#04-03-08-006E: Steering and Front Suspension Noise Concerns-Clunk, Thump, Rattle, Knocking, Pop, Shudder, Vibration (Diagnose and Perform Necessary Repair) - (Nov 1, 2010)

Subject: **Steering and Front Suspension Noise Concerns -- Clunk, Thump, Rattle, Knocking, Pop, Shudder, Vibration (Diagnosis and Perform Necessary Repair)**

Models: **2005-2010 Chevrolet Cobalt (Including SS)**
2006-2010 Chevrolet HHR (Including SS)
2005-2006 Pontiac Pursuit (Canada Only)
2007-2010 Pontiac G5
2003-2007 Saturn ION

This bulletin is being revised to add 2010 model year and update Condition #7 with new part information. Please discard Corporate Bulletin Number 04-03-08-006D (Section 03 - Suspension).

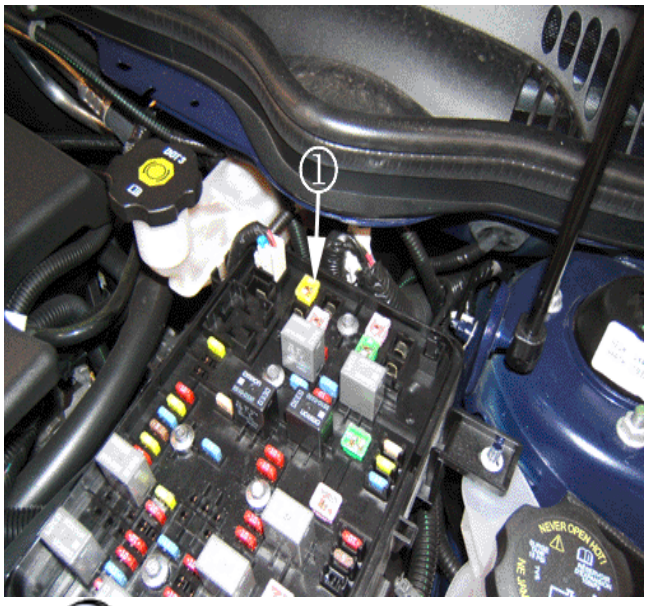
This bulletin provides information on eight different steering/front suspension noise conditions.

Condition #1

Some customers may comment on a rattle or knocking noise that is heard in the front of the vehicle while driving at low speeds 8-24 km/h (5-15 mph). This condition may be more noticeable while making a slow turn or on a loose/rough surface.

This condition can be duplicated by the technician using the following procedure:

1. On a rough or loose surface (i.e., gravel parking lot), make a sweeping turn (either direction) at 8-24 km/h (5-15 mph to load the steering column, I-shaft and steering rack/gear mechanisms. The testing on a rough or loose surface will allow the wheels to oscillate slightly and will make the rattle/knocking noise more evident and repeatable.
2. Release the steering wheel while making the turn to take load off of steering components. This should initiate the rattle/shudder noise, which is generated by backlash in the steering assembly as it is in a no-load float condition.



3. Remove the 60 amp EPS fuse (1) in the underhood fuse block.
4. Test the vehicle as in Step 1. Since the EPS motor is no longer powered, only the I-shaft and steering gear/rack will be loaded as you make the turn. If you hear the rattle/knocking noise during the turn, then the noise is being generated by the backlash within the steering column (assist motor gear mechanism).
5. Replace the 60 amp EPS fuse and repeat Steps 1 and 2 to verify that the rattle/knocking noise disappears when turning (loading steering mechanism) and can only be heard when releasing the steering wheel.

Correction #1

If the steering column is identified as the source of the rattle/knocking noise in the above test, replace the steering column.

Important: The noise in the steering column is generated from the metal to plastic gear backlash of the assist motor mechanism and will have a different sound than that from the steering gear. If the customer comments that they still hear a noise, it may be a different sound from either the I-shaft or the steering rack.

If the steering column is not identified as the source of the rattle/knocking in the above test, continue to diagnose the vehicle according to the diagnostics in SI.

Parts Information #1

For part numbers and usage of the column, see Steering Column Kit in Group 06.518 of the appropriate Parts Catalog. Saturn Retailers should refer to the appropriate model year Parts & Illustration Catalog for the vehicle.

