

# Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit' Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

*CAUTION: Please do NOT 'disassemble' your new Adjustable Lowering Links prior to installation. In certain cases re-assembling incorrectly will make it impossible to fully adjust ride height after installation is completed, possibly requiring the Adjustable Lowering Links to be removed and re-installed.*

## **INCLUDED IN THE KIT:**

- (1) 12mm x1.75 x 140mm Hex Bolt (item 'A1')
- (1) 12mm x 1.75 Nylock Nut (item 'A2')
- (1) Machined Spacer (item 'B')
- (2) Zinc Machined Hex Shaft (Hex-Adjuster) (Assembly 'C')
- (2) 1/2-20x 7" Zinc Double Ended Stud (Threaded Rod)(Assembly 'C')
- (2) 1/2-20 Zinc Left Hand Jam Nuts (Assembly 'C')
- (4) 1/2-20 Zinc Jam Nuts (Assembly 'C')
- (2) 1/2-20 Zinc Female Rod Ends (Assembly 'C')
- (2) 1/2-20 Zinc Male Rod Ends (Assembly 'C')



## **TOOLS REQUIRED:**

- Factory Service Manual
- Phillips & Flat Screwdrivers
- 10 mm and 12 mm Sockets
- Pliers (std. & needle nose)
- 10 mm Open End Wrench
- Two 1/2" Open End Wrenches
- 3, 4, & 5 mm Allen Wrenches
- Motorcycle Lift or Similar
- Motorcycle Tie-Downs

## **About a Shortcut:**

It's possible to complete this work without completely removing the shock assembly. Just remove the bolts #2 and #4 and #5 (see sketch), swap the collar and wiggle the pre-adjusted links into place (see instructions), re-install bolt #5 and hand-tighten its nut, then install the new longer bolt #A1 and its nut #A2. Then gently tighten all the bolts, then torque. The trick is to slightly move the shock assembly so the front of the Connection Rods #10 can disengage from their insert connection at bolt #5. Remember to orient the new Adjustable Lowering Links (C) as shown on the sketch.

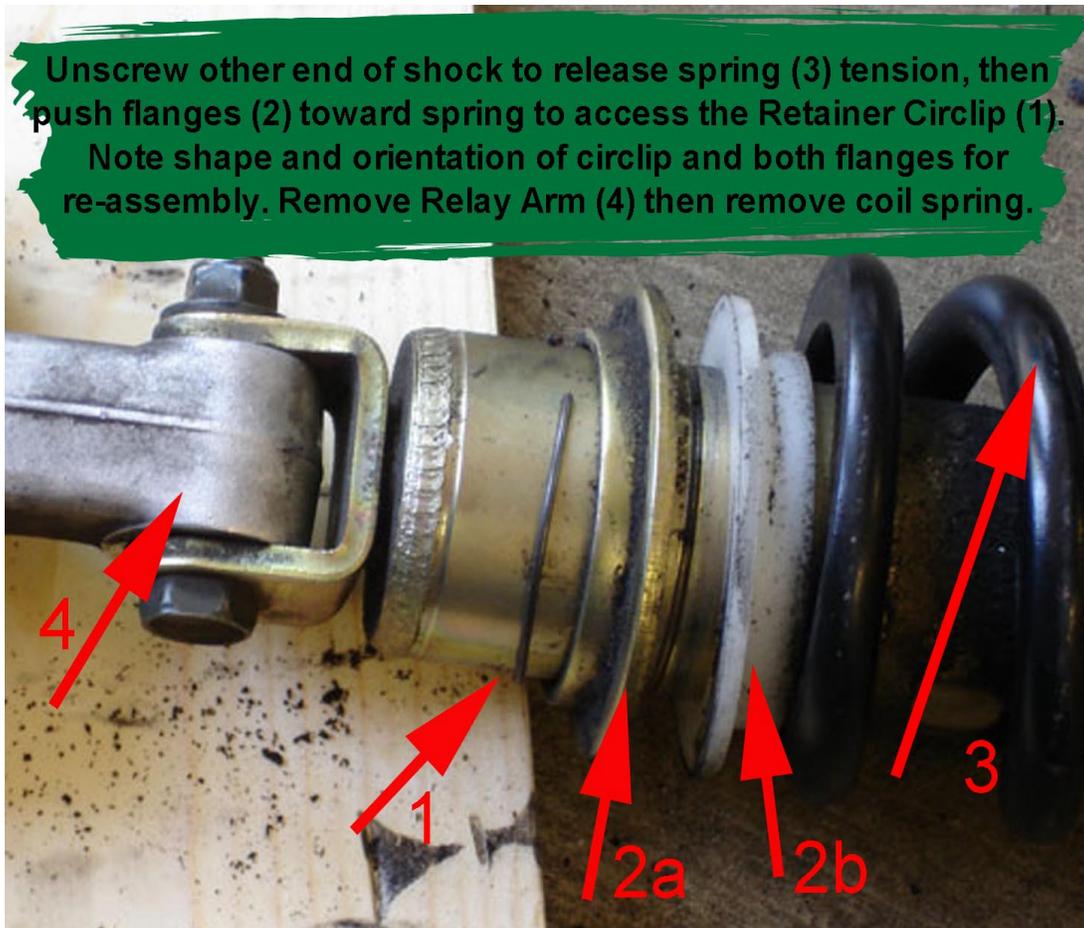
# Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit' Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

