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Document ID: IK0400056

Availability: ISIS, Bus ISIS, FleetISIS, IsSIR

Revision: 5

Major System: BRAKES

Created: 1/9/2009

Current Language: English

Last Modified: 2/5/2018

Other Languages: [Français](#), [Español](#),

Author: James Santos

Viewed: 10625

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Coding Information

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Title: 07 and Newer Brake Light Operation on HPV with Full Power Brakes

Applies To: HPV Brake Light Full Power Brakes

Change Log

Please refer to the change log text box below for recent changes to this article:

02/02/2018 - Added information to correct 597-2 setting during retarder operation.
07/21/2016 - Added Change Log. Added ISB specific information under Symptoms for 597-2 and Cruise Control issues with Retarder use.

Description

The Full Power brake system has a unique operation for the brake switch. The ABS ECU receives an input from the brake switch and then provides a signal to the Body Controller for brake light operation.

Symptoms

Diagnostic Trouble Code(s) & Dashboard Indicator Light(s):

SPN	FMI	MODULE	DESCRIPTION
597	0	Body Controller	Brake Switch reading above normal range
597	1	Body Controller	Brake Switch reading below normal range
597	2	Body Controller	Brake Switch inputs do not match *See note Below
597	7	Body Controller	Brake Switch stuck open or closed

- Brake lights stay on
- Brake lights not working

NOTE:

It has been identified that using a retarder on ISB equipped vehicles may cause a 597-2 fault code, and kick out the cruise control. A technical service case file will be required to resolve the issue.

Corrective Action for ISB powered vehicles setting 597-2 during retarder use	
DLB Feature to Remove	DLB Feature to Apply
0595AAD	0595BYT
These features are NOT dealer programmable	

