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Coding Information

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Title: Post 2007 Suspension Dump on ProStar and NGV

Applies To: Post 2007 ProStar and NHPV with Suspension Dump 595ACA

DESCRIPTION

This feature allows the operator to lower the rear of the vehicle by dumping the air from the suspension bags, or raise the rear of the vehicle to the set point controlled by the suspension height control valve.

This feature consists of the following components:

- Suspension dump switch (2 position latching)
- Suspension dump switch indicator light
- 2 (normally open) air solenoids
- Shuttle valve (2 position latching)

The suspension dump switch is located in a switch pack. The switch pack location and switch assignment varies depending on the vehicle configuration. The suspension dump air solenoids can be located in any air solenoid 4-pack depending on the vehicle configuration. However, both solenoids will reside in the same 4-pack. Refer to Diamond Logic® Builder (DLB) for switch pack switch assignment and body controller air solenoid pin assignment for a particular vehicle.

The switch pack sends a request message on the appropriate data link to the body controller to dump or raise the suspension depending on the switch position. The body controller provides near battery voltage to energize the appropriate air solenoid. The air solenoids, within the air solenoid 4-pack, share a common ground.

The shuttle valve installs directly into the two adjacent air solenoids. The shuttle valve traps air pressure in the air line to the suspension height control valve to keep the suspension dumped, or blocks air pressure in the air line to the suspension height control valve to keep the suspension inflated.

Dump Suspension

When requesting suspension DUMP the operator is requesting the body controller to release air from the air suspension. The system applies air pressure to the dump control line port of the suspension height control valve mounted above the rear axle. **The Body Controller will control the air solenoids to dump the suspension when:**

- The key switch is in the IGNITION position.
- **AND** the suspension dump switch is moved to the DUMP position.
- **AND** the suspension dump switch has a good status.
- **AND** the vehicle speed is less than or equal to 5 MPH.
- **AND** the vehicle speed has a good status.
- **AND** both solenoid A and B have a good status.
- **AND** an open circuit condition was not present for solenoid A during this key cycle.

When the body controller commands the Dump Suspension operation:

- Solenoid A will be de-energized (open).
- **AND** solenoid B will be energized (closed).

Air pressure is then passed from solenoid A through the delivery port of the latching valve to the suspension height control valve dump port, which keeps the suspension deflated.

Raise Suspension

When requesting suspension SUSP the operator is requesting the air suspension to be supplied with air pressure (or remain supplied). **The body controller will control the air solenoids to raise the suspension when the suspension dump solenoid A has a good status AND:**

- [The vehicle speed is greater than 5 MPH AND the vehicle speed has a good status]
- OR [the key switch is in the IGNITION position AND the suspension dump switch is moved to the SUSP position AND the suspension dump switch has a good status]

When the Body Controller commands the Raise Suspension operation:

- Solenoid A will be energized (closed)
- **AND** solenoid B will be de-energized (open)

Then shuttle valve then moves to block the air supply from going to the suspension height control valve dump port and the air will flow out around the exhaust shield of the latching shuttle valve, which allows the suspension to rise.

SIGNALS TO WATCH

The screenshot shows the International Diamond Logic Builder interface. The title bar reads 'International® Diamond Logic® Builder' and the status bar indicates 'Simulating - 2H5CUAPR48C558991'. The main window displays a table of signals for the session 'Air Susp Dump Dual Solenoid'. The table has columns for Signal, Pins, Signal Type, Value, Unit, Status, W..., and Lock. Several signals are checked, including Accessory, Ignition, Susp Dump Switch, and Susp Dump Solenoid A and B Commands.

Signal	Pins	Signal Type	Value	Unit	Status	W...	Lock
ABS Active Event			<input type="checkbox"/>	On/Off			
Accessory		J1939 Output	<input checked="" type="checkbox"/>	On/Off	0		
ASR Brake Control Active			<input type="checkbox"/>	On/Off			
Dump Spd Flag				mph			
Ignition		J1939 Output	<input checked="" type="checkbox"/>	On/Off	0		
Susp Dump Switch			<input type="checkbox"/>	On/Off			
Susp Dump Switch Ind Cmd		J1708 Output	<input checked="" type="checkbox"/>	On/Off	0		
Vehicle Speed			0	mph	0		
Air Susp Sensor Signal				psi			
Air Solenoid Power Current Signal				A			
Susp Dump Solenoid A Cmd	1601-F10	Relay Driver 0...	<input type="checkbox"/>	On/Off	0		
Susp Dump Solenoid B Cmd	1601-E12	Relay Driver 0...	<input type="checkbox"/>	On/Off	0		
Suspension Dump Alarm Flag			<input type="checkbox"/>	On/Off			
Suspension Dump State Change Inhibited			<input type="checkbox"/>	On/Off			
Suspension Dump				List			

POSSIBLE DIAGNOSTIC TROUBLE CODES

DTC	MODULE	DESCRIPTION
1747-2	Body Controller	Suspension Dump Switch Error
1755-5	Body Controller	Suspension Dump Solenoid B Relay Under Current Or Open Circuit
1755-6	Body Controller	Suspension Dump Solenoid B Relay Over Current
1756-5	Body Controller	Suspension Dump Solenoid A Relay Under Current Or Open Circuit
1756-6	Body Controller	Suspension Dump Solenoid A Relay Over Current

TROUBLESHOOTING

1. [Check for Diagnostic Trouble Codes \(DTC's\) in the Body Controller.](#)
2. [Check for ignition and accessory voltage.](#)
3. Make sure that there is at least 100psi in the air tanks.
4. Is the light in the switch flashing fast or slow:
 - A. **Slow Flash** (1 time per second) - This indicates that the interlocks below have not been met:
 - i. The key switch is in the IGNITION position **OR** the vehicle speed is greater than 5 MPH.
 - ii. AND the suspension dump switch has a good status
 - iii. AND both air solenoids have a good status
 - iv. AND an open circuit condition was **not** present on either suspension dump solenoid this ignition cycle.
 - v. AND [both suspension dump solenoids are de-energized **OR** (the vehicle speed has a good status AND the suspension dump switch is in the DUMP position AND the body controller has controlled the solenoids to raise the suspension.)]
 - B. **Flash Fast** (2 times per second) - This indicates that there is an error condition such as:
 - i. The suspension dump switch has a bad status
 - ii. OR the suspension dump solenoid A has a bad status
 - iii. OR the suspension dump solenoid B has a bad status
 - iv. OR an open circuit condition was present for solenoid (A or B) this ignition cycle.
 - v. OR (the suspension dump switch is in the DUMP position AND the vehicle speed has a bad status)

PARTS INFORMATION

- Click here for the [Bodybuilders Quick Reference](#)
- [Diamond Logic Body Integration Quick Reference Parts Guide](#) (This is a very good parts guide with pictures)

CIRCUIT DIAGRAMS

- [Master Service Information Page](#)

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