

## P0715



### Note!

- ◆ The speed sensors are housed in the electrical part of the hydraulic control unit!
- ◆ If a speed sensor is faulty, the complete electrical part of the hydraulic control unit must be replaced!

## 11, Supply voltage of speed sensors (outside tolerance)

The output voltage of the voltage regulator for the transmission sensors and solenoid valves is monitored. Malfunctions in the wiring, plug connections and the voltage regulator itself are detected.

### Diagnostic conditions

- Ignition on

### Possible cause of fault

- ◆ Short circuit to B+/ground/between wires or open circuit
- ◆ Tiptronic control unit faulty

### Affected pins

Plug A: Pin 13 and pin 33

### Diagnosis/troubleshooting

Work instruction		Display OK	If not OK
1	Visual inspection	⇒ Step 2	Repair wiring harness ⇒ End
2	Check power supply for speed sensors	approx. 5 V to 7 V ⇒ Step 3	Tiptronic control unit faulty ⇒ Step 10

Work instruction			Display OK	If not OK
3	Check wiring together with sensors between Tiptronic control unit and sensors for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 13 of Tiptronic plug A and ground</li> <li>◆ Measure voltage between pin 33 of Tiptronic plug A and ground</li> </ul>	< 0.3 V ⇒ Step 5	Short circuit to B+ between Tiptronic control unit and sensors ⇒ Step 4
4	Check wiring between Tiptronic control unit and transmission for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 13 of Tiptronic plug A and ground</li> <li>◆ Measure voltage between pin 33 of Tiptronic plug A and ground</li> </ul>	< 0.3 V ⇒ Step 9	Short circuit to positive between Tiptronic control unit and transmission; repair wiring harness → End
5	Check wiring together with sensors between Tiptronic control unit and sensors for short to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Measure resistance between pin 13 of Tiptronic plug A and ground</li> <li>◆ Measure resistance between pin 33 of Tiptronic plug A and ground</li> </ul>	$\infty \Omega$ ⇒ Step 7	Short circuit to ground between Tiptronic control unit and sensors ⇒ Step 6
6	Check wiring between Tiptronic control unit and transmission for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Measure resistance between pin 13 of Tiptronic plug A and ground</li> <li>◆ Measure resistance between pin 33 of Tiptronic plug A and ground</li> </ul>	$\infty \Omega$ ⇒ Step 9	Short circuit to ground between Tiptronic control unit and transmission; repair wiring harness → End

Work instruction			Display OK	If not OK
7	Check wiring between Tiptronic control unit and transmission for short circuit between wires	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Measure resistance between pin 13 and pin 33 of Tiptronic plug A</li> </ul>	$\infty \Omega$ $\Rightarrow$ Step 8	Short circuit between wires from Tiptronic control unit to transmission; repair wiring harness $\rightarrow$ End
8	Check wiring between Tiptronic control unit and transmission for open circuit	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Measure resistance between pin 13 of Tiptronic plug and pin 7 of transmission plug</li> <li>◆ Measure resistance between pin 33 of Tiptronic plug and pin 12 of transmission plug</li> </ul>	$< 5 \Omega$ $\Rightarrow$ Step 9	Open circuit between Tiptronic control unit and sensors; repair wiring harness $\rightarrow$ End
9	<ul style="list-style-type: none"> <li>◆ Replace electrical part of hydraulic control unit <math>\Rightarrow</math> Rep. Gr. 387737; Disassembling and assembling electrohydraulic control unit</li> </ul>		$\rightarrow$ End	
10	<ul style="list-style-type: none"> <li>◆ Replace Tiptronic control unit</li> </ul>		$\rightarrow$ End	

## 12, Speed sensor n2 (or sensor supply interrupted)

This checks if the speed sensor signal n2 is present.

