

Weigh Safe's True Tow Weight Distribution Hitch

Bringing You a
Towing *Peace of Mind*™

OWNER'S MANUAL



Model	Max Tongue Weight	Max Trailer Weight
2" Shank / Small Bar	1,500 lbs	15,000 lbs
2.5" Shank / Large Bar	2,000 lbs	20,000 lbs

Read the entire manual before installation of the Weigh Safe® True Tow Weight Distribution Hitch.

Dealers: Please pass this manual to new Weigh Safe customers after hitch installation.

Assembled in the U.S.A.
Made in the U.S.A. and China

*DTW = Distributed Tongue Weight



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Required Tools

- DTW calculator on the Weigh Safe App
- Measuring tape
- Lift bracket with $\frac{3}{4}$ " socket end (provided). *** $\frac{3}{4}$ " socket with socket wrench or $\frac{3}{4}$ " star wrench recommended but not required.
- Torque wrench capable of 65 ft-lb
- $\frac{1}{4}$ " hex wrench (provided)

IMPORTANT SAFETY INFORMATION

FAILURE TO FOLLOW ALL SAFETY WARNINGS MAY RESULT IN SEVERE INJURY OR DEATH

WARNING

The Weigh Safe® True Tow Weight Distribution Hitch is for personal, non-commercial use only.

Installing, setting up, and measuring weight distribution appropriately does NOT guarantee safe towing. The vehicle operator is responsible to optimize weight distribution and sway control by making necessary adjustments. However, each trip and load are different. The weight distribution setup and towing performance should be evaluated by the vehicle operator and adjusted appropriately both before and during the tow.

Responsibility falls on the driver to properly adjust the towing equipment and to adjust his or her driving habits to account for the trailer requirements, the towing conditions, and the road conditions. The driver alone is responsible for their own safety and the safety of any passengers in the vehicle. Towing with a tongue weight of less than 10% or more than 15% of the gross trailer weight greatly increases the likelihood for loss of vehicle control.

Thoroughly read, understand, and follow all safety warnings, setup, use, and maintenance instructions of your tow vehicle, trailer, and towing/hitching equipment prior to installing your hitch and before towing your trailer.

Even if a dealer installed your hitch, verify that the hitch is properly adjusted after loading your trailer onto the tow vehicle prior to your trip.

This hitch setup does not guarantee that trailer sway will be avoided altogether.

ALWAYS load the contents of a trailer correctly and properly. Follow tow vehicle and the trailer manufacturer's recommendations for quantity and placement of cargo.

ALWAYS use a tow ball with a weight rating that

meets or exceeds the Gross Vehicle Weight (GVW) requirements for your specific trailer.

ALWAYS use a tow ball size that matches your trailer's coupler size and double check to make sure the tow ball and the trailer coupler are properly and securely joined prior to towing.

ALWAYS inspect all fasteners prior to each trip for wear/tear and fatigue. Ensure all nuts, bolts, pins, and clips are tightly and securely in place. Do NOT tow your trailer until all fasteners have been checked.

NEVER tow until your hitch is properly adjusted.

NEVER exceed the weight rating specified for the tow vehicle, trailer, hitch, tow ball, or any other towing equipment.

NEVER cut, weld, grind, bend, or modify any of the hitch components in any way.

NEVER tow with your spring arms attached in extreme road conditions including, but not limited to, on rough roads, through ditches or dips, or while launching a boat. Excessive strain on the spring arms and hitch head may cause hitch fatigue and/or failure.

NEVER transfer your hitch to a different tow vehicle or trailer without re-adjusting the hitch for proper setup and weight distribution required by the new tow vehicle.

