10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

Preparation for DTC Readout

⚠ **WARNING!**

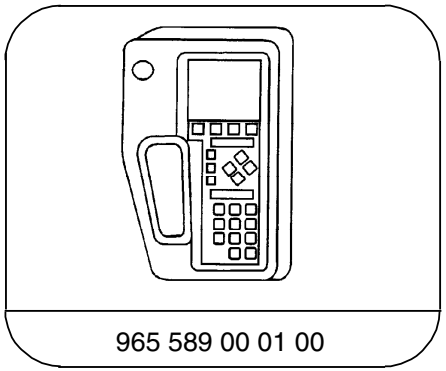
Life threatening injures possible due to vehicle slipping or toppling off while on lift.
Prior to lift vehicle completely (wheels still in contact with floor), ensure that the vehicle is centered within the lift columns and lift arm supports are correctly placed unto the vehicle contact points.

Control Module Adaption:

After the swap of the ESP/SPS/BAS or ESP/BAS control module (N47-5), it is important to perform the adaption procedure, since the control module must learn the values for the steering ratio. See HHT menu.
Additionally, after replacing either the ESP/SPS control module (N47-5) or the brake booster (A7/7), it is absolutely necessary to perform an adaption of the ESP/SPS control module (N47-5) as well.

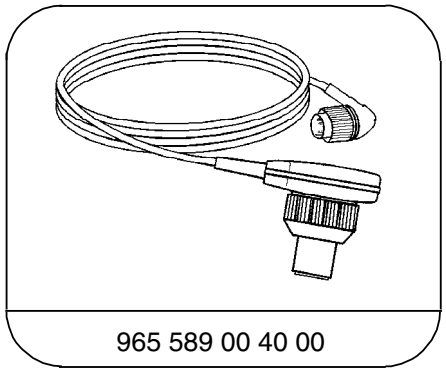
The ESP/SPS control module (N47-5) has to learn the values for the BAS solenoid valve (A7/7y1), see HHT menu.

Special Tools



965 589 00 01 00

Hand-Held-Tester



965 589 00 40 00

Test cable

1. Review: 11, 21, 22, 23 (connector connections).
2. Connect Hand-Held Tester (HHT) to data link connector (X11/4) according to connection diagram (see section 0) and read out DTC memory.
3. Ignition: **ON**

The BAS control module is integrated into the ESP control module.
Read out DTC memory for the BAS, ETS, ME and ETC systems.

The replacement or swap of the **ABS Lateral Acceleration sensor (B43)** and/or the **Rotating Speed Sensor for ESP (B45), requires** that a driving test is to be performed, see 11

10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

DTC		Possible cause	Test step/Remedy [1]
–		No fault in system	In case of complaint: 23 (entire test).
C 1000	ESP/BAS	ESP/BAS control module (N47-5) [2]	N47-5
C 1010	ESP/BAS	Battery voltage too low	23 ⇒ 1.0
C 1012	ESP/BAS	Battery voltage too high	23 ⇒ 1.0
C 1020	ESP	CAN communication overall faulty	Check version coding, 23 ⇒ 31.0
C 1022	ESP/BAS	CAN communication with engine control module (ME-SFI) (N3/10) interrupted.	Check version coding, Read out DTC's from (N3/10), 23 ⇒ 31.0
C 1024	ESP	CAN communication with transmission control module (N15/3) interrupted.	Read out DTC's from (N15/3).
C 1025	BAS	CAN communication with BAS control module (N47-5) interrupted [2].	N47-5
C 1030	ESP	CAN communication with transfer case control module (N78) interrupted.	Read out DTC's from (N78).
C 1032	ESP	CAN communication with instrument cluster (A1) interrupted.	Read-out DTC memory for instrument cluster (A1).

1) Observe Preparation for Test, see 22.

2) After the swap of the ESP/SPS/BAS or ESP/BAS control module (N47-5), it is important to perform the adaption procedure.

10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

DTC	Possible cause	Test step/Remedy [1]
C 1100 ESP	Left front axle VSS sensor (L6/1), open circuit Left front axle VSS sensor (L6/1), loose connection Left front axle VSS sensor (L6/1), implausible [2]	23 ⇒ 9.0
C 1101 ESP	Right front axle VSS sensor (L6/2), open circuit Right front axle VSS sensor (L6/2), loose connection Right front axle VSS sensor (L6/2), implausible [2]	23 ⇒ 10.0
C 1102 ESP	Left rear axle VSS sensor (L6/3), open circuit Left rear axle VSS sensor (L6/3), loose connection Left rear axle VSS sensor (L6/3), implausible [2]	23 ⇒ 11.0
C 1103 ESP	Right rear axle VSS sensor (L6/4), open circuit Right rear axle VSS sensor (L6/4), loose connection Right rear axle VSS sensor (L6/4), implausible [2]	23 ⇒ 12.0
C 1120 ESP	Rotationing speed sensor for ESP (B45), Wiring: Signal, open circuit/short circuit Wiring: Reference, open circuit/short circuit	23 ⇒ 28.0
C 1140 ESP	Steering angle sensor (N49), Initialization, open circuit/short circuit	Turn steering wheel from lock to lock stop, in order to perform intialization. 23 ⇒ 4.0
C 1141 ESP	ESP brake pressure sensor 1 (N34/1) or ESP brake pressure sensor 2 (N34/2) Open circuit/short circuit, implausible [2]	23 ⇒ 27.0

1) Observe Preparation for Test, see 22.

