and secure with screws **E**.




Fold back the sound insulation (1).

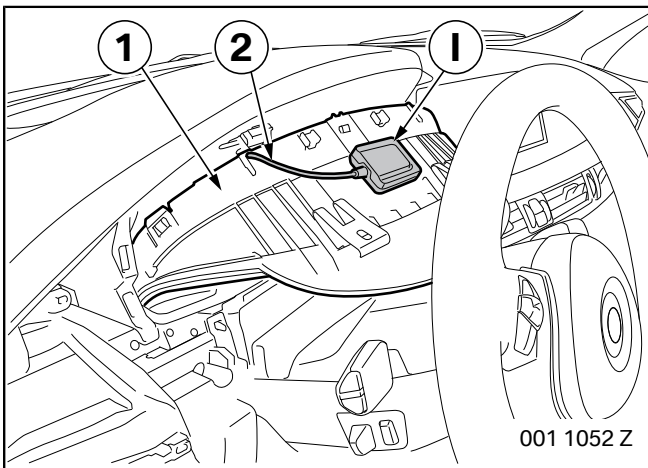
12. Routing and connecting the retrofit wiring harness



Only cars with SA 358

 Route the antenna cable so that the expansion of the airbag is never impaired.

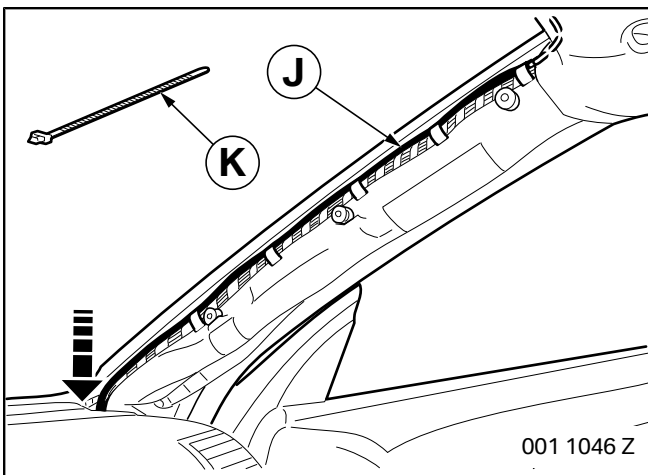
Stick GPS antenna **I** next to the interior mirror and route the plug along the A-pillar on the right towards the installation site of the glove box.




Only cars without SA 358

Stick GPS antenna **I** onto the instrument cluster (1).

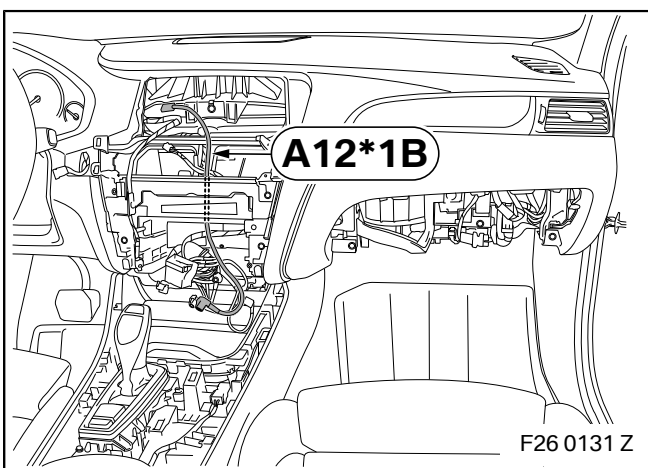
Route the plug from the GPS antenna (2) to the installation site of the glove box.



