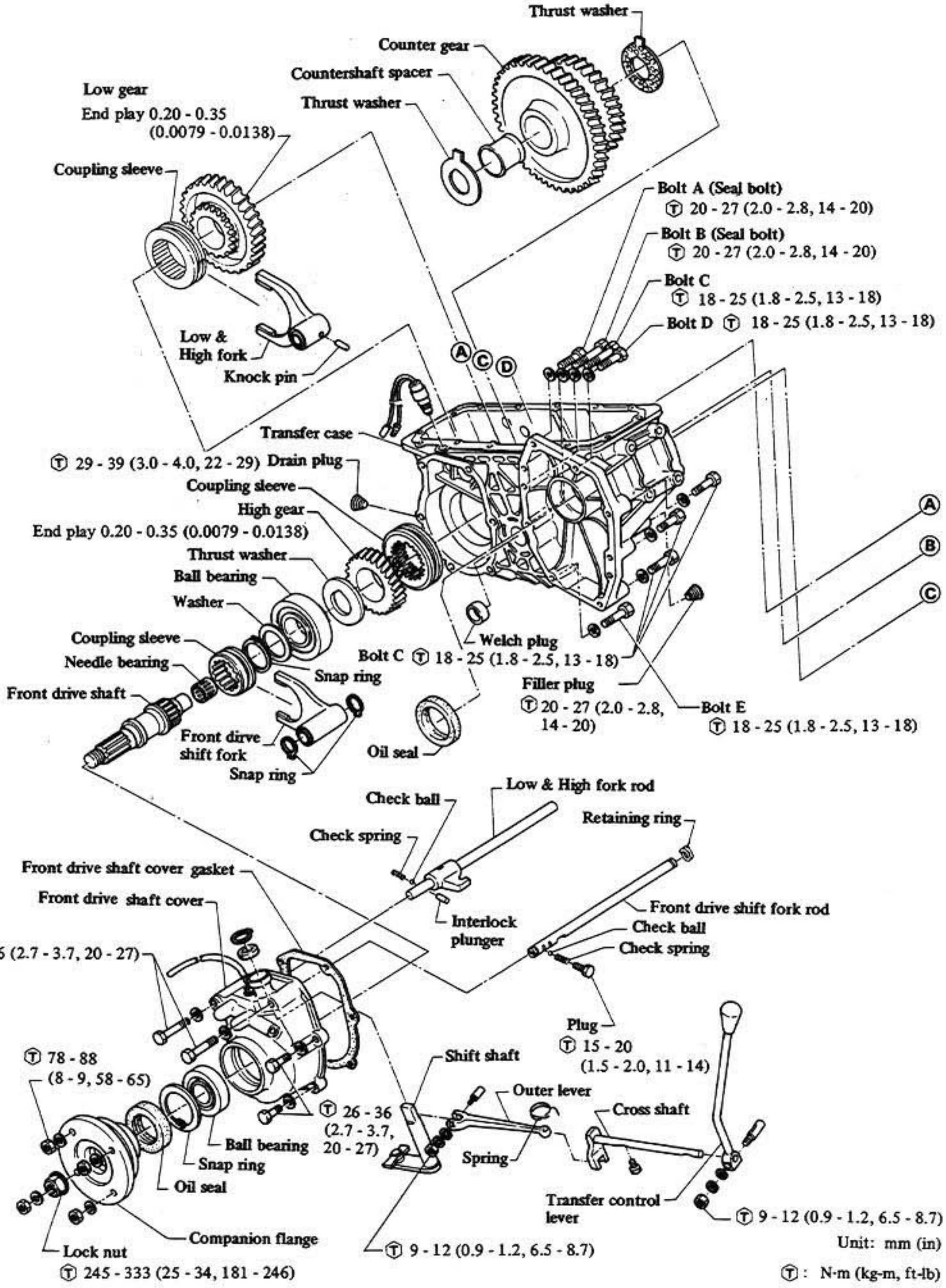
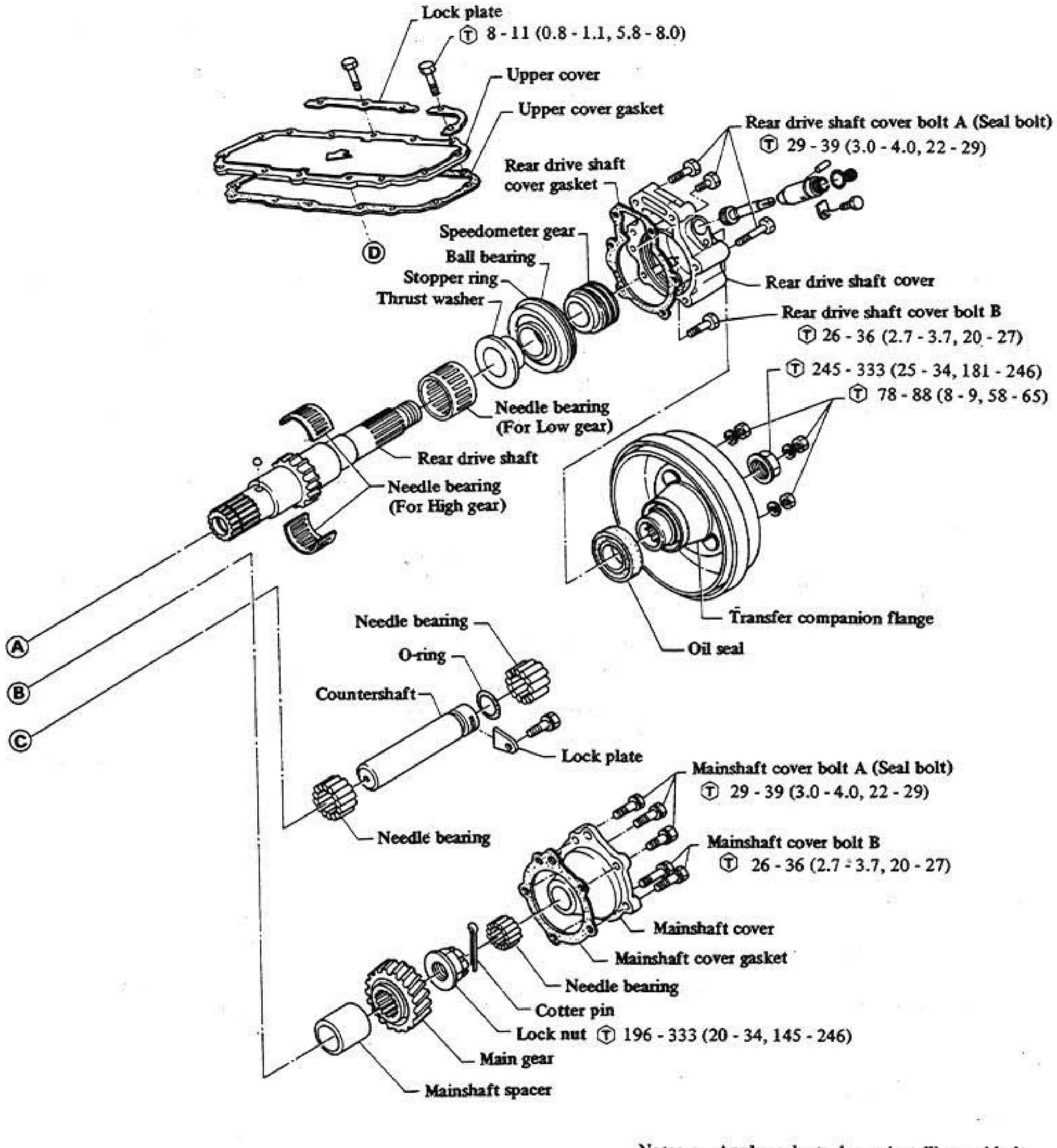
TRANSFER

CONTENTS

TRANSFER (Model : T130A)





Note: a. Apply sealant when reinstalling seal bolt.
b. The following parts should be replaced with new one at every disassembly.
- Oil seal
- O-ring
- Gasket
- Companion flange lock nut
- Snap ring

Ⓣ : N·m (kg-m, ft-lb)

SMT257

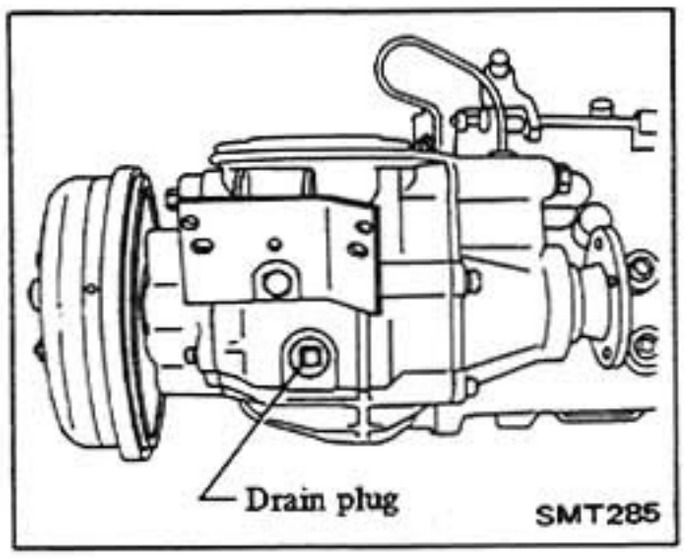
REMOVAL AND INSTALLATION

Refer to Section MT.

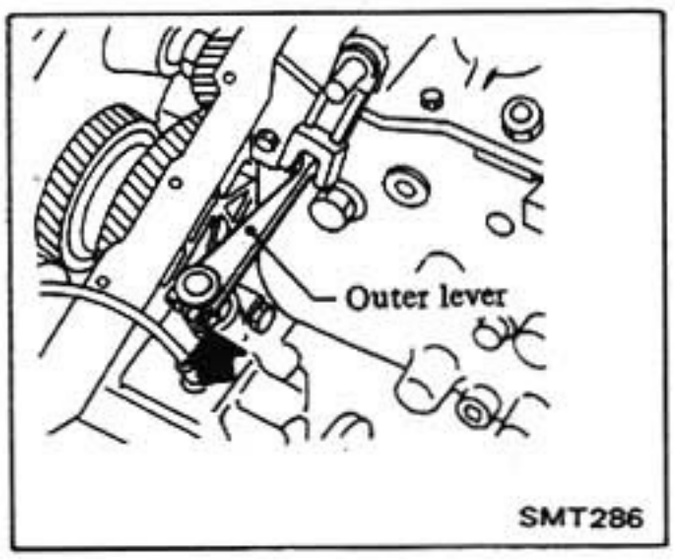
FORKS AND FORK RODS

DISASSEMBLY

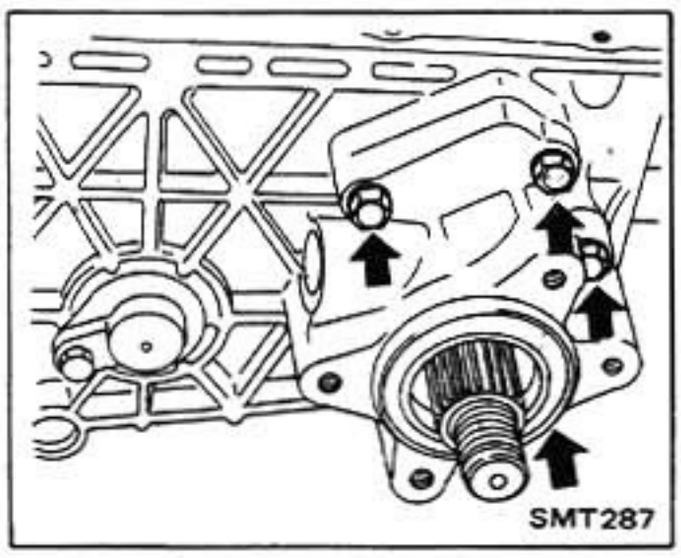
1. Remove transfer with transmission from vehicle. **Refer to Section MT for removal.**
2. Drain transfer oil prior to disassembly.



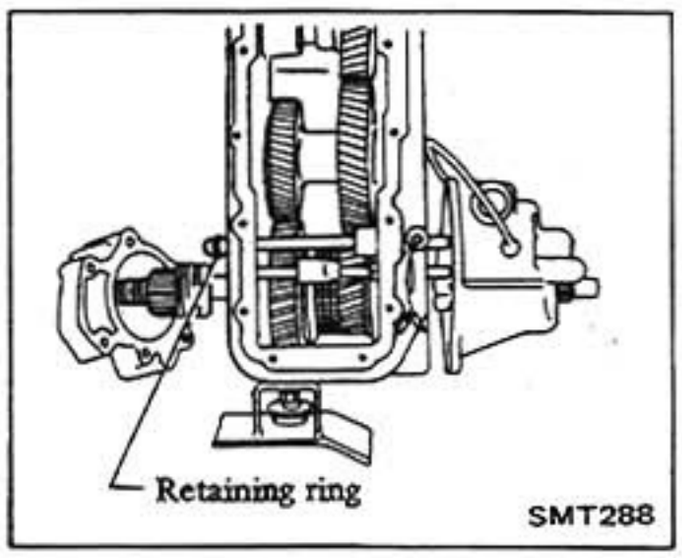
3. Remove center brake assembly and each companion flange.
4. Remove upper cover from transfer.
5. Remove transfer outer lever.



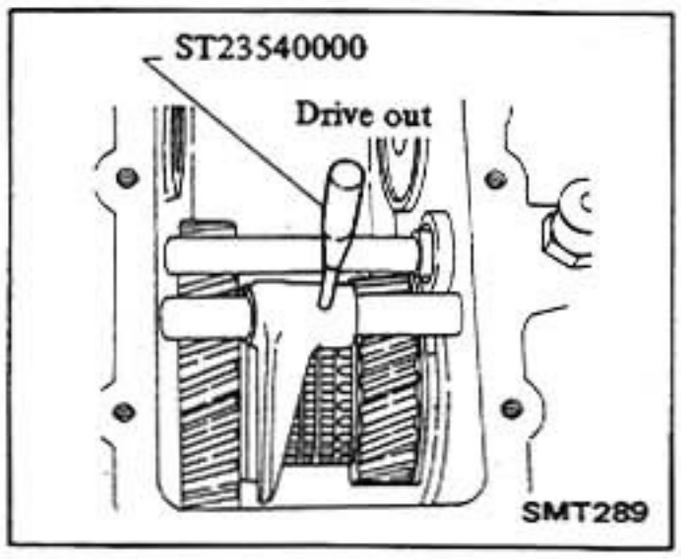
6. Remove rear drive shaft cover.



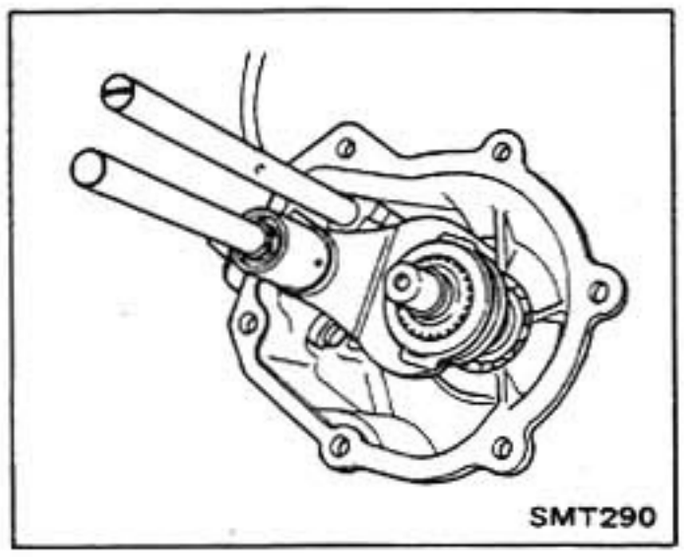
7. Remove retaining ring from front drive fork rod.



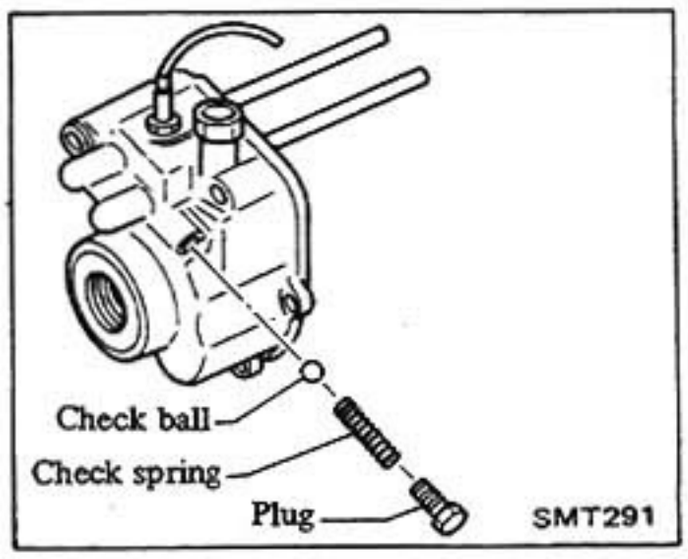
8. Remove dowel pin from Low & High shift fork **using Tool.**



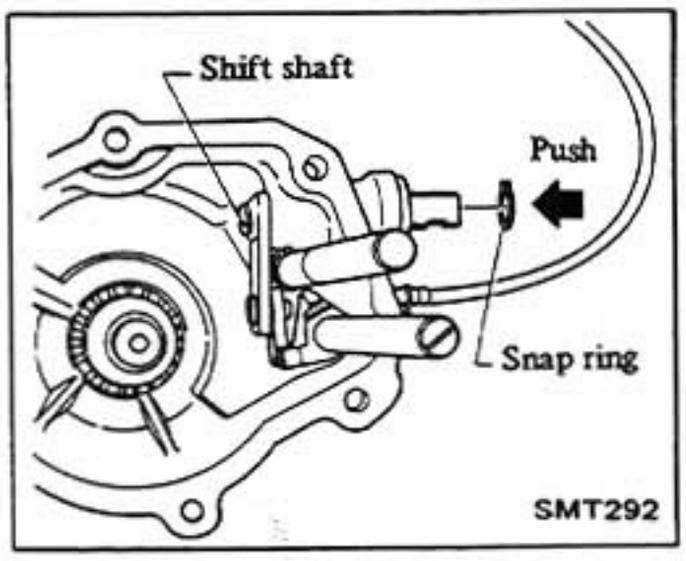
9. Remove front drive shaft cover assembly.



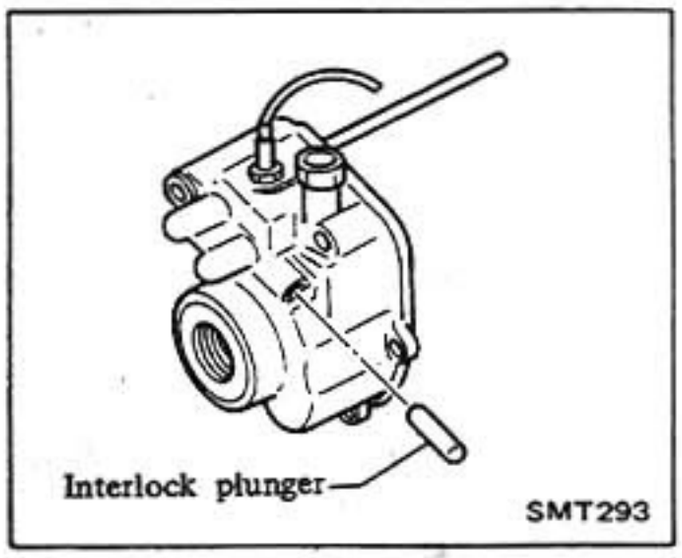
10. Remove snap ring and front drive shift fork.
11. Remove check ball plug, check spring and check ball for front drive fork rod.



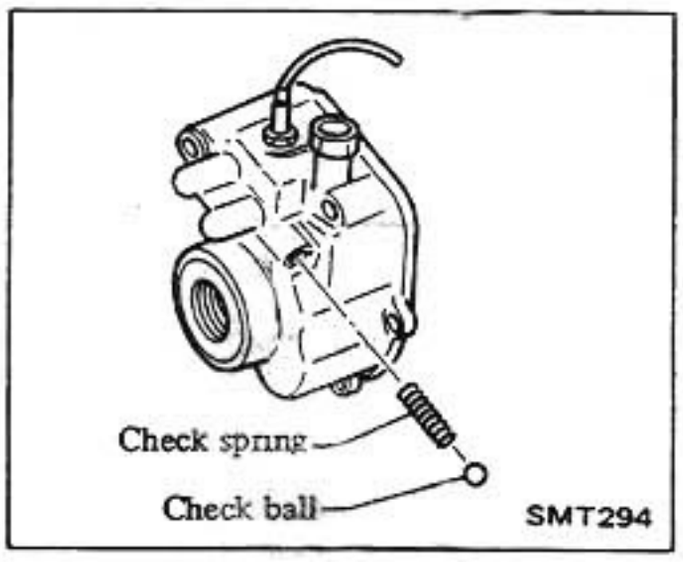
12. Remove snap ring and shift shaft assembly.



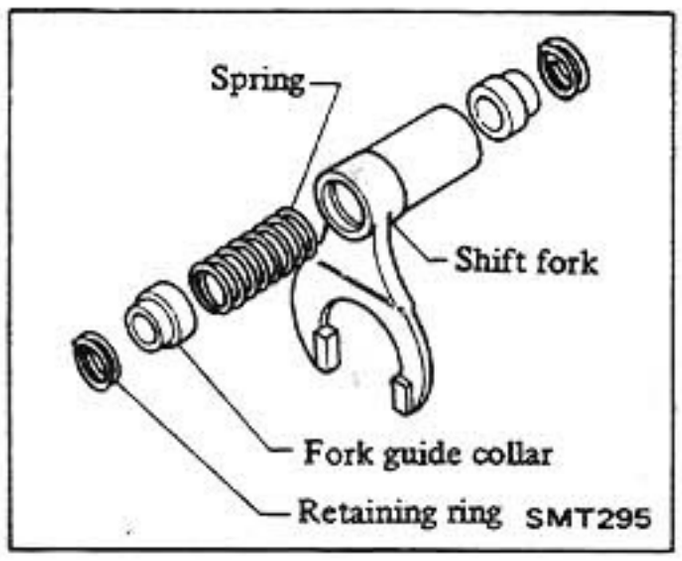
13. Pull front drive fork rod out, then remove interlock plunger.



14. Pull Low & High fork rod out, then remove check ball and check spring for Low & High fork rod.

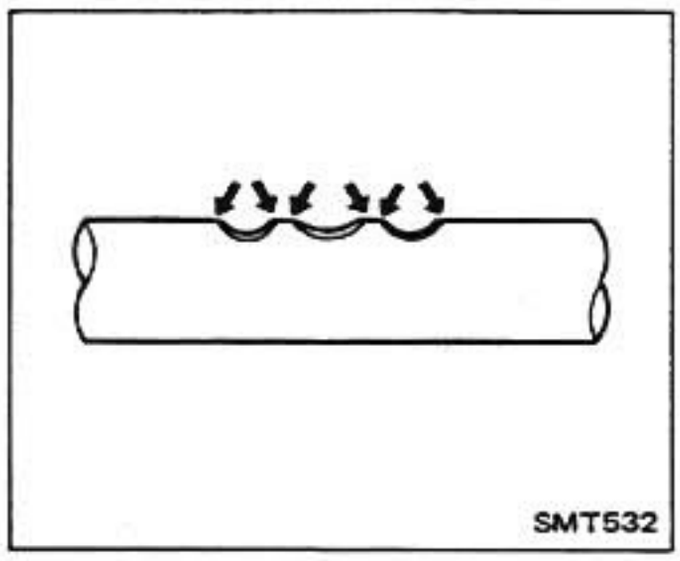


15. Disassemble front drive shift fork.
16. Fork guide collar and spring can be removed by removing retaining ring.



INSPECTION

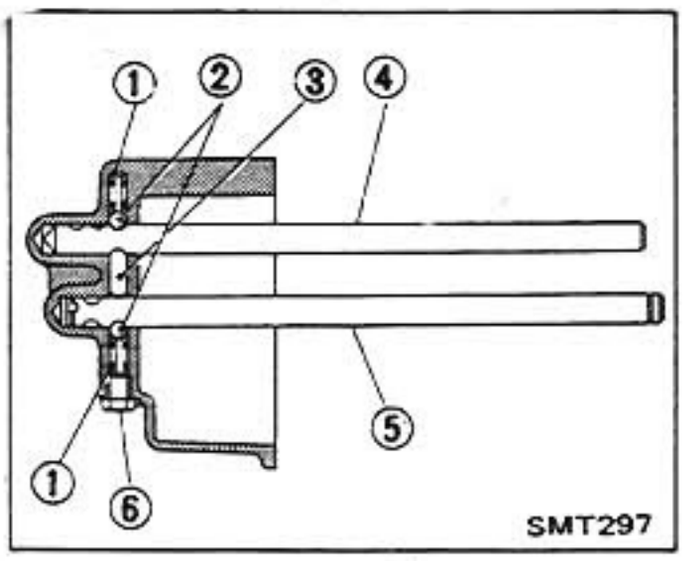
1. Clean with solvent, and check forks for wear, scratches, projection, damage or other defects. Replace any part which is worn or damaged.
2. Check fork rods for bend, scratches, and check groove of check ball for wear as illustrated.



