

PMRT Air Box Installation

Please read through the instructions in their entirety before beginning the installation. It is recommended that you perform the installation with minimal fuel in the fuel tank.

For proper engine performance, the appropriate e-prom chip (1999-2001 models) or fuel control device (2002 and later models) must be installed. Failure to do so will result in an excessively lean condition which will lead to engine damage.

Installation of the PMRT Air Box, including the removal of the stock air box, can be completed by an individual with average mechanical skills in approximately 2 hours. Only basic shop tools are needed: Small hand drill, small drill bit set, combo wrench set, socket set, hex key set, screwdrivers, utility knife, hammer, small chisels, etc. A "Unibit" type step drill and a small reciprocating saw are also helpful for the initial "Cutting" of the stock air box. If you wish to remove the stock air box as a complete assembly, you will need to remove the engine from the frame. These instructions will be focused toward removing the stock air box with the engine in the frame. We recommend that some time before the installation, you coat the new filter with the No-Toil provided, following the filter manufacturers instructions, and store it in a bag until installation. You will definitely want to use a pair of those thin rubber gloves for this as the No-Toil is quite sticky.

- ◆ First remove the seat as per service book instructions.
- ◆ With the tank removed, the top of the stock air box is exposed. Remove the air filter end cap and the air filter. Remove the connections to the sensors on the air box and temporarily secure them out of the way, such as tying them to the frame or other wires with a twist tie. Disconnect the crank case breather hose attached to the back of the air box and secure it out of the way.
- ◆ Now, remove the screws on the cover plate of the air box and remove the cover, exposing the intake tubes and fasteners which secure the air box to the throttle body. With the cover plate removed, reach into the air box with your fingers and perhaps a flat blade screwdriver and extract the intake tubes. You will need to pull up, then twist and pull, working the tubes out of the box one at a time. Now remove the four bolts that secure the air box to the throttle body and set them aside for reinstallation later. You should now be able to break the seal between the bottom of the air box and the throttle body.
- ◆ With the air box now some what loose in the frame, slip a shop rag in between the top of the throttle body and the bottom of the air box to keep debris from falling into the throttle body. You may also wish to place a towel or some cardboard in between the bottom of the air box and the rocker cover for protection. Using what ever means you feel comfortable with, split the air box along the joint and cut it at the point where it bends down over the front rocker cover. Our preference is to drill into each side of the box just behind where the air filter was with a "Unibit" style step drill. It also provides a good place for the point of a chisel to be inserted to begin splitting the seam. Drill, cut, and chisel until you have extracted the stock air box, being cautious not to damage any wiring or other components.
- ◆ Now remove the two sensors from the remains of the air box, set them aside for reinstallation later.
- ◆ On the Vegas, King Pin, Jackpot, Hammer etc., you will need to flip around the ignition coil that is near the throttle body before proceeding. Or install 2 washers on top of aluminum support to lower coils.
- ◆ Now you will install the PMRT base plate. You can either reuse the stock gasket or apply a small bead of the supplied Permatex to the top of the throttle body (recommended method), then secure the plate to the throttle body with the four stock air box bolts previously removed.

◆With the base plate in place, it's time to install the filter element. Assuming you already coated it, slip on a pair of those thin rubber gloves and remove the filter from the bag you put it in. Looking at the bottom of the filter, you'll see a screw on one side and a hook molded into the plastic frame of the filter on the other side. The molded in hook must snap onto the base plate. Set the filter on the base plate with the attachment screw on the left side of the motorcycle. Standing on the right side of the motorcycle, apply downward pressure on the top of the filter toward the right side with your left hand, and with your right hand, push the throttle body toward the left side of the motorcycle, allowing the filter to "snap" into place. Once the hook has snapped onto the base plate, continue holding light pressure with your left hand and tighten the retaining screw with your right hand. It may be necessary to push the throttle body housing to the left side of the bike with a large screwdriver, take care to stay away from the sensor or items that can bend or break.

◆Now reconnect the two sensors to their respective connectors and orient them along the right frame rail slightly behind and next to the filter element and zip tie them in place. You may need to cut a couple of the factory zip ties and reorient the wires to accomplish this. Since the PMRT intake system is essentially "open", the sensors do not need to be in the intake stream. When kept in close proximity to the filter and installed along and behind the filter, out of the draft, the pressure and temperature they read will be almost identical to that which is inside the filter.

◆The final installation piece is the crankcase vent. Supplied in the kit is a small K&N crankcase vent filter that simply attaches to the end of the hose. This is quite adequate for most applications. Cut the stock crankcase vent hose just before the 90° upward bend. Attach the extension hose, routing it out past the swing arm pivot in front of the rear tire. Trim to the appropriate length so that once the filter is inserted, it sits just past the swing arm in front of the rear tire. Remove and clean at oil changes. For 02 and up bikes you can install it out of the way under the tank by cutting a few inches off the length and resting it near the frame with a loose zip tie, it will sit about the middle of the rear valve cover. Make sure your fuel hose doesn't kink when reinstalling.

◆Prior to installing the fuel tank, we recommend you perform a static TPS adjustment. With the tank off, it's much easier to see when the throttle plates have closed all the way. (Applies to 99-01 bikes)

◆Now reinstall the tank, hook everything up, and get it ready to start up.

◆ When using the appropriate PMRT e-prom chip (1999 – 2001 models), your motorcycle should start and run reasonable well with just the static TPS setting. Once you've got it warmed up, perform the dynamic adjustment. The open air box prefers a slightly richer idle than the stock air box, so when setting the dynamic TPS adjustment, keep it on the rich side by turning the screw counterclockwise about 1/8 turn from where you "think" it should be. If possible, use an air/fuel ratio meter like on a dyno.

◆On 2002 and later models, it is best to take your motorcycle to a qualified dyno tuning center to have a fuel management device such as the (Power Commander, VFC II, or VFC III etc.) properly tuned. For initial adjustment to just make it run, stay on the rich side. Following the fuel management instructions should allow you to make the motorcycle rideable, but we strongly discourage hard acceleration and/or high engine speeds until the air/fuel ratio has been verified to be in the acceptable range. We recommend a 13.6:1 air/fuel ratio for best performance under load and slightly richer at idle.