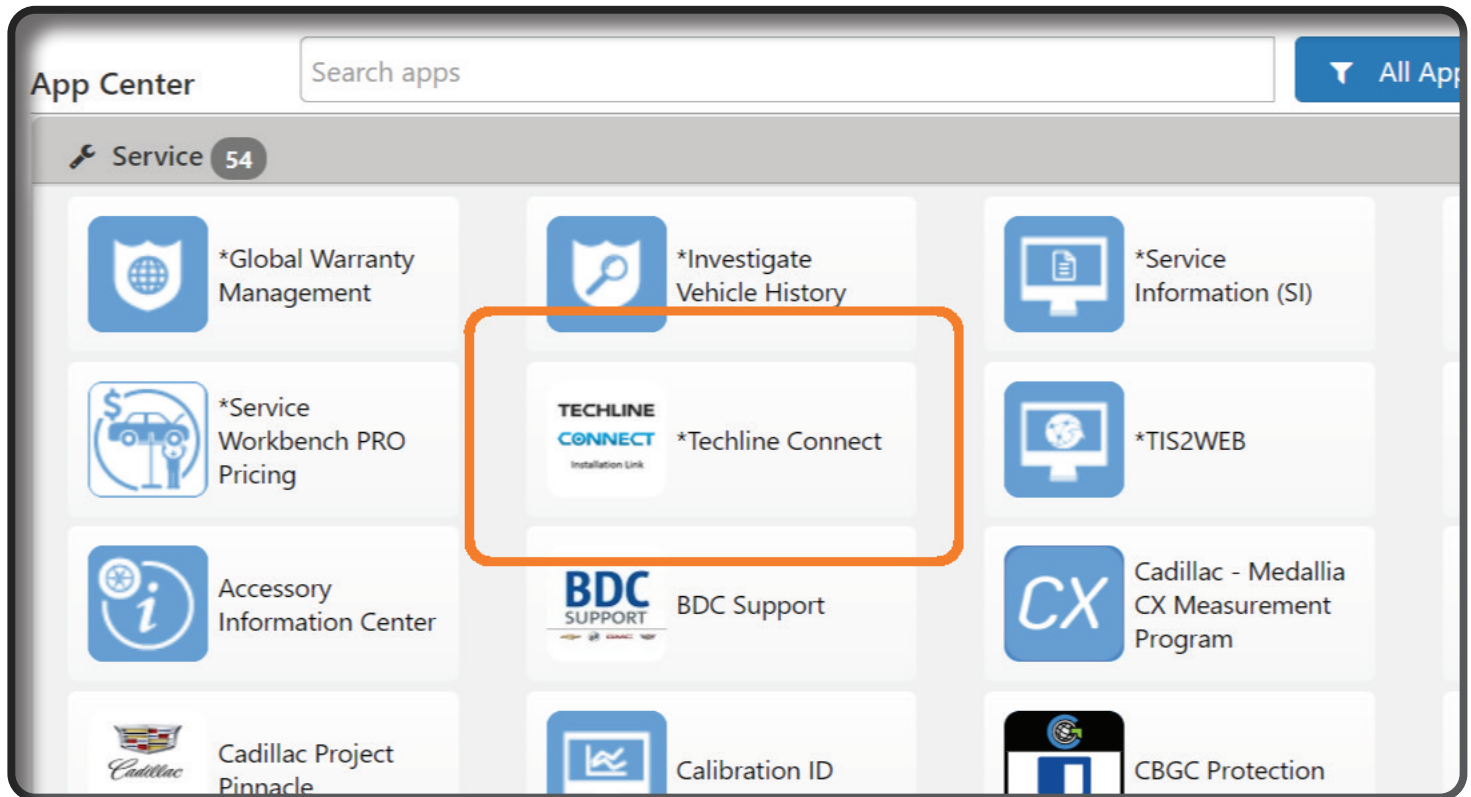


## Latest Techline Connect Tips Shared by the TCSC



**The Techline Customer Support Center (TCSC) has released their latest tips for Techline Connect and the Service Programming System.**

