

TRANSFER

SECTION **TF**

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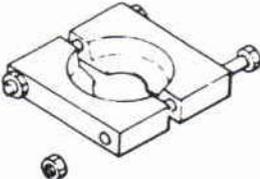
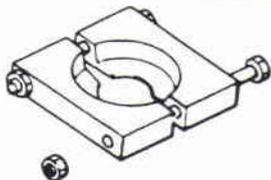
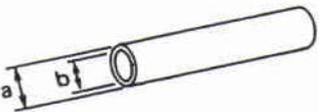
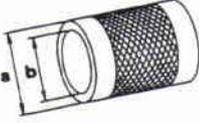
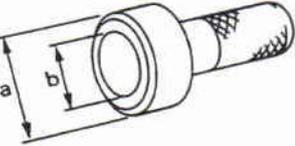
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TF

PREPARATION

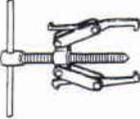
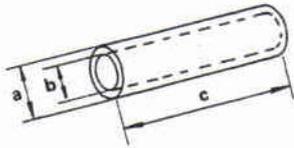
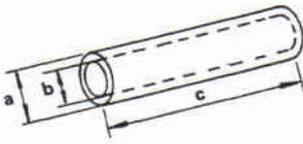
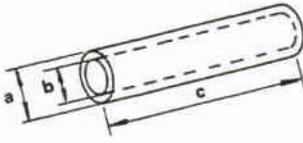
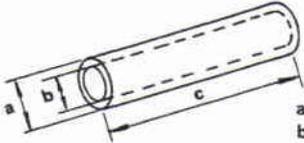
SPECIAL SERVICE TOOLS

*: Special tool or commercial equivalent

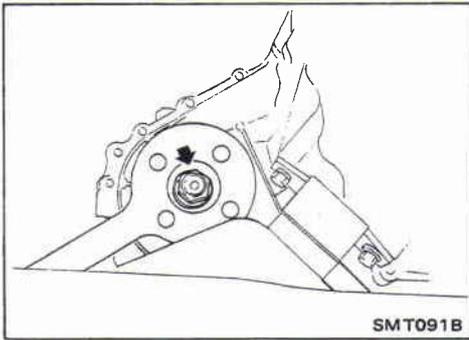
Tool number Tool name	Description
KV38104700* Flange wrench	 <p>Removing front companion flange nut Installing front companion flange nut</p>
ST30021000* Puller	 <p>Removing counter gear front bearing</p>
ST30031000* Puller	 <p>Removing counter gear rear bearing</p>
ST33290001* Puller	 <p>Removing center case oil seal Removing rear oil seal</p>
ST22452000* Drift	 <p>Installing mainshaft rear bearing</p> <p>a = 45 mm (1.77 in) dia. b = 36 mm (1.42 in) dia.</p>
ST33061000* Drift	 <p>Removing main gear bearing</p> <p>a: 28.5 mm (1.122 in) dia. b: 38 mm (1.50 in) dia.</p>
ST30613000* Drift	 <p>Installing counter gear rear bearing Installing main gear bearing Installing cover oil seal</p> <p>a: 72 mm (2.83 in) dia. b: 48 mm (1.89 in) dia.</p>
ST33200000* Drift	 <p>Installing counter gear front bearing Removing cover oil seal</p> <p>a = 60 mm (2.36 in) dia. b = 44.5 mm (1.752 in) dia.</p>
ST30720000* Drift	 <p>Installing center case oil seal</p> <p>a: 77 mm (3.03 in) dia. b: 55.5 mm (2.185 in) dia.</p>

PREPARATION

COMMERCIAL SERVICE TOOLS

Tool name	Description
Puller	<div style="display: flex; align-items: center;">  <div> <p>Removing front and rear companion flanges Removing mainshaft rear bearing and clutch gear Removing L&H hub Removing front drive shaft front bearing Removing front drive shaft rear bearing Removing main gear bearing</p> </div> </div>
Drift	<div style="display: flex; align-items: center;">  <div> <p>Installing shift shaft oil seal</p> <p>a = 26 mm (1.02 in) dia. b = 20 mm (0.79 in) dia. c = 40 mm (1.57 in)</p> </div> </div>
Drift	<div style="display: flex; align-items: center;">  <div> <p>Installing L & H hub</p> <p>a = 60 mm (2.36 in) dia. b = 50 mm (1.97 in) dia. c = 60 mm (2.36 in)</p> </div> </div>
Drift	<div style="display: flex; align-items: center;">  <div> <p>Installing clutch gear</p> <p>a = 55 mm (2.17 in) dia. b = 45 mm (1.77 in) dia. c = 160 mm (6.30 in)</p> </div> </div>
Drift	<div style="display: flex; align-items: center;">  <div> <p>Installing rear oil seal</p> <p>a: 75 mm (2.95 in) dia. b: 67 mm (2.64 in) dia. c: 60 mm (2.36 in)</p> </div> </div>

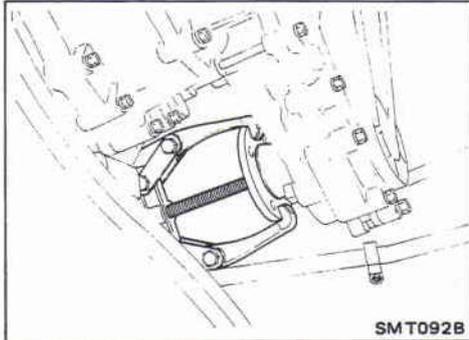
ON-VEHICLE SERVICE



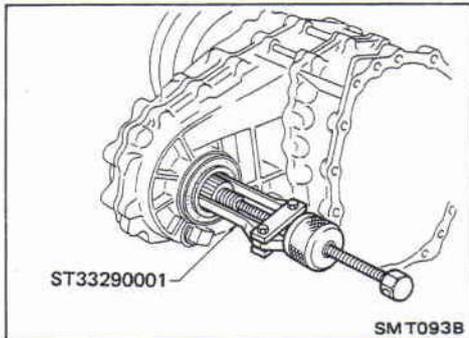
Replacing Oil Seal

CENTER CASE OIL SEAL

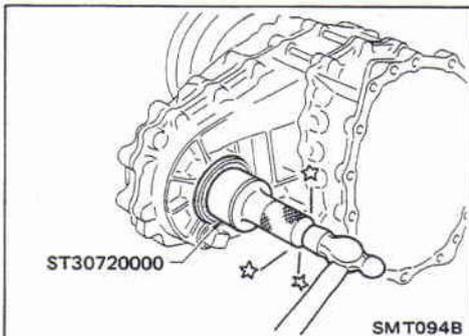
1. Remove front propeller shaft. — Refer to section PD.
2. Remove companion flange nut.



3. Remove front companion flange.



4. Remove center case oil seal.



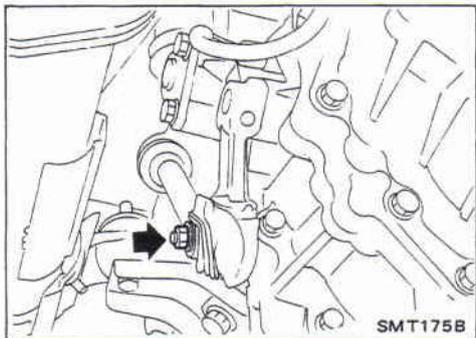
5. Install center case oil seal.
 - Before installing, apply multi-purpose grease to seal lip.
6. Reinstall any part removed.

ON-VEHICLE SERVICE

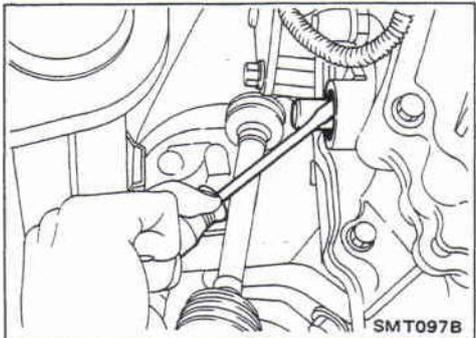
Replacing Oil Seal (Cont'd)

SHIFT SHAFT OIL SEAL

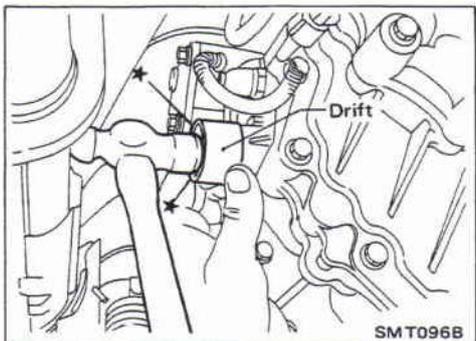
1. Remove transfer control lever from transfer outer shift lever. Then remove outer shift lever.



2. Remove shift shaft oil seal.
 - Be careful not to damage inner shift lever.

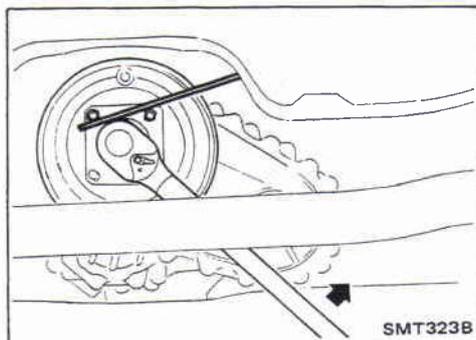


3. Install shift shaft oil seal.
 - Before installing, apply multi-purpose grease to seal lip.
4. Install transfer control linkage.

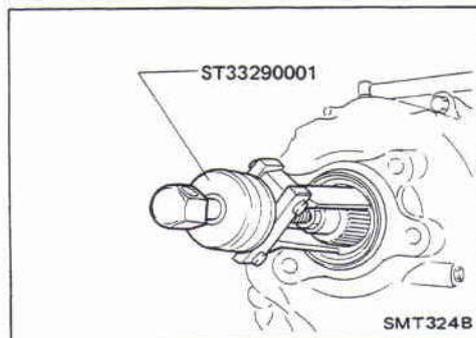


REAR OIL SEAL

1. Remove rear propeller shaft. — Refer to section PD.
2. Remove brake drum.
3. Remove companion flange nut.
4. Remove rear companion flange.
5. Remove center brake assembly.

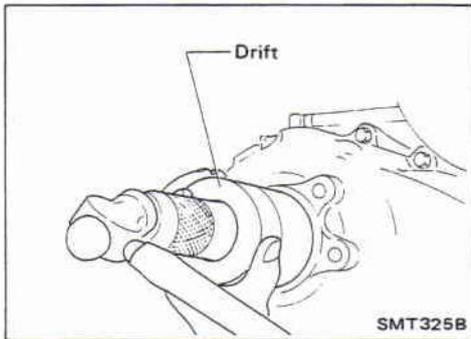


6. Remove rear oil seal.



ON-VEHICLE SERVICE

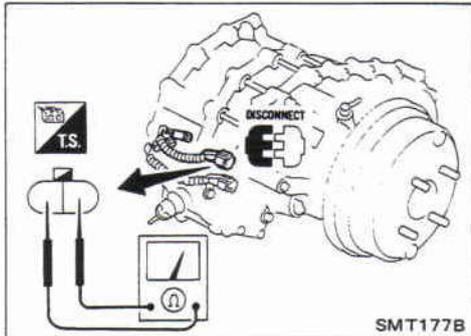
Replacing Oil Seal (Cont'd)



7. Install rear oil seal.

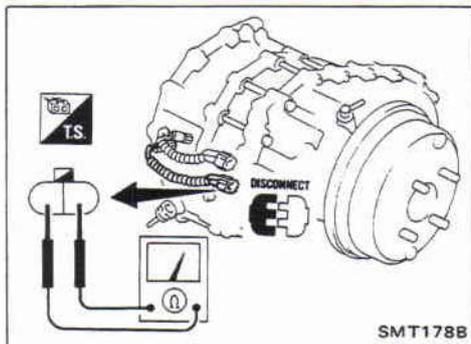
- Before installing, apply multi-purpose grease to seal lip.
8. Reinstall any part removed.

