

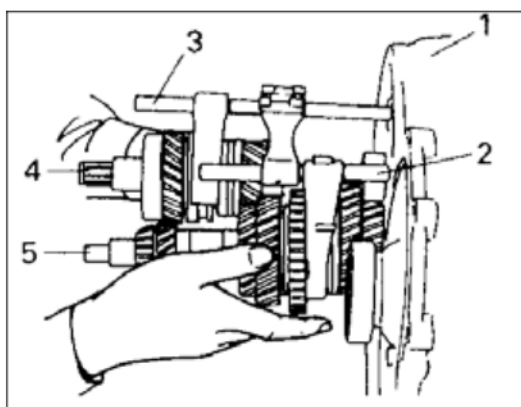


Fig.3-14

- 1- Clutch housing assembly
- 2- 1st 2nd shift fork shaft assembly
- 3- 3rd 4th shift fork shaft assembly
- 4- Output shaft assembly
- 5- Input shaft assembly

(3) Clutch case assembly

1. Remove the differential assembly from the clutch case.



Fig.3-15

- 1- Differential Assembly

2. Loosen the bolt, pull out the speedometer driven gear assembly.

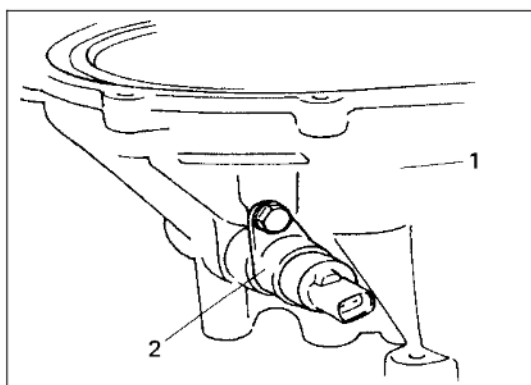


Fig3-16

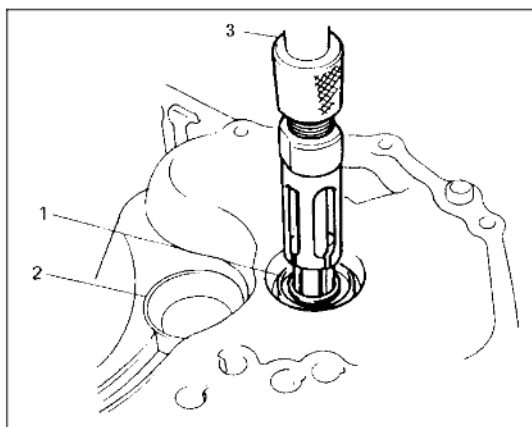
- 1- Clutch case
- 2- Speedometer driven gear assembly

Caution: Do not hurt speedometer case.

3.Remove the input shaft oil seal .

4.Remove the output shaft bearing outer race.

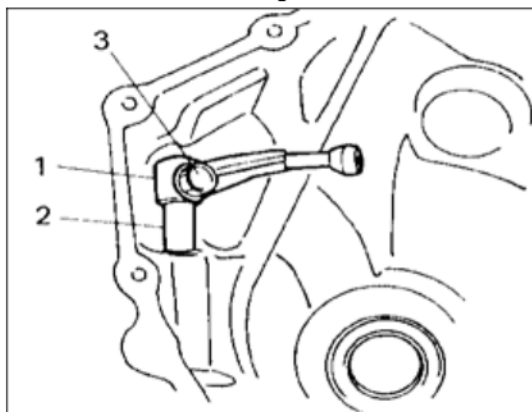
Notice: If the input shaft bearing still remains in the clutch case, use special tool to pull out the bearing.



- 1- Input shaft oil seal
- 2- Output shaft bearing
outer
- 3- Special tool

Fig.3-17

5. Loosen the bolt, pull out the shift head.



- 1- Shift head
- 2- Shift lever
- 3- Bolt

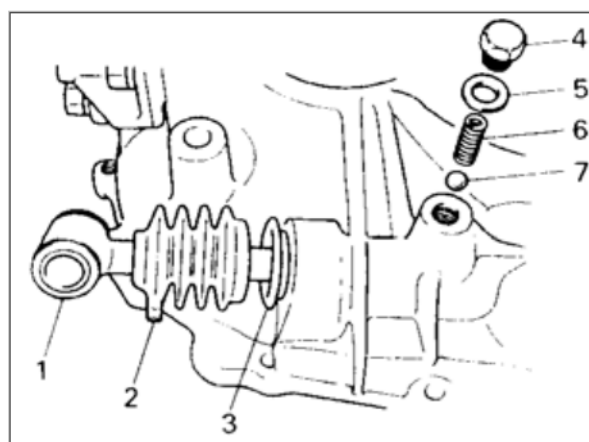
Fig.3-18

6. Loosen the shift lever bolt and gasket, take out the spring and ball.

7. Remove the shift lever, boot and oil seal.

8. Remove the differential oil seal from the clutch case.

Notice: The used oil seal cannot be used repeatedly.



- 1- Shift lever
- 2- Boot
- 3- Oil seal
- 4- Blot
- 5- Gasket
- 6- Spring
- 7- Ball

Fig.3-19

(4) Input shaft assembly

Disassemble:

1. Use bearing puller to remove the input shaft right bearing.

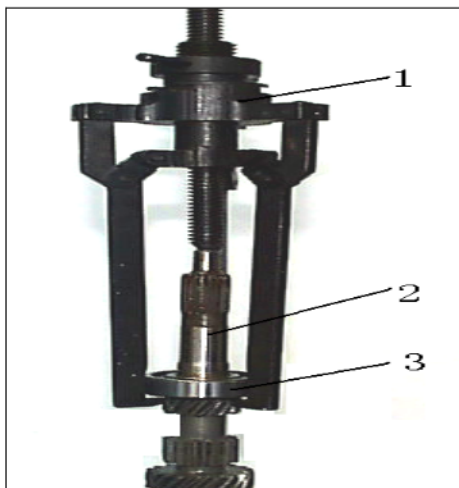


Fig.3-20

- 1- Special tool
- 2- Input shaft
- 3- Right bearing

2. Use special tools to clip the 4th gear, pull it out with the 5th gear spacer, left bearing.

Caution: Do not clip the gear head, or the 4th gear may be hurt.

