WILDERNESS TRAIL BIKES
TOGGLE CAM BRAKE
UPGRADE INSTRUCTIONS

The patent-pending Toggle Cam Brake features the same construction as the Roller Cam but allows seatstay placement via a side-pull linkage. Upgrade to the the Toggle Cam linkage and experience power and modulation that surpasses the Roller Cam with the added convenience of trail side adjustability without tools.

Getting Started Refer to Drawings C, D and F for identification of parts of the Toggle Cam brake.

Installing the Yoke Pivot and Pulley Screws One of the two stainless 5x.8 screws with the 8mm head is used on one caliper as a pivot for the yoke, the other screw holds the roller on the other caliper. The yoke pivot screw is locked to the caliper with the thin 10-32 nut (also 8 mm flats) so that the yoke has .5 mm clearance between the bulge in the screw and the top of the nut (See Drawing C). It is best to use the outside 10-32 screw holes in the caliper arms for the roller and the yoke pivot screw unless your caliper arms are mounted so far apart that the yoke and cam are not long enough to span the distance between them when the screws are in the outer positions. Note that it is okay to put one screw in an inner hole and the other in an outer hole to obtain better cable alignment or to solve clearance problems. After deciding where your roller and yoke pivot screws will go, install the roller screw on one side and the yoke pivot screw on the other (See Drawing D). Check for parallel alignment of the yoke pivot and pulley screws to ensure optimum brake performance.

Identifying Proper Cable Pull Line With the wheel in place, turn the spring holders with a 5/8 inch or 16mm wrench so the springs are not touching the caliper arms. Since the Toggle Cam brake cable pulls from the side, you need to determine which side of the bike the roller should be on for best (smoothest, most direct) cable pull line.

Rear Mounting For bikes with chainstay mounted brakes, the roller should be mounted on the non-drive side. This keeps the roller away from the chainrings as the brake pads wear.

Front Mounting Use extra caution to ensure front fork Toggle Cam installations are safe. Do not install the Toggle Cam linkage in a way that allows it to hit downtube mounted cable stops or the downtube when the fork turns. This can cause damage to the roller or cable stop, either of which can be dangerous. This is usually not a problem on bikes that have the bars mounted low enough that the brake levers or grips hit the toptube, acting as rotation stops, when the fork is turned radically. On front Toggle Cam installations, it is often necessary to put the cable clamp bolt in one of the holes toward the inside of the cam so the cable does not hit control cables when the fork is turned. On such installations it is advisable to cut off (with a fine tooth hacksaw) the outer part of the cam with the unused outer holes, so it doesn't hit the downtube. In general, be extra careful to avoid set-ups where turning the fork actuates the brake or damages parts of the brake or bike.

Cutting the Cam Thread Now it is time to cut the 6x1 threaded shaft on the Toggle Cam to the right length. The idea is to cut the threads as long as possible and still have the cam to roller relationship correct with new brake pads. This leaves enough 6x1 threads on the cam to be advanced out of the yoke to compensate as the pads wear. To determine where to cut the 6x1 threaded shaft, straddle the yoke over the stainless screw and hold the cam against the roller with the 6x1 cam thread next to the yoke to obtain the relationship shown in Figure F. This will give you an indication of where the 6x1 cam thread needs to be cut. You want to cut the thread so that it fills the threaded hole in the yoke completely. Mark the thread with a felt pen and cut with a hacksaw. Deburr the cut end of the thread with a fine file or sandpaper so it screws freely into the yoke. Screw it in to the yoke all the way, put the linkage in place and actuate the cam with your fingers to see if the cam engages the roller as in Figure F. If the threads were cut a little too short, you can just unscrew the yoke until like Figure F. If the threads are still too long, shorten as necessary.

Securing the Cam to Yoke Adjustment Unscrew the 6x1 thread and put a drop of LocTite Small Screw Threadlocker 222 on the threads and screw into the yoke. The purpose of the Loctite 222 is to keep the yoke from turning freely on the 6x1 threaded shaft during quick release of the wheels or adjustment of the brake. Check the yoke after the LocTite 222 cures to see if you can turn it by hand. If not, turn the yoke with a wrench to free it up enough so you can make adjustments by hand. Adjust the thread so the cam engages the roller as in Figure F.

Parallel Alignment of Roller and Cam It is important that the plane of the cam be parallel to the plane of the roller (See Figure D). If it isn't, brake performance will suffer. You may need to add one or more of the 5mm ID x 7mm OD x 1mm thick washers under the roller to correct for the thickness of the 8mm nut that locks the yoke pivot screw on the other caliper arm.

