



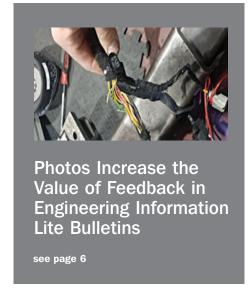


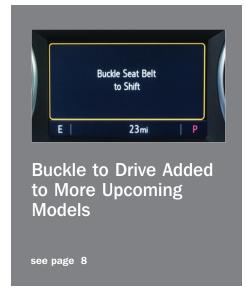




July 2021, Volume 23, No. 13







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Know Your Shipping Guidelines When Returning Parts to the Warranty Parts Center

In order to better understand and help resolve product issues quickly, the GM Warranty Parts Center (WPC) occasionally requests the return of specific parts replaced at dealerships through the Global Warranty Management (GWM) system. Returned parts are analyzed by Brand Quality, Engineering, Suppliers, Production Plant, Assembly Plant and Quality Management personnel to help identify the issue, determine the root cause, and implement a correction.

When returning parts to the WPC, dealerships must include the proper documentation for the repair as well as follow the preparation, shipping and packaging guidelines regarding the type of part being shipped (non-hazardous vs. hazmat/dangerous goods).

IDENTIFY HAZARDOUS MATERIALS

Some common automotive hazardous material examples include items such as air bags, seat belt pretensioners, brake boosters, compressed gas shocks and lifts, batteries (including lithium ion and lithium metal batteries), paint, adhesives, solvents, hazardous waste, and any part that comes in contact with flammable liquid (i.e., fuel).

For example, if a fuel line received from the parts warehouse is considered new and unused, it is not considered a hazmat material. However, if the same part has been installed in a vehicle and has been in contact with fuel, it is now considered a



hazardous material and should be shipped accordingly under the 49 CFR Hazardous Material Regulations.

TIP: Do not ship high-voltage lithium ion batteries to the WPC. The GM Battery Service Center provides return instructions with each lithium ion battery section shipment. Refer to Bulletin #18-NA-236 for return instructions. If a special parts return request comes from the WPC, follow the instructions for where to return the battery provided at the time of the request.

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When printing out the GWM parts request transaction label, the label might indicate that it is not hazardous, which is based on a new or unused part. Any part that comes in contact with flammable liquid (i.e., fuel) is considered a hazardous material.

SHIPPING NON-HAZMAT/NON-DANGEROUS GOODS

When shipping non-hazardous/non-dangerous goods to the WPC:

- Properly protect and package all returned parts in original CCA packaging so they are not damaged when received at the WPC. All parts should be returned to the WPC in original packaging. For example, with an engine assembly, the pallet and cardboard box are both necessary. The dealership will be debited (depending on the safety situation) for failure to return in a crate/box/container. Only use boxes without hazardous material marking and labeling to return non-hazardous material parts. Incorrect use of these boxes can cause delay in receiving at the WPC, and may result in the transaction being debited.
- Parts containing or soaked by fluids, such as oil, must be thoroughly drained, wiped clean and placed in an appropriate packing container. Securely package the parts to prevent leakage or contamination. Transfer all caps and plugs from the new part to the replaced part before shipping. If parts are received at the WPC with fluids such as oil or fuel, the part will not be accepted as "Received" and the transaction will be debited.
- If the requested core parts are not returned to the WPC, the transaction will be debited.

EXAMPLES OF PARTS RETURNED IMPROPERLY



A soaked box shows that the parts were not thoroughly drained and placed in an appropriate packing container.

Parts that are not shipped in the correct CCA packaging, properly secured, or drained of fluids can result in damaged or lost parts,



Part was not securely packaged to prevent leakage or contamination.

which can be subject to a transaction debit.

Using the incorrect packaging also can result in damaged or missing parts. Heavy or large parts placed in the wrong packaging may move around during shipping and eventually break through the box.

In addition, smaller parts may be damaged or bent if they are returned in packaging that is too large or too small.

