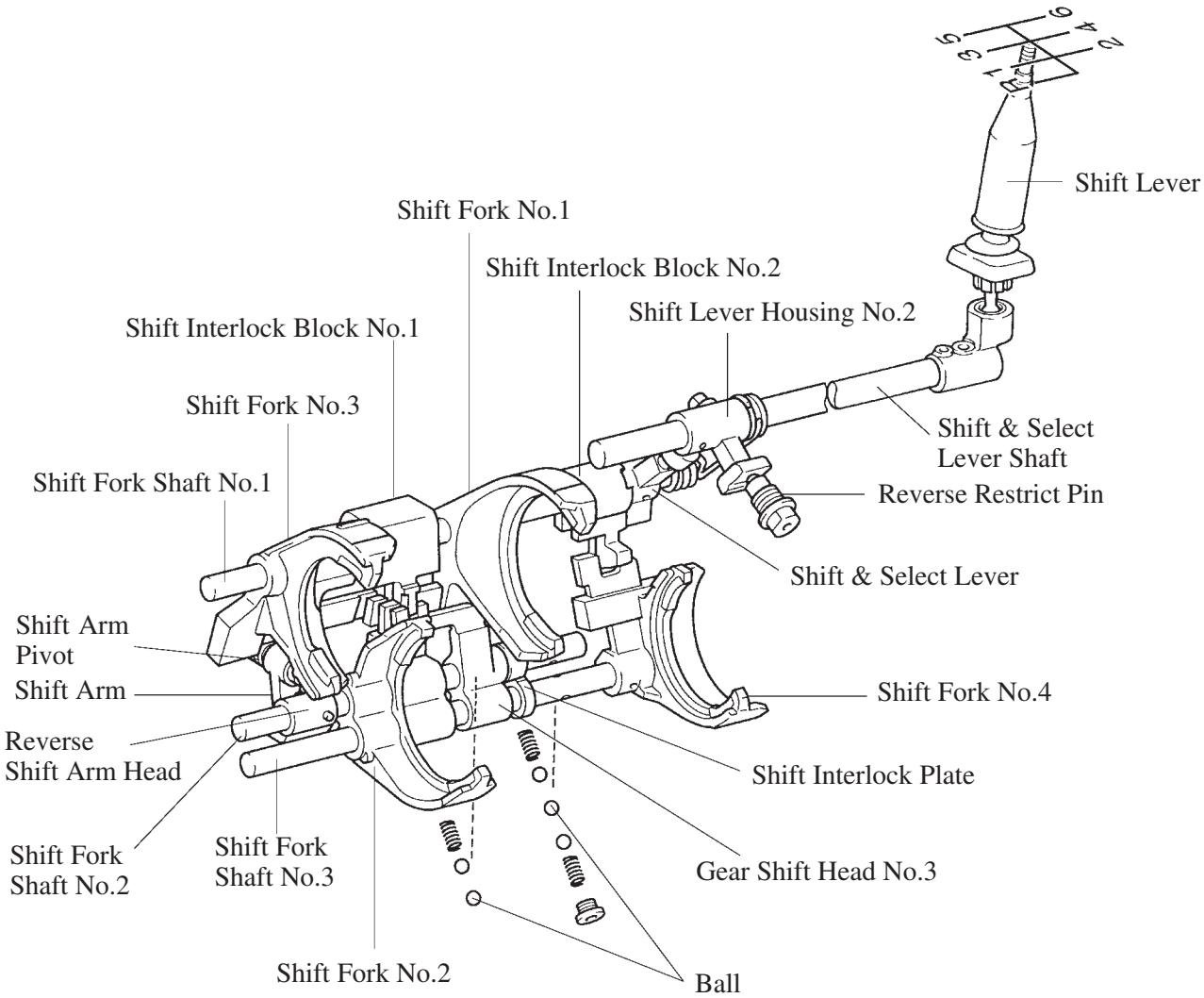
## ■SHIFT AND SELECT MECHANISM

### 1. General

The shift detent mechanism used is the same detent ball and spring system conventionally.
To prevent mis-shifting into reverse when selecting 1st or 2nd from neutral, a reverse restrict pin has been adopted to provide a load that is greater than the normal effort that is applied during gear selection.

