

**Event Type:** Broken Wheel Studs  
on a Type 6 Engine

**Date:** February 3, 2024

**Location:** Land Between the Lakes  
National Recreation Area,  
Kentucky



## Broken Wheel Studs on a Type 6 Engine

### Background

The Type 6 Engine (Dodge 5500) assigned to the Land Between the Lakes National Recreation Area (LBL) was taken into a local dealership on June 6, 2023, for routine maintenance. When the fire crew checked the vehicle in, they were informed that there was a recall on the wheel studs and issues with over-torque ([Safety Recall Y26](#)). The dealership did not have the pieces on hand at the time of the recall and could not replace the wheel studs.

However, the dealership told the Fire Engine Operator (FEO) that the vehicle was “operational” and that they would contact him when the pieces came in. Both the Engine Captain and FEO made sure that they performed all Preventative Maintenance Checks and Services (PMCS) on the Type 6 after following the annual inspection to ensure that the recall notice on the wheel studs would not be an issue.

The crew completed the weekly inspection on January 30, 2024, in which they checked the torque on the lug nuts and the tire pressure on the vehicle. There were no issues with the wheels or the vehicle from June 6, 2023 to February 3, 2024.



*Image shows the driver's side wheel studs that were sheared off.*

### Narrative

On Saturday morning, February 3, the FEO and the Assistant Fire Management Officer (AFMO) were assisting in a local project on the unit. They arrived at the fire cache at approximately 0600 to get the Type 6 Engine and performed the daily checks before driving a short distance to the briefing area at 0630 with no issues on the vehicle.

Following the operational briefing, just after 0700, the crew headed toward their assigned area, which was “a few miles” down a paved and maintained highway. A few minutes later, the FEO, who was driving, noticed a small vibration in the vehicle, although he couldn't tell where it was coming from.

Seconds later, he felt some major shaking from the vehicle and then felt the back end drop. As the rotor hit the ground, the FEO saw the outside dually release and cross to the opposite side of the road.

As the FEO brought the vehicle to a stop, the inside dually came off and rolled past the vehicle a short distance, stopping in a drainage on the same side of the road.

After ensuring their safety, both firefighters exited the vehicle and began to examine the scene. They recovered both tires and ensured there was no debris on the highway. The AFMO immediately called the Incident Commander to let them know what had just occurred. A short time later, the unit Safety Manager, Law Enforcement Officer, and Area Supervisor arrived to check on the firefighters and assist with any further needs.

While everyone was on scene, the AFMO and FEO inspected the wheel hub on the engine and clearly saw that all the wheel studs had been sheared off. The FEO moved the vehicle as far off the highway as possible to clear the road. Several hours later, the vehicle was towed to the local dealership for inspection and repairs that had resulted from the broken wheel studs.

## Portions of the recall notice

Revision 3 January 2022

Dealer Service Instructions for:

# Safety Recall Y26 / NHTSA 21V-398 Wheel Studs

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**NOTE: Added clarification on servicing upfitted trucks, STAR ordering process, and LOP's.**

### Remedy Available

**2012 - 2021 (D2) Ram 3500 Pickup**  
**(DD) Ram 3500 Cab Chassis**  
**(DP) Ram 4500/5500 Cab Chassis**

### Subject

The flanged wheel lug nuts on about 435,580 of the above vehicles may have been over-torqued during service to an incorrect torque specification in the Service & Owner's manuals. A yielded wheel stud may eventually break, which could lead to a wheel separating from the vehicle during operation. A wheel separating from the vehicle could cause a vehicle crash without prior warning and/or the wheel/tire could pose a risk to other vehicles or pedestrians.

## Lessons

- 1. Building a relationship with a vehicle dealership may help to understand the needs, use, and requirements for emergency vehicles.** Proactively building a relationship will help dealerships and their people to understand the need for timely and critical recalls and repairs to emergency vehicles. Firefighters should work with their local Fleet Manager, Regional Fleet personnel, and their fire fleet representatives to help build these relationships.
- 2. If recalls or repairs cannot be completed immediately, firefighters should coordinate with their Fleet Manager and supervisor to ensure the vehicle is safe before it is placed back into service.** Dealerships are often located in remote areas that may not have parts on hand to immediately make repairs or recalls. Additionally, dealerships may not know the workload and stresses that are associated with how these vehicles are used. Under “normal” conditions they may consider the vehicle to be “operational.” Therefore, coordinating with Fleet Managers and others may be needed to ensure the information from the dealership is accurate and if the vehicle is truly safe to operate.

- 3. Firefighters may have to individually check vehicles for safety recalls.** Although recalls are frequently broadcast and available, they do not always make it to the field as needed. Checking the [National Highway Traffic Safety Administration's Safety Issues and Recall website](#) is one option for learning about vehicle recalls, as well as coordinating with the local Fleet Manager.
- 4. Documenting inspections helps to identify developing safety concerns.** By having done all the required inspections on the vehicle, the unit discovered this outcome was related to conditions outlined in the recall rather than any crew actions related to vehicle maintenance. Their experience may now prevent other firefighters from experiencing the same incident—or a more severe accident—in the future.

**For more information on lug nut torque and lug nut alignment, or the Dodge safety recall:**

**RLS: [Why Do Engine Duals Keep Coming Off? Could it be: OVERTIGHTENING?](#)**

**[Safety Recall Y26 / NHTSA 21V-398 Wheel Studs](#)**



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