Countries:	BAHAMAS, BOLIVIA, BELIZE, CANADA, CHILE, TAIWAN, COLOMBIA, COSTA RICA, DOMINICAN REPUBLIC, ECUADOR, EL SALVADOR, TRINIDAD AND TOBAGO, UNITED STATES, URUGUAY, VENEZUELA, ARUBA, NICARAGUA, PERU, PUERTO RICO, Curaçao, GUAM, GUATEMALA, GUYANA, HAITI, HONDURAS, JAMAICA, KOREA, SOUTH KOREA, PANAMA	**Document ID**:	IK0400019
Availability:	ISIS, FleetISIS, IsSIR	**Revision**:	6
Major System:	BRAKES	**Created**:	4/9/2007
Current Language:	English	**Last Modified**:	9/3/2019
Other Languages:	NONE	**Author**:	David Horner
Viewed:	15280		

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Title: **Air Powered (SAAR) Park Brake Troubleshooting (Service "P" Light Coming on)**

Applies To: **All HPV with Air Powered Park Brake (SAAR)**

CHANGE LOG

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

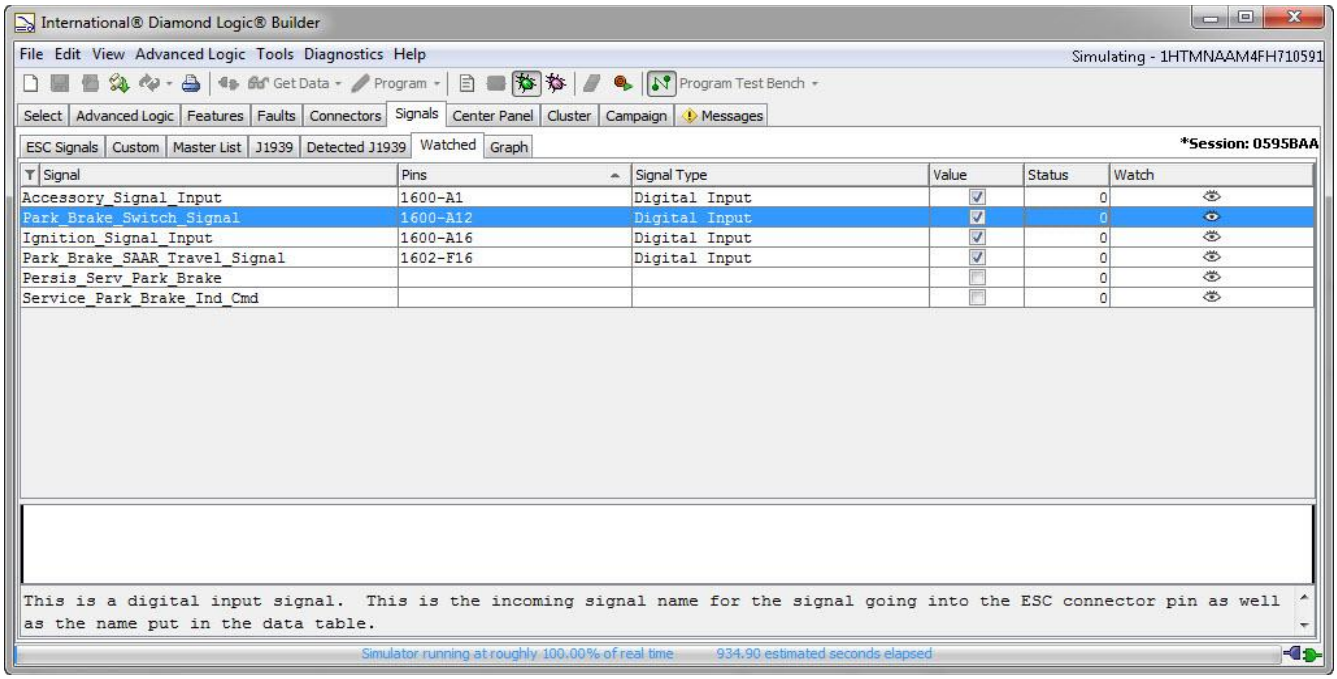
09/03/2019 - Added MV circuit diagrams, added installation images, update author for feedback purposes
04/04/2018 - Author updated for feedback purposes
04/16/2015 - Added BC session

