

Revised May, 2011

Co-Motion Co-Pilot ***Tandems for travel***

Packing and travel instructions



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Congratulations!

Co-Motion Co-pilot tandems are excellent for all the cycling you do. Their ability to break down into airline-checkable luggage is a bonus we hope you will enjoy again and again.

Following these instructions carefully will help you to feel confident enough with packing and assembly that you'll soon find yourself looking for more destinations to take your tandem.

Your Co-Pilot tandem is designed to fit into two 26"x26"x10" cases. These dimensions are important because they fall within the maximum luggage size regulations stipulated by most airlines. Using two of our Co-Pilot Travel Cases, you will have plenty of room for your tandem and a few of your other essentials such as your helmets, fenders, tools and a few articles of bike clothing.

For your luggage, we recommend the superb Co-Motion Co-Pilot Travel Case, however there are other options, such as a hard shell case or one that can be used as a backpack. Check with your dealer for more information on alternative cases.



Getting Started

Situate yourself in an area with room enough for your bicycle and the two cases. You'll need the spanner that fits the Bicycle Torque Couplings (we'll call them "couplers" from this point forward), 4, 5, 6 and 8mm Allen wrenches, a pedal wrench, some shop rags and a good pair of scissors. If your tandem has a Gates Belt, you'll need a bottom bracket cup spanner (see pg. 5). If you're not familiar with bicycle terms, a knowledgeable bike mechanic or bicycle maintenance manual is crucial.



Make sure you have the correct Co-Pilot Frame Padding Kit for your tandem, as each model has different requirements.

Step-by-Step



Using your spanner, loosen each coupler just enough so that it will turn easily by hand. Don't take them fully apart just yet.

Remove pedals



Most pedals can be removed with an a 15mm open-end wrench or 8mm Allen. Keep the right tool in your kit! Note: the left pedal is reverse threaded. Turn *clockwise* to remove. Upon reassembly, avoid over-tightening to ease removal next time you travel.

Remove timing chain

A timing **chain** can be removed simply by rotating the cranks until you find the chain's slackest point. Then, push the chain laterally while rotating the crank to derail the chain. If you don't have enough chain slack, loosen the eccentric first.



Loosen eccentric

The self-locking eccentric has 2 socket-head screws on each side, requiring a 4mm Allen wrench. We recommend a ball-end Allen tool such as those made by Bondhus to ease access to the screws. Back each screw off just 1 full turn. Insert a pin spanner into the screws (or use a bottom bracket spanner as described on next page) and rotate the eccentric to slacken the belt or chain.



Timing BELT removal

The Gates Carbon Drive timing belt **must never be removed by derailing** as shown above. **Always** loosen the eccentric first, then gently and evenly work the belt off the sprockets.



Bag it

Chain can be coiled and placed in a plastic bag. *Do not coil a belt*– bag it and place beside your case for now.

Timing BELT reassembly and tension

The Gates Belt must be just tight enough to strike a low tone like a bass string. To tension it correctly, you will need to use your bottom bracket spanner.



Crank timing and eccentric adjustment

When reinstalling your belt or chain, make sure your cranks are timed in unison or to your preference before setting chain or belt tension. Chains must never be tightened so that they bind. Tighten the 4 screws on the self-locking eccentric to approx 55 in-lbf or 6Nm.

Remove the front crankset

Use an 8mm Allen wrench to remove the right-hand captain's crank arm. While turning the self-extracting device counterclockwise, you will encounter resistance, but **keep going**. Remove the right crank .



Pull the left arm and spindle out of the frame and bottom bracket assembly. Keep an eye on small washers and spacers, which will have to be re-installed just as they were.

When reassembling, **tighten the bolt until it stops and the crank seats fully on the spindle** (300-350 in-lbf or 30-35 Nm).

Place the crankset and its small parts in a plastic bag to avoid loss.

If you need further information on crank removal or installation, consult the crank manufacturer's website or Park Tool's informative how-to tips on their website:

<http://www.parktool.com/blog/repair-help>

Continue Disassembly

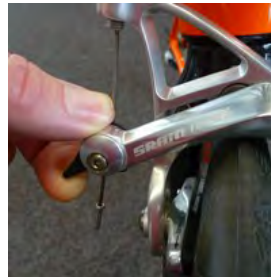
Use the appropriate Allen wrench to remove both seatposts. Remove the stoker stem from the seatpost, and the handlebar from the stem. Screw the faceplate bolts back in to avoid loss during shipment. Place the seats, posts, handlebar, etc. with the other parts next to your case.