All cars

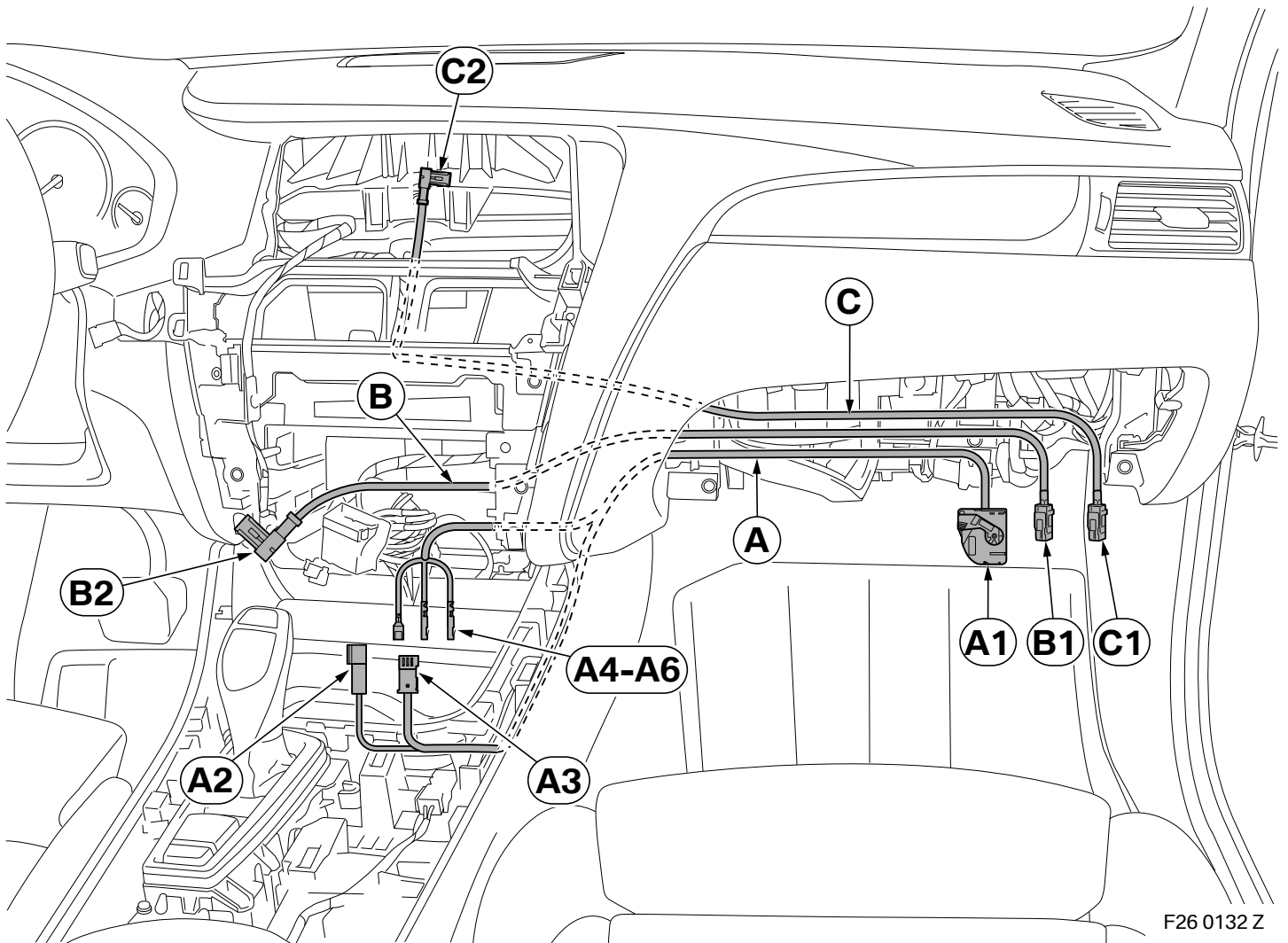
 Route the antenna cable so that the expansion of the airbag is never impaired. ◀

Secure the TMC antenna **J** using cable ties **K** to the standard wiring harness on the right-hand A-pillar and route the plug to the installation site of the glove box.



Remove HSD cable **A12*1B** (it is not required).

12. Routing and connecting the retrofit wiring harness



Connect retrofit wiring harness **A** as follows:

- Route branch **A1** to the installation site of the glove box
- Route branches **A2-A3** to the installation site of the controller
- Route branches **A4-A6** to the installation site of the head unit

