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# CLUTCH SYSTEM

### 1. General

- The clutch is of a dry, single plate type with a diaphragm spring.
- The clutch is a push type clutch. When the pedal is depressed, the release bearing will press the center of the diaphragm spring to disengage the contact between the pressure plate and clutch.
- The clutch control is hydraulic and operates the release lever using the hydraulic pressure generated in the master cylinder when the pedal is depressed.
- A conventional type flywheel is used on non-turbo models, while a dual mass type flywheel is used on turbo models.
- The clutch start system enables the driver to start the engine only when the clutch pedal is fully depressed.

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## 2. Clutch

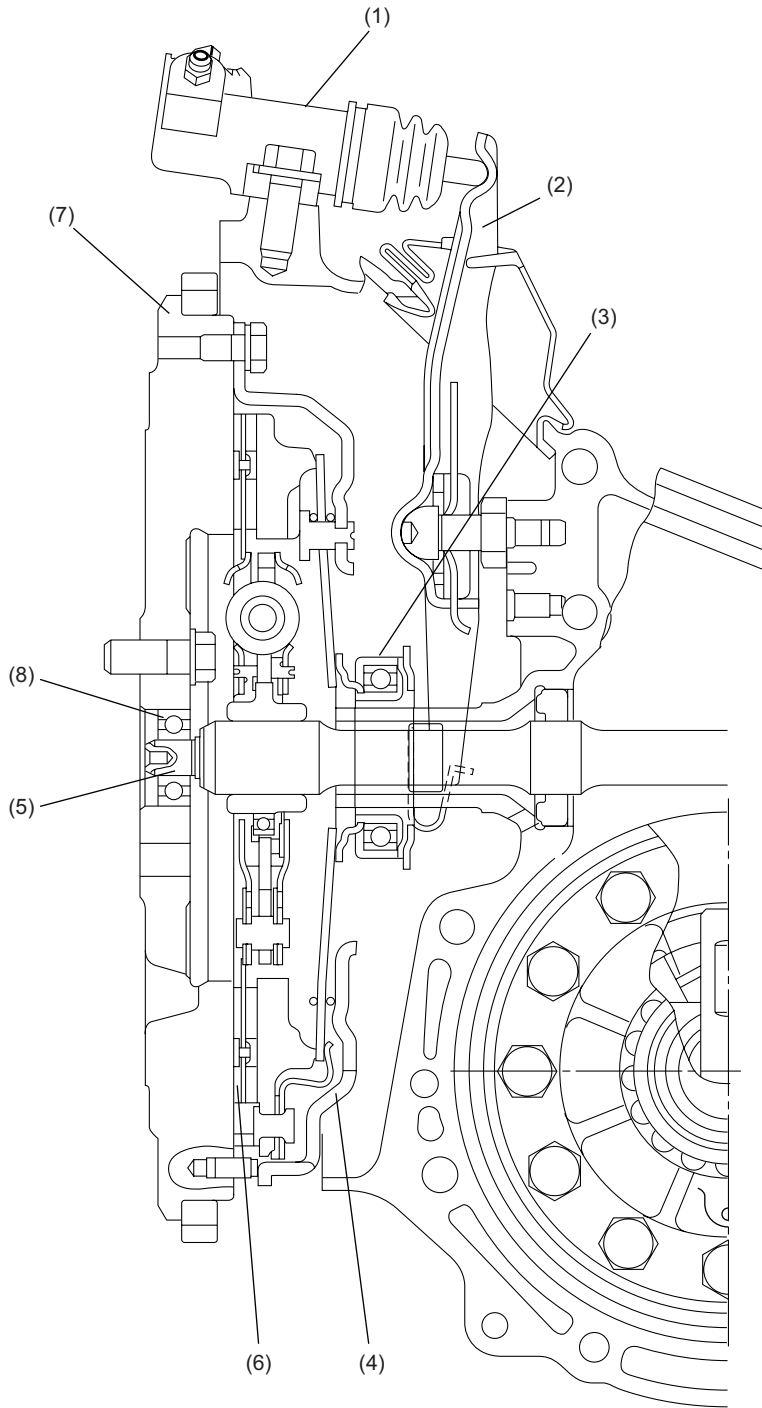
- The clutch is a push type clutch. When the pedal is depressed, the self-aligning release bearing is caused to slide on a guide pressing the center of the diaphragm spring. The diaphragm spring is warped and the force having pressed the pressure plate is released, causing the flywheel, clutch disk and pressure plate to be disengaged from each other, and the transmission of drive force is interrupted. The action point of the clutch is located at the tip of each diaphragm spring fingers, which press the pressure plate against the clutch disc.
- A clutch using a diaphragm spring has the advantage of little variation in push load even when the clutch disc is worn. The diaphragm spring is located inside the clutch cover.
- The clutch disk for both of the non-turbo and turbo models has damper springs and is placed in between the flywheel and the pressure plate.
- Inside the clutch cover, the diaphragm spring and pressure plate are combined with each other by means of strap plates, which also serve to prevent the pressure plate from relatively turning.
- The clutch control is hydraulic and the master cylinder is of the conventional type. The cylinder diameter of the master cylinder for turbo models are made larger. Also, on both the non-turbo and turbo models, the pedal depressing effort is optimized and a damper is attached to reduce vibration of the clutch pedal.

