

MANUAL TRANSMISSION

SECTION MT

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MT



CAUTION:
The case is dismantled the transmission
case not to strike any adjacent parts
and make drive shaft.

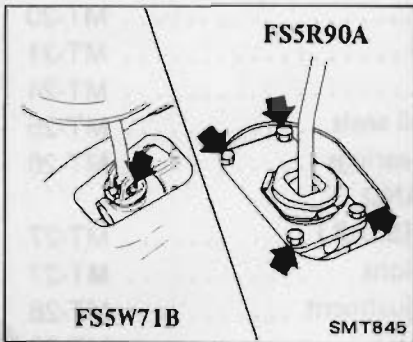
10. Remove the shaft operating the
clutch from the transmission case.

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. Remove control lever.



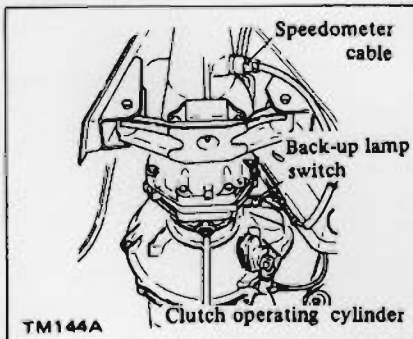
6. Jack up the car and support its weight on safety stands. Use a hydraulic hoist or open pit, if available.

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.

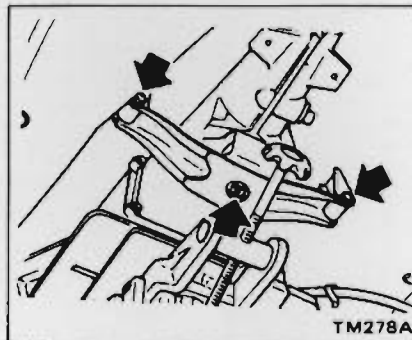
Plug up the opening in the rear extension housing to prevent oil from flowing out.

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:

FS5W71B

2.0 liters

(4-1/4 US pt,

3-1/2 Imp pt)

FS5R90A

1.9 liter

(4 US pt, 3-3/8 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

FS5W71B

25 - 34 N·m

(2.5 - 3.5 kg·m,

18 - 25 ft·lb)

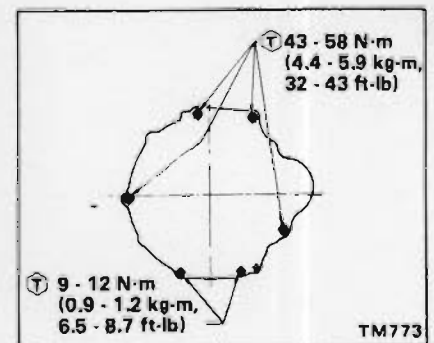
FS5R90A

20 - 34 N·m

(2.0 - 3.5 kg·m,

14 - 25 ft·lb)

5. Tighten bolts securing transmission to engine to specifications.

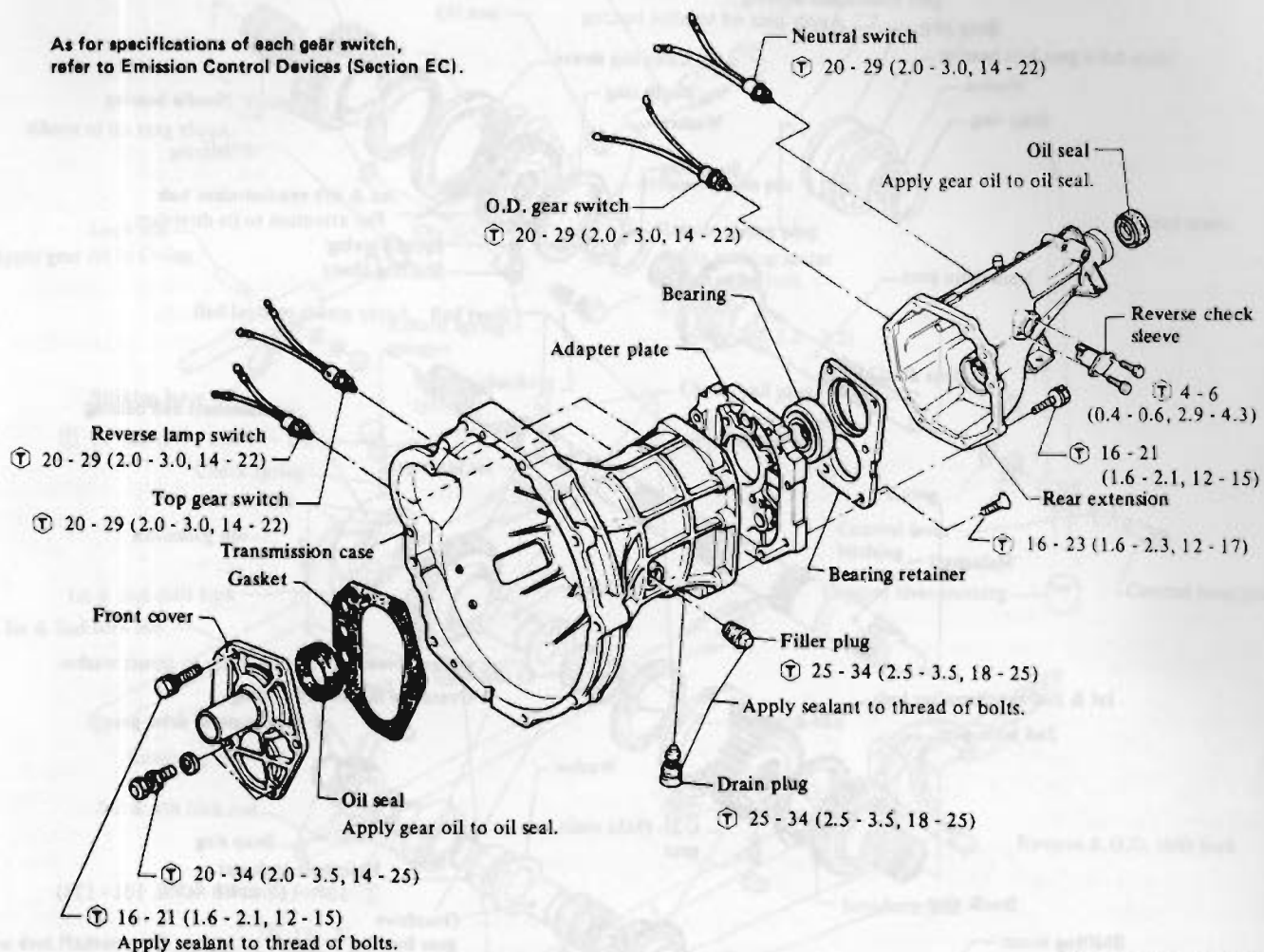


Ⓣ 43 - 58 N·m
(4.4 - 5.9 kg·m,
32 - 43 ft·lb)

Ⓣ 9 - 12 N·m
(0.9 - 1.2 kg·m,
6.5 - 8.7 ft·lb)

5-SPEED TRANSMISSION (Model : FS5W71B)

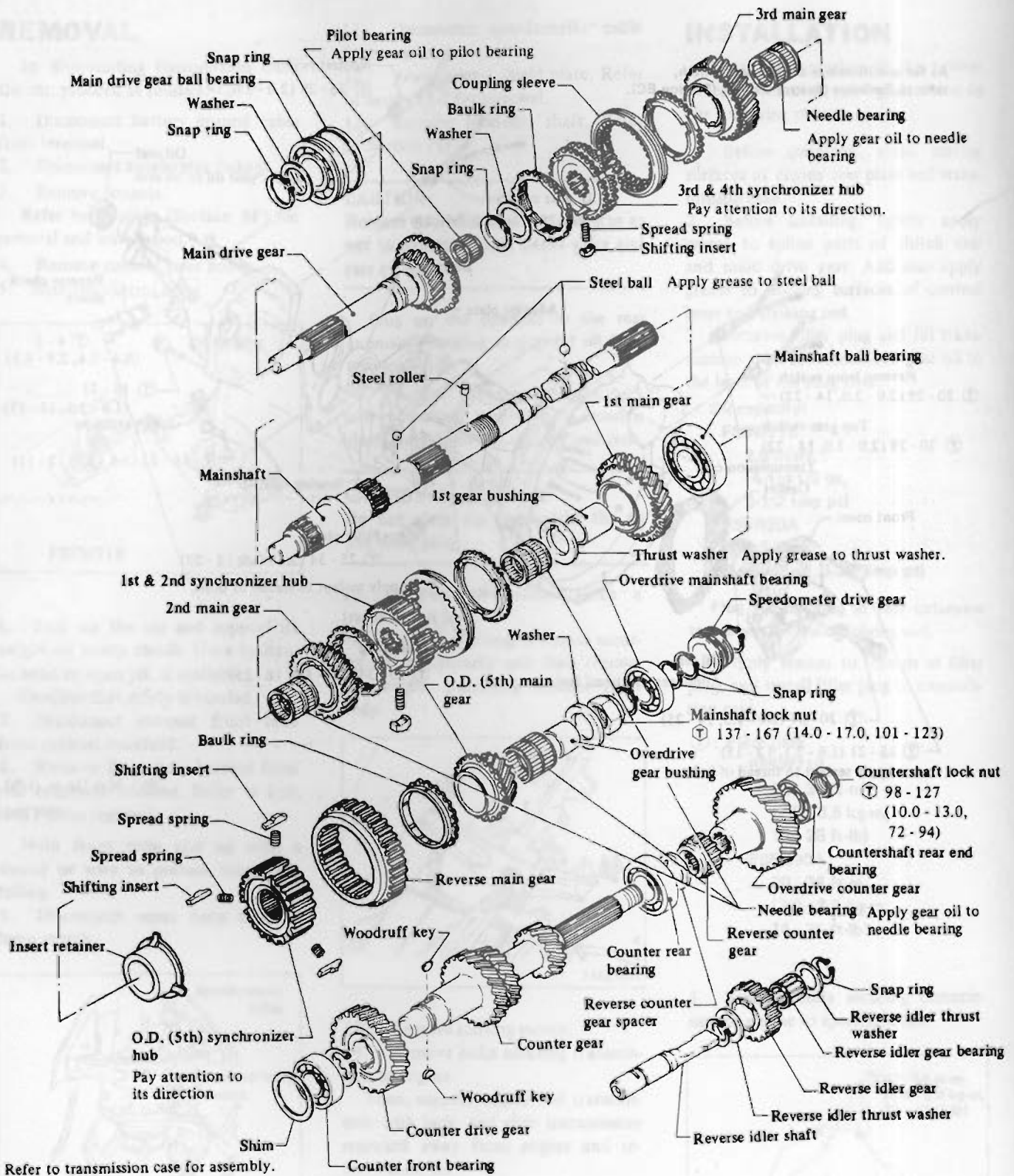
As for specifications of each gear switch, refer to Emission Control Devices (Section EC).



Ⓣ : N·m (kg·m, ft·lb)

SMT358

5-SPEED TRANSMISSION (Model: FS5W71B)

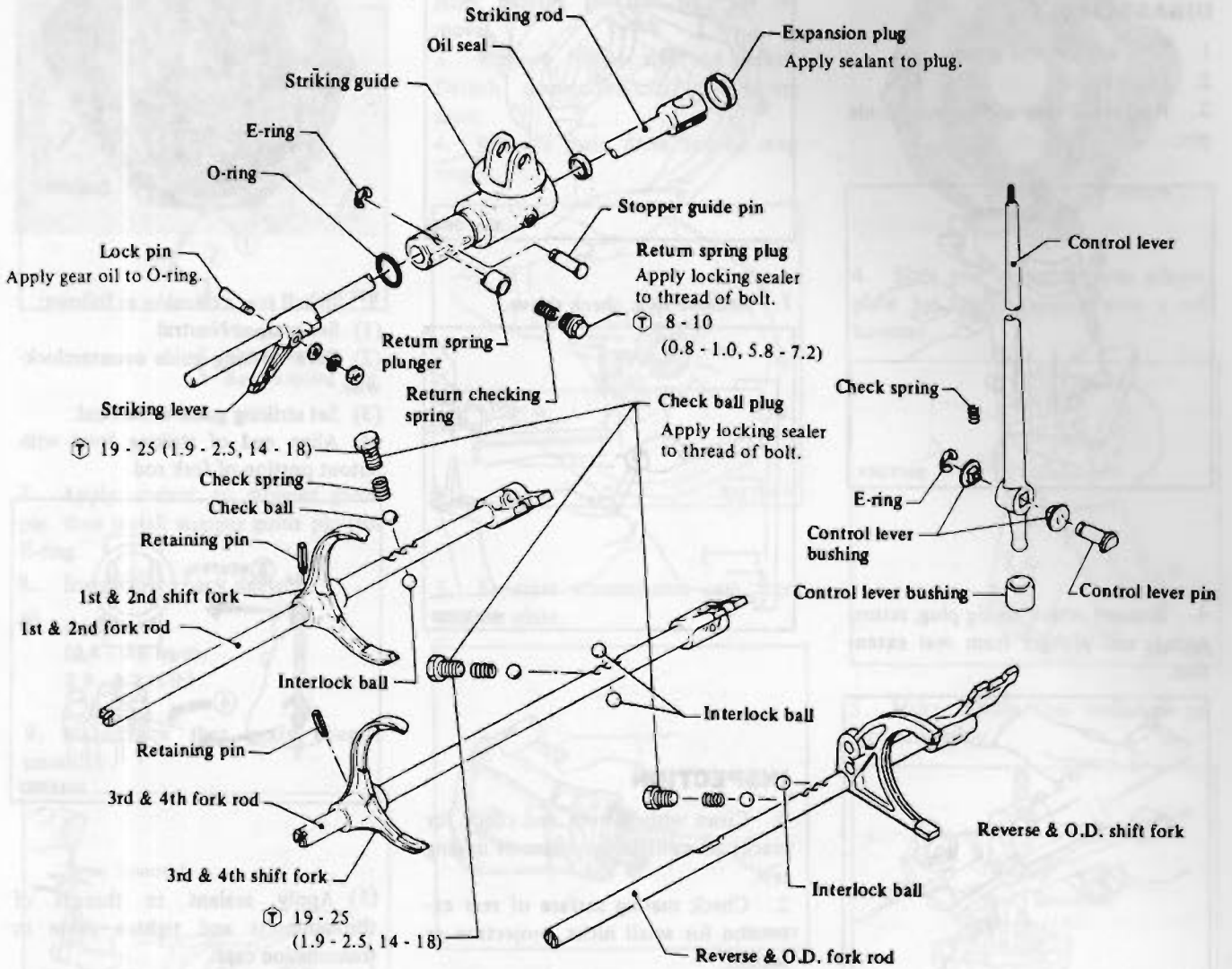


Refer to transmission case for assembly.

Ⓜ : N-m (kg-m, ft-lb)

SMT738

5-SPEED TRANSMISSION (Model: FS5W71B)



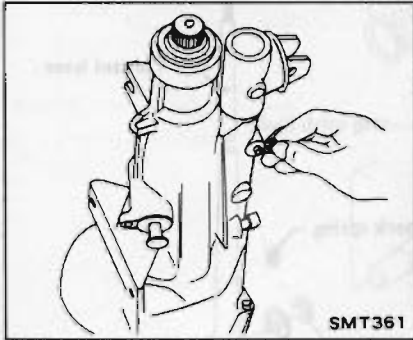
Ⓢ : N·m (kg·m, ft·lb)

SMT360

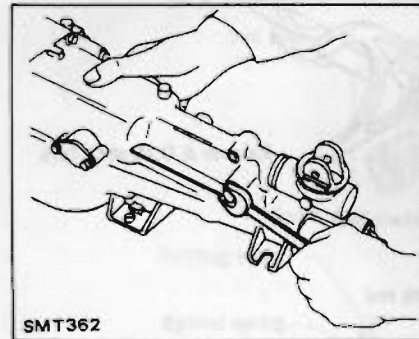
REAR EXTENSION

DISASSEMBLY

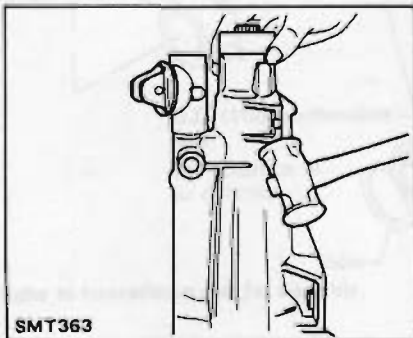
1. Wipe off dirt and grease.
2. Drain oil.
3. Remove E-ring and stopper guide pin.



