

THE QUICK 'n DIRTY ON

HEADSETS



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The headset is the bearing assembly that allows the fork to rotate smoothly in the frame. A headset consists of races, cups, bearings, and hardware.

THREADED

versus

THREADLESS

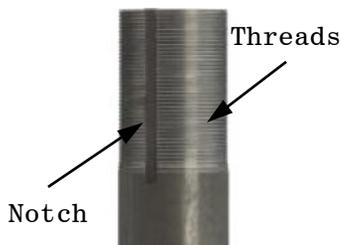
Threaded Headset



Quill Stem



Threaded Steerer



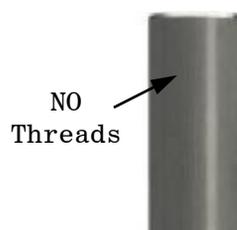
Threadless Headset



Clamping Stem



Threadless Steerer



SIZES The two most common sizes of headsets are 1" and 1 1/8". There are some larger sizes on modern and retro mountain bikes.

1" Standard

25.4mm steerer O.D.

22.2mm quill O.D.

26.4mm crown race I.D.

30.2mm cup O.D.

1 1/8" Standard

28.6mm steerer O.D.

28.6mm stem clamp I.D.

30.0mm crown race I.D.

34.0mm cup O.D.

The non-standards

BMX, old Schwinn's, cheapo 1-piece crank bikes, French and Italian bikes, older English bikes, and older Japanese bikes

CONVERSIONS & FORK SWAPS

Compatibility is VERY important when considering a conversion from threaded <-> threadless or when changing forks.

1) You can't convert to a different type of headset without also changing the fork and stem

2) Make sure the steerer tube is the appropriate type, length, diameter, and has threads where you need them

3) If the cups or races slide in by hand (without a press) they are the wrong size!



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ANATOMY OF A THREADED HEADSET

Locknut

Threads onto steerer tube

Spacer

Notched to match steerer

Adjustable cup*

Threads onto steerer tube

Upper bearings

In retainer

Upper race*

Pressed into head tube

***NOTE**
Sometimes there will be an "upper cup" and an "adjustable race"

Lower cup

Pressed into head tube

Lower bearings

In retainer

Crown race

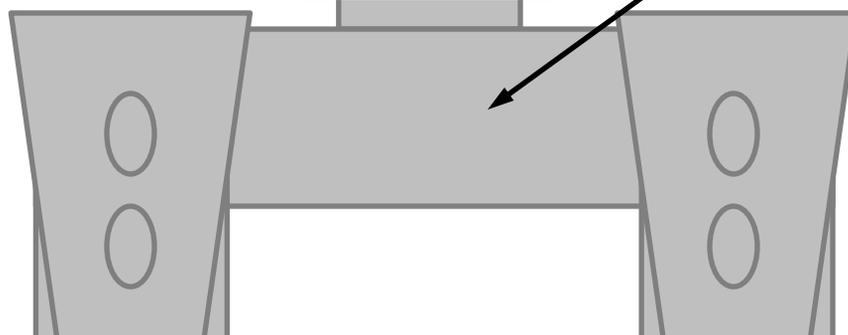
Pressed onto steerer tube

Steerer tube threads (fork)

Head tube (frame)

Steerer tube (fork)

Fork crown (fork)



