

Front Fork Modification Project

for the Honda Metropolitan I & II / Ruckus and all variants years 2002-06

Objectives:

1. Reduce felt slapping "bottom outs" of front forks and improve overall ride.
2. Use of common parts easy to obtain with minimal modification to fork.
3. Cost of Modification to remain affordable under \$30 yet remain a viable solution to replacement aftermarket forks.

Results:

1. Bottom outs less violent, much improved over stock ride. Overall ride more comfortable with improved handling.
2. Parts readily available on the net, at your Honda dealer, and recycling of some stock parts.
3. Cost margin a success! Modification well under goal of \$30 W/Shipping

Options:

1. If you are a rider under 200lbs I would suggest to only place a die spring in one fork.
2. The added Rebound Springs and cutting of the spacer is optional.

Warning!!!!!!

Read through this guide thoroughly and completely!

Following the steps included in this article are not approved by Honda. Perform these modifications at your own risk. You will be solely responsible for all work performed and any installations resulting in damage or injury. The author of this article does not and will not accept any liability for any accidents, injury or damage resulting from this modification. This modification is only reversible if you buy replacement parts as some of the stock parts will need to be modified in this procedure. But it is reversible if you need it to be for under \$15 in replacement parts w/shipping.

Continue at your own risk!

And Now For the Good Stuff!

Parts you will need to purchase

1. *2 Medium Duty Die Springs (Part# M100-200 (1" O.D. X 2") from www.toolanddie.com)*

Approx cost \$11.00 w/shipping

2. *2 Rebound Springs (Part# 1472589-001 from www.bikebandit.com) or you can order from any authorized Honda dealer, Honda part #51412-GEV-711 consult your dealer for item price.*

Approx cost \$16.00 with shipping.

I have been looking for a substitute spring to use in place of the Honda spring but haven't been able to locate one as of yet. The Honda spring may be difficult to get a hold of once people start buying them up? They are also a little more expensive than they need to be.