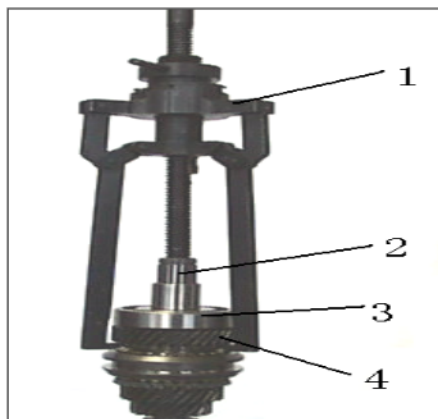
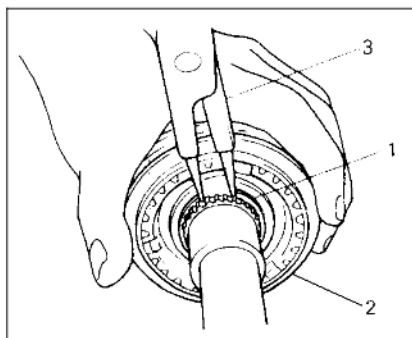


Fig.3-21

- 1- Special tool
- 2- Input shaft
- 3- Left bearing
- 4-4th gear

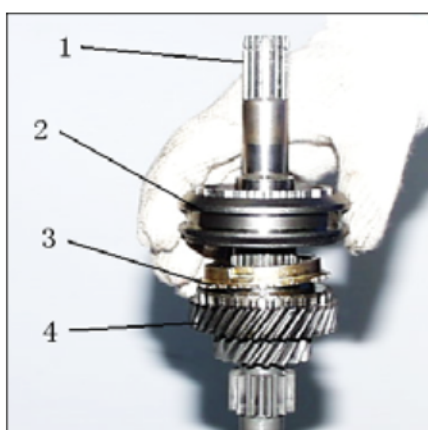
3. Take out the 4th gear Needle roller bearing and Synchronizer ring.
4. Use special tool to remove the snap ring.



- 1- Snap ring
- 2- Synchronizer ring
- 3- Special tool

Fig.3-22

- 5.Remove the synchronizer assembly and 3rd gear.
- 6.Remove the 3rd gear needle roller bearing .



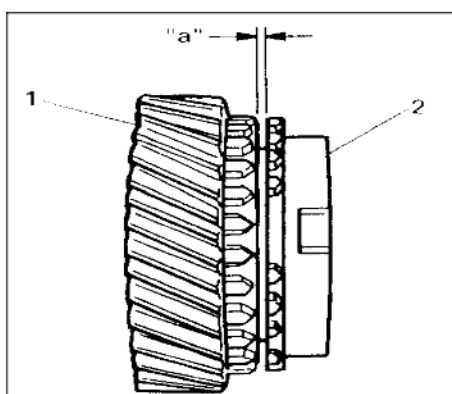
- 1- Input shaft
- 2- Synchronizer assembly
- 3- Synchronizer ring
- 4- 3rd gear

Fig.3-23

7. Disassemble the Synchronizer assembly.

Check and re-install:

- 1.Clean up all the parts, check if there is anything abnormal.
- 2.If Synchronizer components need repair, measure synchronizer ring clearance "a" to gear, then decide whether change it.



- 1- Gear
- 2-Synchronizer ring

Fig.3-24

3. Blow oil pipeline.

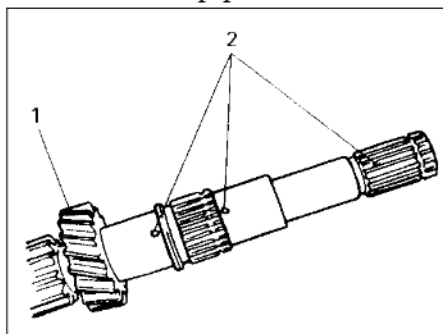


Fig.3-25

1- Input shaft

2- Oil pipeline

4. Assemble the synchronizer assembly, insert 3 synchronizer insert, and then install the spring according to the Fig.

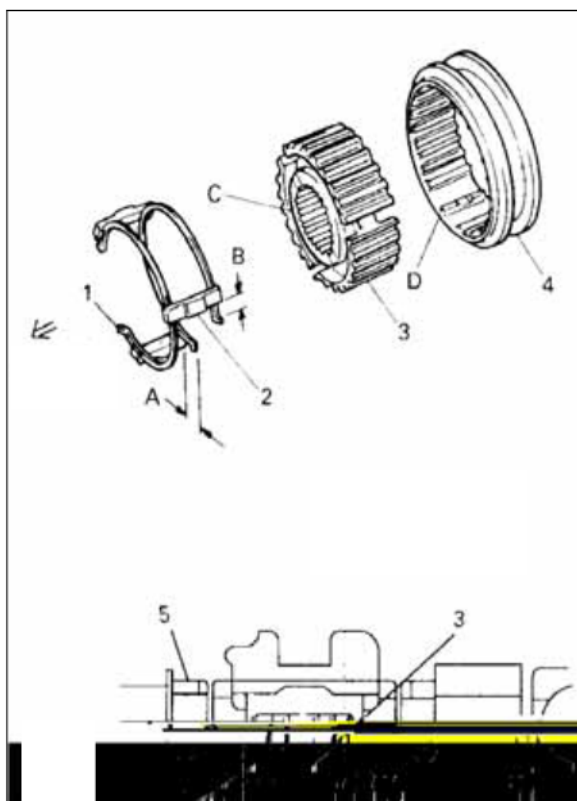


Fig.3-26

1- Snap ring

2- Synchronizer insert

3- Hub

4- Hub sleeve outer race

5- 3rd gear

Notice:

- Keep right directions of every part.
- Pay more attention to the size differences of spring snap ring, synchronizer insert, hub sleeve and synchronizer assembly.

