

COLLISION

Collision Repair Position Statements - GM

COLLISION REPAIR POSITION STATEMENTS

Please refer to [COLLISION REPAIR POSITION STATEMENTS](#).

COLLISION REPAIR POSITION STATEMENTS

Collision Position Statements	Location
Bumper/Fascia Replacement with Advanced Driver Assistance Systems (ADAS)	BUMPER/FASCIA REPLACEMENT WITH ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)
Refinishing Aluminum and Chrome Wheels 2011-2019 GM Passenger Cars and Trucks	REFINISHING ALUMINUM AND CHROME WHEELS
Installation of Used, Salvaged, or Imitation Air Bag System Components	INSTALLATION OF USED, SALVAGED, OR IMITATION AIR BAG SYSTEM COMPONENTS
Repairs and Inspections Required After a Collision	REPAIRS AND INSPECTIONS REQUIRED AFTER A COLLISION
Wheel Alignment Specifications, Requirements and Recommendations for GM Vehicles 2020 and Prior GM Passenger Cars and Light Duty Trucks	WHEEL ALIGNMENT SPECIFICATIONS, REQUIREMENTS AND RECOMMENDATIONS FOR GM VEHICLES
Use of Salvage and Recycled Parts	USE OF SALVAGE AND RECYCLED PARTS
Reuse of Salvage Structural Parts	REUSE OF SALVAGE STRUCTURAL PARTS
Non-approval of "Clipping" (Sectioning of Two Vehicles) for Collision Repair 2000-2017 GM Passenger Cars and Trucks	NON-APPROVAL OF "CLIPPING" (SECTIONING OF TWO VEHICLES) FOR COLLISION REPAIR
Pre- and Post-Scan of Collision Vehicles	PRE- AND POST-SCAN OF COLLISION VEHICLES
Vehicles Supported by GDS2 or Tech2/Tech2Win	VEHICLES SUPPORTED BY GDS2 OR TECH2/TECH2WIN

BUMPER/FASCIA REPLACEMENT WITH ADVANCED DRIVER ASSISTANCE SYSTEMS (ADAS)

CAUTION: Please refer to [BODY REPAIR PRECAUTIONS AND WARNINGS](#) before starting.

January 2020

- General Motors DOES NOT APPROVE the use of aftermarket, reconditioned, or salvage Bumpers/Fascia's on GM vehicles equipped with ADAS.
- Aftermarket, reconditioned or salvage Bumpers/Fascia's may have different material specifications than what was designed, tested and validated for use with ADAS.

General Motors (GM) vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, Noise, Vibration and Harshness (NVH), occupant protection, and vehicle safety. The overall structural integrity of the vehicle is dependent on maintaining its inherent design specifications.

At General Motors, safety is our overriding priority. With the safety of our customers at the center of everything we do, we are limiting repairs to Bumpers/Fascia's with Advanced Driver Assistance Systems (ADAS) to topcoat refinish only. Further, topcoat refinish material thickness of repaired ADAS Bumper Fascia systems must not exceed 13 mils in thickness. Any repairs such as gouges, tears or damage that requires the use of substrate repair material or reinforcement tapes must be avoided.

Primer and topcoat refinish methods can be employed on ADAS equipped Bumper/Fascia systems, provided the total paint mil thickness on any portion of the Bumper/Fascia does not exceed 13 mils. It is necessary that a non-metallic paint film thickness tool be used post repair to ensure material film build on part does not exceed 13 mils in thickness.

Examples of ADAS technology include:

- Ultrasonic Blind Spot Detection
- Integrated Brake Assist
- Rear Emergency Braking
- Automatic Collision Preparation
- Rear Cross-Traffic Alert
- Adaptive Cruise Control

Reconditioned Bumpers/Fascia's available in the aftermarket may have been repaired using substrate repair "filler material" or reinforcement tapes and as such General Motors does not endorse the use of reconditioned ADAS Bumper/Fascia systems. Only Genuine GM ADAS Bumpers/Fascias and components are tested and validated as a safety system.

With the continued expansion and use of ADAS safety systems on GM vehicles, it is critically important to be aware of the proper service and replacement requirements for Bumper/Fascia systems. To help preserve the performance of repaired GM vehicles, GM publishes vehicle specific collision repair procedures and manufactures and sells Genuine GM Parts. Genuine GM Parts offer the same safety and performance as the parts originally installed on new Chevrolet, Buick, GMC and Cadillac vehicles. Repairing a vehicle using Genuine GM Parts and following GM repair procedures helps ensure that a vehicle is returned to pre-accident condition.

See attachment "A" for additional details

Bumper/Fascia Replacement with Advanced Driver Assistance Systems (ADAS)

Attachment A content:

Using only Genuine GM replacement Bumper/Fascia parts will ensure that the ADAS systems will perform as designed by General Motors. Doing so, upfront, will also reduce cycle time. Aftermarket Bumper/Fascia assemblies may not have been designed, engineered, or tested to operate and perform as intended by GM. Non-original parts can be made of different material, or a slightly different configuration, which may cause the safety functionality to not perform as designed.

The use of non-OEM safety and structural parts and components may compromise the overall crashworthiness and occupant safety of General Motors vehicles in a subsequent collision.

Bumper/Fascia Repair

Depending on vehicle build configuration, the Bumper/Fascia system may have ADAS sensors attached to the inner surface that are not visible from the exterior of the vehicle (Please refer to Figure 1.1). GM is limiting repairs to these Bumper/Fascia systems on vehicles equipped with ADAS.

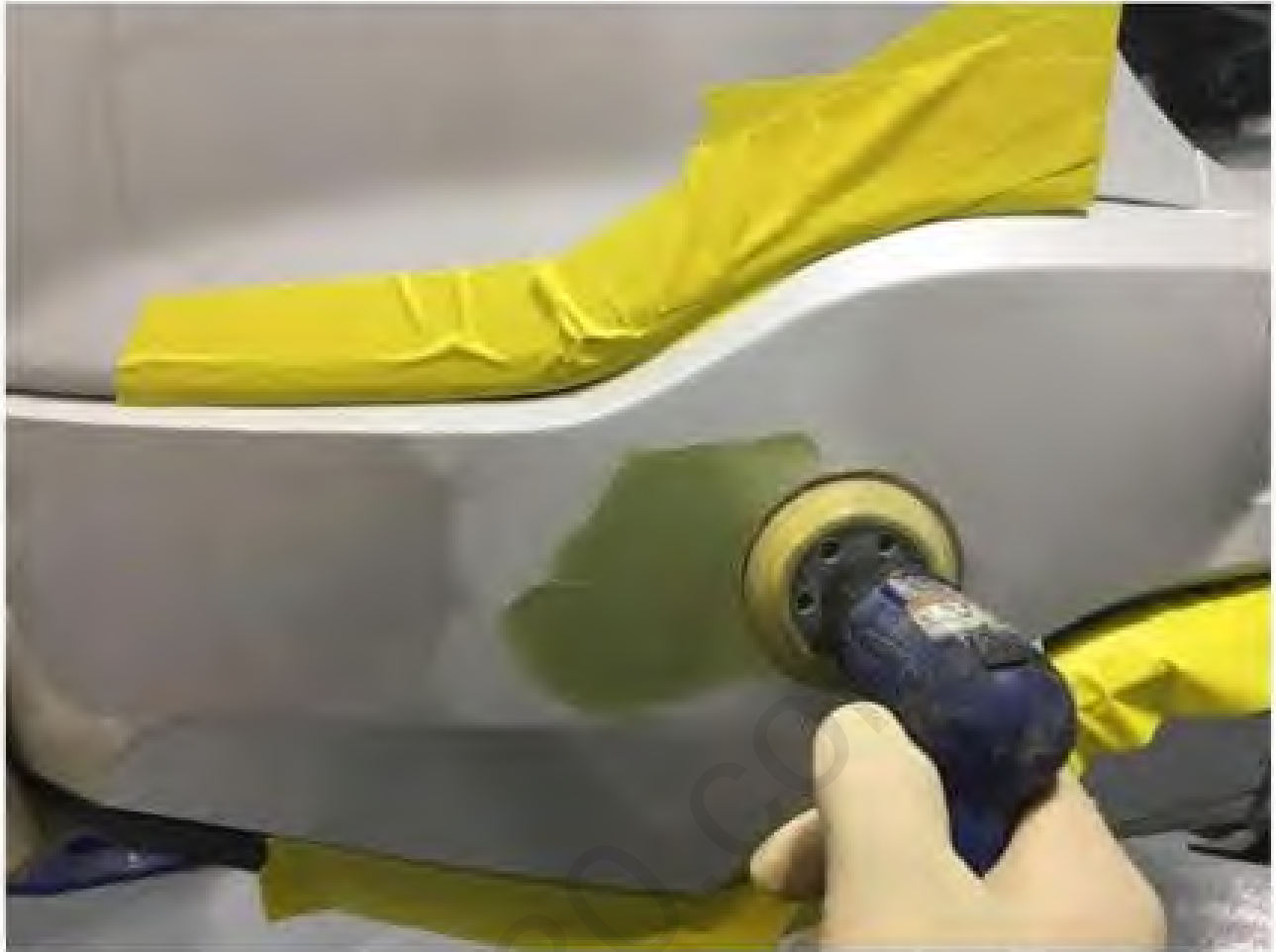


These repairs are defined as:

1. Bumper/Fascia Substrate Damage

Any Bumper/Fascia equipped with ADAS(s) that requires substrate repair must be replaced. An example of substrate repair is shown in Figure 1.2

Figure 1.2



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2. Paint Refinish Repairs

Paint repairs can be made, provided that the total paint mil thickness on any portion of the Bumper/Fascia does not exceed 13 mils. (Appropriate paint mil gauge should be used).

