SAS/CAN REMOVAL INSTRUCTIONS

SAS-1 / SAS-S2 / SAS-S3

CALIFORNIA WARNING

The California Air Resources Board (CARB) does not permit the removal or alteration of OEM emission control devices unless certified by CARB, other than for racing vehicles on closed courses. These products are legal for use ONLY in competition racing vehicles and are not legal in California for use on public roads, streets or highways. Check your local laws and regulations to determine that compliance needed in your city or state.

GENERAL NOTES ABOUT THIS INSTALL

These instructions are designed to be 'In General' as all KTM twin cylinder motorcycles use nearly identical emissions systems, but in different placements on the motorcycle and slightly different configurations. For instance, the 990/950 Adventures have 2 fuel tanks making the stock canister hose routing a web of complexity. The 'After' schematics located within this document should end up the same no matter what model, but the 990/950 or 'Twin Tanked' bikes will need some things done twice in some circumstances for obvious reasons. If all of this seems complex at first, we can assure you that it is not. There is nothing missing here and nothing will change in the way your engine runs. We have attempted to design the schematics to work for all languages with symbolic layout and some helpful pictures. Rottweiler Performance also has some comprehensive videos on our videos link at our site.

WHAT YOU NEED TO KNOW ABOUT SAS REMOVAL

The SAS valves are usually located on or attached to the stock airbox somewhere. On older models they reside at the rear of the stock airbox and pull air from the box very close to where they are attached. You will need to trace the entire system, remove it and do the following:

1. Using the stock 6mm bolts, fasten the supplied 'R' SAS plates to the sides of the cylinders on opposite sides of the engine. The 'R' facing out forces one to put them on correctly as the rounded edges of the SAS plates are slightly different in radius.
2. Plug the supplied 'SAS Dongle' into the stock wiring harness where the SAS valve was plugged into. This will 'fool' your computer into thinking it is still there and keep the 'FI' light from coming on. You will still get warnings for other legitimate issues if they arise. Remove the valve completely.
3. If you have installed a Rottweiler Intake System, good for you and you will not need the rubber plug and spring to block off where the SAS drew air from the stock air-box. This is only used when retaining the stock airbox (we don't know why you would do this when the Rottweiler Intake is so awesome) If for some crazy reason you keep the stock airbox and simply like less horsepower, a snatchy throttle and generally worse fuel mileage, then use the rubber plug and spring to cap off where the SAS was plugged

into the stock airbox. If you have the Rottweiler Intake System, you are obviously a very happy person and can disregard the rubber plug and spring.

SUGGESTIONS

1. In almost all circumstances, you will need to remove your fuel tanks to perform the above. We suggest that if you ever plan to install a Rottweiler Intake or a Powercommander or all of the above, that you do it all at once as all of these actions require removal of the fuel tank. Some models are easy, some are a bit more complicated, but none are difficult if you have reasonable mechanical skills.
2. On 990/950 models of different kinds that have the oil tank at the bottom of the radiator, it will help to remove the 2 top radiator bolts and the 3 lower oil tank bolts (leave the 2 bolts connecting the radiator to the oil tank) and push both of them forward on the bike. No fluids need to be drained for this. The bolts have different shoulder lengths so keep them organized.
3. Yes we know, the front SAS plate is a pain. You will get through it. Use the smallest diameter extension you own and get the socket on to the head of the lower bolt and pivot the extension down pushing the rigid oil line out of the way and remove the bolt. There is a fin in the cylinder head that allows you to use a screwdriver to pry the tube to the rear and hold it there while you get a socket onto the lower SAS plate bolt.
4. DO NOT start the bolts for the SAS plates with a tool! This will almost surely lead to cross threading. Especially for the right/forward side. Start them all by hand and get a couple of turns in before using a socket to tighten them.

WHAT YOU NEED TO KNOW ABOUT THE CANISTER REMOVAL OR COMMONLY REFERRED TO AS A 'CANISTERECTOMY'

The canister is usually located in the tail of the motorcycle, but in 990/950 Adventure bikes, they are located inside the left side fairing. You will need to trace the entire system and do the following:

⚠ Note!: Do not start this by removing all the hoses without understanding what their purposes were. It will help to have an understanding of where the lines came from to fully understand the whole process. Take your time and identify each hose and what it is attached to. This will help tremendously in understanding the graphic illustrations contained in this document.

