



## AJACS Customs

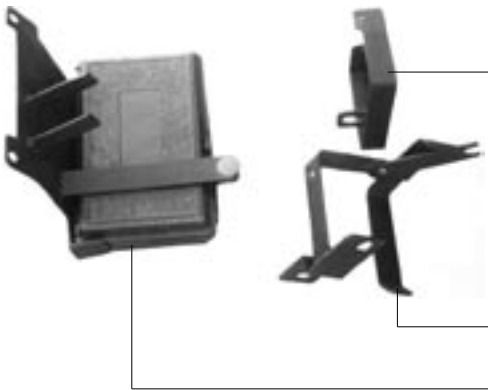
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# The Freak Installation Instructions and Parts List

*Thank you for purchasing The Freak! The Freak is a simple, uniquely designed group of parts that allow you to eliminate the factory air-box on your Triumph Bonneville America or Speedmaster, making way for the use of aftermarket filters such as those offered by K&N.*



## PARTS LIST

*The Freak Kit (790-B-TFO) comes with the following parts. Use the numbers below for reference when installing the Freak. NOTE: If you ordered the complete kit (790-A-CK), you will also have two K&N filters, a crankcase breather, and a set of 160 main jets in addition to what is listed below. If you ordered the brackets only (790-C-FCB) you will have everything below EXCEPT for the Rear Mudguard and it's associated parts*

- |         |  |
|---------|--|
| 790-C-L | Left Carburetor Bracket  |
| 790-C-R | Right Carburetor Bracket                                       |
| 790-C-B | Bracket Mounting Hardware (1 nut and bolt not pictured)        |
| 790-D   | Rear Mudguard (Mudguard, toolbox, toolbox bracket, thumbscrew) |

## WHAT YOU'LL NEED

*You will need the following items and tools in order to install The Freak. Installation time is 2-4 hours. NOTE: Prior to installing the Freak it is recommended that you remove the air injection system (AIS) from your motorcycle. The air-injection system utilizes the factory air-box, which you will be removing and replacing with your new filters. For information on removing the AIS, please visit <http://www.bonnevilleamerica.com/downloads.html>. You will need to complete all the steps EXCEPT plugging the air-box hole, as you will not be using the air-box.*

- Set of metric boxed end or socket wrenches
- Small flat head screwdriver
- Medium phillips head screwdriver
- Set of metric allen wrenches
- Torx-head screwdriver (for battery bracket removal)
- Crankcase breather and mounting hardware (We recommend the EBOC crankcase breather filter)
- Air filters (K&N filters No. RC-2900 and RC-2890 are recommended)
- Small amount of high temperature silicone sealant
- Cable ties
- Multi-position ATV/motorcycle lift (recommended)

# INSTALLATION

*In order to install The Freak, the factory air-box must be removed. Because of its design, the factory air-box is not an item that is easily removed. There are several parts that must be removed in order to get the air-box out of the bike in one piece. We recommend using the following method to remove your air box without having to cut it into smaller pieces in order to get it out of the frame.*

## 1. PARTS REMOVAL

*In order to gain access to the air-box, it is necessary to remove certain parts of the motorcycle to gain access to the air-box area of the frame. Removing the following parts should be the first steps you take.*

- A. Seats** - Remove both seats starting with the passenger pillion, if applicable.
- B. Side cover and grommets** - Remove the plastic side cover on the right side (throttle side) of your motorcycle. This is the faux oil-tank cover that has the name of your bike on it. Underneath the side cover there are three rubber grommets (1 on the frame tab, and two on the air-box) that support the side cover. Remove the two that are on the air-box and leave the one on the frame. You will attach the two that you removed to the right side bracket in [Section 4C](#).
- C. Faux air filter covers** - On the right side of the bike, remove the chrome faux air filter covers, by removing the one allen head screw that holds it onto the air-box. On the left hand side (clutch side) remove the faux air filter cover in the same manner, you removed the one on the right.
- D. Plastic shrouds** - on the left side, remove the black plastic air-box shroud, by removing the two allen head screws holding it in place. Then remove the plastic shroud covering your fuse box (this is the piece that surrounds your ignition terminal next to the battery).
- E. Battery** - Remove the battery by unscrewing the torx-head bolt that holds the chrome bracket in place. Remove the chrome bracket and the black plastic cap. Tilt the battery out of the box with the top towards you. Disconnect both battery terminal connectors, negative (-) terminal first. Remove the battery.
- F. Battery box** - Remove the two bolts that hold the battery box to the frame. Pull the battery box out as far as you can, then remove the the ignition terminal from the battery box, by removing the two allen screws that hold it in place from the back. Next, remove the fuse box from the battery box, by pushing it out from the back. It is not necessary to disconnect any of the wiring going to the fuse box, or the ignition terminal.
- G. Rear fender** - Remove the rear fender, by first disconnecting the taillight wires. Follow the wires from the tail light assembly on the inside of the rear fender (left side) towards the front of the bike until you come to the box connector. Disconnect the tail light wires at this connector, being careful not to break it. Once the wiring is disconnected, remove the 6 bolts that hold it to the struts. Have someone hold the fender for you while you are removing all of the bolts so that it does not drop once the bolts are removed. Slide the fender out the rear of the bike.

