

**CERTAIN 2021-2022 MODEL YEAR F-150 VEHICLES EQUIPPED WITH A CREW CAB, 145" WHEELBASE, 4X4, 302A AND ABOVE OPTION PACKAGE, AND ONE-PIECE ALUMINUM DRIVESHAFT – LOOSE/SAGGING UNDERBODY INSULATORS**

**SERVICE PROCEDURE**

**HYBRID ENGINES**

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**Materials List**

Ruler/Scale/ Straight Edge	13 mm (1/2 in) Drill Stop	Small Brush
Drill	6.7 mm (17/64 in) Drill Bit	Marker
1/4" Rivet Gun	5.1 mm (13/64 in) Drill Bit – Rivet W719880-S417	Tape
Lint-Free Rags	Adhesive Remover	Plastic Scraper

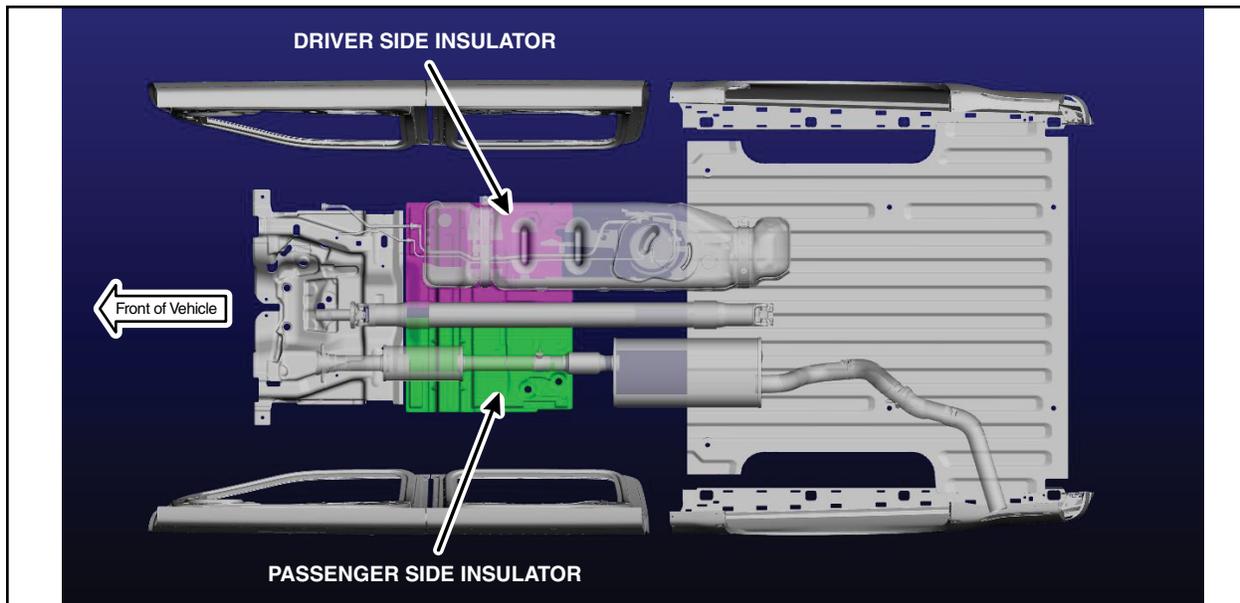
**NOTE:** A ¼” air over hydraulic rivet gun was used for the service trials for this program, however a pneumatic rivet gun or a manual rivet gun may also be used. However, it may not be possible to access and properly secure the rivets into the floor pan using a manual rivet gun. It is important to always confirm the rivet is properly secured to the floor pan of the vehicle.

**NOTE:** The driver side insulator is located directly above the fuel tank.

**NOTE:** The passenger side insulator is located directly above the exhaust.

**NOTE:** Insulators are highlighted for illustration purposes only.





**FIGURE 1**

Dearborn Truck Plant Build Date - Design change that removed underbody insulators from production

Driver Side Insulator      11/19/2021 and later

1. Where was the vehicle manufactured?

Kansas City – See Attachment VI for correct Technical Instructions to complete repair.  
Dearborn Truck – Proceed to step 2.

2. Is the production date of the vehicle 11/19/2021 and later?

Yes – If the driver-side insulator is not present, follow technical instructions and per dealer bulletin claim 21S56B.

– If both the passenger-side and driver-side insulators are not present, no repair is necessary, close recall and claim 21S56E with 0.3 hours.

No – Proceed to step 3.

**NOTE:** Underbody Insulators should not be installed on vehicles where they were removed from production as indicated above.



## Inspection

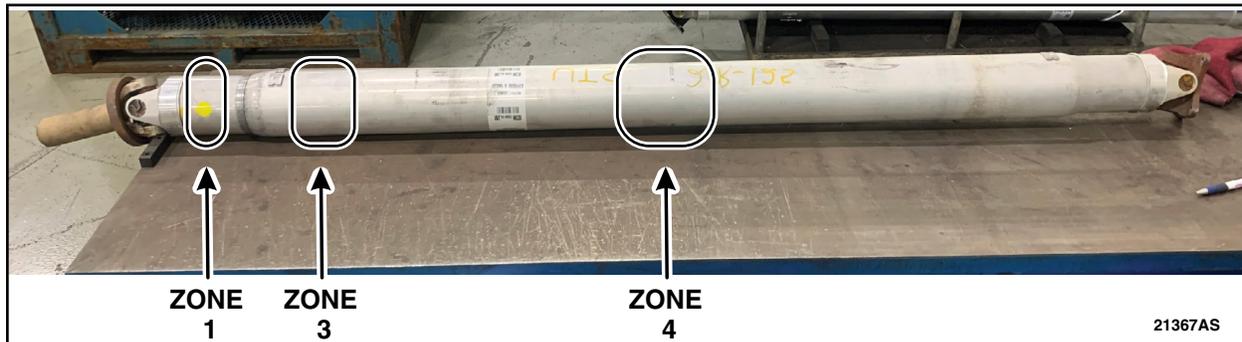
3. With the vehicle in NEUTRAL, position it on a hoist. Please follow Workshop Manual (WSM) procedures in Section 100-02.
4. Remove the driveshaft. Please follow WSM procedures in Section 205-01.

**NOTE:** Do NOT discard the driveshaft flange to pinion flange bolts.

### Zones 1, 3 and 4

5. Inspect Zones 1, 3 and 4 of the rear driveshaft for any marks caused by the front and/or rear edges of the passenger side insulator. Are there any marks present in Zones 1, 3 or 4? See Figure 2.

Yes – Proceed to step 6.  
No – Proceed to step 8.



**FIGURE 2**

6. What is the current odometer reading?

> 2,500 miles – Proceed to step 7.  
< 2,500 miles – Proceed to step 8.

7. Place a straight edge along the driveshaft over the wear mark and attempt to fit a 0.018in (0.45mm) feeler gauge between the flat edge and the wear mark. Can the feeler gauge fit between the straight edge and anywhere along the wear mark? See Figures 3 and 4.