1. The line that goes from the fuel tank to the canister should now be routed to the ground or catch can and nowhere near the exhaust pipe as overflow of fuel may come from this upon a full tank. All other lines stay the way they are and are intended to drain water from the fuel cap area. The Stage 3 kit will supply Tygon hose for this, highly recommended for the 950/990 Adventures. The Stage 2 kit you will have to recycle the stock rubber hose for this. On models with the canister in the tail, you will have enough but will be missing the thumb screws if you want to easily balance your throttle bodies. The 990/950 Adventures have only many short pieces of hose. We highly recommend the Stage 3 kits for those models and any other model where the brass nipples on the side of the intakes are accessible. The Stage 3 SAS kit can be particularly difficult on the Adventure 1190/1290 models but is possible if the throttle bodies are temporarily removed. This can be a short 10 minute affair is the Rottweiler Intake is being installed at the same time. For quicker installation on the Adventure 1190/1290 models we would recommend the SAS-S2 kit.
2. Remove the canister completely and trace the other line coming out of it to the canister valve. This is a valve that simply opens and closes via 12 volts allowing the engine to 'suck out' the fuel vapors from the canister.
3. Remove the canister valve and plug the supplied 'Canister Dongle' into the stock wiring harness where the canister valve was plugged into. This will 'fool' your computer into thinking it is still there and keep the 'FI' light from coming on. You will still get warnings for other legitimate issues if they arise. Remove the valve completely.

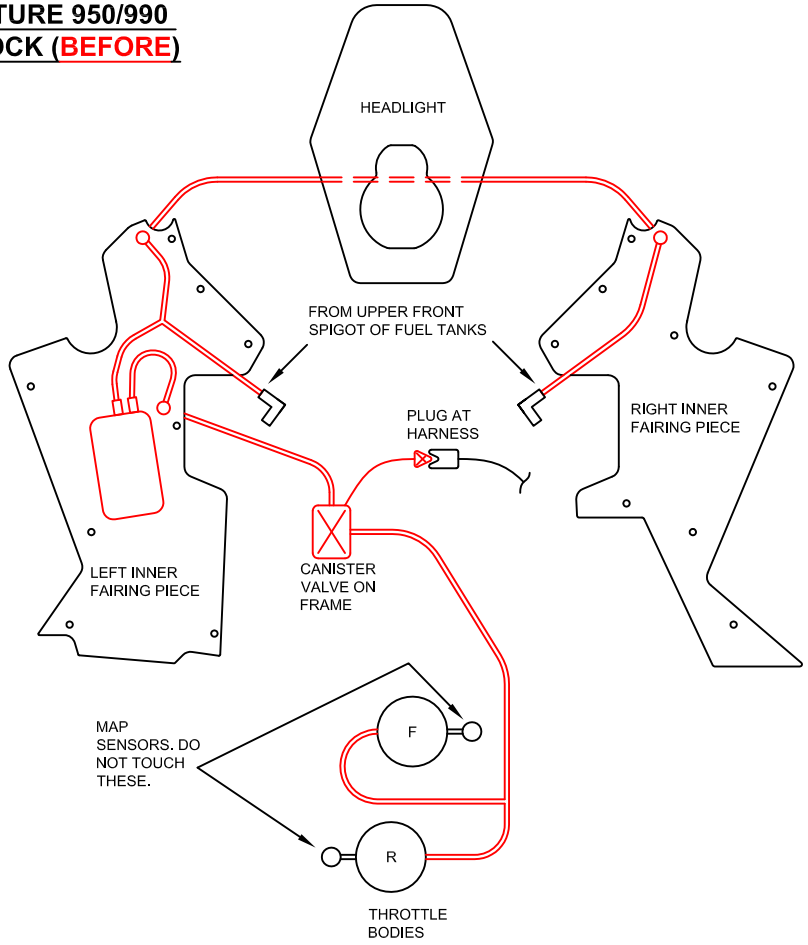
4. Trace the other line to where it splits into 2 and plugs into the brass nipples below the throttle bodies. Some models are on opposite sides, some newer models are on the same side. Some models are difficult to get to. (1190 ADV)
5. At this point, you have a choice, with a Stage 2 kit, you will have to find a spare 8mm bolt and plug that line before it splits –or- remove the barbed fittings and put 2 short 6mm bolts into where the barbed fittings were.
6. With a Stage 3 kit, you can use some of the supplied yellow Tigon hose and run the tubes from the barbed fittings to where they can be accessed later if you decide to have your throttle bodies balanced. Cap them with the supplied thumb screws (Stage 3 only)
7. Extra spring clips and 'P' clips are included to use at your discretion depending on where you intend to route the new hoses.

