Fault code 0258/P0753

Shift solenoid valve (S1) [Shift Solenoid 'A' Electrical]

Note!

The ignition must be switched off and then switched on again in order to display an error message in the instrument cluster.

System in limp-home mode 1: Fault not caused by incorrect gear ratio or unusual switching!

Note!

Please refer to 'Limp-home mode 1' table in the main chapter entitled 'Control module function (coding/programming)'!

Use the 'Actual values' menu in the Porsche System Tester II No. 9588 to check the transmission status and the actual values of the shift solenoid valves and sensors.

Diagnostic conditions

Note!

The ATF fluid level in the transmission must be OK and the specified ATF fluid must be used. The ATF filter and cooler must not be blocked.

The following requirements are met for at least 0.5 seconds:

- Ignition on, voltage greater than 10.2 V and less than 15.5 V
- Internal Tiptronic control module function test was completed successfully
- Engine runs without malfunctions

Possible causes of fault

Note!

The 'Diagnosis/troubleshooting' shown below is adapted to suit the fault type displayed in the tester (please note fault type numbering 1, 2,... etc.!). The fault memory Info key F8 on the Porsche System Tester II No. 9588 can be used to read out the fault type in the 'extended fault memory'.

- 1.) 'Open circuit/short circuit to B+': A short circuit to B+ causes the shift solenoid valve (S1) to be continually activated

- 1.) 'Open circuit/short circuit to B+': An open circuit prevents activation of the shift solenoid valve (S1)
- 2.) 'Short circuit to ground': A short circuit to ground prevents activation of the shift solenoid valve (S1)

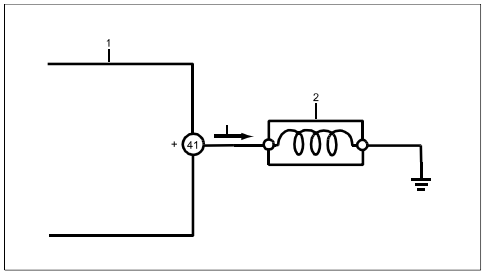
Affected pins

Tiptronic control module plug:

- Pin 41 'voltage of shift solenoid valve (S1)', to existing transmission wiring plug 'pin A1'

Diagnosis/troubleshooting G 0210

Wiring diagram of shift solenoid valve (S1)



1 - Tiptronic control module
2 - Shift solenoid valve (S1)
41 - Pin (41)
I - Current flow

Data on shift solenoid valve (S1)

- Max. voltage drop on Tiptronic control module: 1.5 V
- Operating voltage (during switching): 10.5 V to 16.5 V
- Max. voltage drop in wiring: 0.08 V
- Max. power consumption: 1.9 A
- Default internal resistance: 13 ± 2 Ω (at 20°C)

Note!

Visual inspection: In the next troubleshooting section, please check first that the affected 'pins' on the Tiptronic control module plug connection and the 'pins' on the 'existing transmission wiring' plug connection are neither damaged nor corroded. Remove any soiling or corrosion/oxidation. Replace damaged parts/wires.

Note!

Replacing control module: Before replacing the 'Tiptronic control module', the ground connections, power supply and plug connections on the control module must be checked. Please observe the coding of the control module. After the test drive, read out the fault memory again with the Porsche System Tester II No. 9588. Additional causes of faults that could damage the 'Tiptronic control module' should be detected and remedied.

Danger!

Danger of burns from hot ATF fluid!

Skin or clothing may burn following contact with hot ATF fluid!

- ***Always allow ATF fluid to cool before draining!***
- ***Wear suitable protective clothing!***
- ***Use a suitable collecting container!***

1.) Troubleshooting only for fault type: 'Open circuit/short circuit to B+'

Work instruction			**Display OK**	**If not OK**
1	Check for short circuit to B+ with 'Tiptronic control module' plug disconnected and solenoid valve plug connected (existing transmission wiring):	♦ Switch off ignition ♦ Pull plug off Tiptronic control module ♦ Switch on ignition ♦ Measure voltage between 'pin 41' and ground on Tiptronic control module plug.	< 0.3 V ⇒ Step 2	Repair wiring harness to Tiptronic control module (existing transmission wiring). → End
2	Check for short circuit with both 'Tiptronic control module' plug and solenoid valve plug disconnected (existing transmission wiring):	♦ Switch off ignition ♦ Measure resistance between 'pin A1' and pins 'A2, A3, A5, A7, A9, A11, A13' on solenoid valve plug (existing transmission wiring).	∞ Ω ⇒ Step 3	Repair wiring harness to Tiptronic control module (existing transmission wiring). → End
3	Check for open circuit with 'Tiptronic control module' plug disconnected and solenoid valve plug connected (existing transmission wiring):	♦ Switch off ignition ♦ Measure resistance between 'pin 41' and ground on Tiptronic control module plug.	13 ± 2 Ω (at 20°C) ⇒ Step 7	⇒ Step 4

