

REVERSE IDLER GEAR ASSEMBLY

MANUAL TRANSMISSION AND DIFFERENTIAL

21. Reverse Idler Gear Assembly

A: REMOVAL

- 1) Remove the manual transmission assembly from vehicle. <Ref. to 6MT-35, REMOVAL, Manual Transmission Assembly.>
- 2) Prepare the transmission for overhaul. <Ref. to 6MT-40, Preparation for Overhaul.>
- 3) Remove the oil pipe, neutral position switch, back-up light switch and harness. <Ref. to 6MT-42, REMOVAL, Oil Pipe.>, <Ref. to 6MT-45, REMOVAL, Neutral Position Switch.>, <Ref. to 6MT-43, REMOVAL, Back-up Light Switch.>
- 4) Remove the extension case. <Ref. to 6MT-47, REMOVAL, Extension Case.>
- 5) Remove the transfer driven gear. <Ref. to 6MT-58, REMOVAL, Transfer Driven Gear.>
- 6) Remove the center differential. <Ref. to 6MT-60, REMOVAL, Center Differential.>
- 7) Remove the oil pump. <Ref. to 6MT-61, REMOVAL, Oil Pump.>
- 8) Remove the transmission case. <Ref. to 6MT-65, REMOVAL, Transmission Case.>
- 9) Remove the reverse idler gear assembly. <Ref. to 6MT-70, REMOVAL, Main Shaft Assembly.>

B: INSTALLATION

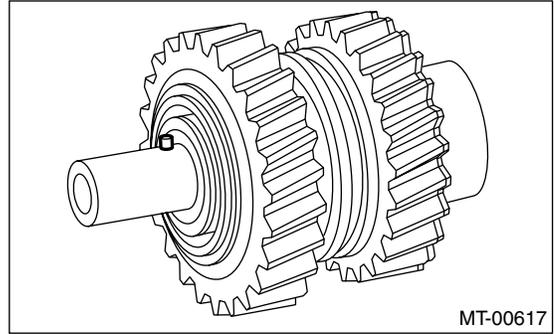
- 1) Select the reverse fork rod. <Ref. to 6MT-117, ADJUSTMENT, Shifter Fork and Rod.>
- 2) Install the reverse idler gear assembly. <Ref. to 6MT-71, INSTALLATION, Main Shaft Assembly.>
- 3) Install the transmission case. <Ref. to 6MT-66, INSTALLATION, Transmission Case.>
- 4) Install the oil pump. <Ref. to 6MT-62, INSTALLATION, Oil Pump.>
- 5) Install the center differential. <Ref. to 6MT-60, INSTALLATION, Center Differential.>
- 6) Install the transfer driven gear. <Ref. to 6MT-58, INSTALLATION, Transfer Driven Gear.>
- 7) Install the extension case. <Ref. to 6MT-47, INSTALLATION, Extension Case.>
- 8) Install the oil pipe, neutral position switch, back-up light switch and harness. <Ref. to 6MT-42, INSTALLATION, Oil Pipe.>, <Ref. to 6MT-45, INSTALLATION, Neutral Position Switch.>, <Ref. to 6MT-43, INSTALLATION, Back-up Light Switch.>
- 9) Install the manual transmission assembly to vehicle. <Ref. to 6MT-37, INSTALLATION, Manual Transmission Assembly.>

C: DISASSEMBLY

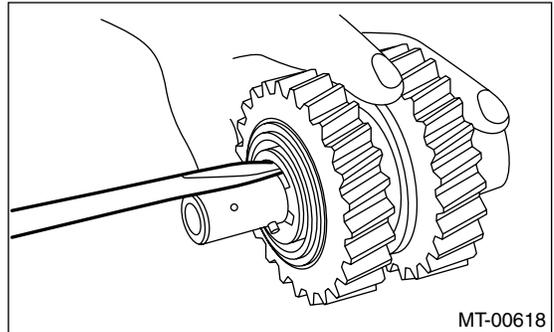
NOTE:

Sleeve and reverse gear engage at a specified point. Mark an engagement point on the sleeve and hub before disassembly.