NOTE: Paint MIL gauge such as PosiTector 200 by DeFelsko, shown in Figure 1.3, can determine paint film thickness on a non-metallic surface.

mcx30.com

Figure 1.3



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Safety is General Motors' overriding priority. When repairing GM vehicles, it is important to follow GM OEM repair procedures and use Genuine GM Parts to help ensure that the ADAS systems will continue to perform as designed by General Motors.

REFINISHING ALUMINUM AND CHROME WHEELS

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Document ID: 4651150

#17-NA-052: Refinishing Aluminum and Chrome Wheels (Oct 26, 2018)

Subject: Refinishing Aluminum and Chrome Wheels

Brand:	Model:	Model Year:		VIN:		Engine:	Transmission:
		From	to	from	to		
All GM Passenger Cars and Trucks (Equipped with Chrome Wheels)		2011	2019	All	All		
All GM Passenger Cars and Trucks (Equipped with Aluminum Wheels)		2011	2019	All	All		

Involved Region or Country	North America and N.A. Export Regions
Additional Options (RPO)	Equipped with Aluminum or Chrome Wheels

This bulletin updates General Motor's position on refinishing aluminum/chrome wheels. GM does not endorse any repairs that involve welding, bending, straightening or re-machining. Only cosmetic refinishing of the wheel's coatings, using recommended procedures, is allowed.

Evaluating Damage

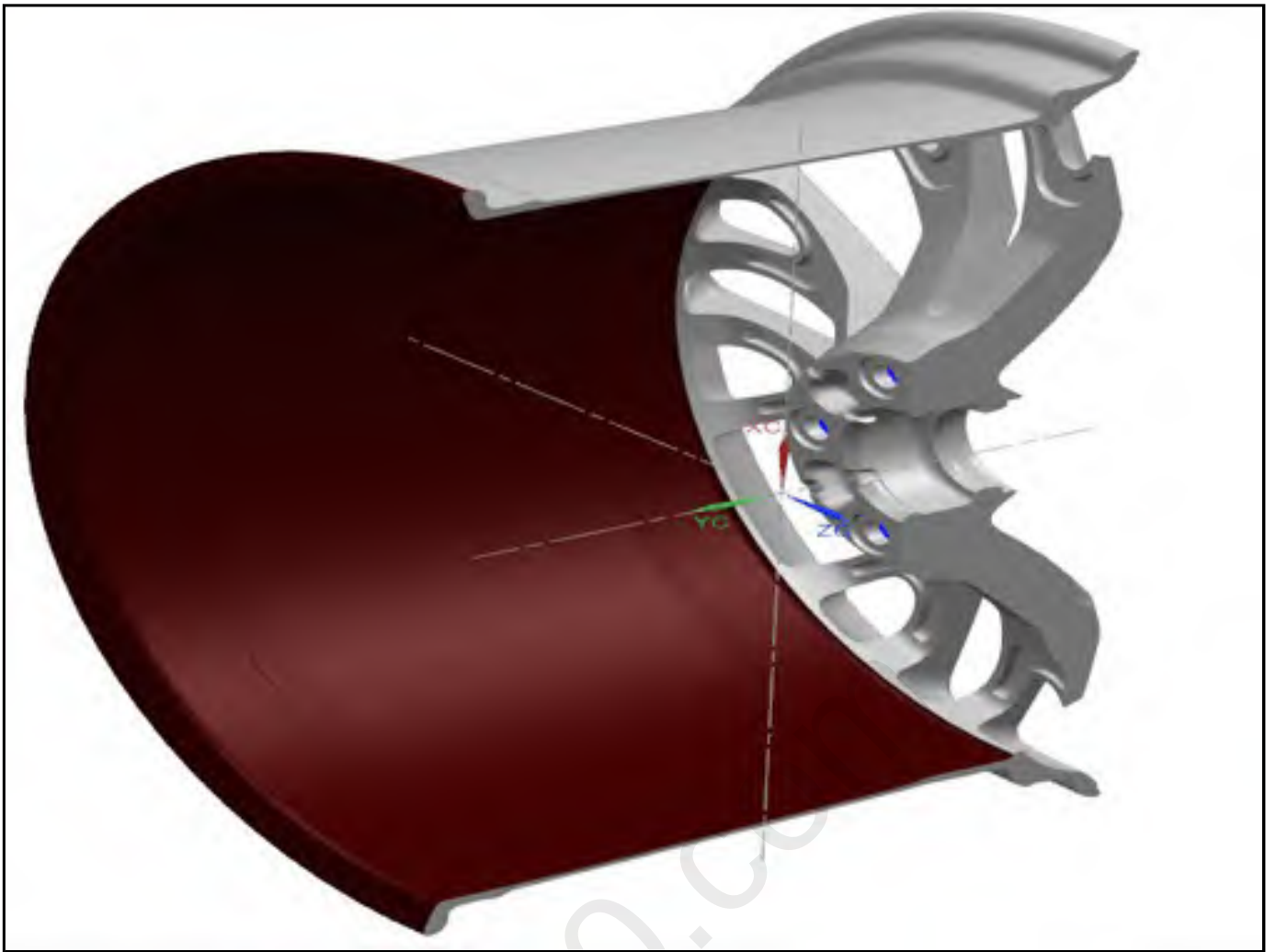
In evaluating damage, it is the GM Dealer's responsibility to inspect the wheel for corrosion, scrapes, gouges, etc. The Dealer must insure that such damage is not deeper than what can be sanded or polished off. The wheel must be inspected for cracks. If cracks are found, discard the wheel. Any wheels with bent rim flanges must not be repaired or refinished. Wheels that have been refinished by an outside company must be returned to the same vehicle. The Dealer must record the wheel ID stamp or the cast date on the wheel in order to assure this requirement. Refer to Refinisher's Responsibility - Outside Company later in this bulletin.

Aluminum And Chrome Wheel Refinishing Recommendations

- Chrome-plated aluminum wheels

Re-plating these wheels is not recommended.

- Chrome wheels with a coated barrel (areas illustrated in red), refinishing is possible. However, the required refinishing process cannot be performed in the dealer environment. Refer to Refinisher's Responsibility Outside Company later in this bulletin.



- Rear of the spoke or drop well on the rear of the hub (areas illustrated in red), refinishing is possible. However, the required refinishing process cannot be performed in the dealer environment. Refer to Refinisher's Responsibility Outside Company later in this bulletin.



- Polished aluminum wheels

For out of warranty repairs that are customer pay the wheel can be fully painted.

- Painted aluminum wheels

These wheels are painted using a primer, color coat, and clear-coat procedure. If the paint is damaged, refinishing is possible. As with polished wheels, all original coatings must be removed first.

- Bright, machined aluminum wheels

These wheels have a polyester or acrylic clear-coat on them. In some cases, the recessed "pocket" areas of the wheel may be painted. Surface refinishing is possible. The wheel must be totally stripped by suitable means. The wheel should be resurfaced by using a sanding process rather than a machining process. This allows the least amount of material to be removed.

IMPORTANT: Do not use any re-machining process that removes aluminum. This could affect the dimensions and function of the wheel.

Painting is an option to re-clearcoating polished and bright machined aluminum wheels. Paint will better mask any surface imperfections and is somewhat more durable than clear-coat alone. GM recommends using Corsican SILVER WAEQ9283 for a fine "aluminum-like" look or Sparkle SILVER WA9967 for a very bright look. As an option, the body color may also be used. When using any of the painting options, it is recommended that all four wheels be refinished in order to maintain color uniformity.

Refinisher's Responsibility Outside Company

Some outside companies are offering wheel refinishing services. Such refinished wheels will be permanently marked by the refinisher and are warranted by the refinisher. Any process that re-machines or otherwise re-manufactures the wheel should not be used.

