TRANSMISSION SECTION

This service manual has been prepared to provide SUBARU service personnel with the necessary information and data for the correct maintenance and repair of SUBARU vehicles.
This manual includes the procedures for maintenance, disassembling, reassembling, inspection and adjustment of components and diagnostics for guidance of experienced mechanics.
Please peruse and utilize this manual fully to ensure complete repair work for satisfying our customers by keeping their vehicle in optimum condition. When replacement of parts during repair work is needed, be sure to use SUBARU genuine parts.

All information, illustration and specifications contained in this manual are based on the latest product information available at the time of publication approval.

FUJI HEAVY INDUSTRIES LTD. G1870GE4

CLUTCH SYSTEM

CL

1. General Description

A: SPECIFICATIONS

Model			1.6 L	2.0 L NON-TURBO	2.0 L TURBO	2.5 L
Clutch cover	Type		Push type		Pull type	Push type
	Diaphragm set load	kgf (lb)	450 (992)		800 (1,764)	550 (1,213)
Clutch disc	Facing material		Woven (Non asbestos)			
	O.D. × I.D. × thickness	mm (in)	225 × 150 × 3.5 (8.86 × 5.91 × 0.138)		230 × 150 × 3.5 (9.06 × 5.91 × 0.138)	228.6 × 155 × 6.6 (9.00 × 6.10 × 0.260)
	Spline O.D.	mm (in)	25.2 (0.992), (No. of teeth: 24)			
Clutch release lever ratio			3.0	1.6	1.7	1.6
Release bearing			Grease-packed self-aligning			
Clutch pedal	Full stroke	mm (in)	130 — 135 (5.12 — 5.31)			
	Free play	mm (in)	10 — 20 (0.39 — 0.79)	4 — 11 (0.16 — 0.43)		
Release lever	Stroke	mm (in)	24 — 26 (0.94 — 1.02)	13.3 — 14.7 (0.524 — 0.579)		
	Play at release lever center	mm (in)	3 — 4 (0.12 — 0.16)	—		
Clutch disc	Depth of rivet head mm (in)	Standard	1.3 — 1.9 (0.051 — 0.075)		Flywheel side: 1.35 — 1.95 (0.053 — 0.077) Clutch cover side: 1.65 — 2.25 (0.065 — 0.089)	1.3 — 1.9 (0.051 — 0.075)
		Limit of sinking	0.3 (0.012)			
	Limit for deflection	mm (in)	0.8 (0.031) at R = 107 (4.21)	0.8 (0.031) at R = 110 (4.33)		1.0 (0.039) at R = 110 (4.33)

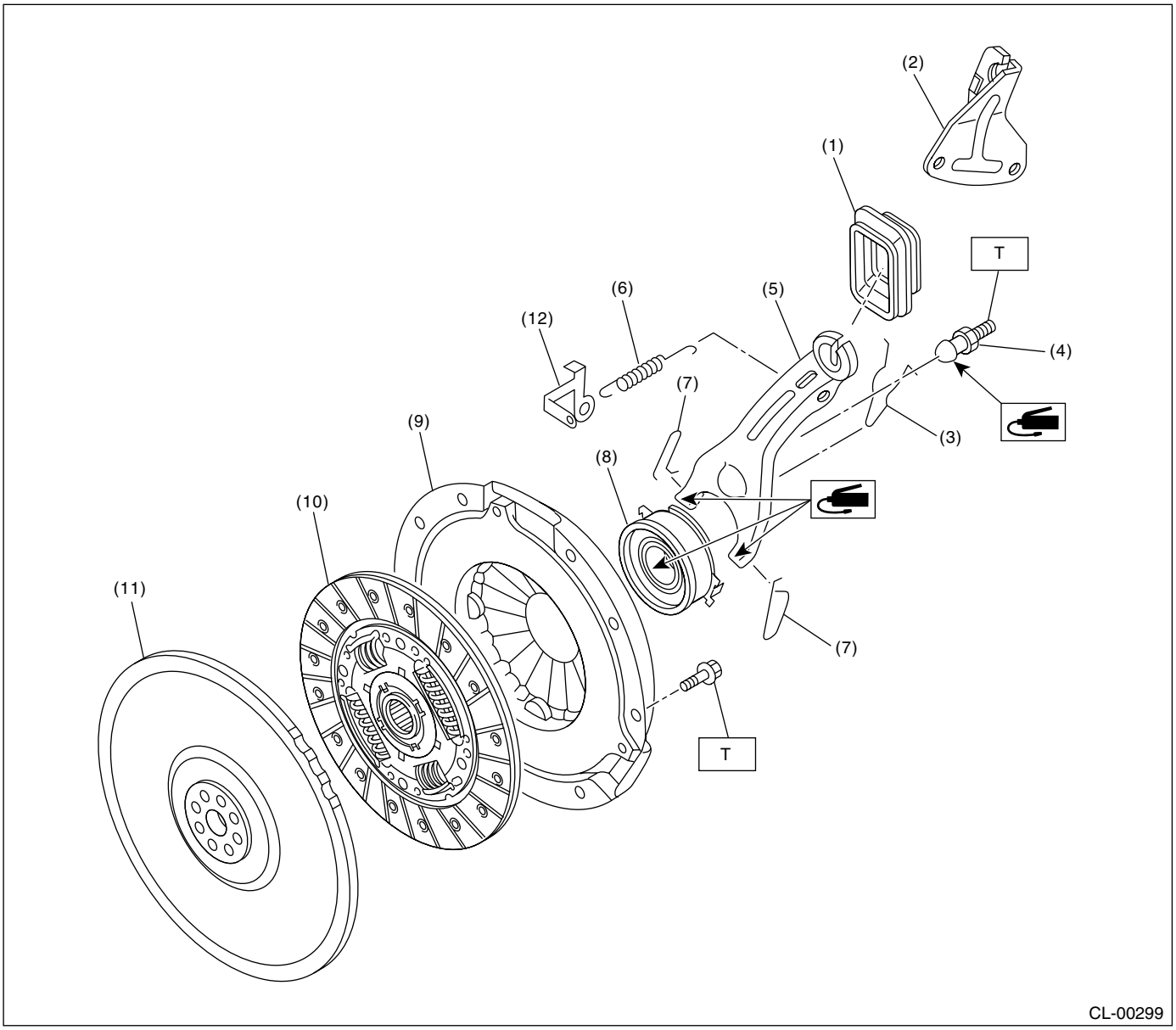
Model			2.0 L TURBO STi
Clutch cover	Type		Pull type
	Diaphragm set load	kgf (lb)	930 (2,050)
Clutch disc	Facing material		Woven (Non asbestos)
	O.D. × I.D. × thickness	mm (in)	Flywheel side: 240 × 160 × 3.2 (9.45 × 6.30 × 0.126) Clutch cover side: 240 × 160 × 3.5 (9.45 × 6.30 × 0.138)
	Spline O.D.	mm (in)	25.2 (0.992), (No. of teeth: 24)
Clutch release lever ratio			1.7
Release bearing			Grease-packed self-aligning
Clutch pedal	Full stroke	mm (in)	130 — 135 (5.12 — 5.31)
	Free play	mm (in)	3 — 13 (0.12 — 0.51)
Release lever	Stroke	mm (in)	13.3 — 14.7 (0.524 — 0.579)
	Play at release lever center	mm (in)	—
Clutch disc	Depth of rivet head mm (in)	Standard	Flywheel side: 1.35 — 1.95 (0.053 — 0.077) Clutch cover side: 1.65 — 2.25 (0.065 — 0.089)
		Limit of sinking	0.3 (0.012)
	Limit for deflection	mm (in)	0.8 (0.031) at R = 110 (4.33)

I.D.: Inner diameter O.D.: Outer diameter

B: COMPONENT

1. CLUTCH ASSEMBLY

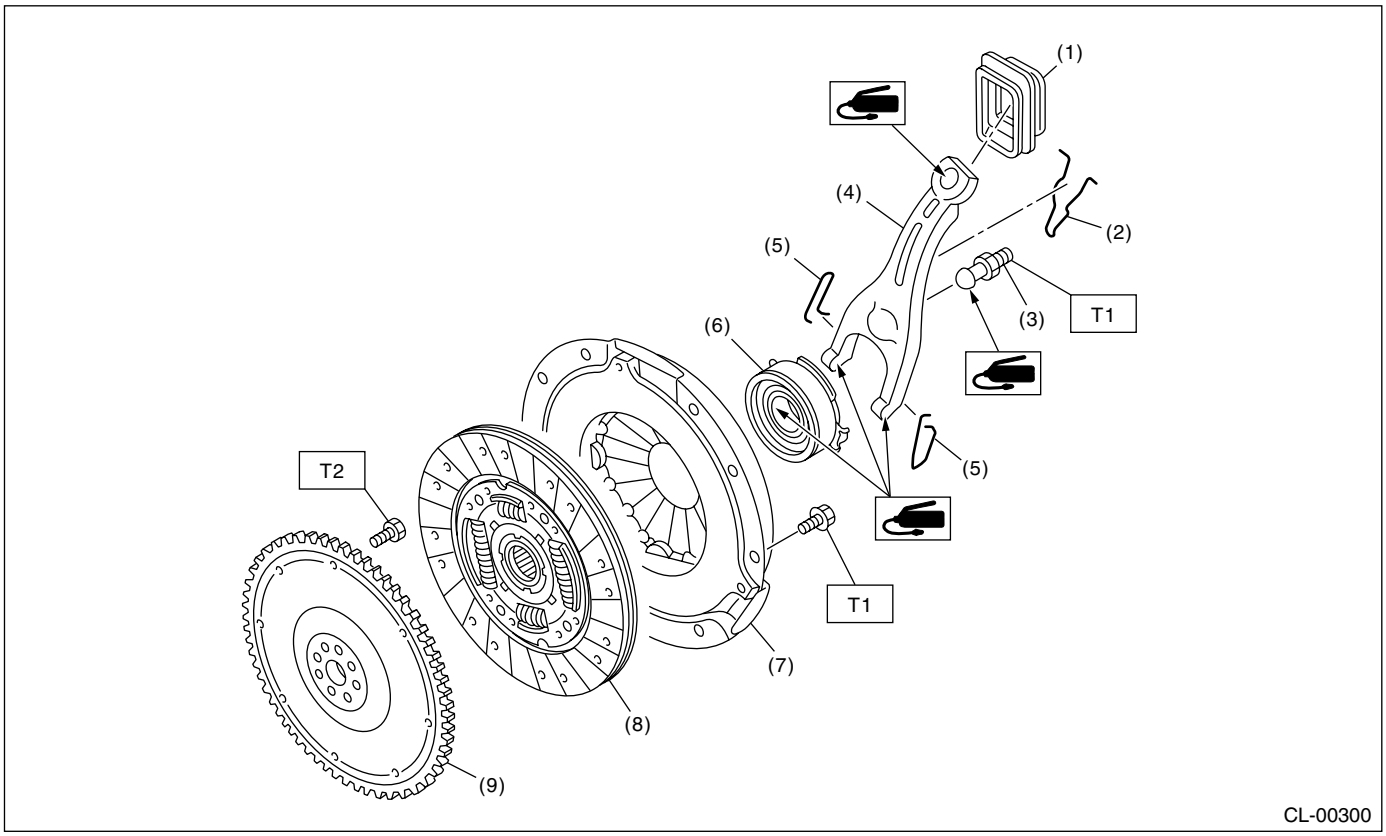
• 1.6 L SOHC MODEL



(1) Dust cover
(2) Clutch cable bracket
(3) Retainer spring
(4) Pivot
(5) Clutch release lever
(6) Return spring
(7) Clip
(8) Clutch release bearing
(9) Clutch cover
(10) Clutch disk
(11) Flywheel
(12) Clutch return spring bracket

Tightening torque: N·m (kgf-m, ft-lb)
T: 16 (1.6, 11.8)

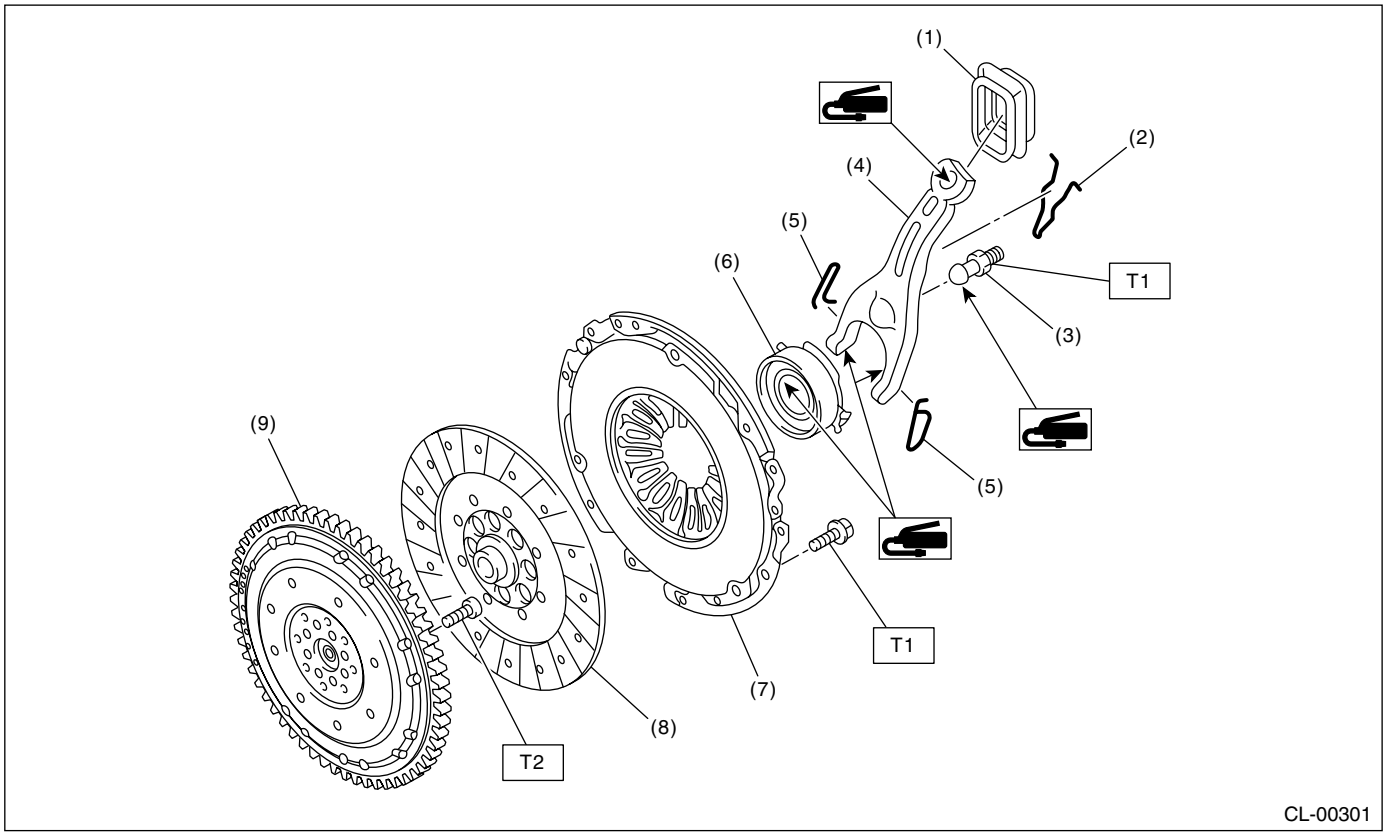
• 2.0 L SOHC MODEL



(1) Dust cover
(2) Retainer spring
(3) Pivot
(4) Clutch release lever
(5) Clip
(6) Clutch release bearing
(7) Clutch cover
(8) Clutch disc
(9) Flywheel

Tightening torque: N·m (kgf-m, ft-lb)
T1: 16 (1.6, 11.8)
T2: 72 (7.3, 52.8)

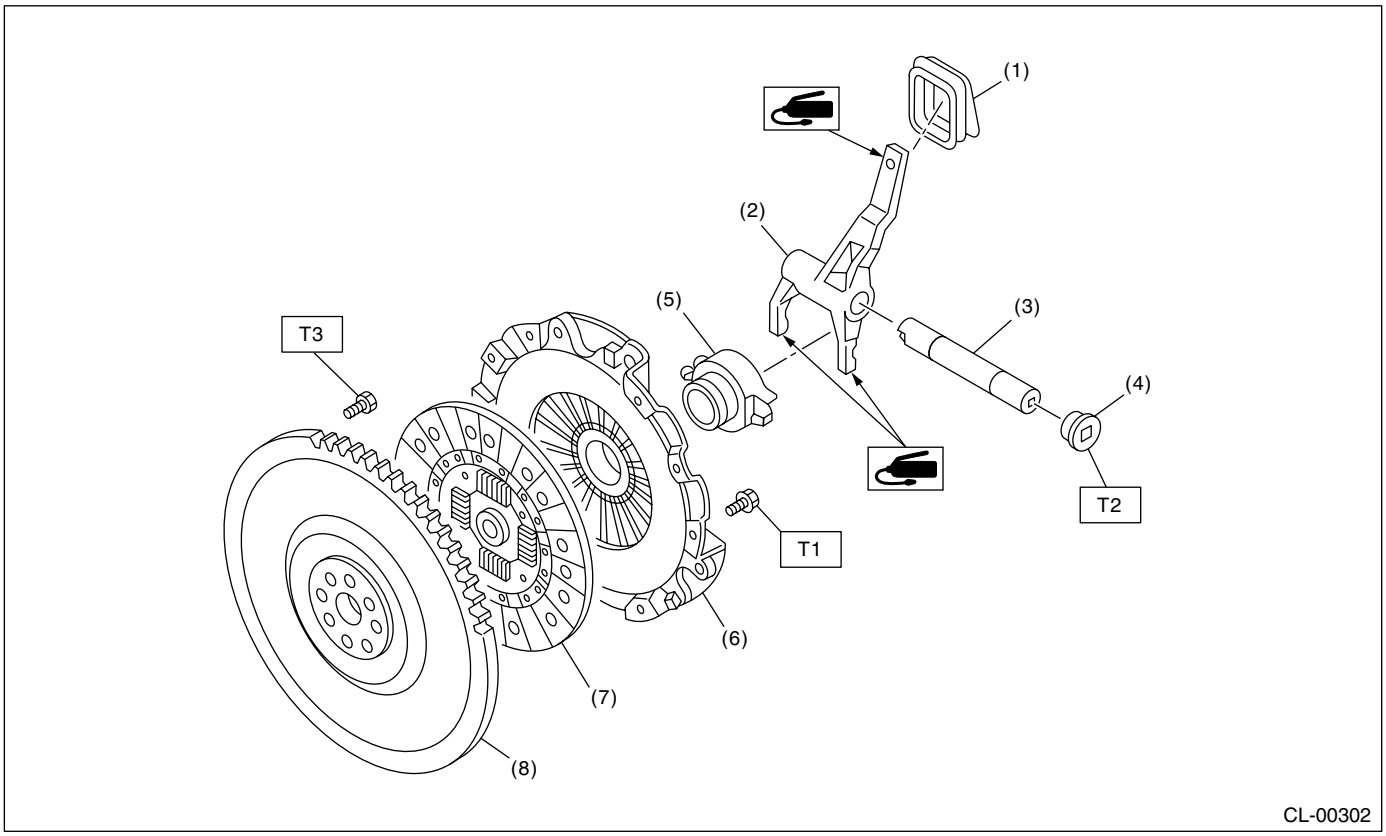
• 2.5 L SOHC MODEL



(1) Dust cover
(2) Retainer spring
(3) Pivot
(4) Release lever
(5) Clip
(6) Release bearing
(7) Clutch cover
(8) Clutch disc
(9) Dual mass flywheel

Tightening torque: N·m (kgf-m, ft-lb)
T1: 16 (1.6, 11.8)
T2: 72 (7.3, 52.8)

• DOHC TURBO MODEL

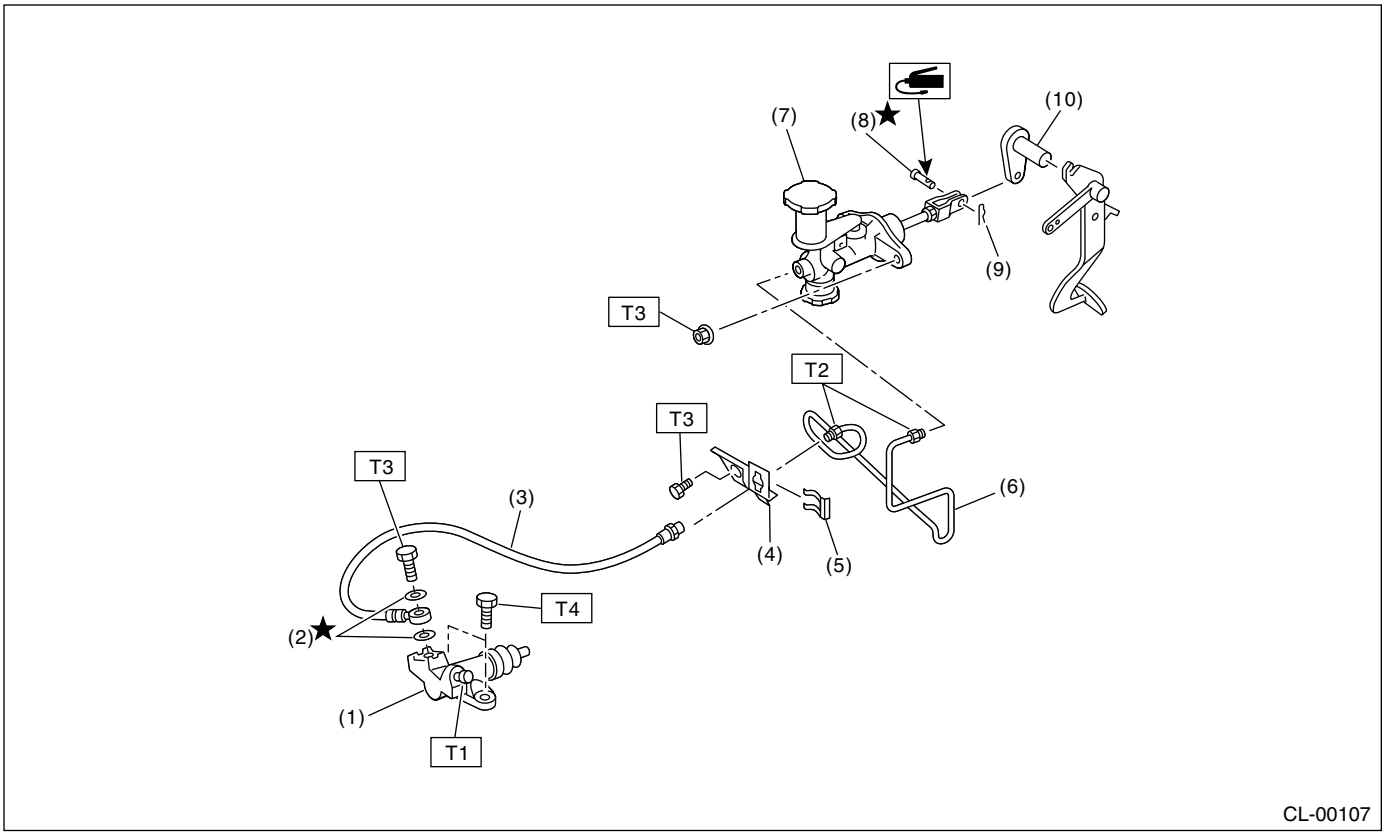


(1) Dust cover
(2) Clutch release lever
(3) Clutch release lever shaft
(4) Plug
(5) Clutch release bearing
(6) Clutch cover
(7) Clutch disc
(8) Flywheel

