

GENERAL

OUTLINE OF CHANGES

The following changes have been made to the vehicles with 4G94-MPI engine for Australia. The service procedures are the same as before.

- The engine-ECU <M/T> and the engine-A/T-ECU <A/T> have been changed.
- Due to the changes on the engine-ECU <M/T> and the engine-A/T-ECU <A/T>, the diagnosis control terminal has been abolished.
- Range of check and set conditions for diagnosis code Nos. 14, 24, 31, 41, 44 have been changed.
- Data list reference table item Nos. 14, 41 have been changed.
- Vehicles with auto-cruise control system have been added.

GENERAL INFORMATION

GENERAL SPECIFICATIONS

Item		Specification
Engine-ECU <M/T>	Identification model No.	E6T34985
Engine-A/T-ECU <A/T>	Identification model No.	E6T31098 <4A/T> E6T31099 <SPORTS MODE 4A/T>

TROUBLESHOOTING

INSPECTION CHART FOR DIAGNOSIS CODES

Code No.	Diagnosis item
14	Throttle position sensor system
21	Engine coolant temperature sensor system
24	Vehicle speed sensor system <M/T>
	Vehicle speed signal system <A/T>
31	Detonation sensor system
44	Ignition coil system

INSPECTION PROCEDURE FOR DIAGNOSIS CODES

The probable causes and the troubleshooting procedures are the same as before.

Code No. 14 Throttle position sensor system
Range of check <ul style="list-style-type: none"> • Ignition switch: ON • Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts. Set conditions <ul style="list-style-type: none"> • The sensor output voltage is 0.2 V or less for 4 seconds. • Engine speed is 3,000 r/min or less, and volumetric efficiency is 30 % or less, TPS output voltage is 4.6 V or more for 4 seconds. or <ul style="list-style-type: none"> • Engine speed is 2,000 r/min or less, and volumetric efficiency is 60 % or less, TPS output voltage is 0.8 V or more for 4 seconds.

Code No. 21 Engine coolant temperature sensor system

Range of check

- Ignition switch: ON
- Excluding 60 seconds after the ignition switch is turned to ON or immediately after the engine starts.

Set conditions

- The sensor output voltage is 4.6 V or more (corresponding to an engine coolant temperature of -45°C or less) for 4 seconds.
- or
- The sensor output voltage is 0.1 V or less (corresponding to an engine coolant temperature of -45°C or more) for 4 seconds.

Range of check

- Ignition switch: ON
- Engine speed is approx. 50 r/min or more.

Set conditions

- The engine coolant temperature has reduced from over 40°C to less than 40°C , and that condition has lasted for 5 minutes or more.
- After this, the sensor output voltage is 1.6 V or more for 5 minutes.

Code No. 24 Vehicle speed sensor system <M/T>

Range of check

- Engine: 2 seconds after the engine was started
- Engine speed is 2,500 r/min or more
- Volumetric efficiency is 50 – 80%

Set conditions

- The sensor output voltage does not change for 2 seconds (no pulse signal input).

Code No. 24 Vehicle speed signal system <A/T>

Range of check

- Engine: 2 seconds after the engine was started
- Engine speed is 2,500 r/min or more
- Volumetric efficiency is 60 – 80%

Set conditions

- The vehicle speed signal does not change for 2 seconds (no pulse signal input).

Code No. 31 Detonation sensor system

Range of check

- Ignition switch: ON
- 60 seconds have passed since the ignition switch is turned ON or the engine starting process is completed
- Engine speed is approx. 2,000 r/min or more
- Volumetric efficiency is 40% or more

Set conditions

- The change in the detonation sensor output voltage (detonation sensor peak voltage at each 1/2 revolution of the crankshaft) is less than 0.06V for 200 times in succession.

Code No. 44 Ignition coil system

Range of check

- Engine speed is approx. 500 – 6,000 r/min
- Except deceleration and rapid acceleration/deceleration

Set conditions

- The crank angle sensor detects unstable engine rotation caused by misfire (either of the coils has failed).