You can expect to lose at least this much weight when removing both the SAS and Canister systems.

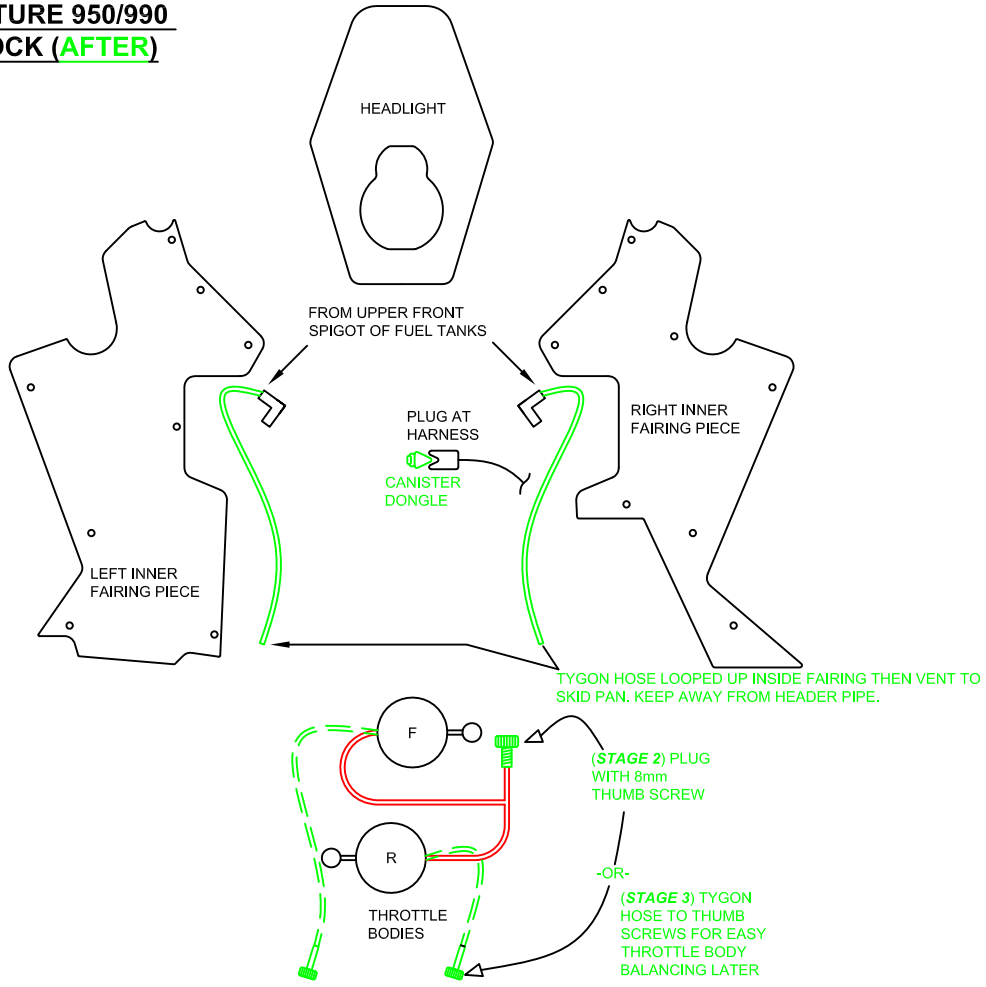
HELPFUL SAS AND CANISTER DIAGRAMS

Below is a set of diagrams showing the typical routing of the SAS and Canister systems. The only bike that is significantly different from the rest is the Adventure 950 and 990's. We have supplied a separate helpful diagram for that model alone and should give the installer a better idea of what is involved with the before and after results. The second diagram is a 'general representation' of most single fuel tank KTM motorcycles.