Yes – Does not pass inspection. Contact the SSSC and provide a picture of the driveshaft with the feeler gauge fitting between the straight edge and wear mark. Once approved, rear driveshaft replacement will be required, but do not install at this time. Proceed to step 10.

No – Passes inspection. Proceed to step 8.



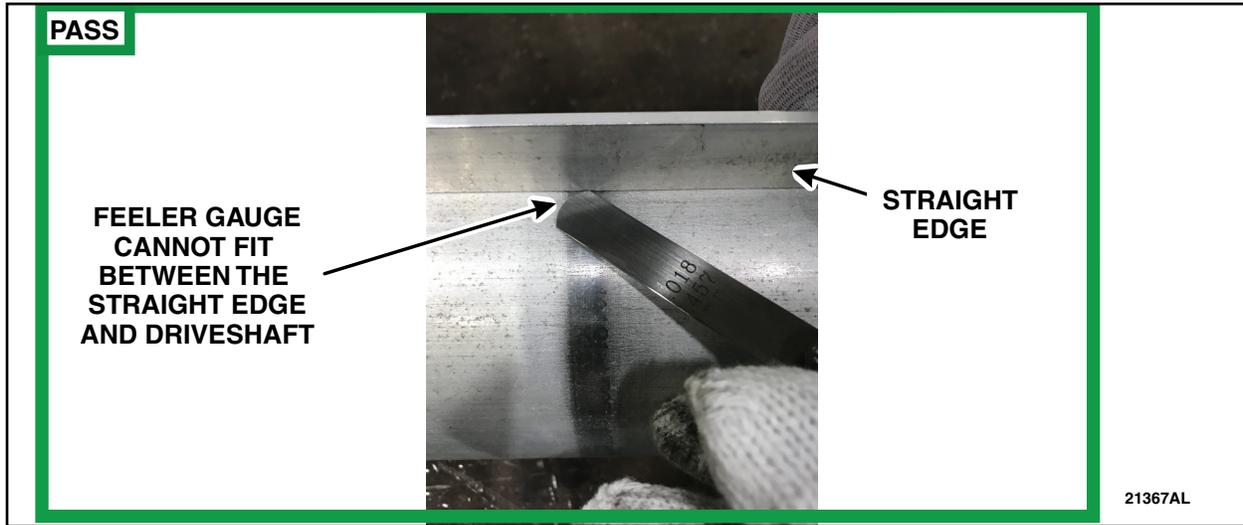


FIGURE 3

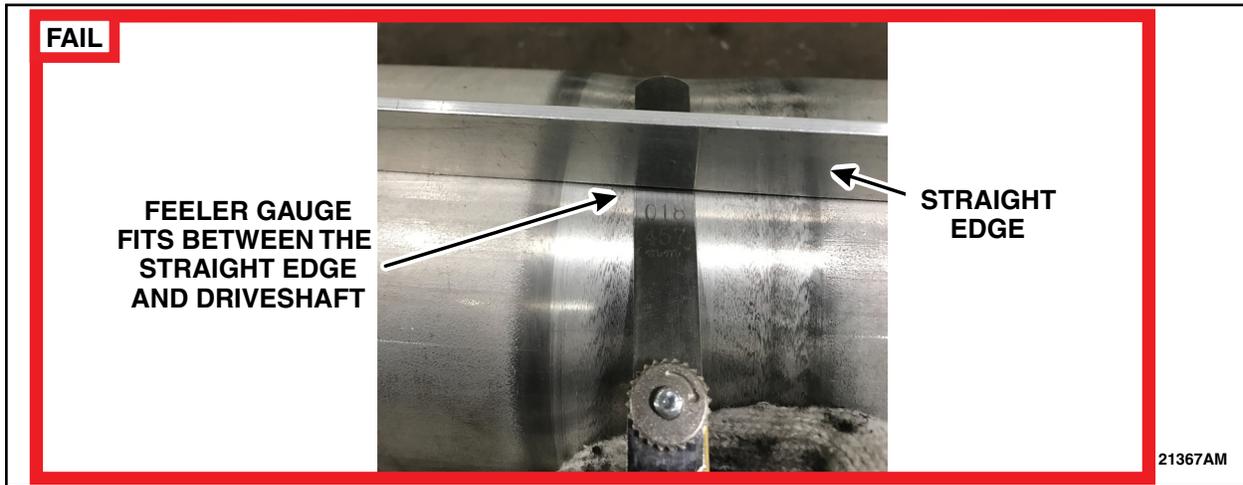


FIGURE 4



## Zone 2

8. Inspect Zone 2 (transition from larger tube diameter to smaller diameter section) of the driveshaft tube for any marks caused by the front edge of the passenger side insulator. Are there any marks present? See Figure 5.

Yes – Does not pass inspection. Proceed to step 9.

No – Passes inspection. Driveshaft may be reused. Proceed to step 10.



FIGURE 5

9. Inspect the marks found on Zone 2. Is the aluminum tube surface grain pattern worn off, completely smooth, or have an appearance of necking? See Figures 6 through 9.

Yes – Does not pass inspection. Contact the SSSC and provide a picture of the driveshaft with the grain pattern worn off. Be sure to show a clear image of the grain pattern missing. Once approved, rear driveshaft replacement will be required, but do not install at this time. Proceed to step 10.

No – Passes inspection. Driveshaft may be reused. Proceed to step 10.

