TOYOTA SERVICE BULLETIN

Group: 04 No.: 06 Date: Apr, 14

Landcruiser VDJ200

Corrections to Repair Manual RM19U1E

Please ensure these pages are distributed to all relevant staff for their information; and a copy made available for future reference, with the above repair manual.

Section	Title	Paragraph
Please see the attached list on page 2.		

The revised pages listed above are attached.
(The corrected parts are indicated by arrows.)

This Bulletin does not cause the Flat Rate Manual to be changed.

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Section	Title	Paragraph
PREPARATION	1VD-FTV FUEL	SST
SPECIFICATIONS	1VD-FTV FUEL	SERVICE DATA (2011/09 - 2012/01)
		SERVICE DATA(2012/01-)
		TORQUE SPECIFICATION (2011/09 - 2012/01)
		TORQUE SPECIFICATION (2012/01 -)
1VD-FTV ENGINE CONTROL	ECD SYSTEM (w/ DPF)	P0093(2012/01 -)
		P0180(2012/01 -)
	ECD SYSTEM (w/o DPF)	P0168(2011/09 - 2012/01)
		P0180(2011/09 - 2012/01)
		P0168(2012/01 -)
		P0180(2012/01 -)
1VD-FTV FUEL	FUEL SUPPLY PUMP	INSPECTION
	FUEL TEMPERATURE SENSOR	COMPONENTS
		REMOVAL(2011/09 - 2012/01)
		REMOVAL(2012/01 -)
		INSPECTION
		INSTALLATION (2011/09 - 2012/01)
		INSTALLATION(2012/01 -)

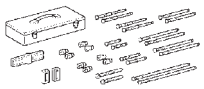
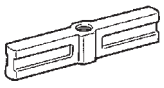
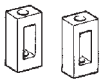
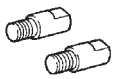
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1VD-FTV FUEL

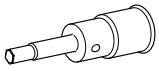
SST

PP

[Added]

	09808-14030	Fuel Pump Retainer Tool	-
	09817-33190	Sensor Socket Wrench	-
	09950-50013	Puller C Set	-
	(09951-05010)	Hanger 150	-
	(09952-05010)	Slide Arm	-
	(09953-05020)	Center Bolt 150	-
	(09954-05031)	Claw No.3	-
	(09955-05010)	Adapter No.1	-

RECOMMENDED TOOLS

	09010-3C100	Set, Hexagon Wrench	-
	(09013-6C100)	Socket Hexagon 5mm	-

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1VD-FTV FUEL

SERVICE DATA

(2011/09-2012/01)

Fuel injector		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	0.85 to 1.05 Ω
Fuel supply pump	Suction control valve	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	1.9 to 2.3 Ω
	Standard thrust clearance		0.05 to 0.30 mm (0.00197 to 0.0118 in.)		
Common rail	Fuel pressure sensor	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	25°C (77°F)	16.4 kΩ or less
			2 - 3	25°C (77°F)	3 kΩ or less
Fuel filter	Level warning switch	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	Float upper end position	Below 1 Ω
			1 - 2	Float lower end position	1 MΩ or higher
	Clogging switch	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	Below 1 Ω
Fuel temperature sensor		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	2.32 to 2.59 kΩ
			1 - 2	80°C (176°F)	0.310 to 0.326 kΩ
Fuel pump (for Double Tank Type)		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	0.2 to 3.0 Ω
Fuel sender gauge assembly		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	Float level is F (upper)	13.5 to 16.5 Ω
				Float level is E (lower)	405.5 to 414.5 Ω
Fuel sender gauge assembly (for Fuel Sub Tank)		Standard resistance	Tester Connection	Condition	Specified Condition
			2 - 3	Float level is F (upper)	12 to 18 Ω
				Float level is E (lower)	405 to 415 Ω

[Corrected]

SERVICE DATA

(2012/01-)

Fuel injector (w/o DPF)		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	0.85 to 1.05 Ω
Fuel supply pump	Suction control valve	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	1.9 to 2.3 Ω
	Standard thrust clearance		0.05 to 0.30 mm (0.00197 to 0.0118 in.)		
Common rail	Fuel pressure sensor	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	25°C (77°F)	16.4 kΩ or less
			2 - 3	25°C (77°F)	3 kΩ or less
	Pressure discharge valve (w/ DPF)	Standard resistance	1 - 2	25°C (68°F)	0.96 to 1.16 Ω

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Fuel filter	Level warning switch	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	Float upper end position	Below 1 Ω
			1 - 2	Float lower end position	1 MΩ or higher
	Clogging switch	Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	Below 1 Ω
Fuel temperature sensor		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	2.32 to 2.59 kΩ
			1 - 2	80°C (176°F)	0.310 to 0.326 kΩ
Fuel pump (for Double Tank Type)		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	20°C (68°F)	0.2 to 3.0 Ω
Fuel sender gauge assembly		Standard resistance	Tester Connection	Condition	Specified Condition
			1 - 2	Float level is F (upper)	13.5 to 16.5 Ω
				Float level is E (lower)	405.5 to 414.5 Ω
Fuel sender gauge assembly (for Fuel Sub Tank)		Standard resistance	Tester Connection	Condition	Specified Condition
			2 - 3	Float level is F (upper)	12 to 18 Ω
				Float level is E (lower)	405 to 415 Ω

SS

[Corrected]

TORQUE SPECIFICATIONS

(2011/09-2012/01)

Fuel injector

Part Tightened		N*m	kgf*cm	ft.*lbf
Nozzle holder clamp x Cylinder head sub-assembly LH		25	255	18
No. 2 nozzle leakage pipe x Fuel injector LH		18	184	13
No. 2 nozzle leakage pipe x Cylinder head sub-assembly LH	for union bolt	21	214	15
Nozzle holder clamp x Cylinder head sub-assembly RH		25	255	18
Nozzle leakage pipe x Fuel injector RH		18	184	13
Nozzle leakage pipe x Cylinder head sub-assembly RH	for union bolt	21	214	15
Cylinder head cover sub-assembly RH x Cylinder head sub-assembly RH		10	102	7
Cylinder head cover silencer RH x Cylinder head cover sub-assembly RH		5.0	51	44 in.*lbf
Cylinder head cover sub-assembly LH x Cylinder head sub-assembly LH		10	102	7
Oil separator assembly x Cylinder head cover sub-assembly LH		10	102	7
Cylinder head cover silencer LH x Cylinder head cover sub-assembly LH		5.0	51	44 in.*lbf
No. 1 vacuum transmitting pipe sub-assembly x Cylinder head cover sub-assembly LH		6.0	61	53 in.*lbf
No. 1 vacuum switching valve x Cylinder head cover sub-assembly LH		6.0	61	53 in.*lbf

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Fuel supply pump

Part Tightened		N*m	kgf*cm	ft.*lbf
Fuel supply pump x Timing gear case sub-assembly	hexagon bolt	21	214	15
	nut	21	214	15
Fuel supply pump x Fuel supply pump drive gear		68	693	50
No. 1 fuel pipe x Fuel supply pump	for union bolt	17	175	13
Timing chain cover plate x Timing chain cover sub-assembly		9.1	93	81 in.*lbf

