



Cabrini Green - Chicago

I'm putting this together to facilitate construction of the "Ghetto Freak". It's based on my own experience that worked for me. The target audience, like me, has no metal working skills, equipment, or access. I'm sure there are plenty of creative people out there that may have better ideas. I'll point out where I'd do things differently whenever possible. This document may be used as a general guide for doing the modification, or more importantly, a factor for deciding not to. It's not meant to be a step-by-step instructional, although it may seem to be written using that model.

I chose Adobe Acrobat format as it's universally accepted. As far as I know, nothing's copyrighted and I pass complete editorial rights to anyone who would like to use the images or make changes to the text. If anyone would like a virus-scanned MS Word version, please email me at TriumphAmerica@gmail.com. I intentionally tried not to link this document with anything on the internet. Links change.

I apologize to my English friends for trashing their language. All grammatical and spelling errors are intentional.

There is always risk in any venture. I don't claim to be a Mechanical Engineer. The mistakes made in this undertaking are my own. Who knows, this modification might vibrate apart in 1000 miles. I don't think it will. There's always the possibility you could scrape paint, pinch/ground wires, strip/cross-thread bolts etc. The risk is yours to take and your responsibility. Onward

My personal goals for this modification:

1. Build a freak alternative costing far less than +\$300 (current price)
2. Increase performance with greater air and gas flow
3. Use the airbox wherever possible, keeping all side covers and both "graters"
4. Enable easier access to carbs for rejetting
5. Add a visually appealing crankcase breather
6. Provide space for tools
7. Learn more about the bike
8. Constructively spend recreational time

Commit. I personally found that drilling the bottom of the airbox, using a drilled K&N drop-in filter, removing the snorkel, rejetting to 132 mains, and freer flowing pipes (Thunderbike in my case) gave me a substantial performance increase. I could then buy something to put tools in and hang it somewhere, disconnect the crankcase breather and install one visual appealing, and accomplish most of my personal goals without doing this project. So why commit?

1. In my opinion. there is a mid-range performance gain over the drilled airbox modification
2. I was tired of beating up my ape-like knuckles and having to pull carbs because my big hoofs just couldn't get to the interior bowl screws to rejet

3. Those fake “graters” are no-longer “eye-candy”
4. I didn’t have to hang a subjectively ugly bag somewhere to carry tools
5. Learning is fun and I needed to get away from the internet and/or television

Once committed, I had to decide whether to use the existing airbox or find one for experimentation. I chose the latter as I could always fallback and probably sell the pods somewhere if I ruined the second box. There is also less down time on the bike. I didn’t start disassembling the bike until after the initial cutting/grinding was done to the second airbox and reception of most parts.

Here’s what a non-metalworking type used for this modification for about \$115:

- Another Airbox. I bought one that didn’t have its bottom partially drilled. I found it on the forum for \$25 shipped. Of course, I could have saved money by using my existing airbox
- Two K&N RC-2340 Air Filters (each side is the same). \$58.70 (for both)
- Carb support stock. I used a black (wouldn’t have to paint it) 8” shelf hanger I bought at the hardware store for just under \$5
- Lower “Grater” mounting stock. I bought a 36”x1” fairly heavy, yet pliable, aluminum threshold moulding (strip) used to separate carpeting and other flooring material for under \$4
- Rubber stopper. Narrowest point of the stopper needs to be ½ for \$0.50
- Drag Specialties Chrome Crankcase Breather DS289515. Keep in mind the filter used on this model is not re-usable. \$16.73 at the local Harley shop
- O-Ring (screwdriver type) used to securely attach the breather hose to the breather. I don’t like the stock one that’s on the bike (the squeeze kind). The Drag Specialties filter isn’t securely attached to its mounting bracket, so I had to ensure the hose was securely attached to the filter. Another \$0.50
- Assorted nuts, bolts, washers, and lock-washers. Less than \$5
- I needed to rejet after this modification. I won’t factor in the cost. Two people were nice enough to provide me with a starting point (147.5/45). Jets aren’t provided in the freak kit, so they’re always an additional cost
- Blue Loc-Tite (243). I’m not including this in the cost as it’s a necessity when owning a motorcycle
- Red Hi-Temp RTV sealant. See blue Loc-Tite comment

Some notes on parts.

- Whenever possible I tried to use the local smaller family run hardware store. The great customer service I always receive is worth the few extra pennies. They know where everything is!
- I chose the K&N RC-2340 because of its smaller footprint and hoped with creative airbox cutting, I could keep all the original “grater” mounting points on the airbox. Unfortunately, I still had to cut the lower airbox “grater” mounting points and come up with lower brackets to facilitate smaller pod servicing. I do not think the pods conventionally used with the freak kit will work with this

- specific airbox modification. I wanted to keep both forward and aft airbox-to-frame mounting points. By doing this, the conventional pods won't fit. The forward airbox-to-frame mounting point (bushings) would have to be abandoned using conventional pods and metal working skills employed. Keep in mind, the surface area of the smaller pods is less than conventional pods. I have no idea how this affects overall performance.
- I chose not to use a turn-buckle and j-hooks as a Carb Brace. I was concerned that a j-hook might damage the upper-carb tube with engine vibration and bumpy roads. So, using the shelf hanger and a lot of twisting, bending, grinding, and drilling, I fabricated a brace with a larger footprint for the carb tube to rest on. Remember my "I'm not a mechanical engineer" comment?