Tightening torque: N·m (kgf-m, ft-lb)
T1: 16 (1.6, 11.8)
T2: 44 (4.5, 32.5)
T3: 72 (7.3, 52.8) (Except for STi model)
75 (7.4, 55.3) (STi model)

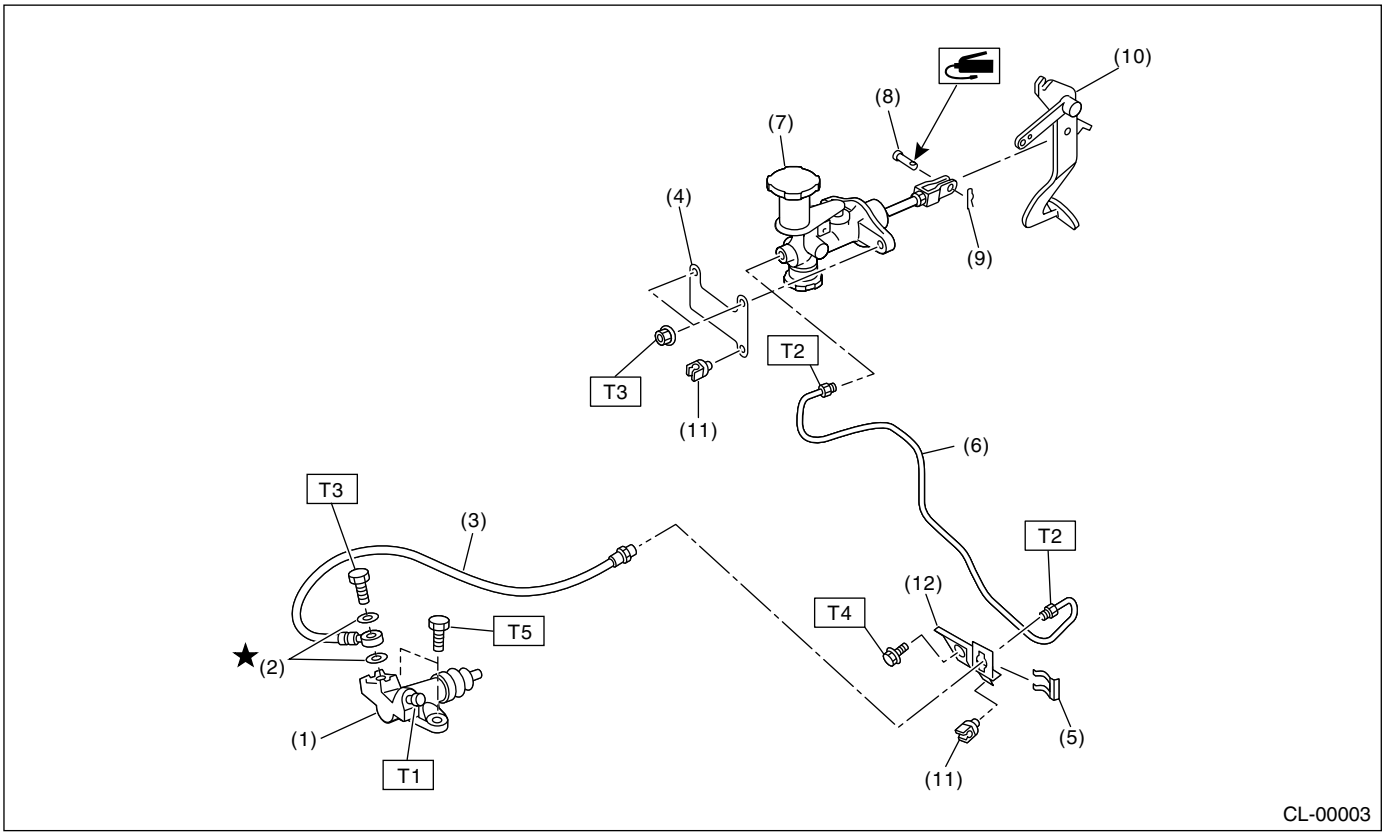
2. CLUTCH PIPE AND HOSE

• LHD SOHC MODEL



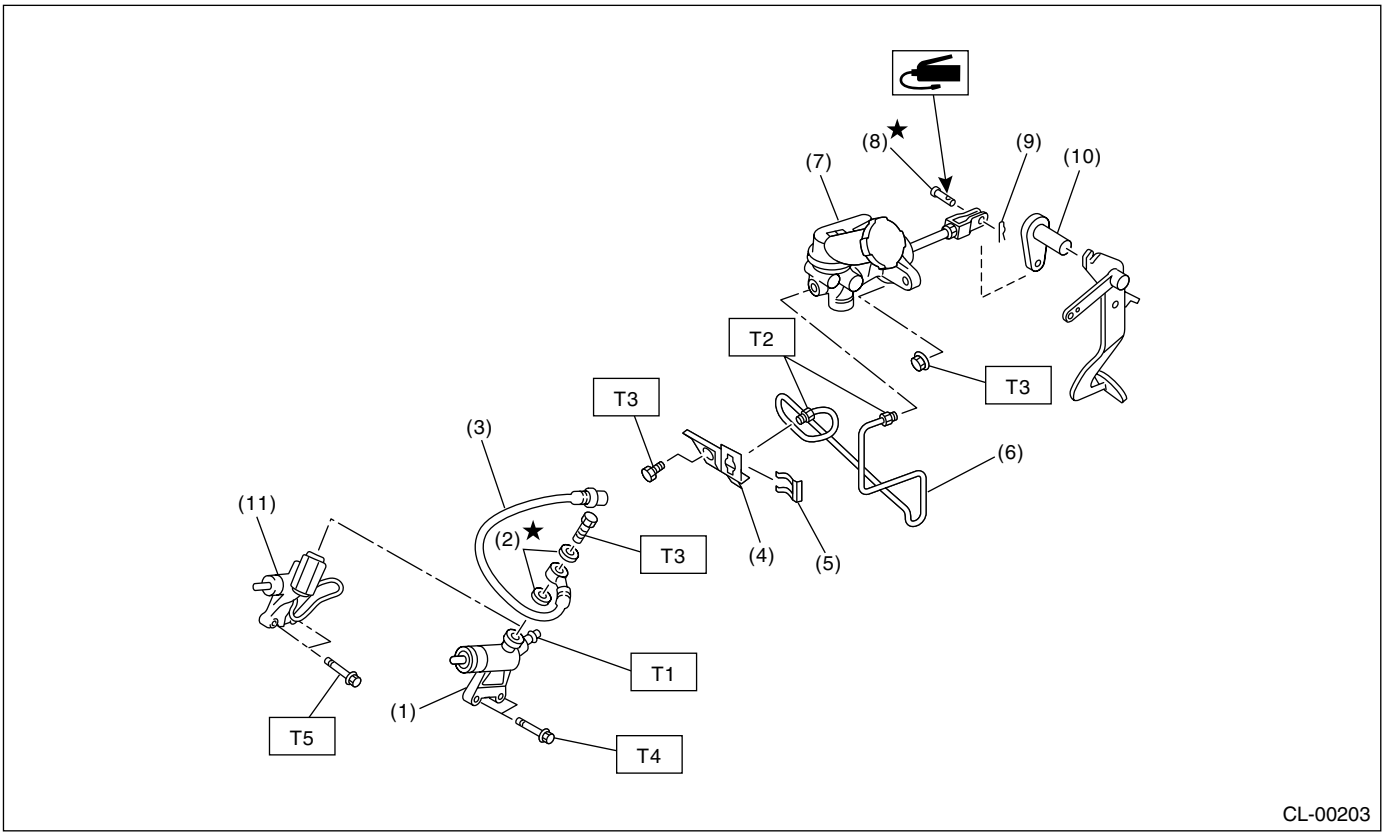
(1)	Operating cylinder	(6)	Pipe	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Washer	(7)	Master cylinder ASSY	***T1: 8 (0.8, 5.8)***
(3)	Clutch hose	(8)	Clevis pin	***T2: 15 (1.5, 10.8)***
(4)	Bracket	(9)	Snap pin	***T3: 18 (1.8, 13.0)***
(5)	Clip	(10)	Lever	***T4: 37 (3.8, 27.5)***

• RHD SOHC MODEL



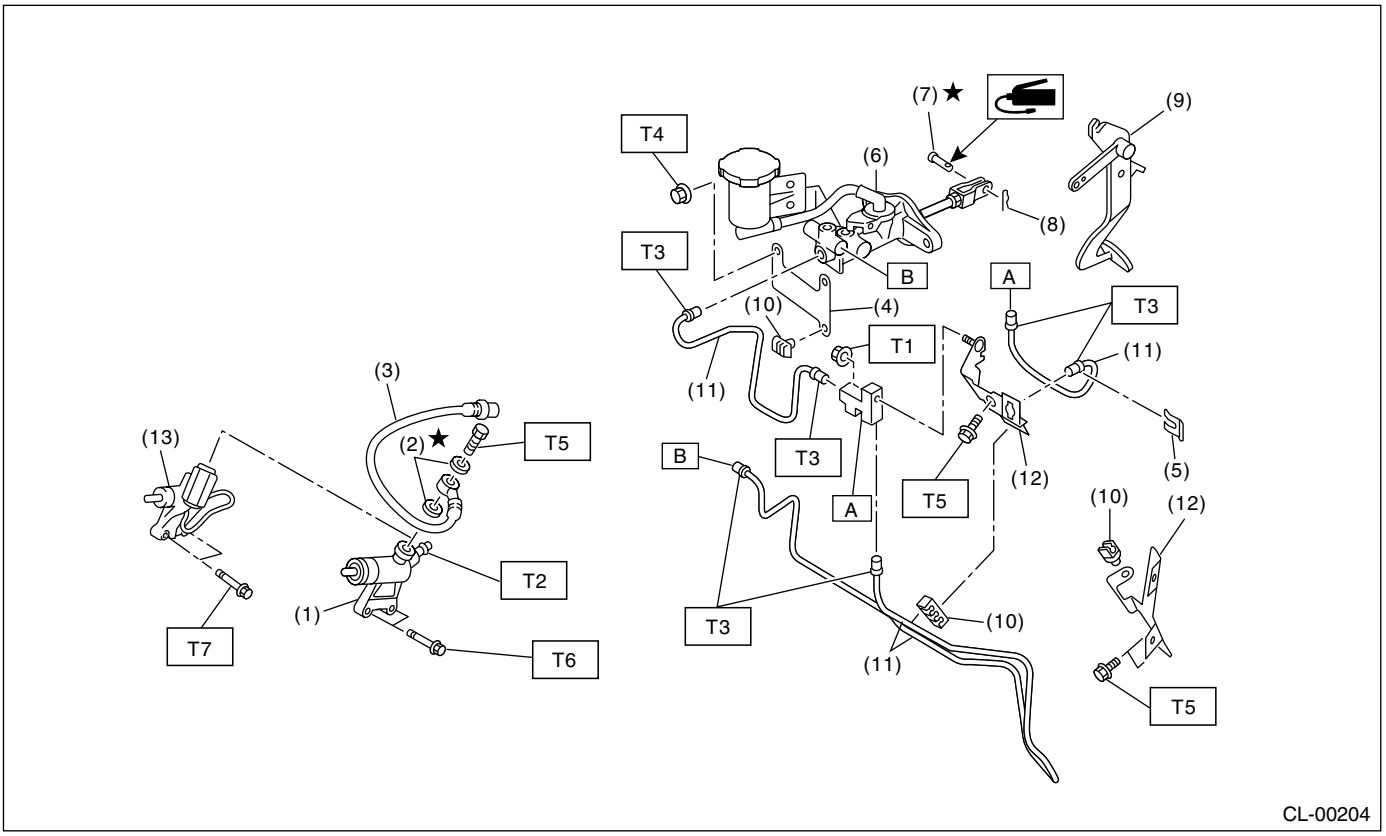
(1)	Operating cylinder	(7)	Master cylinder ASSY	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Washer	(8)	Clevis pin	***T1: 8 (0.8, 5.8)***
(3)	Clutch hose	(9)	Snap pin	***T2: 15 (1.5, 10.8)***
(4)	Bracket	(10)	Pedal	***T3: 18 (1.8, 13.0)***
(5)	Clip	(11)	Clamp	***T4: 25 (2.5, 18.1)***
(6)	Clutch pipe	(12)	Bracket	***T5: 37 (3.8, 27.5)***

• LHD DOHC TURBO MODEL



(1)	Operating cylinder (Except for STi model)	(6)	Pipe	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Washer	(7)	Master cylinder ASSY	***T1: 8 (0.8, 5.8)***
(3)	Clutch hose	(8)	Clevis pin	***T2: 15 (1.5, 10.8)***
(4)	Bracket	(9)	Snap pin	***T3: 18 (1.8, 13.0)***
(5)	Clip	(10)	Lever	***T4: 37 (3.8, 27.5)***
		(11)	Operating cylinder (STi model)	***T5: 41 (4.2, 30.2)***

• RHD DOHC TURBO MODEL



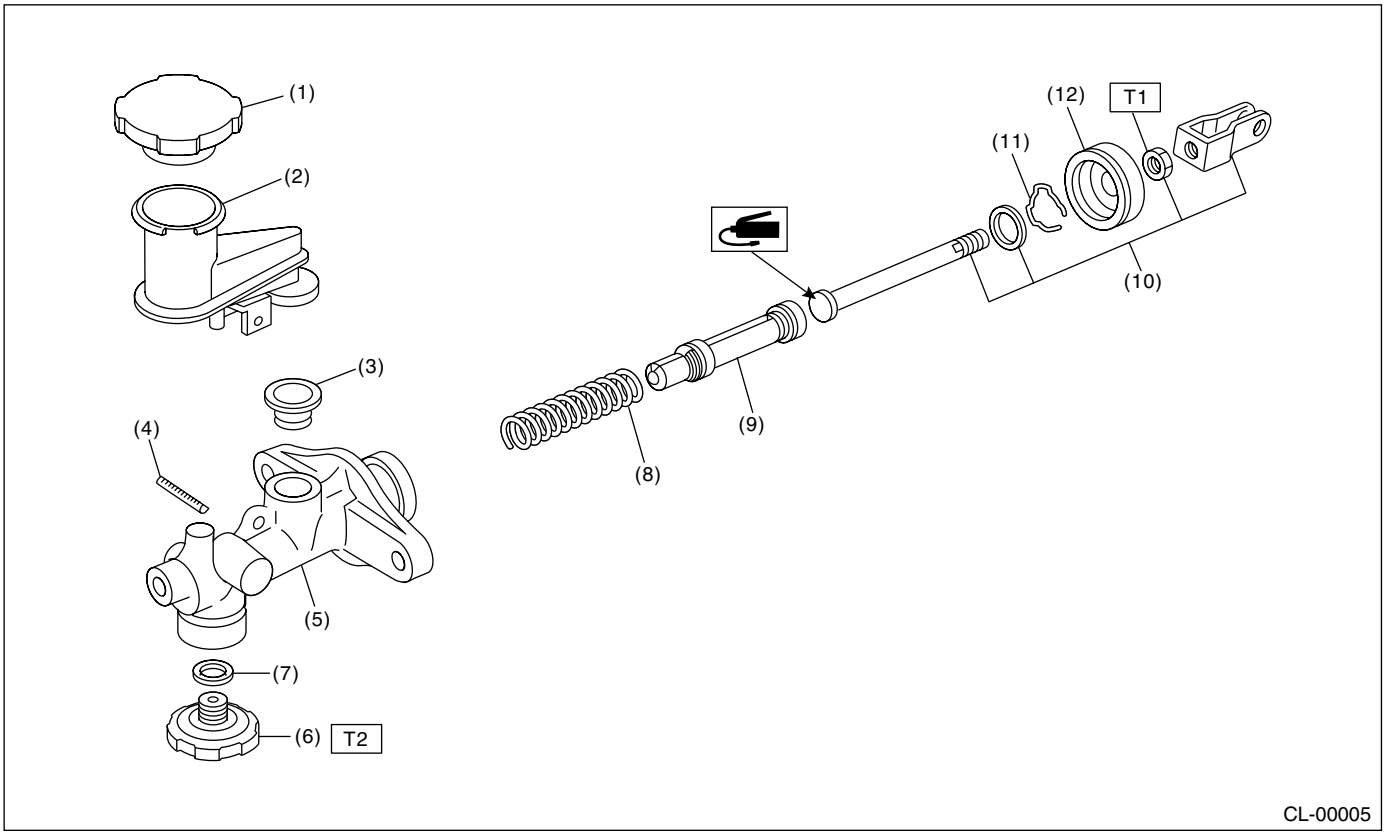
(1)	Operating cylinder (Except for STi model)	(8)	Snap pin
(2)	Washer	(9)	Pedal
(3)	Clutch hose	(10)	Clamp
(4)	Bracket	(11)	Clutch pipe
(5)	Clip	(12)	Bracket
(6)	Master cylinder ASSY	(13)	Operating cylinder (STi model)
(7)	Clevis pin		

Tightening torque: N·m (kgf-m, ft-lb)

T1: 7.5 (0.76, 5.53)
T2: 8 (0.8, 5.8)
T3: 15 (1.5, 10.8)
T4: 18 (1.8, 13.0)
T5: 25 (2.5, 18.1)
T6: 37 (3.8, 27.5)
T7: 41 (4.2, 30.2)

3. MASTER CYLINDER

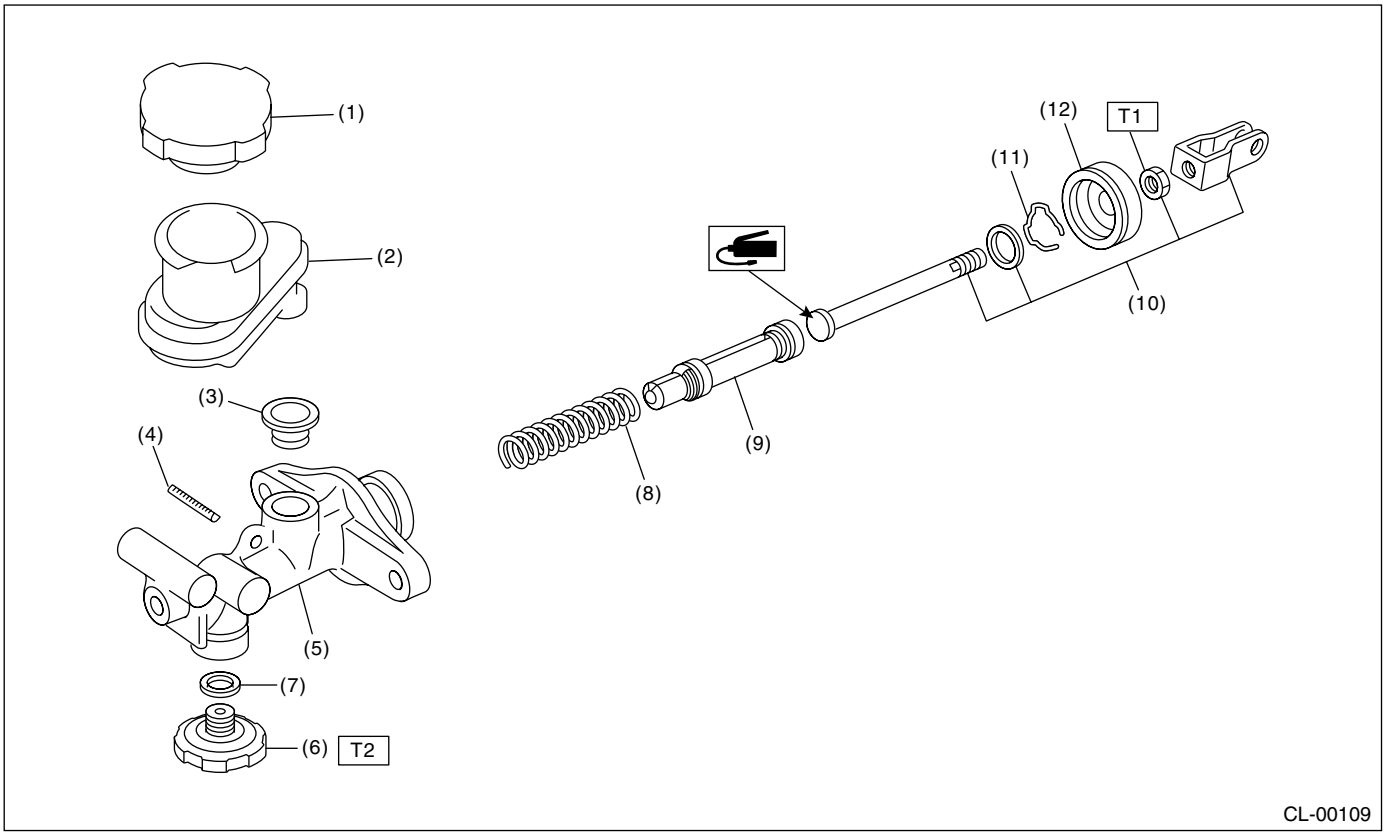
• SOHC MODEL



(1)	Reservoir cap	(7)	Gasket
(2)	Reservoir tank	(8)	Return spring
(3)	Oil seal	(9)	Piston
(4)	Straight pin	(10)	Push rod
(5)	Master cylinder	(11)	Piston stop ring
(6)	Clutch damper	(12)	Cylinder boot

Tightening torque: N·m (kgf-m, ft-lb)
T1: 10 (1.0, 7)
T2: 46.6 (4.75, 34.4)