5. Use special tool to install right bearing of input shaft.

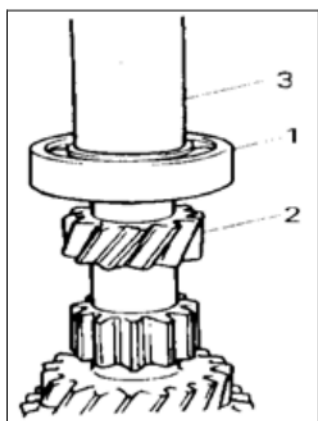


Fig.3-27

- 1- Right bearing
- 2- Input shaft
- 3- Special tool

6. Install the 3rd gear needle roller bearing, lubricate needle roller bearing; install 3rd gear and synchronizer ring.

7. Use hammer and special tool to install synchronizer assembly.

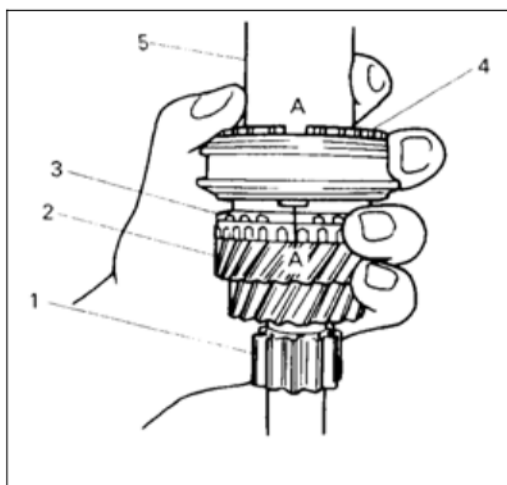


Fig.3-28

- 1- Input shaft
- 2- 3rd gear
- 3- Synchronizer ring
- 4- Synchronizer assembly
- 5- Special tool

Notice:

- Be sure to keep the synchronizer insert of the synchronizer ring and the synchronizer insert of the synchronizer assembly in the right position when installing the synchronizer assembly.

- After finishing installation, check if the 3rd gear turns smoothly.

- 3rd needle roller bearing, synchronizer ring and 4th needle roller bearing, Synchronizer ring is same.

8. Spread lubricant on the needle roller bearing, and fix the snap ring, needle roller bearing.

Notice: Be sure the snap ring has been fixed in the snap ring slot on the input shaft.

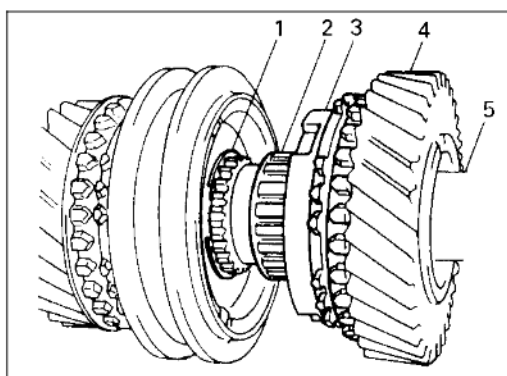


Fig.3-29

- 1- Snap ring
- 2-Needle roller bearing
- 3- Synchronizer ring
- 4- 4th gear
- 5-Input shaft

9. Use special tool and hammer to press the left bearing.

10. Use special tool to press the 5th gear spacer.

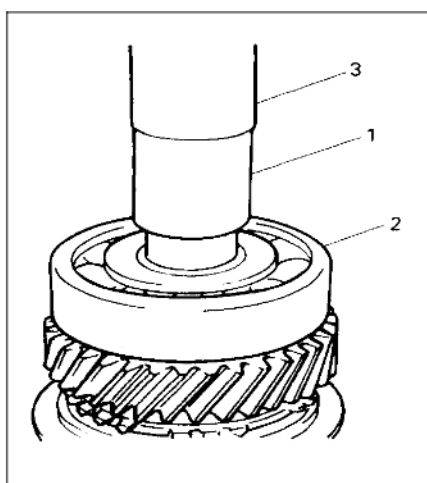


Fig.3-30

- 1-5th gear spacer
- 2-Left bearing
- 3- Special tool

Notice : In order to avoid the 5th gear spacer pressure over, do not pressure left bearing together.

(5) Output shaft assembly

Disassemble:

1. Clip the 4th gear and pull it out with the left bearing together.

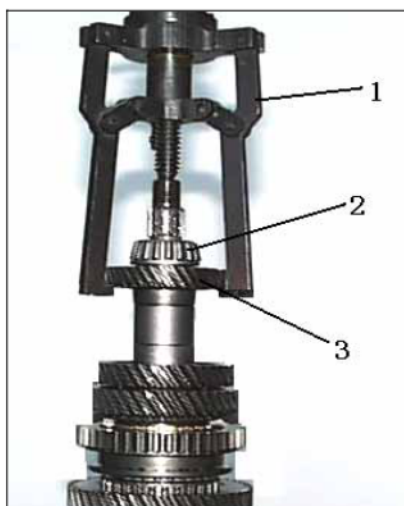


Fig.3-31

- 1- Special tool
- 2- Left bearing
- 3-4th driven gear

Caution: In order to avoid breaking the 4th driven gear, do not clip the gear head.