continued on page 2



**New Models Using VIP Require the MDI 2**

see page 7

*Latest Techline Connect Tips Shared by the TCSC . . . . . 1*

*New 2023 Dealer Infrastructure & Security Guidelines . . . . . 4*

*Transfer Case Actuator Alignment . . . . . 6*

*Radio Remains On After OTA Update . . . . . 7*

*Service Power Steering Message Due to Coolant Temperature . . . . . 9*

# Latest Techline Connect Tips Shared by the TCSC

To get the most out of Techline Connect (TLC), check the following items when using the application. Be sure to verify these operating features and requirements before making a call to the TCSC

The Techline Connect installation link is available for download in GM GlobalConnect.

## TECHLINE CONNECT CORE APPLICATION

### PC Specs

Ensure the PC (personal computer) meets the minimum specifications or better as defined by the latest GM Dealer Infrastructure & Security Guidelines (DISG). The guidelines outline the dealership technology needed to ensure reliable data communications for all dealers, including recommended PC specs.

To view the latest DISG (U.S.) as well as PCs for purchase, go to [gmdesolutions.com](http://gmdesolutions.com) and select the Dealer Services tab. Once you've input your BAC and zip code, select Techline IT Solutions from the Dealer Services menu. In Canada, the latest DISG can be found in the Dealer Security and Information Technology App on GM GlobalConnect.

### Performance Issues

If the PC meets the specs for running TLC, many times performance issues can be solved by a PC reboot, or an uninstall and reinstall of Techline Connect.

### Local Admin Rights

Run Techline Connect as an Administrator for the latest updates. All Techline application updates and installations must be performed from an account with local Windows administrative rights. Firewall exceptions should be made for the Techline Connect application.

The DISG includes a list of how to configure Techline Connect to have the elevated privileges necessary to ensure the application updates

are received, downloaded and installed properly. Also refer to the Techline Connect Setup for Updates PDF on TechLink for additional instructions.

### Authenticate User Error

If an "Unable to Authenticate User" error occurs, ensure that the ID can successfully log in to GM GlobalConnect. If the ID is locked in GM GlobalConnect, the Techline Connect log in will fail.

If the user can log in to GM GlobalConnect without issue, reboot the PC and attempt to log in again to Techline Connect.

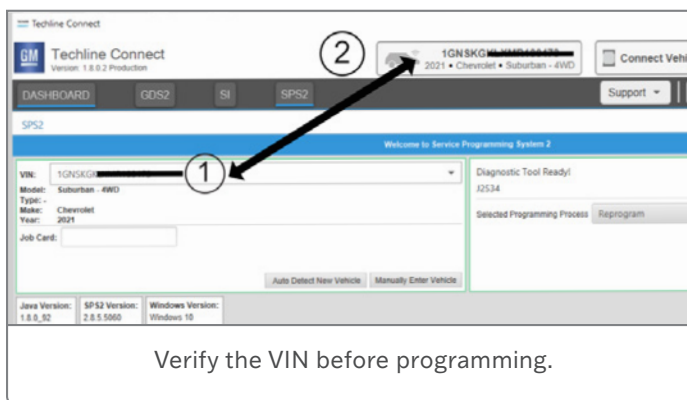
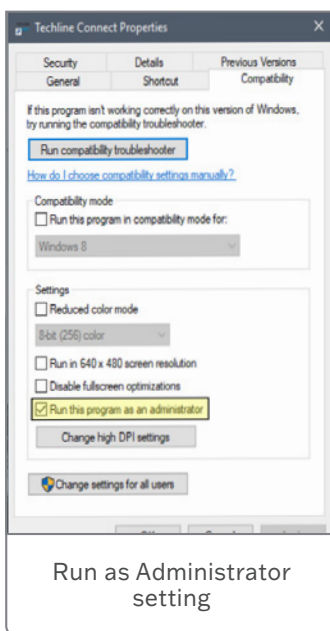
## SERVICE PROGRAMMING

Be sure to follow all appropriate Service Information when programming any vehicle, including control module references, DTC diagnostics, Bulletins and Field Actions. Do not program a control module unless directed to be a service procedure or Bulletin. If the control module is not properly configured with the correct calibration software, the control module will not control all of the vehicle features properly.