ASSEMBLY

Assemble fork and fork rods in the reverse order of disassembly, noting following points.

- **Install check ball, check sping and interlock plunger to their original positions.**
- **When installing fork rods, pay attention to the direction of their grooves.**
- **Push Low & High fork rod until check ball fits securely into 3rd groove.**



1 Check spring
2 Check ball
3 Interlock plunger
4 Low & High fork rod
5 Front drive fork rod
6 Plug

- **Always install new gasket on front cover and rear drive shaft cover.**
- **Apply sealant to check ball hole plug.**
- **Apply sealant to three rear drive shaft cover mounting bolts for through holes.**

Ⓣ : Check ball hole plug
15 - 20 N·m
(1.5 - 2.0 kg-m,
11 - 14 ft-lb)
Front drive shaft cover bolt
26 - 36 N·m
(2.7 - 3.7 kg-m,
20 - 27 ft-lb)
Rear drive shaft cover bolt A (Seal bolt)
29 - 39 N·m
(3 - 4 kg-m,
22 - 29 ft-lb)
Rear drive shaft cover bolt B
26 - 36 N·m
(2.7 - 3.7 kg-m
20 - 27 ft-lb)
Upper cover bolt
8 - 11 N·m
(0.8 - 1.1 kg-m,
5.8 - 8.0 ft-lb)
Shift rod lock pin nut
9 - 12 N·m
(0.9 - 1.2 kg-m,
6.5 - 8.7 ft-lb)
Filler plug
20 - 27 N·m
(2.0 - 2.8 kg-m,
14 - 20 ft-lb)
Drain plug
29 - 39 N·m
(3 - 4 kg-m,
22 - 29 ft-lb)
Transfer oil capacity:
1.8ℓ (3-1/8 Imp pt)

GEARS AND SHAFTS

DISASSEMBLY AND ASSEMBLY

Transfer main gear, counter gear and countershaft

Refer to Section MT for disassembly.

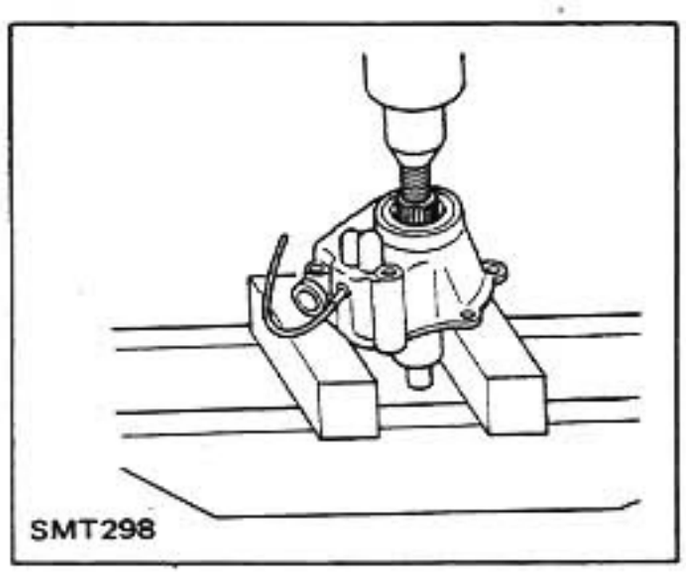
When assembling gears and shafts, observe following points.

- **Apply a coat of grease to counter gear thrust washer, and countershaft and mainshaft needle bearings.**
- **Always install new O-rings and gaskets.**
- **Apply sealant to three mainshaft cover mounting bolts for through holes.**

Front drive shaft

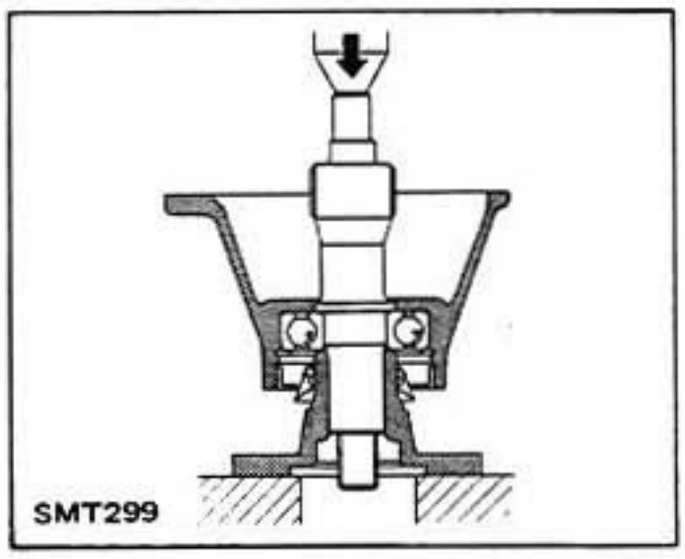
First remove front companion flange before disassembling.

1. Remove front drive shaft cover. **Refer to Fork and Fork Rods for disassembly.**
2. Remove front drive shaft from front drive shaft cover.



3. Install front drive shaft.

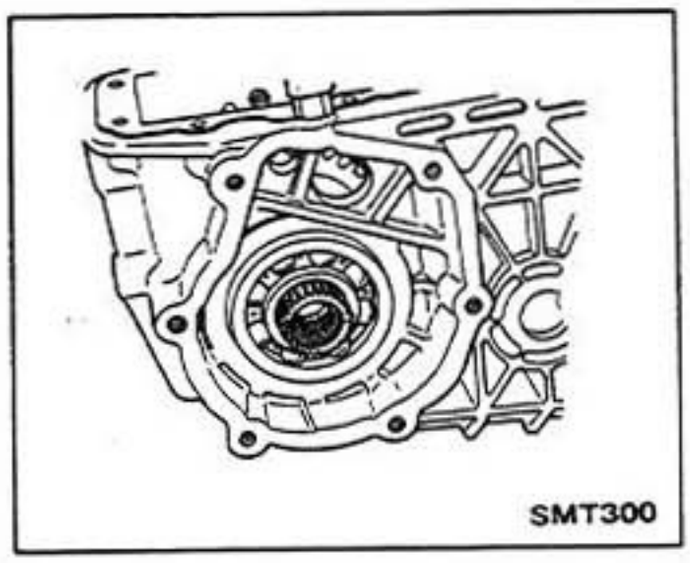
When pressing front drive shaft, ball bearing inner race should receive pressing force.



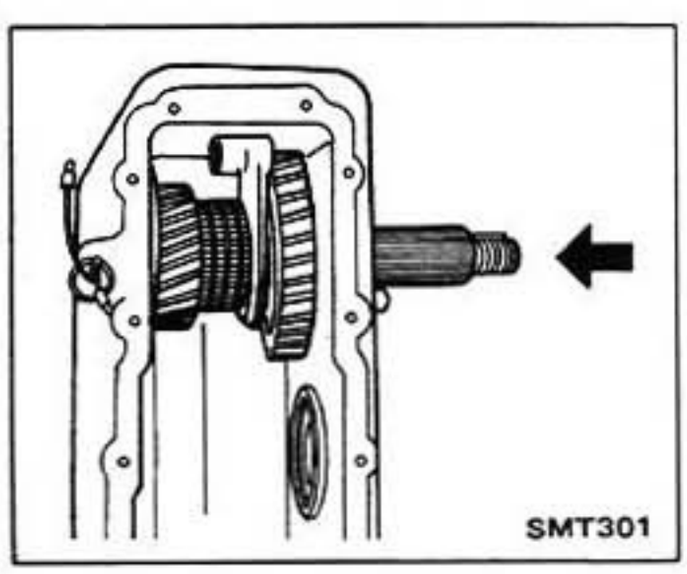
4. Install front drive shaft cover. **Refer to Forks and Fork Rods.**

Rear drive shaft and transfer High/Low gear

1. Remove front cover with fork, fork rods and front drive shaft. **Refer to Forks and Fork Rods for removal.**

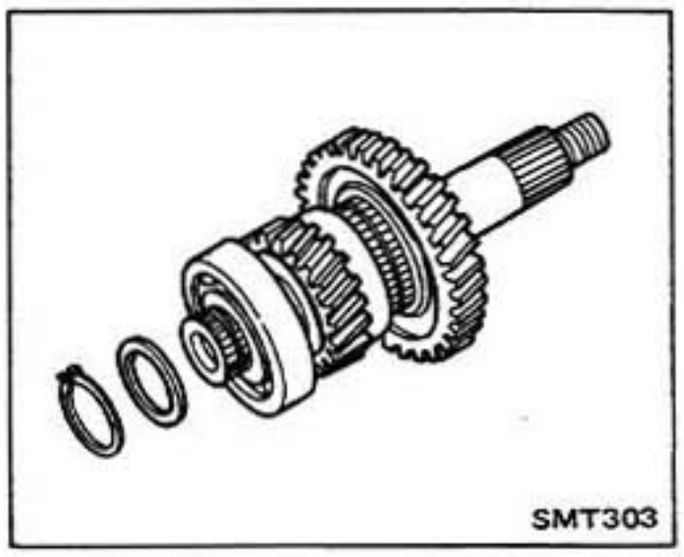


2. Drive rear end of rear drive shafts until front bearing is driven out of transfer case.

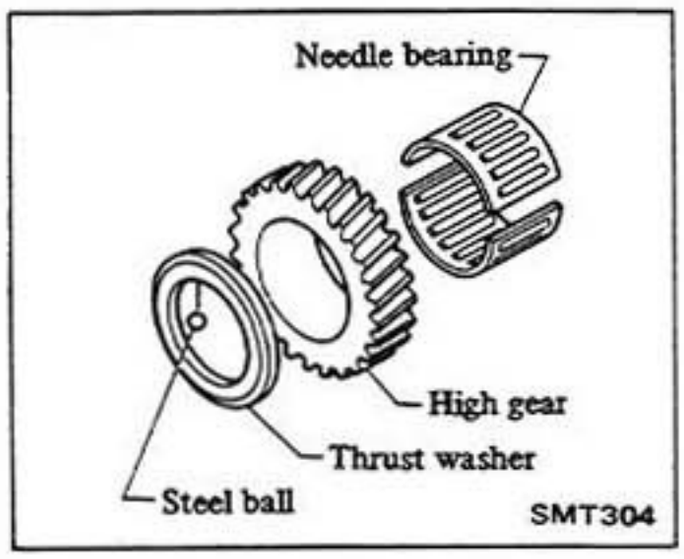


Use a copper hammer for driving.

3. Remove snap ring, and front ball bearing as necessary using a suitable puller.

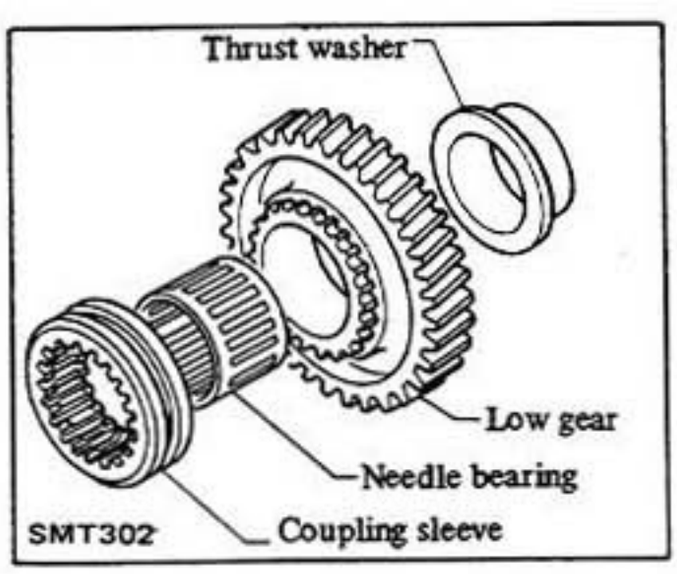


4. Separate the following parts from rear drive shaft.

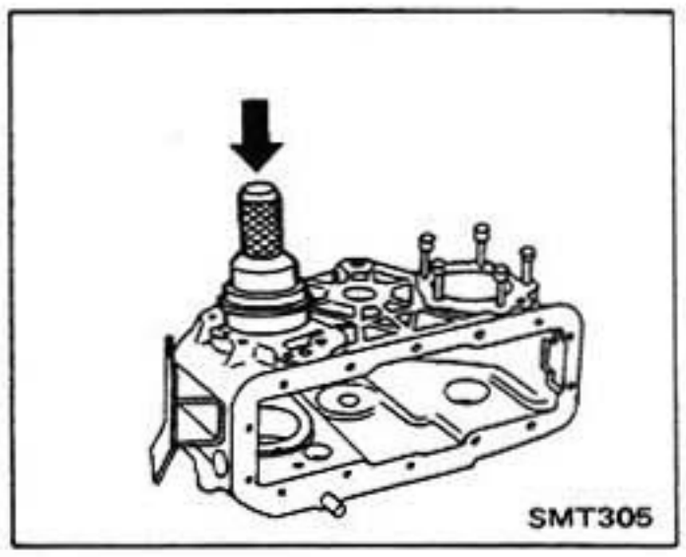


Be careful not to lose steel ball (used on inner side of thrust washer).

5. Separate the following parts from rear drive shaft.



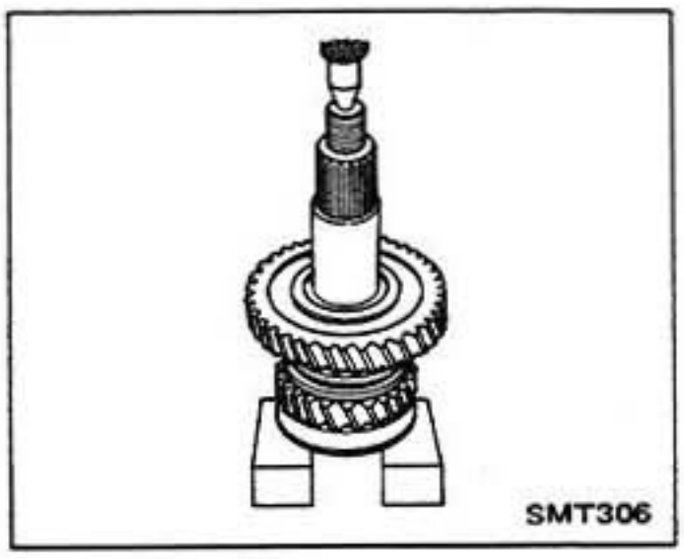
6. Remove rear ball bearing from transfer case as necessary and install new bearing using suitable drift.



Press rear bearing until it butts against bearing retainer.

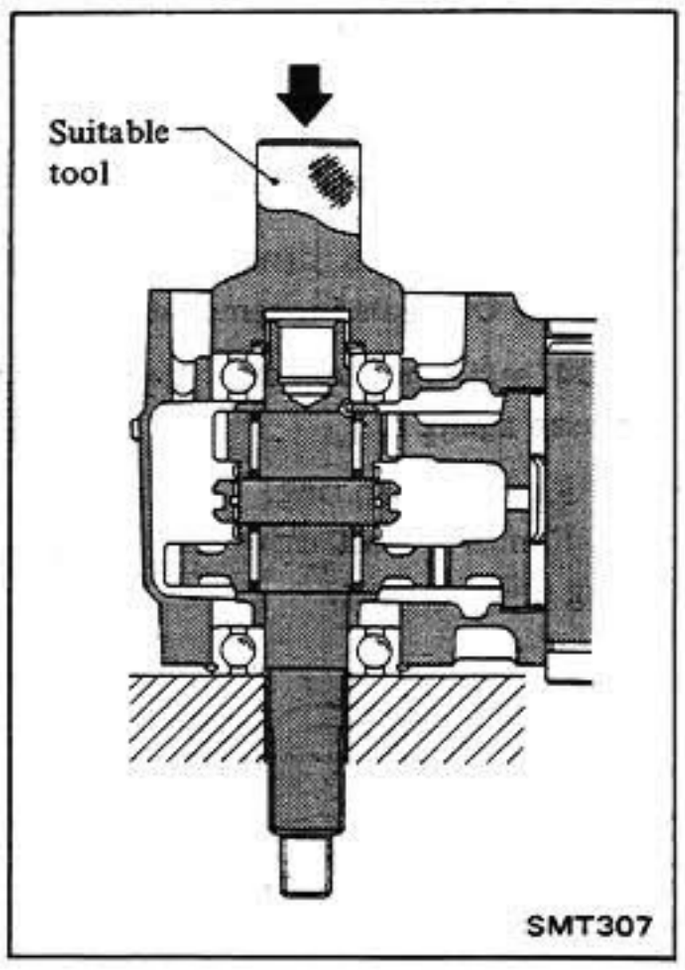
7. Install gears and shaft in the reverse order of removal, noting the following.

- **When installing front ball bearing onto shaft, always receive inner race until bearing butts against thrust washer.**



- **When assembling rear drive shaft to transfer case, press both inner and outer front bearings with a press and drifts so that pressing forces are always imposed upon rear outer and inner ball bearings.**

CAUTION:
Engage coupling sleeve to match serration of High/Low gear and press fit them.



- **After assembly, make sure that gears and coupling sleeves move smoothly without any binding.**

INSPECTION

1. Check gears for excessive wear, chips or cracks; replace as required.
2. Check shaft for bend, crack, wear, and worn spline; if necessary, replace.

OIL SEALS

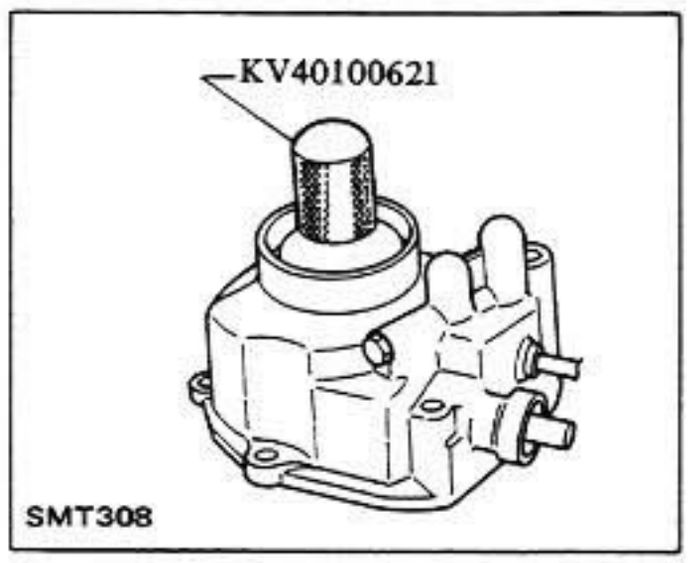
INSPECTION

1. Check seal portions of front drive shaft, shift shaft and rear drive shaft for oil leaks. Replace oil seal as necessary.
2. Check countershaft O-ring and speedometer driven gear O-ring for leaks. Replace O-rings as necessary.
3. Check gaskets of upper cover, mainshaft cover, rear cover, front drive shaft cover and transfer case for oil leaks. Replace gaskets as necessary.

REPLACEMENT

Front drive shaft oil seal

1. Remove front drive shaft cover, and remove front drive shaft from cover. **Refer to Front Drive Shaft for removal.**
2. Remove oil seal.
3. Apply grease to cavity between seal lips and install oil seal **using Tool.**



Be careful not to scratch sealing lips or damage oil seals.

Ⓣ : **Front drive shaft nut**
245 - 333 N·m
(25 - 34 kg-m,
181 - 246 ft-lb)
Front propeller shaft to companion flange
78 - 88 N·m
(8 - 9 kg-m,
58 - 65 ft-lb)

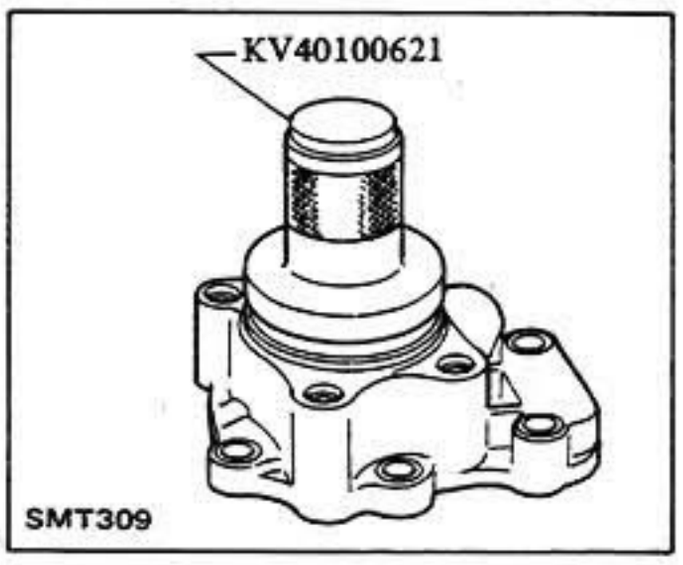
Rear drive shaft oil seal and rear drive shaft cover gasket

Rear drive shaft oil seal and rear cover gasket can be replaced without removing transfer from vehicle.

1. Drain transfer oil.
2. Disconnect rear propeller shaft.
3. Remove center brake.
4. Remove rear drive shaft cover to replace gasket.
5. Remove oil seal as necessary.

Oil seal once removed should not be used again.

6. Apply grease to cavity between seal lips and install oil seal **using Tool.**



Be careful not to scratch sealing lips or damage oil seals.

7. Install in the reverse order of removal.

Apply sealant to three rear drive shaft cover mounting bolts for through holes.

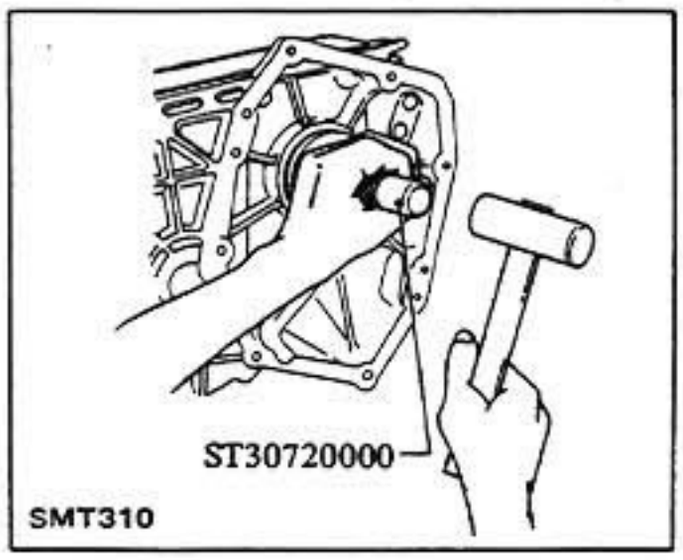
Ⓣ : **Rear drive shaft cover mounting bolt**
29 - 39 N·m
(3 - 4 kg-m,
22 - 29 ft-lb)
Center brake securing bolt
26 - 36 N·m
(2.7 - 3.7 kg-m,
20 - 27 ft-lb)
Rear drive shaft nut
245 - 333 N·m
(25 - 34 kg-m,
181 - 246 ft-lb)
Rear propeller shaft to brake drum
78 - 88 N·m
(8 - 9 kg-m,
58 - 65 ft-lb)

Main drive shaft oil seal and transfer case gasket

1. Remove transfer with transmission, and separate transfer from transmission. **Refer to Section MT for removal.**
2. Remove oil seal as necessary using suitable drift.

Oil seal once removed should not be used again.

3. Apply a coat of gear oil to new oil seal surface, and install it **using Tool.**



Be careful not to scratch sealing lips or damage oil seals.

4. Apply a coat of grease to sealing lips.

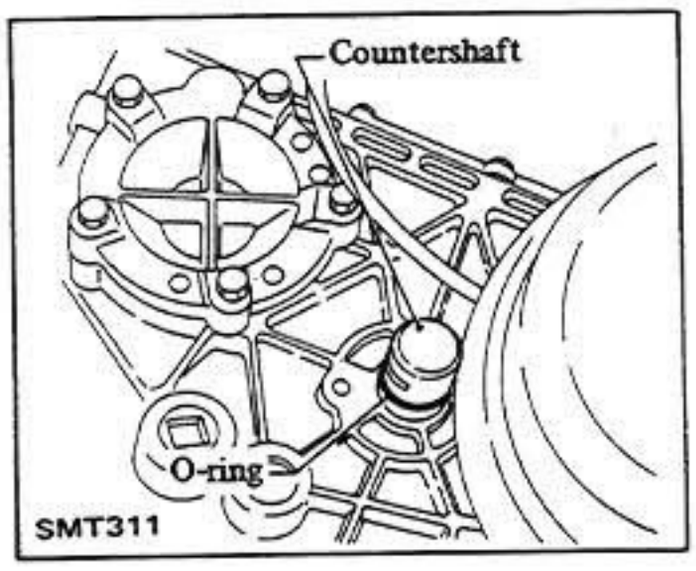
5. Replace transfer case gasket.

Install in the reverse order of removal noting the following.

When installing transfer unit on transmission, be careful not to damage or fold oil seal lips with main drive shaft.

