

A.I.R Pump Removal

This information based on a first generation S-10 with a 2.8L. May be applied to any GM Vehicle with TBI or Isuzu Trooper with 2.8L

A.I.R. Is used as a supplementary emission control system which helps burn up any fuel that made it past the combustion cycle and into the exhaust system. However once the engine has been running for a few minutes and the Oxygen Sensor is sending information to the ECM the solenoid is switched on the side of the A.I.R pump and it just cycles air back into the atmosphere and literally becomes another idler pulley. So why would you want to remove it? It doesn't rob any power and it reduces emissions at least for a few minutes. Well as vehicles get older and rack on the miles some people find that the pump simply seizes up. Plus the fact that on the S-10's it is mounted down low on the engine people who take their trucks off road and put them through water may find they don't last long at all. Also the pump can make noise after time and they just look plain ugly and take up a lot of room. So for many people the best solution is to just remove it. If you decide to go this route there is one important thing you need to consider. Removing emission equipment in the US and Canada is ILLEGAL in most areas. So check with your local laws. For off road use and on un insured types of vehicles it is typically not a problem. This may include trailered 4X4's, track cars and drag cars.

Removing the AIR system on a 2.8L is actually quite a simple process. It will require spending a bit of cash but it is less than buying A.I.R pump replacements. The first step is removing the whole pump and bracket assembly from the engine. Remove the bolt on the bottom side of the alternator bracket and the 2 bolts on the lower side of the engine block. Don't forget the single vacuum line, electrical connector and supply tube to the exhaust. On the exhaust supply tube just undo the hose clamp and pull off the rubber hose. Now you can take the A.I.R. system out of the vehicle. When this is done you will be left with two problems to solve. One, you will have a tube sticking out of you exhaust manifold that looks terrible. Two, you will have the wrong tensioner and belt arrangement. Don't worry these are easy to solve.



Here is the selection of parts that are removed from the front of the engine. It cleans up a lot of space and leaves a cleaner look when they are gone. If you were to re locate the battery at this point the entire front right corner under the hood would be clear.

Starting with the tube in the exhaust you need to find a way to remove it. The easy method, if you don't want to save the tube is to cut the tube with a pipe cutter just above the nut and remove the remaining nut with an impact gun and socket. The other method is to use a crows foot socket and

a breaker bar. This piece will be hard to remove after several years of being subjected to exhaust heat. In most cases and open end wrench won't fit in the confines of an engine compartment so unless you are on an engine stand that option is out. With the fitting out you need to plug the hole. The thread is 7/8-18 which is not very common. It is used on some oil pans and on SAE Inverted Flare nuts. So the easiest thing to find is an oil pan plug from your local parts store. A hydraulic fitting shop may have the flare plug and you could use that. But the oil pan plug will be easier to find in most cases and then all you need is a 7/8" copper or brass washer to make the seal. Once you have these parts simply plug the hole in the exhaust manifold. Other solutions to this problem would be finding the passenger exhaust manifold from an Isuzu Rodeo with a 3.1L which has no A.I.R. system and so the hole in the manifold was never drilled and tapped. Or you could install a set of headers which would obviously eliminate this step.



This is the hole in the exhaust that needs to be plugged. The threads are 7/8-18 and can be plugged with an oil pan bolt or a male SAE Inverted Flare Plug.

Below: Here is the plug and washer needed to plug the hole in the manifold. They can be purchased at most parts stores.



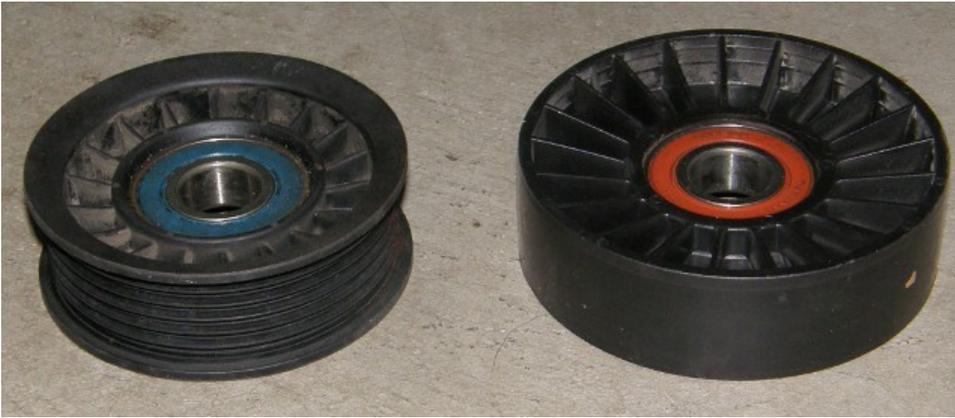


Here is the plug and washer installed into the manifold. Make sure you clean up the rust build up on the surface where the washer seals against. Also if you need a tap to clean the threads it may be easier to tell the parts person you need to repair a 7/8-18 spark plug thread. Snap-On sells one as part number T2818 and it runs around \$25. Just make sure you vacuum out any filings that drop down.

Now on to the second problem. Since you have now removed one pulley from the belt system your belt will be much too long. Plus the tensioner is on the wrong angle. Do not try and just order a short belt and use the same tensioner. It does not work you will never find a belt you can actually slip on that will give you enough tension with the stock tensioner. However there are a few good solutions for this problem. One is simply buying GM tensioner 10099984 this tensioner is for an Isuzu Rodeo with a 3.1L V6. You can also drill and tap the stock tensioner and install a 1/4UNC Cap Head bolt which will create a new pin to re locate the tensioner and grind off the old pin. The new pulley will now ride on the other side of the belt and you may want to replace it with a ribbed pulley which is AC Delco part number 38009. When the tensioner is installed correctly order a serpentine belt for a 1991 Isuzu Rodeo, order whether you have A/C or Not and you will get the correct length belt. One other problem will crop up when you try and install the tensioner on a truck without A/C. Gm used a larger water pump pulley (138mm) on vehicles without A/C. This larger pulley will contact the tensioner pulley when installed so you need to create clearance by using a pulley from a truck with A/C (120mm) GM P/N 24503896. This pulley is available on Isuzu trucks with a 2.8L or 3.1L with A/C or any S-Truck with a 2.8L with A/C. If you have swapped in a 3.4L from a Camaro and kept the Camaro pump or if you have installed a Camaro water pump into your truck you will already have the right sized pulley.



Here is the back of the tensioner. This is an aftermarket replacement for a stock 2.8L. Notice the old pin position at the right. It was relocated by drilling and tapping the aluminum casting. The pin is 90 degrees to the pulley. The pin is a 1/4UNC Allen head cap screw.



On the left is a ribbed pulley used when you remove the A.I.R pump. On the right is the standard pulley for trucks with A.I.R. It is not completely necessary to swap pulleys. The standard pulley will still properly tension the belt.



On the left is a setup with A/C on the right is a system without. If you order a belt from a 1991 rodeo with a 3.1L V6 you will get the correct belt. Just make sure you specify if your truck has A/C or not.



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