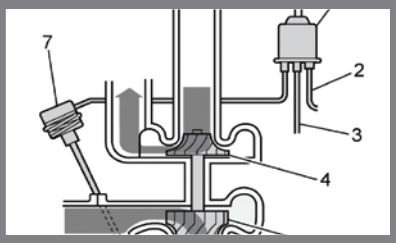
TECH LINK

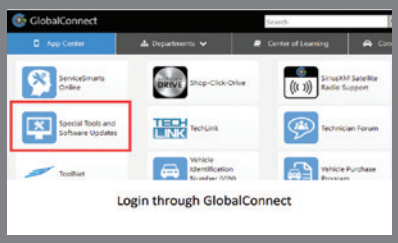
Mid-November 2022, Volume 24, No. 22

New System Reset and Connector Reconnect Labor Codes



DTC Sets After Turbocharger Replacement

see page 3



GM Loan Tool Program Updates Tool Returns

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New System Reset and Connector Reconnect Labor Codes

GM Brand Quality has introduced a new labor code for 2023 passenger cars and trucks to help isolate instances where a customer's concern is remedied when a technician resets the power by disconnecting and reconnecting a connector, fuse, or battery cable.

The new labor code for a system reset became effective with the December 1st Labor Time Guide edition and is applicable to 2023 and future model year vehicles. The system reset labor code is not permitted for 2022 and previous model year vehicles.

SYSTEM RESET OR CONNECTOR RECONNECTION

To help differentiate between proper use of the labor code for a system reset and a connector reconnection, which is also available in the same Wiring Systems and Power Management section of the Labor Time Guide, keep in mind the following guidelines.

- **System Reset** – The system or component is found inoperable or there is no communication from the module. When the system is reviewed, the connectors are fully seated without any visible damage. When power is reset, by connector, fuse or battery, the system/component is now functional.

TIP: A connector that was not seated, an unlocked Connector Position Assurance (CPA), or a loose terminal are not examples where a system reset would apply.

- **Connector Reconnection** – The connector is found not fully seated or the CPA is not engaged. Repairs only require reseating of the terminal/CPA without component replacement.

TIP: Connector reconnection does not include loose/unseated terminals that require terminal replacement or damaged terminals or wires.

In addition, be sure to record any set DTCs.

Refer to Bulletin #22-NA-242 for more information.

▶ **Thanks to Marco Salcedo**

DTC Sets After Turbocharger Replacement

After the replacement of the turbocharger on some 2020-2023 Encore GX and 2021-2023 Trailblazer models equipped with the 1.2L engine (RPO LIH), DTC P0234 (Engine Overboost) may set in the Engine Control Module (ECM) along with an illuminated Check Engine MIL. In some cases, there also may be reduced engine performance as the ECM will limit the amount of available boost pressure.

If these conditions are present after the turbocharger has been replaced or repaired, clear the DTC and use GDS2 to perform the Intake System Learned Values Reset.

The Service Information procedure instructs to complete the Intake System Learned Values Reset when the Q42 Turbocharger Wastegate Solenoid Valve is replaced or serviced.

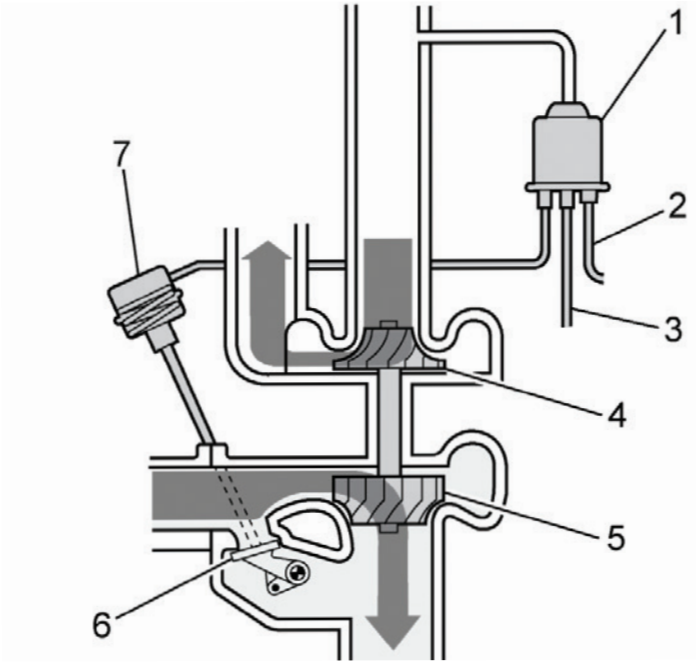
The ECM learned integrator value of the turbocharger wastegate solenoid must be reset to ensure proper operation after the repair, replacement or service of several components. If the reset is not performed, additional codes can set after component replacement.

