

# Original BMW Accessories. Installation Instructions.



## M Performance Alcantara Steering Wheel II with Race Display Retrofit

**BMW 1 Series (F20/F21)**

**BMW 2 Series (F22)**

**BMW 3 Series (F30/F31/F34/F35/F36)**

**BMW 4 Series (F32/F33)**

**BMW M3 Saloon (F80)**

**BMW M4 Convertible/Coupé (F82/F83)**

### Retrofit kit number

32 30 2 230 189      M Performance steering wheel II with Race Display

### Installation time

The installation time is **approx. 1.5 hours** for the M Performance steering wheel II with Race Display. This may vary depending on the condition of the car and the equipment in it.

### Important information

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

In any event, 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, wiring diagrams, servicing manuals and work instructions, in a rational order, using the prescribed tools (special tools) and observing current health and safety regulations.

### **Restrict troubleshooting to around 0.5 hours for mechanical problems and 1 hour for electrical work if installation or functional problems occur.**

In order to reduce costs and avoid any additional expense, send a query immediately to Technical Parts Support 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.

## 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/lines that you install must be secured with cable ties.

The cable for the optional LAP trigger measuring sensor can be stowed with a cable tie behind the glove compartment or under the floor trim.

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.

Once the installation work is complete, basic settings need to be carried out on the M Performance steering wheel.

## Ordering instructions

Airbag module **H** is not included with the retrofit kit and can if necessary be transferred over from the existing steering wheel.

Can generally be installed in all vehicles. The parts listed below can be adopted from the existing steering wheel or must be ordered and exchanged for the vehicle-specific SAs. See the relevant table entitled "Sport steering wheel" and the associated add-on parts for more information.

When exchanging the airbag unit, it does not require decoding. When installing with SA248 (steering wheel heating), the heating function no longer works and no decoding is required. The heating button on the steering column no longer works after the steering wheel has been installed. If necessary, a dummy panel can be ordered (for instructions and part numbers, see EPC).

### - 1/2 Series cars with basic steering wheel, leather steering wheel (SA 240), Sport steering wheel (SA 255)

Airbag unit, multi-function keys and possibly shift paddles as well as steering wheel electronics (cable, control unit, vibration generators) must be ordered for an M Sport steering wheel and replaced.

### - 1 Series cars with M Sport steering wheel (SA 710) built before 03/14

Airbag unit, multi-function keys and possibly shift paddles as well as steering wheel electronics (cable, control unit, vibration generators) must be ordered for an M Sport steering wheel and replaced.

### - 1 Series cars built after 03/14 with M Sport steering wheel (SA 710) and 2 Series cars with M Sport steering wheel (SA 710)

Adoption of all parts possible.

### - 3/4 Series car with basic steering wheel, leather steering wheel (SA 240), Sport steering wheel (SA 255)

Airbag unit, multi-function keys and possibly shift paddles as well as steering wheel electronics (cable, control unit, vibration generators) must be ordered for an M Sport steering wheel and replaced.

### - 3/4 Series cars with M Sport steering wheel (SA 710)

Adoption of all parts possible.

### - M3/M4 cars

Adoption of all parts possible.

## **Special tools required**

00 9 317, Panel wedge

## **Information for the workshop and customer**



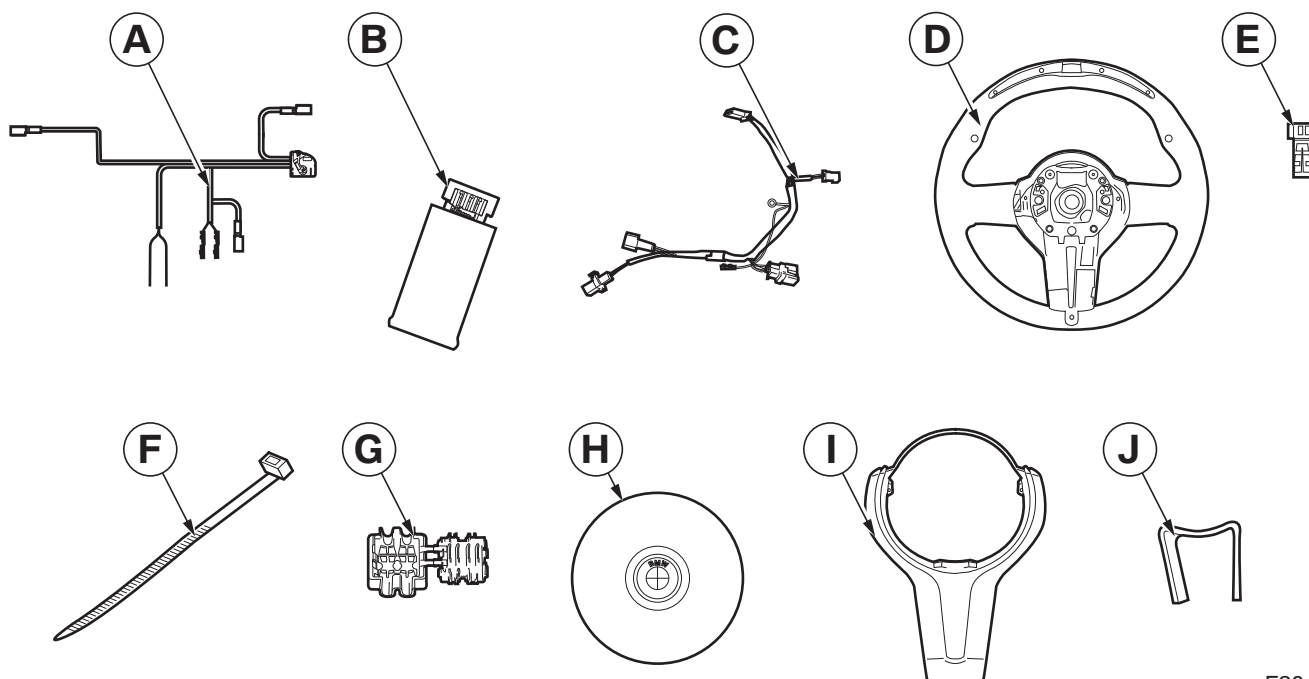
No entry is required in the vehicle's paperwork, and no operating permit needs to be carried for the M Performance steering wheel. The approval is included in the general EC approval for the relevant vehicles from BMW.

