

# MANUAL TRANSMISSION

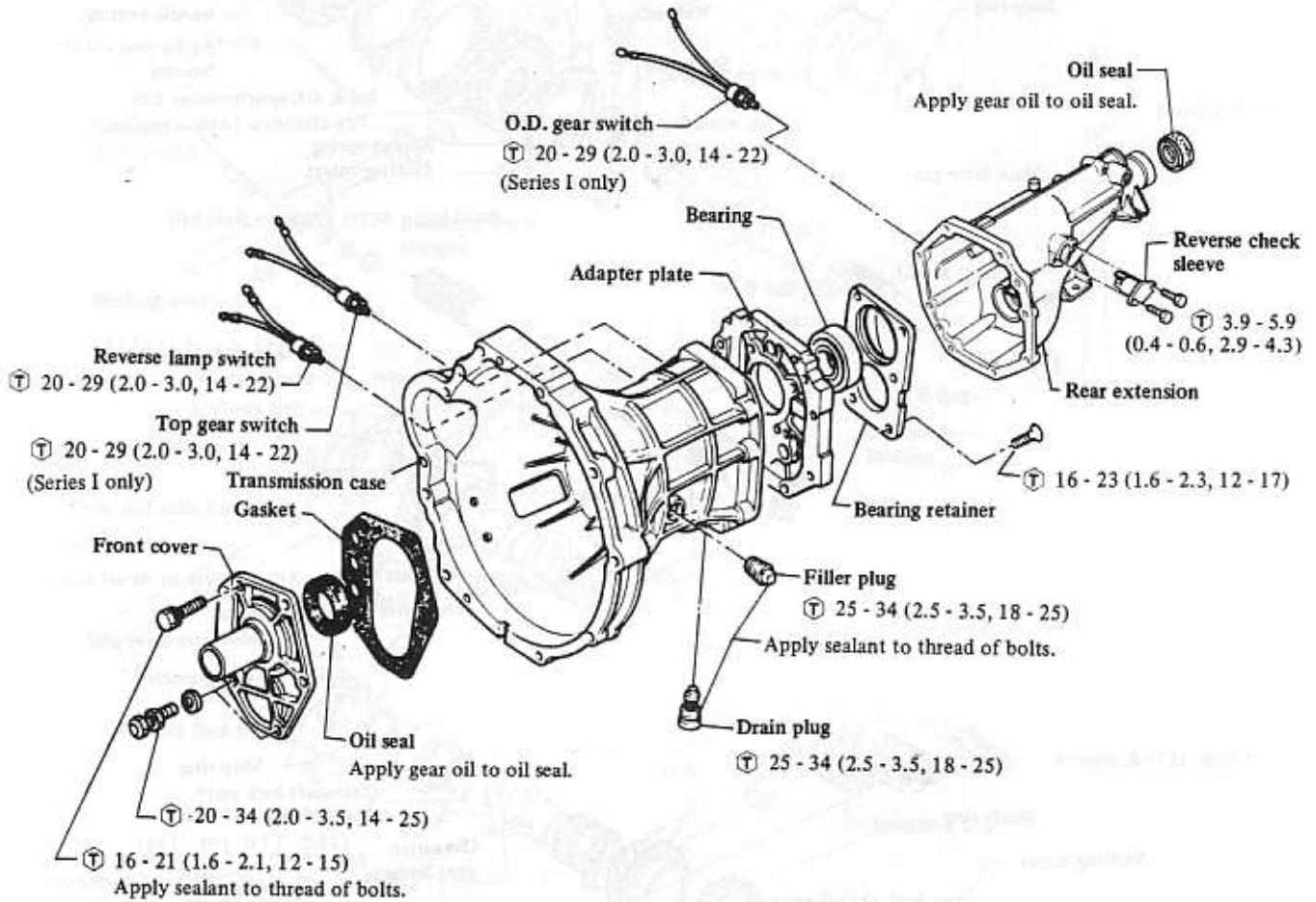
## SECTION MT

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