



Bill and Ted Trailer Assembly Instructions

Thanks for buying a Surly trailer. We took care in designing your trailer to work with many different kinds of bikes, haul a lot, and last a long time. But it won't do all these things to its full potential if it isn't properly assembled. **Read these instructions and gather tools and supplies before attempting the assembly of your Surly trailer.**

⚠WARNING: Cycling can be dangerous. Bicycle products should be installed and serviced by a professional mechanic. Never modify your bicycle or accessories. Read and follow all product instructions and warnings including information on the manufacturer's website. Inspect your bicycle before every ride. Always wear a helmet.

For additional safety information about all Surly products visit: surlybikes.com/safety

⚠WARNING: Improper assembly will limit its life expectancy and may result in property damage, personal injury or death. If you lack appropriate tools and/or mechanical aptitude, take the trailer to your local bike shop and get served.

⚠WARNING: This trailer was not designed for carrying live animals or people. Doing so may result in injury to you and/or your passengers, and that would make us feel bad.

What You's Need

- Metric hex keys
- 14mm and 15mm open-end wrench or adjustable wrench
- Tire pump
- Grease
- Thread-locking compound

Intended Use

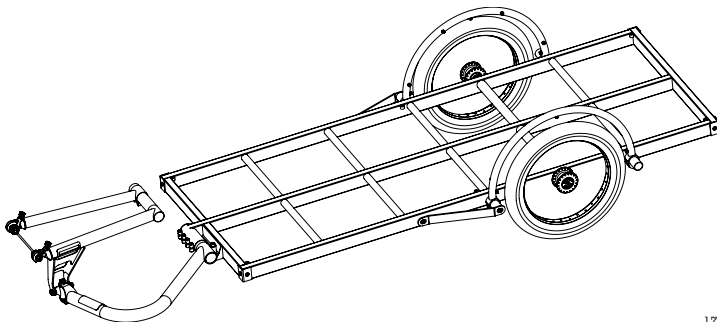
CONDITION 2



This is a set of conditions for the operation of a bicycle that includes Condition 1 as well as unpaved and gravel roads and trails with moderate grades. In this set of conditions, contact with irregular terrain and loss of tire contact with the ground may occur. Drops are intended to be limited to 15cm (6") or less. Please see link to Bike Owner's Manual on surlybikes.com/safety for complete list of riding condition descriptions.

Assembly Setup

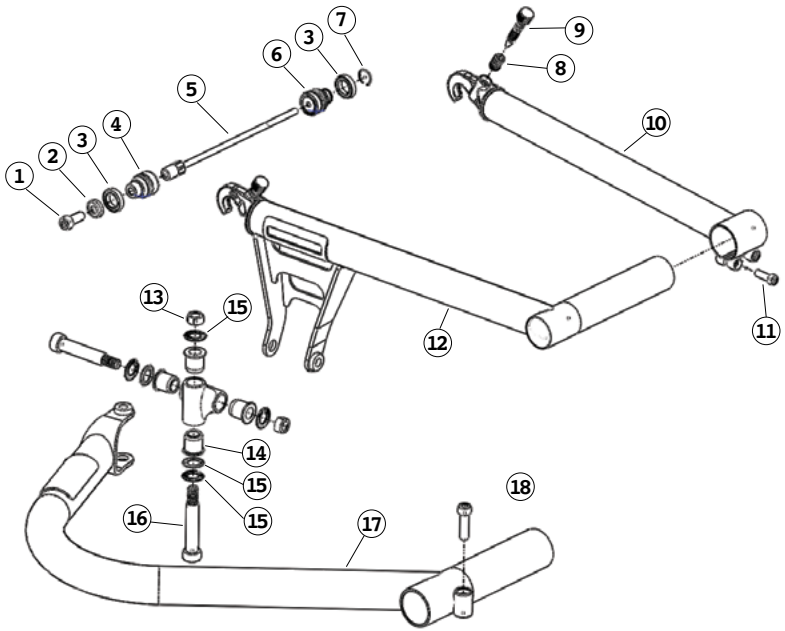
- Remove all the parts from the box and make sure everything is present
- Collapse the box on the floor, blast some tunes, get your break'n on, and properly dispose of packaging
- Read and understand the instructions
- We recommend you apply a moisture barrier to the inside of frame tubes to prevent corrosion (J.P.Weigle's Framesaver™, linseed oil, etc); this will extend the life of your trailer
- **During assembly, apply grease to all fastener threads unless otherwise noted**