### Diagnostic conditions

- Ignition on
- Engine speed  $> 450 \text{ min}^{-1}$
- Vehicle speed  $> 30 \text{ km/h}$  (18.75 mph)
- Straight ahead at constant speed

### Possible cause of fault

- ◆ Short circuit to B+/ground/between wires or open circuit
- ◆ Speed sensor n2 faulty
- ◆ Tiptronic control unit faulty

### Affected pins

Plug A: Pin 12

## Diagnosis/troubleshooting

Work instruction			Display OK	If not OK
1	Check fault memory	<ul style="list-style-type: none"> <li>◆ Read out Tiptronic fault memory with the 9588 Porsche System Tester II</li> </ul>	<ul style="list-style-type: none"> <li>● Only fault code '12 (P0715)' stored ⇒ Step 2</li> </ul>	<ul style="list-style-type: none"> <li>● Fault code '12 (P0715)' and</li> <li>● Fault code '20'</li> </ul> and/or <ul style="list-style-type: none"> <li>● '11 (P0715)' and/or '13 (P0715)' and/or '14 (P0715)' stored;</li> </ul> Perform diagnosis/troubleshooting as described in ⇒ "11, Supply voltage of speed sensors (outside tolerance)" in <b>0-11</b> page 1
2	Visual inspection	<ul style="list-style-type: none"> <li>◆ Check all plug connections and wire for damage</li> </ul>	⇒ Step 3	Repair wiring harness ⇒ End
3	Check wire together with sensor between Tiptronic control unit and sensor for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull plug A off the Tiptronic control unit</li> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 12 and ground</li> </ul>	< 0.3 V ⇒ Step 5	Short circuit to B+ between Tiptronic control unit and sensor ⇒ Step 4
4	Check wire between Tiptronic control unit and transmission for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 12 and ground</li> </ul>	< 0.3 V ⇒ Step 9	Short circuit to positive between Tiptronic control unit and transmission; repair wiring harness → End
5	Check wire together with sensor between Tiptronic control unit and sensor for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Measure resistance between pin 12 and ground</li> </ul>	$\infty \Omega$ ⇒ Step 7	Short circuit to ground between Tiptronic control unit and sensor ⇒ Step 6
6	Check wire between Tiptronic control unit and transmission for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Measure resistance between pin 12 and ground</li> </ul>	$\infty \Omega$ ⇒ Step 9	Short circuit to ground between Tiptronic control unit and transmission; repair wiring harness → End

Work instruction		Display OK	If not OK
7	Check wire between Tiptronic control unit and transmission for open circuit ♦ Ignition off ♦ Measure resistance between pin 12 of Tiptronic plug and pin 3 of transmission plug	< 5 Ω ⇒ Step 8	Open circuit between Tiptronic control unit and sensor; repair wiring harness → End
8	♦ Replace Tiptronic control unit as a test	→ End	If the fault occurs again ⇒ Step 9
9	♦ Replace electrical part of hydraulic control unit ⇒ Rep. Gr. 387737; Disassembling and assembling electrohydraulic control unit	→ End	

### 13, Speed sensor n3

This checks if the speed sensor signal n3 is present.

#### Diagnostic conditions

- Ignition on
- Engine speed > 450 min<sup>-1</sup>
- Vehicle speed > 30 km/h (18.75 mph)
- Straight ahead at constant speed
- No gearshift active
- Transmission in third or fourth gear

#### Possible cause of fault

- ♦ Short circuit to B+/ground/between wires or open circuit
- ♦ Speed sensor n3 faulty
- ♦ Tiptronic control unit faulty