Here's a list of tools I used beyond the obvious (wrenches, drivers, etc.):

- Motorcycle lift. If you can figure out a way to remove the airbox intact without a lift, you're a better man than me. Besides, you should own a lift for things like chain maintenance, cleaning the rear wheel, changing/fixing tires etc.
- Dremmel tool. Used exclusively for all cuts, grinding, and bolt polishing
- Electric Drill/Bits. Used to hole lower brackets, airbox bracket attach points, bunji attach points, and crankcase breather hose adapter
- Bench Grinder. Maybe not critical, but glad I had it
- Bench Vise. See Bench Grinder comments
- 2lb Sledge. See Bench Grinder comments

Here's how my project progressed:

1. Fabricate lower grater hangers
2. Cut/grind airbox as much as possible
3. Bench test fit of "grater" and left side-cover mounting points
4. Fabricate, Fit, and Install Carb Brace
5. Disassemble remaining portion of bike required for Airbox replacement
6. Remove existing airbox
7. Check Carb Filters for fit, then remove
8. Partially install hacked airbox
9. Check Carb Filters for fit via side opening
10. If necessary remove Carb Filters and hacked airbox to tweak grinding based on previous step
11. Partially install hacked airbox
12. Check Carb filters for fit via side opening
13. Install lower grater mounting brackets and check for fit
14. Install side covers and graters and check for fit
15. Remove left side covers, graters, and mounting bracket
16. Install Battery carrier and verify Carb Filter can be removed/installed
17. Install battery (not leads) and battery covers(s) and verify left side brace can be installed and removed

18. Verify left Carb Filter can be removed and installed with Battery assembly in-place and brace removed
19. Remove graters, mounting hardware, and filters
20. Rejet (not covered in this document)
21. Fully install hacked airbox to include all attached wiring
22. Install filters, mounting hardware, fully install battery, side covers and graters
23. Re-assemble rest of bike
24. Install crankcase breather unit

This project took about 12 hour's. Keep in mind I took the extra time to polish store bought bolts and put screws/bolts back in their original slots after disassembly so I wouldn't lose them. I also dragged all parts to and fro my basement, covering them with a shipping blanket to avoid damage. So, I'm betting it's possible to cut down on time.

This section deals with what bike parts I touched for this project and amplifying notes I believe pertinent during their removal or installation. It's not meant to be procedural. It's laid out in the order of removal, but installation comments are also provided.

I fear the Chinese hydraulics on my Sears lift and don't trust its locking bar. So, I keep the bike lifted for as little time possible and only when necessary. I never leave the bike lifted overnight. I wouldn't get any sleep.

“Grater” and Side-Cover Bench Fitting

- “Cheese Graters” and three side-covers, to include the small one that surrounds the starter switch

Carb Brace Fitting

- Luggage rack (pillion seat, fender bib etc.). Careful on re-install as the bolts in fender strip easily. Just a little past snug with blue Loc-Tite
- Seat
- Tank Console. Careful on the wiring disconnect and re-install. Don't over-tighten hex head bolts to avoid cracking plastic
- Fuel Tank. Remember to reconnect fuel and breather line. Ensure breather line is not pinched

Prior to Lifting and Airbox Removal

- Rear peg hangers. Frame threads strip easily. Tighten just a little past snug with blue Loc-Tite when re-installing
- Silencers. Leave them attached to their hanging brackets. Loosen the O-clamp at the header and twist-pull-waggle them off. Remember to coat the inside of the silencers with red high-temp RTV sealant during re-install and exercise patience waiting for it to dry
- Rear Mudguard. Carefully disconnect the wiring on top of the airbox and feed the connector outside the frame so it hangs free. Disconnect all 6 chrome bolts (the two forward ones, though not connected to the fender, allow the Mudguard Supports to open slightly). After disconnecting the two bolts closest to the airbox, push down (Do not pull up!!!) and slide the mudguard off along the tire. Ensure the inside mudguard wiring is in-place during re-install
- Battery and Battery Carrier. There are 5 bolts holding the carrier in-place (3 hex head and two conventional). Expect to destroy plastic “studs” attaching fuse box to battery carrier. Don't lose small lock-washers used to secure starter switch to battery carrier. On re-install replace fuse box “studs” with hex head bolts, washers, and lock-washers and use blue Loc-Tite, but don't over-torque to avoid cracking the plastic fuse box. During re-install verify wire cable retainer placement (lower left bolt) prior to bolting in-place. During re-install verify

lowest carrier mount placement prior to bolting in-place (fits between frame and receiving threads). During battery re-install ensure to tighten terminal bolts with as much ape-like strength as possible. Battery carrier removal may not be necessary, but it sure made airbox removal and install a lot easier as the starter switch, fuse box, and associated wiring can be moved a little out of the way

