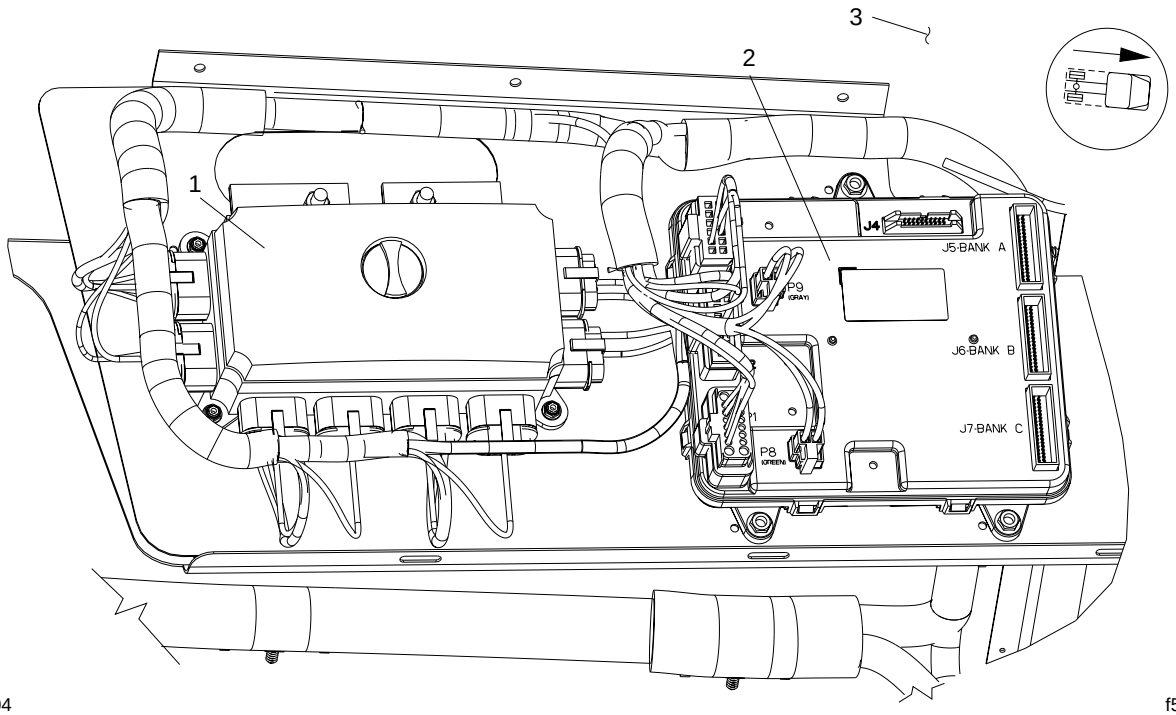
General Information

The Switch Hub Module (SHM) is a required module of the vehicle electrical system, and acts as a slave to the Bulkhead Module (see **Section 54.01**). The SHM is used to connect up to 24 Smart Switches to the electrical system, and to control specific inputs and outputs.

The Switch Hub Module is mounted on a panel in the sealed compartment to the left of the driver that is accessible from inside the vehicle. It has nine harness connections, though all may not be used. See **Fig. 1**.

Smart Switches are connected to the Switch Hub Module (SHM) via intermediate modules called 8-Switch Banks (8SB). Up to 8 Smart Switches can be plugged directly into each bank, and up to three banks can be connected to the SHM, via J5-BANK A, J6-BANK B and J7-BANK C.



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1. Cab PDM
2. Switch Hub Module
3. Cab Sidewall, Driver-Side

Fig. 1, Driver-Side Cab Electronics

Switch Hub Module Replacement

Replacement

IMPORTANT: It is normally not necessary to replace the Switch Hub Module (SHM). Removing and installing an electronic Switch Hub Module controller should be a last resort to solving electrical problems, unless a unit needs replacing due to physical damage. Follow troubleshooting procedures in Bulkhead Module (BHM) **Section 54.01, Troubleshooting 300** to help solve electrical problems involving this module before replacing the Bulkhead Module, Chassis Module, or Switch Hub Module. If troubleshooting indicates a malfunction of any of these modules, try reflashing the parameters on the BHM, or the software on the BHM and SHM before replacing either module. Also check external wiring.

See **Section 54.00**, Electrical System, for more information about the vehicle electrical system in general, and **Troubleshooting 300** in that section for help in troubleshooting the entire electrical system.

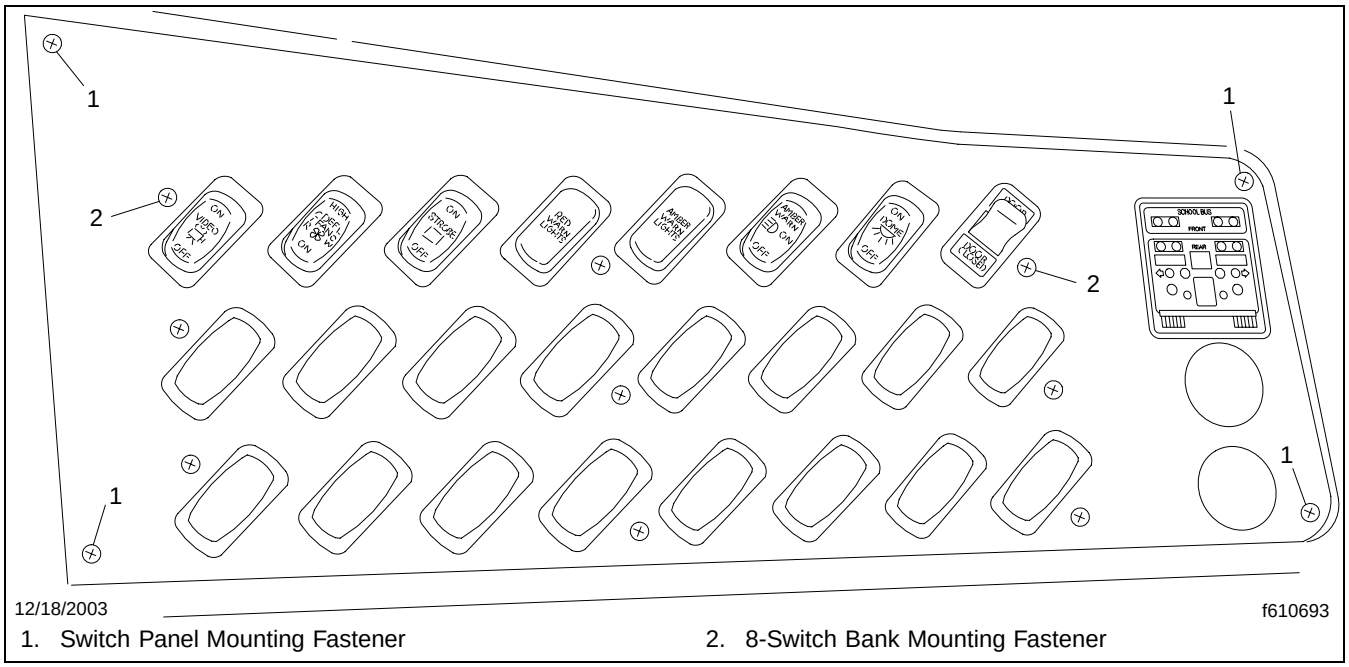
1. Disconnect the negative leads from the batteries.
2. Remove the fasteners that secure the switch panel on the driver's left side against the cab wall, then lift the switch panel away from the opening. See **Fig. 1**.