# CLUTCH

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## A: NON-TURBO MODELS



CL-00347

# CLUTCH

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CLUTCH

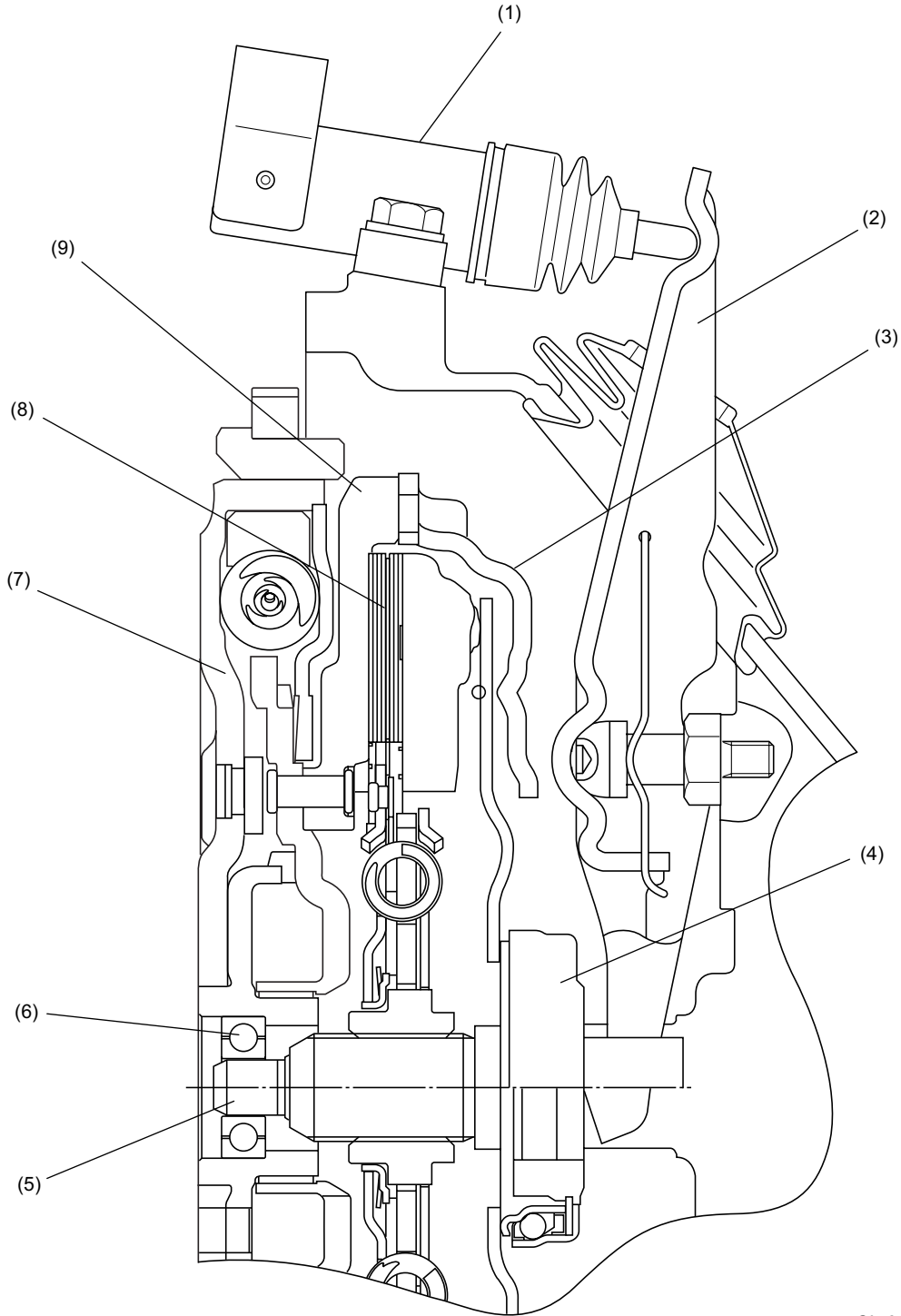
- |                        |                   |
|------------------------|-------------------|
| (1) Operating cylinder | (5) Main shaft    |
| (2) Release lever      | (6) Clutch disc   |
| (3) Release bearing    | (7) Flywheel      |
| (4) Clutch cover       | (8) Pilot bearing |

