


13V-354

 HYUNDAI NEW THINKING. NEW POSSIBILITIES. Technical Service Bulletin	GROUP CAMPAIGN	NUMBER 13-01-039-1
	DATE DECEMBER 2013	MODEL(S) NF SONATA, TG AZERA

SUBJECT: REAR CROSSMEMBER CORROSION TREATMENT (RECALL 113)

THIS TSB SUPERSEDES TSB 13-01-039 TO INCLUDE INFORMATION ABOUT ASSIST ARM WHEEL SPEED SENSOR MOUNTING ORIENTATION.

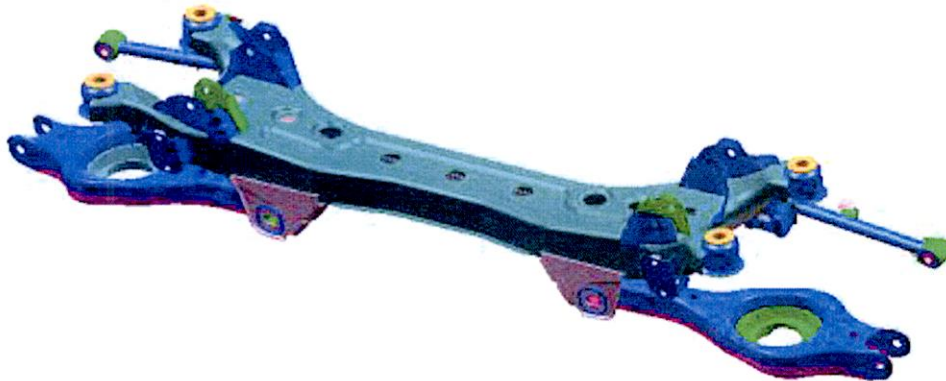
★ IMPORTANT

*** RETAIL VEHICLES ONLY ***

Dealers must perform this Recall Campaign whenever an affected vehicle is in the shop for any maintenance or repair.

When a vehicle arrives at the Service Department, access Hyundai Motor America's "Warranty Vehicle Information" screen via WEBDCS to identify open Campaigns.

Description: This bulletin describes the procedure to inspect and service the rear crossmember of certain NF Sonata and TG Azera vehicles. Additionally, a procedure is provided to apply cavity wax to the front crossmember as a preventative measure.



APPLICABLE VEHICLES – VERIFY THAT THE VEHICLE IS IDENTIFIED AS AFFECTED BY THE CAMPAIGN VIA WEBDCS.

- Model year 2006 through 2010 Hyundai Sonata vehicles produced beginning on March 1, 2005 through January 21, 2010.
- Model year 2006 through 2011 Hyundai Azera vehicles produced beginning on September 27, 2005 through November 22, 2010.

Area:

Salt belt states: Connecticut, Delaware, Illinois, Indiana, Iowa, Maine, Maryland, Massachusetts, Michigan, Minnesota, Missouri, New Hampshire, New Jersey, New York, Ohio, Pennsylvania, Rhode Island, Vermont, West Virginia, Wisconsin, and the District of Columbia.

Circulate To: General Manager, Service Manager, Parts Manager, Warranty Manager, Service Advisors, Technicians, Body Shop Manager, Fleet Repair

★ IMPORTANT

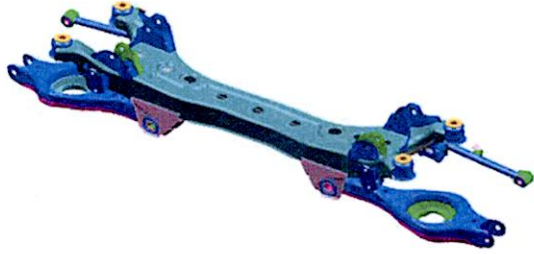
There are circumstances under which vehicles not currently or never registered in a “salt belt” state may be eligible for this Campaign. These circumstances include:

1. Vehicles that have relocated into a “salt belt” area and/or vehicles registered in a “non salt belt” state and driven in a “salt belt” area. If it is determined that an owner of a vehicle within the affected VIN production date range relocates or has operated their vehicle in a “salt belt” area, the dealer should perform the campaign procedure. The dealer should perform this procedure at no cost to the customer, and the dealer’s District Parts and Service Manager must be contacted prior to repair and submission of Warranty Claim.
2. Vehicles in “non-salt belt” states that exhibit corrosion damage to the subframe assembly. In the event that a vehicle in a “non-salt belt” state exhibits corrosion damage to the subframe assembly, the dealer should perform the recall procedure. This applies to both “salt-belt” and “non-salt belt” state dealers. The dealer should perform this procedure at no cost to the customer, and the dealer’s District Parts and Service Manager must be contacted prior to repair and submission of Warranty Claim.





★ NOTE

If the owner of a vehicle within the affected VIN production date range requests an inspection of their vehicle to check for corrosion damage, the inspection should be performed at no charge to the customer.


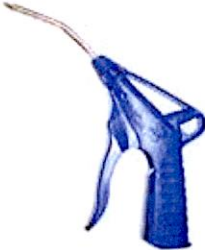


Parts Information:

PART IMAGE	PART NUMBER	DESCRIPTION
	55409-0A000-QQH	<p>Rear crossmember assembly (includes lower control arms)</p> <p>NOTE: Assist arms are pre-installed with the wheel speed sensor wiring harness mounting tabs facing upwards.</p> <p><i>For vehicles with the tabs originally facing downwards, it is required to remove and reinstall the arms with the tabs facing downwards, to match the original configuration.</i></p>

SUBJECT:
REAR CROSSMEMBER CORROSION TREATMENT (RECALL 113)

	00232-19034	<p>Cavity wax</p> <ul style="list-style-type: none"> For op code 31C031R1, 1 bottle is required per vehicle. For op codes 31C031R0 and 31C031R2, ½ bottle is required per vehicle.
	00232-19035	<p>Black undercoating (non-rubberized type)</p> <ul style="list-style-type: none"> For op code 31C031R1, 1 can is required per 3 vehicles.
	00305-PUNCH	<p>Automatic center punch – Operated by hand (<i>not by hammer</i>).</p> <p><i>See page 7 for proper adjustment setting.</i></p>
<div style="display: flex; align-items: center;"> <div style="margin-right: 10px;">  <p>Outside</p> </div> <div style="margin-right: 10px;">  <p>Inside</p> </div>  </div>	00232-19036	<p>Wax spray gun – Includes 2 nozzles for spraying inside and outside crossmember and control arms.</p> <p><i>Use at 70 psi air pressure.</i></p>

Tools and Equipment (dealer responsibility):

HAMMER – 16 oz.	AIR NOZZLE	WIRE BRUSH	GOGGLE & MASK
			

*** NOTE**

Wear protective goggles and mask when performing the procedures in this bulletin.

SUBJECT:

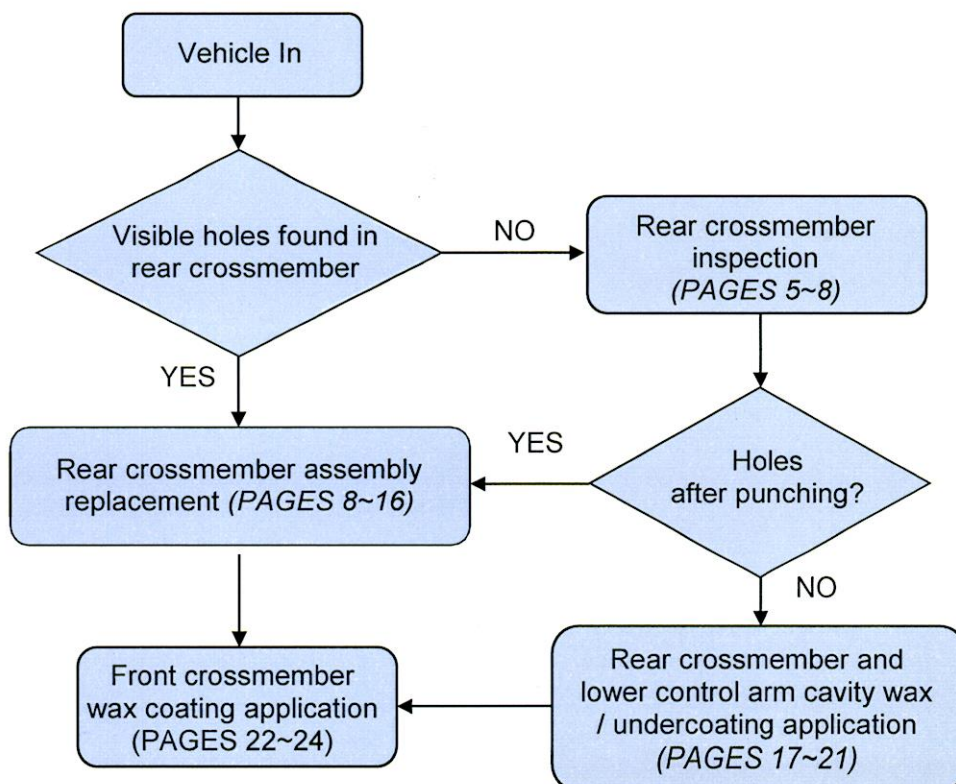
REAR CROSSMEMBER CORROSION TREATMENT (RECALL 113)