The customer must be informed that the heating function will no longer operate when installing in cars with SA248 (steering wheel heating). The switch on the steering column trim for steering wheel heating remains without function. ◀

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## 1. M Performance steering wheel II (with Race Display) parts list



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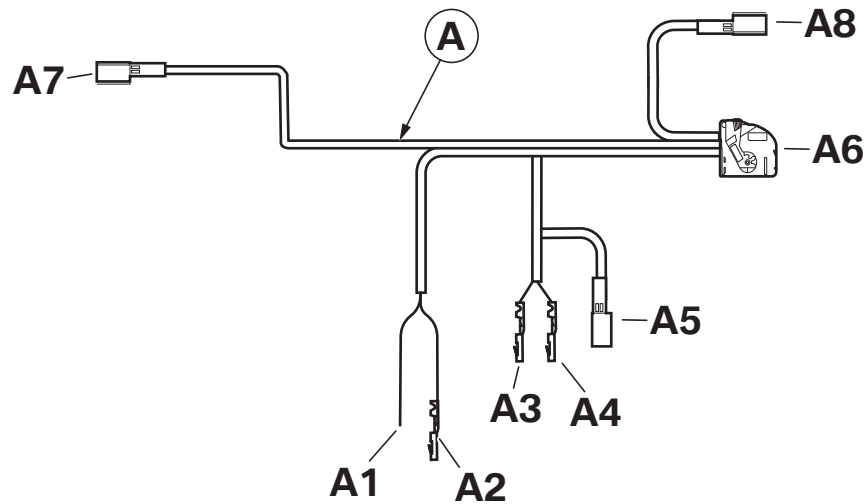
### Legend

- A** Retrofit cable
- B** Control unit
- C** Wiring harness (already pre-installed in the steering wheel)
- D** M Performance steering wheel
- E** SW 2-pin socket casing
- F** Cable tie (15 x)
- G** Miniature connector (2 x)
- H** Airbag module (not supplied with the retrofit kit)
- I** Finisher for M Performance steering wheel
- J** Clamp spring

## 2. Preparatory work

	ISTA No.
Conduct a brief test	---
Disconnect the negative pole of the battery	12 00 ...
Airbag module	32 34 020
Steering wheel	32 33 ...
<b>The following components must be removed first of all</b>	
Trim for door pillar at the bottom right	51 43 150
Bottom right dashboard trim	51 45 181
Door sill cover strip trim at the bottom right	51 47 000
Steering column trim, lower section	32 31 020
Steering column trim, upper section	32 31 003
Steering column switch cluster (SZL)	61 31 008

