

MANUAL TRANSMISSION AND CLUTCH (TYPE 5 HA)

1. MANUAL TRANSMISSION

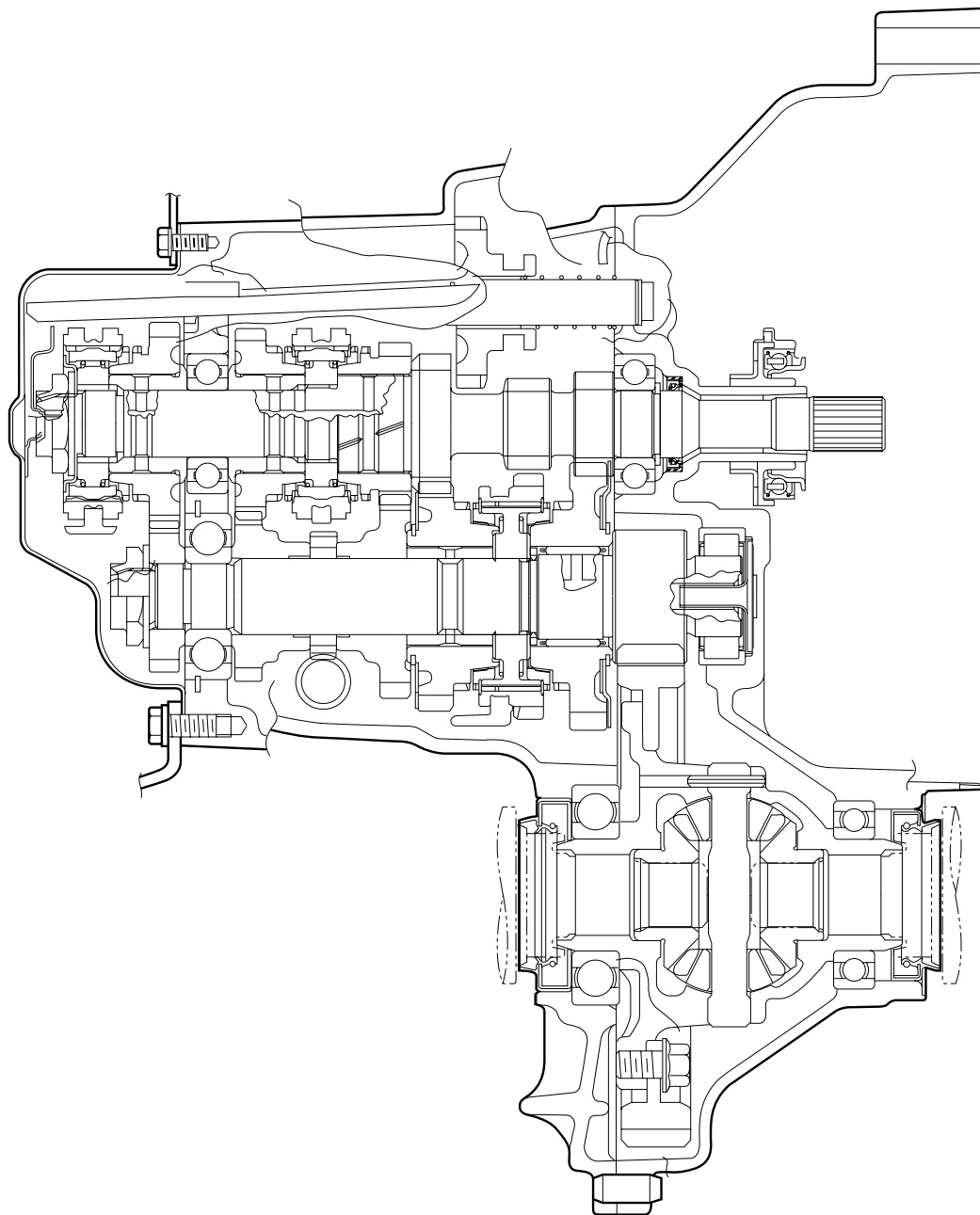
SECTIONAL VIEW	MT- 2
SPECIFICATIONS	MT- 3
SERVICE INSTRUCTIONS	MT- 3
TRANSMISSION ASSEMBLY	MT- 4
COMPONENTS (PART 1)	MT- 4
COMPONENTS (PART 2)	MT- 5
COMPONENTS (PART 3)	MT- 6
COMPONENTS (PART 4)	MT- 7
CONTROL LINKAGE-RELATED PARTS	MT- 8
COMPONENTS	MT- 8
DISASSEMBLY	MT- 9
INSPECTION	MT-15
REPLACEMENT	MT-17
ASSEMBLY	MT-18
APPLICATION POINTS OF GREASE & BOND AND APPLICATION PROCEDURE	MT-26
INPUT SHAFT	MT-28
COMPONENTS	MT-28
DISASSEMBLY	MT-29
INSPECTION	MT-30
ASSEMBLY	MT-32
DISCRIMINATION	MT-33
OUTPUT SHAFT	MT-34
COMPONENTS	MT-34
DISASSEMBLY	MT-35
INSPECTION	MT-36
ASSEMBLY	MT-38
DISCRIMINATION	MT-39
DIFFERENTIAL GEAR	MT-40
COMPONENTS	MT-40
BEARING	MT-41

DIFFERENTIAL GEAR	MT-41
DIFFERENTIAL CASE	MT-42
SHIFT LEVER & SELECTING ROD	MT-45
COMPONENTS	MT-45
REMOVAL	MT-45
INSPECTION	MT-46
INSTALLATION	MT-46
COMPONENTS	MT-48
DISASSEMBLY	MT-48
INSPECTION	MT-49
ASSEMBLY	MT-49
APPENDIX	MT-50
SSTs (Special Service Tools)	MT-50
SERVICE SPECIFICATIONS	MT-51
TIGHTENING TORQUE	MT-53

2. CLUTCH

DESCRIPTION	MT-54
CLUTCH PEDAL ADJUSTMENT	MT-54
CLUTCH PEDAL AND CLUTCH RELEASE CABLE	MT-55
COMPONENTS	MT-55
REMOVAL	MT-55
INSPECTION	MT-55
INSTALLATION	MT-56
CLUTCH UNIT	MT-57
COMPONENTS	MT-57
REMOVAL	MT-57
INSPECTION	MT-58
INSTALLATION	MT-59
TROUBLE SHOOTING	MT-61
APPENDIX	MT-62
SSTs (Special Service Tools)	MT-62
TIGHTENING TORQUE	MT-62

1. MANUAL TRANSMISSION SECTIONAL VIEW



SPECIFICATIONS

Item		Specifications
Engine type		EJ-DE
Type	Forward gears	Constant-mesh type
	Reverse gear	Selective sliding type
Gear ratio	1st gear	3.181
	2nd gear	1.842
	3rd gear	1.250
	4th gear	0.916
	5th gear	0.750
	Reverse gear	3.142
Final reduction gear ratio		4.500
Number of differential side gear teeth		16
Number of differential pinion teeth		10
Speedometer gear ratio (driven/drive)		16/4
Oil used	Type	SAE 75W-80 API GL-3 or GL-4
	Capacity liter	2.1 ~ 2.25

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SERVICE INSTRUCTIONS

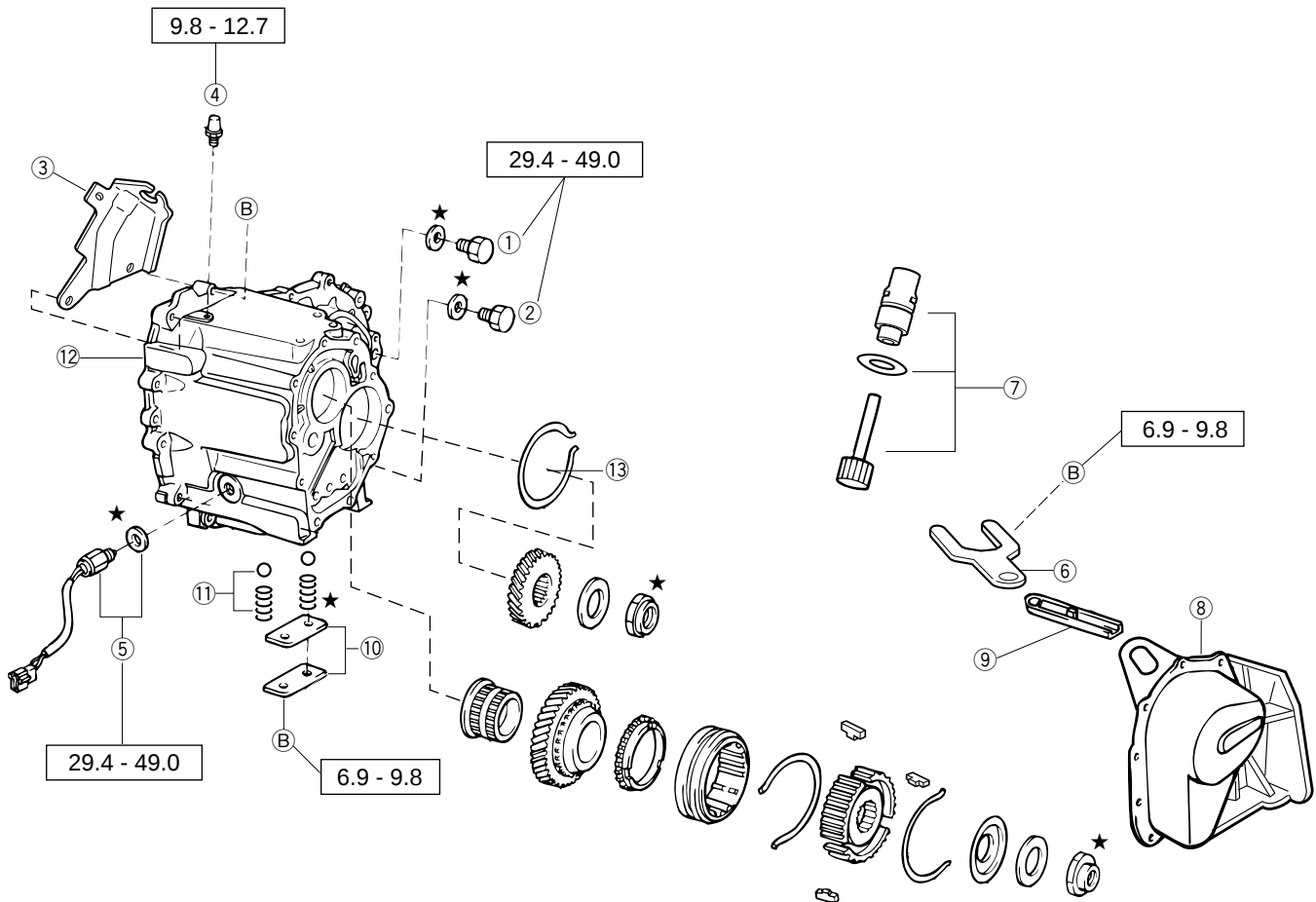
- Keep your job site always clean. As for disassembled parts, first clean them before you proceed to the next operation.
- During the disassembly, make sure not to lose any parts, such as balls, springs, keys and rollers.
- Since some parts resemble in shape, identify each part by referring to parts catalogs. Furthermore, take precautionary measures, such as putting tags on the parts during disassembly so that no wrong assembly may occur.
- Be very careful not to damage the lip section of an oil seal during operation.
- Never reuse oil seals, slotted pins and bearings removed.
- Care must be exercised to ensure that no pressing force is applied to the balls during the press-fitting of a ball bearing.
- During the assembly, apply the designated gear oil to the rotating and sliding sections of gears and oil seals.
Designated Oil: SAE 75W-80 API GL-3 or GL-4
- After completion of assembling, make sure that all the following movements are smooth; the rotation of the input shaft, the shift & select operation in each gear, the movement of the clutch release lever, the movement of the clutch release hub.
- After completion of assembling, make sure that no oil leakage or oozing is present at each of the mating surfaces and plug sections.
- After mounting the transmission on the vehicle, fill the transmission with the specified amount of the designated oil.
Designated Oil: SAE 75W-80 API GL-3 or GL-4
Specified Amount: 2.1 ~ 2.25 liter

NOTE:

- Refer to the MA section.

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TRANSMISSION ASSEMBLY COMPONENTS (PART 1)

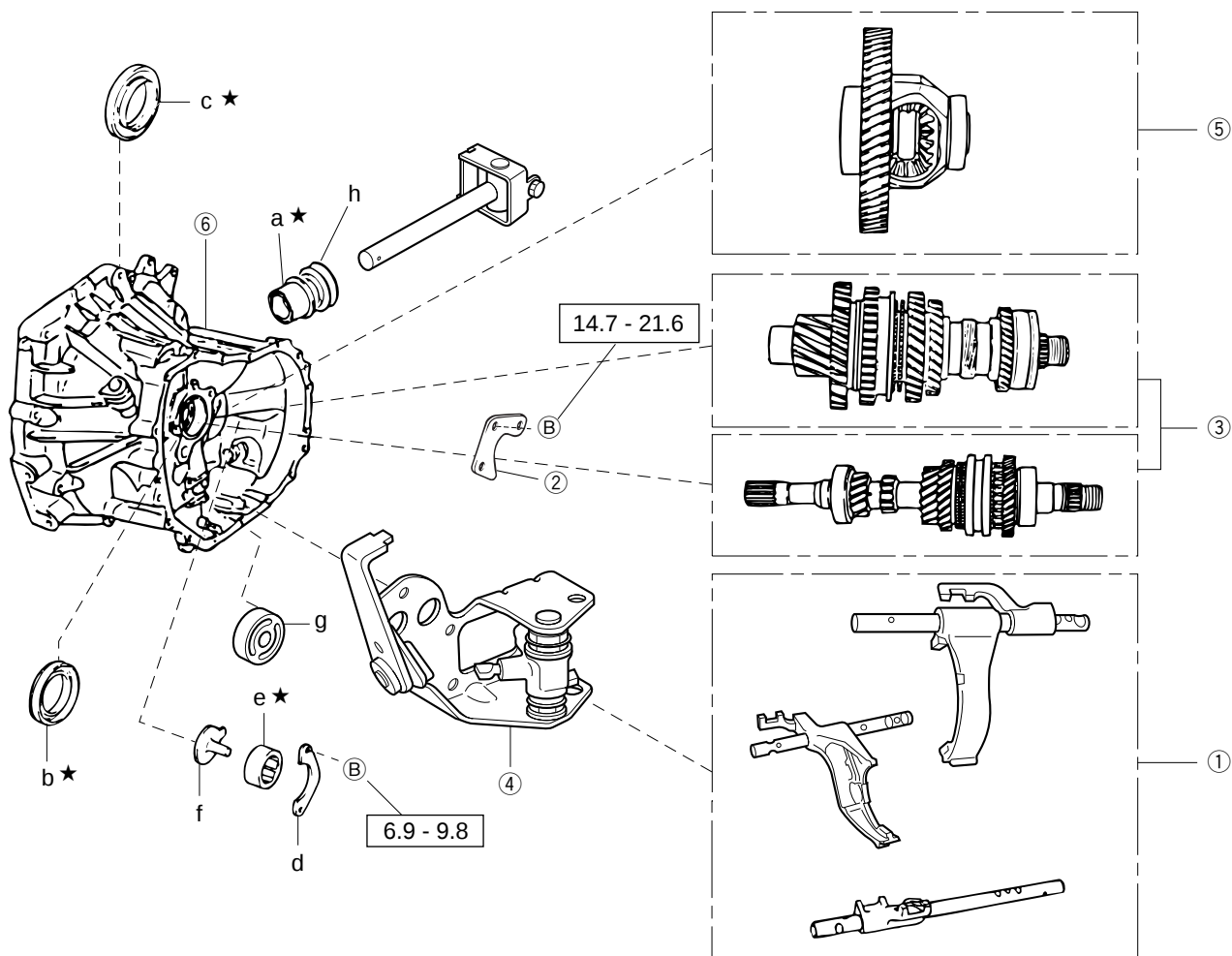


 : Tightening torque
 Unit : N·m
 ★ : Non-reusable parts

- ① W/head straight screw plug (filler side)
- ② W/head straight screw plug (drain side)
- ③ Clutch cable bracket
- ④ Breather plug
- ⑤ Backup lamp switch assembly & gasket
- ⑥ Lock plate
- ⑦ Speedometer shaft sleeve subassembly

- ⑧ Transmission case cover subassembly
- ⑨ Oil guide pipe
- ⑩ Gasket & lock ball plate
- ⑪ Ball & compression spring
- ⑫ Transmission case
- ⑬ Hole snap ring

COMPONENTS (PART 2)

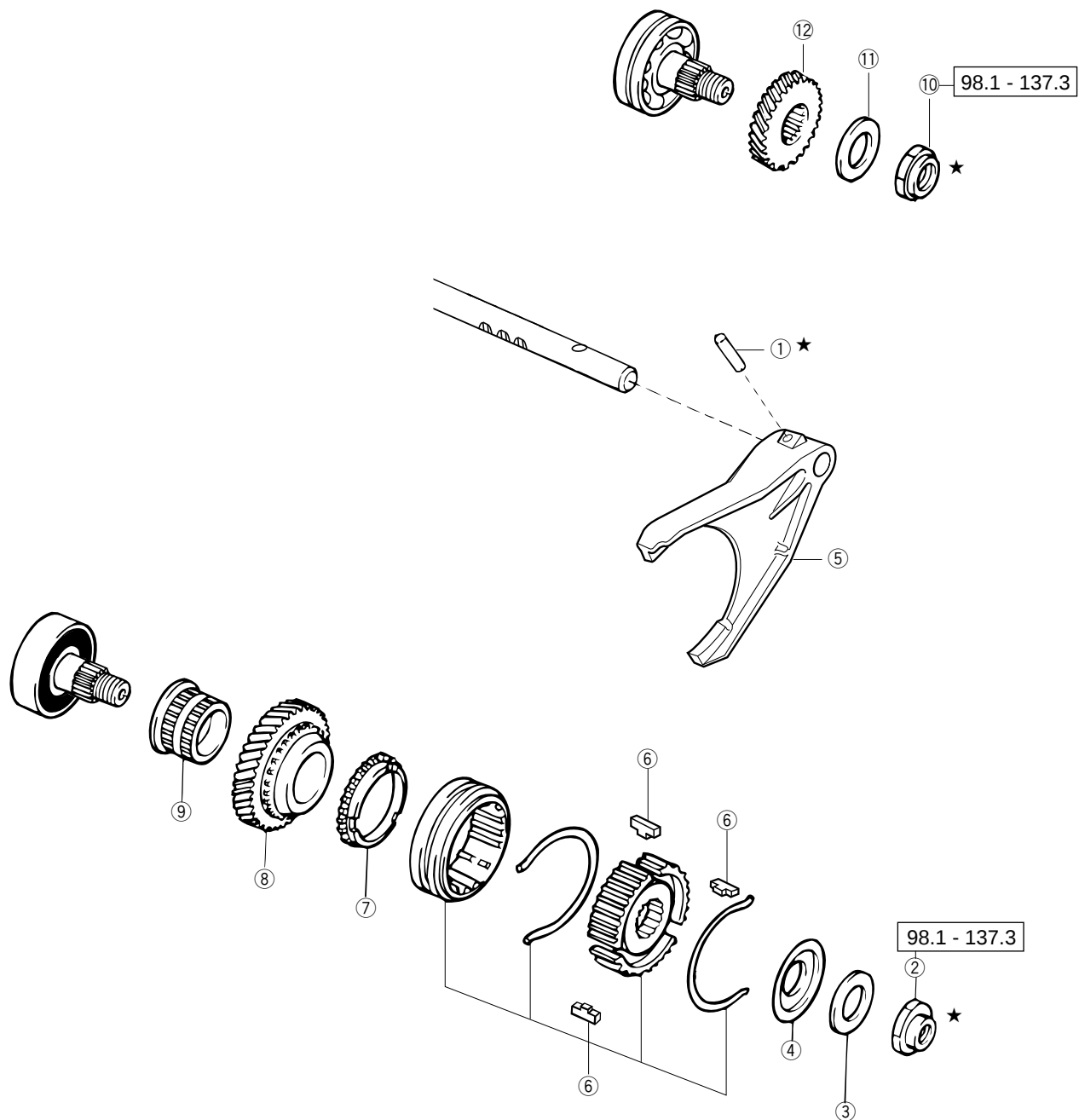


- ① Control related parts
- ② Input shaft bearing lock plate
- ③ Input shaft assembly & output shaft assembly
- ④ Selector support assembly & shifting bell crank
- ⑤ Differential case assembly

- ⑥ Transaxle case
- a, b, c. Oil seal
- d. Output shaft bearing lock plate
- e. Needle roller bearing
- f. Output shaft cover
- g. Magnet
- h. Control shaft boot

 : Tightening torque
 Unit : N·m
 ★ : Non-reusable parts

COMPONENTS (PART 3)

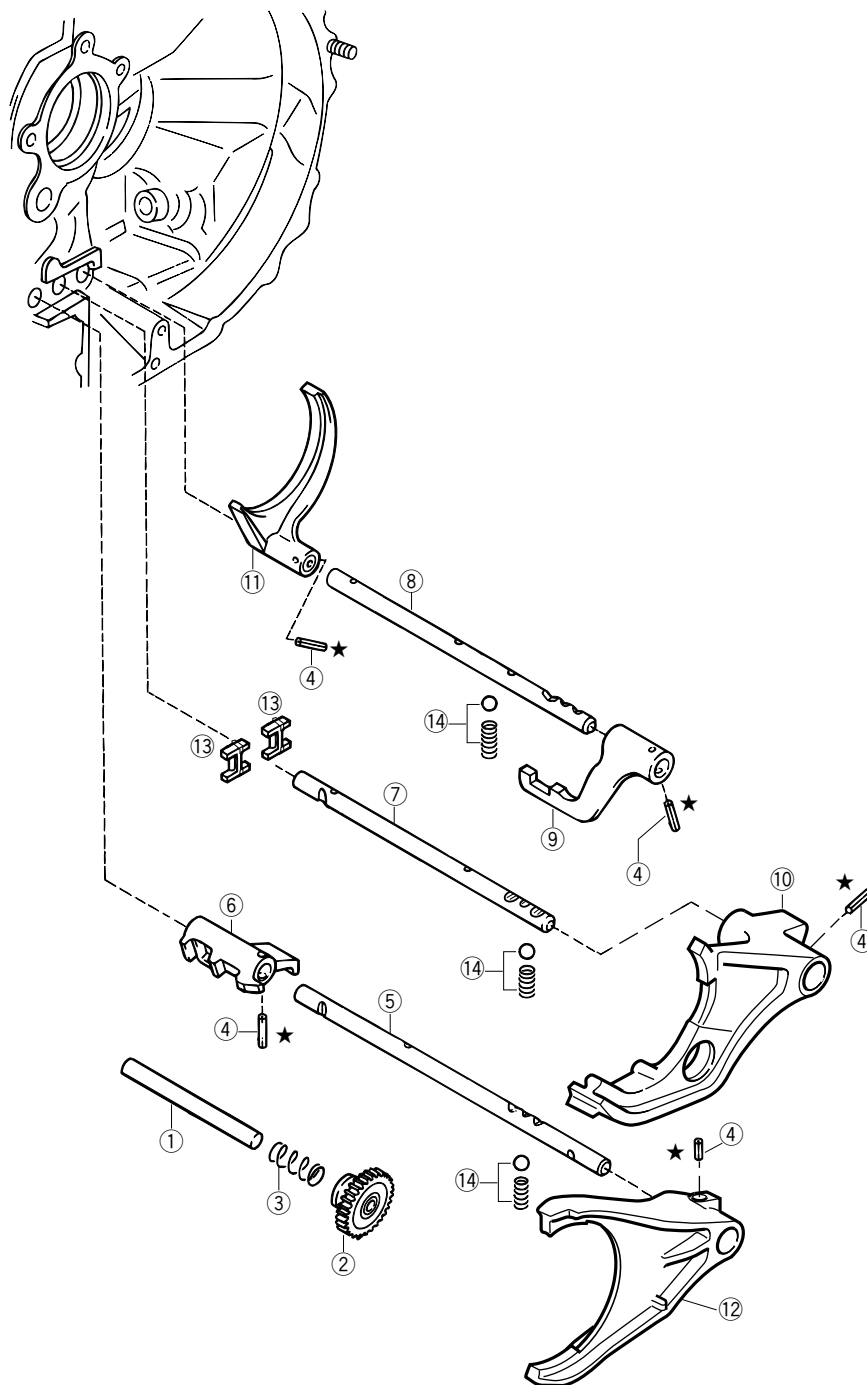


[] : Tightening torque
 Unit : N·m
 ★ : Non-reusable parts

- ① Slotted spring pin
- ② Lock nut
- ③ Conical spring washer
- ④ Transmission hub sleeve stopper
- ⑤ 5th shift fork
- ⑥ Transmission clutch No. 3 hub assembly

- ⑦ Synchronizer ring
- ⑧ 5th gear
- ⑨ 5th gear bushing
- ⑩ Lock nut
- ⑪ Conical spring washer
- ⑫ Output 5th gear

COMPONENTS (PART 4)

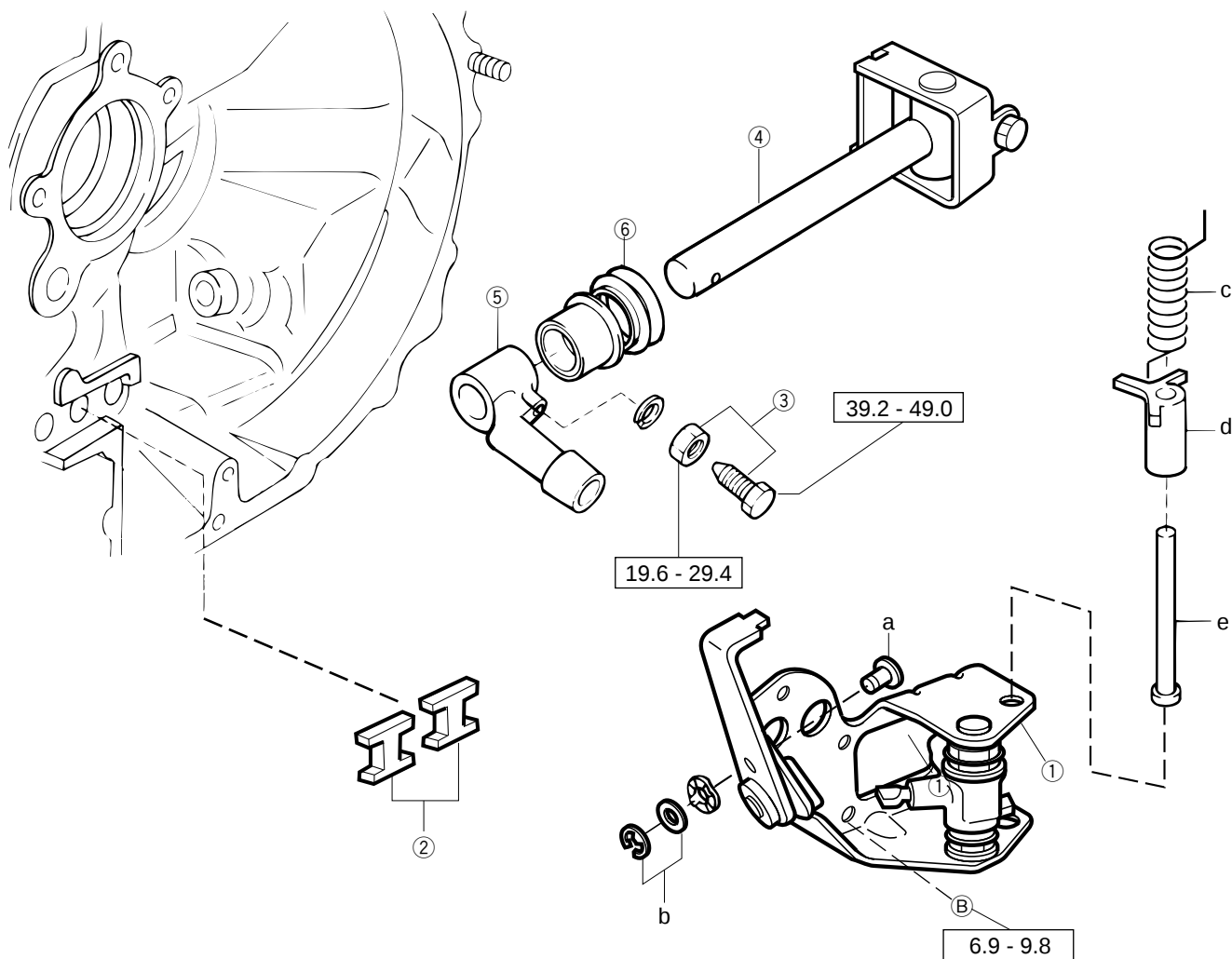


★ : Non-reusable parts

- ① Reverse idler shaft
- ② Reverse idler gear
- ③ Compression spring
- ④ Slotted spring pin × 5
- ⑤ 5th & reverse shift fork shaft
- ⑥ Reverse shift arm head
- ⑦ 3rd & 4th shift fork shaft

- ⑧ 1st & 2nd shift fork shaft
- ⑨ 1st & 2nd shift head
- ⑩ 3rd & 4th shift fork
- ⑪ 1st & 2nd shift fork
- ⑫ 5th shift fork
- ⑬ Shift interlock plate × 2
- ⑭ Ball & Spring × 3

CONTROL LINKAGE-RELATED PARTS COMPONENTS



- ① Select support assembly & shifting bell crank
- a. Shift arm pin & washer
- b. E ring & washer
- c. Compression spring
- d. Reverse restrict cam
- e. Reverse restrict shaft

- ② Shift inter lock plate
- ③ Wave washer, bolt and nut set
- ④ Shift & select shaft
- ⑤ Shift inner lever
- ⑥ Control shaft boot

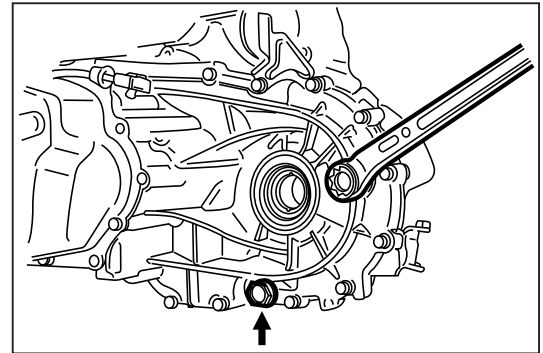
 : Tightening torque
 Unit : N·m
 ★ : Non-reusable parts

DISASSEMBLY

1. Remove the screw plugs (at the drain and filler sides).

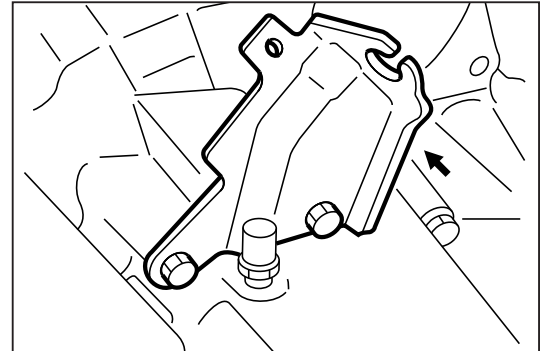
NOTE:

- Never reuse the removed gaskets.



