

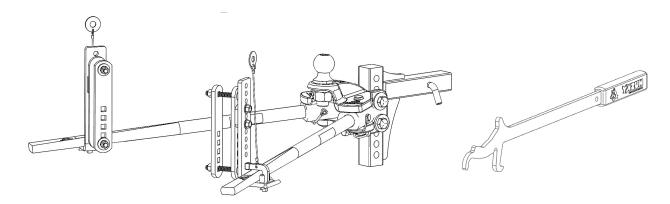
CENTER LINE TS PLUS SYSTEM

Assembly, Installation, Operation, and Maintenance Instructions

| PART | 33301, 33302, | |
|-----------------|---------------|--|
| NUMBER | 33303 | |
| INSTALL TIME | 30 MINUTES | |

| 33301: | CENTER LINE TS PLUS, | , 400-800 LBS. W/2" BALL | |
|--------|----------------------|--------------------------------|--|
| 33302: | CENTER LINE TS PLUS, | , 400-800 LBS. W/2-5/16" BALL | |
| 33303: | CENTER LINE TS PLUS, | , 800-1400 LBS. W/2-5/16" BALL | |

| | <u> </u> | |
|---------------------|--|--|
| | | |
| Dealer / Installer: | Provide a copy of these instructions to the end user of this product. These instructions provide important operating and safety information for proper usage of this product. Demonstrate the proper use of the product with the end user. Have the end user demonstrate that they understand the proper use of the product. | |
| End User: | Read and follow all instructions included in this manual. Ask your Dealer / Installer | |
| ⚠ WARNING ⚠ | for assistance if you do not understand the proper use of the product. Never remove any decals from the product. Failure to follow these instructions can result in injury or death. | |
| ⚠ WARNING ⚠ | DO <u>NOT</u> EXCEED RECOMMENDED TOWING LIMITS. SEE VEHICLE'S OWNER'S MANUAL. | |
| ⚠ WARNING ⚠ | Use ONLY with 4", 5", 6", 7" & 8" trailer frames. | |



Rating when used as a weight distribution hitch with spring bars

| Part Number | Max. Tongue Weight | Max. Gross Trailer Weight |
|-------------|-----------------------------|---------------------------|
| 33301 | 400-800 lbs. / 181-363 kg. | 8,000 lbs. / 3629 kg. |
| 33302 | 400-800 lbs. / 181-363 kg. | 8,000 lbs. / 3629 kg. |
| 33303 | 800-1400 lbs. / 363-635 kg. | 14,000 lbs. / 6350 kg. |

CAUTION: The tongue weight rating of spring bars represents the capacity of a **pair** of bars, **NOT** an individual bar

Rating when used as a weight carrying hitch without spring bars

| Part Number | Max. Tongue Weight | Max. Gross Trailer Weight |
|-----------------------|--------------------|---------------------------|
| 33301, 33302, & 33303 | 600 lbs. / 272 kg. | 6,000 lbs. / 2721 kg. |

Always use a pair of spring bars and be sure they are of the same weight rating and size for your trailer.

READ ALL INSTRUCTIONS AND CHECK PACKAGE CONTENTS BEFORE BEGINNING INSTALLATION.

Note: This system can be used on any angle tongue trailer.



These instructions are guidelines only. Actual installation is the responsibility of the installer and the owner. Always measure truck and trailer before installing hitch to be sure that there is clearance at the bumper to allow for turns.

Tools Required for Installation

The following list of tools will be needed for proper installation of all components:

- Safety Glasses
- 15/16" Open End Wrench (5/8" HEX NUT)
- 1-1/8" Box End Wrench (3/4" HEX HEAD BOLTS)
- 1-1/16" Socket (3/4" HEX NUTS)
- 3/4" Socket (1/2" HEX NUTS)
- ½" Ratchet
- Measuring Tape
- Torque Wrench capable of 260 ft-lbs. of torque for Shank Bolts

Recommended tools for installing the Hitch Ball:

None are required as the hitch ball comes from the factory pre-installed. It is recommended that you check the torque of the hitch ball nut periodically using a 1-7/8" Thin-walled socket depending on hitch ball size.

- Torque Wrench capable of 380 ft-lbs. of torque (always check ball manufacturer's specifications for proper torque rating)
- 1-7/8" Thin-Walled Socket (1-1/4" HITCH BALL NUT) REQUIRED ONLY IF REMOVING OR TIGHTENING THE HITCH BALL

Important!

Before installing or towing with this Bolt Together Weight Distributing Hitch, please read and follow all instructions and warnings in the tow vehicle owner's manual and trailer owner's manual.

Have gross trailer weight and tongue weight checked before selecting and installing any weight distributing system.

Weigh trailer again after fully loading and check loaded tongue and gross weight to ensure proper weight distribution hitch is being used.

⚠ WARNING ⚠

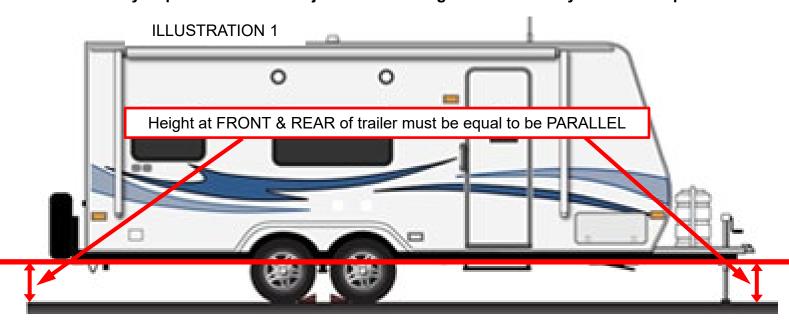
This kit is to ONLY be used with Husky weight distribution spring bars that are designed for this particular system. Do not substitute with any other spring bars.

⚠ WARNING ⚠

Do not use a separate friction sway control on this unit!

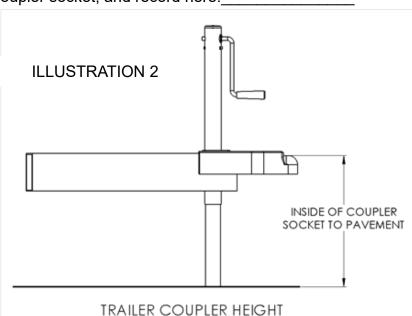
Measure Trailer Coupler & Frame Height

NOTE: Changing the weight of the trailer and/or tow vehicle by adding, moving or unloading cargo may require the need to adjust how the weight distribution system is set up.



IMPORTANT! Set parking brake of tow vehicle and chock the wheels of the trailer before lifting or lowering!