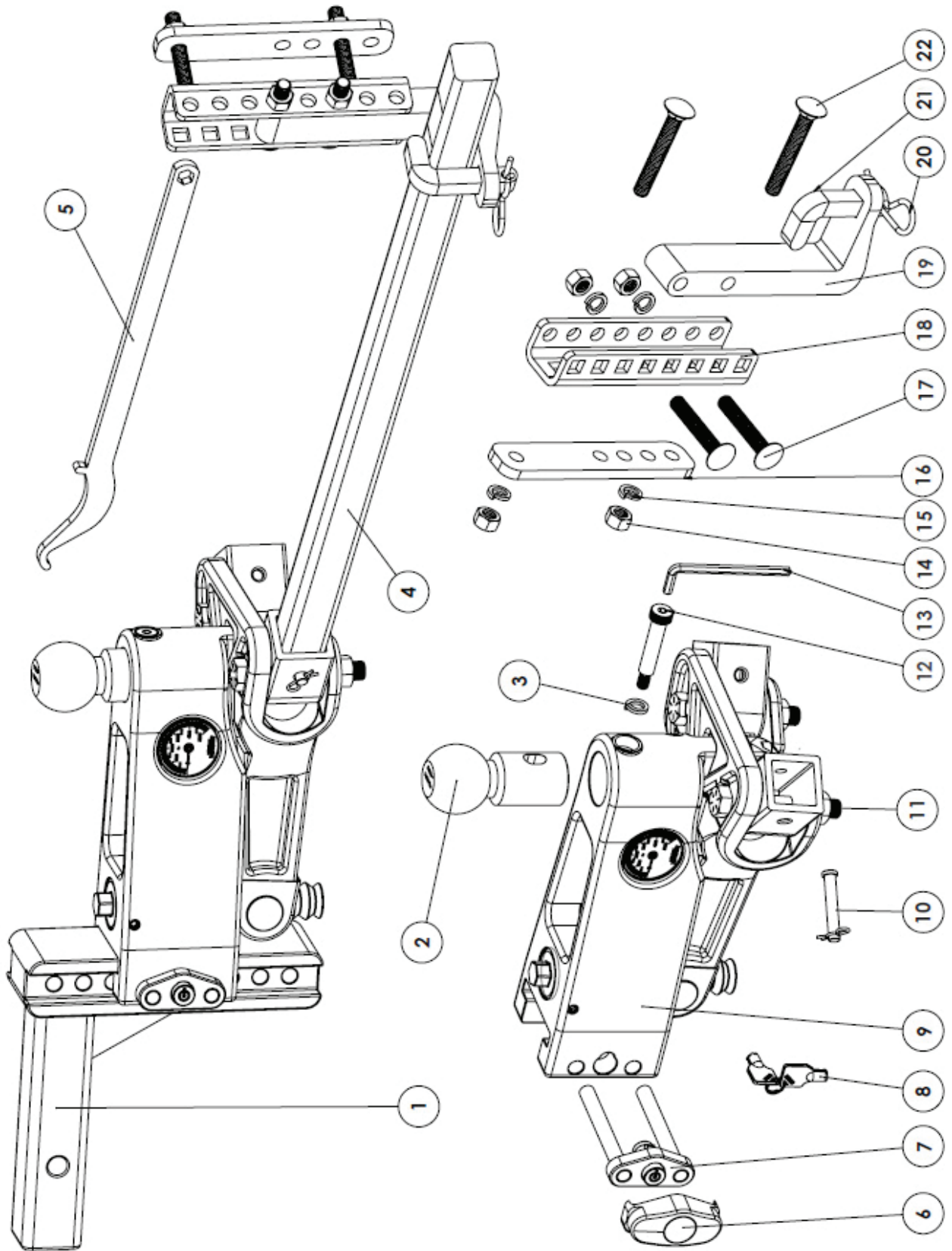
CAUTION

Do **NOT** loosen or remove any part of the hitch while the hitch is in use with a trailer hooked up. Use the trailer tongue jack to remove the tension from the Spring Arms prior to removing the L-Fingers.

ALWAYS secure the tow vehicle and trailer by applying the parking brake and wheel stops prior to setup or adjustments.

To avoid excessive strain on the hitch assembly, disengage spring arms prior to towing or backing up the trailer across a significant transition in grade (e.g., backing from a flat street to a steep uphill driveway).

PARTS BREAKDOWN



*DTW = Distributed Tongue Weight

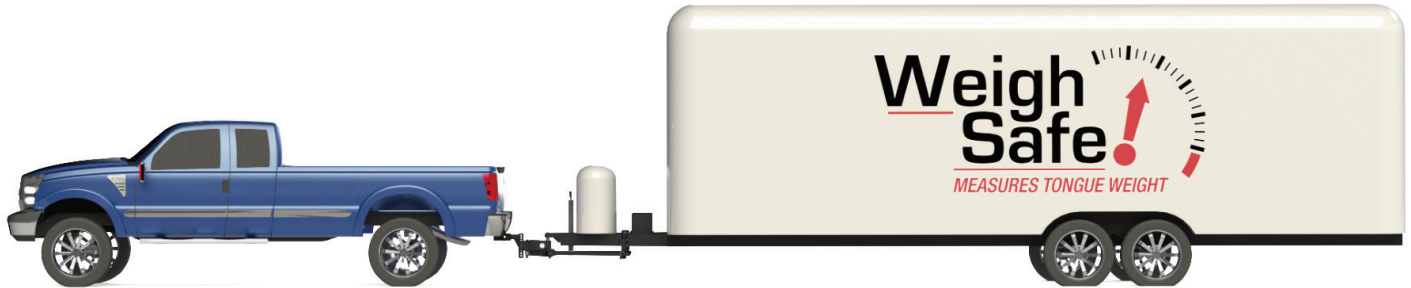
PARTS BREAKDOWN

Item #	Part Number*	Part Description	Qty Per Hitch
1	Wddb6-2 Wddb6-2.5 Wddb8-2 Wddb8-2.5	Draw Bar 6" Drop w/ 2" Shank Draw Bar 6" Drop w/ 2.5" Shank Draw Bar 8" Drop w/ 2" Shank Draw Bar 8" Drop w/ 2.5" Shank	1
2	WSB-L WSB-XL WSB-XXL15 WSB-XXL20	1- 7/8" Tow Ball 7,500 lbs. 2" Tow Ball 8,000 lbs. 2-5/16" Tow Ball for 2" Shank 15,000 lbs. 2-5/16" Tow Ball for 2.5" Shank 20,000 lbs.	1
3	WD23	1/2" Ball Pin Lock Washer	1
4	WDBSM1 WDBLG1	Spring Arm for 2" Shank Spring Arm for 2.5" Shank	2 of the same size
5	WDLA	Lift Arm	1
6	WS08	Dust Lock Cover	1
7	SWS03	Steel Lock Plate Key Assembly (Dual Pins)	1
8	WS09	Keys (Please Indicate Key Code for Replacement)	1
9	WDSL2 WDSL2.5	Weight Distribution Head Assembly for 2" Shank Weight Distribution Head Assembly for 2.5" Shank	1
10	WD19	Clevis Pin with Cotter Pin	2
11	WD21	Grade 8 Bolt	2
12	WD04	1/2" Shoulder Ball Pin	1
13	WD20	1/4" Hex Wrench	1
14	WD17	1/2" Nut (Grade 5)	8
15	WD18	1/2" Lock Washer	8
16	WD02	Inside Flat Bracket	2
17	WD13	1/2" x 3" Carriage Bolt (Grade 5)	4
18	WD05	Outside C Channel Bracket	2
19	WD07	Spring Arm Platform	2
20	WD11	L-Finger Pin	2
21	WD09	L-Finger	2
22	WD15	1/2" x 3-1/2" Carriage Bolt (Grade 5)	4

INSTALLATION

Step 1 - Pre-Setup

Park your trailer and tow vehicle on flat level ground in line with each other. Put wheel stops on trailer wheels and uncouple trailer from the tow vehicle. Pull the tow vehicle forward 4 to 5 feet to allow for working space.



With the Weigh Safe® True Tow Weight Distribution Hitch, setup is dependent on the measured tongue weight for each separate tow. Be sure to measure your tongue weight without Spring Arm attachment prior to each connection and adjust your hitch according to the instructions below. Tongue weight will change with the varying levels of the propane and freshwater tanks, and any other cargo the trailer will carry, including toys for toy haulers.

Check and inflate all tires of the system to the proper pressure before every trailer and tow vehicle connection.