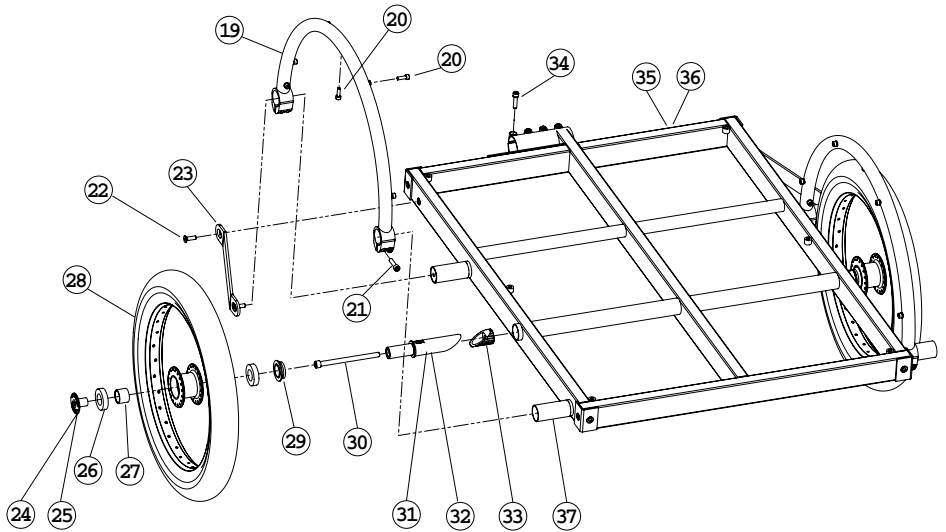
Trailer Parts List

Part#	Description	Quantity
1	QR Axle Screw (M8 x 20mm)	1
2	Bearing Cap Washer	1
3	Hitch Axle Bearing	2
4	Non-Drive Side Skewer Nut	1
5	QR Skewer Rod	1
6	Drive Side Skewer Nut	1
7	Bearing Retaining Ring	1
8	Axle Hook Spring	2
9	Axle Hook Thumbscrew	2
10	Drive Side Yoke	1
11	Yoke Clamp Screw (M6 x 20mm)	2
12	Non-Drive Side Yoke	1
13	Hammer Joint Lock Nut (M10 x 1)	2
14	Hammer Joint Brass Bearing	4
15	Hammer Joint Serrated Washer	4
16	Hammer Joint Pivot Bolt	2
17	Boom	1
18	Safety Bolt Screw (M8 x 30mm)	1
19	Wheel Cover	2
20	Spoke Guard/Fender Screw (M5 x 16mm)	14
21	Wheel Cover Clamp Screw (M6 x 25mm)	8
22	Deflector Shield Flat-Head Screw (M6 x 20mm)	4
23	Deflector Shield	2
24	Wheel Retaining Bolt (Non-Drive Side)	1
25	Wheel Retaining Bolt (Drive Side)	1
26	Wheel Bearing	4
27	Wheel Bearing Spacer	2
28	Wheel	2
29	Axle Washer	2
30	Stub Axle Bolt	2
31	Stub Axle (Non-Drive Side)	1
32	Stub Axle (Drive Side)	1
33	Stub Axle Wedge	2
34	Boom Clamp Screw (M6 x 20mm)	4
35	Trailer Bed (Short)	1
36	Trailer Bed (Long)	1
Not Shown	Reflectors	2

