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TIPS FOR

Performing Warranty Reprogramming Events

In order to ensure successful and complete repairs are made when reprogramming control modules, GM is now reviewing module reprogramming warranty claim information and comparing it to Service Programming System (SPS) reprogramming event data records. Comparison data between the two systems can help identify potential issues.

In some instances, minor errors made by technicians during the reprogramming process can lead to incorrect or incomplete repairs resulting in customer dissatisfaction.

Some of the most common errors include:

- Incorrect modules being reprogrammed
- Incomplete service events; for example, a recall repair calls for three different modules to be reprogrammed, but the technician only reprograms one module
- Incorrect or non-legible SPS Warranty Claim Codes being documented on the job card (repair order), which results in an invalid Warranty Claim Code being submitted with the warranty claim
- Incorrect VINs being entered in SPS and programmed into the module

STEPS TO SUCCESSFUL PROGRAMMING

When reprogramming a control module, be sure to follow these steps to help avoid any issues with the repair and related warranty claim.

- 1. **Correct VIN and Job Card** On the Validate Vehicle Identification Number (VIN) screen in SPS, make sure that the VIN displayed is complete, correct and matches the VIN plate on the vehicle. The job card (R.O.) number entered on the VIN screen also must match exactly with the job card number that is associated with the warranty transaction. Enter the complete job card number. For example, do not enter only 67932 if the job card number submitted to GM is 01-67932.
- Supported Controllers On the Supported Controllers screen in SPS, check to ensure that the correct control module is selected. If following a Service Bulletin, find the exact match for the controller code and description identified in the Service Bulletin. Be sure to reprogram the correct control module per the Service Bulletin procedure.
- Programming and Setup If a Service Bulletin calls for both programming a control module and module setup, both events must be completed during the repair. Document the SPS

		Validate Vehicle	Identification Numb	re(VIN)			
	Make sure that the corr If the VIN is incorrect or	ect VIN is displayed. missing, enter the VIN.					
The function of the second sec	VIN						
	JOB CARD NUMBER						
Print ECU Data					< Back	Next >	Cancel

Select Controller	
K43 Perer Steering Control Mondel Economic Stocket Economic	
Select Function / Sequence Programming Strap Initial Informations	-
Select Programming Type	
Normal VCI	:
	VIR: 1G1ZH55X4HF12144:

ervice Procedure

- Note: Carefully read and follow the instructions below.
- Access the Service Programming System (SPS) and follow the on-screen instructions.
 Perform K71 Transmission Control Module Programming and follow the on-screen instructions.
- 3. Perform K71 Transmission Control Module Setup and follow the on-screen instructions.
- 4. With a scan tool, clear DTC's from the K71 Transmission Control Module.

Document programming and setup events.

Warranty Claim Code on the job card (R.O.) for each event. Follow the current Bulletin carefully. Most Bulletins will only require the reprogramming event and not the setup event.

4. Warranty Claim Code – When reprogramming is complete, SPS provides a Warranty Claim Code. Be sure to correctly and legibly document the Warranty Claim Code on the job card (R.O.). SPS Warranty Claim Codes are alpha/numeric, but never



include the letter O. The Warranty Claim Code on the job card must match the code on file in SPS in order to verify that the vehicle has been successfully reprogrammed and to process the warranty claim. Clearly document the Warranty Claim Code for each separate reprogramming event performed on the vehicle.

5. Same Calibration Message – If a reprogramming event is blocked because SPS has identified that the control module already has the correct calibration, document the Warranty Claim Code included from the SPS final instructions screen on the job card (R.O.). With select recall events, SPS will allow a programming event to continue if the correct calibration is detected. In this case, proceed with the reprogramming and document the Warranty Claim Code provided on the Action Complete screen in SPS on the job card.



6. **Multiple Reprogramming Events** – If a Service Bulletin calls for reprogramming more than one module, all reprogramming events must be completed. Document all Warranty Claim Codes



provided in SPS after every successful programming event on the job card (R.O.). When the warranty claim is submitted, the SPS data records will be checked in order to validate that all reprogramming events have been completed. All required service procedures must be completed to process the warranty claim.

 Retrieving Codes in SPS – A Warranty Claim Code that has not been documented properly on the job card (R.O.) or has been rejected as invalid can be retrieved in SPS.

