

## ADJUSTING THE HITCH

The exact procedure is different for each type of hitch; however, the measurement techniques are the same. Figure (1) describes the adjustment steps and measurements required.

### ADJUSTING AN EQUALIZER HITCH

Begin by getting the trailer level

- Park the trailer on a flat firm surface and disconnect it from the tow vehicle
- Adjust the trailer so that the distance from the bottom of the frame to the ground is the same in the front and back of the trailer.
- Measure the distance from the top inside of the hitch connector (on the trailer) to the ground. Record that measurement.
- Set the height to the top of the hitch ball (on the tow vehicle)  $\frac{1}{2}$  to 1 inch higher than that measurement – depending on the spring capacity of the tow vehicle – to allow for settling when the trailer is hooked up.

On a flat firm surface, hook up the trailer to the tow vehicle and drive forward so that the trailer and tow vehicle are in a straight line.

- Disconnect the trailer and raise it from the hitch ball without moving the trailer or tow vehicle.
- Measure the distance from a defined front and rear point on the tow vehicle to the ground (I use a straight line through the center of the front and rear wheels to a spot on the fender well). Record these measurements.
- Re-connect the trailer to the tow vehicle and repeat the above measurements (and record them).
- Use the chains on the equalizer bars to adjust the measurements so that both the front and rear of the tow vehicle DROP the same amount.
- If a whole chain link allows too much difference you can get a smaller amount by adjusting the tilt of the hitch head.

Re-check the trailer level when the final adjustment has been made – make any necessary corrections.

*Figure 1 Adjusting the Hitch*

## WEIGHT DISTRIBUTION HITCHES

The material in this section is from:

<http://www.etrailer.com/faq-weightdistribution.aspx#Styles>

This is the web site for etrailer.com.

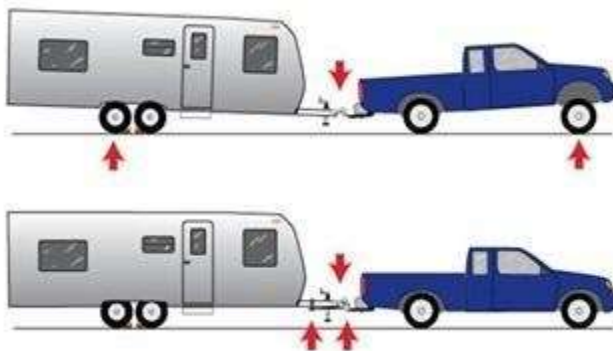
### What Is Weight Distribution?



### Weight Carrying

When you are towing a trailer with a standard rear-mounted hitch, your trailer's tongue weight is transferred to the rear axle of your tow vehicle. As a result, the back end of the vehicle may be forced lower and the front end raised. If this happens, your vehicle's rear axle will bear the weight of not only the trailer, but much of your tow vehicle's weight as well. Less weight on the front axle of your vehicle can cause diminished performance in terms of steering, traction and stopping power. It can also increase trailer sway. Your view of the road may be limited due to the awkward angle.

### Weight Distributing



Weight-distribution systems use spring bars to help combat the problems that often occur with standard hitch systems. Adding spring bars to your towing setup applies leverage to either side of your system, which transfers the load that is pushing down on the rear of your vehicle to all of the axles on both your tow vehicle and your trailer. This even distribution of weight results in a smooth, level ride, as well as the ability to tow at the maximum capacity of your hitch.

### **What Are the Components of a Weight-Distribution System?**

In addition to the Class III, IV or V trailer hitch on your vehicle, a weightdistribution system is made up of the ball mount, spring bars and trailer-framemounted brackets. The ball mount is composed of two pieces: the shank (which slides into the trailer hitch) and the ball platform (or weight-distribution head). The hitch ball is typically sold separately.



#### **1. Trailer Hitch**



The trailer hitch attaches to the frame of your vehicle and provides the 2" x 2" (or 2-1/2" x 2-1/2") receiver opening that the weight-distribution shank slides into.

