Troubleshooting Bendix® ESP® Stability System

Active Diagnostic Trouble Code Mode

For troubleshooting, typically the Active and Inactive Diagnostic Trouble Removal Modes are used. The technician presses the blink code switch once and the ABS indicator lamp flashes a first group of two codes, and if there are more trouble codes recorded, it is followed by a second set of codes, etc. (See this page for a brief directory of these codes.)

Clearing Diagnostic Trouble Codes

To clear active diagnostic trouble codes (as problems are fixed), simply clear (or "self-heal") by removing and reapplying ignition power. The only exception is for wheel speed sensor trouble codes, which clear when power is removed, re-applied, and the ECU detects valid wheel speed sensors from all wheel speed sensors. Alternatively, codes may be cleared by pressing the diagnostic trouble code switch three times (to enter the Clear Active Diagnostic Trouble Code Mode) or by using a hand-held or PC-based diagnostic tool. Hand-held or PC-based diagnostic tools are able to clear wheel speed sensor trouble codes without the vehicle being driven.

Clearing Inactive Diagnostic Trouble Codes

To clear inactive diagnostic trouble codes, event history, may be removed and cleared by using a hand-held or PC-based diagnostic tool, such as the Bendix® Acti-M® diagnostic software.

Clearing Active Diagnostic Trouble Codes

The ECU will clear active trouble codes when the diagnostic blink code switch is depressed and released three times.
Troubleshooting Bendix® ESP® Stability System

Typical Tractor System Schematic with ESP® Stability

Typical Truck System Schematic with ESP® Stability

Troubleshooting: PC-based Troubleshooting, Blink Codes and Diagnostic Tools & Modes

The information presented here is condensed from the troubleshooting section of the Bendix® EC-60™ Advanced ABS Controller Service Data Sheet. ED-13-4939 available for download on www.bendix.com. Whenever possible, use a PC-based diagnostic tool, such as the Bendix® ACOn™ Software (free download from www.bendix.com). The Bendix® ACOn™ Software uses on-screen troubleshooting steps to help correct any DTCs. The Bendix® ACOn™ Software may also be ordered on CD from the Literature Center at www.bendix.com.

ECU DIAGNOSTICS

The EC-60™ controller contains self-testing diagnostic circuitry that continually checks for the normal operation of internal components and circuits, as well as external ABS components and wiring.

Active Diagnostic Trouble Codes (DTCs)

When an active system condition is detected, the EC-60™ controller:

1. refrigerates the appropriate indicator lamp(s) and displays text;
2. logs the appropriate trouble code(s) in the ECU memory;
3. communicates the appropriate trouble code information over the serial communications diagnosis link as required. Handheld or PC-based diagnostic tools attach to the vehicle diagnostic connector, typically located on or under the dash.

Diagnosis

The EC-60™ controller contains self-testing diagnostic circuitry that continuously checks for the normal operation of internal components by displaying sequences of blinks. The ECU responds with a sequence of blink codes. The overall blink code response from the ECU is called a "message." Each message includes, depending on the module selected by the technician, a sequence of one or more groups of blinks. Simply record the number of blinks for each sequence and then use the fault troubleshooting guides shown here or full troubleshooting information in the Service Data sheet, for active or inactive trouble codes.

Blink Code Timing

1. Sequences of blinks illuminate the ABS indicator lamp for half a second, with half-second pauses between them.
2. Pauses between blink code digits are 2.5 seconds.
3. Pauses between blink code messages are 0.1 seconds, but less than 5 seconds. (If the switch is held for more than 5 seconds, the lamp remains on for 5 seconds at the end of the messages.
4. The lamp remains on for 5 seconds at the end of the messages.

Blind Code Switch Activation

When activating the blink code switch:

1. Wait at least two seconds after "ignition on." (Except when entering Reconfiguration Mode — see Service Data sheet)
2. For the ECU to recognize that the switch is activated, it must press for at least 1.5 seconds, but less than 5 seconds. (If the hold is held for more than 5 seconds, the ECU will register a malfunctioning switch.
3. Pauses between pressing the switch when a sequence is required, (e.g. when changing mode) must not be longer than 2 seconds.
4. After pauses of 1.5 seconds, the ECU will begin responding with output information.

Troubleshooting: PC-based Troubleshooting, Blink Codes and Diagnostic Tools & Modes

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When using our PC-based Bendix ACom™ Software, follow the on-screen troubleshooting steps to correct any DTCs. A handheld tool such as the Bendix Remote Diagnostic Unit (RDU) provides direct access to the DTCs without the need to use blink codes.