Checking Position Switch 4WD SWITCH



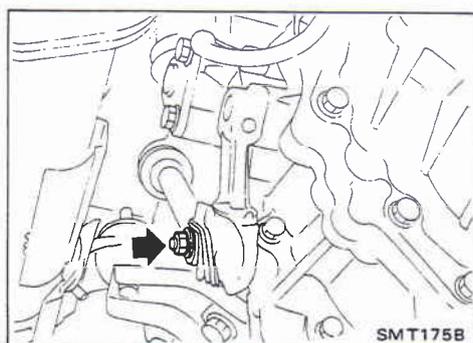
Transfer control lever position	Continuity
4H, 4L	Yes
Except above	No

NEUTRAL SWITCH (A/T models only)



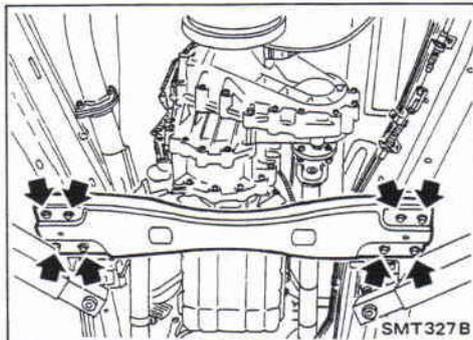
Transfer control lever position	Continuity
Between 4H and 4L ("PUSH" position)	Yes
Except above	No

REMOVAL AND INSTALLATION

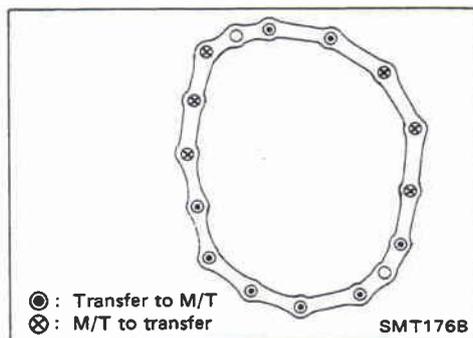


Removal

- Drain oil from transfer and transmission.
- Remove front and rear propeller shafts. — Refer to section PD.
- Remove transfer control lever from transfer outer shift lever.



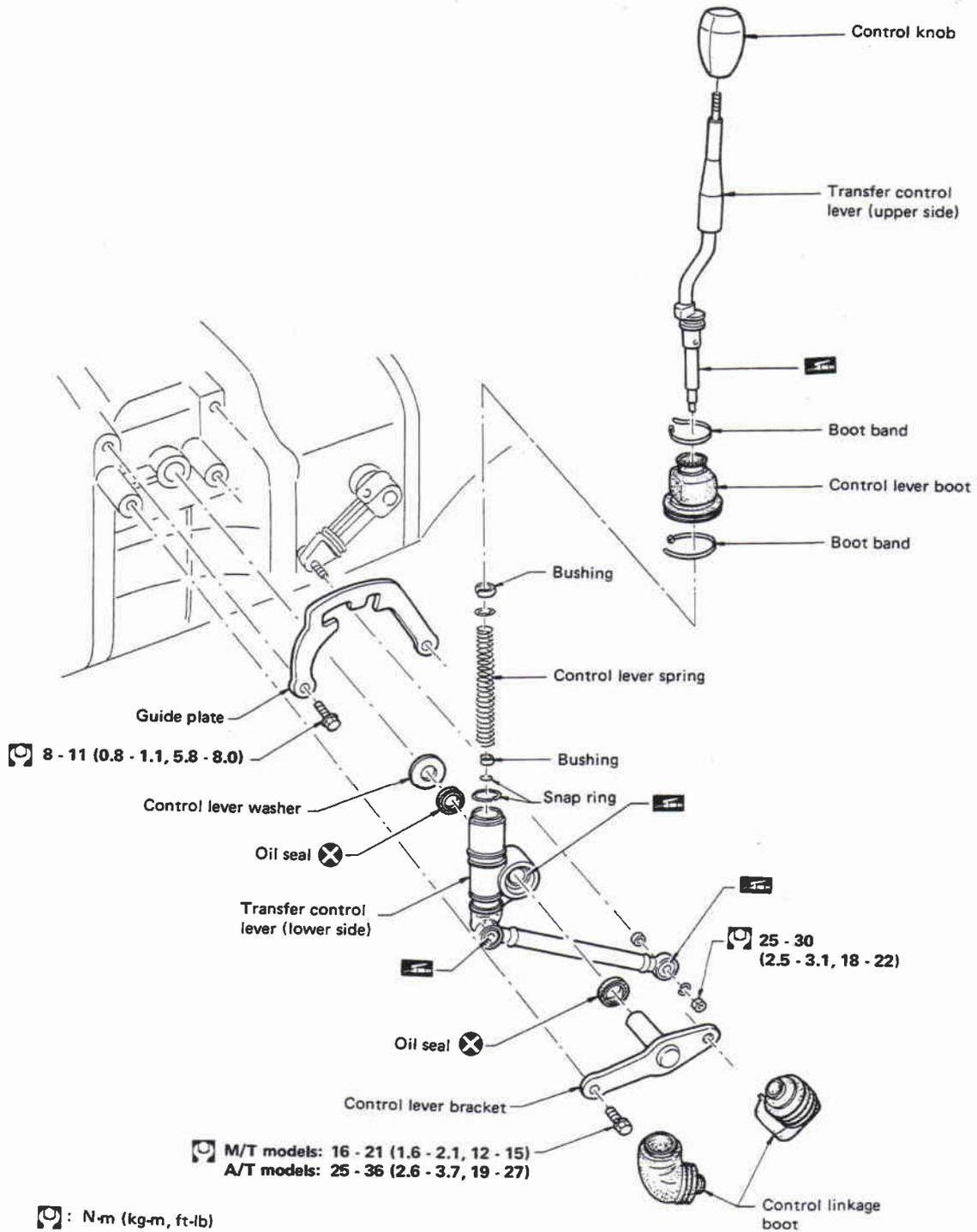
- Remove rear engine mounting member from side member.
- Lower transmission and transfer assembly as much as possible.
- Remove transfer from transmission.



Installation

- Tighten transfer bolts.
Transfer fixing bolts:
⊗: 32 - 42 N·m (3.3 - 4.3 kg-m, 24 - 31 ft-lb)

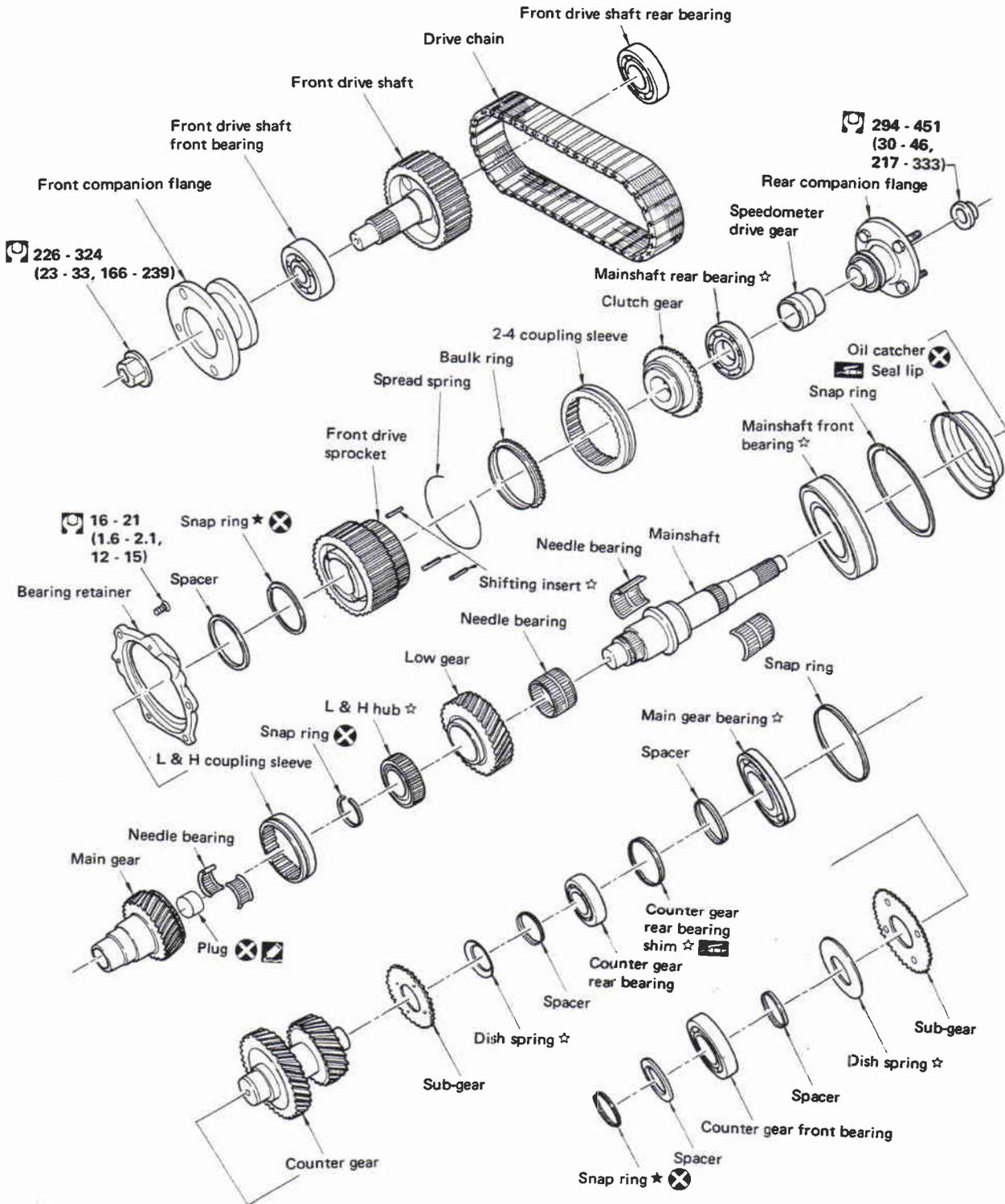
TRANSFER GEAR CONTROL



SMT098B

MAJOR OVERHAUL

Gear Components



Apply gear oil to gears, shafts, synchronizers and bearings when assembling.

★ : Select with proper thickness.

☆ : Pay attention to its direction.