Lifting and Airbox Removal

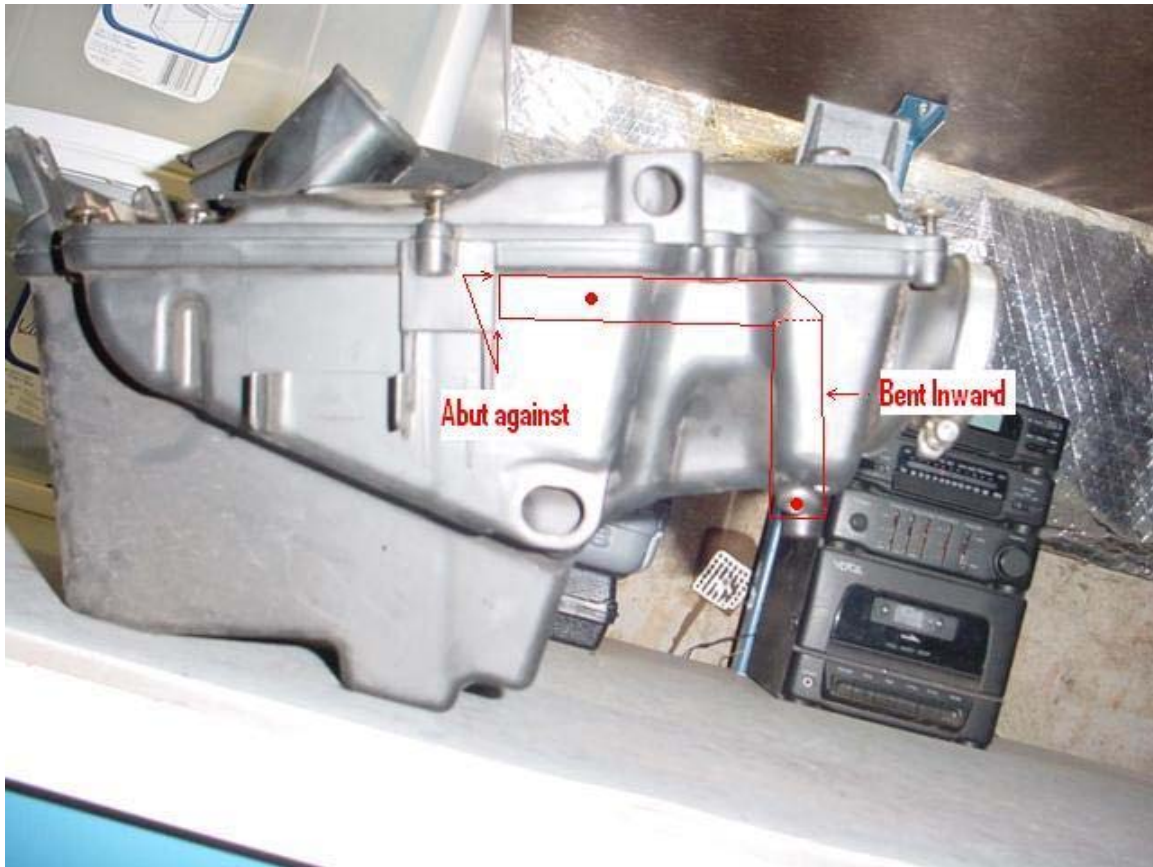
- Rear shocks. Lift the bike only to the point where the rear shocks are no longer compressed, but the rear tire still touches ground to remove the shocks
- Airbox. The bike must be lifted to form an opening between the rear tire/swing-arm and frame assembly to facilitate airbox removal. Surprisingly, I didn't need to lift the bike as high as I thought. I lifted mine to the first locking bar point on the Sears lift. Disconnect anything attached to airbox. The electrical components mounted to the right-side of the box don't have to be disconnected from their wiring, just detached from the airbox. The two drain tubes underneath the airbox are easily accessible with the battery carrier removed. The crankcase breather hose in the front of the lower box is easily accessible. Removing the two bolts that attach the box to the frame at the rear will allow the box to be pushed rearward once the retaining rings on the carbs are loosened and pop the rubber fittings off the carbs. All 15 bolts attaching the top of the box can be then be easily removed. I used a screw driver to separate the top of the box from the bottom while the airbox was still in its cavity. First remove the top of the airbox through the rear opening. Then, remove the bottom of the airbox through the rear opening being careful not to break the two electrical component mounting tabs on the right-side of the airbox. Both pieces slid out easily for me with the battery carrier removed and associated components/wiring out of the way. I only connected the rear two mounting bolts and several of the bolts attaching the top of the hacked airbox with its bottom when testing its fit with the pods. I used just enough bolts to ensure the top was securely attached to the forward portion of the bottom to provide support when it rested on the bushings. Once I was happy with the "fit", I reassembled the entire hacked airbox

Fabricate Lower Hangers:

I started out by pounding my hanger stock flat with a 2lb sledgehammer, then cutting it in half with a Dremmel tool to reduce the 1" width to 1/2". The stock was originally 36" long, but I only needed to flatten and cut about 18".

Keep the airbox intact when planning the initial fabrication of the braces so the "grater" mounting point on the right-side and left-side side-cover mounting points are aligned with the stock. The right brace can be bent inward after the airbox cuts.

Here are some pictures of my original airbox after removal and installation of the hacked unit. You can see where I only made a single bend to each brace stock. They're both close to 90 degrees. The top of each brace abuts against the ridge on the airbox. I ensured the right brace also abutted the airbox where depicted. A single bolt assembly (bolt, two washers, lock-washer, and nut) attaches each brace to the airbox. That's less to remove later when servicing the pods. Also, the braces are very stable due to their abutment and placement of the mounting hardware. Please note hole placement on the left brace. Any further to the right and the battery carrier would block access to the mounting bolt. Drill brace holes during "grater" bench fitment later.



Right Side Drawing



Left Side Drawing

I covered each brace with black electrical tape when finished and they're virtually invisible after installation.



Right side brace covered with tape and installed after airbox cutting



Left side brace covered with tape and installed after airbox cutting

Cut and grind Airbox.

I used a Dremmel tool with cutting and grinding wheel. I marked where I was going to cut using the Dremmel etching tool (too cheap to buy a white marker). I'll use a series of pictures with key notations to depict the cuts I made:

Red lines - Depict areas ground down a little further after checking airbox-pod fitment.

Yellow lines - Indicate how I would cut differently next time.