To prevent damage when returning parts, whenever possible, use CCA packaging,

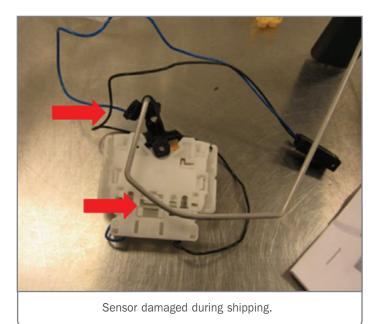




Parts received at the WPC with fluids are not accepted as "Received" and the transaction will be debited.



Part was missing when the package arrived at the WPC



secure the parts in the container and apply proper taping to the package.

GUIDELINES FOR RETURNING PARTS

To prepare non-hazardous/non-dangerous goods for return to the WPC:

 Use a paint pen to clearly mark or circle the area of concern on the part, such as a leak, crack, premature wear or defect, in order for the area of defect to be easily identified.

- Ensure that the request being made is for the actual failed part; do not send a similar or new part.
- Do not remove any pieces from the part being sent back.
- When identifying parts, be sure to do so in an area that will
 not damage the part being sent back. For example: Do not
 wrap a label or metal tag wire around wiper blade inserts, do
 not apply tape around door seals, and do not stick moldings
 together.
- Return all parts together that are related to the repair procedure covered by the labor operation on the part return request. For example, a transaction for labor operation T5603, replace 8 injectors, should have all 8 injectors returned under one part return request.
- Bundle together and ship all parts related to the specific labor operation being requested.
- Do not send multiple requests in the same box. Ship each individual request in a separate box with its unique GWM shipping label affixed on the top of the box and on one outward-facing side.
- Inside the package, include the GWM Parts Return shipping label, job card with technician comments, and other related documentation to allow parts to be successfully routed and analyzed.
- Highlight the Transaction Number and place the folded documentation in the plastic packing bag with the highlighted Transaction Number facing outward. This process will assist the WPC in handling and crediting the dealership for returning the part in a timely manner. The bag containing all documentation must be securely attached to the appropriate part. Plastic packing bags are available for the protection of the documentation to be included with the parts, consisting of legible copies or hard copy of the job card and the WPC request/shipping label.
- Whenever possible, the container from the new/replacement part should be used for the return of the failed part. All previous labeling on the box should be removed or covered prior to re-use. Leaving a prior shipping label exposed can cause errors in shipping.
- Use only clean, dry boxes to return parts boxes that have absorbed oil or other fluids should not be used to return parts to the WPC. Be sure to package parts to avoid damage during shipping by using bubble wrap or other protective packing materials. Avoid using any absorbing material that may contaminate the part, such as loose clay absorbent products. Parts must not be shipped loose. It is important that parts arrive at the WPC in the same condition that they were in when removed from the vehicle.

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SHIPPING ENGINES

Engines that have been run or "hot tested" (i.e., had fuel in them) are considered hazardous material or dangerous goods. Before shipping an engine:

- Drain all fluids and transfer all shipping plugs from the service engine to the returning engine, or cover open cavities with tape.
- Lower the engine into a plastic bag to ensure capture of any residual fluid leakage, place a drainage mat at the base of the original service engine shipping container (box or pod), and place the bagged engine into the original service engine shipping container.
- Bolt and strap the engine to the supporting pallet and cover with the appropriate lid.
- Attach all corresponding documentation before shipping.

Engines returned exactly in this manner do not require any additional or special hazardous material packaging or labels (U.S. only).

SHIPPING HAZARDOUS MATERIALS

When shipping hazardous materials to the WPC:

- Ship hazardous materials to the WPC using Central Transport.