2.Clip the 2nd driven gear, pull out the driven gear, 3rd driven gear with the Spacer together.

Caution: In order to avoid breaking the 2nd driven gear, do not clip the gear head.



Fig.3-32

- 1- Special tool
- 2- Spacer
- 3- Output shaft
- 4-3rd driven gear
- 5-2nd driven gear

3. Remove the needle roller bearing and 2nd Synchronizer ring.

4. Remove the snap ring.

Caution: In order to remove the snap ring smoothly, be sure the special tool top is plane.

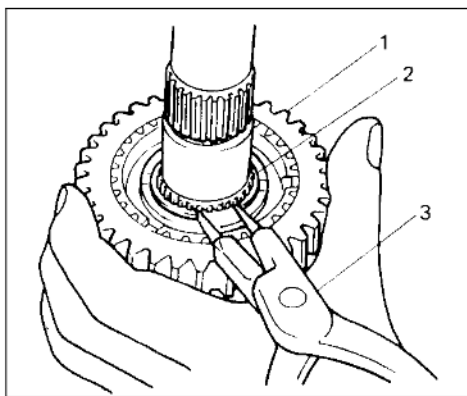


Fig.3-33

5. Remove the synchronizer assembly, 1st Synchronizer ring.
6. Remove the 1st driven gear and needle roller bearing.

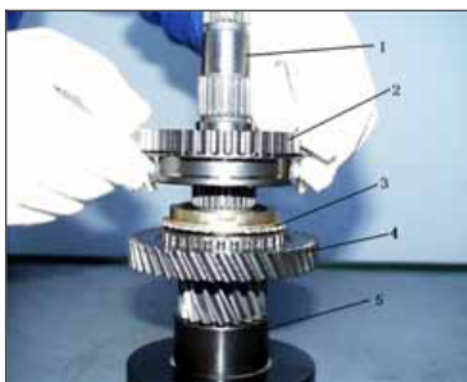


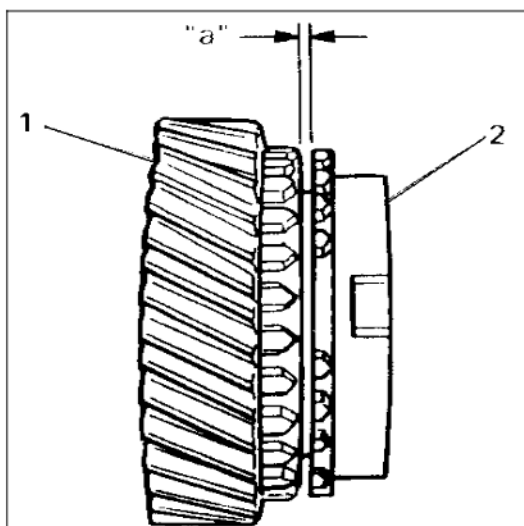
Fig.3-34

- 1- Hub sleeve outer race
- 2- Snap ring
- 3- Special tool

- 1, Output shaft
- 2, Hub sleeve outer race
- 3, 1st synchronizer ring
- 4, 1st driven gear
- 5, Special tool

Check and re-install:

1. Clear up all the parts, check if there is anything abnormal, if necessary, change the used parts.
2. If the synchronizer need repair, first check the clearance "a" between synchronizer ring and gear and the clearance between the angle and hub, and then decide if changed the used parts.



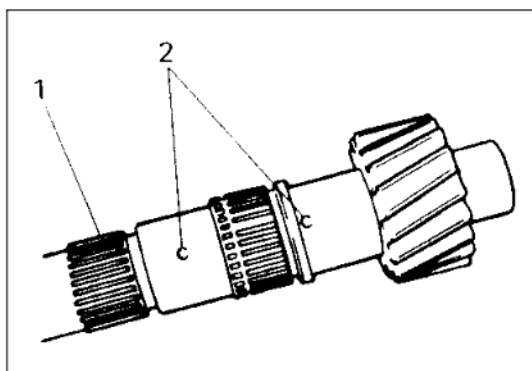
1- Gear

2- Synchronizer ring

Fig.3-35

Clearance "a"	Standard 1.0~1.4mm
	Use limit: 0.5mm

3. In order to keep lubricate smoothly, blow the oil away, be sure there is not any backup in the oil way.

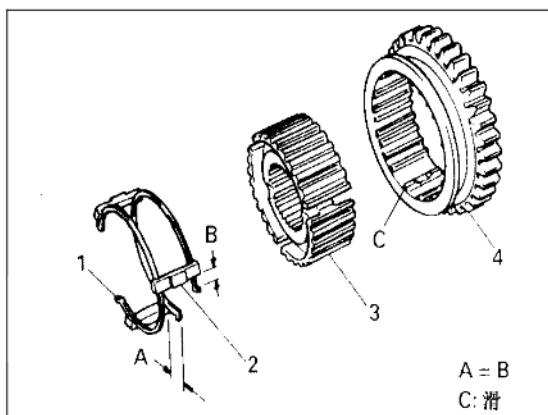


1- Output shaft

2- Oil way

Fig.3-36

4. Install the synchronizer assembly , insert 3 pieces of synchronizer insert, and then install the spring according to the figure.

