



TOOL & EQUIPMENT BULLETIN

Classification:

MT95-01

Reference:

NTB95-036

Date:

May 3, 1995

ESSENTIAL TOOL RELEASE

APPLIED VEHICLES: 1986.5 to current Truck (D21 - V6)
1987 to current Pathfinder (WD21 - V6)
1987 to 1989 300ZX Turbo (Z31)
1990 to current 300ZX (Z32)

SERVICE INFORMATION

During the week of May 5, 1995 all Nissan dealers will receive the J39856 Gear and Bearing Removal Kit.

This new kit is designed to assist in removing gears and bearings during the repair of the FS5R30A transmission. Included in this kit:

- | | |
|----------------|--|
| (1) J8433-1, | Bridge and Center Screw |
| (1) J22912-01, | Bearing Puller |
| (1) J29801-A, | Bearing Puller |
| (1) J33025, | Bearing Puller |
| (2) J39856-10, | Extension Bolts and washers, 0.375 x 16 UNC x 3.73" long |
| (2) J39856-11, | Extension Bolts and washers, 0.375 x 16 UNC x 11" long |
| (2) J39856-12, | Extension Bolts and washers, 0.375 x 16 UNC x 12" long |
| (1) J39856-1, | Split Plate |
| (1) J39856-2, | Split Plate |
| (1) J39856-3, | Split Plate |

This tool kit was specifically designed for the 1990 to current 300ZX transmission. However with minor differences the kit may be easily adapted to the other applied models with the same transmission.

In addition to these tools, the service procedure for disassembling this transmission has also been modified. Please refer to the attached procedure whenever a repair is performed on the FS5R30A transmission.

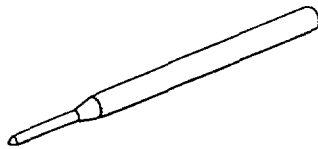
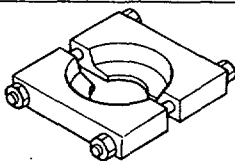
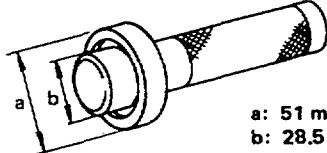
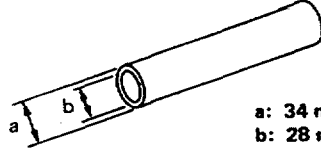
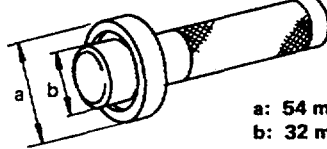
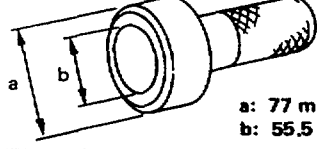
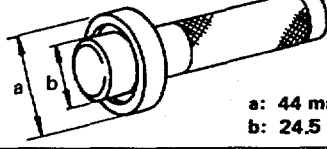
The applied vehicle service manuals will be amended to reference this service bulletin procedure.

NISSAN MOTOR CORPORATION., U.S.A.
Technical Communications Department

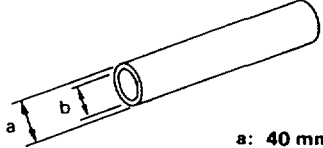
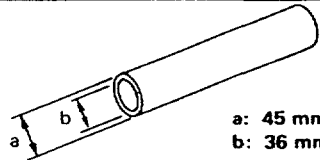
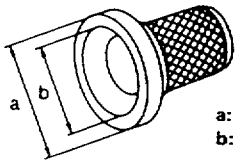
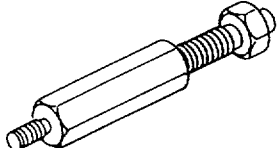
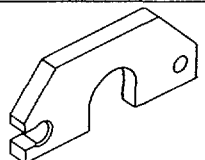
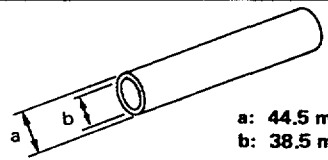
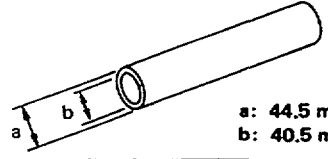
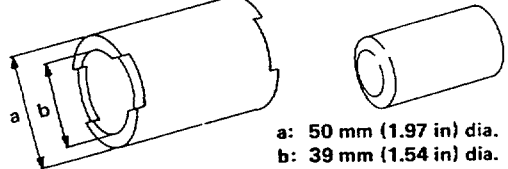
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PREPARATION

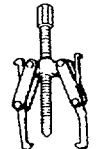
SPECIAL SERVICE TOOLS — for FS5R30A

Tool number (Kent-Moore No.) Tool name	Description
ST23540000 (J25689-A) Pin punch	 Removing and installing retaining pin
ST30031000 (J22912-01) Puller	 Removing 1st & 2nd synchronizer assembly Removing counter gear rear thrust bearing Removing main drive bearing Measuring 2nd & 3rd inner baulk ring Removing mainshaft rear bearing
ST33290001 (J-34286) Puller	 Removing rear oil seal
ST33230000 (-) Drift	 a: 51 mm (2.01 in) dia. b: 28.5 mm (1.122 in) dia. Removing mainshaft and counter gear
ST22350000 (J-6133-01) Drift	 a: 34 mm (1.34 in) dia. b: 28 mm (1.10 in) dia. Removing counter gear front bearing (Use with KV38100300)
KV38100300 ① (-) ② (J25523) Drift	 a: 54 mm (2.13 in) dia. b: 32 mm (1.26 in) dia. ① Removing counter gear front bearing (Use with ST22350000) ② Installing counter gear rear bearing
ST30720000 (J34331) Drift	 a: 77 mm (3.03 in) dia. b: 55.5 mm (2.185 in) dia. Removing mainshaft front bearing Installing mainshaft front bearing
ST33210000 ① (J25523) ② (J25803-01) Drift	 a: 44 mm (1.73 in) dia. b: 24.5 mm (0.965 in) dia. ① Installing counter gear front bearing ② Installing front cover oil seal
ST30613000 (J-34331) Drift	 a: 72 mm (2.83 in) dia. b: 48 mm (1.89 in) dia. Installing main drive gear bearing

