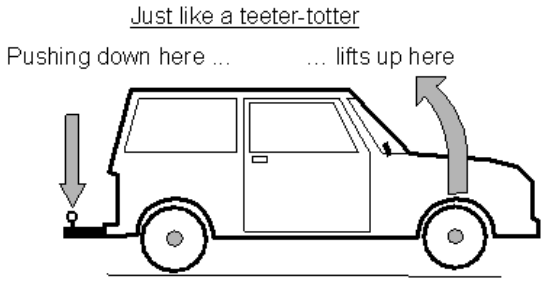
How to Adjust the Weight Distributing Hitch (WDH) Bill Jeffrey Jan 05

Introductory note: there is a lot of good generic information available on the Reese hitch web site, http://www.reeseprod.com

WHY IS A WEIGHT DISTRIBUTING HITCH NEEDED?

The web site says that the hitch weight of a bare-bones TM is about 350-500 pounds, depending on model. Once you add factory options, get all your stuff aboard, and are ready for the road, you can expect it to be somewhere between 450-700 pounds. Of course, if you simply drop all that weight onto the hitch ball, the rear end of the tow vehicle will sag. And if you add a couple hundred pounds of stuff in the trunk or the way-back of the tow vehicle, it will sag even more. This is bad for at least three reasons.
1. The reduced ground clearance may cause your tow vehicle to hit objects in the road that it would normally clear. The undercarriage may drag on the pavement as you cross the drainage swale at the exit of a gas station or your driveway. And of course the headlights are aimed into the sky.
2. The extra weight is hard on the rear suspension (shock absorbers, etc) of the tow vehicle.
3. Adding weight behind the rear axle takes weight off the front end, in a teeter-tooter effect as seen in the Figure. This is by far the worst effect, because taking weight off the front wheels makes the steering and handling "squirrelly" or "twitchy". If you have ever driven on an open-grid bridge deck at a construction site, you may have experienced this twitchy feeling – the vehicle tends to snap left and right without any movement of the steering wheel. When you have a 2-ton vehicle running down the road at 65 mph, and 2 tons of fiberglass and aluminum following right along behind it, you don't want squirrelly handling!



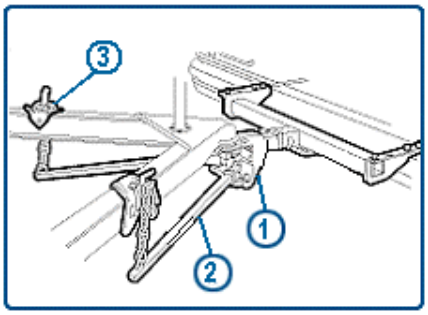
AIR SHOCKS vs A WEIGHT DISTRIBUTING HITCH – WHY NOT?

Air shocks or load levelers can fix problem #1, but they do nothing to alleviate problem #2 or #3. Since #1 is relatively trivial, but #2 and #3 are potentially serious, air shocks and load levelers are not the answer.

So what is the answer? Well, all that extra weight is being carried on only one axle – the rear axle of the tow vehicle. We need to spread it out, so that the load is shared by the tow vehicle's front axle and the trailer's axle. That is the function of the Weight Distributing Hitch – to distribute some of that load to the other axles. Properly adjusted, the WDH solves all three problems – it levels the tow vehicle, it evens up the load on the various suspension parts, and it puts weight back on the front wheels for correct handling.

WHAT ARE THE PARTS OF A WEIGHT DISTRIBUTING HITCH?

For purposes of this tutorial, a WDH consists of three parts. The first is the part that slides into the hitch receiver on your car. This piece of heavy steel is called the ball mount, and as the name suggests, the hitch ball is mounted on it. The second is a pair of spring bars (also called lift bars or equalizing bars). These are stiff steel bars about 30" long, often with a short piece of chain at one end. One end of each spring bar slips into a socket in the ball mount. The other end of each bar trails backward and is lifted up toward the trailer's A-frame. The third part is the lift brackets (also called snap-up brackets), permanently mounted on the trailer's A-frame, that lift the springbar tips. It is the lifting of the tips that causes the weight distribution to happen.