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## B: TURBO MODELS



CL-00263

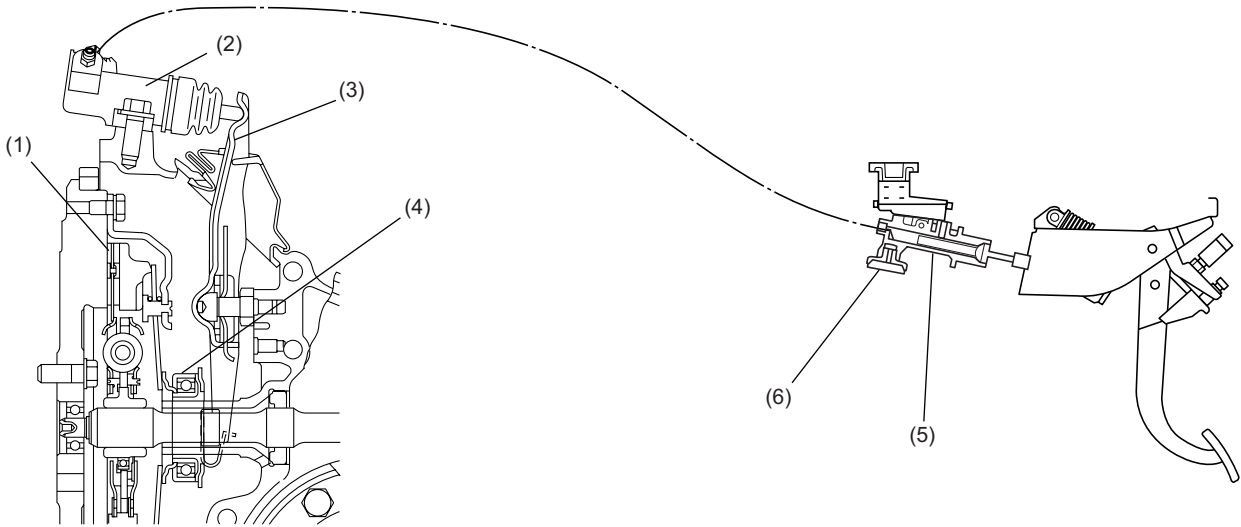
- (1) Operating cylinder
- (2) Release lever
- (3) Clutch cover

