

Joy Rider Shock System Installation



Manufacturer's Part Numbers:

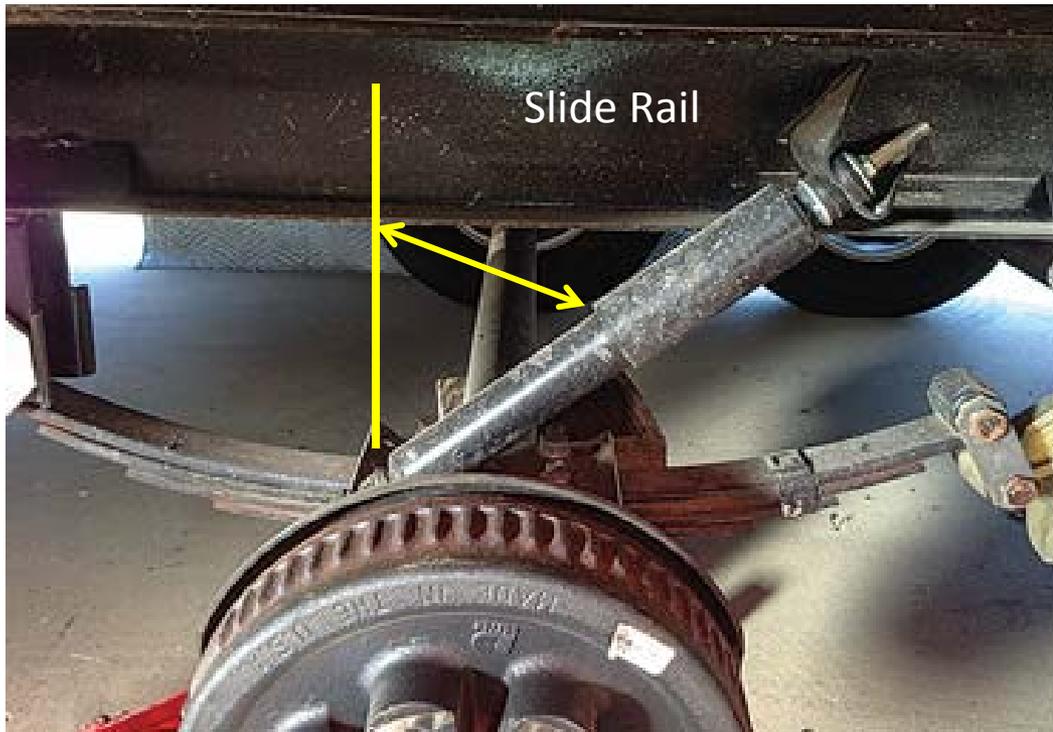
- **3 Inch Single Axle** – 200103
UPC – 784672350945
- **2³/₈ Inch Single Axle** – 200102
UPC – 784672350921

Each single axle kit contains the following:

- 2 Shock Absorbers
- 2 Tie Plate Replacement [Lower Shock Mount]
- 2 Extension Brackets
- 4 Stiffener Plates
- 2 Upper Shock Mounting Brackets
- 1 Hardware Package

Patent Pending
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Current Shock Absorber Installation Problems



Only about 15% of Towable RVs are Equipped with Shock Absorbers.

