

General Description

FUEL INJECTION (FUEL SYSTEMS)

1. General Description

A: SPECIFICATION

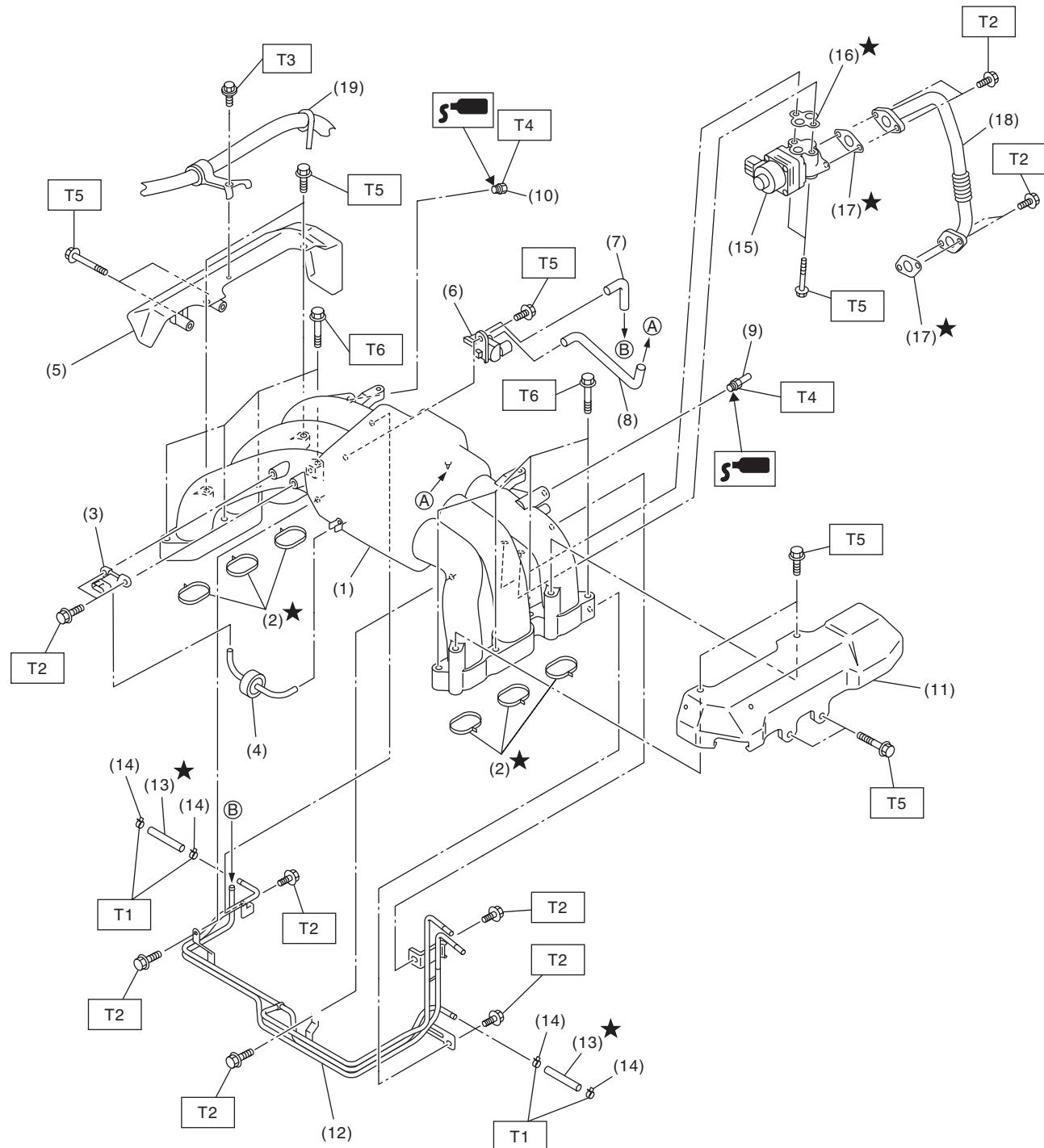
Fuel tank	Capacity	64 ℥ (16.9 US gal, 14.1 Imp gal)
	Location	Rear floor under
Fuel pump	Type	Impeller
	Shutoff discharge pressure	550 — 850 kPa (5.61 — 8.67 kg/cm ² , 79.8 — 123.3 psi)
	Discharge rate	155 ℥ (41 US gal, 34.1 Imp gal)/h or more [12 V at 300 kPa (3.06 kg/cm ² , 43.5 psi)]
Fuel filter		In-tank type

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B: COMPONENT

1. INTAKE MANIFOLD



FU-05647

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(1) Intake manifold	(11) Fuel pipe protector LH
(2) O-ring	(12) Fuel pipe ASSY
(3) Manifold absolute pressure sensor	(13) Fuel hose
(4) Filter	(14) Clamp
(5) Fuel pipe protector RH	(15) EGR valve
(6) Purge control solenoid valve	(16) Gasket
(7) Hose	(17) Gasket
(8) Hose	(18) EGR pipe
(9) Nipple	(19) Feed hose
(10) Plug	

Tightening torque:N·m (kgf·m, ft-lb)

T1: 1.25 (0.1, 0.9)

T2: 6.4 (0.7, 4.7)

T3: 13 (1.3, 9.6)

T4: 17 (1.7, 12.5)

