

ROOF AJAR - DIC

By Ed Borland - 1/2014

Roof Ajar - DIC occurs when the roof is not fully opened or not fully closed AND the cargo cover lid is released

THE UNDERLINED IS NOT TRUE!!

For the last 2 years I have quoted the GM definition of Roof Ajar to those who had experienced this DIC.

There was no feedback that showed the Cargo Bay Cover Lid being “released” had anything to do with the Roof Ajar DIC.

TIME FOR TESTING!!

ROOF AJAR TEST

Test 1

Roof closed.

The Tonneau was unlatched using the console switch.

Cargo Bay cover not “released”.

Drove the SSR

Got the “Roof Ajar” DIC.

Latched the Tonneau cover

“Roof Ajar” DIC cleared

Test 2

Roof closed

The Tonneau was unlatched using the GM Tech 2.

Cargo Cover **not** released

Drove the SSR

Got the “Roof Ajar” DIC.

Latched the Tonneau cover

“Roof Ajar” DIC cleared

Test 3

Roof closed

The “Outer Latch Actuator” was unlatched using the GM Tech 2.

Cargo Cover **not** released

Drove the SSR

Got the “Roof Ajar” DIC.

Re-Latched the “Outer Latch Actuator”

“Roof Ajar” DIC cleared

Test 4 - Hall Effect Switch Description

A “Hall Effect Switch” (HES) is basically a coil of wire with 12 volts applied to it.

When a permanent magnet is positioned near the coil of wire the HES output to the Roof Door Module changes from about 3 volts to about 1 volt.

The Roof Door Module detects the input voltage change and the internal programming responds accordingly.

Typical HES Voltage Outputs

| Open/Short Data | |
|-------------------------|------------|
| Folding Top Cyl. Extend | 0.75 Volts |
| Folding Top Cyl. Retrac | 2.95 Volts |
| Stowage Latch Cyl. Retr | 3.03 Volts |
| Stowage Lid Closed Left | 1.38 Volts |
| Stowage Lid Cyl. Extend | 3.14 Volts |
| Stowage Lid Ext. Panel | 2.91 Volts |
| Stowage Lid Ext. Panel | 0.79 Volts |

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Folding Top Cyl. Extended Sen.

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Test 4 Set Up

Removed the Tonneau latch assembly
“Hall Effect Switch” permanent magnet
from the drivers side.



Test 4

Tonneau latch HES magnet removed

Cargo Bay cover not released.

Closed & latched the Tonneau cover

Drove the SSR.

Got the “Roof Ajar” DIC.

Re-installed the magnet

Re-latched the Tonneau

“Roof Ajar” DIC cleared

In all tests, the Cargo Bay cover was not released.