2) Rotor with incorrect tooth count, dirt accumulation on or damaged rotor, incorrect rear axle ratio, wrong wheel or tire size.
If DTC appears only after repair work, it was caused by applying the brakes or driving vehicle on a dynamometer, erase DTC.

10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

DTC	Possible cause	Test step/Remedy [1]
C 1142 ESP	ABS lateral acceleration sensor (B43) Open circuit/short circuit, voltage supply, implausible [2]	23 ⇒ 26.0
C 1200 ESP	Stop lamp switch (4-pole) (S9/1) Plausibility	23 ⇒ 6.0
C 1201 BAS	Release switch (BAS) (A7/7s1) Open circuit/short circuit	Readout HHT Actual values, Wiring, A7/7s1
C 1202 BAS	Release switch (BAS) (A7/7s1) Plausibility	Readout HHT Actual values, Wiring, A7/7s1
C 1203 BAS	Release switch (BAS) (A7/7s1) Redundency	Readout HHT Actual values, Wiring, A7/7s1
C 1204 BAS	Membrane travel sensor (BAS) (A7/7b1) Open circuit/short circuit	Readout HHT Actual values, 23 ⇒ 29.0
C 1205 BAS	Membrane travel sensor (BAS) (A7/7b1) Plausibility	Readout HHT Actual values, 23 ⇒ 29.0
C 1206 BAS	Membrane travel sensor (BAS) (A7/7b1) Membrane speed	Readout HHT Actual values, 23 ⇒ 29.0

1) Observe Preparation for Test, see 22.

2) Rotor with incorrect tooth count, dirt accumulation on or damaged rotor, incorrect rear axle ratio, wrong wheel or tire size.
If DTC appears only after repair work, it was caused by applying the brakes or driving vehicle on a dynamometer, erase DTC.

10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

DTC	Possible cause	Test step/Remedy [1]
C1207 BAS	Stop lamp switch (4-pole) (S9/1) Plausibility	23 ⇒ 6.0
C1210 ESP	Brake fluid level switch (S11) open/short circuit	Readout HHT Actual values
C1300 ESP	Left front axle solenoid valve (hold) (A7/3y6), short/open circuit	23 ⇒ 14.0
C1301 ESP	Left front axle solenoid valve (release) (A7/3y7), short/open circuit	23 ⇒ 15.0
C1302 ESP	Right front axle solenoid valve (hold) (A7/3y8), short/open circuit	23 ⇒ 16.0
C1303 ESP	Right front axle solenoid valve (release) (A7/3y9), short/open circuit	23 ⇒ 17.0
C1304 ESP	Left rear axle solenoid valve (hold) (A7/3y10), short/open circuit	23 ⇒ 18.0
C1305 ESP	Left rear axle solenoid valve (release) (A7/3y11), short/open circuit	23 ⇒ 19.0
C1306 ESP	Right rear axle solenoid valve (hold) (A7/3y12), short/open circuit	23 ⇒ 20.0
C1307 ESP	Right rear axle solenoid valve (release) (A7/3y13), short/open circuit	23 ⇒ 21.0

[1] Observe Preparation for Test, see 22.

10.4 Electronic Stability Program (ESP)

Diagnosis - Diagnostic Trouble Code (DTC) Memory

DTC	Possible cause	Test step/Remedy [1]
C 1314 ESP	Solenoid valves, voltage supply, open or short circuit of wiring	23 ⇒ 1.0, 13.0
C 1316 ESP	Pressure circuit 1 switchover solenoid valve (A7/3y24), open/short circuit	23 ⇒ 24.0
C 1317 ESP	Pressure circuit 1 vacuum solenoid valve (A7/3y26), open/short circuit	23 ⇒ 22.0
C 1318 ESP	Pressure circuit 2 switchover solenoid valve (A7/3y25), open/short circuit	23 ⇒ 25.0
C 1319 ESP	Pressure circuit 2 vacuum solenoid valve (A7/3y27), open/short circuit	23 ⇒ 23.0
C 1332 BAS	Solenoid valve (BAS) (A7/7y1) [2], open/short circuit	23 ⇒ 30.0
C 1401	High pressure return pump (A7/3m1) short/open circuit, will not shut off, or shuts off too soon.	23 ⇒ 3.0
C 1511 BAS	BAS version coding improper.	Perform version coding using HHT.
C 1512 ESP	Brakes overheated	Brakes were momentarily overloaded, erase DTC.
C 1528 ESP	ESP stop lamp suppression (F1k6) [2]	23 ⇒ 5.0
C 1529 ESP	Pressurization of system via solenoid valve (A7/7y1) for BAS not possible [2].	Readout DTC for BAS control module, 23 ⇒ 30.0

1) Observe Preparation for Test, see 2.

2) After the swap of the ESP stop lamp suppression (F1k6) or solenoid valve (A7/7y1), it is important to perform the ESP/SPS/BAS or ESP/BAS control module (N47-5) adaption procedure.