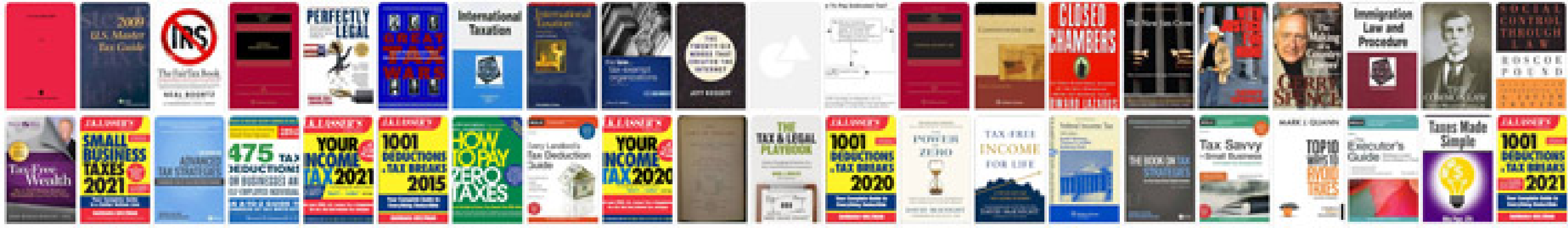

22re maf conversion

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Common modifications such as free flow air filters, camshafts, and exhaust headers can help give Toyota trucks more power to turn big, heavy tires. These modifications increase air flow and can cause a lean condition. Too lean of a fuel mixture can result in detonation and holes burnt in pistons in extreme cases. The AFM is essentially a flapper door attached to a flat wound spring. As air passes the door the spring moves. This movement is then translated into an electric signal that tells the electronic control unit ECU how much fuel to deliver. A modified engine will move more air through the engine on a given combustion cycle than a factory motor, so the AFM must be adjusted to compensate. This is an easy modification that only requires a razor blade and a Phillips screwdriver. Start by locating the AFM, which is directly behind the air box. Next use the razor blade to cut through the silicon around the black plastic lid on the AFM. Once the lid is open you will see the flat wound spring previously referred to. Make sure to mark the location of the gear relative to the spring before making any changes. We used a felt tip pen to make our mark. Next loosen the screw that is connected to the clip that holds the gear in place. It should be possible to move the gear without completely removing the retaining clip. Turn the gear counter clockwise to loosen the spring and richen the fuel mixture. We suggest only adjusting the gear one tooth at a time until the correct mixture is achieved. Too rich of a mixture will result in poor fuel mileage, sluggishness at lower RPMs, and excessive exhaust emissions. Tighten the screw and close the lid on the top of the AFM. Once the mixture is dialed in, it is advisable to reseal the lid of the AFM with silicon. The internal components are quite fragile and susceptible to water damage. Pull the 15 amp fuse under the dash for the electronic fuel injection EFI for several minutes in order to reset the ECU. It is now time to go test the modifications for any improvement in the fuel mixture. Note : The air flow meter does NOT need to be removed from the truck in order to perform these modifications, this was only done for illustration purposes. Replacement MAF unit.. Gen1 cigarette lighter port. Sway Bar delete.. Copyright c OutdoorWire, Inc and MUIRNet Consulting - All Rights Reserved, no part of this publication may be reproduced in any form without express written permission You may link freely to this site, but no further use is allowed without the express written permission of the owner of this material. All corporate trademarks are the property of their respective owners. New Topics on TrailTalk. Recent Posts on TrailTalk. Custom Search. The Toyota 22R-E engine is electronically fuel injected. As such they lack a mechanical carburetor and instead split the function of the carburetor into