

# MANUAL TRANSMISSION



# SECTION MT

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**MT**



17. Remove starting motor.  
18. Remove bolts securing transmission to engine.  
Then, support engine and transmission with jack, and lift transmission removed away from engine and remove from car.



19. Disconnect wire from back-up lamp switch.  
20. Disconnect wire to prevent transmission from falling.  
21. Hold front wire and up with a rear extension bearing. Refer to Section 17 for removal.  
22. Remove front wire bracket from front exhaust manifold.  
23. Disconnect exhaust front tube. Confirm that pipe is round.  
24. Point or open pit if available.  
25. Jack up the car and support its weight on safety stands. Use a hydraulic jack or open pit if available.

## REMOVAL AND INSTALLATION

### REMOVAL

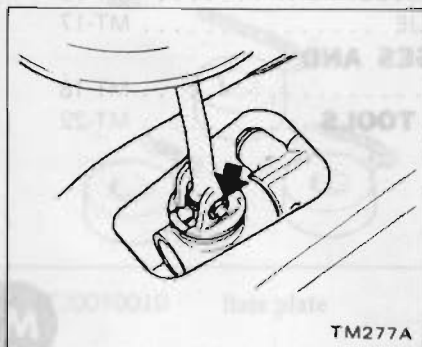
In dismantling transmission from the car, proceed as follows:

1. Disconnect battery ground cable from terminal.
2. Disconnect accelerator linkage.
3. Remove console.

Refer to Console (Section BF) for removal and installation.

4. Remove control lever boots.
5. Place transmission control lever in neutral position.

Remove E-ring and control lever pin from transmission striking rod guide, and remove control lever.



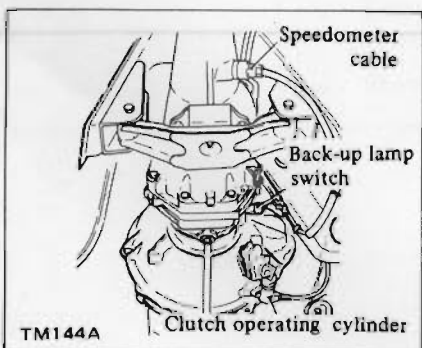
6. Jack up the car and support its weight on safety stands. Use a hydraulic hoist or open pit, if available.

Confirm that safety is insured.

7. Disconnect exhaust front tube from exhaust manifold.
8. Remove front tube bracket from rear extension housing. Refer to Section FE for removal.

Hold front tube end up with a thread or wire to prevent tube from falling.

9. Disconnect wires from back-up lamp switch.



10. Remove clutch operating cylinder from transmission case.
11. Disconnect speedometer cable from rear extension.
12. Remove heat shield plate. Refer to Section FE for removal.
13. Remove propeller shaft. Refer to Section PD.

#### CAUTION:

Remove propeller shaft carefully so as not to damage spline, sleeve yoke and rear oil seal.

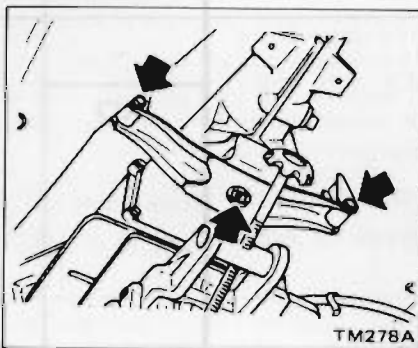
Plug up the opening in the rear extension housing to prevent oil from flowing out.

14. Support the engine by placing a jack under oil pan with a wooden block used between oil pan and jack.

#### CAUTION:

Do not place the jack under the oil pan drain plug.

15. Support transmission with a transmission jack.
16. Loosen rear engine mount securing nut temporarily and then remove rear engine mounting bracket from body.



17. Remove starting motor.
18. Remove bolts securing transmission to engine.

Then, support engine and transmission with jack, and slide transmission rearward away from engine and remove from car.

#### CAUTION:

Take care in dismantling the transmission not to strike any adjacent parts and main drive shaft.

### INSTALLATION

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

1. Before installing, clean mating surfaces of engine rear plate and transmission case.
2. 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.
3. Remove filler plug and fill transmission with recommended gear oil to the level of the plug hole.

Oil capacity:

2.0 liters

(4¼ US pt, 3½ Imp pt)

Plug up opening in rear extension to prevent oil from flowing out.

4. 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)

5. Tighten bolts securing transmission to engine to specifications.

ⓐ : A 43 - 58 N·m

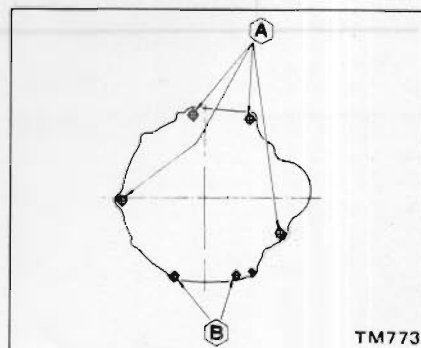
(4.4 - 5.9 kg-m,

32 - 43 ft-lb)

ⓑ : B 9 - 12 N·m

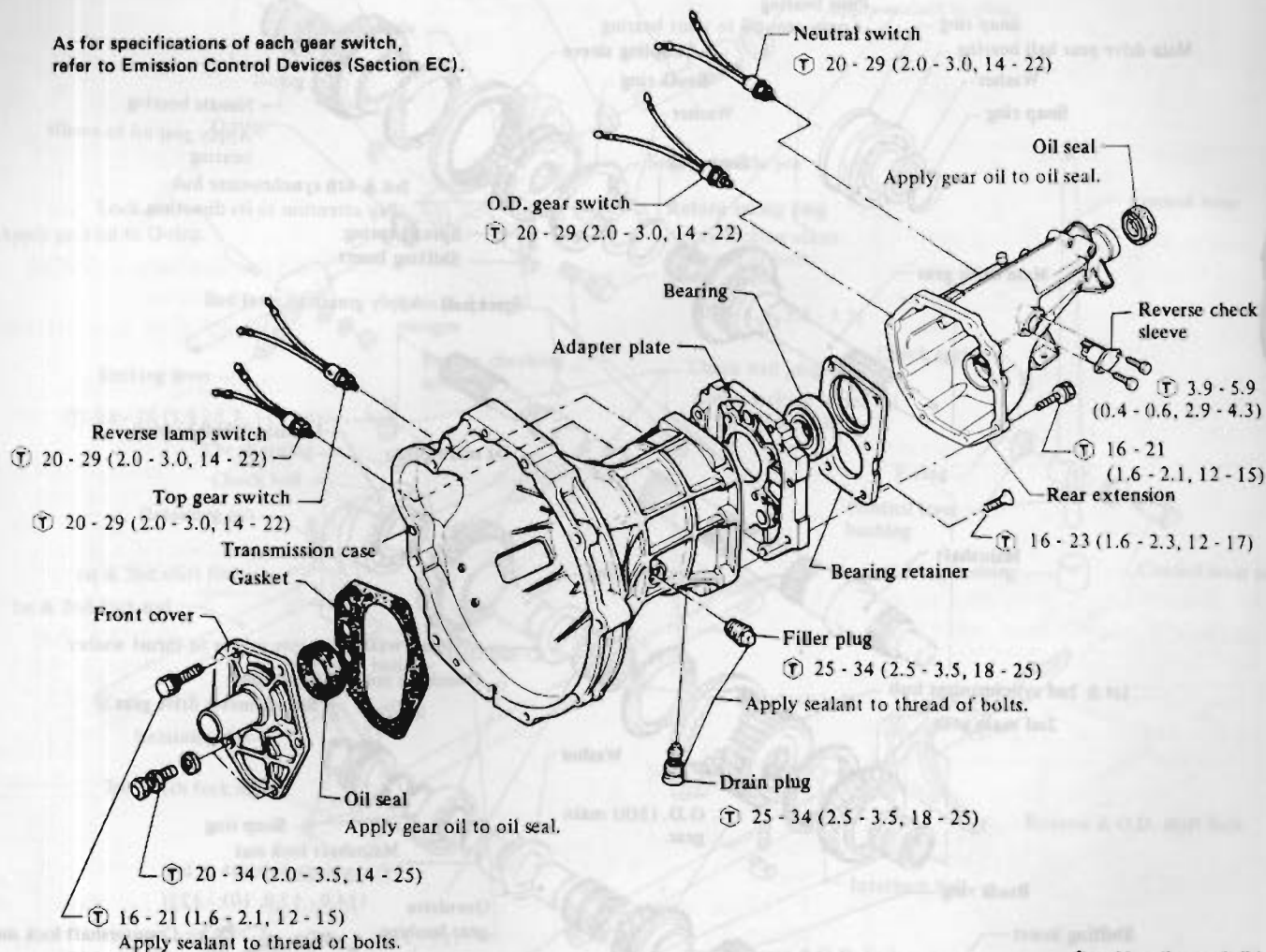
(0.9 - 1.2 kg-m,

6.5 - 8.7 ft-lb)



# 5-SPEED TRANSMISSION (Model : FS5W71B)

As for specifications of each gear switch, refer to Emission Control Devices (Section EC).