### 2. Construction

The shift and select mechanism consists of 4 shafts, 4 shift forks, and 2 shift interlock blocks. The shift & select lever shaft meshes with the shift lever, to which the shift lever housing No.2 is installed via a bolt and a pin. The shift lever housing No.2 meshes with the shift & lever and moves shift fork shaft No.1 in the select direction and in the shift direction. Shift interlock blocks No.1 and No.2, shift forks No.1 and No.3, and the shift & select lever are installed on shift fork shaft No.1. The shift & select lever is installed on shift fork shaft No.1 via a pin. The reverse shaft arm head, shift fork No.2, gear shift head No.3, and the shift inter lock plate are installed on shift fork shaft No.2. The reverse shift arm head and the shift interlock plate are installed on shift fork shaft No.2 via a pin. The shift forks No.2 and No.4, gear shift head No.3, and the shift inter lock plate are installed on shift fork shaft No.3. The shift fork No.4 is installed on shift fork shaft No.3 via a pin. Furthermore, the shift arm, which pivots on the shift arm pivot, is installed between the reverse shift arm head and the shift fork No.3.

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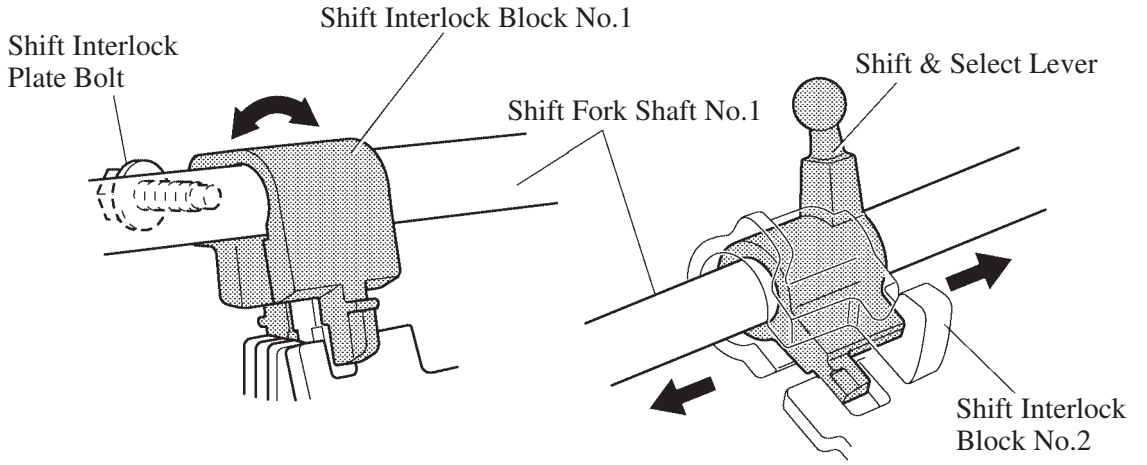
## 3. Double-Meshing Prevention Mechanism

### Construction

The double-meshing prevention mechanism is a combination that consists of the 2 shift interlock blocks (No.1 and No.2) that are installed on shift fork shaft No.1 and the balls that are inserted between shift fork shaft No.2 and No.3. Due to the shift interlock plate bolt that is installed on the transmission case, the shift interlock block No.1 can only move in the select direction. Shift interlock block No.2 can be moved by the shift & select lever in the select direction and in the shift direction of the 6th gear side.

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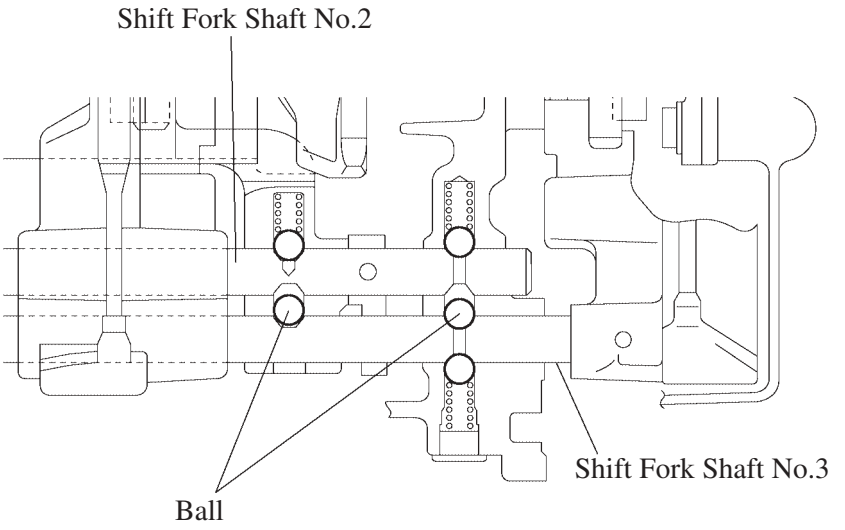


