

ABS Test Procedure

1. Be sure that the ignition is OFF.
2. Find the ABS ECU in the trunk, behind the left trim panel, over the wheel well.
3. Locate the PM4 diagnostic connector in the rear wheel arch, close to the ABS ECU.
4. Insert a short reference lead across the black wire (ground) and the brown/pink wire.
5. Turn ignition ON (position 2) and observe the warning lamp.
6. After six seconds the blink sequence of the first code begins. (One digit, one second pause, second digit.)
7. Count the blink pulses and write down the resulting two-digit number. After a 6.5 seconds pause, the next code begins, if there is one, and so on, until all the failure codes are read out and warning light remains off.
8. Remove the short lead and switch the ignition OFF.
9. Refer to the following charts to identify faults.

HIGH PRIORITY FAILURES

FAIL CODE	1ST DIGIT	FAILURE MODE	FAILURE CAUSES	REPAIR INSTRUCTIONS (See Note 1)	2ND DIGIT	FAILURE LOCATION
11	1	Redundancy failure	Disturbed/ defective redundancy channel	Check if disturbance affects ABS system. Check prop cable harness installation	1	-
12	1	Internal ECM failure	Defective ECM	Renew ECM	2	-
21	2	Valve failure	Defective valve/cable harness/power transistor in ECM	Check Indicated solenoid valve/ terminals for short or interruption (21-27)	1	Main valve
22	2	"	"	"	2	Inlet valve front left
23	2	"	"	"	3	Outlet valve front left
24	2	"	"	"	4	Inlet valve front right
25	2	"	"	"	5	Outlet valve front right
26	2	"	"	"	6	Inlet valve rear
27	2	"	"	"	7	Outlet valve rear

- Notes:**
1. If indicated repair instructions do not help, renew the ECM.
 2. If the warning lamp stays on continuously without any failure code being displayed, the failure is probably in the ECM. Check the electric power supply FIRST, then renew the ECM.

31	3	Sensor failure recognised by 'Trigger Monitoring'	Interrupted/ shorted sensor coil/ sensor cable, open connector defective trigger circuit	Check indicated sensor/wire terminals for short circuit or interruption (31-34)	1	Sensor front left
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HIGH PRIORITY FAILURES

FAIL CODE	1ST DIGIT	FAILURE MODE	FAILURE CAUSES	REPAIR INSTRUCTIONS (See Note 1)	2ND DIGIT	FAILURE LOCATION
32		"	"	"	2	Sensor front right
33	3	"	"	"	3	Sensor rear right
34	3	"	"	"	4	Sensor rear left
35	3	Sensor failure recognised by 'Monitoring of Wheel Speed Continuity' at vehicle speed ABOVE 40 km/hr (25 mph)	Intermittently interrupted/shorted sensor coil/cable. Damaged teeth on wheel too sensor large bearing clearance/wrong air gap.	Check indicated sensor/wire terminals for short circuit or interruption (35-38). Check tooth wheel regularity sensor air gap and bearing clearance See Note 3	5	Sensor front left
36	3	"	"	"	6	Sensor front right
37	3	"	"	"	7	Sensor rear right
38	3	"	"	"	8	Sensor rear left
41	4	Sensor failure recognised by 'Wheel Speed Comparison'	Missing sensor signal (sensor not inserted), too large air gap, tooth wheel not installed	Check air gap/tooth wheel	1	Sensor front left
42	4	"	"	"	2	Sensor front right
43	4	"	"	"	3	Sensor rear right
44	4	"	"	"	4	Sensor rear left

- Notes:**
1. If indicated repair instructions do not help, renew the ECM.
 2. If the warning lamp stays on continuously without any failure code being displayed, the failure is probably in the ECM.
Check the electric power supply FIRST, then renew the ECM.
 3. If repair instructions for display codes 35-38 do not help, proceed with repair instruction 75-78, and vice versa.

HIGH PRIORITY FAILURES

FAIL CODE	1ST DIGIT	FAILURE MODE	FAILURE CAUSES	REPAIR INSTRUCTIONS (See Note 1)	2ND DIGIT	FAILURE LOCATION
51	5	'Pressure reduction and Wheel Response monitoring' at vehicle speed ABOVE 40 km/hr (25 mph)	Hydraulically non-operational outlet valve	Check indicated outlet valve hydraulically - See Note 3	1	Outlet valve front left
52	5	"	"	"	2	Outlet valve front right
53	5	"	"	"	3	Outlet valve rear (Same as 54)
54	5	"	"	"	4	Outlet valve rear (Same as 53)
55	5	'Long Term Monitoring of Control Duration'	Long term detection of missing sensor signal (sensor loose), too large air gap	Check indicated sensor, air gap and tooth wheel (55-58)	5	Sensor front left
56	5	"	"	"	6	Sensor front right
57	5	"	"	"	7	Sensor rear right
58	5	"	"	"	8	Sensor rear left
61	6	Warning switch input cannot be processed	Short circuit/leakage current from battery to warning switch path	Check reservoir, pressure warning switches and related wires for short circuit and leakage current	1	-

- Notes:**
1. If indicated repair instructions do not help, renew the ECM.
 2. If the warning lamp stays on continuously without any failure code being displayed, the failure is probably in the ECM.
Check the electric power supply FIRST, then renew the ECM.
 3. If repair instructions for display codes 51-54 do not help, proceed with repair instruction 71-74, and vice versa.

LOW PRIORITY FAILURES (SEE NOTE 5)

FAIL CODE	1ST DIGIT	FAILURE MODE	FAILURE CAUSES	REPAIR INSTRUCTIONS (See Note 1)	2ND DIGIT	FAILURE LOCATION
71	7	'Pressure Reduction and Wheel Response Monitoring' at vehicle speed BELOW 40 km/hr (25 mph)	Long term detection of RFI	Check Indicated ground lead and ECM EMC for proper grounding (71-74) See Note 3	1	Sensor front left
72	7	"	"	"	2	Sensor front right
73	7	"	"	"	3	Sensor rear right
74	7	"	"	"	4	Sensor rear left
75	7	Sensor failure recognised by 'Monitoring of Wheel Speed Continuity' at vehicle speed BELOW 40 km/hr (25 mph)	Disturbances caused by RFI or Ignition, excessive axle vibration, too large bearing clearance/too small air gap	Check Indicated sensor ground lead/ECM for proper grounding Check for axle vibration, loose sensor mounting, correct bearing clearance/air gap (75-78) See Note 4	5	Sensor front left
76	7	"	"	"	6	Sensor front right
77	7	"	"	"	7	Sensor rear right
78	7	"	"	"	8	Sensor rear left

- Notes:**
1. If indicated repair instructions do not help, renew the ECM.
 2. If the warning lamp stays on continuously without any failure code being displayed, the failure is probably in the ECM.
Check the electric power supply **FIRST**, then renew the ECM.
 3. If repair instructions for display codes 71-74 do not help, proceed with repair instruction 51-54, and vice versa.
 4. If repair instructions for display codes 75-78 do not help, proceed with repair instruction 35-38, and vice versa.
 5. Failures with display codes 71-78 are 'Low priority failures' which cause only temporary and partial control inhibit.
These failures will be stored in the memory, even though they may not be noticed by the vehicle driver.