For example, if there is an issue with the boost system, the ECM may increase wastegate actuator solenoid pulse-width modulation in order to achieve the boost target. When the turbo or solenoid is replaced to correct the issue, the learned values must be reset or they will have the opposite effect on engine performance, leading to the overboost condition.

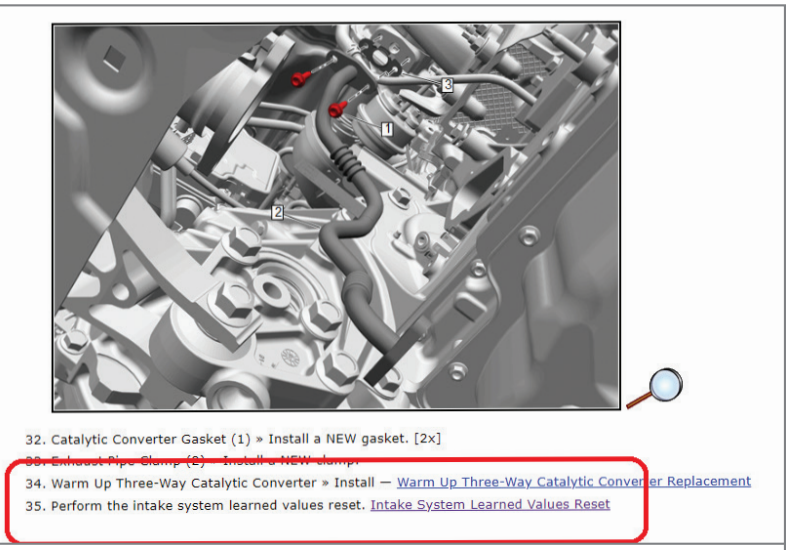
TIP: Be sure to always complete all steps in a repair procedure, including resetting any modules or values, as outlined in Service Information.

For additional information, refer to #PIP5892A.

Thanks to Raymond Haglund



Q42 Turbocharger Wastegate Solenoid Valve (#1)



Be sure to always follow all steps in a repair procedure, including resetting any modules or values.

GM Loan Tool Program Updates Tool Returns

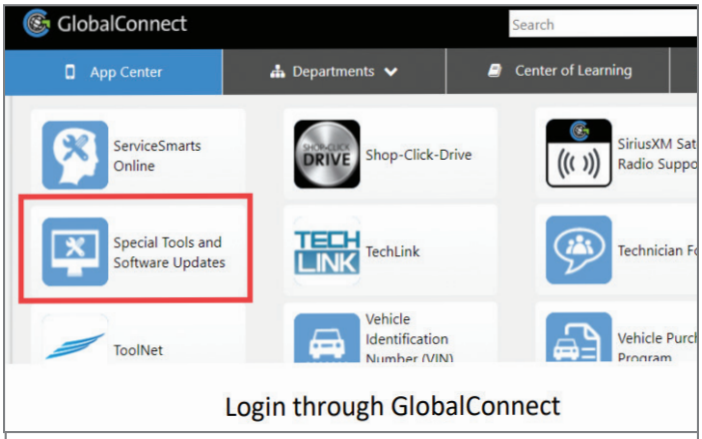
The GM Loan Tool Program (LTP) has updated several policies recently to help address the shipping and administrative costs of the program. These changes included an increase in the annual fee (beginning November 1, 2022) and the tool return penalty (beginning August 1, 2022).

The Loan Tool Program supplements the U.S. Essential Tool Program as a cost-effective alternative to purchases of high cost and/or infrequently used special tools. It does not replace essential tool shipments. Tools in the program range in retail price from $10 to $3,000. The Loan Tool Program was put in place in address special tool costs and availability.

Once a tool has been selected for loan on the website, the tool will be shipped to the dealership via UPS 2-day ground (overnight shipping is available by request at an additional charge) and then, after five days of use, the dealership returns the tool to the central distribution warehouse in Romeoville, IL.