NOTE: The SHM is mounted on a panel in the compartment beneath the switch panel, next to the PDM. See **Fig. 2**.

3. Note the location of each of the harnesses before disconnecting them. Pay particular attention to the 8-Switch Bank (8SB) harness connectors to avoid inadvertently interchanging them on installation. Then unplug all connected electrical harnesses from the SHM. The module may not have harnesses plugged in to all connectors. For example, if a vehicle uses only one 8SB, there should not be any harnesses connected to J6 or J7. See **Fig. 3**.
4. Before removing the Switch Hub Module from its mounting plate, take note of its orientation; 8SB connectors A, B, and C should be toward the front of the vehicle.

   Remove the mounting nuts that secure the SHM to the mounting plate and remove the SHM. See **Fig. 4**.
5. Properly orient the SHM on its mounting plate. See **Fig. 2**. Install the module on the mounting plate by securing the mounting nuts.

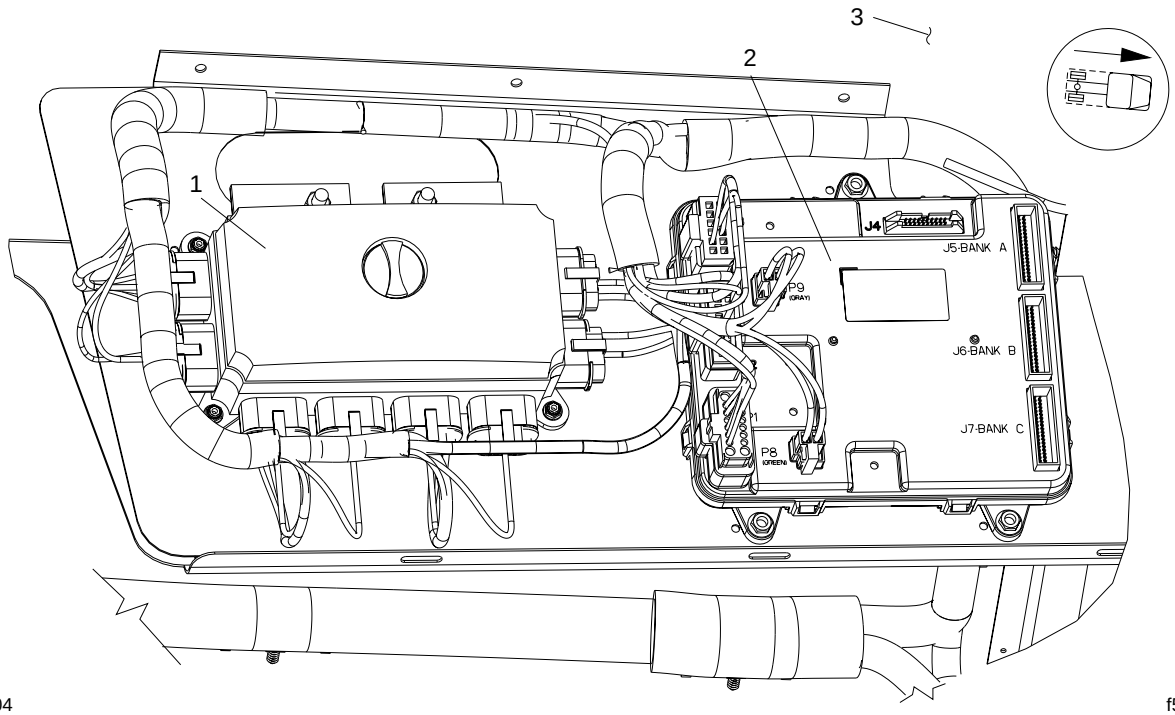
NOTE: The module may not have harnesses for all connectors.



1. Switch Panel Mounting Fastener
2. 8-Switch Bank Mounting Fastener

Fig. 1, Switch Panel Mounting Fastener Locations

Switch Hub Module Replacement



1. Cab PDM
2. Switch Hub Module
3. Cab Sidewall, Driver's Side

Fig. 2, Driver's Side Cab Electronics

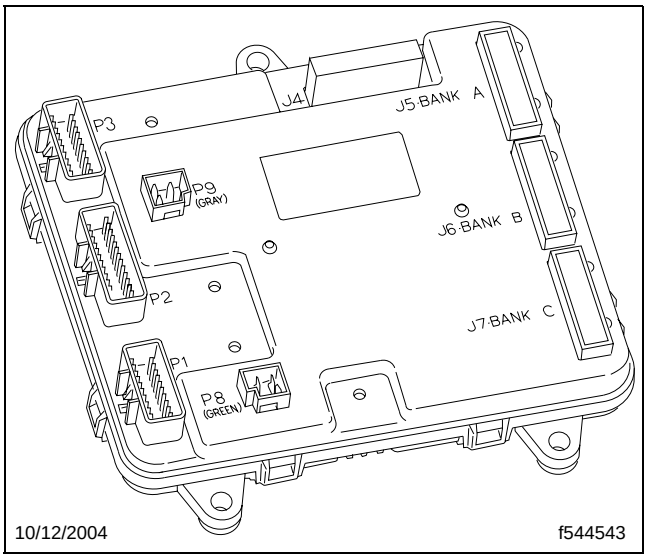
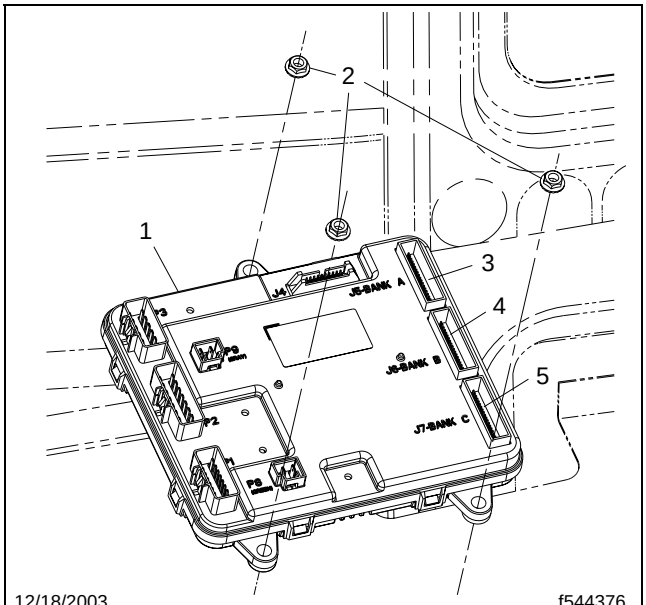


Fig. 3, Switch Hub Module

6. Plug all electrical wiring harnesses into the SHM connectors from which they were disconnected.
7. Place the switch panel over the compartment opening and attach the fasteners that secure the panel.
8. Connect the batteries.
9. Check to make sure electrical components work.