## 2. PREPARE THE MOTORCYCLE FOR AIR-BOX REMOVAL

*To remove the factory air-box without damaging it, it is necessary to lift the bike. We recommend the use of a multi-position ATV/motorcycle jack with a minimum lift height of 10".*

- A. Setting up the lift** - Place the lift under your bike and secure your bike to the lift according to the lift manufacturer's instructions.
- B. Raise slightly** - Lift the motorcycle to the point where the rear springs are without tension, but NOT to where the rear tire is off the ground.
- C. Remove the rear springs** - Take off each of the rear springs by removing the the two bolts on each spring. Once all the bolts are removed gently pull the springs out off of the studs. If they do not pull off easily, you can raise or lower the bike slightly with the lift to ease tension on the spring. Remember, you should not have the rear tire off the ground at this point. The bike should only be raised enough to relax the tension in the springs.
- D. Remove the mufflers** - Remove the mufflers by loosening the clamp at the exhaust header, and by removing the rear foot peg hangers. If the mufflers are not removed, they can become damaged by the axles in [Section 2H](#).
- E. Disconnect the carburetors** - With a small flathead screwdriver, pull the retainer springs out of the channel of the carburetor intake tubes (the two large black tubes coming from the air box into the back of each carburetor), and simply push them towards the air box off of the carbs.

**F. Disconnect the starter selenoid** - Slide the starter selenoid (right side) off of the two tabs on the air box. It is not necessary to disconnect any of the wiring to the selenoid.

**G. Disassemble the air box** - with the air-box still in place, remove the air intake (the oval shaped inlet with the two ports on the top of the air box.), and remove the filter from inside the air box. Find and remove any and all hoses, including the crank-case breather hose, that you find connected to the air-box. Disconnect these hoses at the air box. Remove all of the screws that hold the top of the air-box in place. Remove the two screws that hold the air box to the rear cross-member. Save these two screws you will use them later to mount your new rear mudguard (if you purchased the entire kit) in [Section 4A](#). With all the screws removed, you will need to gently pry the top of the air box off of the lower portion. It is sealed with silicone, so you will have to work around it, to break the seal. If you have broken the seal, and the top does not move around freely, check for any screws that you may have missed.

**H. Raise the bike** - In order to proceed with removing the air-box, you must lift the bike until the rear tire is just from being off the ground. Your goal is to extend the swingarm to just before it bottoms out, to give you the maximum amount of clearance above the rear tire, and the frame's rear cross-member. This is the hole where the air-box will be removed from.

**I. Remove the air-box** - Slide the top of the air-box out of the rear of the frame above the rear tire. Then do the same with the lower portion of the air-box. Removing these pieces of the air-box in one piece is somewhat difficult but it can be done. A little prying, bending, elbow grease and a lot of patience will do the trick.

**J. Remove the down tube grommets** - One last item to be removed is the rubber grommets on either side of the backbone or the down tube running vertical between the carbs. These rubber grommets will pull off with some pliers. You will use the hole running through this down tube to install the front brackets to your Freak once the rubber grommets are completely removed. You will not need the grommets once removed so don't worry if they tear or rip. Just get'em outta there.

### 3. PARTIAL REASSEMBLY

*At this point you may re-install some of the things you've already removed prior to installing The Freak. These items include:*

**A. Rear fender** - Install the rear fender in the reverse order that you removed it ([Section 1G](#)). Don't forget to reconnect the wiring to the tail lights.

**B. Shocks** - Gently lower the bike to the point where the shocks will slip over the studs easily, then re-install the bolts that hold the shocks to the frame. The shock bolts should be torqued to 27nm .

**C. Mufflers** - Install the mufflers in the reverse order that you removed them ([Section 2C](#)). It is recommended to add a bead of high-temp silicone to the sleeve of each muffler where it will slide into the header. Reinstall the rear foot peg-hangers.