A refinisher's responsibility includes inspecting for cracks using the Zyglo system or the equivalent. Any cracked wheels must not be refinished. No welding, hammering or reforming of any kind is allowed. The wheel ID must be recorded and follow the wheel throughout the process in order to assure that the same wheel is returned. Material removal, though, must be kept to a minimum. Re-machining of the wheel is not allowed. Paint and/or clear coat must not be present on the following surfaces: the nut chamfers, the wheel mounting surfaces and the wheel pilot hole. The refinisher must permanently ID stamp the wheel and warrant the painted/clear-coated surfaces for a minimum of one year or the remainder of the new vehicle warranty, whichever is longer.

IMPORTANT: Whenever a wheel is refinished, the mounting surface and the wheel nut contact surfaces must not be painted or clear-coated. Coating these surfaces could affect the wheel nut torque.

For refinishing of wheels under warranty, at this time, only painted and chrome plated aluminum wheels can be refinished under warranty. GM has worked with a supplier that can provide refinishing services on-site to most GM Dealers in North America. This supplier uses a self-contained trailer unit in order to perform refinishing and has standard processes that have been reviewed and approved by GM Tire and Wheel Systems Engineering. AWRS has the capability to refinish all painted and chrome plated aluminum wheels including black and other non-traditional colors. AWRS is the only outside source approved to do wheel refinishing under warranty or in customer enthusiasm cases.

Alloy Wheel Repair Specialists (AWRS)

3100 Medlock Bridge Road

Suite 305

Norcross, GA 30071

(800) 518-3040

www.awrswheelrepair.com

NOTE: At the AWRS website, there is both a contact number and a listing of local service franchisees that can assist with repairs to painted aluminum wheels.

When re-mounting a tire on an aluminum wheel, coated or stick-on balance weights must be used in order to reduce the chance of future cosmetic damage.

Warranty Information

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time	Sublet Net Item
8080058*	Refinishing Painted Aluminum Wheel (Includes Remove and Install of Wheel)	0.4hr	\$125.00
8080248*	Refinishing Chrome Wheel (Includes Remove and Install of Wheel)		
Add	Refinishing 2 Wheels	0.3hr	\$250.00
Add	Refinishing 3 Wheels	0.6hr	\$375.00
Add	Refinishing 4 Wheels	0.9hr	\$500.00

NOTE:

The amount identified in Sublet Net Item should represent the actual sum total of the current GMCCA Dealer net price needed to perform the required repairs, not to exceed \$125.00 per wheel.

*This is a unique Labor Operation for Bulletin use only.

Version	1
Modified	B

INSTALLATION OF USED, SALVAGED, OR IMITATION AIR BAG SYSTEM COMPONENTS

CAUTION: Please refer to [BODY REPAIR PRECAUTIONS AND WARNINGS](#) before starting.

General Motors Position Statement

on

the Installation of Used, Salvaged, or Imitation Air Bag System Components

Due to the critical nature of the design of air bag systems, GM does not support the use of any used, salvaged, or imitation parts for repair. Only new, genuine GM warranted parts should be used in repair.

Proper operation of the air bag system requires that any repairs to the vehicle be made with new, GM warranted parts. Never use air bag parts from another vehicle or source. The reasons for this policy and practice within GM include the following:

Occupant Protection

Air bag system components are carefully developed and specifically tuned for the specific vehicle environment. Corresponding air bag system components from other models or other model years may appear similar from the outside, may even fit the vehicle, but different internal elements or calibrations may result in degraded restraint performance.

Regulatory Compliance

All new GM vehicles are designed and built to meet or exceed all applicable federal motor vehicle safety standards. Use of air bag system components, other than those specified, could result in degraded performance and, under some circumstances, could render the system inoperative. A repair establishment that knowingly makes a regulated safety system inoperative violates the Safety Act and becomes liable accordingly.

Reliability

Reuse of used or salvaged components brings into question the conditions under which the components were obtained and stored prior to use. Components could have been damaged or stored under unfavorable conditions that could compromise performance and reliability.

Warranty

The use of these new parts is consistent with the vehicle factory warranty and extended warranty programs.

In summary, new GM parts remain General Motor's recommendation for repairs involving air bags systems and components. Air bag systems can best be returned to appropriate levels of performance when new GM parts are used.

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Available online at: www.techinfo.gmgoodwrench.com

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REPAIRS AND INSPECTIONS REQUIRED AFTER A COLLISION

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Supplemental Restraints 0-1

Repairs and Inspections Required After a Collision

DOC # 5807146

WARNING: Proper operation of the Supplemental Inflatable Restraint (SIR) sensing system requires that any repairs to the vehicle structure return the vehicle structure to the original production configuration. Not properly repairing the vehicle structure could cause non-deployment of the airbag(s) in a frontal collision or deployment of the airbag(s) for conditions less severe than intended.

WARNING: Do not repair or replace the seat stitching or seams in these at back trim cover with an internal mounted seat side airbag module. Replace the complete seatback trim cover from the OEM. Non-OEM seat stitching may cause improper airbag deployment which could result in personal injury.

NOTE: General Motors (GM) vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, NVH (noise/ vibration/harshness), occupant protection, and vehicle safety. Only authentic Genuine GM Parts are designed, engineered, manufactured and tested to the General Motors internal and government mandated standards and are the only ones equivalent to the original equipment installed on the vehicle.

1. 1. After ANY collision, perform the following belt operational and functional checks:

- Turn the ignition switch to the ON position. Verify proper operation of the seat belt reminder lamp with the belt buckled and with the belt unbuckled.
- For each seating position:
 1. Inspect the shoulder belt guide to ensure that the seat belt webbing is seated flat in the guide slot and that the seat belt webbing does not bind.
 2. Verify that the seat belt buckle is accessible.
 3. Fully extend the seat belt webbing. Verify that the seat belt webbing does not have any twists or tears.
 4. Allow the seat belt webbing to retract. Verify that the seat belt webbing returns freely and completely back into the retractor.

5. Snap the seat belt latch plate into the buckle. Sharply tug on the seat belt latch plate and the buckle. Verify that the seat belt latch plate and the buckle remain locked when tugged.
6. Push the button on the buckle. Verify the seat belt latch plate releases easily from the buckle and the button returns to its original position.
2. In instances of vehicle collision where damage is limited to minor outer body panel cosmetic distortion: visually inspect vehicle for extent of damage, repair and replace components as necessary.
3. In instances of vehicle collision where damage exceeds minor outer body panel cosmetic distortion, unrelated components can be subject to damage outside of obvious visual detection method in the area of impact. The table below references components requiring inspection or replacement to promote a safe and quality repair. Some inspections may require disassembly of vehicle components or additional functional tests. If you detect any damage, replace the component.

Component	Notes or Additional Instructions	Exceeds Minor Outer Body Panel Cosmetic Distortion without Airbag Deployment	Pretensioner Deployment	Seat Side Airbag Deployment	Frontal Airbag Deployment
Brakes & Steering					
Brake Pedal	-	Inspect	Inspect	Inspect	Inspect
Steering Column	Refer to Steering Column Accident Damage Inspection in Steering Column and Wheel.	Inspect	Inspect	Replace	Replace
Steering Wheel	-	Inspect	Inspect	Replace	Replace
Steering Wheel Airbag	Steering Wheel AirbagIf not deployed, visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if found. Inspect Inspect Inspect Replace	Inspect	Inspect	Inspect	Replace
Steering Wheel Air Bag Coil and Coil Wiring Pigtail	If deployed, inspect for melting, scorching, or other damage due to excessive heat.	-	-	-	Inspect
Steering Wheel Air Bag Mounting Points and Hardware	-	-	-	-	Inspect
Impact Sensors					
Front and/or Side Impact Sensors	Impact Sensor Replacement Guidelines: -The impact sensor replacement policy requires replacing sensors in the area of the accident damage. The area of accident damage is defined as the portion of the vehicle which is crushed, bent, or damaged due to a collision. If the impact sensor or the mounting structure of the impact sensor is damaged, the impact sensor must be replaced. -Replace the impact sensor whether or not the air bags have deployed. -Replace the impact sensor even if it appears to be undamaged. -Impact sensor damage which is not visible, such as slight bending	Replace	Replace	Replace	Replace