DESCRIPTION

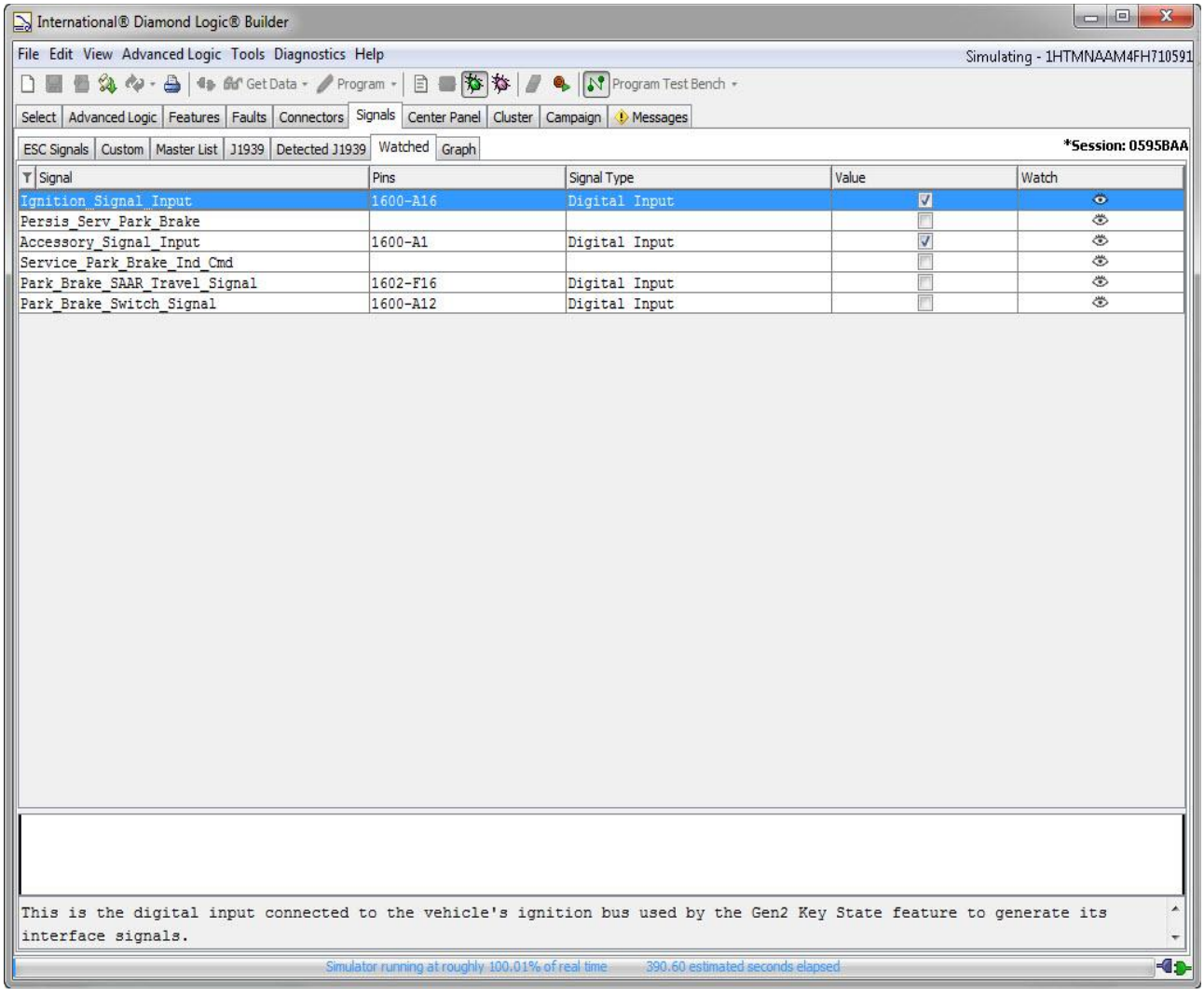
The SAAR parking brake is an air powered parking brake for hydraulic brake vehicles. Unlike the hydraulic powered parking brake (SAHR) used on school buses, the air SAAR parking brake is controlled by the ESC.