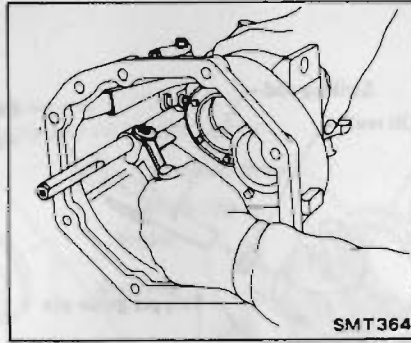
4. Remove return spring plug, return spring, and plunger from rear extension.



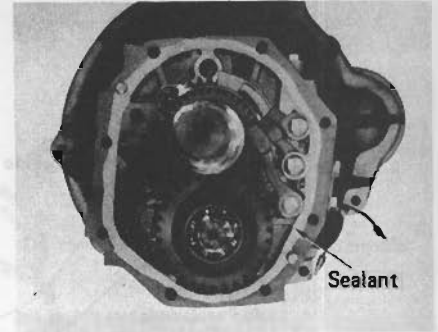
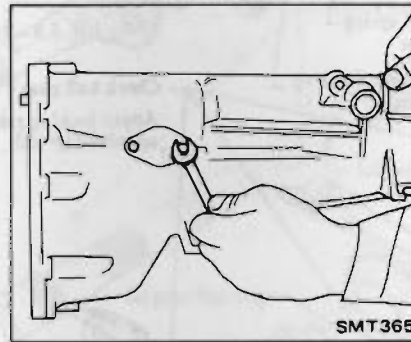
5. Remove rear extension by lightly tapping it.



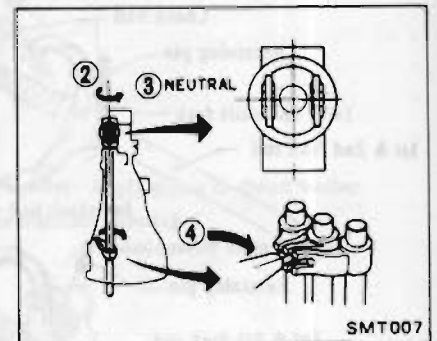
6. Remove lock pin and then remove striking rod.



7. Remove Rev. check sleeve.



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.

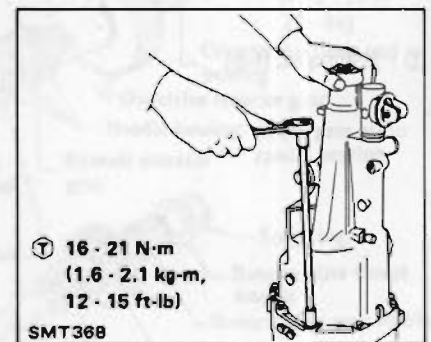


INSPECTION

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.



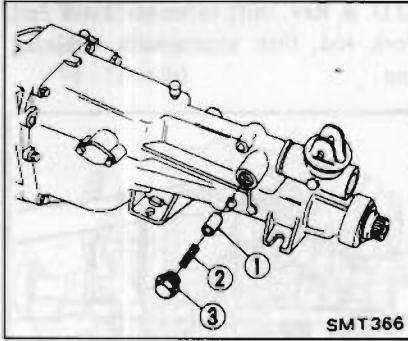
ASSEMBLY

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.



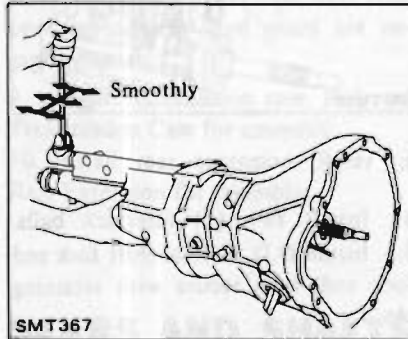
- 1 Plunger
- 2 Return spring
- 3 Return spring plug

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

8. Install Rev. check sleeve.

⊕ : 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.

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

TRANSMISSION CASE

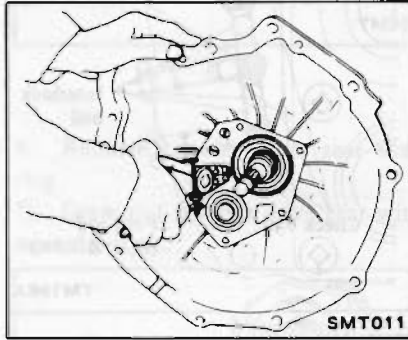
DISASSEMBLY

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

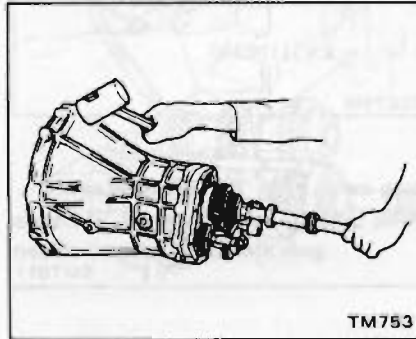
2. Remove dust cover, release bearing and withdrawal lever. Refer to Release Bearing (Section CL) for removal.

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.

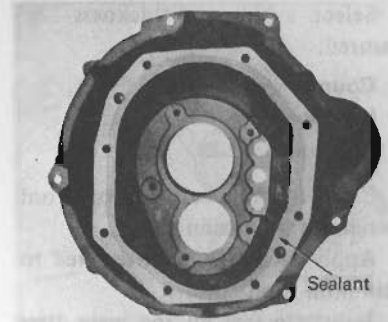


INSPECTION

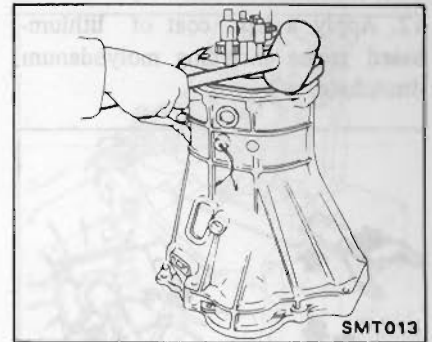
1. Clean with solvent and check for cracks or pits by means of dyeing test.
2. Check mating surface of transmission case for small nicks, projection or sealant.

ASSEMBLY

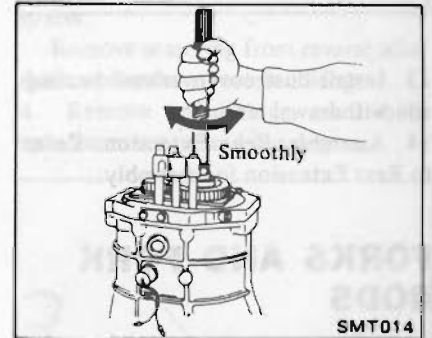
1. Clean mating surfaces of adapter plate and transmission case.
2. Stand transmission case on wooden plates of more than 20 mm (0.79 in) thick.
3. Apply sealant to mating surface of transmission case.



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



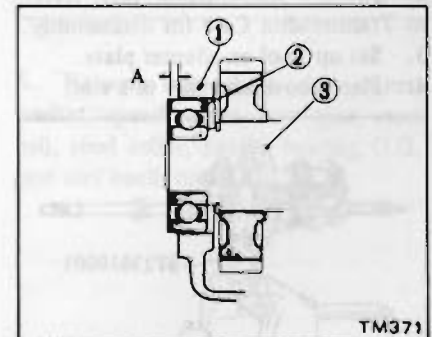
5. Make certain that mainshaft rotates smoothly.



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.

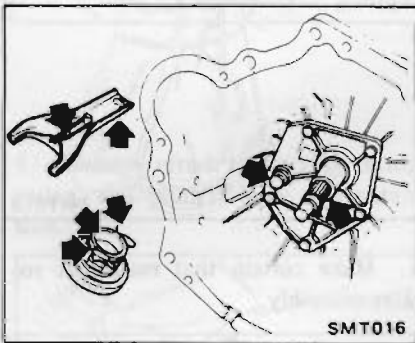
Counter gear front bearing shim:

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 lithium-based grease including molybdenum disulphide.



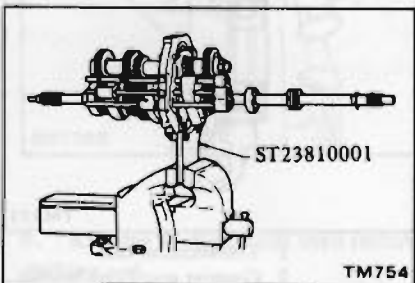
13. Install dust cover, release bearing and withdrawal lever.

14. Assemble Rear Extension. Refer to Rear Extension for assembly.

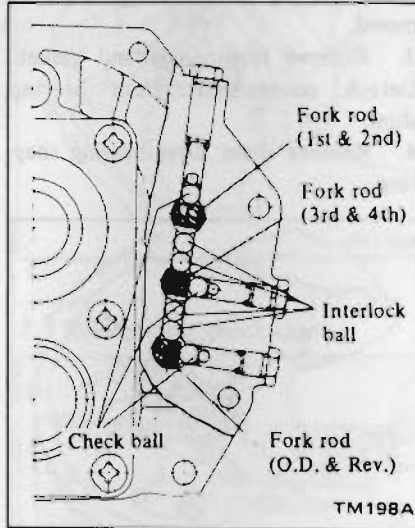
FORKS AND FORK RODS

DISASSEMBLY

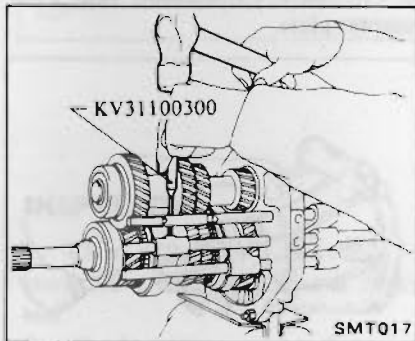
1. Remove rear extension. Refer to Rear Extension for disassembly.
2. Remove transmission case. Refer to Transmission Case for disassembly.
3. Set up Tool on adapter plate.
4. Place above assembly in a vise.



5. Remove check ball plugs and check springs.



6. Drive out retaining pins.

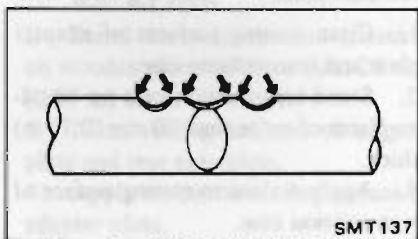


7. Drive out fork rods and remove interlock balls and check balls.

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

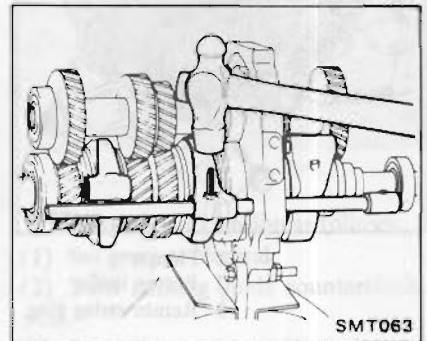
INSPECTION

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

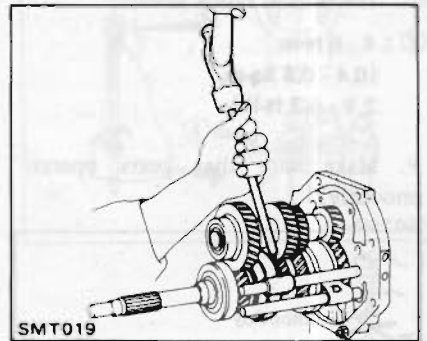


ASSEMBLY

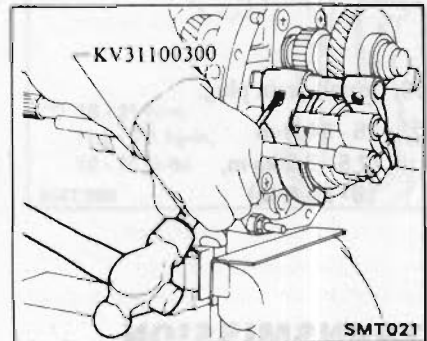
1. Install 1st & 2nd, 3rd & 4th and O.D. & Rev. shift forks and 1st & 2nd fork rod, then secure with retaining pin.



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



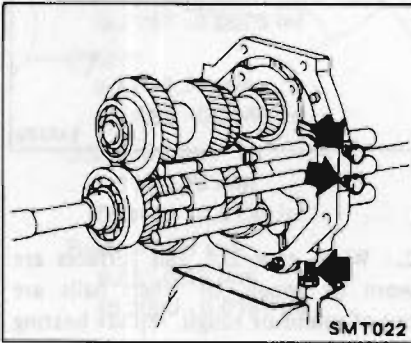
4. Install two (2) interlock balls.
5. Install O.D. & Rev. shift fork and fork rod, then secure with retaining pin.



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.

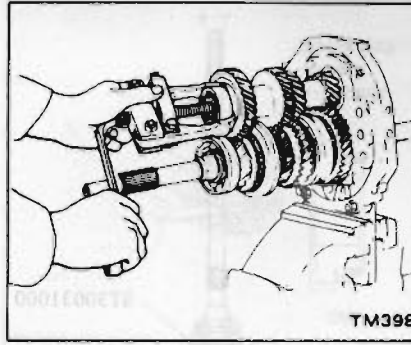
10. Install rear extension. Refer to Rear Extension for assembly.

GEARS AND SHAFTS

DISASSEMBLY

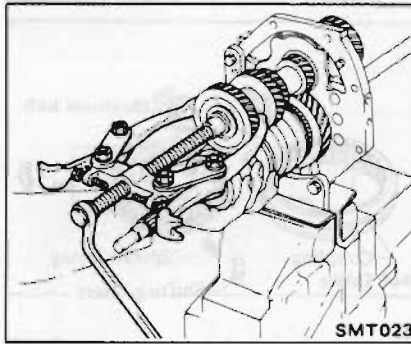
Main drive and counter drive gear

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.

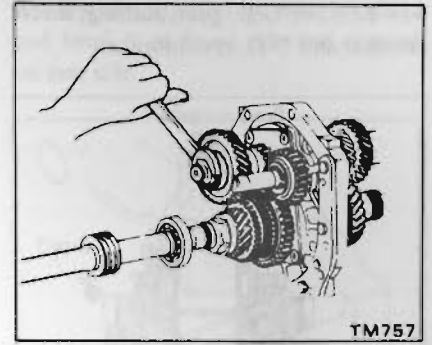
3rd main gear

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

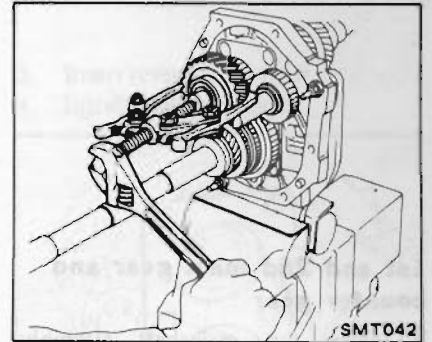
O.D. gear and reverse gear

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.



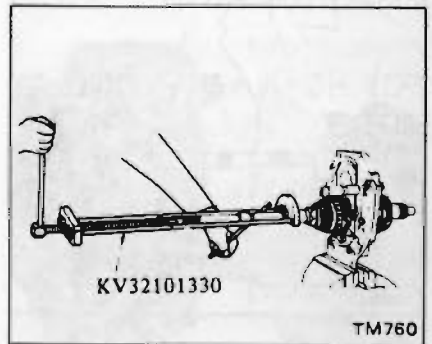
2. Drive out counter O.D. gear and bearing.



3. Remove reverse counter gear and spacer.

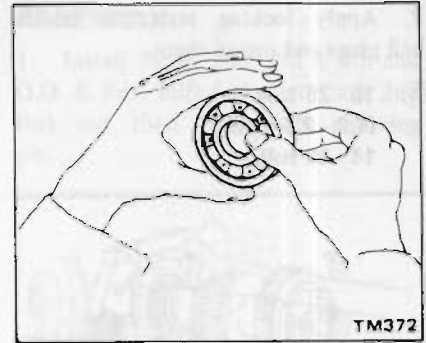
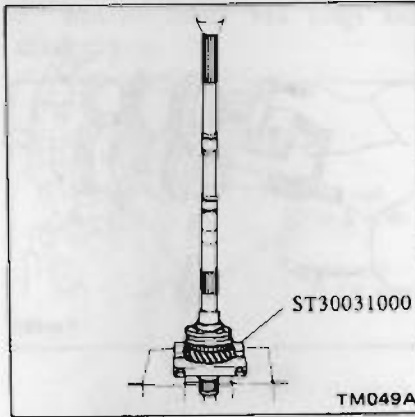
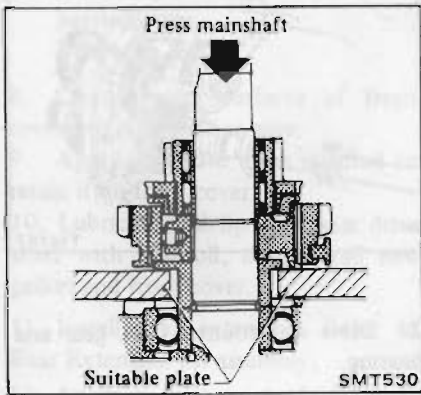
Remove snap ring from reverse idler shaft, and remove reverse idler gear.