LOAN TOOL RETURNS

The penalty for not returning a loaned tool back to the Loan Tool Program within 5 days of receiving the tool is two times the normal cost of the tool. In addition, a $500 service fee now will be applied per instance of a non-returned tool. The service fee will help offset additional manufacturing and administrative costs incurred while Bosch is procuring a replacement tool. Promptly returning loaned tools will help reduce costs and facilitate maximum utilization of each tool in the program.



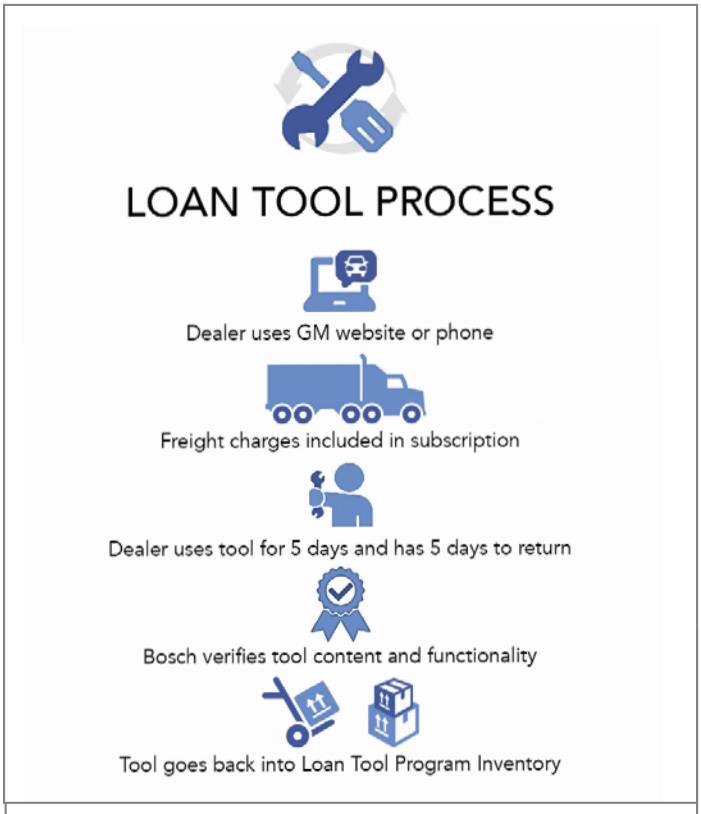
The Loan Tool Program offers a cost-effective alternative to purchasing high cost special tools.

LOAN TOOL PROGRAM ACCESS

The Loan Tool Program is coordinated and managed by Bosch Automotive Service Solutions. The LTP is funded by all U.S. dealerships through an annual subscription fee, which includes outbound and inbound ground shipping. Dealerships with multiple franchises at the same address are charged only one subscription fee for the program.

Special tools in the Loan Tool Program can be requested through the GM Special Tools website. Dealerships must access the GM Special Tools website through the GlobalConnect link in order to enable the Loan Tool button.

Select special tools for all GM divisions are included in the Loan Tool Program inventory, including high cost engine and transmission unit repair tools as well as special tools for low volume GM models.



The Loan Tool Program features a simple process for requesting special tools.

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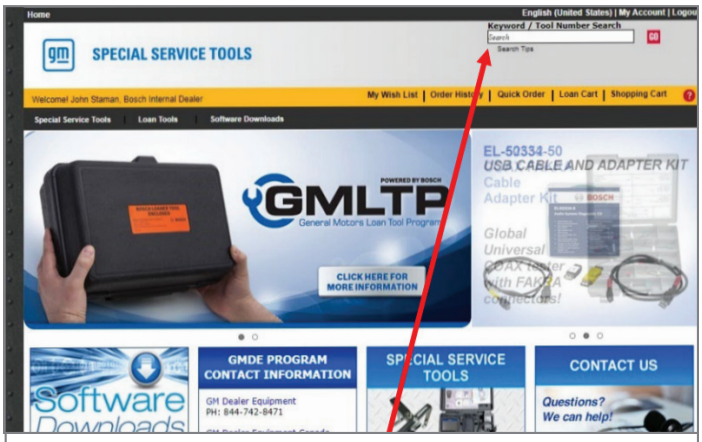
In some cases, the deferment of just one special tool to the Loan Tool Program can offset the annual subscription fee (for example, the EL-51470 Night Vision System Alignment Target Tool has a cost of $2,661).