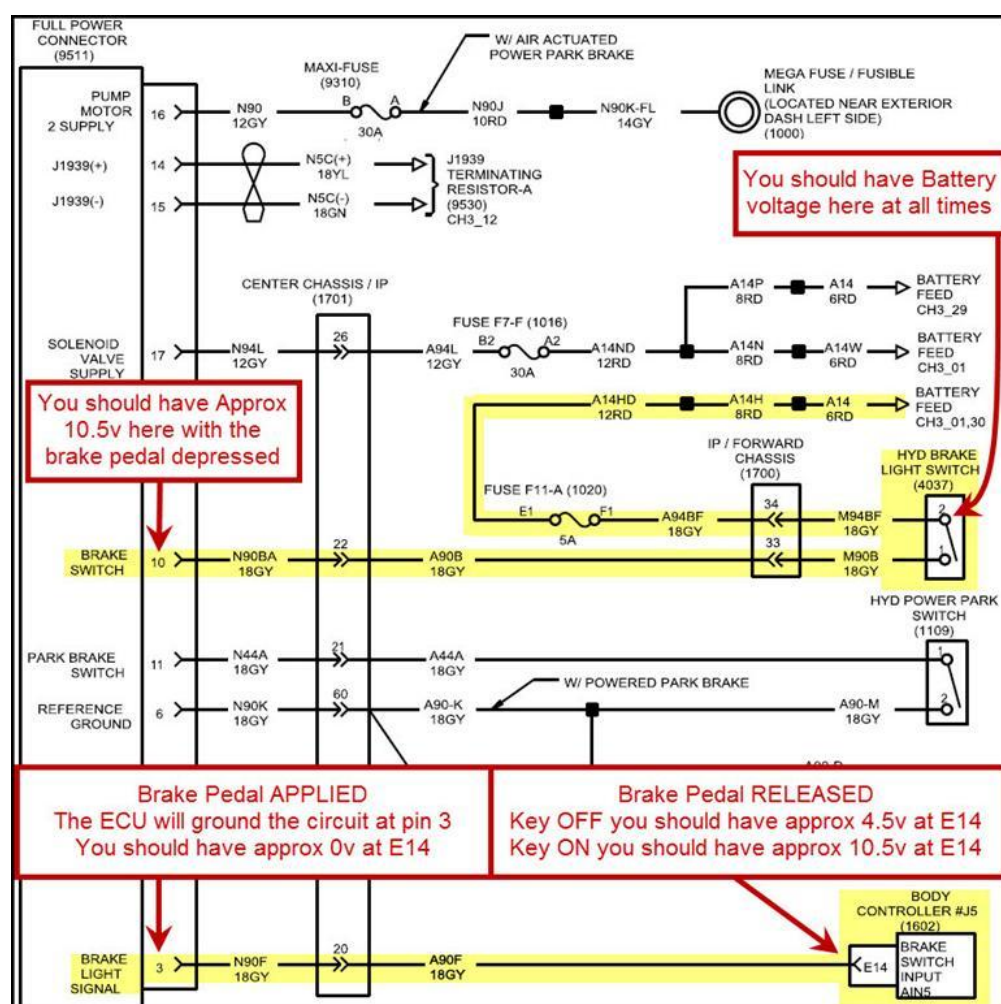
Troubleshooting

All voltage checks should be made with the connectors plugged in properly. Voltages will change when connectors are unplugged, resulting in incorrect values being recorded. Always use proper troubleshooting techniques, such as a Breakout T. Do not pierce the wiring to make voltage checks.

1. Check at Brake Switch connector 4037 Pin 2 for 12 volts. (Fused battery voltage).
2. When brakes applied check at Brake Switch 4037 Pin 1 for approx 10.5 volts. (If voltage is lower than 10 volts then replace brake switch).
3. When brakes applied check at Full Power ECU connector 9511 Pin 10 for approx 10.5 volts. (Voltage should match signal at Pin 1 of the Brake Switch)
4. When the brake pedal is not applied check the Body Controller connector 1602-E14 for 10 volts with the key on. There will be approx 4.5 volts when the key is off. (If voltage missing make sure accessory, ignition and main power circuit to body controller are good, also check circuit N90F/A90F for short to ground).
5. When brakes applied check the Body Controller connector 1602-E14 for close to 0 volts (If voltage is 2 volts or higher check circuit N90F/A90F for short to power)

NOTE:

If the 9511 Connector is unplugged from the ABS ECU and the brake switch is still powered and plugged in, the signal wire from the brake switch to 9511-10 will have 12 volts on it. This is due to the type of brake switch being used, and the ECU providing circuit fault detection.



Signals to Watch

Use Diamond Logic Builder to make a session from the feature installed for the Full Power Brake System. For assistance in making a session from a feature in DLB, please follow [IK2600008 - How to Diagnose Electrical Problems with Diamond Logic Builder](https://www.diamondlogic.com/forums/showthread.php?p=1000008)

- 0595ALR - BC PROG, HYDRAULIC BRAKE SPLIT for Full Power System (Used in the screen shots)
- With Key ON verify check marks for IGN and ACC power
- Check for any fault codes follow [IK2600036 - Retrieving Fault Codes with DLB](#) for assistance with this
- Brake_Analog_Switch_Raw_Signal should change with brake application

Corrective action for ISB powered vehicles setting 597-2 during retarder use			
Remove DLB Feature		Apply DLB Feature	
SIGNAL	VALUE	KEY	BRAKE PEDAL
Brake_Analog_Switch_Raw_Signal	2.3167v	ON	RELEASED
Brake_Analog_Switch_Raw_Signal	0.0048876v	ON	APPLIED
Brake_Analog_Switch_Raw_Signal	0.86999v	OFF	RELEASED
Brake_Analog_Switch_Raw_Signal	0.01955v	OFF	APPLIED

NOTE:

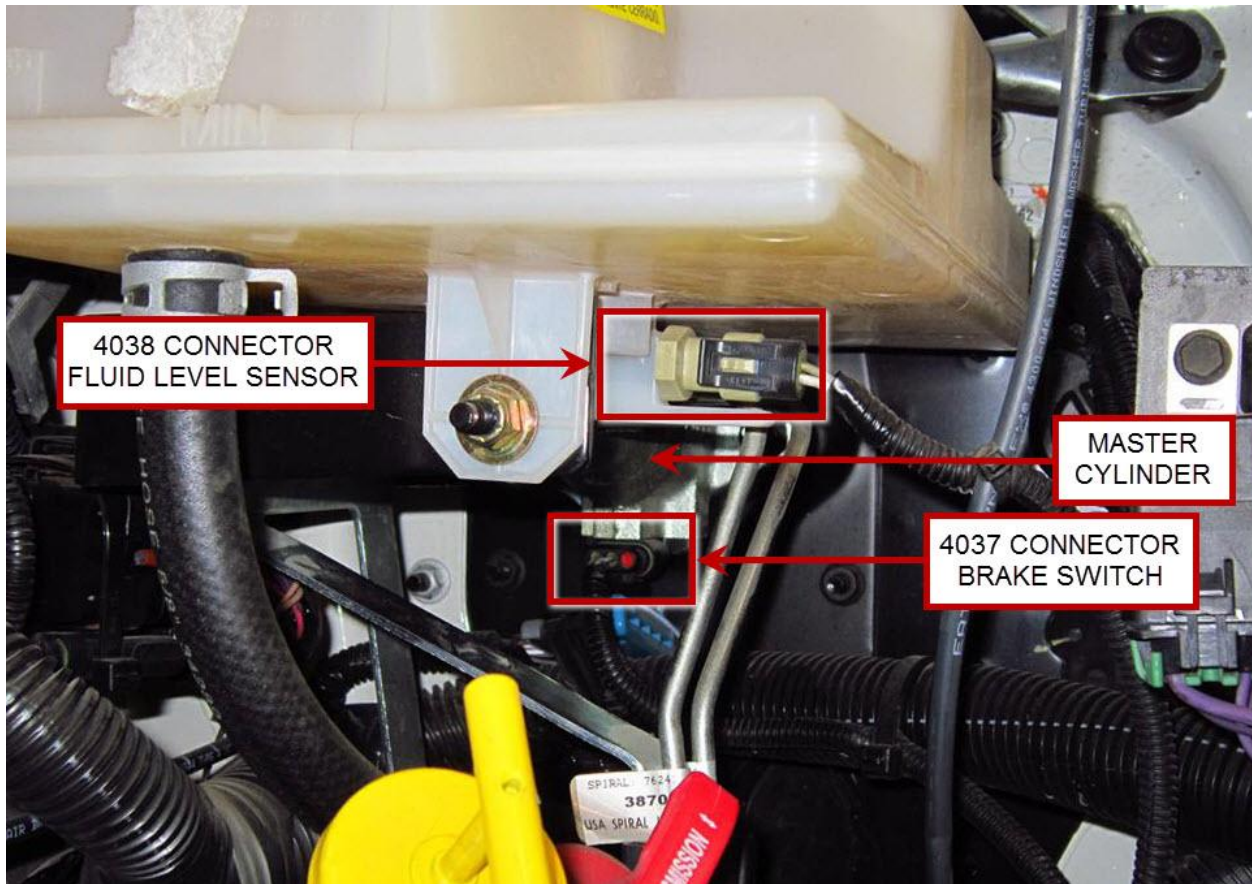
The values in the table above were measured on a working truck with DLB. The screen shot below is one example. The value shown in DLB will not match the voltage you measure with the breakout box. The Body Controller uses resistors internally to measure volt drop. That is why the value shown in the session does not match the physical value measured on the wire.