SIGNALS TO WATCH

BCM session


International® Diamond Logic® Builder
File Edit View Advanced Logic Tools Diagnostics Help
Simulating - 1HTMNAAM4FH710591
Get Data
Program
Program Test Bench
Select
Advanced Logic
Features
Faults
Connectors
Signals
Center Panel
Cluster
Campaign
Messages
ESC Signals
Custom
Master List
J1939
Detected J1939
Watched
Graph
*Session: 0595BAA
Signal
Pins
Signal Type
Value
Status
Watch
Accessory_Signal_Input 1600-A1 Digital Input 0
Park_Brake_Switch_Signal 1600-A12 Digital Input 0
Ignition_Signal_Input 1600-A16 Digital Input 0
Park_Brake_SAAR_Travel_Signal 1602-F16 Digital Input 0
Persis_Serv_Park_Brake 0
Service_Park_Brake_Ind_Cmd 0
This is a digital input signal. This is the incoming signal name for the signal going into the ESC connector pin as well as the name put in the data table.
Simulator running at roughly 100.00% of real time
934.90 estimated seconds elapsed

ESC session


International® Diamond Logic® Builder
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Simulating - 1HTMNAAM4FH710591
Get Data
Program
Program Test Bench
Select
Advanced Logic
Features
Faults
Connectors
Signals
Center Panel
Cluster
Campaign
Messages
ESC Signals
Custom
Master List
J1939
Detected J1939
Watched
Graph
*Session: 0595BAA
Signal
Pins
Signal Type
Value
Watch
Ignition_Signal_Input 1600-A16 Digital Input
Persis_Serv_Park_Brake
Accessory_Signal_Input 1600-A1 Digital Input
Service_Park_Brake_Ind_Cmd
Park_Brake_SAAR_Travel_Signal 1602-F16 Digital Input
Park_Brake_Switch_Signal 1600-A12 Digital Input
This is the digital input connected to the vehicle's ignition bus used by the Gen2 Key State feature to generate its interface signals.
Simulator running at roughly 100.01% of real time
390.60 estimated seconds elapsed

TROUBLESHOOTING

NOTE:

On the Pre-2007 trucks with ESC's, the Service P light would go out whenever the DTC went inactive. On the Post-2007 trucks with Body Controllers(BC), the Service P light will stay on even after the code goes inactive. So in order to get the light to go out, you need to clear all inactive codes.

1: Is this a problem with the auto-apply only? The auto-apply potion of this parking brake is hard wired and has nothing to do with the ESC or BC. There is a switch in the shifter that grounds a solenoid which dumps the air out of the SAAR can, allowing the spring to apply the park brake. See the circuit diagrams below.

2: Does the parking brake actually work? Does it apply and release with the switch? If the parking brake is actually working with the switch, that tells you that the mechanical and air part of the system is working properly.

a: Measure the SAAR rod travel is it should be about ~1.65 inches (~42mm). If it is above this there is an adjustment issue. If it is correct and you have an electrical problem.

3: Monitor the Park_Brake_SAAR_Travel_Signal and Park_Brake_Switch_Signal in DLB. If the Service P light is coming on, it's because these 2 signals do not agree. You need to figure out which one is wrong and then troubleshoot that circuit.