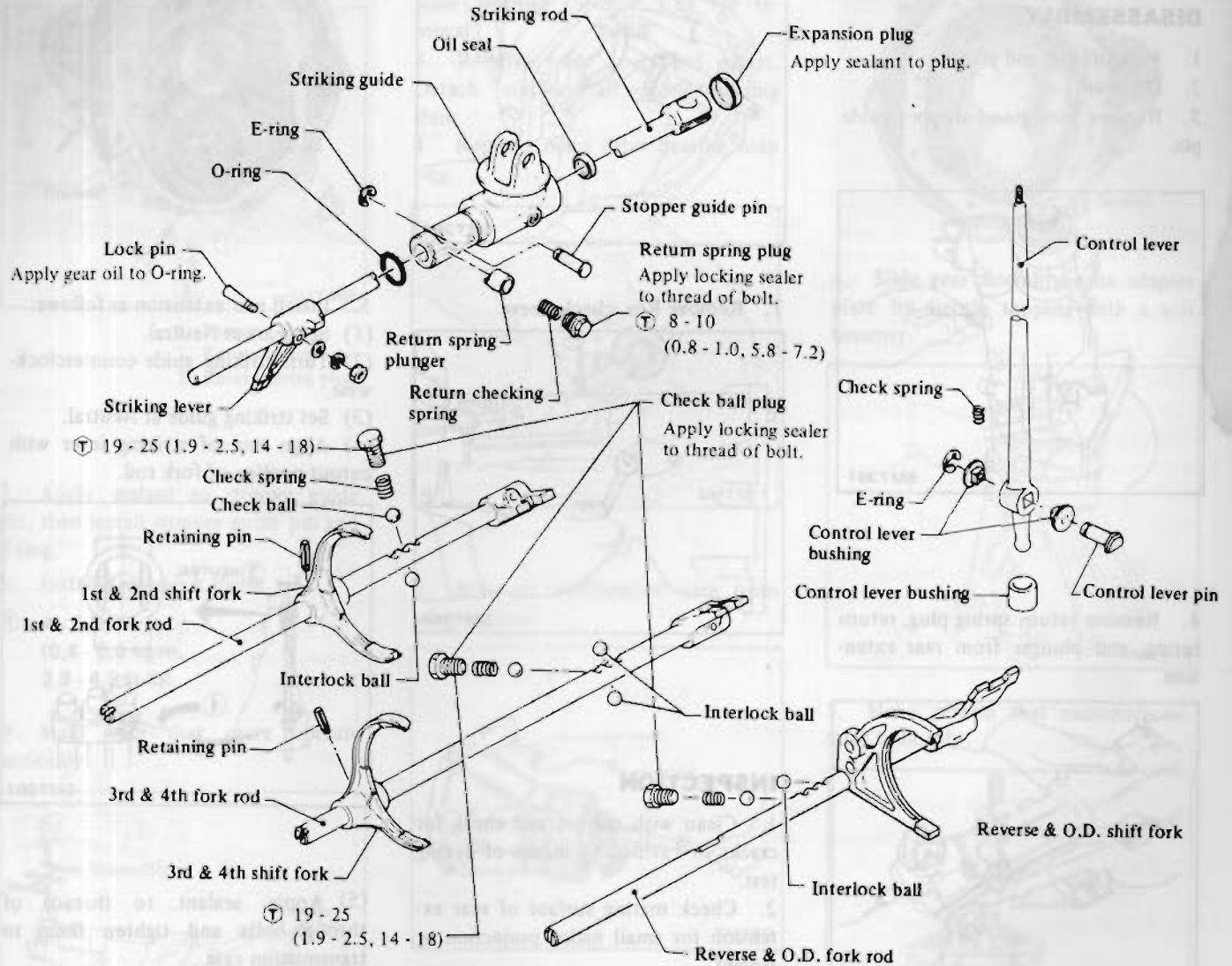


⊕ : N·m (kg-m, ft-lb)

SMT35B







Ⓣ : N·m (kg·m, ft·lb)

SMT360

## TRANSMISSION CASE

### DISASSEMBLY

- Remove rear extension. Refer to Rear Extension for assembly.

If rear extension bushing is worn or to vibration or as a result of incorrect torque it is a sign of wear. Check rear extension bearing and rear extension housing.

- Remove rear extension bushing.
- Check mating surface of housing.

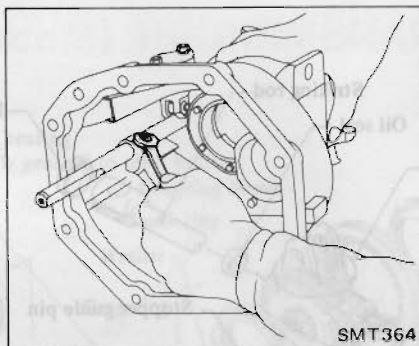
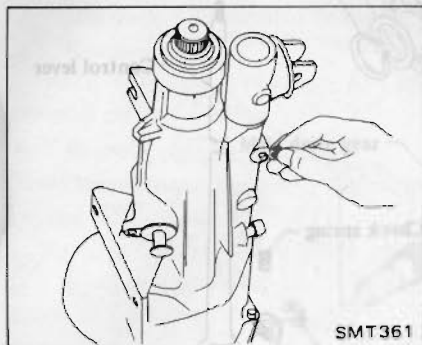
### ASSEMBLY

- Apply sealant to plug.
- Apply locking sealer to thread of bolt.
- Apply locking sealer to thread of bolt.
- Apply locking sealer to thread of bolt.

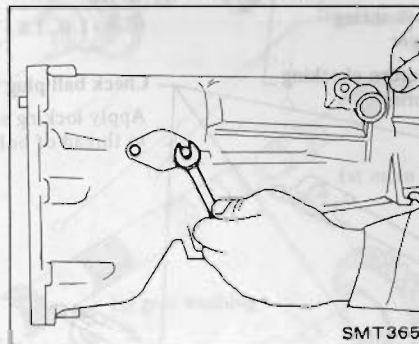
## REAR EXTENSION

### DISASSEMBLY

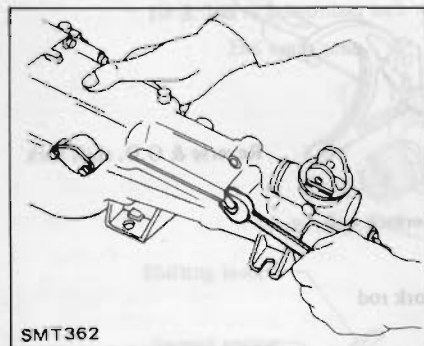
1. Wipe off dirt and grease.
2. Drain oil.
3. Remove E-ring and stopper guide pin.



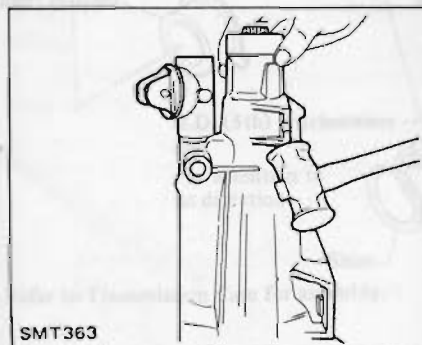
7. Remove Rev. check sleeve.



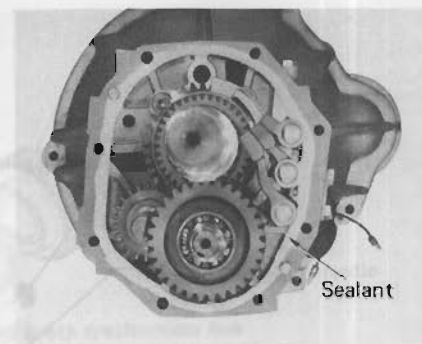
4. Remove return spring plug, return spring, and plunger from rear extension.



5. Remove rear extension by lightly tapping it.

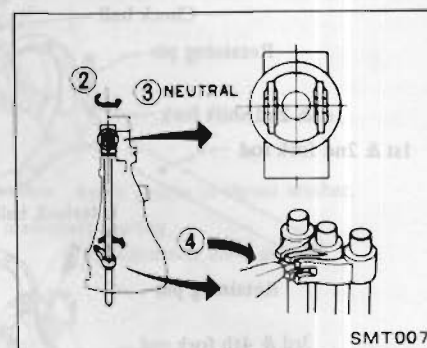


6. Remove lock pin and then remove striking rod.



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.



### 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.

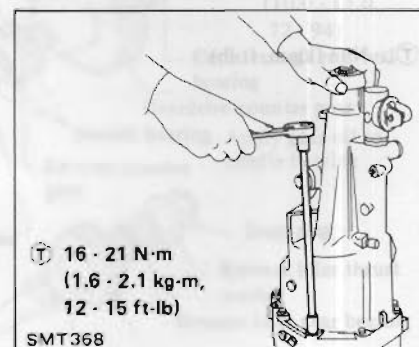
- (5) Apply sealant to threads of through-bolts and tighten them to transmission case.

### ASSEMBLY

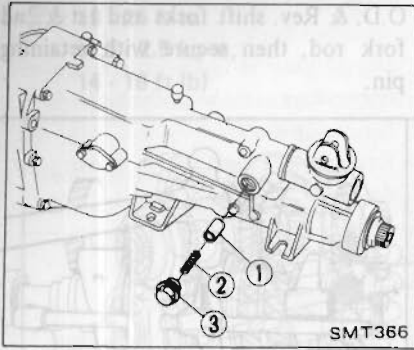
1. Assemble lock pin and striking rod.

⊕ : 9 - 12 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.



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



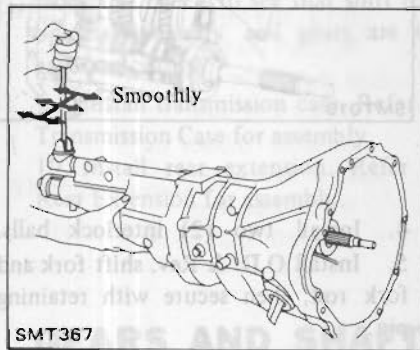
- 1 Plunger
- 2 Return spring
- 3 Return spring plug

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

8. Install Rev. check sleeve.

**T** : 4 - 6 N·m  
(0.4 - 0.6 kg·m,  
2.9 - 4.3 ft·lb)

9. Make sure that gears operate smoothly.



10. Install drain plug.

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

## TRANSMISSION CASE

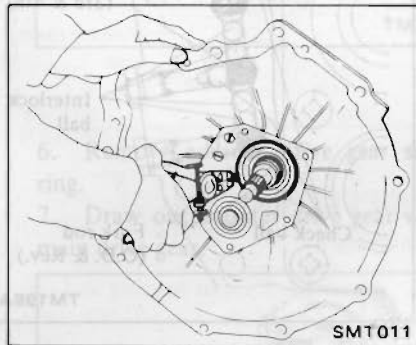
### DISASSEMBLY

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

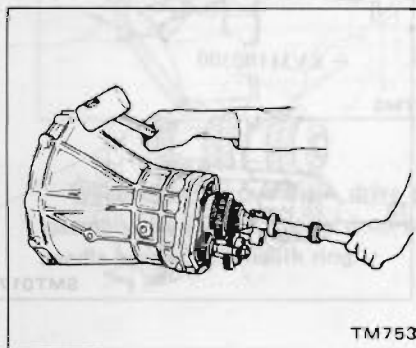
2. Remove dust cover, release bearing and withdrawal lever. Refer to Release Bearing (Section CL) for removal.

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

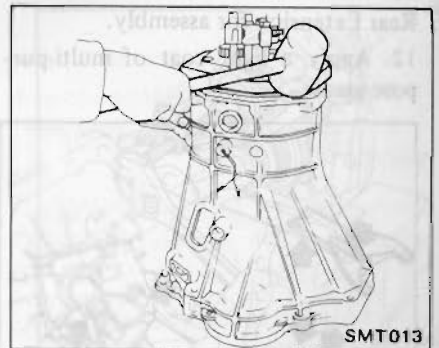
1. Clean with solvent and check for cracks or pits by means of dyeing test.
2. Check mating surface of transmission case for small nicks, projection or sealant.

