



CNG Field Service Bulletin
Remove and Replace 267 Side Mount CNG System
Brackets & Isolators

ENP-651
June 14, 2018

1. Introduction

Type 3 and Type 4 CNG fuel cylinders used in natural gas fuel systems expand and contract in normal operation. Mounting systems must compensate for these changes in order to keep the cylinders attached to the fuel system frame and the vehicle chassis.

In side-mounted systems, rubber isolators are used to allow movement as well as dampen vibration in normal vehicular use. The isolators are a wear item and needs to be replaced periodically as a service item.

An improved J-bracket has been developed and should improve isolator wear.

If D-plate door tethers are missing, they should be replaced or installed.

A Work Order form is to be used to track work completed on each vehicle. It is attached to the end of this bulletin.

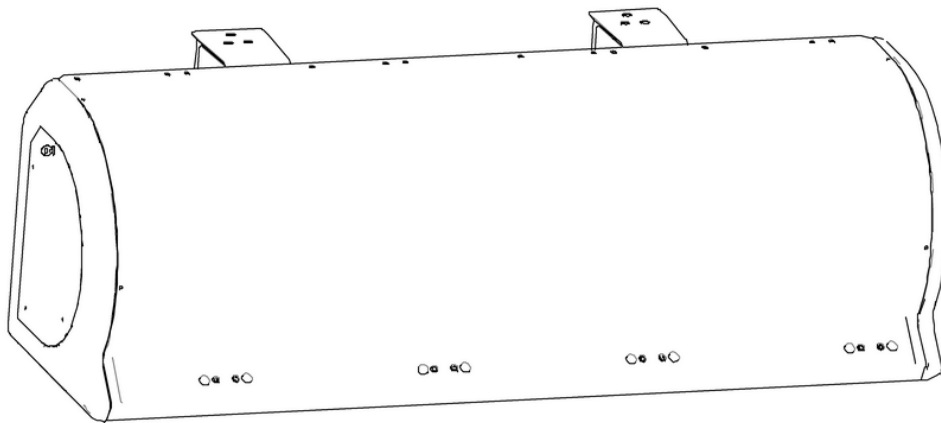


Figure 1. Example of a 267 series side mounted CNG fuel system. 40 DGE right side system 26789620 shown.

Warning Messages Used in this Bulletin

WARNING

Personal injury or death may occur if procedures are not followed.

CAUTION

Damage to equipment, fuel system or vehicle is possible if instructions are not followed.

2. Affected Units

Agility Fuel Solutions 267- series side mount systems (with aluminum covers and plastic end caps) at Waste Management, approximately 733 systems.

3. Corrective Action

Remove and replace system brackets and rubber isolators as mentioned above. This is not a product safety recall.

However, a visual inspection of isolators should be performed every year. Isolators should not have excessive movement and should be centered on the bracket.

4. Tools and Materials

- Personal protective equipment (PPE), including eye and hearing protection as well as hard hat.
- Wedges to help hold the cylinder in place while removing the system from the chassis and performing work.
- Ratchet straps to secure the system on the cradle/work stand.
- Side mount system cradle/work stand and jack stands, see text.
- Jack or lift to raise and pull the system away from the vehicle chassis.
- Forklift or hoist to lift the system to working height.
- Common hand and power tools for CNG fuel system maintenance and service.
- Clean and save fasteners since they will be re-used.
- If needed (or missing) add the D-plate door (cover) tether, part number 23722305, refer to Table 2 for complete list of items needed for the tether.

The items below are for **one** side mount system.

Table 1. Bill of materials list for replacing the rubber isolators on the J-brackets.

30-45 DGE Systems	60 DGE Systems	Unit of Measure	Agility Part Number	Description
Qty.	Qty.			
2	3	Each	20101031	Kit, side mount bracket with rubber isolator applied
2	3	Each	10712368	Cotter pin for bushing
2	3	Each	10712226	Nylon lock nut, 5/8-11, Grade 8, for rear Belleville washer stack

Table 2. Tether hardware

Qty.	Part Number	Description
2	23722305	Tether
8	10700323	Washer, 1/4-20, UNC, plain, SS
4	10712329	Cap screw, button head, 1/4-20 x 7/8-in., 18-8 SS
4	10700193	Nylon Lock Nut, 1/4-20, 18-8 SS, Plain



- A. Use proper lifting techniques to prevent injuries.
- B. Secure the system and cylinders as recommended to ensure they do not fall or move during the process.
- C. Defueling the system is recommended. However, if you wish to save gas and time, this procedure can be performed by qualified personnel without defueling the system and observing CNG service and repair procedures mentioned in Field Service Bulletin ENP-391, "Safely Working on CNG Fuel Systems."

