

MANUAL TRANSMISSION

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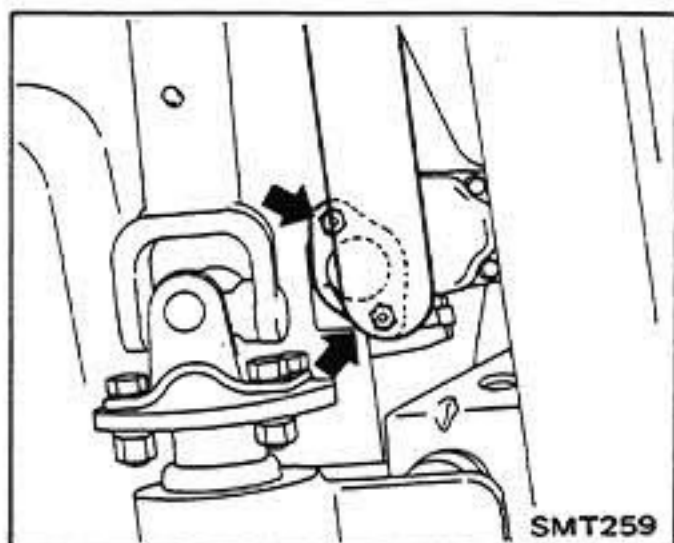
REMOVAL AND INSTALLATION

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.

Make sure that safety is insured.

3. Drain gear oil.
4. Disconnect front exhaust tube (models equipped with P40 engine and T130A transfer).



5. Disconnect wires from reverse (back-up) lamp switch.
6. Disconnect 4WD lamp switch.
7. Disconnect speedometer cable.
8. Remove front and rear propeller shafts.

Refer to Propeller Shaft (Section PD) for removal.

- Disconnect center brake cable.

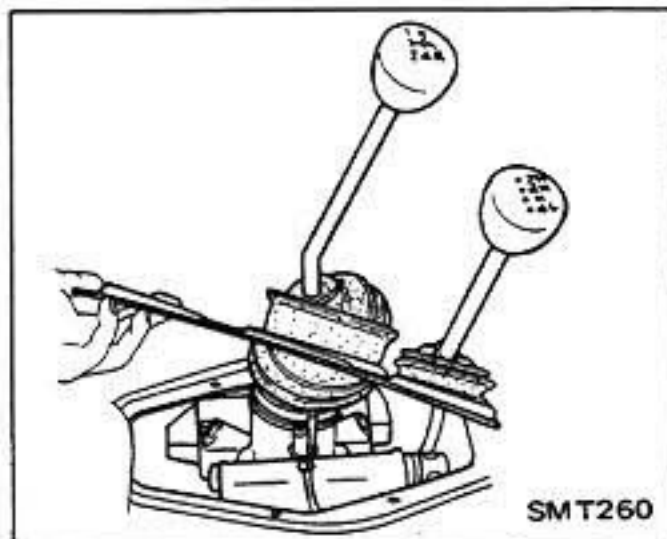
With T100L transfer

- Remove transfer unit.
Refer to Section TF for removal.
 - Remove pre-propeller shaft.
9. Remove floor carpet.
 10. With T100L transfer

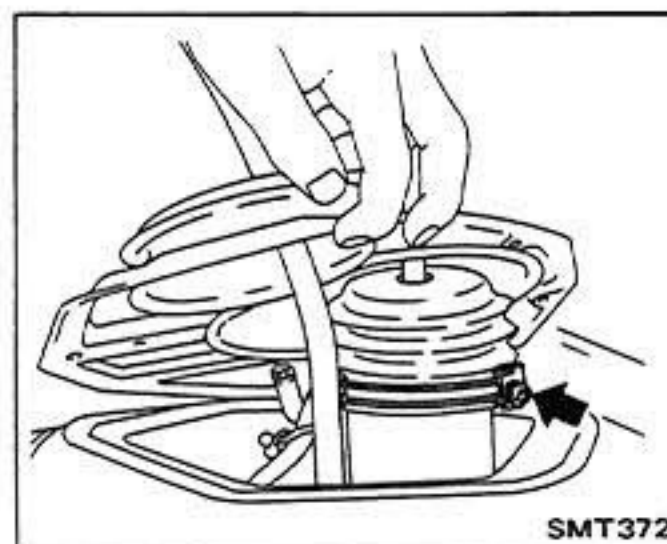
- Remove transmission control lever boot.

With T130A transfer

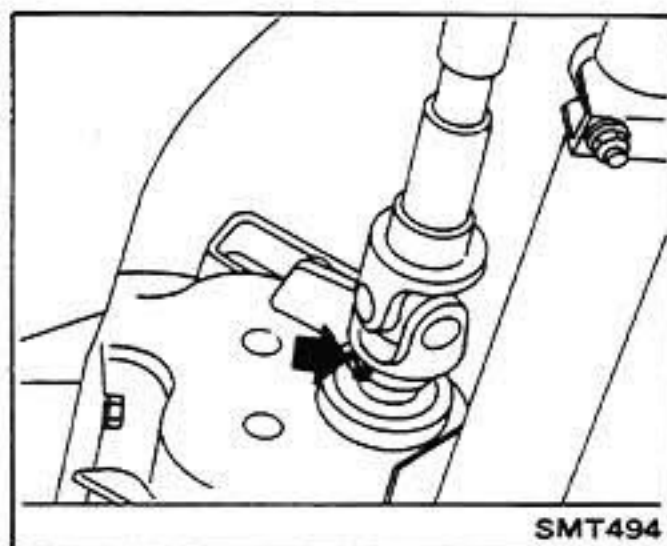
- Place transmission control lever in neutral position and remove transmission cover panel.



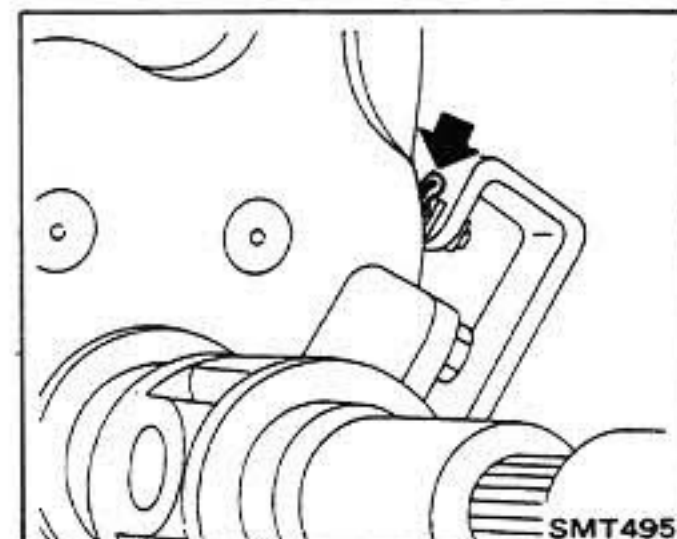
11. Loosen rubber boot retaining screw.



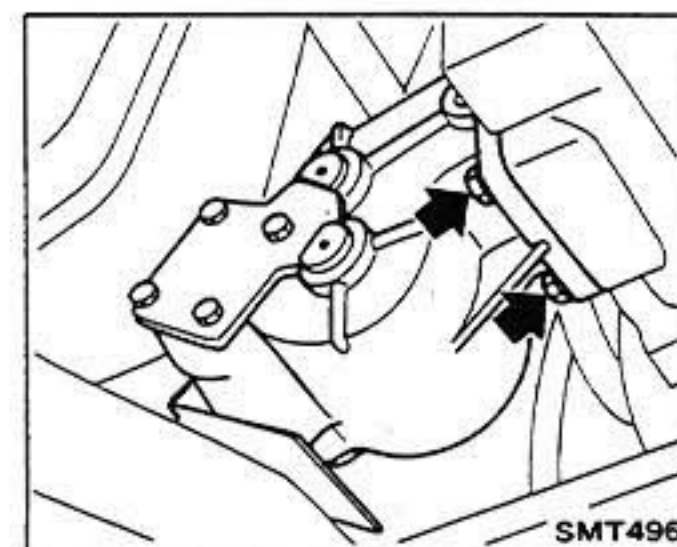
12. Remove control lever.
13. Remove clutch operating cylinder.
14. If winch is equipped, remove P.T.O. as follows:
 - 1) Remove pin from drive shaft.



- 2) Slide rear joint of drive shaft forward.
- 3) Remove P.T.O. control lever cotter pin.



- 4) Remove P.T.O. unit.



15. Remove clutch operating cylinder.
16. Support engine by placing a jack under oil pan with a wooden block used between oil pan and jack.

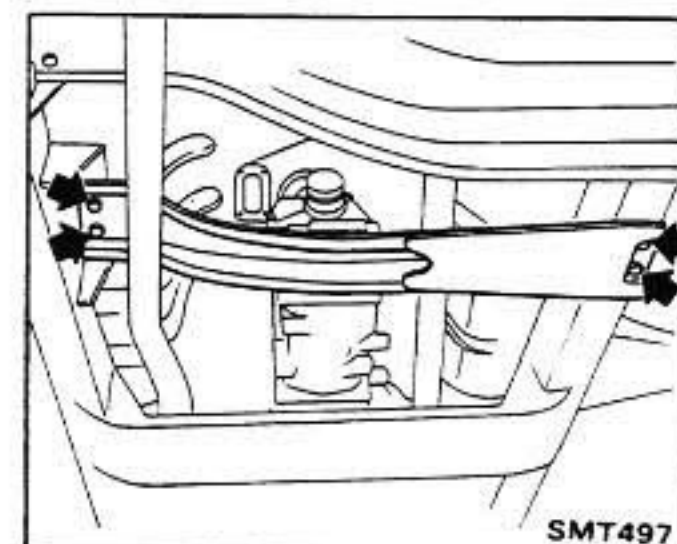
CAUTION:

Do not place jack under oil pan drain plug.

17. Support transmission with a transmission jack.
- 18.

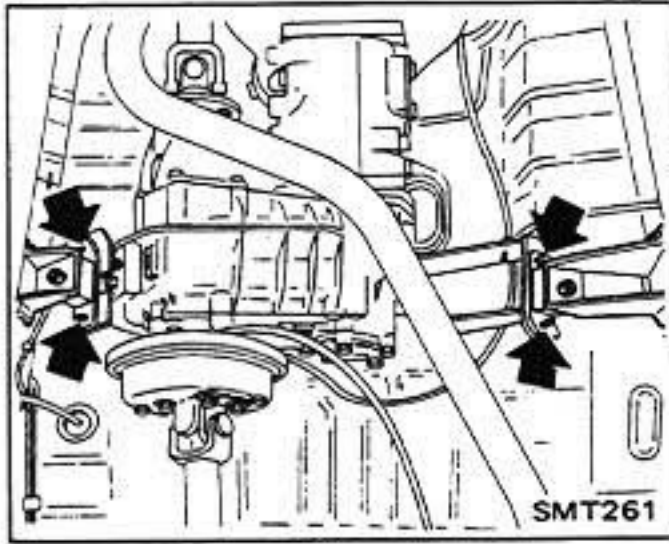
With T100L transfer

Loosen rear crossmember securing nuts.



With T130L transfer

Loosen rear engine mount securing nuts temporarily.



19. Remove starter motor.
20. Support engine and transmission with jacks.
21. Remove bolts securing clutch housing to engine.
22. Remove rear engine mounting brackets.
23. Slide transmission rearward away from engine.

CAUTION:

Take care in dismounting transmission not to strike any adjacent parts and main drive gear.

INSTALLATION

Install the transmission in reverse order of removal, paying attention to the following points.

- Before installing, clean mating surfaces of engine rear plate and transmission case.
- Before installing, lightly apply grease to spline parts of clutch disc and main drive gear. And also apply grease to moving surfaces of control lever and striking rod.
- Remove filler plug and fill transmission with recommended gear oil to the level of the plug hole.

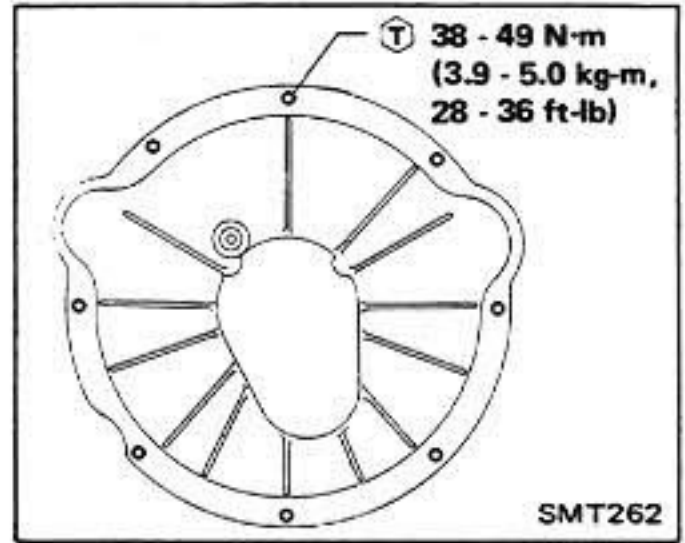
Oil capacity:
2.7 liters
(4-3/4 Imp pt)

- Apply sealant to threads of filler plug, and install filler plug to transmission case.

Ⓣ : Filler plug
25 - 34 N·m
(2.5 - 3.5 kg·m,
18 - 25 ft·lb)

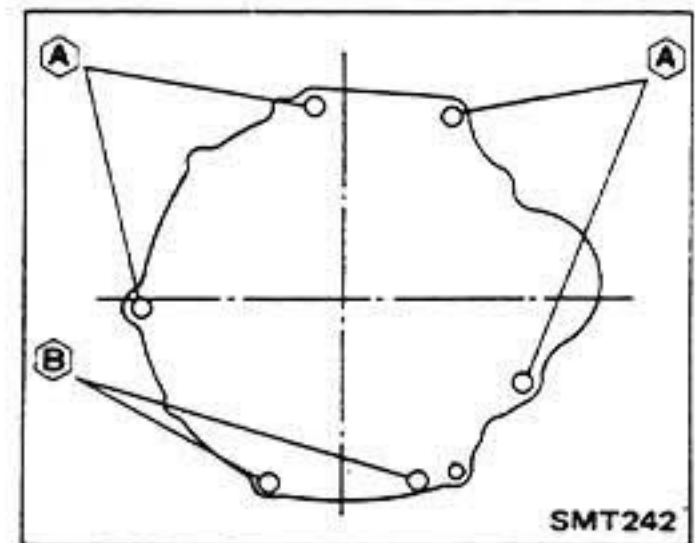
- Tighten bolts securing transmission to engine.

Models equipped with P40 and SD33 engines

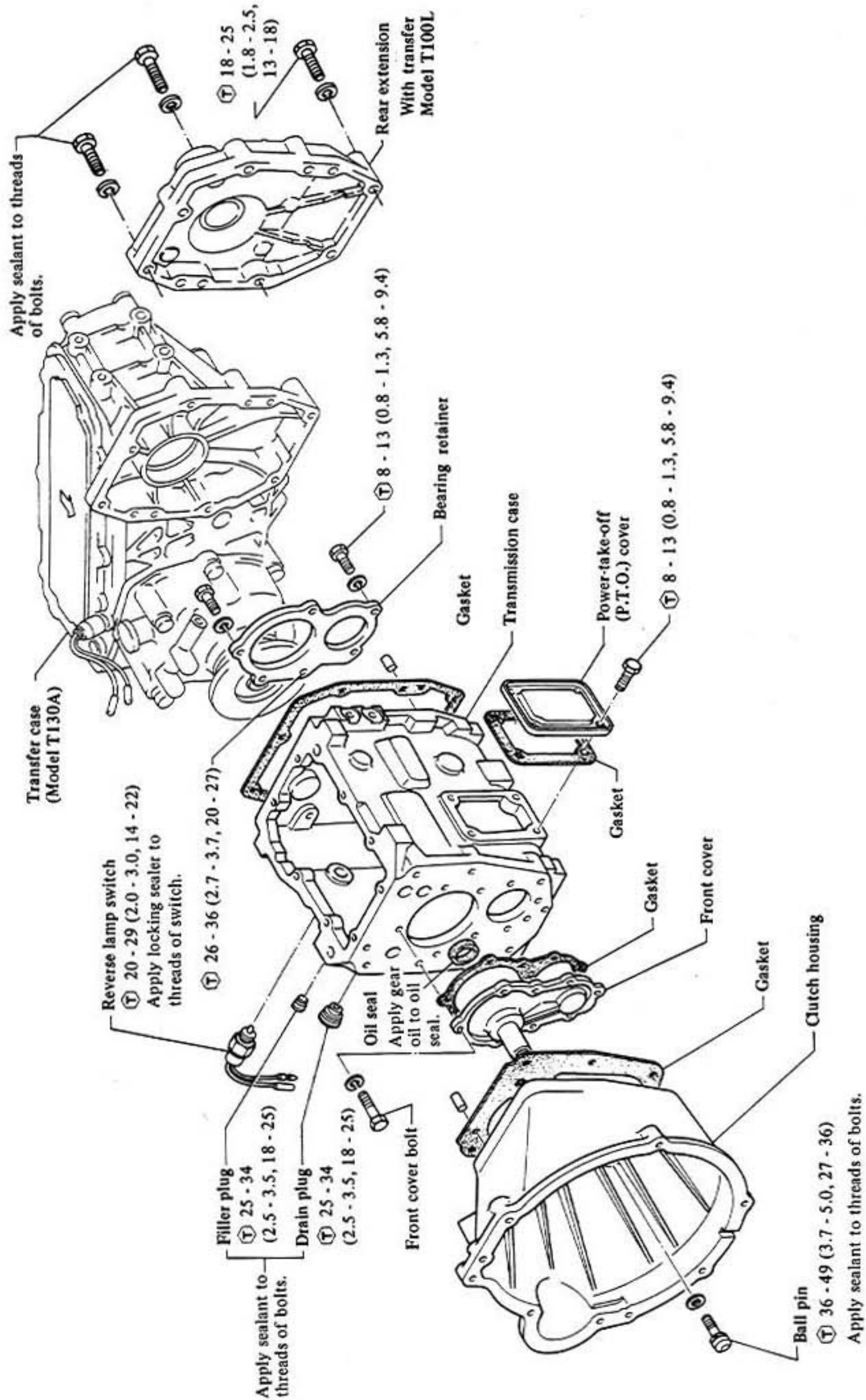


Models equipped with L28 engine

Ⓣ : Ⓐ 43 - 58 N·m
(4.4 - 5.9 kg·m, 32 - 43 ft·lb)
Ⓑ 25 - 35 N·m
(2.6 - 3.6 kg·m, 19 - 26 ft·lb)