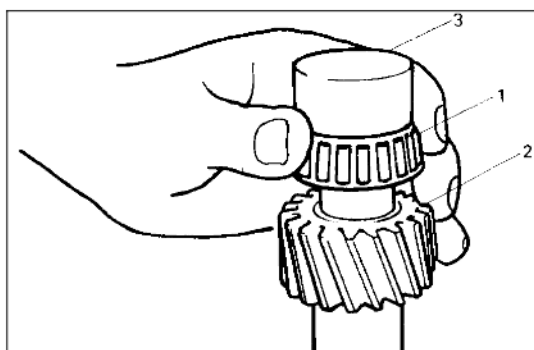


- 1- Snap ring
- 2- Synchronizer insert
- 3- Hub
- 4- Hub sleeve outer race

Notice:

- Synchronizer insert is not on the right direction.
- Snap ring and synchronizer insert and synchronizer assembly, 5th synchronizer assembly compare is big.

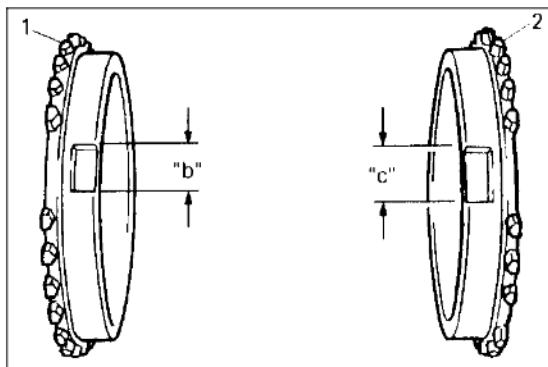
5.Install the output shaft bearing.



- 1-Output shaft right bearing
- 2- Output shaft
- 3- Special tool

Fig.3-38

6.Spread lubricant on the needle roller bearing, and then install the 1st driven gear and 1st synchronizer ring.



- 1-1st synchronizer ring
- 2-2nd synchronizer ring

Fig.3-39

Notice: The width of 1st synchronizer ring synchronizer insert is smaller than the width of the 2nd synchronizer ring synchronizer insert.

Width: "b" : 8.2mm

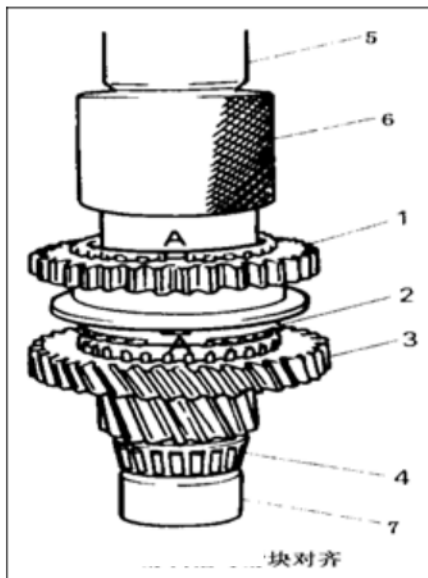
"c" : 8.8mm

- The width of the 1st and 2nd needle roller bearing is the same.

7. Hammer the synchronizer assembly.

Notice:

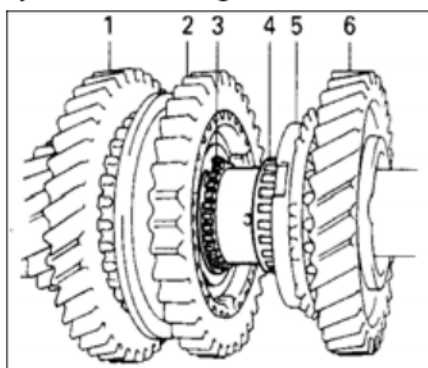
- Use special tool support right output shaft ,avoid bearing holding race destroy.
- When installing the synchronizer assembly, keep the synchronizer insert and the synchronizer insert on the synchronizer assembly face to face.
- After installation, check if the 1st gear turns smoothly.



- 1- Synchronizer assembly
- 2-1st Synchronizer ring
- 3-1st driven gear
- 4- Right bearing
- 5- Special tool
- 6- Special tool
- 7- Special tool

Fig.3-40

8. Spread lubricant on the snap ring and needle roller bearing, and then install the 2nd synchronizer ring and 2nd driven gear.



- 1-1st driven gear
- 2- Synchronizer assembly
- 3- Snap ring
- 4- Needle roller bearing
- 5-2nd synchronizer ring
- 6-2nd driven gear

Fig.3-41

Notice: Be sure the snap ring has been installed in the clutch.

9. Install the 3rd driven gear and spacer.

Notice: It is suggested that first install the 3rd driven gear and spacer , secondly install the 4th driven gear, in this way, the output shaft will not bear too much pressure.

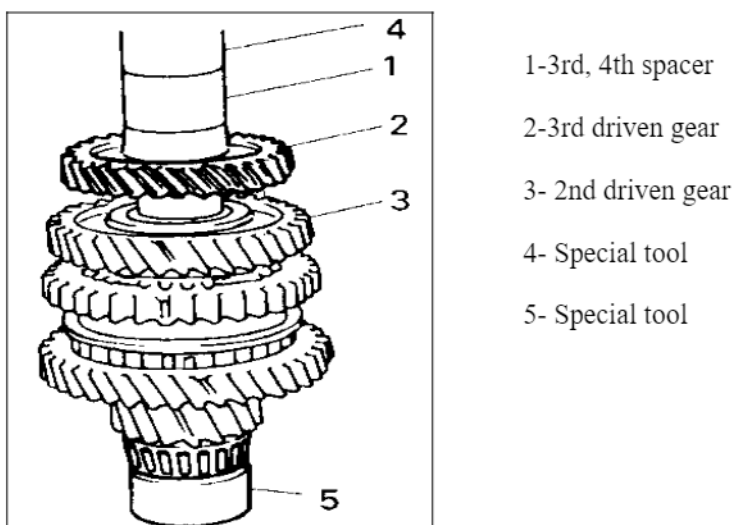


Fig.3-42

10. Use the same special tools to install the 4th driven gear.

11. Use hammer or special tools to install the left bearing.

Notice: To protect the bearing, use the special tools (shown in the figure) to support the bearing.

