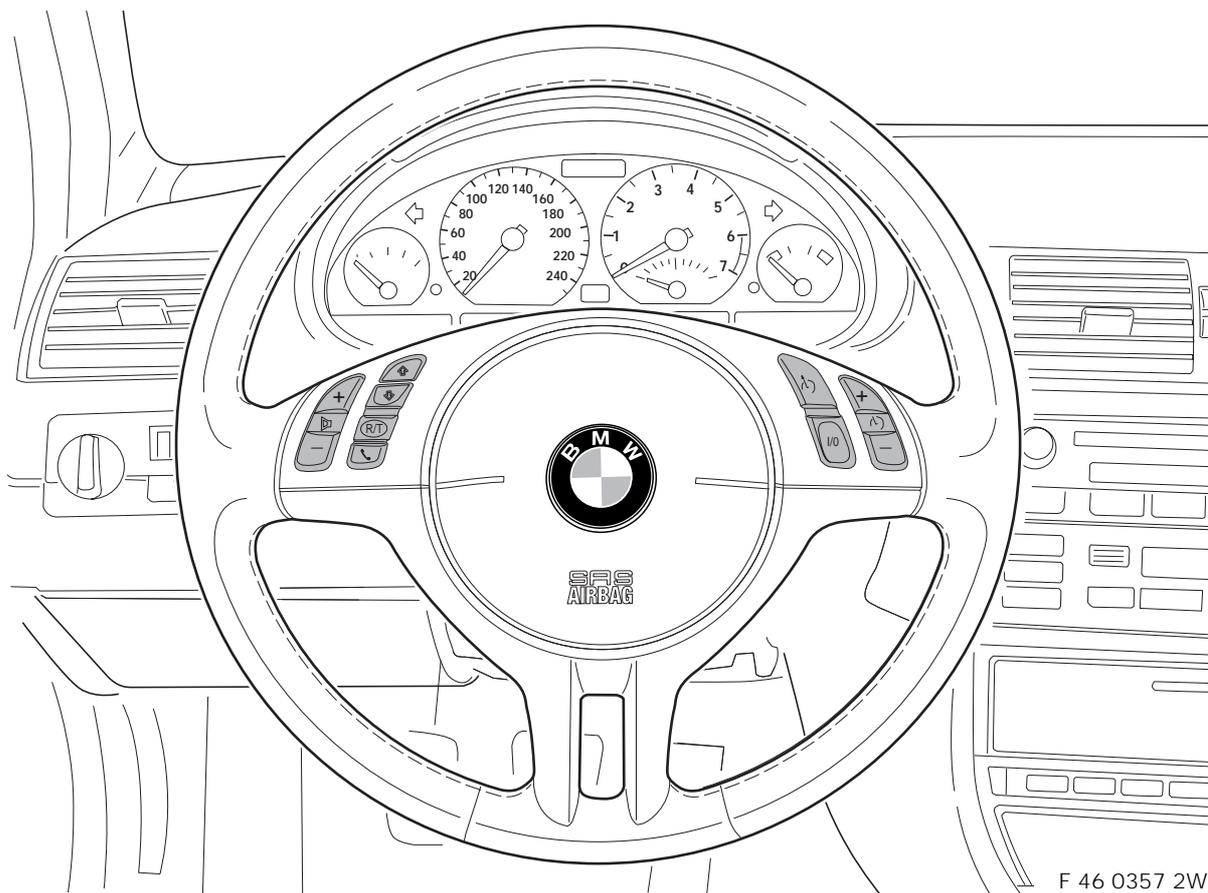




Parts and Accessories Installation Instructions



F 46 0357 2W

Multifunction Steering Wheel (MFL) / Speed Control (GRA) Retrofit Retrofit to original factory equipment standard for BMW 5 Series (E 39) LHD and RHD vehicles

Installation time: approx. 1.5 hours

(variable according to vehicle condition and equipment level)

Retrofit / Installation kit No.: 65 71 0 027 961

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Important notes

For use within the BMW dealership organization only.
These installation instructions apply only to cars with SMART Airbag sports steering wheels.