Warranty Information:

Model	Op Code	Operation	Op Time
All	31C031R0	Rear crossmember assembly replacement; front crossmember wax coating application	3.8
	31C031R1	Rear crossmember inspection and cavity wax / undercoating application; front crossmember wax coating application	1.2
	31C031R2	Rear crossmember inspection and assembly replacement; front crossmember wax coating application.	4.0

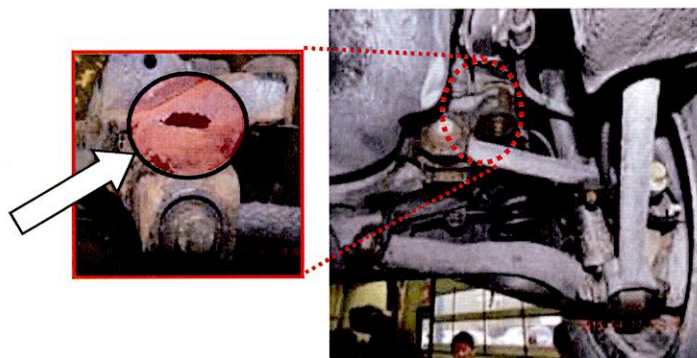
NOTE 1: Submit Claim on Campaign Claim Entry Screen**NOTE 2: Each labor operation will reimburse applicable undercoating and cavity wax in sublet.****Parts Scrap Information:**

1. For crossmembers replaced due to visible holes (Op Code 31C031R0):
 - a. Digital photos must be taken of the replaced parts as well as the VIN plate. These photos must be attached to their respective repair order for DPSM review. The removed crossmember may then be scrapped.
2. For crossmembers replaced due to a hole created during the inspection (Op Code 31C031R2):
 - a. It is required to retain the removed crossmember for 20 days from the date of claim payment approval before scrapping the part.

Service Procedure Flow Chart:

Service Procedure Overview:

- Lift the vehicle inspect for holes due to corrosion in the rear crossmember.
 - If any holes are found, replace the rear crossmember with a replacement part following the '**REAR CROSSMEMBER ASSEMBLY REPLACEMENT**' procedure.
 - If no holes are found, inspect the rear crossmember following the '**REAR CROSSMEMBER INSPECTION**' procedure.
 - If no holes are identified, perform the '**REAR CROSSMEMBER AND CONTROL ARM CAVITY WAX / UNDERCOATING APPLICATION**' procedures.
 - If holes are found, perform the '**REAR CROSSMEMBER ASSEMBLY REPLACEMENT**' procedure.
- Perform the '**FRONT CROSSMEMBER WAX COATING APPLICATION**' procedure.

**REAR CROSSMEMBER INSPECTION:**

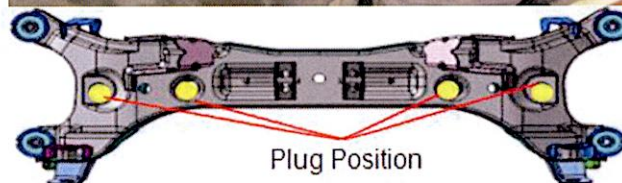
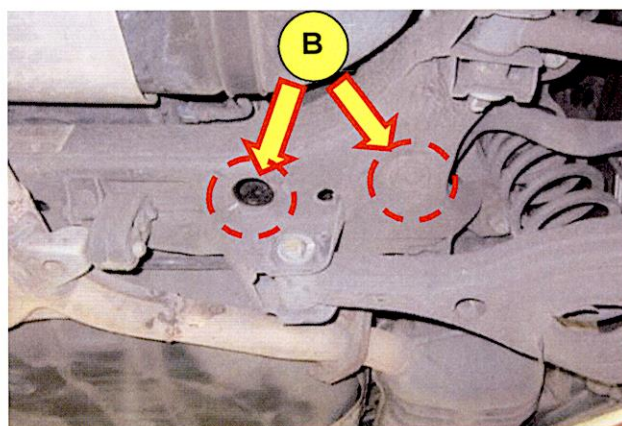
1. Lift the vehicle on a hoist, then remove the rear wheel/tire assemblies (A) on both left and right sides.

*** NOTE**

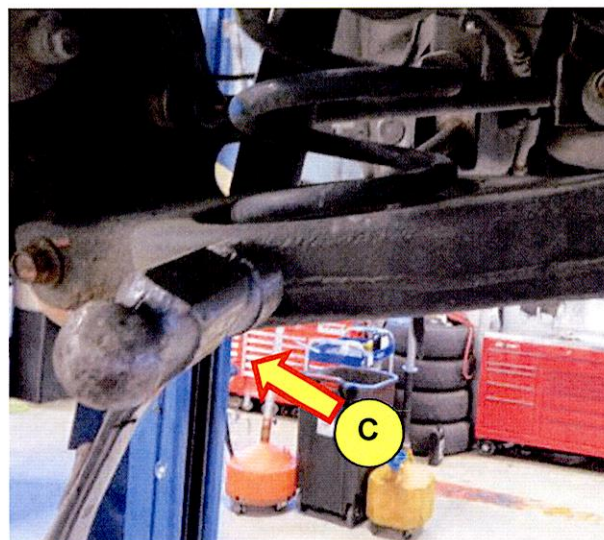
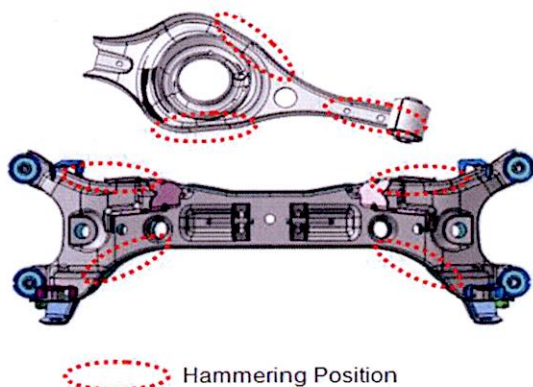
Tightening torque: 65.1~79.5 lb-ft
(88.3~107.9 Nm, 9.0~11.0 kgf.m)



2. Remove the 4 rear crossmember rubber plugs (B). Discard the plugs; do not reinstall.



3. Lightly tap the rear crossmember and the lower arm with a 16 oz. hammer (C) to loosen debris and the PVC coating. Tap in the areas defined below.



4. Peel away any residual PVC coating.

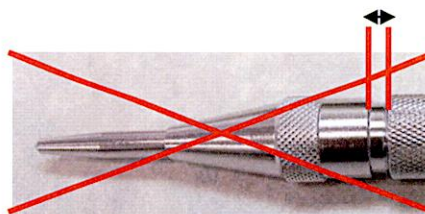


5a. Punching Operations – 5a through 5c:

*** IMPORTANT**

Set the punch adjustment to the fully tight position (highest spring pre-load).

There should be no gap, as shown to the right.



