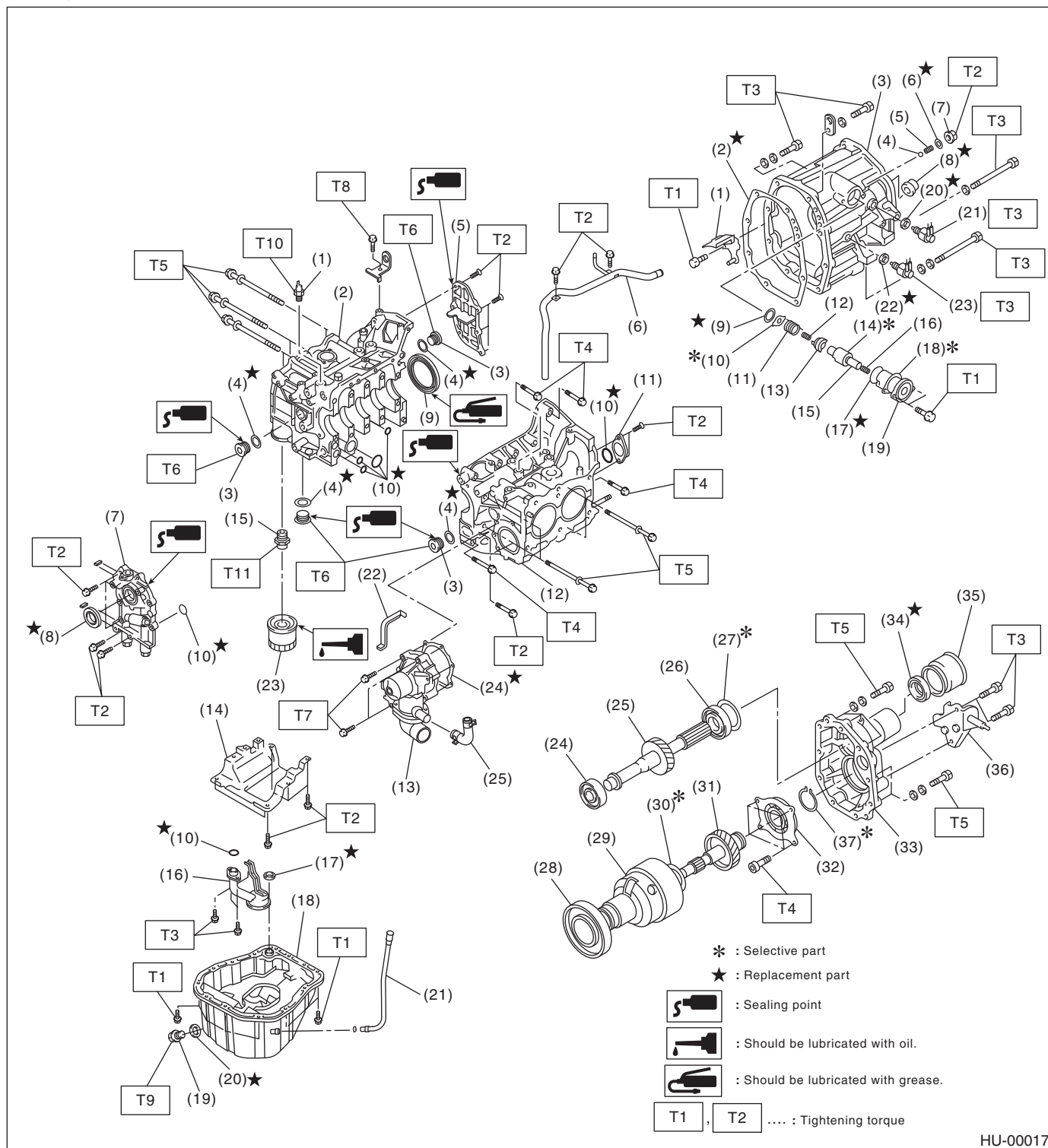


Example:



HU-00017

4. DEFINITIONS OF “NOTE”, “CAUTION” AND “WARNING”

- NOTE:

Describes additional information to make works easier.

- CAUTION:

Describes prohibited matters to prevent vehicle or parts damage, or matters that requires special attention during work.

WRX

SPECIFICATIONS

1. WRX

A: DIMENSION

Model		2.0 L DOHC turbo	
Overall length	mm (in)	4,595 (180.9)	
Overall width	mm (in)	1,795 (70.7)	
Overall height	mm (in)	1,475 (58.1)	
Compartment	Length	mm (in)	2,005 (78.9)
	Width	mm (in)	1,490 (58.7)
	Height	mm (in)	1,205 (47.4), 1,180 (46.5)*
Wheelbase	mm (in)	2,650 (104.3)	
Tread	Front	mm (in)	1,530 (60.2)
	Rear	mm (in)	1,540 (60.6)
Minimum road clearance	mm (in)	125 (4.9)	

*: With sunroof

B: ENGINE

Model		2.0 L DOHC turbo	
Engine type		Horizontally opposed, liquid cooled, 4-cylinder, 4-stroke gasoline engine	
Valve arrangement		DOHC	
Bore x stroke	mm (in)	86.0 x 86.0 (3.39 x 3.39)	
Displacement	cm ³ (cu in)	1,998 (122)	
Compression ratio		10.6	
Ignition order		1 — 3 — 2 — 4	
Idle speed at parking or neutral position	r/min	700±100	
Maximum output	kW (HP)/(r/min)	200 (268)/5,600	
Maximum torque	N·m (kgf-m, ft-lb)/(r/min)	350 (35.7, 258)/2,000 — 5,200	

C: ELECTRICAL

Model		2.0 L DOHC turbo	
		CVT	6MT
Ignition timing (at idling)	BTDC	8°±10°	6°±10°
Spark plug	Type and manufacturer	NGK: ILKAR8H6	
Generator		12 V — 130 A	
Battery	Type	75D23L	
	Nominal capacity	5 HR: 53 Ah [25°C (77°F)]	
	Nominal voltage	12 V	
	CCA	470 A	
	BCI group number*	35	

*: This is a reference information for battery size, and is not guaranteed by SUBARU CORPORATION.

D: TRANSMISSION

1. MT

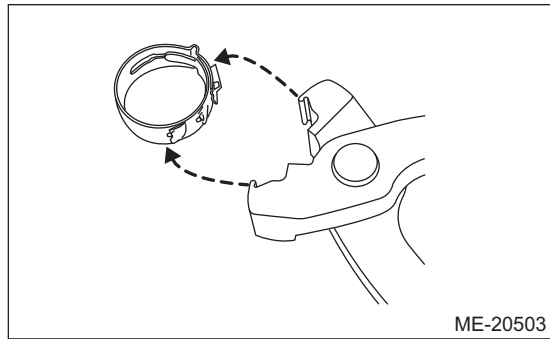
Model		2.0 L DOHC turbo	
Transmission type		6MT	
Clutch type		DSPD	

Cylinder Block

MECHANICAL

NOTE:

Use new O-rings and clamps.



Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

23) Install the baffle plate.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

24) Install the oil strainer.

NOTE:

Use new O-rings.

Tightening torque:

10 N·m (1.0 kgf-m, 7.4 ft-lb)

25) Tighten the oil strainer stay together with the baffle plate.