Target group

These installation instructions are intended for use by skilled personnel trained to work on BMW cars and having an appropriate background in automotive electrical systems.

Task profile:

Execution of all maintenance, repair, installation and adjustment work on passenger cars on installer's own responsibility.

All work is to be performed on the basis of valid BMW

- repair instructions
- circuit diagrams

in a rational sequence using the prescribed tooling (special tools) and taking into account applicable safety regulations.

Installation note

All steps are illustrated and described for a vehicle with left-hand steering. For cars with right-hand steering, proceed in an analogous manner by reversing sides as appropriate.

Where the indicated pins or chambers are occupied, use jumpers, double-crimped terminations or parallel wiring.



Take care to prevent kinking or other damage to cabling and wires during installation. Failure to observe this precaution may cause malfunctions that can only be remedied through extensive subsequent troubleshooting. The associated reworking costs will not be refunded by BMW. ◀



Note the specified tightening torques for threaded connections. Refer to the Technical Information System (TIS) for torque level specifications. ◀

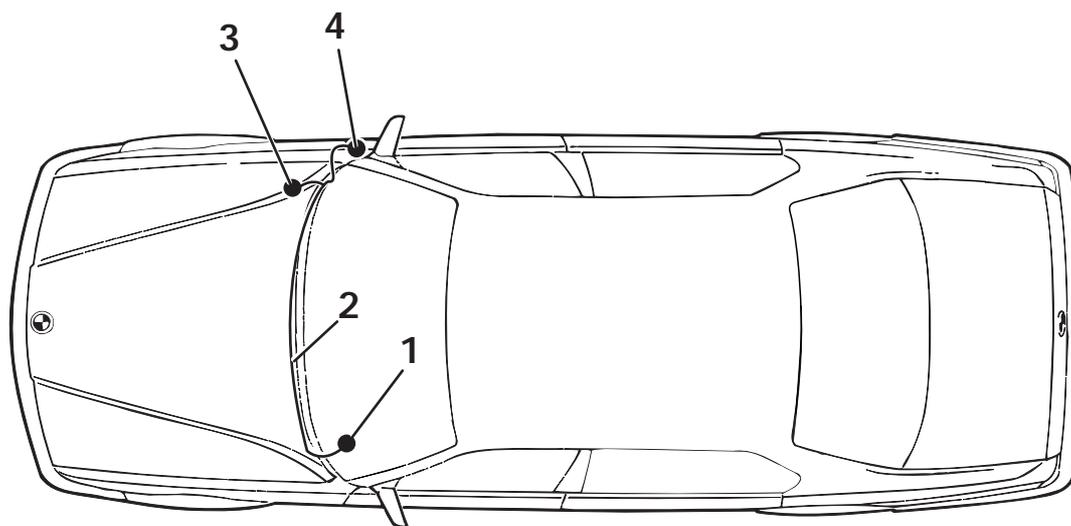
Required tools and instruments

Slot-head screwdriver set
Cross-recess screwdriver set
Torx wrench set
Hand lamp
Power drill
Hex socket wrench set
1/2 " socket wrench set
Bone-folder special tool (00 9 321)
Side-cutting pliers
Crimping tool (61 9 041)
Crimping die (61 9 042) for crimping tool
Insulation stripping pliers (61 9 043)

1. Preparatory steps

	TIS AW-Nr.
 Observe the safety rules concerning the handling of airbag system components. ◀	32 34
Perform brief test (print out error memory)	
Disconnect the negative battery terminal	12 00 ...
Remove the following components in advance:	
Steering wheel	32 33 00
Glove compartment	51 16 360
Bottom A-pillar trim in passenger side footwell	
Pedals cover	51 45 185
Bottom steering column cover	32 31 020
Centre console side trim	
E-box cover	