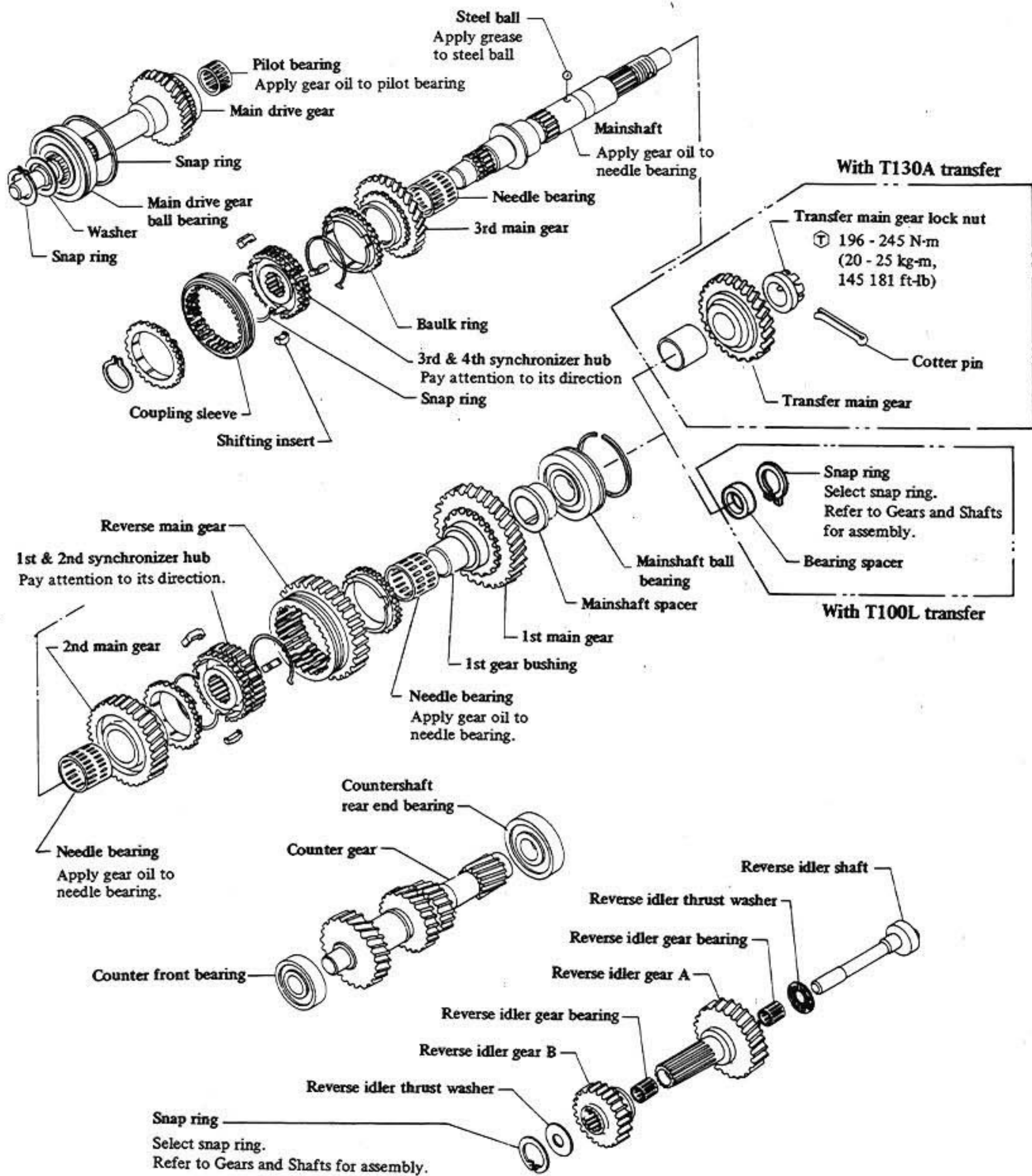


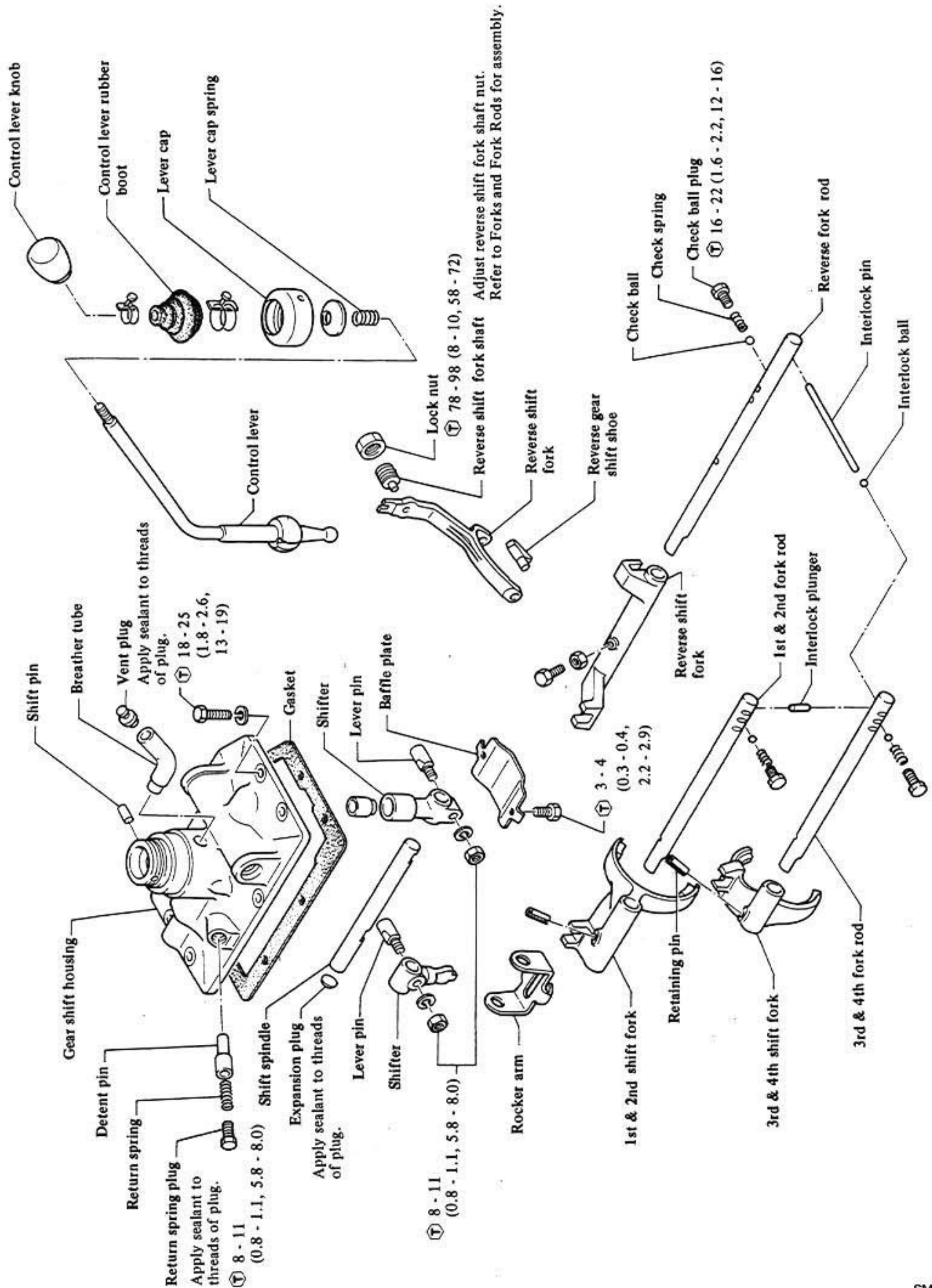
4-SPEED TRANSMISSION (Model : F4W81A)



Ⓜ : N·m (kg·m, ft·lb)

MANUAL TRANSMISSION – 4-speed Transmission (Model: F4W81A)



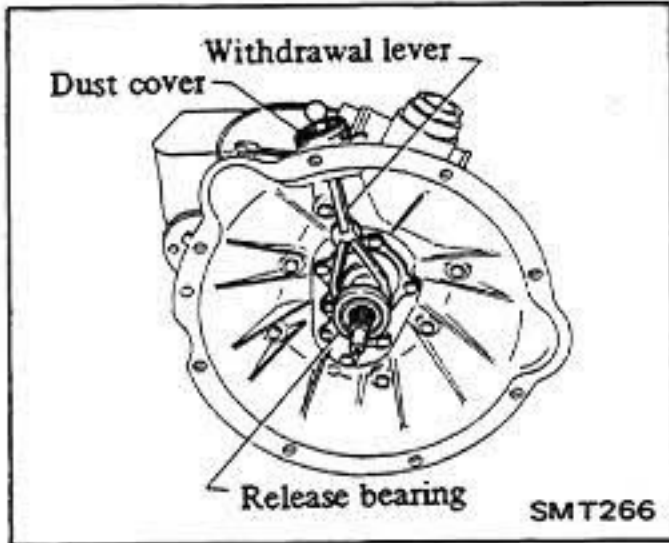


Ⓜ : N·m (kg-m, ft-lb)

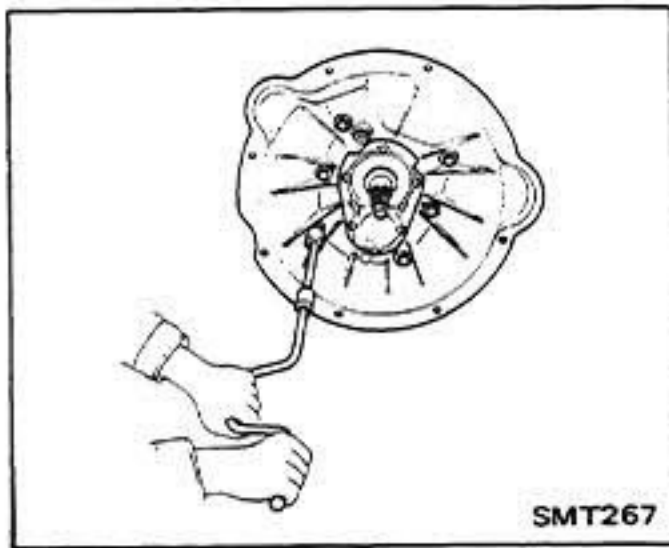
CLUTCH HOUSING

DISASSEMBLY

1. Wipe off dirt and grease.
2. Remove dust cover, release bearing and withdrawal lever.



3. Remove clutch housing.

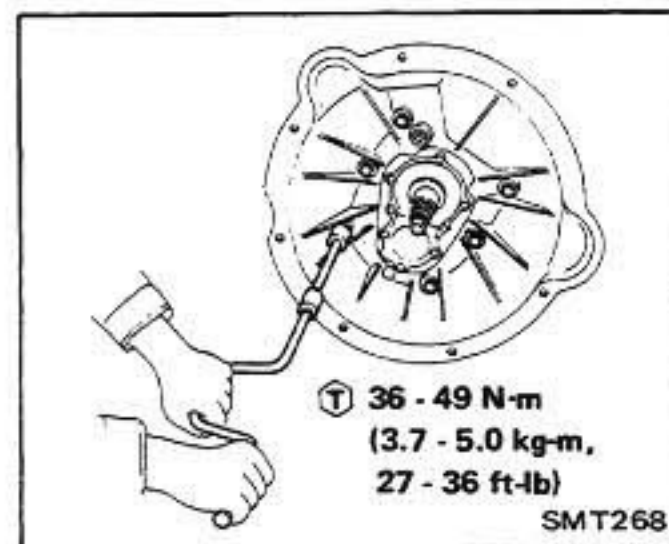


INSPECTION

1. Clean with solvent and check for cracks or pits.
2. Check mating surface of clutch housing for small nicks or projections.

ASSEMBLY

1. Install clutch housing and new gasket.



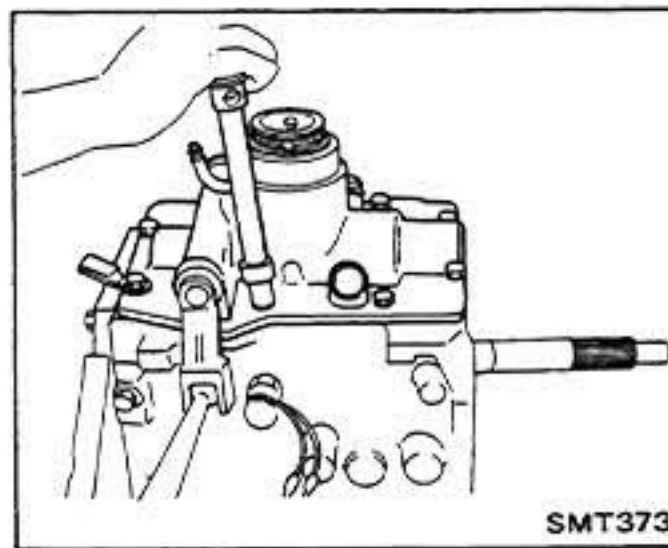
2. Install dust cover, release bearing and withdrawal lever.

Refer to Release Bearing (Section CL) for installation.

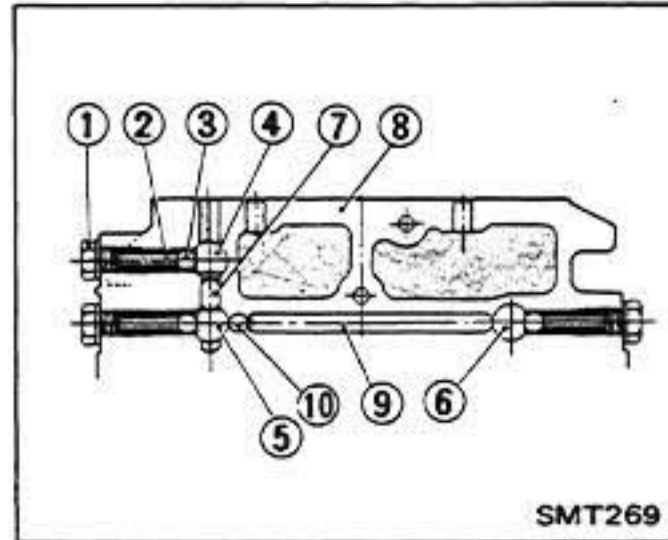
FORKS AND FORK RODS

DISASSEMBLY

1. Remove clutch housing.
Refer to Clutch Housing for disassembly.
2. Remove gear shift housing.

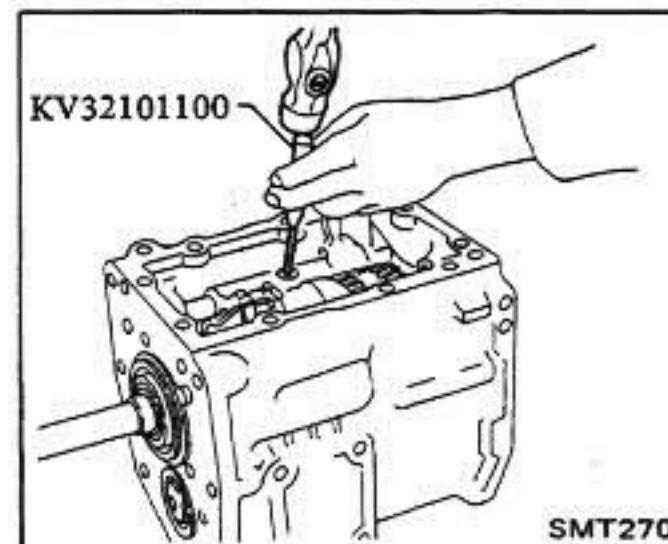


3. Remove check ball plugs and check springs.



- | | |
|----------------------|---------------------|
| 1 Check ball plug | 6 Reverse fork rod |
| 2 Check spring | 7 Interlock plunger |
| 3 Check ball | 8 Transmission case |
| 4 1st & 2nd fork rod | 9 Interlock pin |
| 5 3rd & 4th fork rod | 10 Interlock ball |

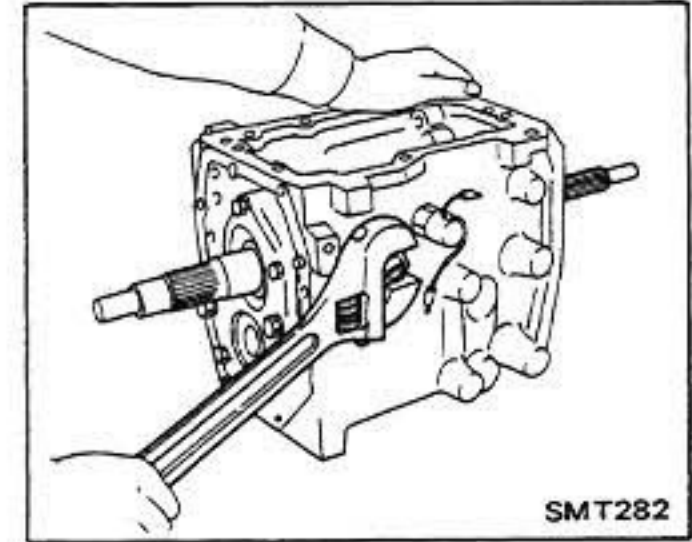
4. Drive out retaining pins.



5. Drive out fork rods and remove interlock plunger, interlock pin, check balls and interlock ball.

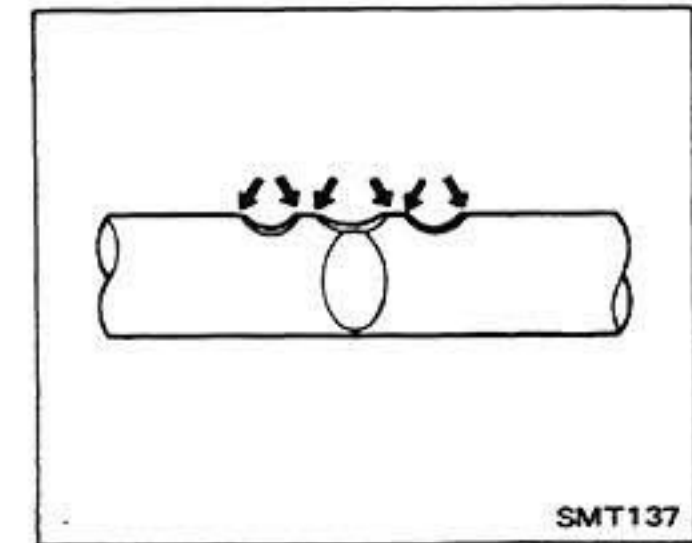
Be careful not to lose the three (3) check balls, interlock plunger and interlock ball.

6. Draw out shift forks.
7. Remove reverse shift fork shaft.



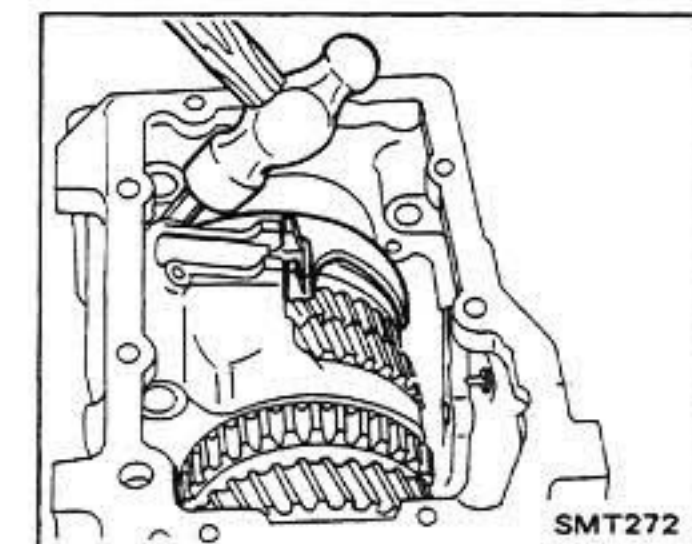
INSPECTION

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

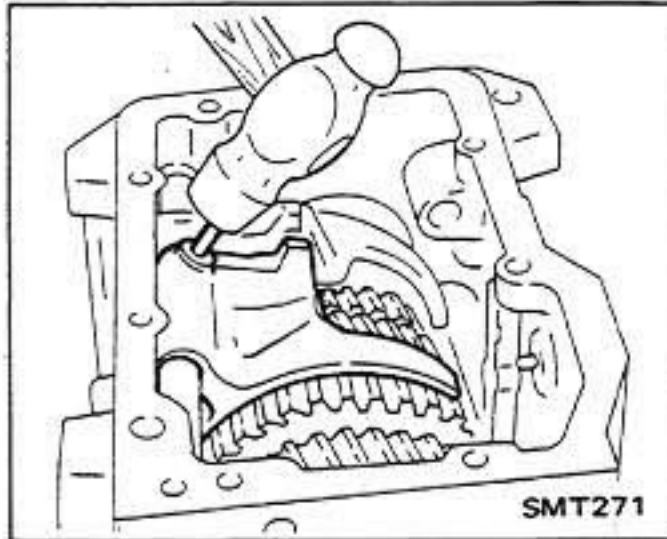


ASSEMBLY

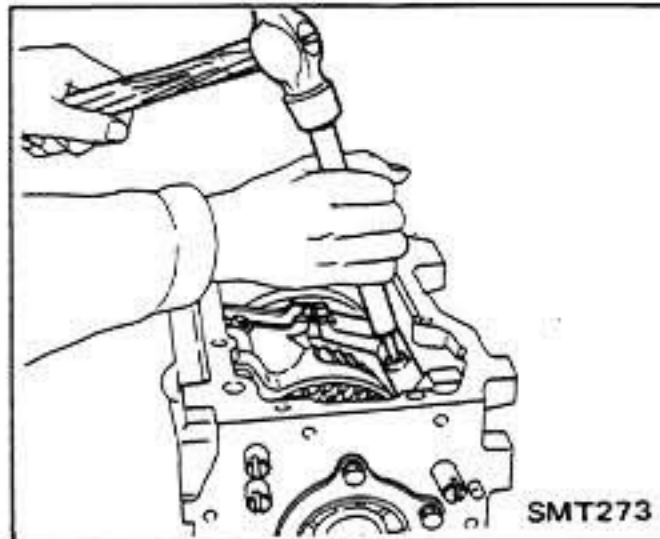
1. Install 1st & 2nd and 3rd & 4th shift forks and 3rd & 4th fork rod, then secure with retaining pin.