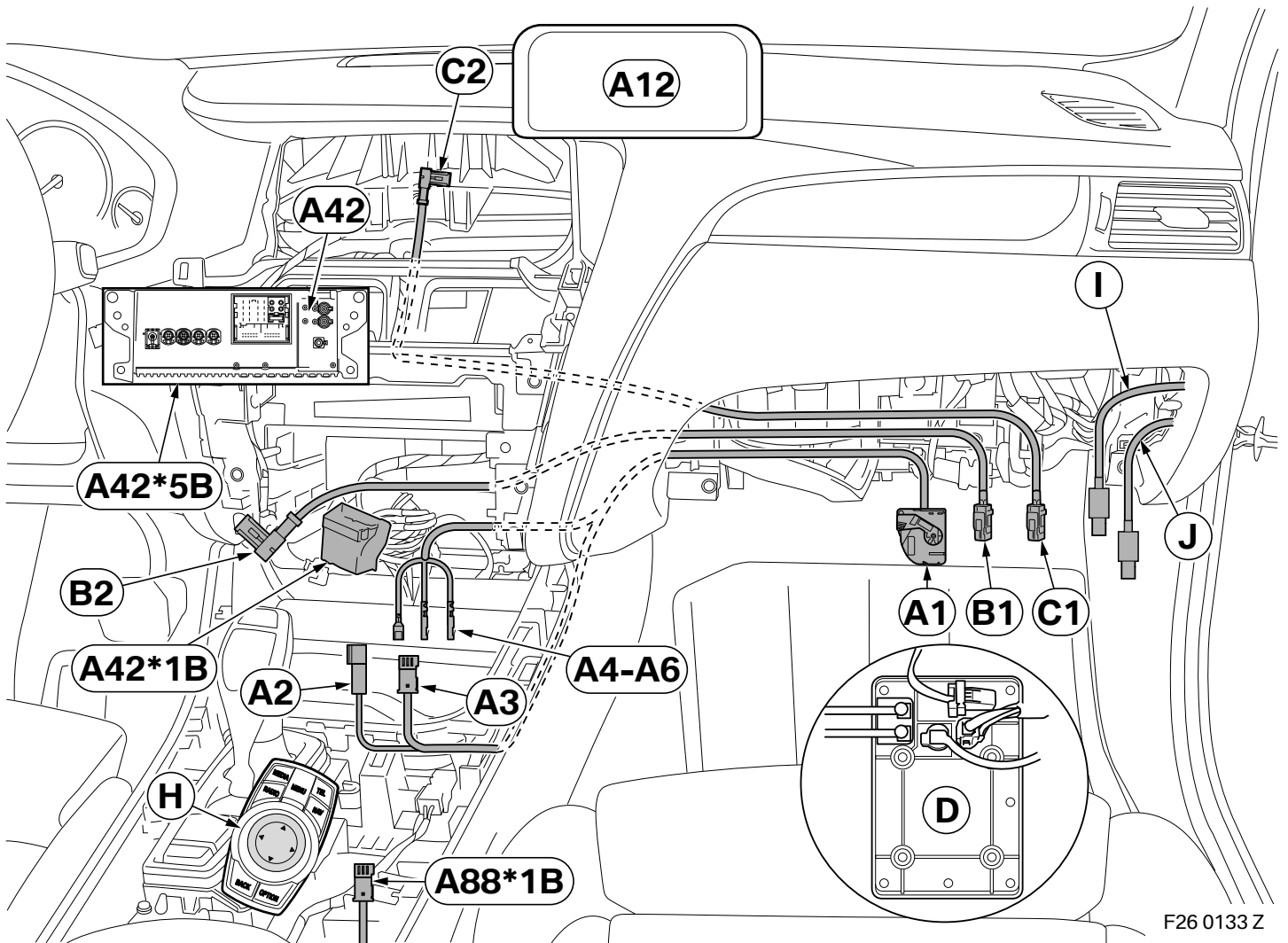
Route head unit HSD cable **B** as follows:

- Route branch **B1** to the installation site of the glove box
- Route branch **B2** to the installation site of the head unit

Route display HSD cable **C** as follows:

- Route branch **C1** to the installation site of the glove box
- Route branch **C2** to the installation site of the central information display

12. Routing and connecting the retrofit wiring harness



Connect the retrofit system as follows:

- Connect branches **A1, B1, C1**, GPS antenna **I** and TMC antenna **J** to navigation unit **D**
- Connect branch **A2** to plug **A88*1B**
- Connect branch **A3** to controller **H**
- Connect branch **B2** to slot **A42*5B** of head unit **A42**
- Connect branch **C2** to central information display **A12**

Connect branches **A4-A6** as follows to plug **A42*1B** of head unit **A42**:

- Branch **A4**, OR cable, to PIN 40
- Branch **A5**, VI cable, to PIN 34
- Branch **A6**, WS cable, to PIN 10

13. Concluding work and coding

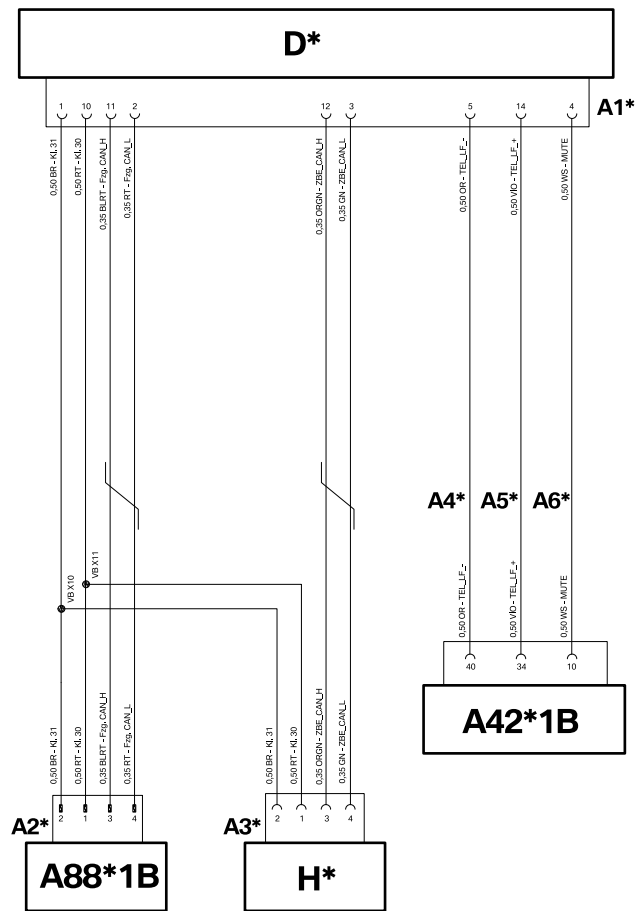
The retrofit system requires programming/coding.