- (4) Release bearing
- (5) Main shaft
- (6) Pilot bearing

- (7) Primary flywheel
- (8) Clutch disc
- (9) Secondary flywheel

### C: CLUTCH CONTROL SYSTEM

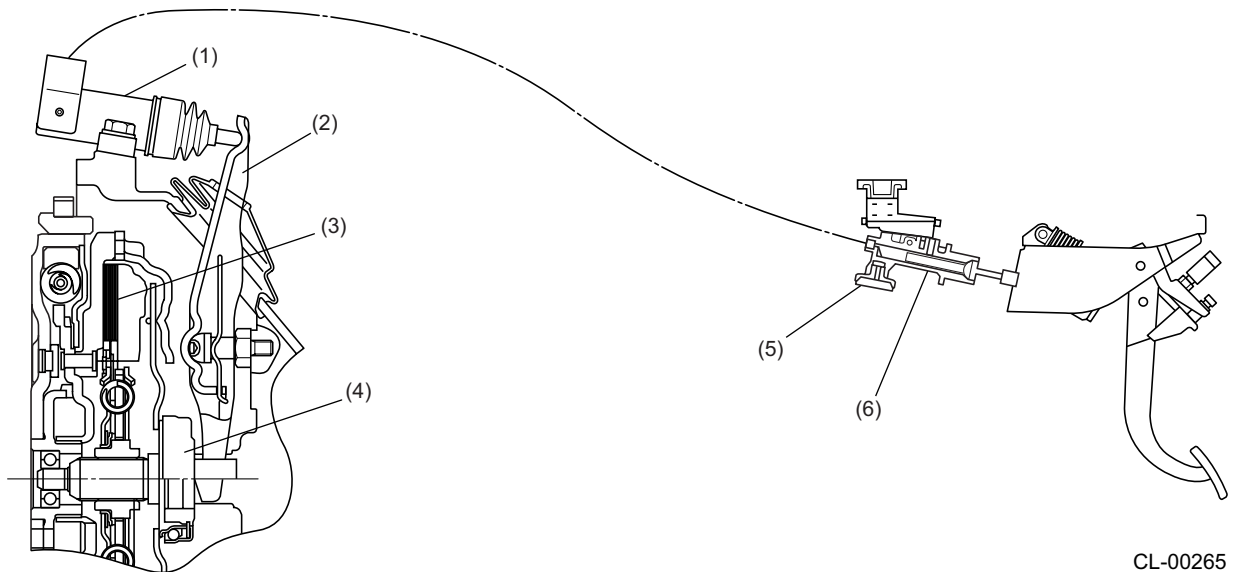
- Non-turbo models



CL-00348

- (1) Clutch disc
- (2) Operating cylinder
- (3) Release lever
- (4) Release bearing
- (5) Clutch master cylinder
- (6) Damper

- Turbo models



CL-00265

- (1) Operating cylinder
- (2) Release lever
- (3) Clutch disc
- (4) Release bearing
- (5) Damper
- (6) Clutch master cylinder

### 3. Flywheel

#### A: GENERAL

##### 1. NON-TURBO MODELS

The flywheel is directly connected to the crankshaft. The mass of the flywheel absorbs the fluctuations in crankshaft rotation, and the flywheel transmits the engine torque to the clutch disc.