2. Installation and cable routing diagram

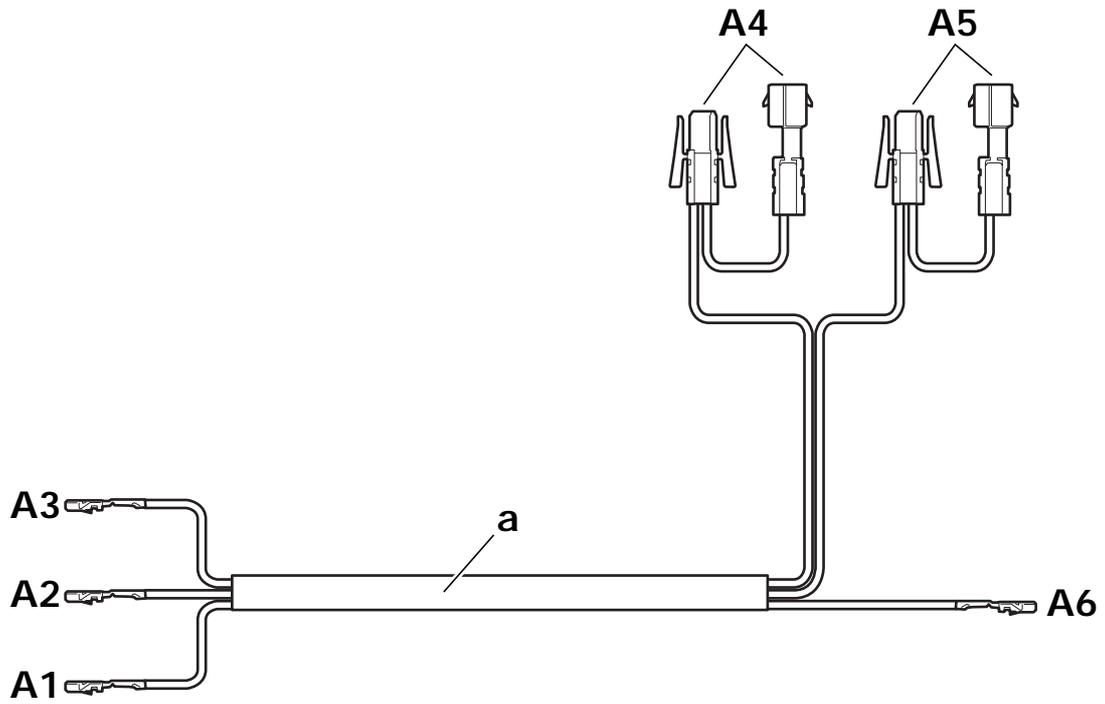


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Key

- 1 Multifunction steering wheel connection
- 2 GRA / MFL cable set
- 3 E-box
- 4 A3 light module

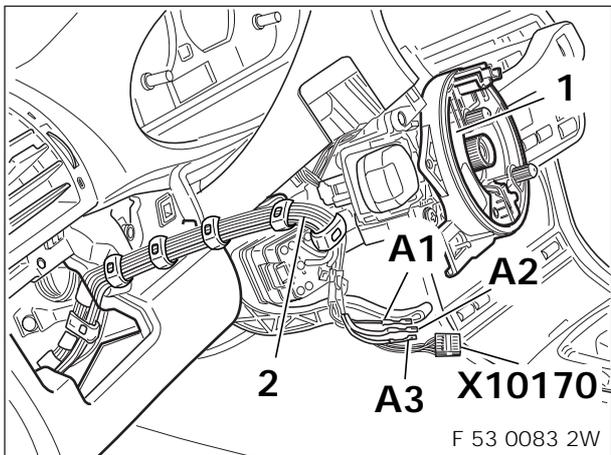
3. Schedule of connections on the GRA/MFL wiring harness