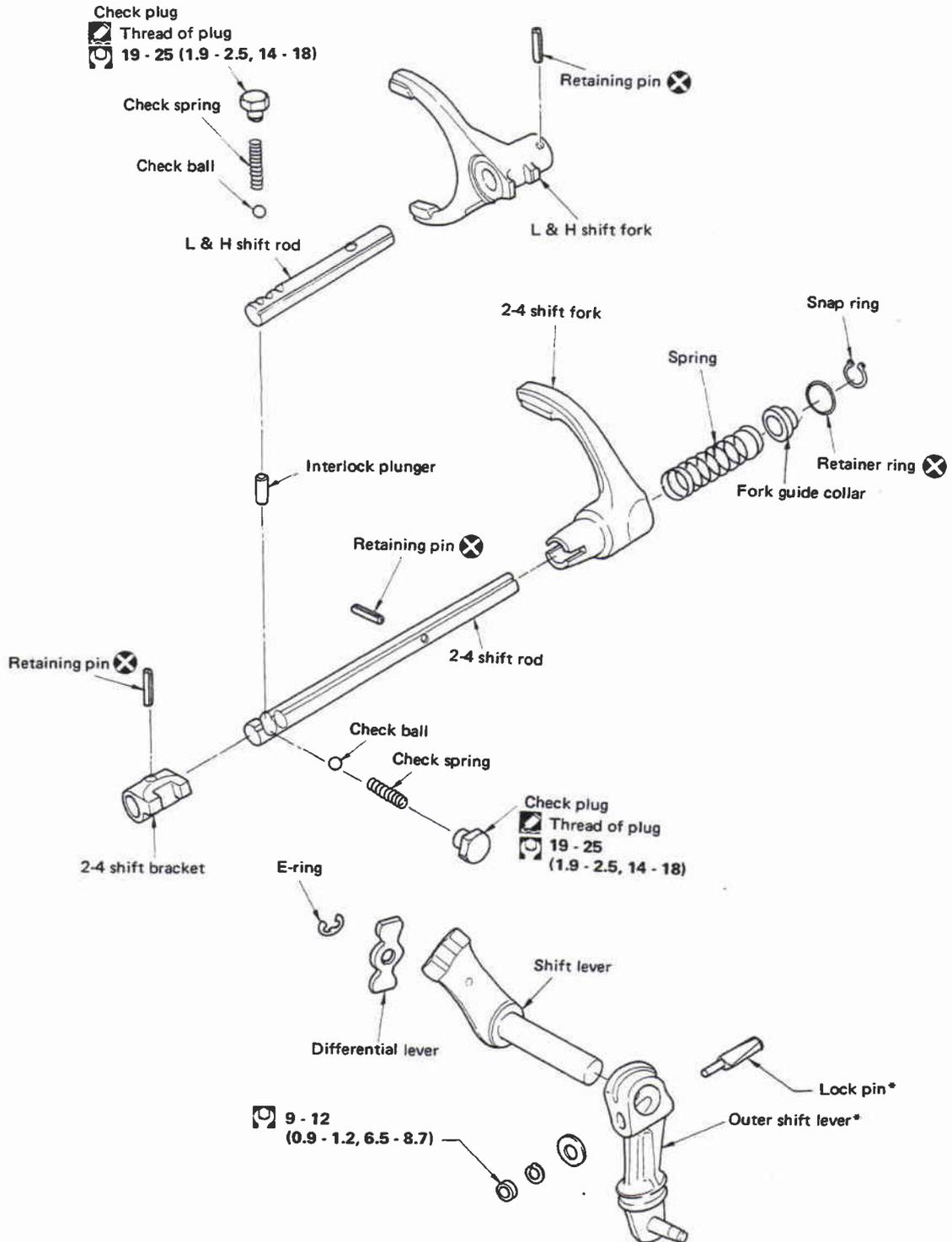
Ⓜ : N-m (kg-m, ft-lb)

☒ : Apply recommended sealant (Nissan genuine part: KP210-00200) or equivalent.

SMT100B

MAJOR OVERHAUL

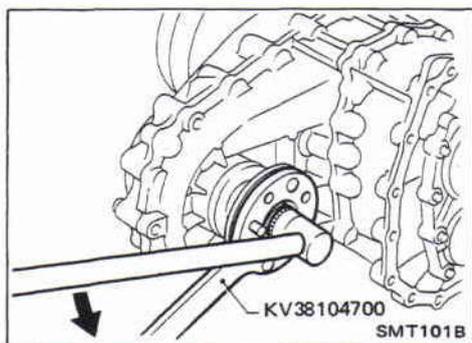
Shift Control Components



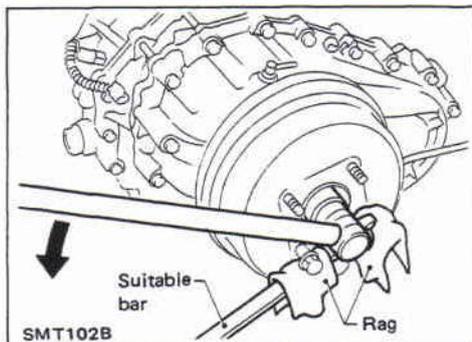
- * : If these parts require to be replaced, replace them as a set.
- ⊗ : N-m (kg-m, ft-lb)
- ⊕ : Apply recommended sealant (Nissan genuine part: KP210-00200) or equivalent.

SMT179B

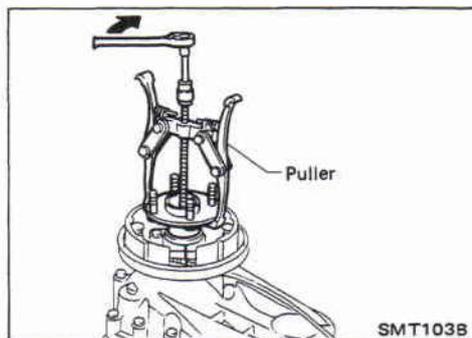
DISASSEMBLY



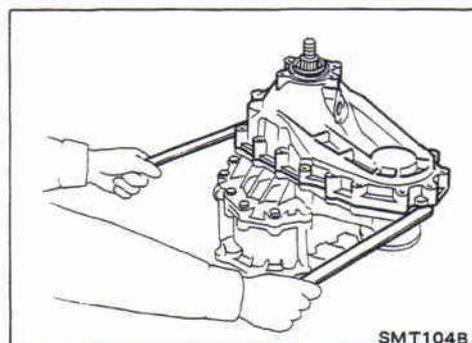
1. Remove nut of front companion flange.



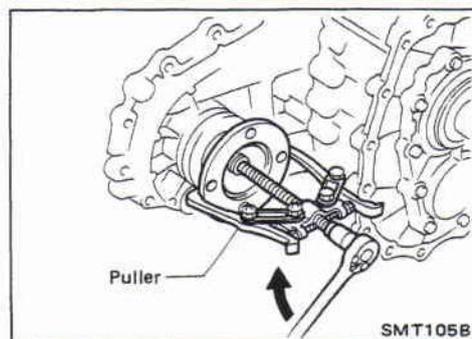
2. Remove center brake components.
 - a. Remove rear companion flange nut.
 - b. Remove brake drum.



- c. Remove rear companion flange.
- d. Remove center brake components.

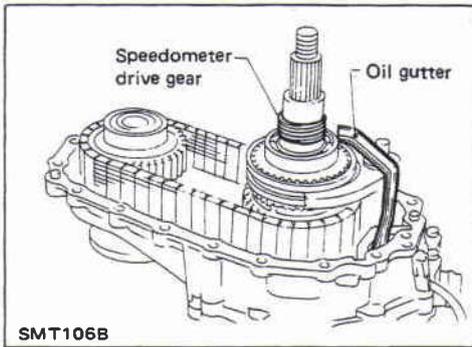


3. Remove rear case.
 - Be careful not to damage the mating surface.

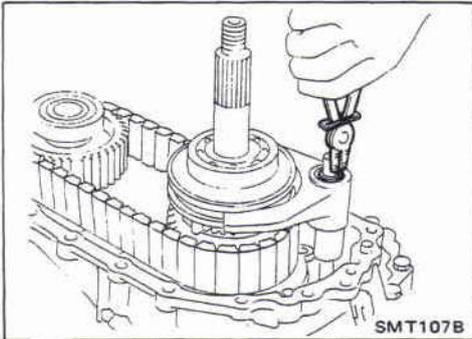


4. Remove front companion flange.

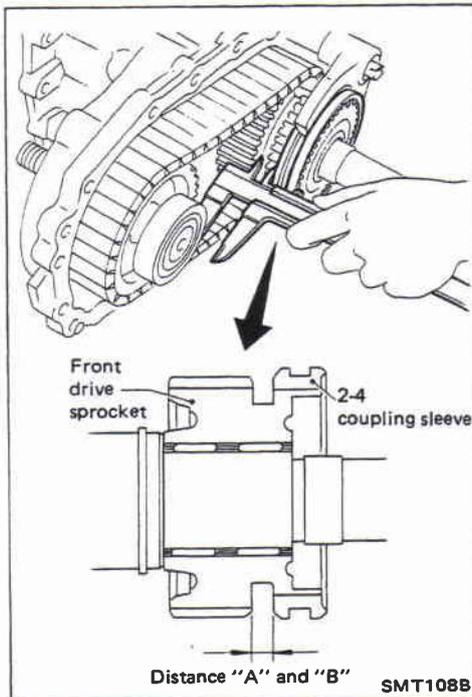
DISASSEMBLY



5. Remove speedometer drive gear and oil gutter.



6. Remove snap ring from 2-4 shift rod.

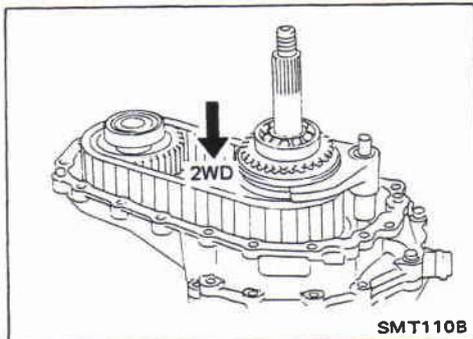


7. Check front drive sprocket end play.
- While holding front drive sprocket forward as far as it will go, measure distance "A" between rear surface of front drive sprocket and front surface of 2-4 coupling sleeve.
 - While holding front drive sprocket back as far as it will go, measure distance "B" as same as step a.
 - Determine front drive sprocket end play to be used by the following equation.

$$\text{Front drive sprocket end play} = A - B$$

Standard: 0.20 - 0.35 mm (0.0079 - 0.0138 in)

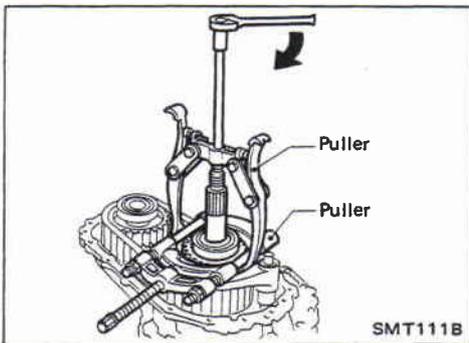
- If not within specification, disassemble and check contact surface of gear to hub, washer, bushing, needle bearing and shaft.



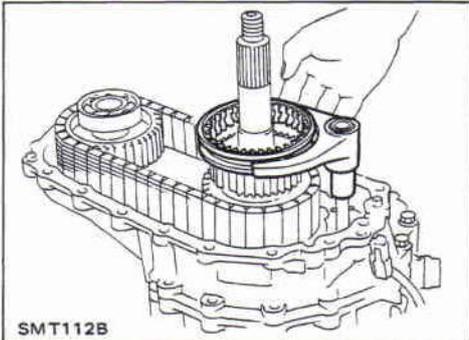
8. Shift 2-4 coupling sleeve to 2WD position.

