

RX350

OUTLINE OF NEW FEATURES

The following changes are made for the new RX350.

1. Model Code

In accordance with the change of engine from 1MZ-FE and 3MZ-FE to 2GR-FE, the model code has been changed as follows.

► Model Code ◀

Model		New	Previous	
Engine		2GR-FE	3MZ-FE	1MZ-FE
Drive Type	4WD	GSU35R-AWAGKW GSU35L-AWAGKW GSU35R-AWAGKQ GSU35L-AWAGKV	MCU38R-AWAGKQ MCU38L-AWAGKV	MCU35R-AWAGKW MCU35L-AWAGKW

2. Engine

Uses of the 1MZ-FE and 3MZ-FE engine has been discontinued. The 2GR-FE engine is adopted. For details, see [page 1](#).

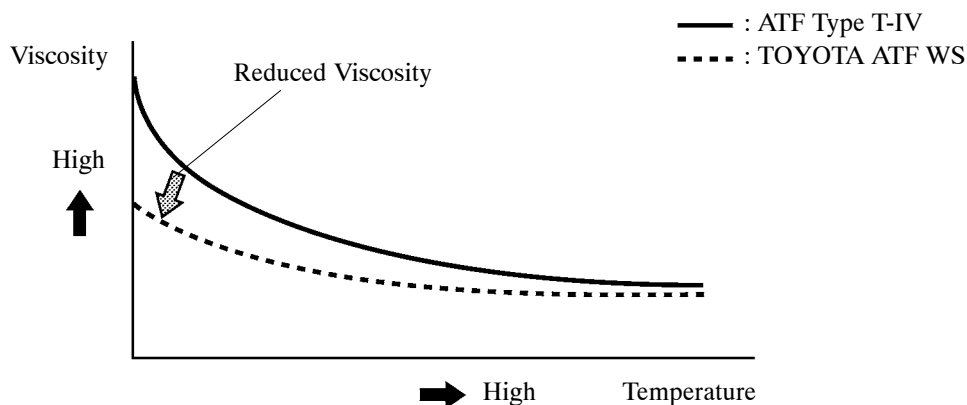
- The 2GR-FE is a 3.5-liter, 24-valve DOHC V6 engine.
- This engine uses a Dual VVT-i (Variable Valve Timing-intelligent) system, DIS (Direct Ignition System), ACIS (Acoustic Control Induction System) and ETCS-i (Electronic Throttle Control System-intelligent).
- These control functions achieve improved engine performance, fuel economy, and cleaner emissions.

3. Automatic Transaxle

The same transaxles, with minor specification differences, are available in the RX350 as in the previous RX330/300. A U151F automatic transaxle is available for the RX350. The Fluid type has changed from the ATF Type T-IV to TOYOTA ATF WS.

- TOYOTA ATF WS is used to reduce the resistance to flow of the ATF and improve fuel economy by reducing its viscosity in the practical operating temperature range. At the high-temperature end of this range, the viscosity is the same as that of ATF Type T-IV, ensuring the durability of the automatic transmission.
- There is no interchangeability between TOYOTA ATF WS and other types of ATF (ATF Type T-IV, D-II).

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Specifications of the U151F automatic transaxle has been changed as follows:

► Specifications ◀

Model		New	Previous
Engine Type		2GR-FE	1MZ-FE, 3MZ-FE
Transaxle Type		U151F	U151F
Gear Ratio*1	1st	4.235	4.235
	2nd	2.360	2.360
	3rd	1.517	1.517
	4th	1.047	1.047
	5th	0.756	0.756
	Reverse	3.378	3.378
Differential Gear Ratio		3.291	3.478
Fluid Capacity*2	liters (US qts, Imp. qts)	9.0 (9.5, 7.9)	9.1 (9.6, 8.0)
Fluid Type		TOYOTA ATF WS	ATF Type T-IV
Weight (Reference)*3	kg (lb)	106.3 (234.3)	106.6 (234.8)