F 53 0085 2W

Item	Description	Signal	Cable colour / cross-section	Connecting location in the vehicle	Symbol / Pin
a	GRA/MFL wiring harness	—	—	—	—
A1	Spade connector	DME/DDE	GE/SW, Ø 0.35 mm ²	To 10-pole green connector under the steering column	X10170, PIN 8
A2	Spade connector	I/K bus	WS/GR/GE, Ø 0.35 mm ²	To 10-pole green connector under the steering column	X10170, PIN 9
A3	Spade connector	Terminal R	VI/GE, Ø 0.50 mm ²	To 10-pole green connector under the steering column	X10170, PIN 10
A4	Double termination	Terminal R	VI/GE, Ø 0.50 mm ²	To light module A3, 54-pole black connector	X10117, PIN 13
A5	Double termination	I/K bus	WS/GR/GE, Ø 0.35 mm ²	To light module A3, 54-pole black connector	X10117, PIN 36
A6	Spade connector	DME/DDE	GE/SW, Ø 0.35 mm ²	To DME/DDE A60004 controller, 40-pole connector	X60004, PIN 27

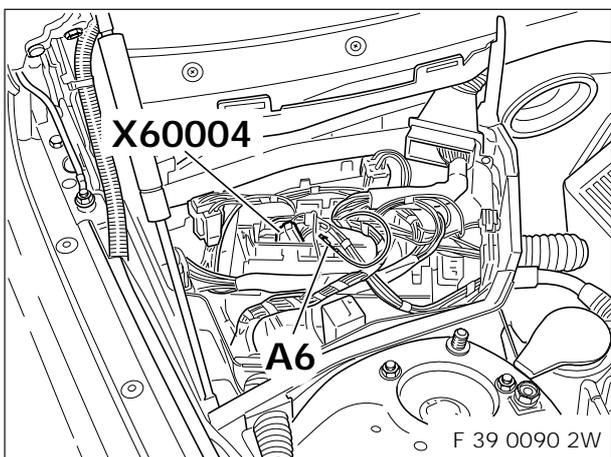
4. Fitting and connecting the GRA/MFL wiring harness



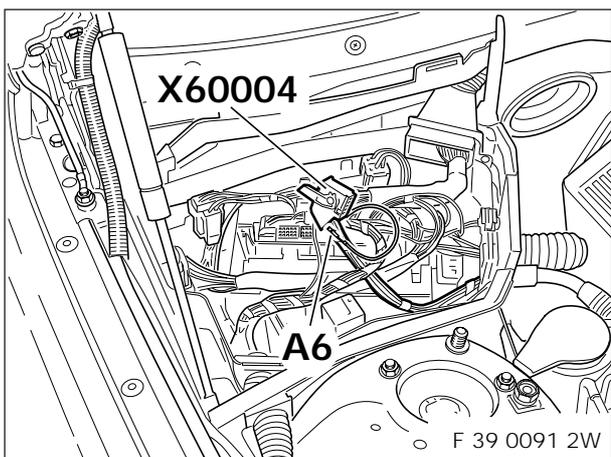
Disconnect the green 10-pole connector X10170 from the switch receptacle (1). Run the GRA/MFL wiring harness along the standard wiring harness (2) to the X10170 connector. Unlock the X10170 connector and insert branches **A1** to **A3** as follows:
A1, yellow/black cable, into PIN 8
A2, white/grey/yellow cable, into PIN 9
A3, violet/yellow cable, into PIN 10

Lock the X10170 connector.

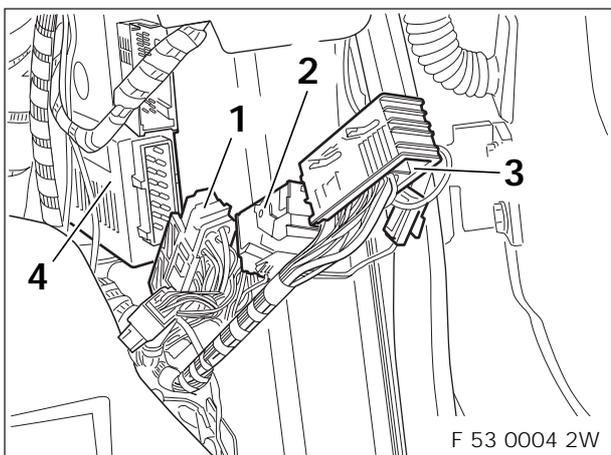
Run branches **A4** to **A6** behind the heater / air conditioner toward the glove compartment.