DISASSEMBLY

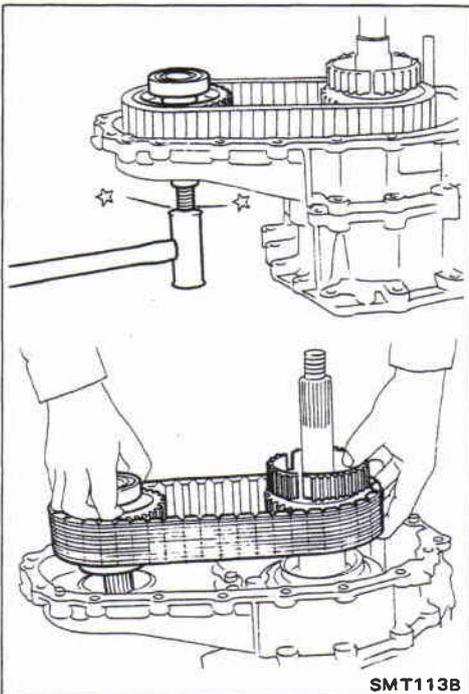
9. Pull out clutch gear and mainshaft rear bearing.



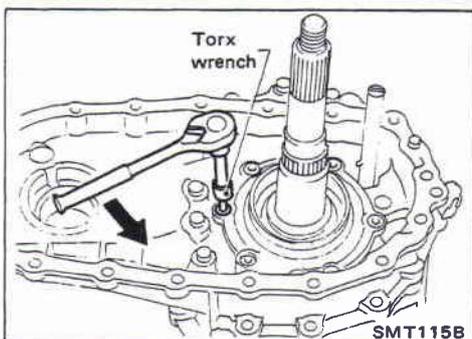
10. Remove 2-4 coupling sleeve with 2-4 shift fork.



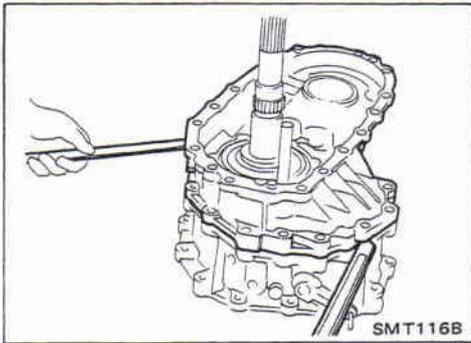
11. Remove front drive shaft assembly, drive chain and front drive sprocket by tapping front end of front drive shaft.



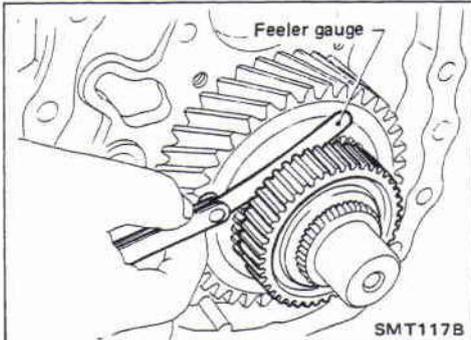
12. Remove bolts securing bearing retainer and then remove bearing retainer.



DISASSEMBLY



13. Remove bolts securing center case to front case and then separate center case and front case.

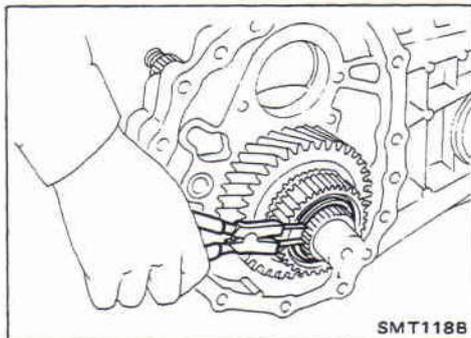


14. Measure end play of low gear.

Standard:

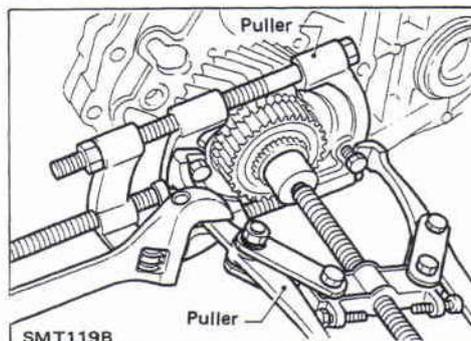
0.20 - 0.35 mm (0.0079 - 0.0138 in)

- If end play is beyond the maximum value, check low gear and L & H hub for wear.

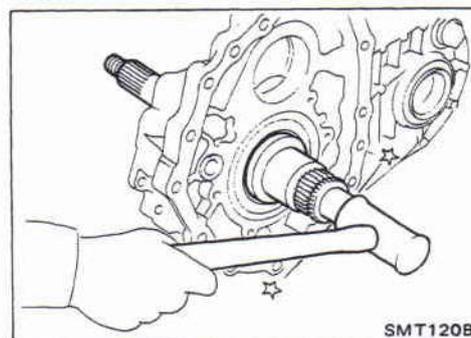


15. Disassemble center case assembly.

- a. Remove snap ring from mainshaft.

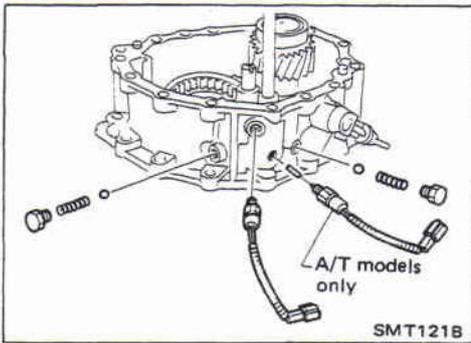


- b. Pull out low gear with L & H hub.



- c. Remove mainshaft by tapping front end of mainshaft.

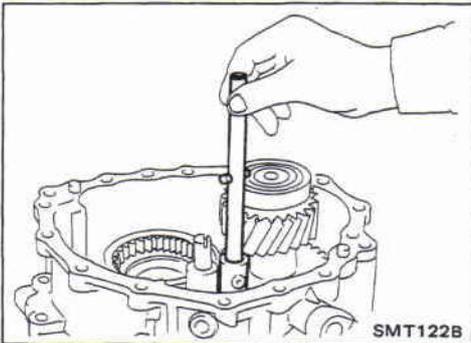
DISASSEMBLY



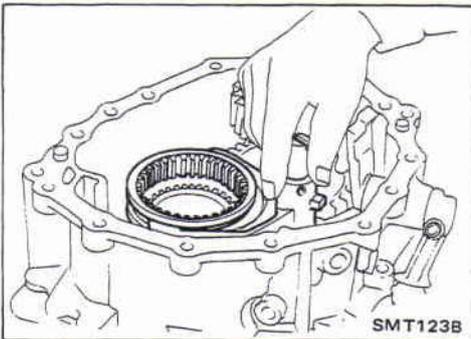
16. Disassemble front case assembly.

a. Remove the following parts.

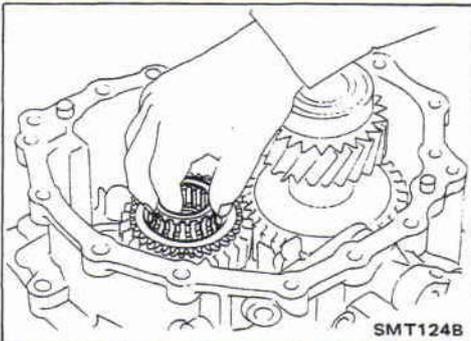
- 4WD switch
- Neutral switch (A/T models only)
- Check plugs
- Check springs
- Check balls



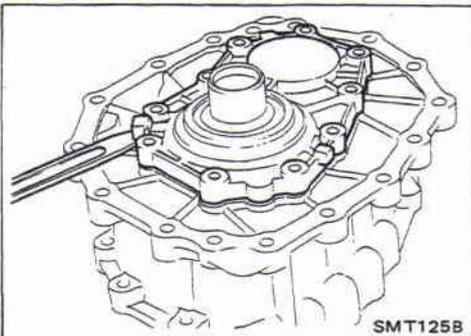
b. Remove 2-4 shift rod.



c. Remove L & H shift rod and fork assembly with coupling sleeve.

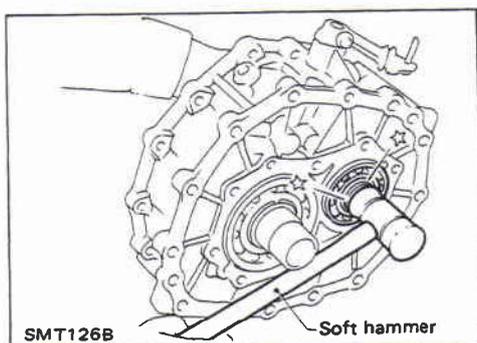


d. Remove needle bearing from main gear.

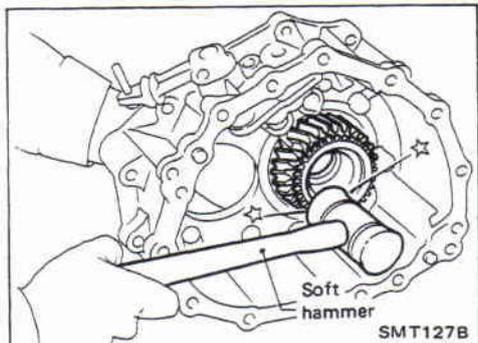


e. Remove bolts securing front case cover and then remove it.

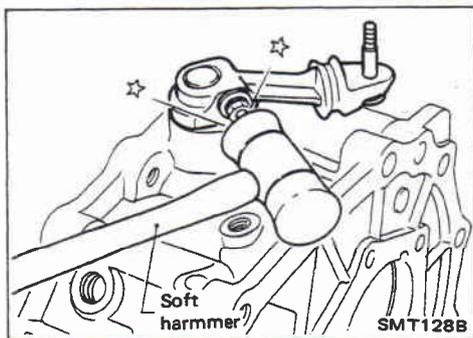
DISASSEMBLY



- f. Remove counter gear by tapping it lightly with a soft hammer.

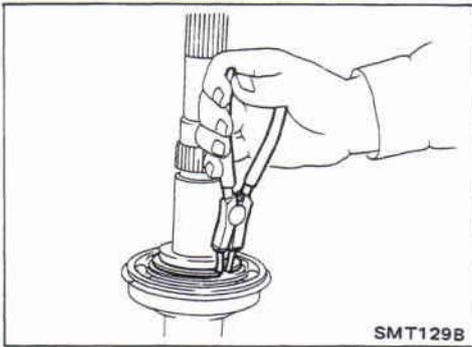


- g. Remove main gear by tapping it lightly with a soft hammer.



17. Remove inner and outer shift levers.

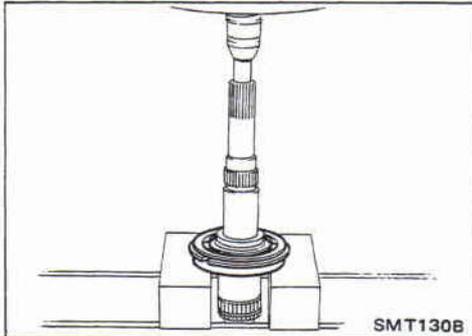
REPAIR FOR COMPONENT PARTS



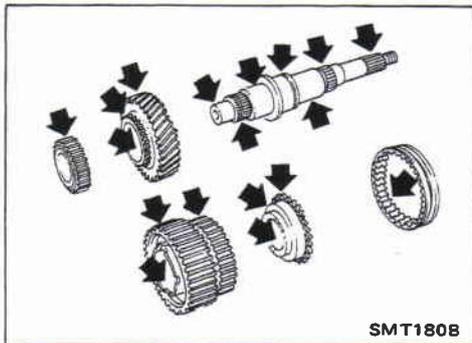
Mainshaft

DISASSEMBLY

1. Remove snap ring and spacer.



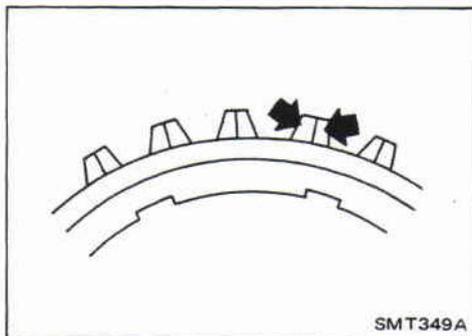
2. Press out mainshaft front bearing from mainshaft.