	of the mounting bracket or cuts in the wire insulation, can cause improper operation of the SIR system. Do not try to determine whether the impact sensor is undamaged, replace the impact sensor. Also, if you follow a diagnostic trouble code (DTC) procedure and a malfunctioning impact sensor is indicated, replace the impact sensor.				
Impact Sensors Mounting Points and Hardware					
Instrument Panel					
	Instrument Panel Cross Car Beam	Inspect	Inspect	Inspect	Inspect
	Instrument Panel Knee Bolsters and Mounting Points	Inspect	Inspect	Inspect	Inspect
	Instrument Panel Mounting Points and Instrument Panel Brackets, Braces, etc.	Inspect	Inspect	Inspect	Inspect
	Instrument Panel Air Bag Mounting Points and Hardware	Inspect	Inspect	Inspect	Inspect
Instrument Panel Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found	Inspect	Inspect	Inspect	Replace
Knee Airbag	Visually inspection the top trim cover of the airbag module for deformation, distortion, or indentations as a result of damage. Replace if deformation, distortion, or indentations are found.	Inspect	Inspect	Inspect	Replace
Roof and Interior Trim					
Roof and Headliner Mounting Points	-	Inspect	Inspect	Inspect	Inspect
Door trim assembly	On Side of Impact. Visually inspect door trim assembly for deformation or distortion as a result of damage. Replace if deformation or distortion is found.	Inspect	Inspect	Inspect	-
Trim Mounting Points and Hardware	On Side of Impact	-	Inspect	Inspect	-
Roof Rail Airbag Mounting Points and Hardware	On Side of Impact	-	Inspect	Inspect	-
Roof Rail Airbag	On Side of Impact. If not deployed, visually inspect roof trim for deformation or	Inspect	Inspect	Replace	-

	distortion as a result of damage. Replace if found.				
Seats					
Seats and Seat Mounting Points	-	Inspect	Inspect	Inspect	Inspect
Seat Back Cover	If Side Air Bag(s) Deployed. If not deployed, visually inspect seat back cover and top trim cover of the airbag modules for deformation or distortion as a result of damage. Replace if deformation or distortion is found	Inspect	Inspect	Replace	Inspect
Seat Side Air Bag	If Deployed	-	-	Replace	Replace
Seat Side Air Bag Mounting Points and Hardware	If Side Air Bag(s) Deployed	-	-	Inspect	Inspect
	Seat Adjuster	-	-	Inspect	-
	Seat Back Frame	-	-	Inspect	-
	Seat Cushion Frame	-	-	Inspect	-
Seat Cushion Side Covers and Switches	On Side of Impact	-	-	Inspect	-
Seat Recliner and Cover	If Equipped	-	-	Inspect	-
Seat Belt System	Seat Belt System This applies to seat belt systems in use by people of adult size, seat belt systems used to secure child restraints, infant carriers, and booster seats, including LATCH system and top tether anchorages. Do NOT replace single seat belt system components in vehicles that have been in a collision as described above. Always replace the entire seat belt system with the buckle, guide, and retractor assembly, which includes the latch and webbing material. 1. Replace any seat belt system that was in use during the collision serious enough to deploy any automatic restraint device such as air bags and seat belt pretensioners. 2. Replace any seat belt system that has torn, worn, or damaged components. Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible	Inspect	-	-	-

	3. Replace any seat belt system if you observe the words "REPLACE" or "CAUTION", or if a yellow tag is visible. Do not replace a seat belt if only the child seat caution label is visible 4. Replace any seat belt system if you are doubtful about its condition				
Seat Belt Anchor and/or Retractor Pretensioners	-	Inspect	Replace	Replace B	Replace
Seat Belt Anchor and/or Retractor Pretensioners Mounting Points and Hardware	Visually verify the seat belt retractor units are securely attached and the seat belt anchor bolts are secure.	Inspect	Inspect	Inspect	Inspect
Sensing and Diagnostic Module (SDM)					
	Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM)	-	Replace	Replace	Replace
Inflatable Restraint Sensing and Diagnostic Module (SDM) or Restraints Control Module (RCM) Mounting Points and Hardware	-	-	Inspect	Inspect	Inspect

Revised MAY 2021

WHEEL ALIGNMENT SPECIFICATIONS, REQUIREMENTS AND RECOMMENDATIONS FOR GM VEHICLES

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Wheel Alignment Specifications, Requirements and Recommendations for GM Vehicles

2020 and Prior GM Passenger Cars and Light Duty Trucks

NOTE: This bulletin has been revised to update the GM Service Policies & Procedures Manual reference under the Purpose section. Please discard Corporate Bulletin Number 05-03-07-009I.

Purpose

The purpose of this bulletin is to provide retail, wholesale and fleet personnel with General Motors' recommendations for customer concerns related to wheel alignment. For your convenience, this bulletin updates and centralizes all of GM's Standard Wheel Alignment Service Procedures, and bulletins on wheel alignment warranty service.

IMPORTANT: PLEASE FAMILIARIZE YOURSELF WITH THESE UPDATES BEFORE PERFORMING YOUR NEXT GM WHEEL ALIGNMENT SERVICE.

The following key steps are a summary of this bulletin and are REQUIRED in completing a successful wheel alignment service.

1. **Verify the vehicle is in an Original Equipment condition** for curb weight, tires, wheels, suspension and steering configurations. Vehicles modified in any of these areas are not covered for wheel alignment warranty.
2. **Review the customer concern relative to "Normal Operation"** definitions.
3. **Document wheel alignment warranty claims** appropriately for labor operations 8070012 and 8070032. A copy of the alignment machine printout showing before and after alignment specifications must be attached to the job card. Refer to additional information in the GM Service Policies & Procedures Manual for complete documentation requirements and labor operation restrictions for transactions involving wheel alignments, toe adjustments and wheel balancing.

Verify Original Equipment Condition Of The Vehicle

- Verify that Original Equipment Tires and Wheels or Official GM Accessory Tires and Wheels are on the vehicle.
- Verify that aftermarket suspension "Lift" or "Lowering" Kits or other suspension alterations have NOT been done to the vehicle.

- Check for accidental damage to the vehicle; for example, severe pothole or curb impacts, collision damage that may have affected the wheel alignment of the vehicle; e.g., engine cradles, suspension control arms, axles, wheels, wheel covers, tires may show evidence of damage/impact.
- Check to be sure vehicle has seen "Normal Use" rather than abuse; e.g., very aggressive driving may show up by looking at the tires and condition of the vehicle.
- Check for other additional equipment items that may significantly affect vehicle mass such as large tool boxes, campers, snow plow packages (without the snowplow RPO), etc., especially in trucks and cutaway/incomplete vehicles. Significant additional mass can affect trim height and wheel alignment of the vehicle and may necessitate a customer pay wheel alignment when placed semi-permanently in the vehicle (Upfitter instructions are to realign the vehicle after placement of these types of items. (This typically applies to trucks and incomplete vehicles that can be upfit with equipment such as the above.)

Customer Concerns And "Normal Operation" Conditions

Possible Concerns

The following are typical conditions that may require wheel alignment warranty service:

1. **Lead/Pull:** defined as "at a constant highway speed on a typical straight road, the amount of effort required at the steering wheel to maintain the vehicle's straight heading."

Please evaluate for the condition with hands-on the steering wheel. Follow the "Vehicle Leads/Pulls" diagnostic tree located in SI to determine the cause of a lead/pull concern. Lead/Pull concerns can be due to road crown or road slope,

IMPORTANT: tires, wheel alignment or even in rare circumstances a steering gear issue. Lead/pull concerns due to road crown are considered "Normal Operation" and are NOT a warrantable condition -- the customer should be advised that this is "Normal Operation."

IMPORTANT: Some customers may comment on a "Lead/Pull" when they hold the steering wheel in a level condition. If so, this is more likely a "steering wheel angle" concern because the customer is "steering" the vehicle to obtain a "level" steering wheel.

2. **Steering wheel angle to the left or right** (counter-clockwise or clockwise, respectively): Defined as the steering wheel angle (clocking) deviation from "level" while maintaining a straight heading on a typical straight road.
3. **Irregular or Premature tire wear:** Slight to very slight "feathering" or "edge" wear on the shoulders of tires is NOT considered unusual and should even out with a tire rotation; if the customer is concerned about a "feathering" condition of the tires, the customer could be advised to rotate the tires earlier than the next scheduled mileage/maintenance interval (but no later than the next interval). Be sure to understand the customer's driving habits as this will also heavily influence the tire wear performance; tire wear from aggressive or abusive driving habits is NOT a warrantable condition.

Slight or mild feathering, cupping, edge or heel/toe wear of tire tread shoulders is "normal" and can show up very early in a tire/vehicle service mileage; in fact, some new tires can show evidence of feathering from the factory. These issues do NOT affect the overall performance and tread life of the tire. Dealer personnel should always check the customer's maintenance records to ensure that tire inflation pressure is being maintained to placard and that the tires are being rotated (modified-X pattern) at the proper mileage intervals. Wheel alignments are NOT to be performed for the types of "Normal" Tire Feathering shown in Figures 1-4 below.