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



5. Remove mainshaft nut, thrust washer, speedometer drive gear, steel ball, steel roller, needle bearing, O.D. gear and baulk ring.

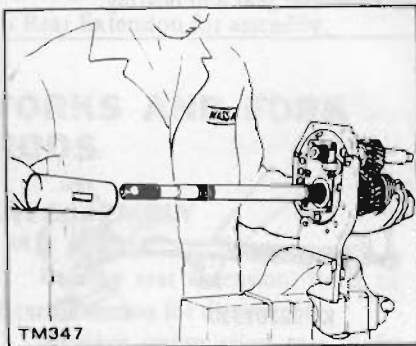
6. Remove O.D. gear bushing, insert retainer and O.D. synchronizer.



1st and 2nd main gear and counter gear

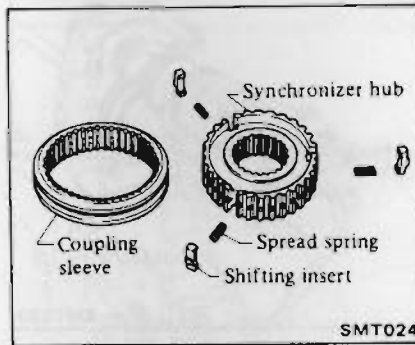
1. Draw out mainshaft assembly together with counter gear, by tapping rear end of mainshaft and counter gear.

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



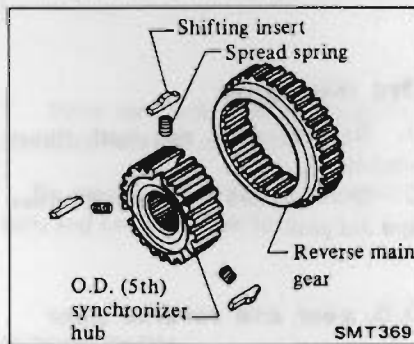
Synchronizer (1st & 2nd and 3rd & 4th)

Disassemble synchronizer.



Synchronizer (O.D.)

Disassemble synchronizer.



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.

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.

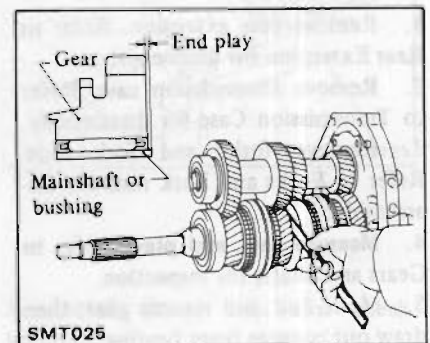
INSPECTION

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.

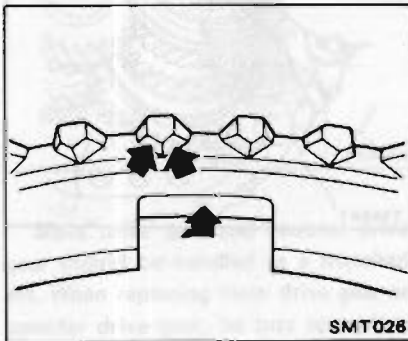


Standard end play:

- 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
0.31 - 0.35 mm
(0.0122 - 0.0138 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

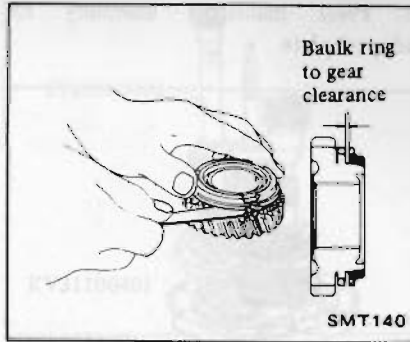
- Standard
1.20 - 1.60 mm
(0.0472 - 0.0630 in)

- Wear limit
Less than 0.8 mm
(0.031 in)

O.D. (5th) gear

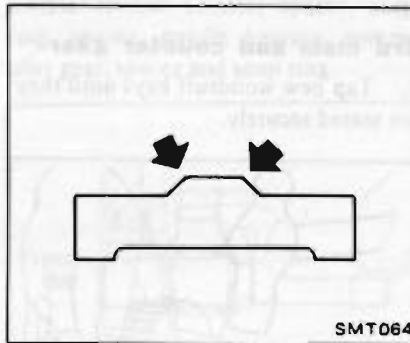
- Standard
1.00 - 1.40 mm
(0.0394 - 0.0551 in)

- Wear limit
Less than 0.5 mm
(0.020 in)



Shifting Insert

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



Oil seals

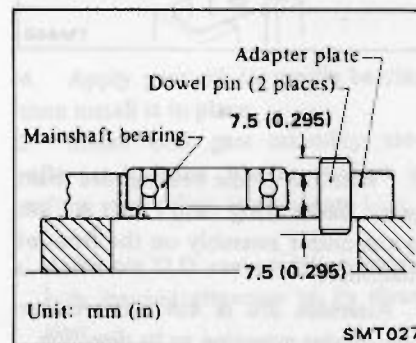
1. Replace oil seal if sealing lip is deformed or cracked. Also discard oil seal if spring is out of position. Refer to Replacement of Oil Seals.

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

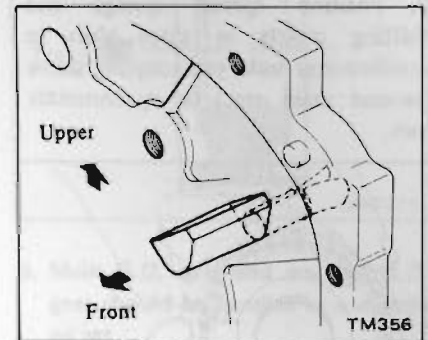
ASSEMBLY

Adapter plate

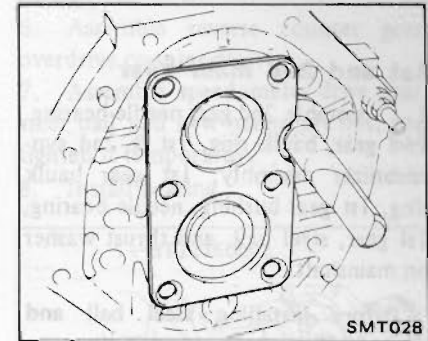
1. Place new dowel pin, mainshaft bearing on adapter plate and tap them.



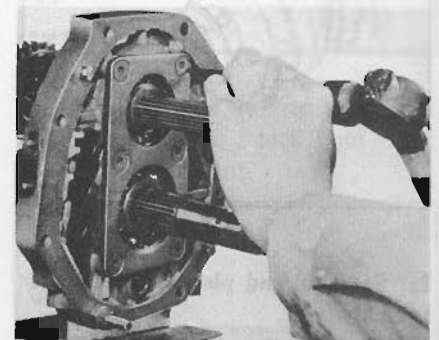
2. Install oil gutter on adapter plate and bend it on front side and expand on rear side.



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



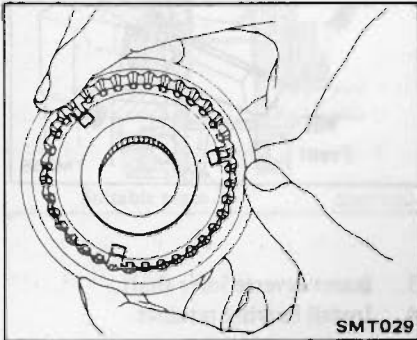
5. Tighten each screw, then stake it at two points.



6. Install counter rear bearing with a soft hammer.

Synchronizer

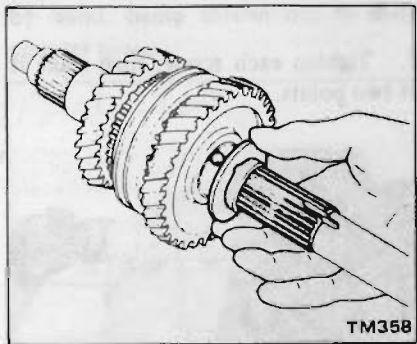
1. Assemble coupling sleeve, and hub.
2. Position spread springs and shifting inserts in three slots in synchronizer hub; put coupling sleeve (reverse main gear) on synchronizer hub.



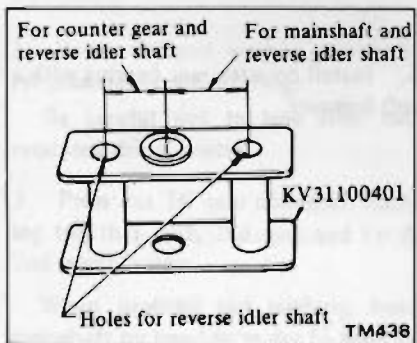
1st and 2nd main gear

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.

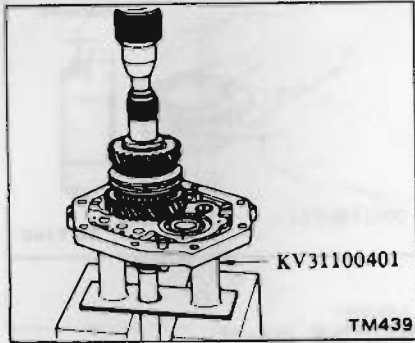
Before installing steel ball and thrust washer, apply grease to them.



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

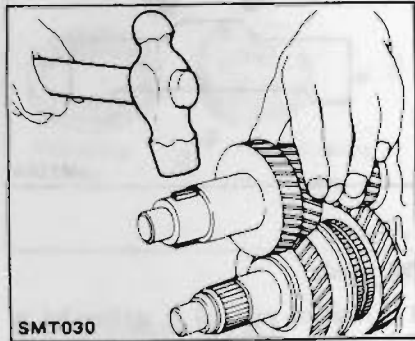


3. Press mainshaft assembly to adapter plate.

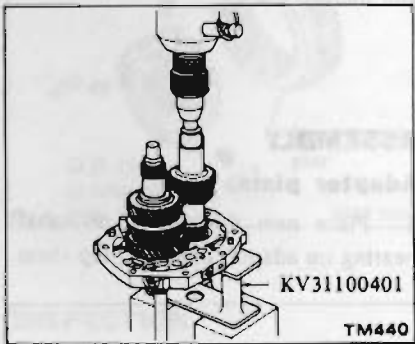


3rd main and counter gear

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

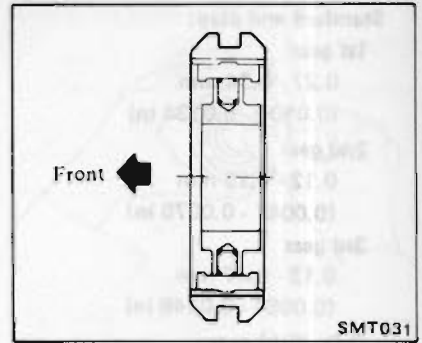


2. Press counter gear into adapter plate.



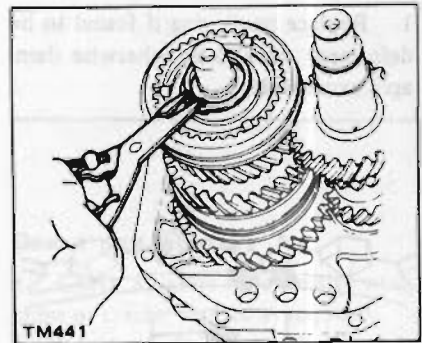
3. Position needle bearing, 3rd main gear, baulk ring and 3rd & 4th synchronizer assembly on the front of mainshaft.

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.

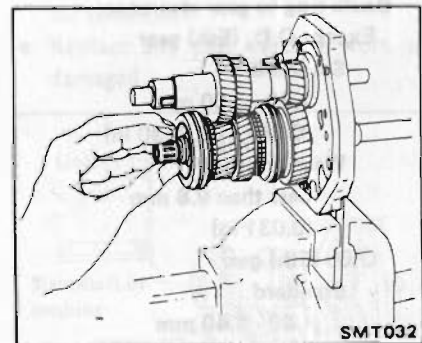


Main drive and counter drive gear

1. Install baulk ring on synchronizer.

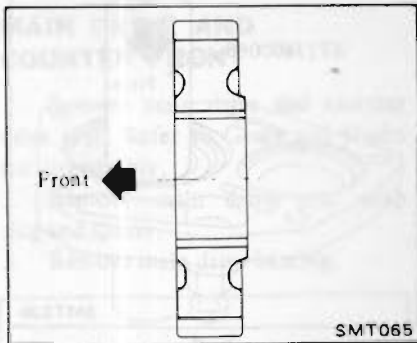
Be sure to align grooves of baulk ring with inserts.

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

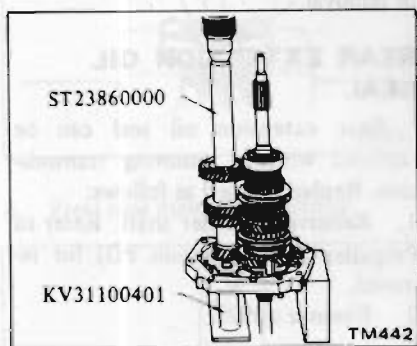


3. Install main drive gear with counter drive gear.

Assemble counter drive gear, paying attention to its direction.



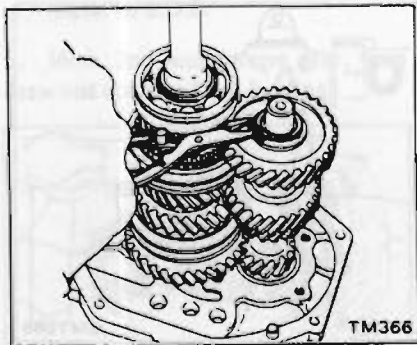
4. Press counter drive gear onto counter gear.



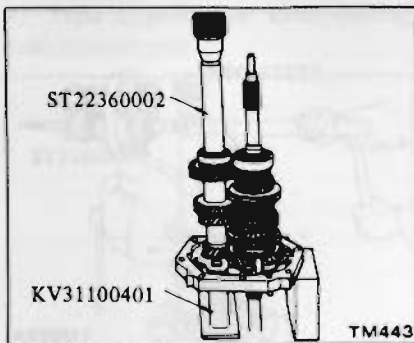
Main drive gear and counter drive gear should be handled as a matched set. When replacing main drive gear or counter drive gear, be sure to replace as a set of main drive gear and counter drive gear.

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.



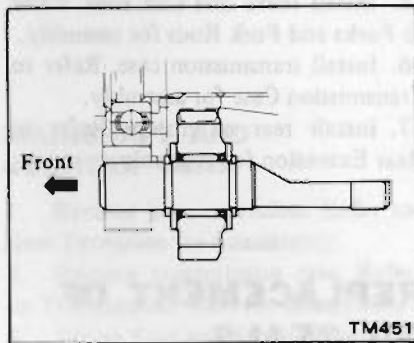
6. Press counter gear front bearing onto counter gear.



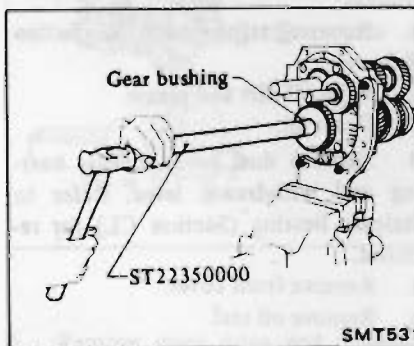
ASSEMBLY

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.

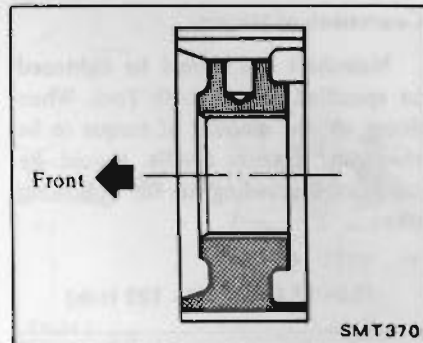


2. Assemble insert retainer and O.D. synchronizer.
3. Install O.D. gear bushing.



4. Apply gear oil to needle bearing, then install it in place.
5. Install O.D. gear assembly, steel roller and thrust washer. Before installing steel roller, apply grease to it.

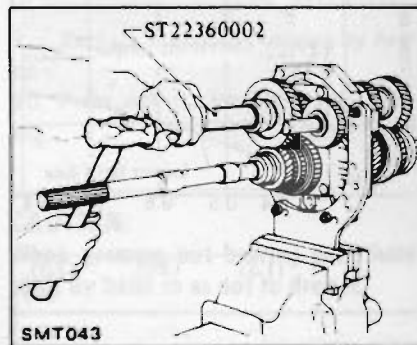
a. Assemble O.D.-reverse synchronizer hub, paying attention to its direction.