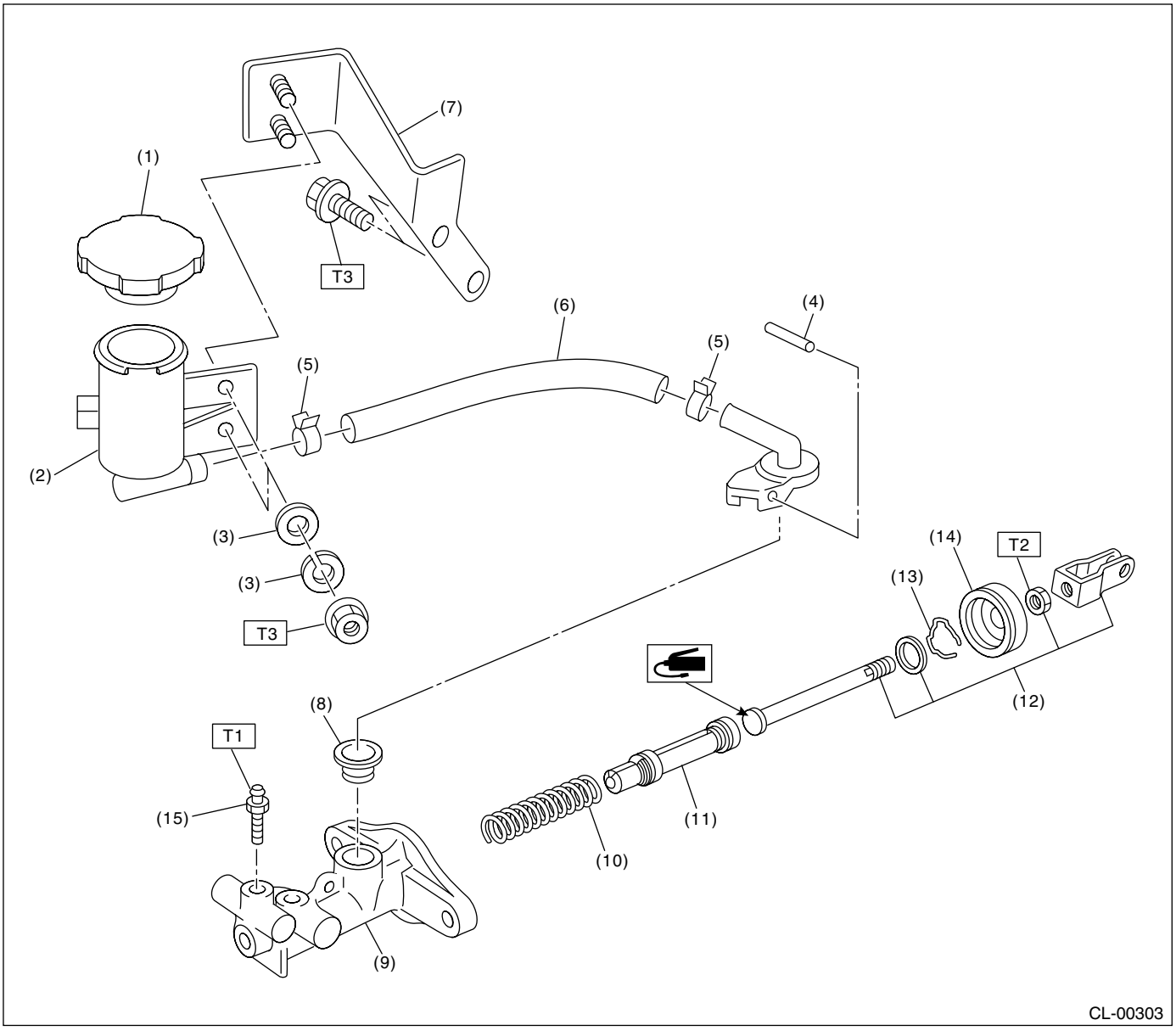
• LHD DOHC TURBO MODEL



(1) Reservoir cap
(2) Reservoir tank
(3) Oil seal
(4) Straight pin
(5) Master cylinder
(6) Clutch damper
(7) Gasket
(8) Return spring
(9) Piston
(10) Push rod
(11) Piston stop ring
(12) Cylinder boot

Tightening torque: N·m (kgf-m, ft-lb)
T1: 10 (1.0, 7)
T2: 46.6 (4.75, 34.4)

• RHD DOHC TURBO MODEL

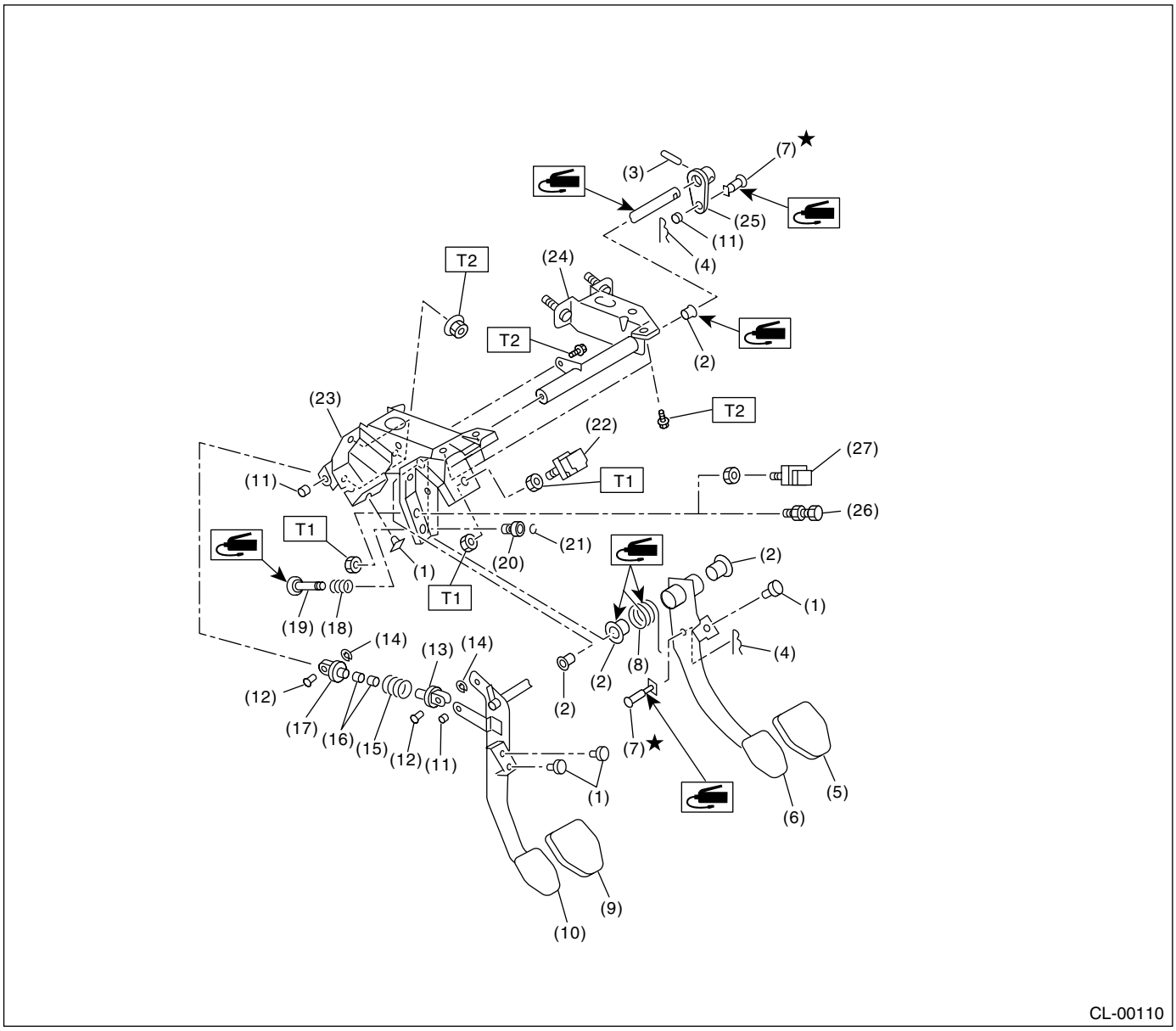


(1) Reservoir cap
(2) Reservoir tank
(3) Washer
(4) Straight pin
(5) Clip
(6) Hose
(7) Reservoir tank bracket
(8) Oil seal
(9) Master cylinder
(10) Return spring
(11) Piston
(12) Push rod
(13) Piston stop ring
(14) Cylinder boot
(15) Bleeder screw

Tightening torque: N·m (kgf-m, ft-lb)
T1: 8 (0.8, 5.8)
T2: 10 (1.0, 7)
T3: 18 (1.8, 13.3)

4. CLUTCH PEDAL

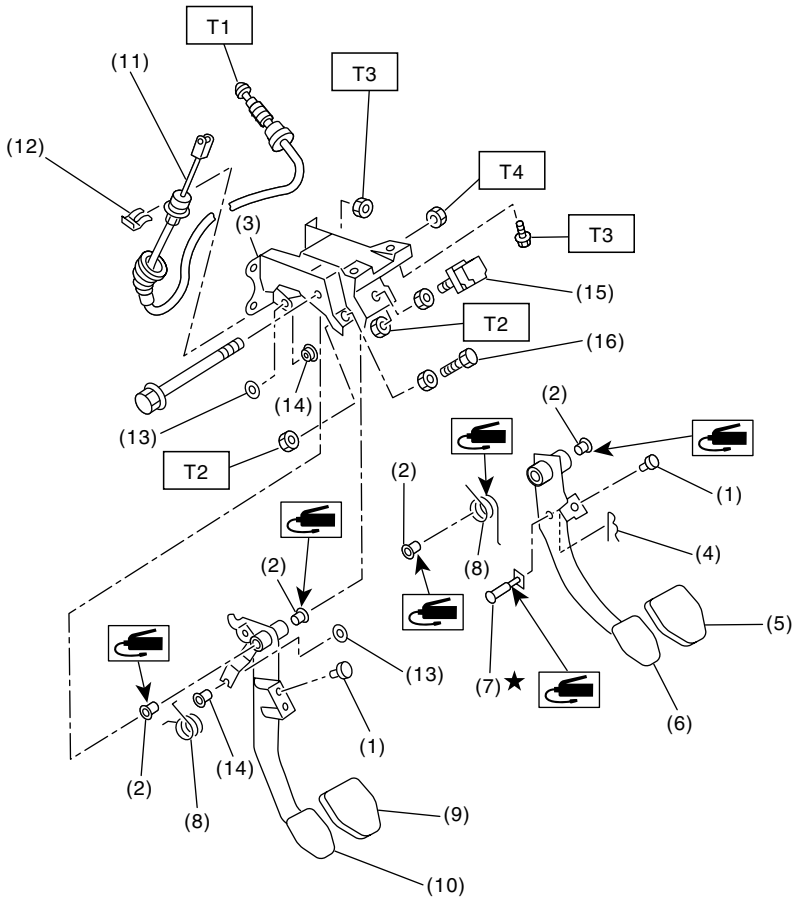
• LHD 2.0 L MODEL



(1) Stopper
(2) Bushing
(3) Spring pin
(4) Snap pin
(5) Brake pedal pad
(6) Brake pedal
(7) Clevis pin
(8) Brake pedal spring
(9) Clutch pedal pad
(10) Clutch pedal
(11) Bushing C
(12) Clutch clevis pin
(13) Assist rod A
(14) Clip
(15) Assist spring
(16) Assist bushing
(17) Assist rod B
(18) Spring A
(19) Rod
(20) Bushing B
(21) Clip
(22) Stop light switch
(23) Pedal bracket
(24) Clutch master cylinder bracket
(25) Lever
(26) Adjust bolt
(27) Clutch switch (With cruise control)

Tightening torque: N·m (kgf-m, ft-lb)
T1: 8 (0.8, 5.8)
T2: 18 (1.8, 13.0)

• LHD 1.6 L MODEL

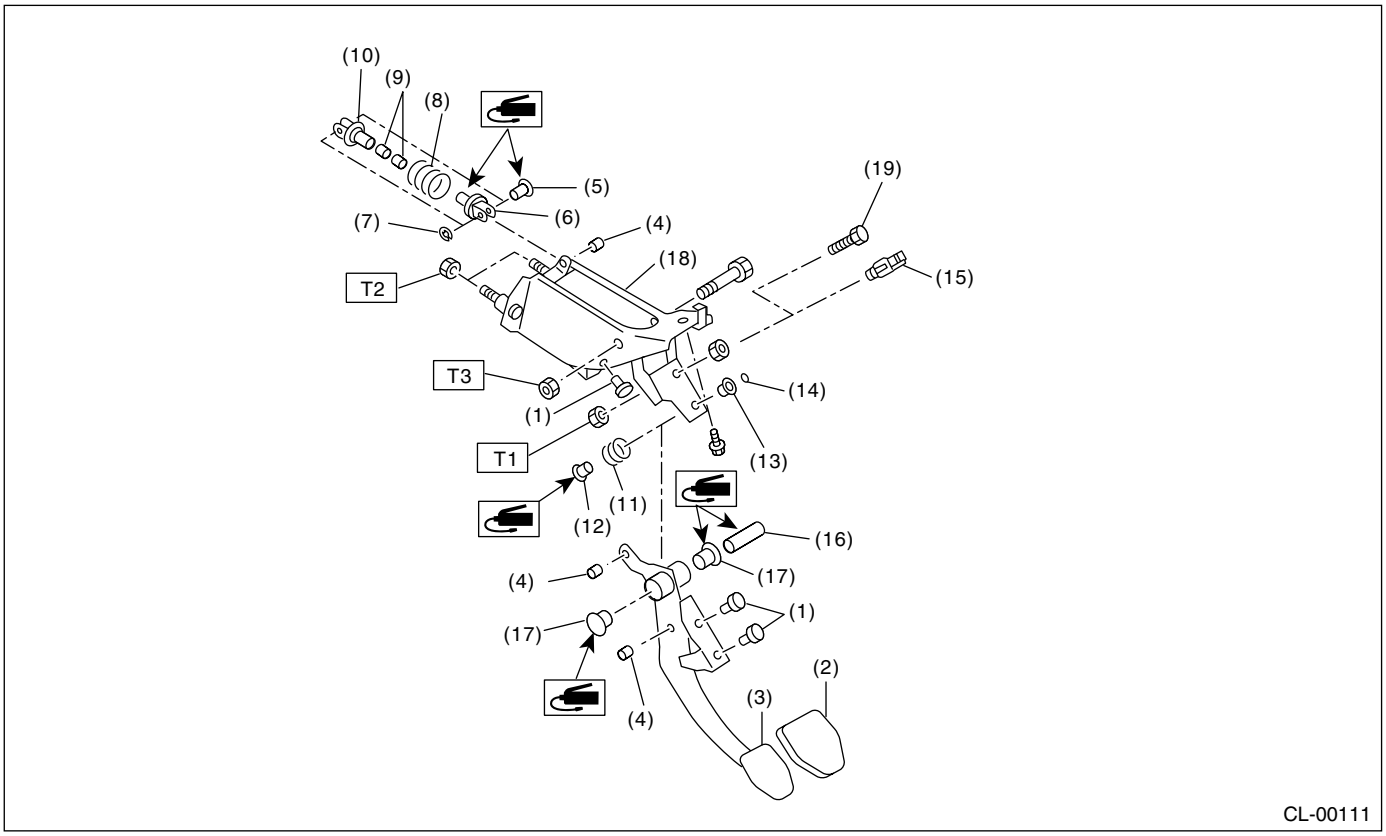


CL-00205

(1)	Stopper	(9)	Clutch pedal pad
(2)	Bushing	(10)	Clutch pedal
(3)	Clutch pedal bracket	(11)	Clutch cable
(4)	Snap pin	(12)	Clutch cable clamp
(5)	Brake pedal pad	(13)	Clip
(6)	Brake pedal	(14)	Spring assist
(7)	Clevis pin	(15)	Stop light switch
(8)	Spring	(16)	Adjust bolt

Tightening torque: N·m (kgf-m, ft-lb)	
T1:	*5.9 (0.60, 4.3)*
T2:	*8 (0.8, 5.8)*
T3:	*18 (1.8, 13.0)*
T4:	*29 (3.0, 21.7)*

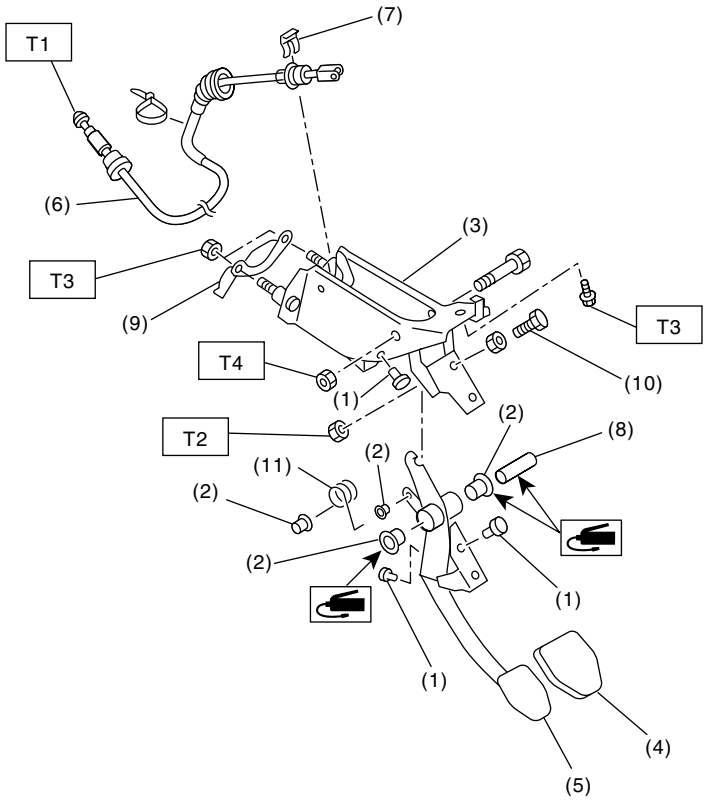
• RHD 2.0 L AND 2.5 L MODEL



(1) Stopper
(2) Clutch pedal pad
(3) Clutch pedal
(4) Bushing
(5) Clutch clevis pin
(6) Assist rod A
(7) Clip
(8) Assist spring
(9) Assist bushing
(10) Assist rod B
(11) Spring A
(12) Rod S
(13) Bushing B
(14) O-ring
(15) Clip
(16) Clutch switch (With cruise control)
(17) Spacer
(18) Bushing
(19) Clutch pedal bracket

Tightening torque: N·m (kgf-m, ft-lb)
T1: 8 (0.8, 5.8)
T2: 18 (1.8, 13.0)
T3: 30 (3.1, 22.4)

• RHD 1.6 L MODEL



CL-00206

(1)	Stopper	(7)	Clutch cable clamp	***Tightening torque: N·m (kgf-m, ft-lb)***
(2)	Bushing	(8)	Spacer	***T1: 5.9 (0.6, 4.3)***
(3)	Clutch pedal bracket	(9)	Bracket	***T2: 8 (0.8, 5.8)***
(4)	Clutch pedal pad	(10)	Adjust bolt	***T3: 18 (1.8, 13.0)***
(5)	Clutch pedal	(11)	Spring	***T4: 29 (3.0, 21.7)***
(6)	Clutch cable			

C: CAUTION

• Wear working clothing, including a cap, protective goggles and protective shoes during operation.
• Remove contamination including dirt and corrosion before removal, installation or disassembly.
• Keep the disassembled parts in order and protect them from dust or dirt.
• Before removal, installation or disassembly, be sure to clarify the failure. Avoid unnecessary removal, installation, disassembly, and replacement.
• Be careful not to burn your hands, because each part on the vehicle is hot after running.
• Use Subaru genuine fluid, grease etc. or the equivalent. Do not mix fluid, grease etc. with that of another grade or from other manufacturers.
• Be sure to tighten fasteners including bolts and nuts to the specified torque.
• Place shop jacks or rigid racks at the specified points.
• Apply grease onto sliding or revolution surfaces before installation.
• Before installing O-rings or snap rings, apply sufficient amount of fluid to avoid damage and deformation.
• Before securing a part on a vise, place cushioning material such as wood blocks, aluminum plate, or shop cloth between the part and the vise.
• Keep fluid away from the vehicle body. If any fluid contacts the vehicle body, immediately flush the area with water.

D: PREPARATION TOOL

1. SPECIAL TOOLS

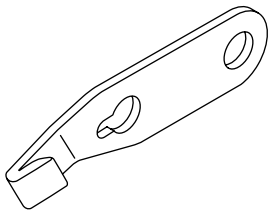
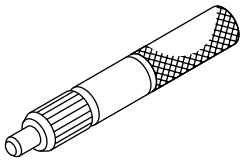
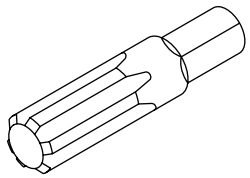
ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-498497100	498497100	CRANKSHAFT STOPPER	Used for stopping rotation of flywheel when loosening tightening bolt, etc.
 ST-499747100	499747100	CLUTCH DISC GUIDE	Used when installing clutch disc to flywheel.

ILLUSTRATION	TOOL NUMBER	DESCRIPTION	REMARKS
 ST-499057000	499057000	TORX® PLUS	• Used for removing flywheel (Dual mass flywheel type). • For 2.5 L model.

2. GENERAL PURPOSE TOOLS

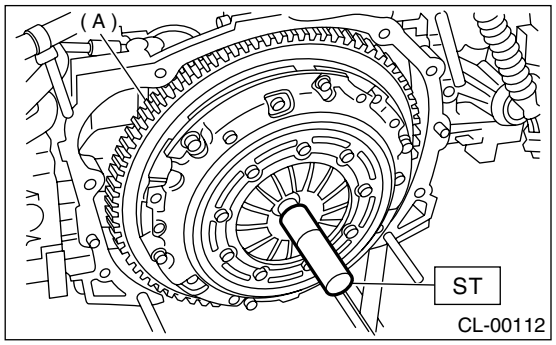
TOOL NAME	REMARKS
Circuit Tester	Used for measuring resistance, voltage and ampere.
Dial Gauge	Used for measuring clutch disk run-out.

2. Clutch Disc and Cover

A: REMOVAL

1. 2.5 L MODEL

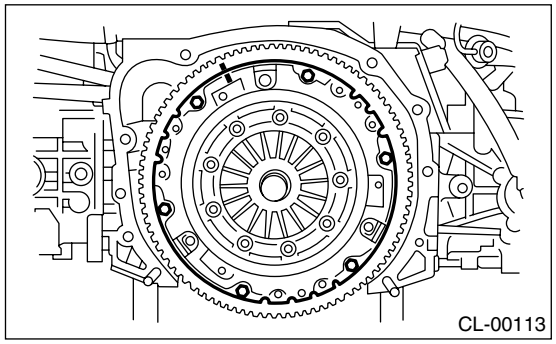
1) Remove the transmission assembly from vehicle body. <Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Insert the ST on flywheel.
ST 499747100 CLUTCH DISC GUIDE



(A) Double mass flywheel

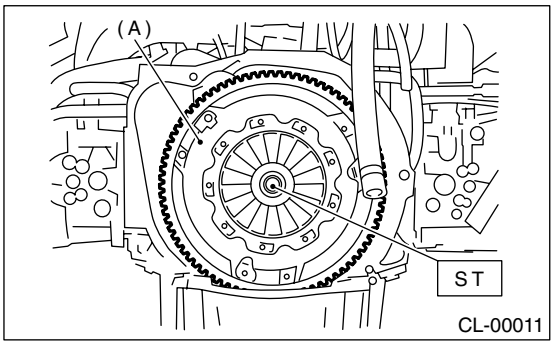
3) Remove the clutch cover and clutch disc.

NOTE:
• Take care not to allow oil on the clutch disc facing.
• Do not disassemble either the clutch cover or clutch disc.
• Put matching marks to the flywheel and clutch cover before removing the clutch cover.



