

[2005 Cadillac STS](#) | [STS \(VIN D\) Service Manual](#) | [Transmission/Transaxle](#) | [View All Bulletins](#) |

Document ID: 2195866

## #02-07-30-029L: Product Quality Center (PQC) for Engine, Transmission Assembly and Transfer Case Replacement - (Sep 29, 2008)

**Subject:** Product Quality Center (PQC) for Engine, Transmission Assembly and Transfer Case Replacement

**Models:** 2009 and Prior GM Passenger Cars and Light Duty Trucks  
2009 and Prior HUMMER H2, H3  
2009 and Prior Saturn Vehicles (Canada Only)  
2009 and Prior Saab 9-7X (Canada Only)  
with Automatic or Manual Transmissions and/or Transfer Cases



This bulletin is being revised to add the 2009 model year. Please discard Corporate Bulletin Number 02-07-30-029K (Section 07 - Transmission/Transaxle).

### Dealership Service Management Responsibility

**Important:** There may be situations where an assembly can be repaired, but due to customer satisfaction reasons, an assembly replacement should be considered. The dealership should still be prepared to provide the PQC with the information on the diagnosis. In these cases, the dealer Service Management should contact PQC. PQC will contact the dealer's District Service Manager (DVM) (in Canada, the District Service Manager (DSM)). The DVM/DSM then should communicate back to the PQC that they have approved the assembly replacement. Then the PQC can contact the dealership to advise them of the DVM's/DSM's decision and to approve the warranty claim.

The servicing technician must provide detailed customer complaint, conditions, diagnostic trouble codes (DTCs) and other useful information with each assembly replacement. Only the service technician has the detailed information required for proper root cause analysis and product concerns correction. This information is very valuable in ensuring that the replacement assemblies and current production parts help to continually improve our products. Therefore, the assembly replacement templates have been modified to capture and record the dealership service technician's diagnosis notes/comments in detail.

We are requesting ALL service technicians use this opportunity to help GM better understand how and why a given component failed. For us, this is an opportunity to have direct and thorough feedback from our technicians to engineering and thus improve the reliability and durability of both OEM and Goodwrench® assemblies.

### Changes to the Assembly Replacement Templates

This bulletin will incorporate numerous changes to the assembly replacement authorization

© 2017 General Motors Corporation. All rights reserved.

template which will minimize technician time spent on the phone with the PQC, while also assisting Engineering with more detailed information on a given component failure. The changes are listed below.

The templates for Engine, Transmission and Transfer Case replacement have been shortened. The PQC should only be contacted when the new templates have been completed and an assembly replacement detail is obtained.

- After obtaining vehicle identification and repair information, the template is divided into subsections to collect only pertinent questions by complaint category. The condition subsections are to capture and record highly detailed customer complaint information.
- The technician's diagnosis section is the most valuable component of the new templates. We are asking all technicians to tell us in his/her own words why they believe a particular component failed or a condition occurred. The technician is responsible for completely and thoroughly describing their findings to the PQC after a repair assessment is established and an assembly is required.

For example, if the customer concern is a fluid leak, we are requesting details as to what specifically is the source of the fluid leak. For example, if a coolant hose is leaking, please define which hose is of concern, as well as why the hose is leaking (loose clamp, nick in hose, etc.). In other leak concerns, such as casting leaks or porosity, please permanently identify exact location using paint or permanent marker. These steps are vital in order to better enable GM to clearly understand and correct product concerns affecting our customers. We are requesting this detail on all templates for Engine, Transmission and Transfer Case for all condition types and causes.

Lastly, we are requesting that all assemblies are completely and properly reassembled in their correct and proper orientation. Many times assemblies are returned and analysis is incomplete because the components are improperly assembled and GM is not able to completely root cause a particular concern.

**Important:** Incomplete or improper reassembly or documentation within this process will result in GM taking action with the dealer if a thorough root cause analysis is not obtained.

