Handlebar Stem Attachment and Threadless Headset Adjustment

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The top-cap and bolt at the top of the stem (bottom-right picture) do not secure the stem onto the steering column. The binder bolts on the side of the stem attach it once the headset adjustment is made. The top-cap is used for bearing adjustment only. The bolt in the top-cap puts pressure on the stem, which presses on the spacers below the stem, which press on the bearing races, which press against the bearings. The top of the stem must sit higher than the fork steerer, (as in the top-left picture)otherwise the process does not work. The bolt through the top-cap screws into the starnut (shown in the picture on the top-right). Tightening it acts to tighten the headset bearings. The fork steering column should be about 3mm (1/8") below the level of the stem (but may be up to 5mm below.) The stem needs to press down on the spacers in order to adjust the headset bearings. If the gap is too small another spacer is needed below the stem. Spacers are made in various thicknesses including 2.5mm & 5mm.

Now that you have knowledge of how it works, if in the situation of needing to do this, follow the below steps to fit the stem and handlebar assembly to the fork steering column. This process is the same whether assembling a new bike or reassembling after travel.

1. DO NOT LUBRICATE INSIDE THE STEM OR ON THE STEERING COLUMN SURFACE.
2. Initial top-cap fitting. After being satisfied you have not got the cables and housing twisted, slide the stem onto the fork steering column, align it straight to the front wheel and gently secure the bolt in the top-cap. Stop when any resistance is felt. Lightly bounce the front of the bike on the ground once to detect any obvious looseness such as from an unseated bearing.
3. Tighten the two stem binder bolts, evenly, to 5Nm. In this process recheck that the stem is facing straight ahead.
4. Check for possible looseness of the headset adjustment. With the bike on ground, grab the front brake tightly. Press downward on the handlebars and rock the bike forward and back. A knocking sensation may indicate a loose headset. If in doubt, place your fingers in spots around the lower section of the headset, (at the base of the frame headtube) and repeat the brake-holding test. Rocking movement means it is still a bit loose.
5. Check for possible over tightness of the headset adjustment. Lift the front of the bike slightly off the ground and ensure smooth sideways turning of the forks is possible. It should not feel 'notchy' and should not hold any particular position. It should turn easily.
6. If as a result of the looseness and tightness tests you want to readjust the headset bearing tightness, first of all loosen the two stem binder bolts. If you don't, any change you make to the top-cap bolt tightness won't be able to affect the bearings as they are below the stem.
7. Turn the adjusting bolt in top-cap only 1/8th turn (clockwise for tightening and anti-clockwise for loosening).
8. Resecure the stem binder bolts and repeat the tight/loose tests.
9. Repeat adjustments as above until play disappears. Remember to loosen the stem binder bolts each time before readjustment at the top-cap bolt.
10. <u>With the bearing adjustment finally right, do the final alignment of the stem by sighting in line with the front tyre and tighten the stem binder bolts for the last time, evenly to 5Nm</u>.
11. Check tightness of the stem attachment. Stand in front of the bike facing it with the wheel between your legs and hands on the outer parts of the handlebars. Whilst gripping the wheel between your legs try hard to turn the bars left and right. They should not be movable. The stem-to-fork connection must be firm and secure or you may lose control of the bike and possibly die. Due to the absolute need to get this right, spend as long on it as necessary and get training on it from a bike mechanic. Look at u-tube videos and also practice it so you become sufficiently familiar.

It is our recommendation that, for transportation of your bike, the handlebars are not removed from the front of the stem.