Fuel temperature sensor

[Added]

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel temperature sensor x Fuel supply pump	22	224	16

Common rail

Part Tightened		N*m	kgf*cm	ft.*lbf
Common rail assembly RH x No. 3 intake manifold		21	214	15
Common rail assembly LH x No. 3 intake manifold		21	214	15
No. 5 nozzle leakage pipe x Common rail assembly LH	for union bolt	29	296	21

Fuel filter

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel filter assembly x Body	20	199	14
Fuel filer cap x Fuel filter case x Guide plate	4.5	46	40 in.*lbf

Fuel cooler (for Engine Room Side)

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel cooler assembly x Intake manifold	10	102	7

Fuel cooler (for Under Floor Side)

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel cooler assembly x Body	8.0	82	71 in.*lbf
No. 3 front floor heat insulator x Body	5.0	51	44 in.*lbf

Injector driver

Part Tightened	N*m	kgf*cm	ft.*lbf
No. 2 injector driver bracket x Injector driver bracket x No. 2 injector driver	2.0	20	18 in.*lbf
No. 1 injector driver bracket x Injector driver bracket x No. 1 injector driver	2.0	20	18 in.*lbf
No. 2 injector driver bracket x No. 1 injector driver bracket	3.0	31	27 in.*lbf
Injector driver assembly x Body	8.0	82	71 in.*lbf

Fuel tank

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel tank band x Body	40	408	30
No. 1 fuel tank protector x Body	20	204	15

Fuel sub tank

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel and evaporation vent tube sub-assembly x Fuel sub tank	3.5	36	31 in.*lbf
Fuel sender gauge assembly x Fuel sub tank	1.5	15	13 in.*lbf

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Part Tightened	N*m	kgf*cm	ft.*lbf
Oil separator assembly x Cylinder head cover sub-assembly LH	10	102	7
Cylinder head cover silencer LH x Cylinder head cover sub-assembly LH	5.0	51	44 in.*lbf
No. 1 vacuum transmitting pipe sub-assembly x Cylinder head cover sub-assembly LH	6.0	61	53 in.*lbf
No. 1 vacuum switching valve x Cylinder head cover sub-assembly LH (w/ Intercooler)	6.0	61	53 in.*lbf

FUEL SUPPLY PUMP

Part Tightened		N*m	kgf*cm	ft.*lbf
Fuel supply pump x Timing gear case sub-assembly	hexagon bolt	21	214	15
	nut	21	214	15
Fuel supply pump x Fuel supply pump drive gear		68	693	50
No. 1 fuel pipe x Fuel supply pump	for union bolt	17	175	13
Timing chain cover plate x Timing chain cover sub-assembly		9.1	93	81 in.*lbf

FUEL TEMPERATURE SENSOR

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel temperature sensor x Fuel supply pump	22	224	16

[Added]

COMMON RAIL

Part Tightened		N*m	kgf*cm	ft.*lbf
Common rail assembly RH x No. 3 intake manifold		21	214	15
Common rail assembly LH x No. 3 intake manifold		21	214	15
No. 5 nozzle leakage pipe x Common rail assembly LH	for union bolt	29	296	21
No. 2 fuel pipe x Common rail assembly LH (w/DPF)	for union bolt	29	296	21
	for bolt	10	102	7

FUEL FILTER

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel filter assembly x Body	20	199	14
Fuel filer cap x Fuel filter case x Guide plate	4.5	46	40 in.*lbf

FUEL COOLER (for Engine Room Side)

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel cooler assembly x Intake manifold	10	102	7

FUEL COOLER (for Under Floor Side)

Part Tightened	N*m	kgf*cm	ft.*lbf
Fuel cooler assembly x Body	8.0	82	71 in.*lbf
No. 3 front floor heat insulator x Body	5.0	51	44 in.*lbf

INJECTOR DRIVER

Part Tightened	N*m	kgf*cm	ft.*lbf
No. 2 injector driver bracket x No. 2 injector driver (w/ DPF)	2.0	20	18 in.*lbf
No. 2 injector driver bracket x Injector driver bracket x No. 2 injector driver (w/o DPF)	2.0	20	18 in.*lbf
No. 1 injector driver bracket x No. 1 injector driver (w/ DPF)	2.0	20	18 in.*lbf

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26	BLEED AIR FROM FUEL SYSTEM

(a) Bleed the air from the fuel system (See page ○○-○○).
(b) Perform PM forced regeneration (See page ○○-○○).
HINT:
When fuel lines are disconnected, air may enter the fuel lines, leading to engine starting trouble. Therefore, perform forced regeneration and bleed the air from the fuel lines.

NEXT → **Go to step 28**

27	REPLACE FUEL TEMPERATURE SENSOR

ES

(a) Replace the fuel temperature sensor (See page See*).
HINT:
Before replacing the fuel temperature sensor, perform a wire harness inspection and if there are any problems with the wire harness, repair or replace it.

NEXT

[Corrected]

28	CHECK WHETHER DTC OUTPUT RECURS (DTC P0093)

(a) Connect the GTS to the DLC3.
(b) Turn the engine switch on (IG) and turn the GTS on.
(c) Enter the following menus: Engine and ECT / Trouble Codes.
(d) Clear the DTCs (See page ES-88).
(e) Start the engine.
(f) Warm up the engine (engine coolant temperature is 70°C (158°F) or higher).
(g) Confirm that the shift lever is in neutral and securely apply the parking brake.
(h) Fully depress the accelerator pedal for 5 seconds, and then release it. (*A)
(i) Rev the engine to 3000 rpm and fully release the accelerator pedal immediately after the engine reaches 3000 rpm. (*B)
(j) Repeat procedures (*A) and (*B) 5 times.

See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2012/01 -)

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6	REPLACE FUEL TEMPERATURE SENSOR

(a) Replace the fuel temperature sensor (See page See*).

[Corrected]

NEXT → Go to step 9

7	CHECK HARNESS AND CONNECTOR (FUEL TEMPERATURE SENSOR - ECM)

(a) Disconnect the fuel temperature sensor connector.
(b) Disconnect the ECM connector.
(c) Measure the resistance according to the value(s) in the table below.

Standard Resistance for LHD

Tester Connection	Condition	Specified Condition
z65-2 (THF) or C45-116 (THF) - Body ground	Always	10 kΩ or higher

Standard Resistance for RHD

Tester Connection	Condition	Specified Condition
z65-2 (THF) or C46-116 (THF) - Body ground	Always	10 kΩ or higher

(d) Reconnect the fuel temperature sensor connector.
(e) Reconnect the ECM connector.

NG → Go to step 11

OK

8	REPLACE ECM

(a) Replace the ECM (See page ○○-○○).

NEXT → Go to step 12

9	BLEED AIR FROM FUEL SYSTEM

(a) Bleed the air from the fuel system (See page ○○-○○).
(b) Perform PM forced regeneration (See page ○○-○○).
HINT:
When fuel lines are disconnected, air may enter the fuel lines, leading to engine starting trouble. Therefore, perform forced regeneration and bleed the air from the fuel lines.

