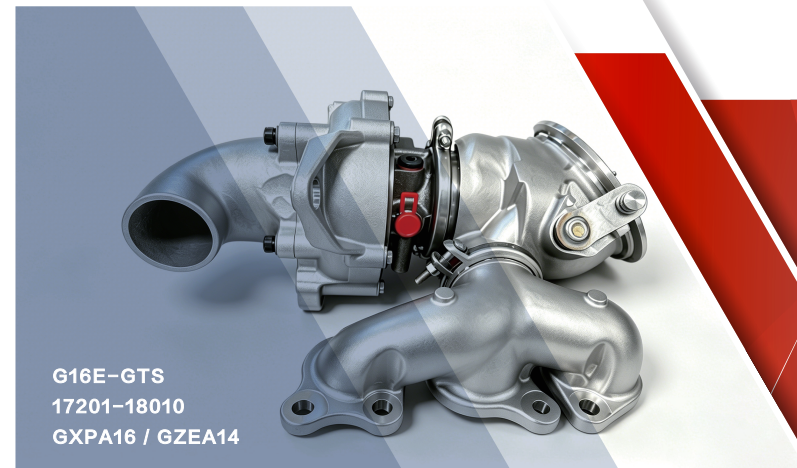


TOYOTA GR Yaris / GR Corolla G16E-GTS

PERFORMANCE TURBOCHARGER

TECHNICAL INFORMATION




G16E-GTS
17201-18010
GXPA16 / GZEA14


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TURBOCHARGER USAGE PRECAUTIONS AND RECOMMENDATIONS

01 / Introduction

Thank you for selecting SPEEDTURBO Turbochargers. We manufacture and sell turbochargers specifically for the aftermarket. By using our products, you can achieve performance capabilities that differ from stock turbochargers.

Therefore, our products may not comply with the laws and regulations of every region or country of use. Please ensure you check the local laws and regulations in your area before use on public roads.

02 / Recommendations for Proper Use and Performance

To maximize the performance of SPEEDTURBO Turbochargers and ensure safe, long-term use, we strongly recommend the following measures:

Item	Recommended Action	Objective
Legal Compliance Check	Always confirm and ensure compliance with the emission regulations, noise regulations, and vehicle inspection requirements of your country/region before use	To avoid legal risks (penalties, vehicle usage suspension, etc.)
ECU Tuning (Real-vehicle to vehicle)	After installation, always perform real-time ECU (Engine Control Unit) tuning/re-setting	To optimize the air-fuel ratio and prevent engine damage (blow-up)
Peripheral Parts Enhancement	Consider upgrading surrounding cooling and fuel systems, such as a large-capacity intercooler and reinforced fuel pumps/injectors, to handle the increased heat and output	To ensure stable high output and improved durability
Oil Management	Use and regularly change high-performance, fully synthetic engine oil suitable for turbo applications, and maintain proper oil management	To protect the turbo bearing under high-temperature and high-load conditions

03 / Regarding Installation (Critical Warning)

Specialized knowledge and technical skill are required for the removal and installation of turbochargers. More than half of all initial turbocharger failures are caused by improper installation procedures. In some cases, this can lead to not only turbocharger damage but also engine failure, vehicle fire, or significant danger to human life. Please exercise extreme caution.

04 / Specific Recommendations for Installation

To avoid the risks mentioned in the warning, please ensure the following procedures are strictly observed:

• Use Professional Installers :

Turbocharger replacement must be entrusted to an automotive repair shop or tuning shop with specialized knowledge. Avoid performing the work yourself (DIY).

• Simultaneous Replacement of Peripheral Parts :

All gaskets, O-rings, and packing for the oil and water lines involved in the turbo removal/installation must be replaced with new parts.

• Initial Lubrication (Priming) :

Before starting the engine after turbo replacement, ensure oil has been supplied to the turbocharger bearings (priming) to prevent initial dry-start.