Countershaft O-ring

1. Remove countershaft lock plate.
2. Drive countershaft out until O-ring is visible.



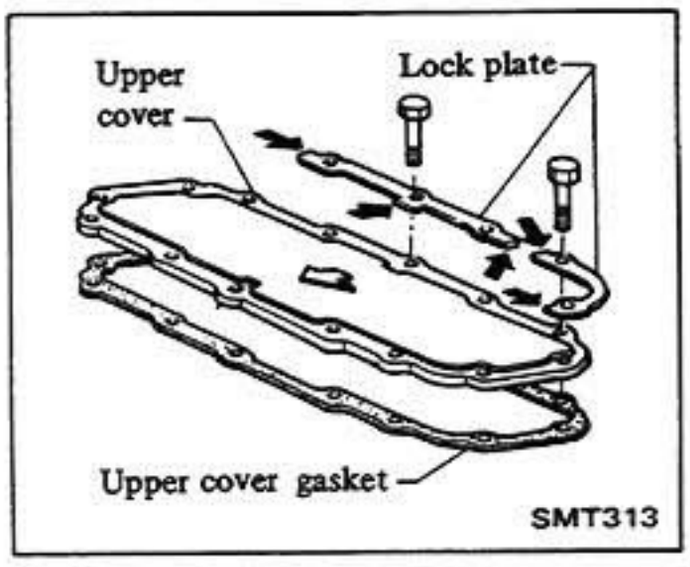
Do not drive out countershaft more than 30 mm (1.18 in). Doing so can cause needle bearing to drop, resulting in assembly difficulties.

3. Replace O-ring.

Apply a coat of grease to new O-ring and O-ring groove.

Upper cover gasket

1. Straighten straps. Remove bolts and upper cover.



2. Replace gasket.

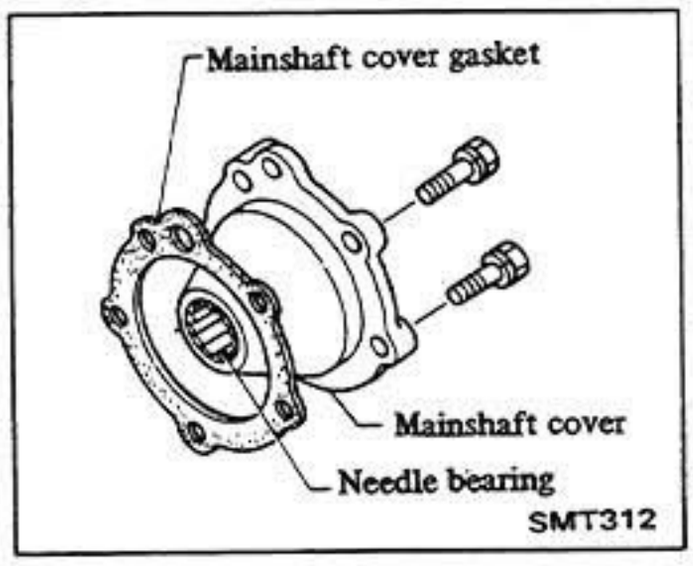
After assembly, be sure to bend straps securely.

Ⓣ : **Upper cover securing bolt**
8 - 11 N·m
(0.8 - 1.1 kg-m,
5.8 - 8.0 ft-lb)

Mainshaft cover gasket

1. Remove mainshaft cover.

Be careful not to drop needle bearings (used on inner side of cover).



2. Replace gasket

Ⓣ : **Mainshaft cover securing bolt A**
(Seal bolt)
29 - 39 N·m
(3 - 4 kg-m,
22 - 29 ft-lb)
Mainshaft cover securing bolt B
26 - 36 N·m
(2.7 - 3.7 kg-m,
20 - 27 ft-lb)

Apply sealant to three mainshaft cover securing bolts for through holes.

Front drive shaft cover gasket

In replacing front cover gasket it is necessary to remove transfer from vehicle as a unit with transmission.

1. Remove front cover with front drive shaft and fork rods, referring to Forks and Fork Rods for removal.
2. Replace gasket.
3. Install in the reverse order of removal.

BEARINGS

REPLACEMENT

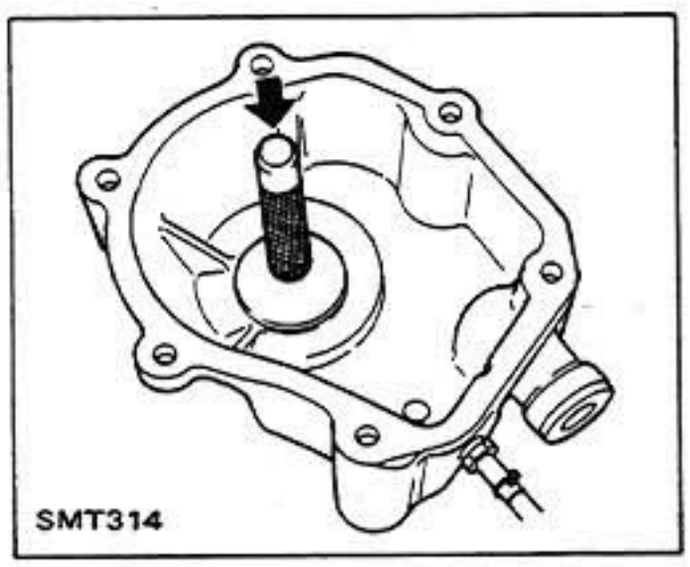
Front drive shaft bearing

1. Remove front drive shaft oil seal.

Refer to Oil Seals for removal.

Oil seal once removed should not be used again.

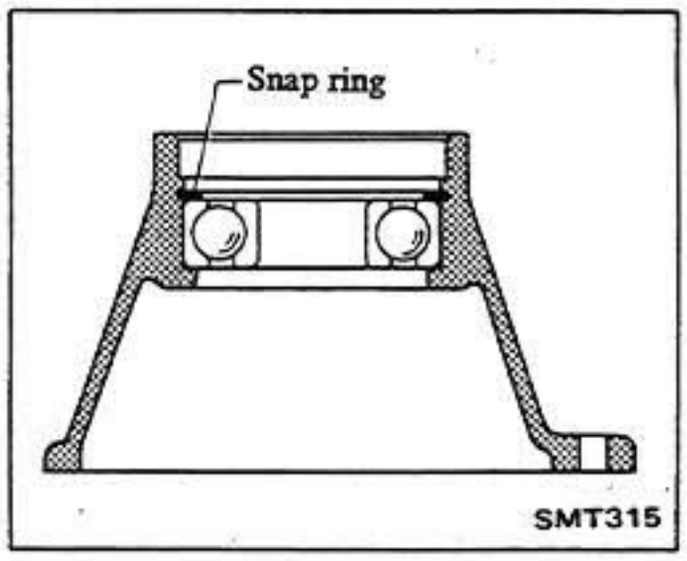
2. Remove snap ring.
3. Remove front drive shaft bearing using suitable drift.



4. Install new bearing.

Always press bearing outer race.

5. Install snap ring.



6. Install new oil seal.

Rear drive shaft bearings

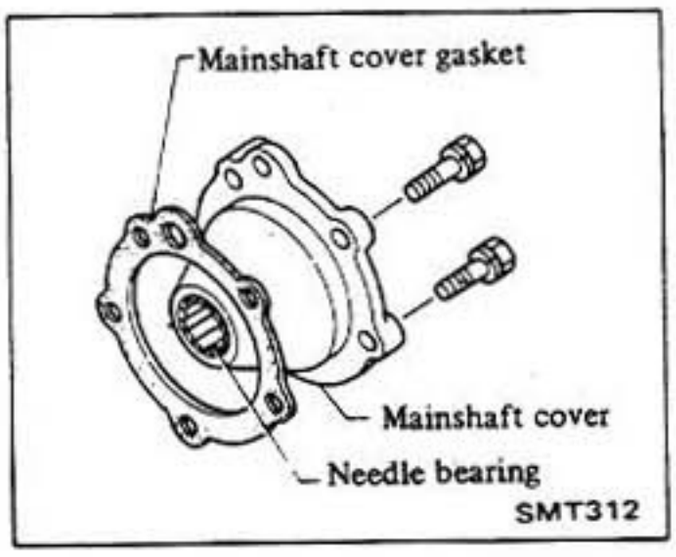
Refer to Rear Drive Shaft and Transfer High/Low Gear for replacement.

Countershaft bearings

Refer to Counter Gear and Countershaft for replacement.

Mainshaft needle bearing

Remove mainshaft cover, and remove needle bearing.



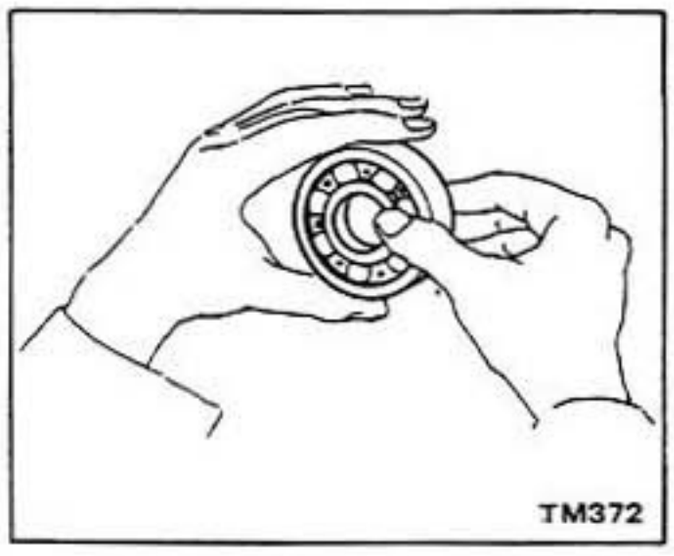
- **Affix needle bearings to their original positions, applying grease.**
- **Always install new gaskets.**
- **Apply sealant to three mainshaft cover securing bolts for through holes.**

Ⓣ : **Mainshaft cover securing bolt A (Seal bolt)**
29 - 39 N·m (3 - 4 kg-m, 22 - 29 ft-lb)
Mainshaft cover securing bolt B
26 - 36 N·m (2.7 - 3.7 kg-m, 20 - 27 ft-lb)

INSPECTION

1. Thoroughly clean bearing and dry with compressed air.

CAUTION:
Do not allow the bearings to spin. Because it will damage the race and balls. Turn them slowly by hand.



2. When race and ball surfaces are worn or rough, or when balls are out-of-round or rough, replace bearing with a new one.
3. Replace needle bearing if worn or damaged.

TRANSFER CASE AND COVERS

INSPECTION

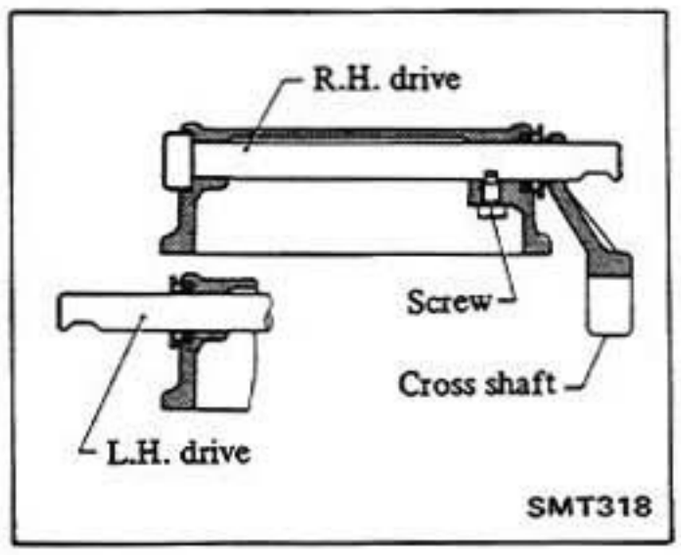
1. Clean with solvent and check for cracks or pits by means of dyeing test.
2. Check mating surface of transmission case for small nicks, projection or sealant.

Cross shaft

It is required to remove transfer with transmission from vehicle.

Refer to Section MT for removal.

1. Remove transmission shift cover.
2. Remove screw, then draw cross shaft out.



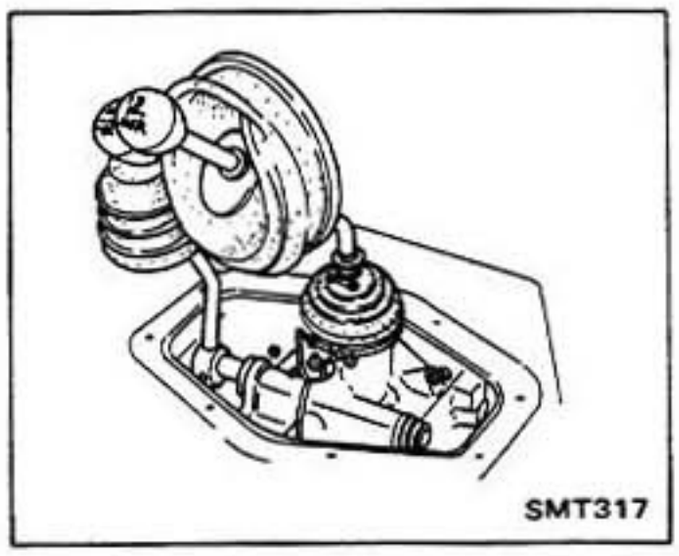
3. Replace cross shaft seals as necessary.

TRANSFER CONTROL

REMOVAL AND INSTALLATION

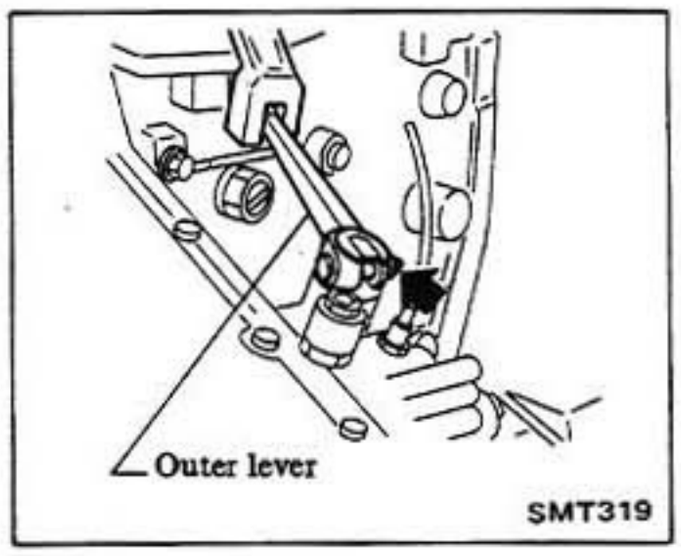
Transfer control lever

1. Remove control lever boots.
2. Remove floor hole cover.
3. Remove nut and control lever pin.

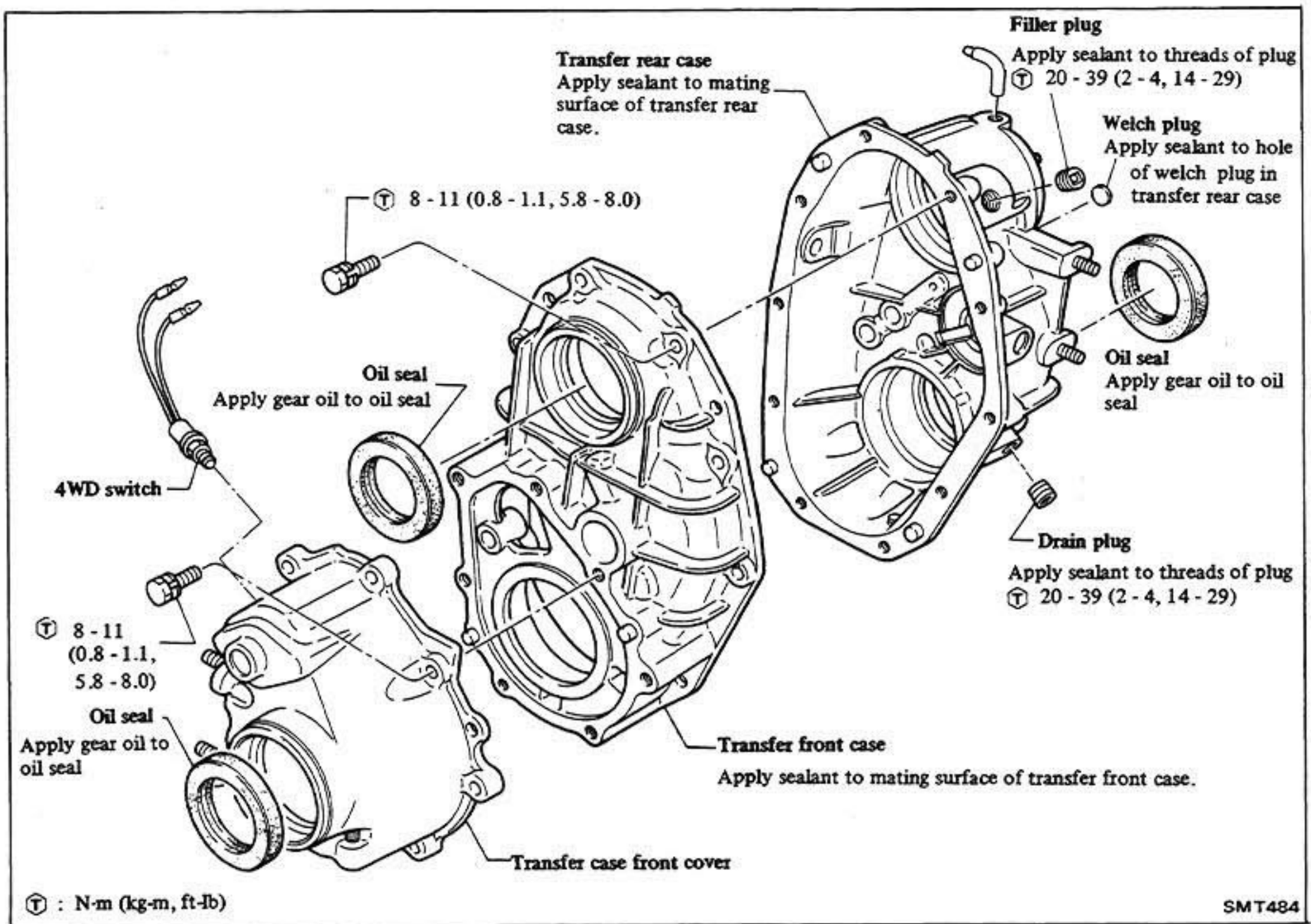


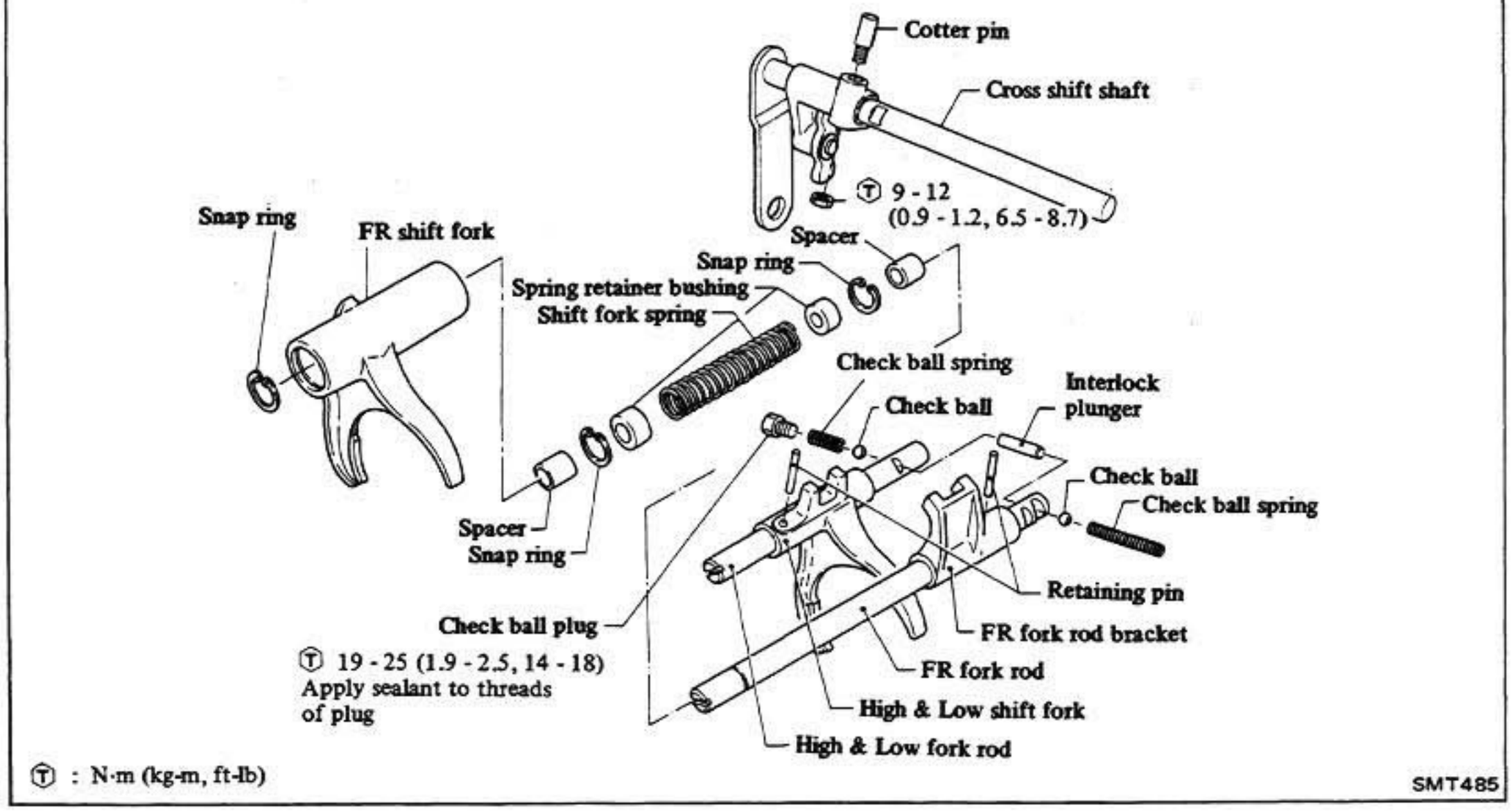
Outer lever

Remove nut and outer lever pin.

