

3zz engine repair manual

Toyota 1zz-fe, 3zz-fe Engine Service Repair Manual



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PREPARATION SERVICE SPECIFICATIONS DIAGNOSTICS ENGINE MECHANICAL EMISSION
CONTROL ELECTRONIC FUEL INJECTION COOLING LUBRICATION IGNITION STARTING
CHARGING ALPHABETICAL INDEX ----- Model Specification: TOYOTA 1ZZ-FE, 3ZZ-FE
ENGINE LANGUAGE: English FORMAT: PDF Requirements: Adobe PDF Reader & WinZip. ZOOM
IN/OUT: YES Downloadable: YES COMPATIBLE: All Versions of Windows & Mac ----- WITH
THIS MANUAL, YOU MAY MAINTAIN, SERVICE, DIAGNOSE AND REPAIR YOUR OWN. WITH STEP
BY STEP INSTRUCTION & HIGHLY DETAILED EXPLODED PICTURES & DIAGRAMS TO SHOW YOU
HOW TO COMPLETE THE REQUIRED JOB CORRECTLY & EFFICIENTLY. ALL REPAIR
PROCEDURES ARE COVERED. IT'S THE SAME TYPE OF MANUAL THAT YOUR LOCAL
DEALER/MECHANIC WOULD USE. ALL MANUALS ARE WINDOWS VISTA/32 AND 64, XP, ME, 98,
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We are always happy to welcome those who wish to educate themselves, save their time and money with useful information about your car. Search, download for free and learn all about the repair of your car with Cardign.com. Toyota 1ZZFE, 3ZZFE Engine Repair Manual RM923E This manual is made in accordance with SAE J2008. The 1ZZFE is a 1.8 L 1794 cc, 225 lb version built in Buffalo, West Virginia. Its production in Cambridge, Ontario was discontinued in December 2007. The bolt-on TRD supercharger kit can also run on other vehicles with the non VVTi or VVTi versions of the 1ZZFE. Custom fabrications are needed for those vehicles. The issue involves the engine control module, and includes the potential for it to develop a crack on the module's circuit board, which can result in the car not starting, the transmission shifting harshly, or the engine stalling. Additionally, Pontiac announced a voluntary recall of Pontiac Vibes from years 2005 to 2008 for the same issue. 3ZZFE The 3ZZFE is a 1.6 L 1598 cc engine unit built in Japan. It is found in the Toyota Corolla Altis which is sold in Asian countries such as Singapore, Malaysia, Philippines, Thailand, Pakistan as SE Saloon and Taiwan; and in the Toyota Corolla sedan sold in Sri Lanka. In South Africa, the motor can be found in the RunX 160 and Corolla 160. We are always happy to welcome those who wish to educate themselves, save their time and money with useful information about your car. Model 2000. Category, Installation Manual. Accessory. here is the site I think can help you regarding the user manual. Toyota manual 5 speed transmission 3030013070 from the C50 gearbox family. Post subject Toyota Engine 3ZZFE OEM Manual. Service Repair Manual. Year, 2002-2007. Engine code, 3ZZFE. Engine size, 1598ccm. Toyota Corolla 1.4 4ZZFE SB1KM28E Hatchback 5Speed Manual 112001 062007. Toyota Corolla 1.6 3ZZFE JTDKZ20E Hatchback 5Speed Manual. Buy TOYOTA COROLLA VERSO OWNERS MANUAL HANDBOOK 2004 2009 1.6 LITRE 3ZZFE ENGINE
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8 LITRE 1ZZFE 2.0 LITRE 1CDFTV DIESEL. Toyota 1ZZFE, 3ZZFE Engine Repair Manual. Front Cover. Toyota Motor Corporation, 2001 Toyota Corolla automobile. Edition details. Check copyright status; Cite this. Title. Toyota 1ZZFE, 3ZZFE engine repair manual. Other Authors. Toyota Jidosha Kabushiki Kaisha. Published. Messages 7,029. Likes Received 262. If you download this document, you will be lost 200 Gallons. Toyota Engine 3ZZFE Repair Manual. TOYOTA RUNX 1.6 VVTi 3ZZFE genuine car spare parts and. Inside the pdf you will find. Senores les traigo para ustedes el manual de taller y desarme del corolla 1.6 16v VVTi motor 3ZZFE. Start downloading toyota. Toyota Motor 1ZZFE, 2ZZGE, 3ZZFE. Para anunciar sobre motor toyota 3zz fe haga clic en publicar anuncios. Read and Download PDF Ebook 3zz fe engine repair manual at Online Ebook Library. Get 3zz fe engine repair manual PDF file for free from our online library. Loading toyota 1zz fe 3zz fe engine service repair manual.pdf. No preview available for this type of file. Shop for Books on Google Play. Browse the world's largest e. Bookstore and start reading. Toyota Avensis Engines Repair Manual 2AZFE, 1AZFSE, 1AZFE, 1ZZFE, 3ZZFE, 1CDFTV. Toyota Corolla 1300 KE55 1978 1981 Gregory's Service Repair Manual. Reload to refresh your session. Reload to refresh your session. Login or Create an Account Corolla, Toyota Corolla Altis,. If you would like to make a purchase today, add items to your shopping cart. Corolla, Toyota Corolla Altis, RunX, Avensis. Download digital on PDF Introduction Emission Control It is found in the Toyota Corolla Altis which is sold in Asian countries