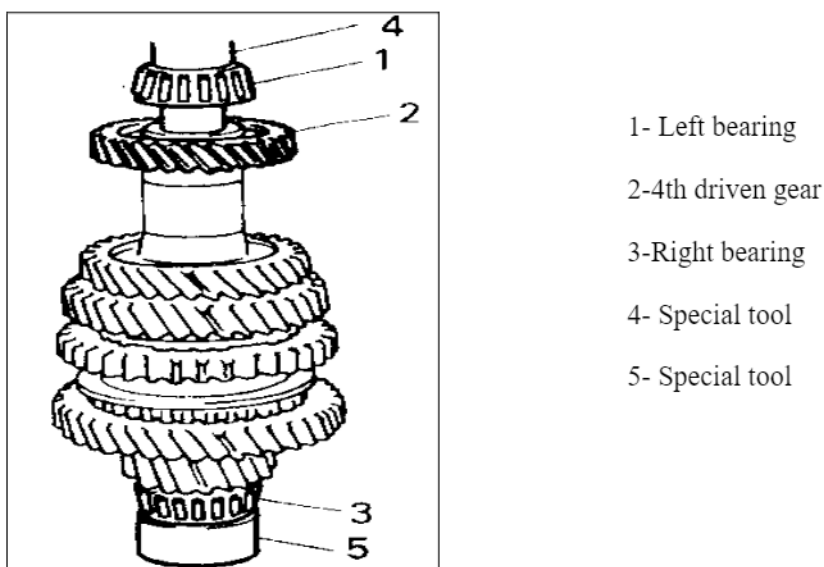


Fig.3-43

(6) Shift and select lever shaft control system

Shift and select lever shaft assembly:

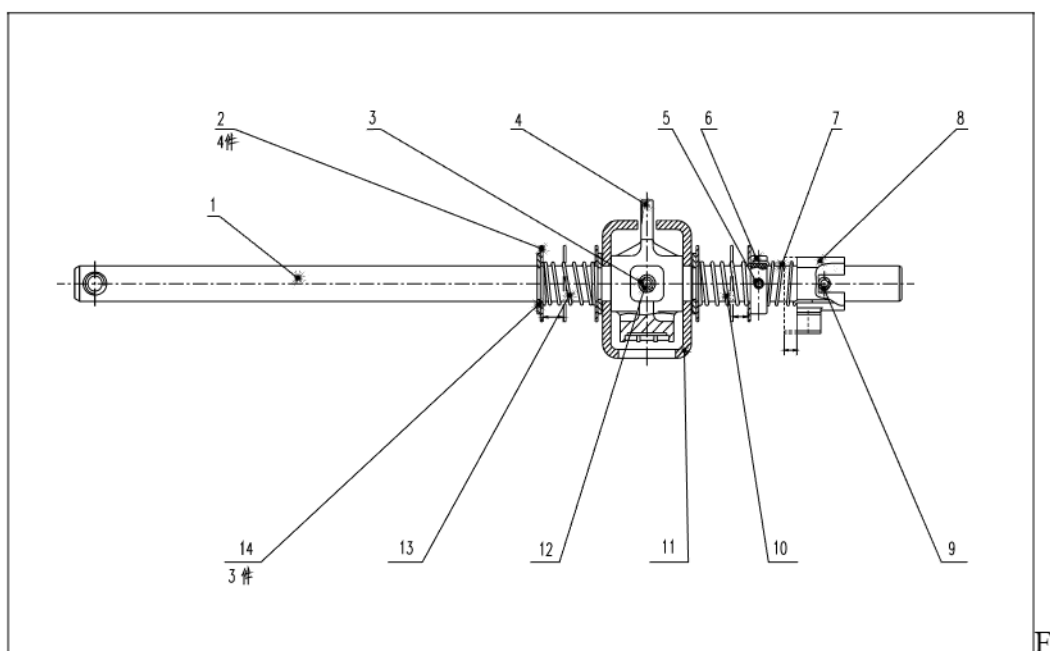


Fig.3-44 Shift and select lever shaft assembly

- | | | |
|---------------------------------|-----------------------|------------------------|
| 1- Shift and select lever shaft | 2- Gasket | 3- Slotted spring pin |
| 4- Select lever shaft | 5- Slotted spring pin | 6- Spring |
| 7- Shift cam spring | 8- Shift cam | 9- Slotted spring pin |
| 10- Return spring | 11- Interlock | 12- Slotted spring pin |
| 13- Return spring | 14- E- snap ring | |

1. Use the professional tools to remove the 4 pin, 3 E- snap ring and component from the select lever shaft.

2. Clear up all the parts, if necessary, please replace the used parts.

3. Install according to the reverse process.

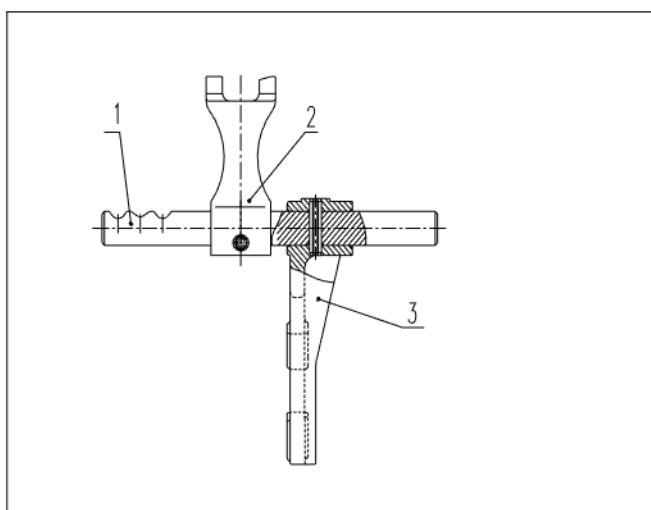
Notice:

- When hammering the slotted spring pin, use the wood block to support to prevent bending the shift and select lever shaft.