Figure 1: Full Tread View - "NORMAL" Tire "Feathering" Wear on the Shoulder/Adjacent/Center Ribs



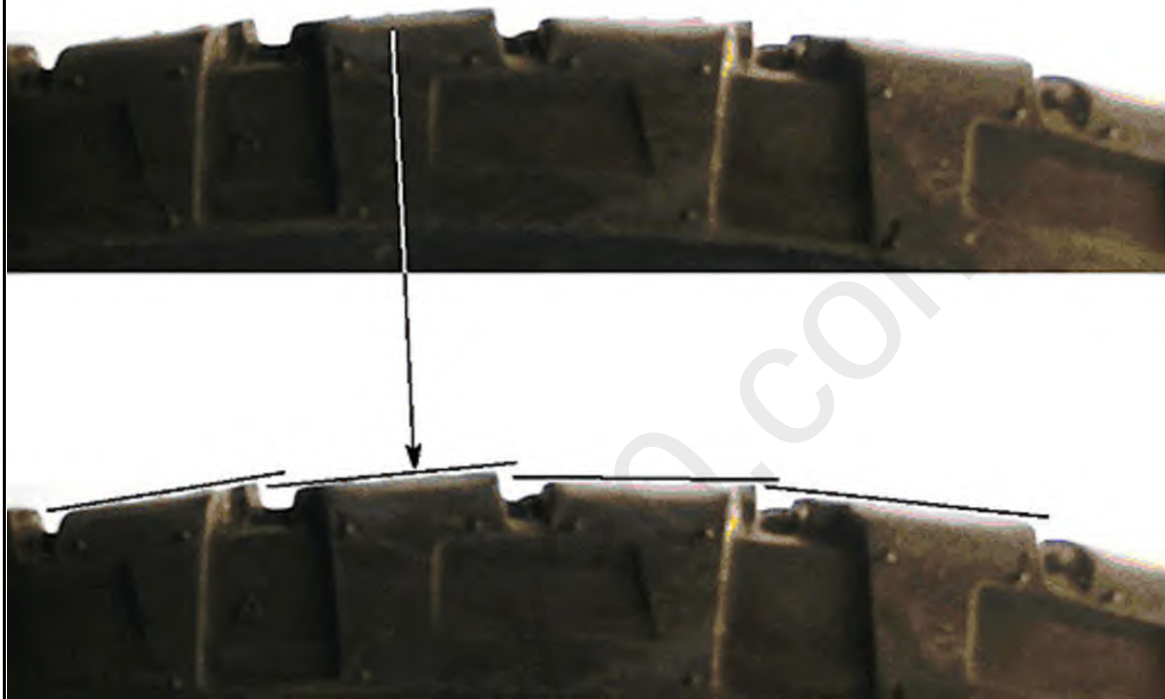
Figure 2: Tire Shoulder View Example 1 - "NORMAL" Tire "Feathering" Wear on the Shoulder



Figure 3: Tire Shoulder View Example 2 - "NORMAL" Tire "Feathering" Wear



Figure 4: Detail Side View of Tire Shoulder Area - "NORMAL" Tire "Feathering" Wear



When a wheel alignment is deemed necessary for tire wear, be sure to document on the repair order, in as much detail as possible, the severity and type of tire wear (e.g., severe center wear or severe inside or outside shoulder wear) and the position of the tire on the vehicle (RF, LF, LR, RR). Please note the customer's concern with the wear such as, noise, appearance, wear life, etc. A field product report with pictures of the tire wear condition is recommended. Refer to the latest version of Corporate Bulletin Numbers 02-00-89-002 (Canada, 10-00-89-006) and 07-00-89-036.

4. **Other repairs** that affect wheel alignment; e.g., certain component replacement such as suspension control arm replacement, engine cradle adjustment/replace, steering gear replacement, steering tie rod replace, suspension strut/shock, steering knuckle, etc. may require a wheel alignment.

If other components or repairs are identified as affecting the wheel alignment, policy calls for the wheel alignment labor time to be charged to the replaced/repaired component's labor operation time rather than the wheel alignment labor operations.

Vibration type customer concerns are generally NOT due to wheel alignment except in the rare cases; e.g., extreme diagonal wear across the tread. In general, wheel alignments are NOT to be performed as an investigation/correction for vibration concerns.

"Normal Operation" Conditions

Vehicle Lead/Pull Due to Road Crown or Slope:

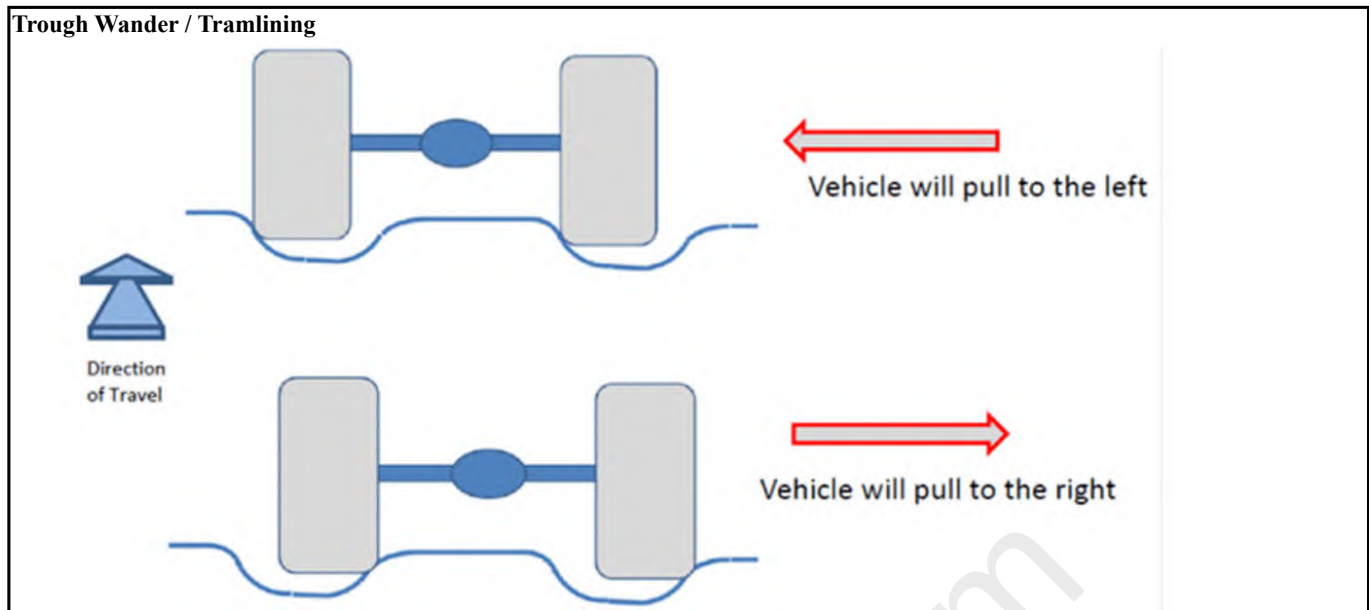
As part of "Normal Operation," vehicles will follow side-to-side or left to right road crown or slope. Be sure to verify from the customer the types of roads they are driving as they may not recognize the influence of road crown on vehicle lead/pull and steering wheel angle. If a vehicle requires significant steering effort to prevent it from "climbing" the road crown there may be an issue to be looked into further.

IMPORTANT: A wheel alignment will generally NOT correct vehicles that follow the road crown since this is within "Normal Operation."

Trough Wander/Tramlining:

Some customers may comment about their vehicle having a tendency to pull left or right depending on road conditions. Typical descriptions may refer to the vehicle not tracking properly or that the car wanders. Additional comments may include that the car follows grooves or inconsistencies in the road to the extent that the vehicle must be steered or directed with additional force to overcome these roadway characteristics.

Trough Wander / Tramlining



What is Tramlining?

"Tramlining" is an industry term used to describe a vehicle's tendency to follow the longitudinal ruts and/or grooves present in the road. (Also called "trough wander"). The name comes from the feeling on a tram or trolley as the vehicle follows along the tracks. Any vehicle can exhibit tramlining due to uneven pavement or severe rutting in the roads surface. All vehicles tramline to some degree, however vehicles equipped with low aspect ratio, wide tires tend to be more sensitive to this condition (e.g. Corvette, Camaro, CTS-V, Chevrolet SS).

Vehicles experiencing this condition can feel "pulled" in both directions depending on the positions of the tires in the trough (ruts).

If a similarly equipped vehicle experiences the same condition as the customer's car, the customer's car is most likely experiencing tramlining, which is a normal characteristic of a car with low aspect ratio, wide tires.

IMPORTANT: It should be noted that adjusting alignment settings will NOT improve this condition.

Wheel Alignment Equipment And Process

Wheel alignments must be performed with a quality machine that will give accurate results when performing checks. "External Reference" (image-based camera technology) is preferred. Please refer to the latest version of Corporate Bulletin Number 05-00-89-029: General Motors Dealership Critical Equipment Requirements and Recommendations.

