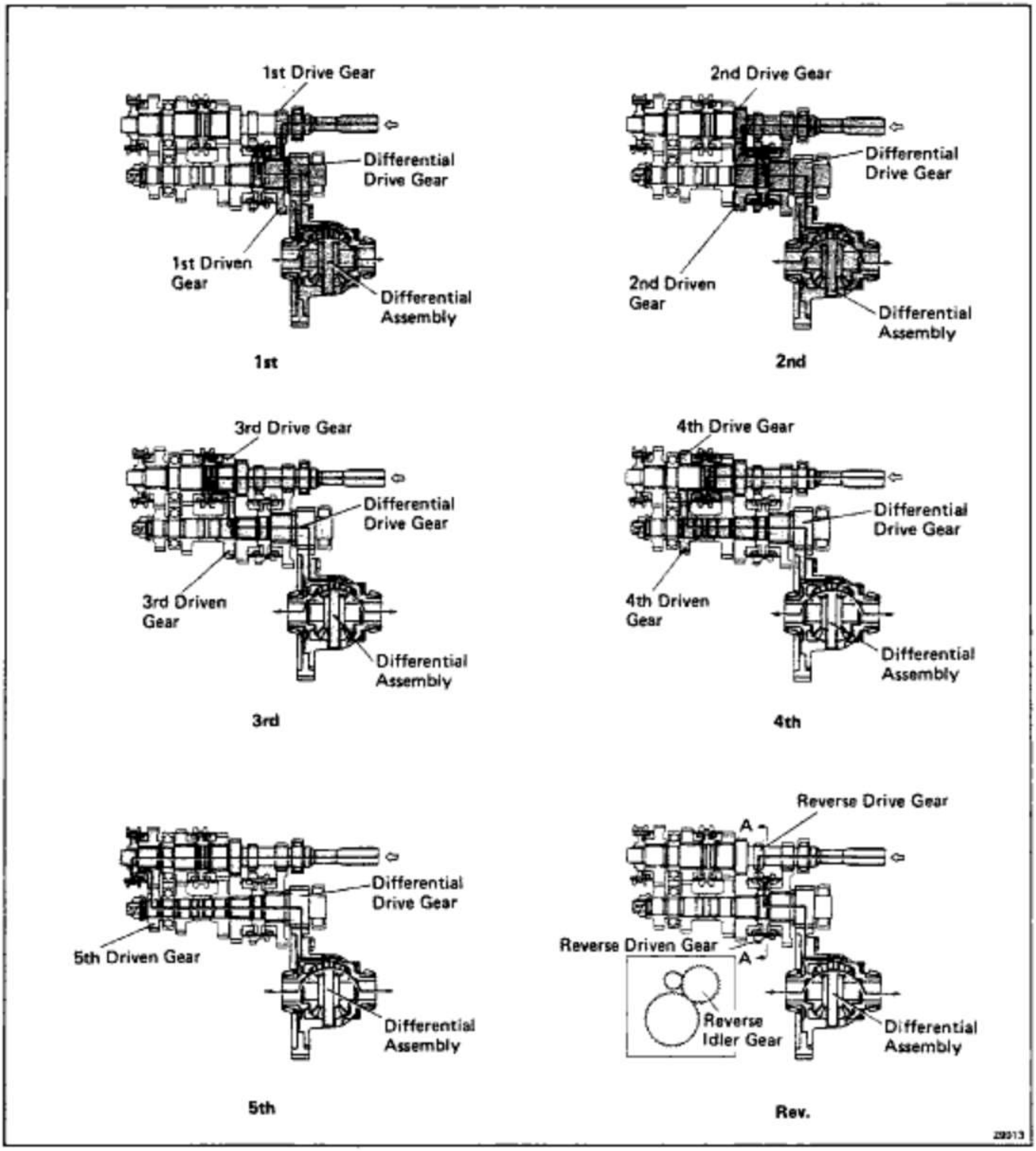
MANUAL TRANSAXLE

DESCRIPTION

- Transaxle types S51 are constant mesh synchronizers for forward gears, and a sliding mesh reverse gear.
- The input shaft is composed of the 1st and 2nd speed gears and the reverse drive gear, and the output shaft is composed of the drive gear (for use with the ring gear).
- The oil used in transaxle is as follows:

S51 ..... ATF type DEXRON→ II

- The illustrations below show the engagements– of transaxle gears.



PRECAUTIONS

When working with FIPG material, you must be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both seating surfaces with a non–residue solvent.**
- **Apply the seal packing in approx.1 mm (0.04 in.) bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.**

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Noise	Transmission or differential faulty Wrong oil grade Oil level low	Disassemble and inspect transmission or differential Replace oil Add oil .	MT–7,42
Oil leakage	Oil level too high Oil seal, 4–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	MT–7
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–7
Jumps out of gear	Transmission faulty	Disassemble and inspect transmission	MT–7

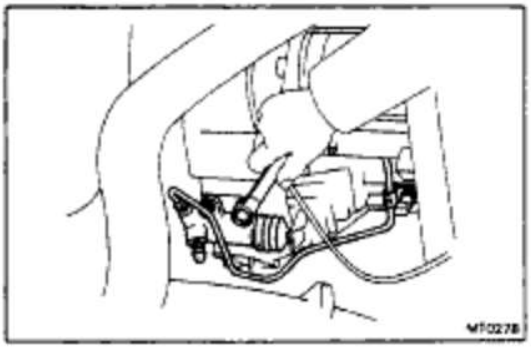
PRECAUTIONS

When working with FIPG material, you must be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both seating surfaces with a non–residue solvent.**
- **Apply the seal packing in approx.1 mm (0.04 in.) bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.**

TROUBLESHOOTING

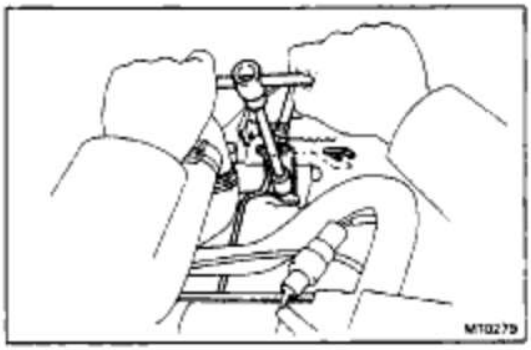
Problem	Possible cause	Remedy	Page
Noise	Transmission or differential faulty Wrong oil grade Oil level low	Disassemble and inspect transmission or differential Replace oil Add oil .	MT–7,42
Oil leakage	Oil level too high Oil seal, 4–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	MT–7
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–7
Jumps out of gear	Transmission faulty	Disassemble and inspect transmission	MT–7



S51 TRANSMISSION
REMOVAL OF TRANSAXLE

1. REMOVE NEGATIVE BATTERY CABLE

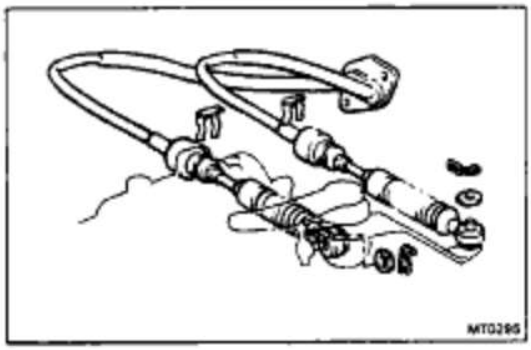
2. REMOVE CLUTCH RELEASE CYLINDER AND TUBE CLAMP



3. REMOVE–.CLUTCH TUBE BRACKET

(a) Remove the retainer from the bracket.

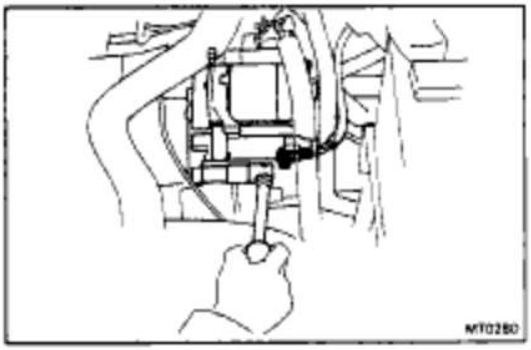
(b) Remove the bolt and bracket.



4. DISCONNECT CONTROL CABLES

(a) Remove the clips and washers.

(b) Remove the retainer from the cables.

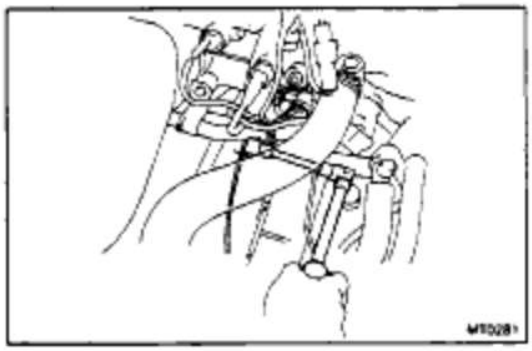


5. REMOVE STARTER

(a) Disconnect the cable and connector.

(b) Remove the starter with the two bolts.

6. DISCONNECT BACK–UP LIGHT SWITCH CONNECTOR AND GROUND STRAP



7. REMOVE TRANSAXLE MOUNTING BOLTS OF TRANSAXLE UPPER

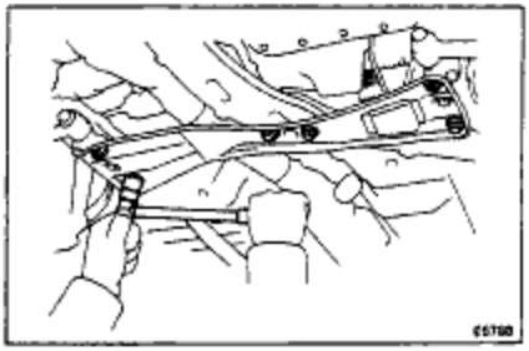
8. RAISE VEHICLE

NOTICE: Be sure the vehicle is securely supported.

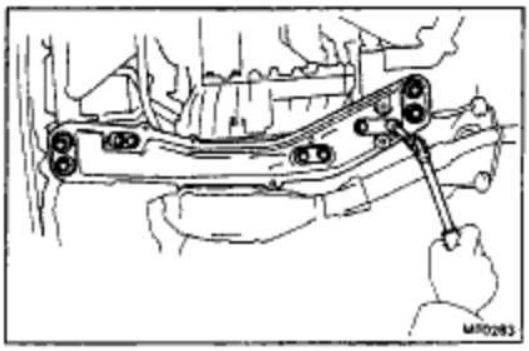
9. REMOVE UNDER COVERS

10. DRAIN OUT FLUID

11. DISCONNECT SPEEDOMETER CABLE

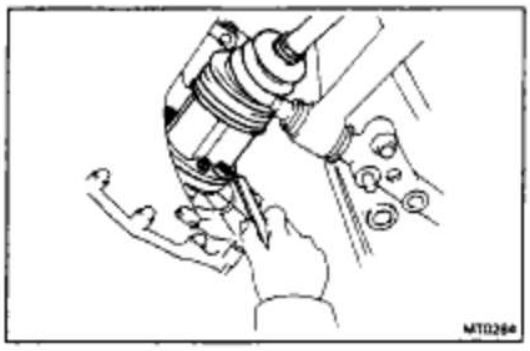


12. REMOVE SUSPENSION LOWER CROSSMEMBER



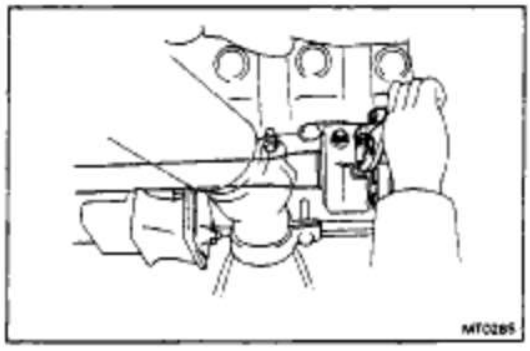
13. REMOVE ENGINE MOUNTING CENTER MEMBER

(a) Remove the front and rear engine mounting bolts.
(b) Remove the engine mounting center member.



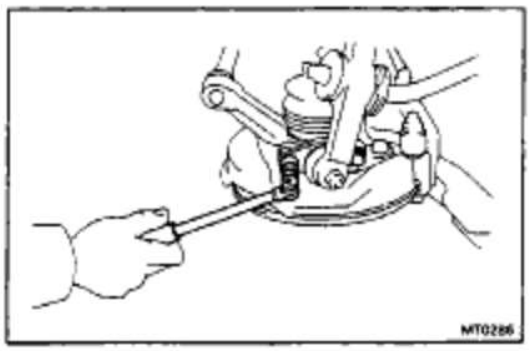
14. DISCONNECT BOTH DRIVE SHAFTS

Loosen the six nuts while depressing the brake pedal.



15. REMOVE CENTER DRIVE SHAFT

(a) Using pliers, remove the snap ring from the bearing bracket.
(b) Remove the bolt on the bearing bracket.
(c) Pull out the center drive shaft.



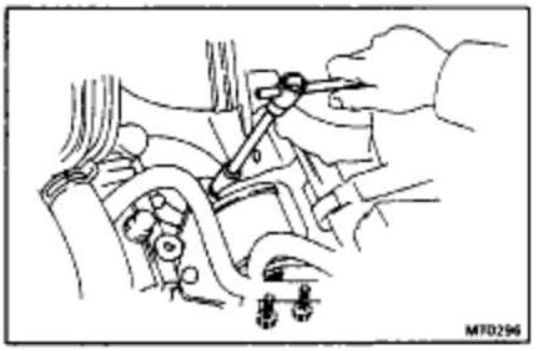
16. DISCONNECT LEFT STEERING KNUCKLE FROM LOWER ARM

(a) Disconnect the steering knuckle from the tower arm.
(b) Pull the steering knuckle toward the outside and remove the drive shaft.

17. REMOVE STABILIZER BAR

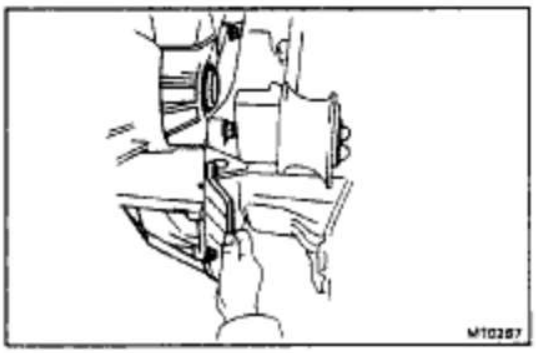
(See page FA–34)

18. DISCONNECT LEFT ENGINE MOUNTING



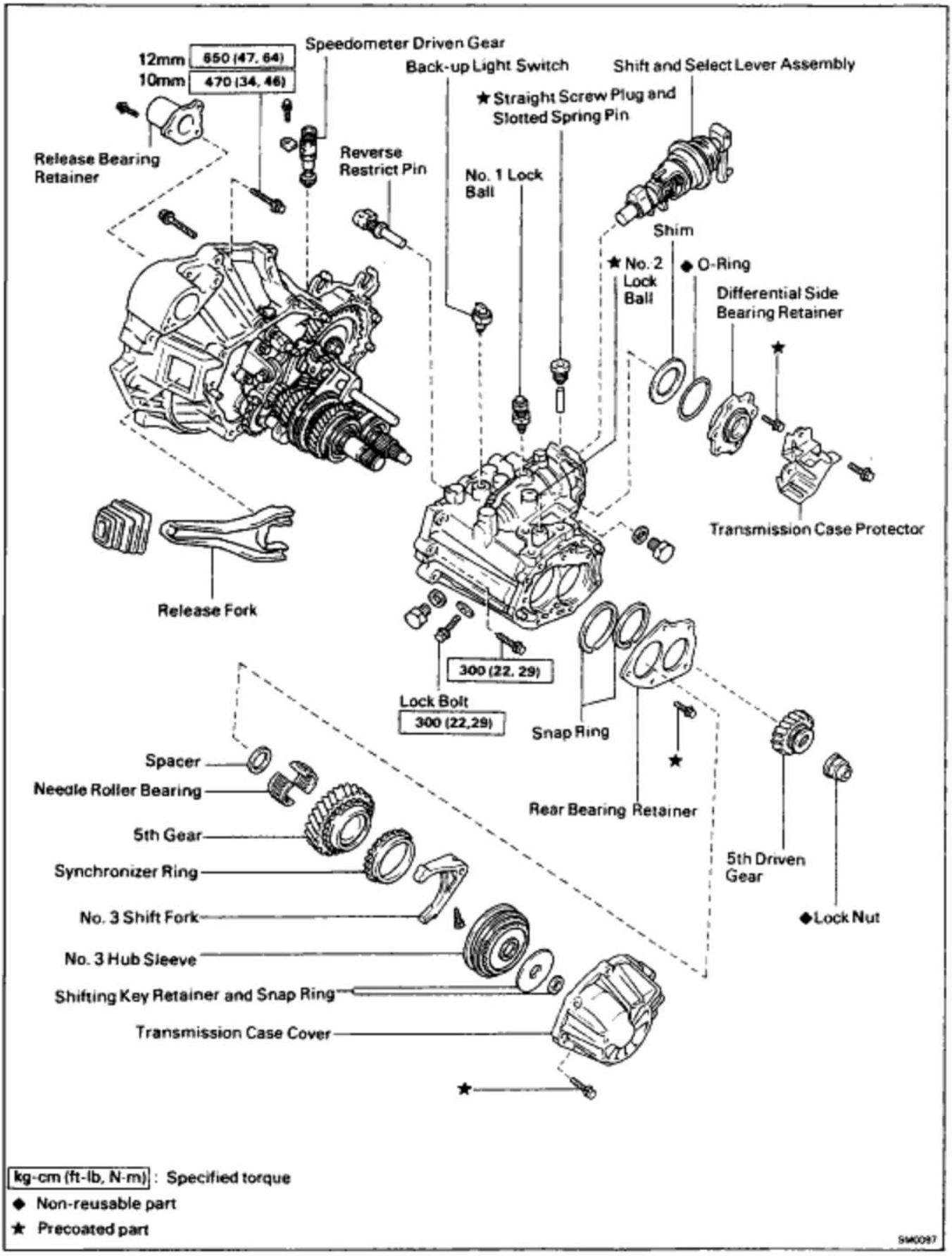
(a) Raise the transaxle and engine slightly with a jack and wooden block in between.
(b) Disconnect the left engine mounting.

19. REMOVE TRANSAXLE

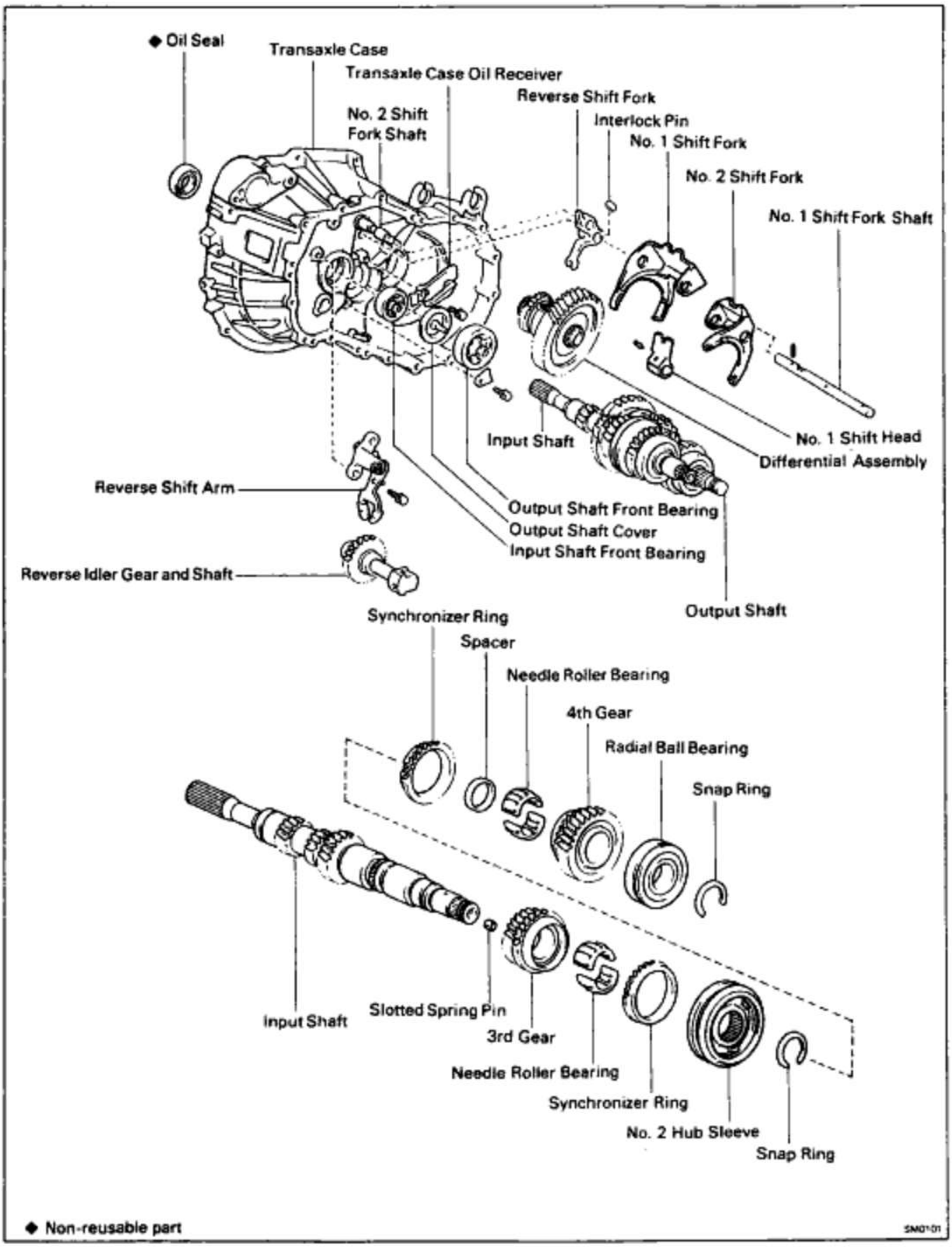


(a) Remove the transaxle mounting bolts from the engine.
(b) Lower the engine left side and remove the transaxle from the engine.

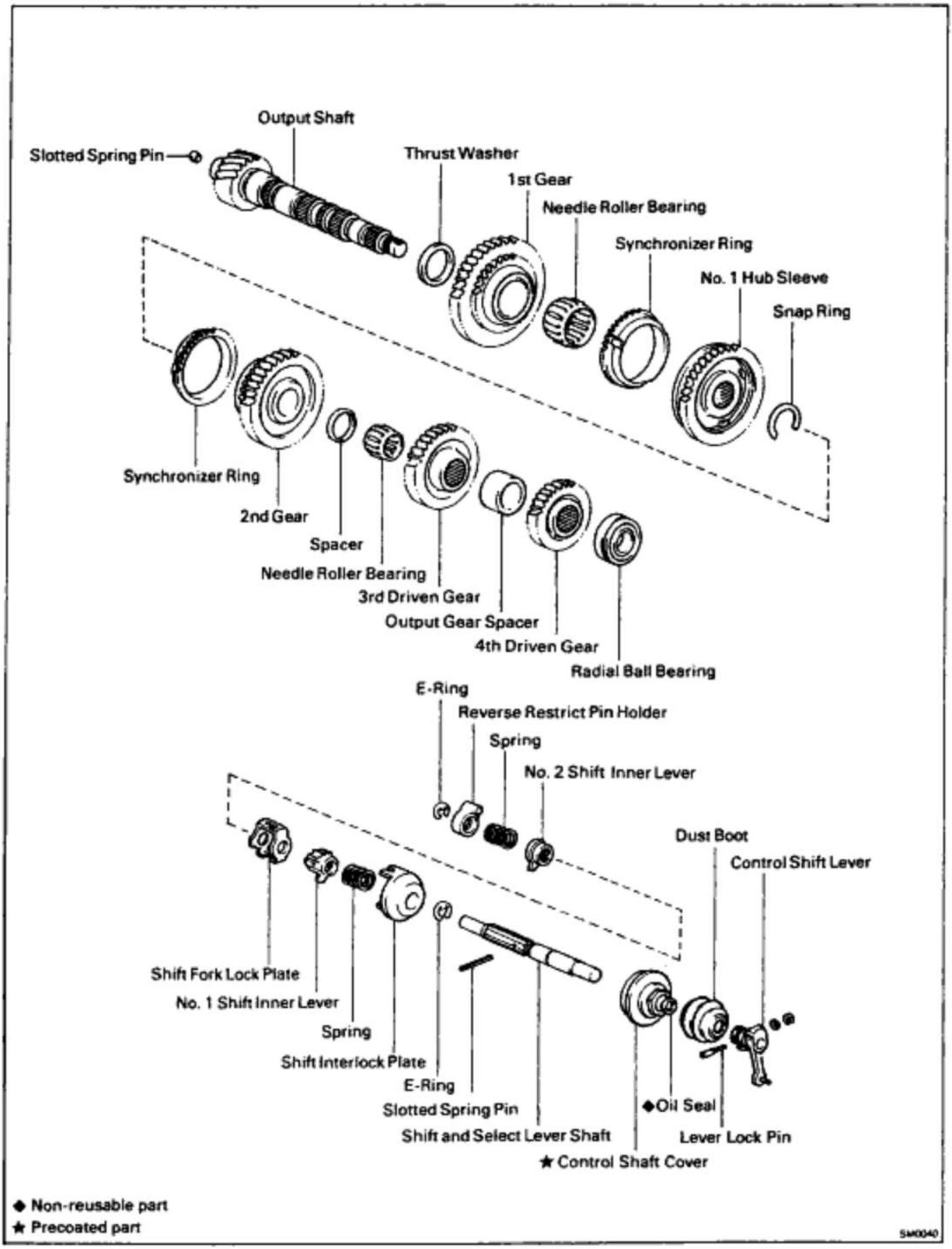
COMPONENTS

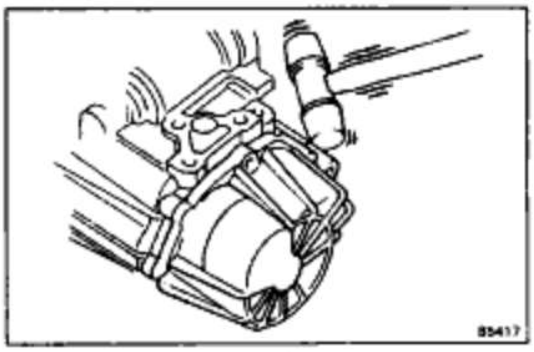

12mm 650 (47, 64)
10mm 470 (34, 46)
Speedometer Driven Gear
Back-up Light Switch
Shift and Select Lever Assembly
★ Straight Screw Plug and Slotted Spring Pin
Release Bearing Retainer
Reverse Restrict Pin
No. 1 Lock Ball
Shim
★ No. 2 Lock Ball
◆ O-Ring
Differential Side Bearing Retainer
Transmission Case Protector
Release Fork
300 (22, 29)
Lock Bolt
300 (22,29)
Snap Ring
Spacer
Needle Roller Bearing
5th Gear
Synchronizer Ring
No. 3 Shift Fork
No. 3 Hub Sleeve
Shifting Key Retainer and Snap Ring
Transmission Case Cover
Rear Bearing Retainer
5th Driven Gear
◆ Lock Nut
kg-cm (ft-lb, N-m) : Specified torque
◆ Non-reusable part
★ Precoated part

COMPONENTS (Cont'd)



COMPONENTS (Cont'd)





DISASSEMBLY OF TRANSMISSION

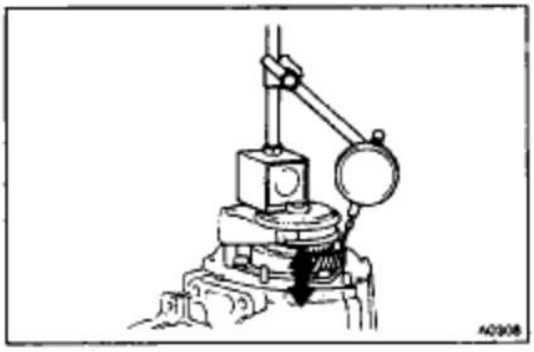
(See pages MT–7 to 9)

1. REMOVE RELEASE FORK, BEARING, BACK–UP LIGHT SWITCH AND SPEEDOMETER DRIVEN GEAR

2. REMOVE RELEASE BEARING RETAINER

3. REMOVE TRANSMISSION CASE COVER

4. REMOVE NO. 3 SHIFT FORK SECURING BOTH

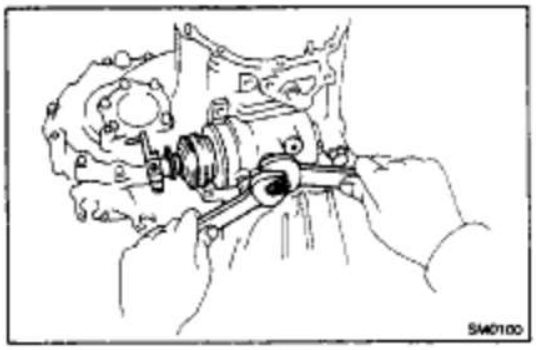


5. MEASURE FIFTH GEAR THRUST CLEARANCE

Using a dial indicator, measure the thrust clearance.

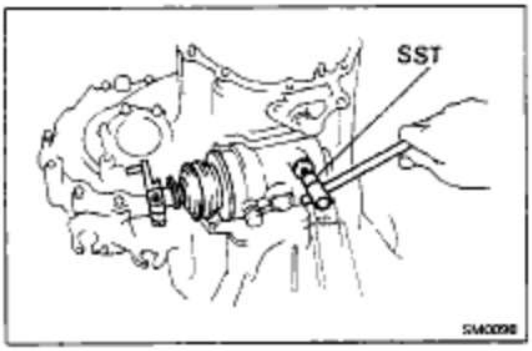
Standard clearance: 0.20 – 0.40 mm (0.0079 – 0.0157 in.)

Maximum clearance: 0.45 mm (0.0177 in.)



6. REMOVE NO. 1 AND NO.2 LOCK BALL ASSEMBLIES

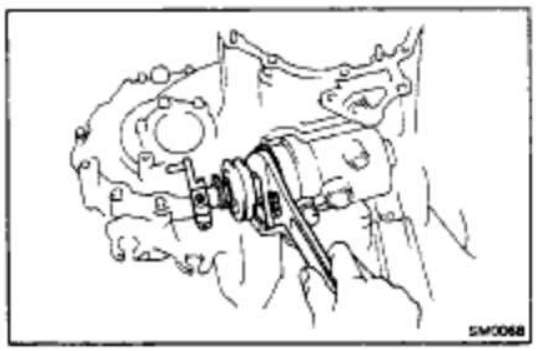
(a) Loosen the lock nut and remove the No. 1 lock ball.



(b) Using SST and remove the No. 2 lock ball.

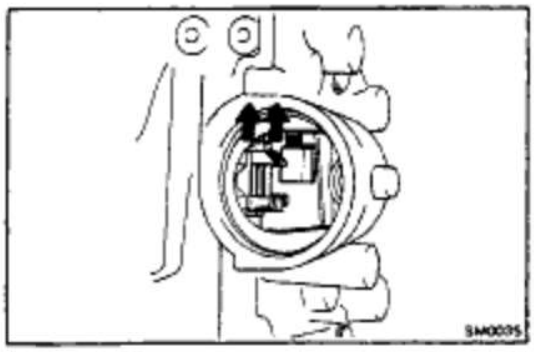
SST 09313–30021

7. REMOVE SELECTING BELLCRANK

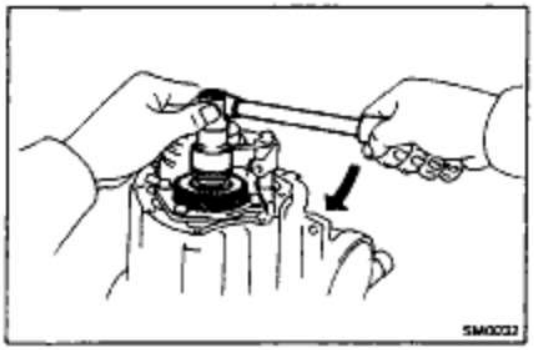


8. REMOVE SHIFT AND SELECT LEVER ASSEMBLY

9. REMOVE. OUTPUT SHAFT LOCK NUT



(a) Unstake the nut.
(b) Engage the gear double meshing.

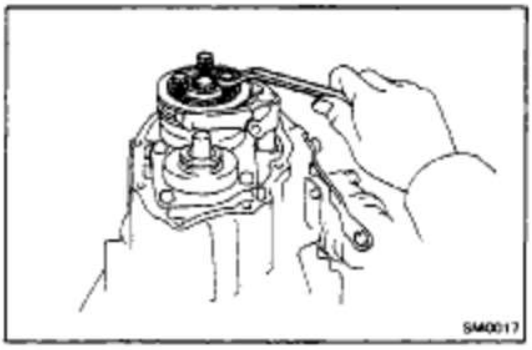


(c) Remove the lock nut.
HINT: The lock nut has LH threads.
(d) Disengage the gear double meshing.

10. REMOVE NO. 3 HUB SLEEVE ASSEMBLY AND SHIFT FORK



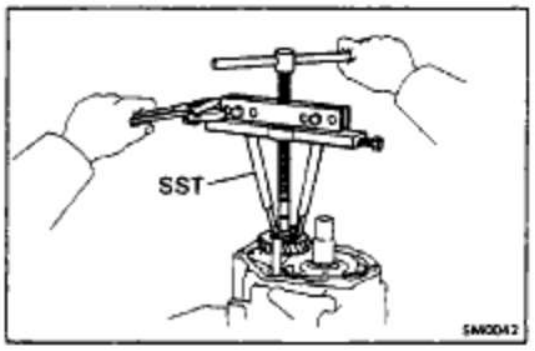
(a) Using two screwdrivers and a hammer, tap out the snap ring.
(b) Remove the shifting key retainer.



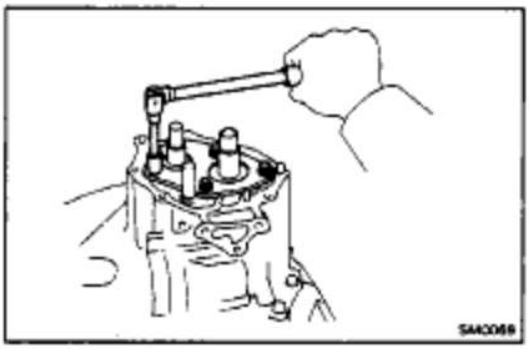
(e) Using the three case cover set bolts, tighten the three bolts a little at a time and remove No. 3 hub sleeve assembly and shift fork.

11. REMOVE FIFTH GEAR, SYNCHRONIZER RING, NEEDLE ROLLER BEARINGS AND SPACER

12. REMOVE FIFTH DRIVEN GEAR



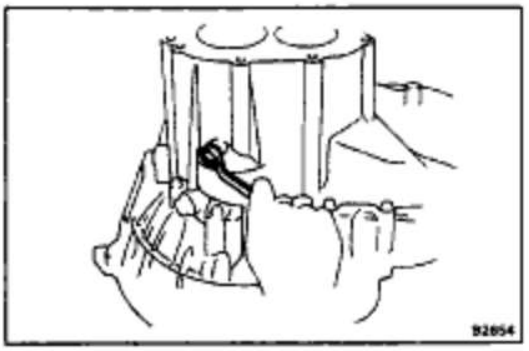
Using SST, remove the 5th driven gear.
SST 09950–20017



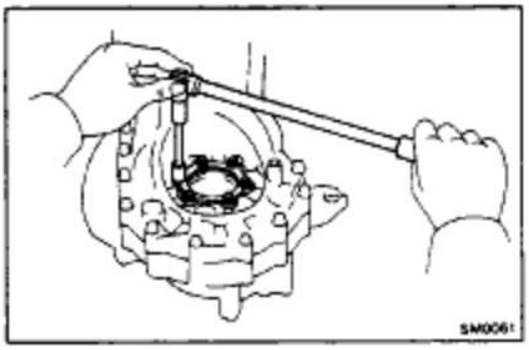
13. REMOVE REAR BEARING RETAINER

14. REMOVE BEARING SNAP RINGS

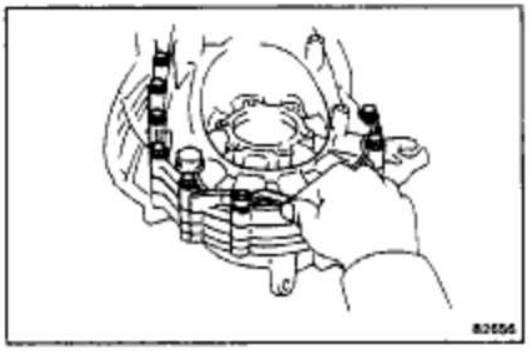
Using snap ring pliers, remove the two snap rings.



15. REMOVE REVERSE IDLER GEAR SHAFT¿¿ LOCK BOLT

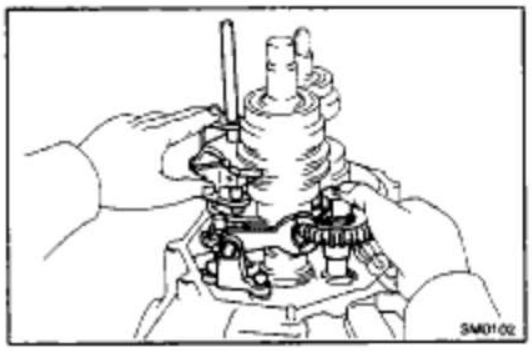


16. REMOVE DIFFERENTIAL SIDE BEARING RETAINER AND SHIM



17. REMOVE TRANSMISSION CASE

Remove the seventeen bolts and tap off the case with a plastic hammer.



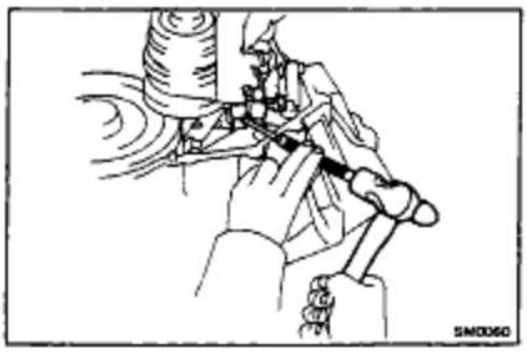
18. REMOVE REVERSE SHIFT ARM

(a) Shift the fork shaft into reverse.

(b) Remove the two bolts and pull off the reverse shift arm.

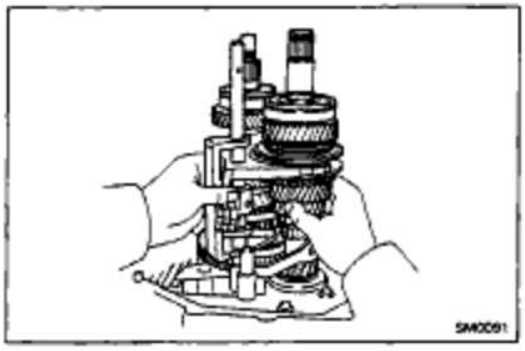
19. REMOVE REVERSE IDLER GEAR AND SHAFT

Pull out the shaft.

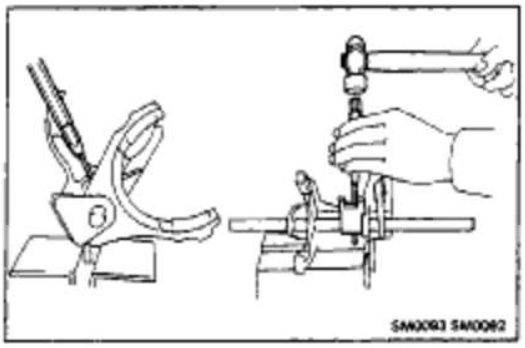


20. REMOVE NO. 1 SHIFT FORK SHAFT, NO. 1 SHIFT HEAD, NO. 1 AND NO. 2 SHIFT FORKS, INPUT SHAFT AND OUTPUT SHAFT.

(a) Drive out the slotted spring pin from No. 1 fork shaft.



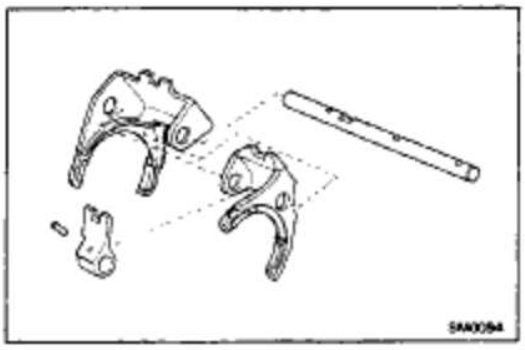
(b) Remove the input shaft and output shaft together with No. 1 fork shaft and shift head and shift forks from the transaxle case.



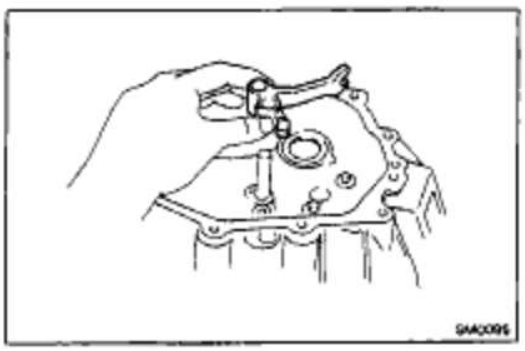
21. SEPARATE THE NO. 1 FORK SHAFT, NO. 1 SHIFT HEAD, No. 1 AND NO. 2 SHIFT FORKS

(a) Mount the shift forks to the vise.

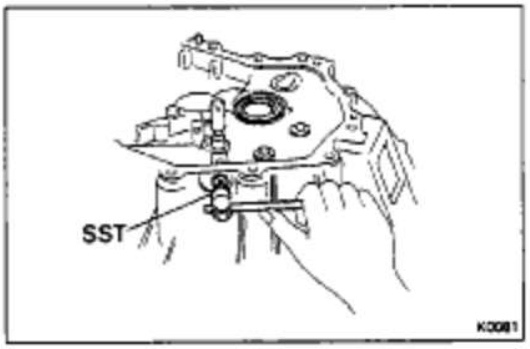
(b) Drive out the slotted spring pin from No. 1 fork shaft as shown in the figure.



(c) Separate the No. 1 shift fork, shaft, No. 1 shift head, No. 1 and No. 2 shift fork.

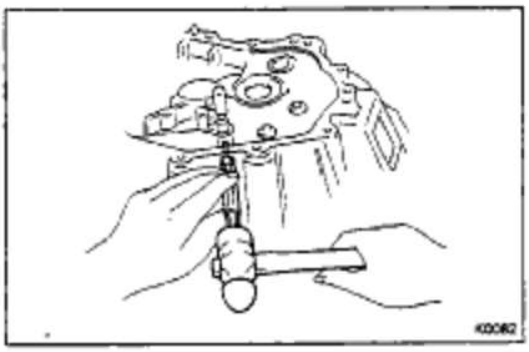


22. REMOVE REVERSE SHIFT FORK AND INTERLOCK PIN



23. REMOVE NO. 2 FORK SHAFT

(a) Using SST, remove the straight screw plug.
SST 09312–30021

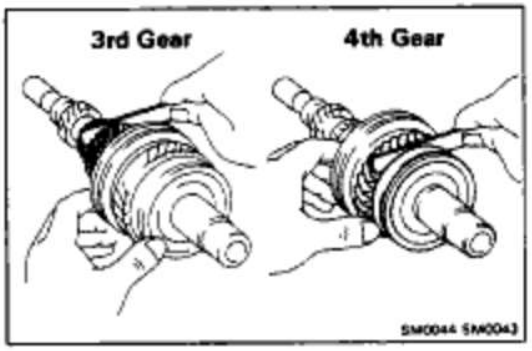


(b) Using a pin punch and hammer, drive out the slotted spring pin.

(e) Pull out the shaft.

24. REMOVE DIFFERENTIAL ASSEMBLY

25. REMOVE MAGNET



26. MEASURE THIRD AND FOURTH GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

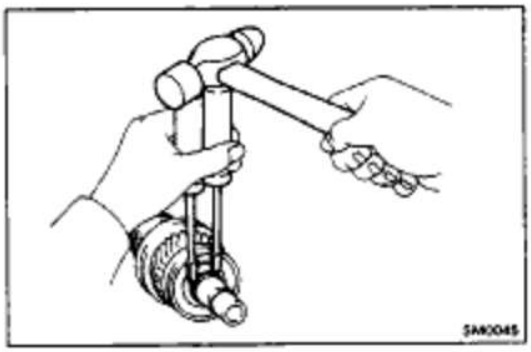
3rd gear 0.10 – 0.25 mm (0.0039 – 0.0098 in.)

4th gear 0.20 – 0.45 mm (0.0079 – 0.0177 in.)

Maximum clearance:

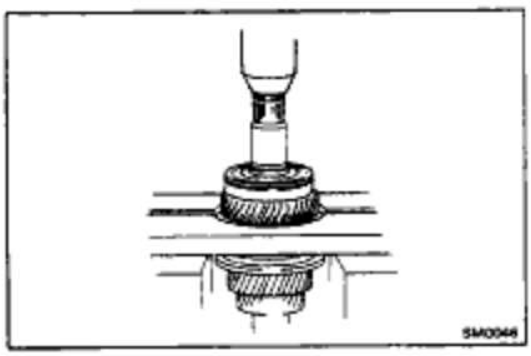
3rd gear 0.30 mm (0.0118 in.)

4th gear 0.50 mm (0.0197 in.)



27. REMOVE SNAP RING FROM INPUT SHAFT

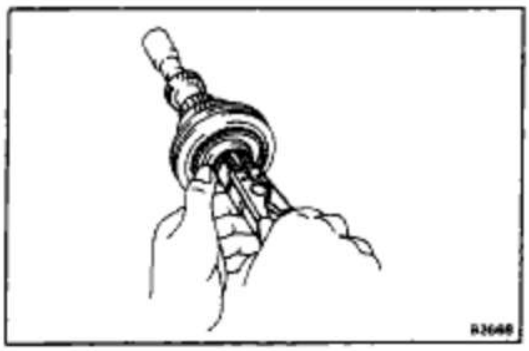
Using two screwdrivers and a hammer, tap out the snap ring.



28. REMOVE RADIAL BALL BEARING, FOURTH GEAR, NEEDLE ROLLER BEARINGS, SYNCHRONIZER RING AND SPACER FROM INPUT SHAFT

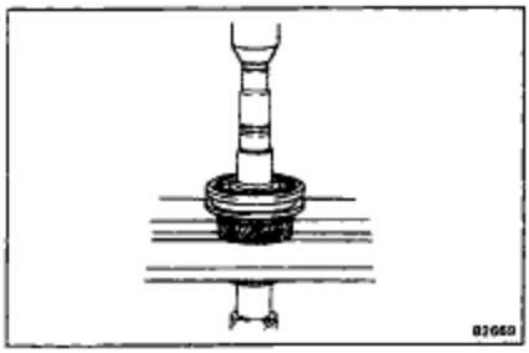
(a) Using a press, remove the radial ball bearing and 4th gear.

(b) Remove the needle roller bearings, synchronizer ring and spacer.



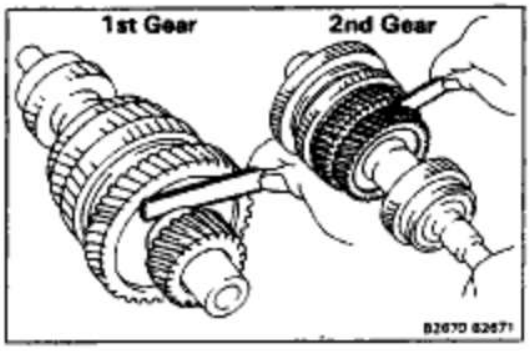
29. REMOVE SNAP RING

Using snap ring pliers, remove the snap ring.



30. REMOVE NO. 2 HUB SLEEVE ASSEMBLY, THIRD GEAR, SYNCHRONIZER RING AND NEEDLE ROLLER BEARINGS

Using a press, remove No. 2 hub sleeve, 3rd gear, synchronizer ring and needle roller bearings.



31. MEASURE FIRST AND SECOND GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

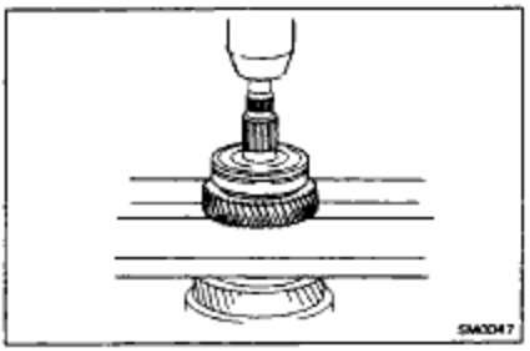
1 st gear 0.10 0.29 mm
(0.0039 – 0.0114 in.)

2nd gear 0.20 0.44 mm
(0.0079 – 0.0173 in.)

Maximum clearance:

1 st gear 0.35 mm (0.0138 in.)

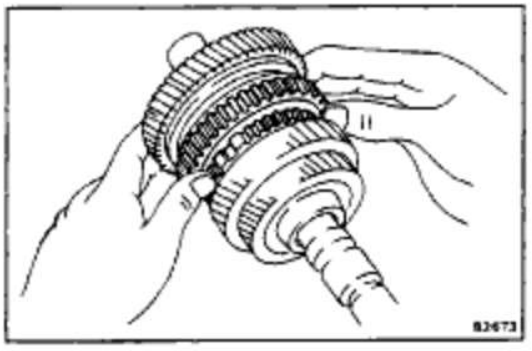
2nd gear 0.50 mm (0.0197 in.)



32. REMOVE RADIAL BALL BEARING, FOURTH DRIVEN GEAR AND OUTPUT GEAR SPACER FROM OUTPUT SHAFT

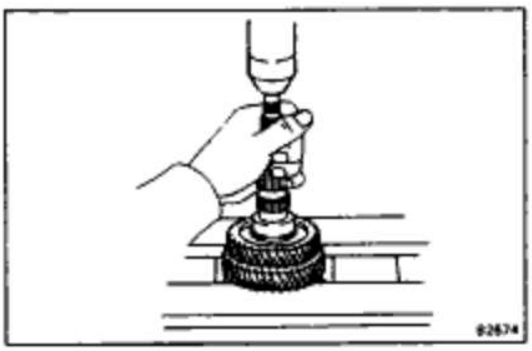
(a) Using a press, remove the radial ball bearing and 4th driven gear.

(b) Remove the spacer.

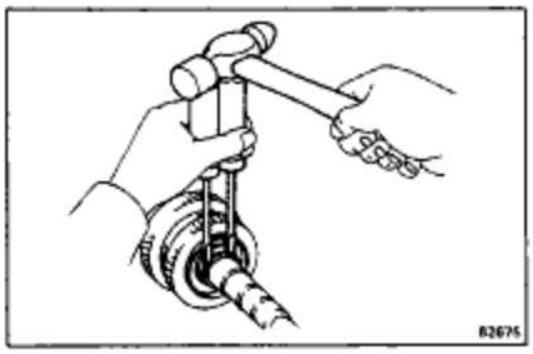


33. REMOVE THIRD DRIVEN GEAR, SECOND GEAR, NEEDLE ROLLER BEARING, SPACER AND SYNCHRONIZER RING

(a) Shift No. 1 hub sleeve into the 1st gear.

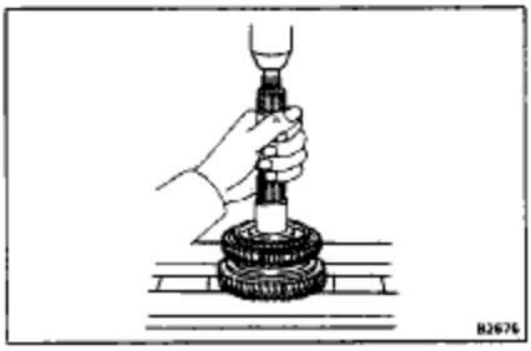


(b) Using a press, remove the 3rd driven gear and 2nd gear.
(c) Remove the needle roller bearing, spacer and synchronizer ring.



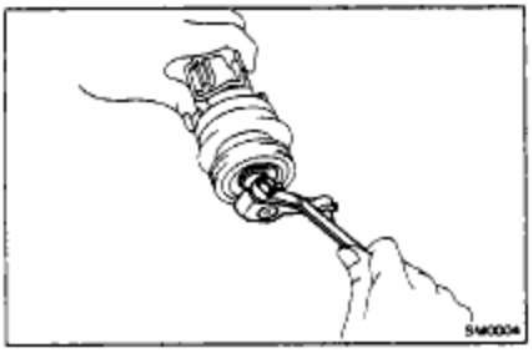
34. REMOVE SNAP RING

Using two screwdrivers and a hammer, tap out the snap ring.



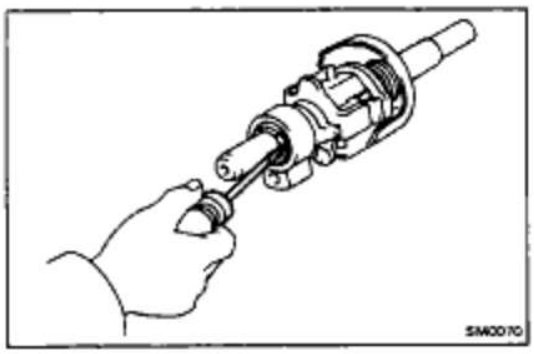
35. REMOVE NO. 1 HUB SLEEVE ASSEMBLY, FIRST GEAR, SYNCHRONIZER RING, NEEDLE ROLLER BEARING AND THRUST WASHER

(a) Using a press, remove No. 1 hub sleeve, 1 st gear and synchronizer ring.
(b) Remove the needle roller bearing and thrust washer.

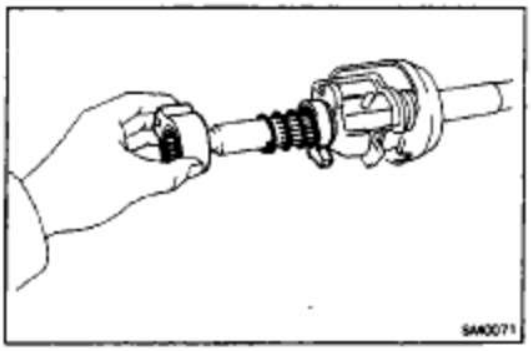


36. DISASSEMBLE SHIFT AND SELECT LEVER ASSEMBLY

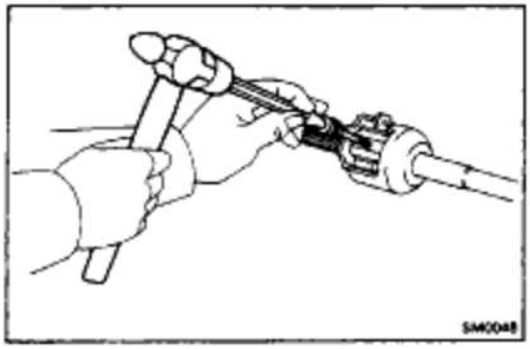
(a) Remove the lever lock pin and nut.
(b) Remove the control shift lever.
(c) Remove the dust boot.
(d) Remove the control shaft cover.



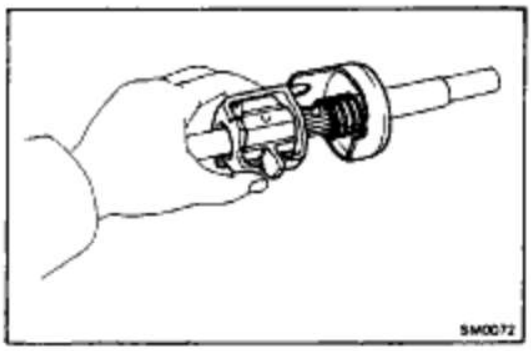
(e) Remove the E–ring.



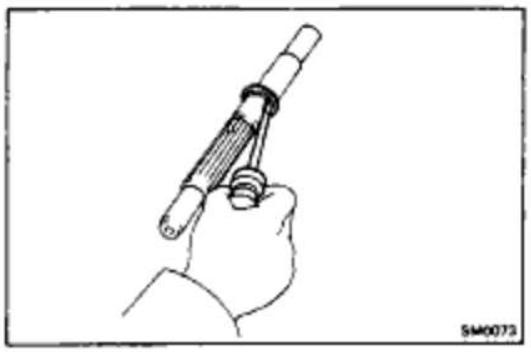
(f) Remove the reverse restrict pin holder, spring and No. 2 shift inner lever.



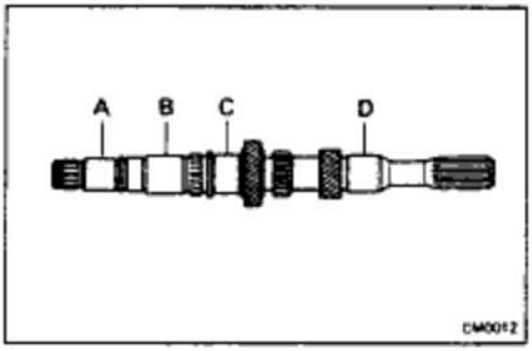
(g) Using a pin punch and hammer, drive out the slotted spring pin.



(h) Remove the shift fork lock plate, No. 1 shift inner lever, spring and shift interlock plate.



(i) Remove the E–ring from the shaft.



INSPECTION OF TRANSMISSION COMPONENTS

1. INSPECT INPUT SHAFT

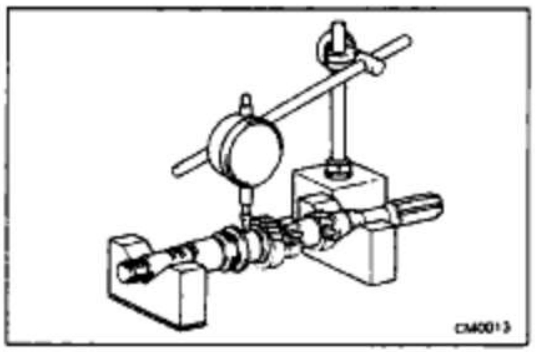
(a) Using a micrometer, measure the outer diameter of the input shaft journal surface.

Minimum outer diameter:

Part A 26.970 mm (1.0618 in.)
B 32.470 mm (1.2783 in.)
C 33.090 mm (7.3028 in.)
D 29.970 mm (1.1799 in.)

(b) Using a dial indicator, check the shaft runout.

Maximum runout: 0.05 mm (0.0020 in.)

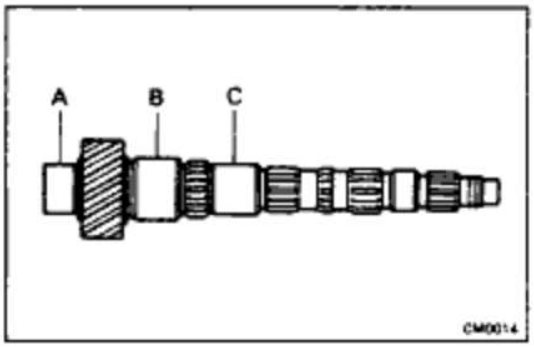


2. INSPECT OUTPUT SHAFT

(a) Using a micrometer, measure the outer diameter of the output shaft journal surface.

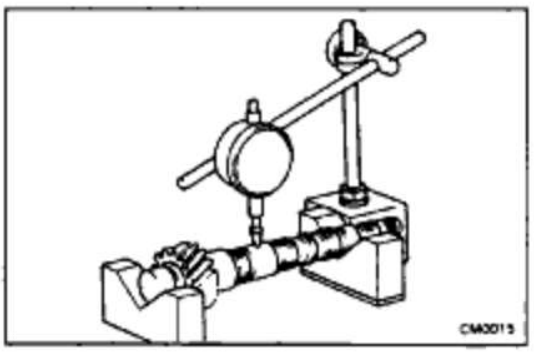
Minimum outer diameter:

Part A 31.970 mm (1.2587 in.)
6 37.970 mm (1.4949 in.)
C 31.970 mm (1.2587 in.)



(b) Using a dial indicator, check the shaft runout.

Maximum runout: 0.05 mm (0.0020 in.)



3. CHECK OIL CLEARANCE OF EACH GEAR

Using a dial indicator, measure the oil clearance between the gear and input or output shaft with the needle roller bearing installed.

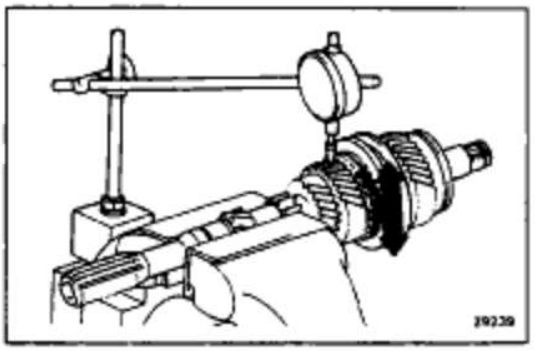
Standard clearance:

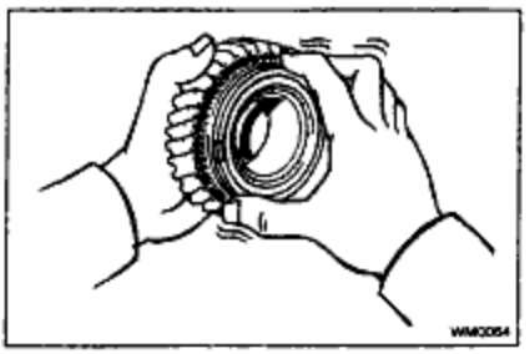
1 st, 2nd, 3rd and 4th gears
0.009 – 0.053 mm
(0.0004 – 0.0021 in.)

5th gear 0.009 – 0.050 mm
(0.0004 – 0.0020 in.)

Maximum clearance: 0.070 mm (0.0028 in.)

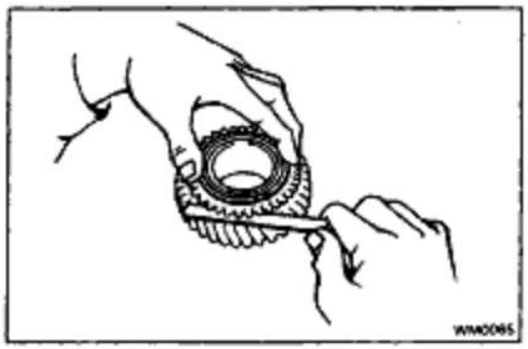
if the clearance exceeds the limit, replace the gear, needle roller bearing or shaft.



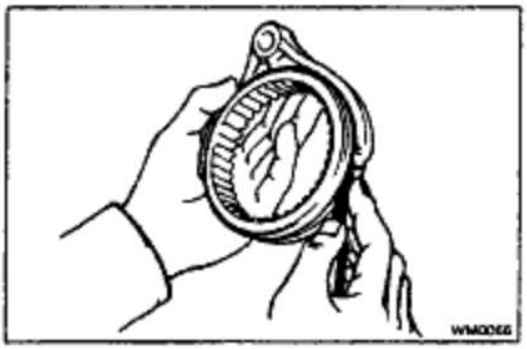


4. INSPECT SYNCHRONIZER RINGS

(a) Turn the ring and push it in to check the braking action.

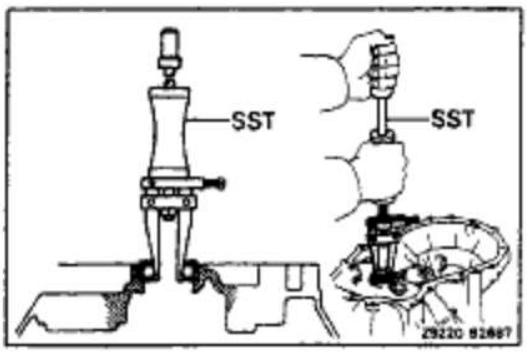


(b) Measure the clearance between the synchronizer ring back and the gear spline end.
Minimum clearance: 0.6 mm 10.024 in.)
If the clearance is less than the limit, replace the synchronizer ring.



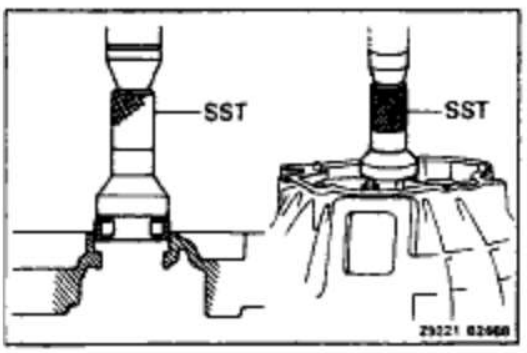
5. MEASURE CLEARANCE OF SHIFT FORKS AND HUB SLEEVES

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.
Maximum clearance: 1.0 mm (0.039 in.)
If the clearance exceeds the limit, replace the shift fork or hub sleeve.

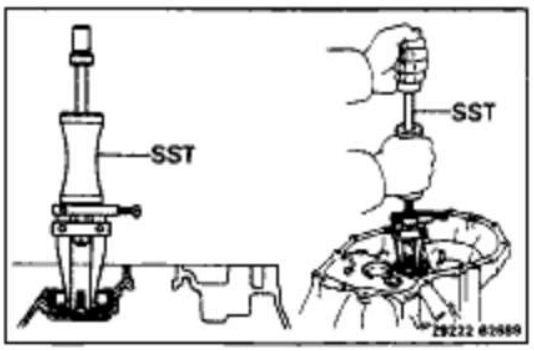


6. IF NECESSARY, REPLACE INPUT SHAFT FRONT BEARING

(a) Remove the bolt and transaxle case oil receiver.
(b) Using SST, pull out the bearing.
SST 09308–00010



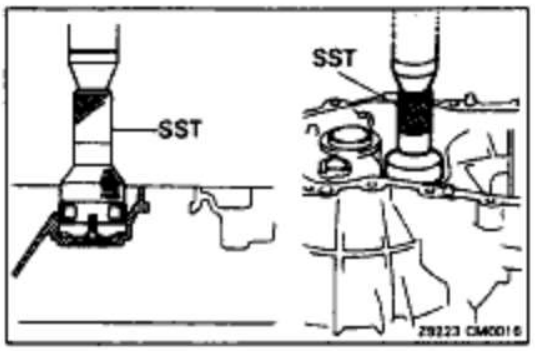
(e) Using SST, press in a new bearing.
SST 09310–35010 .
(d) Install the transaxle case oil receiver and torque the bolt.
Torque: 75 kg–cm (65 in.–lb, 7.4 11f–m)



7. IF NECESSARY, REPLACE OUTPUT SHAFT FRONT BEARING

(a) Remove the bolt and bearing lock plate.

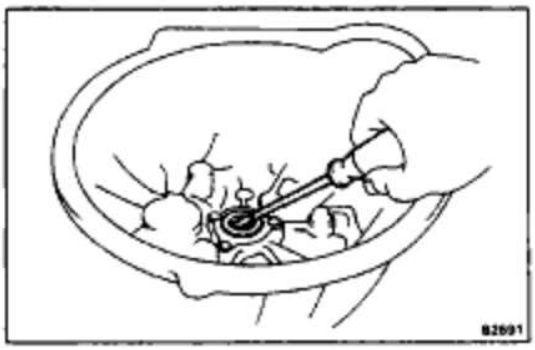
(b) Using SST, pull out the bearing.
SST 09308–00010



(c) Using SST, press in a new bearing.
SST 09310–35010

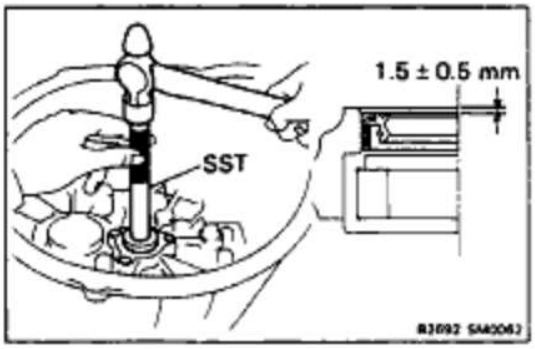
(d) Install the bearing lock plate and torque the bolt.