 Hazardous materials should never be sent by air transportation.
- When opening a box intended to be reused, carefully cut the tape only, being careful not to cut or rip the cardboard. Be sure all required hazardous material markings and labels are used.
 If the box is damaged and can't be reused, the dealership will need to acquire proper packaging.
- Safety devices require UN specification packaging. When
 packaging a UN specification box for shipment, refer to the
 closure instructions on the box to properly close and seal the
 box as tested.
- Do not cover or obscure hazard class labels, markings or other required handling labels with shipping labels or pouches.
- Be sure all other non-needed labels are covered or removed.
- If returning a lead acid battery, all necessary packing materials
 will be shipped from the WPC. Non-spillable lead acid batteries
 are considered non-hazardous for purposes of transportation
 and can be returned to the WPC through regular shipping
 procedures. At the present time, this is the only battery
 that can be returned as a non-hazardous part for shipping
 purposes.

REPAIR ORDER DETAILS

Repair order, or job card, information is critical to analyzing product issues. The more detail that is included, the better the results.

Documentation should include detailed information about the customer concern as well as all technician comments regarding the root cause of failure with document ID numbers, test results, diagnostic trouble codes, TAC case number, assembly serial numbers, measurements, and other data. In addition, details should be provided on any characteristics or symptoms of the fault along with operating conditions that were observed when the fault occurred, such as: scan tool data snapshot information, weather, temperature and altitude.

Also attach a scan tool data printout/snapshot, diagnostic worksheets and all substantiating service documents with the job card that is returned with the part. Be sure to include TAC and/or PQC case numbers. Documentation regarding GM representative involvement should be included as well.

ANALYZING PRODUCT ISSUES

Brand Quality Managers and Engineering inspect the returned components for quality issues. After inspection, if the parts were found to be defective, they will be scrapped or, if they have a core, sent to the Core Center. A dealership feedback and debit will be issued if:

- The part/component was not defective:
- Not all parts or documents (Cost Comparison for any assembly replacement from dealers required to contact the PQC, completed shop copy of job cards, diagnostic information, etc.) were returned.
- The job card did not contain the Complaint, Cause, and Correction information as required to substantiate the repair. Vague comments such as, "broken", or "customer satisfaction", are not acceptable.
- The shop copy of the job card did not contain all proper documentation.

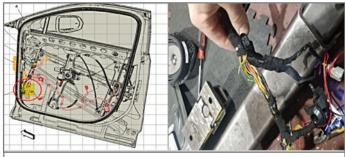
For additional information, refer to the latest version of Bulletin #99-00-89-019.

Thanks to Scott Lewiston

Photos Increase the Value of Feedback

IN ENGINEERING INFORMATION LITE BULLETINS

Seeing how a condition affects vehicle operation is critical to proper diagnosis. That's why GM requests photos to be included when possible with Field Product Reports (FPR) that are part of an Engineering Investigation (EI). In an effort to gather feedback more quickly on emerging product concerns, GM has recently introduced the EI Lite process, which is an Engineering Investigation, but does not require technicians to call a GM engineer.



Photos are requested as part of Engineering Investigations.

EI LITE

El Lites are shown in Investigate Vehicle History (IVH) in the Service Information section for applicable vehicles. They also can be found in the search results with other technical service bulletins. If the El is not shown in IVH, no special action is required and diagnosis and repairs should follow the procedures in the appropriate Service Information.

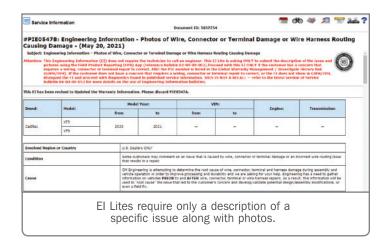
The difference between a regular Engineering Investigation and an El Lite is in the details. A regular El asks that technicians call a GM engineer with detailed information about a specific condition found on a vehicle and repairs made. An El Lite asks only to submit the description of a specific issue along with photos using the FPR app (U.S. only). A call to an engineer is not necessary

The feedback from dealership technicians from all Engineering Investigations (EI and EI Lite) are extremely valuable in identifying and correcting the root cause of a product issue as well as in implementing any needed design/assembly modifications or a field fix.

The FPR app is part of the Certified Service Mobile Toolbox. Instructions to install the app on your mobile phone as well as other detailed instructions can be found in the latest version of Bulletin #02-00-89-002. All FPR submissions include added labor time.