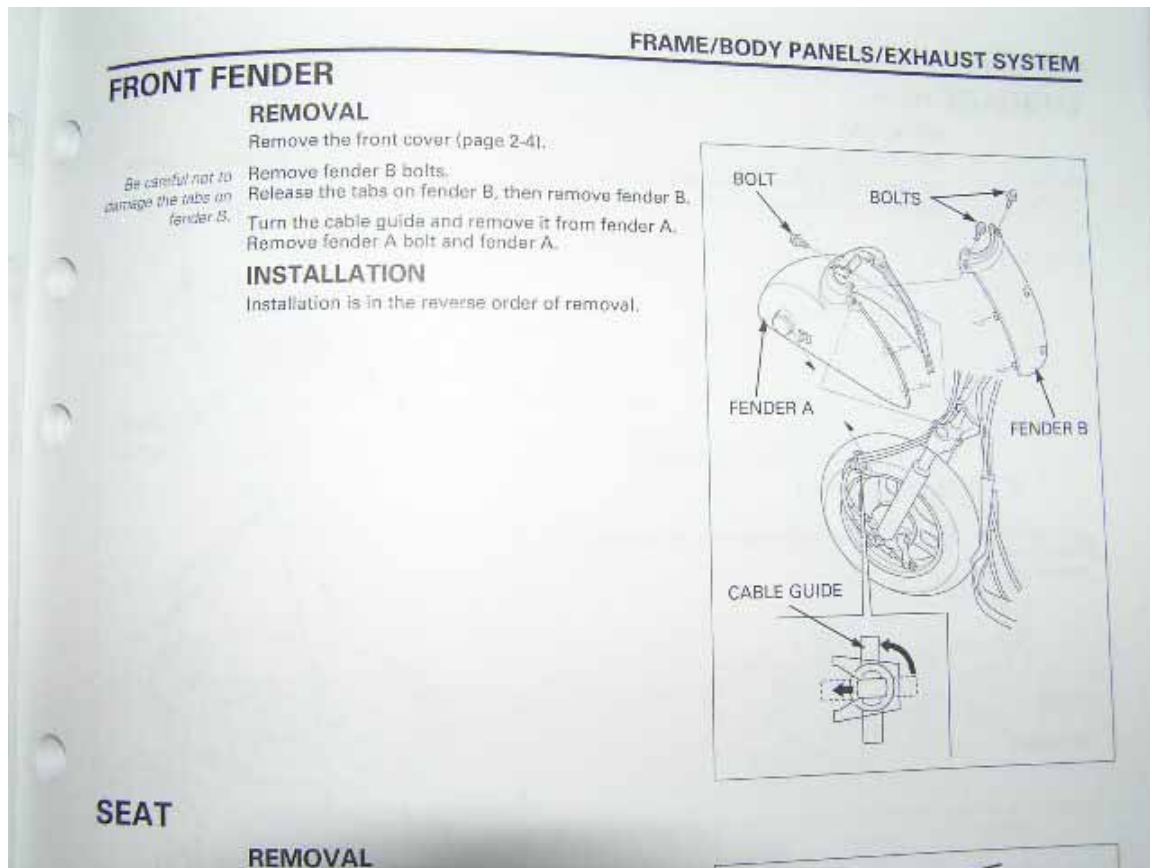
Tools you will need

1. Internal Snap Ring Pliers preferably with 45' or 90' angle
2. Metric wrench set
3. Metric Socket or Nut Driver set
4. Small tube of grease most any type will work I used Lithium Grease.
5. Tubing cutter or PVC cutter that can handle 1.5" diameter. (saw will work)
5. *Sheet of sand paper 220 grit or finer.*
6. Utility knife or all purpose cutter like Craftsman Handi-cut or similar

During this process it will be a good time to inspect and check your forks for wear and or broken parts. Fresh lubrication will prolong your forks. Also check your dust seals for cracks and brittleness and replace any parts as needed.

Step 1

Remove the Front Fender as shown below.



Support scooter with blocks of wood or other to get the front wheel off the ground. I used a .50 Cal ammo box which worked rather well.



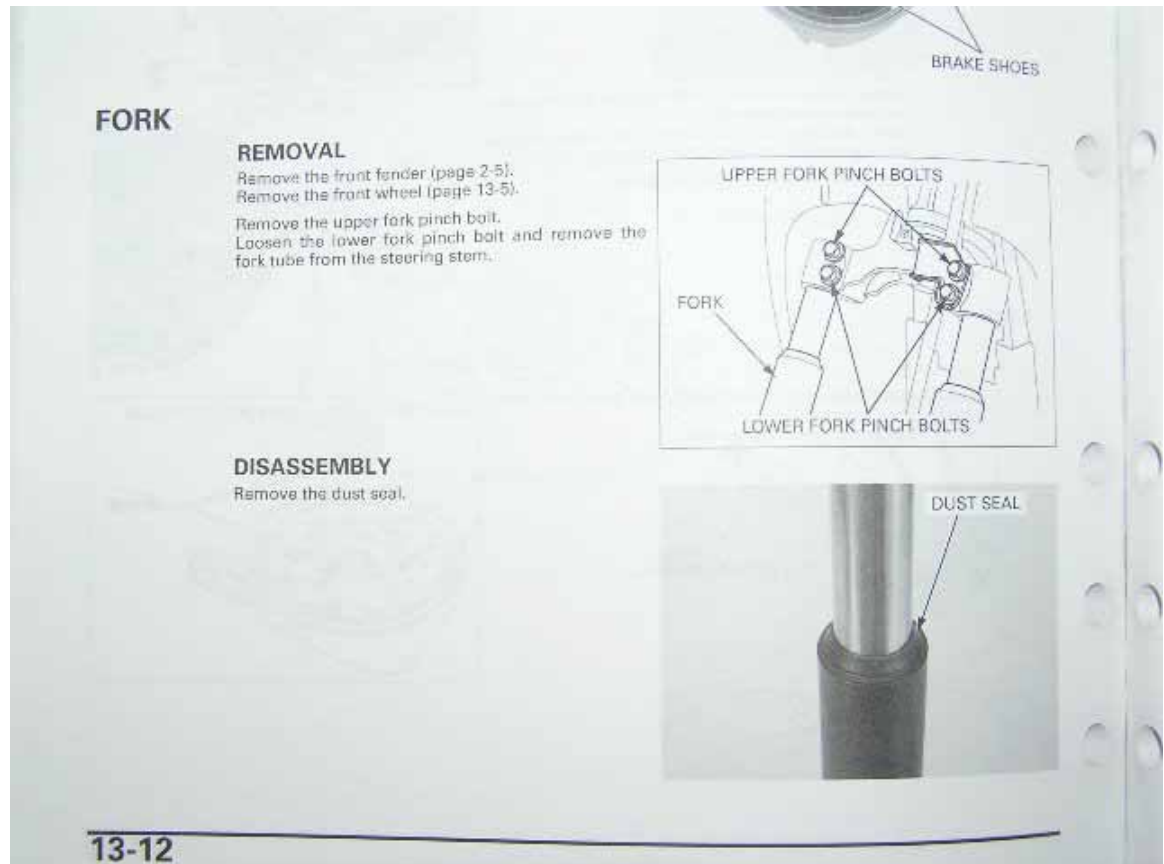
Step 2

Remove the Front Wheel. I left the brake cables attached.