2. EXCEPT FOR 2.5 L MODEL

1) Remove the transmission assembly from vehicle body. <Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Install the ST on flywheel.
ST 499747100 CRANKSHAFT STOPPER



(A) Clutch cover

3) Remove the clutch cover and clutch disc.

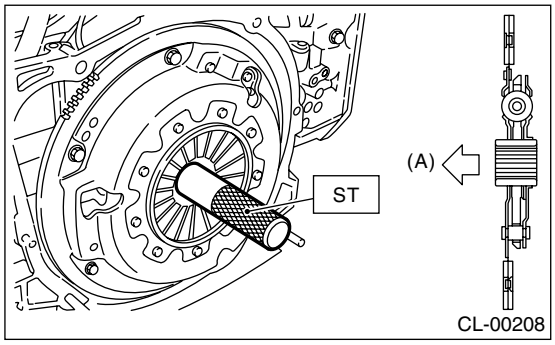
NOTE:
• Take care not to allow oil on the clutch disc facing.
• Do not disassemble either the clutch cover or clutch disc.

B: INSTALLATION

1. 2.5 L MODEL

1) Insert the ST into clutch disc and install them on the flywheel by inserting the ST end into pilot bearing.

NOTE:
When installing the clutch disc, be careful to its direction.
ST 499747100 CLUTCH DISC GUIDE

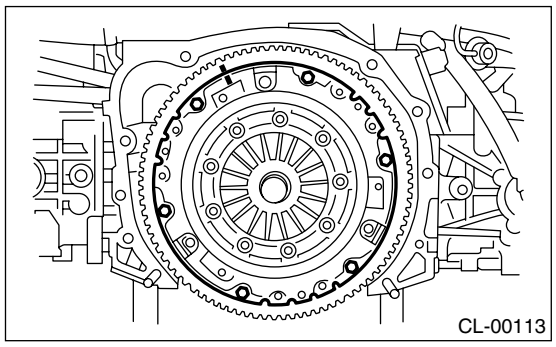


(A) Flywheel side

2) Install the clutch cover on flywheel and tighten the bolts to specified torque.

NOTE:
• Align matching marks when reassemble.
• Note the front and rear of the clutch disc when installing.
• Tighten the clutch cover installing bolts gradually. Each bolt should be tightened to the specified torque in a crisscross fashion.

Tightening torque:
16 N·m (1.6 kgf-m, 11.8 ft-lb)

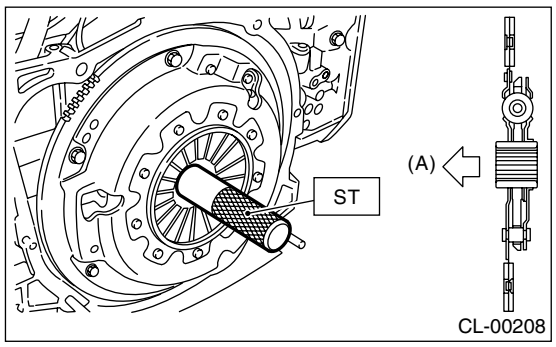


3) Remove the ST.
ST 499747100 CLUTCH DISC GUIDE

2. EXCEPT FOR 2.5 L MODEL

1) Insert the ST into clutch disc and install them on the flywheel by inserting the ST end into pilot bearing.

NOTE:
When installing the clutch disc, be careful to its direction.
ST 499747100 CLUTCH DISC GUIDE

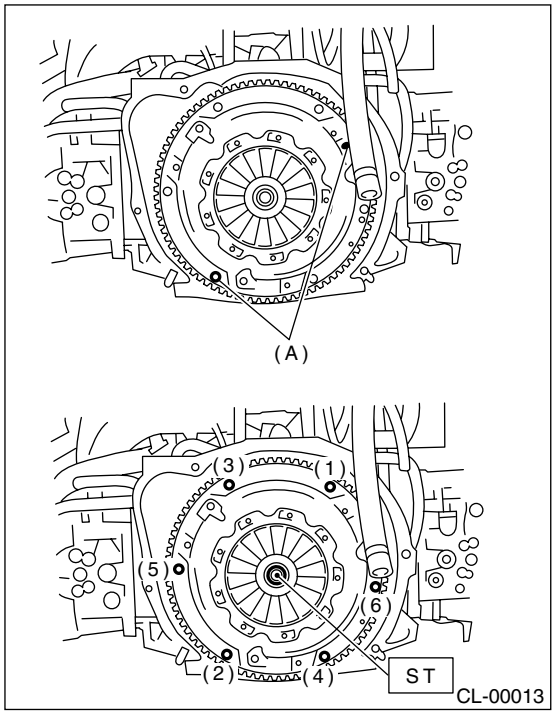


(A) Flywheel side

2) Install the clutch cover on flywheel and tighten the bolts to specified torque.

NOTE:
• When installing the clutch cover on flywheel, position the clutch cover so that there is a gap of 120° or more between “unbalance” marks on the flywheel and clutch cover. (“unbalance” marks indicate the directions of residual unbalance.)
• Note the front and rear of the clutch disc when installing.
• Temporarily tighten the bolts by hand. Each bolt should be tightened to the specified torque in a crisscross fashion.

Tightening torque:
16 N·m (1.6 kgf-m, 11.8 ft-lb)



(A) “Unbalance” marks (Paint)

3) Remove the ST.
ST 499747100 CLUTCH DISC GUIDE
4) Install the transmission assembly. <Ref. to 5MT-41, INSTALLATION, Manual Transmission Assembly.>

C: INSPECTION

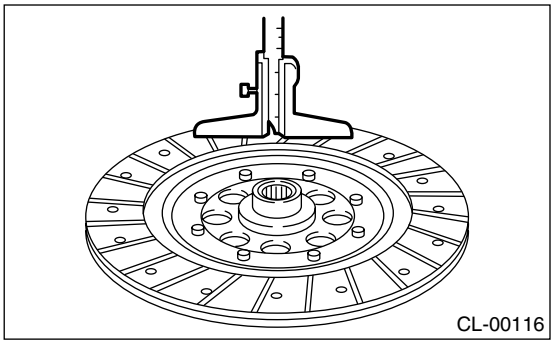
1. CLUTCH DISC

1) Facing wear
Measure the depth of rivet head from the surface of facing. Replace if facings are worn locally or worn down to less than the specified value.

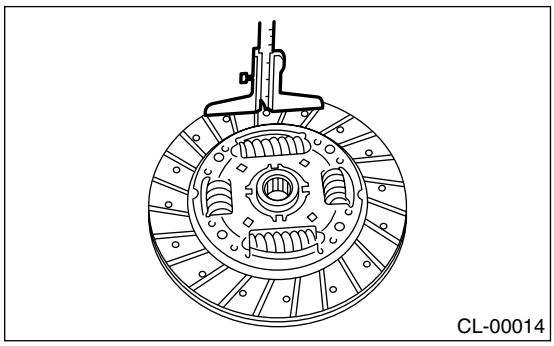
Depth of rivet head:
Limit of sinking
0.3 mm (0.012 in)

NOTE:
Do not wash the clutch disc with any cleaning fluid.

• 2.5 L MODEL

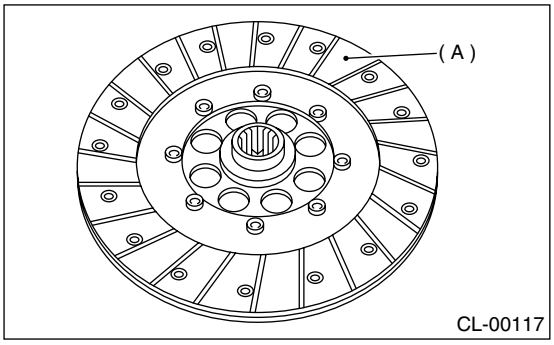


• Except for 2.5 L MODEL



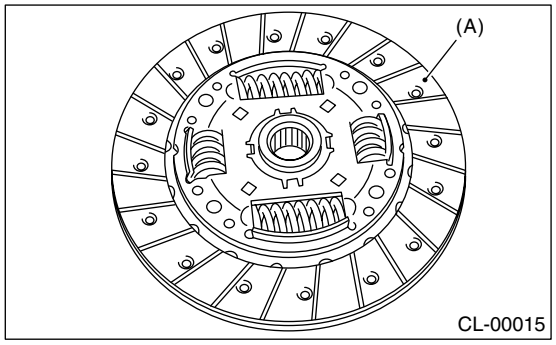
2) Hardened facing
Correct by using emery paper or replace.
3) Oil soakage on facing
Replace the clutch disc and inspect the transmission front oil seal, transmission case mating surface, engine rear oil seal and other points for oil leakage.

• 2.5 L MODEL



(A) Clutch facing

• Except for 2.5 L MODEL

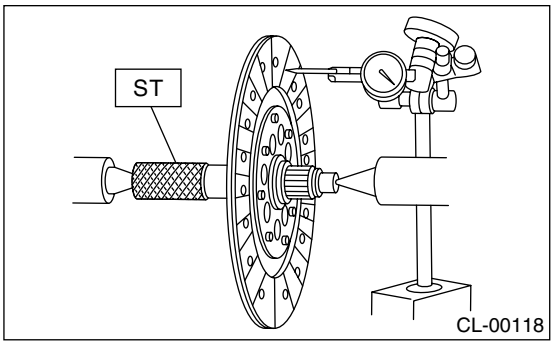


(A) Clutch facing

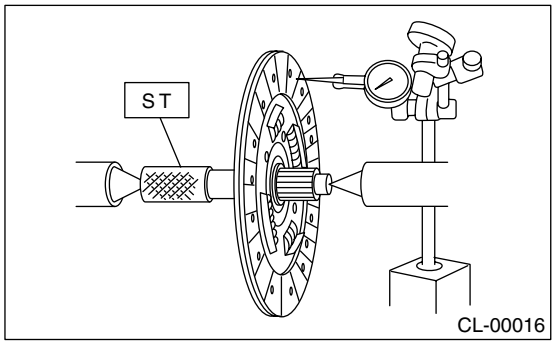
4) Deflection on facing
If deflection exceeds the specified value at the outer circumference of facing, repair or replace.
ST 499747100 CLUTCH DISC GUIDE

Limit for deflection:
1.6 L model
0.8 mm (0.031 in) at R = 107 mm (4.21 in)
2.0 L model
0.8 mm (0.031 in) at R = 110 mm (4.33 in)
2.5 L model
1.0 mm (0.039 in) at R = 110 mm (4.33 in)

• 2.5 L MODEL

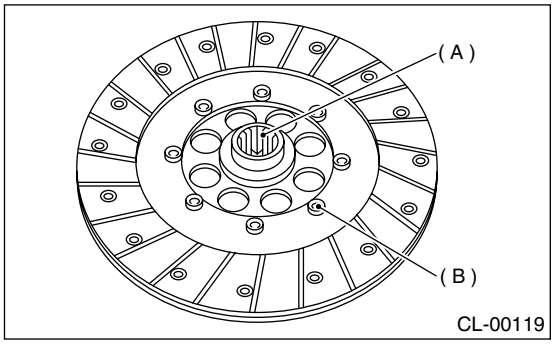


• Except for 2.5 L MODEL

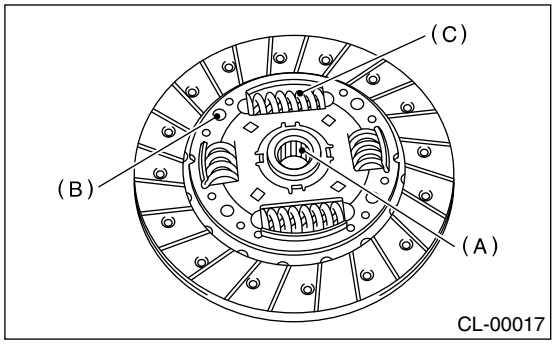


5) Worn spline, loose rivets and torsion spring failure
Replace defective parts.

• 2.5 L MODEL



• Except for 2.5 L MODEL



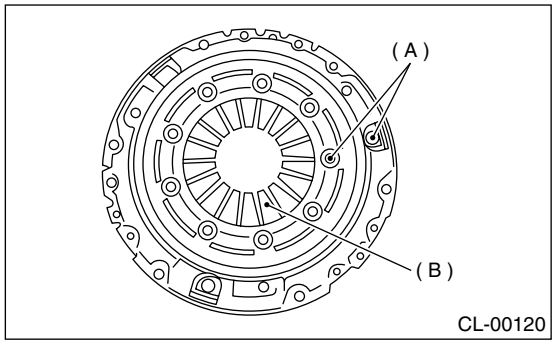
(A) Spline
(B) Rivet
(C) Torsion spring

2. CLUTCH COVER

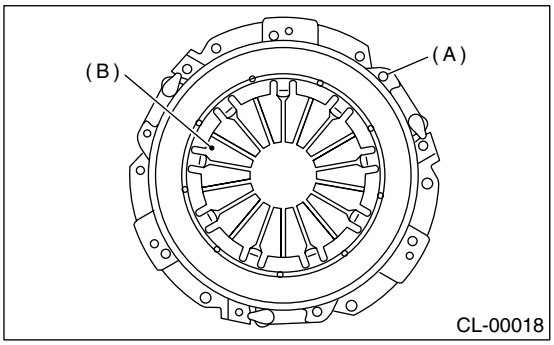
NOTE:
Visually check for the following items without disassembling, and replace or repair if defective.

1) Loose thrust rivet.
2) Damaged or worn bearing contact area at center of diaphragm spring.

• 2.5 L MODEL



• Except for 2.5 L MODEL



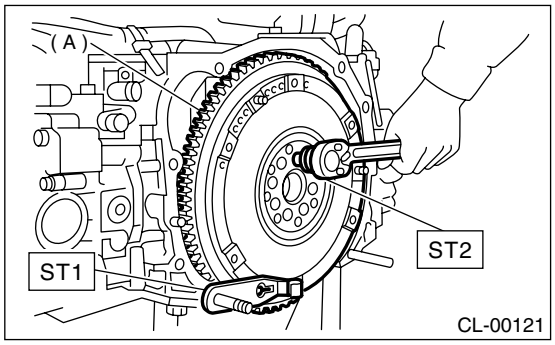
(A) Thrust rivet
(B) Diaphragm spring

3. Flywheel

A: REMOVAL

1. 2.5 L MODEL

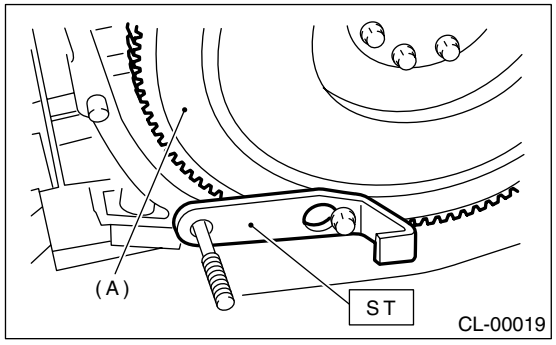
1) Remove the transmission assembly. <Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Remove the clutch cover and clutch disc. <Ref. to CL-20, REMOVAL, Clutch Disc and Cover.>
3) Remove the flywheel using ST1 and ST2.
ST1 498497100 CRANKSHAFT STOPPER
ST2 499057000 TORX® PLUS



(A) Flywheel

2. EXCEPT FOR 2.5 L MODEL

1) Remove the transmission assembly. <Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Remove the clutch cover and clutch disc. <Ref. to CL-20, REMOVAL, Clutch Disc and Cover.>
3) Using the ST, remove the flywheel.
ST 498497100 CRANKSHAFT STOPPER

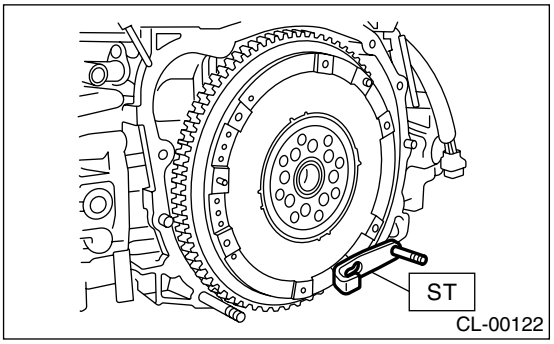


(A) Flywheel

B: INSTALLATION

1. 2.5 L MODEL

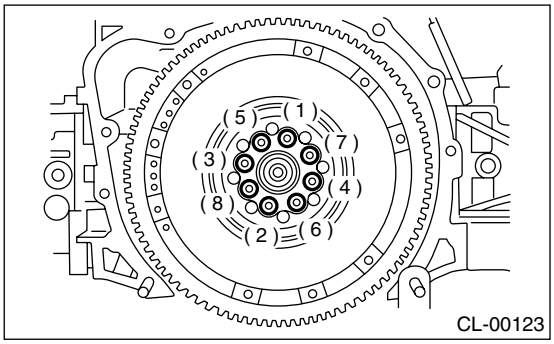
1) Install the flywheel and ST.
ST 498497100 CRANKSHAFT STOPPER



2) Tighten the flywheel attaching bolts to the specified torque.
ST 499057000 TORX® PLUS

NOTE:
Tighten the flywheel installing bolts gradually. Each bolt should be tightened to the specified torque in a crisscross fashion.

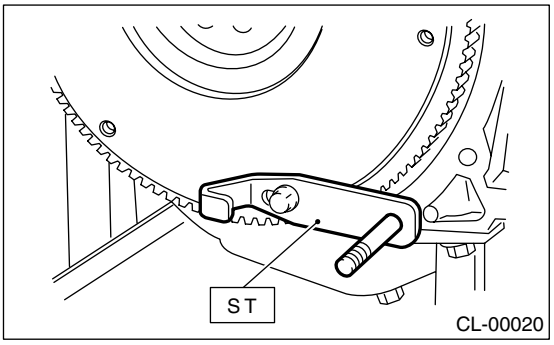
Tightening torque:
72 N·m (7.3 kgf-m, 52.8 ft-lb)



3) Install the clutch disc and cover. <Ref. to CL-20, 2.5 L MODEL, INSTALLATION, Clutch Disc and Cover.>
4) Install the transmission assembly. <Ref. to 5MT-41, INSTALLATION, Manual Transmission Assembly.>

2. EXCEPT FOR 2.5 L MODEL

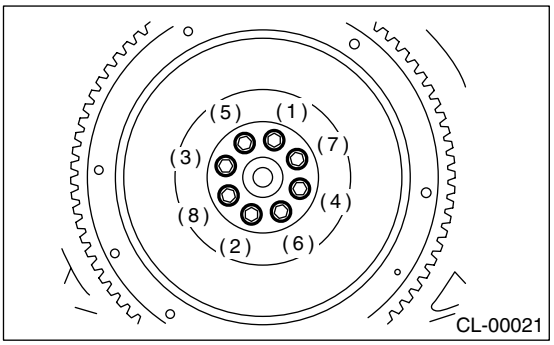
1) Install the flywheel and ST.
ST 498497100 CRANKSHAFT STOPPER



2) Tighten the flywheel attaching bolts to the specified torque.

NOTE:
Tighten the flywheel installing bolts gradually. Each bolt should be tightened to the specified torque in a crisscross fashion.

Tightening torque:
72 N·m (7.3 kgf-m, 52.8 ft-lb)



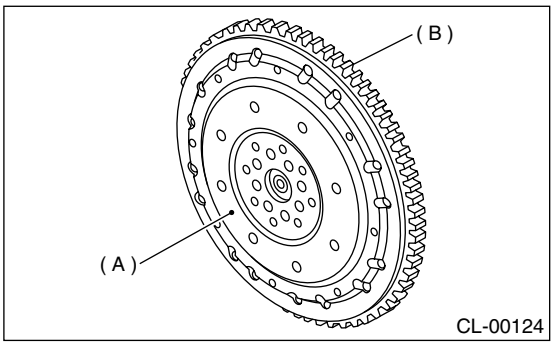
3) Install the clutch disc and cover. <Ref. to CL-21, EXCEPT FOR 2.5 L MODEL, INSTALLATION, Clutch Disc and Cover.>
4) Install the transmission assembly. <Ref. to 5MT-41, INSTALLATION, Manual Transmission Assembly.>

C: INSPECTION

CAUTION:
Since this bearing is grease sealed and is of a non-lubrication type, do not wash with gasoline or any solvent.

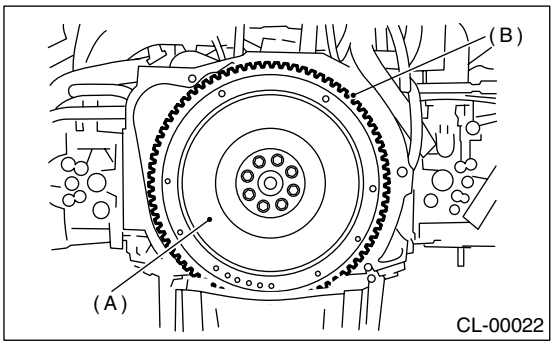
1) Damage of facing and ring gear
If defective, replace the flywheel.

- 2.5 L MODEL



(A) Flywheel
(B) Ring gear

- Except for 2.5 L MODEL



(A) Flywheel
(B) Ring gear

2) Smoothness of rotation
Rotate the ball bearing applying pressure in thrust direction.
3) If noise or excessive play is noted, replace the flywheel.

4. Release Bearing and Lever

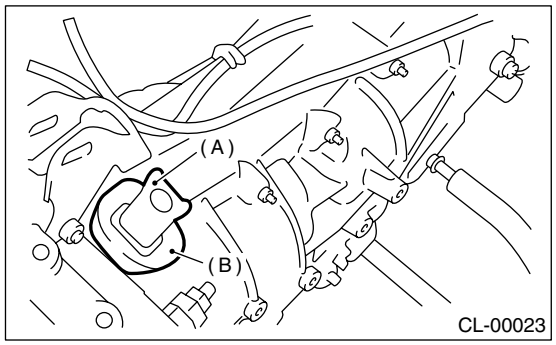
A: REMOVAL

1. EXCEPT FOR DOHC TURBO MODEL

1) Remove the transmission assembly from vehicle body.
<Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Remove the two clips from clutch release lever and remove the release bearing.

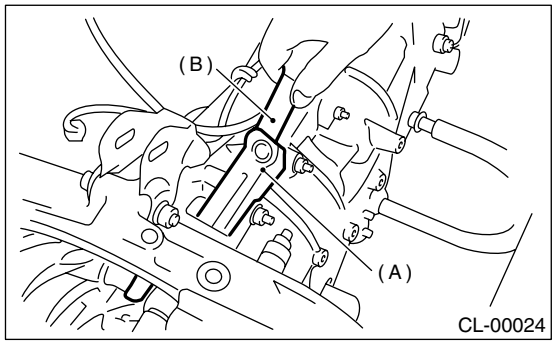
CAUTION:
Be careful not to deform clips.

3) Remove the dust cover.



