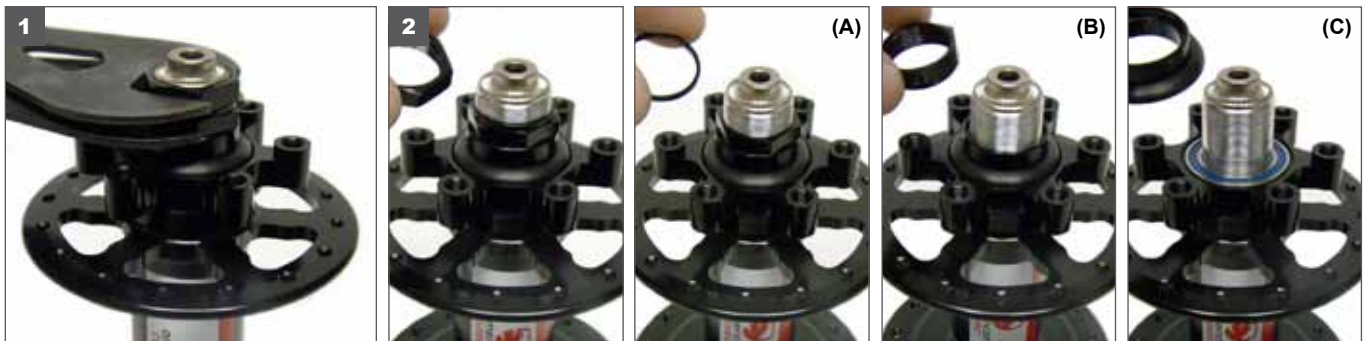


MTB Rear Disc 225: 12 x 142mm Thru Axle Retrofit



Making Your MTB Disc 225 Hub 12mm x 142mm Thru-Axle Compatible.

- 12mm x 142mm Thru-Axle, is compatible with the Disc 225 17mm axle hub only. Please make sure you are working with a 17mm Disc 225 hub before attempting retrofit. See manual: "Rear Cassette Hub: Which Do I Have?" at www.amclassic.com
- **Tools Needed:** Two 19mm cone wrenches, 135mm quick release, axle vise or smooth clamp, needle nose pliers, hammer and small punch (at least 1/4" thick). You will also need degreaser such as Finish Line Citrus BioSolvent and a synthetic waterproof grease such as Pedro's SynGrease.
- **If you are switching your cassette body from Shimano 11 or Campagnolo to Sram XD -OR- from Sram XD to Shimano 11 or Campagnolo the wheel will need to be redished after overhauling the hub.** Redishing provides optimal strength. See **Step 11** for proper Shimano 11, Sram XD or Campagnolo assembly.
- **While disassembling the hub, keep all loose parts organized on a clean rag or paper towel. Do NOT modify or bend the cassette body loop spring in any way. Proper re-assembly is important to rider safety.**



1. Using two 19mm cone wrenches, loosen the lock and adjusting nut.
 2. Remove lock nut.
 A. Some, but not all, hubs have a 1.5mm axle spacer.
 B. Remove adjuster nut.
 C. Remove spacer with dust seal. Hubs with serial numbers beginning with "D" or "E" or ending with "III" do not have this spacer.



Very Important!
 Locate the 0.5mm axle spacer, which is either stuck to the drive side hub shell bearing or the inner bearing on the cassette body. This spacer is critical to maintaining the correct engagement, do not lose!
 Reuse the dust seal for Shimano / SRAM 9/10 or Shimano 11 only, **Remove dust seal for Sram XD or Campagnolo.**
DO NOT reuse this axle spacer.



4. Remove large black pawl seal.



5. Remove pawls.



6. Remove cam plate.

Cleaning and Inspection:
 While the hub is apart it is a good time to degrease and clean. Be careful and **do not get degreaser in the bearings.**
Bearing Replacement:
 Make sure you have the correct bearings. 17mm axle New Style hubs use four - 6803 C3 bearings. Use American Classic bearings for proper functioning.

Continue to Page 2.

MTB Rear Disc 225: 12 x 142mm Thru Axle Retrofit



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7. Clean hub shell for inspection and new grease.

Bearing Removal:

You will need a hammer and small punch. Move internal hub shell sleeve to the side and place the punch through the hub shell resting it on the opposite bearing's inner race.

Tap lightly with a hammer to remove each bearing, work around the bearing keeping the bearing as straight as possible.



8. **Bearing Installation:** Position a new bearing onto the hub shell. Place old bearing on top of new bearing.

Tap lightly with a hammer, work around the bearing keeping the bearing as straight as possible.

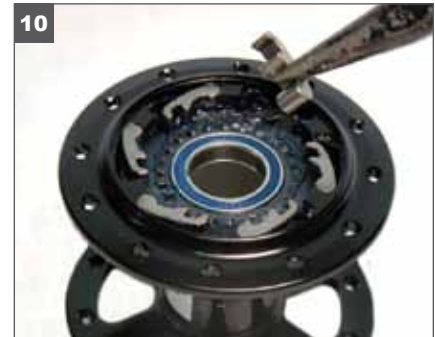
Do not force the bearing. Make sure when tapping the bearing, it is going into the bore straight and evenly.

Install hub sleeve (if needed) and second bearing and re-grease the hub shell before further installation.

