TOYOTA Service Bulletin

Section :	Engine
Ref. No. :	EG-5014
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Area Application : USA, Canada, Europe, General, G.C.C. Countries, Australia
Model Name : ALL MODELS
Model Code : ALL

Subject : Changes in Inspection Method for Mass Air Flow Meter

This Service Bulletin provides information on changes the inspection method for DENSO made mass air flow meters. However, for HITACHI made mass air flow meters, use the procedures provided previously.

Part No. Information :

New Part No.	New Part Name	Qty
NA	NA	-

Production Effective :

VIN	Production Date
NA	NA

NOTICE:
The MAF meter inspection procedure changes are for vehicles with DENSO made MAF meters. Vehicles with HITACHI made MAF meters do not apply.

INSPECT MASS AIR FLOW METER

a. Check the mass air flow value.

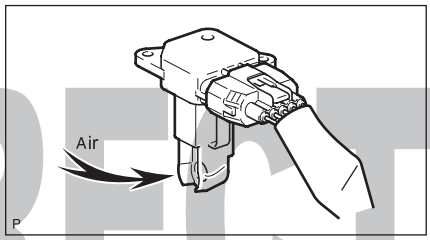
i. Connect intelligent tester to the DLC3.

ii. Turn the engine switch ON (IG).

iii. Push the intelligent tester main switch ON.

iv. Enter the following menus:
DIAGNOSIS / ENHANCED OBD II /
DATA LIST / PRIMARY / MAF.

v. Blow air into the MAF meter, and check that the MAF value fluctuates.
If the result is not as specified, check the MAF meter (see next procedure), or wiring and ECM.



b. Check the output voltage.

i. Disconnect the MAF meter connector and remove the 2 screws and MAF meter.

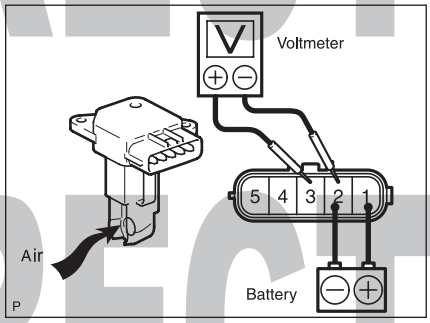
ii. Apply battery voltage across terminals 1 (+B) and 2 (E2G).

NOTICE:
While using the battery during inspection, do not bring the positive and negative tester probes too close to each other as a short circuit may occur.

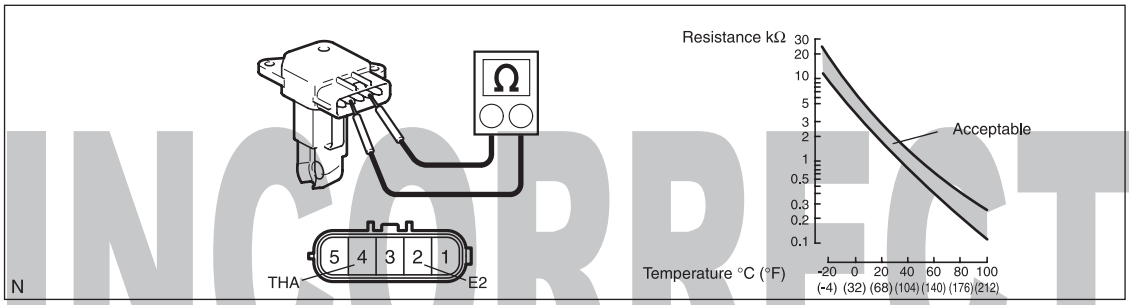
iii. Using a voltmeter, connect the positive (+) tester probe to terminal 3 (VG), and negative (-) tester probe to terminal 2 (E2G).

iv. Blow air into the MAF meter, and check that the voltage fluctuates.
If the result is not as specified, replace the MAF meter.

v. Reinstall the MAF meter with the 2 screws and connect the MAF meter connector.



c. Check the IAT sensor.



i. Disconnect the MAF meter connector and remove the 2 screws and MAF meter.

ii. Measure the resistance between terminals 4 (THA) and 5 (E2).