MMT00010-00007

2. Remove the clutch cable bracket.

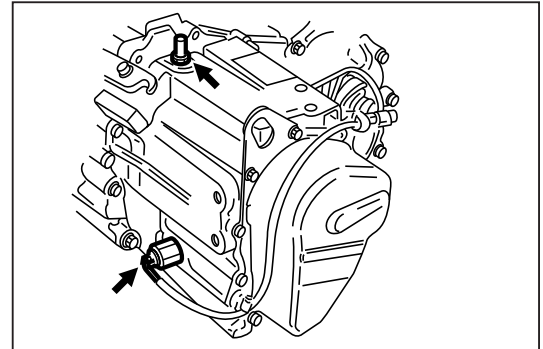


MMT00011-00008

3. Remove the backup lamp switch assembly and breather plug.

NOTE:

- Never reuse the removed gasket.



MMT00012-00009

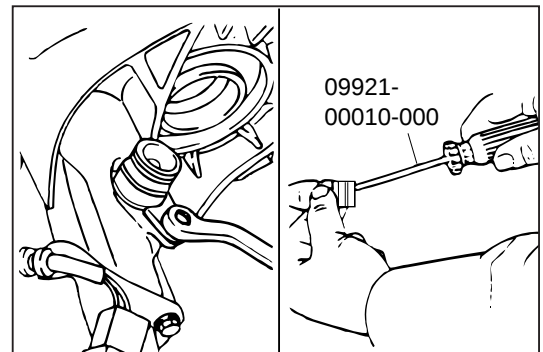
4. Remove the lock plate and speedometer shaft sleeve sub-assembly.

5. Remove the oil seal, using the SST given below.

SST: 09921-00010-000

NOTE:

- Never reuse the removed oil seal.



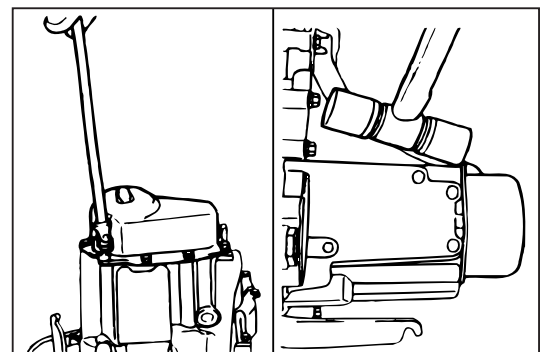
MMT00013-00010

6. Remove the transmission case cover subassembly as follows:

- (1) To drive out the case cover subassembly, tap the flange section lightly in the axial direction, using a plastic hammer.

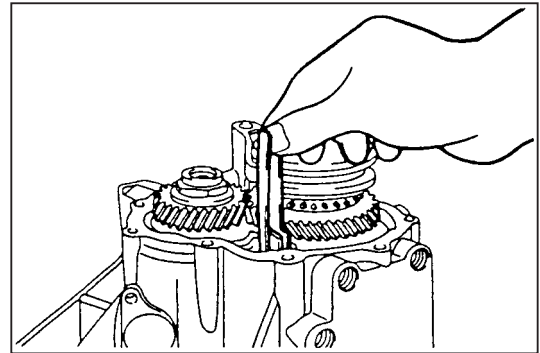
NOTE:

- Never tap the case cover at its side.



MMT00014-00011

7. Remove the case cover oil pipe.

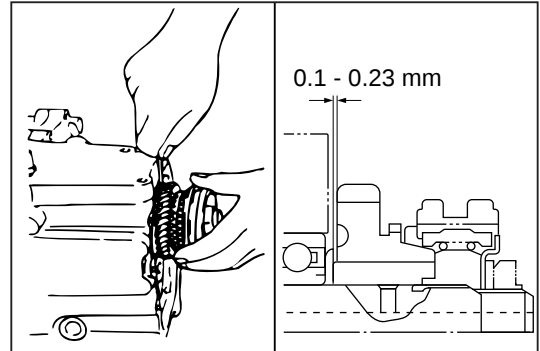


MMT00015-00012

8. Measure the end play of the 5th gear.

Specified Value: 0.1 - 0.23 mm

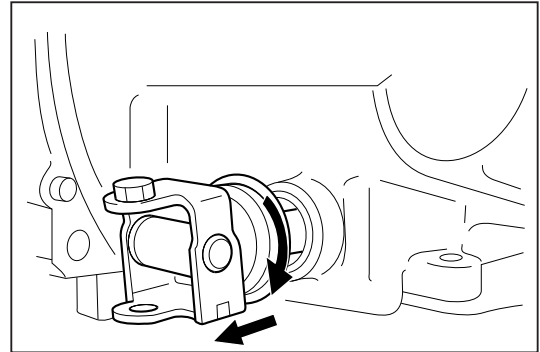
Limit: 0.4 mm



MMT00016-00013

9. Removal of lock nut

(1) Operate the shift & selector shaft so that the gear may be in the 5th position.



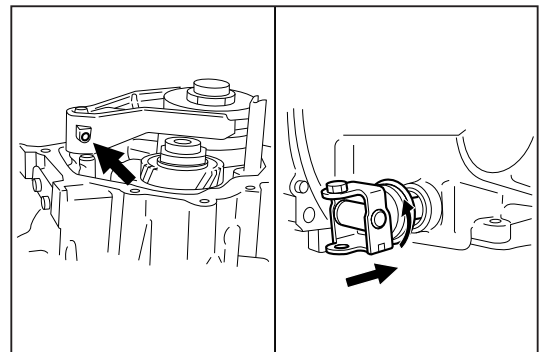
MMT00017-00014

(2) Remove the slotted spring, using a knock pin punch.

(3) With the 5th shift fork held, place the shift & selector shaft in the neutral position once. Then, place the shaft in the reverse position so as to set the gear to an inter-locked state.

NOTE:

- Never reuse the removed slotted spring pin.

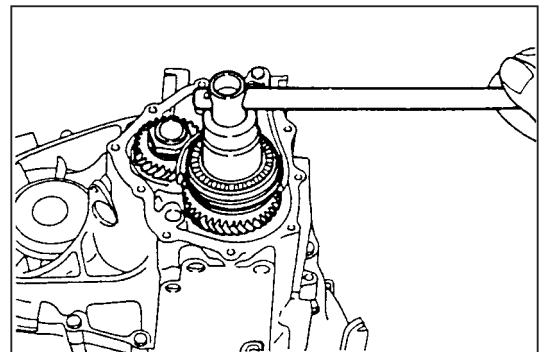


MMT00018-00015

(4) Release the staked condition at the input shaft side and the output shaft side, respectively, using a chisel and a hammer. Then, remove the nut.

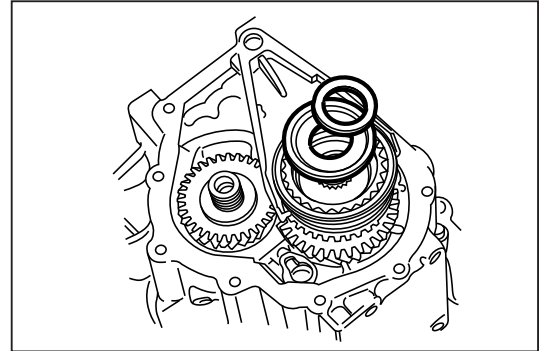
NOTE:

- Never reuse the removed nuts.



MMT00019-00016

10. Remove the conical spring washer and transmission hub sleeve stopper at the input shaft side.

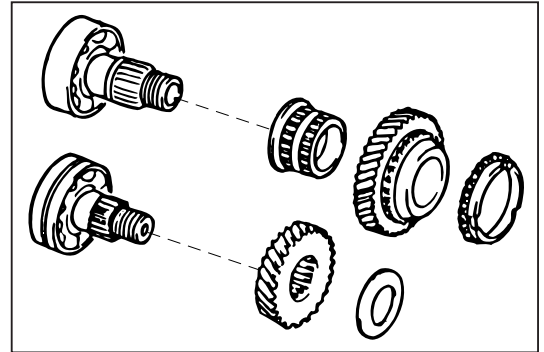


MMT00020-00017

11. Remove the 5th shift fork and transmission clutch hub assembly No. 3 at the same time.

MMT00021-00000

12. Remove synchronizer ring, 5th gear and bush at input shaft side.
Remove conical spring washer and output 5th gear at the output shaft side.

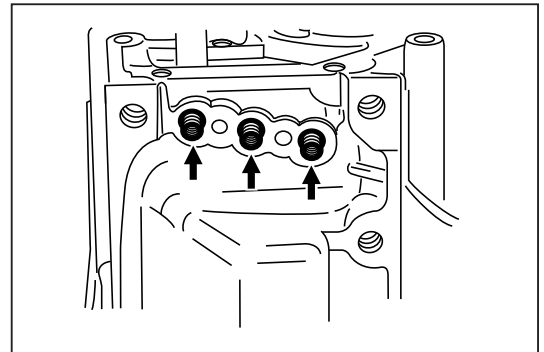


MMT00022-00018

13. Remove the lock ball plate and gasket. Take out the compression springs and balls.

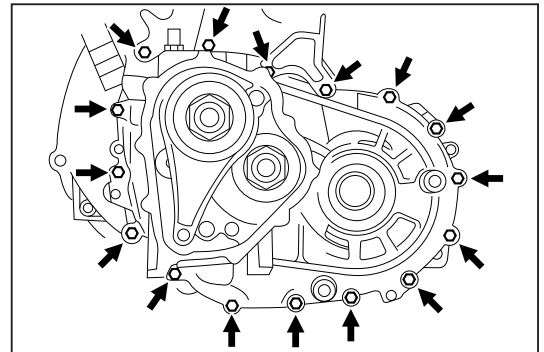
NOTE:

- Never reuse the removed gasket.



MMT00023-00019

14. Remove the transmission case attaching bolts.



MMT00024-00020

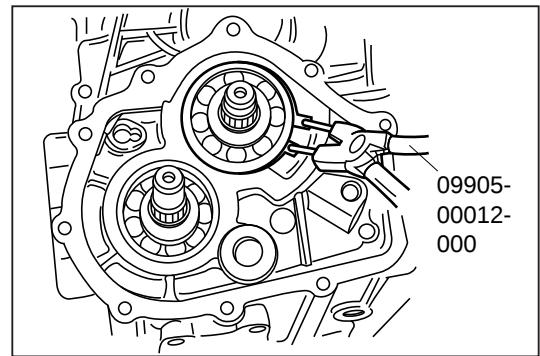
MT-12

15. Transmission case removal

- (1) Expand the snap ring, using the following SST and drop the shaft.

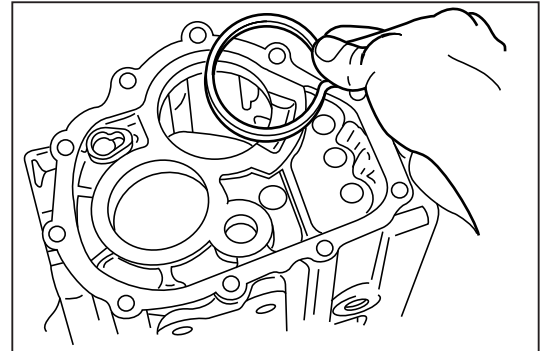
SST: 09905-00012-000

- (2) To drive out the transmission case, tap the case rib with a plastic hammer.



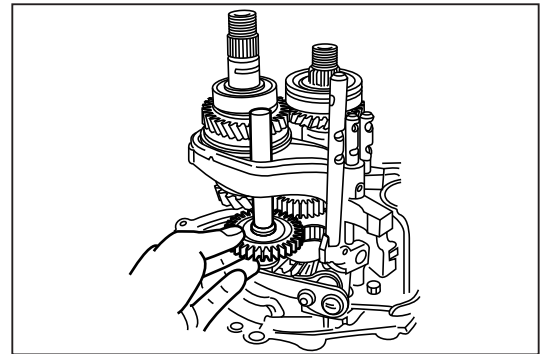
MMT00025-00021

16. Detach the hole snap ring.



MMT00026-00022

17. Pull out the reverse idler gear shaft. Remove the reverse idler gear together with the compression spring.



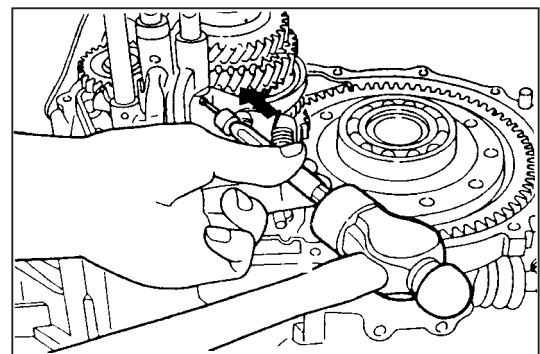
MMT00027-00023

18. Slotted spring pin removal

- (1) Working from the arrow-headed direction in the figure, drive out the slotted spring pins by means of a punch pin. (Five points)

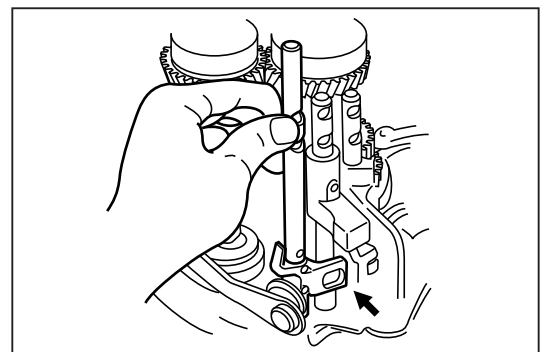
NOTE:

- Never reuse the removed slotted spring pins.



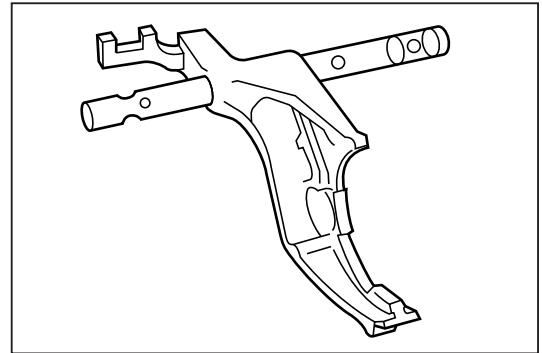
MMT00028-00024

19. Pull out the 5th & reverse shift fork shaft. Remove the reverse shift arm head.



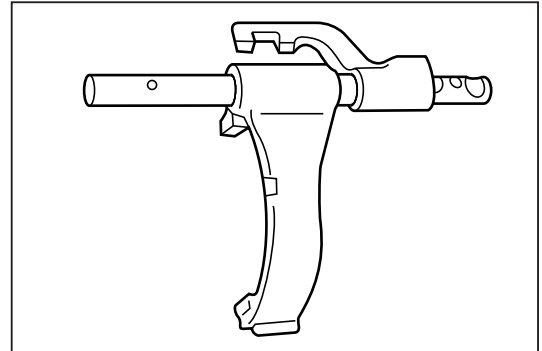
MMT00029-00025

20. Remove the 3rd & 4th shift fork shaft and the 3rd & 4th shift fork.



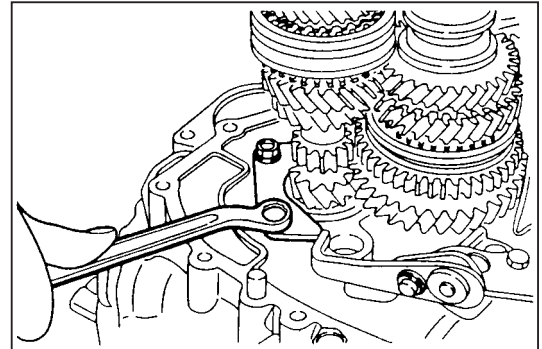
MMT00030-00026

21. Pull out the 1st & 2nd shift fork shaft. Remove the 1st & 2nd shift head.



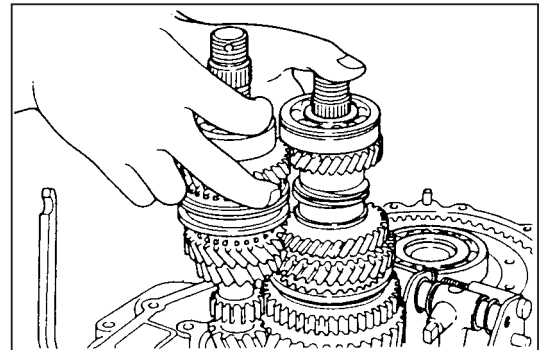
MMT00031-00027

22. Remove the input shaft bearing lock plate.



MMT00032-00028

23. Remove the input and output shaft assembly at the same time.



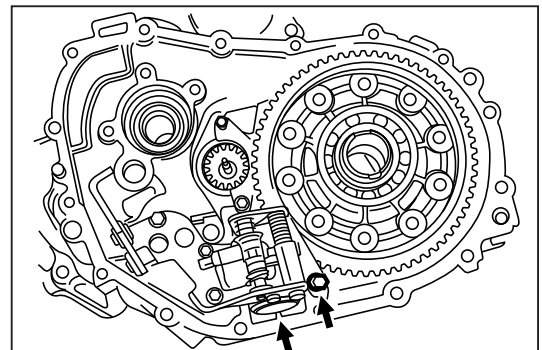
MMT00033-00029

24. Remove the selecting & shifting bell crank support assembly and the magnet.

NOTE:

1. Be sure not to release the staked section of the bell crank.
2. Replacement parts are supplied only as those with the bell crank support assembly. (The reverse restricting cam is excluded.)

Furthermore, it should be noted that the reverse restricting cam can not be disassembled.



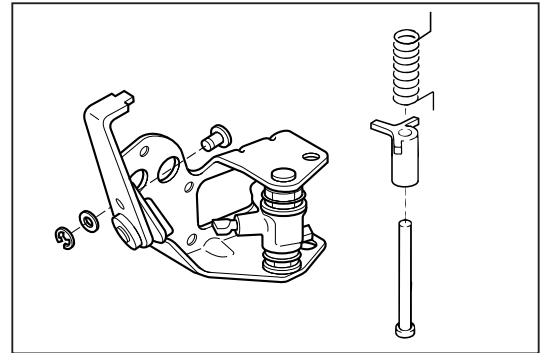
MMT00034-00030

MT-14

25. Disassemble the bell crank support assembly as required.

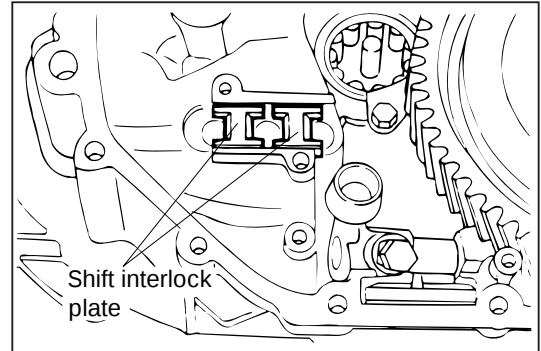
NOTE:

- Never reuse the removed slotted spring pin.



MMT00035-00031

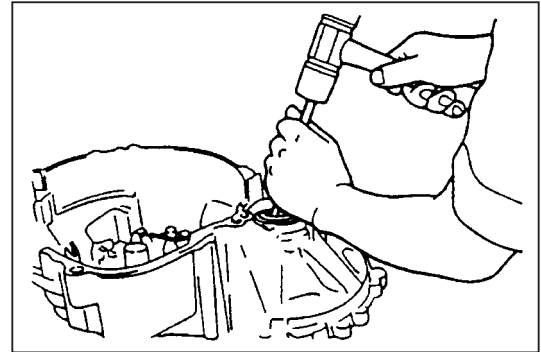
26. Remove the shift interlock plates.



MMT00036-00032

27. Differential case removal

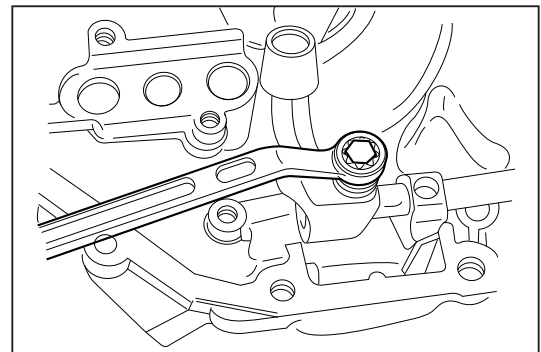
- (1) With a brass bar placed on the inner race of the side bearing, lightly tap the bar so that the differential case may be driven out from the transaxle case.



MMT00037-00033

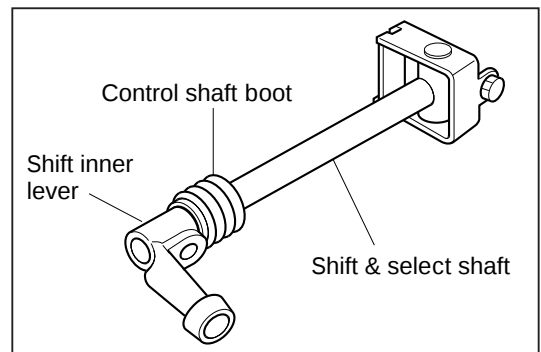
28. Removal of wave washer, nut and set bolt

- (1) After the nut has been loosened, proceed to loosen the set bolt.



MMT00038-00034

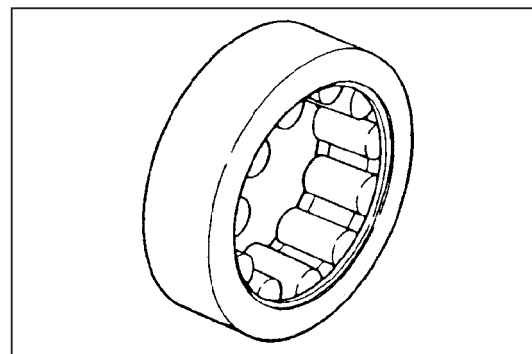
29. Remove shift & select shaft, shift inner lever and control shaft boot.



MMT00039-00035

INSPECTION

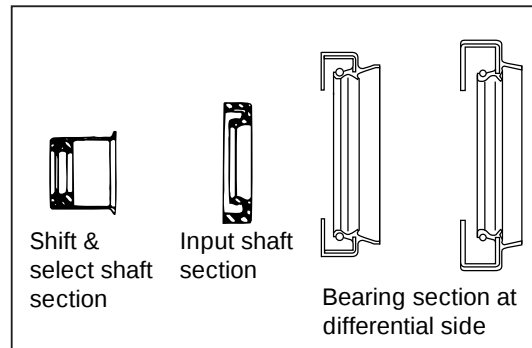
1. Check needle roller bearing for wear or damage under the assembled state.



MMT00040-00036

2. Check each oil seal for wear or damage.

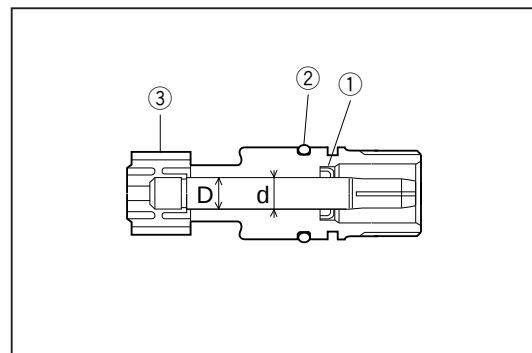
Part	Inspection criteria
Lip section of oil seal	Visually inspect to see if the lip section exhibits excessive damage or wear.



MMT00041-00037

3. Check speedometer shaft sleeve subassembly for wear or damage.

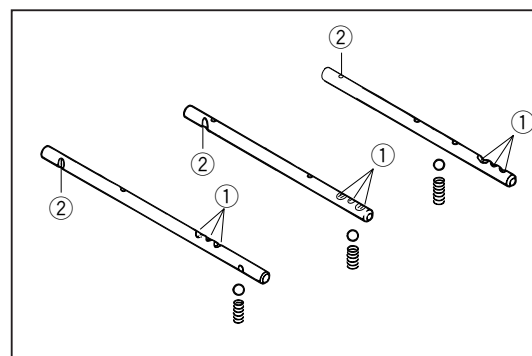
Part	Specified value mm	Limit mm
Driven gear shaft diameter D	8 $_{-0.028}^{-0.013}$	7.96
Shaft sleeve bore d	8 $_{+0.029}^{+0.065}$	8.10
Oil seal lip section ①	Visually inspect the section for excessive wear or damage.	
O-ring ②		
Driven gear tooth surface ③		



MMT00042-00038

4. Check shift fork shafts, balls and springs for damage or wear.

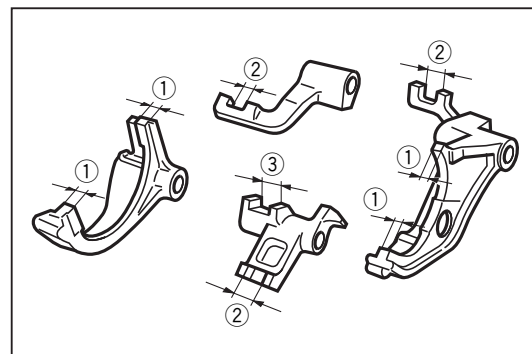
Part	Inspection criteria
Ball lock section ① and interlock section of fork shaft ②	Visually inspect the section for excessive damage or wear.



MMT00043-00039

5. Check 1st & 2nd shift fork, the 3rd & 4th shift fork and the reverse shift head for damage or wear.

Part	Specified value mm	Limit mm
Thickness at tip-section of fork ①	6.9 $_{-0.1}^{+0.1}$	6.3
Groove width of shift inner lever-contact-section ②	12.1 $_{-0.1}^{+0.1}$	12.7
Groove width of reverse shift arm pin-contact-section ③	15.0 $_{-0.043}^{+0.043}$	15.1



MMT00044-00040

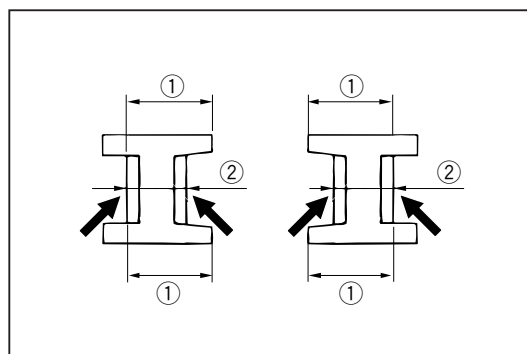
6. Check interlock plate for damage or wear.