*1: Counter Gear Ratio Included

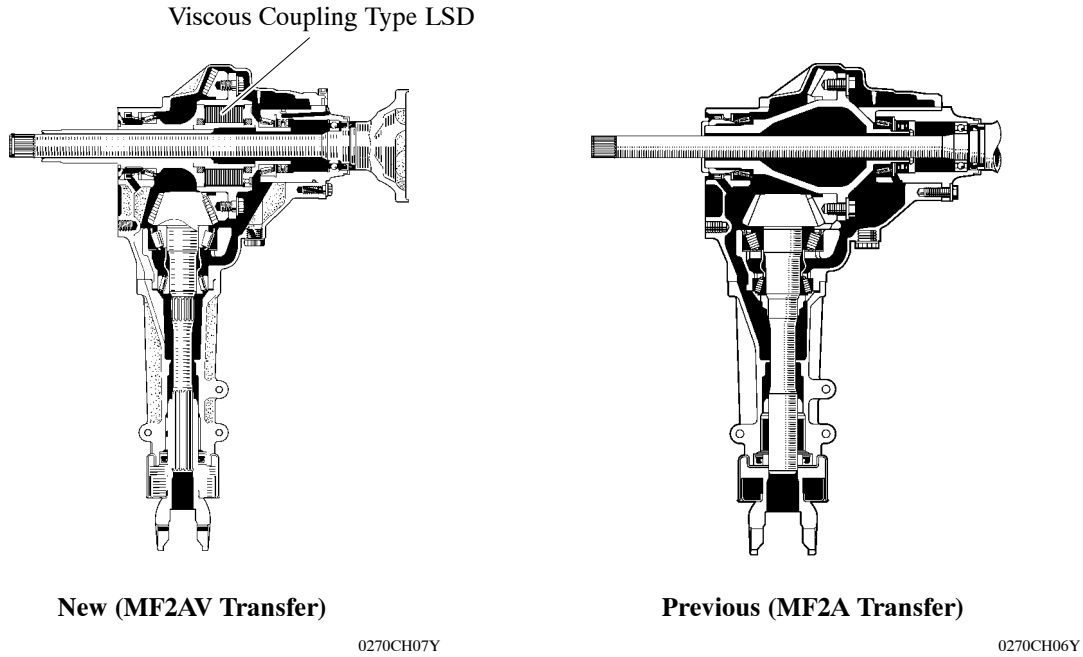
*2: Differential Included

*3: Weight shows the figure with the fluid fully filled.

4. Transfer

The engine type is changed from 1MZ-FE and 3MZ-FE to 2GR-FE. Because of this change, an MF2AV transfer is adopted. The MF2AV transfer is similar to the conventional MF2A transfer, however, the MF2AV transfer contains a viscous coupling type LSD (Limited Slip Differential).

- The MF2AV transfer uses a viscous coupling to achieve the slip limiting effect for the center differential.



5. Suspension and Axle

Wheel alignment specifications for the new RX350 are shown below.

► Specifications ◀

Model		RX350
Front Suspension* ¹	Type	MacPherson Strut
	Tread	mm (in.) 1577 (62.1)* ² , 1578 (62.1)* ³
	Caster	degrees 2° 35' * ² , 2° 52' * ³
	Camber	degrees -0° 40'
	Toe-in	mm (in.) 0
	King Pin Inclination	degrees 10° 40' * ² , 10° 42' * ³
Rear Suspension* ¹	Type	Dual Link MacPherson Strut
	Tread	mm (in.) 1557 (61.3)* ² , 1563 (61.5)* ³
	Camber	degrees -0° 45' * ² , -0° 58' * ³
	Toe-in	mm (in.) 3 (0.12)

*¹: Unloaded Vehicle

*²: Without Air Suspension

*³: With Air Suspension

6. Brake

- The brake system specifications for the new RX350 are shown below.

