

REAR DERAILLEUR ADJUSTMENTS



A Library Survival Guide

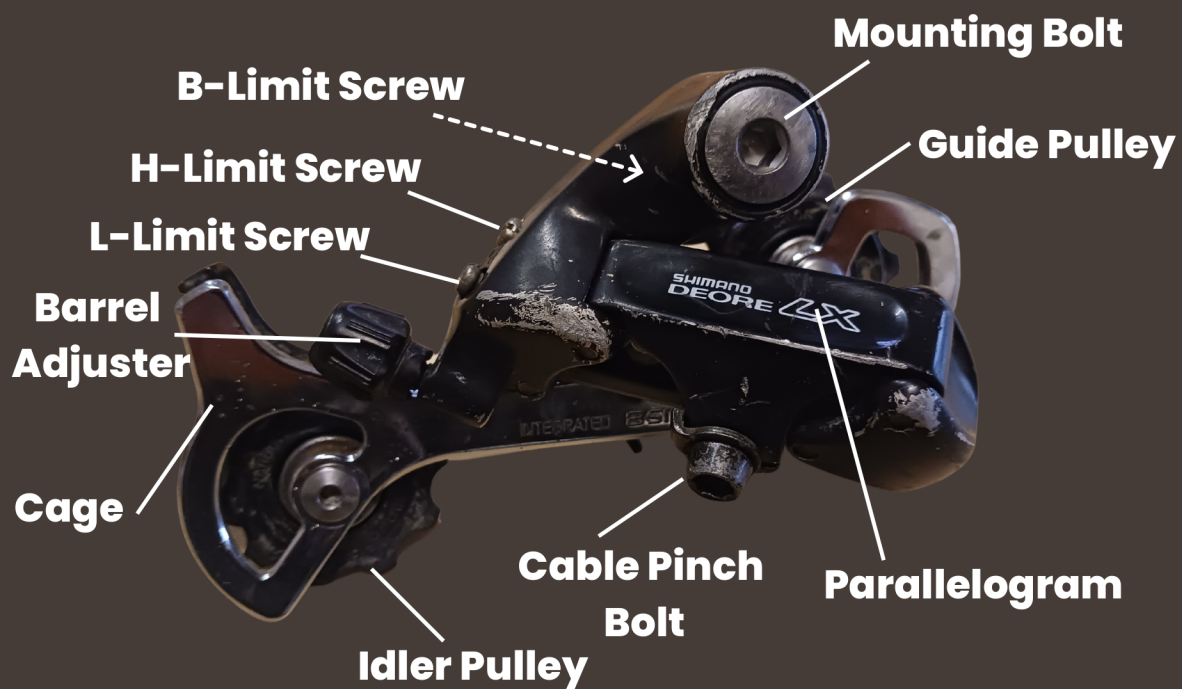
What does the derailleur do?



A derailleur has two main functions:

- It facilitates gear shifting
- It keeps tension on the chain

Parts of the rear derailleur (that we're concerned with)



When to adjust?

When one shift with thumb shifter does not equal one shift in gears or when you hear excessive chain noise as you pedal or gears shift without you pressing the thumb shifter!



Other factors that will prevent good clean shifting:

- Bent derailleur hanger
- Dirty drivetrain
- Dirty/damaged cable or cable housing

Adjustment Overview

Over-tighten all points of adjustment--one at a time, then un-tighten incrementally until shifting is perfect!

- Set H-Limit
- Set Indexing
- Set L-Limit
- Set B-Limit (if necessary)

Set the H-Limit

The H-limit is a screw that blocks the derailleur from throwing the chain off the high (or hard) cog of the cassette



01

Shift to HARDEST gear



Chain won't shift to the hardest gear? Likely a too tight cable or a too tight H-Limit screw:

- If the cable is v. taut at the r-derailleur, introduce slack in it from barrel adjuster or at the cable clamp.
- If the cable already has slack in it, turn the H-Limit screw counter-clockwise.



02

Turn H-Limit screw clockwise until there is noise from the chain (wanting to shift one cog easier)

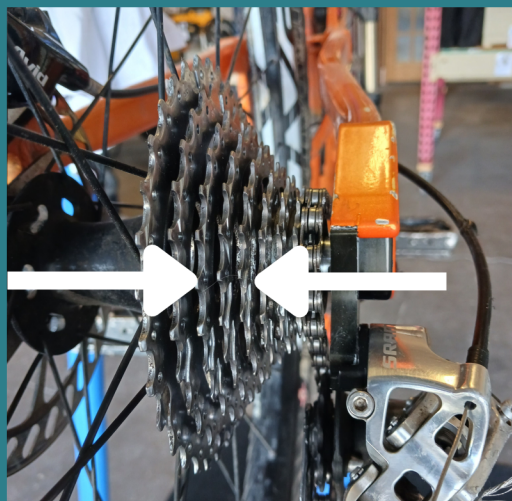


03

Turn H-Limit screw counter-clockwise in very small increments until noise ceases



The H and L-Limit screws act on the highest and lowest ends of the cassette!