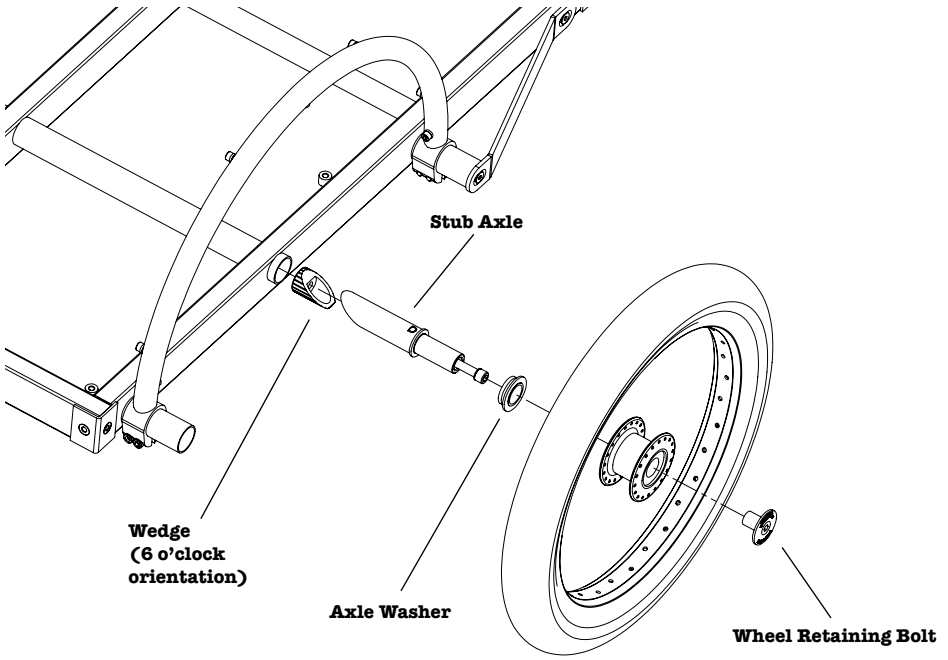
Trailer Hitch



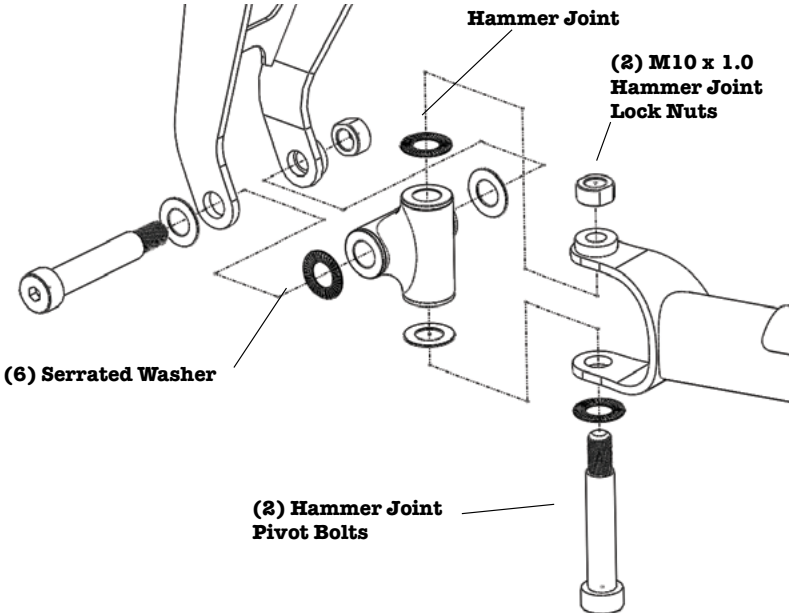
Trailer Bed



Wheel and Axle Assembly



Hammer Joint and Pivot Assembly



Bed Assembly

1. Apply a light coating of grease to the entire outside of the stub axles and fully insert the axles into the trailer bed axle tube. **NOTE: The stub axles for each side of your trailer are different!** The stub axle marked 'D' goes into the right side of the trailer bed (bicycle drive side) and the stub axle marked 'ND' goes into the left side of the trailer bed (bicycle non-drive side). During installation, rotate the stub axles so the wedges are orientated in the 6 o'clock position. Finally, tighten the wedge bolts (torque = 20 Nm) to hold the stub axles in the trailer bed.
2. To install the wheels, slide an axle washer onto the stub axle followed by a wheel, and then secure the assembly with the proper wheel retaining bolt (torque = 30 Nm). **NOTE: The wheel retaining bolts for each side of your trailer are different! The drive side bolt has left-hand threads and the non-drive side has right-hand threads.** Markings on the bolt head will tell you which bolt to use on which side of the trailer.

⚠ WARNING: Check the threads of the retaining bolts in your kit for a light blue dollop of thread-locking compound. If some has already been applied, DO NOT apply more. If there is none present, apply a small amount of medium strength thread-locking compound to the threads.

3. Install the M5 x 16mm (qty 14) socket head cap screws into the bosses located on the curved wheel cover tubes and snug tight (torque max = 7 Nm). The fasteners are included for mounting fenders and spoke guards to your trailer. Visit surlybikes.com to see what we offer.
4. Thread the M6 x 25mm (qty 8) machine screws (2 per clamp) into the clamps of the wheel covers. Slide the wheel covers onto the wheel cover stubs with the spoke guard bosses facing inboard toward the trailer bed. Ensure that the wheel cover is positioned flush against the trailer bed and tighten clamp hardware (torque = 8 Nm). Install the deflector shields by using the M6 x 20mm (qty 4) flat-head machine screws (torque = 6 Nm).