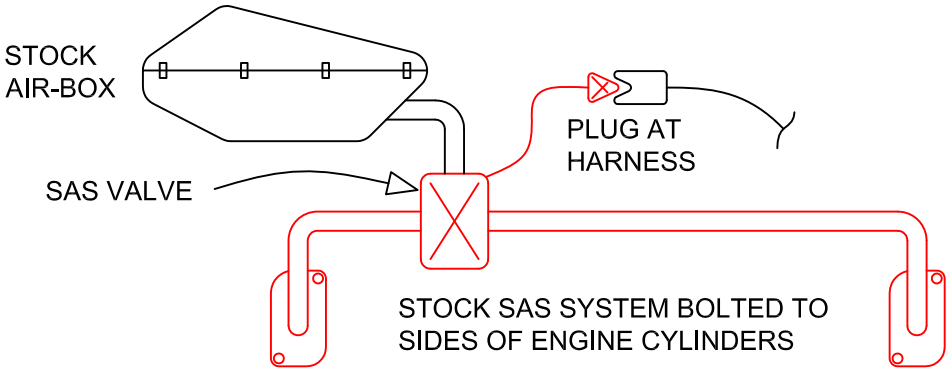
CANISTER SYSTEM ADVENTURE 950/990
SPECIFIC LAYOUT KTM STOCK (BEFORE)



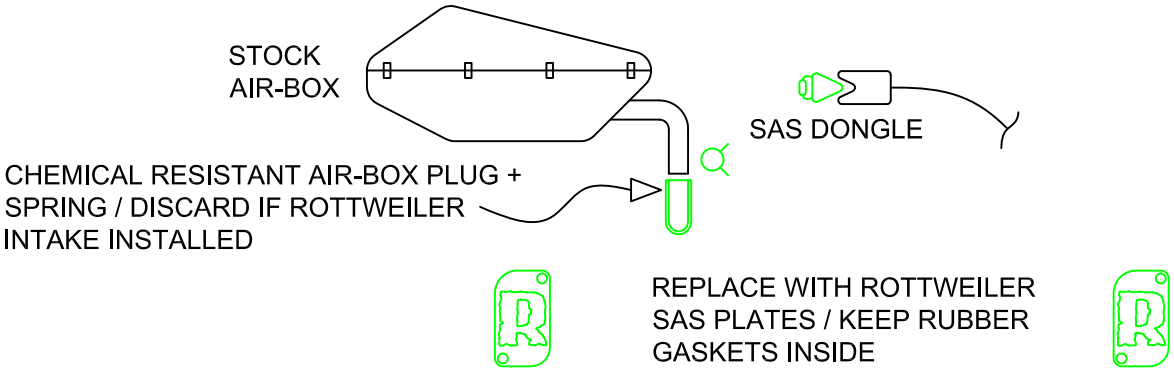
CANISTER SYSTEM ADVENTURE 950/990
SPECIFIC LAYOUT KTM STOCK (AFTER)



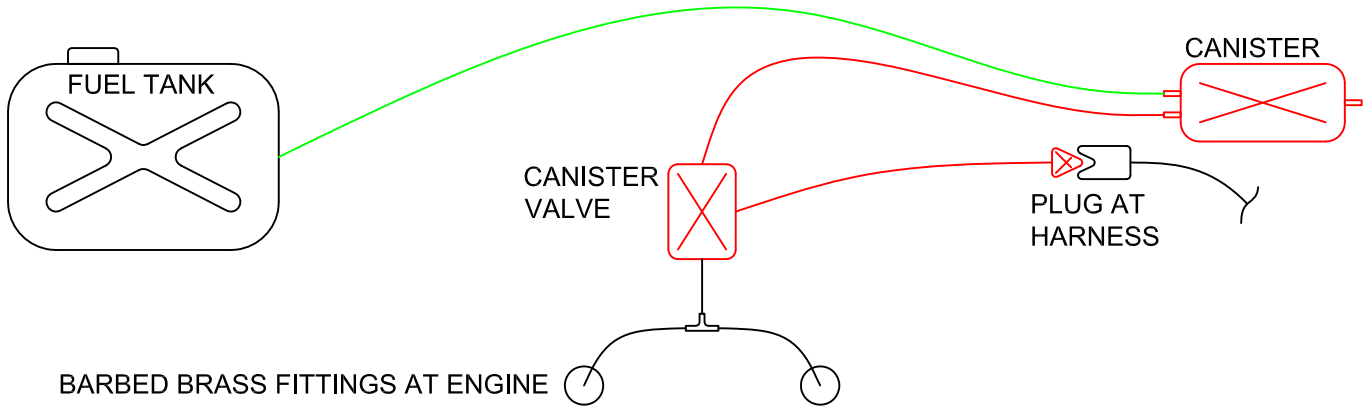
SAS SYSTEM GENERAL LAYOUT KTM STOCK (BEFORE)