2. Install interlock plunger and check balls.
3. Install 1st & 2nd fork rod, then secure with retaining pin.



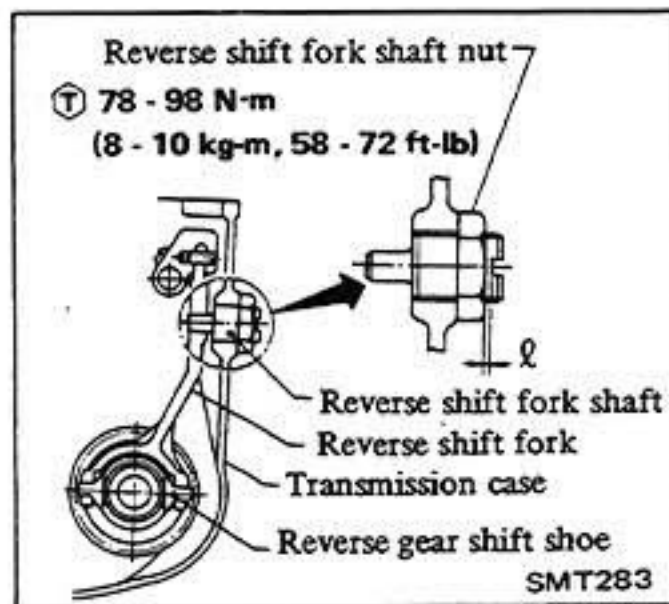
- (3) Make sure that difference ℓ is ± 0.5 mm (± 0.020 in).
7. Install Rev. fork and fork rod, then secure with retaining pin.



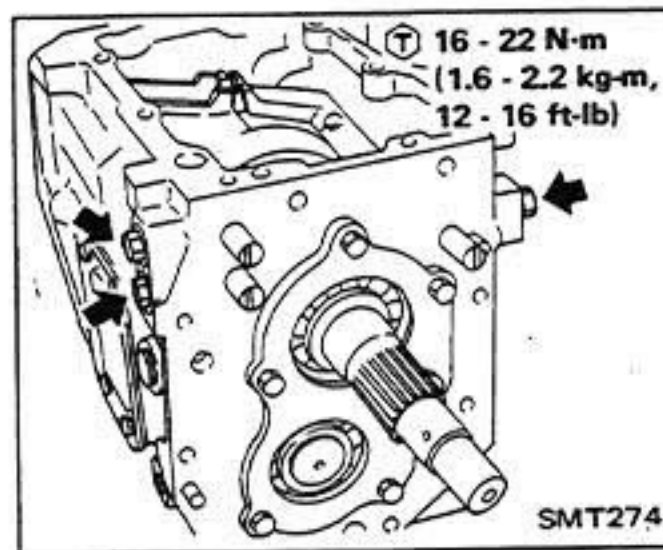
4. Install interlock pin and interlock ball.
5. Install reverse check ball and check spring. Then install reverse shift fork shaft.

Note that check springs for 1st & 2nd fork rod and 3rd & 4th fork rod differ from that for Rev. fork rod side.

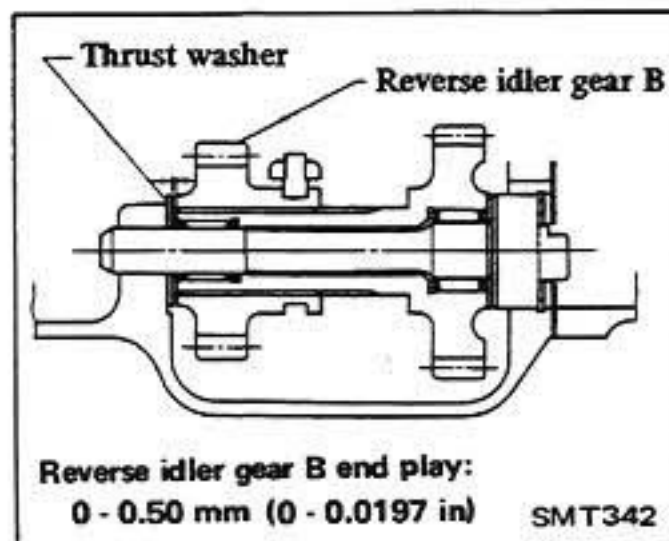
6. Adjust end play of reverse idler gear.
 - (1) Set dimension ℓ to $+0.5$ mm ($+0.020$ in).



8. Install check balls and check springs for 1st & 2nd fork rod and 3rd & 4th fork rod.
9. Apply locking sealer to check ball plugs and install them.



- (2) Adjust end play of reverse idler gear B to 0 - 0.50 mm (0 - 0.197 in) by tightening reverse shift fork shaft.



10. Apply gear oil to all sliding surfaces.
11. Install gear shift housing.

After installing forks and fork rods, tap 1st & 2nd and Rev. fork rods when 3rd & 4th fork rod is shifted into 4th position to make sure that they do not move.

12. Check to see that shift rods operate correctly and gears are engaged smoothly.
13. Install clutch housing.

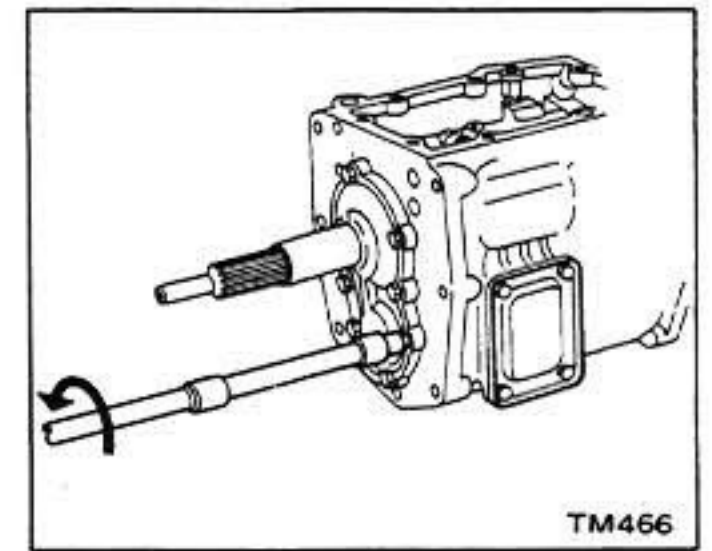
Refer to Clutch Housing for assembly.

TRANSMISSION CASE AND REAR EXTENSION

DISASSEMBLY

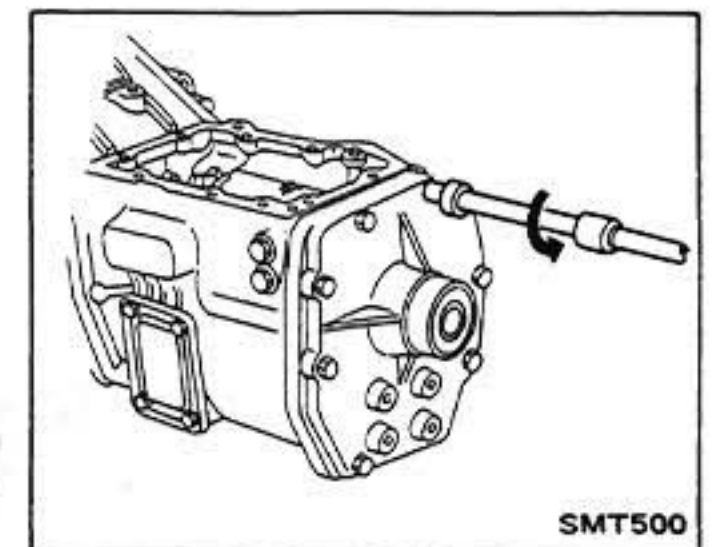
1. Remove clutch housing.

Refer to Clutch Housing for disassembly.
2. Remove drain plug and drain oil from transmission case.
3. Remove front cover and gasket.



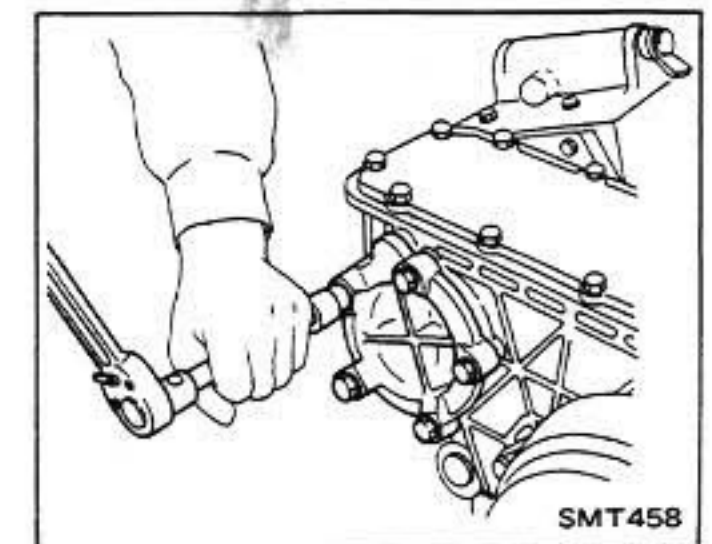
4. With T100L transfer

Remove rear extension and gasket.



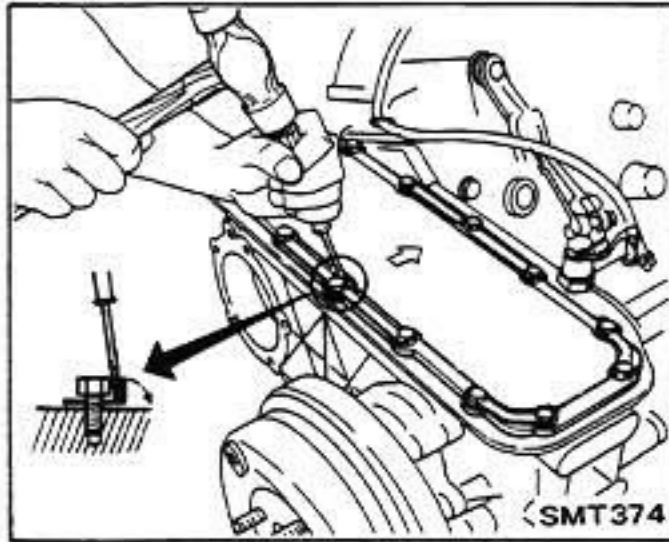
With T130A transfer

- (1) Remove mainshaft cover and needle bearing.

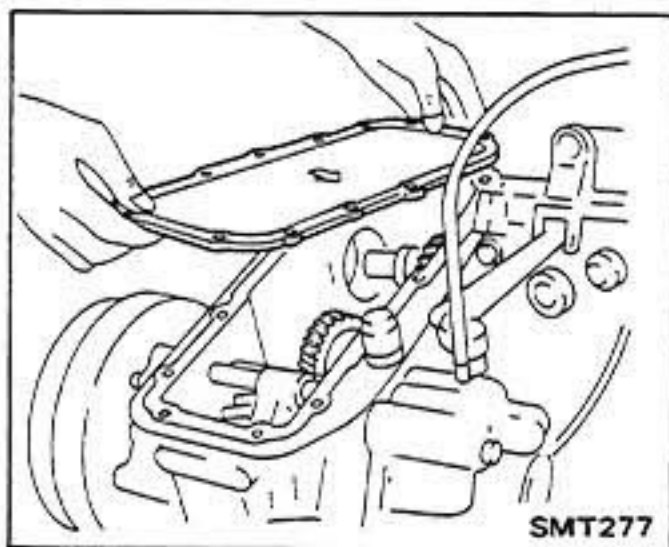


MANUAL TRANSMISSION – 4-speed Transmission (Model: F4W81A)

(2) Flatten lock plate.



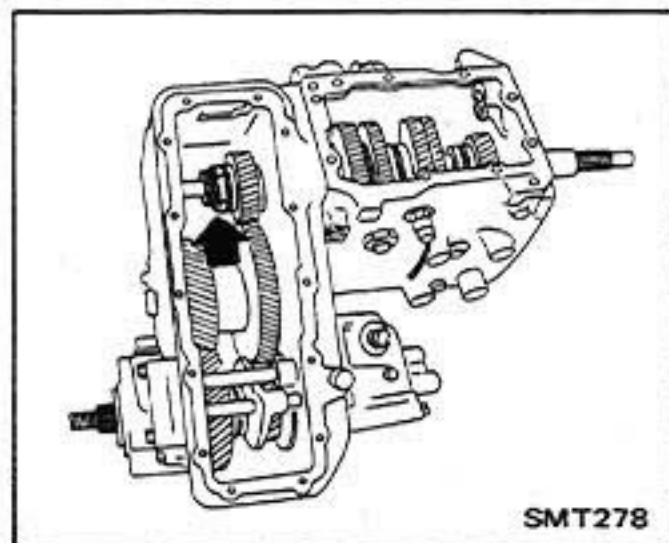
(3) Remove transfer case cover and lock plates.



(4) Remove cotter pin.

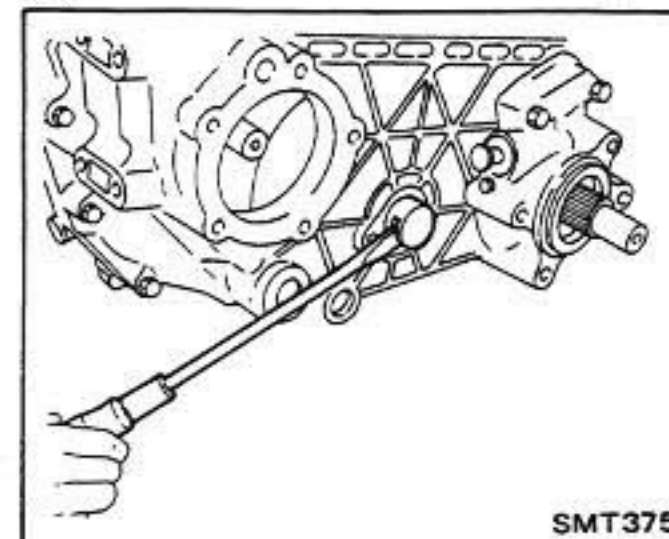
(5) Mesh second and reverse gears.

Remove mainshaft rear end lock nut with Tool KV32101600.

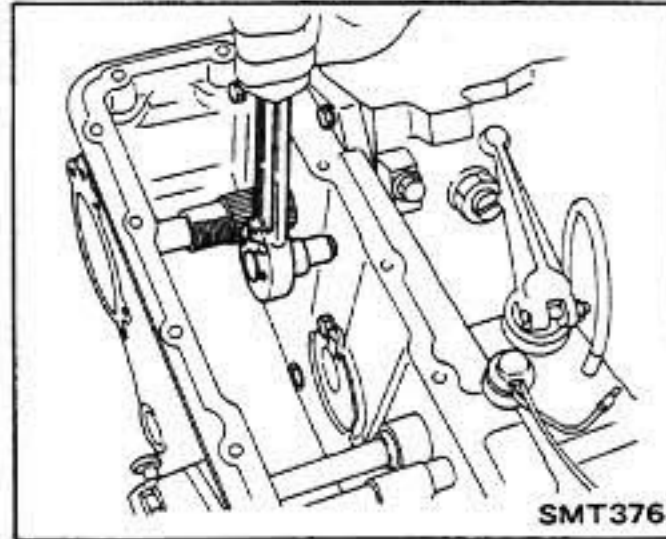


(6) Remove transfer main gear and spacer.

(7) Remove transfer counter gear.

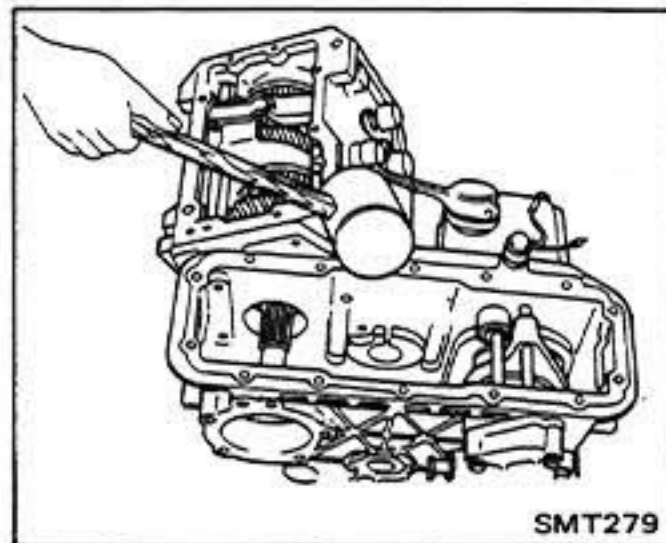


(8) Remove bolts securing transfer case to transmission case.

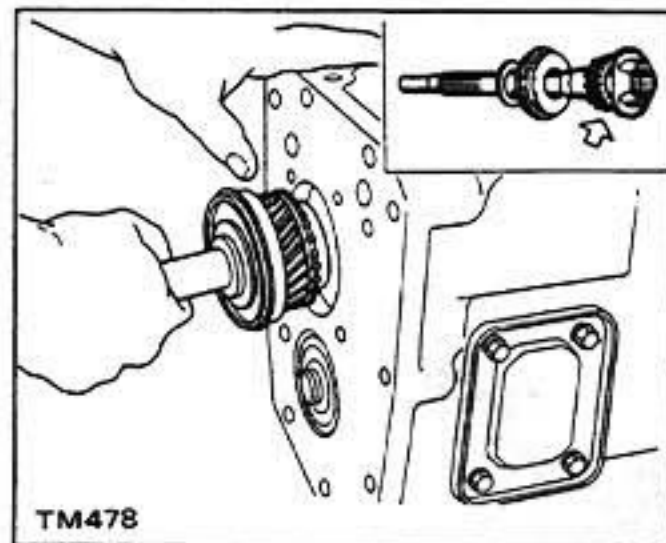


(9) Remove transfer unit from transmission case.

Be careful not to damage oil seal when removing transfer case and transmission case.



5. Remove main drive gear, main drive gear ball bearing and baulk ring, placing the cutout portion facing downward on main drive gear.



6. Remove forks and fork rods.

Refer to Forks and Fork Rods for disassembly.

7. Remove bearing retainer.

Refer to Main Drive Gear in Gears And Shafts for disassembly.

8. Remove countershaft and mainshaft.

Refer to Counter Gear in Gears and Shafts for disassembly.

9. Remove reverse idler gear.

Refer to Reverse Idler Gear in Gears And Shafts for disassembly.

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 or projections.

ASSEMBLY

1. Clean mating surfaces of transmission case and clutch housing.
2. Install reverse idler gear and shaft, thrust washers and needle bearings.

Refer to Transmission Case for assembly.

3. Install counter gear and mainshaft.

Refer to Counter Gear and Mainshaft in Gears and Shafts for assembly.

4. Install bearing retainer.

Refer to Counter Gear and Mainshaft in Gears and Shafts for assembly.

5. Install forks and fork rods.

Refer to Forks and Fork Rods for assembly.

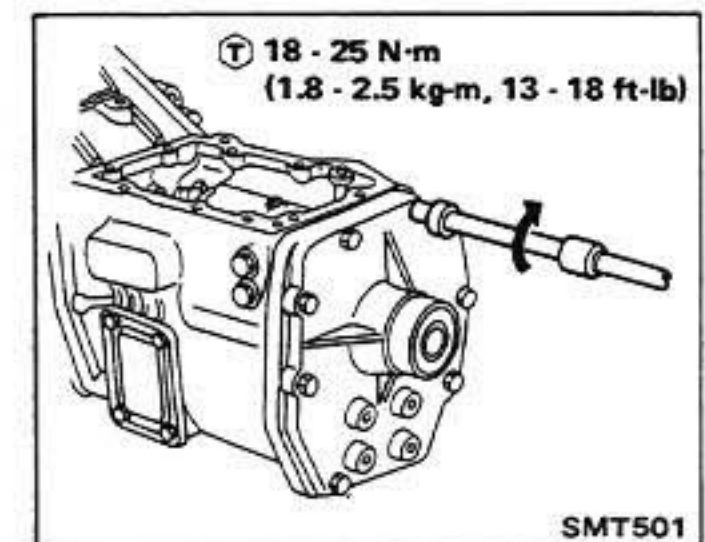
6. Install main drive gear and pilot bearing.

Refer to Main Drive Gear for assembly.

7.

With T100L transfer

Install rear extension and new gasket to transmission case.