5. Install reflectors on the rear wheel cover stubs outboard of the wheel cover clamps.
6. Thread the M6 x 20mm (qty 4) machine screws into the boom clamp at the front of the trailer bed. Do not tighten yet.

Hitch Assembly

7. Install one spring onto each hitch thumbscrew and thread thumbscrews into the hitch hooks.
8. Slide the non-drive side yoke into the clamp of the drive side yoke and install the M6 x 20mm (qty 4) machine screws into the clamp. You'll adjust the hitch width later.
9. Attach the boom to the yoke with the appropriate hardware (part# 3-16) through the hammer joint. **NOTE: The washers are serrated on one side only and must be installed correctly!** The smooth side of each washer should face the brass; the rough side toward the paint. You'll adjust the tightness of both pivots later. Be sure to thoroughly grease all friction surfaces in the joint! Grease is the word.

Connecting the Hitch to the Bed

10. Insert the hitch into the clamp at the front of the trailer bed and tighten the clamp bolts until they are snug. You'll adjust orientation of the hitch later. **NOTE: The hitch assembly will need to swing down to allow the threaded safety bolt boss to clear the gusset on the trailer bed.**
11. Thread the M8 x 30mm (qty 1) machine screw into the safety bolt boss on the boom.
12. Have you been making sure all your hardware is greased?

Connecting the Trailer to Bike

13. Prep rear wheel.

A. If you have a QR Axle

- i. Remove the skewer from your hub.
- ii. Assemble the non-drive side of your trailer skewer assembly and insert it into your hub. **NOTE: Ensure that the M8 x 20mm (qty 1) machine screw is not fully threaded into the skewer rod. Only a few threads of engagement are necessary at this point.**
- iii. Thread the drive side skewer nut onto the skewer rod with your fingers, and tighten until the skewer rod head is flush against the outside face of your non-drive side dropout. **NOTE: It is very important that the skewer rod head is flush against the dropout face. The M8 x 20mm (qty 1) machine screw may need to be loosened to achieve proper setup.**
- iv. Align the rear wheel and tighten the M8 x 20mm (qty 1) machine screw to fully secure your rear wheel in the frame (torque = 16 Nm).