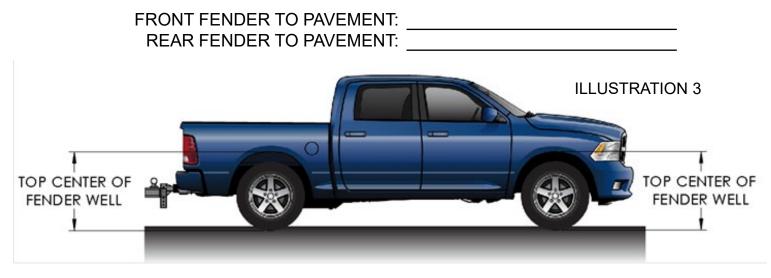
- 1. Line up the tow vehicle and trailer on level pavement, in a straight position.
- 2. Use the trailer tongue jack to raise or lower the trailer until it is parallel with the ground. See **Illustration 1**. **DO NOT USE A BUBBLE LEVEL.** Measure the distance from pavement to the inside of the coupler socket, and record here:



3. Mark a spot on the side of the frame on the trailer as close to the coupler as you can. Measure from this mark to the pavement, and record here: ______. This measurement will be used later to determine if a proper setup has been achieved.

Measure the Tow Vehicle

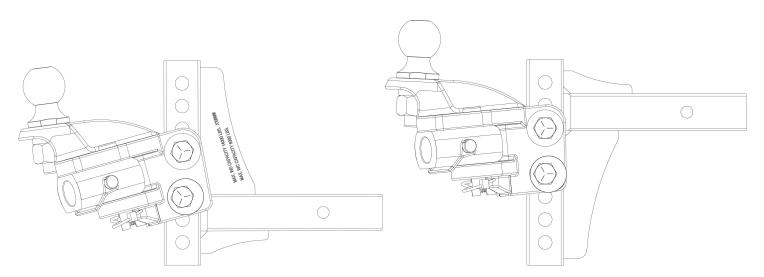
For vehicles with air springs, air shocks or automatic leveling systems: Check the vehicle owner's manual or other instructions on these items. Unless otherwise indicated, air springs and air shocks should be deflated to their **minimum recommended pressure** BEFORE assembling and adjusting the weight distribution hitch. Pick reference points at the top center of the front and rear fender well of towing vehicle. Measure and record the height to pavement here:



Installation and Setup

NOTE: To obtain proper ball height on low ground clearance tow vehicles, shank may be oriented in the "UPRIGHT POSTION" as shown in **Illustration 4**. If shank is used in the "INVERTED POSITION", check shank for adequate ground clearance. Accessory shanks with greater height and length are available from your dealer. **IMPORTANT! Proper adjustment requires the use of the proper length shank and proper head height.**

ILLUSTRATION 4

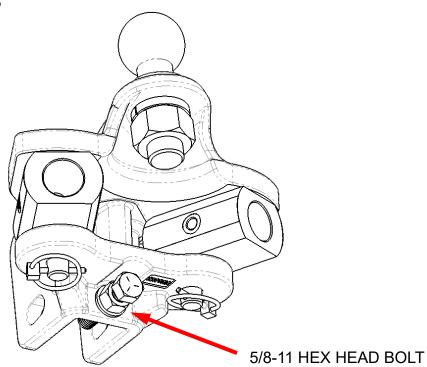


Upright Position

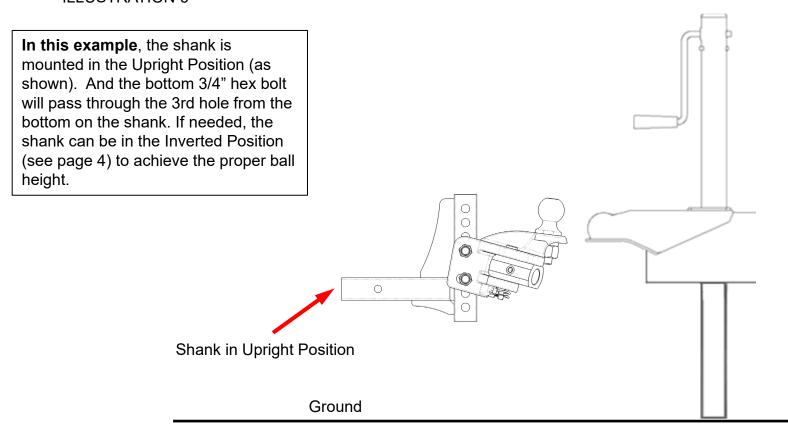
Inverted Position

4. Un-screw the 5/8-11 hex bolt until the bottom of the bolt threads are flush to the inside of the channel.



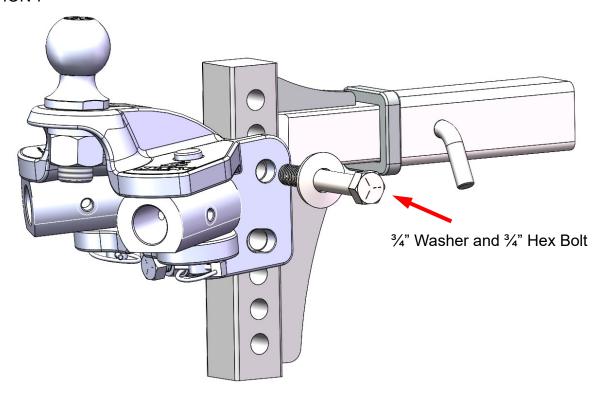


5. Insert the shank into the receiver box. Hold the Center Line TS Plus head assembly on the shank as shown and align so that the hitch ball is 1" above the coupler socket.

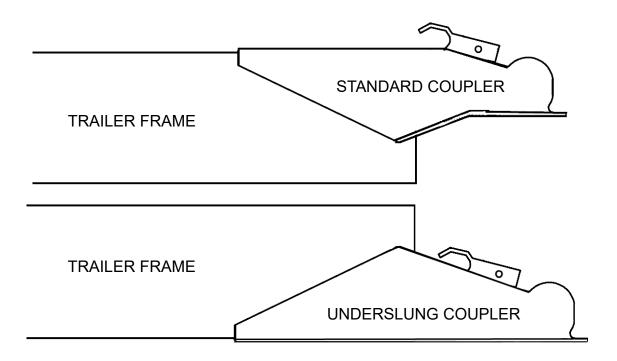


6. Align the top hole on the channel to the hole on the shank. Place a ¾" washer onto the ¾" hex bolt. Then insert the bolt with washer through the top hole in the channel and through the shank. Remember the hole and orientation in these instructions are an example only; yours may be different.

