BA-2020-00/02/03/04/06/07/08/13/13B/15
BIG AIR KIT (BAK) - Yamaha Road Star (99-07)

Revision: 6.2 - 02/23/2011
Install Time: 1.5 Hours

We recommend a qualified Yamaha technician install this kit since the carburetor must be removed from the motorcycle. Always perform internal carburetor work in a clean area.

INCLUDED IN THE KIT:

(1) Baron Jet Kit BA-2420-00	(1)Black Zip Tie
(1) Billet BAK Cover	(1) Nylon Nipple Pre-installed
(1) Black BAK Backing Plate	(2) M6x18 fender washers
(1) Black Dual Point Mounting Arm	(2) 1/4" Lock Washer
(1) Black 5/8x7/16 Alum. Spacer	(2) 1/4" -28 x 1 13/16" Zinc Hex Bolt
(1) Black 5/8x1 Alum. Spacer	(2) 1/4" Aluminum Filter Spacer
(1) Re-usable Performance Air Filter	(1) M6x1.0x45 Sockethead Allen Bolt
(1) BAK Filter Raincoat	(1) M6x1.0x30 Sockethead Allen Bolt
(1) Power Cone	(2) 1/4x20x1/2 Button HeadBolt
(1) Rubber Boot	

TOOLS REQUIRED:

7/16 Combination Wrench	Pliers (Std. & Needle-nose)
3/16 Allen Wrench	10 & 12mm Sockets
	Phillips & Flat Screwdrivers
3, 4 & 5 mm Allen Wrenches	Factory Service Manual
10mm Open-End Wrench	

INSTRUCTIONS:

1. Take the front BAK cover and clean the rear side with glass cleaner or rubbing alcohol. Remove the power cone from the box and attach it to the rear of the cover plate using the double faced tape pad supplied in the kit. You will see an engraved circle on the rear of the cover, place the power cone adhesive pad inside this circle and press/hold firmly for 30 seconds. Attach the power cone to this. Be sure to press firmly and hold pressure for 30 seconds.

2. Set the cover down on a clean surface, being sure nothing will scratch the front of the cover. Take the 1/4-28 bolts and check to be sure they thread into the upper and lower threaded holes in the cover, then remove and set them aside. Take the performance air filter and insert it into the filter groove, carefully seating and sealing it in place. Set aside for the moment.

3. Place the supplied 1/4-28 x 1 13/16" hex bolt, 1/4" lock washer & 1/4" flat washer through the rear of the backing plate in the top center mounting hole (closest to the carb. opening). Insert the stainless button head screw in the bottom mounting hole (No flat or lock washers will be used). Put blue Locktite® on the last 1/4" of threads. Insert one aluminum filter spacer on each of these bolts. You may find it easier to place masking tape over the heads of the two bolts to hold them in the backing plate. Bring the cover/filter and backing plate together as you now align the filter seal with the groove in the plate being sure it and the cover are fully seated in the seal. Now carefully get the threads of the 1/4"-28 bolts started and then tighten them firmly.

4. Lay the assembly on the table so the backing plate is facing up. Take the Black Dual Point Mounting Arm and using the two 1/4-20 x 1/2" SS Socket Cap Screws, attach the black motor mount to the rear of the backing plate. Be sure the use Blue Loctite® and torque these screws to 8 to 10 ft.lbs. NOTE: The notches on the mount should be on your left when you install the plate. (Which means the notches will be on the side of the rear cylinder when installed)

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5. Remove your fuel tank according to factory service manual procedures. Remove the stock air cleaner from the right side of your bike. Remove the metal clamp from the stock air box and re-install it on the rubber boot of the new BAK, with the screw facing the rear.

6. Take the assembled BAK and place it into position between the cylinders. Install the crankcase vent hose on the male hose fitting on the rear of the BAK backing plate. Route this hose so it is inconspicuous from view, ensuring it will not get pinched or blocked in any way.

