# How to Setup : e*thirteen 9-50T 12s Cassette with Shimano® 12s Drivetrain

Set up your Shimano® 12s Drivetrain (XTR/XT/SLX) with an e*thirteen TRS+ 12s 950 Cassette

Written By: Greg

<table>
<thead>
<tr>
<th>DERAILLEUR</th>
<th>COMPATIBLE</th>
<th>NOT COMPATIBLE</th>
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<tbody>
<tr>
<td>(RD-M9100-SGS) XTR 1X LONG CAGE</td>
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# INTRODUCTION

Setting up an e*thirteen 12s TRS+ cassette to work with Shimano® 12 speed drivetrains - With a few simple tips in mind, you'll have your bike up and running in no time.

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<th><strong>TOOLS:</strong></th>
<th><strong>PARTS:</strong></th>
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<tr>
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<td>Shift Cable (1)</td>
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<tr>
<td>3mm hex wrench (1)</td>
<td>Shift Cable End Crimp (1)</td>
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<tr>
<td>4mm hex wrench (1)</td>
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<tr>
<td>5mm hex wrench (1)</td>
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<tr>
<td>Torque wrench (1)</td>
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<td>4mm Hex Bit Socket for Torque Wrench (1)</td>
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<tr>
<td>5mm Hex Bit Socket for Torque Wrench (1)</td>
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<td>Cable cutter (1)</td>
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<td>Chain Tool (1)</td>
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Step 1 — Before You Start.. (Derailleur Compatibility)

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⚠️ e*thirteen 12s Cassettes are only compatible with Shimano® SGS Long Cage 12s derailleurs, Including the Following:

- RD-M9100-SSS XTR 1X Long Cage
- RD-M8100-SSS XT 1X Long Cage
- RD-M7100-SSS SLX 1X Long Cage

⚠️ NOT COMPATIBLE with the following:

- GS Medium Cage Derailleurs
- SGS Long Cage Derailleurs for double chainring setups.
## Step 2 — Before you Start (Chain Compatibility)

<table>
<thead>
<tr>
<th>RECOMMENDED</th>
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<tr>
<td>KMC X12 CHAIN</td>
<td>SHIMANO™ 12 SPEED <em>(ANY LEVEL)</em></td>
</tr>
<tr>
<td>SRAM™ EAGLE™ CHAIN <em>(ANY LEVEL)</em></td>
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</tr>
<tr>
<td>YBN 12 SPEED CHAIN <em>(ANY LEVEL)</em></td>
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<td>e*thirteen 12 SPEED CHAIN</td>
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For best results, use your e*thirteen with one of the following 12 speed chains:

- KMC X12 chains
- SRAM(tm) Eagle(tm) 12 speed Chains
- YBN 12 Speed Chains
- e*thirteen 12 speed chain

The e*thirteen 9-50t cassette is compatible with Shimano 12 speed chains, but may require special attention for setup.

- IE CN-9100, etc.
Step 3 — Install the Derailleur on the Bike

- Set the clutch switch lever to OFF
- Back the b-limit screw out until it no longer protrudes against the stopper plate tab
- Install the Derailleur using a 5mm hex key
  - Press the stopper plate tab against the derailleur hanger while tightening the rear derailleur fixing bolt, so that there is no gap between the b-tension stop and the tab
- Finish tightening using the torque wrench with the 5mm hex bit socket: **8-10Nm**

Step 4 — Adjust the High Limit Screw

- Adjust the derailleur top adjustment bolt so that the upper pulley wheel is aligned with the outer edge of the smallest cassette cog using the 2mm hex key
  - The high-limit screw is labeled “H”
Step 5 — Install a New Shift Cable

⚠️ Before installing a new shift cable, inspect your shift housing closely. Dirty, abraded, worn, cracked, or otherwise-damaged housing should be replaced before proceeding.

💡 Make sure to use a metal pick, toothpick, or other pointy object to flare the inner sheath of your cable housing at each cut end. This will reduce friction and improve shifting.

- Make sure the shifter is shifted to the **highest gear** (smallest cog) by pressing the small shift release lever repeatedly, then install a new cable in your shifter. Route the cable through the shift housing to the derailleur.

- Route the shift cable through the derailleur and around the groove of the cable anchor washer.

- Pull the cable taught, and tighten the cable anchor bolt using the 4mm hex wrench.