B. If you have a 10 x 1mm Threaded Axle

- i. Check the threads of the trailer axle nuts for a light blue coating of thread-locking compound. If some has already been applied, DO NOT apply more. If there is none present, apply a small amount of medium strength thread-locking compound to the threads.
- ii. Remove your old axle nuts and replace them with the new trailer axle nuts and serrated washers. The washers should be orientated so that smooth surface is against the nut and the serrated surface is against your frame.
- iii. Unless otherwise noted by the hub manufacturer, align your rear wheel and torque the trailer axle nuts to 30–40 Nm using a 15mm wrench

Adjustments

1. Loosen the yoke clamp bolts and adjust the width of the yoke to the width of the hitch bearings. Place a small amount of grease in the axle hook pockets. Attach the trailer to the bike by engaging the hitch hooks on the hitch bearings. This will typically require a few attempts before you have the hitch perfectly adjusted for the width of the bearings. Make sure both bearings are fully seated into the hook pockets. Once you've dialed-in the yoke width and aligned the yoke arms to each other, tighten the yoke clamp bolts (torque = 9 Nm). Keep the trailer attached to the bike.
2. Position the bike vertically and loosen the boom clamp bolts to make adjustments. At this point, you will need to adjust the lateral and vertical orientation of the trailer at the same time. Laterally align the trailer's centerline with the rear wheel of the bike, so the trailer will follow directly behind the bike. Move the clamp vertically to tilt the trailer bed until it is flat, parallel with the ground. When the trailer is oriented properly, secure the setup by tightening the clamp bolts (torque = 9 Nm).
3. Thread in the M8 x 30mm (qty 1) safety screw until it stops snug against the angle plate. This screw will prevent the front of the trailer from dropping to the ground in an unlikely scenario where the boom clamp slips. Think of it as simple, cheap insurance.
4. Loosen both lock nuts on the main pivot. Adjust the main pivot tension by tightening or loosening the two pivot bolts. There should be no slop in the joint, and some resistance is actually good. If the pivots are tightened correctly, the joint should have just enough resistance to hold a bike vertically when attached to the trailer. Secure your adjustment by tightening the lock nuts on the pivot bolts. **NOTE: The brass pivot bearings will wear out quickly if the pivot hardware is not properly adjusted, greased, and locked into place.**

CONNECTING AND DISCONNECTING THE TRAILER TO YOUR BIKE

After the trailer has been adjusted to your bike, it is very quick and easy to hook up your cargo-hauling machine. Simply loosen the thumbscrews on the axle hooks until the thumbscrew ends are no longer protruding into the axle hook pockets. Lift the trailer hitch and place the axle hooks over your hitch bearings on your rear axle. Once the bearings are fully engaged in the axle hook pockets, tighten the thumbscrews as tightly as you can get by hand against the back face of the hitch bearings.

⚠ WARNING: Failure to tighten the thumbscrews WILL result in a “bad situation” when you try to stop your trailer and it detaches from your bike. Nobody wants a 300 lb trailer roaming free.

COMPATABILITY

Surly Bill and Ted trailers are designed to be used with most bicycles with wheels ranging from 20 to 29". We strongly recommend that any bicycle used to tow a Surly trailer—or any trailer for that matter—be equipped with properly operating gears and brakes. Trailers can get heavy; use a bike that can tow and stop the trailer effectively.

LOADING THE TRAILER

Your trailer will perform best when the weight of the cargo is centered over the trailer axle. The trailer is rated for 300 lb (136kg) of cargo and a maximum tongue weight of 50 lb (23kg), and a minimum drawbar weight (against the tongue) that is above 0 lb (0kg).

⚠ WARNING: Exceeding the weight limits and/or poorly distributing the weight may result in damage to you, your bicycle and/or the trailer.

It is easiest to mount the trailer to your bike and then load it. For this reason, always make sure that your bike is secure when you start to load the trailer. Since adding or removing weight can cause the bike to fall over, we recommend laying the bike on its left (non-drive side) when loading the trailer.

You can easily check the tongue weight of your trailer with a standard bathroom scale. After you have loaded everything and the bike is attached to the trailer, place the scale under the rear wheel of your bike (without you on the bike), and ensure that the scale does not read over 50 lb.