## What Is Covered?

Included are all OEM assemblies replaced under warranty and policy, service assemblies (B and N claims) and over the counter assembly replacements beginning with repair orders written on July 1, 2002 for engines and automatic transmissions, repair orders written on January 20, 2003 for transfer cases and repair orders written on October 5, 2005 for manual transmissions. Dealer empowerment regarding policy adjustments remains in effect, however, the need to replace an engine, transfer case or transmission must be reviewed with the PQC. Assemblies replaced under a GMPP extended service contract are not included. Dealers should continue to contact GMPP in these cases. When servicing engines and transmissions covered under an exchange program, contact TAC as described in the Exchange Bulletin.

Prior to replacing an assembly, dealers will need to call the PQC at 1-866-654-7654. The Center will be available Monday through Friday from 8:00 am to 5:00 p.m. in each time zone in the continental U.S. (in Canada, Eastern to Pacific Time). Prior to calling, please refer to the engine, transfer case or transmission template found at the end of this bulletin.

The PQC will follow these templates in order to acquire information for GM use during assembly teardowns and root cause determination. Use of the templates will minimize the time spent on the telephone and avoid the need of a second call to the PQC. Copy the templates as required. Refer to

Corporate Bulletin Number 02-06-01-026 and 02-07-30-028 for engine and transmission unit number locations.

Any of these assemblies sold "over the counter" and then considered for an assembly replacement MUST have the unit serial number attached to be considered by the PQC. If an assembly is returned without a legible serial number, dealers will need to contact their District Service Manager (DVM) (in Canada, the District Service Manager (DSM)) who will determine if the assembly is the same unit sold over the counter. Dealers are encouraged to record the unit serial number on the original counter sales invoice.

If normal engine, transfer case or transmission diagnostic assistance is needed, dealers should still call the GM Technical Assistance Center.

**Important:** TAC does not have the ability to authorize payment of unit replacement claims. Please do not call TAC to authorize unit replacement. TAC can only offer technical recommendations based on the diagnostic information that the technician provides.

*Here are answers to some frequently asked questions:*

*Q:* Who should I call if an exchange bulletin applies to the engine, transmission or transfer case?

*A:* Follow the instructions in the exchange bulletin.

*Q:* What should I do if a bulletin or PI suggests assembly replacement?

*A:* Estimate what it will cost to replace the assembly, fill out the necessary replacement template below and contact the PQC.

*Q:* What should I do if the cause of an internal engine, transfer case or transmission concern is not repairable (block damage, etc.)?

*A:* Estimate what it will cost to replace the assembly, fill out the necessary replacement template below, and contact the PQC.

*Q:* What should I do if the cause of an internal engine, transfer case or transmission concern is repairable?

*A:* Estimate what it will cost to repair the assembly, estimate what it will cost to replace the assembly, and repair the assembly in the most effective manner. If the estimates are similar, or if it is more cost effective to replace the assembly, fill out the necessary replacement template below and contact PQC for review. If it is obviously more cost effective to repair the assembly, the repairs can be made without contacting the PQC.

*Q:* What should I do if an assembly is repairable but replacement is preferred because of low mileage, an out of box concern, being a new stock unit, related to customer satisfaction issues,

etc.?

*A:* Estimate what it will cost to replace the assembly, fill out the necessary replacement template below, and contact PQC. The PQC will review this preference with your DVM (in Canada, DSM) to determine whether the assembly should be repaired or replaced.

*Q:* What should I do if the root cause of an internal engine, transfer case or transmission concern can not be isolated after following SI diagnostics, TAC suggestions and disassembling for inspection?

*A:* Estimate what it will cost to replace the assembly, fill out the necessary replacement template below, and contact the PQC.

In the case of an over the counter replacement, the dealer will be expected to obtain as much failure information as possible before the PQC will approve a replacement. This may include involving the purchaser in the call along with a representative of the dealership. Dealers should not provide the phone number to purchasers.

The PQC will review the diagnosis, offer additional direction, and when needed, authorize replacement of the assembly. The PQC will also pre-authorize the warranty claim. Dealers will need to provide the total claim expense, including a breakdown of the assembly cost and parts mark-up, labor cost (hours X warranty labor rate) with any additional hours. The Center can authorize a reasonable and customary amount of additional time to disassemble and reassemble the unit in order to determine if an assembly is required.