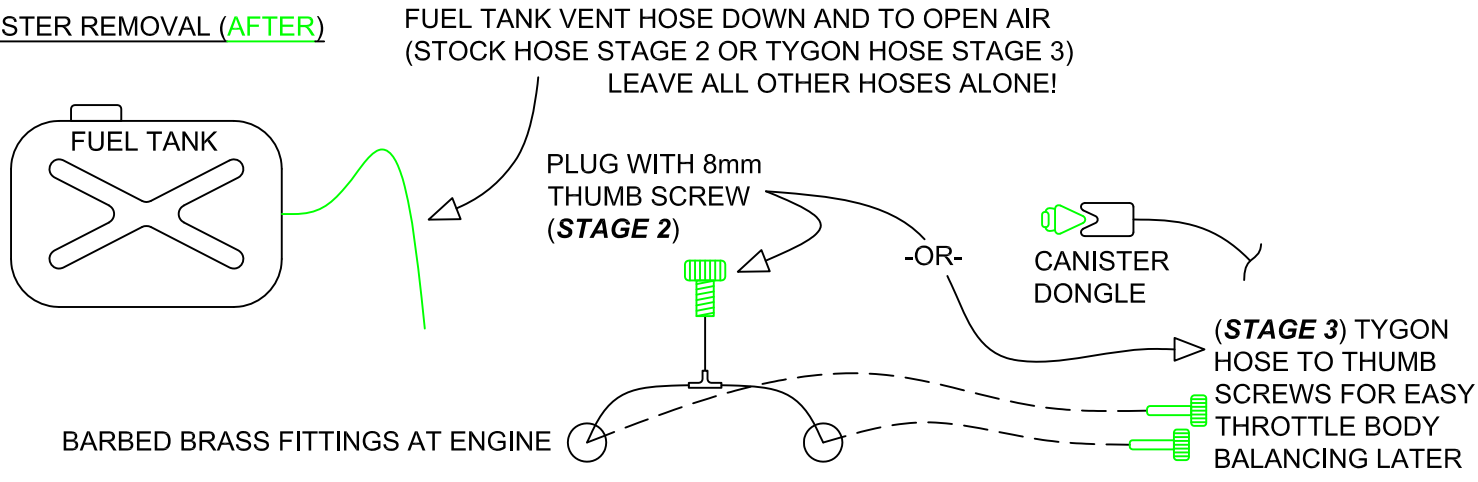
SAS SYSTEM REMOVAL (AFTER)



CANISTER SYSTEM GENERAL LAYOUT KTM STOCK (BEFORE)



CANISTER REMOVAL (AFTER)