Switch Hub Module Replacement



1. Switch Hub Module
2. Mounting Nuts
3. 8SB Bank A Connection
4. 8SB Bank B Connection
5. 8SB Bank C Connection

Fig. 4, Switch Hub Module Installation

Eight-Switch Bank (8SB) Replacement

General Information

The 8-Switch Bank (8SB) is an optional module of the vehicle electrical system. Its only purpose is to connect Smart Switches to the Switch Hub Module (SHM). The 8SB does not control any outputs.

There may be up to three 8SBs, for a total of up to 24 switches, connected to a SHM.

The 8SB is mounted directly under the switch panel located to the left of the driver. Smart Switches plug directly into the 8SB through the switch panel. Each 8SB has one harness connection, which connects it to the SHM.

The 8SB does not communicate on a data bus, therefore, it is not viewable as an Electrical Control Unit (ECU) icon from within ServiceLink. However, it is possible to use ServiceLink to see exactly which Smart Switches are connected to any 8SB. In ServiceLink, go to the "Smart Switches" tab located under either the SHM icon, or any Switch Expansion Module (SEM) icon. In the "Smart Switches" screen, a table lists which Smart Switches are connected to which 8SB (or to which SEM).

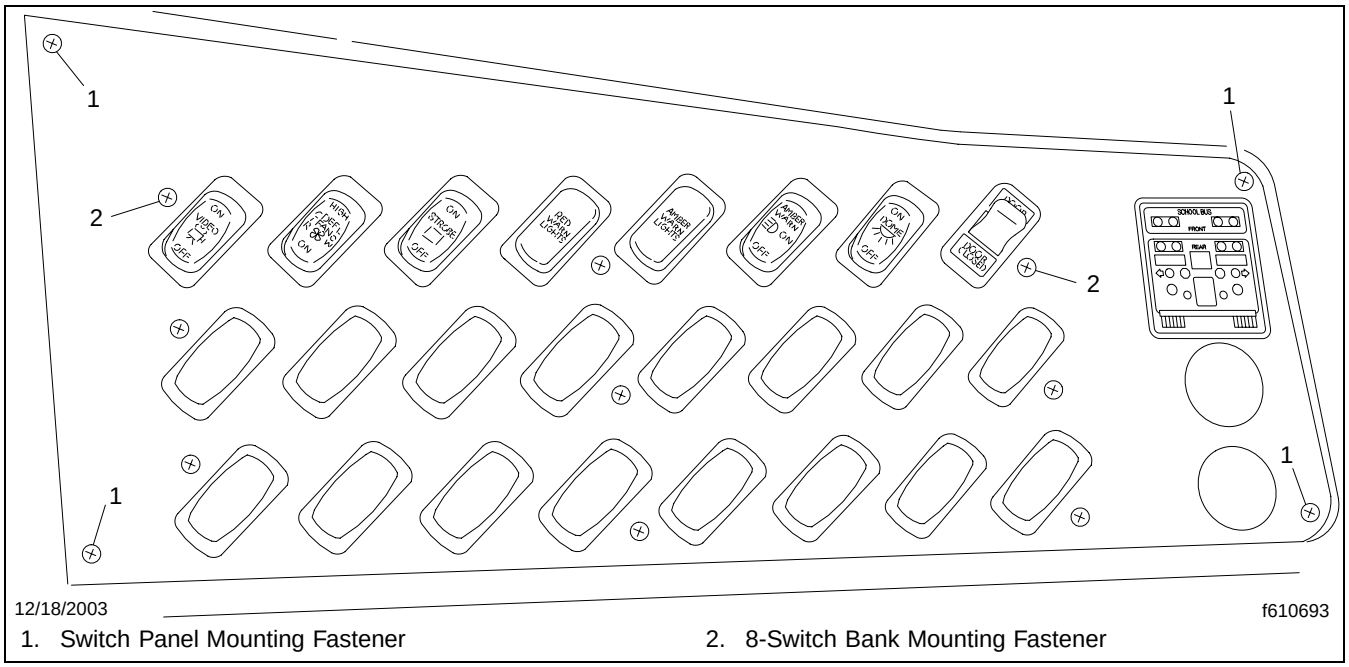
Replacement

IMPORTANT: It is normally not necessary to replace the 8-Switch Bank. Removing and installing an electronic component should be a last resort to solving electrical problems, unless a unit needs replacing due to physical damage. Before replacing an 8SB or any of the electrical control modules, try reflashing the parameters on the Bulkhead Module (BHM), or the software on the BHM and the Switch Hub Module. Also check external wiring.

1. Disconnect the negative leads from the batteries.
2. Remove the fasteners that secure the switch panel on the driver's left side against the cab wall, then lift the switch panel away from the opening. See **Fig. 1**.
3. Unplug the electrical harness connector from the 8SB. See **Fig. 2**.

NOTE: Smart Switches will operate correctly regardless of their particular position on the 8SB. It is suggested that they be installed in the same positions from which they were removed, for the convenience of the vehicle operator.

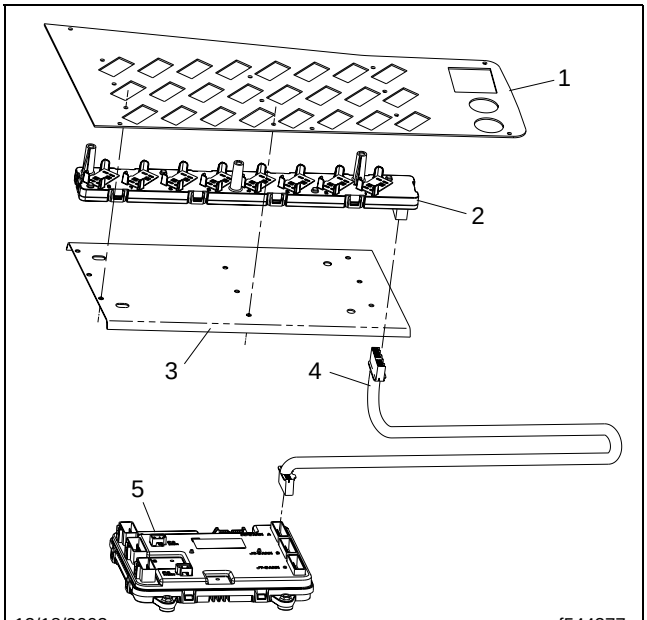
4. Note the location of the Smart Switches plugged in to the 8SB to be removed, then remove all



1. Switch Panel Mounting Fastener
2. 8-Switch Bank Mounting Fastener

Fig. 1, Switch Panel Mounting Fastener Locations

Eight-Switch Bank (8SB) Replacement



1. Switch Panel
2. Eight-Switch Bank (8SB)
3. Lower Mounting Panel
4. 8SB Electrical Harness
5. Switch Hub Module

Fig. 2, Switch Panel Assembly Installation

connected switches (up to eight). To remove a switch, squeeze the locking tabs from the back of the switch, then pry out the switch from the front using a flat blade.