Model		RX350
Front Brake	Type	Ventilated Disc
	Rotor Size	For 17 in. wheel
Rear Brake	Type	Solid Disc
	Rotor Size	For 15 in. wheel
Brake Control System	ABS with EBD, Brake Assist, TRC and VSC	Standard
Brake Control Valve		EBD
Parking Brake Type		Pedal

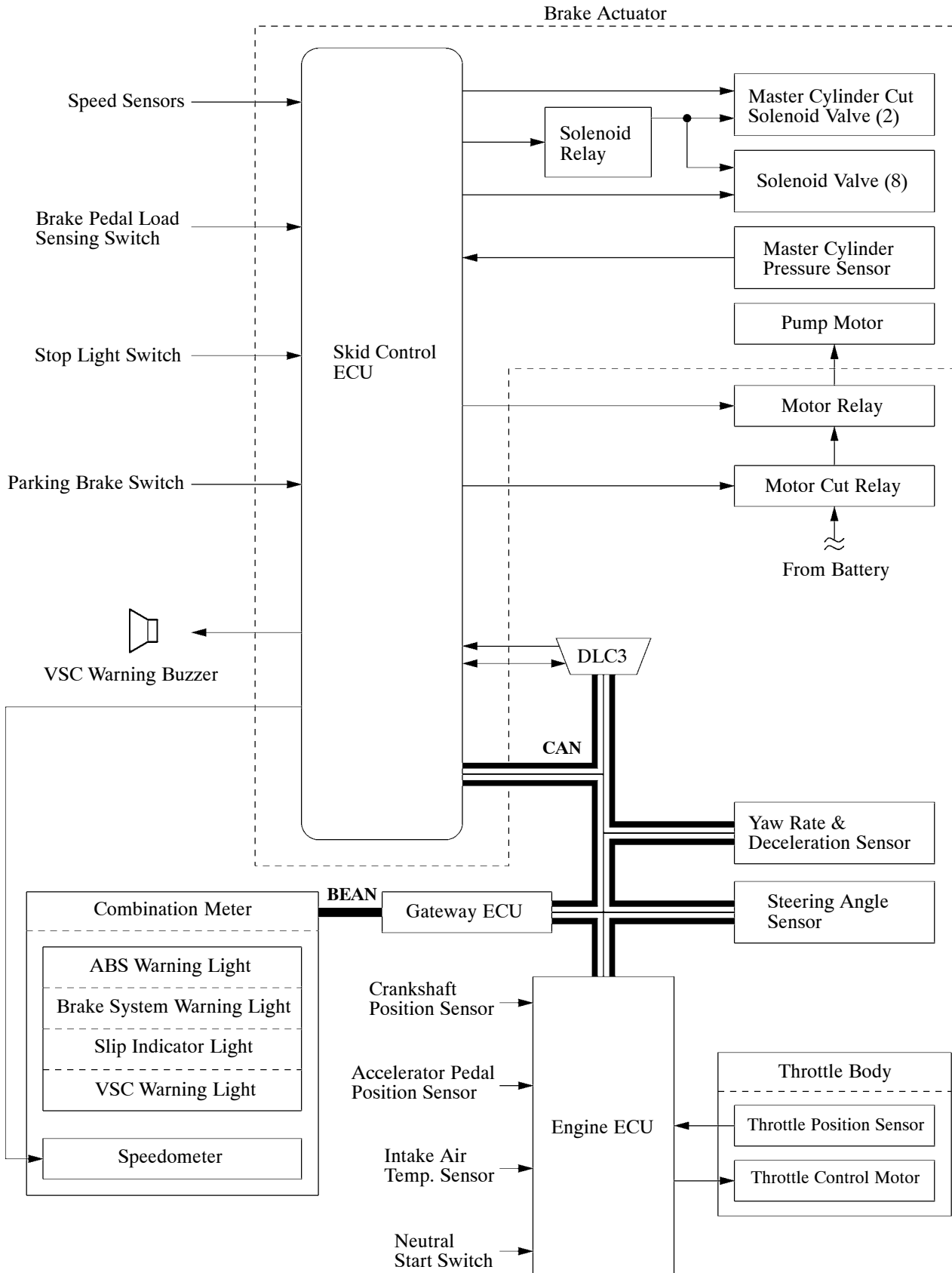
► Specifications ◀

Model		RX350
Master Cylinder	Type	Tandem
	Cylinder Diameter	mm (in.) 22.22 (0.87)
Brake Booster	Type	Single
	Size	in. 10.5
Front Brake	Caliper Type	AX63
	Caliper Bore Diameter	mm (in.) 63.5 (2.5)
	Rotor Size (D × T)*	mm (in.) 319 × 28 (12.56 × 1.10)
	Pad Material	T4146
Rear Brake	Caliper Type	AX41
	Caliper Bore Diameter	mm (in.) 41.3 (1.63)
	Rotor Size (D × T)*	mm (in.) 288 × 10 (11.34 × 0.39)
	Pad Material	PS506H
Parking Brake	Type	Drum (Duo-servo)
	Drum Inner Diameter	mm (in.) 190.0 (7.48)
Brake Actuator		ADVICS