three parts, namely the Air Flow Meter in the air cleaner box, the throttle body and the fuel injector. The air flow meter uses a flapper vane and temperature sensor to detect the amount and temperature of the incoming air flow. The throttle body controls the air flow into the engine and the fuel injectors supply the proper amount of fuel to each piston depending upon operating conditions. For specific information, be sure to consult the service manual for your model engine. In a stock engine compartment, this is in the driver's side front corner. In the image below, the AFM is dead center in the image:. So how exactly does the AFM work? The voltage at the V C terminal is used by the ECU as a refererence voltage it should be around 12 volts and that voltage is basically the highest voltage that it would see from the air flow part of the sensor. And it is the air flow that is sensed as a voltage on the V S terminal. As you can see in the voltage graph in the lower left corner, the V S voltage runs from around 0 volts up to around 12 volts depending on the air flowing through the AFM. The T HA circuit is just a temperature sensitive resistor in series with a fixed resistor R inside the ECU and the ECU "sees" the voltage across T HA to ground and uses this to determine the temperature of the intake air, which affects its density. And since the density of the air affects how far the AFM sensing vane is pushed open for a given volume of air passing through it, the ECU needs to know both the temperature and the volume or air in order to estimate the mass or weight of air or oxygen coming into the engine. And finally, the F C and E 1 contacts, which you will note do not connect to the ECU, are used to keep the Circuit Opening Relay energized which in turn keeps the fuel pump running as long as air is passing through the AFM. So this is a safety feature or sorts. If the engine stops, say in a traffic accident, the fuel pump is shut off to minimize the chance of high pressure fuel leaks and fire. Also, if you were to run out of gas, the engine would of course stop and thus the fuel pump would also be stopped and this can help prevent damage to the pump as it is both cooled and lubricated by the fuel it is pumping. If the pump were to keep running, it would likely be damaged in short order. Note, the schematic diagram below is somewhat generic in that the exact connections to the ECU may not match any given wiring diagram. So you should go by the FSM wiring diagram for your specific vehicle for exact connections. So now that you know how the AFM is supposed to work, on to the actual device testing procedure The AFM is not really designed to be adjusted, so it either works or doesn't work outside of some folks adjusting the tension of the internal spring to vary the AFM calibration. And to see why this is so, look at the Theory of Operation section above Then if the above tests are OK, then you can test the actual operation of the air flow sensing

