

Ultimate Single Ring Guide

Contributed by Alan Starrett
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If you have already read Wally's article on Single Ring Setup you know we are fans of the single front ring here at Bikeman. I would go so far as to say that I love it myself. I have used a single front ring on both my mountain bike and cyclocross bike for several years now. Not once since I made the changeover, in either racing or just riding, have I thought that I needed another front chainring. I prefer it all the way around. It is light, simple, economical and reliable. Reliable that is if you have a good way to keep the chain on.

As Wally mentioned in his article there are several good products that are readily available. The Deda Dog Fang, 3rd Eye Chain Watcher and the N-Gear Jump Stop. The N-Gear is my favorite of the bunch with its fully adjustable stainless steel deflector plate but like the others is not without limitation. The biggest detractor of all of these is that in some circumstances, regardless of how it is adjusted, the chain can drop under the deflector down to the bottom bracket shell.

This is due in part to the fact that all of these have some flex and can twist. In a crash or rapid back pedal when the chain isn't in the right position it can come off. The good news is that because they are flexible you can muscle the chain back on if you are out on the trail but it leaves the deflector out of position and more susceptible to coming off again. Furthermore it is at least a minor annoyance to have it happen on a ride but in a mountain bike race it is a time sucking pain. In a cyclocross race it can be a death nil to your race.

Some folks prefer a double chainring guard setup on cyclocross bikes for chain retention. This is a good idea in theory but in practice it gets a little complicated. Regardless of how you position the ring and guards it requires longer chainring bolts, generally 16mm, and spacers to space one of the chainring guards off the chainring. Few frames have room to put the chainring in the inner position and space the inner guard off of it without hitting the frame. One solution is to use a wider bottom bracket to get the space back but it pushes chainline further out. This puts more strain on the chain in the upper cogs, can lead to shifting problems and creates a noisier drivetrain. The other option is to put the inner guard in the inner chainring position and the chainring in the outer position with the outer guard spaced off of it. Sounds good but the chainline has still been pushed out and has the same problems I mentioned before.

So, since I wanted to preserve good chainline and have my bikes work flawlessly during a race (as I am sure you do) I set out to build a better mousetrap. Luckily for me the folks at Rohloff gave me a head start with a product I could re-engineer. In true German fashion the Rohloff Upper Chain Guide is a high quality CNC machined single ring chain retention device. It is comprised of an outer and an inner plate that sandwiches the front chainring. It is intended to be used with a Rohloff internally geared hub, a single front ring, no separate outer chainring guard and a fixed chain position.

Well, that is not how I was going use it. The chain would be moving left and right as it goes up and down the cassette and honestly I really dig the look of a single chaining guard on the outside. So it would take some planning, testing, re-working, re-testing, re-re-working. Well, you get the idea.

The end result is a design, or modification rather, that I used on my mountain bike racing and riding all season long without one failure. It worked so well that I built one up for my cyclocross bike and as one colorful customer used to say, "It is the bee's knees."

So here is the dope on how to do it if you care to spend the dough and take the time. It is not cheap, it takes a little know how and patience but if you do it right you will not be disappointed. It actually isn't that difficult. First off you need a list of materials:

Rohloff Upper Chain Guide

Calipers

Hacksaw

Bench Grinder or File

Electric Drill

Counter Sink Bit

Right away you can separate what you need from what you don't need with what comes stock in the Rohloff Upper Chain Guide packaging. You only need the inner plate (three holes), seat tube clamps, seat tube spacers (long internally threaded), seat tube bolts (allen key head), short plate bolts (torx head), seat tube shims and spacer washers.

The next step is to prepare the inner plate, which now will be the only plate used in the assembly. Using the counter sink bit in the electric drill you need to counter sink the right most hole shown in the picture. It is best if you hold it in a vise while drilling. Go slow and take your time. Remove a little material at a time and keep checking with the plate bolt until the head of the plate bolt will just rest flush with the plate. Basically you want to duplicate the other countersunk hole in the

plate.

Now you need to determine how long the seat tube spacers have to be to put the plate in the correct position. The space between the plate and the chain should be no more than the space between the chain and the outer chain ring guard. The plate should be as close as possible without making noise when pedaling. There are probably dozens of ways to figure it out, I am not going to list them all here. The quickest and dirtiest way to do it is to install it just above the chainring and actually measure how much needs to come off to get it in the right position. This is where a good set of calipers is helpful. Don't forget to install a seat tube shim if needed for your frame or your measurements will be all wrong.

Mark the seat tube spacers with the with the length that needs to be taken off. The seat tube spacers have a ridged end and a smooth end. Take off material from the smooth end. Use the hacksaw to take off the most of it but leave a little extra to file or grind down square and smooth. Check both spacers with the caliper to make sure they are the same length. File or grind as needed. Don't take off too much! Once they are square and the same length it is a good idea to use the counter sink tool in the drill to lightly deburr the inside of the cut end of the spacer to clean up the entry to the threads.

Now you need to assemble it again and check the position to see if more material has to be removed from the spacers. It is possible at this point that the short plate bolts will reveal themselves to be too long. If that is the case just nip them off with the hacksaw and file the ends to smooth up the threads. If you find that the seat tube spacers are too short don't fret, you can use the spacer washers to fine tune.

At this point if the spacing is good you are ready to assemble it permanently. The plate should be parallel to the chainring. Find the right height by sighting across the outer chainring guard. I have found the sweet spot is to have the knobs where the bolts go through at the same level as the outer chainring guard or slightly above. This works well because although the chain gets closer to the plate as it goes up the cassette it doesn't hit because it goes into the big radius between the two bolt holes.

If no seat tube shims are needed on the frame, once the height is determined I like to put one strip of electrical tape around the seat tube in the clamp area before final assembly to prevent damage to the paint. The aluminum clamp pieces can scar up paint pretty quickly. If you need to use a shim, they are plastic and protect the paint themselves.

One thing to note here is that depending on your frame and chainring setup you may not be able to get the plate low enough to hit the "sweet spot." It was perfect on my cross bike with a 42 tooth ring but it was not on my mountain bike with a 34 tooth ring. The lower tip of the plate hit the chainstay. I just marked the plate where it needed to be shortened then trimmed it to accommodate with the hacksaw and finished it on the bench grinder.

As I mentioned before it is not cheap, the Rohloff Upper Chain Guide will run you about \$63. Then you have the various tools that you may or may not have kicking around the house. Of course there is your time to consider, but trust me here, this is the best single ring chain deflector for XC or cyclocross that you will ever use. If you are really interested in this setup but don't have the stomach to do it yourself, give me a call at the shop, I might be persuaded to modify one for you for a nominal labor charge.

Big Al