PREPARATION

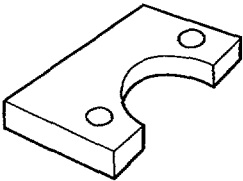
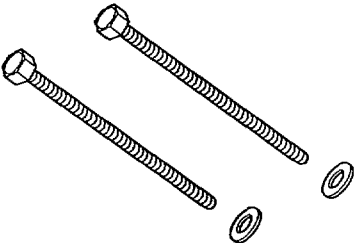
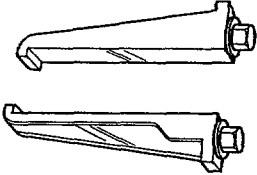
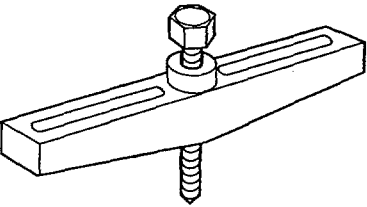
Tool number (Kent-Moore No.) Tool name	Description
ST37750000 ① (J-6133-01) ② (J34332) Drift	 a: 40 mm (1.57 in) dia. b: 31 mm (1.22 in) dia. ① Removing counter gear rear bearing ② Installing O.D. gear bushing ① Installing reverse cone ② Installing reverse counter gear ② Installing counter gear rear end bearing
ST22452000 (J-6133-01) Drift	 a: 45 mm (1.77 in) dia. b: 36 mm (1.42 in) dia. Installing reverse hub Installing mainshaft rear bearing
ST33400001 (J-22833) Drift	 a: 60 mm (2.36 in) dia. b: 47 mm (1.85 in) dia. Installing rear oil seal
(J26349-3) Puller leg (2) required	 Installing mainshaft and counter gear (Use with J34328)
(J34328) Puller	 Installing mainshaft and counter gear (Use with J26349-3)
(J-6133-01) Drift	 a: 44.5 mm (1.752 in) dia. b: 38.5 mm (1.516 in) dia. Installing sub-gear snap ring
(J-6133-01) Drift	 a: 44.5 mm (1.752 in) dia. b: 40.5 mm (1.594 in) dia. Installing O.D. main gear Installing reverse gear bushing
ST36730000 (—) Drift	 a: 50 mm (1.97 in) dia. b: 39 mm (1.54 in) dia. Installing sub-gear on reverse idler gear

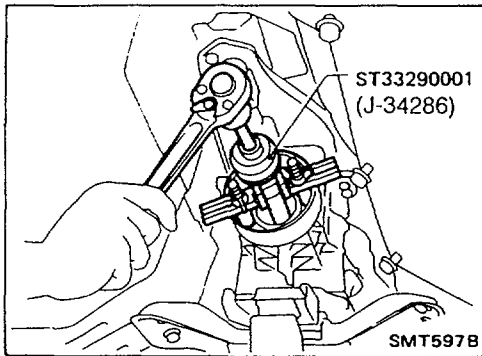
SPECIAL SERVICE TOOL — for FS5R30A

Tool name	Description
(J-29801-A) Puller	 Removing counter gear rear end bearing

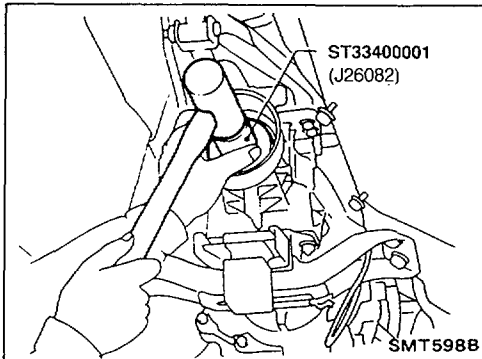
PREPARATION

SPECIAL SERVICE TOOLS — for FS5R30A

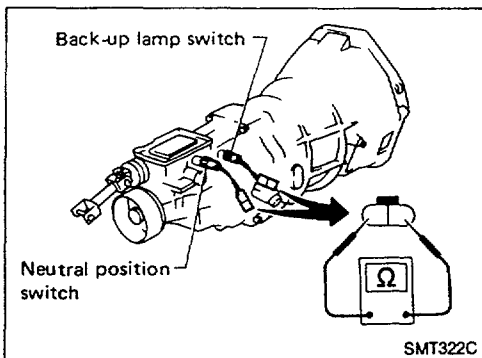
Tool Number (Kent-Moore No.) Tool Name	Description
① J39856-1 ② J39856-2 ③ J39856-3 Split plate	 ① Removing reverse main gear ② Removing reverse counter gear ③ Removing reverse gear bushing
J39856-10 J39856-11 J39856-12 Bolts and washers	 3 different sizes
J-33025	 Removing O.D. counter gear
J-8433-1 Bridge and center screw	 Removing reverse main gear Removing reverse counter gear Removing reverse gear bushing



Replacing Rear Oil Seal REMOVAL



INSTALLATION



Position Switch Check BACK-UP LAMP SWITCH

- Check continuity.

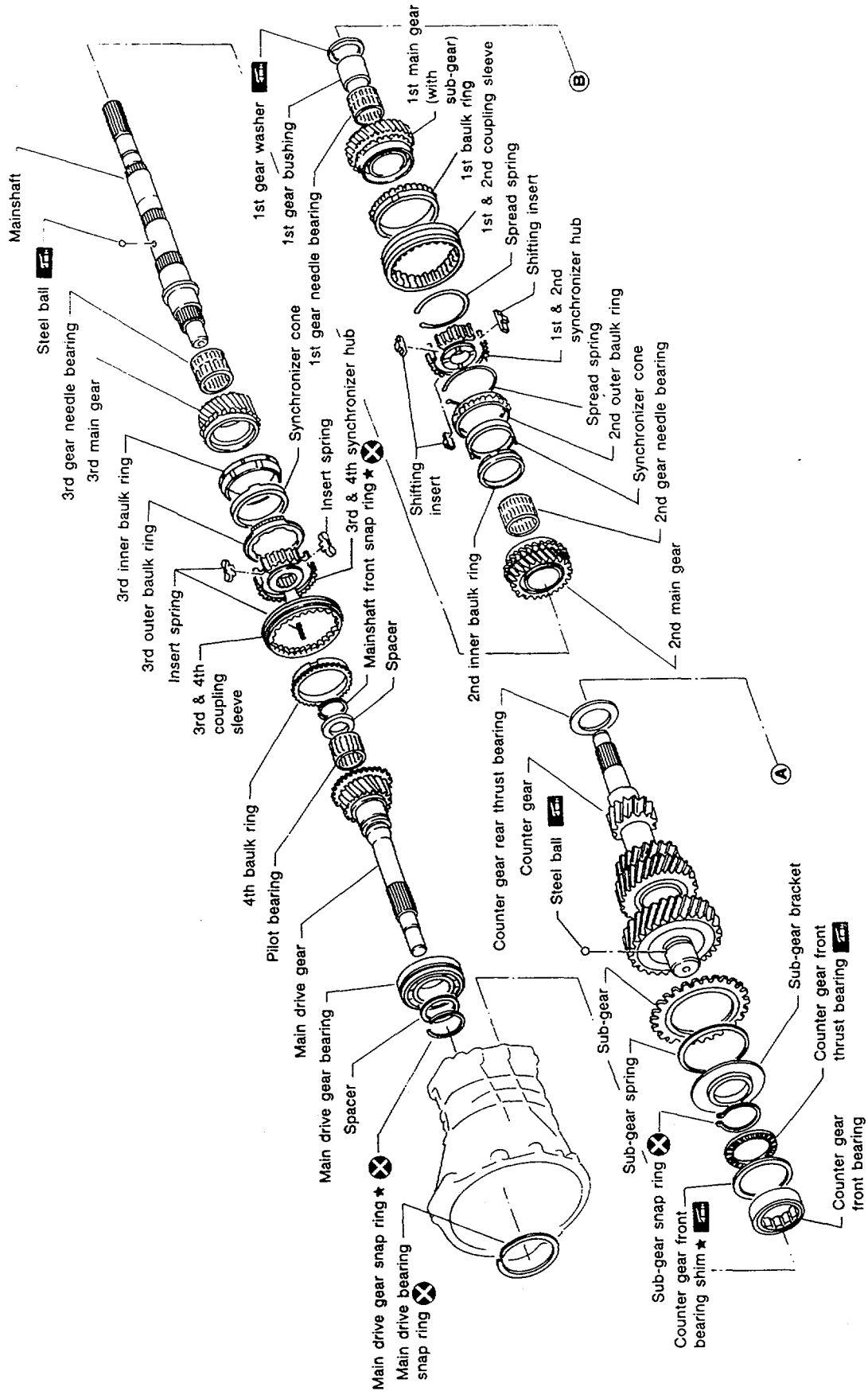
Gear position	Continuity
Reverse	Yes
Except reverse	No

NEUTRAL POSITION SWITCH

- Check continuity.