5. Note the orientation of the 8SB and remove the three mounting capscrews that secure the 8SB to the switch panel, then remove the 8SB.
6. Properly orient the new 8SB and install the three mounting capscrews that secure the 8SB to the switch panel.
7. Install all switches on the 8SB in the locations from which they were removed. To install a switch, push it through the switch panel opening until it is flush with the panel and the tabs lock.
8. Connect the electrical harness connector to the 8SB.
9. Place the switch panel in its opening and install the fasteners that secure the panel.
10. Connect the batteries.
11. Check to make sure electrical components work.

Troubleshooting

When troubleshooting the Switch Hub Module (SHM), use ServiceLink as the diagnostic tool. First, determine if the SHM is communicating over both the J1708 and J1939 data buses. Follow the instructions below to determine if the SHM is communicating.

1. Connect a laptop computer to the diagnostic port on the data bus using an approved communication adapter.
2. Open ServiceLink in Online mode.
3. Turn the ignition switch to the ON position.
4. Click the "Connect" button in ServiceLink.
5. Verify that ServiceLink returns the correct vehicle serial number, then click "Continue".
6. Make certain the SHM is communicating with ServiceLink by checking to see that the SHM appears on the Electronic Control Unit (ECU) list in ServiceLink.

   If the SHM is missing or not communicating, it will appear in red on the ServiceLink list. If the SHM is showing up in red, click the "Refresh" button in ServiceLink.

   If the SHM appears as normal in the ServiceLink ECU list, the data bus communication is working correctly.

   NOTE: See **Specifications 400** for information to locate power, ground, and both J1708/J1939 data bus pins.
7. If the SHM is not communicating (appears in red on the ServiceLink ECU list), thoroughly troubleshoot all power/ground/databus connections to the SHM. See the heading "Module Power Input Checks" for power and ground testing. Also try disconnecting and reconnecting the batteries to reset the SHM.

   If all connections to the SHM are good, try to flash the SHM using ServiceLink. Follow the instructions below.

   7.1 Click on the SHM icon on the left side of the screen.

   7.2 Click on the flashing tab on the upper portion of the screen.

   7.3 Verify that the software version is U.r.1.C1.01.00 or higher.

   7.4 Click the "flash now" button in the dialog box.

   If you already have the latest SHM software version, a message will appear saying "latest available version is already on SHM". Reflash SHM with the existing version. ServiceLink will then bring up a message saying "flashing SHM". Wait until ServiceLink is finished. The next screen message should read "successful flash." Click "OK".

   If ServiceLink cannot flash the SHM due to the switch hub module being unresponsive, and all wiring checks do not show problems with connections, the SHM is damaged. Replace the switch hub module.

   If you can flash the SHM, but suspect problems with inputs or outputs of the module, continue with these troubleshooting procedures.

NOTE: See **Section 54.01, Subject 300** when troubleshooting multiplexed features. While many of these multiplexed features use the SHM, they are programmed into the Bulkhead Module (BHM) and require communication between these two modules to function correctly.

Module Power Input Checks

The main power feeds to the SHM go to connectors P8 (green connector) and P9 (gray connector). The module also requires a wake-up and ignition signal for the module to be enabled. See **Table 1**.

Switch Hub Module Communication

Wake-Up and Ignition Signal			
Step	**Procedure**	**Result**	**Action**
1	Back probe connector pin P8-1. Measure the voltage between P8-1 and a known good ground.	12 volts (battery)	Go to step 2.
		0 volts	Check fuse SHM_BATT_1 in the cab PDM. Troubleshoot circuit 14L_0 if the fuse is good.
2	Back probe connector pin P8-2. Measure the voltage between P8-2 and a known good ground.	12 volts (battery)	Go to step 3.
		0 volts	Check fuse SHM_BATT_2 in the cab PDM. Troubleshoot circuit 14L_1 if the fuse is good.
3	Back probe connector pin P9-1. Measure the volatge between P9-1 and a known good ground.	12 volts (battery)	Go to step 4.
		0 volts	Check fuse SHM_BATT_3 in the cab PDM. Troubleshoot circuit 14L_2 if the fuse is good.
4	Back probe connector pin P9-2. Measure resistance between P9-2 and a known good ground.	0 ohms resistance	Main power and ground feeds are good.
		Measurable resistance is found.	Troubleshoot SHM ground circuit GND 1.

Table 1, Wake-Up and Ignition Signal

The primary wake-up input to the SHM (CKT 41F, pin P1-C) enables the SHM when this pin gets ground. The main wake-up signal comes from the BHM when the multiplexed system is turned on (as indicated by the ICU backlighting turning ON). There are other SHM wake-up pins, but P1-C is the main wake-up signal, and will always have ground when the multiplexed system is turned ON.

The ignition input to the SHM (CKT 52D, pin P1-B) enables the SHM when the key is in the ON or ACC position. This pin gets battery voltage.

Troubleshooting SHM Outputs

Output pins on the SHM can be tested using Datalink Monitor (DLM) templates. Use these templates to monitor and/or control output pins, and J1939 data bus messaging. This will aid in isolating where the failure in the system exists, either inputs to the SHM, outputs from the SHM, or the SHM itself.

1. Connect a laptop computer to the vehicle using ServiceLink, if not already done.
2. Click on the Switch Hub Module icon on the left-hand ServiceLink screen.
3. Click on the templates tab in ServiceLink.
4. Click on the drop-down arrow under the J1939 templates. After you click on the drop-down arrow, you will see a list of available DLM templates for the SHM. The main output pins for the SHM are from connectors P1, P2, and P3.
5. Select the DLM template for the connector and pin you are attempting to test. For example, to test pin P1.H (right front amber warning light) select the DLM template titled "Switch Hub Module, connector P1.
6. Use the DLM template to monitor J1939 data bus communication between the SHM and BHM, and also monitor the status of the output pins (ON/OFF). DLM templates can also be used to manually turn output pins ON and OFF. See **Fig. 1**.
7. Isolate the output that you suspect is not working using the DLM template.
   - 7.1 Press "Enter Test Mode" on the DLM template.
   - 7.2 Press the ON button to the left of the output pin you are troubleshooting.
   - 7.3 Verify that both the "SHM to BHM" and "BHM to SHM" status on the DLM template are showing the output is ON.