Part		Specified value mm	Limit mm
Length of lock plate	①	16.3 ± 0.15	16.0
	②	11.3 _{-0.2}	11.1
Roller section		Check the section for excessive damage or wear.	

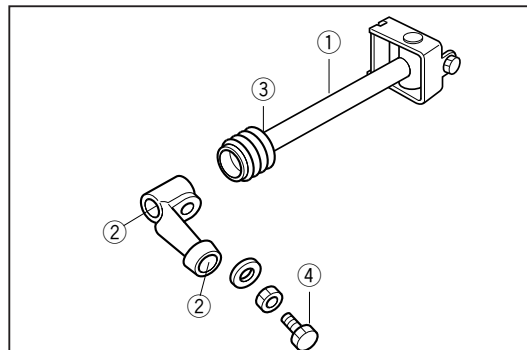
* Two plates must be replaced at the same time.

7. Check shift & select shaft and inner lever for damage or wear.

Part	Inspection criteria
Shift & select shaft ①	Visually inspect the following items given below. • Shaft for bend • Recessed section of inner lever and shaft inserting section for wear or damage. • Dust boot for cracks or wear • Tip-end of lock bolt and nut for wear
Inner lever recessed section and shaft inserting section ②	
Sliding section of dust boot and breakage ③	
Tip-end of lock bolt and nut ④	



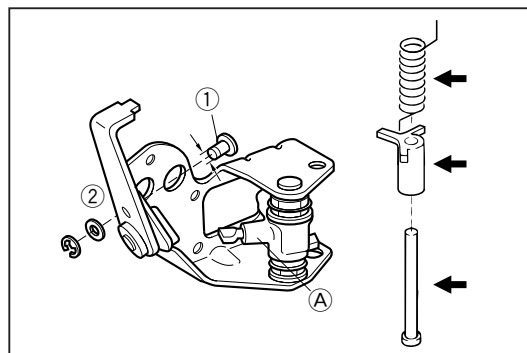
MMT00045-00041



MMT00046-00042

8. Check selecting & shifting bell crank and the reverse shift arm for damage or wear.

Part	Specified value mm	Limit mm
Reverse shift arm pin diameter ①	8.0 _{-0.040} _{-0.076}	7.9
Tip-end width of reverse shift arm ②	8.0 _{-0.080} _{-0.0116}	7.8
Operation of selecting & shifting bell crank	Check to see if the bell crank can move in up-and-down direction with detent felling.	



MMT00047-00043

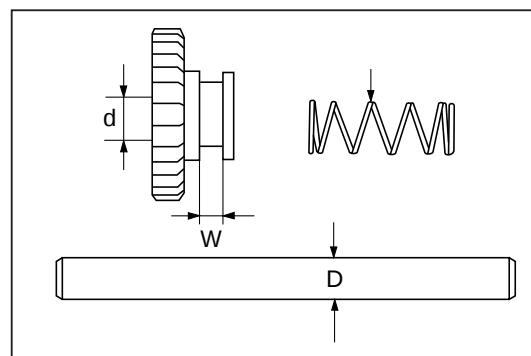
9. Check reverse restricting cam and shaft for damage or wear.

Part	Inspection criteria
Operation of restricting cam	• Ensure that the mis-operation preventing mechanism functions at the support assembly. ① The cam should be raised at the same time when the section A is lifted. ② When turned to the left, ensure that the cam drops and the section A is locked.
Each part of reverse restricting cam and shaft	Visually inspect each part for damage or wear.

MMT00048-00000

10. Check the reverse idler gear and the shaft for wear or damage.

Part		Specified value mm	Limit mm
Bush inner diameter	d	17 ^{+0.027}	17.05
Shaft outer diameter	D	17 ^{-0.032} _{-0.059}	16.9
Groove width	W	8 ^{+0.058}	8.2
Wear or damage of spring		Visually inspect the spring for flattened condition and the washer for wear or damage.	



MMT00049-00044

REPLACEMENT

Replace any parts that exhibit abnormality, following the procedure given below.

1. Oil seal for control shaft use

Disassembly:

Remove the oil seal by pinching its flange section with pliers.

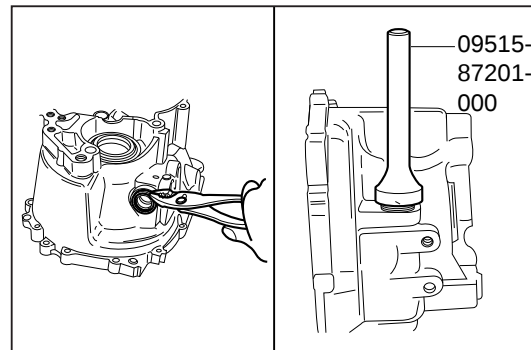
NOTE:

- Never reuse the removed oil seal.

Assembly:

Drive the oil seal into position, until it comes into contact with the axle case.

SST: 09515-87201-000



MMT00050-00045

2. Oil seal for input shaft use

Disassembly:

Remove the oil seal with a common screwdriver.

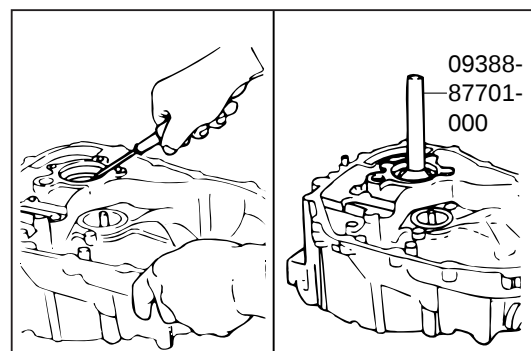
NOTE:

- Never reuse the removed oil seal.

Assembly:

Drive the oil seal into position, until it becomes flush with the edge surface of the transaxle case.

SST: 09388-87701-000



MMT00051-00046

3. Needle Roller Bearing.

Disassembly:

After the output shaft bearing lock plate has been removed, remove the needle roller bearing, using the following SST.

SST: 09308-00010-000

NOTE:

- Never reuse the removed needle roller bearing.

Assembly:

(1) Assemble the roller bearing, using the following SST.

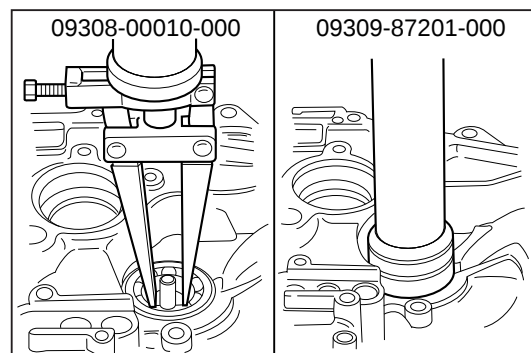
SST: 09309-87201-000

NOTE:

- Visually check to see if the output shaft cover exhibits severe distortion or clogging.

(2) Install the bearing lock plate.

Tightening Torque: 6.9 - 9.8 N·m



MMT00052-00047

4. Oil seal for differential use

Disassembly:

Remove the oil seal with a common screwdriver.

NOTE:

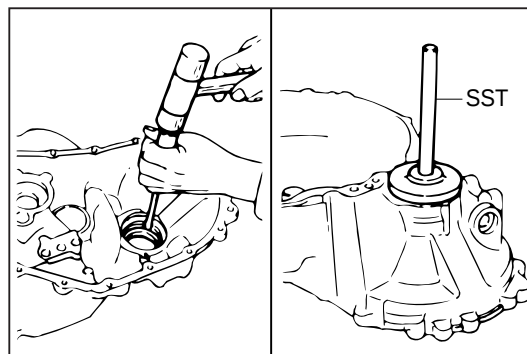
- Never reuse the removed oil seal.

Assembly:

Drive the oil seal into position, until it comes into contact with the rib of the transaxle case.

SST: 09517-87705-000 (Case side)

09517-87706-000 (Housing side)



MMT00053-00048

5. Oil seal for speedometer shaft sleeve

Disassembly:

Remove the oil seal, using the SST given below.

SST: 09921-00010-000

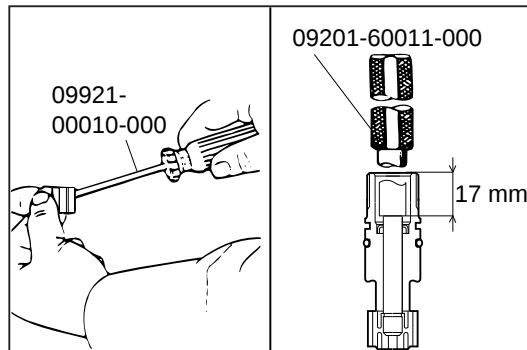
NOTE:

- Never reuse the removed oil seal.

Assembly:

Assembly the oil seal, using the SST given below.

SST: 09201-60011-000



MMT00054-00049

ASSEMBLY

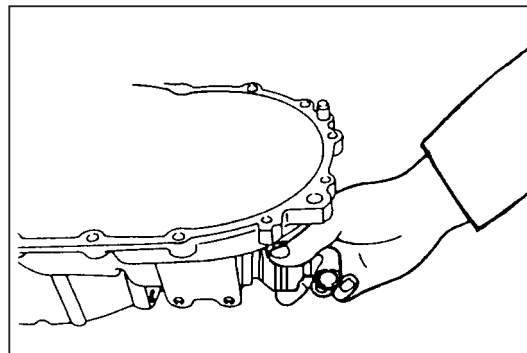
NOTE:

- Apply gear oil to the entire surface of the rotary or sliding section.

1. Assemble the boot and shift inner lever on the control shaft.

NOTE:

- Be very careful not to scratch the boot.



MMT00055-00050

2. Assemble the shift & selector shaft in the case.

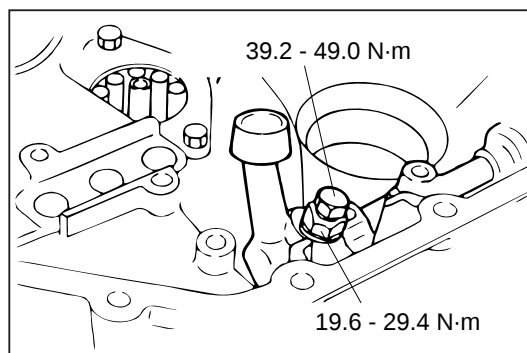
3. Assemble of wave washer, nut and setting bolt.

- (1) Align the hole of the shift inner lever with the cut-out section of the shift & selector shaft. Proceed to tighten the set bolt to the specified torque.

Tightening Torque: 39.2 - 49.0 N·m

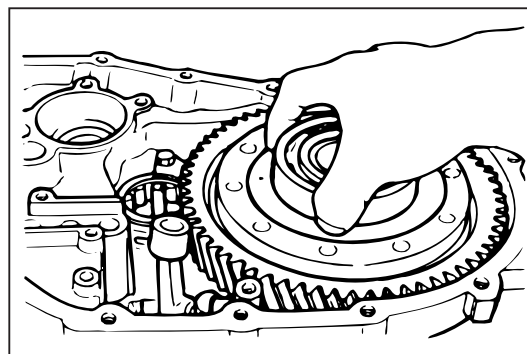
- (2) Tighten the nut to the specified torque.

Tightening Torque: 19.6 - 29.4 N·m



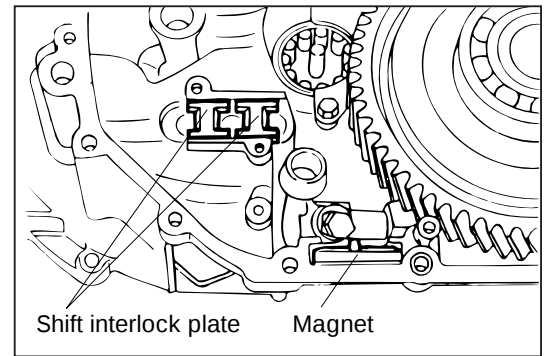
MMT00056-00051

4. Assemble the differential case.



MMT00057-00052

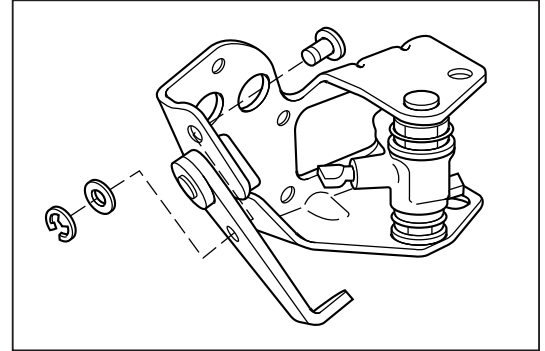
5. Assemble the shift interlock plates in the neutral position.
6. Install the magnet into the position.



MMT00058-00053

7. Assembly of selecting & shifting bell crank support assembly

- (1) Working from the inside of the case, install the shift arm pin. Assemble the washer.



MMT00059-00054

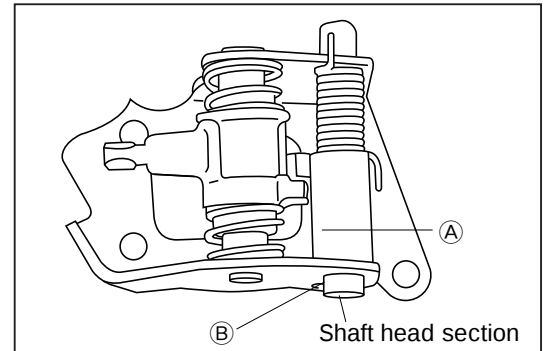
- (2) Drive the slotted spring pin into position, until it becomes flush with the edge surface (A) of the restricting cam.

- (3) Assemble the restricting cam.

Assemble the restricting cam in such a way that the slotted spring pin may be inserted into the hole (B)

NOTE:

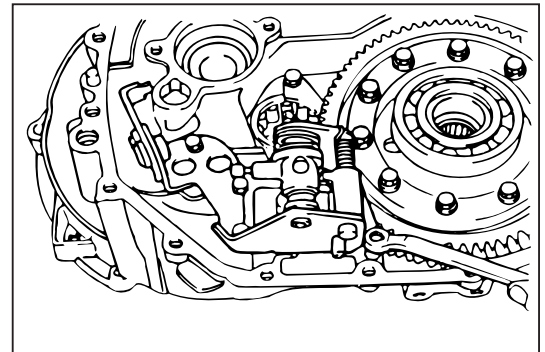
- Be sure not to forget to attach the spring in place.



MMT00060-00055

- (4) Assemble the selecting & shifting bell crank support assembly.

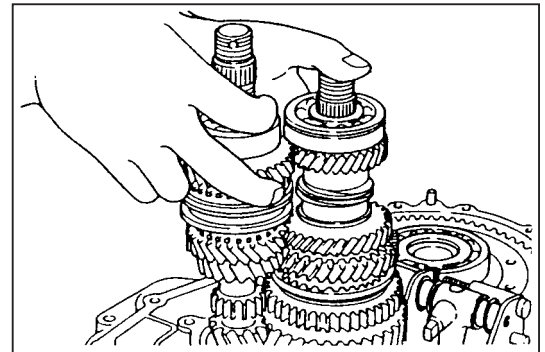
Tightening Torque: 6.9 - 9.8 N·m



MMT00061-00056

8. Assemble the input and output shaft assembly, including the 1st and 2nd shift fork at the same time.

- (1) Assembly the 1st & 2nd shift fork onto the synchronizer hub for the 1st & 2nd gear use provided at the output shaft side.

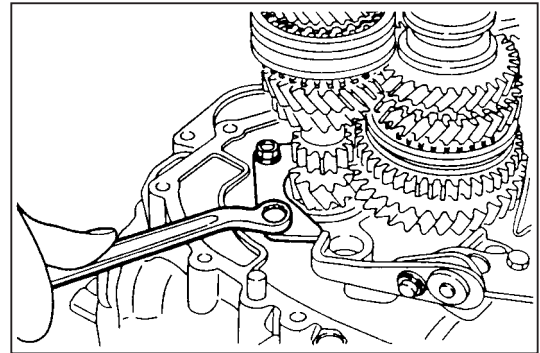


MMT00062-00057

MT-20

9. Assemble the input shaft bearing lock plate.

Tightening Torque: 14.7 - 21.6 N·m



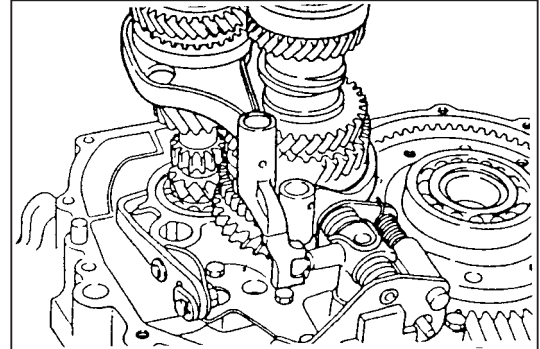
MMT00063-00058

10. Assembly of the 3rd & 4th shift fork.

NOTE:

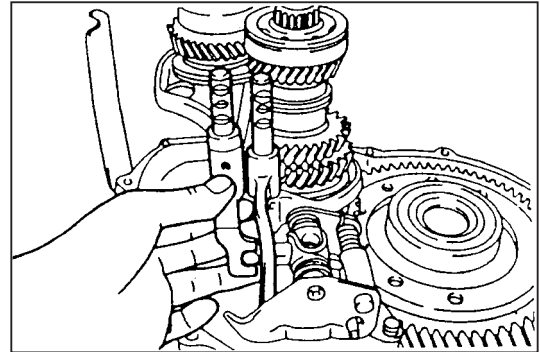
- Prior to the assembling, apply gear oil to the sliding section of each shift fork.

- (1) Assemble the 3rd & 4th shift fork onto the synchronizer hub for the 3rd & 4th gear use provided at the input shaft side.



MMT00064-00059

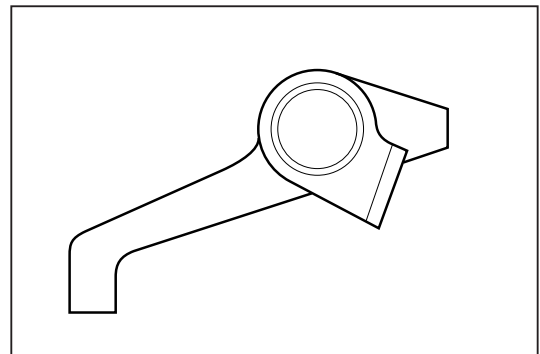
11. Assemble the 1st & 2nd shift head, the 1st & 2nd shift fork shaft and the 3rd & 4th shift fork shaft.



MMT00065-00060

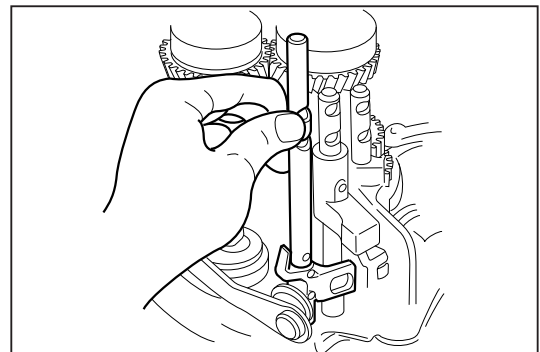
12. Assembly of reverse shift arm head

- (1) Assemble the arm head in the direction as indicated in the right figure.



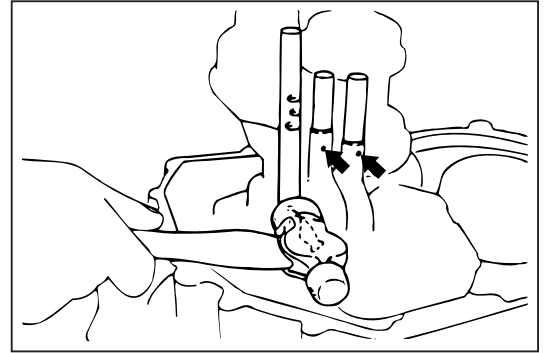
MMT00066-00061

13. Assemble the 5th & reverse shift fork shaft.



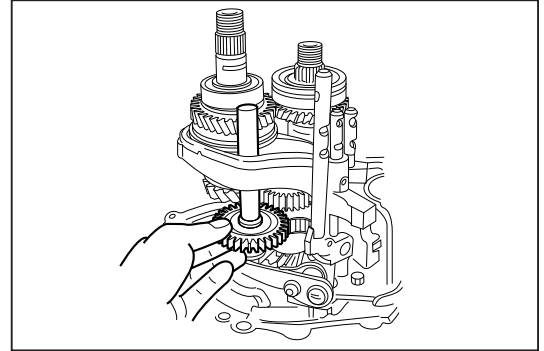
MMT00067-00062

14. Working from the direction as indicated in the figure, drive the slotted spring pins into position, until they become flush with the edge surface of the shift fork.



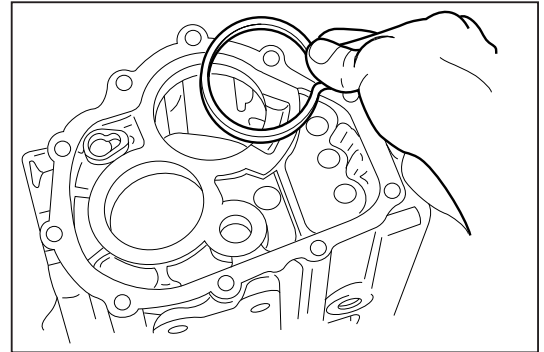
MMT00068-00063

15. Assemble the compression spring, reverse idler gear and reverse idler gear shaft.



MMT00069-00064

16. Install the hole snap ring in the transmission case.



MMT00070-00065

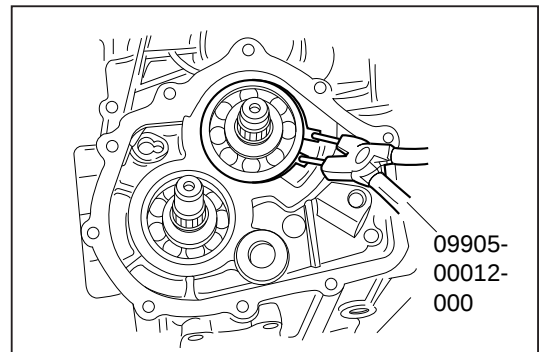
17. Transmission case assembly

- (1) Apply the Three Bond sealer 1216 or 1217 to the mating surface of the housing. While the hole snap ring of the bearing is held in an expanded state, assemble the transmission case in the transaxle case.

SST: 09905-00012-000

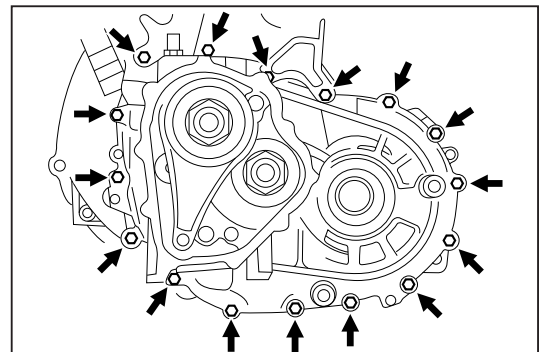
NOTE:

- Make sure that the snap ring is fitted positively in the bearing, by raising the output shaft by your hand.



MMT00071-00066

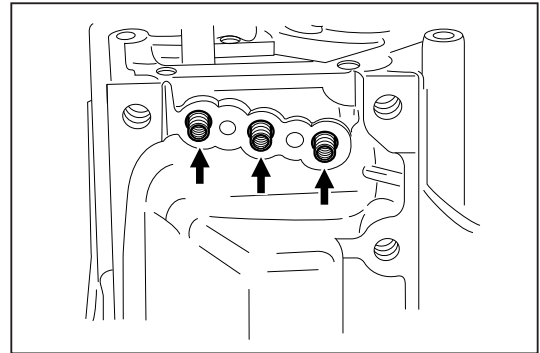
- (2) Tighten the housing attaching bolts.
Tightening Torque: 14.7 - 21.6 N·m



MMT00072-00067

MT-22

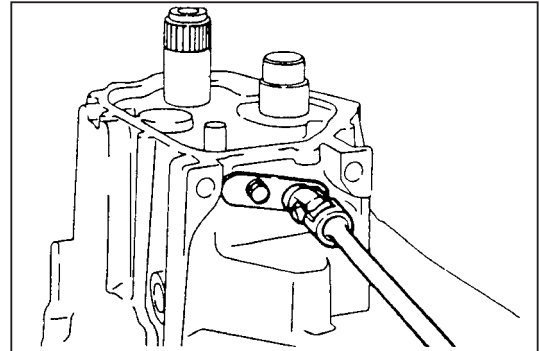
18. Assemble the three balls and the compression springs.



MMT00073-00068

19. Assemble the lock ball plate and gasket.

Tightening Torque: 6.9 - 9.8 N·m

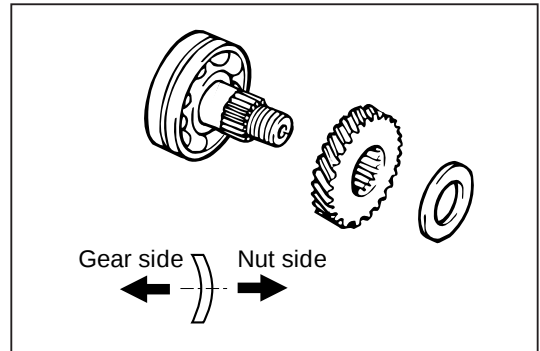


MMT00074-00069

20. Assemble the output 5th gear and the conical spring washer for the output shaft.

NOTE:

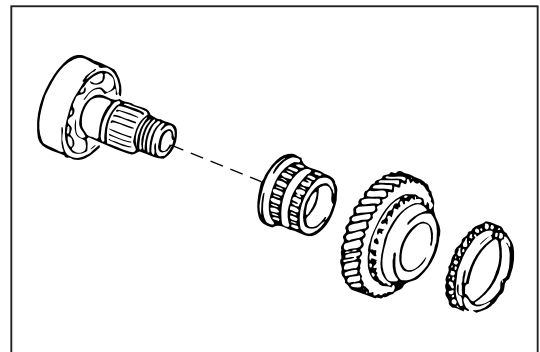
- Tighten a new lock nut temporarily.



MMT00075-00070

21. Assemble the 5th gear bush.

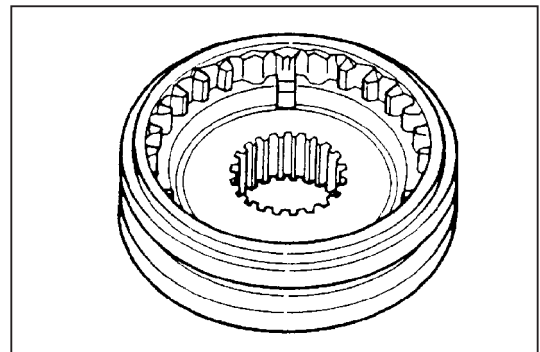
22. Assemble the 5th gear and synchronizer ring.



MMT00076-00071

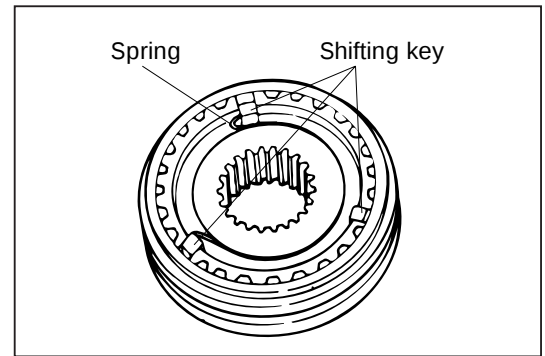
23. Assembly the transmission clutch hub

- (1) Assemble the clutch hub, aligning the spline-missing section of the clutch with the key installing section (in which teeth are missing at both sides) of the hub.



MMT00077-00072

- (2) Assemble the synchronizer ring at one side of the clutch hub. Place the clutch hub on a level bench in such a way that the side where synchronizer ring has been assembled may come at the lower side.
- (3) Assemble the three shifting keys and springs in place.
- (4) Install the synchronizer ring. Turn over the hub assembly.