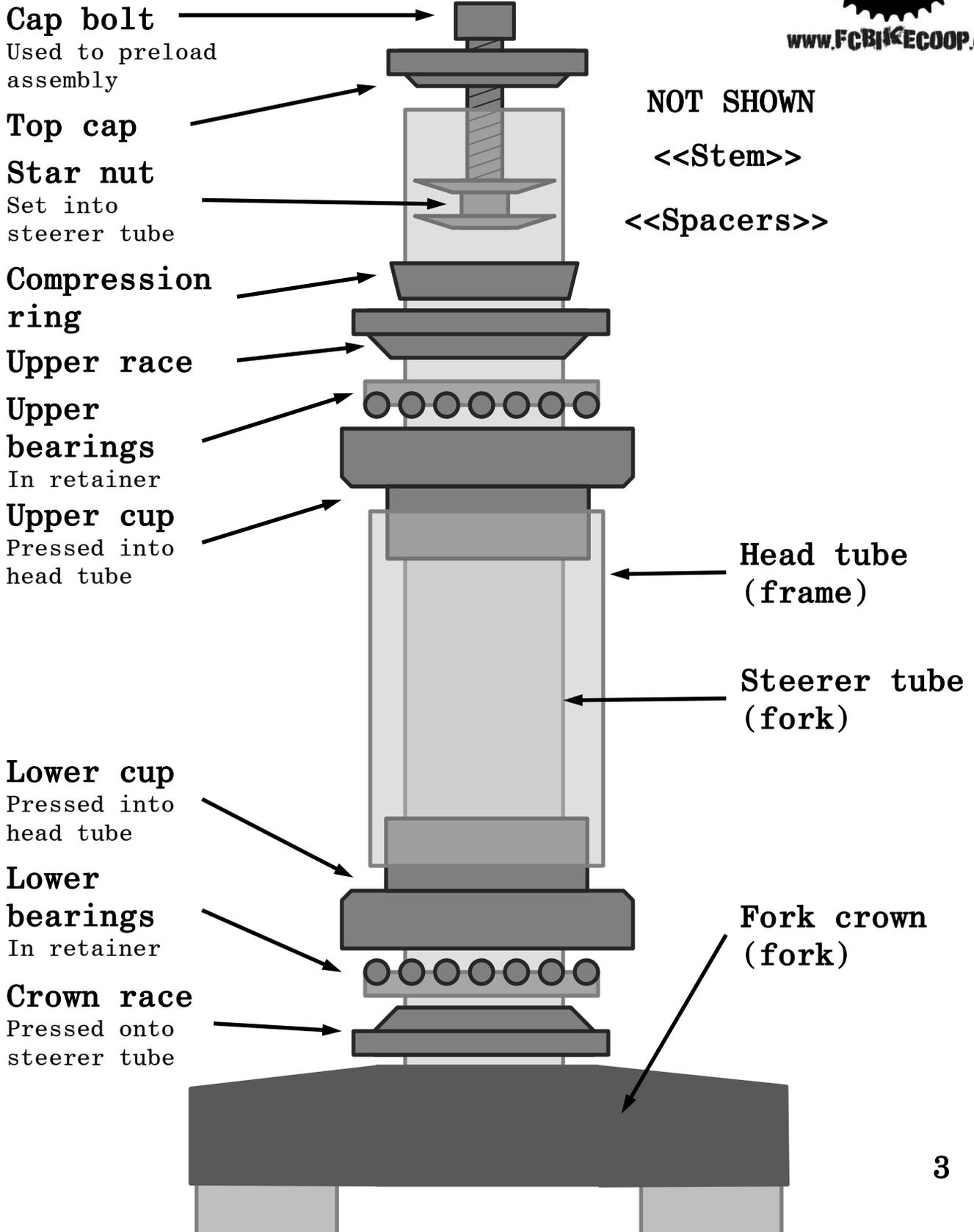
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ANATOMY OF A THREADLESS HEADSET



HEADSETS



Having problems with your headset? Here's how to adjust it and find replacement parts.

TROUBLESHOOTING headset problems Is it too loose? Too tight? Assembled correctly? Worn or damaged?

- 1) **The fork rattles in the frame**
The headset is too loose. Tighten the headset. Check for play with your right hand at the fork crown/lower headset cup while holding down the front brake with your left hand and rocking the bike forward.
- 2) **The fork movement is stiff**
The headset may be too tight. Loosen the headset. Check for smooth action using the "stand gravity test." If this doesn't work something may be worn or broken - proceed to step 3.
- 3) **Fork movement is rough, "indexed," or makes grinding sounds**
Something on the headset is either worn out, damaged, or incorrectly assembled.
 - a) Disassemble the headset enough so that the bearings and races can be inspected. Are any bearings missing? Are the retainers bent? Are the surfaces of the races in good condition? Are the cups cracked?
 - b) Check to make sure the headset is properly assembled. Is everything in the right order? Are the bearings facing the proper direction?
 - c) Check for alignment issues. Are the cups pressed squarely into the frame? Is the crown race set properly?

