

Diagnostics

Blink Code Diagnostics:

Mode 1 - Simple Mode Diagnostics Faults Table (ON, OFF, ON):

ITEM	FLASH COUNT	ACTUAL FAULT
System OK	Lamp Stays On	07
Sensor 1A	1 Flash	01
Sensor 1B	2 Flashes	02
Sensor 2A	3 Flashes	03
Sensor 2B	4 Flashes	04
Sensor 3A	5 Flashes	05
Sensor 3B	6 Flashes	06
Red Valve	7 Flashes	61, 67, 71, 77, 81, 87
Blue Valve	8 Flashes	62, 68, 72, 78, 82, 88
Yellow Valve	9 Flashes	63, 69, 73, 79, 83, 89
Low Voltage	10 Flashes	90
ECU Failure	11 Flashes	93, 99, E-Codes

Note: If the simple mode does not show a fault code, but the ABS lamp remains “ON” after powering the ABS, there maybe dynamic faults stored in the memory. In this case, proceed to the stored fault mode of diagnostics.

Wheel Speed Mode:

Wheel Speed Mode is accessible **only** when in Simple Mode. This Mode is not activated until the ECU has received a signal from the wheel speed sensor of a spinning wheel. The hold solenoid of the modulator associated with the particular sensed spinning wheel will be cycled. The blink codes for the sensed wheels are as follows:

S1A: 1 Flash **S1B:** 2 Flashes **S2A:** 3 Flashes
S2B: 4 Flashes **S3A:** 5 Flashes **S3B:** 6 Flashes

Note 1: Spin only one wheel at a time.

Note 2: Once a wheel is rotated, the ABS lamp will remain on after the wheel is stopped, until the next wheel is rotated.

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Mode 2 - Active Fault Mode (ON, OFF, ON, OFF, ON):

When the Active Fault Mode is enabled (see page 63), the ABS lamp displays a numerical fault code sequence for each existing fault, up to nine fault codes at a time. The nine faults must be repaired before additional active faults can be displayed. The blink codes used in the Active Fault Mode are related to the Haldex standard fault codes and are shown on pages 67 - 71.

Mode 3 - Stored (Passive) Faults Mode (ON, OFF, ON, OFF, ON, OFF, ON):

In this mode (see page 63) the ABS lamp displays a numerical fault code sequence for each stored fault. All stored faults (not currently active) are displayed in this mode. The lamp will display up to nine passive stored faults at a time. The most recent stored fault is displayed last. The blink codes used in the Passive Stored Fault Mode are related to the Haldex standard fault codes and are shown on pages 67 - 71.

Clearing Stored Codes:

The passive stored fault codes may be cleared by switching ignition power off and on twice during the 10 seconds of lamp energization that occurs prior to each repeat of the fault code blink sequence. The lamp will flash rapidly for 10 seconds to show that the faults are being erased.

Active / Stored Mode Fault Occurrences:

The fault code blink sequence is followed by the occurrence count for that fault in either the Active or Passive Mode. The occurrence count is displayed at a much faster rate in order to differentiate between the code and its occurrence count.

Active / Stored Fault Mode Notes:

1. A "zero" for codes such as "01" is indicated by a two second lamp "ON" condition. All other digits are indicated by a half second lamp "ON" condition.
Example: Fault code "23" is indicated by the lamp flashing ON twice for one half second each time - followed by two seconds of lamp unlit - followed by three 1/2 second flashes. The third flash is the occurrence count and as 1/4 second flashes.
2. There is a two second lamp "OFF" delay between the digits in each code.
3. Code 07 (system OK, vehicle at rest) is displayed as a continuous Lamp "ON" condition.

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Mode 4 - Configuration Mode (ON, OFF, ON, OFF, ON, OFF, ON, OFF, ON):

This Mode displays Configuration and Auxiliary Codes. The Configuration Code is displayed prior to Auxiliary Codes. The tables below show a list of Configuration Codes and a list of Auxiliary Codes which are supported by Blink Codes. Auxiliary Codes are displayed low to high. Each blink code digit will refer to a digit in the Haldex configuration codes.