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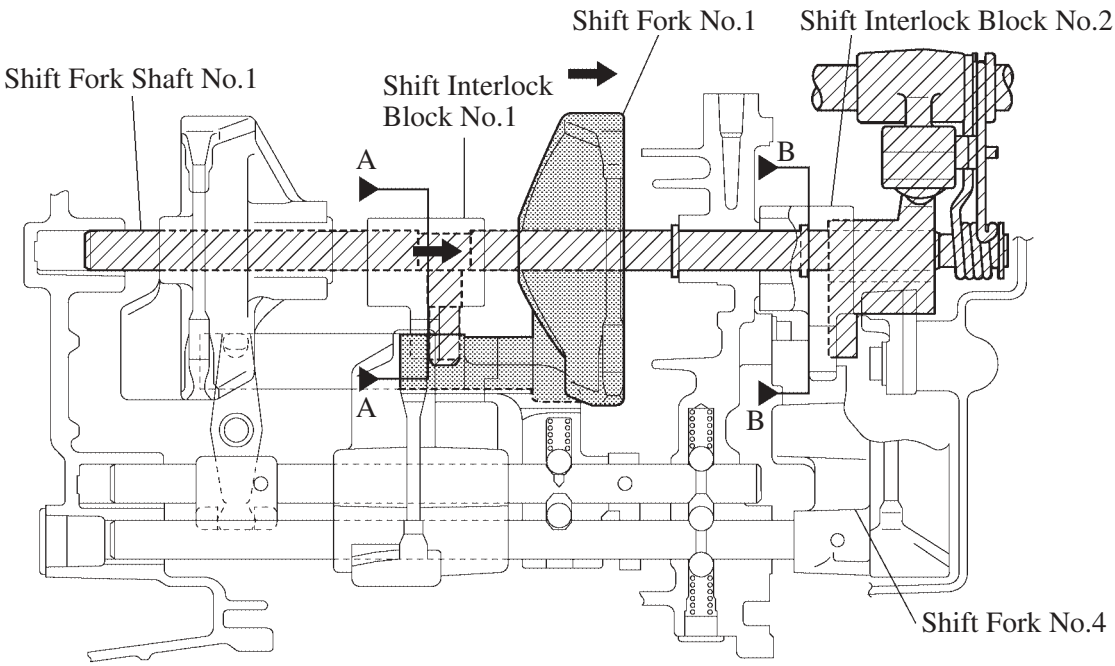
## Operation

### 1) Shifting to 1st

Shift fork shaft No.1 rotates clockwise in the select direction, together with the 2 shift interlock blocks. At this time, due to the function of shift interlock block No.1, the shift forks No.2 and No.3 remain locked in the neutral position. The shift fork No.4 remains locked in the neutral position due to the function of shift interlock block No.2. Then shift fork shaft No.1 moves the shift fork No.1 in order to shift into 1st. Similar movements are effected for shifting to the 2nd, 3rd, or 4th gear to prevent double meshing.

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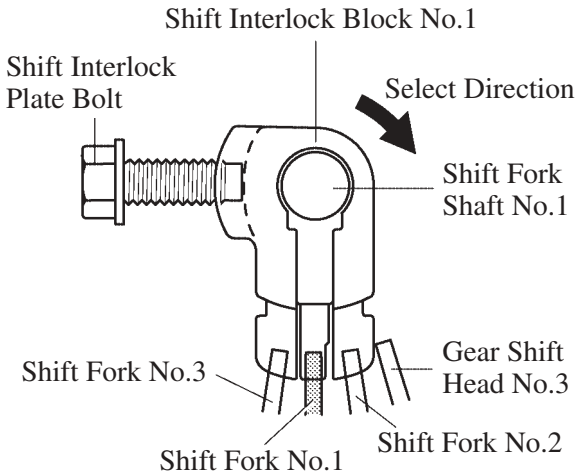