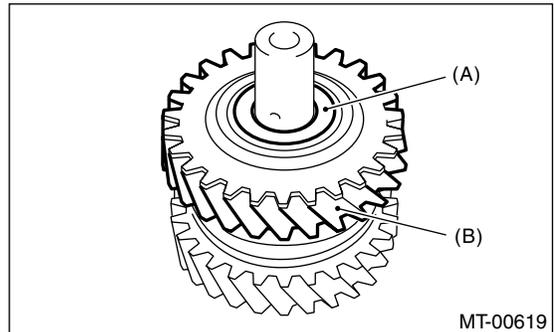
- 1) Remove the spring pin.



- 2) Remove the snap ring.

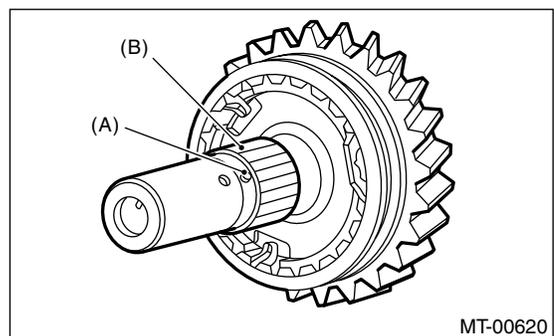


- 3) Remove the washer and reverse idler gear.



- (A) Washer
(B) Reverse idler gear

- 4) Remove the knock pin and reverse idler gear needle bearing.



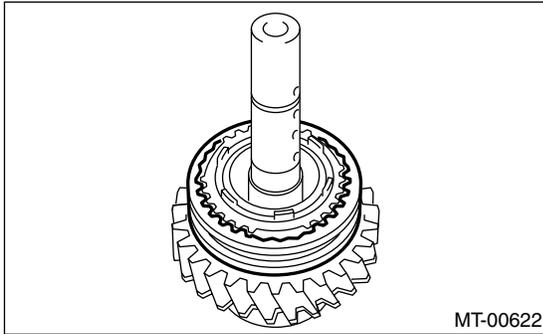
- (A) Knock pin
(B) Reverse idler gear needle bearing

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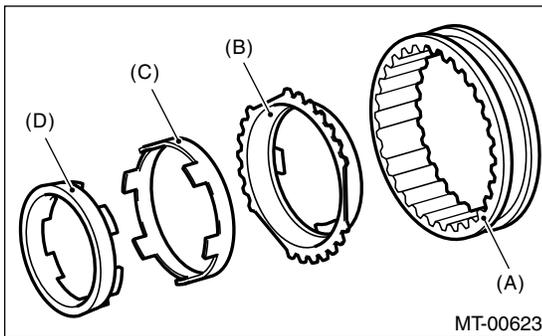
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5) Remove the collar.

6) Remove the reverse sleeve.

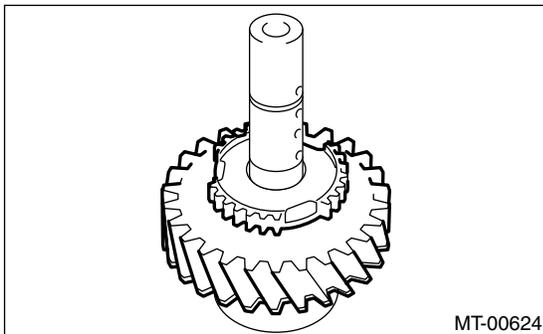


7) Remove the outer baulk ring, reverse synchro cone and inner baulk ring from reverse sleeve.