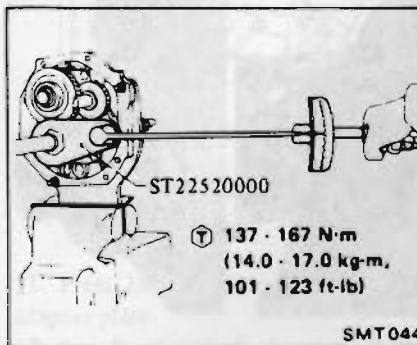
b. Main O.D. gear and counter O.D. gear should be handled as a matched set.

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.

6. Assemble reverse counter gear, overdrive counter gear.
7. Assemble speedometer drive gear, steel ball and new mainshaft nut, and tighten it temporarily.
8. Install bearing.



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

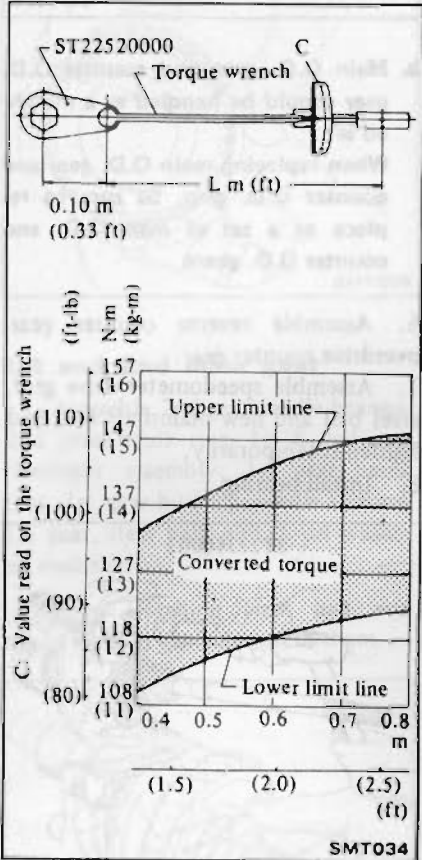


Ⓜ : Counter gear lock nut
98 - 127 N·m
(10.0 - 13.0 kg·m,
72 - 94 ft·lb)

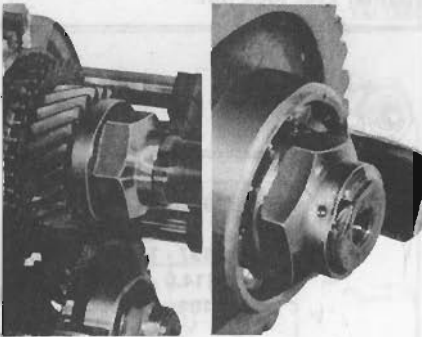
Conversion of torque

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.

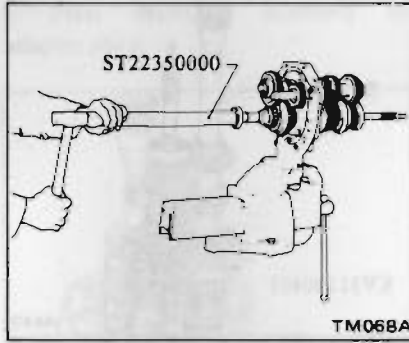
T : 137 · 167 N·m
(14 · 17 kg·m, 101 · 123 ft·lb)



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



11. Measure gear end play. Refer to Gears and Shafts for inspection.
12. Fit snap ring, then assemble mainshaft rear bearing.



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

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

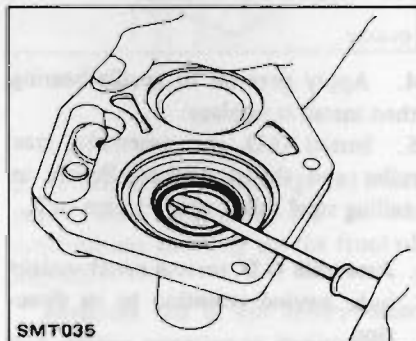
- 14. Assemble snap rings, steel ball and speedometer drive gear.
- 15. Install forks and fork rods. Refer to Forks and Fork Rods for assembly.
- 16. Install transmission case. Refer to Transmission Case for assembly.
- 17. Install rear extension. Refer to Rear Extension for assembly.

REPLACEMENT OF OIL SEALS

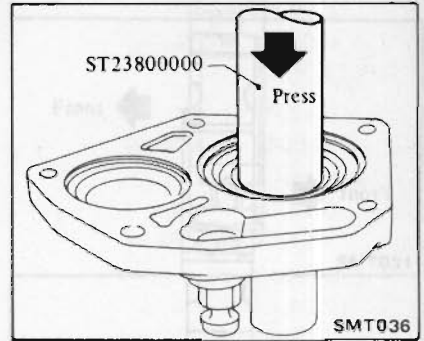
FRONT COVER OIL SEAL

It is necessary to remove transmission unit from car. 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. Refer to Release Bearing (Section CL) for removal.
- 5. Remove front cover.
- 6. Remove oil seal.



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

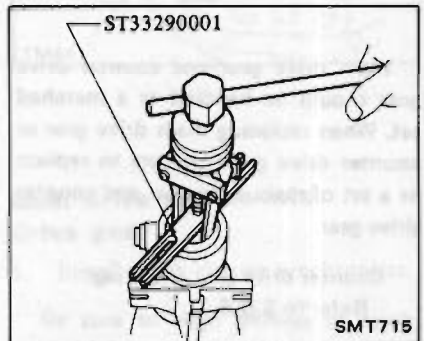


- 8. Lubricate seal lip and main drive shaft with gear oil.
- 9. Install front cover in reverse order of removal.

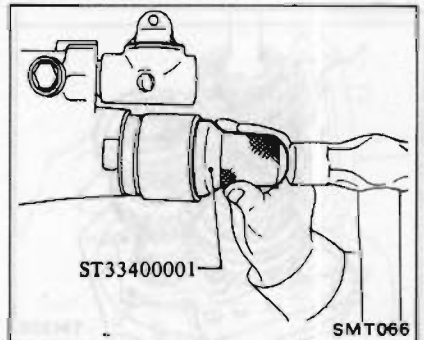
REAR EXTENSION OIL SEAL

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

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



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

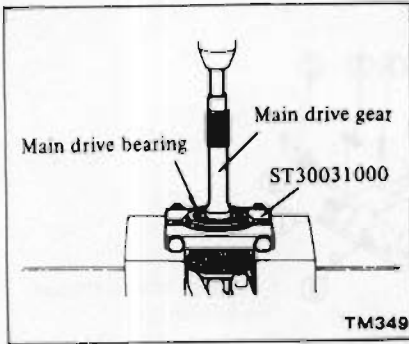


4. Install propeller shaft. Refer to Propeller Shaft (Section PD) for installation.

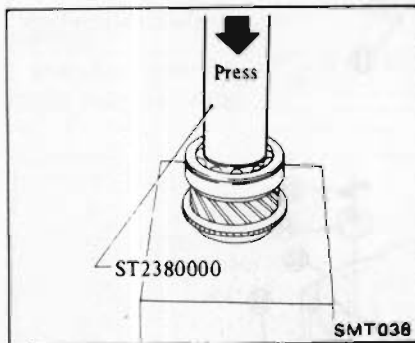
REPLACEMENT OF BEARINGS

MAIN DRIVE AND COUNTER FRONT

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



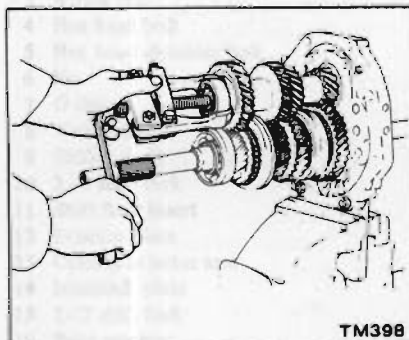
4. Press new main drive bearing.



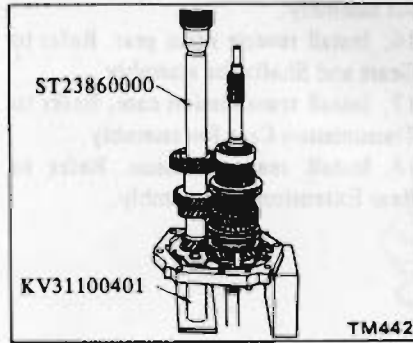
5. Place main drive bearing spacer on main drive bearing and secure main drive bearing with thicker snap ring that will eliminate end play.

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

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



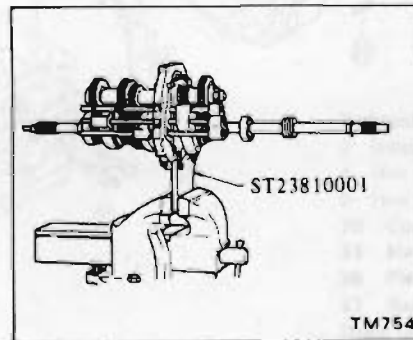
7. Press counter gear front bearing onto counter gear.



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

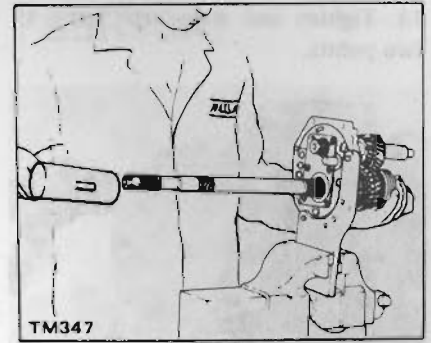
MAINSHAFT AND COUNTER GEAR

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.

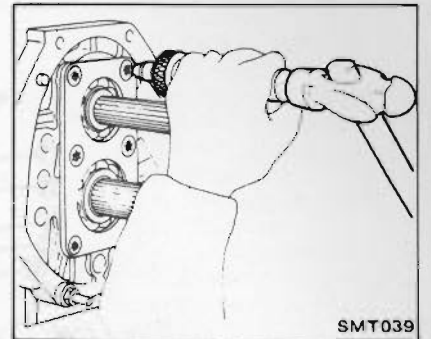


5. Remove main drive and counter drive gear. Refer to Gears and Shafts for disassembly.
6. Remove reverse main gear. Refer to Gears and Shafts for disassembly.
7. Draw out mainshaft assembly together with counter gear, by tapping rear end of mainshaft and counter gear.

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



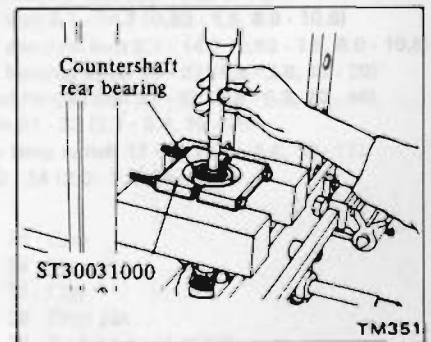
8. Remove bearing retainer.



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

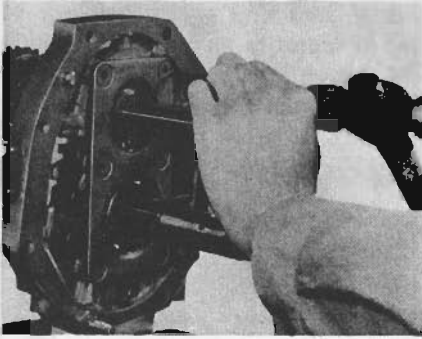
CAUTION:

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.

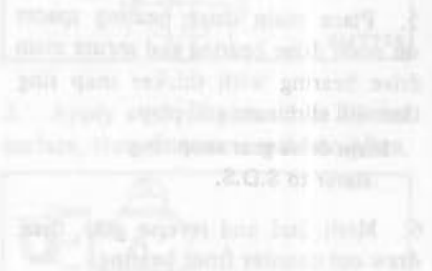
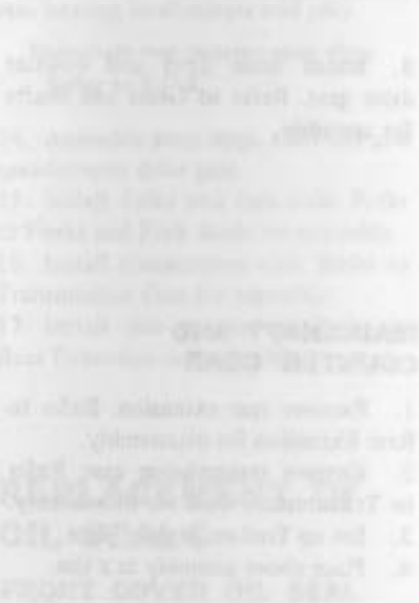
14. Tighten and stake each screw at two points.



- 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.

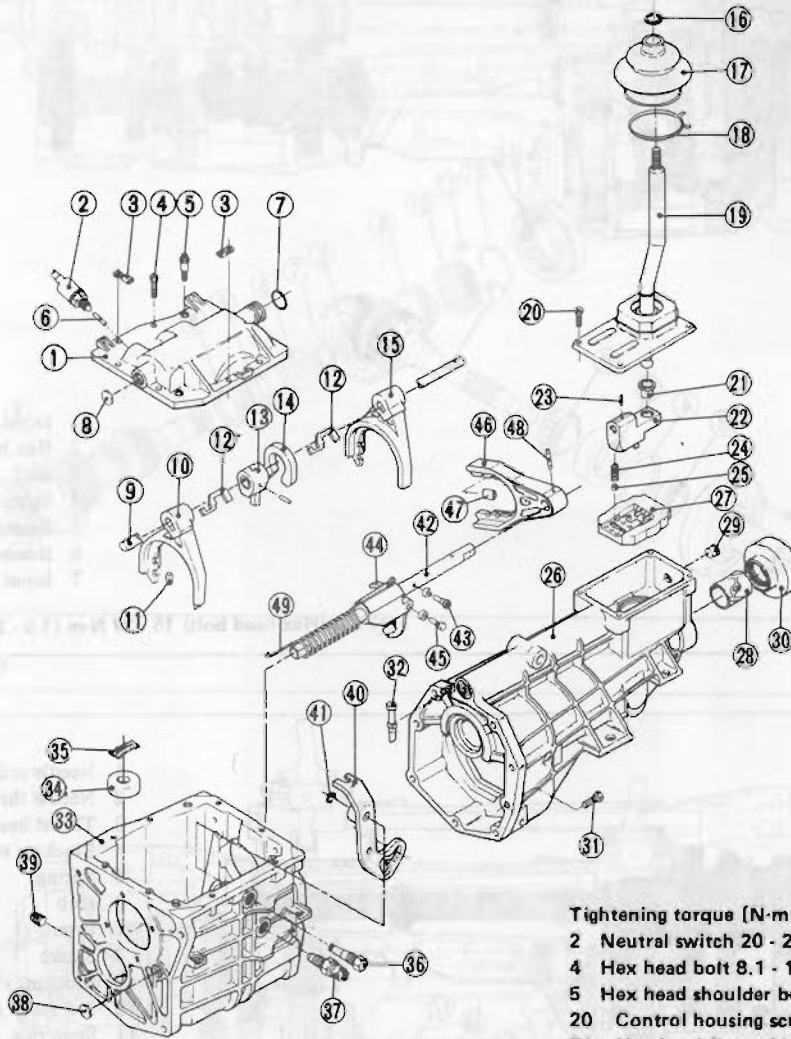
MAINSHAFT REAR AND COUNTER REAR END

Refer to Gears and Shafts for disassembly and assembly.