INSPECTION

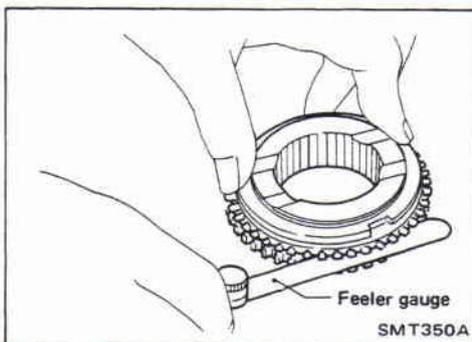
Gear and shaft

- Check gears for excessive wear, chips or cracks.
- Check shaft for cracks, wear or bending.
- Check coupling sleeve for wear or damage.



Baulk ring

- Check baulk ring for cracks or deformation.



- Measure clearance between baulk ring and gear.

Baulk ring to gear clearance:

Unit: mm (in)	
Standard	Wear limit
1.0 - 1.5 (0.039 - 0.059)	0.5 (0.020)

- If not within wear limit, replace baulk ring.

REPAIR FOR COMPONENT PARTS

Mainshaft (Cont'd)

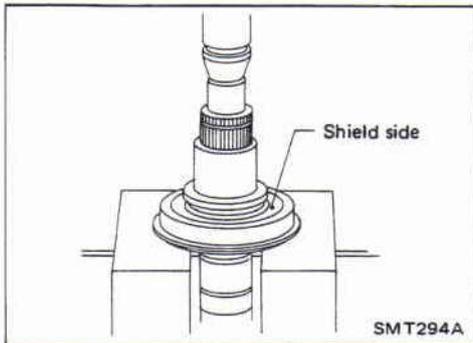
Bearing

- Make sure bearings roll freely and are free from noise, crack, pitting or wear.

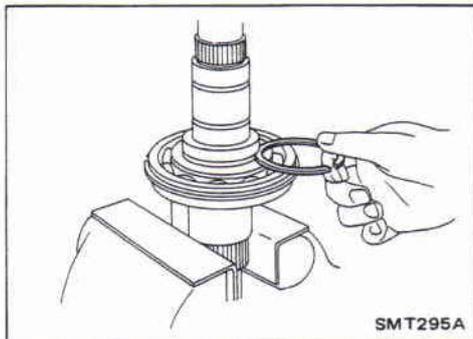


ASSEMBLY

1. Press mainshaft front bearing onto mainshaft.
 - Pay special attention to its direction.

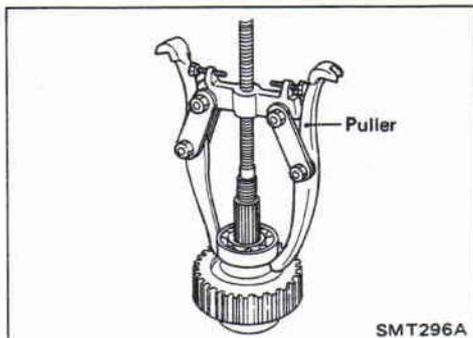


2. Install spacer.
3. Select snap ring with proper thickness and install it.
 - Allowable clearance between snap ring and groove:
0 - 0.15 mm (0 - 0.0059 in)
 - Available snap ring:
Refer to S.D.S.

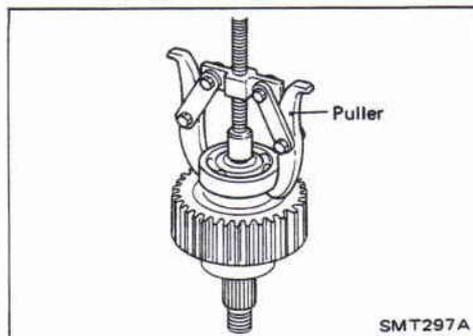


Front Drive Shaft DISASSEMBLY

- Front drive shaft front bearing



- Front drive shaft rear bearing



REPAIR FOR COMPONENT PARTS

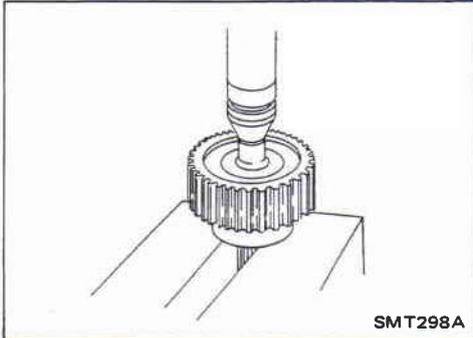
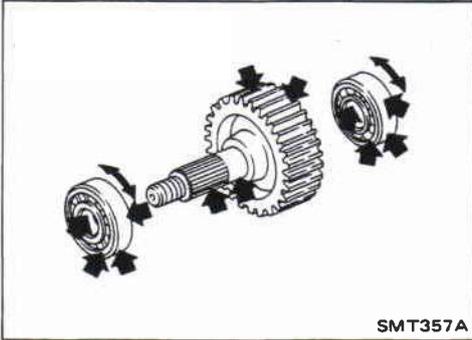
Front Drive Shaft (Cont'd) INSPECTION

Sprocket and shaft

- Check sprocket for excessive wear, chips or cracks.
- Check shaft for cracks or wear.

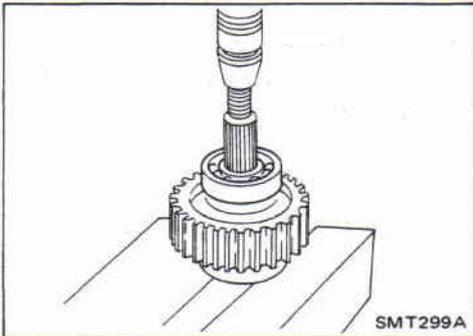
Bearing

- Make sure bearings roll freely and are free from noise, crack, pitting or wear.

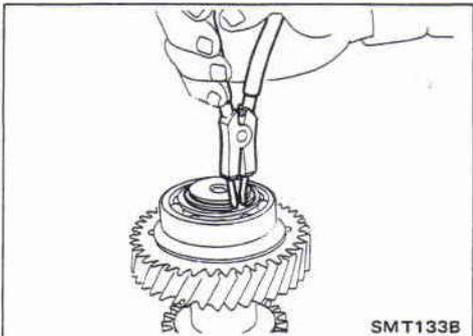


ASSEMBLY

- Press front drive shaft front bearing.

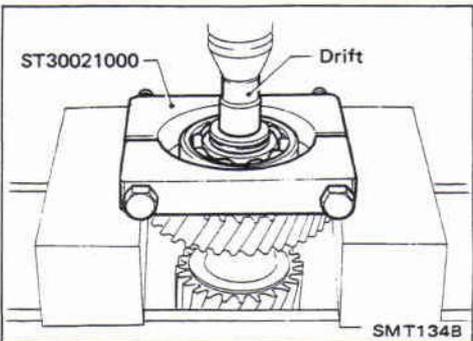


- Press front drive shaft rear bearing.



Counter Gear DISASSEMBLY

1. Remove snap ring and spacer from counter gear.

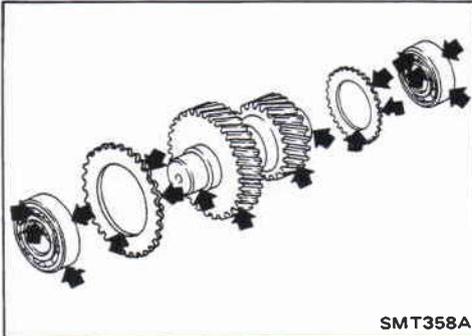
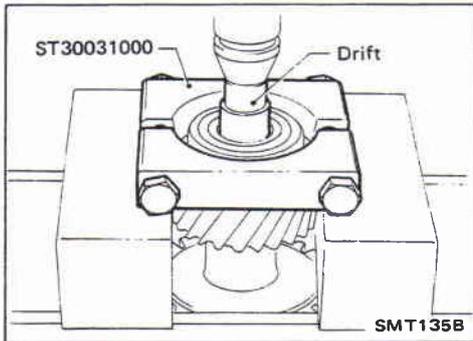


2. Press out counter gear front bearing and then remove front sub-gear, spacer and dish spring.

REPAIR FOR COMPONENT PARTS

Counter Gear (Cont'd)

3. Press out counter gear rear bearing and then remove rear sub-gear, spacer and dish spring.



INSPECTION

Gear and shaft

- Check gears for excessive wear, chips or cracks.
- Check shaft for cracks or wear.

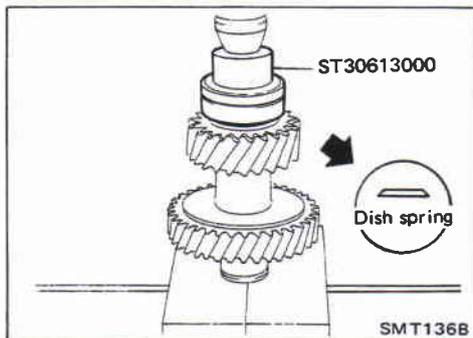
Bearing

- Make sure bearings roll freely and are free from noise, crack, pitting or wear.

ASSEMBLY

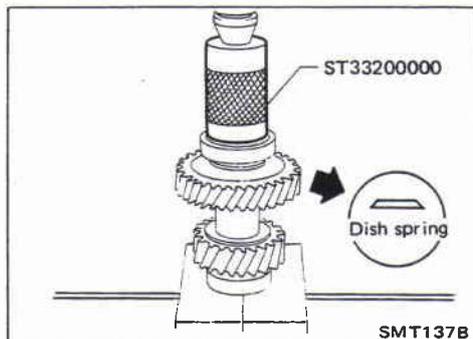
1. Install rear sub-gear, dish spring and spacer, and then press on counter gear rear bearing.

- Pay attention to direction of dish spring.



2. Install front sub-gear, dish spring and spacer, and then press on counter gear front bearing.

- Pay attention to direction of dish spring.



3. Install spacer.

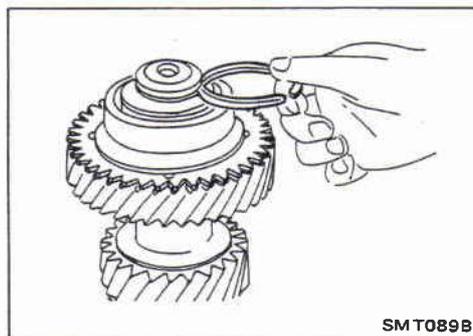
4. Select snap ring with proper thickness and install it.