(A) Clutch release lever
(B) Dust cover

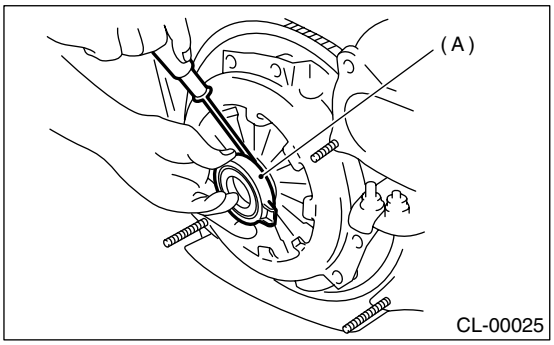
4) Remove the release lever retainer spring from release lever pivot with a screwdriver by accessing it through clutch housing release lever hole. Then remove the release lever.



(A) Clutch release lever
(B) Screwdriver

2. DOHC TURBO MODEL

1) Remove the transmission assembly from vehicle body. <Ref. to 5MT-38, REMOVAL, Manual Transmission Assembly.>
2) Remove the clutch release lever from transmission.
3) Put the clutch release bearing in engine side.
4) Remove the clutch release bearing from the clutch cover using flat-type screwdriver.



(A) Clutch release bearing

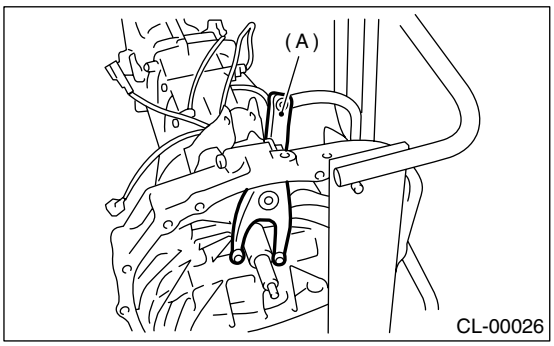
B: INSTALLATION

1. EXCEPT FOR DOHC TURBO MODEL

NOTE:
Before or during assembling, lubricate the following points with a light coat of grease.
- Contact surface of lever and pivot
- Contact surface of lever and bearing
- Transmission main shaft spline (Use grease containing molybdenum disulphide.)

1) While pushing the release lever to pivot and twisting it to both sides, fit the retainer spring onto the constricted portion of pivot.

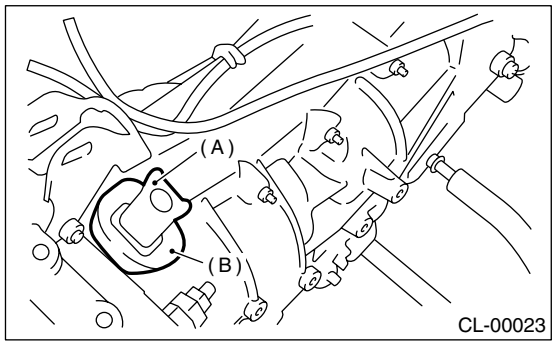
NOTE:
- Apply grease (SUNLIGHT 2: Part No. 003602010) to the contact point of release lever and operating cylinder.
- Confirm that the retainer spring is securely fitted by observing it through the main case hole.



(A) Release lever

2) Install the release bearing and fasten it with two clips.

3) Install the dust cover.

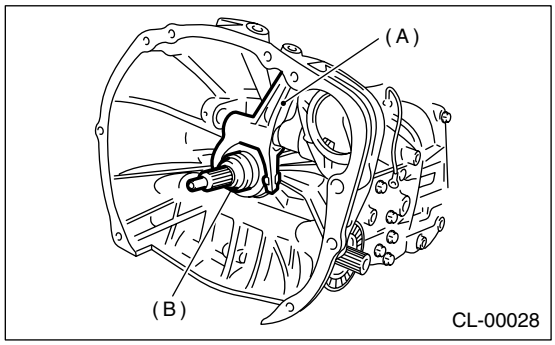


(A) Release lever
(B) Dust cover

4) Install the transmission assembly.
<Ref. to 5MT-41, INSTALLATION, Manual Transmission Assembly.>

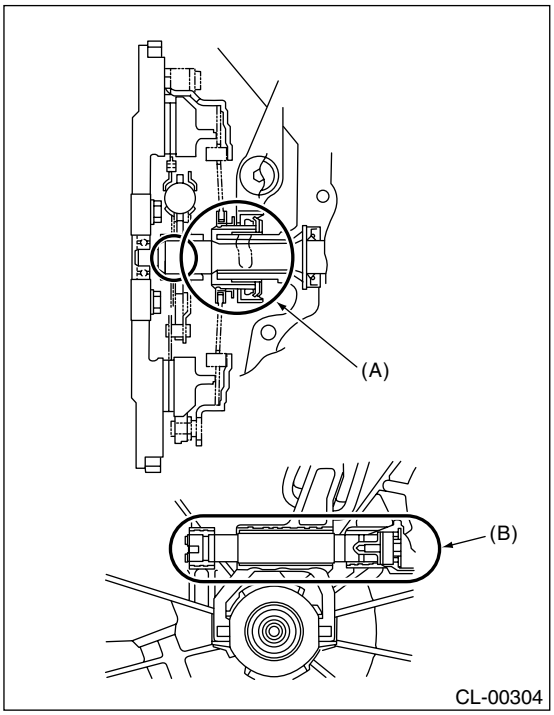
2. DOHC TURBO MODEL

1) Install the release bearing on transmission.
2) Insert the release fork into release bearing tab.



(A) Release fork
(B) Release bearing

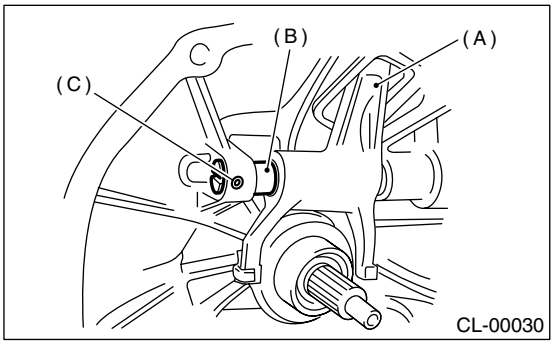
3) Apply grease to the specified points:
- Spline: FX2200 (Part No. 000040901)
- Shaft: SUNLIGHT 2 (Part No. 003602010)



(A) Spline (FX2200)
(B) Shaft (SUNLIGHT 2)

4) Insert the release fork shaft into release fork.

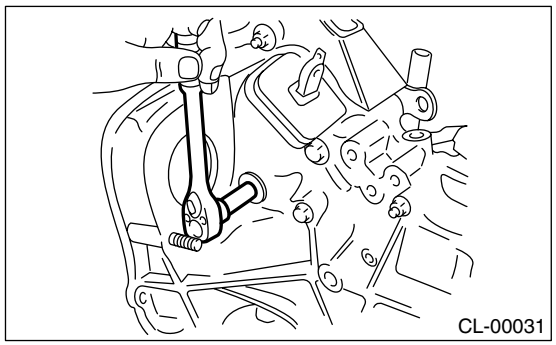
NOTE:
Make sure the cutout portion of release fork shaft contacts spring pin.



(A) Release fork
(B) Release shaft
(C) Spring pin

5) Tighten the plug.

Tightening torque:
44 N·m (4.5 kgf-m, 32.5 ft-lb)



6) Install the transmission assembly. <Ref. to 5MT-41, INSTALLATION, Manual Transmission Assembly.>

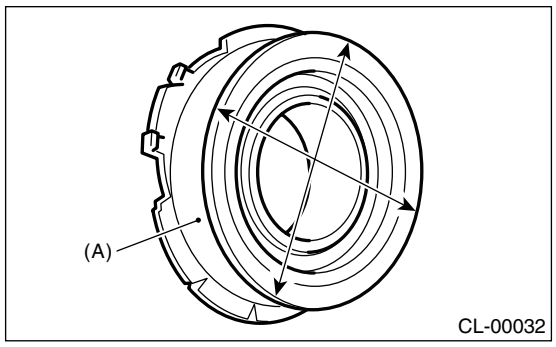
C: INSPECTION

1. RELEASE BEARING

NOTE:
Since this bearing is grease sealed and is of a non-lubrication type, do not wash with gasoline or any solvent when servicing the clutch.

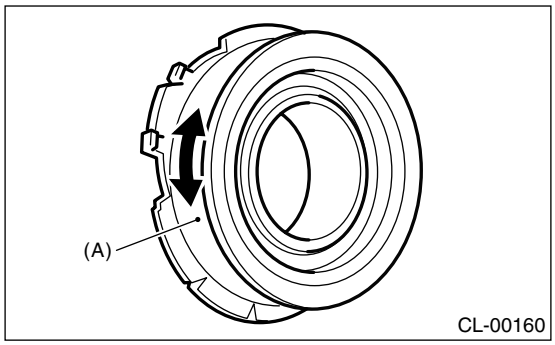
1) Check the bearing for smooth movement by applying force in the radial direction.

Radial direction stroke:
1.4 mm (0.055 in)



(A) Bearing case

2) Check the bearing for smooth rotation by applying pressure in the thrust direction.

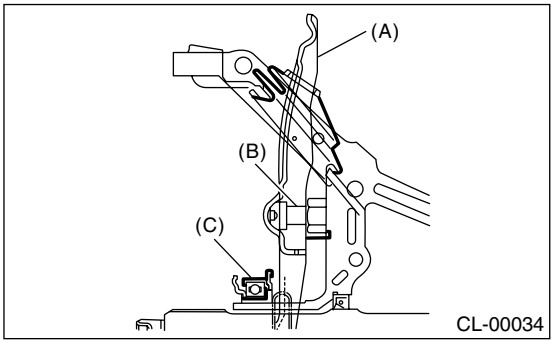


(A) Bearing case

3) Check wear and damage of the bearing case surface contacting with lever.

2. RELEASE LEVER

1) Check the lever pivot portion and the point of contact with release bearing case for wear.



(A) Clutch release lever
(B) Pivot
(C) Clutch release bearing

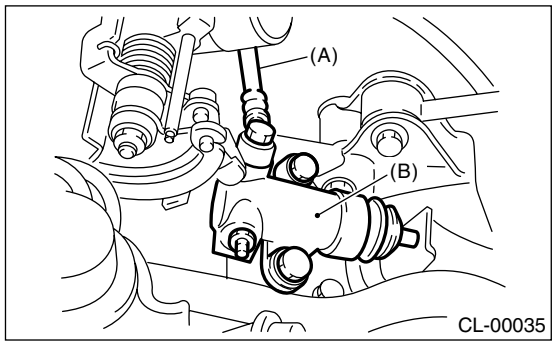
5. Operating Cylinder

A: REMOVAL

1) Remove the air cleaner case and air intake duct (Non-turbo model). <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
2) Remove the intercooler (Turbo model). <Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
3) Remove the clutch hose from operating cylinder.

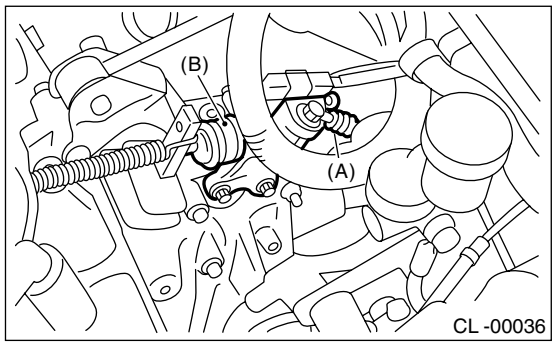
CAUTION:
Cover the hose joint to prevent clutch fluid from flowing out.

- NON-TURBO MODEL



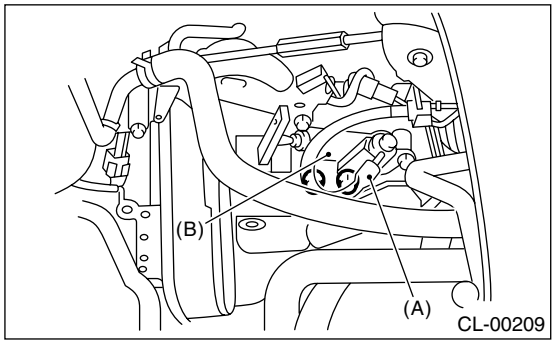
(A) Clutch hose
(B) Operating cylinder

- DOHC TURBO MODEL (5MT)



(A) Clutch hose
(B) Operating cylinder

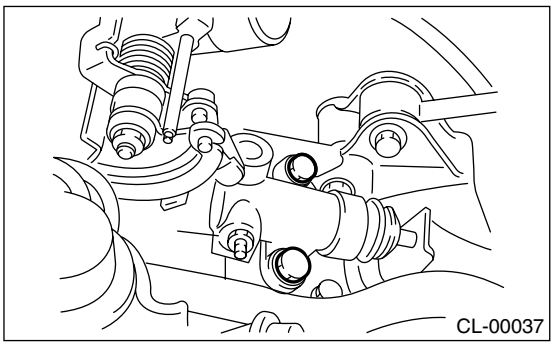
- DOHC TURBO MODEL (6MT)



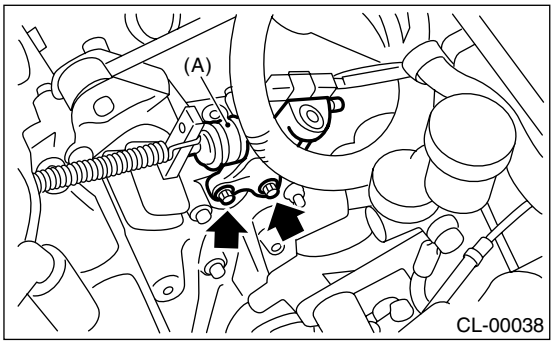
(A) Clutch hose
(B) Operating cylinder

4) Remove the operating cylinder from transmission.

- NON-TURBO MODEL

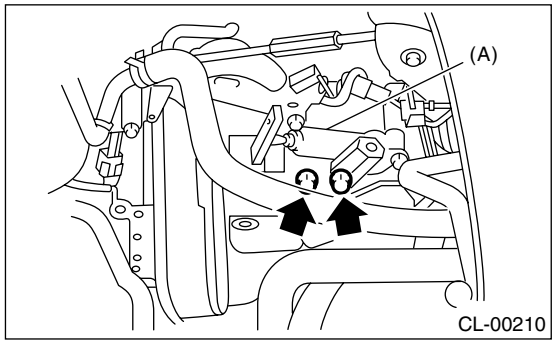


- DOHC TURBO MODEL (5MT)



(A) Operating cylinder

• DOHC TURBO MODEL (6MT)



(A) Operating cylinder

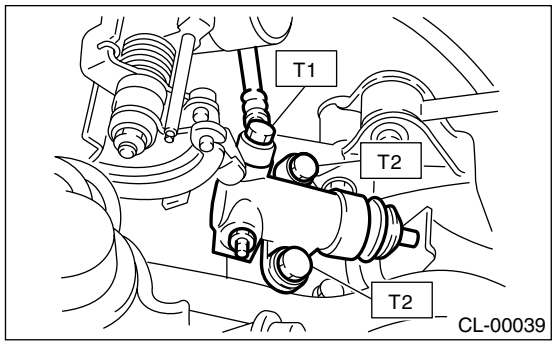
B: INSTALLATION

1) Install in the reverse order of removal.

NOTE:
Before installing the operating cylinder, apply grease (SUNLIGHT 2: Part No. 003602010) to contact point of the release lever and operating cylinder.

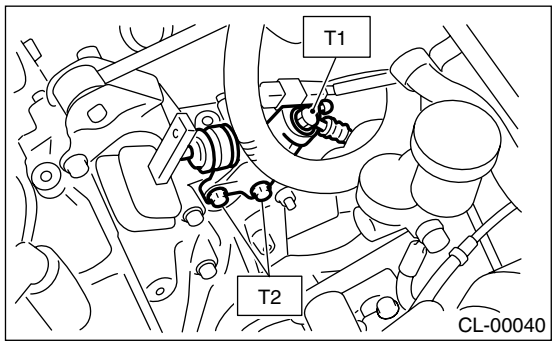
• NON-TURBO MODEL

Tightening torque:
T1: 18 N·m (1.8 kgf-m, 13.0 ft-lb)
T2: 37 N·m (3.8 kgf-m, 27.5 ft-lb)



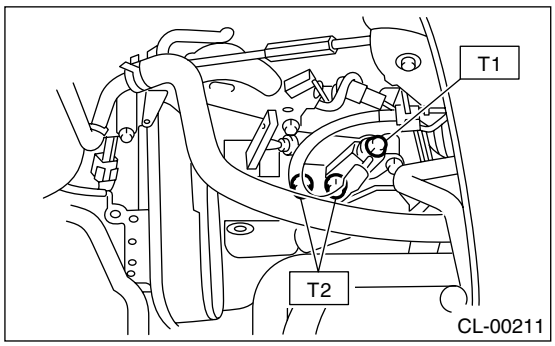
• DOHC TURBO MODEL (5MT)

Tightening torque:
T1: 18 N·m (1.8 kgf-m, 13.0 ft-lb)
T2: 37 N·m (3.8 kgf-m, 27.5 ft-lb)

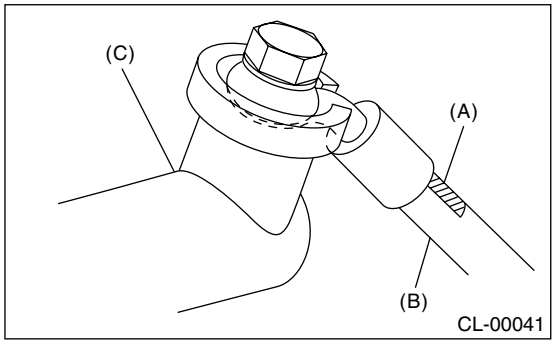


• DOHC TURBO MODEL (6MT)

Tightening torque:
T1: 18 N·m (1.8 kgf-m, 13.0 ft-lb)
T2: 41 N·m (4.2 kgf-m, 30.2 ft-lb)



NOTE:
• Be sure to install the clutch hose with the mark side facing upward.
• Be careful not to twist the clutch hose during installation.



(A) Marking
(B) Clutch hose
(C) Operating cylinder

2) After bleeding air from the operating cylinder, ensure that clutch operates properly.
<Ref. to CL-38, Clutch Fluid Air Bleeding.>

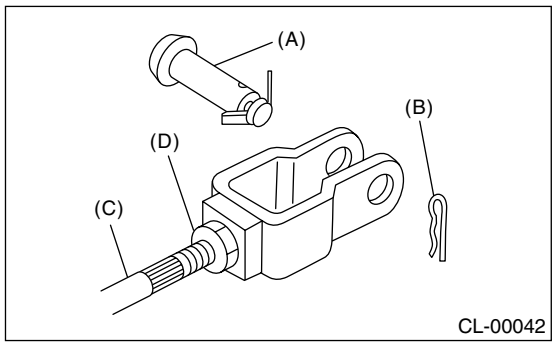
C: INSPECTION

1) Check the operating cylinder for damage. If operating cylinder is damaged, replace it.
2) Check the operating cylinder for fluid leakage or damage on boot. If any leakage or damage is found, replace the operating cylinder.

6. Master Cylinder

A: REMOVAL

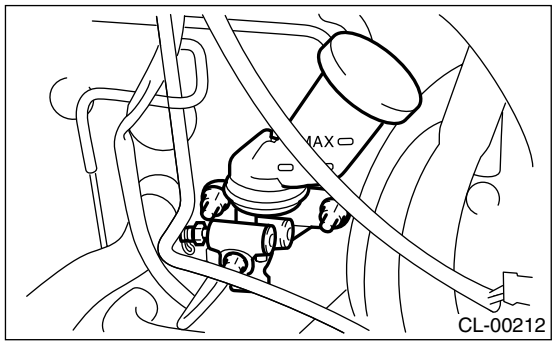
1) Thoroughly drain the brake fluid from reservoir tank.
2) Remove the snap pin, clevis pin and separate the push rod of master cylinder from clutch pedal.



(A) Clevis pin
(B) Snap pin
(C) Push rod
(D) Lock nut

3) Remove the air cleaner case and air intake duct (Non-turbo model). <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
4) Remove the intercooler (Turbo model). <Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
5) Remove the clutch pipe from master cylinder.
6) Remove the master cylinder with reservoir tank.

CAUTION:
Be extremely careful not to spill brake fluid. Brake fluid spilt on the vehicle body will harm the paint surface; wipe it off quickly if spilt.

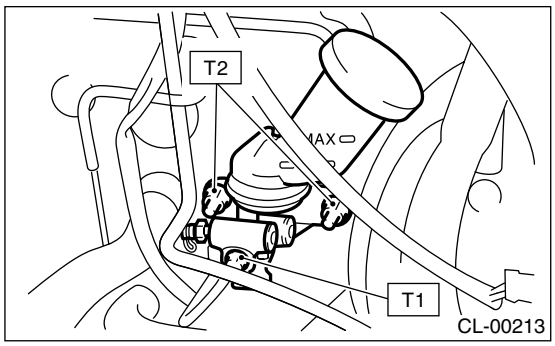


B: INSTALLATION

1) Install the master cylinder to body, and install the clutch pipe to master cylinder.

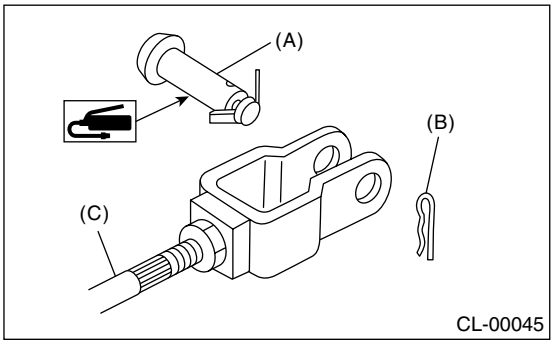
NOTE:
Check that the pipe is routed properly.

Tightening torque:
T1: 15 N·m (1.5 kgf-m, 10.8 ft-lb)
T2: 18 N·m (1.8 kgf-m, 13.0 ft-lb)



2) Connect the push rod of master cylinder to clutch pedal, and install the clevis pin and snap pin.

NOTE:
Apply grease to the clevis pin.



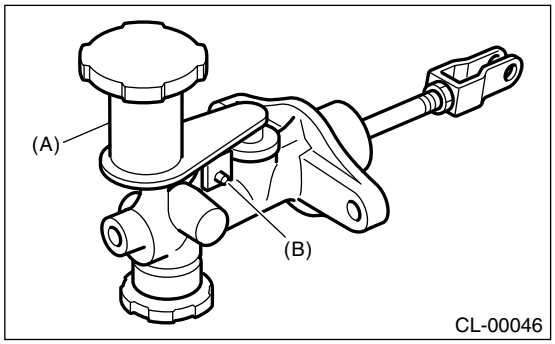
(A) Clevis pin
(B) Snap pin
(C) Push rod

3) After bleeding air from the system, ensure that clutch operates properly.
<Ref. to CL-38, Clutch Fluid Air Bleeding.>
4) Install the air cleaner case and air intake duct (Non-turbo model). <Ref. to IN(H4SO)-5, INSTALLATION, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Duct.>
5) Install the intercooler (Turbo model). <Ref. to IN(H4DOTC)-10, INSTALLATION, Intercooler.>

C: DISASSEMBLY

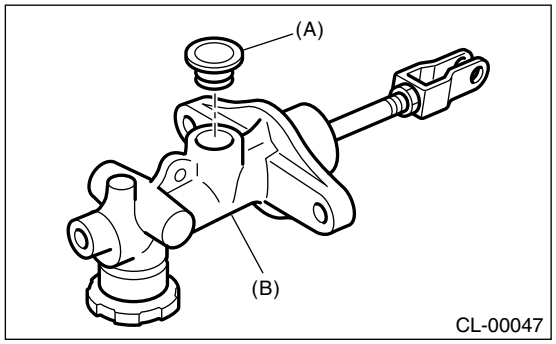
1. EXCEPT FOR RHD DOHC TURBO MODEL

1) Remove the straight pin and reservoir tank.