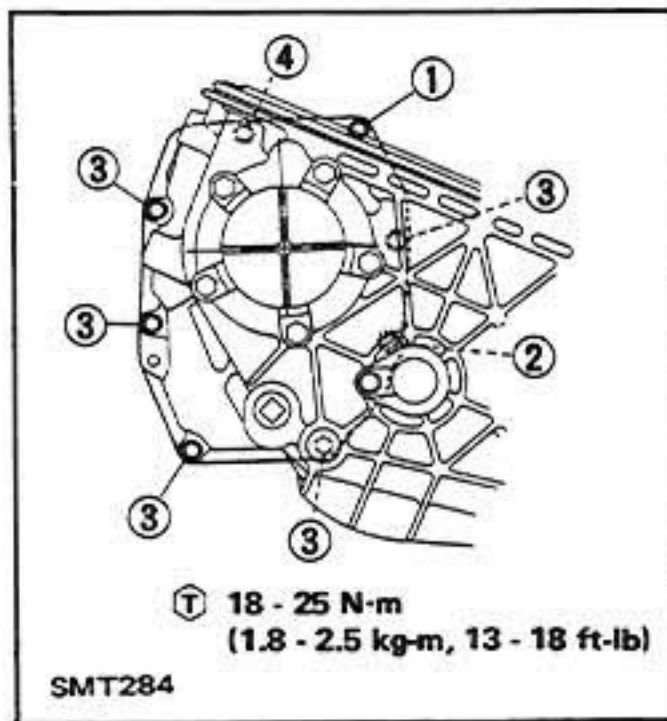


With T130A transfer

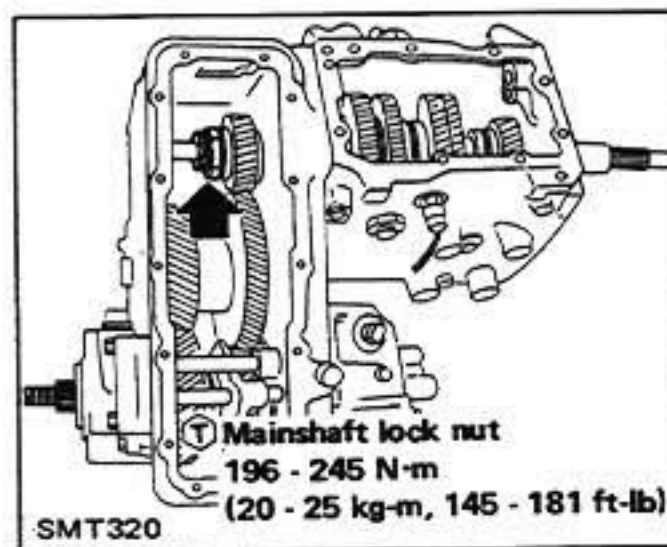
(1) Install transfer unit and new gasket to transmission case.

Be careful when installing bolts as they differ in length according to their installing position.

- ① 30 mm (1.18 in) Apply sealant to threads of bolt.
- ② 50 mm (1.97 in) Apply sealant to threads of bolt.
- ③ 50 mm (1.97 in)
- ④ 65 mm (2.56 in)



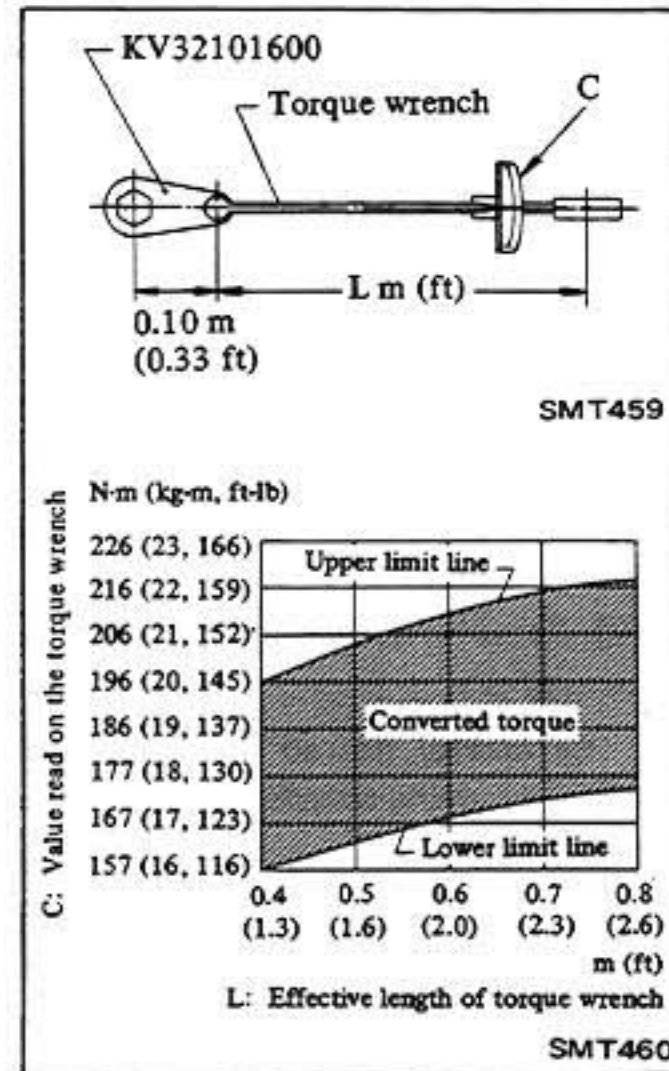
- (2) Install spacer, transfer main gear and mainshaft lock nut.
- (3) Mesh to 2nd and reverse gear, then tighten mainshaft lock nut to specified torque.



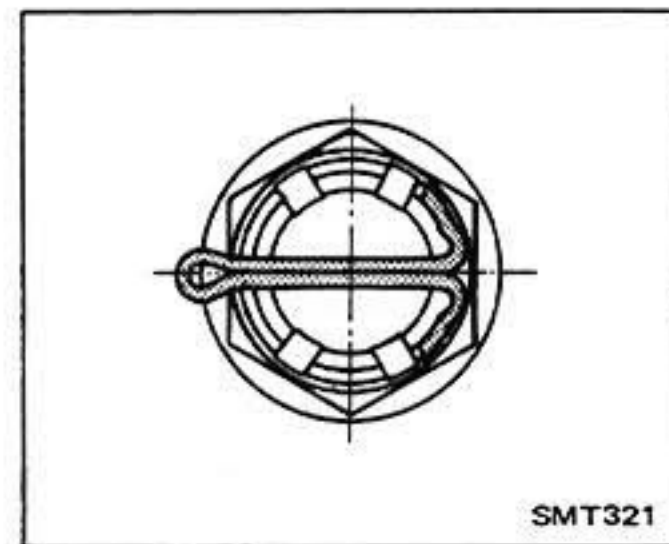
Conversion of torque

Mainshaft nut should be tightened to specified torque with Tool KV32101600. When doing so, the amount of torque to be read on wrench needle should be modified according to the following chart.

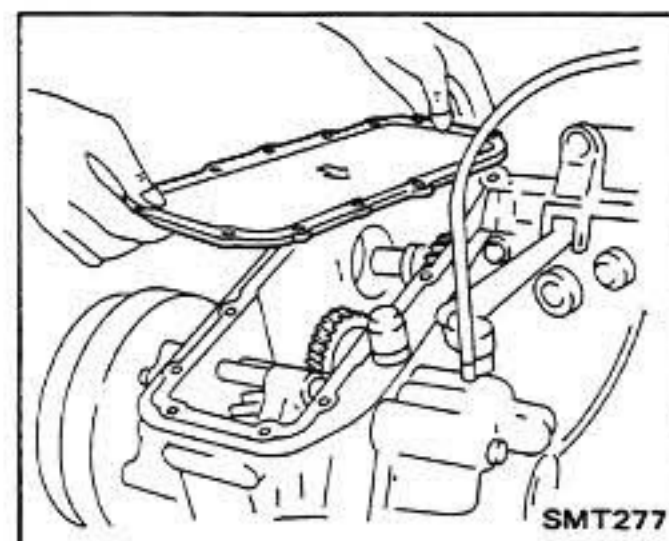
Ⓣ : 196 - 245 N·m
(20 - 25 kg-m,
145 - 181 ft-lb)



(4) Install cotter pin and bend it.

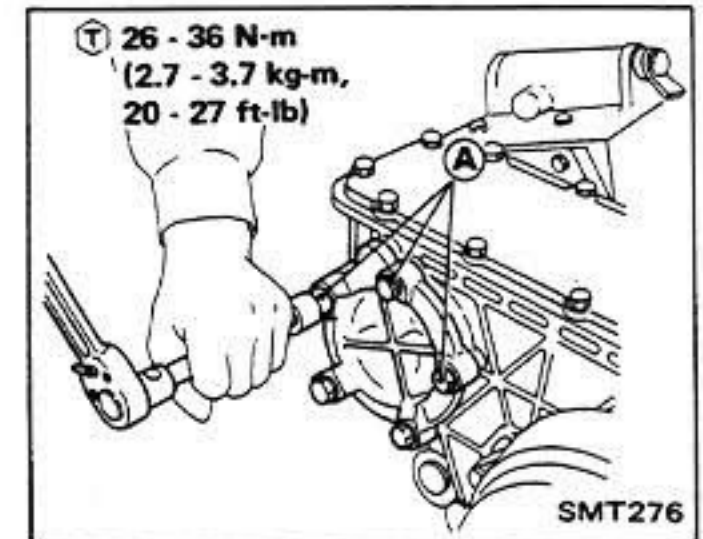


(5) Install transfer case cover, gasket and lock plates.

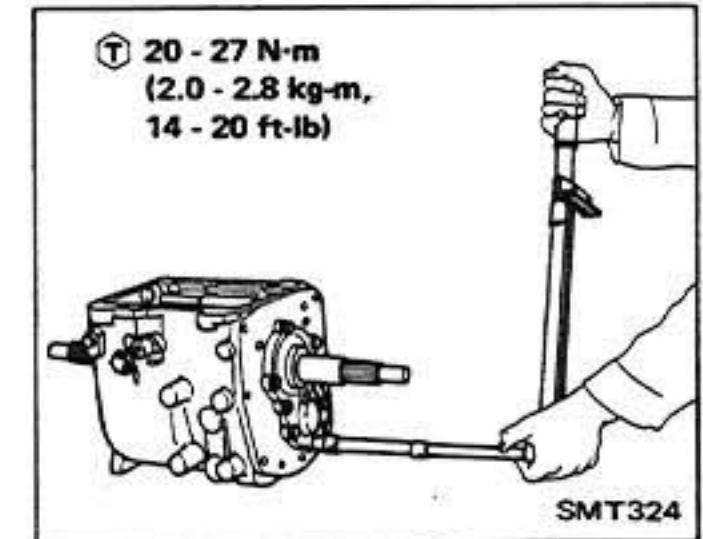


(6) Install mainshaft cover and needle bearing.

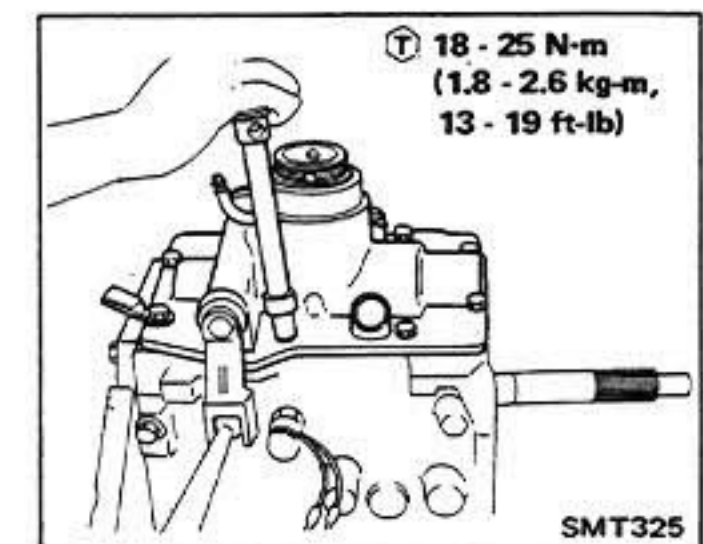
Ⓐ : Apply sealant to threads of bolts.



8. Install front cover and new gasket.



9. Install gear shift housing.



10. Apply sealant to threads of drain plug.

11. Install drain plug.

Ⓣ : 25 - 34 N·m
(2.5 - 3.5 kg-m,
18 - 25 ft-lb)

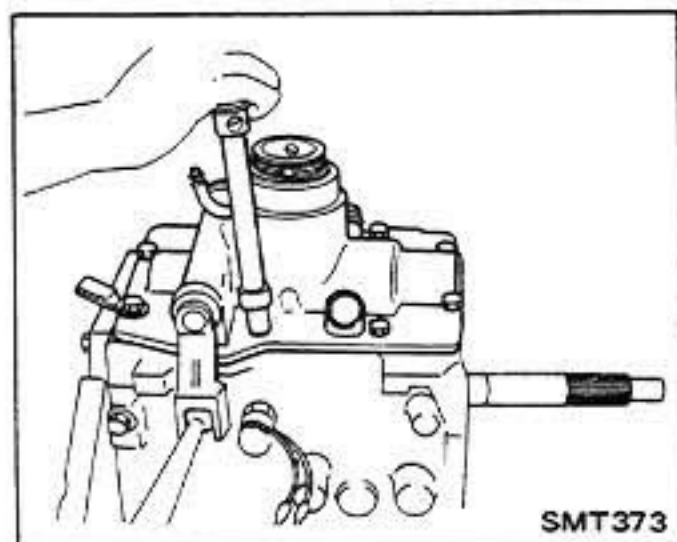
12. Install clutch housing.

Refer to Clutch Housing for assembly.

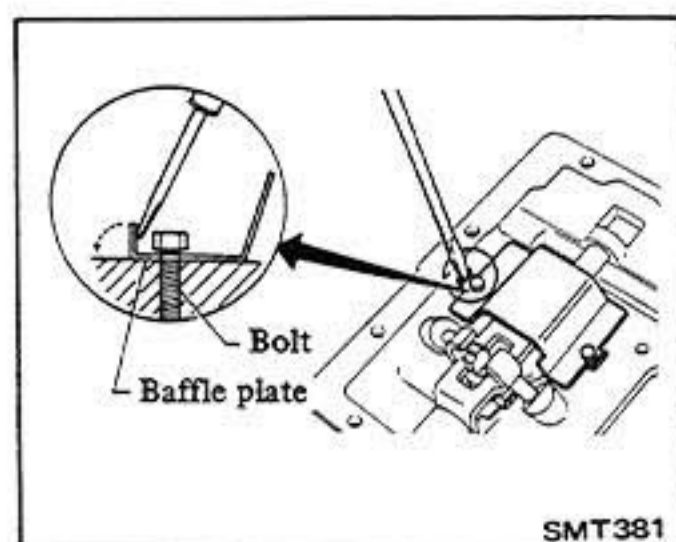
GEAR SHIFT HOUSING

DISASSEMBLY

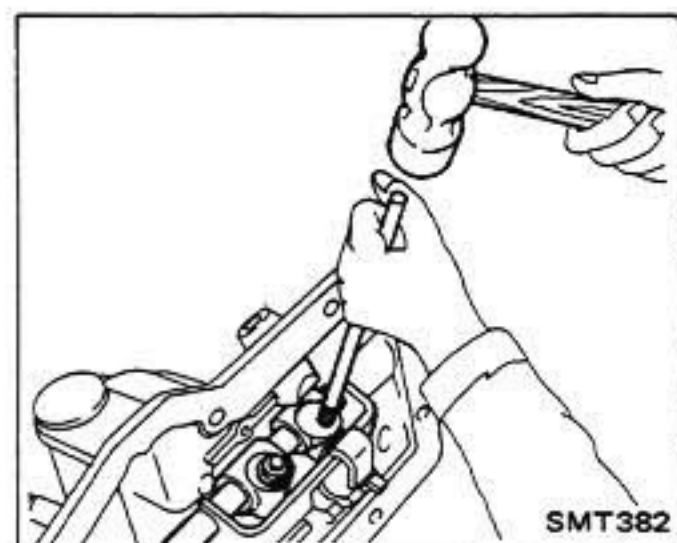
1. Remove gear shift housing from transmission case.



2. Remove return springs and detent pins.
3. Flatten baffle plate.



4. Remove baffle plate.
5. Remove expansion plug.
6. Slide shifter spindle by tapping shifter.
7. Remove lever pin nuts.
8. Remove lever pins by tapping them.



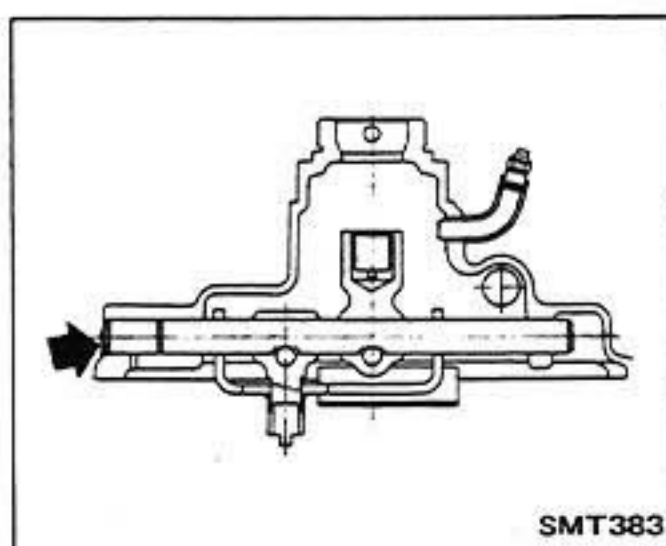
9. Remove shifters, shifter spindle and rocker arm.

INSPECTION

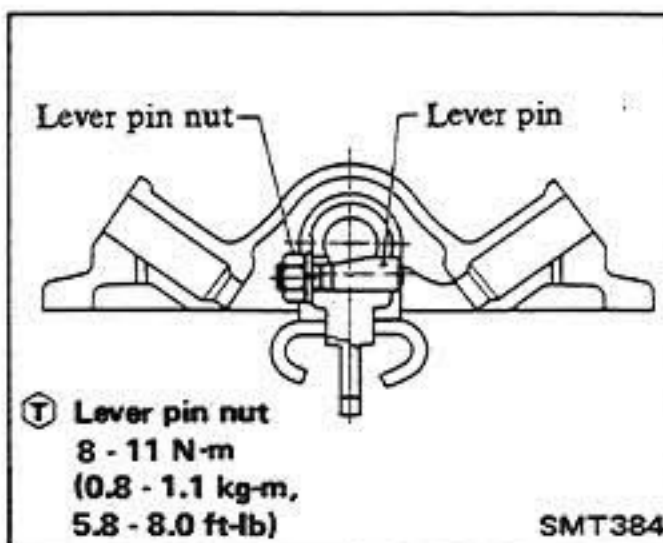
1. Clean with solvent and check for cracks or pits.
2. Check mating surface of gear shift housing for small nicks or projections.

ASSEMBLY

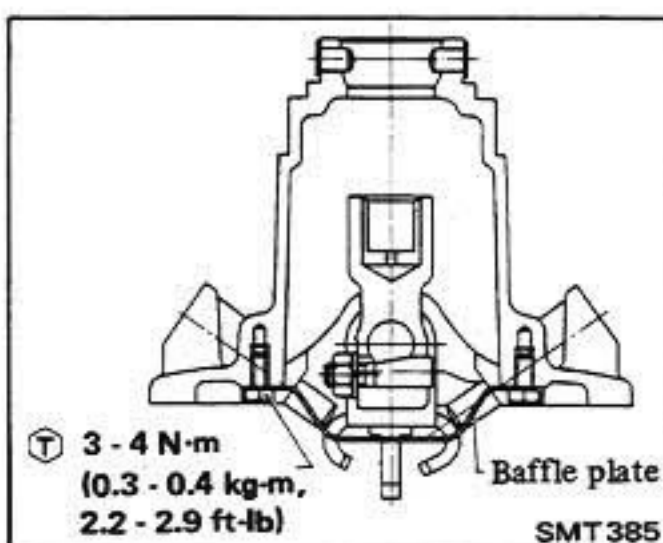
1. Install shifter spindle, rocker arm and shifters.
2. Apply sealant to expansion plug, then install it.



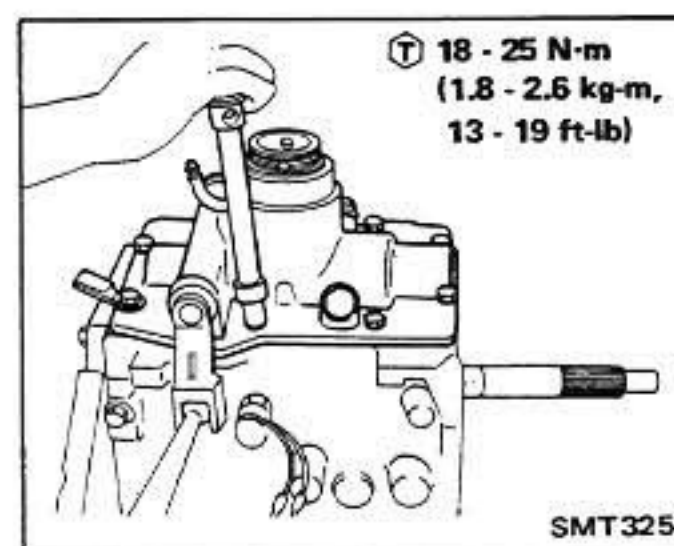
3. Install lever pins and nuts.



