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EVO: Carburetor, Intake Manifold & Exhaust - Sub-03A

Installing Intake Manifold (27004-88A)



Repairs

If the bike is dropped on the air cleaner (right side), sometimes that will bend the intake manifold at the carb mouth.

If the bend on the manifold makes the inlet out-of-round, remove the manifold and either repair (if possible) or replace it.

You can try to heat up the bent area and very carefully tap the edges to get them back into round. Be careful, the manifold material will crack.

You could also try to place the inlet on top of a small piece of 2x4 before tapping on it with a nylon tipped hammer.

Or use a short piece of wood, curved front, as a drift so you're not applying excess pressure in one spot. You can try using some JB-Weld to reform cracked or missing pieces and smooth out the seam with sandpaper.

The rubber carb seal should go over the mouth of the manifold completely but you want it to be close to the proper curve or the rubber will not flex enough to seal properly.

If you have any doubts about your ability to tap out a flat spot then just let it alone and see if the rubber can make the seal.

Be sure to read that Carb page in the Sportsterpedia about mounting the carb.

If you pre-align the carb, make sure the mounting bracket is adjusted in the right place.

Use the right spacers for the bracket so the carb just butts against the bracket, you will be a long way toward eliminating those pesky intake leaks.

You can also try putting a 34mm socket in the hole and gently tap the socket with a hammer to try and straighten and out of round crab inlet.

Repair on 'out of round' intake manifold. ¹⁾



Considerations

Intake Mounting Bolts:

Inspect the intake mounting bolts for distortion at the threads as well as the Allen socket in the head. Previous over-tightening or misaligned wrenches can ruin these bolt's ability to be retightened properly.

You can replace the bolts with grade 8 or stainless ones from a hardware store.

There is only 6-10 ft-lbs on these bolts so shear strength is not an issue.

Also consider replacing the rear / slotted end bolts with hex bolts instead.

This will make these easier to work with during installation of the intake.

There is not enough room on the carb side holes for a hex bolt due to the small clearance between the intake body and hole.

Stock mounting bolts replaced with stainless, rear bolts changed to hex head. ²⁾



Flanges:

Double check flange placement before tightening them.

The flanges are directional. There is a letter stamped on each flange for (F) - front or (R) - rear placement.

There is a mounting hole on one side and a mounting slot on the other.

The slot goes toward the 'tight side' between the cylinders ³⁾ or otherwise toward the left side of the bike.

If you look at the flanges it should cause a bad mis-alignment if you use them the other way. ⁴⁾



Installing the Seals

See also [Mounting the CV Carb - Preventing Air Leaks](#) in the Evo section of the Sportsterpedia.

Put the flanges on the intake.
Double check front / rear flange placement. ⁵⁾

Install the intake seals with the chamfered side toward the flange. ⁶⁾



The carb seal goes on the intake port. Check that the seal is fully seated when installed. ⁷⁾



Installing the Intake

Although this can be done with the fuel tank on, it's easier if you remove it.

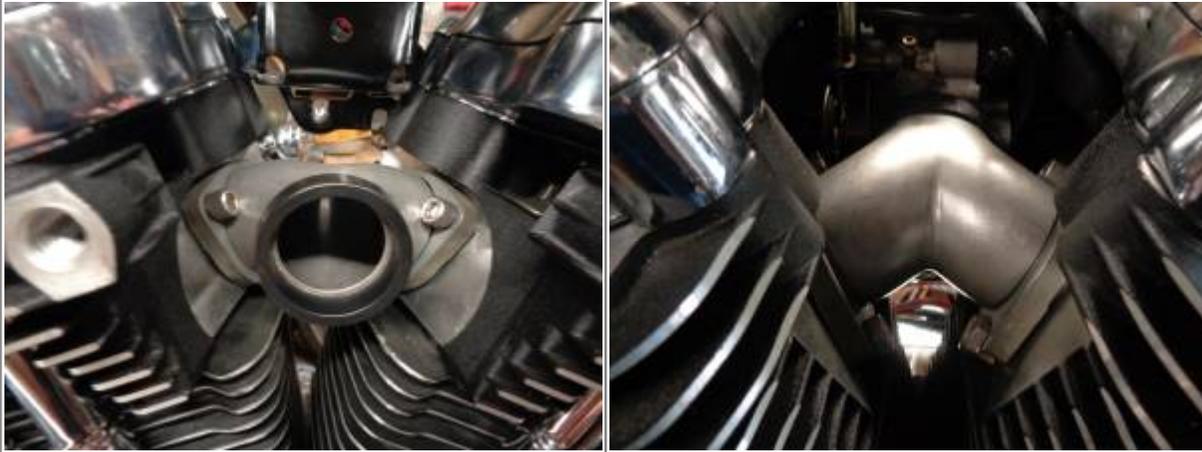
The idea is to align the manifold & the carb BEFORE tightening everything into their final positions.⁸⁾

This will help to prevent air leaks.