*: (Diameter × Thickness)

- As a result of the adoption of the CAN (Controller Area Network) for communication between the Skid Control ECU and Engine ECU, the diagram of the brake control system (ABS with EBD, Brake Assist, TRC and VSC) is changed as follows:

► System Diagram ◀



7. Steering

Steering specifications for the new RX350 are shown below.

► Specification ◀

Model	RX350
Power Steering Type	Engine Revolution Sensing Type Hydraulic Power Steering
Steering Gear Type	Rack and Pinion
Gear Ratio (Overall)	16.0
No. of Turns Lock to Lock	3.0
Rack Stroke mm (in.)	145.0 (5.71)
Vane Pump Type	Pressure Return Type
Fluid Type	ATF type DEXRON® II or III

8. Multiplex Communication System

The CAN (Controller Area Network) has been connected to the Gateway ECU. For details, see the Multiplex Communication System on [page 31](#).

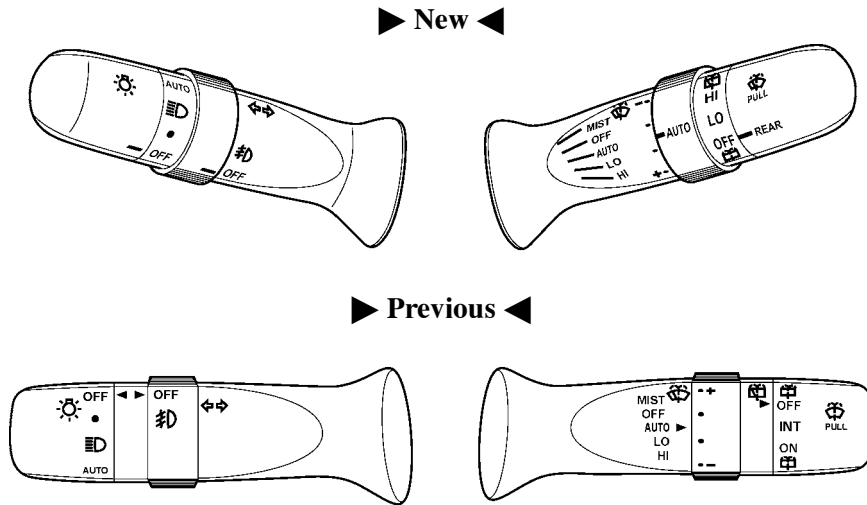
9. Combination Meter

The combination meter circuits have been partially changed. For details, see the Meter on [page 36](#).

10. Lighting System and Wiper System

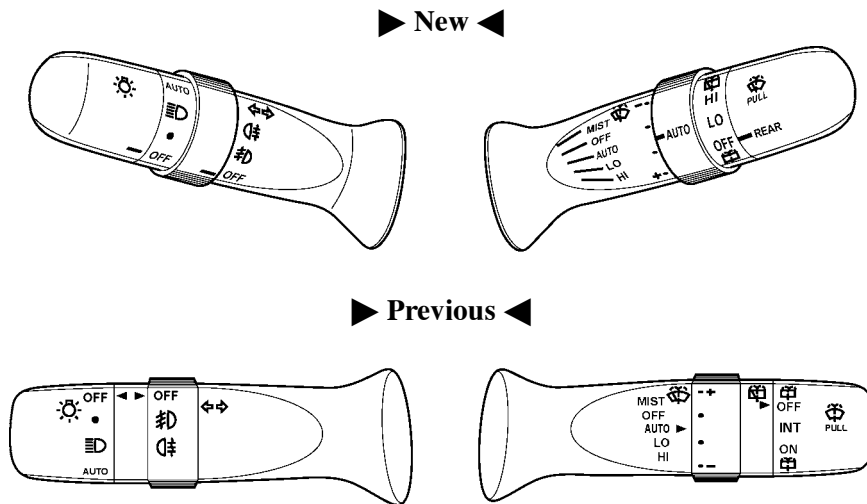
The designs of the light control switch and wiper switch are changed.