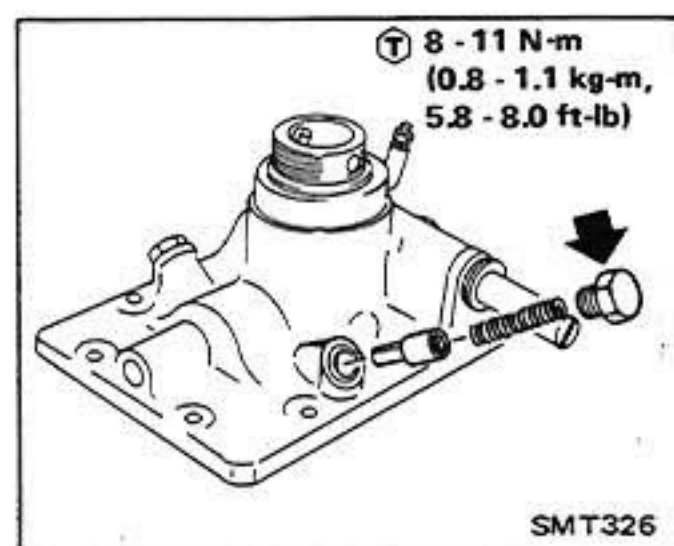
4. Install baffle plate.



5. Install gear shift housing to transmission case.



6. Assemble locking springs and detent pins.
7. Apply sealant to threads of plug, then tighten it.



GEARS AND SHAFTS

DISASSEMBLY

Main drive gear

1. Remove gear shift housing.
Refer to Gear Shift Housing for disassembly.
2. Measure gear end play. Refer to Gears and Shafts for inspection.
- 3.

With T100L transfer

Remove rear extension. Refer to Rear Extension for disassembly.

With T130A transfer

Remove transfer unit. Refer to Transmission Case for disassembly.

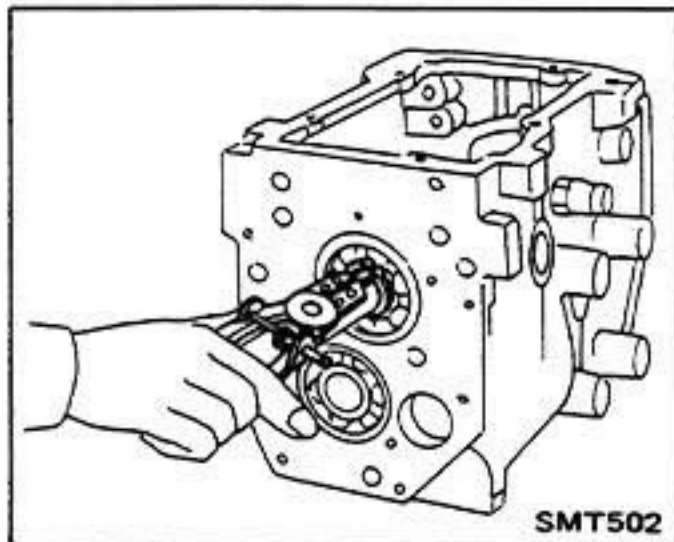
4. Remove forks and fork rods. Refer to Forks and Fork Rods for disassembly.

5. Remove front cover Refer to Transmission Case for disassembly.
6. Remove main drive gear assembly and main drive gear ball bearing. Refer to Transmission Case for disassembly.

Counter gear and reverse idler gear A and B

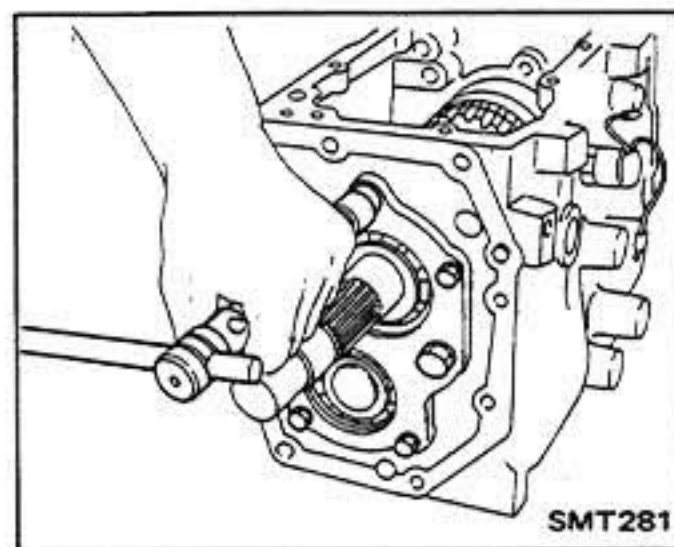
1. With T100L transfer

Remove snap ring and bearing spacer.

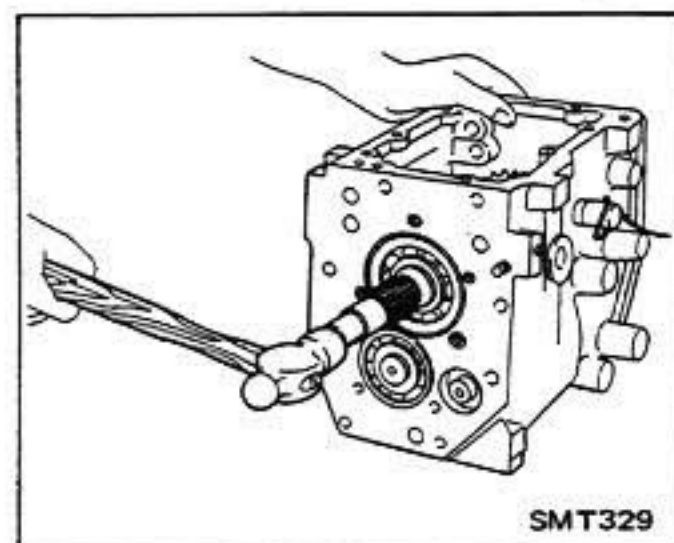


With T130A transfer

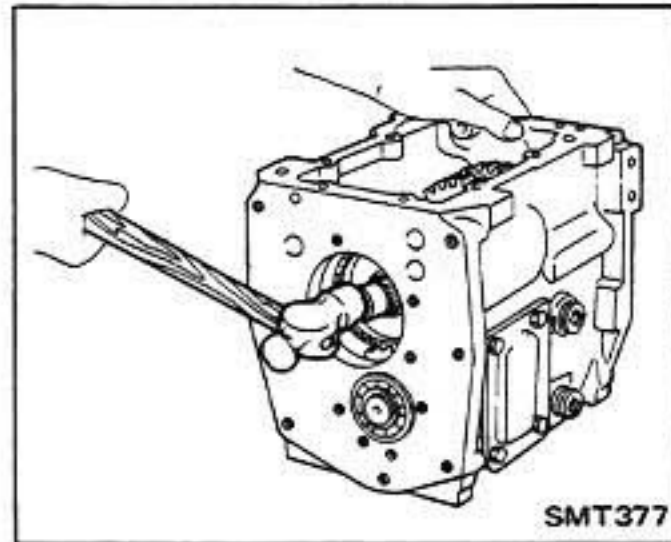
Remove bearing retainer.



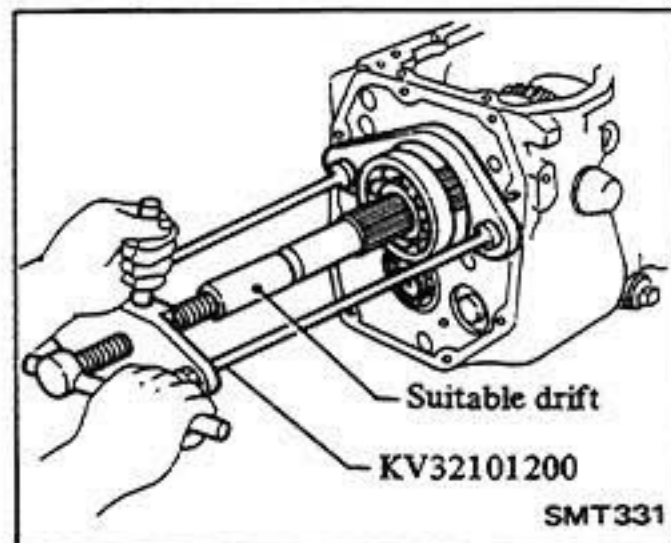
2. Tap mainshaft from rear side. When doing this, keep snap ring attached to bearing.



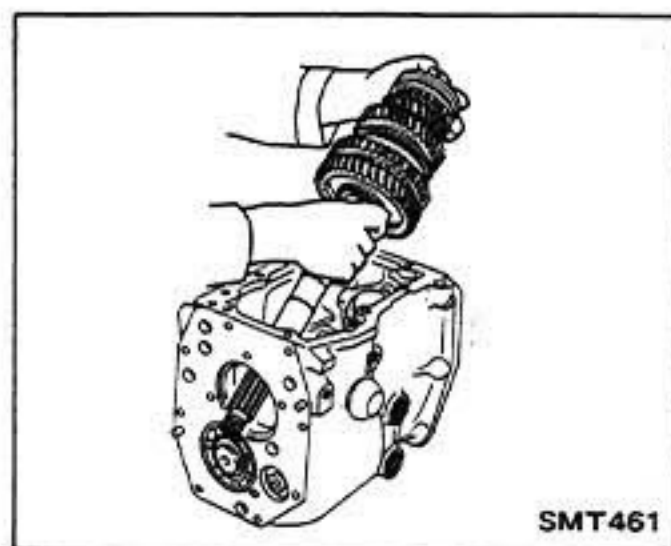
3. Then tap mainshaft and counter gear from front side evenly.



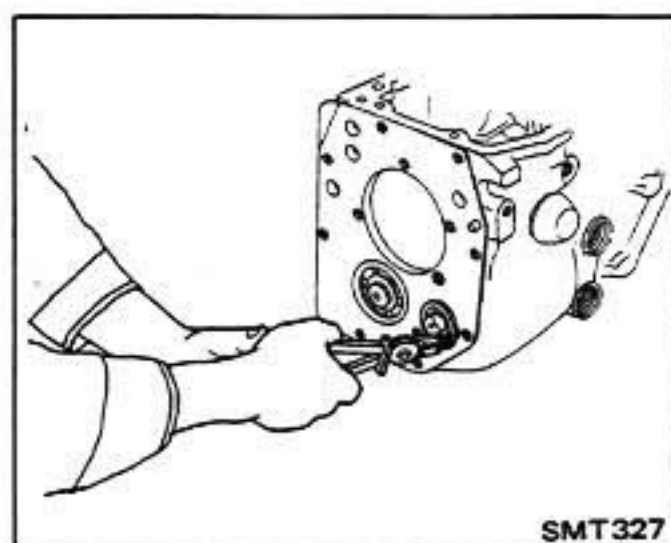
4. Remove mainshaft bearing using Tool.



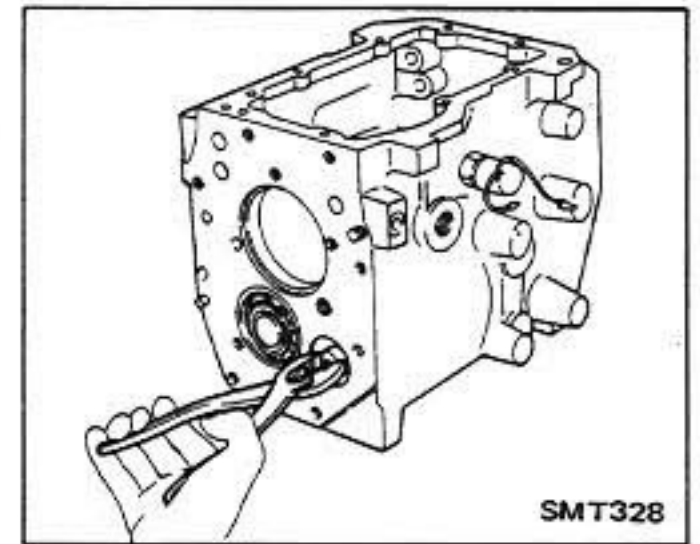
5. Take out mainshaft assembly.



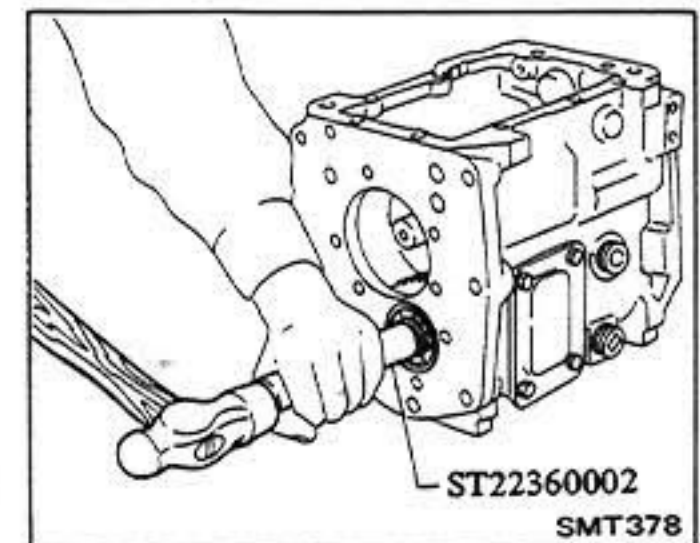
6. Remove snap ring at the rear end of reverse idler shaft.



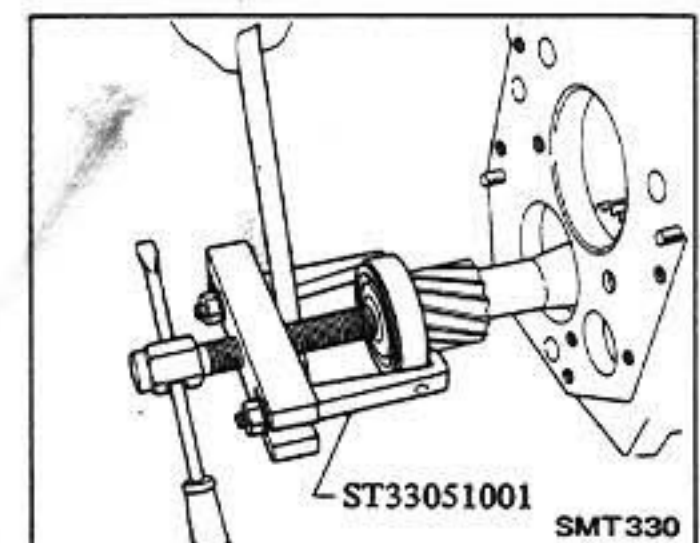
7. Remove reverse idler shaft.



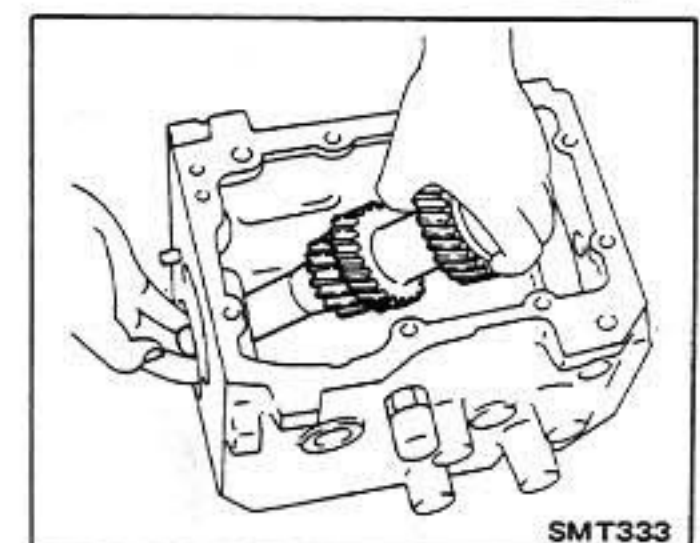
8. Remove reverse idler gear A and B, needle bearings and thrust washers.
9. Tap countershaft from front side.



10. Remove countershaft rear bearing.

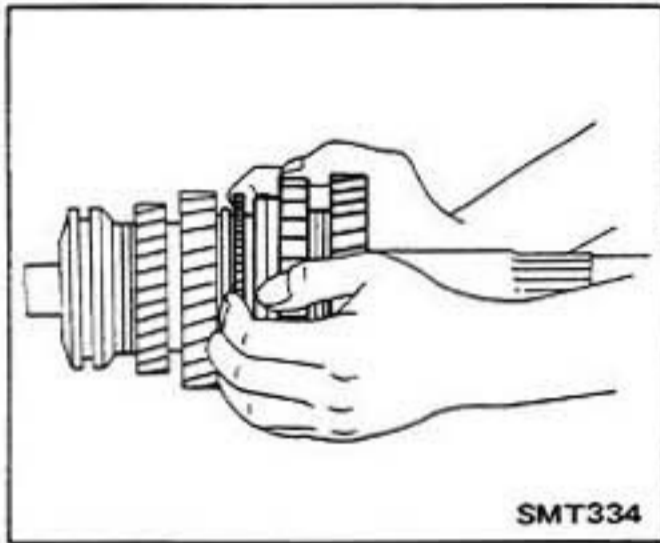


11. Take out countershaft assembly.



1st and 2nd main gear and reverse main gear

1. Remove mainshaft spacer and steel ball, and then remove 1st & 2nd synchronizer hub and reverse main gear together with 1st main gear, needle bearing and 1st gear bushing.



Be careful not to lose steel ball retaining mainshaft spacer.

2. Remove 2nd gear and needle bearing.

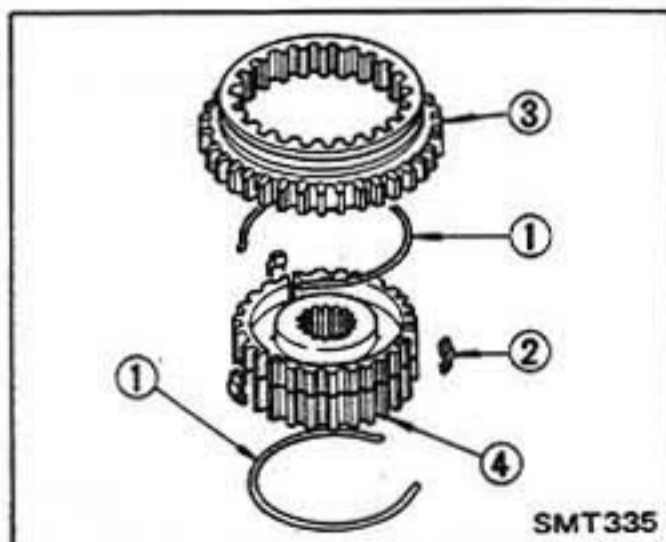
3rd main gear

1. Remove snap ring.
2. Draw out 3rd & 4th synchronizer, 3rd gear and needle bearing.

Synchronizer

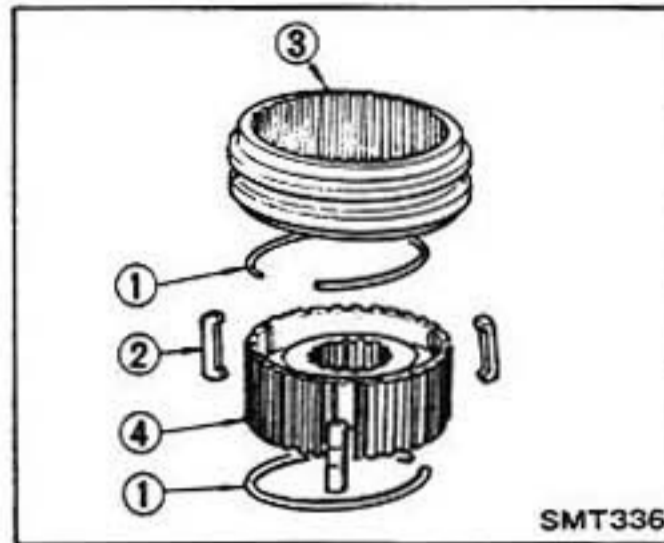
Disassemble synchronizer.