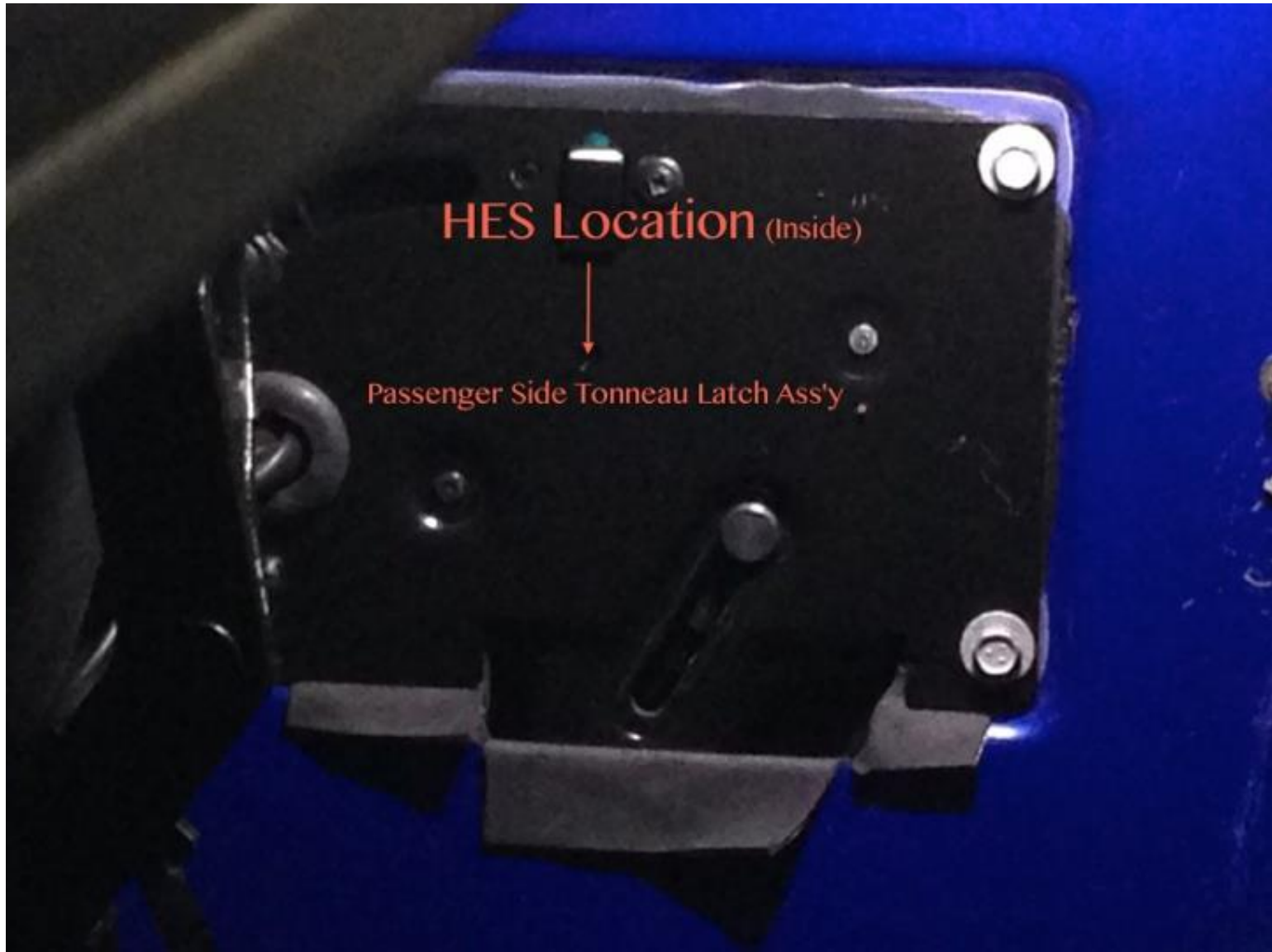
These tests show the GM definition of what causes a Roof Ajar DIC is incorrect.

Hall Effect Switches (HES)

There are 9 Hall Effect Switches in the SSR roof control system.