### 3. M Performance steering wheel II (with Race Display) connection diagram

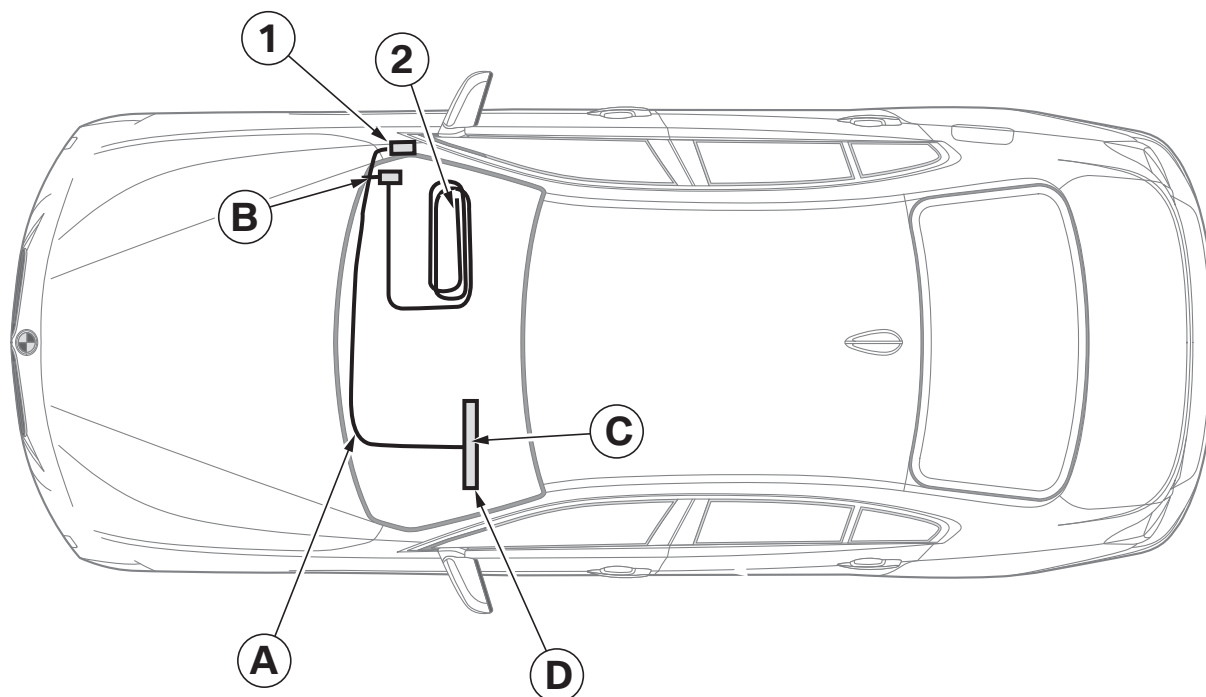


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#### Legend

Item	Designation	Signal	Cable colour/ cross-section	Connection location in the car	Abbreviation/ slot
A	Retrofit cable				
A1	Cable open	Terminal 30b	GN 0.5 mm <sup>2</sup>	With miniature connector <b>G</b> to the FEM	CON3 PIN 19
A2	Socket contact	Terminal 31	BR 0.5 mm <sup>2</sup>	To ground point (comb connector) in the right-hand footwell	
A3	Socket contact	FA CAN high	BL/RT 0.35 mm <sup>2</sup>	FEM to the side in the right-hand footwell	CON2 PIN 19
A4	Socket contact	FA CAN low	RT 0.35 mm <sup>2</sup>	FEM to the side in the right-hand footwell	CON2 PIN 18
A5	SW 2-pin plug casing		BL/RT RT 0.35 mm <sup>2</sup>	With socket casing <b>E</b> to the disconnected cables from plug CON2	
A6	SW 12-pin socket casing			To control unit <b>B</b>	
A7	Socket contact		WS/BL 0.35 mm <sup>2</sup>	To steering column switch cluster SZL	
A8	3-pin socket casing			Optionally to 2D lap trigger measuring sensor	

#### 4. M Performance steering wheel II (with Race Display) installation and cabling diagram



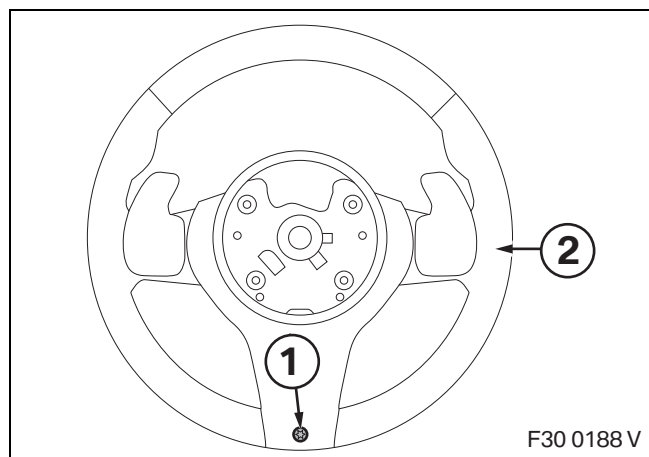
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#### Legend

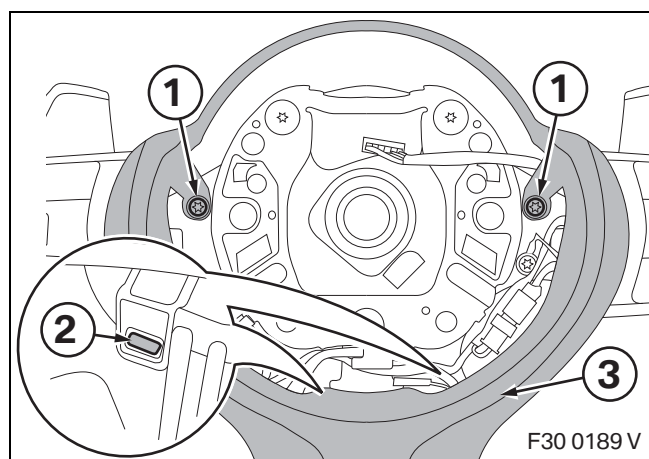
- A** Retrofit cable
  - B** Control unit
  - C** Wiring harness
  - D** M Performance steering wheel
- 
- 1** FEM at the bottom to the side of the right-hand footwell
  - 2** Connecting cable for optional LAP trigger measuring sensor



## 5. Removal of the steering wheel

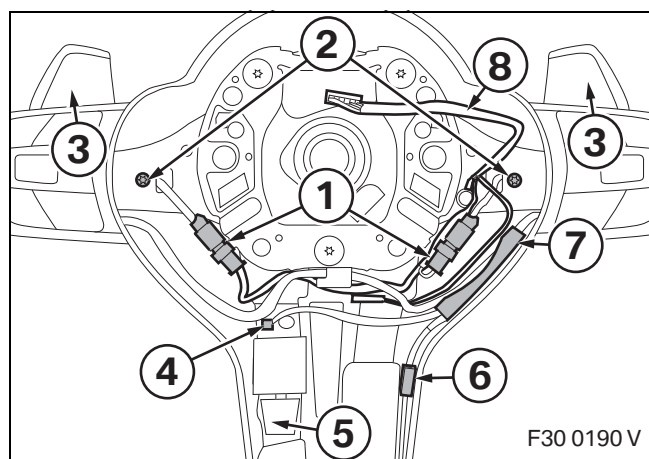


Loosen and remove the screw (1) on the back of the steering wheel (2).



Loosen and remove the screws (1).

Slightly press in the clip (2) on both sides and remove the finisher (3).



