

# CANNONDALE® REMOTE REAR LOCKOUT OWNER'S MANUAL SUPPLEMENT

Cannondale Remote Rear Lockout comes on some Cannondale Gemini, Scalpel, and Jekyll bicycles. It can also be fitted to many other brands' Fox shock-equipped full suspension bikes. The kit includes a handlebar-mounted lockout lever and parts to make the Fox rear shock Remote Lockout-compatible.

## COMPATIBILITIES:

The Cannondale Remote Rear Lockout system is designed for use with 2001 and newer Fox RC, L, and RL shocks. The lockout lever is designed for use with Shimano Rapidfire shifters, and is compatible with most brake levers. It is not compatible with SRAM Grip Shift shifters. The system is compatible with 4mm derailleur cable housing and 1.1mm derailleur cable ONLY. The lever takes up about 17mm of handlebar width and will fit on most handlebars, including rise bars, alongside one set of shift and brake lever clamps. If you have narrow handlebars, you may want to make sure the lever fits before continuing with the rest of the installation. Note that some Shimano Rapidfire shifters allow removal of the Optical Gear Display, which frees up a significant amount of room on the handlebar.

## PARTS LIST:

Lockout lever  
Lockout cam with two M3x6mm flat point set screws  
Cable stop bracket  
Low-head 2mm dogpoint socket cap screw  
Torsion spring  
Rollamajig cable roller (for use with Scalpel only)

## YOU WILL ALSO NEED:

1.5mm, 2mm, and 2.5mm hex wrenches  
One 1.1mm derailleur cable, some 4mm derailleur housing, one housing ferrule, and one cable end  
High-quality bicycle grease  
Cable / cable housing cutters  
90 Degree Circlip pliers with tips for 1.4mm (3/64") holes  
Loctite 242 (blue)

## INSTALLATION AND SETUP:

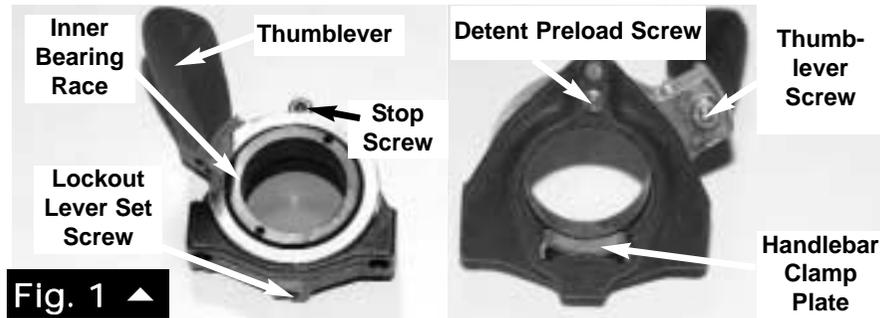
**WARNING:** The information contained in this manual is intended for competent, highly experienced mechanics who have a good knowledge of bicycle-specific mechanical procedures and have access to proper tools and equipment. Incorrectly installing the Remote Rear Lockout could damage the rear shock or the handlebar, causing them to fail, you to crash, and ultimately leading to your injury or even death. If you have any doubts about your ability to perform any of the following procedures, see an authorized Cannondale dealer for assistance.

Make sure all of the above parts are present, including two set screws that should be installed in the cam. Apply a drop of Loctite 242 (blue) to the low-head 2mm dogpoint socket cap screw and the two cam set screws. NOTE: These instructions are written to get you through a complete install and setup of the Remote Rear Lockout. If the lockout lever and the cam assembly are already installed on your bike, skip to the section called "Cable and Housing" on page 6.

### Lockout Lever Setup

1. The lockout lever comes set up for use on the right side of the handlebar. If that's where you want it, skip to step 2. To use it on the left side of the handlebar, remove the thumblever screw and the stop screw, rotate the lever past the detent pin (decreasing detent preload by a couple of turns will make this easier, see Fig. 1), and reinstall the thumblever and stop screws.