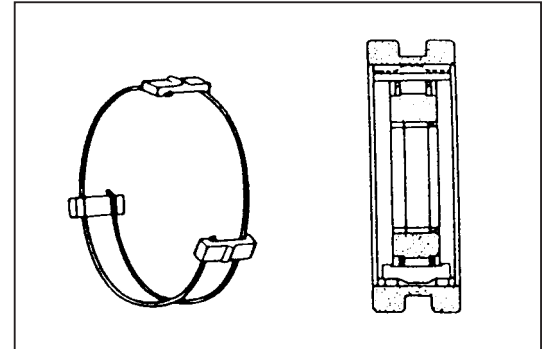


MMT00078-00073

- (5) Detach the synchronizer ring that has been installed in the step (2). Install the other spring.

NOTE:

- Make sure that this spring does not come at the same position as the spring at the opposite side.

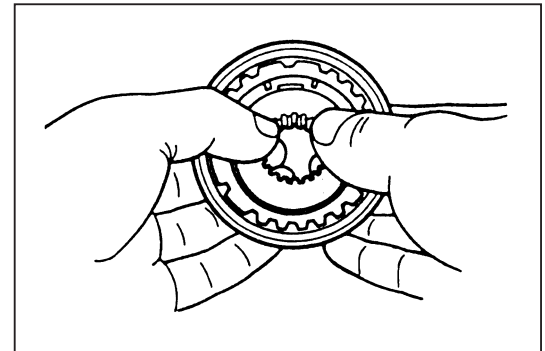


MMT00079-00074

- (6) Install the synchronizer ring in place. Push the synchronizer ring in both directions by your both hands. Check to see if the synchronizing action takes place smoothly.

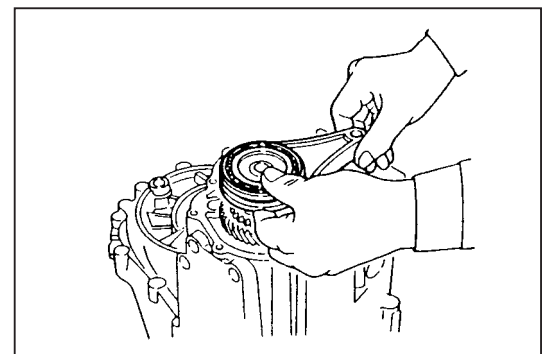
NOTE:

1. The hub assembly for the 3rd and 4th gear use differs from the hub assembly for the 5th gear use only in the inner diameter of the clutch hub. Other parts are shared in common.
2. The sleeve and clutch do not have any installing direction to be observed during their assembly.



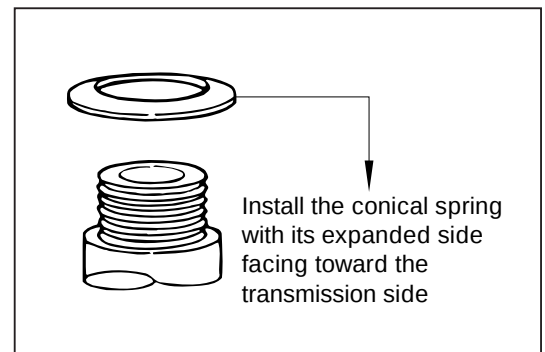
MMT00080-00075

24. Assemble the transmission clutch hub assembly and the 5th gear shift fork at the same time.



MMT00081-00076

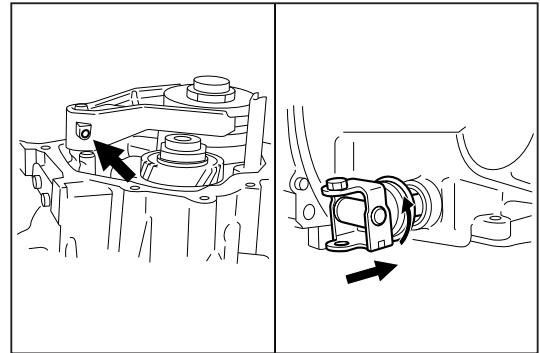
25. Assemble the transmission hub sleeve stopper.
26. Assemble the conical spring washer in such a way that its expanded side may face toward the transmission side.



MMT00082-00077

27. New lock nut installation.

(1) Make the gears in an interlocked state. (See page MT-10.)



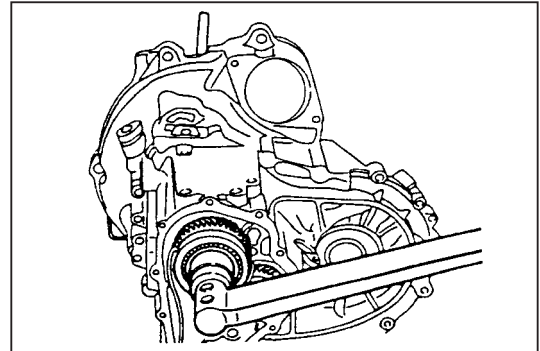
MMT00083-00078

(2) Tighten the lock nut at the input shaft to the specified torque, using a socket whose width across flats is 32 mm.

Tightening Torque: 98.0 - 137 N·m

(3) Tighten the lock nut at the output shaft to the specified torque.

Tightening Torque: 98.0 - 137 N·m

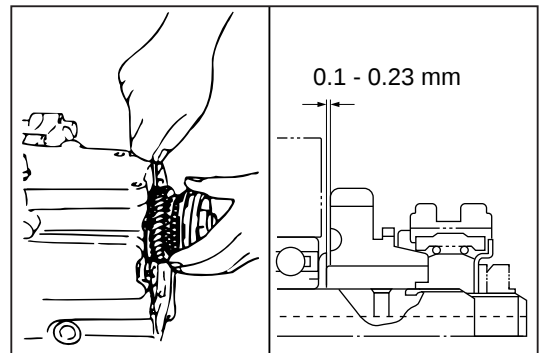


MMT00084-00079

(4) Before the lock nut is staked, measure the end play of the 5th gear.

Specified Value: 0.1 - 0.23 mm

Limit: 0.4 mm

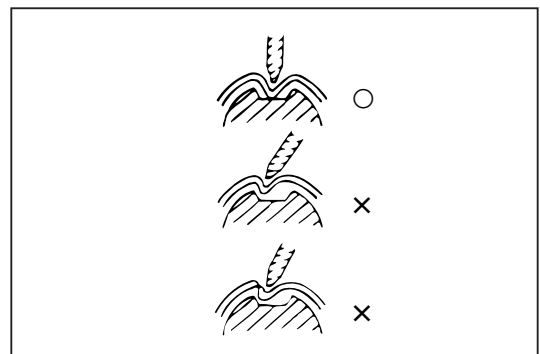


MMT00085-00080

(5) Stake the lock nut, using a chisel.

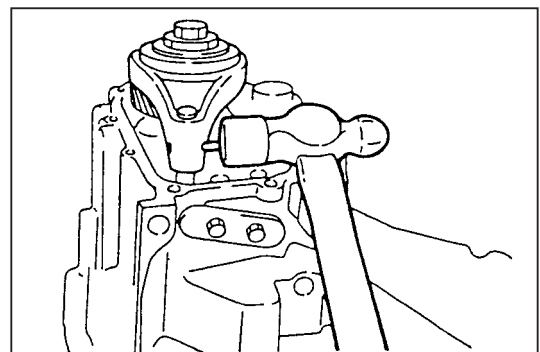
NOTE:

- Be sure to stake the central part of the lock nut so as to avoid dislocation or cracks.



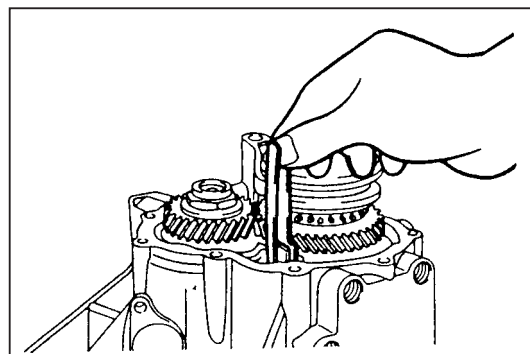
MMT00086-00081

28. Drive new slotted spring pin into position, until it becomes flush with the edge surface of the shift fork.



MMT00087-00082

29. Install the case cover oil pipe until its rib section comes into contact with the case.

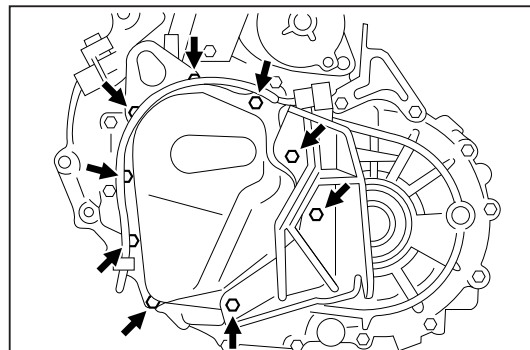


MMT00088-00083

30. Assemble the transmission case cover
- (1) Apply the liquid gasket sealer (Three Bond 1216 or 1217) to the mating surfaces of the case, except for those hole areas.
 - (2) Tighten the transmission case installing bolts.
- Tightening Torque: 6.9 - 9.8 N·m

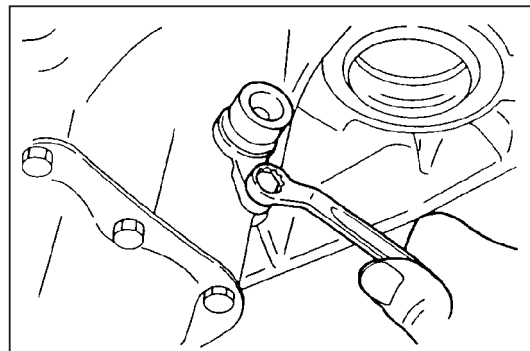
NOTE:

- Be sure to not bend the oil pipe when install the transmission case cover.



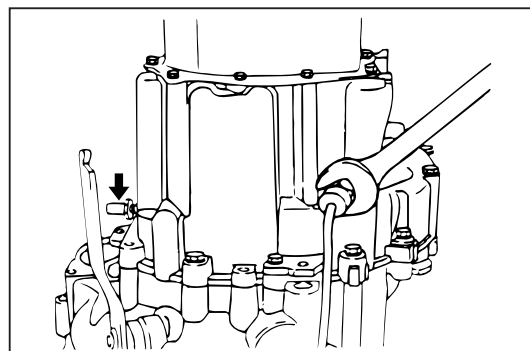
MMT00089-00084

31. Assemble the speedometer shaft sleeve subassembly and lock plate.
- Tightening Torque: 6.9 - 9.8 N·m



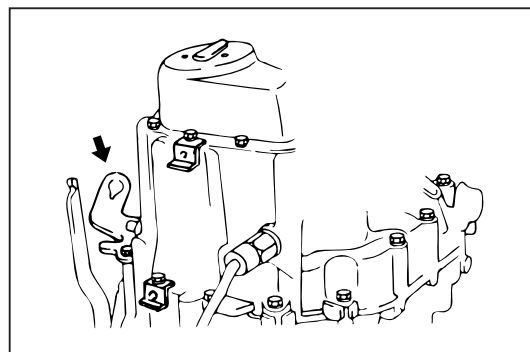
MMT00090-00085

32. Install the backup lamp switch and the breather plug.
- Tightening Torque:
- 29.4 - 49.0 N·m (Back up Lamp Switch)
 - 9.8 - 12.7 N·m (Breather Plug)



MMT00091-00086

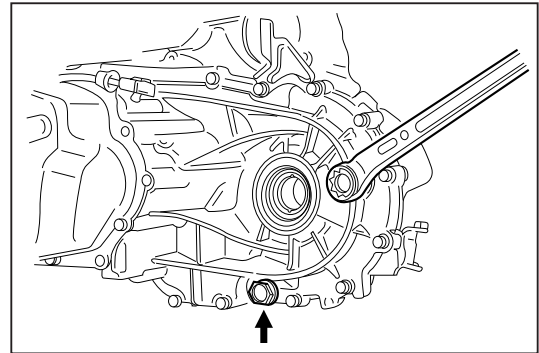
33. Install the clutch cable bracket.
- Tightening Torque: 14.7 - 21.6 N·m



MMT00092-00087

34. Install the screw plugs with new gaskets (at the drain and filler side).

Tightening Torque: 29.4 - 49.0 N·m



MMT00093-00088

APPLICATION POINTS OF GREASE & BOND AND APPLICATION PROCEDURE

① NOTE:

As for each gear clustered on the input and output shafts and the rotary and sliding sections of the oil seals, apply gear oil to the entire surface of each part.

Apply transmission oil to each of gear and bush sliding surface.

Entire periphery of case (Three Bond 1216 or 1217)

Entire periphery of case (Three Bond 1216 or 1217)

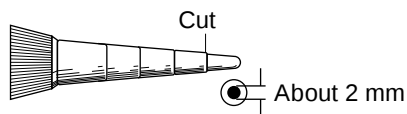
Lip section of oil seal (MP grease)

Lip section of oil seal (MP grease)

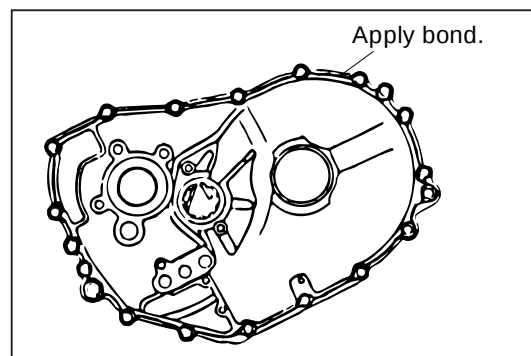
MMT00094-00089

Application Procedure for Liquid Gasket Sealer (Three Bond 1216 Or 1217)

1. Cut the first stage of the nozzle of the sealer (Three Bond 1216 or 1217) that is furnished in accessories.



2. Remove any remaining trace of the liquid gasket that may be found on the housing or the case with thinner or a scraper. Care must be exercised not to scratch the surfaces during the cleaning.



MMT00095-00090

3. Apply the liquid sealer to the entire periphery of the housing or case without any unapplied spot, as indicated in the illustration at the right.

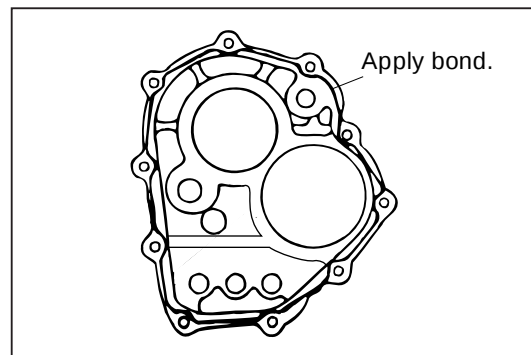
NOTE:

1. Apply the liquid sealer to the inside of each hole, excluding those bolts holes.
2. Be sure to perform the assembling within five minutes after the application of the liquid sealer.
3. Make sure to dry the thinner completely.

NOTE:

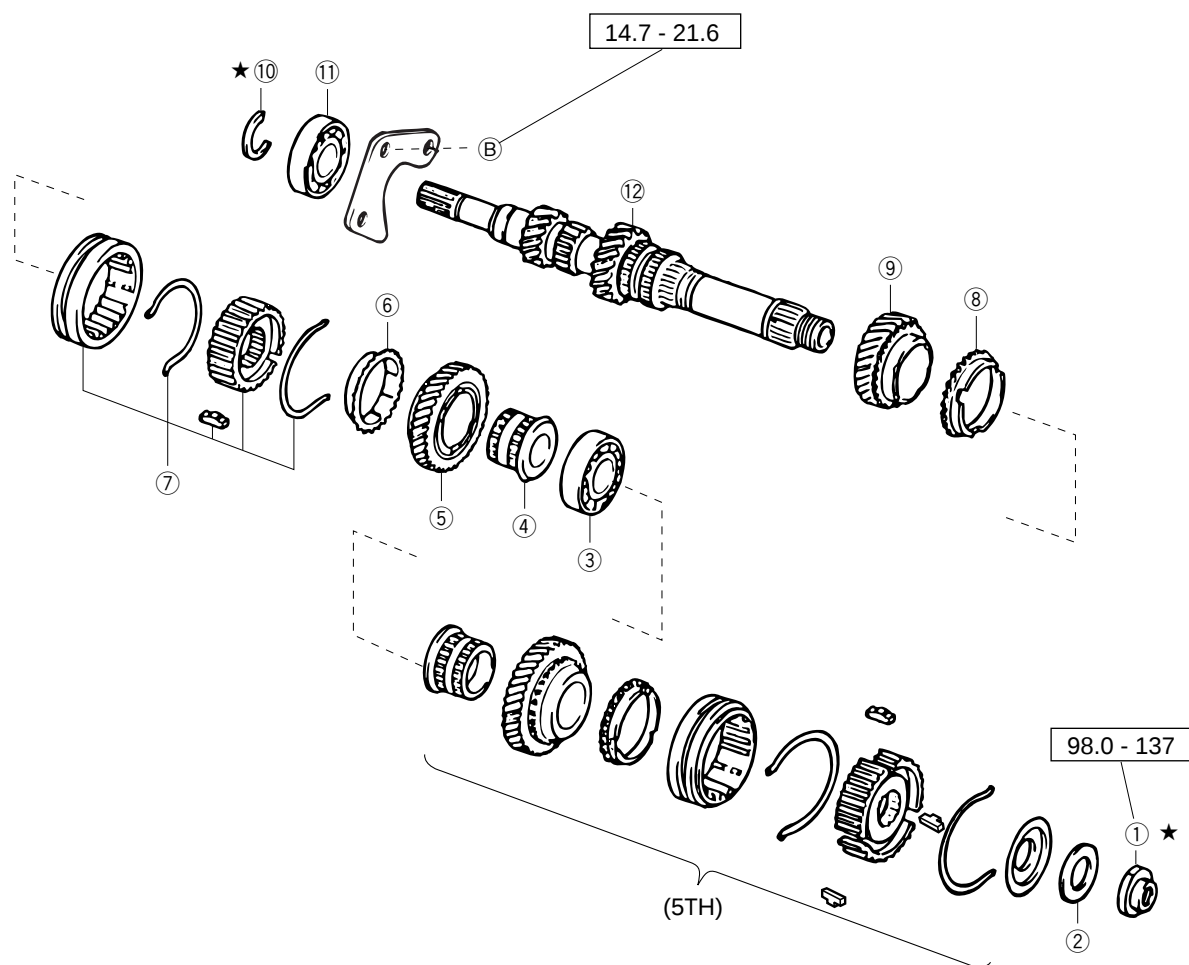
< Handling Instructions on Liquid gasket >

1. The liquid gasket starts to cure when it reacts with the moisture in the atmosphere. Hence, upon completion of the work, be sure to expel any air trapped in the tube and tighten the tube cap securely.
2. As regards the storage place for this liquid gasket, avoid such places where high temperature or high humidity prevails or those exposed to direct sunrays. Make sure to store it in a dry, cold and dark place. (The allowable limit for use is approximately six months.)



MMT00096-00091

INPUT SHAFT COMPONENTS



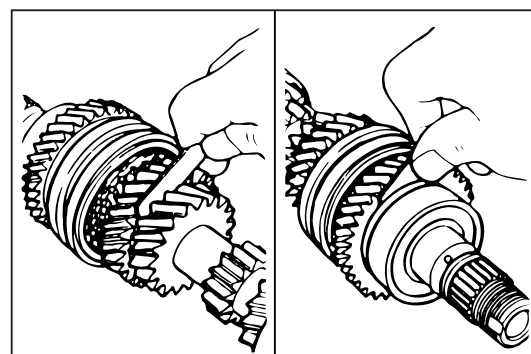
Operation Prior to Disassembly

1. Pull out the input shaft and the output shaft at the same time from the transmission case.
2. Measure the endplay of the 3rd gear and 4th gear.

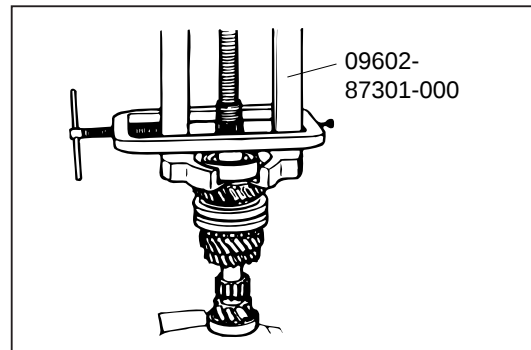
Part	Specified value mm	Limit mm
3rd gear	0.1 - 0.37	0.5
4th gear	0.1 - 0.23	0.4

DISASSEMBLY

1. Remove the bearing, using the following SST.
SST: 09602-87301-000

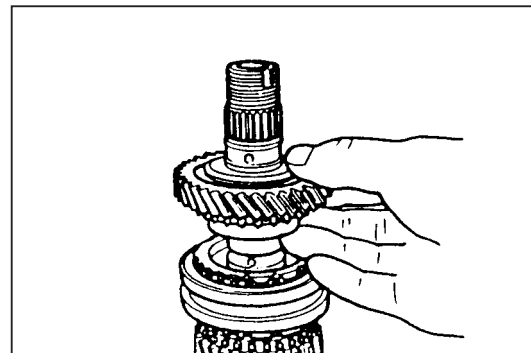


MMT00098-00093



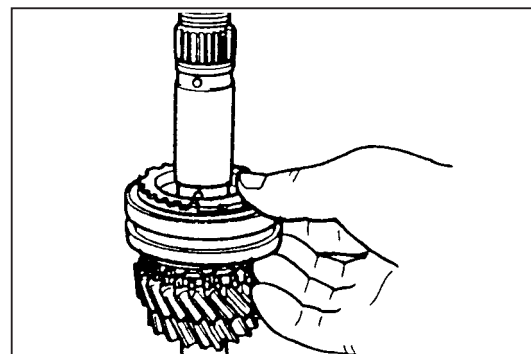
MMT00099-00094

2. Remove the 4th gear and 4th gear bush.



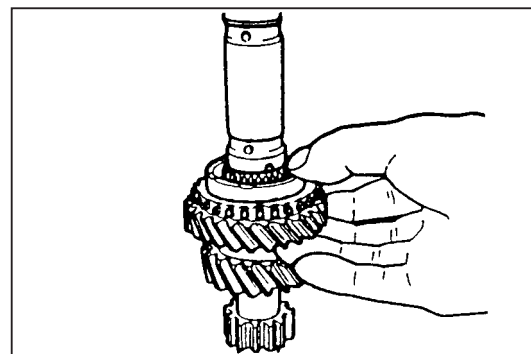
MMT00100-00095

3. Remove synchronizer ring and synchronizer hub assembly No. 2.
Detach the two synchromesh shifting springs and three synchromesh shifting keys.



MMT00101-00096

4. Remove the synchronizer ring and the 3rd gear.



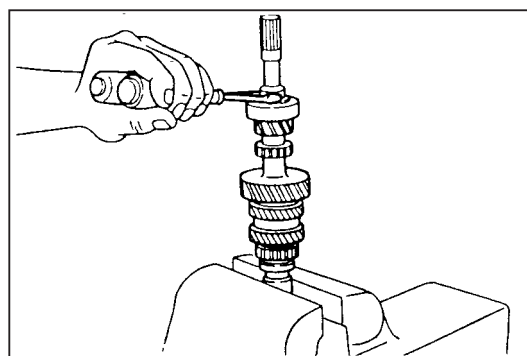
MMT00102-00097

MT-30

- Detach the shaft snap ring, using two screwdrivers.

NOTE:

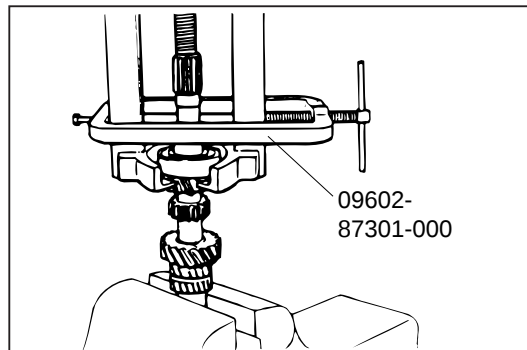
- Special care must be exercised as to the snap ring which may be lost during the disassembly.
- Never reuse the shaft snap ring.



MMT00103-00098

- Remove the bearing, using the following SST.

SST: 09602-87301-000

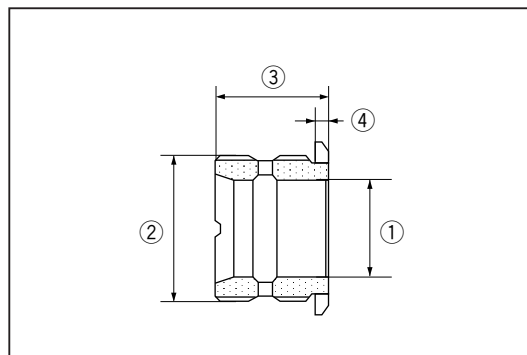


MMT00104-00099

INSPECTION

- Check the 4th and 5th gear bush for wear or damage.

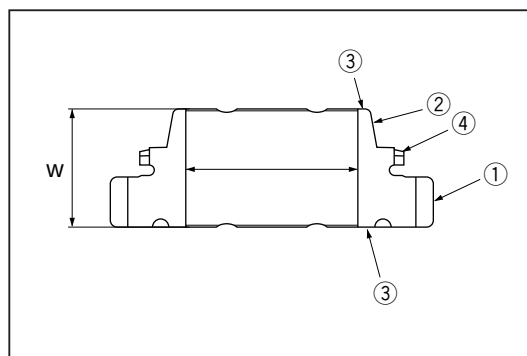
Part	Specified value mm	Limit mm
Bore ①	25 $\begin{smallmatrix} +0.042 \\ +0.027 \end{smallmatrix}$	25.05
Outer diameter ②	37 $\begin{smallmatrix} -0.040 \\ -0.060 \end{smallmatrix}$	36.89
Overall length ③	29 $\pm$ 0.03	28.97
Thickness of flange section ④	3 $\pm$ 0.06	2.94



MMT00105-00100

- Check each gear for wear or damage.

Part	Specified value mm		Limit mm	
	Bore (B)	Width (W)	Bore (B)	Width (W)
3rd gear (input)	37 $\begin{smallmatrix} +0.025 \\ +0 \end{smallmatrix}$	27.5 $\begin{smallmatrix} -0.20 \\ -0.27 \end{smallmatrix}$	37.05	27.2
4th gear (input)	37 $\begin{smallmatrix} +0.025 \\ +0 \end{smallmatrix}$	26 $\begin{smallmatrix} -0.13 \\ -0.20 \end{smallmatrix}$	37.05	25.7
Splined section	Visually inspect the section for excessive damage or wear.			
Gear section ①				
Tapered section ②				
Both edge surfaces of gear ③	Inspect the section for excessive play, nick or rounded edge.			
Fitting section with hub sleeve ④				

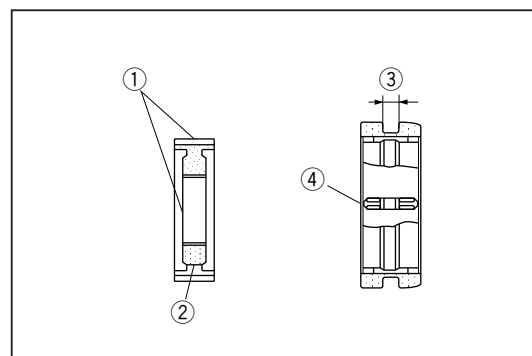


MMT00106-00101

3. Check clutch hub and sleeve for the 3rd & 4th gear use for wear or damage.

Clutch Hub

Part	Limit
Splined section ①	Visually inspect the section for excessive damage or wear.
Synchromesh shifting key fitting groove ②	
With hub fitted into the sleeve, check for excessive looseness in up-&-down direction and slant of hub and sleeve.	



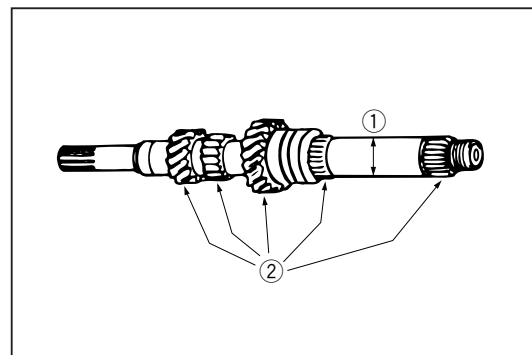
MMT00107-00102

Sleeve

Part	Specified value mm	Limit mm
Shift fork groove width ③	7.0 $^{+0.12}_{+0.05}$	7.3
Fitting section with hub ④	Visually inspect the section for excessive damage, wear, nick or rounded edge.	