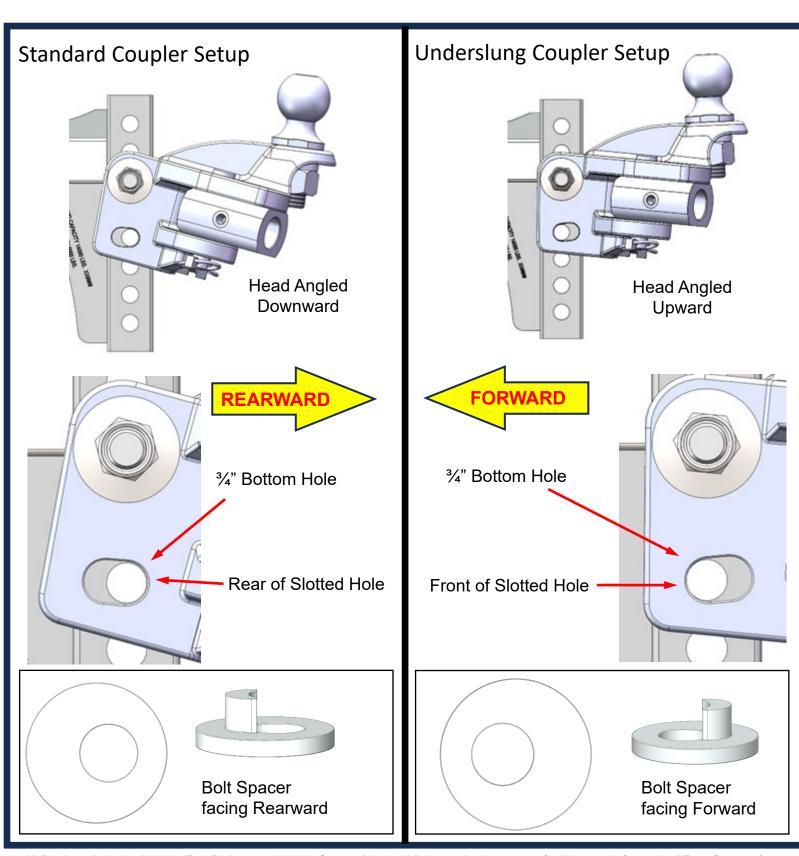
ILLUSTRATION 7



7. Determine which type of coupler is installed on the trailer. There are two types: a standard coupler and an underslung coupler. See **Illustration 8**.

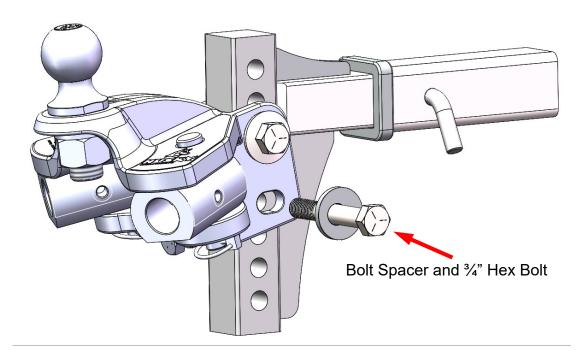


8. **Illustration 9** shows the head position when installed with either an underslung coupler or a standard coupler. When using a standard coupler, the head will be angled downward where the ³/₄" bottom hole will be towards the rear of the slotted hole. When using an underslung coupler, the head will be angled upward where the ³/₄" bottom hole will be towards the front of the slotted hole. **Remember the hole and orientation in these instructions are an example only; yours may be different.**

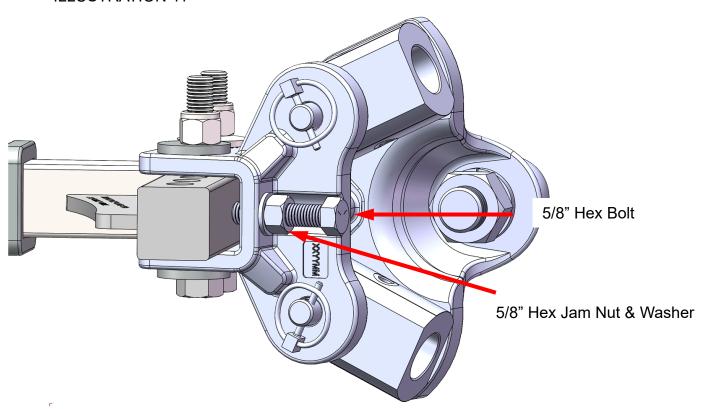


9. Place a bolt spacer onto the bottom ¾" hex bolt, then insert the bolt through the bottom hole in the channel and through the shank. See Illustration 10. The bolt spacer must be installed so that it installs the head at an upward angle for an underslung coupler or downward angle for a standard coupler. See Illustration 9. The head shown in the downward angle in these instructions is an example only; yours may be different.

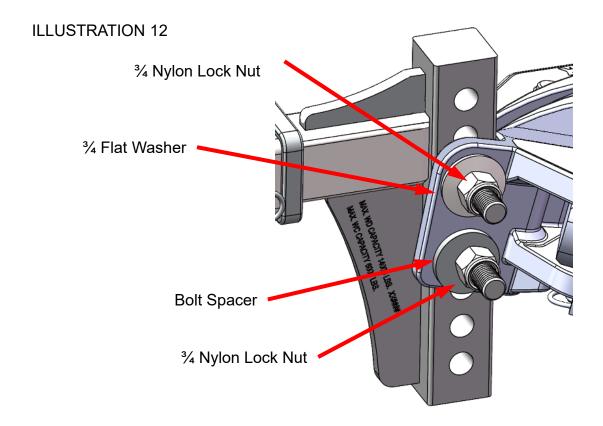
ILLUSTRATION 10



10. Tighten 5/8" hex bolt securely. Torque the 5/8" bolt to 50 ft.lbs. Then, securely tighten the 5/8" jam nut.

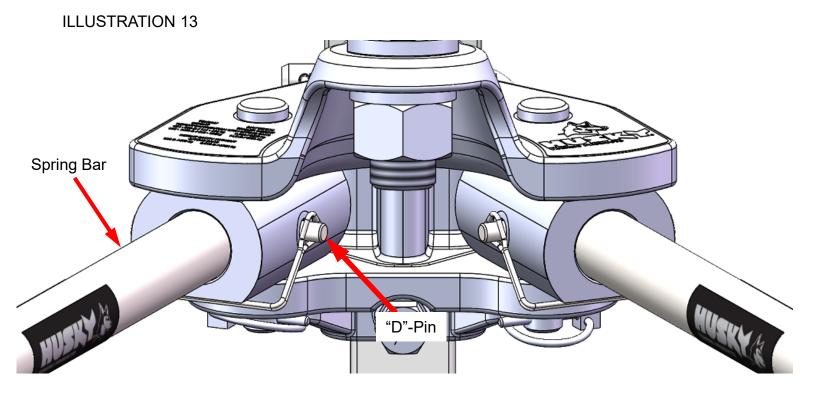


11. Put a ¾" washer on the top ¾" hex bolt followed by a ¾" nylon lock nut. Put a bolt spacer on the bottom 3/4" hex bolt followed by a ¾" nylon lock nut. Torque the ¾" nylon lock nuts to 260 ft-lbs.