Switch Hub Module Communication

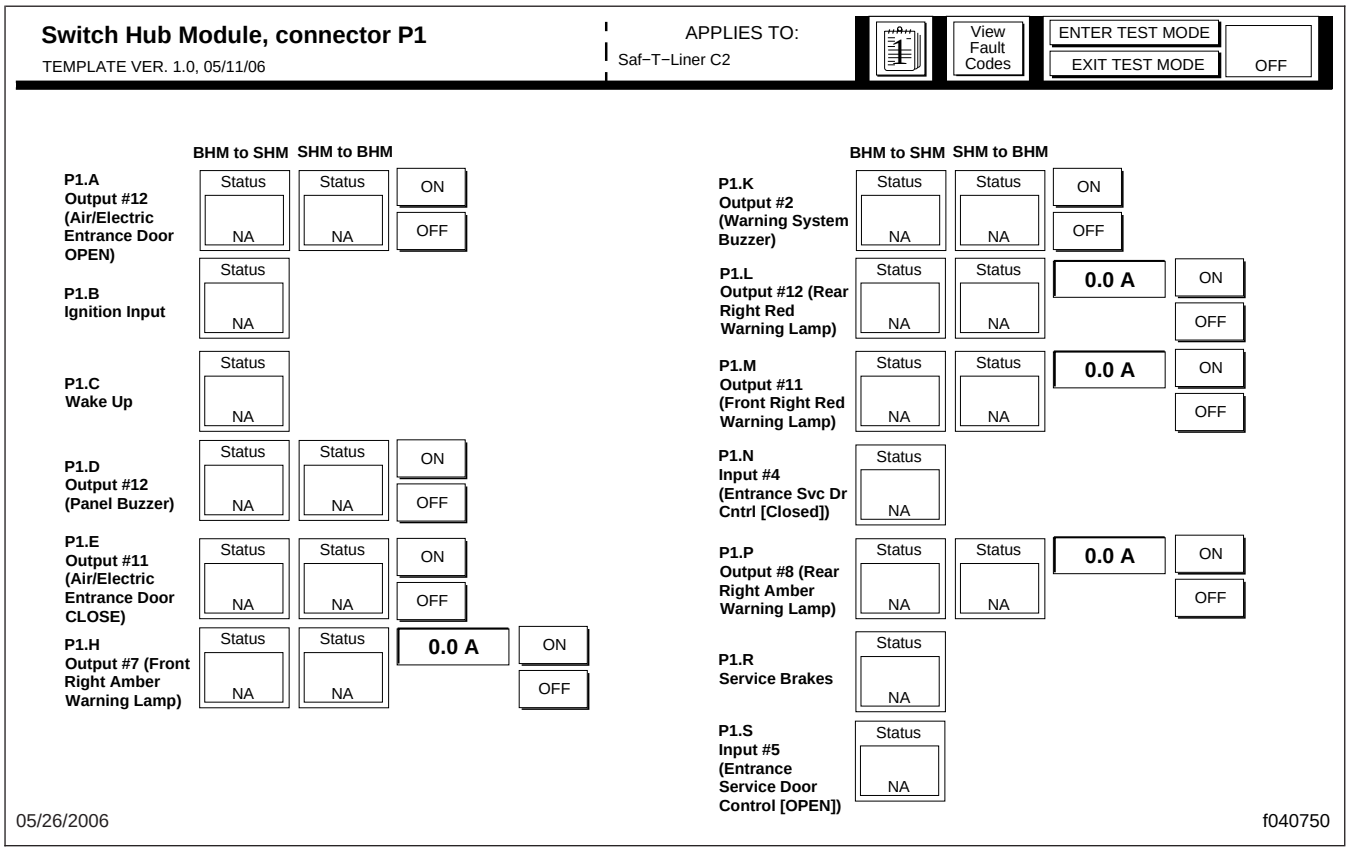


Fig. 1, Switch Hub Module, Connector P1

7.4 Verify that the function on the vehicle has turned ON (panel buzzer for example).

7.5 Press the OFF button to the left of the output pin you are troubleshooting.

7.6 Verify that both status indicators turn OFF.

7.7 Press the "Exit Test Mode" button at the top of the template.

If the status indicators turned ON and OFF during the above test, but the feature on the vehicle didn't turn ON, then OFF, the problem is not with the SHM itself. The problem is either within the output harness, or the device that output is controlling (a damaged panel buzzer for example).

If status indicators turned ON and OFF during the above test, and the device the output pin controls turns ON and OFF, then the SHM and output controls are working correctly. There is a problem with the input control. See **Section 54.01, Subject 300** for BHM troubleshooting, or **Section 54.16, Subject 300** for Smart Switch troubleshooting.

If the "BHM to SHM" status indicator turned ON and OFF after the above test, but the "SHM to BHM" status indicator remained OFF, then there is likely an internal problem with the output pin drivers on the SHM. This indicates the SHM needs to be replaced.

If the "BHM to SHM" status indicator is not communicating, as indicated by a warning icon over the annunciator, then the problem is with the J1939 data bus communication from the BHM. See **Section 54.01, Subject 300** for BHM troubleshooting.

General Information

This subject contains information on all proprietary Switch Hub Module (SHM) fault codes for J1587 and J1939 data bus protocols. See **Table 1** and **Table 2**.

Also included is a reference table of all FMIs for both data bus protocols. See **Table 3**.

NOTE: In ServiceLink, J1587 fault codes are shown under J1708. J1587 and J1708 are essentially the same data bus protocol.

J1587 SIDs for Switch Hub Module (SHM) MID 221		
SID	**Description**	**Possible FMI**
221	Smart Switch VBatt Short to Ground	4
231	No CAN Communication from BHM	9

Table 1, J1587 SIDs for Switch Hub Module (SHM) MID 221

J1939 SPNs for Switch Hub Module (SHM) SA 49		
SPN	**Description**	**Possible FMI**
2033	No CAN communication from BHM	19
6914	Smart Switch VBatt Short to Ground	4

Table 2, J1939 SPNs for Switch Hub Module (SHM) SA 49

Failure Mode Identifiers		
FMI	**J1939 Description**	**J1587 Description**
00	Data valid but above normal operational range — Most severe level	Data valid but above normal operational range (engine overheating)
01	Data valid but below normal operational range — Most severe level	Data valid but below normal operational range (engine oil pressure too low)
31	Not available or condition exists	—

Table 3, Failure Mode Identifiers

Specifications

NOTE: Check ServiceLink for vehicle-specific pinout information.

For a plan view of the switch hub module pinouts, see **Fig. 1**.

For switch hub module pinout information, see **Table 1**, **Table 2**, **Table 3**, **Table 4**, **Table 5**, **Table 6**, **Table 7**, **Table 8**, and **Table 9**.

For switch hub module power supply fuses and associated outputs, see **Table 10**.