Incorrect Adjustment – Note the gap



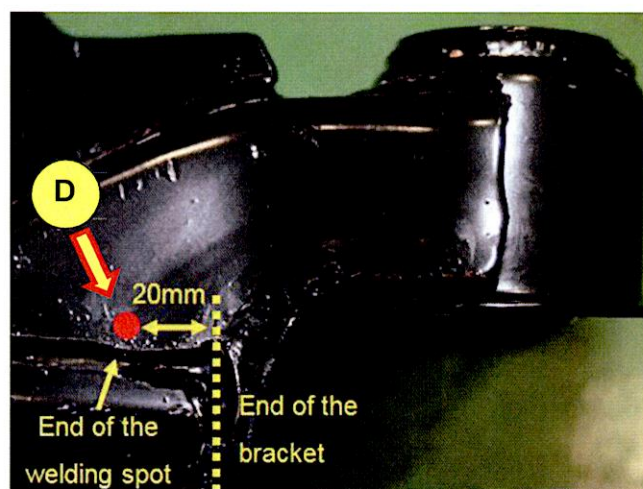
Correct Adjustment – No gap

5b.

*** IMPORTANT**

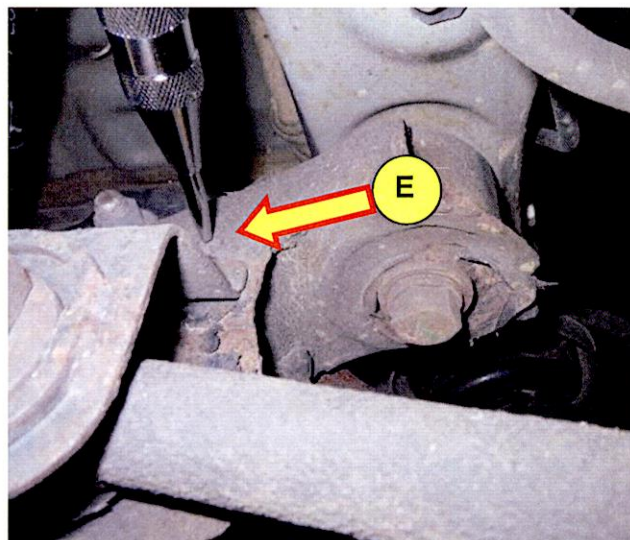
The punching location must be located precisely:

D: Punching location is right above the end of the weld line, 20mm inwards from the end of the bracket.



5c.

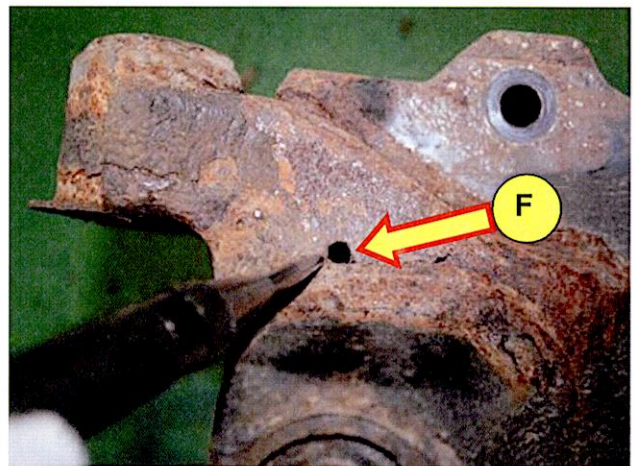
Depress the automatic center punch by hand (**DO NOT USE A HAMMER**) to punch the rear crossmember (E) 10 times in the same location, as defined below. Repeat on the opposite side of the crossmember.



6. Check if there is a hole (F) on the crossmember after the punching.

If there is a hole, replace the rear crossmember with the new one following the **'REAR CROSSMEMBER ASSEMBLY REPLACEMENT'** procedure below.

If no hole exists, follow the **'REAR CROSSMEMBER AND CONTROL ARM CAVITY WAX / UNDERCOATING APPLICATION'** procedure.



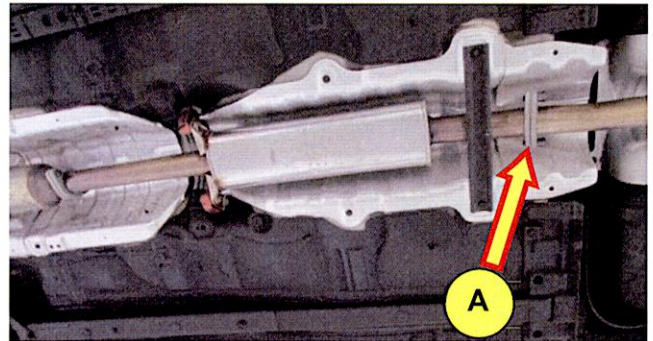
REAR CROSSMEMBER ASSEMBLY REPLACEMENT:

1. Disconnect the negative battery terminal.

Lift the vehicle on a hoist and remove the rear wheel/tire assemblies.

Disconnect the exhaust at the outlet flange of the center muffler (A).

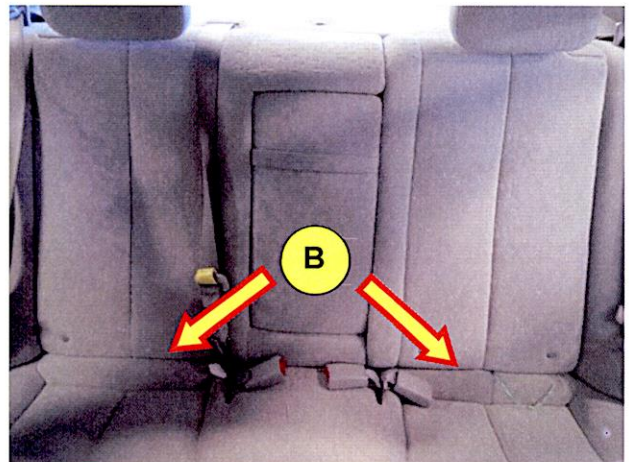
Disengage the exhaust hangers to remove the rear muffler assembly following the procedures in the appropriate shop manual.



2. From the rear seat, remove the two 12mm seat bottom mounting bolts (B).

★ NOTE

Tightening torque: 7.2~10.8 lb-ft
(9.8~14.7 Nm, 1.0~1.5 kgf.m)



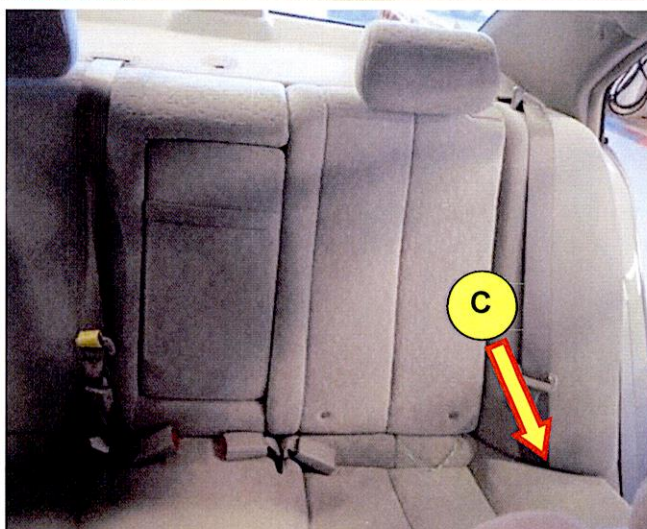
3. Remove the rear seat bottom cushion by pulling upward on the front edge.



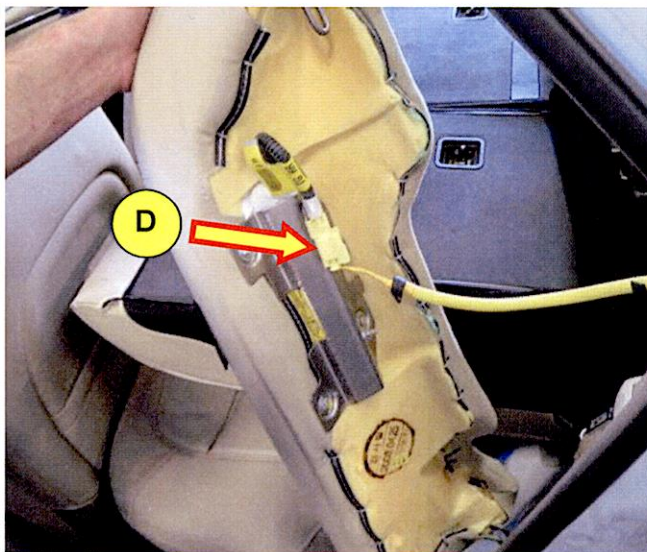
4. Remove the 12mm bolt (C) for the left side bolster cushion. Then lift the cushion upwards to remove. Repeat for the right side bolster.

