



# Service Bulletin

Bulletin No.: 16-NA-286

Date: July, 2019

## INFORMATION

**Subject:** Hydraulic Brake Performance Issues on Hybrid Vehicles, DIC Messages Displayed and/or DTC C05AD, C0580 or P05FF Set

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		from	to	from	to		
Chevrolet	Malibu	2016	2019	—		1.8L — RPO LKN	—
Chevrolet	Volt	2016	2019			1.5L — RPO L3A	

<b>Involved Region or Country</b>	North America, Israel, South Korea
<b>Condition</b>	Various hydraulic brake performance issues, possible DIC messages displayed and/or DTCs may be set.
<b>Cause</b>	Kinks in metal lines or twisted flexible brake hoses, loss of brake fluid due to leaks, reused hardware that should have been replaced, bent and distorted or damaged brake caliper guide pins.
<b>Correction</b>	Review the information within this Bulletin.

### Kinked Metal Brake Line

### Overview

Brake system operation is comprised of mechanical force being converted into hydraulic pressure by the master cylinder which is regulated to meet braking system demands by the pressure balance control system and then delivered to the hydraulic brake wheel circuits by the pipes and flexible hoses. The wheel apply mechanical components then convert the hydraulic pressure back into mechanical force which presses linings against the rotating brake system components.

- For information regarding any Conditions that may not be corrected by using this Bulletin, refer to **Symptoms - Hydraulic Brakes** and/or **Hydraulic Brake System Diagnosis** in SI.
- For information regarding DTC C0580 Brake Pedal Position Sensor Performance and DTC P05FF Brake Pressure Sensor / Brake Pedal Position Sensor Correlation, refer to **Diagnostic Trouble Code (DTC) List - Vehicle** in SI.

### Hydraulic Brake Conditions That May Occur on Hybrid Vehicles

The following are examples of some conditions that may occur on the hydraulic brake systems of Hybrid vehicles.



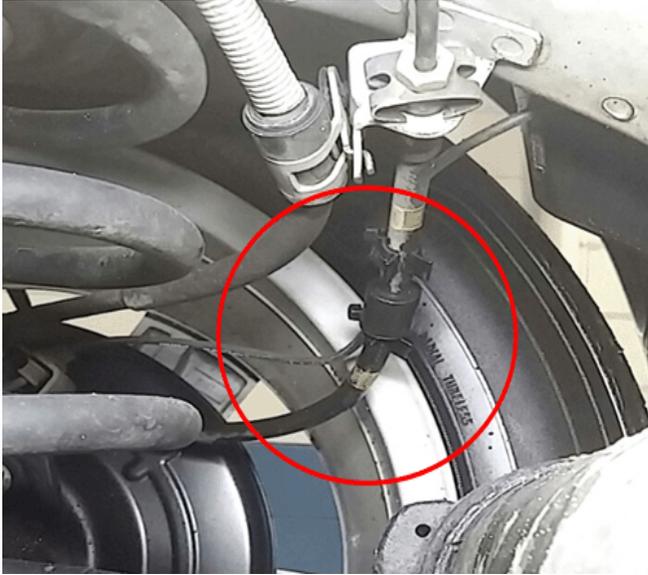
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This example shows a misrouted front brake line, resulting in kinking from hitting the shock tower when the wheel is turned. This condition may cause reduced brake fluid apply pressure to the wheel resulting in brake performance issues. DTC C05AD Brake Blending System Performance may set.

Repair the kinked metal brake line. Refer to **Brakes > Hydraulic Brakes > Repair Instructions** in SI.

After the repair, if DTC C05AD is still set, refer to **DTC C05AD Brake Blending System Performance** in SI.

### Rubber Brake Hose Rubbing on Tire/Wheel Assembly



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The brake hose is misrouted causing the hose to rub on the front tire, eventually resulting in a loss of brake fluid.