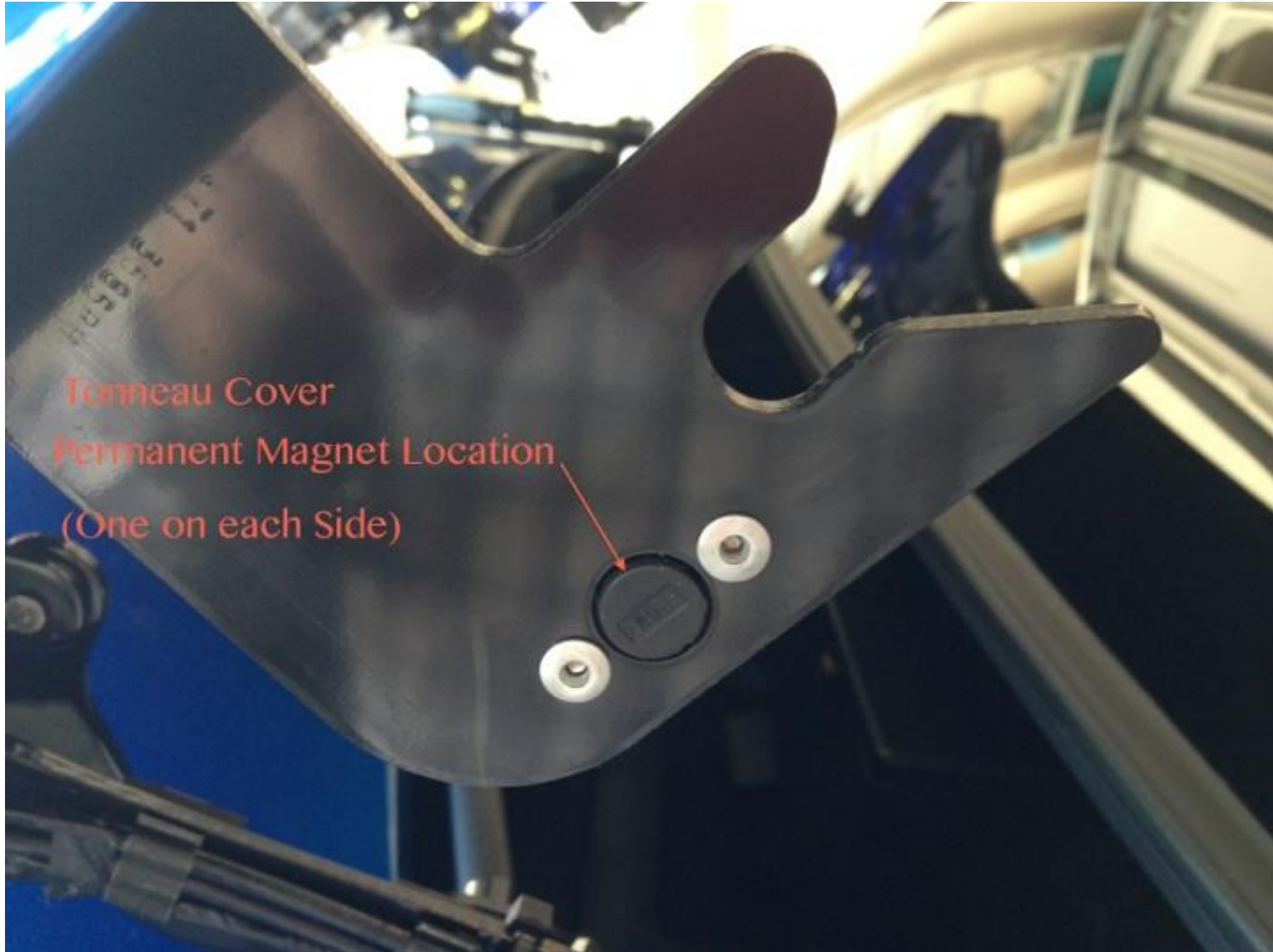
2 - Tonneau Latch Assemblies.

