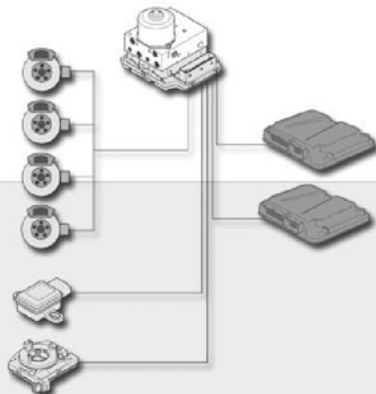




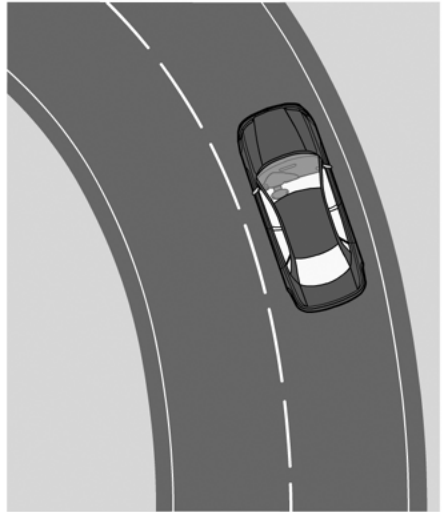
ESP Operation

SYSTEM OVERVIEWS



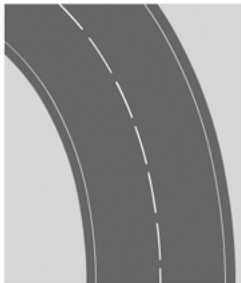


The **Electronic Stabilization Program (ESP)** increases vehicle control in situations where the vehicle is near its performance limits.

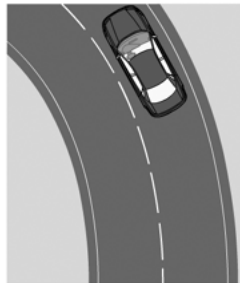
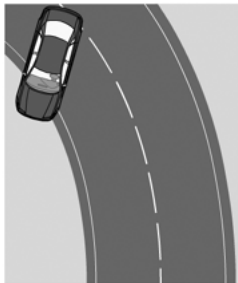




ESP recognizes the course desired and the vehicle's reactions. Through brake application at individual wheels and possible modulation of the engine torque, it helps to move the vehicle in the desired direction.



Without ESP

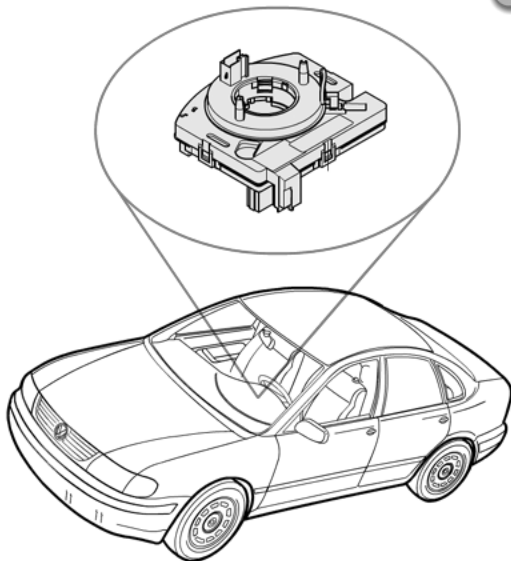


With ESP



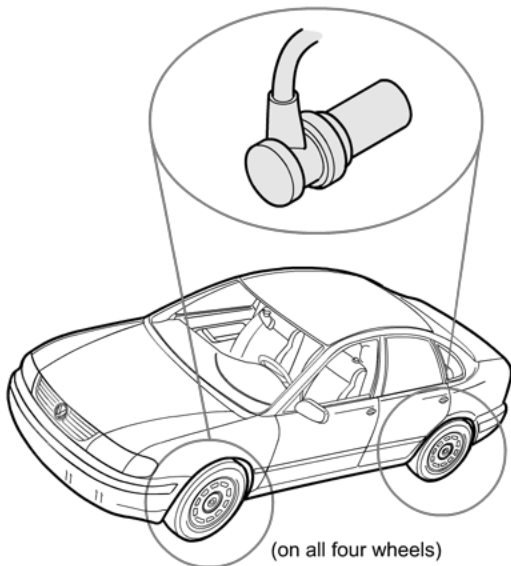
Steering direction is sensed by the **Steering Angle Sensor G85**.