Without rear fog light



0270BE10C

With rear fog light



0280BE07C

11. Air Conditioner

Item	Outline
A/C Compressor	<ul style="list-style-type: none"> • Europe/Australia Models The compressor has been changed from 0S17 type to the SBU16 type. • G.C.C. Countries Models The compressor has been changed from 0S17 type to the SBH17 type. • The solenoid valve and internal valving have been integrated to control the discharge capacity and to improve the compressor durability. For details, see page 9.

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12. Multi Display

The multi display functions are changed. For details, see the Multi Display on page 93.

13. Back Guide Monitor System (Except G.C.C. Countries)

- The Television Camera ECU is connected to the CAN. Because of this change, the rear view monitor system circuit has been partially changed.
- The mounting location of the Television Camera ECU has been changed. For details, see the Back Guide Monitor System on page 102.

14. Rear View Monitor System (G.C.C. Countries)

The Television Camera ECU has been abolished. The rear view monitor system circuits have been changed. For details, see the Rear View Monitor System on page 103.

15. Cruise Control System

- The Engine ECU is connected to the CAN. Because of this change, the cruise control system circuit has been partially changed. For details, see the Cruise Control System on page 104.
- Low speed limit and RES switch controls have been changed.

Control	Model	
	New	Previous
Low Speed Limit	Even if vehicle speed goes lower than the low speed limit, the set vehicle speed remains.	If vehicle speed goes lower than the low speed limit, the set vehicle speed is cleared.
RES Switch	Even if the vehicle speed decreases to the low speed limit or less, resume can be performed when the vehicle speed increases to the low speed limit or more.	If the vehicle speed decreases to the low speed or less even once, resume cannot be performed.

MODEL CODE

GSU35 L - A W A G K W

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1	BASIC MODEL CODE
	GSU35: 2GR-FE 4WD

5	GEAR SHIFT TYPE
	A: 5-Speed Automatic, Floor

2	STEERING WHEEL POSITION
	L : Left-Hand Drive R : Right-Hand Drive

6	GRADE
	G : -

3	MODEL NAME
	A: RX350

7	ENGINE SPECIFICATION
	K: Compact DOHC and EFI

4	BODY TYPE
	W: Wagon

8	DESTINATION
	W : Europe
	Q : Australia
	V : G.C.C. Countries

MODEL LINE-UP

DESTINATION	DRIVE TYPE	ENGINE	BODY TYPE	GRADE	TRANSAXLE
					5-Speed Automatic
Europe	4WD	2GR-FE	Wagon	-	U151F
Australia					GSU35R-AWAGKW
G.C.C. Countries					GSU35L-AWAGKW
					GSU35R-AWAGKQ
					GSU35L-AWAGKV