portion of the AFM:. One critical item that is often overlooked as a cause of problems is the intake plumbing between the AFM and the throttle body. In stock form, there is usually 2 rubber bellows flexible sections and at least one length of rigid plastic tubing. Any air leak in this part will lead to a poor running engine at best and one that won't start at all at the worst. Also, inspect the plastic tubing for cracks and holes. If extra air happens to leak in through a crack that intake can be under a partial vacuum when the engine is running then there is more air than the ECU "knows" about and the mixture will be too lean and bang! Since the AFM has two basic functions, that of measuring air flow as well as turning on the fuel pump, problems can arise in these two areas. Without the fuel pump running, the engine will cut out and die from lack of fuel. If this happens, check the E1-Fc connection. If the engine runs overly rich or lean, especially at full throttle, the AFM could be the cause, if its telling the ECU that extra air is present that isn't , the ECU running on open loop mode at full throttle would increase the fuel injected into the cylinder, causing the rich condition. Likewise, a too-low air flow reading my result in lean operation. This is how you know our name. When the available parts don't meet his strict standards, he has them manufactured to his specs. These aren't the off-the-shelf engines you get from chain store rebuilders. These aren't the sloppily built "insert three-letter named company" long blocks engines using inferior parts. We aren't an assembly line builder using parts from the lowest bidder assembled by a person staring at a clock waiting for their shift to end. Jim builds engines specific for each customer, so we do not have engines on a shelf ready to ship. Quality engine building takes time. All the under-hood stuff you'll need. We sell mostly factory OE parts direct from the manufacturer. In some cases, when they are not available, we've made it ourselves. Under hood maintenance parts and plenty of other goodies. One of the coolest features of Baja Designs lights are how easy they are to customize. Any of the above combos can be turned into an amber with a snap on rock guard or replace the original lens with a full amber lens. The lenses are sealed with an o-ring not siliconed sealed like the junk variety which makes lens swapping a piece of cake. Oh, and backed by a lifetime warranty. They engineered the parts the way they did for longevity and strength. Click around, buy some parts. I dare you. LED for those that want the best. Time for the good stuff. Forums New posts Search forums. Media New media New comments Search media. Russia- Land-Cruiser. Calendar New events. Resources Latest reviews Search resources. Log in Register. Search titles only. Word Count:. New posts. Search forums. Log in. Install the app. Change style. Contact us. Close Menu. JavaScript is disabled. For a better experience, please enable JavaScript in your browser before proceeding. You are using an out of date browser. It may not display this or other websites correctly. You should upgrade or use an alternative browser. Thread starter onewhippedpuppy Start date Apr 23, Watchers 4. In the world of older sports cars it's a rather popular trick. Has it been done on a 3FE? Just picture it for a minute, the air essentially has to "force" it's way past the AFM to reach the intake. Contrast that with a hot-wire MAF, which is essentially an open tube with a small probe inserted into the airflow. For a data point, I have a Porsche background. On the much less powerful NA I think it's worth There's also an MPG gain as well. I like the sound of this. I'm still amazed you can go from sports cars to this and not be bemoaning the lack of power. That still would be a feasible option, it would just require a little tuning. Going slow can be fun too. My days of sports coupes ended when I had kids. I forgot to post the link, universal kits are here: Split Second. Joined Aug 25, Messages 1, Location Trying to stack dimes. What about the PSC on that site. It looks as if it would be easy to install and easy to get going The PSC01 still requires tuning via laptop. That's why their kits include a meter to read AFR. Some of the vehicle-specific kits from other vendors include an ECU chip that accounts for the differences between the AFM signal and the MAF, so there's no tuning required. I'd just be very curious if the 3FE benefits enough from the upgrade to make it worth the money. Joined Jan 6, Messages 15, Location so. Subscribed Im interested in the outcome of this one. Joined Mar 27, Messages 12, Location Somewhere in the foothills Simon and a few others did some research and were a bit discouraged but there were a few possibilities they still needed to explore. As I recall, there was a voltage conversion issue that nobody felt comfortable with trying to hack. Thanks Beowulf! The only datapoint is a conversion on a 22RE that the owner seems happy with, only verified via butt dyno. VAFM restriction. So, from the effort I've read about thus far on Mud, it appears that the biggest issue is trying to plug and play. The biggest question is in regards to the potential benefits. RockDoc I'll take Bruce Vilanch for the block. I need to take a look through the cited threads, but a quick question. RockDoc said:. Probably the closest anyone came is using a shopvac to provide a consistent flow then logging the output from both the AFM and MAF. That was the approach used by the Yotatech member on his 22RE conversion. Ideally you would have a flowtube that could provide a constant rate, then log the output for each at a number of data points. Joined Jan 11, Messages 2, Location Melbourne. Bypass and go straight to MAP. Joined Feb 19, Messages