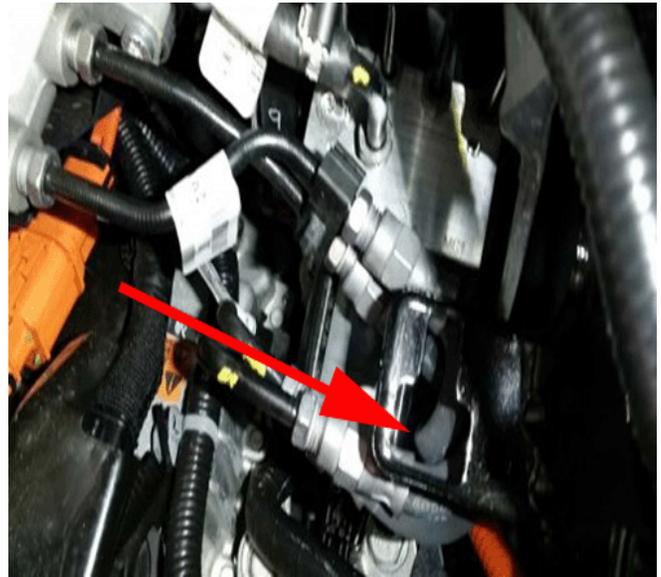


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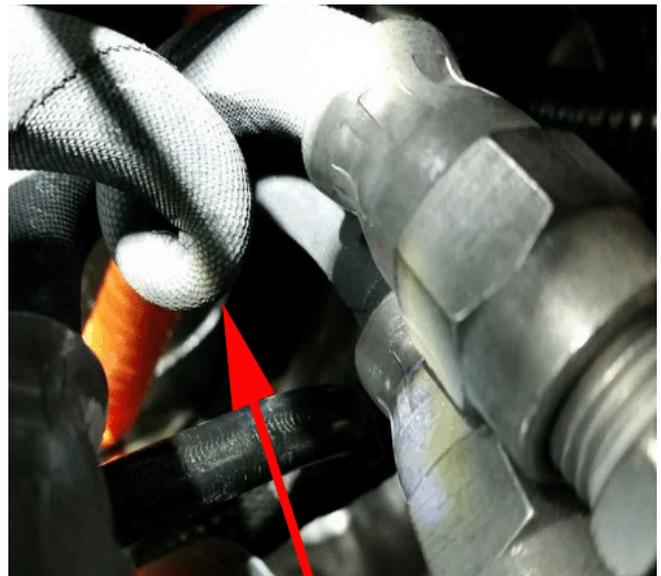
The misrouting may be caused by the anti-rotation bracket not properly seated into the retaining hole, or the hose is not otherwise properly secured resulting in it making contact with the rotating tire/wheel assembly.

Replace and properly secure the brake hose. Refer to **Front Brake Hose Replacement** or **Rear Brake Hose Replacement** in SI.

### Twisted Brake Hose at Master Cylinder



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Perform a visual inspection of the flexible brake hose at the master cylinder for any kinks or twisting as shown. This condition may cause reduced brake fluid apply pressure to the wheels resulting in brake performance issues.

Replace the flexible brake hose at the master cylinder. Refer to **Brakes > Hydraulic Brakes > Repair Instructions** in SI.

## Bent or Cracked Brake Fluid Bleeder Valve



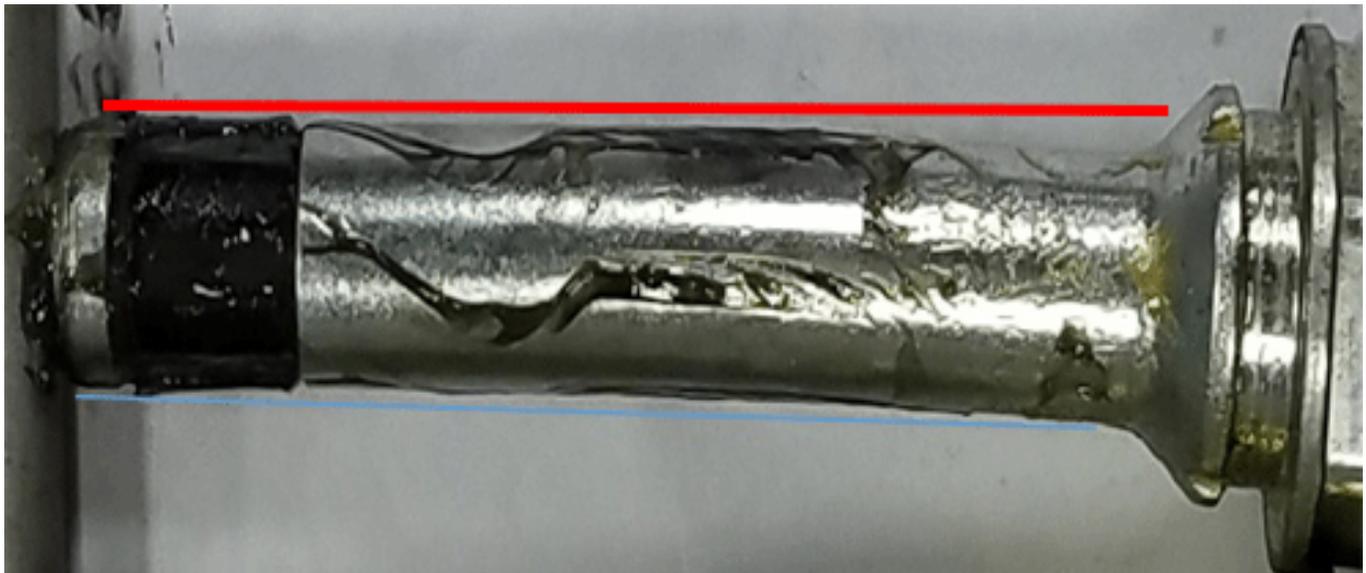
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Each brake caliper has a brake fluid bleeder valve. A visual inspection may show that any of the front or rear brake fluid bleeder valves have been bent or cracked. A possible cause is road debris impact.