### ASSEMBLY

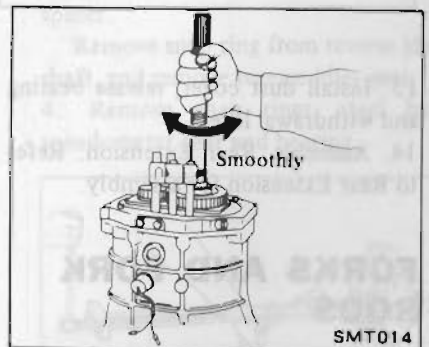
1. Clean mating surfaces of adapter plate and transmission case.
2. Stand transmission case on wooden plates of more than 20 mm (0.79 in) thick.
3. Apply sealant to mating surface of transmission case.



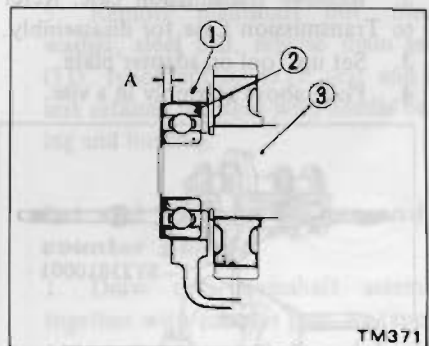
4. Slide gear assembly onto adapter plate by lightly tapping with a soft hammer.



5. Make certain that mainshaft rotates smoothly.



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

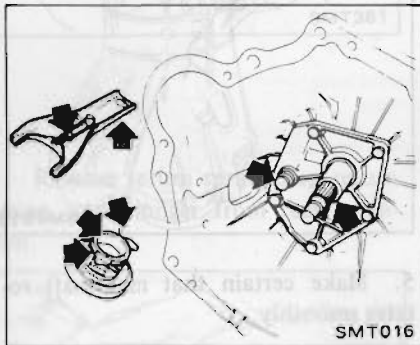


- 1 Transmission case
- 2 Counter gear front bearing
- 3 Counter gear

(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.

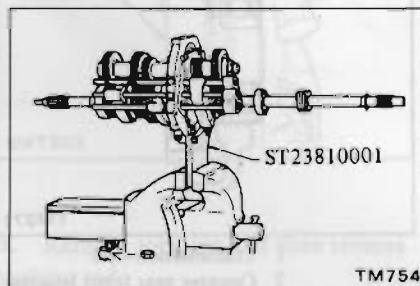


13. Install dust cover, release bearing and withdrawal lever.
14. Assemble Rear Extension. Refer to Rear Extension for assembly.

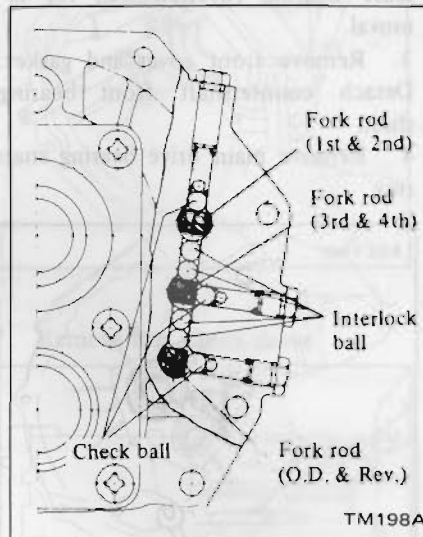
## FORKS AND FORK RODS

### DISASSEMBLY

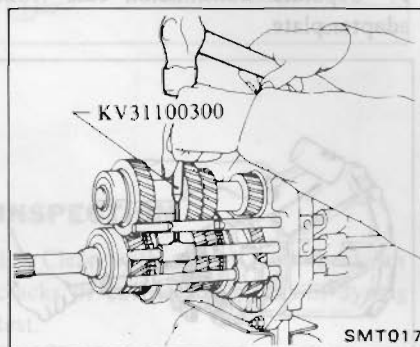
1. Remove rear extension. Refer to Rear Extension for disassembly.
2. Remove transmission case. Refer to Transmission Case for disassembly.
3. Set up Tool on adapter plate.
4. Place above assembly in a vise.



5. Remove check ball plugs and check springs.



6. Drive out retaining pins.

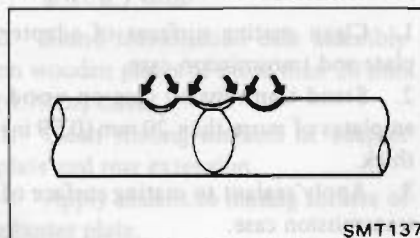


7. Drive out fork rods and remove interlock balls and check balls.

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

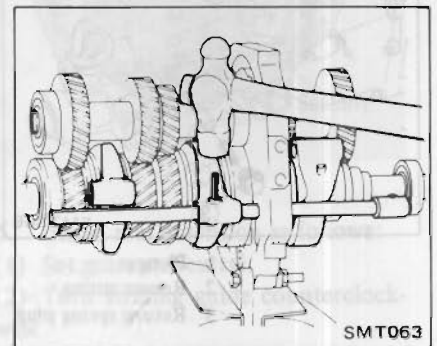
### INSPECTION

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

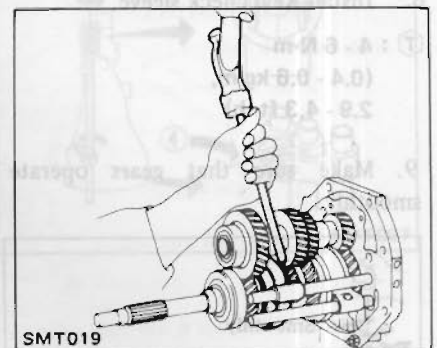


### ASSEMBLY

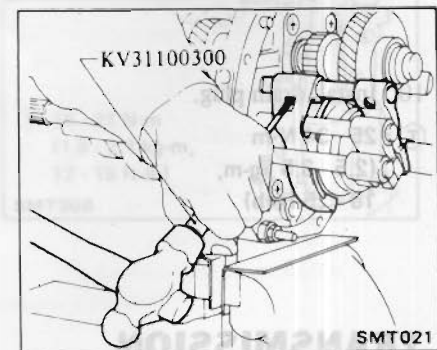
1. Install 1st & 2nd, 3rd & 4th and O.D. & Rev. shift forks and 1st & 2nd fork rod, then secure with retaining pin.



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.

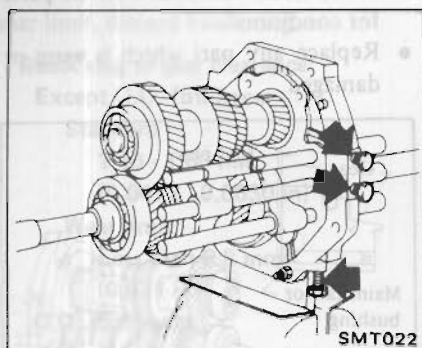


6. Install check balls and check springs.



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)



- Check ball plug for 1st & 2nd fork rod is longer than that for Rev. shift fork rod and 3rd & 4th fork rod.
- 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.

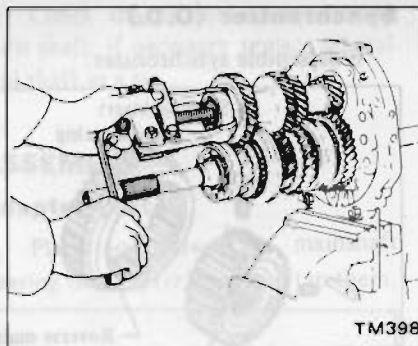
10. Install rear extension. Refer to Rear Extension for assembly.

## GEARS AND SHAFTS

### DISASSEMBLY

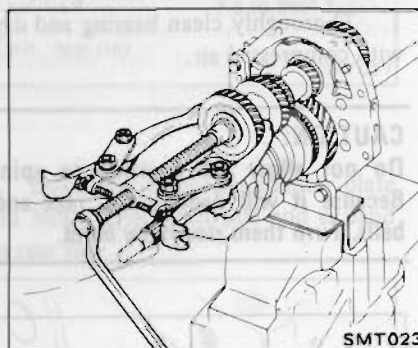
#### Main drive and counter drive gear

- Remove rear extension. Refer to Rear Extension for disassembly.
- Remove transmission case. Refer to Transmission Case for disassembly.
- Remove forks and fork rods. Refer to Forks and Fork rods for disassembly.
- Measure gear end play. Refer to Gears and Shafts for inspection.
- 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.

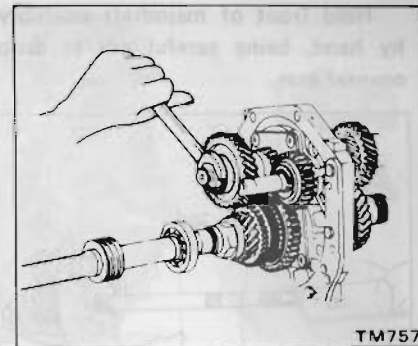
#### 3rd main gear

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

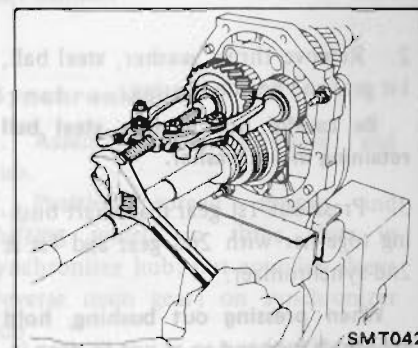
#### O.D. gear and reverse gear

- 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.



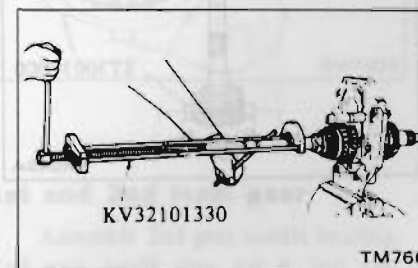
2. Drive out counter O.D. gear and bearing.



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.

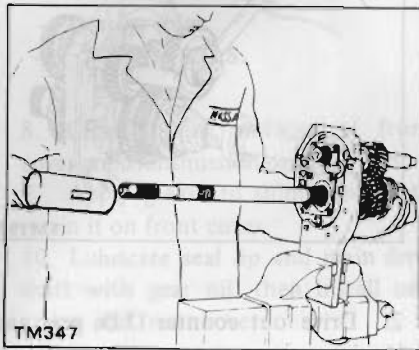


5. Remove mainshaft nut, thrust washer, steel ball, reverse main gear, O.D. synchronizer, O.D. gear and insert retainer together with needle bearing and bushing.

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

- 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.