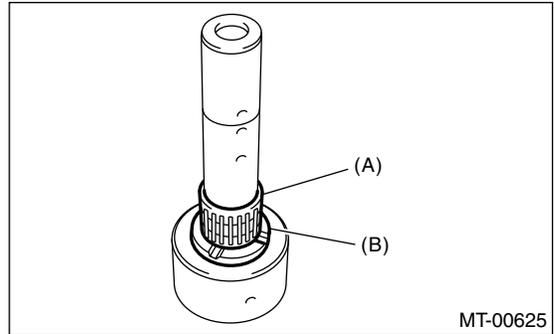


- (A) Reverse sleeve
- (B) Outer baulk ring
- (C) Reverse synchro cone
- (D) Inner baulk ring

8) Remove the reverse idler gear No. 2.

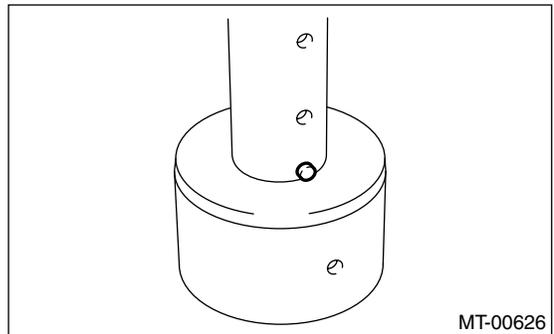


9) Remove the washer and needle bearing.

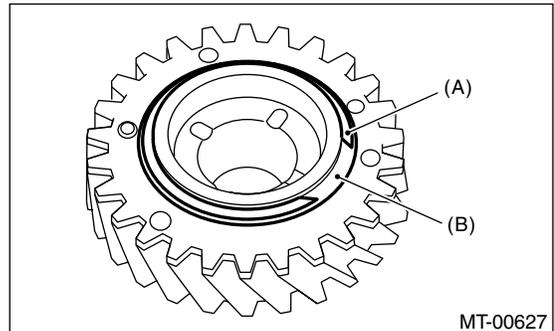


- (A) Needle bearing
- (B) Washer

10) Remove the knock pin.



11) Remove the snap ring and friction plate from reverse gear.

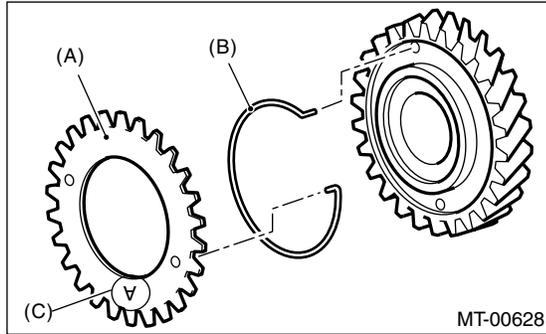


- (A) Snap ring
- (B) Friction plate

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12) Remove the sub gear and spring.



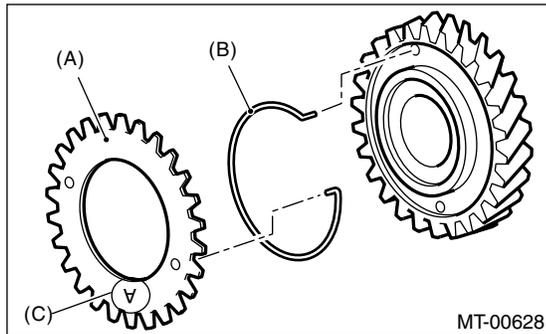
- (A) Sub gear
- (B) Spring
- (C) Punch mark (mark A)

D: ASSEMBLY

1) Install the sub gear and spring.

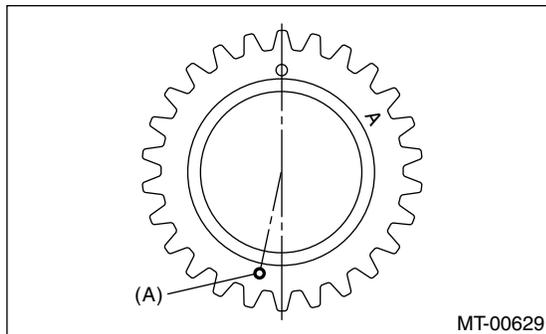
NOTE:

- Install the spring with white marking on hook part facing to sub gear side.
- Install the sub gear with punch mark (mark A) facing outside.