5. Procedure: Depressurizing the System

5.1 Depressurize

1. Make sure all cylinder valves are fully closed.
2. Turn the red-handle main shutoff valve to the ON/OPEN position.
3. Close the FMM door (if equipped), and start and run the engine until it stalls.
4. Check the low pressure gauge to make sure it reads zero psi.
5. Turn the ignition off, and remove the key. Follow any other vehicle lock-out procedures.
6. Access the bleed valve (usually inside the FMM housing) and open it slowly using an open end wrench to relieve remaining pressure in the system.
7. Close the bleed valve.

6. Isolator and Bracket Inspection

Isolator service lifetime varies widely and is independent of vehicle mileage, so isolator wear is best observed visually.

Isolators that are in place and do not allow contact between the cylinder and the metal bracket are acceptable. Some isolator movement is considered normal.

Excessive push-out or compression, contact between the cylinder and the metal bracket, and cracks are indications that an isolator must be replaced.

- Cracks and tears 1/2-inch or smaller are acceptable.
- Cracks and tears over 1/2-inch should be removed and replaced.
- Isolators that are displaced (moved) away from their mating surfaces by more than 1-inch must be replaced.
- Isolators may be displaced up to 1/4-inch during normal assembly procedures.
- Isolators with excessive compression must be replaced: minimum remaining thickness should be 1/16-inch or greater.

Figures 2 and 3 show various views of brackets and isolators when they are new for reference. Figure 4 is a close up of the isolator material.



Figure 2. New J-brackets and isolators for side mount systems.

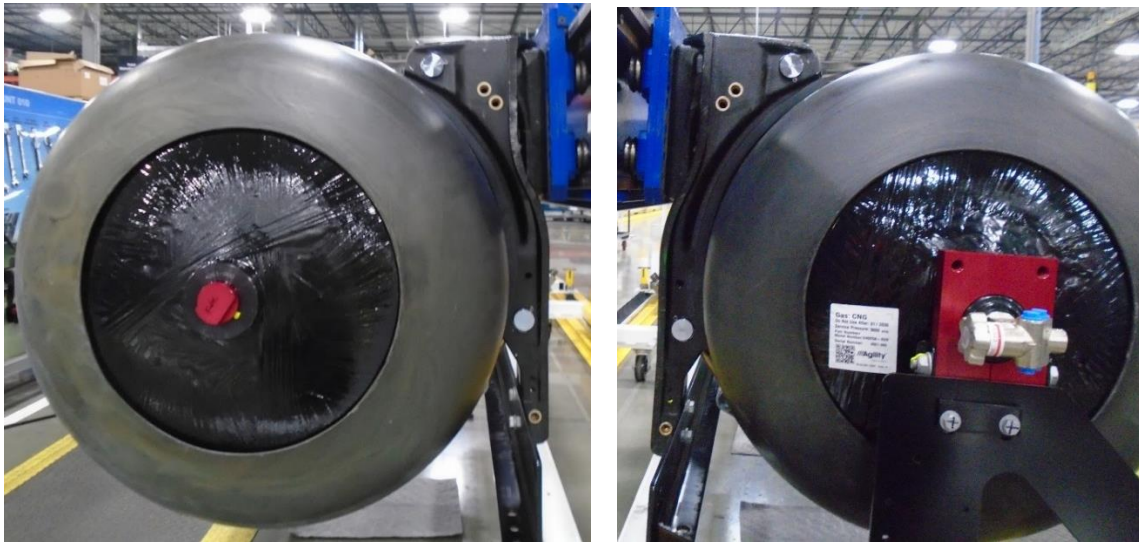


Figure 3. Side views of the J-bracket and cylinder.

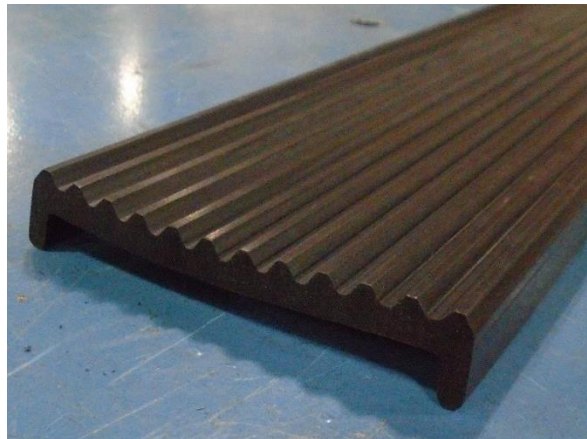


Figure 4. A close-up view of the rubber isolator material.