4. Check input shaft for wear or damage.

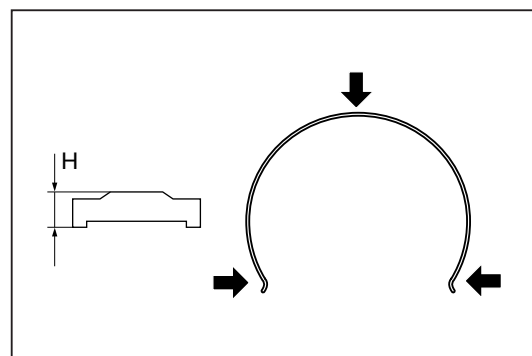
Part	Specified value mm	Limit mm
Outer diameter of bush bore-contact-section ①	25 $^{+0.017}_{+0.002}$	24.99
Tooth surfaces of gear and spline ②	Visually inspect the surface for excessive damage, wear, nick or rounded edge.	



MMT00108-00103

5. Check synchromesh shifting key and key spring for wear or damage.

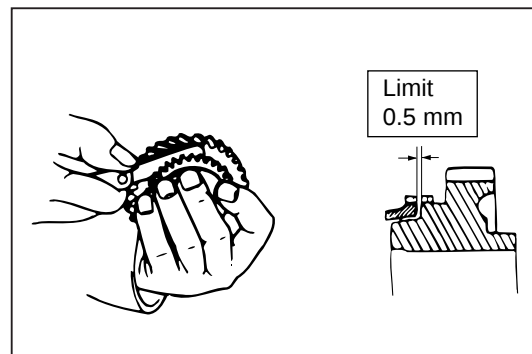
Part	Specified value mm	Limit mm
Key for 3rd & 4th gear (dimension H)	5.0 $^{-0.2}_{-0.4}$	4.3
Spring	Visually inspect the spring for damage or distortion.	



MMT00109-00104

6. Check synchronizer ring for wear or damage.

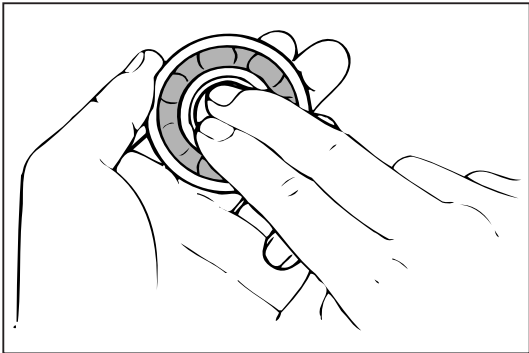
Part	Specified value mm	Limit mm
Gap when synchronizer ring is pressed to gear	3rd and 4th gear 0.85 - 1.45	0.5
Damage at inner tapered section	Visually inspect the section for excessive damage.	
Damage at spline		



MMT00110-00105

7. Check the bearing for wear or damage.

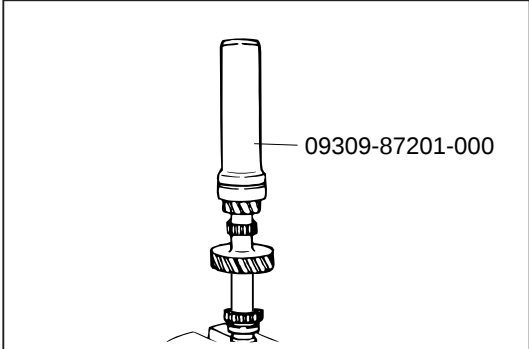
Part	Inspection criteria
Bearing	When the inner race is turned by your fingers, it should turn smoothly without any binding.



MMT00111-00106

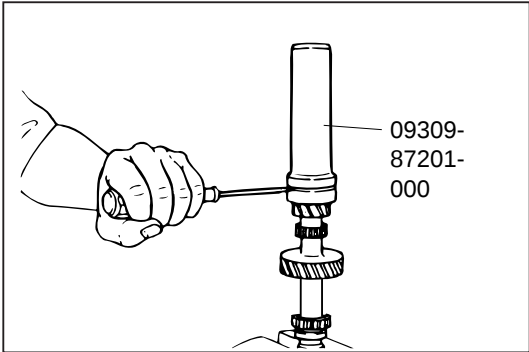
ASSEMBLY

- 1. Apply gear oil to the entire surface of the rotary or sliding section of each gear of the input shaft.
- 2. Assemble the bearing, using the following SST.
SST: 09309-87201-000



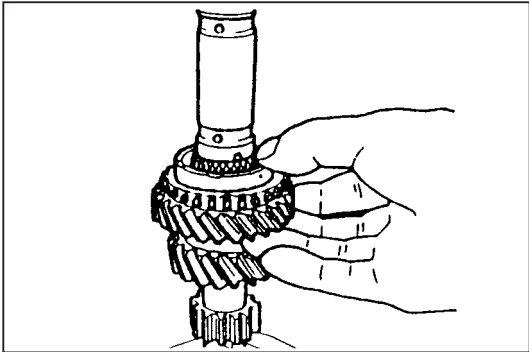
MMT00112-00107

- 3. Drive a new snap ring into position, using a screwdriver. For easier installation, hold the snap ring with the following SST.
SST: 09309-87201-000



MMT00113-00108

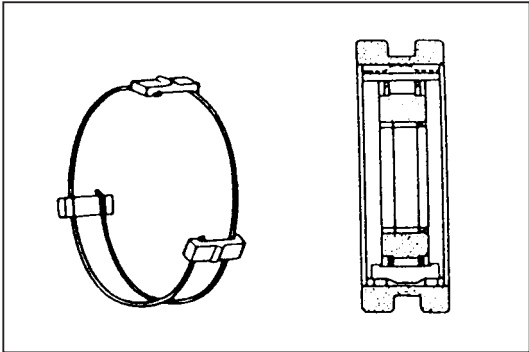
- 4. Assemble 3rd gear.



MMT00114-00109

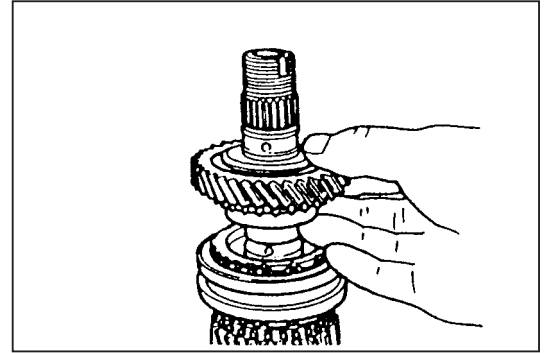
- 5. Assemble synchronizer ring and hub assembly No. 2.
(1) Assemble the hub and sleeve. Ensure that both parts can slide smoothly.
(2) Assemble the shifting keys and springs.
NOTE:

- Hook the key springs to the synchromesh shifting keys during the assembly, as shown in the right figure.



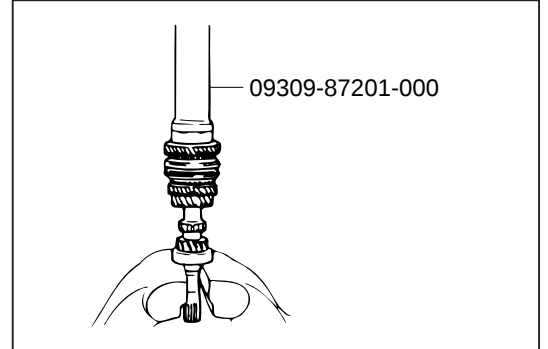
MMT00115-00110

6. Assemble synchronizer ring and 4th gear.
7. Assemble 4th gear and 4th gear bushing.



MMT00116-00111

8. Assemble the bearing, using the following SST.
SST: 09309-87201-000



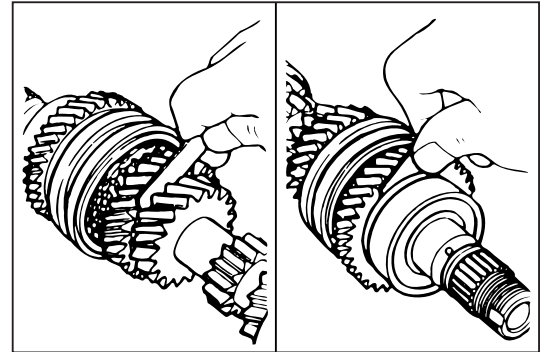
MMT00117-00112

9. Upon completion of the assembly, measure the end play of each part of the input shaft.

Part	Specified value mm	Limit mm
3rd gear	0.1 - 0.37	0.5
4th gear	0.1 - 0.23	0.4

NOTE:

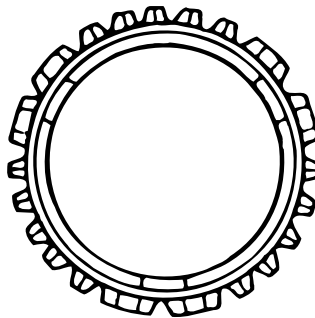
- If the end play does not comply with the specification, check the gear, bushing and clutch hub sliding section. Replace any parts which exhibit abnormality.



MMT00118-00113

DISCRIMINATION

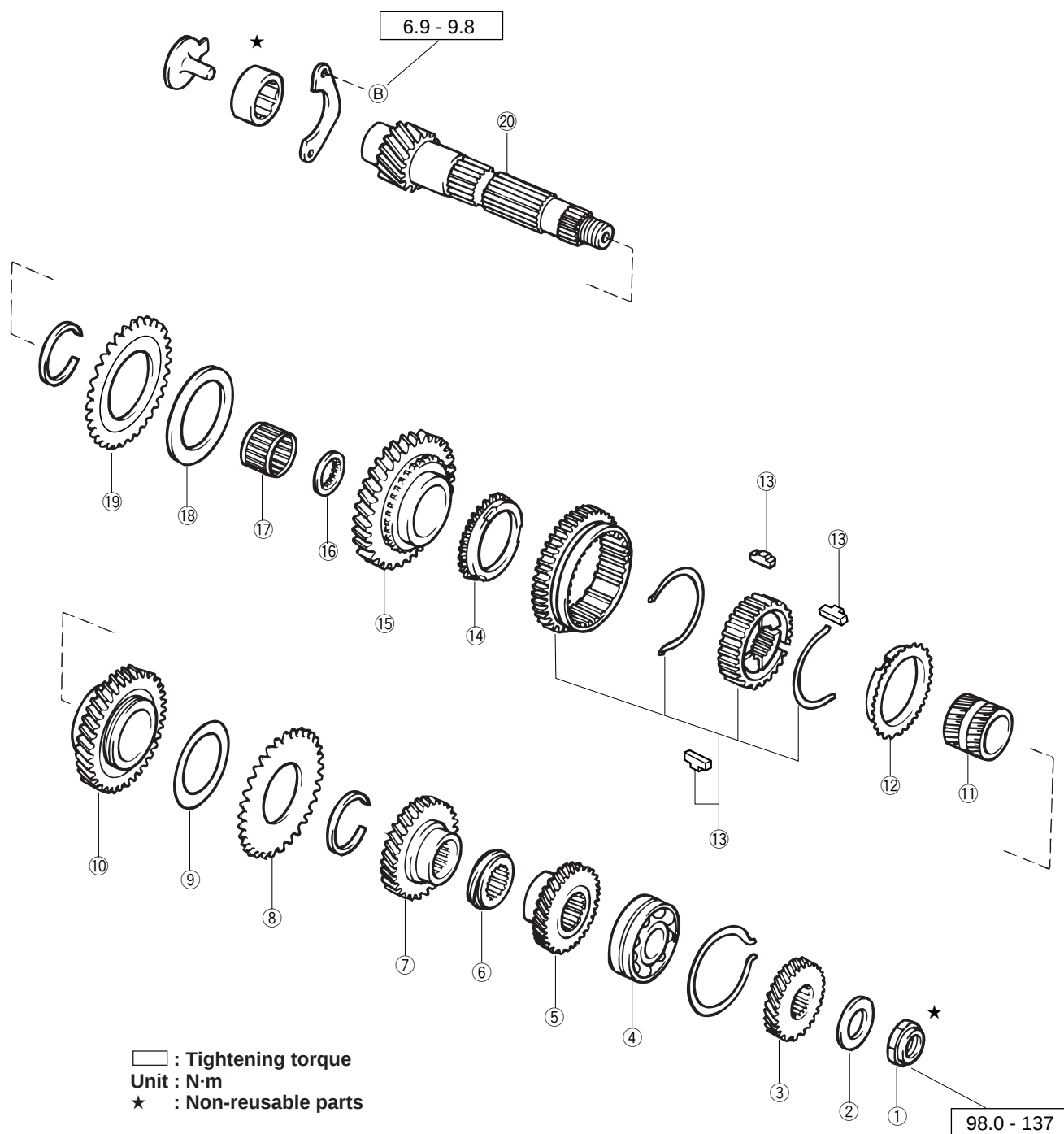
1. Discrimination of synchronizer ring



Synchronizer ring No. 1
(For 3rd, 4th and 5th gear)

MMT00119-00114

OUTPUT SHAFT COMPONENTS



- ① Lock nut
- ② Conical spring washer
- ③ Output 5th gear
- ④ Bearing
- ⑤ Output 4th gear
- ⑥ Speedometer drive gear
- ⑦ Output 3rd gear
- ⑧ Scissors gear
- ⑨ Spring plate
- ⑩ 2nd gear assembly

- ⑪ Bushing
- ⑫ Synchronizer ring No. 3
- ⑬ Synchronizer hub assembly
- ⑭ Synchronizer ring No. 2
- ⑮ 1st gear assembly
- ⑯ Washer
- ⑰ Needle roller bearing
- ⑱ Spring plate
- ⑲ Scissors gear
- ⑳ Output shaft

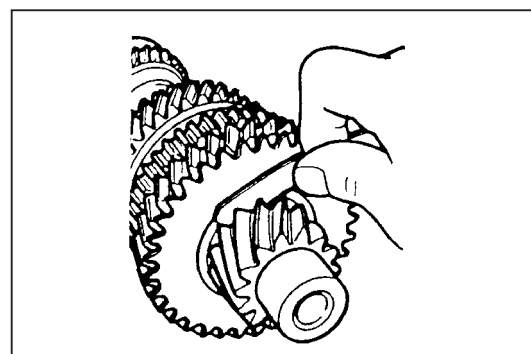
Operation Prior to Disassembly

1. Pull out input and output shaft at the same time from transmission case.
2. Measure the endplay of the 1st and 2nd gear of the output shaft.

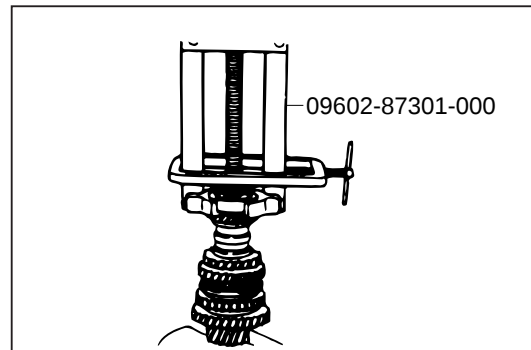
Part	Specified value mm	Limit mm
1st gear	0.1 - 0.40	0.5
2nd gear	0.1 - 0.23	0.4

DISASSEMBLY

1. Remove bearing, using following SST.
SST: 09602-87301-000

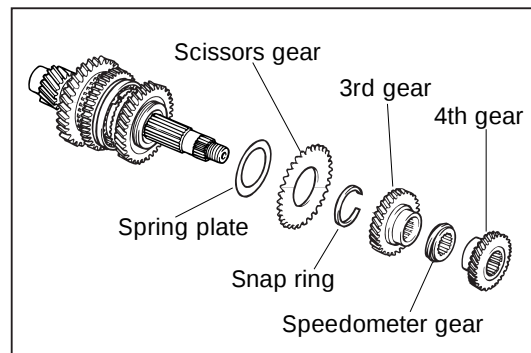


MMT00121-00116



MMT00122-00117

2. Remove output 4th gear, speedometer drive gear, output 3rd gear, snap ring, scissors gear and spring plate.

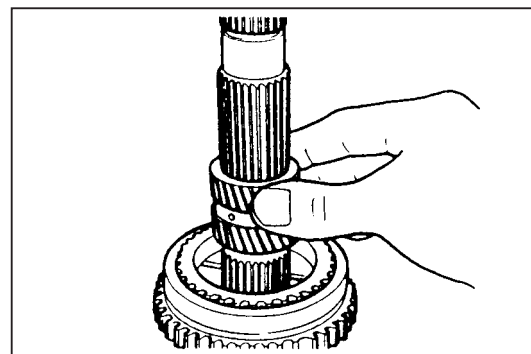


MMT00123-00118

3. Remove 2nd gear.

MMT00124-00000

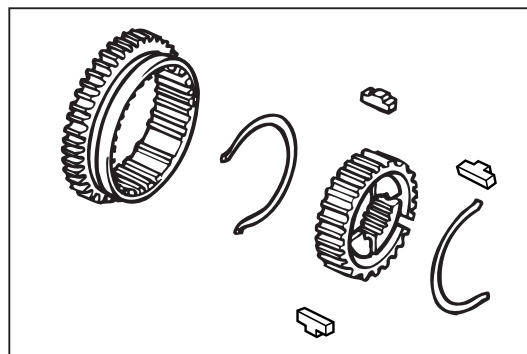
4. Remove 2nd gear bush and synchronizer ring No. 3.



MMT00125-00119

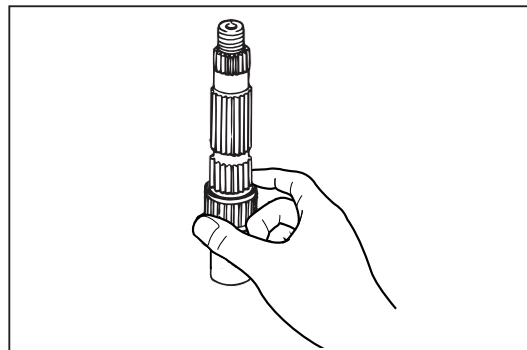
MT-36

5. Removal of synchronizer hub assembly.
 - (1) Remove the two synchromesh shifting key springs and three synchromesh shifting keys.
6. Remove synchronizer ring No. 2 and 1st gear.
 - (1) Remove snap ring, scissors gear and spring plate from 1st gear.



MMT00126-00120

7. Remove washer and needle roller bearing.

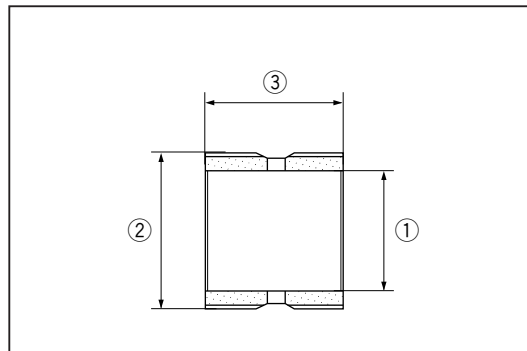


MMT00127-00121

INSPECTION

1. Check the 2nd gear bushing for wear or damage.

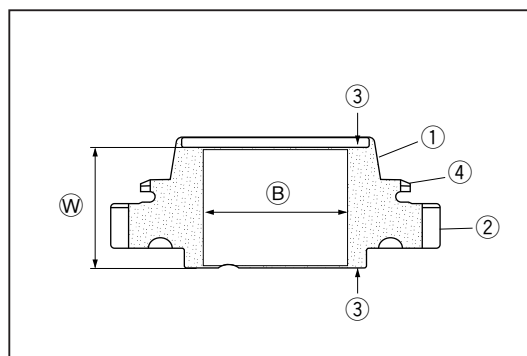
Part	Specified value mm	Limit mm
Bore ①	29 ^{-0.115} / _{-0.130}	28.91
Outer diameter ②	37 ^{-0.040} / _{-0.060}	36.89
Overall length ③	32.5 ± 0.03	32.47



MMT00128-00122

2. Check each gear for wear or damage.

Part	Specified value mm		Limit mm	
	Bore (B)	Width (W)	Bore (B)	Width (W)
1st gear	37 ^{+0.025}	30.5 ^{-0.20} / _{-0.27}	37.05	30.2
2nd gear	37 ^{+0.025}	32.5 ^{-0.13} / _{-0.20}	37.05	32.2
3rd gear	37 ^{+0.025}	27.5 ^{-0.20} / _{-0.27}	37.05	27.2
4th gear	37 ^{+0.025}	26.0 ^{-0.13} / _{-0.20}	37.05	25.7
5th gear	37 ^{+0.025}	26.0 ^{-0.13} / _{-0.20}	37.05	25.7
Tapered section ①	Visually inspect the section for excessive damage or wear.			
Gear section ②				
Both edge surfaces of gear ③				
Fitting section with hub sleeve ④	Inspect the section for excessive play, nick or rounded edge.			

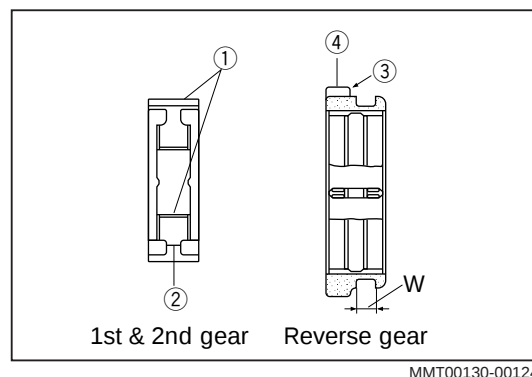


MMT00129-00123

3. Check clutch hub for the 1st & 2nd gears and reverse gear for wear or damage.

Clutch Hub

Part	Limit
Splined section ①	Visually inspect the section for excessive damage or wear.
Synchromesh shifting key fitting groove ②	
With the hub fitted into the reverse gear, check for excessive looseness in up-&-down direction and the slant of the hub and reverse gear.	

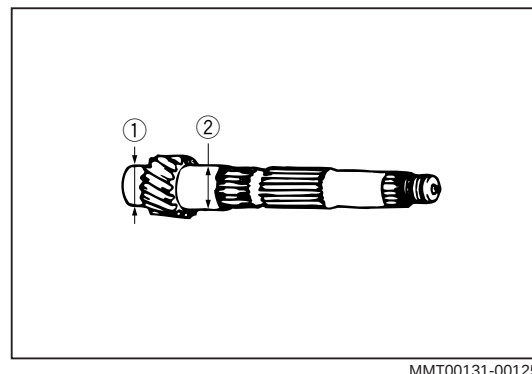


Reverse Gear

Part	Specified value mm	Limit mm
Shift fork groove width (W)	7.0 $^{+0.18}_{+0.05}$	7.3
Fitting section with gear ③	Visually inspect the section for excessive damage, wear, nick or rounded edge.	
Reverse gear tooth surface ④		

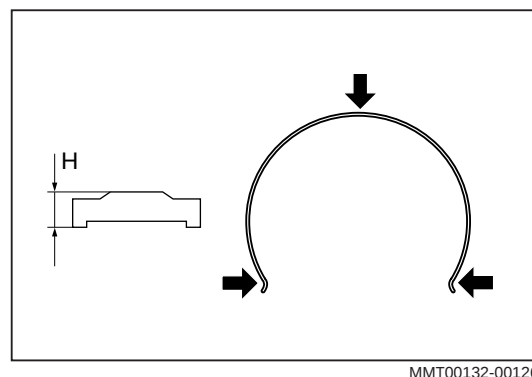
4. Check output shaft for wear or damage.

Part	Specified value mm	Limit mm
Outer diameter of needle roller bearing-contact-section	① 30 $^{+0}_{-0.021}$	29.96
	② 32 $^{-0.009}_{-0.029}$	31.96
Tooth surfaces of gear and spline	Visually inspect the surface for excessive damage, wear, nick or rounded edge.	



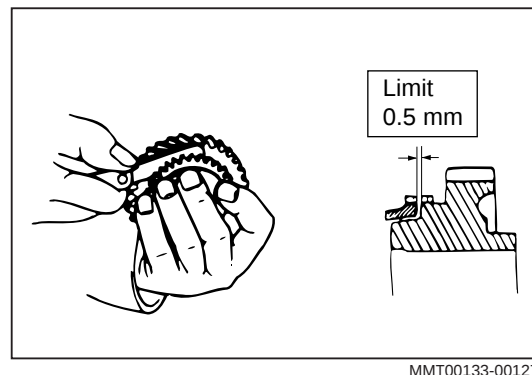
5. Check synchromesh shifting key and key spring for wear or damage.

Part	Specified value mm	Limit mm
Shifting key for 1st & 2nd gears (dimension H)	5.1 ± 0.1	4.7
Spring	Visually inspect the spring for damage or distortion.	



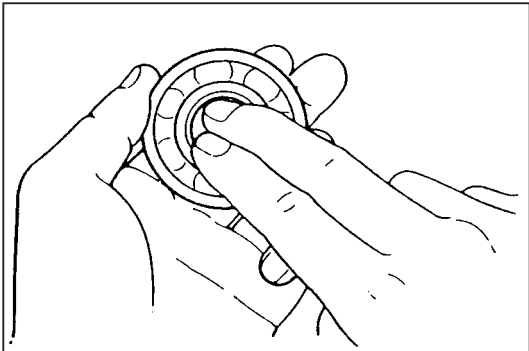
6. Check synchronizer ring for wear or damage.

Part	Specified value mm	Limit mm
Gap when synchronizer ring is pressed to gear	1st and 2nd gears 0.85 - 1.45	0.5
Damage at inner tapered section	Visually inspect the section for excessive damage.	
Damage at spline		



7. Check the bearing for wear or damage.

Part	Inspection criteria
Bearing	When the inner race is turned by your fingers, it should turn smoothly without any binding.



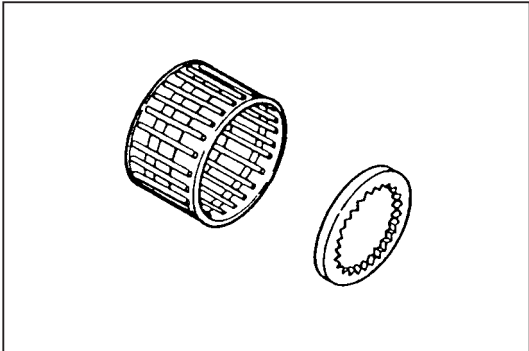
MMT00134-00128

ASSEMBLY

NOTE:

- Apply gear oil to the entire surface of the rotary or sliding section of each gear of the output shaft.

1. Assemble spring plate, scissors gear and snap ring.



MMT00135-00129

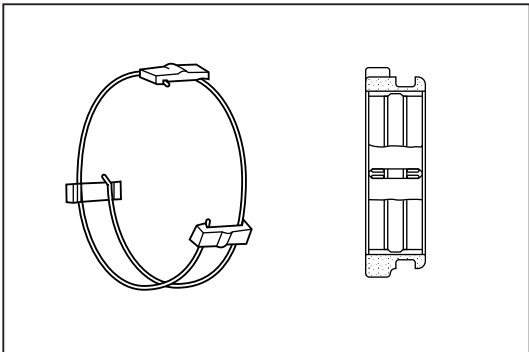
2. Installation of the 1st gear.
3. Assemble the synchronizer ring No. 2.

MMT00136-00000

4. Assembly of synchronizer hub assembly.
(1) Assemble hub clutch and reverse gear. Ensure that both parts can slide smoothly.
(2) Assemble the shifting keys and springs.

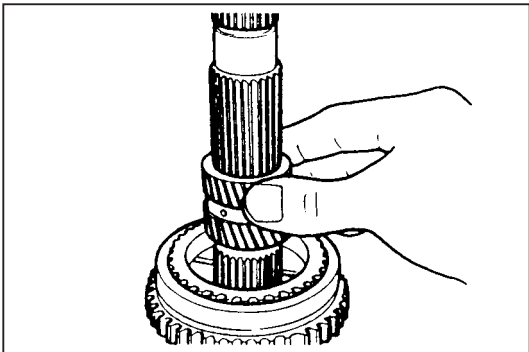
NOTE:

- Hook the key springs to the synchromesh shifting keys during the assembly, as shown in the right figure.



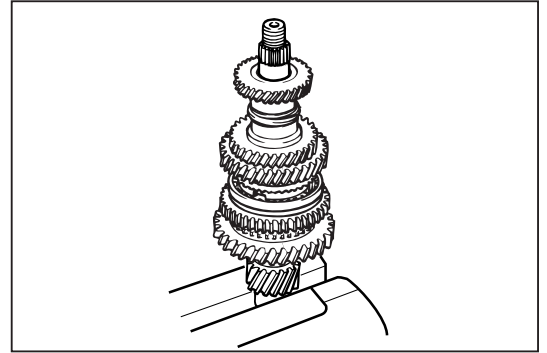
MMT00137-00130

5. Assemble spring plate, scissors gear and snap ring to 2nd gear.
Then, assemble synchronizer ring No. 3, bushing and 2nd gear.



