

## 1999 Campagnolo Chorus/Record 9-speed right Ergo lever rebuild

By Paul Southworth, 26 November, 2002

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Part numbers referenced in these instructions are taken from this schematic:

[http://www.campyonly.com/howto/images/ergo\\_parts.jpg](http://www.campyonly.com/howto/images/ergo_parts.jpg)

Those part numbers may or may not match the parts you need to order to repair your lever, depending on which lever you have, what year, and what gearing. I use the part numbers only to allow you to visually identify the parts. The part numbers are identified in square brackets, e.g., "[EC-RExxx]".

Shift the right lever into high gear (cable fully detensioned). Detach rear derailleur and brake cables and remove from lever.

You may need to unwrap the handlebar tape down past the lever, depending on how the bars are wrapped.

Loosen the nut on top of the lever body (under the hood) with a 5mm allen key until the lever comes off.

On the back of the lever, there is a plastic cover [EC-RE124] over the shifter mechanism, pull it off.

Carefully remove the bolt [EC-RE307] with a 3mm allen key.

Carefully remove the big washer [EC-RE149], under it is a flat coil spring [EC-RE055]. At about the 2 o'clock position you can see the spring is hooked over an aluminum post. This post is part of the spring carrier [EC-RE111] and it is often broken off.

Hold your hand or a rag over the shifter mechanism and slip a flat blade screwdriver under the big flat spring [EC-RE055] and it'll pop out.

The inner tip of that spring was held in a notched bushing [EC-RE251] that sits in the center of the mechanism. Take that out, with it

will be a small washer [EC-RE008]. Keep those together and set aside.

Now take off the thumb shifter [EC-RE204] (it probably popped off its spring already). Under it is the return spring [EC-RE215] which sits down in the index gear. One end of that spring sticks through the index gear into a hole in the body of the brake lever - make a note of where that goes. Take out the return spring and the index gear.

There's a small washer [EC-AT061] that sits between the index gear and a ball bearing assembly in the lever body. It might be stuck to the index gear or it might be stuck to the bearing. Don't lose track of it, take it off and put some grease on the bearing, then stick the washer back on it.

Now that the index gear is out, you can see the spring carrier and two little "G" springs inside it. On top of the spring carrier is a thin steel washer with a notch in it - the notch matches the post on the spring carrier. Make a note of how it's oriented and take it out.

Now remove the spring carrier and any broken bits that came off it. If it's broken, throw it away. If you have new G springs, discard the old ones, or save them if you need to reuse them. I replaced the springs in mine because they are cheap, they do wear out, and the overhaul is enough of a pain in the ass that I'd rather just fix it right and not have to do it again soon.

If you have an old spring carrier (the type that breaks easily) and you're replacing it with the newer style (shoulders at the base of the post make it stronger) then you will either need to replace that washer, or file the notch bigger, or leave it out. Since the notch does not need to be a precise fit to the post, filing it is not a big deal, just remove enough material so that the washer can be centered over the spring carrier, then clean rough edges.

Now it's time to reassemble.

Take the spring carrier and slather some grease where the G springs go, including in the little holes that the G springs fit into. You need enough grease so that the G springs will stick where they're supposed to go. Now put the spring carrier with springs installed back into the lever body.

Fit the index gear back into the spring carrier.

Fit the return spring back into the index gear. The long tail of that spring that sticks out should slip under the index gear and into a hole in the lever body. If you're holding the lever upright (as it would be on the bike) the hole is at about the 10 o'clock position.

The next step is the hardest part - if you get this on the first try you are God. You have to get the thumb shifter reinstalled, which will require winding that return spring about 1/4 turn counter clockwise (winding it up). If the shifter is not in "neutral" (position at which there would be no cable tension) then this is going to be basically impossible. When you've installed the thumb shifter, with one hand you have to hold it all together and with the other hand you have to stick the bushing [EC-RE251] and washer [EC-RE008] back into the hole. The bushing has flats that match the bit sticking through the bearing (which has the threads that the bolt [EC-RE307] thread into). Get all that lined up and assembled. Now your two hands are occupied and you need another hand to screw in the bolt. Good luck. Get the bolt screwed in all the way but don't snug it. Make sure the return spring tip is still stuck in the thumb shifter - often it will pop out. Lather, rinse, repeat until you get it right.

If you get this far, you should be able to work the action of the shifter. Shift it all the way into low gear. If you don't, it is still possible to install the flat coil spring [EC-RE055] but it'll be a lot harder and you'll risk popping the hook on the coil spring into your thumb as it will be under greater tension.

Back the bolt [EC-RE307] off just enough to slip the inside tip of the coil spring [EC-RE055] into the narrow slot in the head of the bushing [EC-RE251] and then screw the bolt back in. The hooked outer end of the coil spring should be oriented so that it will be able to hook over the post on the spring carrier [EC-RE111] after you wind up the spring. There are two slots in the bushing that you could fit the inside tip of the coil spring into but only one of them is correct. If you pick the wrong one the spring will be too loose. The correct one should wind the spring tight enough that the outside diameter of the spring is about the same as the washer [EC-RE149] that fits over it. Wind the spring by grabbing the hooked end with a flat-blade screw driver or similar device and move the hooked end over the post on the spring carrier. To do this I ground a notch in the side of the tip of a cheap flat-blade screwdriver so I would have a better tool for pulling on the hooked end of the spring.

When the spring is hooked on the post and wound up, you'll need to

push on the coil so it's completely flat. Put some grease on the spring. Then very gently and carefully back out the bolt [EC-RE307], install the washer [EC-RE149] so that the square holes in it line up with the wide notches in the bushing [EC-RE251] - the notches that are perpendicular to the notches that the coil spring tip goes into. Reinstall the bolt and make it good and snug.

All done. Reinstall the plastic cover [EC-RE124] and shift the lever into high gear (fully detensioned) and reinstall it on the bike.

**Campagnolo's Official Ergo Rebuild manual with diagrams can be found at**

<http://www.yellowjersey.org/ergo1.html>