ORDERING A SPECIAL TOOL

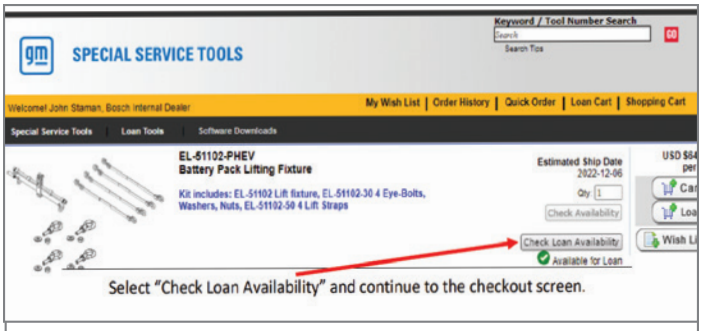
The Loan Tool Program features a simple process for requesting special tools.

1. Dealership contacts Bosch via the GlobalConnect link to the GM Special Tools website. Once on the site, select the Loan Tools feature and enter the desired tool number in the Search box. If the desired tool is available for loan, select the Loan cart button to initiate the transaction.



To request a loan tool, go to the GM Special Tools website via the Global Connect link.

2. Fill out the request form and Check Loan Availability. Continue to the checkout screen.



Fill out the request form and select Check Loan Availability.

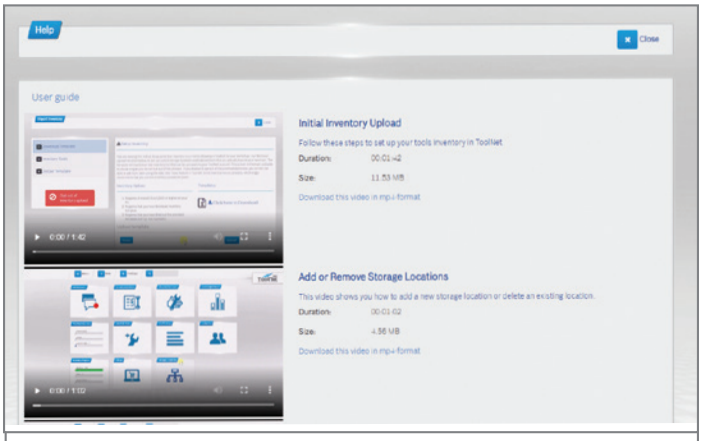
3. Bosch processes the loan tool request and ships the tool. 2-day shipping is included in the program (an overnight shipping option is an extra charge calculated at check out).
4. Dealership has use of the tool for 5 days and then returns the tool using the provided return instructions and label. The loan tool requestor will receive two email messages from Bosch as reminders to return the tool. Incomplete or unreturned tools will be charged to the dealership at a rate of 2x the retail price of the tool.
5. Bosch receives the returned loan tool, verifies its functionality, and places it back in the loan tool inventory.

Each year, new tools are evaluated for the Loan Tool Program. Currently, approximately 20% of all tool numbers are available through the Loan Tool Program.

Dealerships have the option to purchase all special tools available through the LTP via the online catalog or by calling 1-800-GM-TOOLS.

TOOLNET INVENTORY SYSTEM

The ToolNet Inventory System is included in the Loan Tool Program annual fee. The inventory system helps track special tools in the dealership and, since it is specific to a dealership's BAC, allows the dealership to inventory their tools based on their storage location.



The ToolNet site offers a number of videos on tracking and managing special tools.

To access the site, select the ToolNet icon in GM GlobalConnect on the Service page of the App Center. ToolNet includes a variety of management features, including Tool Check-In/Out, Tool Maintenance Scheduling, Storage Location Customization, User Management, and Tool Usage Reporting. Check out the Help page for a number of videos with instructions and tips on using the features of ToolNet.

Thanks to John Staman

Maintaining Power to a Module Sent in for Warranty Analysis

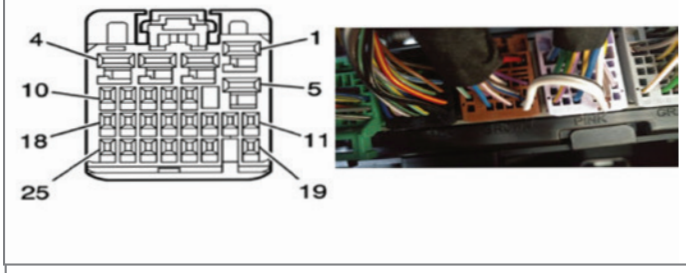
In order to help GM Engineering identify the root cause and troubleshoot some component drains or logic lockups on 2000-2023 GM passenger cars and trucks, it's critical that power to the module be maintained during shipping; otherwise, the component may reset and clues to the cause of the condition will be lost.