*** NOTE**

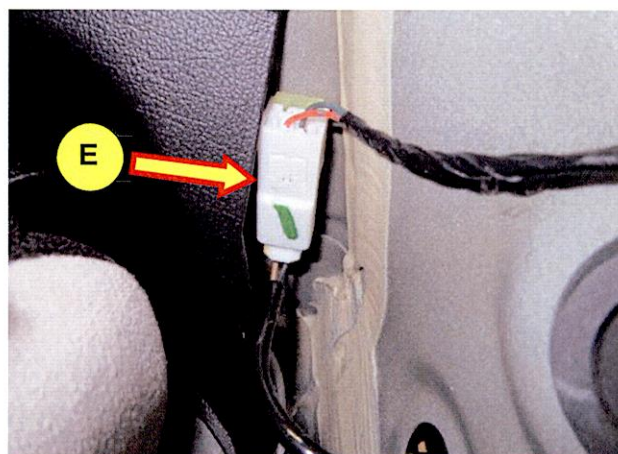
Tightening torque: 7.2~10.8 lb-ft
(9.8~14.7 Nm, 1.0~1.5 kgf.m)



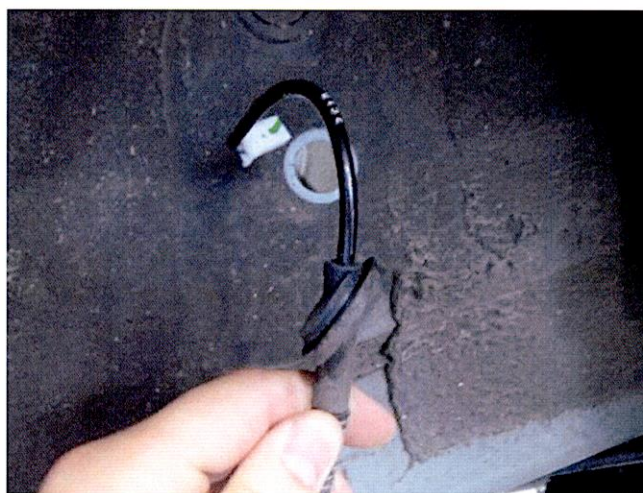
- 4a. If the vehicle is equipped with rear seat side air bags (Azera models only), disconnect the connector (D) before removing the side bolster cushions.



5. With the bolster cushions removed, locate the rear wheel speed sensor connectors (E), and disconnect them (both sides).



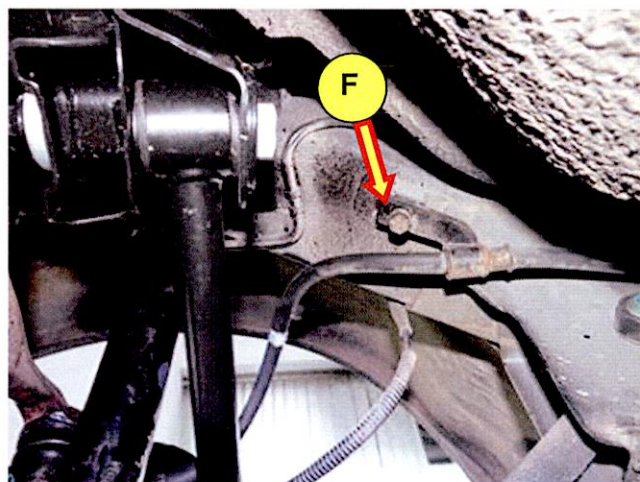
6. From the wheel housing side, disengage the grommet and pull the connector through.



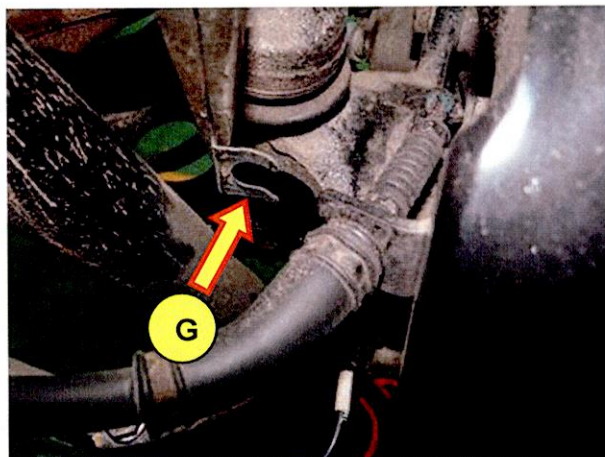
7. Remove the rear parking cable mounting bolt (F) on both sides (LH/RH).

*** NOTE**

Tightening torque: 14.5~21.7 lb-ft
(19.6~29.4 Nm, 2.0~3.0 kgf.m)



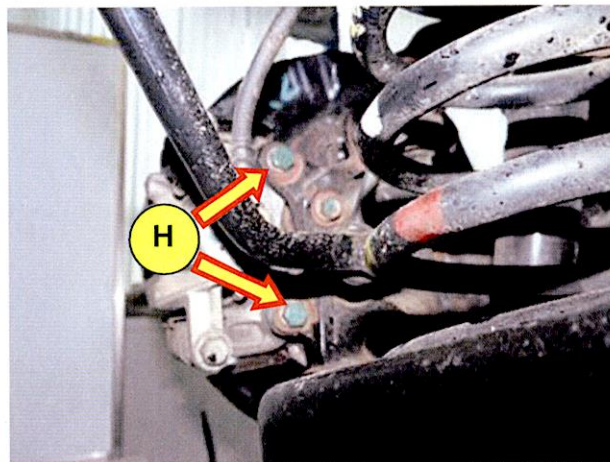
8. Remove the parking cable clip (G) on both sides (LH/RH) with a long nose plier and separate the parking cable from the rear axle.



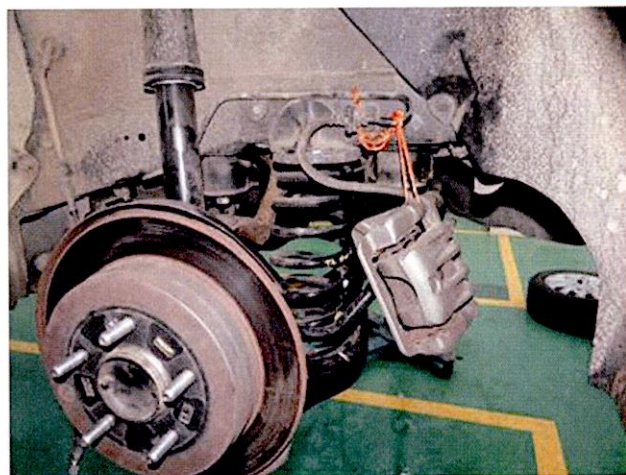
9. Remove the rear calipers from the knuckles by removing the bolts (H).

★ NOTE

Tightening torque: 59.0~73.8 lb-ft
(78.4~98.1 Nm, 8.0~10.0 kgf.m)



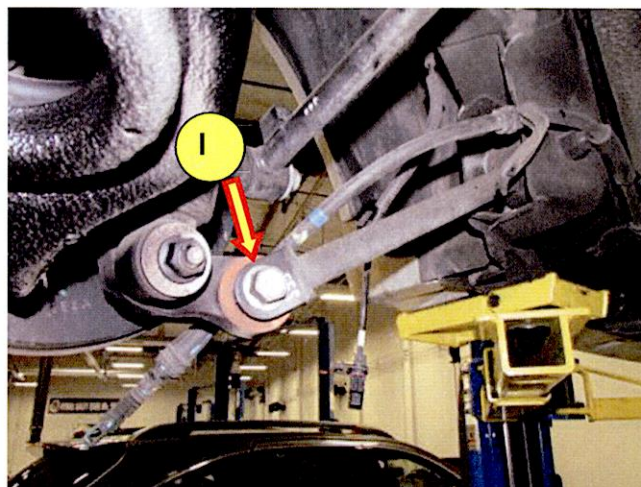
10. Secure the rear calipers so that the brake lines are not in tension, and that the calipers are out of the way when removing the rear crossmember.