### Confirm the VIN

Technicians can manually enter the VIN for a vehicle being serviced via "Select Vehicle," followed by entering the VIN on the left side of the TLC screen. Always verify that the VIN displayed in the TLC left-side drop-down menu and the top-center window match the VIN plate of the vehicle to be programmed prior to using Service Programming System 2 (SPS2) for programming or reprogramming a module.

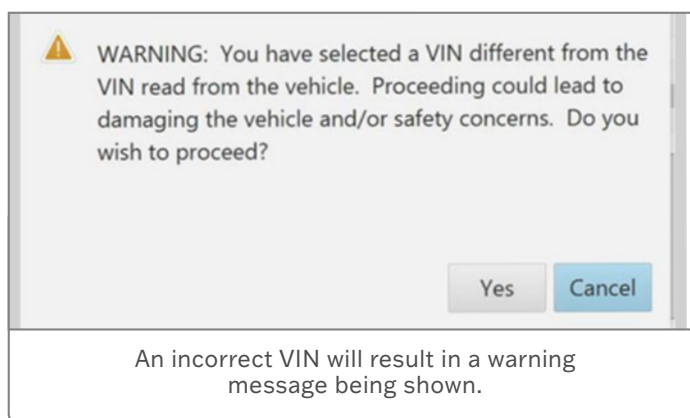
For the TLC application, make sure that the power mode (ignition) is ON before reading the VIN from the vehicle's VIN master module and that a VIN that is already in the TLC application memory from a previous vehicle is not selected.



CONTINUED ON PAGE 3



TLC implemented a change that has SPS2 always check that the VIN that TLC is set to matches the VIN read from the VIN master module (for example, the ECM for VIP vehicles). This is to address the potential for an incorrect VIN being set in TLC. If the vehicle VIN does not match, a warning message will be shown.:



### Tech2 Programming

Technicians are able to program via Tech2 in SPS2 by selecting "Manually Select Tool" followed by selecting the applicable programming method in SPS2.

### Battery Voltage

Battery voltage must be 12.5v or higher when programming any vehicle. Stable battery voltage is critical during programming. Any fluctuation, spiking, over voltage or loss of voltage will interrupt programming. Install a GM Authorized Programming Support Tool to maintain system voltage. Refer to [www.gmdesolutions.com](http://www.gmdesolutions.com) for more information. If not available, connect a fully charged 12V jumper or booster pack disconnected from the AC voltage supply. Do not connect a battery charger.

### Hardwired Connection

An MDI or MDI 2 hardwired connection from the PC to the vehicle ensures successful programming on newer architecture vehicles.

Do not download or install the files wirelessly. If there is an interruption during programming, programming failure or control module damage may occur.

## TECHLINE CONNECT UPDATES AND INSTALLATIONS

### Techline Connect Application Exceptions

All application updates and installations must be performed from an account with local Windows administrative privileges. Firewall Exceptions for Techline Connect applications:

#### Application Exceptions:

- C:\Program Files (x86)\Techline Connect\tlc.exe
- C:\Program Files (x86)\Techline Connect\jre\bin\javaw.exe
- C:\Program Files (x86)\Techline Connect\TDMWindowsService.exe
- C:\Program Files (x86)\General Motors\Tech2Win\bin\emulator.exe
- C:\Program Files (x86)\GM MDI Software\GM MDI Manager\GM\_MDI\_Manager.exe
- C:\Program Files (x86)\GM MDI Software\GM MDI Identification Service\GM\_MDI\_Ident.exe
- C:\Program Files (x86)\Vibe Programming\Cuw.exe

#### Firewall Exceptions:

- galileo-api.ext.gm.com
- gsitlc.ext.gm.com
- tlc.gm.com
- sps.gm.com
- techline.gm-cdn.com
- gspas-delivery.gm-cdn.com
- sps-info.gm.com

## CONTACT TCSC

For assistance with any Techline Connect issues, contact the Techline Customer Support Center at 1-800-828-6860 (English) or 1-800-503-3222 (French).