1 - Left Side, 1 - Right side



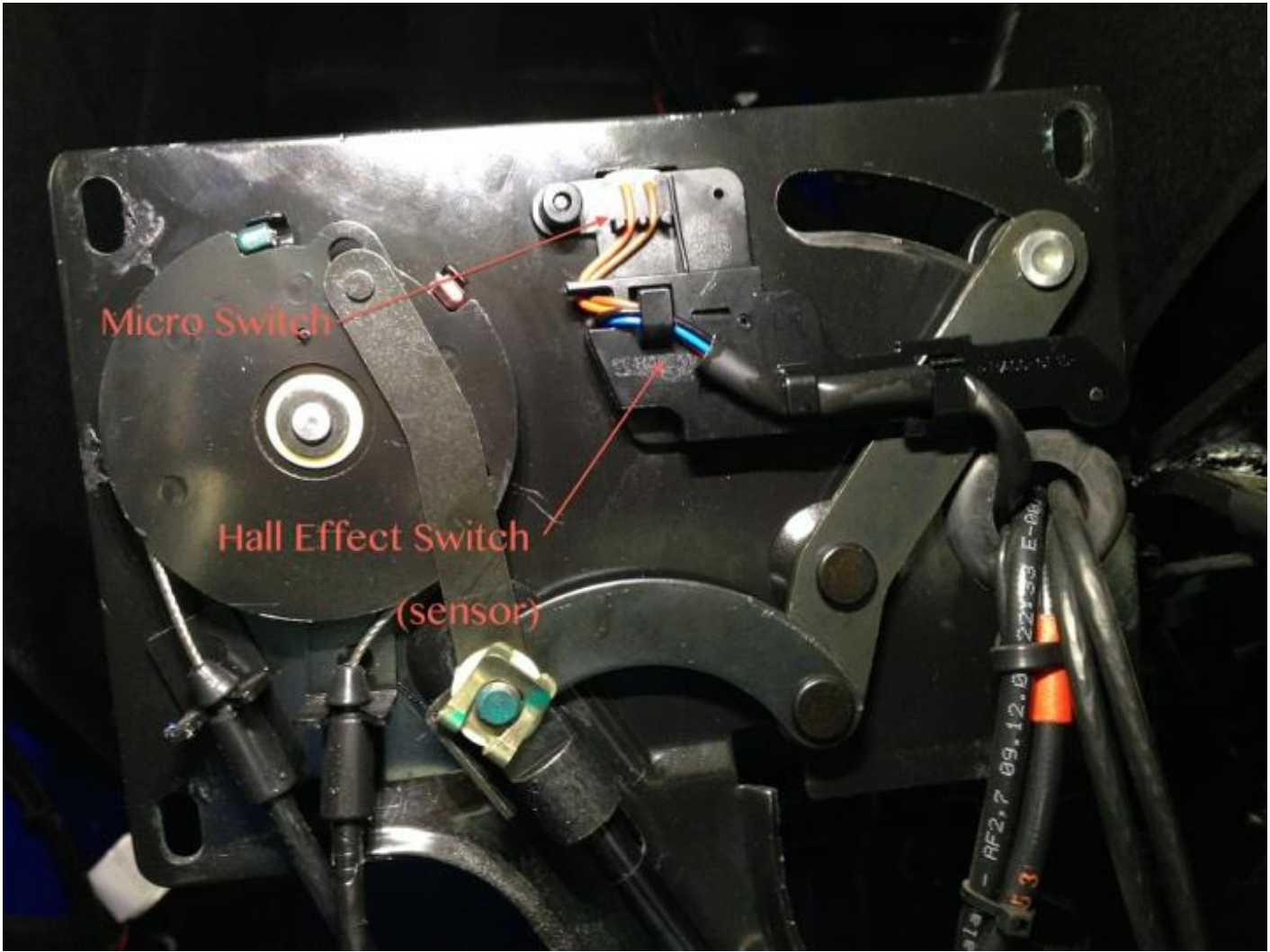
Tonneau Latch Hall Effect Switch - Permanent Magnet

1 - Left Side, 1- Right Side



2 - Tonneau Latch Hall Effect Switches.