Allowable clearance between snap ring and groove:

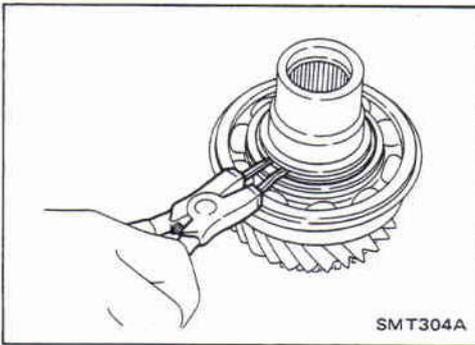
0 - 0.15 mm (0 - 0.0059 in)

Available snap ring:

Refer to S.D.S.

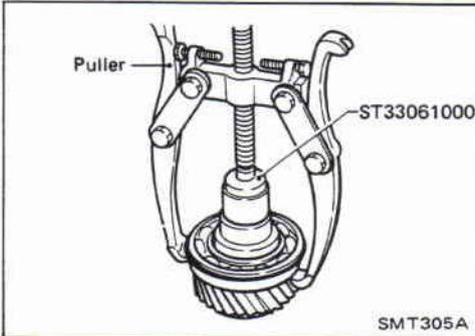


REPAIR FOR COMPONENT PARTS

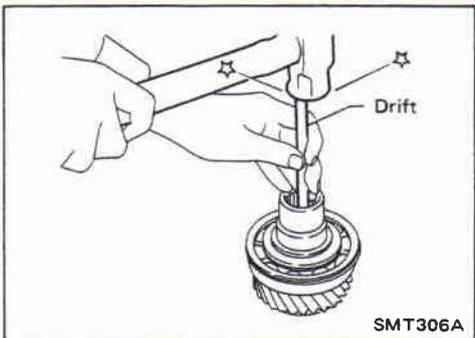


Main Gear DISASSEMBLY Main gear bearing

1. Remove snap ring and spacer.

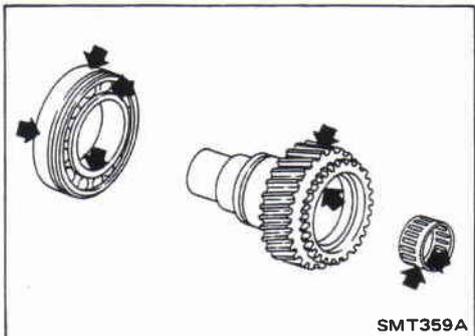


2. Pull out main gear bearing.



Plug

- Always replace it with new one whenever it is removed.



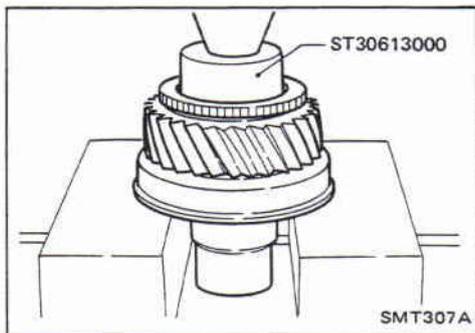
INSPECTION

Gear and shaft

- Check gears for excessive wear, chips or cracks.
- Check shaft for cracks or wear.

Bearing

- Make sure bearings roll freely and are free from noise, crack, pitting or wear.



ASSEMBLY

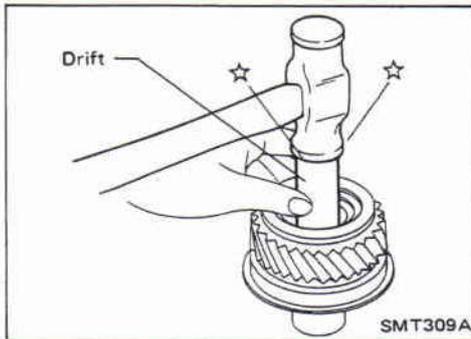
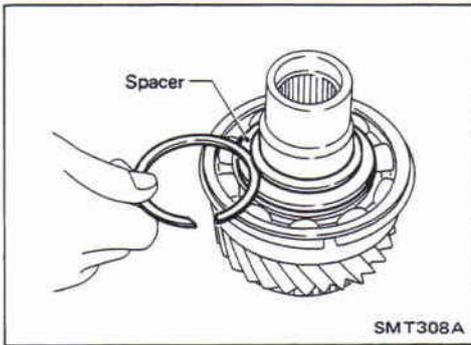
Main gear bearing

1. Press on main gear bearing.
 - Pay attention to its direction.
2. Install spacer.

REPAIR FOR COMPONENT PARTS

Main Gear (Cont'd)

3. Select snap ring with proper thickness and install it.
Allowable clearance between snap ring and groove:
0 - 0.15 mm (0 - 0.0059 in)
Available snap ring:
Refer to S.D.S.

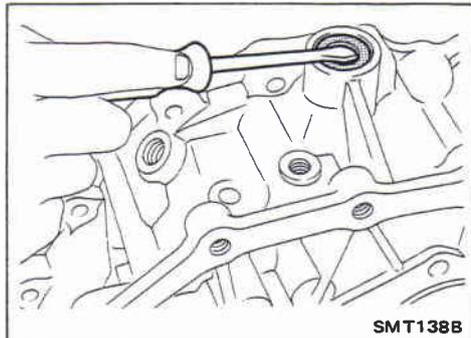


Plug

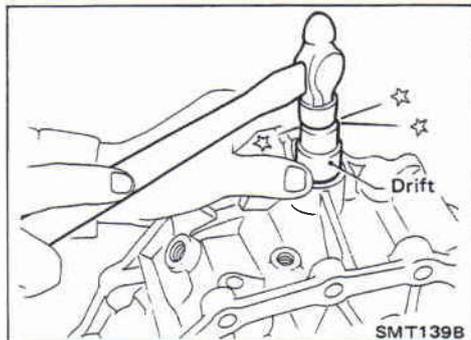
- Apply sealant to plug and install it.

Front Case SHIFT SHAFT OIL SEAL

Removal

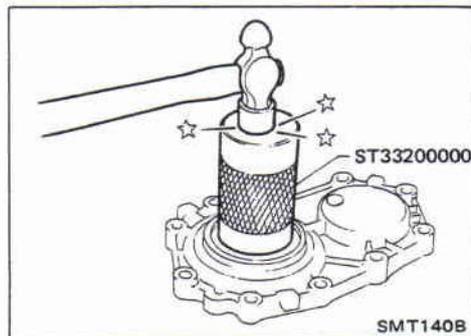


Installation



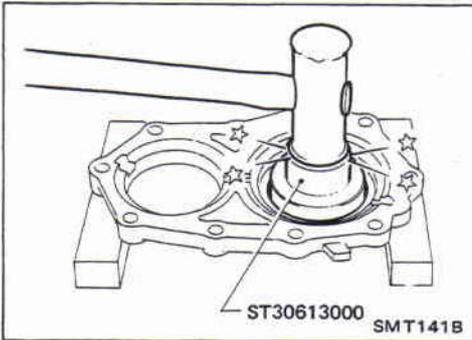
Front Case Cover COVER OIL SEAL

Removal

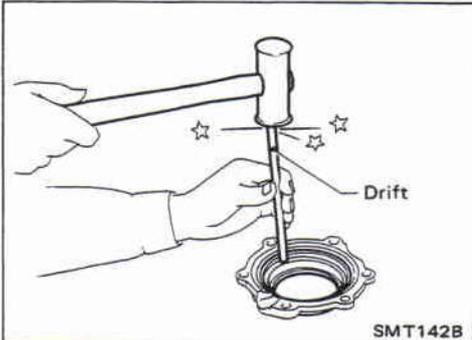


REPAIR FOR COMPONENT PARTS

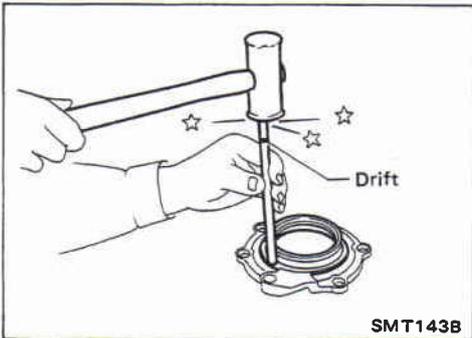
Front Case Cover (Cont'd) Installation



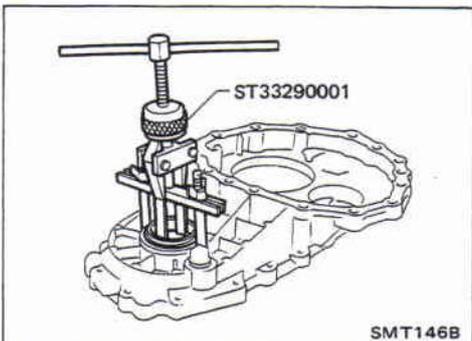
Bearing Retainer OIL CATCHER Removal



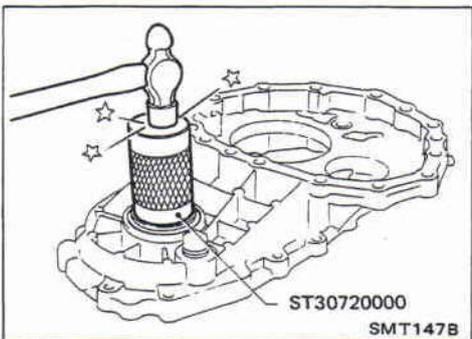
Installation



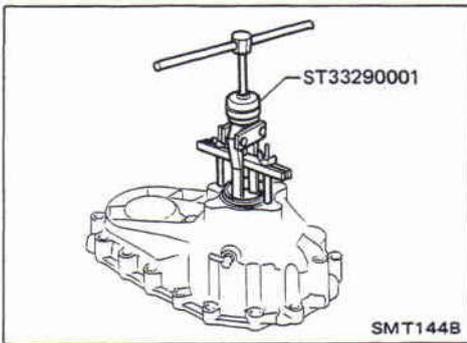
Center Case CENTER CASE OIL SEAL Removal



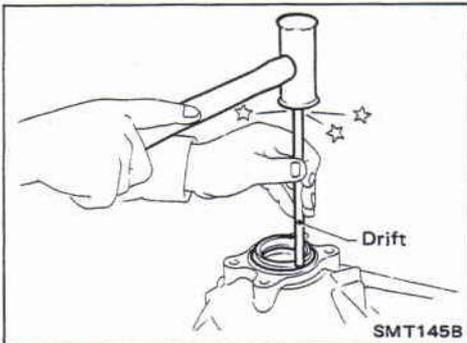
Installation



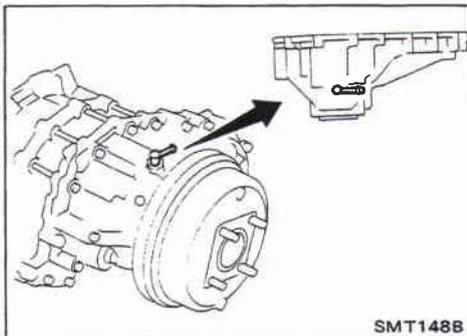
REPAIR FOR COMPONENT PARTS



Rear Case REAR OIL SEAL Removal

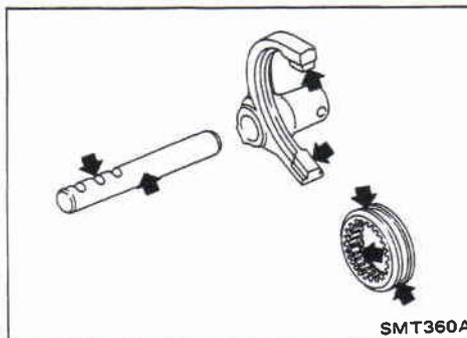


Installation



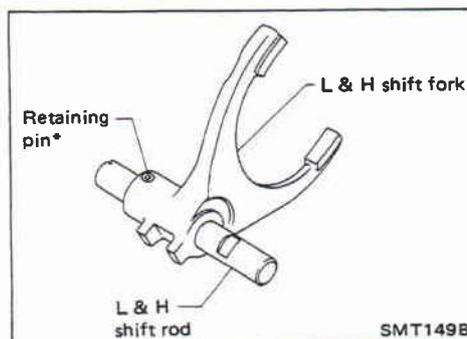
AIR BREATHER

- Install as shown in illustration.