Step 2 - Tow Ball Installation

Insert the correctly sized Weigh Safe Tow Ball into the designated hole of the hitch Head Assembly. See Figure 1.

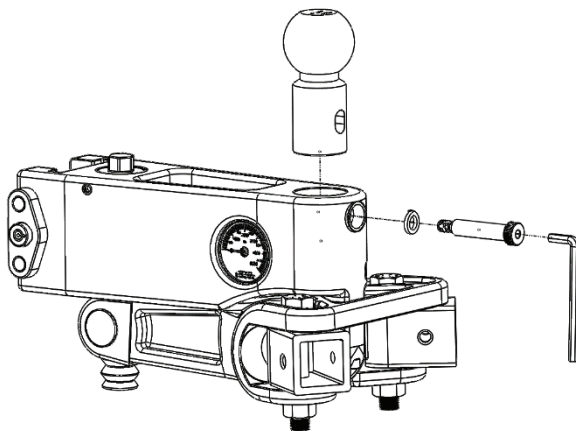


Figure 1

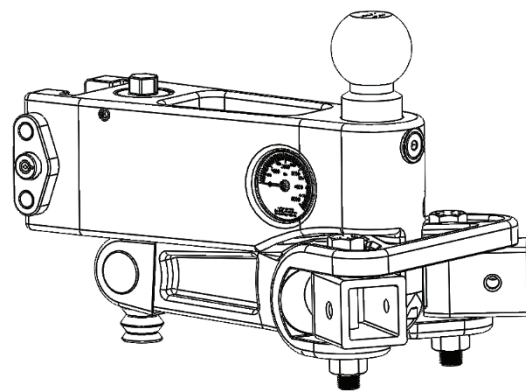


Figure 2

Once the ball is resting at the bottom, use the provided $\frac{1}{2}$ " Shoulder Ball Pin and $\frac{1}{2}$ " Lock Washer and tighten with $\frac{1}{4}$ " Hex Wrench until bolt is completely tight and is subflush with the face of the Head Assembly. See Figure 2. Torque to 30 ft-lb.

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Step 3 – Head Assembly Height Adjustment

Notice: If you don't know your actual tongue weight, quickly measure your tongue weight by putting on the head assembly at a best guess height and lower your trailer onto the tow ball completely. The gauge will show your tongue weight. Continue with instructions to set head height correctly.

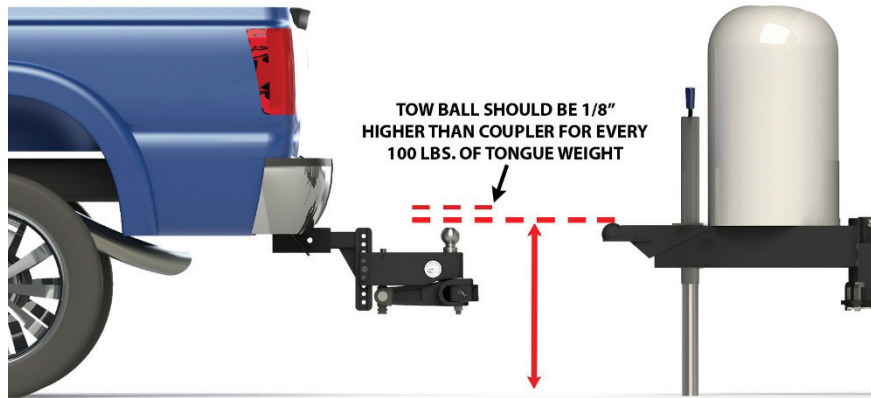


Figure 3

Level the trailer to be parallel to the ground. This can be done by measuring the front and back of the trailer frame to the ground. Adjust where needed so both the front and back measurements are the same.

With the trailer level, measure from the ground to the top of the trailer coupler. The top of the Tow Ball on the Head Assembly should be some distance above this measurement. The distance will depend on what the tongue weight of the trailer is and what kind of suspension is on the tow vehicle. A good rule of thumb is to set the Tow Ball $\frac{1}{8}$ " higher for every 100 lbs. of tongue weight. See Figure 3.

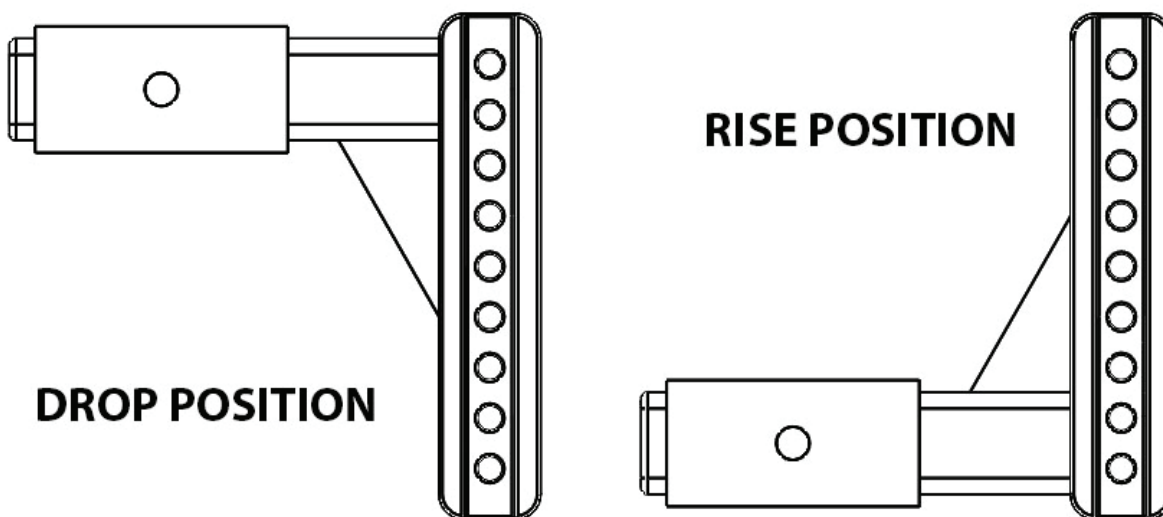


Figure 4

INSTALLATION

Insert the correct size of Draw Bar into the receiver of the tow vehicle. Depending on what the height of the trailer coupler is, the Draw Bar may need to be in the rise or drop position. See *Figure 4*.

