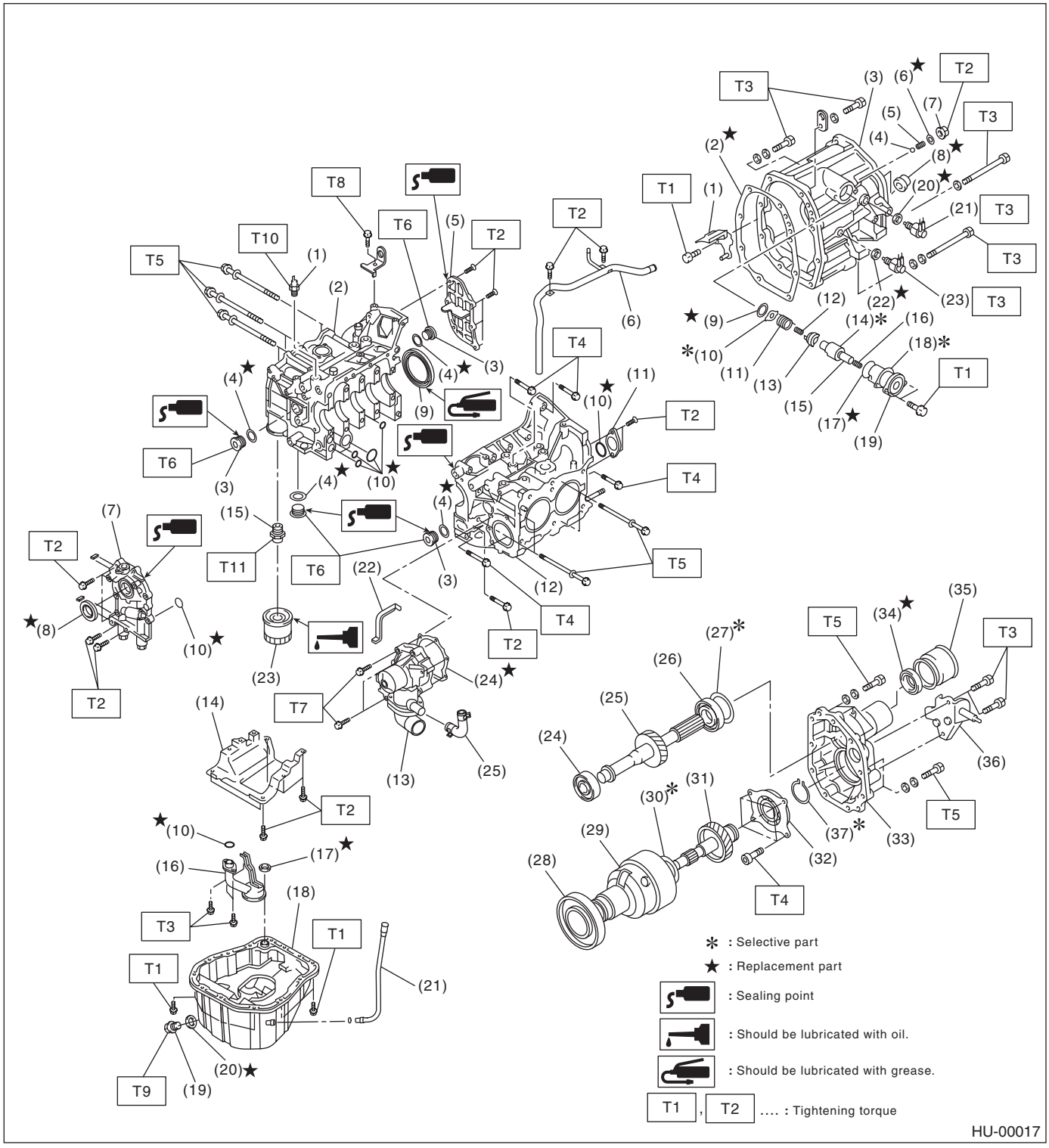
3. COMPONENT

Illustrations are provided for each component. The information necessary for repair work (tightening torque, grease up points, etc.) is described on these illustrations. Information is described using symbol.
To order parts, refer to parts catalogue.

Example:



G: BRAKE

Model	WRX-S, WRX	STI-S, STI, SE
Service brake system	Dual circuit hydraulic with vacuum suspended power unit	
Front	Ventilated disc brake	
Rear	Disc brake	Ventilated disc brake
Parking brake	Mechanical on rear brakes	