Torque: 185 kg–cm (13 ft–lb, 18 N–m)



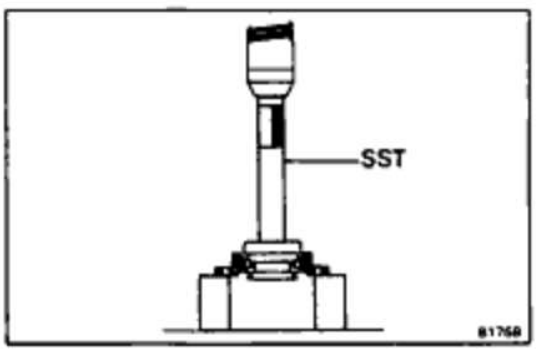
8. IF NECESSARY, REPLACE INPUT SHAFT FRONT OIL SEAL

(a) Using a screwdriver, pry out the oil seal.



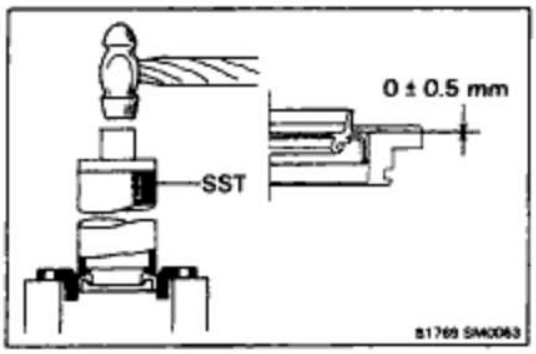
(b) Using SST, drive in a new oil seal.
SST 09608–20012 (09608–00080, 09608–03020)
Drive in depth: 1.0 – 2.0 mm (0.039 – 0.079 in.)

(c) Coat the lip of the oil seal with MP grease.

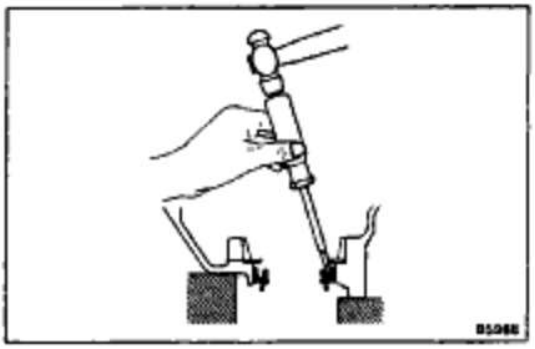


9. IF NECESSARY, REPLACE LH SIDE OIL SEAL

(a) Using SST, press out the oil seal from the retainer.
SST 09608–20012 (09608–00030,09608–03020)

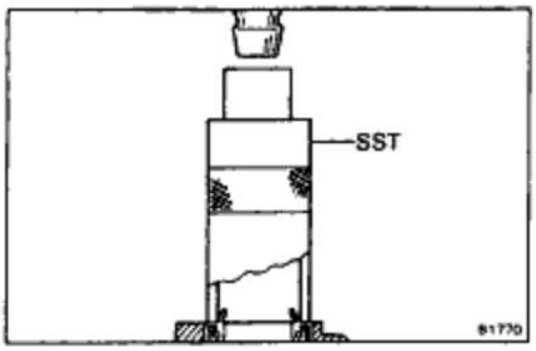


(b) Using SST, press in a new oil seal until its surface is flush with the case surface.
SST 09316–60010 (09316–00010)
(c) Coat the lip of the oil seal with IMP grease.

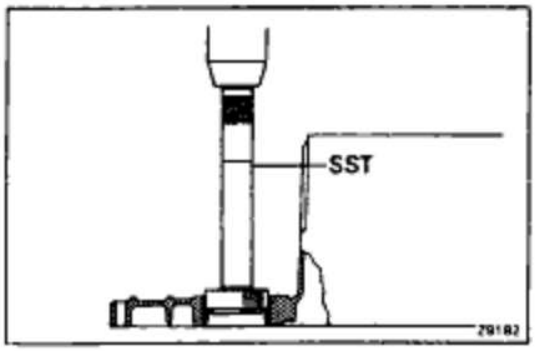


10. IF NECESSARY, REPLACE RH SIDE OIL SEAL

(a) Drive out the oil seal with a screwdriver.

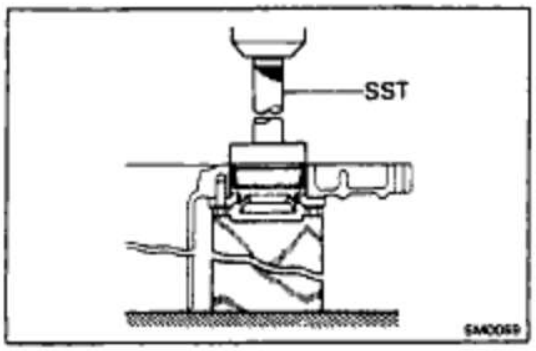


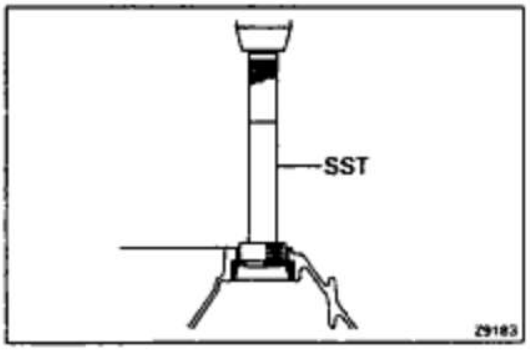
(b) Using SST, drive in a new oil seal until its surface is flush with the case surface.
SST 09316–60010 (09316–00010)
(e) Coat the lip of the oil seal with MP grease.



11. IF NECESSARY, REPLACE LH OUTER RACE OF SIDE BEARING

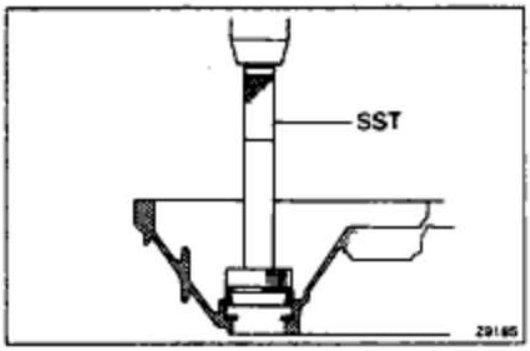
(a) Using SST, press out the outer race.
SST 09608–20012 (09608–00060,09608–03020)
(b) Install the bearing retainer without an O–ring.
(e) Install and torque the retainer bolts.
Torque: 185 kg–cm(13 ft–lb, 18 N–m)
(d) Place the thinnest shim into the case.
(See table on page MT–28)
(e) Using SST, press in a new outer race.
SST 09608–20012 (09608–03020,09608–03060)



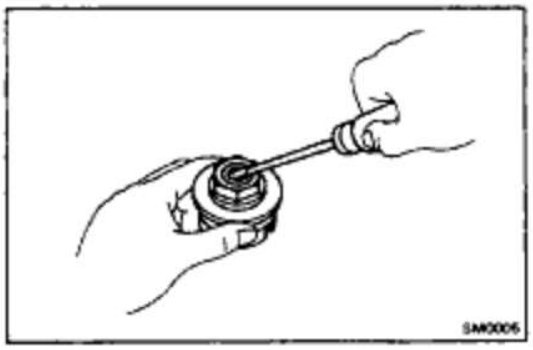


12. IF NECESSARY, REPLACE RH OUTER RACE OF SIDE BEARING

(a) Using SST, press out the outer race and shim.
SST 09608–20012 (09608–00030,09608–03020)

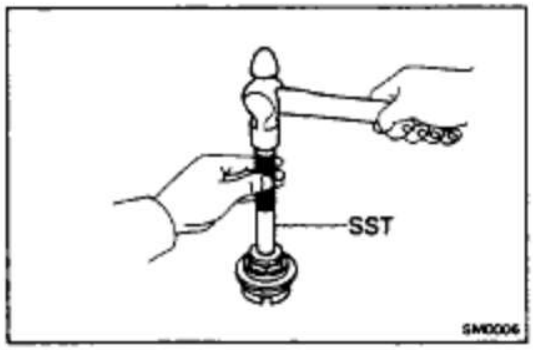


(b) Place the shim into the case.
(c) Using SST, press in a new outer race.
SST 09608–20012 (09608–03020,09608–03060)

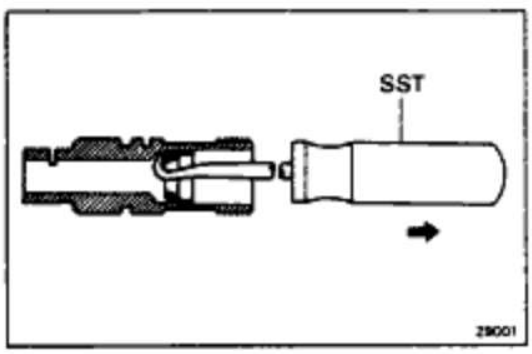


13. IF NECESSARY, REPLACE CONTROL SHAFT COVER OIL SEAL

(a) Using a screwdriver, pry out the oil seal.

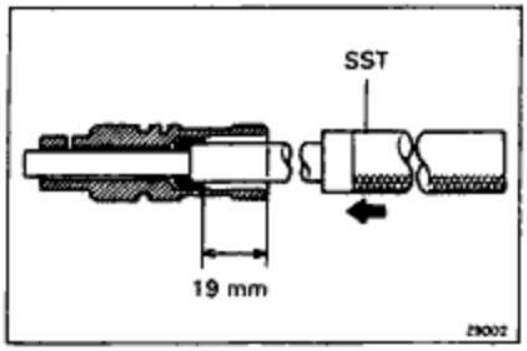


(b) Using SST, drive in a new oil seal until its surface is flush with the cover surface.
SST 09608–200 12 (09608–00080, 09608–03020)
(c) Coat the lip of the oil seal with MP grease.

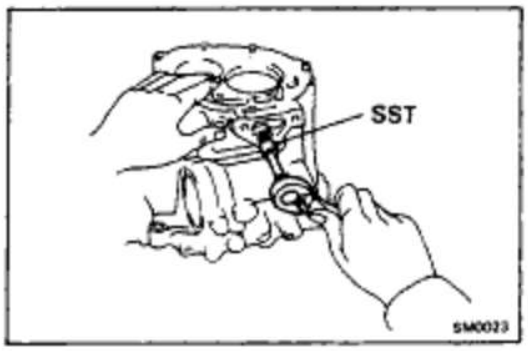


14. IF NECESSARY, REPLACE SPEEDOMETER DRIVEN GEAR OIL SEAL

(a) Using SST, pull out the oil seal.
SST 09921–00010



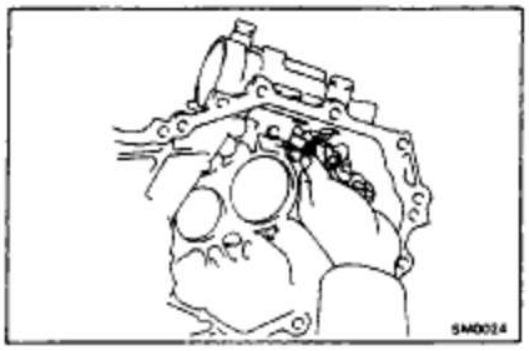
(b) Using SST, drive in a new oil seal.
SST 09201–60011
Drive in depth: 19 mm (0.75 in.)



15. IF NECESSARY, REPLACE REVERSE RESTRICT PIN

(a) Using SST, remove the straight screw plug.
SST 09313–30021

(b) Using a pin punch and hammer, drive out the slotted spring pin.

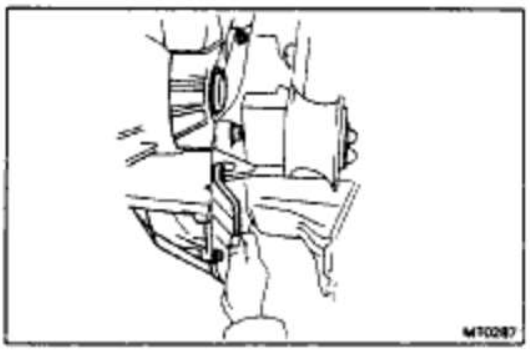


(c) Replace the reverse restrict pin.

(d) Drive in the slotted spring pin.

(e) Apply sealant to the plug threads.
Sealant: Part No. 4.8833–00080, THREE6ON D 1344, LOCTITE 242 or equivalent

(f) Using SST, install the straight screw plug.
SST 09313–30021
Torque: 130 kg–cm (9 ft–lb, 13 N–m)



INSTALLATION OF TRANSAXLE

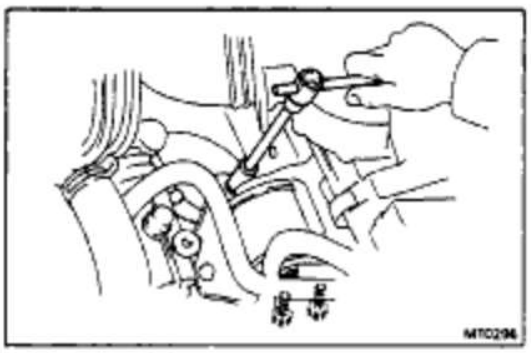
1. INSTALL TRANSAXLE TO ENGINE

Align the input shaft spline with the clutch disc, and install the transaxle to the engine. Torque the bolts.

Torque:

12 mm bolt 650 kg–cm (47 ft–lb, 64 N–m)

10 mm bolt 470 kg–cm (34 ft–lb, 46 N–m)



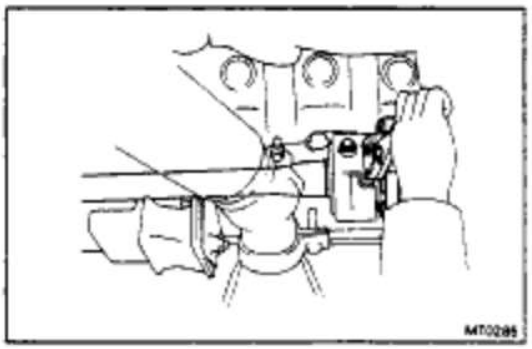
2. CONNECT LEFT ENGINE MOUNTING

Connect the left engine mounting with the bolts. Torque the bolts.

Torque: 530 kg–cm (38 ft–lb, 52 N–rm)

3. INSTALL STABILIZER BAR

(See page FA–35)



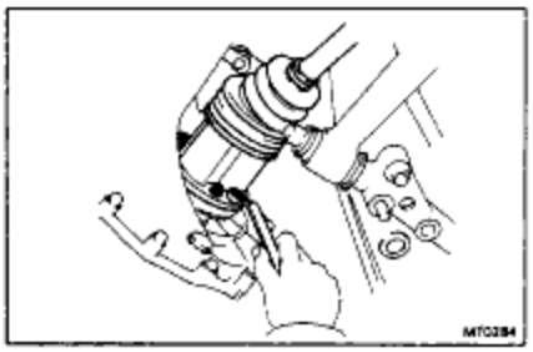
4. INSTALL CENTER DRIVE SHAFT

(a) Insert the center drive shaft to the transaxle through the bearing bracket.

(b) Secure the center drive shaft with the snap ring.

(c) Tighten a new bolt on the bearing bracket.

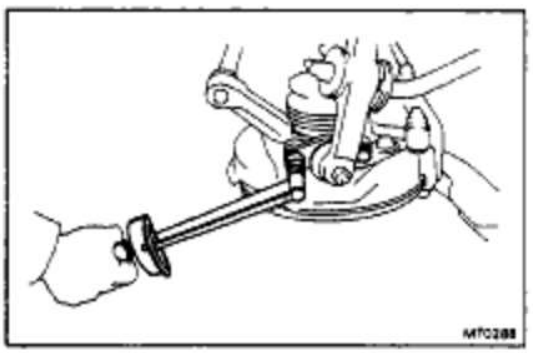
Torque: 330 kg–cm (24 ft–lb, 32 N–m)



5. CONNECT BOTH DRIVE SHAFTS

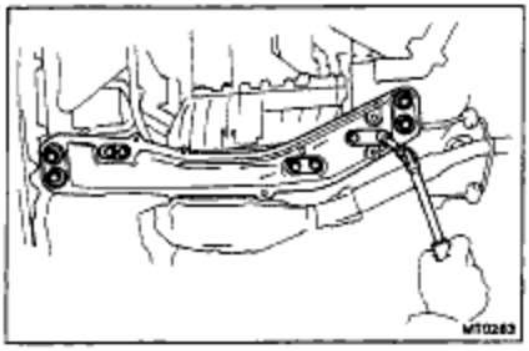
Connect the drive shaft and torque the six nuts while depressing the brake pedal.

Torque: 370 kg–cm (27 ft–lb, 36 N–m)



6. CONNECT LEFT STEERING KNUCKLE TO LOWER ARM

Torque: 1,150 kg–cm (83 ft–lb, 113 N–m)



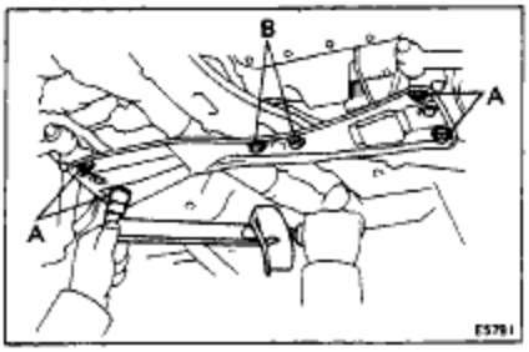
7. INSTALL ENGINE MOUNTING CENTER MEMBER

(a) Install the engine mounting center member with the four bolts. Torque the bolts.

Torque: 400 kg–cm (29 ft–lb, 39 N–m)

(b) Install the front and rear engine mounting bolts. Torque the bolts.

Torque: 440 kg–cm (32 ft–lb, 43 N–m)



8. INSTALL SUSPENSION LOWER CROSSMEMBER

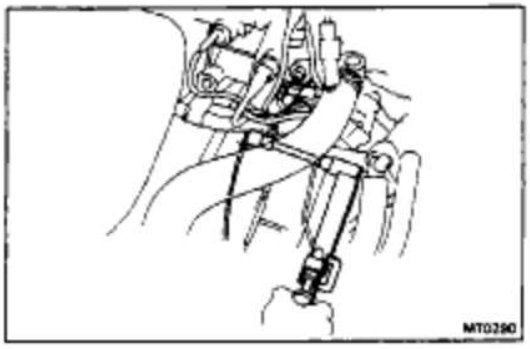
Torque: A 2,110 kg–cm (153 ft–lb, 207 N–m)
8400 kg–cm (29 ft–lb, 39 N–m))

9. CONNECT SPEEDOMETER CABLE

10. FILL TRANSAXLE WITH ATF DEXRON→ II

Capacity: 2.6 liters (2.7 U S qts, 2.3Imp. qts)

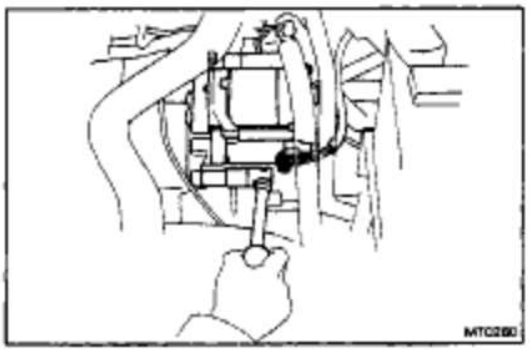
11. INSTALL UNDER COVERS



12. INSTALL TRANSAXLE MOUNTING BOLTS OF TRANSAXLE UPPER

Torque: 650 kg–cm (47 ft–lb, 64 N–m)

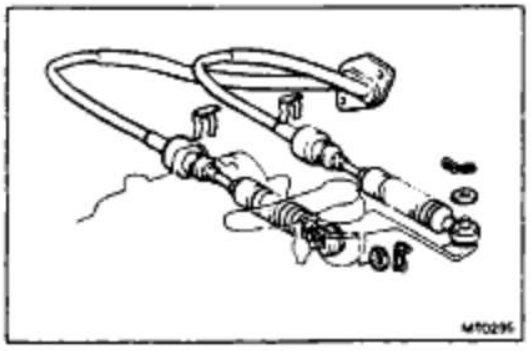
13. CONNECT BACK–UP LIGHT SWITCH CONNECTOR AND GROUND STRAP



14. INSTALL STARTER

(a) Install the starter with the two bolts.

(b) Connect the connector and cable.



15. CONNECT CONTROL CABLES

(a) Install the retainers.

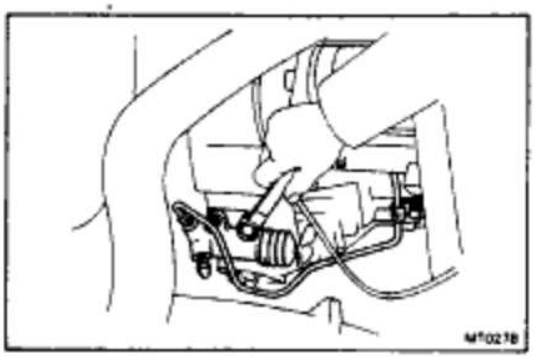
(b) Connect the cables to the linkage with the washer and clip.



16. INSTALL CLUTCH TUBE BRACKET

(a) Install the bracket with a bolt.

(b) Install the retainer to the bracket.



17. INSTALL CLUTCH RELEASE CYLINDER AND TUBE CLAMP

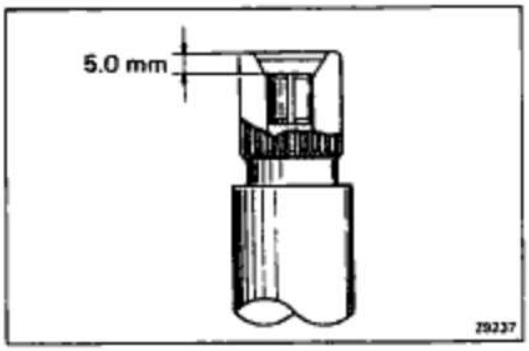
18. INSTALL NEGATIVE BATTERY CABLE

19. CHECK FRONT WHEEL ALIGNMENT

(See page FA–3)

20. PERFORM ROAD TEST

Check for any abnormal noise or operation.

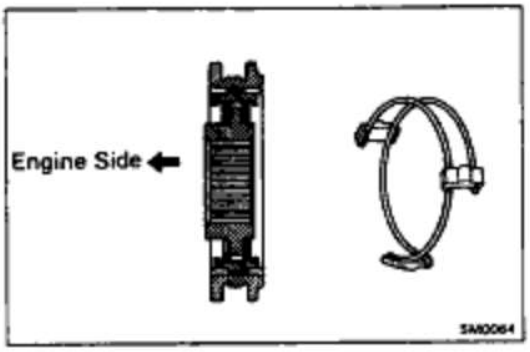


ASSEMBLY OF TRANSMISSION

(See pages MT–7 to 9)

1. IF INPUT SHAFT WAS REPLACED, DRIVE IN SLOTTED SPRING PIN

If the input shaft was replaced, drive the slotted spring pin in the input shaft to a depth of 5.0 mm (O.197 in.).

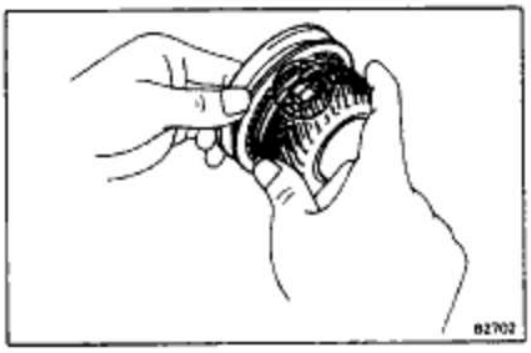


2. INSERT NO. 2 CLUTCH HUB INTO HUB SLEEVE

(a) install the clutch hub and shifting keys– to the hub sleeve.

(b) Install the shifting key springs under the shifting keys.

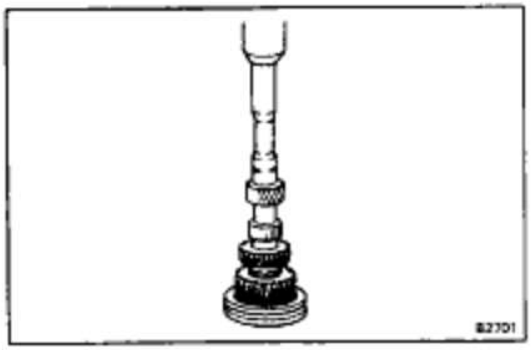
NOTICE: Install the key springs positioned so that their end gaps are not in line.



3. INSTALL THIRD GEAR, NEEDLE ROLLER BEARINGS, SYNCHRONIZER RING AND NO. 2 HUB SLEEVE ASSEMBLY TO INPUT SHAFT

(a) Apply ATF to the needle roller bearings.

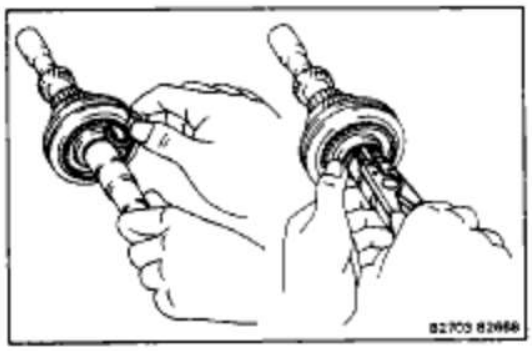
(b) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.



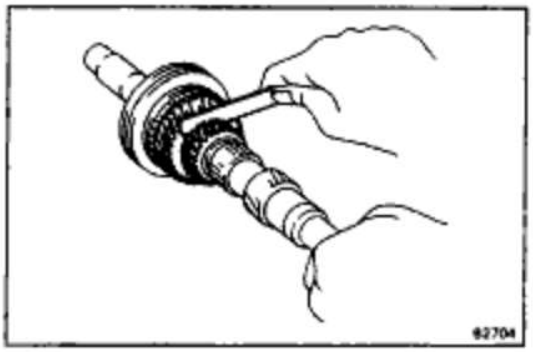
(c) Using a press, install the 3rd gear and No. 2 hub sleeve.

4. INSTALL SNAP RING

Select a snap ring that will allow minimum –axial play and install it on the shaft.



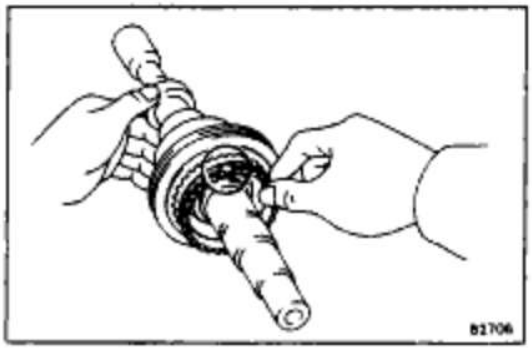
Mark	Thickness mm (in.)
1	1.95 — 2.00 (0.0768 — 0.0787)
2	2.00 — 2.05 (0.0787 — 0.0807)
3	2.05 — 2.10 (0.0807 — 0.0827)
4	2.10 — 2.15 (0.0827 — 0.0846)
5	2.15 — 2.20 (0.0846 — 0.0866)
6	2.20 — 2.25 (0.0866 — 0.0886)



5. MEASURE THIRD GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 3rd gear thrust clearance.

Standard clearance: 0.10 – 0.25 mm (0.0039 – 0.0098 in.)

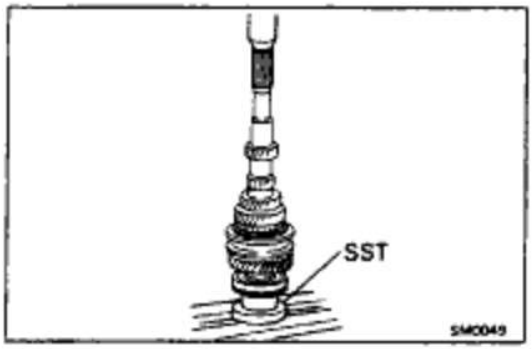


6. INSTALL SYNCHRONIZER RING, SPACER, NEEDLE ROLLER BEARINGS, FOURTH GEAR AND RADIAL BALL BEARING

(a) Install the spacer.

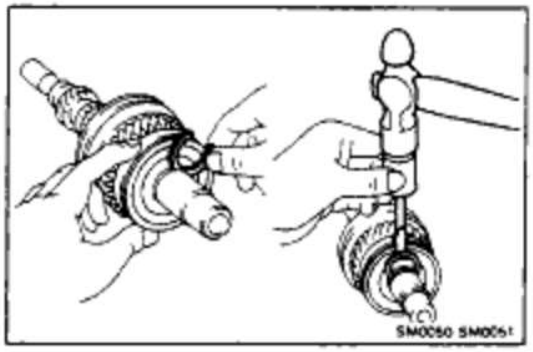
(b) Apply ATF to the needle roller bearings.

(c) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.



(d) Using SST, press in the 4th gear and radial ball bearing.

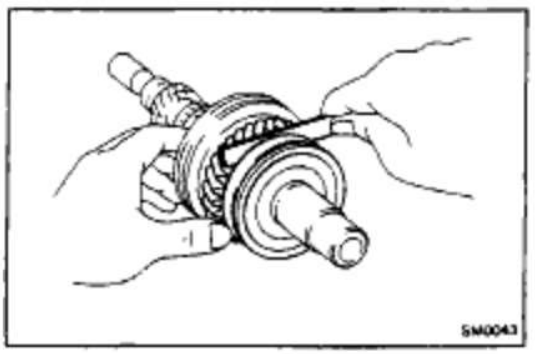
SST 09608–20012 (09608–03070)



7. INSTALL SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.

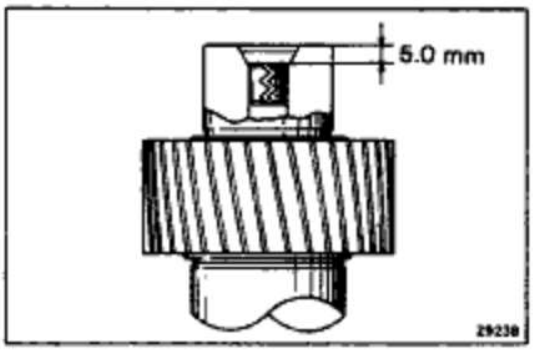
Mark	Thickness mm (in.)
A	2.15 — 2.20 (0.0846 — 0.0866)
B	2.20 — 2.25 (0.0866 — 0.0886)
C	2.25 — 2.30 (0.0886 — 0.0906)
D	2.30 — 2.35 (0.0906 — 0.0925)
E	2.35 — 2.40 (0.0925 — 0.0945)



8. MEASURE FOURTH GEAR THRUST CLEARANCE

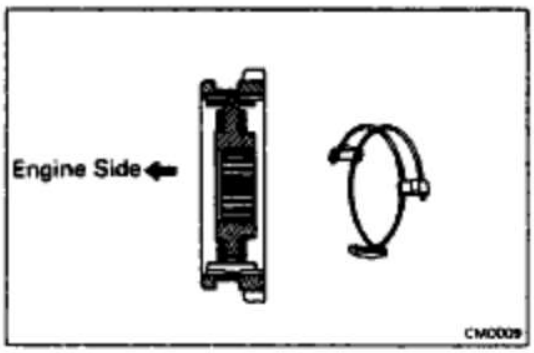
Using a feeler, gauge, measure the 4th gear thrust clearance.

Standard clearance: 0.20 – 0.45 mm (0.0079 .– 0.0177 in.)



9. IF OUTPUT SHAFT WAS REPLACED, DRIVE IN SLOTTED SPRING PIN

If the output shaft was replaced, drive the slotted spring pin in the output shaft to a depth of 5.0 mm (0.197 in.).

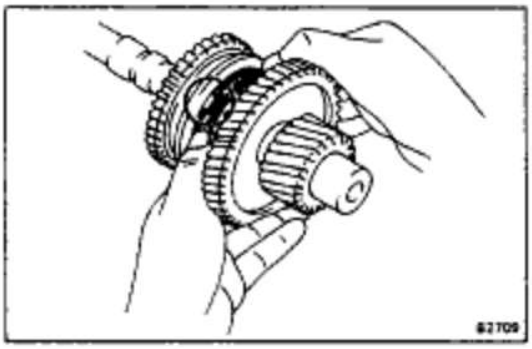


10. INSERT NO. 1 CLUTCH HUB INTO HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.

(b) Install the shifting key springs under the shifting keys.

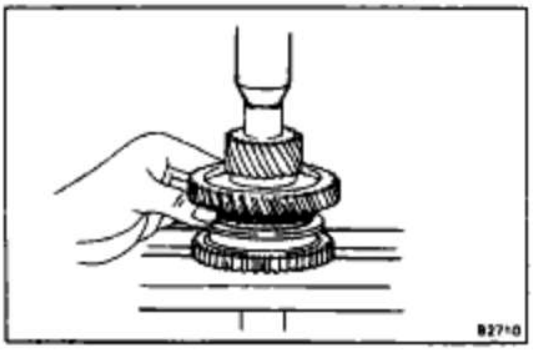
NOTICE: Install the key springs positioned so that their end gaps are not in line.



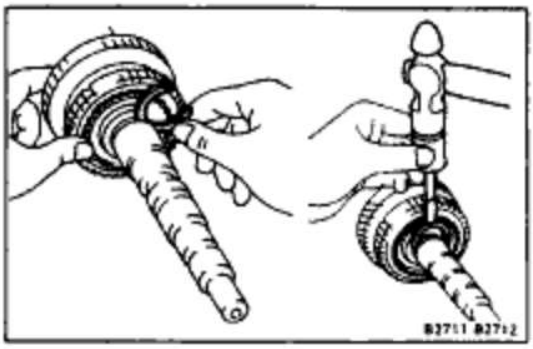
11. INSTALL THRUST WASHER, FIRST GEAR, NEEDLE ROLLER BEARING, SYNCHRONIZER RING AND NO. 1 HUB SLEEVE ASSEMBLY TO OUTPUT SHAFT

(a) Apply ATF to the needle roller bearing.

(b) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.



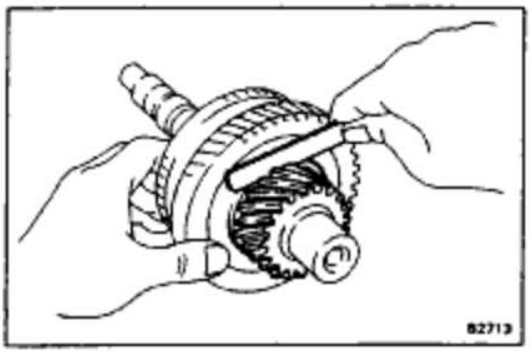
(e) Using a press, install the 1 st gear and No. 1 hub sleeve.



12. INSTALL SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.

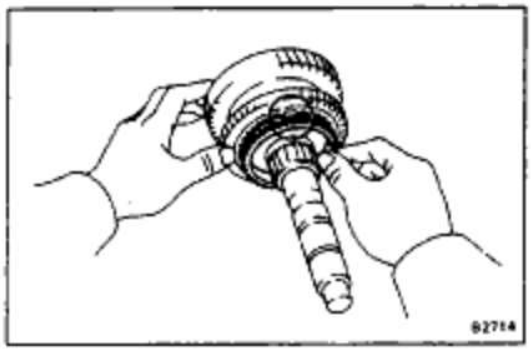
Mark	Thickness mm (in.)
1	2.50 — 2.55 (0.0984 — 0.1004)
2	2.55 — 2.60 (0.1004 — 0.1024)
3	2.60 — 2.65 (0.1024 — 0.1043)
4	2.65 — 2.70 (0.1043 — 0.1063)
5	2.70 — 2.75 (0.1063 — 0.1083)
6	2.75 — 2.80 (0.1083 — 0.1102)



13. MEASURE FIRST GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 1 st gear thrust clearance.

Standard clearance: 0.10 – 0.29 mm (0.0039 – 0.0114 in.)



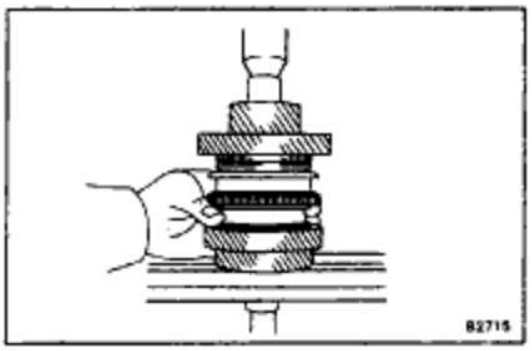
14. INSTALL SPACER, SYNCHRONIZER RING, SECOND GEAR, NEEDLE ROLLER BEARING AND THIRD DRIVEN GEAR

(a) Install the spacer.

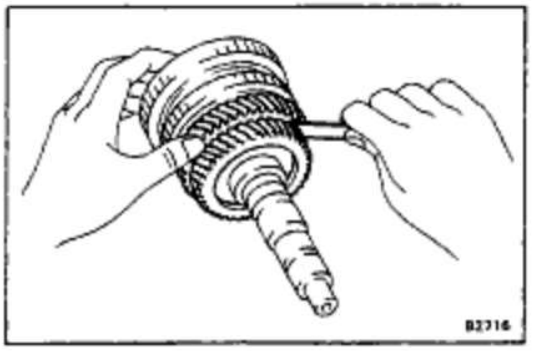
!by Place the synchronizer ring on the gear and align the ring slots with the shifting keys.

(c) Apply ATF to the needle roller bearing.

(d) Install the 2nd gear.



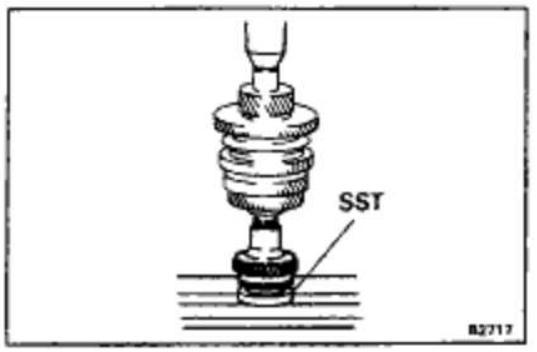
(e) Using a press, install the 3rd driven gear.



15. MEASURE SECOND GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 2nd gear thrust clearance.

Standard clearance: 0.20 – 0.44 mm (0.0079 – 0.0173 in.)

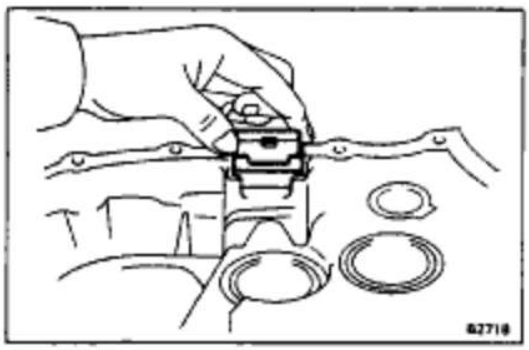


16. INSTALL OUTPUT GEAR SPACER, FOURTH DRIVEN GEAR AND RADIAL BALL BEARING

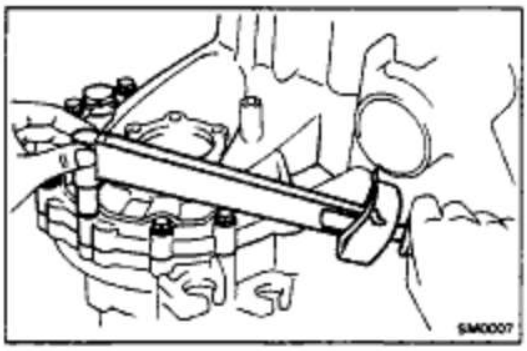
(a) Install the spacer.

(b) Using SST, press in the 4th driven gear and bearing.

SST 09608–12010 (09608–00070)

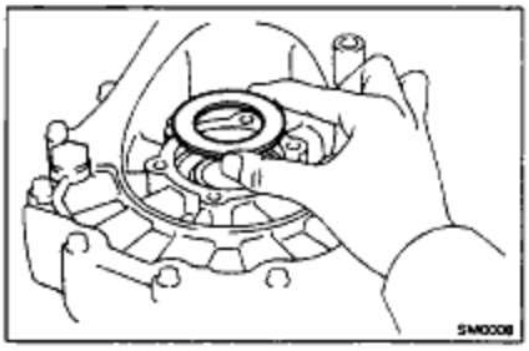


17. INSTALL MAGNET

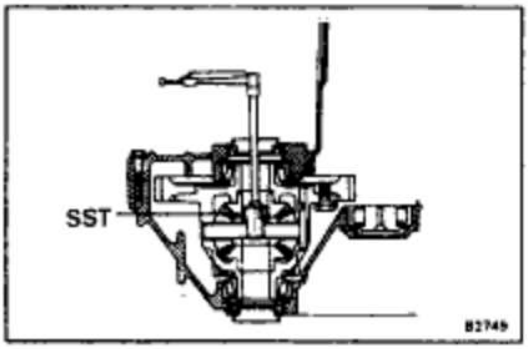


18. MEASURE DIFFERENTIAL SIDE BEARING PRELOAD

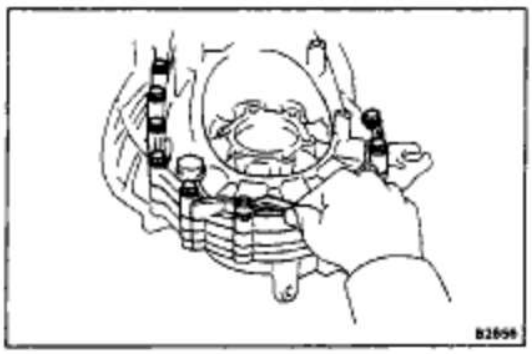
HINT: If the transmission case, transaxle case, differential
side bearing, differential case, transaxle case side shim or side bearing retainer was replaced, install the thinnest shim into the transmission case.
(Follow the step 11 on page MT–21)
(a) Install the differential to the transaxle case.
(b) Install the transmission case.
(c) Install and torque the case bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m))
(d) Install the shim into the transmission case.
(e) Install the bearing retainer without an O–ring.
(f) Install and torque the retainer bolts.
Torque: 185 kg–cm (13 ft–lb, 18 N–m)



(g) Using SST and torque meter, measure the preload.
SST 09564–32011
Preload (starting): 10 – 16 kg–cm
(8.7 – 13.9 in.–lb, 1.0 – 1.6 N–m)
If the preload is not within specification, remove the bearing retainer. Select another shim.
NOTICE: When selecting the shim begin with one of the thinner shims in the table below and work toward thicker one.
HINT: The preload will change about 3 4 kg–cm (2.6 – 3.5 in.–lb, 0.3 – 0.4 N–m) with each shim thickness.



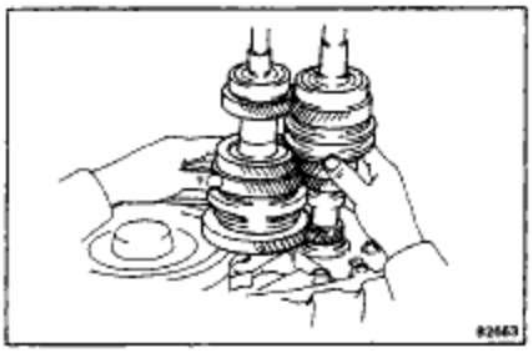
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
1	1.90 (0.0748)	11	2.40 (0.0945)
2	1.95 (0.0768)	12	2.45 (0.0965)
3	2.00 (0.0787)	13	2.50 (0.0984)
4	2.05 (0.0807)	14	2.55 (0.1004)
5	2.10 (0.0827)	15	2.60 (0.1024)
6	2.15 (0.0846)	16	2.65 (0.1043)
7	2.20 (0.0866)	17	2.70 (0.1063)
8	2.25 (0.0886)	18	2.75 (0.1083)
9	2.30 (0.0906)	19	2.80 (0.1102)
10	2.35 (0.0925)		



19. REMOVE BEARING RETAINER, SHIM AND TRANSMISSION CASE

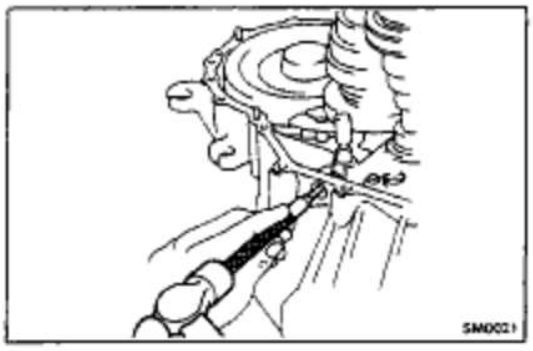
If the preload is adjusted within specification, remove the bearing retainer, shim and transmission case.

Be careful not to lose the adjusted shim.



20. INSTALL INPUT AND OUTPUT SHAFTS

Install the input shaft and output shaft together.



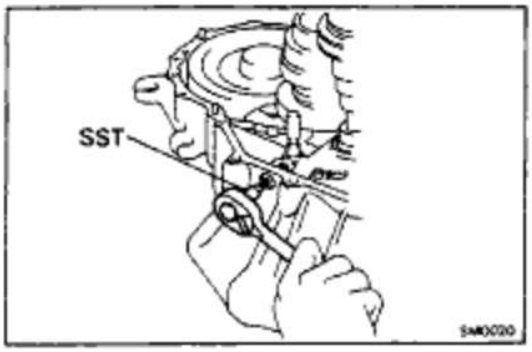
21. INSTALL NO. 2 FORK SHAFT

(a) Insert No. 2 fork shaft to the transaxle case and align the slotted spring pin hole.

(b) Using a pin punch and hammer, drive in the slotted spring pin.

(c) Apply sealant to the plug threads.

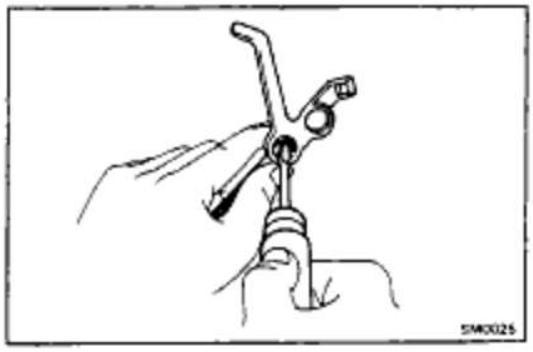
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent



(d) Using SST, install the straight screw plug.

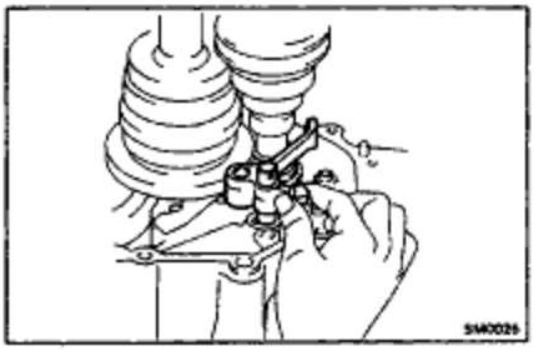
SST 09313–30021

Torque: 130 kg–cm (9 ft–lb, 13 N–m)

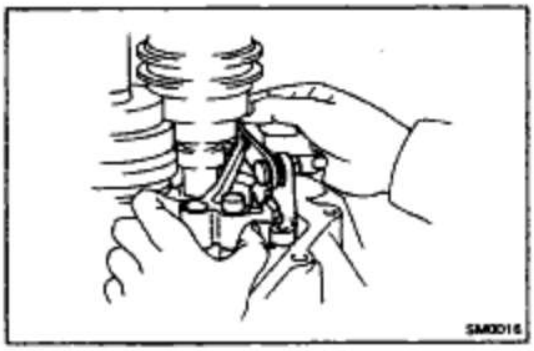


22. INSTALL REVERSE SHIFT FORK AND INTERLOCK PIN

(a) Insert interlock pin into the reverse shift fork hole.

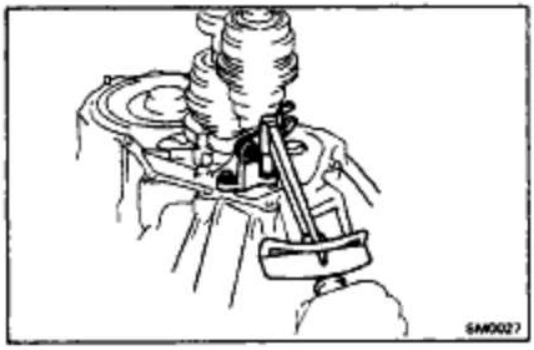


(b) Install the reverse shift fork onto No. 2 fork shaft.

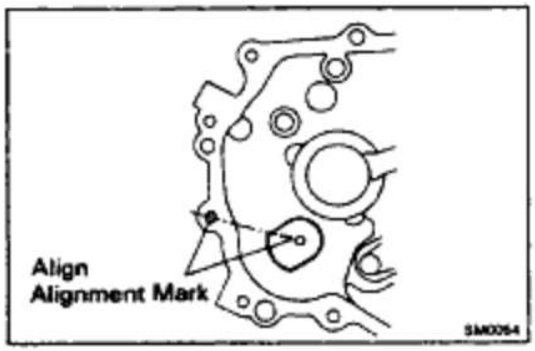


23. INSTALL REVERSE SHIFT ARM

(a) Put the reverse shift arm pivot into the reverse shift fork and install the reverse shift arm to the transaxle case.
(b) Shift the reverse shift arm into reverse.

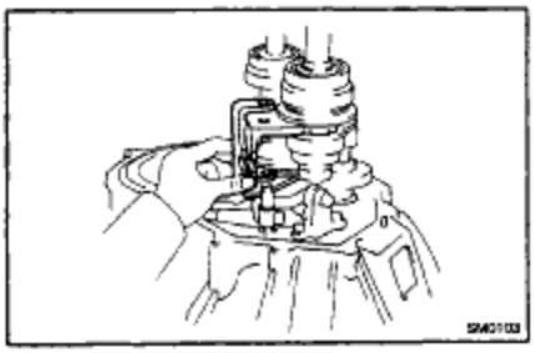


(e) Install and torque the bolts.
Torque: 185 kg–cm (13 ft–lb, 18 N–m)
(d) Shift the reverse shift arm to neutral position.



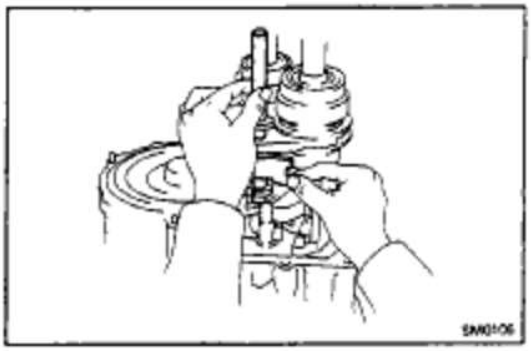
24. INSTALL REVERSE IDLER GEAR AND SHAFT

Install the reverse idler gear and shaft as shown.

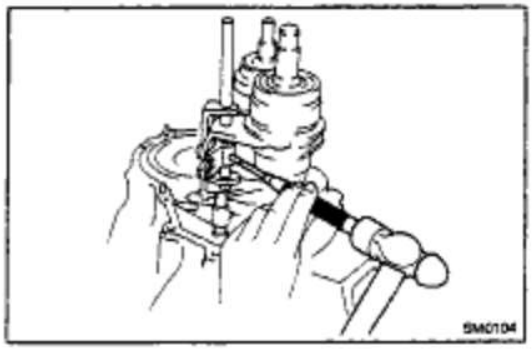


25. INSTALL NO. 1 AND NO. 2 SHIFT FORKS, NO. 1 SHIFT HEAD AND NO. 1 FORK SHAFT

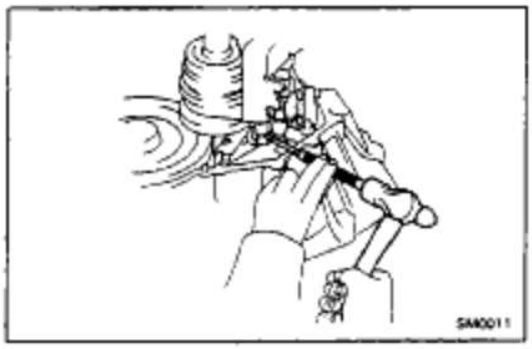
(a) Place No. 1 and No. 2 shift forks into the groove of No. 1 and No. 2 hub sleeves.



(b) Hold No. 1 shift head and insert No. 1 fork shaft into the transaxle case through No. 1 and No. 2 shift forks, No. 1 shift head and reverse shift fork.

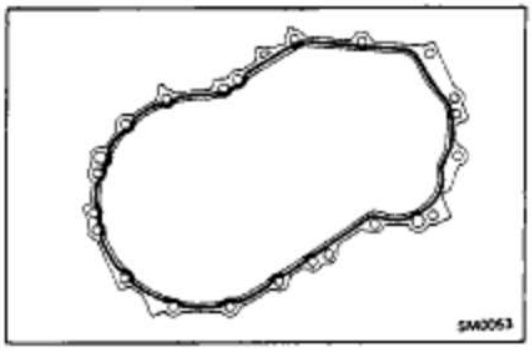


(e) Using a pin punch and hammer, drive the slotted spring pin into No. 1 shift head.



(d) Shift the fork shaft into reverse.

(e) Using a pin punch and hammer, drive the slotted spring pin into No. 1 fork shaft.



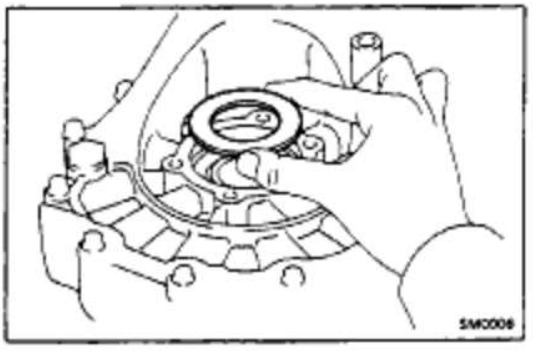
26. INSTALL TRANSMISSION CASE

(a) Apply seal packing to the transmission case as shown in the figure.

Seal packing: Part No. O8826–00090, THREE BOND 1281 or equivalent

(b) Install and torque the seventeen bolts.

Torque: 300 kg–cm (22 ft–tb, 29 N–m)



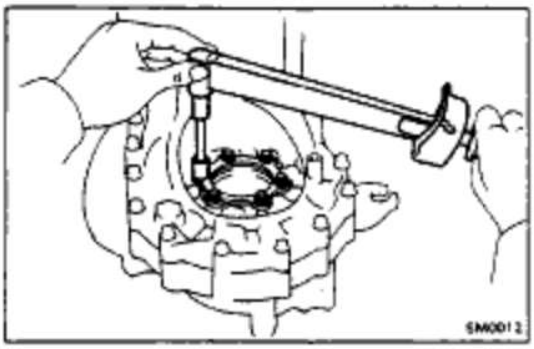
27. INSTALL SHIM AND SIDE BEARING RETAINER WITH O–RING

(a) Install a new 4–ring on the retainer.

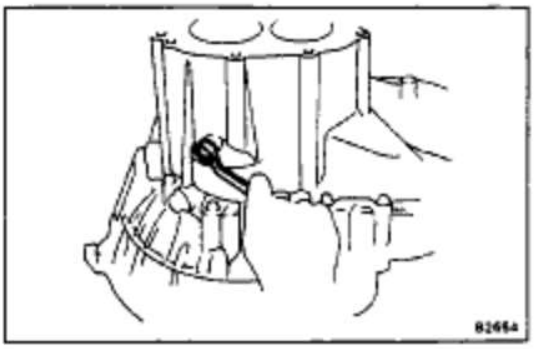
(b) Install the shim and retainer.

(c) Apply sealant to the bolt threads.

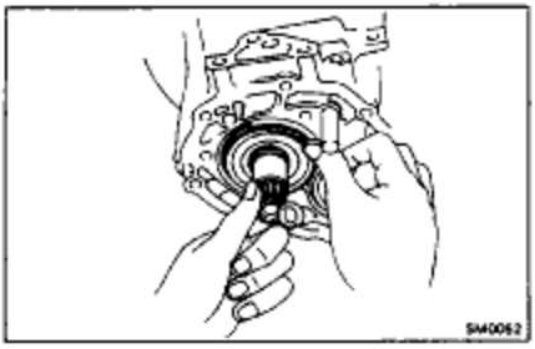
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent



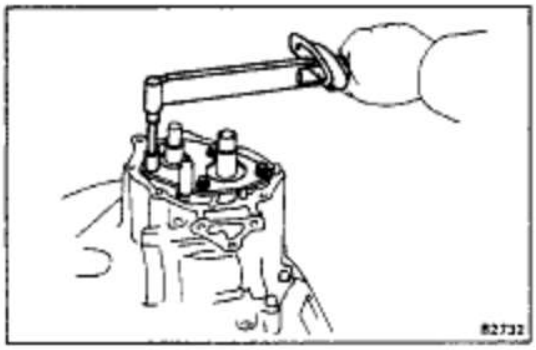
(d) Install and torque the six bolts.
Torque: 185 kg–cm (13 ft–lb, 18 N –m)



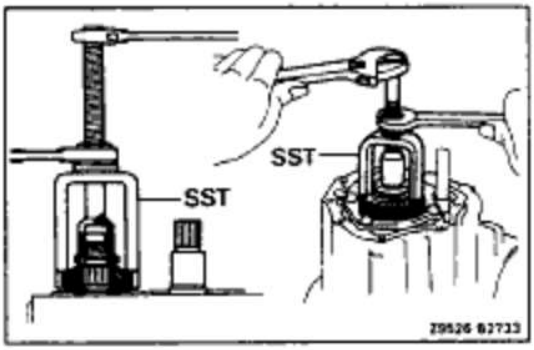
28. INSTALL AND TORQUE REVERSE IDLER GEAR SHAFT LOCK BOLT
Torque: 300 kg–cm (22 ft–lb, 29 N–m)



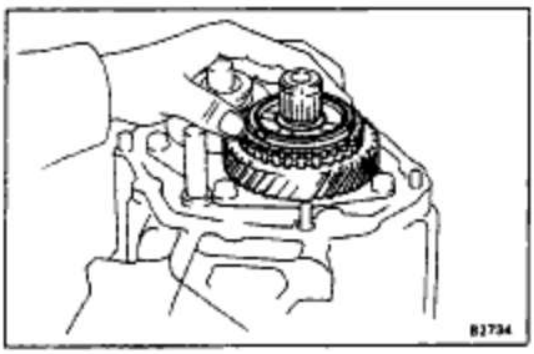
29. INSTALL BEARING SNAP RINGS



30. INSTALL REAR BEARING RETAINER
(a) Apply sealant to the bolt threads.
Sealant: Part No. 08833–00070, THREE BOND 1324, or equivalent
(b) Install and torque the five bolts.
Torque: 210 kg–cm (15 ft–lb, 21 N– m)

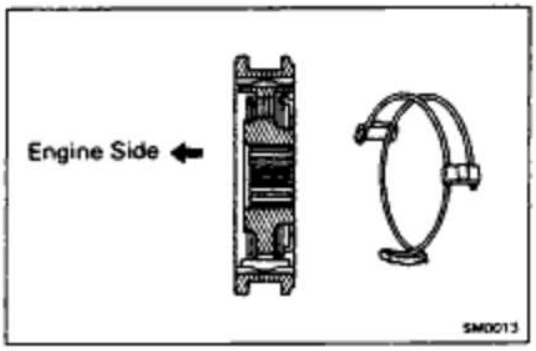


31. INSTALL FIFTH DRIVEN GEAR
Using SST, install the 5th driven gear.
SST 09309–32050



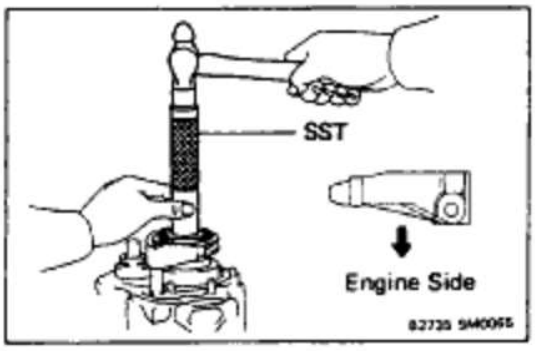
32. INSTALL SPACER, NEEDLE ROLLER BEARINGS, FIFTH GEAR AND SYNCHRONIZER RING

(a) Install the spacer.
(b) Apply ATF to the needle roller bearings.
(e) Install the 5th gear with the needle roller bearings and synchronizer ring.



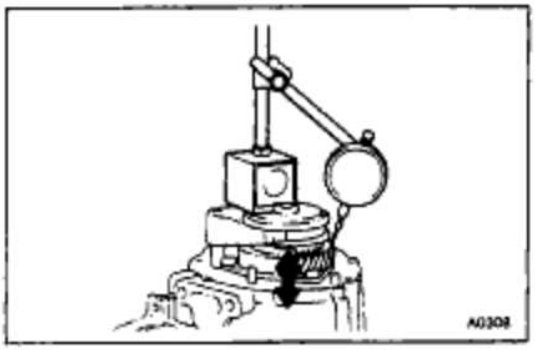
33. INSERT NO. 3 CLUTCH HUB INTO HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.
(b) install the shifting key springs under the shifting keys.
NOTICE: Install the key springs positioned so that their end gaps are not in line.



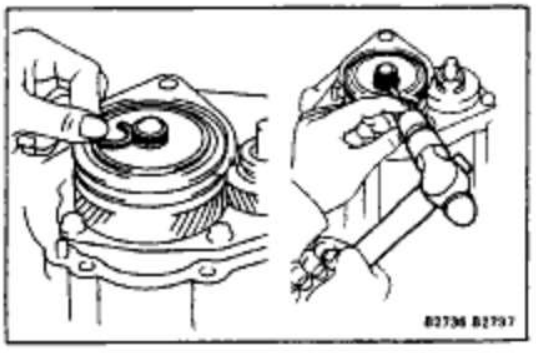
34. INSTALL NO. 3 HUB SLEEVE ASSEMBLY WITH SHIFT FORK

(a) Support the tip of the input shaft with a spacer or such to raise the transaxle assembly.
(b) Using SST, drive in No. 3 hub sleeve with shift fork.
SST 09612–22011
NOTICE: Align the synchronizer ring slots with the shifting keys.



35. MEASURE FIFTH GEAR THRUST CLEARANCE

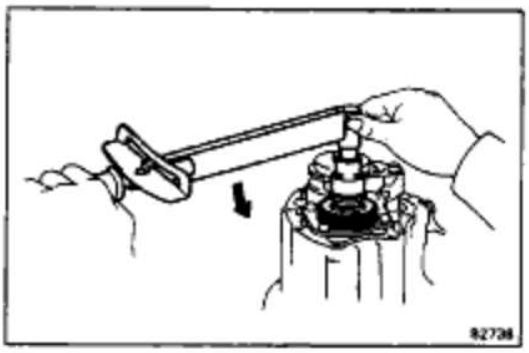
Using a dial indicator, measure the thrust clearance.
Standard clearance: 0.20 – 0.40 mm (0.0079 – 0.0157 in.)



36. INSTALL SHIFTING KEY RETAINER AND SNAP RING

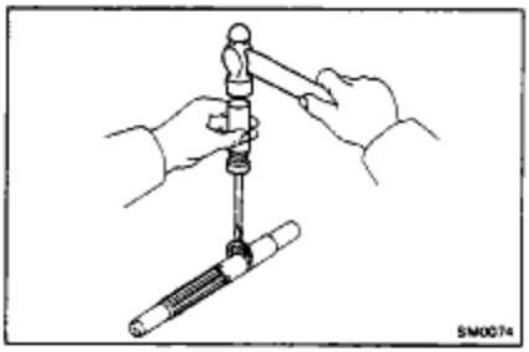
(a) Install the retainer.
(b) Select a snap ring that will allow minimum axial play and install it on the shaft.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
1	1.60 — 1.65 (0.0630 — 0.0650)	9	2.00 — 2.05 (0.0787 — 0.0807)
2	1.65 — 1.70 (0.0650 — 0.0669)	10	2.05 — 2.10 (0.0807 — 0.0827)
3	1.70 — 1.75 (0.0669 — 0.0689)	11	2.10 — 2.15 (0.0827 — 0.0846)
4	1.75 — 1.80 (0.0689 — 0.0709)	12	2.15 — 2.20 (0.0846 — 0.0866)
5	1.80 — 1.85 (0.0709 — 0.0728)	13	2.20 — 2.25 (0.0866 — 0.0886)
6	1.85 — 1.90 (0.0728 — 0.0748)	14	2.25 — 2.30 (0.0886 — 0.0906)
7	1.90 — 1.95 (0.0748 — 0.0768)	15	2.30 — 2.35 (0.0906 — 0.0925)
8	1.95 — 2.00 (0.0768 — 0.0787)		



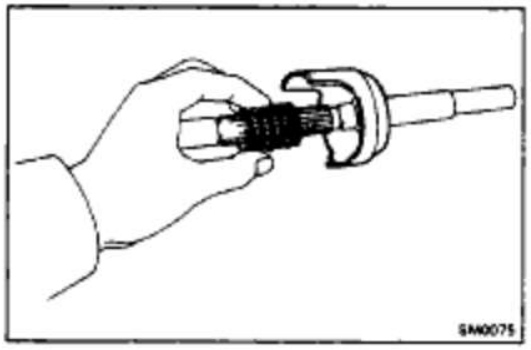
37. INSTALL LOCK NUT

(a) Engage the gear double meshing.
(b) Install and torque the nut.
Torque: 1,250 kg–cm (90 ft–lb, 123 N–m)
HINT: The lock nut has LH threads.
(c) Disengage the gear double meshing.
(d) Stake the lock nut.

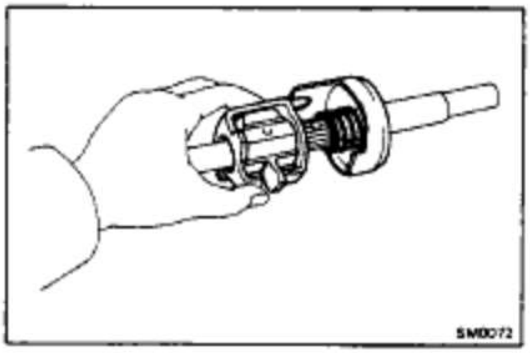


38. ASSEMBLE SHIFT AND SELECT LEVER ASSEMBLY

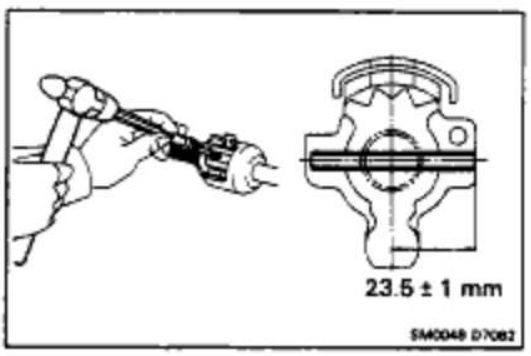
(a) Apply ATF to the shaft.
(b) Install the E–ring.



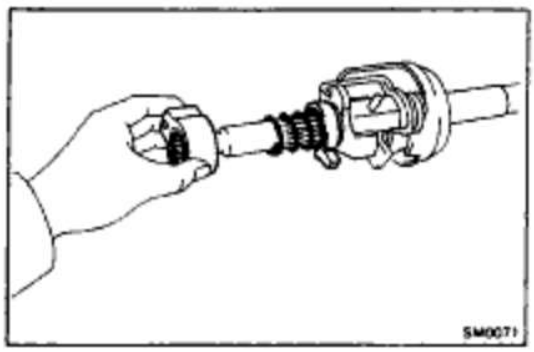
(c) Install shift interlock plate and spring.



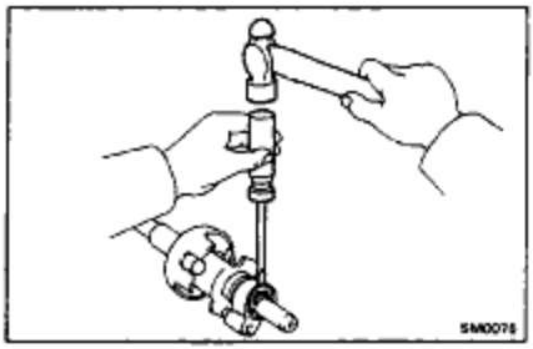
(d) Install No. 1 shift inner lever with the shift fork lock plate.
HINT: One of the spline teeth of the shift and select lever shaft has been eliminated. Therefore, be certain to correctly align this portion to the matching portions on the parts during assembly.