• Initial Inspection :

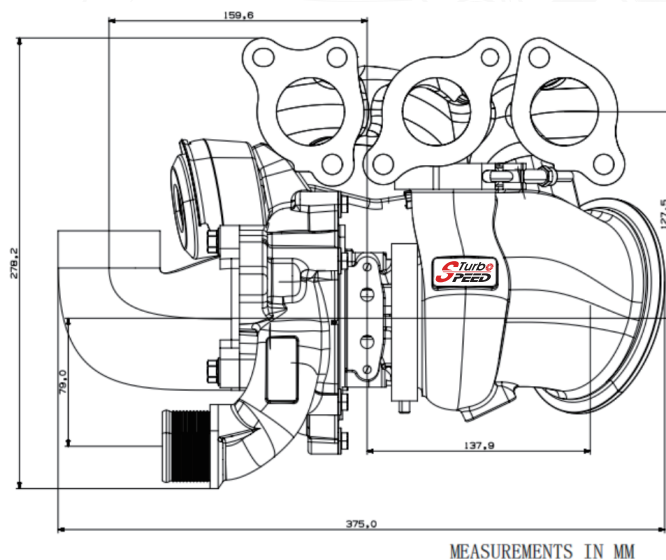
Upon completion of the installation, check for oil leaks, water leaks, exhaust leaks, and abnormal noises. After several minutes of idling, re-check all connection points.

PRODUCT INFORMATION

SPEEDTURBO offers two performance turbocharger specifications tailored for the GR Carolla / GR Yaris G16E-GTS engine.

01 / Turbo Specification Comparison

Model	Feature				Equivalent Model		
STREET	High-level balance of spooling (launch torque) and maximum horse power				G25-600 equivalent (550/660hybrid)		
PRO-MAX	Pursuit of high output in a drop-in, stock dimension package.				G30-660 equivalent		
MODEL	C-IN	C-EX	C A/R	T-IN	T-EX	T A/R	HP
STREET	50mm	64mm	0.46	56mm	49mm	0.60	420
PRO-MAX	54mm	67mm	0.46	60mm	54mm	0.60	500+
STOCK	42mm	56mm	0.44	53mm	43mm	0.61	330



02 / Installation Compatibility and Precautions

This turbocharger achieves complete drop-in compatibility (bolt-on).

• Use of Stock Parts :

Stock components such as the wastegate actuator, compressor bypass valve, oil pipe, air duct, boost pipe, and front catalytic converter can be used without modification.

• Note :

Always follow the proper procedure for checking/adjusting the wastegate actuator when installing the turbo! Installation must be performed by a qualified technician. Always pre-fill and prime the turbocharger with oil, replace engine oil and filter, follow proper break-in procedures. Installation hardware or gaskets (use same install kit as the factory turbo), wastegate actuator are not included.

Especially for the PRO-MAX specification, the use of stock components is not recommended as they will significantly restrict the maximum output.

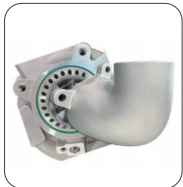
03 / Technical Features of Each

3.1 Component Compressor Features



- **High Pressure Ratio :**
Achieved through a 9-full blade design
- **Material :**
2618-T6 heat treated
- **Reduced Intake Resistance :**
Bell-mouth shape is adopted to reduce intake resistance
- **Surge Avoidance :**
Ported shroud is used to avoid surging.
- **Expandability :**
Equipped with a speed sensor boss.

3.2 Intake Elbow Features (Vehicle-Specific Design)



- **Full Intake :**
The prototype featured an integrated compressor housing design, but due to concerns about choke in the air intake duct and compressor surge, it was designed as a separate elbow to solve the issues.
- **Compatibility :**
Designed to match the stock air intake duct.
- **Noise Reduction :**
Turbo locates close to firewall(bulkhead) and noise reduction is critical. Speedturbo aluminum elbow can reduce transparent the noise created at inducer blade significantly compared to stock plastic elbow.

3.3 Turbine Features



- **Low Inertia :**
Achieved by employing a 9-blade design
- **Design :**
Optimized scroll shape through an integrated exhaust manifold design
- **Heat Resistance :**
Capable of handling temperatures up to 1,050 °C by using vacuum-melted
- **Material :**
HK30 (25Cr.20Ni.0.3Nb) precision casting material

3.4 Exhaust Manifold Features



- **Durability :**
Achieves high heat resistance, oxidation resistance, and lightweight construction by using the same material and process as the turbine housing and achieving equal linear expansion coefficients.
- **Compatibility :**
Designed to be mutually compatible between the STREET and PRO-MAX specifications.
It will allow for the ease upgrade to PRO-MAX.

3.5 Turbocharger Bearing Features



- **Ceramic dual ball bearing design effectively reduces heat transfer to the engine oil. M50 bearing cages enhance the durability of the entire rotating assembly.**