This sensor uses an internal shutter wheel to determine the position of the steering wheel.



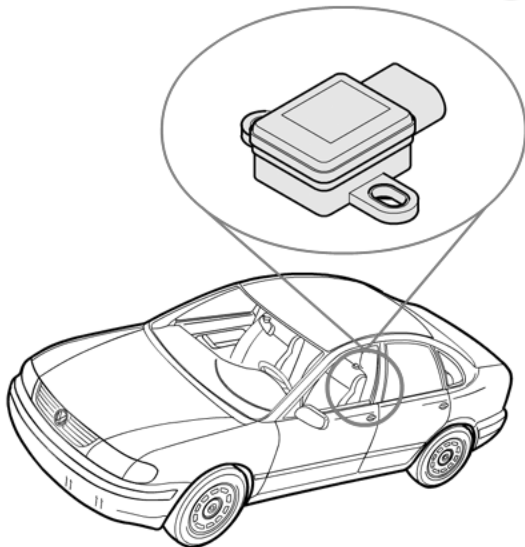
The direction the vehicle is moving is determined by a combination of sensors:

- **ABS Wheel Speed Sensors**
G44 - G47 (all vehicles with ESP).

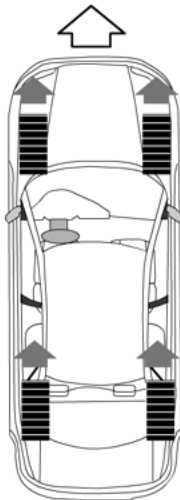


The direction the vehicle is moving is determined by a combination of sensors:

- **ABS Wheel Speed Sensors G44 - G47** (all vehicles with ESP).
- Combined **Sensor for Transverse Acceleration G200** and **Sender for Rotation Rate G202** (in some vehicles, these sensors are combined as the **ESP-Sensor Unit G419**). This sensor is on all vehicles with ESP and is located in the following places:
 - **Golf, Jetta, New Beetle** - on the steering column bearing bracket
 - **Passat** - under the rear seat bottom
 - **EuroVan** - under the carpeting at the passenger front seat



The **ABS Wheel Speed Sensors** determine the rate at which each wheel is spinning.



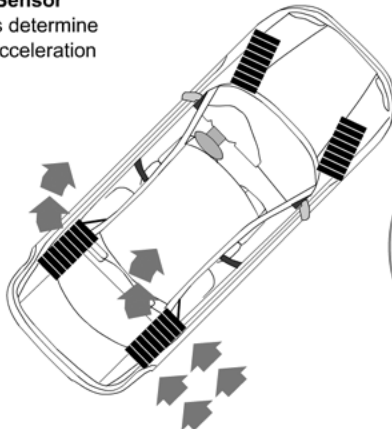
The **Transverse Sensor G200** and the **Sender for Rotation Rate G202** are assembled together in one housing (in some vehicles, these sensors are combined as the **ESP-Sensor Unit G419**). These sensors determine the amount of transverse acceleration (yaw) that is present.