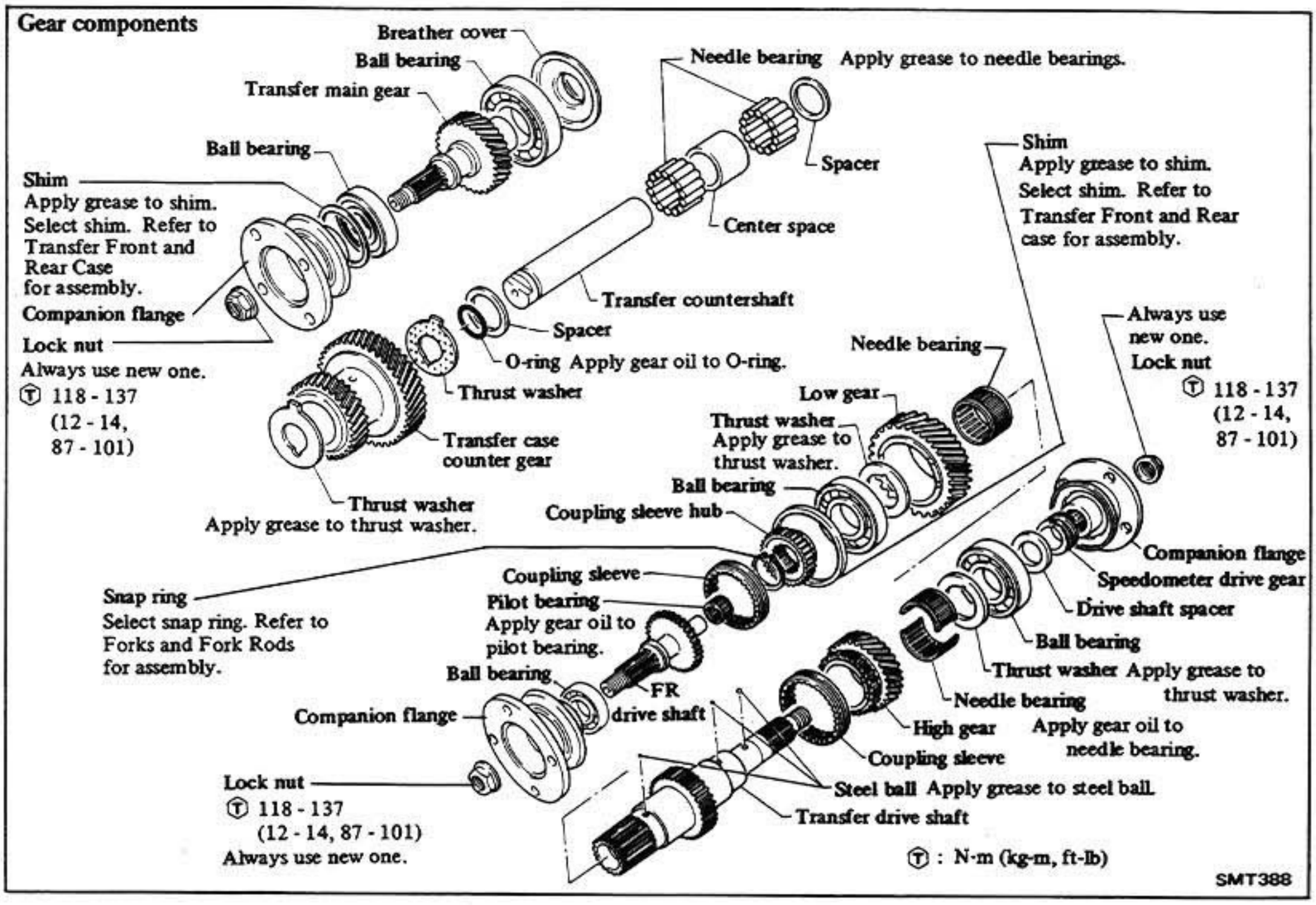


TRANSFER (Model : T100L)

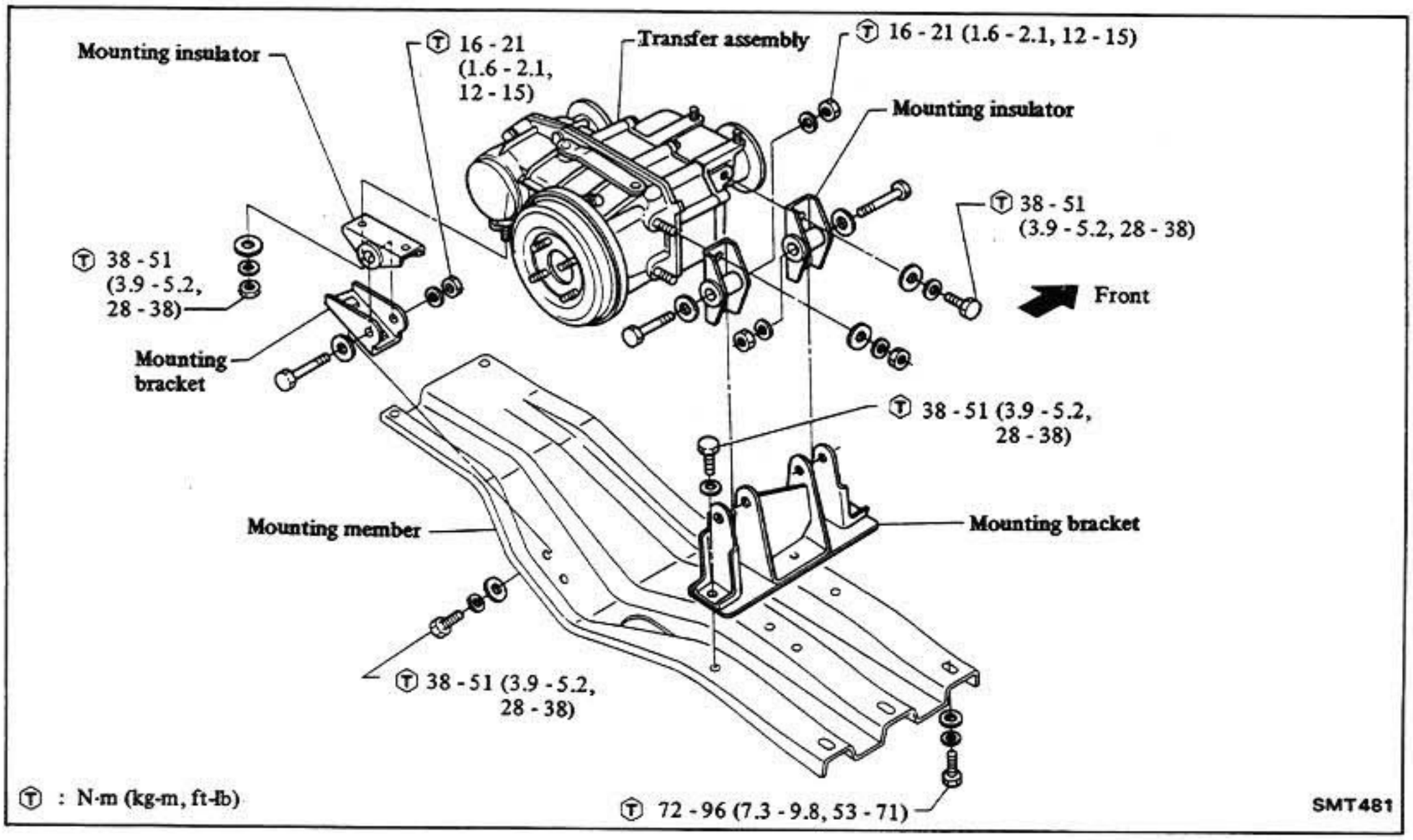




Gear components

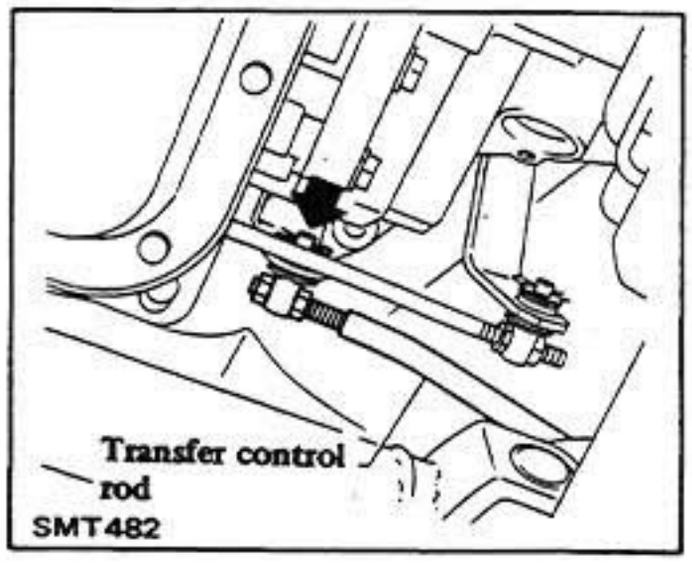


REMOVAL AND INSTALLATION



REMOVAL

1. Disconnect battery ground cable.
2. Jack up vehicle and **support its weight on safety stands. Use a hydraulic hoist or open pit, if available.**
3. Disconnect propeller shafts. **Refer to Propeller Shaft (Section PD) for removal.**
4. Disconnect wire for 4-wheel drive switch.
5. Disconnect speedometer cable.
6. Support transfer with a jack.
7. Disconnect transfer control rod.



8. Disconnect brake cable from control lever and pull the wire to transfer side. **Refer to Center Brake (Section BR).**
9. Remove transfer mounting member attaching bolts, and remove transfer unit with mounting member.
10. Remove mounting brackets and mounting insulator.

INSTALLATION

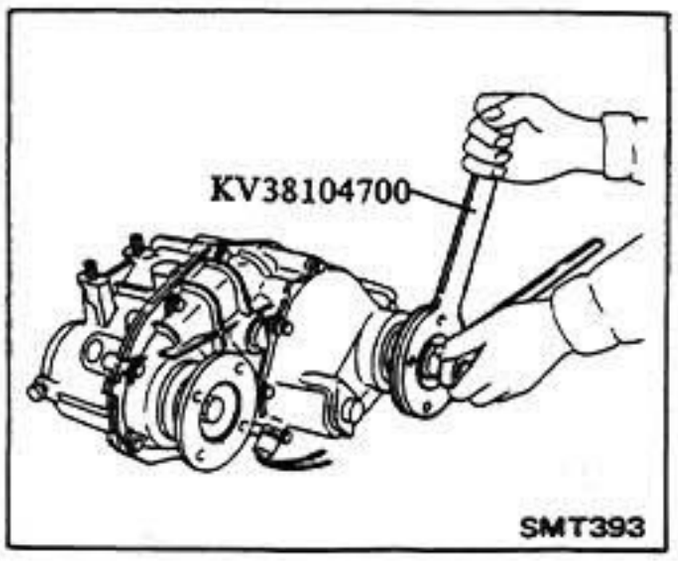
Install transfer in reverse order of removal, observing the following.

Ⓣ : Mounting member to side member
72 - 96 N-m
(7.3 - 9.8 kg-m,
53 - 71 ft-lb)
Mounting insulator to mounting bracket
16 - 21 N·m
(1.6 - 2.1 kg-m,
12 - 15 ft-lb)
Mounting bracket to mounting member
38 - 51 N·m
(3.9 - 5.2 kg-m,
28 - 38 ft-lb)
Mounting insulator to transfer
38 - 51 N-m
(3.9 - 5.2 kg-m,
28 - 38 ft-lb)
Oil capacity:
1.4ℓ (2-1/2 Imp pt)

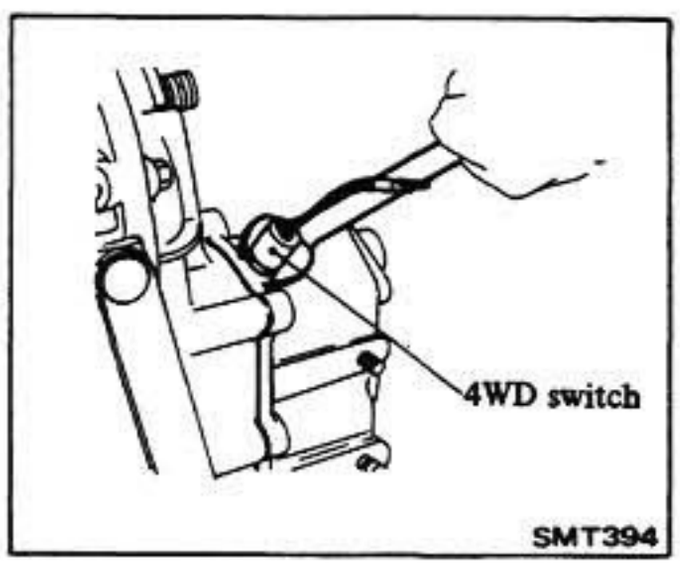
FORKS AND FORK RODS

DISASSEMBLY

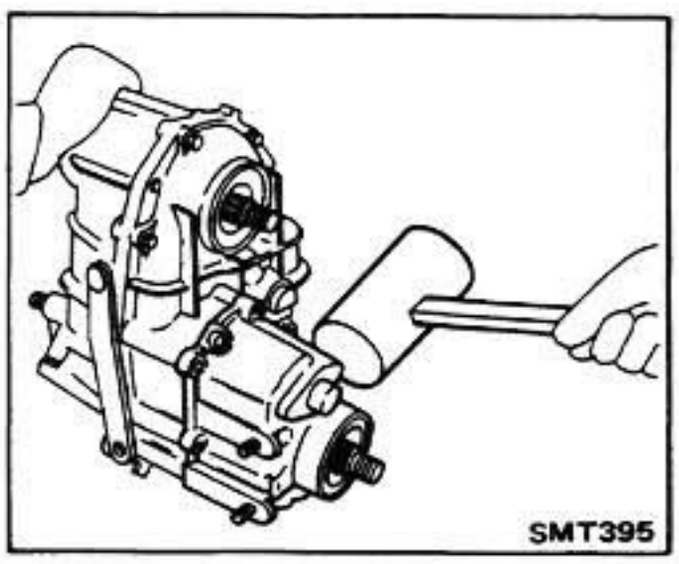
1. Wipe off dirt and grease.
2. Drain oil.
3. Remove companion flange lock nuts.



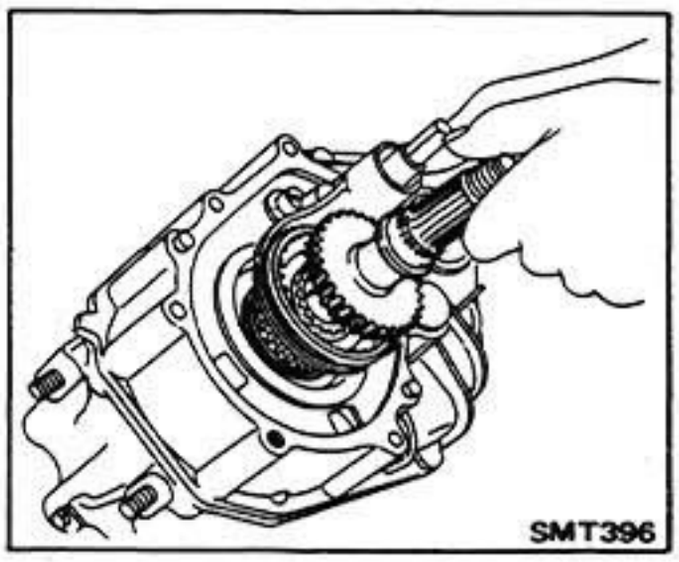
4. Remove companion flanges.
5. Remove 4WD switch.



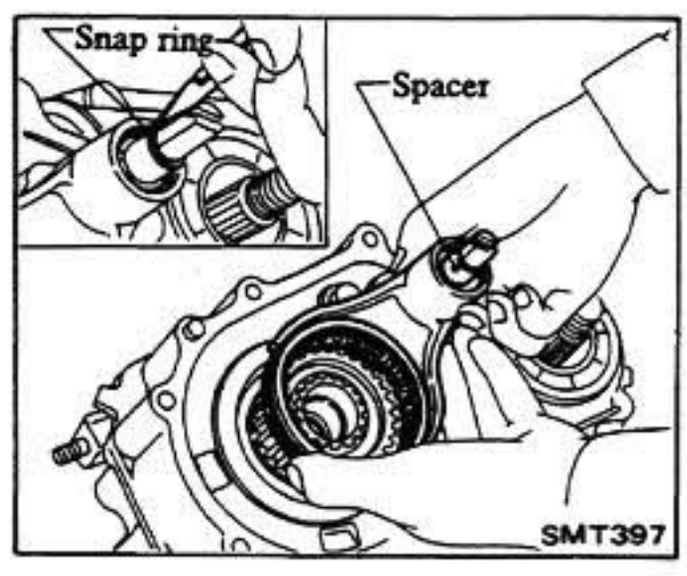
6. Remove transfer case front cover by tapping it with soft faced hammer.



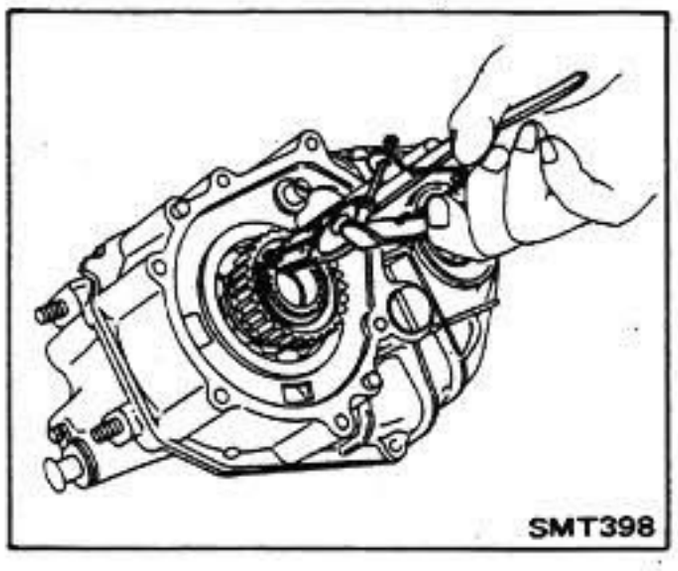
7. Remove FR drive shaft and needle bearing.



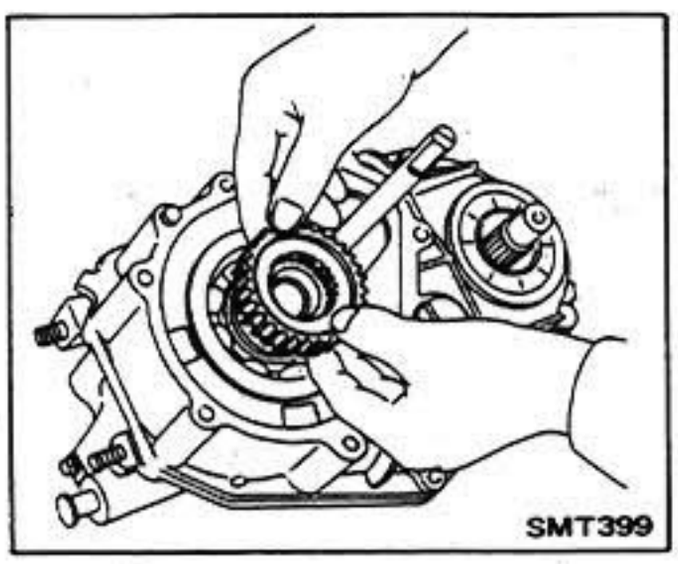
8. Remove snap ring retaining FR shift fork, then remove FR shift fork assembly and spacer together with coupling sleeve.



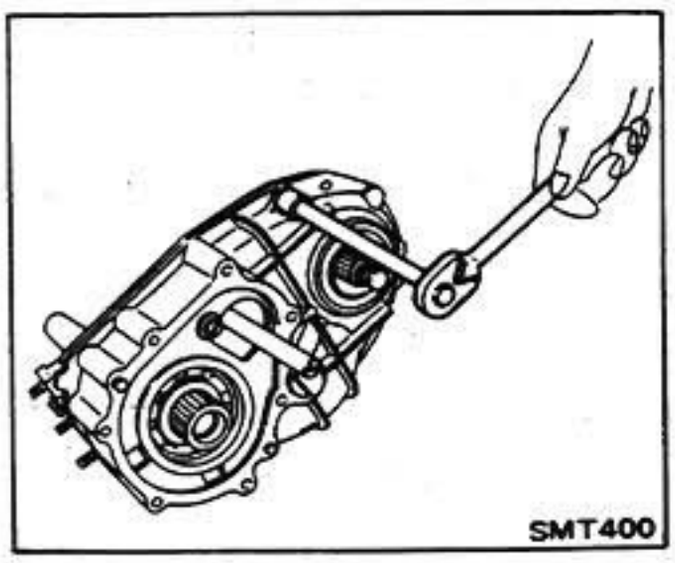
9. Remove snap ring retaining coupling sleeve hub.



10. Remove coupling sleeve hub.

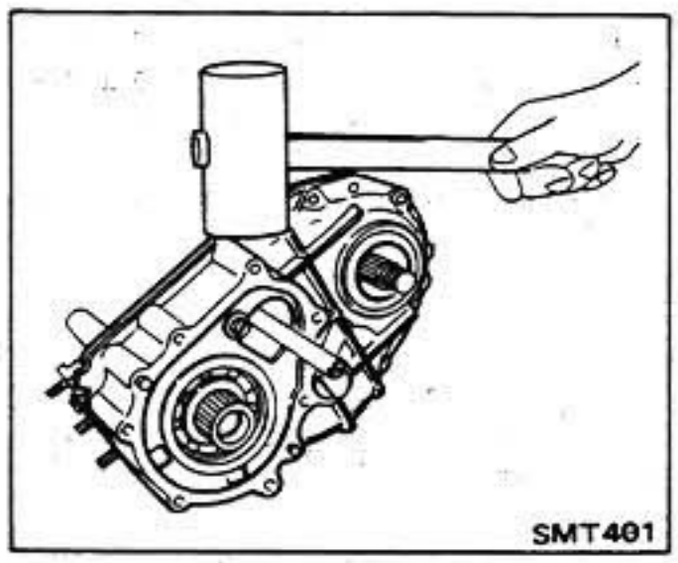


11. Remove transfer front case securing bolts.

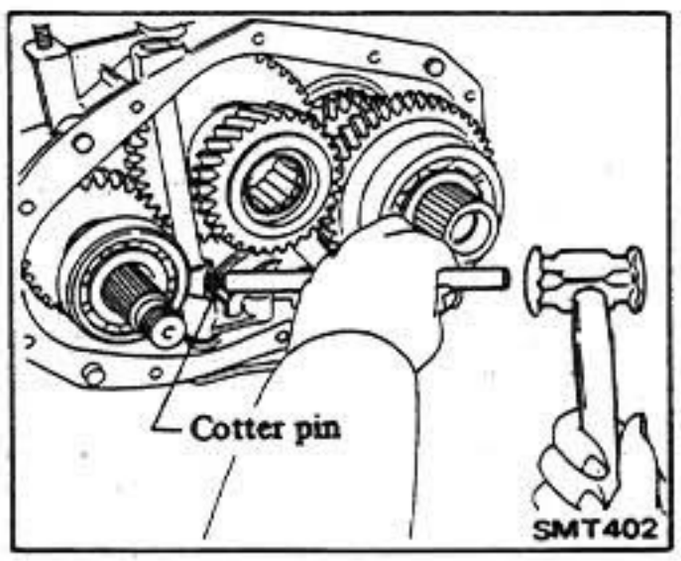


12. Remove transfer front case by tapping it with soft faced hammer.

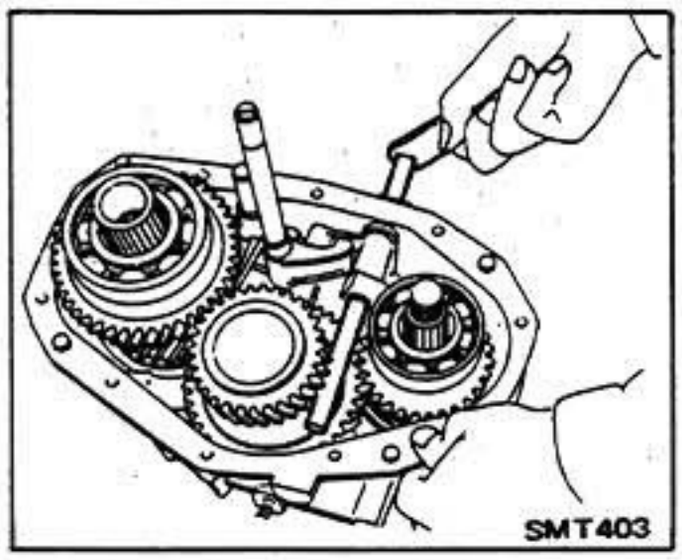
Do not pry transfer front or rear cases with screwdriver.



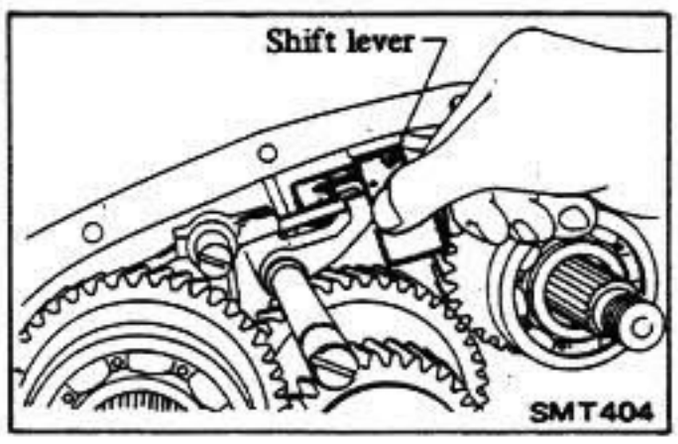
13. Remove cotter pin nut, then remove cotter pin by tapping it with hammer.



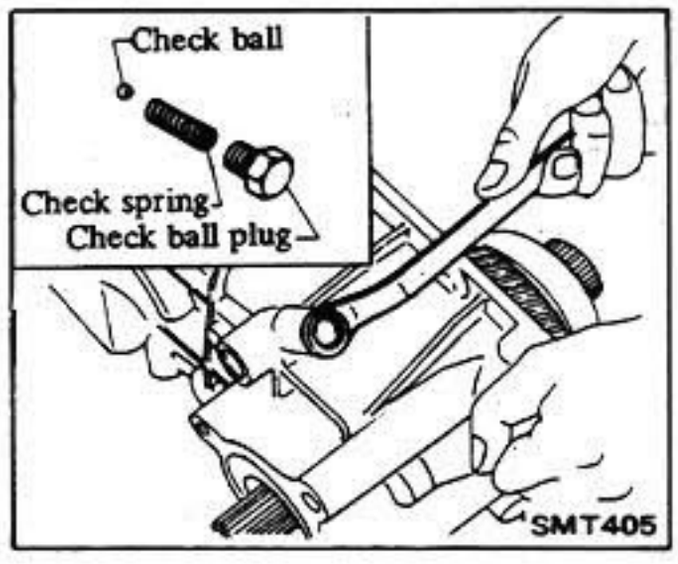
14. Remove cross shift shaft.



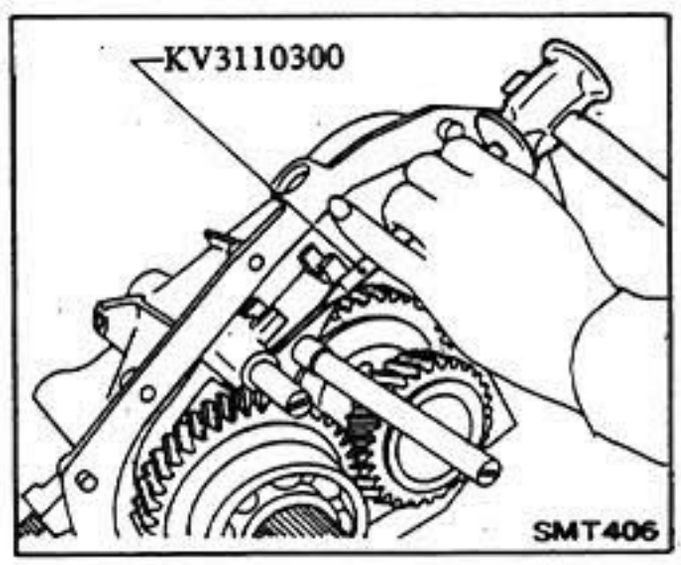
15. Remove shift lever with differential lever.