Trailer hitches are classified based on weight-carrying capabilities. A trailer hitch must be categorized as Class III, IV or V to be used with a weight-distribution system. Not all Class III hitches are designed to be used with weight-distribution systems, though. Always check the weight-rating label that is on the trailer hitch. This sticker lists two capacities: weight carrying and weight distributing. If nothing is listed for weight distributing, then a weight-distribution system cannot be used.

## 2. Weight-Distribution Shank

The weight-distribution shank is the piece that slides into your trailer hitch and provides an attachment point for the weight-distribution head assembly. Shanks are available in many different lengths, drops and rises to fit multiple applications. This is to ensure that your trailer is level with your tow vehicle when it is hooked up. For more information on determining the necessary rise or drop for your setup, see Choosing the Correct Ball Mount.

Standard shanks - those included with weight-distribution systems - typically have a maximum rise of about 6" and a maximum drop of approximately 2". Consult the description of the product you are considering to get the maximum rise and drop specific to that part.



**Note:** Weight-distribution systems are available both with and without the shank. If you need a shank with a rise or drop that is greater than the standard measurements, purchase a system that does not include a shank and then choose the shank that you need separately.

### 3. Weight-Distribution Head Assembly

The weight-distribution head assembly attaches to the channel or bolt holes along the shank and provides mounting points for the hitch ball and the spring bars.



#### Hitch Ball Platform

In addition to providing a place to mount the hitch ball that is used for trailer hookup, many weight-distribution heads have built-in platforms for mounting bar-style friction sway controls. A bar-style sway control mounts to a smaller ball on the side of the weight-distribution head. Some heads only have ball holes for a right-side attachment. Others, like the one pictured, have dual platforms so that you can mount a sway control on either side (or both sides) of your trailer.

#### Spring Bar Attachment

Different heads are made to accept different types of spring bars - mostly round or trunnion. The round-style bars slide up into the head and are held in place with clips. The trunnion-style bars slide into the head from the side or the back.



## Head Adjustment

To achieve proper positioning for your weight-distribution system, you may have to adjust the tilt of the head assembly. There are a few ways to do this, depending on the system you choose.



The traditional washer-style adjustment method lets you adjust the tilt by sliding washers onto a spacer rivet and then inserting the rivet into the head assembly. To increase the angle, add a washer. To reduce the angle, remove a washer.

Accessing the pin and washers can be a bit tedious, but this typically has to be done at initial setup only or if you switch trailers.



Serrated washers make adjusting the tilt of the weight-distribution head a snap. An improvement over the standard pin-and-washer - or traditional washer-style - method, this method lets you fine-tune leverage without having to access a rivet inside the head. The serrated-washer system lets you easily loosen, adjust and tighten a single washer and nut on either side of the head for simple, secure positioning. This type of system is most often found on Reese trunnion-style weight-distribution hitches.



The easy-to-use, block-style washer system features a uniquely shaped washer that can be rotated and positioned between blocks on the weight-distribution head. Each side of the hexagonal washer is numbered to provide reference points should you need to adjust your system if you switch it between different tow vehicles. There is no need to use a difficult-to-access pin to obtain your desired tilt. This system is common on Reese round-bar-style weight-distribution hitches.

#### **4. Spring Bars**

Spring bars are responsible for transferring the load that pushes down on the rear of your vehicle when you are towing to the axles on both your tow vehicle and trailer. By applying leverage to your towing setup, these bars are responsible for distributing the weight in a complete weight-distribution setup. Typically, there are two types of spring bars - round and trunnion. Some manufacturers have specialized spring bars.

##### **Round Spring Bars**



Round bars slide up into the weight-distribution head and are held in place with clips.

##### **Trunnion Spring Bars**



Trunnion bars insert into the head from the side or back. There is no real difference in the effectiveness of one type of bar versus the other. That being said, if ground clearance is an issue, you may be better off choosing a trunnion-bar system simply because these bars slide into the weight-distribution head instead of inserting into it from the bottom, thus maintaining a more streamline system.

The material it is made of and the forging process can affect a spring bar's flexibility and therefore its effectiveness. The more a spring bar flexes, the more the weight-distribution system will be working. When spring bars do not flex enough, the system can essentially turn off.