Brakes



For **linear-pull** brakes, grasp the front brake so that the pads are pushed against the rim and remove the travel agent or cable guide from the right brake arm.



Road-type **caliper brakes** have a simple quick release which should be opened before removing the wheel.

Disc brakes require no release; simply remove the wheel. When replacing the wheel, make sure the disc rotor passes between the guides.

Cable separators



Grasp each end of your cable separators and turn counterclockwise (they should be just finger-tight) to release the cables for the rear brake and both derailleurs.



Pop the cables out from your under-bottom bracket guide. If the guide hasn't been cut to allow this (see arrow), slice it with a box knife.

We will let the cables hang for now. After the frame is fully padded, we will coil up each cable to prevent tangles inside the case.

Padding your Co-Pilot

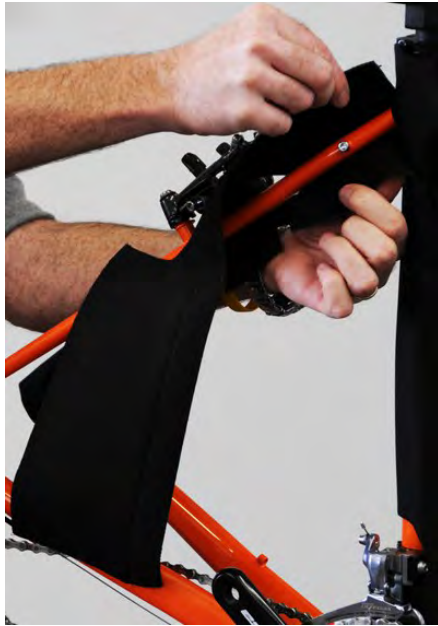


If your Co-Pilot Frame Padding has not yet been cut, this is the time to do it. Sharp scissors are recommended, as the fabric is tough.

Notches may be cut in the padding where components are mounted. Hold the padding against your frame to find where notches must be cut.



Work padding into place



Here you can see U-shaped notches cut for the rear brake bridge and linear-pull brake mounts, as well as around the front derailleur.

Make sure you're covering all of the painted surfaces on your tandem, and it will continue looking great over many trips.

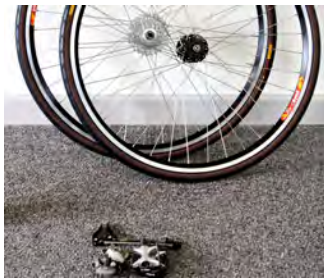
Helpful Tip:



Mark the frame padding with a paint pen, (available at hobby or craft stores). Label each piece using terms that you will remember each time you pack your tandem, for example "FTT" = "front top tube".

Padding, continued...

Once you have your frame padding cut to fit your bike, carefully fit each one into place so that the frame is well covered, leaving the closure loose around each coupler for now.



Now undo the wheel quick releases and remove the wheels. Remove the QR skewers from the axles and place them with your other parts.

If you have disc brakes, it's best to remove the disc rotors from the wheels, using a T-25 Torx tool. Thread the bolts back into your hub, and place the rotors with your other parts.



Pull the rear derailleur cage forward and strap it to the chainstay with two narrow strips of your frame tube covers.

Handlebar removal

With an Allen wrench, remove the front stem faceplate bolts and remove the handlebar while leaving the stem in place. Set the handlebar next to the front frame section, cables attached. Replace the faceplate to avoid loss.



Separation



Now is the time to fully loosen each coupler and separate the frame sections. Make sure that all frame padding is securely fastened.



Keep cables out from under the padding. Pull the padding over the exposed coupler ends and install the remaining padding.

Ready to pack...

Open your Co-Pilot cases and place the front section of the frame into one case with the fork turned toward you. For now, leave the handlebar assembly outside of the case, with the cables connected.