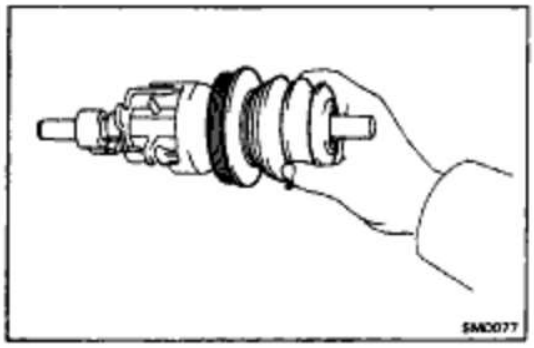
(e) Using a pin punch and hammer, drive i n the slotted spring pin.



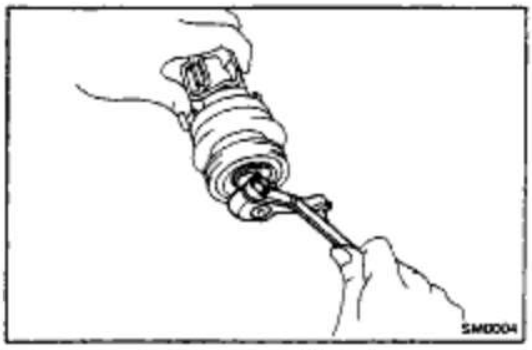
(f) Install No. 2 shift inner lever, spring and reverse restrict pin holder.



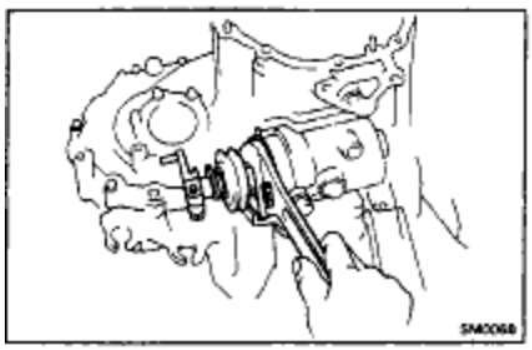
(g) Install the E–ring.



(h) Install the control shaft cover and dust boot.
HINT: Make sure to install the boot in correct direction. Position the air bleed of the boot downward.



Install the control shift lever and insert the lever lock pin to the lever. Install the washer and lock nut.

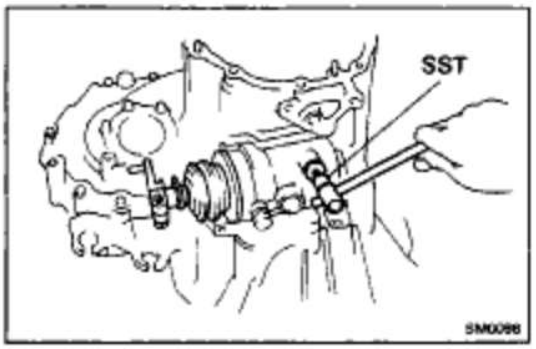


39. INSTALL SHIFT AND SELECT LEVER ASSEMBLY

(a) Apply seal packing to the underside of the flanged portion of the control shaft cover.
Seal packing: Part No. 08826–00090, THREE BOND 1281 or equivalent

(b) Install the shift and select lever assembly and torque the control shaft cover. ._

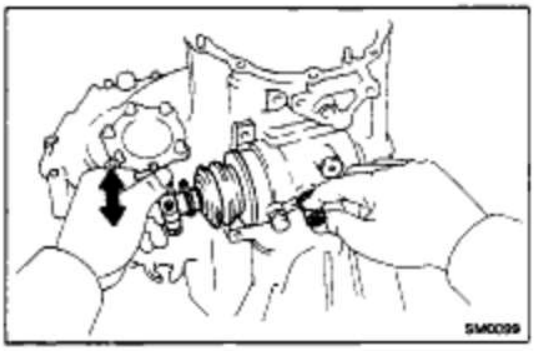
Torque: 375 kg–cm (27 ft–lb, 37 N–m)



40. INSTALL NO. 2 LOCK BALL ASSEMBLY

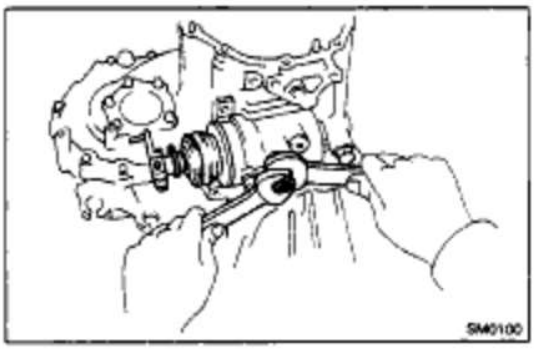
(a) Apply sealant to the lock ball assembly threads.
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(b) Using SST, install and torque the plug.
SST 09313–30021
Torque: 230 kg–cm (117 ft–lb, 23 N–m)



41. INSTALL AND ADJUST NO. 1 LOCK BALL ASSEMBLY

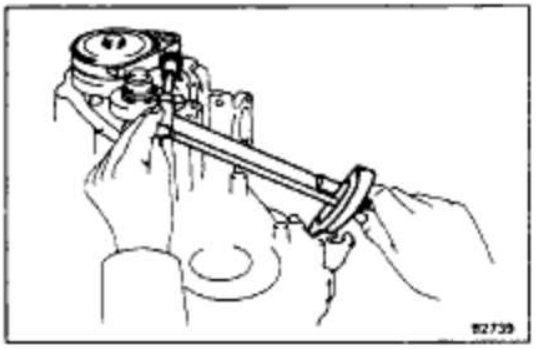
(a) Fully loosen the lock nut.
(b) Fully screw in the lock ball.
(e) Loosen the lock ball to where the play at the shift outer lever tip is 0.1 – 0.5 mm (0.004 – 0.020 in.).



(d) Hold the lock ball and tighten the lock nut.
Torque: 375 kg–cm (27 ft–lb, 37 N–m)

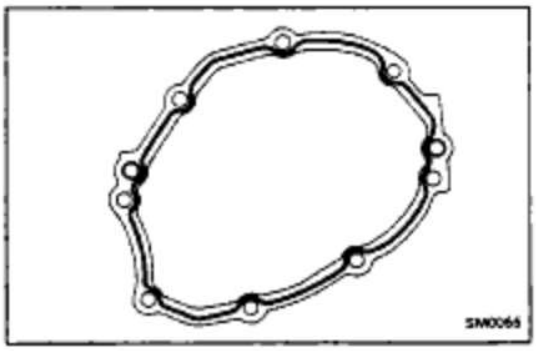
(e) Check the shift outer lever tip play.
Lever tip play: 0.1 – 0.5 mm (0.004 – 0.020 in.)

42. INSTALL SELECTING BELLCRANK



43. INSTALL NO. 3 SHIFT FORK SECURING BOLT

Install and torque the bolt.
Torque: 185 kg–cm (13 ft–lb, 18 N–m)

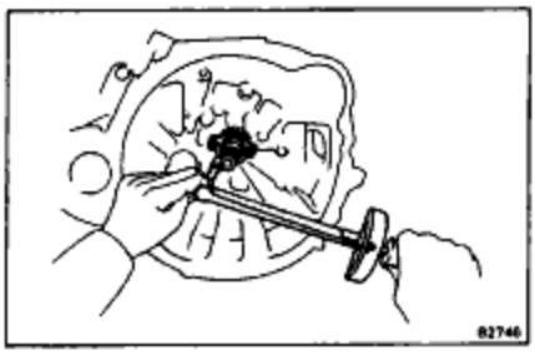


44. INSTALL TRANSMISSION CASE COVER

(a) Apply seal packing to the transmission case as shown in the figure.
Seal packing: Part No. 08826–00090, THREE BOND 1281 or equivalent

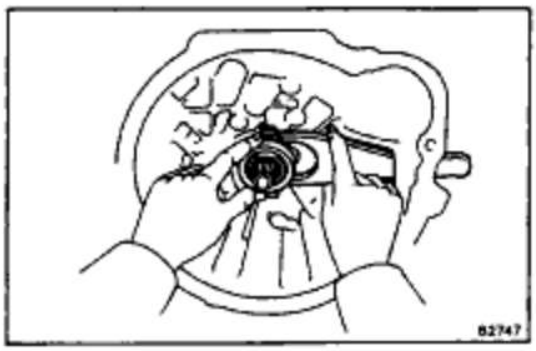
(b) Apply sealant to the bolt threads.
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(c) Install and torque the eight bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m)



45. INSTALL RELEASE BEARING RETAINER

Torque: 75 kg–cm (65 in.–lb, 7.4 N–m)



46. INSTALL RELEASE FORK AND BEARING

(a) Apply molybdenum disulphide lithium base grease to the following parts:

- Release bearing hub inside groove
- Input shaft spline
- Release fork contact surface

(b) Apply MP grease to the front surface of the release bearing.

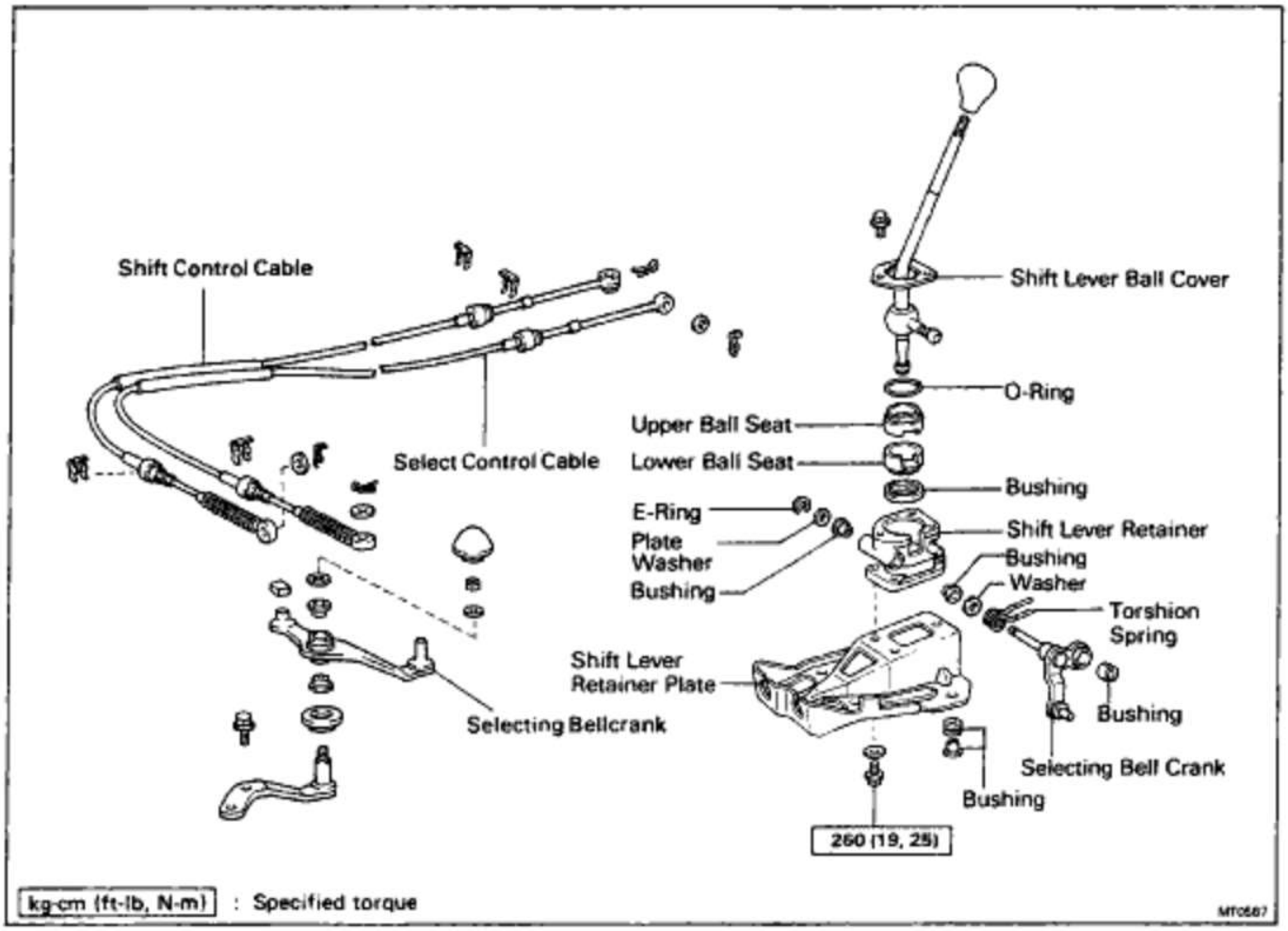
47. INSTALL BACK–UP LIGHT SWITCH

Torque: 450 kg–cm (33 ft–lb, 44 N–m)

48. INSTALL SPEEDOMETER DRIVEN GEAR

SHIFT LEVER AND CONTROL CABLE

COMPONENTS



DIFFERENTIAL

REMOVAL OF DIFFERENTIAL

1. REMOVE TRANSAXLE
(See pages MT–4 to 6)
2. REMOVE DIFFERENTIAL ASSEMBLY
(See steps 1 to 24 on pages MT–10 to 14)

REPLACEMENT OF DIFFERENTIAL

(See pages AT–158 to 160)

ADJUSTMENT OF DIFFERENTIAL CASE

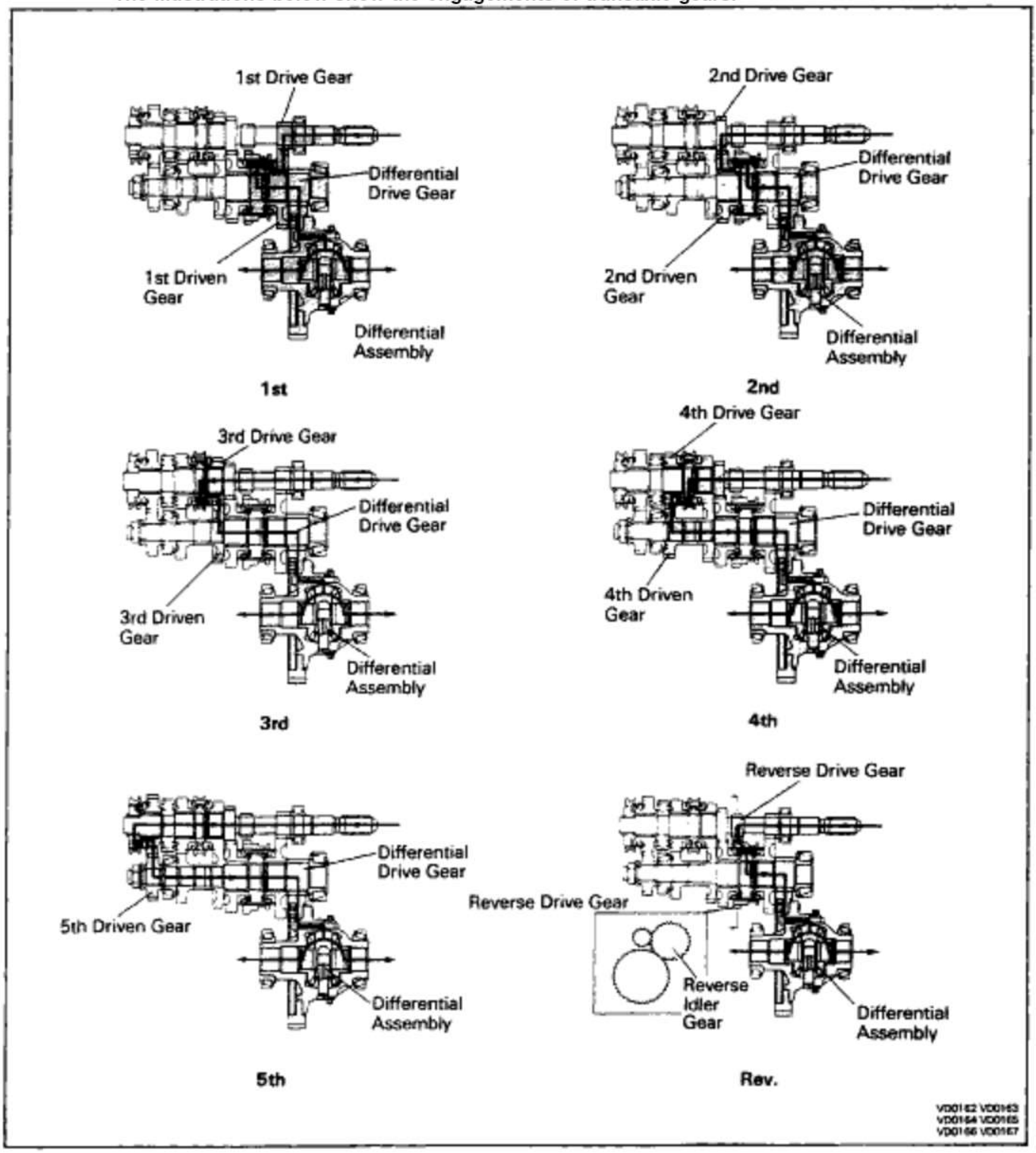
(See pages AT–161, 162)

INSTALLATION OF DIFFERENTIAL

1. INSTALL DIFFERENTIAL ASSEMBLY TO TRANSAXLE
(See steps 18 to 37 and 39 to 48 on pages MT–28 to 37)
2. INSTALL TRANSAXLE
(See pages MT–38 to 40)

DESCRIPTION

- Transaxle types E52 are constant mesh synchronizers for forward gears, and a sliding mesh reverse gear.
- The input shaft is composed of the 1 st and 2nd speed gears and the reverse drive gear, and the output shaft is composed of the drive gear (for use with the ring gear).
- The oil used in transaxle is as follows:
  E52 . . . . . : . . . . . SAE75W–90 or 80W–90
- The illustrations below show the engagements of transaxle gears.



PRECAUTIONS

When working with FIPG material, you must be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both sealing surfaces with a non–residue solvent.**
- **Apply the seal packing in approx.1 mm (0.04 in.) bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of apptication. Otherwise, the packing (FIPG) material must be removed and reapplied.**

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Noise	Transmission or differential faulty Wrong oil grade Oil level low	Disassemble and inspect transmission or differential Replace oil Add oil	MT–47,85
Oil leakage	Oil level too high Oil seal, O–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	MT–47
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–47
Jumps out of gear	Transmission faulty	Disassemble and inspect transmission	MT–47

PRECAUTIONS

When working with FIPG material, you must be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both sealing surfaces with a non–residue solvent.**
- **Apply the seal packing in approx.1 mm (0.04 in.) bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of apptication. Otherwise, the packing (FIPG) material must be removed and reapplied.**

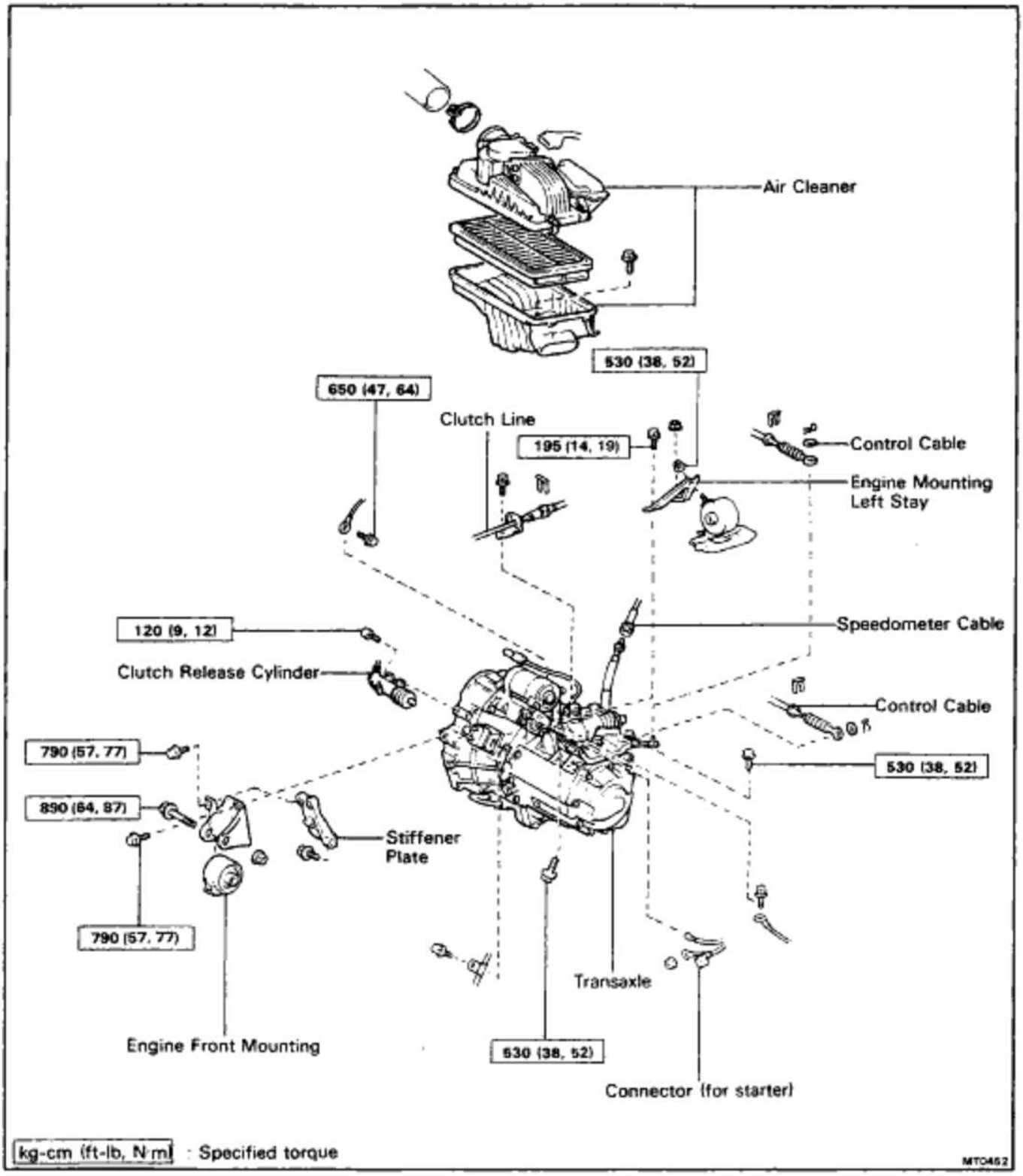
TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Noise	Transmission or differential faulty Wrong oil grade Oil level low	Disassemble and inspect transmission or differential Replace oil Add oil	MT–47,85
Oil leakage	Oil level too high Oil seal, O–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	MT–47
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–47
Jumps out of gear	Transmission faulty	Disassemble and inspect transmission	MT–47

REMOVAL AND INSTALLATION OF TRANSAXLE

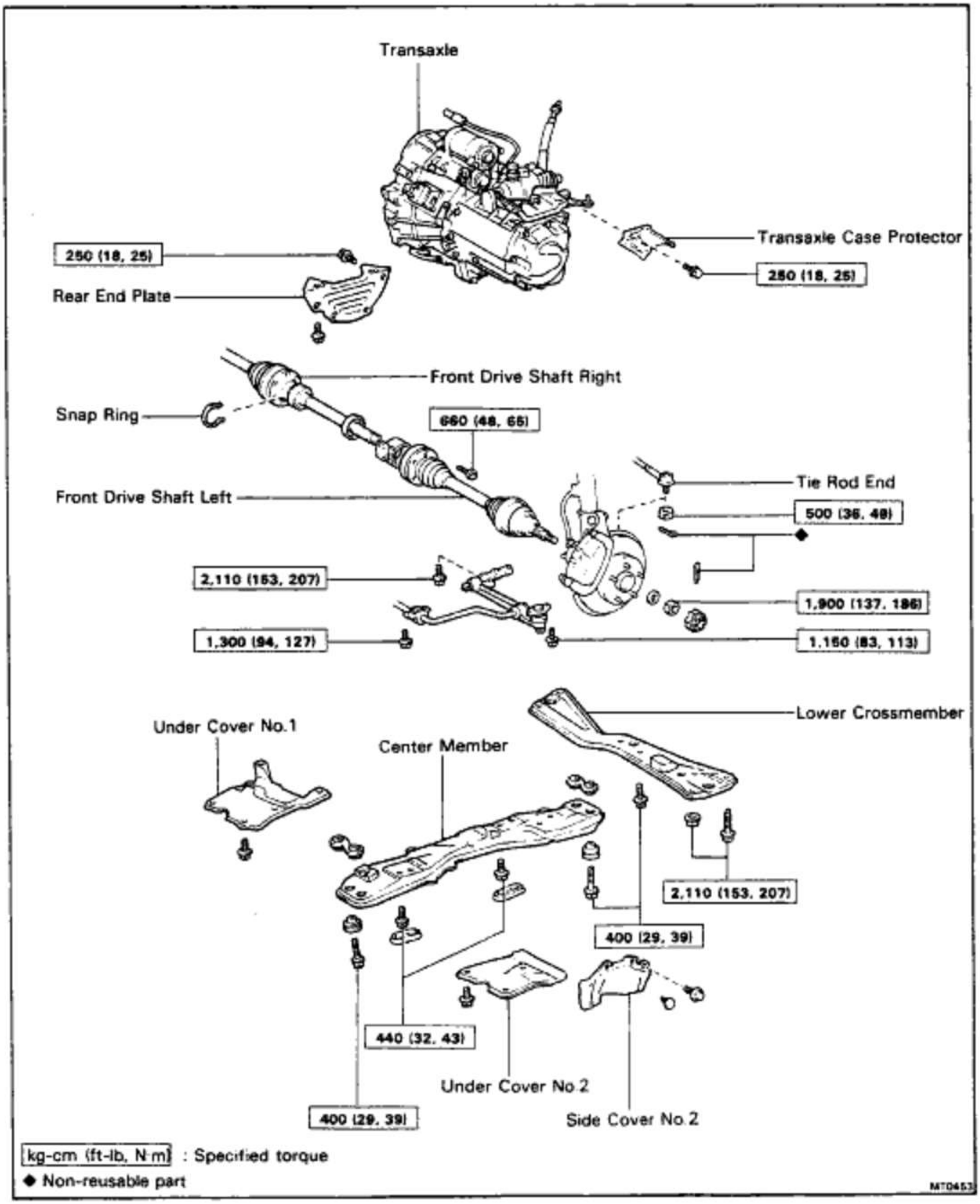
Remove and install the parts as shown.

HINT: Oil grade: API GL–4 or GL–5
Viscosity: SAE 75W–90 or 80W–90
Capacity: 4.2 litter (4.4 US qts, 3.7 Imp. qts)

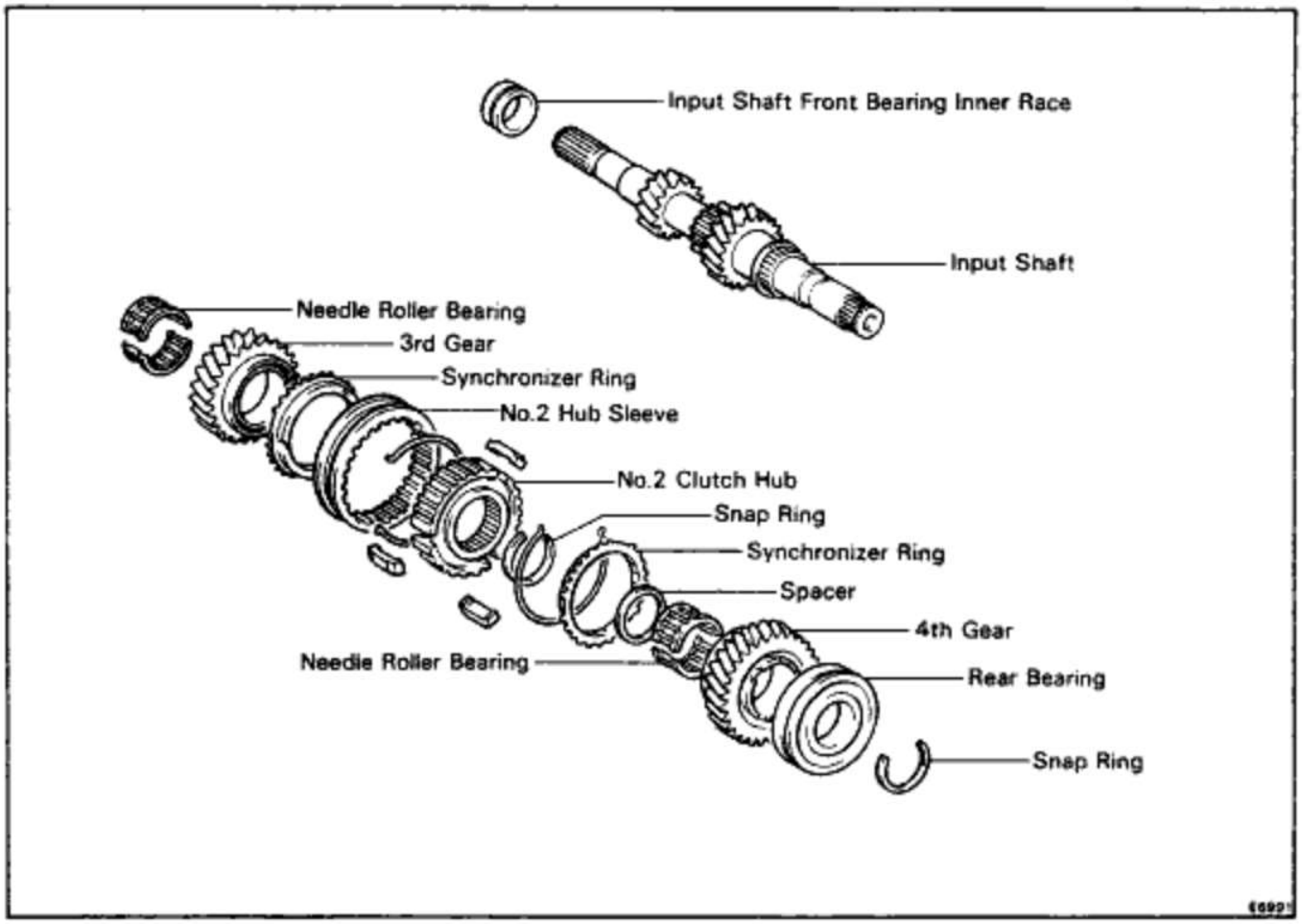


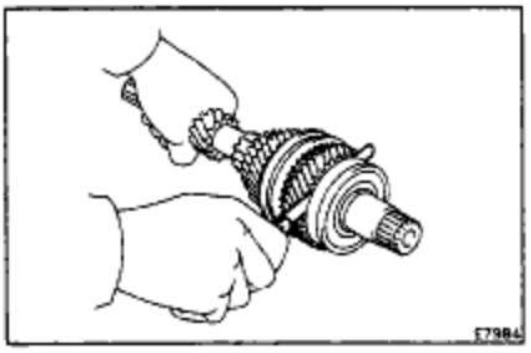
REMOVAL AND INSTALLATION OF TRANSAXLE Cont'd

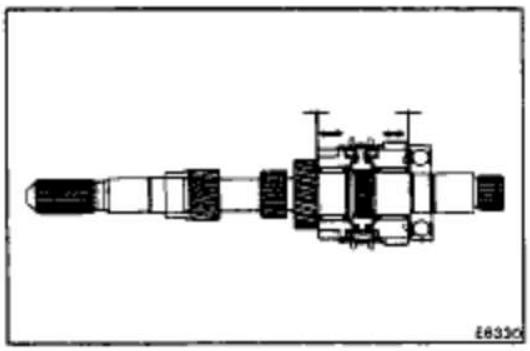
Remove and install the parts as shown.



COMPONENT PARTS
Input Shaft Assembly







DISASSEMBLY OF INPUT SHAFT ASSEMBLY

1. MEASURE THIRD AND FOURTH GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

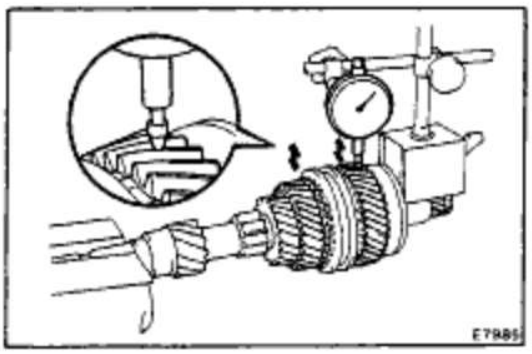
3rd gear 0.10 – 0.35 mm (0.0039 – 0.0138 in.)

4th gear 0.10 – 0.55 mm (0.0039 – 0.0217 in.)

Maximum clearance:

3rd gear 0.40 mm (0.0157 in.)

4th gear 0.60 mm (0.0236 in.)



2. CHECK OIL CLEARANCE OF THIRD AND FOURTH GEAR

Using dial indicator, measure the oil clearance between the gear and shaft.

Standard clearance:

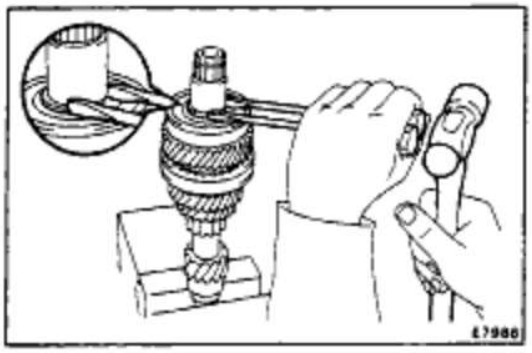
3rd gear 0.009 – 0.053 mm (0.0004 – 0.0021 in.)

4th gear 0.009 – 0.051 mm (0.0004 – 0.0020 in.)

Maximum clearance:

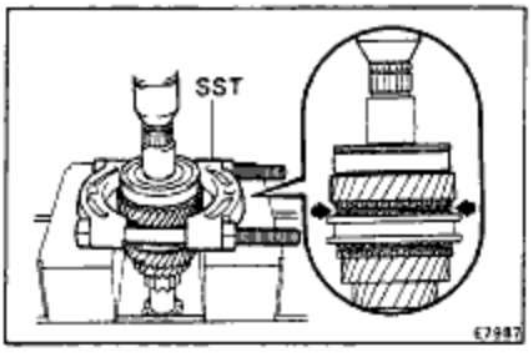
3rd and 4th gear 0.070 mm (0.0028 in.)

If clearance exceeds the limit, replace the gear, needle roller bearing or shaft.



3. REMOVE SNAP RING

Using two screwdrivers and a hammer, tap out the snap ring.

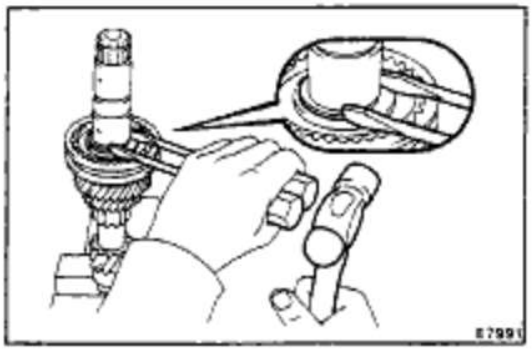


4. REMOVE RADIAL BALL BEARING AND FOURTH GEAR

Using SST and a press, remove the radial ball bearing.

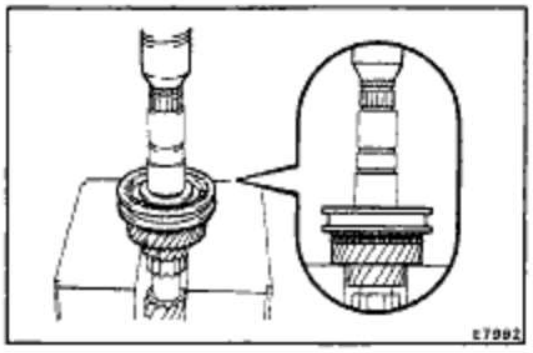
SST 09950–00020

5.REMOVE NEEDLE ROLLER BEARINGS, SPACER AND SYNCHRONIZER RING



6. REMOVE SNAP RING

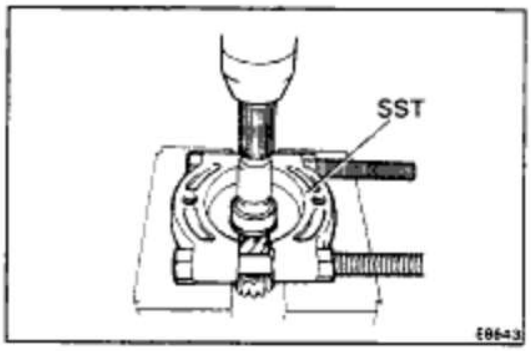
Using two screwdrivers and a hammer, tap out the snap ring.



7. REMOVE NO.2 CLUTCH HUB ASSEMBLY, SYNCHRONIZER RING AND THIRD GEAR

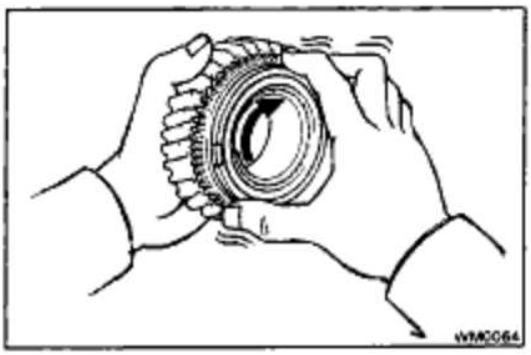
Using a press, remove No.2 hub sleeve, 3rd gear, synchronizer ring and needle roller bearings.

8. REMOVE NEEDLE ROLLER BEARING



9. REMOVE INPUT SHAFT FRONT BEARING INNER RACE

Using SST and a press, remove the inner race.
SST 09950–00020

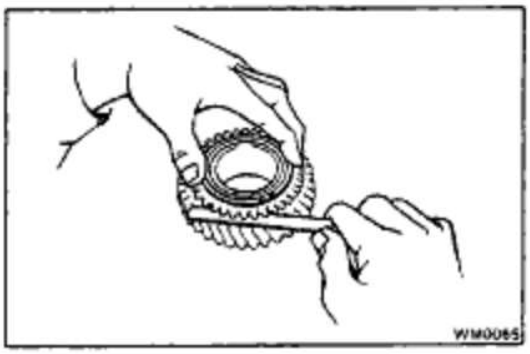


INSPECTION OF INPUT SHAFT COMPONENT PARTS

1. INSPECT SYNCHRONIZER RINGS

(a) Check for wear or damage.

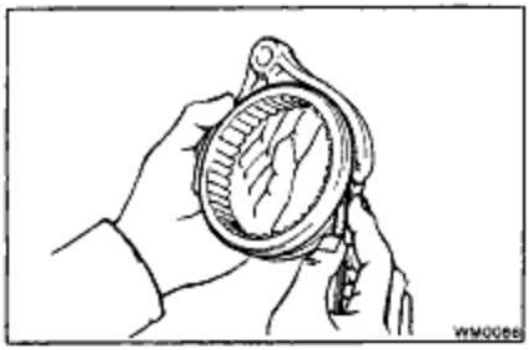
(b) Turn the ring and push it in to check the braking action.



(c) Measure the clearance between the synchronizer ring back and the gear spline end.

Minimum clearance: 0.6 mm (0.024 in.)

If the clearance is less than the limit, replace the synchronizer ring.

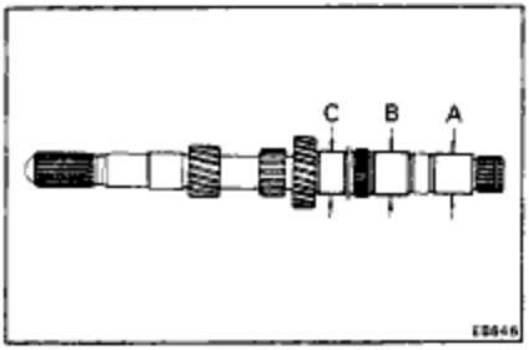


2. MEASURE CLEARANCE OF NO.2 SHIFT FORK AND HUB SLEEVE

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (0.039 in.)

If the clearance exceeds the limit, replace the shift fork or hub sleeve.



3. INSPECT INPUT SHAFT

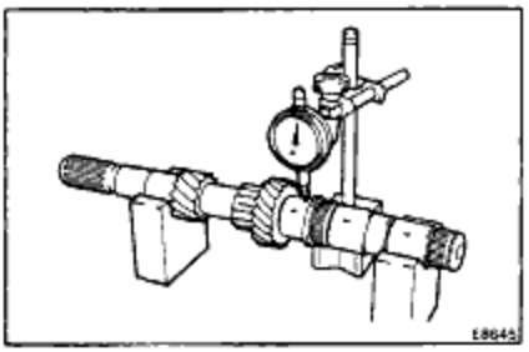
(a) Check the input shaft for wear or damage.

(b) Using a micrometer, measure the outer diameter of the input shaft journal surface.

Minimum outer diameter:

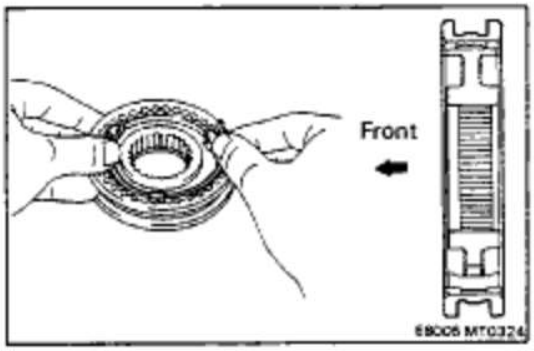
Part A 32.930 mm (1.2965 in.)

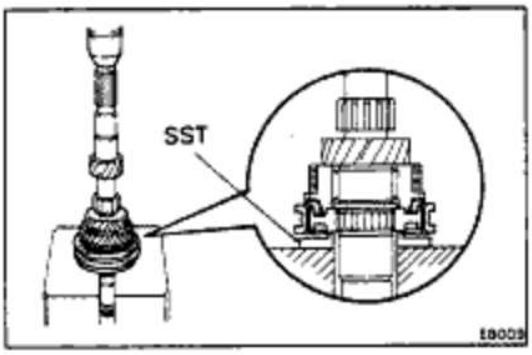
Part B and C 35.950 mm (1.4154 in.)

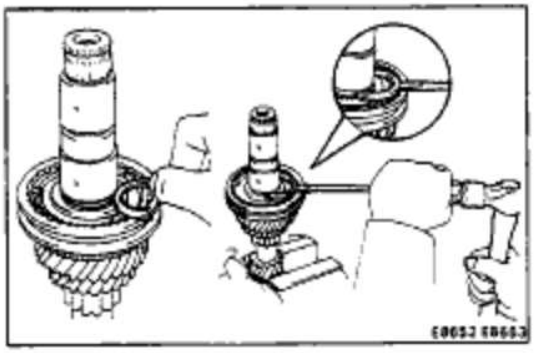


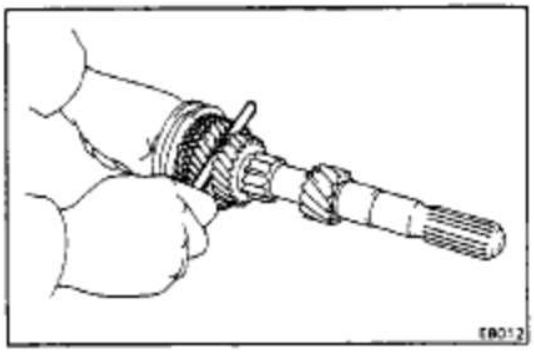
(c) Using a dial indicator, check the shaft runout.

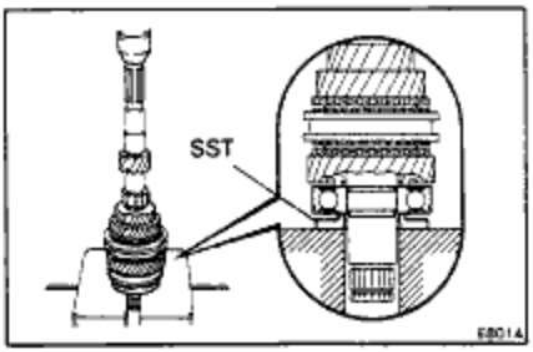
Maximum runout: 0.05 mm (0.0020 in.)











ASSEMBLY OF INPUT SHAFT ASSEMBLY

(See page MT–62)

HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

1. INSERT NO.2 CLUTCH HUB INTO HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.

(b) Install the shifting key springs under the shifting keys.

NOTICE: Install the shifting key springs positioned so that their end gaps are not in line.

2. INSTALL NEEDLE ROLLER BEARING, THIRD GEAR, SYNCHRONIZER RING AND NO.2 HUB SLEEVE ASSEMBLY TO INPUT SHAFT

(a) Apply MP grease to the needle roller bearings.

(b) Assemble the needle roller bearings into the 3rd gear.

(c) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.

(d) Using SST and a press, install the 3rd gear and No–2 hub sleeve.

SST 09506–35010

3. INSTALL SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
H	2.30 – 2.35 (0.0906 – 0.0925)	M	2.50 – 2.55 (0.0984 – 0.1004)
J	2.35 – 2.40 (0.0925 – 0.0945)	N	2.55 – 2.60 (0.1004 – 0.1024)
K	2.40 – 2.45 (0.0945 – 0.0965)	P	2.60 – 2.65 (0.1024 – 0.1043)
L	2.45 – 2.50 (0.0965 – 0.0984)		

4. MEASURE THIRD GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 3rd gear thrust clearance.

Standard clearance: 0.10 – 0.35 mm (0.0039 – 0.0138 in.)

5. INSTALL SPACER, SYNCHRONIZER RING, NEEDLE ROLLER BEARINGS, FOURTH GEAR AND RADIAL BALL BEARING

(a) Install the spacer.

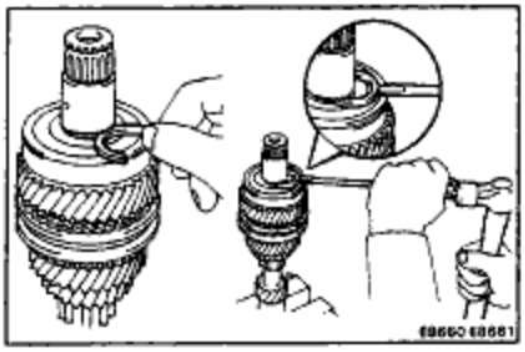
(b) Apply MP grease to the needle roller bearings.

(c) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.

(d) Install the 4th gear.

(e) Using SST and a press, install the radial ball bearing.

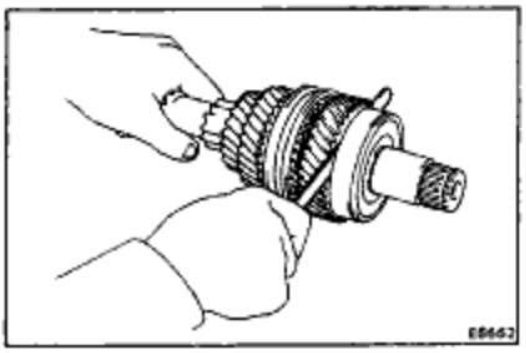
SST 09506–35010



6. INSTALL SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.

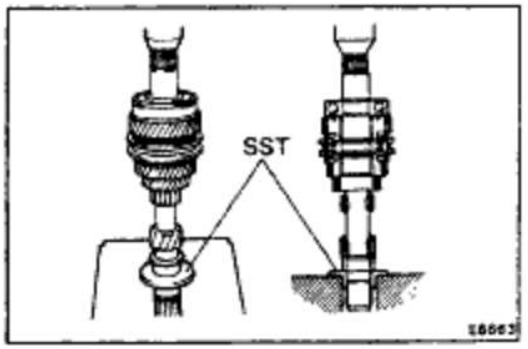
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
1	2.35 – 2.40 (0.0925 – 0.0945)	5	2.55 – 2.60 (0.1004 – 0.1024)
2	2.40 – 2.45 (0.0945 – 0.0965)	6	2.60 – 2.65 (0.1024 – 0.1043)
3	2.45 – 2.50 (0.0965 – 0.0984)	7	2.65 – 2.70 (0.1043 – 0.1063)
4	2.50 – 2.55 (0.0984 – 0.1004)	8	2.70 – 2.75 (0.1063 – 0.1083)



7. MEASURE FOURTH GEAR TH . RUST CLEARANCE

Using a feeler gauge, measure the 4th gear thrust clearance.

Standard clearance: 0.10 – 0.55 mm
(0.0039 – 0.0217 in:)



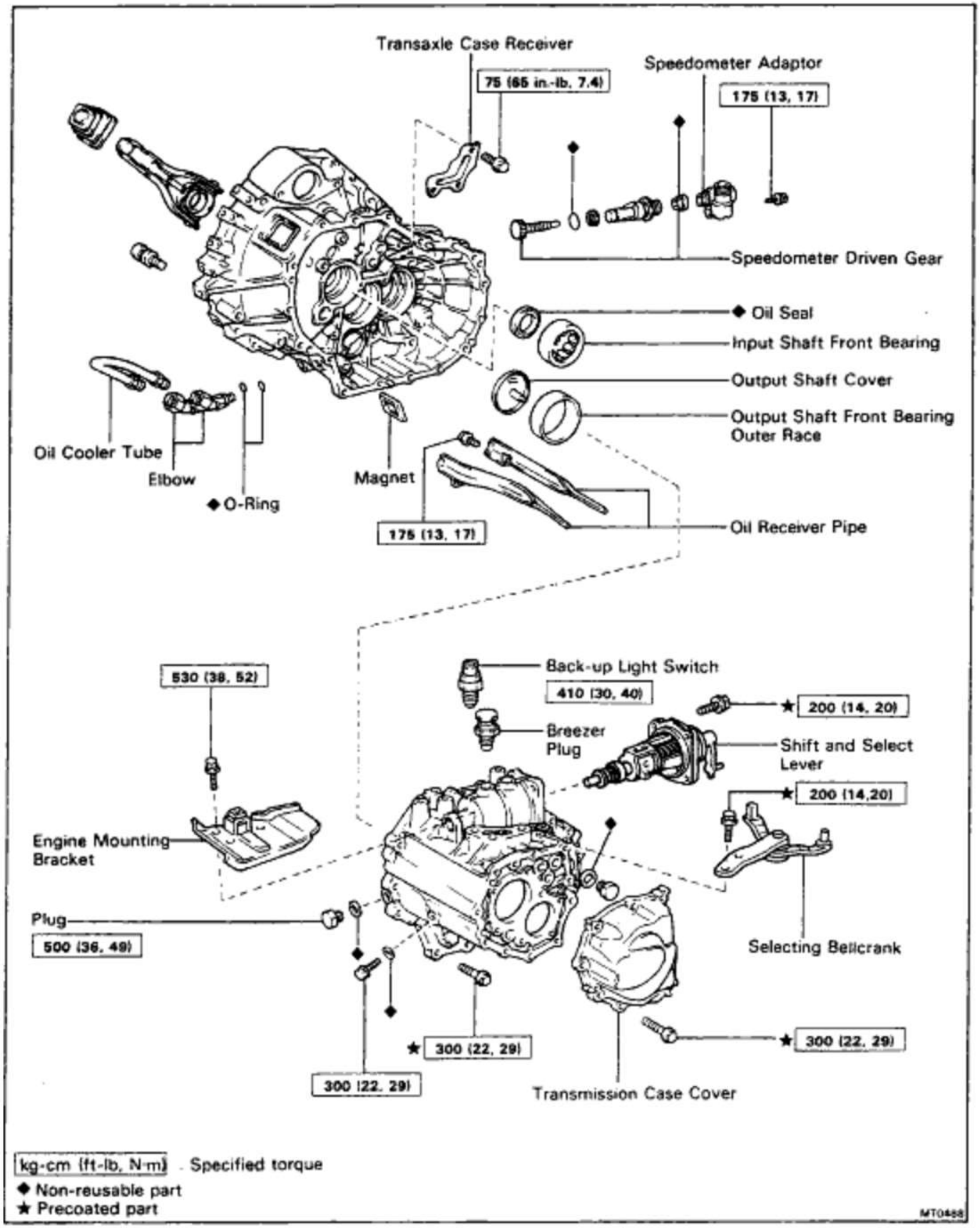
8. INSTALL INPUT SHAFT FRONT BEARING INNER RACE

Using SST and a press, install the input shaft front bearing inner race.

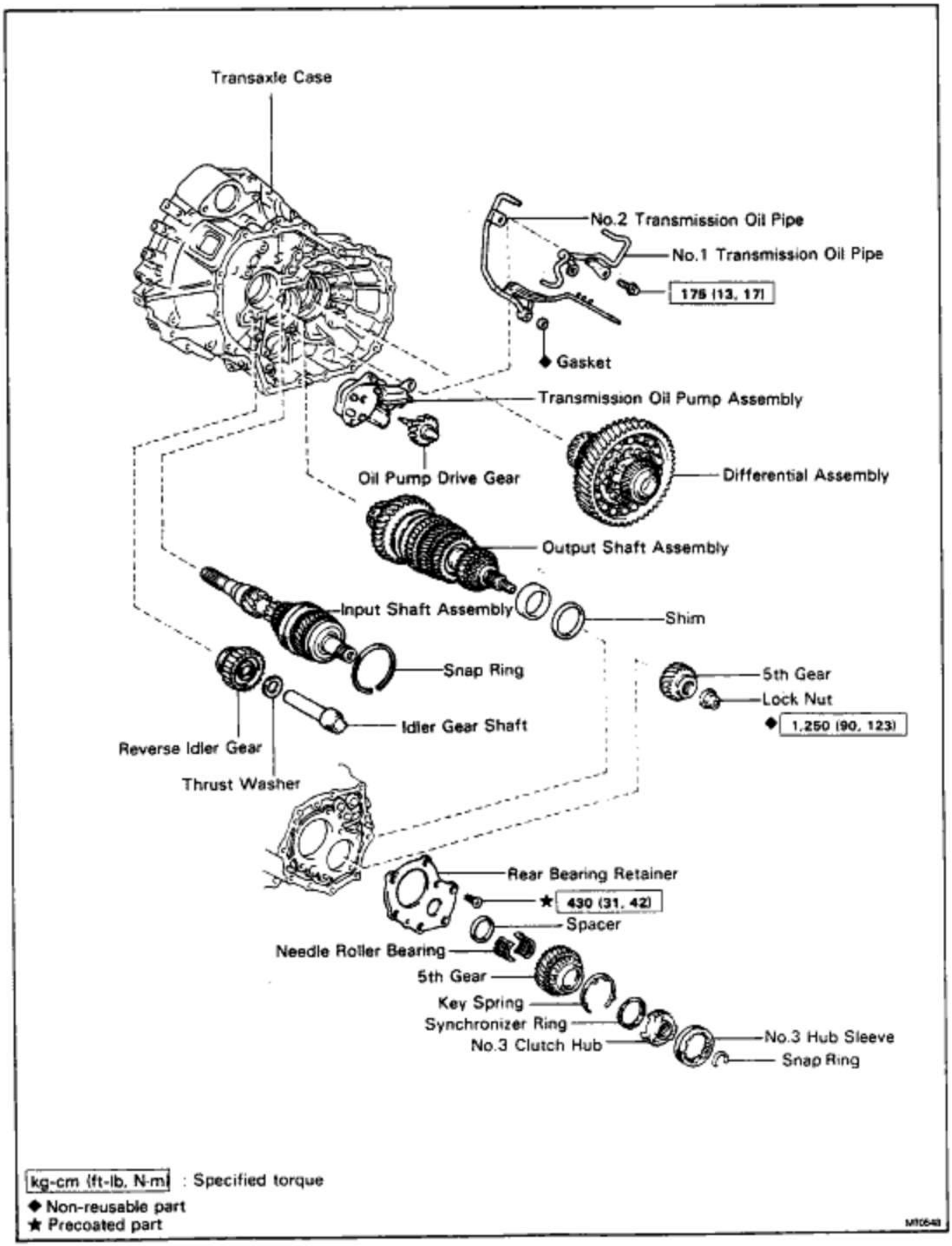
SST 09316–60010 (09316–00020)

REMOVAL OF COMPONENT PARTS

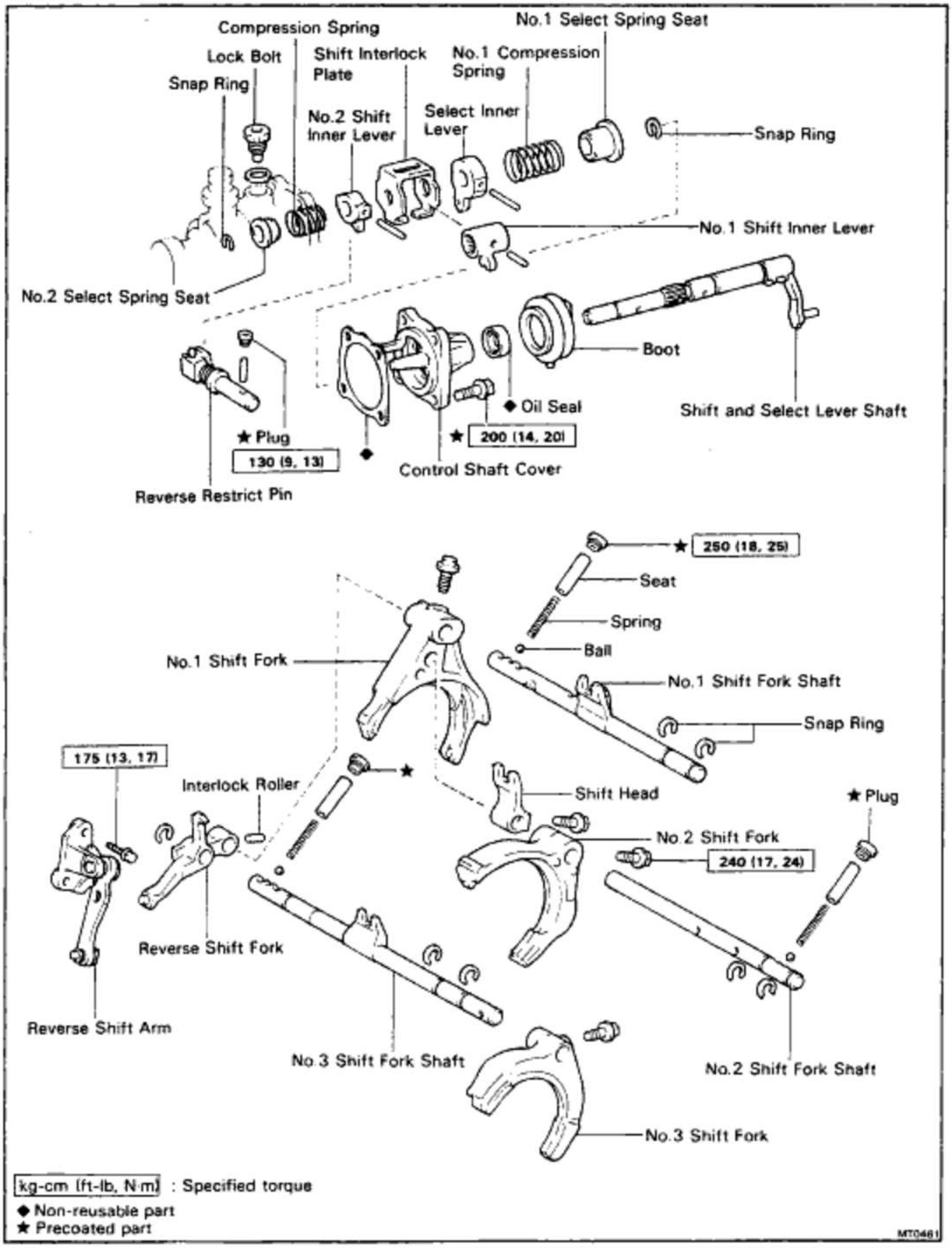
COMPONENTS

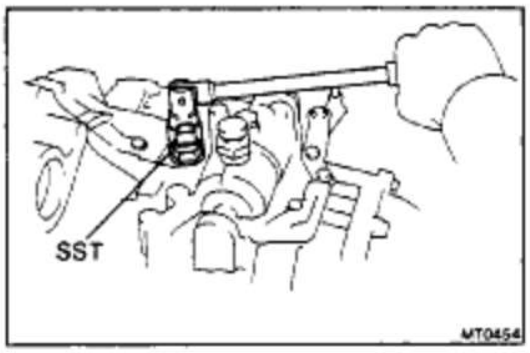


COMPONENTS (Cont'd)



COMPONENTS (Cont'd)





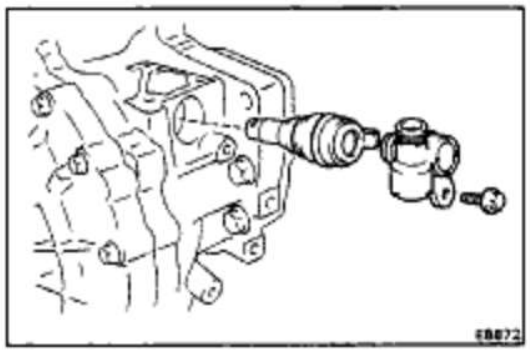
REMOVAL OF COMPONENT PARTS

(See pages MT–47 to 49)

1. REMOVE RELEASE FORK AND BEARING

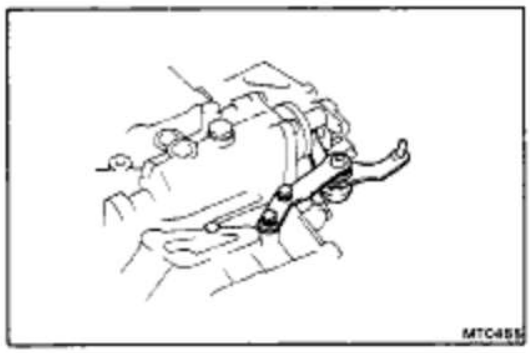
2. REMOVE BACK–UP LIGHT SWITCH

Using SST, remove the back–up light switch.
SST 09817–16011

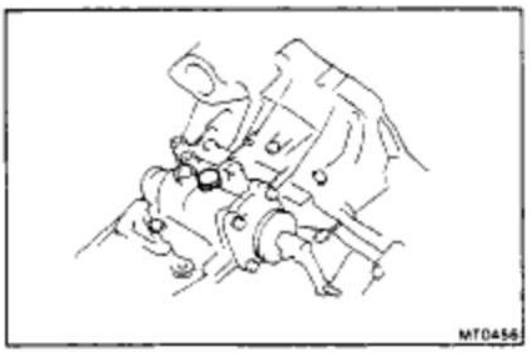


3. REMOVE SPEEDOMETER DRIVEN GEAR

(a) Remove the set bolt and speedometer adaptor.
(b) Remove the speedometer driven gear.

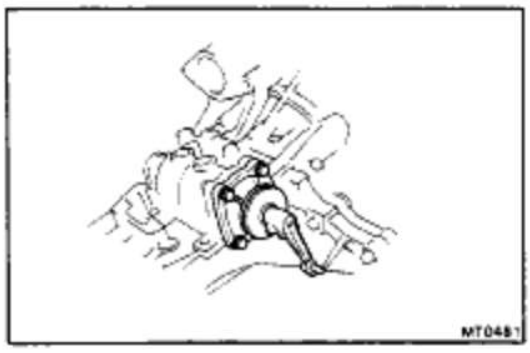


4. REMOVE SELECTING BELLCRANK ASSEMBLY

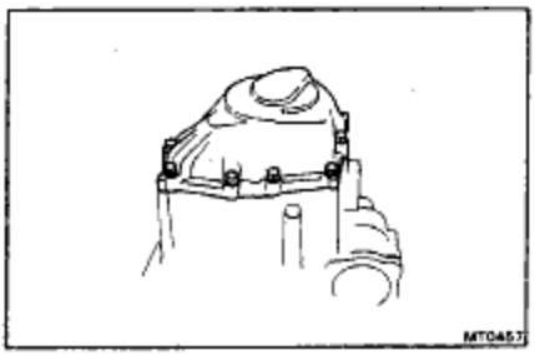


5. REMOVE SHIFT AND SELECT LEVER

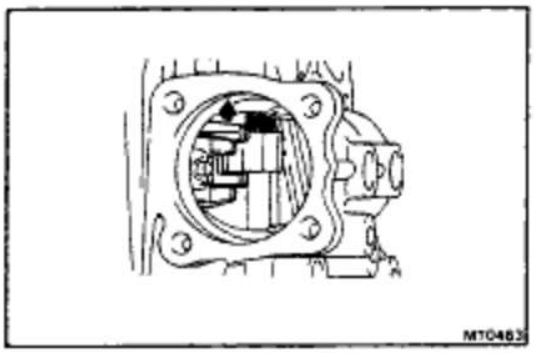
(a) Remove the lock bolt.



(b) Remove the four bolts and pull out the shift and select lever.

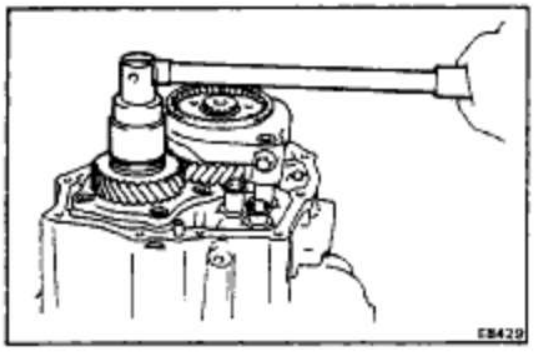


6. REMOVE TRANSMISSION CASE COVER

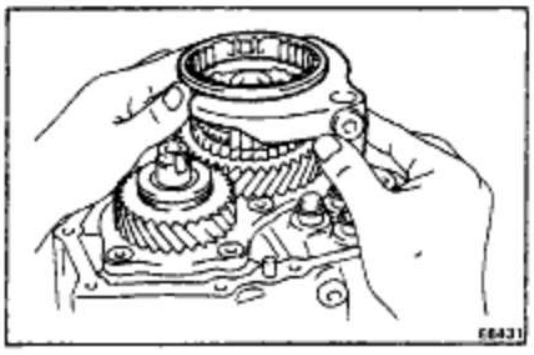


7. REMOVE LOCK NUT

(a) Unstake the lock nut.
(b) Engage the gear double meshing.

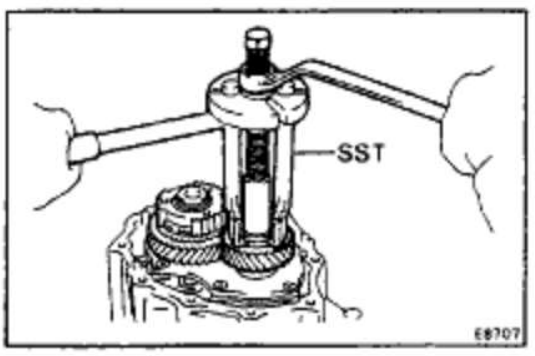


(c) Remove the lock nut.
(d) Disengage the gear double meshing.



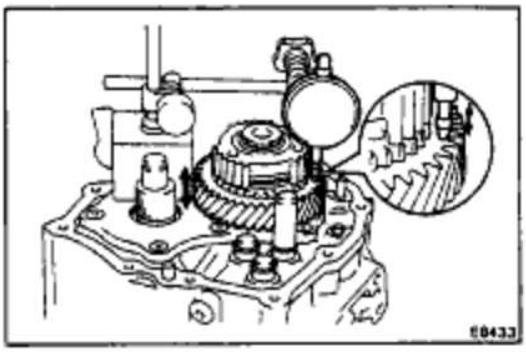
8. REMOVE NO.3 HUB SLEEVE AND NO.3 SHIFT FORK

(a) Remove the No.3 shift fork set bolt.
(b) Remove the No.3 hub sleeve and No–3 shift fork.



