# Toyota 3mz fe

The Toyota MZ engine family is a piston V6 engine series. The cylinders are lined with cast iron, and is of a closed deck design no open space between the bores. The engine is a 60 degree V6 design. It uses multi-port fuel injection MFI , four valves per cylinder , a one-piece cast camshaft and a cast aluminium intake manifold. The MZ family is a lightweight V6 engine of an all-aluminium design, using lighter weight parts than the heavier duty VZ block engines in an effort to lower production costs, decrease engine weight, and decrease reciprocating weight without sacrificing reliability. The result was less cylinder distortion coupled with the decreased weight of rotating assemblies, smoother operation at that engine speed, and increased engine efficiency. This engine has been phased out in most markets, replaced by variants of the new GR series. The 1MZ-FE is a 3. Bore and stroke is Horsepower ratings dropped after the Society of Automotive Engineers implemented a new power measurement system for vehicle engines, Toyota engines rated on 87 octane dropped the most, compared to the same engines used by Lexus rated on 91 octane. These engines are prone to oil gelling. Another name for the issue was "engine sludge". The 2MZ-FE is a 2. The 3MZ-FE is a 3. The 3MZ uses a new flat-type knock sensor, which is a departure from the typical resonator type knock sensor used on the previous MZs. The new flat-type knock sensor is a completely different design and detects more frequencies than the traditional resonator type. This provides the ECU with more accurate data. A bolt goes through the center of the knock sensor, which then mates the sensor to the block on each bank. From Wikipedia, the free encyclopedia. This article needs additional citations for verification. Please help improve this article by adding citations to reliable sources. Unsourced material may be challenged and removed. Motor vehicle engine. Consumers Reports. Consumers union. February Retrieved September 12, Wards Intelligence. Jan Categories : Toyota engines V6 engines Gasoline engines by model. Hidden categories: Articles needing additional references from October All articles needing additional references Articles with short description Short description is different from Wikidata All articles with unsourced statements Articles with unsourced statements from May Commons category link is on Wikidata. Namespaces Article Talk. Views Read Edit View history. Help Learn to edit Community portal Recent changes Upload file. Download as PDF Printable version. Wikimedia Commons. Toyota Motor Corporation. DOHC 4 valves x cyl. TRD kit in some versions. Multi-port fuel injection. Wikimedia Commons has media related to Toyota MZ engines. Compression ratio rating is From the front of the RH bank cylinders are numbered 1â€"3â€"5, and from the front of the LH bank cylinders are numbered 2â€"4â€"6. The engine has press-fitted cast-iron cylinder liners. The crankshaft is supported by 4 bearings and integrated with 9 semi counterweights for balance. Oil holes are placed in the center of the crankshaft for supply oil to the connecting rods, bearings, pistons and other components. Pistons are made of high temperature-resistant aluminum alloy. Piston pins are the full-floating type. The cylinder bore is The cylinder head is made of aluminum alloy, with a cross-flow type intake and exhaust layout and with pent-roof type combustion chambers. The spark plugs are located in the center of the combustion chambers. The exhaust camshafts are driven by a single timing belt, and a gear on the exhaust camshaft engages with a gear on the intake camshaft to drive it. The camshaft journal is supported at 5 places between the valve lifters of each cylinder and on the front end of the cylinder head. Exhaust and intake valves are equipped with irregular pitch springs made of special valve spring carbon steel which are capable of following the cam profile at all engine speeds. The intake valve diameter is Adjustment of the valve clearance is done by means of an outer shim type system, in which valve adjusting shims are located above the valve lifters. This permits replacement of the shims without removal of the camshafts. Calculate the thickness of new adjusting valve shim so valve clearance comes within specified values. Valve shims are available in 17 sizes to range from 2. We try to use verified sources and official documentation, however, differences between sources or errors in entering information may occur. We do not provide advice on technical issues related to the engines operation or repair. We do not recommend using provided information for engines repairing engines or spare parts ordering use only official service manuals and spare-parts catalogs. My Engine smokes with blue white when I start it in the morning or driven and packed for a while and clears, also shorts oil. What could be the cause? Necessary cookies are absolutely essential for the website to function properly. This category only includes cookies that ensures basic functionalities and security features of the website. These cookies do not store any personal information. Contact As: Dear visitors, this site is not a trading platform, an official dealer or a spare parts supplier, so we do not have any price lists or spare parts catalogs. We are an information portal and provide the technical specifications of gasoline and diesel engines. Leave a Reply Cancel reply Your email address will not be published. This website uses cookies to improve your experience. 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The crankshaft resembles an inline 6 cylinder except that there are only 4 main bearings like most other V6 engines a modern V8 has 5 main bearings, a modern I-6 has 7. Shown is the older but similar Toyota 3VZ crankshaft; click for a larger view. The nominal journal overlap is Some major components block, crankshaft, bearings, 6 bolt main caps, cam drive system, oil pump appear strong enough to withstand perhaps hp and 7, RPM without modification. However, the cast pistons, connecting rods, valve springs, will need replacement. This will be very expensive since the engine has 6 rod journals, vs. In my opinion this is not a practical field of endeavor. The connecting rods are not as robust as we may wish, but substitution of a rod from another engine is limited by the large journal size. The later 3RZ rod appears to be the same but mm long. The 22R rod is too wide across the big end at 22mm. Shown, above right, is a stock 22R rod which is available new and used. In my opinion, the stock 22R rod rebuilt with ARP bolts is strong enough for all but the most severe use. Click the picture for a larger view. Various aftermarket suppliers including Eagle, Pauter, Crower etc. Among the claims:. Sure - if the airflow volume is lowered by reducing the X-section area with those cute little vanes , producing more velocity, but this reduces peak power. Whitney sold one to your great-grandfather 75 years ago Really - how does air break up? Yes it does, but this violates the first rule of port efficiency: no turbulence - as close to laminar as possible. The air does something quite different as it passes through the valve seat in any case. Please note: no patent is claimed. Why is that? It would work exactly as well i. For example: if the entry is 70mm to match the TB, the radius should be at least The tube and the entire tract must have a smooth interior wall - the bendible, conformable flex tubes are completely worthless - the spiral or corrugated inner wall drastically reduces air-flow. Substitution of a larger 75mm TB, widely touted as a power mod, reduces the loss to. That change may provide the bulk of any power increase seen at higher RPMs. The effect on the resonating system must be considered for any TB change on a plenum type intake. Please note: do not use these pressure drops to determine carburetor size, where losses below. Click here for comments on modifying older conventional TB linkage for better control:. Here are some TB diameters vs. With the original drive pulley size, it produced 5 psi in the 3. If the drive ratio is increased to 2, It has been discontinued and is now hard to find. Click on the picture for a larger view; click here for the Solaraguy. Gear ratios. It is readily apparent from the table that the nominal top speed of mph is limited by engine power, not by RPM. At Mph the engine is only turning about 4, RPM and in fact the top speed might actually be increased by raising the axle ratio from 3. Engines built for increased power with radical cams suffer from reduced low speed power, and a converter with increased stall speed allows the engine to spin faster for a better launch. The increase can be done by either changing the angle, diameter or pattern of the fins, or reducing the diameter of the shell outer body , or any combination of these. There is a practical limit to this, since all FWD cars have weight transfer from the drive wheels on launch - if you have too much power or too much stall speed, you simply spin the tires. In addition to the 1st gear torque multiplication, the torque converter also multiplies engine torque by perhaps a factor of 1. This gives a brief but effective overall 1st gear ratio of about The UE works well with the stock engine, but needs some modification when the engine is supercharged. Harley-Davidson Tech Papers. It was a 3. Both engines have the same architecture and design features. The 3MZ differs mainly by its 3. Like the 1MZ, the Toyota 3. It has the press-fitted cast-iron cylinder liners as well. The 3MZ-FE was equipped with a forged steel crankshaft with four main journals, forged connecting rods, and aluminum alloy pistons with a resin coating on the piston skirts for friction reduction. The engine kept the The 3MZ engine has aluminum cylinder heads with four valves per cylinders and belt-driven double overhead camshafts. The engine uses a timing belt to drive the exhaust camshafts only and those, in turn, rotate the intake camshafts through gears. Toyota's 3. Hydraulic lifters for the intake and exhaust valves are not provided. Valve clearance needs checking and adjustment every k miles , km. The 3MZ-FE got sequential multi-point fuel injection system, which uses hole fuel injectors. The intake manifold is made from plastic, compared to aluminum alloy for the 1MZ. In addition to ACIS, the air cleaner intake is divided into two areas controlled by a