Warranty Information #1

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
E7680	Column Assembly, Steering - Replace	Use Published Labor Operation Time

Condition #2 (Chevrolet Cobalt, HHR and Pontiac G5 Only)

Some customers may comment on a clunk or thump noise coming from the front suspension while driving over rough road surfaces. This noise will typically occur when the front suspension is returning to the upward position after a hard downward stroke, such as after driving through a large rut or pothole.

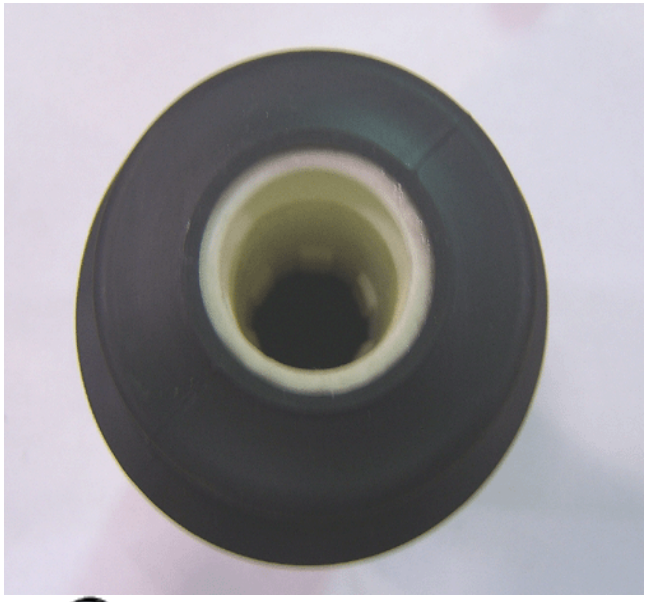
Cause #2

This condition may be caused by the jounce bumper slamming into the upper spring seat because it is not retained in the correct up position. The jounce bumper loses position due to oil being deposited onto its retention fingers. The oil is from the strut leaking.

Correction #2

Inspect the front strut(s) for evidence of oil. The leak may be slight but will still cause the concern. If oil is present, replace the affected strut, jounce bumper and dust boot (shield). Before reassembling the strut assembly, glue the new jounce bumper and new dust boot (shield) to the upper spring seat using the steps listed below. To further confirm this concern, the shield/bumper will easily slide up and down the strut shaft.

1. Clean the surface area of the upper spring seat using fine sandpaper.
2. Apply a light coat *of 3M™ Automotive Adhesion Promoter, P/N 06396, to the top of the dust boot (shield) on the inside edge and to the top of the bumper. Allow to dry 10 minutes.



3. Glue the bumper to the inside of the dust boot (shield) as shown. Use *3M™ Duramix™ Super Fast Adhesive, P/N 04747. Allow to cure thoroughly 5-10 minutes at room temperature.
4. Apply a light coat of *3M™ Automotive Adhesion Promoter, P/N 06396, to the top of the dust boot (shield) and to the upper spring seat surface. Allow to dry 10 minutes.

5. Glue the dust boot (shield) to the upper spring seat as shown using the above recommended adhesive. Allow to cure thoroughly.

*We believe this source and their products to be reliable. There may be additional manufacturers of such products. General Motors does not endorse, indicate any preference for or assume any responsibility for the products from this firm or for any such items which may be available from other sources.

Parts Information #2

Part Number	Description	Qty	Material Allowance
21992520	Shield, Frt Suspension Strut	-	-
22712118	Bumper, Frt Suspension Strut	-	-
04747	3M™ Duramix™ Super Fast Adhesive	1	$22.00
06396	3M™ Automotive Adhesion Promoter	2	$4.00

For part numbers and usage of the strut, see Strut Kit in Group 07.345 of the appropriate Parts Catalog.

Warranty Information #2

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
E9478*	Replace Front Strut and Secure Bumper and Shield to Spring Seat	1.5 hrs
Add	To Perform Repair on Other Side	1.3 hrs
Add	For alignment times, refer to operation E2020 and add the applicable times to the regular hours.	
* This is a unique labor operation for bulletin use only. It will not be published in the Labor Time Guide.		

Condition #3

Some customers may comment on a clunk/pop type noise coming from the front of the vehicle when driving over rough road surfaces.

Cause #3

This noise may be caused by the stabilizer shaft link ball stud becoming contaminated from moisture.

Correction #3

Inspect the front stabilizer shaft links for damage. To isolate the noise, the link can be also be disconnected from the stabilizer shaft. If the link appears damaged or if the noise goes away when disconnected, replace the link with the revised part.