9. REMOVE FIFTH DRIVEN GEAR

Using SST, remove the 5th driven gear.
SST 09310–17010 (09310–07010, 09310–07020, 09310–07040, 09310–07050)

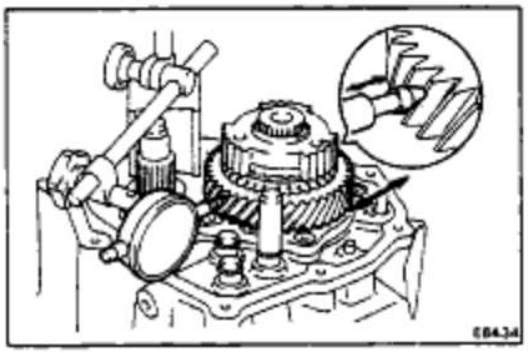


10. MEASURE FIFTH GEAR THRUST CLEARANCE AND OIL CLEARANCE

(a) Using a dial indicator, measure the thrust clearance.

Standard clearance: 0.10 – 0.57 mm (0.0039 – 0.0224 in.)

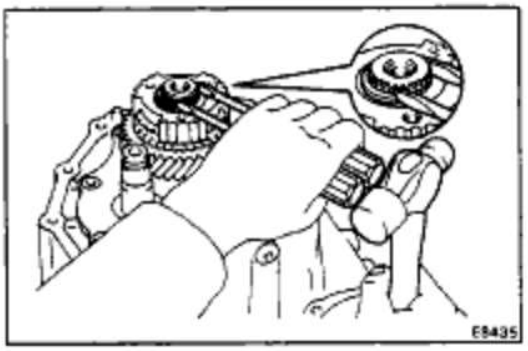
Maximum clearance: 0.65 mm (0.0256 in.)



(b) Using a dial indicator, measure the oil clearance.

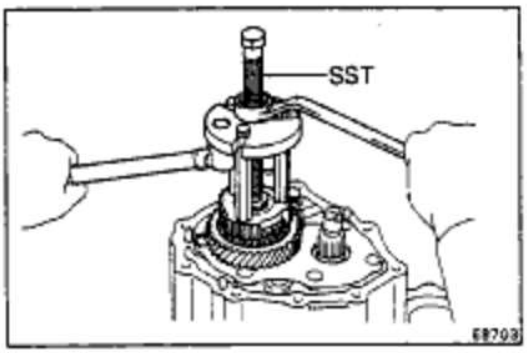
Standard clearance: 0.009 – 0.050 mm (0.0004 – 0.0020 in.)

Maximum clearance: 0.070 mm t0:0028 in.)



11. REMOVE NO–3 CLUTCH HUB AND FIFTH GEAR

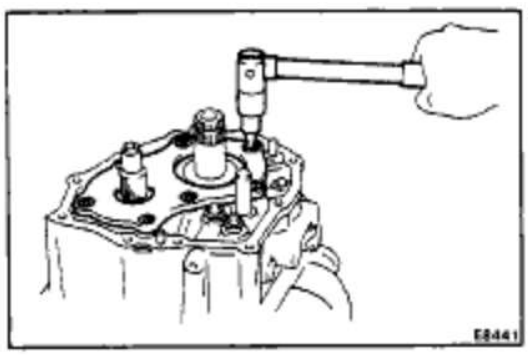
(a) Using two screwdrivers and a hammer, tap out the snap ring.



(b) Using SST, remove the No.3 clutch hub with synchronizer ring and 5th gear.

SST 09310–17010 (09310–07010, 09310–07020, 09310–07040, 09310–07050)

12. REMOVE NEEDLE ROLLER BEARING AND SPACER

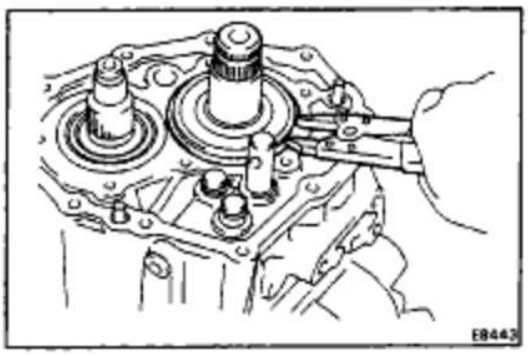


13. REMOVE REAR BEARING RETAINER

(a) Using a torx socket wrench, remove the seven torx screws and bearing retainer.

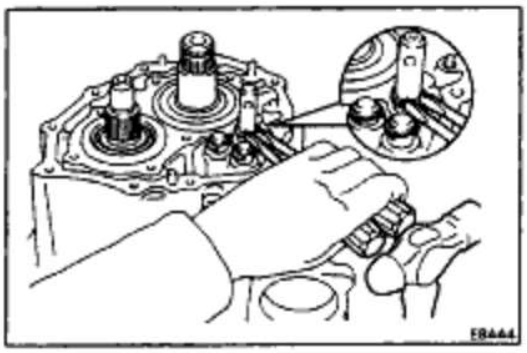
Torx wrench T45 09042–00050

(b) Remove the adjust shim.

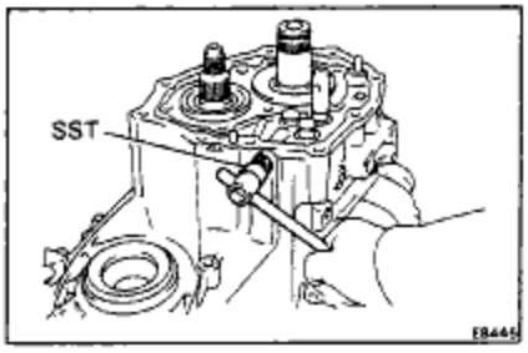


14. REMOVE SNAP RING

(a) Using snap ring pliers, remove the snap ring.



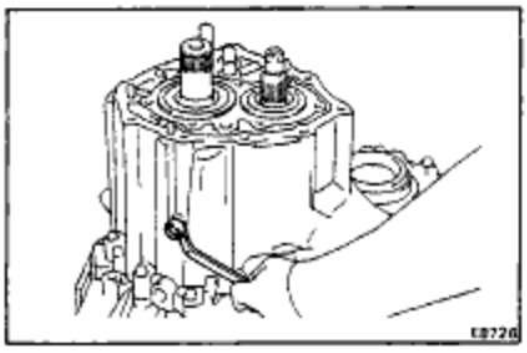
(b) Using two screwdrivers and a hammer, remove the three snap rings.



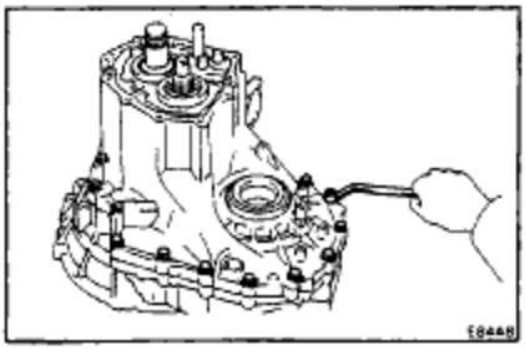
15. REMOVE PLUG, SEAT, SPRING AND LOCKING BALL

(a) Using SST, remove the plug.
SST 09313–30021

(b) Using a magnetic finger, remove the seat, spring and locking ball.

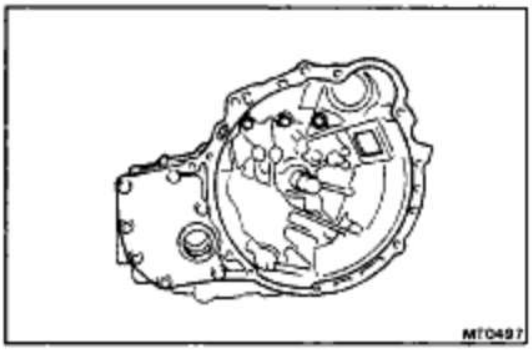


16. REMOVE REVERSE IDLER GEAR SHAFT RETAINING BOLT



17. REMOVE TRANSMISSION CASE

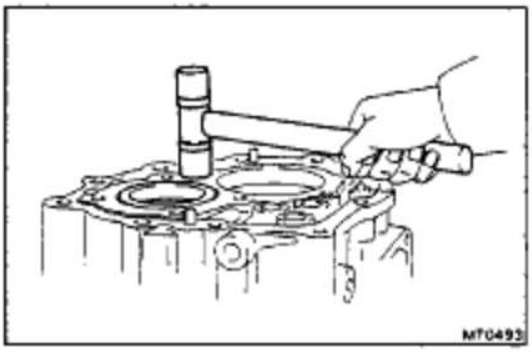
(a) Remove the fourteen bolts from the transmission case side.



(b) Remove the three bolts from the transaxle case side and tap off the case with a plastic hammer.

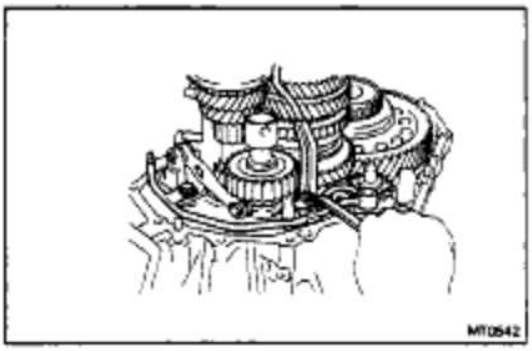
18. REMOVE OUTPUT SHAFT REAR TAPERED ROLLER BEARING OUTER RACE

Using a plastic hammer, drive out the outer race.



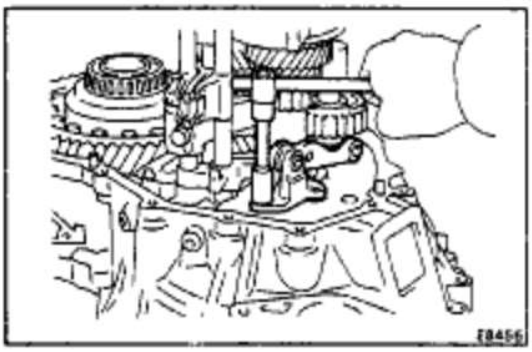
19. REMOVE NO.2 OIL PIPE

(a) Remove the gasket.
(b) Remove the two bolts and oil pipe.



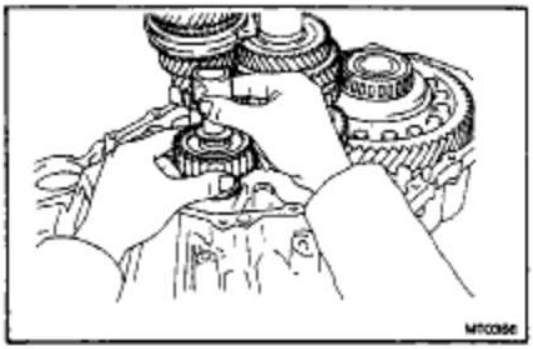
20. REMOVE REVERSE SHIFT ARM BRACKET

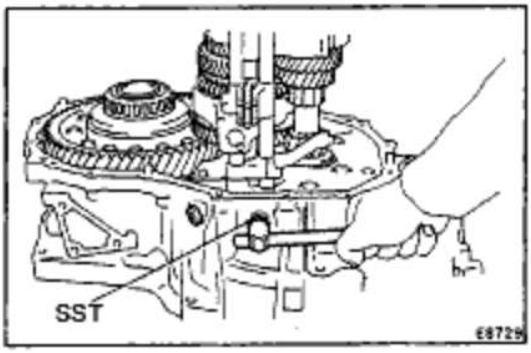
Remove the two bolts and pull off the bracket.



21. REMOVE REVERSE IDLER GEAR AND SHIFT

Pull out the shift, remove the reverse idler gear and thrust washer.

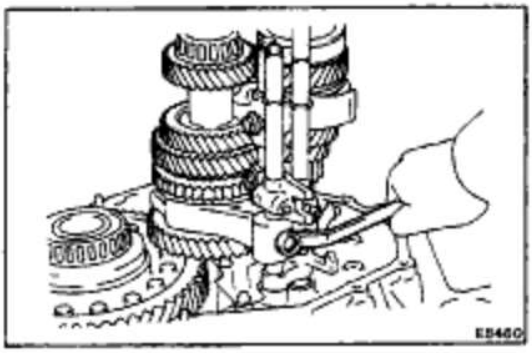




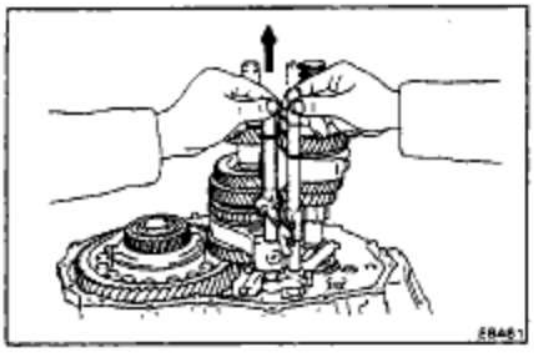
22. REMOVE STRAIGHT SCREW, LOCKING BALLS AND SPRINGS

(a) Using SST, remove the two plugs.
SST 09313–30021

(b) Using a magnetic finger, remove the two spring seats, springs and balls.

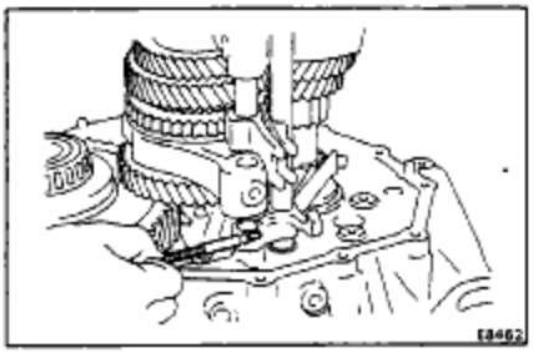


23. REMOVE SET BOLT



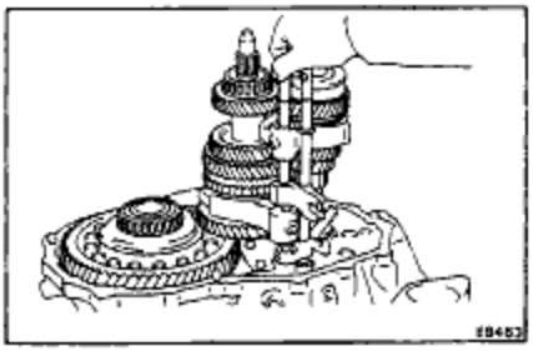
24. REMOVE NO.1 SHIFT FORK SHAFT

Pull up No.3 shift fork shaft, remove the No.1 shift fork shaft.



25. REMOVE INTERLOCK ROLLER

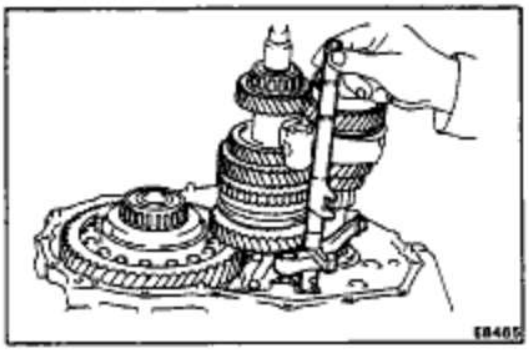
Using a magnetic finger, remove the interlock roller from the reverse shift fork.



26. REMOVE NO.2 SHIFT FORK SHAFT, SHIFT HEAD AND NO.1 SHIFT FORK

(a) Pull out the No.2shift fork shaft.

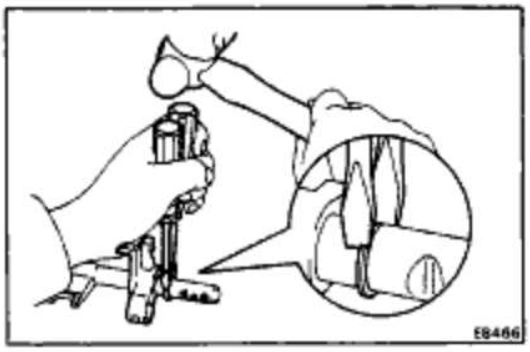
(b) Remove the shift head and No.1 shift fork.



27. REMOVE NO.3 SHIFT FORK SHAFT WITH REVERSE SHIFT FORK AND NO.2 SHIFT FORK

(a) Pull out the No.3 shift fork shaft with reverse shift fork.

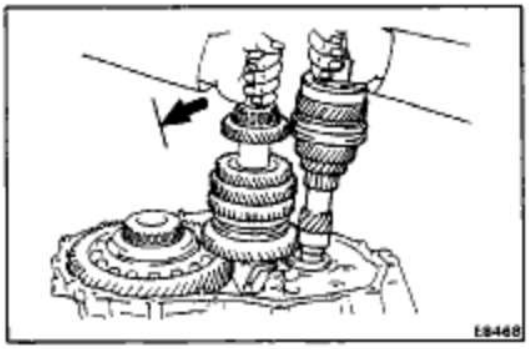
(b) Remove the No–2 shift fork.



28. REMOVE SNAP RINGS

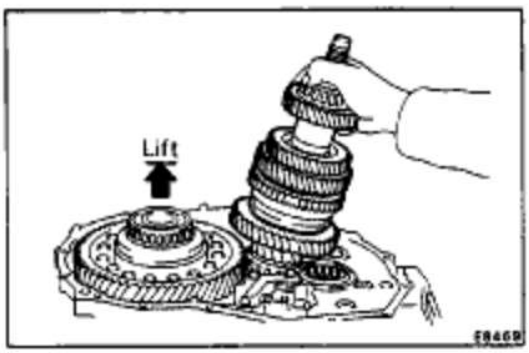
(a) Using two screwdrivers and a hammer, remove the snap ring and reverse shift fork from the No.3 shift fork shaft.

(b) Using two screwdrivers and a hammer, remove the snap rings from the No.1, No.2 and No.3 shift fork shafts.

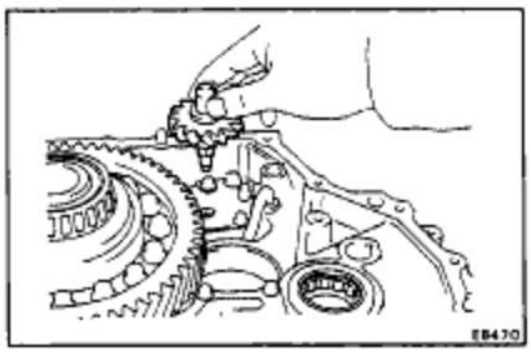


29. REMOVE INPUT AND OUTPUT SHAFT ASSEMBLY

(a) Leaning the output shaft to the differential side, remove the input shaft assembly.

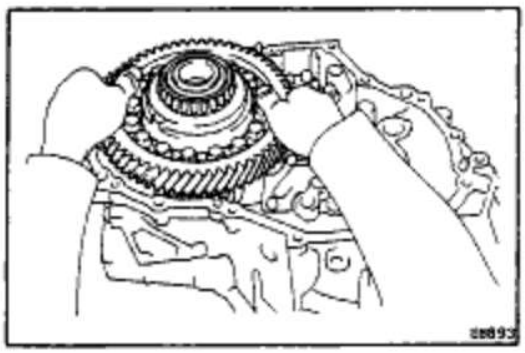


(b) Lift up the differential case assembly, remove the output shaft.

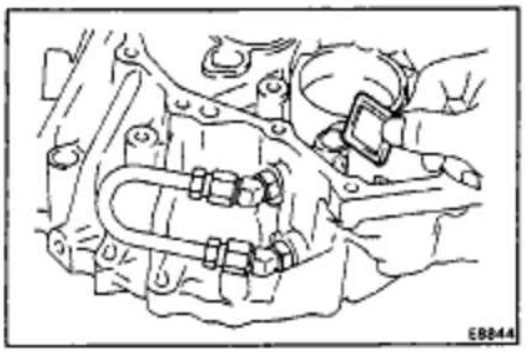


30. REMOVE DIFFERENTIAL ASSEMBLY

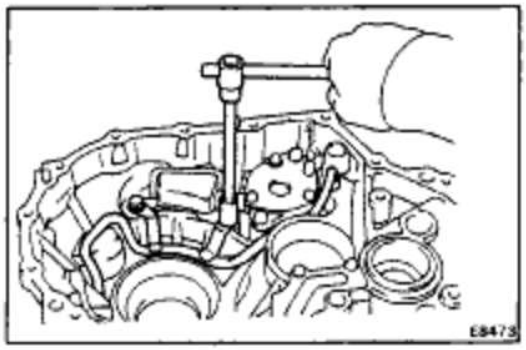
(a) Remove the oil pump drive gear.



(b) Remove the differential case assembly.

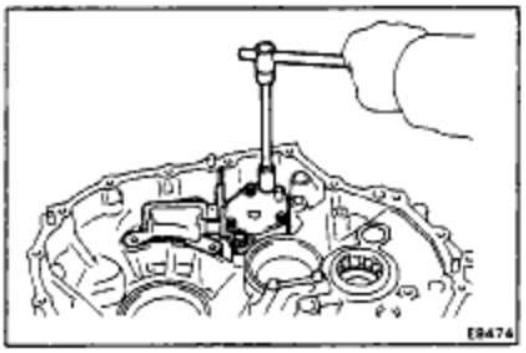


31. REMOVE MAGNET FROM TRANSAXLE CASE



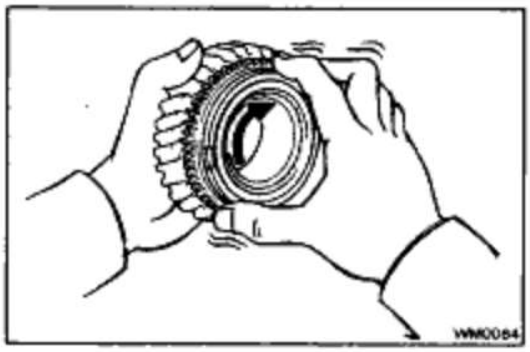
32. REMOVE OIL PUMP ASSEMBLY

(a) Remove the two bolts and oil pipe.



(b) Remove the two bolts and oil pump.

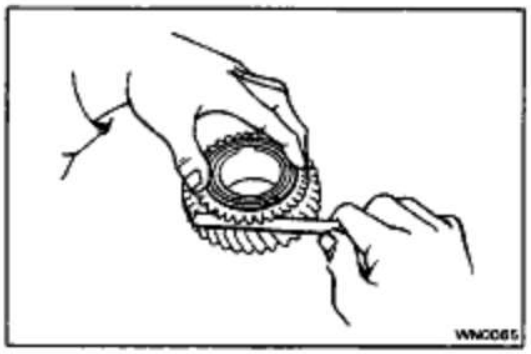
INSPECTION OF COMPONENT PARTS



1. INSPECT SYNCHRONIZER RING FOR FIFTH GEAR

(a) Check for wear or damage.

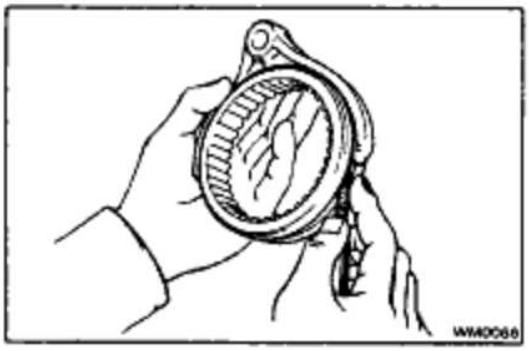
(b) Turn the ring and push it in to check the braking action.



(e) Measure the clearance between the synchronizer ring back and the gear spline end.

Minimum clearance: 0.6 mm (0.024 in.)

If the clearance is less than the limit, replace the synchronizer ring.

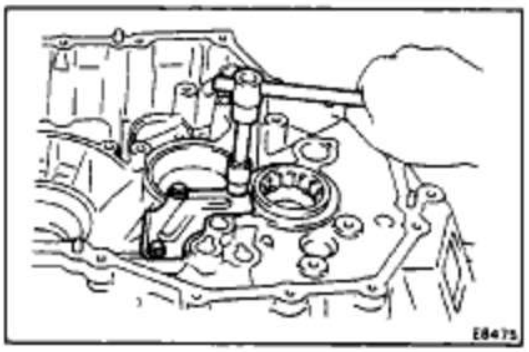


2. MEASURE CLEARANCE OF SHIFT FORKS AND HUB SLEEVE

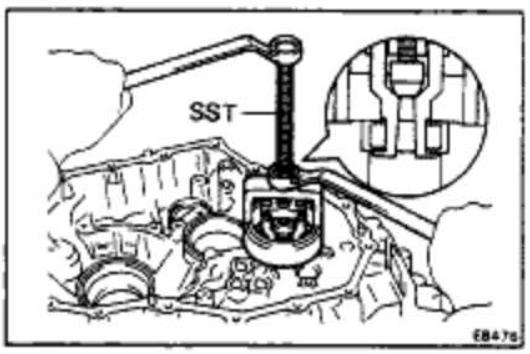
Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (0.039 in.)

If the clearance exceeds the limit, replace the shift fork or hub sleeve.



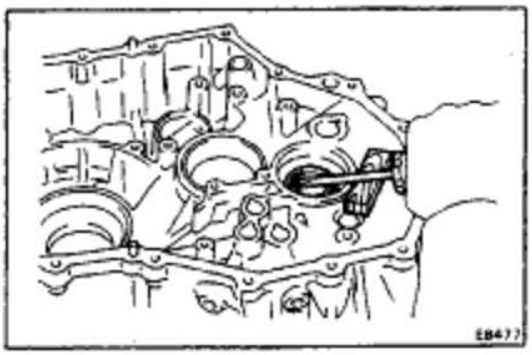
3. REMOVE TRANSAXLE CASE RECEIVER



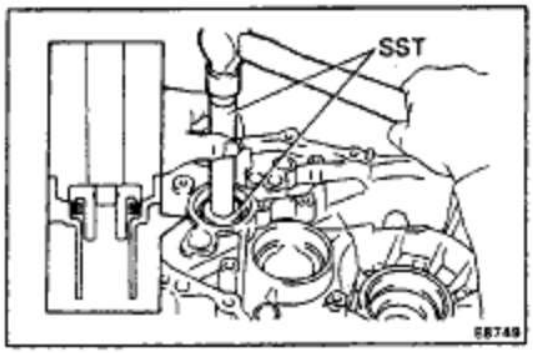
4. IF NECESSARY, REPLACE INPUT SHAFT BEARING AND OIL SEAL

(a) Using SST, pull out the bearing.

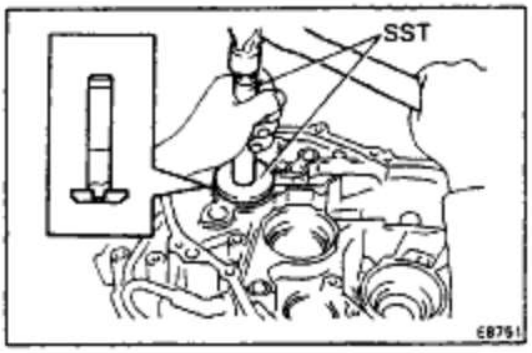
SST 09812–65014



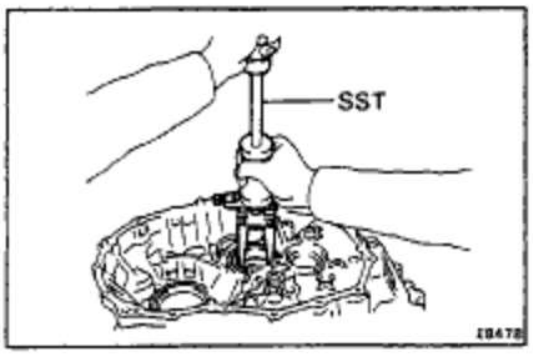
(b) Using a screwdriver; remove the oil seal.



(c) Using SST, drive in a new oil seal.
SST 09608–12010 (09608–00020, 09608–00080)
(d) Coat the lip of seal with NIP grease.

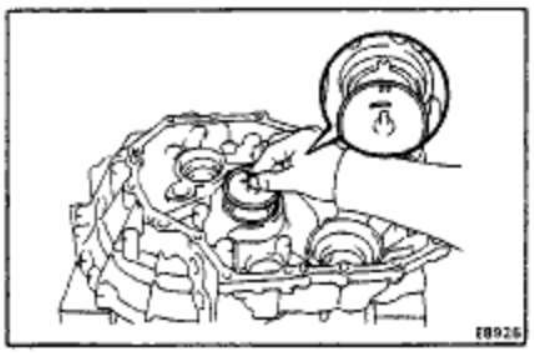


(e) Using SST, drive in a new bearing.
SST 09608–12010 (09608–00020, 09608–00060)

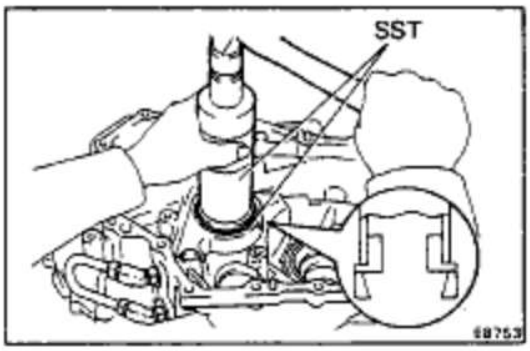


5. IF NECESSARY, REPLACE OUTPUT SHAFT FRONT OUTER RACE AND OUTPUT SHAFT COVER

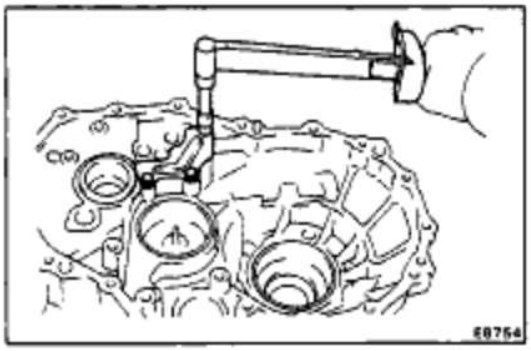
(a) Using SST, pull out the outer race.
SST 09308–000 10
(b) Remove the output shaft cover.



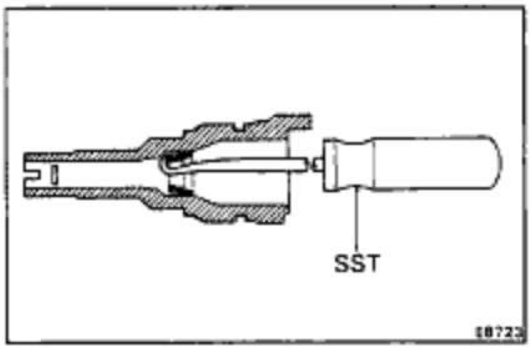
(e) Install the output shaft front cover.
HINT: Install the shaft cover projection into the case side groove.



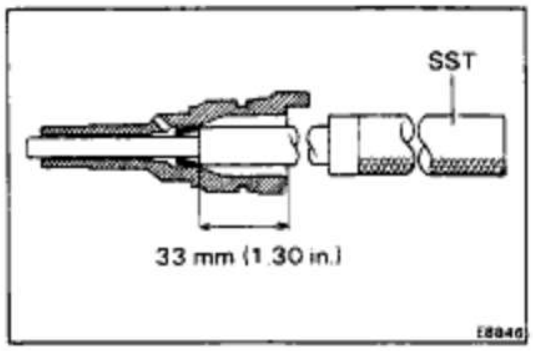
(d) Using SST, press in a new outer race.
SST 09316–60010 (09316–00010, 09316–00020)



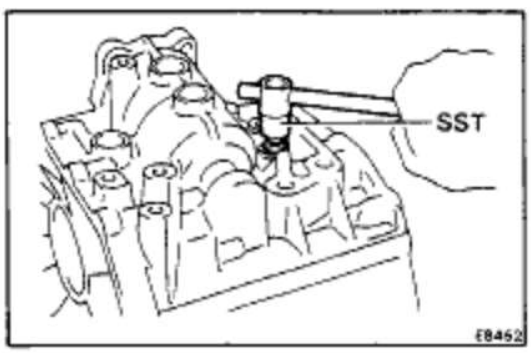
6. INSTALL AND TORQUE TRANSAXLE CASE RECEIVER
Torque: 75 kg–cm (65 in.–lb, 7.4 N–m)



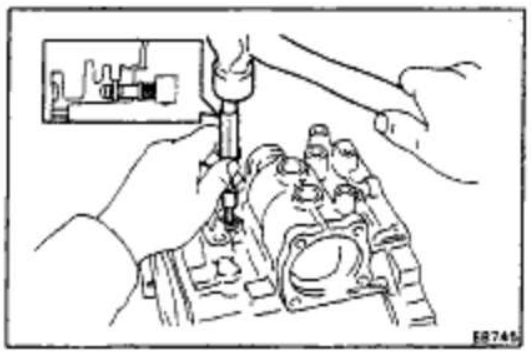
7. IF NECESSARY, REPLACE SPEEDOMETER DRIVEN GEAR OIL SEAL
(a) Using SST, pull out the oil seal.
SST 09921–00010



(b) Using SST, drive in a new oil seal.
SST 09201–60011
Drive in depth: 33 mm (1.30 in.)
(c) Coat the lip of oil seal with MP grease.

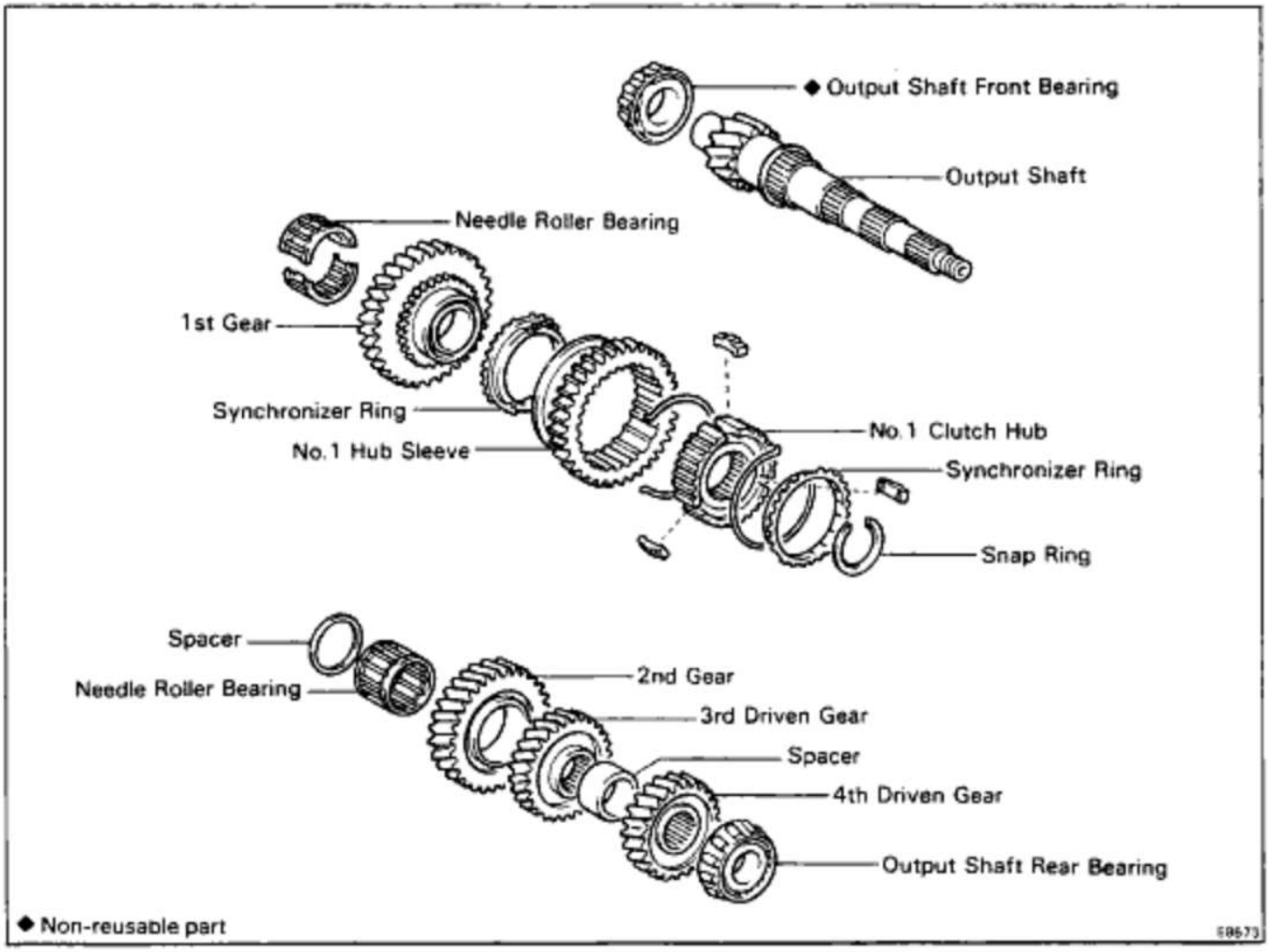


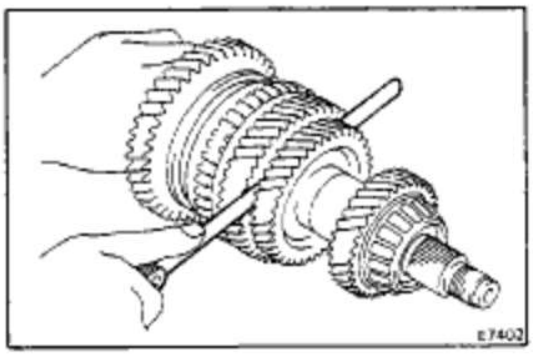
8. IF NECESSARY, REPLACE REVERSE RESTRICT PIN
(a) Using SST, remove the screw plug.
SST 09313–30021
(b) Using a pin punch and hammer, drive out the slotted spring pin.

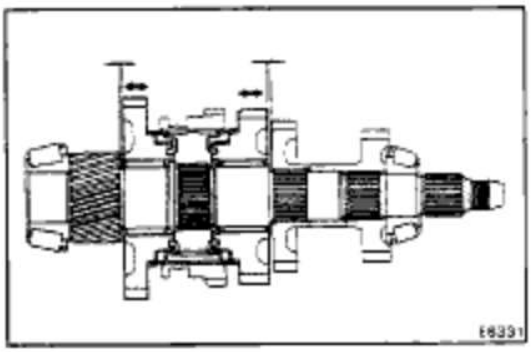


(c) Replace the reverse restrict pin.
(d) Using a pin punch and hammer, drive in the slotted spring pin.
(e) Apply sealant to the plug threads.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(f) Using SST, install the screw plug.
SST 09313–30021

Output Shaft Assembly







DISASSEMBLY OF OUTPUT SHAFT ASSEMBLY

1. MEASURE FIRST AND SECOND GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

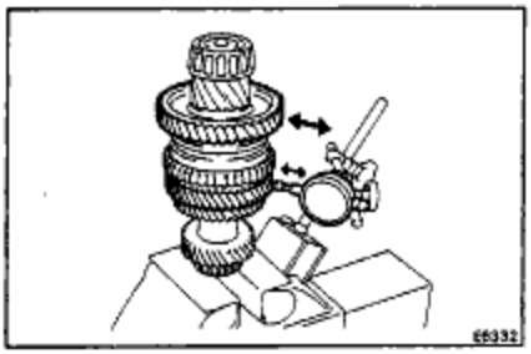
1 st gear 0.10 – 0.35 mm (0.0039 – 0.0138 in.)

2nd gear 0.10 – 0.45 mm (0.0039 – 0.0177 in.)

Maximum clearance:

1 st gear 0.40 mm (0.0157 in.)

2nd gear 0.50 mm (0.0197 in.)



2.CHECK– OIL CLEARANCE OF FIRST AND SECOND GEAR

Using dial indicator, measure the oil clearance between the gear and shaft. .

Standard clearance: .

1st gear 0.009 – 0.051 mm .

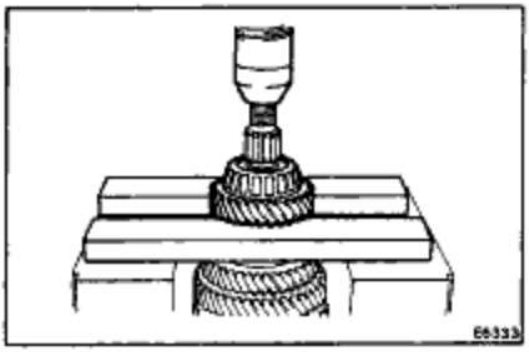
(0.0004 – 0.0020 in.)

2nd gear 0.009 – 0.053 mm(0.0004 – 0.0021 in.)

Maximum clearance:

1 st and 2nd gear 0.070 mm'(0.0028 in.)

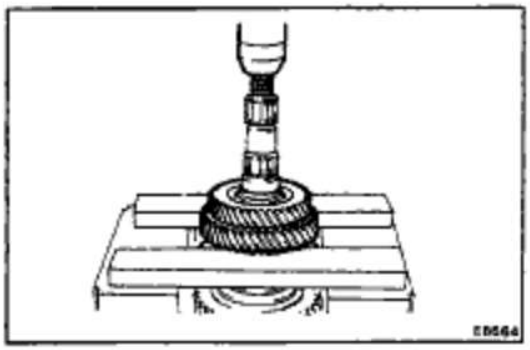
If the clearance exceeds the limit, replace the gear, needle roller bearing or shaft.



3. REMOVE OUTPUT SHAFT REAR– BEARING, FOURTH DRIVEN GEAR AND SPACER

(a) Using a press, remove the bearing and 4th driven gear.

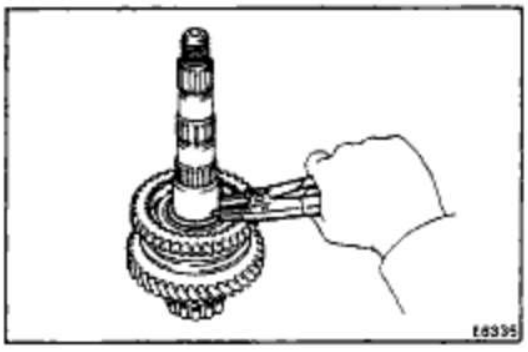
(b) Remove the spacer.



4. REMOVE THIRD DRIVEN GEAR AND SECOND GEAR

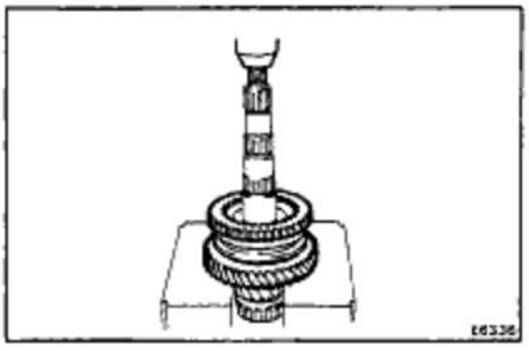
Using a press, remove the 3rd driven gear and 2nd gear.

5. REMOVE NEEDLE ROLLER BEARINGS, SPACER AND SYNCHRONIZER RING



6. REMOVE SNAP RING

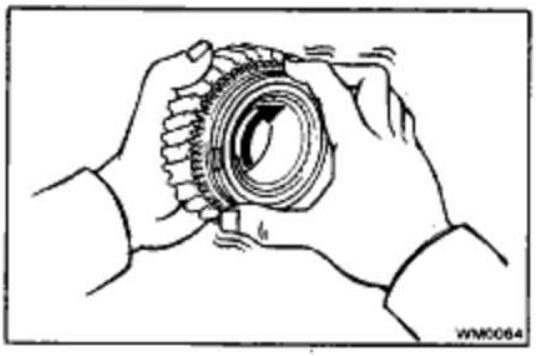
Using snap ring pliers, remove the snap ring.



7. REMOVE NO.1 HUB SLEEVE ASSEMBLY AND FIRST GEAR

Using a press, remove No. 1 hub sleeve and 1 st gear.

8. REMOVE SYNCHRONIZER RING AND NEEDLE ROLLER' BEARING



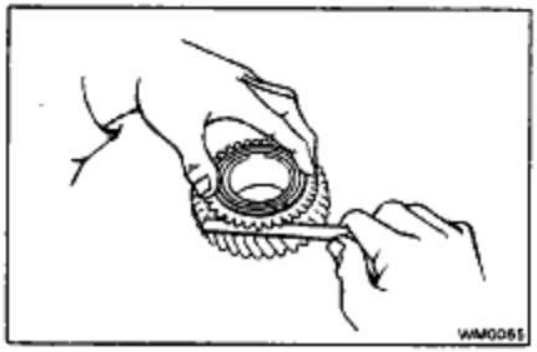
INSPECTION OF OUTPUT SHAFT

COMPONENT PARTS

1. INSPECT SYNCHRONIZER RINGS

(a) Check for wear or damage.

(b) Turn the ring and push it in to check the braking action.



(c) Measure the clearance between the synchronizer ring back and the gear spline end.

Maximum clearance: 0.6 mm (0.024 in.)

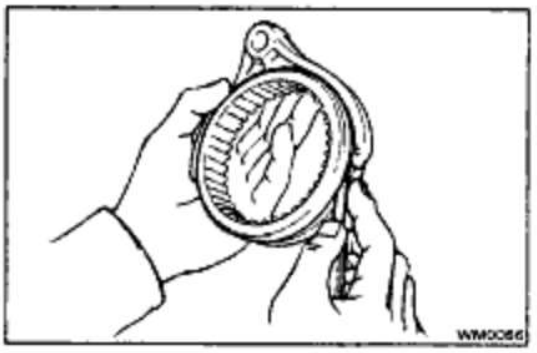
If the clearance is less than the limit, replace the synchronizer ring.

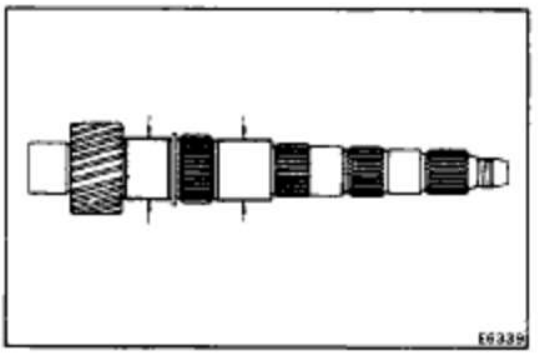
2. MEASURE CLEARANCE OF NO–1 SHIFT FORK AND HUB SLEEVE

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1 .0 mm (0.039 in.)

If the clearance exceeds the limit, replace the shift fork or hub sleeve.



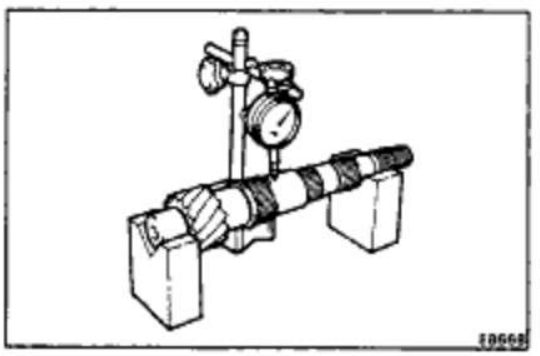


3. INSPECT OUTPUT SHAFT

(a) Check the output shaft for wear or damage.

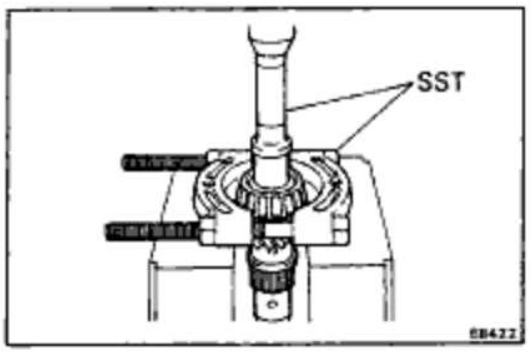
(b) Using a micrometer, measure the outer diameter of the output shaft journal surface.

Minimum outer diameter: 38.950 mm (1.5335 in.)



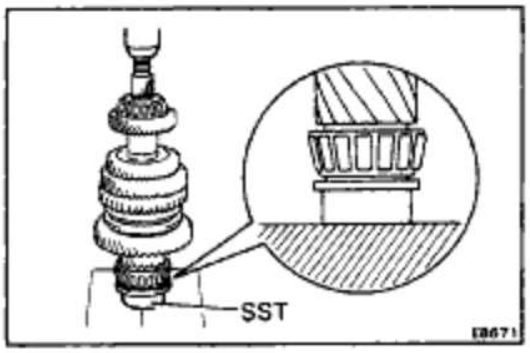
(c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.06 mm (0.0024 in.)

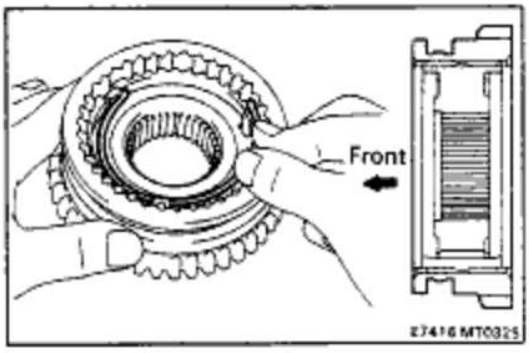


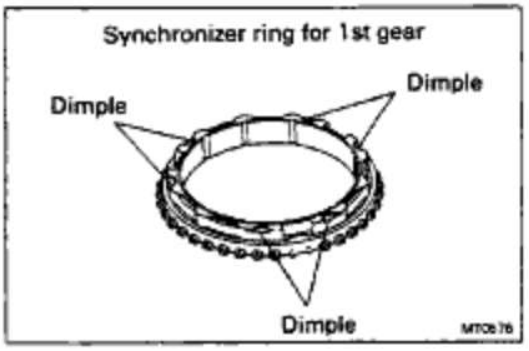
4. IF NECESSARY, REPLACE OUTPUT SHAFT FRONT BEARING

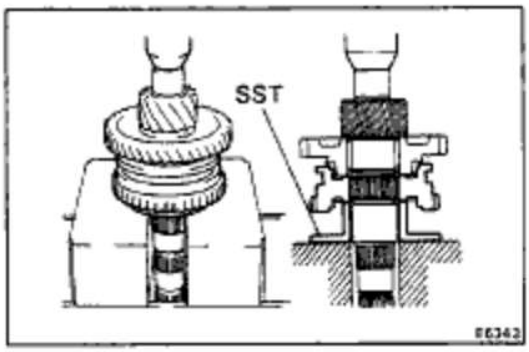
(a) Using SST and a press, remove the bearing.
SST 09307–12010, 09950–00020

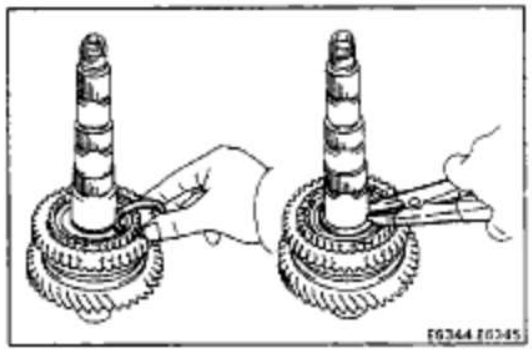


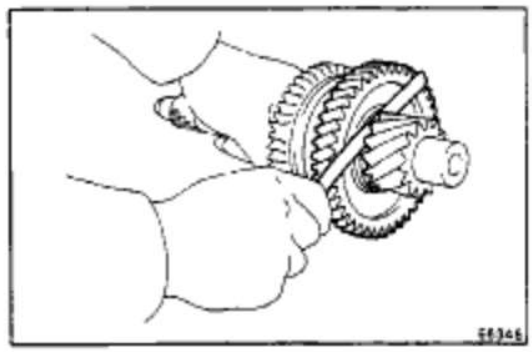
(b) Using SST and a press, install the new bearing.
SST 09316–60010 (09316–00070)











ASSEMBLY OF OUTPUT SHAFT ASSEMBLY

(See page MT–68)

HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

1. INSERT NO.1 CLUTCH HUB INTO HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.

Install the shifting key springs under the shifting keys.

NOTICE: Install the key springs positioned so that their end gaps are not in line.

2. INSTALL NEEDLE ROLLER BEARING, FIRST GEAR, SYNCHRONIZER RING AND NO.1 HUB SLEEVE TO OUTPUT SHAFT

(a) Apply MP grease to the needle roller bearings.

(b) Install the 1st gear.

(e) Place the synchronizer ring (for 1st gear) on the gear and align the ring slots with the shifting keys.

NOTICE: Do not install the synchronizer ring for 2nd gear.

(d) Using SST and a press, install the 1 st gear and No. 1 hub sleeve.

SST 09316–60010 (09316–00040)

3. INSTALL SNAP RING

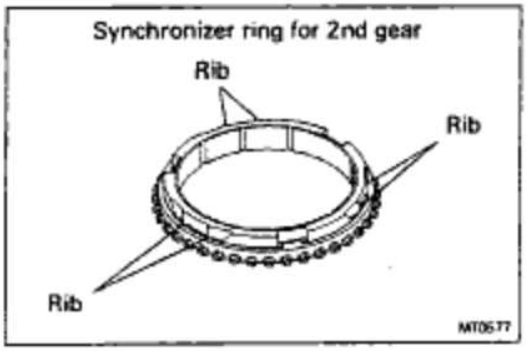
Select a snap ring that will allow minimum axial play and install it on the shaft.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	2.80 (0.1102)	E	3.00 (0.1181)
B	2.85 (0.1122)	F	3.05 (0.1201)
C	2.90 (0.1142)	G	3.10 (0.1220)
D	2.95 (0.1161)		

4. MEASURE FIRST GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 1st gear thrust clearance.

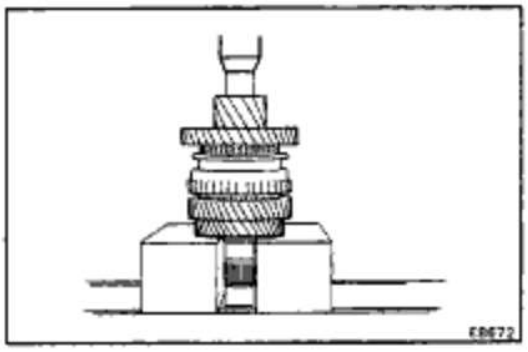
Standard clearance: 0.10 – 0.35 mm (0.0039 – 0.0138 in.)



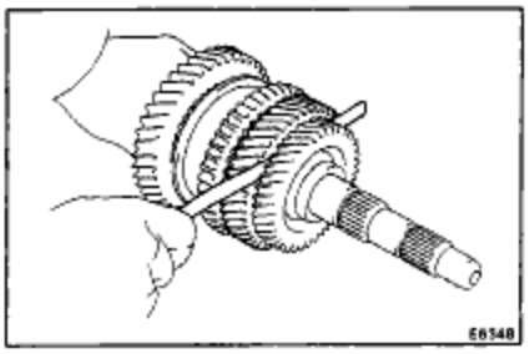
5. INSTALL SPACER, NEEDLE ROLLER BEARING, SYNCHRONIZER RING, SECOND GEAR AND THIRD DRIVEN GEAR

(a) Install the spacer.
(b) Apply MP grease to the needle roller bearing.
(c) Place the synchronizer ring (for 2nd gear) on the gear and align the ring slots with the shifting keys.

NOTICE: Do not install the synchronizer ring for 1st gear.



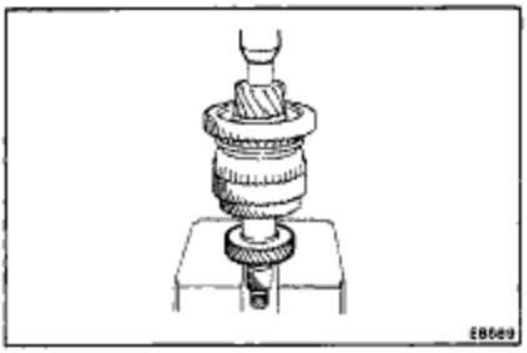
(d) Install the 2nd gear.
(e) Using a press, install the 3rd driven gear.



6. MEASURE SECOND GEAR THRUST CLEARANCE

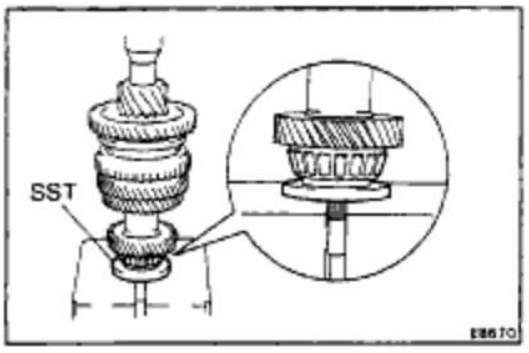
Using a feeler gauge, measure the 2nd gear thrust clearance.

Standard clearance: 0.10 – 0.45 mm (0.0039 – 0.0177 in.)



7. INSTALL SPACER AND FOURTH DRIVEN GEAR

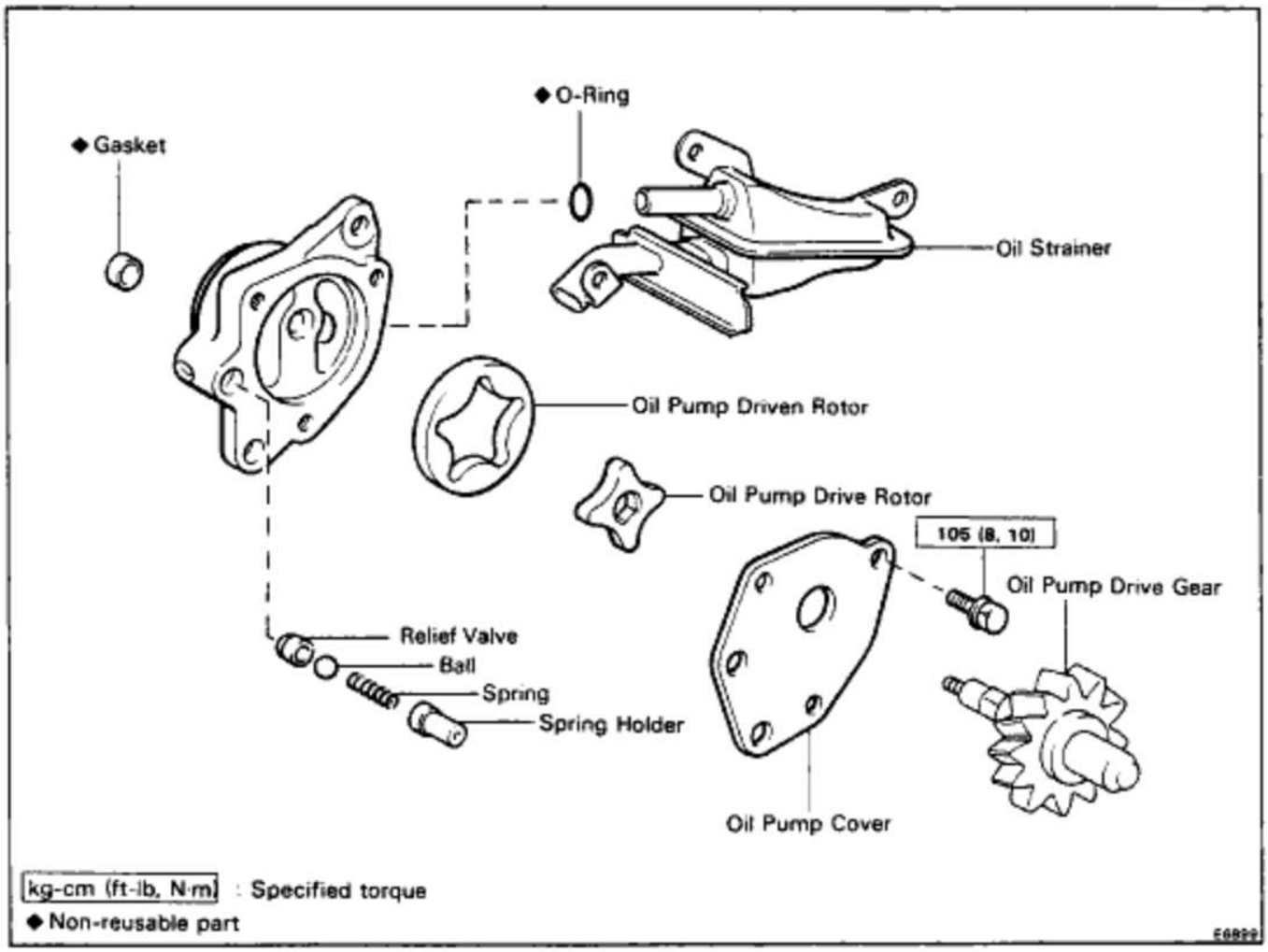
(a) Install the spacer.
(b) Using a press, install the 4th driven gear.

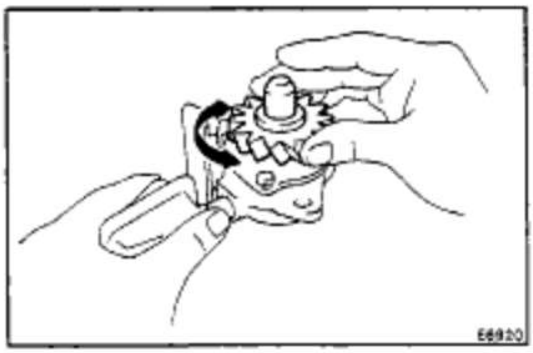


8. INSTALL OUTPUT SHAFT REAR BEARING

Using SST and a press, instal! the bearing.
SST 09506–30012

Oil Pump Assembly

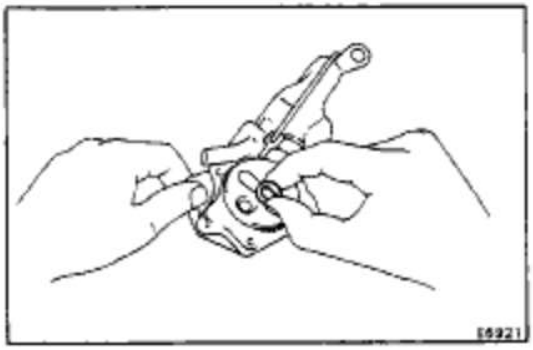




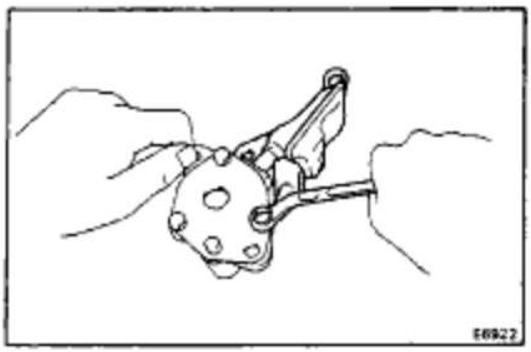
DISASSEMBLY OF OIL PUMP

1. CHECK OPERATION OF OIL PUMP

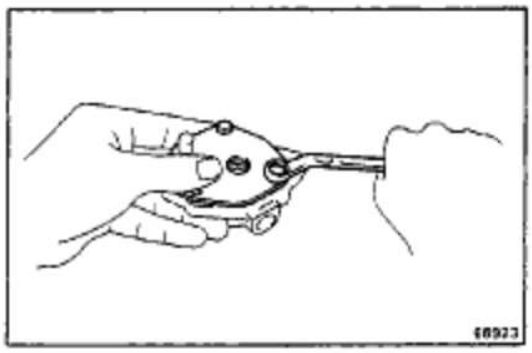
Install the oil pump drive gear to the drive rotor, check that the drive rotor turn smoothly.



2. REMOVE GASKET TO OIL PUMP CASE

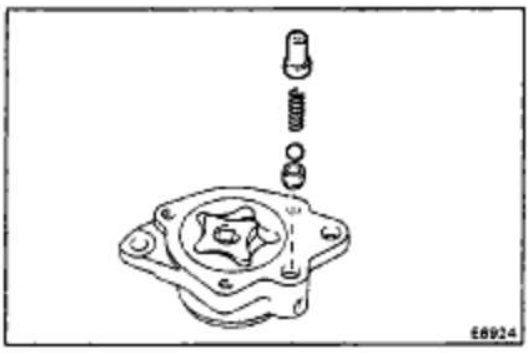


3. REMOVE BOLT AND OIL STRAINER

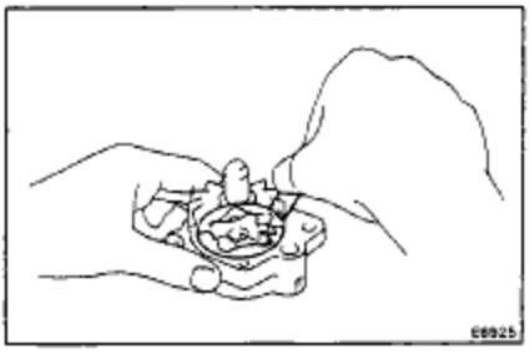


4. REMOVE OIL PUMP COVER

(a) Hold the oil pump cover, remove the two bolts and a cover.



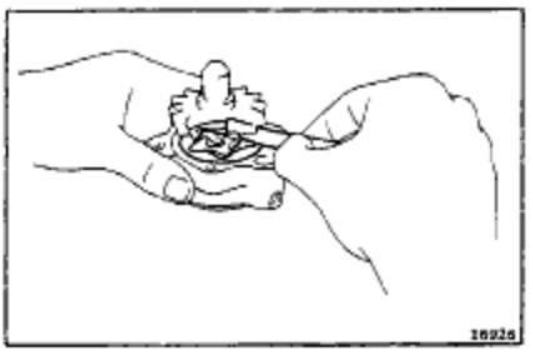
(b) Remove the spring holder, spring, ball and relief valve seat.



5. CHECK ROTOR BODY CLEARANCE

(a) Install the oil pump drive gear to the drive rotor.
(b) Using a feeler gauge, measure the body clearance between the drive rotor and oil pump case.

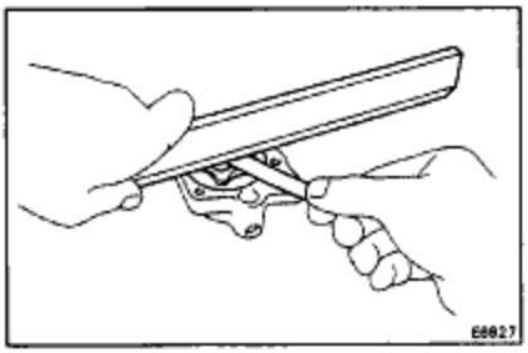
Standard clearance: 0.10 – 0.16 mm (0.004 – 0.006 in.)
Maximum clearance: 0.30 mm (0.012 in.)



6. CHECK ROTOR TIP CLEARANCE

(a) Install the oil pump drive gear to the drive rotor.
(b) Using a feeler gauge, measure the tip clearance between the drive and driven rotors.

Standard clearance: 0.08 – 0.15 mm (0.003 – 0.006 in.)
Maximum clearance: 0.30 mm (0.012 in.)

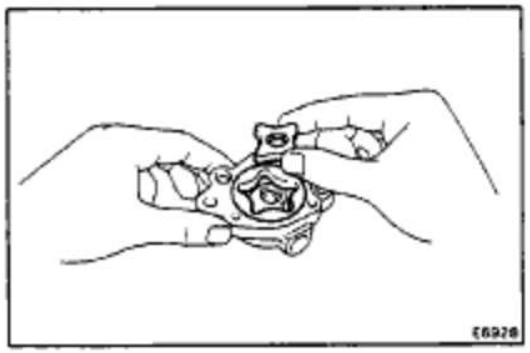


7. CHECK SIDE CLEARANCE

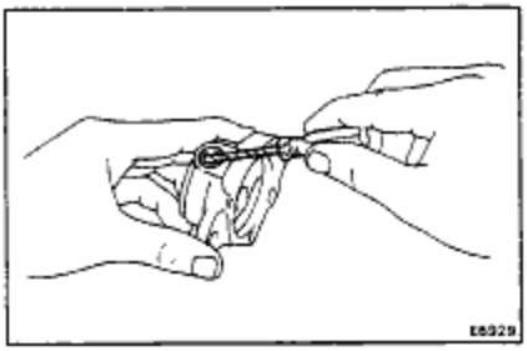
Using a precision straight edge and feeler gauge, measure the side clearance of both rotors.