**CAUTION: Overtightening these screws may strip their threads. Very little torque is required, less than can be accurately measured by a torque wrench (4 In-lbs/0.5 Nm). Hold the short end of the hex wrench and insert the long end into the bolt when you tighten.**



2. The lockout lever should be positioned inboard of both the shift and brake levers, with the thumblever facing away from the stem and overlapping the shift lever clamp. To install it, remove everything from the side of the handlebar where you're placing the lockout lever. Ensure that the handlebar clamp plate is in position and has not fallen out. Slide the lockout lever onto the handlebar and leave it loose on the bar. Reinstall the items you just removed from the handlebar and tighten them back into place. Rotate the lockout lever so that its cable stops are pointing down, slide it all the way until it touches the shifter, back it away just a hair, and tighten the lockout lever set screw just enough so that you aren't able to rotate the lever on the bar. **WARNING: Overtightening the lockout lever onto the handlebar may damage the bar, potentially causing the handlebar to fail and resulting in injury or death to the rider. Do not overtighten the lever.**

It's very important that the lever doesn't interfere with the movement of the Rapidfire shifter paddles. Before proceeding, make sure that the lockout lever and shifter paddles do not make contact at any point of their travel, and that there's enough room to fit your thumb between the thumblever in its locked-out ("down") position and the big paddle on

the shifter (leave more room if you ride with gloves). See Fig. 2

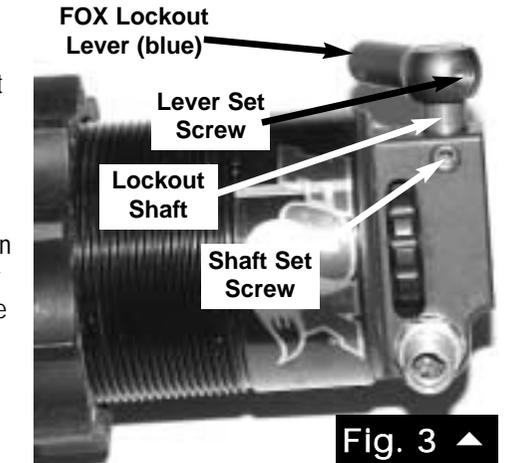
3. Finally, check to make sure that the lockout lever's bearings are adjusted properly. Completely back off the detent preload screw (approx. 2.5 to 3 turns - don't remove it completely) and move the lever several times along its full rotation (approx. 60 degrees). If the bearings roll smoothly, reset the detent preload and continue with the installation. If the bearings are too tight (you feel grittiness or resistance) or too loose (you feel lateral play), loosen the lockout lever set screw and use circlip pliers to loosen or tighten the inner bearing race (see Fig. 1). When the bearings are adjusted properly, reset the detent preload, tighten the lockout lever set screw, and continue with the installation.



### FOX Shock Setup

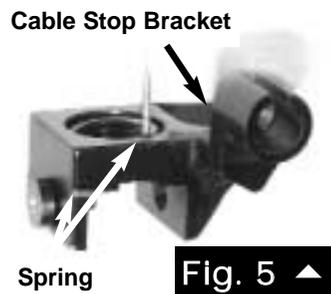
1. Lock out the rear FOX shock. Note that all following instructions require that the shock be locked out - it's important, so double-check. Bounce on your bike with the blue FOX lever in various positions to make sure that the shock is locked out. With the FOX lockout lever in the locked-out position, loosen the lever set screw and remove the lever from the lockout shaft (see Fig. 3). Now remove the shaft set screw, leaving the shaft installed in the shock.

2. Decide how to run cable and housing from the handlebar to the shock. The cable and housing can approach the shock from either end, along its long axis. The



cable stop bracket mounts to the shock accordingly. On Cannondale Scalpels, the cable should run along the top tube and approach the shock from above, using the Rollamajig. Jekylls and Geminis should be set up with the cable and housing running along the down tube and looping up to approach the shock from behind (see Fig. 4). If you're mounting Remote Rear Lockout on any other bike equipped with a compatible Fox shock, choose the least restrictive routing possible that does not interfere with steering, drivetrain operation, rear shock/swingarm action, or waterbottle access.

3. Apply a light coat of grease to the torsion spring and seat it in the cable stop bracket with the spring ear facing up (see Fig. 5). Place the bracket and spring over the lockout shaft on the shock so that the cable stop points in the direction of your cable and housing (see Fig. 6). Secure the bracket and spring by replacing the lockout shaft set screw with the included dogpoint low-head 2mm socket cap screw.



**CAUTION: Overtightening this screw may strip its threads. Very little torque is required, less than can be accurately measured by a torque wrench (10 In-lbs/1.1 Nm). Hold the short end of the hex wrench and insert the long end into the bolt when you tighten.**

**NOTE:** When tightened, the tip of the dogpoint screw sits in a groove on the lockout shaft. It does not actually contact the shaft. If the dogpoint screw is installed properly, you should be able to rotate or lift the lockout shaft a little with your fingertips. If the shaft does not move at all, loosen the dogpoint screw and make sure that it's sitting freely in the shaft's groove before re-tightening.