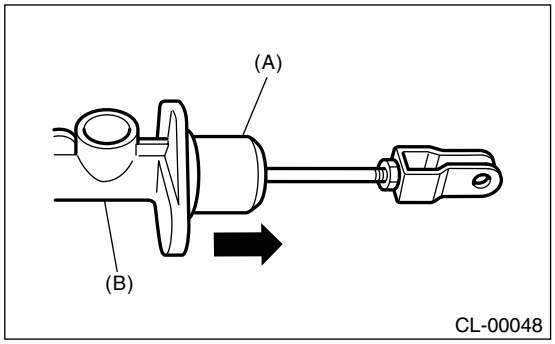
(A) Reservoir tank
(B) Straight pin

2) Remove the oil seal.



(A) Oil seal
(B) Master cylinder

3) Move the cylinder boot backward.



(A) Cylinder boot
(B) Master cylinder

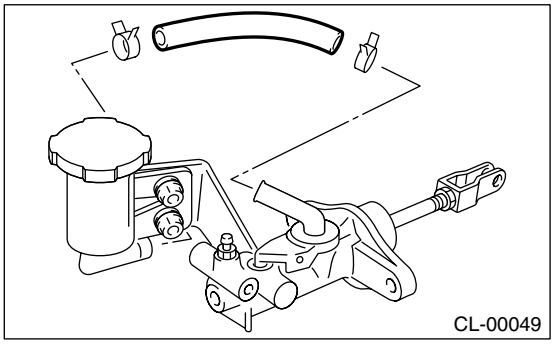
4) Remove the stop ring.

CAUTION:
Be careful when removing the snap ring to prevent the rod, washer, piston and return spring from flying out.

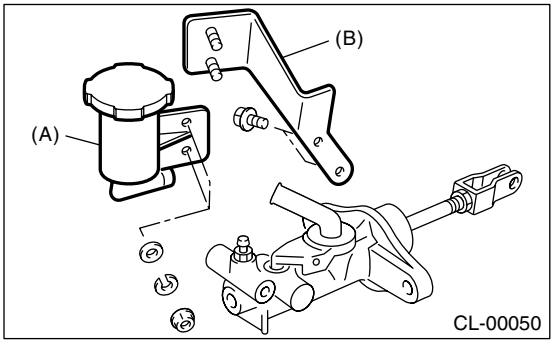
5) Remove the clutch damper.

2. RHD DOHC TURBO MODEL

1) Remove the hose.

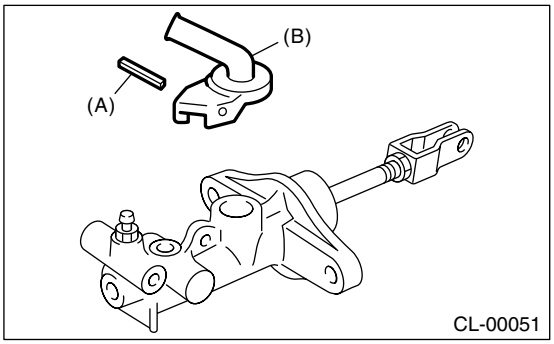


2) Remove the reservoir tank and bracket.



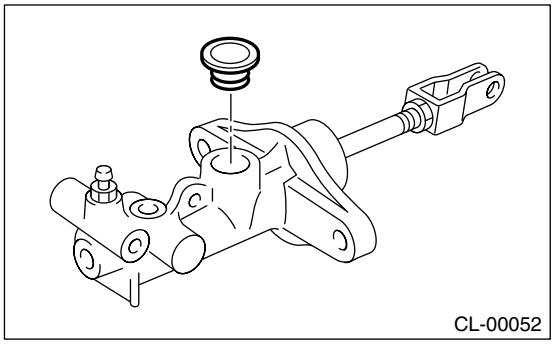
(A) Reservoir tank
(B) Bracket

3) Remove the straight pin and adapter.

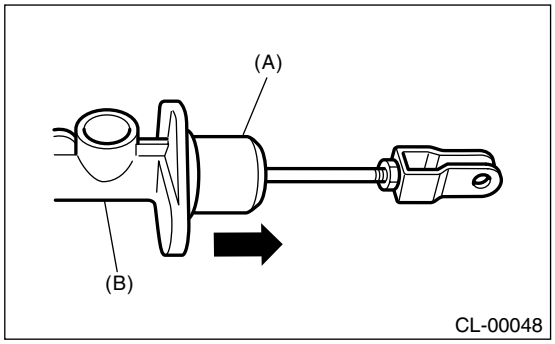


(A) Straight pin
(B) Adapter

4) Remove the oil seal.



5) Move the cylinder boot backward.



(A) Cylinder boot
(B) Master cylinder

6) Remove the stop ring.

CAUTION:
Be careful when removing the snap ring to prevent the rod, washer, piston and return spring from flying out.

7) Remove the air bleeder.

D: ASSEMBLY

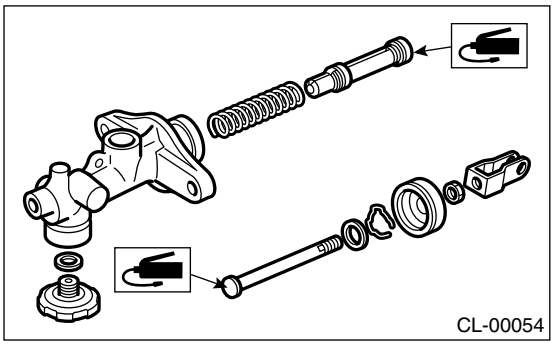
1. EXCEPT FOR RHD DOHC TURBO MODEL

1) Install the clutch damper.

Tightening torque:
46.6 N·m (4.75 kgf-m, 34.4 ft-lb)

2) Apply a coat of grease to the contacting surfaces of the push rod and piston before installation.

Grease:
SILICONE GREASE G40M (Part No. 004404003)



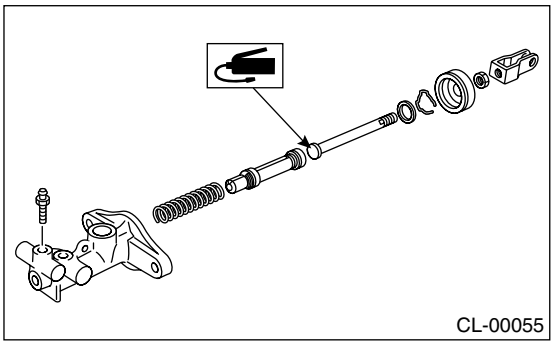
3) To assemble the master cylinder, reverse the sequence of disassembly procedure.

Tightening torque:
10 N·m (1.0 kgf-m, 7 ft-lb)

2. RHD DOHC TURBO MODEL

1) Apply a coat of grease to the contacting surfaces of the push rod and piston before installation.

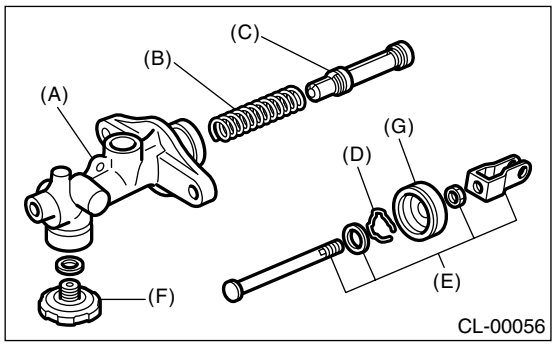
Grease:
SILICONE GREASE G40M (Part No. 004404003)



2) Assemble in the reverse order of disassemble.

E: INSPECTION

If any damage, deformation, wear, swelling, rust or other faults are found on the cylinder, piston, push rod, fluid reservoir, return spring, gasket, clutch damper, cylinder boot and hose replace the faulty part.



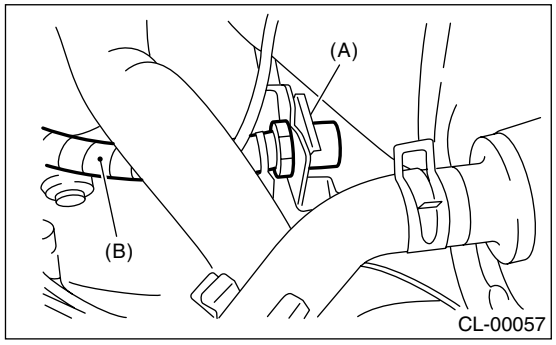
(A) Master cylinder body
(B) Return spring
(C) Piston
(D) Stop ring
(E) Rod ASSY
(F) Clutch damper
(G) Cylinder boot

7. Clutch Pipe and Hose

A: REMOVAL

1. EXCEPT FOR RHD DOHC TURBO MODEL

1) Remove the air cleaner case and air intake duct.
2) Drain the clutch fluid. <Ref. to CL-37, Clutch Fluid.>
3) Remove the clutch pipe from the clutch hose and master cylinder.
4) Pull out the clamp, then remove the clutch hose from bracket.

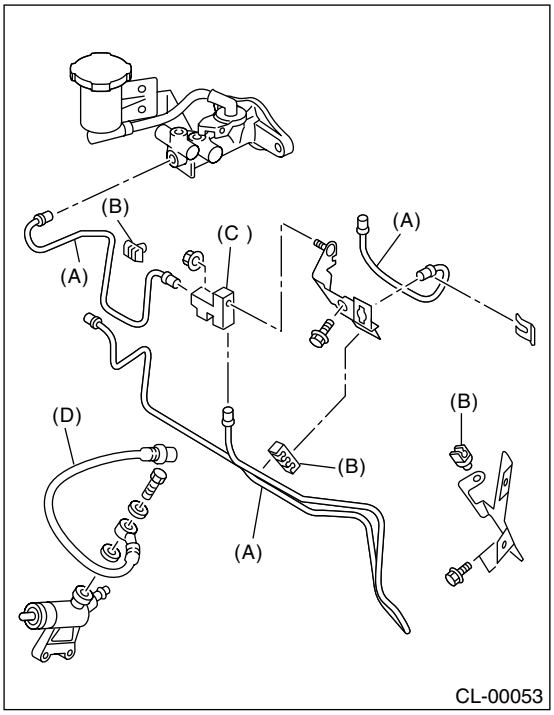


(A) Clamp
(B) Clutch hose

5) Remove the hose from operating cylinder.
6) Remove the bracket.

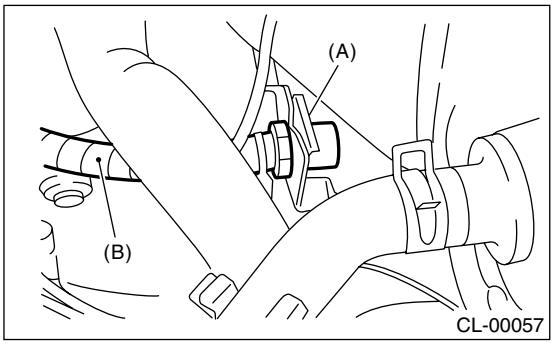
2. RHD DOHC TURBO MODEL

1) Remove the intercooler. <Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
2) Drain the clutch fluid. <Ref. to CL-37, Clutch Fluid.>
3) Remove the clutch pipe from the master cylinder, connector and clutch hose.



(A) Clutch pipe
(B) Clip
(C) Connector
(D) Clutch hose

4) Pull out the clamp, then remove the clutch hose from bracket.



(A) Clamp
(B) Clutch hose

5) Remove the connector.
6) Remove the bracket.

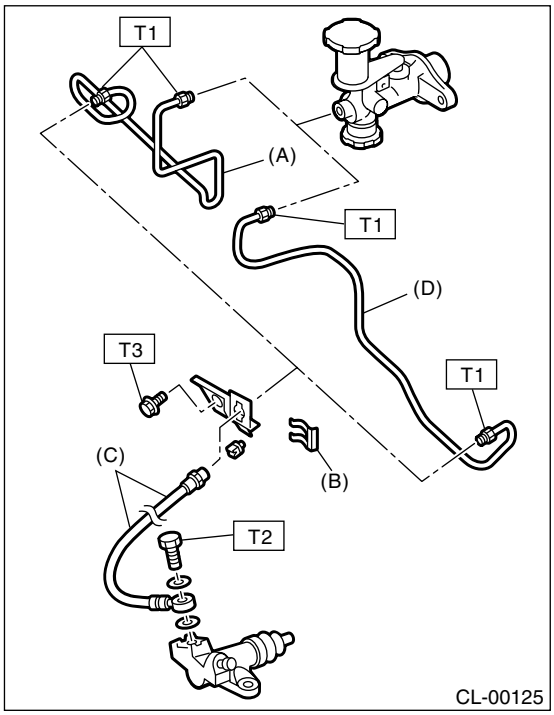
B: INSTALLATION

1. EXCEPT FOR RHD DOHC TURBO MODEL

Install in the reverse order of removal.

NOTE:
Bleed the clutch fluid. <Ref. to CL-38, Clutch Fluid Air Bleeding.>

Tightening torque:
T1: 15 N·m (1.5 kgf-m, 10.8 ft-lb)
T2: 18 N·m (1.8 kgf-m, 13.0 ft-lb)
T3: 25 N·m (2.5 kgf-m, 18.1 ft-lb)



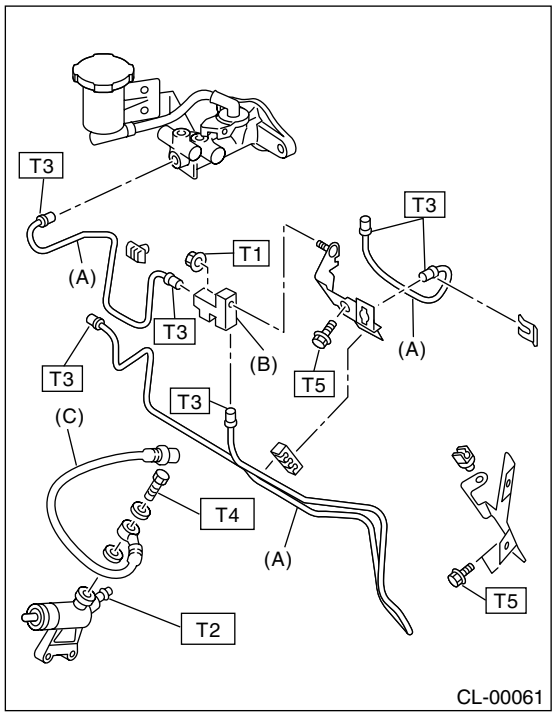
(A) Clutch pipe (LHD model)
(B) Clip
(C) Clutch hose
(D) Clutch pipe (RHD model)

2. RHD DOHC TURBO MODEL

Install in the reverse order of removal.

NOTE:
Bleed the clutch fluid. <Ref. to CL-38, Clutch Fluid Air Bleeding.>

Tightening torque:
T1: 7.5 N·m (0.76 kgf-m, 5.53 ft-lb)
T2: 8 N·m (0.8 kgf-m, 5.8 ft-lb)
T3: 15 N·m (1.5 kgf-m, 10.8 ft-lb)
T4: 18 N·m (1.8 kgf-m, 13.0 ft-lb)
T5: 25 N·m (2.5 kgf-m, 18.1 ft-lb)



(A) Clutch pipe
(B) Connector
(C) Clutch hose

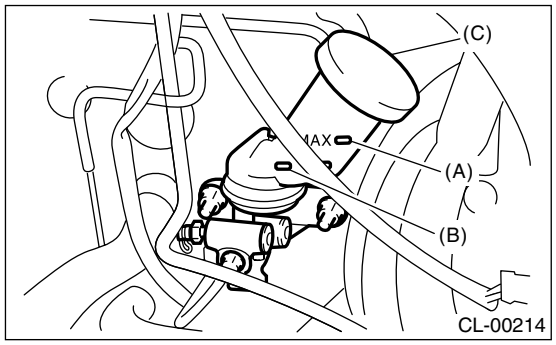
C: INSPECTION

Check the pipes and hoses for cracks, breakage, or damage. Check the joints for fluid leakage. If any cracks, breakage, damage, or leakage is found, repair or replace the applicable pipe or hose.

8. Clutch Fluid

A: INSPECTION

1) Park the vehicle on a level surface.
2) Inspect the fluid level using scale on the outside of the reservoir tank. If the level is below “MIN”, add fluid to bring it up to “MAX”, and also inspect for leakage.



(A) Max. level
(B) Min. level
(C) Reservoir tank

B: REPLACEMENT

CAUTION:
• The FMVSS No. 116, fresh DOT3 or 4 brake fluid must be used.
• Cover the bleeder with waste cloth, when loosening it, to prevent brake fluid from being splashed over surrounding parts.
• Avoid mixing different brands of brake fluid to prevent degrading the quality of the fluid.
• Be careful not to allow dirt or dust to get into the reservoir tank.

NOTE:
• During bleeding operation, keep the clutch reservoir tank filled with brake fluid to eliminate entry of air.
• Clutch pedal operating must be very slow.
• For convenience and safety, it is advisable to have two men working.
• The amount of brake fluid required is approx. 70 m ℓ (2.4 US fl oz, 2.5 Imp fl oz) for total clutch system.

1) Remove the air cleaner case and air duct.
2) Either jack-up the vehicle and place a safety stand under it, or lift-up the vehicle.
3) Draw out the brake fluid from reservoir tank with syringe.
4) Refill the reservoir tank with recommended brake fluid.

Recommended brake fluid:
FMVSS No. 116, fresh DOT3 or 4 brake fluid

5) Drain fluid in the same method as air bleeding.
6) Refill the brake fluid before reservoir tank becomes empty, and drain contaminated fluid again.
7) Repeat the above procedure until the contaminated fluid is completely drained.

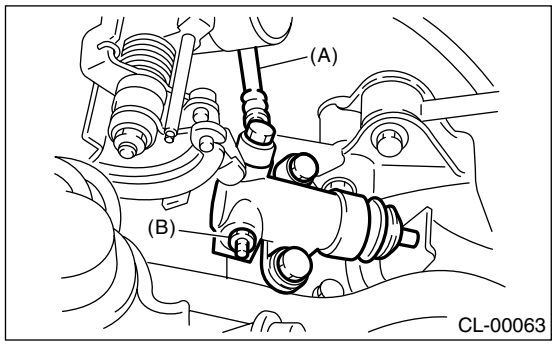
9. Clutch Fluid Air Bleeding

A: PROCEDURE

1. NON-TURBO MODEL

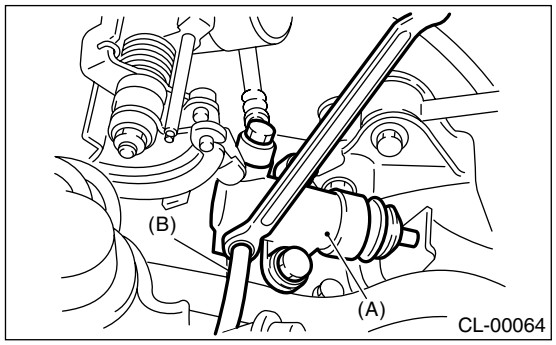
NOTE:
Bleed air from the oil line with help of a co-worker.

1) Remove the air cleaner case and air intake duct. <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
2) Fit one end of a vinyl tube into the air bleeder of operating cylinder and put the other end into a brake fluid container.



(A) Clutch hose
(B) Air bleeder

3) Slowly depress the clutch pedal and keep it depressed. Then open the air bleeder to discharge air together with the fluid.
Release the air bleeder for 1 or 2 seconds. Next, with the bleeder closed, slowly release the clutch pedal.



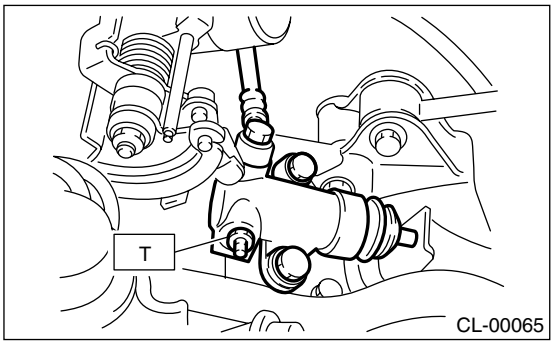
(A) Operating cylinder
(B) Vinyl tube

4) Repeat these steps until there are no more air bubbles in the vinyl tube.

CAUTION:
Cover the bleeder with waste cloth when loosening it, to prevent brake fluid from being splashed over surrounding parts.

5) Tighten the air bleeder.

Tightening torque:
T: 8 N·m (0.8 kgf-m, 5.8 ft-lb)

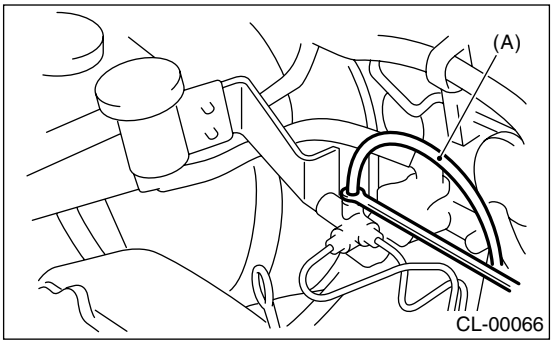


6) After depressing the clutch pedal, make sure that there are no leaks evident in the entire system.
7) After bleeding air from the system, ensure that clutch operates properly.

2. TURBO MODEL

NOTE:
Bleed air from the oil line with help of a co-worker.

1) Remove the intercooler. <Ref. to IN(H4DOTC)-10, REMOVAL, Intercooler.>
2) Fit one end of a vinyl tube into the air bleeder of master cylinder and put the air bleeder of other end into a brake fluid container. (RHD DOHC turbo model)
3) Slowly depress the clutch pedal and keep it depressed. Then open the air bleeder to discharge air together with the fluid. Release the air bleeder for 1 or 2 seconds. Next, with the bleeder closed, slowly release the clutch pedal. (RHD DOHC turbo model)



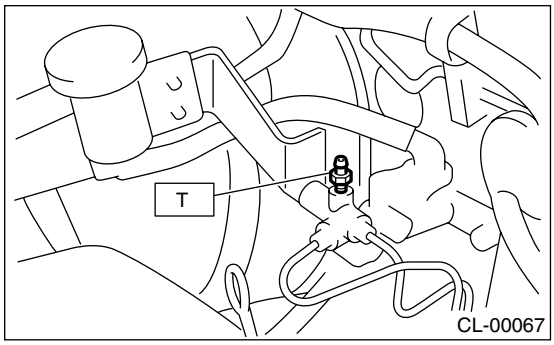
(A) Vinyl tube

4) Repeat these steps until there are no more air bubbles in the vinyl tube. (RHD DOHC turbo model)

CAUTION:
Cover the bleeder with waste cloth when loosening to prevent brake fluid from being splashed over surrounding parts.