- (A) Sub gear
- (B) Spring
- (C) Punch mark (mark A)

- Install the spring and sub gear, taking care to install the sub gear installation hole in proper direction.

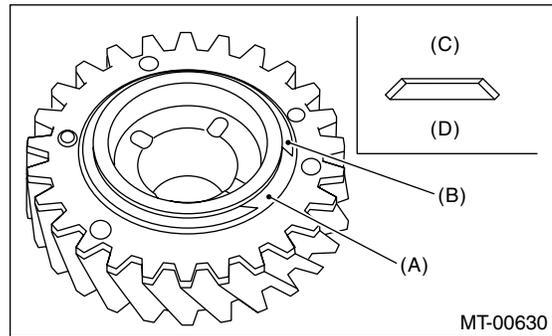


- (A) Installation hole

2) Install the friction plate and snap ring.

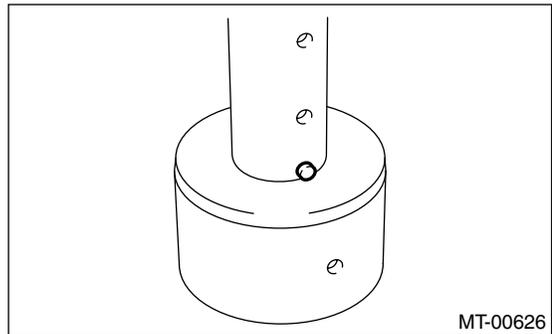
NOTE:

Make sure to install the friction plate in proper direction.



- (A) Friction plate
- (B) Snap ring
- (C) Snap ring side
- (D) Sub gear side

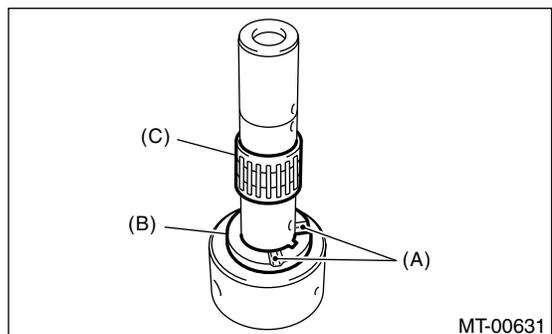
- 3) Sufficiently apply gear oil to the shaft, needle bearing and inner periphery of reverse drive gear.
- 4) Install the knock pin.



5) Install the washer and needle bearing.

NOTE:

Install the washer with groove facing to reverse idler gear.