Standard resistance:

Condition	Specified Condition
-20°C (14°F)	13.6 to 18.4 kΩ
20°C (68°F)	22.1 to 2.69 kΩ
60°C (14°F)	0.49 to 0.67 kΩ

If the result is not as specified, replace the MAF m

iii. Reinstall the MAF meter with the 2 screws and MAF meter connector.

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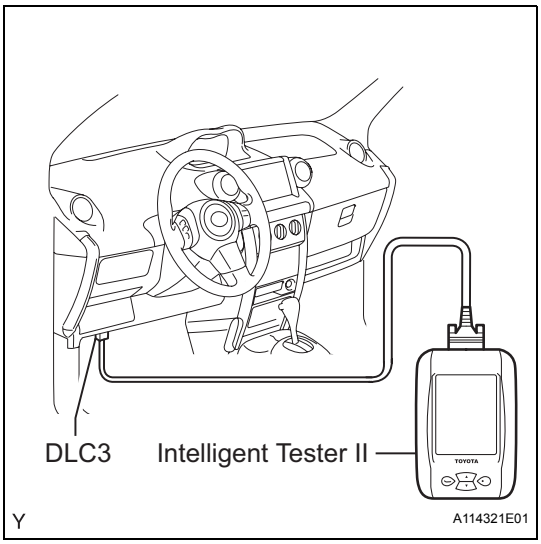
HINT:
The procedures above are the previous MAF meter inspection procedures. Please use the procedures below, which are the new MAF meter inspection procedures.

1. CHECK MASS AIR FLOW METER (for Gasoline Engine)

NOTICE:

- **Perform the MAF meter inspection according to the procedures below.**
- **Only replace the MAF meter when both the LONG FT#1 value and MAF value in the DATA LIST (with the engine stopped) are not within the normal operating range.**



(a) Perform confirmation driving pattern.

(1) Connect the intelligent tester II to the DLC3.

(2) Turn the ignition switch ON.

(3) Turn the intelligent tester II ON.

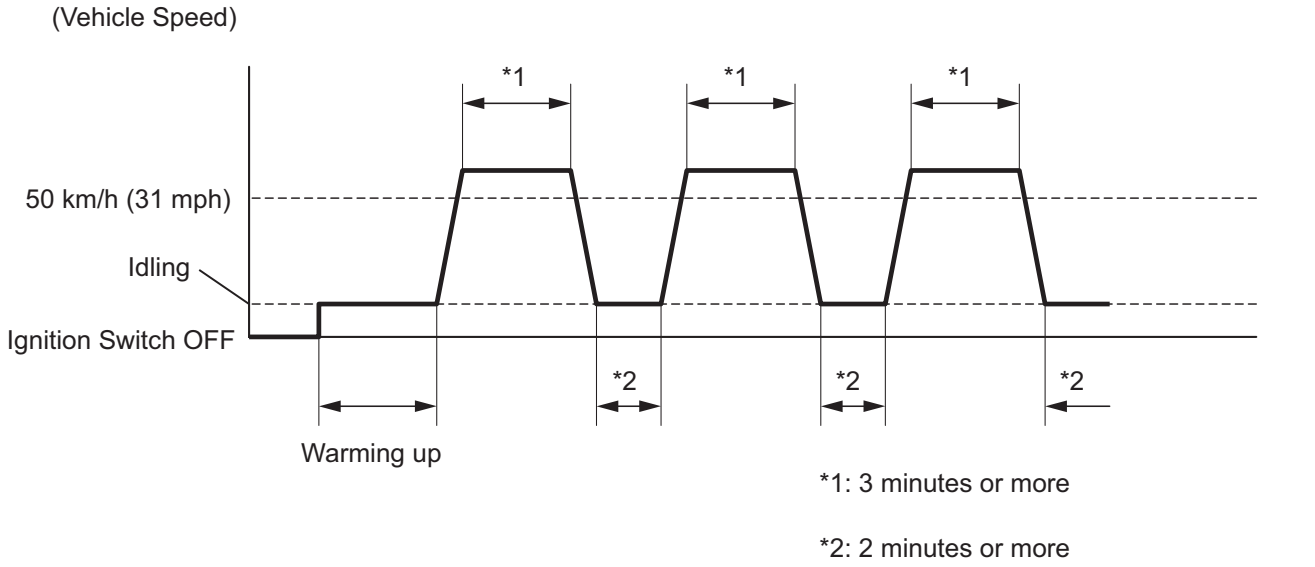
(4) Clear the DTCs (Refer to the repair manual of the vehicle you are servicing).

