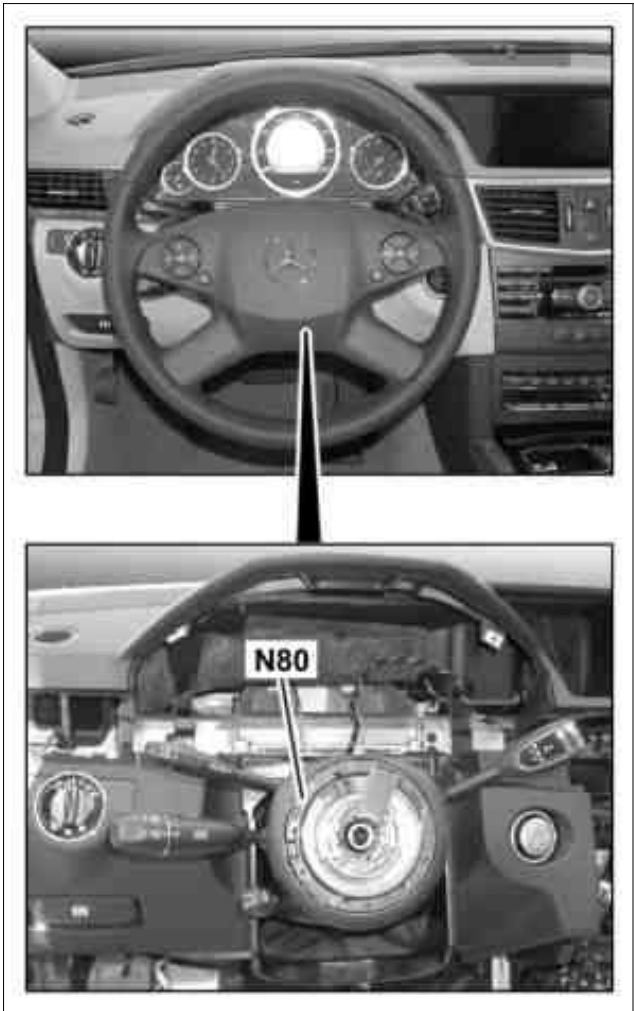


Document title	Component description for steering column tube module control unit
Document number	gf5421p6051fl

MODEL 212

Up to 28.02.13

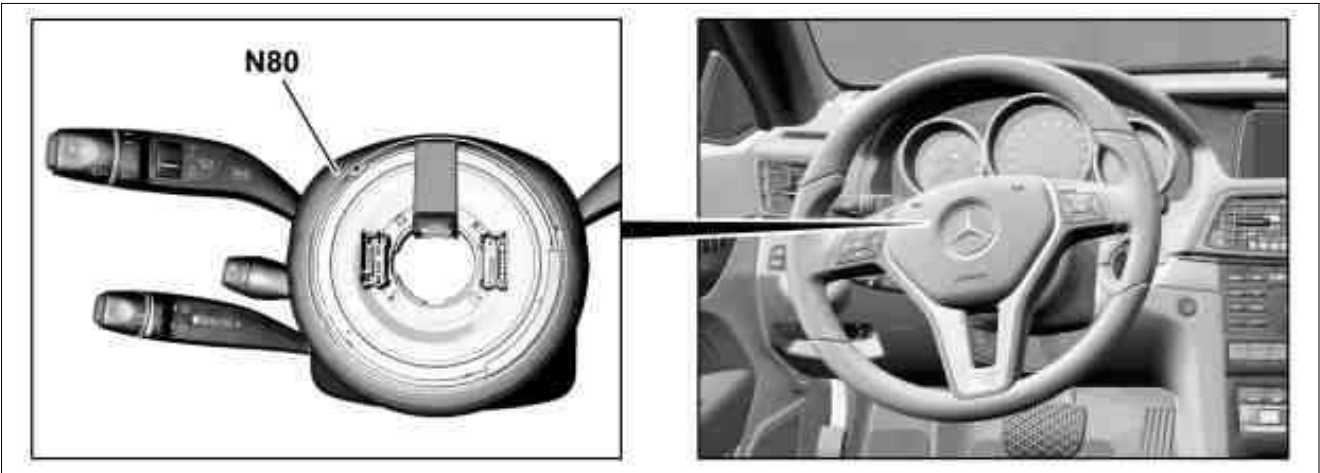
N80 Steering column module control unit



P54.21-2944-03

As of 01.03.13

N80 Steering column module control unit



P54.21-3369-04

Task

The steering column tube module control unit controls, for example, data exchange between the controls on the multifunction steering wheel/on the steering column and the corresponding control units that implement the functions.