Tightening torque:

6.4 N·m (0.7 kgf-m, 4.7 ft-lb)

26) Apply liquid gasket to the mating surfaces of oil pan, and install the oil pan.

NOTE:

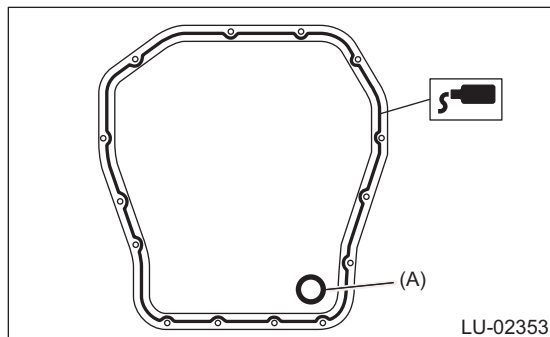
Install within 5 min. after applying liquid gasket.

Liquid gasket:

**THREE BOND 1217G (Part No. K0877Y0100),
THREE BOND 1217H or equivalent**

Tightening torque:

5 N·m (0.5 kgf-m, 3.7 ft-lb)



(A) Gasket

27) Apply liquid gasket to the mating surface of oil separator cover and the threaded portion of bolt (A) shown in the figure (when reusing the bolt), and then install the oil separator cover.

NOTE:

- Install within 5 min. after applying liquid gasket.
- Use new oil separator cover.

Liquid gasket:

Mating surface

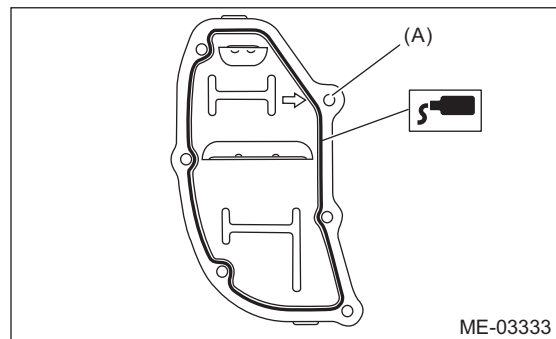
THREE BOND 1217G (Part No. K0877Y0100), THREE BOND 1217H or equivalent

Bolt thread (A) (when reusing the bolt)

THREE BOND 1324 (Part No. 004403042) or equivalent

Tightening torque:

6.4 N·m (0.65 kgf-m, 4.7 ft-lb)



28) Install the flywheel. <Ref. to CL-14, INSTALLATION, Flywheel.>

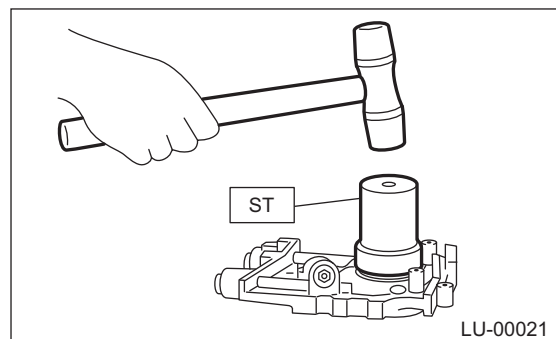
29) Install the clutch disc and cover. <Ref. to CL-11, INSTALLATION, Clutch Disc and Cover.>

30) Install the oil pump.

(1) Using the ST, install the front oil seal.
ST 499587100 OIL SEAL INSTALLER

NOTE:

Use a new front oil seal.



(2) Apply liquid gasket to the mating surfaces of oil pump.

NOTE:

Install within 5 min. after applying liquid gasket.

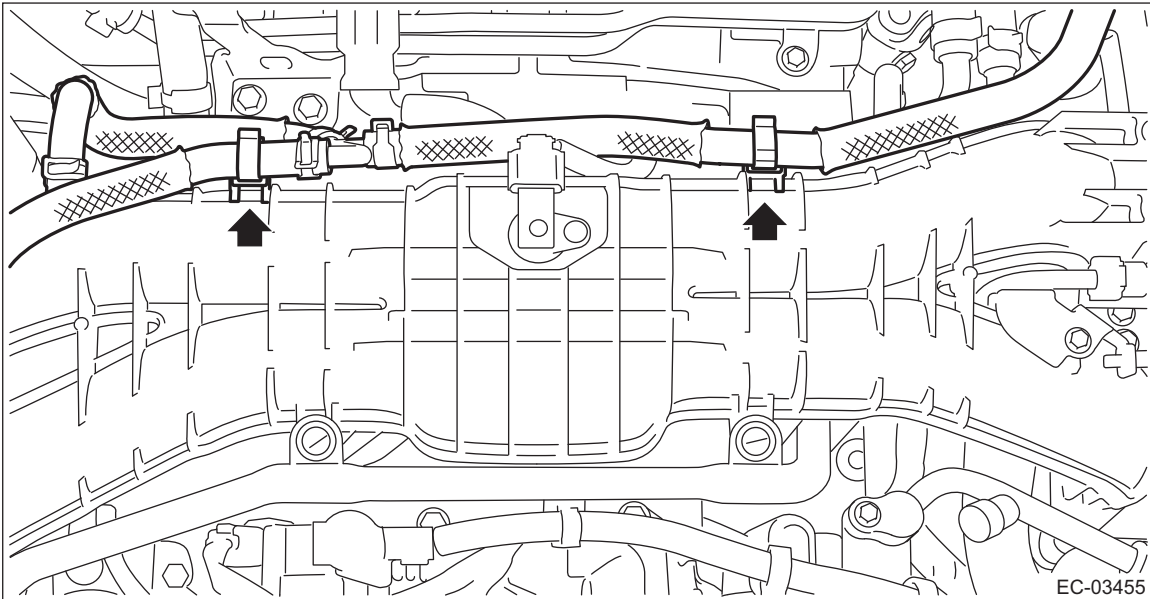
EGR Pipe

EMISSION CONTROL (AUX. EMISSION CONTROL DEVICES)

