

Determining the Repair Cost of Vehicle Systems

Understanding the Hidden Costs of Passenger Restraint and Advanced Driver Assistance Systems

As vehicle manufacturers continue to add to the systems on today's vehicles, the cost of repairing those systems after a collision can be near that of the visual damage. Estimating system providers are indicating that the cost to repair these systems is often 50 percent of the total vehicle repair cost. However, many shops are not considering this expense in their initial damage assessment.

In the initial damage assessments I have reviewed with shops, I see very little attention given to passenger restraint or Advanced Driver Assistance Systems. This has caused problems when the vehicle is brought to the shop for repairs and damage to these systems is found during disassembly – or worse, after repairs have been accomplished. Understanding how to identify these costs during the initial damage assessment can prevent increased repair costs mid-repair or creating a total loss due to required system repairs.

Most manufacturers indicate in their position statements and repair procedures that the only way to find damage to these components is to perform a vehicle scan. They also indicate scans must be performed during the initial damage assessment.

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 re-tested 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.

While I agree it might be cumbersome to scan every vehicle during initial damage assessments, it is the only true way to determine what systems might have been compromised during the collision. However, the costs to correct the malfunctions must be identified early in the damage assessment process to prevent costly repair supplements. In the example below, you see three examples of system faults that can only be detected by system scanning. Damage to any of these

systems could add significant expense to the repair.

Collision Warning			
Forward Collision Warning			
Cameras/Sensors:			
Camera Near Rearview Mirror			
Sensor(s) in Front Bumper Cover/Grille (Lower)			
	Yes	No	Not Identified
DTCs Set	X		
System MIL			X

Lane Departure Warning			
Lane Departure Warning Plus			
Cameras/Sensors:			
Camera Near Rearview Mirror			
	Yes	No	Not Identified
DTCs Set	X		
System MIL			X

Rear Cross Traffic			
Rear Cross Path			
Cameras/Sensors:			
Sensor(s) Behind Rear Bumper Cover			
	Yes	No	Not Identified
DTCs Set	X		
System MIL			X

Another cost that must be determined during the initial damage assessment is recalibration. There are components in a Honda that require calibration after a collision, regardless of damage resulting from the collision as indicated in the example below.

Front Passenger's Seat Weight Sensor - Inspections and Calibration:

These sensors control passenger's front airbag operation and the PASSENGER AIRBAG OFF indicator based on the occupant's weight. Like any scale, weight sensors are a precision device.

- The service information may refer to these sensors as the seat weight sensor (SWS) system or occupant detection system (ODS), depending on model and year.
- This inspection requires a scan tool to fully check the seat weight sensor's operation using the following criteria:
 - Empty front passenger seat weight to confirm the sensors can detect this condition
 - Seat weight with a known calibration weight amount if necessary
- This check **must** be done after **any** collision, regardless of damage, even if no airbags have deployed.
- The check confirms sensor operation and that no binding or damage exists in the relationship between the seat frame, weight sensors, and floor pan.

Weight sensor calibration is also required when front passenger seat components have been removed or replaced. Refer to the service information for procedures.

To accurately assess the vehicle damage repair costs, you will need to include scan procedures, diagnosis processes and calibration requirements needed to restore the vehicle to manufacturer specifications in your initial damage assessment. These steps will be itemized in the manufacturer repair procedures, providing the documentation you will need to justify the process. Each step should be a line item on your damage assessment to validate the need to perform the procedure and provide guidance to technicians.

One inspection that is getting a lot of attention today is the measuring of steering columns. The manufacturer repair procedures define when it is required, and documenting the inspection steps should be included in your initial damage assessment. I noticed in several inspection procedures

that it occurred after the steering column was removed. In this case, you would need to add R&I of the steering column assembly to your damage assessment along with any tasks associated with removing the steering column. As you work through adding this to your damage appraisal, you will realize that the associated labor to perform this inspection has increased the overall cost of repair.

The next step is to review the required replacement items as if the column was damaged. This is especially important if you are nearing a total loss threshold. Calculating the replacement cost of those items and adding them to your damage assessment total would help you determine repairability.

In today's collision centers, the need to replace sensors and recalibrate cameras is now commonplace on even simple bumper repairs, increasing the cost of what was once an inexpensive job to complete. I hope this article has helped you understand how documenting the inspection and calibration steps on your initial damage assessment will create a more accurate valuation of the repair cost. Knowing the true cost of each repair will allow you to communicate more effectively with vehicle owners, allowing them to make informed repair decisions that ultimately help keep things moving efficiently through your shop.