Slide the Head Assembly onto the Draw Bar and insert the Steel Lock Plate Key Assembly (Dual Pins) into the correct holes to set the ball height. Be sure to push the Lock Plate all the way until the pins are fully inserted and the lock tab is engaged. To check this, try and pull out on the Lock Plate making sure the lock tab is secured before towing. See *Figure 5* and *Figure 6*. Secure Dust Lock Cover over the Lock Plate to prevent debris from getting inside the lock.

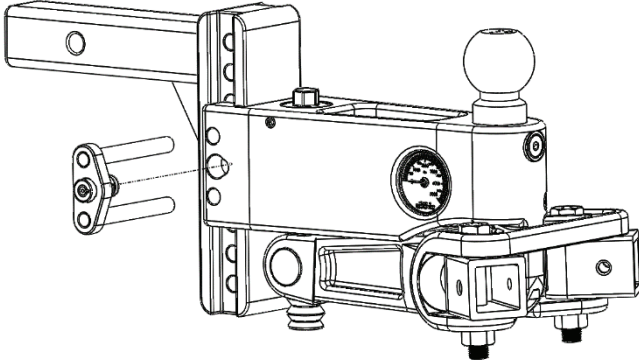


Figure 5

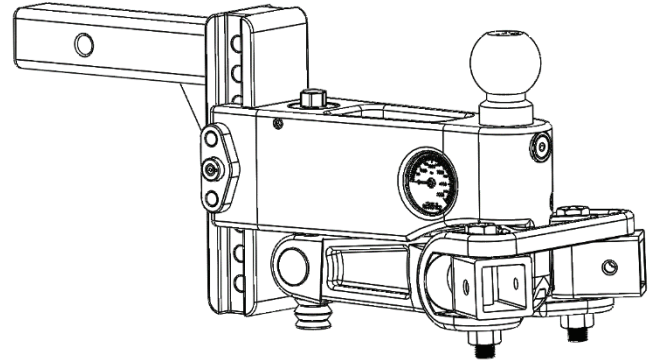


Figure 6

For future reference, save your height setup into the DTW tool on the Weigh Safe App by inputting both your Draw Bar position (rise or drop) and how many empty holes are visible above the top of the Head Assembly on the Draw Bar. Or, if you are using the website, save your height setup here:

Rise / Drop (circle one) Empty holes visible: _____

Step 4 - Trailer Bracket Installation

Trailer Bracket Location

Locate the center-line of where the trailer brackets need to be placed by measuring from the center of the trailer coupler along the trailer frame and put a mark at 32" on both sides. Ensure there are no brake lines, electrical wiring, or gas lines that would be in the way of the trailer brackets. If something is obstructing the placement of the trailer brackets, it will need to be re-routed or avoided to prevent damage by the trailer brackets.

Securing the trailer brackets at the 32" mark will put the least amount of stress on the trailer and hitch, providing the safest tow.

There are some scenarios where there may be a frame member, propane mount, or battery mount in the way that cannot be moved. In these rare cases, the trailer brackets can be moved forward, closer to the trailer coupler to a minimum distance of 27" from the coupler center. See *Figure 7*.

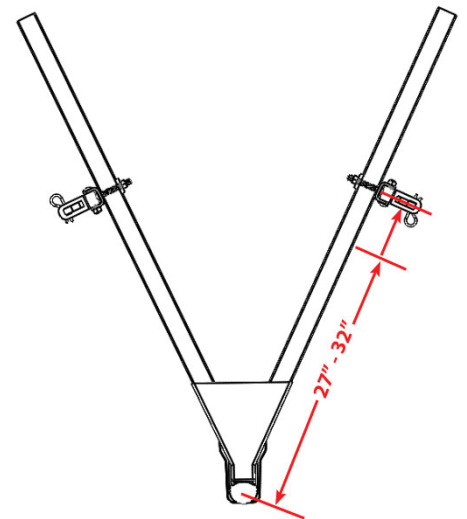


Figure 7

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Installation of Trailer Brackets onto Frame

Place one of the $\frac{1}{2}$ " x 3- $\frac{1}{2}$ " Carriage Bolts through the top hole in the Outside C Channel Bracket and align it with the top hole of the Inside Flat Bracket. Slide on the $\frac{1}{2}$ " Lock Washer and then thread on the $\frac{1}{2}$ " Nut a couple of turns. See *Figure 8*.

Slip the brackets over the trailer frame and line up the top bolt with the center mark line from the previous step. Tighten the nut until hand tight.

Insert the second $\frac{1}{2}$ " x 3- $\frac{1}{2}$ " Carriage Bolt in the highest open hole in the Outside C Channel Bracket under the trailer frame and press it through the corresponding hole on the Inside Flat Bracket. Slide on the $\frac{1}{2}$ " Lock Washer and thread on the $\frac{1}{2}$ " Nut until hand tight. See *Figure 9*.

There should not be a gap between the top and bottom Carriage Bolts and the trailer frame. If there is a gap larger than $\frac{1}{2}$ " it can cause damage to the trailer brackets.

Use $\frac{3}{4}$ " socket end of Lift Arm or $\frac{3}{4}$ " socket wrench and tighten the $\frac{1}{2}$ " nuts. Be sure to alternate between the top and bottom nuts to avoid over tightening one and not being able to tighten the other one completely. Over tightening one can cause damage to the brackets.

Setting Height of Spring Arm Platform.

Slide the Spring Arm Platform between the Outside C Channel Bracket and set it to the correct height. The ideal height for the flat portion of the platform is as close to 9" below the top of the trailer coupler. See *Figure 10*. This will allow the Spring Arms to be horizontal with the trailer frame which will create the smoothest and safest tow. In rare cases, if the lead screw on the Head Assembly bottoms out before you reach your DTW*, the Spring Arm Platform might need to be less than 9".