- When installing reverse, 5th interlock roller, first enlace the cam return spring, secondly hammer the slotted spring pin.

- Keep the identical directions of the select lever shaft, reverse, 5th shift cam and spring.

1st, 2nd shift fork shaft assembly and 3rd, 4th Shift fork shaft assembly.

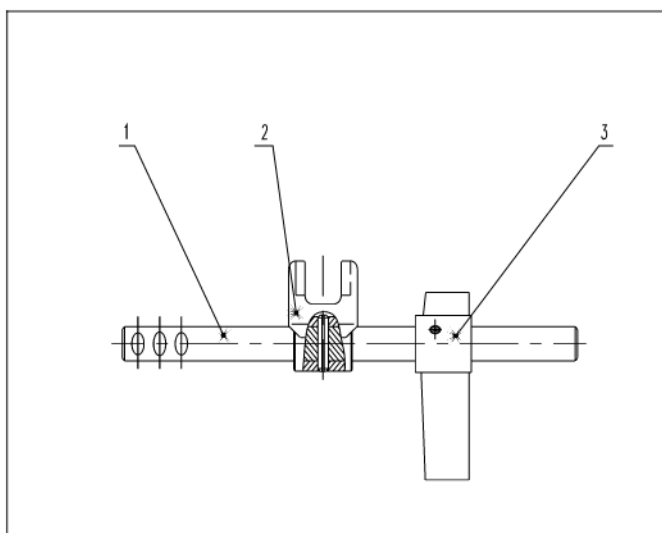


1-1st.2nd Shift fork shaft

2-1st .2nd Shift head

3-1st .2nd Shift fork

1st , 2nd Shift fork shaft assembly



1-3rd, 4th Shift fork shaft

2-3rd, 4th Shift head

3-3rd, 4th Shift fork

3rd, 4th Shift fork shaft assembly.

1. Use the professional tools to remove the 3 pin and component (from the select lever shaft assembly).

2. Clean up all the parts, if necessary, please replace the used parts.

3. Install according to the reverse process of disassembly.

Notice: When installing, Shift fork Slotted spring pin placket should stagger 180 °. Check Shift fork and shift hub sleeve.

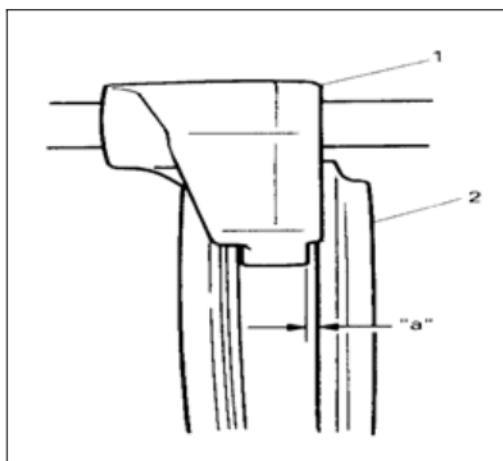


Fig.3-47

1. Use feeler gauge to check the clearance between shift fork and hub sleeve, if the clearance exceeds 1.0mm, please replace the parts.

Notice: Check the contact position of shift fork and hub sleeve carefully to determine if replace the parts.

Clearance "a" : Maintenance Limit: 1.0mm

2. Insert the shift lever into the hole of the case, check if it works smoothly, if there is any retardance, please correct with winch or similar tools.

Reverse, 5th shift fork shaft assembly

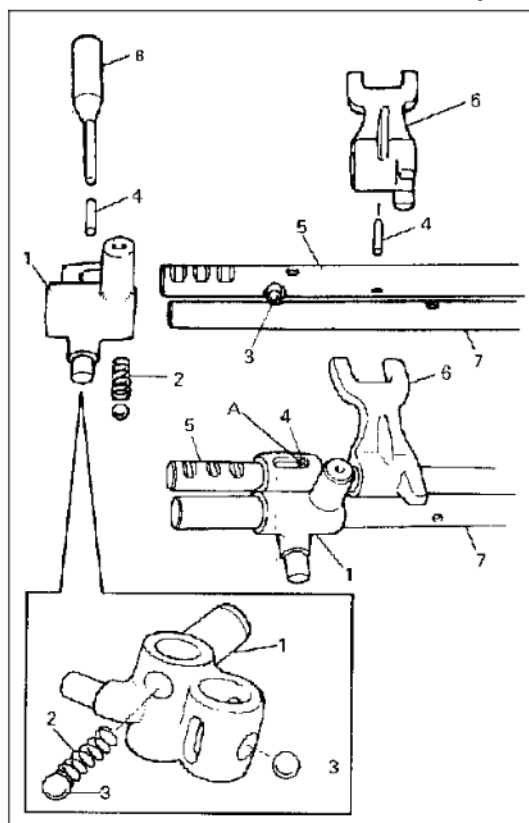


Fig.3-48

1- Reverse Shift fork

2- Spring

3- Ball

4- Slotted spring pin

5-Reverse, 5th Shift fork

6-Reverse, 5th Shift head

7-Reverse, 5th guide shaft

A : Slotted spring pin

placket forward

- 1.Remove the slotted spring pin and disassemble every part.
- 2.Clean every part thoroughly and determine if some parts need to be replaced.
- 3.Install all the parts according to the figure and the installing order.