SUBMITTING PHOTOS

When submitting photos for an EI Lite investigation, be sure to



take a picture of the vehicle showing the location of the issue area, such as the engine, instrument panel, body harness, power seat, etc.

In addition, take a clear picture of the damaged area that shows the type of issue. For example, on a wiring harness issue, take pictures of any water intrusion in a connector or a pinched wire. For a harness wiring concern, take "before" and "after" photos to show the incorrect routing and the correct routing after repairs.

CURRENT EI LITE EXAMPLE



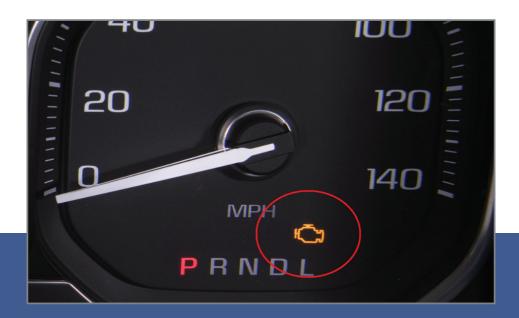
When submitting photos, show the location on the vehicle along with a clear picture of the damaged area.

An example of an EI Lite currently requiring additional information from dealership technicians is #PIE0547, which applies to 2020-2021 XT5 and XT6 models with possible wire, connector or terminal damage or incorrect wiring harness routing.

Photos of the issue on the vehicle should be submitted using the FPR app. Be sure to fill out the required fields and include the EI number in the Condition field.

Thanks to Ray Romeo

Engine Misfire Detected without Drivability Concerns



An engine misfire DTC may be set on some 2020-2021 Silverado 1500 and Sierra 1500 models equipped with the 5.3L V8 engine (RPO L84). However, the misfire may not be noticed by the driver or the vehicle may not have any drivability concerns. The Check Engine MIL may be illuminated or may have been flashing while driving up a long grade or a smooth road with steady throttle input. DTC P0300 (Engine Misfire Detected) may be set as active or history in the Engine Control Module (ECM).

The detected misfire condition may be the result of the P0300 diagnostic falsely setting the DTC under certain driving conditions. GDS2 data may show misfires being recorded on any cylinder, but they may be more noticeable on cylinders 1 and 6.

To address the detected misfire condition, an updated calibration has been released. Reprogram the ECM with the latest calibration and perform the Crankshaft Position Variation Learn procedure. Do not replace any parts for the condition.

TIP: To avoid warranty transaction rejections, the warranty claim code provided on the SPS Warranty Claim Code (WCC) screen must be recorded on the job card (repair order).

The updated calibration does not address any true engine

misfire. It only updates the P0300 diagnostic in the ECM. If the engine is actually misfiring, refer to the appropriate Service Information for additional diagnostic information.

Once the calibration has been updated, drive the vehicle and verify the DTC does not set.

CRANKSHAFT POSITION VARIATION LEARN PROCEDURE

The Crankshaft Position Variation Learn procedure must be performed or the updated calibration will not provide the desired results.

The crankshaft position sensor variation or reluctor ring learn is used to calculate reference period errors caused by slight tolerance variations in the crankshaft and the crankshaft position sensor. The calculated error allows the ECM to accurately compensate for reference period variations, which enhances the ability of the ECM to detect misfire events over a wider range of engine speed and load. The compensation values are stored in ECM memory after a learn procedure has been performed.

For additional information, refer to Bulletin #21-NA-154.

Thanks to Bryan Salisbury

Buckle to Drive Added to More Upcoming Models

The Buckle to Drive feature that prevents drivers from shifting out of Park until the seat belt is buckled will be included as standard equipment on more upcoming GM models, including 2022 full-size trucks and SUVs. On some earlier models, the feature was a setting of Teen Driver Mode.

Technicians, service consultants, porters and other service department personnel should be aware of the Buckle to Drive feature and how it works. This information should be shared with customers who have questions about the feature as well.