Standard clearance: 0.03 – 0.08 mm (0.001 – 0.003 in.)

Maximum clearance: 0.15 mm (0.006 in.)

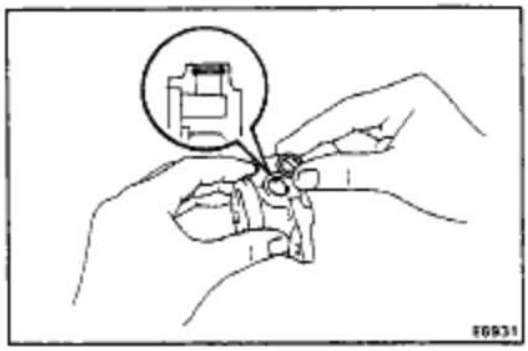


8. REMOVE OIL PUMP DRIVE ROTOR AND DRIVEN ROTOR



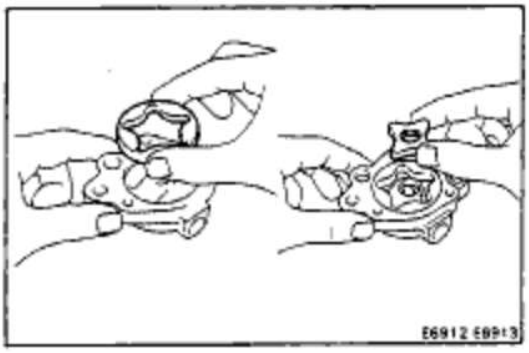
9. IF NECESSARY, REPLACE O–RING

(a) Using a screwdriver, remove the O–ring.



(b) Apply gear oil to the O–ring.

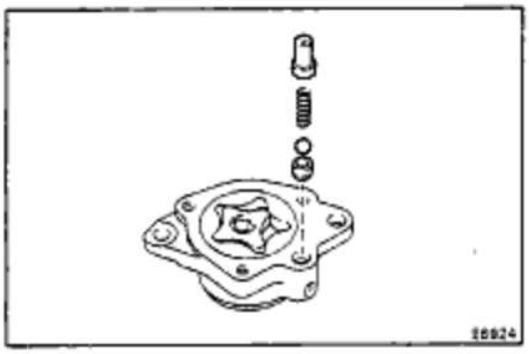
(c) Install the O–ring.



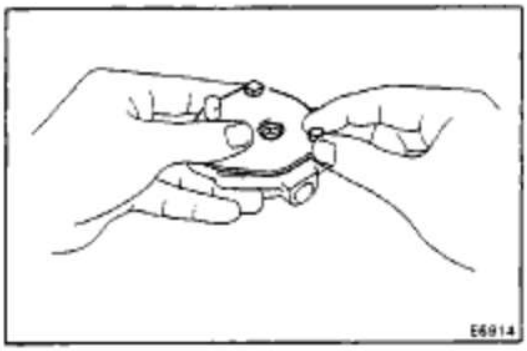
1. INSTALL DRIVEN ROTOR AND DRIVE ROTOR

2: INSTALL OIL PUMP COVER

(a) Install the relief valve, ball, spring and spring holder to the oil pump case.

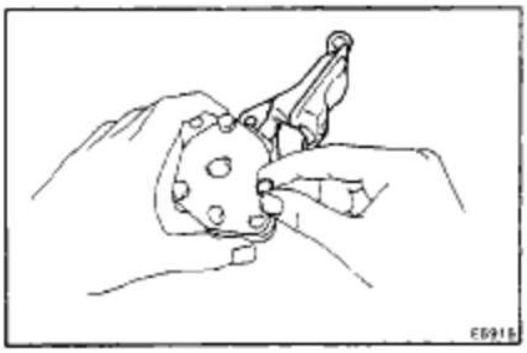


(b) Hold the oil pump cover, temporarily install the two bolts.



3. INSTALL OIL STRAINER

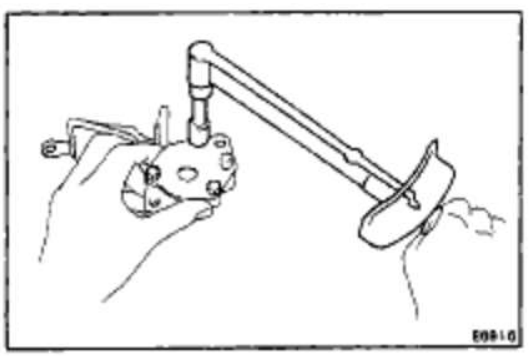
Install the oil strainer to the oil pump case, temporarily install the bolt.

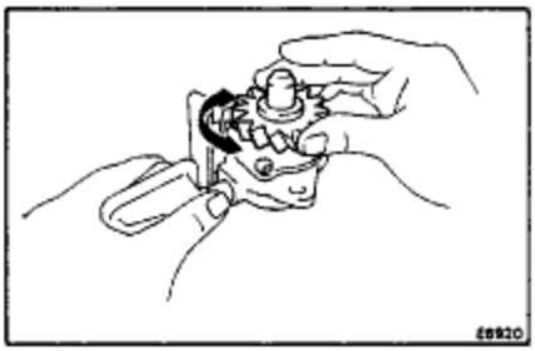


4. TORQUE OIL PUMP COVER BOLTS

Torque the three bolts evenly.

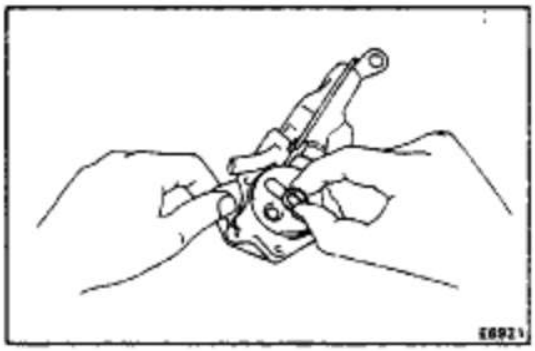
Torque: 105 kg–cm (8 ft–lb, 10 N–m)





5. CHECK OPERATION OF OIL PUMP

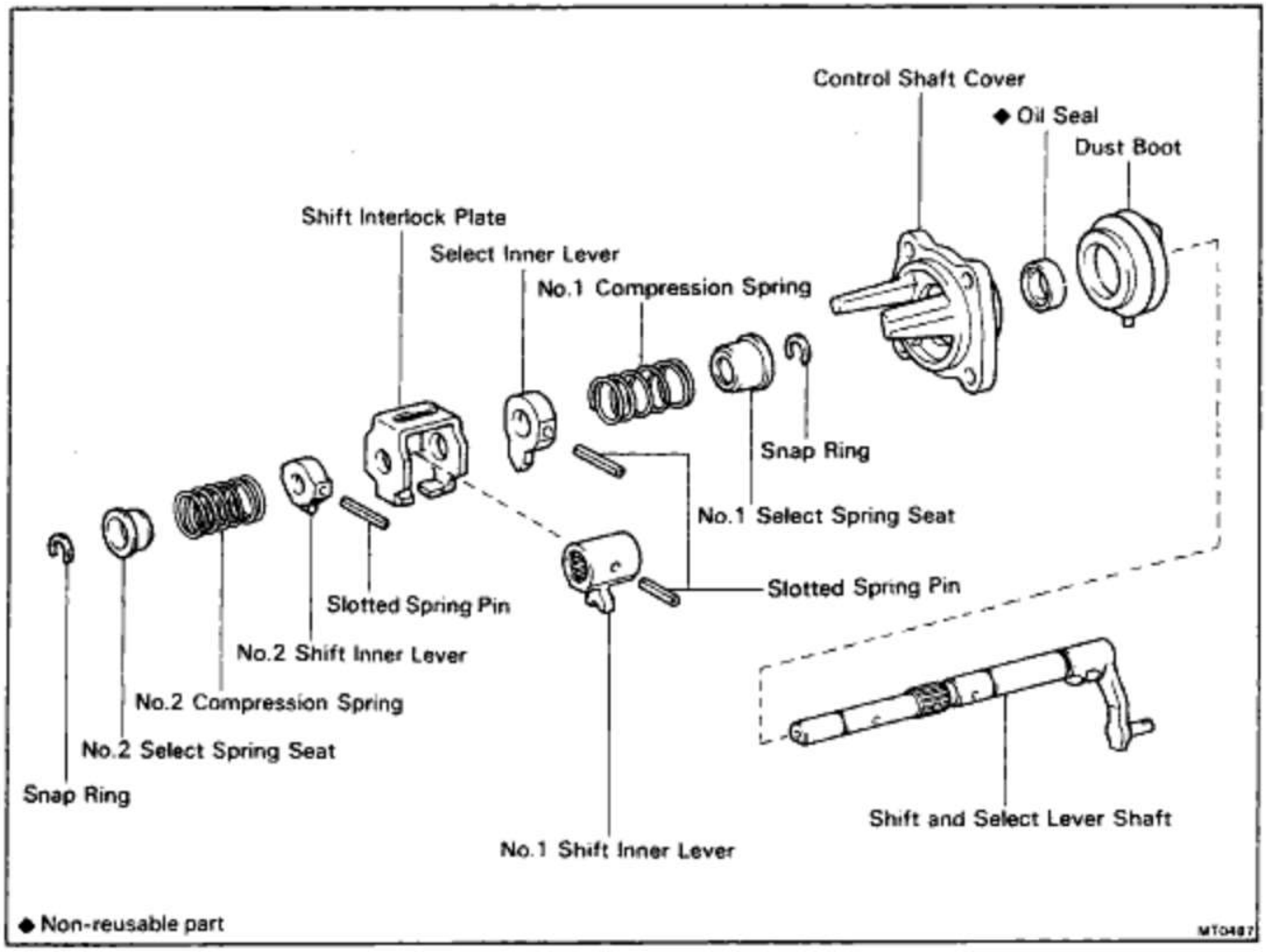
Insert the oil pump drive gear to the drive rotor, check that the drive rotor turn smoothly.

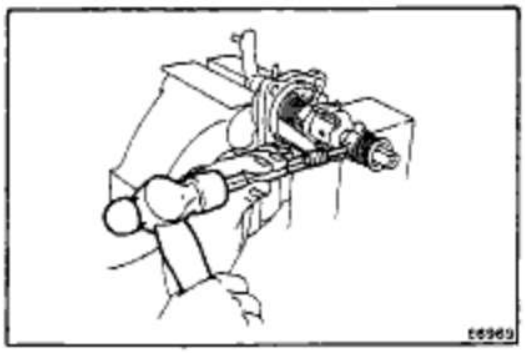


6. INSTALL GASKET

Install the new gasket to the oil pump case.

Shift and Select Lever Assembly

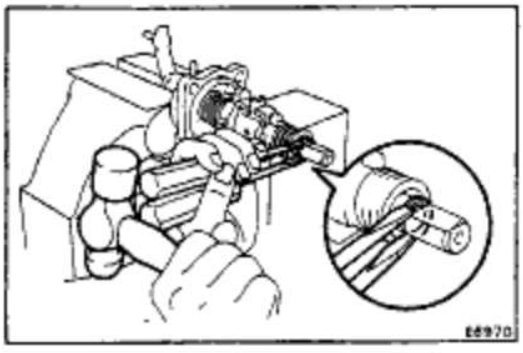




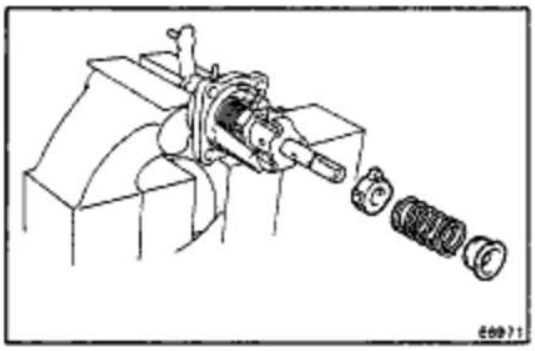
DISASSEMBLY OF SHIFT AND SELECT LEVER ASSEMBLY

1. REMOVE NO.2 SHIFT INNER LEVER

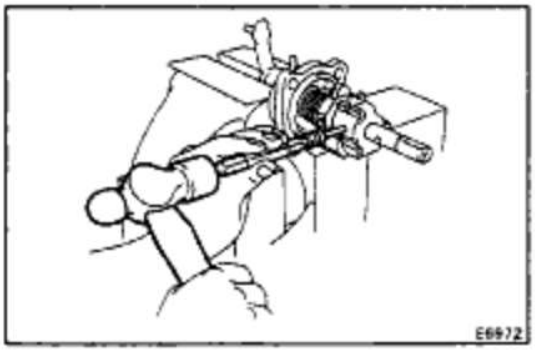
(a) Using a pin punch and hammer, drive out the slotted spring pin.



(b) Using two screwdrivers and a hammer, remove the snap ring.

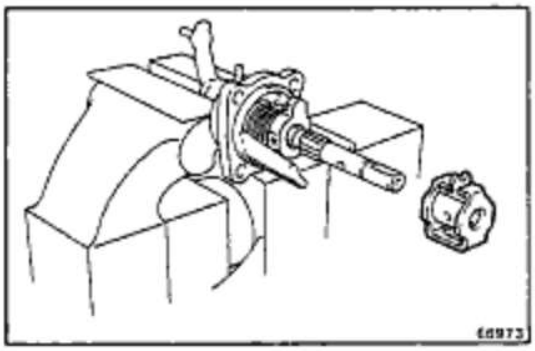


(c) Remove the No.2 select spring seat, No–2 compression spring and No.2 shift inner lever.

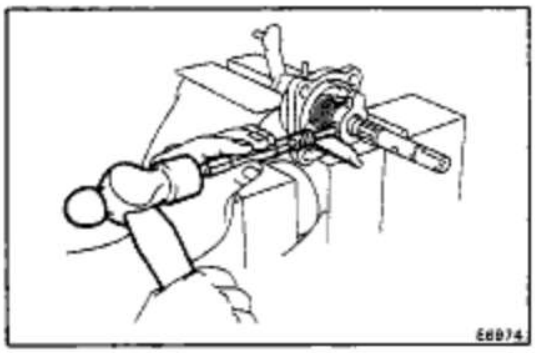


2. REMOVE SHIFT INTERLOCK PLATE AND NO.1 SHIFT INNER LEVER

(a) Using a pin punch and hammer, drive out the slotted spring pin.

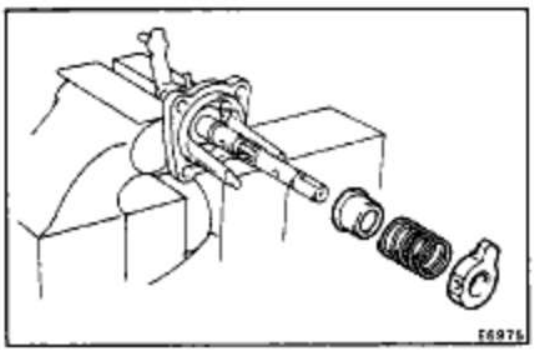


(b) Remove the shift interlock plate and No.1 shift inner lever.

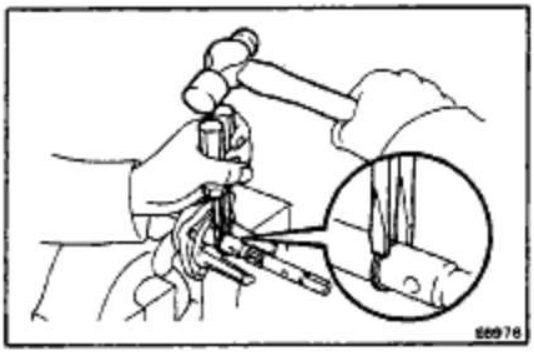


3. REMOVE SELECT INNER LEVER

(a) Using a pin punch and hammer, drive out the slotted spring pin.

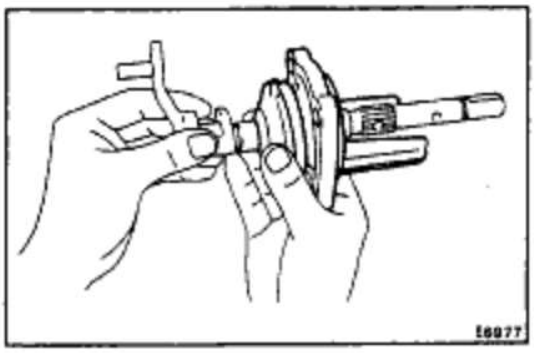


(b) Remove the select inner lever–, No. 1 compression spring and No. 1 select spring seat.



4. REMOVE SNAP RING

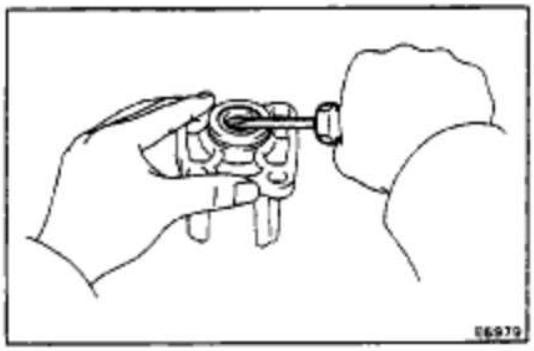
Using two screwdrivers and a hammer, remove the snap ring.



5. REMOVE CONTROL SHAFT COVER AND DUST BOOT

(a) Remove the control shaft cover with dust boot from the shaft.

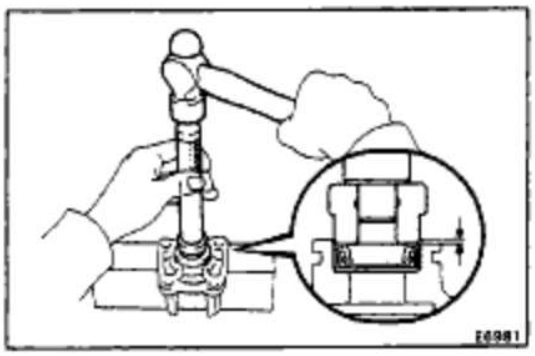
(b) Remove the dust boot from the control shaft cover.



INSPECTION AND REPLACEMENT OF SHIFT AND SELECT LEVER ASSEMBLY

IF NECESSARY, REPLACE CONTROL SHAFT COVER OIL SEAL

(a) Using a screwdriver, pry out the oil seal.



(b) Using SST, drive in a new oil seal.

SST 09620–30010 (09627–30010, 09631–00020)

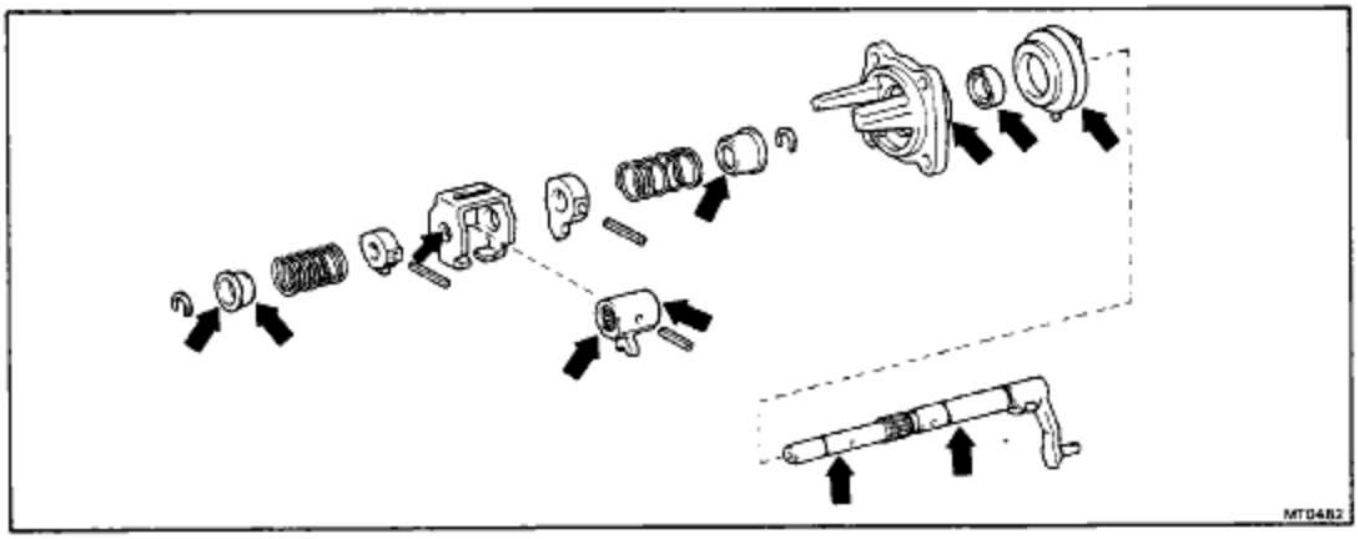
Drive in depth: 0.5 ± 0.5 mm (0.020 ± 0.020 in.)

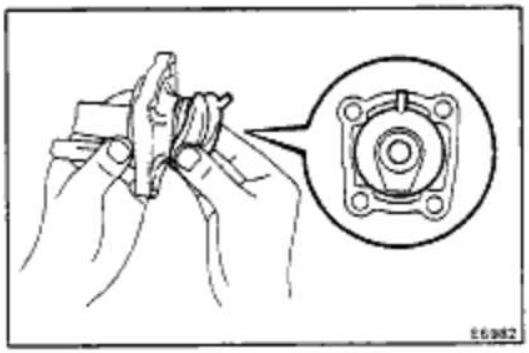
(c) Coat the oil seal lip with MP grease.

ASSEMBLY OF SHIFT AND SELECT LEVER ASSEMBLY

(See page MT–79)

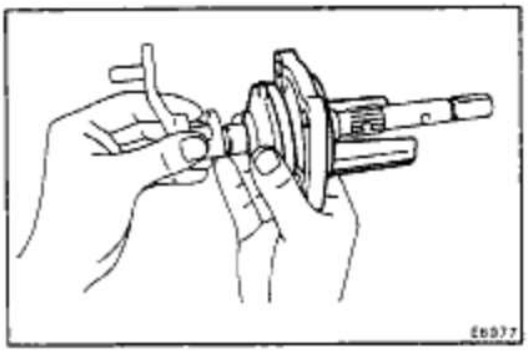
1. COAT SHAFT WITH MP GREASE, AS SHOWN



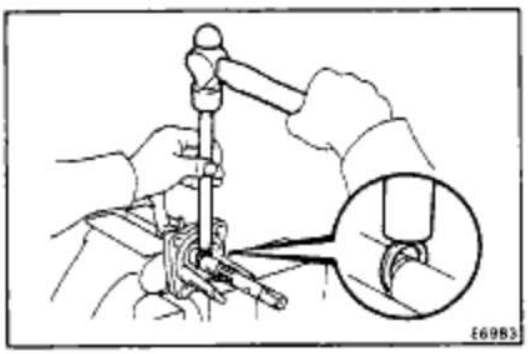


2. INSTALL DUST BOOT AND CONTROL SHAFT COVER

(a) Install the dust boot to the control shaft cover as shown.

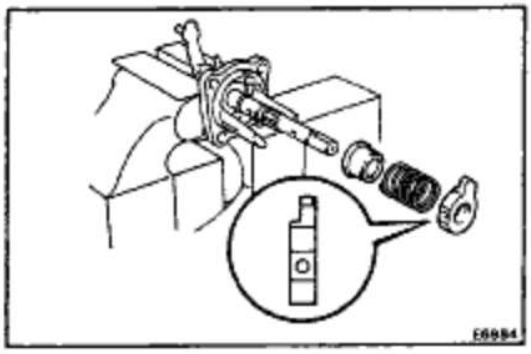


(b) Install the control shaft to the control shaft cover.



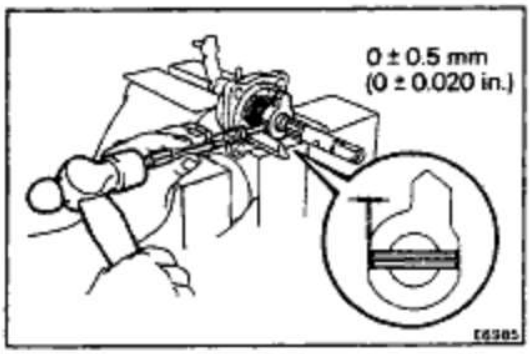
3. INSTALL SNAP RING

Using a brass bar and hammer, instal! the snap ring.



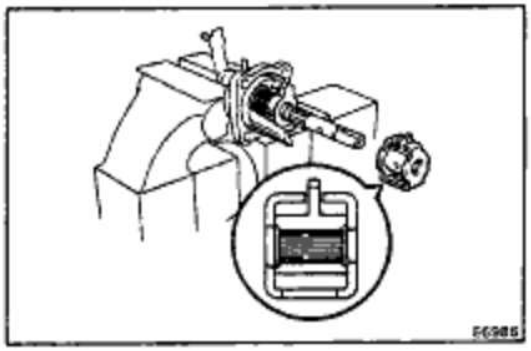
4. INSTALL SELECT INNER LEVER

(a) Install the No.1 select spring seat, No.1 compression spring and select inner lever.



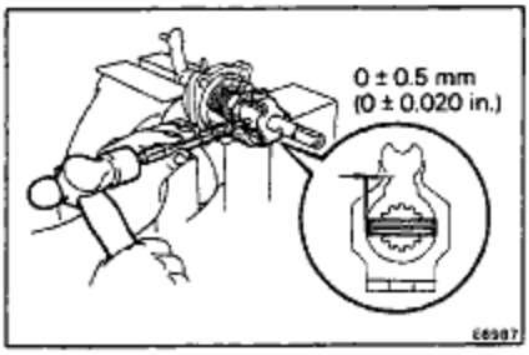
(b) Using a pin punch and hammer, drive in the slotted spring pin.

(c) Check that the No. 1 select spring seat slide smoothly.

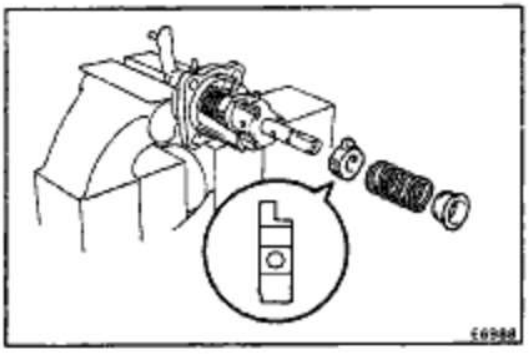


5. INSTALL SHIFT INTERLOCK PLATE AND No.1 SHIFT INNER LEVER

(a) Install the shift interlock plate and No.1 shift inner lever as shown.

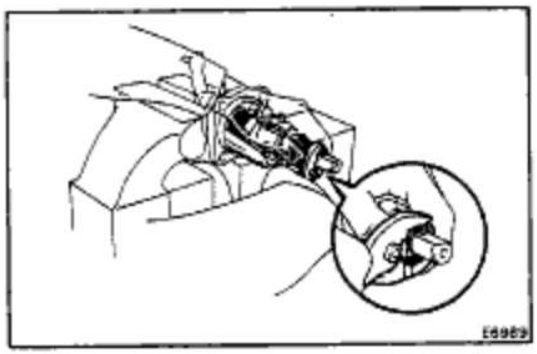


(b) Using a pin punch and hammer, drive in the slotted spring pin.

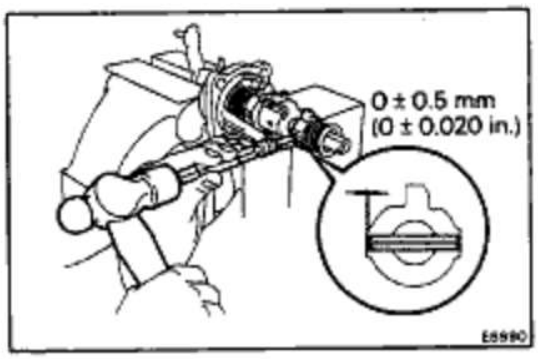


6. INSTALL NO.2 SHIFT INNER LEVER

(a) Install the No.2 shift inner lever, No–2 compression spring and No.2 select spring seat.



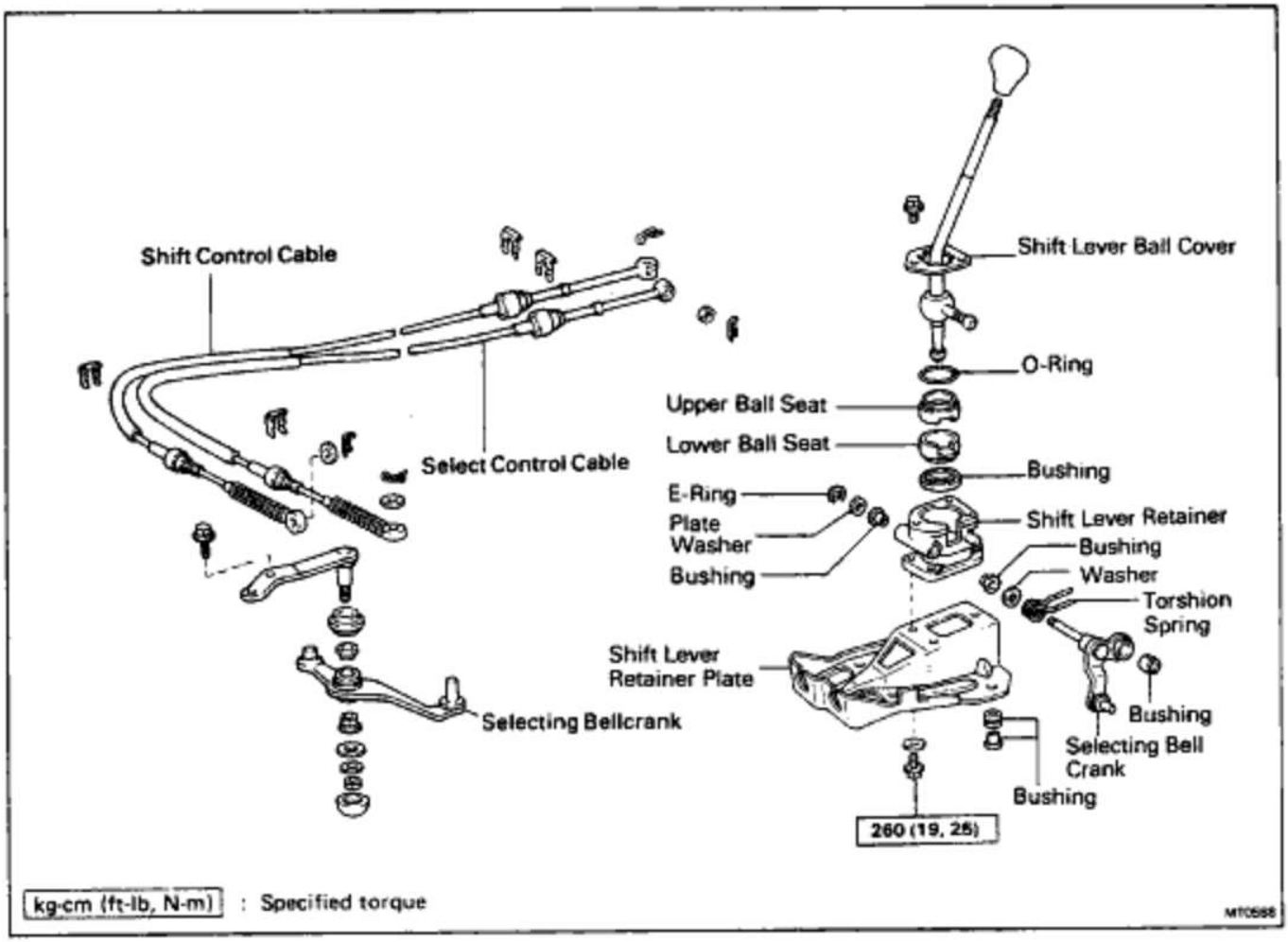
(b) Compress the spring and install the snap ring with pliers.



(c) Using a pin punch and hammer, drive in the slotted spring pin.
(d) Check that the No.2 select spring seat slide smoothly.

SHIFT LEVER AND CONTROL CABLE

COMPONENTS

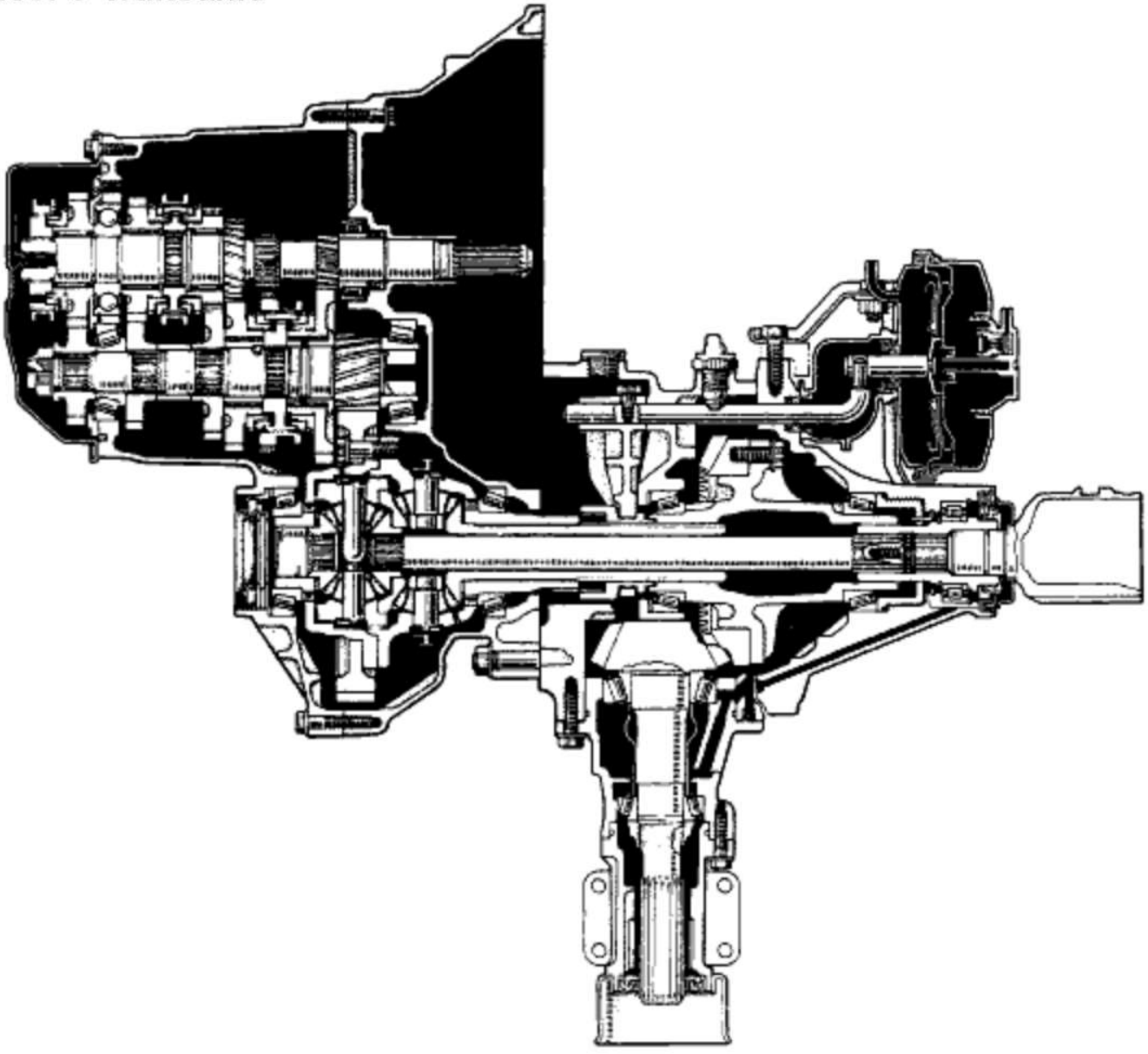


DESCRIPTION

GENERAL

- The E56F5 transaxle has been made compact by arranging the transmission, the center differential, the front differential and the transfer on the same quadruple case axle.
- The center differential, which compensates for the difference between the rotation speed of the front and rear wheels, provide¿durability and reliability by utilizing bevel gear to distributing the engine power from the transmission to both the front and rear propeller shafts in a 50l50 split.– This center differential has been equipped with a lock mechanism which enables the vehicle to get out of the trouble spot more easily when one of the four wheels spins in the deep snow or muddy roads, etc.

E56F5 Transaxle



	Transaxle type	E56 F5
Transmission	Operation method	Floor shift vehicles are provided will push–pull type remote control
	Transmission type	Forward: Constant mesh Reverse: Sliding mesh
Center differential	Reduction side (Gear type)	Helical gear
	Differential side (Gear type)	Bevel gear
	Type of differential control mechanism	Differential lock
Transfer	Gear type	Hypoid Gear

- **The oil used in each transaxle is as follows:**

Transaxle oil E50 (08885–80206)

Recommended oil

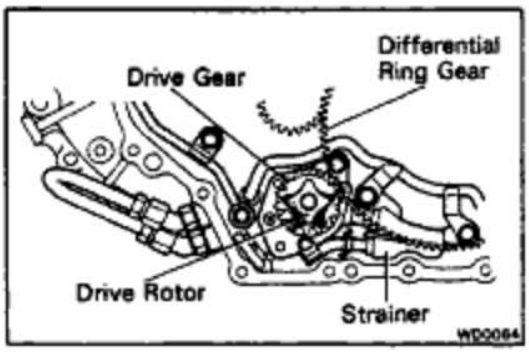
Oil grade: AN GL–5

Viscosity: SAE 75W–90 or 80W–90

Above –18˚C (0˚F) SAE 90

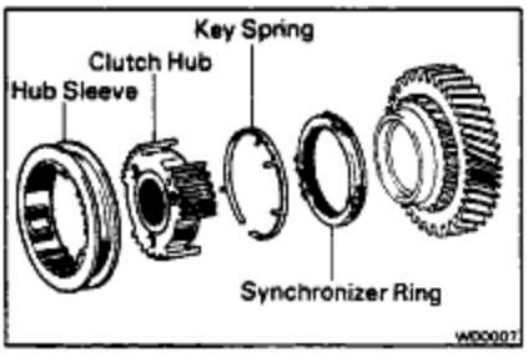
Above – 1 8˚C (0˚F) SAE 84W

- **Oil capacity: 5.0 Liters (s.3 Us qts, 4.4 Imp. qts)**



OIL PUMP

The oil pump is of the trochoid type, and is driven by the differential ring gear and the pump drive gear. It is located at the bottom of the transaxle case.



KEY–LESS TYPE SYNCHROMESH FUNCTION

*** HUB SLEEVE**

There are three protrusions on the inside of the hub sleeve to push the key spring.

*** CLUTCH HUB**

Three apertures are located around the clutch hub to secure the synchronizer ring and key spring in place.

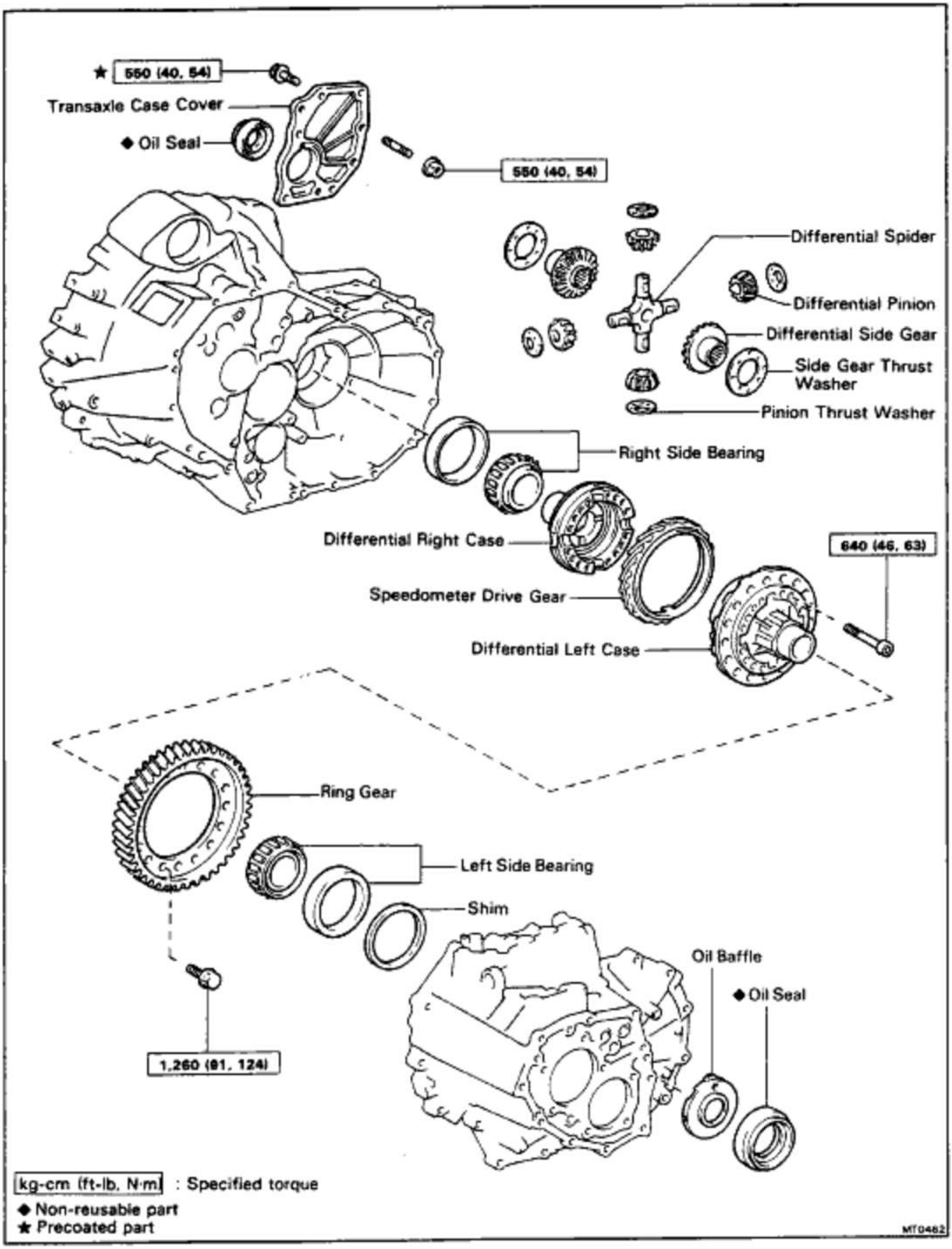
*** KEY SPRING**

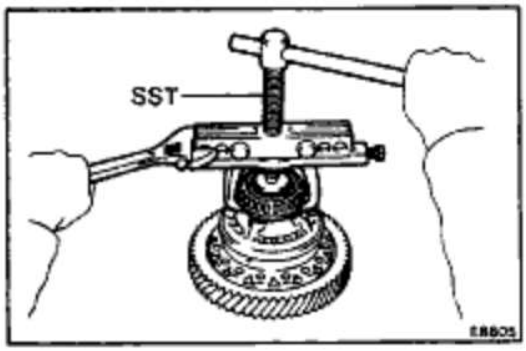
The key spring has four claws. One claw is to secure the key spring in place. Three claws also act as shifting keys as well as key springs.

SYNCHRONIZER RING

A chamfered ledge is provided at three points along the outer periphery and a bolt is provided in each to secure a key spring.

Differential





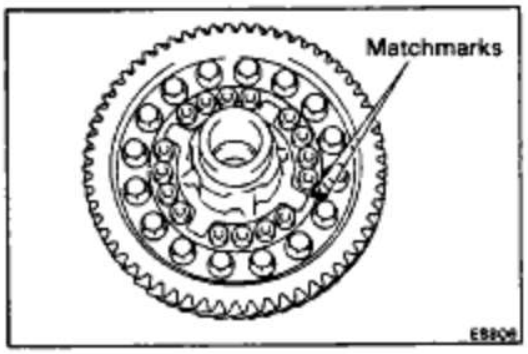
DISASSEMBLY OF DIFFERENTIAL CASE

1. REMOVE SIDE BEARING

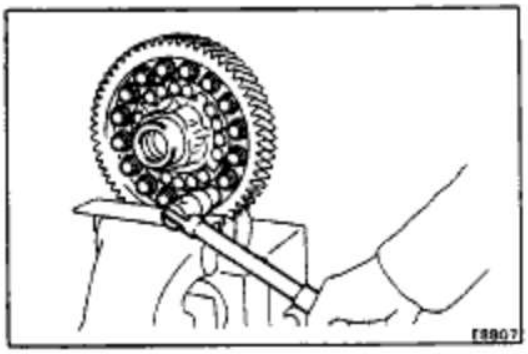
Using SST, remove the two side bearings.
SST 09950–20017

2. REMOVE RING GEAR

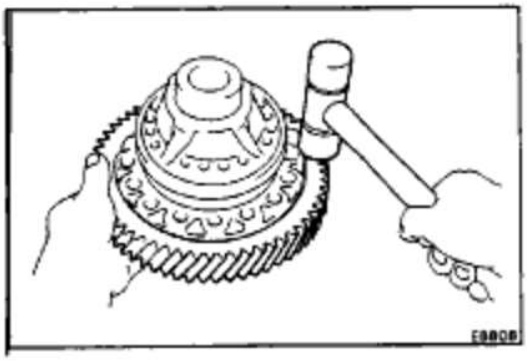
(a) Place the matchmarks on both the differential case and ring gear.



(b) Remove the sixteen bolts.

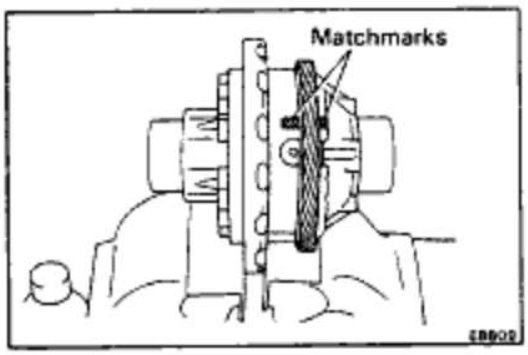


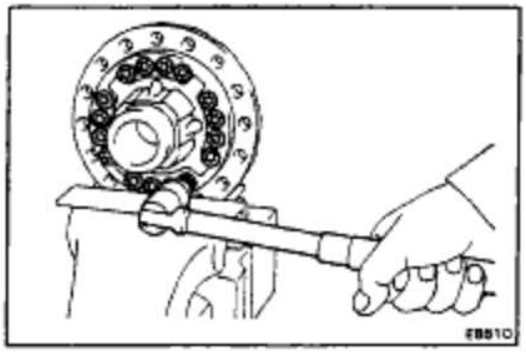
(c) Using a plastic hammer, tap out the ring gear.



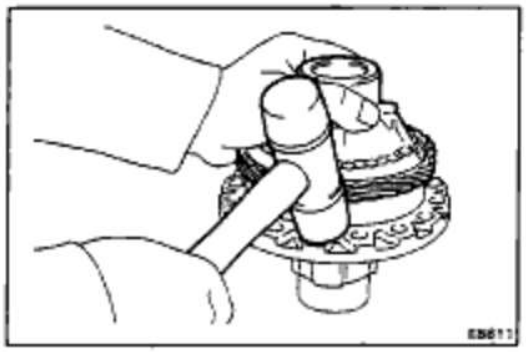
3. DISASSEMBLE OF DIFFERENTIAL CASE

(a) Place the matchmarks on the differential right and left case.
(b) Using a torx socket wrench, remove the sixteen torx screws.

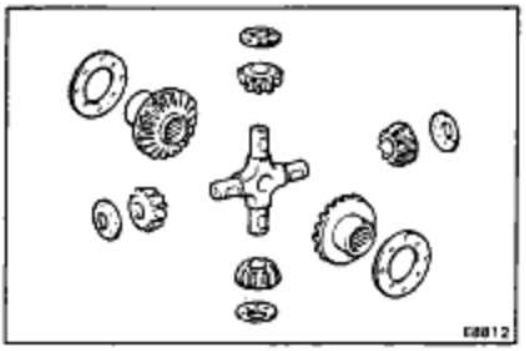




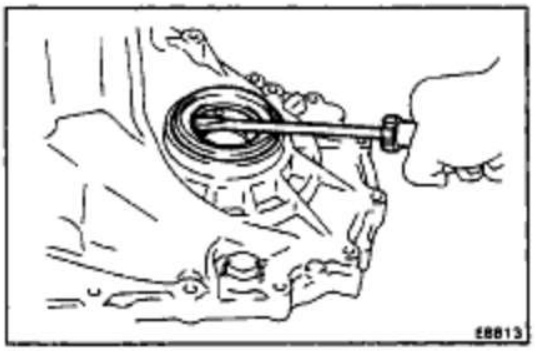
(b) Using a torx wrench, remove the sixteen torx screws.
Torx wrench T50 09042–00040



(c) Using a plastic hammer, tap out the differential left case.
(d) Remove the speedometer drive gear from the differential right case.



(e) Remove the two differential side gears, two side gear thrust washers, differential spider, four differential pinions and four pinion washers from the differential left case.



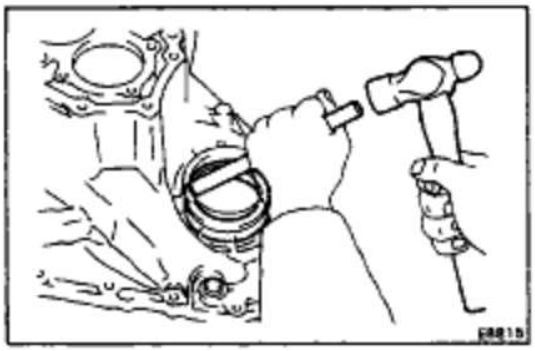
INSPECTION OF DIFFERENTIAL CASE

1 . (Transmission Case Side)

IF NECESSARY. REPLACE OIL SEAL AND TAPER ROLLER BEARING OUTER RACE

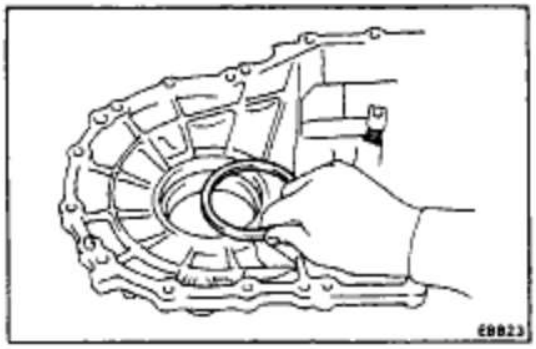
(a) Using screwdriver, remove the oil seal.

(b) Remove the transmission oil baffle.



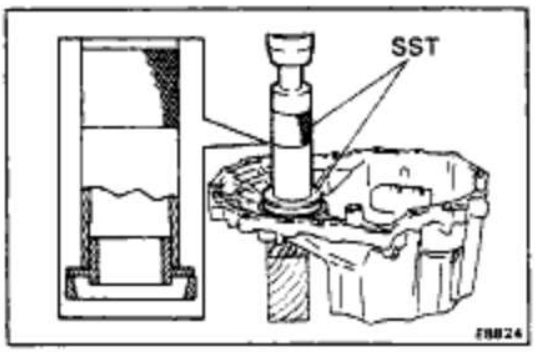
(c) Using a brass bar and hammer, drive out the bearing outer race lightly and evenly.

(d) Remove the shim.

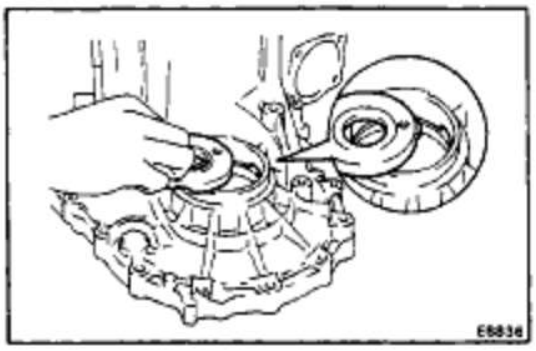


(e) Install the shim.
(See page MT–96, 97)

HINT: First select and install a shim of leaser thickness than before.

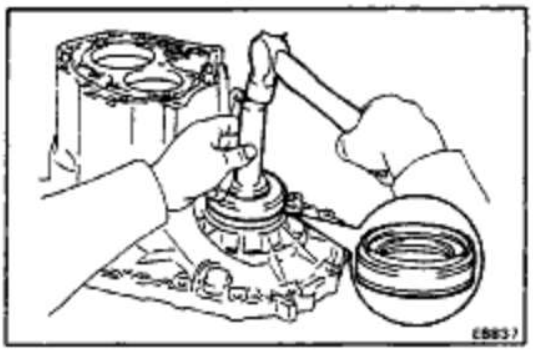


(f) Using SST and a press, install the taper roller bearing outer race.
SST 09316–60010 (09316–00010, 09316–00040)

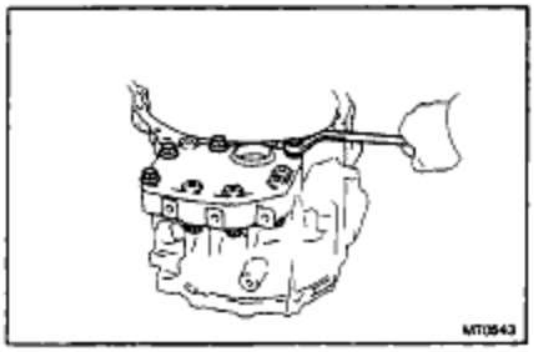


(g) Install the transmission oil baffle.

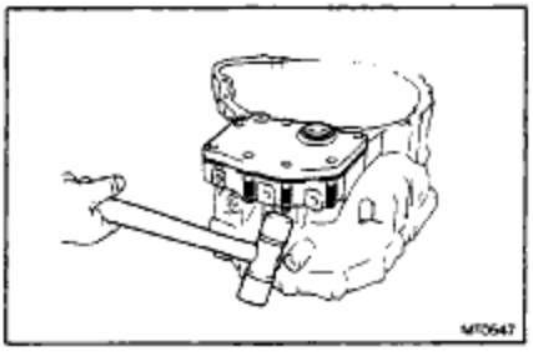
HINT: Install the transmission oil baffle projection into the case side cutout.



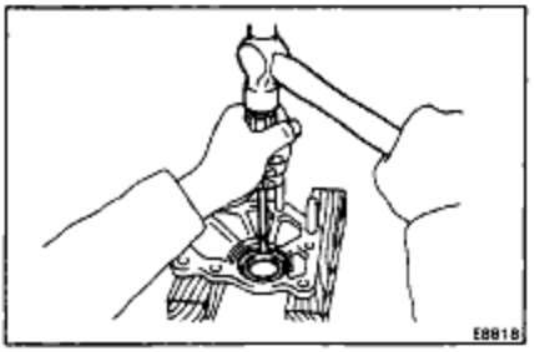
(h) Using SST and a hammer, drive in a new oil seal.
SST 09223–15010
(i) Coat the tip of oil seal with MP grease.



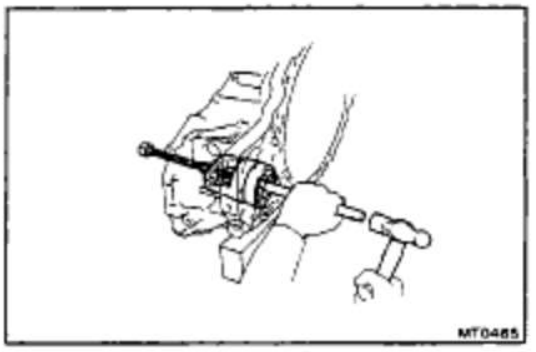
2. (Transaxle Case Side)
IF NECESSARY, REPLACE OIL SEAL AND TAPER
ROLLER BEARING OUTER RACE
(a) Remove the four bolts and three nuts.



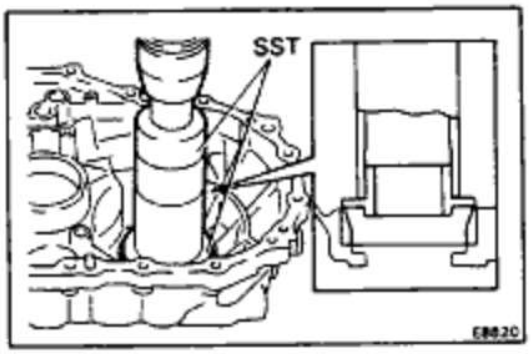
(b) Using a plastic hammer, tap the stud bolt and remove the transaxle case cover.



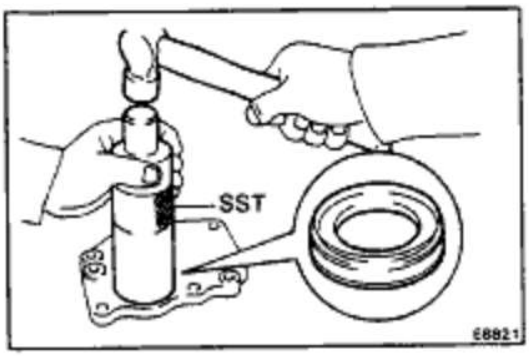
(c) Using a screwdriver and hammer, drive out the oil seal.



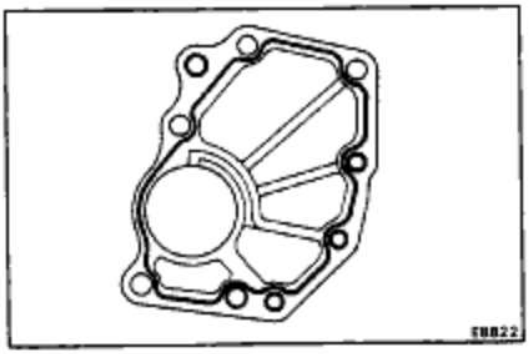
(d) Using SST, brass bar and hammer, remove the taper roller bearing outer race.
SST 09612–65014



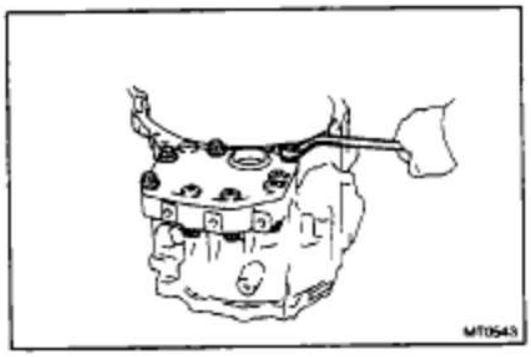
(e) Using SST and a press, install the taper roller bearing.
SST 09316–60010 (09316–00010, 09316–00040)



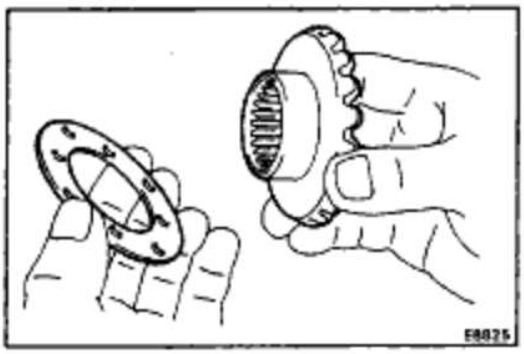
(f) Using SST and a hammer, drive in a new oil seal.
SST 09316–60010 (09316–00010)
(g) Coat the lip of oil seal with MP grease.



(h) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transaxle case or case cover.
Apply seal packing to the transaxle case cover as shown.
Seal packing: Part No. 08826–00090, THREE BOND 1281 or equivalent
HINT: Install the transaxle case cover as soon as the seal packing is applied.



Q) Apply sealant to the bolt threads.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(k) Install and torque the four bolts and three nuts.
Torque: 550 kg–cm (40 ft–lb, 54 N–m)

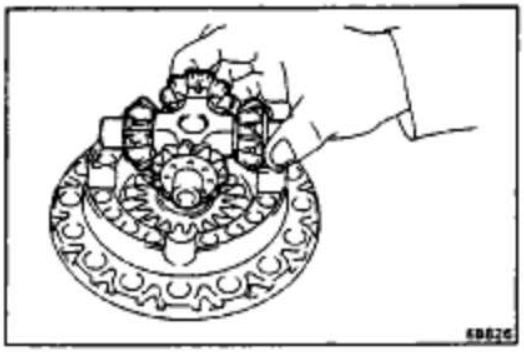


ASSEMBLY OF DIFFERENTIAL CASE

1. ASSEMBLE DIFFERENTIAL CASE

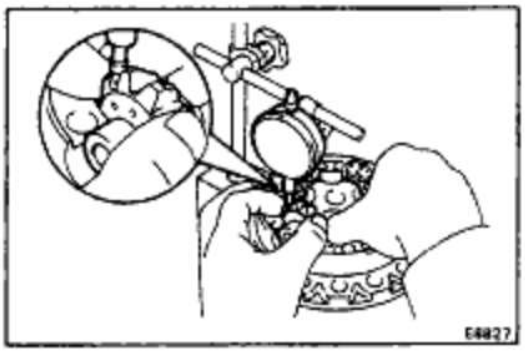
HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

(a) Install the thrust washer to the side gear.



(b) Install the four pinions and thrust washers to the spider.

(c) Install the side gear and spider with four pinions to the differential left case.



(d) Using a dial indicator, measure the backlash of one pinion gear while holding the No–2 differential case.

Standard backlash: 0.05 – 0.20 mm (0.0020 – 0.0079 in.)

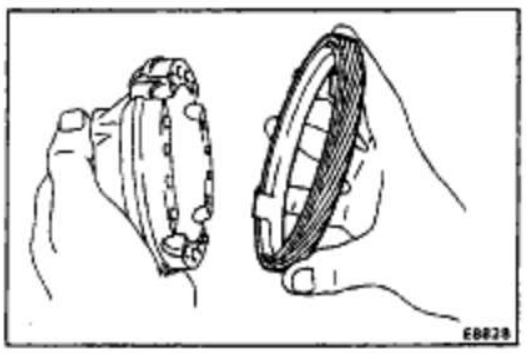
HINT: Push the pinion gear of the left side of the differential case.

(e) Install the side gear and spider with four pinions to the right side of the differential case.

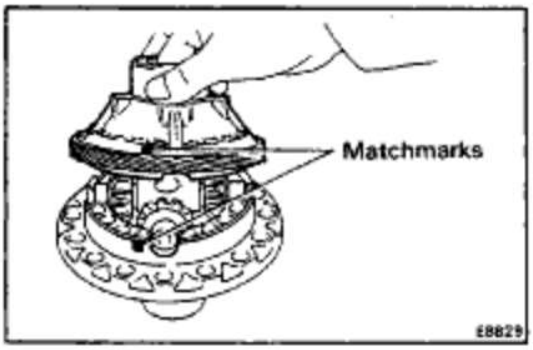
Check the side gear backlash.

(f) Referring to the table below, select the thrust washer which will ensure that the backlash is within specification. Try to select a washer of the same size.

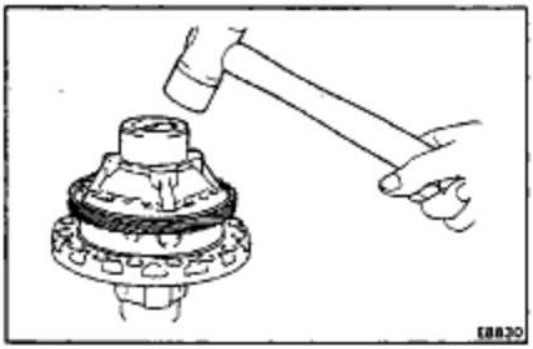
Thickness mm (in.)	Thickness mm (in.)
0.80 (0.0315)	1.20 (0.0472)
0.90 (0.0354)	1.30 (0.0512)
1.00 (0.0394)	1.40 (0.0551)
1.10 (0.0433)	



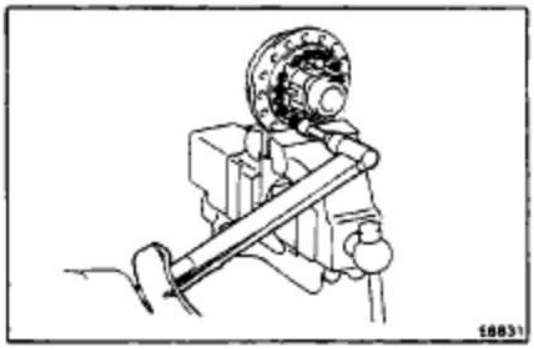
Install the speedometer driven gear.



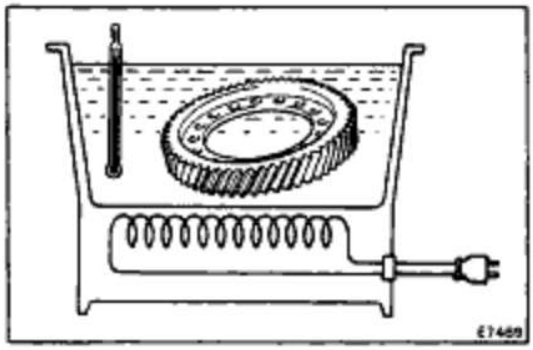
(h) Align the matchmarks on the differential cases.



Using a plastic hammer, carefully tap the differential case.

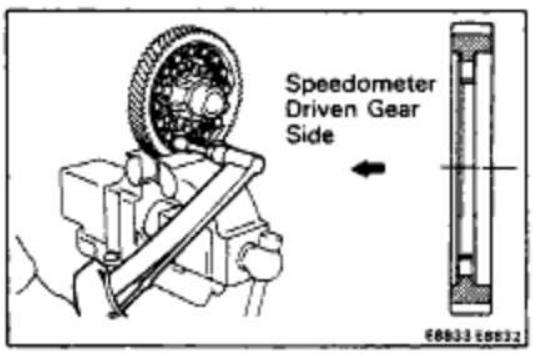


(j) Using a torx wrench, install and ,torque the sixteen torx screws.
Torx wrench T50 09042–00040
Torque: 640 k9–cm (46 ft–lb, 63 N–m)

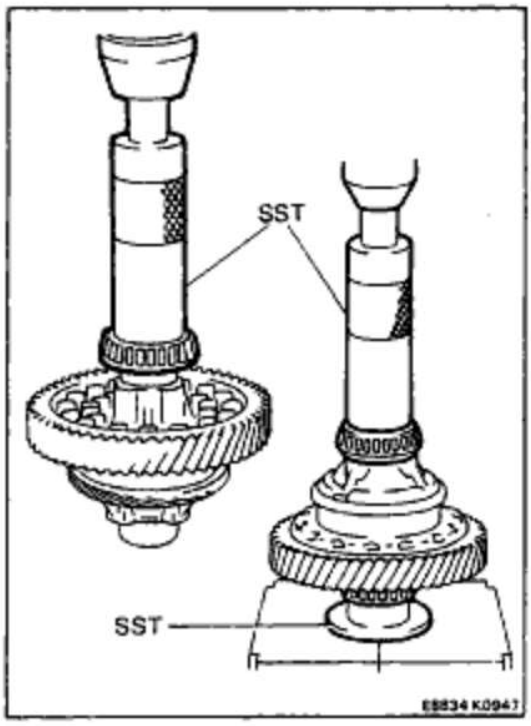


2. INSTALL RING GEAR

(a) Clean the contact surface of the differential case.
(b) Heat the ring gear to about 100°C (212°F) in an oil bath.
NOTICE: Do not heat the ring gear above 110°C (230°F).
(c) Clean the contact surface of the ring gear with cleaning solvent.



(d) Quickly install the ring gear on the differential case.
Install the sixteen bolts.
HINT: Align the matchmarks on the differential left case and contact the ring gear.
(e) Tighten the set bolts uniformly and a little at a time.
Torque the bolts.
Torque: 1,260 kg–cm (91 ft–lb, 124 N–m)



3. INSTALL SIDE BEARING '

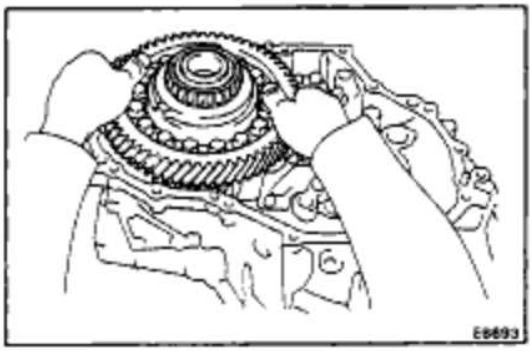
Using SST and a press, install the side bearings onto the differential case.