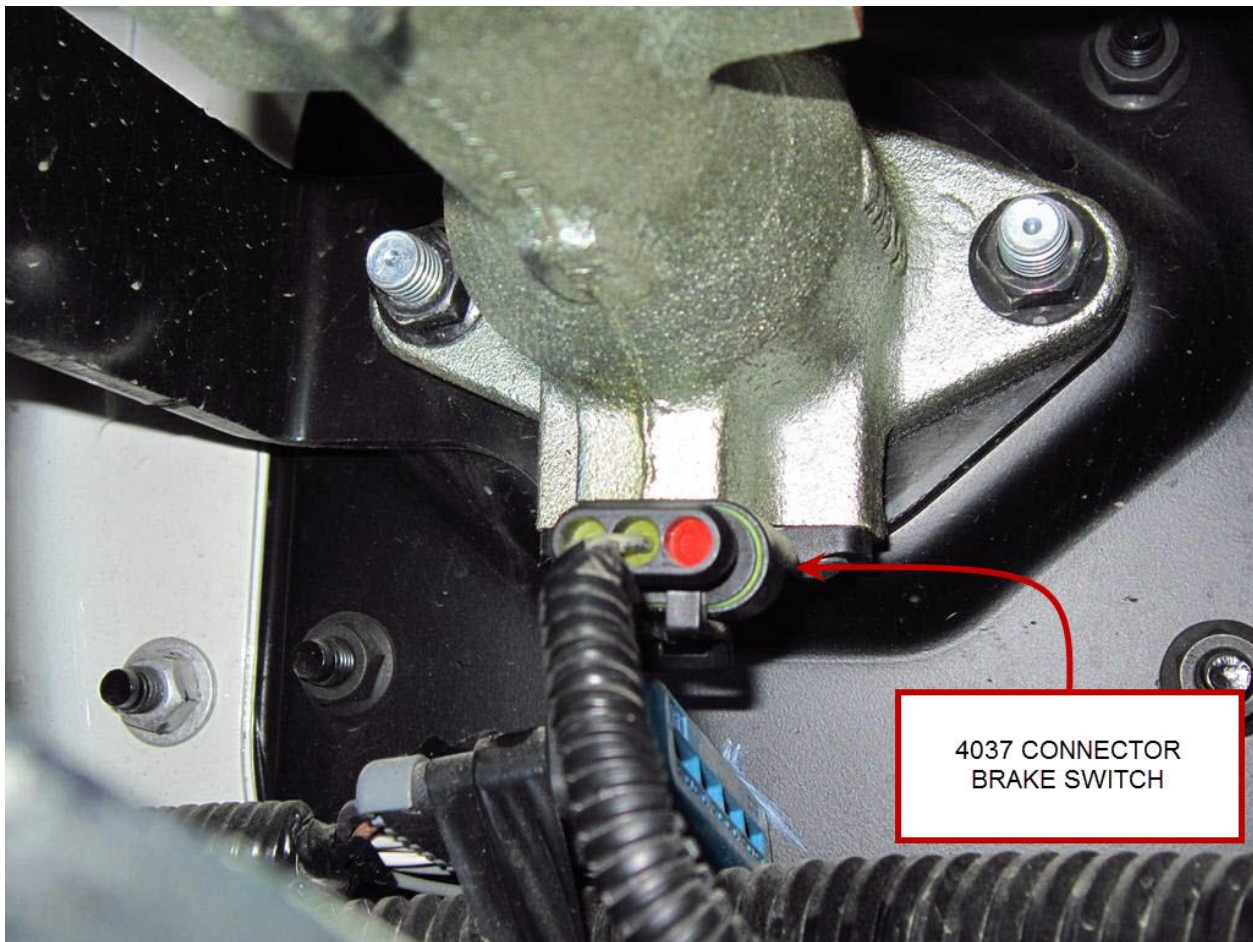
The screenshot shows the International Diamond Logic Builder software. The 'Signals' tab is selected, displaying a list of signals. A yellow arrow points to the 'Brake_Analog_Switch_Raw_Signal' entry, which has a value of 2.3167V. The session name '0595ALR' is visible in the top right corner.