Normally, the slotted holes of the manifold flanges go in the tight side & the round holes go outward.

Install the intake with the slots toward the left side of the engine.

Leave the bolts loose until you install the carb.⁹⁾



Both 'head' ends of the manifold should be equally spaced to the flanges.¹⁰⁾



Having the carb in place allows the carb seal and the manifold to squarely mate with the carb before tightening the intake bolts.¹¹⁾

The carb can also be installed in the intake (without support) in the wrong vertical position to mate with the bolts in the head.

The carb's vertical position will change during installation.

If the intake is tightened before the carb support is installed to the carb and heads, it will stress the intake to head seals.

They they will be pulled away from there mating surfaces while following the rotating carb position.

To align the carb to the intake, you can temporarily mount the carb: ¹²⁾

- Remove the rubber seal at the manifold mouth.
- Put the carb (on it's bracket) in place (bracket bolted to the heads).
(to see if the carb aligns properly with the manifold intake opening)

If the carb doesn't set nicely in the middle of the manifold opening:

- You probably need to move the manifold or the carb until that alignment is achieved.

If this alignment is right, later, when the rubber seal is in place, the carb will fit right in & you'll have less chance of intake air leaks.

Or, you can final mount the carb in place:

- Remove the front left motor mount to gain access to the intake with both hands.
(This also gives you easier access to the intake mounting bolts)
- Install the intake on the heads with the carb seal in place.
- Leave the intake mounting bolts loose.
- Line the inside of the seal with water or a thin film of oil to help the carb slide into it.
(you can also use a dab of water and dish soap solution)
- Install the carb in the intake, the air cleaner on the carb and install the carb support on the heads loosely.
- Then wiggle the intake up/down and visually inspect the seal top to bottom for evenness.
- Torque the carb support bolts.
- Then torque the intake bolts.
- Recheck the seal for evenness.
- Reinstall and torque the motor mount.

Install the carb and carb support.
(air cleaner backing plate or other aftermarket) ¹³⁾



Getting to the carb side bolts isn't easy from this point of view. ¹⁴⁾



You can use a long ball type Allen wrench on the intake bolts.

But it may be difficult to get them fully inside the screws at the angle you're at.

If so, it will be difficult to get them torqued as the wrench will slip out of the screw socket.

That's where removing the top left motor mount comes in handy also.

You can get both hands in there to install the wrench with variations of where you can pull from.

If you remove the top left motor mount, you'll have easier access to the intake bolts. ¹⁵⁾

Then you can get both hands in there to install the wrench with several pulling options on the bolts. ¹⁶⁾



Do not over-torque the intake bolts. This will probably cause a leak.

Example of seals with over-torqued bolts. ¹⁷⁾



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¹⁾
photos by Matt Black of the XLFORUM
<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/193103-newbie-cv-rebuild/page8?t=2068828&page=8>

²⁾ ⁷⁾ ⁹⁾
photos by Hippysmack

³⁾ ⁸⁾ ¹²⁾
IXL2Relax of the XLFORUM
<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/193103-newbie-cv-rebuild/page9?t=2068828&highlight=intake+manifold&page=9>

4)

rocketmangb of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/193103-newbie-cv-rebuild/page9?t=2068828&highlight=intake+manifold&page=9>

5) 6) 13) 14) 15) 16)

photo by Hippysmack

10)

photos by Matt Black of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/193103-newbie-cv-rebuild/page10?t=2068828&page=10>

11)

John Harper of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/188935-intake-seals/page2?t=2011585&highlight=intake+manifold&page=2>

17)

photos by Matt Black of the XLFORUM

<https://www.xlforum.net/forum/sportster-motorcycle-forum/sportster-motorcycle-intake-and-exhaust/sportster-motorcycle-air-intake-carburetor-efi-fuel-and-exhaust/193103-newbie-cv-rebuild/page8?t=2068828&highlight=intake+manifold&page=8>

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