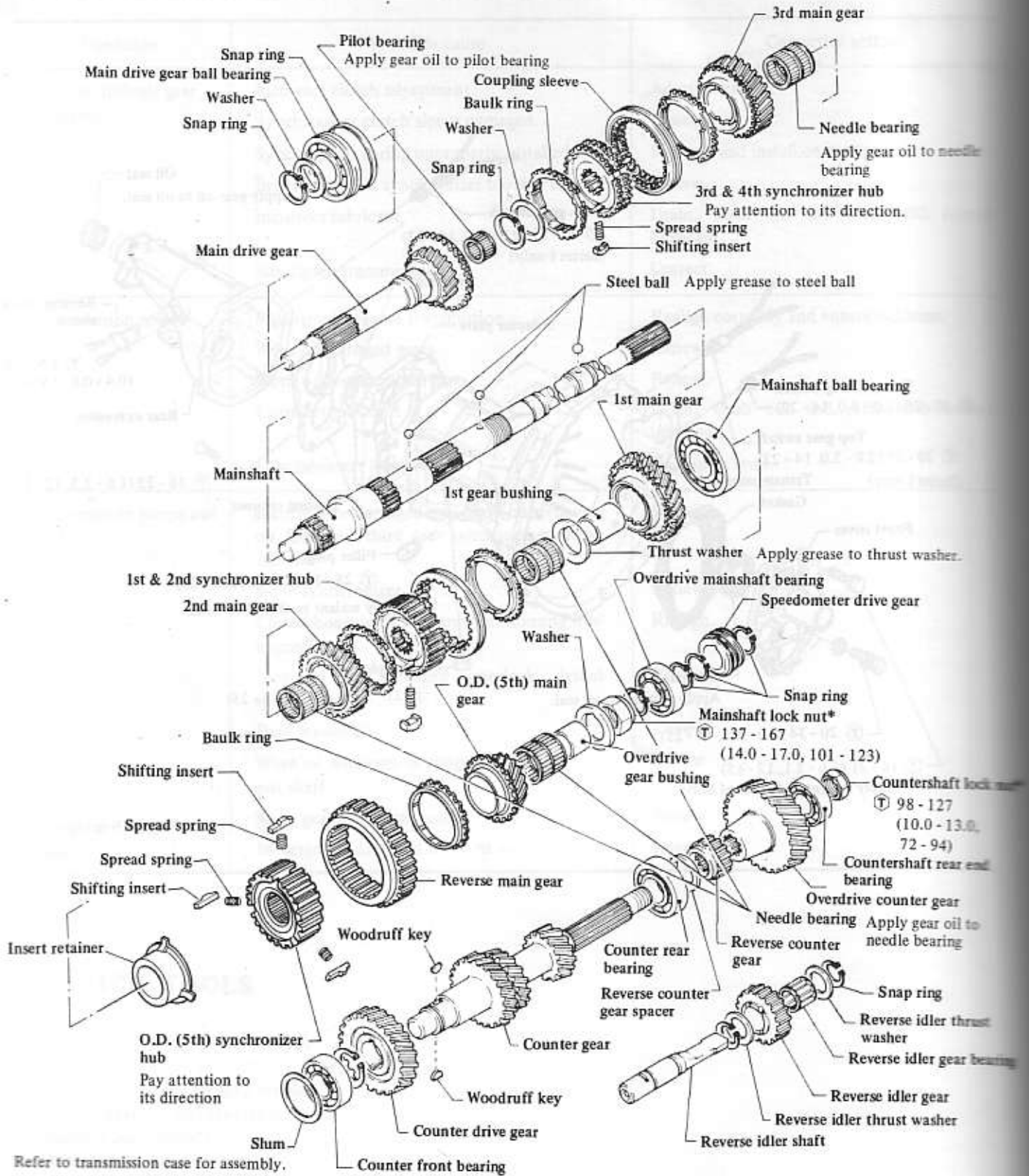
MT

## 5-SPEED TRANSMISSION (Model : FS5W71B)



Ⓣ : N·m (kg-m, ft-lb)