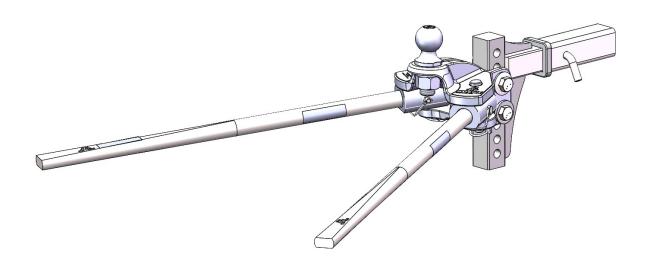
12. Insert a spring bar into the trunnions. Secure with the "D"-pin. Swing wire "D" around the trunnion and over the end of the pin. Repeat for the other side.

BE SURE THAT THE "D" RETAINING PIN GOES THROUGH HOLE IN THE SPRING BAR. PULL OUT ON THE SPRING BARS TO TEST FOR PROPER ATTACHMENT.



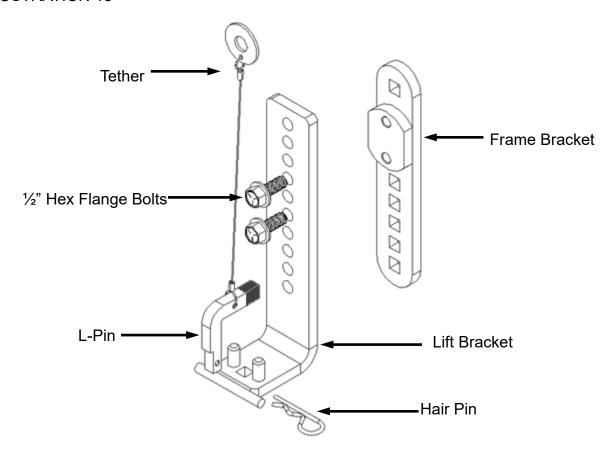
13. Your Center Line TS Plus system should look like this now.

ILLUSTRATION 14

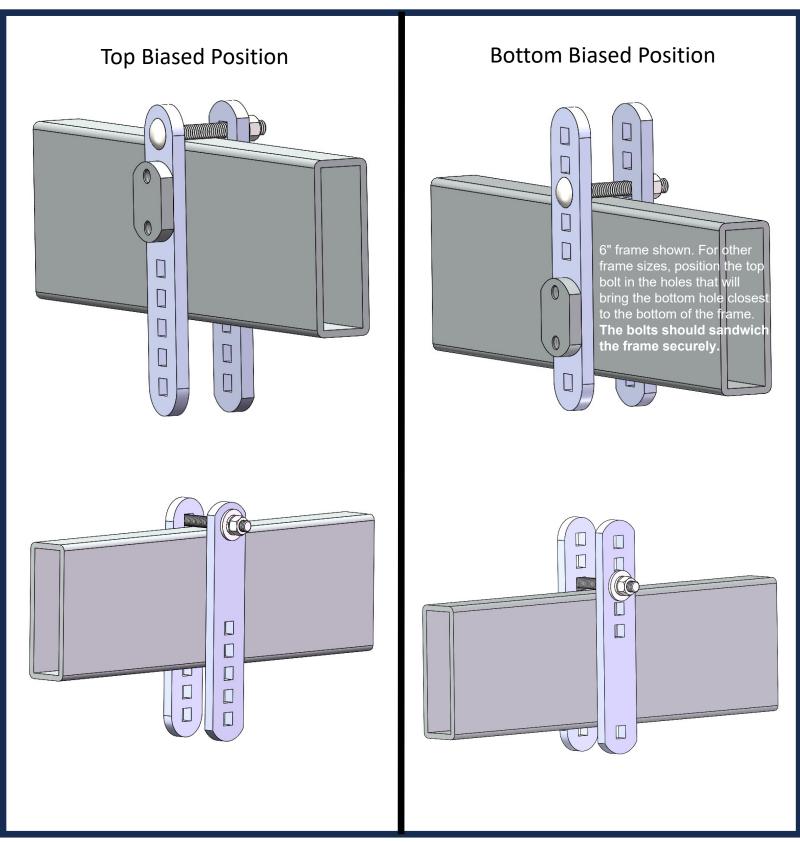


Installing Frame Brackets

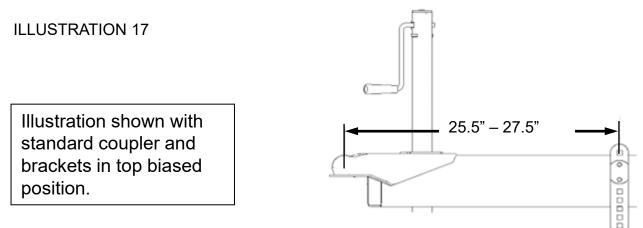
14. Remove L-Pin, tether, and hair pin from the lift bracket. Remove the 1/2" hex flange bolts so the lift bracket can be removed from the frame bracket.



15. Illustration 16 shows the frame bracket and frame mounting plate installed in either a top biased position or a bottom biased position. FOR TRAILERS WITH AN UNDERSLUNG COUPLER INSTALLED, INSTALL THE FRAME BRACKETS AND FRAME MOUNTING PLATES IN THE BOTTOM BIASED POSITION. Remember the hole and orientation in these instructions are an example only; yours may be different.