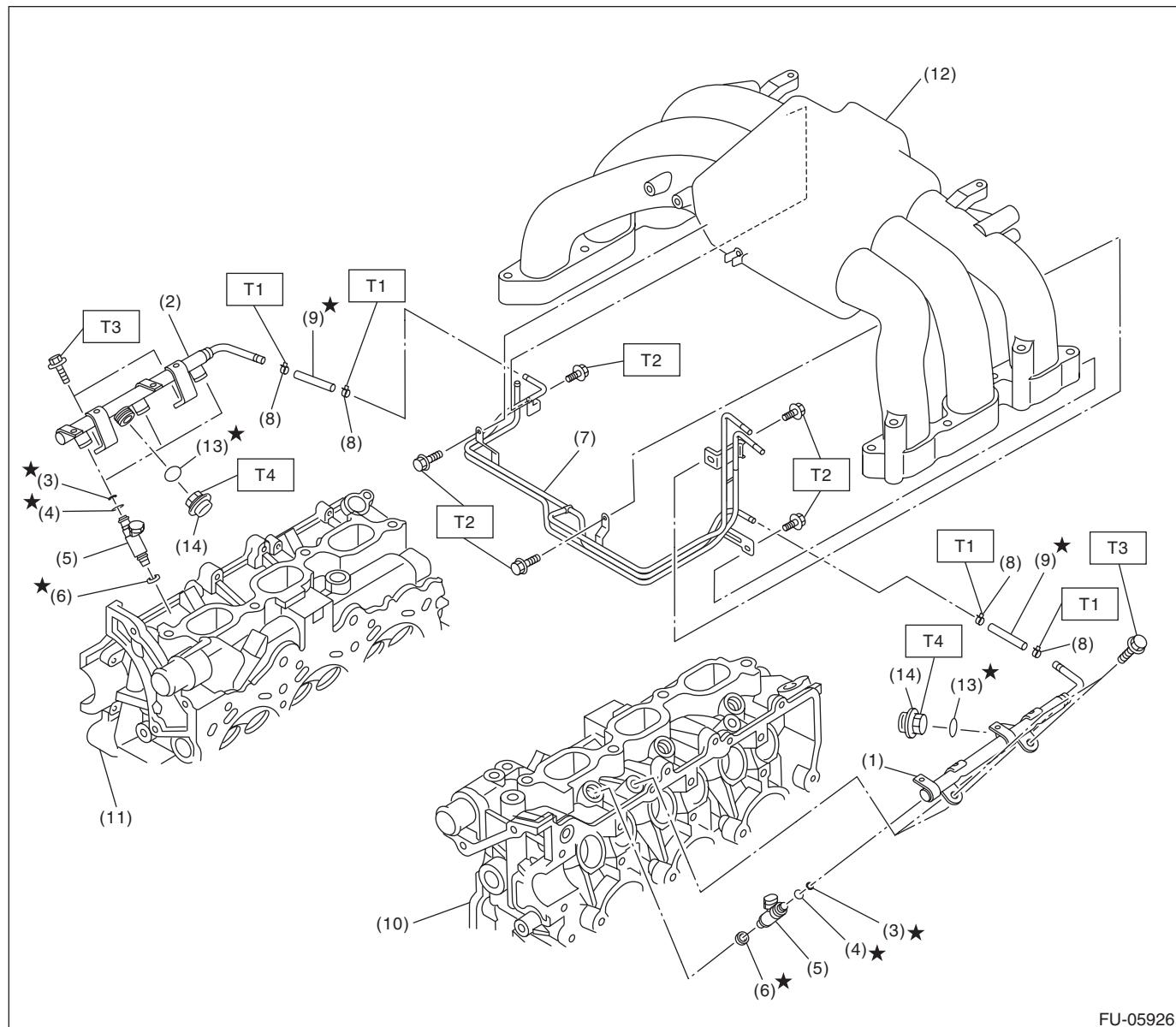
T5: 19 (1.9, 14.0)

T6: 25 (2.5, 18.4)

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2. FUEL INJECTOR



(1) Fuel injector pipe LH	(8) Clamp
(2) Fuel injector pipe RH	(9) Fuel hose
(3) O-ring	(10) Cylinder head LH
(4) Injection rubber	(11) Cylinder head RH
(5) Fuel injector	(12) Intake manifold
(6) Seal ring	(13) Gasket
(7) Fuel pipe ASSY	(14) Pulsation damper

Tightening torque:N·m (kgf·m, ft·lb)

T1: 1.25 (0.1, 0.9)

T2: 6.4 (0.7, 4.7)

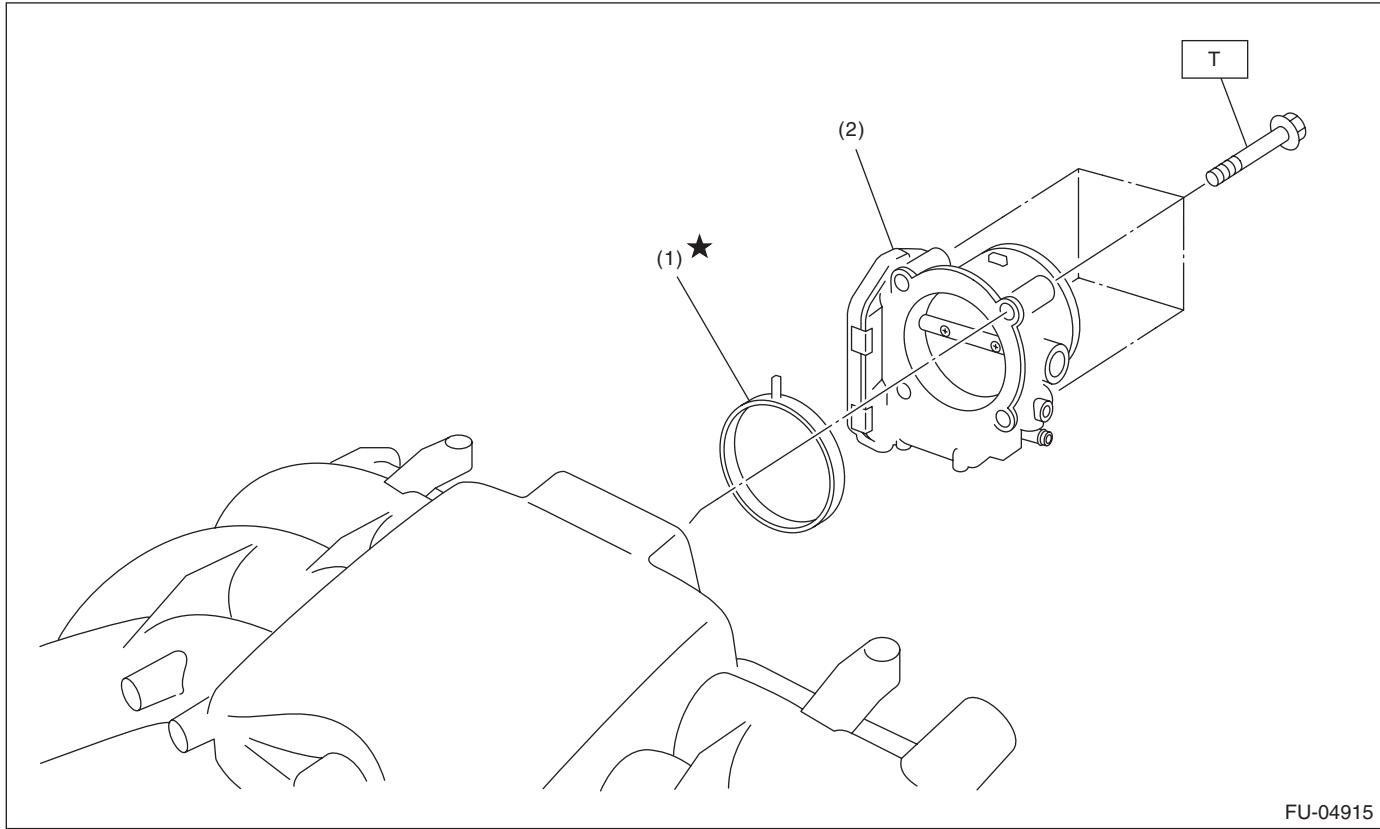
T3: 19 (1.9, 14.0)