(5) Start the engine and warm it up with all accessory switches OFF (until the engine coolant temperature is 75°C (167°F) or more).

(6) Drive the vehicle at 50 km/h (31 mph) or more for 3 minutes or more *1.

(7) Let the engine idle (accelerator pedal fully released) for 2 minutes or more *2.

(8) Perform steps *1 and *2 at least 3 times.



(b) Read value using intelligent tester II (LONG FT#1 and LONG FT#2).
HINT:
The "LONG FT#1" display is for inline engines. For V-type engines, "LONG FT#1 (NO. 1 BANK)" and "LONG FT#2 (NO. 2 BANK)" are displayed.
(1) Enter the following menus: Powertrain / Engine and ECT / Data List / Long FT#1 and Long FT#2
(2) Read the values displayed on the tester.
Standard value:
Within -15 to +15 %
If the result is not within the standard value, perform inspection below.
HINT:
For V-type engines, if the value for either "LONG FT#1" or "LONG FT#2" is not within the standard value, perform the inspection below.

(c) Read value using intelligent tester II (MAF).
NOTICE:
- **Turn off the engine.**
- **Perform the inspection with the vehicle indoors and on a level surface.**
- **Perform the inspection of the MAF meter while it is installed to the air cleaner case (installed to the vehicle).**
- **During the test, do not use the exhaust air duct to perform suction on the exhaust pipe.**

(1) Turn the ignition switch to ACC.
(2) Turn the ignition switch ON (do not start the engine).
(3) Turn the intelligent tester II ON.
(4) Enter the following menus: Powertrain / Engine and ECT / Data List / MAF.
(5) Wait 30 seconds, and read the MAF values on the intelligent tester.
Standard condition:
Less than the value shown under "Specified Condition"

If the result is not as specified below, replace the MAF meter.
If the result is within the specified range, inspect the cause of the extremely rich or lean air fuel ratio (Refer to the repair manual of the vehicle you are servicing).

TOYOTA

Vehicle Model	Engine Type	Destination: North America	Destination: Europe	Destination: Other	Line-off (Start of Production)	Specified Condition (g/sec.)
CROWN	2JZ-GE	-	-	○	From August '99 to December '03	0.47
	3GR-FE	-	-	○ China	From February '05	0.66
REIZ	3GR-FE	-	-	○ China	From October '05	0.44
CAMRY	2AZ-FE	○	-	-	From August '01	0.46
	2AZ-FE	○ For California	-	-	From August '02	0.45
	2AZ-FE	-	○	○	From August '01	0.46
	2AZ-FE	○	-	-	From August '01 to August '03	
	2AZ-FE	○ From '04 Model year	-	-	From August '03	0.54
	1AZ-FE, 2AZ-FE	-	-	○ ASEAN	From February '02	0.46
	1AZ-FE	-	-	○ Taiwan	From February '02	
	1AZ-FE, 2AZ-FE	-	-	○ Australia, G.C.C.	From May '02 to December '05	0.47
	1MZ-FE	○	-	-	From August '01 to August '03	0.52
	1MZ-FE	○ From '04 Model year	-	-	From August '03	0.54
	1MZ-FE	-	○	○ G.C.C.	From August '01	0.52
	1MZ-FE	-	-	○ Australia, G.C.C.	From May '02 to December '05	
CAMRY SOLARA	2AZ-FE	○	-	-	From August '01 to August '03	0.46
	1MZ-FE	○	-	-	From August '01 to August '03	0.52
AVALON	1MZ-FE	○	-	○ G.C.C.	Until December '04	0.57
	1MZ-FE	-	-	○ Australia	From October '03 to December '05	0.52
	2GR-FE	○	-	○ G.C.C.	From January '05	0.56
SIENNA	3MZ-FE	○	-	-	From January '04	0.54
HIGHLANDER	2AZ-FE	○	-	-	Until August '03	0.52
	2AZ-FE	○	-	-	From August '03	0.49
	1MZ-FE	○	-	-	Until August '03	0.52
	3MZ-FE	○	-	-	From August '03	0.56
	3MZ-FE	○	-	-	From March '05	0.54
KLUGER	3MZ-FE	-	-	○ Australia	From August '03	0.56