Requirements:

- Computerized four wheel alignment system.
- Computer capable of printing before and after alignment reports.
- Computer capable of time and date stamp printout.
- Racking system must have jacking capability.
- Racking system must be capable of level to 1.6mm (1/16in).
- Appropriate wheel stops and safety certification.
- Built-in turn plates and slip plates.
- Wheel clamps capable of attaching to 20" or larger wheels
- Racking capable of accepting any GM passenger car or light duty truck.
- Operator properly trained and ASE-certified (U.S. only) in wheel alignment.

Recommendations:

Racking should have front and rear jacking capability.

Equipment Maintenance and Calibration:

Alignment machines must be regularly calibrated in order to give correct information. Most manufacturers recommend the following:

- Alignment machines with "internal reference" sensors should be checked (and calibrated, if necessary) every six months.
- Alignment machines with "external reference" (image-based camera technology) should be checked (and calibrated, if necessary) once a year.

- Racks must be kept level to within 1.6mm (1/16in).
- If any instrument that is part of the alignment machine is dropped or damaged in some way, check the calibration immediately.

Check with the manufacturer of your specific equipment for their recommended service/calibration schedule.

Wheel Alignment Process

When performing wheel alignment measurement and/or adjustment, the following steps should be taken:

Preliminary Steps:

1. Verify that the vehicle has a full tank of fuel (compensate as necessary).
2. Inspect the wheels and the tires for damage.
3. Inspect the tires for the proper inflation and irregular tire wear.
4. Inspect the wheel bearings for excessive play.
5. Inspect all suspension and steering parts for looseness, wear, or damage.
6. Inspect the steering wheel for excessive drag or poor return due to stiff or rusted linkage or suspension components.
7. Inspect the vehicle trim height.
8. Compensate for frame angle on targeted vehicles (refer to Wheel Alignment Specifications in SI).

Satisfactory vehicle operation may occur over a wide range of alignment angles. However, if the wheel alignment angles are not within the range of specifications, adjust the wheel alignment to the specifications. Refer to Wheel Alignment Specifications in SI. Give consideration to excess loads, such as tool boxes, sample cases, etc. Follow the wheel alignment equipment manufacturer's instructions.

Measure/Adjust:

IMPORTANT: Prior to making any adjustments to wheel alignment on a vehicle, technicians must verify that the wheel alignment specifications loaded into their wheel alignment machine are up-to-date by comparing these to the wheel alignment specifications for the appropriate model and model year in SI. Using incorrect and/or outdated specifications may result in unnecessary adjustments, irregular and/or premature tire wear and repeat customer concerns.

IMPORTANT: When performing adjustments to vehicles requiring a 4-wheel alignment, set the rear wheel alignment angles first in order to obtain proper front wheel alignment angles.

Perform the following steps in order to measure the front and rear alignment angles:

1. Install the alignment equipment according to the manufacturer's instructions.
2. Jounce the front and the rear bumpers 3 times prior to checking the wheel alignment.
3. Measure the alignment angles and record the readings.

If necessary, adjust the wheel alignment to vehicle specification and record the before and after measurements. Refer to Wheel Alignment Specifications in SI.

IMPORTANT: Technicians must refer to SI for the correct wheel alignment specifications. SI is the only source of GM wheel alignment specifications that is kept up-to-date throughout the year.

Test drive the vehicle to ensure a proper repair.

Understanding The Effects Of Wheel Alignment On A Vehicle Vs. Customer Complaints (Quick Reference Section)

NOTE: Refer to SI for complete alignment specifications.

- Prior to any measurement on the alignment machine, you must confirm the current specifications and tolerances as listed in GM's Service Information System. Do not assume that numbers in the alignment machine are correct, as it may not have been recently updated.
- Always use the correct specifications for that vehicle based on confirmed vehicle option content.
- It is important to always include as much information as possible in the RO - including the confirmed customer complaint and the complete before and after alignment measurements on the vehicle.

Steering Wheel Angle Complaints:

A true steering wheel angle complaint can be diagnosed as a vehicle that goes straight down the road without extra steering input, but the steering wheel angle is clocked to one side or the other. Make sure to always note which direction the steering wheel is clocked on the Repair Order ("Left/CCW" or "Right/CW").

If a steering wheel angle complaint has been verified, it should be noted that front and rear toes are the only alignment values that affect the angle of the steering wheel.

Vehicle Pull Complaints:

Prior to any adjusts, the vehicle must be driven to confirm the customer complaint. Use this drive to verify that the vehicle does have a pull and it is not a steering wheel angle issue. Try and use same stretch of road for all drives so that you understand the different characteristics of that specific road.

A true vehicle pull only complaint will have the vehicle pull to one side or the other regardless of steering wheel angle. It may require more than normal effort to keep the vehicle going straight.

It is possible for customers to confuse a steering wheel off angle issue as a vehicle pull, as they may be trying to hold the wheel centered (level) on a straight road which would be adding a slight steering input to the wheels. If this is the case, please note this on the Repair Order, including the direction the vehicle is pulling.

Please note the following on what can cause a vehicle pull:

- Tires
- Alignment settings

Tires: If a pull complaint has been verified but all the alignment settings all are within specifications, the issue may be in the tires. Certain tire differences left to right may cause a vehicle pull. Swapping the front tires left to right and re-evaluating is a simple way to verify a tire issue.

IMPORTANT: Always ensure tire pressures are set to correct specifications before and after evaluating a vehicle.

IMPORTANT: Always note if tires are directional and not able to be permanently swapped side to side.

ALIGNMENT INFORMATION

Alignment Settings:	Positive Value	Negative Value
Front Cross Camber (LH minus RH)	Pulls Left	Pulls Right
Front Cross Caster (LH minus RH)	Pulls Right	Pulls Left
Front and Rear Toe	Does Not Cause Vehicle Pulls	Does Not Cause Vehicle Pulls

IMPORTANT: Front or rear toe values being out of specifications do not cause a true vehicle pull. If only front or rear toe values are out of specification on a confirmed vehicle pull issue, something else is causing the pull.

IMPORTANT: If Cross Camber and Cross Caster are within GM specifications listed in the Service Information System, it generally means they are not the reason for a vehicle pull complaint.

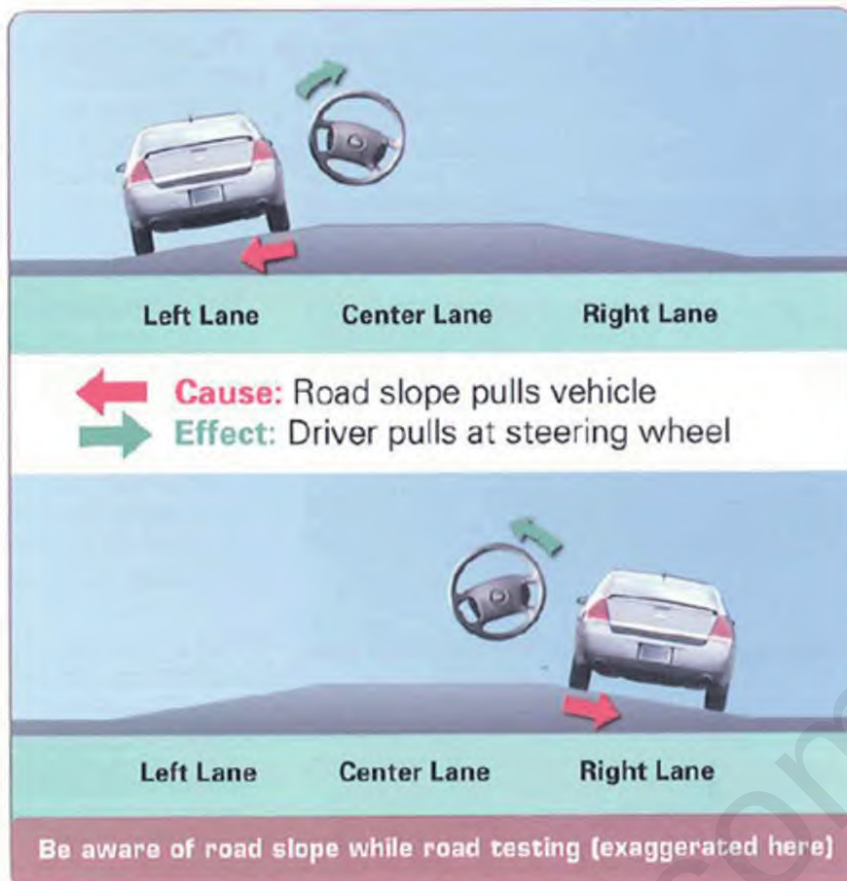
NOTE: Although not normally an adjustable setting on many vehicles, you should always verify the caster repair procedure in GM's Service Information System.