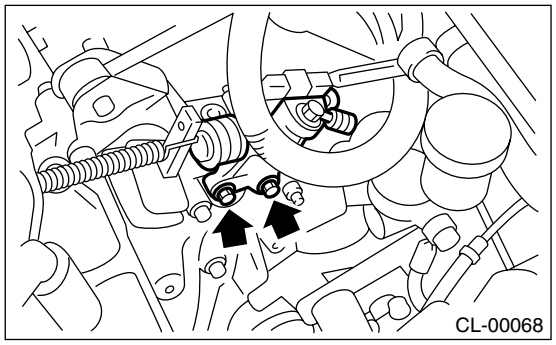
5) Tighten the air bleeder. (RHD DOHC turbo model)

Tightening torque:
T: 8 N·m (0.8 kgf-m, 5.8 ft-lb)

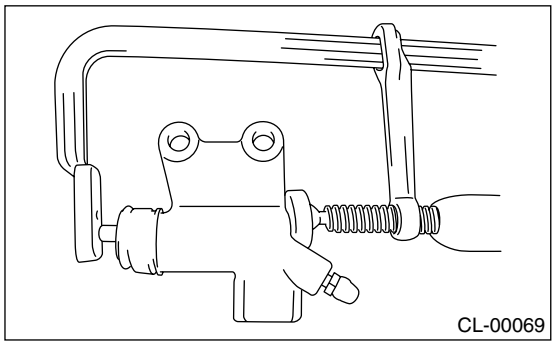


6) Remove the operating cylinder.

NOTE:
Do not remove the clutch hose.

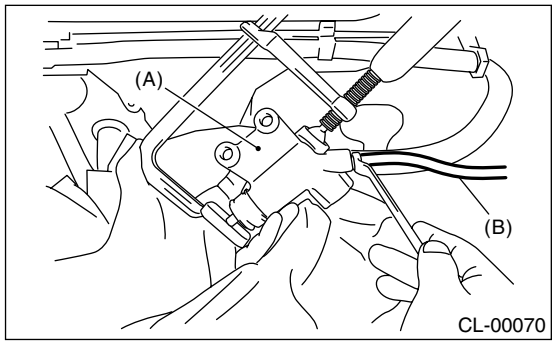


7) Fix the piston with clamp to avoid the piston from jumping out.



8) Fit one end of a vinyl tube into the air bleeder of operating cylinder and put the other end into a brake fluid container.
9) Slowly depress the clutch pedal and keep it depressed. Then open the air bleeder to discharge air together with the fluid.
Release the air bleeder for 1 or 2 seconds. Next, with the bleeder closed, slowly release the clutch pedal.

NOTE:
Set the air breather screw part higher than tip of operating cylinder when performing this procedure.



(A) Operating cylinder
(B) Vinyl tube

10) Repeat these steps until there are no more air bubbles in the vinyl tube.

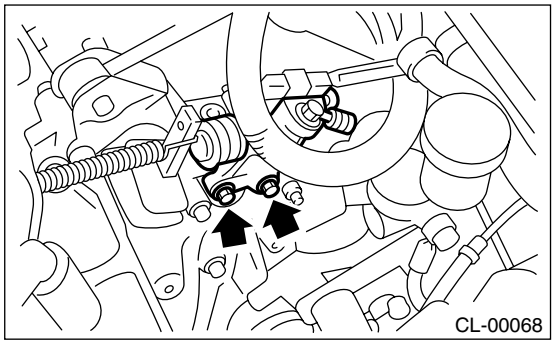
CAUTION:
Cover the bleeder with waste cloth when loosening it, to prevent brake fluid from being splashed over surrounding parts.

11) Tighten the air bleeder.

Tightening torque:
8 N·m (0.8 kgf-m, 5.8 ft-lb)

12) Install the operating cylinder.

Tightening torque:
37 N·m (3.8 kgf-m, 27.5 ft-lb)



13) After depressing the clutch pedal, make sure that there are no leaks evident in the entire system.
14) After bleeding air from the system, ensure that clutch operates properly.
15) Install the intercooler. <Ref. to IN(H4DOTC)-10, INSTALLATION, Intercooler.>

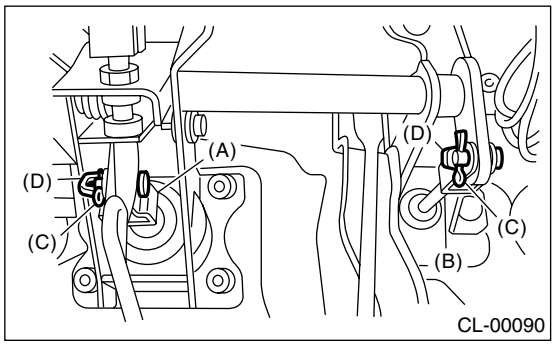
10.Clutch Pedal

A: REMOVAL

1. LHD MODEL

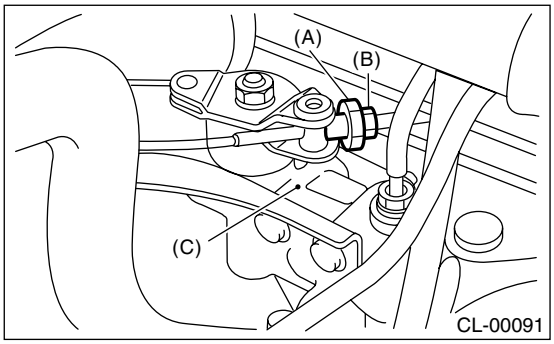
• Except for 1.6 L MODEL

1) Remove the steering column. <Ref. to PS-26, REMOVAL, Tilt Steering Column.>
2) Disconnect the connectors from stop light and clutch switches.
3) Remove the snap pins which secure lever to push rod and operating rod.
4) Remove the clevis pins which secure lever to push rod and operating rod.



(A) Operating rod
(B) Push rod
(C) Snap pin
(D) Clevis pin

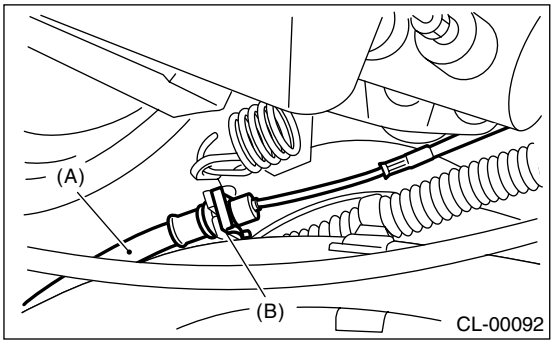
5) Remove the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
6) Remove the PHV adjusting nut and lock nut. (Model with hill holder)



(A) Adjusting nut
(B) Lock nut
(C) PHV

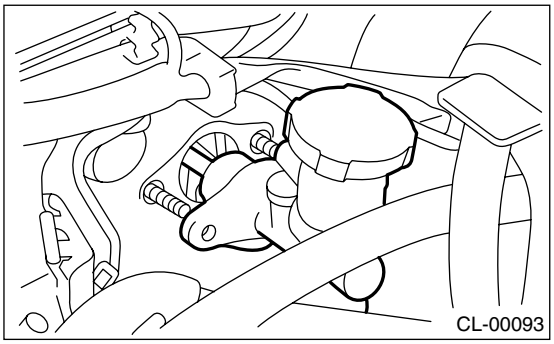
7) Remove the cable clamp, and disconnect the PHV cable from PHV. (Model with hill holder)

CAUTION:
Carefully protect the boot and inner cable from damage when disconnecting the PHV cable.



(A) PHV cable
(B) Clamp

8) Remove the nut which secures clutch master cylinder.

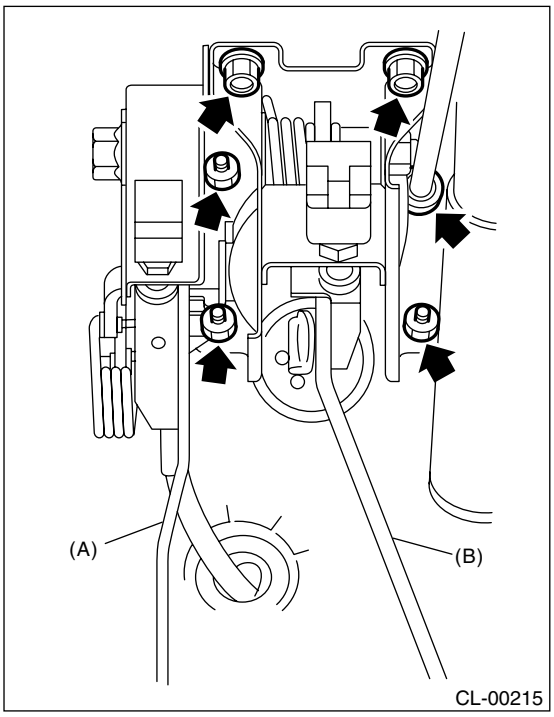


9) Remove the bolts and nuts which secure brake and clutch pedals, and remove the pedal assembly.

• 1.6 L MODEL

1) Disconnect the ground cable from battery.
2) Remove the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
3) Disconnect the clutch cable from release lever.
4) Remove the instrument panel lower cover.
5) Disconnect the operating rod of brake pedal.
6) Remove the electrical connectors (for stop light switch, etc.)

7) Remove the bolts and nuts which secure brake and clutch pedals, and remove pedal bracket and clutch cable as a unit.

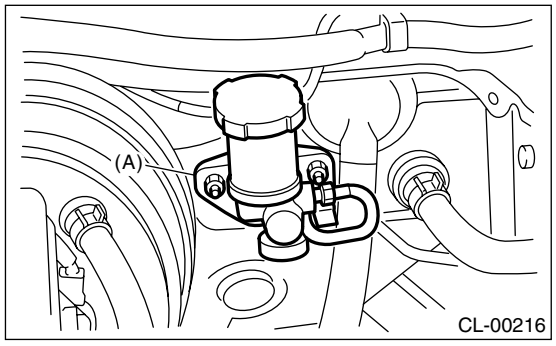


(A) Clutch pedal
(B) Brake pedal

8) Depress the clutch pedal, then disconnect the clutch cable from clutch pedal.

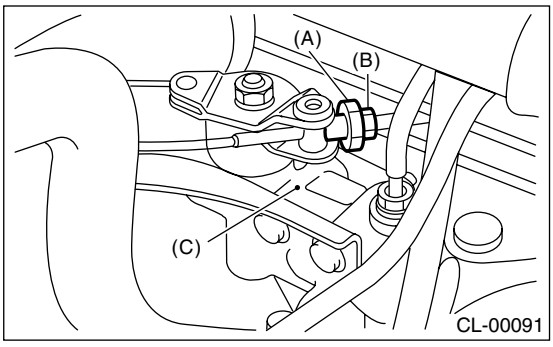
2. RHD MODEL

1) Disconnect the ground cable from battery.
2) Disconnect the connector from clutch. (Model with cruise control)
3) Remove the instrument panel lower cover.
4) Remove the snap pin and clevis pin that join push rod and clutch pedal. (Except for 1.6 L model)
5) Remove the master cylinder mounting nuts. (Except for 1.6 L model)



(A) Master cylinder

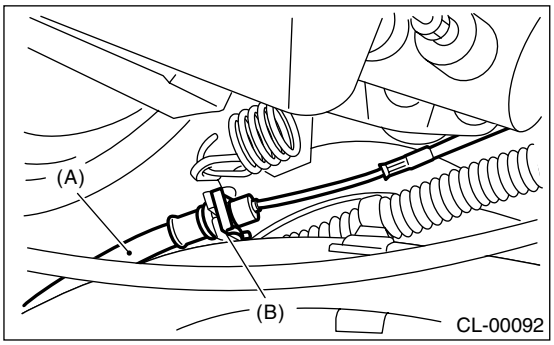
6) Remove the PHV adjusting nut and lock nut. (Model with hill holder)



(A) Adjusting nut
(B) Lock nut
(C) PHV

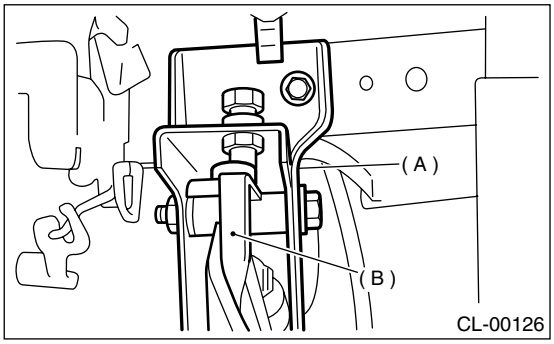
7) Remove the cable clamp and disconnect the PHV cable from PHV. (Model with hill holder)

CAUTION:
Carefully protect the boot and inner cable from damage when disconnecting the PHV cable.



(A) PHV cable
(B) Clamp

8) Disconnect the clutch cable from release lever. (1.6 L model)
9) Remove the clutch pedal and bracket as a unit.



(A) Clutch pedal bracket
(B) Clutch pedal

10) Depress the clutch pedal, then disconnect the clutch cable from clutch pedal. (1.6 L model)

B: INSTALLATION

1) Install in the reverse order of removal.

CAUTION:
• If the cable clamp is damaged, replace it with a new one.
• Never fail to cover the outer cable end with boot.
• Be careful not to kink the accelerator cable.
• Always use new clevis pins.

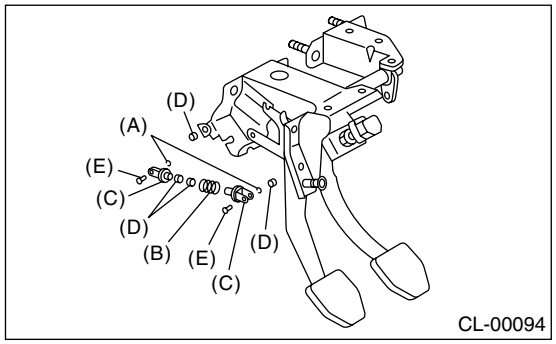
2) Adjust the clutch pedal after installation. <Ref. to CL-45, ADJUSTMENT, Clutch Pedal.>

C: DISASSEMBLY

1. LHD MODEL

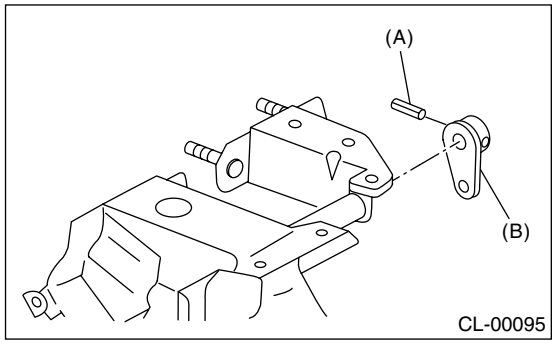
• Except for 1.6 L MODEL

1) Remove the clips, assist spring, rod and bushing.



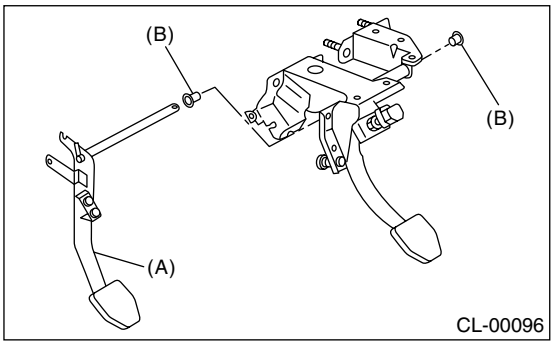
(A) Clip
(B) Assist spring
(C) Assist rod
(D) Bushing
(E) Clevis pin

2) Remove the spring pin and lever.



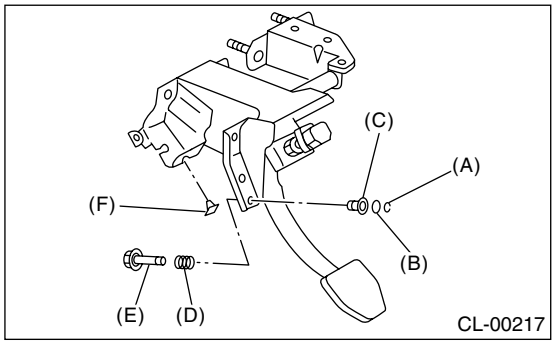
(A) Pin
(B) Lever

3) Remove the clutch pedal and bushings.



(A) Clutch pedal
(B) Bushing

4) Remove the stopper, clip, O-ring, rod S, and then remove the spring and bushing S.

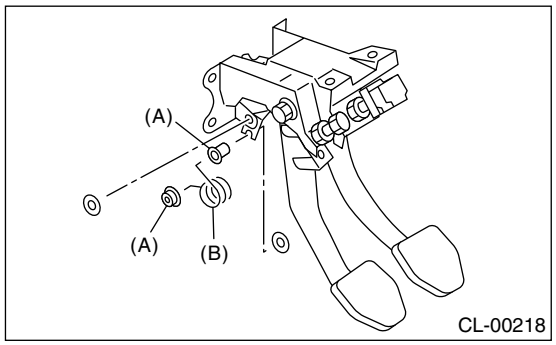


(A) Clip
(B) O-ring
(C) Bushing S
(D) Spring S
(E) Rod S
(F) Stopper

5) Remove the stoppers from clutch pedal.
6) Remove the clutch pedal pad. (Non-turbo model)

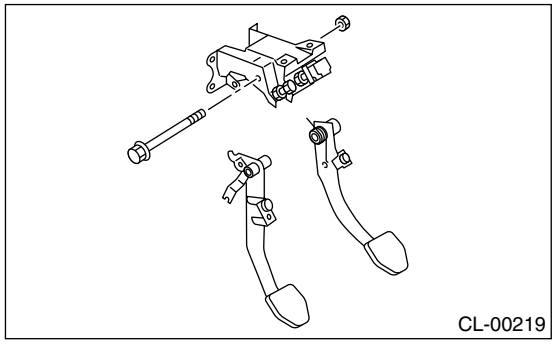
• 1.6 L MODEL

1) Remove the clip, and then remove the spring assist and spring.

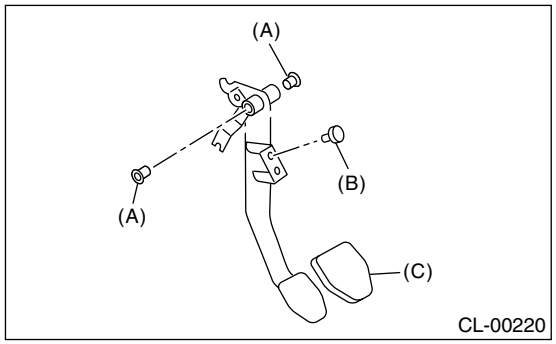


(A) Spring assist
(B) Spring

2) Remove the clutch pedal and brake pedal.



3) Remove the bushing, stopper and clutch pedal pad.



(A) Bushing
(B) Stopper
(C) Clutch pedal pad

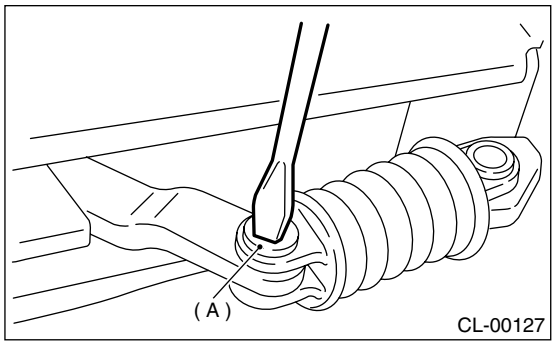
4) Remove the adjuster bolt.

2. RHD MODEL

• Except for 1.6 L MODEL

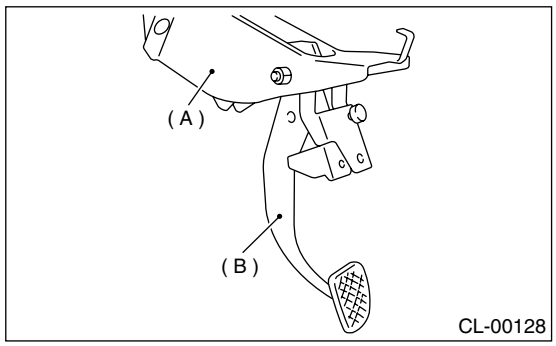
1) Remove the clutch switch. (Model with cruise control)

2) Remove the clip, then pull out the clevis pin.



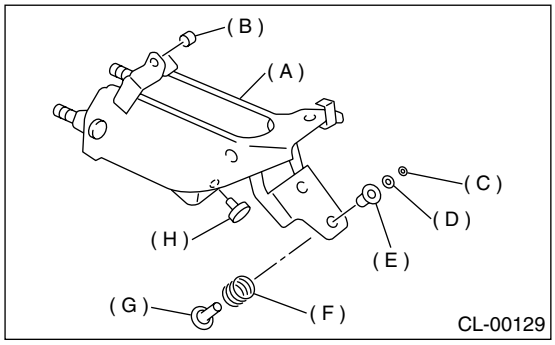
(A) Clevis pin

3) Remove the assist rod, spring and bushing.
4) Remove the clutch pedal from clutch pedal bracket.



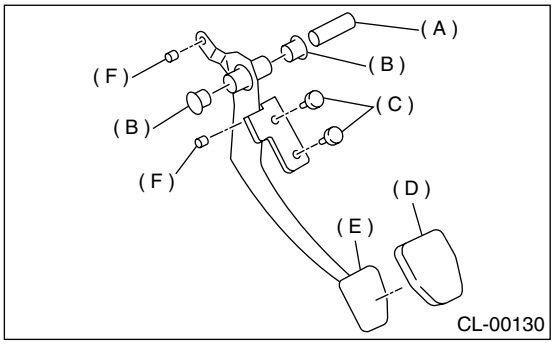
(A) Clutch pedal bracket
(B) Clutch pedal

5) Remove the following parts (B to H) from clutch pedal bracket (A) as shown in the figure.



(A) Clutch pedal bracket
(B) Bushing C
(C) Clip
(D) O-ring
(E) Bushing S
(F) Spring S
(G) Rod S
(H) Bushing

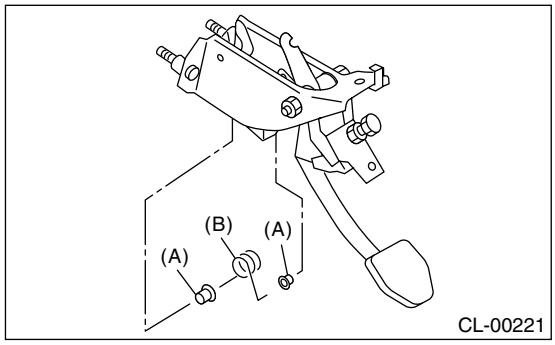
6) Remove the spacer, bushing and pedal pad from clutch pedal.