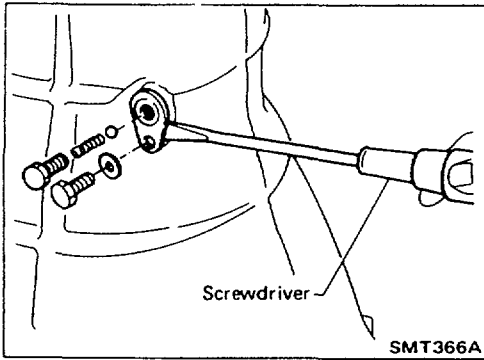
Gear position	Continuity
Neutral	Yes
Except neutral	No

Gear Components

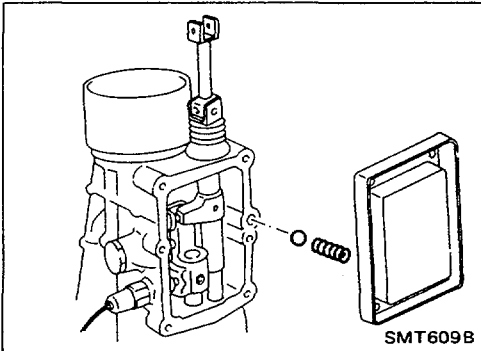


Case Components

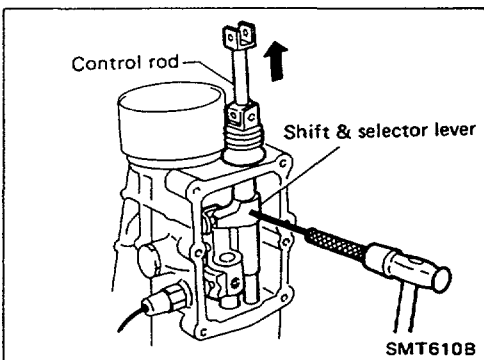
1. Remove check ball plug, check spring and check ball. Then remove interlock stopper.
If interlock assembly is removed as a unit, the check ball can fall into transmission case.



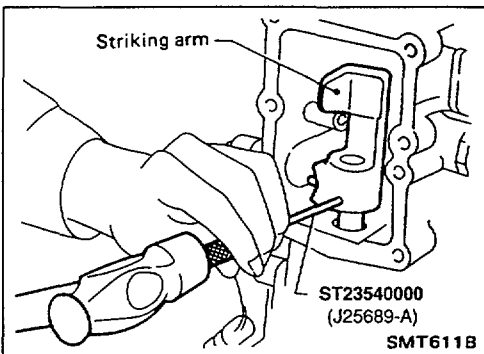
2. Remove upper cover, return spring and check ball.



3. Drive out retaining pin from shift & selector lever.
4. Remove control rod from M/T assembly.
Be careful not to damage control rod oil seal and dust cover.

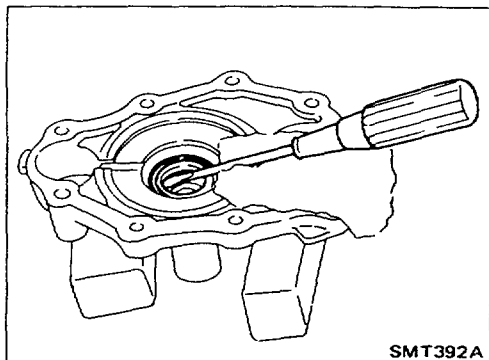


5. Drive out retaining pin from striking arm.



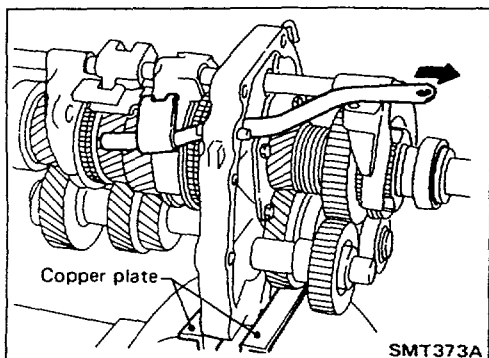
Case Components (Cont'd)

10. Remove front cover oil seal.

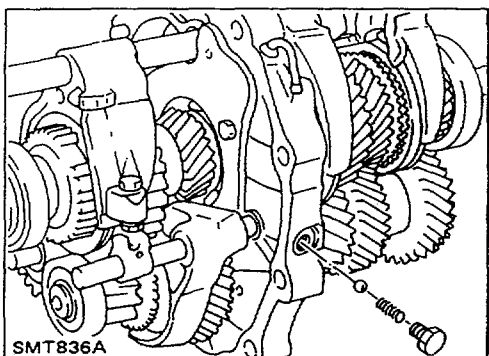


Shift Control Components

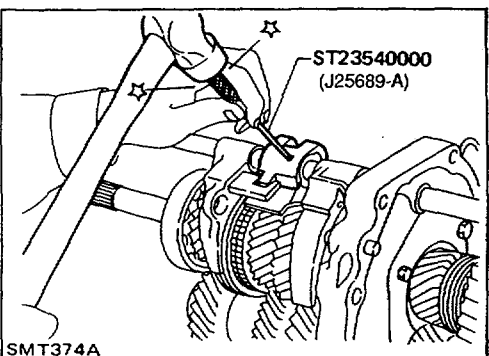
1. Mount adapter plate on vise.
2. Remove O.D. & reverse fork rod.



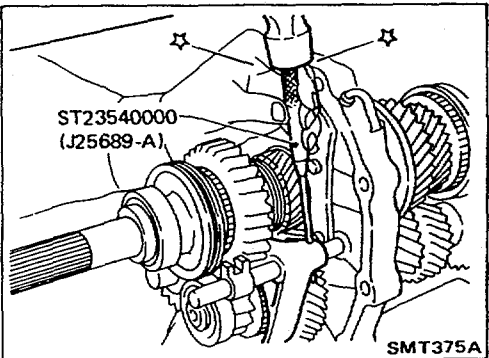
3. Remove check ball plug, check ball and return spring.