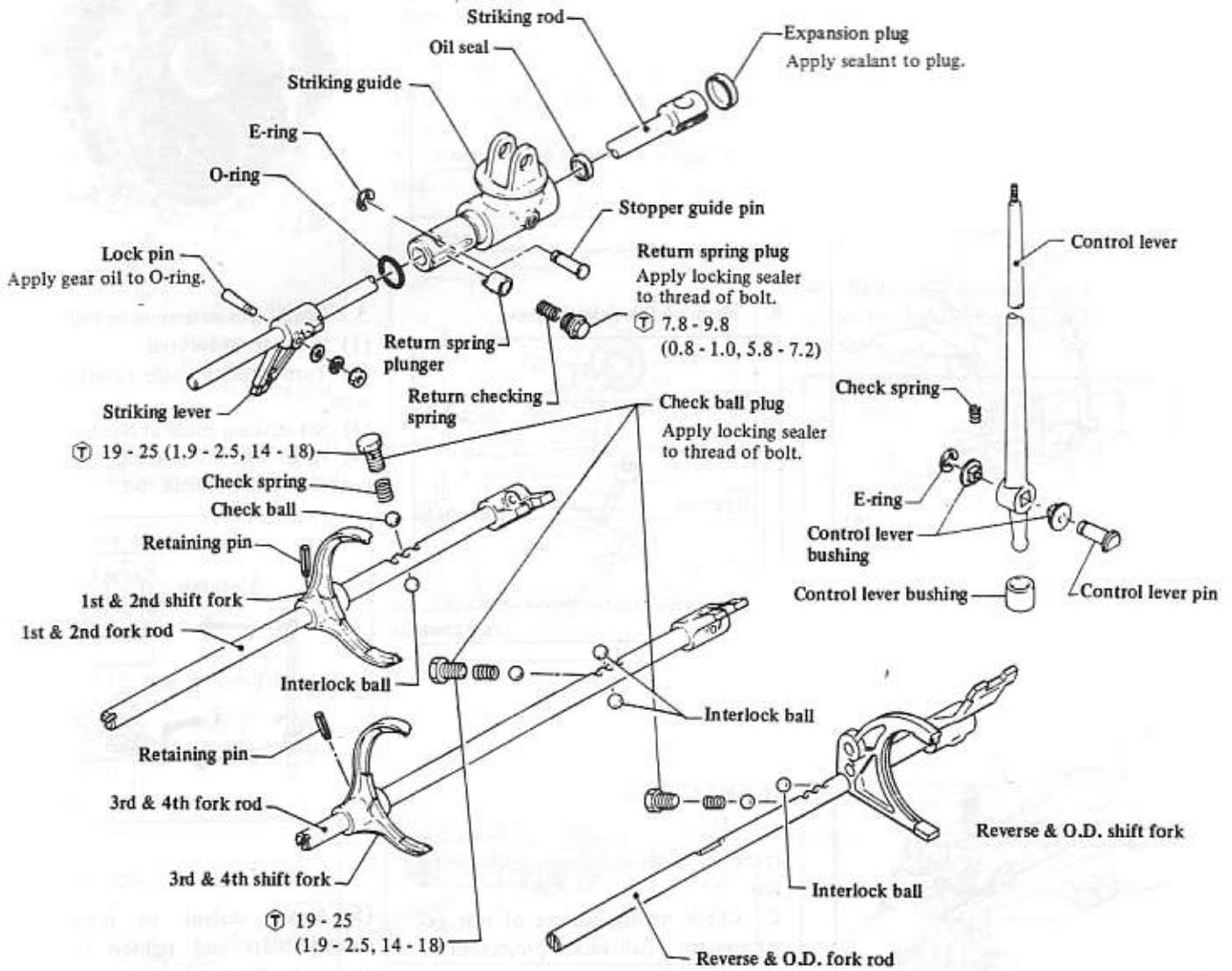
SMT358



Ⓜ : N·m (kg-m, ft-lb)

\* Always replace.

SMT358



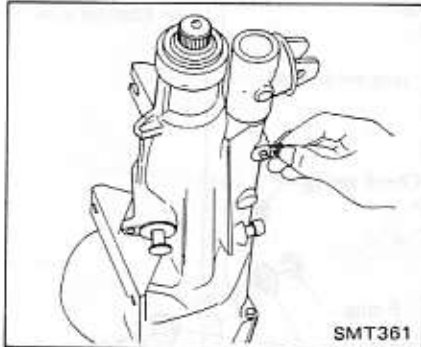
Ⓣ : N·m (kg-m, ft-lb)

SMT360

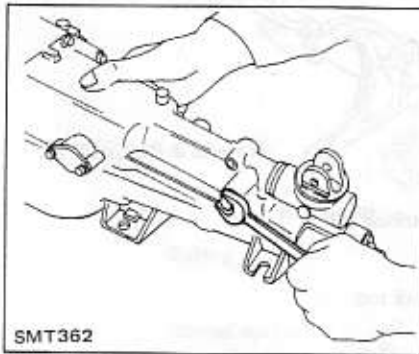
## REAR EXTENSION

### DISASSEMBLY

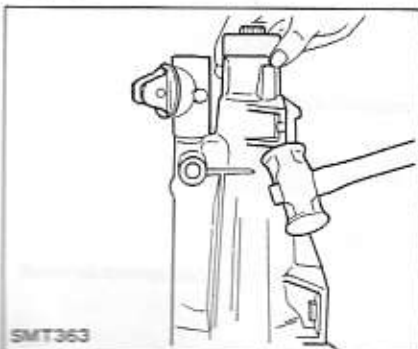
1. Wipe off dirt and grease.
2. Drain oil.
3. Remove O.D. gear switch (if so equipped).
4. Remove E-ring and stopper guide pin.



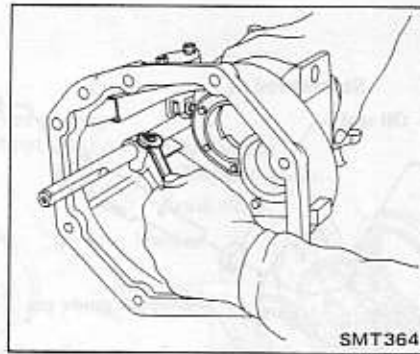
5. Remove return spring plug, return spring, and plunger from rear extension.