Run branch **A6** behind the glove compartment and through the grommet into the E-box. Disconnect and unlock the 40-pole X60004 connector from the DME/DDE control unit.



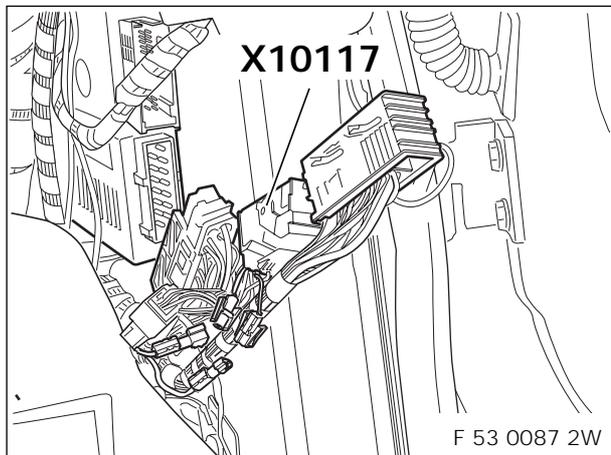
Insert branch **A6**, yellow/black cable, into PIN 27. Re-lock the X60004 connector and connect it to the DME/DDE control unit again.



Run branches **A4** and **A5** to the light module.

Disconnect the plugs (1, 2 and 3) from the light module.

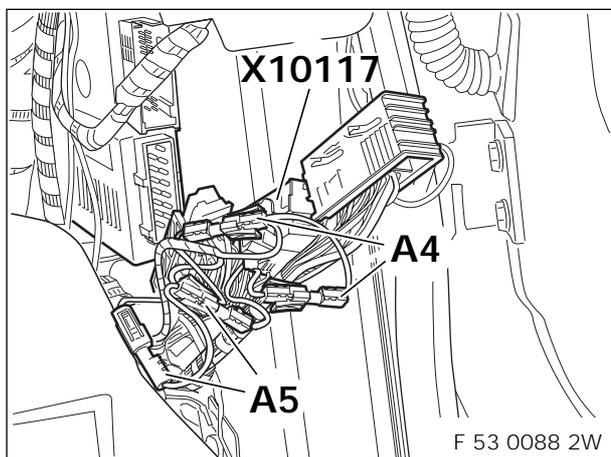
4. Fitting and connecting the GRA/MFL wiring harness



At the 54-pole black X10117 connector, cut off the following cables at a point approx. 10 cm from the connector:

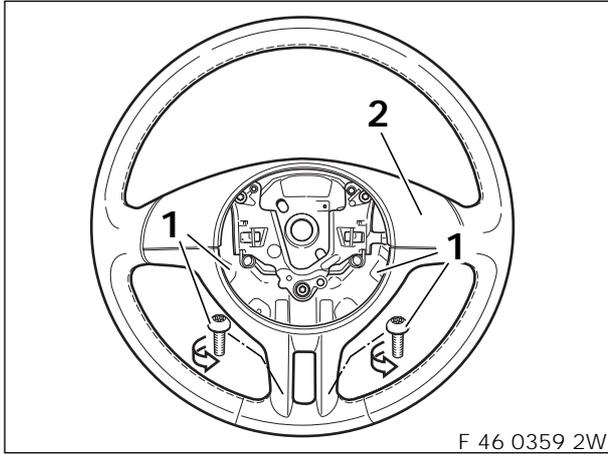
Violet/yellow cable (terminal R) from PIN 13 and white/grey/yellow cable (I/K bus) from PIN 36.

Fit each cable end with an AMP round-type and pin contact and refit the connector housing.