- Remove slack from the cable by actuating the shift lever several times or pulling on exposed cable.

- Resecure the shift cable by loosening the anchor bolt, then pulling the cable just taught, then re-tighten the anchor bolt. Torque the anchor bolt to **6-7Nm**.

- Cut the cable and install a cable end crimp.
Step 6 — Install the Chain

⚠️ Chain length is Critical to the success of your setup, so inspect your chain length carefully before cutting the chain! **When counting the number of extra links, count both narrow and wide chain links.**

- Wrap the uncut chain around the chainring and the largest cog on the cassette. Set the last roller on one end of the chain next to a roller on the long-end of the chain.

    ✪ For Full Suspension bikes - Add 5 or 6 links of extra chain so that the chain will end on a narrow-link.

    ✪ For Hardtail Bikes - Add 4 or 5 links of chain so that the chain will end on a narrow link.

- Break the chain at your measured length using the chain breaking tool.

- Install the chain through the derailleur and connect the two ends of the chain, following the chain manufacturers quick-link installations instructions.

    ⚠️ Remember that some quick-links (Shimano®, SRAM®) are directional

    ⚠️ Remember that Shimano® chains are directional, and the text stamped on the wide links of the chain should face away from the wheel/cassette
Step 7 — Adjust the Low Gear Stop Screw

⚠️ Note that before adjusting the low gear stop screw it may be possible to shift the chain into the spokes! Shift carefully during this process!

- Thread the B-limit screw in until the slack is taken out of the chain by the derailleur
- Slowly pedal the cranks forward and shift the derailleur to the lowest gear position, so that the chain is on the largest cassette sprocket.
- Adjust the low gear stop screw so that the upper guide pulley is centered on the largest cassette sprocket
  - The low limit screw is labeled “L”
- Verify that the chain will not overshift into the spokes by gently pressing on the downshift paddle while pedaling the cranks forward and watching the chain movement.
Step 8 — Adjust the B-limit Screw : 9-50 Cassette

- Shift the chain onto the largest cassette cog

- **For Full Suspension Bikes:** Adjust the b-limit screw until the alignment mark on the inside surface of the derailleur cage is aligned with the bottom of the wells of the largest sprocket.

⚠️ Note that suspension sag / chainstay length growth will change the position of the derailleur when the suspension is weighted.
Step 9 — Adjust the Shifter Cable Adjustment Barrel for Optimum Shifting

- Turn the cranks and shift the chain into one of the sprockets in the center of the cassette.

- Adjust the barrel adjuster to eliminate running noise on the cassette if any is present.
  - Sight down the back of the bike to see if the chain needs to be adjusted in towards the wheel (turn barrel counter-clockwise) or out (turn barrel clockwise).

- Shift gears up and down through the cassette, pausing on each sprocket to listen for ticking/running noise, adjusting the barrel 1 click at a time to eliminate noise.

- Shift the cassette into the largest steel sprocket, and listen for rubbing noise between the chain and smallest aluminum sprocket. If rubbing is present, turn the barrel adjuster clockwise 1 turn, then shift out of the largest steel cog then back into that cog and re-check for rubbing.

- Switch the clutch switch lever to ON, and Shift through all the gears one last time to check for any outstanding issues - make small adjustments (1 click) at a time if necessary. A little goes a long way!
Step 10 — Troubleshooting

Did you inspect or replace your shift housing and cable? This is a common source of shifting issues, don't sleep on it!

Check Derailleur hanger is straight: 12s systems are very sensitive to misalignment between components - if you cannot solve shifting/noise issues with the barrel adjuster, have your derailleur hanger checked using a Park Tool DAG, Shimano® TL-RD11, or other derailleur hanger checking tool. Straighten as necessary.

If using a Shimano® Chain: Shift quality in the largest sprockets is heavily affected by b-limit screw adjustment. If you are experiencing issues upshifting from the aluminum sprockets, adjust the b-limit screw out (counter-clockwise) to move the upper derailleur pulley towards the cassette. Adjust ¼ turn at a time then test shifting.

Remember that b-limit adjustment is affected by suspension sag, so even if shifting is great in the stand, your setup will change somewhat with you sitting on the bike, so b-limit setup may need to be dialed out to account for suspension sag.
Thanks for reading, now get out there and ride!