### 4. INSTALL THE FREAK

*At this point you are ready to get freaky. You may leave your your motorcycle on the stand to aid in the installation of The Freak.*

**A. Rear mudguard (790-D)** - *If you purchased the front brackets only, skip this step.* With the toolbox removed from mudgaurd prior to installing, insert the mudgaurd through the hole in the throttle side of the bike where you removed the airbox with the tallest side of the mudgaurd entering bike last. This will take just a little rotating and patience ([See figure 4A](#)). Once inserted, align mudgaurd bolt holes and insert the two bolts you saved from [Section 2G](#). Attach the starter selenoid to the two tabs on the mudguard.

**B. Front left bracket (790-C-L)** - The smaller of the two brackets in your kit is the front left bracket. It is the "C" shaped bracket. Align the brackets 7/16" tab hole with the hole in the down tube and push the bolt that was provided through to the other side of the down tube ([See figure 4B](#)). Do not put the nut on the bolt at this time. Be careful not to pinch or trap any wires between the down tube and bracket. You may have a couple of wires running in front of the bracket.



**Figure 4A** - Mudguard Installation and Placement



**Figure 4B** - Front left bracket Installation and placement

**C. Right side bracket (790-C-R)** - Attach the two rubber grommets that you removed from your air-box in **Section 1B** to the appropriate holes on this bracket. Next, align the bracket's 7/16" hole with the bolt that you installed in the previous step. Notice the 4" approx. piece raising upward/forward to carbs with the notch in it. This piece will catch the carbs upper fuel tube. Giving support to the carbs. When the bracket is in place put the nut on the bolt (**See figure 4C**). Tighten the bolt until the brackets are good and snug. Do not over tighten.

**D. Crankcase breather** - At this point you can mount your crankcase breather. On the rear of the right side bracket there is a 5/16" hole. Using a bolt and nut assembly, mount your crankcase breather there (Mounting methods vary depending on the type of breather you are installing.) There is enough factory hose to reroute running down the left side of bike, under the carb, behind the downtube and to the crankcase breather port (**See figure 4D**).

**E. Toolbox** - You can, at this point, reinstall the toolbox and tighten into place. Or fill it up with tools and such and then install. Does not matter. It will be readily available.

**F. K&N filters** - Lets get them K&N's on there. Both filters simply drop in and slip over the carbs. Note that the filters (if K&N) will read "right" on one filter and "left" on the other just under the clamp on the base of filter. Install these accordingly (right to throttle side, left to clutch side). When tightening these filters, we have found there is a "sweet spot" before the filter actually squeezes itself off the carb. So, be gentle and tighten the clamp until filter is pretty snug then stop.

**F. Tie up wiring/mount starter selenoid** - Using some cable ties, tie up any dangling wiring left over from removing your factory air-box. Mount the starter selenoid to the two tabs on the Mudguard. It may be necessary to reposition the wires by loosening the two nuts on the selenoid, moving the wires, and retightening. (**See figure 4D**).

## 5. FINAL REASSEMBLY

*At this point you are ready reassemble your motorcycle completely.*

**A. Battery Box** - Re-install the battery box in reverse order that you removed it (**Section 1F**). This includes popping the fuse box back in place, and re-mounting the ignition terminal to the battery box.

**B. Battery** - Re-install the battery in reverse order that you removed it (**Section 1E**).

**C. Plastic Shrouds** - Re-install the two plastic shrouds in reverse order that you removed them (**Section 1D**). Remember that any installation points that were on the factory air-box, will now be on The Freak.

**D. Faux Air-Cleaner Covers** - Re-install the two faux air-cleaner covers in reverse order that you removed them (**Section 1C**). Remember that any installation points that were on the factory air-box, will now be on The Freak.

**E. Side Cover** - Install the side cover in the reverse order that you removed it (**Section 1B**). Remember that any installation points that were on the factory air-box, will now be on The Freak.

**F. Seats** - Install the seats in the reverse order that you removed them (**Section 1A**).

## 6.) TUNING

*Now that your Freak and K&N filters are installed, you will most likely need to re-jet your carburetors and have the motorcycle tuned on a Dyno. We recommend that you take your motorcycle to a DynoJet authorized Triumph mechanic to have this done. Also, "Please" keep in mind, we have tuned a couple of bikes of this model with good results after The Freak install and we will offer suggestions. But the suggestions are just that, (suggestions). We also found a local dyno shop that is trustworthy and base our results from those dyno runs. Dyno of choice is the "Eddy Current 997 "dyno for it's 4 gas readout and consistant runs.*



**Figure 4C** - Front right bracket Installation and placement



**Figure 4D** - Crankcase breather installation and placement