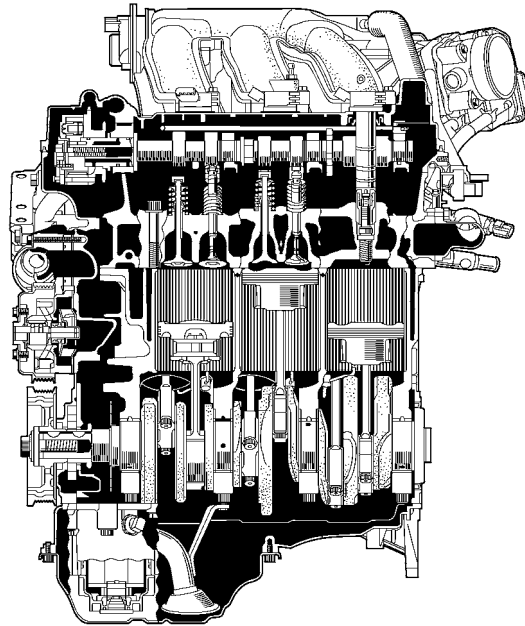
NEW FEATURES

■ 2GR-FE ENGINE

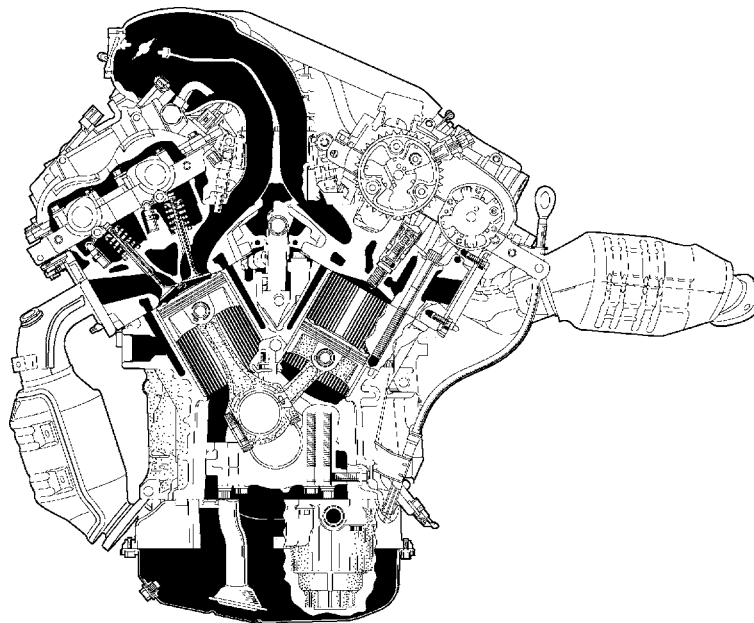
1. Description

The 2GR-FE engine is a 3.5-liter, 24-valve DOHC V6 engine. This engine uses a Dual VVT-i (Variable Valve Timing-intelligent) system, DIS (Direct Ignition System), ACIS (Acoustic Control Induction System) and ETCS-i (Electronic Throttle Control System-intelligent). These control functions achieve improved engine performance, fuel economy, and clean emissions.

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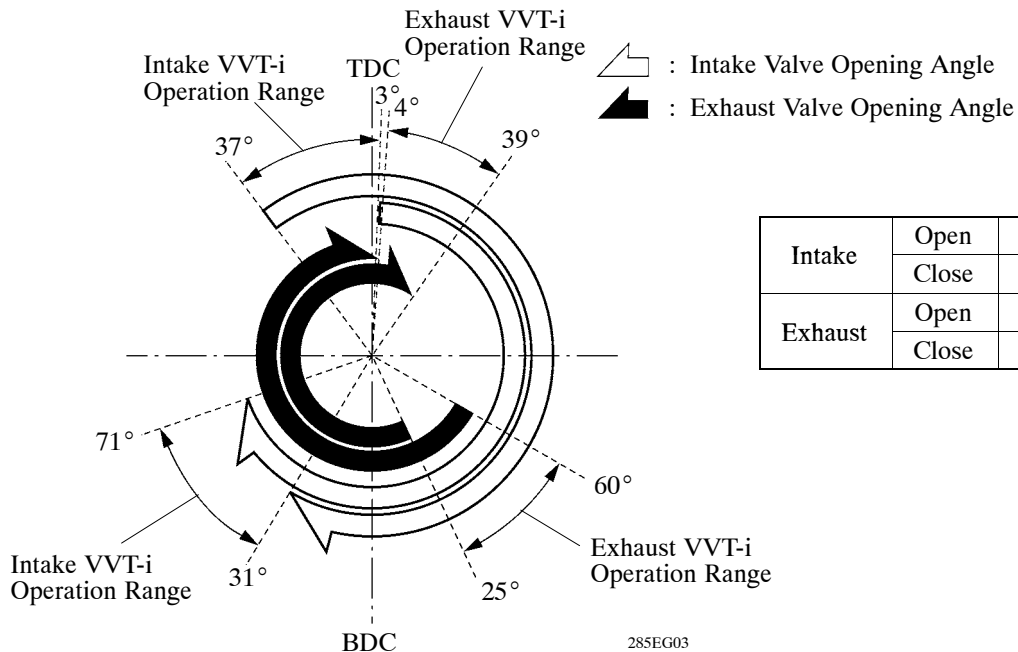
► Engine Specifications ◀