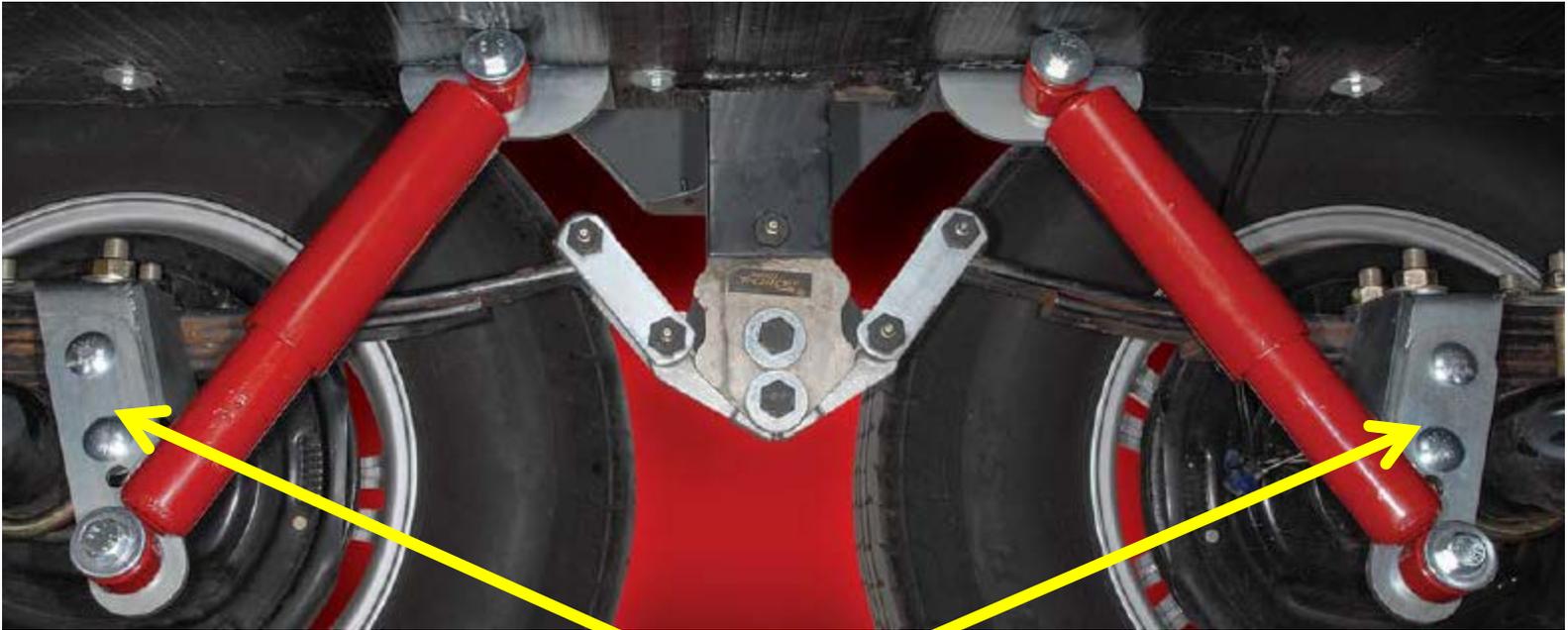
The reason is pictured at left.

This shock is operating in a position (angle from vertical) that will not allow it to properly function.

Conventional Towable RV Suspensions do not have enough space to install shocks in an effective position to function properly.

The optimum angle for a heavy duty gas shock absorber is 40 degrees or less.

Typical Joy Rider Installation



Key to this improved shock operating angle is the patent pending new tie plate and bracket extension



New Tie Plate and Lower Shock Mount

3) Using ½-inch carriage bolts and Nylock nuts, install the shock mount extensions for the Joy Rider to both the right and left shock mount assemblies and tighten firmly.

1) The first step can be done on the bench. Begin by attaching the shock mount extenders to the right and left shock-mount assemblies

Upper Shock Mount Bracket

Adjustable Extension Bracket for Lower Shock Mount

2) The adjustable bracket system is designed to fit most single, double and triple-axle suspensions, above or below the leaf springs. No need to worry about replacing existing U-bolts, as the Joy Rider's clever bracket system utilizes the original U-bolts.

From here, the rest of the install is under the trailer.



Remove the tie plates and U-bolts from the leaf spring assemblies; hold on to the U-bolts.



The right and left shock plates are then mounted in place of the factory tie plates **using two ½-inch-thick stiffener plates per shock mount across the U-bolts.**

The bolts are tightened to the **Axle MFG torque specs.**



Use an alternating cross pattern with an accurate torque wrench.

Carefully tighten the U-bolts to the Axle MFG torque specs.