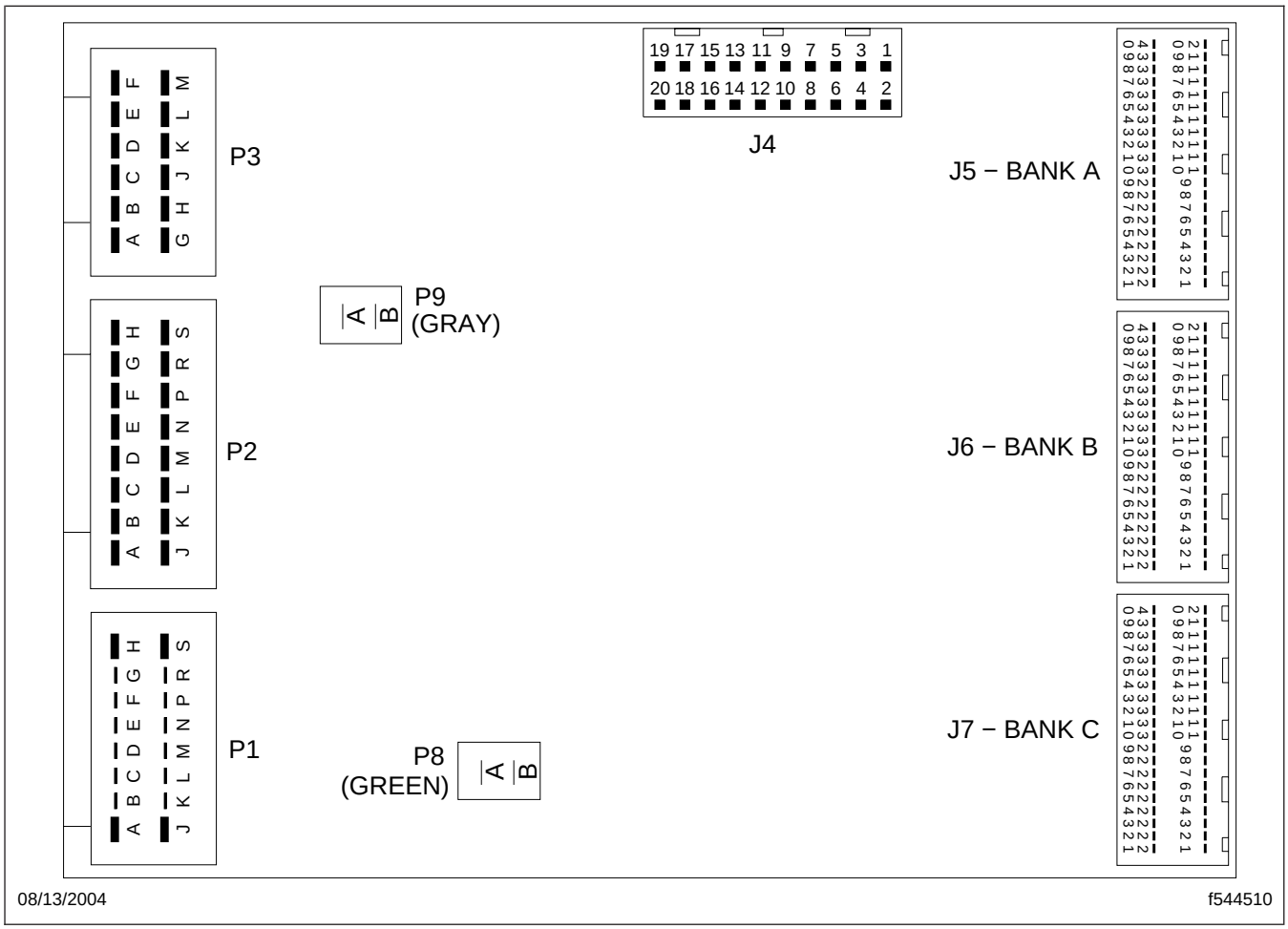


Fig. 1, Switch Hub Module Circuit Layout

Specifications

Pinouts at SHM Connector P1		
Connector Pin	**Signal Name**	**Signal Type**
P1-A	Air/Electric Door Open	0.5A HSD Output #12
P1-B	Ignition	Switch to Battery with Wakeup
P1-C	Module Wake-Up Signal	Digital Input
P1-D	Buzzer 1—Switch Panel	0.5A HSD Output #1
P1-E	Air/Electric Door Close	0.5A HSD Output #11
P1-F	J1939– Data Bus Connection	Data Bus Connection
P1-G	J1939+ Data Bus Connection	Data Bus Connection
P1-H	Right Front Amber Warning	6.7A HSD Output #7 with Current Sense
P1-J	Unused	—
P1-K	Buzzer 2—Switch Panel (Warning System)	0.5A HSD Output #2
P1-L	Right Rear Red Warning	6.7A HSD Output #12 with Current Sense
P1-M	Right Front Red Warning	6.7A HSD Output #11 with Current Sense
P1-N*	Entrance Service Door Closed	Spare Digital Input #4
P1-P	Right Rear Amber Warning	6.7A HSD Output #8 with Current Sense
P1-R	Service Brakes	Switch to GND with Wakeup and Hardware-based Output Control
P1-S*	Entrance Service Door Open	Spare Digital Input #5

* The function listed for this pin is the highest priority. If this function is not present, the output may be used for another function.

Table 1, Pinouts at SHM Connector P1

Pinouts at SHM Connector P2		
Connector Pin	**Signal Name**	**Signal Type**
P2-A*	Heater 1—Driver-Side Front, Low-Speed Relay	0.5A HSD Output #6
P2-B*	Heater 1—Driver-Side Front, High-Speed Relay	0.5A HSD Output #5
P2-C	Entrance Service Door Status	Spare Digital Input #1 Switch to GND Input
P2-D*	Strobe Light Relay	0.5A HSD Output #8
P2-E	Lower Left Taillight	3.0A HSD Output #1
P2-F	Lower Right Taillight	3.0A HSD Output #2
P2-G	Escape Hatch Open	Spare Digital Input #3

Pinouts at SHM Connector P2		
Connector Pin	**Signal Name**	**Signal Type**
P2-H	Unused	—
P2-J*	Air-Operated Stop Arm Control	0.5A HSD Output #10
P2-K	Left Rear Red Warning	6.7A HSD Output #10 with Current Sense
P2-L	Passenger Window Sash	Spare Digital Input #2 Switch to GND Input
P2-M	Left Front Red Warning	6.7A HSD Output #9 with Current Sense
P2-N*	Video Camera Box LED	0.5A HSD Output #7
P2-P	Left Rear Amber Warning	6.7A HSD Output #6 with Current Sense
P2-R	Lower Right Brake Light	6.7A HSD Output #3 with Current Sense
P2-S*	—	0.5A HSD Output #9

* The function listed for this pin is the highest priority. If this function is not present, the output may be used for another function.

Table 2, Pinouts at SHM Connector P2

Pinouts at SHM Connector P3		
Connector Pin	**Signal Name**	**Signal Type**
P3-A	Left Front Amber Warning	6.7A HSD Output #5 with Current Sense
P3-B	J1708– Data Bus Connection	Data Bus Connection
P3-C	Lower Right Backup Light	6.7A PWM HSD Output #1 with Current Sense
P3-D*	Heater 2—Driver-Side Rear, Low-Speed Relay	0.5A HSD Output #3
P3-E	Lower Left Backup Light	6.7A HSD Output #2 with Current Sense
P3-F	Upper Left Taillight	3.0A HSD Output #4 with Hardware Control
P3-G	Front Dome Light	13A PWM LSD Output #1
P3-H	Lower Left Brake Light	6.7A HSD Output #4 with Current Sense
P3-J	J1708+ Data Bus Connection	Data Bus Connection
P3-K	Upper Right Taillight	3.0A HSD Output #3 with Hardware Control
P3-L*	Heater 2—Driver-Side Rear, High-Speed Relay	0.5A HSD Output #4

Specifications

Pinouts at SHM Connector P3		
Connector Pin	**Signal Name**	**Signal Type**
P3-M	Rear Dome Light	13A PWM LSD Output #2

* The function listed for this pin is the highest priority. If this function is not present, the output may be used for another function.

