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Toyota G series engines are 6-cylinder inline engines. The engines of this series were produced from 1979 to 2006. All engines have the same displacement of 2 liters (1988 cc). The drive of the gas distribution system of all engines of the series was carried out using a timing belt. 1G-EU (1979 – 1988) – the first version of 1G, which appeared on the Toyota Crown, had a compression ratio of 8.8, power 125 hp at 5400 rpm, torque 160 Nm at 4400 rpm. Since 1983, a version has been produced with a compression ratio increased to 9.2 and a power of 130 hp. From 1986, power was reduced to 105 hp at 5400 rpm, torque 146 Nm at 4400 rpm. These engines were installed on Toyota Chaser X60, Cresta X50/X60/X70, Crown S110, Mark 2 X60, Soarer Z10/Z20. 1G-GEU (1983 – 1988) – 1G-EU version with Yamaha 24 valve cylinder head and T-VIS variable geometry intake manifold. Due to these modifications, engine power increased to 160 hp at 6400 rpm, torque 186 Nm at 5200 rpm. Since 1985, the power of the 1G-GEU has been set at around 140 hp. The engine was installed on the following cars: Toyota Chaser X70, Mark 2 X60/X70, Cresta X60/X70, Crown S120, Soarer Z10/Z20, Toyota Supra A70. 1G-GTEU (1986 – 1988) – turbo version of 1G-GEU, compression ratio reduced to 8.5, two CT12 turbochargers installed. At 0.5 bar, the 1G-GTEU produced 185 hp at 6200 rpm and 245 Nm of torque at 3200 rpm. Installed on: Toyota Chaser X70, Mark 2 X70, Cresta X70, Soarer Z20, Toyota Supra A70. 1G-GZEU / GZE (1986 – 1992) – compressor version of 1G-GEU, where the SC-14 compressor was used instead of turbines. At the same time, electronic ignition was used, another piston group for a compression ratio of 8. The power of such a power unit is 160 hp at 6000 rpm, a torque of 210 Nm at 4000 rpm. In 1989, the engine was upgraded and the name changed to 1G-GZE. Boost pressure 0.5 bar, power 170 hp at 6000 rpm, torque 230 Nm at 3600 rpm. Installed on: Toyota Chaser X80, Mark 2 X80, Cresta X80, Crown S130 and Soarer Z20. 1G-GE (1988 – 1993) – upgraded 1G-GEU, mass air flow sensor replaced with an absolute pressure sensor, power reduced to 150 hp at 6200 rpm, torque 186 Nm at 5400 rpm. 1G-GE installed on: Toyota Chaser X80, Mark 2 X80, Cresta X80, Crown S130, Soarer Z20, Supra A70. 1G-GTE (1988 – 1991) – upgraded 1G-GTEU, reinforced crankshaft, changed intake, intercooler, 315 cc injectors, ECU. Boost pressure increased to 0.75 bar. Engine power 210 hp at 6200 rpm, torque 275 Nm at 3800 rpm. There are such motors on the same cars as the 1G-GE, except for the Toyota Crown. 1G-FE (1988 – 2005) – version of 1G-GEU with a different narrow 24 valve cylinder head, designed to replace 1G-EU. Power 135 hp at 5600 rpm, torque 176 Nm at 4400 rpm. Installed on: Toyota Mark 2 X90, Cresta X80/X90, Crown S140, Soarer Z20. Since 1996, there has been a restyling and power has grown to 140 hp at 5750 rpm, a torque of 185 Nm at 4400 rpm. Cars with this engine: Toyota Chaser X100, Mark 2 X100, Cresta X100, Crown S150. In 1998, 1G-FE underwent more serious changes and received the BEAMS prefix. Of the innovations, 1G received a new connecting rod and piston group, a variable valve timing system on the intake shaft, an ACIS variable geometry intake manifold, an electronic throttle valve, the ignition system has undergone changes, and the exhaust manifold has been finalized. There are no hydraulic lifters on the 1G-FE, so the clearances must be checked every 20 thousand km. Brief characteristics of 1G BEAMS: the compression ratio has increased to 10, the power is now 160 hp at 6200 rpm, the torque is 200 Nm at 4400 rpm. Installed 1G-FE BEAMS on: Toyota Mark 2 X100/X110, Chaser X100, Crown S150/S170, Verossa, Altezza, Lexus IS 200. Specifications Manufacturer Shimoyama plant Production years 1979-2006 Cylinder block alloy cast iron Fuel system injector Configuration inline Number of cylinders 6 Valves per cylinder 2/4 Piston stroke, mm 75 Cylinder bore, mm 75 Displacement, cc 1988 Fuel type petrol Euro standards up to Euro 3 Weight, kg 180 (1G-EU, 1G-FE) 190 (1G-GE, 1G-GEU) 215 (1G-GTE, 1G-GTEU) 200 (1G-GZE, 1G-GZEU) Fuel consumption, L/100 km — city — highway — combined 14.0 7.8 9.8 Oil consumption, gr/1000 km up to 1000 Recommended engine oil 0W-30 / 5W-30 / 5W-40 / 10W-30 / 10W-40 / 10W-50 / 15W-50 Engine oil capacity, liter 4.2 Oil change interval, km 7000-10000 Engine lifespan, km from 300,000 to 400,000 depending on modification Frequent problems Fast consumption of engine oil. The reason lies in the sinking of the oil scraper rings, which is very typical for a high-mileage engine. De-carbonization or repair with replacement of piston rings, liners, valve stem seals, oil seals and other parts of the entire set will help. Oil leak. Occurs due to wear of the pressure sensor. You need to buy and install a new one. Oil pressure instability. The problem is with the sensor itself. The pressure needs to be measured and the sensor replaced. Change of turns. It is necessary to check the idle valve, throttle valve and throttle position sensor. If you reinstall the last two, there is a chance that they will not be installed correctly. Even on turbocharged engine modifications, turbochargers do not differ in their long service life. They need to be changed after one hundred thousand kilometers. Also installed is not a very good drive for the oil pump. In general, an engine requires good oil. On modifications of “Beams”, when the timing belt breaks, the valves bend. In general, the motors are good, but time makes itself felt – even the latest FE-models are already quite old and worn out. Author: El Guardiola Doctor of Technical Sciences, former engineer at the Volkswagen plant in Chattanooga, Tennessee (10 years of experience), holder of certificates and patents for inventions, author of a training manual for employees of the Volkswagen Group of America. I consider the internal combustion engine to be the greatest technological achievement and I want to provide information about them to a wide range of car owners. Share — copy and redistribute the material in any medium or format for any purpose, even commercially. Adapt — remix, transform, and build upon the material for any purpose, even commercially. The licensor cannot revoke these freedoms as long as you follow the license terms. Attribution — You must give appropriate credit , provide a link to the license, and indicate if changes were made . You may do so in any reasonable manner, but not in any way that suggests the licensor endorses you or your use. ShareAlike — If you remix, transform, or build upon the material, you must distribute your contributions under the same license as the original. No additional restrictions — You may not apply legal terms or technological measures that legally restrict others from doing anything the license permits. You do not have to comply with the license for elements of the material in the public domain or where your use is permitted by an applicable exception or limitation . No warranties are given. The license may not give you all of the permissions necessary for your intended use. For example, other rights such as publicity, privacy, or moral rights may limit how you use the material. The 2.0-liter twin-turbo Toyota 1G-GTE engine was produced by the company from 1988 to 1991 and was put on the sporty versions of the Mark II, Chaser, Cresta, and Soarer or Supra coupes. This power unit is essentially a seriously modernized version of the 1G-GTEU motor. Technical characteristics of the Toyota 1G-GTE 2.0 motor Characteristics Value Exact volume 1988 cm³ Power System Injector Engine power 210 hp Torque 275 Nm Cylinder block Cast iron R6 Cylinder head Aluminum 24-valve Cylinder diameter 75 mm Piston stroke 75 mm Compression ratio 8.5 Engine Features DOHC, Twin-Turbo Hydrocompensators No Transmission timing Belt drive Fasoregulator No Turbocharging Two CT12S turbines Recommended oil 5W-30, volume 4.2 liters Environmental class Euro 2 Example service life 250,000 km Engine weight 215 kg Cars with Toyota 1G-GTE engine The 1G-GTE engine was installed in some Toyota models of the late 1980s and early 1990s, including sport and executive models. Model Body Years of production Toyota Cresta X80 1988 – 1990 Toyota Chaser X80 1988 – 1990 Toyota Mark II X80 1988 – 1990 Toyota Soarer Z20 1988 – 1991 Toyota Supra A70 1988 – 1991 Main flaws, breakdowns and problems of the 1G-GTE engine Although the 1G-GTE was a very productive engine, it had a number of problems, especially at high mileage: Turbine reliability. CT12S turbines have become more reliable in this generation, but require