Parts Information #3

Part Number	Description	Usage	Qty
		2006-2009 HHR (FE1, FE3)	

20784686	Link Asm., Front Stabilizer Shaft (300 mm Shaft)	2005-2009 Cobalt (FE1, FE3) 2005-2006 Pursuit (FE1, FE3) 2007-2009 G5 (FE1, FE3) 2003-2007 ION (FE1, FE2, FE3)	2
20784687	Link Asm., Front Stabilizer Shaft (250 mm Shaft w/Washer)	2008-2009 HHR (FE5) 2005-2009 Cobalt (FE5) 2007-2009 G5 (FE5)	2
20784688	Link Asm., Front Stabilizer Shaft (250 mm Shaft)	2006-2009 HHR (FE1, FE3) 2005-2009 Cobalt (FE5) 2005-2006 Pursuit (FE5) 2007-2009 G5 (FE5)	2

Warranty Information #3

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
E2147	Stabilizer Shaft Link Replacement (Both Sides)	Use Published Labor Operation Time

Condition #4

Some customers may comment on a clunk type noise coming from the front of the vehicle during a turning maneuver. This condition can also be felt through the steering wheel when the vehicle is stationary and the wheel is rotated from steering stop to steering stop. Typically, the clunk noise will be heard once for every 90° of steering wheel rotation in either direction. This clunk noise may also be noticed during low speed acceleration or deceleration, typically in light turns of the steering wheel.

The following are characteristics of this noise:

- This noise is very random.
- This noise is independent of the steering wheel angle and independent of the bumpiness of the road.

- This noise is a low frequency dull one and can be felt in your feet.
- This noise can normally be heard from the driver seat.
- This noise can be felt upon touching the steering gear from outside of the vehicle.

Note: You might also notice a slight scrub-type noise when turning the wheel back and forth. This type of noise is considered normal and repairs will not eliminate it.

Cause #4

This condition may be caused by inadequate lubrication of the steering intermediate shaft.

Correction #4

Important: DO NOT replace the steering gear or steering column assembly.

Replace the intermediate shaft.

Important: If the vehicle has already had a steering intermediate shaft replaced for a similar noise concern that the dealer duplicated, determine from the customer if the noise went away for a period of time and came back, or if the service shaft made no change. If the noise was gone for a period of time and came back, have the dealer replace the shaft again to verify we do not have a defective service shaft.

If this does not eliminate the noise, continue to diagnose the vehicle according to the diagnostics in SI.

Parts Information #4

Part Number	Description
15800140	Shaft, Intermediate Steering (Cobalt/G5/Pursuit)
15799676	Shaft, Intermediate Steering (ION)
22730246	Shaft, Intermediate Steering (HHR)

Warranty Information #4

For vehicles repaired under warranty, use:

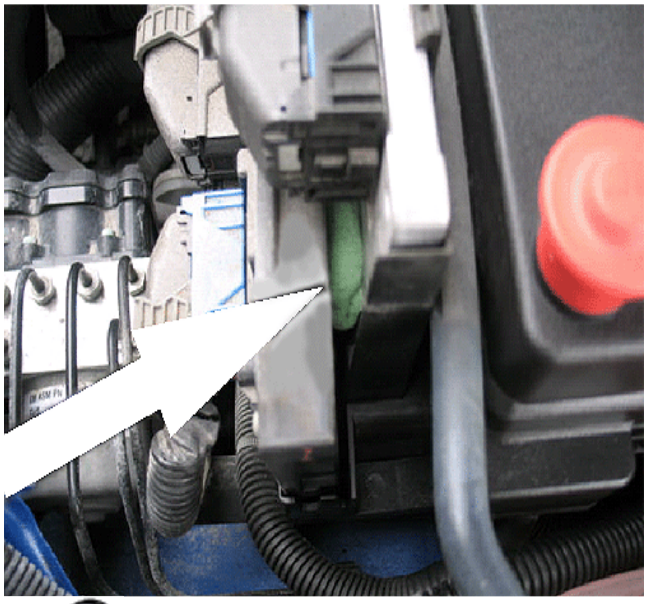
Labor Operation	Description	Labor Time
E7700	Shaft, Steering Intermediate - Replace	Use Published Labor Operation Time