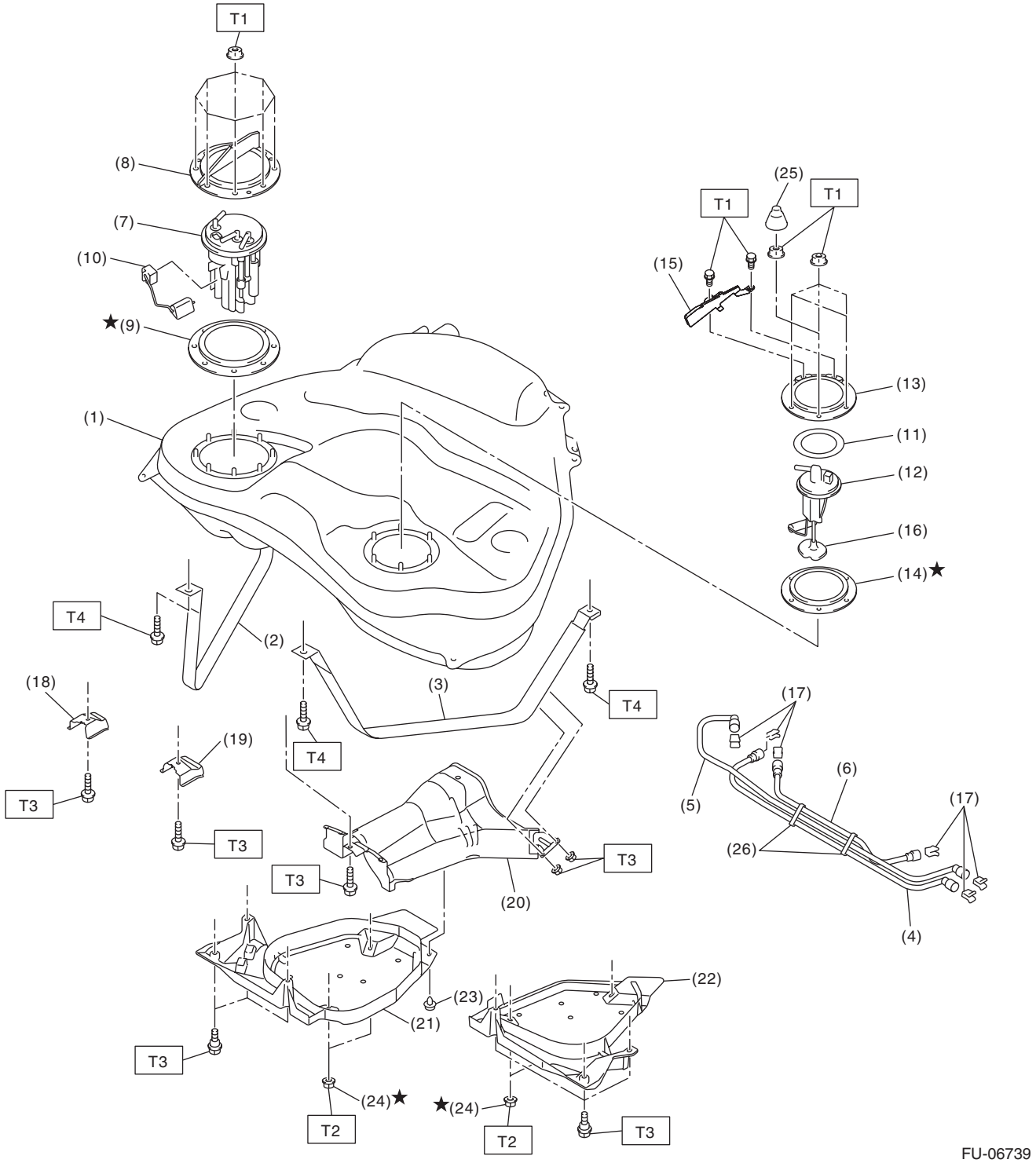
H: TIRE

Rim size	17 × 8 J	18 × 8 1/2J
Tire size	235/45R17	245/40R18
Type	Tubeless, Steel belted radial	

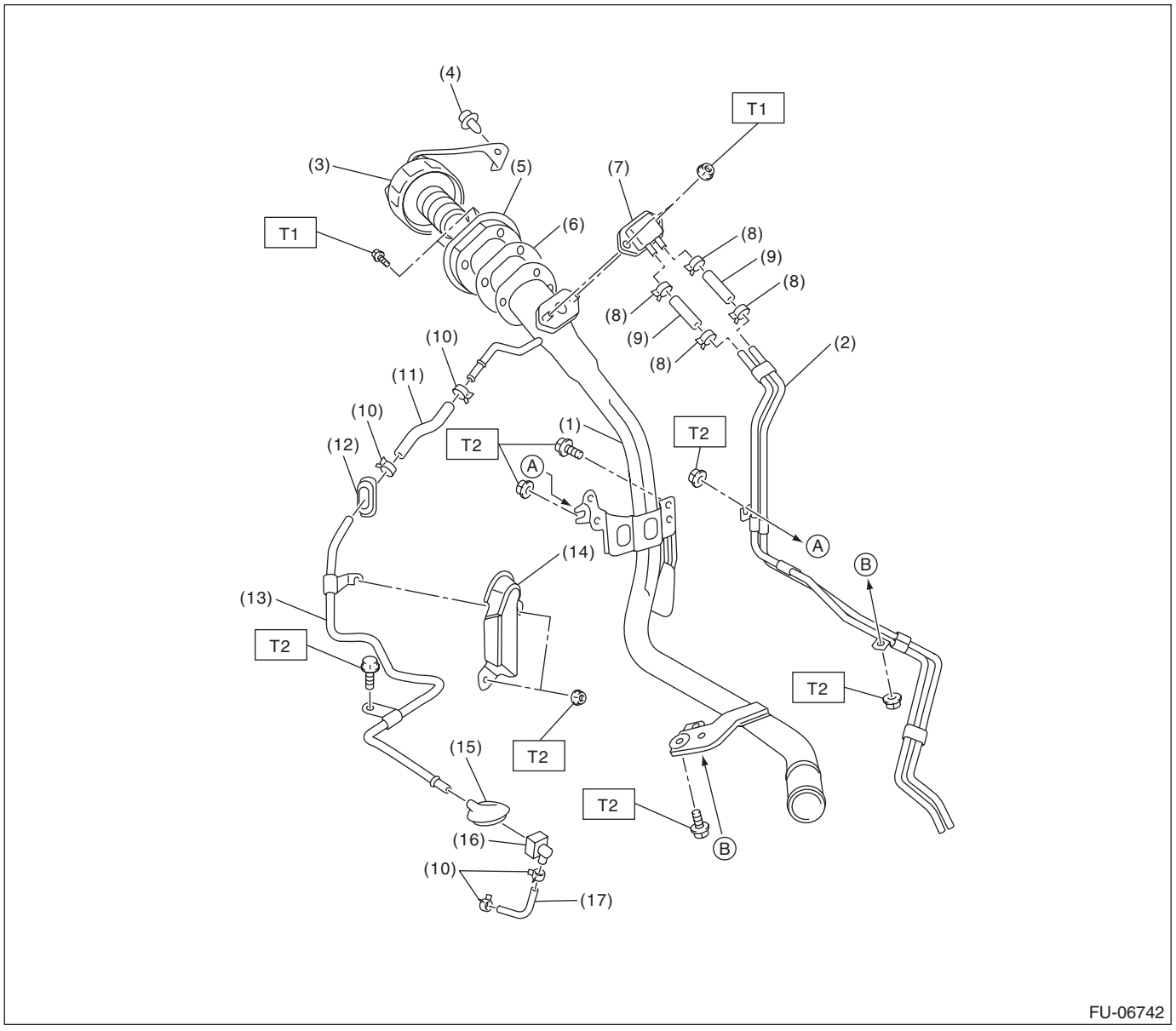
I: CAPACITY

Model			WRX-S, WRX	STI-S, STI, SE
Fuel tank		ℓ (US gal, Imp gal)	64 (16.9, 14.1)	
Engine oil	Total capacity (at overhaul)	ℓ (US qt, Imp qt)	5.0 (5.3, 4.4)	
	When replacing engine oil and oil filter	ℓ (US qt, Imp qt)	4.2 (4.4, 3.7)	4.3 (4.5, 3.8)
	When replacing engine oil only	ℓ (US qt, Imp qt)	4.0 (4.2, 3.5)	
Transmission gear oil		ℓ (US qt, Imp qt)	3.5 (3.7, 3.1)	4.1 (4.3, 3.6)
Rear differential gear oil		ℓ (US qt, Imp qt)	0.8 (0.8, 0.7)	1.0 (1.1, 0.9)
Power steering fluid		ℓ (US qt, Imp qt)	0.7 (0.7, 0.6)	
Engine coolant		ℓ (US qt, Imp qt)	7.4 (7.8, 6.5)	7.7 (8.1, 6.8)

4. FUEL TANK


T1
(8)
(7)
(10)
★(9)
(1)
(25)
T1
T1
(15)
(13)
(11)
(12)
(16)
(14)★
T4
(2)
(3)
T4
T4
(18)
(19)
T3
T3
T3
T3
(20)
(17)
(5)
(6)
(17)
(26)
(4)
(22)
(23)
(21)
T3
(24)★
T2
★(24)
T2
T3
FU-06739