5-SPEED TRANSMISSION (Model : FS5R90A)

Case, shift cover, extension housing



Tightening torque (N·m (kg·m, ft·lb))

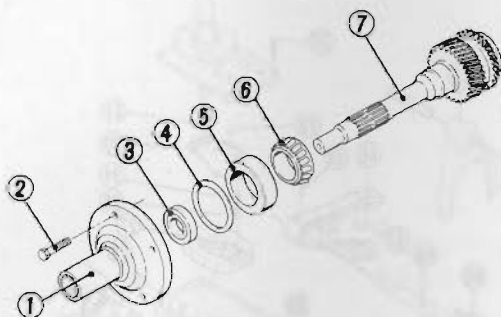
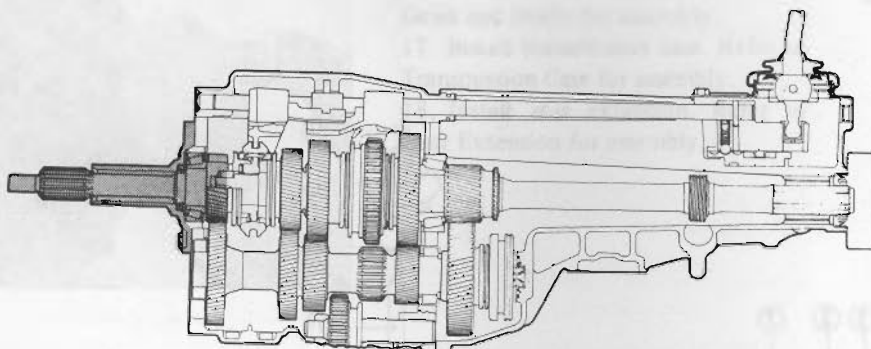
- 2 Neutral switch 20 - 29 (2.0 - 3.0, 14 - 22)
- 4 Hex head bolt 8.1 - 14.7 (0.83 - 1.5, 6.0 - 10.8)
- 5 Hex head shoulder bolt 8.1 - 14.7 (0.83 - 1.5, 6.0 - 10.8)
- 20 Control housing screw 15 - 27 (1.5 - 2.8, 11 - 20)
- 31 Hex head flanged bolt 27 - 62 (2.8 - 6.3, 20 - 46)
- 36 Pivot pin 21 - 33 (2.1 - 3.4, 15 - 25)
- 37 Back-up lamp switch 17 - 24 (1.7 - 2.4, 12 - 17)
- Drain plug 20 - 34 (2.0 - 3.5, 14 - 25)

SMT846

- | | | |
|--------------------------|-----------------------------------|--------------------------------|
| 1 Case cover | 17 Boot | 33 Case |
| 2 Neutral switch | 18 Boot retainer | 34 Magnet |
| 3 Wiring clip | 19 Control lever/housing assembly | 35 Clip |
| 4 Hex head bolt | 20 Control housing screw | 36 Pivot pin |
| 5 Hex head shoulder bolt | 21 Damper sleeve | 37 Back-up lamp switch |
| 6 Pin | 22 Offset lever | 38 Welsh plug |
| 7 O-ring | 23 Spring-pin | 39 Pipe plug |
| 8 Welsh plug | 24 Detent spring | 40 5th and reverse relay lever |
| 9 Shifter shaft | 25 Ball | 41 Retaining ring |
| 10 3-4 shift fork | 26 Extension housing | 42 5th and reverse shift rail |
| 11 Shift fork insert | 27 Detent & guide plate | 43 Roller cam and pin |
| 12 Selector plate | } Not serviced separately | 44 Reverse shift fork |
| 13 Control selector arm | | 45 Roller cam and pin |
| 14 Interlock plate | 29 Cup plug | 46 5th gear shift fork |
| 15 1-2 shift fork | 30 Oil seal | 47 Insert |
| 16 Boot retainer | 31 Hex head flanged bolt | 48 Spring-pin |
| | 32 Breather | 49 Spring |

5-SPEED TRANSMISSION (Model: FS5R90A)

Input shaft assembly

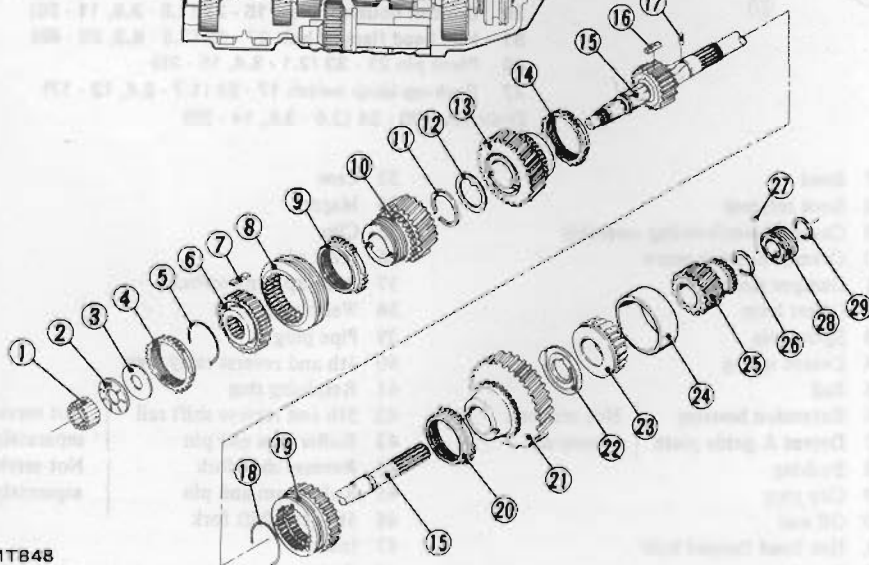
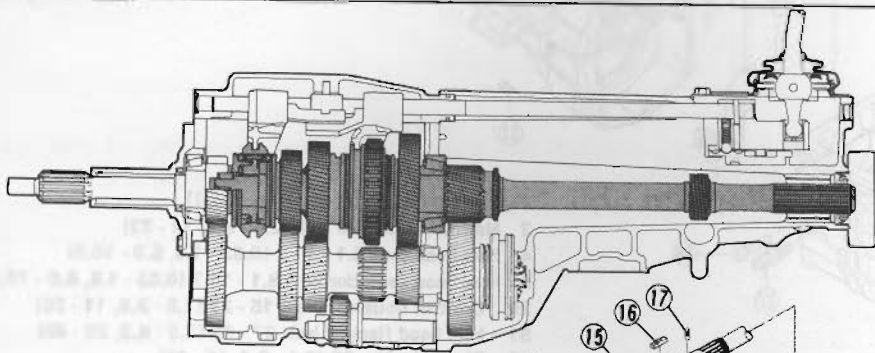


- 1 Input shaft bearing retainer
- 2 Hex head bolt
- 3 Seal
- 4 Shim
- 5 Bearing cup
- 6 Bearing cone
- 7 Input shaft (main drive gear)

SMTB47

⊕ : 2 (Hex head bolt) 15 - 27 N·m (1.5 - 2.8 kg·m, 11 - 20 ft·lb)

Output shaft assembly

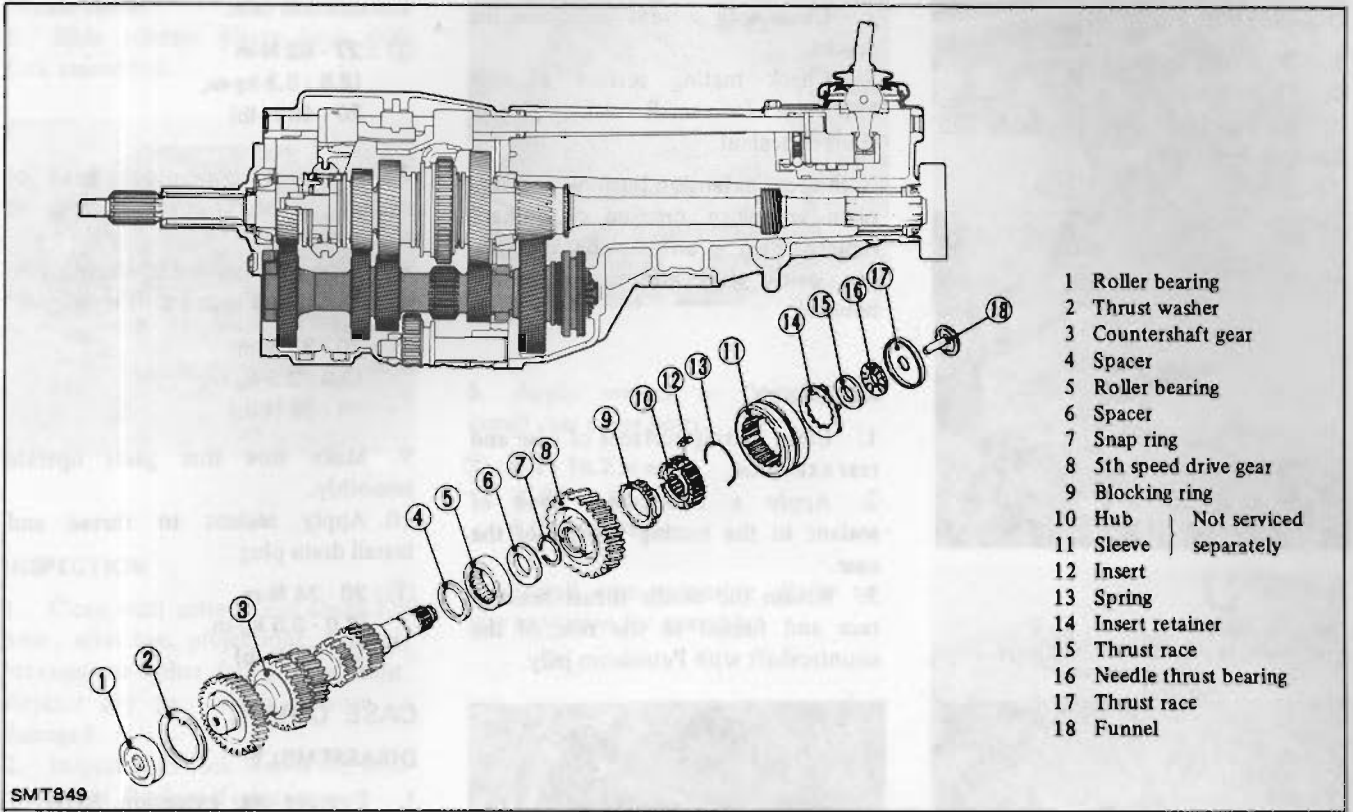


- 1 Needle rollers
- 2 Needle thrust bearing
- 3 Thrust bearing race
- 4 Blocking ring
- 5 Spring
- 6 Hub
- 7 Insert
- 8 Sleeve
- 9 Blocking ring
- 10 3rd speed gear
- 11 Snap ring
- 12 2nd speed thrust washer
- 13 2nd speed gear
- 14 Blocking ring
- 15 Output shaft and hub assembly
- 16 Insert
- 17 Pin
- 18 Spring
- 19 Reverse sliding gear
- 20 Blocking ring
- 21 1st speed gear
- 22 Thrust washer
- 23 Bearing cone
- 24 Bearing cup
- 25 5th speed driven gear
- 26 Snap ring
- 27 Ball
- 28 Speedometer gear
- 29 Snap ring

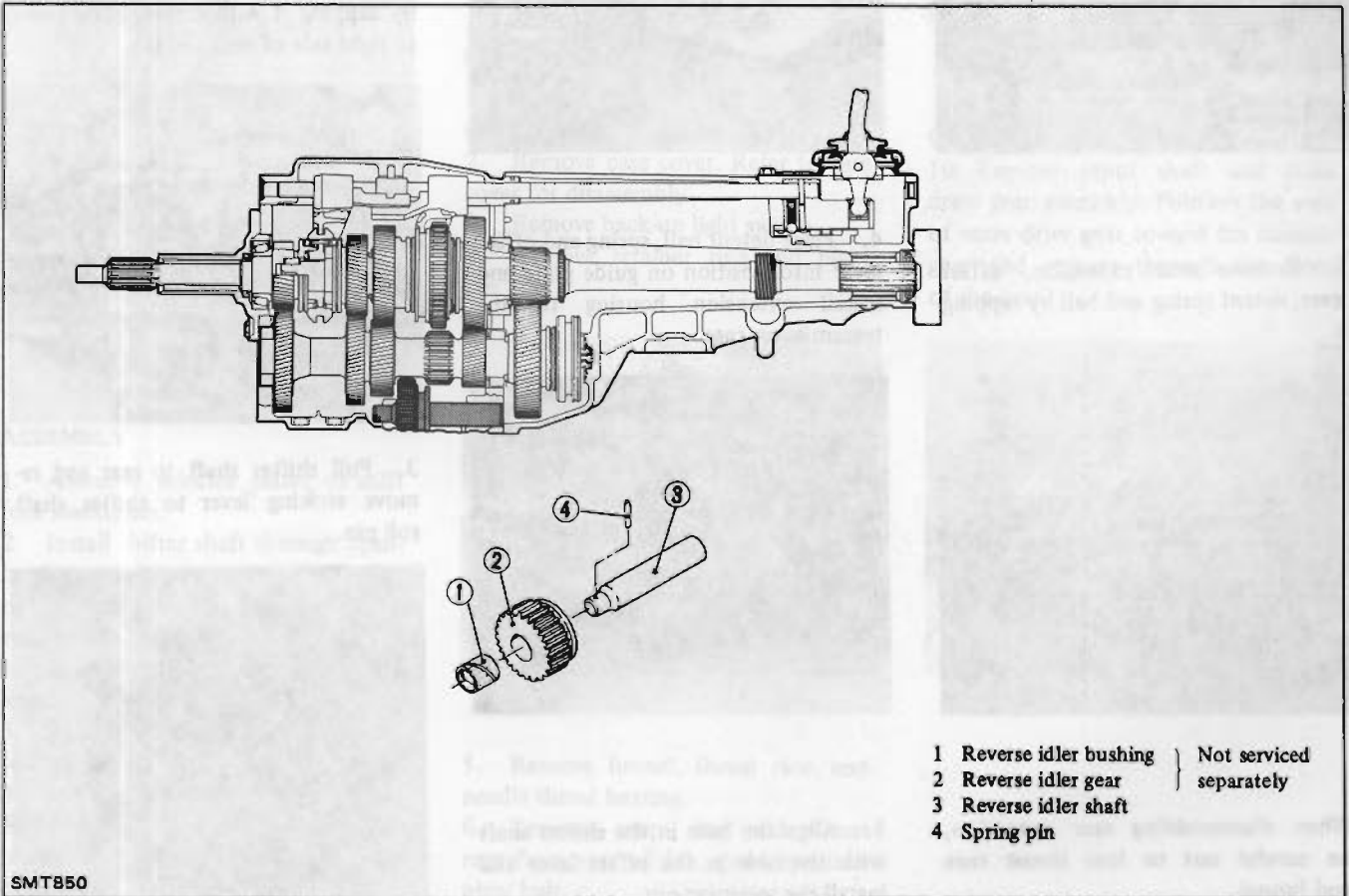
SMTB48

5-SPEED TRANSMISSION (Model: FS5R90A)

Countershaft assembly



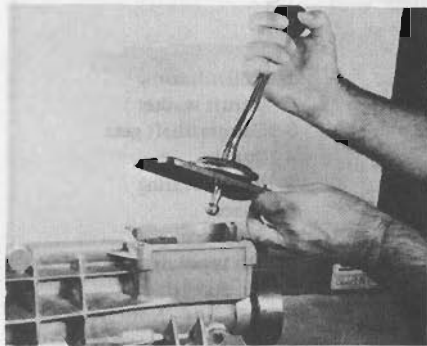
Reverse idler assembly



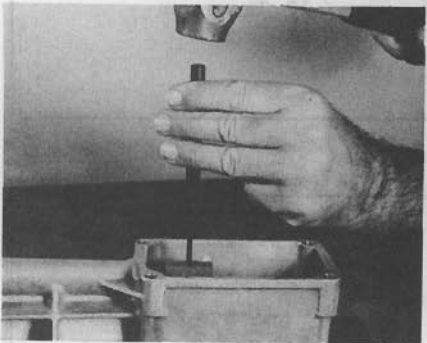
REAR EXTENSION

DISASSEMBLY

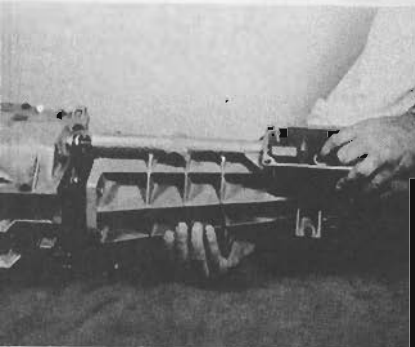
1. Wipe off dirt and grease.
2. Drain oil.
3. Remove shift lever assembly and damper sleeve.



4. Remove pin from offset lever.



5. Remove rear extension, offset lever, detent spring and ball by tapping it.



When disassembling rear extension, be careful not to lose thrust race and funnel.

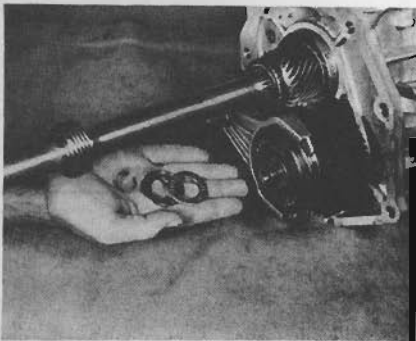
INSPECTION

1. Clean with solvent and check for cracks.
2. Check mating surface of rear extension for small nicks, projections or sealant.

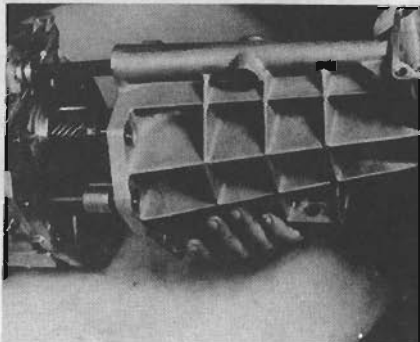
If the rear extension bushing or guide plate are worn, cracked or broken, replace them as an assembly of bushing, guide plate and rear extension housing.