two-stage air intake control system. The exhaust system includes stainless steel exhaust manifolds and no EGR. The production of the 3MZ-FE was discontinued in At this point, it was already replaced by a new 3. The engine is no longer new and almost all have a lot of wear. A typical high-mileage 3MZ-FE engine often has increased oil consumption, and new ones are no longer produced. A damaged cylinder block is not rebuildable and needs a full replacement while finding a used 3MZ engine in the acceptable condition is not so simple. With a broken timing belt, th

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e 3MZ engine bends valves causing severe damages to cylinder heads and pistons. Also, it is afraid of overheating and is very prone to the formation of sludge on inside walls, as well as carbon deposits inside intake ports. VVT-i actuator valve is not very durable. Problems with the VVT-i system are indicated in rough engine operation and twitching acceleration. But there are positive moments too. New knock sensors finally solved the problem with their failures, which often happened with the 1MZ-FE engine. With regular use and timely maintenance, the engine has enough longevity that not rare exceeds k mileage , km , which is not bad at all. Engine Specs Manufacturer. Production years. Cylinder block material. Cylinder head material. Fuel type. Number of cylinders. Valves per cylinder. Valvetrain layout. Bore, mm. Displacement, cc. Type of internal combustion engine. Compression Ratio. Torque, lb ft. Firing order. Engine oil weight. Engine oil capacity, liter. Oil change interval, mile.