► Thanks to the Techline Connect team



# New 2023 Dealer Infrastructure & Security Guidelines

The new GM Dealer Infrastructure & Security Guidelines (DISG) are now available to help dealers with the technology needed to ensure reliable data communications, including recommended personal computer (PC) specifications. The guidelines also include several security principles and best practices.

The Supported vs. Not Supported matrix includes guidelines for hardware (Enterprise-grade hardware intended for a business environment is recommended) and software used by all departments in the dealership. Keep in mind that the rugged use of computers in the service department requires upgraded specifications than those used in other dealership departments.

Currently, Windows 10 Professional and Windows Server 2016 Standard are the recommended operating systems for new PCs. Windows 11 Professional is currently being tested for compatibility with GM applications. Once testing is complete, more communications will be distributed.

## PCS IN THE SERVICE DEPARTMENT

The Desktop, Laptop and Tablet computers matrix includes Operating Minimum – minimum acceptable capability/ components – and Operating Recommended – capability/ components that will deliver the best performance and security while maximizing the lifecycle of the investment. PCs used by technicians in the service bay should not be simply upgraded with a new operating system unless the PC processor is 7th generation or better. 8th generation and above processors are recommended.

All dealership computers must meet the minimum standard, including using the Windows 10 Professional OS, in order to receive assistance from the Techline Customer Support Center (TCSC).

Computers used in the service department for programming are recommended to have a hard drive size of 1 TB or larger in order to handle large calibration files.

| SUPPORTED  | NOT SUPPORTED  |
|--|--|
| Enterprise grade hardware (PCs and Access Points)                            | Consumer grade hardware (PC and Access Points), Apple or Mac tablets & PCs<br>Non-branded, built by hand or thin client PC   |
| Intel Core i3 / i5 / i7 / i9 processors 7 <sup>th</sup> generation and above | ALL Intel Core i-series 6 <sup>th</sup> generation and below Processors plus AMD, Celeron, Pentium, and Atom processors  |
| Windows 10 Professional, 64-bit<br>Windows Server 2016 Standard              | All Operating Systems <u>except</u> Windows 10 Professional, 64 bit and Windows Server 2016 Standard<br>All Home Operating Systems<br>Tablets running Android or Mac operating systems |
| Java Run Time Environment 32 bit   | All 64-bit versions of Java  |

Supported and Not Supported hardware and software matrix

For proper operation of Techline Connect apps, Local Windows Administrative access for software installation and updates is required. The DISG includes recommended firewall and security exceptions plus an alternative to full admin rights.

GMDESolutions offers several laptop PCs meeting all GM specifications. The laptops also are pre-loaded with Techline Connect diagnostic software to help save time and effort at the dealership.

CONTINUED ON PAGE 5

#### DESKTOP PC, LAPTOP, & TABLET PC'S

|                                 | Operating Minimum*                   | Operating Recommended  |
|---------------------------------|--------------------------------------|--|
| Processor                       | Intel Core i3, i5, i7<br>7th Gen     | Intel Core i5, i7, i9<br>8th Gen* & above                                    |
| System memory (RAM)             | 16 GB +                              | 16 GB +  |
| Hard Disk Drive<br>(HDD or SSD) | 500 GB +*                            | 1 TB +   |
| CD / DVD Drive<br>(Optional)    | CD/DVD Combo or external<br>drive    | CD/DVD Combo or external drive   |
| USB A 2.0 & 3.0+                | 2+                                   | 2+   |
| USB C 3.1+                      | 1+                                   | 2+   |
| Network Adapter                 | Wired: Gigabit<br>Wireless: 802.11ac | Wired: Gigabit+<br>Wireless: 802.11ax  |
| Operating System                | Windows 10 Professional, 64-bit      | PC: Windows 10 Professional, 64-bit<br>or Windows Server 2016 Standard (EPC) |

*Note (Processor): 8th Generation or above have model numbers of 8000 or greater (i.e.: Intel Core i5-8500).*

Recommended laptop PC specifications

## TECHLINE APPLICATION RECOMMENDATIONS

Techline applications (Techline Connect, GDS 2, MDI Manager, MDI/MDI 2, Tech2Win, Data Bus Diagnostics Tool and Service Information) require additional computing power to perform appropriately during vehicle diagnosis and repairs.