MMT00138-00131

6. Assemble output 3rd gear, speedometer drive gear and output 4th gear.

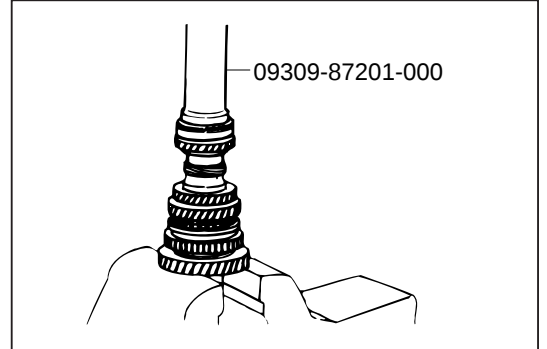


MMT00139-00132

7. Assemble the bearing, using the following SST.
SST: 09309-87201-000

NOTE:

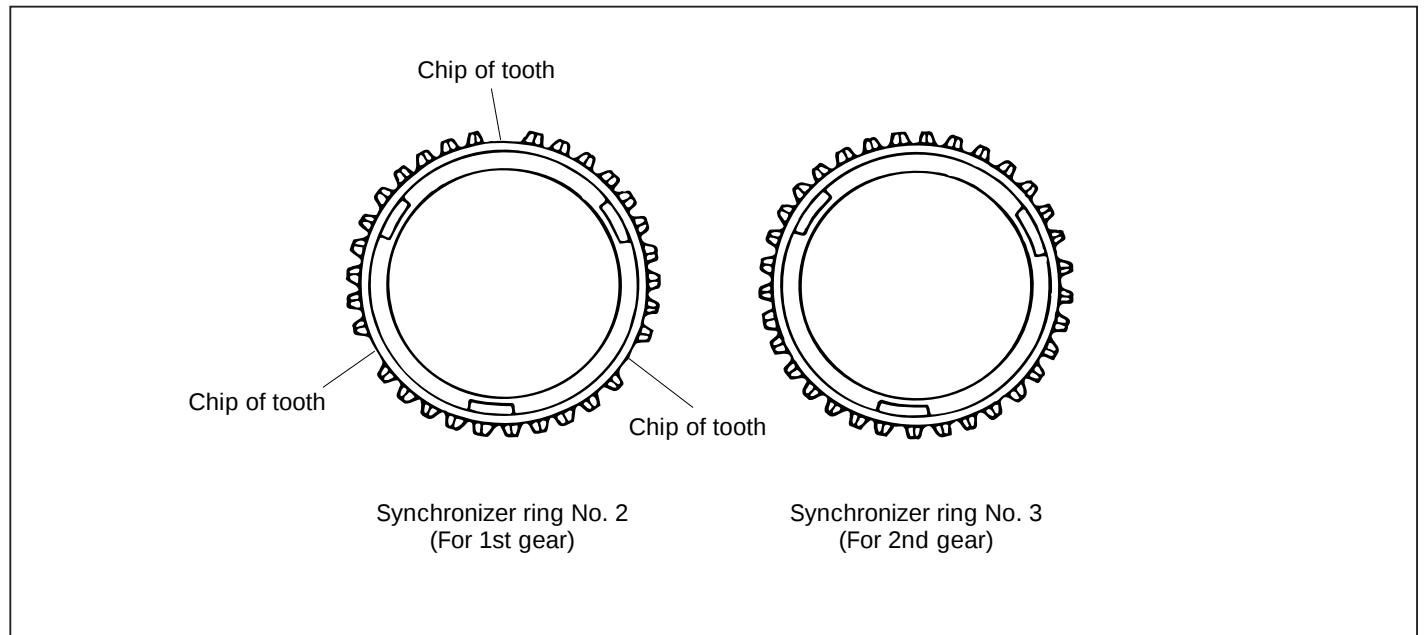
- The bearing should be assembled in such a way that the groove in the bearing outer race may come at the upper side.



MMT00140-00133

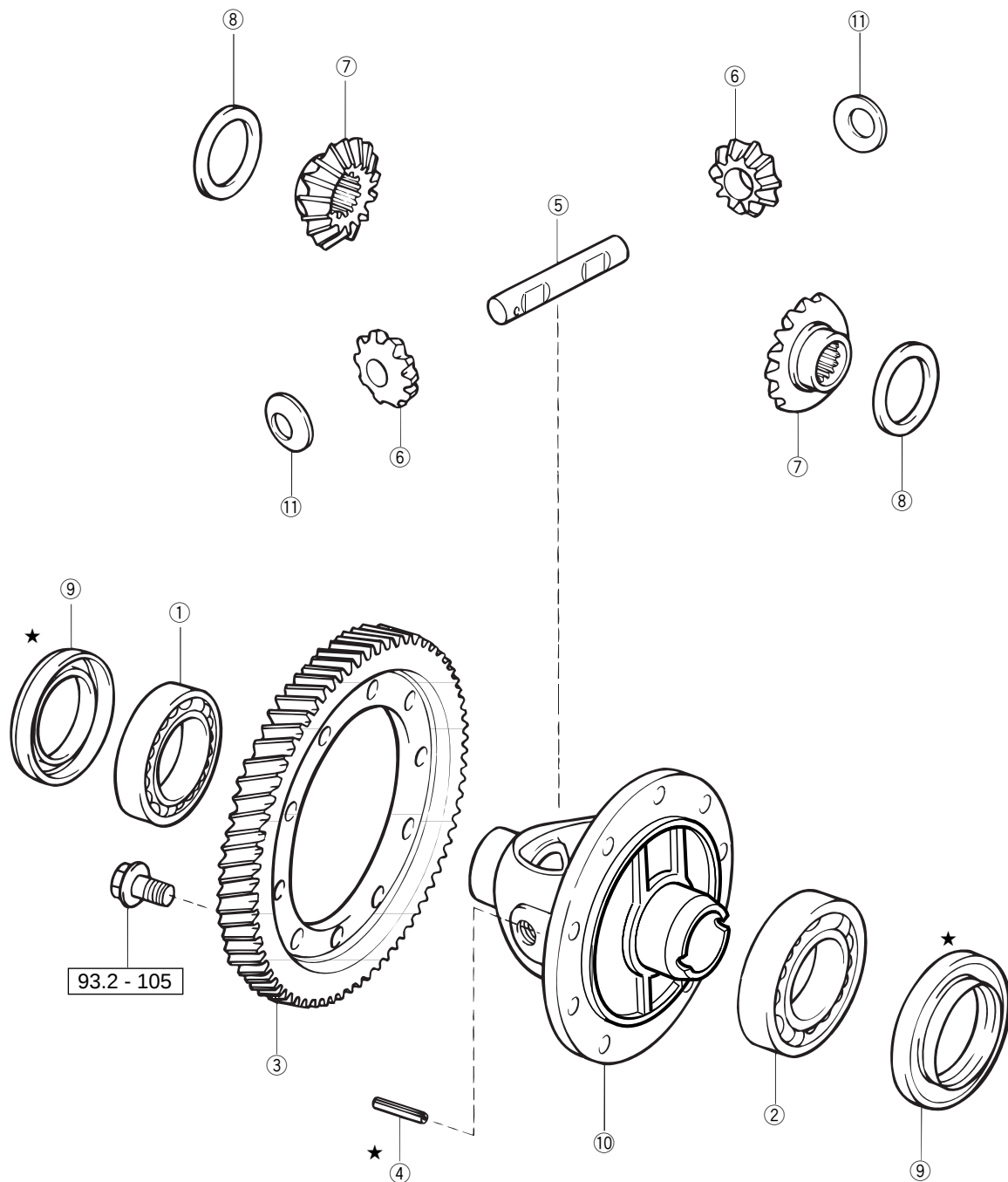
DISCRIMINATION

1. Discrimination of synchronizer ring



MMT00141-00134

DIFFERENTIAL GEAR COMPONENTS



 : Tightening torque
 Unit : N·m
 ★ : Non-reusable parts

- ① Radial ball bearing
- ② Radial ball bearing
- ③ Differential ring gear
- ④ Slotted spring pin
- ⑤ Differential pinion shaft
- ⑥ Differential pinion

- ⑦ Differential side gear
- ⑧ Differential side gear washer
- ⑨ Oil seal
- ⑩ Differential case
- ⑪ Differential pinion washer

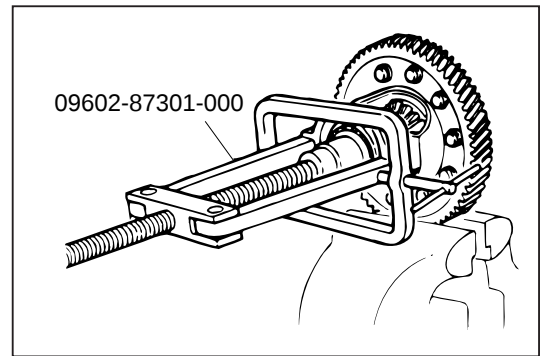
BEARING

NOTE:

- Check bearings for wear and rough rotation. If bearings are normal condition, removal is not necessary.

REMOVAL

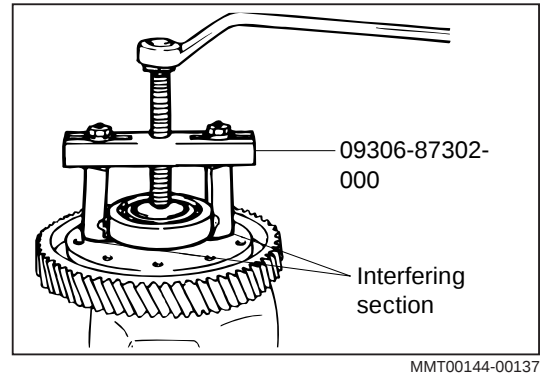
- Remove the bearing at the engine side, using the following SST.
SST: 09602-87301-000



- Remove the bearing at the transmission side, using the following SST.
SST: 09306-87302-000

NOTE:

- Grinding off the interfering section of the SST will make the operation easier.

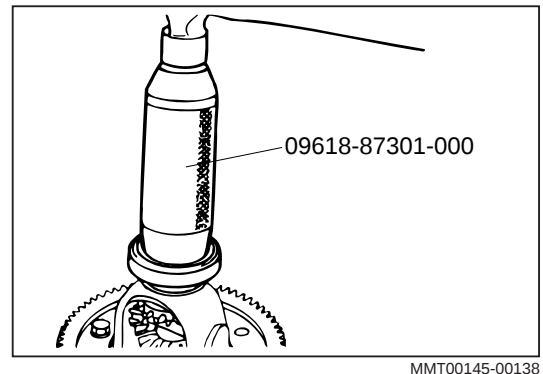


INSTALLATION

- Assemble a new radial ball bearings, using the following SST.
SST: 09618-87301-000

NOTE:

- Install the bearings with the bearing having a larger outer diameter assembled at the ring gear side.

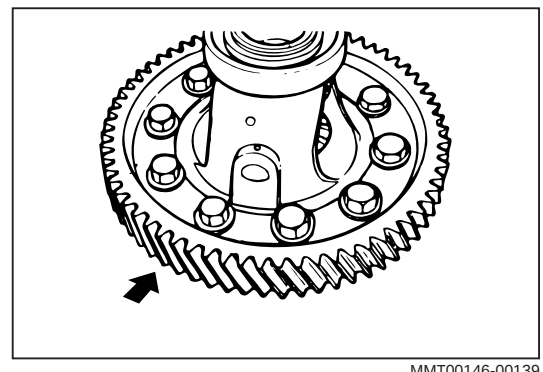


DIFFERENTIAL GEAR

INSPECTION

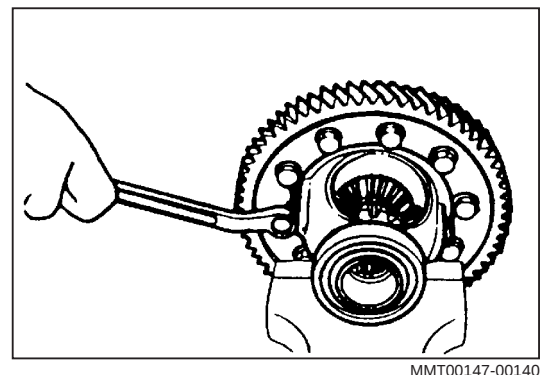
- Check the differential ring gear for wear or damage.

Part	Inspection criteria
Gear tooth surface	Visually inspect the surface for wear, damage, nick or rounded edge.

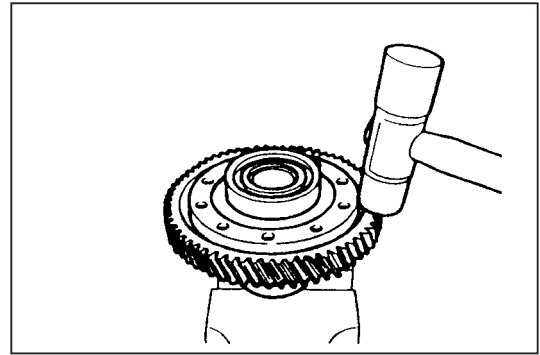


REMOVAL

- Clamp the differential ring gear in a vise. Remove the attaching bolts.



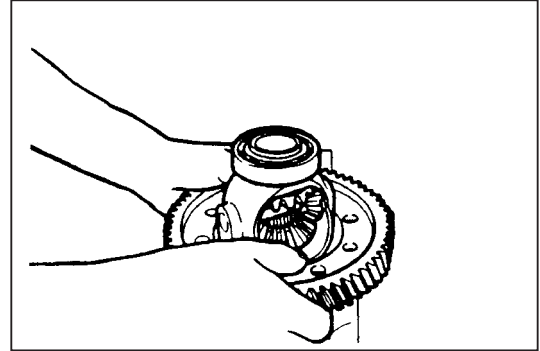
2. Remove the differential ring gear.
If any difficulty in removing the ring gear is encountered, evenly tap the peripheral section of the ring gear, using a plastic hammer.



MMT00148-00141

INSTALLATION

1. Install the ring gear as the side having large chamfer at its inner diameter comes at the case side.

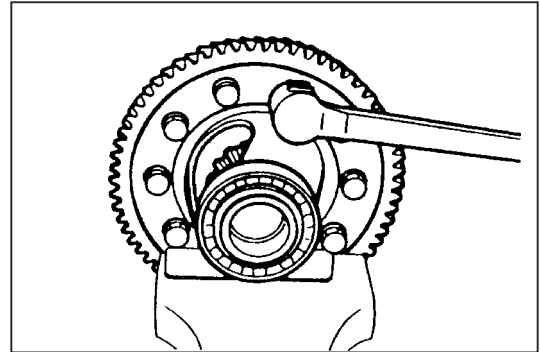


MMT00149-00142

2. Tighten the ring gear attaching bolts.
Tightening Torque: 93.2 - 104.9 N·m

NOTE:

- Be sure to attach the lock plate to the two bolts provided in the pinion shaft direction.



MMT00150-00143

DIFFERENTIAL CASE

DISASSEMBLY

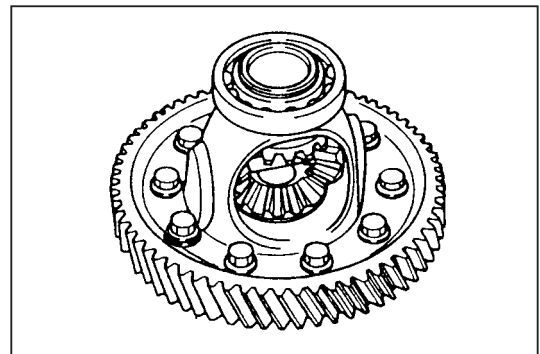
NOTE:

- As for the side gears, pinions and pinion shaft, their disassembling and assembling operations can be carried out without removing both bearings or ring gear.

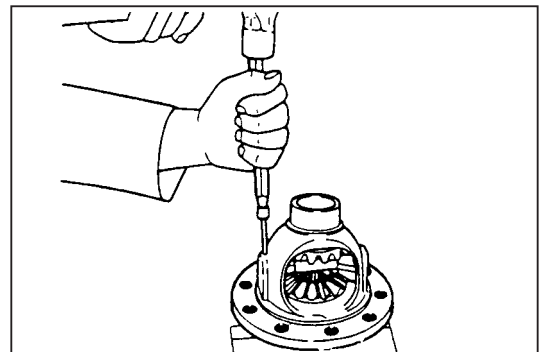
1. Disassemble the radial ball bearings.
2. Disassemble the ring gear.
3. Drive out the slotted spring pin, using a pin puncher.

NOTE:

- Never reuse the slotted spring pin.

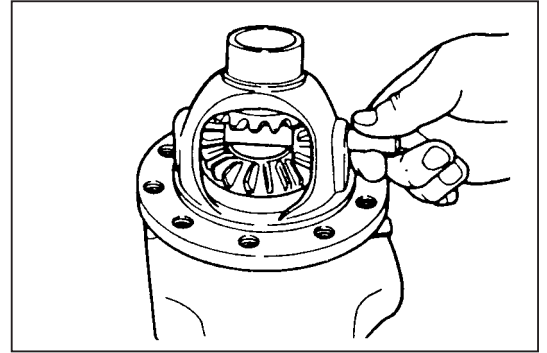


MMT00151-00144



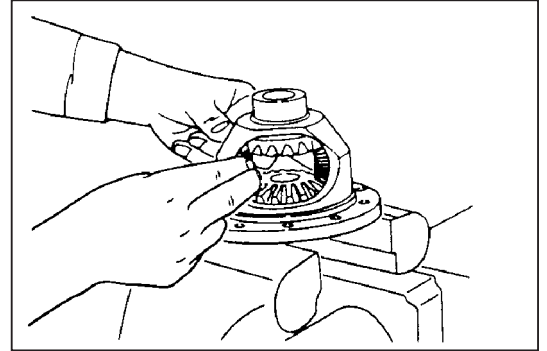
MMT00152-00145

4. Pull out differential pinion shaft.



MMT00153-00146

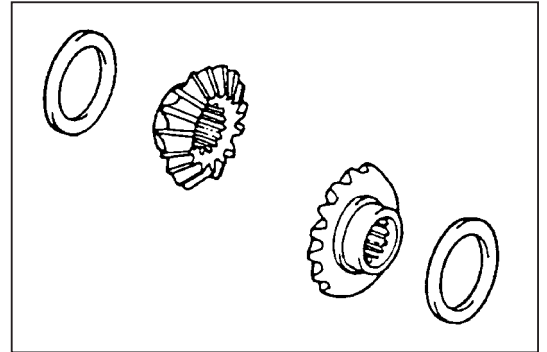
5. Remove pinions, pinion washers, side gears and side gear washers.



MMT00154-00147

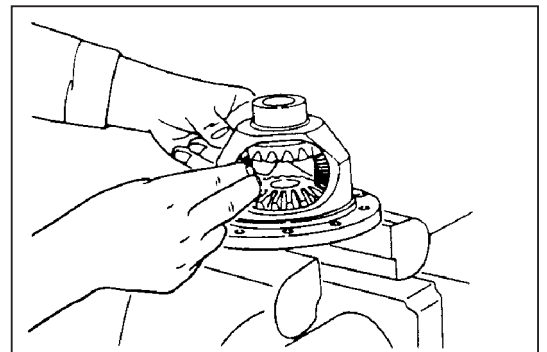
ASSEMBLY

1. Assemble differential washers and differential side gears into differential case.



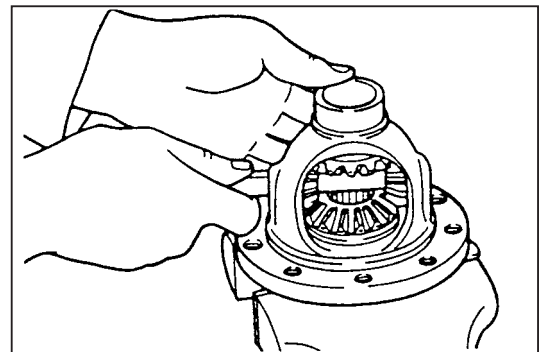
MMT00155-00148

2. Assembly of differential pinions and washers
 - (1) Make the two pinions mesh with the side gears, working from the case side. Rotate the side gear so that the pinion's hole may align with the pinion shaft hole provided in the case.



MMT00156-00149

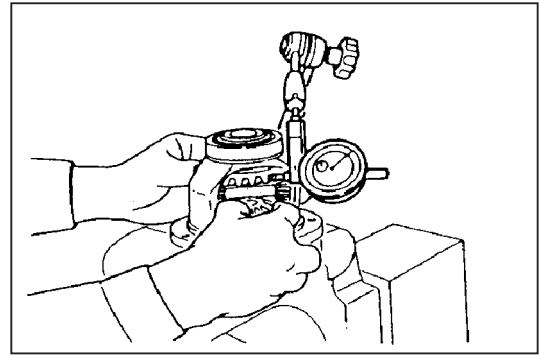
3. Assemble differential pinion shaft.



MMT00157-00150

4. Side gear backlash measurement

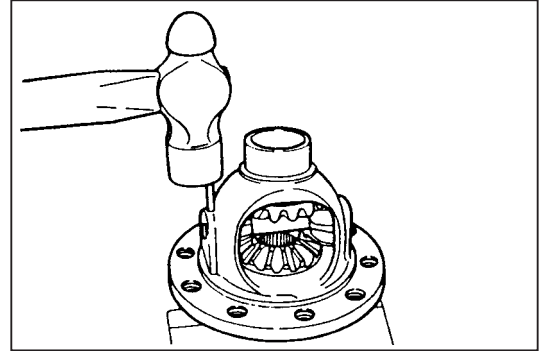
- (1) Fix the side gear at one side.
 - (2) Measure the backlash of each side gear at the right and left sides at several points, using a dial gauge.
- Specified Backlash: 0.02 - 0.15 mm



MMT00158-00151

5. New slotted spring pin installation

- (1) Align the pin hole of the pinion shaft with the corresponding pin hole in the case.
- (2) Working from the backside of the case (ring gear side), drive a new slotted spring pin into position, until it becomes flush with the case edge surface.



MMT00159-00152

6. Install the ring gear onto the differential case.

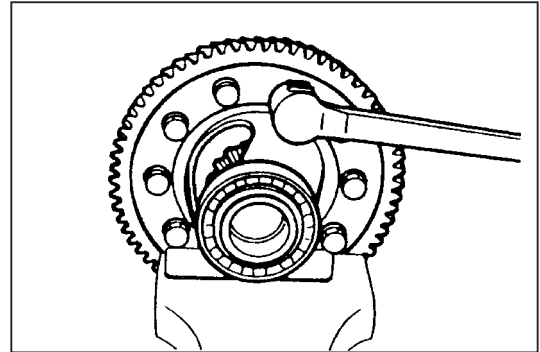
7. Tighten the ring gear attaching bolts.

Tightening Torque: 93.2 - 104.9 N·m

NOTE:

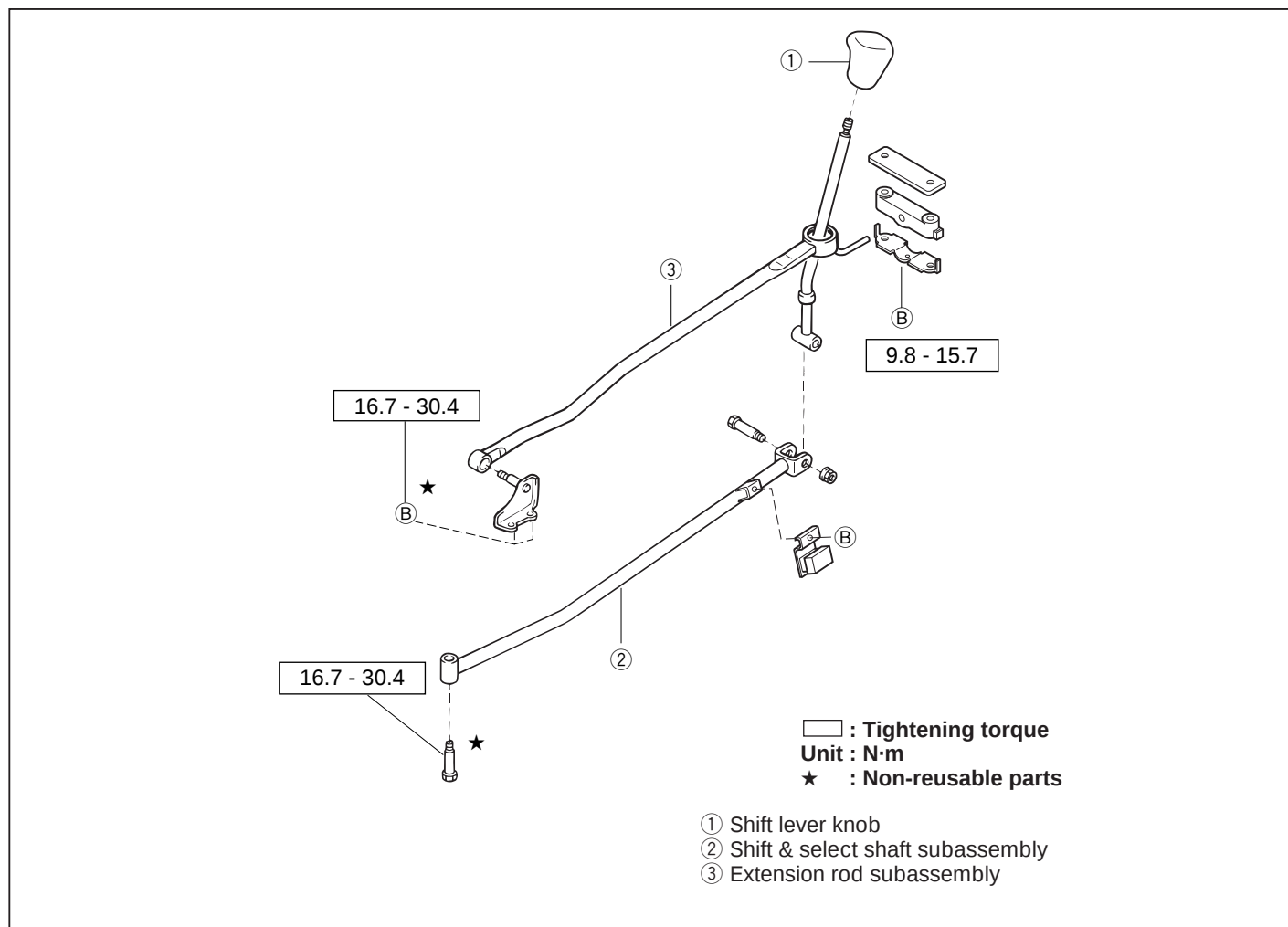
- Be sure to attach the lock plate to the two bolts provided in the pinion shaft direction.

8. Assemble the radial ball bearings.



MMT00160-00153

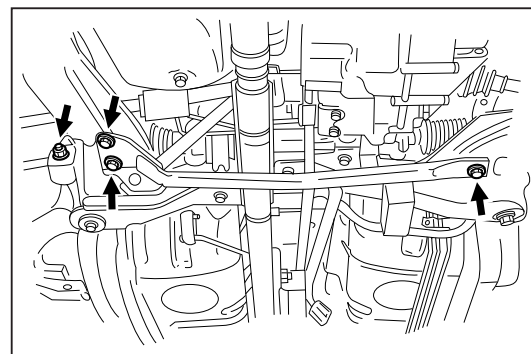
SHIFT LEVER & SELECTING ROD COMPONENTS



MMT00161-00154

REMOVAL

1. Jack up the vehicle.
2. Remove the lower arm bracket connecting rod.



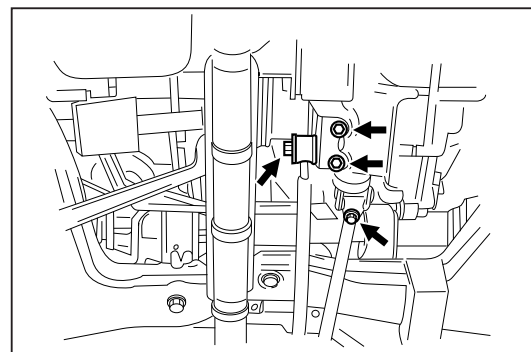
MMT00162-00155

3. Remove the shift lever knob.
4. Disconnect the shift & select shaft subassembly and the extension rod subassembly from the transaxle.

NOTE:

- Never reuse the removed both attaching bolts of the shift & select shaft subassembly and the extension rod subassembly.

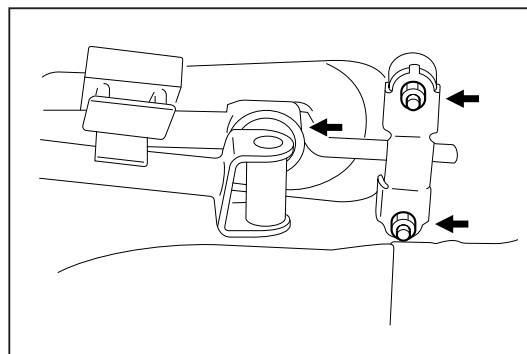
5. Disconnect the floor shift support No. 2 of the extension rod subassembly from the body.