Shift Control Components INSPECTION

- Check contact surface and sliding surface for wear, scratches, projections or other faulty conditions.



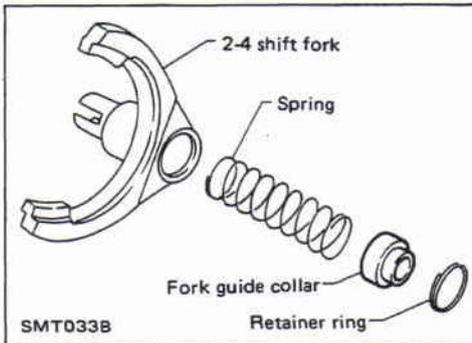
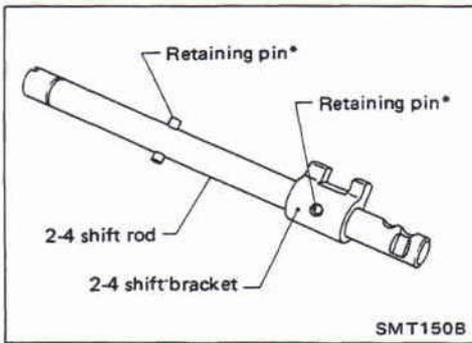
L & H SHIFT ROD & FORK

- Assemble as shown in illustration.
- * This pin is the same size as the one for 2-4 shift rod.

REPAIR FOR COMPONENT PARTS

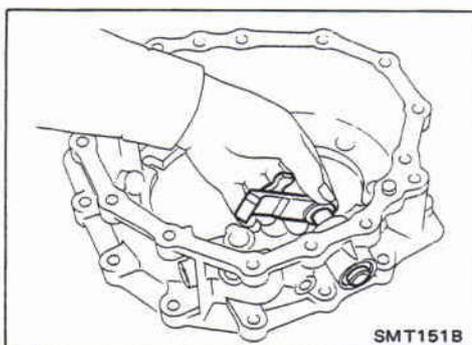
Shift Control Components (Cont'd) 2-4 SHIFT ROD & FORK

- Assemble as shown in illustration.
- * These pins are the same size.

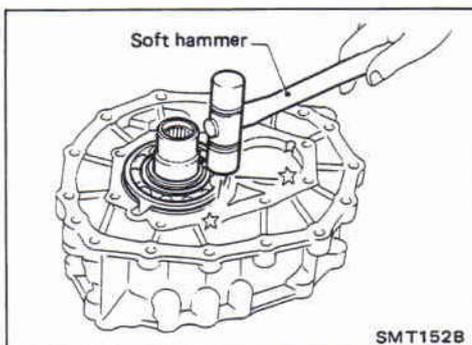


- Pay attention to the direction of fork guide collar.

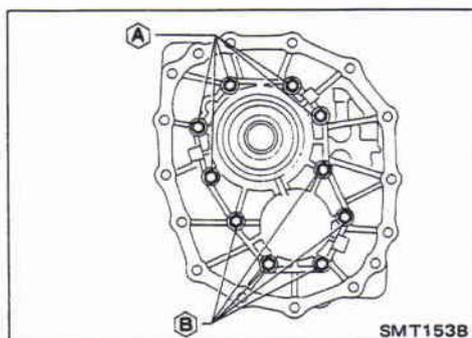
ASSEMBLY



1. Install inner and outer shift levers.



2. Assemble front case.
 - a. Install main gear assembly by tapping it lightly with a soft hammer.

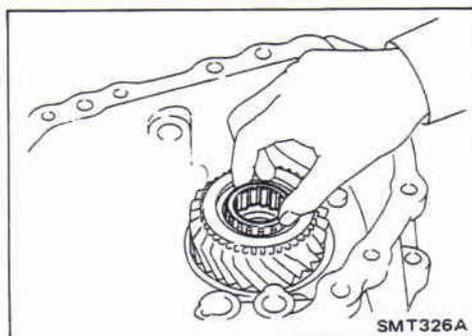


- b. Apply sealant to the mating surface and bolts of front case cover and install it on front case.

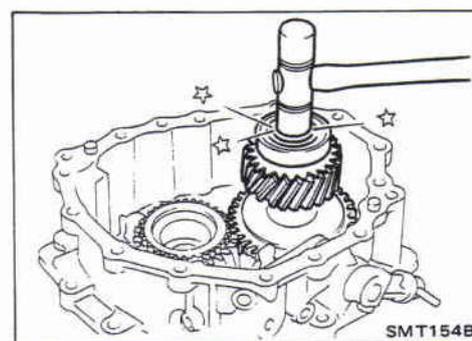
- Apply recommended sealant to these ten bolts

- Tightening torque

- Ⓐ : 16 - 21 N·m
(1.6 - 2.1 kg-m, 12 - 15 ft-lb)
- Ⓑ : 19 - 24 N·m
(1.9 - 2.4 kg-m, 14 - 17 ft-lb)

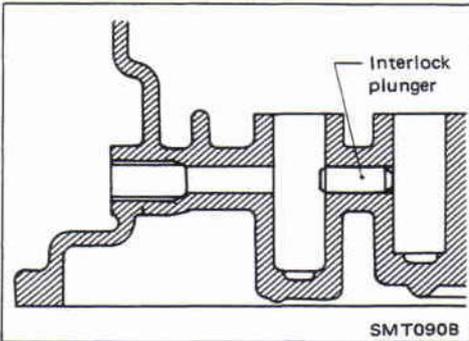


- c. Apply gear oil to needle bearing and install it into main gear.

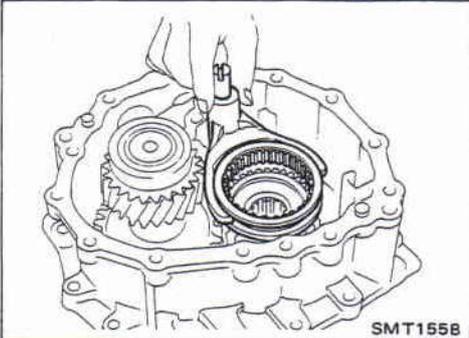


- d. Install counter gear assembly by tapping it lightly with a soft hammer.

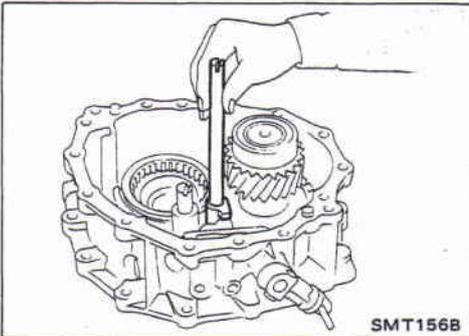
ASSEMBLY



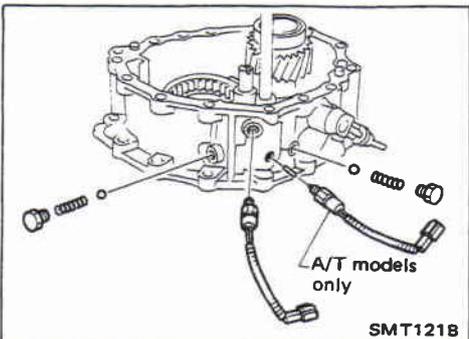
e. Insert interlock plunger into front case.



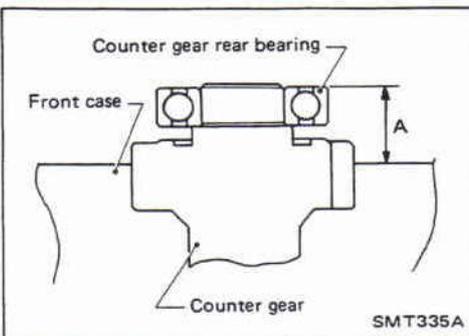
f. Install L & H shift rod and fork assembly with coupling sleeve.



g. Install 2-4 shift rod.



h. Install switches, check balls, check springs and plugs.
 ● **Apply sealant to switches and plugs.**



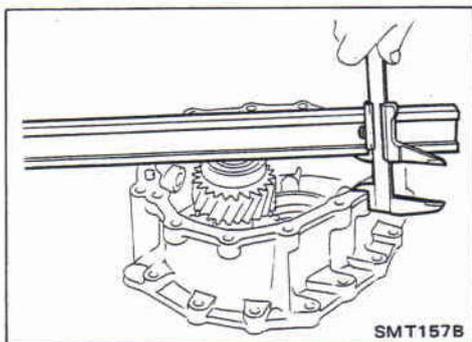
3. Select counter gear rear bearing shim.

Counter gear end play:

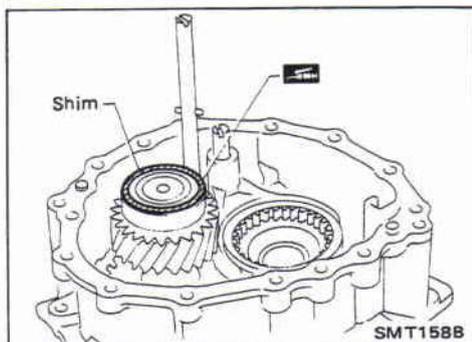
0 - 0.2 mm (0 - 0.008 in)

a. Measure distance "A" between upper surface of counter gear rear bearing and mating surface of front case.

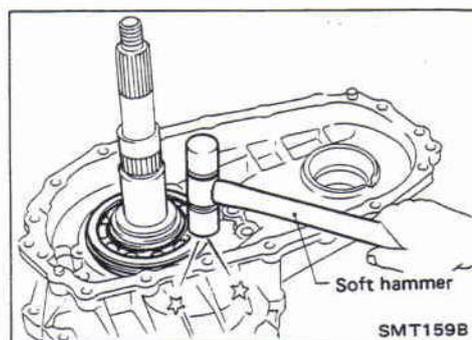
ASSEMBLY



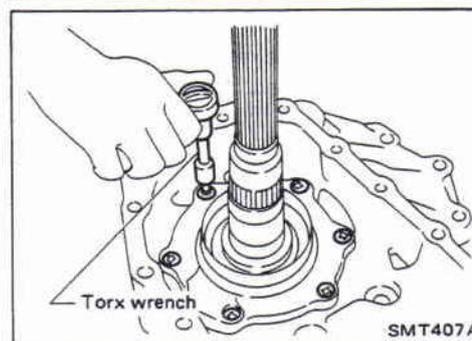
- b. Select suitable shim using S.D.S. table as a guide.



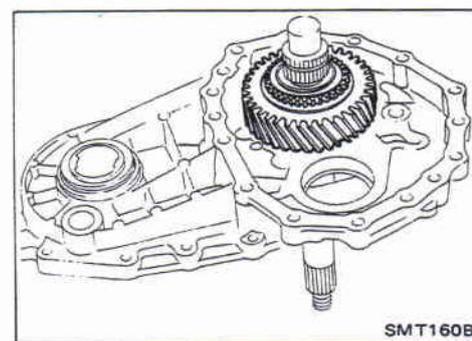
4. Place suitable shim on counter gear rear bearing with grease.
5. Apply gear oil to each part in front case.