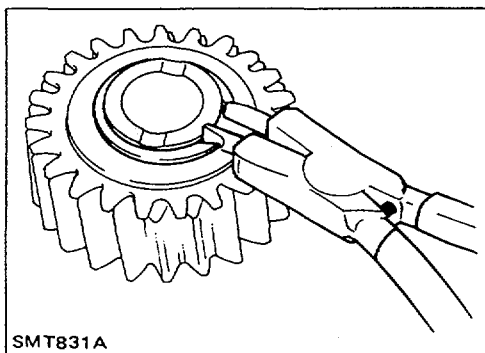
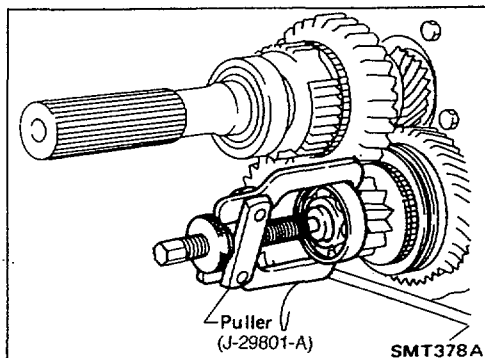
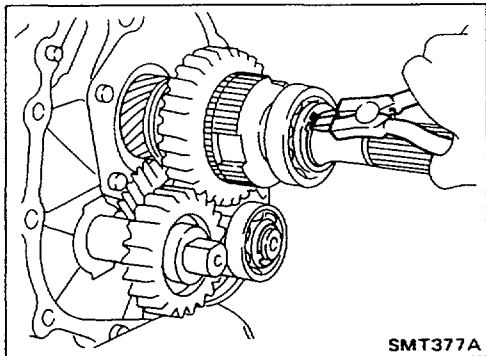
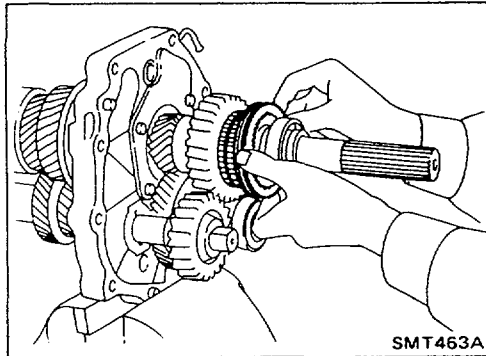
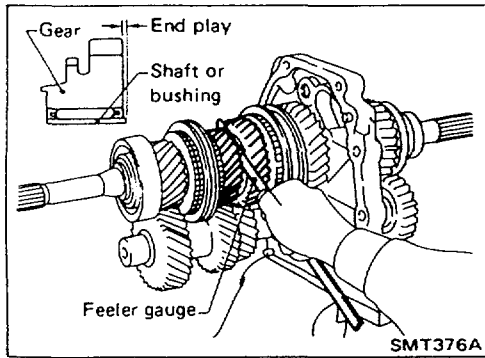


4. Drive out retaining pin from striking lever.
5. While pulling out striking rod, remove striking lever and striking interlock. Then remove 1st & 2nd, 3rd & 4th and reverse shift forks.



6. Drive out retaining pin from O.D. shift fork.
7. Pull out O.D. fork rod and then remove O.D. shift fork.





Gear Components

- Before removing gears and shafts, measure each gear end play.

Gear end play:

1st, 2nd, 3rd main gear

0.23 - 0.33 mm (0.0091 - 0.0130 in)

O.D. counter gear 0.23 - 0.33 mm (0.0091 - 0.0130 in)

Reverse main gear 0.33 - 0.43 mm (0.0130 - 0.0169 in)

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

- Remove rear side components on mainshaft and counter gear.

- Remove reverse coupling sleeve.

- Remove mainshaft rear snap ring and counter gear rear snap ring.

- Remove C-ring holder and mainshaft C-rings from mainshaft. Use punch and hammer to remove C-rings.

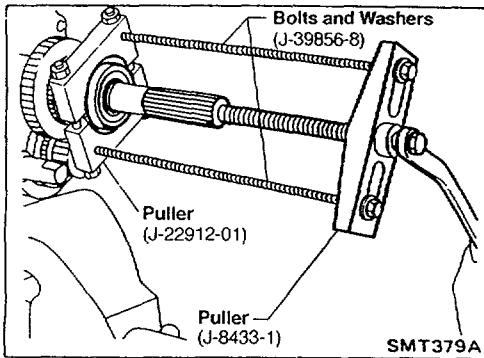
- Pull out counter gear rear end bearing.

- Remove reverse idler gear and reverse idler thrust washers.

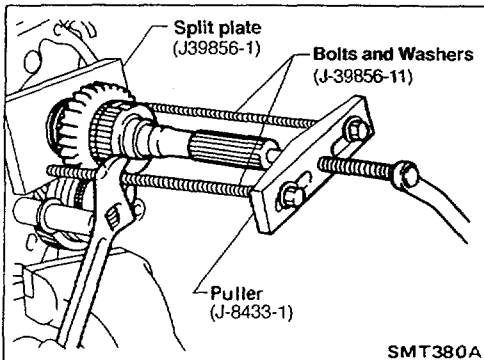
- Remove sub-gear from reverse idler gear.

DISASSEMBLY

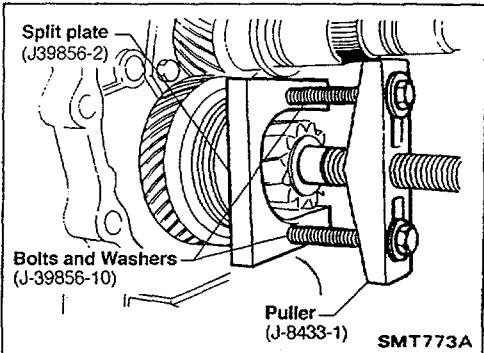
Gear Components (Cont'd)



g. Pull out mainshaft rear bearing.

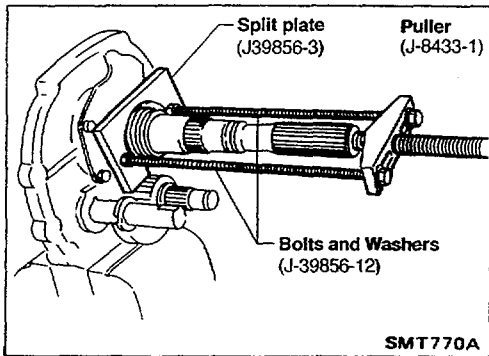


h. Pull out reverse main gear together with mainshaft spacer and reverse synchronizer hub. Then remove reverse gear needle bearings.

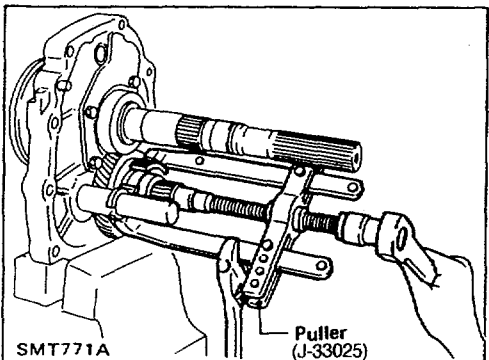


i. Pull out reverse counter gear.

j. Remove O.D. coupling sleeve together with O.D. baulk ring, reverse baulk ring and spring inserts.



k. Pull out reverse gear bushing, speedometer, drive gear and steel ball.