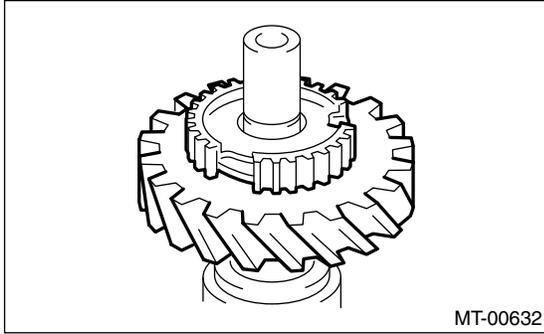


- (A) Groove
- (B) Washer
- (C) Needle bearing

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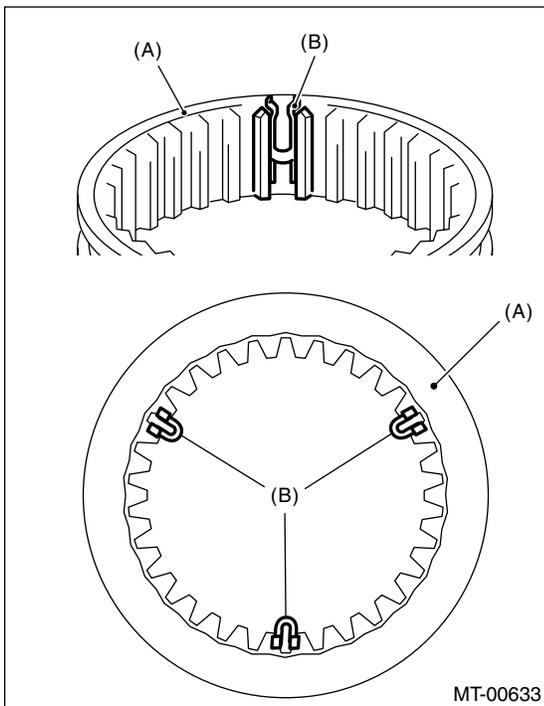
6) Install the reverse idler gear No. 2.



7) Install the shifting insert key in proper place of reverse sleeve.

NOTE:

Angle of each shifting insert key is 120° apart.

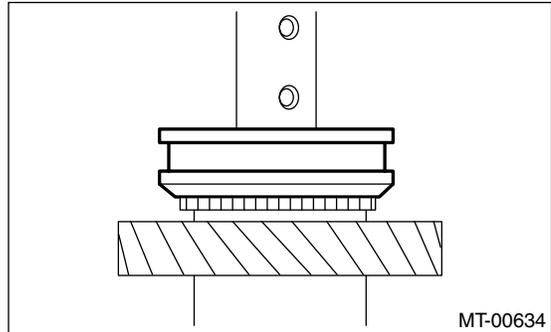


- (A) Reverse sleeve
- (B) Shifting insert key

8) Install the reverse sleeve to reverse idler gear No. 2.

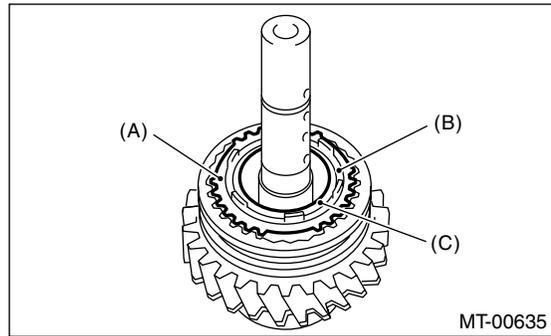
NOTE:

Make sure to install the reverse sleeve in proper direction.



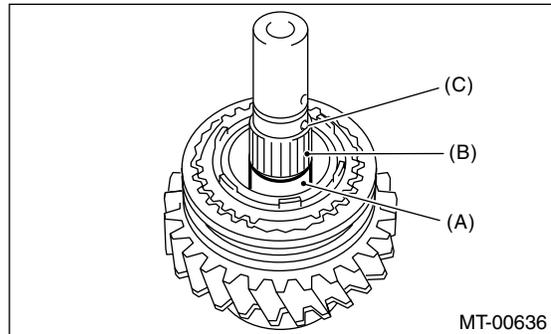
9) Sufficiently apply gear oil to the collar, needle bearing and inner periphery of reverse drive gear.

10) Install the outer baulk ring, reverse synchro cone and inner baulk ring.



- (A) Outer baulk ring
- (B) Reverse synchro cone
- (C) Inner baulk ring

11) Install the collar and needle bearing, then install the knock pin.