## About an Optional Stiffer Coil Spring:

A heavier coil spring helps maintain ride height and avoids 'bottoming out' under hard impact or when carrying passengers or heavy loads. With a little gentle wiggling the entire shock assembly can be removed from the bike frame.

- You'll need a spring compressor to remove and install the spring on '02 shocks but on '03 and newer shocks the spring can easily be removed without a spring compressor.
- The Baron BA-8523RD and the Progressive 1181-20B can easily be installed with a spring compressor. Both provide a firmer ride than stock.
- The Eibach 0700.225.1000 rides firmer than Baron or Progressive springs, yet can be installed without a spring compressor. Simply install it onto the shock then tighten the nut onto the top of the shock to compress the spring.
- The Eibach 0700.225.1100 is much firmer than the Eibach 1000 and can be installed without a spring compressor but to avoid stripped threads its recommend to use one anyway.



Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit'  
Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

**Step By Step 'Set-Up' and 'Installation' Instructions**

1. Secure the motorcycle to a bike lift and raise the motorcycle. The rear tire should remain barely resting on the ground. The area beneath the shock absorber should have clear access to remove the shock out the bottom of the frame just in front of the rear tire. Otherwise remove the rear wheel.
2. See the included sketch for references made in parentheses, for example (#5).
3. Remove the nut from (bolt #5) at the front of the shock (end #7). Remove your exhaust and 'side horn' to access the nut and bolt if necessary.
4. Remove (bolt #5) from the non-exhaust side of the bike. You may need to slightly raise or lower the rear wheel (or the bike) in order to move the swing arm to ease the tension on this bolt so it can slide out smoothly.
5. Remove (nut and bolt #4) connecting the Relay Arm (#3) to the swing arm. Then slowly remove the entire Shock assembly (with Relay Arm attached) from the bike. Pay attention to how you remove the Shock assembly so you can use the same route, in reverse, during re-installation.
6. Once the shock is removed from the bike, stop to notice how the relay arm is oriented and how it is attached to the assembly so you can put everything back the same way you took it off. There is no need to remove bolt #1. Please be aware that flipping the relay arm can cause serious damage to the lowering kit and surrounding components.
7. To prepare your new Adjustable Lowering Links (C), be sure their threaded rods are fully threaded into both rod-ends, then backed-out not more than one thread. On the end opposite from the hex adjuster, gently tighten the jam nut to keep the threaded rod from rotating inside the rod end. On the end with the hex adjuster, leave the two jam-nuts loose but touching the hex adjuster.
8. Now rotate the rod-end at the Hex Adjuster only as much as needed to orient it with the other rod-end, then gently tighten the remaining jam-nuts. Then set your Adjustable Lowering Links aside. Do NOT fully 'jam' the nuts yet.
9. Remove the two 'stock' fixed-length Connecting Rods (#10) from the Relay Arm (#3) and Shock (#7). Compare their length to your new Adjustable Lowering Links. To make length adjustments: insert a bolt or screwdriver or similar object through both rod-ends as 'handles' to keep the rod-ends from rotating, then back-off the two jam-nuts at the hex adjuster (leave the other rod-end jam nut tight), then turn the hex adjuster so the threaded rods get longer. Continue to adjust until the center of the bolt holes are correctly aligned with

Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit'  
Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

the bolt holes in the 'stock' Connecting Rods you just removed from the shock. Matching this length is important. In the event you do not have the 'stock' fixed-length Connecting Rods (#10), they measure about 289mm (11.4") center-to-center of their bolt holes. If you prefer to initially install your new Adjustable Lowering Links (C) at stock ride height then go ahead at this time and tighten all of the jam-nuts while keeping the rod ends oriented to accept their bolts, and skip the next step. Otherwise do NOT fully 'jam' the nuts yet.

10. If you prefer to install your new Adjustable Lowering Links at lower-than-stock ride height, please match them to the stock ride height as above, then return to this step. To lengthen your Adjustable Lowering Links for a lower suspension ride height, insert a bolt or screwdriver or similar object through both rod-ends of one Adjustable Lowering Link as 'handles' to keep the rod-ends from rotating, then back-off the two jam-nuts at the hex adjuster (leave the other rod-end jam nut tight), then turn the hex adjuster so the threaded rods get longer. With the supplied 1/2x20 threads, one complete rotation of the hex adjuster equals about 1/4" (6.35mm) in ride height drop. So watchfully lengthen each Adjustable Lowering Link exactly 4 full rotations over stock resulting in just over 1" (25.5mm) drop, or up to 8 full rotations over stock resulting in just over 2" (50.8mm) drop. Its handy to use a temporary marking such as 'masking tape' on the hex adjuster to count rotations. Then compare to be sure both Adjustable Lowering Links are exactly the same length as each other. This length-match is important. CAUTION: Do NOT lower the motorcycle more than 8 full rotations over stock ride height. Re-tighten the two jam nuts next to each hex adjuster and verify the jam nut next to the opposite rod-end is tight and the rod-ends themselves are properly oriented.
11. Your Lowering Links are now adjusted, its time to install them onto the Shock.
12. The new Adjustable Lowering Links are thicker than the stock Connecting Rods (#10), so remove the 'stock' (collar #6) then assemble the new Adjustable Lowering Links to the front of the shock (#7) using the new supplied (Collar B) and (nut and bolt #5). Remember to orient the new Adjustable Lowering Links so their ends without the hex adjustment shaft are attached to (shock end #7) at (Collar B). See sketch. Do not tighten the nut or re-install into the frame yet.
13. Set aside bolt #2 and use new supplied bolt (A1) to assemble the Adjustable Lowering Links to the Relay Arm (#3). Use the new supplied nut (A2) on bolt (A1). Verify you have assembled the new lowering arms so the rod-ends with the hex adjustment shaft are attached to the Relay Arm (#3). Do not tighten the nut yet.
14. Now fully-tighten the jam nut on the rod-ends opposite from the hex adjuster, but do NOT fully-tighten the jam nuts next to the hex adjuster yet.

## Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit' Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

15. Re-install the Shock Assembly back into the motorcycle frame using the same technique and path used to remove it. Once in place, remove Bolt #5 and fit (Collar B) into the stock location as shown in the sketch. Then reinstall (bolt and nut #5) as shown on the sketch. Don't tighten the nut yet.
16. Then re-install the Relay Arm (#3) back into the motorcycle swing arm and re-install (bolt #4) into its stock location and orientation as shown in the sketch. It may be helpful to slowly raise or lower the swing arm to slip this bolt into place.
17. Compare the installed Shock assembly to the drawing and verify the 'new' collar and bolt/nut have been installed in their correct separate locations, and the 'stock' nuts and bolts have been re-installed in their correct locations and orientations. Retain your take-off parts (collar, bolt, and Connecting Rods).
18. Now lightly tighten all nuts and bolts, allowing the assembly to adjust itself in the frame. Depending on your motorcycle lift, you may want to lower the motorcycle to the ground before you torque the nuts and bolts to the motorcycle manufacturer's specification. At the time of this writing, the Yamaha Road Star Warrior service manual indicated torque as follows:  
Bolt #1 Back of Shock to Relay Arm: 29 Ft/Lbs (40 Nm) (no need to remove).  
Bolt #2 Lowering Links to Relay Arm: 43 Ft/Lbs (59 Nm).  
Bolt #4 Relay Arm to Swing Arm: 43 Ft/Lbs (59 Nm).  
Bolt #5 Front of Shock to Motorcycle Frame: 43 Ft/Lbs (59 Nm).  
Jam Nuts: Snug using an open end wrench, then tighten with a sharp pull.
19. Lower bike from lift, bounce the suspension a couple times, then inspect the new lowered height and adjust further if desired. Lastly, verify all six jam-nuts are jammed, then remove any temporary marking tape from both hex adjusters (it may be facing 'up.' At this time you can optionally 'scribe' or 'permanently mark' the down-facing 'face' of both hex adjusters so in the future you will know when you have turned each adjuster an equal number of rotations (or partial rotations). Then reinstall the exhaust and side horn if removed, and installation is complete.

### **Step By Step Ride Height Adjustment Instructions**

20. To adjust ride height after installation, only back-off the two jam-nuts holding the hex adjuster (do NOT back-off the jam nut on the other rod-end). Then use an open-end-wrench to incrementally turn each hex adjuster to either lower or raise ride height. Do NOT lower the motorcycle more than 8 turns, which is about 2" (50.8mm). Remember to adjust both Adjustable Lowering Links incrementally and at the same time and the exact same number of turns (or partial-turns). When ride height is satisfactory, tighten all jam nuts again. Then bounce the rear suspension while you visually inspect for obstructions from accessory items or similar. Don't smash your fingers.

Baron and LA Choppers #BA-7500-20 'Adjustable Rear Lowering Kit'  
Yamaha Road Star Warrior 2002-2011 (not official Baron/LAC Info)

Rev1d

21. The further you lower the rear suspension, the greater the chance that a future heavier load will cause the rear fender to bottom-out onto the spinning tire. Take this into account when planning rides involving passengers or heavy luggage. It only takes a few minutes to return to stock ride height.
22. If you cannot adjust ride height after installation then an error has occurred in or after Step 6 and you will need to un-install and begin again from Step 1.

--- NOTES ---

---

If helpful, the stock Road Star Warrior rear suspension is the same for all model years with respect to installing this part, including the 2002 original shock, the 2003-2009 improved shock, and also the 2010 Canadian Road Star Warriors. The 2011 New Zealand Road Star Warriors are actually model year 2009 UK bikes.

*Got Better Steps? ArizonaWarrior will integrate them.*

This installation guide provides a basic outline for proper installation of this product. Further fitment and tuning may be needed and relevant mechanical expertise is required. The author bears no responsibility for results, costs, errors or omissions associated with this guide or installation of your purchased product.

Similar appearing Adjustable Lowering Links may include design differences such as different thread pitch causing a change in the ride-height-adjustment per full-rotation, and may also use different thread direction, additional parts, and varying adjustment procedures. Consult the instructions included with your purchased kit.

## **INSTALLATION SKETCH FOLLOWS**

**Next Page**

# Yamaha Road Star Warrior 2002-2011 Rear Suspension Adjustable Lowering Links