regular maintenance. With wear and tear, the turbines may need to be replaced or repaired. Oil ring wear. At mileages over 200,000 kilometers, it is common to experience oil ring seizure problems, resulting in increased oil consumption. Oil pump. Low oil pump performance can lead to inadequate lubrication, so many owners opt to replace the pump with a higher performance pump. RPM problems at idle. A dirty throttle assembly and malfunctions in the idle speed regulator (idle control valve) can cause erratic idle speeds. Lack of hydrocompensators. Since the engine has no hydrocompensators, valve clearances should be checked every 20,000 km and adjusted if necessary. The Toyota 1G-GTE engine is a powerful and productive unit for its time, but its reliable operation requires regular maintenance and a competent approach to operation. FORUM! Dear visitors, now our site has a FORUM where you can ask all your questions and share your experience. The Toyota 1G-GTE is a 2.0 L (1,988 cc, 121.3 cu·in) straight-six, four-stroke cycle twin-turbo gasoline engine from the Toyota G-family. The engine was manufactured by Toyota Motor Corporation from 1988 to 1991. The Toyota 1G-GTE engine features a cast-iron cylinder block, aluminum cylinder head with dual belt-driven overhead camshafts (DOHC), four valves per cylinder (24 in total) and twin CT12S turbochargers. The 1G-GTE is equipped with an electronic fuel injection system. Cylinder bore and piston stroke are 75.0 mm (2.95 in) and 75.0 mm (2.95 in), respectively. The Compression ratio rating is 8.5:1. This engine produced 210 PS (154 KW; 206.5 HP) at 6,200 rpm of maximum horsepower and 275 Nm (28.05 kg·m; 202.95 ft·lb) at 3,800 rpm of peak torque. The breakdown of the engine code is as follows: 1 – 1 generation engine G – Engine family G – Performance wide-angle DOHC T – Turbocharged E – Multi-Point Fuel Injection General information Engine Specifications Engine code 1G-GTE Layout Four stroke, Inline-6 (Straight-6) Fuel type Gasoline Production 1988-1991 Displacement 2.0 L, 1,988 cm3 (121.3 cu in) Fuel system Multi-point fuel injection system Power adder Twin CT12S turbochargers Max. horsepower 210 PS (154 KW; 206.5 HP) at 6,200 rpm Max. torque 275 Nm (28.05 kg·m; 202.95 ft·lb) at 3,800 rpm Firing order 1-5-3-6-2-4 Dimensions (L x H x W): – Weight 215 kg (474 lbs) Cylinder block The Toyota 1G-GTE engine has a cast-iron cylinder block, bore is 75.0 mm (2.95 in) and the piston stroke is 75.0 mm (2.95 in). The cylinder block, a monoblock specially cast structure, employs the seven bearing support system. The crankshaft has seven journals. The pistons are aluminum casting. Each piston is fitted with two compression rings and a single oil ring. The compression ratio rating is 8.5:1. Cylinder block Cylinder block alloy Cast-iron Compression ratio: 8.5:1 Cylinder bore: 75.0 mm (2.95 in) Piston stroke: 75.0 mm (2.95 in) Number of piston rings (compression / oil): 2 / 1 Number of main bearings: 7 Cylinder inner diameter (standard): №1,6: 74.990-75.000 mm (2.9524-2.9528 in) №2,3,4,5: 75.000-75.010 mm (2.9528-2.9532 in) Piston skirt diameter (standard): 74.935-74.945 mm (2.9502-2.9506 in) Piston pin outer diameter: 17.999-18.011 mm (0.7086-0.7090 in) Piston ring side clearance: Top 0.030-0.070 mm (0.0012-0.0027 in) Second 0.020-0.060 mm (0.0008-0.0023 in) Piston ring end gap: Top №1,6: 0.220-0.430 mm (0.0086-0.0169 in) №2,3,4,5: 0.250-0.460 mm (0.0098-0.0181 in) Second №1,6: 0.170-0.410 mm (0.0066-0.0161 in) №2,3,4,5: 0.200-0.440 mm (0.0078-0.0173 in) Oil №1,6: 0.170-0.760 mm (0.0066-0.0299 in) №2,3,4,5: 0.200-0.790 mm (0.0078-0.0311 in) Crankshaft main journal diameter: №4:54.977-54.992 mm (2.1644-2.1650 in) Other:54.985-55.000 mm (2.1647-2.1653 in) Crankpin diameter: 41.985-42.000 mm (1.6529-1.6535 in) Main bearing cap bolts torque specs: 60 Nm; 6.1 kg·m; 44.3 ft·lb Connecting rods cap bolts torque specs: 50 Nm 5.1 kg·m; 36.9 ft·lb Cylinder head The cylinder head is made of a light, strong aluminum alloy with good cooling efficiency. The 1G-GTE engine has double camshafts (DOHC) and four valves per cylinder (24 valves in total). The 1G-GTE motor does not have hydraulic lifters, so special valve lifters are used to adjust the valve clearance. Cylinder head alloy: Aluminum Valve Arrangement: DOHC, belt drive Valves: 24 (4 valves per