6. FUEL FILLER PIPE



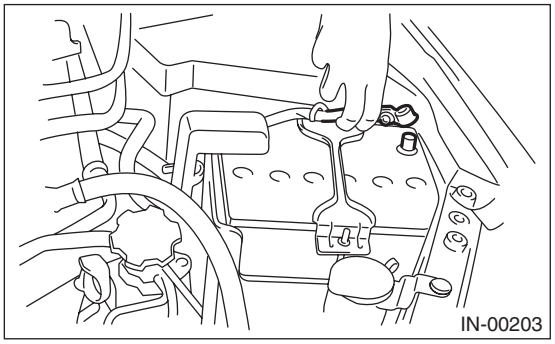
(1) Fuel filler pipe
(2) Evaporation pipe A
(3) Fuel filler cap
(4) Clip
(5) Filler ring
(6) Filler pipe gasket
(7) Shut valve
(8) Clip
(9) Evaporation hose A
(10) Clip
(11) Evaporation hose B
(12) Grommet
(13) Evaporation pipe B
(14) Evaporation pipe protector
(15) Grommet
(16) Quick connector
(17) Evaporation hose C

Tightening torque:N·m (kgf-m, ft-lb)
T1: 4.4 (0.4, 3.2)
T2: 7.5 (0.8, 5.5)

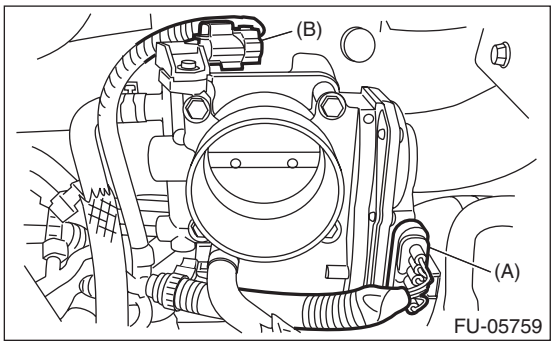
2. Throttle Body

A: REMOVAL

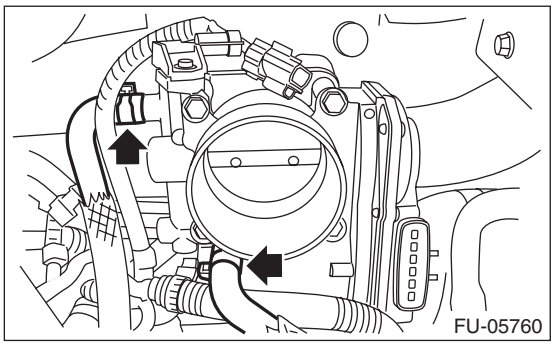
1) Disconnect the ground cable from battery.



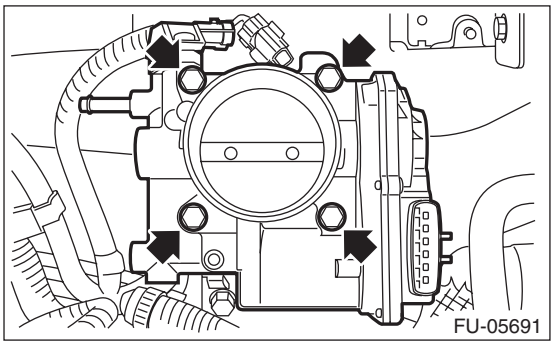
2) Lift up the vehicle.
3) Remove the under cover. <Ref. to EI-28, REMOVAL, Front Under Cover.>
4) Drain approximately 3.0 ℓ (3.2 US qt, 2.6 Imp qt) of coolant. <Ref. to CO(STI)-13, DRAINING OF ENGINE COOLANT, REPLACEMENT, Engine Coolant.>
5) Remove the intercooler. <Ref. to IN(STI)-12, REMOVAL, Intercooler.>
6) Disconnect the connector (A) from the throttle position sensor, and the connector (B) from the manifold pressure sensor.



7) Disconnect the engine coolant hose from throttle body.



8) Remove the throttle body from the intake manifold.



B: INSTALLATION

Install in the reverse order of removal.

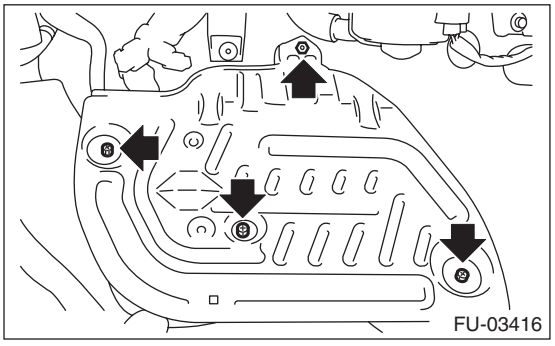
NOTE:
Use a new gasket.

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

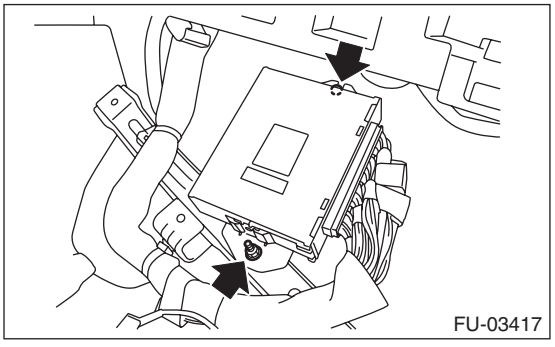
C: INSPECTION

1. THROTTLE SENSOR INSPECTION (METHOD WITH CIRCUIT TESTER)

1) Remove the lower inner trim of passenger's side. <Ref. to EI-57, REMOVAL, Lower Inner Trim.>
2) Turn over the floor mat of passenger's seat.
3) Remove the protect cover.



4) Remove the nuts and bolts which hold the ECM to the bracket.



5) Turn the ignition switch to ON. (engine OFF)