**A – A Cross Section**

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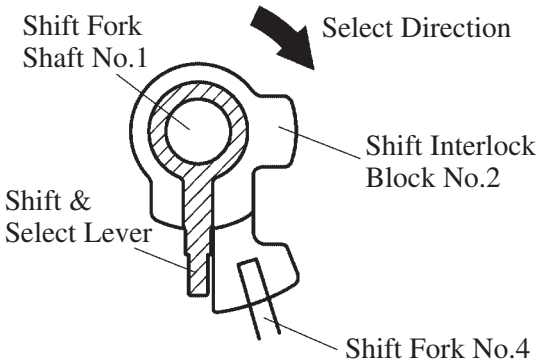


**B – B Cross Section**

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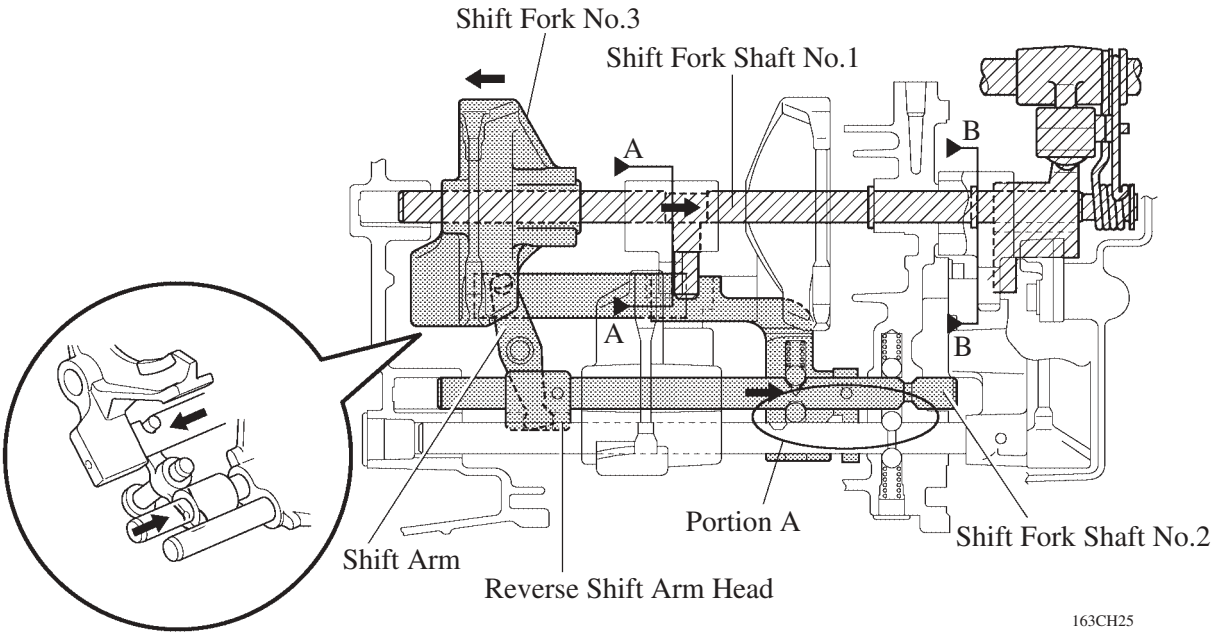
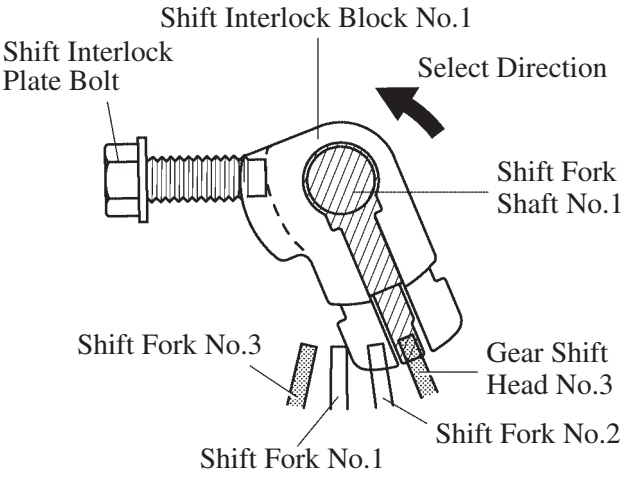
**2) Shifting to 5th**