SST 09316–20011, 09506–35010

HINT: Press the bearing on the ring gear side first.

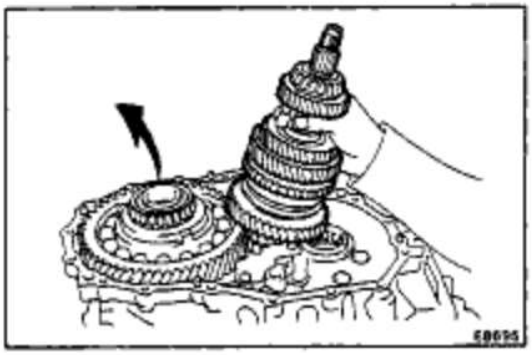
4. ADJUST OUTPUT SHAFT ASSEMBLY PRELOAD

(See pages MT–96 to 98)



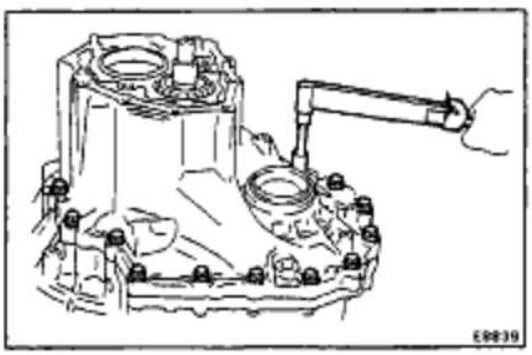
5. INSTALL DIFFERENTIAL CASE ASSEMBLY

Install the differential case assembly to the transaxle case.



6. INSTALL OUTPUT SHAFT ASSEMBLY

Lift up the differential case, install the output shaft assembly.



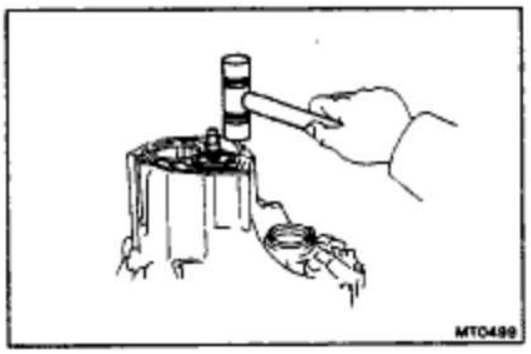
7. INSTALL TRANSMISSION CASE

(a) Install the transmission case.

HINT: If necessary, tap on the case with a plastic hammer.

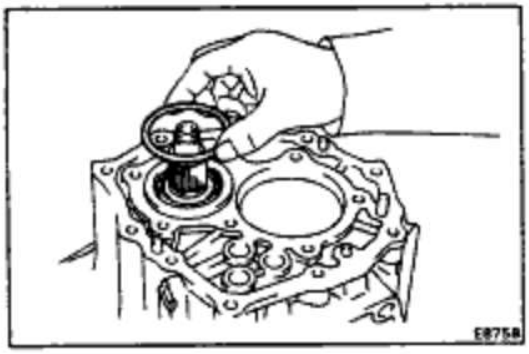
(b) Install and torque the seventeen bolts.

Torque: 300 kg–cm (22 ft–lb, 29 N–m)



8. INSTALL OUTPUT SHAFT REAR TAPER ROLLER BEARING OUTER RACE

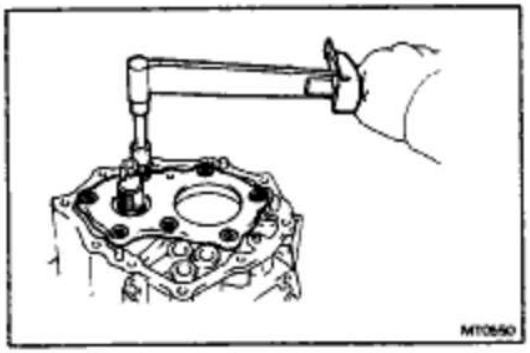
Using a plastic hammer, drive in the outer race.



9. INSTALL SHIM

(See pages MT–96, 97)

HINT: Install the previously selected shim.

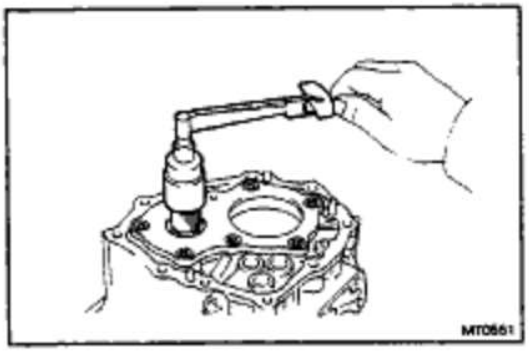


10. INSTALL REAR BEARING RETAINER

Using a torx wrench, install and torque the seven torx screws.

Torx wrench T45 09042–00050

Torque: 430 kg–cm (31 ft–lb, 42 N–m)



11. ADJUST DIFFERENTIAL CASE PRELOAD

(a) Install the new lock nut to the output shaft.

(b) Turn the output shaft right and left two or three times to allow the bearings to settle

(c) Using a torque wrench, measure the preload.

Preload (at starting):

New bearing (Add output shaft preload)

2.0 – 4.1 kg–cm

(1.7 – 3.6 in.–lb, 0.2 – 0.4 N–m)

Reused bearing (Add output shaft preload)

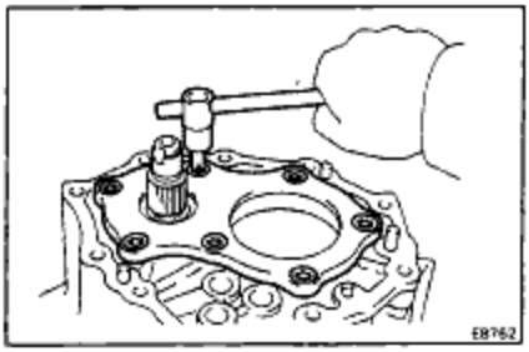
1.3 – 2.5 kg–cm

(1.1 – 2.2 in.–lb, 0.1 – 0.2 N–m)

If the preload is not within specification, select the thrust washers.

HINT: The total preload will change about 12 kg–cm (0.9 1.7 in.–lb, 0.1 – 0.2 N–m) with each shim thickness.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	2.00 (0.0787)	9	2.45 (0.0965)
1	2.05 (0.0807)	A	2.50 (0.0984)
2	2.10 (0.0827)	B	2.55 (0.1004)
3	2.15 (0.0746)	C	2.60 (0.1024)
4	2.20 (0.0866)	D	2.65 (0.1043)
5	2.25 (0.0886)	E	2.70 (0.1063)
6	2.30 (0.0906)	F	2.75 (0.1083)
7	2.35 (0.0925)	G	2.80 (0.1102)
8	2.40 (0.0945)	H	2.85 (0.1122)

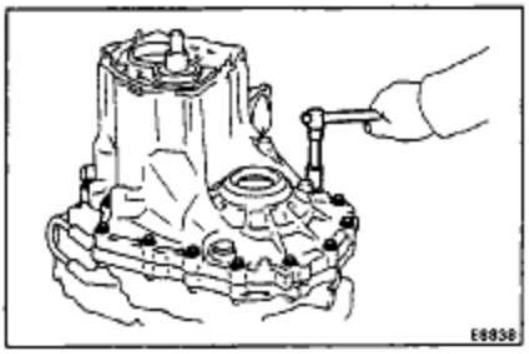


12. REMOVE REAR BEARING RETAINER

Using torx wrench, remove the seven torx screws and rear bearing retainer.

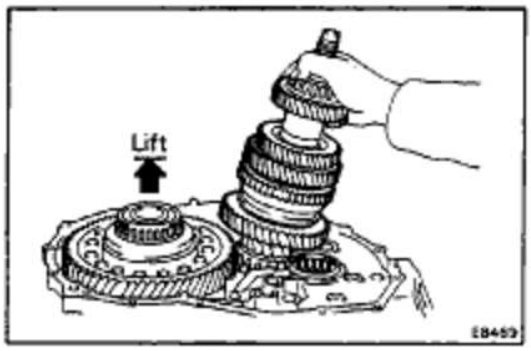
Torx wrench T45 09042–00050

13. REMOVE SHIM



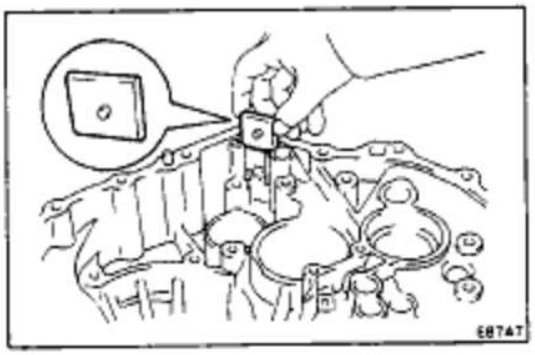
14. REMOVE TRANSMISSION CASE

Remove the seventeen bolts and tap off the case with a plastic hammer.



15. REMOVE OUTPUT SHAFT ASSEMBLY

16. REMOVE DIFFERENTIAL CASE ASSEMBLY

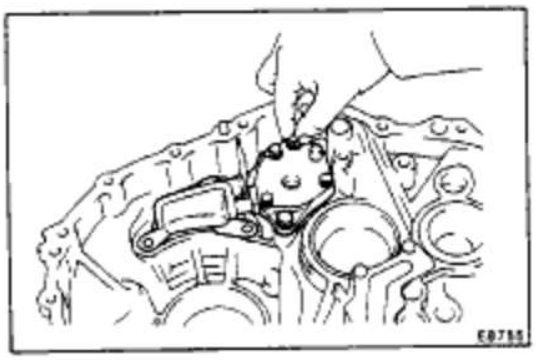


INSTALLATION OF COMPONENT PARTS

(See pages MT–47 to 49)

HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

1. INSTALL MAGNET TO TRANSAXLE£ CASE

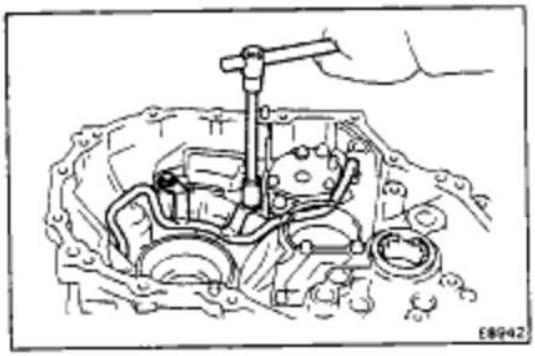


2. INSTALL OIL PUMP ASSEMBLY AND OIL PIPE

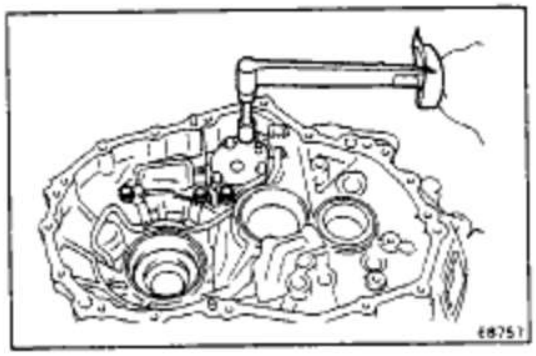
(a) Install the oil pump assembly.

(b) Install the two bolts.

HINT: Be careful not to drop the oil pump gasket.

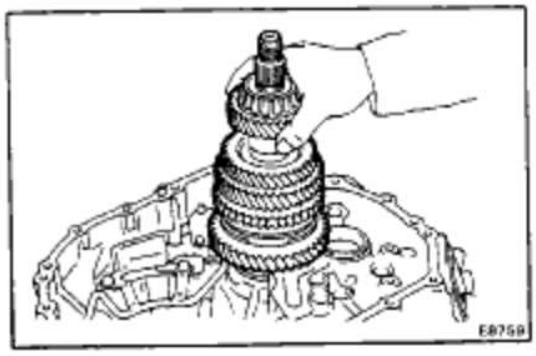


(c) Install the oil pipe and two bolts.



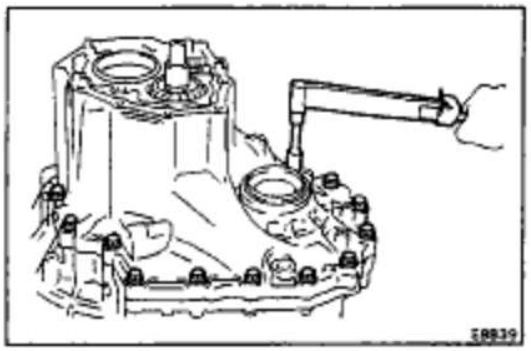
(d) Torque the four bolts.

Torque: 175 kg–cm (13 ft–lb, 17 N–m)

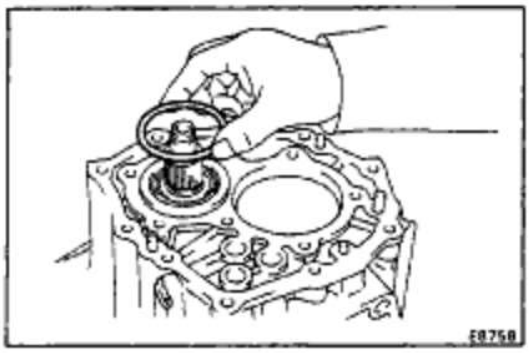


3. ADJUST OUTPUT SHAFT PRELOAD

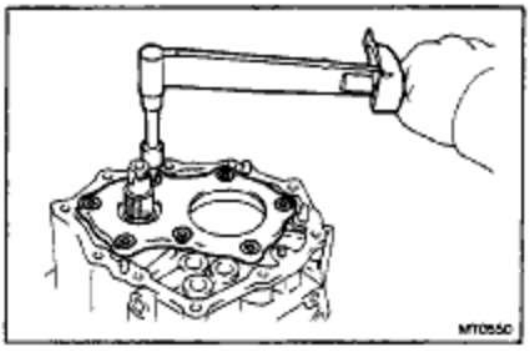
(a) Install the output shaft assembly.



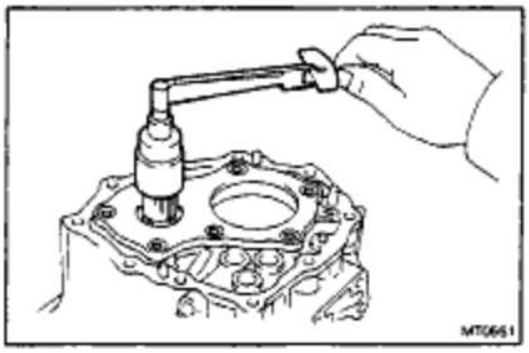
(b) Install the transmission case.
HINT: If necessary, tap on the case with a plastic hammer.
Install and torque the seventeen bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m)
(d) Install the output shaft rear taper roller bearing outer race.



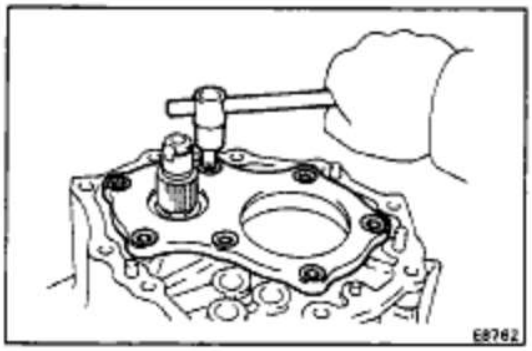
(e) Install the adjust shim.
HINT: When re–using the output shaft bearing, first install a shim of the same thickness as before. If installing a new tapered roller bearing, first select and install a shim of lesser thickness than before.



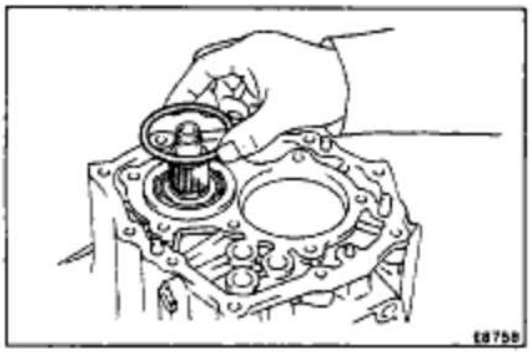
(f) Install the bearing retainer.
(g) Using a torx wrench, install and torque the seven bolts.
Torx wrench T45 09042–00050
Torque: 430 kg–cm (31 ft–lb, 42 N–m)
(h) Install the new lock nut to the output shaft.
(i) Turn the output shaft right and left 'two or three times to allow the bearings to settle.
(j) Using a torque meter, measure the preload.
Preload (at starting) :
New bearing 8 – 16 kg–cm
(6.9 – 13.9 in.–lb,
0.8 – 1.6 N–m)
Reused bearing 5 –, 10 kg–cm
(4.3 – 8.7 in.–lb, 0.5 – 1.0 N–m)
If the preload is not within specification, select the thrust washers.
HINT: The preload will change about 4 5 kg–cm (3.5 4.3 in.–lb, 0.4 0.5 N–m) with each shim thickness.



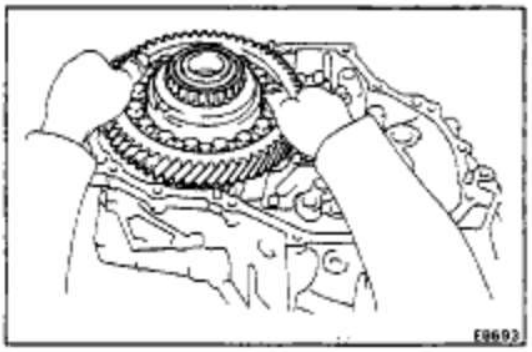
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)	Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	1.30 (0.0512)	7	1.65 (0.0650)	E	2.00 (0.0787)	M	2.35 (0.0925)
1	1.35 (0.0531)	8	1.70 (0.0669)	F	2.05 (0.0807)	N	2.40 (0.0945)
2	1.40 (0.0551)	9	1.75 (0.0689)	G	2.10 (0.0827)	P	2.45 (0.0965)
3	1.45 (0.0571)	A	1.80 (0.0709)	H	2.15 (0.0846)	Q	2.50 (0.0984)
4	1.50 (0.0591)	B	1.85 (0.0728)	J	2.20 (0.0866)		
5	1.55 (0.0610)	C	1.90 (0.0748)	K	2.25 (0.0886)		
6	1.60 (0.0630)	D	1.95 (0.0768)	L	2.30 (0.0906)		



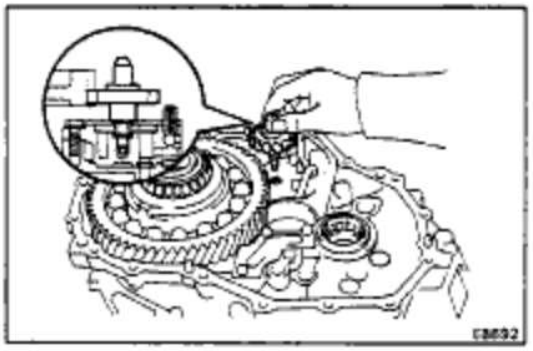
(k) Remove the lock nut.
(l) Using a torx wrench, remove the seven torx screws and rear bearing retainer.
Torx wrench T45 09042–00050



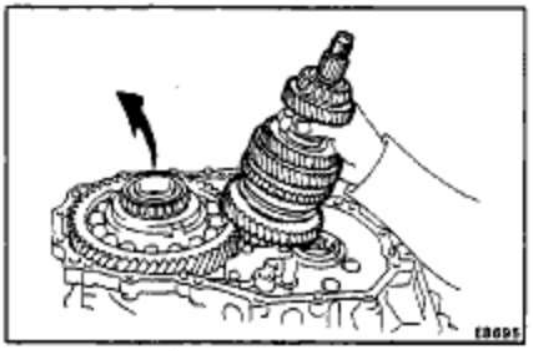
(m)) Remove the shim.
(n) Remove the seventeen bolts and transmission case.
(o) Remove the output shaft assembly.



4. INSTALL DIFFERENTIAL CASE ASSEMBLY

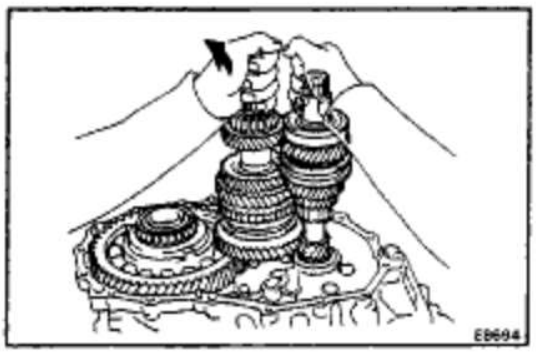


5. INSTALL OIL PUMP DRIVE GEAR

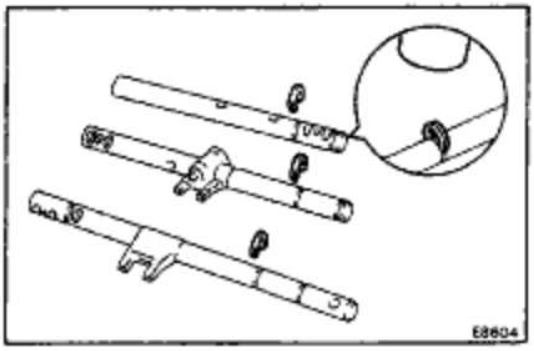


6. INSTALL OUTPUT SHAFT ASSEMBLY

(a) Lift up the differential case, install the output shaft assembly.

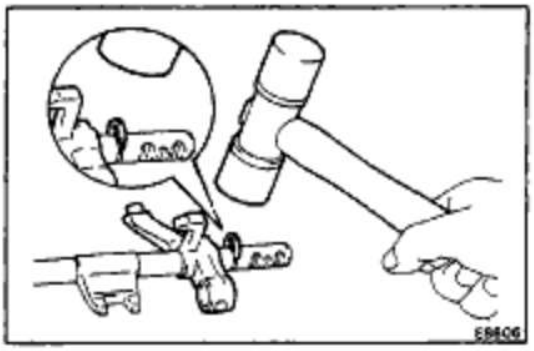


(b) Leaning the output shaft to the differential side, install the input shaft assembly.



7. INSTALL SNAP RINGS

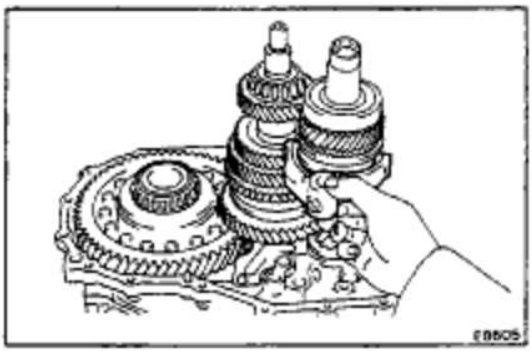
(a) Using a plastic hammer, install the snap rings to the No–1, No–2 and No–3 shift fork shafts.

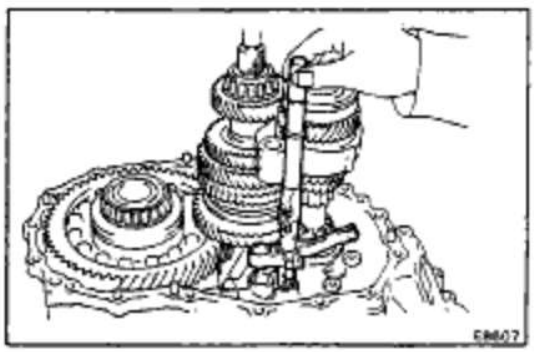


(b) Using a plastic hammer, install the reverse shift fork and snap ring to the No.3 shift fork shaft.

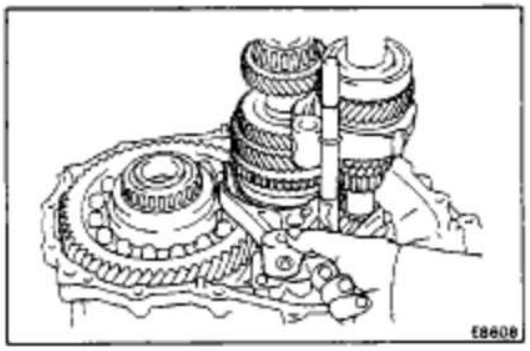
8. INSTALL NO.2 SHIFT FORK AND NO.3 SHIFT FORK SHAFT WITH REVERSE SHIFT FORK

(a) Install the No.2 shift fork to the No.2 hub sleeve.



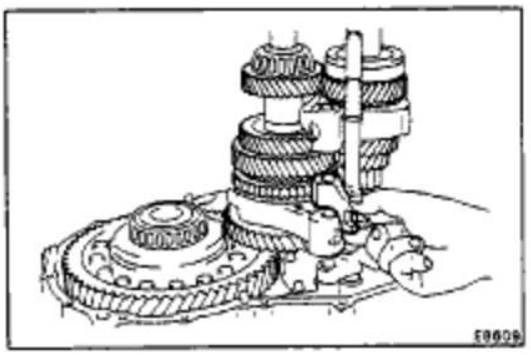


(b) Install the No.3 shift fork shaft with reverse shift fork.

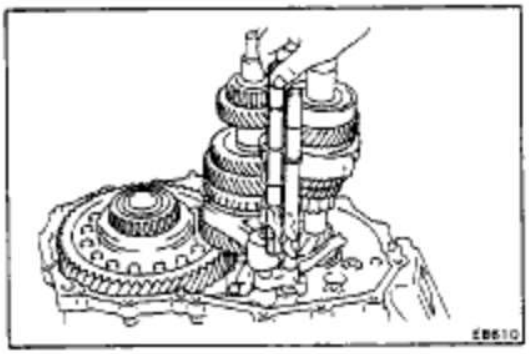


9. INSTALL NO.1 SHIFT FORK, SHIFT HEAD AND NO.2 SHIFT FORK SHAFT

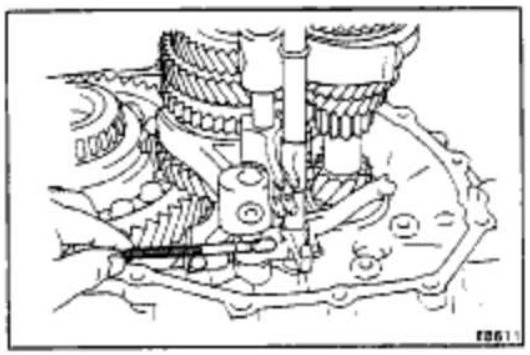
(a) Install the No.1 shift fork to the No.1 hub sleeve.



(b) Put shift head onto the NO–1 shift fork.

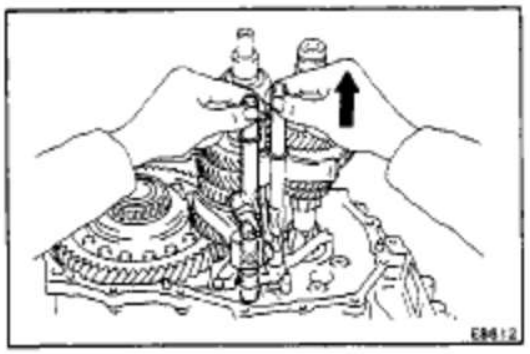


(c) Install the No.2 shift fork shaft to the transaxle case, through the shift head and No–1 shift fork.



10. INSTALL INTERLOCK ROLLER

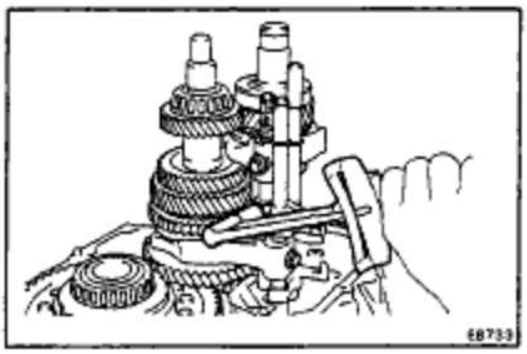
Using a magnetic finger, install the interlock roller to the reverse shift fork.



1 1. INSTALL NO.1 SHIFT FORK SHAFT

Install the No.1 shift fork shaft to the case, through the No.1 shift fork and reverse shift fork.

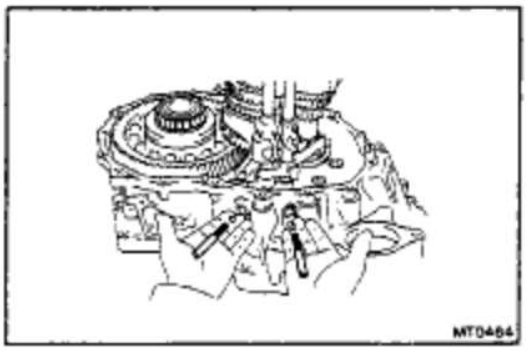
HINT: When it is difficult to install the fork shaft through the reverse shift fork, pull up the No.3 shift fork shaft.



12. INSTALL SET BOLTS

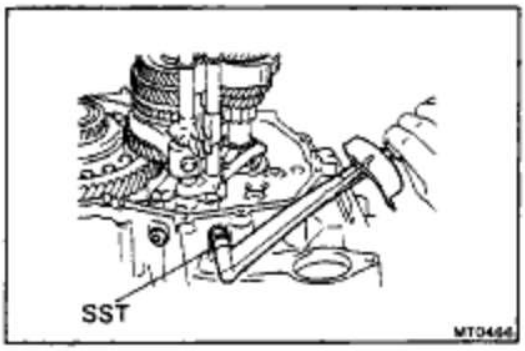
Install and torque the three set bolts.

Torque: 240 kg–cm l17 ft–lb, 24 N–m)



13. INSTALL LOCKING BALLS, SPRINGS, SEATS AND PLUGS

(a) Install the two locking balls, springs and seats.



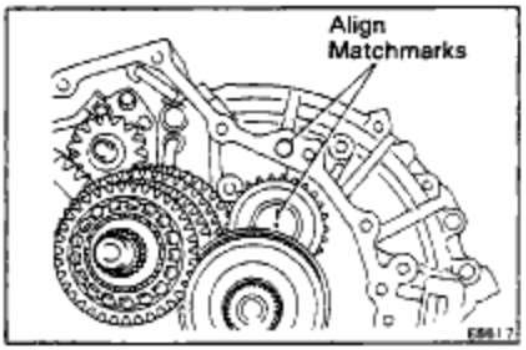
(b)Apply sealant to the two plugs.

Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(c) Using SST, install and torque two plugs.

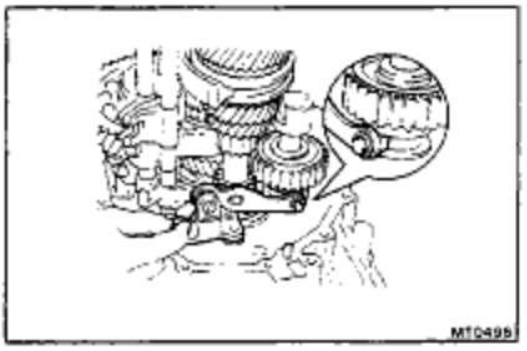
SST 09313–30021

Torque: 250 kg–cm (18 ft–lb, 25 N–m)



14. INSTALL REVERSE IDLER GEAR AND SHAFT

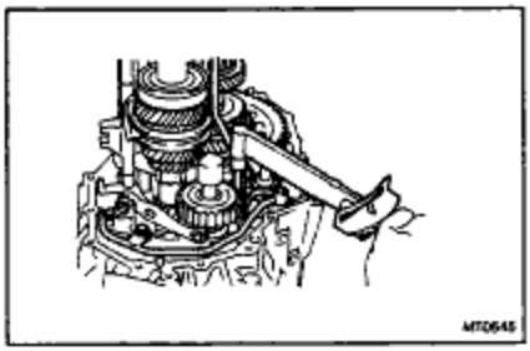
Install the reverse idler gear and shaft as shown.



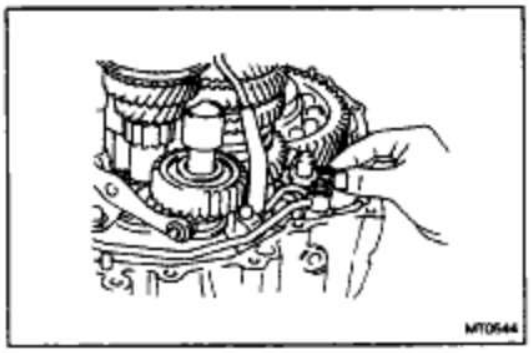
15. INSTALL REVERSE SHIFT ARM BRACKET AND NO.2 OIL PIPE

(a) Put the reverse shift fork pivot into the reverse shift arm and install the reverse shift arm bracket to the transaxle case.

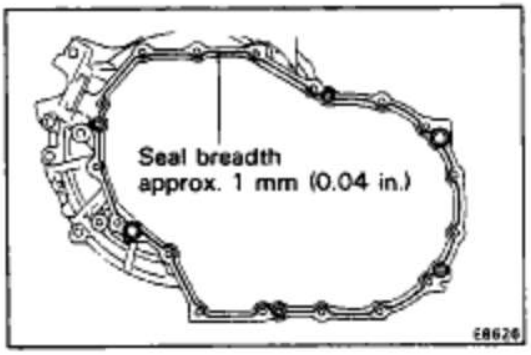
(b) Install the bolt.



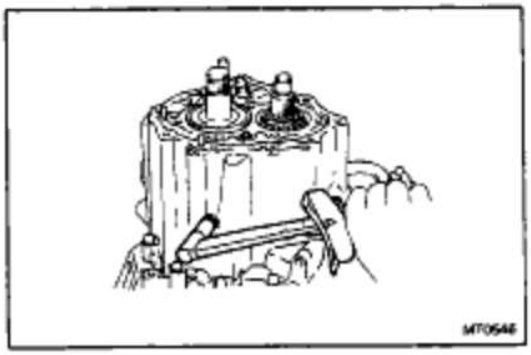
(c) Install the No.2 oil pipe and two bolts.
(d) Torque the reverse shift arm and oil pump bolts.
Torque: 175 kg–cm (13 ft–lb, 17 N–m)



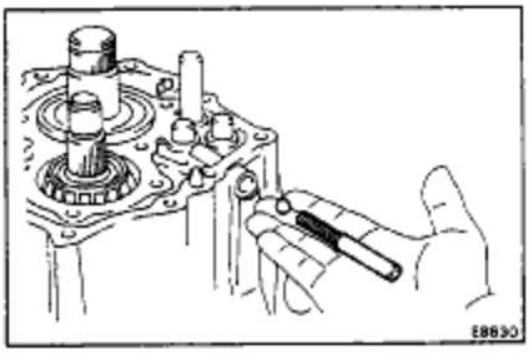
(e) Install the new gasket to the No.2 oil pipe.



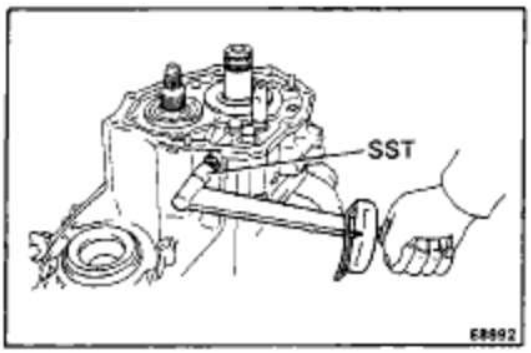
16. INSTALL TRANSMISSION CASE
(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transmission case or transaxle case.
(b) Apply seal packing to the transmission case as shown in the figure.
Seal packing: Part No.08826–00090, THREE BOND 1281 or equivalent
HINT: Install the transmission case as shown as the seal packing is applied.
(c) Install and torque the seventeen bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m)



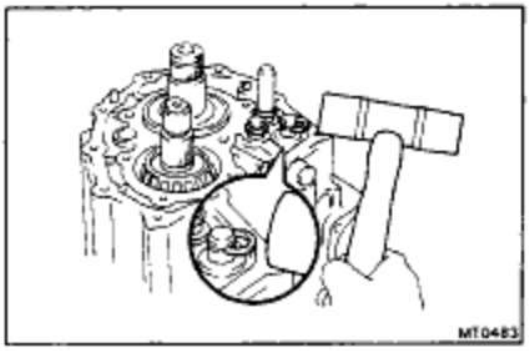
17. INSTALL AND TORQUE REVERSE IDLER GEAR SHAFT RETAINING BOLT
Torque: 300 kg–cm (22 ft–lb, 29 N–m)



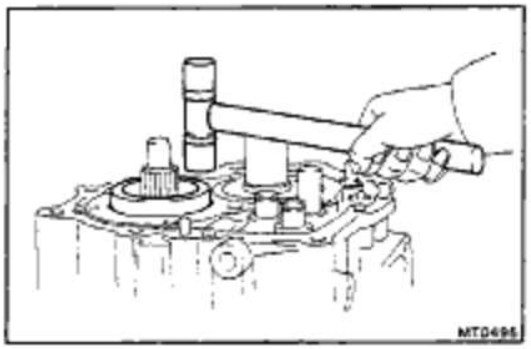
18. INSTALL LOCKING BALL, SPRING, SEAT AND PLUG
(a) Install the locking ball, spring and seat.



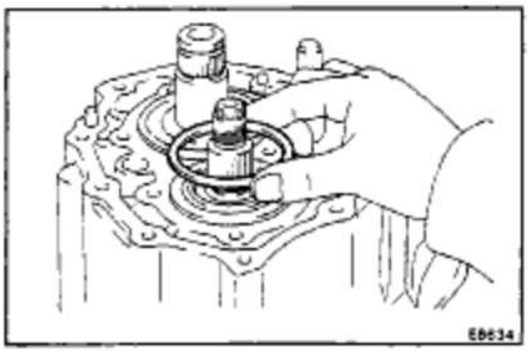
(b) Apply sealant to the plug.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(c) Using SST, install and torque the plug.
SST 09313–30021
Torque: 250 kg–cm (18 ft–lb, 25 N–m)



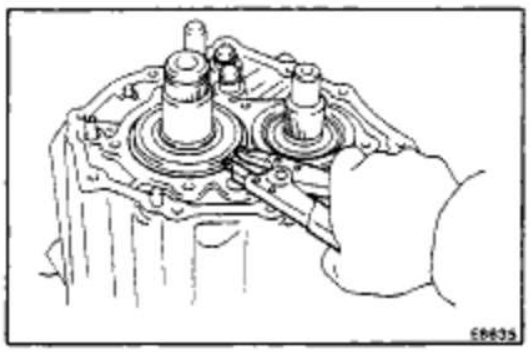
19. INSTALL SNAP .RINGS
Using a plastic hammer, install the three snap rings.



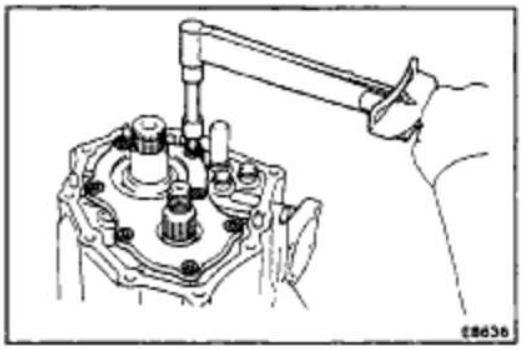
20. INSTALL OUTPUT SHAFT REAR TAPER ROLLER BEARING OUTER RACE
Using a plastic hammer, drive in the outer race.



21. INSTALL SHIM
HINT: Install the previously selected.

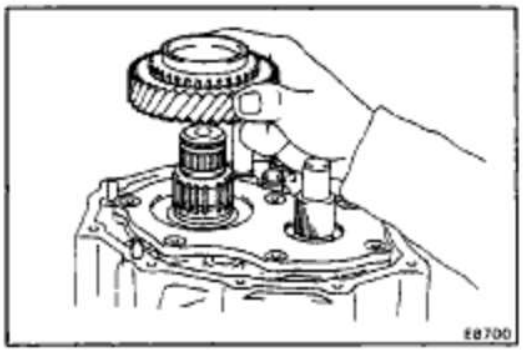


22. INSTALL SNAP RING
Using a snap ring pliers, install the snap ring to the input shaft rear bearing.

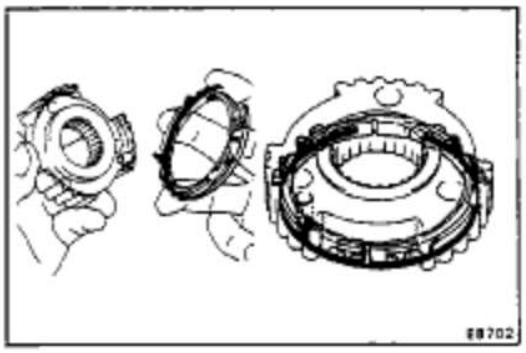


23. INSTALL REAR BEARING RETAINER

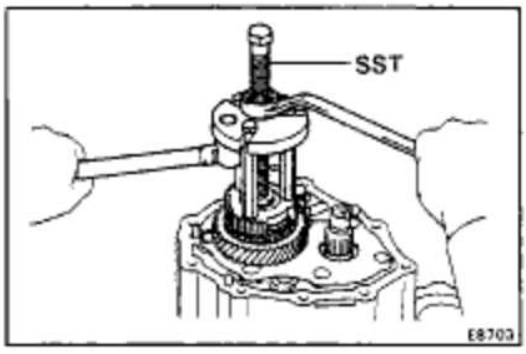
(a) Clean the threads of the torx screws.
(b) Using a torx wrench, install and torque the seven torx screws.
Torx wrench T45 09042–00050
Torque: 430 kg–cm (31 ft–lb, 42 N–m)



24. INSTALL SPACER, NEEDLE ROLLER BEARING AND FIFTH GEAR

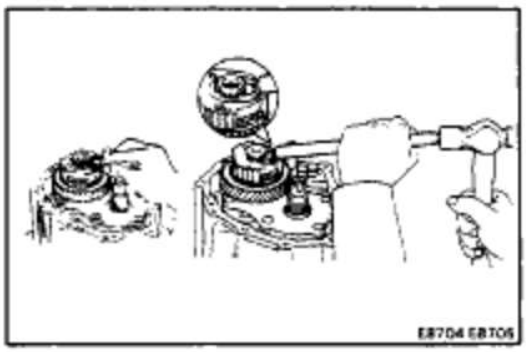


25. INSTALL SYNCHRONIZER RING WITH 1 KEY SPRING TO NO.3 CLUTCH HUB



26. INSTALL NO.3 CLUTCH HUB

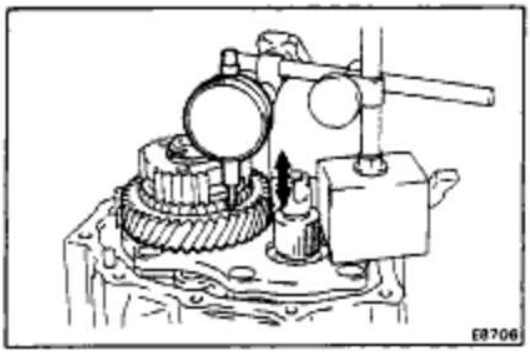
Using SST, install the No.3 clutch hub with synchronizer ring and key spring.
SST 09310–17010 (09310–07010, 09310–07020, 09310–07030)



27. INSTALL SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.

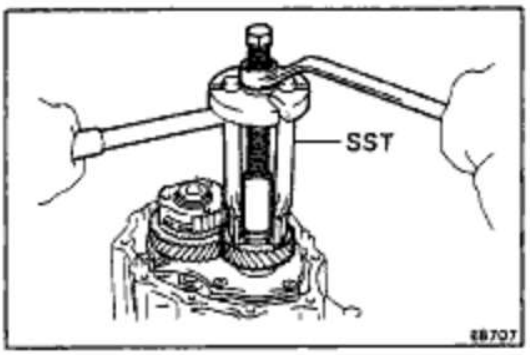
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
Q	2.25 (0.0886)	V	2.50 (0.0984)
R	2.30 (0.0906)	W	2.55 (0.1004)
S	2.35 (0.0925)	X	2.60 (0.1024)
T	2.40 (0.0945)	Y	2.65 (0.1043)
U	2.45 (0.0965)		



28. MEASURE FIFTH GEAR THRUST CLEARANCE

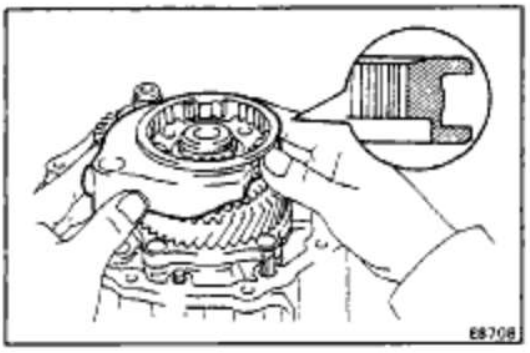
Using a dial indicator measure the 5th gear thrust clearance.

Standard clearance: 0.10 – 0.57 mm
(0.0039 – 0.0224 in.)

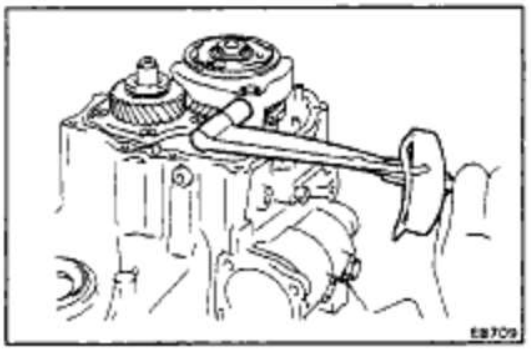


29. INSTALL FIFTH DRIVEN GEAR

Using SST, install the 5th driven gear.
SST 09310–17010 (09310–07010, 09310–07020, 09310–07040, 09310–07050)

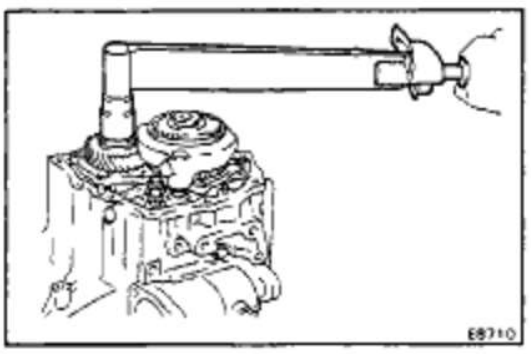


30. INSTALL NO.3 HUB SLEEVE WITH NO.3 SHIFT FORK



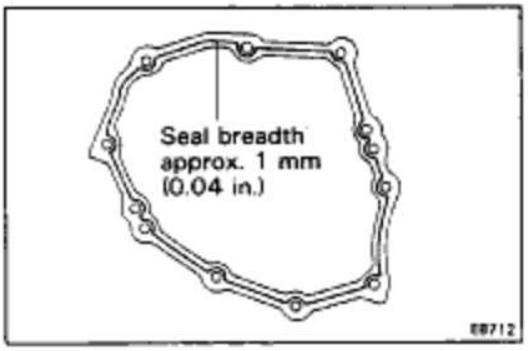
31. INSTALL SET BOLT

Install and torque the set bolt.
Torque: 240 kg–cm (17 ft–lb, 24 N–m)



32. INSTALL LOCK NUT

(a) Engage the gear double meshing.
(b) Install and torque the lock nut.
Torque: 1,250 kg–cm (90 ft–lb, 123 N–n)
(c) Disengage the gear double meshing.
(d) Stake the lock nut.



33. INSTALL TRANSMISSION CASE COVER

(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transmission case cover.

(b) Apply seal packing to the transmission case as shown in the figure. .

Seal packing: Part No.08826–00090, THREE BOND 1281 or equivalent

HINT: Install the transmission case cover as soon as the seal packing is applied.

(c) Install and torque the ten bolts.

Torque: 300 kg–cm (22 ft–lb, 29 N–m)



34. INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY

(a) Place a new gasket in position on the control shaft cover.

(b) Install the control shaft cover.

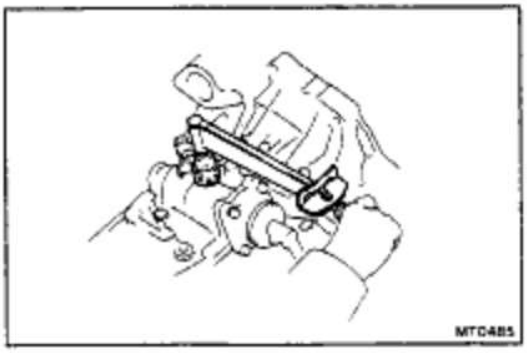
(c) Apply sealant to the bolt threads.

Sealant: Part

No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

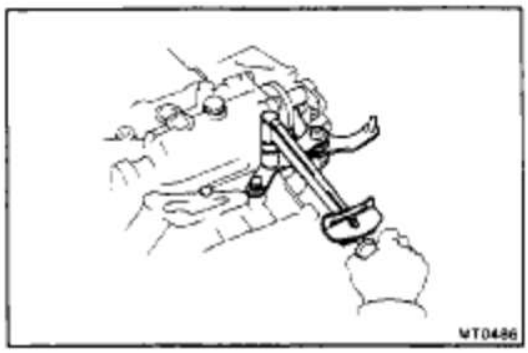
(d) install and torque the bolts.

Torque: 200 kg–cm (14 ft–lb, 20 N–m)



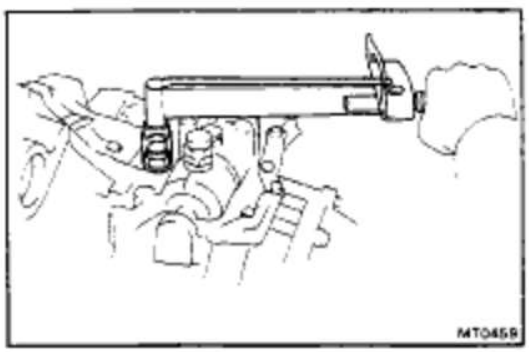
35. INSTALL AND TORQUE LOCK BOLT

Torque: 500 kg–cm (36 ft–lb, 49 N–m)



36. INSTALL AND. TORQUE SELECTING BELLCRANK ASSEMBLY

Torque: 200 kg–cm (14 ft–lb, 20 N–m)

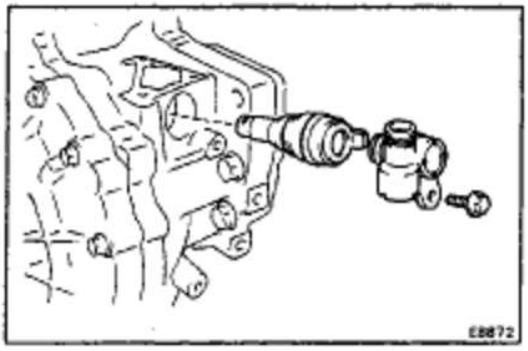


37. INSTALL BACK–UP LIGHT SWITCH

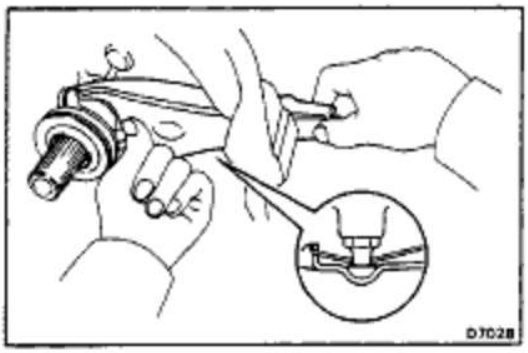
Using SST, install and torque the back–up light switch.

SST 09817–16011

Torque: 410 kg–cm (30 ft–lb, 40 N–m)



38. INSTALL SPEEDOMETER DRIVEN GEAR



39. INSTALL RELEASE FORK AND BEARING

Apply molybdenum disulphide lithium base grease to the following parts:

- Input shaft spline
- Release fork contact surface

PRECAUTIONS

When working with FIPG material, you must –be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both sealing surfaces with a non–residue solvent.**
  e Apply the seal packing in 1.2 mm (0.04) in.) bead along the sealing surface.
- **Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied. ,**

TROUBLESHOOTING

Problem	Possible cause	Remedy	Page
Noise	Transmission, differential! or transfer faulty Wrong oil grade Oil lever low	Disassemble and inspect transmission, differential or transfer Replace oil Add oil	MT–118 MT– 117
Oil leakage	Oil lever too high Oil seal, O–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	 FA–5 MT–118
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–205 MT– 118

PRECAUTIONS

When working with FIPG material, you must –be observe the following.

- **Using a razor blade and gasket scraper, remove all the old packing (FIPG) material from the gasket surfaces.**
- **Thoroughly clean all components to remove all the loose material.**
- **Clean both sealing surfaces with a non–residue solvent.**
- **Apply the seal packing in 1.2 mm (0.047 in.) bead along the sealing surface.**
- **Parts must be assembled within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied. ,**

TROUBLESHOOTING

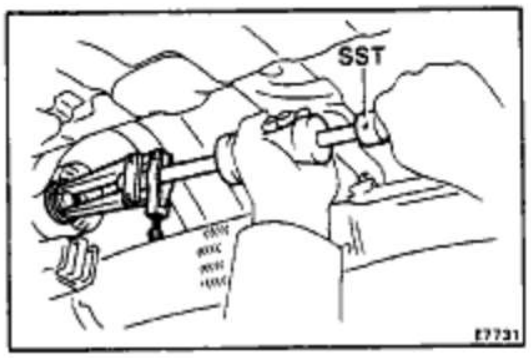
Problem	Possible cause	Remedy	Page
Noise	Transmission, differential! or transfer faulty Wrong oil grade Oil lever low	Disassemble and inspect transmission, differential or transfer Replace oil Add oil	MT–118 MT–117
Oil leakage	Oil lever too high Oil seal, O–ring or gasket worn or damaged	Drain oil Replace oil seal, O–ring or gasket	 FA–5 MT–118
Hard to shift or will not shift	Control cable faulty Transmission faulty	Replace control cable Disassemble and inspect transmission	MT–205 MT– 118

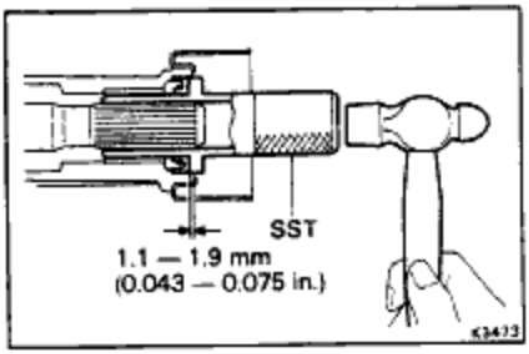
ON–VEHICLE REPAIR

REPLACEMENT OF OUTPUT SHAFT OIL SEAL

1. DRAIN TRANSAXLE OIL
2. REMOVE PROPELLER SHAFT
   (See page PR–4)

3. REMOVE OUTPUT SHAFT OIL SEAL
   Using SST, drive out the oil seal.
   SST 09308–00010

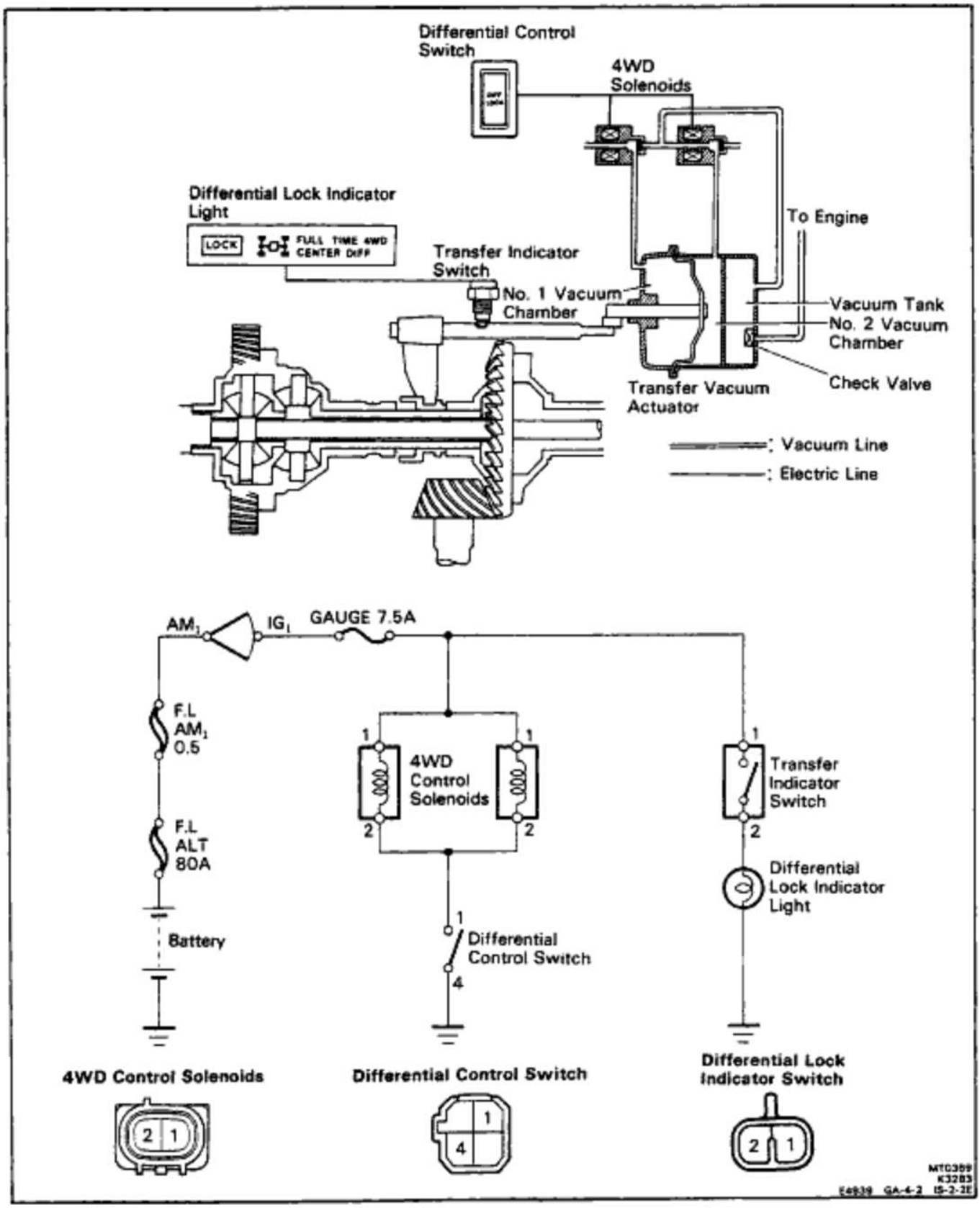


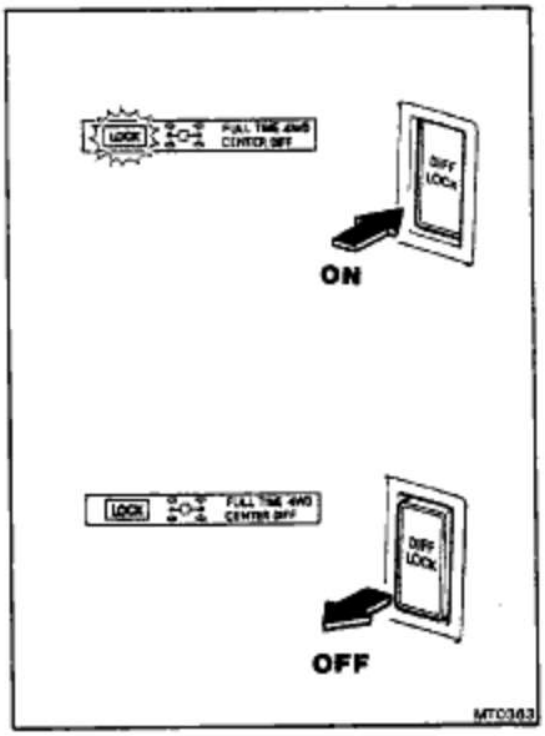


4. INSTALL OUTPUT SHAFT OIL SEAL
   Using SST, drive in a new oil seal.
   SST 09325–20010
   Oil seal depth: 1.1 – 1.9 mm (0.043 – 0.075)
5. INSTALL PROPELLER SHAFT
   (See page PR–13)
6. FILL TRANSAXLE WITH GEAR OIL
   (See page MT–117)

CENTER DIFFERENTIAL LOCK CONTROL (E56F5)

SYSTEM DIAGRAM AND WIRING DIAGRAM





Function Inspection

DIFFERENTIAL LOCK CONTROL

INSPECT DIFFERENTIAL LOCK OPERATION

Start the engine. Check that the differential lock indicator light comes on when the differential lock control switch is turned to ON. Check that the light goes off when the switch is turned to OFF.

HINT: After checking the system, turn the control switch to OFF and check that the differential lock function is released.

Reference: If the indicator light does not come on and go out when the control switch is operated, move the vehicle

slightly forward. when the system is operated it should be normal.

Single Unit Inspection

DIFFERENTIAL LOCK SWITCH

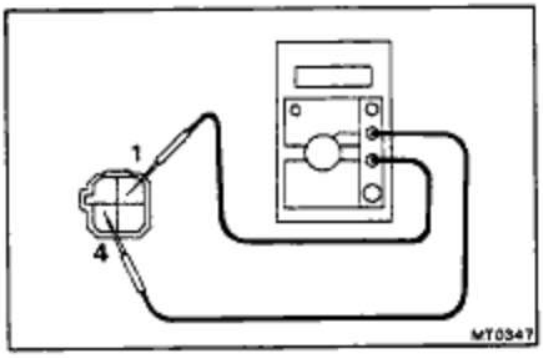
1. INSPECT CONTINUITY OF DIFFERENTIAL LOCK SWITCH

(a) Disconnect the differential lock switch connector.

(b) Check continuity between terminals 1 to 4.

Switch ON: Continuity

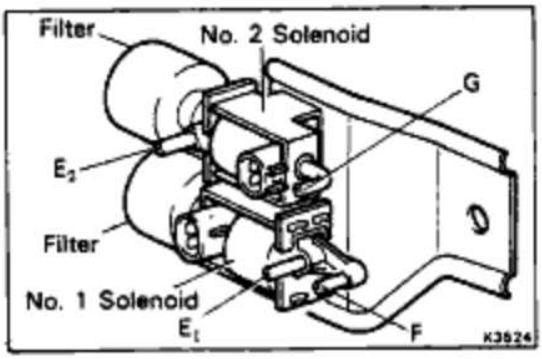
Switch OFF: No continuity



4WD CONTROL SOLENOID

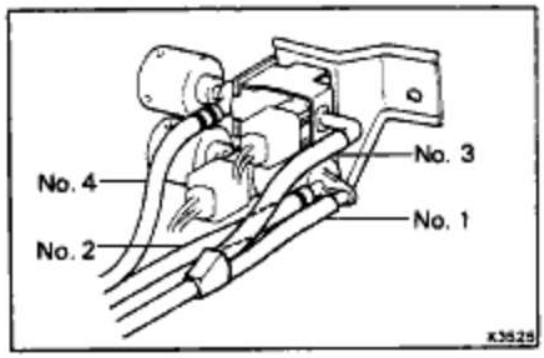
1. INSPECT OPERATION OF 4WD CONTROL SOLENOID

Check air flow of each port when the battery voltage is applied and is not applied to terminals No.1, No.2 of the solenoid.



O—O : Aeration

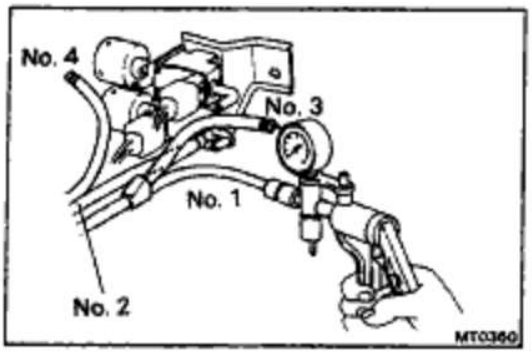
Port / Voltage	No. 1 Solenoid			No. 2 Solenoid		
	F	E_1	Filter	G	E_2	Filter
Apply battery voltage	O—O				O—O	
Non voltage		O—O		O—O		



TRANSFER VACUUM ACTUATOR

1. INSPECT ACTUATOR HOSE CONNECTION

Check that the actuator hoses are connected to the solenoids and actuator tightly and properly.



2. INSPECT ACTUATOR AIRTIGHTNESS

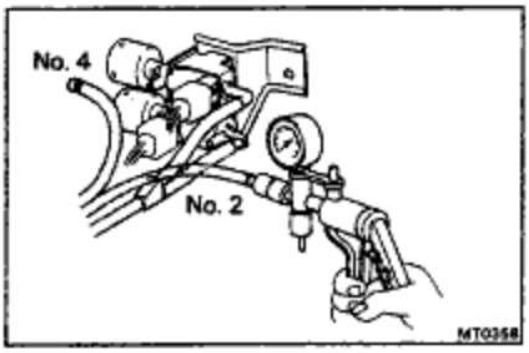
(Vacuum Tank)

(a) Disconnect the No. 1, No. 3 and No. 4 hoses from the solenoids.

(b) Plug the No. 3 hose.

W Connect the mighty vac to the No. 1 hose.

(d) Check the the indicator remains stable when a vacuum of 500 mmHg 0 9.69 in.Hg. 66.7 kPa) is applied.

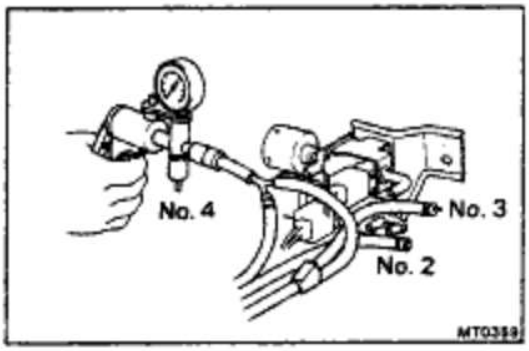


(No. 1 Vacuum Chamber Side)

(a) Disconnect the No. 2 and No. 4 hoses form the solenoids.

(b) Connect the mighty vac to the No. 2 hose.

(c) Check that the indicator remains stable when a vacuum of 504 mmHg (19.69 in.Hg, 66.7 kPa) is applied.



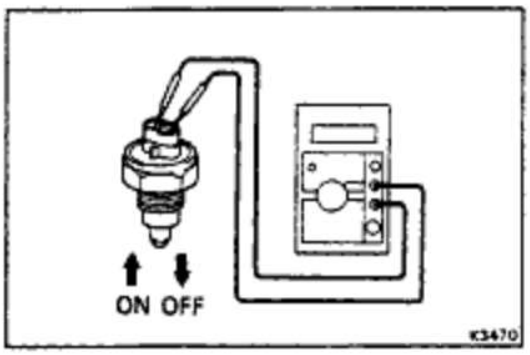
(No. 2 Vacuum Chamber Side

(a) Disconnect the all hoses from the solenoids.

(b) Plug the No. 3 hoses.

W Connect the mighty vac to the No. 1 and No. 4 hoses.

(d) Check that the indicator remains stable when a vacuum of 500 mmHg (19.69 in.Hg, 66.7 kPa) is applied.



TRANSFER INDICATOR SWITCH

INSPECT TRANSFER INDICATOR SWITCH FOR CONTINUITY

(a) Disconnect the indicator switch from the transfer.

(b) Check continuity between the terminals when the switch is turned ON and when turned OFF.

Switch *ON position: Continuity

Switch OFF position: No continuity

If not, replace the indicator switch.