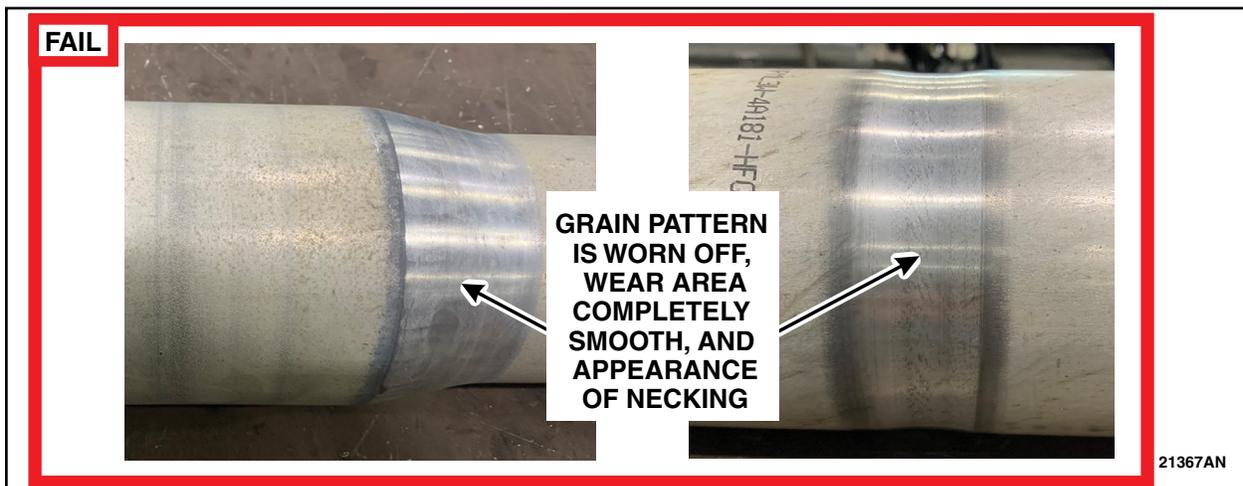


FIGURE 6



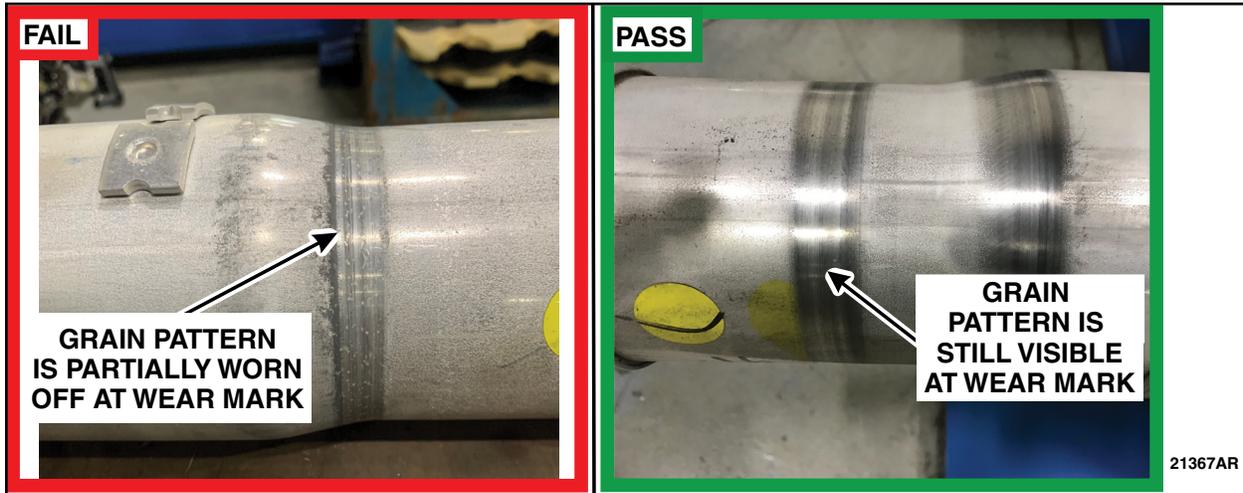


FIGURE 7

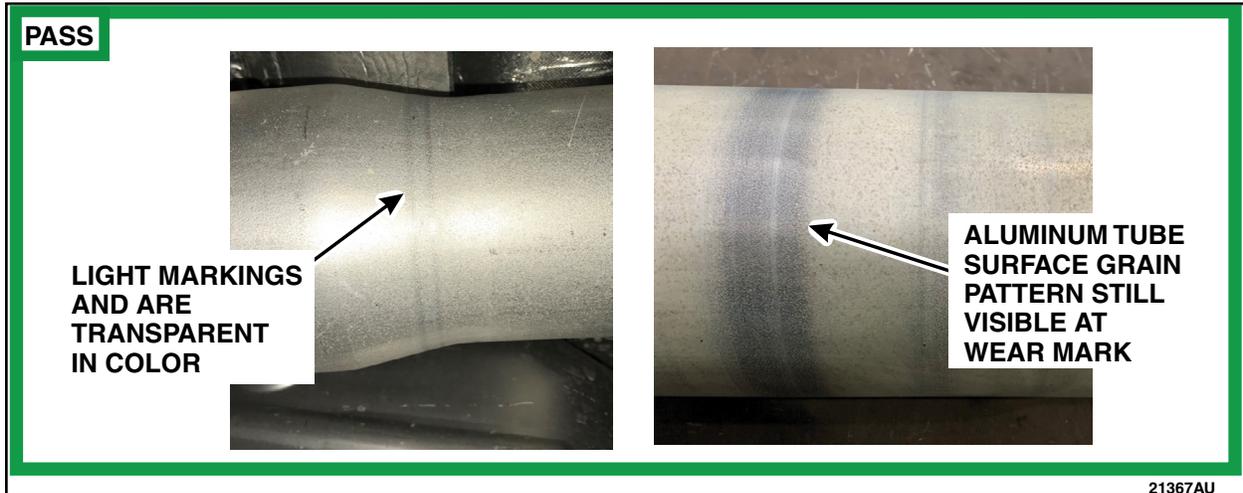


FIGURE 8



FIGURE 9



10. Inspect the front Engine Coolant Temperature (ECT) sensor connectors for any damage caused by the passenger side insulator. Is there any damage? See Figure 10.

Yes – Does not pass inspection. Contact the SSSC and provide a picture of the damage for proper technical instructions and part numbers, then proceed to step 11.

No – Proceed to step 11.