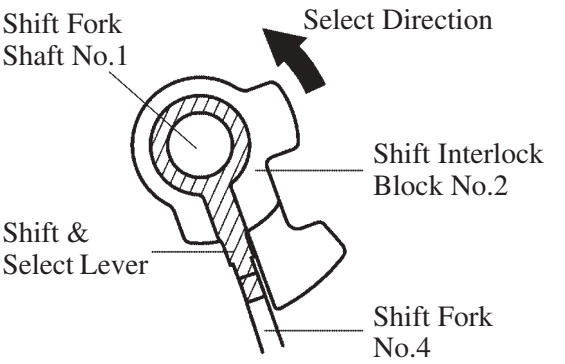
Shift fork shaft No.1 rotates counterclockwise in the select direction, together with the 2 shift interlock blocks. At this time, due to the function of shift interlock block No.1, the shift forks No.1 and No.2 remain locked in the neutral position. Although the shift fork No.4 is released from the locking by shift interlock block No.2, if shift fork shaft No.1 moves in the shift direction (towards the 5th gear), it cannot move the 6th gear due to the shape of the shift fork No.4. Then, shift fork shaft No.1 moves together with gear shift head No.3. Gear shift head No.3 moves the shift interlock plate, shift fork shaft No.2, and the reverse shift arm head.

Accordingly, the shift arm moves the shift fork No.3 in order to shift into the 5th. The movement of shift fork shaft No.2 causes the ball in portion A to be pushed out to lock shift fork shaft No.3, thus preventing shifting into 6th.



