



## VAG EPS Rack Install Guide

**INSTALLATION GUIDE**

# VAG EPS rack install guide



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### REPLACEMENT

After replacing this Control Module several steps have to be performed in the following order:

1. Check/Update Steering Aid Adaptation Channels 002-009
2. Perform Basic Setting for Steering Angle Sensor (G85) (See process 2A, 2B, 2C – dependent upon ABS type)
3. Perform Steering Limit Stop Adaptation

Additional Information - Characteristic curves need to be uploaded with the factory tool which has the latest brand version installed as well as access to the latest flash updates. Unless you have a factory tool which meets these requirements the only solution to accomplish this step is to take the car to the dealer and have them perform this.

### CODING

Coding for this control module is normally done via Software Version Management (SVM). If the old Control Module is still accessible to read/copy it's coding to the new module. In case this is not possible, please contact us directly and we will assist you with the coding process.

Every enquiry on this topic has to include a full auto-scan as well as which parts have been replaced and why, also make sure the auto-scan includes the complete VIN of the vehicle in question.

### SECURITY ACCESS

40168 = Basic Setting Enabling

50403 = Adaptation Enabling

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### CHANNEL 001: Characteristic Curve

Depending on the Steering Aid Generation/Software Version this channel may or may not be active. Generation 1 and early Generation 2 still allowed switching between up to 16 different predefined Characteristic Curves, while later/updated Generation 2 and 3 do not and the adaptation channel is being inactive/unavailable.

The Control Module identification lists the currently selected Characteristic Curve. The first example shows an early Generation 2 with a currently active Curve #9 indicated by Kl. 9 in the Component field, while the second example shows a Generation 3 which cannot be altered. As a rule of thumb, if the number of current settings is larger than 20 this setting/channel cannot be altered directly.

Address 44: Steering Assist  
Part No: 1K1 909 144 F  
Component: EPS\_ZFLS Kl.9 1301

Address 44: Steering Assist  
Part No: 1K0 909 144 P  
Component: EPS\_ZFLS Kl. 74 3305

If the identification shows 000 as current setting it means that no Characteristic Curve has been uploaded and the system is working with a Linear Curve instead. This is a common situation after the steering rack has been replaced, for further details please see Steering Aid (J500) Control Module Replacement

Address 44: Steering Assist  
Part No: 1K0 909 144 J  
Component: EPS\_ZFLS Kl. 000 3001

### CHANNEL 002: Malfunction Indicator Lamp (MIL)

Possible Settings:  
2-Color Lamp (Standard)  
1-Colour Lamp

### CHANNEL 003: Driver Steering Recommendation (DSR)

Possible Settings:  
Driver Steering Recommendation (DSR) active (only ESP MK60 & MK60-AT)  
Driver Steering Recommendation (DSR) inactive (only ASR MK70)  
Driver Steering Recommendation (DSR) active (only ESP MK60EC1 & MK60 AWD/4X4)

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### CHANNEL 004: Installation Park Steer Assist

**Possible Settings:**

Park Steer Assist (PR-7X5/7X6) installed (< MY 2009)

Park Steer Assist (PR-7X5/7X6) installed (MY 2010 >)

Park Steer Assist (PR-7X0/7X1/7X2) NOT installed

### CHANNEL 005: Torque Steer Compensation (TSC)

The Torque Steer Compensation (TSC) is only being activated for Front-Wheel-Drive (FWD) models which have a high powered engine. This function prevents the car from leaning into one direction while accelerating in combination with powerful engines and unequal lengths drive shafts.

**Possible Settings:**

Torque Steer Compensation (TSC) inactive (Standard)

Torque Steer Compensation (TSC) active

### CHANNEL 006: Installation Lane Assist

**Possible Settings:**

Lane Assist (PR-7Y0) NOT installed

Lane Assist (PR-7Y2/7Y4) installed

### CHANNEL 008: Installation Adaptive/Dynamic Chassis Control (DCC)

**Possible Settings:**

Adaptive/Dynamic Chassis Control (PR-2H0) NOT installed

Adaptive/Dynamic Chassis Control (PR-2H1) installed

### CHANNEL 009: Steering Angle Sensor

The adaptation channel determined the functionality of the internal steering angle sensor. Depending on the combination of steering aid and brake electronics the internal steering angle sensor needs to be deactivated.

**Possible Settings:**

Internal Steering Angle Sensor active

Internal Steering Angle Sensor inactive

Internal Steering Angle Sensor inactive (only ASR MK70)

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### SENSOR FOR STEERING ANGLE (G85)

IMPORTANT NOTE: THIS PROCEDURE ONLY APPLIES TO MODELS WITH CONTI/TEVES MK70 ABS/ASR.

This Procedure does NOT apply to Conti/Teves MK60, MK60CE, MK60EC1 and similar ABS/ASR/ESP systems. Check the vehicle specific diagnostic procedures pages for each ABS system page with documentation.

#### Prerequisites:

Start the vehicle.

Turn the steering wheel one turn to the right and one turn to the left.

Drive in a short distance straight line on a level surface at a speed not higher than 20 km/h.

If the steering wheel is straight during the test drive then stop the vehicle with the wheels pointed straight.

Ensure that the steering wheel is not moved again.