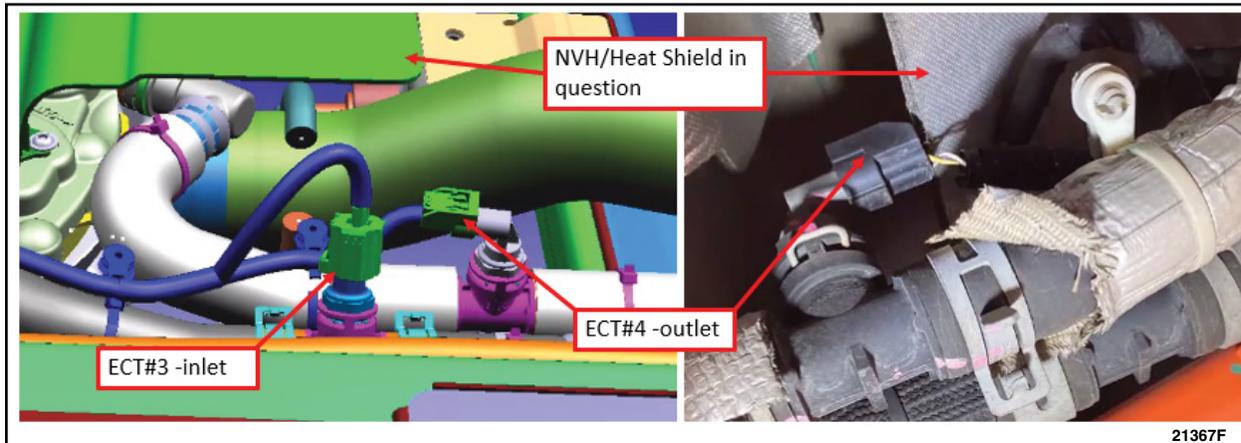


FIGURE 10



## Underneath Vehicle

### Remove Passenger Side Insulator

11. Carefully remove and discard the passenger side insulator from the underside of the pickup bed. See Figure 11.

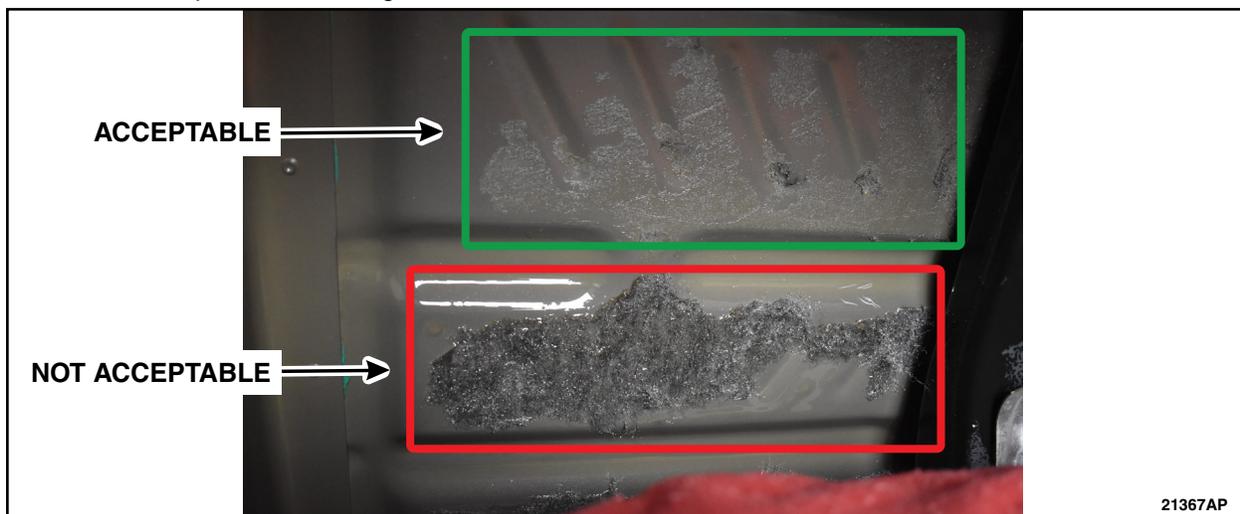
**NOTE:** Do NOT use metal scrapers, wire brushes, power sanding or grinding discs, or any abrasive means to clean surfaces. These tools cause scratches and gouges which make leak paths.



**FIGURE 11**

### Clean Sheet Metal Surface

12. Using both hands and/or a plastic scraper, remove as much of the remaining substrate material as possible. See Figure 12.



**FIGURE 12**

13. Using Mineral Spirits/Goo-Gone/3M Adhesive Remover/Brake Cleaner and lint-free rags or equivalent, clean the sheet metal surface.



### Secure Driver Side Insulator

14. Measure and mark the one location on the driver side insulator. See Figures 13 and 14.

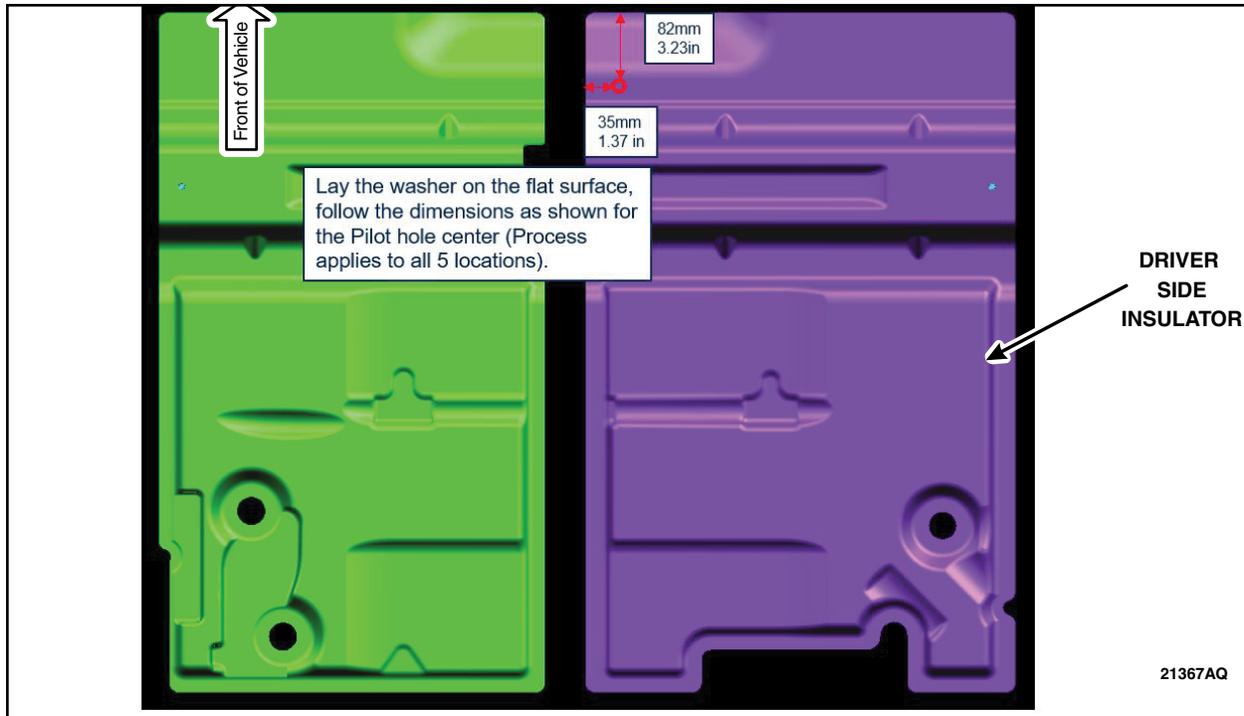


FIGURE 13

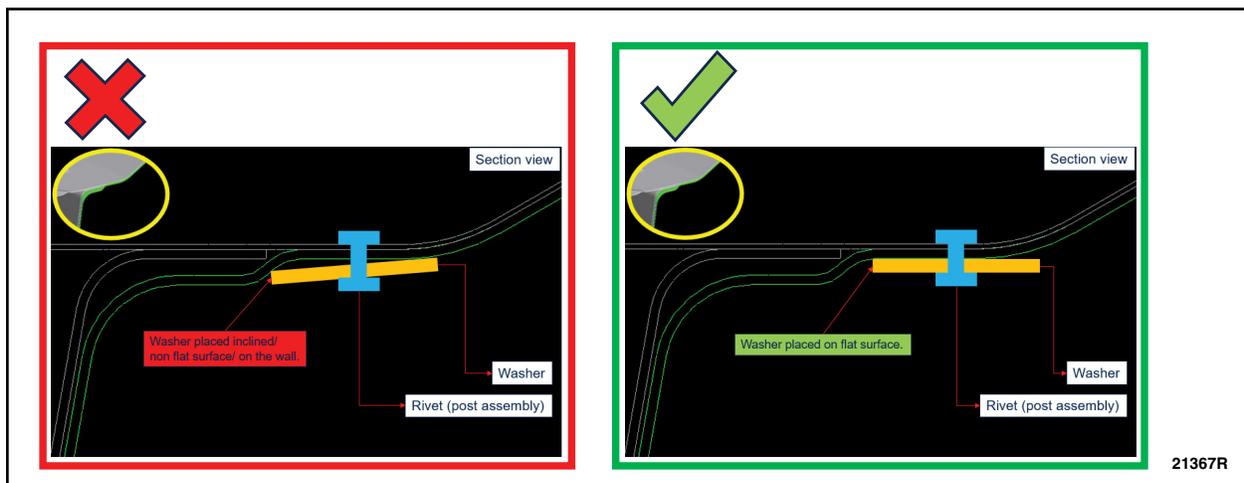


FIGURE 14



15. Use the 5.1 mm (13/64 in) drill bit for rivet part number W719880-S417 or the 6.7mm (17/64 in) drill bit for all other rivet part numbers to drill a hole through the insulator and into the floor. See Figure 15.