	Service Prog	ramming Syste	em						
		Settings							
	Common	Diagnostic	Logging Settings	Warranty Claim Code	\				
THE LOOP		(N	Module	Function	Warranty Claim Code	Date/Time			
	2GNAXKE	3K6175702	A11 - Radio	USB File Transfer	8022184095	6/17/19 12:16:25 PM ED1			
8	1G1ZF59U	2KF101939	P16 - Instrument Clus	iter Setup and Configuration	0521889883	6/10/19 8:38:33 AM EDT			
	2GNALCER	OtH6199057	ECM - Engine Control I	Mo. Setup (Automatic Trans	FD21268905	5/23/19 12:05:49 PM ED1			
- 1	3GTU2VEC	1FG385665	K20 - Engine Control I	40. Setup	FD21268020	5/23/19 11:52:19 AM EDT			
	2GNALBER	3H1550110	ECM - Engine Control I	Mo. Setup (Automatic Trans	FD21267721	5/23/19 11:48:12 AM EDT			
	3GCUKREI	EXEC118379	K20 - Engine Control I	Io Setup	FD21267422	5/23/19 11:44:24 AM EDT			
	1GTV2MEC	307263337	K20 - Engine Control I	do Setup	FD21267072	5/23/19 11:40:30 AM EDT			
	106A05R0	800158953	K20K71 - Engine and	Tr., Engine Control Module S.	FD21266752	5/23/19 11:36:00 AM ED1			
	1GTV2MEC	7GZ428390	K20 - Engine Control I	Ao Setup	FD21266374	5/23/19 11:30:08 AM EDT			
	1G6AX595	8G0119004	K20IK71 - Engine and	Tr., Engine Control Module S.	FD21265914	5/23/19 11:23:19 AM EDT			
	1GTV2UEC	4FZ391572	K20 - Engine Control I	Ao Setup	FD21265350	5/23/19 11:15:52 AM EDT			
	3GCUKRE	0566253940	K20 - Engine Control I	Ao Setup	FD21264879	5/23/19 11 10 32 AM EDT			

To retrieve the correct code associated with a reprogramming event:

- 1. Start SPS
- 2. Select the Settings button at the bottom of the screen
- 3. Select the Warranty Claim Code tab
- 4. Scroll through and locate the reprogramming event by VIN, date and module
- 5. Document the correct Warranty Claim Code on the job card

TIP SHEET PDF

The Helpful Tips for Technicians Performing Warranty Reprogramming Events PDF provides an easy-to-use review of the tips and important steps technicians must take when reprogramming a control module to help prevent any errors. Download the PDF from the TechLink home page.



Thanks to Patti Marino

Find the Training **Times Newsletter on** GlobalConnect

The 2019 Q3 Mark of Excellence (MOE) Technician Product Knowledge Test was recently made available to technicians enrolled in the MOE Service Technician program (U.S. only).

The test measures technicians' knowledge of GM products with questions based on GM training, Service Information, Service Bulletins and other resources. One of these resources is the GM STC Training Times Newsletter, which is published every other month.

EMAIL NOTIFICATION

GlobalConnect users can sign up to receive email notifications when communications like the GM STC Training Times are posted by editing their GlobalConnect profile. To sign up, go to My Profile > Edit My Profile > Email Notification and check the appropriate boxes.

Training Times Newsletters published in the past year also can be found using the GlobalConnect search function. In the search bar on the home page, enter GM STC Training Times (or just STC).

STC SERVICE TECHNICIAN APP

Another way to find the Training Times Newsletter is through the new GM STC Service Technician Training, Recruiting, Re-



access to a library of GM STC communications, training documents, job aids, best practices, links to supplementary programs, and much more.

providing quick

The Training Times Newsletter is posted under the Communications link. Select the Communications tab to view Course Announcements, News, Training Materials, and the Training Times.



Log in to GlobalConnect and select the App Center tab on the main menu bar. From there, use the search bar or scroll down until you find the GM STC logo and the app title: Service

Technician Training, Recruiting, Retention, and Recognition. Be sure to save the app as a shortcut on GlobalConnect for oneclick access to all the latest technical training information.

Retention, and

and saved as a

shortcut.



PRODUCT KNOWLEDGE TESTS

Technicians that pass each of the four quarterly MOE Technician Product Knowledge Tests earn ranking points toward end-of-theyear recognition. The tests are available on the Center of Learning website at www.centerlearning.com.

Technicians who complete each test with a score of 80% or better will earn 400 ranking points for the first test and 200 ranking points for each of the three remaining tests. Those who also successfully complete the test within the first 30 days of availability will earn an additional early return bonus of 50 ranking points toward their yearend recognition award.

For more information regarding the MOE program, select the Mark of Excellence app on the GM GlobalConnect App Center or contact Program Headquarters at 1-800-368-1638.

Thanks to Diana Sancya

Hot Tips for A/C Service

When performing A/C service on 2013-2019 GM passenger cars and trucks equipped with R-1234yf refrigerant, there are several procedures that must be followed in order to make a proper repair. After warranty repairs are completed, the warranty code on the printout produced by the GE-50300 or GE-50300-A R-1234yf A/C machine is required to be included with the Repair Order.