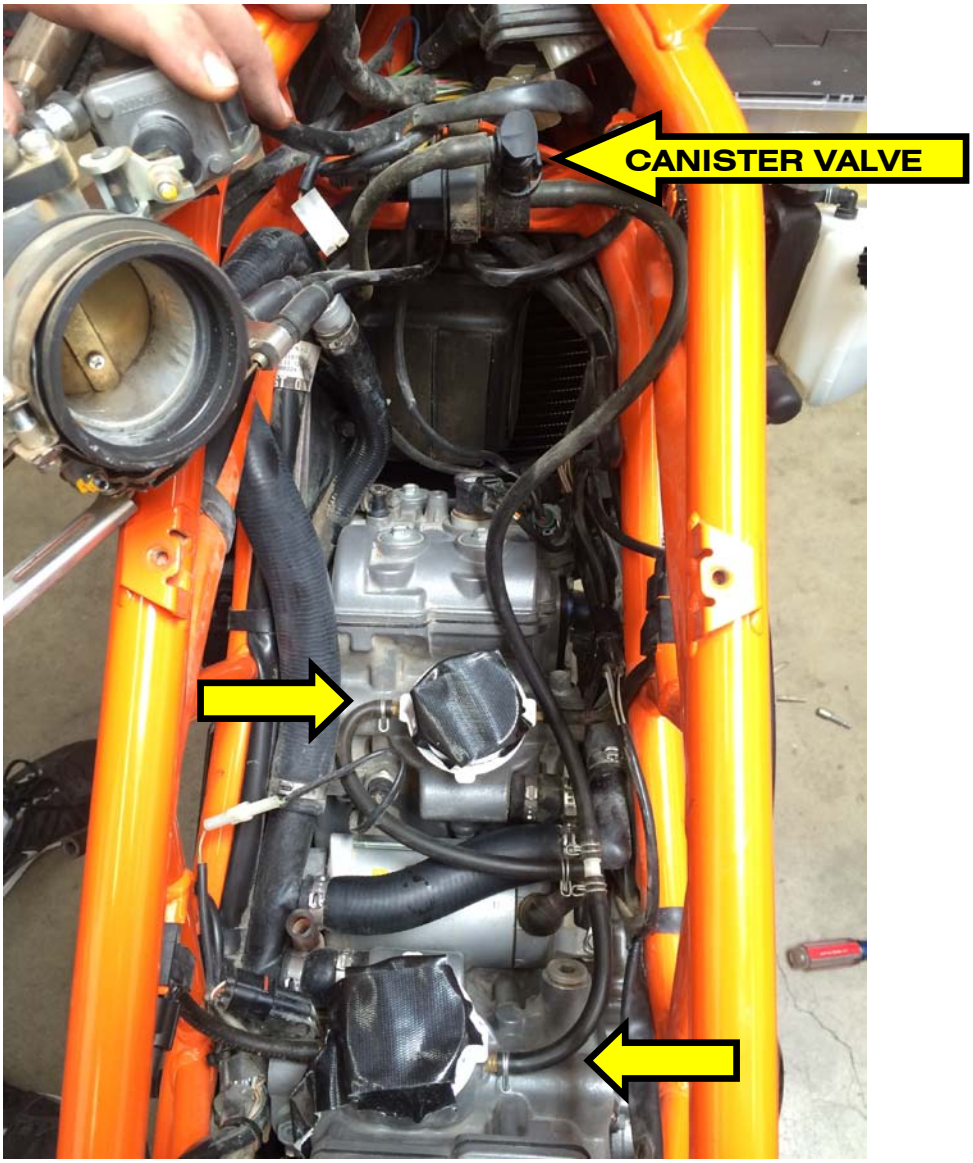
ADDITIONAL HELPFUL HINTS FOR ADVENTURE BIKES AND MODELS WITH THE FRONT DRY SUMP FUEL TANK

The Adventure models and some bikes like the 990 Super Duke utilize a dry sump oil tank in front of the front cylinder and under the radiator. This dry sump tank can make removal of the right side SAS plate a bit difficult. We have included some extra pictures below to help with those models.

In addition, we have also included some schematics to help you understand the web of stock complexity that is the Canister System on the KTM Adventure 950/990 models. The theory is very simple when complete and may seem overly complex at first when looking at all of the tubes in the fairings but almost all of it will get removed and will greatly simplify the overall motorcycle and reduce its complexity when performing routine maintenance.

The canister valve is simply a device that opens and closes with 12 volts. It looks like this and on the Adventure bikes is below the headstock.

This is the typical routing of the canister lines.