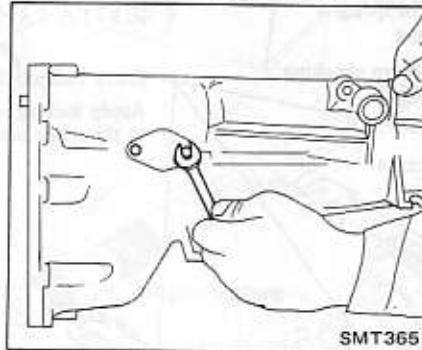
6. Remove rear extension by lightly tapping it.



7. Remove lock pin and then remove striking rod.



8. Remove Rev. check sleeve.



### INSPECTION

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

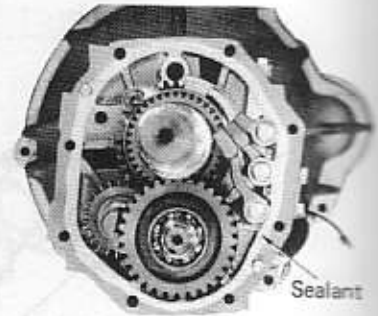
If rear extension bushing is worn or cracked, replace it as an assembly of bushing and rear extension housing.

### ASSEMBLY

1. Assemble lock pin and striking rod.

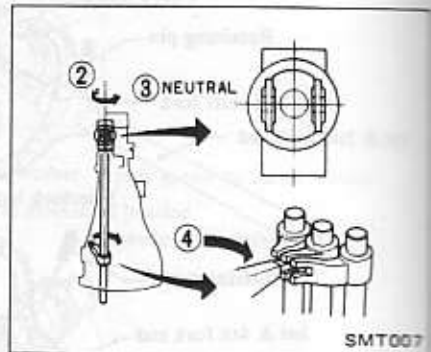
Ⓣ : 8.8 - 11.8 N·m  
(0.9 - 1.2 kg·m,  
6.5 - 8.7 ft·lb)

2. Stand transmission case assembly on wooden plates of more than 20 mm (0.79 in) thick.
3. Clean mating surfaces of adapter plate and rear extension.
4. Apply sealant to mating surface of adapter plate.

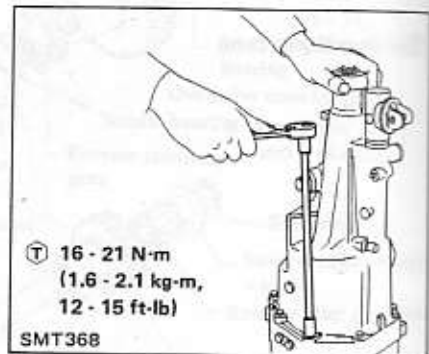


5. Install rear extension as follows:

- (1) Set gears at Neutral.
- (2) Turn striking guide counterclockwise.
- (3) Set striking guide at Neutral.
- (4) Align end of striking lever with cutout portion of fork rod.



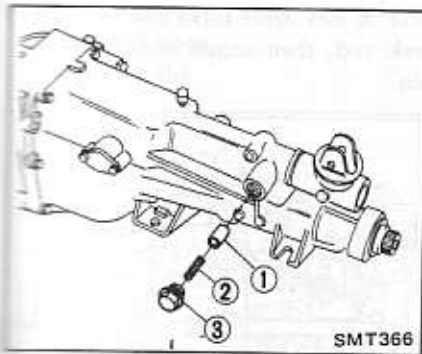
- (5) Apply sealant to threads of through-bolts and tighten them to transmission case.



Ⓣ 16 - 21 N·m  
(1.6 - 2.1 kg·m,  
12 - 15 ft·lb)



6. Install plunger, return spring, and return spring plug.



- 1 Plunger  
2 Return spring  
3 Return spring plug

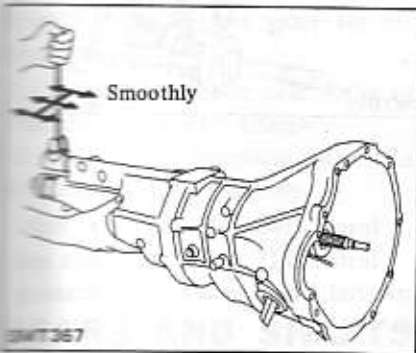
7. Apply sealant to stopper guide pin, then install stopper guide pin and E-ring.