DATA LIST REFERENCE TABLE

Item No.	Inspection item	Inspection contents		Normal condition	Inspection procedure No.
14	Throttle position sensor	Ignition switch: ON	Set to idle position	300 – 1,000 mV	Code No. 14
			Gradually open	Increases in proportion to throttle opening angle	
			Open fully	4,400 – 5,300 mV	
41	Injectors*1	Engine: Cranking	When engine coolant temperature is 0°C	16 – 25 ms	–
			When engine coolant temperature is 20°C	31 – 47 ms	
			When engine coolant temperature is 80°C	6.9 – 10.3 ms	
	Injectors*2	<ul style="list-style-type: none"> Engine coolant temperature: 80 – 95°C Lamp, electric cooling fan and all accessories: "OFF" Transmission: Neutral (A/T: "P" range) 	Engine is idling	2.4 – 3.6 ms	–
			2,500 r/min	2.4 – 3.6 ms	
			Racing	Increases	

NOTE

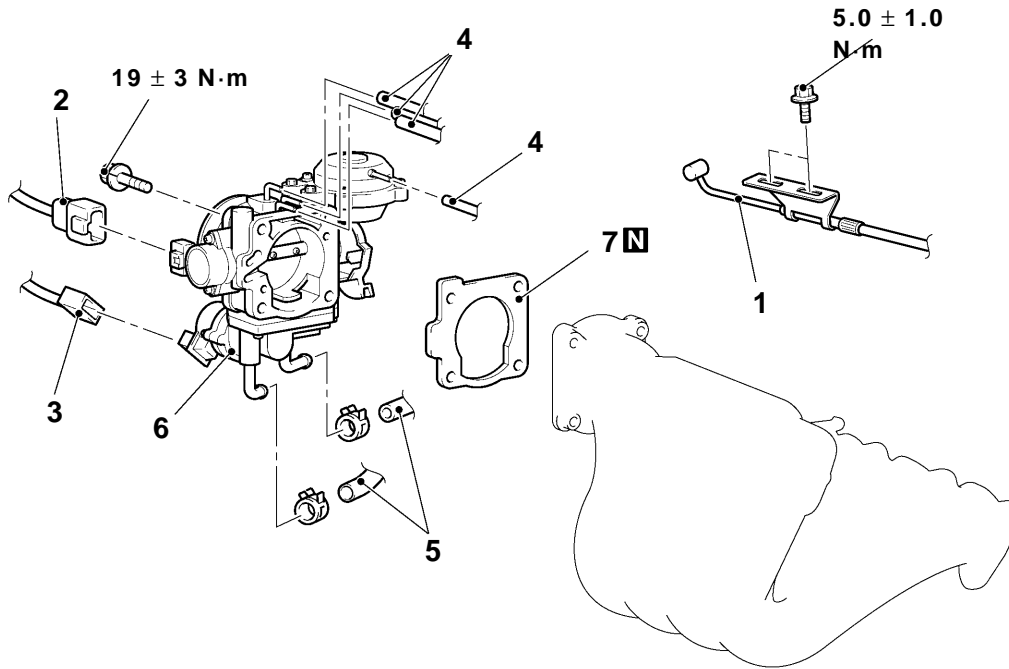
- *1: The injector drive time represents the time when the cranking speed is at 250 r/min or below when the power supply voltage is 11 V.
- *2: In a new vehicle [driven approximately 500 km or less], the injector drive time is sometimes 10% longer than the standard time.

THROTTLE BODY

REMOVAL AND INSTALLATION

Pre-removal and Post-installation Operation

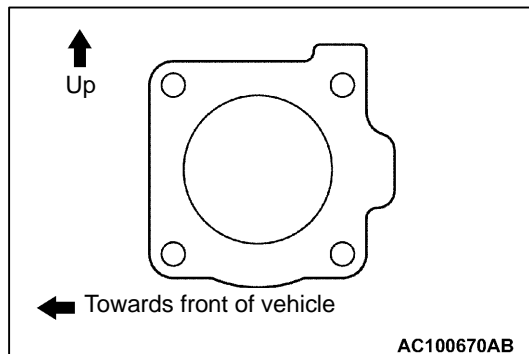
- Engine Coolant Draining and Supplying
- Air Cleaner Removal and Installation
- Accelerator Cable Adjustment <Post-installation>



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Removal steps

1. Accelerator cable connection
2. Throttle position sensor connector
3. Idle speed control servo connector
4. Vacuum hose connection
5. Water hose connection
6. Throttle body
7. Throttle body gasket



INSTALLATION SERVICE POINT

►A◄ THROTTLE BODY GASKET INSTALLATION

Place the gasket so that the projecting part is positioned as shown in the illustration, and then install it between the intake manifold and the throttle body.