T4: 21.6 (2.2, 15.9)

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3. AIR INTAKE SYSTEM



FU-04915

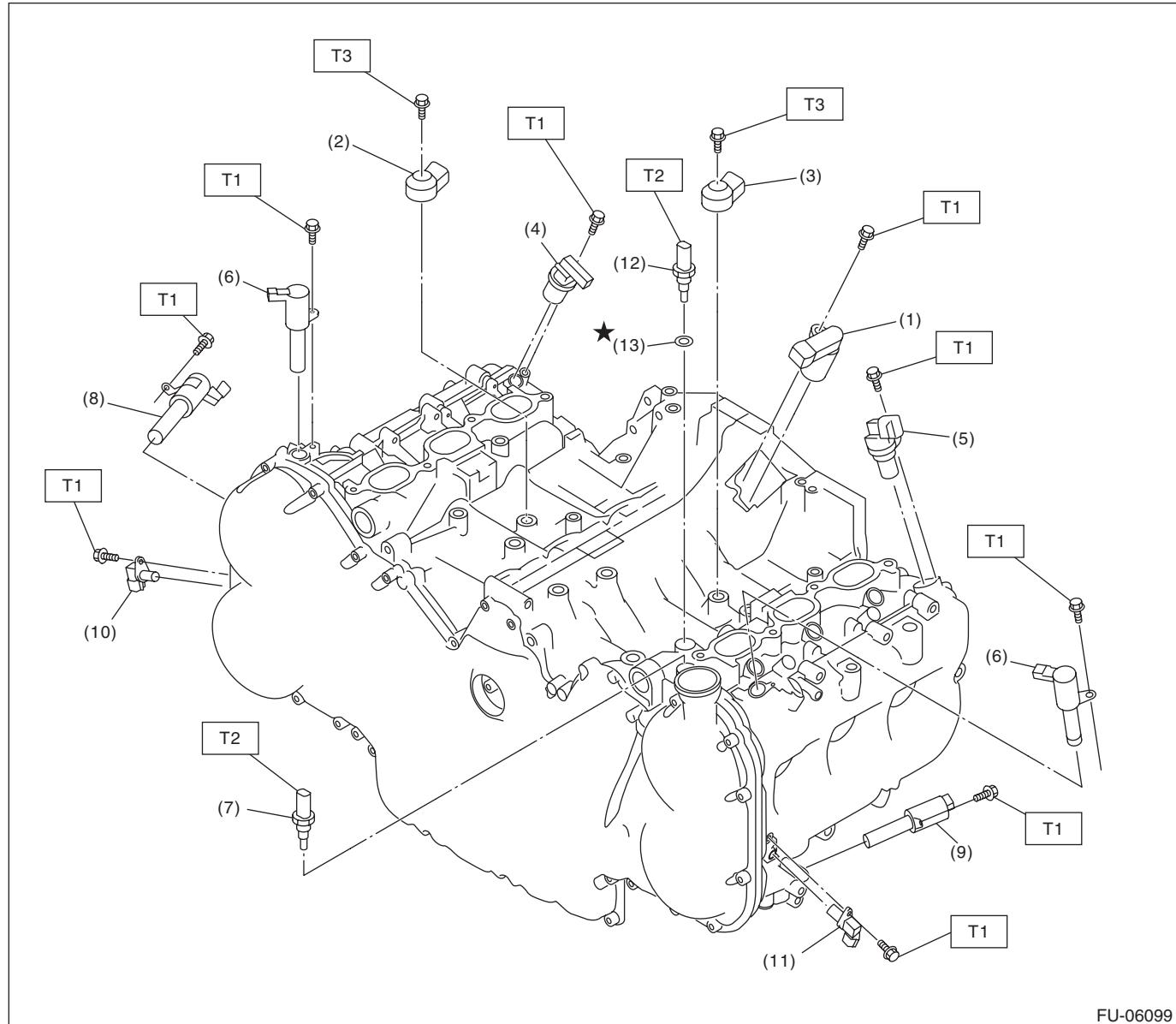
- (1) O-ring
- (2) Throttle body

Tightening torque:N·m (kgf·m, ft-lb)
T: 8 (0.8, 5.9)

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4. SENSOR



FU-06099

(1)	Crankshaft position sensor	(7)	Oil temperature sensor	(13)	Gasket
(2)	Knock sensor RH	(8)	Exhaust oil flow control solenoid valve RH		
(3)	Knock sensor LH	(9)	Exhaust oil flow control solenoid valve LH		<i>Tightening torque:N·m (kgf·m, ft·lb)</i>
(4)	Intake camshaft position sensor RH	(10)	Exhaust camshaft position sensor RH		<i>T1: 6.4 (0.7, 4.7)</i>
(5)	Intake camshaft position sensor LH	(11)	Exhaust camshaft position sensor LH		<i>T2: 22 (2.2, 16.2)</i>
(6)	Intake oil flow control solenoid valve	(12)	Engine coolant temperature sensor		<i>T3: 25 (2.5, 18.4)</i>

Tightening torque:N·m (kgf-m, ft-lb)

T1: 6.4 (0.7, 4.7)