Black/White lines - Informational



Top Front



Top Overhead



Bottom Overhead



Bottom Front



Left Side Bottom



Right Side Bottom

Bench test fit of “grater” and left side-cover mounting points

This is where I began disassembling the bike specifically for bench testing the fit of the brackets and drilling the bracket holes. I removed the “graters” and left-side cover. I drilled the bracket holes in both the brackets and side of the airbox for final fit on the bench. Because I used fairly heavy aluminum stock it was somewhat pliable, but not flimsy. I also “shaped” the final curve of the right bracket prior to drilling its lower hole. I aligned the left-side cover with the bracket to ensure correct hole placement prior to drilling. Here are a few pictures of my mock-up:



Inside Right “Grater assembly” Displayed



Front view of "Grater" Fitment



Inside Left "Grater assembly" Displayed

Fabricate, Fit, and Install Carb Brace

Here's a picture I found on the internet with an approximate likeness to the stock I used for this brace. I couldn't find it at my small local hardware store, so I was stuck going to Home Depot and dealing with pimply faced teen-aged humanoids who didn't want to be there.



I used the Dremel cutting wheel to cut and bench grinder to grind off all corners and sharp points. I used a bench vise and a couple of channel locks to twist and turn the thing into shape.

I was able to center the hole for the bolt that attaches nicely to the threaded hole that's not used on the engine mount by putting duct tape on the bracket and pressing it against the engine mount. This left an imprint on the duct tape leaving me with a good location to drill.

The last bend made was the right angle on the very top that fits over the engine mount. It keeps the bracket from swiveling out of place when using a single mounting bolt.

Once fitted to the bike, I left it installed. I ensured no hoses or wires were pinched during the install.



Carb Brace – Top View



Carb Brace – Left View



Carb Brace – Right View



Carb Brace – Bottom View



Carb Brace – Side View, Installed



Carb Brace – Tope View, Installed



Carb Brace – Overview

I now tested fitment of the contraption on the bike with the pods. I used the following progression noted earlier:

- Partially installed hacked airbox
- Checked Carb Filters for fit via side opening
- Removed Carb Filters and hacked airbox to tweak grinding (hopefully not required)
- Partially re-installed hacked airbox
- Checked Carb filters for fit via side opening
- Installed lower grater mounting brackets and checked for fit
- Installed side covers and graters and checked for fit
- Removed left side covers, graters, and mounting bracket
- Installed Battery carrier and verified Carb Filter can be removed/installed
- Installed battery (not leads) and battery covers(s) and verified left side brace can be installed and removed
- Verified left Carb Filter can be removed and installed with Battery assembly in-place and brace removed
- Remove graters, mounting hardware, and filters
- Rejet (not covered in this document)
- Fully installed hacked airbox to include all attached wiring
- Installed filters, mounting hardware, fully installed battery, side covers and graters

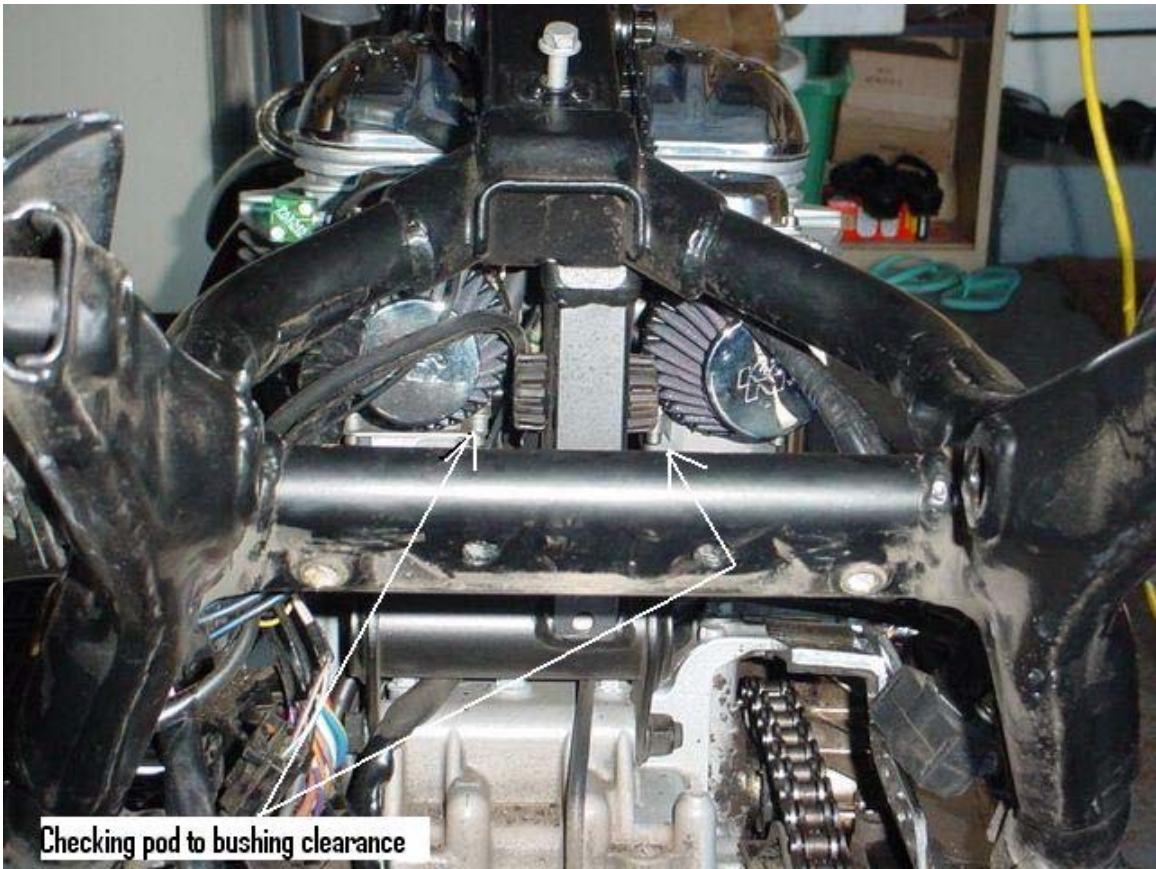
Here are a few pictures with pertinent notation taken during the above progression.



