

10.4 Electronic Stability Program (ESP)

Diagnosis – Complaint Related Diagnostic Chart

 **WARNING!**

Life threatening injuries 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 onto the vehicle contact points.

Preparation for Test


1. Review: 11, 21, 22, 23

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
ESP warning lamp (A1e41) illuminates when ignition switch is turned ON.	ESP OFF switch (S76/6) has been turned to: ESP OFF position.	Turn ESP OFF switch (S76/6) back to position: ON
ESP warning lamp (A1e41) blinks briefly while driving.	ESP action has taken place in order to stabilize vehicle (no DTC stored). Check implausibility of VSS	Read out DTC's for ESP control module using HHT, See 12
BAS/ESP MIL (A1e47) and/or ETS MIL (A1e35) and/or ABS MIL (A1e17) illuminates while driving and then goes out.	Vehicle system voltage < 11 V, too many electrical consumers in use, or Steering angle sensor (N49) was temporarily not initialized.	Check generator (G2), Read out DTC's for ESP control module, using HHT, See 12
ABS MIL (A1e17) and ETS MIL (A1e35) and BAS/ESP MIL (A1e47) illuminate with engine running after brake test or dynamometer use.	Nonplausible rpm signal due to different rpm at front and rear axles.	Read out DTC's for ESP control module, erase DTC's using HHT. See 12

¹⁾ Observe Preparation for Test, see 22.

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Diagnosis – Complaint Related Diagnostic Chart

Complaint/Problem	Possible cause	Test step/Remedy ¹⁾
BAS/ESP MIL (A1e47) or ETS MIL (A1e35) or ABS MIL (A1e17) or Low brake fluid level/parking brake/brake-force proportioning indicator lamp (A1e17) do not illuminate with ignition switch turned: ON	Indicator lamps, Instrument cluster (A1)  With CAN communication interruptions between the instrument cluster (A1) and the ESP/BAS control module (N47-5A), the BAS/ESP MIL (A1e47) will be illuminated.	Read out DTC's for instrument cluster (A1), Readout DTC's for ESP control module, See 12
BAS/ESP MIL (A1e47) and/or ETS MIL (A1e35) and/or ABS MIL (A1e17) and/or Low brake fluid level/parking brake/brake-force proportioning indicator lamp (A1e7) will illuminate when the engine is running and will not go out.		Read out DTC's for ESP control module. See 12

¹⁾ Observe Preparation for Test, see 22.

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Important CAN data outputs FROM the ESP control module (N47-5)

CAN signal	Information
ABS/ETS/ESP status	<ul style="list-style-type: none">Increase or reduction of specified engine torque
ABS/ETS/ESP status	<ul style="list-style-type: none">Transmission shift requirements
ABS/ETS/ESP status	<ul style="list-style-type: none">Activation of MIL and warning lamps:<ul style="list-style-type: none">Brake lining wear indicator lamp (A1e6)Low brake fluid level/parking brake/brake-force proportioning indicator lamp (A1e7)ABS MIL (A1e17)ETS MIL (A1e35)ESP warning lamp (A1e41)BAS/ESP MIL (A1e47)
ABS/ETS/ESP status	<ul style="list-style-type: none">Stop lamp switch (S9/1):<ul style="list-style-type: none">Brake not operatedBrake operatedNo signal
ABS/ETS/ESP status	<ul style="list-style-type: none">Cruise control function OFF

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Important CAN data outputs *FROM* the ESP control module (N47-5) (continued)

CAN signal	Information
Left front wheel vehicle speed signal (VSS)	Wheel speed
Right front wheel vehicle speed signal (VSS)	Wheel speed
Rear left wheel vehicle speed signal (VSS)	Wheel speed
Rear right wheel vehicle speed signal (VSS)	Wheel speed
Left front wheel speed signal for CC	Wheel speed
Right front wheel speed signal for CC	Wheel speed

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Important data TO the ESP control module (N47-5) via CAN

CAN signal	Information	From control module
Engine status	<ul style="list-style-type: none"> Pedal value 	<ul style="list-style-type: none"> Engine control module
Vehicle code	<ul style="list-style-type: none"> Model Version code Engine Transmission 	<ul style="list-style-type: none"> Engine control module
Engine status	<ul style="list-style-type: none"> Engine rpm 	<ul style="list-style-type: none"> Engine control module
Engine status	<ul style="list-style-type: none"> Indicated engine torque 	<ul style="list-style-type: none"> Engine control module
Engine status	<ul style="list-style-type: none"> Maximum and minimum engine torque for current operational point 	<ul style="list-style-type: none"> Engine control module
Engine status	<ul style="list-style-type: none"> Engine friction torque 	<ul style="list-style-type: none"> Engine control module
Engine status	<ul style="list-style-type: none"> Engine torque as specified by driver 	<ul style="list-style-type: none"> Engine control module
Transmission status	<ul style="list-style-type: none"> Transfer case control module off-road/highway gear 	<ul style="list-style-type: none"> Electronic transmission control
Transmission status	<ul style="list-style-type: none"> Torque converter status 	<ul style="list-style-type: none"> Electronic transmission control
Transmission status	<ul style="list-style-type: none"> Current transmission shift stage 	<ul style="list-style-type: none"> Electronic transmission control