BUCKLE TO DRIVE OPERATION

The Buckle to Drive setting may be turned on at the factory, depending on the make and model, and will prompt the driver to buckle the seat belt when the ignition is on, the driver's seat belt is unbuckled and the brake pedal is applied. Audible chimes will sound and a message will display on the Driver Information Center (DIC).



The driver cannot shift out of Park until the driver's seat belt is bucked. If the seat belt remains unbuckled, the vehicle can be shifted out of Park once the feature times out and the DIC message is no longer displayed. The feature will remind driver's to buckle up once during each ignition cycle.

Buckle to Drive can be turned off through the Settings menu on the infotainment screen; go to Settings > Vehicle > Buckle to Drive. On vehicles that include the feature as part of Teen Driver Mode, go to Settings > Vehicle > Teen Driver. The vehicle may need to be restarted to register the setting change.



Buckle to Drive requires the driver to buckle the seat belt. The feature can be turned on/off in the Settings menu.

TIP: If there is a concern about the transmission not shifting out of Park intermittently, check the Buckle to Drive setting before performing other diagnostic procedures.

For some fleet vehicles, Buckle to Drive will always be on and cannot be turned off. Shifting from Park will be prevented each time the vehicle is started if the driver's seat belt is not buckled.

PRODUCTION ROLLOUT

Buckle to Drive was introduced as a feature of Teen Driver Mode on the following models:

- 2020 Colorado, Traverse, Malibu, Canyon
- 2021 Equinox
- 2022 Blazer

Buckle to Drive is a standard feature on the following models:

- 2021 CT4, CT5, Malibu, Corvette and Envision
- 2022 Traverse, Tahoe, Suburban, Silverado, Sierra, Yukon, Hummer, and Escalade

Beginning in the 2023 model year, the Buckle to Drive feature on some models will also include the front passenger's seat. The seat belts of the driver and front passenger will need to be buckled to shift out of Park. On these models, be sure that a briefcase, grocery bag, laptop or other device on the front passenger seat is not preventing the vehicle from being shifted out of Park.

Thanks to Mike Waszczenko

Wiring Harness Damage

Several Driver Information Center warning messages may display on some 2019-2021 Blazers, including service brake, service steering, reduced power and other messages. The Check Engine MIL also may be illuminated along with any of the following DTCs: P0232, P023F, P0641, P0697, P2535, P129D, P12A6, P12A8, P2635, P3051, P3052, P3055, P3056,

P305B, P035C, P035E, U0074, U0077, U0121, U0131, U0151, U0415, U0420, U18A2, U2502, and/or U2616.

These conditions may be caused by the wiring harness rubbing on the battery tray support bracket that secures the Transmission Control



Wiring harness damage from rubbing on the battery tray support bracket for the TCM.

Module (TCM). Several circuits may be damaged in the harness, leading to codes and symptoms that will vary and may be intermittent, depending on the affected circuits.

If these conditions are found, inspect the wiring harness below the battery tray to determine if the routing of the harness is causing it to rub on the bracket for the TCM. Repair any damaged circuits and tape the harness.

It will be necessary to remove the battery and battery tray to perform the repairs. Also check for any missing retainers for the wiring harness.



Remove the battery and battery tray to perform the repairs.

Once repairs are completed, reroute or secure the harness to prevent further damage. It may be necessary to install a piece of heater hose or other conduit over the harness to prevent any chafing in the future.

Refer to Bulletin #PIT5847 for additional information.

► Thanks to Dave Goodrow

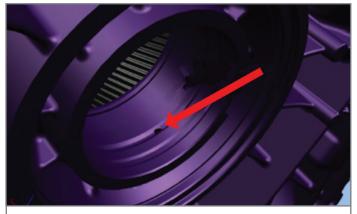


Inspect the routing of the wiring harness below the battery tray.