Right Side Pod to Carb Fit



Left Side Pod to Carb Fit



Verifying Pod-Bushing Clearance



Right Pod Clearance Check, Further Grinding Required (Red)

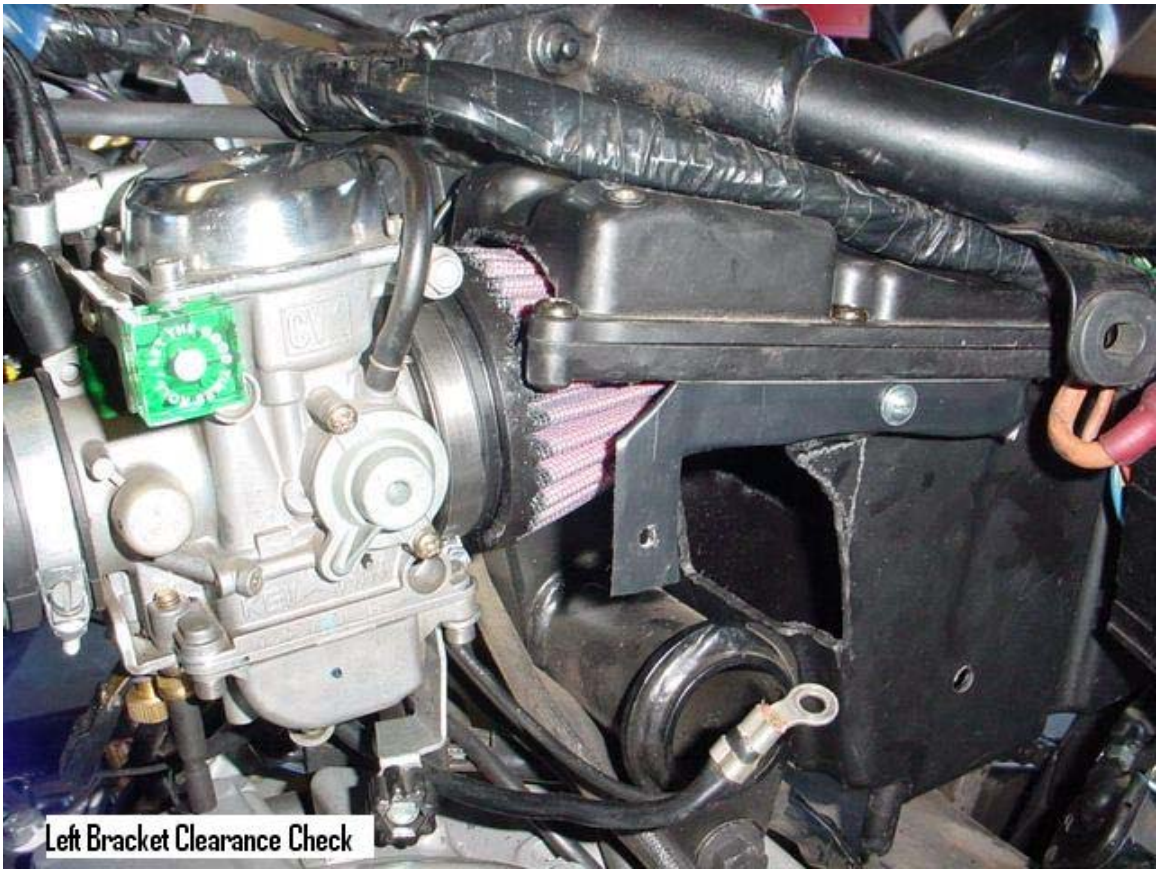
Verifying Right Pod Clearance



Verifying Left Pod Clearance



Verifying Right Bracket Clearance



Verifying left Bracket Clearance



Verifying Fit of Right Side "Grater" and Cover



Left "Grater" and Side Cover Check

Verifying Fit of Left Side "Grater" and Cover



Verifying removal space

Note: No picture of right side, but there is plenty of clearance for pod removal/installation



Verifying Bracket Installation/Removal with Battery In-Place



Bracket Install with Battery Assembly In-Place Check

Verifying Bracket Installation/Removal with Battery Assembly In-Place

Install crankcase breather unit

A shiny nice looking (subjective) Crankcase Breather Assembly can be installed with or without the “ghetto freak” modification. It’s a nice little piece that plays to my chromosexual tendencies. Without the “ghetto freak”, the resulting hole left in the airbox after breather hose detachment may have to be plugged. The crankcase hose requires no direct modification (cutting, heated bends, etc.).