Vehicle travel



↑ - Transverse Acceleration

↑ - Rotation Rate



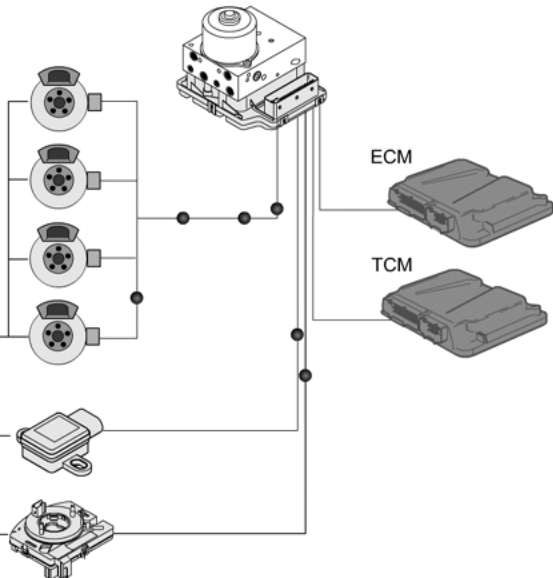
Signals from the **Steering Angle Sensor**, the **ABS Wheel Speed Sensors**, the **Sensor for Transverse Acceleration** and the **Sender for Rotation Rate** are relayed to **J104**, the **ABS Control Module with EDL/TCS/ESP**.

The **ABS Control Module** then evaluates all of the signals to determine if any action is necessary.

ABS Wheel Speed Sensors G44 - G47

Combined **Sensor for Transverse Acceleration G200** and **Sender for Rotation Rate G202 (ESP-Sensor Unit G419 in some vehicles)**

Steering Angle Sensor G85

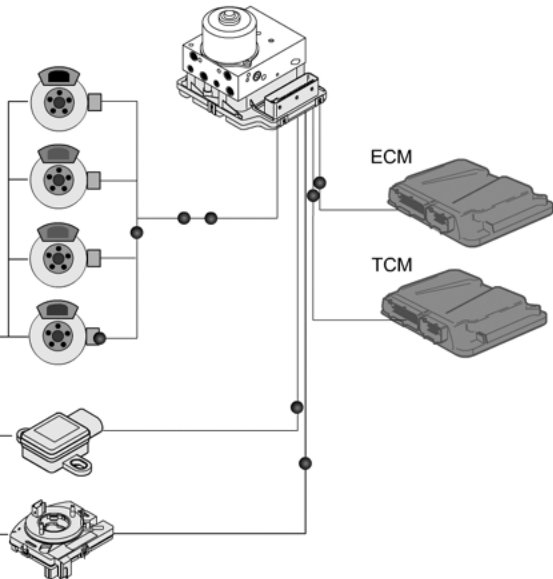


If action is necessary, the **ABS Control Module** can then modulate the brakes, transmission management, and engine management systems to control the vehicle.

ABS Wheel Speed Sensors G44 - G47

Combined **Sensor for Transverse Acceleration G200** and **Sender for Rotation Rate G202 (ESP-Sensor Unit G419** in some vehicles)

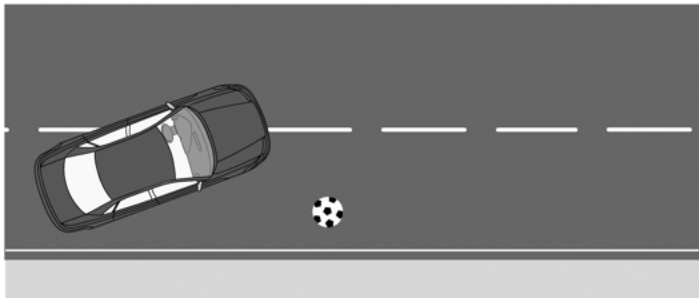
Steering Angle Sensor G85





If the vehicle is skidding, the **ABS Control Module** will modulate the brakes of the vehicle to try and redirect its angle.

This series of animations shows how **ESP** operates to assist a driver in avoiding an obstacle. First, the left rear brake is applied to assist in turning the vehicle to the left.