The following recommendations are for all service technician applications:

- Local Windows Administrative access for software installation and updates to Windows registry
- One laptop for each technician performing service programming and vehicle diagnostics; otherwise, one for every two technicians
- One MDI 2 for every Techline PC
- One battery maintainer for every two MDI tools in use
- Use of Tripp-Lite Keyspan USB-to-serial adapter (Model: USA - 19HS or USA - 19HS-C ) for computers without serial ports
- Recommended Service Programming USB standard is FAT 32 – File Allocation 4096 (64KB), Size 16 or 32 GB, USB 2.0

## SECURITY GUIDELINES

The security guidelines included are the minimum set of security capabilities that should be in place to reasonably protect information and ensure it from loss, theft and unauthorized access. The guidelines provide recommendations for accounts, access, passwords and logins as well as firewalls and data security.

## FIREWALL EXCEPTIONS

All application updates and installations must be performed from an account with Local Windows Administrative privileges. The DISG lists several firewall exceptions for Techline Connect applications:

## VIEW THE NEW GUIDELINES

U.S. dealerships – To view the latest DISG as well as PCs for purchase, go to [gmdesolutions.com](http://gmdesolutions.com)

and select the Dealer Services tab. Once you've input your BAC and zip code, select Techline IT Solutions from the Dealer Services menu.

Canadian Dealerships – The latest DISG can be found in the Dealer Security and Information Technology App on GM GlobalConnect.

► Thanks to  
Lisa Scott



### GM DEALER INFRASTRUCTURE & SECURITY GUIDELINES (DISG)

The GM Dealer Infrastructure and Security Guidelines have been designed to outline the dealership technology needed to ensure seamless and reliable dealer data communications and develop customer life through efficient and effective systems and solutions.

GM DISG Version 2023.1, January 2023

2023 Dealer Infrastructure  
Guidelines

# Transfer Case Actuator Alignment

During diagnosis or repairs of the transfer case (RPO NQF) on some 2019-2023 Silverado MD 4500/5500/6500 models equipped with four-wheel drive, the transfer case learn procedure may not be completed if the transfer case actuator is not installed correctly. Movement of the actuator to the alignment bolts during service may lead to the transfer case binding in addition to the learn procedure not being completed.

When installing the transfer case actuator, the actuator keyway spline must be in the proper location. When aligned correctly, the keyway spline on the internal shift shaft and the transfer case actuator will be approximately in the 10 o'clock position. The actuator should slide fully into position without any need to move the actuator

to align the bolt holes. The actuator should only be removed or installed with the transfer case in the 2HI position.

If the alignment spline is not in the 10 o'clock position, the bolt holes will not align the actuator to the transfer case.

If the actuator is in the proper position and the transfer case shaft is not, the shift shaft can be moved using a suitable tool to adjust it to the 10 o'clock position.

**TIP:** If the alignment spline on the transfer case is not located in the 10 o'clock position, do not attempt to move the actuator using the scan tool. Instead, using a fused jumper wire on the

bi-directional transfer case actuator circuits and a suitable power supply or battery, jump the control circuits of the actuator motor to move the spline into the correct location. Over movement of the actuator motor may cause damage to the internal sensor, so care should be taken to not allow more than 360 degrees of rotation in either direction.

Do not twist or move the actuator to line up the bolt holes. Moving the actuator may cause the internal gears of the transfer case to bind as

well as prevent the learn procedure from completing.

If the learn procedure fails once the transfer case actuator has been installed correctly, reattempt the learn procedure with the wheels off the ground to alleviate any internal binding of the transfer case gears. If the learn procedure will still not complete, in a safe location, attempt to gently rock the vehicle to help align the internal components to allow the shift to complete. If the learn will still not complete, replace the transfer case actuator. Refer to the appropriate Service Information for transfer case actuator installation.