Clear Configuration Mode:

The configuration codes may be cleared by switching ignition power off and on twice during the 10 seconds of lamp energization that occurs prior to each repeat of the fault code blink sequence. The lamp will flash rapidly for 10 seconds to indicate that the configuration has been erased from the ECU's memory. The ECU will then store its full configuration on the next power up.

Config Code	Blinks	Function	Axle Lifted	Sensor Used	Modulators Used
C0	1	2S/1M		S1A S1B	RED
C1	2	2S/2M		S2A S2B	BLUE, YELLOW
C2	3	4S/2M		S3A S2A S2B S3B	BLUE, YELLOW
C3	4	4S/2M	2 or 3	(S3A) S2A S2B (S3B)	BLUE, YELLOW

Aux Code	Blinks	Description
A0	1	Not Applicable
A1	2	Not Applicable
A2	3	Not Applicable
A3	4	Not Applicable
A4	5	No load sense valve - momentarily displayed when power is applied.
A5	6	Not Applicable
A6	7	Not Applicable
A7	8	SLH programming for yellow valve channel (red valve is 2S/1M)
A8	9	MSLH programming for yellow valve channel (red valve is 2S/1M)

Diagnostic Codes:

CODE:	EXPLANATION:	SOLUTION:	PLC Select	PLC	PLC PLUS
00	No Fault found - wheel speed is over 6 mph	ABS is operational	X	X	X
01	Red channel wheel speed sensor wiring S1A has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.	X	X	X
02	Red channel wheel speed sensor wiring S1B has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.	X	X	X
03	Blue channel wheel speed sensor wiring S2A has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.		X	X
04	Yellow channel wheel speed sensor wiring S2B has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.		X	X
05	Blue channel wheel speed sensor wiring S3A has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.		X	X
06	Yellow channel wheel speed sensor wiring S3B has an Open or Short circuit.	Check cable connections then replace cable or sensor as necessary.		X	X
07	NO FAULT FOUND.	ABS ECU is fully operational. Displays: "07"< 6 mph.	X	X	X
11	Red channel speed sensor S1A gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.	X	X	X
12	Red channel speed sensor S1B gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.	X	X	X
13	Blue channel speed sensor S2A gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.		X	X
14	Yellow channel speed sensor S2B gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.		X	X
15	Blue channel speed sensor S3A gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.		X	X
16	Yellow channel speed sensor S3B gap too large. Gap should be kept to a minimum.	Check gap & alignment between sensor and exciter ring. Sensor may be defective.		X	X
20	Incorrect exciter (tone) ring used.	Check number of teeth on exciter ring. Number of teeth should be uniform for all wheel ends.	X	X	X

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Diagnostic Codes:

CODE:	EXPLANATION:	SOLUTION:	PLC Select	PLC	PLC PLUS
21	Red channel wheel speed sensor S1A has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.	X	X	X
22	Red channel wheel speed sensor S1B has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.	X	X	X
23	Blue channel wheel speed sensor S2A has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.		X	X
24	Yellow channel wheel speed sensor S2B has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.		X	X
25	Blue channel wheel speed sensor S3A has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.		X	X
26	Yellow channel wheel speed sensor S3B has an erratic output voltage.	Check cable connections; sensor/exciter ring misaligned, damaged sensor cable, sensor, exciter, or wheel bearing.		X	X
30	Auxiliary channel 0 fault (digital channel 0) I/O	Check digital cable connections, auxiliary box relay failure			X
31	Auxiliary channel 1 fault (digital channel 1) I/O	Check digital cable connections, auxiliary box relay failure			X
32	Auxiliary channel 2 fault (digital channel 2) I/O	Check digital cable connections, auxiliary box relay failure			X
33	Auxiliary channel 3 fault (digital channel 3) Input only	Check digital cable connections, auxiliary box relay failure			X
34	Auxiliary channel 4 fault (analog channel 1) Input only	Check analog cable connections			X
35	Auxiliary channel 5 fault (analog channel 2) Input only	Check analog cable connections			X
37	Lamp signaled by external device		X	X	X
40	Sensor wiring crossed across an axle	Check sensor cable connections.	X	X	X