Once you have the Spring Arm Platform set to the correct height, insert two $\frac{1}{2}$ " x 3" Carriage Bolts into the square holes in the Outside C Channel Bracket

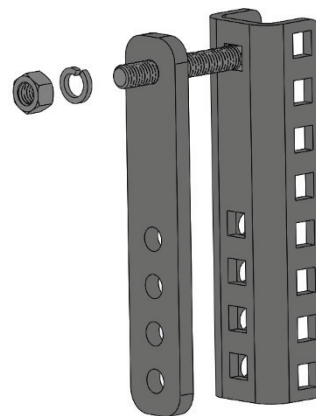


Figure 8

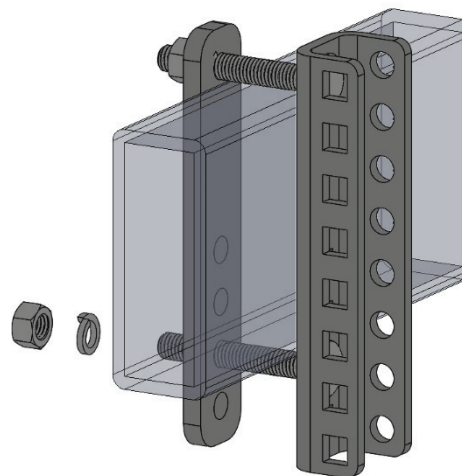


Figure 9

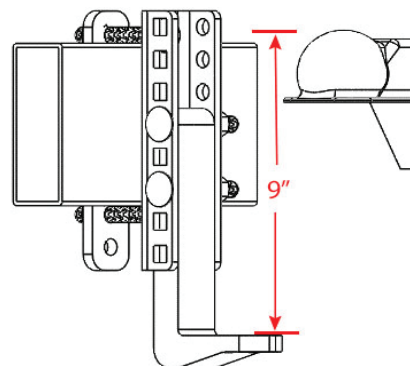


Figure 10



INSTALLATION

that lines up with the corresponding holes in the Spring Arm Platform. Press them all the way in and slide on a ½" Lock Washer and thread on the ½" Nut on each bolt. See *Figure 11*. Tighten to hand tight. Then use the ¾" socket end of the Lift Arm or ¾" socket wrench and tighten the ½" nuts. All trailer bracket bolts will need to be torqued to 65 ft-lb.

Repeat these steps on the other side of the trailer frame for the other trailer bracket.

Step 5 - Spring Arm Assembly

WARNING

USING A TORQUE WRENCH, CONFIRM THAT THE SPRING ARM SOCKET BOLTS ARE TORQUED TO A MINIMUM OF 150 FT-LB TORQUE BEFORE EACH TOWING SESSION.

Notice: *The Spring Arm Sockets are being compressed by Socket Bolts in the Head Assembly and are hard to twist. This is to help with sway control. Do not pound directly on the Spring Arm Sockets. This could cause them to chip or crack. Use the Spring Arms as a lever to move the compressed Spring Arm Sockets.*

Insert the Spring Arms into the Spring Arm Sockets so the hole in the Spring Arm lines up with the hole on the Spring Arm Socket.

Insert the Clevis Pin into the hole from the inside to the outside of the hitch. This is to allow easy access for the Cotter Pin. Secure the Clevis Pin with the Cotter Pin. Repeat these steps on the other side. See *Figure 12* and *Figure 13*.

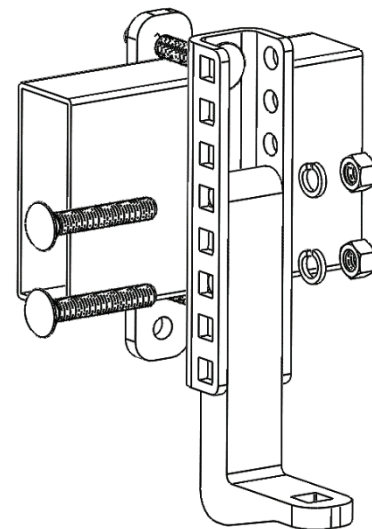


Figure 11

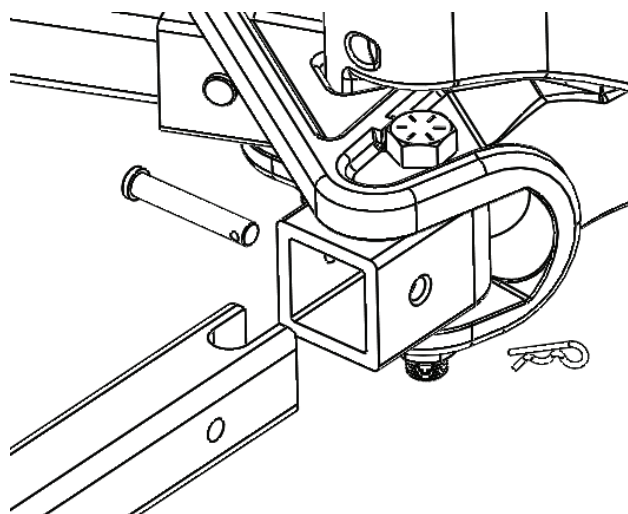


Figure 12

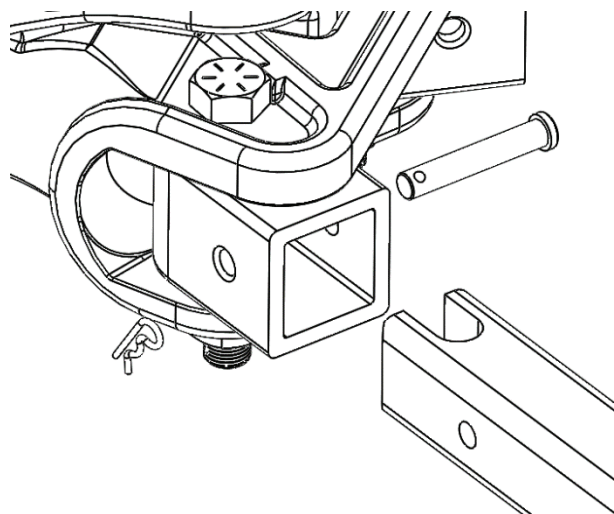


Figure 13

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Step 6 - Distributed Tongue Weight (DTW)

Notice: For the following steps, it is required that you use the DTW tool found on the Weigh Safe App. The Weigh Safe True Tow Weight Distribution Hitch not only provides you with the ability to measure tongue weight, it will also accurately calculate how much the Spring Arms need to be loaded in order to provide a truly distributed towing system. This load is reflected in an added amount of weight to the Weigh Safe gauge. That weight is called the Distributed Tongue Weight. Without the DTW tool you will not be able to accurately calculate the correct DTW* to set up your system appropriately.