Table 3, Pinouts at SHM Connector P3

Pinouts at SHM Connector J4		
Connector Pin	**Signal Name**	**Signal Type**
J4-1	Right Backup	BOD Low-side LED #1 Drive
J4-2	Left Backup	BOD Low-side LED #2 Drive
J4-3	Right Tail	BOD Low-side LED #3 Drive
J4-4	Left Tail	BOD Low-side LED #4 Drive
J4-5	Right Turn	BOD Low-side LED #5 Drive
J4-6	Left Turn	BOD Low-side LED #6 Drive
J4-7	Right Stop	BOD Low-side LED #7 Drive
J4-8	Left Stop	BOD Low-side LED #8 Drive
J4-9	Battery Power	SS and BOD Power
J4-10	Battery Power	SS and BOD Power
J4-11	No Connect (Battery on Display)	—
J4-12	No Connect (Battery on Display)	—
J4-13	Right Rear Red	BOD Low-side LED #9 Drive
J4-14	Left Rear Red	BOD Low-side LED #10 Drive
J4-15	Right Rear Amber	BOD Low-side LED #11 Drive
J4-16	Left Rear Amber	BOD Low-side LED #12 Drive
J4-17	Right Front Red	BOD Low-side LED #13 Drive
J4-18	Left Front Red	BOD Low-side LED #14 Drive
J4-19	Right Front Amber	BOD Low-side LED #15 Drive
J4-20	Left Front Amber	BOD Low-side LED #16 Drive

Table 4, Pinouts at SHM Connector J4

Pinouts at SHM Connector J5—Bank A		
Connector Pin	**Signal Name**	**Signal Type**
J5-1	Smart Switch Ground	Signal Ground
J5-2	SSA6 Indicator	Smart Switch LED Drive
J5-3	SSA4 Indicator	Smart Switch LED Drive
J5-4	SSA3 Indicator	Smart Switch LED Drive

Pinouts at SHM Connector J5—Bank A		
Connector Pin	**Signal Name**	**Signal Type**
J5-5	SSA1 Indicator	Smart Switch LED Drive
J5-6	Smart Switch Backlight	Smart Switch Backlight
J5-7	SSA2 Switch Position	Smart Switch Analog Input
J5-8	Smart Switch Ground	Signal Ground
J5-9	SSA4 Switch Position	Smart Switch Analog Input
J5-10	SSA3 ID1	Smart Switch Analog Input
J5-11	SSA2 ID1	Smart Switch Analog Input
J5-12	SSA1 ID2	Smart Switch Analog Input
J5-13	SSA4 ID1	Smart Switch Analog Input
J5-14	SSA5 ID2	Smart Switch Analog Input
J5-15	Smart Switch Ground	Signal Ground
J5-16	SSA6 Switch Position	Smart Switch Analog Input
J5-17	SSA6 ID1	Smart Switch Analog Input
J5-18	SSA7 ID1	Smart Switch Analog Input
J5-19	SSA8 ID2	Smart Switch Analog Input
J5-20	Smart Switch Ground	Signal Ground
J5-21	SSA8 Indicator	Smart Switch LED Drive
J5-22	SSA7 Indicator	Smart Switch LED Drive
J5-23	SSA5 Indicator	Smart Switch LED Drive
J5-24	Smart Switch Ground	Signal Ground
J5-25	SSA2 Indicator	Smart Switch LED Drive
J5-26	Smart Switch Power	SS and BOD Power
J5-27	SSA1 Switch Position	Smart Switch Analog Input
J5-28	SSA3 Switch Position	Smart Switch Analog Input
J5-29	SSA4 ID2	Smart Switch Analog Input
J5-30	SSA3 ID2	Smart Switch Analog Input
J5-31	SSA2 ID2	Smart Switch Analog Input
J5-32	Smart Switch Ground	Signal Ground
J5-33	SSA1 ID1	Smart Switch Analog Input
J5-34	SSA5 Switch Position	Smart Switch Analog Input
J5-35	SSA5 ID1	Smart Switch Analog Input
J5-36	SSA6 ID2	Smart Switch Analog Input
J5-37	SSA7 Switch Position	Smart Switch Analog Input
J5-38	SSA7 ID2	Smart Switch Analog Input
J5-39	SSA8 Switch Position	Smart Switch Analog Input

Specifications

Pinouts at SHM Connector J5—Bank A		
Connector Pin	**Signal Name**	**Signal Type**
J5-40	SSA8 ID1	Smart Switch Analog Input

Table 5, Pinouts at SHM Connector J5—Bank A

Pinouts at SHM Connector J6—Bank B		
Connector Pin	**Signal Name**	**Signal Type**
J6-1	Smart Switch Ground	Signal Ground
J6-2	SSB6 Indicator	Smart Switch LED Drive
J6-3	SSB4 Indicator	Smart Switch LED Drive
J6-4	SSB3 Indicator	Smart Switch LED Drive
J6-5	SSB1 Indicator	Smart Switch LED Drive
J6-6	Smart Switch Backlight	Smart Switch Backlight
J6-7	SSB2 Switch Position	Smart Switch Analog Input
J6-8	Smart Switch Ground	Signal Ground
J6-9	SSB4 Switch Position	Smart Switch Analog Input
J6-10	SSB3 ID1	Smart Switch Analog Input
J6-11	SSB2 ID1	Smart Switch Analog Input
J6-12	SSB1 ID2	Smart Switch Analog Input
J6-13	SSB4 ID1	Smart Switch Analog Input
J6-14	SSB5 ID2	Smart Switch Analog Input
J6-15	Smart Switch Ground	Signal Ground
J6-16	SSB6 Switch Position	Smart Switch Analog Input
J6-17	SSB6 ID1	Smart Switch Analog Input
J6-18	SSB7 ID1	Smart Switch Analog Input
J6-19	SSB8 ID2	Smart Switch Analog Input
J6-20	Smart Switch Ground	Signal Ground
J6-21	SSB8 Indicator	Smart Switch LED Drive
J6-22	SSB7 Indicator	Smart Switch LED Drive
J6-23	SSB5 Indicator	Smart Switch LED Drive
J6-24	Smart Switch Ground	Signal Ground
J6-25	SSB2 Indicator	Smart Switch LED Drive
J6-26	Smart Switch Power	SS and BOD Power
J6-27	SSB1 Switch Position	Smart Switch Analog Input
J6-28	SSB3 Switch Position	Smart Switch Analog Input
J6-29	SSB4 ID2	Smart Switch Analog Input
J6-30	SSB3 ID2	Smart Switch Analog Input
J6-31	SSB2 ID2	Smart Switch Analog Input