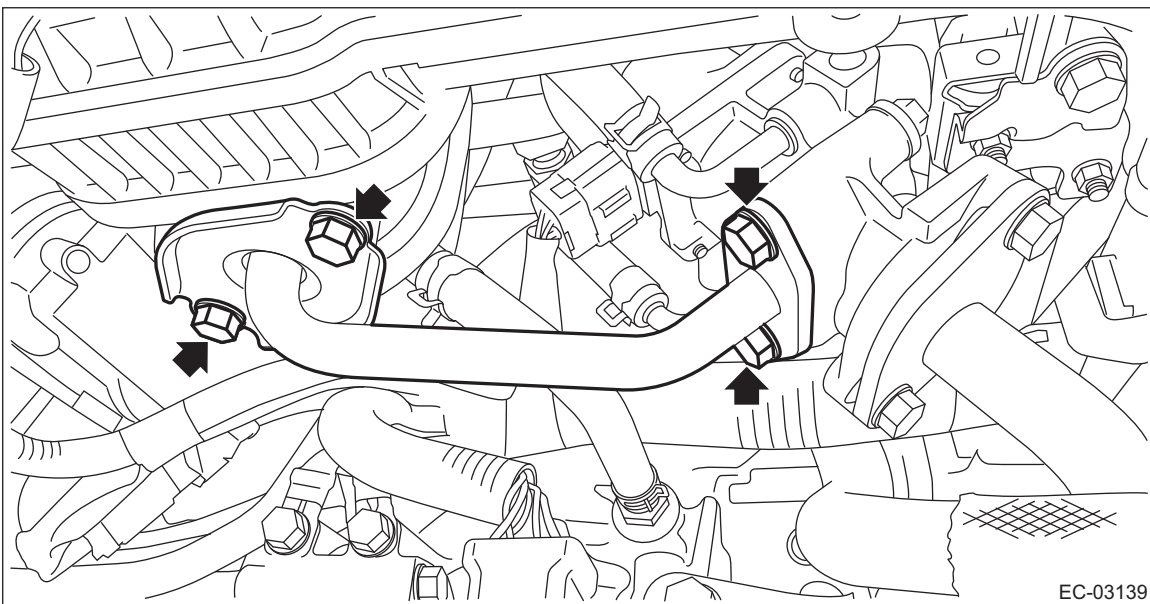
6. EGR Pipe

A: REMOVAL

- 1) Remove the collector cover. <Ref. to IN(w/o STI)-7, REMOVAL, Collector Cover.>
- 2) Disconnect the ground terminal from battery sensor. <Ref. to NT-6, BATTERY, NOTE, Note.>
- 3) Remove the intercooler. <Ref. to IN(w/o STI)-52, REMOVAL, Intercooler.>
- 4) Remove the brake booster vacuum hose from the clip, and place the brake booster vacuum hose aside so that it does not interfere with the work.



- 5) Remove the bolts which secure the EGR pipe to the intake manifold and EGR control valve, and remove the EGR pipe.



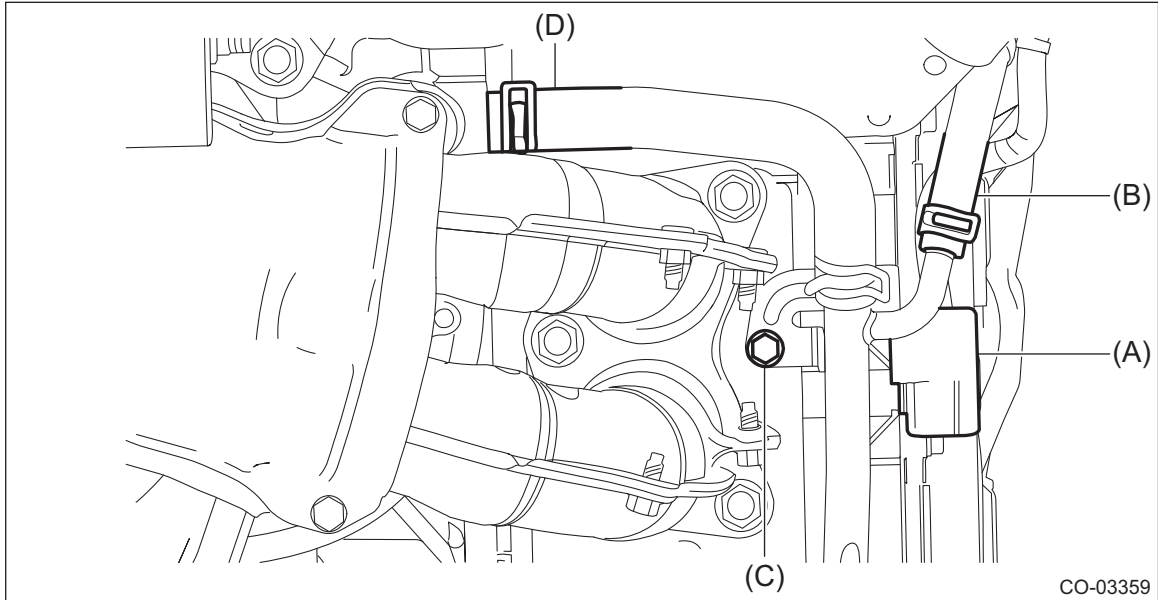
B: INSTALLATION

- 1) Install the EGR pipe to the intake manifold and EGR control valve.
 - (1) Set the EGR pipe to the intake manifold and EGR control valve, and temporarily tighten the bolts which secure the EGR pipe to the intake manifold and EGR control valve.

Water Pipe Assembly

COOLING

23) Disconnect the water pipe hose LH (D) from oil pan upper, and remove the water pipe assembly LH.



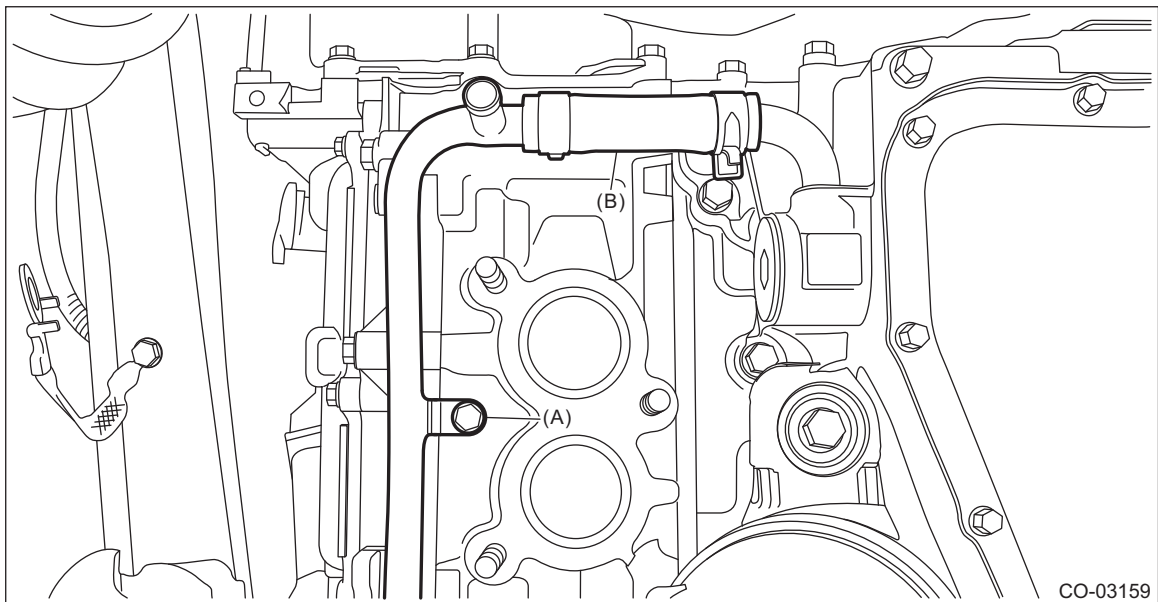
B: INSTALLATION

1. WATER PIPE ASSEMBLY RH

- 1) Set the water pipe assembly RH on the engine, and connect the water pipe hose RH (B) to the oil pan upper.
- 2) Install the bolt (A) which secures the water pipe assembly RH to the cylinder head RH.