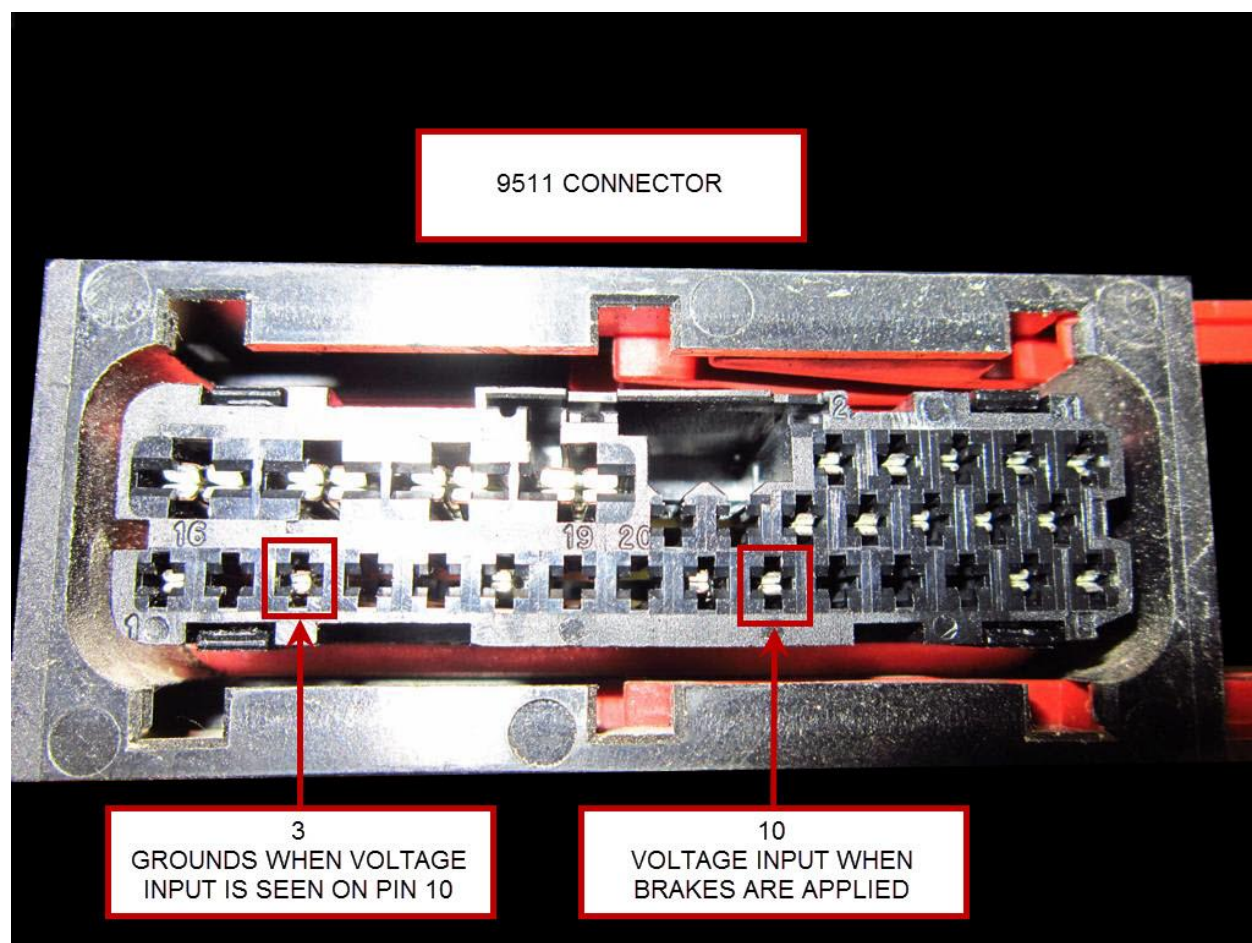
Signal	Pins	Signal Type	Value	Unit	Watch	Name
Brake_Analog_Switch_Raw_Signal	1602-E14,1602...	Analog Input	2.3167	V	☒	Brake_Analog ...
ABS_Park_Brake_Signal		J1939 Input	3	No Units	☒	ABS_Park Brak...
ABS_EBS_Red_Warning_Signal		J1939 Input	0	No Units	☒	ABS_EBS Red W...
Audible_Warning_State_Signal		J1939 Input	0	No Units	☒	Audible Warni...
ABS_Pressure_Warning_1_Signal		J1939 Input	0	No Units	☒	ABS_Pressure ...
ABS_Brake_Signal		J1939 Input	0	No Units	☒	ABS_Brake_Signal
Fluid_Level_Switch_Status		J1939 Input	1	No Units	☒	Fluid_Level S...
ABS_Pressure_Warning_2_Signal		J1939 Input	0	No Units	☒	ABS_Pressure ...
ABS_Warning_Lamp		J1939 Input		On/Off	☒	ABS_Warning_Lamp
P_J1939IN_11_65265_X_D_4_3		J1939 Input	3		☒	P_J1939IN_11 ...
Ignition		J1939 Output		On/Off	☒	Ignition_Signal
EGC_Warning_Light_6		J1939 Output		On/Off	☒	EGC_Warning_L...
EGC_Warning_Light_18		J1939 Output		On/Off	☒	EGC_Warning_L...
Accessory		J1939 Output		On/Off	☒	Accessory_Signal
Send_Flag_65321_Sem				On/Off	☒	Send_Flag_653...
ASR_Rcv_Hill_Holder_Switch				No Units	☒	ASR_Rcv_Hill ...
Brake_Fluid_Indicator_Light				On/Off	☒	Brake_Fluid I...
Send_Flag_61207			0	No Units	☒	Send_Flag_61207
Cruise_Disable_Req				On/Off	☒	Cruise_Disabl...
Brake_Pressure_Warning_Lamp				On/Off	☒	Brake_Pressur...
Alarm(Cluster)_AlwaysBeep				On/Off	☒	EGC_Alarm Alw...
ABS_Active_Event				On/Off	☒	ABS_Active
Park_Brake_Sys_Fault_Ind_Signal				No Units	☒	Park_Brake Sy...
Park_Brake_Release_Inhibit_Status				No Units	☒	Park_Brake Re...
Front_Axle_Speed				mph	☒	Front_Axle_Speed
Request_For_Brake_Lights			0	No Units	☒	Request_For B...
P_J1939IN_11_65215_X_D_1_1					☒	P_J1939IN_11 ...
P_J1939IN_11_65274_X_D_4_3					☒	P_J1939IN_11 ...
ATC_ASRLamp_State				On/Off	☒	ATC_ASRLamp ...
Relative_Speed_FT_Axle_LT				mph	☒	Relative_Spee...
ASR_Brake_Control_Active				On/Off	☒	ASR_Brake Con...

Detected Exhaust Emission Controller at address 61

Component Location







Parts Information

Part #	Description	Qty.
2605103C91	Brake Switch	1

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Feedback Information

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