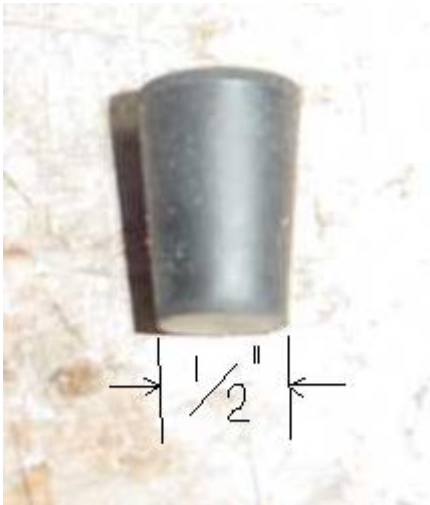
I liked the price and look of the chrome unit available at the local HD dealer, but it had a 3/8” male end and our hose accepts a 1/2” fitting. So I bought a rubber stopper at the local hardware store and drilled its center to about 3/8”. I started with a smaller bit and worked my way larger and was very careful not to shred the stopper when using the larger bits (1/4” and 3/8”). Possible shredding would occur when pulling the bit out, so I carefully (unplugged drill power) “unscrewed” the stopper from the larger bits.

I ground down the upper (larger) portion of the stopper to match its 1/2” lower portion. The resulting “adapter” coated with a little WD-40 slid nicely in the crankcase breather hose and coating the end of the 3/8” metal crankcase filter “pipe” with a little WD-40 enabled it to slide right in to the adapter.

I abandoned the squeeze-type hose clamp for the screw type ensuring a sound attachment.

I layered the inside portion of the filter mount with two layers of duct tape to avoid scratching the chrome sprocket cover.

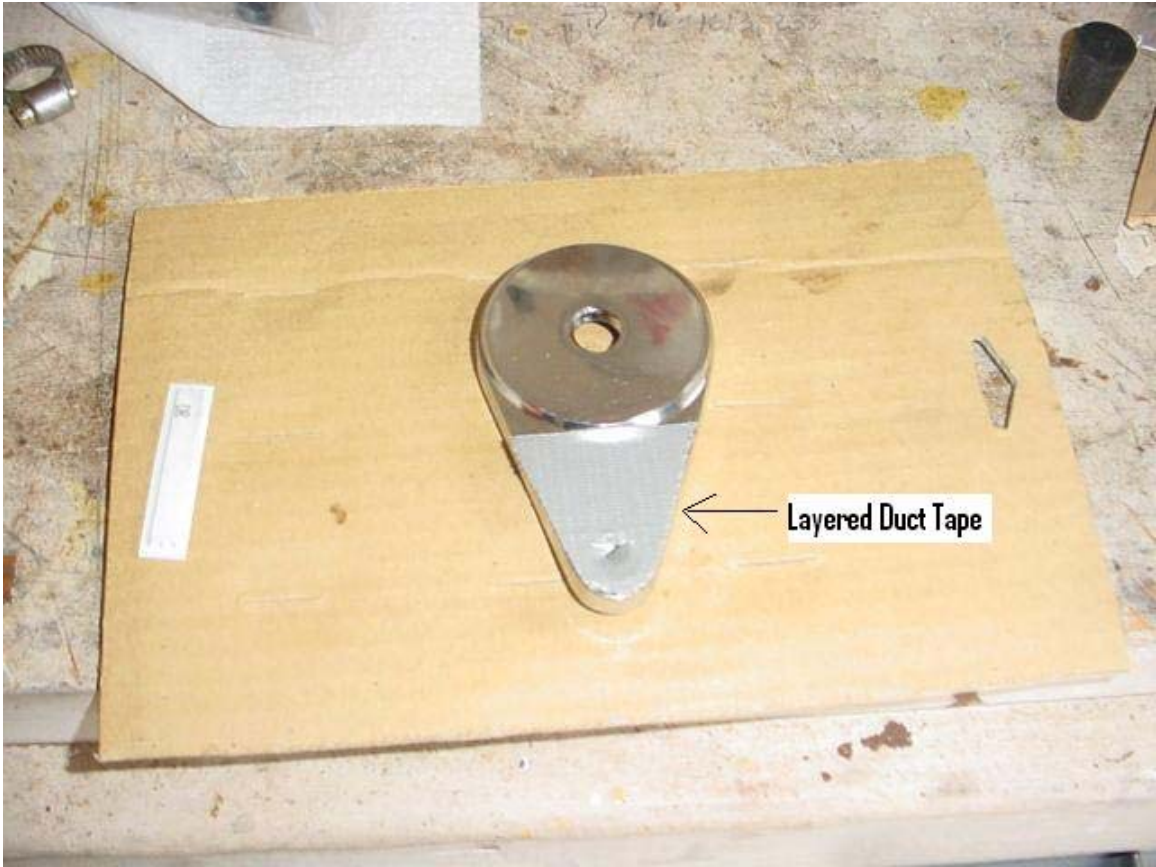
I bought a longer (3-4 thread) mounting bolt to secure the unit.