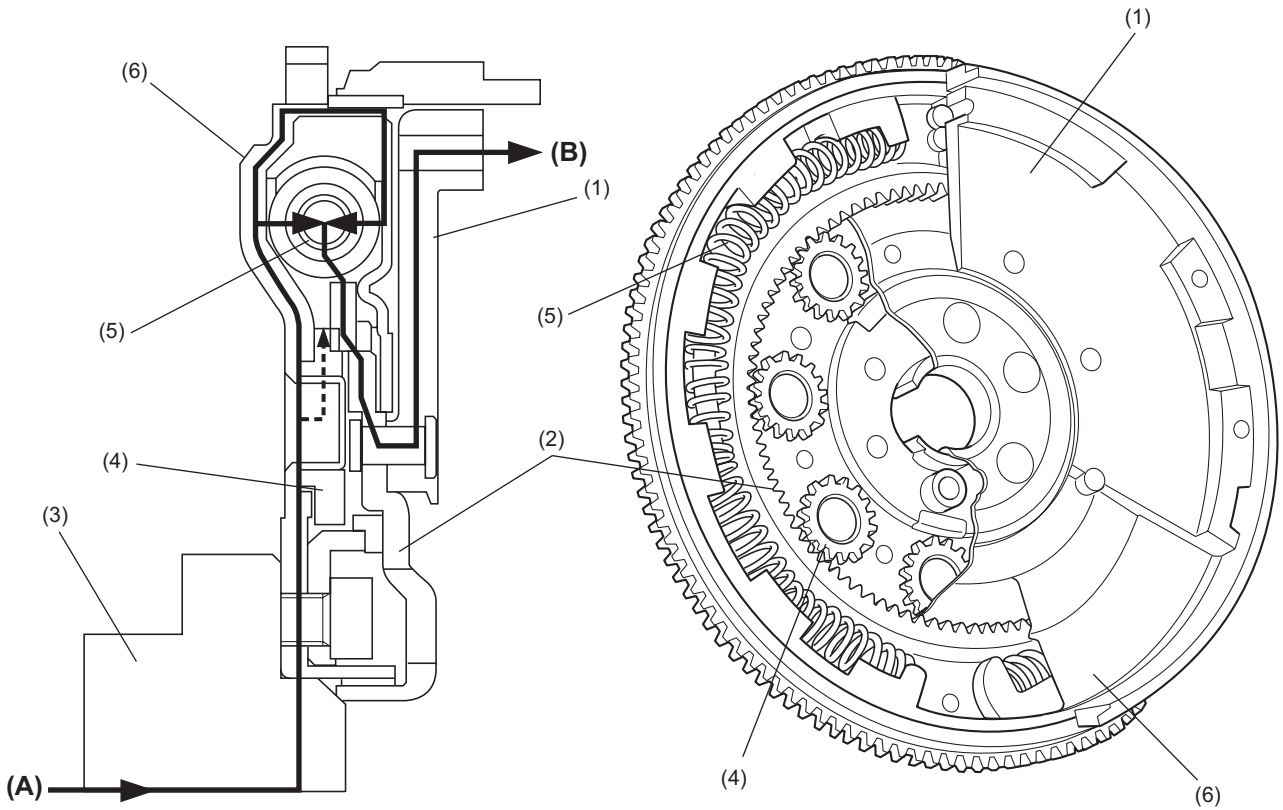
##### 2. TURBO MODELS

- The flywheel is of a dual mass type, which consists of a primary flywheel, damper spring, ring gear, planetary gears, and a secondary flywheel.
- The damper spring is attached to the periphery of the primary flywheel.
- The engine power flows from the primary flywheel through the damper spring, ring gear and planetary gears to the secondary flywheel, and then is transmitted to the transmission via the clutch. Torque fluctuation in this power train is dampened by lowering the rigidity of the power train using a two piece flywheel with a damper spring, ring gear and planetary gears in between, which helps reduce vibration and noise from the power unit.



## B: CROSS SECTIONAL VIEW AND TORQUE FLOW

- Turbo models



CL-00266

- |                        |                      |
|------------------------|----------------------|
| (1) Secondary flywheel | (5) Damper spring    |
| (2) Ring gear          | (6) Primary flywheel |
| (3) Crankshaft         | (A) Input            |
| (4) Planetary gear     | (B) Output           |