such as Singapore, Malaysia, Philippines, Thailand, Pakistan as SE Saloon and Taiwan; and in the Toyota Corolla sedan sold in Sri Lanka. In South Africa, the motor can be found in the RunX 160 and Corolla 160. The Toyota Corolla try a line of subcompact and lightweight vehicles made by Toyota. <http://fenixfalt.com/userfiles/dcr-sr47-manual.xml>

Introduced in 1966, the Corolla was the bestselling car all over the world by 1974 and it has already been one of many bestselling vehicles on the planet since that time. In 1997, the Corolla became a attempting to sell nameplate in the field, surpassing the Volkswagen Beetle. Toyota achieved the milestone of 44 million Corollas offered over twelve generations in 2016. The show has encountered a number of significant redesigns. The Corolla is without question unique in Japan to Toyota Corolla Store places, and stated in Japan with a twin, labeled as the Toyota Sprinter until 2000. From 2006 to 2018 in Japan and far of the world, and because 2018 in Taiwan, the hatchback companion is labeled as the Toyota Auris. Early products are mostly rearwheel drive, while later systems were frontwheel drive. Fourwheel push models are also produced. The Corollas traditional rivals were the Nissan Sunny, launched similar season due to the fact Corolla in Japan plus the subsequent Honda Civic and Mitsubishi Lancer. In Japan, the Corolla has long been exclusive towards Japanese retail business chain known as Toyota Corolla Store, that was formerly established in 1961, known as Toyota people shop, promoting the Toyota Publica. A badge engineered version known as the Sprinter is launched across the same time once the Corolla in Japan, and offered through another Toyota Japan dealership marketing station recognized since 1966 as Toyota automobile Store. There were several systems over time, like the Corolla Ceres and close Sprinter Marino hardtop, Corolla Levin and Sprinter Trueno activities coups and hatchbacks, as well as the Corolla FX hatchback, which became the Corolla RunX, as the Sprinter became the Alex, using the introduction associated with ZZE128 Corolla. The RunX and Alex is changed because of the Auris in 2006 known just as Corolla in areas outside Japan, Europe and South Africa.

A luxury form of the Auris setup with V6 motors is shortly marketed at Japanese Toyota dealerships Toyota shop and Toyopet shop areas once the knife, which was discontinued in 2012. A concise MPV called the Corolla Verso has additionally been released in European markets. Its Japanese equivalent could be the Corolla Spacio, that has been discontinued since the tenth generation. The Corolla Rumion can be marketed when you look at the USmarket while the Scion xB. Toyota usually combines the sales numbers associated with the Corolla sedan and Matrix. The Pontiac Vibe, which is the General Motors badged type of the Matrix, shares the Corolla system. The Pontiac Vibe was shipped from Fremont, California, towards the Japanese marketplace in which it was marketed whilst the Toyota Voltz. Over several years, there were rebadged models regarding the Corolla, offered by General Motors, such as the Holden Nova in Australia during early 1990s, plus the Sprinterbased Chevrolet Nova, Chevrolet Prizm, and Geo Prizm in america. The Corolla liftback TE72 of Toyota Australian Continent is badged as simply the T18. The fivedoor liftback is marketed utilizing the Corolla Seca name in Australia while the nameplate survived on consecutive fivedoor designs. The Daihatsu Charmant ended up being created from the E30 towards the E70 series. The Tercel was a front wheel drive car, initially launched in 1980 at Japanese Toyota dealerships known as Toyota Corolla Store, and was called the Corolla Tercel then, and later offered its very own title in 1984. The Tercel system has also been used for the Corolla II hatchback in Japan. In Japan, this show appeared towards the markets in August 2000; but exports had been typically maybe not reached until 2001 and 2002 with respect to the marketplace. The sedan and place wagon appeared firstin August 2000, followed by the fivedoor hatchback in January 2001, and Europeonly threedoor hatchback in 2002.