Most spring bars are made of traditional spring steel, which is able to flex and still "spring" back to its original shape. Some manufacturers, however, have made improvements to the standard spring bar.

- Many Reese weight-distribution spring bars are made of hot rolled steel that is tapered. This allows for superior flexibility.
- Equal-i-zer spring bars are crafted from chromoly steel. This chromium molybdenum alloy has a high tensile strength that ensures durability while also maintaining great flexibility.

## **5. Lift Brackets**

Lift brackets mount to the frame of your trailer and are used to hold the spring bars of your weight-distribution system in place. The design and, to an extent, function of lift brackets can vary among different weight-distribution systems.

### **Snap-Up Brackets**



Standard weight-distribution systems use chains to connect the spring bars to your trailer. The chains are attached to lift brackets that install on the trailer's frame. The number of chain links between each spring bar and lift bracket is integral in achieving proper tension in the bars - and therefore weight distribution for your load. Traditionally, lift brackets have a snap-up design.



## **Method for setting up a system with snap-up lift brackets:**

1. Hook your trailer up to your tow vehicle.
2. Choose reference points on your tow vehicle's front and rear wheel wells. Measure from these points down to the ground.
3. Use a jack to raise the trailer tongue and the rear of your vehicle.
4. Hook the chain onto the lift bracket on one side of your trailer.
5. Snap up the lift bracket using the lift handle. This may take a good amount of leverage and effort.
6. Secure the bracket in place with a pin and clip.
7. Repeat steps 4 - 6 for the other side.
8. Lower the jack and re-measure the distance from the reference points on your vehicle's wheel wells to the ground. The measurement for the front should be nearly equal to that in rear, with no more than 1/2" difference.
  - If the front of your vehicle is lower than the rear, increase the number of chain links between the spring bars and the lift brackets until the height is about even. If there are no more links available for adjustment, angle the weight-distribution head assembly up to correct the height difference.
  - If the rear of your vehicle is lower than the front, reduce the number of chain links between the spring bars and the lift brackets until the height is about even.

## **Blue Ox Rotating Latch Brackets**



Blue Ox SwayPro weight-distribution systems include rotating latch brackets instead of snap-up brackets. These brackets are supremely easy to use. Simply insert the chain into the bracket and use the included handle to rotate the bracket until the chain is taut. The bracket will lock in place automatically when the lock pin engages.

The SwayPro rotating latch brackets are designed not only to be easier to use, but also to help prevent trailer sway. Each bracket hangs farther down from the trailer frame than a traditional lift bracket, minimizing the distance between the brackets and the spring bars. As a result, less chain hangs down from the brackets, which limits the movement of the spring bars so that they can exert more force on your trailer to effectively keep it from shifting side to side.

### **Friction Sway Control Brackets**

Some premium weight-distribution systems, like Reese SC, have specially designed sway-control brackets in place of traditional snap-up brackets. These systems do not use chains to hold the spring bars in place. Instead the bars rest directly on the brackets. Each sway-control bracket is designed to inhibit sway both by holding the spring bar firmly in place and by ensuring that friction occurs any time, the bar moves along the surface of the bracket. This is referred to as dependent friction sway control.



## What Is Sway Control?

A sway-control device is recommended for most standard weight-distribution systems. Trailer sway can be caused by crosswinds, poor trailer loading (load being too far back), or inadequate spring bar tension in the weight-distribution system. The use of a weight-distributing hitch by itself may help limit trailer sway by evenly distributing the weight of the load, but it will do little to improve sway caused by crosswinds. Trailer sway can be controlled with 2 basic types of systems - those that reduce sway once it has begun and those that work to prevent sway altogether.

### Reduce Sway

There are 2 styles of sway control systems that are designed to reduce trailer sway once it has already begun. Both of these styles rely on the friction that occurs when your trailer shifts to force your trailer back in line and prevent further sway from occurring.