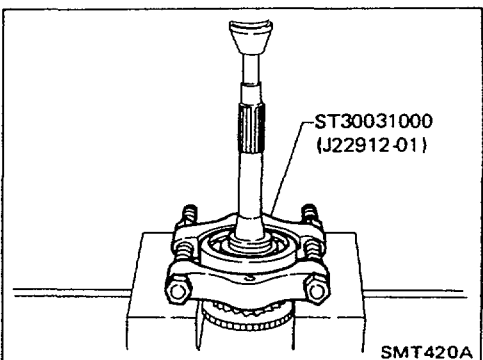
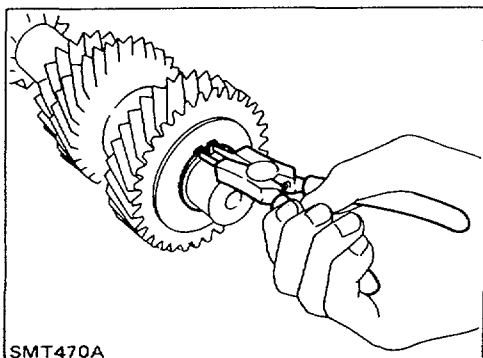
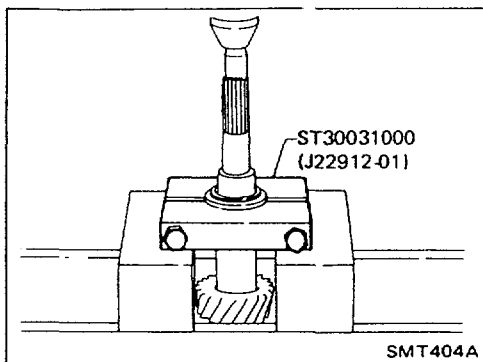


l. Pull out O.D. counter gear together with reverse cone.

DISASSEMBLY

Gear Components (Cont'd)

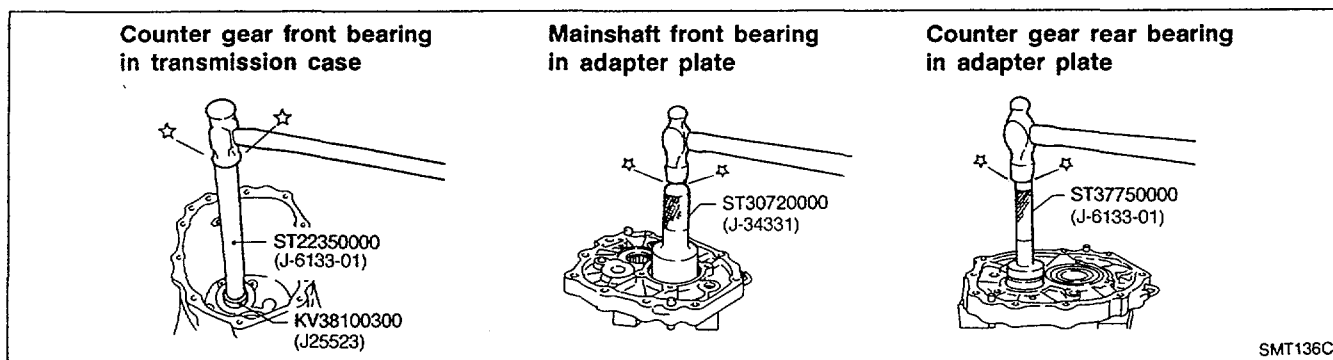
5. Remove front side components on counter gear.
 - a. Remove counter gear rear thrust bearing.



- b. Remove sub-gear components.

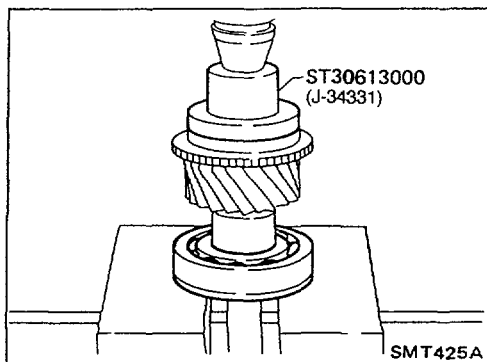
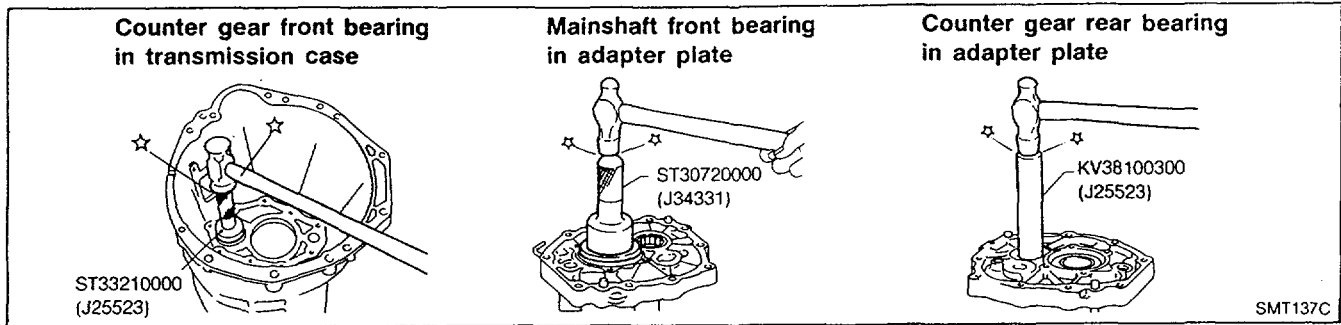
6. Remove main drive gear bearing.
 - a. Remove main drive gear snap ring and spacer.
 - b. Press out main drive gear bearing.

7. Remove bearings from case components.



Gear Components

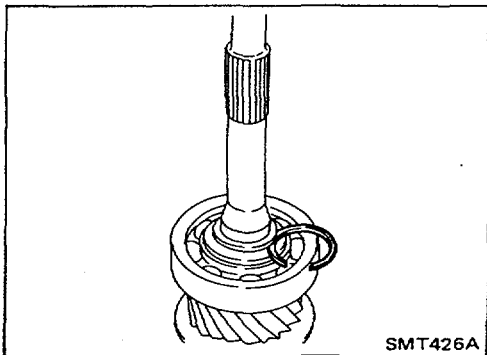
1. Install bearings into case components.



2. Install main drive gear bearing.

a. Press main drive gear bearing.

b. Install main drive gear spacer.



c. Select proper main drive gear snap ring to minimize clearance of groove.

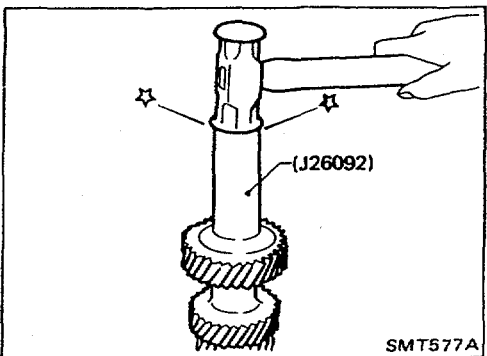
Allowable clearance of groove:

0 - 0.1 mm (0 - 0.004 in)

Main drive gear snap ring

Refer to S.D.S.

d. Install selected snap ring on main drive gear.