16. Remove check ball plug, check spring and check ball.



17. Drive out High & Low shift fork retaining pin.

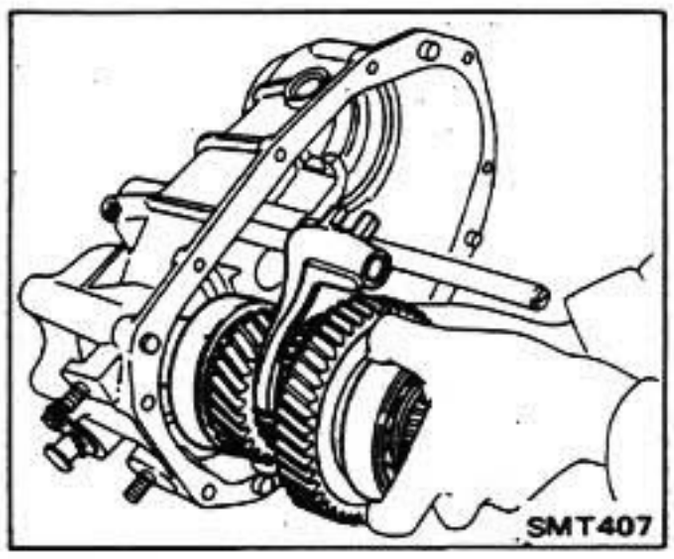


18. Tap rear end of transter case drive shaft assembly, then remove it with High & Low shift fork and counter gear assembly. Transfer case main gear assembly can be pulled out.

When removing counter gear assembly, be careful not to drop needle bearings.

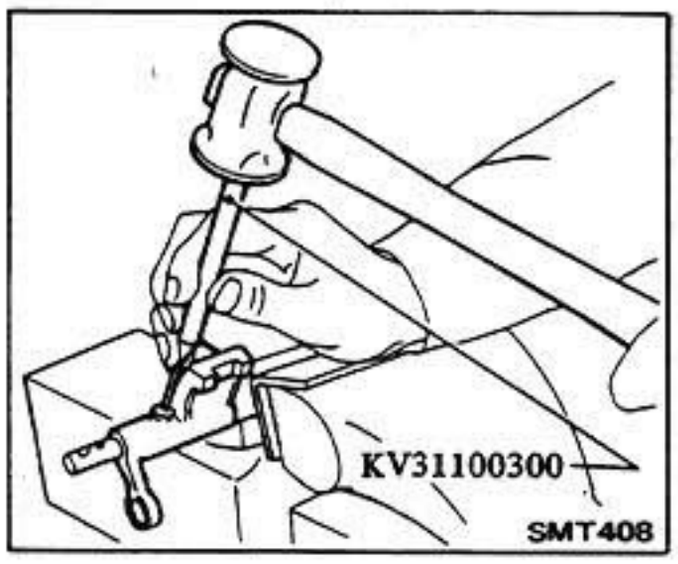
Remove transfer case front shim.

Be careful not to lose shim.



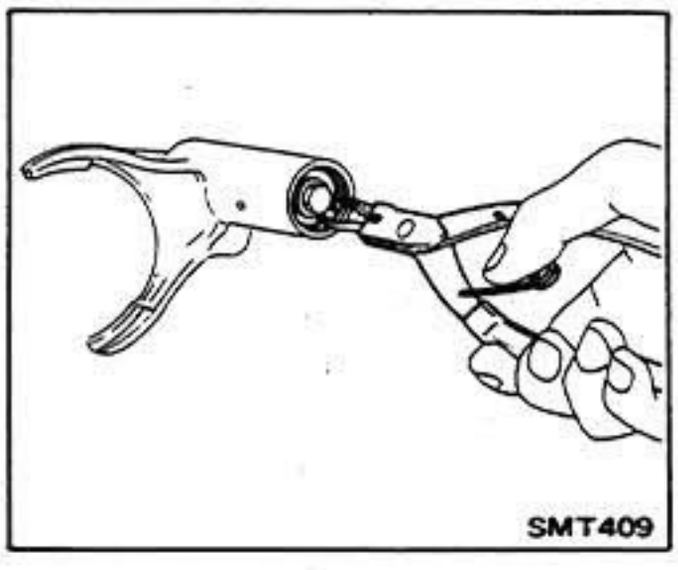
19. Remove High & Low and FR fork rods, interlock plunger, steel ball and check spring.
20. Place FR fork rod in a vise, then drive out retaining pin.

FR fork rod bracket can be removed.

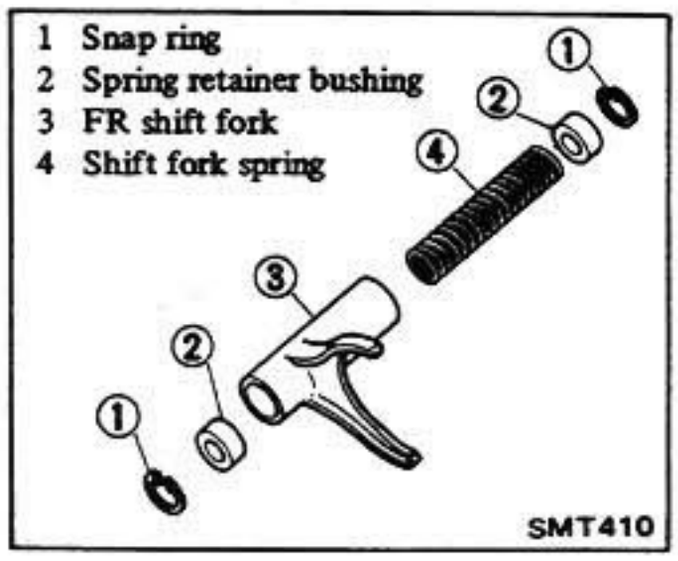


21. Insert M8 bolt into FR shift fork and tighten nut to eliminate shift fork spring tension.

Remove snap ring with snap ring plier.

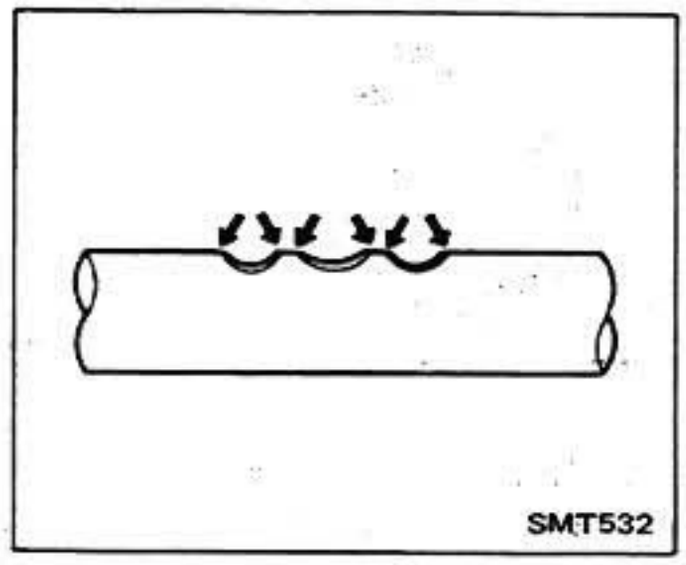


22. Remove spring retainer bushings and shift fork spring. Separate spring retainer bushing and shift fork spring.



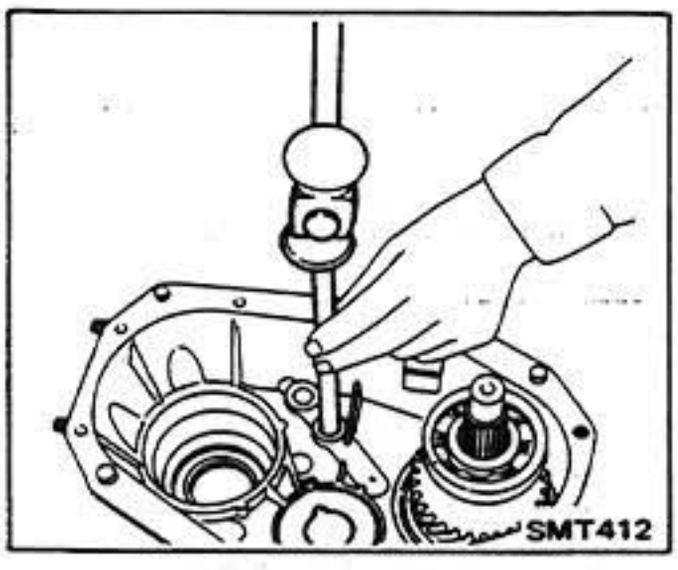
INSPECTION

Clean with solvent and check for wear, scratches, projection, damage or other faulty conditions. Replace any part which is worn or damaged.



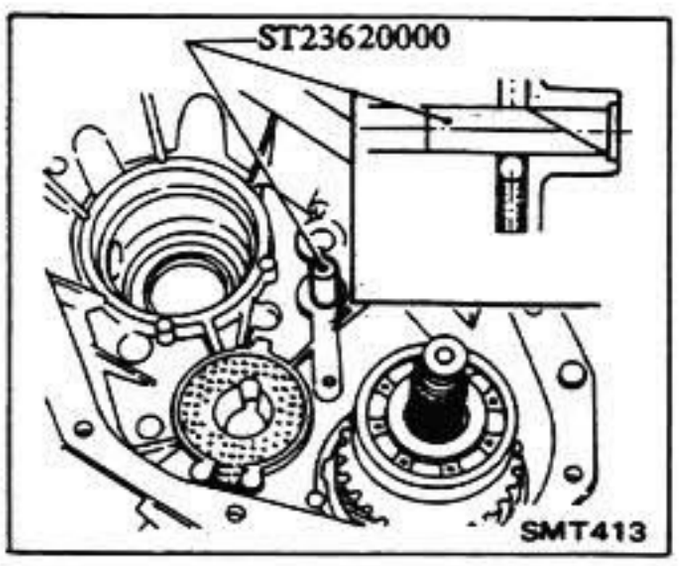
ASSEMBLY

1. Install breather cover, then install transfer main gear assembly by tapping it.
2. Drive out FR shift fork welch plug. This step is necessary for installing FR shift fork.

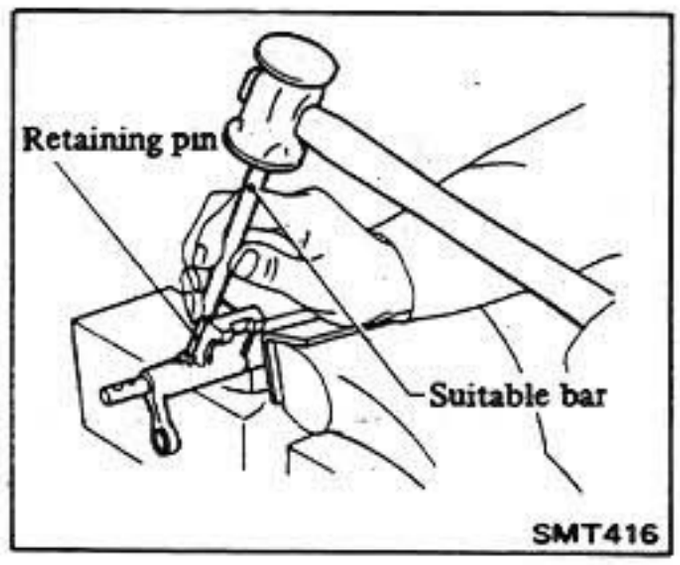


3. Install check spring and steel ball into hole of transfer rear case.
4. **Using Tool,** retain steel ball.

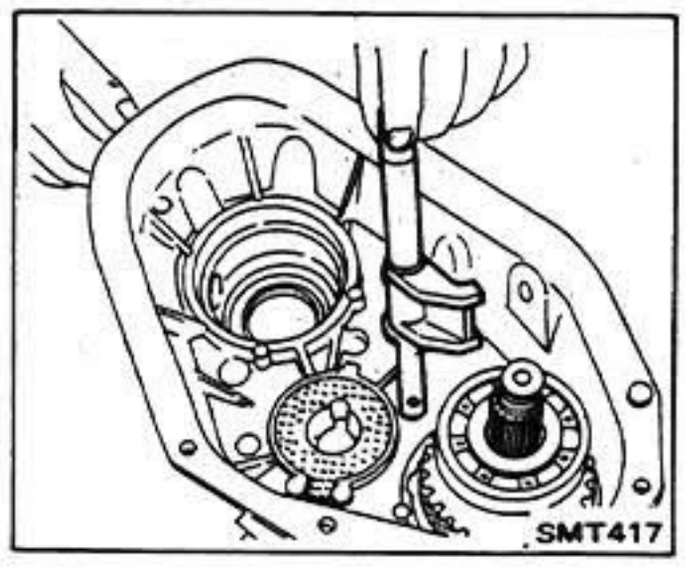
Be careful not to lose check ball and steel ball as the spring force may force them out.



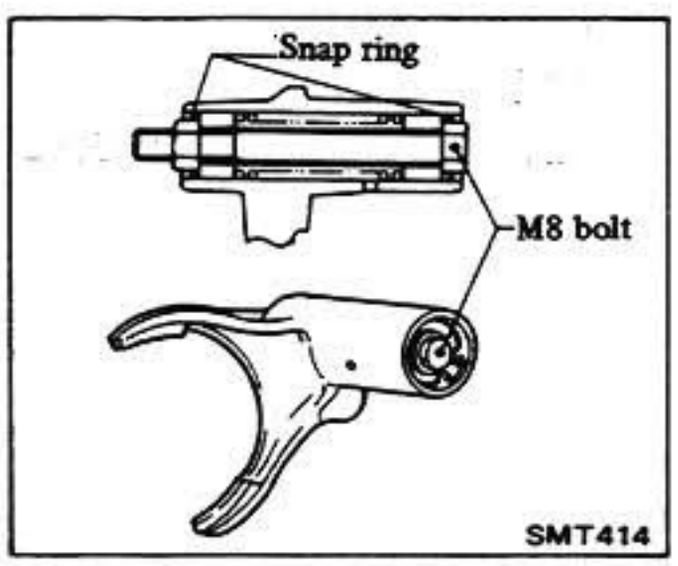
5. Install High & Low shift fork into coupling sleeve.
6. Place FR fork rod in a vise, then install retaining pin.



7. Install FR fork rod pushing **Tool ST23620000** out of position. Install interlock pin.



8. Secure FR fork rod bracket to FR fork rod with retaining pin.
9. Assemble snap ring, spring retainer bushings and shift fork spring to FR shift fork. Insert M8 bolt into spring retainer bushing and tighten nut to eliminate spring tension.



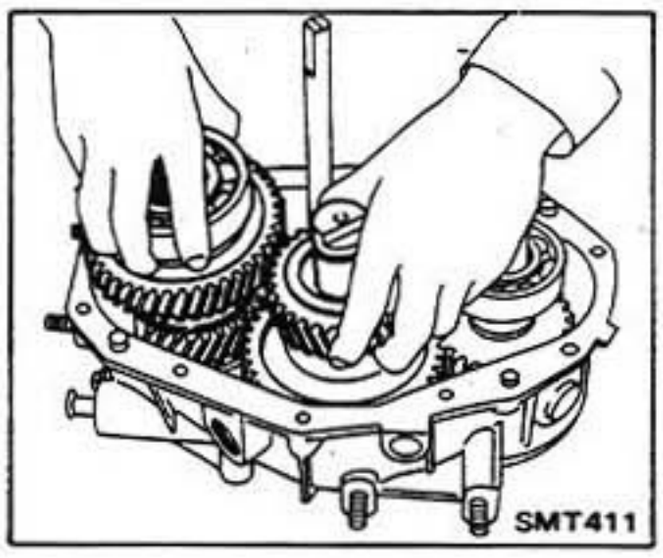
10. Install the other snap ring. Remove bolt and nut.
11. Install **new O-ring** to countershaft, then install it to transfer rear case.

When installing O-ring, be sure to apply gear oil to it.

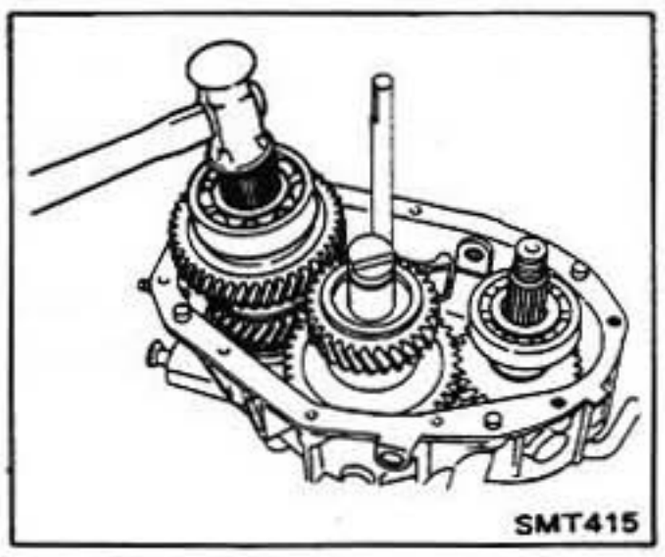
12. Install counter gear assembly.

Make sure that counter gear thrust washer is already installed.

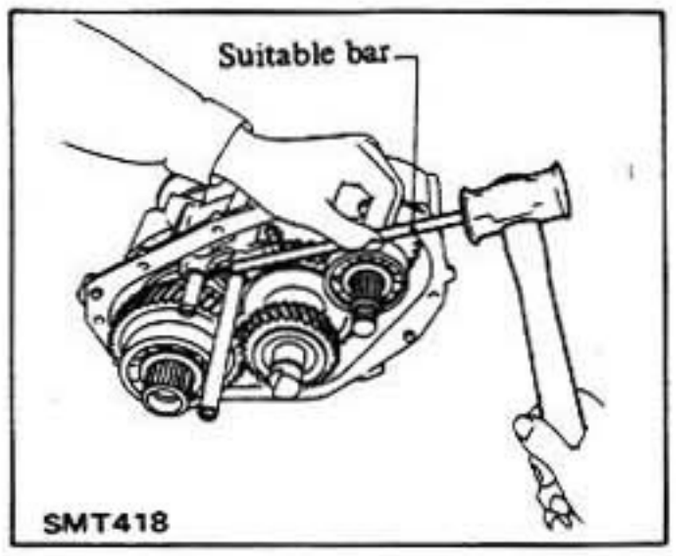
13. While raising counter gear assembly slightly, install transfer case drive shaft assembly and engage each gear.



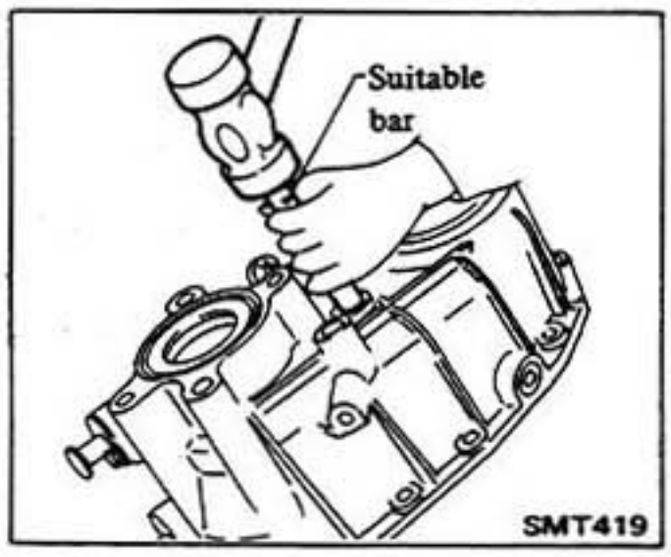
14. Install companion flange at rear side of drive shaft, and tighten finger tight.
15. Tap front end of drive shaft assembly and install it into transfer rear case.



16. Install High & Low fork rod, then secure with retaining pin.

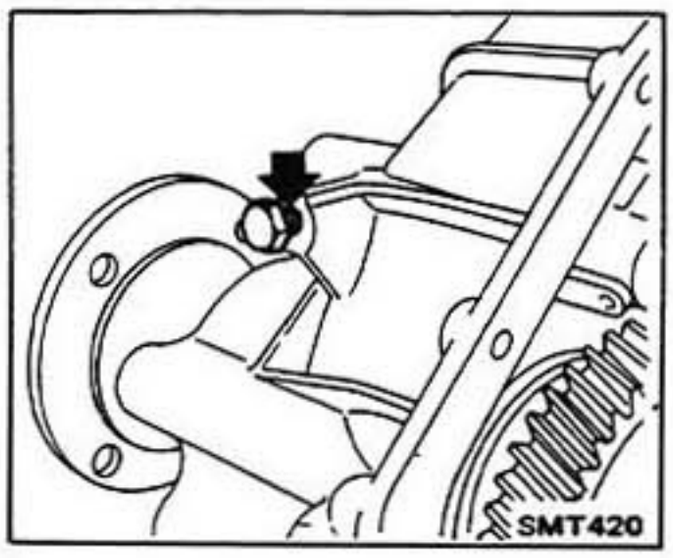


17. Apply sealant to hole of welch plug in transfer rear case and install welch plug in it.



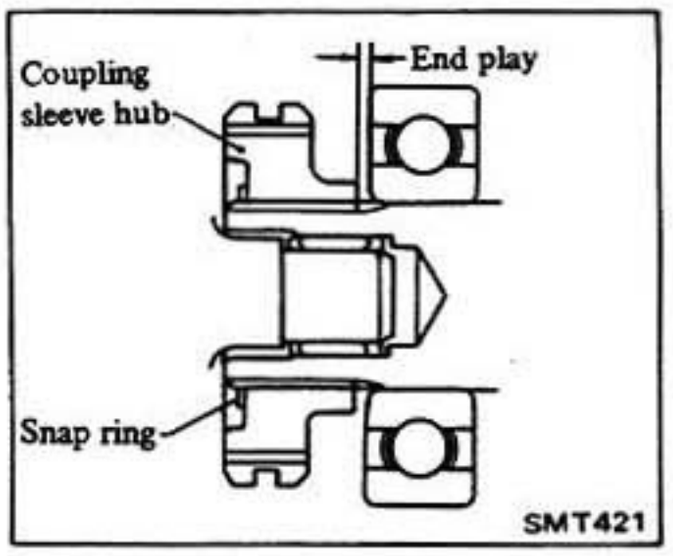
18. Install check ball and check spring.
19. Apply sealant to threads of plug, then tighten it.

Ⓣ : 19 - 25 N-m (1.9 - 2.5 kg-m, 14 - 18 ft-lb)

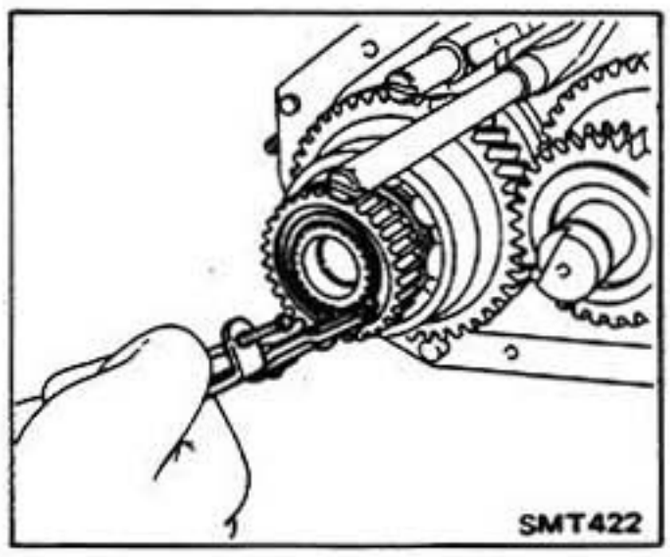


20. Select snap ring so that end play is within specified limit.

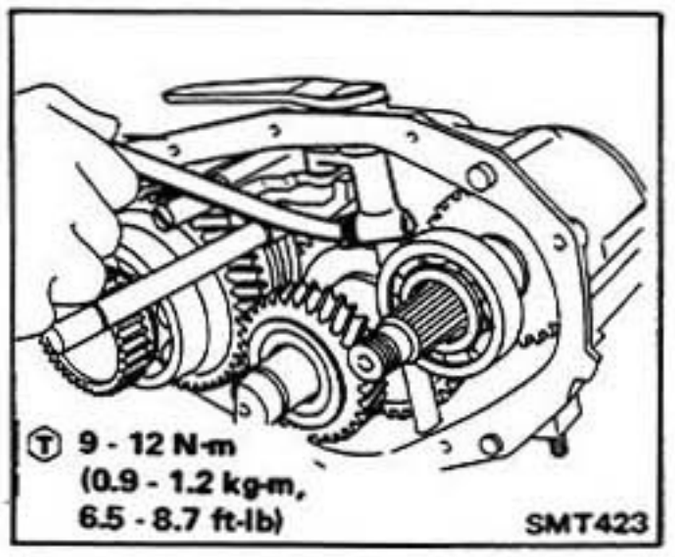
Coupling sleeve hub end play:
0 - 0.20 mm (0 - 0.0079 in)
Coupling sleeve hub snap ring:
Refer to S.D.S.