8. Install Rev. check sleeve.

⊖ : 3.9 - 5.9 N·m  
(0.4 - 0.6 kg·m,  
2.9 - 4.3 ft·lb)

9. Install O.D. gear switch (if so equipped).

10. Make sure that gears operate smoothly.



11. Install drain plug.

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

## TRANSMISSION CASE

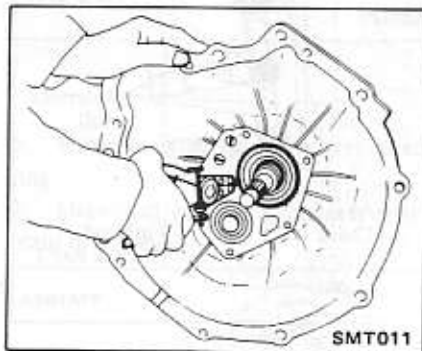
### DISASSEMBLY

1. Remove rear extension. Refer to Rear Extension for disassembly.

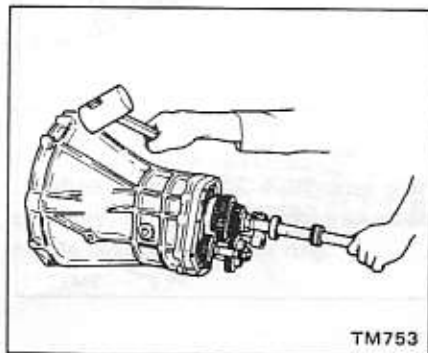
2. Remove dust cover, release bearing and withdrawal lever. Refer to Release Bearing (Section CL) for removal.

3. Remove front cover and gasket. Detach countershaft front bearing shim.

4. Remove main drive bearing snap ring.



5. Separate transmission case from adapter plate.



### INSPECTION

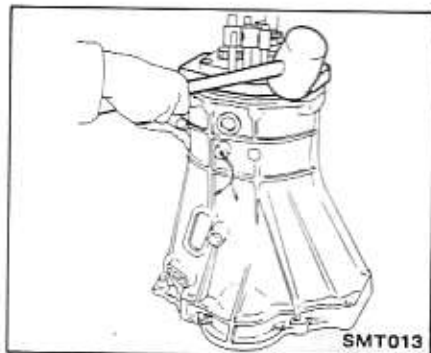
- Clean with solvent and check for cracks or pits by means of dyeing test.
- Check mating surface of transmission case for small nicks, projection or sealant.

### ASSEMBLY

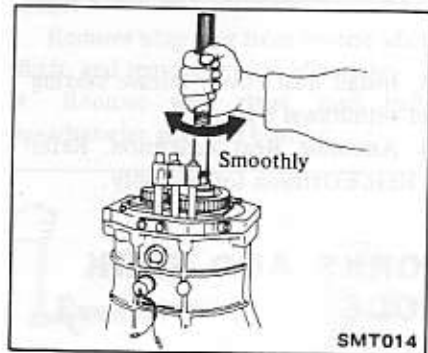
- Clean mating surfaces of adapter plate and transmission case.
- Stand transmission case on wooden plates of more than 20 mm (0.79 in) thick.
- Apply sealant to mating surface of transmission case.



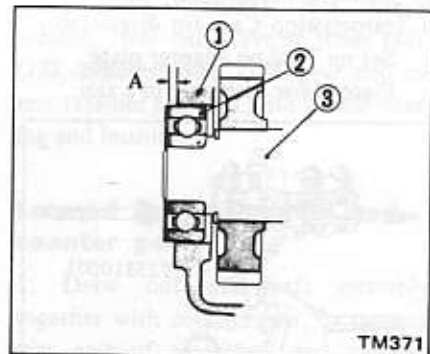
4. Slide gear assembly onto adapter plate by lightly tapping with a soft hammer.



5. Make certain that mainshaft rotates freely.



- Fit main drive bearing snap ring.
- Select countershaft front bearing shim as follows:  
(1) Measure height "A".

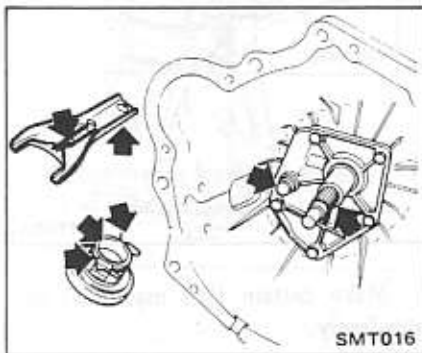


- 1 Transmission case  
2 Counter gear front bearing  
3 Counter gear

- (2) Select a shim of thickness "A" measured.

Counter gear front bearing shim:  
Refer to S.D.S.

8. Clean mating surfaces of front cover and transmission case.
9. Apply grease to shim selected to retain it on front cover.
10. Lubricate seal lip and main drive shaft with gear oil, then install new gasket and front cover.
11. Install rear extension. Refer to Rear Extension for assembly.
12. Apply a light coat of multi-purpose grease.