▶ The control module (7) is then only present if lane departure or lane change warning or DRIVING ASSISTANT and/or steering wheel heating are installed. This control module (7) must be transferred to the new steering wheel. ◀

### **Only if Sport automatic shift paddles (SA2TB) are installed:**

loosen the plugs (1) from the holders and pull them out.

Remove the screws (2) from the shift paddles (3) and remove the shift paddles (3).

### **Only if lane changing warning (SA5AG) or lane departure warning (SA5AD) or DRIVING ASSISTANT (SA5AS) are installed:**

disconnect the plug (4) from the vibration generator (5).

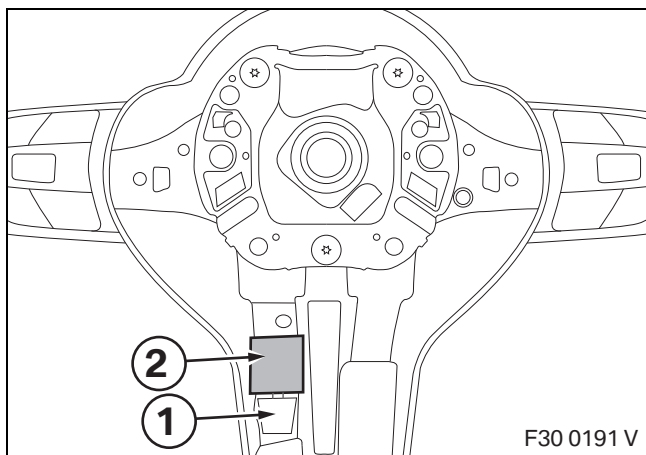
### **Only if steering wheel heating (SA248) is installed:**

remove the plug (6) from the control unit (7).

### **For all cars:**

the wiring harness (8) remains in the standard steering wheel and is no longer required.

## 5. Removal of the steering wheel



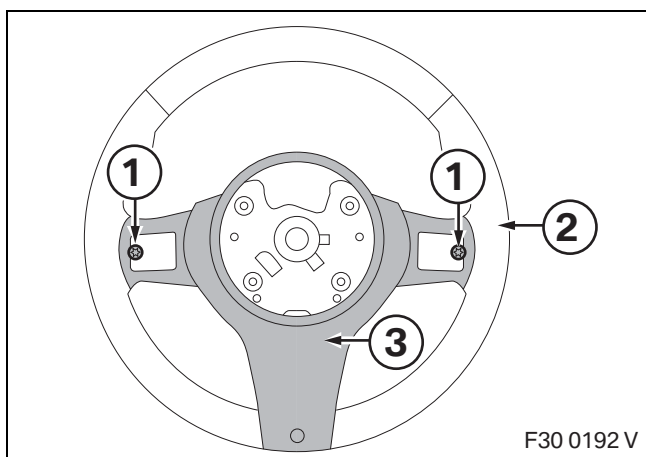
**Only if lane changing warning (SA5AG) or lane departure warning (SA5AD) or DRIVING ASSISTANT (SA5AS) are installed:**

▶ If there is a piece of foam on the vibration generator (1), this must be removed and replaced during installation. When the clamp spring (2) is being removed, push firmly upwards on the clamp spring (2) to release the barb at the bottom of the clamp spring (2). ◀

Remove the clamp spring (2) from the vibration generator (1) and remove the vibration generator (1).



The clamp spring (2) must not be re-used. ◀



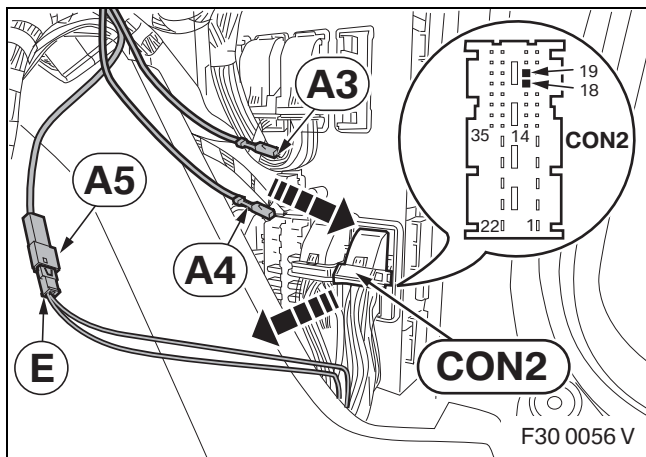
### For all cars:

Loosen and remove the screws (1) on the back of the steering wheel (2).

Remove the rear cover (3).

Remove the steering wheel (2).

## 6. Installing the M Performance steering wheel II (with Race Display) retrofit kit



Route branches **A3-A5** to the FEM in the right-hand footwell.

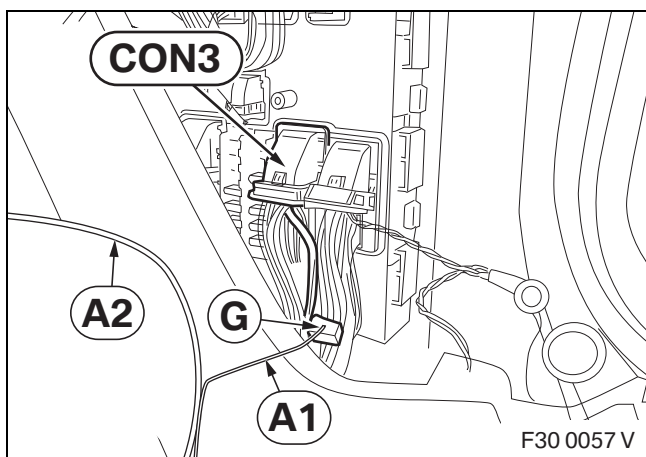
Disconnect cable from **PIN 18** and **PIN 19** of plug **CON2**, 42-pin, and connect as follows to socket casing **E**:

- Cable from **PIN 19** to **PIN 1** (BL/RT)
- Cable from **PIN 18** to **PIN 2** (RT)

Connect branches **A3** and **A4** as follows to plug **CON2**:

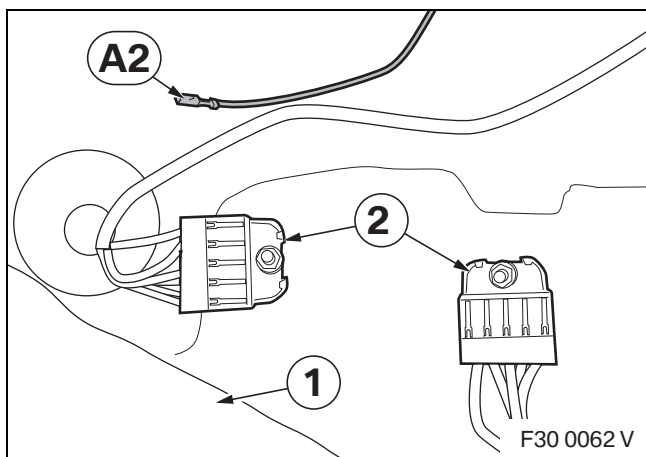
- Branch **A3**, BL/RT cable, to **PIN 19**
- Branch **A4**, RT cable, to **PIN 18**

Connect branch **A5** to socket casing **E**.



Route branches **A1+A2** to the FEM in the right-hand footwell.

- Connect branch **A1**, GN cable, with BL/RT cable from **PIN 19** to **CON3** using miniature connector **G**

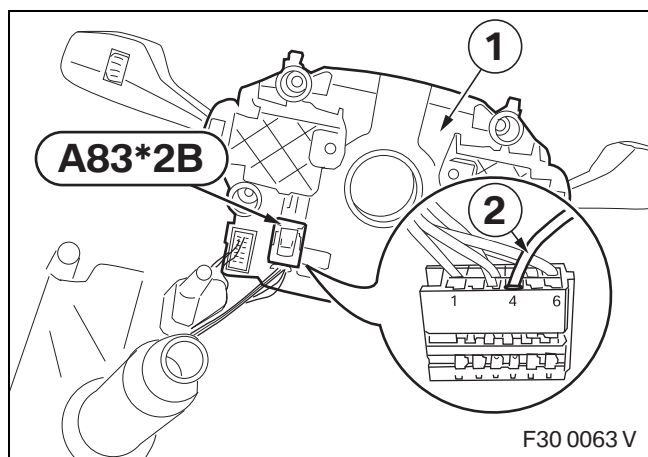


Bend up the footwell trim (1) in the right-hand footwell.

Connect branch **A2**, BR cable, to one of the unoccupied sockets of the ground comb connector (2) in the right-hand footwell.

- ▶ If there are no unoccupied sockets, connect branch **A2** and the ground cable using miniature connector **G**. ◀

## 6. Installing the M Performance steering wheel II (with Race Display) retrofit kit



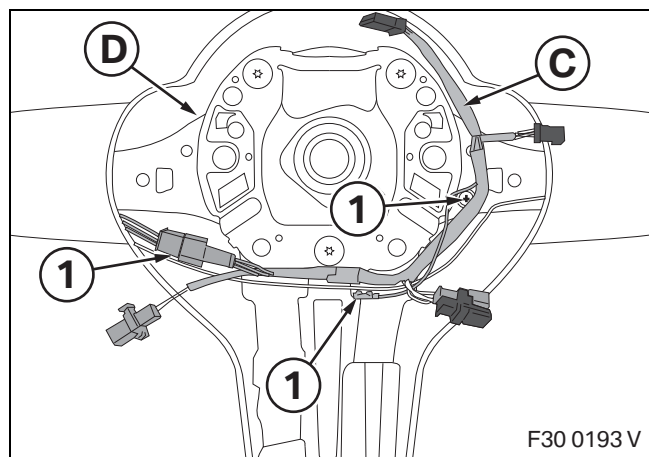
Route WS/BL cable to the driver's side.

Uninstall the steering column switch cluster (1) as per **ISTA** from the standard steering wheel.

Connect cable WS/BL (2) to plug **A83\*2B PIN 4**.

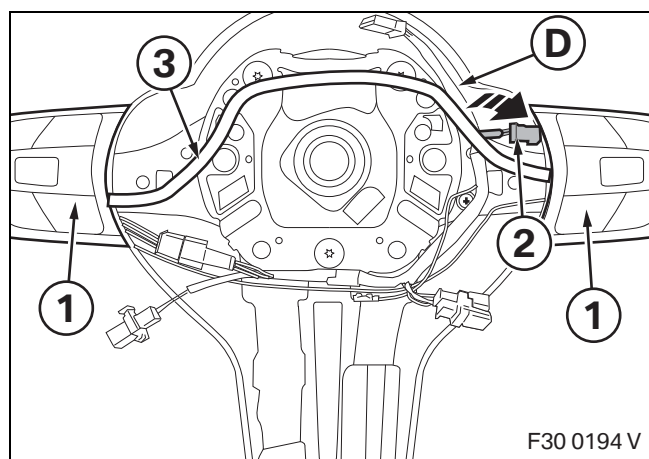
Install the steering column switch cluster (1) in the M Performance steering wheel.