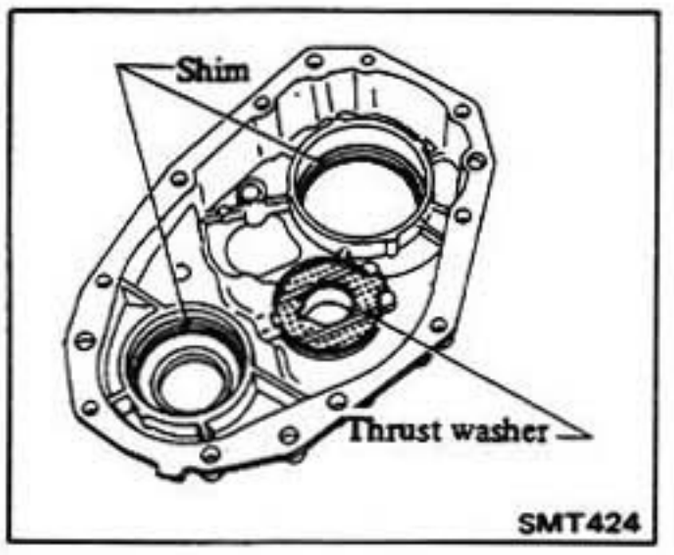
21. Install coupling sleeve hub, then secure with snap ring.



22. Install shift lever with differential lever.
23. Install cross shift shaft.

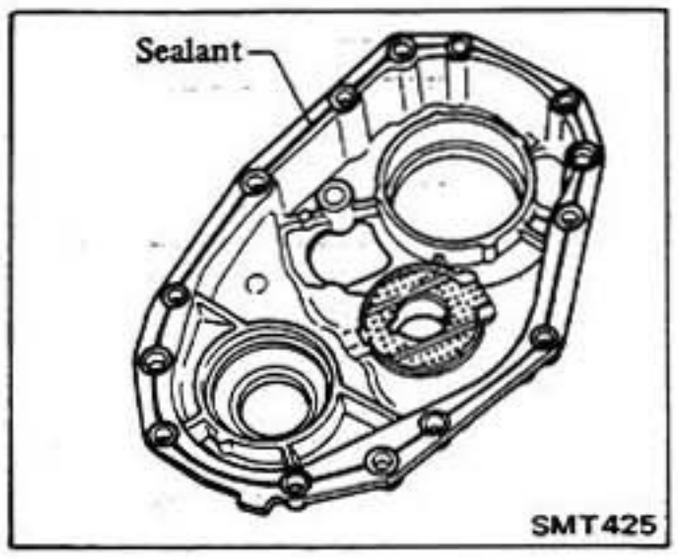


24. Apply grease to thrust washer, main gear front and transfer case front shims selected, then attach them to transfer front case.

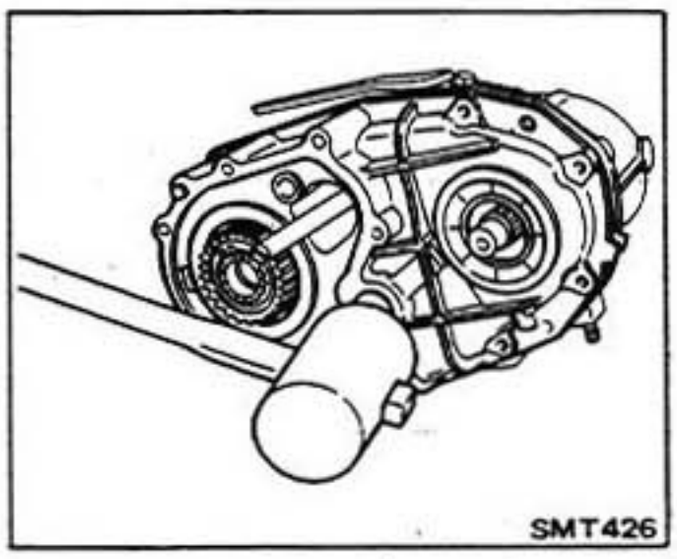


25. Clean mating surface of transfer front case.
26. Apply sealant to mating surface of transfer front case.

Apply sealant continuously.

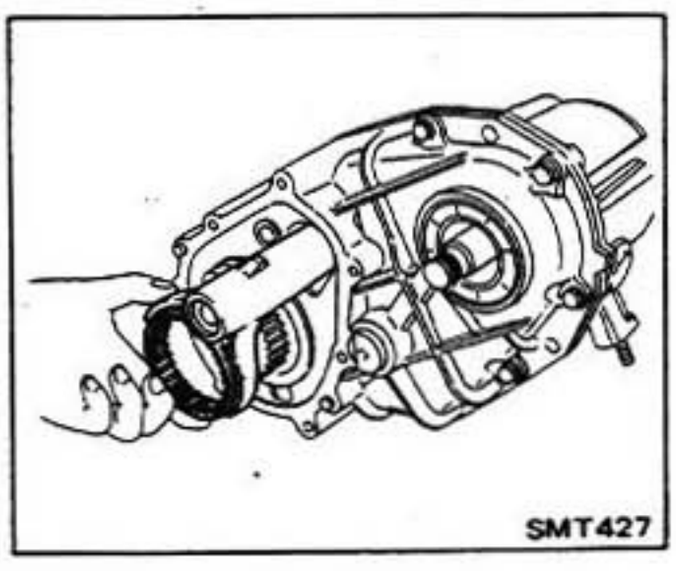


27. Install transfer front case by tapping it with soft faced hammer.

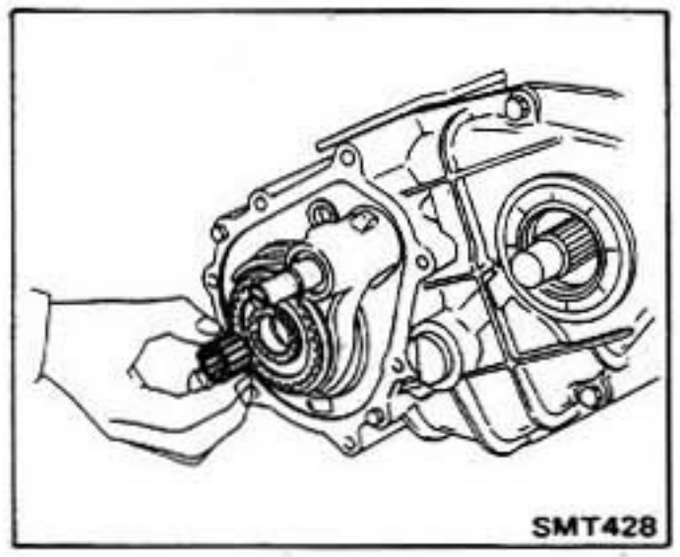


Ⓣ : Transfer front case securing bolt
8 - 11 N-m
(0.8 - 1.1 kg-m,
5.8 - 8.0 ft-lb)

28. Install spacer, FR shift fork assembly with coupling sleeve and spacer, then secure with snap ring.

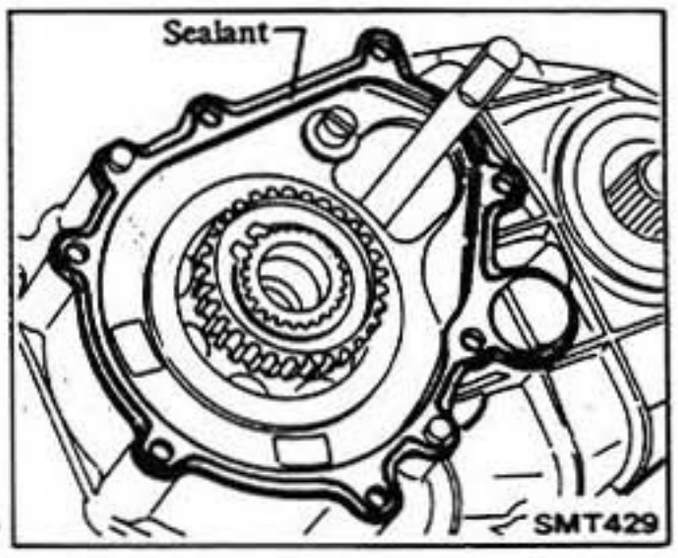


29. Apply gear oil to pilot bearing, then install it in place.

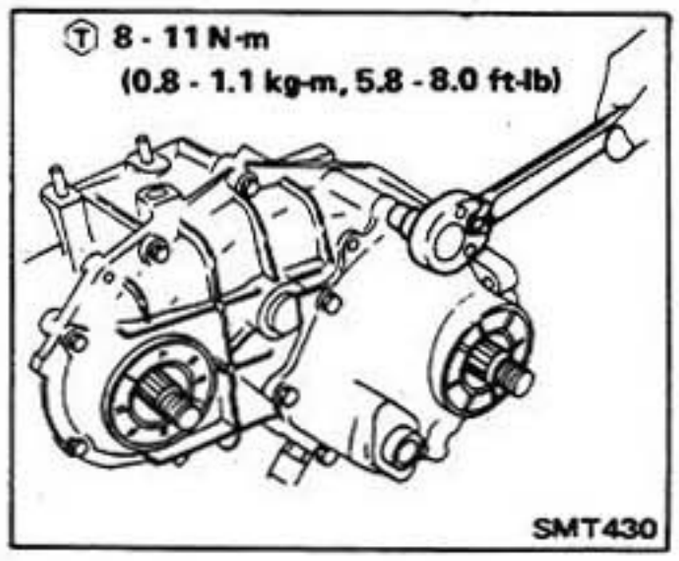


30. Install FR drive shaft to transfer case drive shaft.
31. Clean mating surface of transfer front case, then apply sealant to mating surface of it.

Apply sealant continuously.



32. Install transfer case front cover.



33. Install companion flanges.

Lock nuts are self-lock type so always use new lock nut.

Ⓣ : **118 - 137 N-m**
(12 - 14 kg-m,
87 - 101 ft-lb)

34. Install 4WD switch.

Ⓣ : **20 - 29 N-m**
(2 - 3 kg-m,
14 - 22 ft-lb)

GEARS AND SHAFTS

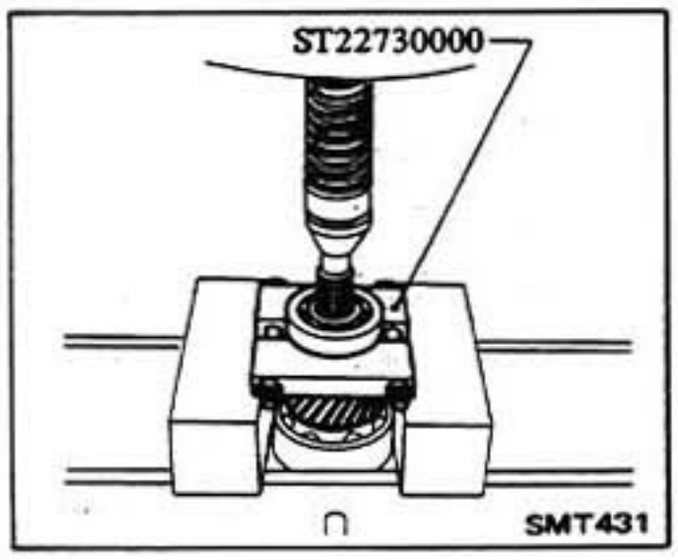
DISASSEMBLY

Counter gear and transfer case main gear

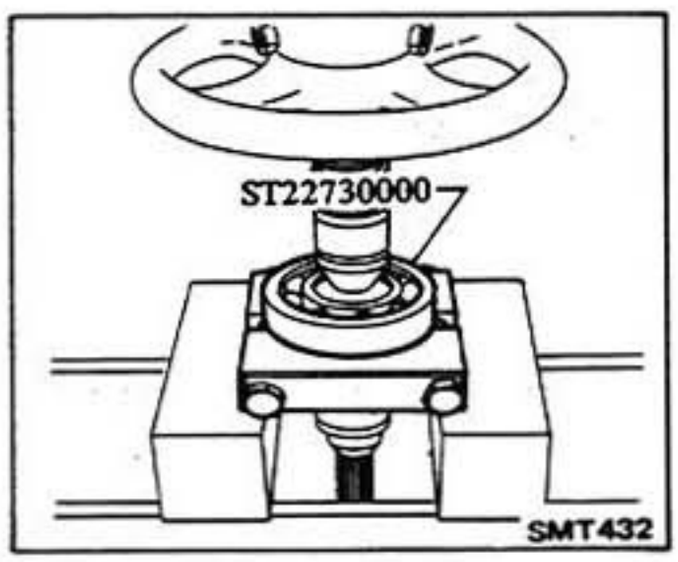
1. Remove transfer case drive shaft assembly, counter gear assembly, forks and fork rods.

Refer to Forks and Fork Rods for disassembly.

2. Remove transfer main gear and breather cover from transfer rear case.
3. Remove transfer main gear front bearing.



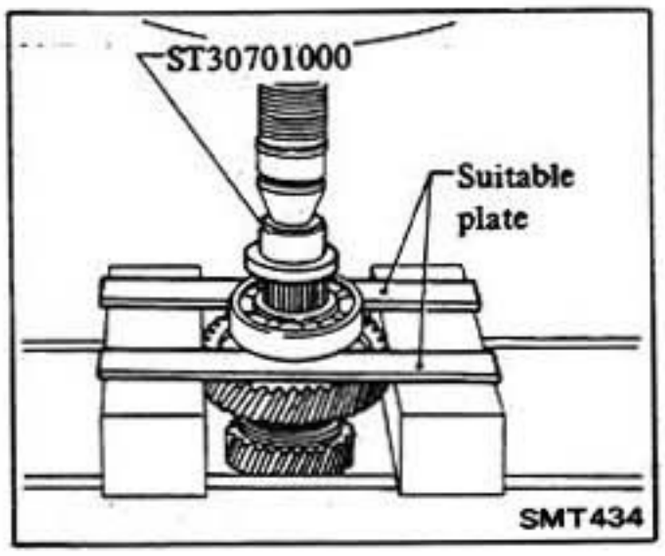
4. Remove transfer main gear rear bearing.



5. Remove needle bearings, center spacer and spacer from counter gear.

Low gear

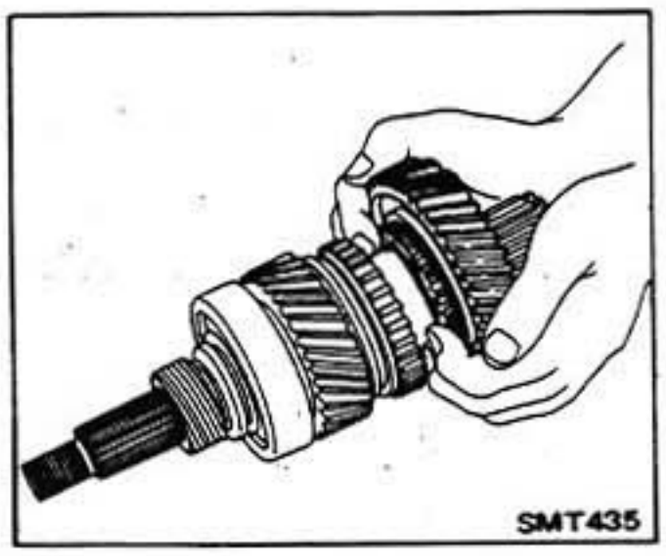
1. Press out drive shaft front ball bearing.



2. Remove thrust washer and steel ball.

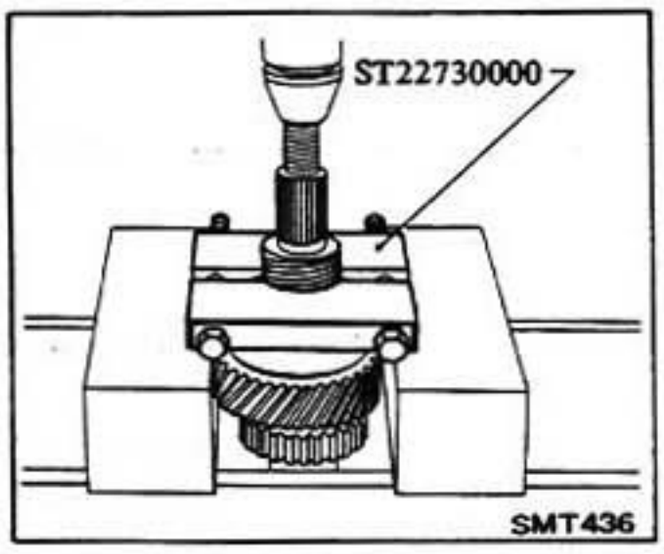
Be careful not to lose steel ball retaining thrust washer.

3. Remove Low gear and needle bearings.



High gear

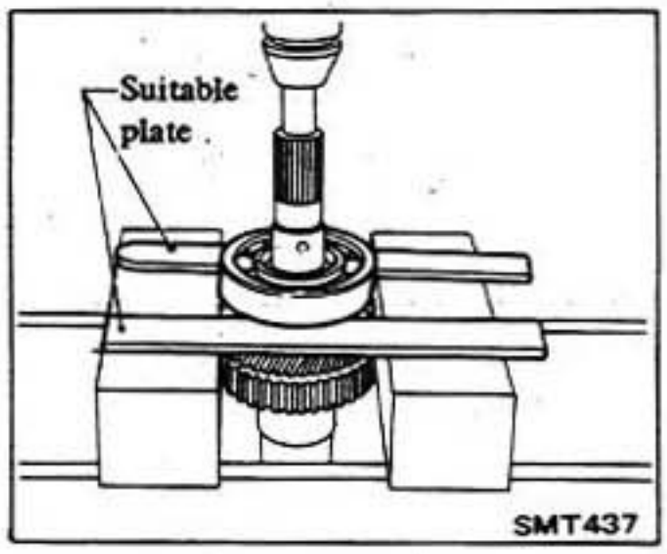
1. Remove speedometer worm gear.



2. Remove spacer and steel ball.

Be careful not to lose steel ball retaining spacer.

3. Press out drive shaft rear ball bearing with suitable plate or puller.



4. Remove thrust washer and steel ball.

Be careful not to lose steel ball retaining thrust washer.

5. Remove High gear, needle bearings and coupling sleeve.

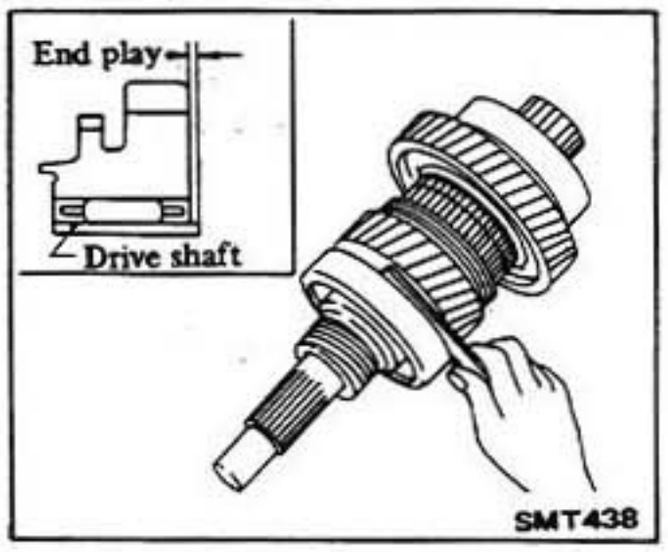
INSPECTION

Gear and shafts

Check all gears for excessive wear, chips or cracks; replace as required.

Measure gear end play:

- It is necessary to measure end play before disassembling transfer case drive shaft and after reassembling transfer case drive shaft.
- If end play is not within specified limit, disassemble and check parts for condition.
- Replace any part which is worn or damaged.



Standard end play:

High gear

0.10 - 0.20 mm
(0.0039 - 0.0079 in)

Low gear

0.10 - 0.20 mm
(0.0039 - 0.0079 in)

Coupling sleeve hub

0 - 0.20 mm
(0 - 0.0079 in)

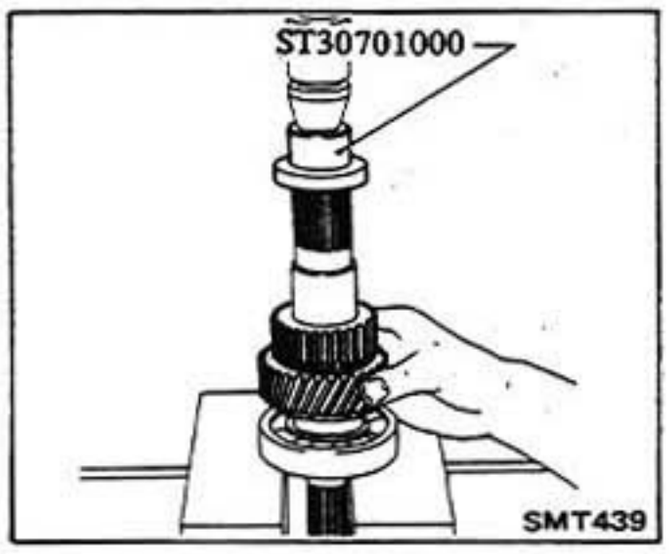
Bearings

Refer to Transfer Front Cover for inspection.

ASSEMBLY

High gear

1. Apply gear oil to needle bearings and install needle bearings and High gear onto transfer case drive shaft.
2. Apply grease to steel ball and thrust washer, then attach them to High gear.
3. Press drive shaft rear ball bearing.



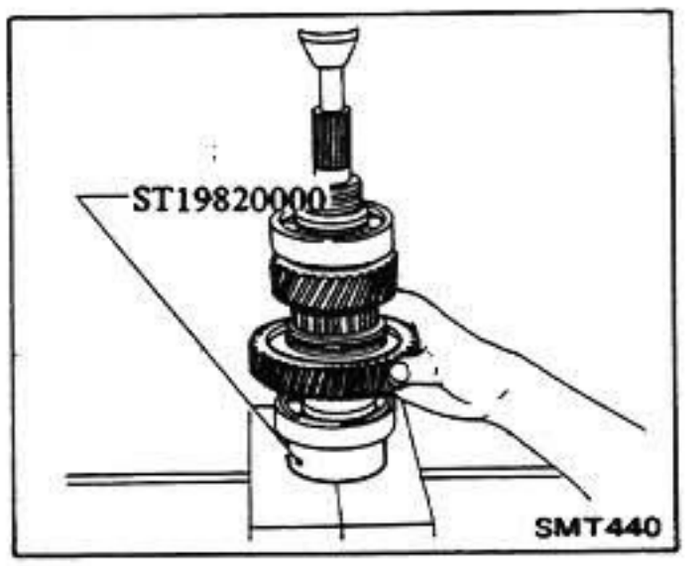
When pressing it, be sure to hold High gear by hand so as not to drop thrust washer.

4. Install drive shaft spacer. Apply grease to steel ball, then install steel ball and speedometer worm gear.

Low gear

5. Apply gear oil to needle bearing and install needle bearings, coupling sleeve and Low gear.
6. Apply grease to steel ball and thrust washer, then attach them to Low gear.

7. Press drive shaft front ball bearing.

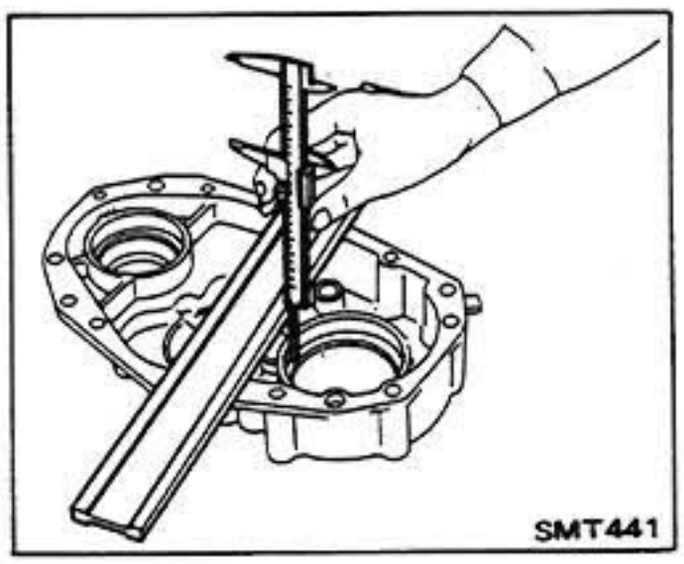


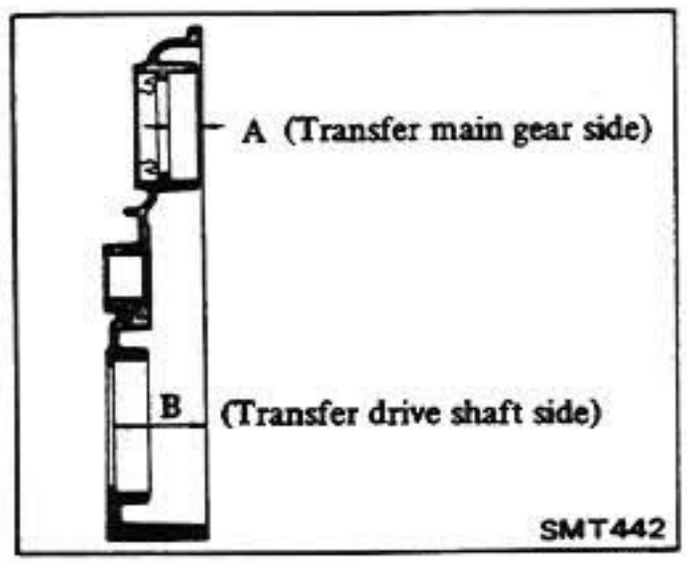
When pressing it, be sure to hold Low gear by hand so as not to drop thrust washer.