MMT00163-00156

MT-46

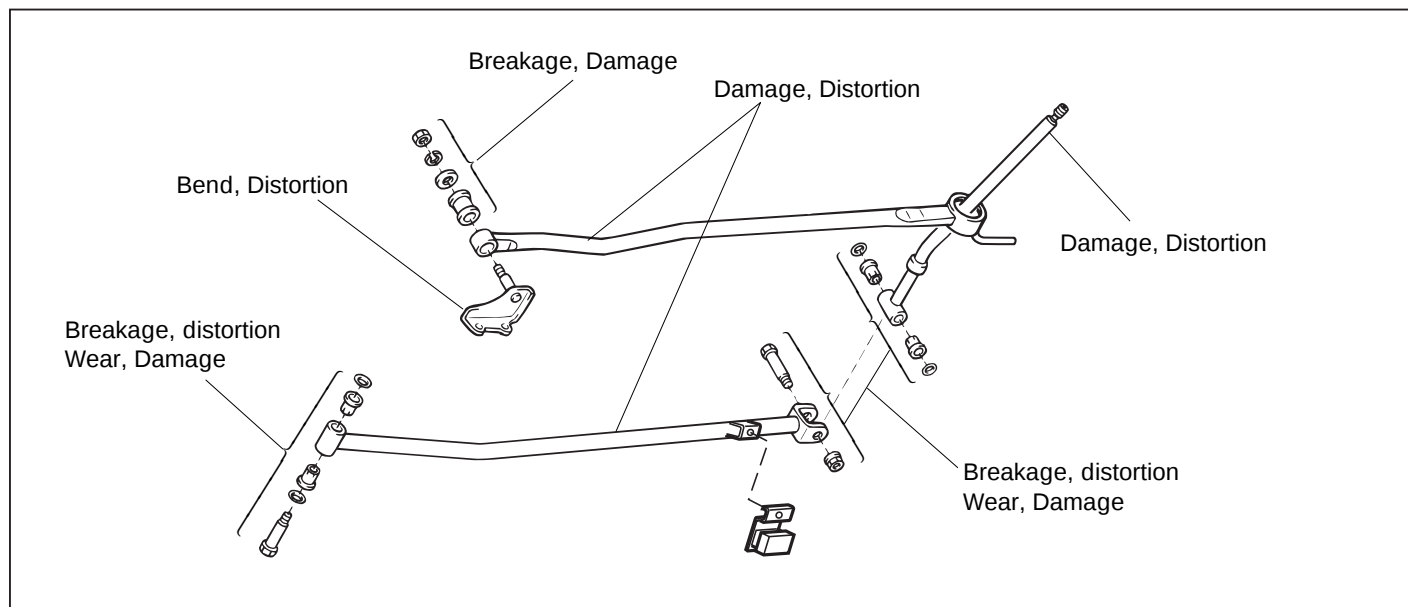
6. Pull out the shift & select shaft subassembly together with the extension rod subassembly.



MMT00164-00157

INSPECTION

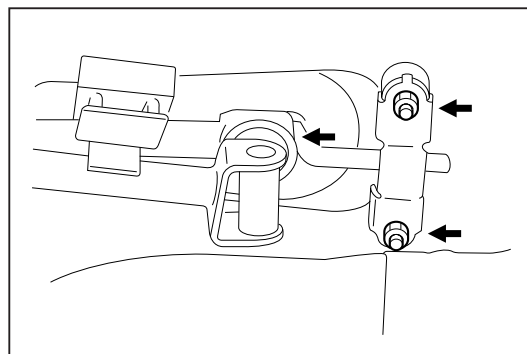
Inspect the following parts. Then, check to see if each joint section rotates smoothly and does not bind when assembled. (Replace the parts which exhibit abnormality.)



MMT00165-00158

INSTALLATION

1. Install the shift & select shaft subassembly together with the extension rod subassembly.



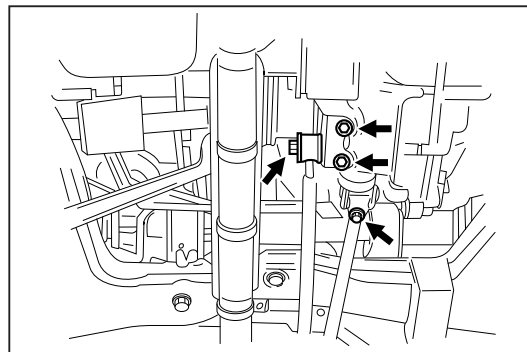
MMT00166-00159

2. Connect the floor shift support No. 2 of the extension rod subassembly to the body.

Tightening Torque: 9.8 - 15.7 N·m (Floor side)

3. Connect the shift & select shaft subassembly and the extension rod subassembly to the transaxle.

Tightening Torque: 16.7 - 30.4 N·m (Transaxle side)



MMT00167-00160

NOTE:

- Be sure to use a new attaching bolts for both the shift & select shaft subassembly and extension rod subassembly.

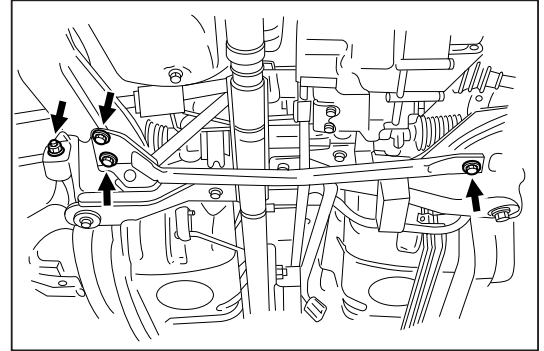
4. Install the shift lever knob.
5. Install the front exhaust pipe.
Tightening Torque: 41.2 - 62.7 N·m (Front side)
15.2 - 22.8 N·m (Rear side)

NOTE:

- Be sure to use a new exhaust pipe gasket and a new nut for rear side.

MMT00168-00000

6. Install the lower arm bracket connecting rod.
Tightening Torque: 39.2 - 92.1 N·m

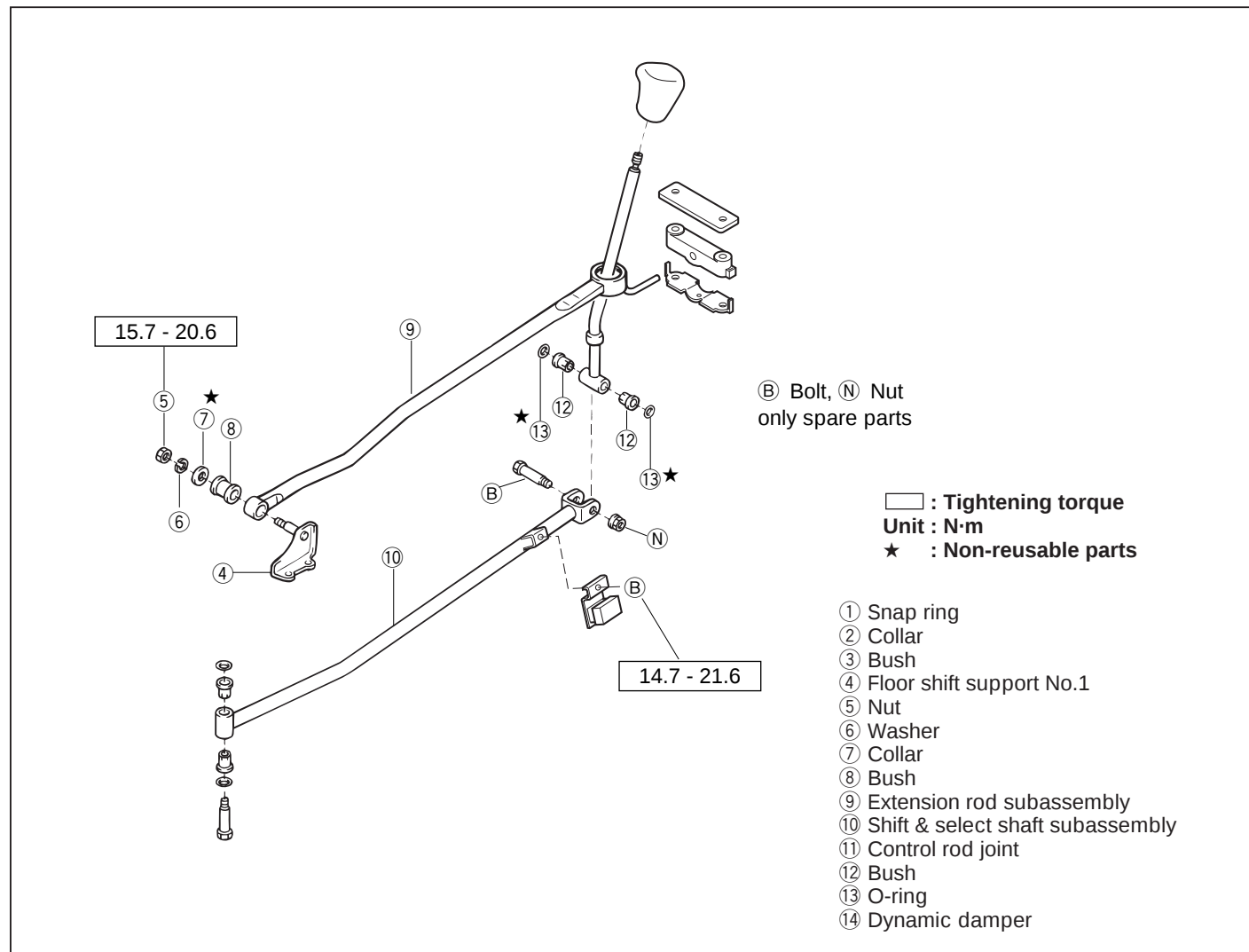


MMT00169-00161

7. Jack down the vehicle.

MMT00170-00000

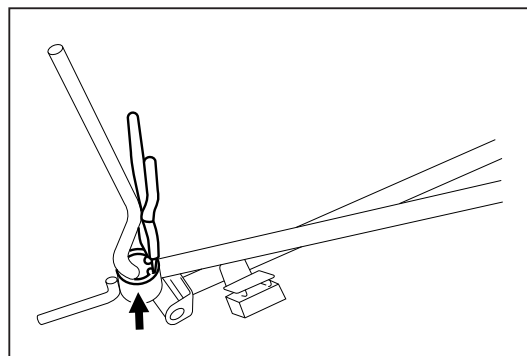
COMPONENTS



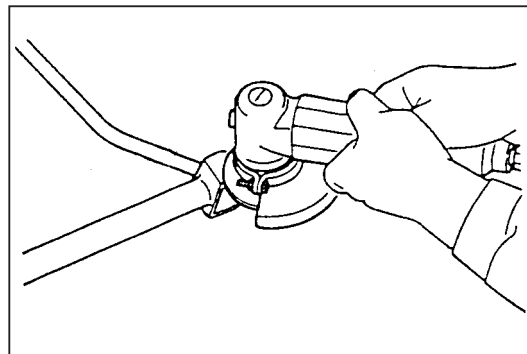
MMT00171-00162

DISASSEMBLY

1. Detach the shift & select shaft subassembly from the body.
2. Remove the snap ring by using a snap ring pliers.
3. Remove the collar and bush for the shift knob.
4. Remove the floor shift support No. 1.
5. Remove the nut, washer, collar and the bush for the floor shift support No. 1.
6. Remove the extension rod subassembly by using a grinder.
7. Remove the shift & select shaft subassembly by using a grinder.
8. Remove the control rod joint.
9. Remove the bush and O-ring.



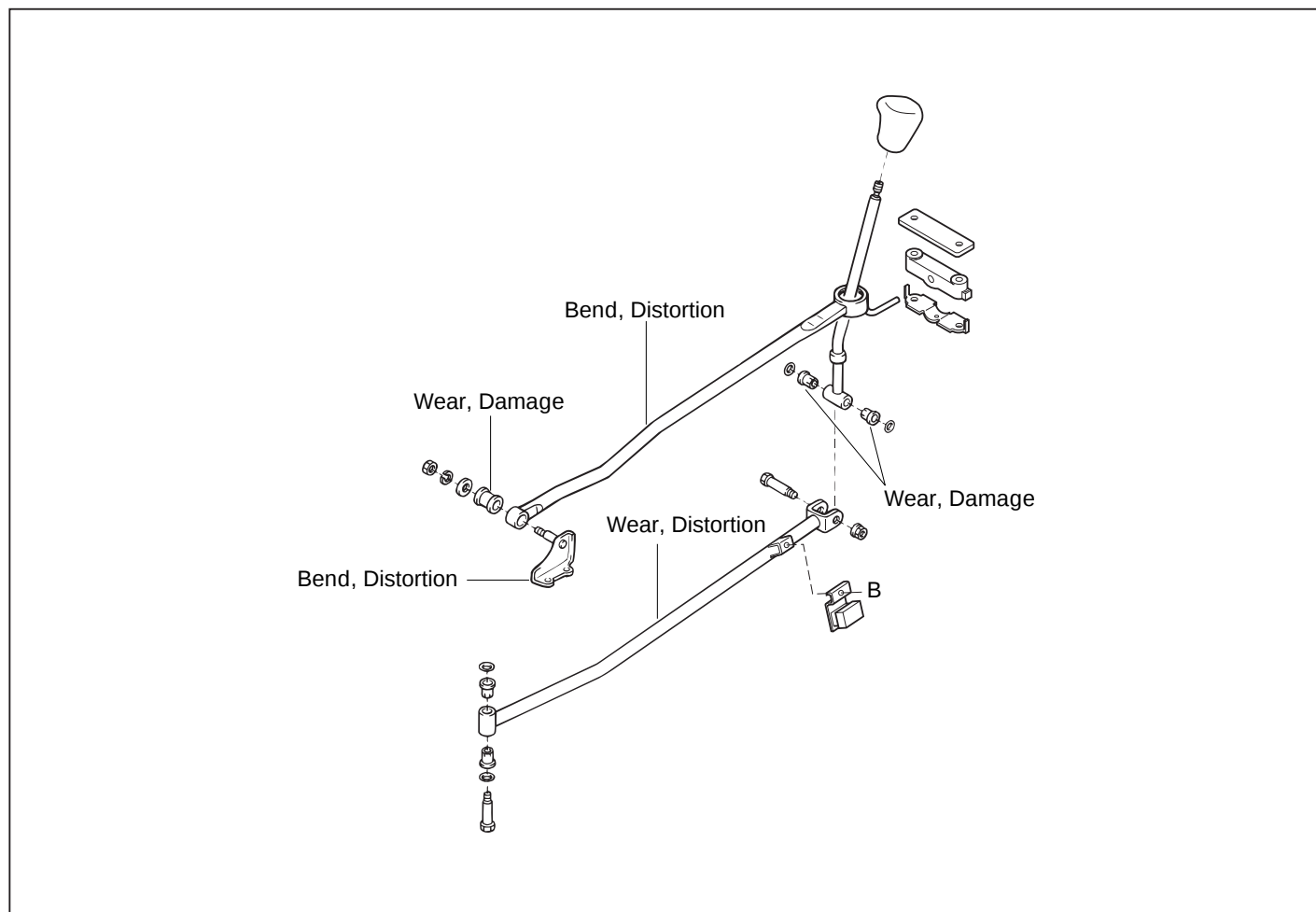
MMT00172-00163



MMT00173-00164

INSPECTION

Inspect the following parts. Then, check to see if each joint section rotates smoothly and does not bind when assembled. (Replace the parts which exhibit abnormality.)



MMT00174-00165

ASSEMBLY

1. Install a new O-ring.
2. Apply MP grease to both the inner and outer surfaces of the bush and install it.
3. Install the control joint.
4. Assemble the shift & select shaft subassembly.

NOTE:

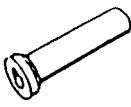
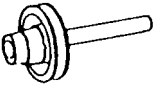
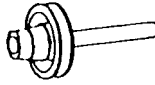
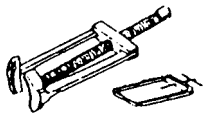
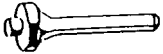
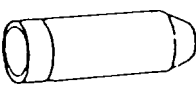
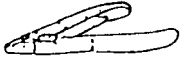
- In case of the spare part, as the connecting method of the shift & select shaft and shift lever is bolt connecting, be sure not to mistake the connecting method.

5. Install the extension rod subassembly.
6. Install the nut, washer, collar and the bush for the floor shift support No. 1.
7. Install the floor shift support No. 1.
Tightening Torque: 15.7 - 20.6 N·m (Floor side)
8. Install the collar and bush for the shift knob.
9. Install a new snap ring by using a snap ring pliers.
10. Install the shift & select shaft subassembly to the body.

MMT00175-00000

APPENDIX

SSTs (Special Service Tools)

Shape	Part No. and name	Purpose
	09201-60011-000 Valve guide bush remover & replacer	Assembling oil seal
	09306-87302-000 Counter gear front bearing puller	Removal of bearing
	09308-00010-000 Oil seal puller	Removal of oil seal
	09309-87201-000 Transmission bearing replacer	Assembling bearing
	09515-87201-000 Rear axle shaft bearing replacer (Tip-end $\phi 16.5$)	Assembling oil seal
	09517-87705-000 Oil seal replacer (Transmission case side)	Assembling oil seal
	09517-87706-000 Oil seal replacer (Clutch housing side)	Assembling oil seal
	09602-87301-000 Counter gear bearing puller	Removal of bearing
	09606-87201-000 Front hub bearing remover & replacer (Tip-end $\phi 24$)	Assembling oil seal
	09618-87301-000 Transmission bearing replacer	Assembling bearing
	09905-00012-000 Snap ring expander	Removal of snap ring
	09921-00010-000 Spring tension tool	Removal of oil seal

SERVICE SPECIFICATIONS

Unit: mm

Item		Specified value	Allowable limit	Remarks
2nd gear bush	Inner diameter	28.870 - 28.885	28.91	
	Outer diameter	36.940 - 36.960	36.89	
	Overall length	32.470 - 32.530	32.47	
4th and 5th gear bush	Inner diameter	25.027 - 25.042	25.05	
	Outer diameter	36.940 - 36.960	36.89	
	Overall length	28.970 - 29.030	28.97	
	Thickness of flange section	2.94 - 3.06	2.94	
End play	1st gear	0.10 - 0.40	0.5	
	2nd, 4th and 5th gear	0.10 - 0.23	0.4	
	3rd gear	0.10 - 0.37	0.5	
Gear width	1st gear	30.23 - 30.30	32.2	
	2nd gear	32.30 - 32.37	32.2	
	3rd gear	27.23 - 27.30	27.2	
	4th and 5th gear	25.80 - 25.87	25.7	
Reverse idler gear and shaft	Bush inner diameter	17.000 - 17.027	17.05	
	Shaft outer diameter	16.941 - 16.968	16.90	
	Bush-to-shaft clearance Groove width	8.000 - 8.058	8.2	
Input shaft outer diameter		25.002 - 25.017	24.99	Bush installing position
Output shaft outer diameter	Front	29.979 - 30.000	29.96	
	Rear	31.971 - 31.991	31.96	
Synchronizer ring-to-gear clearance		0.85 - 1.45	0.5	
Differential pinion and side gear	Outer diameter of side gear boss section	31.950 - 31.975	31.95	
	Inner diameter of pinion shaft fitting hole of pinion	15.03 - 15.08	15.08	
	Outer diameter of pinion shaft	14.944 - 14.962	14.95	
Differential side gear-to-pinion backlash		0.02 - 0.15	—	

Unit: mm

Item		Specified value	Allowable limit	Remarks
Speedometer shaft sleeve subassembly	Driven gear shaft diameter	7.972 - 7.987	7.96	
	Shaft sleeve bore	8.029 - 8.065	8.10	
Shift fork	Thickness of tip-section of fork	6.8 - 7.0	6.3	
	Groove width of shift inner lever-contact-section	12.1 - 12.2	12.7	
	Groove width of reverse shift arm pin-contact-section	15.000 - 15.043	15.1	
Length of interlock plate		16.15 - 16.45	16.0	
Reverse shift arm	Pin diameter	7.924 - 7.96	7.90	
	Tip end width	7.884 - 7.920	7.8	
Shift fork groove width of sleeve and reverse gear		7.05 - 7.12	7.3	
Thickness of syncromesh shifting key	for 1st & 2nd	5.0 - 5.2	4.7	
	for 3rd & 4th,5th	4.6 - 4.8	4.3	

TIGHTENING TORQUE

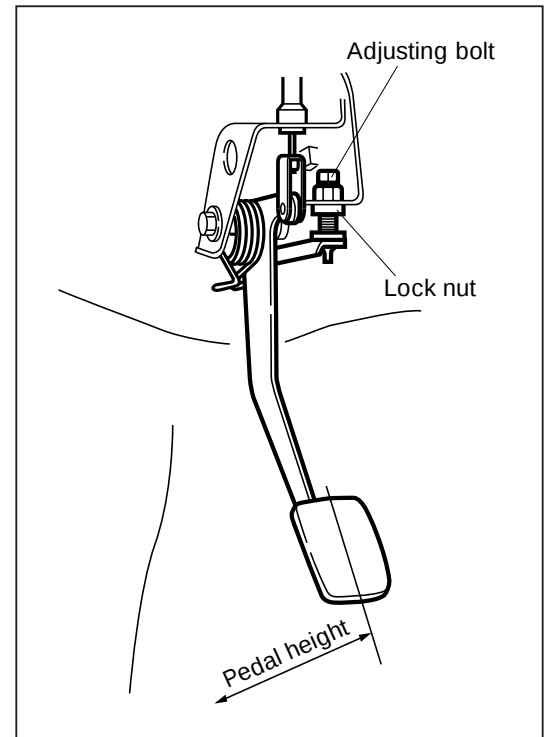
Tightening component		Tightening torque	
		N·m	kgf·m
Clutch cable bracket × Transaxle		14.7 - 21.6	1.5 - 2.2
Surge tank stay No. 3 × Transaxle		14.7 - 21.6	1.5 - 2.2
Rear mount bracket × Transaxle		49.0 - 68.6	5.0 - 7.0
Transaxle × Engine		49.0 - 68.6	5.0 - 7.0
Engine mount bracket left × Transaxle		14.7 - 21.6	1.5 - 2.2
E/G mt. insulator left × Transaxle	Nut	72.0 - 134	7.4 - 13.7
	Bolt	48.0 - 89.2	4.9 - 9.1
Serge tank stay No. 3 × Intake manifold		14.7 - 21.6	1.5 - 2.2
Starter × Transaxle		29.4 - 44.1	3.0 - 4.5
Stay × Transaxle (Bolt)		29.4 - 44.1	3.0 - 4.5
Engine mount insulator rear × Stay (Nut)		72.0 - 134	7.4 - 13.7
Shift control shaft × Transaxle		16.7 - 30.4	1.7 - 3.1
Drive shaft assembly × Alternator bracket		34.3 - 49.0	3.5 - 5.0
Lower arm × Fr. suspension cross member		167 - 245	17.0 - 25.0
Shock absorber (upper support) × Flame		28.4 - 42.1	2.9 - 4.3
Power train stiffener	× Transaxle	29.4 - 44.1	3.0 - 4.5
	× Cylinder block	14.7 - 21.6	1.5 - 2.2
Engine mount front bracket × Transaxle		29.4 - 44.1	3.0 - 4.5
Engine lower mounting subassembly × Flame		48.0 - 89.2	4.9 - 9.1
E/G mt. insulator fr. × E/G lower mt. mem.		72.0 - 134	7.4 - 13.7
E/G mt. insulator rr. × E/G lower mt. mem.		26.0 - 48.5	2.7 - 5.0
Clutch release cable × Clamp		3.9 - 6.9	0.4 - 0.7
Tie-rod end × Knuckle		29.4 - 44.1	3.0 - 4.5
Breather plug × Transaxle		9.8 - 12.7	1.0 - 1.3
W/head straight screw plug	Filler side	29.4 - 49.0	3.0 - 5.0
	Drain side		
Speedmeter sleeve (Lock plate) × Transaxle		6.9 - 9.8	0.7 - 1.0
Backup lamp switch assembly × Transaxle		29.4 - 49.0	3.0 - 5.0
Bearing lock plate × Bell crank		6.9 - 9.8	0.7 - 1.0
Shift inner lever	Bolt	39.2 - 49.0	4.0 - 5.0
	Nut	19.6 - 29.4	2.0 - 3.0
Lock nut	× Input shaft	98.1 - 137.3	10.0 - 14.0
	× Output shaft		
Differential case × Ring gear		93.2 - 104.9	9.5 - 10.7
Front exhaust pipe	Front side, bolt	41.2 - 62.7	4.2 - 6.4
	Rear side, nut	15.2 - 22.8	1.6 - 2.3
Shift & select shaft subassembly × Transaxle		16.7 - 30.4	1.7 - 3.1
Extension rod subassembly × Transaxle		16.7 - 30.4	1.7 - 3.1
Floor shift support No. 2 × Floor		9.8 - 15.7	1.0 - 1.6
Lower arm bkt. con. rod × Lower arm		39.2 - 92.1	4.0 - 9.4
Floor shift support No. 1 × Extension rod		15.7 - 20.6	1.6 - 2.1

2. CLUTCH

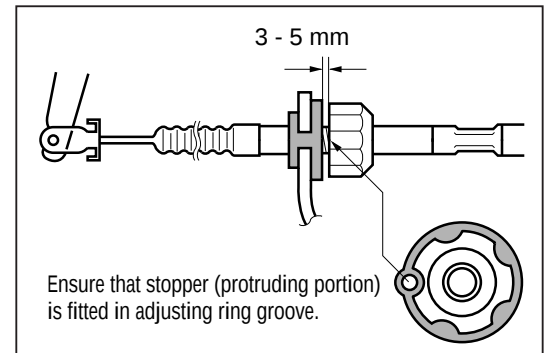
DESCRIPTION

CLUTCH PEDAL ADJUSTMENT

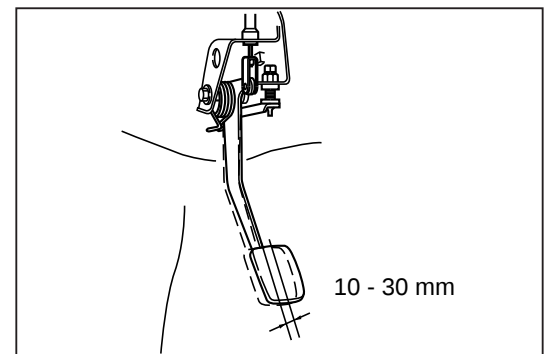
1. Check the clutch pedal for the installation height.
Pedal installation height
Distance between pedal pad upper surface's center and dash panel: 165 - 170 mm (LHD)
168 - 173 mm (RHD)
2. Adjust the pedal installation height, as required.
 - (1) Slacken the lock nut. Turn the adjusting bolt until the installation height conforms to the specification.
 - (2) Tighten the lock nut.
Tightening Torque: Refer to page MT-62.
3. Clutch cable adjustment
 - (1) Pull the outer cable lightly with a force of 2 - 5 kg.
Check the clearance.
3 - 5 mm
 - (2) Ensure that the stopper (protruding portion) is fitted securely in the adjusting ring groove.
 - (3) Adjusting position of clutch outer cable
4. Adjust the clutch pedal free travel.
Depress the clutch pedal gradually until you feel a resistance from the clutch. Measure the depressing distance up to this point.
Pedal Free Travel: 10 - 30 mm



MMT00179-00167

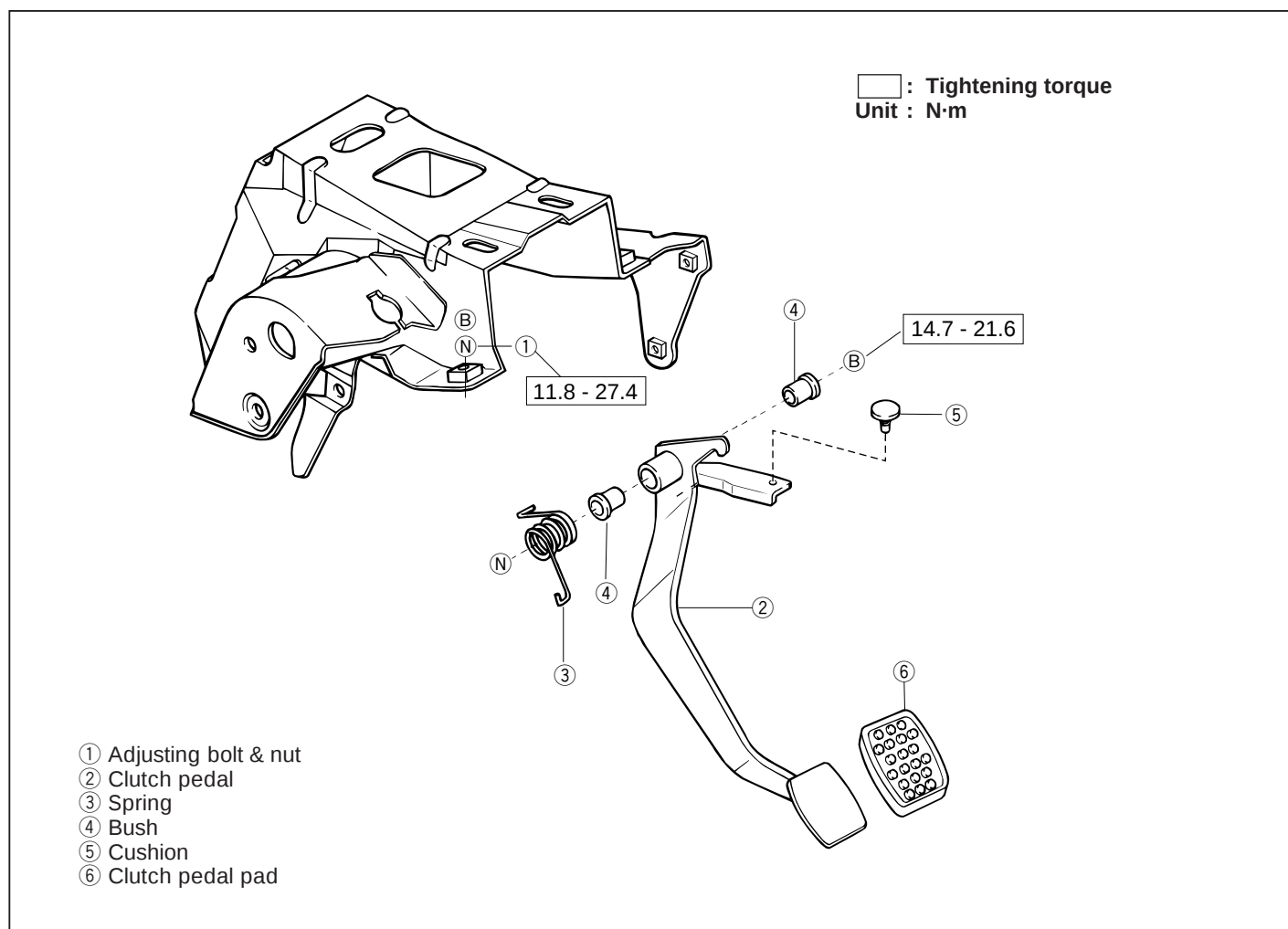


MMT00180-00168



MMT00181-00169

CLUTCH PEDAL AND CLUTCH RELEASE CABLE COMPONENTS



MMT00182-00170

REMOVAL

1. Remove the instrument panel finish lower panel.
2. Remove the nut and the adjusting bolt ①.
3. Remove the bolt.
4. Remove the clutch pedal ②.
5. Remove the spring ③.
6. Remove the bush ④.
7. Remove the cushion ⑤.
8. Remove the clutch pedal pad ⑥.