## 7. Fitting the M Performance steering wheel II (with Race Display)

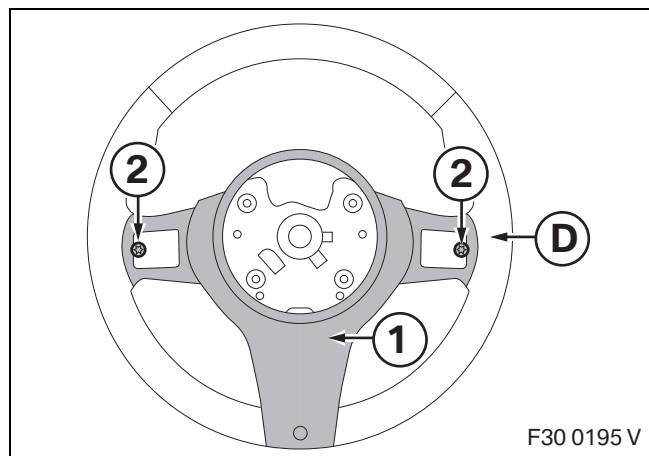


► M Performance steering wheel **D** already has a special steering wheel adapter cable **C** installed which is designed so that both the steering wheel electronics and any necessary special equipment can be connected. ◀

Steering wheel adapter cable **C** is connected in three places (1) to M Performance steering wheel **D**.

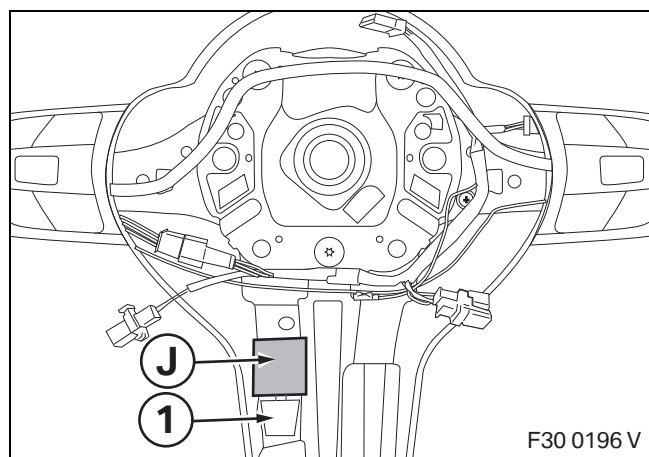


Position the multi-function keys (1) on the left and right of M Performance steering wheel **D**. Connect the plug (2) on the right to the socket. Initially fold the connecting cable (3) upwards out of the way.



► Do not crush or trap the cables. ◀

Place the rear cover (1) on top and screw the screws (2) through M Performance steering wheel **D** into the multi-function keys.

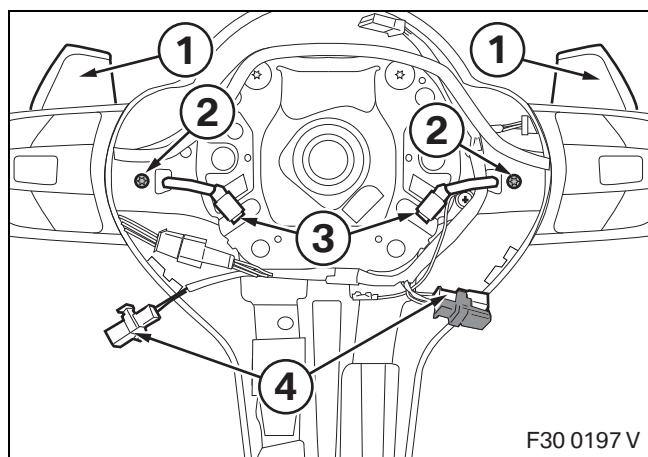


**Only if lane changing warning (SA5AG) or lane departure warning (SA5AD) or DRIVING ASSISTANT (SA5AS) are installed:**

► If there was a piece of foam on the vibration generator (1), this must be replaced. ◀

Insert the vibration generator (1) and secure with enclosed clamp spring **J**.

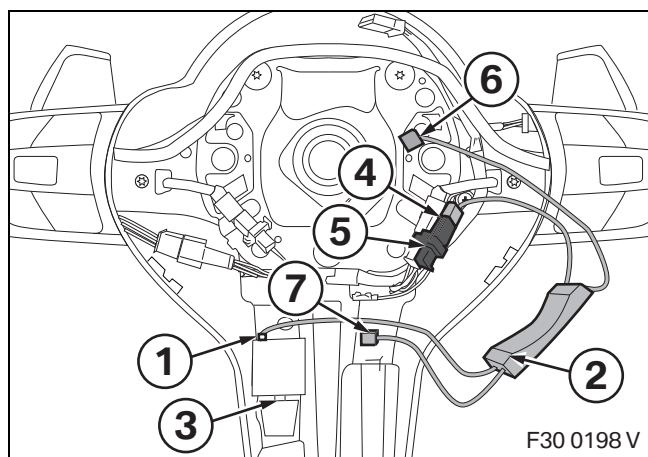
## 7. Fitting the M Performance steering wheel II (with Race Display)



**Only if Sport automatic shift paddles (SA2TB) are installed:**

Secure shift paddles (1) with screws (2).

Guide the plugs (3) through the openings and connect to the plugs (4) of the same colour.



