Fire Apparatus & Emergency Equipment

Knowing When Your Fire Apparatus Has a Suspension Problem

12/18/2017

By Frank R. Myers

After driving the same vehicle every day, you will learn to hear and feel anything occurring that is out of the norm. Regardless of your level of expertise or knowledge, one must take action before “more expensive issues” add injury to insult.

At the start of a tour of duty or shift day, I would always perform a walk-around of the apparatus to assess any new damage or abnormalities. I was not trying to accuse another firefighter of causing damage, just trying to get any problem corrected early in the day. One of the easiest and dead giveaways that there is a suspension problem is if you notice the truck “leaning.”

Low tire pressure can also cause the apparatus to “lean,” so a driver needs to pay special attention to the inside tires if the apparatus has a dual tire configuration at the rear of the truck and/or tandem, dual axles with dual tires.

Viewing from the front of the truck about five to10 feet away or more, look at the bumper and see if it is parallel to the ground. If not, chances are that you may have a broken leaf spring(s) or cab mount(s). Cab mounts could be the problem if, when driving, you hear a “knocking” under the feet of the officer or driver or both.

Another case for “knocking” could be steering components. This issue can occur after periods of heavy rain. Some parts that get “lubed” may have had the grease or other lubricant washed off. When turning around corners, especially acutely, a knock will be heard, but not when driving in a straight line. Regardless of whether or not it is a lubrication issue, report it to maintenance personnel.

An easy visual inspection, without having to place the truck on a lift, is viewing the spring mounts where they attach to the chassis or frame rails. It is also advantageous to check the shackles or “U”

bolts that keep the spring stack together. First of all, make sure that they are present, one on each end of the stack and/or that it has not moved or slid along the spring stack.

Your apparatus may not have the conventional spring stack configuration. You may have independent front wheel suspension or the same on the rear where there is an upper and lower control arm. Alternative terms may be an “A” Strut (Top) and “B” Strut (Lower). Inspection of these components is pretty much the same as a conventional suspension. Assure that they are attached to the chassis or frame rails via the mounting brackets. Also look for any cracks or hairline cracks that may be starting in the components.

Don’t be afraid to grab and shake or try to wiggle any of the larger metal parts that make up the steering components. Be sure to check any visible rubber bushings for cracks or “metal touching metal.” Obviously, look for any fluid leaks like power steering fluid or brake fluid if equipped with hydraulic brakes.

Other noises that can mimic a suspension problem are tire and brake components—such as worn or bad bearings, loose lug nuts, bent or cracked rims, damaged disc brake rotors, etc. All these can be easily detected without having to put the truck on a lift by turning the front tires so you can look in the wheel well. A leaking hub seal around the center of the tire/rim would look like a dirty rim: oily and grimy. Some torque putty or lug nut indicators would reveal when a lug nut is beginning to “back” off. Be sure to take off the decorative chrome or plastic caps to inspect the actual nut itself. When looking inside the wheel well(s), inspect the disc rotors—revealing uneven wear, discoloration, warping, grooves, or gouges or brake glaze.

I once had a friend who worked for the railroad company. He told me the story of how an engineer operates the locomotive. He said a good engineer does it by the “seat of his pants.” In other words, he can feel the nuances and differences occurring in the locomotive and all its train cars—from the coupling to the braking and pulling forces that occur. You will learn with time and experience. The same philosophy can apply to driving a fire apparatus.

FRANK R. MYERS is a retired lieutenant with the City of Miami (FL) Fire Rescue, where he served 32 years. Before his retirement, he served at the Training Center for six years as the Driver Engineer Instructor. He works as a consultant for PSTrax.com, a technology service that helps fire departments across the country automate their apparatus, equipment, and inventory checks.