In many cases, the technician may not have all the necessary claim information during the initial call. In these instances, the assembly will be authorized and the technician provided with a case number. A second call will be needed at a later time to pre-authorize the claim which can be made by the Warranty Administrator once the claim information has been collected.

If an assembly needs to be replaced and the PQC is not available (after hours, on the weekend), dealers should use their own discretion, including a repair vs. replace analysis. On the next business day, please call the PQC with all the required information (refer to the templates) and the claim will be pre-approved.

The following five labor operation numbers will require either pre-approval from the Call Center or approval from the DVM/DSM:

- K7000 -- transmission assembly replacement
- J1820, J1840 and J1880 -- engine assembly replacements
- K4410 -- transfer case assembly replacement
- K2720 -- transmission/transaxle assembly replacement (manual)

Dealer authorization will not approve these labor operation numbers.

When returning a core assembly, a readable copy of the repair order and completed feedback form shipped with the new assembly must be attached to the shipping container per the instructions supplied with the new assembly. Refer to Corporate Bulletin Number 01-07-30-029 for transmission return information. DEALERS MUST RETAIN ALL ENGINE, TRANSFER CASE AND

## PQC Call Process

1. If dealer diagnosis indicates a need for either an engine, transfer case or transmission replacement, then complete the appropriate engine, transfer case or transmission call template in this bulletin. Accurate repair and replace estimates are essential to eliminating a second PQC contact.
2. Call the PQC at 1-866-654-7654 prior to replacing the assembly.
  - If assembly replacement is NOT authorized, then proceed with repair of the assembly. If agreement on repairs cannot be reached, contact your DVM (in Canada, DSM) for a final review of the case.
  - If assembly replacement is approved, then proceed with the replacement and ATTACH the call template to the repair order.
3. When the repair order is closed, compare the warranty claim line total to the replace cost estimate on the call template (Engine = line 11, Transfer Case = line 12, Transmission = line 13). If the final claim amount does NOT exceed \$50.00 more than the estimate, then submit the claim. If the claim amount DOES exceed \$50.00 more than the estimate, then continue with Step 4.
4. Complete the last section of the call template and contact the PQC either by phone at 1-866-654-7654 making sure that the PQC case number field is filled in. If the PQC is unable to approve the difference, they will contact the dealer as indicated on the fax.

PQC - Automatic Transmission
Caller's Name/Position:    _____ Number of times in for the same condition   _____ Number of days vehicle in dealership for same condition.   Y/N - Is the vehicle modified/non-production accessories (list below)?          
Customer complaint

Personal or commercial use? (type of use if commercial)

Abuse or improper maintenance?

\_\_\_\_\_ OEM

\_\_\_\_\_ Goodwrench

Unit under warranty?

Mileage (warranty expiration):

Date (warranty expiration):

Describe the failure of the current unit and description of parts in REPAIR estimate over \$150.00

Serial #: \_\_\_\_\_

GOOWRENCH

Green Tag (Code # and serial #):

Mileage since the current GOODWRENCH transmission was installed:

Date when current GOODWRENCH transmission was installed:

Did the customer pay any portion when the GOODWRENCH transmission was installed?

Repair Cost =

Replace Cost =

PQC Comments:

Symptoms (pick only the section(s) that apply to the concern or failure)

*ATF Leak Concerns*

Does the transmission have an ATF leak concern?

Where is the leak? (detail):

Has oil/coolant dye been added for examination?

Did a leak recur after cleaning?

Leak rate (weep, drip or stream):

*Noise/Vibration Concerns*

Does the transmission have a noise or vibration concern?

What type of noise? (detail)

Describe the pattern of the noise (duration, RPMs, etc.):

*Shifting/Engagement Concerns*

Does transmission have a shifting or engagement concern?

Upshift-downshift concern?

Shudder during shifts?