The steering column tube module control unit has the following tasks:

- Reading in of sensors and signals

Reading in of sensors and signals

The input factors are read in via the following connections:

- Direct line
- Steering LIN (LIN E1)
- Chassis CAN (CAN E) (up to 28.02.13) or chassis CAN 1 (CAN E1)(as of 01.03.13)

Direct line

The steering column tube module control unit reads in the signals from the following components over direct lines:

- Steering angle sensor (N49)
- Combination switch (S4)
 - Turn signal lamps switch (S4s1)
 - Headlamp flasher and high beams switch (S4s2)
 - Low beams switch (S4s3)
 - Windshield washer system switch (S4s4)
 - Wipe switch (S4s5)

Location

The steering column tube module control unit is located directly beneath the multifunction steering wheel (MFL) on the steering column tube of the steering column.

- Evaluation of input factors
- Actuation of components
- Sending signals

- Indicator switch (S40/4s5)
- SPEEDTRONIC switch (S40/4s6) (except CODE 494 (USA version))
- DISTRONIC control (S40/4r1) (with CODE 233 (DISTRONIC PLUS))
- Steering column adjustment switch (S59) (except CODE 443 (Steering wheel heater))
- Steering column adjustment and steering wheel heater switch (S59/1) (with CODE 443 (Steering wheel heater))

Steering LIN

The steering wheel electronics (N135) directly reads in the signals for the following components and sends them over the steering LIN to the steering column tube module control unit:

- Heating element temperature sensor (R22/4b1) (with CODE 443 (Steering wheel heater))
- Left multifunction steering wheel button group (S110)

- DIRECT SELECT lever (S16/13) (with transmission 722.9, 724.2, 725)
- Cruise control lever (S40/4)
 - Resume from memory switch (S40/4s1)
 - Decelerate and set switch (S40/4s2)
 - Accelerate and set switch (S40/4s3)
 - OFF switch (S40/4s4)



Actuation of components

The actuation of the components takes place via the following connections:

- Direct line
- Steering LIN

Direct line

The steering column tube module control unit actuates the following components over direct lines:

- Steering wheel heater heating element (R22/4r1) (as of 01.03.2013 with CODE 443 (Steering wheel heater))
- SPEEDTRONIC LED (S40/4v1) (except CODE 494 (USA version))
- Steering wheel heater indicator lamp (S59/1e1) (with CODE 443 (Steering wheel heater))

Sending signals

The steering column tube module control unit sends signals via the following connection:

- Chassis CAN (up to 28.02.13) or chassis CAN 1 (as of 01.03.13)

Chassis CAN (up to 28.02.13) or chassis CAN 1 (as of 01.03.13)

The steering column tube module control unit sends, for example, the following signals over the chassis CAN (up to 28.02.13) or chassis CAN 1 (as of 01.03.13):

- Steering wheel angle, steering wheel velocity
- Multifunction steering wheel button group status

- Steering wheel downshift button (S110/1) (with transmission 722.9, 724.2, 725)
- Right multifunction steering wheel button group (S111)
- Steering wheel upshift button (S111/1) (with transmission 722.9, 724.2, 725)

Chassis CAN (up to 28.02.2013) or chassis CAN 1 (as of 01.03.2013)

The steering column tube module control unit reads in, for example, the following signals over the chassis CAN (up to 28.02.2013) or chassis CAN 1 (as of 01.03.2013):

- Status of engine and drivetrain
- Circuit status
- Switch and controls illumination (circuit 58d)
- Steering wheel heater emergency shutoff (with CODE 443 (Steering wheel heater))
- Request to actuate the steering wheel vibration motor (M99) (with CODE 476 (Lane Keeping Assist) or CODE 238 (Active Lane Keeping Assist))

The functions that use these signals are described in the individual function descriptions (see block diagram or function schematic).

Evaluation of input factors

The input factors that have been read in are evaluated by the integrated microprocessor and the relevant components are then actuated.

The following components are actuated directly via a looped line by the supplemental restraint system control unit (N210):

- Driver airbag squib 1 (R12/13)
- Driver airbag squib 2 (R12/14)

On vehicles up to 28.02.2013 with CODE 443 (Steering wheel heater), the steering wheel heater control unit (N25/7) actuates the steering wheel heater heating element directly over a connected line.

Steering LIN

The steering wheel electronics actuate the following components directly. The signals for this are received by the steering wheel electronics via the steering LIN from the steering column tube module control unit:

- Symbol illumination of the multifunction steering wheel button groups
- Steering wheel vibration motor (with CODE 476 (Lane Keeping Assist) or CODE 238 (Active Lane Keeping Assist))

- Combination switch position
- Steering wheel gearshift button status
- Position of DIRECT SELECT lever
- Switch position of cruise control lever
- Steering column adjustment switch status

The functions that use these signals are described in the individual function descriptions (see block diagram or function schematic).

	Wiring diagram for steering column module control unit		PE46.10-P-2101-97DAA
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