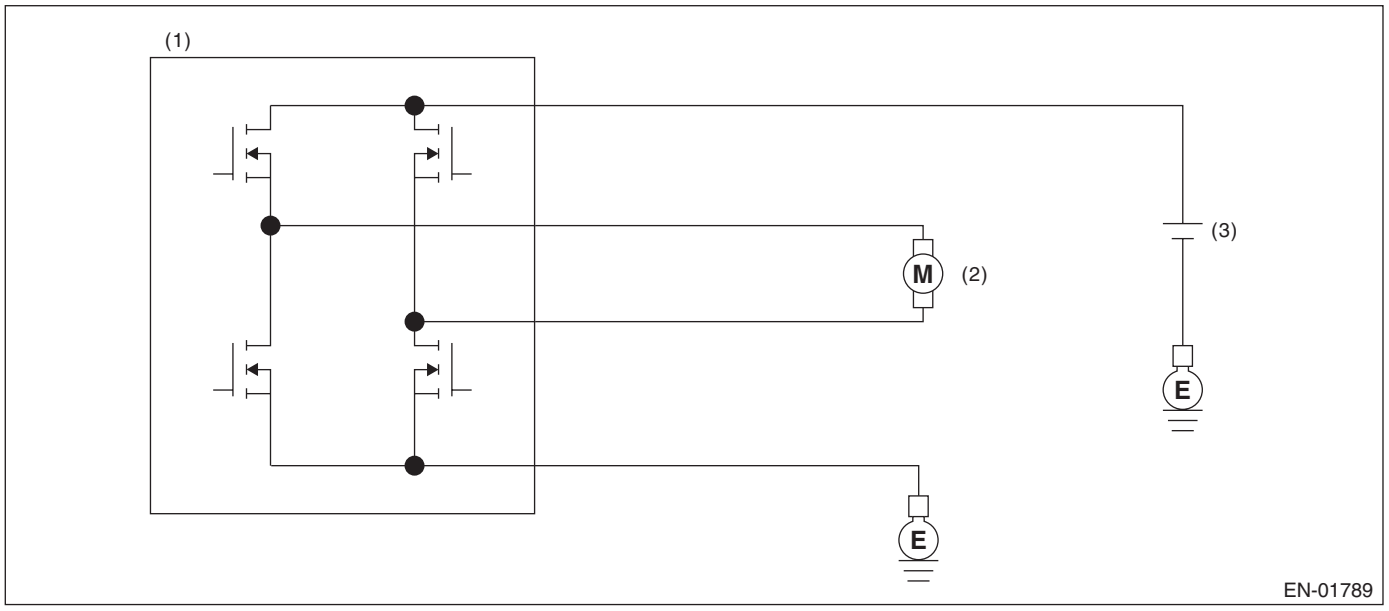
	Step	Check	Yes	No
2	**CHECK REAR OXYGEN SENSOR DATA.** 1) Warm up the engine until engine coolant temperature is higher than 75°C (167°F), and rapidly reduce the engine speed from 3,000 rpm. 2) Read the value of «Rear O2 Sensor» using the Subaru Select Monitor or a general scan tool. NOTE: • Subaru Select Monitor For detailed operation procedures, refer to "READ CURRENT DATA FOR ENGINE". <Ref. to EN(H4DOTC)(diag)-40, Subaru Select Monitor.> • General scan tool For detailed operation procedures, refer to the general scan tool operation manual.	Is the value of «Rear O2 Sensor» 0.250 V or less?	Go to step **6**.	Go to step **3**.
3	**CHECK REAR OXYGEN SENSOR CONNECTOR AND COUPLING CONNECTOR.**	Has water entered the connector?	Completely remove any water inside.	Go to step **4**.
4	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM and rear oxygen sensor. 3) Measure the resistance of harness between ECM and rear oxygen sensor connector. ***Connector & terminal*** ***(B136) No. 20 — (T6) No. 3:*** ***(B135) No. 30 — (T6) No. 4:***	Is the resistance less than 1 Ω?	Go to step **5**.	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and rear oxygen sensor connector • Poor contact of coupling connector
5	**CHECK HARNESS BETWEEN ECM AND REAR OXYGEN SENSOR CONNECTOR.** 1) Connect the connector to ECM. 2) Turn the ignition switch to ON. 3) Measure the voltage between rear oxygen sensor connector and chassis ground. ***Connector & terminal*** ***(T6) No. 3 (+) — Chassis ground (–):***	Is the voltage 0.2 — 0.5 V?	Replace the rear oxygen sensor. <Ref. to FU(STI)-56, Rear Oxygen Sensor.> <Ref. to FU(w/o STI)-56, Rear Oxygen Sensor.>	Repair the harness and connector. NOTE: In this case, repair the following item: • Open circuit in harness between ECM and rear oxygen sensor connector • Poor contact of ECM connector • Poor contact of coupling connector
6	**CHECK EXHAUST SYSTEM.** Check exhaust system parts. NOTE: Check the following items. • Looseness and improper fitting of exhaust system parts • Damage (crack, hole etc.) of parts • Loose part and improper installation between front oxygen (A/F) sensor and rear oxygen sensor	Is there any fault in exhaust system?	Repair or replace faulty parts.	Replace the rear oxygen sensor. <Ref. to FU(STI)-56, Rear Oxygen Sensor.> <Ref. to FU(w/o STI)-56, Rear Oxygen Sensor.>

DZ:DTC P2012 INTAKE MANIFOLD RUNNER CONTROL CIRCUIT LOW (BANK 2)

1. OUTLINE OF DIAGNOSIS

Detect the open or short circuit of tumble generator valve motor.
Judge as NG when the overcurrent signal is sent from IC after tumble generator valve driving IC diagnosis.

2. COMPONENT DESCRIPTION



(1) Engine control module (ECM) (2) Tumble generator valve (3) Battery

3. ENABLE CONDITIONS

Secondary Parameters	Enable Conditions
Battery voltage	≥ 10.9 V

4. GENERAL DRIVING CYCLE

Always perform the diagnosis continuously.

5. DIAGNOSTIC METHOD

• Abnormality Judgment

At the main IC, check the sent signal at each timing which occurs just before the tumble generator valve output is set to ON → OFF, and judge open NG when the open NG signal is sent 96 ms × 10 time(s) in a row.

Judgment Value

Malfunction Criteria	Threshold Value
Overcurrent NG signal input	Low

Time Needed for Diagnosis: 96 ms × 10 time(s)
Malfunction Indicator Light Illumination: Illuminates as soon as a malfunction occurs.

• Normality Judgment

Judge as OK and clear the NG when the OK signal is sent.

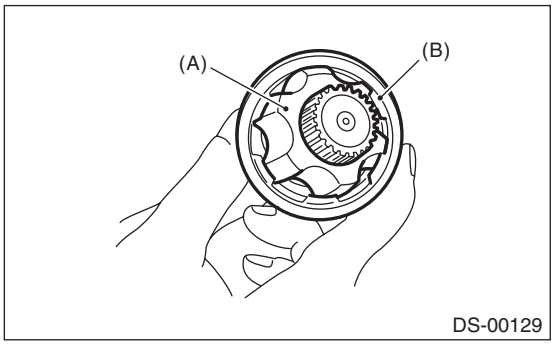
Judgment Value

Malfunction Criteria	Threshold Value
Overcurrent NG signal input	High

Time Needed for Diagnosis: Less than 1 second

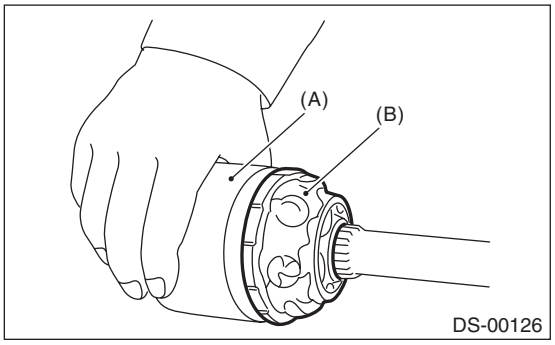
5) Install the cage to inner race fixed upon shaft.

NOTE:
Fit the cage with the protruding section aligned with the track on the inner race, and turn by a half pitch.