Slips in forward gears?

Slips in reverse?



Clunks during reverse engagement?

Does engine stall in low gear?

---

*Driveability/DTCs*

Is the SES light on?

Is there a DTCs stored? If yes, please list:

Temperature when DTC set?

Has there been any previous repairs made prior to condition occurring (solenoids, PCM, etc.)?

Does condition occur in Park?

Does condition occur while driving?

Does condition occur during a shift?

Shift lever position when condition occurs?

Vehicle speed (mph) when condition occurs?

Engine speed (rpm) when condition occurs?

What is ATF color?

Is ATF contaminated?

### **PQC - Engine**

Caller's Name/Position:

\_\_\_\_\_ Number of times in for the same condition

\_\_\_\_\_ Number of days vehicle in dealership for same condition.

Y/N - Is the vehicle modified/non-production accessories (list below)?

Customer complaint

Personal or commercial use? (type of use if commercial)

Abuse or improper maintenance?

\_\_\_\_\_ OEM

\_\_\_\_\_ Goodwrench

Unit under warranty?

Mileage (warranty expiration):

Date (warranty expiration):

Describe the failure of the current unit and description of parts in REPAIR estimate over \$150.00

Serial #: \_\_\_\_\_

GOOWRENCH

Part #:

Serial #:

Site Code:

Mileage since the current GOODWRENCH engine was installed:

Date when current GOODWRENCH engine was installed:

Did the customer pay any portion when the GOODWRENCH engine was installed?

Repair Cost =

Replace Cost =

PQC Comments:

Symptoms (pick only the section(s) that apply)

*Oil/Coolant Leak Concerns*

Is engine leaking oil or coolant?

Has oil/coolant dye been added for examination?

Identify exact location of leak (seal, gasket, casting/porosity, etc.):

Cause of leak?

*Driveability/DTCs/Performance*

Does the engine have a noise or vibration concern?

Valvetrain or low end noise?

What cylinder(s) are affected?

What are cylinder compression readings?

What are cylinder leakage readings?

Does engine rotate freely?

Are any rotating components damaged?

If yes, please describe damage:

What is the condition of the engine oil?

Was the engine oil level correct?

Is the oil/coolant mixed?

Is there prior repair history?

If yes, list prior repairs performed to the vehicle:

**PQC - Manual Transmission**

Caller's Name/Position:

\_\_\_\_\_ Number of times in for the same condition

\_\_\_\_\_ Number of days vehicle in dealership for same condition.

Y/N - Is the vehicle modified/non-production accessories (list below)?

Customer complaint

Personal or commercial use? (type of use if commercial)

Abuse or improper maintenance?

\_\_\_\_\_ OEM

\_\_\_\_\_ Goodwrench

Unit under warranty?

Mileage (warranty expiration):

Date (warranty expiration):

Describe the failure of the current unit and description of parts in REPAIR estimate over \$150.00

Serial #: \_\_\_\_\_

Replacement Transmission

Green Tag (Code # and serial #):

Mileage since the current transmission was installed:

Date when current transmission was installed:

Did the customer pay any portion when the transmission was installed?

Repair Cost =

Replace Cost =

PQC Comments:

Symptoms (pick only the section(s) that apply to the concern or failure)

*Oil Leak Concerns*

Was oil dye added for examination?

Identify exact location of leak:

If you have not determined location, does the vehicle leak occur after a cool down period?

If yes, verify M/T vent for proper function and retest.

Leak rate (weep, drip or stream):

*Noise/Vibration Concerns*

Describe the type of noise:

What gear(s) when condition is present?



Is noise present in Neutral?

Is noise present with engine OFF?

Is noise present during acceleration or decel or both?

Is noise present during turning?

Did you verify the source of noise is not drivetrain-related?

#### *Performance Concerns*

Is the transmission difficult to shift?

Have you disconnected the shift linkage and re-evaluated?

What gears are affected?

Does transmission "pop" out of gear?