Road Slope:

It is important to always note road slope during a drive, high angles can cause a vehicle to drift one way or the other. As flat of road as possible should be used for evaluations.

Effect of Road Slope

Effect of Road Slope

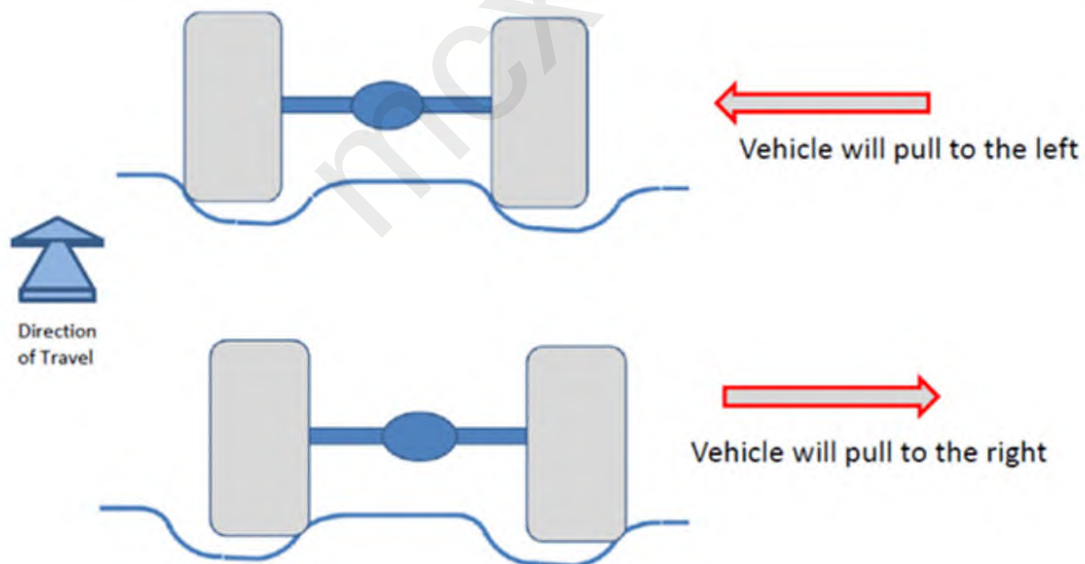


Trough Wander / Tramlining

Troughs or grooves in the road can pull a vehicle to either side depending on where in the groove the tire is. The tires will always want to pull the vehicle up the wall of the trough.

Trough Wander / Tramlining

Trough Wander / Tramlining



Service Information

Wheel Alignment Job Card Questionnaire

NOTE:

For vehicles with less than 500 miles (800 km) on the odometer, please fill in the blanks.

Wheel Alignment Job Card Questionnaire

Additional help can be found in the "Vehicle Lead/Pull Diagnostics" located in SI under Suspension - General Diagnosis. It is also recommended that the dealership complete a Field Product Report to notify GM of this condition. Refer to Bulletin Numbers 02-00-89-002 (Canada: 10-00-89-006) and 07-00-89-036 for more information on Field Product Reporting.

B

TAC Case # if applicable:

Vehicle Concern Information

Customer Concern:

Tire Wear ___ Steering Wheel Off-Angle ___

Lead/Pull ___ Other ___

Was the customer concern duplicated? Yes ___ No ___

Is the tire pressure within +/- 3 psi (+/- 20 kPa) of the tire placard? Yes ___ No ___

If No, record the tire pressures (psi):

LF ___ RF ___ LR ___ RR ___

Tire Wear (If Applicable)

Please check all boxes that apply:

Left Front Tire:

Even Wear ___ Inside Shoulder ___

Center ___ Outside Shoulder ___ Cupping/Feathering ___

Right Front Tire:

Even Wear ___ Inside Shoulder ___

Center ___ Outside Shoulder ___ Cupping/Feathering ___

Left Rear Tire:

Even Wear ___ Inside Shoulder ___

Center ___ Outside Shoulder ___ Cupping/Feathering ___

Right Rear Tire:

Even Wear ___ Inside Shoulder ___

Wheel Alignment Job Card Questionnaire

Center ___ Outside Shoulder ___ Cupping/Feathering ___

Steering Wheel Off-Angle (If Applicable)

Which way was the steering wheel off angle?

Lead/Pull (If Applicable)

Which way does the vehicle lead or pull? Right ___ Left ___

Were the front tires swapped side to side? Yes ___ No ___

Was the vehicle checked for brake drag? Yes ___ No ___

USE OF SALVAGE AND RECYCLED PARTS

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Use of Salvage and Recycled Parts

August 2016

General Motors vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, NVH (noise/vibration/harshness), occupant protection, and vehicle safety. The overall structural integrity of the vehicle is dependent on its inherent design specifications.

To help preserve the performance of General Motors vehicles, General Motors publishes detailed collision repair procedures and produces and sells Genuine GM Parts, which are manufactured to the same design and specifications as the parts originally installed on new Chevrolet, Buick, GMC and Cadillac vehicles. Repairing a vehicle using Genuine GM Parts and procedures ensure that a vehicle is returned as close to pre-accident condition as possible.

General Motors does not support the use of salvage or recycled parts due to the sensitive nature of the safety and performance of General Motors vehicles. Salvage or recycled parts are defined as parts removed from a previously damaged vehicle and then re-installed on a different vehicle. These parts pose the following risks to Chevrolet, Buick, GMC and Cadillac vehicles when used in repair

Salvage or recycled parts:

- May have compromised crush zones due to previous repairs
- May have additional layers of refinish materials affecting long term durability and appearance of repair
- Additional layers may be a factor in new panel installations too
- Will require additional time to prepare due to variations in delivered assembly component content
- Lead to more complex repairs due to variations in how the assembly is stored, processed, and shipped to a repair center
- May have been exposed to use and storage conditions that have never been considered by the manufacturer

Genuine GM Parts are designed and constructed using metals with specific properties, thicknesses and stamping features built to perform in a consistent and predictable way during a collision event. The use of non-OEM structural components may compromise the overall crashworthiness and occupant safety of General Motors vehicles in a subsequent collision. In summary, General Motors does not support the use of salvage or recycled parts in a vehicle's repair. GM recommends the use of Genuine GM Parts in repairs to help ensure the vehicle is returned to pre-collision condition.

REUSE OF SALVAGE STRUCTURAL PARTS

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Reuse of Salvage Structural Parts

August 2016

General Motors (GM) vehicles, systems and components are engineered, tested and manufactured to protect vehicle occupants based upon both government mandated and internal corporate requirements relative to durability, NVH (noise/vibration/harshness), occupant protection, and vehicle safety. The overall structural integrity of the vehicle is dependent on its inherent design specifications.

Structural parts are critical elements in the design of specific crush zones that allow the energy of a collision to be absorbed in a predictable way and maximize the effectiveness of the restraint system to protect the occupants. The use of parts not specifically designed and tested by General Motors may compromise the integral balance between these safety systems.

Only authentic Genuine GM Parts are designed, engineered, manufactured and tested to the General Motors internal and government mandated standards and are the only ones equivalent to the original equipment installed on the vehicle.

General Motors does not approve of or support structural repair procedures where Genuine GM Parts are not used for Chevrolet, Buick, GMC, and Cadillac vehicles. Any repairs performed not using Genuine GM Parts may expose current or future vehicle owners and occupants to unnecessary risk.

- All damaged panels have been repaired or replaced with new Genuine GM Parts
- All replaced panels provide the as-built structural equivalence and corrosion protection of the original equipment panels
- Where applicable, GM provides repair information that details the partial replacement of structural parts. Structural parts must be installed in their entirety when no structural partial replacement procedure exists.
- General Motors does not support the use or re-use of any structural component which has been removed from a vehicle previously damaged, flooded, burned, scrapped or removed from use for any other reason--commonly referred to as "salvage parts."
- While some salvage parts may "appear" equivalent, there can be dramatic differences in the design and functional characteristics which cannot be determined by a visual inspection and which could have a negative effect on the vehicle occupants in a future collision event.
- Salvage components may have been affected by crash impact loads, incorrect, improper or inadequate disassembly and removal procedures, weathering or environmental exposure outside of that expected during normal use.
- Salvage components are not traceable should a component recall be required in the future.

In summary, Genuine GM Parts remain General Motor's recommendation for repairs involving structural components and parts. A vehicle's structural integrity can best be returned to appropriate levels of performance when Genuine GM Parts are used.

NON-APPROVAL OF "CLIPPING" (SECTIONING OF TWO VEHICLES) FOR COLLISION REPAIR

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Document ID: 4567425

#07-08-98-001B: Non-approval of Clipping (Sectioning of Two Vehicles) for Collision Repair (Aug 3, 2016)

Subject: Non-approval of "Clipping" (Sectioning of Two Vehicles) for Collision Repair

Models: 2000-2017 GM Passenger Cars and Trucks

Attention: This Bulletin also applies to any of the above models that may be Export from North America vehicles.