(A) Inner race
(B) Cage

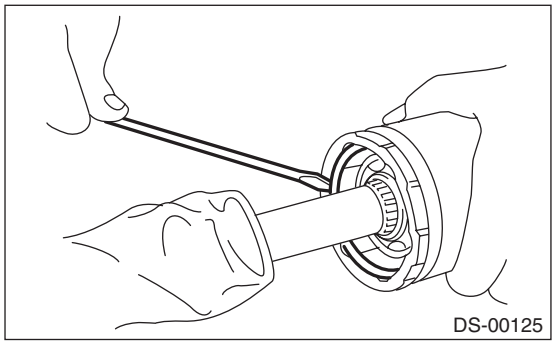
6) Fill 80 to 90 g (2.82 to 3.17 oz) of specified grease into the inner side of the EDJ outer race.
7) Apply a thin coat of specified grease to the cage pocket and ball.
8) Insert the ball bearings into the cage pocket.
9) Align the outer race track and ball positions, and place the shaft, inner race, cage and ball bearings in the original positions, and then fix outer race in place.



(A) Outer race
(B) Grease

10) Install the snap ring in the groove on the EDJ outer race.

NOTE:
• Assure that the balls, cage and inner race are completely fitted in the outer race of EDJ.
• Use care not to place the matched position of snap ring in the ball groove of outer race.
• Pull the shaft lightly and assure that the circlip is completely fitted in the groove.

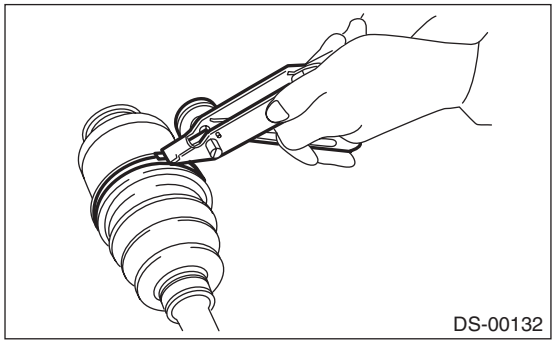


11) Apply an even coat of the specified grease [20 to 30 g (0.71 to 1.06 oz)] to the entire inner surface of boot. Also apply grease to the shaft.
12) Install the EDJ boot taking care not to twist it.

NOTE:
• The inside of the large end of EDJ boot and the boot groove shall be cleaned so as to be free from grease and other substances.
• When installing the EDJ boot, position the outer race of EDJ at center of the stroke.
13) Put a new band through the clip and wind twice in the band groove of the boot.
14) Pinch the end of band with pliers. Hold the clip and tighten securely.

NOTE:
When tightening boot, use care so that the air within the boot is appropriate.
15) Tighten the band using the ST.
ST 925091000 BAND TIGHTENING TOOL

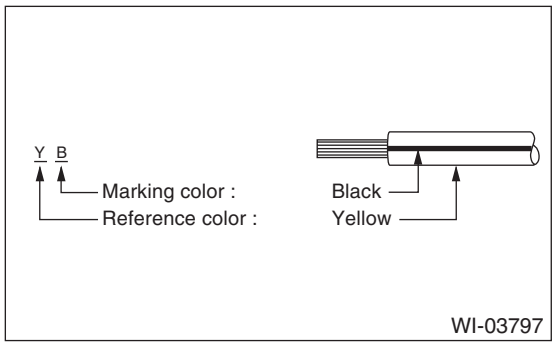
NOTE:
Tighten the band until it cannot be moved by hand.



	Step	Check	Yes	No
3	**CHECK AIRBAG MAIN HARNESS (PASSENGER'S AIRBAG HARNESS).** 1) Turn the ignition switch to OFF, disconnect the battery ground cable, and wait for 60 seconds or more. 2) Disconnect the airbag resistor from the connectors (2P) and (3P) of test harness P. 3) Remove the instrument panel lower cover and disconnect the connector (AB7) from (AB2). 4) Disconnect the connectors (AB6, AB17, AB18) from the airbag control module, and connect the connector (1AH) in the test harness AH. 5) Connect the connector (2AH) in the test harness AH and the connector (1AG) in the test harness AG. 6) Measure the voltage between connector (3AG) in the test harness AG and chassis ground. ***Connector & terminal*** ***(3AG) No. 6 (+) — Chassis ground (–):*** ***(3AG) No. 8 (+) — Chassis ground (–):***	Is the voltage less than 1 V?	Go to step **4**.	Replace the airbag main harness along with body harness.
4	**CHECK AIRBAG CONTROL MODULE.** 1) Connect all connectors. 2) Clear the memory. 3) Perform the Inspection Mode. 4) Read the DTC.	Is the same DTC displayed?	Replace the airbag control module. <Ref. to AB-22, Airbag Control Module.>	Go to step **5**.
5	**CHECK FOR ANY OTHER DTC ON DISPLAY.**	Is any other DTC displayed?	Check DTC using "List of Diagnostic Trouble Code (DTC)". <Ref. to AB(diag)-39, List of Diagnostic Trouble Code (DTC).>	Finish the diagnosis.

Contents	Terminal No.	Standard	Measuring condition
Rear wiper output RTN	D8 ←→ chassis ground	Less than 1 V → 9 V or more	When rear wiper reversed
Door lock output	A7 ←→ A8	Less than 1 V → 9 V or more	During lock output
Door unlock output	A8 ←→ A7	Less than 1 V → 9 V or more	While unlock output
Driver's side door unlock output	A23 ←→ A7	Less than 1 V → 9 V or more	While unlock output
Trunk/rear gate UNLOCK output	A22 ←→ chassis ground	Less than 1 V → 9 V or more	4 door: While trunk UNLOCK output 5 door: While rear gate UNLOCK output
Lighting power supply	C1 ←→ chassis ground	Less than 1 V → 9 V or more	"With back-up fuse inserted, ACC ON or IGN ON" or "When key warning switch is ON"
	D1 ←→ chassis ground		
Clearance light relay output	D19 ←→ chassis ground	9 V or more → less than 1 V	Small light ON
Lo beam relay output	C3 ←→ chassis ground	9 V or more → less than 1 V	Headlight switch ON
	D7 ←→ chassis ground	9 V or more → less than 1 V	Headlight switch ON
Hi beam relay output	D20 ←→ chassis ground	9 V or more → less than 1 V	"Headlight switch ON and Hi beam ON" or "Passing switch ON"
Front fog light relay output	D17 ←→ chassis ground	9 V or more → less than 1 V	Headlight switch ON, and front fog light switch ON
DRL cancel output	D18 ←→ chassis ground	9 V or more → less than 1 V	When Hi beam 100 % illuminates
Room light output	D5	Pulse control	Illumination is adjusted through PWM control
Key ring illumination output	C23	Pulse control	Illumination is adjusted through PWM control
Illumination output	A2	Pulse control	Illumination is adjusted through PWM control
Map light output (model with sunroof)	D4 ←→ chassis ground	Pulse control	Illumination is adjusted through PWM control
Rear defogger relay output	D16 ←→ chassis ground	9 V or more → less than 1 V	While rear defogger output
Wiper deicer relay output	D15 ←→ chassis ground	9 V or more → less than 1 V	While wiper deicer output
Seat belt warning light (passenger's seat)	A25 ← → chassis ground	9 V or more → less than 1 V	Indicator go off → illuminate
Buzzer sound output	D24 ←→ chassis ground	Less than 1 V → 9 V or more	Door lock → unlock with keyless entry system
Turn & hazard output	C22 ←→ chassis ground	9 V or more → less than 1 V	Door lock or unlock with keyless entry system
Horn relay output	D29 ←→ chassis ground	9 V or more → less than 1 V	During security alarm operation
Security indicator output	A10 ←→ chassis ground	9 V or more → less than 3 V	While indicator in combination meter blinks
Immobilizer antenna 1	B26 ←→ B25	–30 — +30 V	While key secret code is verified
Immobilizer antenna 2	B25 ←→ B26		
Immobilizer communication_1	B4	Can not be measured because of digital communication	Serial communication line
Immobilizer communication_2	B15	Can not be measured because of digital communication	Serial communication line

• The wire color code, which consists of two letters (or three letters including Br or Lg), indicates the standard color (base color of the wire covering) by its first letter and the stripe marking by its second letter.