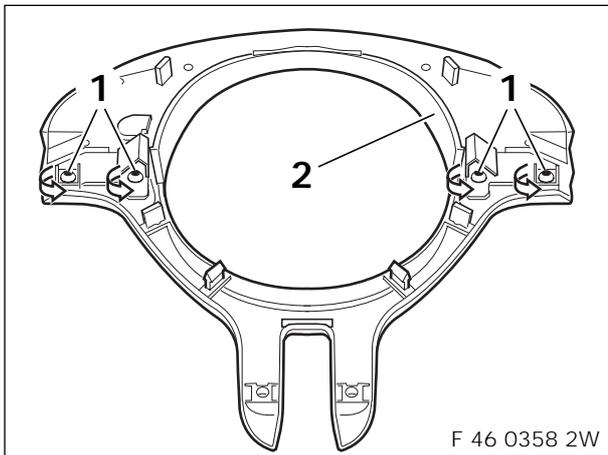


Connect branch **A4**, violet/yellow cable, to the violet/yellow cable from PIN 13 and branch **A5**, white/grey/yellow cable, to the white/grey/yellow cable from PIN 36.

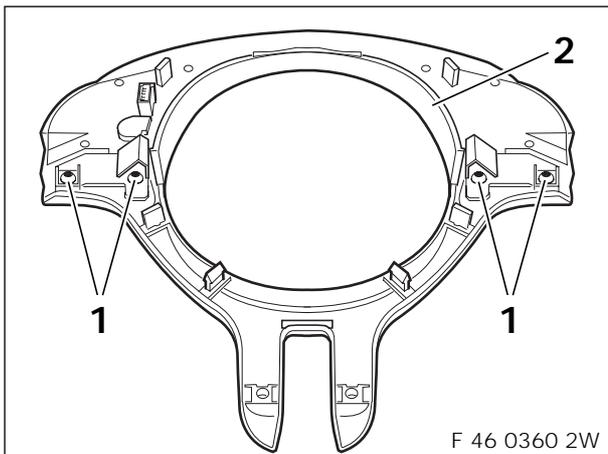
5. Steering wheel conversion



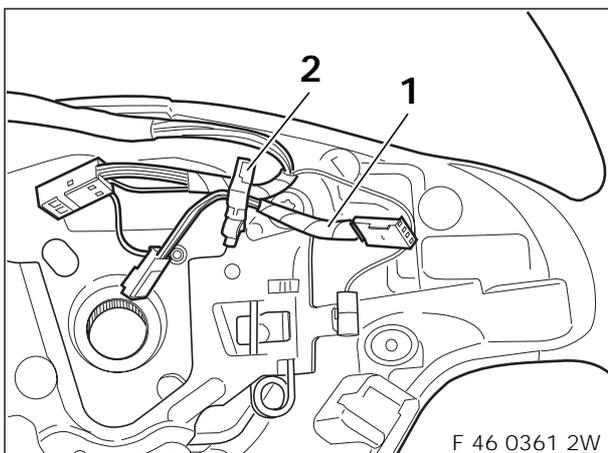
Unscrew the Torx screws (1) and remove the cover (2).



Unscrew the Torx screws (1) and remove the top (2).

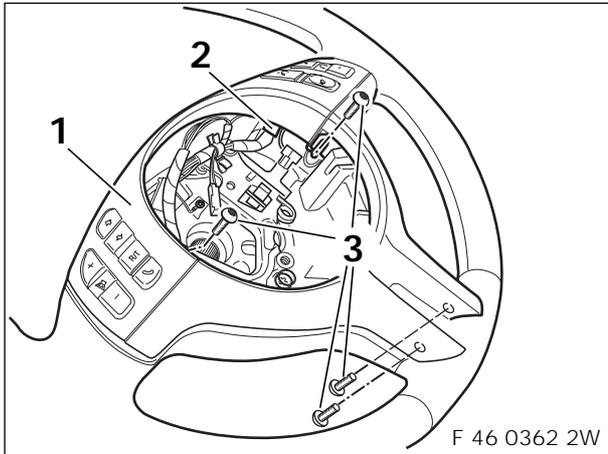


Position the switching unit (2) and secure it with the Torx screws (1).