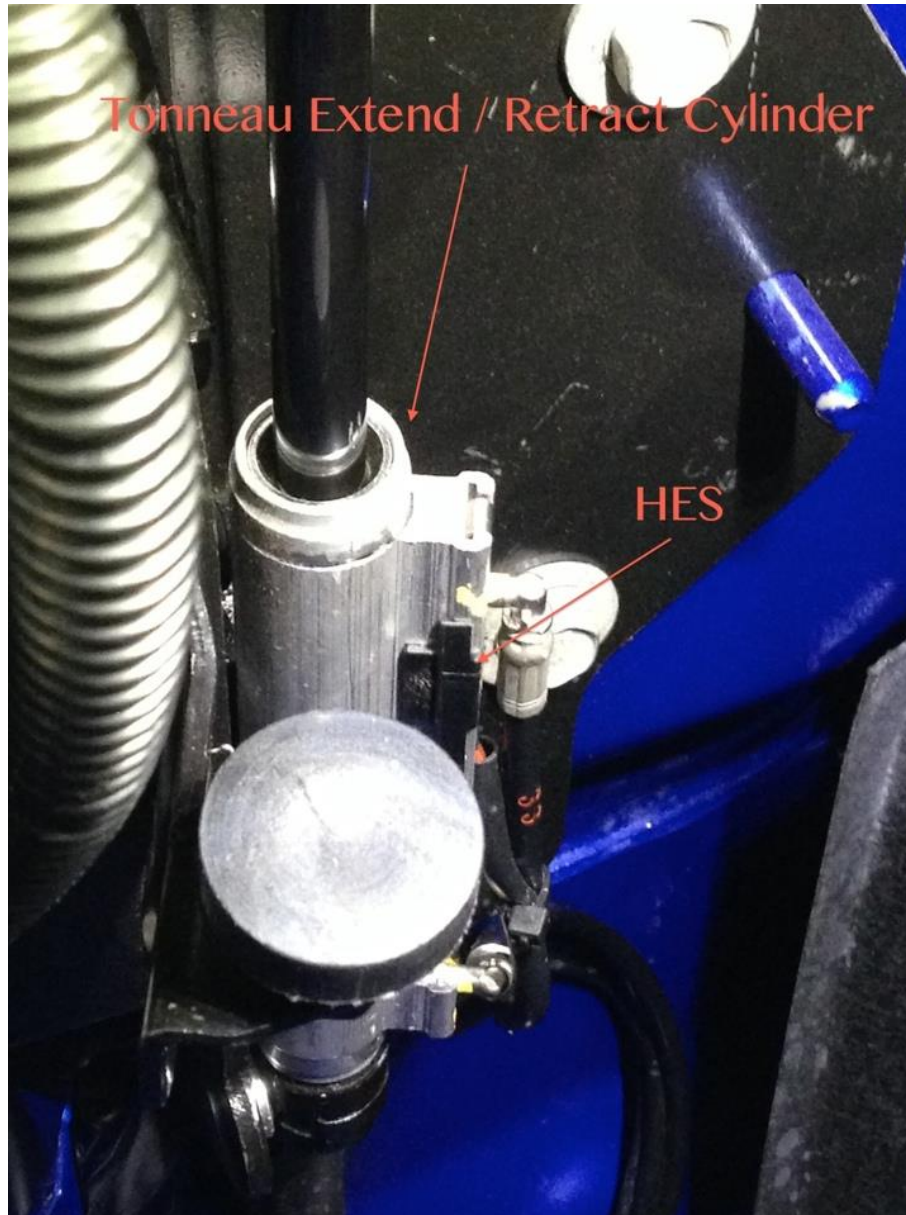
1- Left Side, 1 - Right Side



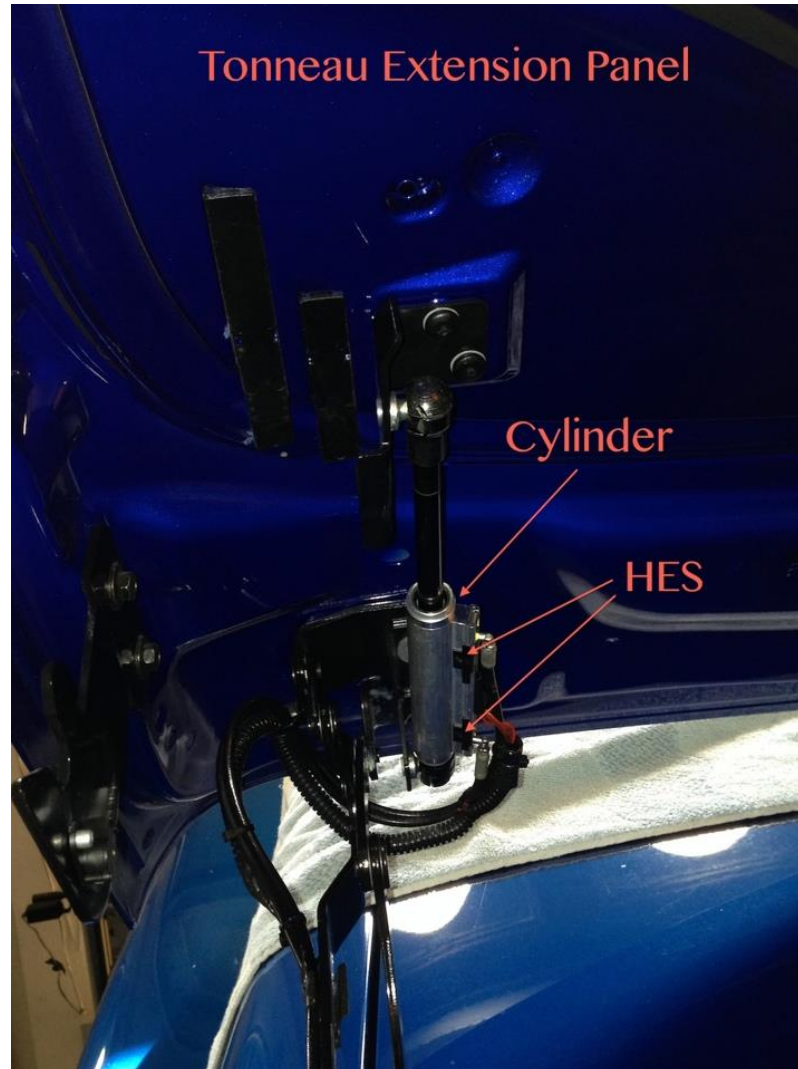
2 - Tonneau Latch Cylinders.
1- Left Side, 1 - Right Side