7. Remove System from the Vehicle Chassis

1. Retract tarp arms (if equipped) to help prevent injuries.
2. Refer to Figure 5. Disconnect coolant and CNG plumbing lines from the system bulkhead.
 - a. Don't forget to pinch off the coolant lines.
 - b. Plug or tape the hose, tube and fitting ends to prevent debris entry.
3. Disconnect wire harness from the FMM, if equipped.

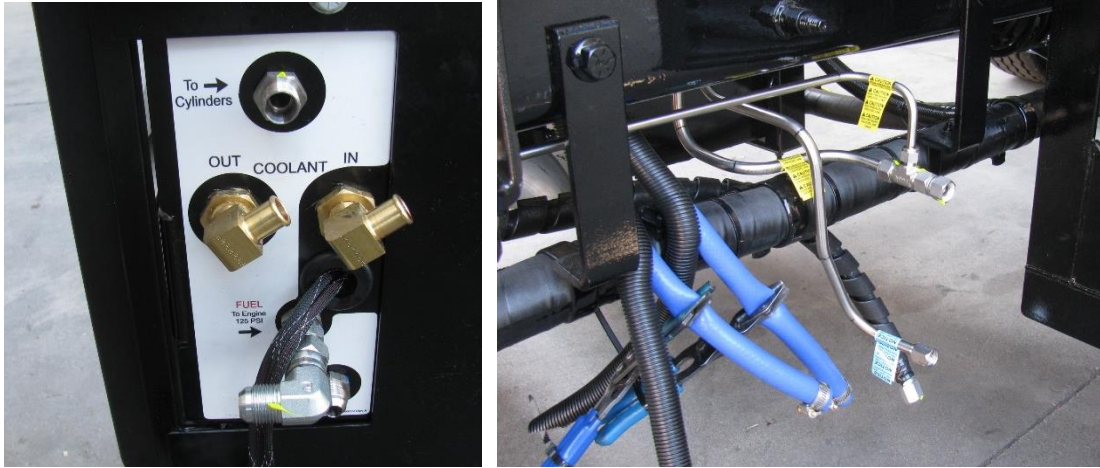


Figure 5. Disconnect all plumbing and electrical lines from the system bulkhead. Don't forget to plug or tape the fittings, hose and tube ends to prevent debris entry.

4. Remove bolts securing the system Drop-N-Go™ brackets to the vehicle chassis as shown in Figures 6 and 7.

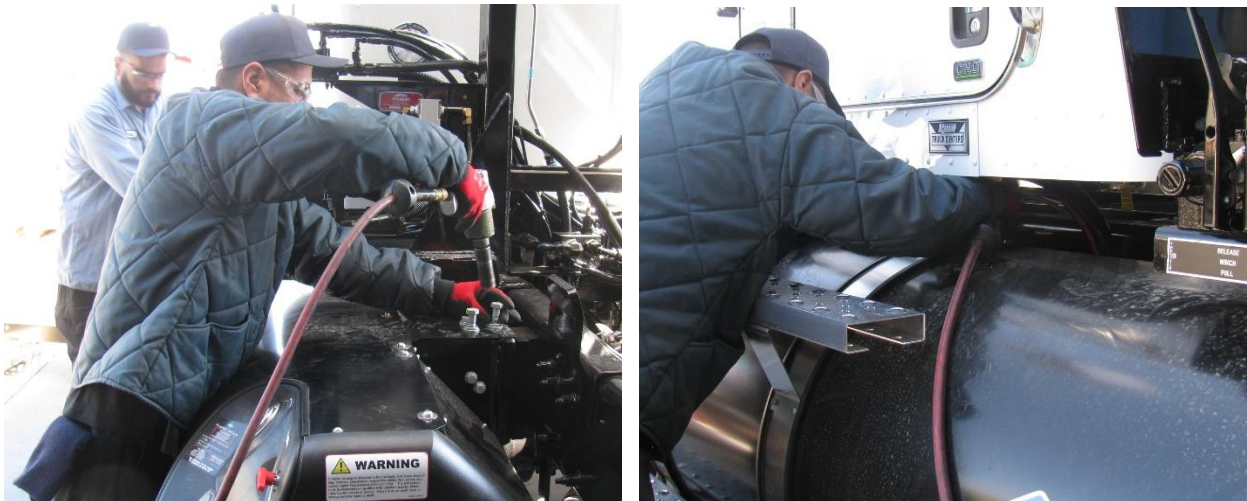


Figure 6. Remove J-bracket Drop-N-Go bolts securing the system to the chassis.

5. Using a suitably-rated forklift, lift and pull the system from the chassis. A “system cradle” is used to safely lift and hold the system at an ergonomic height for work, Figure 7.



Figure 7. A cradle and lift are used to safely support the system so it can be moved away from the chassis. Jack stands are placed under the cradle to hold the system at a comfortable working height.