**NOTE:** Use the 13mm (1/2 in) drill stop to ensure you do not drill through the carpet.



**FIGURE 15**

16. Using a small brush, apply a layer of the anti-corrosion coating to the edges of the newly drilled hole.
17. Install the washer onto the rivet. See Figure 16.

**NOTE:** All approved listed rivet part numbers may not look identical to the photos in the technical instructions.



**FIGURE 16**



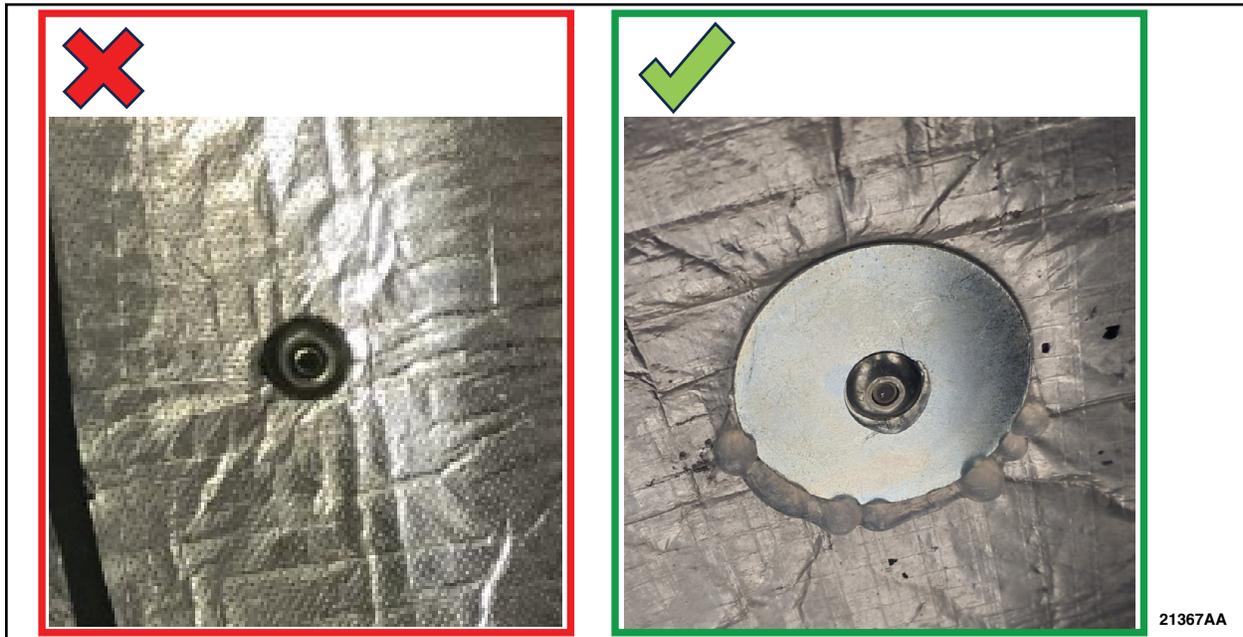
18. Apply a thick layer of seam sealer to the rivet, and the backside of the washer. See Figure 17.



**FIGURE 17**

19. Using a 1/4" rivet gun, install the rivet and washer to the drilled hole. See Figure 18.

**NOTE:** To ensure the rivet is properly secured, apply as much force to the rivet gun as possible.



**FIGURE 18**

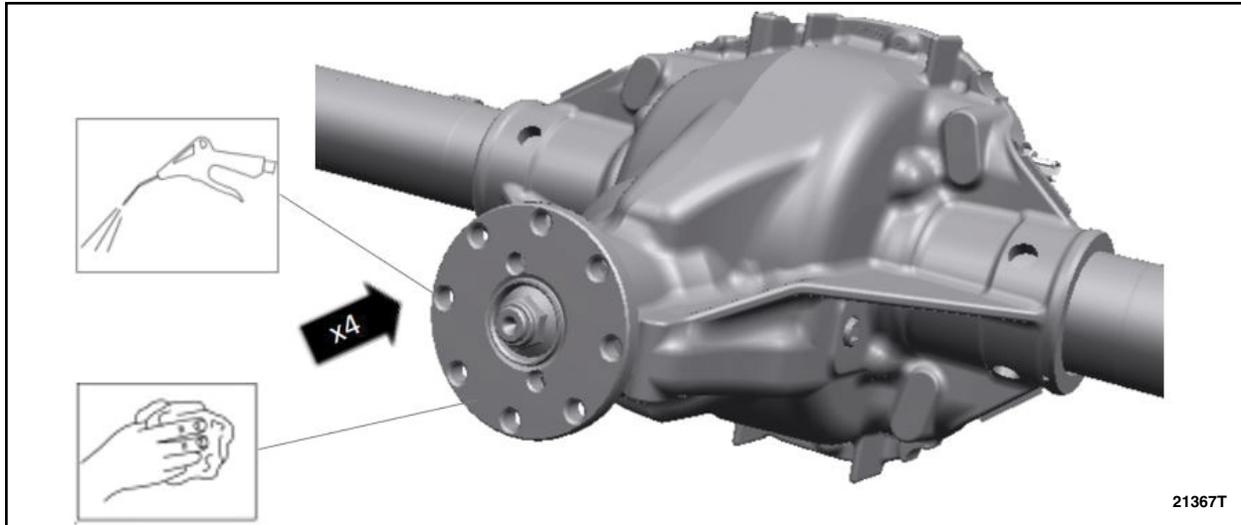
20. Attempt to move the washer/rivet to confirm it is properly secured.