ASSEMBLY

1. Clean mating surfaces of case and rear extension.
2. Apply a continuous bead of sealant to the mating surface of the case.
3. Retain the needle thrust bearing, race and funnel to the rear of the countershaft with Petroleum jelly.



4. Place detent ball, spring and offset lever into position on guide plate and install extension housing to the transmission case.



5. Align the hole in the shifter shaft with the hole in the offset lever and install the retaining pin.

6. Install rear extension bolts to transmission case.

⊕ : 27 - 62 N·m
(2.8 - 6.3 kg·m,
20 - 46 ft·lb)

7. Apply a continuous bead of sealant to shift cover opening of rear extension.
8. Assemble damper sleeve into offset lever and install shift lever.

⊕ : 20 - 34 N·m
(2.0 - 3.5 kg·m,
14 - 25 ft·lb)

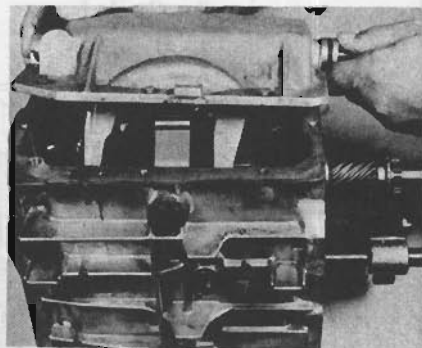
9. Make sure that gears operate smoothly.
10. Apply sealant to thread and install drain plug.

⊕ : 20 - 34 N·m
(2.0 - 3.5 kg·m,
14 - 25 ft·lb)

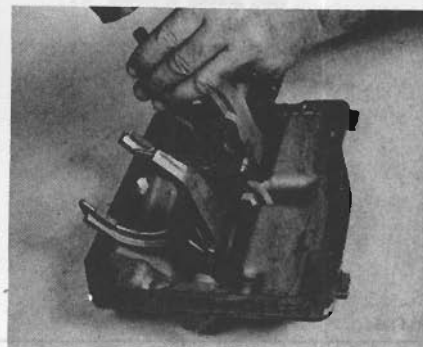
CASE COVER

DISASSEMBLY

1. Remove rear extension. Refer to rear extension for disassembly.
2. Remove cover bolts and cover by tapping it with driver. Slide cover to right side of case and lift.



3. Pull shifter shaft to rear and remove striking lever to shifter shaft roll pin.

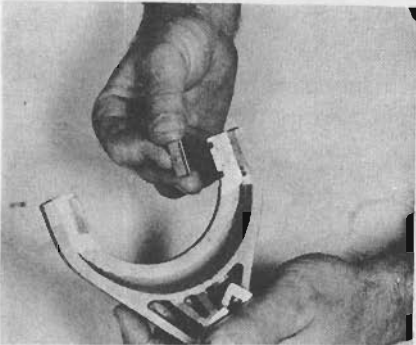


- Remove shifter shaft through rear of case cover.
- Slide selector plates from shift fork assemblies.



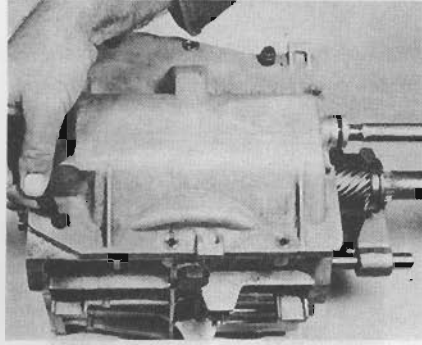
INSPECTION

- Clean with solvent and check for wear, scratches, projections, damage, breakage or other faulty conditions. Replace any part which is worn or damaged.
- Inspect shift fork inserts for wear or damage. Replace if necessary.



ASSEMBLY

- Assemble selector plates to shift fork assemblies.
- Install shifter shaft through opening in rear of case cover and assemble to 1-2 shift fork, interlock plate, striking lever and 3-4 shift fork. Install shifter shaft roll pin to striking lever.
- Apply a continuous bead of sealant to case cover mating surface.
- Install cover to case.
- Apply sealant to threads and install two alignment dowels into cover.



- Apply sealant to threads and install case cover bolts.

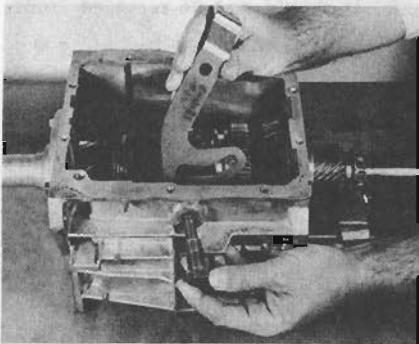
⊕ : 8.1 - 14.7 N·m
(0.83 - 1.5 kg-m,
6.0 - 10.8 ft-lb)

- Install rear extension. Refer to rear extension for assembly.

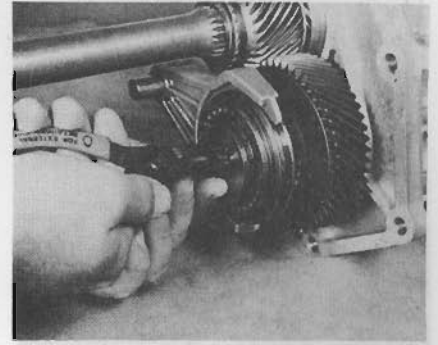
TRANSMISSION CASE

DISASSEMBLY

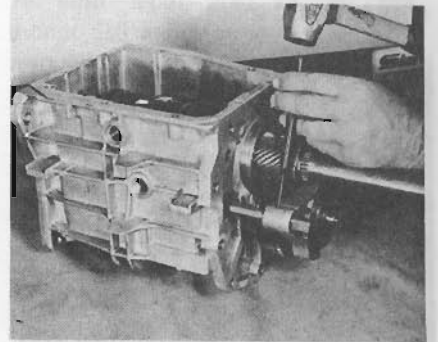
- Remove rear extension. Refer to rear extension for disassembly.
- Remove case cover. Refer to case cover for disassembly.
- Remove back-up light switch.
- Remove retainer ring and pivot pin.



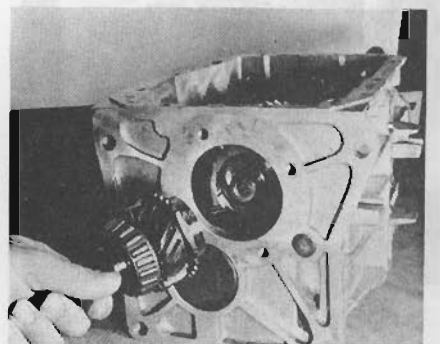
- Remove funnel, thrust race, and needle thrust bearing.
- Remove snap ring and thrust race from rear of 5th speed synchronizer hub.



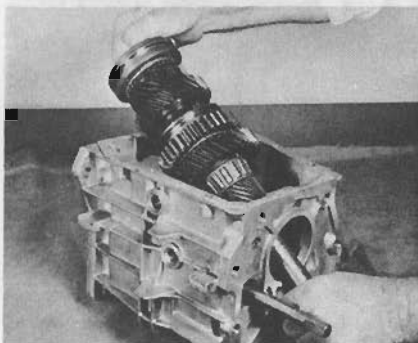
- Remove pin from 5th speed shift fork.
- Remove 5th speed shift fork, synchronizer and counter gear.



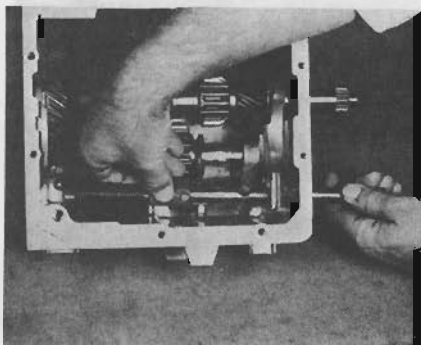
- Remove front bearing retainer.
- Remove input shaft and main drive gear assembly. Position flat area of main drive gear toward the counter gear and remove through the front of the case.



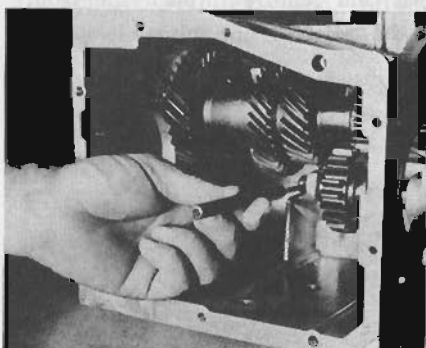
11. Remove mainshaft rear bearing race and remove mainshaft assembly through top of case.



12. Remove 5th speed shift rail, reverse fork with 5th and reverse relay lever, and spring.



13. Remove pin from reverse idler shaft. Remove reverse idler shaft and gear.

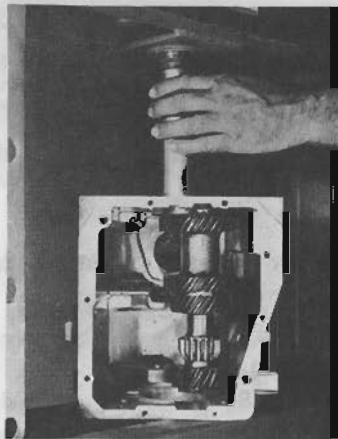


14. Remove snap ring and spacer from rear of counter gear bearing.

15. Remove counter gear rear bearing by pressing counter gear toward rear of case until bearing is free. Remove bearing and spacer from rear of counter gear.

CAUTION:

When pressing out bearing, hold hand under counter gear so bearing does not drop.



16. Remove counter gear and front thrust washer through top of case.

17. Press front counter gear bearing from case.

This bearing should not be removed unless replacement is necessary.

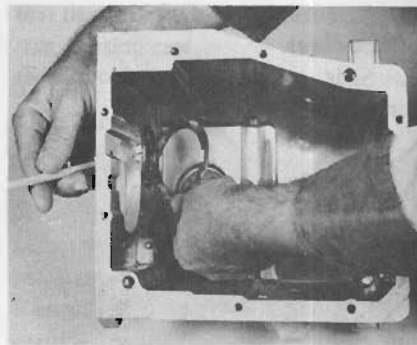
INSPECTION

1. Clean with solvent and check for cracks or pits.
2. Check mating surfaces of transmission case for small nicks, projections or sealant.

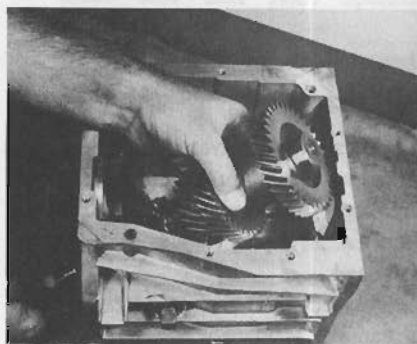
The magnet at the bottom of the case is held in place by a clip and a special glue. It should not be removed from the case.

ASSEMBLY

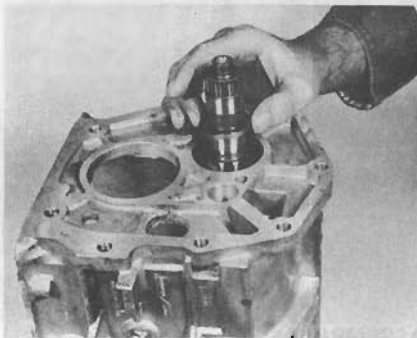
1. Install front counter gear bearing as follows:
 - (1) Apply a small bead of adhesive agent to outside diameter of bearing.
 - (2) Press bearing into case until the front edge is flush with the front edge of the case.
2. Install the counter gear thrust washer into the case being sure to align the tang with the notch in the case. Retain the washer in the case with a light coat of petroleum jelly.



3. Install the counter gear into the case and engage its front journal into the front bearing.



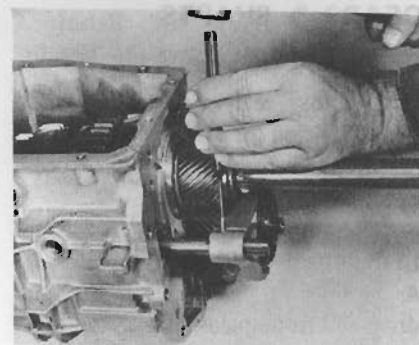
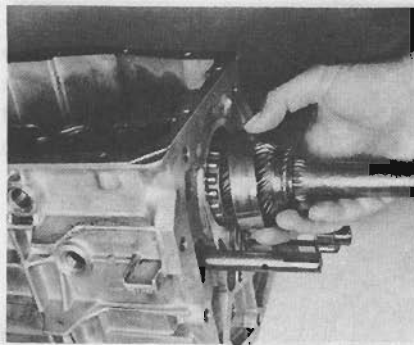
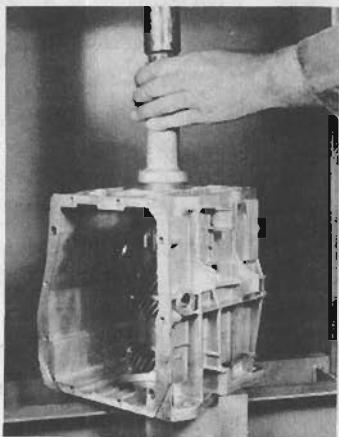
4. Install the rear counter gear bearing as follows:
 (1) Install spacer to the rear of counter gear.



(2) Install bearing protector J-33032 on the counter gear.



(3) Install bearing over protector and press into case using bearing installer J-29895. When properly installed, the bearing race will protrude from the case 3.12 to 3.22 mm (0.1228 to 0.1268 in).



8. Install roller bearings into the main drive gear. Retain with petroleum jelly.

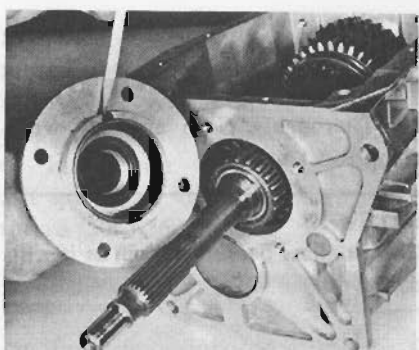
9. Install input shaft and main drive gear assembly, needle thrust bearing, thrust bearing race and blocking ring into case.

Be sure to align the flat area of the main drive gear with the countergear and install carefully so as not to dislodge the roller bearings.

10. Remove at least 0.15 mm (0.0059 in) from under front bearing race in bearing retainer. Install remaining shims and race into retainer.

11. Install front bearing retainer to case. Be sure to position it so that the oil collector groove is up.

⊕ : 15 - 27 N·m
(1.5 - 2.8 kg·m,
11 - 20 ft·lb)



12. Install 5th speed shift fork, 5th speed countergear and synchronizer as a unit. Align pin holes in shift fork and shift rail and install retaining pin.

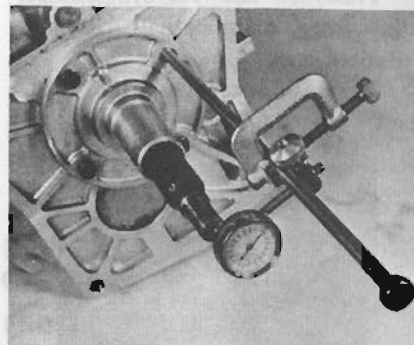
13. Install thrust race and snap ring to rear of 5th speed synchronizer hub.

14. Install case cover. Refer to case cover for assembly.

15. Install rear extension. Refer to rear extension for assembly.

16. Push input shaft to rear and mount dial indicator so that its stem rests against the front end of the input shaft. Zero indicator.

17. Push output shaft forward and read indicator. Record reading for calculation. Remove indicator.



18. Remove bearing retainer and bearing race. Select proper thickness shim to provide 0.13 to 0.25 mm (0.0051 to 0.0098 in) preload.

Calculation Example:

A + B = Shim size

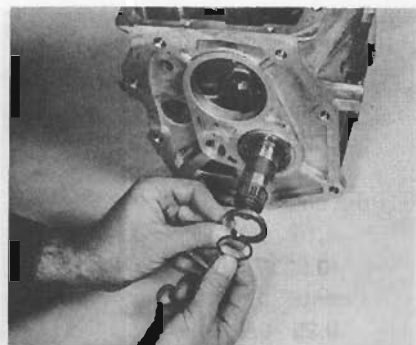
(A) Indicator reading 0.10 mm (clearance)

**(B) Desired preload 0.20 mm
Additional shim 0.30 mm required**

19. Apply a continuous bead of sealant to bearing retainer mating surface and threads of bolts.

20. Install shims and bearing race into bearing retainer and install the bearing retainer as in Step 11.

(4) Install spacer and snap ring at rear of bearing.