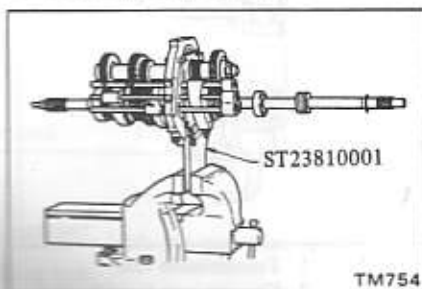


13. Install dust cover, release bearing and withdrawal lever.
14. Assemble Rear Extension. Refer to Rear Extension for assembly.

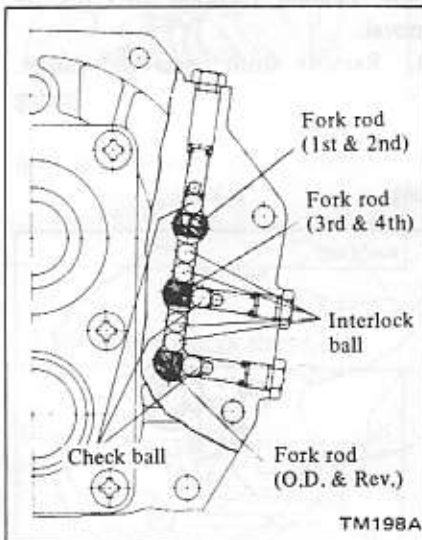
## FORKS AND FORK RODS

### DISASSEMBLY

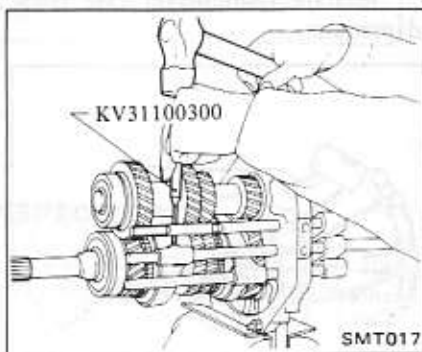
1. Remove rear extension. Refer to Rear Extension for disassembly.
2. Remove transmission case. Refer to Transmission Case for disassembly.
3. Set up Tool on adapter plate.
4. Place above assembly in a vise.



5. Remove check ball plugs and check springs.



6. Drive out retaining pins.

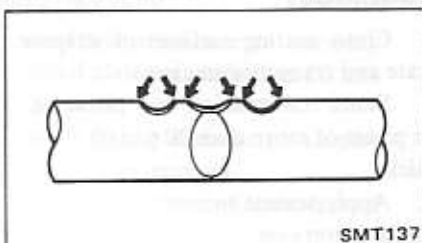


7. Drive out fork rods and remove interlock balls and check balls.

Be careful not to lose three check balls and four interlock balls.

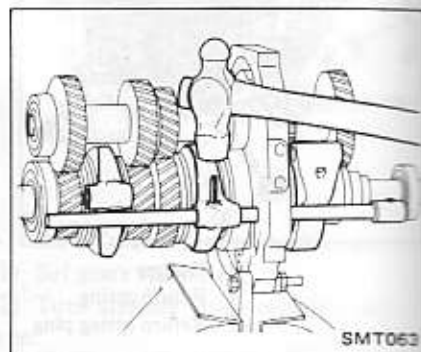
### INSPECTION

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

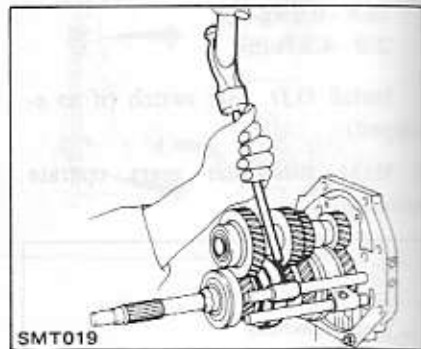


### ASSEMBLY

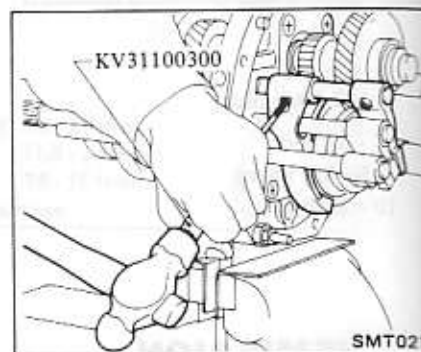
1. Install 1st & 2nd, 3rd & 4th and O.D. & Rev. shift forks and 1st & 2nd fork rod, then secure with retaining pin.



2. Install two (2) interlock balls.
3. Install 3rd & 4th fork rod, then secure with retaining pin.



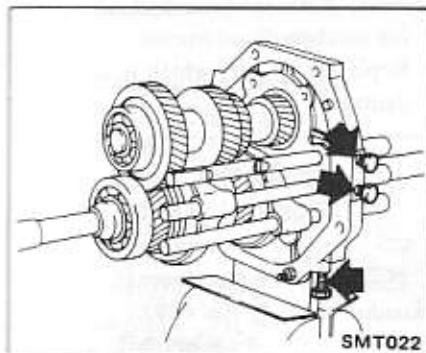
4. Install two (2) interlock balls.
5. Install O.D. & Rev. shift fork and fork rod, then secure with retaining pin.