21. Using a small brush, apply a layer of the anti-corrosion coating to the washer and rivet.



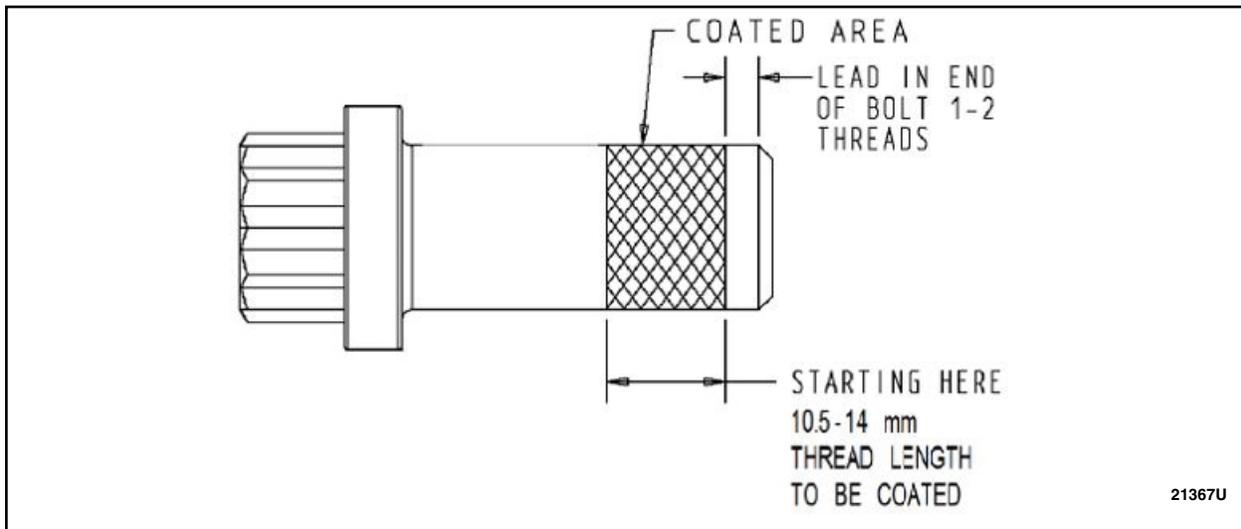
22. Using an air blow gun, remove any debris from threaded holes in axle flange. See Figure 19.

**NOTE:** Make sure that the mating faces are clean and free of foreign material.



**FIGURE 19**

23. Inspect the original driveshaft flange to pinion flange bolts for rust in the threads and replace if rusted or damaged. Clean threads of the original driveshaft flange to pinion flange bolts with a wire brush and coat the threads with LOCTITE 243 Blue Medium Strength Threadlocker or equivalent. See Figure 20.



**FIGURE 20**

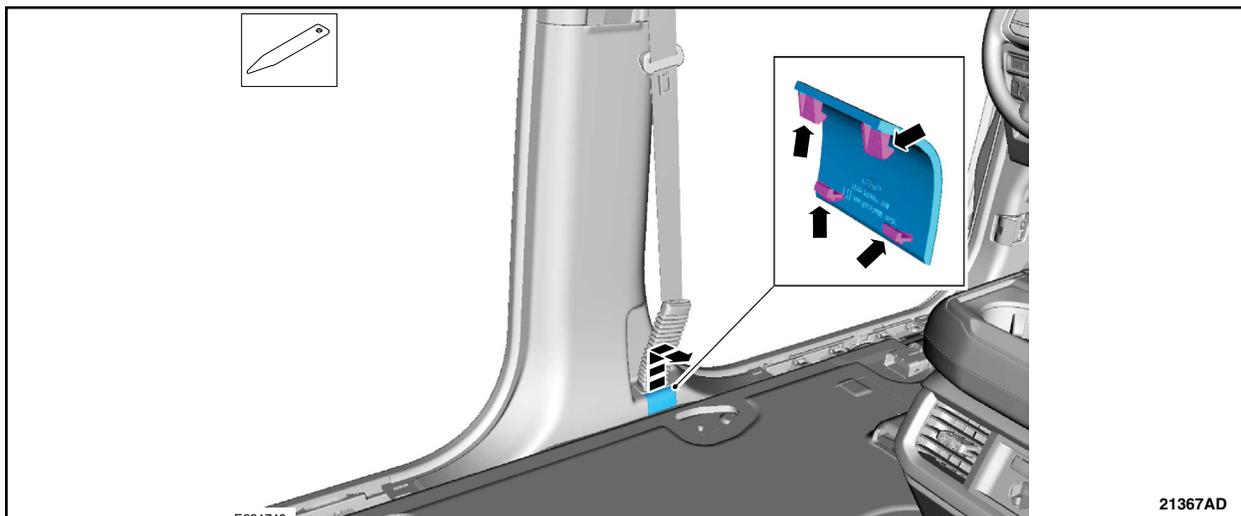
24. Install the driveshaft. Please follow WSM procedures in Section 205-01.



## Inside Vehicle

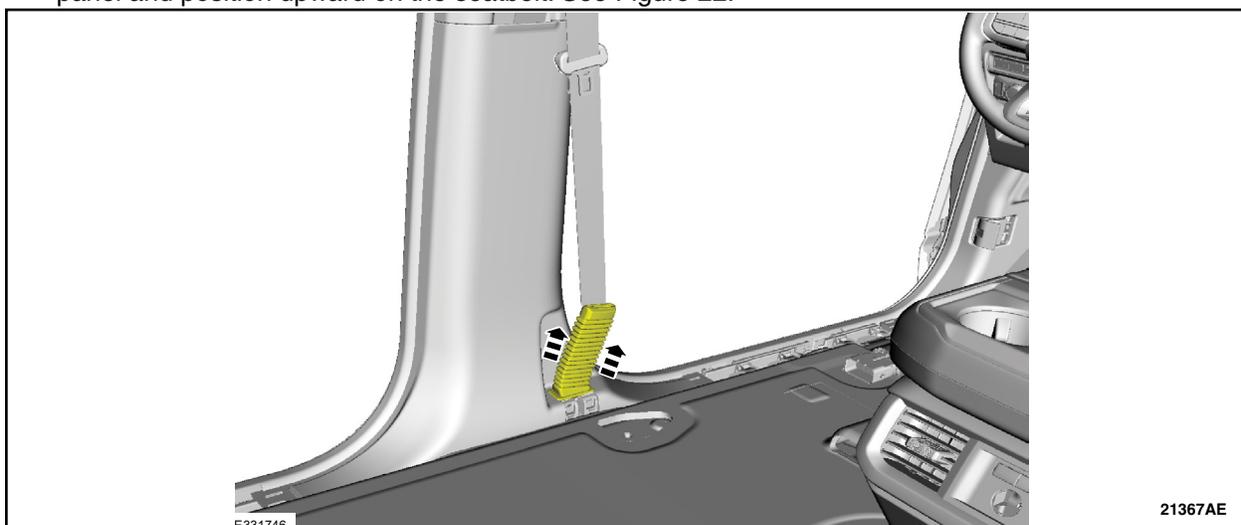
### Installing LyTherm Patch

25. Position the front RH seat in the full forward position.
26. Remove the RH front scuff plate trim panel. Please follow WSM procedures in Section 501-05.
27. Remove the RH rear scuff plate trim panel. Please follow WSM procedures in Section 501-05.
28. Release the tabs and remove the RH front seatbelt retractor and pretensioner opening trim cover. See Figure 21.



**FIGURE 21**

29. Release the RH front seatbelt retractor and pretensioner boot from the lower B-pillar trim panel and position upward on the seatbelt. See Figure 22.