cylinder) Valve head diameter: INTAKE – EXHAUST – Valve length: INTAKE 93.800-94.600 mm (3.6929-3.7244 in) EXHAUST 93.850-94.650 mm (3.6949-3.7264 in) Valve stem diameter: INTAKE 5.960-5.975 mm (0.2346-0.2352 in) EXHAUST 5.955-5.970 mm (0.2344-0.2350 in) Valve spring free length: 43.85 mm (1.7264 in) Camshaft lobe height: INTAKE 35.360-35.460 mm (1.3921-1.3961 in) EXHAUST 35.360-35.460 mm (1.3921-1.3961 in) Camshaft journal diameter: 26.960-26.975 mm (1.0614-1.0620 in) Cylinder head torque specs: 64 Nm; 6.5 kg·m; 47.2 ft·lb Maintenance data Valve clearance (Cold) Intake valve (COLD) 0.15-0.25 mm (0.006-0.0100 in) Exhaust valve (COLD) 0.20-0.30 mm (0.0078-0.0118 in) Compression pressure Standard 11.5 kg/cm2 / 300 rpm Minimum 9.0 kg/cm2 / 300 rpm Oil system Oil consumption , L/1000 km (qt. per miles) up to 0.5 (1 qt. per 1200 miles) Recommended engine oil 10W-30 Oil type API SG or better Engine oil capacity (Refill capacity) 4.0 liters (4.23 US.qts, 3.52 Imp. qts) or 4.5 liters (4.76 US.qts, 3.96 Imp. qts) Oil change interval, km (miles) 10,000 (6,000) Ignition system Spark plug DENSO PQ20RP8, NGK BCPR6EPN8 Spark plug gap 0.7-0.8 mm (0.027-0.031 in) Spark plug torque 18 N·m (1.8 kg·m, 13.3 ft·lb) Valve clearance adjustment data Calculate the thickness of the new adjusting valve lifter so valve clearance comes within specified values. R = Thickness of removed valve lifter N = Thickness of new valve lifter M = Measured valve clearance Before 2JZ engines, there were 1JZ engines, and before 1JZ, there were 1G engines. And yes, that is true that the 1G engine is the Vito Corleone of the JZ engine or simply the Godfather of those engines. In the 1980s, these engines are the crazes, and Toyota has the automotive duel with Nissan, and there’s no doubt that due to that, we have the modern engines today. 1G engines only offered a single displacement capacity of 2.0 L. 1G-GE is Toyota and Yamaha’s first engine collaboration and Japan’s first twin-turbo production engine; the GTE being the first twin-cam twin-turbo production engine. The Toyota 1G engine has several modifications, and each modification varies on the integrated technology and updates; these serialized engines somehow created 1G variants that we used and continue to use up until today even its production halt in 2005, namely: 1G, 1G-EU, 1G-FE, 1G-GEU, 1G-GE, 1G-GTE, and 1G-GZE. So today, we will talk about the 1G engine’s design, power, applications, issues, problems, aftermarket support, and overall impact on the industry and community. Engine Specifications and Design: Production Run: 1988 – 2005 Cylinder Head Material: Aluminum Cylinder Block Material: Cast-iron Configuration: Straight-six Bore: 75 mm Stroke: 75 mm Valvetrain: SOHC with two valves per cylinder and DOHC with four valves per cylinder Displacement: 2.0 L (1988 cc) Compression Ratio: 8.8 (1G), 9.2 (1G-GEU), 8.5 (1G-GTE), 8 (1G-GZE), 9.6 (1G-FE), and 9.5 (1G-GE) Weight: 400 lbs. Max HP: 210 HP at 6,200 RPM (1G-GTE) Max Torque: 206 lb-ft at 3,800 RPM Toyota 1G engine is a fixed 2.0 L naturally-aspirated, straight-six petrol engine from the G-family by Toyota. Toyota 1G engines boast features that are ahead of their time during its initial release. Some of the 1G engine characteristics are Aluminum cylinder heads with four valves per cylinder, cast-iron cylinder blocks, and a single overhead camshaft but was later upgraded to dual overhead camshafts driven by a belt. In addition, engines were equipped with the EFI technology or the Electronic Fuel Injection and VVT-i later on. The cylinder block of the 1G engine has a bore of 75 mm to square it with the 75 mm stroke. It is made from cast iron with a monoblock specially cast structure that utilizes the seven-bearing support system; the crankshaft has seven journals. The pistons are made from cast Aluminum and are paired with two compression rings and a single oil ring. All of the Toyota engines carry the same bore and stroke, displacement, and a 1G mark. Applications of the 1G Engine: Toyota Soarer Toyota Celica Supra Toyota Crown Toyota Cressida/Mark II/Cresta/Chaser Toyota Altezza Lexus IS200 The initial version of the 1G engine with a SOHC cylinder head is the Japan spec 1G-EU which was produced in 1979 – 1988. This engine and the 1G-E are the only two-valve SOHC member of the 1G. It has 125 HP at 5,400 RPM and 127 lb-ft of torque at 4,400 RPM. However, the 1G-E engine is the export spec two-valve engine, delivered in Southeast Asian markets. 