8. Remove Covers and Secure the System to the Work Cradle

1. Remove the steps, and the one-piece front cover as shown in Figures 8 and 9.
 - a. **Hint:** Remove the steps and step mounts as one assembly by removing the Allen bolts at the bottom and top.



Figure 8. Time-saving tip: Remove the steps as one assembly.

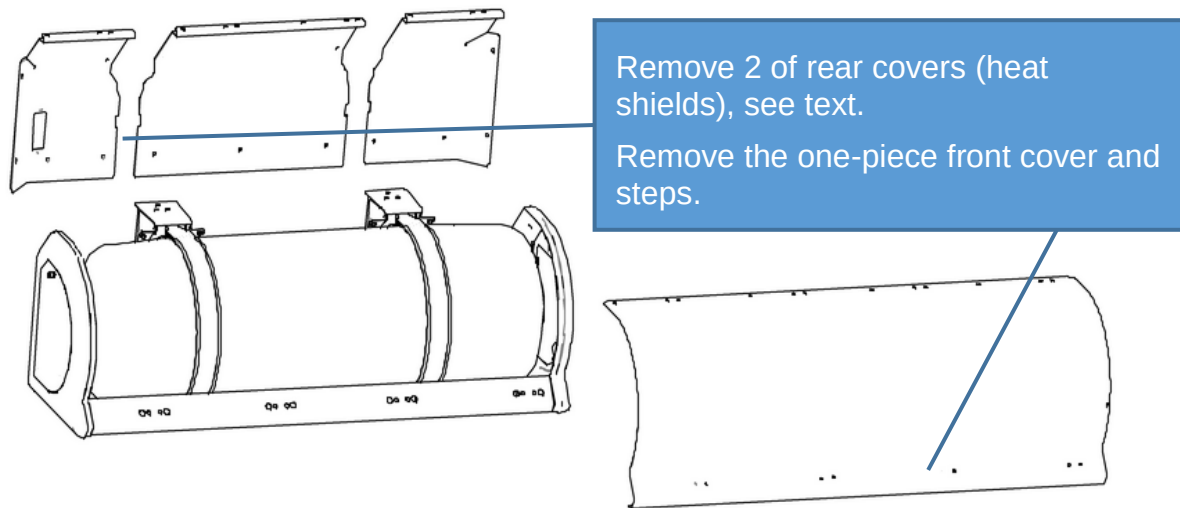


Figure 9. Remove the one-piece front cover and steps.

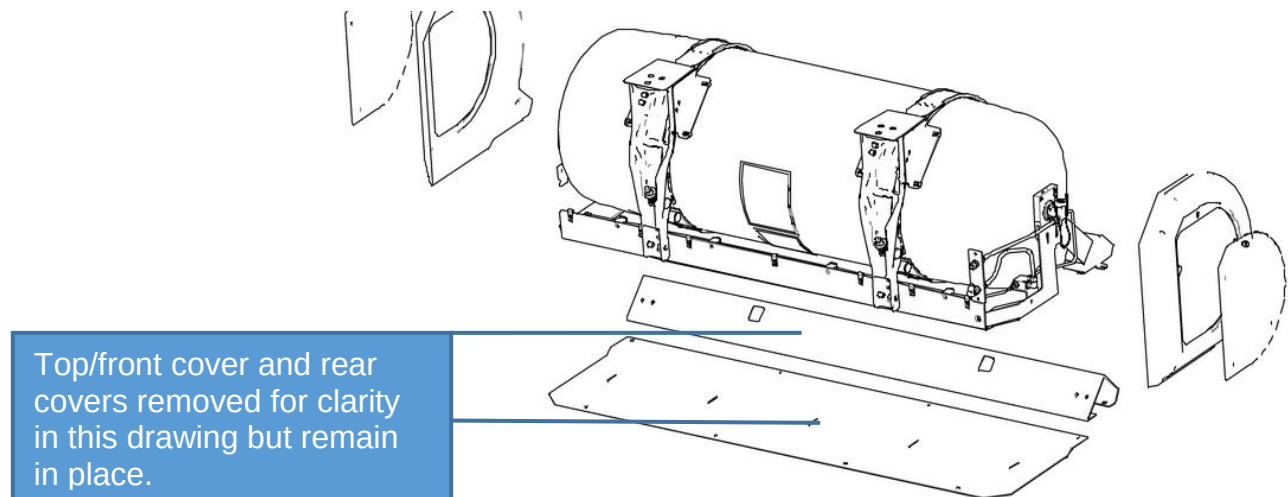


Figure 10. The rear covers and the D-shaped door plates are removed to access the bracket area. The bumper bar and the cylinder remain in place.

