Your coach and its shocks…A brief overview

Let's start our discussion with the actual function of shock absorbers. Despite what many people think, shocks do not support vehicle weight. In fact, their primary function is to control suspension geometry. The results are the following:

- Improve comfort level
- Increase vehicle control
- Reduce stopping distance
- Increase vehicle stability
- Improve vehicle safety

Because shocks deteriorate over time, most people don't notice the changes. It stands to reason then that shocks are an item that should be regularly inspected. Many people do not realize that driving with worn shocks is as risky as using brakes well past their prime or driving on bald tires. It is extremely dangerous when needing to maneuver in emergency situations.

There are several signs of deteriorating shocks. Are your tires wearing unevenly? Does your vehicle bounce? Is the ride becoming harsh? Does your vehicle lean so that control is negatively impacted? If you can answer "yes" to any of those questions, it's time to check your shocks for failure. As with any other system on your coach, maintenance is less time consuming and less costly than failure. A quick physical inspection can reveal a lot about both your shock absorbers and your overall suspension condition.

If your shocks are worn or have failed and need replacement, use the following checklist as a guide for inspection **before** installing your new shocks.

1. Check for bent or broken shock mounts.
2. Check for galling of the mounting posts. If present, this will allow movement of the shock bushings which will cause them to wear rapidly.
3. Look for rounded or elongated mounting surfaces if you are using "STUD TYPE" shocks.
4. Check for any evidence of interference with the frame or suspension components. Inspect the shock you are removing for signs of wear against the frame such as shiny areas, broken dust covers, etc.
5. Inspect the shock being removed for the following abnormalities: bent piston rods, broken eye rings and damaged mounting areas. These can be signs of possible alignment problems or that the shock may not be correct for your application.

6. Make sure that your ride-height is within manufacturer's specifications. THIS IS CRITICAL!
7. Check to be sure that the shock is not "one size fits all". Some manufacturer's use one shock for multiple applications. Refer to the manufacturer's OEM number for specific information.

Proper installation of bushings and washers will insure proper function, increased shock absorber performance, increased directional stability, ride comfort and long life expectations. This is due to the fact that the shock will be able to perform within the manufacturer's parameters, as it was designed for your specific suspension.

Always use new bushings and hardware anytime that you replace a shock absorber. Some manufacturer's supply bushings with new shocks. Be sure to check with your supplier. These items are also considered a maintenance item by most coach manufacturers. They should be checked regularly and replaced as needed.

Remember that washers and bushings should be replaced in the ***reverse order*** in which they were removed. Be sure to have the correct side of the washer side out. If not correct, this can cause the shock hardware to be over-torqued which will cause restricted movement of the shock. Shock movement is especially important during rough road conditions, curbs and tight steering situations, all of which cause side-loading of the shock. Fasteners should be tightened until compression forces the bushing to expand to the O.D. of the washer. This will allow the shock to move 360 degrees while providing the designed clamping necessary to maintain proper torque.

The most important thing to consider and remember is to make sure you are installing the correct application for your vehicle. Shocks absorbers can, and sometimes do, fail prematurely but most times it is not the result of a factory defect. More often than not it is either due to misapplication or improper installation. To make sure that both of these crucial items are correct, consult your coach manufacturer, your vehicle maintenance manual or a qualified mechanic.

To recap, while most people believe that the most important fuction of shocks are to make for a comfortable ride, we have learned that their impact reaches far beyond that. In addition, using the proper shcok for your application and doing a correct installation will help prevent

premature failures and unnecessary expenses. Refer to your maintenance and parts manuals for the technical information provided by the manufacturer.

If you would further information and have additional questions regarding the information provided, please feel free to contact us.

Disclaimer:

The information provided in this newsletter is not intended to replace the services of a qualified mechanic when one is deemed necessary. Bus Service, Inc. assumes no liability for damage to equipment or personal injury through the use of this information.

Sources:
Gabriel, Monroe and Bilstein shock absorber technical data

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