MMT00183-00000

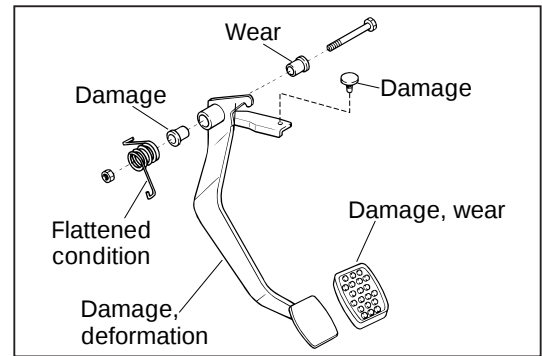
INSPECTION

Inspect the following parts.

MMT00184-00000

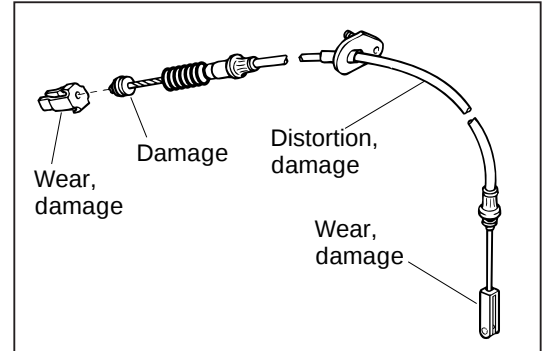
MT-56

1. Bush for wear or damage
2. Pedal spacer for wear or damage
3. Pedal for damage or deformation
4. Pedal pad for wear or damage
5. Spring for flattened condition



MMT00185-00171

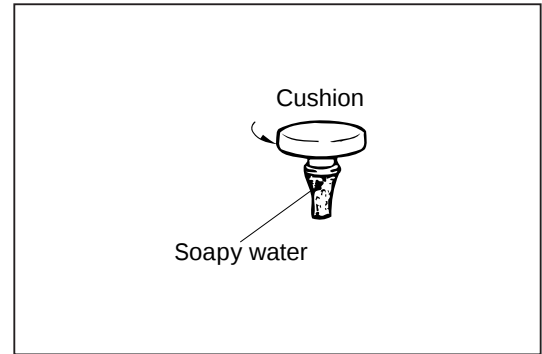
6. Each section of clutch cable



MMT00186-00172

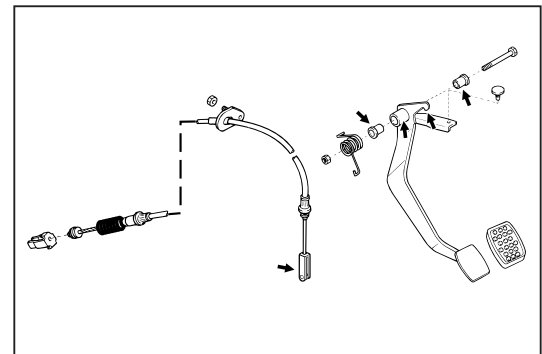
INSTALLATION

1. Install the clutch pedal pad.
2. Apply soapy water to the cushion.
Install the cushion to the clutch pedal.



MMT00187-00173

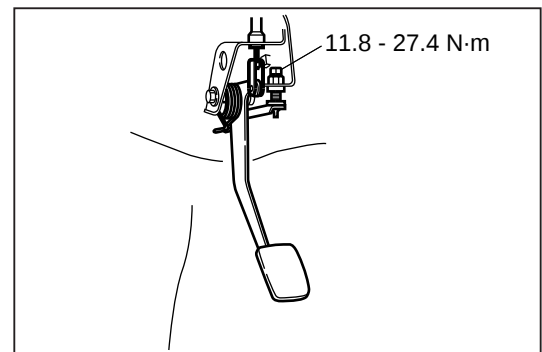
3. Apply MP grease to the following points.
(1) Inside of bush.
(2) Connecting section of clutch pedal and release cable.
4. Install the spring, bush and spacer to the clutch pedal assembly. Then, install the assembly to the pedal bracket.
5. Install the bolt with washer in position.



MMT00188-00174

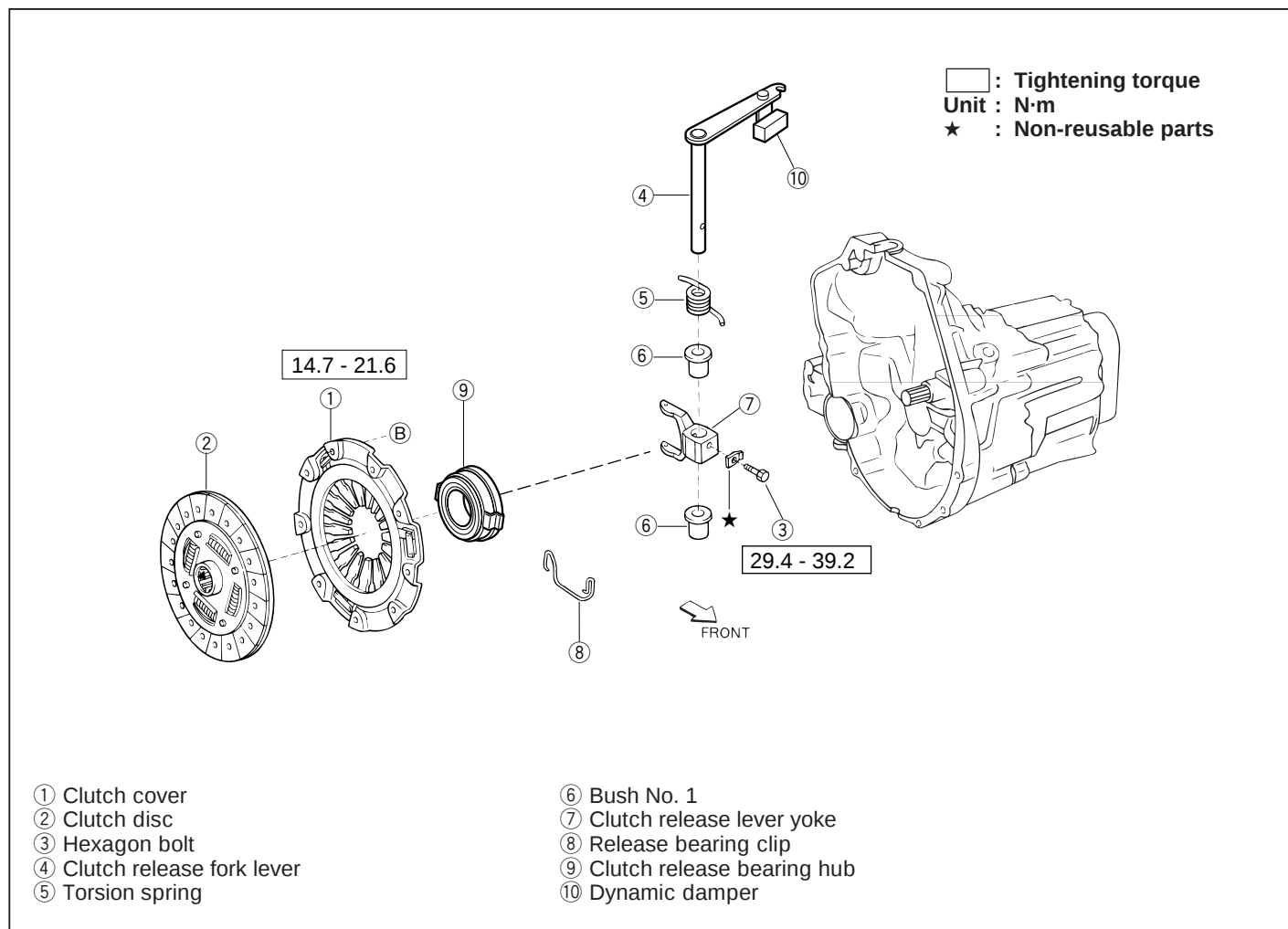
6. Install the adjusting bolt.
7. Tighten the nut.
Tightening Torque: Refer to page MT-62.

8. Depress the clutch pedal two or three times. Proceed to adjust the clutch pedal, following the procedure at page MT-54.



MMT00189-00175

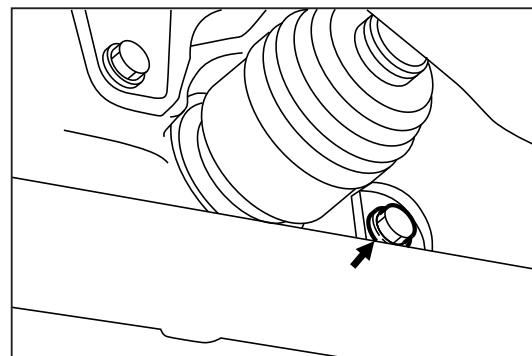
CLUTCH UNIT COMPONENTS



MMT00190-00176

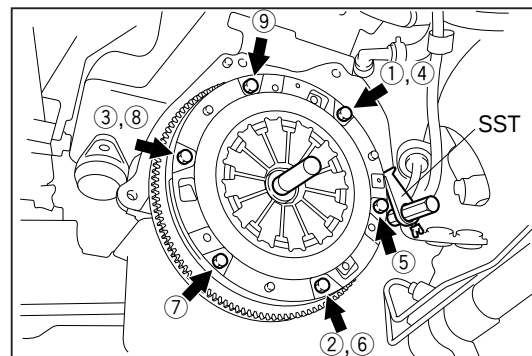
REMOVAL

1. Remove transmission assembly from vehicle.



MMT00191-00177

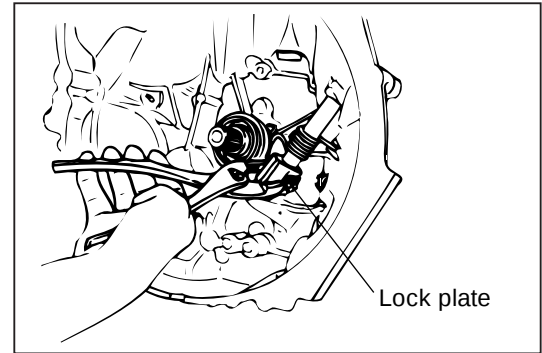
2. Remove clutch cover from flywheel. Take out clutch disc.
SST: 09210-87701-000



MMT00192-00178

MT-58

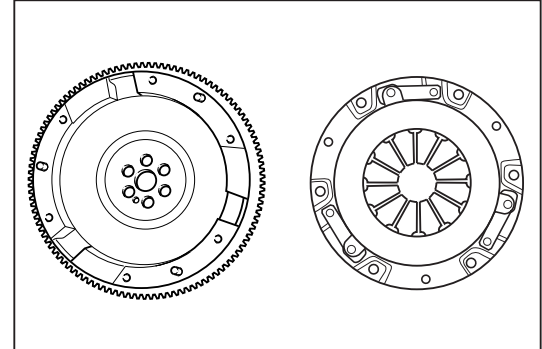
3. Release lock plate. Proceed to remove lock plate along with bolt.
4. Pull out clutch release fork lever. Remove torsion spring, dust seal, bush No. 1, clutch release lever yoke, release bearing clip and clutch release bearing hub.



MMT00193-00179

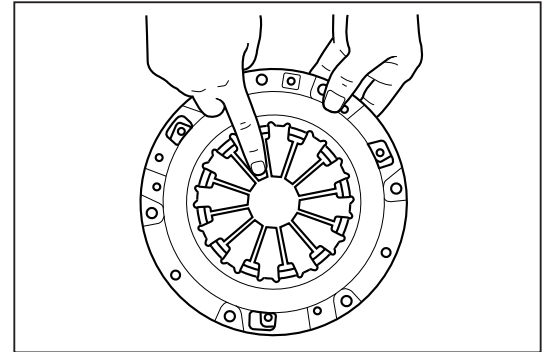
INSPECTION

1. Check the pressure plate and flywheel surface for scores, cracks and discoloration.



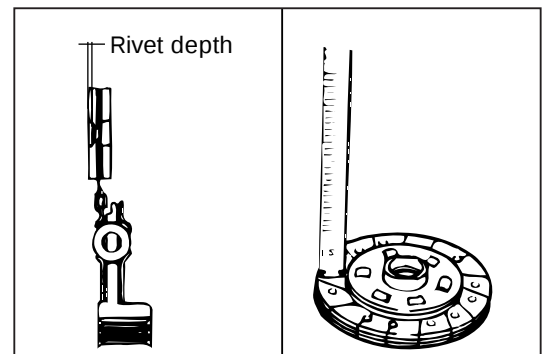
MMT00194-00180

2. Check the diaphragm spring tips for wear, rust and breakage.



MMT00195-00181

3. Check the clutch disc for wear and runout.
Allowable Wear Limit (Rivet Depth): 0.3 mm

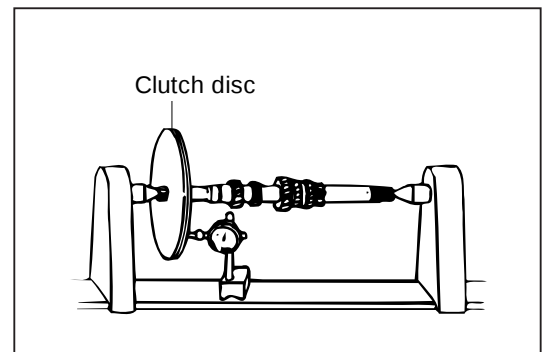


MMT00196-00182

Allowable Limit of Lateral Runout: 1.0 mm

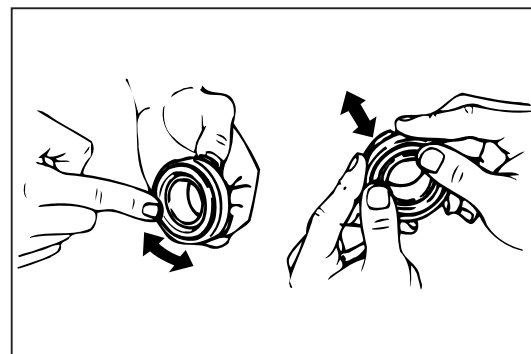
NOTE:

- Measure the lateral runout with the clutch disc assembled onto a new input shaft.



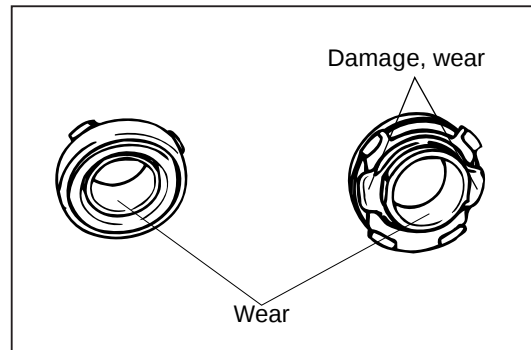
MMT00197-00183

4. Check to see if release bearing rotates smoothly.
Rotate release bearing by your hand, while applying a pressure to the bearing in a thrust direction. Check to see if bearing rotates without any abnormal feeling or binding.



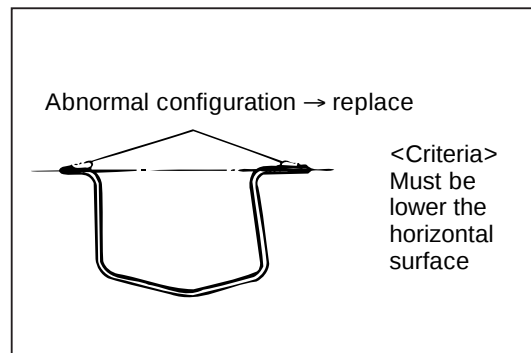
MMT00198-00184

5. Check release bearing hub, clip-contacting surface and hub-to-housing sliding section for damage and wear.



MMT00199-00185

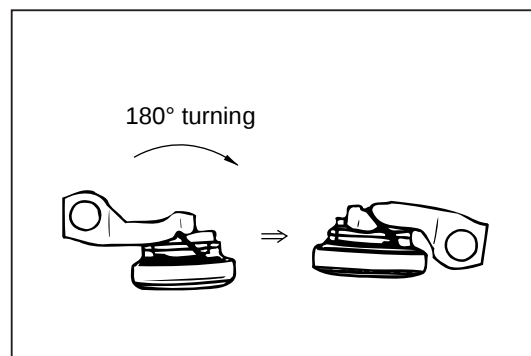
6. Check to see if the clip has the configuration as shown in the figure in its horizontal plane.



MMT00200-00186

INSTALLATION

1. Assemble clutch release bearing hub and release bearing clip to the clutch release lever yoke.
 - (1) Bring the cut-out section of the release lever yoke in contact with the clip.

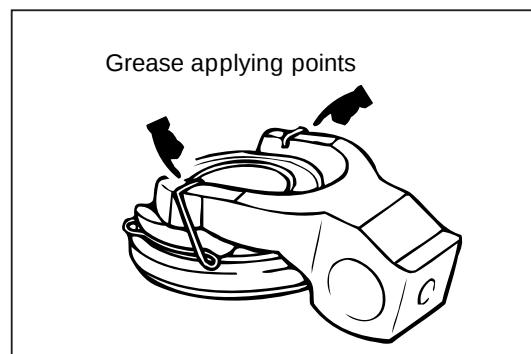


MMT00201-00187

- (2) Under the condition described in (1), assemble the lever yoke by turning it 180 degrees.

NOTE:

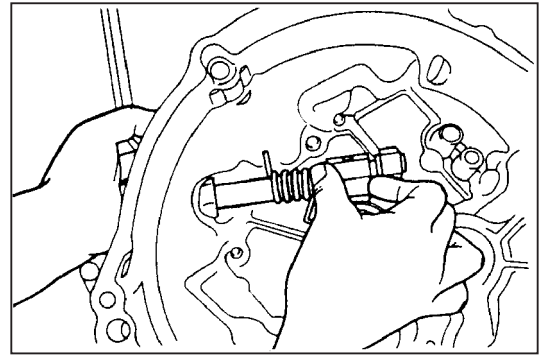
- Apply long-life chassis grease to the yoke-to-hub sliding section and bearing-to-housing case sliding section.



MMT00202-00188

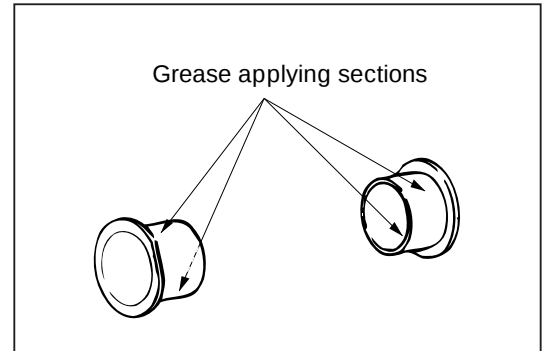
MT-60

2. Assemble bush, torsion spring and clutch release lever in position.

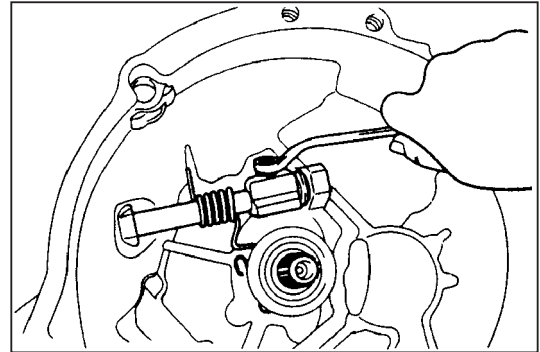


NOTE:

- Apply long-life chassis grease to the inside and outside of the bush No. 1.



3. Assemble the bolt with a new lock plate interposed.
Tightening Torque: Refer to page MT-62.



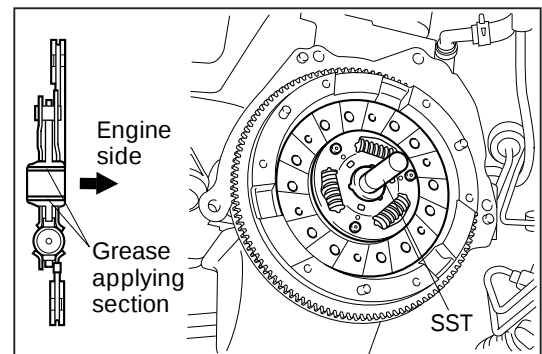
4. Install the clutch disc and clutch cover, using the following SST.

SST: 09301-87703-000

Bolt Tightening Torque: Refer to page MT-62

NOTE:

1. Assemble the clutch disc in the direction as shown in the figure.
2. Tighten the bolts evenly, starting with those bolts provided near the locating pin.
3. Apply long-life chassis grease to the clutch disc splined section.

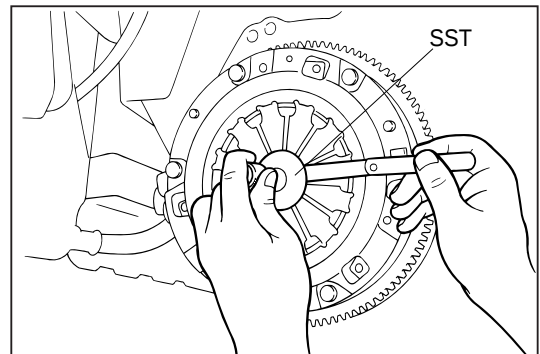


5. Check the clutch cover diaphragm spring tips for variation in height.
Adjust the diaphragm spring tips, as required.

Check

Allowable Limit of Deviation in Height: 0.6 mm

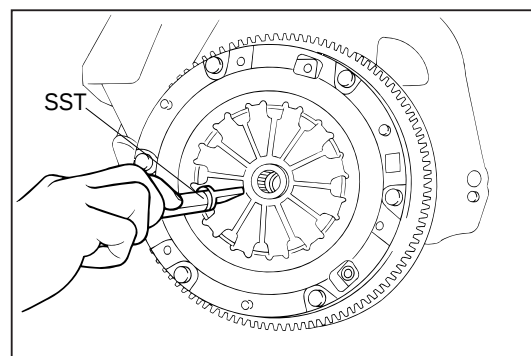
SST: 09302-87701-000



Adjustment

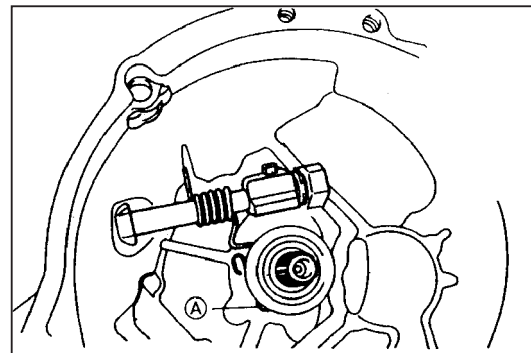
Align the diaphragm spring tips at such a height that makes the number of tips to be adjusted at a minimum number.

SST: 09333-00013-000



MMT00208-00194

6. Check release hub and yoke for proper operation. Operate the clutch release lever about 50 times. Check the section A of the clip. If the clip exhibits excessive spread and there is a likelihood that the clip may be detached, replace it with a new clip.
7. Install the transmission assembly to the engine.



MMT00209-00195

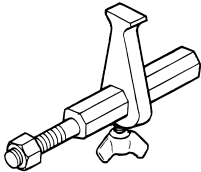
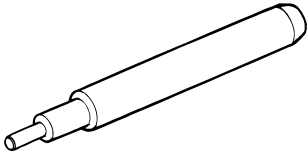
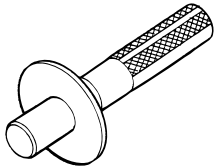
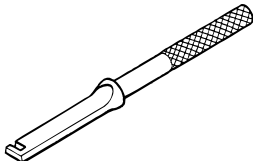
TROUBLE SHOOTING

Symptom	Possible causes	Remedies	Page
Gear shifting is hard or impossible	- Excessive clutch pedal free travel. - Excessive clutch disc runout, or damaged lining. - Faulty clutch pressure plate. - Input shaft or disc splined section contaminated or sticking.	- Adjust clutch pedal free travel. - Check clutch disc. - Repair, as required. - Replace clutch cover.	MT-54 MT-58 MT-59 MT-58
Slipping clutch	- Improper clutch pedal free travel. - Worn or oily clutch disc linings. - Faulty pressure plate. - Flattened diaphragm spring.	- Adjust clutch pedal free travel. - Replace clutch disc. - Replace clutch cover. - Replace clutch cover.	MT-54 MT-58 MT-58 MT-58
Grabbing and chattering clutch	- Worn or oily clutch disc linings. - Faulty pressure plate. - Flattened disc torsion spring. - Bent diaphragm spring.	- Check clutch disc and replace, as required. - Replace clutch cover. - Replace clutch disc. - Replace clutch cover.	MT-58
Clutch noises	- Parts in housing loose. - Worn or contaminated release bearing. - Release fork and linkage seized.	- Repair, as required. - Replace release bearing. - Repair, as required.	MT-57
Dragging clutch (Poor clutch disengagement)	- Clutch pedal free travel improperly adjusted. - Flattened diaphragm spring, or worn tip end of spring.	- Adjust clutch pedal free travel. - Replace clutch cover.	MT-54 MT-58

MMT00210-00000

APPENDIX

SSTs (Special Service Tools)

Shape	Part No.	Part name
	09210-87701-000	Flywheel holder
	09301-87703-000	Clutch guide tool
	09302-87701-000	Clutch gauge
	09333-00013-000	Clutch aligner

MMT00211-00196

TIGHTENING TORQUE

Tightening components	Tightening torque	
	N·m	kgf-m
Clutch adjusting bolt × Brake pedal bracket	11.8 - 27.4	1.2 - 2.8
Clutch pedal bolt × Nut	14.7 - 21.6	1.5 - 2.2
Clutch cover × Flywheel	14.7 - 21.6	1.5 - 2.2
Clutch release fork lever × Clutch release lever yoke	29.4 - 39.2	3.0 - 4.0

MMT00212-00000