Is yes, what gear:

#### **PQC - Transfer Case**

Caller's Name/Position:

<p>_____ Number of times in for the same condition</p> <p>_____ Number of days vehicle in dealership for same condition.</p> <p>Y/N - Is the vehicle modified/non-production accessories (list below)?</p>
<p>Customer complaint</p> <p>Personal or commercial use? (type of use if commercial)</p> <p>Abuse or improper maintenance?</p> <p>_____ OEM</p> <p>_____ Goodwrench</p> <p>Unit under warranty?</p> <p>Mileage (warranty expiration):</p> <p>Date (warranty expiration):</p> <p>Describe the failure of the current unit and description of parts in REPAIR estimate over \$150.00</p>

Is the 4-wheel drive light on?

T-Case Tag Info

*NVG*

Model number:

Assembly number:

Serial number:

Ratio:

Paper Tag Info

*Borg Warner*

Model number:

Part number:

Serial number:

Serial number (under barcode):

Serial # (Styer/Aisin/Isuzu): \_\_\_\_\_

GOOWRENCH

Mileage since the current GOODWRENCH transfer case was installed:

Date when current GOODWRENCH transfer case was installed:

Did the customer pay any portion when the GOODWRENCH transfer case was installed?

Repair Cost =

Replace Cost =

PQC Comments:

Symptoms (pick only the section(s) that apply)

*Oil Leak Concerns*

Does transfer case leak?

Does leak recur after cleaning?

Leak location (seal, plug, gasket, etc.):

Has oil/coolant dye been added for examination?

*Transfer Case Fluid Inspection*

Was transfer case fluid level correct during diagnosis?

What is fluid condition?

Is fluid contaminated? If yes, describe debris:

*Shifting/Engagement Concerns*

Does transfer case have a shifting concern?

If yes, is it a shudder during shifts?

Slips? 4LO shift clash?

Lever "pops" out of 4WD/vibrates?

Vehicle speed when condition occurs:

Transfer case malfunction due to front axle concern?

Uncommanded shift from transfer case?
<i>Noise/Vibration Concerns</i>
Describe the type of noise:
What mode is the transfer case in during concern?
2WD/4WD?
4WD-LO?
4WD-High?

## Repair vs Replace Comparison Template

<p><b>Repair vs Replace Comparison. Circle One</b></p> <p><b>Automatic Transmission</b></p> <p><b>Engine</b></p> <p><b>Manual Transmission</b></p> <p><b>Transfer Case</b></p>	<p><b>Note: Must Be Attached To The Warranty Repair Order. Service Bulletin # 72-05-13</b></p> <p><b>Dated: January 1998</b></p>
<p><i>VIN # :</i></p>	
<p><i>R.O. #</i></p>	
<p><i>Mileage:</i></p>	

<i>Trans Code: (Must) Example 4L60E</i>					
<i>Condition: (Trouble Codes:)</i>					
<i>Cause:</i>					
<i>Correction:</i>					
<i>Repair Estimate</i>				<i>Replace Component Assembly</i>	
<i>Part Description</i>	<i>Part Numbers</i>	<i>Part Cost</i>	<i>Part Description</i>	<i>Part Numbers</i>	<i>Part Cost</i>
			+ 40 % Mark-up		
			Labor Code (Times Varies)		
			<i>Total</i>		
			<i>Comments: Explain why the parts (repair) need replacement here or on the repair order.</i>		
			<i>Cost Difference</i>		
			w/ opt. Items		\$
			w/o opt. Items		\$
			<i>Service Management Approval And Date</i>		
+ 40% Mark-up					
Labor Hours w/ opt. Items					
Labor Hours w/o opt. Items					
<i>Total w/ opt.</i>					

<i>Items</i>			
<i>Total w/o opt. Items</i>			

GM bulletins are intended for use by professional technicians, NOT a "do-it-yourselfer". They are written to inform these 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 bulletin applies to your vehicle, or that your vehicle will have that condition. See your GM dealer for information on whether your vehicle may benefit from the information.



WE SUPPORT  
VOLUNTARY  
TECHNICIAN  
CERTIFICATION