R-1234YF REFRIGERANT SYSTEMS

R-1234yf refrigerant systems require the use of specific A/C compressor oils. A universal R-1234yf PAG (Polyalkylene Glycol) oil specifically engineered for GM vehicles with belt-driven A/C compressors is available.



R-1234yf systems have unique low and high side fittings. Most vehicles using R-1234yf also have an Internal Heat Exchanger (IHX).

To prevent accidental release of

refrigerant and minimize safety concerns, the installation of any refrigerant service equipment to the vehicle shall only be done with the engine off and after the refrigerant high side pressure has been reduced (approximately 2–3 minutes).

TIP: R-1234yf is heavier than air and can accumulate in low lying areas like service pits. Always work in a well-ventilated area and never release refrigerants into the atmosphere.

TOOLS AND EQUIPMENT

GE-50300 or GE-50300-A Recovery/Recycle/Recharge Machine for R-1234yf A/C Systems

- Performs gas analysis prior to gas recovery or fill with recovery/fill lockout if gas is contaminated (< 98% R-1234yf).
- VIN input is required. VIN retrieved via integrated VCI cable connected to vehicles OBD2 connector or manually entered.
- Integrated data recorder with printer that records and prints VIN, pressures, temperature, recovered/charged amount, gas analysis results



GE-50300-A Recovery/ Recycle/Recharge Machine and encrypts into a warranty code. Warranty code is required to be entered into the comment field of claim for warranty reimbursement.

GE-50957 Contaminated Refrigerant Recovery Machine

- Required for recovery of contaminated refrigerant systems.
- To be used with refrigerant recovery cylinders that meet DOT 4BA and TC certification.

GE-50078 Electronic Refrigerant Leak Detection for R1234yf (and R134a)

• SAE J2843 certified equipment (GE-50300) requires a SAE J2913 leak detector to perform the mandated gross leak check.

GE-45037 R1234yf PAG Oil Injection Tool

- To replace PAG oil in R1234yf systems with belt-driven AC compressors. (Use the oil specified in the Service Information.)
- Oil can be injected into a charged system using GE-45037 injector with GE-50744 A/C R-1234yf PAG Oil Injector Hose.50300

Refer to the latest version of Bulleting #12-01-37-001 for additional A/C service information, including details about commercially available recovery cylinders and contaminated refrigerant labels.

PRINTOUT NEEDED FOR WARRANTY INFORMATION

VEHICLE DATA MAKE: chevy MODEL: 1500 VIN: 3GCUK YEAR: 18 Recovery result of the MAKE : MODEL : 1500 Ambient Temp.: 67.5 °F Humiditu: -5% R-1234VF: 100.0 % R134a: 0.0 % R152a / HC: 0.0 % R22: 0.0 % Other: 0.0 % Air: 4.2 % Recovered: 0.032 kg Total Recovered:0.032 kg Charge result repair from Charged: 0.550 kg the GE-Recovered/Charged Difference: 0.518 kg Warranty Code FAFdZG48t@D8DsD!AXs 50300 or GE-50300-A Values shown for reference only, machine is Warranty Code FAEdZG48t@D8Ds2gaaa not required to Printed summary be attached

to each Repair Order. The warranty code from the printed repair summary must be entered in the "comment field" of the warranty claim. Warranty claims without the warranty code in the comment field are subject to debit.

GM will reimburse only the R1234yf refrigerant that is actually used (figured by the difference from recovered and charged amount on the printed 'Vehicle Data' summary).

▶ Thanks to Charles Berecz and Chad Christensen

Re-Centering the Transmission Range Control Module

Some 2017-2019 XT5 and 2017 LaCrosse models may have a Service Transmission message displayed on the Driver Information Center along with one or more of the following DTCs: P0722, P0729, P0730, P0731, P0732, P0733, P0734, P0735, P073D, P073E, P07A2, P07E4, P07E5, and P1769. These conditions may be caused by misalignment of the coupler between the Transmission Range Control Module (TRCM) and the transmission. The TRCM will need to be re-centered.



The TRCM includes:

- Coupler to coupler, or lever to rod linkage interface with the transmission manual shaft.
- Backup Park Lock function (Default to Park)

Before re-centering the module, check the transmission fluid level. If the fluid is dark and has an overheated odor, any internal wear issues with the automatic transmission should be addressed.

Next, with the transmission in Park and the parking brake applied, perform the Backup Park Lock Actuator Disarming procedure.