To maintain power to the module, a small battery should be connected before it is sent to GM Engineering for analysis. Be sure to work with GM TAC, TCSC, your Field Service Engineer or other contacts to identify the best course of action with the part.

Bulletin #22-NA-205 was released recently with information about properly harvesting a module for warranty analysis. The photos in the document show an example of harvesting a Front Camera Module (FCM) from a 2022 GMC Sierra due to a parasitic drain.

POWER SUPPLY

A stable power connection to the component can be accomplished using a small 12V battery that is safe for shipping. In some cases, a larger battery may be required if a module has a high drain condition. A battery connector cable with F1 terminals also will be needed. The size of the wire and fuse will be dependent on the current draw.



Identify the (-) Ground and (+) 12V power supply terminals

Use Service Information schematics connector end views to find the component's pinout to identify the (-) Ground and (+) 12V power supply terminals. If there is more than one, confirm with GM Engineering if one or all pins are required to be connected.

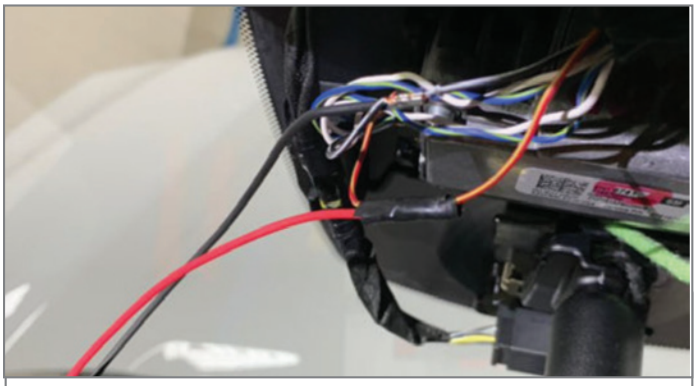
CONNECTING POWER

Next, after determining the best way to splice in the auxiliary power supply, expose the wiring, connect power and secure the connection. Verify the drain is still present before securing the connection.

Verify the drain is still present before securing the connection.

Once the ground and 12V wires to the battery are connected, cut the wires on the connector one at a time to remove the battery and component out of the vehicle.

Again, if the module harvesting concerns a parasitic drain, verify that the drain is still present using a current clamp once it has been removed from the vehicle.



Ground and 12V wires connected to the battery.

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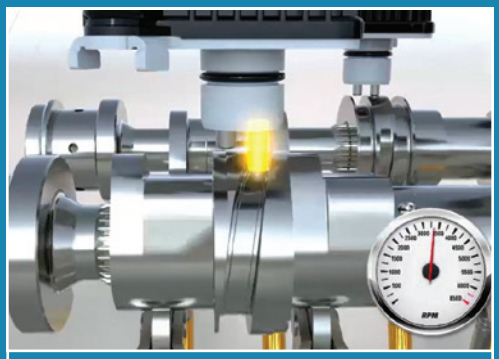
Intake Camshaft Sliding Lobe Pack DTCs

In cold ambient conditions (10°F / –12°C), DTCs P30C3 and/or P30BF, P30C7 and P30CB may set on some 2019-2022 Silverado, Sierra; and 2020-2022 CT4 models equipped with the 2.7L engine (RPO L3B). These DTCs may be caused by a binding or sticking intake camshaft sliding lobe pack. This condition is most likely to occur on vehicles with less than 10,000 miles (16,000 km).



Intake camshaft sliding lobe pack

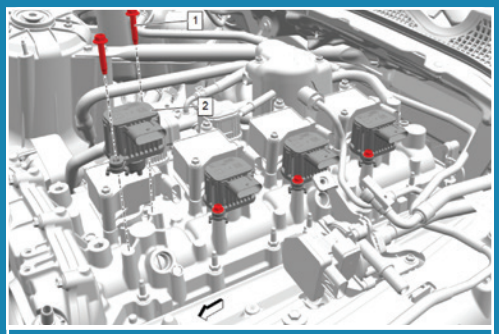
If DTCs P30C3 (Intake Camshaft Profile Sleeve Position Sensor 2 Performance) and/or P30BF (Intake Camshaft Profile Sleeve Position Sensor Performance), P30C7 (Exhaust Camshaft Profile Sleeve Position Sensor Performance) and P30CB (Exhaust Camshaft Profile Sleeve Position Sensor 2 Performance) are set, follow the diagnostics in the appropriate Service Information. These DTCs will set when the Engine Control Module detects a difference between the actual and desired camshaft position angle.