### Independent Friction Sway Control



An independent friction-style (or bar-style) sway control bolts onto your trailer frame at one end and hooks up to a small hitch ball that mounts to the system head at the other end. By attaching to both the weight-distribution system and the trailer frame, the sway-control unit can supply tension to help keep the trailer in line. An interior bar telescopes in and out as your trailer moves. As soon as your trailer begins to move out of line, the friction pads inside the unit make contact with one another and create resistance to help reduce any further side-to-side movement.

**Installation:**

1. Bolt the sway-control plate to the frame of your trailer.
2. Mount the included ball to the side platform on your weight-distribution head (or to the sway-control tab on your ball mount).
3. Attach the sway-control device to the balls (on the ball mount and on the sway-control plate).
4. Adjust the tension with the integrated knob. Note: Overtightening or undertightening the sliding mechanism affects the amount of friction and can, therefore, render the system ineffective.

**Quick Tips:**

- It is recommended that you remove the friction-style sway control before backing up to ease reversing and prevent damage to your system.
- When towing in slippery conditions - such as on wet, icy, or snow-covered roads or on loose gravel - turn the on/off handle of the sway-control unit counterclockwise until all tension is removed from unit. Failure to do so could prevent the tow vehicle and trailer from turning properly.
- One friction-style sway control can be used for trailers with up to 6,000-lb GTW. If your trailer's GTW is between 6,000 lbs. and 10,000 lbs., you will need two sway-control units, one on either side of the trailer. You will also want to use two units if your trailer is 26' or longer.



### **Dependent Sway Control**

Dependent sway controls are built into weight-distribution systems. These systems combat trailer sway as soon as it begins by creating enough resistance to essentially force your trailer to remain in line. Typically, they rely on the downward force of the spring bars to apply frictional resistance to the brackets on both sides of the trailer frame. In order for the trailer to move side to side (sway) it must apply enough force to overcome this resistance and make the brackets slide beneath the spring bars, which would prove very difficult in a normal towing situation.

Depending on the exact style of your system, there may be additional points of friction as well. This style is usually easier to hook up than standard systems that rely on lift chains, and over tightening or under tightening the sway control device is not an issue. Dependent systems are also able to be used with trailers that have surge (or hydraulic) brakes, unlike independent controls and certain sway control systems that work to prevent sway.

### **Prevent Sway**

Certain sway control systems are designed to constantly keep your trailer in line to prevent sway. These systems are sometimes referred to as active sway control systems.



### **Active Sway Control**

Active sway control is built into the weight-distribution system, but it doesn't use friction to stop trailer sway. Active systems, like Reese's Strait-Line system, proactively and aggressively stop sway before it begins by forcing the tow vehicle and trailer to continuously ride in a straight line.

The Strait-Line system uses unique sliding devices called "cams" to suspend the spring bars. One end of a cam bolts onto the trailer's frame, and the other end attaches to the lift bracket via the lift chain. The rounded, hooked ends of the spring bars then sit in these cams. The controlled placement of the spring **bars** keeps your system secure while still allowing enough movement for free, easy interaction between your trailer and your tow vehicle.

### **Functioning of Dual Cams**

Automatically self-adjust and self-center in variety of situations

Straight-line movement - cams lock in position to hold trailer steady despite crosswinds

Cornering - cams automatically unlock and slide to allow full-radius turns

Sudden swerving - cams seek a straight-line angle to help stabilize trailer

Another type of active sway control can be found in the Blue Ox SwayPro weightdistribution system. This system features unique rotating brackets that are

designed to take up far more slack in the lift chains than is possible with traditional weightdistribution systems. This creates a situation where the spring bars are pulled so taut that they are able to exert enough force on your trailer to effectively keep it from shifting side to side.