#### Affected pins

Plug A: Pin 35

## Diagnosis/troubleshooting

Work instruction			Display OK	If not OK
1	Check fault memory	<ul style="list-style-type: none"> <li>◆ Read out Tiptronic fault memory with the 9588 Porsche System Tester II</li> </ul>	<ul style="list-style-type: none"> <li>● Only fault code '13 (P0715)' stored ⇒ Step 2</li> </ul>	<ul style="list-style-type: none"> <li>● Fault code '13 (P0715)' and</li> <li>● Fault code '20'</li> </ul> and/or <ul style="list-style-type: none"> <li>● '11 (P0715)' and/or '12 (P0715)' and/or '14 (P0715)' stored;</li> </ul> Perform diagnosis/troubleshooting as described in ⇒ "11, Supply voltage of speed sensors (outside tolerance)" in <b>0-11</b> page 1
2	Visual inspection	<ul style="list-style-type: none"> <li>◆ Check all plug connections and wire for damage</li> </ul>	⇒ Step 3	Repair wiring harness ⇒ End
3	Check wire together with sensor between Tiptronic control unit and sensor for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull plug A off the Tiptronic control unit</li> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 35 and ground</li> </ul>	< 0.3 V ⇒ Step 5	Short circuit to B+ between Tiptronic control unit and sensor ⇒ Step 4
4	Check wire between Tiptronic control unit and transmission for short circuit to B+	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Ignition on</li> <li>◆ Measure voltage between pin 35 and ground</li> </ul>	< 0.3 V ⇒ Step 9	Short circuit to positive between Tiptronic control unit and transmission; repair wiring harness → End
5	Check wire together with sensor between Tiptronic control unit and sensor for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Measure resistance between pin 35 and ground</li> </ul>	$\infty \Omega$ ⇒ Step 7	Short circuit to ground between Tiptronic control unit and sensor ⇒ Step 6
6	Check wire between Tiptronic control unit and transmission for short circuit to ground	<ul style="list-style-type: none"> <li>◆ Ignition off</li> <li>◆ Pull off transmission plug</li> <li>◆ Measure resistance between pin 35 and ground</li> </ul>	$\infty \Omega$ ⇒ Step 9	Short circuit to ground between Tiptronic control unit and transmission; repair wiring harness → End

Work instruction		Display OK	If not OK
7	Check wire between Tiptronic control unit and transmission for open circuit ♦ Ignition off ♦ Measure resistance between pin 35 of Tiptronic plug and pin 1 of transmission plug	< 5 $\Omega$ ⇒ Step 8	Open circuit between Tiptronic control unit and sensor; repair wiring harness → End
8	♦ Replace Tiptronic control unit as a test	→ End	If the fault occurs again ⇒ Step 9
9	♦ Replace electrical part of hydraulic control unit ⇒ Rep. Gr. 387737; Disassembling and assembling electrohydraulic control unit	→ End	

## 14, Speed comparison n2 with n3 implausible

This checks if the n2 sensor signal appears plausible compared with the n3 sensor signal. An error is detected if the speeds do not agree.

### Diagnostic conditions

- Ignition on
- Engine speed > 450 min<sup>-1</sup>
- Vehicle speed > 30 km/h (18.75 mph)
- Straight ahead at constant speed
- No gearshift active

### Possible cause of fault

- ♦ Short circuit to B+/ground/between wires or open circuit
- ♦ Speed sensor n2 or n3 faulty
- ♦ Tiptronic control unit faulty

### Affected pins

Plug A: Pin 12 and pin 35

Plug A: Pin 13 and pin 33

## Diagnosis/troubleshooting

Work instruction		Display OK	If not OK	
1	Check fault memory	<ul style="list-style-type: none"> <li>Read out Tiptronic fault memory with the 9588 Porsche System Tester II</li> </ul>	<ul style="list-style-type: none"> <li>Only fault code '14 (P0715)' and '12 (P0715)' stored; Perform diagnosis/troubleshooting as described in ⇒ "12, Speed sensor n2 (or sensor supply interrupted)" in <b>0-11</b> page 3</li> <li>Only fault code '14 (P0715)' and '13 (P0715)' stored; Perform diagnosis/troubleshooting as described in ⇒ "13, Speed sensor n3" in <b>0-11</b> page 5</li> </ul>	<ul style="list-style-type: none"> <li>Fault code '14 (P0715)' and</li> <li>Fault code '20'</li> <li>and/or</li> <li>'11 (P0715)' and/or '12 (P0715)' and/or '13 (P0715)' stored; Perform diagnosis/troubleshooting as described in ⇒ "11, Supply voltage of speed sensors (outside tolerance)" in <b>0-11</b> page 1</li> </ul>