**Only if lane changing warning (SA5AG) or lane departure warning (SA5AD) or DRIVING ASSISTANT (SA5AS) are installed:**

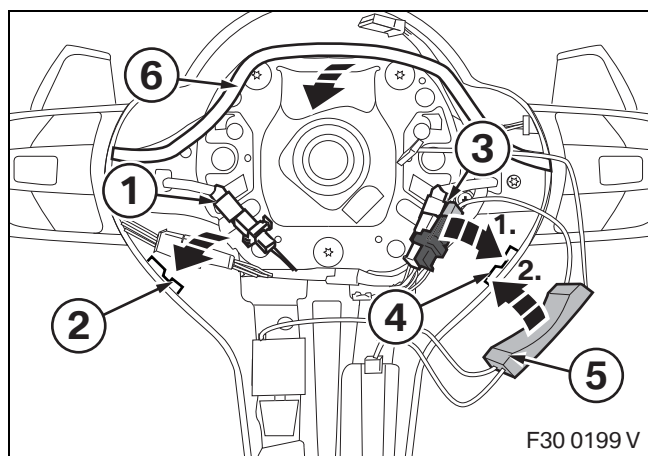
Connect plug (1) from control module (2) to the vibration generator (3).

Connect the small black plug (4) on the control module (2) to the black double socket (5).

▶ The plug (6) from the control module (2) is connected to the shrouded plug on the coil spring in the car. ◀

**Only if steering wheel heating was installed:**

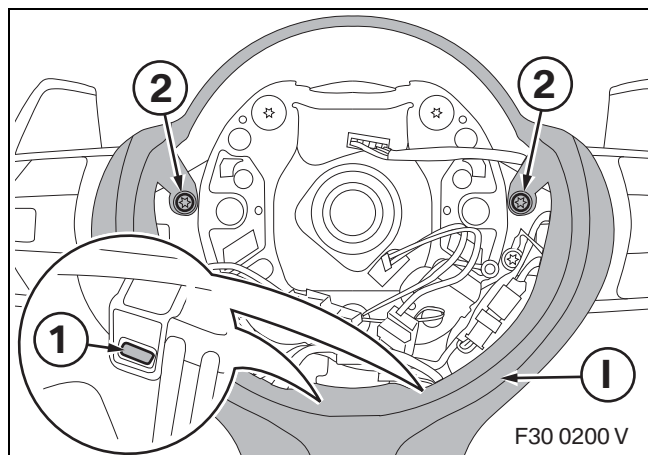
Route the cable (7) from the steering wheel heating on control module (2) into the groove in the piece of foam; it is not connected.



**For all cars:**

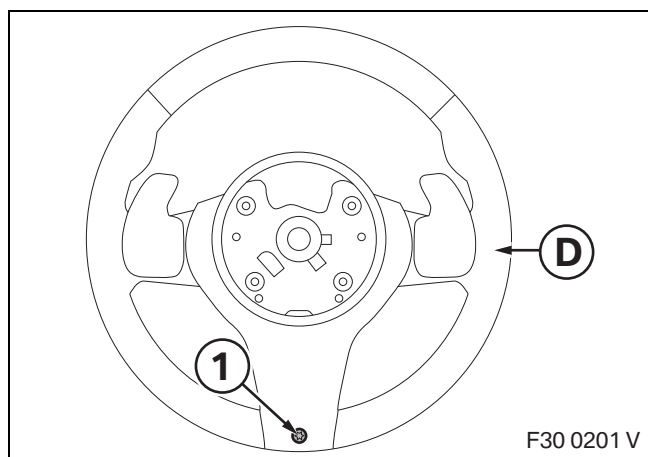
Clip the plug (1) into the guide (2). Clip the double plug (3) into the guide (4). Then press the control module (5) into the guide (4). Route the multi-function cable (6) underneath over the control module (5).

## 7. Fitting the M Performance steering wheel II (with Race Display)



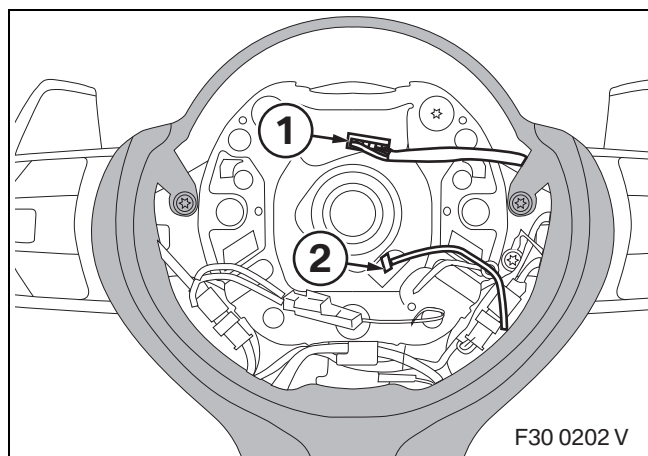
Position M Performance finisher **I** and clip clip (1) in on both sides.

Secure M Performance finisher **I** with screws (2).



Do not crush or trap the cables. ◀

Screw in the screw (1) on the reverse of M Performance steering wheel **D**.



Do not crush or trap the cables. The cables must not run in front of the openings through which the airbag springs can be triggered. If necessary, tie the cables together using miniature cable ties or adhesive tape. ◀

Install the steering wheel in the car as per **ISTA**.

Connect the plug (1) of the installed steering wheel cable through the opening at the top to the shrouded plug on the coil spring.

Connect the plug (2) of the control module through the opening at the bottom to the shrouded plug on the coil spring.

Insert the airbag module as per **ISTA**.



## 8. M Performance steering wheel II (with Race Display) concluding work, coding and basic settings

This retrofit system does not require coding.