NEXT

10	PERFORM SUPPLY PUMP INITIALIZATION

(a) Perform supply pump initialization (See page ES-70).

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See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2012/01 -)
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2	REPLACE FUEL TEMPERATURE SENSOR

(a) Replace the fuel temperature sensor (See page ○○-○○).

NEXT

See
1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2011/09 - 2012/01)

3	CONFIRM WHETHER MALFUNCTION HAS BEEN SUCCESSFULLY REPAIRED

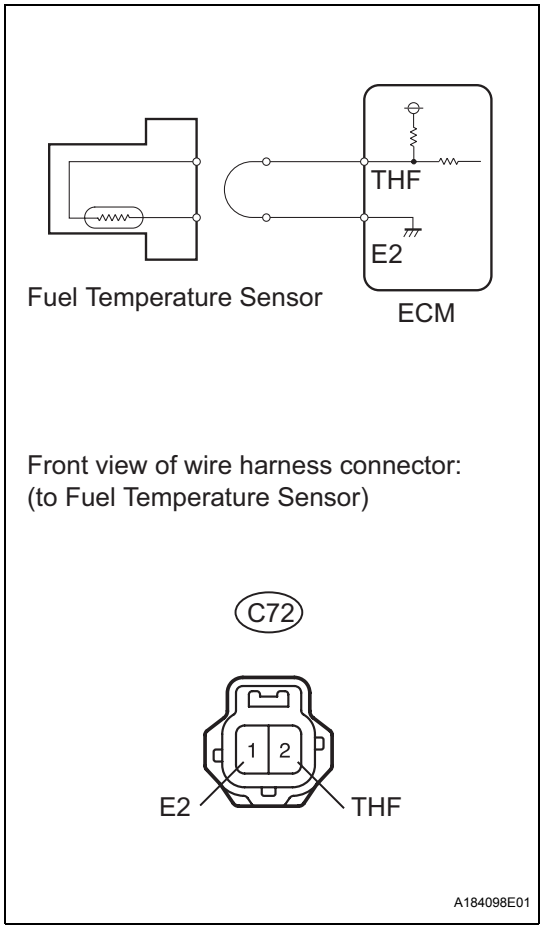
(a) Connect the intelligent tester to the DLC3.
(b) Clear the DTCs (See page ES-57).
(c) Turn the ignition switch off.
(d) Turn the ignition switch to ON.
(e) Drive the vehicle at a high speed or with a heavy load (Use freeze frame data from the time the malfunction occurred as a reference while driving).
(f) Confirm that the DTC is not output again.
HINT:
Perform the following procedure using the tester to determine whether or not the DTC judgment has been carried out.
(1) Enter the following menus: Powertrain / Engine / Utility / All Readiness.
(2) Input DTC P0168.
(3) Check that STATUS is NORMAL. If STATUS is INCOMPLETE or UNKNOWN, drive the vehicle at a high speed or with a heavy load.

NEXT

END

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2	READ VALUE USING INTELLIGENT TESTER (CHECK FOR OPEN IN WIRE HARNESS)



(a) Disconnect the fuel temperature sensor connector.
(b) Connect terminals 2 (THF) and 1 (E2) of the fuel temperature sensor connector.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch to ON and turn the tester on.
(e) Enter the following menus: Powertrain / Engine / Data List / Fuel Temp.
(f) Read the value.
OK:
140°C (284°F) or higher

NG → **Go to step 4**

ES

OK

3	CONFIRM GOOD CONNECTION TO SENSOR. IF OK, REPLACE FUEL TEMPERATURE SENSOR

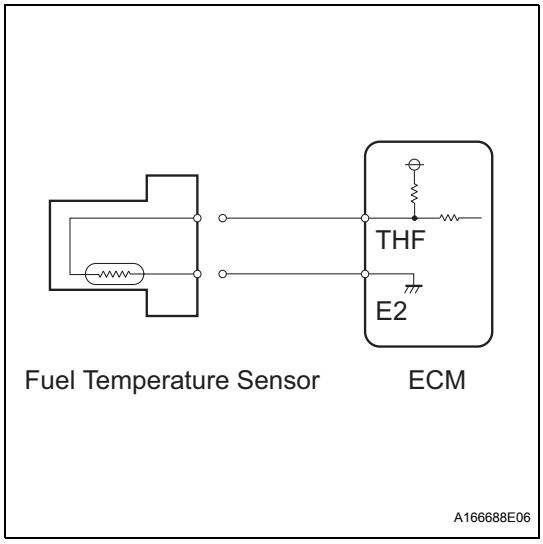
(a) Replace the fuel temperature sensor (See page See*).

NEXT → **Go to step 11**

See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2011/09 - 2012/01)

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6	READ VALUE USING INTELLIGENT TESTER (CHECK FOR SHORT IN WIRE HARNESS)



(a) Disconnect the fuel temperature sensor connector.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch to ON and turn the tester on.
(d) Enter the following menus: Powertrain / Engine / Data List / Fuel Temp.
(e) Read the value.
OK:
-40°C (-40°F)

NG → **Go to step 8**

OK

7	REPLACE FUEL TEMPERATURE SENSOR

(a) Replace the fuel temperature sensor (See page See*).

NEXT → **Go to step 11**

See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2011/09 - 2012/01)

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2	REPLACE FUEL TEMPERATURE SENSOR

(a) Replace the fuel temperature sensor (See page ○○-○○).

NEXT

See
1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2012/01 -)

3	CONFIRM WHETHER MALFUNCTION HAS BEEN SUCCESSFULLY REPAIRED

(a) Connect the intelligent tester to the DLC3.
(b) Clear the DTCs (See page ES-30).
(c) Turn the ignition switch off.
(d) Turn the ignition switch to ON.
(e) Drive the vehicle at a high speed or with a heavy load (Use freeze frame data from the time the malfunction occurred as a reference while driving).
(f) Confirm that the DTC is not output again.
HINT:
Perform the following procedure using the tester to determine whether or not the DTC judgment has been carried out.
(1) Enter the following menus: Powertrain / Engine / Utility / All Readiness.
(2) Input DTC P0168.
(3) Check that STATUS is NORMAL. If STATUS is INCOMPLETE or UNKNOWN, drive the vehicle at a high speed or with a heavy load.