**FIGURE 22**



30. Release the RH lower B-pillar trim panel clips and position the lower B-pillar trim panel aside.  
See Figure 23.

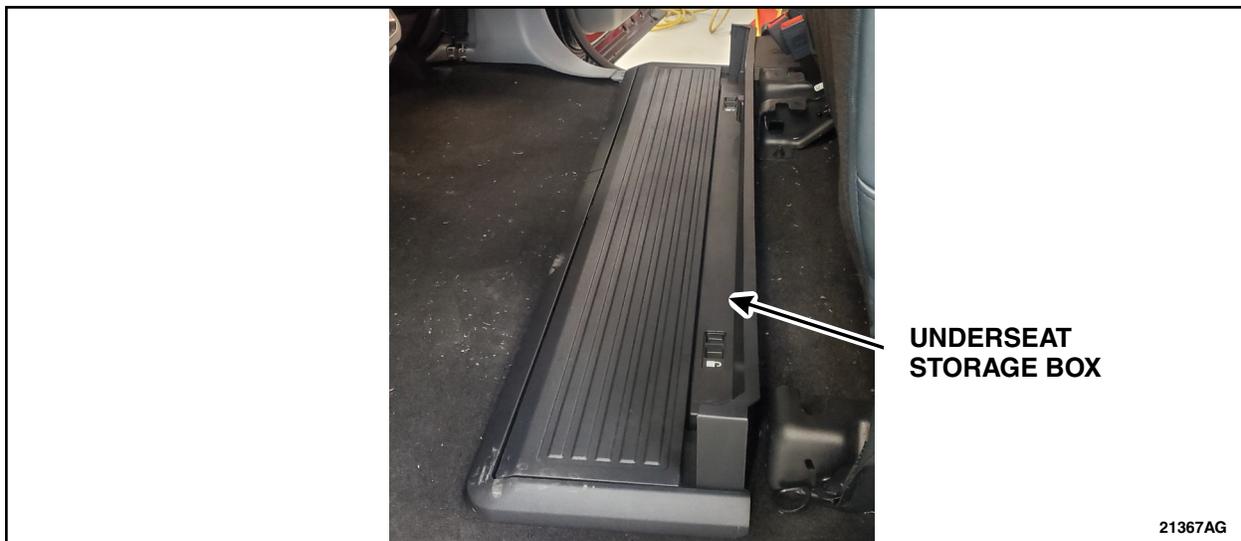


**FIGURE 23**

31. Is the vehicle equipped with a rear underseat storage box? See Figure 24.

Yes – For additional allowed labor time to remove, contact the SSSC and provide a picture of the rear underseat storage box. Once approved, proceed to step 32.

No – Proceed to step 33.



**FIGURE 24**

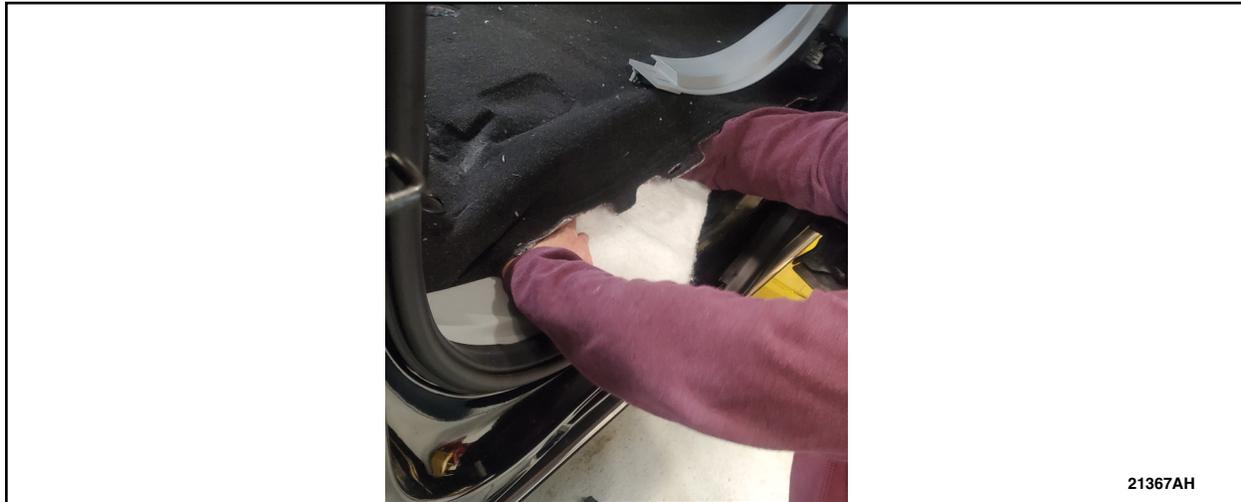


32. Remove the rear underseat storage box.

- a. Remove all four nut covers.
- b. Remove all four nuts.
- c. Remove the rear underseat storage box.

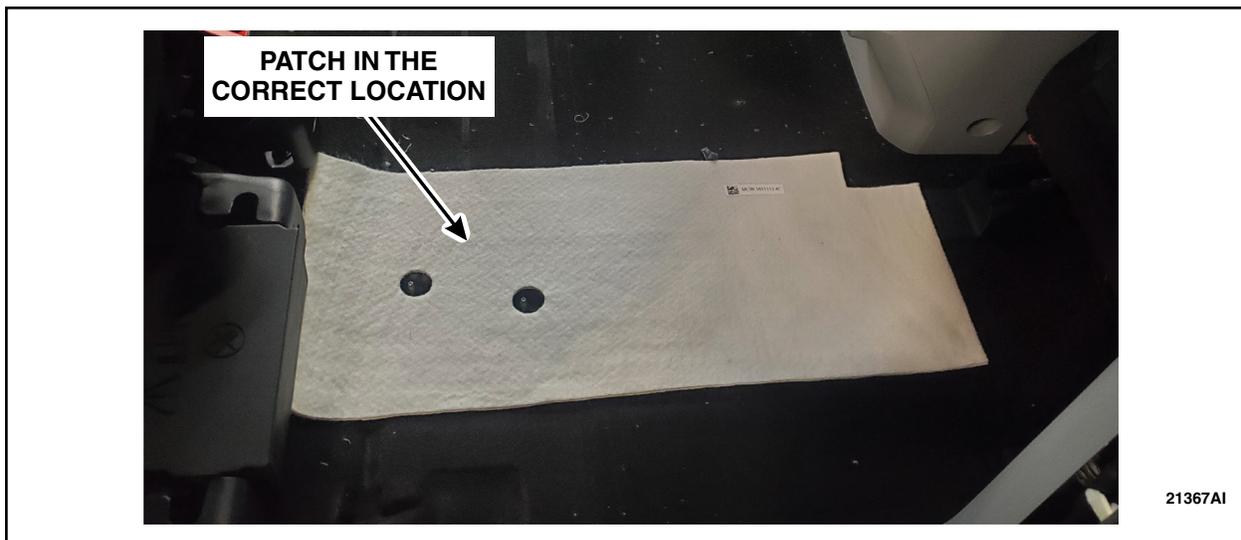
33. Lift up the carpet and slide the LyTherm patch between the floor and the carpet into the proper location. See Figures 25 and 26.