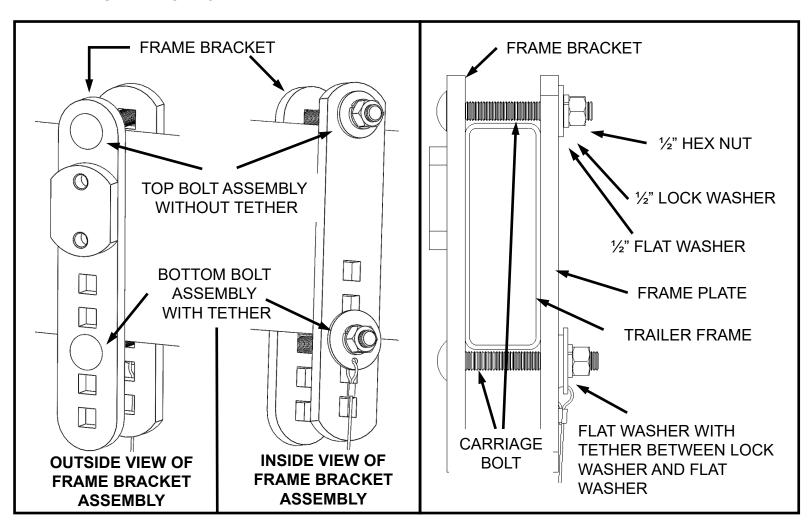


16. Install both frame brackets and frame plates 25.5"-27.5" away from the center of ball socket on coupler on each side of the trailer frame. See **Steps 14 &15** for frame bracket and plate assembly.



17. Use the 1/2" carriage bolt, flat washer, lock washer and hex nut to hold the frame brackets in place using the top hole. Use the 1/2" carriage bolt, flat washer, flat washer with tether, lock washer and hex nut to hold the frame brackets and frame plates in place through the hole closest to the underside of the trailer frame. Tighten all (4) 1/2" carriage bolts to 45-55 ft. - lbs.

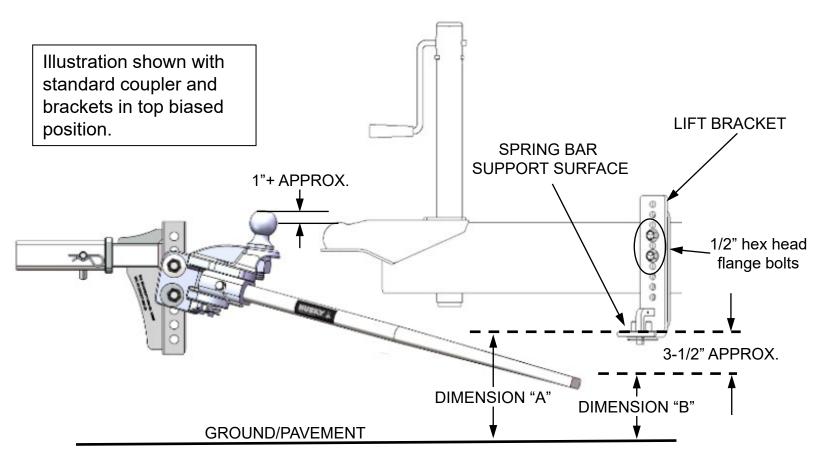
ILLUSTRATION 18



Frame brackets mount on the outside of the frame. Frame plates mount to inside of the frame.

18. Install the lift bracket by adjusting the height of the lift bracket so that the measured distance from the ground to the spring bar support surface is (approximately) 3-1/2" from the top tip of the spring bar. (Dimension "A" = Dimension "B" +3-1/2"). This is a starting point, and you may need to make adjustments later. Install the ½" hex head flange bolts using a 3/4" socket to tighten the ½" hex head flange bolts to 75 ft.-lbs.

ILLUSTRATION 19



Attaching Trailer to Ball

Make sure the wheels on the trailer are chocked before connecting coupler to ball.

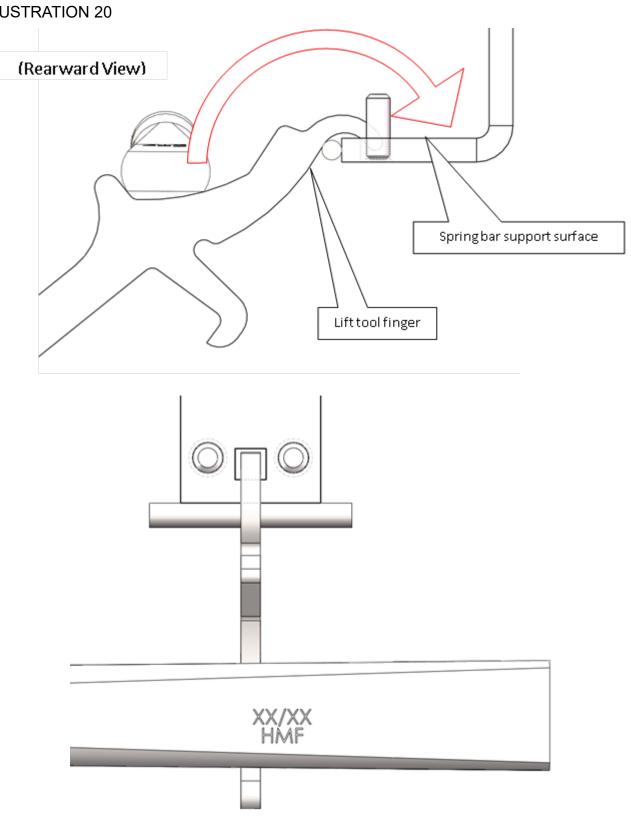
IMPORTANT! Ensure the tow vehicle and trailer are on level ground and in-line with each other. Set parking brake of tow vehicle and chock the wheels of the trailer before lifting or lowering!

- 19. Back up the tow vehicle and align the hitch ball so that it is directly under the coupler socket (use a spotter if you have one. **CAUTION! Spotter should never stand between trailer and tow vehicle during connecting**). Lower the trailer until the hitch is supporting some of the trailer tongue weight. The tow vehicle and trailer must be as straight and inline as possible.
- 20. Ensure the hitch ball is completely inside the coupler socket and close the coupler ball latch if it is not yet closed. Install coupler lock or pin for safety.
- 21. Use the trailer jack to raise the front of the trailer and the rear of the tow vehicle until the tips of the spring bars are about level / even with the support surface of the loading brackets.

Spring bar loading on lift brackets

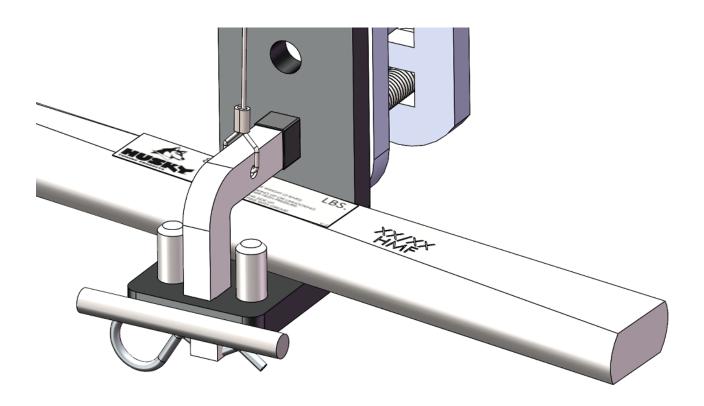
22. To load the spring bar onto the lift bracket, orient the lift tool as shown below and come under the spring bar. Then put the "finger" of the lift tool into the square hole on the lift bracket and using BOTH hands on the lift tool, lift firmly, and then rotate and push the lift tool towards the trailer until the spring bar is resting completely on the lift bracket and off the 2 pins. If it is too difficult to lift the spring bar, then raise the height of the trailer until the spring bar is closer to the spring bar support surface of the lift bracket.





