



Ride Height Adjustment

Why is Ride Height adjustment important?

The reason is that the Velvet-Ride Torsalastic suspension is like a leaf or coil spring suspension. There is a tube on each corner and you need to consider each one being a spring.

So, why is ride height important? When the suspension was designed it was designed to be set at a certain ride height per the manufacturer. If this ride height is not correct, the problems could be ill handling; suspension and frame in a bind. It could also cause a harsh or rough ride if the ride height is too low.

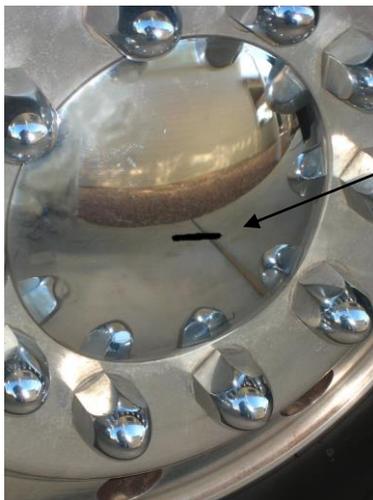
Let's take a look at some of the other suspensions and how you would adjust ride-height. On a leaf spring or coil spring coaches you would first determine what the ride-height is and what it should be. To do this you need to know what the manufacturer specifications are for your particular suspension. Any adjustments that may need to be made are very limited and usually requires rebuilding or replacement. For an air-ride coach the height adjustment can be made by adjusting the air-ride control valves that are put into the system. Now, we will get into the Velvet-Ride. When these were new, designed and developed they had shims build in so the ride-height could be adjusted. Remember that Velvet-Ride is a Torsalastic spring, which means that it can over time or with load changes settle or sag. With the design of the Velvet-Ride and with the shims that were installed at each shackle, you can remove shims to adjust ride height. With Velvet-Ride when you remove shims you raise the ride-height, not lower it as one would think.

“When dealing with ride heights the #1 thing to do is weigh your coach. You need to weigh each corner and then figure out how to shift your load or how to adjust each corner.”

How to determine what the Ride-Height should be on a Safari Motor Home with Velvet-Ride.

First thing weigh the coach and write down the weights for each wheel. This should be done with the coach in its normal loaded condition for traveling. If you find differences between left and right sides of the coach, see if you can change the load inside the coach to better balance the coach if possible. If you can't shift the weight, then you will need to remove shims on each corner to get the ride-height equal. To do this move the coach to a level flat surface.

Second, find the center of the wheel and mark it with a felt-tip pen or use a piece of tape (see photo # 1).



Felt-tip mark (or tape mark) you put on for measuring purposes.

Photo #1

Now measure from the felt-tip mark or tape mark to the bottom of the beltline molding on the coach (See Photo # 2).

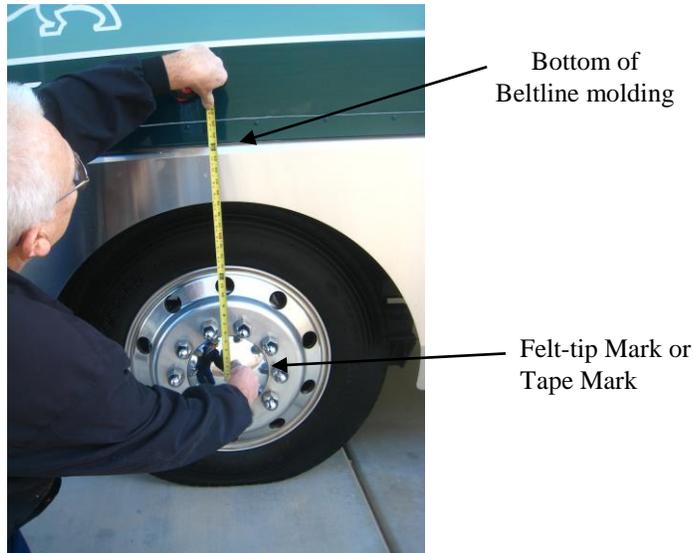


Photo #2

This dimension should be 25" +/- 1/4" (see photo # 3).