7. Align the boot from the BAK with the throttle body being sure it and the clamp slide on evenly. Then using the M6x1x30mm Socket Cap Screw and 1 M6 washer with the 5/8x7/16 spacer, secure the right arm of the BAK mount arm to the engine at the upper right mount point near the top of the front push rod tube, leaving it loose at this time.

8. Align the left arm of the BAK mount with the upper left mount point at the top of the rear push rod tube. Use the 1" Black Spacer and the M6x1x45mm Socket Cap Screw and a M6 washer to attach the left side motor mount. Once all parts are in line, check the rubber boot for a proper seal and tighten the left and right mounts securely. Be sure to use Blue Locktite®.

9. Tighten the hose clamp to the throttle body being sure the clamp sits evenly on the outer mouth of the body and do not over tighten the clamp or you will tear the tube. This clamp does not support the BAK it is there purely to seal against air leakage

***NOTE:* The carburetor vent hose originally routed to a bracket on the rear of the stock airbox should be shortened slightly and allowed to vent to the atmosphere. Route this hose in such a manner as to make it inconspicuous from view, ensuring that it will not get pinched or blocked in any way.**

10. Be sure the carb boot is seated smoothly around the carb mouth then slide the carb boot clamp into position over the end of the carb mouth and tighten it firmly.

***IMPORTANT:* Check all linkage for interference, check all hoses for kinks, check all bolts and hardware for tightness and then check throttle action for smooth operation. If all is correct you are now ready to start your bike and perform tuning.**

***TUNING:* Perform final idle mixture screw tuning adjustments per instructions supplied before you begin your initial ride.**

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Revision: 6.6 - 02/12/2010
Install Time: 90 Minutes

CAUTION: We strongly recommend that a qualified Yamaha technician install this kit since the carburetor must be removed from the motorcycle. Always perform internal carburetor work in a clean area.

INCLUDED IN THE KIT:

(4) Mikuni Main Jets	(4) Cap-Head Allen Screws
(1) Adjustable Titanium Needle	(1) 5/32" Drill Bit
(2) "e" Clips	(1) Sheet Metal Screw

INSTRUCTIONS:

IMPORTANT: **Extra jets have been included in your kit. These will help you fine-tune the carburetor for changing conditions. These conditions include climate and weather patterns in your area as well as exhaust equipment on your motorcycle. Changes in weather, altitude or modifications to your exhaust system may require jets other than those supplied.**

JET SELECTION:

- **99~03 Models**
  167.5 Stock pipes - 170 pipes w/ baffles - 172.5 pipes w/o baffles

- **04~07 Models**
  170 Stock pipes - 172.5 pipes w/ baffles - 175 pipes w/o baffles

To install this needle and jet kit:

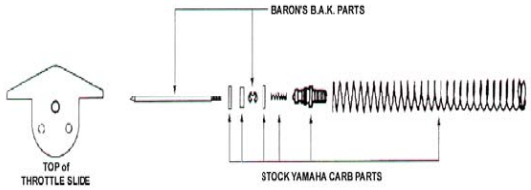
1. Remove the vacuum slide from the carburetor.

2. Remove the OEM needle, spacer and washers, noting order of assembly.

3. Counting from the top to the bottom, install the new Baron needle clip on groove #4 for 04-07 models and on groove #5 for 99-03 models of the replacement.

NOTE: **Baron adjustable needle - The top is the blunt end of the needle.**

4. Reinstall the OEM spacer and washers as shown in this diagram.



5. Reinstall the vacuum slide along with the diaphragm spring.

6. Reattach the diaphragm cover back and tighten screws.

NOTE: **Verify that the slide maintains its full range of movement.**

7. Drain the fuel from the float bowl and remove the bowl cover.

8. Remove the OEM main jet and replace it with a Barons genuine Mikuni main jet. Install the correct main jet as indicated in JET SELECTION area above on this page.