Work instruction			Display OK	If not OK
4	Check for open circuit with both 'Tiptronic control module' plug and solenoid valve plug disconnected (existing transmission wiring):	♦ Switch off ignition ♦ Pull off solenoid valve plug (existing transmission wiring) ♦ Measure resistance between 'pin 41' on Tiptronic control module plug and 'pin A1' of solenoid valve plug (existing transmission wiring).	< 2 Ω ⇒ Step 5	Repair wiring harness to Tiptronic control module (existing transmission wiring). → End
5	Check wire in the transmission for open circuit:	(Observe warning notes!) Remove ATF pan on the transmission (first drain fluid) Remove ATF filter, perform visual inspection of plug and wiring: ♦ Switch off ignition ♦ Solenoid valve plug (existing transmission wiring) connected ♦ Measure resistance between 'pin 41' on Tiptronic control module plug and shift solenoid valve (S1) plug.	< 2 Ω ⇒ Step 6	Replace wiring harness in the transmission. → End
6	Check shift solenoid valve for open circuit:	♦ Measure resistance between shift solenoid valve (S1) plug and housing.	13 ± 2 Ω (at 20°C) ⇒ Step 8	Winding interrupted! ⇒ Step 9

Work instruction			Display OK	If not OK
7	Check mechanical functionality of shift solenoid valve (S1) using Tiptronic control module plug:	♦ Tiptronic control module plug disconnected and solenoid valve plug (existing transmission wiring) connected ♦ Using a suitable auxiliary cable that is fuse-protected in accordance with the power consumption of the shift solenoid valve, supply 'approx. 12 V battery voltage' to 'pin 41' of the Tiptronic control module plug for a short time. A distinct clicking sound should be heard immediately from the shift solenoid valve.	⇒ Step 10	⇒ Step 8
8	Check the mechanical functionality of the shift solenoid valve (S1) directly at the valve:	♦ Pull plug off the shift solenoid valve (S1). ♦ Using a suitable auxiliary cable that is fuse-protected in accordance with the power consumption of the shift solenoid valve, supply 'approx. 12 V battery voltage' to the shift solenoid valve for a short time. A distinct click should be heard from the shift solenoid valve.	⇒ Step 10	Shift solenoid valve stiff. ⇒ Step 9
9	Replace shift solenoid valve (S1)		Only replace if the wiring in the transmission was checked for chafing damage and found to be OK. → End	
10	Replace control module		See note on replacing control modules! → End	

2.) Troubleshooting only for fault type: 'Short circuit to ground'

Work instruction			Display OK	If not OK
1	Check for short circuit to ground with 'Tiptronic control module' plug disconnected and solenoid valve plug connected (existing transmission wiring):	♦ Switch off ignition ♦ Pull plug off Tiptronic control module ♦ Measure resistance between 'pin 41' and ground on Tiptronic control module plug.	13 ± 2 Ω (at 20°C) ⇒ Step 6	⇒ Step 2
2	Check for short circuit to ground with both 'Tiptronic control module' plug and solenoid valve plug disconnected (existing transmission wiring):	♦ Pull off solenoid valve plug (existing transmission wiring) ♦ Measure resistance between 'pin 41' and ground on Tiptronic control module plug.	∞ Ω ⇒ Step 3	Repair wiring harness to Tiptronic control module (existing transmission wiring). → End
3	Check for short circuit with both 'Tiptronic control module' plug and solenoid valve plug disconnected (existing transmission wiring):	♦ Measure resistance between 'pin A1' and pins 'A4, A6, A8, A10, A12, A14' on solenoid valve plug (existing transmission wiring).	∞ Ω ⇒ Step 4	Repair wiring harness to Tiptronic control module (existing transmission wiring). → End
4	Check wire in the transmission for short circuit to ground:	(Observe warning notes!) Remove ATF pan on the transmission (first drain fluid) Remove ATF filter, perform visual inspection of plug and wiring: ♦ Pull plug off the shift solenoid valve (S1). ♦ Measure resistance between disconnected plug (wiring side) and ground (transmission housing).	∞ Ω ⇒ Step 5	Replace wiring harness in the transmission. → End
5	Check directly at the valve for short circuit to ground in the shift solenoid valve (S1):	♦ Pull plug off the shift solenoid valve (S1). ♦ Measure resistance between plug on disconnected shift solenoid valve (S1) and ground (transmission housing).	13 ± 2 Ω (at 20°C) ⇒ Step 7	Shift solenoid valve stiff. ⇒ Step 8

Work instruction			Display OK	If not OK
6	Check mechanical functionality of shift solenoid valve (S1) using Tiptronic control module plug:	♦ Tiptronic control module plug disconnected and solenoid valve plug (existing transmission wiring) connected ♦ Using a suitable auxiliary cable that is fuse-protected in accordance with the power consumption of the shift solenoid valve, supply 'approx. 12 V battery voltage' to 'pin 41' of the Tiptronic control module plug for a short time. A distinct clicking sound should be heard immediately from the shift solenoid valve.	⇒ Step 9	Shift solenoid valve stiff. ⇒ Step 8
7	Check the mechanical functionality of the shift solenoid valve (S1) directly at the valve:	♦ Using a suitable auxiliary cable that is fuse-protected in accordance with the power consumption of the shift solenoid valve, supply 'approx. 12 V battery voltage' to the shift solenoid valve for a short time. A distinct click should be heard from the shift solenoid valve.	⇒ Step 9	Shift solenoid valve stiff. ⇒ Step 8
8	Replace shift solenoid valve (S1)		Only replace if the wiring in the transmission was checked for chafing damage and found to be OK. → End	
9	Replace control module		See note on replacing control modules! → End	