Tightening torque:

6.4 N·m (0.7 kgf·m, 4.7 ft·lb)

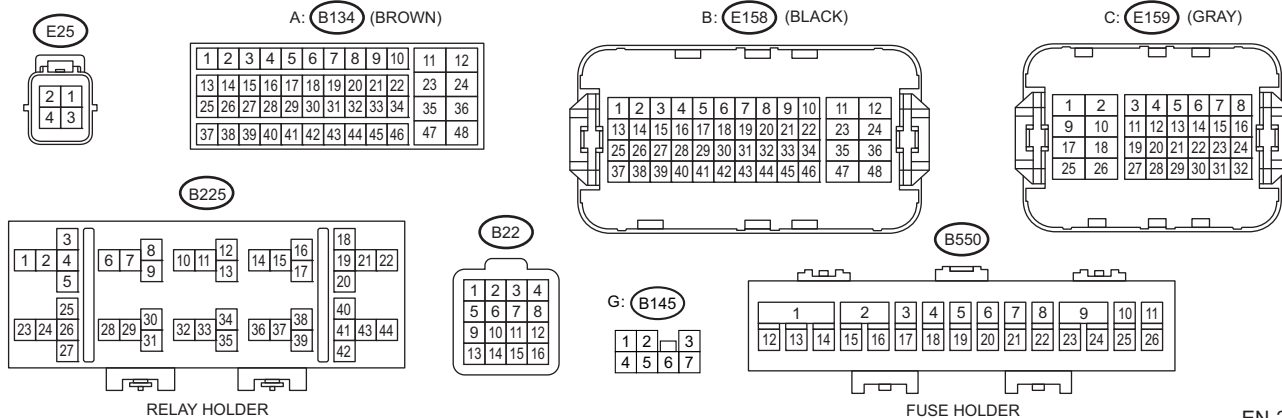
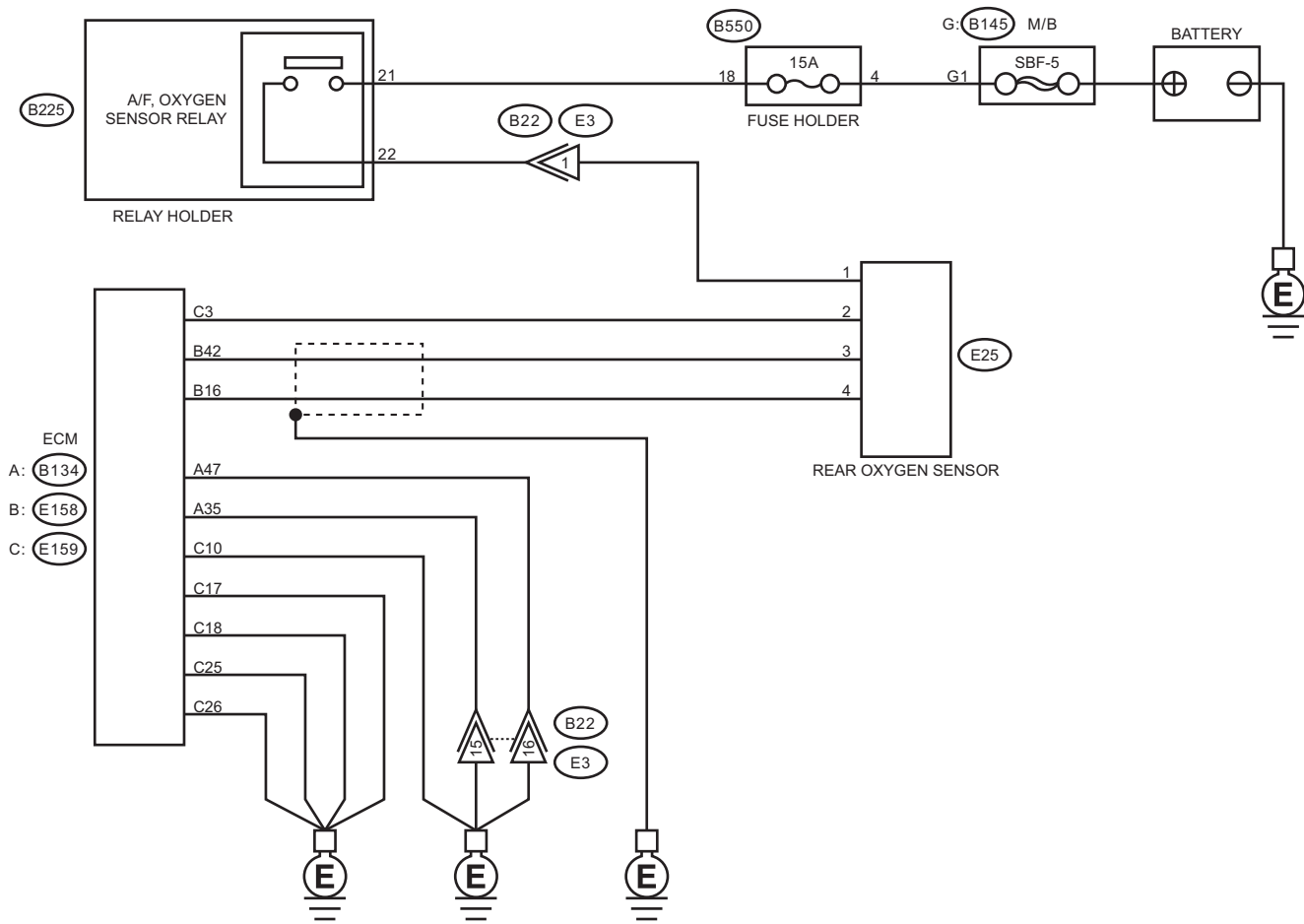


3) Connect the water hose (A) to the water pipe assembly RH, and install the bolt (B) which secures the water pipe assembly RH to the cam carrier RH.

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ENGINE (DIAGNOSTICS)

Engine Electrical System <Ref. to WI-149, WIRING DIAGRAM, Engine Electrical System.>



EN-21439

Diagnostic Procedure with Diagnostic Trouble Code (DTC)

ENGINE (DIAGNOSTICS)

Step	Check	Yes	No
114 CHECK CURRENT DATA. 1) Turn the ignition switch to ON. (Engine OFF) 2) Read the value of «Long term fuel trim B1» using the Subaru Select Monitor. NOTE: For detailed operation procedures, refer to "Current Data Display For Engine". <Ref. to EN(w/o STI)(diag)-48, DISPLAY CURRENT ENGINE DATA, OPERATION, Subaru Select Monitor.>	Does the value of «Long term fuel trim B1» fall within a range of -15 — 15%?	Go to step 115.	Replace the fuel injector. <Ref. to FU(w/o STI)-49, Fuel Injector.>
115 CHECK FOR MALFUNCTION OCCURRENCE. Start the engine and check the idling speed.	Is the idling speed stable all time?	It is possible that the fault comes from fuel. Replace fuel.	Go to step 116.
116 CHECK INSTALLATION CONDITION OF CRANKSHAFT POSITION SENSOR. Check installation condition of the crankshaft position sensor.	Is the crankshaft position sensor installed correctly?	Go to step 117.	Install the crankshaft position sensor correctly. <Ref. to FU(w/o STI)-96, INSTALLATION, Crankshaft Position Sensor.>
117 CHECK POWER SUPPLY TO CRANKSHAFT POSITION SENSOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from the crankshaft position sensor. 3) Turn the ignition switch to ON. 4) Measure the voltage between crankshaft position sensor connector and engine ground. <i>Connector & terminal</i> <i>(E10) No. 1 (+) — Engine ground (-):</i>	Is the voltage 10 V or more?	Go to step 118.	Repair the power supply circuit.
118 CHECK HARNESS BETWEEN ECM AND CRANKSHAFT POSITION SENSOR CONNECTOR. 1) Turn the ignition switch to OFF. 2) Disconnect the connector from ECM. 3) Measure the resistance of harness between ECM connector and crankshaft position sensor connector. <i>Connector & terminal</i> <i>(E158) No. 19 — (E10) No. 2:</i> <i>(E158) No. 31 — (E10) No. 3:</i>	Is the resistance less than 1 Ω?	Go to step 119.	Repair the open circuit in the harness between the ECM connector and crankshaft position sensor connector.
119 CHECK HARNESS BETWEEN ECM AND CRANKSHAFT POSITION SENSOR CONNECTOR. Measure the resistance between crankshaft position sensor connector and engine ground. <i>Connector & terminal</i> <i>(E10) No. 2 — Engine ground:</i>	Is the resistance 1 MΩ or more?	Go to step 120.	Repair short circuit to ground in harness between ECM connector and crankshaft position sensor connector.
120 CHECK COMPRESSION PRESSURE. Check the compression pressure. <Ref. to ME(w/o STI)-24, INSPECTION, Compression.>	Is the check result OK?	Go to step 121.	Check the engine. <Ref. to ME(w/o STI)-322, INSPECTION, Symptoms and causes.>