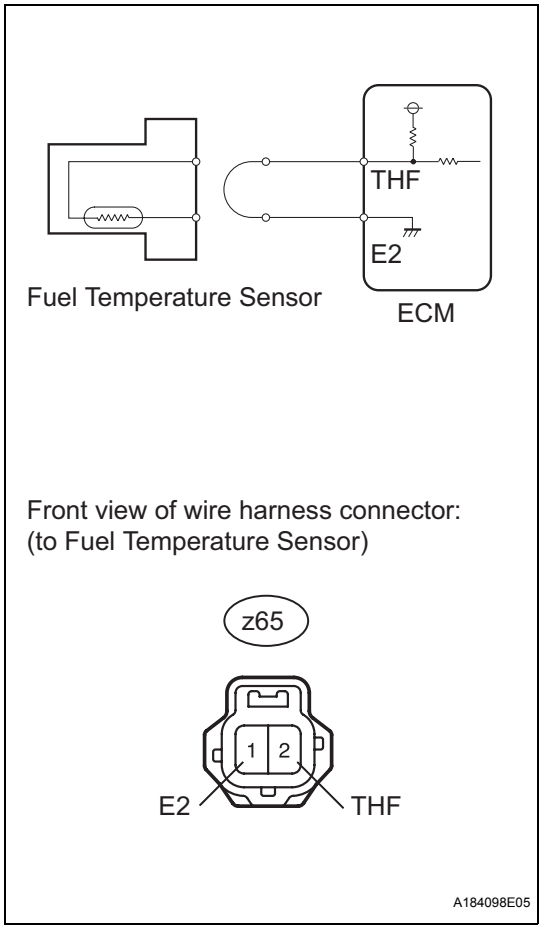
NEXT

END

ES

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2	READ VALUE USING INTELLIGENT TESTER (CHECK FOR OPEN IN WIRE HARNESS)



(a) Disconnect the fuel temperature sensor connector.
(b) Connect terminals 2 (THF) and 1 (E2) of the fuel temperature sensor connector.
(c) Connect the intelligent tester to the DLC3.
(d) Turn the ignition switch to ON and turn the tester on.
(e) Enter the following menus: Powertrain / Engine / Data List / Fuel Temp.
(f) Read the value.

OK:

140°C (284°F) or higher

NG	Go to step 4

ES

OK

3	CONFIRM GOOD CONNECTION TO SENSOR. IF OK, REPLACE FUEL TEMPERATURE SENSOR

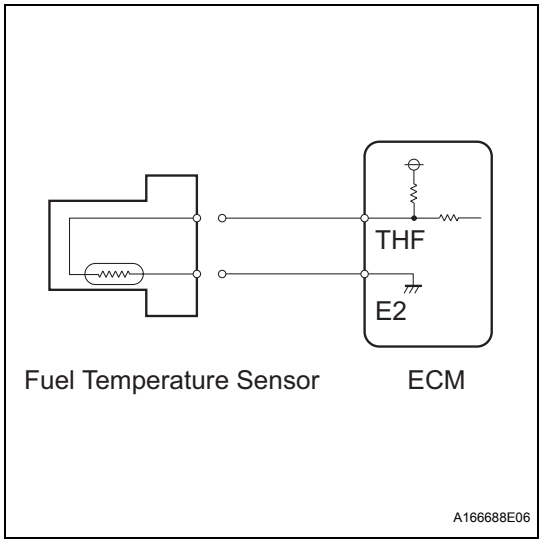
(a) Replace the fuel temperature sensor (See page See*).

NEXT	Go to step 11

See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2012/01 -)

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6	READ VALUE USING INTELLIGENT TESTER (CHECK FOR SHORT IN WIRE HARNESS)



(a) Disconnect the fuel temperature sensor connector.
(b) Connect the intelligent tester to the DLC3.
(c) Turn the ignition switch to ON and turn the tester on.
(d) Enter the following menus: Powertrain / Engine / Data List / Fuel Temp.
(e) Read the value.
OK:
-40°C (-40°F)

NG → **Go to step 8**

OK

7	REPLACE FUEL TEMPERATURE SENSOR

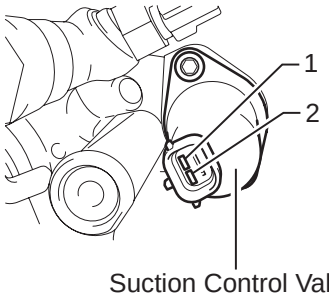
(a) Replace the fuel temperature sensor (See page See*).

NEXT → **Go to step 11**

See*: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - REMOVAL (2012/01 -)

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Component without harness connected:
(Fuel Supply Pump)



INSPECTION

1. INSPECT FUEL SUPPLY PUMP

(a) Inspect the suction control valve.

(1) Measure the resistance according to the value(s) in the table below.

Standard Resistance

Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	1.9 to 2.3 Ω

If the result is not as specified, replace the fuel supply pump.

2. INSPECT FUEL TEMPERATURE SENSOR

(a) Inspect the fuel temperature sensor (See page ○○-

See*1

If the result is not as specified, replace the fuel temperature sensor.

[Corrected]

INSTALLATION

(2011/09-2012/01)

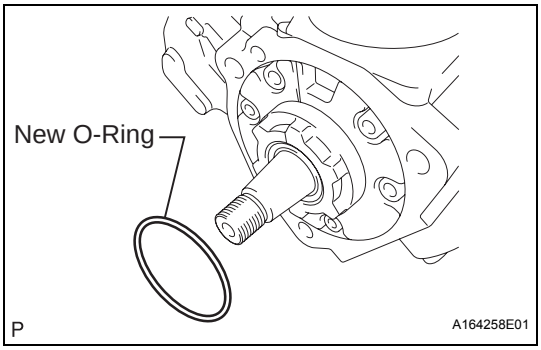
1. INSTALL FUEL SUPPLY PUMP

NOTICE:

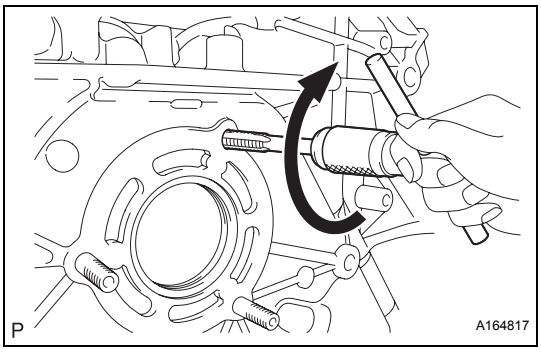
Do not push the supply pump drive gear.

(a) Install a new O-ring to the supply pump.

(b) Apply a light coat of engine oil to the O-ring.