11. Remove the trailing arm mounting bolt (I).

*** NOTE**

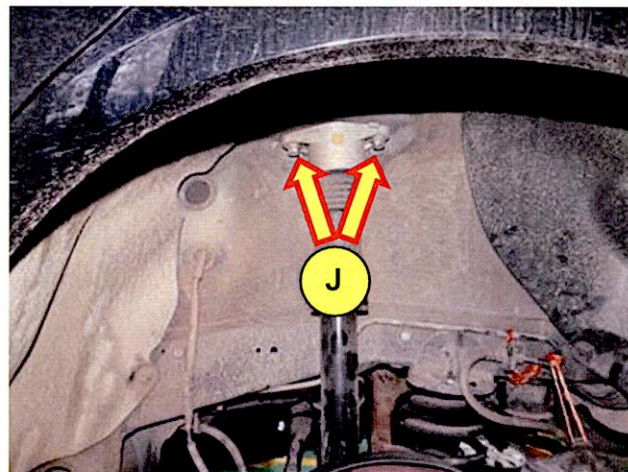
Tightening torque: 101.2~115.7 lb-ft
(137.3~156.9 Nm, 14.0~16.0 kgf.m)



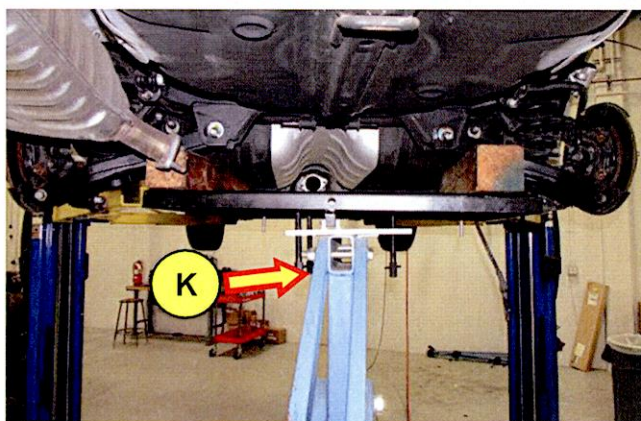
12. Remove the rear shock absorber upper mounting bolts (J).

*** NOTE**

Tightening torque: 36.2~43.4 lb-ft
(49.1~58.9 Nm, 5.0~6.0 kgf.m)



13. Support the crossmember using a hydraulic jack (K), or similar tool.

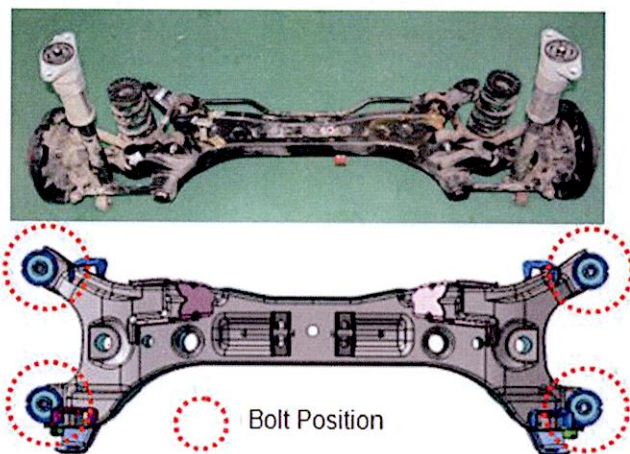


14. Remove 4 rear crossmember mounting bolts and lower the jack to remove the rear chassis module from the vehicle.

★ NOTES

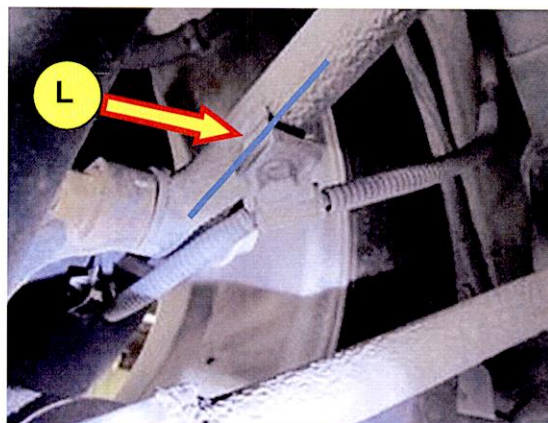
The crossmember-to-body mounting holes are 14MM X 1.5. If these threaded holes are damaged, use a tap to clean up the threads before attempting to install the new crossmember assembly.

Tightening torque: 101.2~115.7 lb-ft (137.3~156.9 Nm, 14.0~16.0 kgf.m)



15. Check the original orientation of the vehicle's wheel speed sensor wiring harness mounting tabs on the assist arms:
- 15a. *If the mounting tabs on the assist arms are facing downwards (L), the arms on the new crossmember must be removed and rotated to match the original orientation before installing the assembly into the vehicle.*

Additionally, the mounting bracket for the wheel speed sensor (WSS) harness (both sides) must be rotated 45 degrees (so the harness runs parallel to the assist arm), then properly tightened down to ensure proper wiring clearance. Images below show the REAR LEFT assist arm. The REAR LEFT bracket must be rotated 45 degrees counter-clockwise, REAR RIGHT must be rotated 45 degrees clockwise.



Original configuration

Note that the mounting tab is facing downwards and the orientation of the WSS wiring harness bracket (L).



Modified configuration (REAR LEFT)

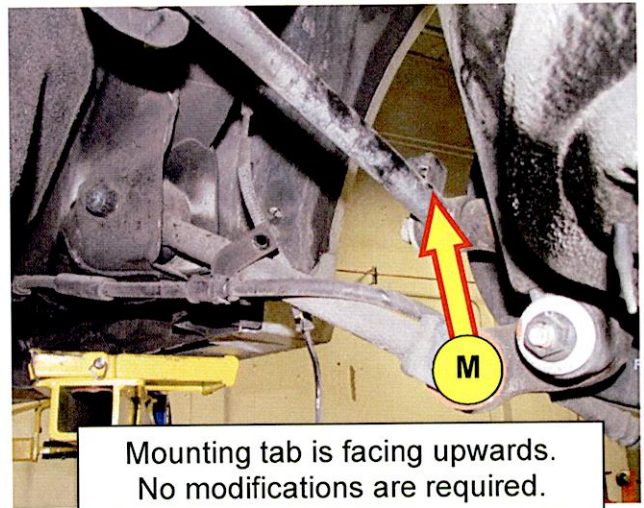
Campaign part assembly assist arms have been removed and rotated so mounting tab faces downwards. WSS harness has been rotated 45 degrees counter-clockwise.

★ NOTES

Tightening torque value:

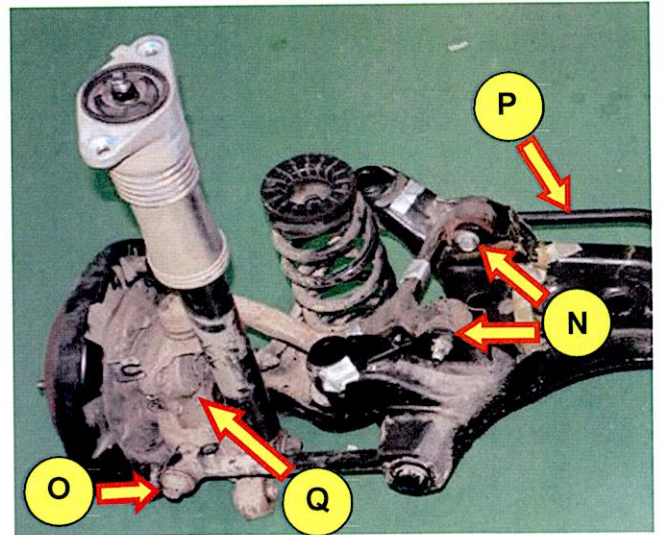
- 5.8~8.7 lb-ft (7.9~11.8 Nm, 0.8~1.2 kgf.m)

- 15b. If the mounting tabs on the assist arms are facing upwards (M), there is no need to reorient the assist arms or re-position the WSS harness brackets.



16. Remove the left and right knuckle assemblies from the rear chassis module:

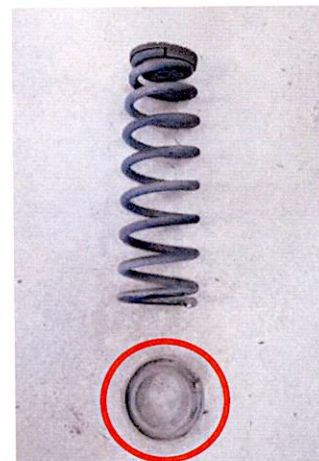
1. Unbolt the fasteners at the rear upper control arms (N).
2. Unbolt the assist arms at the knuckles (O).
3. Unbolt the sway bar (P) from the crossmember at the bushing brackets.
4. Unbolt the lower control arms at the knuckles (Q).