6. Install check balls and check springs.

7. Apply locking sealer to check ball plugs and install them.

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



- a. Check ball plug for 1st & 2nd fork rod is longer than that for Rev. shift fork rod and 3rd & 4th fork rod.
- b. To insure that interlock plunger is installed properly, slide 3rd & 4th fork rod and operate the other fork rod. Make sure that the gear except 3rd or 4th gear does not mesh.

8. Apply gear oil to all sliding surfaces and check to see that shift rods operate correctly and gears are engaged smoothly.

9. Install transmission case. Refer to Transmission Case for assembly.

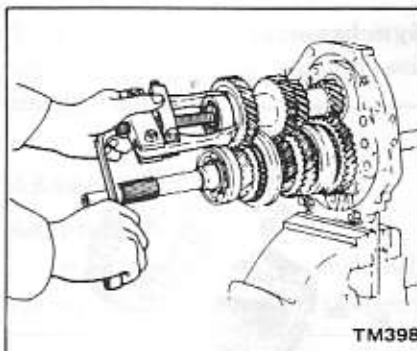
10. Install rear extension. Refer to Rear Extension for assembly.

## GEARS AND SHAFTS

### DISASSEMBLY

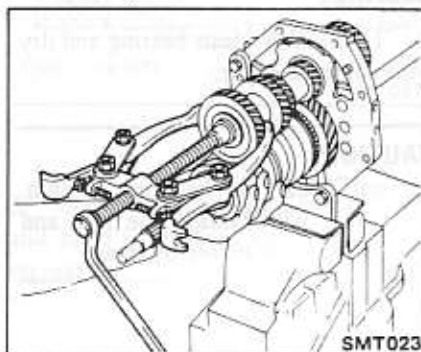
#### Main drive and counter drive gear

1. Remove rear extension. Refer to Rear Extension for disassembly.
2. Remove transmission case. Refer to Transmission Case for disassembly.
3. Remove forks and fork rods. Refer to Forks and Fork rods for disassembly.
4. Measure gear end play. Refer to Gears and Shafts for inspection.
5. Mesh 2nd and reverse gear, then draw out counter front bearing.



6. Remove counter drive gear snap ring.

7. Draw out counter drive gear with main drive gear.



When drawing out main drive gear assembly, be careful not to drop pilot needle bearing and baulk ring.

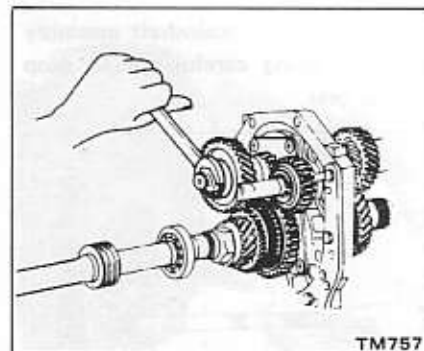
#### 3rd main gear

1. Remove snap ring and thrust washer.
2. Draw out 3rd & 4th synchronizer and 3rd gear.

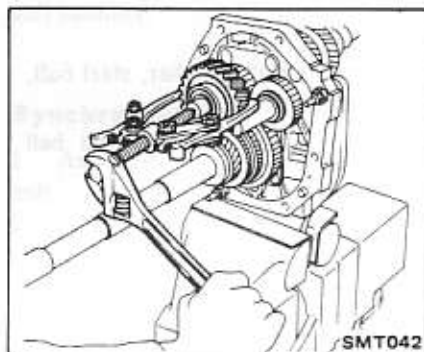
#### O.D. gear and reverse gear

1. Mesh 2nd and reverse gears. Release staking on counter gear nut and mainshaft nut and loosen these nuts. Remove counter gear nut.

Removed nuts should be discarded and should not be reused.



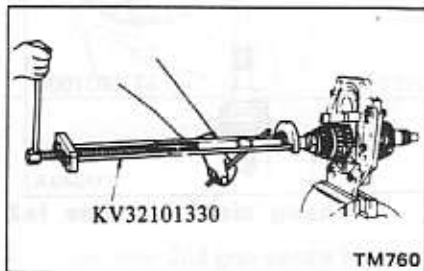
2. Drive out counter O.D. gear and bearing.



3. Remove reverse counter gear and spacer.

Remove snap ring from reverse idler shaft, and remove reverse idler gear.