(1st & 2nd)



- | | |
|-------------------|---------------------------------------|
| 1 Spread spring | 3 Reverse main gear (Coupling sleeve) |
| 2 Shifting insert | 4 Synchronizer hub |

(3rd & 4th)



- | | |
|-------------------|--------------------|
| 1 Spread spring | 3 Coupling sleeve |
| 2 Shifting insert | 4 Synchronizer hub |

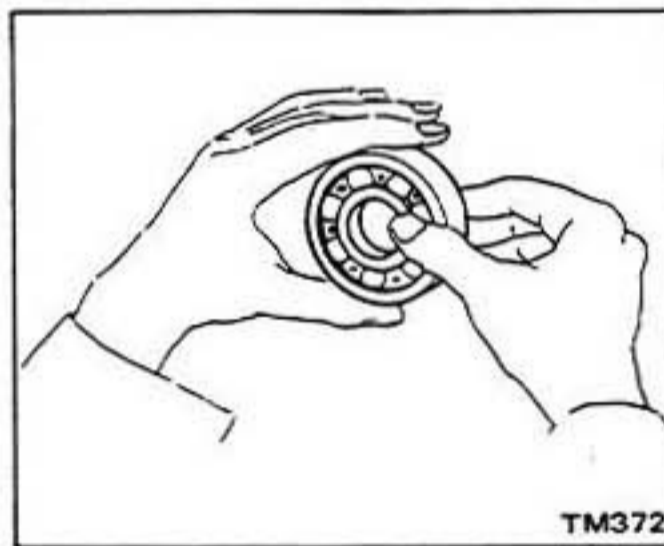
INSPECTION

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.

Gears and shafts

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

2. Check shaft for bending, crack, wear, and worn spline; if necessary, replace.

3. Measure gear end play.

It is necessary to measure end play before disassembling mainshaft and after reassembling it.

With T100L transfer

- Select mainshaft snap ring and measure end play to insure that it is within specified limit.

Mainshaft snap ring:
Refer to S.D.S.

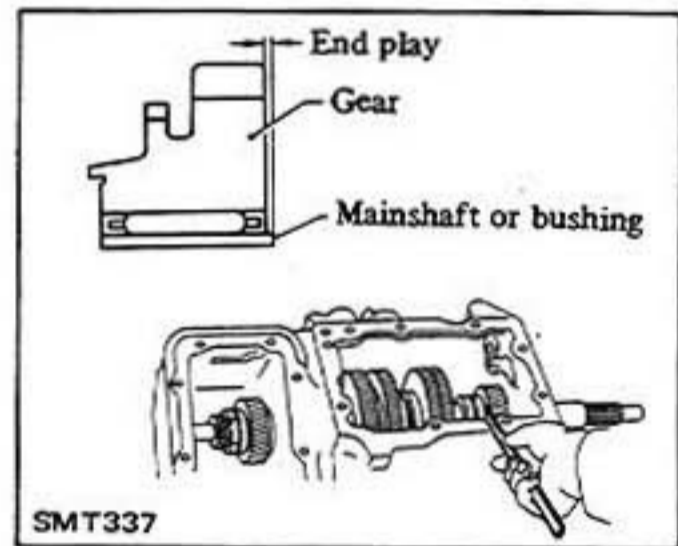
With T130A transfer

- Tighten mainshaft lock nut to specified limit and measure end play to insure that it is within specified limit.

Ⓣ : Mainshaft lock nut:
196 - 245 N·m
(20 - 25 kg·m,
145 - 181 ft·lb)

With T100L or T130A transfer

- If end play is not within specified limit, disassemble and check parts for condition.
- Replace any part which is worn or damaged.

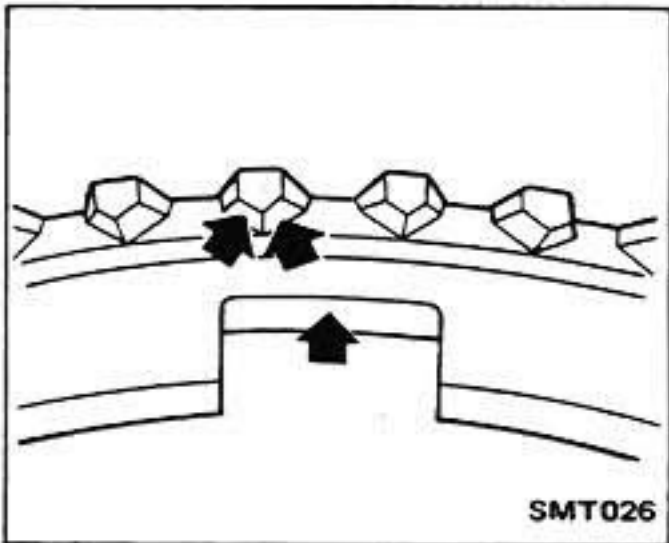


Standard end play:

- 1st gear
0.15 - 0.30 mm
(0.0059 - 0.0118 in)
- 2nd gear
0.20 - 0.36 mm
(0.0079 - 0.0142 in)
- 3rd gear
0.10 - 0.26 mm
(0.0039 - 0.0102 in)
- Reverse idler gear A
0.05 - 0.45 mm
(0.0020 - 0.0177 in)
- Reverse idler gear B
0 - 0.50 mm
(0 - 0.0197 in)

Baulk ring

1. Replace baulk ring if found to be deformed, cracked or otherwise damaged excessively.



2. Place baulk ring in position on gear cone.

While holding baulk ring against gear as far as it will go, measure gap between baulk ring and outer gear.

If the clearance is smaller than wear limit, discard baulk ring.

Baulk ring to gear clearance:

Standard

1st & 2nd

1.25 - 1.80 mm

(0.0492 - 0.0709 in)

3rd & 4th

0.90 - 1.80 mm

(0.0354 - 0.0709 in)

Wear limit

1st & 2nd

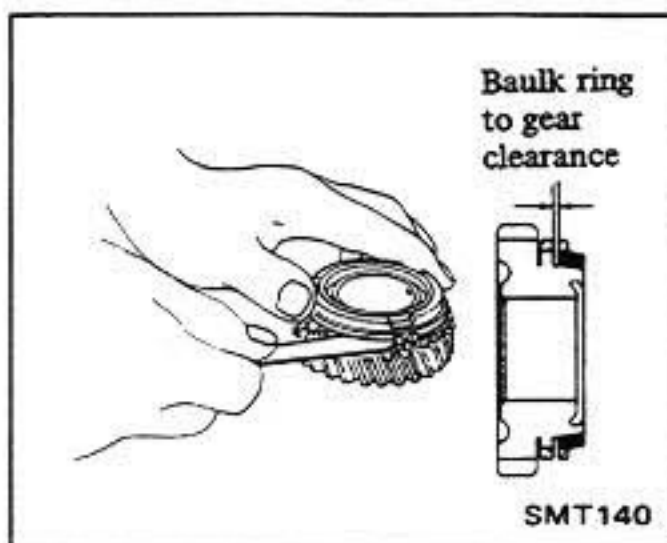
Less than

0.8 mm (0.031 in)

3rd & 4th

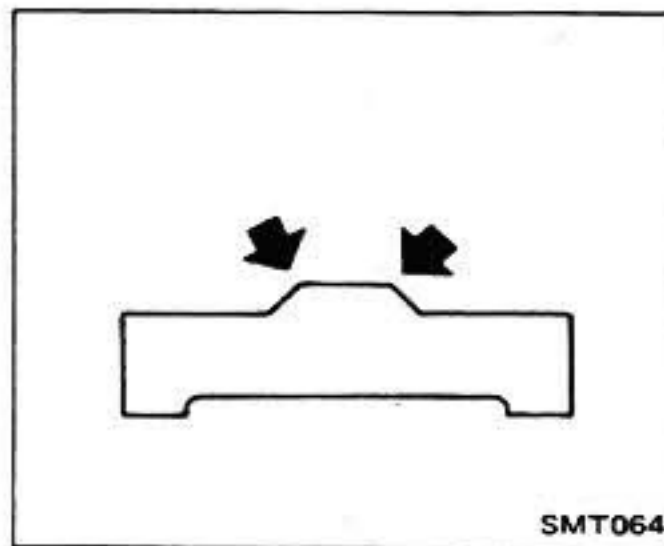
Less than

0.5 mm (0.020 in)



Shifting insert

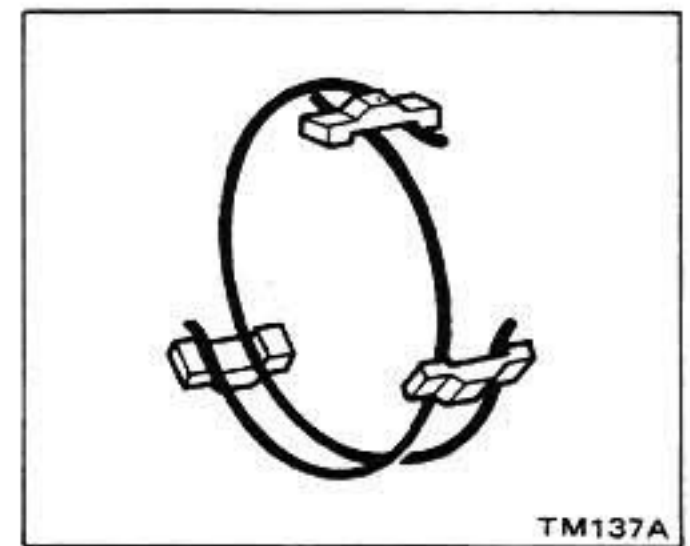
Replace, if worn excessively, worn unevenly, deformed, or damaged.



Oil seals

1. Replace oil seal if sealing lip is deformed or cracked. Also discard oil seal if spring is out of position. Refer to Replacement of Oil Seals.

2. Check the oil seal lip contacting with shaft; if necessary replace oil seal and shaft as a set.



ASSEMBLY

Synchronizer

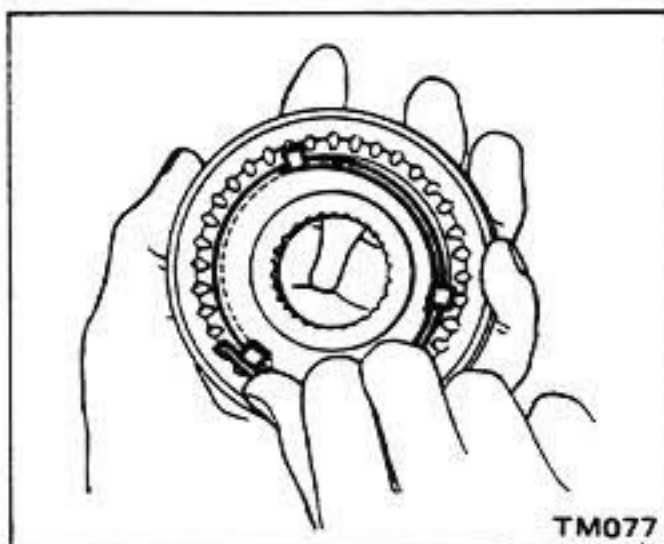
1. Place synchro-hub into coupling sleeve.

Be sure that hub and sleeve operates smoothly and correctly by hand.

2. Fit shifting insert in three (3) grooves in synchro-hub.

3. Install spread spring to inserts so that insert is securely attached to inner side of coupling sleeve.

Install the other spread spring on the opposite side of synchro-hub.

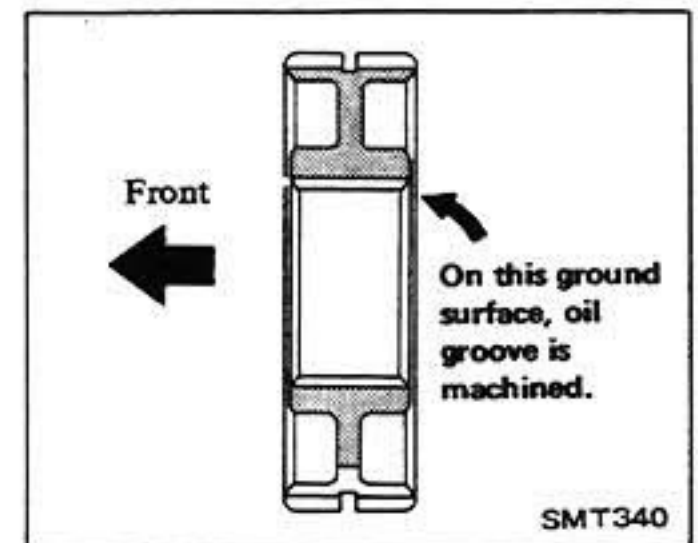


Be careful not to hook front and rear ends of spread spring to the same insert.

3rd main gear

1. Assemble 3rd & 4th synchronizer, needle bearing and 3rd gear.

Assemble 3rd & 4th synchronizer, paying attention to its direction.

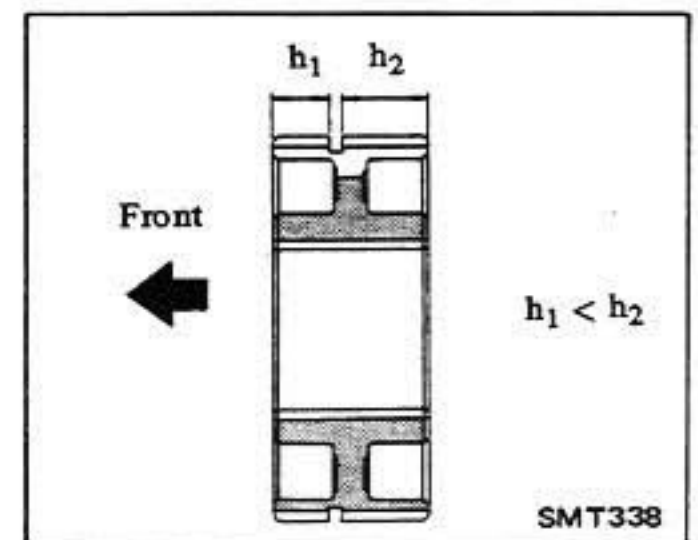


2. Install snap ring.

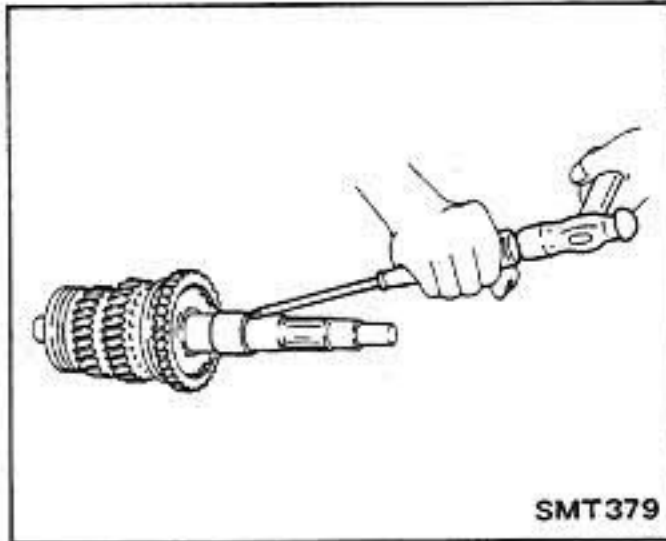
1st and 2nd main gear and reverse main gear

1. Assemble 2nd gear needle bearing, 2nd gear, baulk ring and 1st & 2nd synchronizer assembly.

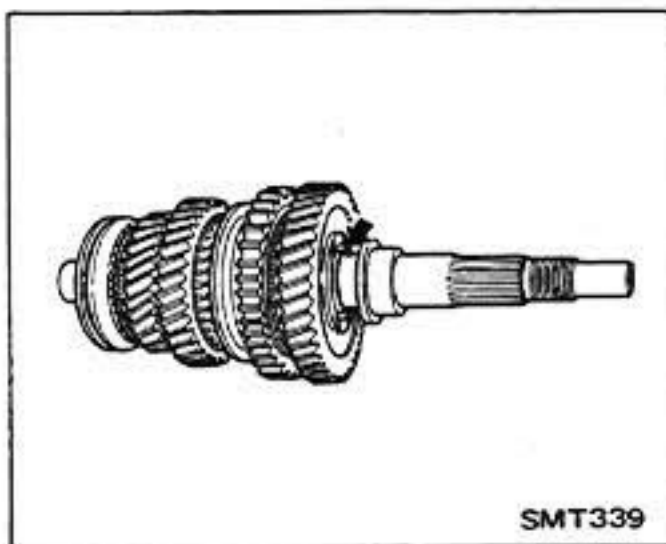
Assemble 1st & 2nd synchronizer, paying attention to its direction.



- Assemble 1st gear bushing, needle bearing, 1st gear, steel ball, and mainshaft spacer on mainshaft.



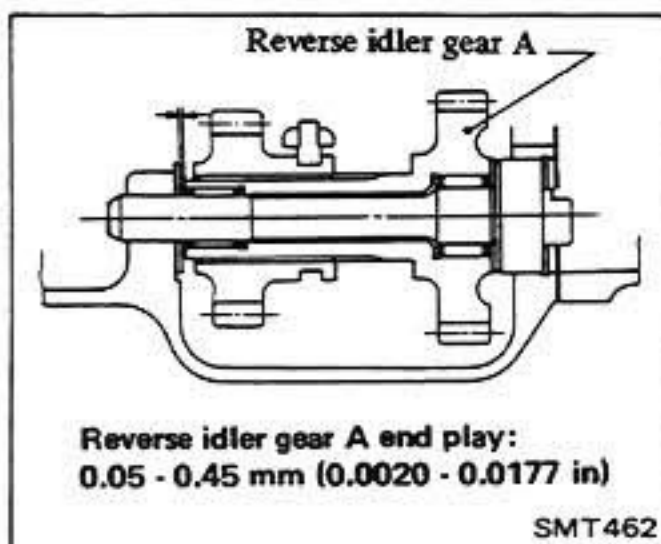
Before installing steel ball, apply grease to it.



Reverse idler gear A and B

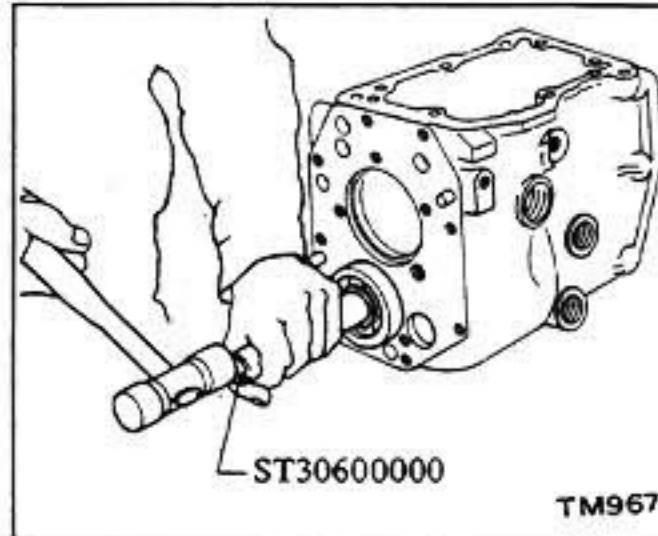
- Apply grease to thrust washers, then attach them to transmission case.
- Install reverse idler gear A and B.
- Install reverse idler shaft. Select a reverse idler shaft snap ring of suitable thickness so that end play of reverse idler gear A is within specified limit.

Reverse idler shaft snap ring:
Refer to S.D.S.



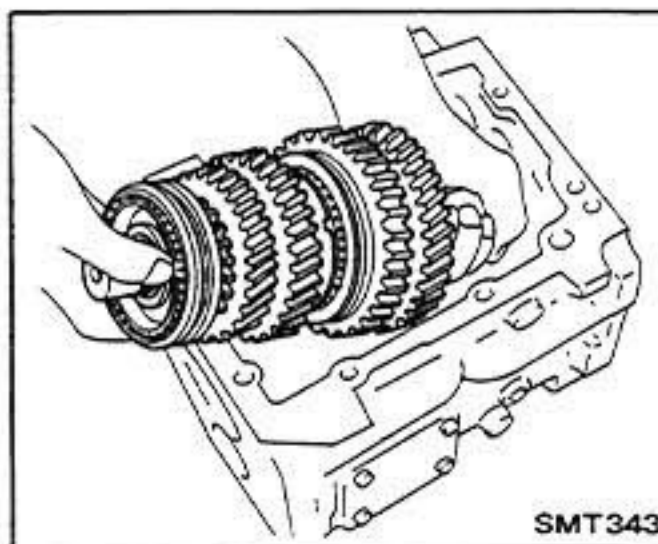
Counter gear and mainshaft

- Install countershaft together with countershaft front bearing.
- Press countershaft rear bearing.