Step 3

Remove and disassemble both forks. You can leave the bottom bolt in on each side just loosen it. The top bolt needs to be removed though.



When releasing the internal snap ring it may help to hold the Fork in a vise and push down to compress the fork slightly. This will take some of the pressure off of the snap ring and make removal easier. Having a few Q-Tips handy may make finding the holes easier as this area will be packed with grease.

FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Clean the grease within the bottom case.
Press the fork tube into the bottom case and remove the snap ring.

NOTICE

Be careful the fork tube does not pop out from the spring pressure, when removing the snap ring.

SNAP RING



Pull the fork tube out from the fork tube.
Remove the guide bushing and rebound spring from the fork tube.

FORK TUBE

GUIDE BUSHING

REBOUND SPRING

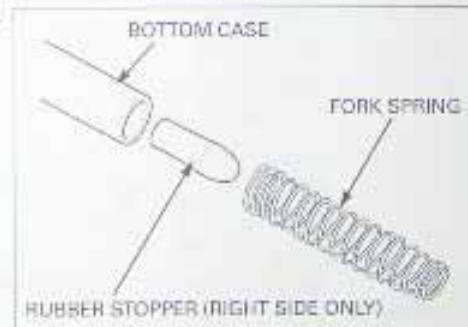


Remove the fork spring and rubber stopper (right side only) from the bottom case.

BOTTOM CASE

FORK SPRING

RUBBER STOPPER (RIGHT SIDE ONLY)



INSPECTION

Check the fork tube, rubber stopper and guide bushing for excessive or abnormal wear.

Check the rebound spring for fatigue or damage.

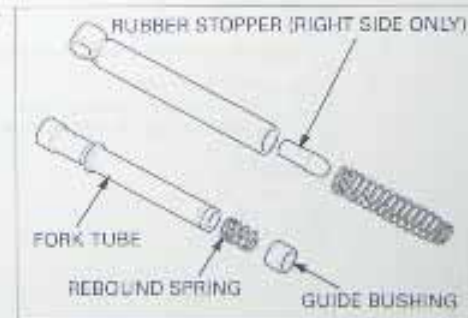
Replace the components if necessary.

RUBBER STOPPER (RIGHT SIDE ONLY)

FORK TUBE

REBOUND SPRING

GUIDE BUSHING





Step 4

Now that you have the forks apart take the rubber stopper and cut two 1 inch pieces from it. Being very careful to accurately measure each piece and cut through squarely. I used a ratcheting PVC cutter for this. A Craftsman Handi-cut will work or even a Utility knife just be sure to make your cuts as square as possible. You will have the cone shaped end piece left over and can discard it if you like.



Step 5

Now it is time to cut the Guide Bushing in half. I would suggest you use a tubing cutter for this part. Go slow and only cut a slight bit at a time. The bushing is brittle and if you try to cut too fast the bushing may split uneven. After you have a good groove made around the bushing you can begin to apply more pressure. It will most likely split violently so be ready "it did for me anyway". A Hacksaw will also work. Once cut, sand off any burrs or jagged edges with 220 or finer sand paper sheet. After sanding wipe clean and apply small film of grease both inside and out and place one half back on each fork. (*The other uncut guide bushing will not be used unless you ruin the first one*)



Save the uncut spacer incase you want to reverse this mod.



Cut down spacers installed



Step 6

Putting the springs and rubber bumper in the proper order and assembling will look like this. From the left in order: Added Rebound spring, Die spring, rubber bumper, and main spring. When assembled they look like the 2nd picture.



With both together



Step7

Apply some grease on the inside of the bottom case tube as far down as you can reach.



Step 8

You can now install the spring assembly. (*Insert added rebound, die spring, and rubber end toward the bottom of fork and with the tapered end of the main spring at the top*)

You can now reassemble the forks. Make sure you properly seat the snap ring when putting the forks back together. You will notice the Forks may be difficult to get back together because of the extra spring tension added.