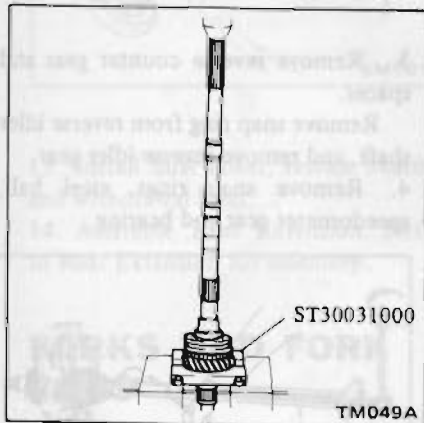


2. Remove thrust washer, steel ball, 1st gear and needle bearing.

Be careful not to lose steel ball retaining thrust washer.

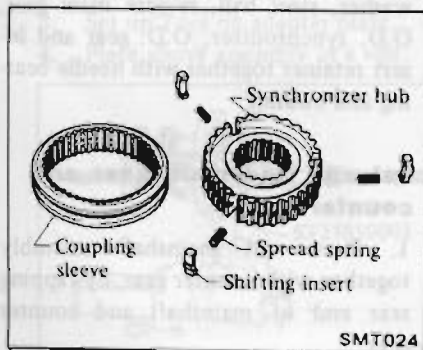
3. Press out 1st gear mainshaft bushing together with 2nd gear and 1st & 2nd synchronizer.

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



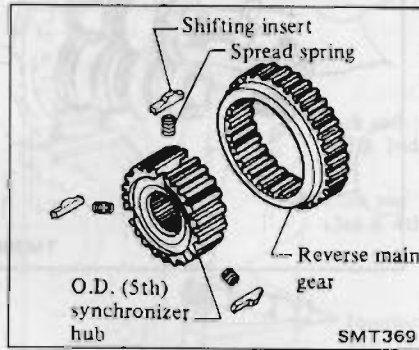
### Synchronizer (1st & 2nd and 3rd & 4th)

Disassemble synchronizer.



### Synchronizer (O.D.)

Disassemble synchronizer.



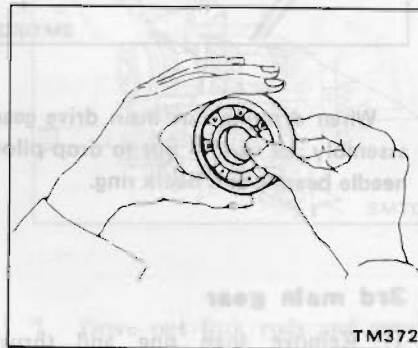
### INSPECTION

#### 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

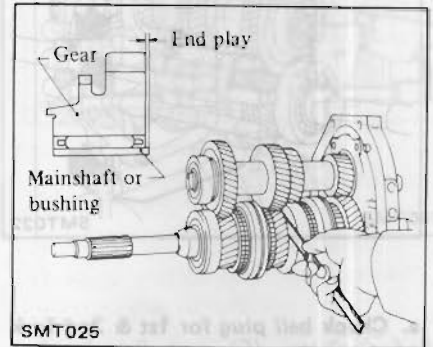
1. Check all gears for excessive wear, chips or cracks; replace as required.

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.

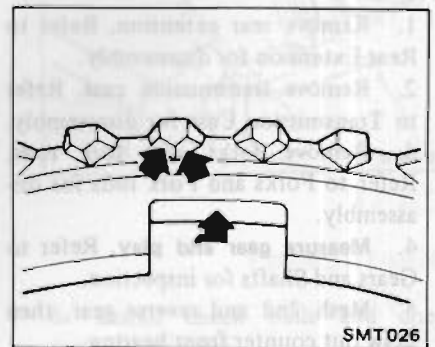


#### Standard end play:

- 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.



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:**

Except O.D. (5th) gear

Standard

1.20 - 1.60 mm  
(0.0472 - 0.0630 in)

Wear limit

Less than 0.8 mm  
(0.031 in)

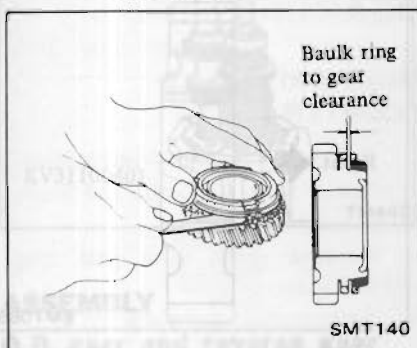
O.D. (5th) gear

Standard

1.00 - 1.40 mm  
(0.0394 - 0.0551 in)

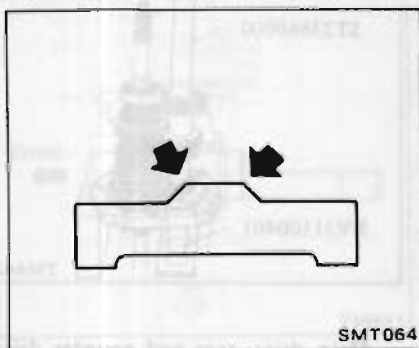
Wear limit

Less than 0.5 mm  
(0.020 in)



**Shifting insert**

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



**Oil seals**

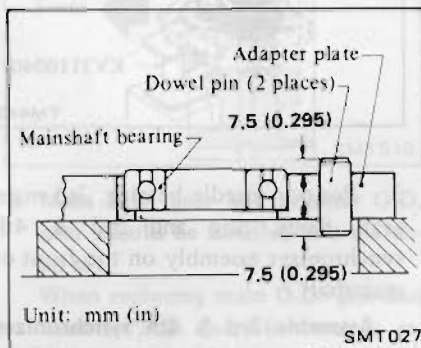
1. Replace oil seal if sealing lip is deformed or cracked. Also discard oil seal if spring is out of position. Refer to Replacement of Oil Seals.

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

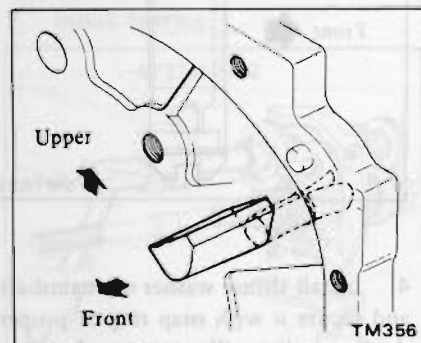
**ASSEMBLY**

**Adapter plate**

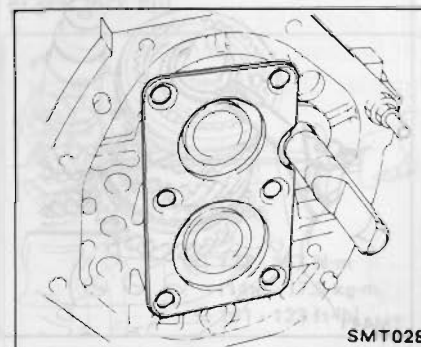
1. Place new dowel pin, mainshaft bearing on adapter plate and tap them.



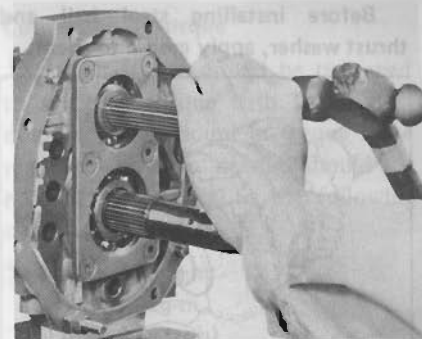
2. Install oil gutter on adapter plate and bend it on front side and expand on rear side.



3. Insert reverse idler shaft.
4. Install bearing retainer.



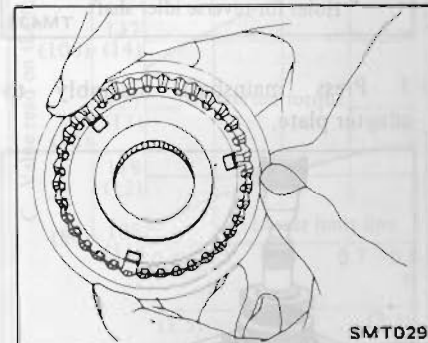
5. Tighten each screw, then stake it at two points.



6. Install counter rear bearing with a soft hammer.

**Synchronizer**

1. Assemble coupling sleeve, and hub.
2. Position spread springs and shifting inserts in three slots in synchronizer hub; put coupling sleeve (reverse main gear) on synchronizer hub.

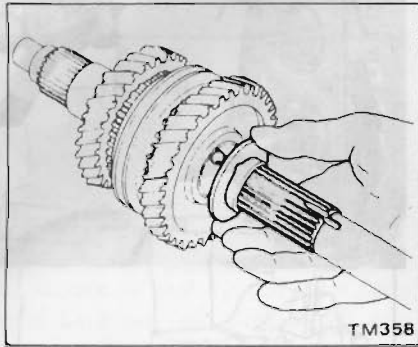


**1st and 2nd main gear**

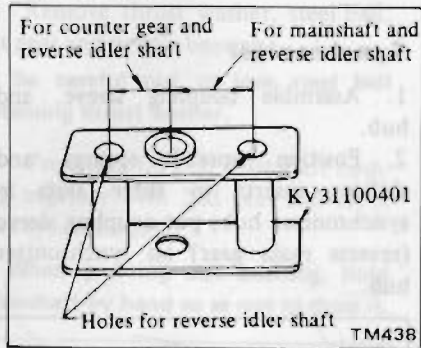
1. Assemble 2nd gear needle bearing, 2nd gear, baulk ring, 1st & 2nd synchronizer assembly, 1st gear baulk ring, 1st gear bushing, needle bearing, 1st gear, steel ball, and thrust washer on mainshaft.



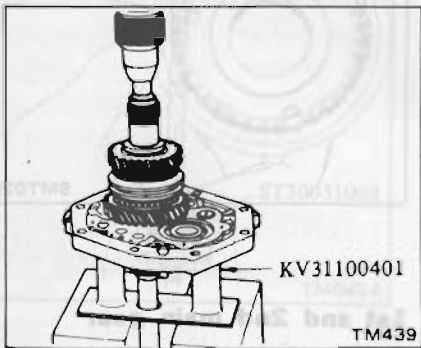
Before installing steel ball and thrust washer, apply grease to them.