2. Refer to Figures 9 and 10. Remove the rear heat shields/covers.
 - a. The valve side rear cover can remain in place.
 - b. The bottom cover and triangular bumper guard remains in place.
3. See Figure 11. Secure the system to the cradle with a ratchet strap. One strap, centered on the cylinder, should suffice. To protect the cylinder, an old isolator or scrap of rubber should be placed under the strap before tightening.



Figure 11. Secure the system on the cradle with a ratcheting strap and insert wedges along the front to hold the cylinder in place.

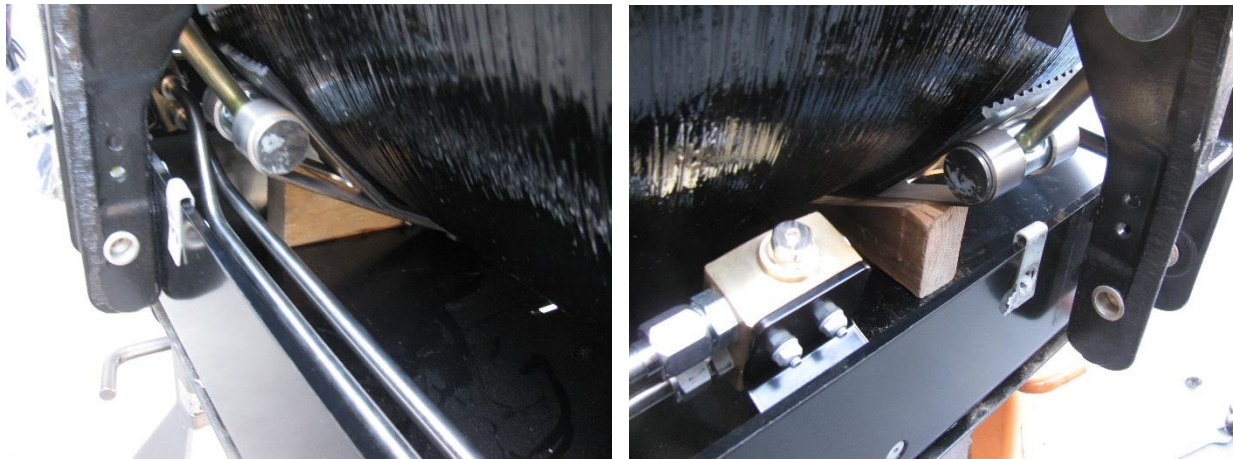


Figure 12. Insert wedges under the cylinder straps as shown to prevent movement as the J-brackets are removed.

4. Insert wedges under the straps to hold them in place as the J-brackets are removed as shown in Figure 11 and 12.
5. To ensure proper cylinder-strap-bracket spacing and locations, measure and witness-mark the cylinder, straps and bracket locations.
 - a. Measure the center-to-center J-bracket locations as shown in Figure 13.



Figure 13. Measure and note the center-to-center distance between the two J-brackets. Add witness marks to indicate cylinder and strap locations to simplify proper re-assembly.