# HYDRAULIC CLUTCH PEDAL SYSTEM

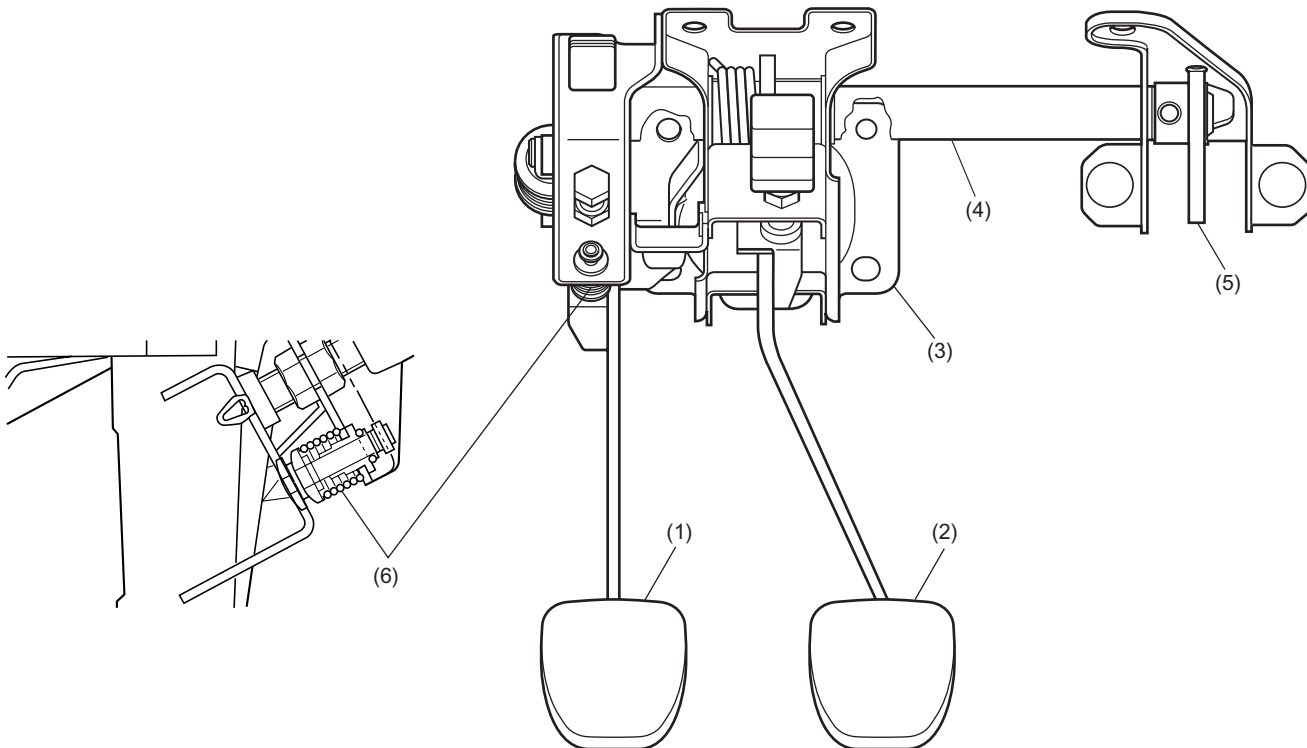
CLUTCH

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## 4. Hydraulic Clutch Pedal System

### A: CONSTRUCTION

- The hydraulic clutch pedal is connected to the master cylinder via a rod.
- The clutch pedal and brake pedal are mounted on the same bracket.
- The clutch pedal has a mechanism that reduces (assists) the force required to depress the clutch pedal and reduce the initial pedal depressing force.
- A starter interlock mechanism is provided to prevent the engine from starting unless the clutch pedal is pressed.