If there is no trouble found with the lobe position sensors or wiring, replace the cam lobe position actuators, based on the DTCs set.

Replace the cam lobe position actuators for:

- P30BF – intake cylinders 1 and 2
- P30C3 – intake cylinders 3 and 4
- P30C7 – exhaust cylinder 2
- P30CB – exhaust cylinder 3

If the cam lobe position actuators were replaced previously and the fault returns, replace the intake camshaft (for DTC P30BF or P30C3) or exhaust camshaft (for DTC P30C7 or P30CB).



Intake camshaft lobe position actuators (#2)

TIP: The intake and exhaust cam profile actuator solenoids are not interchangeable.

For more details, refer to #PIP5843A.

▶ **Thanks to Robert Halas**

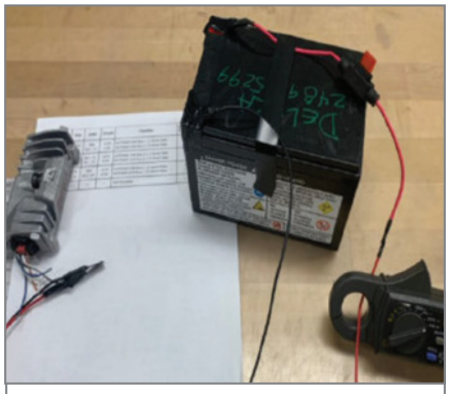
Install a new connector on the vehicle harness and verify no DTCs are set.

PACKAGING AND SHIPPING

When returning the component in the failed state, firmly secure the battery and component in the shipping container to ensure the electrical connection stays secure. Also properly seal and package the component in the shipping container and label the package: UN2800 – Batteries, Wet, Non-spillable.

For complete details for powering the module and shipping all components, refer to Bulletin #22-NA-205.

▶ **Thanks to Marco Salcedo**



Module removed from the vehicle with battery connection.

Sticking Charge Air Bypass Valve

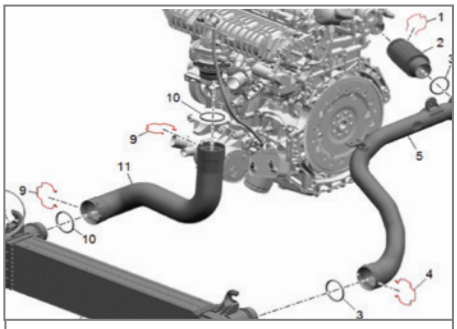
Some 2021-2022 Envision, CT4, CT5, XT4, XT5, XT6, Blazer and Acadia models equipped with the 2.0L 4-cylinder engine (RPO LSY) may have DTC P0299 (Engine Underboost) set in the Engine Control Module.

If DTC P0299 is set, follow the diagnostics outlined in the appropriate Service Information.

If diagnosis does not identify the source of the condition, inspect the charge air bypass valve (shown in the fully extended, or closed, position).

Charge air bypass valve in the closed position

First remove the charge air cooler air inlet hose adapter from the turbocharger. Using a bore scope, check the compressor wheel for any signs of damage. If there is damage to the compressor wheel, it will be necessary to replace the turbocharger.



Charge air cooler inlet hose (#5)

If there isn't any damage seen on the compressor wheel, use the bore scope to inspect if the charge air bypass valve is stuck in the open position.

TIP: Be sure to use a bore scope to inspect the charge air bypass valve. The valve may stick open intermittently (plunger is fully retracted) and attempting to remove it may cause the valve to return to a normally closed position.

Use a bore scope to check if the charge air bypass valve is in a stuck-open position.

If the charge bypass valve is found stuck open or is causing DTC P0299 to set intermittently, replace the charge air bypass valve. After replacement, clear any DTCs and evaluate engine operation.

Vale stuck open with plunger fully retracted

Refer to #PIP5889 for additional information.

▶ **Thanks to Robert Halas**

TECH LINK

GM TechLink is published for all GM retail technicians and service consultants to provide timely information to help increase knowledge about GM products and improve the performance of the service department.

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