9. Remove and Replace J-brackets and Isolators

1. Refer to Figures 14 and 15. Remove six J-bracket bolts and the Belleville washer stack and bolt on each bracket.

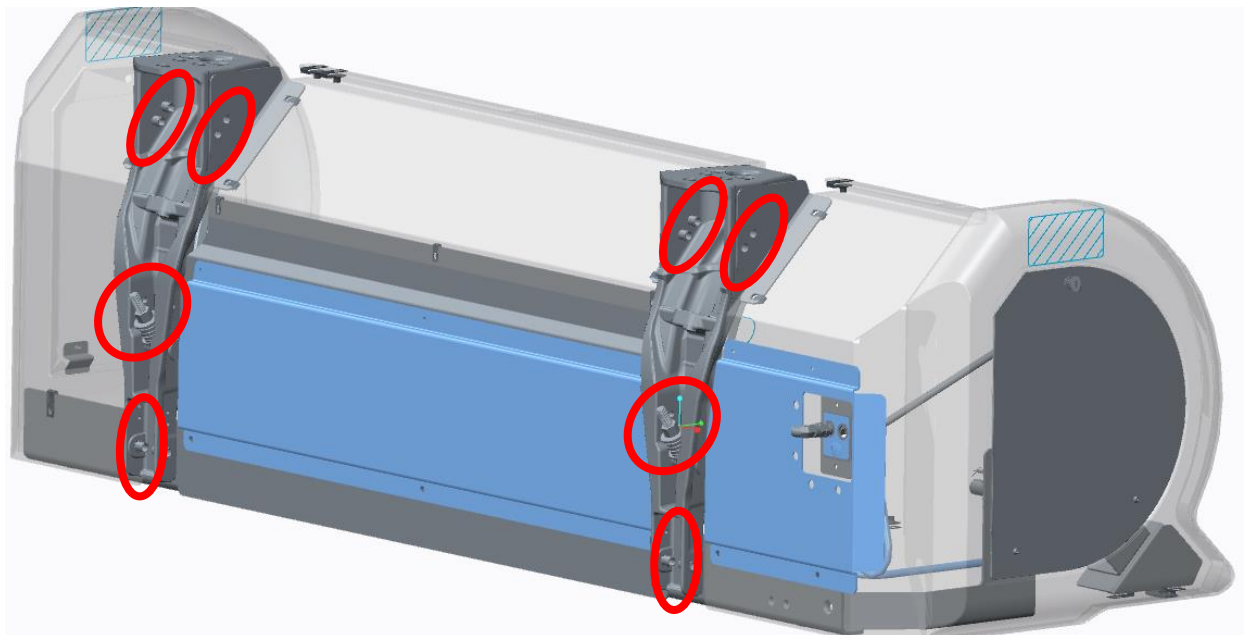


Figure 14. Remove the upper and lower J-bracket bolts. Six bolts total each side, plus the Belleville washer stack and bolt.

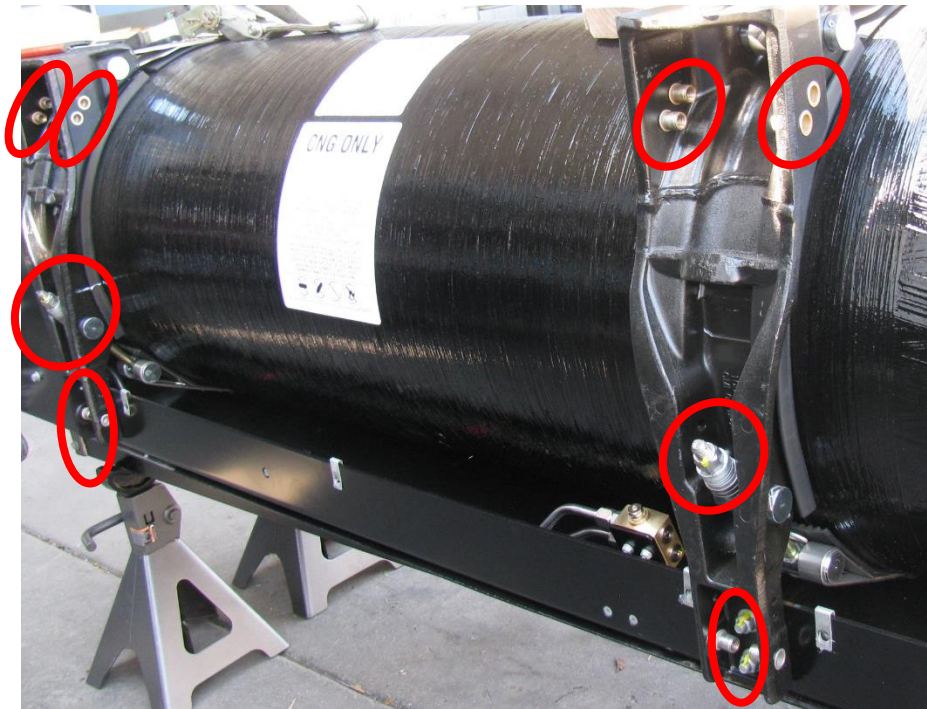


Figure 15. Remove the four upper bolts, the two lower J-bracket bolts and the Belleville washer stack and its bolt.

2. Remove lock nut and the rear Belleville washer stack.
 - a. The Belleville washers must be kept in the proper order (Figure 16).
 - b. **Hint:** Bundle and tape the washer stack to make sure they are re-installed in the proper order and orientation.