This Bulletin has been revised to update the Model Years and the information. Please discard Corporate Bulletin Number 07-08-98-001A.

General Motors does not approve the use of "clipping" to repair collision damage to vehicles. In the collision repair industry, "clipping" refers to cutting two damaged vehicles through the windshield pillars, the rocker panels, and across the floor pan and joining the undamaged portions from these vehicles to make the repair.

The use of "clipping" voids GM's New Vehicle Limited Warranty (and any variety of the GM Protection Plan, as well as GM's new vehicle service part and corrosion warranties) for each part in the clip.

GM does not sanction clipping repair because it cuts across the major load-bearing paths of a vehicle and can reduce the structural integrity of the repaired vehicle. This is extremely critical because of the increase in the use of Advance High Strength Steel (AHSS). Improper repairs can lead to vehicle performance issues related to noise, vibration and handling problems.

GM recommends replacing body components at factory seams. When applicable, GM will provide specific collision repair parts, and procedures for sectioning. These parts and procedures provide a practical and cost-effective alternative to clipping. GM provides vehicle specific collision repair procedures (www.genuinegmparts.com/collision-auto-body-parts/structuralparts/), which are developed to be in a location and fashion that will yield panel strength comparable to the original panel strength.

GM has not tested or validated a "clipped vehicle" repair; therefore, GM cannot endorse this type of repair or confirm the crash performance during a subsequent collision. GM recommends the use of genuine GM parts in repairs to help ensure the vehicle is returned to pre-collision condition.

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.

PRE- AND POST-SCAN OF COLLISION VEHICLES

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Pre- and Post-Scan of Collision Vehicles

October 2016

General Motors takes the position that all vehicles being assessed for collision damage repairs must be tested for Diagnostic Trouble Codes (DTCs) during the repair estimation in order to identify the required repairs. Additionally, the vehicle must be retested after all repairs are complete in order to verify that the faults have been repaired and new faults have not been introduced during the course of repairs.

Even minor body damage or glass replacement may result in damage to one or more safety-related systems on the vehicle. Any action that results in loss of battery-supplied voltage and disconnection of electrical circuits requires that the vehicle is subsequently tested to ensure proper electrical function.

Many safety and security-related components, sensors and Electronic Control Units (ECUs) require calibration and/or learns when replaced. These systems must be repaired according to the corresponding GM repair procedures in Service Information (GMSi).

Technology Supported Diagnostic Aids

General Motors states that the method to correctly identify vehicle diagnostic trouble codes (DTCs) is by using the appropriate GM diagnostic software: **GDS2 or Tech 2/Tech2Win**, each of which can scan a vehicle for all DTCs in one operation. GM diagnostic software is supported by one of the GM approved diagnostic scan tools (MDI or a J2534 device). GM does not recommend the use of other scan tools and cannot guarantee their accuracy. For a list of vehicle covered by these applications, refer to the GM technical document titled Vehicles Supported by GDS2 or Tech2/Tech2Win.

GMSi is the factory source for all diagnostic and repair procedures, wiring diagrams and associated repair information.

GM Service Programming System (SPS) is the ECU programming application that provides calibration updates and guided learn procedures where required.

Any repairs performed without using Genuine GM Parts and not following published GM collision repair procedures may result in erroneous DTCs and expose vehicle owners and occupants to unnecessary risk. GM collision repair information can be accessed for free on [genuinegmparts.com](http://www.genuinegmparts.com) or is available through a GMSi subscription.

How to obtain GM diagnostic and flash programming software and service information in North America

TIS2Web is the Internet-based subscription service for GM service information, vehicle calibrations, GDS2 diagnostic software and Tech2 diagnostic software updates. Subscription options and more information on GMSi, SPS and TIS2Web can be found at <http://www.acdelcotechconnect.com/shop-program/psc-program/tis2web/>.

VEHICLES SUPPORTED BY GDS2 OR TECH2/TECH2WIN

CAUTION: Please refer to **BODY REPAIR PRECAUTIONS AND WARNINGS** before starting.

Vehicles Supported by GDS2 or Tech2/Tech2Win

October 2016

General Motors states that the method to correctly identify vehicle diagnostic trouble codes (DTCs) is by using the appropriate GM diagnostic software: **GDS2 or Tech 2/Tech2Win**, each of which can scan a vehicle for all DTCs in one operation. GM diagnostic software is supported by one of the GM approved diagnostic scan tools (MDI or a J2534 device). GM does not recommend the use of other scan tools and cannot guarantee their accuracy.

GM diagnostic tool information and purchases can be made at <http://gmtoolsandequipment.com>. Subscription options for GM diagnostic software and more information on GM diagnostic tools can be found at <http://www.acelcotechconnect.com/shop-program/psc-program/tis2web/>.

Below is the list of GM vehicles that are supported by GDS2 or Tech2/Tech2Win applications for DTC identification.

Model Year 2007	Model Year 2008	Model Year 2009	Model Year 2010	Model Year 2011	Model Year 2012	Model Year 2013	Model Year 2014 & Future Model Years
Tech2 / Tech2Win	GDS2 Supported Vehicles	GDS2 Supported Vehicles	GDS2 Supported Vehicles	GDS2 Supported Vehicles	GDS2 Supported Vehicles	GDS2 Supported Vehicles	GDS2 Supported Vehicles
ALL	Chevrolet HHR (Europe)	Chevrolet HHR (Europe)	Buick LaCrosse	Buick LaCrosse	Buick LaCrosse	Buick Encore	ALL
No GDS2 Support	ALL Others Tech 2 / Tech2Win Supported*	ALL Others Tech 2 / Tech2Win Supported*	Buick Allure	Buick Regal	Buick Regal	Buick LaCrosse	
			Cadillac SRX	Cadillac SRX	Buick Verano	Buick Regal	
			Chevrolet Beat	Chevrolet Beat	Cadillac SRX	Buick Verano	
			Chevrolet Camaro	Chevrolet Camaro	Chevrolet Aveo	Cadillac ATS	
			Chevrolet Cruze	Chevrolet Captiva	Chevrolet Beat	Cadillac SRX	
			Chevrolet Equinox	Chevrolet Cruze	Chevrolet Camaro	Cadillac XTS	
			Chevrolet Sail	Chevrolet Equinox	Chevrolet Captiva	Chevrolet Aveo	
			Chevrolet Spark	Chevrolet Orlando	Chevrolet Cobalt	Chevrolet Beat	
			Daewoo Lacetti	Chevrolet Sail	Chevrolet Colorado	Chevrolet Camaro	
			Daewoo Matiz	Chevrolet Spark	Chevrolet Cruze	Chevrolet Captiva	
			GMC Terrain	Chevrolet Tavera	Chevrolet Enjoy	Chevrolet Cobalt	
			Holden Barina Spark	Chevrolet Volt	Chevrolet Equinox	Chevrolet Colorado	
			Holden Cruze	Daewoo Alpheon	Chevrolet Malibu	Chevrolet Cruze	
			Saab 9-5	GMC Terrain	Chevrolet Orlando	Chevrolet Enjoy	
				Holden Barina Spark	Chevrolet S10	Chevrolet Equinox	
			ALL Others Tech 2 / Tech2Win Supported*	Holden Captiva 5	Chevrolet Sail	Chevrolet Malibu (New Body Style)	
				Holden Captiva 7	Chevrolet Sonic	Chevrolet N300	
				Holden Cruze	Chevrolet Spark	Chevrolet Onix	
				Saab 9-4	Chevrolet Tavera	Chevrolet Orlando	
				Saab 9-5	Chevrolet Volt	Chevrolet Prisma	
					Daewoo Alpheon	Chevrolet S10	
				ALL Others Tech 2 / Tech2Win Supported*	GMC Terrain	Chevrolet Sail	
					Holden Barina	Chevrolet Sonic	
					Holden Barina Spark	Chevrolet Spark	
					Holden Captiva 5	Chevrolet Spin	
					Holden Captiva 7	Chevrolet Tavera	
					Holden Colorado	Chevrolet Tracker	
					Holden Cruze	Chevrolet Trailblazer	
					Holden Malibu	Chevrolet Trax	
					Saab 9-4	Chevrolet Volt	
					Saab 9-5	Daewoo Alpheon	
						GMC Terrain	
					ALL Others Tech 2 / Tech2Win Supported*	Holden Barina	
						Holden Barina Spark	
						Holden Captiva 5	
						Holden Captiva 7	
						Holden Colorado	
						Holden Colorado 7	
						Holden Cruze	
						Holden Malibu	
						Holden Trax	
						Holden Volt	
						ALL Others Tech2 / Tech2Win Supported*	
							
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