CIRCUIT DIAGRAMS

- For Travel Switch wiring on pre-2007 click here
- For Travel Swith wiring on post-2007 click here
- For electrical circuit diagrams on pre-2007 click here
- For electrical circuit diagrams on post-2007 click here
- For electrical circuit diagrams on MV click here
- For all other diagrams refer to MSI Home Page

The diagram pictured here, only shows the Auto-apply portion of the park brake wiring. Not all trucks with air powered park brakes have this feature.

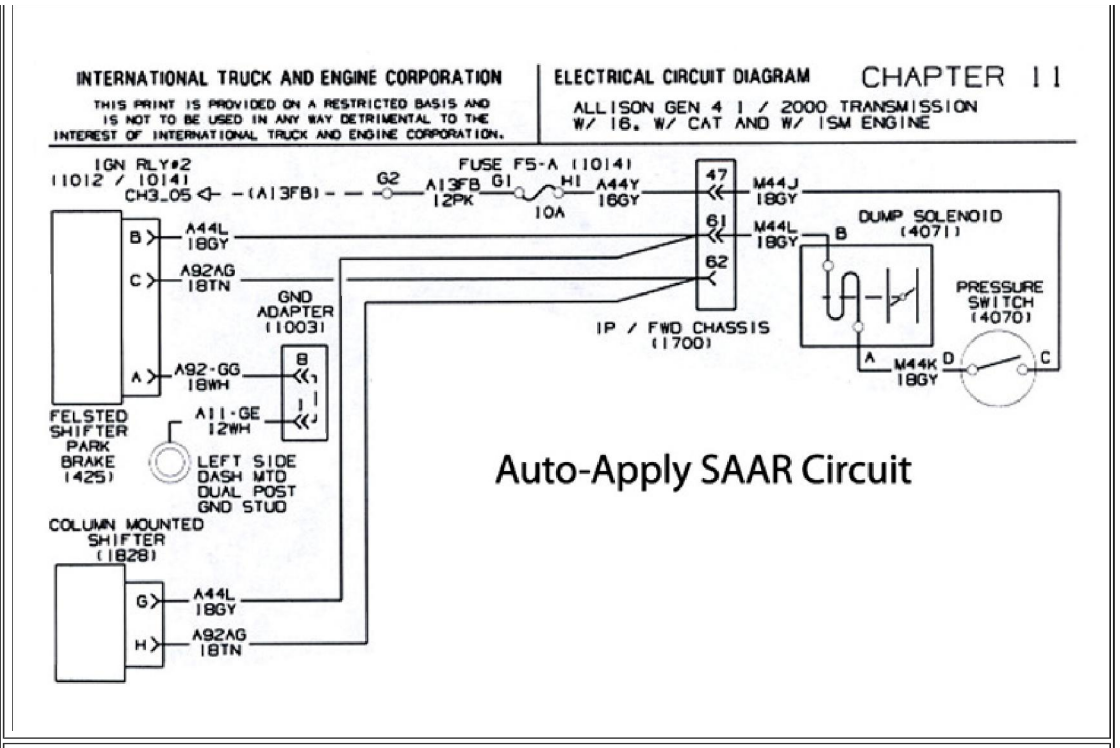

Figure 1: Auto-Apply SAAR Circuit

COMPONENT LOCATIONS

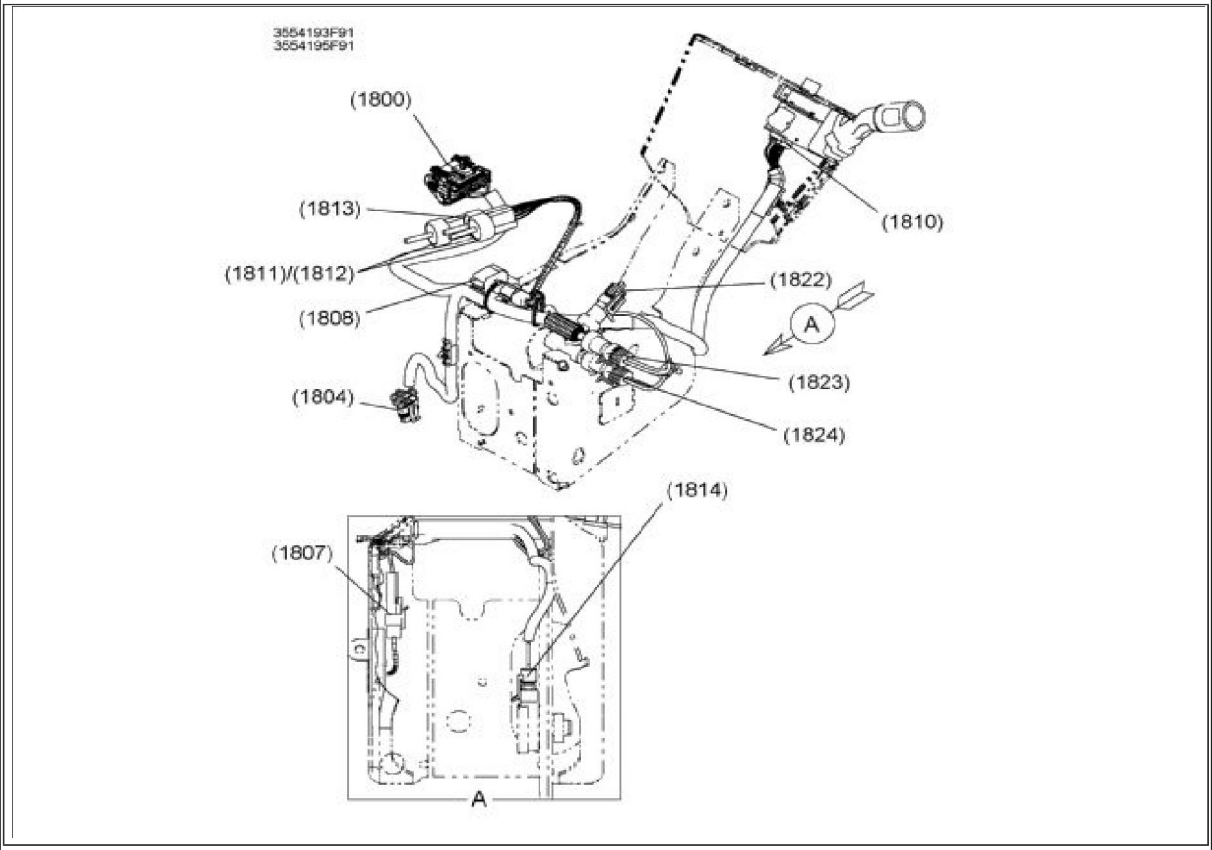

Figure 2: Air Park Brake Switch Location (Steering Column Support View)