Keep the engine running and do not switch off the ignition.

System voltage at least 12.0 V.

[Select]

[44 - Steering Assist]

[Coding-II - 11] or if that function is not available then use [Sec.Access - 16] instead

Enter 40168, to enable the basic setting.

[Do it!]

[Basic Settings - 04]

Group 060

[Go!]

Activate the Basic Setting.

[ON/OFF/Next]

After a successful basic setting, field 1 should say "OK".

[Done, Go Back]

To make sure the basic setting was successful, check the sensor again.

[Measuring Blocks - 08]

Group 007

[Go!]

Check field 1, the value has to be between -1.5 and +1.5 °.

[Done, Go Back]

[Close Controller, Go Back - 06]

Note: After successful basic setting, the steering limit stop needs to be adapted too.

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This procedure does NOT apply to Conti/Teves MK60, MK60CE, MK60EC1 and similar ABS/ASR/ESP systems. Check the vehicle specific diagnostic procedures pages for each ABS system page with documentation.

#### Prerequisites:

Start the vehicle.

Turn the steering wheel one turn to the right and one turn to the left.

Drive in a short distance straight line on a level surface at a speed not higher than 20 km/h.

If the steering wheel is straight during the test drive then stop the vehicle with the wheels pointed straight.

Ensure that the steering wheel is not moved again.

Keep the engine running and do not switch off the ignition.

System voltage at least 12.0 V.

[Select]

[03 - Brake Electronics]

[Measuring Blocks - 08]

Group 004

[Go!]

Check field 1, the value has to be between -1.5 and +1.5 °.

[Done, Go Back]

[Coding-II - 11]

OR (if Coding-II is not available)

[Security Access - 16]

Enter 40168, to enable the basic setting.

[Do it!]

[Basic Settings - 04]

Group 060

[Go!]

After a successful basic setting, field 2 should say "OK".

[Done, Go Back]

[Close Controller, Go Back - 06]

Note: After successful basic setting, the steering limit stop needs to be adapted too.

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This Procedure does NOT apply to Conti/Teves MK60, MK60CE, MK60EC1 and similar ABS/ASR/ESP systems. Check the Vehicle specific Diagnostic Procedures pages for each ABS System page with documentation.

#### Prerequisites:

Start the vehicle.

Drive in a short distance straight line on a level surface at a speed not higher than 20 km/h.

While driving turn the steering wheel one turn to the right and one turn to the left.

When having the steering wheel straight again stop the vehicle with the wheels pointed straight.

Ensure that the steering wheel is not moved again.

Keep the engine running and do not switch off the ignition.

System voltage at least 12.0 V.

[Select]

[03 - Brake Electronics]

[Security Access - 16]

Enter 40168, to enable the basic setting.

[Do it!]

[Basic Settings - 04]

Group 060

[Go!]

Activate the Basic Setting.

[ON/OFF/Next]

After a successful basic setting, field 2 should say "OK".

[Done, Go Back]

To make sure the basic setting was successful, check the sensor again.

[Measuring Blocks - 08]

Group 004

[Go!]

Check field 1, the value has to be between -1.5 and +1.5 °.

[Done, Go Back]

[Close Controller, Go Back - 06]

Note: After successful basic setting, the Steering Limit Stop needs to be adapted too.

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### STEERING LIMIT STOP ADAPTATION

(Engine still running)

Center steering wheel ( $\pm 10^\circ$ ) and hold it centered for 5 seconds.

Turn steering wheel completely to the left and hold it there for 10 seconds.

Turn steering wheel completely to the right and hold it there for 10 seconds.

Center steering wheel ( $\pm 10^\circ$ ).

Switch OFF engine and ignition.

Switch ON ignition.

Wait 5 seconds.

Steering assist warning lamp should turn OFF. If it doesn't, perform a short test drive.

Notes:

If the 02546 - Steering Limit Stop 005 - No or Incorrect Basic Setting / Adaptation fault will not clear after driving the vehicle and completing the VW Golf (1K) Steering Assist procedure:

- Increase the time inbetween key cycles to 30 seconds or more.
- Check all adaptation values in the #44 Steering Assist controller.

Verify all of the WSS (Wheel Speed Sensor) values are plausible in the 03-ABS controller. We received feedback from both MK70 equipped and MK60 ESP equipped (1K) Golf models with 02546 and 00778 DTCs that would not clear due to a faulty WSS. Even if a WSS DTC is not stored it would be advised to log or graph MVB 001 while driving.

### CHECKING STEERING TORQUE SENSOR (G269) - ADDITIONAL INFORMATION

Prerequisites:

Ignition ON

Engine ON (Idle)

System voltage at least 11.0 V.

[Select]

[44 - Steering Assist]

[Meas. Blocks - 08]

Group 001

[Go!]

Field 2: Steering Torque Sensor (G269)

Turn the Steering Wheel multiple times completely to the left and right. The Torque Values should change.

If the Torque Values do change, it's most likely an intermittent Fault in the Wiring/Connectors.

If the Torque Values do NOT change, the Sensor itself or the Power Supply (Terminal 15) might be faulty.

Group 004

[Go!]

Field 2: Power Supply (Terminal 15), Specification: "Term. 15 ON"

[Done, Go Back]

[Close Controller, Go Back - 06]

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