### Quick Tips

- Active systems do not need to be disengaged for you to drive your rig in reverse
- The Reese Strait-Line system is not compatible with surge or hydraulic trailer brakes
- Many basic weight-distribution systems from Reese can be upgraded to dual-cam systems
- Spring bars must have curved ends to fit into cams
- Blue Ox SwayPro systems can be purchased with either clamp-on or bolt-on brackets and can be chosen based on whether you have a standard ball coupler or an underslung coupler on your trailer

### What Types of Weight-Distribution Systems Are Available?

Weight-distribution systems are available in many styles that differ based on features such as the spring bars, the head assembly and the sway control. The following table offers a quick comparison of the weight-distribution hitches available from etrailer.com.

|  | Sway Control Type | Surge Brake Compatible | Head Adjustment Method | Lift Bracket Type |
|--|-------------------|------------------------|------------------------|-------------------|
|  |                   |                        |                        |                   |

|   |                         |            |  |  |
|---|-------------------------|------------|--|--|
| <b>Standard Systems</b>                             | <b>None</b>             | <b>Yes</b> | <b>Depends on Model and Manufacturer</b>     | <b>Snap-Up</b>                               |
| <b>Standard Systems w/ Independent Sway Control</b> | <b>Bar Style</b>        | <b>No</b>  | <b>Traditional Washer Style</b>              | <b>Snap-Up</b>                               |
| <b>Blue Ox SwayPro</b>                              | <b>Tension</b>          | <b>Yes</b> | <b>No Adjustment Necessary</b>               | <b>Rotating Latch</b>                        |
| <b>Reese SC</b>                                     | <b>2-Point Friction</b> | <b>Yes</b> | <b>Serrated Washer</b>                       | <b>Platform Brackets w/ Brake Pad Lining</b> |
| <b>Reese Strait-Line</b>                            | <b>Dual Cam</b>         | <b>No</b>  | <b>Serrated Washer or Block-Style Washer</b> | <b>Cams</b>                                  |

### Standard Weight-Distribution System



These systems offer standard weight distribution and basic sway control. An independent, bar-style sway control is included to combat trailer sway. This type of system is typically the most cost-effective option for someone who has a problem with trailer sway. Sway Control

- Single, bar-style friction sway control



- Independent system relies on friction produced by brake-pad-like material rubbing together inside of add-on unit
- Many Reese systems have bends integrated into the ends of the spring bars - upgrade to dual cam sway control

#### Trailer Brake Compatibility

- Electric brakes only
- Not compatible with surge or hydraulic brakes Head Adjustment

#### Method

- Typically, traditional washer style Lift Brackets
- Traditional snap-up design Spring Bars
- Typically, round bars
- Construction depends on manufacturer

### **Standard Weight-Distribution System with Independent Friction Sway Control**



These systems offer standard weight distribution and basic sway control. An independent, bar-style sway control is included to combat trailer sway. This type of system is typically the most cost-effective option for someone who has a problem with trailer sway. Sway Control

- Single, bar-style friction sway control
- Independent system relies on friction produced by brake-pad-like material rubbing together inside of add-on unit

- Many Reese systems have bends integrated into the ends of the spring bars - upgrade to dual cam sway control

### Trailer Brake Compatibility

- Electric brakes only
- Not compatible with surge or hydraulic brakes Head Adjustment Method
- Typically, traditional washer style Lift Brackets
- Traditional snap-up design

### Spring Bars

- Typically, round bars
- Construction depends on manufacturer

Note: Bar-style sway controls must be manually deactivated to back up with your trailer.

### Blue Ox SwayPro Weight-Distribution System with Active Sway Control



The SwayPro offers four points of built-in sway control. Within the head assembly the trunnions are designed to hold the spring bars securely in position, placing just enough tension on them to cause them to constantly force your trailer to remain in line. At the other end of this weight-distribution system, the rotating brackets ensure that the lift chains are pulled as taut as possible. This limits the

movement of the spring bars so that they can exert more force on your trailer to effectively keep it from shifting side-to-side.

Perhaps the most attractive asset of the SwayPro is the rotating latch brackets. All you have to do to attach the spring bars to the trailer frame is insert the lift chain into the bracket slot and rotate the bracket with the included wrench until the lock pin engages.