1G-Es has no emission controls and are most common in commercial vehicles. Therefore, 1G-E has a lower power output of 107 HP at 5,000 RPM and 119 lb-ft of torque. In 1988 Toyota introduced the 1G-FE engine optimized for a better fuel economy and a narrow valve angle. As we mentioned earlier, it has a cast-iron block and an Aluminum cylinder head. This engine produces 133 HP at 5,600 RPM and 130 lb-ft of torque at 4,400 RPM. Later on, in 1998, ten years after its launch, Toyota integrated the VVT-i system, which ramps up the power output to 158 HP at 6,2000 RPM and 148 lb-ft of torque at 4,400 RPM for the IS 200 and Toyota Altezza. Applications of the 1G-FE Engine: Toyota Crown Toyota Chaser Toyota Mark II Toyota Mark II Blit Toyota Cresta Toyota Altezza Lexus IS200 1G family will not be complete without the performance variants gracing under the hood. And in the early 1980s, August 1982 to be exact, Toyota introduced, in the Japanese market, the high-performance 24-valve Double Overhead camshaft 1G-GEU engine. This engine featured a pent-roof combustion chamber which allows a faster burning time of the air-fuel mixture. This is Toyota’s first-ever multi-valve twin-cam machine to hit the market and even won JSME’s Medal for New Technology in 1982. It is equipped with T-VIS (Toyota Variable Induction System) that increases the speed-torque from low to mid-range engine speeds. For the succeeding Toyota twin cams, Toyota used a timing belt instead of a chain to lessen the noise and lower maintenance requirements. After one year, in August 1983, EFI-D replaced the fuel injection system to determine the appropriate air-fuel mixture by measuring the intake manifold’s pressure. This engine produces 158 HP at 6,200 RPM and 133 lb-ft of torque at 5,600 RPM. 1G-GE replaced the 1G-GEU engine in 1988 with a lower power output of 150 HP and placed to the cars same as 1G-GEU. It was created for Supra GA70 up until 1993. Applications of the 1G-GEU Engine: 1981 – 1985 Celica X GA61 1982 Toyota Chaser/Cresta/Mark II 1983 Toyota Crown 1983 Toyota Soarer The most powerful engine in the G family is the 1G-GTE which is introduced in 1986. This engine is a 24 valve DOHC with two CT-12 turbochargers to top it off. There are three generations of this engine that used both air-to-water and an air-to-air intercooler. It also has a varying power output ranging from 182 to 207 HP at 6,200 RPM and 173 to 203 lb-ft of torque at 3,800 RPM by using the air-to-air over the air-to-water. In May 1991, 1JZ-GTE replaced the 1G-GTE on most Toyota cars. Applications of the 1G-GTE Engine: 1986 – 1992 Supra MK3 1986 – 1992 Mark II/Cresta/Chaser 1986 – 1991 Soarer A supercharged version was also released under the 1G-GZE name. This version is a 24-valve DOHC produced from 1986 to 1991 and carried most of the characteristics of the 1G-GTE engine. It features a distributor-less ignition system (DIS) and is only paired with automatic gearboxes. In August 1991, 1JZ-GE replaced the 1G-GZE on the Mark II, Chaser, and Cresta and serving up until 1992 in Toyota Crown. Engine Tuning, Upgrades, and Modifications: Upgrading 1G engines is not practical most of the time because that is where 2JZ-GTEs were created for; a more powerful 1G engine. However, if you opt to do some upgrades, consider putting some upgraded parts for the 1G-GTE, if you have a 1G-GTE block, and buy some performance parts such as a front intercooler, boost controller, blow-off valve, cat-back exhaust system, Walbro fuel pump, and an ECU. Maximum boost pressure will increase up to 15-17 psi and get 300 horsepower on a stock turbo and stock pistons. However, you need to change the stock internals or turbo for better results because internals and turbo of this kind do not produce more power, so you may buy a single turbo kit like Garrett GT28 or GT3, head gaskets, forged pistons, and do some head porting. Problems Surrounding 1G Engine: As much as we wanted to keep the pristine conditions of our cared engines, we cannot escape the truth behind all of them that there will come a time some issues or problems might occur due to years of usage or unplanned troubles. Coming from decades ago engine production, this