FU



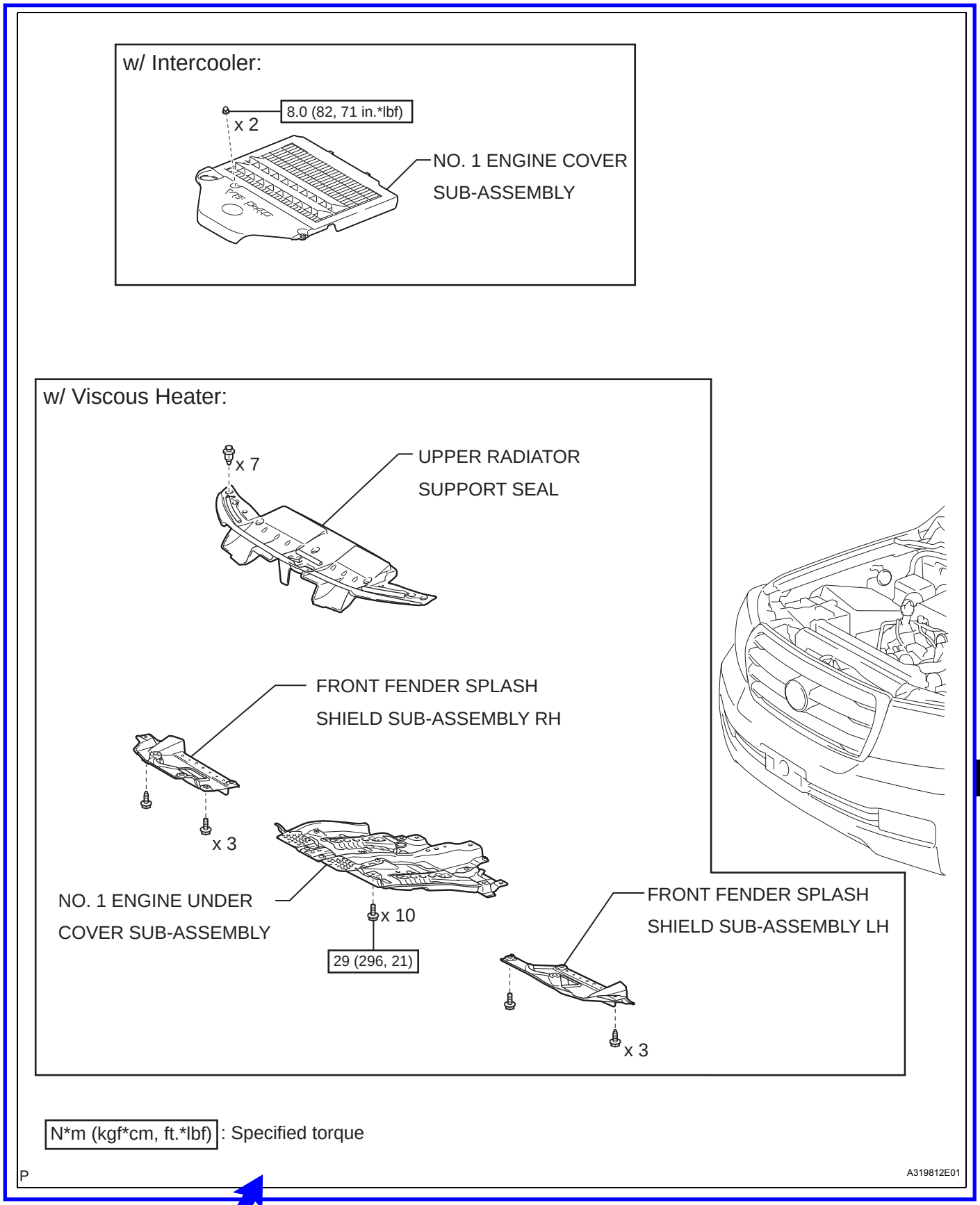
(c) Using an 8 mm x 1.25 pitch tap, remove the adhesive from the timing gear case side bolt hole.

See*1: 1VD-FTV FUEL - FUEL TEMPERATURE SENSOR - INSPECTION(2011/09 -)

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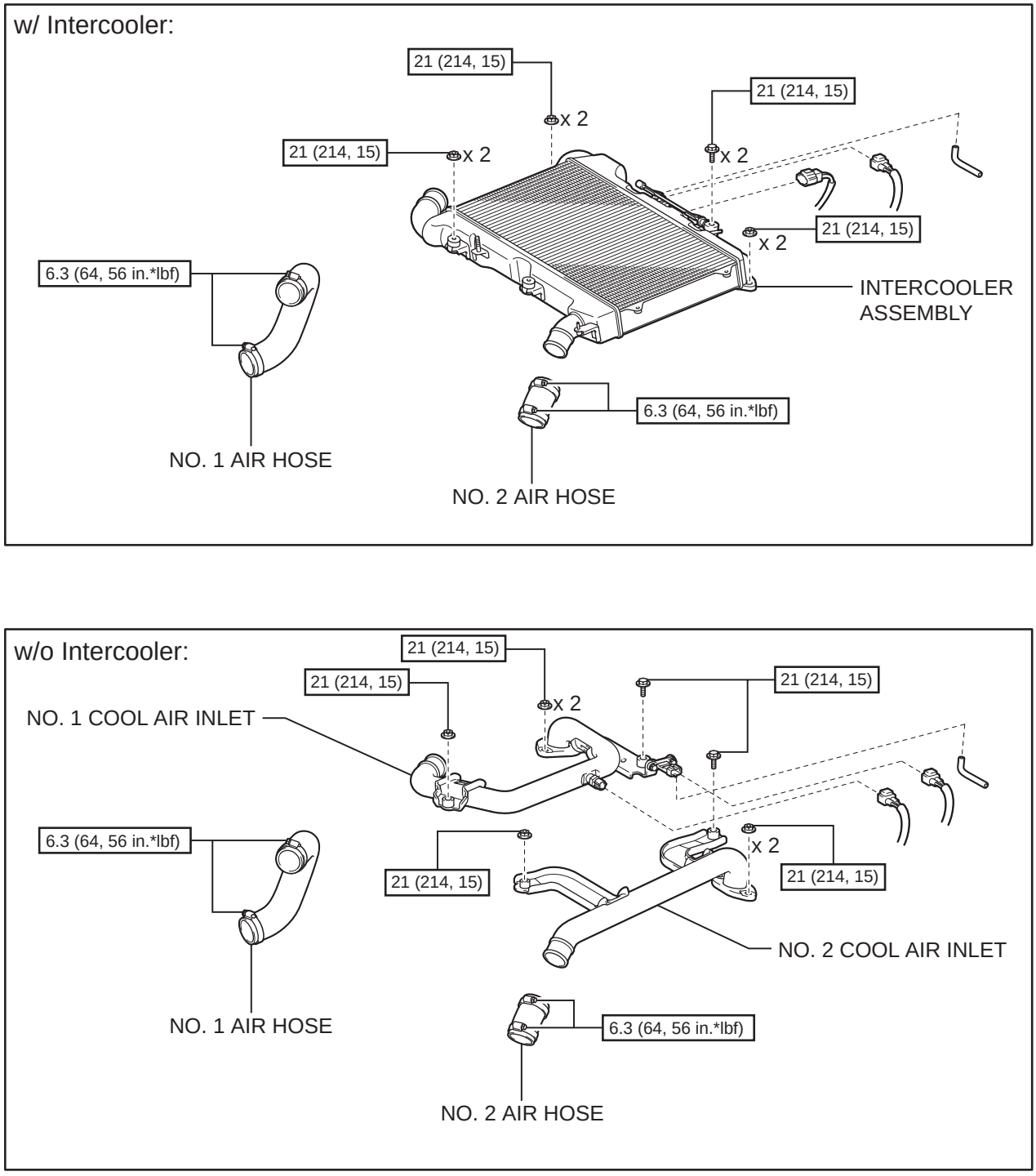
FUEL TEMPERATURE SENSOR