For additional information, refer to #PIP5894.

► Thanks to Bill Alley



When installing the transfer case actuator, the actuator keyway spline must be in the proper location.



The alignment spline on the transfer case should be in the 10 o'clock position.



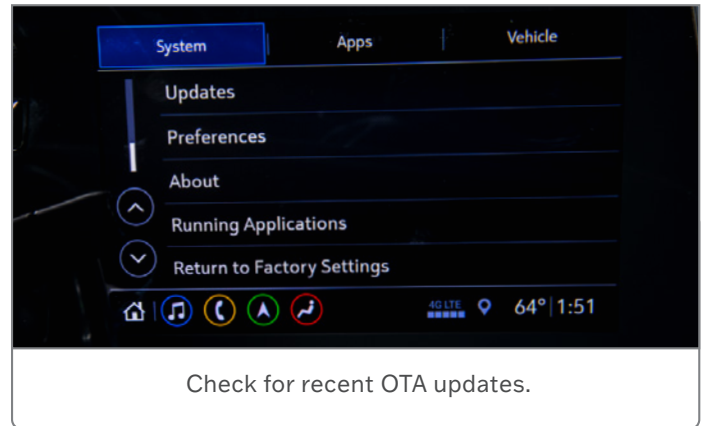
# Radio Remains On After OTA Update

After an Over-the-Air (OTA) software update on some 2021-2022 Corvette and 2022 Envision models, the radio may not turn off after the vehicle's ignition has been turned off and the driver's door has been opened, leaving Retained Accessory Power still active. If the vehicle is left in this state for an extended amount of time, the battery may become discharged.

These conditions may be caused by a failed OTA update for the Serial Data Gateway Module (SDGM)

To address this concern, check to see if the vehicle has recently received an OTA update. On the infotainment screen, select Settings > System > Updates. If the OTA update failed, it may not show under the updates history on the infotainment screen.

Also check the condition of the battery following the procedures in the appropriate Service Information. After recovering the battery following the Battery Inspection/Test procedure, perform the Battery Electrical Drain/Parasitic Load Test procedure to confirm there is not a parasitic drain present on the vehicle.



Once the condition of the battery and electrical system components have been confirmed, check the SDGM for the latest software using SPS2. Program the SDGM if an update is needed.

Refer to #PIC6480A for more information.

► Thanks to Matt Bierlei

## New Models Using VIP Require the MDI 2

The Vehicle Intelligence Platform (VIP) electrical architecture continues to power a growing number of new GM vehicles for the 2023 model year.

The VIP architecture offers enhanced capacity and the ability to better manage complex technology. With the capability of managing over 100 computer modules, it's able to support active safety systems, Over-the-Air (OTA) vehicle software updates, 5G networks, enhanced cybersecurity protections and EV technologies.

GM models using the VIP architecture include:

### **Buick**

- 2021-2023 Envision

### **Cadillac**

- 2023 LYRIQ
- 2021-2023 Escalade

- 2020-2023 CT4
- 2020-2023 CT5

### **Chevrolet**

- 2023 Colorado
- 2022-2023 Silverado 1500
- 2021-2023 Tahoe and Suburban
- 2020-2023 Corvette

### **GMC**

- 2023 Canyon
- 2022-2023 HUMMER EV
- 2022-2023 Sierra 1500
- 2021-2023 Yukon

### **MDI 2 Required**

The EL-52100 MDI 2 is required for control module programming, configuration and setup on vehicles equipped with the VIP architecture. The MDI 1 does not have the capability

to complete programming and setup procedures. Using an MDI 1 on these vehicles could result in erroneous data or failed programming events that could lead to unnecessary module replacement.

When a scan tool is installed, it will attempt to communicate with every control module that may be available on the vehicle, depending on optional equipment. If an option is not installed on the vehicle, the tool will display No Communication for that control module. In order to avoid misdiagnosis of a No Communication message, refer to the Data Link References that lists the control modules and the buses with which the modules communicate in the appropriate Service Information and the vehicle build RPO codes to determine optional control modules.