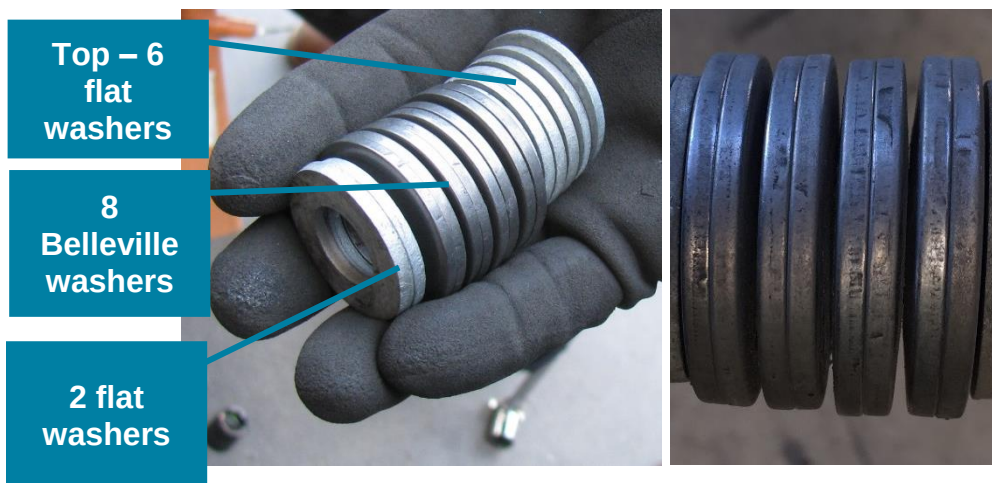


Figure 16. The eight Belleville washers must be stacked by alternating the convex and concave surfaces as shown. Observe the flat washer placement at the bottom and top of the stack.

3. Remove the cotter pin from the upper J-bracket bushing and remove the bushing.
4. The lower bushing (used with the Belleville washer stack) can remain in place.
5. Remove the J-bracket.



Figure 17. The old J-bracket is removed.

6. Mark the old brackets as indicated in the Work Order form.
7. The new bracket includes a pre-installed rubber isolator. Reverse the process to install the new bracket.
8. Torque specifications, see Figure 18:
 - a. Belleville washer stack: 50 to 60 Ft/Lbs when cylinder pressure is empty or between 500 to 1500 psi.
 - b. 60 Ft/Lbs when cylinder pressure is above 1500 psi.
 - c. Top bracket mounts: 135 Ft/Lbs.

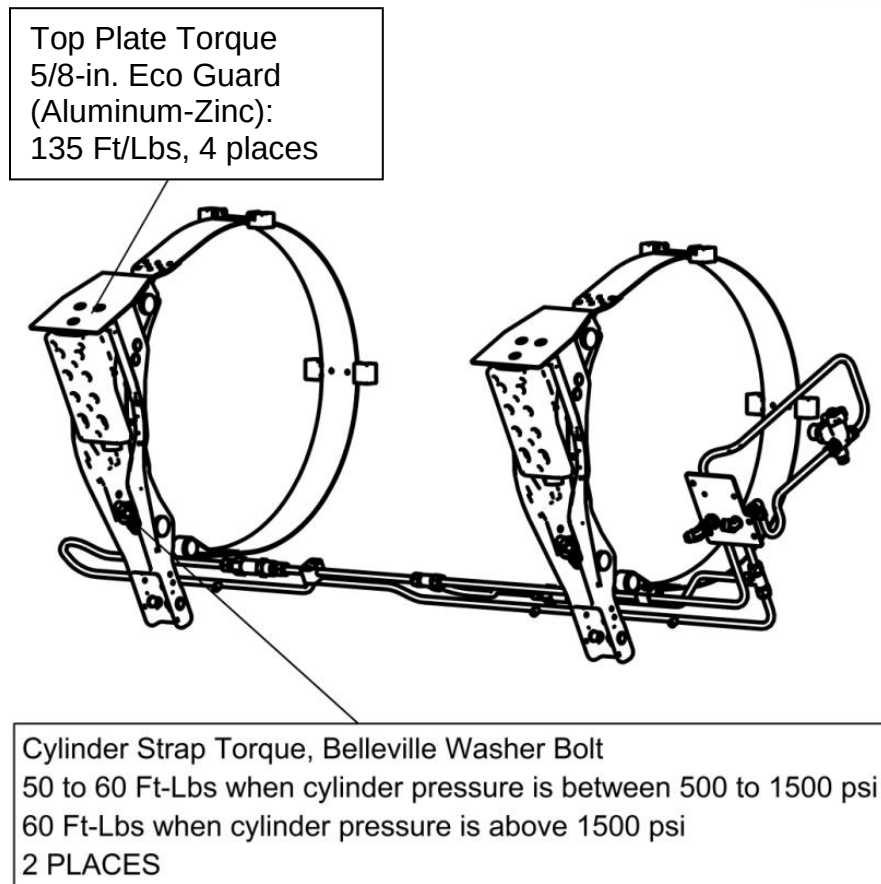


Figure 18. Torque specifications for top plate bolts and Belleville washer stack.

9. Remove the wedges and the safety strap.
10. Re-install the covers and steps.
11. Mount the system back onto the chassis.
12. Re-install plumbing and wire harnesses.

10. Re-Pressurize and Test/Repair Leaks

1. Make sure the bleed valve in the FMM is closed.
2. Open all cylinder valves.
3. Refuel the system, observing the precautions and conditions above.
4. Turn the quarter-turn (main shut-off) valve to the OPEN position, and turn the vehicle ignition key ON. This will allow fuel to flow throughout the system.
5. Pressurize the system and perform a leak test on all components serviced.
6. Fix any leaks.