Toyota supplemented the original styling with an edgier, hatchbackonly styling cures from 2002. Sedans and wagons marketed in Japan followed an innovative new frontend design in 2004, although this variation did not usually attain export areas. In other Asian areas additionally the Americas, the

ninth generation Corolla sedan and wagon best had unique front side and back styling therapy with moderate news within the designs production run. It really is built on a shortened Vista V50 platform the Vista becoming a midsized, in the place of a concise vehicles. This is among Toyotas more flexible and a lot of preferred brands ever before produced. The Corolla has also produced another multipurpose car, the Matrix E130, marketed in Canada, Mexico as well as the united states of america, which types the foundation of Pontiac Vibe, which was consequently marketed in Japan once the Toyota Voltz. The E120 series was changed by the E140 or E150 show in late 2006 or early 2007 nevertheless E120 continued to be stated in China until 2017. The Japanese markets, trim values for the Corolla Sedan had been X Assista Package Base, X, grams, and Luxel. In 2003, 1.5liter 4WD sedans were provided in the Japanese markets. The facility wagon design is called the Corolla Fielder in Japan as well as the fivedoor hatch is known as the Corolla RunX, establishing in 2001. The Toyota Alex try a fivedoor hatchback that replaced the Sprinter sedan, a badge engineered type of the Corolla RunX. The Alex ended up being unique to Toyota Vista shop locations, and marketed next to the will most likely VS, even though the Corolla RunX is exclusive to Toyota Corolla Store areas. Internal fabric patterns also differed through the RunX. These products provided a supplementary 4 speed tiptronic automated or 6 speed guide transmission, opposing other lineup. The Corolla Spacio Verso in European countries shifted into the new system, with later products adding a third row of folddown sitting in the back.

The Corolla sedan sold in Japan additionally differed slightly than one other areas with a somewhat various headlamp and taillamp design. The E120 Corolla sold in Australia had been readily available as a sedan, truck and fivedoor hatchback Seca. Trim values supplied are the Ascent, Ascent recreation, Conquest, Levin, and Ultima. A small number of products had been built in Southern Africa, utilizing the superior Sportivo hatchback only built exclusively in South Africa. South Africanbuilt Corollas will bring an automobile recognition quantity starting with A; Japanesemade examples need a VIN you start with J. The Sportivo had been powered by the 2ZZGE engine and a sixspeed manual gearbox, although the various other versions had the 1ZZFE. The Sportivo ended up being discontinued in Australian Continent from 2006 as a result of prohibitive outlay associated with changing the motor to adhere to Euro IV emissions. 20032004 Corolla Sportivo 5door Australia All of those other brands had their particular system energy and torque reduced with October 2005 production from 100 to 93 kW 134 to 125 hp and from 171 to 161 Nm 126 to 119 lbft to adhere to Euro IV. From May 2006, the Ascent and Ascent recreation brands had been enhanced with standard front power microsoft windows and passenger atmosphere bag, while the Conquest designs had ABS as standard. The gear improvements were not put on the truck, which stopped manufacturing in August 2006. An upmarket version of the ninth generation Corolla, dubbed the Corolla Altis, is manufactured and marketed in region eg Asia, Indonesia, Malaysia, Pakistan, the Philippines, Singapore, Taiwan and Thailand. They debuted in middle 2001 as a more impressive plus luxurious variant for the Japanese Corolla, featuring special inside and exterior panels that separates them from the standard Corolla.

The Corolla Altis try targeted at consumers which favor even more comfort versus standard Corolla but do not wish to choose the even more luxurious Camry. Two variations of engines can be found the 81 kW 110 bhp, 1.6 L 3ZZFE motor and 100 kW 134 bhp, 1.8 L 1ZZFE system, both with VVTi tech. In 2004, the Corolla Altis got their earliest facelift. Adjustment feature a unique grille build, a sleeker front side bumper, redesigned fog lamps, latest Lightemitting Diode end lights, various alloy rims and lesser interior updates automobile environment controls became a standard feature in budget variants. Two years later on, to keep up along with its newer rivals, the Corolla Altis obtained their 2nd facelift. Outside adjustment add another redesigned grille, redesigned chrome rear permit dish ornament, a fresh third LED braking system light, and brandnew sound switches in the controls. A fresh aerokit and brand new wing mirrors with alert indicators similar to the 2007 Camry can be acquired as an optional package in Malaysia. A decreased end variation of Corolla Altis is also