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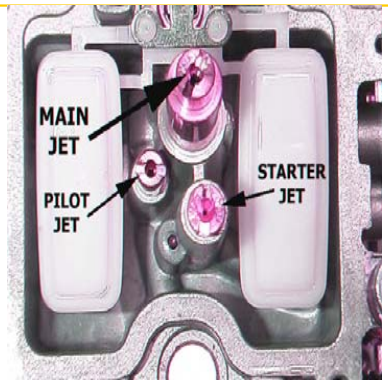

9. Thoroughly clean the inside of the float bowl prior to reinstalling it.

10. Reassemble the carburetor by reversing the order of step #1 through step #10. Use the new cap head allen screws in place of the OEM phillips head screws.

11. Locate the fuel mixture screw - it will either be a screw head or a brass plug. If it is a screw head, skip to step #11c.

11c. If you see a brass plug with a small hole in the center, proceed as follows:

- **With the drill bit, carefully and slowly drill through the fuel mixture plug.**
  CAUTION: The fuel mixture screw is located directly beneath this plug. Be prepared to stop the drill and remove the bit the instant you break through the plug.
- **Insert the self-tapping sheet metal screw into the drilled hole and remove the plug.**
- **With air/fuel screw now accessible, use a flat blade screwdriver to turn the screw clockwise until it seats, then carefully turn it counter-clockwise 3 1/2 turns. Refer to step #16 for assistance in fine tuning the setting of the air/fuel adjustment screw.**

12. Reinstall the carburetor. We strongly suggest that you attach the throttle cables prior to mounting to intake manifold.

13. Reconnect the fuel line, ensuring the clamp is firmly in place.

14. Reinstall all vent hoses and electrical connectors that were previously removed, checking for any obstructions or blockage.

15. Reinstall the OEM air filter assembly or, if you are installing our Big Air Kit (BAK), follow the instructions that accompany that kit, then continue with next step.

NOTES:

- **When the BAK is installed, the vent hose that terminated on the rear of the OEM airbox can be relocated in any safe position that does not kink or pinch it.**
- **It is important to verify proper throttle operation before starting the engine.**

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16. Verify that the air/fuel adjustment screw has been set to a starting position as described in step #11c, and the clip is installed as detailed in step #3.

17. Check the engine at idle speed for any popping or back firing.

IMPORTANT: **Check all linkage for interference, check all hoses for kinks, check all bolts and hardware for tightness and then check throttle action for smooth operation. If installation is done correctly you are now ready to start your bike and perform tuning.**

TUNING: **Perform final idle mixture screw tuning adjustments per instructions supplied before you begin your initial ride.**

OLD SCHOOL TUNING METHOD: **For checking jetting for proper air/fuel mixture once the BAK is installed and all jetting is set - You can judge your engine for lean/rich by following these suggestions:**

- **Clean/wipe out the last few inches of your exhaust pipes to remove as much carbon build-up as possible.**
- **Take a 50 to 100 mile ride in varied conditions (starting/stopping, shifting through all gears, etc) just do not ride on a highway at sustained speeds for the entire time (i.e., the riding needs to be varied).**
- **After the ride, let the bike cool, go to the rear of the pipes.**
- **Insert finger into the end of the pipe and with about the pressure you would use to draw a large coin across a table rub your finger on the inside wall of the pipe.**
- **Look at your finger and judge as follows:**
- **Wet/Moist Dark Carbon Too Rich Suggest you drop two main jet sizes**
- **Dark to Medium Dark to the point the ridges in your fingerprint cake up and are hard to define Too Rich. Suggest you drop one main jet size.**
- **Dark Grey to Light. Black where you can clearly see a well defined finger print Jetting is good do not change Medium Grey to Light.**
- **Grey coloring on finger Too Lean - Go up one main jet**
- **No color on finger Way too lean Go up two main jets**
- **After making any changes we suggest you clean out the pipes and follow the same procedure to be sure the changes are sufficient if any jetting was altered.**

FINAL TUNING: **If your bike emits black smoke when revving the engine (indicating an over-rich condition), Barons suggests adjusting the carburetors accelerator pump to a leaner setting by loosening the pumps lower locknut and turning in the adjusting screw one turn. We have found the accelerator pumps factory setting to be too rich on many Road Stars. Refer to Yamahas shop manual for this adjustment procedure.**

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