If this condition is encountered, replace the brake fluid bleeder valve.

## Brake Caliper Guide Pins

The purpose of the brake caliper guide pins is to align/guide the proper angle for how the brake pads meet the rotor in order to ensure correct and complete application.



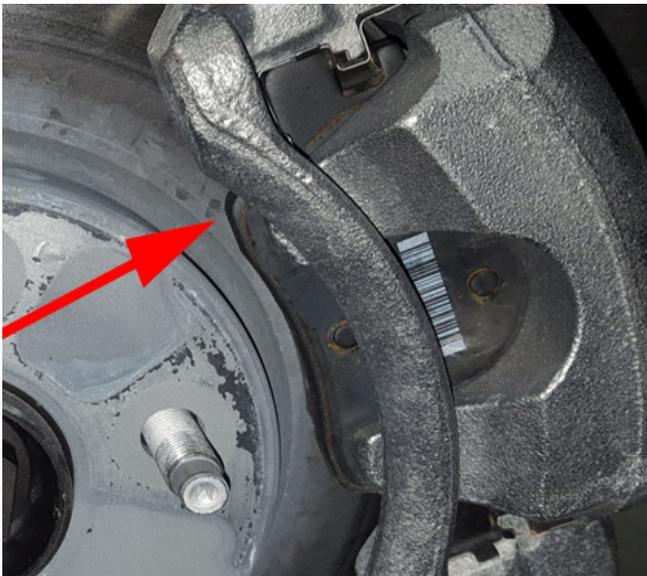
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View of a damaged brake caliper guide pin.

**Important:** The MY2016-2019 Malibu and Volt brake caliper guide pins have several design differences and different removal and installation procedures. When servicing, refer to the applicable Service Manual information.

If the brake caliper guide pins are suspected of causing a brake performance condition, they have to be removed to perform a visual and functional inspection and to determine if any of the following conditions exist:

- Bent guide pins
- Corrosion
- Damage
- Distortion
- Grooves
- Lack of high temperature lubrication
- Looseness in the brake caliper mounting bracket
- Lower guide pin bushing damaged or missing
- Missing or improperly seated guide pin seal
- Restricted caliper guide pin movement
- Split or torn guide pin boots
- Seized or binding caliper guide pins



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- Uneven brake pad contact/wear on the brake rotor.
- ⇒ **MY2016-2019 Malibu:** If any of these conditions are observed, replace the brake caliper guide pins. Refer to **Front Brake Caliper Guide Pin Replacement** or **Rear Brake Caliper Guide Pin Replacement** in SI.
- ⇒ **MY2016-2019 Volt:** If any of these conditions are observed, replace the brake caliper guide pins. Refer to **Front Brake Caliper Replacement** or **Rear Brake Caliper Guide Pin Replacement** in SI.

## Brake Fluid Leak at Caliper Brake Hose to Caliper

**Important:** On Malibu vehicle applications, the brake hose caliper crush washers are also identified as brake hose fitting gaskets. On Volt vehicle applications, the sealing washers are also identified as brake hose fitting gaskets. They can only be used **ONE** time. When servicing, always discard them and replace with new ones.



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The brake hose caliper crush washer may exhibit a distorted oval shape and witness lines which indicate multiple use and may result in a brake fluid leak.



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**Important:** When tightening the brake hose caliper crush washer bolt, make sure to finger tighten the bolt first to avoid cross threading when reinstalling.

The brake fluid leak may also be caused by the brake hose caliper crush washer bolt being cross-threaded and retightened during installation.

- ⇒ If either of these conditions are encountered, refer to **Front Brake Hose Replacement** or **Rear Brake Hose Replacement** in SI.
- ⇒ If the hydraulic brake system requires bleeding due to brake fluid loss, refer to **Hydraulic Brake System Bleeding** in SI.

## Version Information

Version	2
Modified	July 18, 2019 – Made the Subject more concise, changed EV/Hybrid to Hybrid, added Model Year 2018-2019 vehicles, inserted correct engines and RPOs, updated Involved Region or Country, added Condition, Cause and Correction Table, clarified all of the text, the proper steps to take to correct the conditions and the correct procedures to reference in SI.