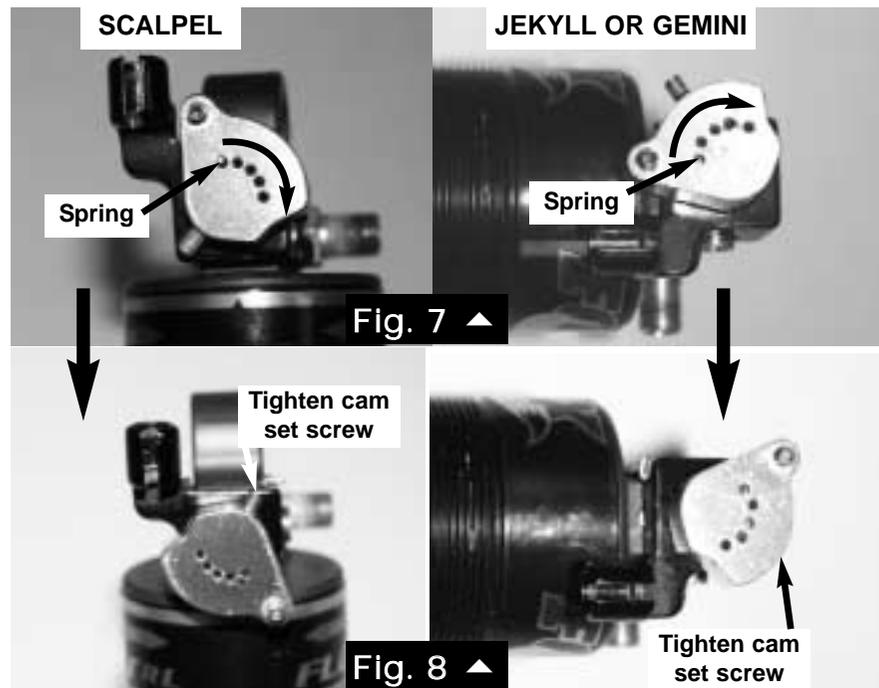
**CAUTION: If the dogpoint screw contacts some part of the shaft and stops it from rotating, the shock will be stuck in the locked position. If forced to unlock, the shaft, screw, and the shock itself may be damaged, potentially beyond repair.**



4. Now choose a lockout cam set screw position. If your cable stop bracket faces away from the shock body (Scalpel), thread the cam set screw into the position on the small radius of the cam. If the cable stop faces towards the shock body (Jekyll and Gemini),

use the position on the large radius.

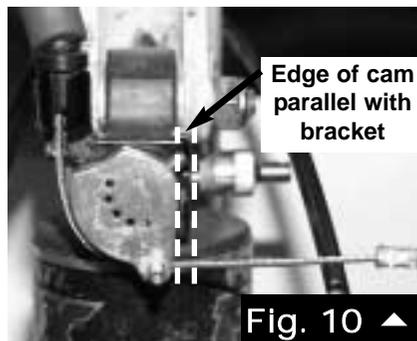
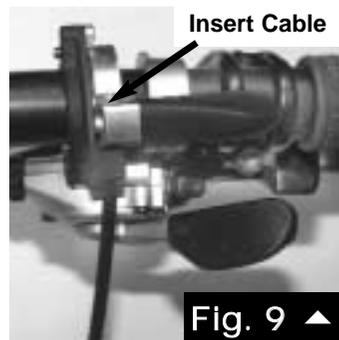
5. Note that there are five (5) spring ear holes in the lockout cam. Install the spring into the cam hole nearest the cable set screw, then install the cam onto the lockout shaft (see Fig. 7). Now preload the spring by turning the cam approximately 180 degrees clockwise. The lockout shaft should remain in place while doing this. When the cam set screw lines up with the flat portion on the lockout shaft, tighten the set screw (see Fig. 8). **CAUTION: Overtightening this screw may strip its threads. Very little torque is required, less than can be accurately measured by a torque wrench (3 In-lbs/0.3 Nm). Hold the short end of the hex wrench and insert the long end into the screw when you tighten.**



### Cable and Housing

1. Route the 1.1mm derailleur cable through the lockout lever towards the rider and run it through the cable stop closer to the rear of the bike. Before installing the 4mm derailleur housing, make sure that both ends are round and are cut flat. Run the cable through the housing, set the housing (without a ferrule) firmly into the lever's cable stop, and set the lever to the locked out "down" position (see Fig. 9). Run the cable and housing back to the shock along your pre-determined route. Remember to choose the least restrictive routing possible that does not interfere with steering, water bottle access, drivetrain operation, or rear shock/swingarm action. Put a ferrule on the end of the housing at the cable stop bracket and insert it into the bracket; leave the end of the cable loose.