- Connect the battery
- Connect the battery charger to the car
- Connect the car to the ISTA workshop system
- Call up the ISTA/P car programming facility
- If using ISTA/P, please follow the instructions in the ISTA/P application documentation
- Select the "Integrated Navigation" retrofit via the – **Conversions** – path and work through the created action plan
- If necessary, carry out a car test using the ISTA system and note or work through any entered error memory
- Carry out a function test and await a GPS fix, if necessary driving the vehicle outside the building
- Re-assemble the car appropriately

The following parts must be given to the customer:

- Decorative packaging
- USB cable
- Quick Guide
- Instructions for use
- Flyer

14. Wiring diagram



001 1055 Z

Legend

- A1*** SW 18-pin socket casing, to navigation unit **D***
- A2*** SW 4-pin plug casing, to plug **A88*1B**
- A3*** SW 4-pin socket casing, to controller **H***
- A4*** Socket contact, OR cable, to plug **A42*1B**
- A5*** Socket contact, VI cable, to plug **A42*1B**
- A6*** Socket contact, WS cable, to plug **A42*1B**

A42*1B SW 42-pin socket casing, to head unit

A88*1B SW 4-pin socket casing, to controller

D* Navigation unit

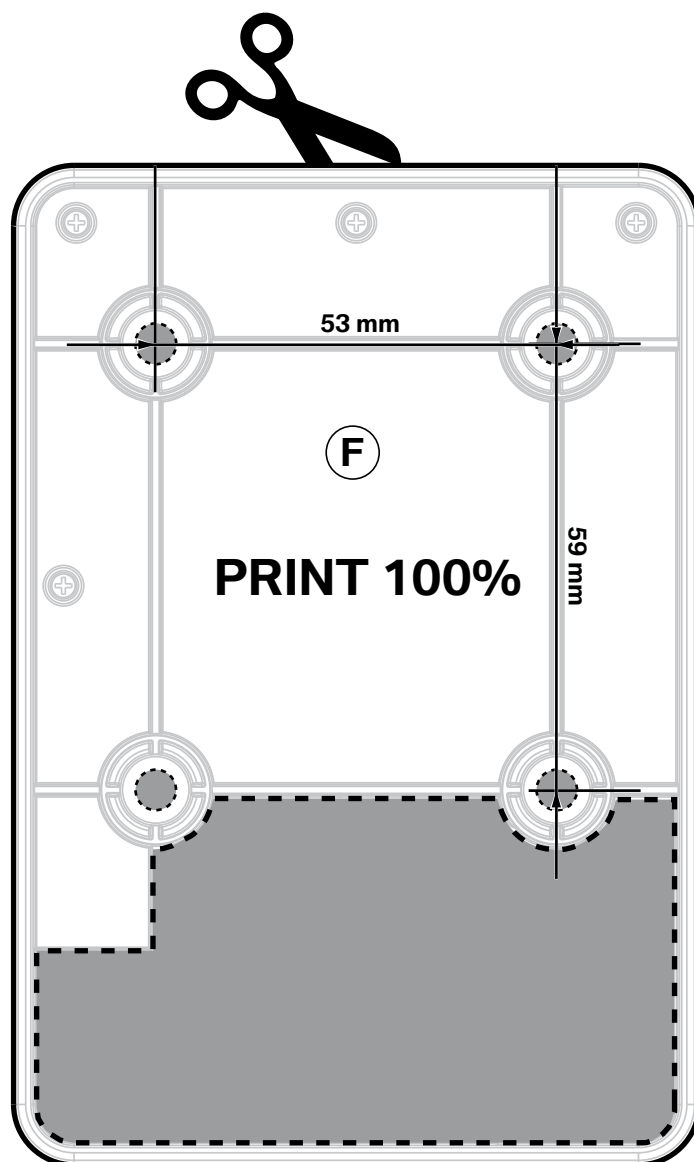
H* Controller

All of the designations marked with * apply only to these installation instructions or this wiring diagram.

Cable colours

BL	Blue	GR	Grey	RT	Red
BO	Bordeaux (Burgundy)	L-GN	Light green	SW	Black
BR	Brown	NT	Natural	TR	Transparent
GE	Yellow	OR	Orange	VI	Violet
GN	Green	RO	Pink	WS	White

15. Template



001 1047 Z