F: ADJUSTMENT

NOTE:

When replacing the transmission case with a new part, perform the following check and adjustment for the selection.

- Select the thrust bearing for the forward clutch assembly. <Ref. to CVT(TR690)-200, ADJUSTMENT, Forward Clutch Assembly.>
- Select the snap ring for the reduction gear. <Ref. to CVT(TR690)-207, ADJUSTMENT, Reduction Driven Gear.>

Transmission Case

MANUAL TRANSMISSION AND DIFFERENTIAL

19) Install the extension case. <Ref. to 6MT(TY85)-43, INSTALLATION, Extension Case.>

20) Install the neutral position switch, back-up light switch and harness. <Ref. to 6MT(TY85)-42, INSTALLATION, Neutral Position Switch.> <Ref. to 6MT(TY85)-41, INSTALLATION, Back-up Light Switch.>

21) Install the manual transmission assembly to the vehicle. <Ref. to 6MT(TY85)-34, INSTALLATION, Manual Transmission Assembly.>

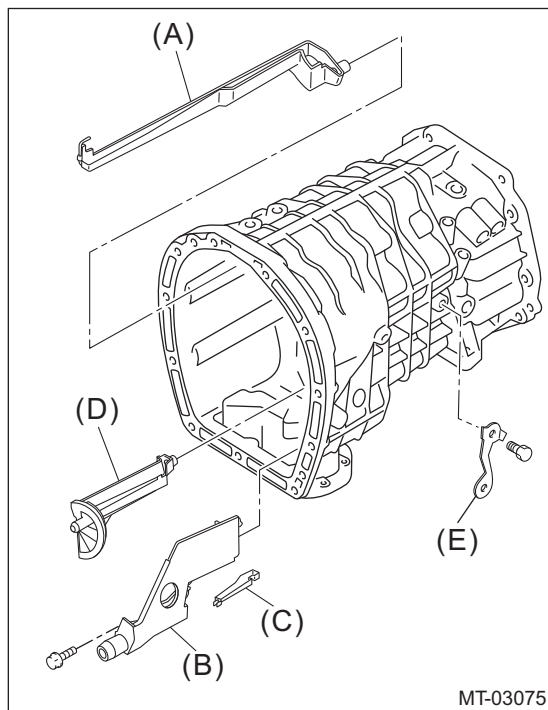
C: DISASSEMBLY

1) Remove the transmission harness from the transmission case.

NOTE:

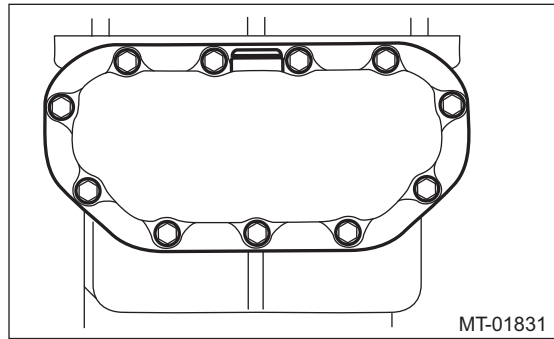
Remove the connector by disengaging the connector claw from the inside of the transmission case.

2) Remove the oil guides C, D, E, F and harness bracket.



- (A) Oil guide C
- (B) Oil guide D
- (C) Oil guide E
- (D) Oil guide F
- (E) Harness bracket

3) Remove the oil pan.



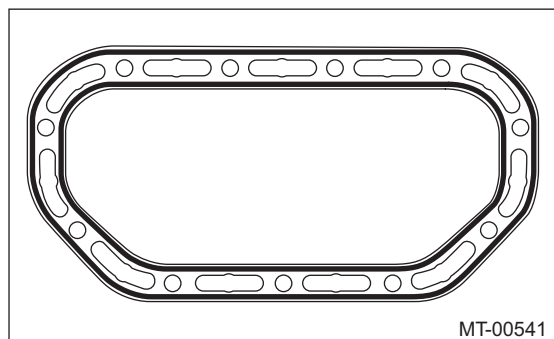
4) Remove any remaining liquid gasket from the transmission case and oil pan.

D: ASSEMBLY

1) Apply liquid gasket to the oil pan.

Liquid gasket:

THREE BOND 1215B or equivalent



2) Install the oil pan.

Tightening torque:

6.4 N·m (0.7 kgf·m, 4.7 ft·lb)

3) Install the oil guides C, D, E, F and harness bracket.

General Description

TRANSFER CASE

1. General Description

A: NOTE

For general description, refer to “CVT (TR690)”, “6MT (TY85)” or “6MT (TY75)” section.

CVT (TR690) model:

<Ref. to CVT(TR690)-3, General Description.>

6MT (TY85) model:

<Ref. to 6MT(TY85)-2, General Description.>

6MT (TY75) model:

<Ref. to 6MT(TY75)-2, General Description.>

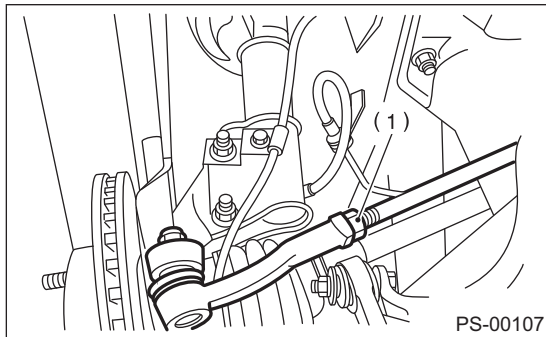
Steering Gearbox

POWER ASSISTED SYSTEM (POWER STEERING)

F: ADJUSTMENT

1) Adjust the front toe-in.

<Ref. to FS-12, FRONT WHEEL TOE-IN, INSPECTION, Wheel Alignment.>



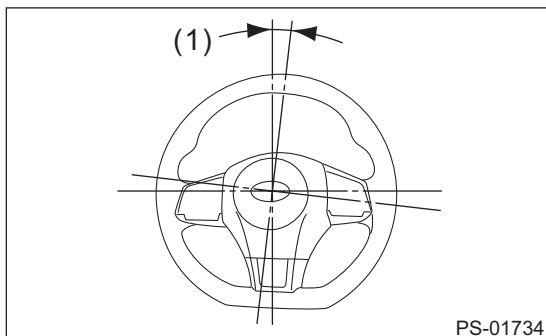
(1) Lock nut

2) Check the steering angle of the wheels.