Selection of shims

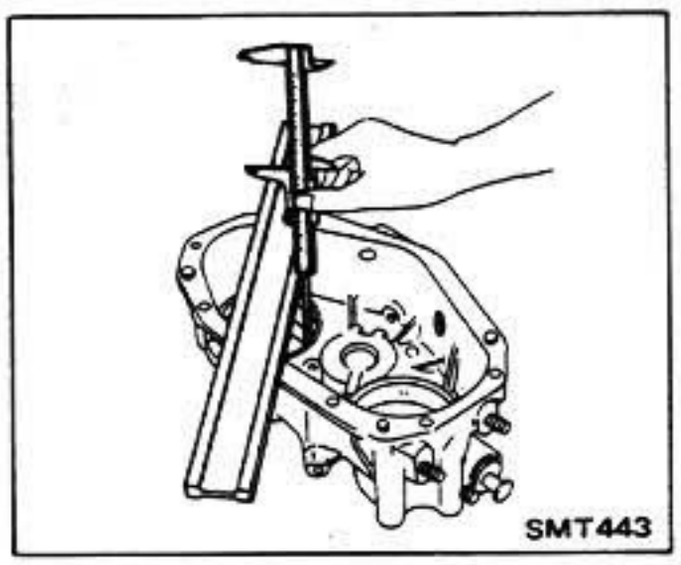
If thrust washer, each ball bearing, drive shaft, transfer front & rear cases or transfer case main gear is replaced, it is necessary to select each shim.

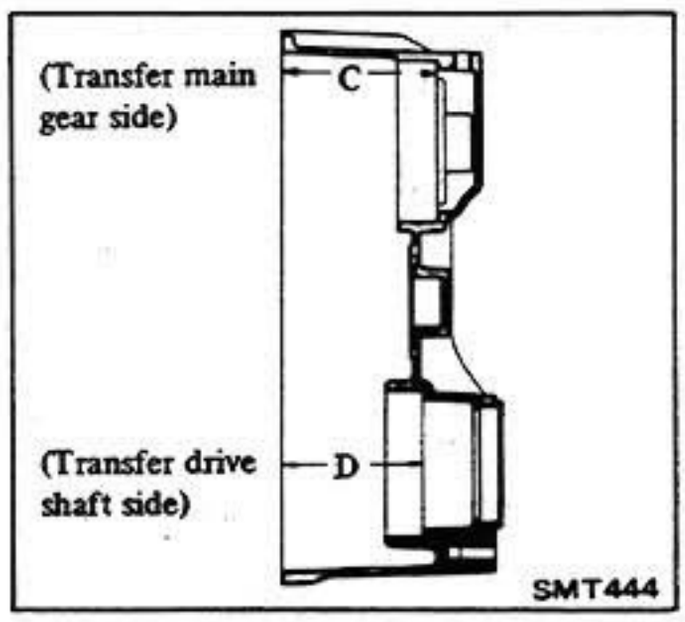
1. Measure bearing insertion lengths A and B for transfer front case.





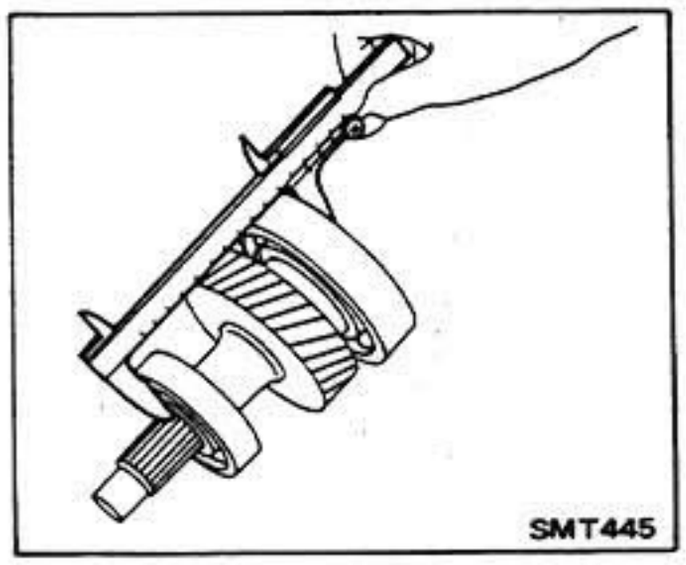
2. Measure bearing insertion lengths C and D for transfer rear case.





When measuring C, be sure to install breather cover in its position.

3. Measure distance E between ball bearing outer races of transfer main gear.



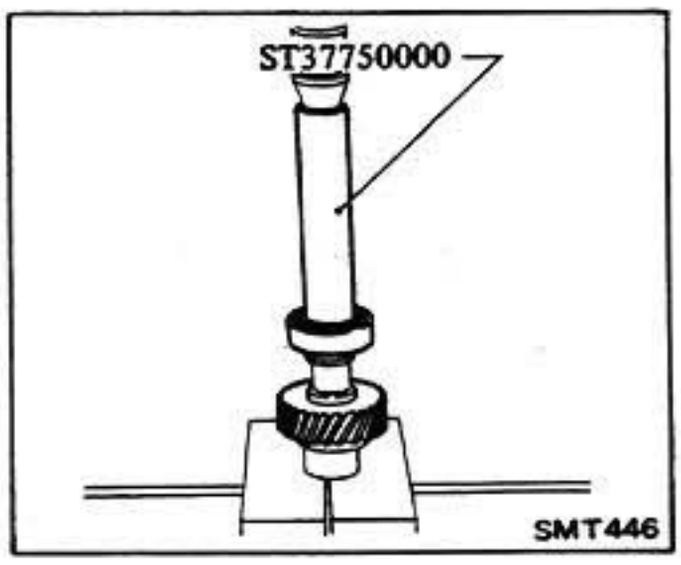
4. Measure distance F between ball bearing outer races of transfer drive shaft.
5. Select shims as follows:
   - 5-1 Calculate L_1 and L_2 by using the following equations:
     $L_1 = A + C - E$
     $L_2 = B + D - F$
   - 5-2 Determine shim thickness by using values L_1 and L_2.

Main gear front and transfer case front shims.

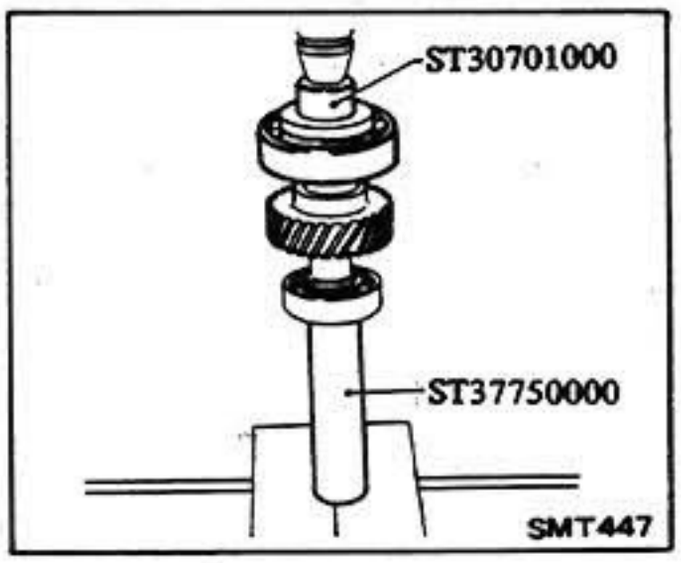
Refer to S.D.S.

Transfer case main gear and counter gear

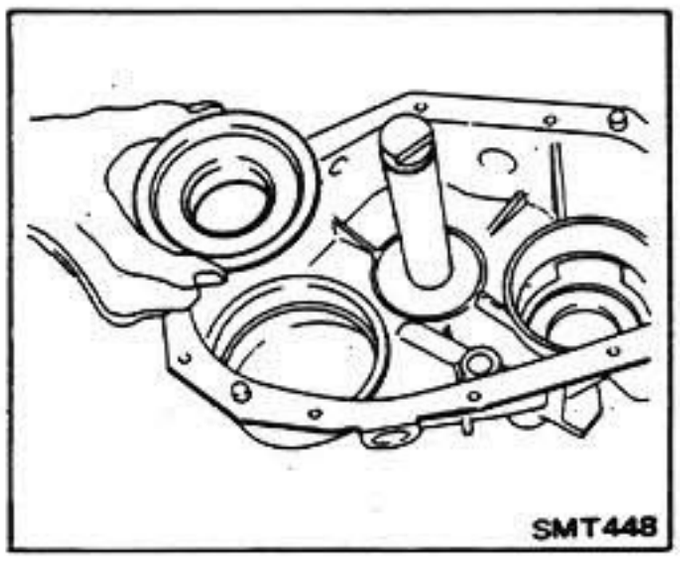
1. Press transfer case main gear front bearing.



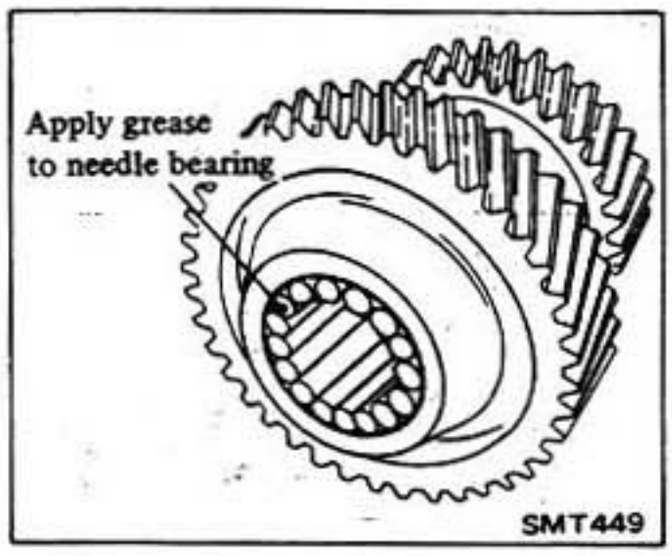
2. Press transfer case main gear rear bearing.



3. Install breather cover and transfer case main gear.



4. Apply grease to all needle bearings and spacers.
5. Install center spacer to counter gear, then assemble needle bearings and spacers in counter gear.



a. Use 28 needle bearing (14 on each side).
b. After attaching needle bearings in place, apply grease thickly so that bearing does not come off.

6. Install transfer case drive shaft assembly, forks and fork rods.

Refer to Forks and Fork Rods for assembly.

TRANSFER CASE FRONT COVER, TRANSFER FRONT CASE AND TRANSFER REAR CASE (Replacement of oil seals and bearings)

Disassembly and assembly procedures for above cases are the same as those of gears and shafts. Refer to Gears and Shafts for disassembly and assembly.

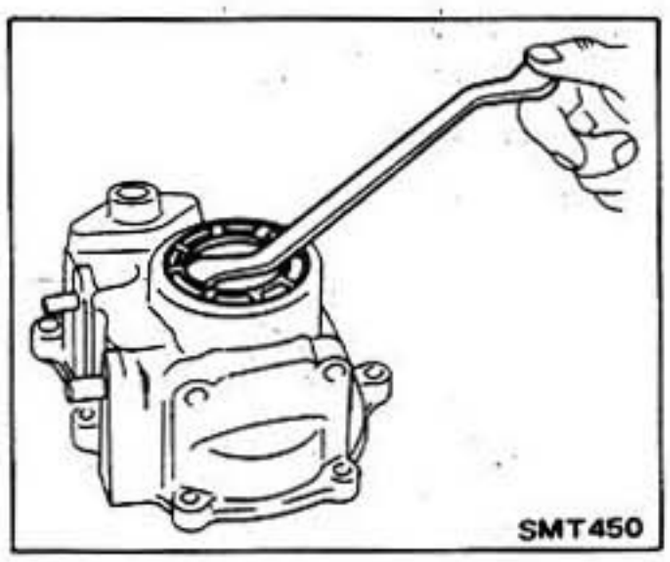
Described below are replacement procedures for oil seal, bearing and cases after disassembling cases.

For replacement of main gear front, rear bearing, drive shaft front and rear bearing, refer to Disassembly and Assembly of Gears and Shafts.

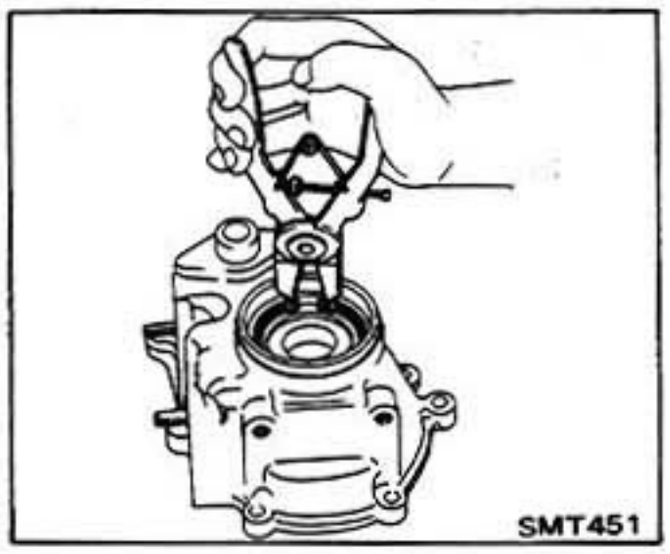
TRANSFER FRONT COVER

Disassembly

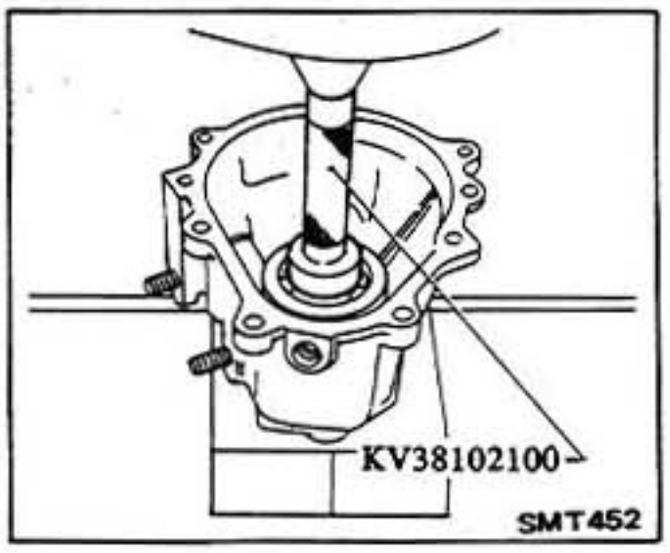
1. Remove oil seal.



2. Remove snap ring.



3. Remove bearing.



Inspection

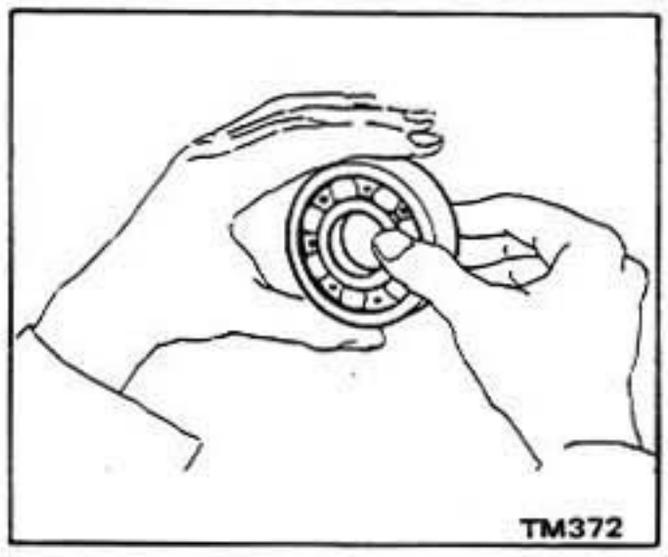
Oil seals

1. Replace oil seal if sealing lip is deformed or cracked. Also discard oil seal if spring is out of position.
2. Check the oil seal lip contacting with shaft; if necessary replace oil seal and shaft as a set.

Bearings

1. Thoroughly clean bearing and dry with compressed air.

CAUTION:
Do not allow the bearings to spin. Because it will damage the race and balls. Turn them slowly by hand.



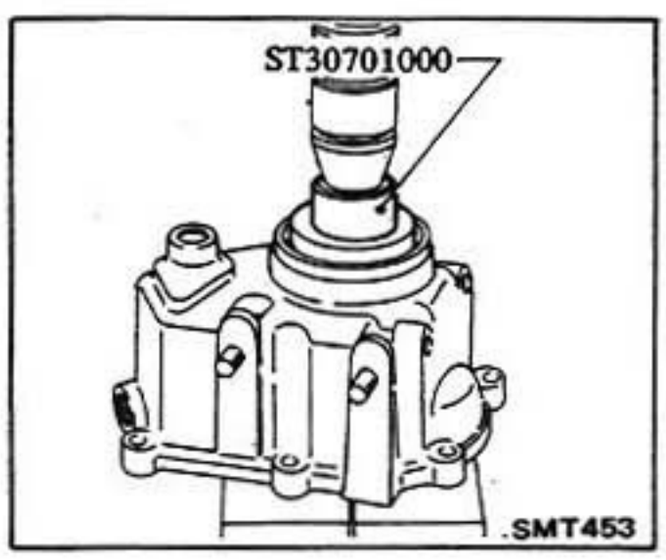
2. When race and ball surfaces are worn or rough, or when balls are out-of-round or rough, replace bearing with a new one.
3. Replace needle bearing if worn or damaged.

Transfer case front cover

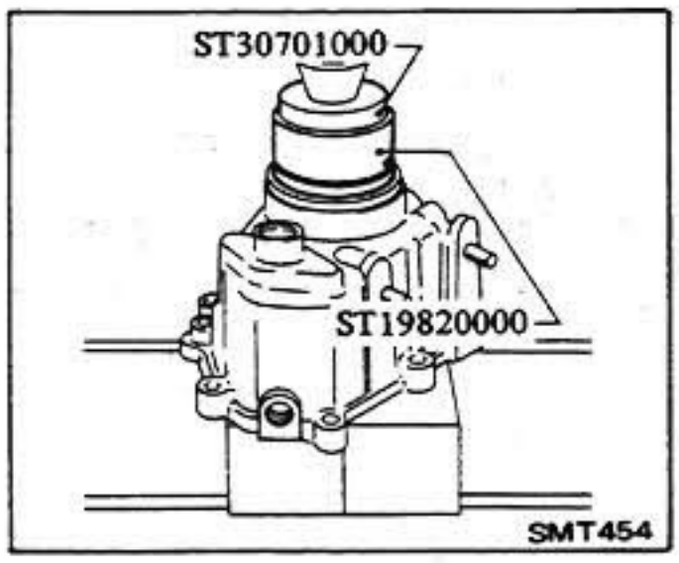
1. Clean with solvent and check for cracks or pits by means of dyeing test.
2. Check mating surface of transmission case for small nicks, projection or sealant.

Assembly

1. Press bearing.



2. Install snap ring with snap ring pliers.
3. Apply coat of gear oil to oil seal surface, then drive new seal into place.

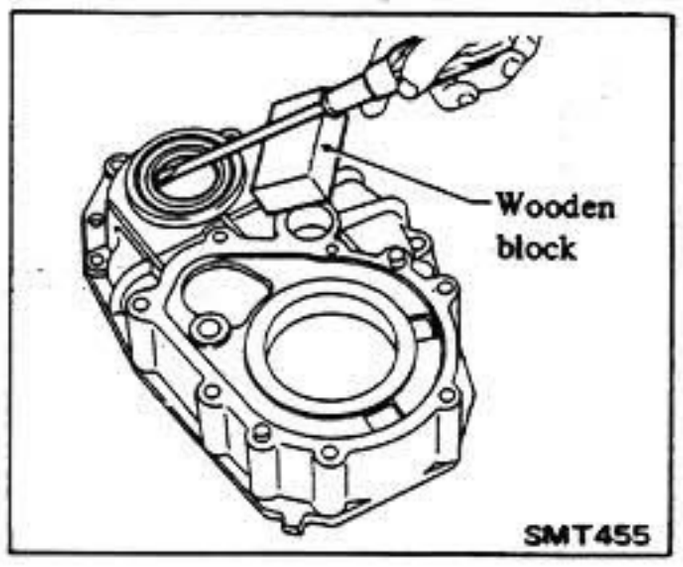


4. Lubricate seal lip with gear oil.

TRANSFER FRONT AND REAR CASE

Disassembly

Remove oil seal.

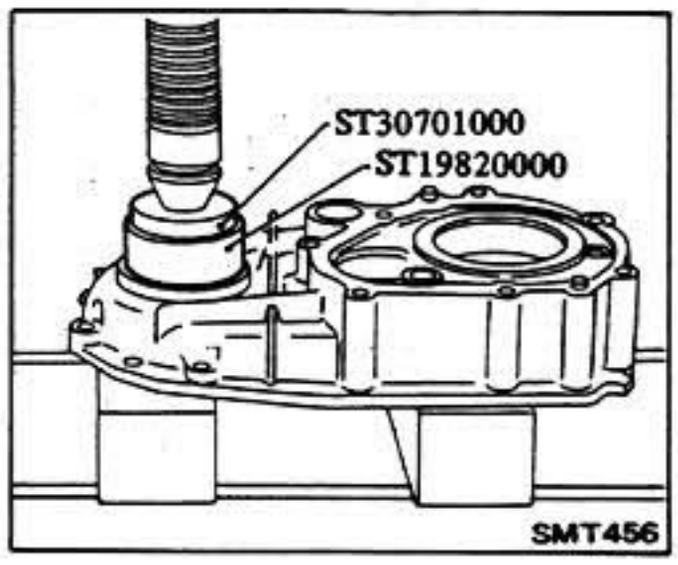


Inspection

Refer to Transfer Front Cover for inspection.

Assembly

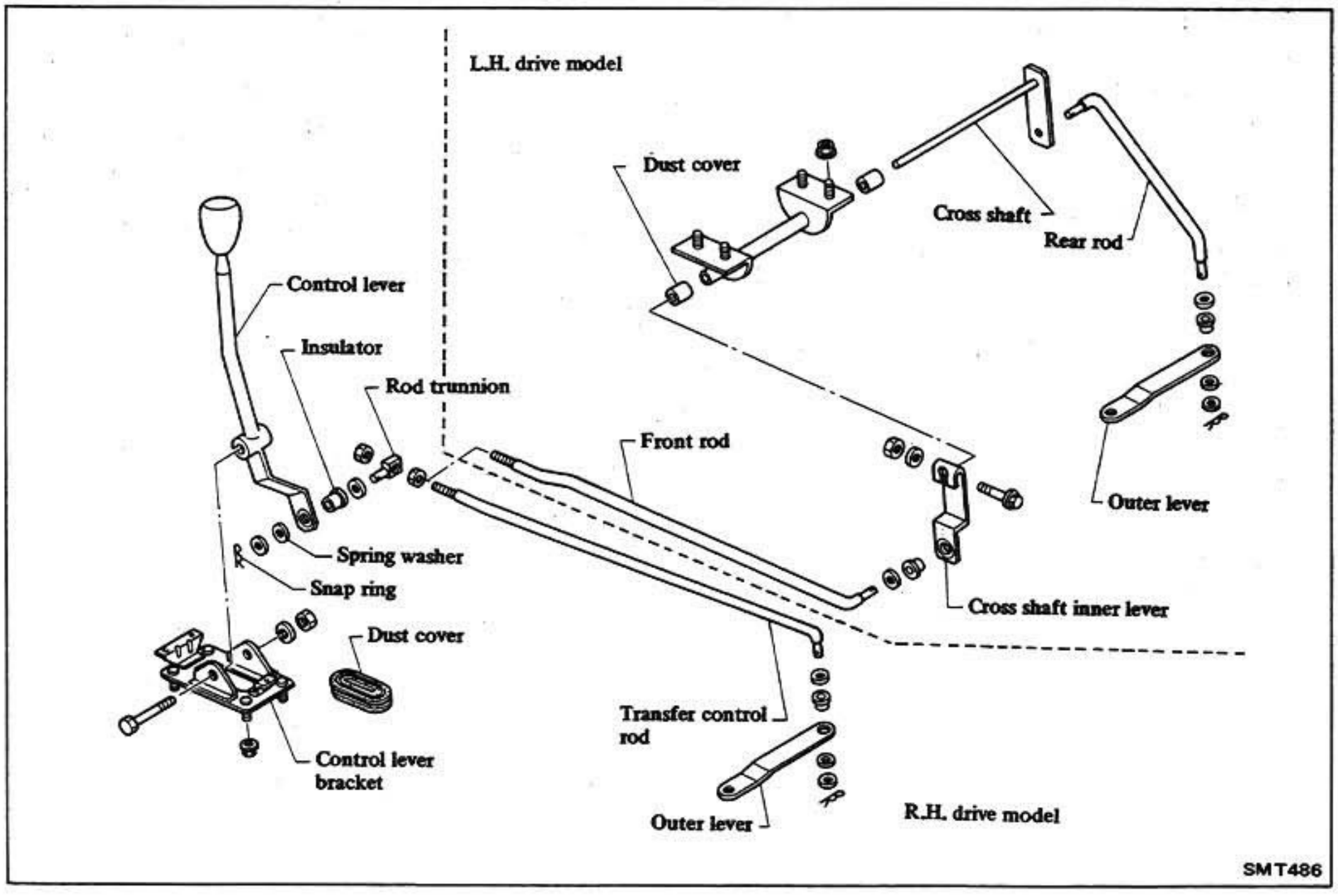
1. Apply coat of gear oil to oil seal surface, then drive new seal into place.