• The table lists the nominal sectional areas and allowable currents of the wires.

CAUTION:
When replacing or repairing a wire, be sure to use the same size and type of the wire which was originally used.

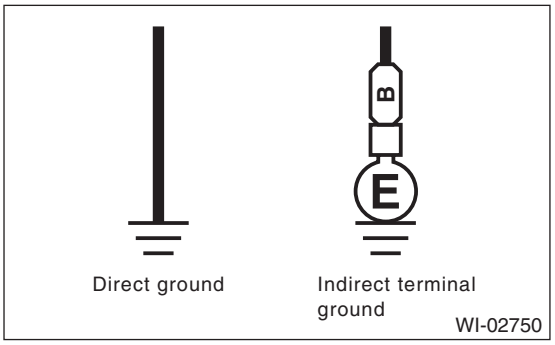
NOTE:

• The allowable current in the table indicates the tolerable amperage of each wire at an ambient temperature of 40°C (104°F).

• The allowable current changes with ambient temperature. Also, it changes if a bundle of more than two wires is used.

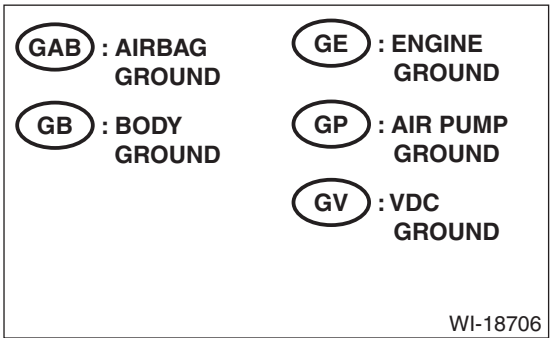
Nominal sectional area mm^2	No. of strands/ strand diameter	Outside diameter of wiring mm	Allowable current Amps/ 40°C (104°F)
0.3	7/0.26	1.8	7
0.5	7/0.32	2.2 (or 2.0)	12
0.75	30/0.18	2.6 (or 2.4)	16
0.85	11/0.32	2.4 (or 2.2)	16
1.25	16/0.32	2.7 (or 2.5)	21
2	26/0.32	3.1 (or 2.9)	28
3	41/0.32	3.8 (or 3.6)	38
5	65/0.32	4.6 (or 4.4)	51
8	50/0.45	5.5	67

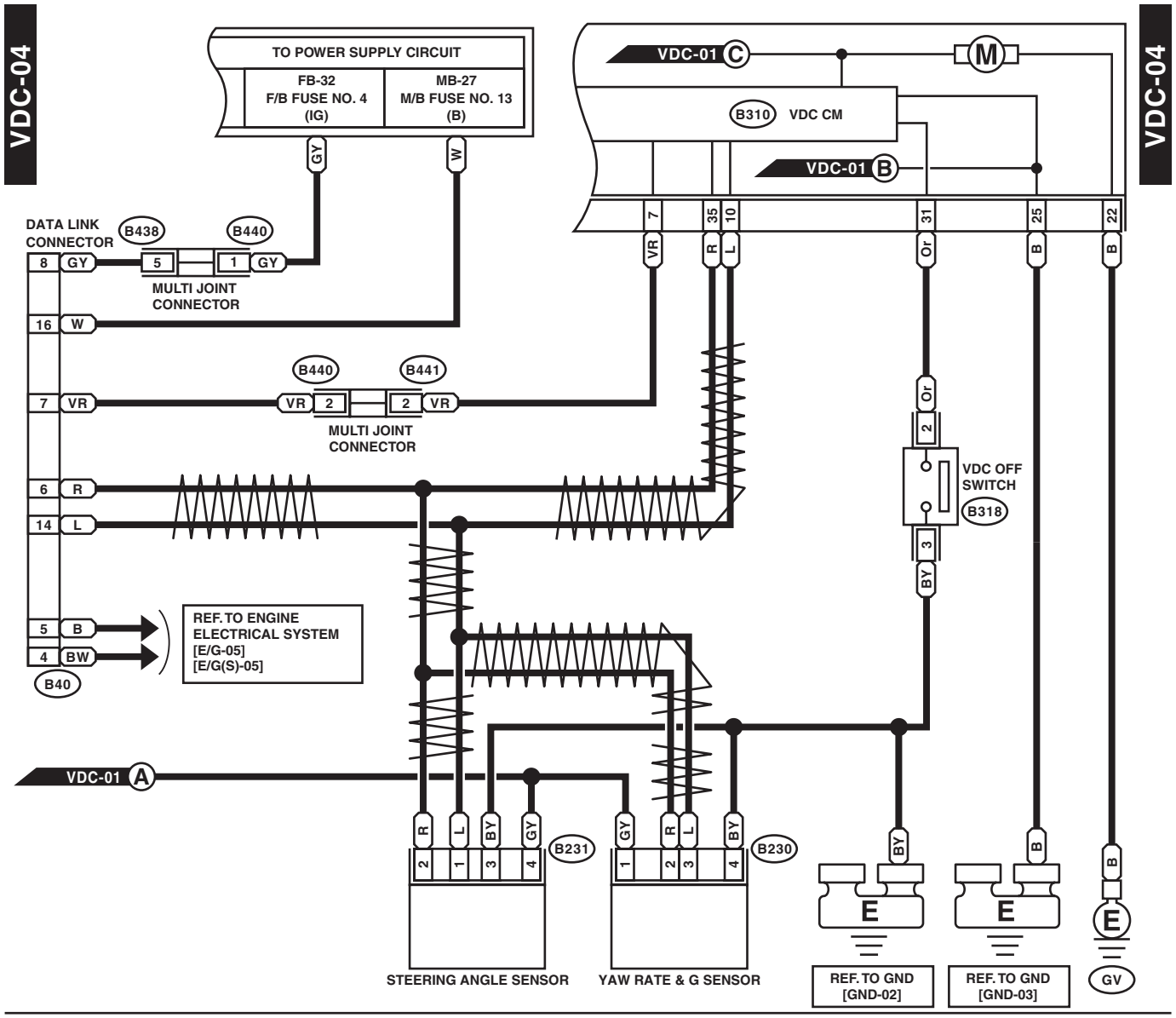
• Each unit is either directly grounded to the body or indirectly grounds through a harness ground terminal. Different symbols are used in the wiring diagram to identify the two grounding systems.