Standard of steering angle:

Inner wheel	Outer wheel
$36.3^{\circ} \pm 1.5^{\circ}$	$32.0^{\circ} \pm 1.5^{\circ}$

3) If the steering wheel spokes are not horizontal when wheels are set in the straight ahead position, or error is more than 5° on the periphery of the steering wheel, correctly re-install the steering wheel.



(1) 5° or less

4) If the steering wheel spokes are not horizontal with vehicle set in the straight ahead position after this adjustment, correct it by turning the right and left tie-rods in the opposite direction from each other by the same angle.

Diagnostic Chart with Trouble Code

AIRBAG SYSTEM (DIAGNOSTICS)

Step	Check	Yes	No
<p>8 CHECK AIRBAG REAR HARNESS (BETWEEN SIDE AIRBAG SENSOR AND CURTAIN AIRBAG SENSOR LH). Measure the resistance between connector (3V) in test harness V and chassis ground, and the resistance between connector (3V) terminals in test harness V.</p> <p>Connector & terminal (3V) No. 2 — Chassis ground: (3V) No. 1 — Chassis ground: (3V) No. 1 — (3V) No. 2:</p>	Is the resistance 1 MΩ or more?	Go to step 9.	Replace the airbag rear harness along with body harness.
<p>9 CHECK AIRBAG REAR HARNESS AND DOOR HARNESS (BETWEEN CURTAIN AIRBAG SENSOR LH AND DOOR SENSOR LH). 1) Disconnect the connector (AB58) from the front door impact sensor LH, and connect the connector (1H) in the test harness H to connector (AB58). 2) Measure the resistance between connector (3V) in the test harness V and connector (3H) in the test harness H.</p> <p>Connector & terminal (3V) No. 4 — (3H) No. 5: (3V) No. 5 — (3H) No. 6:</p>	Is the resistance less than 10 Ω?	Go to step 10.	Check the door harness, and if any fault is found, replace the harness. If there is no fault, replace the airbag rear harness together with body harness.
<p>10 CHECK AIRBAG REAR HARNESS AND DOOR HARNESS (BETWEEN CURTAIN AIRBAG SENSOR LH AND DOOR SENSOR LH). Measure the resistance between connector (3V) in test harness V and chassis ground, and the resistance between connector (3V) terminals in test harness V.</p> <p>Connector & terminal (3V) No. 4 — Chassis ground: (3V) No. 5 — Chassis ground: (3V) No. 4 — (3V) No. 5:</p>	Is the resistance 1 MΩ or more?	Go to step 11.	Check the door harness, and if any fault is found, replace the harness. If there is no fault, replace the airbag rear harness together with body harness.
<p>11 CHECK AIRBAG CONTROL MODULE. 1) Connect all connectors. 2) Clear the memory. <Ref. to AB(diag)-25, Clear Memory Mode.> 3) Perform the Inspection Mode. <Ref. to AB(diag)-24, Inspection Mode.> 4) Read the DTC. (Current malfunction) <Ref. to AB(diag)-23, Read Diagnostic Trouble Code (DTC).></p>	Is DTC B1647 displayed?	Go to step 12.	Go to step 15.
<p>12 REPLACE SIDE AIRBAG SENSOR LH AND CHECK AIRBAG CONTROL MODULE AFTER REPLACEMENT. 1) Turn the ignition switch to OFF, disconnect the battery ground cable, and wait for 60 seconds or more. 2) Replace the side airbag sensor LH. <Ref. to AB-56, REMOVAL, Side Airbag Sensor.> 3) Connect all connectors. 4) Clear the memory. <Ref. to AB(diag)-25, Clear Memory Mode.> 5) Perform the Inspection Mode. <Ref. to AB(diag)-24, Inspection Mode.> 6) Read the DTC. (Current malfunction) <Ref. to AB(diag)-23, Read Diagnostic Trouble Code (DTC).></p>	Is DTC B1647 displayed?	Go to step 13.	Go to step 15.

Combination Meter

INSTRUMENTATION/DRIVER INFO

5. Combination Meter

A: REMOVAL

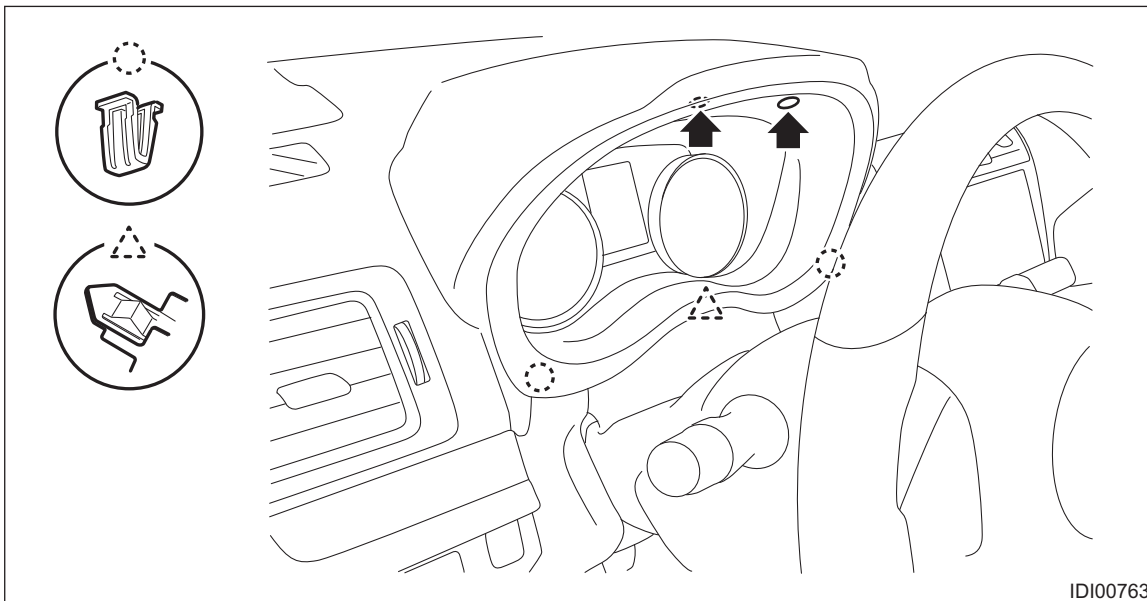
1) Disconnect the ground cable from battery. <Ref. to NT-6, BATTERY, NOTE, Note.>

NOTE:

For model with battery sensor, disconnect the ground terminal from battery sensor.

2) Release the lock, tilt the steering column to the lowest end and fully extend the column by the telescopic system.

3) Release the screws, clips and claws, and remove the visor - combination meter.