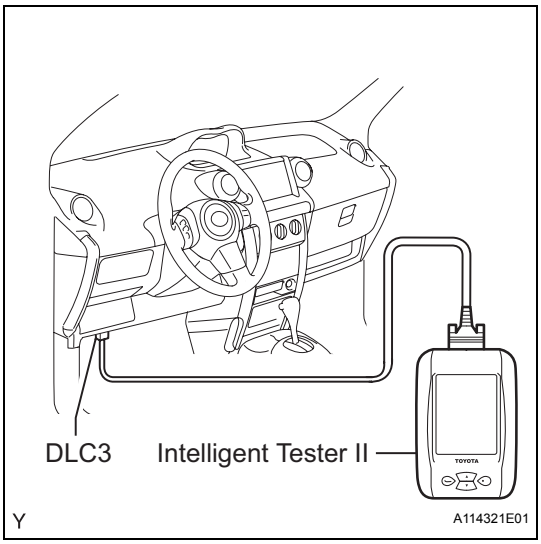
Vehicle Model	Engine Type	Destination: North America	Destination: Europe	Destination: Other	Line-off (Start of Production)	Specified Condition (g/sec.)
PREVIA / TARAGO	2AZ-FE	-	○	○ Australia, G.C.C.	Until January '03	0.39
	2AZ-FE	-	○	○ Australia, G.C.C.	From January '03	
RAV4	1ZZ-FE	-	○	-	From May '00	0.46
	1AZ-FE	○	○	○	From May '00	0.39
	1AZ-FE	○	○	○	From August '03 to October '05	
	1AZ-FE	○	○	○ G.C.C.	From October '05	0.45
	2AZ-FE	○	-	○ Australia	From August '03 to October '05	0.39
	2AZ-FE	○	-	○ Australia	From October '05	0.45
	2GR-FE	○	-	○ Australia	From October '05	0.55
CELICA	1ZZ-FE, 2ZZ-GE	○	○	○	From August '01	0.41
PRIUS	1NZ-FXE	○	○	-	Until August '03	0.11
	1NZ-FXE	○	○	○ Australia	From August '03	0.07
MR2	1ZZ-FE	○	○	○	From January '00	0.42
VIBE	2ZZ-GE	○	-	-	From January '02	0.48
WISH	1AZ-FE	-	-	○ Thailand	From December '03	0.48
	1AZ-FE	-	-	○ Taiwan	From September '04	0.48
COROLLA	1NZ-FE, 2NZ-FE	-	○	-	From August '00 to August '06	0.28
	2ZZ-GE	○	-	-	From May '04	0.53
	2ZZ-GE	-	○	-	From November '01	
	1AZ-FE	-	-	○ China	From December '03	0.48
	4ZZ-FE	-	○	-	From January '03	
	4ZZ-FE	-	-	○ Thailand	From October '01	
	1ZZ-FE	○	-	-	From January '02	
	1ZZ-FE	-	-	○ Brazil	From May '02	
	1ZZ-FE	-	-	○ Taiwan	From December '03	0.50
	1ZZ-FE	○	-	-	From May '04	0.48
COROLLA VERSO / SPACIO	1ZZ-FE	-	○	○	From August '00 to August '06	0.48
AVENSIS	4ZZ-FE	-	○	-	From November '01	0.48
AVENSIS VERSO / SPACIO	1AZ-FE, 2AZ-FE	-	○	○ Australia, G.C.C.	From May '01	0.47
WISH	1AZ-FE	-	-	○ Taiwan	From September '04	0.48
xA, xB	1NZ-FE	○	-	-	From July '05	0.27