The Backup Park Lock function is an electrically isolated smart actuator inside the TRCM that is activated when the transmission does not achieve Park. When the Backup Park Lock function is activated, the gear is disarmed, which rotates the torsional spring forcing the transmission manual shaft to the Park position. Disarm the Backup Park Lock Actuator using a scan tool when the rod linkage is adjusted (if equipped) or if the TRCM is being removed then reinstalled.

On XT5 models, detach the Engine Control Module (ECM) from the brake assembly and move the ECM aside. It's not necessary to disconnect the electrical connectors. Remove the ECM from the bracket.

On LaCrosse models, remove the air cleaner housing assembly. Also remove the bolt that secures the intake air duct to the core support and then remove the air cleaner bracket.



With access to the TRCM, loosen (approximately 1/4 inch) the automatic transmission range selector actuator hardware module bolts.

Rotate the automatic transmission range selector actuator hardware module clockwise to the right lock position (blue line). Next, rotate the module counterclockwise to the left lock positon (green line). Finally, rotate the module clockwise until it is centered between both full lock positions (red line). **TIP:** The turning radius of the module will be very slight when centering.

Hold the module in place and tighten the hardware module bolts to prevent the actuator from moving from the center position. Tighten the bolts to specification.





Rotate the module clockwise to the right lock position (blue line). Next, rotate the module counterclockwise to the left lock positon (green line). Then rotate the module clockwise until it is centered between both full lock positions (red line).

With the module re-centered, perform the TRCM learn procedure (not for new modules). If the test fails, re-adjust the module and retest. The test fails again, refer to the appropriate Service Information for further diagnostics on the DTC set.

Refer to Bulletin #18-NA-083 for additional information.

Pinched Instrument Panel Harness

Some 2019 Blazer models may have an illuminated air bag warning lamp on the instrument cluster and several Brake-related messages displayed on the Driver Information Center, including Service StabiliTrak, Service Park Brake, or Service Steering Assist messages. Any of the following DTCs also may be set: B101E, U0077, U0131, U0151, U0232, U0415, U0422, U1510, U2415, or any other communication codes.

These conditions may be due to the instrument panel wiring harness being pinched behind the center console metal side brace on the left side of the console, resulting in a short condition. Remove the left side of the front floor console extension panel and inspect for the harness being pinched behind the vertical metal side brace.



Inspect for the harness being pinched behind the vertical metal side brace.

If the harness is pinched, repair the wiring as needed following the proper procedures in the appropriate Service Information. Ensure that the harness is not contacting the brake after making repairs.

Thanks to Robert Halas

Thanks to Tom Burlingame

Rough Idle After Engine Repairs

After making engine repairs that included removing and installing the engine wiring harness on the right side of the 3.6L V6 engine (RPO LGZ) on some 2017-2019 Colorado and Canyon models, a rough idle condition may be present along with DTC P0016 (Crankshaft Position – Intake Camshaft Position Not Plausible Bank 1) set in the Engine Control Module (ECM).

The wiring connector for the Intake Camshaft Actuator Solenoid Bank 1 on top of the engine and the connector for the Intake Actuator Park Lock Solenoid in the front of the engine for bank 1 may have been swapped. These two connectors are identical and can only be identified by the wire color in the connector.



Connector for the Intake Actuator Park Lock Solenoid



- 1. Bank 1 Intake Actuator Solenoid
- 2. Bank 1 Intake Park Lock Solenoid
- 3. Same hose in both photos shown for location

If these conditions are found, remove the connector and review the schematic in the appropriate Service Information to compare the wire colors. Verify that the correct connector is plugged into the actuator solenoid and lock solenoid.

The Bank 1 Intake Actuator Solenoid connector and Bank 1 Park Lock Solenoid connector are shown in the photo, with the same hose identified to show location.

If the connectors are incorrect, swap them back and clear the DTC to verify the repair. If the connectors are in the correct location, refer to the appropriate Service Information to continue diagnosis of DTC P0016.

Thanks to Bryan Salisbury

Vehicle Will Not Shift Out of Park

Some 2011-2015 Volt models and 2014-2016 ELR models may not shift out of Park. If this condition is present, there may be water intrusion in the X98 Hybrid/EV Battery Charger Receptacle, which may cause the vehicle to determine that the charging cord is plugged in. When the charging cord is plugged in, the vehicle will not shift out of Park.

Try to duplicate the condition. If the cause cannot be identified following the diagnostics in the appropriate Service Information, perform the following:

- 1. Disable the high voltage system using SI Document ID 3610665
- 2. Unplug the charger receptacle and check if the vehicle now can be shifted out of Park.
- 3. If the condition is resolved, replace the Drive Motor Battery Charger Receptacle. Updated part numbers have been released.

Refer to #PIC6366 for additional information and part numbers.

Thanks to Paul Radzwilowicz



Battery charger receptacle





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