- Connect the battery
- Conduct a brief test
- Conduct a function test
- Re-assemble the car in a logical manner
- Make basic settings

### Basic settings

To ensure correct functioning, two basic settings must be performed once installation is complete:

- While switching on the ignition, hold the left key **L** and right key **R** down simultaneously on the M Performance steering wheel
- Use the **R** key to toggle between diesel and petrol cars (the box around the symbol means selected)
- Press the **L** key to save the setting and to switch to the "Speed correction factor" setting
- Start the engine and keep it at a constant, easily-readable speed (e.g. 1000 rpm)
- Compare the display on the steering wheel with the display on the speedometer
- A long press of the **R** key allows you to increase the correction factor or, by pressing the **R** key briefly several times, reduce it until the two displays match
- Switch the ignition off. The settings are saved automatically

### Cars with heated steering wheel

The heating button in the multi-function module on the M Performance steering wheel is no longer functional after installation.

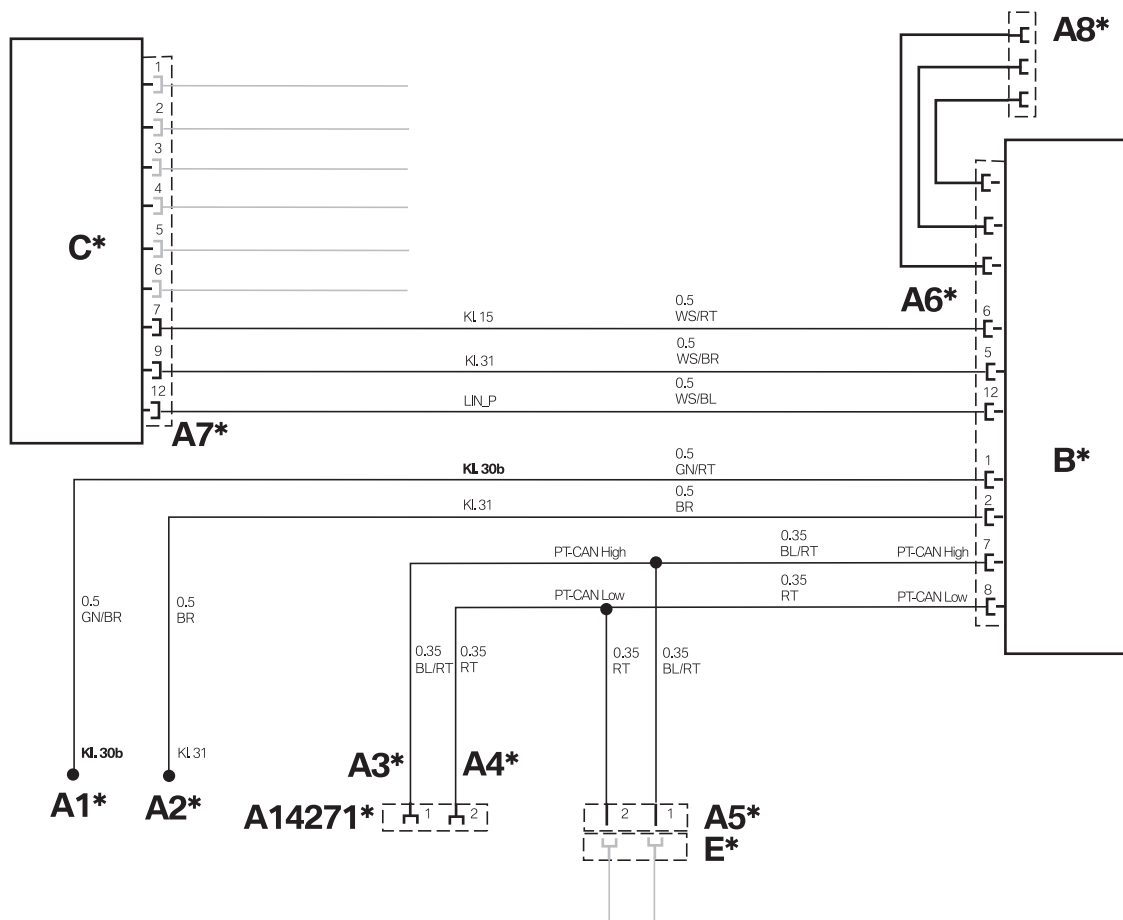
### Demo mode

To provide an overview of the functions of the M Performance steering wheel, a demo mode of around 120 seconds can be enabled in an endless loop.

- While switching on the ignition, hold the left key **L** and right key **R** down simultaneously on the M Performance steering wheel
- In the Basic Settings menu, press the left key **L** and right key **R** on the M Performance steering wheel simultaneously for around 2 seconds. Demo mode begins in an endless loop.
- To end demo mode, switch off the ignition.



## 9. M Performance steering wheel II (with Race Display) wiring diagram



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### Legend

- A1\*** Cable open, with miniature connector **G** to cable for **CON3**, PIN 19
- A2\*** Socket contact, to ground point
- A3\*** Socket contact, to FEM, plug BL 42-pin **CON2**, PIN 19
- A4\*** Socket contact, to FEM, plug BL 42-pin **CON2**, PIN 18
- A5\*** SW 2-pin pin housing, to socket casing **E\***
- A6\*** SW 12-pin socket casing, to control unit **B\***
- A7\*** Socket contact, to steering wheel switch cluster
- A8\*** 3-pin socket casing for optional LAP trigger measuring sensor

All the designations marked with an asterisk (\*) 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