engine definitely has its problems sorted out through the owner’s experience. This is just a precautionary list for you to be ready if ever you opt to buy this engine: The first is excessive oil consumption; excessive oil consumption corresponds to loose piston rings and valve stem seals. This is due to the age of the engine. These issues can be easily resolved by replacing the old piston rings and valve stem seals. Excessive oil consumption might also be a direct result of oil leakage, and oil leak is a common problem for the 1G engines. This immediate issue must be resolved because, if neglected, it can result in a far worse engine situation, as the engine overheats due to improper lubrication inside the engine. This problem is also the main driver of engine failure. You might need to change the oil pressure sensor for this and check where the leak is coming from. Don’t forget always to check the oil pressure, but if the sensor is not functional, replace it. Next is the rough idling. Rough idling happens when fuel is burned at an inconsistent rate, and you can notice it while running if it becomes worse. This is caused by faulty or wrongly installed spark plugs and wires. Try checking those and check the throttle valve, idle control valve, and throttle position sensor, which might need some cleaning. Summary 1G engines are one of the most iconic engines, especially in the competitive 80s era of machines. This was when most of the grandfathers of our modern engine originated from; if they are not for them, this engine will not be here with us. So with this technology and pioneer innovations that Toyota made, they have given us a reliable and continues to do so with the 1G line of the family. It is the first twin-cam and twin-turbo engine in the 80s. Though it has some problems and issues, it can withstand 200,00 miles with proper maintenance and care. I hope you understand the 1G engine with this simple guide and helped you to understand the 1G engine’s engine design, power, torque, applications, aftermarket support, and overall impact in the automotive industry. Disclosure: As an Amazon Associate, I earn from qualifying purchases made through links on this website. The Toyota 1G-GTE is a 2.0 L (1,988 cc, 121.3 cu·in) straight-six, twin-turbo four-stroke liquid-cooled internal combustion vertical gasoline engine, manufactured by Toyota from 1988 to 1991.A 75.0 mm (2.95 in) cylinder bore and 75.0 mm (2.95 in) piston stroke give the 1G-GTE engine a total of 1,988 cc of displacement. The compression ratio rating is 8.5:1.The Toyota 1G-GTE engine produced 210 PS (154 KW; 206.5 HP) at 6,200 rpm of maximum horsepower and 275 Nm (28.05 kg·m; 202.95 ft·lb) at 3,800 rpm of peak torque.The Toyota 1G-GTE features:Cast-iron cylinder blockAluminum cylinder headDOHC design (Dual belt-driven overhead camshafts)Two CT12S turbochargersMulti-Point fuel injectionForced lubrication systemLiquid cooling systemElectric starterGeneral informationEngine SpecificationsEngine model1G-GTEEngine type4-stroke, DOHC, straight-sixDisplacement2.0 L, 1,988 cm3 (121.3 cu in)Max. horsepower210 PS (154 KW; 206.5 HP) at 6,200 rpmMax. torque275 Nm (28.05 kg·m; 202.95 ft·lb) at 3,800 rpmCooling systemLiquid-cooledLubricating systemForced lubricationIgnition system–Fuel systemMulti-Point fuel injection)Power adderTwo CT12S turbochargersFuel usedGasolineStarting systemElectric starterFiring order:1-5-3-6-2-4Dimensions (L x W x H)–Dry weight215 kg (474 lbs)Cylinder Block and HeadCylinder blockCylinder block alloy:Cast-ironCompression ratio:8.5:1Cylinder bore:75.0 mm (2.95 in)Piston stroke:75.0 mm (2.95 in)Cylinder internal diameter (standard): №1,6: 74.990-75.000 mm (2.9524-2.9528 in) №2,3,4,5: 75.000-75.010 mm (2.9528-2.9532 in)Piston skirt outer diameter (standard):74.935-74.945 mm (2.9502-2.9506 in)Number of piston rings (compression / oil):2/1Ring side clearance (Top):0.030-0.070 mm (0.0012-0.0027 in)Ring side clearance (Second):0.020-0.060 mm (0.0008-0.0023 in)Ring end gap (Top): №1,6: 0.220-0.430 mm (0.0086-0.0169 in) №2,3,4,5: 0.250-0.460 mm (0.0098-0.0181 in)Ring end gap (Second): №1,6: 0.170-0.410 mm (0.0066-0.0161 in) №2,3,4,5: 0.200-0.440 mm (0.0078-0.0173 in)Ring end gap (Oil): №1,6: 0.170-0.760 mm (0.0066-0.0299 in) №2,3,4,5: 0.200-0.790 mm (0.0078-0.0311 in)Number of main