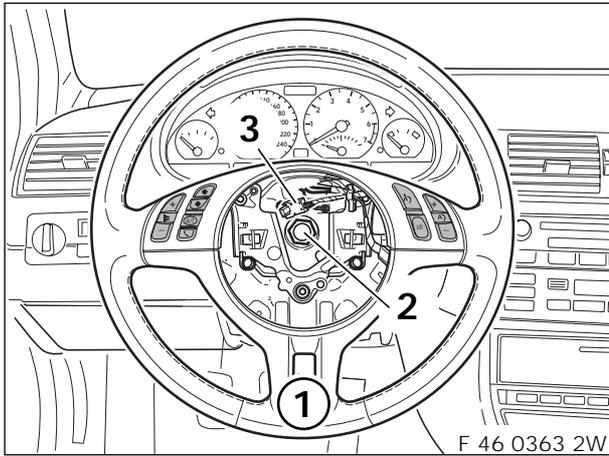
Place the connecting cable (1) from the installation kit in the cable retainer (2).

5. Steering wheel conversion

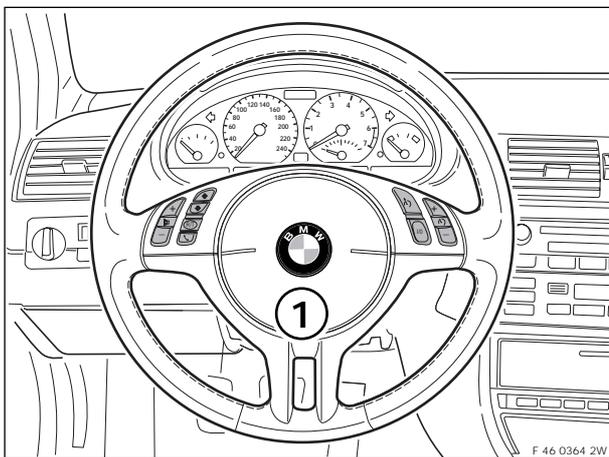


Refit the cover (1) with switching unit.
Insert the connecting cable (2).
Secure the cover (1) with Torx screws (3) again.

6. Fitting the MFL steering wheel



Mount the sports steering wheel (1) and tighten the screw (2) to a torque of 63 Nm. Connect the plug (3) to the switch receptacle.



Fit the existing airbag unit (1).

7. Final steps / encoding

Re-lock and insert all connectors.

Reassemble by reversing the order of disassembly.

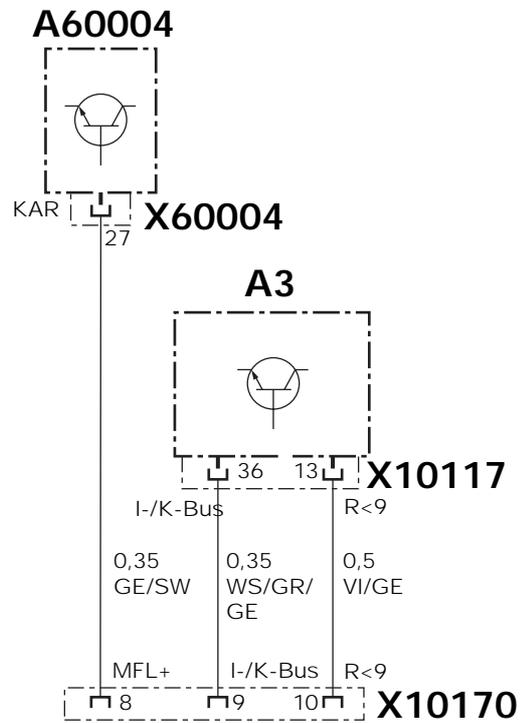
Perform a functional check.

For functional/operating details on the MFL/GRA retrofit refer to the Operating Instructions for the car and/or radio system, respectively.



This retrofit does not affect the coding system. ◀

8. Circuit diagram: speed control system for BMW 5 Series (E 39) cars



Key

A3	Light module
A60004	DME/DDE controller
X10117	Black 54-pole connector on light module
X10170	Black 10-pole connector on switch receptacle
X60004	Black 40-pole connector on DME/DDE controller

Cable colours

WS	white
SW	black
GR	grey
GE	yellow
VI	violet