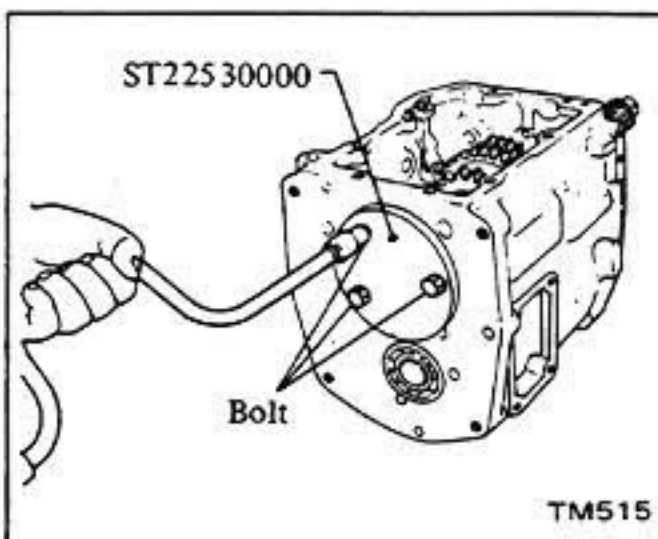


- Install mainshaft assembly.

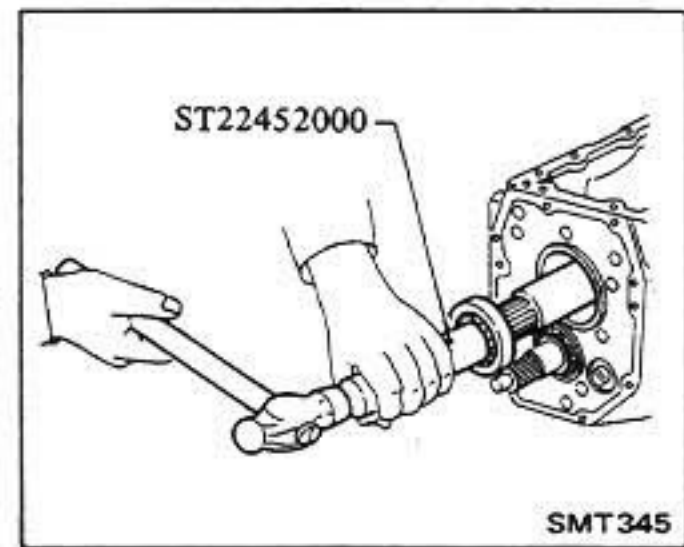
Be careful not to drop steel ball.



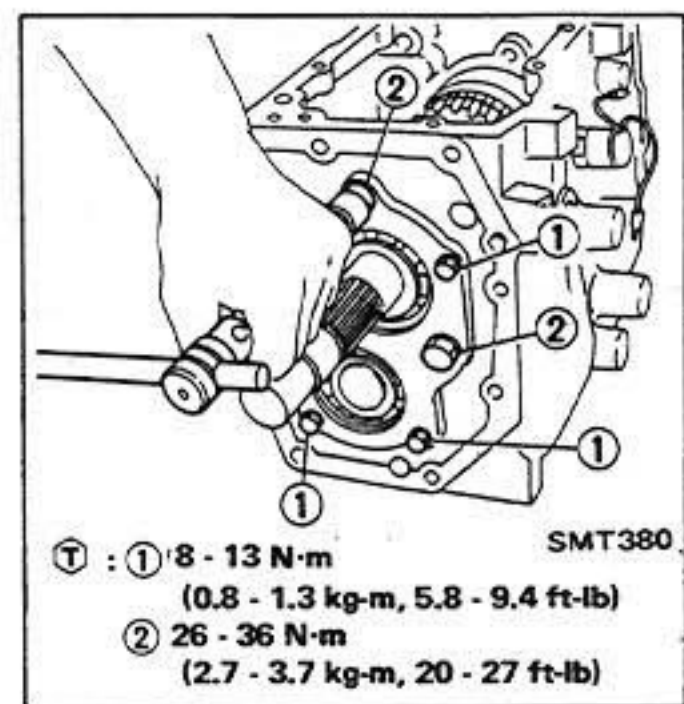
- Install Tool ST22530000 on the front side of transmission case to support the front end of mainshaft. Use front cover securing bolts.



- Press mainshaft bearing.



- Install bearing retainer.



- With T100L transfer

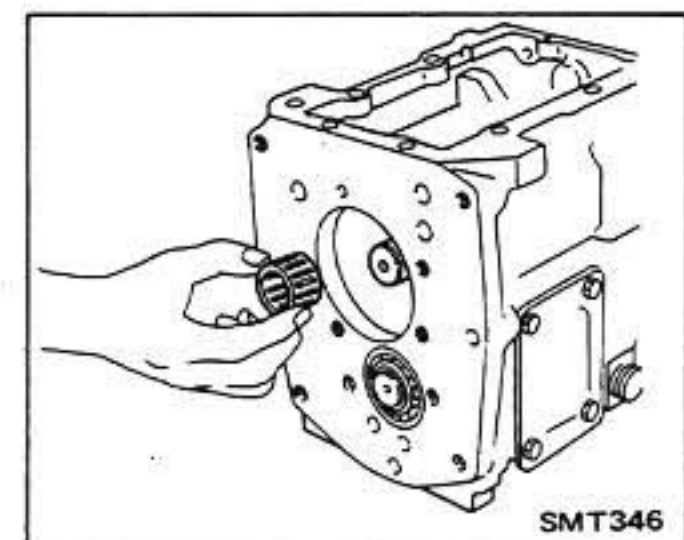
- Install bearing spacer, then select snap ring so that the play on mainshaft is minimum.

Mainshaft snap ring:
Refer to S.D.S.

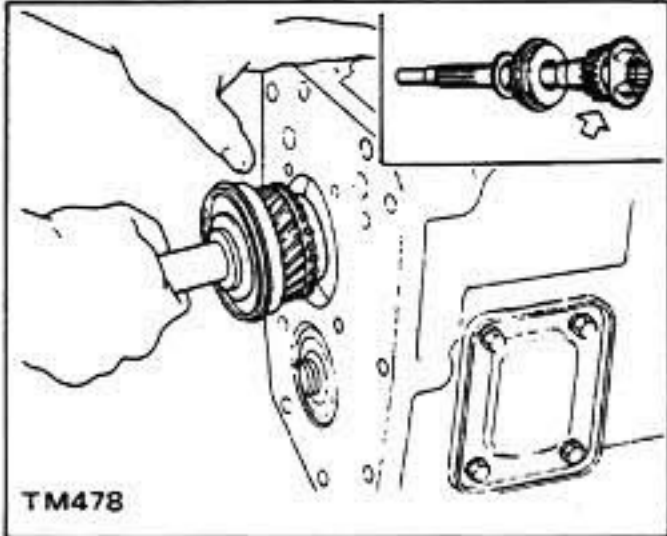
- Install bearing spacer and secure it with snap ring.

Main drive gear

- Apply gear oil to mainshaft pilot bearing and install it on mainshaft.



2. Install main drive gear assembly with baulk ring, placing the cut-out portion facing downward on main drive gear.



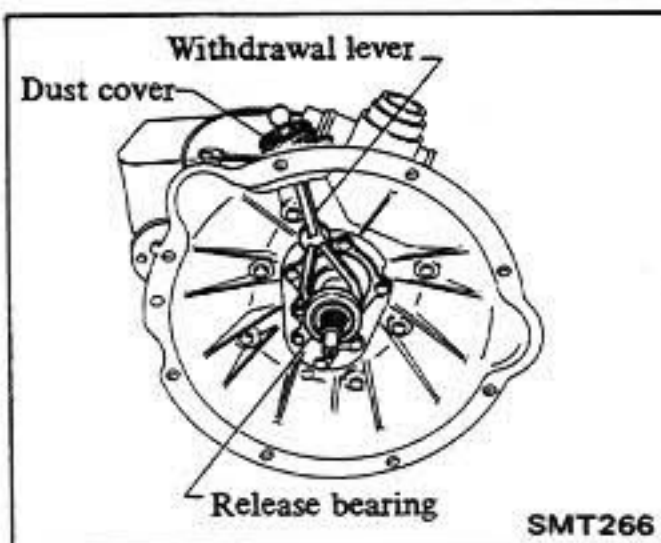
3. Install front cover. Refer to Transmission Case for assembly.
4. Install forks and fork rods. Refer to Forks and Fork Rods for assembly.
5. Install transfer unit (with T130 transfer). Refer to Transmission Case for assembly.

REPLACEMENT OF OIL SEAL

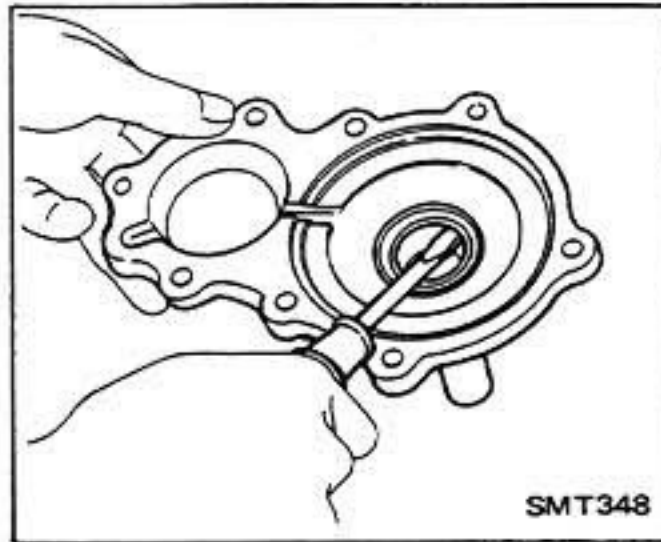
FRONT COVER OIL SEAL

It is necessary to remove transmission unit from vehicle. Replace oil seal as follows.

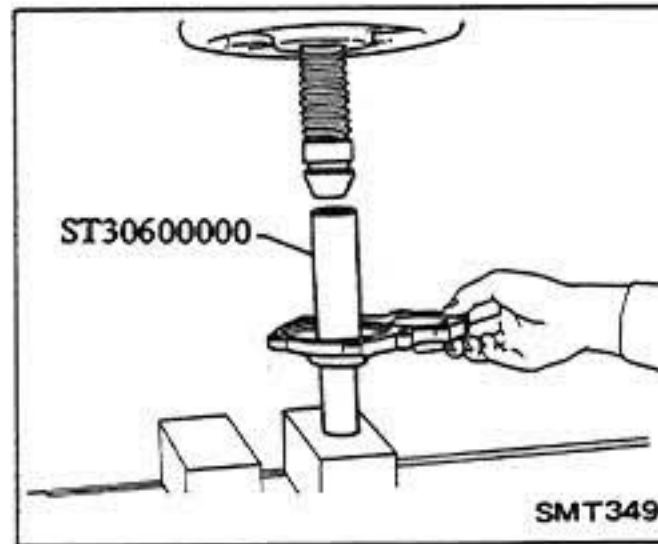
1. Remove transmission. Refer to Removal.
2. Wipe off dirt and grease.
3. Drain oil.
4. Remove dust cover, release bearing and withdrawal lever.



5. Remove front cover.
6. Remove oil seal.



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



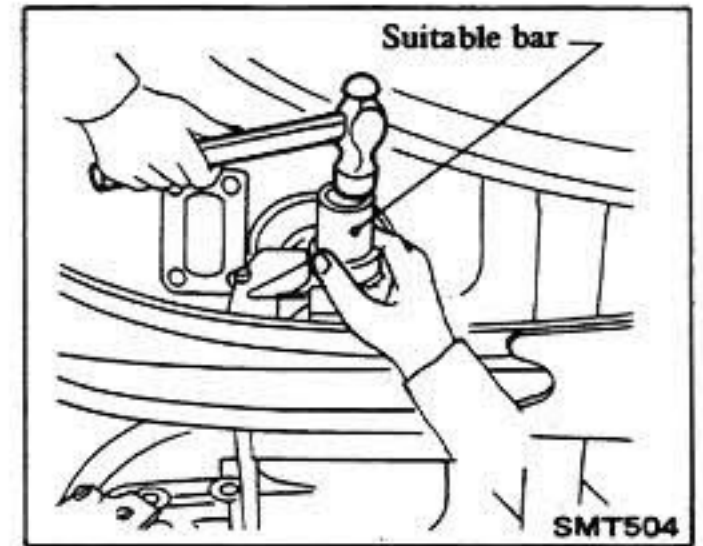
8. Lubricate seal lip and main drive shaft with gear oil.
9. Install front cover in reverse order of removal.

REAR EXTENSION OIL SEAL

(With T100L transfer)

It is necessary to remove transfer unit from vehicle. Replace oil seal as follows:

1. Remove transfer. Refer to Transfer for removal.
2. Remove primary propeller shaft. Refer to Propeller Shaft for removal.
3. Wipe off dirt and grease.
4. Remove oil seal.
5. Apply coat of gear oil to oil seal surface, then drive new seal into place.

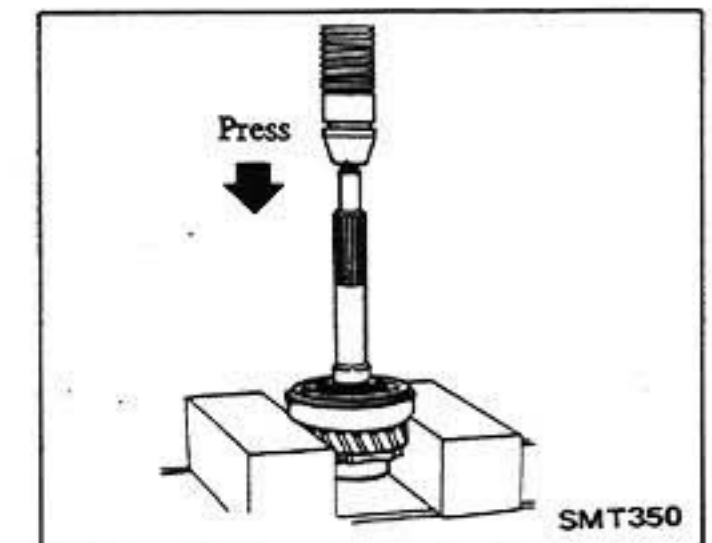


6. Lubricate seal lip and primary propeller shaft with gear oil.
7. Install transfer in reverse order of removal.

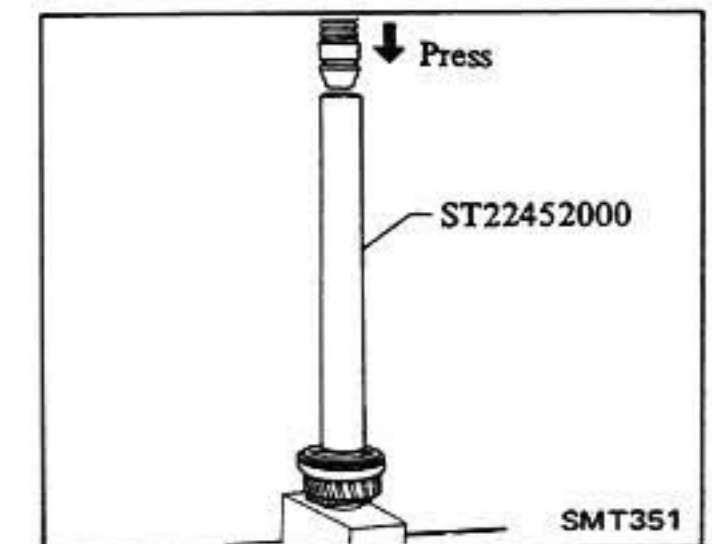
REPLACEMENT OF BEARINGS

MAIN DRIVE GEAR

1. Remove main drive gear together with main drive gear ball bearing. Refer to Gears and Shafts for disassembly.
2. Remove main drive gear snap ring and spacer.
3. Remove main drive bearing.



4. Press new main drive bearing.



5. Place main drive bearing spacer on main drive bearing and secure main drive bearing with snap ring.
6. Install main drive gear into transmission case. Refer to Main drive gear for assembly.

MAINSHAFT AND COUNTER GEAR

Rear side

1. With T100L transfer

Remove rear extension.

Refer to Transmission Case for disassembly.

With T130A transfer

Remove transfer unit from transmission case. Refer to Transmission Case for disassembly.

2. Measure gear end play.

Refer to Gear and shaft for inspection.

3. Remove forks and fork rods. Refer to Forks and Fork Rods for disassembly.

4. Remove bearing retainer.

5. Remove snap ring at the rear end of countershaft.

6. Slide counter shaft and mainshaft backward to remove countershaft rear and mainshaft bearings evenly by tapping them.

7. Remove countershaft rear bearing.

8. Remove mainshaft bearing.

9. Press new counter gear rear bearing.

10. Press new mainshaft bearing.

11. Install mainshaft and counter gear into transmission.

12. Measure gear end play.

Refer to Gear and Shaft for inspection.

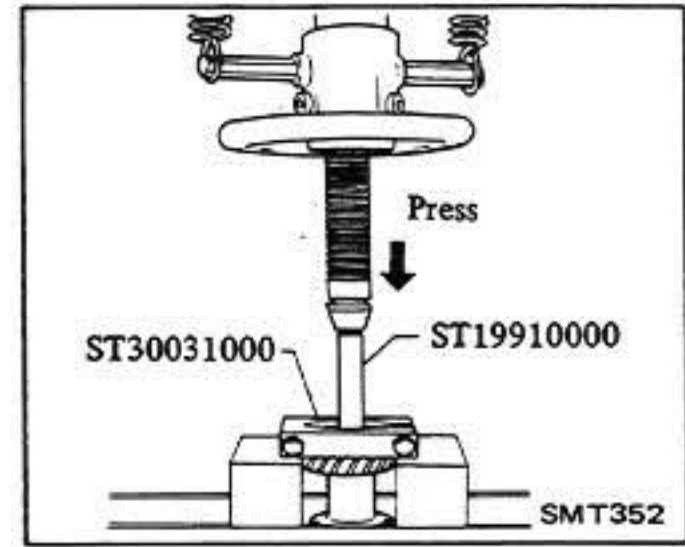
Front side

1. Remove counter gear. Refer to Counter Gear for disassembly.

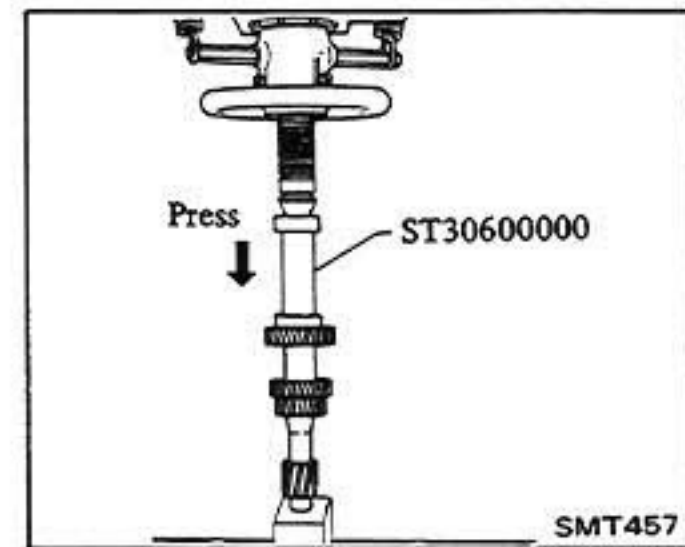
2. Press out countershaft front bearing.

CAUTION:

When pressing out bearing, hold shaft by hand so as not to drop it.



3. Press new countershaft front bearing.



4. Install counter gear into transmission.

Refer to Counter Gear and Mainshaft for assembly.

SERVICE DATA AND SPECIFICATIONS

GENERAL SPECIFICATIONS

Transmission model		F4W81A	
No. of speed		4	
Synchromesh type		Warner	
Shift type			
Gear ratio	1st	3.519	
	2nd	2.157	
	3rd	1.449	
	4th	1.000	
	Rev.	4.181	
Number of teeth	Mainshaft	Drive	27
		1st	38
		2nd	33
		3rd	30
		Rev.	33
	Countershaft	Drive	30
		1st	12
		2nd	17
		3rd	23
		Rev.	12
	Rev. idler gear	Mainshaft (*1)	19
		Countershaft (*2)	26
Oil capacity ℓ (Imp pt)		2.7 (4-3/4)	

(*1) Mesh to main reverse gear.

(*2) Mesh to counter reverse gear.