Engine Type		2GR-FE	
No. of Cyls. & Arrangement		6-Cylinder, V Type	
Valve Mechanism		24-Valve DOHC, Chain Drive (with Dual VVT-i)	
Combustion Chamber		Pentroof Type	
Flow of Intake and Exhaust Gasses		Cross-Flow	
Fuel System		EFI	
Ignition System		DIS	
Displacement		cm ³ (cu. in.)	3456 (210.9)
Bore × Stroke		mm (in.)	94.0 × 83.0 (3.70 × 3.27)
Compression Ratio		10.8 : 1	
Max. Output (SAE-NET)	Destination	Europe/Australia	203 kW @ 6200 rpm
		G.C.C. Countries	201 kW @ 6200 rpm
Max. Torque (SAE-NET)	Destination	Europe/Australia	342 N·m @ 4700 rpm
		G.C.C. Countries	341 N·m @ 4700 rpm
Oil Capacity	Without Oil Cooler	Dry	6.5 liters (6.9 US qts, 5.7 Imp. qts)
		With Oil Filter	6.1 liters (6.4 US qts, 5.4 Imp. qts)
		Without Oil Filter	5.7 liters (6.0 US qts, 5.0 Imp. qts)
	With Oil Cooler	Dry	6.8 liters (7.2 US qts, 6.0 Imp. qts)
		With Oil Filter	6.1 liters (6.4 US qts, 5.4 Imp. qts)
		Without Oil Filter	5.7 liters (6.0 US qts, 5.0 Imp. qts)
Oil Grade		20W-50 and 15W-40 API grade SL or SM multigrade engine oil 10W-30 and 5W-30 API grade SL “Energy-Conserving”, “Energy-Conserving” SM or ILSAC multigrade engine oil	
Engine Coolant	Type	TOYOTA Genuine Super Long Life Coolant or the following* ¹	
	Capacity	Without Oil Cooler	9.0 liters (9.5 US qts, 7.9 Imp. qts)
		With Oil Cooler	9.2 liters (9.7 US qts, 8.1 Imp. qts)
Spark Plug	Type	DENSO	FK20HR11 (Iridium)
	Plug Gap	mm (in.)	1.0 - 1.1 (0.0394 - 0.0433)
Firing Order		1 - 2 - 3 - 4 - 5 - 6	
Research Octane No.	Destination	Europe/Australia	95 or higher
		G.C.C. Countries	96 or higher
Tailpipe Emission Regulation		EURO IV	
Engine Service Mass* ² (Reference)	Without Oil Cooler		173 kg (381 lb)
	With Oil Cooler		176.5 kg (389 lb)

*1: Similar high quality ethylene glycol based non-silicate, non-amine, non-nitrite, and non-borate coolant with long-life hybrid organic acid technology. (Coolant with hybrid organic acid technology consists of a combination of low phosphates and organic acids.)

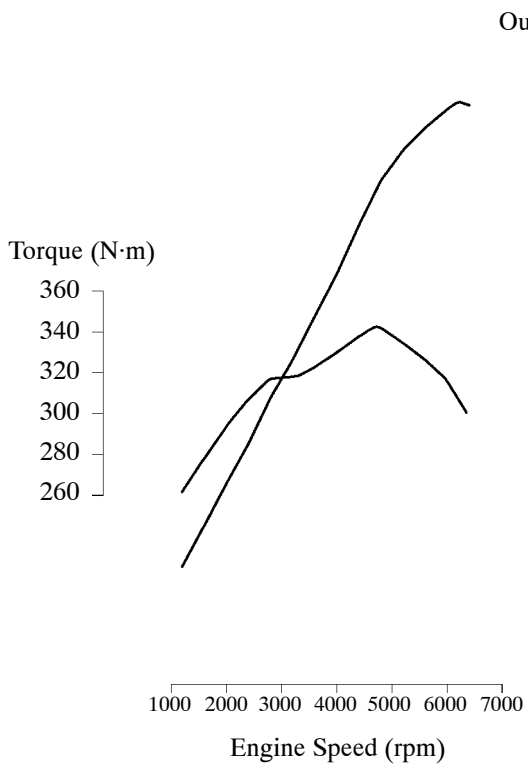
*2: The figure shown is the weight with the oil and coolant fully filled.