23. Once the spring bar is resting securely on the lift bracket, insert the "L" retaining pin into the square hole and secure with the hair pin clip.

ILLUSTRATION 21



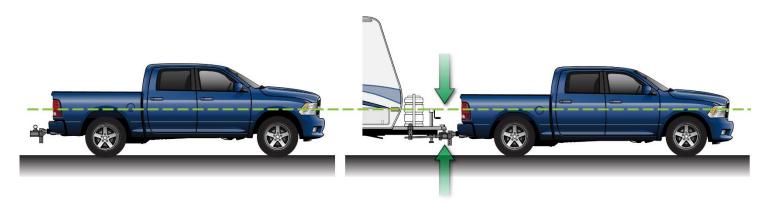
⚠ WARNING ⚠

Keep clear of the pivot path of all moving parts when there is tension on the spring bar. Maintain control of the lift tool at all times when raising or lowering the spring bar. Be sure that the "L" pin and hair pin is in place before driving.

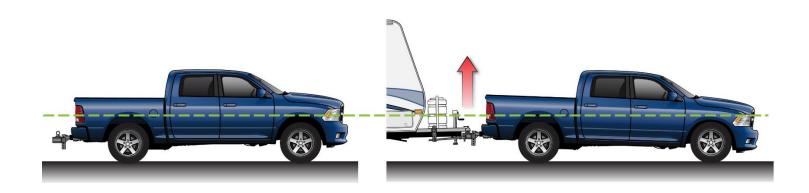
Check Vehicle Height and Adjust Spring Bars If Necessary

24. Retract the tongue jack completely so the hitch is supporting the weight of the trailer. Measure the same 3 places as done on pages 3 & 4 and compare. The tow vehicle should settle evenly front to back. The rear fender should not settle lower than the front fender, if it has then you will need to raise the lift brackets 1 hole. Be sure spring bar rests flat on the spring bar support surface to avoid uneven wear. The frame mark from Step 3 should be ½-1" max higher than the original measurement noted.

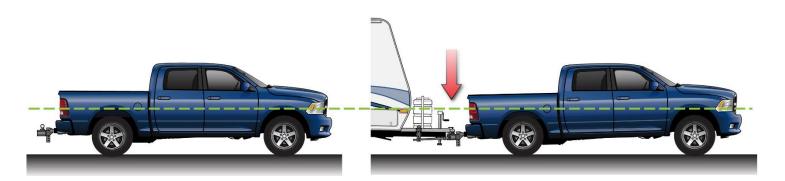
Properly Adjusted System



Over Adjusted System



Under Adjusted System

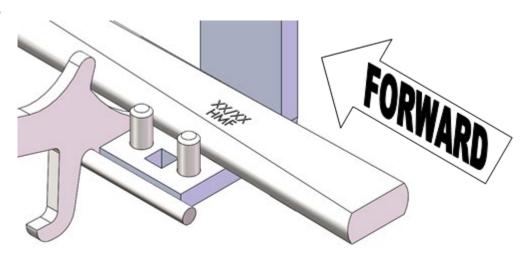


Removing the spring bar from the lift bracket

25. Make sure the tow vehicle and the trailer are on level ground and are straight. Chock the trailer wheels and engage the emergency brake on the tow vehicle.

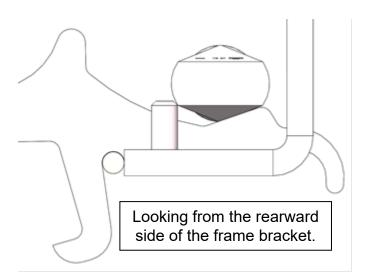
26. Raise the trailer tongue enough to ease the force required to lift the spring bar ends off the lift brackets. Place the lift tool on the round peg on the forward side of the lift bracket and under the end of the spring bar as shown. Start pushing down on the lift tool.

ILLUSTRATION 23

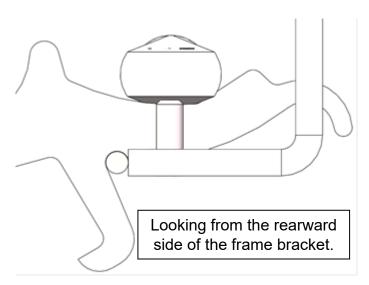


27. Continue pushing down on the lift tool until it starts to come up and towards you. **IMPORTANT:** Do not be in a rush here, stay in control of the tool.

ILLUSTRATION 24

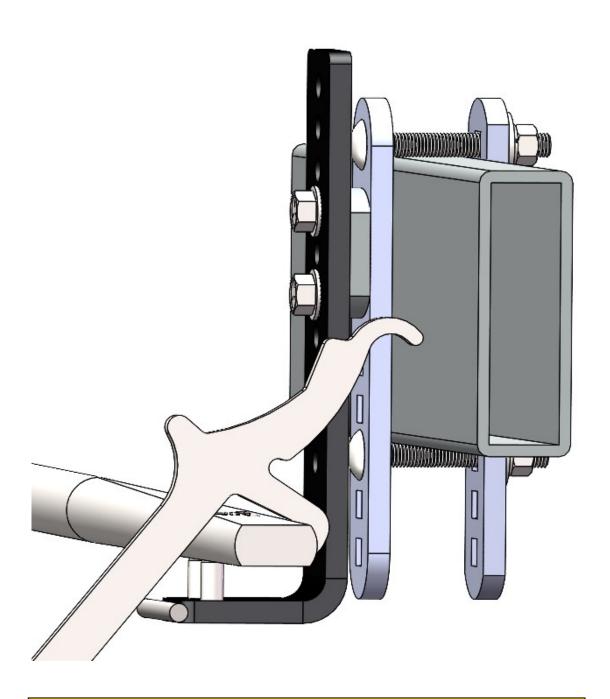


28. There will be a point where the spring bar will stop and come to a rest on top of the 2 round pins on the lift bracket. Stop there and **keep your hands away from the spring bar**.