2. Set Tool and place adapter plate assembly on it.

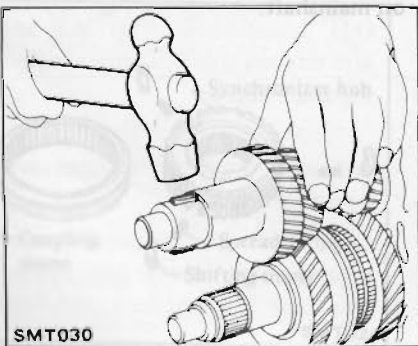


3. Press mainshaft assembly to adapter plate.

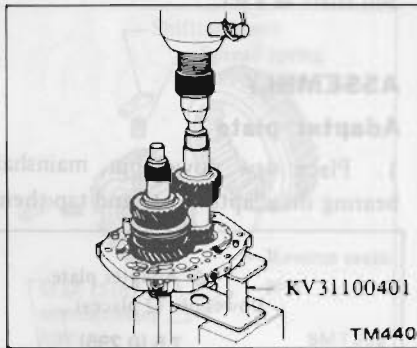


**3rd main and counter gear**

1. Tap new woodruff keys until they are seated securely.

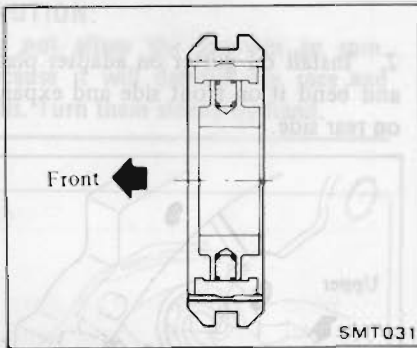


2. Press counter gear into adapter plate.



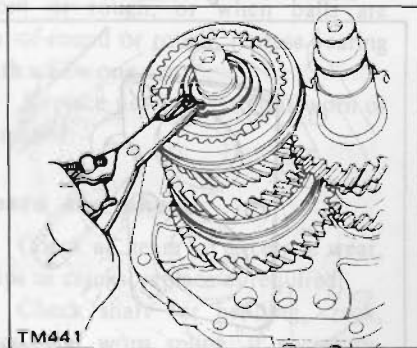
3. Position needle bearing, 3rd main gear, baulk ring and 3rd & 4th synchronizer assembly on the front of mainshaft.

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



4. Install thrust washer on mainshaft and secure it with snap ring of proper thickness that will minimize clearance of groove in mainshaft.

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

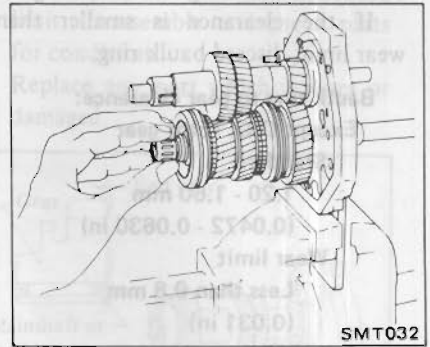


**Main drive and counter drive gear**

1. Install baulk ring on synchronizer.

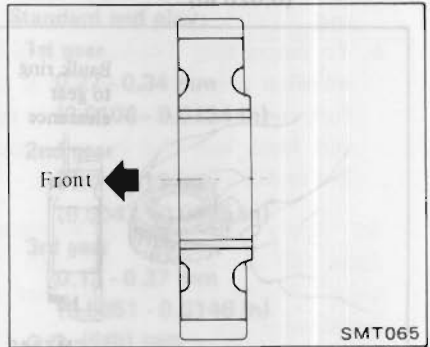
Be sure to align grooves of baulk ring with inserts.

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

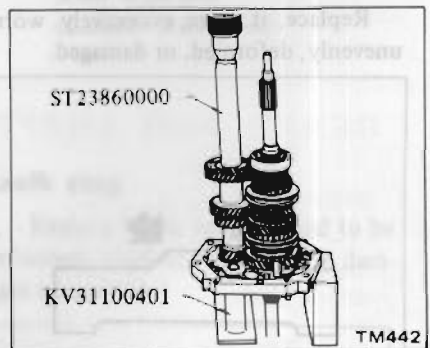


3. Install main drive gear with counter drive gear.

Assemble counter drive gear, paying attention to its direction.



4. Press counter drive gear onto counter gear.

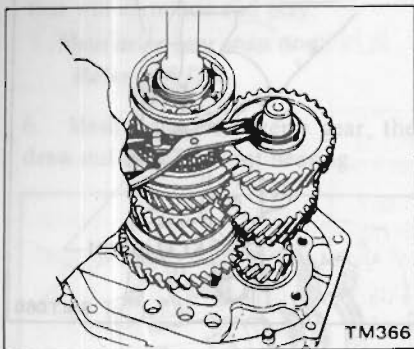


Main drive gear and counter drive gear should be handled as a matched set. When replacing main drive gear or counter drive gear, be sure to replace as a set of main drive gear and counter drive gear.

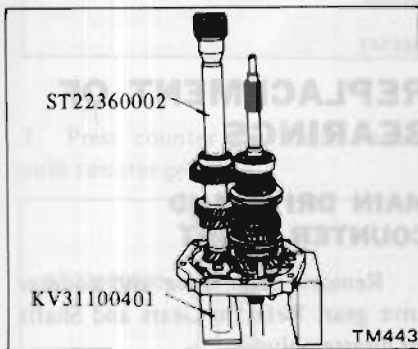
Counter drive gear snap ring:  
Refer to S.D.S.



5. Secure counter drive gear with snap ring that will minimize clearance of groove in countershaft.



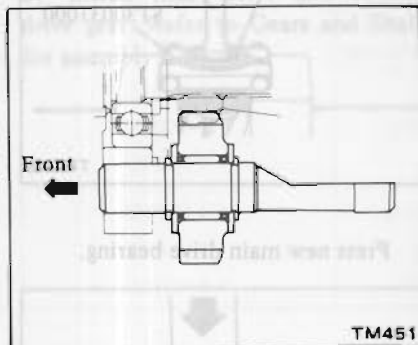
6. Press counter gear front bearing onto counter gear.



**ASSEMBLY**

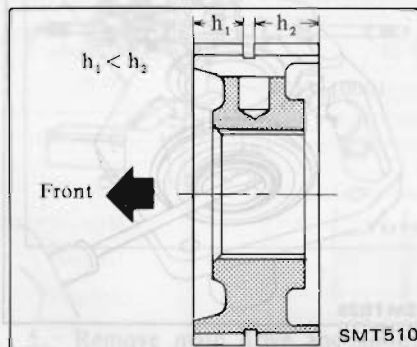
**O.D. gear and reverse gear**

1. After front side is assembled, assemble reverse counter spacer, snap ring, spacer, needle bearing, reverse idler gear, spacer and snap ring.



2. Assemble insert retainer, O.D.-reverse synchronizer hub, reverse gear, O.D. gear bushing, needle bearing, O.D. gear assembly, steel ball and thrust washer on mainshaft rear side. Before installing a steel ball, apply grease to it.

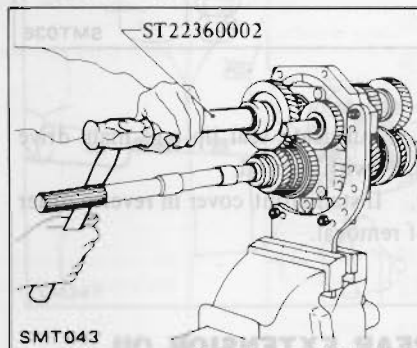
a. Assemble O.D.-reverse synchronizer hub, paying attention to its direction.



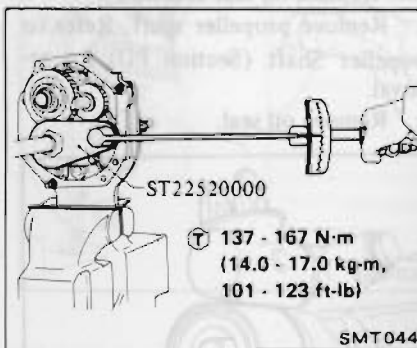
b. Main O.D. gear and counter O.D. gear should be handled as a matched set.

When replacing main O.D. gear and counter O.D. gear, be sure to replace as a set of main O.D. and counter O.D. gears.

3. Assemble reverse counter gear, overdrive counter gear.
4. Assemble new mainshaft nut, and tighten it temporarily.
5. Install bearing.



6. Mesh 2nd and reverse gear and tighten mainshaft lock nut and counter gear lock nut.

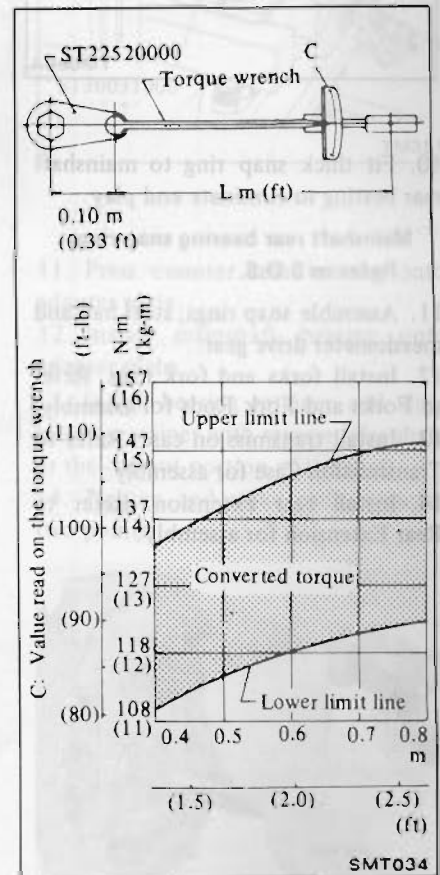


- ⊕ : Counter gear lock nut  
98 - 127 N·m  
(10.0 - 13.0 kg·m,  
72 - 94 ft·lb)

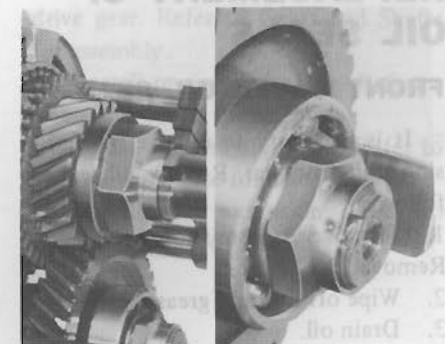
**Conversion of torque**

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

- ⊕ : 137 - 167 N·m  
(14 - 17 kg·m,  
101 - 123 ft·lb)

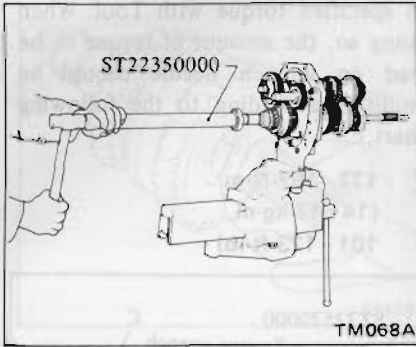


7. Stake mainshaft lock nut and counter gear lock nut with a punch.



8. Measure gear end play. Refer to Gears and Shafts for inspection.

- Fit snap ring, then assemble mainshaft rear bearing.