- (1813) Park indication pressure switch

- (1800) Driver control module (DCM) connector

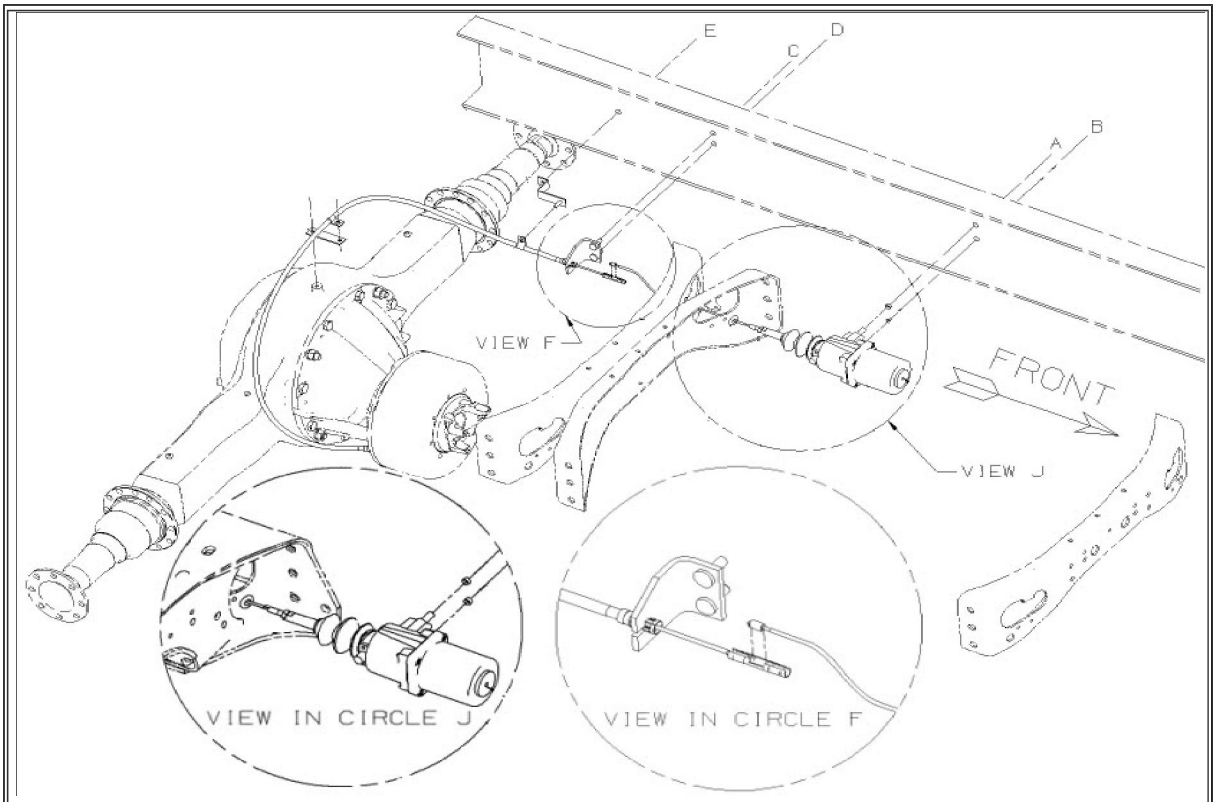

Figure 3: SAAR Cable installation

- Note: The orientation of the bracket in circle "F" is critical

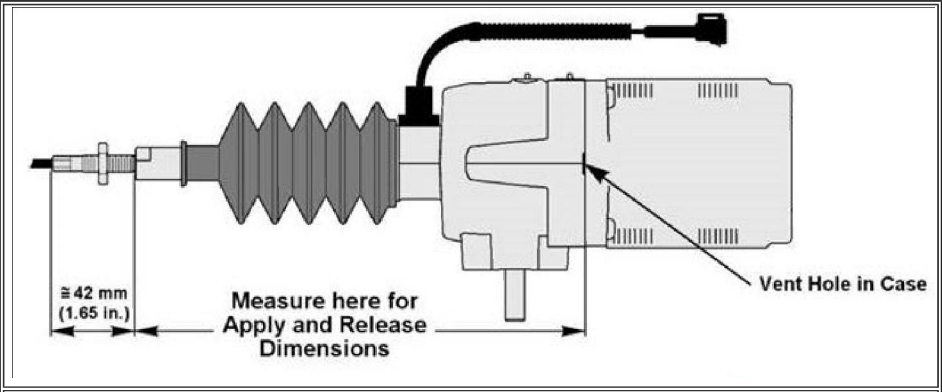

Figure 4: SAAR Cannister

For more component locations, click here.

WARRANTY INFORMATION

Warranty Claim Coding:

Refer to the Warranty Coding Manual for Group and Noun Codes.

Standard Repair Time(s):

Refer to the SRT Manual for Repair Times

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