Use the following information to setup and adjust your Weigh Safe True Tow Weight Distribution Hitch.

Input your Gross Trailer Weight (GTW) into the DTW tool. Gross Trailer Weight is the overall loaded weight of the trailer. Back up the tow vehicle to the trailer and lower the trailer coupler onto the Tow Ball. Lock the coupler and insert safety pin/lock for a secure attachment. Continue retracting the trailer tongue jack until it raises off the ground. Look at your Weigh Safe gauge and input your tongue weight into the DTW tool. Make sure your tongue weight is within a 10-15% range of your GTW.

Once you have your tongue weight inputted, you will need to take three measurements of your towing system to get the correct DTW*. To take dimensions, pull out one of the Spring Arms until the bar is perpendicular to the Head Assembly. This arm will be used as a base point to take measurements. Always measure using the side of the Spring Arm closest to the tow vehicle as the inside face is in line with the Tow Ball. Insert the following three measurements into the DTW tool or if you are using the website, save your measurements on the provided lines.

In inches, measure in a straight line from the rear vehicle axle center-line to the Tow Ball. See Figure 15.

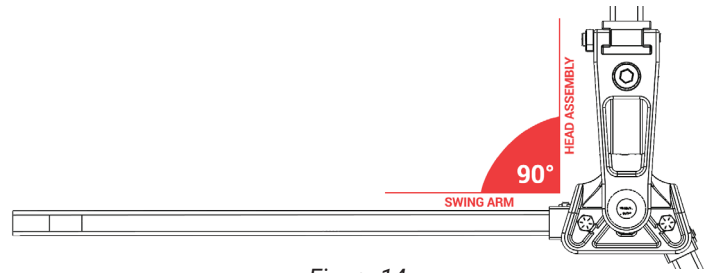


Figure 14

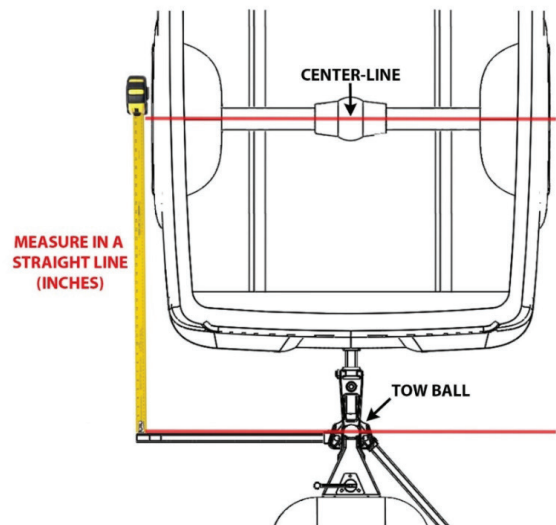


Figure 15

Measurement: _____

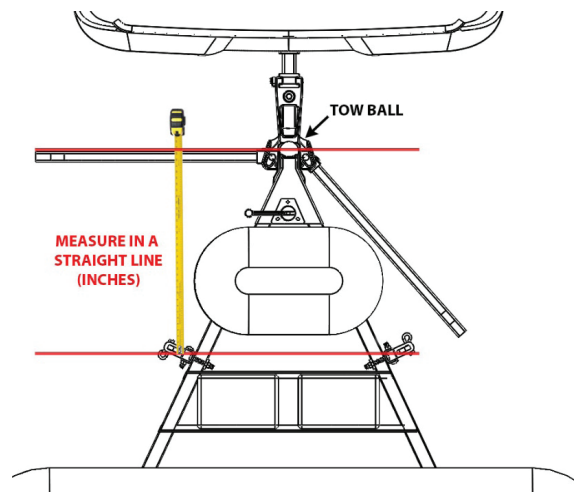
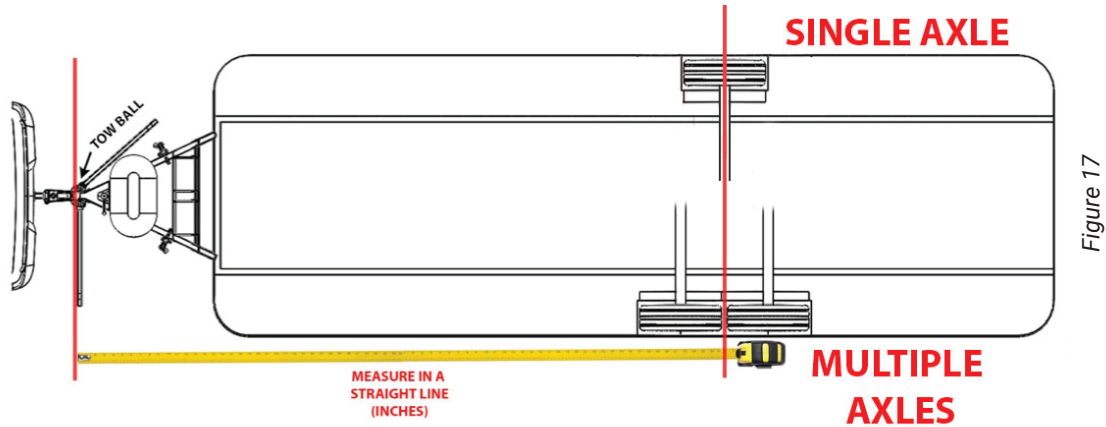


Figure 16

Measurement: _____

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Measurement: _____

In inches, measure in a straight line from the Tow Ball to the center of the trailer brackets. See *Figure 16*.