7. Update service records for the vehicle.
8. The vehicle can be returned to service.

11. Warranty Information

1. This procedure is covered under the standard warranty.
2. Standard repair time (SRT) is 8 hours per cylinder (one side).

If you have any questions, contact Agility Fuel Solutions Customer Care: +1 949 267 7745, toll free: +1 855 500 2445 or support@agilityfs.com.

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Date Completed: _____

Contact Name _____ Phone # _____

Asset# _____ Circle: LHS RHS

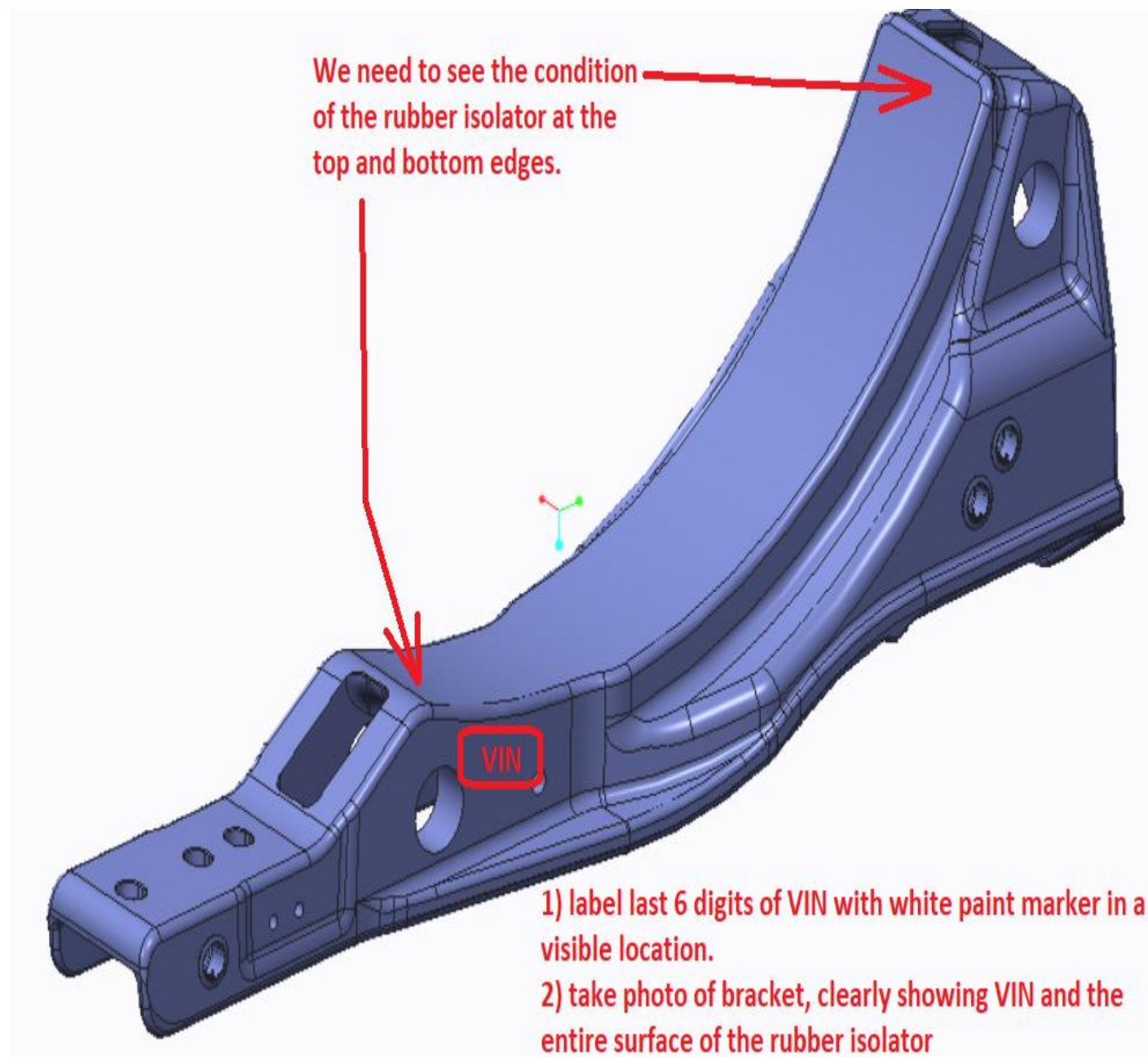
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Label last 6 digits of VIN on the bracket with white paint marker

Take a photo of the bracket – Clearly showing the VIN and entire surface of the rubber isolator



Mechanic/Technician: _____ **Date:** _____