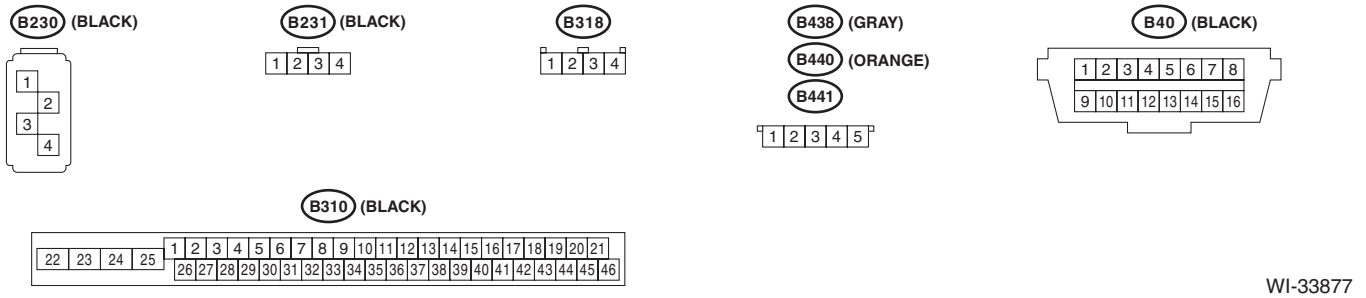


• The ground points shown in the wiring diagram refer to the following:

NOTE:
All wiring harnesses are provided with a ground point which must be securely connected.




VDC-04
VDC-04
TO POWER SUPPLY CIRCUIT
FB-32
F/B FUSE NO. 4
(IG)
MB-27
M/B FUSE NO. 13
(B)
VDC-01 C
M
B310 VDC CM
VDC-01 B
DATA LINK CONNECTOR
B438
B440
8 GY
5
1 GY
MULTI JOINT CONNECTOR
16 W
B440
B441
7 VR
VR 2
2 VR
MULTI JOINT CONNECTOR
6 R
14 L
5 B
4 BW
B40
REF. TO ENGINE ELECTRICAL SYSTEM [E/G-05] [E/G(S)-05]
VDC-01 A
7
35
10
31
25
22
VR
R
L
Or
B
B
Or
2
VDC OFF SWITCH
B318
3
BY
R
L
BY
GY
B231
GY
R
L
BY
B230
BY
B
B
E
E
E
GV
STEERING ANGLE SENSOR
YAW RATE & G SENSOR
REF. TO GND [GND-02]
REF. TO GND [GND-03]


B230 (BLACK)
1 2 3 4
B231 (BLACK)
1 2 3 4
B318
1 2 3 4
B438 (GRAY)
B440 (ORANGE)
B441
1 2 3 4 5
B40 (BLACK)
1 2 3 4 5 6 7 8
9 10 11 12 13 14 15 16
B310 (BLACK)
22 23 24 25
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21
26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46

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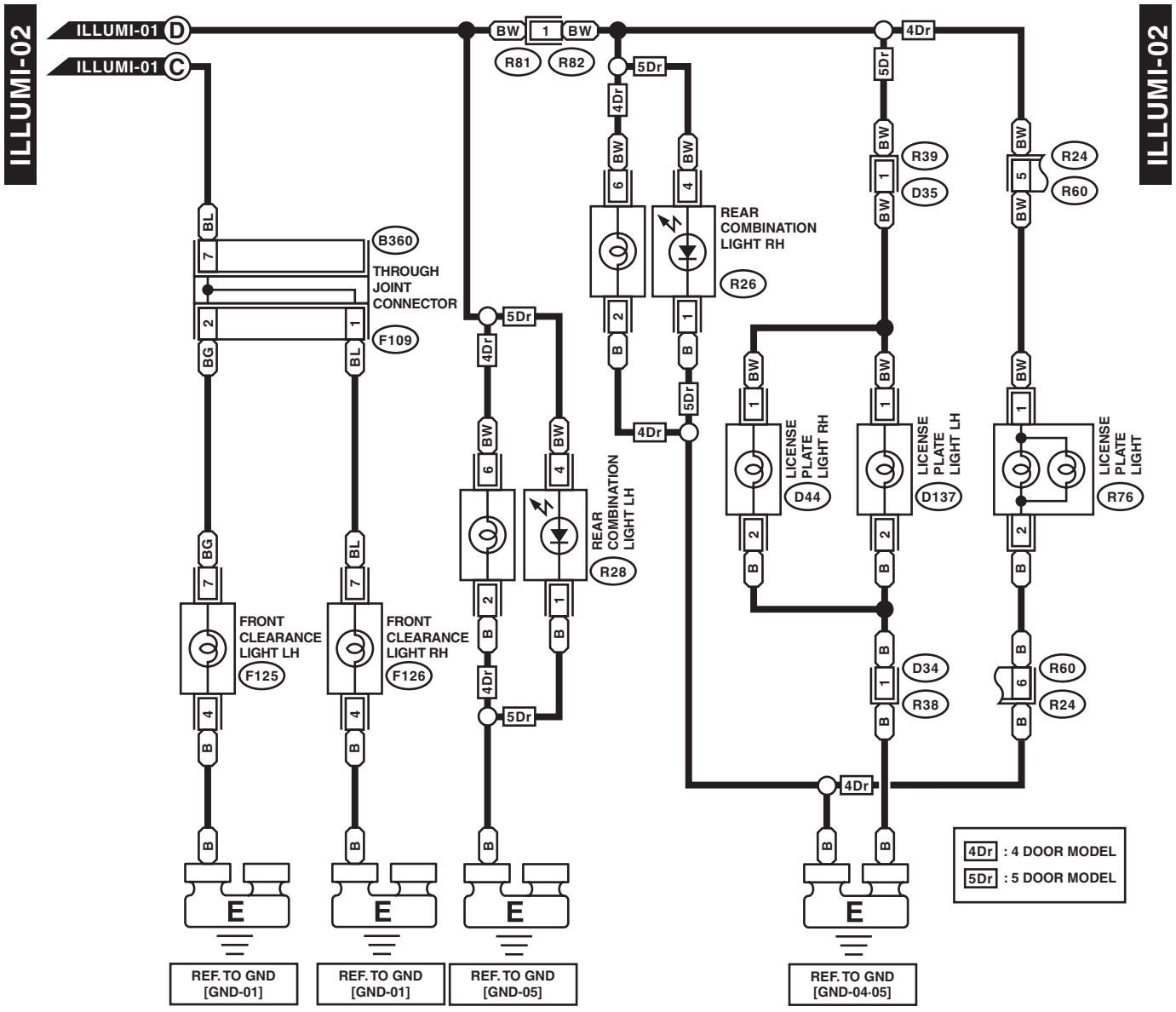
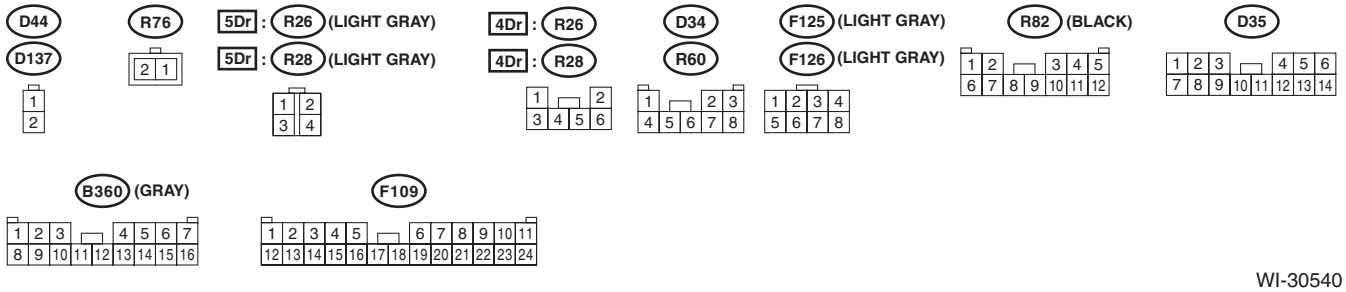