Condition #5

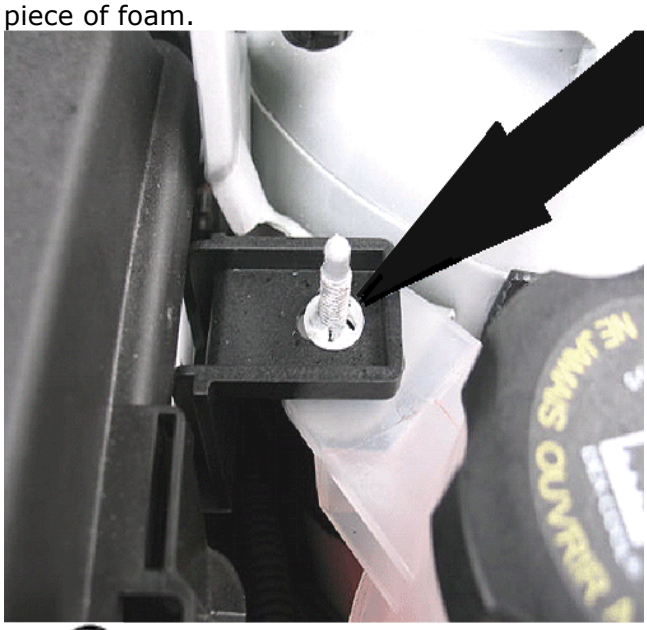
Some customers may comment on a rattle/clunk type noise coming from the steering column when driving over bumps.

Correction #5

The following steps have been found to be very effective in removing this condition.



1. Check for the possibility of the PCM and the TCM rattling/clunking together. If there is contact between these two modules, insulate the modules from each other using a small piece of foam.



2. Check that the retaining clip on the engine coolant surge tank is fully seated. If not, push down to seat.

Rattles/clunks in this area of the engine compartment may be heard as coming from the steering column while driving.

If this does not eliminate the noise, continue to diagnose the vehicle according to the diagnostics in SI.

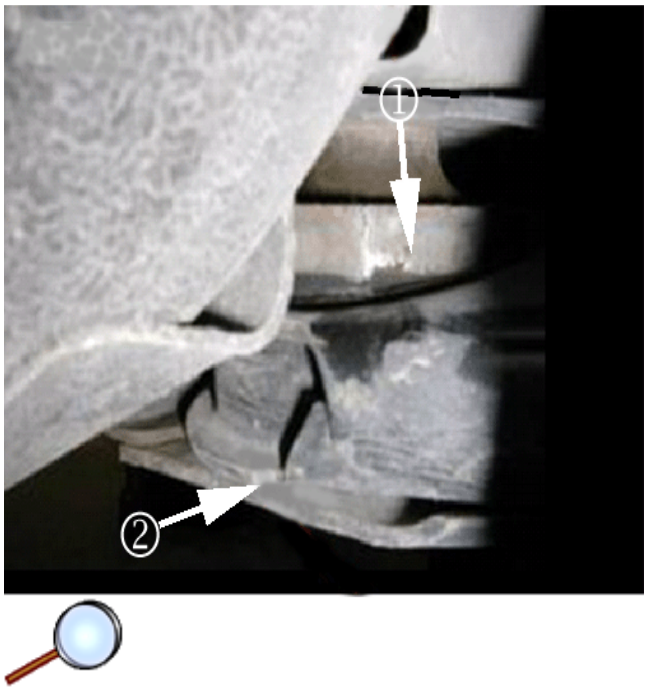
Warranty Information #5

Labor Operation	Description	Labor Time
E9458*	Repair to Correct Rattle/Clunk Noise in Front of Vehicle	0.2 hr
* This is a unique labor operation for bulletin use only. It will not be published in the Labor Time Guide.		

Condition #6 (FE1 Suspension Only)

Some customers may comment on a clunk, thump or rattle noise coming from the front suspension while driving over rough road conditions or when braking.

Cause #6



This condition may be caused by the lower control arm rubber bushing (rear) coming out of its steel sleeve (1). This will cause the lower control arm to make hard contact (2) with the body structure. This condition may be more prevalent in regions that use road salt during the winter months.

Correction #6

If the rubber bushing has moved out of the steel sleeve, replace the lower control arm bushing. Do not replace the bushing if it is still centered in the steel sleeve.

If this does not eliminate the noise, continue to diagnose using chassis ears to identify the source

of the noise.