Notice:

- Division reverse shift fork spring and shift spring.
- Accurately install the reverse shift fork ball。
- Install the shift fork Slotted spring pin according to the reverse order.

(7) Differential Assembly

Disassembling:

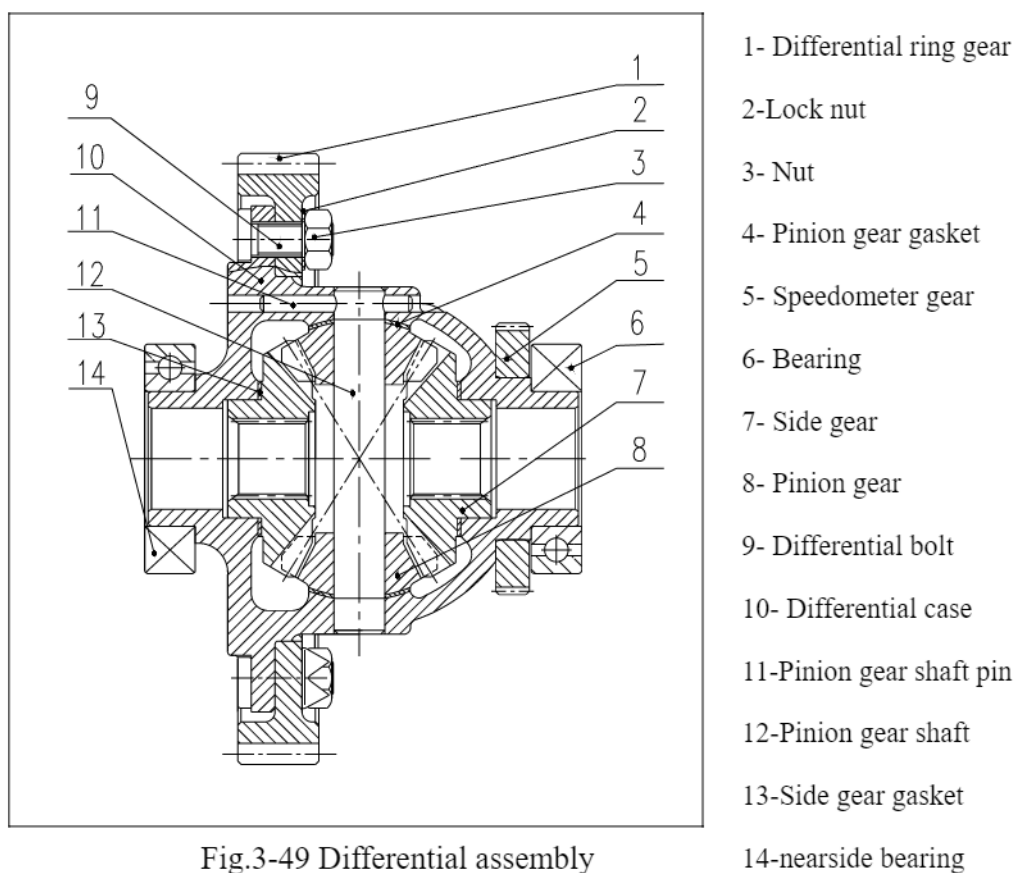
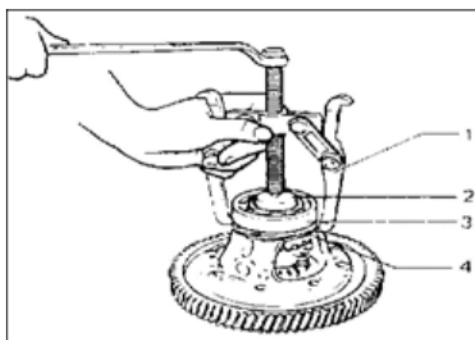


Fig.3-49 Differential assembly

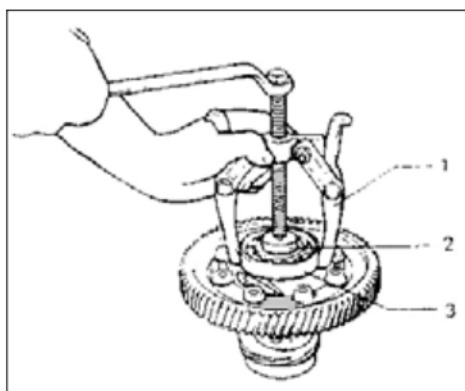
1. Remove the right-side bearing.
2. Pull out the speedometer gear.



- 1- Bearing puller
- 2- Special tool
- 3- Bearing
- 4-Speedometer gear

Fig.3-50

3. Remove the left-side bearing .

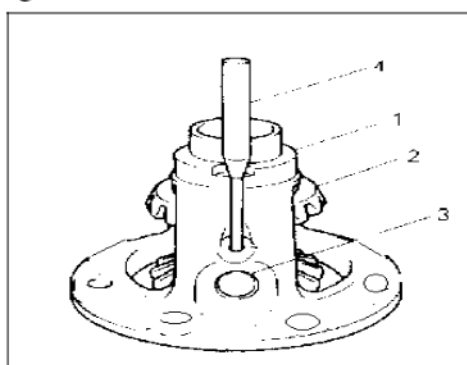


- 1- Bearing puller
- 2- Special tool
- 3-Left bearing

Fig.3-51

4. Clip the differential case, remove the 8 nut, 8 Differential bolt and 4 lock nut.

5. Hammer off the slotted spring pin, remove the pinion gear shaft, pinion gear , side gear.



- 1- Differential case
- 2- Side gear
- 3- Pinion gear shaft
- 4- Special tool

Fig.3-52