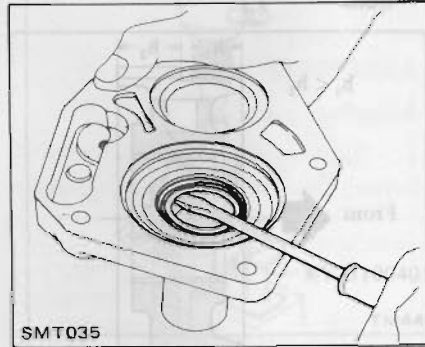


- Fit thick snap ring to mainshaft rear bearing to eliminate end play.

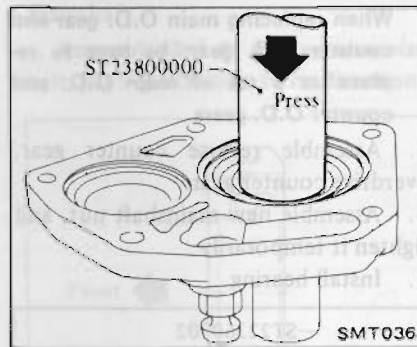
**Mainshaft rear bearing snap ring:**  
Refer to S.D.S.

- Assemble snap rings, steel ball and speedometer drive gear.
- Install forks and fork rods. Refer to Forks and Fork Rods for assembly.
- Install transmission case. Refer to Transmission Case for assembly.
- Install rear extension. Refer to Rear Extension for assembly.

- Remove front cover.
- Remove oil seal.



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

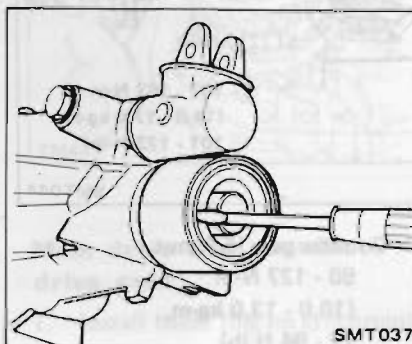


- Lubricate seal lip and main drive shaft with gear oil.
- Install front cover in reverse order of removal.

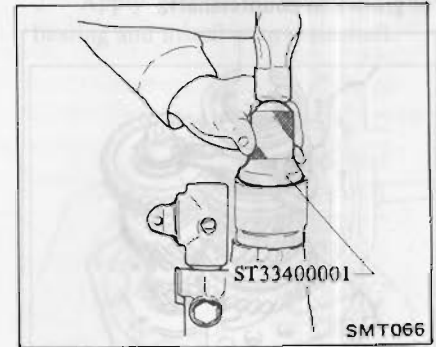
### REAR EXTENSION OIL SEAL

Rear extension oil seal can be replaced without removing transmission. Replace oil seal as follows:

- Remove propeller shaft. Refer to Propeller Shaft (Section PD) for removal.
- Remove oil seal.



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

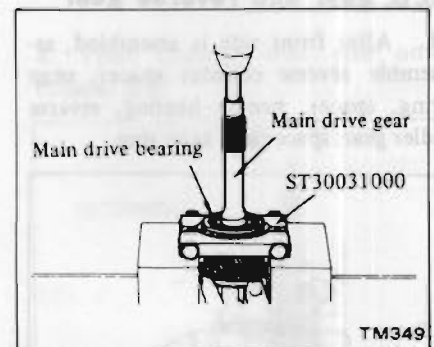


- Install propeller shaft. Refer to Propeller Shaft (Section PD) for installation.

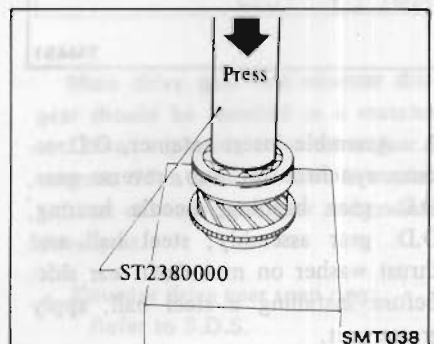
## REPLACEMENT OF BEARINGS

### MAIN DRIVE AND COUNTER FRONT

- Remove main drive and counter drive gear. Refer to Gears and Shafts for disassembly.
- Remove main drive gear snap ring and spacer.
- Remove main drive bearing.



- Press new main drive bearing.



## REPLACEMENT OF OIL SEALS

### FRONT COVER OIL SEAL

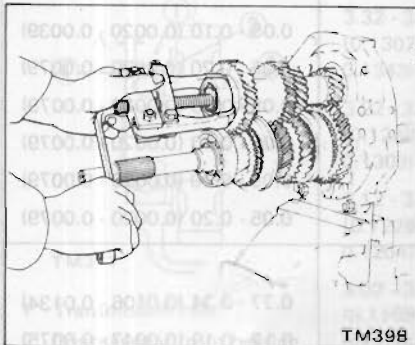
It is necessary to remove transmission unit from car. Replace oil seal as follows:

- Remove transmission. Refer to Removal.
- Wipe off dirt and grease.
- Drain oil.
- Remove dust cover, release bearing and withdrawal lever. Refer to Release Bearing (Section CL) for removal.

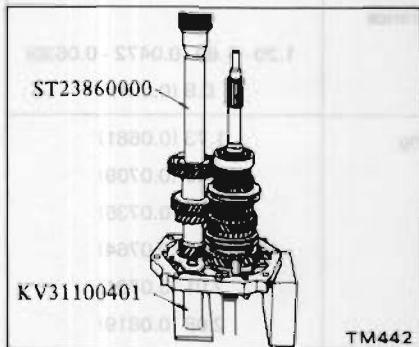
5. Place main drive bearing spacer on main drive bearing and secure main drive bearing with thicker snap ring that will eliminate end play.

**Main drive gear snap ring:**  
Refer to S.D.S.

6. Mesh 2nd and reverse gear, then draw out counter front bearing.



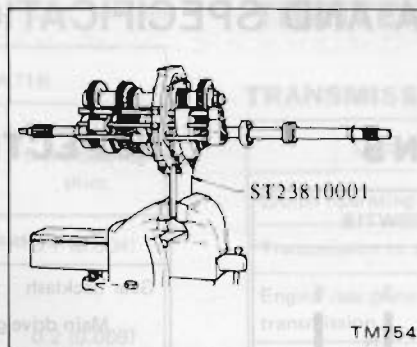
7. Press counter gear front bearing onto counter gear.



8. Install main drive and counter drive gear. Refer to Gears and Shafts for assembly.

### MAINSHAFT AND COUNTER GEAR

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.

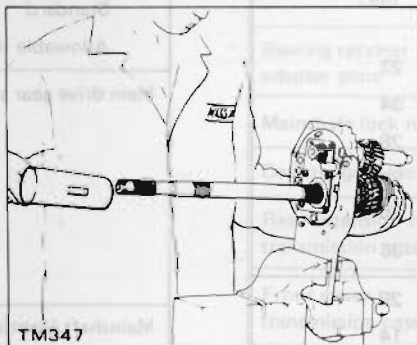


5. Remove main drive and counter drive gear. Refer to Gears and Shafts for disassembly.

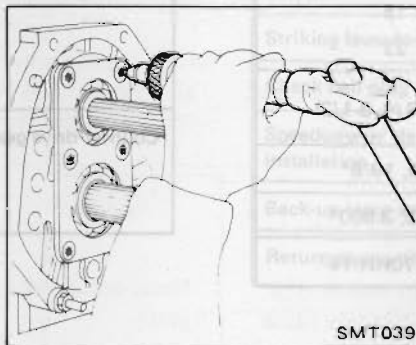
6. Remove reverse main gear. Refer to Gears and Shafts for disassembly.

7. 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.**



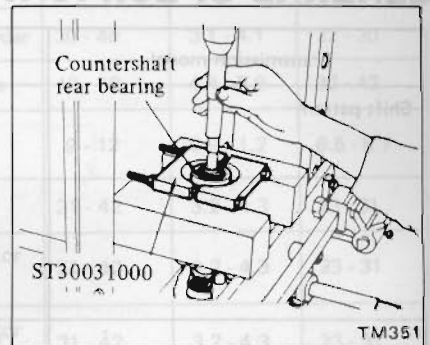
8. Remove bearing retainer.



9. Replace mainshaft bearing by new one.
10. Press out countershaft rear bearing.

### CAUTION:

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

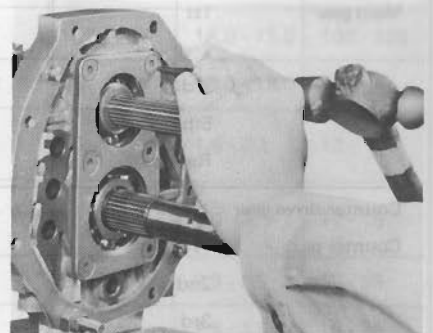


11. Press counter rear bearing onto adapter plate.

12. Install mainshaft bearing onto adapter plate.

13. Install bearing retainer and align bearing retainer with reverse idler shaft at the cut-out portion of the shaft.

14. Tighten and stake each screw at two points.



15. Install main drive and counter drive gear. Refer to Gears and Shafts for assembly.

16. Install reverse main gear. Refer to Gears and Shafts for assembly.

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

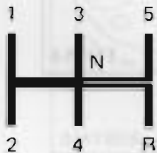
18. Install rear extension. Refer to Rear Extension for assembly.

### MAINSHAFT REAR AND COUNTER REAR END

Refer to Gears and Shafts for disassembly and assembly.