2. Orient the lockout cam, rotating it clockwise if necessary, so that the flat edge of the cam lines up with the side of the cable stop bracket that reads "10 InLbs (1.1Nm)". You will need to hold the cam in position with your thumb. Run the end of the cable around the large-radius curve on the lockout cam and through the set screw hole (see Fig. 10). Pull the cable tight, make sure that the flat side of the cam is still lined up with the laser-etched side of the bracket, and tighten the cable set screw. **CAUTION: Tightening this screw deforms the cable. Over-tightening it may weaken the cable, possibly causing it to break. Over-tightening may also strip the screw's threads. Hold the short end of the hex wrench and insert the long end into the bolt when you tighten.** Finish the install by trimming the end of the cable and capping it with a cable end.



#### RECOMMENDED MAINTENANCE:

**After first 10 hours:** check for cable stretch by noting the cam's position when the lever is in its locked out or "down" setting. If the cam is positioned differently than you set it in step 2 of "Cable and Housing" above, loosen the cable set screw, take up cable slack and re-position the cam, and re-tighten the cable set screw.

**Every 3 months:** clean and apply a light coat of oil to the lockout cable (or more often if that's how you maintain your other cables).

**Every 6 months:** use a thin blade to apply a light coat of grease to the detent groove on the inside of the thumblever ring of the lockout lever.

**Every 1 year:** clean and regrease the lockout lever's bearings and the spring in the cable stop bracket. Also, make sure that the cam set screw and the 2mm dogpoint cable stop bracket screw are snug.

#### TUNING TIPS:

If the lockout cam doesn't return to locked position when the lockout lever is released, check to see that: 1) the lockout shaft is moving freely in the shock, and 2) the cable is moving freely in the housing. If both the lockout shaft and the cable are ok, you may need to increase the spring tension. To do so, set the lockout lever to the "down" position, manually reset the cam to its locked position, loosen the cable set screw and remove the cable from the cam, loosen the cam set screw and allow the spring to uncoil counter-clockwise. Lift the cam off of the lockout shaft and spring, choose the spring hole one position in the clockwise direction from its previous setting, and replace the cam onto the

spring ear and shaft. Follow step 5 under "Fox Shock Setup", and step 2 under "Cable and Housing" to finish.

If the effort to move the lockout lever to "unlocked" (or "up") is too high, but the Remote Rear Lockout is working well otherwise, check the lever to make sure that the bearings are adjusted properly. If the bearings are too tight, see step 3 of "Lockout Lever Setup" for bearing adjustment instructions. If the bearings feel gritty or dry even after adjustment, unscrew the inner bearing race completely and expose the bearings. Wipe the exposed portion of the bearings with a clean rag, apply a coat of high-quality bicycle grease (take care to keep grease off the inner bearing race threads), and reinstall the inner bearing race. If the bearings are fine, check that the detent preload is not so high that it's making the lever hard to operate.

If you've tried the tips offered here and still have a problem with your Remote Rear Lockout, bring your bike to an authorized Cannondale retailer for professional assistance.

#### CANNONDALE WARRANTY:

Cannondale products, other than bicycles, are warranted against manufacturing defects in materials and/or workmanship for a period of one year from the date of original retail purchase. Not covered under warranty is damage resulting from improper installation, adjustment or maintenance, from lack of maintenance, from crashes, or from use judged by Cannondale to be excessive or abusive.

Please see the Cannondale Bicycle Owner's Manual, or an authorized Cannondale retailer, for more complete warranty information.

#### CONTACT INFO:

For warranty-related questions, or for more information on this or any Cannondale product, please feel free to contact us:

USA and Canada: (800) BIKE-USA (custserv@cannondale.com)

Europe (EC): +31 541.573.580 (servicedeskeurope@cannondale.com)

Japan: +81 72.299.9399 (cjtech@cannondale.com)

Australia: +61 299.795851 (cannondaleaustralia@cannondale.com)

<http://www.cannondale.com/bikes>

For questions about Fox rear shocks, contact Fox at:

Global: (831) 768.1100 (service@foxracingshox.com)

<http://www.foxracingshox.com>