In inches, measure in a straight line from the Tow Ball to the center-line of a single axle or center-line between multiple axles. See *Figure 17*.

Step 7 - Connecting Spring Arms

Now that you know your DTW*, it is time to hook up the Spring Arms.

There are two methods to connect the Spring Arms to the Spring Arm Platforms. The first method is for the initial setup (out of the box). The second method is ideal for every other connection.

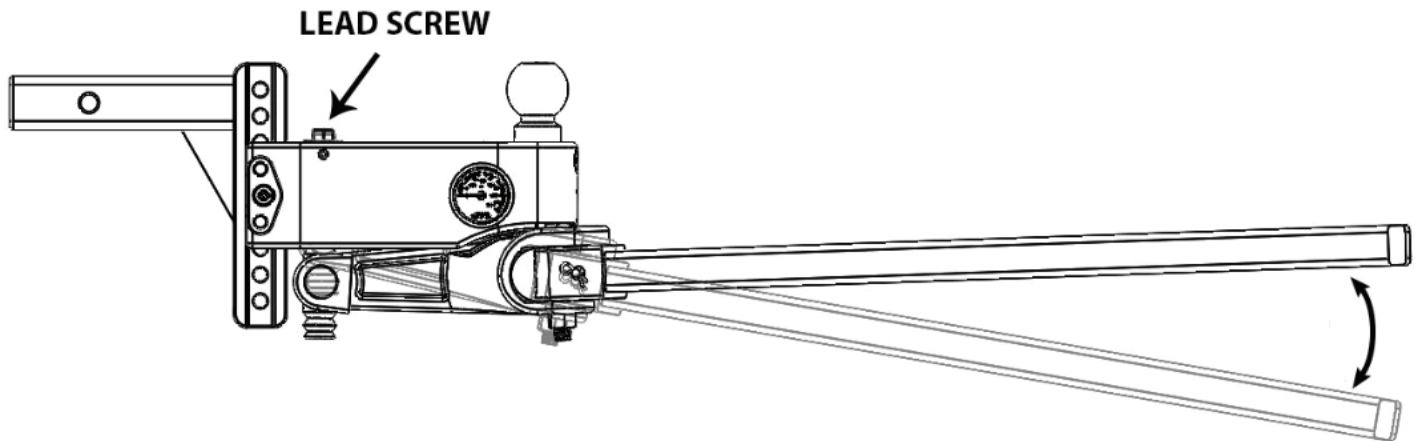


Figure 18

First Method:

Out of the box, the Live Adjustment System in the Head Assembly will be bottomed out leaving the Spring Arms in the highest position. See *Figure 18*. With the trailer still coupled to the tow vehicle measuring tongue weight, you should be able to slide the Spring Arms onto the Spring Arm Platforms. If you are towing a heavy trailer that creates vehicle squat keeping you from being able to slide the Spring Arms onto the Spring Arm Platforms, you

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may use the trailer tongue jack to lift both tow vehicle and trailer until you can lift the Spring Arms into place over the Spring Arm Platforms. If that doesn't work, you may have to use the Lift Arm to lift the Spring Arms up onto the Spring Arm Platforms. See *Figure 19*.

Use the L-Fingers and L-Finger Pins to secure the Spring Arms onto the Spring Arm Platforms. See *Figure 20*.

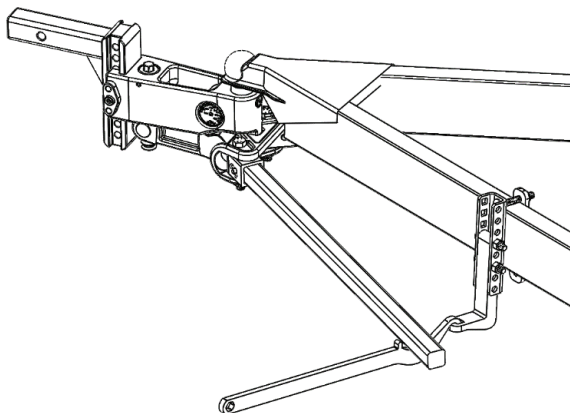


Figure 19

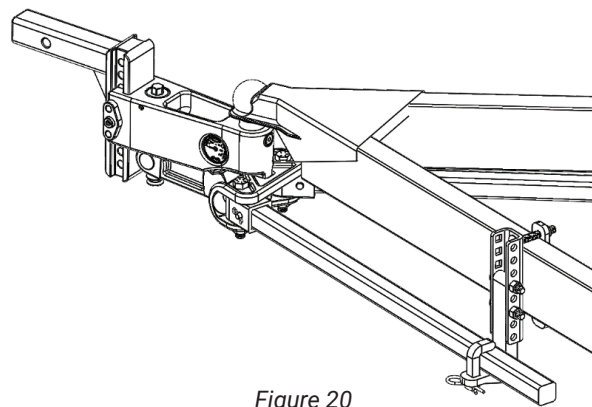


Figure 20

Second Method:

With the trailer still coupled to the tow vehicle, use the trailer tongue jack to lift both tow vehicle and trailer until you can swing the Spring Arms into place over the Spring Arm Platforms. If you reach the highest level or load of the trailer tongue jack and the Spring Arms are unable to be lifted onto the Spring Arm Platforms, you can use the Lift Arm to lift the Spring Arms up onto the Spring Arm Platforms. See *Figure 19*.

Use the L-Fingers and L-Finger Pins to secure the Spring Arms on the Spring Arm Platforms. See *Figure 20*.

Repeat step for both Spring Arms on each side of the trailer.

Step 8 - Live Weight Distributing System

Now that the Spring Arms are attached to the trailer, it is time to distribute your towing system using the calculated DTW* populated on the DTW tool. Using the Lift Arm or a $\frac{3}{4}$ " socket or lug wrench, tighten or loosen the lead screw until your Weigh Safe gauge reaches the DTW* number. Turning it clockwise increases distributed tongue weight and counterclockwise decreases distributed tongue weight. See *Figure 21*.