REPLACING worn parts Compatibility. Compatibility. Compatibility.

There are many styles and sizes of bearings. They are not all equivalent! Any replacements should be the same type and size.

Common retainer



Flat retainer



Sealed cartridge



Loose ball bearings



There are also many styles and sizes of races and cups! Again replace with similar parts to ensure proper fit and function.



DAMAGE! The running surfaces of the races are the most obvious places to look for wear. Check for pitting, scratches, or "Brinelling."



"Dude. Check out my indexed crown race."

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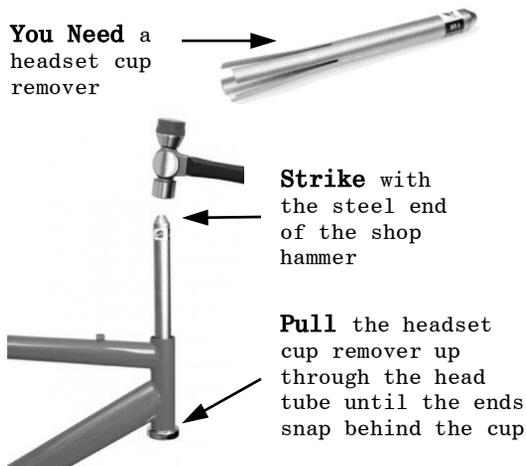
Removing or installing a headset requires several specialized tools.

REMOVING an old headset

1) Remove the hardware, spacers, bearings, and fork

2) Remove the cups from the frame

You Need a headset cup remover

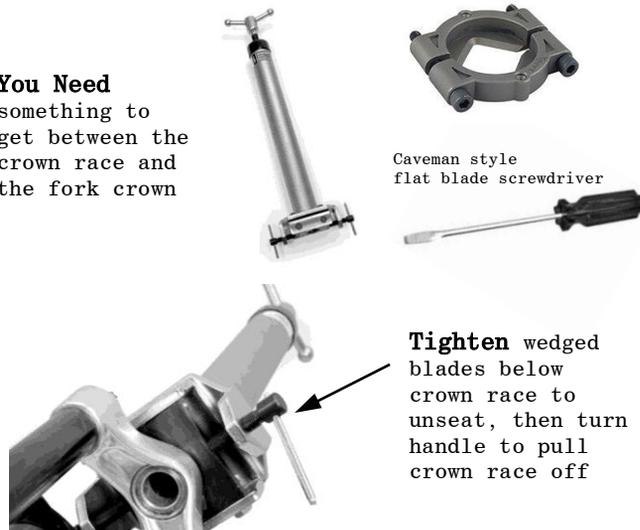


3) Remove the crown race from the fork

Heavy duty park crown race puller

Light duty bearing separator

You Need something to get between the crown race and the fork crown



INSTALLING a new headset

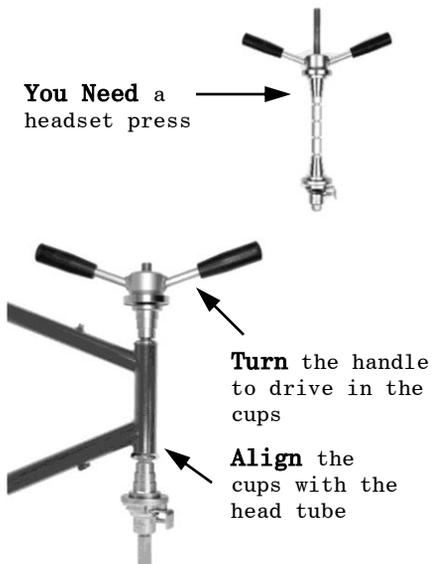
Proper alignment of the cups and races is key to headset function.