ILLUMI-02
ILLUMI-01 D
ILLUMI-01 C
BW
1
R81
R82
5Dr
4Dr
6
4
REAR COMBINATION LIGHT RH
R26
2
B
1
R39
D35
R24
5
R60
B360
THROUGH JOINT CONNECTOR
F109
BL
7
BG
REAR COMBINATION LIGHT LH
R28
LICENSE PLATE LIGHT RH
D44
LICENSE PLATE LIGHT LH
D137
LICENSE PLATE LIGHT
R76
FRONT CLEARANCE LIGHT LH
F125
FRONT CLEARANCE LIGHT RH
F126
D34
R38
E
REF. TO GND [GND-01]
REF. TO GND [GND-01]
REF. TO GND [GND-05]
REF. TO GND [GND-04·05]
4Dr : 4 DOOR MODEL
5Dr : 5 DOOR MODEL

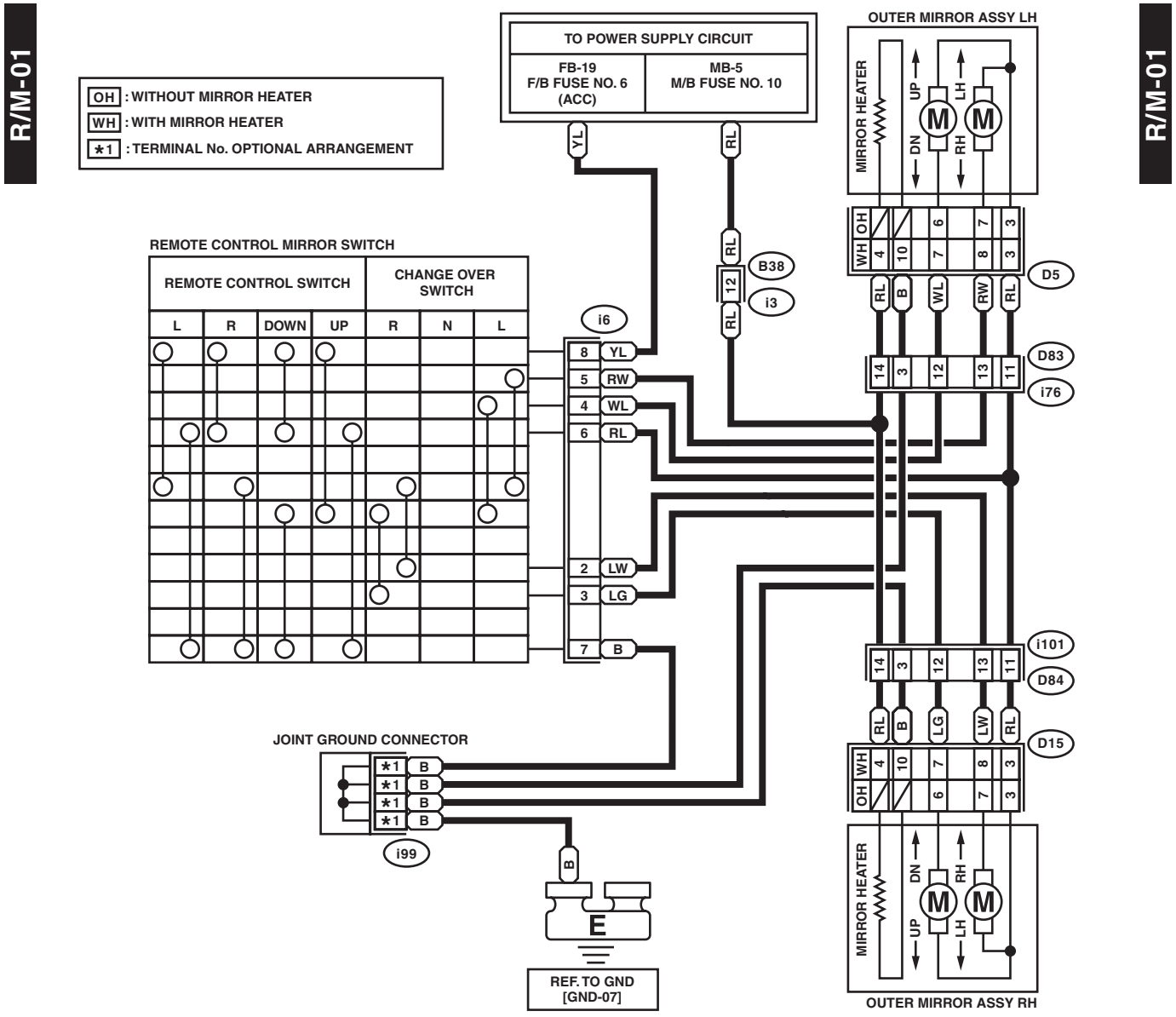

D44
D137
R76
5Dr : R26 (LIGHT GRAY)
5Dr : R28 (LIGHT GRAY)
4Dr : R26
4Dr : R28
D34
R60
F125 (LIGHT GRAY)
F126 (LIGHT GRAY)
R82 (BLACK)
D35
B360 (GRAY)
F109

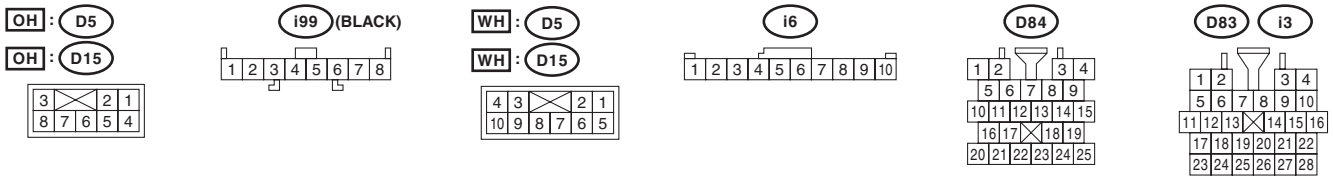
WI-30540

34.Remote Control Mirror System

A: WIRING DIAGRAM

R/M-01





WI-30462

Rear Wiring Harness and Rear Gate Cord