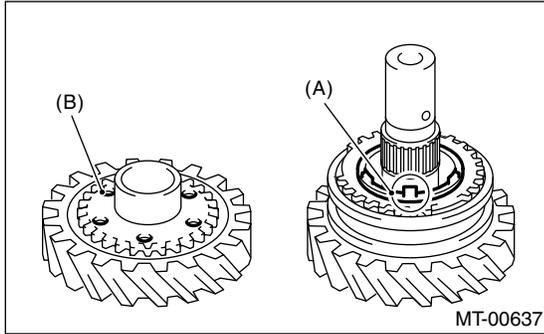


- (A) Collar
- (B) Needle bearing
- (C) Knock pin

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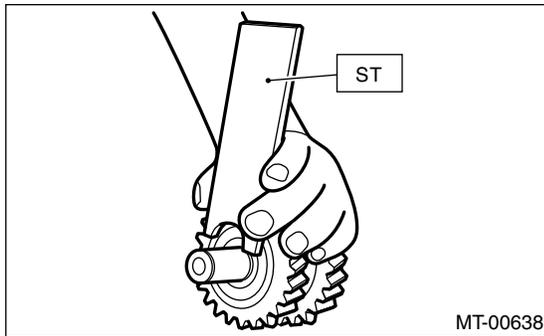
12) Align the protrusion portion of reverse synchro cone with reverse idler gear hole, then install the reverse idler gear.



- (A) Protrusion portion of reverse synchro cone
 (B) Reverse idler gear hole

13) Install the washer with groove facing to reverse idler gear.

14) Using the ST, install the snap ring.
 ST 18672AA000 GUIDE CLIP



15) Inspect and adjust the clearance between snap ring and washer. <Ref. to 6MT-96, INSPECTION, Reverse Idler Gear Assembly.>

16) Install a new spring pin.

E: INSPECTION

Disassembled parts should be washed clean first and then inspected carefully.

1) Bearings

Replace the bearings in the following cases.

- Worn, rusted and damaged bearing
- Bearings that fail to turn smoothly or make abnormal noise when turned
- Bearings having other defects

2) Bushing (each gear)

Replace the bushings in the following case:

- When the sliding surface is damaged or abnormally worn.

3) Gears

Replace the gears in the following cases:

- The gear teeth surfaces are broken or excessively worn.
- The parts that contact the baulk ring is damaged.
- The inner surface of gear is damaged.

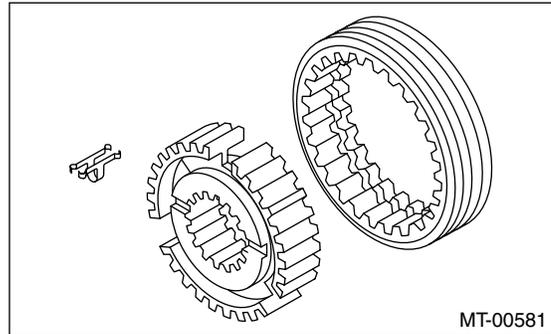
4) Baulk ring, synchro cone

Replace the baulk ring and synchro cone in the following case:

- Worn, rusted and damaged baulk ring

5) Shifting insert key

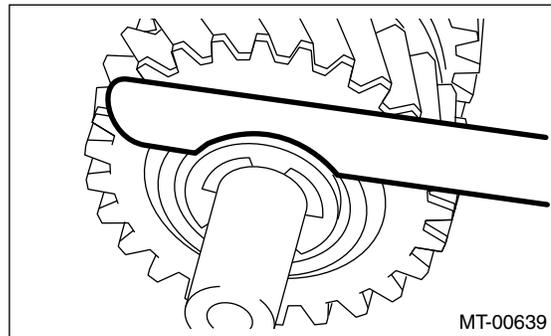
Replace the shifting insert key if deformed, excessively worn or defective in any way.



6) Inspect the clearance between snap ring and washer.

Specification of clearance:

0.1 — 0.3 mm (0.0039 — 0.0118 in)



Select and replace the snap ring from the following table if clearance is out of specification.

Snap ring		
Parts No.	Thickness	mm (in)
031319000	1.50	(0.059)
805019030	1.60	(0.062)
805019010	1.72	(0.068)

Inspect the clearance again after replacing snap ring.