Parts Information #6

Part Number	Description
25984679	Bushing, Front Lower Control Arm (Cobalt/G5/HHR/Pursuit)
22688205	Bushing, Front Lower Control Arm (ION)

Warranty Information #6

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
E3550	Bushings ad/or Shaft, Front Control Arm Lower (Right) - Replace	Use Published Labor Operation Time
E3551	Bushings ad/or Shaft, Front Control Arm Lower (Left) - Replace	
E3557	Bushings ad/or Shaft, Front Control Arm Lower (Both) - Replace	

Condition #7

Some customers may comment on a squeak, rattle, pop, or clunk noise coming from the front of the vehicle during suspension movement.

Cause #7 (Saturn ION Only)

This condition may be caused by the interface between the front stabilizer shaft, the front stabilizer shaft insulators (bushings) and the front stabilizer shaft mounting clamp.

Correction #7 (Saturn ION Only)

Replace the front stabilizer shaft insulators (bushings), if necessary, using the following procedure.

1. Verify the customer comment. Use Chassis Ear (SA9217NE or J39570) or a similar tool to determine the source of the noise. Refer to Noise Diagnosis - Front Suspension in SI.
2. If the noise is coming from either the front stabilizer shaft insulators (bushings) or the clamps:

   Important: Check the Service Parts Identification label in the rear compartment (trunk) to determine the vehicle's suspension system type, then obtain the correct insulators (bushings) corresponding to that suspension system type.

   - On vehicles built ***after*** VIN breakpoint 4Z125195, replace both front stabilizer shaft insulators (bushings). Refer to the Stabilizer Shaft Insulator Replacement procedure in SI.
   - On vehicles built ***up to and including*** VIN 4Z125195, replace the front stabilizer shaft insulators (bushings) ***and*** clamps. Refer to the Stabilizer Shaft Insulator Replacement

procedure in SI.
3. Verify the repair by repeating Step 1.

Parts Information #7 (Saturn ION Only)

Part Number	Description	Qty
15820162	Insulator, Front Stabilizer Shaft (2003-2007 FE1 Suspension)	2
20902787	Insulator, Front Stabilizer Shaft (2003-2007 FE2 Suspension)	2
15820164	Insulator, Front Stabilizer Shaft (2003-2007 FE3 Suspension)	2
22722387	Clamp, Front Stabilizer Shaft	2

Cause #7 (Cobalt, G5, HHR)

This condition may be caused by the interface between the front stabilizer shaft and the front stabilizer shaft insulators (bushings).

Correction #7 (Cobalt, G5, HHR)

Replace the front stabilizer shaft insulators (bushings), if necessary, using the following procedure.

1. Verify the customer comment. Use Chassis Ear (SA9217NE or J39570) or a similar tool to determine the source of the noise. Refer to Noise Diagnosis - Front Suspension in SI.

   Important: Check the Service Parts Identification label in the rear compartment (trunk) to determine the vehicle's suspension system type, then obtain the correct insulators (bushings) corresponding to that suspension system type.

2. If the noise is coming from either the front stabilizer shaft insulators (bushings), replace both front stabilizer shaft insulators (bushings). Refer to the Stabilizer Shaft Insulator Replacement procedure in SI.
3. Verify the repair by repeating Step 1.

Parts Information #7 (Cobalt, G5, HHR)

Part Number	Description	Qty
20902784 (HHR Only)	Insulator, Front Stabilizer Shaft (2006-2010 FE1 Suspension)	2
20902786 (Cobalt, G5)	Insulator, Front Stabilizer Shaft (2005-2010 FE1 Suspension)	2
20902785 (Cobalt, G5)	Insulator, Front Stabilizer Shaft (2005-2010 FE5 Suspension)	2
20902787	Insulator, Front Stabilizer Shaft (2005-2010 FE3 Suspension)	2

Warranty Information #7

For vehicles repaired under warranty, use:

Labor Operation	Description	Labor Time
E2180	Insulator and/or Bracket, Front Stabilizer Shaft - Replace	Use Published Labor Operation Time

Condition #8

Some customers may comment on a whine/hum noise from the steering column while making right hand turns at 5-15 mph (8-24 km/h). A slight whine/hum noise is considered to be normal for EPS so it will be helpful to compare to another like vehicle. If the vehicle exhibits excessive feedback/noise when compared to another vehicle, follow the correction procedure below.

Correction #8

Important: DO NOT replace the steering column.

Pull the 60 amp steering fuse (1) in the underhood fuse block. If this eliminates the whine/hum concern, contact the Technical Assistance Center for further information in order to repair the vehicle. If this does not eliminate the noise, continue to diagnose the vehicle according to the diagnostics in SI.