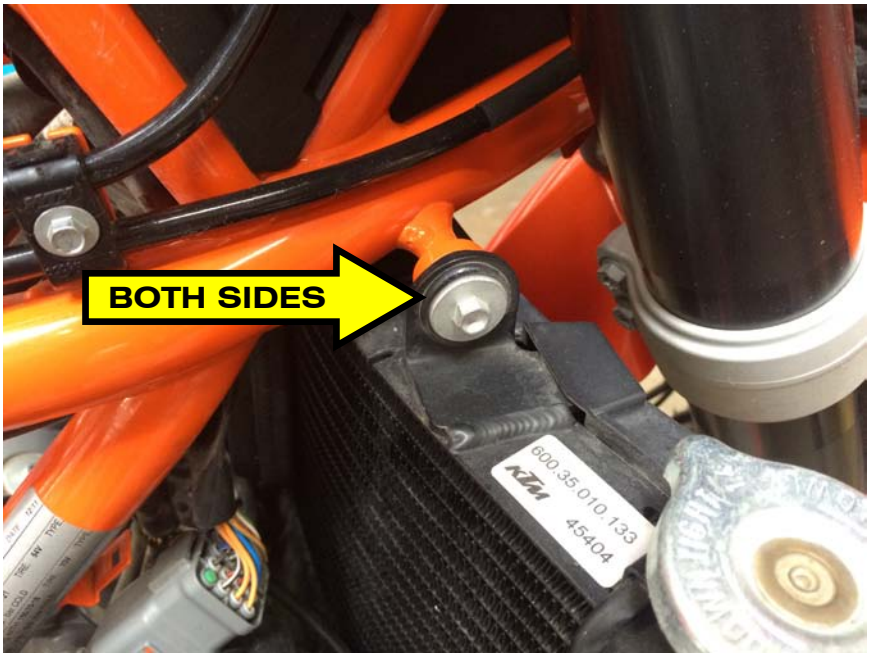
On the Adventure 950/990, the inside of the fuel tank fairings looks like this. The charcoal canister is on the inside left and all of these hoses get removed.

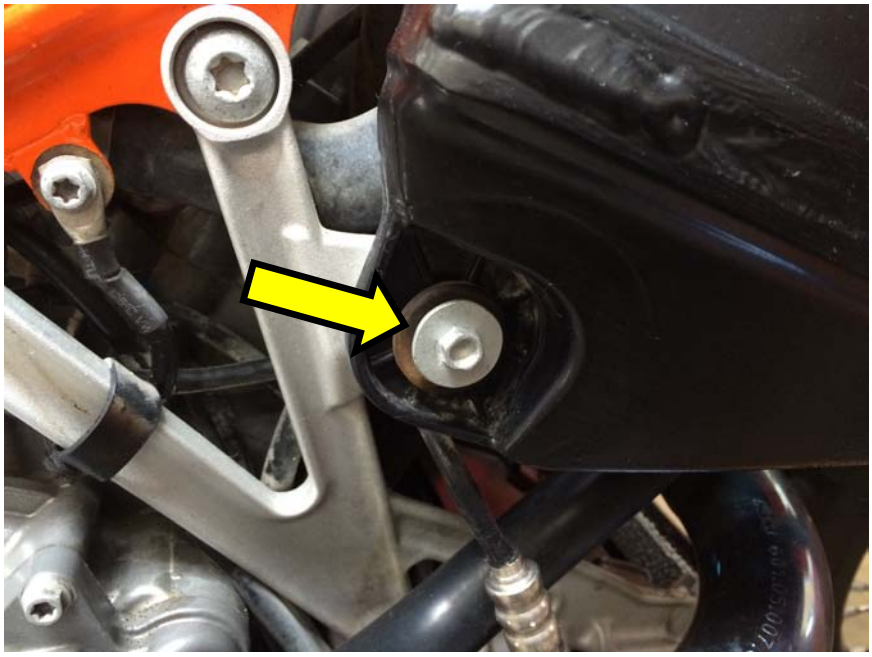
In the stage 3 kit, the Tygon hose will now loop up and then down inside the inner fairing as shown below on the Adventure 950/990.

