

Ask Dr. Spoke

Dear Dr. Spoke: What rear derailleur do you suggest? I have an older Miyata with a Shimano Biopace, indexed 2x6 drivetrain and it's time to replace the (original?) rear derailleur. I am wondering what model Shimano derailleur will work as the current derailleur no longer displays a model number on it. Also, do I need a short or medium cage? The chain rings are 42 and 52 teeth and the HG Cassette is 14 – 28. The current jockey wheel axle to axle distance is about 2 inches. What Shimano derailleur do you suggest?

Thanks, Ken L.

Dear Ken,

Really good question on two counts. First the immediate question, can you upgrade the derailleur? The answer is yes, most likely. Shimano offers some inexpensive six to eight gear rear derailleurs. One is the Tourney. Given the cassette is a six speed, 14-28 the short cage is suitable. As an aside, cassettes with a 32 sprocket must have a medium cage. It appears the new derailleur uses the same frame attachment as the original derailleur.

An old joke. Ask a Swiss watchmaker the time and he will tell you how to build a watch. In the same vein I shall digress on the more fundamental question. When does one say farewell to a trusty machine? I am reminded of this cartoon from the WW II era *Stars and Stripes*.

As I researched and you later confirmed, this trusty bike is a 1980-ish Miyata (great bike in the day). As I gather you upgraded it from non-indexed down-tube shifters to end-bar Shimano Indexed Shifter (SIS) for rear derailleur and non-indexed for front derailleur. Equally interesting, as you noted, this Miyata still has the original Biopace chain rings (see below).

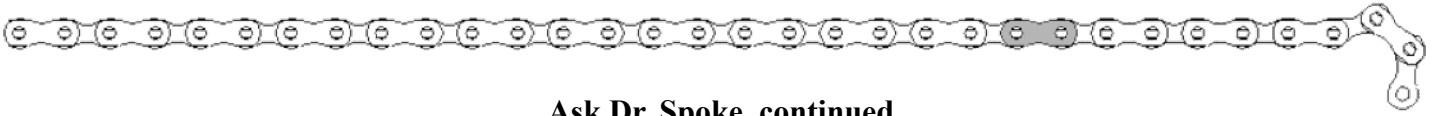
For replacement, one must remain with a six to eight speed derailleur when using/retaining the six to eight sprocket cassette. The actual spacing (inter sprocket derailleur movement) between gears using SIS occurs at the shifter. So, if one elected to use more gears it would entail choosing the desired derailleur/cassette combination and changing / modifying the end-bar shifter.

The Shimano Biopace chain ring is elliptical and was deployed for a few years in the 1980's timeframe. One can look up on internet a description of the Biopace done by Sheldon Brown (RIP). Essentially, when aligned properly with the cranks, the elliptic design allows more power when crank is in 3-9 o'clock position and spins a little easier when in the 12-6 position (less effort). Sheldon Brown noted it worked as advertised; however, it was not widely accepted. Shimano ultimately dropped it. One can still find Biopace chain rings on internet sites such as Ebay. Alternatively, one can replace the Biopace with the circular chain rings. As I read, the BCD (bolt-circle-diameter) is 110 mm and, it appears, is five bolts. One could elect to change the cranks and spider to accommodate new chain rings. I could not ascertain if the Miyata bottom bracket would accommodate newer cranks. Hence, this may entail more cost or perhaps prove infeasible

As you may have guessed, Dr. Spoke has multiple personalities (different contributors). So here is an insight to consider from an old bike mech:

The Biopace chainrings created frustrating experiences with the front derailleur not being able to up shift to the larger chainring. So to enjoy riding the bike, a new grupo of any of the Shimano packages would be recommended. Of course, that could cost a lot more (as you've implied) than the bike is worth, but to each his own.





Ask Dr. Spoke, continued

As an aside, years ago Dr. Spoke bought an Alsop Softride with period-date components, spent more on upgrading than its original cost and eventually dumped it at a Sport Systems's bike swap a few years ago.

A smart move would be to get an assessment at a local bike store.

The decision to upgrade / refurbish a bike should be in the context of both intended use and current technology. In the case of the trusty Miyata, it has lived a good, full life. But upgrading components comparable to a more contemporary bike will likely exceed its worth. Such things as disc brakes are incompatible on the older frame. Changing the grupo for a more recent one most likely will exceed the bike's value and may introduce some interesting configuration challenges.



I conclude. Changing out the derailleur should work. Beyond that simple change, I recommend looking into used sales of more contemporary bikes. Of course, the current bike crunch for new and used bikes creates a seller's market. I will reserve comments on setting up a new grupo for a future Dr. Spoke article. Good luck on either choice you make.

Cheers,
Dr. Spoke

If you have a question for Dr. Spoke, send an email to "DrSpoke@nmts.org" and watch for a response in a future newsletter.

An archive of this and prior "Ask Dr. Spoke" articles is available on the NMTS web site at <https://www.nmts.org/spoke.php>.