T2: 22 (2.2, 16.2)

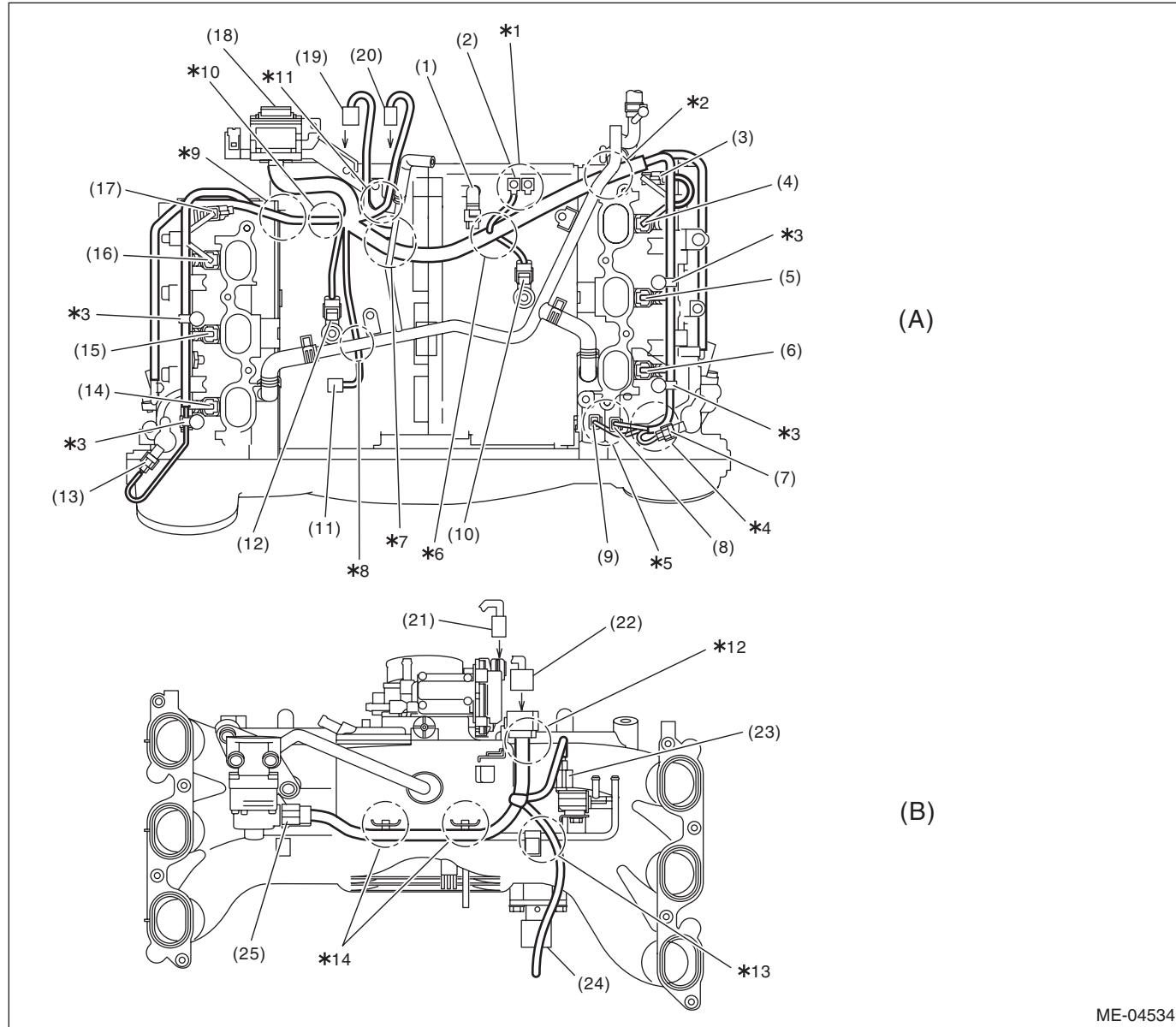
T3: 25 (2.5, 18.4)

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5. ENGINE HARNESS

Engine harness assembly diagram 1



ME-04534

General Description

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(A) Cylinder block upper face	(B) Intake manifold back surface	
(1) Crankshaft position sensor connector	(10) Knock sensor LH connector	(19) Upper/lower connection connector (To intake manifold)
(2) Engine ground	(11) Power steering switch connector	(20) Electronic throttle control connector (To intake manifold)
(3) Intake camshaft position sensor LH connector	(12) Knock sensor RH connector	(21) Electronic throttle control connector (From upper part of the cylinder block)
(4) #6 injector connector	(13) Intake oil flow control solenoid valve RH connector	(22) Upper/lower connection connector (From upper part of the cylinder block)
(5) #4 injector connector	(14) #1 injector connector	(23) Purge control solenoid valve connector
(6) #2 injector connector	(15) #3 injector connector	(24) Manifold absolute pressure sensor connector
(7) Intake oil flow control solenoid valve LH connector	(16) #5 injector connector	(25) EGR valve connector
(8) Oil temperature sensor connector	(17) Intake camshaft position sensor RH connector	
(9) Engine coolant temperature sensor connector	(18) Engine harness docking connector	

*1: Install so that engine ground terminals face the rear side of vehicle.

*2: Route under the heater pipe.

*3: Attach the engine harness fixing clip to the fuel pipe stay.

*4: Route from the cutout portion on the fuel pipe protector LH.

*5: Be careful not to mix up the connectors of oil temperature sensor and engine coolant temperature sensor.

*6: Route between crankshaft position sensor and knock sensor LH.

*7: Route under the heater pipe.

*8: Route under the heater pipe.

*9: Route under the fuel pipe.

*10: Attach the engine harness fixing clip to the fixing boss on the cylinder block.

*11: Route over the heater pipe stay.

*12: Securely install the engine harness fixing stay.