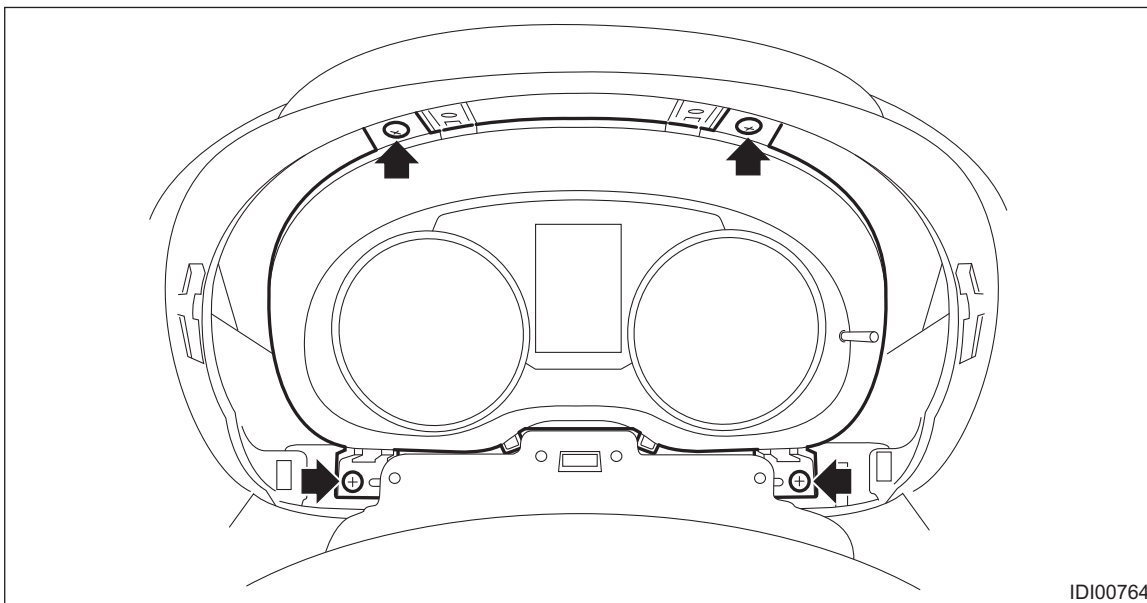


4) Remove the combination meter assembly.

CAUTION:

- Be careful not to damage the meter or instrument panel.
- Pay particular attention to avoid damaging the meter glass.

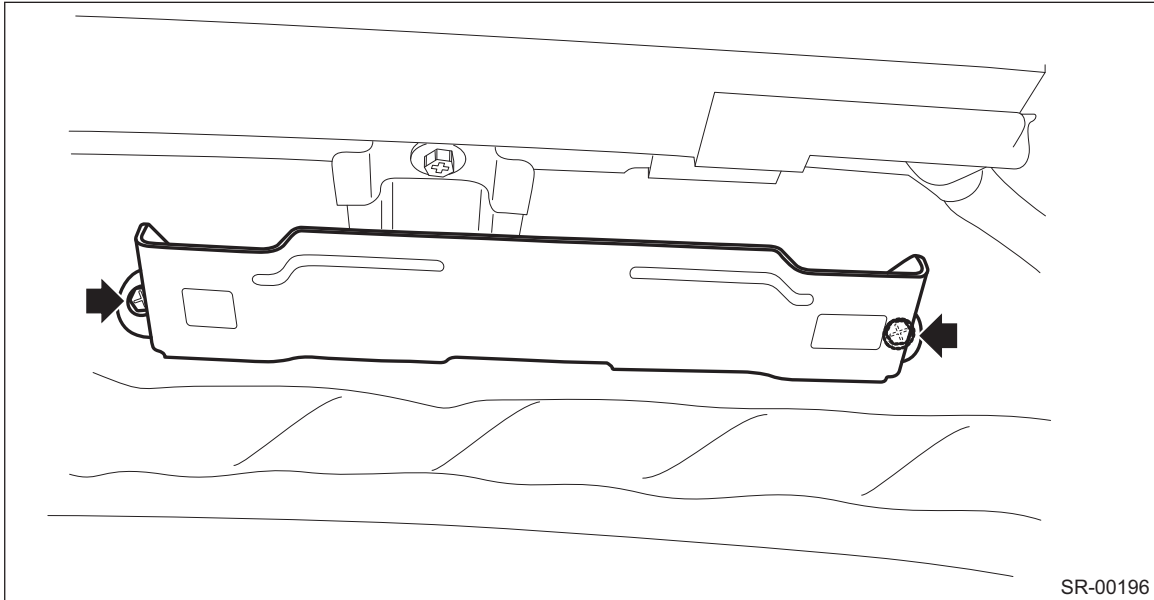
(1) Remove the screws.



Sunroof Assembly

SUNROOF/T-TOP/CONVERTIBLE TOP (SUNROOF)

4) Remove the bracket - assist rail.

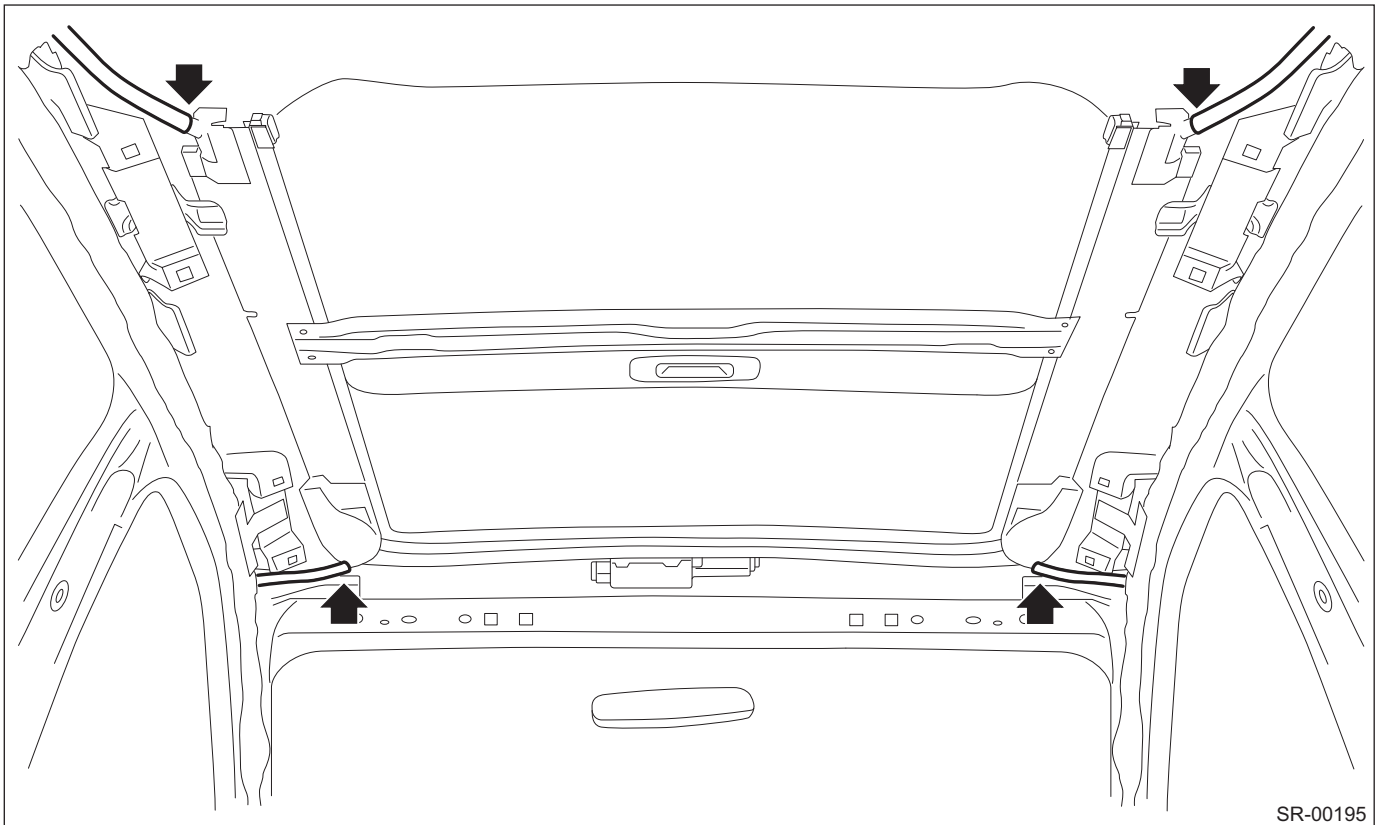


5) Disconnect the connector of the motor assembly - sunroof.