Once the Weigh Safe gauge has reached the DTW*, your system is now distributed. It is important to note that the DTW* will normally, but not always, read somewhere between 2 to 3 times your tongue weight.

Yes, it was that easy.

Notice: Sometimes the added force in the Spring Arms can cause extra friction in the Tow Ball resulting in slow or no change in the tongue weight while adjusting the Lead Screw. If you are noticing your system not moving after a substantial amount of adjusting, try to stand on or kick the tongue of your trailer to loosen up the high friction.

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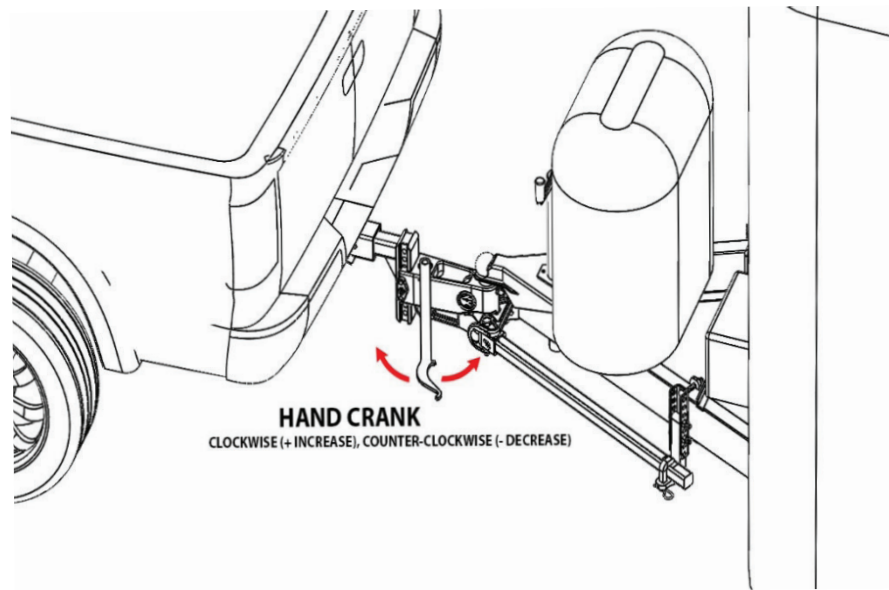


Figure 21

Step 9 - Disconnecting Your Hitch

Pull your trailer into the place you want it parked; most effectively done on a flat surface.

Set the parking brake and put stops under the wheels of the trailer.

Unhook the electrical cable, chains, and breakaway cable from the tow vehicle.

Raise the trailer tongue jack until it starts to raise both the trailer and tow vehicle. Continue to lift until the weight is lifted off the ends of the Spring Arms, allowing you to easily pull off the Spring Arms from the Spring Arm Platforms.

Remove L-Finger Pins and L-Fingers.

Slide Spring Arms away from the trailer frame to clear the trailer brackets when you lower the trailer tongue jack.

Lower the trailer tongue jack until the trailer tongue is again resting on the hitch (showing some tongue weight) and you can unhook the trailer coupler latch.

Use the trailer tongue jack to lift the trailer off the Tow Ball and pull the tow vehicle away from the trailer.

Unhook the Spring Arms from the Head Assembly and remove the Head Assembly from the Draw Bar.

Store your True Tow Weight Distribution Hitch in a safe and secure location that is protected from weather conditions.

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Step 10 - Regular Inspection and Maintenance

WARNING

Do not tow your trailering system unless all bolts and nuts have been properly checked and tightened and all pins and brackets are securely installed. Towing with loose bolts or pins for an extended period can cause abnormal stress on the hitch resulting in accident, severe injury, and/or property damage.

Check that all bolts and nuts are torqued to the specified amount in *Table 1* before every tow.

Check all plugs and screws in the Head Assembly to make sure that none have backed out or are leaking any hydraulic fluid.

Torque Specifications	
Ball Shoulder Bolt	30 ft-lbs.
Trailer Bracket Bolts	65 ft-lbs.
Spring Arm Swivel Bolts	150 ft-lbs.

Table 1

On the Head Assembly, the friction surfaces should be kept clean and well lubricated with high-pressure multipurpose or bearing grease. The best way to apply the grease is to twist the Spring Arm Sockets completely to the outside positions and apply grease to the surfaces where the top and bottom of the Spring Arm Sockets contact the rest of the Head Assembly. See *Figure 22*.

There are also two grease ports on the Head Assembly that supply grease to the Lead Screw that needs to be serviced at the beginning of each towing season or bi-annually in warmer climates. To service, use a grease gun filled with high-pressure multipurpose or bearing grease and pump into ports. Fill the top and bottom ports generously to keep areas well lubricated. See *Figure 23*.

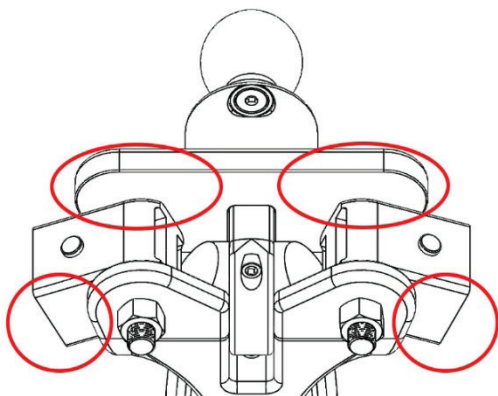


Figure 22

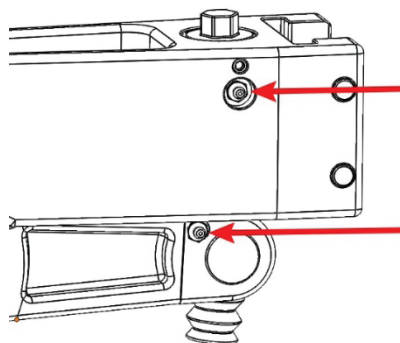


Figure 23

*DTW = Distributed Tongue Weight

[View other trailer hitches and towing made by Weigh Safe on our website.](#)