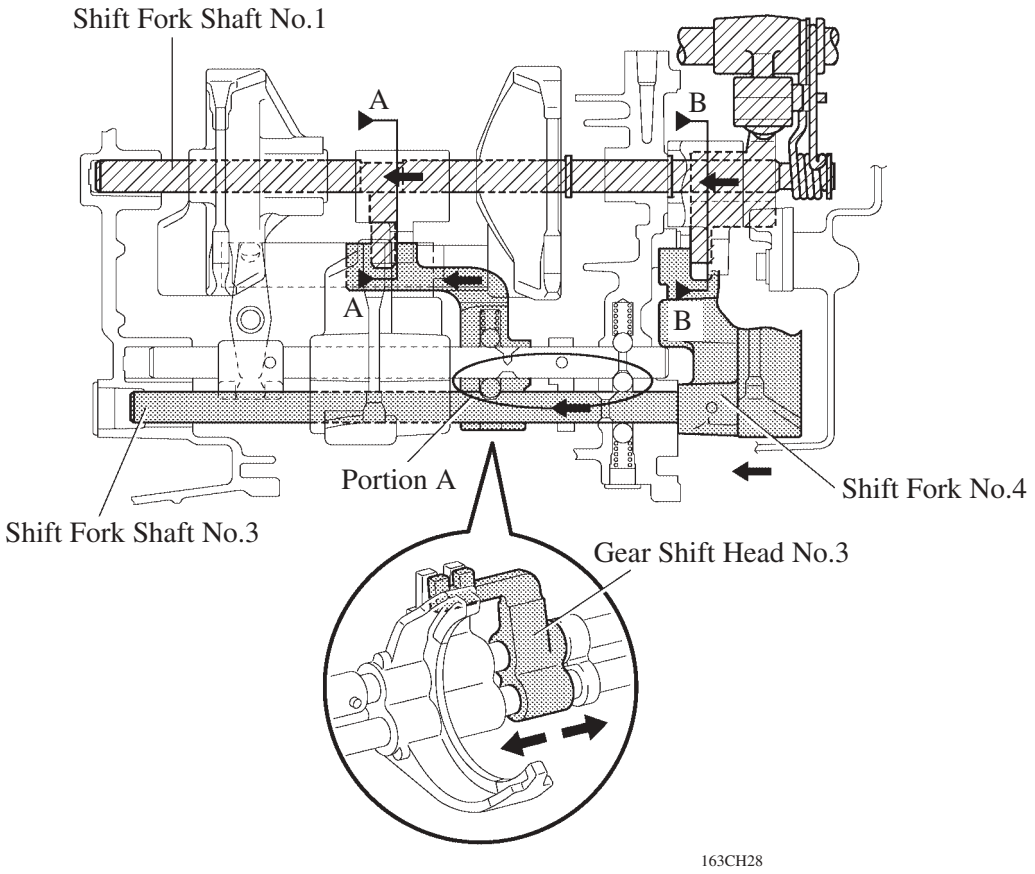

**A – A Cross Section**




**B – B Cross Section**

### 3) Shifting to 6th

Shift fork shaft No.1 rotates counterclockwise in the select direction, together with the 2 shift interlock blocks. At this time, due to the function of shift interlock block No.1, the shift forks No.1 and No.2 remain locked in the neutral position. The shift fork No.4 is released from the locking by shift interlock block No.2. Then, the shift & select lever moves the shift fork No.4 in order to shift into 6th. The movement of shift fork shaft No.3 causes the ball in portion A to be pushed out to lock shift fork shaft No.2, thus preventing shifting into 5th or reverse. Although gear shift head No.3 is also moved by shift fork shaft No.1, it will merely slide on the shaft on its own without directly affecting the shifting, because shift fork shaft No.2 is locked.

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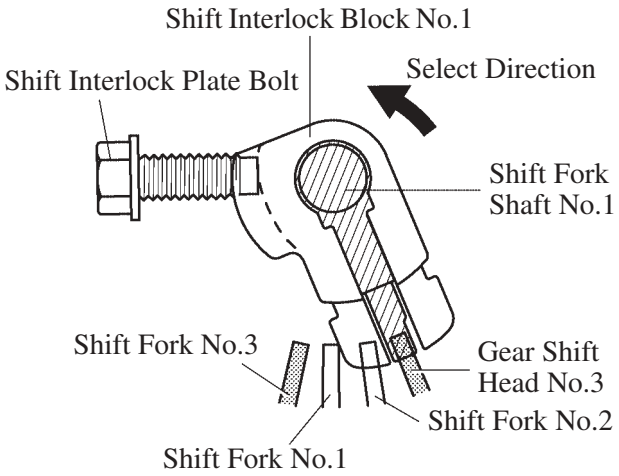
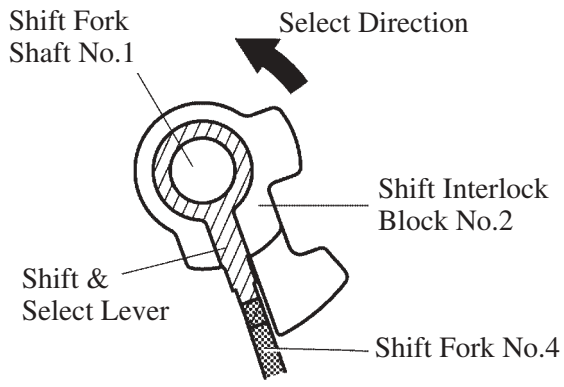