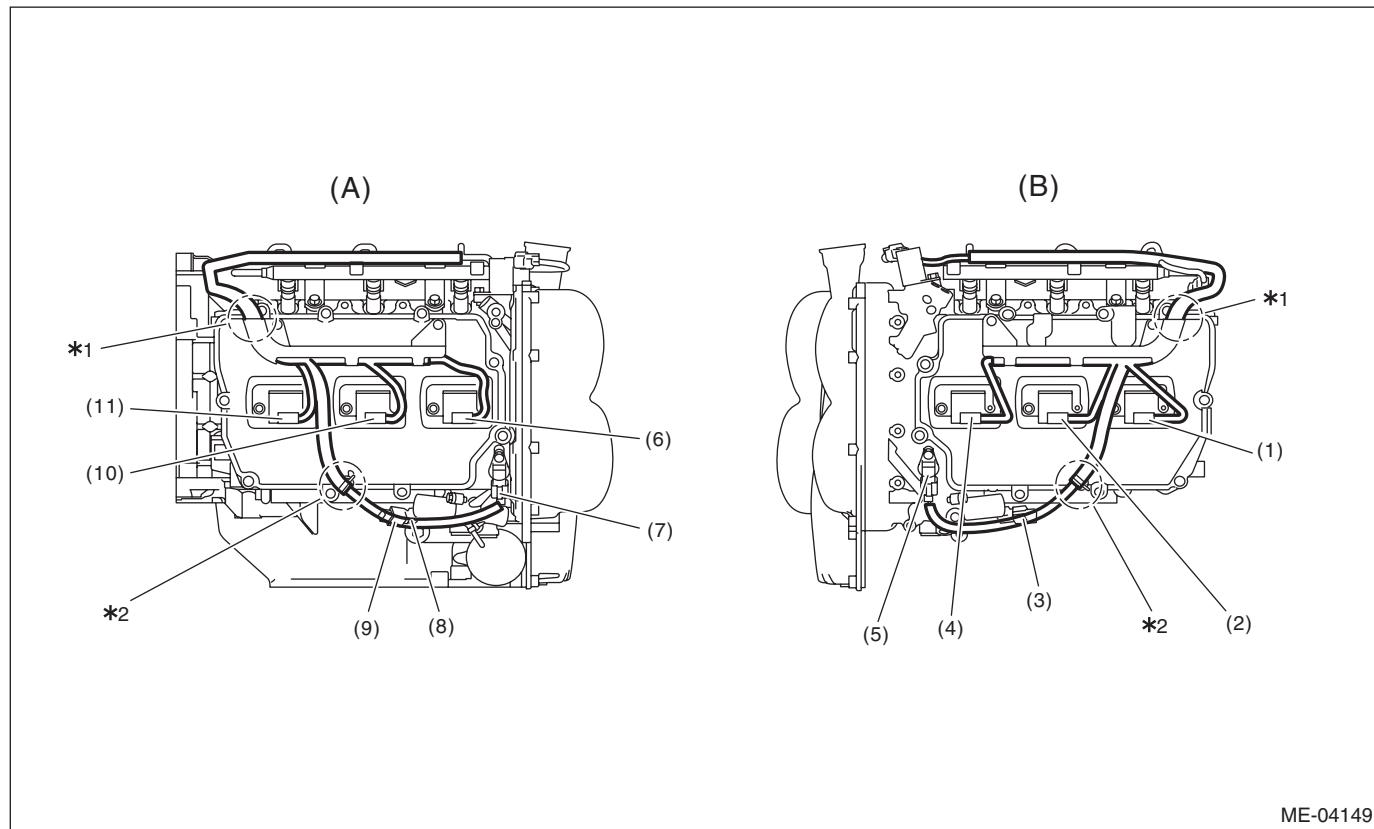
*13: Route outside the fuel pipe.

*14: Attach the engine harness fixing clip to the fixing stay on the intake manifold.

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FUEL INJECTION (FUEL SYSTEMS)

Engine harness assembly diagram 2



ME-04149

(A) Right side of the engine

(B) Left side of the engine

(1) #6 ignition coil connector	(5) Exhaust camshaft position sensor LH connector	(9) Exhaust oil flow control valve solenoid RH connector
(2) #4 ignition coil connector	(6) #1 injector connector	(10) #3 ignition coil connector
(3) Exhaust oil flow control valve solenoid LH connector	(7) Exhaust camshaft position sensor RH connector	(11) #5 ignition coil connector
(4) #2 ignition coil connector	(8) Oil pressure switch connector	

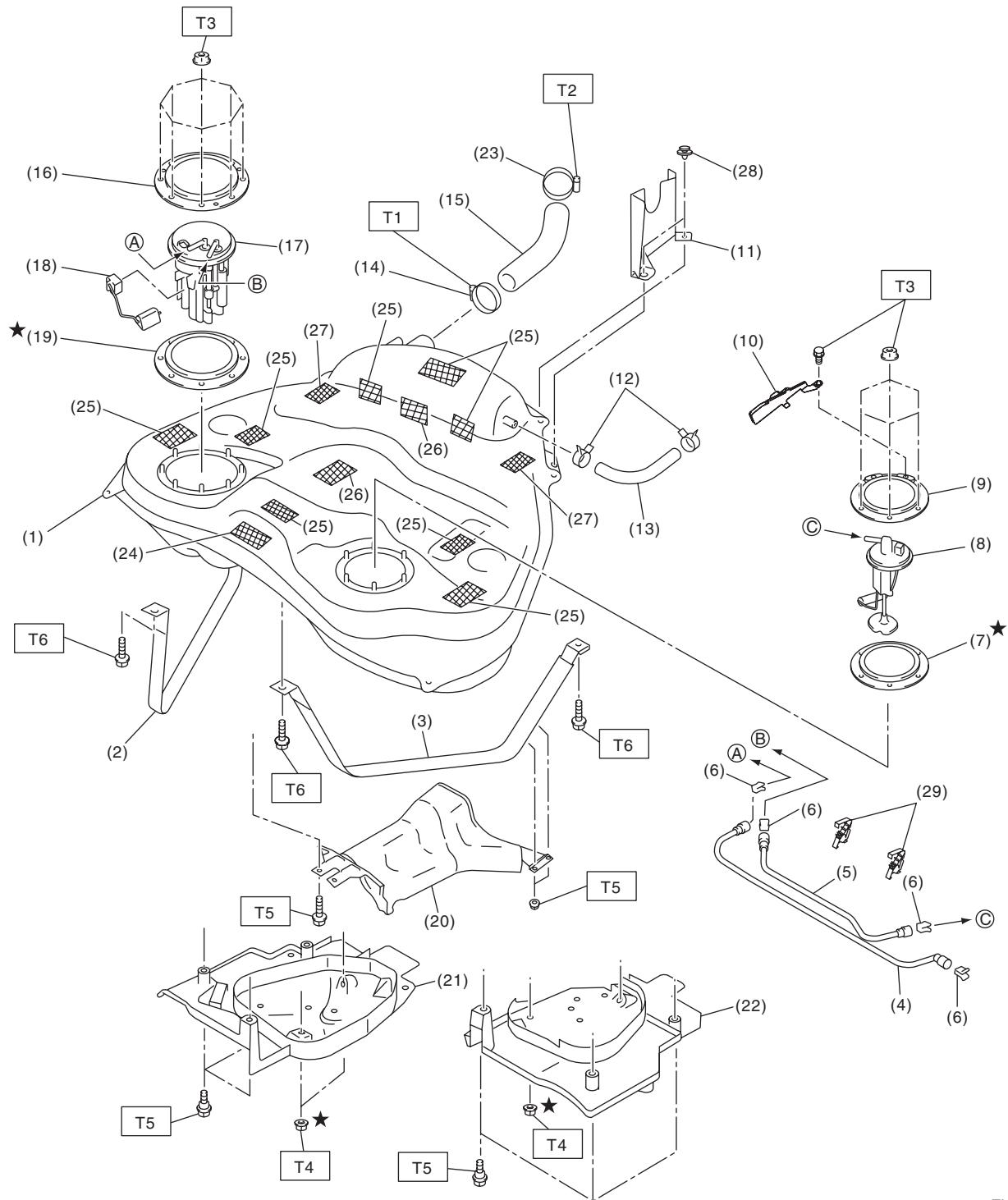
*1: Align the engine harness stay end with the end of engine harness identification tape.