2. Lubricate seal lip with gear oil.

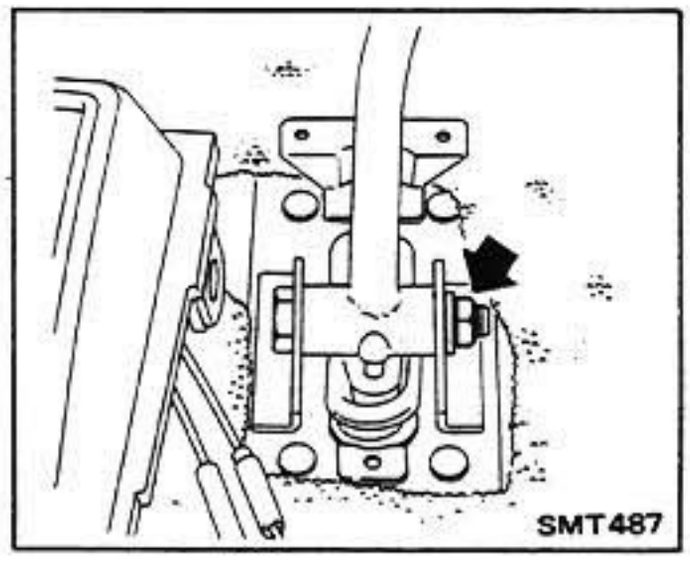
TRANSFER CONTROL

REMOVAL AND INSTALLATION



Transfer control lever

1. Disconnect control rod from control lever.
2. Remove control lever cover.
3. Remove nut and control lever pin, and remove control lever.

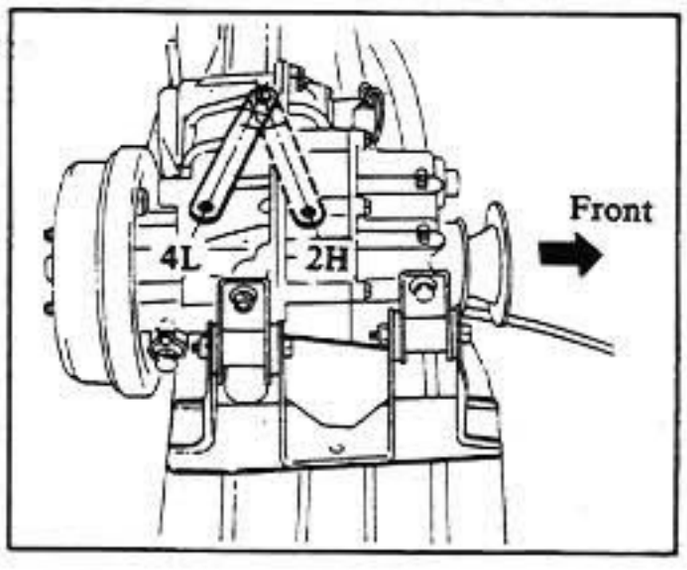


Control rod

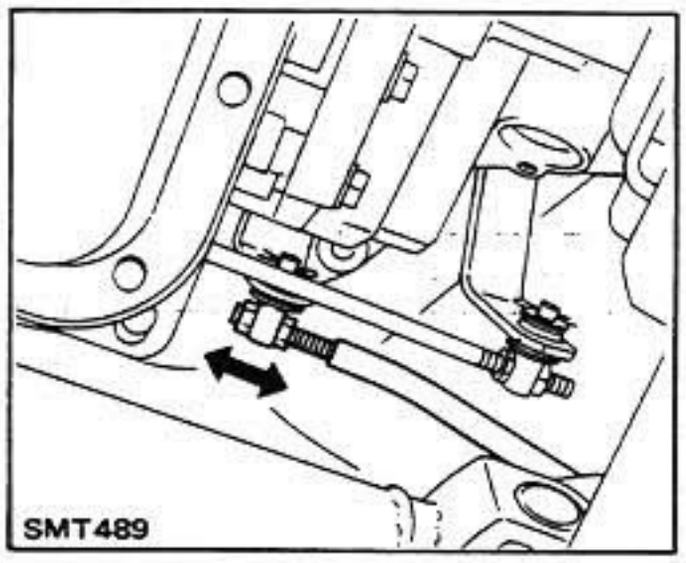
Remove snap pins from both ends of control rod and remove it.

ADJUSTMENT

1. Set lever on transfer side in "2H" position.



2. Provide a clearance of more than 48 mm (1.89 in) between control lever and heater unit. Then connect rod to control lever.



3. Set control lever in "4L" position and make sure there is a clearance of more than 50 mm (1.97 in) between control lever and hand brake.
4. Make sure that the force required for operating control lever is within 39 to 78 N (4 to 8 kg, 9 to 18 lb).

SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

Transfer model			T130A	T100L
Shift type			● 2H ● 4H ● N ● 4L	
Gear ratio	High		1.000	
	Low		2.220	2.074
Combined gear ratio with F4W81A transmission	High	1st	3.519	
		2nd	2.157	
		3rd	1.449	
		4th	1.000	
		Rev.	4.181	
	Low	1st	7.812	7.298
		2nd	4.789	4.474
		3rd	3.217	3.005
		4th	2.220	2.074
		Rev.	9.282	8.671
Combined gear ratio with 3N71B transmission	High	1st	–	2.458
		2nd		1.458
		Top		1.000
		Rev.		2.182
	Low	1st	–	5.098
		2nd		3.024
		Top		2.074
		Rev.		4.525
Number of teeth	Main gear		30	29
	Counter gear	High	48	41
		Low	35	30
	Transfer case	High	30	29
		Low	34	44

Speedometer gear ratio	Tire size / Final ratio	6.50-16	205R16C 7.00-16 7.50-16	6.50-16	205R16C 7.50-16
	3.364	6/16	6/13	–	–
	4.111	6/17	6/16	–	–
	4.375	6/18	6/17	6/18	6/17
	4.625	6/19	6/18	6/19	6/18

Oil capacity ℓ (Imp pt)	1.8 (3-1/8)	1.4 (2-1/2)

INSPECTION AND ADJUSTMENT (Model : T130A)

High gear end play mm (in)	0.20 - 0.35 (0.0079 - 0.0138)
Low gear end play mm (in)	0.20 - 0.35 (0.0079 - 0.0138)

INSPECTION AND ADJUSTMENT (Model : T100L)

GEAR END PLAY

Unit: mm (in)

High gear	0.10 - 0.20 (0.0039 - 0.0079)
Low gear	0.10 - 0.20 (0.0039 - 0.0079)
Coupling sleeve hub	0 - 0.20 (0 - 0.0079)

AVAILABLE SNAP RING

Coupling sleeve hub

Thickness mm (in)	Part number
1.3 (0.051)	33145 C6903
1.4 (0.055)	33145 C6904
1.5 (0.059)	33145 C6900
1.6 (0.063)	33145 C6901
1.7 (0.067)	33145 C6902

AVAILABLE SHIM

Main gear front

Unit: mm (in)

"L_1"	Thichness of shim	Part Number
0.06 - 0.15 (0.0024 - 0.0059)	–	–
0.16 - 0.25 (0.0063 - 0.0098)	0.10 (0.0039)	33112 C6900
0.26 - 0.35 (0.0102 - 0.0138)	0.20 (0.0079)	33112 C6901
0.36 - 0.45 (0.0142 - 0.0177)	0.30 (0.0118)	33112 C6902
0.46 - 0.55 (0.0181 - 0.0217)	0.40 (0.0157)	33112 C6903

Transfer case front

Unit: mm (in)

"L_2"	Thickness of shim	Part Number
0 - 0.13 (0 - 0.0051)	–	–
0.14 - 0.23 (0.0055 - 0.0091)	0.10 (0.0039)	33147 C6900
0.24 - 0.33 (0.0094 - 0.0130)	0.20 (0.0079)	33147 C6901
0.34 - 0.43 (0.0134 - 0.0169)	0.30 (0.0118)	33147 C6902
0.44 - 0.53 (0.0173 - 0.0209)	0.40 (0.0157)	33147 C6903

TIGHTENING TORQUE

MODEL T130A

Unit	N·m	kg-m	ft-lb
Transfer installation			
Front and rear propeller shaft	78 - 88	8 - 9	58 - 65
Transfer mounting bracket to transfer	27 - 36	2.8 - 3.7	20 - 27
Insulator to transfer mounting bracket	17 - 22	1.7 - 2.2	12 - 16
Insulator to frame	30 - 41	3.1 - 4.2	22 - 30
Rear companion flange	245 - 333	25 - 34	181 - 246
Transfer unit			
Drain plug	29 - 39	3 - 4	22 - 29
Filler plug	20 - 27	2.0 - 2.8	14 - 20
Transfer upper cover	8 - 11	0.8 - 1.1	5.8 - 8.0
Mainshaft cover A (Seal bolt)	29 - 39	3 - 4	22 - 29
Mainshaft cover B	26 - 36	2.7 - 3.7	20 - 27
Main gear lock nut	196 - 333	20 - 34	145 - 246
Countershaft lock bolt	14 - 18	1.4 - 1.8	10 - 13
Transfer to transmission A (Seal bolt)	20 - 27	2.0 - 2.8	14 - 20
Transfer to transmission B (Seal bolt)	20 - 27	2.0 - 2.8	14 - 20
Transfer to transmission C	18 - 25	1.8 - 2.5	13 - 18
Transfer to transmission D	18 - 25	1.8 - 2.5	13 - 18
Transfer to transmission E	18 - 25	1.8 - 2.5	13 - 18
Shift lever lock nut	9 - 12	0.9 - 1.2	6.5 - 8.7
Front companion flange	245 - 333	25 - 34	181 - 246
Front cover	26 - 36	2.7 - 3.7	20 - 27
Check ball hole plug	15 - 20	1.5 - 2.0	11 - 14
Center brake drum	78 - 88	8 - 9	58 - 65
Center brake assembly	26 - 36	2.7 - 3.7	20 - 27
Rear drive shaft cover A (Seal bolt)	29 - 39	3 - 4	22 - 29
Rear drive shaft cover B	26 - 36	2.7 - 3.7	20 - 27
Speedometer sleeve lock bolt	3 - 4	0.3 - 0.4	2.2 - 2.9
Breather	10 - 13	1.0 - 1.3	7 - 9

MODEL T100L

Unit	N·m	kg-m	ft-lb
Transfer installation			
Mounting member to side member	72 - 96	7.3 - 9.8	53 - 71
Mounting insulator to mounting bracket	16 - 21	1.6 - 2.1	12 - 15
Mounting bracket to mounting member	38 - 51	3.9 - 5.2	28 - 38
Mounting insulator to transfer	38 - 51	3.9 - 5.2	28 - 38
Transfer unit			
Check ball plug	19 - 25	1.9 - 2.5	14 - 18
Cotter pin	9 - 12	0.9 - 1.2	6.5 - 8.7
Transfer front case	8 - 11	0.8 - 1.1	5.8 - 8.0
Transfer case front cover	8 - 11	0.8 - 1.1	5.8 - 8.0
4WD switch	20 - 29	2 - 3	14 - 22
Companion flange	118 - 137	12 - 14	87 - 101
Drain plug	20 - 39	2 - 4	14 - 29
Filler plug	20 - 39	2 - 4	14 - 29
Speedometer sleeve	3 - 4	0.3 - 0.4	2.2 - 2.9

TROUBLE DIAGNOSES AND CORRECTIONS

Noise

Check level and color of oil.

Level/color N.G.

Add/replace oil. (If oil leaks repair cause.)

Check noise.

Noise does not stop.

Noise outside transmission. Check engine and clutch, etc.

Noise stops.

O.K.

Level and color O.K.

After shifting transmission control lever to 4th position, shift gears and locate which gear position makes noise.

Noise in Neutral (When vehicle is stopped.)

Disengage clutch to see if noise stops.

Noise does not stop.

Noise in transmission. Noise may be caused by variations in engine torque.
Adjust engine idle speed.

Noise stops.

Noise in position other than Neutral

Position	Noise
2H	No
4H	Occurs
4L	Occurs

Noise peaks at a specific vehicle speed.

Noise appears to occur in front differential carrier or front axle. Check front differential carrier and/or front axle and eliminate cause of noise.

Position	Noise
2H	Occurs
4H	Occurs
4L	Occurs

Noise peaks at specific vehicle speed.

Noise appears to occur in rear differential carrier and rear axle. Check rear differential carrier and rear axle and eliminate cause of noise.

Position	Noise
2H	Occurs
4H	Occurs
4L	No

Noise peaks at specific engine rpm.

Noise appears to occur in transmission. Disassemble and check counter gear and Low gear in which noise occurs for meshing surface and bearings.

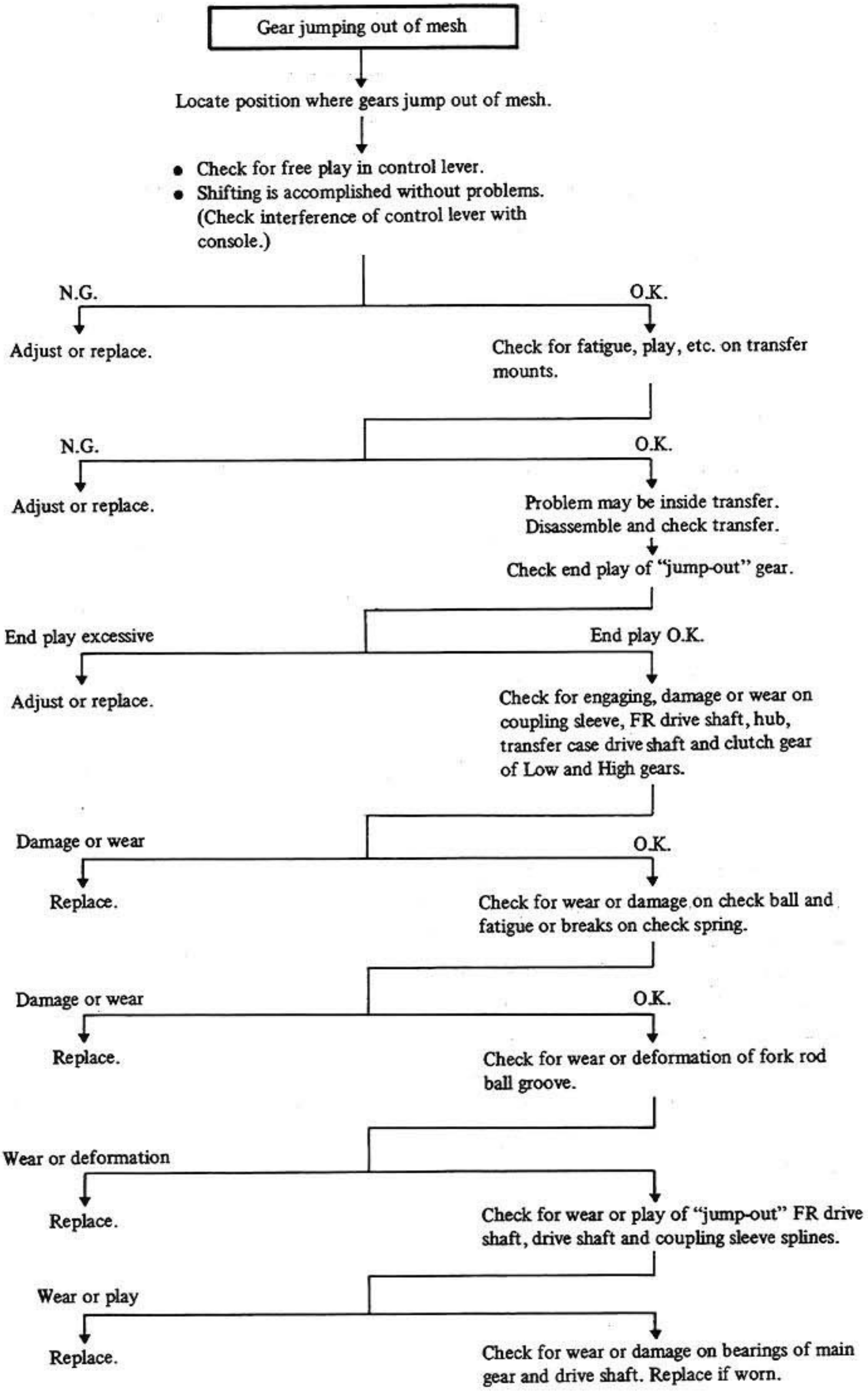
Replace counter gear and Low gear and/or bearing.

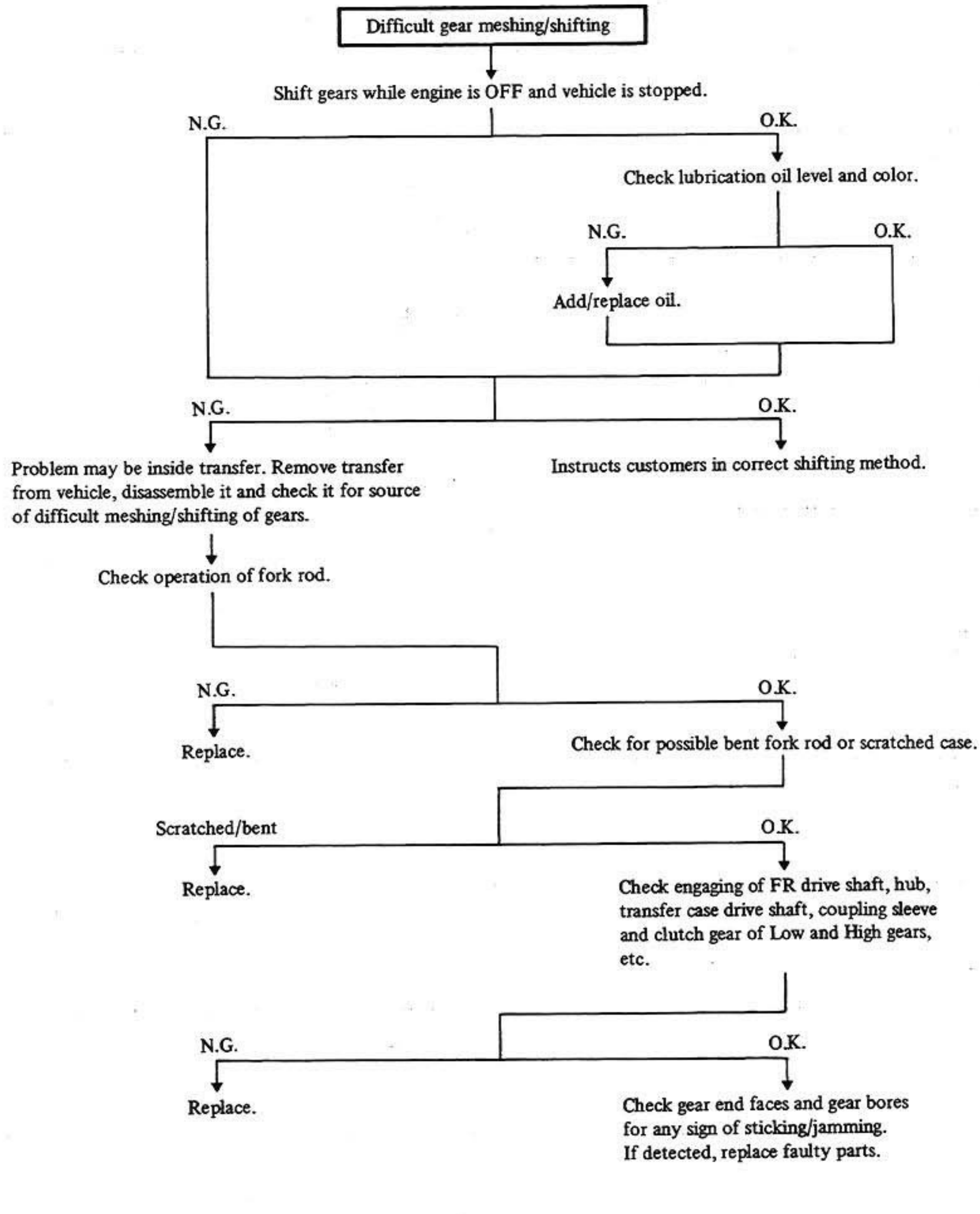
Position	Noise
2H	No
4H	No
4L	Occurs

Noise peaks at specific engine rpm.

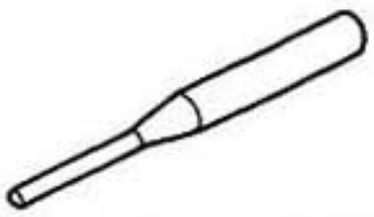
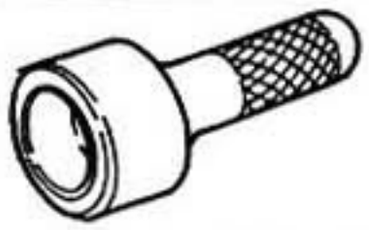
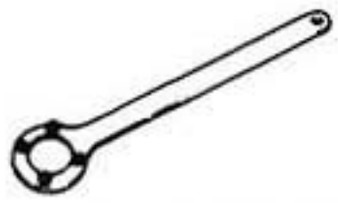
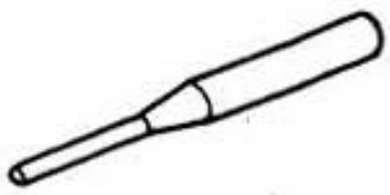
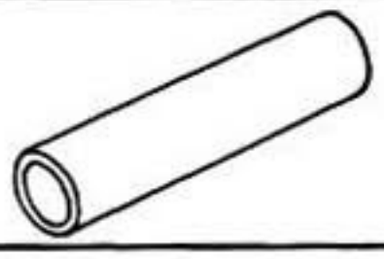
Noise appears to occur in transmission. Disassemble and check counter gear and High gear in which noise occurs for meshing surface and bearings.

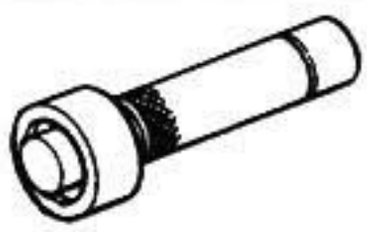
Replace counter gear and High gear and/or bearing.


Gear jumping out of mesh
Locate position where gears jump out of mesh.
• Check for free play in control lever.
• Shifting is accomplished without problems. (Check interference of control lever with console.)
N.G.
Adjust or replace.
O.K.
Check for fatigue, play, etc. on transfer mounts.
N.G.
Adjust or replace.
O.K.
Problem may be inside transfer. Disassemble and check transfer.
Check end play of "jump-out" gear.
End play excessive
Adjust or replace.
End play O.K.
Check for engaging, damage or wear on coupling sleeve, FR drive shaft, hub, transfer case drive shaft and clutch gear of Low and High gears.
Damage or wear
Replace.
O.K.
Check for wear or damage on check ball and fatigue or breaks on check spring.
Damage or wear
Replace.
O.K.
Check for wear or deformation of fork rod ball groove.
Wear or deformation
Replace.
Check for wear or play of "jump-out" FR drive shaft, drive shaft and coupling sleeve splines.
Wear or play
Replace.
Check for wear or damage on bearings of main gear and drive shaft. Replace if worn.


Difficult gear meshing/shifting
Shift gears while engine is OFF and vehicle is stopped.
N.G.
O.K.
Check lubrication oil level and color.
N.G.
O.K.
Add/replace oil.
N.G.
O.K.
Problem may be inside transfer. Remove transfer from vehicle, disassemble it and check it for source of difficult meshing/shifting of gears.
Instructs customers in correct shifting method.
Check operation of fork rod.
N.G.
O.K.
Replace.
Check for possible bent fork rod or scratched case.
Scratched/bent
O.K.
Replace.
Check engaging of FR drive shaft, hub, transfer case drive shaft, coupling sleeve and clutch gear of Low and High gears, etc.
N.G.
O.K.
Replace.
Check gear end faces and gear bores for any sign of sticking/jamming.
If detected, replace faulty parts.

SPECIAL SERVICE TOOLS

Tool number	Tool name	T130A	T100L
ST23540000	Fork rod pin punch 	X	–
KV40100621	Oil seal drift 	X	–
ST30720000	Oil seal drift 	X	–
KV38104700	Companion flange wrench 	–	X
KV31100300	Fork rod pin punch 	–	X
ST23620000	Fork rod guide 	–	X
ST22730000	Bearing puller 	–	X
ST30701000	Bearing drift 	–	X
ST19820000	Bearing drift 	–	X
ST37750000	Bearing drift 	–	X

Tool number	Tool name	T130A	T100L
KV38102100	Oil seal drift 	–	X