5. Install reverse idler gear into case with shift fork groove toward the rear. Install reverse idler shaft, O-ring and retaining pin.

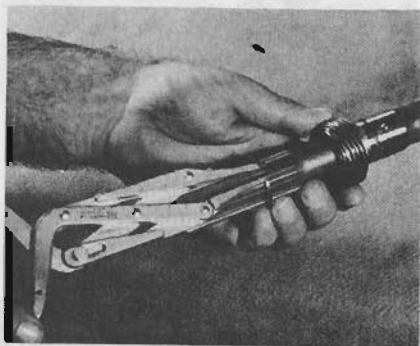
6. Install reverse fork with 5th and reverse relay lever, 5th speed shift rail and spring. Install backup light switch.

7. Install mainshaft assembly into the case and install mainshaft rear bearing race.

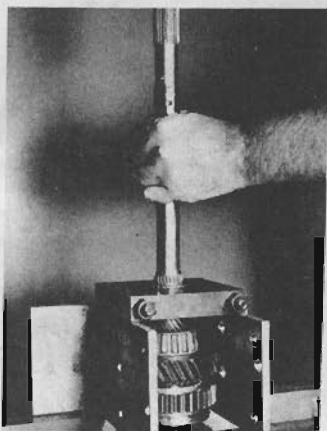
GEARS & SHAFTS

DISASSEMBLY

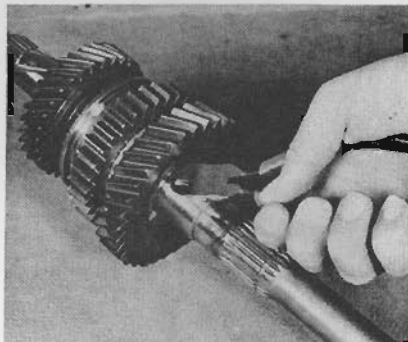
1. Remove rear extension. Refer to rear extension for disassembly.
2. Remove case cover. Refer to case cover for disassembly.
3. Remove transmission case. Refer to transmission case for disassembly.
4. Remove speedometer gear and drive ball from mainshaft.



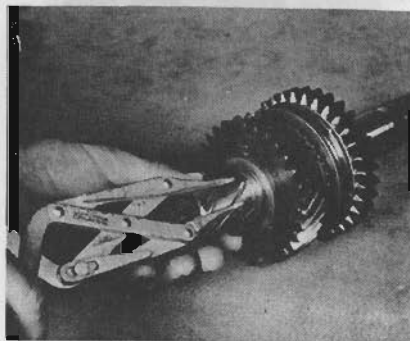
5. Press 3rd and 4th synchronizer from front of mainshaft. Remove 3rd speed gear.
6. Press 5th speed gear from mainshaft.



7. Slip rear bearing off shaft. Remove thrust washer.
8. Remove pin from mainshaft and remove 1st speed gear.



9. Remove snap ring, thrust washer, and second speed gear.



10. Remove 1st and 2nd synchronizer sleeve, inserts and springs.

INSPECTION

Bearings

1. Thoroughly clean and dry with compressed air.

CAUTION:

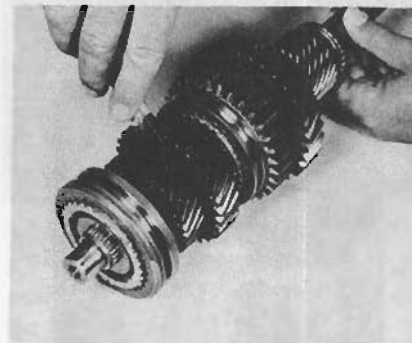
Do not allow bearing to spin as it will damage the race and rollers.

2. When race or rollers are worn or rough, replace bearing.
3. Replace needle rollers if worn or damaged.

Gears and shafts

1. Check all gears for excessive wear, chips or cracks; replace as required.
2. Check shafts for bending, cracks, wear and worn splines; replace if necessary.

3. Measure gear end play.
 - It is necessary to measure end play before disassembling mainshaft and also after reassembling it.



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

Standard End Play:

1st main gear

0.10 - 0.25 mm
(0.0039 - 0.0098 in)

2nd main gear

0.10 - 0.25 mm
(0.0039 - 0.0098 in)

3rd main gear

0.15 - 0.40 mm
(0.0059 - 0.0157 in)

5th counter gear

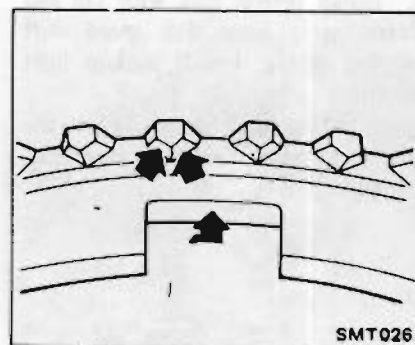
0.10 - 0.48 mm
(0.0039 - 0.0189 in)

Counter gear

0.25 - 0.50 mm
(0.0098 - 0.0197 in)

Baulk rings

1. Replace baulk ring if found to be deformed, cracked or otherwise damaged.
2. Check teeth and insert notches for wear.



SMT026

3. Inspect cone surface for excessive wear.

Shifting insert

Replace if worn excessively, worn unevenly, 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 contact between oil seal lip and shaft; if necessary, replace oil seal and shaft as a set.

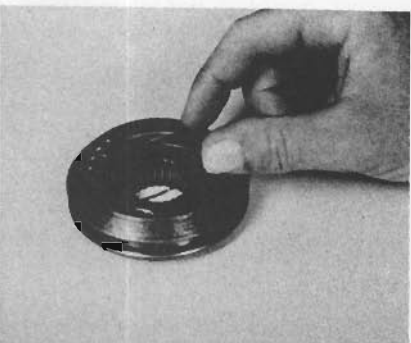
ASSEMBLY

Synchronizers

1. Assemble coupling sleeve to synchronizer hub. Make sure that the sleeve slides freely on the hub.



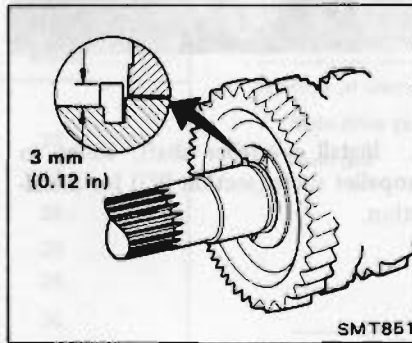
2. Position shifting inserts into 3 slots in synchronizer hub with raised portion facing outward.
3. Install first insert spring with hooked end engaged to one of the shift inserts.



4. Install the second insert spring on the opposite side of the synchronizer with the hooked end engaged to the same insert but turned in the opposite direction of the first spring.

Mainshaft

1. Assemble the 1st and 2nd synchronizer sleeve, inserts and springs to the synchronizer hub.
2. Install 2nd speed gear, thrust washer and snap ring.
3. Install 1st speed gear.
4. Install thrust washer positioning pin into mainshaft so that it projects 3 mm (0.12 in) from the bearing surface.



5. Install thrust washer against 1st speed gear, being certain that the slot in the washer aligns with the pin.
6. Install rear bearing and press 5th speed gear onto mainshaft using special tool J-26010-01.



7. Install 3rd speed gear. Press 3rd and 4th synchronizer onto front of mainshaft using special tool J-25863-01. Be sure that the portion of the hub with the extended hose is toward the front.



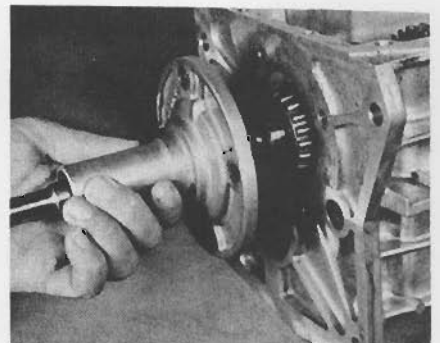
8. Install speedometer drive ball, speedometer gear, and snap ring.
9. Install transmission case. Refer to transmission case for assembly.
10. Install case cover. Refer to case cover for assembly.
11. Install rear extension. Refer to rear extension for assembly.

REPLACEMENT OF OIL SEALS

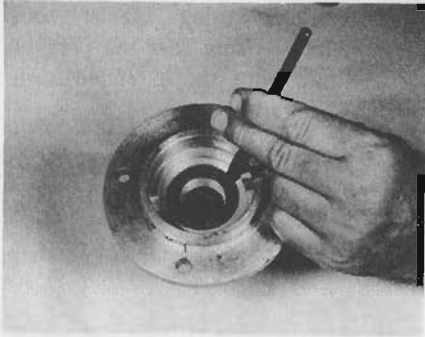
FRONT BEARING RETAINER SEAL

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

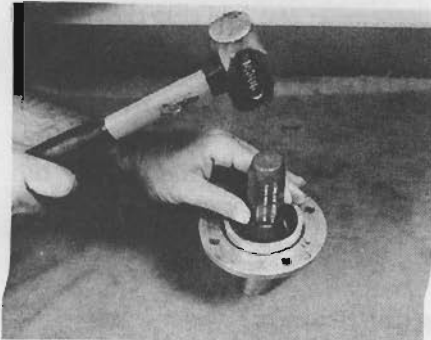
1. Remove transmission. Refer to removal.
2. Wipe off dirt and grease.
3. Drain oil.
4. Remove front bearing retainer.



5. Remove oil seal.



6. Clean bearing retainer and case mating surface.
7. Check bearing retainer and mating surface for cracks, nicks, projections or sealant.
8. Apply a coat of transmission fluid to oil seal surface and install seal using seal installer J-23096.



9. Install front bearing retainer to case. Be sure to position it so that the oil collector groove is up.

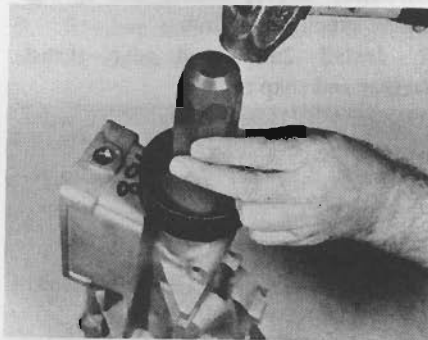
Ⓙ : 15 - 27 N·m
 (1.5 - 2.8 kg·m,
 11 - 20 ft·lb)

10. Install transmission. Refer to installation.

REAR EXTENSION OIL SEAL

The rear extension oil seal can be replaced without removing transmission from car.

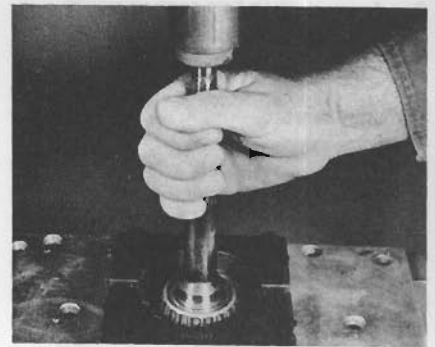
1. Remove propeller shaft. Refer to propeller shaft (section PD) for removal.
2. Remove oil seal.
3. Apply a coat of transmission fluid to oil seal surface and drive new seal into place using seal installer J-28894.



4. Install propeller shaft. Refer to propeller shaft (section PD) for installation.

REPLACEMENT OF BEARINGS

1. Remove rear extension. Refer to rear extension for disassembly.
2. Remove case cover. Refer to case cover for disassembly.
3. Remove input shaft, mainshaft, counter gear and counter gear front bearing. Refer to transmission case for disassembly.
4. Press main drive bearing from input shaft.



5. Press new main drive bearing to input shaft using special tool J-26010-01.
6. Replace rear bearing. Refer to gears and shafts for disassembly and assembly.
7. Install front and rear counter-gear bearings. Refer to transmission case for assembly.
8. Install transmission case. Refer to transmission case for assembly.
9. Install case cover. Refer to case cover for assembly.
10. Install rear extension. Refer to rear extension for assembly.

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

GENERAL SPECIFICATIONS

Transmission model		FS5W71B
Shift pattern		
Synchronesh 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)

Transmission model		FS5R90A
Shift pattern		
Synchronesh type		Warner
Gear ratio		
1st		3.500
2nd		2.144
3rd		1.357
4th		1.000
5th		0.780
Reverse		3.394
Number of teeth		
Main drive gear		22
Main gear	1st	33
	2nd	31
	3rd	29
	5th	25
	Reverse	32
Counter drive gear		35
Counter gear	1st	15
	2nd	23
	3rd	34
	5th	51
	Reverse	15
Reverse idler gear		20
Oil capacity	liter (US pt, Imp pt)	1.9 (4, 3-3/8)

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

INSPECTION AND ADJUSTMENT

Unit: mm (in)

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	0.31 - 0.35 (0.0122 - 0.0138)
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)

Transmission model	FS5W71B	
	Counter gear front bearing shim	Counter gear front bearing shim
	"A"	
	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)
	1 Transmission case	
	2 Counter gear front bearing	
3 Counter gear		
4 Shim		

Unit: mm (in)

Transmission model	FS5R90A	
Gear backlash		
Main drive gear	0.05 - 0.15 (0.0020 - 0.0059)	
1st gear	0.05 - 0.15 (0.0020 - 0.0059)	
2nd gear	0.05 - 0.15 (0.0020 - 0.0059)	
3rd gear	0.05 - 0.15 (0.0020 - 0.0059)	
5th gear	0.05 - 0.15 (0.0020 - 0.0059)	
Reverse idler gear	0.10 - 0.20 (0.0039 - 0.0079)	
Gear end play		
1st main gear	0.10 - 0.25 (0.0039 - 0.0098)	
2nd main gear	0.10 - 0.25 (0.0039 - 0.0098)	
3rd main gear	0.15 - 0.40 (0.0059 - 0.0157)	
5th counter gear	0.10 - 0.48 (0.0039 - 0.0189)	
Counter gear	0.25 - 0.50 (0.0098 - 0.0197)	
Main drive gear bearing adjusting shim		
Preload	0.13 - 0.25 (0.0051 - 0.0098)	

TIGHTENING TORQUE

Model : FS5R90A

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

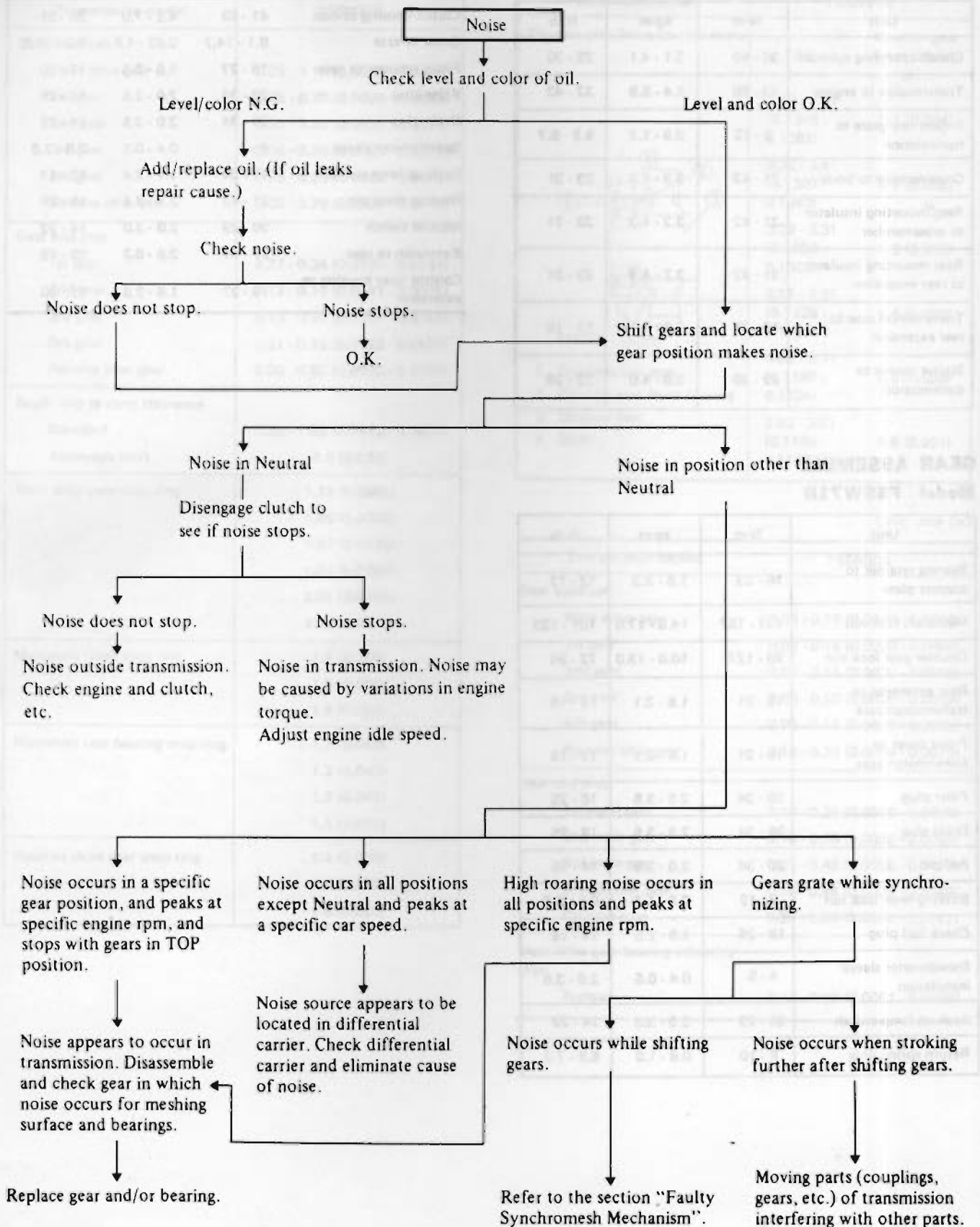
Unit	N-m	kg-m	ft-lb
Clutch housing to case	41 - 69	4.2 - 7.0	30 - 51
Cover to case	8.1 - 14.7	0.83 - 1.5	6.0 - 10.8
Front retainer to case	15 - 27	1.5 - 2.8	11 - 20
Filler plug	20 - 34	2.0 - 3.5	14 - 25
Drain plug	20 - 34	2.0 - 3.5	14 - 25
Speedometer sleeve	4 - 5	0.4 - 0.5	2.9 - 3.6
Back-up lamp switch	17 - 24	1.7 - 2.4	12 - 17
Reverse pivot pin	21 - 33	2.1 - 3.4	15 - 25
Neutral switch	20 - 29	2.0 - 3.0	14 - 22
Extension to case	27 - 62	2.8 - 6.3	20 - 46
Control lever housing to extension	15 - 27	1.5 - 2.8	11 - 20