Apply some grease as seen below also.



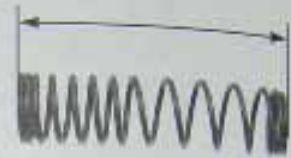
You will notice I'm not shy with the grease. It may be messy at times but good lubrication will prolong the life of the forks and all internal parts.

FRONT WHEEL/BRAKE/SUSPENSION/STEERING

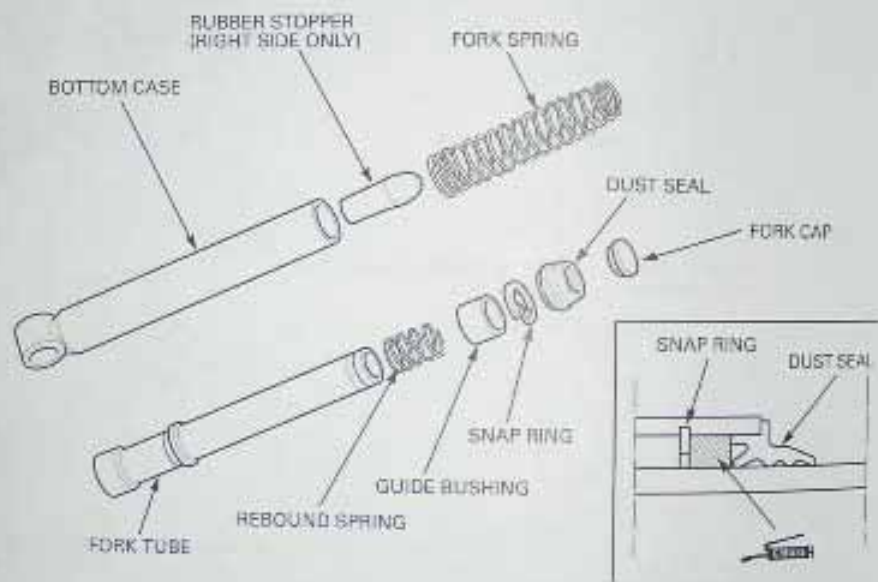
Check the fork spring for fatigue or damage.

Measure the fork spring free length.

SERVICE LIMIT 125.9 mm (4.96 in)

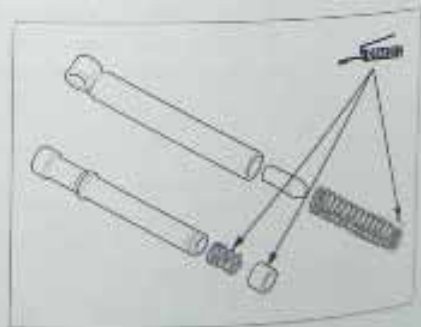


ASSEMBLY



Apply 8.5 – 8g of grease to the following parts.

- rebound spring
- guide bushing inner surface
- fork spring tightly wound and



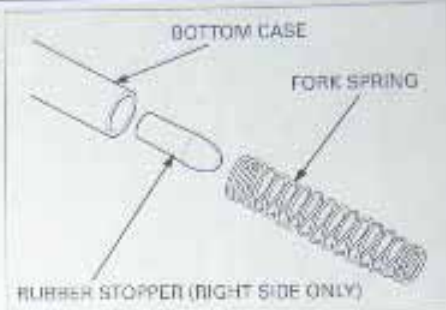
Be sure to place some grease here.



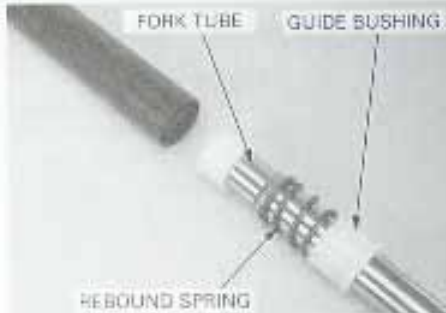
FRONT WHEEL/BRAKE/SUSPENSION/STEERING

Right side only

Install the rubber stopper into the bottom case as shown.
Install the fork spring with the tightly wound end facing down.



Install the rebound spring and guide bushing into the fork tube.
Install the fork tube into the bottom case.