Transfer Case Input Seal Installation

Seal installation depth is critical when replacing the transfer case input seal. On some 2020-2021 Silverado 2500HD/3500HD and Sierra 2500HD/3500HD trucks equipped with the 10L1000 10-speed automatic transmission (RPO MGM, MGU) and the RPO NQF or NQH transfer case, the DT-50648-A Seal Installer may not install the input seal to the correct depth.

There is a gap around the outer portion of the seal that needs to be centered over a weep hole in the transfer case. The weep hole is drilled in the center of a groove machined into the case. The DT-50648-A Seal Installer will not work for these applications.



The weep hole is drilled in the center of a groove machined into the case.

There are two transfer case front case designs. The seals install at different depths for design 1 and design 2. To identify each design, look for a machined groove where the seal is installed (circled as shown). If there is a defined machined groove in the case, it is a first design case.



A defined machined groove in the case indicates it is a first design case.

If there is not a defined groove machined into the case, it is a second design case.



A case without a defined machined groove is a second design case.

While a service tool strategy is being developed, use the J-45228 Pinion Bearing Cup Replacer to drive the seal in the case. However, there is no stop at the correct depth when using the J-45228 tool. The seal must be driven in slowly during installation and checked for the correct depth. Be careful not to drive the seal in too deep or it will be necessary to replace the seal again.



Use the J-45228 tool to drive the seal to the correct depth.

Before installation, determine the case design and put a mark on the outside of J-45228 tool to use as a visual aid for the correct seal depth. When the mark is even with the case, stop installing the seal. For first design cases, mark the tool at 17 mm, and for second design cases, mark the tool at 19.5 mm.



Mark the tool as a visual aid for the correct seal depth.

After installation, verify the correctly installed depth by using a vernier caliper to check the distance between the case and the outer part of the seal. On the first design case, the dimension should be 1 is 10 mm, and on the second design case, it should be 2 is 13 mm.



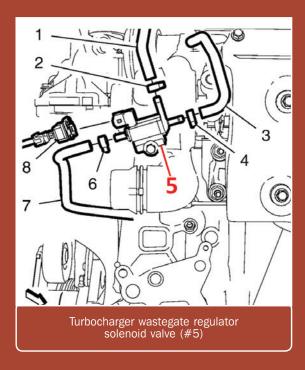
Use a vernier caliper to verify the correctly installed depth.

Refer to Bulletin #PIP5810 for additional information.

► Thanks to Steve Schipansky

Freezing Turbocharger Wastegate Regulator Solenoid Valve

Some 2016-2019 Cruze models equipped with the 1.4L engine (RPO LE2) may have DTC P0234 (Engine Overboost) and P0299 (Engine Underboost) set while driving in colder weather. Due to low ambient temperatures, oil/moisture condensation may freeze in the turbocharger wastegate regulator solenoid valve (TCV).



If these DTCs are set, remove the turbocharger wastegate regulator solenoid valve and drain any condensation by turning the valve upside down. Blow clean shop air, regulated to 15-20 psi, through all three ports (1, 2 and 3) for five seconds each. Repeat this procedure twice.

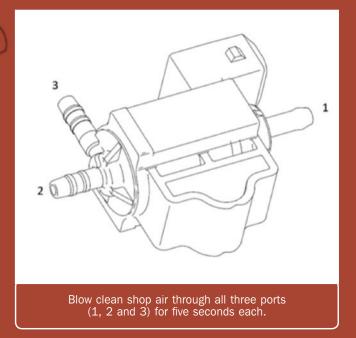
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Check port #2 to ensure that the spring gets lifted off the seat. This will be determined by the compressed air not dead-heading when applied to port #2. When applying air to this port a small amount of air should be observed at port #3 and even less air will be noticed at port #1. If the air does not flow as described, the TCV plunger may have hardened deposits from hot operating conditions, which will impede TCV plunger movement, and the turbocharger wastegate regulator solenoid valve should be replaced.

After completing repairs, reinstall the turbocharger wastegate solenoid valve, clear all DTCs and evaluate the condition. Be sure to perform the Intake System Learned Values Reset procedure.

Refer to #PIP5812 for additional information.

Thanks to Robert Halas





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