**A – A Cross Section** 163CH29




**B – B Cross Section** 163CH30

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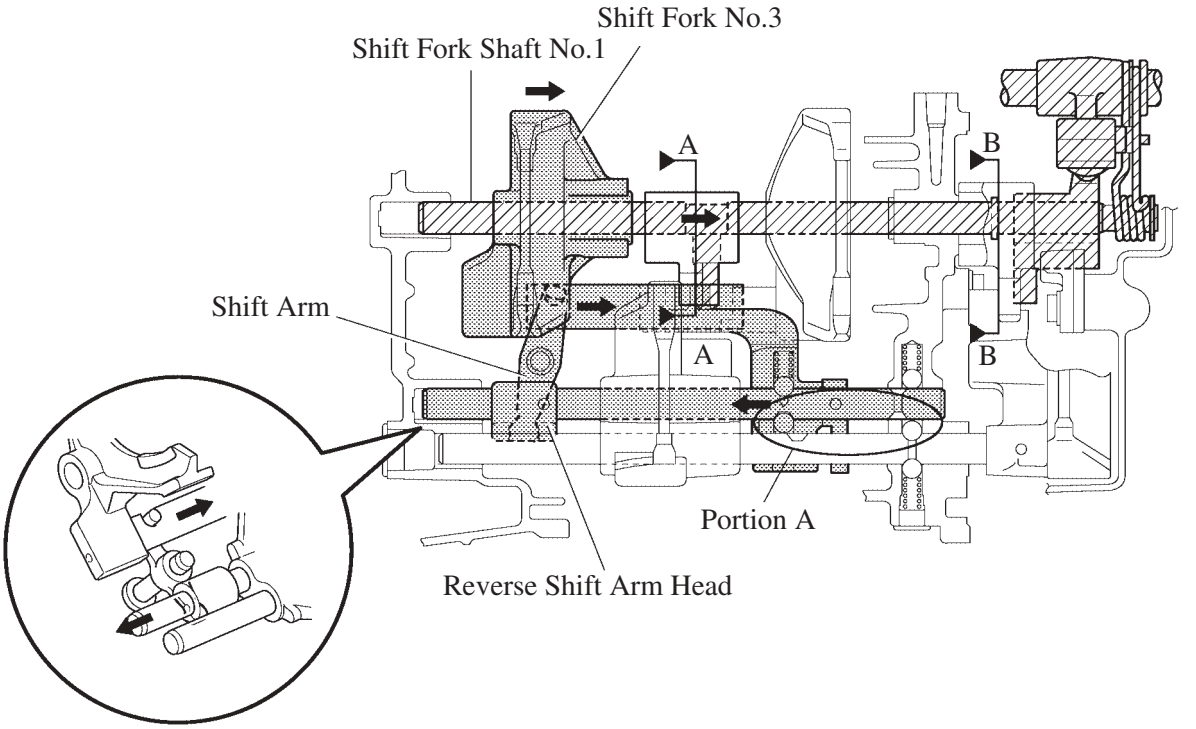
**4) Shifting to reverse**

Shift fork shaft No.1 rotates clockwise in the select direction, together with the 2 shift interlock blocks. At this time, due to the function of shift interlock block No.1, the shift forks No.1 and No.2 remain locked in the neutral position. The shift fork No.4 remains locked in the neutral position due to function of shift interlock block No.2. Then, shift fork shaft No.1 moves the shift fork No.3 in order to shift into reverse. Furthermore, the shift arm moves shift fork shaft No.2, which causes the ball iln portion A to be pushed out to also lock shift fork shaft No.3.

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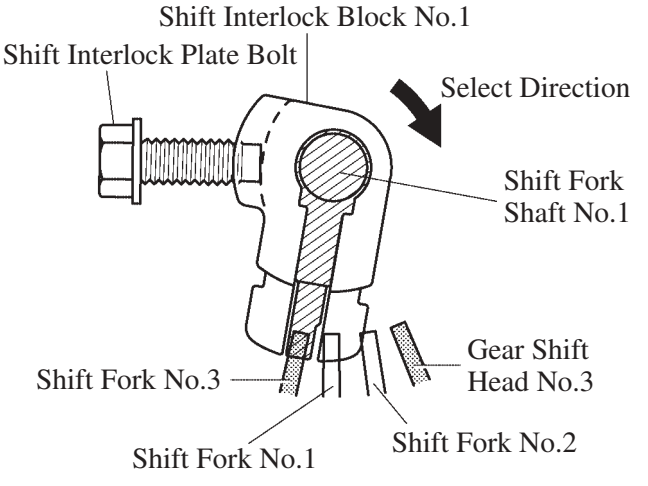


**A – A Cross Section**

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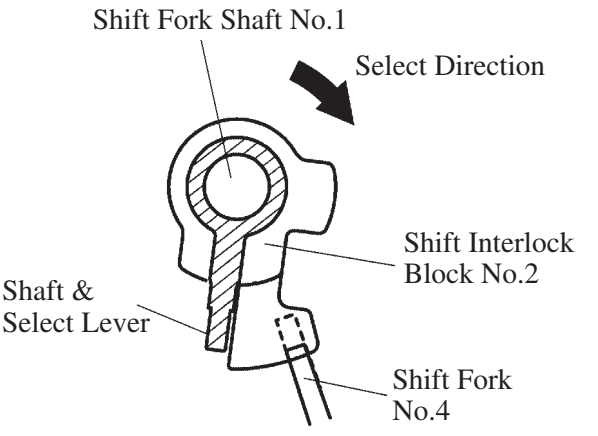


**B – B Cross Section**

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