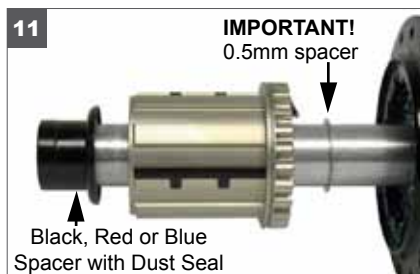
Note: Using bearings other than American Classic 6803-C3 will void the warranty and they may not function properly.



9. With a thin layer of clean grease coating the hub shell, install the cam plate. Refer to the picture for the correct orientation. Do not put the cam plate in upside down.



10. With a thin layer of clean grease coating the top of the cam plate, install all 6 pawls. Once completed the pawls should freely engage in unison with the cam plate.

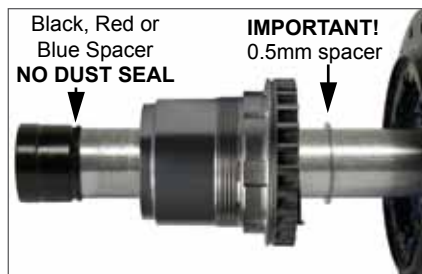


Shimano/SRAM 9/10 or Shimano 11 12x142mm Axle Assembly.

NOTE: Shimano 11 bodies only fit Disc Hubs with Serial Numbers beginning with "D" or "E." Wheel will require redishing if coming from Sram XD.

With a thin layer of clean grease coating the pawls, join the axle, cassette body and spacers with the hub shell.

Order: End Cap > Black, Red or Blue Spacer with Dust Seal > Shimano cassette body > 0.5mm spacer > Hub shell.

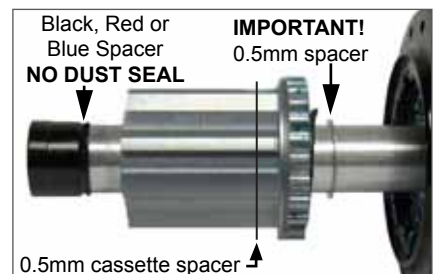


SRAM XD 12x142mm Axle Assembly.

NOTE: If the hub's Serial Number starts with "D" or "E" you must run the Gray Rotor Spacer between the rotor and disc tabs for proper disc alignment. Wheel will require redishing if coming from Shimano 11 or Campagnolo.

With a thin layer of clean grease coating the pawls, join the axle, cassette body and spacers with the hub shell.

Order: End Cap > Black, Red or Blue Spacer - **NO DUST SEAL** > Sram XD cassette body > 0.5mm spacer > Hub shell.



Campagnolo 9/10/11 Axle Assembly.

NOTE: Campagnolo bodies only fit Disc Hubs with Serial Numbers beginning with "D" or "E." Wheel will require redishing if coming from Shimano 9/10 or Sram XD.

With a thin layer of clean grease coating the pawls, join the axle, cassette body and spacers with the hub shell.

Order: End Cap > Black, Red or Blue Spacer - **NO DUST SEAL** > Campagnolo cassette body > 0.5mm spacer > Hub shell.

Continue to Page 3.

Proper re-assembly is important to rider safety.

All repairs should be performed by a professional bicycle mechanic.
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MTB Rear Disc 225: 12 x 142mm Thru Axle Retrofit

Page 3



Making Your MTB Disc 225 Hub 12mm x 142mm Thru-Axle Compatible.



Very Important:

12. The large black Pawl Seal **MUST** be installed **after** the cassette body and axle have been joined with the hub shell.

With the axle pushed completely into the hub shell and pawls engaged with the cassette body, install the large black pawl seal.

NOTE: After completing Step 12, be sure the seal is securely in the groove on the cassette body and you can rotate the body freely without the seal moving. A bit of Tri-Flow® or similar lubricant will help with friction between the groove in the body and the seal.

Final Hub Assembly:



13. Grease the threads and install the spacer with dust seal. Hubs with serial numbers beginning with "D" or "E" or ending with "III" will not have this spacer.



(A) Finger tighten the adjusting nut with the shoulder side facing the hub shell. For hubs with serial numbers beginning with "D" or "E" or ending with "III" install the dust seal on the adjusting nut.



(B) Install the lock nut and finger tighten **-OR-** if you have a serial number beginning with "D" or "E" or ending with "III" re-use your 6.5mm lock nut or 1.5mm spacer.



(C) Using two 19mm cone wrenches, remove all play on adjusting nut, then back off one half rotation, 180 degrees.



14. Make sure the lock nut is fully threaded onto the axle and place threadless end cap on axle.



15. Pressing in the end cap. Place a quick release through the axle with the lever on the drive side. Tighten quick release and clamp down, the end cap will partially press into the axle. Continue to tighten the quick release and clamp down until the end cap is fully pressed into the axle.

Final Bearing Adjustment:

The final bearing adjustment is similar to adjusting a cup and cone hub. The purpose of adjustability is to extend the life of your bearings while reducing friction and rolling resistance to boost performance. The desired adjustment for American Classic hubs is described as "slightly more than no play" as to not overload the bearings. Some play will be removed with the clamping action of your thru axle. This adjustment is the same for road and mountain wheelsets.



16. Holding the wheel by the hub flanges, use your palms to check if the axle moves side-to-side. If the axle moves side-to-side, tighten the lock and adjusting nuts slightly until it does not move side-to-side. When finished, the axle and cassette body should spin freely.

Very Important!

Make sure the Lock and Adjusting Nuts are securely tightened against each other once the hub has been adjusted correctly.