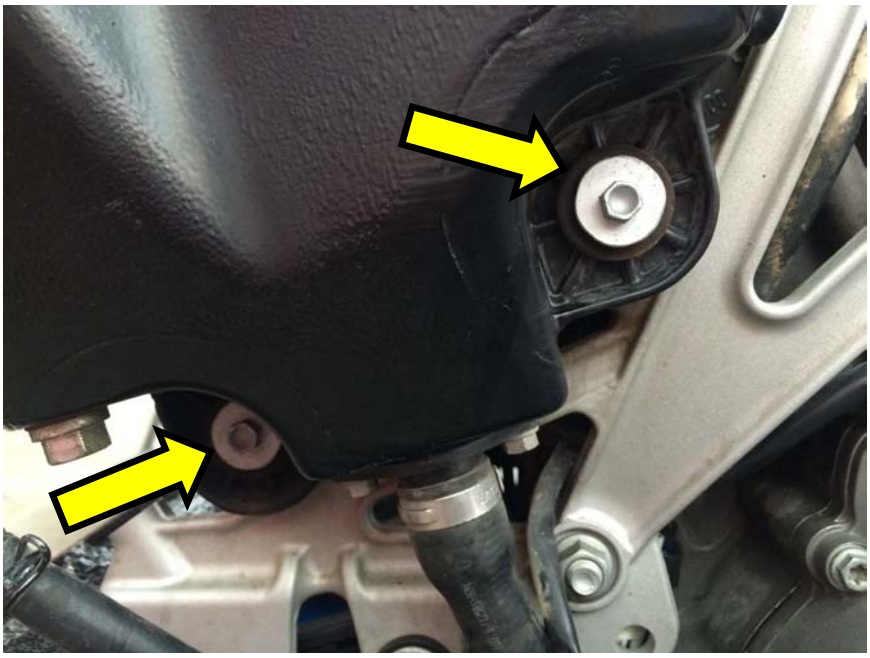
Once the inner fairing are reattached, the hoses will route as shown and end up safely in the skid pan. Other single tank models will have this line someplace most often towards the front of the fuel tank. It is the line that previously traveled to the canister either in the faring or the tail of the bike.

Below is a suggested routing for the SAS-S3 on an Adventure. These lines provide two purposes; First, as a way to cap off where the canister lines once routed to. Second, an added easy method to balance your throttle bodies. Balancing your throttle bodies can aid in a smoother throttle and should be a practice performed from time to time to ensure that the throttle bodies are synchronized. This only requires a vacuum from each intake and where the canister lines previously let to is typically where this vacuum is measured. This helps the smoothness of the motorcycle as both cylinders are receiving the same charge of air. There are various tools on the internet that will perform this task. See 'Motion Pro SyncPro Carb Tuner' for example.

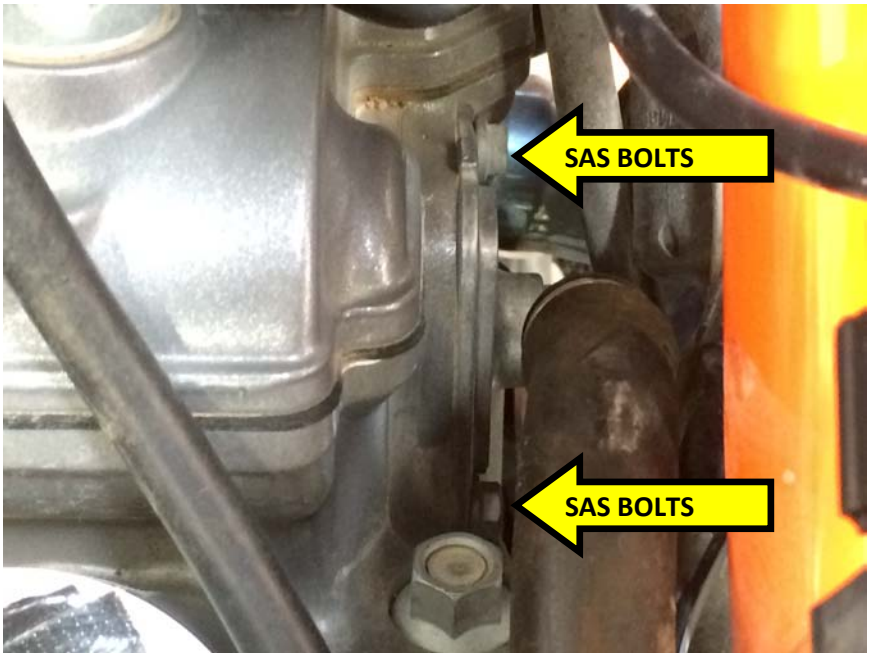
For removing the SAS bolts on the right hand side of a KTM 990 with a dry sump tank (The big black oil tank in front of the front cylinder), remove the upper radiator bolts (8mm hex x 2) and the lower dry sump bolts (8mm hex x 3) and push the dry sump and radiator forward. You can leave the radiator attached to the dry sump at the front.







Use a screwdriver to help you push the oil line to towards the rear of the bike so that you can get a socket to the lower right hand SAS plate bolt. Yes we know it's a pain, but everyone gets it.



The finished product will free up a significant amount of clutter in and around the engine compartment and make maintenance much easier.