► Valve Timing ◀

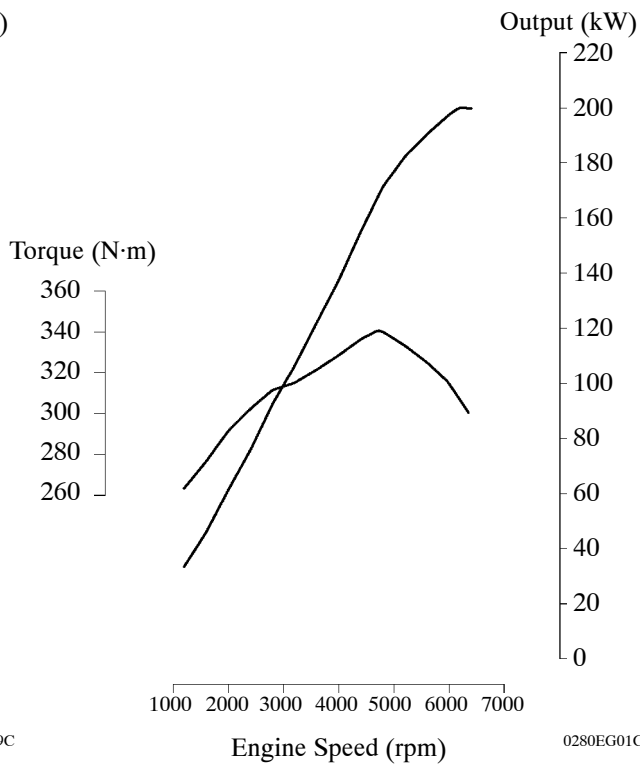


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► Performance Curve ◀



Models for Europe and Australia



Models for G.C.C. Countries

2. Features of 2GR-FE Engine

The 2GR-FE engine has achieved the following performance through the use of the items listed below.

- (1) High performance and reliability
- (2) Low noise and vibration
- (3) Lightweight and compact design
- (4) Good serviceability
- (5) Clean emission and fuel economy

Item		(1)	(2)	(3)	(4)	(5)
Engine Proper	A steel laminate type cylinder head gasket is used.	○				
	A taper squish shape is used for combustion chamber.	○				○
	A cylinder block made of aluminum alloy is used.			○		
	The skirt portion of each piston has a resin coating applied to reduce friction.	○	○			○
	An oil pan No.1 made of aluminum alloy is used.		○	○		
Valve Mechanism	A Dual VVT-i (Variable Valve Timing-intelligent) system is used.	○				○
	Hydraulic lash adjusters are used.	○	○		○	
	A timing chain and chain tensioner are used.		○	○	○	
	Roller rocker arms are used.	○				○
Lubrication System	An oil filter with a replaceable element is used.				○	
Cooling System	The engine coolant is used the TOYOTA Genuine SLLC (Super Long Life Coolant).				○	
Intake and Exhaust System	A cable-less type throttle body is used.			○	○	
	A intake air chamber made of plastic is used.			○		
	A stainless steel exhaust manifold is used.			○		○
	An ultra thin-wall, high-cell density ceramic type TWC (Three-Way Catalytic converter) is used.					○
Fuel System	A fuel delivery pipe made of plastic is used.			○		
	A compact 12-hole type injector is used.	○				○
	A multi-layer plastic fuel tank is used.			○		○
	Quick connectors are used to connect the fuel hose with the fuel pipe.				○	
Ignition System	The DIS (Direct Ignition System) makes ignition timing adjustment unnecessary.	○			○	○
	Long-reach type iridium-tipped spark plugs are used.	○			○	○
Charging System	A segment conductor type alternator is used.	○		○		
	An alternator pulley with a one way clutch is used.	○				○
Starting System	A PS (Planetary reduction-Segment conductor motor) type starter is used.			○		

(Continued)

Item		(1)	(2)	(3)	(4)	(5)
Engine Mount	An active control engine mount is used.		○			
Serpentine Belt Drive System	A serpentine belt drive system is used.			○	○	
Engine Control System	MRE (Magnetic Resistance Element) type VVT sensors are used.	○				
	The ETCS-i (Electronic Throttle Control System-intelligent) is used.	○				○
	An ACIS (Acoustic Control Induction System) is used.	○				
	An air intake control system is used.	○	○			