GEAR ASSEMBLY

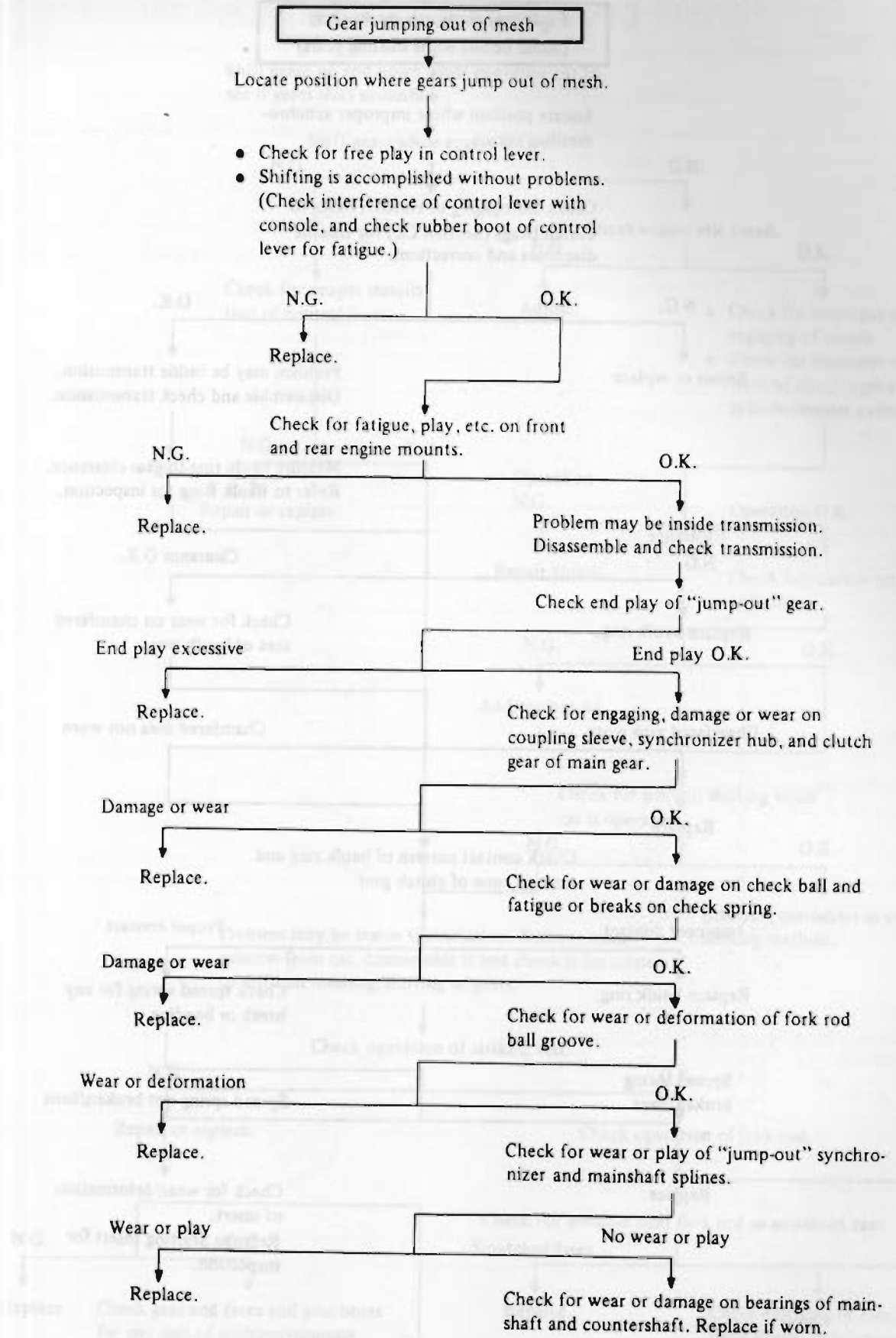
Model : FS5W71B

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

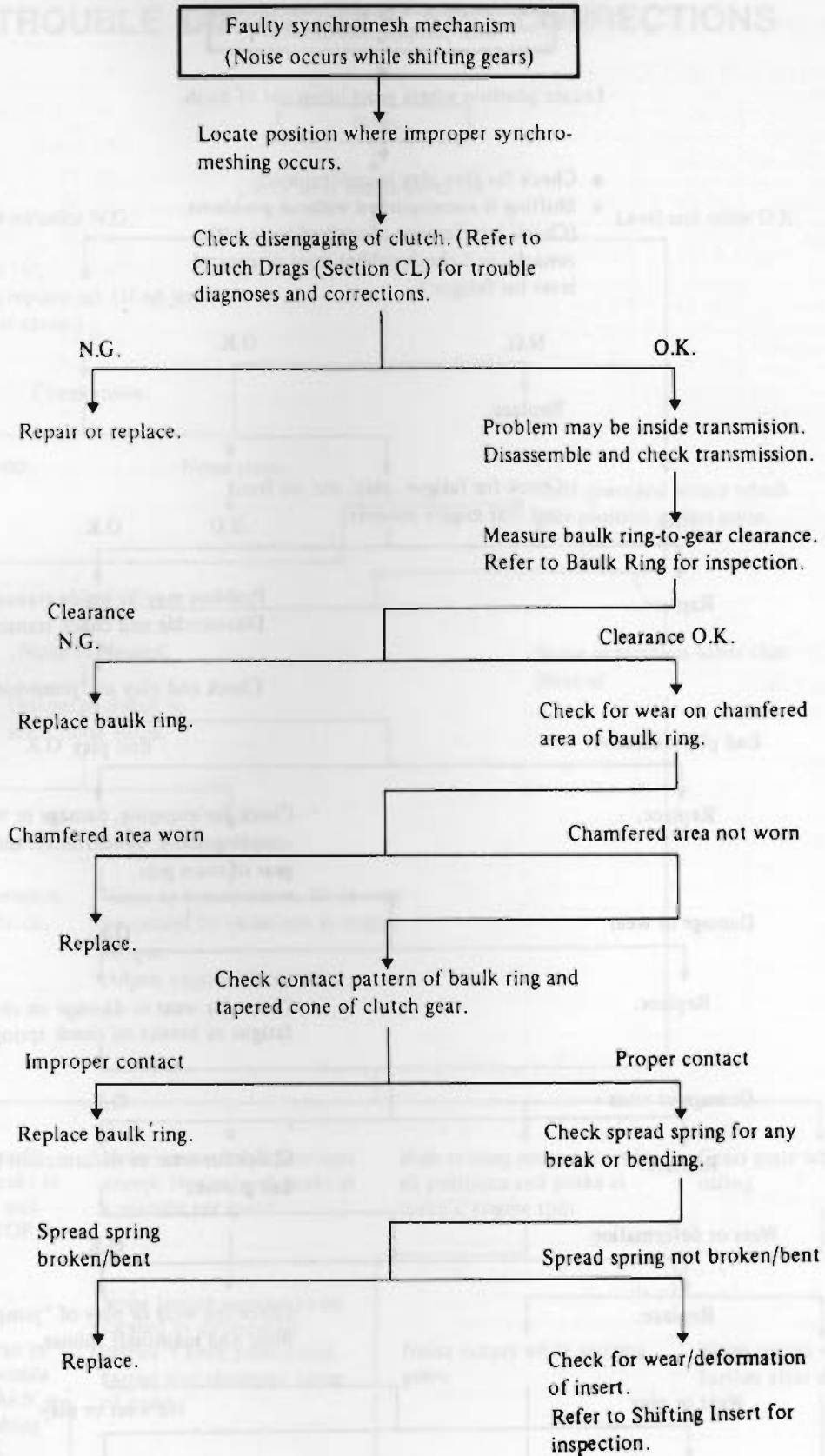
TROUBLE DIAGNOSES AND CORRECTIONS



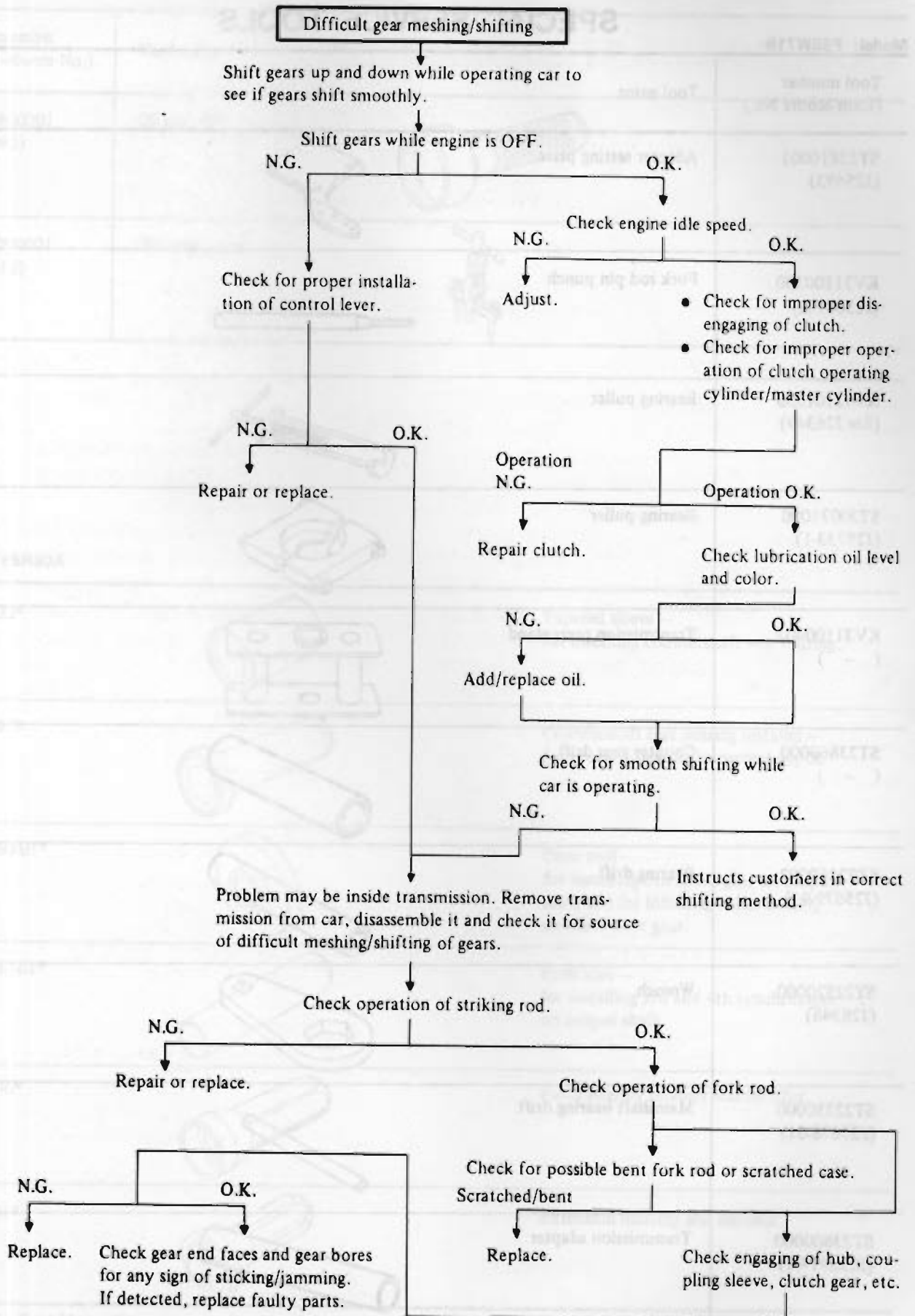
TROUBLE DIAGNOSES AND CORRECTIONS



TROUBLE DIAGNOSES AND CORRECTIONS



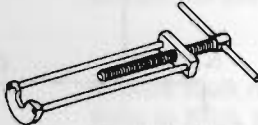
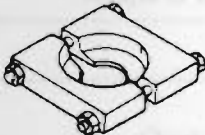
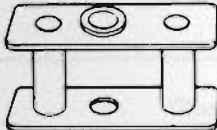
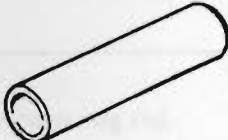

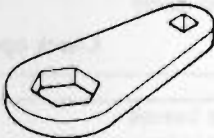

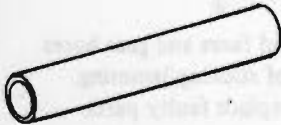


TROUBLE DIAGNOSES AND CORRECTIONS

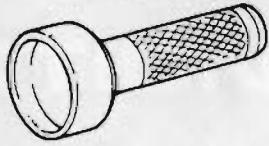



SPECIAL SERVICE TOOLS

Model: FS5W71B

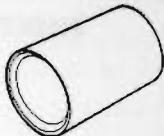
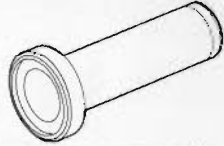
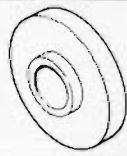
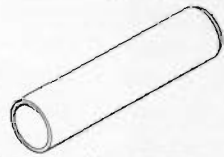
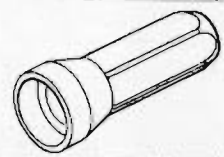
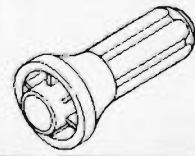
Tool number (Kent-Moore No.)	Tool name	
ST23810001 (J25693)	Adapter setting plate	
KV31100300 (J25689-A)	Fork rod pin punch	
KV32101330 (See J26349)	Bearing puller	
ST30031000 (J25733-1)	Bearing puller	
KV31100401 (-)	Transmission press stand	
ST23860000 (-)	Counter gear drift	
ST22360002 (J25679-91)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

SPECIAL SERVICE TOOLS

Tool number (Kent-Moore No.)	Tool name
ST33400001 (J26082)	Oil seal drift 
ST33290001 (J25810)	Bearing puller 

DESCRIPTION	PAGE
HYDRAULIC CONTROL LINE AND VALVES	AT-27
HYDRAULIC CONTROL CIRCUIT	AT-28
LOCK-UP INDICATOR LINE CIRCUIT	AT-29
MINOR ADJUSTMENTS	AT-30
INSTALLATION	AT-31
FINAL CHECKS	AT-32
TRUBLE-SHOOTING AND DIAGNOSIS	AT-33
Preliminary checks	AT-34
Prior to road testing	AT-35
Diagnostic road test	AT-36
Pressure testing	AT-37
Self test	AT-38

Model: FS5R90A

J-33032*		Tapered sleeve – for installing countershaft rear bearing.
J-29895*		Countershaft rear bearing installer -- for pressing bearing to correct depth.
J-26060-01*		Press tool – for installing 5th speed gear on output shaft and for installing roller bearing on main drive gear.
J-25863-01*		Press tool – for installing 3rd and 4th synchromesh on output shaft
J-23096*		Front bearing retainer seal installer.
J-28894*		Extension housing seal installer.

*: Kent-Moore No.