17. Remove the springs and set aside.

★ NOTE

Make sure to transfer the lower spring isolators over to the new control arms.



18. Install the removed knuckle assemblies onto the new crossmember using the provided fasteners:

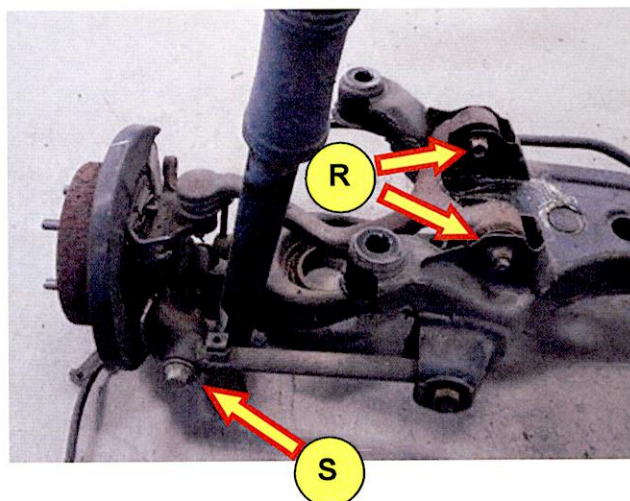
5. Fasten upper control arms to crossmember (R).
6. Fasten assist arms to knuckle (S).

*** NOTE**

Bolts for the assist arms are slightly shorter than the bolts for the lower control arms.

Tightening torque values:

- Upper control arms: 72.3~86.8 lb-ft (100~120 Nm, 10.0~12.0 kgf.m)
- Assist arms: 101.2~115.7 lb-ft (137.3~156.9 Nm, 14.0~16.0 kgf.m)

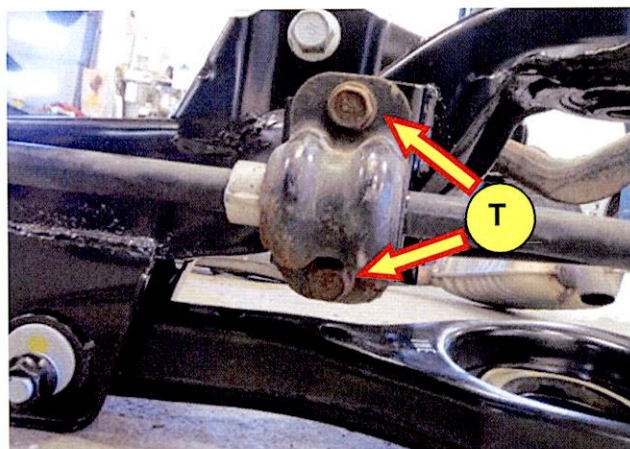


19. Install sway bar to crossmember at the bushing brackets (T).

*** NOTE**

Tightening torque values:

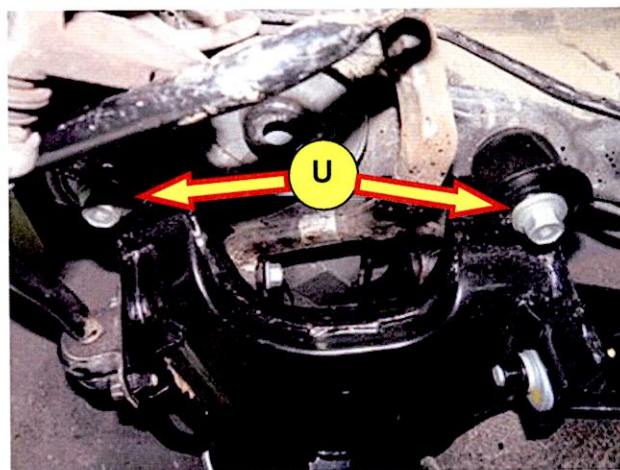
- Bushing bracket: 32.5~39.8 lb-ft (45~55 Nm, 4.5~5.5 kgf.m)



20. Install the rear chassis module using a hydraulic jack or similar tool by lifting it into place, and inserting and tightening the 4 rear crossmember mounting bolts (U).

*** NOTE**

Tightening torque: 101.2~115.7 lb-ft (137.3~156.9 Nm, 14.0~16.0 kgf.m)

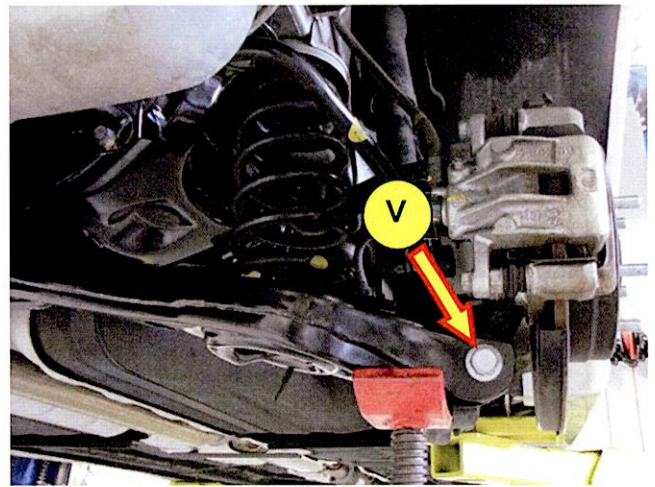


21. Place a spring into the spring seat on the lower control arm. Use a jack or similar tool on the lower control arm to compress the spring. Install the provided lower control arm bolt through the knuckle when lined up (V).

*** NOTES**

Bolts for the lower control arms are slightly longer than the bolts for the assist arms.

Tightening torque: 101.2~115.7 lb-ft
(137.3~156.9 Nm, 14.0~16.0 kgf.m)

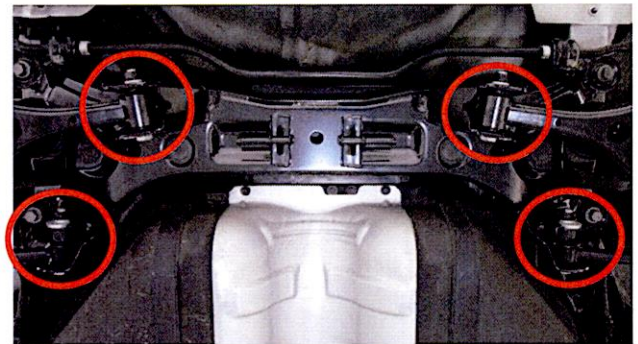


22. Torque the lower control arm, and assist arm fasteners at the crossmember to spec.

*** NOTE**

Tightening torque values for both:

79.5~86.8 lb-ft (110~120 Nm,
11.0~12.0 kgf.m)

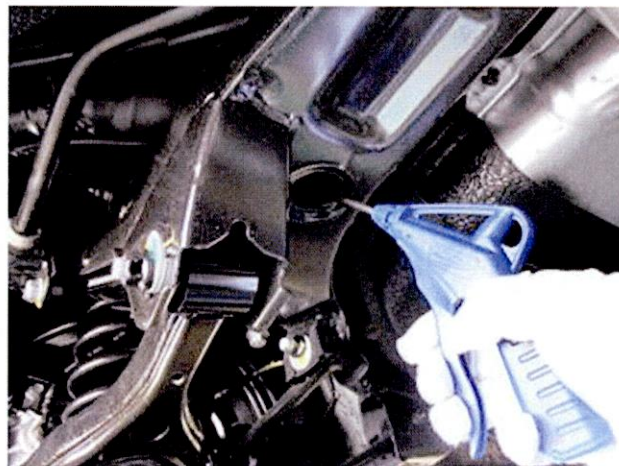


23. Reinstall the rest of the removed parts according to the shop manual.
- Use provided hardware and exhaust gaskets.
24. Perform the '**FRONT CROSSMEMBER WAX COATING APPLICATION**' procedure.
25. Perform a 4 wheel alignment on the vehicle, starting with the rear wheels, then moving to the front.