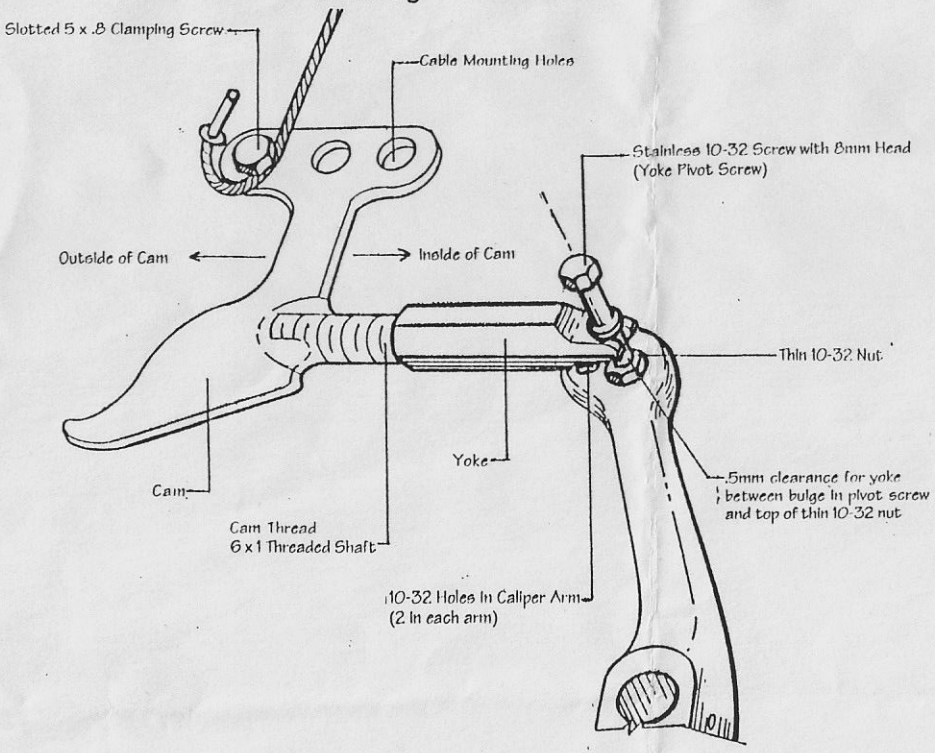
Cable Attachment Now you are ready to attach the cable. (By the way, WTB highly recommends DiaCompe BRS cables. The smooth surface of the die-drawn cable gives noticeably smoother, more precise braking than other cables.) Attach the cable to the side of the cam that gives the best cable alignment. Grease only the threads of the slotted 5x.8 clamping screw and use two 8 mm wrenches to clamp the cable. One wrench is used to prevent the head of the clamping screw from turning while the other is used to tighten the nut. When the nut is tightened to 50 inch lbs(5.7 Nm) the two wrenches can be turned in tandem to get the cable direction just right.

The cable should be coming straight out of the cam when the brake is *engaged*. This being the case, the cable will have a curve where it leaves the cam when the brake is relaxed.

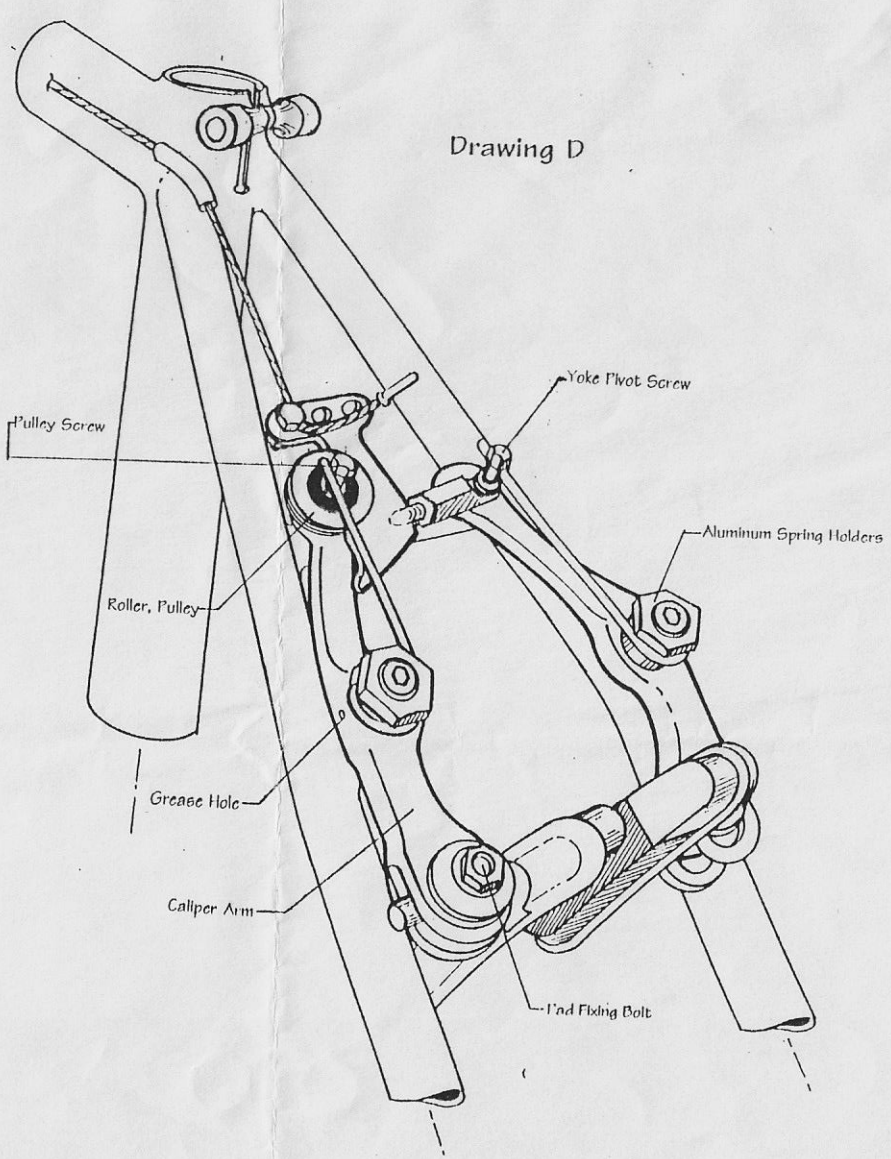
Spring Adjustment The return springs are independently adjustable. To adjust spring tension, hold the head of the 6x1 cap screw tight with an allen wrench while turning the aluminum hex spring holder with a 16mm (5/8") cone wrench. Adjust the springs so that the brake pads are equally spaced from the rim. We prefer to keep the return spring tension as low as possible while being enough to give smooth return of the brake lever.

Questions? Please call us at 415.389.5040 if you have any questions.

Drawing C



Drawing D



Drawing F