CL-00272

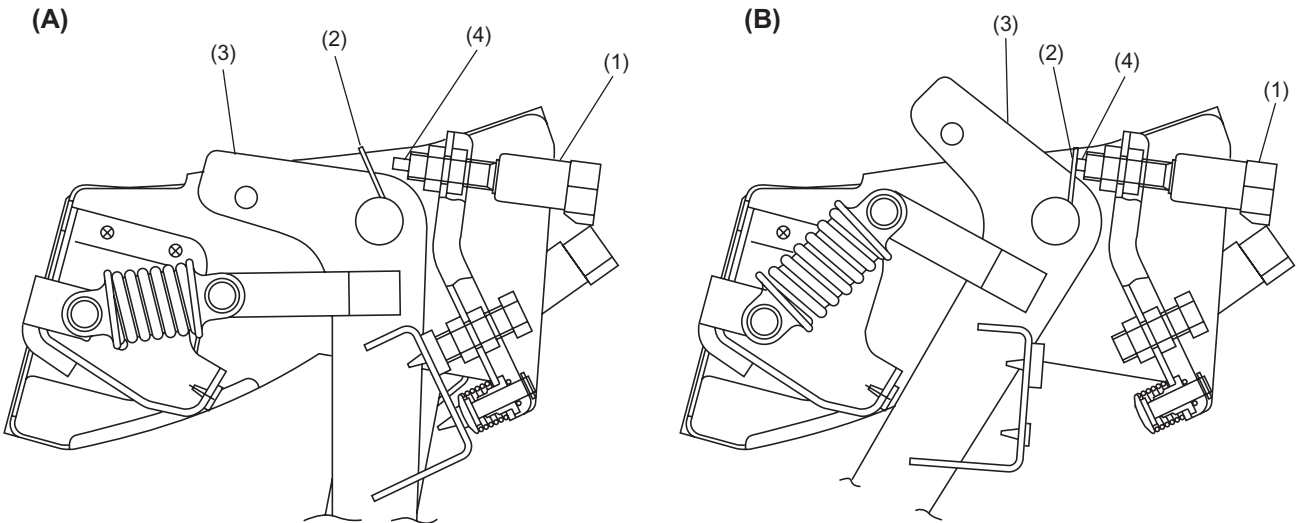
- |                                    |   |
|------------------------------------|---|
| (1) Clutch pedal                   | (4) Rod                                     |
| (2) Brake pedal                    | (5) Lever                                   |
| (3) Brake and clutch pedal bracket | (6) Initial pedal effort reducing mechanism |

## B: OPERATION

### 1. STARTER INTERLOCK MECHANISM

When the clutch pedal is fully depressed, the stopper on the pedal pushes the clutch switch pushrod inwards.

When the pushrod is pressed in, the switch turns ON and connects the ignition switch to the starter circuit enabling engine start.



CL-00138

**(A)** When clutch switch is OFF

- (1) Clutch switch
- (2) Stopper

**(B)** When clutch switch is ON

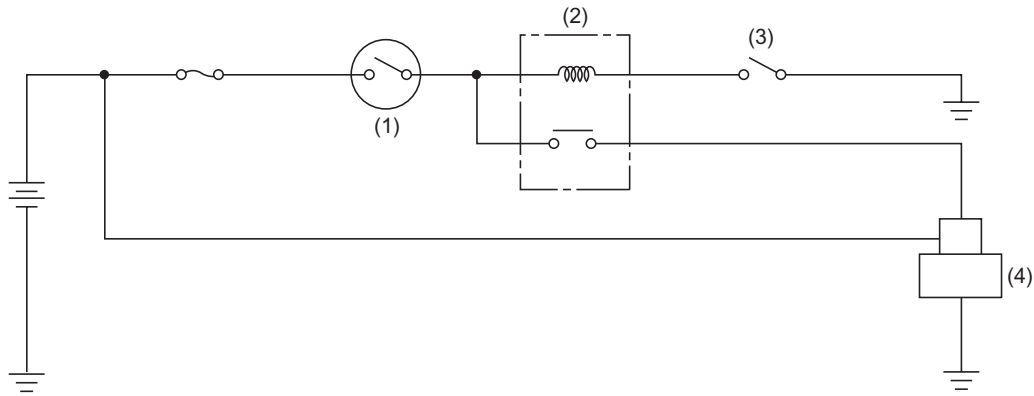
- (3) Clutch pedal
- (4) Pushrod

# HYDRAULIC CLUTCH PEDAL SYSTEM

## CLUTCH

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- Schematic drawings



CL-00137

- (1) Ignition switch
- (2) Starter relay

- (3) Clutch switch
- (4) Starter motor