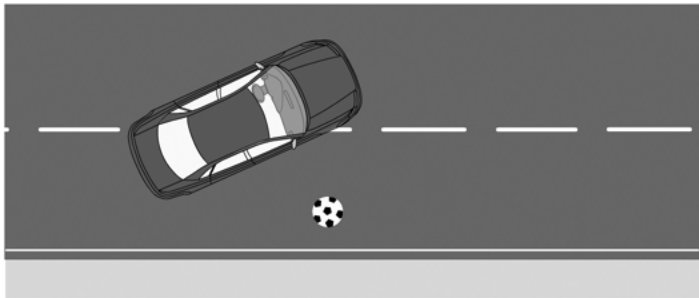


If the vehicle is skidding, the **ABS Control Module** will modulate the brakes of the vehicle to try and redirect its angle.

This series of animations shows how **ESP** operates to assist a driver in avoiding an obstacle.

First, the left rear brake is applied to assist in turning the vehicle to the left.

Next, the right front brake is applied to assist in pulling the vehicle to the right.





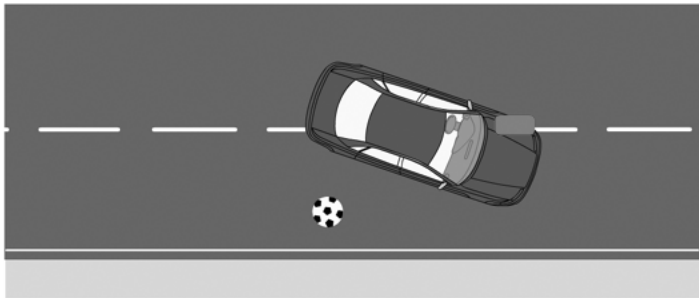
If the vehicle is skidding, the **ABS Control Module** will modulate the brakes of the vehicle to try and redirect its angle.

This series of animations shows how **ESP** operates to assist a driver in avoiding an obstacle.

First, the left rear brake is applied to assist in turning the vehicle to the left.

Next, the right front brake is applied to assist in pulling the vehicle to the right.

Now, the left front brake is applied to assist in pulling the vehicle to the left and back into line.





If the vehicle is skidding, the **ABS Control Module** will modulate the brakes of the vehicle to try and redirect its angle.

This series of animations shows how **ESP** operates to assist a driver in avoiding an obstacle.

First, the left rear brake is applied to assist in turning the vehicle to the left.

Next, the right front brake is applied to assist in pulling the vehicle to the right.

Now, the left front brake is applied to assist in pulling the vehicle to the left and back into line.

The vehicle can now continue on its previous course.

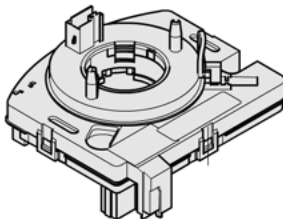


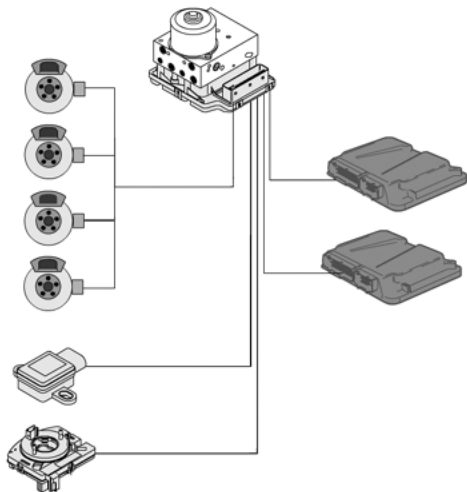
System Testing

To diagnose or repair the ESP system, use **Guided Fault Finding**, where applicable, with the **VAS 5051**. **Guided Fault Finding** has procedures on replacement of **Steering Angle Sensor G85**, as well as other ESP components.

Please check all relevant repair information when diagnosing or repairing the ESP system.

Keep in mind that, when removing **Steering Angle Sensor G85**, the driver airbag and steering wheel must be removed. Please follow all airbag safety precautions.





☒ **Module complete**

[!\[\]\(115eff7009a76771e6b7adb966005e4c_img.jpg\) Click to Replay Overview](#)

[!\[\]\(a6eac08c103efb51b40f958fe35f07bb_img.jpg\) Click for Printable Version](#)