INSPECTION AND ADJUSTMENT

GEAR END PLAY

Unit: mm (in)

Model	All models
Position	
1st main gear	0.15 - 0.30 (0.0059 - 0.0118)
2nd main gear	0.20 - 0.36 (0.0079 - 0.0142)
3rd main gear	0.10 - 0.26 (0.0039 - 0.0102)
Rev. idler gear A	0.05 - 0.45 (0.0020 - 0.0177)
Rev. idler gear B	0 - 0.50 (0 - 0.0197)

CLEARANCE BETWEEN BAULK RING AND GEAR

Unit: mm (in)

Model		All models
Standard	1st & 2nd	1.25 - 1.80 (0.0492 - 0.0709)
	3rd & 4th	0.90 - 1.80 (0.0354 - 0.0709)
Wear limit	1st & 2nd	0.8 (0.031)
	3rd & 4th	0.5 (0.020)

AVAILABLE SNAP RING

Mainshaft (With T100 L transfer)

Unit: mm (in)

Thickness	Part number
2.4 (0.094)	32311 78000
2.5 (0.098)	32311 78001
2.6 (0.102)	32311 78002
2.7 (0.106)	32311 78003
2.8 (0.110)	32311 78004
2.9 (0.114)	32311 78005

Reverse idler shaft

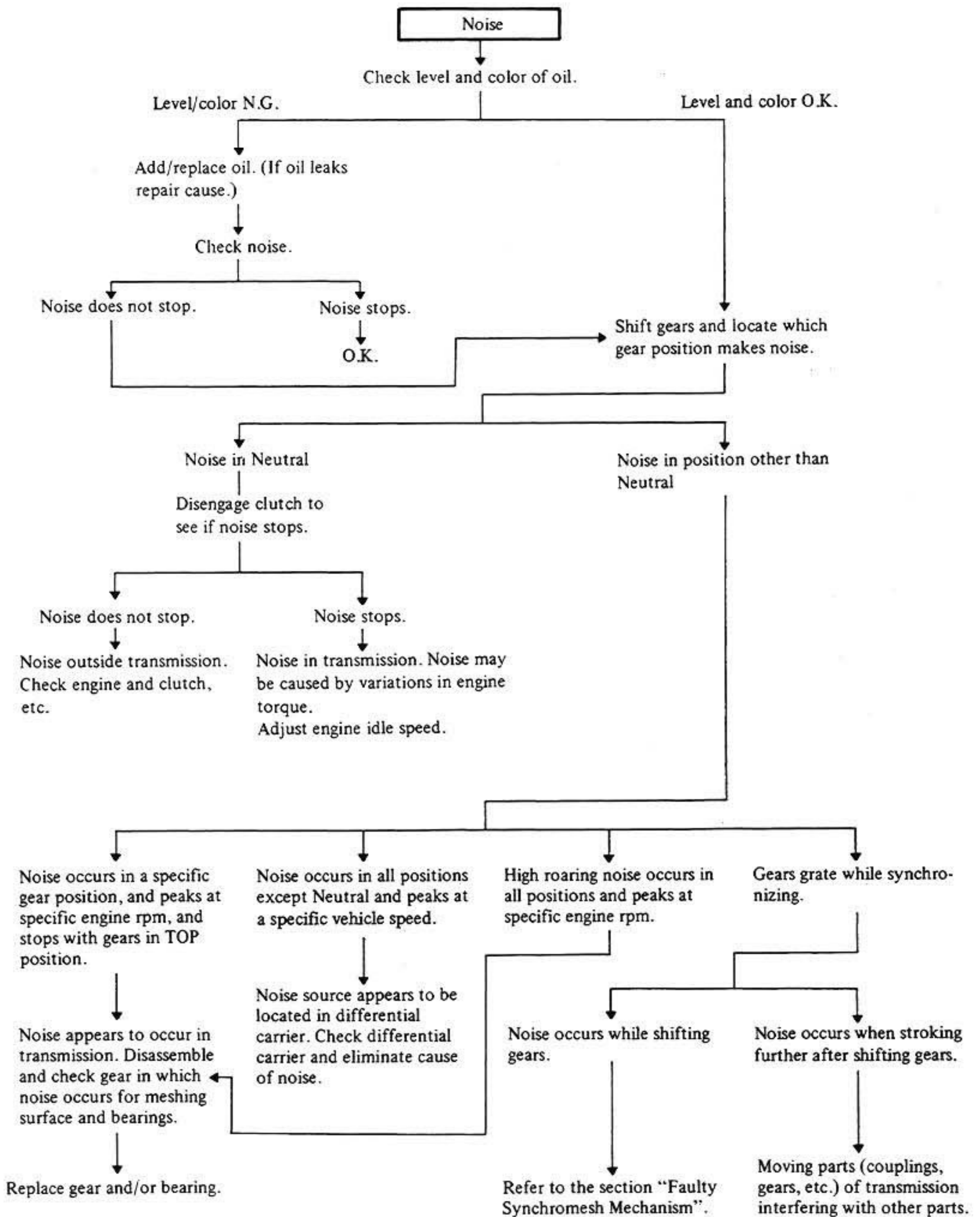
Unit: mm (in)

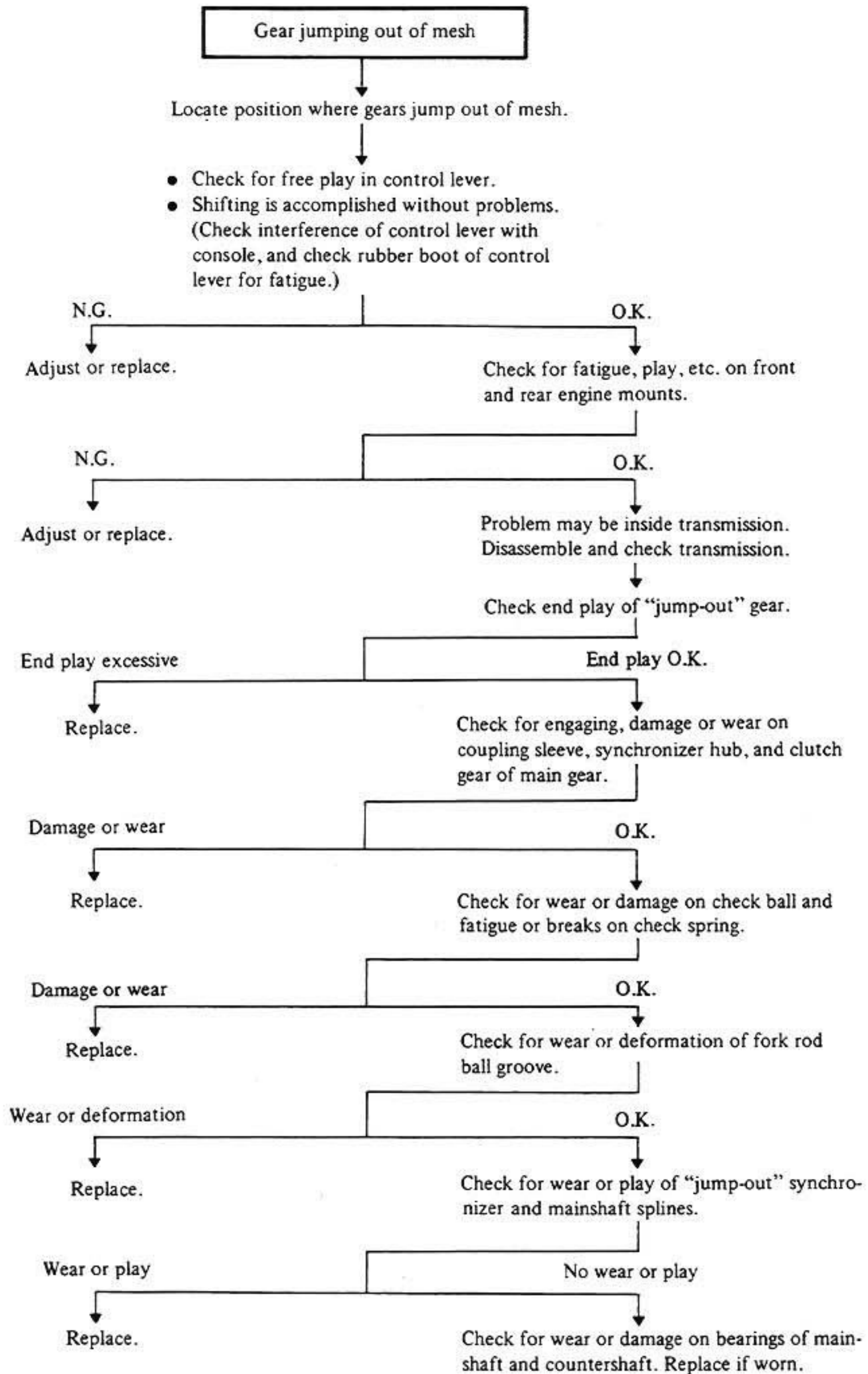
Thickness	Part number
1.55 (0.0610)	32285 86401
1.90 (0.0748)	32285 86402
1.30 (0.0512)	32285 86403

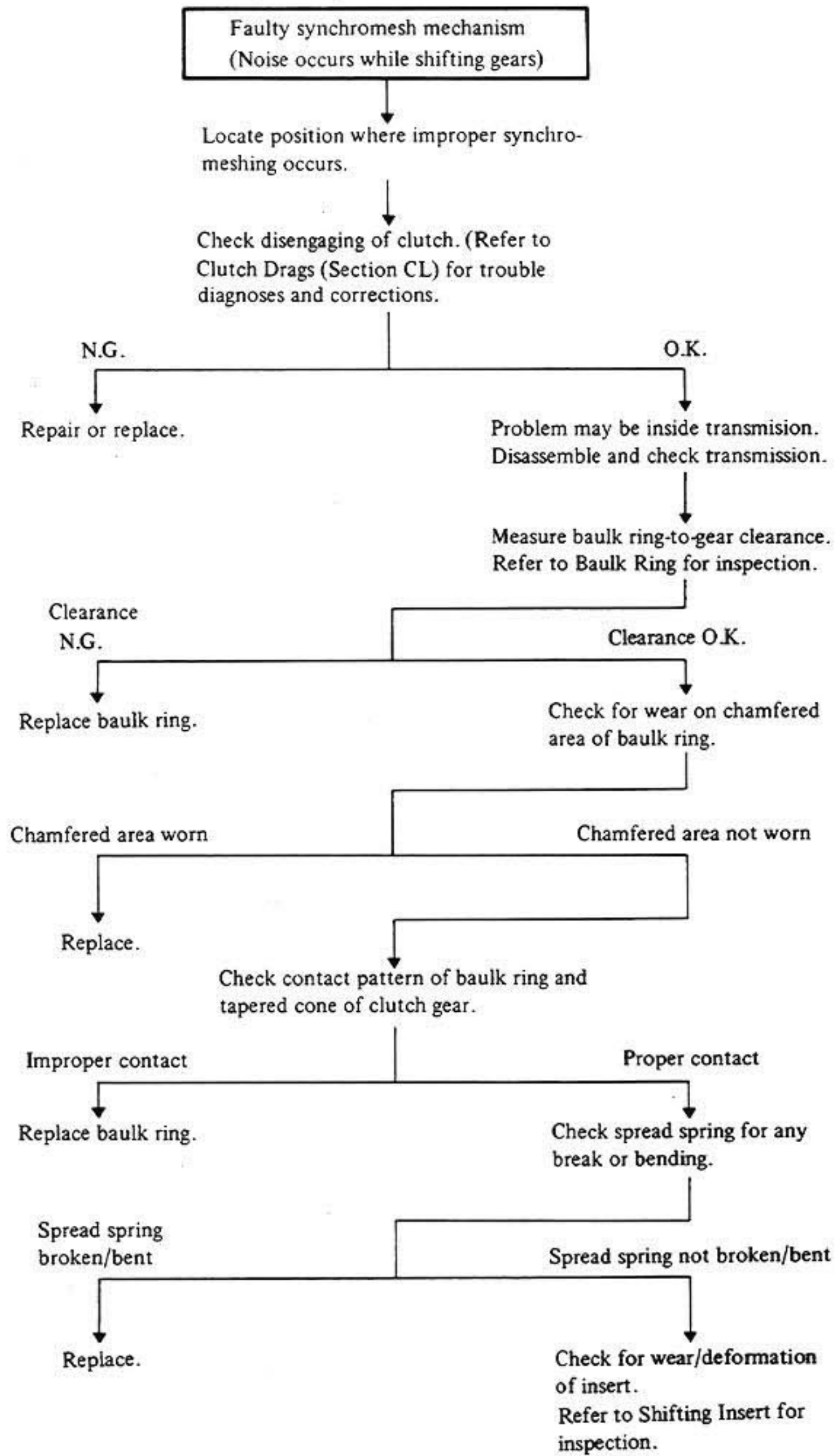
TIGHTENING TORQUE

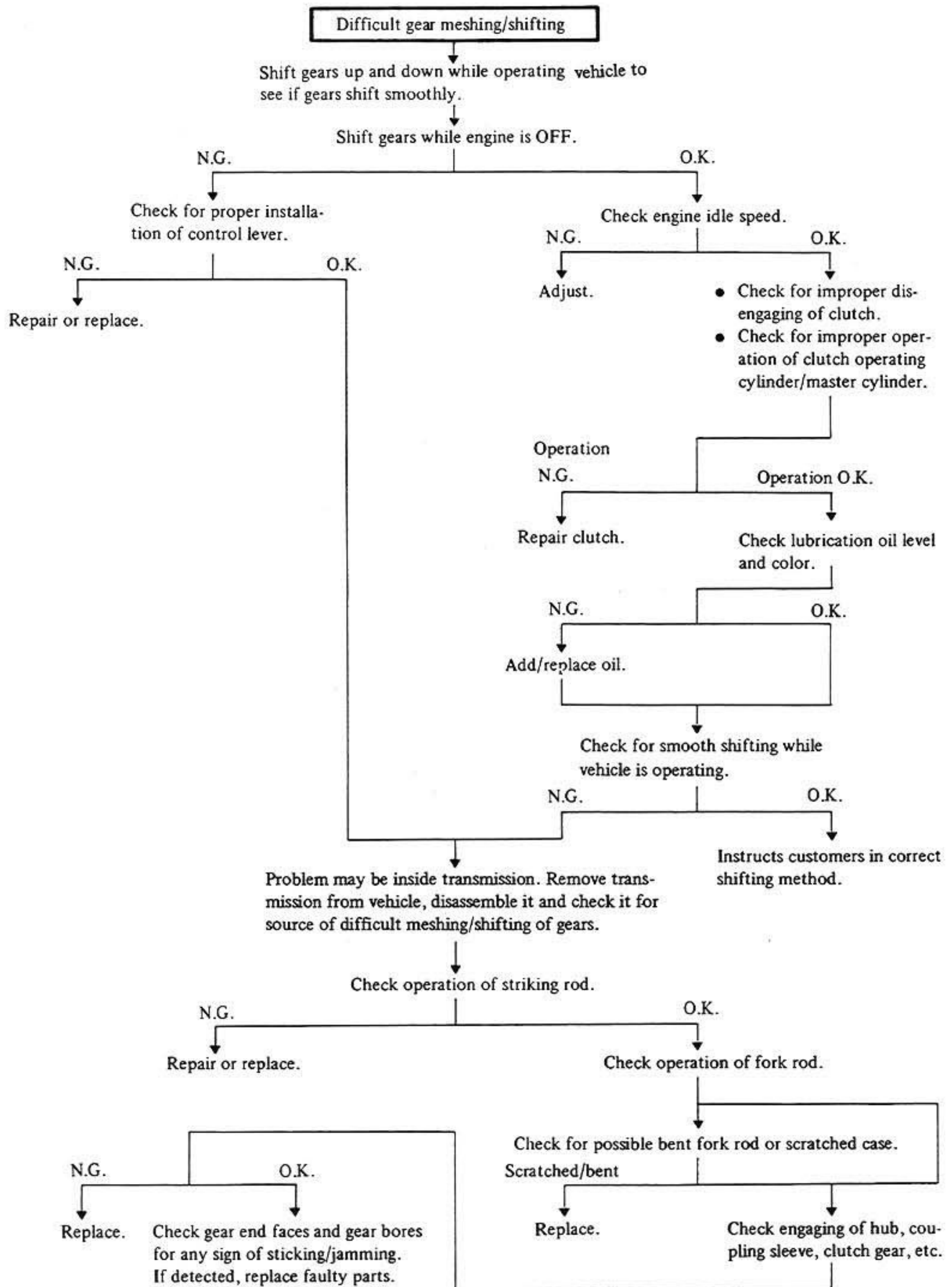
Unit	N-m	kg-m	ft-lb
Gear oil filler plug	25 - 34	2.5 - 3.5	18 - 25
Transmission to engine installation bolt	P40, SD33	38 - 49	28 - 36
	"A" bolt	43 - 58	32 - 43
	L28 "B" bolt	25 - 35	19 - 26
Clutch housing installation bolt	36 - 49	3.7 - 5.0	27 - 36
Reverse shift fork shaft nut	78 - 98	8 - 10	58 - 72
Check ball plug	16 - 22	1.6 - 2.2	12 - 16
Transmission to transfer installation bolt	20 - 27	2.0 - 2.8	14 - 20
	18 - 25	1.8 - 2.5	13 - 18
Mainshaft lock nut	196 - 245	20 - 25	145 - 181
Mainshaft cover bolt	26 - 36	2.7 - 3.7	20 - 27
Front cover bolt	20 - 27	2.0 - 2.8	14 - 20
Gear shift housing bolt	18 - 25	1.8 - 2.6	13 - 19
Gear oil drain plug	25 - 34	2.5 - 3.5	18 - 25
Bearing retainer bolt	26 - 36	2.7 - 3.7	20 - 27
	8 - 13	0.8 - 1.3	5.8 - 9.4
Reverse lamp switch	20 - 29	2.0 - 3.0	14 - 22
Lever pin nut	8 - 11	0.8 - 1.1	5.8 - 8.0
Baffle plate installation bolt	3 - 4	0.3 - 0.4	2.2 - 2.9
P.T.O. cover bolt	8 - 13	0.8 - 1.3	5.8 - 9.4

TROUBLE DIAGNOSES AND CORRECTIONS

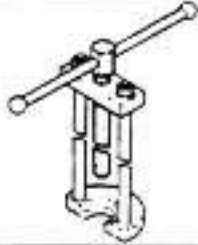
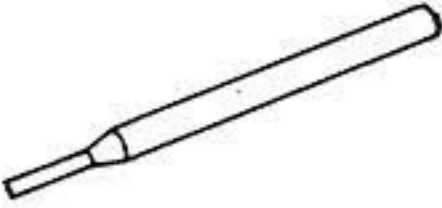
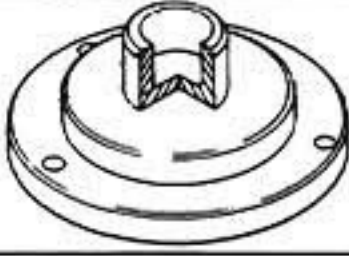
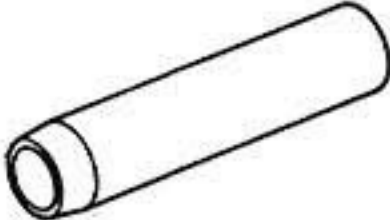
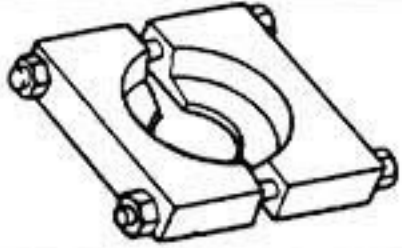
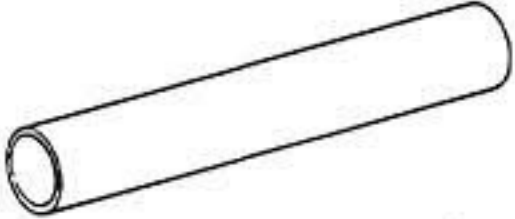
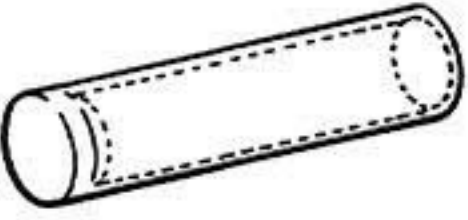
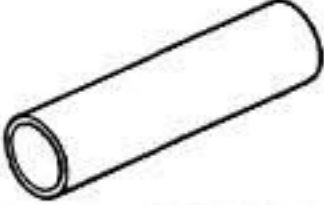
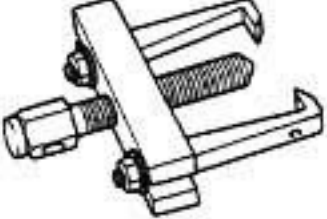








SPECIAL SERVICE TOOLS

Tool number	Tool name
KV32101200	Mainshaft bearing puller 
KV32101100	Fork rod pin punch 
ST22530000	Adapter 
ST22360002	Bearing drift 
ST30031000	Bearing puller 
ST22452000	Mainshaft bearing drift 
ST19910000	Bearing drift 
ST30600000	Bearing drift 
ST33051001	Bearing puller 
KV32101600	Wrench 