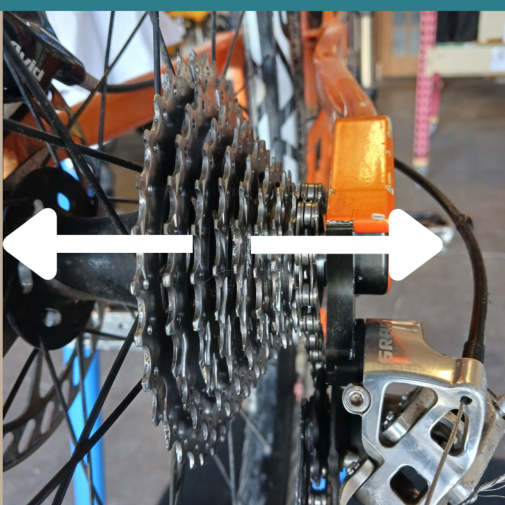
Turn H/L Limit screw clockwise



Turn H/L Limit screw counter-clockwise



Chain moves outward



Set the Index

'Indexing' is calibrating the rear derailleur to line up the guide pulley with a cog of the cassette. The shifter manipulates the cable in pre-set increments, but we can manipulate exactly the starting point so that for every one click of the thumb shifter, the guide pulley shifts the chain exactly one gear.



Starting from HARDEST gear, shift one gear easier—just one click on the shifter!

04



Turn barrel adjuster counter-clockwise until you begin to hear excessive chain noise (of chain wanting to shift one lower).

05



The barrel adjuster is a bit counter-intuitive. Loosening the adjuster will lengthen the cable housing which will tighten the cable. Soooo...



...turning barrel adjuster counter-clockwise...

...will tighten r.derailleur cable (pulling derailleur towards the next easier gear)



Now turn barrel adjuster clockwise in small increments ($\frac{1}{4}$ turns) just until excessive chain noise is eliminated.

06



Shift 'down' then 'up' through each gear (except easiest). Anytime there is excessive noise turn barrel adjuster clockwise.

07



What do you do if you 'max out' the barrel adjuster?! While indexing, it is possible to unscrew the barrel adjuster completely or screw it all the way in. Either way, it limits your ability to fine tune the indexing.

If this happens, it's not big dealio. Do this:

1. Shift to highest gear
2. Turn barrel adjuster all the way clockwise (if it's not already), then back it off two full turns counter-clockwise.
3. Loosen cable bolt to remove/add slack in cable and re-tighten cable bolt
4. Begin indexing again!

Set the L-Limit

The L-limit is a screw that blocks the derailleur from throwing the chain off the low (or easiest) cog of the cassette



08

Shift to the second easiest gear (second biggest cog)



09

Try the shift 'down' to easiest gear and assess.

ASSESSMENT:

The chain moves to the easiest gear easily & w/o excessive noise.

- TRY THIS: Turn L-Limit screw clockwise incrementally until shifting is noisy, sluggish, or doesn't happen.

ASSESSMENT:

The chain hops off the easiest gear and into the spokes.

- TRY THIS: Turn L-Limit screw clockwise until shift is noisy, sluggish, or doesn't happen.

ASSESSMENT:

The shift is noisy, sluggish, or doesn't happen

- TRY THIS: Good! Move on to next step.



10

Now turn L-Limit screw counter-clockwise in smaller increments until excessive noise is eliminated and it shifts to easiest gear easily.

Set the B-Limit

The B-Limit (Body angle) screw sets the gap between the top of the guide pulley and the bottom of the low (largest) cog of the cassette. Set gap to mfr recommendations (or 5–6mm if no recommendations).



In easiest gear, note distance between largest cog and guide pulley. Consult manufacturer re: correct distance.

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Turn B-Limit screw clockwise to increase the distance; turn counter-clockwise to decrease distance.