29. Remove the lift tool from under the spring bar and position it as shown below. Place the tip of the tool against the side of the frame; somewhere on the frame bracket or even on the lift bracket is fine. Then pull out on the handle (keeping hands away from the spring bar) until the spring bar falls off the lift bracket completely.

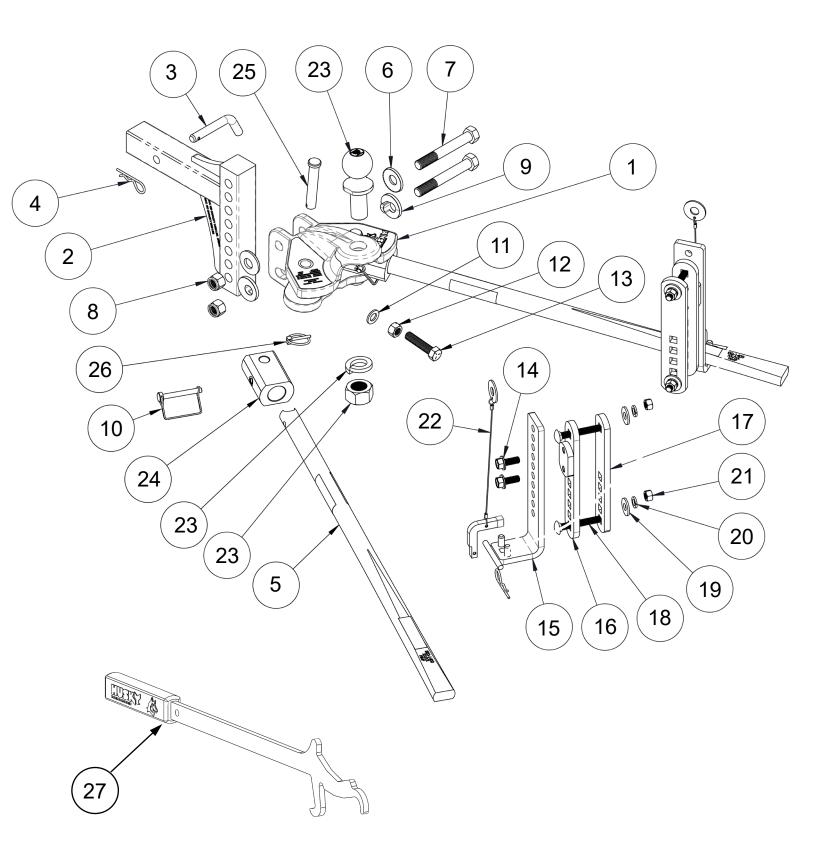
ILLUSTRATION 26

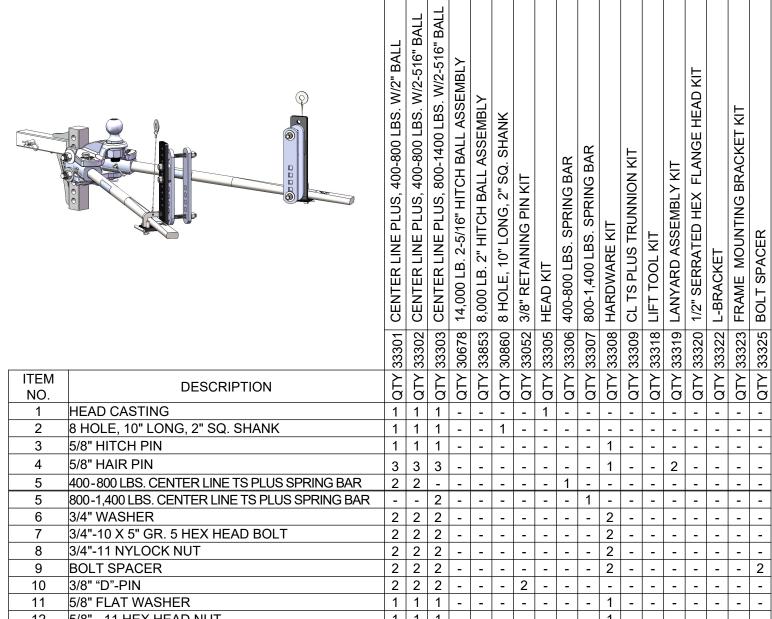


⚠ WARNING ⚠

This Weight Distribution Hitch should be checked yearly for loose fasteners or defects throughout the life of the hitch installation.

Parts Listing





TOWING TIPS

Driving Tow Vehicle

Good habits for normal driving need extra emphasis when towing a trailer. The additional weight of the trailer affects acceleration and braking. Extra time should be allowed for passing, stopping and changing lanes. Signal well in advance of a maneuver to let other drivers know your intentions. Severe bumps and badly undulating roads can damage your towing vehicle, hitch and trailer, and should be negotiated at a slow, steady speed. If any part of your towing system "bottoms out" or if you suspect damage may have occurred in any other way, pull over and make a thorough inspection. Correct any problems before resuming travel.

Turning and backing up present new problems-plan ahead. It is highly recommended that a spotter be used when backing up to alert the driver of possible obstacles and prevent jackknifing the trailer. Towing a trailer will change your turning radius, the longer the trailer the larger radius turn.

Driving Conditions

When driving in conditions where the pavement is wet, icy, snowy, loose gravel, grass and dirt, reduce speed and do not make any sudden maneuvers. Allow ample distance/time for stopping and changing lanes. If possible, wait for road conditions to improve before driving.

Follow all state, local and provincial driving and towing laws in the location you are driving in. Not following your tow vehicle, trailer, and Husky instruction manuals can result in a fatal accident.

Check Your Equipment

Please refer to the MAINTENANCE section. Periodically check the condition of all your towing equipment and keep it in top condition.

Tire Inflation

Unless specified otherwise by the towing vehicle or trailer manufacturer, tires should be inflated to their manufacturer's towing recommendations.

Towing Vehicle and Trailer Manufacturer's Recommendations

Review the owner's manual for your towing vehicle and trailer for specific recommendations, capacities and requirements.

Passengers in Trailers

Trailers should not be occupied while being towed. Most states enforce this regulation.

Trailer Lights, Turn Signals, Electric Brakes

Always hook up all of the trailer lights, electric brakes and break-away switch connection whenever trailer is being towed. Also periodically check functionality of all lights before towing and repair any problems as needed.

Trailer Loading

Proper trailer loading is very important. Heavy items should be placed close to the floor near the trailer axle center line. The load should be balanced side to side and firmly secured in the trailer to prevent shifting.