► Thanks to Chris Henley

# Service Power Steering Message Due to Coolant Temperature

A Service Power Steering message may be displayed on the Driver Information Center on some 2017-2023 XT5, Acadia; 2018-2023 Enclave, Traverse; 2019-2023 Blazer; and 2020-2023 XT6 models. DTC P0128 (Engine Coolant Temperature Below Thermostat Regulating Temperature) may be set. However, there may not be any codes set that seem related to the steering system.

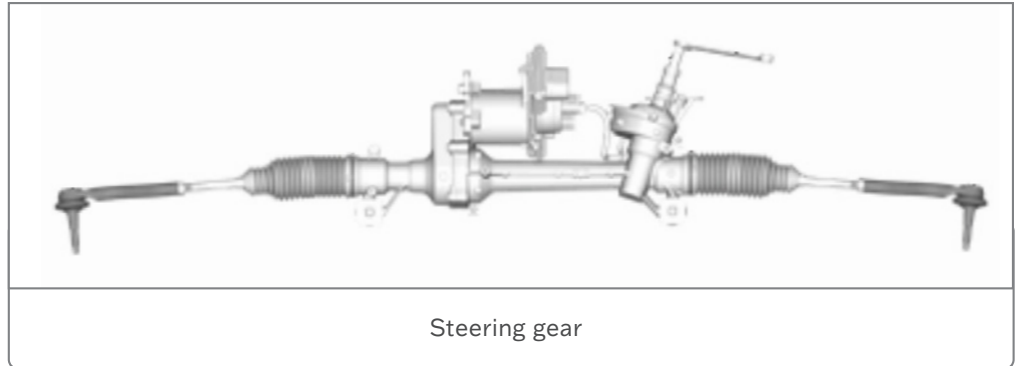
If the Engine Control Module (ECM) detects a coolant temperature concern, the Service Power Steering message may be displayed in order to protect the steering gear in the event of an undetected overheating condition.

The power steering control module can detect malfunctions within the electric power steering system. Any malfunction detected that disables steering assist will cause the Service Power Steering message to be displayed. In addition, the power steering control module calculates an internal system temperature, which is used to protect the power steering system from damage caused by high temperature. When the calculated temperature exceeds a pre-determined level, the amount of current commanded to the power steering motor is reduced, resulting in a temporary reduced level of assist. Full assist will return once the calculated temperature drops below the pre-determined level.

To address the condition causing the DIC message to be displayed, diagnose and repair any engine cooling issues related to DTC P0128. After repairs are completed, clear the codes and test drive the vehicle. If the Service Power Steering message returns, follow the diagnostics for any steering conditions in the appropriate Service Information.

For additional information, refer to #PIT5967.

► Thanks to David Goodrow



## 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.

**Publisher:**  
Ravishankar Bommanahally  
GM Customer Care and Aftersales

**Editor:**  
Lisa G. Scott  
GM Customer Care and Aftersales

**Technical Editor:**  
Mark Spencer  
mspencer@gpstrategies.com

**Production Manager:**  
Marie Meredith

**Creative Design:**  
5by5 Design LLC  
dkelly@5by5dzn.com

**Write to:**  
TechLink  
PO Box 500, Troy, MI 48007-0500

**GM TechLink on the Web:**  
GM GlobalConnect

General Motors service tips are intended for use by professional technicians, not a "do-it-yourselfer." They are written to inform those technicians of conditions that may occur on some vehicles, or to provide information that could assist in the proper service of a vehicle. Properly trained technicians have the equipment, tools, safety instructions and know-how to do a job properly and safely. If a condition is described, do not assume that the information applies to your vehicle or that your vehicle will have that condition. See a General Motors dealer servicing your brand of General Motors vehicle for information on whether your vehicle may benefit from the information. Inclusion in this publication is not necessarily an endorsement of the individual or the company. All information contained herein is based on the latest information available at the time of publication and is subject to change without notice.

Copyright © 2022 General Motors. All rights reserved.