1) Press in the cups

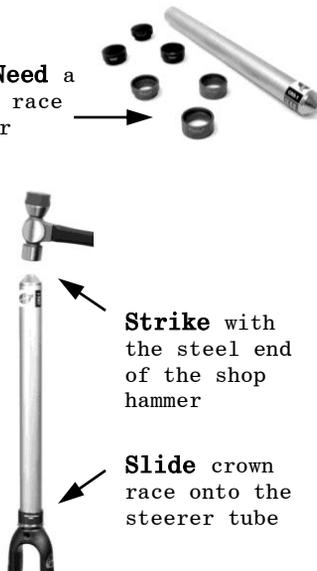
2) Set the crown race

3) Set the star nut (threadless)

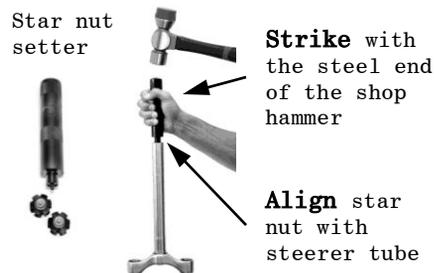
You Need a headset press



You Need a crown race setter



Star nut setter



4) Install bearings (w/ grease), fork, hardware, and spacers

5) Preload bearings using threaded race (threaded) or top cap bolt (threadless)

6) Lock assembly using locknut (threaded) or clamping stem (threadless)

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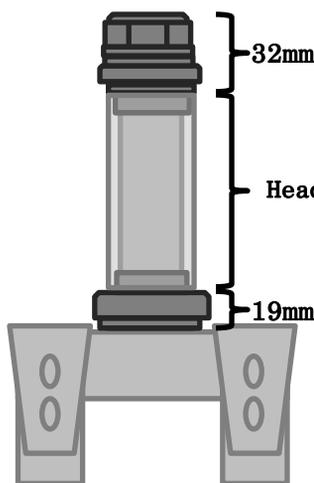
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A major source of confusion for beginner mechanics is steerer tube length. How long should it be?

STACK HEIGHT

Stack height refers to the vertical distance the headset occupies on the steerer tube.

Threaded

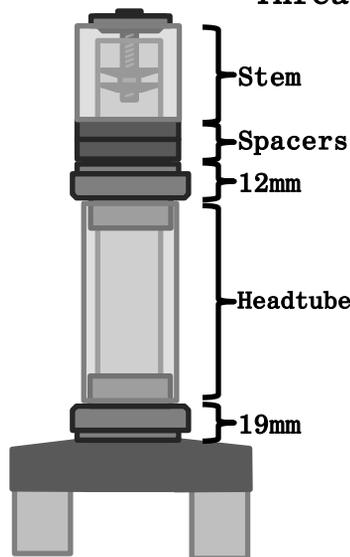


Total stack height
32m top
+ 19mm bottom
= 51mm

Headtube

Steerer tube must be the length of the head tube + the stack height of the headset

Threadless



Total stack height
12m top
+ 19mm bottom
= 31mm

Headtube

Steerer tube must be the length of the head tube + the stack height of the headset + the height of desired spacers + the height of the stem - 3mm (for compression)

CUTTING threaded steerer tubes

You can cut a threaded steerer tube, but you need to do some extra work.

- 1) Before making your cut, thread an "un-lipped" locknut past where you plan to make your cut.
- 2) Make the cut
- 3) File the cut end at a 45 degree angle
- 4) Unthread the locknut, which will clean the threads to the edge of the cut

EXTENDING threads

It's possible, but it's a lot of work.

You need a fork threading set



Dies are really expensive. Use extra care.

Handle

Line the die up with the existing threads.

Make sure to use plenty of cutting fluid on the die and crank hard - it's not easy to cut threads.