**NOTE:** Make sure there are no bumps or folds in the patch after installing.



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**FIGURE 25**

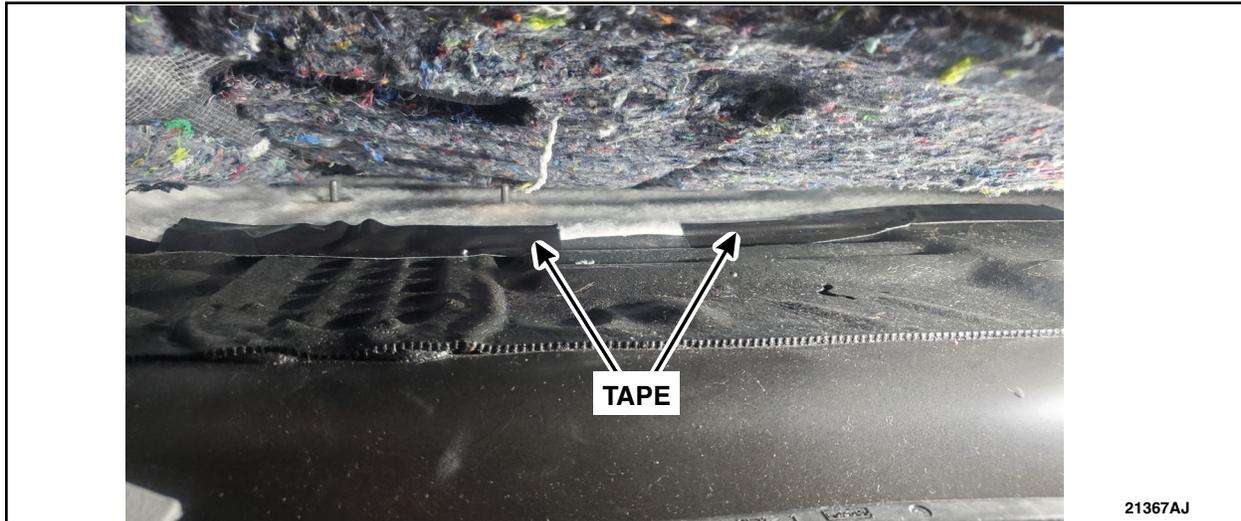


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**FIGURE 26**



34. Cut two 8 inch long pieces of tape and install them to the edge of the patch. See Figure 27.



**FIGURE 27**

35. Install the rear underseat storage box if it was removed.

- a. Install the rear underseat storage box.
- b. Install all four nuts.
  - Torque: 14.75 lb. ft (20Nm)
- c. Install all four nut covers.

36. Re-install all previously removed components by reversing steps 25 through 30.



Appendix A – Acceptable Photos

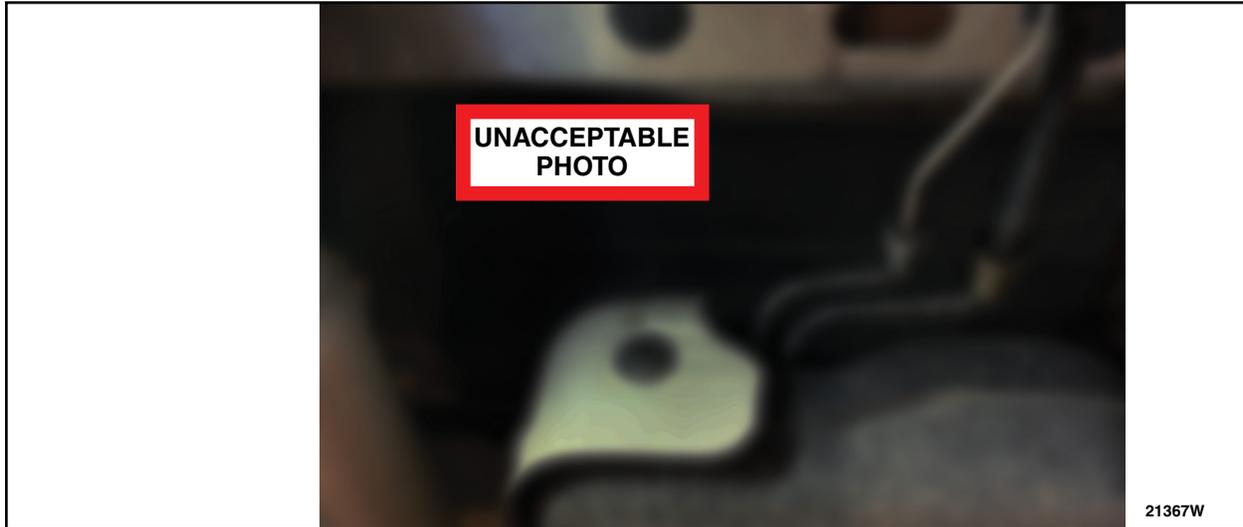


FIGURE 28



FIGURE 29



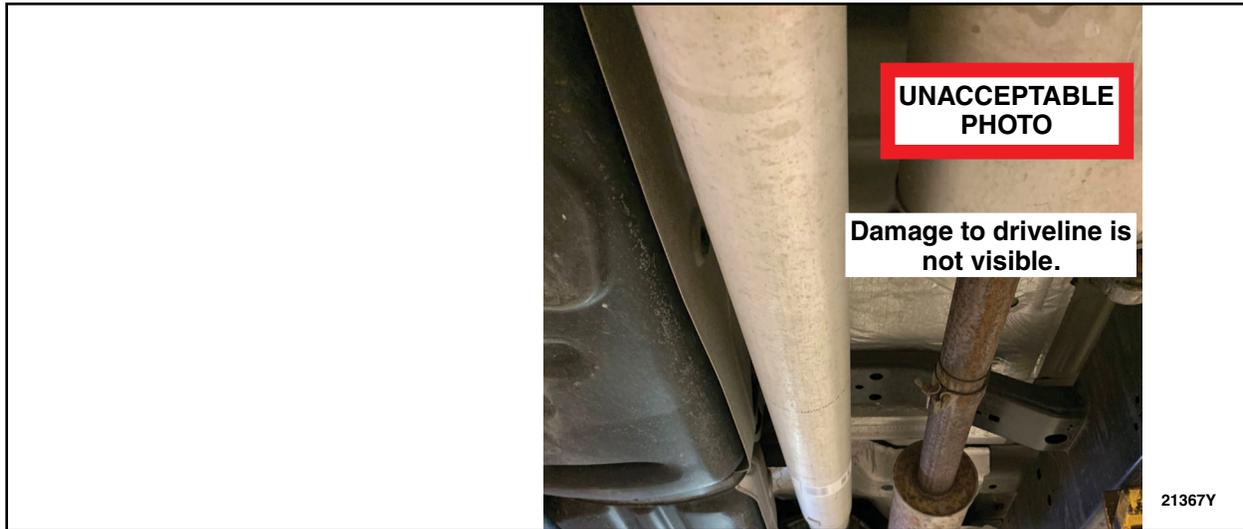


FIGURE 30



FIGURE 31