Pinouts at SHM Connector J6—Bank B		
Connector Pin	**Signal Name**	**Signal Type**
J6-32	Smart Switch Ground	Signal Ground
J6-33	SSB1 ID1	Smart Switch Analog Input
J6-34	SSB5 Switch Position	Smart Switch Analog Input
J6-35	SSB5 ID1	Smart Switch Analog Input
J6-36	SSB6 ID2	Smart Switch Analog Input
J6-37	SSB7 Switch Position	Smart Switch Analog Input
J6-38	SSB7 ID2	Smart Switch Analog Input
J6-39	SSB8 Switch Position	Smart Switch Analog Input
J6-40	SSB8 ID1	Smart Switch Analog Input

Table 6, Pinouts at SHM Connector J6—Bank B

Pinouts at SHM Connector J7—Bank C		
Connector Pin	**Signal Name**	**Signal Type**
J7-1	Smart Switch Ground	Signal Ground
J7-2	SSC6 Indicator	Smart Switch LED Drive
J7-3	SSC4 Indicator	Smart Switch LED Drive
J7-4	SSC3 Indicator	Smart Switch LED Drive
J7-5	SSC1 Indicator	Smart Switch LED Drive
J7-6	Smart Switch Backlight	Smart Switch Backlight
J7-7	SSC2 Switch Position	Smart Switch Analog Input
J7-8	Smart Switch Ground	Signal Ground
J7-9	SSC4 Switch Position	Smart Switch Analog Input
J7-10	SSC3 ID1	Smart Switch Analog Input
J7-11	SSC2 ID1	Smart Switch Analog Input
J7-12	SSC1 ID2	Smart Switch Analog Input
J7-13	SSC4 ID1	Smart Switch Analog Input
J7-14	SSC5 ID2	Smart Switch Analog Input
J7-15	Smart Switch Ground	Signal Ground
J7-16	SSC6 Switch Position	Smart Switch Analog Input
J7-17	SSC6 ID1	Smart Switch Analog Input
J7-18	SSC7 ID1	Smart Switch Analog Input
J7-19	SSC8 ID2	Smart Switch Analog Input
J7-20	Smart Switch Ground	Signal Ground
J7-21	SSC8 Indicator	Smart Switch LED Drive
J7-22	SSC7 Indicator	Smart Switch LED Drive
J7-23	SSC5 Indicator	Smart Switch LED Drive

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Pinouts at SHM Connector J7—Bank C		
Connector Pin	**Signal Name**	**Signal Type**
J7-24	Smart Switch Ground	Signal Ground
J7-25	SSC2 Indicator	Smart Switch LED Drive
J7-26	Smart Switch Power	SS and BOD Power
J7-27	SSC1 Switch Position	Smart Switch Analog Input
J7-28	SSC3 Switch Position	Smart Switch Analog Input
J7-29	SSC4 ID2	Smart Switch Analog Input
J7-30	SSC3 ID2	Smart Switch Analog Input
J7-31	SSC2 ID2	Smart Switch Analog Input
J7-32	Smart Switch Ground	Signal Ground
J7-33	SSC1 ID1	Smart Switch Analog Input
J7-34	SSC5 Switch Position	Smart Switch Analog Input
J7-35	SSC5 ID1	Smart Switch Analog Input
J7-36	SSC6 ID2	Smart Switch Analog Input
J7-37	SSC7 Switch Position	Smart Switch Analog Input
J7-38	SSC7 ID2	Smart Switch Analog Input
J7-39	SSC8 Switch Position	Smart Switch Analog Input
J7-40	SSC8 ID1	Smart Switch Analog Input

Table 7, Pinouts at SHM Connector J7—Bank C

Pinouts at SHM Connector P8		
Connector Pin	**Signal Name**	**Signal Type**
P8-1	Main Battery Power Feed 1	Module Power
P8-2	Main Battery Power Feed 2	Module Power

Table 8, Pinouts at SHM Connector P8

Pinouts at SHM Connector P9		
Connector Pin	**Signal Name**	**Signal Type**
P9-1	Main Battery Power Feed 3	Module Power
P9-2	Main Ground Feed	Module Ground

Table 9, Pinouts at SHM Connector P9

Switch Hub Module Power Supply Fuses and Associated Outputs				
SHM Power Input	**SHM Power Input Pin**	**Fuse Supplying SHM Power Input**	**SHM Outputs Supplied**	**SHM Output Pin**
Power In			**Power Out**	
VBAT1	P8.A	Fuse: SHM_BATT_1 (30A)	0.5A HSD Output #12 (air/electric door open)	P1.A
			0.5A HSD Output #1 (Panel Buzzer)	P1.D
			0.5A HSD Output #11 (Air/Electric Door Close)	P1.E
			0.5A HSD Output #2 (Warning System Buzzer)	P1.K
			6.7A HSD Output #10 (LH Rear Red Warning)	P2.K
			6.7A HSD Output #9 (LH Front Red Warning)	P2.M
			6.7A HSD Output #6 (LH Rear Amber Warning)	P2.P
			6.7A HSD Output #5 (LH Front Amber Warning)	P3.A
			6.7A HSD Output #1 (RH Lower Reverse Light)	P3.C
VBAT2	P8.B	Fuse: SHM_BATT_2 (30A)	6.7A HSD Output #7 (RH Front Amber Warning)	P1.H
			6.7A HSD Output #12 (RH Rear Red Warning)	P1.L
			6.7A HSD Output #11 (RH Front Red Warning)	P1.M
			6.7A HSD Output #8 (RH Rear Amber Warning)	P1.P
			0.5A HSD Output #10 (Differential Lock)	P2.J
			0.5A HSD Output #9 (Park Brake Set)	P2.S
			0.5A HSD Output #3 (Htr #2 LH AFT Low-Speed Relay)	P3.D
			6.7A HSD Output #2 (LH Lower Reverse Light)	P3.E
			0.5A HSD Output #4 (Htr #2 LH AFT High-Speed Relay)	P3.L
VBAT3	P9.8	Fuse: SHM_BATT_3 (30A)	0.5A HSD Output #6 (Htr #1 LH FWD Low-Speed Relay)	P2.A
			0.5A HSD Output #5 (Htr #2 LH FWD High-Speed Relay)	P2.B
			0.5A HSD Output #8 (Strobe Light Relay)	P2.D
			3.0A HSD Output #1 (LH Lower Taillight)	P2.E
			3.0A HSD Output (RH Lower Taillight)	P2.F
			0.5A HSD Output #7 (Video Camera Box LED)	P2.N
			6.7A HSD Output #3 (RH Lower Brake Light)	P2.R
			3.0A HSD Output #4 (LH Upper Taillight)	P3.F
			6.7A HSD Output #4 (LH Lower Brake Light)	P3.H
			3.0A HSD Output #3 (RH Upper Taillight)	P3.K

Table 10, Switch Hub Module Power Supply Fuses and Associated Outputs