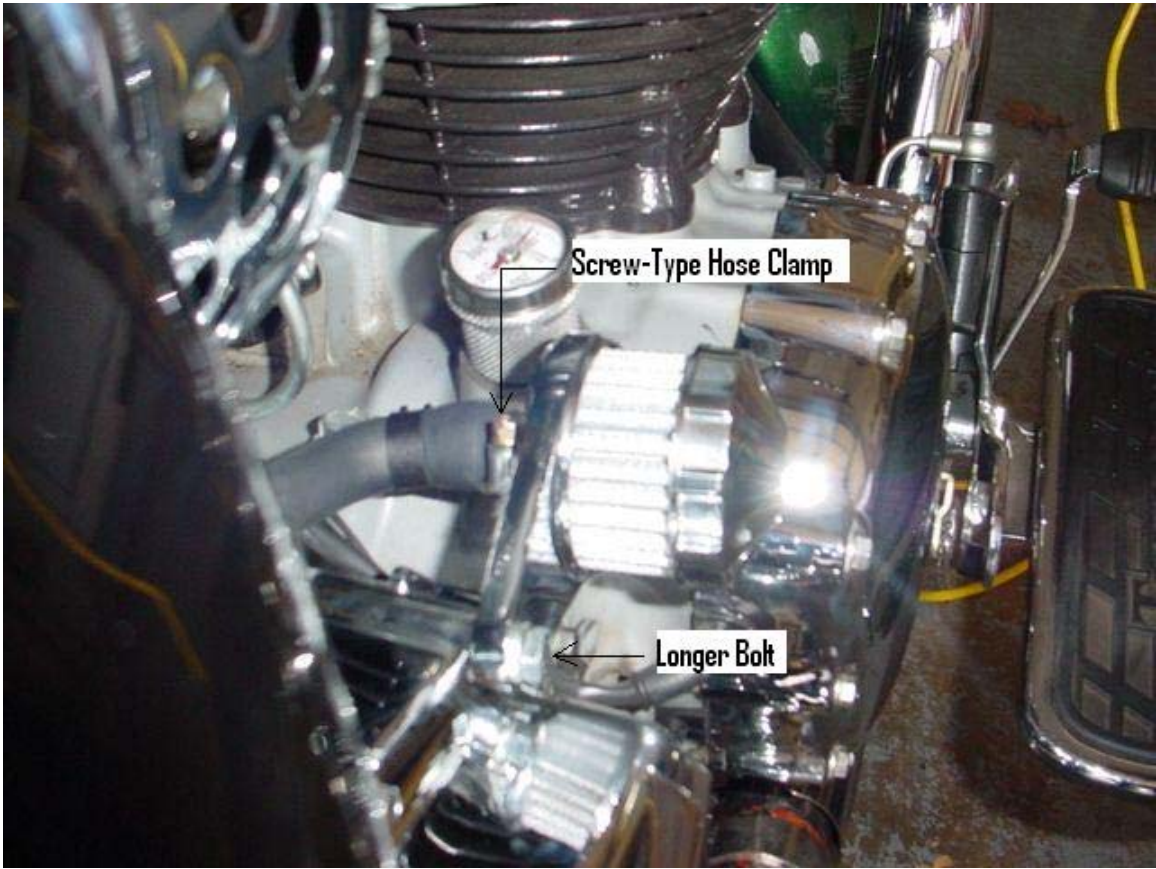
Rubber Stopper



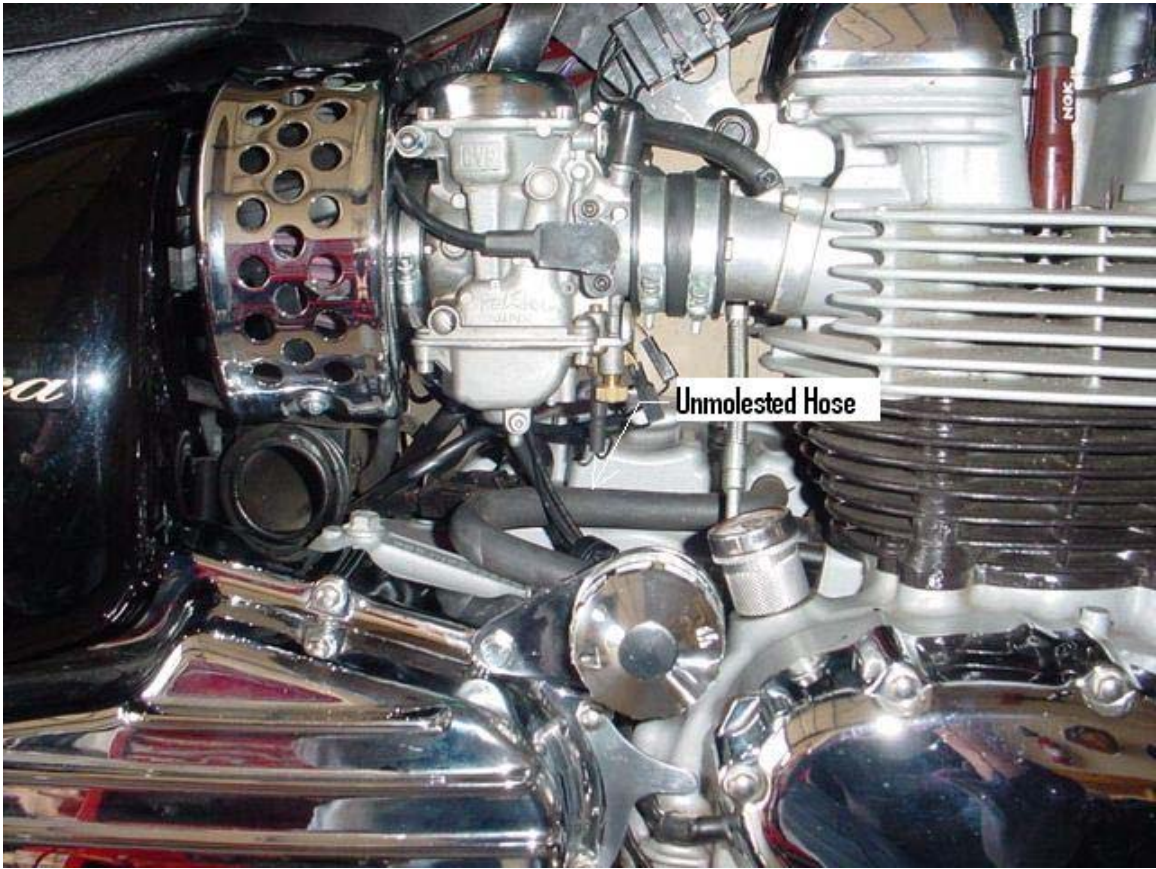
Breather Hose Adapter



Crankcase Filter Mount



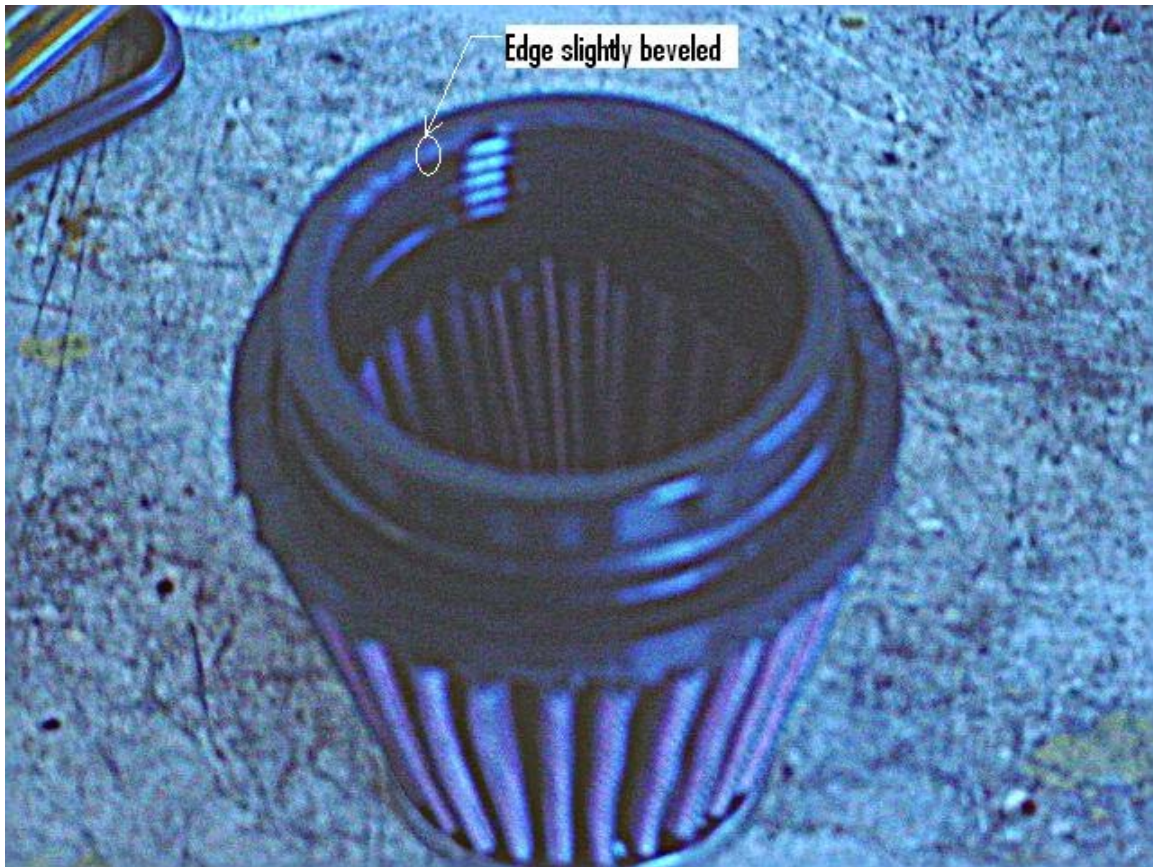
Mounted Chrome Crankcase Breather



Mounted Chrome Crankcase Breather

Miscellaneous.

The K&N RC-2340 filters fit very snugly on the carb attachment point. I'm sure there is little chance of them falling off when riding due to their uniform size, even weight distribution, and snug (54mm) fit. I grinded the inside edge of each filter a very small amount to ease their installation. A little motor grade oil rubbed on the outside of the carb attachment point and inside the filter grommet facilitated installation. Have I used "facilitated" too much yet? Be sure to stuff something in the filter when beveling the inside edge to keep small particles out of the filters.



I understand it's common to break off the tabs holding the starter solenoid on the airbox during removal. I personally thought the airbox removed easily with no tab damage. This could be because I removed the entire battery carrier. The airbox I bought had both tabs broken off. So I drilled two holes and used a black tie-wrap to secure the unit to the airbox.



Tie-Wrapped Solenoid

As I mentioned earlier, I had to break off the two plastic “studs” that attach the fuse box to the battery carrier for removal. The “studs” are easily replaced with hex head bolts, washers, and lock-washers. I just snugged them up with some blue Loc-Tite to prevent cracking the fuse holder.



Summary.

I'd do it again IF I own another bike with an airbox and the logistics are possible. I'd subjectively rate the difficulty of this job as a 2 in a scale of 1 to 10. Please keep in mind as a previous Norton and Meriden Triumph owner, I have some experience working on bikes (forced to due to their inherent British quirks) and with my genetic "thriftness", I enjoy the creativity of fabricating a work-around.

Everything has held up so far. Pods haven't fallen off, braces haven't come apart, and no lost nuts or bolts. I've checked every week and recommend the same.

I've rejettted with 147.5 mains with the stock 42 pilots. I "feel" the 147.5's are too small and have a set of 150's on order. If I feel I still need to "kick it up a notch", I have a set of 45 pilots I'll try. If need be, I'll still go a little larger with the mains. Regardless, I'm too "thrifty" to spring for a few dyno runs. We never had dyno's back in the day trudging to school in 3 feet of snow

Do with this document as you will.

Regards,

Tom (77T140V)