## SERVICE DATA AND SPECIFICATIONS (S.D.S.)

## GENERAL SPECIFICATIONS

Transmission model	FS5W71B
Shift pattern	
Synchromesh type	1st to 4th Warner, 5th Servo
Gear ratio	
1st	3.062
2nd	1.858
3rd	1.308
4th	1.000
5th	0.745
Reverse	3.026
Number of teeth	
Main drive gear	23
Main gear	
1st	34
2nd	28
3rd	28
5th	26
Reverse	36
Counter drive gear	29
Counter gear	
1st	14
2nd	19
3rd	27
5th	44
Reverse	15
Reverse idler gear	23
Oil capacity	liter (US pt, Imp pt)
	2.0 (4-1/4, 3-1/2)
Speedometer gear ratio	17/6, 19/6*
Final gear ratio	3.545, 3.900*
Tire size	195/70HR-14

\* : 2 seater GL and 2+2 seater

## INSPECTION AND ADJUSTMENT

Unit: mm (in)

Transmission model	FS5W71B
Gear backlash	
Main drive gear	0.05 - 0.10 (0.0020 - 0.0039)
1st gear	0.05 - 0.20 (0.0020 - 0.0079)
2nd gear	0.05 - 0.20 (0.0020 - 0.0079)
3rd gear	0.05 - 0.20 (0.0020 - 0.0079)
5th gear	0.05 - 0.20 (0.0020 - 0.0079)
Reverse idler gear	0.05 - 0.20 (0.0020 - 0.0079)
Gear end play	
1st gear	0.27 - 0.34 (0.0106 - 0.0134)
2nd gear	0.12 - 0.19 (0.0047 - 0.0075)
3rd gear	0.13 - 0.37 (0.0051 - 0.0146)
5th gear	0.10 - 0.17 (0.0039 - 0.0067)
Reverse idler gear	0.05 - 0.50 (0.0020 - 0.0197)
Baulk ring to cone clearance	
Standard	1.20 - 1.60 (0.0472 - 0.0630)
Allowable limit	0.8 (0.031)
Main drive gear snap ring	
	1.73 (0.0681)
	1.80 (0.0709)
	1.87 (0.0736)
	1.94 (0.0764)
	2.01 (0.0791)
	2.08 (0.0819)
Mainshaft front snap ring	
	1.4 (0.055)
	1.5 (0.059)
	1.6 (0.063)
Mainshaft rear bearing snap ring	
	1.1 (0.043)
	1.2 (0.047)
	1.3 (0.051)
	1.4 (0.055)
Counter drive gear snap ring	
	1.4 (0.055)
	1.5 (0.059)
	1.6 (0.063)



Unit: mm (in)

## TIGHTENING TORQUE

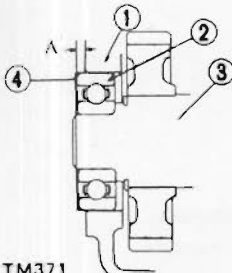
### TRANSMISSION INSTALLATION

Unit	N-m	kg-m	ft-lb
Clutch operating cylinder	30 - 40	3.1 - 4.1	22 - 30
Transmission to engine	43 - 58	4.4 - 5.9	32 - 43
Engine rear plate to transmission	9 - 12	0.9 - 1.2	6.5 - 8.7
Crossmember to body	31 - 42	3.2 - 4.3	23 - 31
Rear mounting insulator to crossmember	31 - 42	3.2 - 4.3	23 - 31
Rear mounting insulator to rear extension	31 - 42	3.2 - 4.3	23 - 31
Transmission case to rear extension	16 - 21	1.6 - 2.1	12 - 15
Starter motor to transmission	29 - 39	3.0 - 4.0	22 - 29

### GEAR ASSEMBLY

Unit	N-m	kg-m	ft-lb
Bearing retainer to adapter plate	16 - 23	1.6 - 2.3	12 - 17
Mainshaft lock nut	137 - 167	14.0 - 17.0	101 - 123
Counter gear lock nut	98 - 127	10.0 - 13.0	72 - 94
Rear extension to transmission case	16 - 21	1.6 - 2.1	12 - 15
Front cover to transmission case	16 - 21	1.6 - 2.1	12 - 15
Filler plug	25 - 34	2.5 - 3.5	18 - 25
Drain plug	25 - 34	2.5 - 3.5	18 - 25
Ball pin	20 - 34	2.0 - 3.5	14 - 25
Striking lever lock nut	9 - 12	0.9 - 1.2	6.5 - 8.7
Check ball plug	19 - 25	1.9 - 2.5	14 - 18
Speedometer sleeve installation	4 - 5	0.4 - 0.5	2.9 - 3.6
Back-up lamp switch	20 - 29	2.0 - 3.0	14 - 22
Return spring plug	8 - 10	0.8 - 1.0	5.8 - 7.2

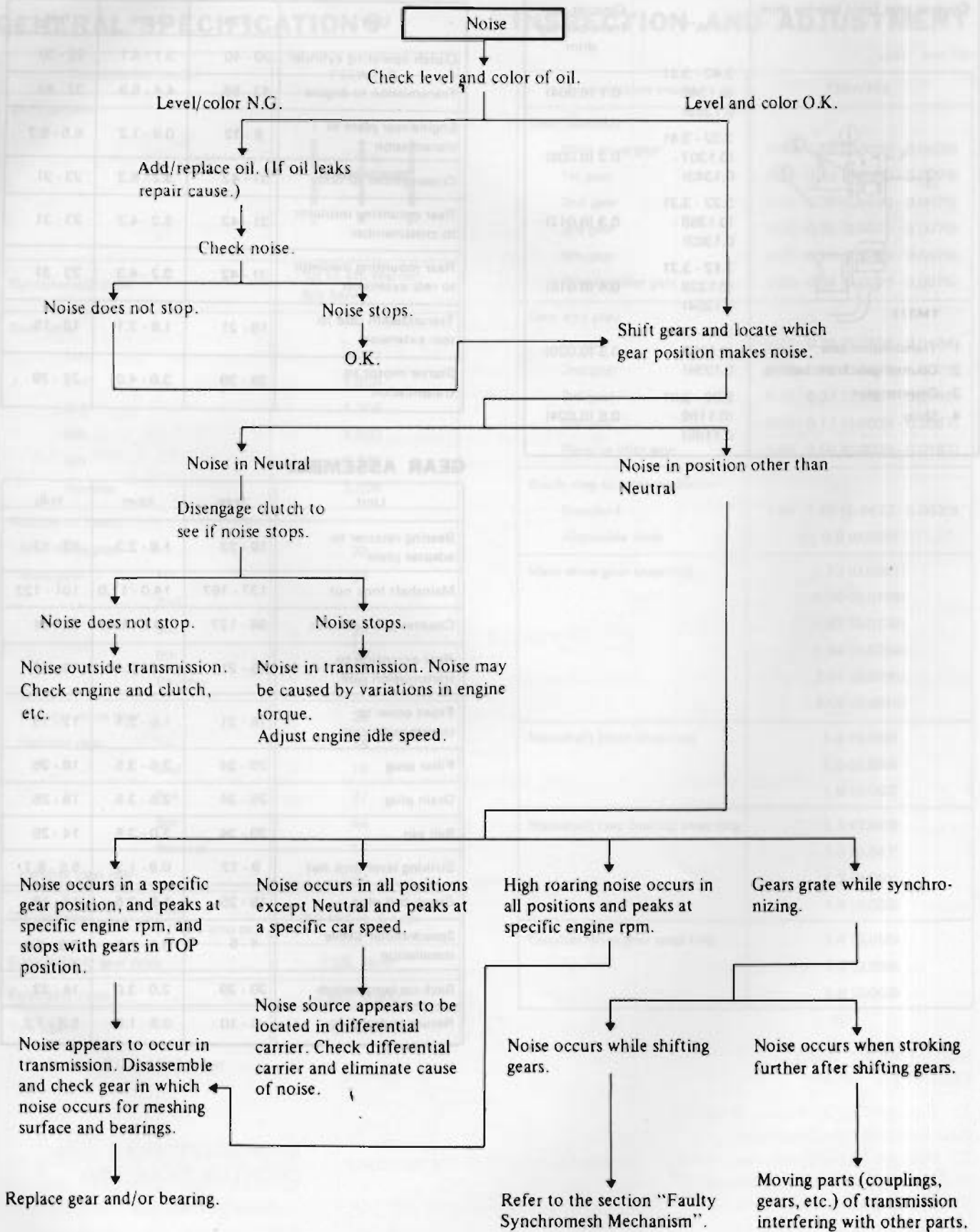
Transmission model	FS5W71B	
Counter gear front bearing shim	"A"	Counter gear front bearing shim
	3.42 - 3.51 (0.1346 - 0.1382)	0.1 (0.004)
	3.32 - 3.41 (0.1307 - 0.1343)	0.2 (0.008)
	3.22 - 3.31 (0.1268 - 0.1303)	0.3 (0.012)
	3.12 - 3.21 (0.1228 - 0.1264)	0.4 (0.016)
	3.02 - 3.11 (0.1189 - 0.1224)	0.5 (0.020)
	2.92 - 3.01 (0.1150 - 0.1185)	0.6 (0.024)