bearings:7Crankshaft main journal diameter: №4: 54.977-54.992 mm (2.1644-2.1650 in) Other: 54.985-55.000 mm (2.1647-2.1653 in)Crankpin journal diameter:41.985-42.000 mm (1.6529-1.6535 in)Cylinder headCylinder head alloy:AluminumValve arrangement:DOHC, belt drivenValves:4,(24 valves in total)Valve head diameter (INTAKE):–Valve head diameter (EXHAUST):–Valve length (INTAKE):93.800-94.600 mm (3.6929-3.7244 in)Valve length (EXHAUST):93.850-94.650 mm (3.6949-3.7264 in)Valve steam diameter (INTAKE):5.960-5.975 mm (0.2346-0.2352 in)Valve steam diameter (EXHAUST):5.955-5.970 mm (0.2344-0.2350 in)Valve spring free length (INTAKE):43.85 mm (1.7264 in)Valve spring free length (EXHAUST):43.85 mm (1.7264 in)Camshaft lobe height (INTAKE):35.360-35.460 mm (1.3921-1.3961 in)Camshaft lobe height (EXHAUST):35.360-35.460 mm (1.3921-1.3961 in)Camshaft journal diameter:26.960-26.975 mm (1.0614-1.0620 in)Tightening torqueTightening torque specsCylinder head:64 Nm (6.5 kg·m; 47.2 lb·ft)Main bearing cap bolts:60 Nm (6.1 kg·m; 44.3 lb·ft)Connecting rods cap bolts:50 Nm (5.1 kg·m; 36.9 lb·ft)Spark plug:18 N·m (1.8 kg·m, 13.3 lb·ft)Service DataValve clearanceIntake valve clearance:0.15-0.25 mm (0.0060-0.0100 in)Exhaust valve clearance:0.20-0.30 mm (0.0078-0.0118 in)Cylinder compression pressureStandard:11.5 kg/cm2, 163 psi/ 300 rpmMinimum:9.0 kg/cm2, 128 psi/ 300 rpmOil systemLubrication system:Forced lubricationRecommended engine oil, SAE:10W-30Oil type, API:SG or betterEngine oil capacity: 4.0 liters (4.23 US.qts, 3.52 Imp. qts) 4.5 liters (4.76 US.qts, 3.96 Imp. qts) depending on modelOil change interval, km (miles):10,000 (6,000)Ignition systemSpark plug:DENSO PQ20RP8, NGK BCPR6EPN8Spark plug gap:0.7-0.8 mm (0.027-0.031 in)Spark plug torque:18 N·m (1.8 kg·m, 13.3 lb·ft)Valve clearance adjustment dataCalculate the thickness of the new adjusting valve lifter so valve clearance comes within specified values.R = Thickness of removed valve lifter N = Thickness of new valve lifter M = Measured valve clearanceIntake: N = R + [M – 0.20 mm (0.008 in)] Exhaust: N = R + [M – 0.25 mm (0.010 in)] Skip to contentSkip to content Home / Car Engines / Toyota 1G Engine The Toyota Motor Corporation Toyota 1G Engine is a family of straight-6 piston engines produced from 1979 to 2008. It is notable in that only a single displacement, 2.0 L, was produced in this series. Manufacturer Shimoyama plant Also called 1G Production years 1979-2005 Cylinder block alloy cast iron Fuel system injector Configuration inline Number of cylinders 6 Valves per cylinder 2/4 Piston stroke, mm 75 Cylinder bore, mm 75 Compression ratio 8.8 (1G-EU) 9.2 (1G-GEU/EU) 8.5 (1G-GTEU/GTE) 8 (1G-GZEU/GZE) 9.6 (1G-FE) 10 (1G-FE BEAMS) 9.5 (1G-GE) Displacement, cc 1988 Power output, hp 105/5400 (1G-EU) 125/5400 (1G-EU) 130/5400 (1G-EU) 140/6200 (1G-GEU) 140/6400 (1G-GEU) 160/6400 (1G-GEU) 185/6200 (1G-GTEU) 210/6200 (1G-GTE) 160/6000 (1G-GZEU) 170/6000 (1G-GZE) 135/5600 (1G-FE) 140/5750 (1G-FE) 160/6200 (1G-FE BEAMS) 150/6200 (1G-GE) Torque output, Nm / rpm 146/4400 (1G-EU) 160/4400 (1G-EU) 160/4400 (1G-EU) 162/4600 (1G-GEU) 172/4000 (1G-GEU) 186/5200 (1G-GEU) 245/3200 (1G-GTEU) 280/3800 (1G-GTE) 210/4000 (1G-GZEU) 230/3600 (1G-GZE) 180/4400 (1G-FE) 185/4400 (1G-FE) 200/4400 (1G-FE BEAMS) 186/5400 (1G-GE) Fuel type 92-95 Euro standards up to Euro 3 Weight, kg ~180 (1G-FE) Fuel consumption, L/100 km — city — highway — combined 14.0 7.8 9.8 Oil consumption, gr/1000 km up to 1000 Recommended engine oil 0W-30 / 5W-30 / 5W-40 / 10W-30 / 10W-40 / 10W-50 / 15W-50 Engine oil capacity, liter 4.2 Oil change interval, km 7000-10000 Normal engine operating temperature, °C — Engine lifespan, km — official information — real – 300+ by mwmadmin · Published 01/29/2016 · Updated 07/22/2017 Specifications Overview, problems Performance tuning Manufacturer Shimoyama plant Also called Toyota 1G Production 1979-2005 Cylinder block alloy Cast-iron Configuration Straight-6 Valvetrain SOHC 2 valves per cylinder DOHC 4 valves per cylinder Piston stroke, mm (inch) 75 (2.95) Cylinder bore, mm (inch) 75 (2.95) Compression ratio 8.8 (1G-EU) 9.2 (1G-GEU/EU) 8.5 (1G-GTEU/GTE) 8 (1G-GZEU/GZE) 9.6 (1G-FE) 10 (1G-FE BEAMS) 9.5 (1G-GE) Displacement 1988 cc (121.3 cu in) Power output 77 kW (105 HP) at 5,400 rpm (1G-EU) 92 kW (125 HP) at 5,400 rpm (1G-EU) 95 kW (130 HP) at 5,400 rpm (1G-EU) 103 kW (140 HP) at 6,200 rpm (1G-GEU) 103 kW (140 HP) at 6,400 rpm(1G-GEU) 117 kW (160 HP) at 6,400 rpm (1G-GEU) 136 kW (185 HP) at 6,200 rpm (1G-GTEU) 154 kW (210 HP) at 6,200 rpm (1G-GTE) 117 kW (160 HP) at 6,000 rpm (1G-GZEU) 125 kW (170 HP) at 6,000 rpm (1G-GZE) 99 kW (135 HP) at 5,600 rpm (1G-FE) 103 kW (140 HP) at 5,750 rpm (1G-FE) 117 kW (160 HP) at 6,200 rpm (1G-FE BEAMS) 110 kW (150 HP) at 6,200 rpm (1G-GE) Torque output 146 Nm (107 lb·ft) at 4,400 rpm (1G-EU) 160 Nm (118 lb·ft) at 4,400 rpm (1G-EU) 162 Nm (119 lb·ft) at 4,600 rpm (1G-GEU) 172 Nm (127 lb·ft) at 4,000 rpm (1G-GEU) 186 Nm (137 lb·ft) at 5,200 rpm (1G-GEU) 245 Nm (181 lb·ft) at 3,200 rpm (1G-GTEU) 280 Nm (206 lb·ft) at 3,800 rpm (1G-GTE) 210 Nm (155 lb·ft) at 4,000 rpm (1G-GZEU) 230 Nm (169 lb·ft) at 3,600 rpm (1G-GZE) 180 Nm (132 lb·ft) at 4,400 rpm (1G-FE) 185 Nm (136 lb·ft) at 4,400 rpm (1G-FE) 200 Nm (147 lb·ft) at 4,400 rpm (1G-FE BEAMS) 186 Nm (137 lb·ft) at 5,400 rpm (1G-GE) Redline – HP per liter 52.8 62.9 65.4 70.4 70.4 80.5 93.1 105.6 80.5 85.5 67.9 70.4 80.5 75.5 Fuel type Gasoline Weight, kg (lbs) 180 (400) Fuel consumption, L/100 km (mpg) -City -Highway -Combined for Lexus IS200 14.0 (17) 7.8 (30) 9.8 (24) Turbocharger Naturally aspirated 2x Toyota CT12 Toyota SC-14 Oil consumption , L/1000 km (qt. per miles) up to 1.0 (1 qt. per 750 miles) Recommended engine oil 0W-30 5W-30 5W-40 10W-30 10W-40 10W-50 15W-50 Engine oil capacity, L (qt.) 3.8 (4.0) – 1G-FE BEAMS AT 3.9 (4.1) – 1G-FE BEAMS MT 4.1 (4.3) – 1G-FE Oil change interval, km (miles) 5,000-10,000 (3,000-6,000) Normal engine operating temperature, °C (F) – Engine lifespan, km (miles) -Official information -Real – 300,000+ (180,000) Tuning, HP -Max HP -No life span loss 300+ – The engine is installed in Toyota Crown Toyota Mark II Toyota Supra Toyota Altezza/Lexus IS 200 Toyota Chaser Toyota Cresta Toyota Soarer Until all known 1JZ, Toyota produced the straight-6 cylinder 1G engine. This motor appeared in 1979 and became popular in the domestic Japanese market. The design of the first 1G was simple. It was the cast iron cylinder block, aluminum head with one camshaft, 12 valves and hydraulic lifters. The 1G engine was equipped with a timing belt. The timing belt replacement is necessary each 60,000 miles of mileage (100,000 km), together with pulleys and oil seals. Spark plugs should be replaced every 10,000-15,000 miles of mileage (20,000 km). The firing order for the toyota 1G engines is 1-5-3-6-2-4. Further this motor modified and became more modern. Below you will learn something new about all these modifications in 1G and their differences from each other. Toyota 1G engine produced until 2005, despite the fact that in 1990 there was his successor 1JZ. Toyota 1G engine modifications and differences 1. 1G-EU (1979 – 1988) – the first version 1G with SOHC cylinder head. This motor appeared on Toyota Crown. It had a compression ratio 8.8, its power 125 HP at 5400 rpm, a torque 160 Nm at 4400 rpm. Since 1983 produced version with increased compression ratio to 9.2. Its power was 130 HP. In 1986 power decreased to 105 horsepower at 5400 rpm, a torque 146 Nm at 4400 rpm. These engines put on: Toyota Chaser X60, Cresta X50/X60/X70, Crown S110, Mark 2 X60, Soarer Z10/Z20. 2. 1G-GEU (1983 – 1988) – analog 1G-EU, but instead of SOHC cylinder head was used new Yamaha DOHC head with 24 valves. Also on this motor installed variable intake system T-VIS. All these increased engine power to 160 HP at 6400 rpm, a torque 186 Nm at 5200 rpm. Since 1985 power 1G-GEU decreased to 140 horsepower. This engine put in the following cars: Toyota Chaser X70, Mark 2 X60/X70 Cresta X60/X70, S120 Crown, Soarer Z10/Z20, Toyota Supra A70. 3. 1G-GTEU (1986 – 1988) – twin turbo version 1G-GEU. The compression ratio lowered to 8.5 and installed two CT12 turbochargers. Maximum stock boost was 7 psi (0.5 bar). Power 1G-GTEU was equal 185 horsepower at 6200 rpm, a torque 245 Nm at 3200 rpm. Cars with 1G-GTEU: Toyota Chaser X70, Mark 2 X70, Cresta X70, Soarer Z20, Toyota Supra A70. 4. 1G-GZEU/GZE (1986 – 1992) – supercharged version 1G-GEU. In contrast to the 1G-GTEU, 1G-GZEU used SC-14 supercharger. At the same time used electronic ignition and new pistons. The compression ratio decreased to 8. Power of such motor was 160 horsepower at 6000 rpm, a