RIDING WITH THE TRAILER

⚠ WARNING: A loaded trailer can be heavy and may be difficult to control if care is not taken.

Plan for corners and swing wider than usual. Balance the cargo weight over the trailer's axle and secure the load to ensure the safest, most predictable handling. Test the braking and turning characteristics of your bike with an empty trailer before riding with a full load. Your bike may handle differently with a trailer attached. Practice first in a parking lot or low traffic area.

Minimum weight cannot be a negative number, which would be achieved by placing most of the cargo weight on the rear of the trailer. Improperly balanced loads, especially those that place the weight extremely fore or aft of the axle, can result in compromised, 'squirrelly' handling and may result in crashes, injuries, and all sorts of other bad things. **So, again, center your load over the axle and secure it so it cannot shift around. Evenly distribute the cargo between all sides of the trailer.** Your cargo must be well-secured to the trailer. Use Surly Junk Straps, ropes, bungees, etc., to hold things in place. Be sure to secure your straps so they do not catch in the trailer or bike wheels.

TIRE PRESSURE

Tire pressure will play a large role in the performance of your trailer. After your trailer has been loaded, adjust the tire pressure to best work with your load (35 psi is a good place to start). Tire pressure that is too high will cause the trailer to bounce, while extremely low tire pressure will lead to sloppy handling, more rolling resistance and the possibility of a tire failure or tube pinch flat. It will take some trial and error before you develop ninja-like trailer tire inflation skills.

SAFETY

Be sure to position the reflectors and lamps so they are not obscured by anything you carry or strap to the trailer. Frequently check to see that all fasteners are secured properly and tightened. Do not modify the trailer.

For more product safety information check out surlybikes.com/safety

Accessories & Attachments

The Surly trailer is designed to be a DIY-friendly platform for all your crazy ideas. The corners of the trailer bed feature threaded M6 bosses for attaching corner stakes, trailer sides, and anything else you can think up. Get creative.

The trailer also includes six threaded M6 bosses on the top of the bed which are intended for mounting decking materials of your liking... wood, plastic, metal, fabric, etc... Again, get creative.

Check surlybikes.com for Bill and Ted trailer accessories.

Limited Warranty

This Surly product is warranted against defects in materials and workmanship for three years from the date of retail purchase of the product, subject to the limitations detailed below. Save your dated receipt for proof of purchase.

This warranty does NOT cover the following:

- Damage due to improper assembly or follow-up maintenance or lack of skill, competence or experience of the user or assembler
- Products that have been modified, neglected, used in competition or for commercial purposes, misused or abused, involved in accidents or anything other than normal use
- Installation of components, parts or accessories not originally intended for or compatible with Surly product as sold
- Damage or deterioration to the paint, surface finish, aesthetics or appearance of the product
- Normal wear and tear
- Labor required to remove and/or refit and re-adjust the product within the bicycle assembly

This limited warranty is expressly limited to the repair or replacement of a defective product, at the option of Surly, and is the sole remedy of the warranty. This limited warranty applies only to the original purchaser of the Surly product and is not transferable. This warranty applies only to products purchased through an authorized dealer or distributor. In no event shall Surly be liable for any loss, inconvenience or damage, whether direct, incidental, consequential, or otherwise resulting from breach of any express or implied warranty or condition, of merchantability, fitness for a particular purpose, or otherwise with respect to our products except as set forth herein.

This limited warranty gives the consumer specific legal rights, and those rights and other rights may vary from place to place. This limited warranty does not affect your statutory rights.

TO THE EXTENT NOT PROHIBITED BY LAW, THESE WARRANTIES ARE EXCLUSIVE AND THERE ARE NO OTHER EXPRESS OR IMPLIED WARRANTIES OR CONDITIONS INCLUDING WARRANTIES OR CONDITIONS OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE.

OTHER PRODUCTS:

Give us a call for a free catalog or visit our website to check out all our stuff—you won't be disappointed.

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