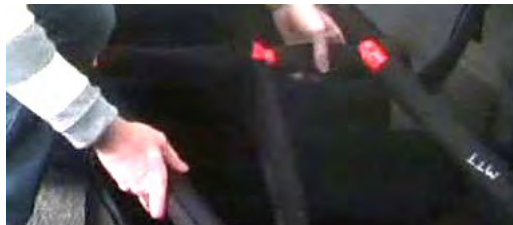


Place the rear frame section into place on top of the front section, checking padding as you go. Make the best possible use of the available space.

The handlebars can now be inserted. Be careful not to stress the cables. Stoker bars can go in now too.



Place the middle section of the frame into the second case, making sure it is resting flat on the bottom.



Almost ready to fly!

Deflate the tires slightly and place the front wheel atop the mid section. Cover the axle facing you with a heavy cloth or paper



Now place the rear wheel in the case atop the front wheel. A piece of heavy paper or cloth will keep the axles from marring your hubs.

Gather the parts that you have set aside and make sure they are bagged or wrapped. Tuck these items into the remaining open spaces. Do a final check to ensure that all painted surfaces are protected. Place rags, newspaper, etc., over any parts that appear exposed. Make sure nothing loose will rattle around and cause damage.



Did you remember your tools? Anything you used to prepare for packing should come with you. Bring a tire pump to inflate your tires. Your S+S spanner is packed, right? The Co-Pilot case's outside pockets are great for tool stowage.

Done!

Here's a look at everything packed into each case, ready to close up & take on your next adventure.



For clarity, photos do not show stuff sacks of clothing, towels, etc. which should be used to pad more extensively.

Zip up your cases, buckle the safety straps, and you're ready to go.

Be sure to send us a picture, and bon voyage!

Assembly

Assembly is essentially the reverse of the packing process. It is important that the following items are tightened and adjusted properly:

Tighten all couplers, making sure that the spanner hook is squarely engaged into the corresponding slot on the nut before you begin turning. Each coupler should be tightened to 35 ft. lbs. This is equivalent to 70 lbs. of pressure on the end of the 6-inch spanner. If you have any trouble tightening a coupler, stop immediately and inspect the threading for grit or debris. No threads should be visible when the coupler is fully tightened. A very small amount of pure Teflon grease is recommended for lubricating. Your couplers are fully lubricated before shipment from Co-Motion.

Make sure the wheel QR skewers, seat post binders, handlebar stems, brakes and derailleurs are all properly adjusted and tightened. *Check them twice to be certain.*

Re-install your cranks cautiously. Make sure the splines are aligned and the arms are properly oriented before tightening the fixing bolt. When installing the fixing bolts tighten them until the crankarm is completely seated against the bottom bracket spindle.

A Word of Caution

If you are not confident of your ability to verify the proper adjustment and therefore the safety of this or any bicycle, ***please have it checked out by a professional before you ride.*** There are many good books and classes on bicycles and their maintenance available worldwide.

An important note about traveling with your bike

With closer baggage scrutiny taking place by the Transportation Safety Administration (TSA) it's important to take extra care when packing your bicycle for travel. We suggest that travelers tie everything together inside the cases using zip ties, or use S+S Machine's TSA Safety Net. This helps keep the contents of the cases from shifting during rough handling and it also allows TSA inspectors to do their job and get the bike back into the cases when they're done.

These instructions were revised in May, 2011 and are appropriate for current ***Co-Motion Co-Pilot tandem models.*** If your ***Co-Motion*** tandem is older, please double check that you have the correct tools. You may also contact us for previous versions of this booklet.



The S + S couplers on your Co-Pilot have been lubricated here at the factory. That lubrication is typically adequate for three years. S + S Machine recommends high Teflon-content grease for continued trouble-free operation.

Accessories available from your Co-Motion dealer or direct from Co-Motion Cycles:

S&S spanners, Teflon grease, Travel cases, Cable separators, Padding kits

Additional resources for traveling with your Co-Pilot:

<http://www.sandsmachine.com/>

<http://www.parktool.com/blog/repair-help>

<http://bicycletutor.com/>

<http://www.carbondrivesystems.com/support.php#>

<http://www.fullspeedahead.com/>

<http://bike.shimano.com/>

<http://www.sram.com/>



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