Remove Hitch When Not Towing

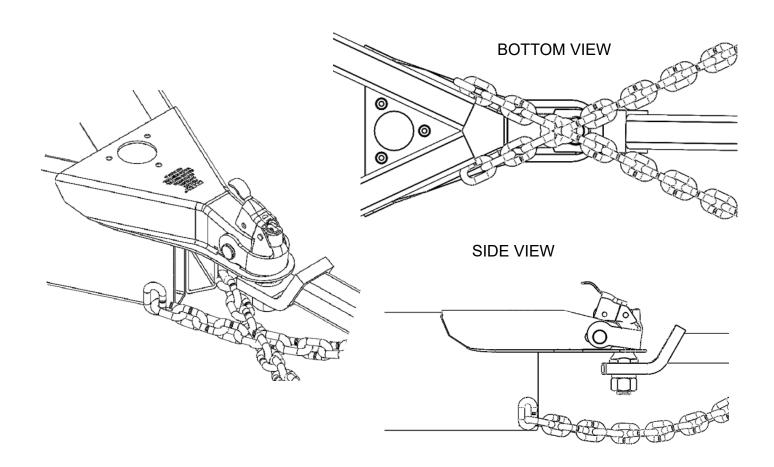
Remove hitch from receiver on towing vehicle when not towing a trailer to reduce chances of striking hitch on driveway or other objects and reduce the chance of parts being stolen.

Safety Chains

Safety chains can prevent a runaway trailer in case the hitch/coupler fails.

- 1. Always use safety chains when towing.
- 2. Cross safety chains under coupling to prevent tongue from dropping to ground.
- 3. Allow only enough slack for tight turns.
- 4. Do not let safety chains drag on ground.
- 5. Twist safety chains equally from hook ends to take up slack.
- 6. Only use DOT graded safety chains rated equal to or greater than twice the maximum gross trailer weight rating.

ILLUSTRATION 28



Uncontrolled tilting of trailer can result in personal injury or equipment damage.

1. Distribute weight so that trailer tongue weight is approximately 10-15% of the gross trailer weight.

Incorrect tongue weight can cause fishtailing and loss of control of towing vehicle resulting in serious injury and equipment damage.

- 2. Tongue weight is the amount of trailer weight that rests on the towing vehicle hitch that is, the downward pressure on the coupler.
- 3. Remove or adjust trailer load to get correct tongue weight.
- 4. Do not let tongue weight exceed coupler and hitch rating.
- 5. Use slower speeds when towing a trailer.

Maintenance

Keep hitch ball lubricated with bearing or hitch ball grease.

When not in use, remove ball mount and shank and store in clean, dry place.

Keep hitch parts painted to prevent rust and maintain good appearance.

Do not remove or paint over labels.

Keep lift brackets clean.

Use a light lubrication such as petroleum jelly on the lift bracket support surfaces to reduce wear and to keep rust to a minimum.

At The Beginning of Every Towing Day:

- Clean ball and coupler socket and coat ball lightly with grease.
- Ensure the "L" pins are secured in place on the lift brackets
- Ensure the "D" pins are securing the spring bars in the trunnions by giving the spring bars a tug before lifting into the lift brackets.
- Check that the hitch pin is in place and secure.
- Check that the frame bracket bolts are tight.
- Ensure the coupler latch is closed and locked with a pin or coupler lock.
- If electric brakes are used ensure the emergency break-away cable is attached to the tow vehicle.
- Check to see that all electrical hook-ups are in working order and that the safety chains are securely connected.
- Towing safely is the responsibility of the driver of the vehicle. Failure to tow safely can result in vehicle damage, bodily injury or death.

Check All Trailer to Towing Vehicle Connections for Security and Operation

NOTE: Surge brake are actuators not designed for use with a weight distributing hitch and may bind and not operate freely. Check your surge brake operating instructions for any specific requirements regarding their use with weight distributing hitches.

⚠ WARNING ⚠

Loaded ball height should never be greater than what these instructions allow! Front wheel overload and loss of rear wheel traction can result and can lead to unstable handling. It can reduce braking ability and create a tendency to "jackknife" when turning and braking at the same time.

Loss of steering may result in a "high nose" trailer setup. If this occurs, refer to page 15 "CHECK VEHICLE HEIGHT AND ADJUST SPRING BARS IF NECESSARY" and make the necessary equipment adjustment or tow vehicle and/or trailer load adjustments.

Short wheelbase vehicles may induce sway when towing a trailer. USE EXTREME CAUTION

⚠ WARNING ⚠

Using the Bolt Together Weight Distribution System without the spring bars removes all weight distribution and sway control functionality of the product.

Warranty Terms:

Limited Lifetime Warranty:

Husky Towing Products and Keystone Automotive Operations Inc. make no guarantees or warranties for products not manufactured by Keystone Automotive Operations Inc. Such products are covered solely under any applicable warranty of the manufacturer. It is always recommended that the operating instructions and warranty instructions provided by the manufacturer are followed.

Keystone Automotive Operations Inc. warrants its products to be free from manufacturing and material defects to the original purchaser for the length of warranty stated above from the date of retail purchase. If any products are found to have a manufacturing or material defect, the product will be replaced or repaired at the option of Husky Towing Products and Keystone Automotive Operations Inc. with proof of purchase by the original purchaser. The original purchaser shall pay all transportation and shipping costs associated with the return of the defective product and the defective product shall become the property of Keystone Automotive Operations Inc.

The Warranty applies to Keystone Automotive Operations Inc. products used for individual and recreational purposes. Commercial usage of the Keystone Automotive Operations Inc. products limits the warranty to 90-days from date of purchase.

The Warranty applies only to Keystone Automotive Operations Inc. products which are found to be defective in manufacturing or material. This warranty does not apply to normal wear and tear of the finish placed on Keystone Automotive Operations Inc. products.

Husky Towing Products and Keystone Automotive Operations Inc. are not responsible for any labor costs incurred for removal or replacement of the defective product.

Husky Towing Products and Keystone Automotive Operations Inc. are not responsible for repair or replacement of any product under the limited warranty where the product was improperly installed, misapplied, altered, abused, neglected, overloaded, misused or damaged as a result of an accident, including any use of the product not in accordance with all product operating and safety instructions.

Without limiting the generality of the foregoing, Husky Towing Products and Keystone Automotive Operations Inc. shall under no circumstances be liable for any incidental or consequential loss or damage whatsoever arising out of, or in any way relating to any such breach of warranty or claimed defect in, or non-performance of the products. Some states do not allow the exclusion or limitation of incidental or consequential damages, so the above exclusion or limitation may not apply to you.

This limited warranty gives you specific legal rights, and you may also have other rights that vary from state to state.