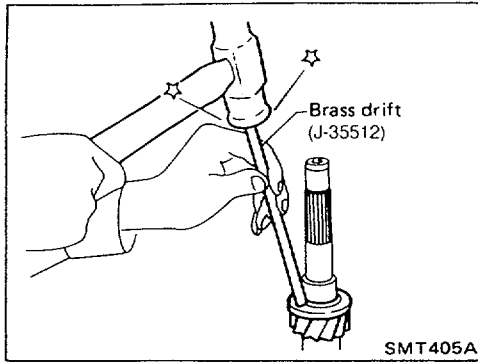
3. Install components on counter gear.

a. Install sub-gear components.

When installing sub-gear snap ring, tap sub-gear snap ring into position on counter gear.

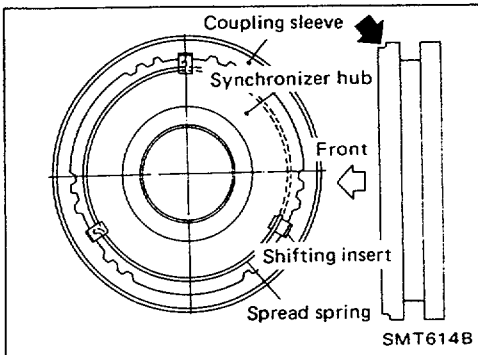
Gear Components (Cont'd)

b. Install counter gear rear thrust bearing.

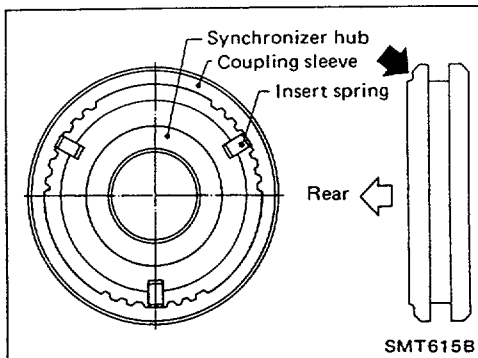


4. Install front side components on mainshaft.

a. Assemble 1st & 2nd synchronizer.

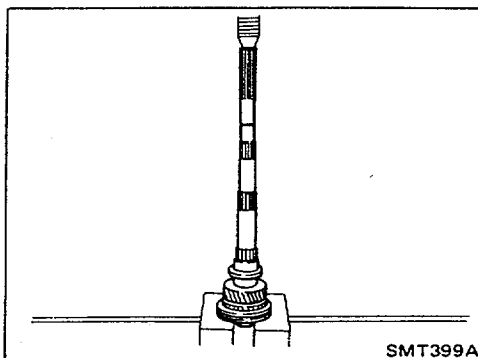


b. Assemble 3rd & 4th synchronizer.



c. Press on 3rd & 4th synchronizer assembly together with 3rd main gear and 3rd gear needle bearing.

Pay attention to direction of synchronizer assembly.



d. Select proper snap ring to minimize clearance of groove.

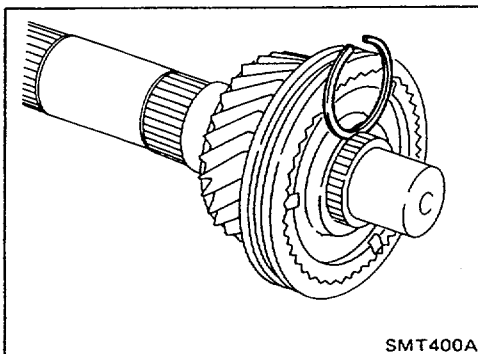
Allowable clearance of groove:

0 - 0.1 mm (0 - 0.004 in)

Mainshaft front snap ring:

Refer to S.D.S.

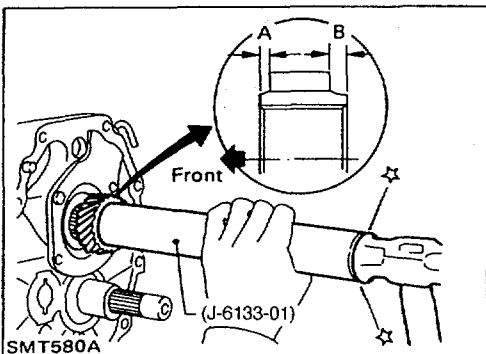
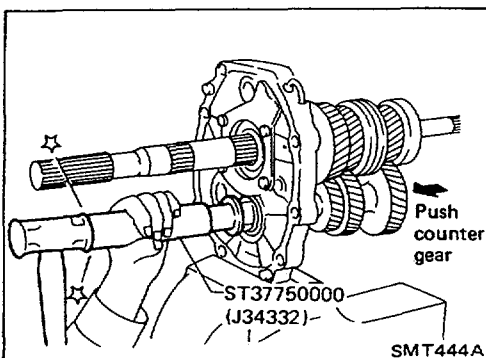
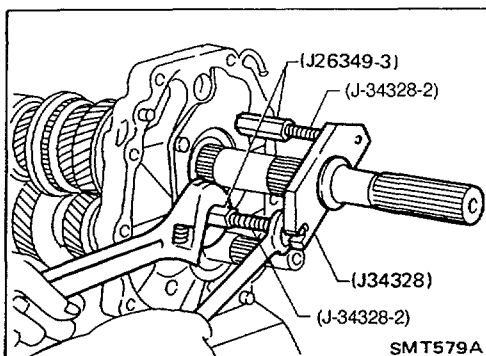
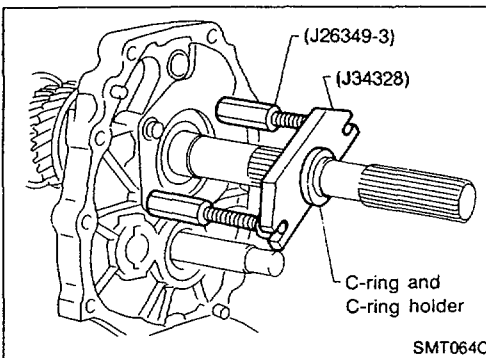
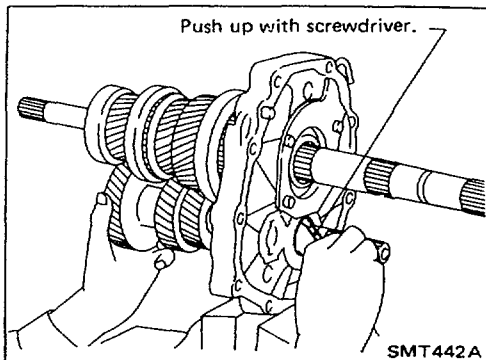
e. Install selected snap ring on mainshaft.



ASSEMBLY

Gear Components (Cont'd)

When installing counter gear into counter gear rear bearing, push up on upper roller of counter gear rear bearing with screwdriver.