REAR CROSSMEMBER AND CONTROL ARM CAVITY WAX / UNDERCOATING APPLICATION:

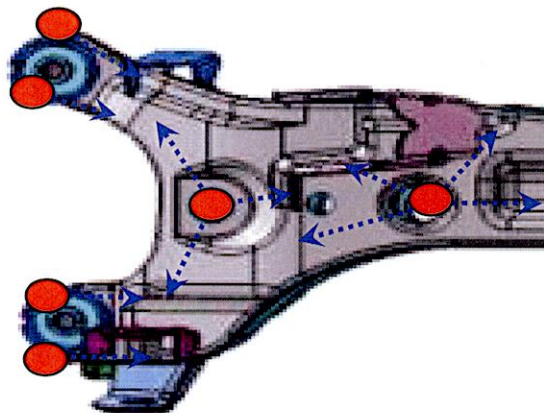
- 1a. With the vehicle lifted on a hoist and the rear wheel/tire assemblies removed, use an air nozzle to blow compressed air inside and outside the rear crossmember, as well as inside the rear lower control arms.

Locations and air blowing directions are shown in the following diagrams.





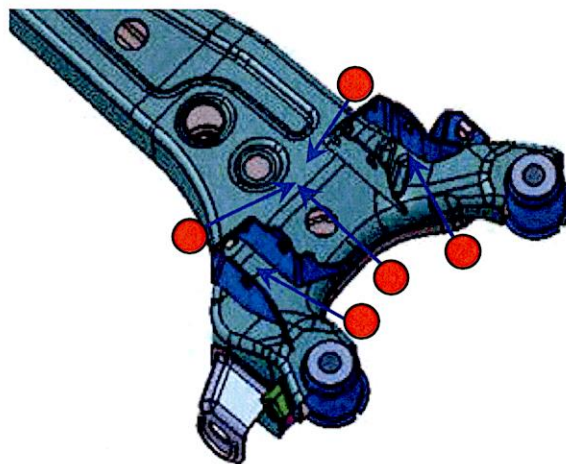
- 1b. Inside the rear crossmember:

-  Air gun position
-  Blowing direction



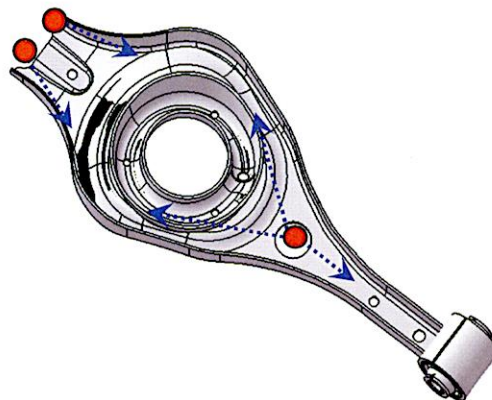
- 1c. Outside the rear crossmember (on the top side):

-  Air gun position
-  Blowing direction



1d. Inside the lower control arms:

- Air gun position
●...> Blowing direction



2. Protect the brake assemblies by wrapping a plastic bag around both rear brakes, as shown.



3a. Spray cavity wax inside and outside the rear crossmember, and inside the rear lower control arms.

Locations and wax spraying directions are shown in the following diagrams.

*** NOTE**

Spray the wax in each location (each red dot, below) for 15 seconds, ensuring good wax flow during that time by seeing a visible light mist.

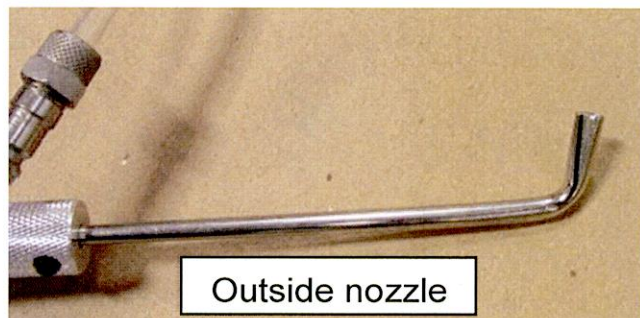
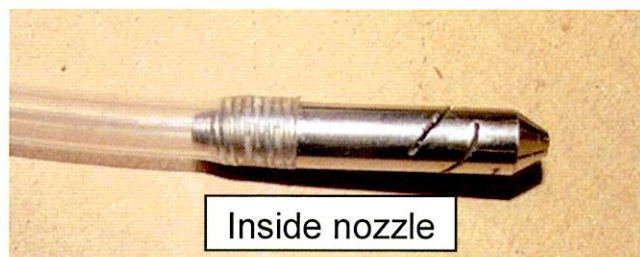
Some locations show multiple directions. For these locations, rotate the spray nozzle while spraying to ensure good coverage.



★ NOTE

Use the “inside” nozzle to spray all interior surfaces.

Use the “outside” nozzle to spray all the exterior surfaces.



**★ NOTE**

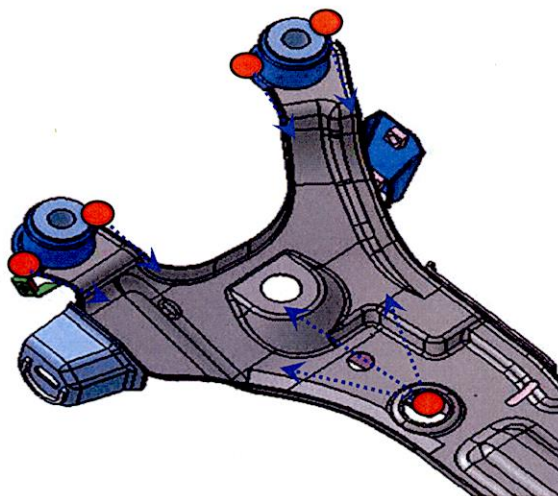
When spraying the wax, a light mist should be visible. If no mist is seen, point the nozzle in a safe direction, and press the gun's trigger until a mist is visible.

★ NOTE

Supply air pressure must be set to 70 PSI.

**3b. Inside the rear crossmember:**

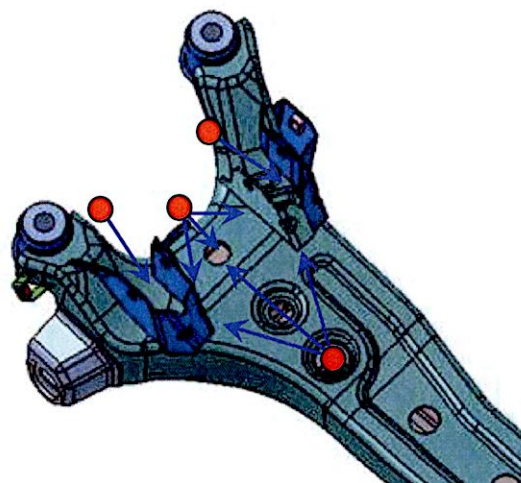
-  Spray gun position
-  Spray direction



- 3c. Outside the rear crossmember (on the top side):

● Spray gun position

➡ Spray direction



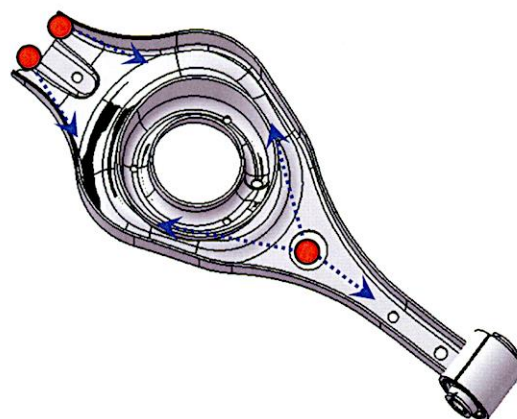
- 3d. After spraying the wax, the top side of the rear crossmember should look like the image to the right.



- 3e. Inside the lower control arms:

● Spray gun position

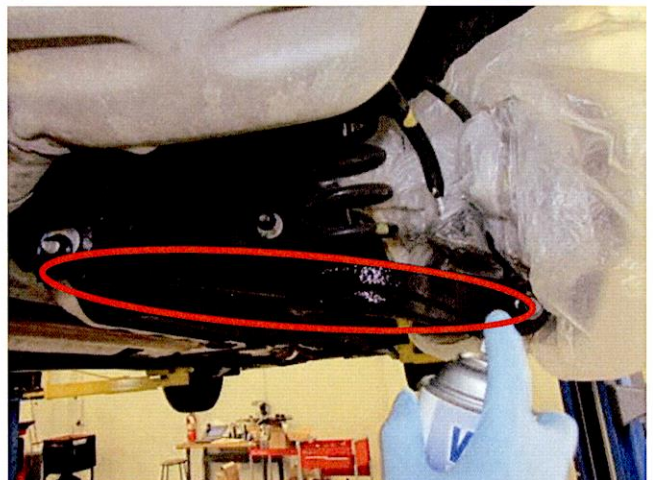
➡ Spray direction



4. After applying the wax, spray the black undercoating on the surfaces of the rear crossmember and lower control arms, as shown.
- For the crossmember, spray the area above the lower control arm mounting bolt.