*2: Attach the engine harness fixing clip to the fixing boss on the rocker cover.

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6. FUEL TANK



FU-05625

General Description

FUEL INJECTION (FUEL SYSTEMS)

(1) Fuel tank	(15) Fuel filler hose	(29) Fuel tube clamp
(2) Fuel tank band RH	(16) Fuel pump upper plate	
(3) Fuel tank band LH	(17) Fuel pump ASSY	
(4) Fuel delivery tube	(18) Fuel level sensor	
(5) Fuel sub delivery tube	(19) Fuel level sensor gasket	
(6) Retainer	(20) Heat shield cover	
(7) Fuel sub level sensor gasket	(21) Fuel tank protector RH	
(8) Fuel sub level sensor	(22) Fuel tank protector LH	
(9) Fuel sub level sensor upper plate	(23) Clamp	
(10) Fuel sub level sensor protector	(24) Cushion	
(11) Fuel tank protector	(25) Cushion	
(12) Clip	(26) Cushion	
(13) Air vent hose	(27) Cushion	
(14) Clamp	(28) Clip	

Tightening torque:N·m (kgf·m, ft-lb)

T1: 2 (0.2, 1.5)

T2: 2.5 (0.3, 1.8)

T3: 4.4 (0.4, 3.2)

T4: 9 (0.9, 6.6)

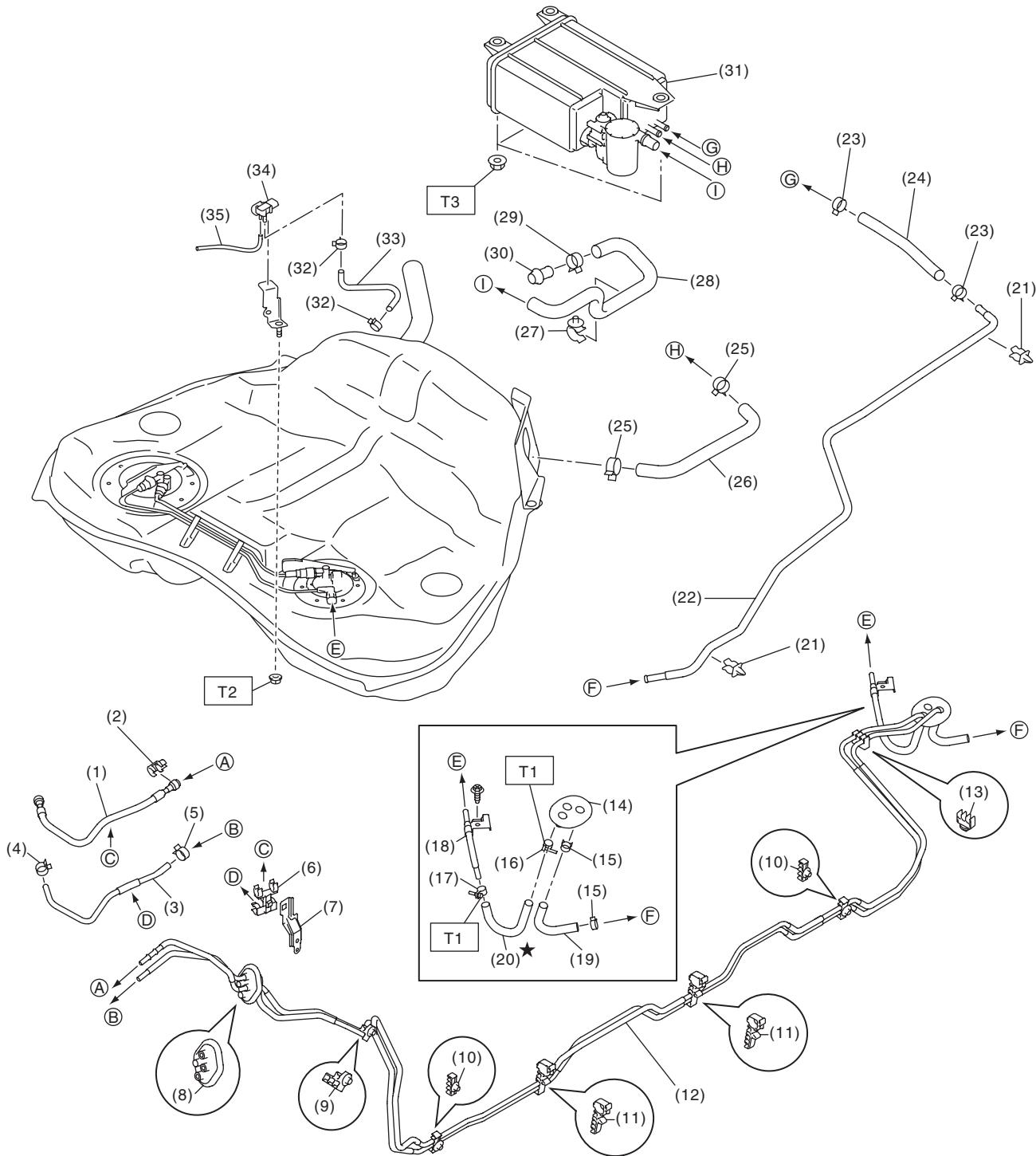
T5: 18 (1.8, 13.3)