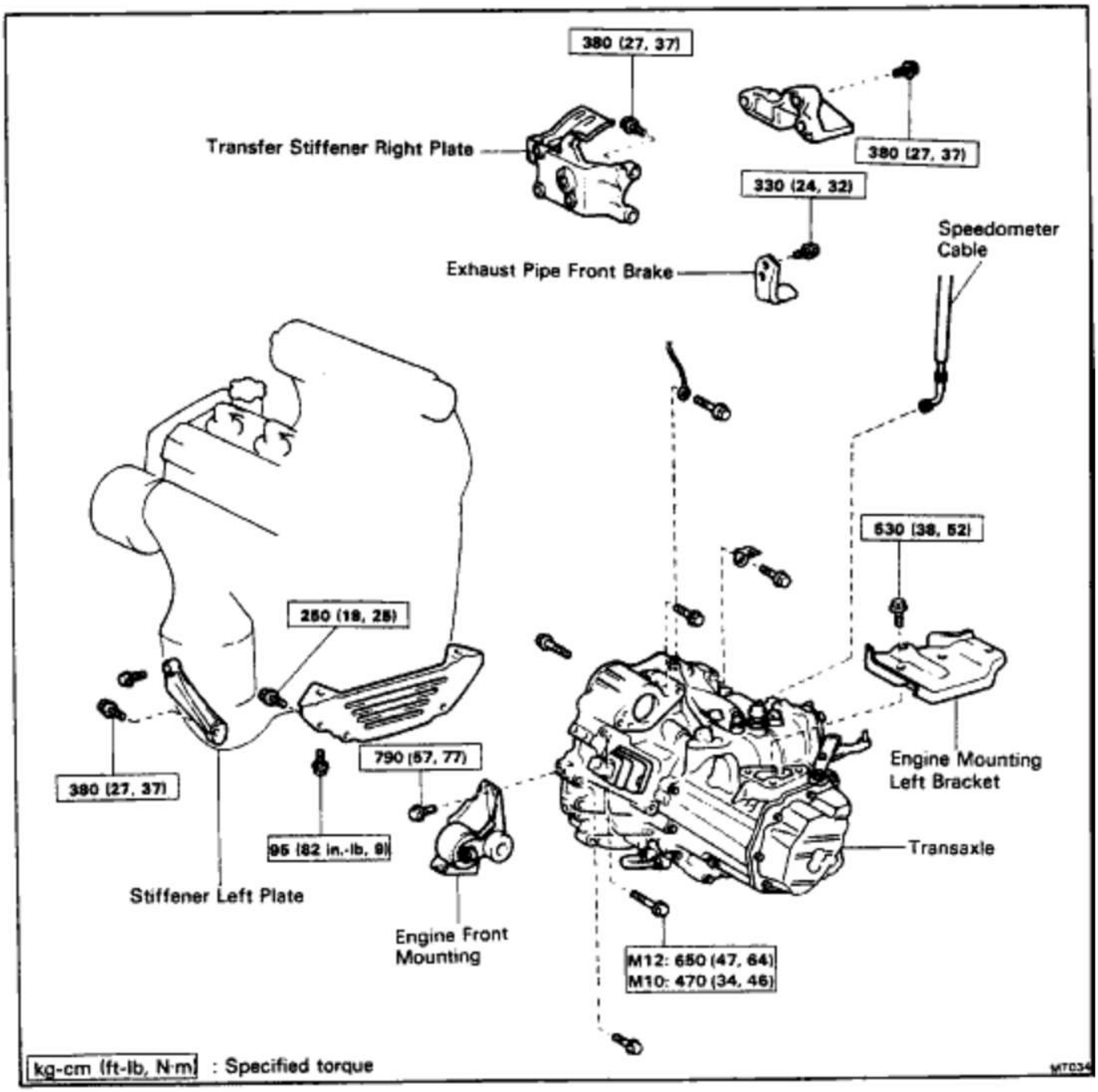
REMOVAL AND INSTALLATION OF TRANSAXLE

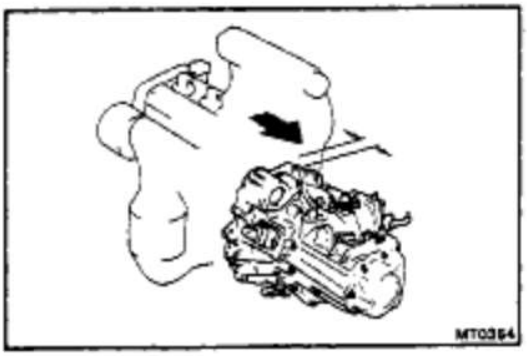
REMOVAL AND INSTALLATION OF ENGINE

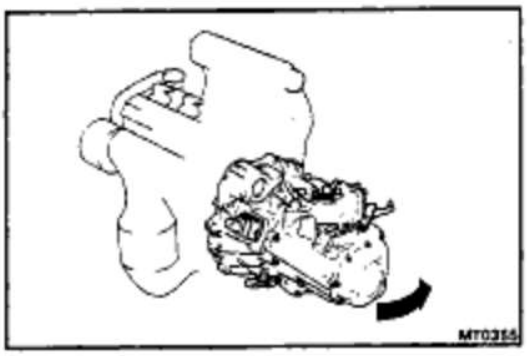
REMOVE ENGINE WITH TRANSAXLE
(See page EM–3)
INSTALL ENGINE WITH TRANSAXLE
(See page EM–7)

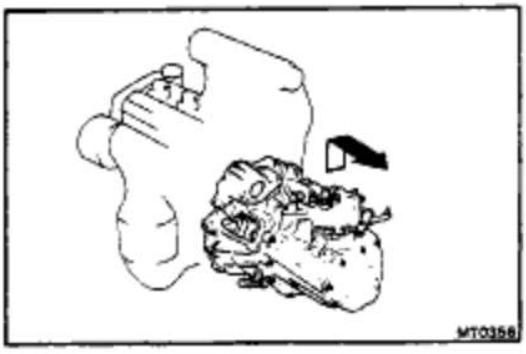
REMOVAL AND INSTALLATION OF TRANSAXLE

REMOVE AND INSTALL TRANSAXLE AS SHOWN









(MAIN POINT OF REMOVAL AND INSTALLATION)

1. REMOVE TRANSAXLE ASSEMBLY

HINT: When removing transaxle from engine, remove as the following procedure since cylinder block rib contacts transfer case.

(a) Pull straight until there are space of 60 – 80mm (2 –3 in.) between engine and transaxle case.

(b) Move the transmission case cover to the arrow in the illustration.

(e) While holding the transfer output slightly, pull out whole transaxle.

2. INSTALL TRANSAXLE ASSEMBLY FOLLOWING REMOVAL SEQUENCE IN REVERSE

REPLACEMENT OF TRANSAXLE GEAR OIL

1. DRAIN TRANSAXLE OIL

2. FILL TRANSAXLE OIL WITH GEAR OIL

Oil: Transaxle oil E50 (08885–80206) or equivalent

Recommended oil

Oil grade: API G!–5

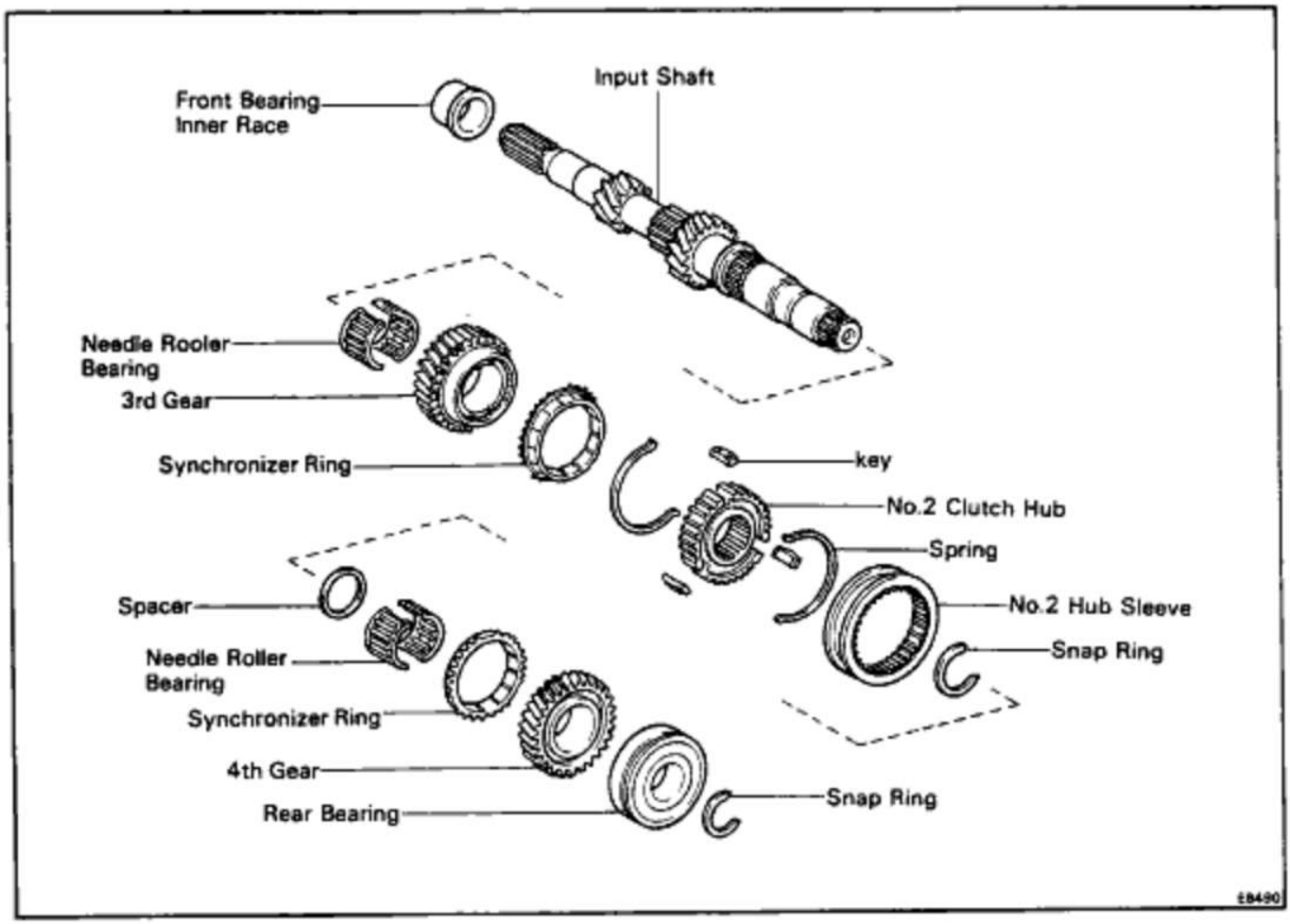
Viscosity: SAE 75W–90 or 80W–90

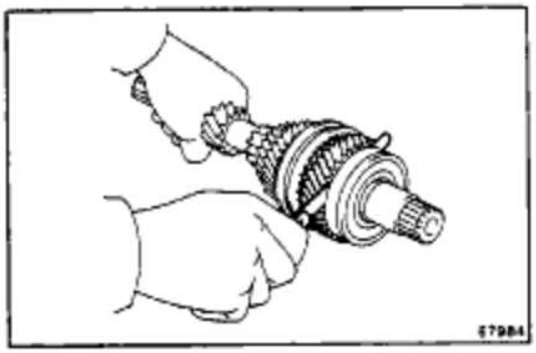
Above –18˚C (0˚F) SAE 90

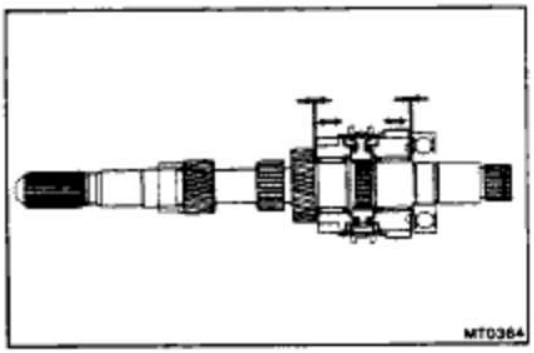
Below –18˚C (0˚F) SAE 80W

Capacity: 5.0 liters (5.3 US qts, 4.4 Imp qts)

COMPONENT PARTS
Input Shaft Assembly







DISASSEMBLY OF INPUT SHAFT ASSEMBLY

1. MEASURE THIRD AND FOURTH GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

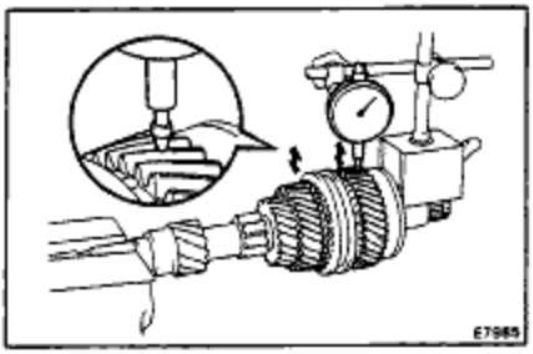
3rd gear 0.10 – 0.35 mm (0.0039 – 0.0138 in.)

4th gear 0.10 – 0.55 mm (0.0039 – 0.0217 in.)

Maximum clearance:

3rd gear 0.40 mm (0.0157 in.)

4th gear 0.60 mm (0.0236 in.)

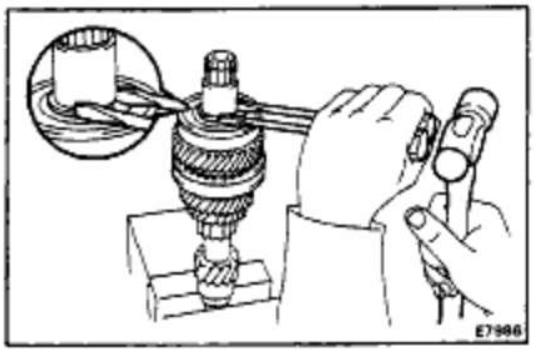


2. CHECK OIL CLEARANCE OF THIRD AND FOURTH GEAR

Using dial indicator, measure the oil clearance between the gear and shaft.

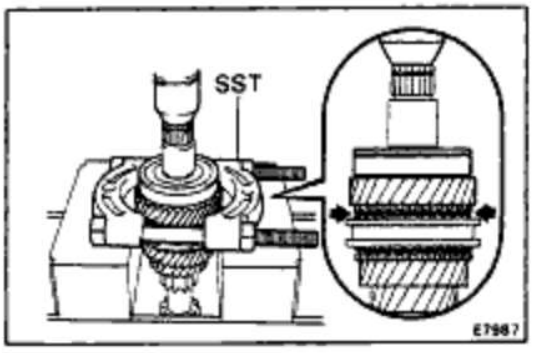
Standard clearance:
3rd gear 0.009 – 0.053 mm
(0.0004 – 0.0020 in.)
4th gear 0.009 – 0.051 mm(0.0004 – 0.0020 in.)
Maximum clearance: 0.080 mm (0–0031 in.)

If clearance exceeds the limit, replace the gear, needle roller bearing or shaft.



3. REMOVE SNAP RING

Using two screwdrivers and a hammer, tap out the snap ring.

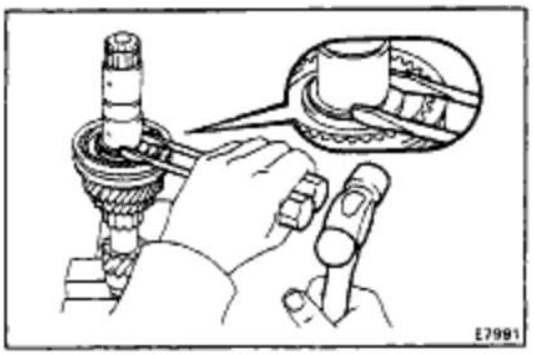


4. REMOVE INPUT SHAFT REAR BEARING AND FOURTH GEAR

Using SST and a press, remove the input shaft rear bearing.

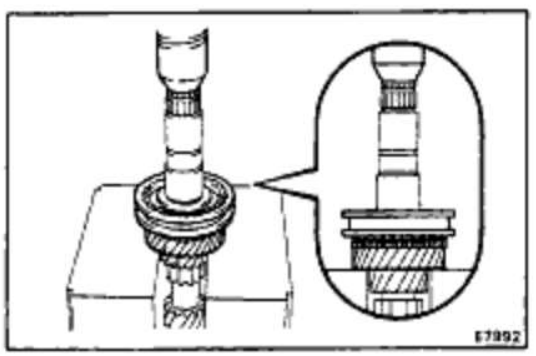
SST 09950–00020

5. REMOVE NEEDLE ROLLER BEARINGS, SPACER AND SYNCHRONIZER RING



6. REMOVE SNAP RING

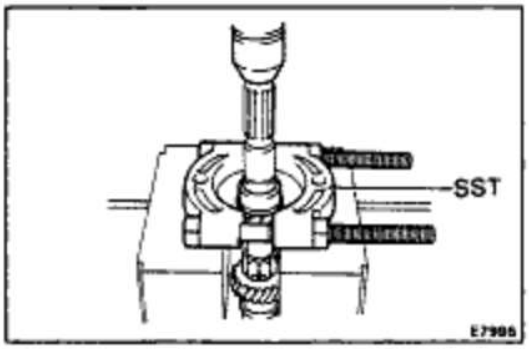
Using two screwdrivers and a hammer, tap out the snap ring.



7. REMOVE NO.2 CLUTCH HUB ASSEMBLY, SYNCHRONIZER RING AND THIRD GEAR

Using a press, remove No.2 hub sleeve, 3rd gear, synchronizer ring and needle roller bearings.

8. REMOVE NEEDLE ROLLER BEARING



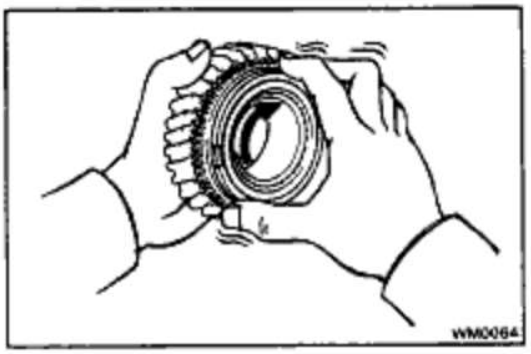
9. REMOVE INPUT SHAFT FRONT BEARING INNER RACE

Using SST and a press, remove the inner race.
SST 09950–00020

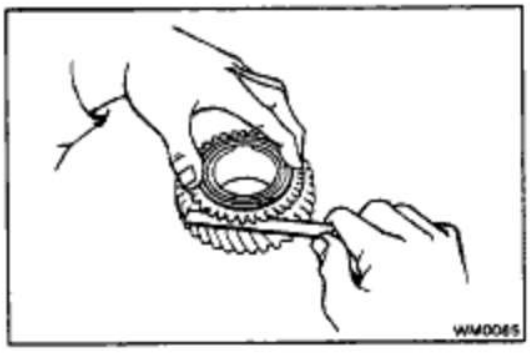
INSPECTION OF INPUT SHAFT COMPONENT PARTS

1. INSPECT SYNCHRONIZER RINGS

(a) Check for wear or damage.
(b) Turn the ring and push it in to check the bearing action.

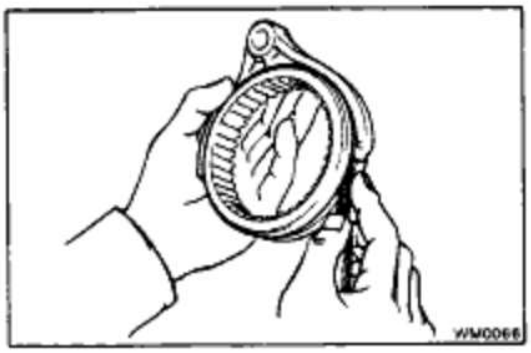


(c) Measure the clearance between the synchronizer ring back and gear spline end.
Minimum clearance: 0.6 mm (0.024 in.)
If the clearance is less than the limit, replace the synchronizer ring.



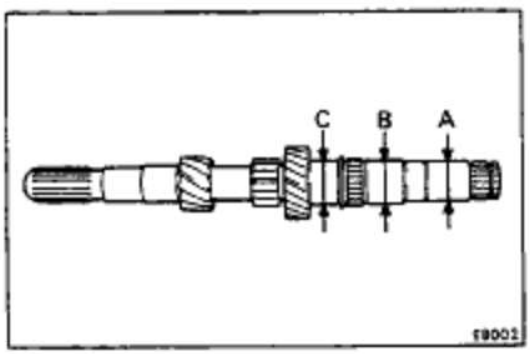
2. MEASURE CLEARANCE OF NO.2 SHIFT FORK AND HUB SLEEVE

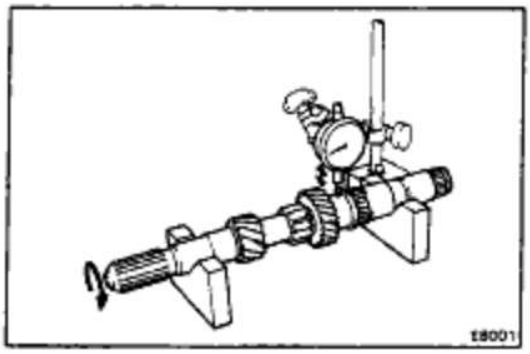
Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.
Maximum clearance: 1.0 mm (0.039 in.)
If the clearance exceeds the limit, replace the shift fork or hub sleeve.



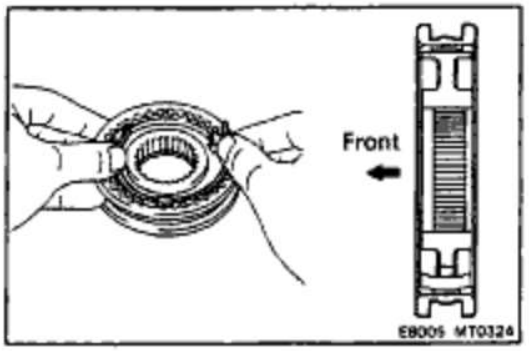
3. INSPECT INPUT SHAFT

(a) Check the input shaft for wear or damage.
(b) Using a micrometer, measure the outer diameter of the input shaft journal surface.
Minimum outer diameter:
Part A 32.930 mm (1.2964 in.)
B and C 35.950 mm (1.4154 in.)





(c) Using a dial indicator, check the shaft runout.
Maximum runout: 0.060 mm (0.0024 in.)



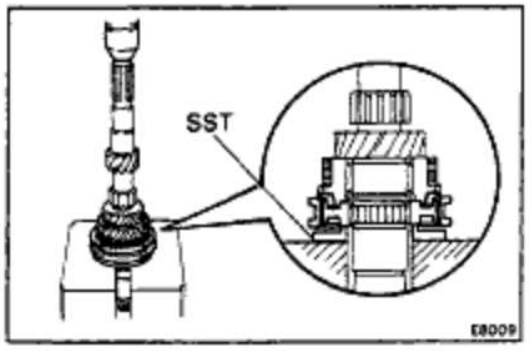
ASSEMBLY OF INPUT SHAFT ASSEMBLY

(See page MT–134)

HINT: Coat all the sliding and rotating surface with gear oil b¿¿ore assembly.

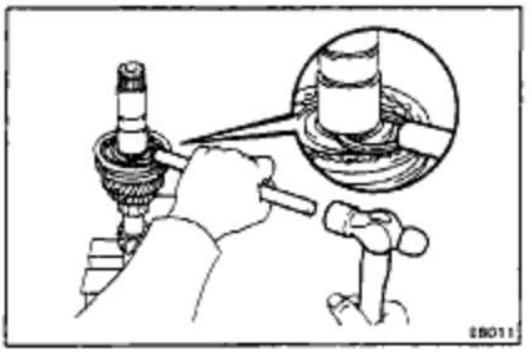
1. INSERT NO.2 CLUTCH HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.
(b) Install the shifting key springs under the shifting keys.
NOTICE: install the key springs positioned so that their end gaps are not in line.



2. INSTALL NEEDLE ROLLER BEARING. THIRD GEAR, SYNCHRONIZER RING AND NO.2 HUB SLEEVE ASSEMBLY TO INPUT SHAFT

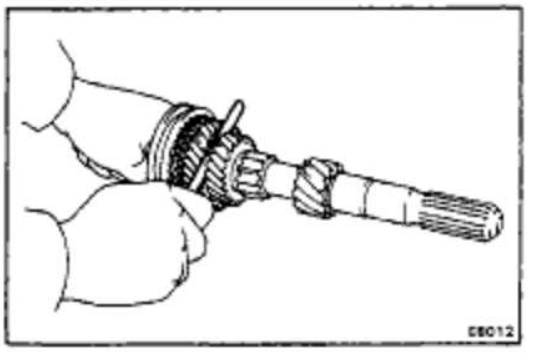
(a) Apply MP grease to the needle roller bearings.
(b) Install the 3rd gear.
(e) Place the synchronizer ring on the gear and align the ring slots with the shifting keys.
(d) Using SST and a press, install the 3rd gear and No.2 hub sleeve.
SST 09506–35010



3. INSTALL SNAP RING

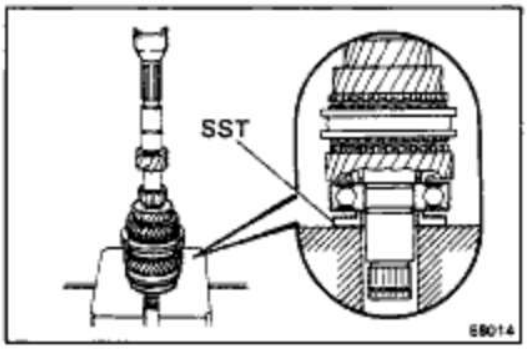
Select a snap ring that will allow minimum axial play and install it on the shaft.
Snap ring thickness:

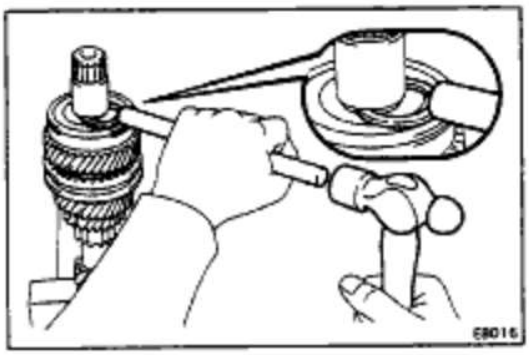
Mark	Thickness mm (in.)
H	2.30 – 2.35 (0.0906 – 0.0925)
J	2.35 – 2.40 (0.0925 – 0.0945)
K	2.40 – 2.45 (0.0945 – 0.0965)
L	2.45 – 2.50 (0.0965 – 0.0984)
M	2.50 – 2.55 (0.0984 – 0.1004)
N	2.55 – 2.60 (0.1004 – 0.1024)
P	2.60 – 2.65 (0.1024 – 0.1043)

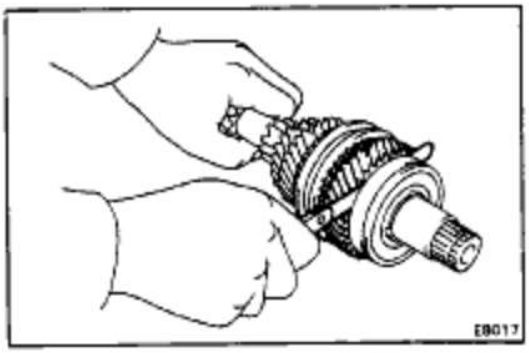


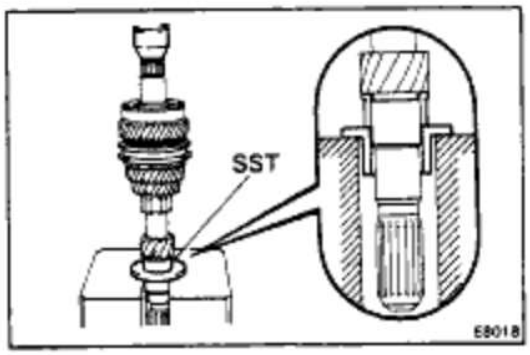
4. MEASURE THIRD GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 3rd gear thrust clearance.
Standard clearance: 0.10 – 0.35 mm (0.0039 – 0.0138 in.)









5. INSTALL SPACER, SYNCHRONIZER RING, NEEDLE ROLLER BEARINGS, FOURTH GEAR AND RADIAL BALL BEARING

(a) Install the spacer.
(b) Apply MP grease to the needle roller bearings.
(c) Place the synchronizer ring on the gear and align the the ring slots with the shifting keys.
(d) Install the 4th gear.
(e) Using SST and a press, install the radial ball bearing.
SST 09506–35010

6. INSTALL –SNAP RING

Select a snap ring that will allow minimum axial play and install it on the shaft.
Snap ring thickness:

Mark	Thickness mm (in.)
1	2.35 – 2.40 (0.0925 – 0.0945)
2	2.40 – 2.45 (0.0945 – 0.0965)
3	2.45 – 2.50 (0.0965 – 0.0984)
4	2.50 – 2.55 (0.0984 – 0.1004)
5	2.55 – 2.60 (0.1004 – 0.1024)
6	2.60 – 2.65 (0.1024 – 0.1043)
7	2.65 – 2.70 (0.1043 – 0.1063)
8	2.70 – 2.75 (0.1063 – 0.1083)

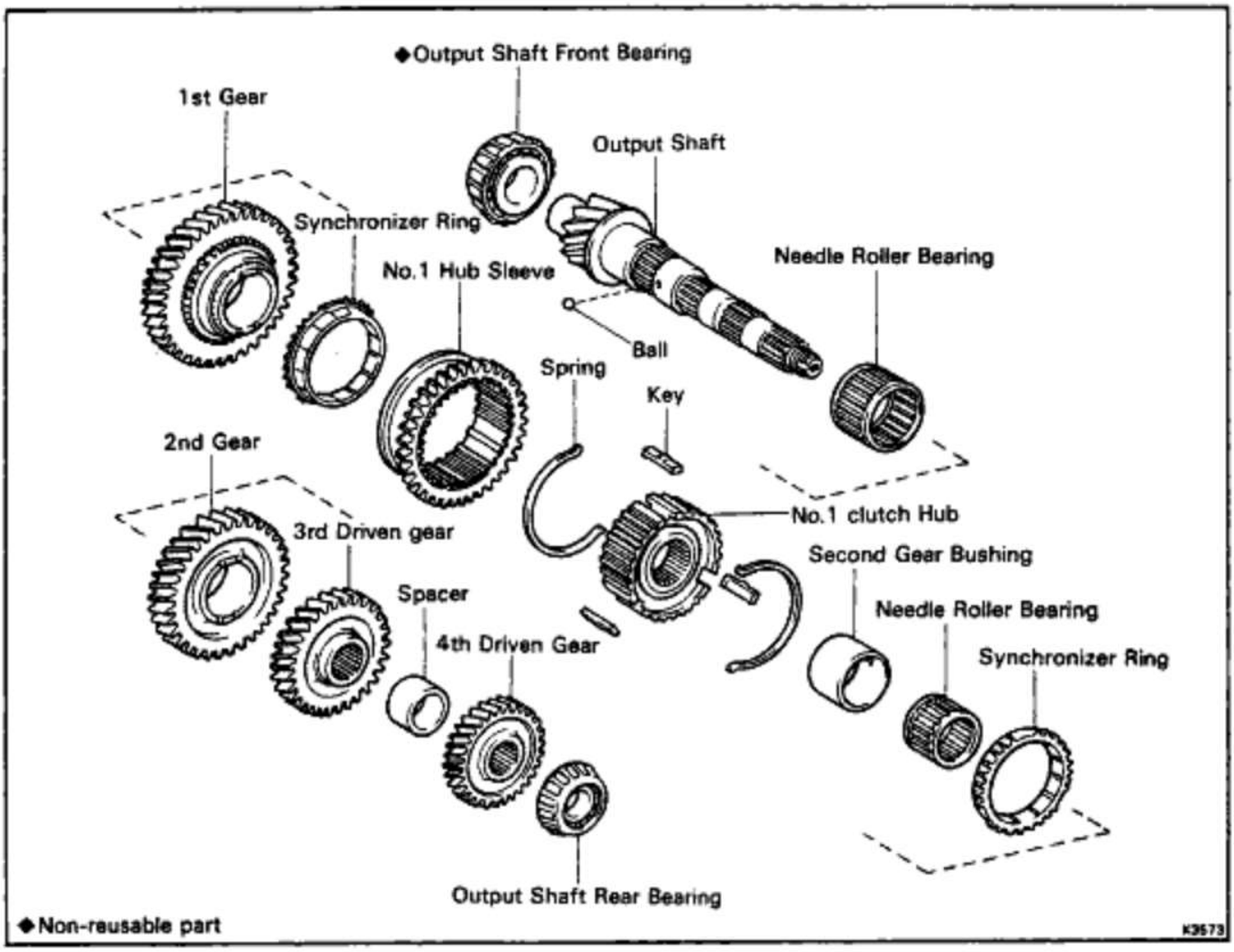
7. MEASURE FOURTH GEAR THRUST CLEARANCE

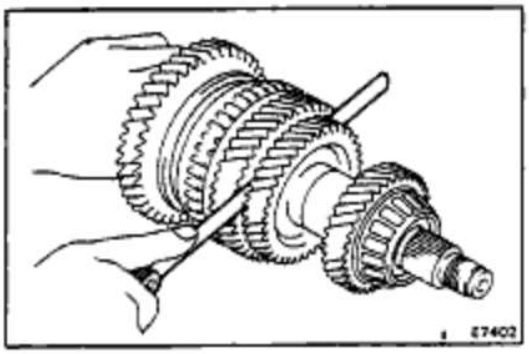
Using a feeler gauge, measure the 4th gear thrust clearance.
Standard clearance: 0.10 – 0.55 mm (0.0039 – 0.0217 in.)

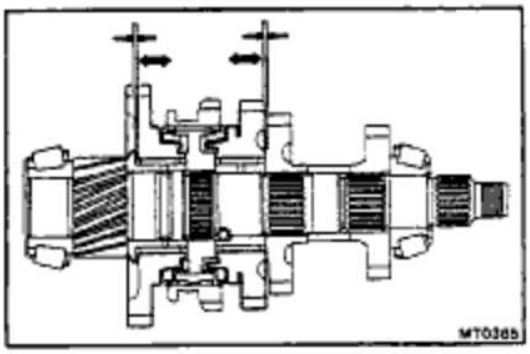
8. INSTALL INPUT SHAFT FRONT BEARING INNER RACE

Using SST and a press, install the input shaft front bearing inner race.
SST 09316–60010 (09316–00020)

Output Shaft Assembly







DISASSEMBLY OF OUTPUT SHAFT ASSEMBLY

1. MEASURE FIRST AND SECOND GEAR THRUST CLEARANCE

Using a feeler gauge, measure the thrust clearance.

Standard clearance:

1 st gear 0.10 – 0.35 mm

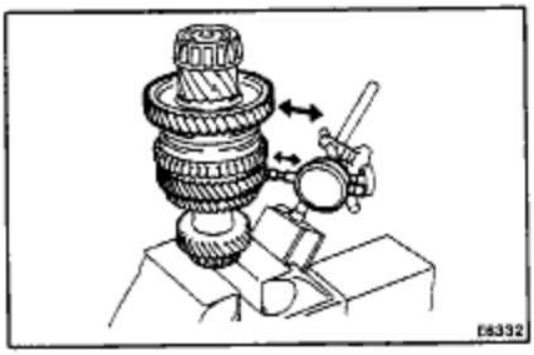
(0.0039 – 0.0138 in.)2nd gear 0.10 – 0.45 mm

(0.0038 – 0.0177 in.)

Maximum clearance:

1 st gear 0.40 mm (0.0157 in.)

2nd gear 0.50 mm (0.0197 in.)



2. CHECK OIL CLEARANCE OF FIRST AND SECOND GEAR

Using dial indicator, measure the oil clearance between the gear and shaft.

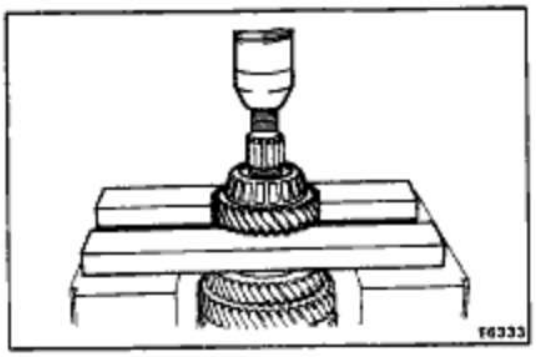
Standard clearance:

1st gear 0.009 – 0.051 mm (0.0004 – 0.0020 in.)

2nd gear, 0.009 – 0.053 mm (0.0004 – 0.0020 in.)

Maximum clearance: 0.080 mm (0.0031 in.)

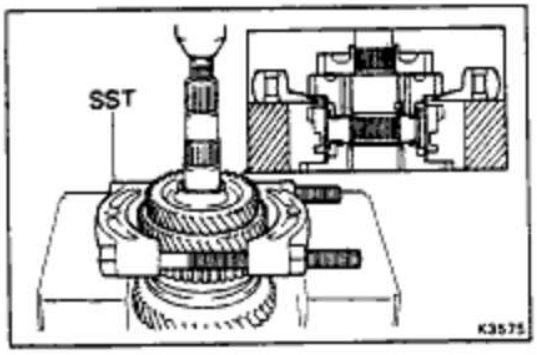
If the clearance exceeds the limit, replace the gear, needle roller bearing or shaft.



3. REMOVE OUTPUT SHAFT REAR BEARING, FOURTH DRIVEN GEAR AND SPACER

(a) Using a press, remove the bearing and 4th driven gear.

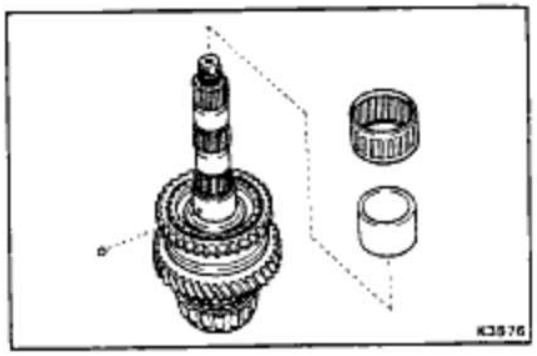
(b) Remove the spacer.



4. REMOVE THIRD DRIVEN GEAR AND SECOND GEAR

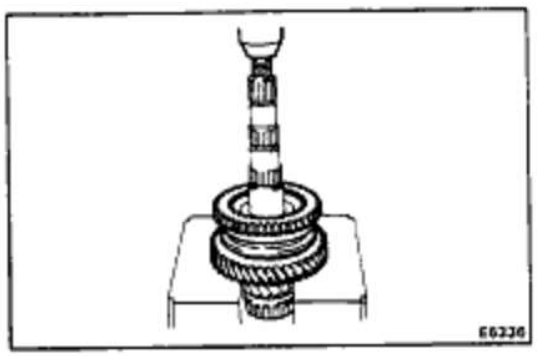
Using SST and a press, remove the 3rd driven gear and 2nd gear.

SST 09950–00020



5. REMOVE NEEDLE ROLLER BEARING. SECOND GEAR BUSHING AND BALL

6. REMOVE SYNCHRONIZER RING

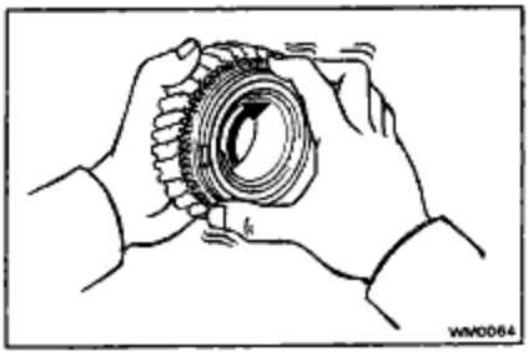


7. REMOVE NO.1 HUB SLEEVE ASSEMBLY AND FIRST GEAR

Using a press, remove No. 1 hub sleeve and 1st gear.

8. REMOVE SYNCHRONIZER RING AND NEEDLE ROLLER BEARING

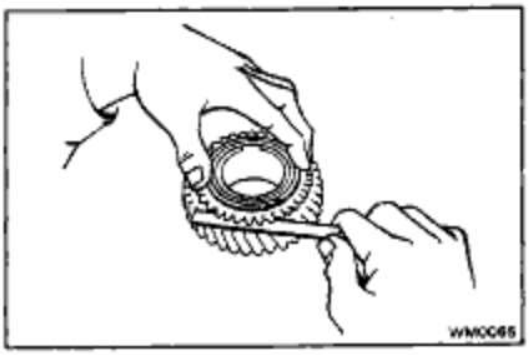
INSPECTION OF OUTPUT SHAFT COMPONENT PARTS



1. INSPECT SYNCHRONIZER RINGS

(a) Check for wear or damage.

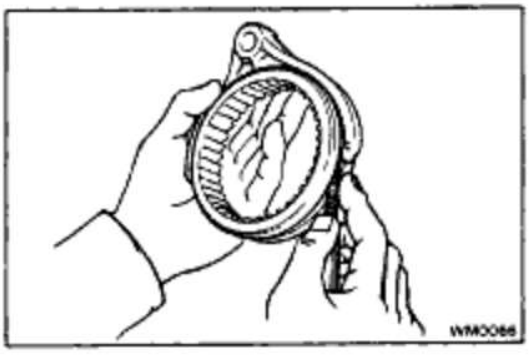
(b) Turn the ring and push it in to check the braking action.



(e) Measure the clearance between the synchronizer ring back and gear spline end.

Minimum clearance: 0.6 mm (0.024 in.)

If the clearance is less than the limit, replace the synchronizer ring.

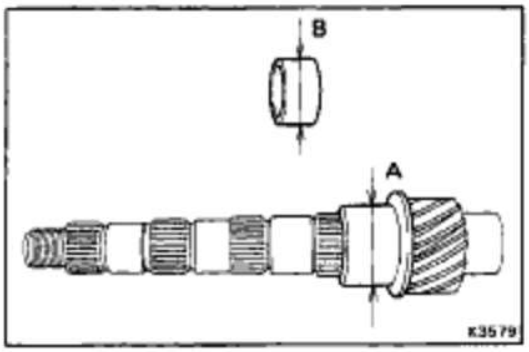


2. MEASURE CLEARANCE OF NO.1 SHIFT FORK AND HUB SLEEVE

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (0.039 in.)

If the clearance exceeds the limit, replace the shift fork or hub sleeve.



3. INSPECT OUTPUT SHAFT

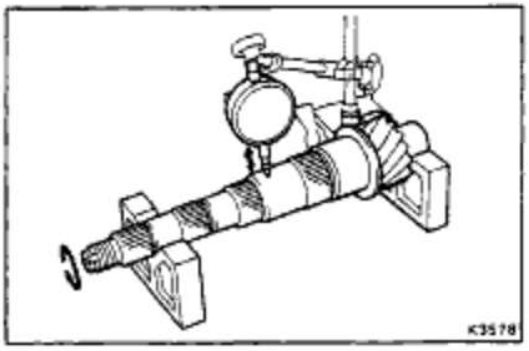
(a) Check the output shaft for wear or damage.

(b) Using a micrometer, measure the outer diameter of the second gear bushing and output shaft journal surface.

Minimum outer diameter:

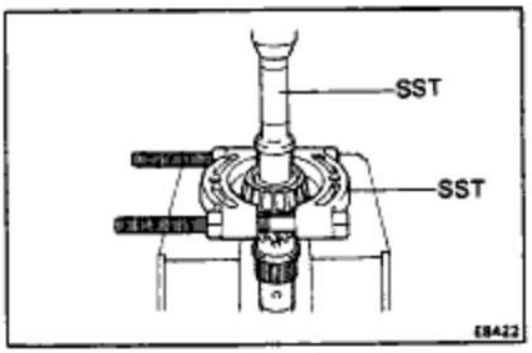
Part A: 44.950 mm (1.7697 in.)

Part B: 43.950 mm (1.7303 in.)



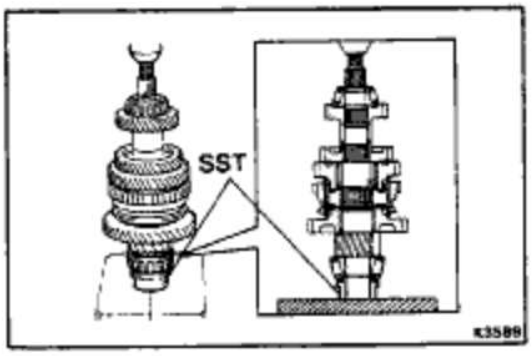
(c) Using a dial indicator, check the shaft runout.

Maximum runout: 0.060 mm (0.0024 in.)



4. IF NECESSARY, REPLACE OUTPUT SHAFT FRONT BEARING

(a) Using SST and a press, remove the bearing.
SST 09307–12010, 09950–00020



(b) Using SST and a press, install a new bearing.
SST 09316–60010 (09316–00070)

ASSEMBLY OF OUTPUT SHAFT ASSEMBLY

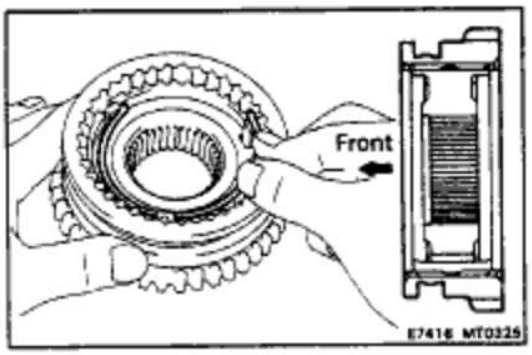
(See page MT–139)

HINT: Coat all the sliding and rotating surface with gear oil before assembly.

1. INSERT NO.1 CLUTCH HUB INTO HUB SLEEVE

(a) Install the clutch hub and shifting keys to the hub sleeve.
(b) Install the shifting key springs under the shifting keys.

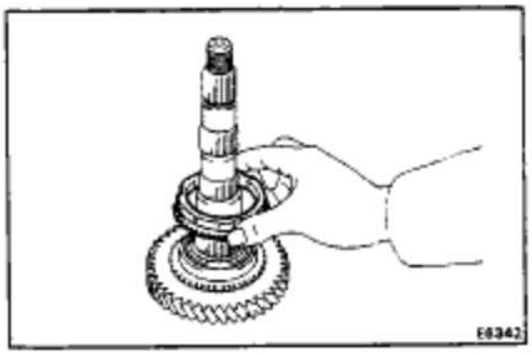
NOTICE: Install the key springs positioned so that their end gaps are not in line.

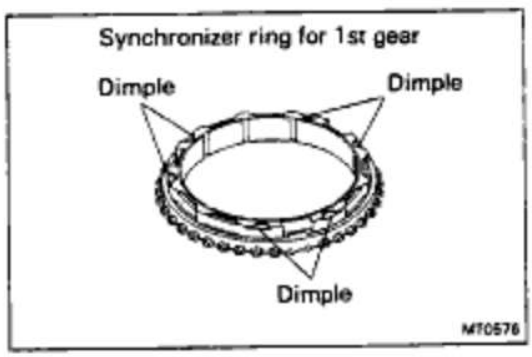


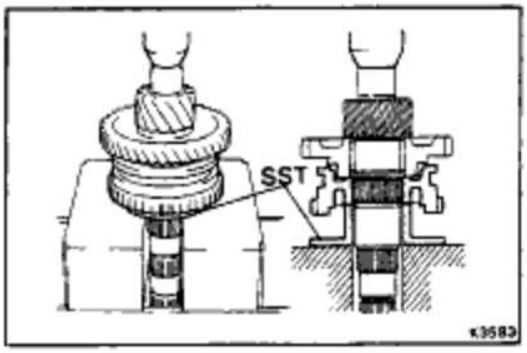
2. INSTALL NEEDLE ROLLER BEARINGS, FIRST GEAR, SYNCHRONIZER RING AND NO.1 HUB SLEEVE TO OUTPUT SHAFT

(a) Apply MP grease to the needle roller bearings.
(b) Install the 1st gear.
(c) Place the synchronizer ring (for 1st gear) on the gear and align the ring slots with the shifting keys.

NOTICE: Do not install the synchronizer ring for 2nd gear.



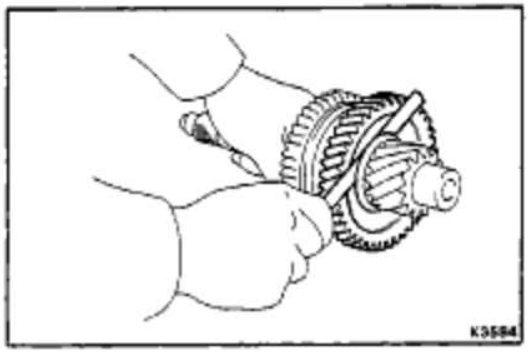




(d) Using SST and a press, install the 1 st gear and No. 1
hub sleeve.
SST 09316–60010¿09316–000401

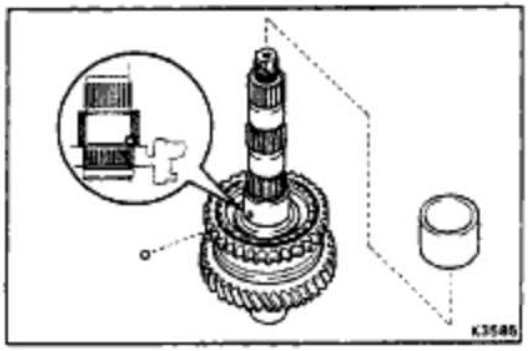
3. MEASURE FIRST GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 1st gear thrust clearance.
Standard clearance: 0.10 – 0.35 mm
(0.0039 – 0.0138 in.)



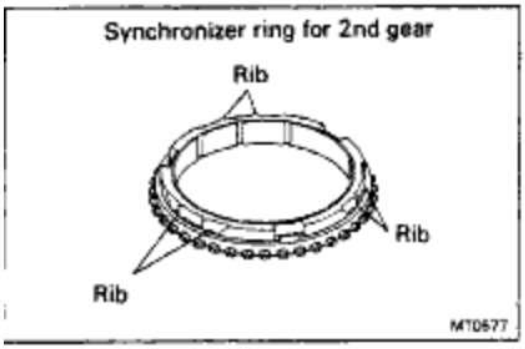
4. INSTALL BALL, SECOND GEAR BUSHING, NEEDLE ROLLER BEARING

(a) Install the ball and bushing.
(b) Apply MP grease to the needle roller bearing.
(e) Install the needle roller bearing.

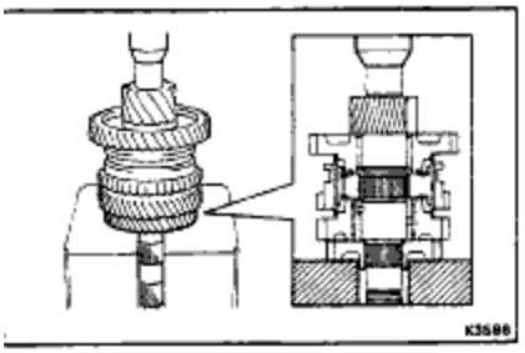


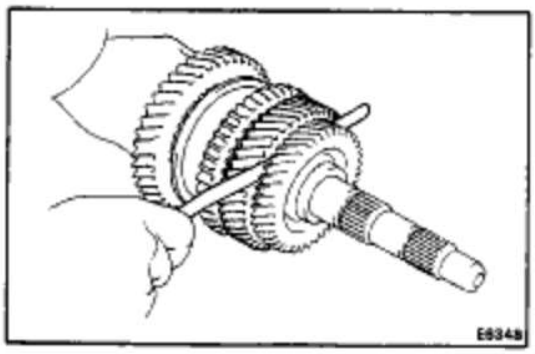
5. SYNCHRONIZER RING, SECOND GEAR AND THIRD DRIVEN GEAR

(a) Place the synchronizer ring (for 2nd gear) on the gear and align the ring slots with the shifting keys.
NOTICE: Do not install the synchronizer ring for 1 st gear.



(b) Install the 2nd gear.
(e) Using a press, install the 3rd driven gear.

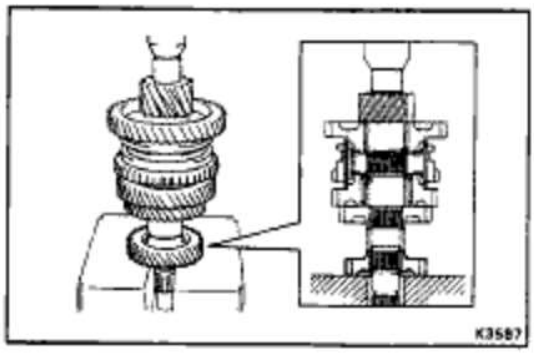




6. MEASURE SECOND GEAR THRUST CLEARANCE

Using a feeler gauge, measure the 2nd gear thrust clearance.

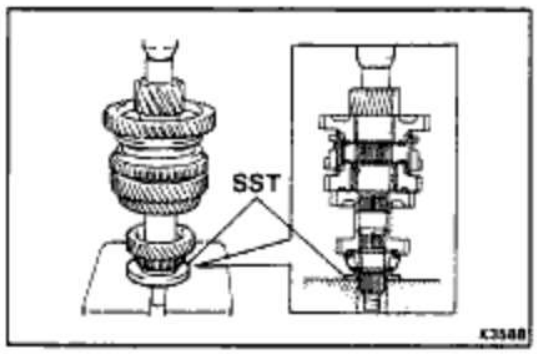
Standard clearance: 0.10 – 0.45 mm (0.0039 – 0.0177 in.)



7. INSTALL SPACER AND FOURTH DRIVEN GEAR

(a) Install the spacer.

(b) Using a press, install the 4th driven gear.



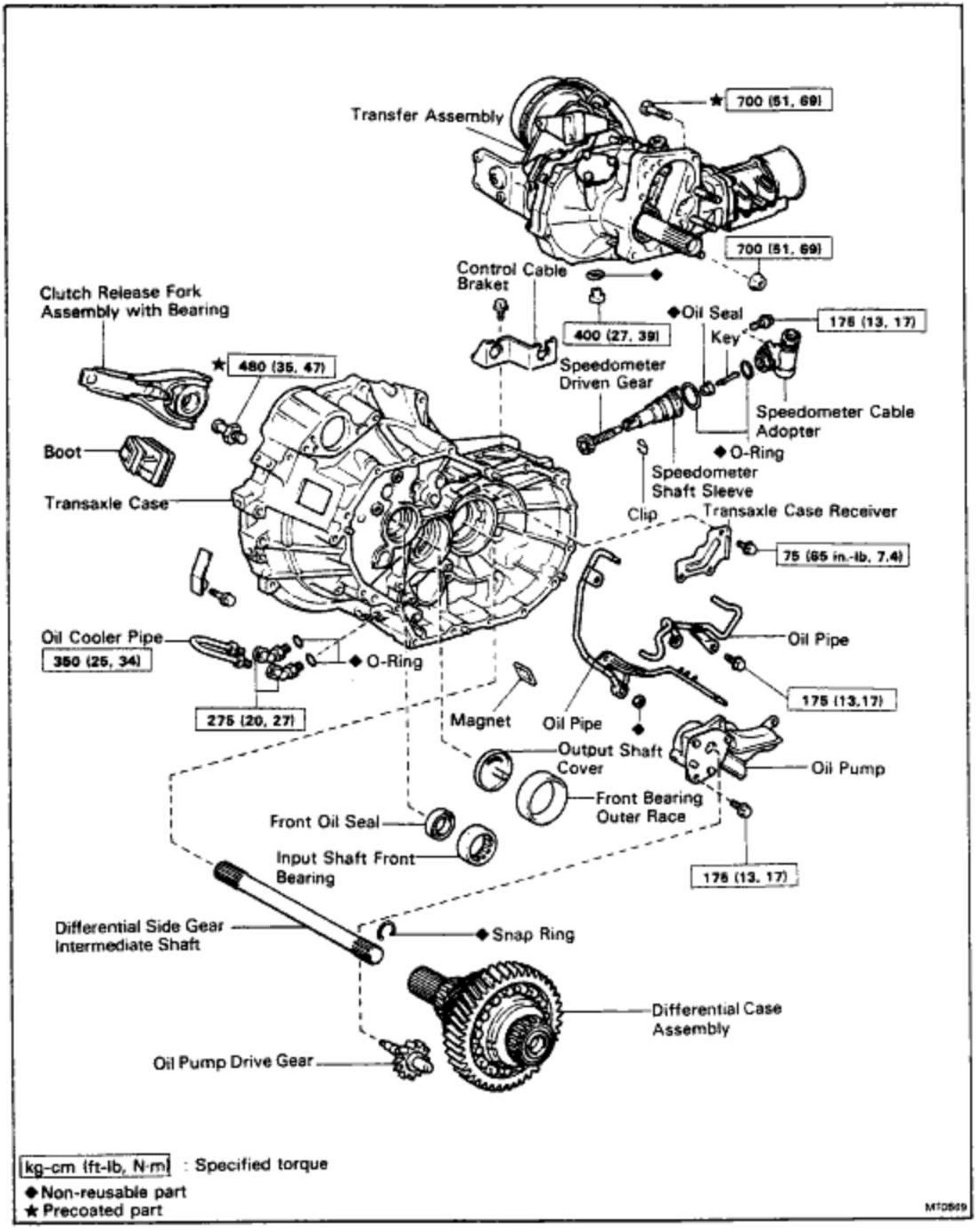
8. INSTALL OUTPUT SHAFT REAR BEARING

Using SST and a press, install the output shaft rear taper roller bearing.

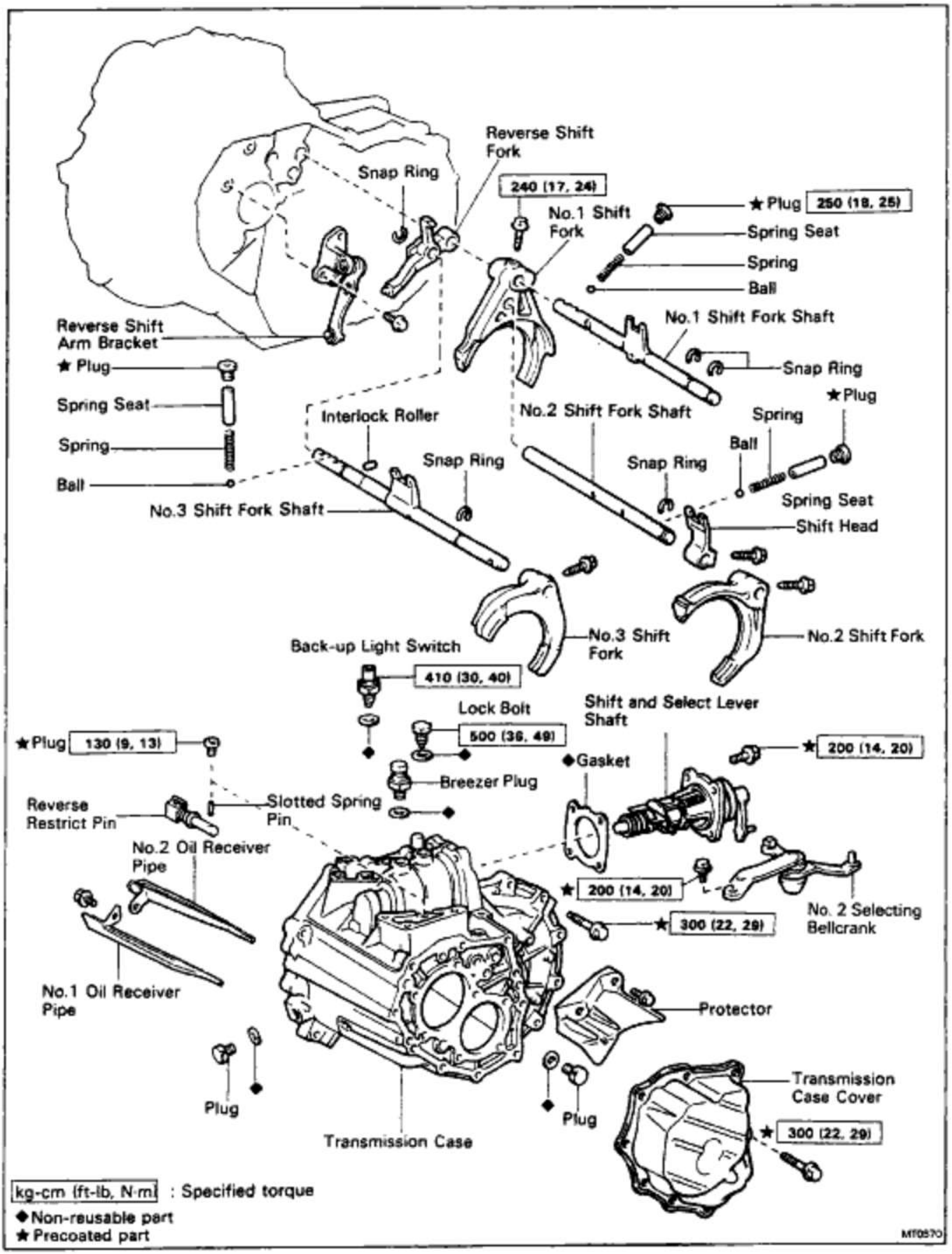
SST 09506–30012

REMOVAL OF COMPONENT PARTS

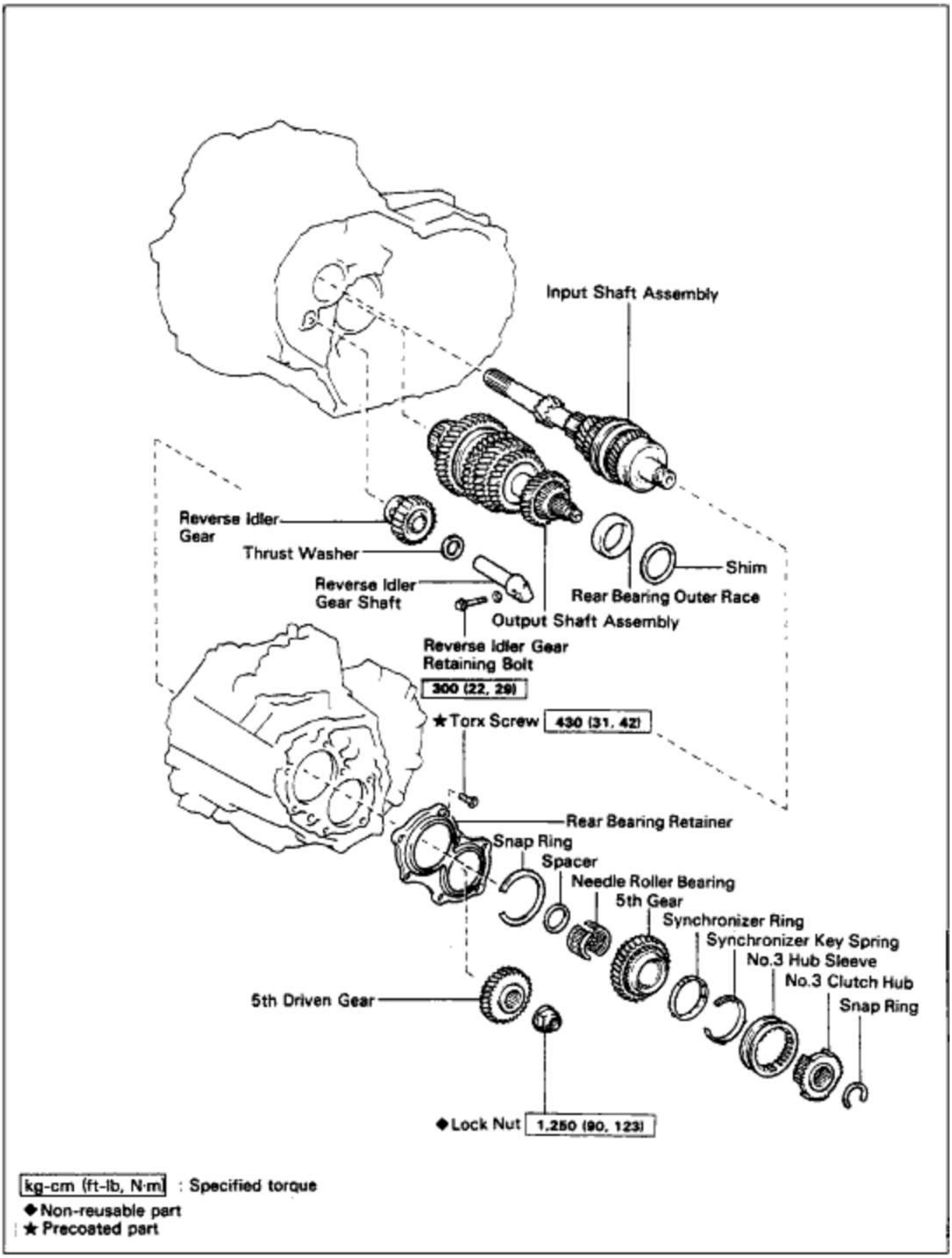
COMPONENTS

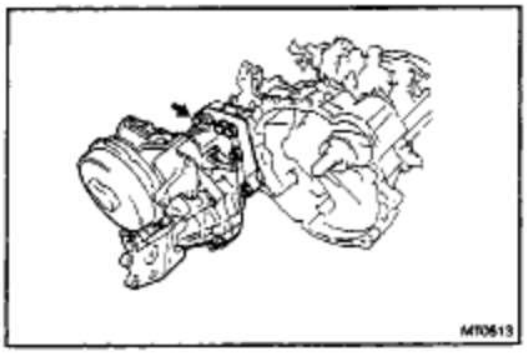


COMPONENTS (Cont'd)



COMPONENTS (Cont'd)





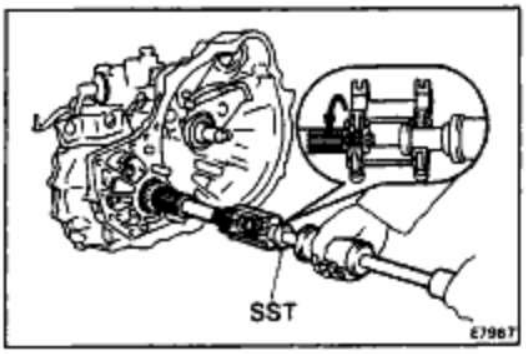
REMOVAL OF COMPONENT PARTS

(See pages MT– 118 to MT– 120)

1. REMOVE TRANSFER ASSEMBLY

(a) Remove the three bolts and five nuts.

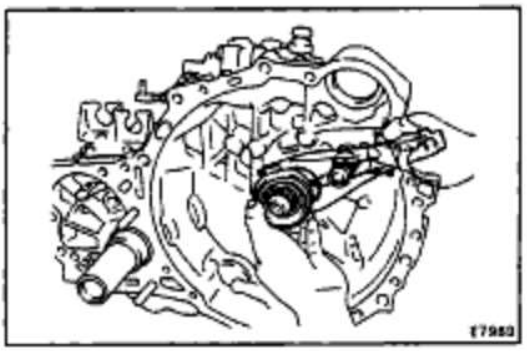
(b) Using a plastic hammer, remove the transfer assembly from the transaxle.



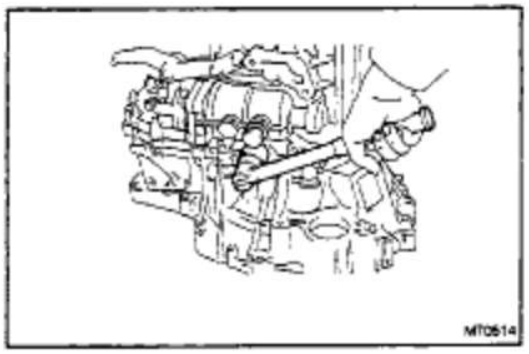
2. REMOVE DIFFERENTIAL SIDE GEAR INTERMEDIATE SHAFT

(a) Screw in a suitable bolt with washer into the side gear intermediate shaft.

(b) Using SST, remove the side gear intermediate shaft.
SST 09910–00015



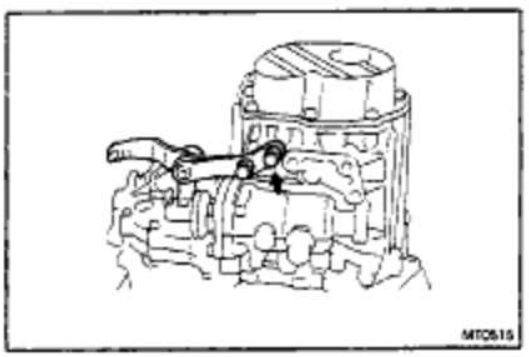
3. REMOVE RELEASE FORK, BEARING AND BOOT



4. REMOVE BACK–UP LIGHT SWITCH

(a) Remove the back–up light switch.

(b) Remove the gasket from the back–up light switch.