Do not over tighten, excess torque will damage the axles.



1) The shock is then loosely installed to the lower shock mount extension using $\frac{1}{2}$ x $1\frac{3}{4}$ -inch-long bolts.

2) Make sure that a M12 flat washer is put between the bolt head and the shock absorber, and a $\frac{1}{2}$ -inch-thick spacer is placed between the shock absorber and the shock mount extender before securing with the $\frac{1}{2}$ -inch Nylock nut.

3) Next, loosely bolt the Joy Rider shock absorber to the shock mount extension to aid in installing the upper bracket to the optimal position.

4) Now, loosely bolt the upper shock mount bracket to the top of the shock.

Installation Tips -The New Joy Rider



Using a 12-inch-long drill bit will allow for adequate reach when installing the upper bracket because the leaf springs will be in the way of a drill with a shorter bit.

A cordless impact wrench will be invaluable when installing the Joy Rider shock absorber to the upper and lower brackets.





Once the shock is in place, the other end is connected to the upper shock bracket and swung up to the trailer frame for proper positioning. When in place against the bottom of the frame, the hole locations are marked for drilling.



The shock absorber is then removed from the upper mounting bracket before it's clamped to the frame using Vice-Grip pliers. Drilling the holes in the frame is the hardest part, depending on the clearance around the spring, hangers and equalizer. Longer drill bits make the process easier.

Make sure all underbelly material is removed; the bracket must be flush against the frame.

Installation Tips -The New Joy Rider



When installing the $\frac{3}{8}$ -inch self-drilling bolts to the upper bracket, the cordless impact wrench comes in handy when equipped with an 8-inch $\frac{1}{2}$ -inch drive extension and $\frac{9}{16}$ -inch-deep socket. **Longer drill bits make the process easier.**

Before drilling, check for hoses or wiring above the frame. **It is important to use a stepped process for drilling holes.** Start by drilling a pilot hole using the long $\frac{1}{8}$ -inch bit. Open the holes with the $\frac{1}{4}$ -inch drill bit and again with the $\frac{11}{32}$ -inch bit, which is the final hole size.

For thinner frames (ultra-light trailers), drill a $\frac{21}{64}$ -inch hole through the frame.



Installation Tips -The New Joy Rider



Hold the upper bracket to the frame to ensure that the necessary underbelly material has been removed. Upper bracket should always be mounted on the shackle side. Singles , Doubles and Triples.

If access for drilling the holes for the upper brackets is extremely difficult, you may need to drop one end of the leaf spring. This can be accomplished by removing one bolt from either end of the leaf spring; be sure to use a **RATED** jack stands to support the axle. The $\frac{3}{8}$ -inch self-threading bolts that hold the upper brackets to the frame can be driven using a $\frac{1}{2}$ -inch impact wrench.



Install the upper end of the Joy Rider shock . Make sure that a M12 flat washer is put between the bolt head and the shock absorber, and a ½-inch-thick spacer is placed between the shock absorber and the shock mount extender before securing with the ½-inch Nylock nut. Tighten securely.

The final step is to bolt the shock to the brackets and remove the retaining wire that prevents the shock from extending during the installation process. At this point, all the bolts should be double checked for tightness and proper torque. Lower the trailer back to the ground and check for adequate clearances for all components.



↑ With this install completed, we checked the positioning of the Joy Rider shock absorbers using a protractor; they were at a 35-degree angle. The lighter suspension of the fifth-wheel, weighing in at 10,000 pounds, did not allow for a great amount of distance between the frame and springs, so the shock angle was affected. Heavier trailers will have more clearance, so shock angles will be closer to 20-degrees.

The 15 degree outward angle of the Joy Rider shock absorbers helps mitigate the uncomfortable, side-to-side rocking motion. ↓



↑ This photo shows the bracket installation with the axle on top of the leaf spring.



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- **RV Improvements Systems LLC**
- **54099 River Place**
- **Elkhart, IN 46514**
- **574-370-4515**