- d. Install Tools (J26349-3) onto adapter plate and C-ring and C-ring holder on mainshaft.
- e. Install Tool (J34328) on mainshaft.

- f. Install mainshaft and counter gear completely by extending length of J-34328-2 threaded legs.

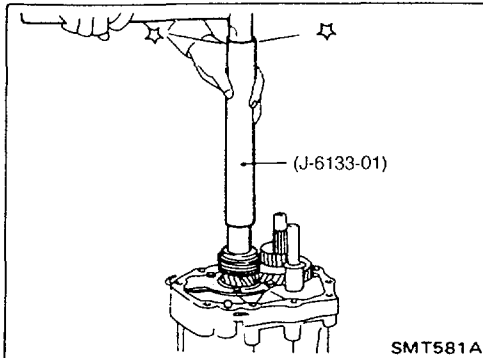
8. Install rear side components on mainshaft and counter gear.
 - a. Install O.D. gear bushing while pushing on the front of counter gear.

- b. Install O.D. main gear.

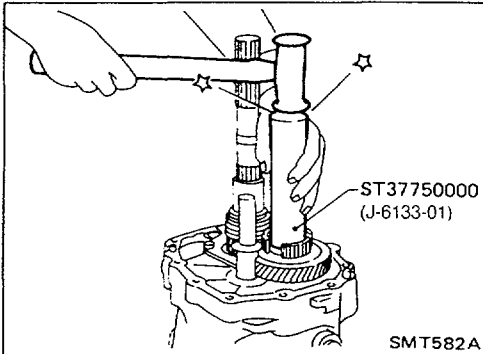
Pay attention to direction of O.D. main gear. (B is wider than A as shown at left.)
- c. Install adapter plate with gear assembly onto transmission case.
- d. Install O.D. gear needle bearing and then install O.D. counter gear and reverse idler shaft.

ASSEMBLY

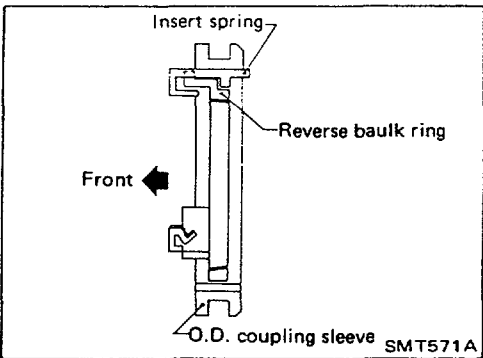
Gear Components (Cont'd)



- e. Install reverse gear bushing, speedometer, drive gear and steel ball.

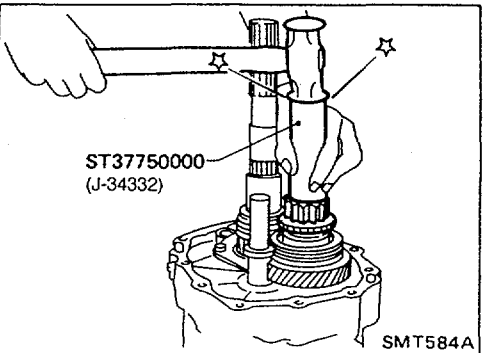
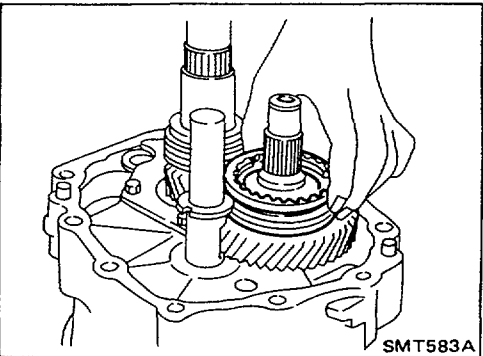


- f. Install reverse cone.



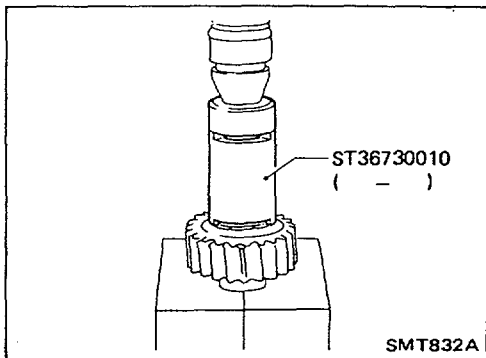
- g. Install insert springs and reverse baulk ring on O.D. coupling sleeve. Then install them and O.D. baulk ring on O.D. counter gear.

Pay attention to direction of O.D. coupling sleeve.

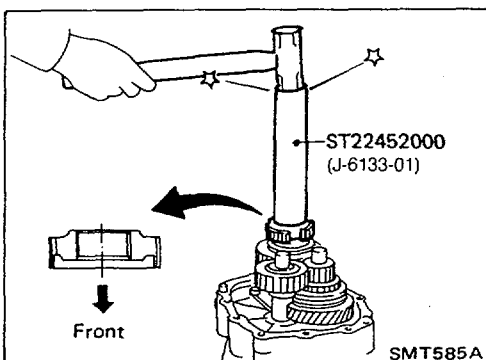


- h. Install reverse counter gear.

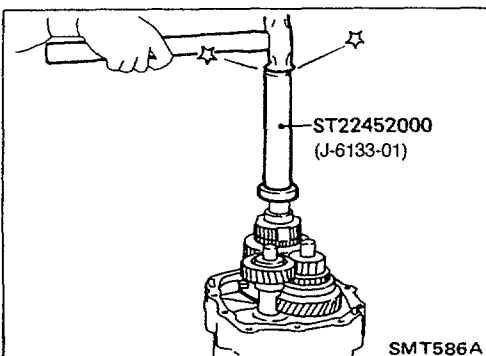
Gear Components (Cont'd)



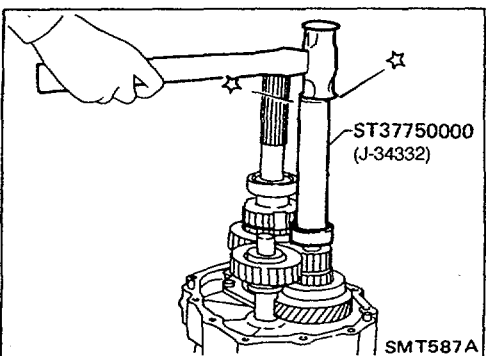
- i. Install sub-gear on reverse idler gear.
- j. Install reverse gear needle bearing and then install reverse main gear, reverse idler gear and reverse idler thrust washers.



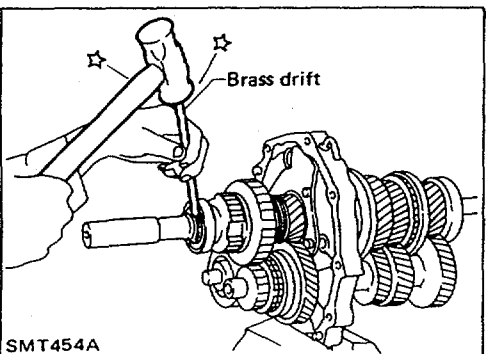
- k. Install reverse hub.
Pay attention to its direction.



