

Rapid Lesson Sharing

Event Type: Engine Duals Come Off

Date: February 9, 2020

Location: Mark Twain National Forest
Missouri



Jake Hauser shares his story—insights and lessons—in hopes it might help prevent this from happening to others.

Both Driver-Side Duals Come Off at 45 MPH – Why?

By Jake Hauser, SFEO Engine 631

While driving my Ford F550 engine I recently had the driver-side duals come off. The lugs had been checked regularly. Crew members had been asked to check them daily due to finding lugs loosened.

Earlier in the day, I was driving the engine at low speeds with the windows down and heard what I thought was a wheel bearing going out. It was a clicking sound. (This 2015 engine has 100K miles on it.) As a precaution, I wanted to take weight off the vehicle so I emptied the tank.

I checked everything again and everything appeared tight.

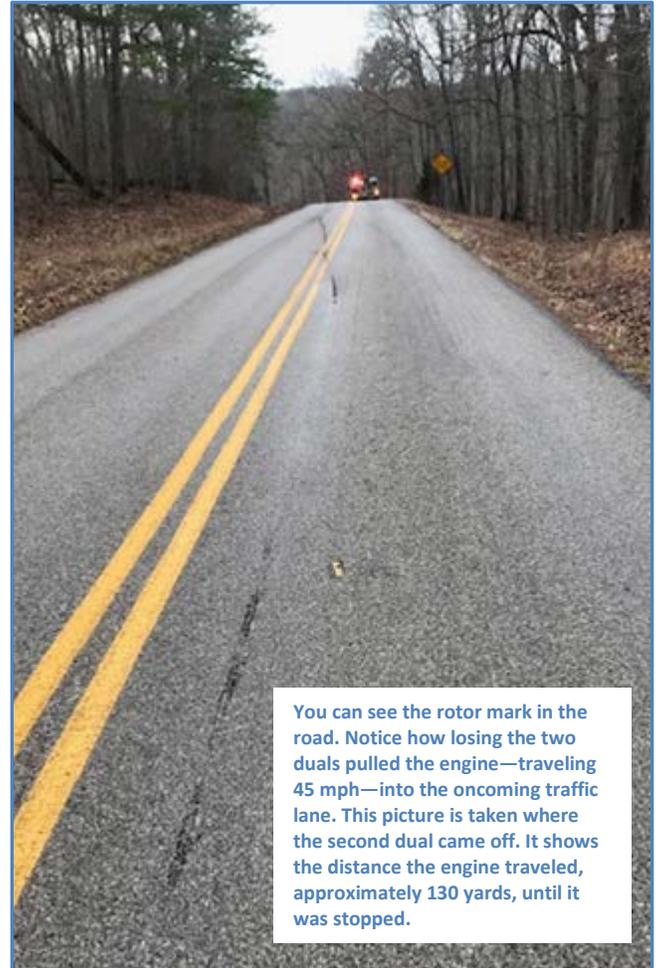
Both Duals Come Off

About two hours later, driving on the highway going approximately 45 mph, I felt the rear of the engine sway. I looked quickly in my side view mirror to see the outside dual pass the engine. It bounced through the ditch, bounced across the highway, and down the embankment.

My immediate thought was that the second dual is coming off next. As I started to apply the brakes, it also came off.

Never Happened Before

After the tires came off, I traveled 130 yards before I could bring my engine to a complete stop. It took two full revolutions of the steering wheel to get the engine back on my side of the road. I have been a U.S. Forest Service employee on hotshot crews for 10 years and engines for 7 years and never had this happen before.



You can see the rotor mark in the road. Notice how losing the two duals pulled the engine—traveling 45 mph—into the oncoming traffic lane. This picture is taken where the second dual came off. It shows the distance the engine traveled, approximately 130 yards, until it was stopped.

Follow-Up Repairs

Minimal damage was done to my engine's body. A total of \$4,800 in damage occurred to the hub, brake rotor, emergency brake etc.

I requested the Ford Dealership to replace all lugs and studs. I did this with the thought that maybe I had stretched the studs, or they had been over-tightened over the years by random tire shops that reinstall wheels with high-power impact guns.

After doing some digging online on "Ford Forums" I observed a trend in chat groups talking about the lug nuts style that Ford uses. They are a two-piece lug nut that have a tendency to wear out due to over-tightening.

Therefore, I will now be keeping a very close eye on these new lug nuts. If I see more loosening, my plan is to buy one-piece lug nuts in hopes that may fix the loosening issue.

While the engine was being repaired, the Ford dealership people also noted abnormal wear inside the hub. Not sure how or why. This might be something to dive deeper into.



The two-piece Ford factory lug nut.



The old stud bolts.



This is the inner dual. Notice the wallowed out rim holes.



This is the outer dual.



I do carry the appropriate torque wrench.
(Torque specs for the Ford F-550 is 165 ft-lbs.)

and

I have paint pen marked all lugs to easier check for lug movement
(see photo).

Therefore,

**My Lesson
is:**

Inspect, Inspect, Inspect.



This RLS was submitted by:
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