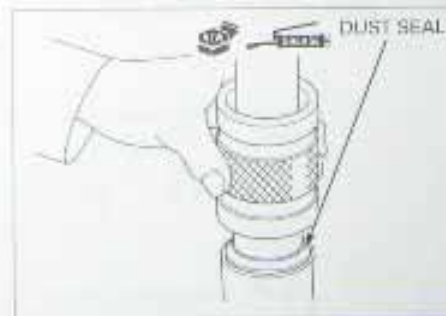
Press the fork tube into the bottom case until the snap ring groove is visible.
Install the snap ring into the groove in the bottom case.
Apply grease to the fork tube as shown.



Coat a new dust seal lip with grease and install it into the bottom case using the special tool.

TOOL:

Fork seal driver, 27 mm 07947-1180001



You can get by without a seal driver they go in rather easy with you fingers.

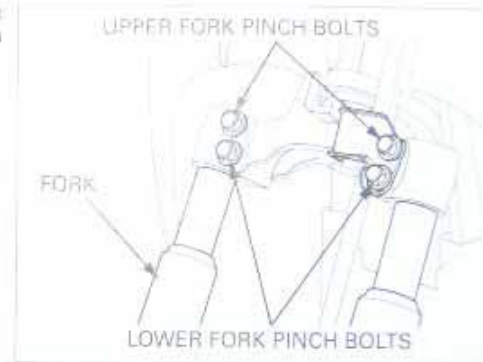


FRONT WHEEL/BRAKE/SUSPENSION/STEERING

INSTALLATION

Install the fork into the steering stem and align the groove in the fork tube with the upper bolt hole in the stem, then install the upper pinch bolt. Tighten the fork pinch bolts securely.

Install the front wheel (page 13-8).
Install the front fender (page 2-5).



HANDLEBAR

REMOVAL

Remove the front cover (page 2-4).
Remove the speedometer (page 18-9).
Remove the wire band from the handlebar.
Remove the rearview mirrors.





Finish your assembly and you are now good to go with a much improved front suspension! You will notice a firmer ride, softer bottom outs (no slapping) but make no mistake if you hit a big bump you will still feel the bump. This mod was made to improve the stock forks not make it ride like a BMW!

I put many hours of time into this modification and also spent about \$40+ of my own money on test parts etc. I do not look to profit from this Article however if you are pleased with this Modification and would like to offer a donation to help me recover some of the costs of my time and effort you may send donations to my www.Paypal.com account aweshucks@hotmail.com . I will personally thank each and every person via email for any donations I receive.

Special thanks to [DandyDan](http://www.urbanscootin.com) at www.urbanscootin.com for all his information on the Ruckus.

Good Luck and Scoot Safe!

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F.A.Q's

Q. Will this make my scooter go faster?

A. NO

Q. Will this mod make my scooter forks bottom out less harsh?

A. YES

Q. Will this affect the fork stroke?

A. YES you should gain a slight amount of travel and your front end will also be .5" higher

Q. Will this mod void my Honda Warranty?

A. I don't know

Q. On a scale of 1-10 how hard is this mod to perform

A. 6

Q. How long will this mod take to perform?

A. 2-3 hours on average

Q. How much does the total cost of this mod come to?

A. About \$25 for all parts and shipping

Q. Do I have to add the extra rebound springs and cut the spacer?

A. NO you can just add the Die Springs in the bottom if you like and cut down the rubber stopper.

Q. Will I have to weld or drill the forks?

A. NO

Q. Is this mod reversible?

A. Yes but you will have to purchase a rubber stopper. You can just place the two spacer halves together and reinstall the other spacer.

Q. Will I need any special tools for this project?

A. Read the guide tools needed are listed

Q. Can I do this myself?

A. YES be self confident it works wonders

Q. Do I need a Service Manual?

A. They are nice to have

Q. Can you make copies of the rest of your service manual?

A. NO buy your own!

Q. Is this mod public knowledge?

A. YES do not pay for this information or for kits someone sells.

Q. Do you offer support via email, phone, or web forum?

A. NO

Q. You made a mistake in your guide can I offer you a correction notice?

A. YES I will correct all errors just send email to my address.

Q. What is your email address?

A. Figure it out yourself!

Q. If I screw this up can I hold you responsible?

A. No perform everything at your own risk!

Q. Will you guarantee this mod and parts?

A. NO perform everything at your own risk!

Q. Is there any more silly questions I can ask you?

A. Probably