Vehicle Model	Engine Type	Destination: North America	Destination: Europe	Destination: Other	Line-off (Start of Production)	Specified Condition (g/sec.)
YARIS / ECHO	1NZ-FE, 2NZ-FE	O	O	O	From January '99	0.25
YARIS	1NZ-FE, 2NZ-FE	-	O	-	From '00	0.25
	1NZ-FE, 2NZ-FE	-	-	O	From January '05	0.28
	1NZ-FE, 2NZ-FE	O	-	-	From August '05	
	1SZ-FE	-	O	-	From May '99 to August '04	0.12
	1SZ-FE, 2SZ-FE	-	O TMMF made	-	From January '03	
VIOS	1NZ-FE, 2NZ-FE	-	-	O Thailand, Malaysia, Philippines, Indonesia	From January '03 to June '04	0.25
	1NZ-FE, 2NZ-FE	-	-	O Thailand, Malaysia, Philippines, Indonesia	From June '04	
	1NZ-FE, 2NZ-FE	-	-	O Taiwan	From January '03 to June '04	
	1NZ-FE, 2NZ-FE	-	-	O Taiwan	From June '04	
TUNDRA	5VZ-FE	O	-	-	Until August '02	0.38
	5VZ-FE	O	-	-	From August '02	
TACOMA	1GR-FE	O	-	-	From November '02	0.72
HILUX	5VZ-FE	-	-	O Australia	From August '02	0.51
	5VZ-FE	-	-	O Australia	Until August '04	
LAND CRUISER PRADO	5VZ-FE	-	O	O	Until August '02	0.38
4 RUNNER	5VZ-FE	-	O	-	From August '99	0.41
	1GR-FE	O	-	-	From November '02	0.72
	1GR-FE	-	O	O	From November '02	0.70
HILUX / TOYOTA INNOVA / KIJANG INNOVA / TOYOTA FORTUNER / HILUX SW4	1TR-FE, 2TR-FE	-	O	O Thailand, Indonesia	From August '04	0.36
	1TR-FE, 2TR-FE	-	O	O India / South America	From January '05	
	1TR-FE, 2TR-FE	-	-	O	From April '05	

2. CHECK MASS AIR FLOW METER (for Diesel Engine)

NOTICE:

- **Perform the MAF meter inspection according to the procedures below.**
- **Only replace the MAF meter when the MAF value in the DATA LIST (with the engine stopped) is not within the normal operating range.**



(a) Read value using intelligent tester II (MAF).
NOTICE:
- **Turn off the engine.**
- **Perform the inspection with the vehicle indoors and on a level surface.**
- **Perform the inspection of the MAF meter while it is installed to the air cleaner case (installed to the vehicle).**
- **During the test, do not use the exhaust air duct to perform suction on the exhaust pipe.**

(1) Turn the ignition switch ON (do not start the engine).
(2) Turn the intelligent tester II ON.
(3) Enter the following menus: Powertrain / Engine and ECT / Data List / MAF.
(4) Wait 30 seconds, and read the values on the intelligent tester.
Standard condition:
Less than the value shown under "Specified Condition"
If the result is not as specified below, replace the MAF meter.

TOYOTA

Vehicle Model	Engine Type	Destination: North America	Destination: Europe	Destination: Other	Line-off (Start of Production)	Specified Condition (g/sec.)
AVENSIS	2AD-FHV	-	O	-	From April '05	0.55
RAV4	2AD-FTV	-	-	O	From November '05	0.55
COROLLA	1ND-TV	-	O	O	From June '04	0.23
YARIS	1ND-TV	-	O	-	From September '01 to December '02	0.22
	1ND-TV	-	O	-	From January '03 to October '05	
	1ND-TV	-	O TMMF made	-	From October '05	

Vehicle Model	Engine Type	Destination: North America	Destination: Europe	Destination: Other	Line-off (Start of Production)	Specified Condition (g/sec.)
HILUX	2KD-FTV	-	○	○ Thailand	From August '01	0.31
	2KD-FTV	-	-	○ Thailand	From October '01 to December '04	0.59
	1KD-FTV	-	-	○ Thailand	From August '02 to August '04	0.56
LAND CRUISER PRADO	1KD-FTV	-	○	-	From August '00 to August '02	0.29
	1KD-FTV	-	○	-	From August '00 to August '02	0.38
4 RUNNER	1KD-FTV	-	○	-	From August '02	0.50
HILUX / TOYOTA INNOVA / KIJANG INNOVA / TOYOTA FORTUNER / HILUX SW4	1KD-FTV	-	-	○ Thailand, Indonesia	From August '04	0.35
	1KD-FTV	-	-	○ South Africa	From April '05	
	1KD-FTV	-	-	○ South America	From January '05	
	2KD-FTV	-	○	○ Thailand	From January '05	
HIACE	2KD-FTV	-	○	-	From '02 to August '06	0.37