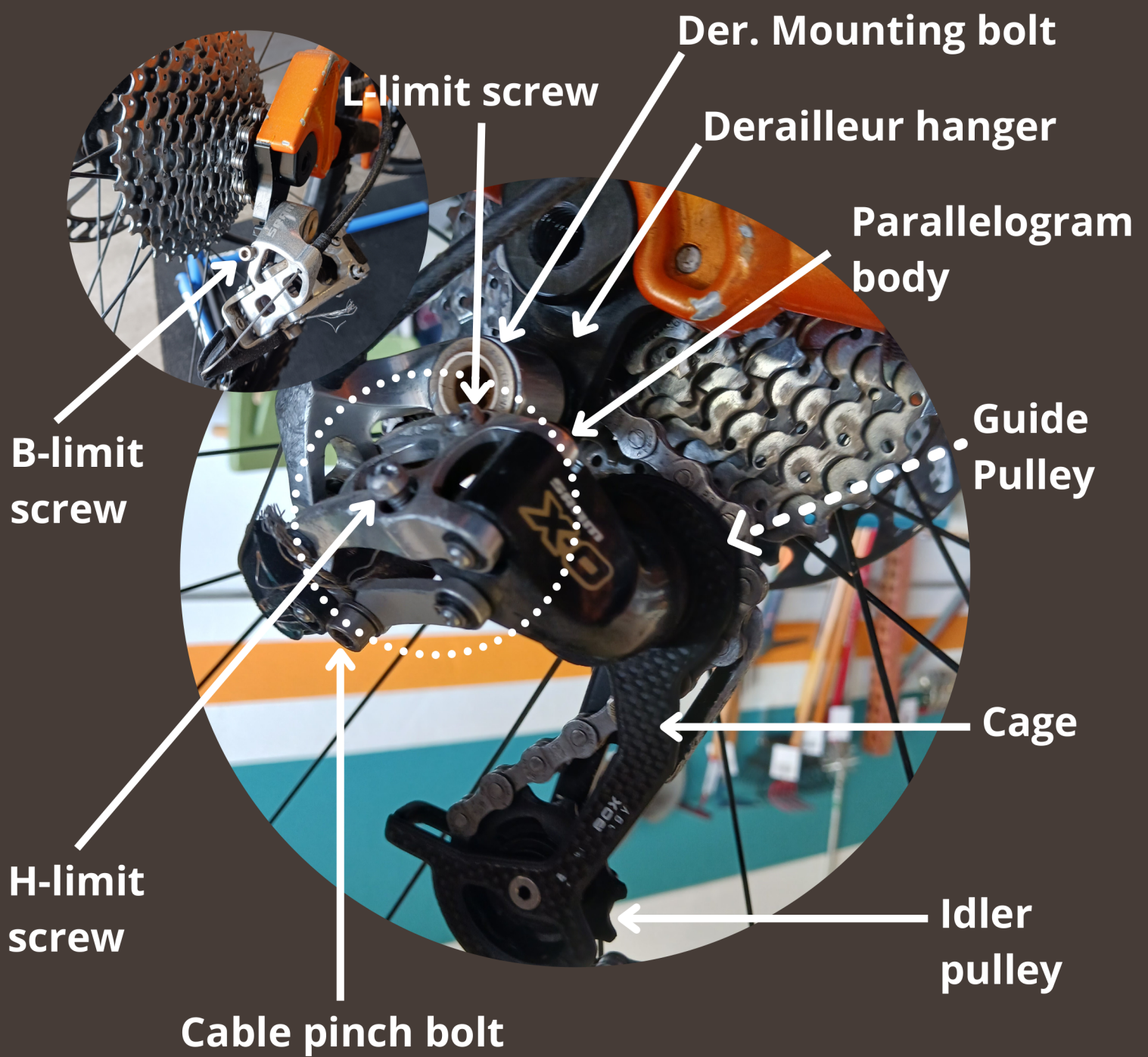
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Congratulations  *You're all set!*

For a diagram of a rear derailleur in its active state, descriptions of the limit screws and barrel adjuster, continue to [Appendix Aye!](#)



Appendix Aye!



What does the H-limit Screw do?

The H-limit screw 'limits' the contraction of the derailleur (affecting only the area of the small cog of the cassette) by literally getting in the way of the parallelogram body.



What does the L-limit Screw do?

The L-limit screw 'limits' the expansion of the derailleur (affecting the area of the largest cog of the cassette) by literally getting in the way of the parallelogram body.



What does the barrel adjuster Screw do?

The barrel adjuster adjusts the derailleur so the guide pulley (and chain) lines up with each cog. While it can't adjust the amount of each shift (the thumb shifter does that) it adjusts where those shifts will land on the cassette! It affects the middle cogs, primarily.