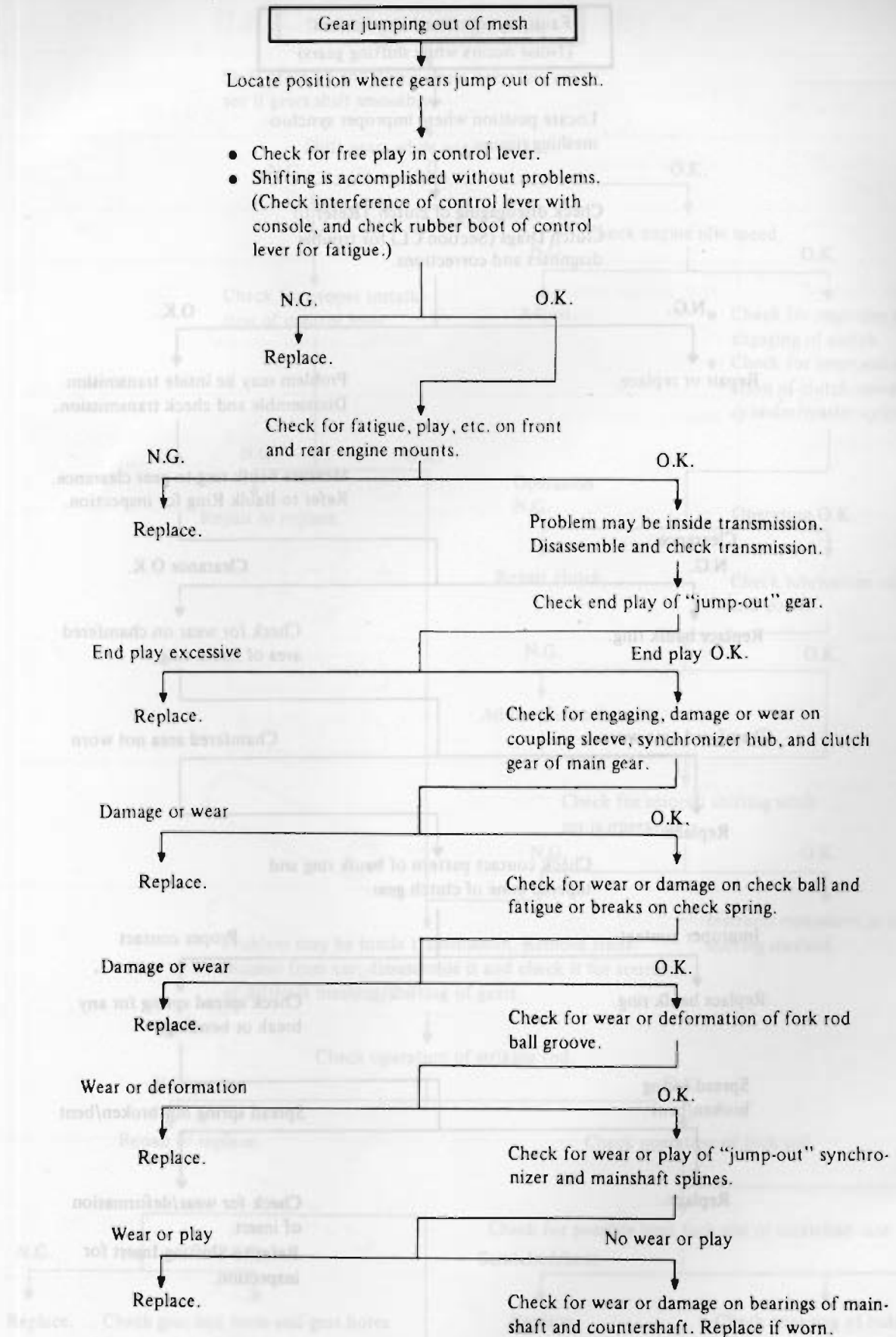


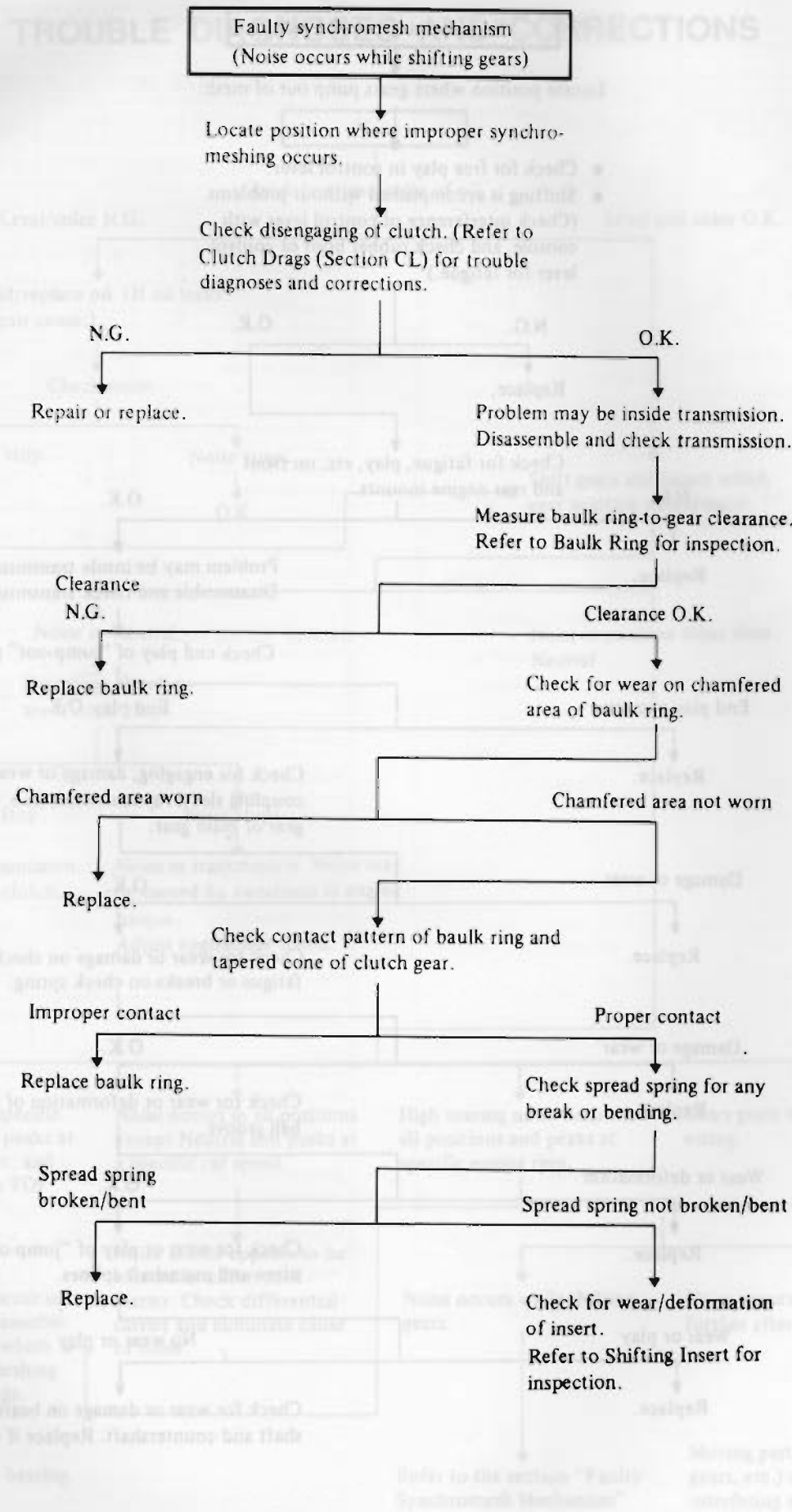
TM371

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

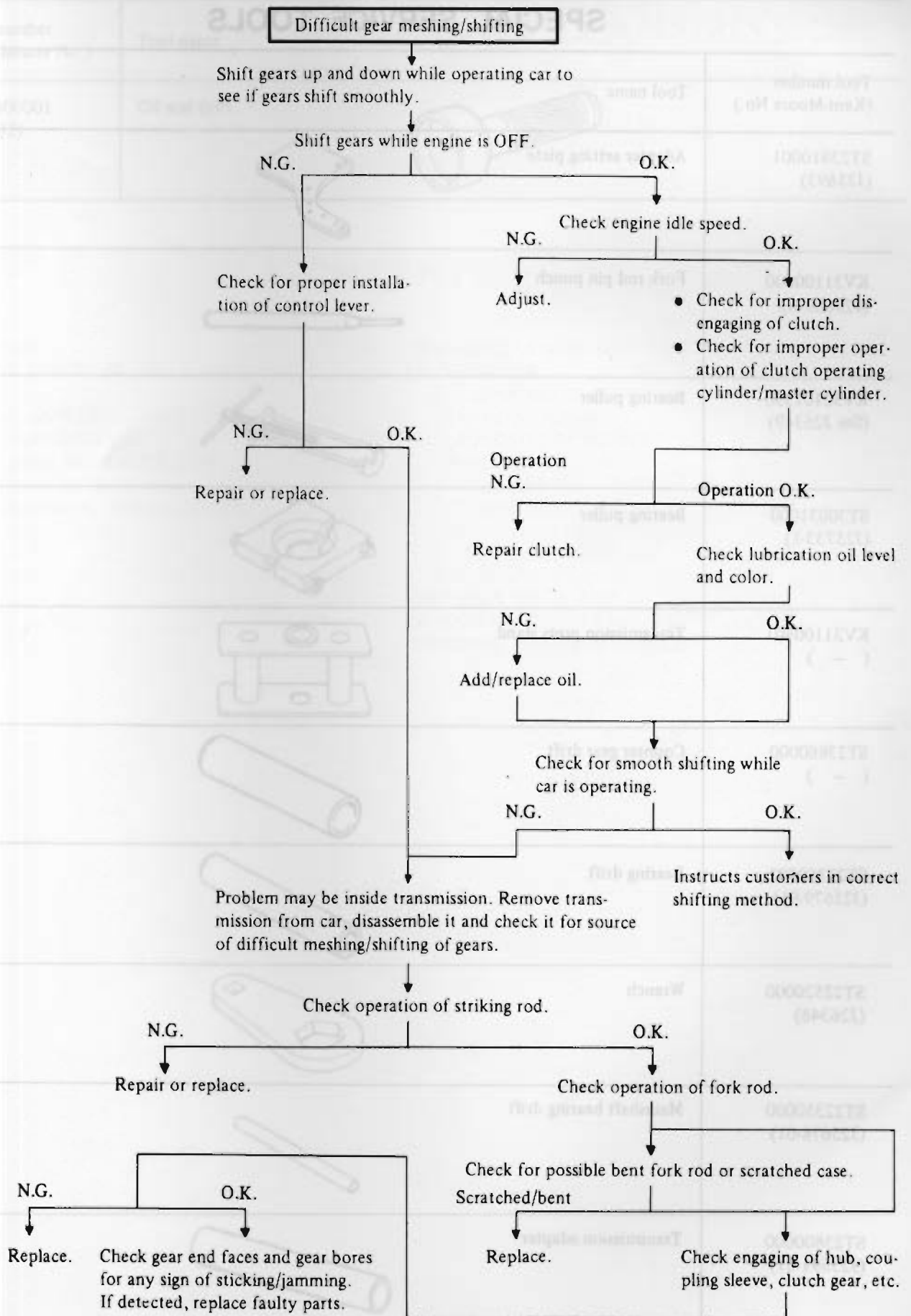
# TROUBLE DIAGNOSES AND CORRECTIONS






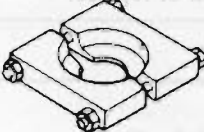
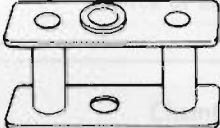
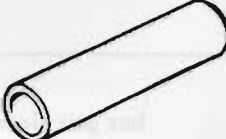
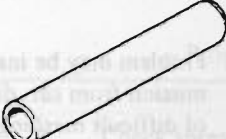
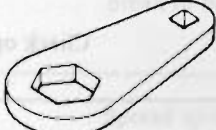
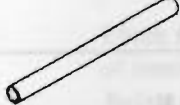
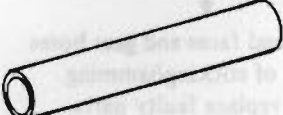


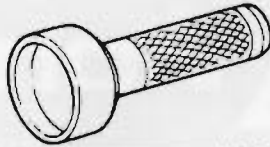






## SPECIAL SERVICE TOOLS

Tool number (Kent-Moore No.)	Tool name	
ST23810001 (J25693)	Adapter setting plate	
KV31100300 (J25689-A)	Fork rod pin punch	
KV32101330 (See J26349)	Bearing puller	
ST30031000 (J25733-1)	Bearing puller	
KV31100401 ( - )	Transmission press stand	
ST23860000 ( - )	Counter gear drift	
ST22360002 (J25679-91)	Bearing drift	
ST22520000 (J26348)	Wrench	
ST22350000 (J25678-01)	Mainshaft bearing drift	
ST23800000 (J25691-01)	Transmission adapter	

Tool number (Kent-Moore No.)	Tool name
ST33400001 (J26082)	Oil seal drift 

## CONTENTS

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