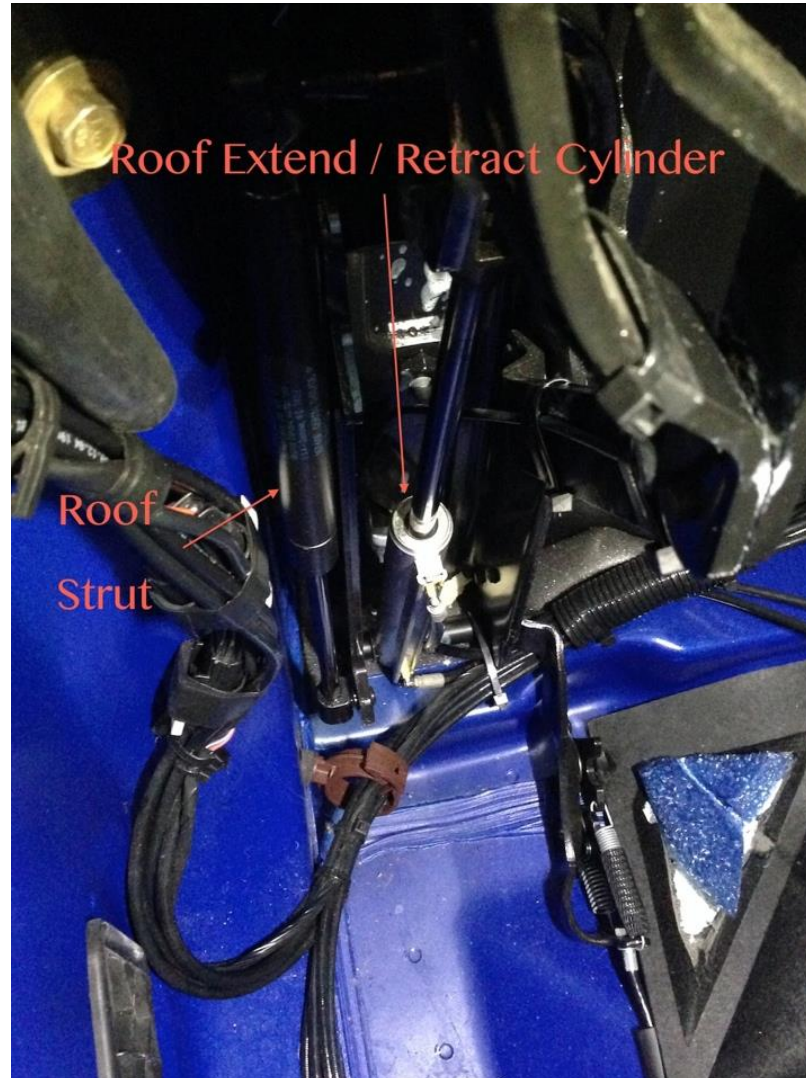
1 - Tonneau Extend / Retract Cylinder position HES



- 2 - Tonneau Extension Panel Cylinder position HES.
- 1 - for lid extension extended
- 1 - for lid extension retracted



2 - Roof Raise / Lower Cylinder position HES
1 - for roof extended, 1 - for roof retracted



A more accurate definition of “Roof Ajar” would be;

Roof Ajar - occurs when the roof is not fully opened or not fully closed

OR the Roof Door Module detects an switch or HES input not normal.

The Tonneau latch is the **first** and **last** item to operate when opening or closing the roof.

A failure of any of the 5 switch interlock inputs or the other 7 HES inputs to the RDM would stop the roof operation before reaching the point of latching the Tonneau.

The most likely causes of a Roof Ajar DIC, would be a Tonneau Latch HES or a Tonneau cylinder HES failure.

“DIC” terminology is very different than the terminology used on the “Electrical Schematics”.

DIC = Hall Effect Switches
Schematic = Position Sensors.

DIC = Tonneau
Schematic = Folding Top Stowage
Compartment Lid.