6) Remove the drain tube - sunroof.

NOTE:

When removing the drain tube - sunroof completely, perform the step 8).



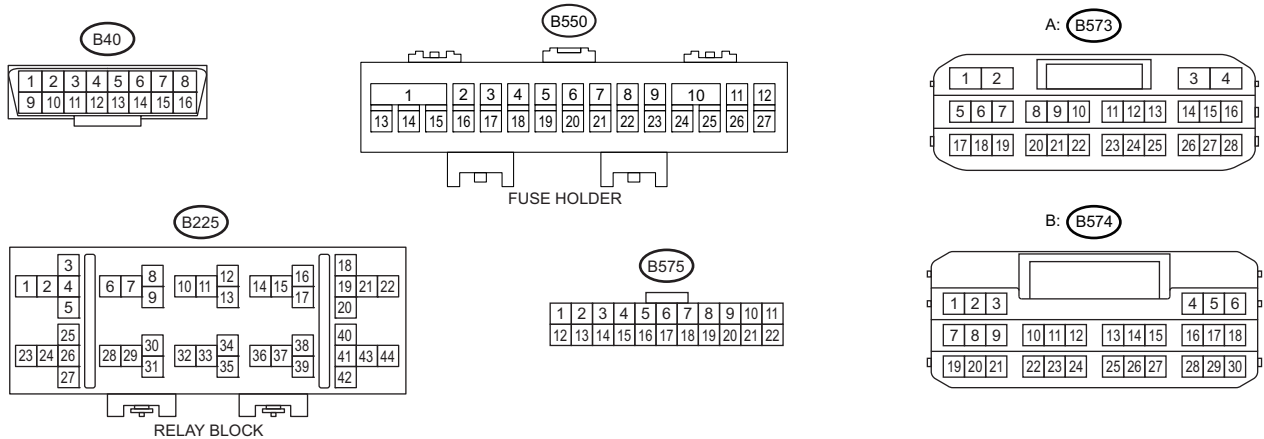
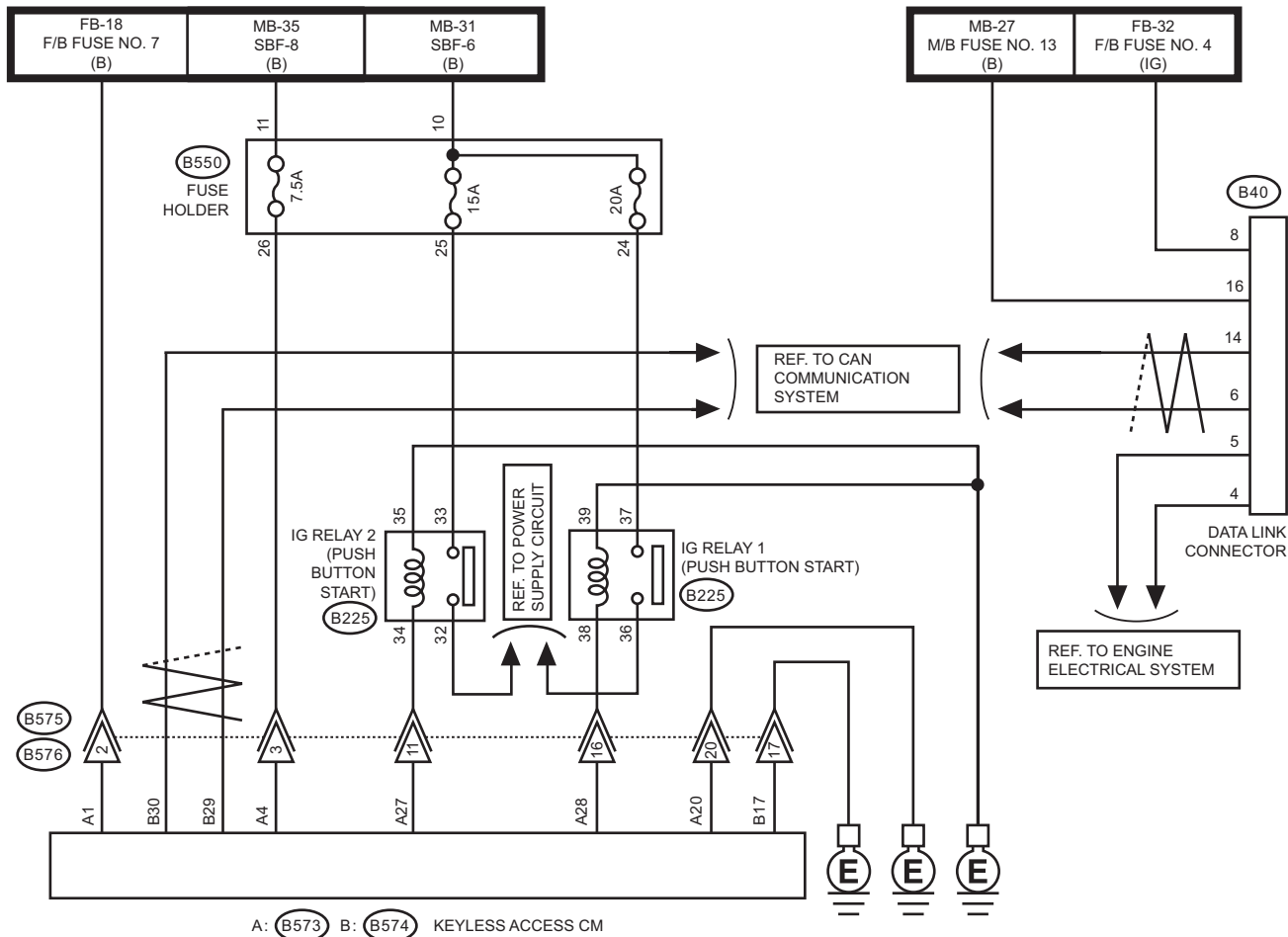
7) Remove the rail assembly - sunroof.

(1) Remove the curtain airbag module. <Ref. to AB-47, REMOVAL, Curtain Airbag Module.>

Diagnostic Procedure for Subaru Select Monitor Communication

KEYLESS ACCESS WITH PUSH BUTTON START SYSTEM (DIAGNOSTICS)

- Engine type: EJ



SL-11174

Step	Check	Yes	No	
1	CHECK POWER SUPPLY CIRCUIT. Connect DST-i to data link connector.	Does DST-i turn ON?	Go to step 4.	Go to step 2.