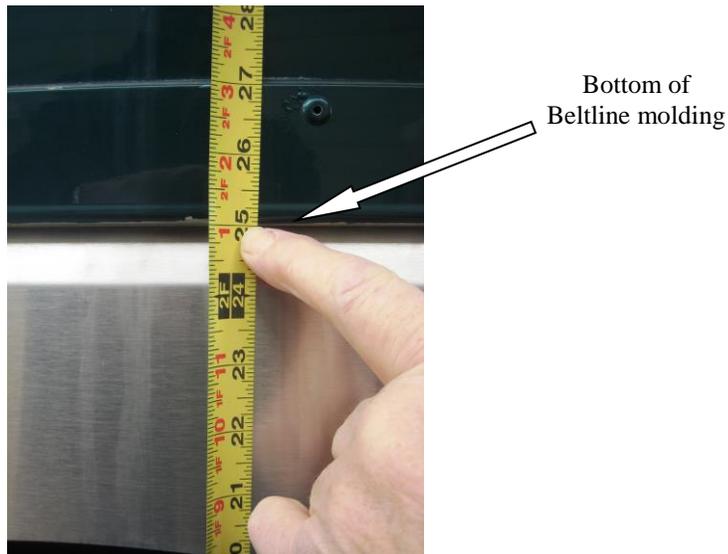


Photo #3

Do this at each wheel and write down the measurement that you have for each wheel. This will determine where and if you need to take out shims. For each shim that you take out you raise the coach one-quarter of an inch. **IMPORTANT:** On the front and rear of each wheel there are a stack of shims. Always remove the same amount of shims in front of and in the rear of that particular wheel assembly. Remember that the shims have to be equal in front and back of the wheel, so if someone has already taken out shims and did not take out equal amounts then you must do so before you can get an accurate ride-height measurement on that wheel. Continue to remove shims at each corner until you have your ride height where it should be.



Example: *The left front wheel could have four shims at each shackle. The right front wheel could have eight shims at each shackle. This is acceptable. The main thing that we want to do is get the beltline level all the way around the coach.* **Another Example:** If on one particular corner you have removed all the shims and cannot get the ride-height you need. What should you do? Solutions for this are 2: One: Replace the velvet-ride tube if it is available. Two: Add an available after-market air-ride assist spring package available from PMW.

Warnings and Tips when removing shims

- 1.) Put jack stands underneath the frame for safety purpose.
- 2.) The four bolts used to hold the stack of shims together are extra long and are threaded all the way up and they have tall nuts on the end. It is very important to use penetrating oil liberally so the threads won't gall. When you loosen the nuts don't remove them, just get the nuts loose enough so that you can remove the shims. Remove all the shims and count how many you have. Remember that each shim represents one-quarter of an inch. Determine how many shims you will need to replace and remove the unneeded shims to a different area. Now, take a wire brush and lots of penetrating oil and brush the threads on the bolts really good, this will make tightening of the nuts much easier. Now you can reassemble the shackle and shims. When this is done to all four corners, recheck the ride-height you may have to go through the process again and add or remove more shims until you reach the desired ride-height.
- 3.) Torque the bolts that hold the shim pack together (9/16-18) to 115 ft. lbs.
- 4.) **It is NOT recommended that you use an impact wrench, it is too easy to ruin a bolt or get a nut seized on the bolt to where you cannot get it off.**
- 5.) There are times when you are down to just one or two shims and now a deep socket isn't long enough to tighten the nut on the bolt...what to do? You get a 7/8" socket 1" drive and use a piece of 1" square tube as an extension and then find something that fits the end of the 1" tube. Such as, a 3/4" drive ratchet or a 1" end-wrench or whatever you can find that will fit the end of the square tube inside or outside, this is a cheap way to make an extra; extra deep 7/8" socket.