COMPONENTS



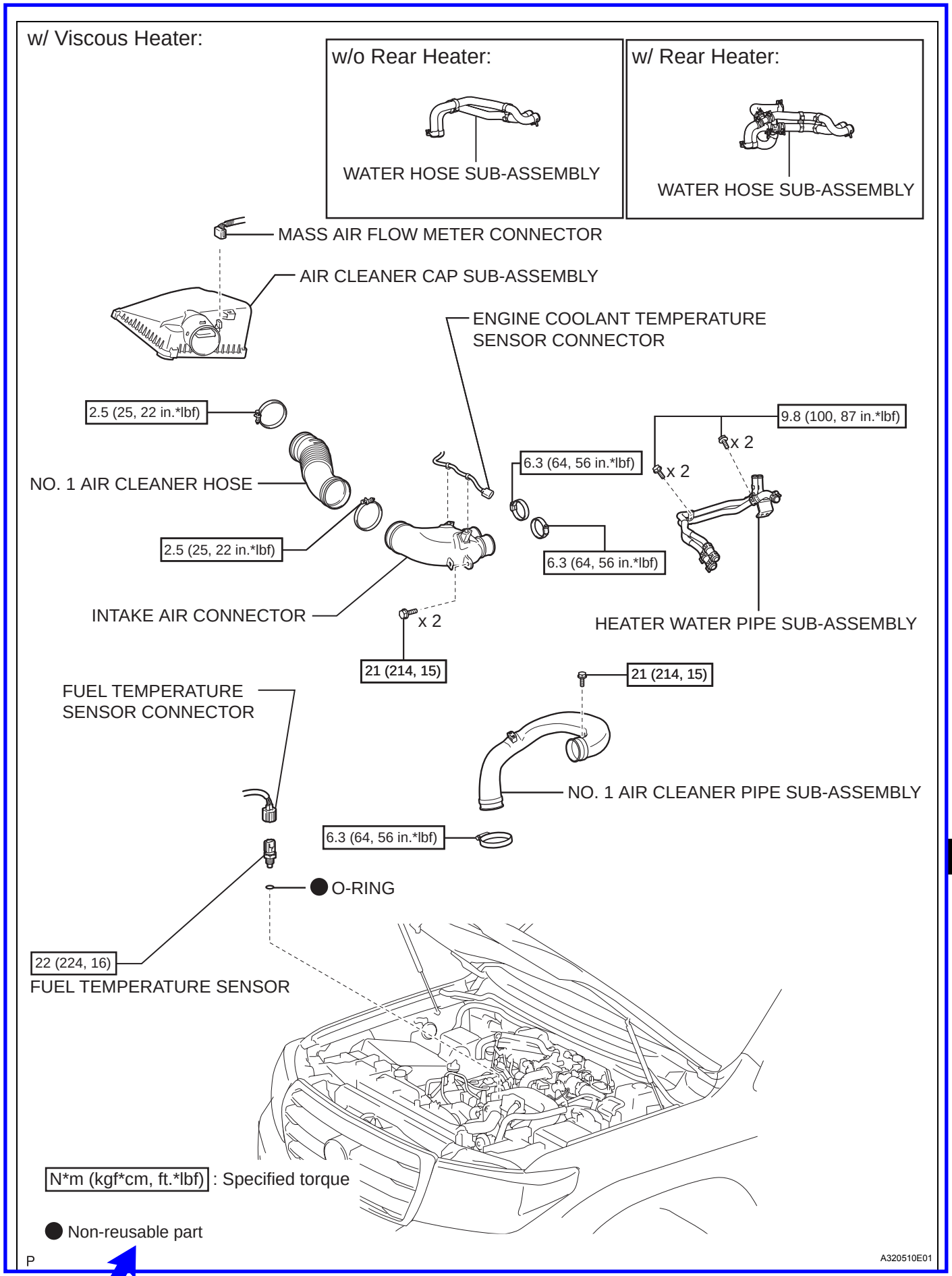
[Page Added]

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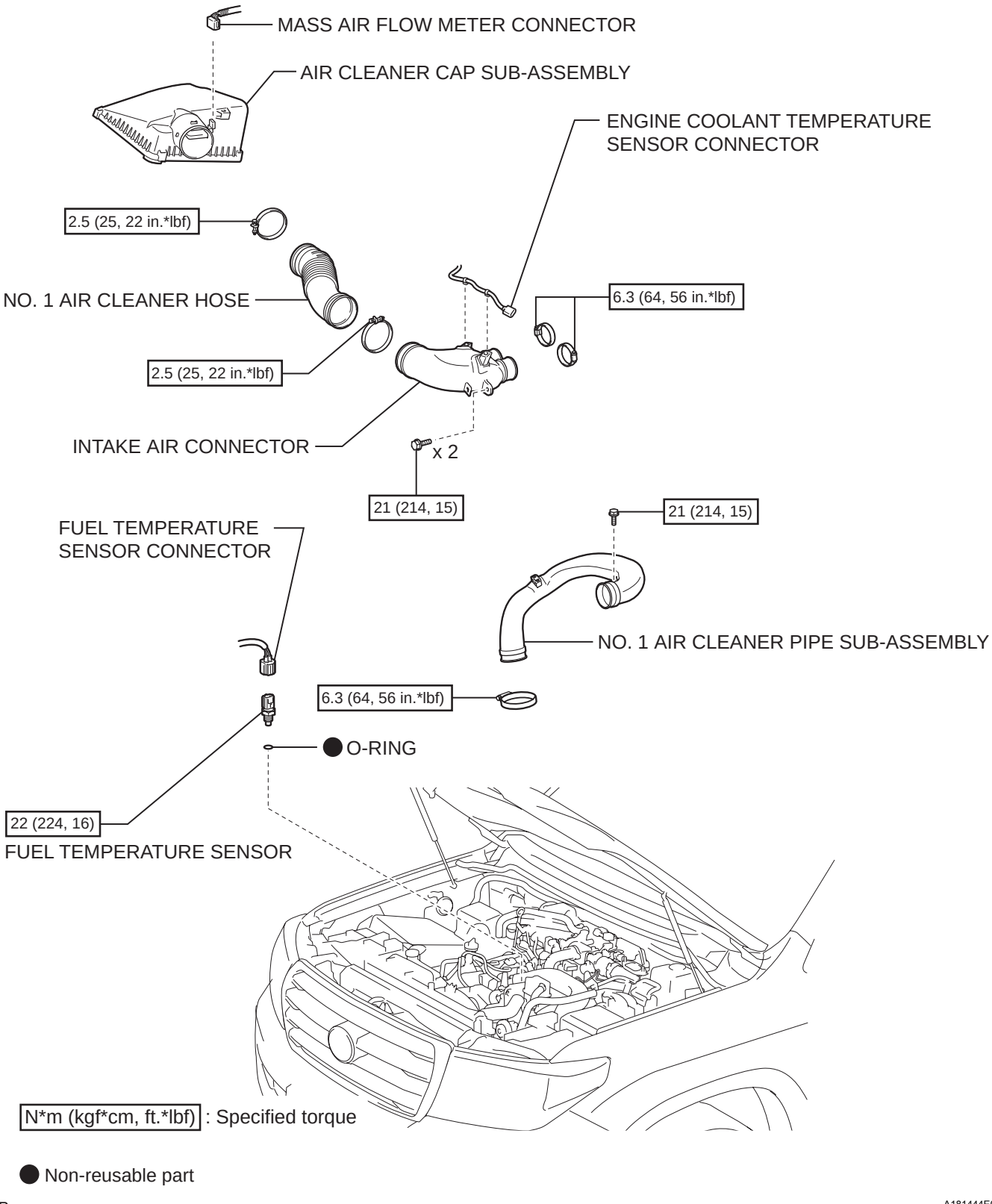
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w/o Viscous Heater:



[Page Added]

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REMOVAL

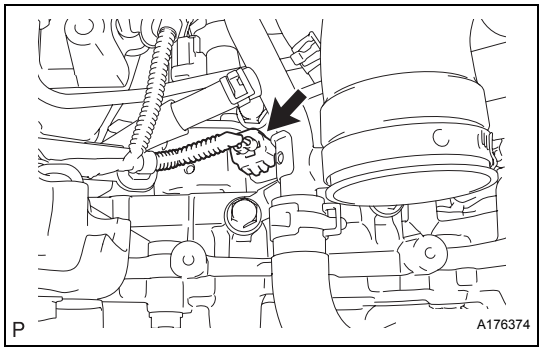
(2011/09-2012/01)

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
   NOTICE:
   After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (See page ○○). See*1
2. **REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH (w/ Viscous Heater) (See page** See*2**)**
3. **REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH (w/ Viscous Heater) (See page** See*3**)**
4. **REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*4**)**
5. **REMOVE UPPER RADIATOR SUPPORT SEAL (w/ Viscous Heater) (See page** See*5**)**
6. **DRAIN ENGINE COOLANT (w/ Viscous Heater) (See page** See*6**)**
7. **REMOVE INTERCOOLER ASSEMBLY (w/ Intercooler)** (See page See*7**)**
8. **REMOVE NO. 1 COOL AIR INLET (w/o Intercooler) (See page** See*8**)**
9. **REMOVE NO. 2 COOL AIR INLET (w/o Intercooler) (See page** See*9**)**
10. **DISCONNECT WATER HOSE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*10**)**
11. **REMOVE AIR CLEANER CAP SUB-ASSEMBLY (See page** See*11**)**
12. **REMOVE NO. 1 AIR CLEANER HOSE (See page** See*12**)**
13. **REMOVE INTAKE AIR CONNECTOR (See page** See*13**)**
14. **REMOVE HEATER WATER PIPE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*14**)**
15. **REMOVE NO. 1 AIR CLEANER PIPE SUB-ASSEMBLY (See page** See*15**)**
16. **REMOVE FUEL TEMPERATURE SENSOR**
    NOTICE:
    - **Before replacing the fuel temperature sensor, be sure to clean the surrounding area.**
    - **When replacing the fuel temperature sensor, make sure that your hands are clean and do not use gloves, etc.**
    - **If the fuel temperature sensor is dropped, replace it with a new one.**

FU

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[Page Added]



(a) Disconnect the fuel temperature sensor connector.
(b) Using SST, remove the fuel temperature sensor.
SST 09817-33190
(c) Remove the O-ring from the fuel temperature sensor.

REMOVAL

(2012/01-)

1. **DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL**
NOTICE:
After turning the engine switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (See page See*16 **OO).**
2. **REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH (w/ Viscous Heater) (See page** See*17
3. **REMOVE FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH (w/ Viscous Heater) (See page** See*18
4. **REMOVE NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*19
5. **REMOVE UPPER RADIATOR SUPPORT SEAL (w/ Viscous Heater) (See page** See*20
6. **DRAIN ENGINE COOLANT (w/ Viscous Heater) (See page** See*21
7. **REMOVE INTERCOOLER ASSEMBLY (w/ Intercooler)** (See page (See*22
8. **REMOVE NO. 1 COOL AIR INLET (w/o Intercooler) (See page** See*23
9. **REMOVE NO. 2 COOL AIR INLET (w/o Intercooler) (See page** See*24
10. **DISCONNECT WATER HOSE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*25
11. **REMOVE AIR CLEANER CAP SUB-ASSEMBLY (See page** See*26
12. **REMOVE NO. 1 AIR CLEANER HOSE (See page** See*27
13. **REMOVE INTAKE AIR CONNECTOR (See page)** See*28
14. **REMOVE HEATER WATER PIPE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*29
15. **REMOVE NO. 1 AIR CLEANER PIPE SUB-ASSEMBLY (See page** See*30
16. **REMOVE FUEL TEMPERATURE SENSOR**
NOTICE:
- **Before replacing the fuel temperature sensor, be sure to clean the surrounding area.**

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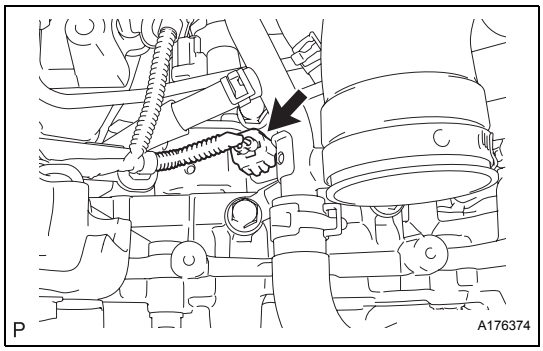
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See*1: INTRODUCTION - REPAIR INSTRUCTION - INITIALIZATION (2011/09 - 2012/01)
See*2: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL (2011/09 - 2012/01)
See*3: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL (2011/09 - 2012/01)
See*4: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL (2011/09 - 2012/01)
See*5: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*6: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*7: 1VD-FTV INTAKE / EXHAUST - INTERCOOLER - REMOVAL (2011/09 - 2012/01)
See*8: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*9: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*10: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*11: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*12: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*13: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*14: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*15: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2011/09 - 2012/01)
See*16: INTRODUCTION - REPAIR INSTRUCTION - INITIALIZATION (2012/01 -)
See*17: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL (2012/01 -)
See*18: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL(2012/01 -)
See*19: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - REMOVAL (2012/01 -)
See*20: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*21: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*22: 1VD-FTV INTAKE / EXHAUST - INTERCOOLER - REMOVAL (2012/01 -)
See*23: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*24: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*25: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*26: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*27: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*28: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*29: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)
See*30: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - REMOVAL (2012/01 -)

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- **When replacing the fuel temperature sensor, make sure that your hands are clean and do not use gloves, etc.**
- **If the fuel temperature sensor is dropped, replace it with a new one.**



(a) Disconnect the fuel temperature sensor connector.
(b) Using SST, remove the fuel temperature sensor.
SST 09817-33190
(c) Remove the O-ring from the fuel temperature sensor.