(A) Spacer
(B) Bushing
(C) Bushing
(D) Pedal pad
(E) Clutch pedal
(F) Bushing C

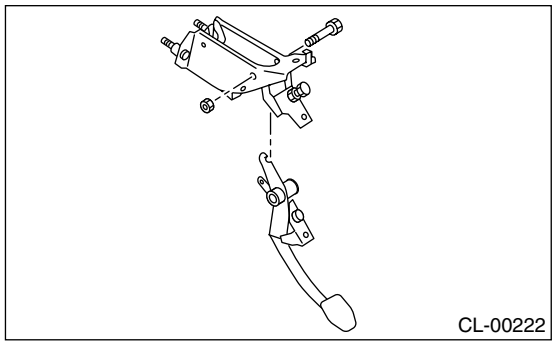
• 1.6 L MODEL

1) Remove the spring and bushing.

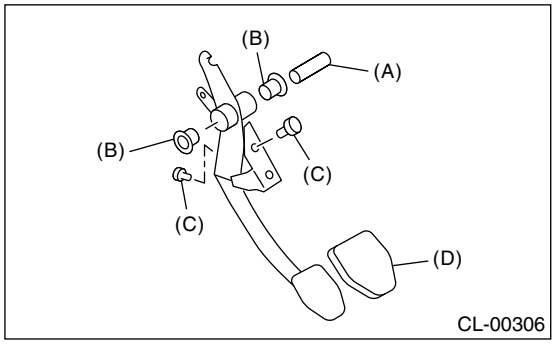


(A) Bushing
(B) Spring

2) Remove the clutch pedal.



3) Remove the spacer, bushing, stopper and clutch pedal pad.



(A) Spacer
(B) Bushing
(C) Stopper
(D) Clutch pedal pad

4) Remove the adjust bolt and stopper.

D: ASSEMBLY

1. LHD MODEL

1) Attach the stopper, etc. to pedal bracket temporarily.
2) Clean inside of bores of clutch pedal and brake pedal, apply grease, and set bushings into bores.
3) Align bores of pedal bracket, clutch pedal and brake pedal, attach the brake pedal return spring, assist rods, spring, and bushing. (Except for 1.6 L model)

NOTE:
Clean up inside of bushings and apply grease before installing the spacer.

4) Align the bores of pedal bracket, clutch pedal and brake pedal, then attach the brake pedal, bushings, spring and clutch cable. (1.6 L model)
5) Install the hill holder cable to clutch pedal. (Model with hill holder)

2. RHD MODEL

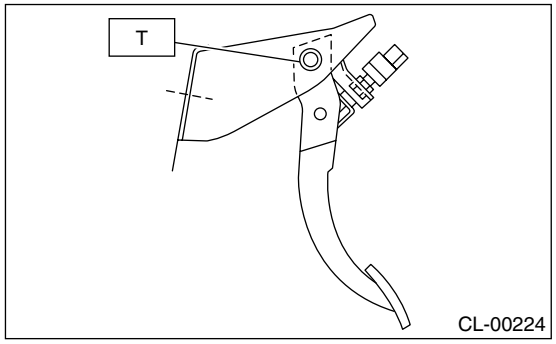
1) Clean and apply grease to the hole of sliding portion between clutch pedal and bushing.
2) Install the pad, stopper, spacer and bushings to clutch pedal.

NOTE:
Clean up inside of bushings and apply grease before installing the spacer.

3) Install the rod S, spring S, bushing S, O-ring, clip, bushing, clutch switch and bushing C to clutch pedal bracket. (Except for 1.6 L model)
4) Install the pedal assembly, stopper, adjust rod, clutch cable, bushings and spring to clutch pedal bracket.

5) Install the clutch pedal to pedal bracket.

Tightening torque:
T: 29 N·m (3.0 kgf-m, 21.7 ft-lb)



6) Install the assist rod, bushing and assist spring to clutch pedal and pedal bracket.
7) Install the PHV cable to clutch pedal. (Model with hill holder).

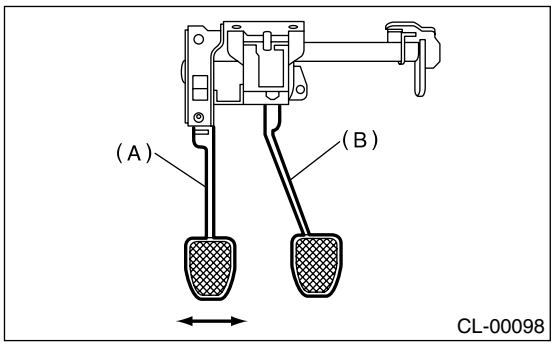
E: INSPECTION

1. CLUTCH PEDAL

Move the clutch pedal pads in the lateral direction with a force of approximately 10 N (1 kgf, 2 lb) to ensure pedal play is in specified range.

CAUTION:
If excessive movement is noted, replace the bushings with new ones.

Play of clutch pedal:
Service limit
5.0 mm (0.197 in) or less



(A) Clutch pedal
(B) Brake pedal

F: ADJUSTMENT

1. CLUTCH PEDAL

• Except for 1.6 L MODEL

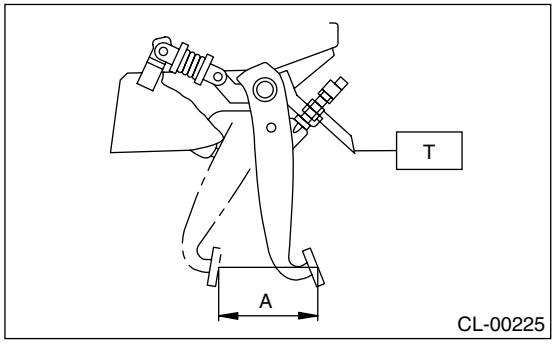
1) Turn the lock nuts until clutch pedal full stroke length is within specifications.

CAUTION:
Do not attempt to turn the clutch switch to adjust clutch pedal full stroke length.

NOTE:
If lock nuts cannot adjust the clutch pedal full stroke length to specifications, turn the master cylinder push rod to adjust it.

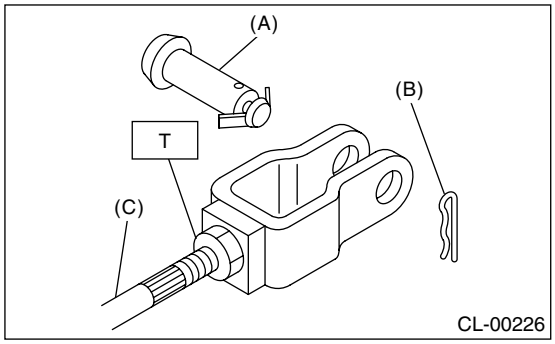
Specified clutch pedal full stroke: A
130 — 135 mm (5.12 — 5.31 in)

Tightening torque (Clutch switch lock nut):
T: 8 N·m (0.8 kgf-m, 5.8 ft-lb)



2) Turn the master cylinder push rod so that clevis pin moves to the left and then to the right. Clevis pin must move without resistance while it is rattling.

Tightening torque (Push rod lock nut):
T: 10 N·m (1.0 kgf-m, 7 ft-lb)

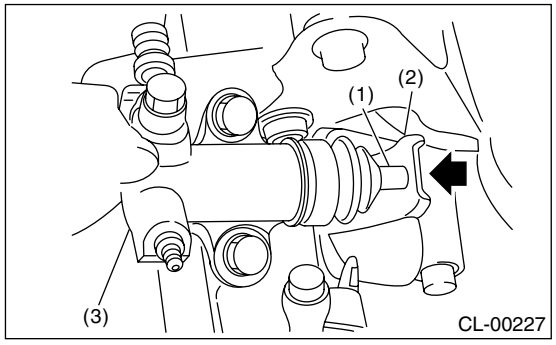


(A) Clevis pin
(B) Snap pin
(C) Push rod

3) Depress and release the clutch pedal two to three times to ensure that clutch pedal and release fork operates smoothly. If the clutch pedal and release fork do not operate smoothly, bleed air from the clutch hydraulic system. <Ref. to CL-38, Clutch Fluid Air Bleeding.>
4) Measure the clutch pedal full stroke length again to ensure that it is within specifications. If it is not, repeat adjustment procedures again from the beginning.

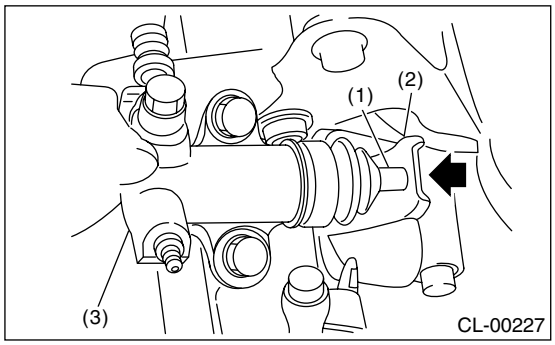
Specified clutch pedal full stroke:
130 — 135 mm (5.12 — 5.31 in)

5) Move the clevis pin to the left and then to the right. It should move without resistance while it is rattling. If resistance is felt, repeat adjustment procedures again from the beginning.
6) Push the release lever until operating cylinder push rod retracts. Ensure that clutch fluid level in reservoir tank increases. If the clutch fluid level increases, hydraulic the clutch is properly adjusted; if fluid level does not increase or push rod does not retract, replace the master cylinder with a new one. <Ref. to CL-31, Master Cylinder.>



(1) Push rod
(2) Release lever
(3) Operating cylinder

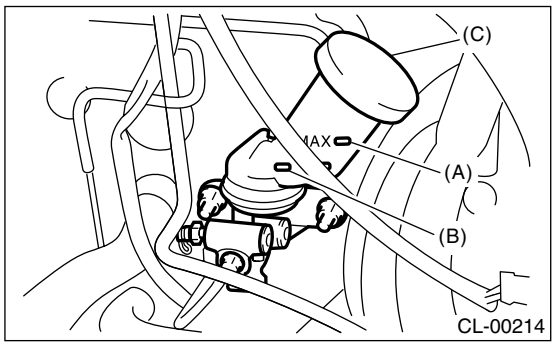
7) Push the release lever until operating cylinder push rod retracts. Check that the clutch fluid level in reservoir tank increases.



(1) Push rod
(2) Release lever
(3) Operating cylinder

8) If the clutch fluid level increases, hydraulic clutch play is correct.
9) If the clutch fluid level does not increase or push rod does not retract, clutch pedal must be readjusted.
10) Check the fluid level on the outside of the reservoir tank. If the level is below “MIN”, add clutch fluid to bring it up to “MAX”.

Recommended clutch fluid:
FMVSS No. 116, fresh DOT 3 or DOT 4 brake fluid

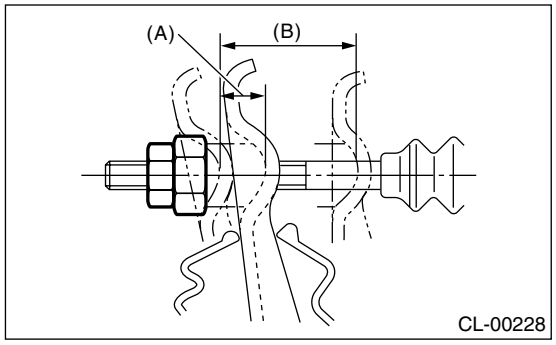


(A) Max. level
(B) Min. level
(C) Reservoir tank

• 1.6 L MODEL

1) Disconnect the ground cable from battery.
2) Remove the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
3) Remove the release lever return spring from lever.
4) Loosen the lock nut.
5) Adjust the spherical nut of the lever end so that the play and full stroke is within the specified value (center of spherical nut).

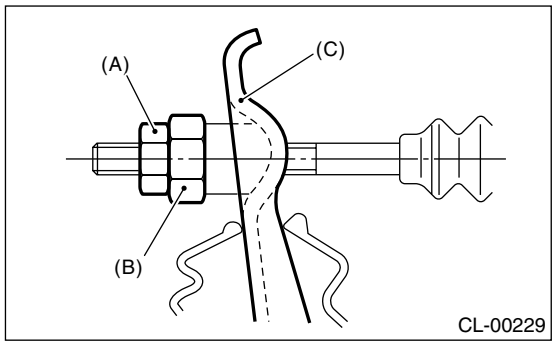
CAUTION:
Take care not to twist the cable during adjustment.
Play: 3 — 4 mm (0.12 — 0.16 in)
Full stroke: 24 — 26 mm (0.94 — 1.02 in)



(A) Play
(B) Full stroke

6) Upon completion of adjustment, securely lock the spherical nut with lock nut.

Tightening torque:
5.9 N·m (0.60 kgf-m, 4.3 ft-lb)



(A) Lock nut
(B) Spherical nut
(C) Clutch release lever

7) Install the return spring on lever.

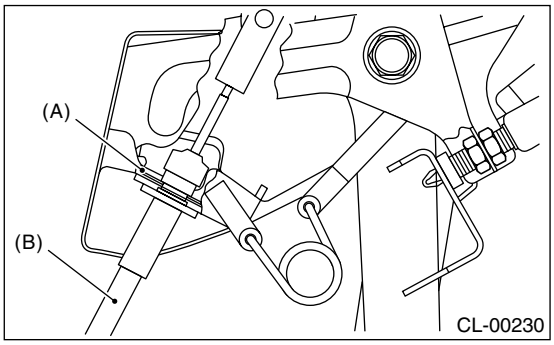
NOTE:
Hook the long hook side of the return spring with the lever.

8) Depress the clutch pedal to assure there is no abnormality in the clutch system.
9) Install the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, INSTALLATION, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Duct.>

11.Clutch Cable

A: REMOVAL

1) Disconnect the ground cable from battery.
2) Remove the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, REMOVAL, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, REMOVAL, Air Intake Duct.>
3) Disconnect the clutch cable from release lever.
4) Depress the clutch pedal to the floor.
5) Remove the clutch cable clamp from pedal bracket.



(A) Clamp
(B) Clutch cable

6) Remove the clutch cable from body.

B: INSTALLATION

1) Clean the clutch pedal fitting hole, and apply grease. Connect the clutch cable to body.
2) Fit the clutch pedal to pedal bolt, and connect the clutch cable to bracket with clamp.
3) Connect the clutch cable end to pedal end.
4) Connect the clutch cable to release lever.
5) Install the grommet to toe board.
6) Adjust the cable after installation. <Ref. to CL-45, ADJUSTMENT, Clutch Pedal.>
7) Install the air cleaner case and intake duct. <Ref. to IN(H4SO)-5, INSTALLATION, Air Cleaner Case.> and <Ref. to IN(H4SO)-6, INSTALLATION, Air Intake Duct.>

C: INSPECTION

Check the removed cable and replace if damaged, rusty, or malfunctioning.
1) Check for smooth operation of the cable.
2) Check the inner cable for damage and rust.
3) Check the outer cable for damage, bends, and cracks.
4) Check the boot for damage, cracks, and deterioration.

12.Clutch Switch

A: REMOVAL

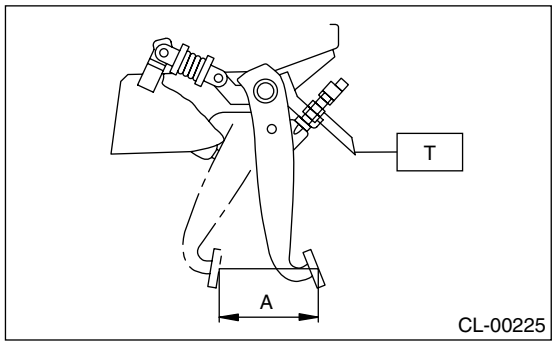
1) Disconnect the ground cable from battery.
2) Disconnect the connector from clutch switch.
3) Remove the clutch switch.

B: INSTALLATION

1) Move the clevis pin of the push rod right and left and hold where it moves smoothly, then measure stroke of clutch pedal.

Specified clutch pedal full stroke: A
130 — 135 mm (5.12 — 5.31 in)

Tightening torque:
T: 8 N·m (0.8 kgf-m, 5.8 ft-lb)

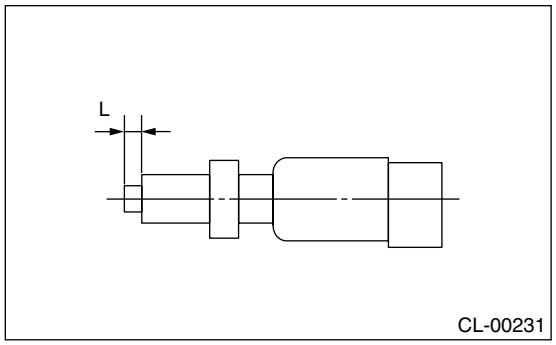


2) If the clutch pedal stroke is out of specification, adjust the stroke. <Ref. to CL-45, ADJUSTMENT, Clutch Pedal.>
3) Connect clutch switch connector.

C: INSPECTION

1) If the clutch switch does not operate properly (or if it does not stop at the specified position), replace with a new one.

Specified position: L
$2^{+1.5}_{0}$ mm ($0.079^{+0.059}_{0}$ in)

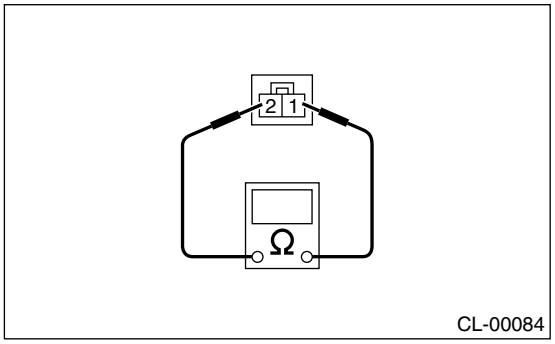


2) Check the clutch switch continuity. If continuity is not as specified, replace the switch.
(1) Disconnect the clutch switch connector.
(2) Measure the resistance between 1 and 2 of switch terminal.

Terminals/Specified resistance
When clutch pedal depressed:
1 — 2/Less than 1 Ω

Terminals/Specified resistance
When clutch pedal not depressed:
1 — 2/More than 1 MΩ

Clutch switch



13.General Diagnostic Table

A: INSPECTION

1. CLUTCH

Symptom	Possible cause	Corrective
1. Clutch slippage. It is hard to perceive clutch slippage in the early stage, but pay attention to the following symptoms • Engine speed up when shifting. • High speed driving is impossible; especially rapid acceleration impossible and vehicle speed does not increase in proportion to an increase in engine speed. • Power falls, particularly when ascending a slope, and there is a smell of burning of the clutch facing. • Method of testing: Put the vehicle in stationary condition with parking brake fully applied. Disengage the clutch and shift the transmission gear into the first. Gradually allow the clutch to engage while gradually increasing the engine speed. The clutch function is satisfactory if the engine stalls. However, the clutch is slipping if the vehicle does not start off and the engine does not stall.	(a) Clutch facing smeared by oil	Replace.
	(b) Worn clutch facing	Replace.
	(c) Deteriorated diaphragm spring	Replace.
	(d) Distorted pressure plate or flywheel	Correct or replace.
	(e) Defective release bearing holder	Correct or replace.
2. Clutch drags. As a symptom of this trouble, a harsh scratching noise develops and control becomes quite difficult when shifting gears. The symptom becomes more apparent when shifting into the first gear. However, because much trouble of this sort is due to defective synchronization mechanism, carry out the test as described after. • Method of testing: <Ref. to CL-50, CLUTCH, INSPECTION, General Diagnostic Table.> It may be judged as insufficient disengagement of clutch if any noise occurs during this test.	(a) Worn or rusty clutch disc hub spline	Replace the clutch disc.
	(b) Excessive deflection of clutch disc facing	Correct or replace.
	(c) Seized crankshaft pilot needle bearing	Replace.
	(d) Cracked clutch disc facing	Replace.
	(e) Stuck clutch disc (smeared by oil or water)	Replace.
3. Clutch chatters. Clutch chattering is an unpleasant vibration to the whole body when the vehicle is just started with clutch partially engaged.	(a) Adhesion of oil on the facing	Replace the clutch disc.
	(b) Weak or broken torsion spring	Replace the clutch disc.
	(c) Defective facing contact or excessive disc wear	Replace the defective clutch disc.
	(d) Warped pressure plate or flywheel	Correct or replace.
	(e) Loose disc rivets	Replace the clutch disc.
	(f) Loose engine mounting	Retighten or replace the mounting.
	(g) Improper adjustment of pitching stopper	Adjustment.
4. Noisy clutch Examine whether the noise is generated when the clutch is disengaged, engaged, or partially engaged.	(a) Broken, worn or unlubricated release bearing	Replace the release bearing.
	(b) Insufficient lubrication of pilot bearing	Apply grease.
	(c) Loose clutch disc hub	Replace the clutch disc.
	(d) Loose torsion spring retainer	Replace the clutch disc.
	(e) Deteriorated or broken torsion spring	Replace the clutch disc.

Symptom	Possible cause	Corrective
5. Clutch grabs. When starting the vehicle with the clutch partially engaged, the clutch engages suddenly and the vehicle jumps instead of making a smooth start.	(a) Grease or oil on facing	Replace the clutch disc.
	(b) Deteriorated cushioning spring	Replace the clutch disc.
	(c) Worn or rusted spline of clutch disc or main shaft	Take off rust, apply grease or replace the clutch disc or main shaft.
	(d) Deteriorated or broken torsion spring	Replace the clutch disc.
	(e) Loose engine mounting	Retighten or replace the mounting.
	(f) Deteriorated diaphragm spring	Replace.

2. CLUTCH PEDAL

Trouble	Corrective action
Insufficient pedal play	Adjust pedal play.
Clutch pedal free play insufficient	Adjust pedal free play.
Excessively worn and damaged pedal shaft and/or bushing	Replace the bushing and/or shaft with a new one.

3. DIAGNOSTIC DIAGRAM OF CLUTCH DRAG

	Step	Check	Yes	No
1	**CHECK GEAR NOISE.** 1)Start the engine. 2)Disengage the clutch and shift quickly from neutral to reverse in idling condition.	Is there any abnormal noise from the transmission gear?	Go to step **2.**	Clutch is normal.
2	**CHECK GEAR NOISE.** Disengage the clutch at idle and shift from neutral to reverse within 0.5 — 1.0 seconds.	Is there any abnormal noise from the transmission gear?	Go to step **3.**	Defective transmission or excessive clutch drag torque. Inspect the pilot bearing, clutch disc, transmission and clutch disc hub spline.
3	**CHECK GEAR NOISE.** 1)Disengage the clutch at idle and shift from neutral to reverse within 0.5 — 1.0 seconds. 2)With the clutch disengaged, shift from N to R, R to N several times.	Is there any abnormal noise from the transmission gear?	Defect in clutch disengaging. Inspect the clutch disc, clutch cover, clutch release, and clutch pedal free play.	Clutch and flywheel seizure. Inspect the clutch disc, spline of clutch disc hub.