4. Remove snap rings, steel ball, speedometer gear and bearing.



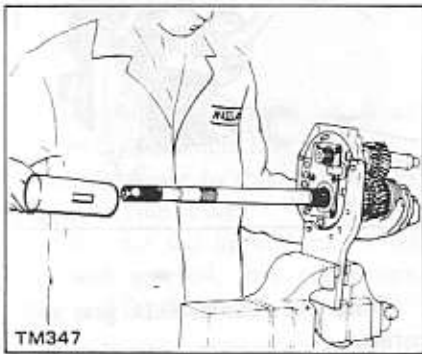
5. Remove mainshaft nut, thrust washer, steel ball, reverse main gear, O.D. synchronizer, O.D. gear and insert retainer together with needle bearing and bushing.

#### 1st and 2nd main gear and counter gear

1. Draw out mainshaft assembly together with counter gear, by tapping rear end of mainshaft and counter gear.



- Hold front of mainshaft assembly by hand, being careful not to drop counter gear.

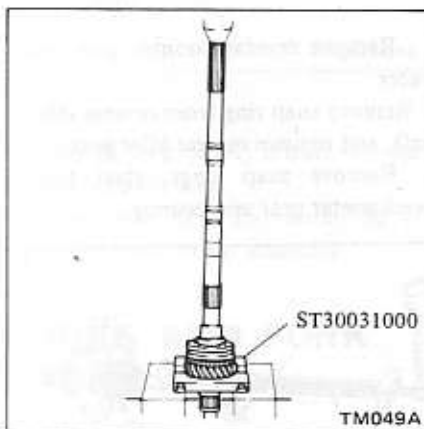


2. Remove thrust washer, steel ball, 1st gear and needle bearing.

Be careful not to lose steel ball retaining thrust washer.

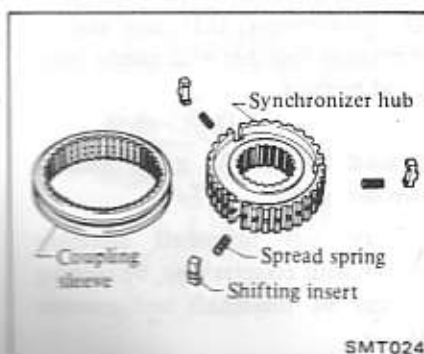
3. Press out 1st gear mainshaft bushing together with 2nd gear and 1st & 2nd synchronizer.

When pressing out bushing, hold mainshaft by hand so as not to drop it.



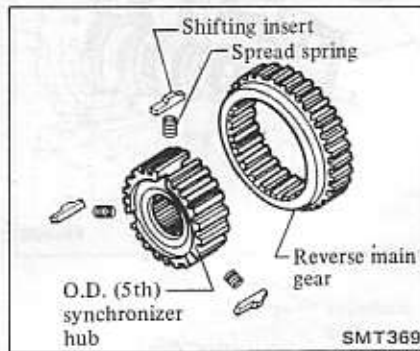
### Synchronizer (1st & 2nd and 3rd & 4th)

Disassemble synchronizer.



### Synchronizer (O.D.)

Disassemble synchronizer.



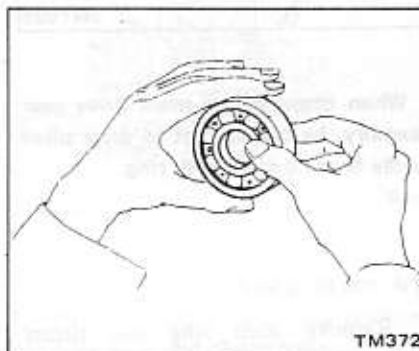
### INSPECTION

#### 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.

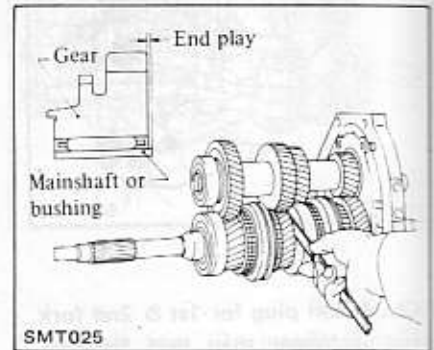


2. When race and ball surfaces are worn or rough, or when balls are out-of-round or rough, replace bearing with a new one.
3. Replace needle bearing if worn or damaged.

#### 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 mainshaft.

- Tighten mainshaft lock nut to specified limit and measure end play to insure that it is within specified limit.
- 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  
0.27 - 0.34 mm  
(0.0106 - 0.0134 in)

2nd gear  
0.12 - 0.19 mm  
(0.0047 - 0.0075 in)

3rd gear  
0.13 - 0.37 mm  
(0.0051 - 0.0146 in)

O.D. (5th) gear  
0.10 - 0.17 mm  
(0.0039 - 0.0067 in)

Reverse idler gear  
0.05 - 0.50 mm  
(0.0020 - 0.0197 in)

#### Baulk ring

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