INSPECTION

1. INSPECT FUEL TEMPERATURE SENSOR

(a) Inspect the fuel temperature sensor.
(1) Measure the resistance according to the value(s) in the table below.
Standard Resistance

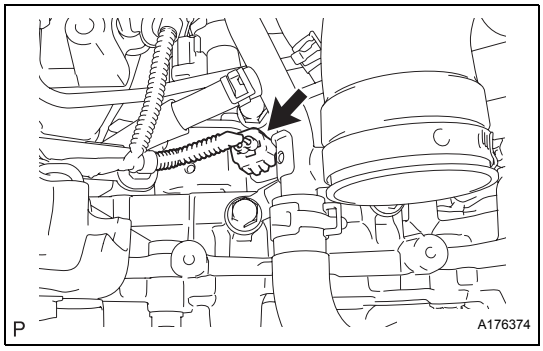
Tester Connection	Condition	Specified Condition
1 - 2	20°C (68°F)	2.32 to 2.59 kΩ
1 - 2	80°C (176°F)	0.310 to 0.326 kΩ

If the result is not as specified, replace the fuel temperature sensor.

INSTALLATION

(2011/09-2012/01)

1. INSTALL FUEL TEMPERATURE SENSOR
NOTICE:
If the fuel temperature sensor is dropped, replace it with a new one.
(a) Apply a light coat of engine oil to a new O-ring.
(b) Install the O-ring to the sensor.
(c) Using SST, install the fuel temperature sensor.
SST 09817-33190
Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)



(d) Connect the fuel temperature sensor connector.

2. INSTALL NO. 1 AIR CLEANER PIPE SUB-ASSEMBLY (See page See*1**)**

3. INSTALL HEATER WATER PIPE SUB-ASSEMBLY (w/ Viscous Heater) (See page See*2**)**

4. INSTALL INTAKE AIR CONNECTOR (See page See*3**)**

5. TEMPORARILY INSTALL NO. 1 AIR CLEANER HOSE (See page See*4**)**

6. INSTALL AIR CLEANER CAP SUB-ASSEMBLY (See page See*5**)**

7. CONNECT WATER HOSE SUB-ASSEMBLY (w/ Viscous Heater) (See page See*6**)**

8. INSTALL NO. 2 COOL AIR INLET (w/o Intercooler) (See page See*7**)**

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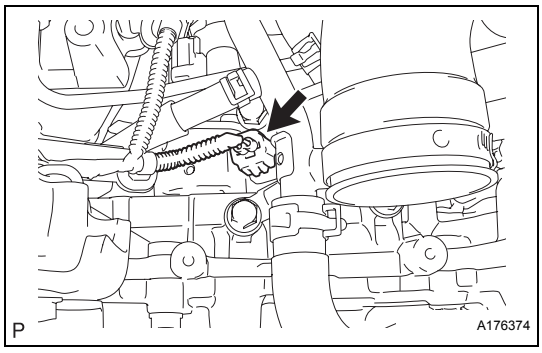
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9. **INSTALL NO. 1 COOL AIR INLET (w/o Intercooler) (See page** See*8**)**
10. **INSTALL INTERCOOLER ASSEMBLY (w/ Intercooler)** (See page See*9)
11. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
    NOTICE:
    After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (See page See*10**)**
12. **ADD ENGINE COOLANT (w/ Viscous Heater) (See page** See*11**)**
13. **INSPECT FOR COOLANT LEAK (w/ Viscous Heater) (See page** See*12**)**
14. **INSTALL UPPER RADIATOR SUPPORT SEAL (w/ Viscous Heater) (See page** See*13**)**
15. **INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*14**)**
16. **INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH (w/ Viscous Heater) (See page** See*15**)**
17. **INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH (w/ Viscous Heater) (See page** See*16**)**

INSTALLATION

(2012/01-)

1. **INSTALL FUEL TEMPERATURE SENSOR**
   NOTICE:
   If the fuel temperature sensor is dropped, replace it with a new one.
   (a) Apply a light coat of engine oil to a new O-ring.
   (b) Install the O-ring to the sensor.
   (c) Using SST, install the fuel temperature sensor.
   SST 09817-33190
   Torque: 22 N*m (224 kgf*cm, 16 ft.*lbf)
   (d) Connect the fuel temperature sensor connector.



2. **INSTALL NO. 1 AIR CLEANER PIPE SUB-ASSEMBLY (See page** See*17**)**
3. **INSTALL HEATER WATER PIPE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*18**)**
4. **INSTALL INTAKE AIR CONNECTOR (See page** See*19**)**
5. **TEMPORARILY INSTALL NO. 1 AIR CLEANER HOSE (See page** See*20**)**
6. **INSTALL AIR CLEANER CAP SUB-ASSEMBLY (See page** See*21**)**

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7. **CONNECT WATER HOSE SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*22
8. **INSTALL NO. 2 COOL AIR INLET (w/o Intercooler) (See page** See*23
9. **INSTALL NO. 1 COOL AIR INLET (w/o Intercooler) (See page** See*24
10. **INSTALL INTERCOOLER ASSEMBLY (w/ Intercooler)** (See page See*25
11. **CONNECT CABLE TO NEGATIVE BATTERY TERMINAL**
    NOTICE:
    After turning the ignition switch off, waiting time may be required before disconnecting the cable from the battery terminal. Therefore, make sure to read the disconnecting the cable from the battery terminal notice before proceeding with work (See page See*26
12. **ADD ENGINE COOLANT (w/ Viscous Heater) (See page** See*27
13. **INSPECT FOR COOLANT LEAK (w/ Viscous Heater) (See page** See*28
14. **INSTALL UPPER RADIATOR SUPPORT SEAL (w/ Viscous Heater) (See page** See*29
15. **INSTALL NO. 1 ENGINE UNDER COVER SUB-ASSEMBLY (w/ Viscous Heater) (See page** See*30
16. **INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY RH (w/ Viscous Heater) (See page** See*31
17. **INSTALL FRONT FENDER SPLASH SHIELD SUB-ASSEMBLY LH (w/ Viscous Heater) (See page** See*32

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See*2: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*3: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*4: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*5: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*6: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*7: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*8: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2011/09 - 2012/01)
See*9: 1VD-FTV INTAKE / EXHAUST - INTERCOOLER- INSTALLATION (2011/09 - 2012/01)
See*10: INTRODUCTION - REPAIR INSTRUCTION - INITIALIZATION (2011/09 - 2012/01)
See*11: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*12: 1VD-FTV COOLING - COOLING SYSTEM - ON-VEHICLE INSPECTION (2011/09 -)
See*13: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*14: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2011/09 - 2012/01)
See*15: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2011/09 - 2012/01)
See*16: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2011/09 - 2012/01)
See*17: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*18: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*19: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*20: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*21: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*22: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*23: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*24: 1VD-FTV INTAKE / EXHAUST - INTAKE MANIFOLD - INSTALLATION (2012/01 -)
See*25: 1VD-FTV INTAKE / EXHAUST - INTERCOOLER- INSTALLATION (2012/01 -)
See*26: INTRODUCTION - REPAIR INSTRUCTION - INITIALIZATION (2012/01 -)
See*27: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*28: 1VD-FTV COOLING - COOLING SYSTEM - ON-VEHICLE INSPECTION (2011/09 -)
See*29: 1VD-FTV COOLING - COOLANT - REPLACEMENT (2011/09 -)
See*30: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2012/01 -)
See*31: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2012/01 -)
See*32: 1VD-FTV ENGINE MACHANICAL - ENGINE ASSEMBLY - INSTALLATION (2012/01 -)

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