### **Sway Control**

- Active tension sway control
- Wrap-around design of lift brackets keep chains secure and taut
- Trunnion bars are held tightly in place to limit movement of system

### Trailer Brake Compatibility

- Electric brakes
- Surge or hydraulic brakes

### Head Adjustment Method

- No adjustment needed

### Lift Brackets

- Rotating latch brackets

### Spring Bars

- Trunnion bars only
- Steel construction

## Reese SC Weight-Distribution System with Dependent Friction Sway Control



The integrated sway control on the Reese SC system reduces trailer sway caused by winds, winding roads and sudden maneuvers. As soon as your trailer begins to move out of line, the friction material that lines the bottoms of the brackets installed on the trailer frame creates just enough resistance with the shifting spring bars to prevent any further side-to-side movement.

### Sway Control

- Dependent, 2-point friction sway control

### Trailer Brake Compatibility

- Electric brakes
- Surge or hydraulic brakes

### Head Adjustment Method

- Serrated washer Lift Brackets
- Platform-style brackets are lined with brake-pad-like friction material

### Spring Bars

- Trunnion bars only
- Hot rolled steel construction
- Tapered for excellent flex



The unique platform-style brackets make installation a snap. The included lift handle lets you hook up the spring bars with limited use of your trailer jack.

### **Reese Strait-Line Weight-Distribution System with Dual-Cam, Active Sway Control**



This high-performance weight-distributing hitch offers spring bars with excellent flex, ensuring the load is always evenly distributed, even on rough terrain. The dual cam system keeps the trailer in a straight line behind the tow vehicle. Sway Control

- Active sway control with dual-cam design

#### Trailer Brake Compatibility

- Electric brakes only
- Not compatible with surge or hydraulic brakes

#### Method

- Serrated or block-style washers

#### Lift Brackets

- Cam-style brackets

#### Spring Bars



- Round and trunnion bars available
- Hot rolled steel construction
- Tapered for excellent flex

Reese's dual-cam sway-control system stops trailer sway before it begins. This is different from traditional friction-style controls, which help to correct sway only after it has already begun. This specially designed system uses unique sliding devices called "cams" to suspend the spring bars of your weight-distribution system. One end of each cam bolts onto your trailer's frame, and the other end attaches to the lift bracket via the lift chain. The hooked ends of the spring bars then sit in the cams. The controlled placement of the spring bars keeps your system secure while still allowing enough movement for free, easy interaction between your trailer and your tow vehicle.

During basic, straight-line towing, the cams lock in place and hold the trailer steady by applying constant, consistent pressure to both sides of the trailer frame. This keeps the trailer from swaying in crosswinds. When you go into a turn, the cams unlock and slide to allow a controlled, full-radius maneuver. If you swerve suddenly, the cams will give to accommodate the movement while still working to obtain a straight angle, thereby maintaining control of the trailer

## **What Types of Accessories Are Available for Weight-Distribution Systems**

The majority of weight-distribution accessories are geared towards adapting a certain system for use with your particular towing setup. Differently sized shanks, for example, are available to precisely match the hitch height required for your application. The following are the most commonly sought after parts for weightdistribution systems.

### **Pole-Tongue Adapter**



Designed for use on a trailer that does not have an A-frame tongue, a pole-tongue adapter clamps around the straight (or pole) tongue of your trailer and provides attachment points for the lift brackets of your weight-distribution system.

### **Lift Bracket Upgrades**



Lift brackets are an integral part of any weight-distribution system. As discussed earlier, these brackets are what hold the spring bars of your system to the frame of your trailer. Replacement brackets are available for most systems.

You can typically choose between clamp-on or bolt-on brackets. Clamp-on brackets install easily with no drilling required. Bolt-on brackets attach to the side of your trailer frame, allowing plenty of room for toolboxes, propane tanks, winches, batteries or anything else that you want to mount to the top of the frame.



**Blue Ox offers clamp-on and bolt-on varieties of their rotating latch brackets.**



Reese carries clamp-on and bolt-on chain hangers, which serve the same function as snap-up brackets but take up less space on your trailer frame.

### **Hitch Balls**



The hitch ball is usually not included with a weight-distribution system and must, therefore, be purchased separately. This is because the ball diameter - typically 2" or 2-5/16" - is dependent on your trailer capacity and coupler size. The ball shank diameter required for most weight-distribution systems is 1-1/4".