labeled whilst the Toyota Limo, featuring reduced spec and intended for taxi business in Thailand. It is really not is confused with the low end taxi version of the Toyota Vios that will be also known as Toyota Limo in Indonesia. In Malaysia, the Corolla Altis is launched in late 2002. Particularly in Malaysia the brands offered had end lights being just like the designs which are marketed outside Asia and Southeast Asia. They features threeround insets for end lights rather than the standard single round inset found in more Asian markets. They certainly were later changed with the standard solitary round insets. Both the 1.6 L and 1.8 L versions had been offered in Malaysia. In Singapore, Toyotas exclusive authorised dealership Borneo engines originally sold the Japanese type of the Corolla, but later changed they using Corolla Altis in 2004 with 1.6L and 1.

8L variants in automated transmissions only. The 1.8L model offered optitron screen the speedometer clusters, rain sensors and a zigzag automated gearshift design over the 1.6L design. In terms of item lifespan production lasted for seven years and number of products marketed, the Corolla Altis easily outlived their Corolla predecessors, rendering it the hottest Corolla generation in Southeast Asia. The ninth generation Corolla had been marketed in Asia once the Corolla EX through Tianjin FAW Toyota Motor Co. Ltd. alongside the newer tenthgeneration Corolla. It was also called the Hua Guan that will be a direct interpretation of Corolla top of this flower in Mandarin Chinese. The quality and Elegance versions had been supplied with a 5speed guide or a 4speed automatic gearbox even though the benefits version was only obtainable in handbook transmission. The Corolla EX ended up being running on a 1ZRFE double VVTi motor. An electric variation is produced labeled as the Ranz EV because of the automative marque labeled as Ranz which was possessed by Sichuan FAW Toyota engine. The production of the Corolla EX commenced in February 2004 and finished on 17 February 2017 after a 13year run. Exec Time 0.040912 Seconds. Memory Usage 1.953049 Megabytes. Some features of WorldCat will not be available. By continuing to use the site, you are agreeing to OCLC's placement of cookies on your device. Find out more here. Numerous and frequentlyupdated resource results are available from this WorldCat.org search. OCLC's WebJunction has pulled together information and resources to assist library staff as they consider how to handle coronavirus issues in their communities. However, formatting rules can vary widely between applications and fields of interest or study. The specific requirements or preferences of your reviewing publisher, classroom teacher, institution or organization should be applied. Please enter recipient email addresses. Please reenter recipient email addresses.

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around and also cause damage to your customer's vehicle.

In order to prevent dangerous operation and damages to your customer's vehicle, be sure to follow the instruction shown below. **S** Must read this manual thoroughly. It is especially important to have a good understanding of all the contents written in the PRECAUTION of "IN" section. **S** The service method written in this manual is very effective to perform repair and service. When performing the operations following the procedures using this manual, be sure to use tools specified and recommended. If using non specified or recommended tools and service method, be sure to confirm safety of the technicians and any possibility of causing personal injury or damage to the customer's vehicle before starting the operation. **S** If part replacement is necessary, must replace the part with the same part number or equivalent part. Do not replace it with inferior quality. **S** It is important to note that this manual contains various "Cautions" and "Notices" that must be carefully observed in order to reduce the risk of personal injury during service or repair, or the possibility that improper service or repair may damage the vehicle or render it unsafe. It is also important to understand that these "Cautions" and "Notices" are not exhaustive, because it is important to warn of all the possible hazardous consequences that might result from failure to follow these instructions. Generally repair operations can be separated in the following 3 main processes 1. Diagnosis 2. Removing and Installing, Replacing, Disassembling, Installing and Checking, Adjusting 3. Final Inspection This manual explains "Removing and Installing, Replacing, Disassembling, Installing and Checking, Adjusting", but "Final Inspection" is omitted. The following essential operations are not written in this manual, however these operations must be done in the practical situation.