T6: 33 (3.4, 24.3)

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FUEL INJECTION (FUEL SYSTEMS)

7. FUEL LINE



FU-05624

General Description

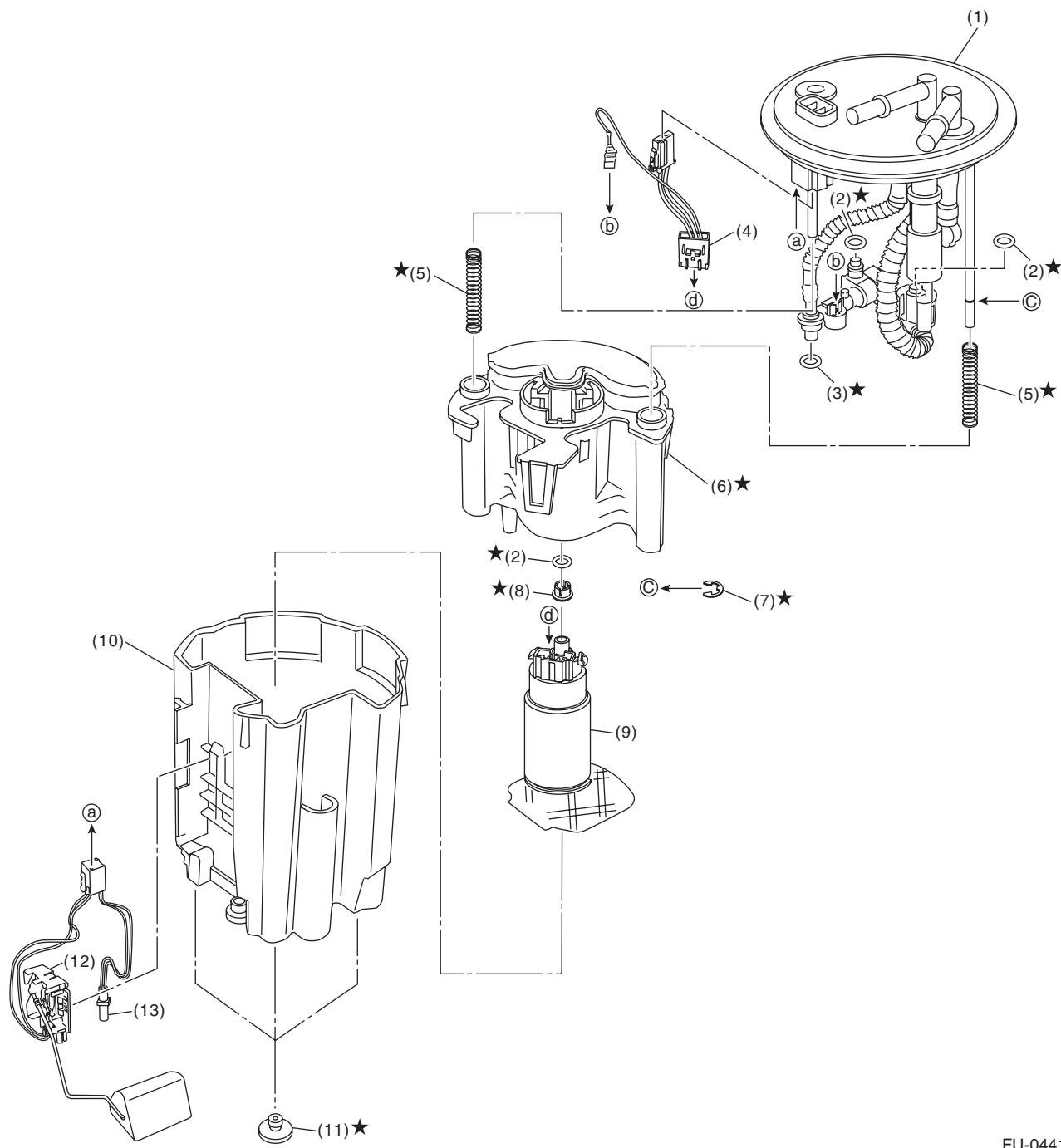
FUEL INJECTION (FUEL SYSTEMS)

(1) Fuel delivery hose A	(15) Clip	(29) Clip
(2) Connect check cover	(16) Clamp	(30) Drain connector
(3) Evaporation hose A	(17) Clamp	(31) Canister
(4) Clip	(18) Fuel delivery pipe	(32) Clip
(5) Clip	(19) Evaporation hose B	(33) Pressure hose
(6) Hose clamp	(20) Fuel delivery hose B	(34) Fuel tank pressure sensor
(7) Clamp bracket	(21) Clamp	(35) Vacuum hose
(8) Grommet	(22) Purge pipe	
(9) Clamp	(23) Clip	Tightening torque: N·m (kgf·m, ft·lb)
(10) Clamp	(24) Purge hose	T1: 1.25 (0.1, 0.9)
(11) Clamp	(25) Clip	T2: 7.35 (0.7, 5.4)
(12) Fuel pipe ASSY	(26) Air vent hose	T3: 8 (0.8, 5.9)
(13) Clamp	(27) Clip	
(14) Grommet	(28) Drain hose	