Location ventura,ca. Subscribed, real POWA!? I mean in terms of flow restriction, not calibration. I'm assuming the big benefit you are looking for is improved flow As far as calibration, would the easiest solution not be to run the two in series on the intake or a flow bench and data log them at the same time? I doubt this conversion would result in a noticable gain in the 3FE's stock configuration; after all, it is basically a glorified tractor motor. It does however respond well to forced induction. LC Engineering plays with the 3FE alot if I'm not mistaken; they might have tried this conversion on one of their race motors. If not, then it's probably not a worthwhile venture. You could allways give them a shout before you get too involved, it might save alot of time and hassle. LC Engineering. Last edited: Apr 26, No testing as of yet and hopefully will get busy on it soon. Can't wait for feedback on this one. The 22RE kit yields 12 HP and 23 lb-ft at the wheels on a stock truck per their claim. Last edited: Apr 27, I've noticed several people posting about Split-Second products. It was a very simple learning curve to boot. You must log in or register to reply here. Similar threads E. Missing MAF? Replies 1 Views Jan 20, D0g. SmokingRocks Dec 8, Series Tech 2 3 4. Replies 72 Views 3K. Dec 29, SmokingRocks. New 3FE Owner. Hally Nov 2, Series Tech. Replies 5 Views Nov 3, Hally. Jack Metal Dec 25, Series Tech. Replies 16 Views 1K. Jan 6, Jack Metal. CarolinaCrusier Aug 16, Series Tech 2. Replies 20 Views 1K. Oct 8, kw90surf. Users who are viewing this thread. Log in Your username or email address. This site uses cookies to help personalise content, tailor your experience and to keep you logged in if you register. By continuing to use this site, you are consenting to our use of cookies. Accept Learn moreâ€¦. Top Bottom. There are cores needed when performaing this swap to build your harness: List of Cores Needed. Following is a list of parts needed for the ORS fuel injection conversion on a 22R engine. These parts must be used in conjunction with the ORS wiring harness to complete your conversion. These parts must be removed from a pickup or a 4Runner equipped with a 22RE engine. We highly recommend that all these parts are removed from the same vehicle. Following is a list of parts that we recommend replacing when doing this conversion. These parts are available through ORS or a local parts store. The ORS fuel injection conversion harness is installed after all conversion parts are installed on the vehicle. Locate the wiring harness that connects to the newer alternator. This will be the battery harness on 5VZ and 3RZ applications. Connect this harness to the alternator. There are cores needed when performaing this swap to build your harness: List of Cores Needed Following is a list of parts needed for the ORS fuel injection conversion on a 22R engine. Exhaust manifold gasket Intake manifold gasket Fuel filter 2 high pressure fuel hoses Injector o-rings Fuel line gaskets Throttle body coolant hoses Plugs, wires, cap and rotor different than carbureted Any PCV or vacuum hoses in poor shape Circuit opening relay Any radiator hose or drivebelts in poor shape The ORS fuel injection conversion harness is installed after all conversion parts are installed on the vehicle. Read all instructions before beginning installation. Connect the 2 large yellow connectors on the ORS conversion harness to the matching plugs on the engine harness near the ECU. Connect the remaining yellow connector to the ECU. Securely mount the relays in a safe location. Route the harness lead containing the check engine light toward the driver side of the vehicle. Mount the check engine light. Connect the brake light switch signal to the switching side of the brake light circuit. This is the side provides 12V only when the brake pedal is depressed. The brake signal is not required but recommended. Connect the speed sensor lead to a 1-wire speed sensor signal. This will be the wire that powers the speed sensor into the speedometer. The speed sensor signal is not required but recommended. Connect the ground lead to a good chassis ground. Remove the fuses. Connect the lead to the battery positive terminal. This is the aluminum resistor on the passenger-side fender-well. Route the fuel pump leads to the fuel pump. Connect the positive and negative leads. Do not connect backwards. Route the remaining leads to the driver side fender area. Place electrical tape over the face of these connectors and secure them to the harness using wire ties. Be

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wiring diagram 2000 jeep cherokee

sure that all connections are secure and all wires are routed properly and securely. Be sure that wires are not in danger of heat, exhaust, or sharp edges. Install the 3 fuses in their respective fuse holders. The wiring part of your conversion is complete! This is normally in the passenger side kick-panel. Disconnect and discard this computer. Locate the following wires in the connector to the Emission Control Computer. Cut the wire from the connector and directly splice to the wire lead in the ORS harness according to the chart below. Connect this harness to the alternator and route this harness if necessary to the driver side fender-well area. Find the original external alternator voltage regulator IC Regulator on the driver side inner fender-well

area. Remove the regulator. The following steps refer to the remaining regulator connector. This provides a ground signal for a lamp in case of alternator failure. Large white cable: main alternator cable. Off Road Solutions. Search for:.