1 Operation with a jack or lift 2 Cleaning of a removed part when necessary 3 Visual check INDEX An alphabetical INDEX is provided as a section on the end of the book to guide you to the item to be repaired. PREPARATION Use of special service tools SST and special service materials SSM may be required, depending on the repairing condition. Be sure to use SST and SSM when they are required and follow the working procedure properly. A list of SST and SSM is in the Preparation section of this manual. REPAIR PROCEDURES Component drawing is placed as the section or title when necessary. Illustrations of the parts catalog are placed as the "disassembled parts drawing" so that it enables you to understand the fitting condition of the components. Nonreusable parts, grease applied parts, precoated parts and tightening torque are specified in the components drawing. NOTICE There are cases where such information can only be indicated by an illustration. In that case, all the information such as torque, oil, etc. In the explanations, details of the operational method, standard value and notice are placed. g There may be a case where the illustrations of similar models are used. In that case the details may be different from the actual vehicle. h The procedures are presented in a stepbystep format 1 The illustration shows what to do and where to do it. 2 The task heading tells what to do. 3 The detailed text tells how to perform the task and gives other information such as specifications and warnings. Example Illustration what to do and where Task heading what to do A59974 HINT This format provides an experienced technician with a FAST TRACK to the necessary information. The task heading can be read at a glance when necessary, and the text below provides detailed information. Important specifications and warnings always stand out in bold type. 5. a SERVICE SPECIFICATIONS Specifications are presented in bold type throughout the manual.

You never have to leave the procedure to look up your specifications. The specifications are also found in the Service Specifications section for a quick reference. 6. TERMS DEFINITION CAUTION NOTICE HINT Indicate the possibility of injury to you or other people. Indicate the possibility of damage to the components being repaired. **S** Remove adequately all sand and mud adhere to the outside of engine. 2 Precaution at reassembly. **S** Protect disassembled parts from dust by using vinyl sheet to cover. TO PREVENT SCRATCHES ON THE PARTS The existence of scratches on the contact and revolving surfaces often causes oil leak and seizure. 1 Precautions at disassembly and

reassembly. S When disassemble the contact surface of the parts, use plastic hammer striking lightly. Do not pry out by screwdriver. S When fix the parts to the vise, do not directly catch it in the vise. Fix the parts through aluminum bar. TO CLEAN AND WASH THE PARTS Each parts needs to be well cleaned, washed, and dried by air, and apply specified oil before reassembly. 1 Cleaning and washing by alkaline solvent is prohibited S Parts made of aluminum and rubber. ex. cylinder head cover gasket etc. 2 Cleaning and washing by flushing oil ex.S Follow the directions when the manual instructs the position and direction. INSTALL ENGINE ASSEMBLY TO OVERHAUL STAND WHEN OVERHAUL THE ENGINE PUT THE DISASSEMBLED PARTS IN ORDER AS THEY DISASSEMBLED APPLY ENGINE OIL TO THE SLIDING AND ROTATING SURFACES NONREUSABLE PARTS SUCH AS GASKET AND SEAL NEEDS TO BE CHANGED TO THE NEW PARTS BASIC REPAIR HINT a Seal Lock Adhesive Z11554 3ZZFE,4ZZFE ENGINE REPAIR MANUAL RM928E Precoated Parts 1 Precoated parts are bolts, nuts, etc.Then apply the specified seal lock adhesive to the bolt, nut or threads. Always use a torque wrench.

d L1 Torque When Using Extension Tool with Torque Wrench 1 In case of tightening by extending the entire length of the torque wrench combined with SST or tool, if you tighten until the reading of the torque wrench reached the specified torque value, the actual torque becomes excessive. 2 In this text, only the specified torque is described. Never use an iron hammer as it may cause spark. Dispose the shop rag separately from any fuel deposit. 11. a b c D01563 Flat Spring Clamp 12. a b c d Clamp Track D25081 3ZZFE,4ZZFE ENGINE REPAIR MANUAL RM928E REMOVAL AND INSTALLATION OF ENGINE INTAKE PARTS If any metal tip is mixed in the inlet pass, that may give a bad effect to the engine and turbo charger. When removing and installing of the inlet system parts, close the opening of the removed inlet system parts and the engine with a clean shop rag or gum tape. When installing the inlet system parts, check that there is no mixing of a metal tip. HANDLING OF HOSE CLAMPS Before removing the hose, check the depth of inserting portion and the clamp position to restore it surely. Change a deformed or dented into a new one. In case of reusing the hose, install the clamp on the hose where it has a clamp track. For a flat spring type clamp, make it adjust by adding force to the arrow mark direction after the installation. Maximum MIC Microphone MIL Malfunction Indicator Lamp MIN. HINT Use the nut with the same number of the nut strength classification or the greater than the bolt strength classification number when tightening parts with a bolt and nut. REMOVE OIL FILLER CAP GASKET a 3. Remove the gasket from the oil filler cap. REMOVE VENTILATION VALVE SUBASSY a 4. Remove the ventilation valve from the cylinder head cover. REMOVE SPARK PLUG a 5. Using a spark plug wrench, remove the 4 spark plugs. REMOVE CYLINDER HEAD COVER SUBASSY a 6. Remove the 9 bolts, 2 seal washer, 2 nuts and cylinder head cover.