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8. FUEL PUMP



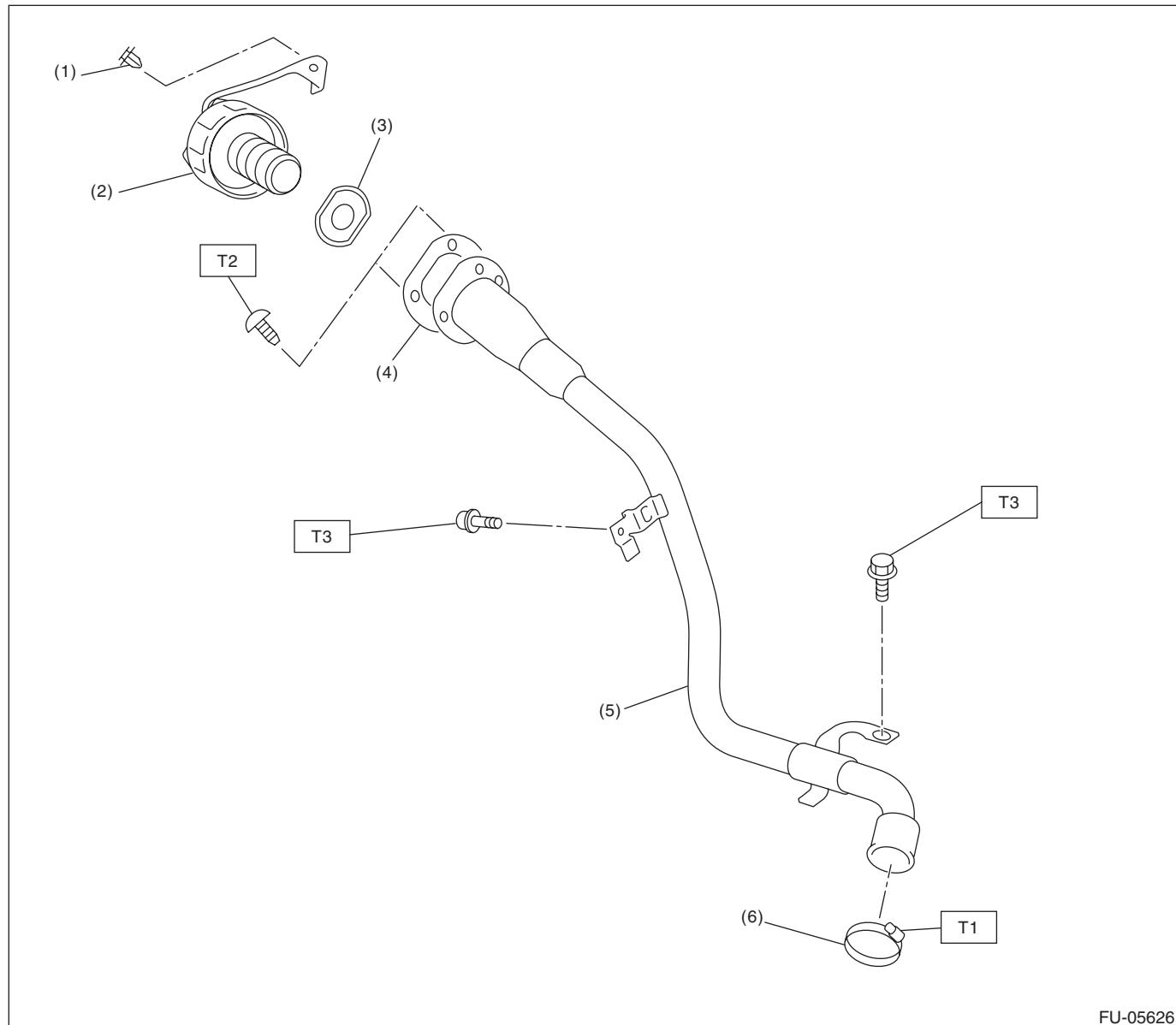
FU-04413

(1) Sub tank bracket ASSY	(6) Fuel filter	(11) Cushion
(2) O-ring	(7) Clip	(12) Fuel level sensor
(3) O-ring	(8) Spacer	(13) Fuel temperature sensor
(4) Fuel pump harness	(9) Pump ASSY	
(5) Spring	(10) Sub tank	

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9. FUEL FILLER PIPE



FU-05626

- (1) Clip
- (2) Fuel filler cap
- (3) Ring
- (4) Gasket

- (5) Fuel filler pipe
- (6) Clamp

Tightening torque: N·m (kgf·m, ft·lb)
T1: 2.5 (0.3, 1.8)
T2: 4.5 (0.5, 3.3)
T3: 7.8 (0.8 5.5)

C: CAUTION

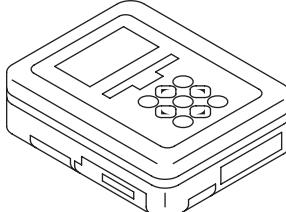
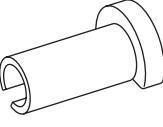
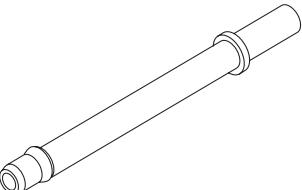
- Wear appropriate work clothing, including a cap, protective goggles and protective shoes when performing any work.
- Remove contamination including dirt and corrosion before removal, installation or disassembly.
- Keep the disassembled parts in order and protect them from dust and dirt.
- Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly and replacement.
- Vehicle components are extremely hot after driving. Be wary of receiving burns from heated parts.
- Be sure to tighten fasteners including bolts and nuts to the specified torque.
- Place shop jacks or rigid racks at the specified points.
- Before disconnecting connectors of sensors or units, be sure to disconnect the ground cable from the battery.
- Place “NO OPEN FLAMES” signs near the working area.
- Prepare a container and cloth to prevent scattering of fuels when performing work where fuels can be spilled. If the fuel spills, wipe it off immediately to prevent from penetrating into floor or flowing out for environmental protection.
- Follow all government and local regulations concerning disposal of refuse when disposing fuel.

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D: PREPARATION TOOL

1. SPECIAL TOOL

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST1B022XU0	1B022XU0	SUBARU SELECT MONITOR III KIT	Used for draining fuel and each inspection.
 ST42099AE000	42099AE000	QUICK CONNECTOR RELEASE	Used for removing the quick connector.
 ST18471AA000	18471AA000	FUEL PIPE ADAPTER	Used for draining fuel.

2. GENERAL TOOL

TOOL NAME	REMARKS
Circuit tester	Used for measuring resistance and voltage.
Oscilloscope	Used for inspecting the waveform of each sensor.