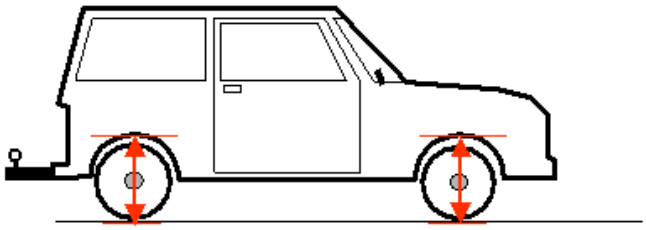
1. Ball mount
2. Spring bar
3. Lifting bracket

HOW DO I DETERMINE THE PROPER SETTING OF THE SPRINGBARS?

As noted above, weight distribution happens when the springbar tips are lifted toward the trailer A-frame and latched in place at the proper height. It is important to find the proper height, since too little lift will not distribute enough weight, and too much strains the hitch components. The procedure for finding the proper lift is quite easy, and will take about half an hour.

1. Park the tow vehicle on level ground. Park the trailer behind it, but don't hook it up. The trailer should be fully loaded, ready for the road. Use the tongue jack to level the trailer. At this point, the top of the hitch ball should be about an inch higher than the top of the trailer's coupler. If it is not, adjust the height of the hitch ball.

2. On the tow vehicle, measure the distance from the ground to the high point of the wheel wells, at one front wheel and one back wheel. Write down these readings – they reflect the proper alignment of the tow vehicle.



Measure from the ground to the top of the wheel well opening, front and rear.

3. You can't make the following adjustments properly if air shocks are operating, so if your vehicle has them, turn off the compressor. If the compressor doesn't have an on-off switch, open the hood and disconnect the negative side of the battery. You can turn the compressor back on when you are done.

4. If you normally carry a lot of stuff in the tow vehicle's trunk or way-back when you camp, put some weight in there now. You can estimate – it doesn't have to be exactly right.

5. Lower the trailer's hitch coupler fully onto the hitch ball, but don't hook up the spring bars yet.

6. Re-measure the tow vehicle height at the wheel wells, and write it down. You will find that the rear end of the tow vehicle has dropped, probably more than an inch. And you will find that the front end of the tow vehicle has risen. Our goal is to make them both drop, and by approximately the same amount.

7. Now lift the spring bars. For most hitches, this means putting one link of the chain on the lift bracket's hook, and snapping the bracket up with the lift tool. Repeat for the other side, using the same link (count them!) If you have no previous knowledge of which link is the right one, start with the 3rd link from the free end of the chain.

8. Once again, measure the tow vehicle height at the wheel wells, and write it down along with the chain link number being used (3 in this example). You should find that the rear end hasn't sunk as much, and the front end hasn't risen as much this time.

9. Release the spring bars, remove the chains, and put the chains back on at a different link. Repeat steps 7 and 8 until you find which link makes the tow vehicle's front and rear both drop, and drop by the same amount. [NOTE: Some people feel that the front end of the tow vehicle does not need to drop, or at least doesn't have to drop as far as the rear end. I won't try to give a definitive answer, except that the front end should not rise at all when you put the weight on the rear, and it should not drop more than the rear end drops.]

10. When you have figured out which link is the proper one, remember which one it was. If you are forgetful, write it down, scratch it into the springbar paint, write it on the battery box in Magic Marker, whatever it takes. As long as you don't make a big change in the load you carry, this is the proper setting forever, and you will use it every time you hook up.

11. You are done. If you disabled an air shock compressor, restart it.

SOME AFTERTHOUGHTS

1. When you are done, the TM should be quite close to level. If it is not, you should raise or lower the hitch ball to make it level. Unfortunately, this means repeating the process of finding the correct chain link.

2. When you are done, there should be at least four chain links (and preferably 5) between the tip of the springbar and the hook on the lift bracket. If there are fewer than four, the hitch will groan and pop as you make turns – particularly tight turns such as backing into a campsite. To remedy this, you need to tilt the ball mount (on the tow

vehicle's hitch) backward a bit – the tilt is adjustable. By doing this, you lower the springbar tips toward the ground, which means in turn that you get the same amount of lifting action with a longer chain.

3. When you hook the chain over the lift bracket hook, try to be sure that the first free link is actually free, and not wedged under the first weight-bearing link. If you hook it up the wrong way, the free link can slip out from under as you drive, making a sudden BANG that will scare you and stress the components.