- For the lower control arm, spray along the weld seam across the length of the arm.



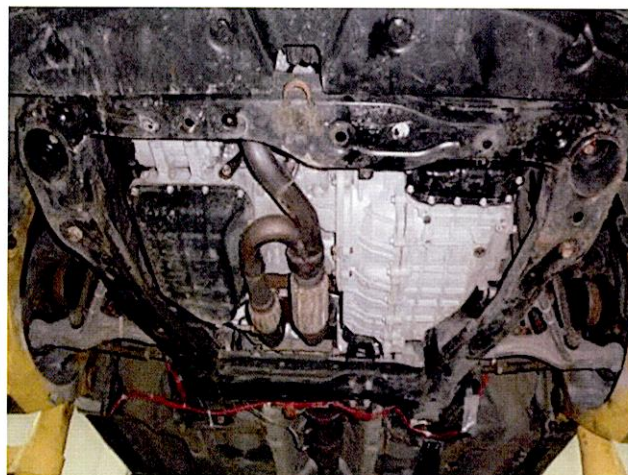
5. Remove the plastic bags from the brake assemblies and re-install the wheel and tire assemblies.
6. Perform the '**FRONT CROSSMEMBER WAX COATING APPLICATION**' procedure.

FRONT CROSSMEMBER WAX COATING APPLICATION:

1. With the vehicle lifted on a hoist, remove the front wheel and tire assemblies, along with the engine under cover.

★ NOTE

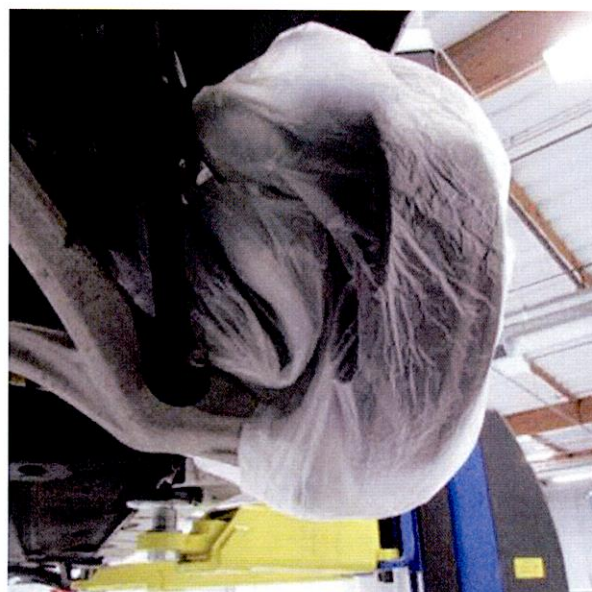
Tightening torque: 65.1~79.5 lb-ft
(88.3~107.9 Nm, 9.0~11.0 kgf.m)



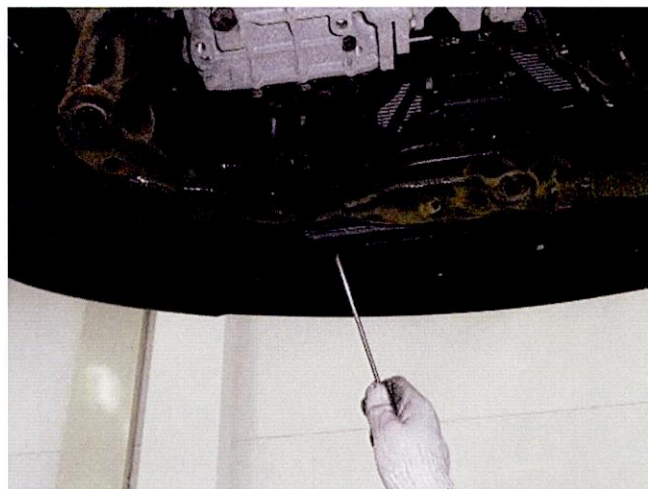
2. Use a wire brush to clean off any debris or other buildup on the front cross member.



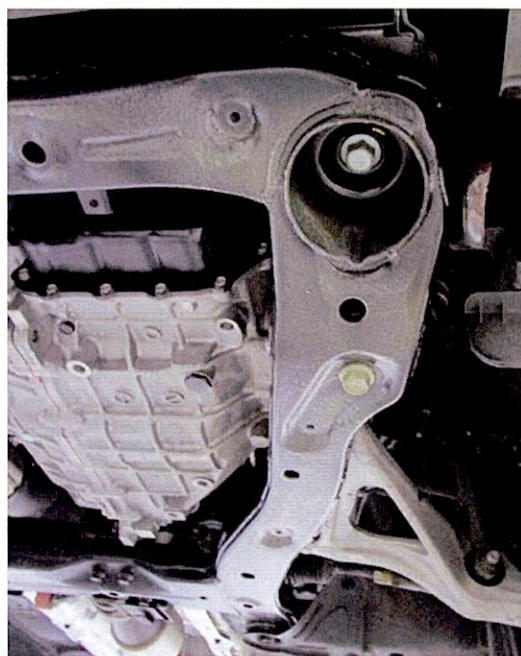
3. Protect the brake assemblies by wrapping a plastic bag around both front brakes, as shown.



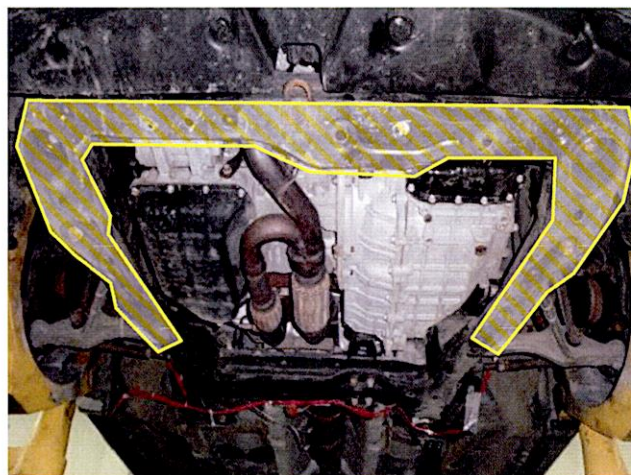
4. Spray cavity wax on the bottom surface of the front cross member using the wax spray gun. Make sure to cover the areas covered by the engine under cover, as shown.

*** NOTE**

Spray enough cavity wax to provide a light coating. Wax coat should be thick enough to be visible, but not dripping.

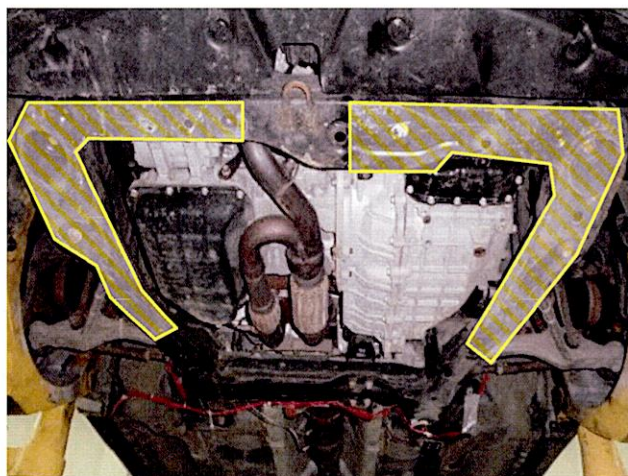


- 5a. For vehicles with a 1-piece under cover, spray the area highlighted on the image to the right.



SUBJECT:**REAR CROSSMEMBER CORROSION TREATMENT (RECALL 113)**

- 5b. For vehicles with a 2-piece under cover, spray the area highlighted on the image to the right.



6. Reinstall the engine under cover.