6. Install mainshaft on center case.
a. Install mainshaft on center case by tapping it lightly.
● **Apply gear oil to mainshaft front bearing.**

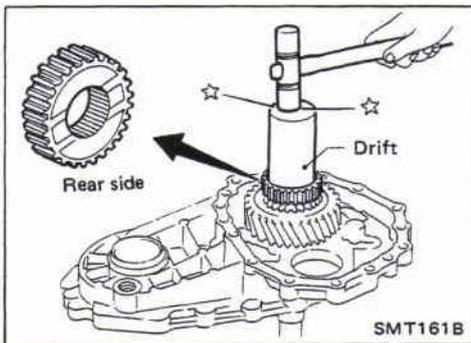


- b. Install bearing retainer.

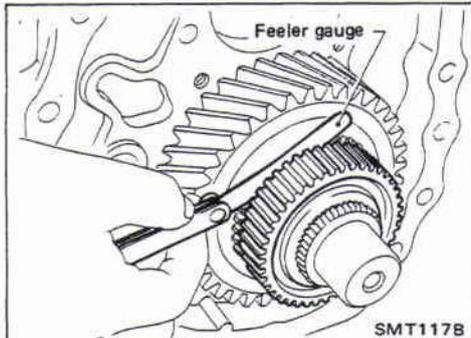


- c. Install low gear and its bearing to mainshaft.
● **Apply gear oil to needle bearing.**

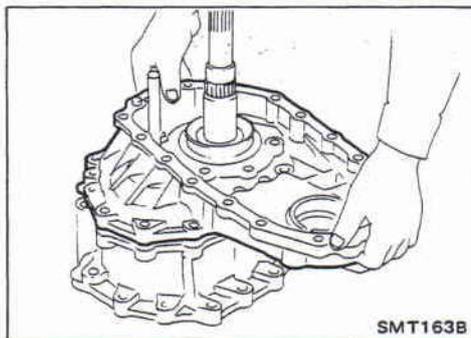
ASSEMBLY



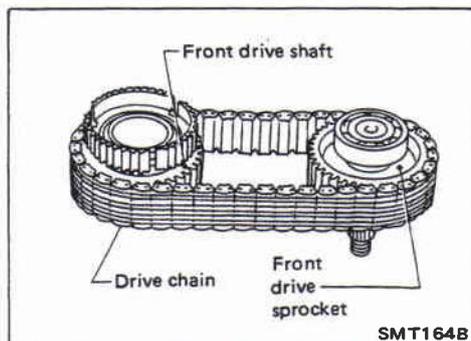
- d. Install L & H hub and snap ring to mainshaft.
● Pay attention to direction of L & H hub.



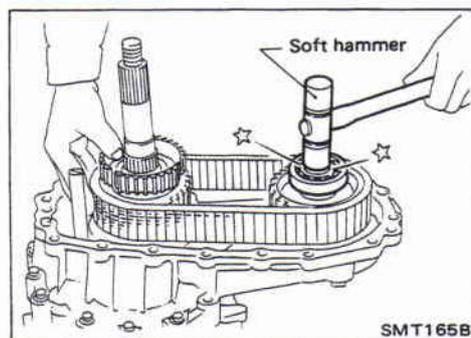
- e. Measure end play of low gear.
Standard: 0.20 - 0.35 mm (0.0079 - 0.0138 in)



7. Apply sealant to mating surface and put center case assembly onto front case and tighten bolts.

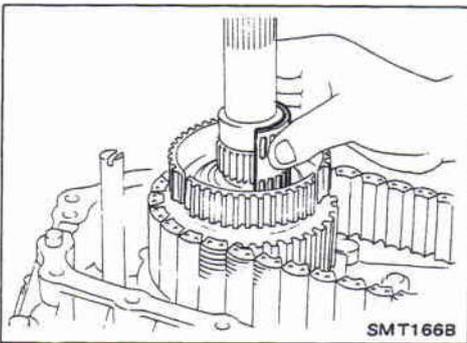


8. Assemble center case assembly.
a. Put drive chain onto front drive sprocket and front drive shaft, and then put them in center case.

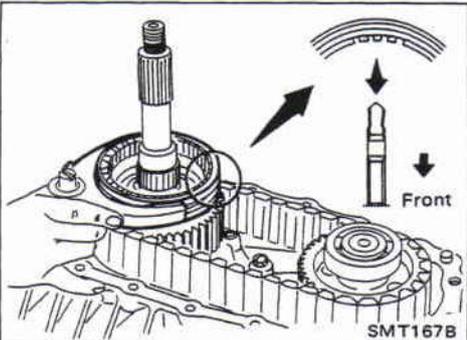


- b. Install front drive shaft by tapping it lightly with a soft hammer.
● Make sure shafts are lined up in case.

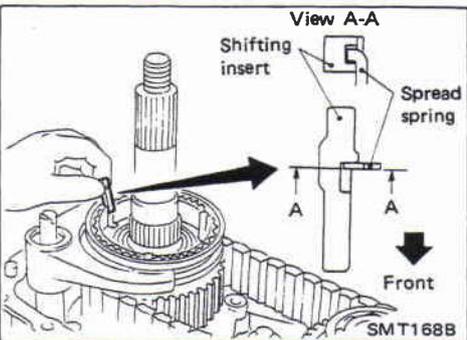
ASSEMBLY



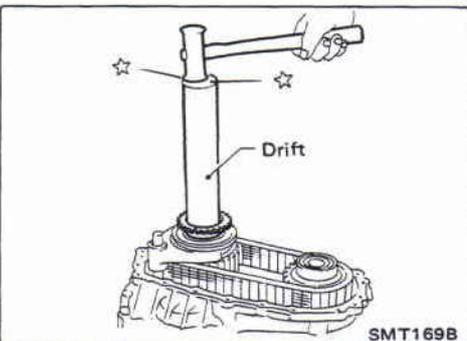
- c. Apply gear oil to needle bearings and install them into front drive sprocket.
- These needle bearings can be easily installed if front drive sprocket is rotated during their installation.



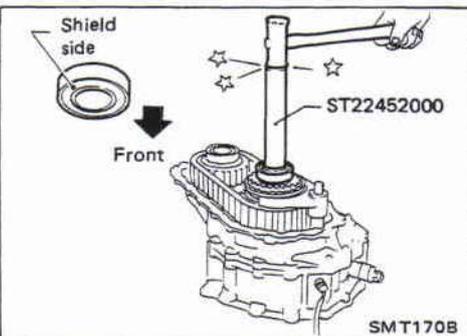
- d. Install 2-4 coupling sleeve with 2-4 shift fork.
- Pay attention to direction of coupling sleeve.



- e. Install shifting inserts and spread spring.
- Pay attention to direction of shifting inserts.

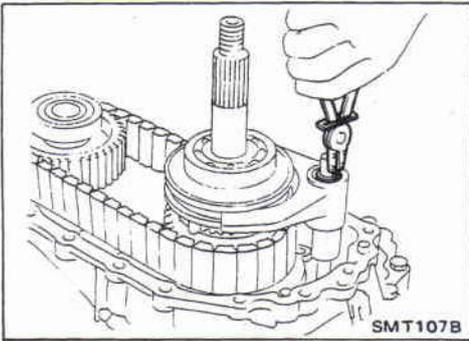


- f. Install baulk ring and then install clutch gear.

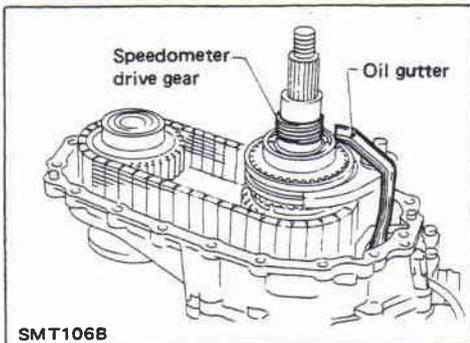


- g. Install mainshaft rear bearing.
- Pay attention to its direction.

ASSEMBLY

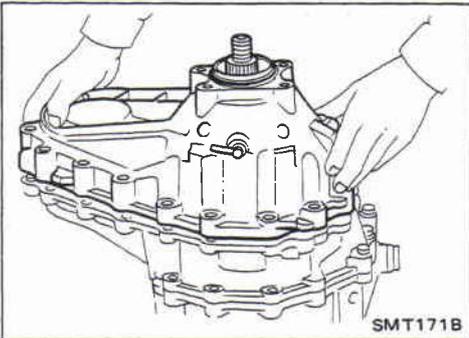


h. Install snap ring to 2-4 shift rod.



i. Install speedometer drive gear and oil gutter.

j. Apply gear oil to each part in center case.



9. Apply sealant to mating surface. Set center case assembly onto front case, then tighten bolts.

10. Install front and rear companion flanges and center brake components.

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

General Specifications

Transfer model		TX12A	
Gear ratio	High	1.000	
	Low	2.020	
Number of teeth	Main gear		29
	Low gear		37
	Counter gear	High	38
		Low	24
	Front drive sprocket		41
Front drive shaft		41	
Oil capacity	liters (Imp qt)	2.2 (2)	

Inspection and Adjustment

GEAR END PLAY

	mm (in)
Front drive sprocket	0.20 - 0.35 (0.0079 - 0.0138)
Low gear	0.20 - 0.35 (0.0079 - 0.0138)
Counter gear	0 - 0.2 (0 - 0.008)

CLEARANCE BETWEEN BAULK RING AND CLUTCH GEAR

mm (in)	
Standard	Wear limit
1.0 - 1.5 (0.039 - 0.059)	0.5 (0.020)

AVAILABLE SNAP RING Mainshaft front bearing

mm (in)	
Thickness	Part number
3.1 (0.122)	33138-33G10
3.2 (0.126)	33138-33G11
3.3 (0.130)	33138-33G12
3.4 (0.134)	33138-33G13

Counter gear front bearing

mm (in)	
Allowable clearance	
Thickness	Part number
1.8 (0.071)	33138-33G20
1.9 (0.075)	33138-33G21
2.0 (0.079)	33138-33G22
2.1 (0.083)	33138-33G23
2.2 (0.087)	33138-33G24

Main gear bearing

mm (in)	
Allowable clearance	
Thickness	Part number
2.6 (0.102)	33114-33G00
2.7 (0.106)	33114-33G01
2.8 (0.110)	33114-33G02
2.9 (0.114)	33114-33G03

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

Inspection and Adjustment (Cont'd)

AVAILABLE SHIM

Counter gear rear bearing

Distance "A" mm (in)	Shim(s)	
	Thickness mm (in)	Part number
40.6 - 40.5 (1.598 - 1.594)	Not necessary	
40.5 - 40.4 (1.594 - 1.591)	0.1 (0.004)	33112-C6900
40.4 - 40.3 (1.591 - 1.587)	0.2 (0.008)	33112-C6901
40.3 - 40.2 (1.587 - 1.583)	0.3 (0.012)	33112-C6902
40.2 - 40.1 (1.583 - 1.579)	0.4 (0.016)	33112-C6903
40.1 - 40.0 (1.579 - 1.575)	0.5 (0.020)	33112-33G00
40.0 - 39.9 (1.575 - 1.571)	0.6 (0.024)	33112-33G01