SST 09960 10010 09962 01000, 09963 01000 Remove the crankshaft pulley from the crankshaft. SST A62837 9. REMOVE CHAIN TENSIONER ASSY NO.1 a Remove the 2 nuts and chain tensioner. NOTICE Be sure not to revolve the crank shaft without the chain tensioner. IN OR BELT C SUBASSY a b A10076 Remove the 11 bolts and nuts. Remove the timing chain cover by prying the portions between the cylinder head and cylinder block with a screwdriver. NOTICE Be careful not to damage the contact surfaces of the timing chain cover, cylinder head and cylinder block. 11. REMOVE TIMING GEAR COVER OIL SEAL a Using a screwdriver remove the oil seal. A30848 12. REMOVE CRANKSHAFT POSITION SENSOR PLATE NO.1 a 13. Remove the crankshaft position sensor plate from the crankshaft. REMOVE CHAIN TENSIONER SLIPPER a 14. Remove the bolt and chain tensioner slipper. NOTICE S Put shop rag to protect the engine. NOTICE Be careful not to damage the camshaft. A32167 18. Retard Side Path a Advance Side Path Close Open Vinyl Tape Open Close Rubber 3ZZFE,4ZZFE ENGINE REPAIR MANUAL RM928E A62190 INSPECT CAMSHAFT TIMING GEAR ASSY Check the lock of camshaft timing gear. 1 Grip the camshaft with a vice, and confirm the camshaft timing gear is locked. NOTICE Be careful not to damage the camshaft. b Release lock pin. 1 Cover 4 oil paths of cam journal with vinyl tape as shown in the illustration. HINT Two

advance side paths are provided in the groove of the camshaft. A62191 Retard Side Path Advanced Side Path Decompress Hold Pressure A62192 3ZZFE,4ZZFE ENGINE REPAIR MANUAL RM928E 4 Confirm if the camshaft timing gear assembly revolves in the timing advance direction when weakening the air pressure of the timing retard path. HINT The lock pin is released, and camshaft timing gear, revolves in the advance direction. 5 When the camshaft timing gear comes to the most advanced position, take out the air pressure of the timing retard side path, and then, take out that of timing advance side path.

CAUTION Camshaft timing assembly gear occasionally shifts to the retard side abruptly, if the air compression of the advanced side path is released before retard side path. It often causes the breakage of the lock pin. c Check smooth revolution 1 Revolve the camshaft timing gear assembly within the movable range except for the most retarded position several times, and check the smooth revolution. CAUTION Be sure to perform this check by hand, instead of air pressure. d Check the lock in the most retarded position. 1 Confirm that the camshaft timing gear assembly is locked at the most retarded position. 148 ENGINE MECHANICAL 19. CAUTION Be careful not to damage the camshaft. b Cover 4 oil paths of cam journal with vinyl tape as shown in the illustration. Plug one of the path with a rubber piece. c Break through the tapes of the advance side path and the retard side path on the opposite side of the groove. A62191 Retard Side Path Advanced Side Path Decompress Hold Pressure A62192 3ZZFE,4ZZFE ENGINE REPAIR MANUAL RM928E e Confirm if the camshaft timing gear assembly revolves in the timing advance direction when weakening the air pressure of the timing retard path. HINT The lock pin is released, and camshaft timing gear revolves in the advance direction. f When the camshaft timing gear comes to the most advanced position, take out the air pressure of the timing retard side path, and then, takeout that of timing advance side path. CAUTION Camshaft timing gear assembly occasionally shifts to the retard side abruptly, if the air compression of the advanced side path is released before retard side paths. NOTICE S Be sure not to remove the other 4 bolts. S In case of reusing the camshaft timing gear, release the strait pin locking first, and then install the gear. Fringe Bolt Straight Pin A62193 20. a REMOVE VALVE ASSY, CAM TIMING OIL CONTROL Remove the bolt and camshaft timing oil control valve. 21.