- l. Install mainshaft spacer and mainshaft rear bearing.



- m. Install counter gear rear end bearing.
- n. Separate adapter plate from transmission case and Mount adapter plate on vise again.



- o. Select proper mainshaft C-ring to minimize clearance of groove.
Allowable clearance of groove:
0 - 0.1 mm (0 - 0.004 in)
Mainshaft C-ring:
Refer to S.D.S.
- p. Install selected C-ring, C-ring holder and mainshaft rear snap ring.

Gear Components (Cont'd)

- q. Install spacer and then select proper counter gear rear snap ring to minimize clearance of groove.

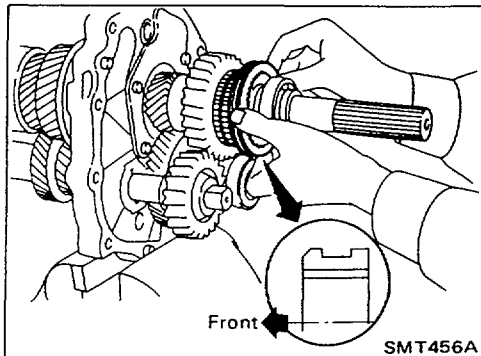
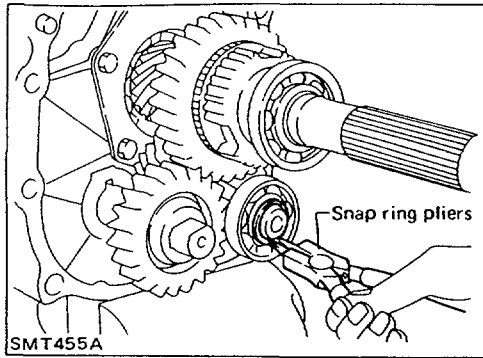
Allowable clearance of groove:

0 - 0.1 mm (0 - 0.004 in)

Counter gear rear snap ring:

Refer to S.D.S.

- r. Install selected counter gear rear snap ring.



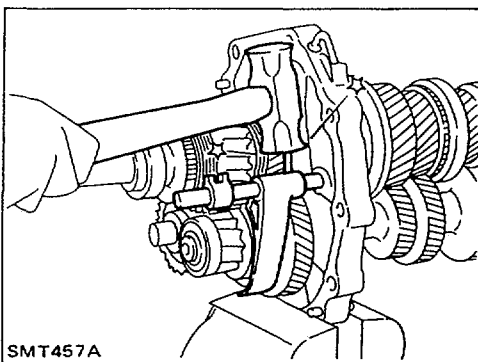
- s. Install reverse coupling sleeve.

Pay attention to its direction.

- t. Measure each gear end play as a final check — Refer to "DISASSEMBLY".

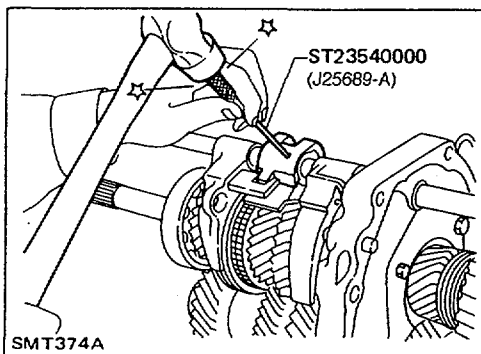
Shift Control Components

1. Install O.D. fork rod and O.D. shift fork. Then install retaining pin into O.D. shift fork.
2. Install 1st & 2nd, 3rd & 4th and reverse shift forks onto coupling sleeve.

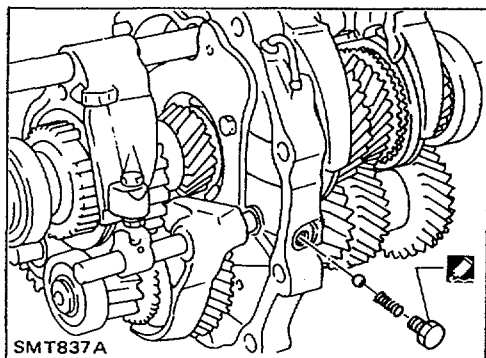


3. Install striking rod into hole of shift forks, striking lever and interlock and then install retaining pin into striking lever.

Make sure that striking rod moves smoothly.

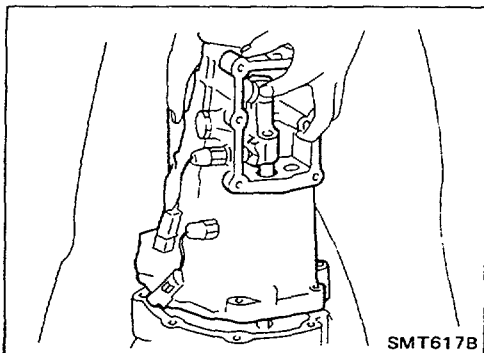


4. Install check ball, return spring and check ball plug.
Apply sealant to thread of check ball plug.

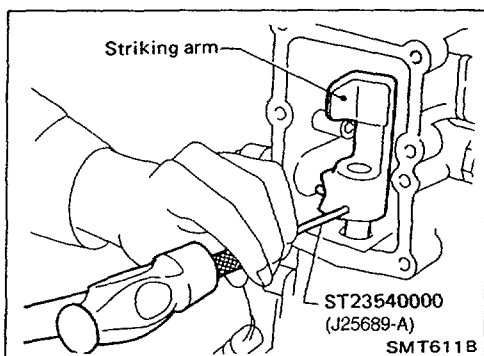


ASSEMBLY

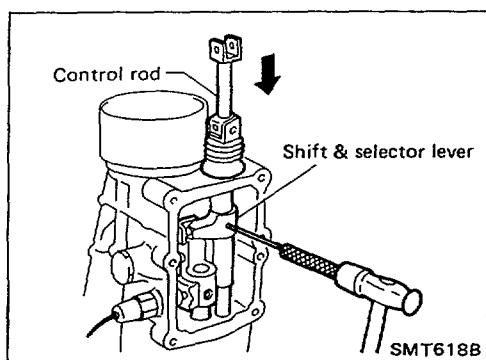
Case Components (Cont'd)



10. Install rear extension together with striking arm.



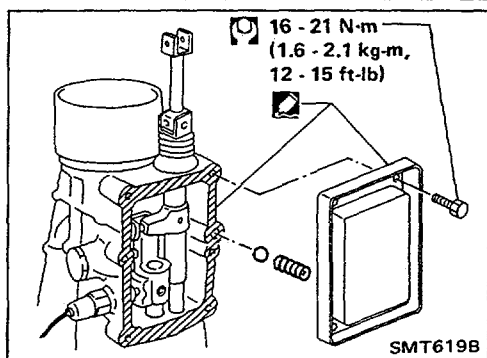
11. Install retaining pin into striking arm.



12. Install control rod.

Be careful not to damage control rod oil seal and dust cover.

13. Install retaining pin into shift & selector lever.



14. Install return spring and check ball and then install control housing.

Apply sealant to mating surface of rear extension.

15. Tighten control housing bolts.