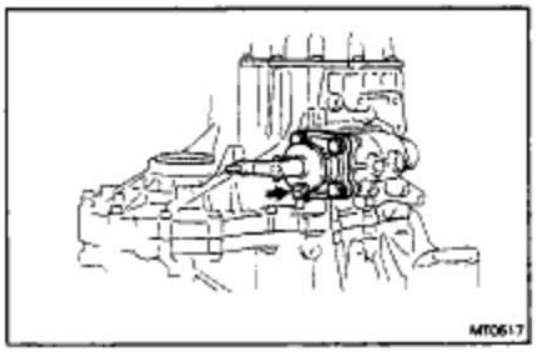
B. REMOVE SPEEDOMETER DRIVEN GEAR

6. REMOVE NO.2 SELECTING BELLCRANK WITH SELECTING BELLCRANK SUPPORT



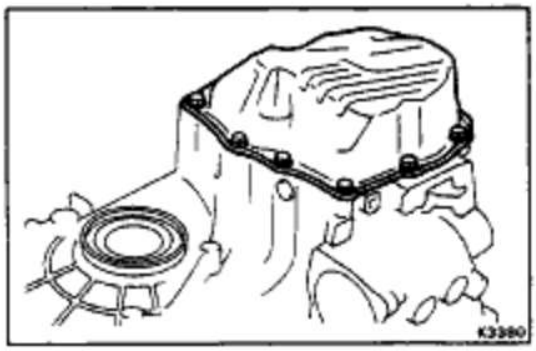
7. REMOVE SHIFT AND SELECT LEVER SHAFT LOCK BOLT

(a) Remove the shift and select lever shaft lock bolt.
(b) Remove the gasket from the bolt.



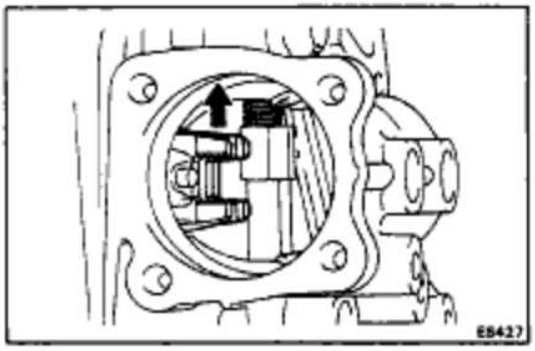
8. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY

(a) Remove the four bolts and the shift and select lever shaft assembly.
(b) Remove the gasket from the shift and select lever shaft assembly.



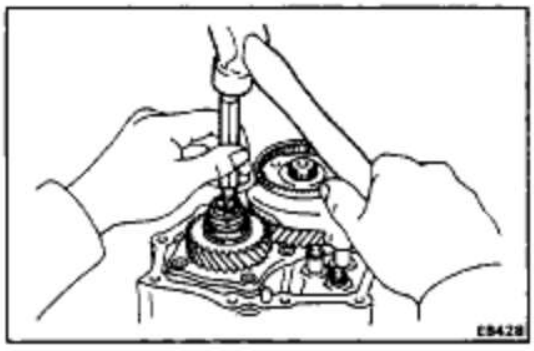
9. REMOVE TRANSMISSION CASE COVER

(a) Remove the ten bolts.
(b) Using a plastic hammer, remove the case cover.

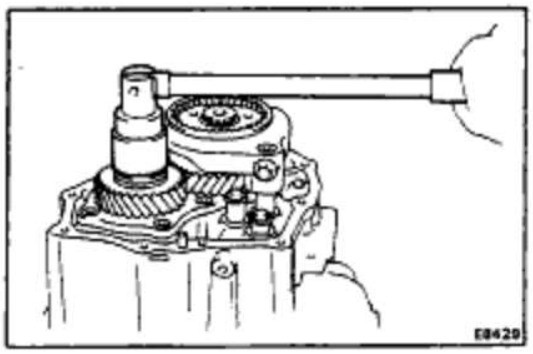


10. REMOVE OUTPUT SHAFT LOCK NUT

(a) Engage the gear double meshing.

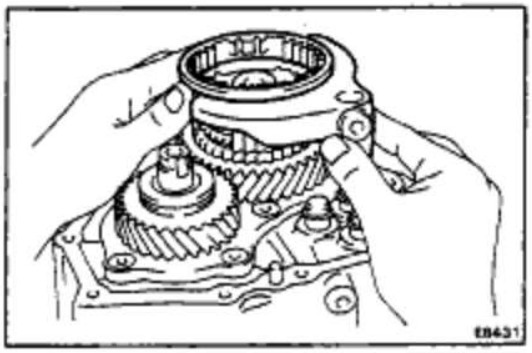


(b) Using a chisel and hammer, unstake the lock nut.



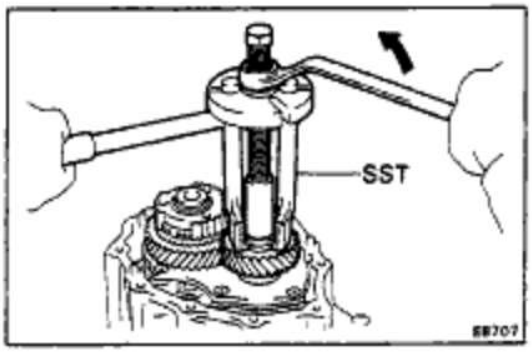
(e) Remove the lock nut.
(d) Disengage the gear double meshing.

11. REMOVE NO.3 HUB SLEEVE AND NO. 3 SHIFT FORK



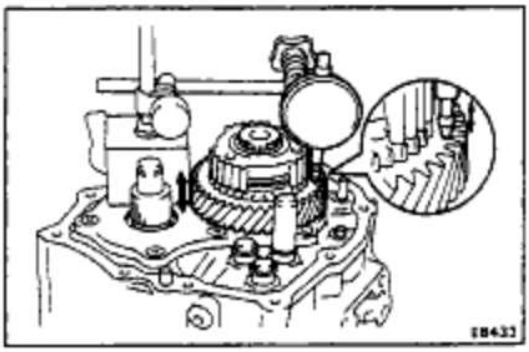
(a) Remove the No.3 shift fork set bolt.
(b) Remove the No.3 hub sleeve and No.3 shift fork.

12. REMOVE FIFTH DRIVEN GEAR

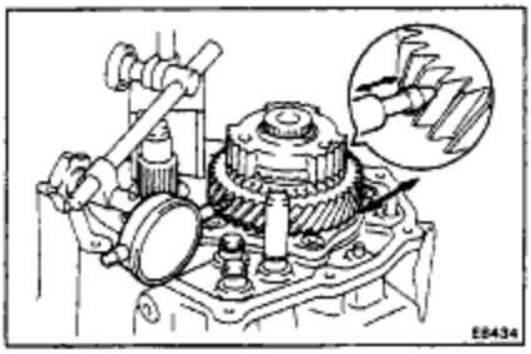


Using SST, remove the 5th driven gear.
SST 09310–17010 (09310–07010, 09310–07020 09310–07040, 09310–07050)

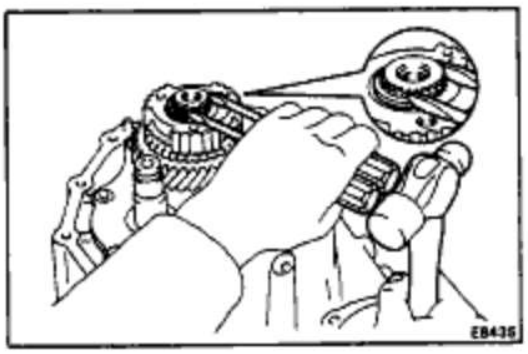
13. MEASURE FIFTH GEAR THRUST CLEARANCE



(a) Using a dial indicator, measure the thrust clearance.
Standard clearance: 0.10 – 0.57 mm (0.0039 – 0.0224 in.)
Maximum clearance: 0.65 mm (0.0256. in.)

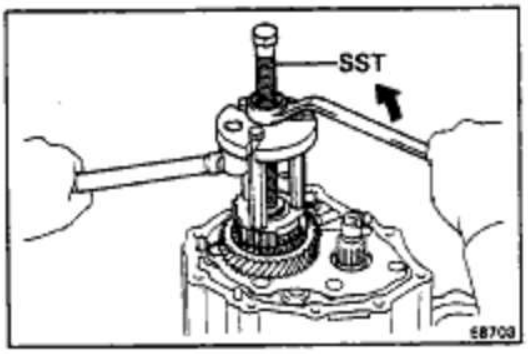


(b) Using a dial indicator, measure the oil clearance.
Standard clearance: 0.009 – 0.050 mm (0.0004 – 0.0020 in.)
Maximum clearance: 0.070 mm (0.0028 in.)

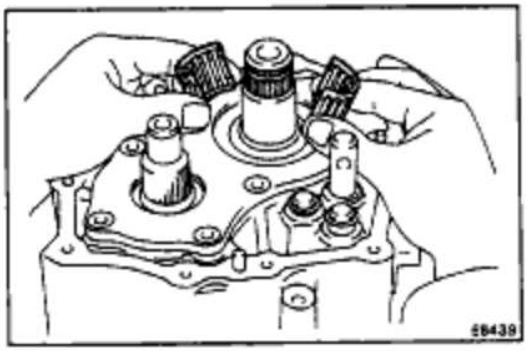


14. REMOVE NO.3 CLUTCH HUB AND FIFTH GEAR

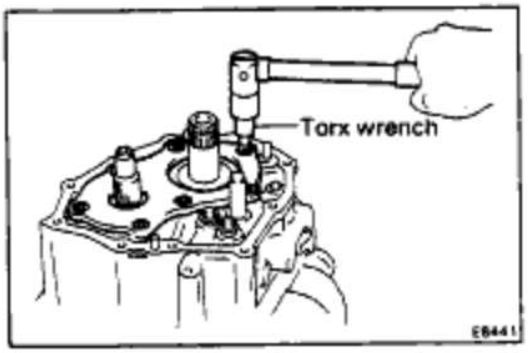
(a) Using two screwdrivers and a hammer, tap out the snap ring.



(b) Using SST, remove the No.3 clutch hub with synchronizer ring and 5th gear.
SST 09310–17010
(09310–07010, 09310–07020, 09310–07030)

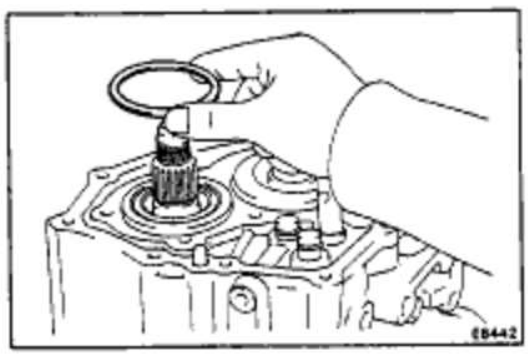


15. REMOVE NEEDLE ROLLER BEARING AND SPACER

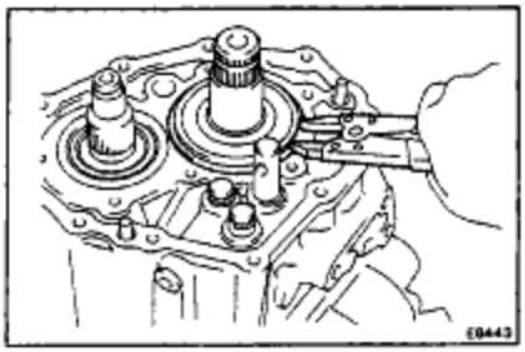


16. REMOVE REAR BEARING RETAINER

(a) Using a torx wrench, remove the seven torx screws and bearing retainer.
Torx wrench T45 09042–00050

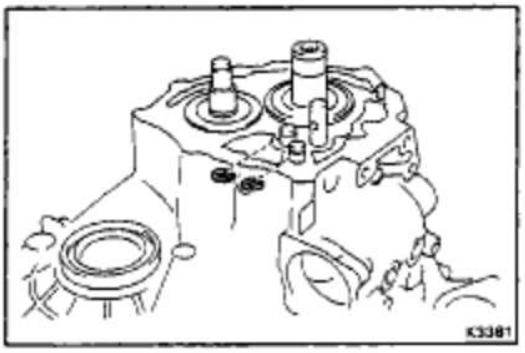


(b) Remove the adjusting shim.



17. REMOVE SNAP RING

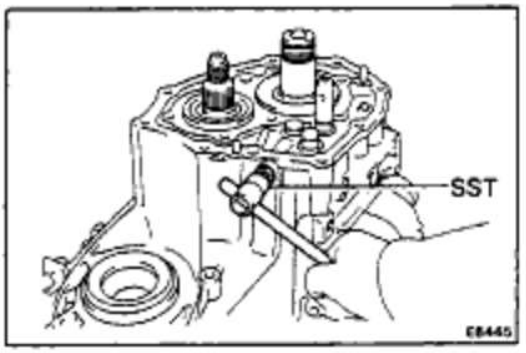
(a) Using snap ring pliers, remove the snap ring of the input shaft rear bearing.



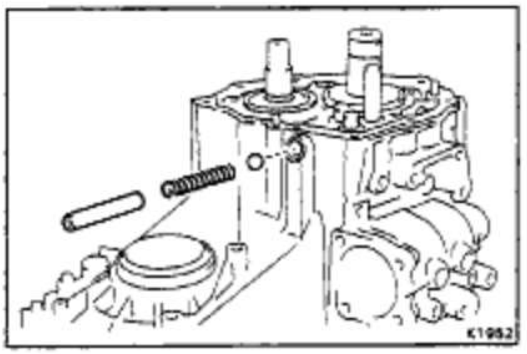
(b) Using two screwdrivers and a hammer, remove the two snap rings of the shift fork shafts.

18. REMOVE PLUG, SEAT, SPRING AND LOCKING BALL

(a) Using SST, remove the plug.
SST 09313–30021

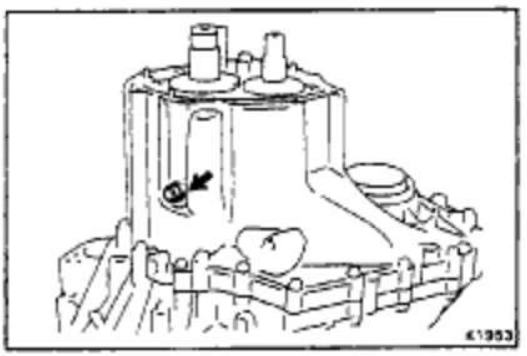


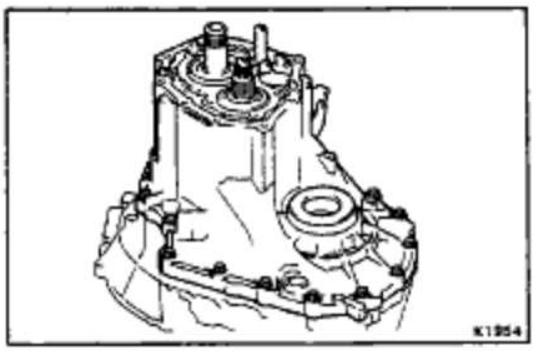
(b) Using a magnetic finger, remove the seat, spring and ball.



19. REMOVE REVERSE IDLER GEAR SHAFT RETAINING BOLT

(a) Remove the reverse idler gear shaft retaining bolt.
(b) Remove the gasket from the bolt.

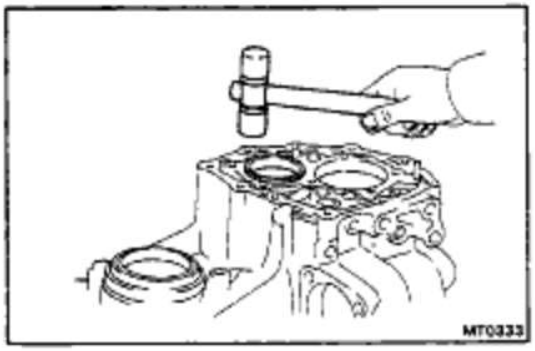




24. REMOVE TRANSMISSION CASE

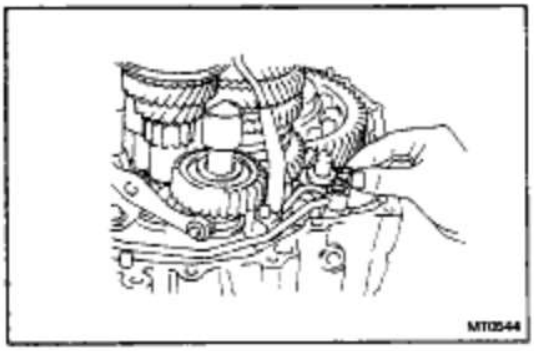
Remove the seventeen bolts and tap off the case with a plastic hammer.

- Transmission case side: Fourteen bolts
- Transaxle case side: Three bolts



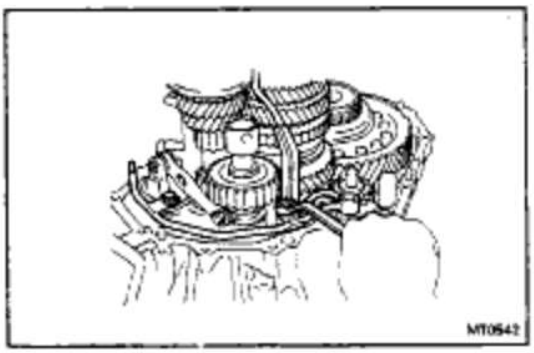
21. REMOVE OUTPUT SHAFT REAR BEARING OUTER RACE

Using a plastic hammer, remove the output shaft rear bearing outer race.

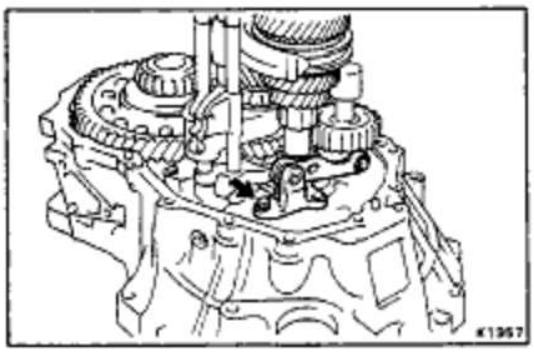


22. REMOVE NO.2 OIL PIPE

(a) Remove the gasket.

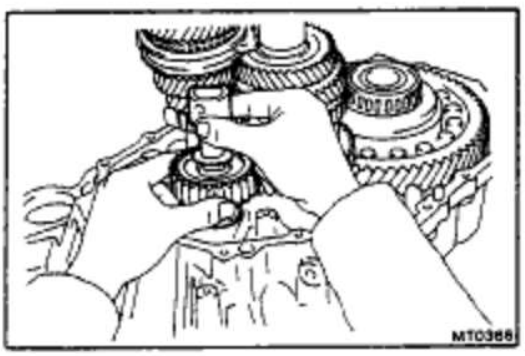


(b) Remove the two bolts and oil pipe.



23. REMOVE REVERSE SHIFT ARM BRACKET

Remove the bolt and pull off the bracket.

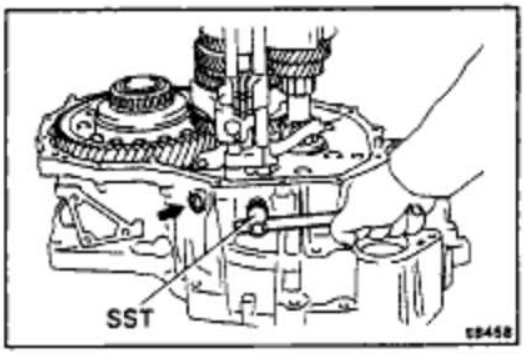


24. REMOVE REVERSE IDLER GEAR, THRUST WASHER AND SHAFT

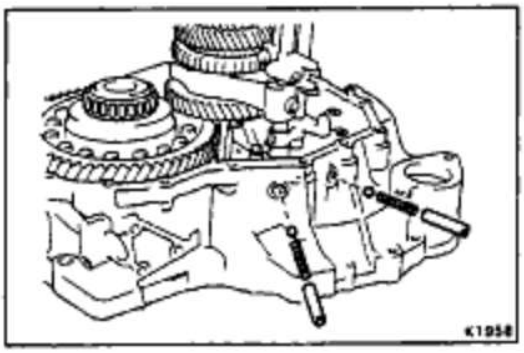
Pull out the shaft, remove the reverse idler gear and thrust washer.

25. REMOVE PLUGS, SEATS, SPRINGS AND BALLS

(a) Using SST, remove the two plugs.
SST 09313–30021

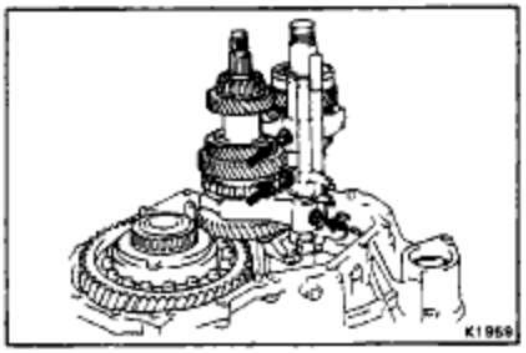


(b) Using a magnetic finger, remove the two seats, springs and balls.



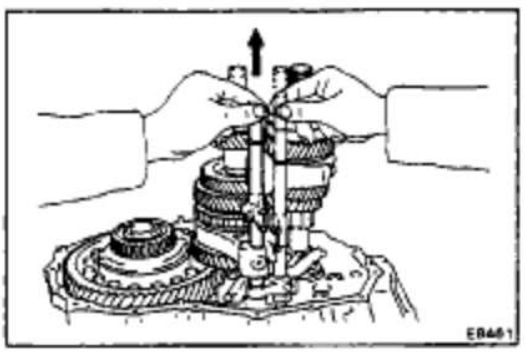
26. REMOVE SET BOLTS

Remove the three set bolts.



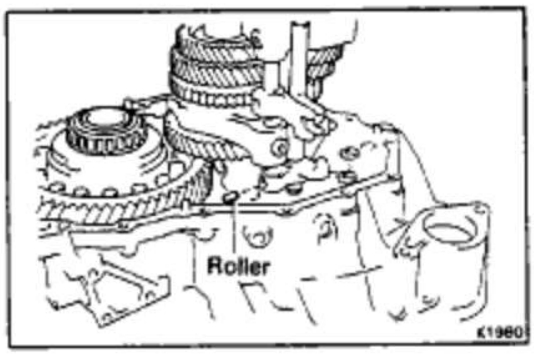
27. REMOVE NO–1 SHIFT FORK SHAFT

Pull up No.3 shift fork shaft, remove the No.1 shift fork shaft.



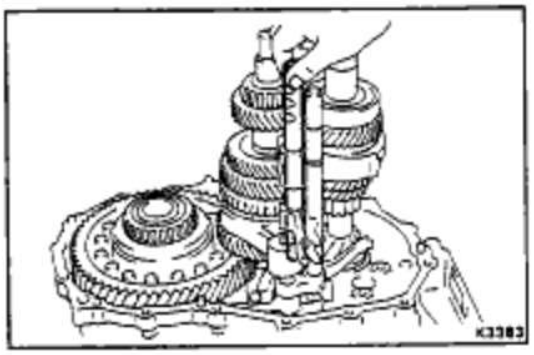
28. REMOVE INTERLOCK ROLLER

Using a magnetic finger, remove the interlock roller from the reverse shift fork.

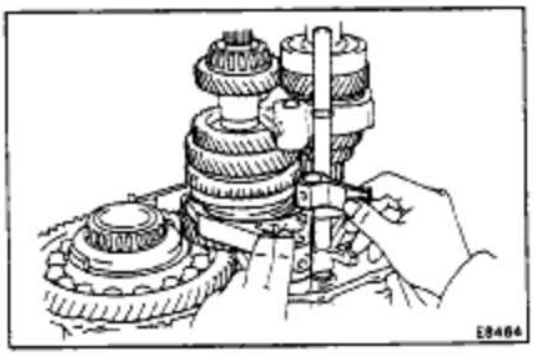


29. REMOVE NO.2 SHIFT FORK SHAFT, SHIFT HEAD AND NO.1 SHIFT FORK

(a) Full out the No.2 shift fork shaft.



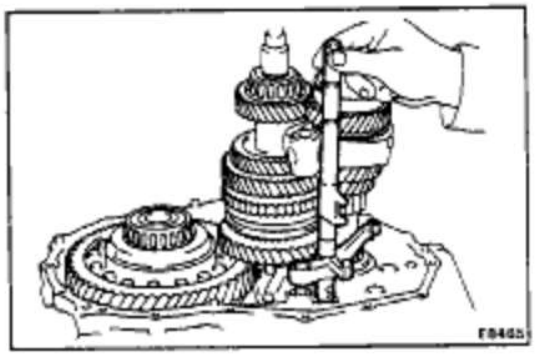
(b) Remove the shift head and No. 1 shift fork.



30. REMOVE N0.3 SHIFT FORK SHAFT WITH REVERSE SHIFT FORK AND NO.2 SHIFT FORK

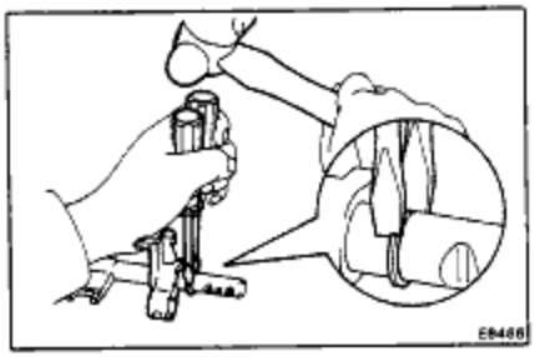
(a) Pull out the No.3 shift fork shaft with reverse shift fork.

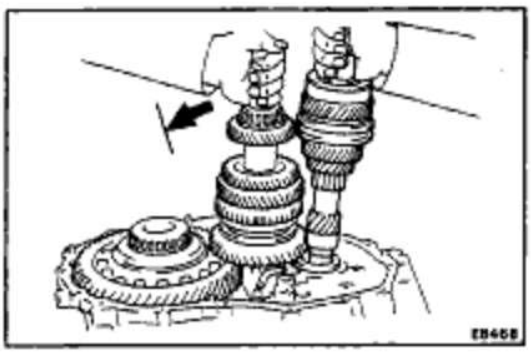
(b) Remove the No.2 shift fork.



31. REMOVE SNAP RING

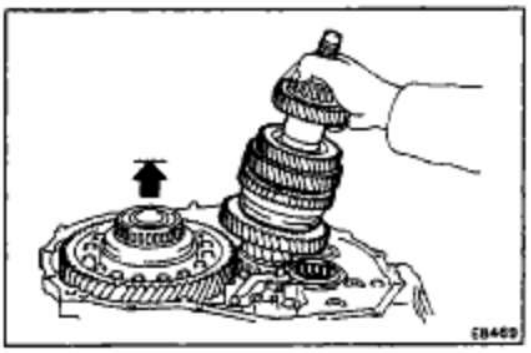
Using two screwdrivers and a hammer, remove the snap ring and reverse shift fork from the No.3 shift fork shaft



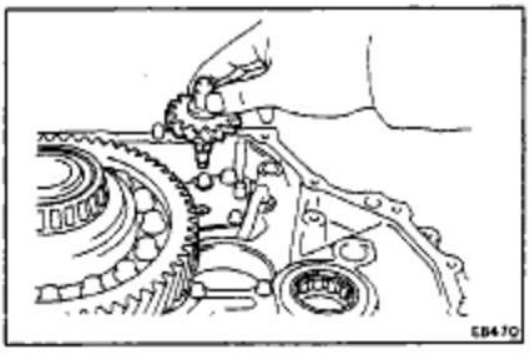


32. REMOVE INPUT AND OUTPUT SHAFT ASSEMBLY

(a) Leaning the output shaft to the differential side, remove the input shaft assembly.

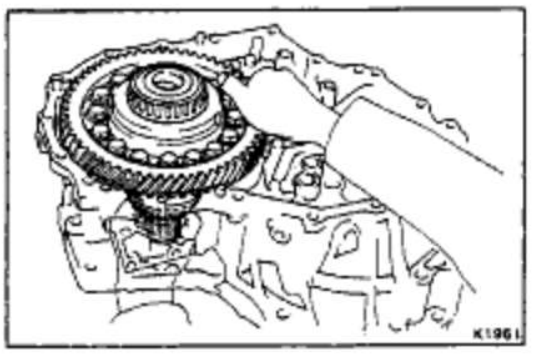


(b) Lift up the differential case assembly, remove the output shaft assembly.

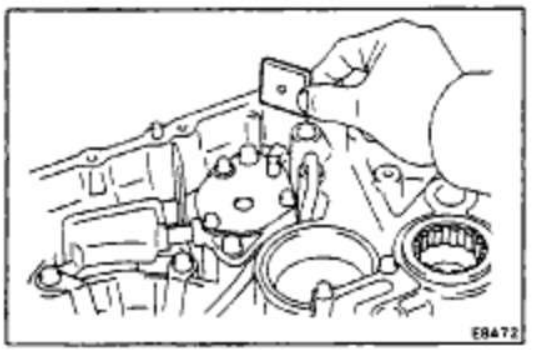


33. REMOVE DIFFERENTIAL CASE ASSEMBLY

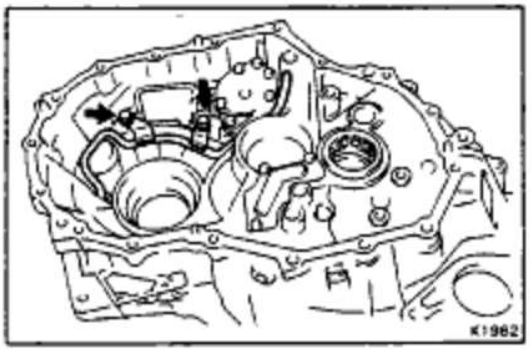
(a) Remove the oil pump drive gear.



(b) Remove the differential case assembly.

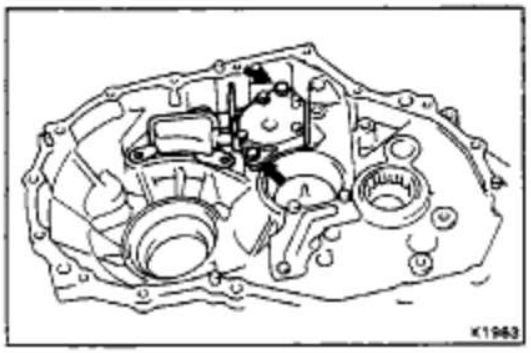


34. REMOVE MAGNET FROM TRANSAXLE CASE



35. REMOVE OIL PUMP ASSEMBLY

(a) Remove the two bolts and oil pipe.



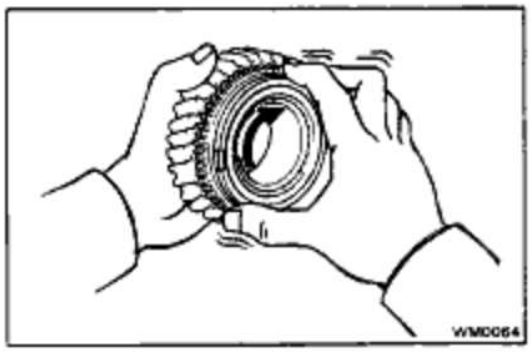
(b) Remove the two bolts and oil pump.

INSPECTION OF COMPONENT PARTS

1. INSPECT SYNCHRONIZER RING OF FIFTH GEAR

(a) Check for wear or damage.

(b) Turn the ring and push it in to check the braking action.



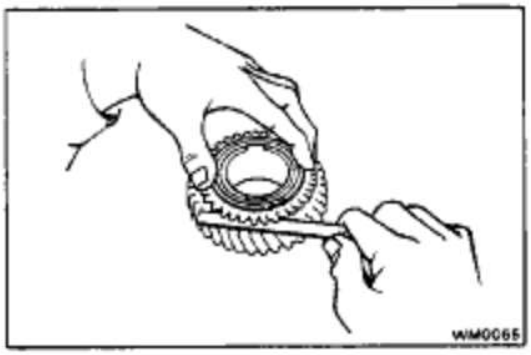
(e) Measure the clearance between the synchronizer ring back and the gear spline end.

Standard clearance: 0.75 – 1.65 mm (0.0295 – 0.0650 in.)

Minimum clearance: 0.6 mm (0.024 in.)

NOTE: Inspect the clearance of the gear's whole circumference.

If the clearance is less than the limit, replace the synchronizer ring.

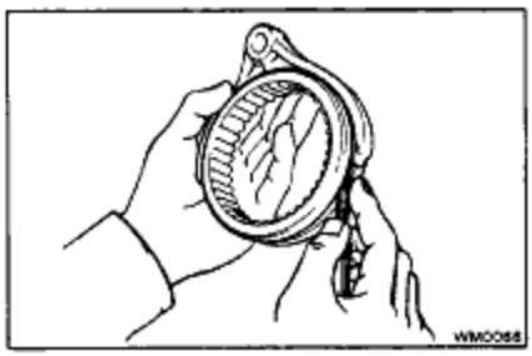


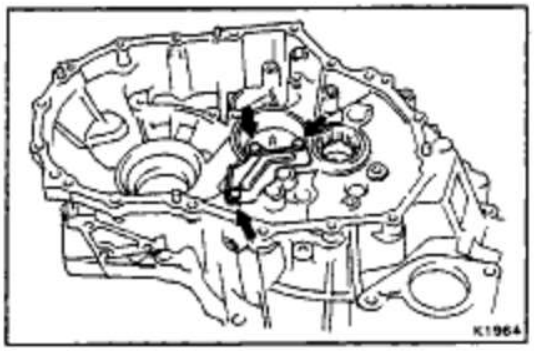
2. MEASURE CLEARANCE OF SHIFT FORK AND HUB SLEEVE

Using a feeler gauge, measure the clearance between the hub sleeve and shift fork.

Maximum clearance: 1.0 mm (a.039 in.)

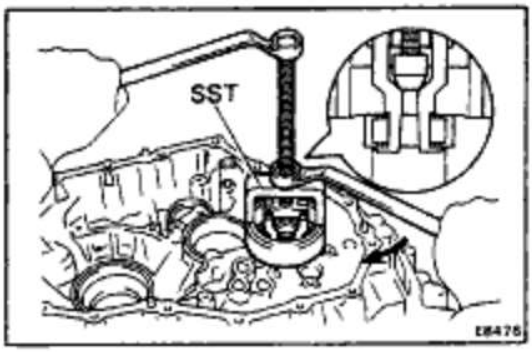
If the clearance exceeds the limit, replace the shift fork or hub sleeve.





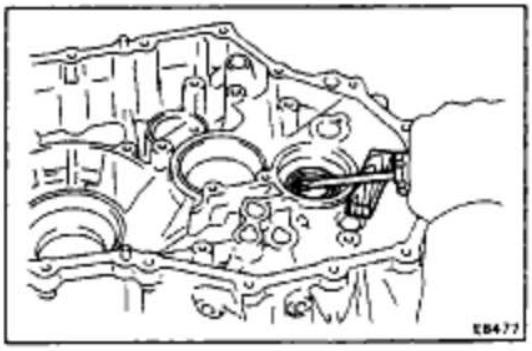
3. REMOVE TRANSAXLE CASE RECEIVER

Remove the three bolts and the transaxle case receiver.

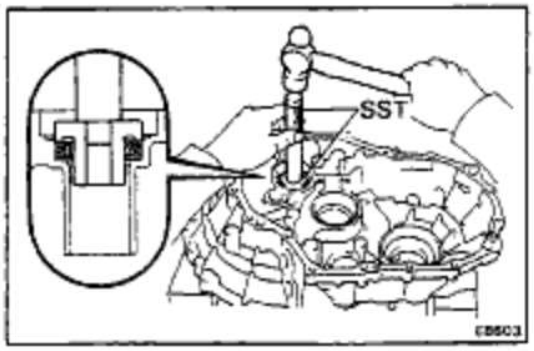


4. IF NECESSARY, REPLACE INPUT SHAFT FRONT BEARING AND OIL SEAL

(a) Using SST, pull out the bearing from the transaxle case.
SST 09612–65014

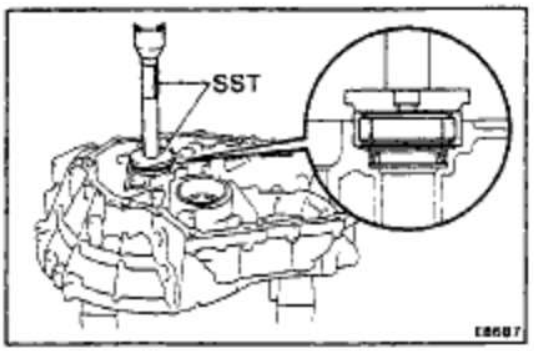


(b) Using a screwdriver, remove the oil seal.

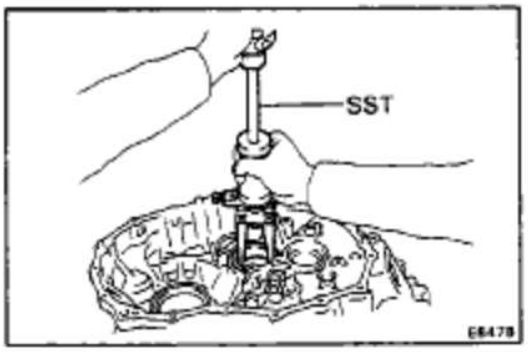


(c) Using SST, drive in a new oil seal.
SST 09608–12010 (09608–00020, 09608–00080)

(d) Coat the lip of oil seal with MP grease.



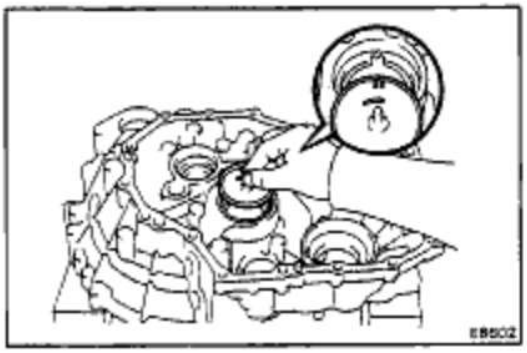
(e) Using SST, drive in a new bearing.
SST 09608–12010 (09608–00020, 09608–00060)



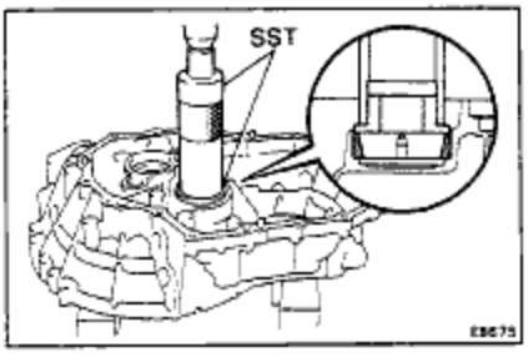
5. IF NECESSARY, REPLACE OUTPUT SHAFT FRONT BEARING OUTER RACE AND OUTPUT SHAFT COVER

(a) Using SST, pull out the outer race.
SST 09308–00010 .

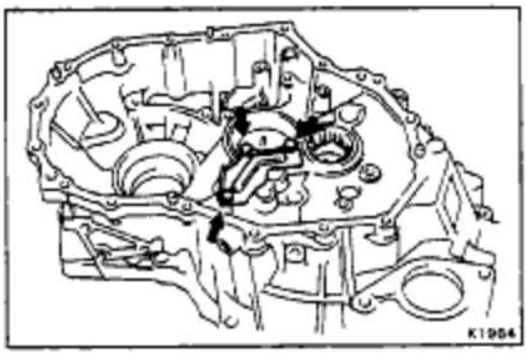
(b) Remove the output shaft cover.



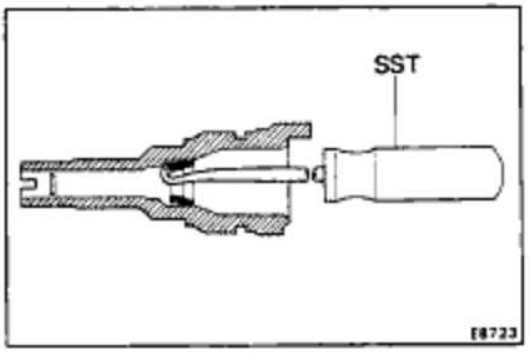
(c) Install the output shaft cover.
NOTE: Install the output shaft cover projection into the case side groove.



(d) Using SST, press in a new outer race.
SST 09316–60010 (09316–00010, 09316–00020)

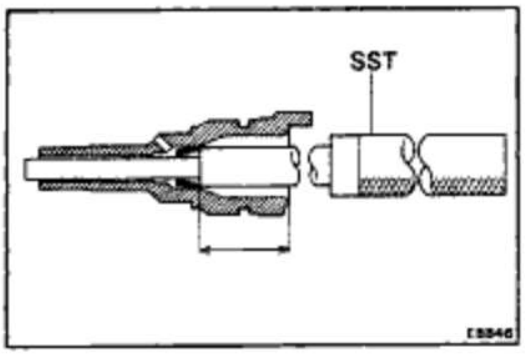


6. INSTALL AND TORQUE TRANSAXLE CASE RECEIVER
Torque: 75 kg–cm (65 in.–lb, 7.4 N–m)



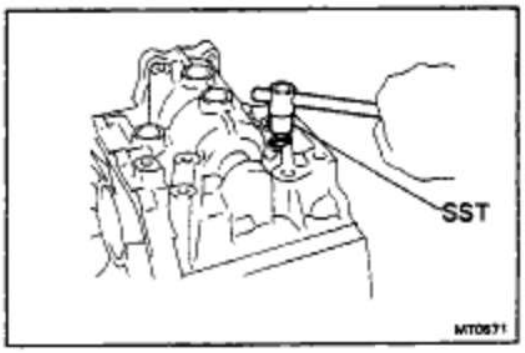
7. IF NECESSARY, REPLACE SPEEDOMETER DRIVEN GEAR OIL SEAL

(a) Using SST, pull out the oil seal.
SST 09921–00010

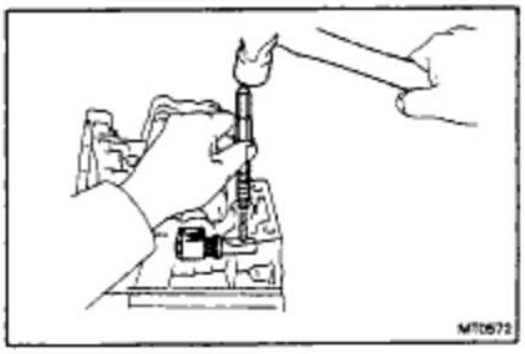


(b) Using SST, drive in a new oil seal.
SST 09201–60011
Drive in depth: 33 mm 0 .30 in.)
(c) Coat the lip of oil seal with MP grease.

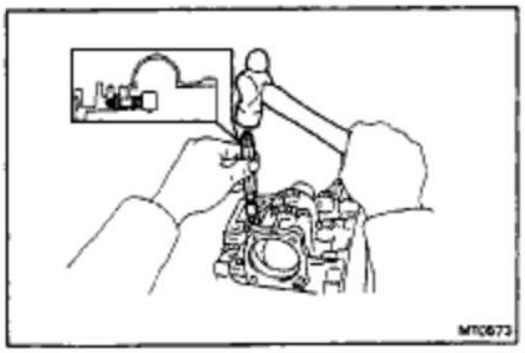
8. IF NECESSARY, REPLACE REVERSE RESTRICT PIN



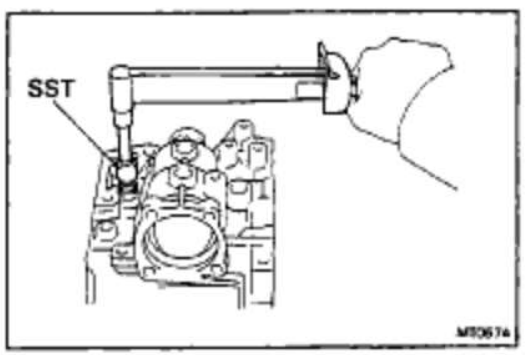
(a) Using SST, remove the screw plug.
SST 09313–30021



(b) Using a pin punch and hammer, drive out the slotted spring pin.

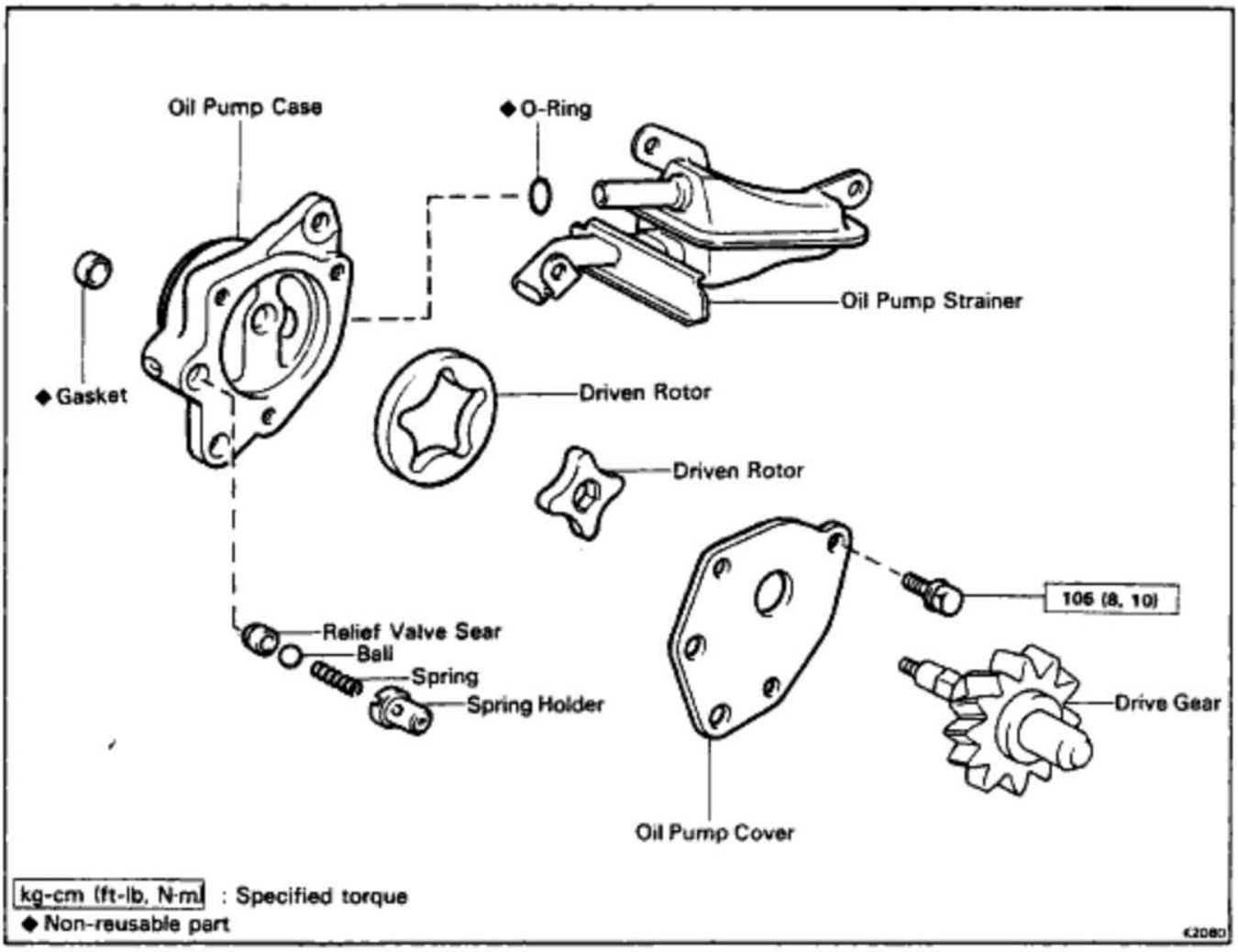


(e) Replace the reverse restrict pin.
(d) Using a pin punch, drive in the slotted spring pin.

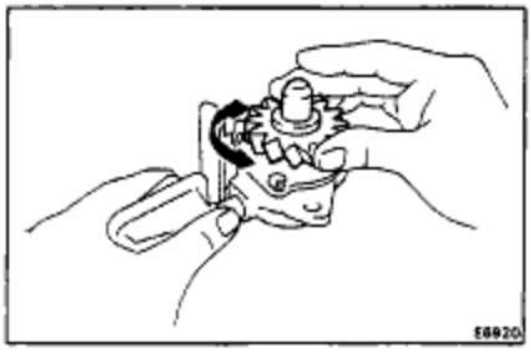


(f) Apply liquid sealant to the plug threads.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(f) Using SST, install the screw plug.
SST 09313–30021

OIL PUMP

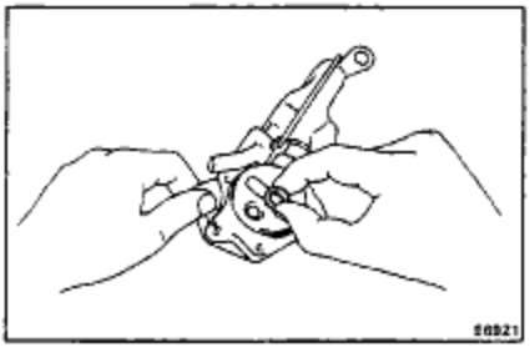


DISASSEMBLY OF OIL PUMP

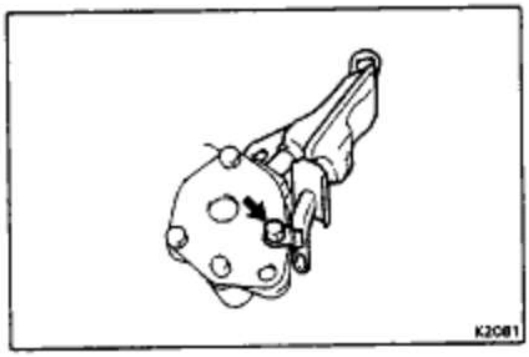


1. CHECK OPERATION OF OIL PUMP

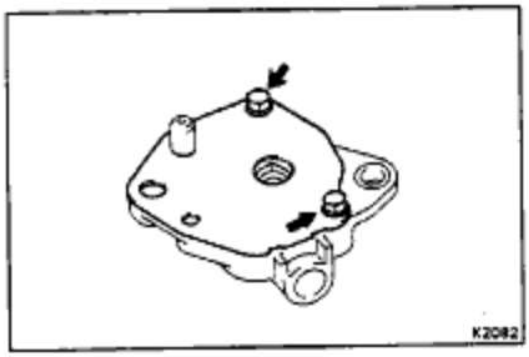
Install the oil pump drive gear to the drive rotor, check that the drive rotor turns smoothly.



2. REMOVE GASKET FROM OIL PUMP CASE

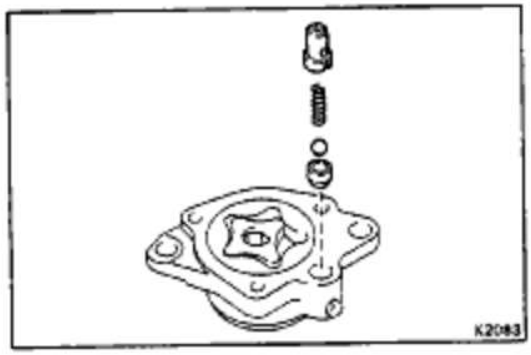


3. REMOVE BOLT AND OIL STRAINER

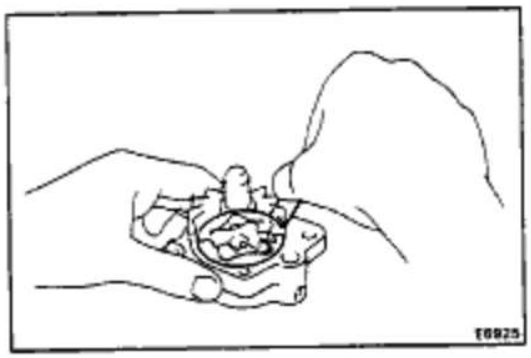


4. REMOVE OIL PUMP COVER

(a) Hold the oil pump cover, remove the two bolts and the cover.



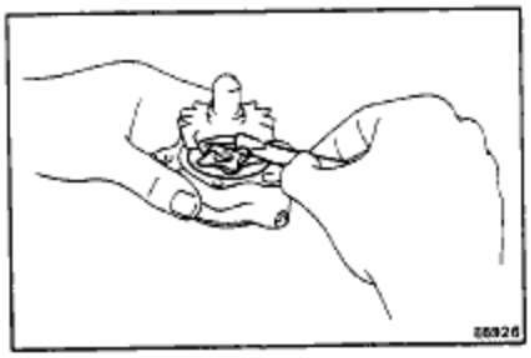
(b) Remove the spring holder, spring, ball and relief valve seat.



5. CHECK ROTOR BODY CLEARANCE

(a) Install the oil pump drive gear to the drive rotor.
(b) Using a feeler gauge, measure the body clearance between the drive rotor and oil pump case.

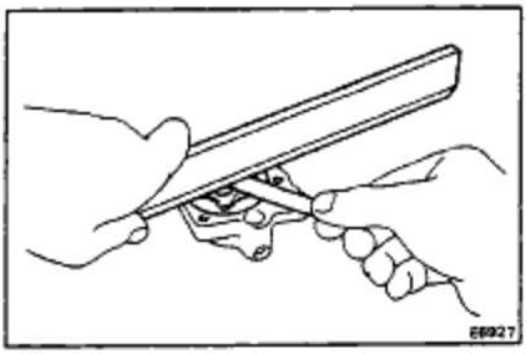
Standard clearance: 0.10 – 0.16 mm (0.0039 – 0.0063 in.)
Maximum clearance: 0.30 mm (0.0118 in.)



6. CHECK ROTOR TIP CLEARANCE

(a) Install the oil pump drive gear to the drive rotor.
(b) Using a feeler gauge, measure the tip clearance between the drive and driven rotors.

Standard clearance: 0.08 – 0.15 mm (0.0031 – 0.0059 in.)
Maximum clearance: 0.30 mm (0.0118 in.)

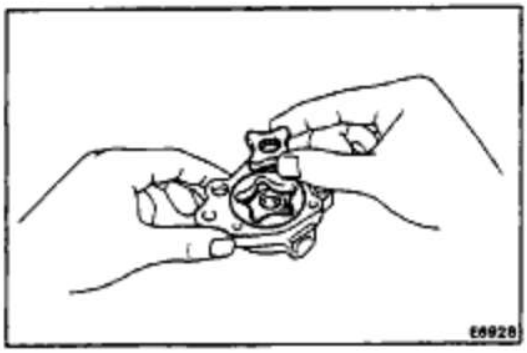


7. CHECK. SIDE CLEARANCE

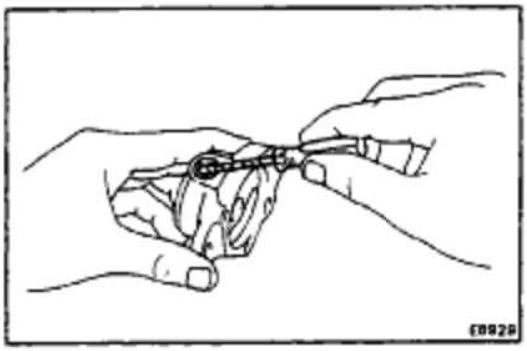
Using a precision straight edge and feeler gauge, measure the side clearance of both rotors.

Standard clearance: 0.03 – 0.08 mm (0.0012 – 0.0031 in.)

Maximum clearance: 0.15 mm (0.0059 in.)

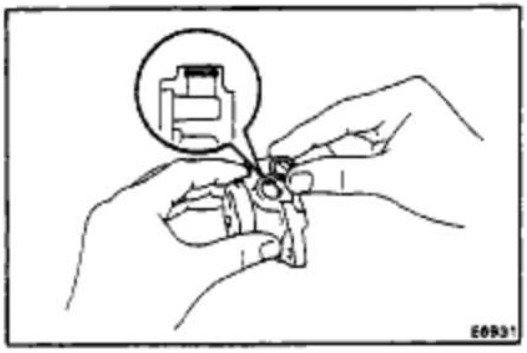


8. REMOVE OIL PUMP DRIVE ROTOR AND DRIVEN ROTOR



9. IF NECESSARY, REPLACE O–RING

(a) Using a screwdriver, remove the O–ring.

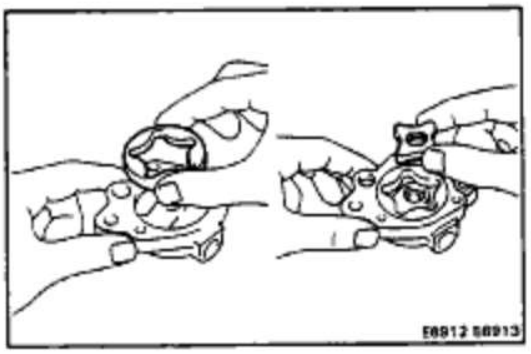


(b) Apply the gear oil to a new O–ring.

(c) Install a new O–ring.

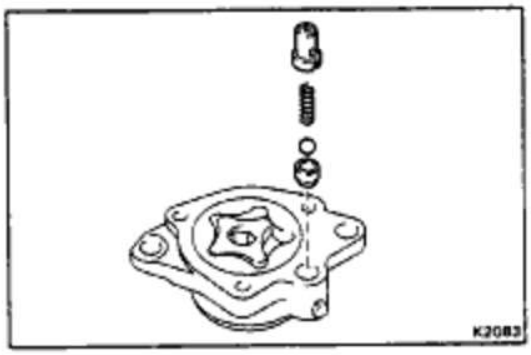
ASSEMBLY OF OIL PUMP

1. INSTALL DRIVEN ROTOR AND DRIVE ROTOR

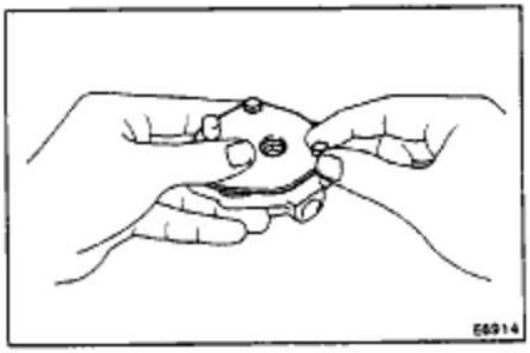


2. INSTALL OIL PUMP COVER

(a) Install the relief valve seat, ball, spring and spring holder to the oil pump case.

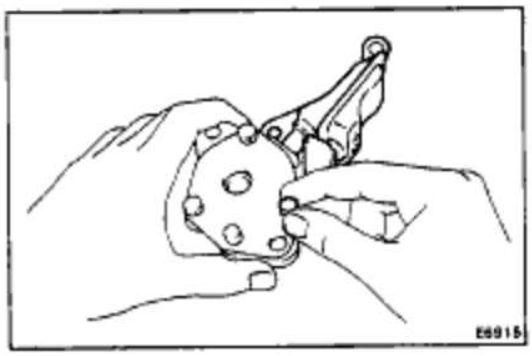


(b) Hold the oil pump cover, temporarily install the two bolts.



3. INSTALL OIL STRAINER

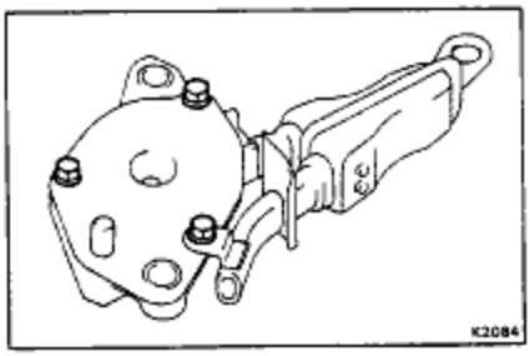
Install the oil strainer to the oil pump case, temporarily install the bolt.

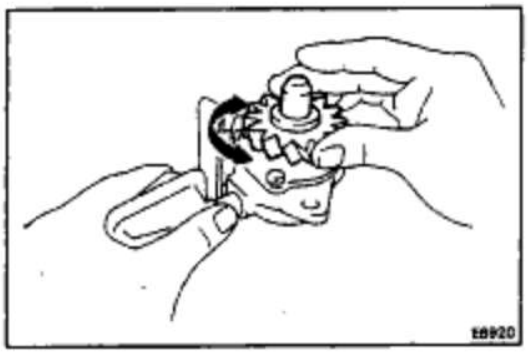


4. TORQUE OIL PUMP COVER BOLTS

Torque the three bolts evenly.

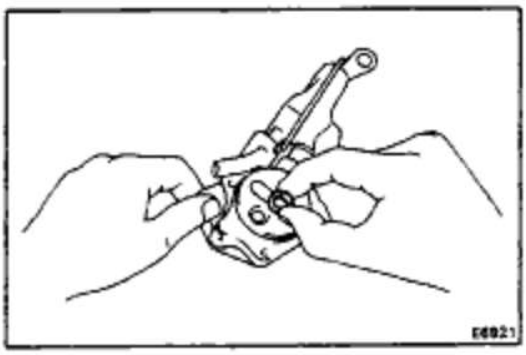
Torque: 105 kg–cm (8 ft–lb, 10 N–m)





5. CHECK OPERATION OF OIL PUMP

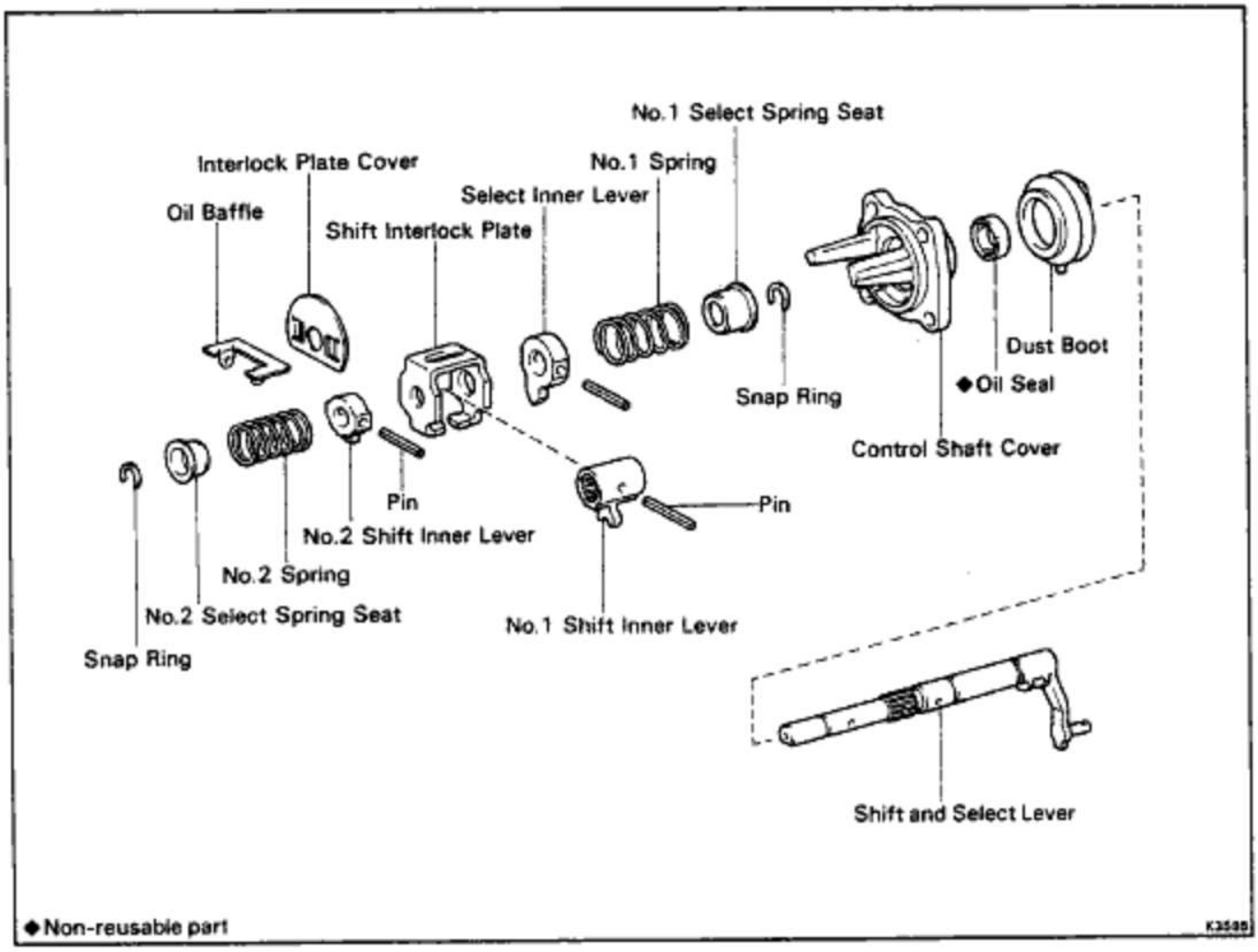
Insert the oil pump drive gear to the drive rotor, check that the drive rotor turns smoothly.

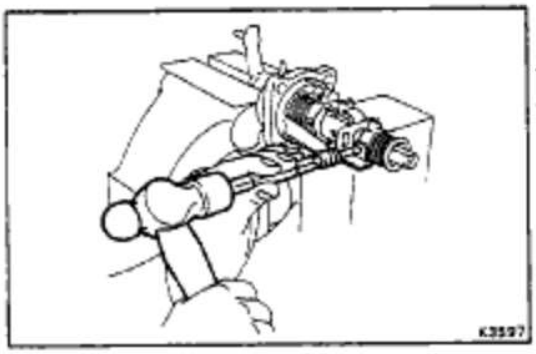


6. INSTALL GASKET

Install a new gasket to the oil pump case.

Shift and Select Lever Shaft

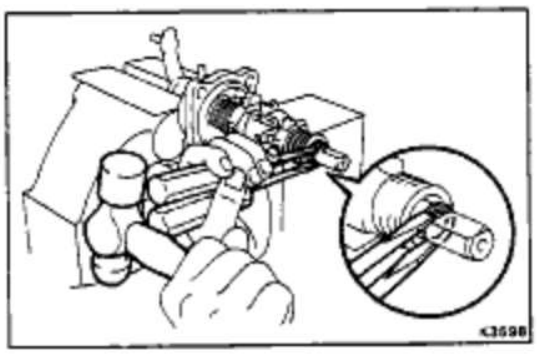




DISASSEMBLY OF SHIFT AND SELECT LEVER SHAFT ASSEMBLY

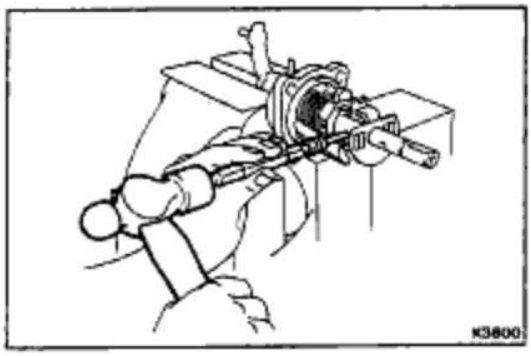
1. REMOVE N0.2 SHIFT INNER LEVER

(a) Using a pin punch and a hammer, drive out the slatted spring pin and remove the transmission oil baffle.



(b) Using two screwdrivers and a hammer, remove the snap ring.

(c) Remove No.2 select spring seat, No.2 compressor spring and No.2 shift inner lever.

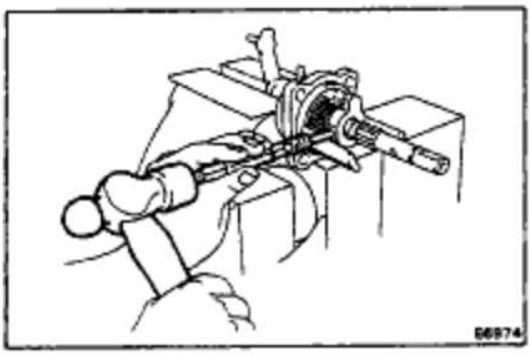


2. REMOVE SHIFT INTERLOCK PLATE AND NO.1 SHIFT INNER LEVER

(a) Using a pin punch and hammer, drive out the slotted spring pin.

(b) Remove the shift inter plate and No. 1 shift inner lever from the shaft.

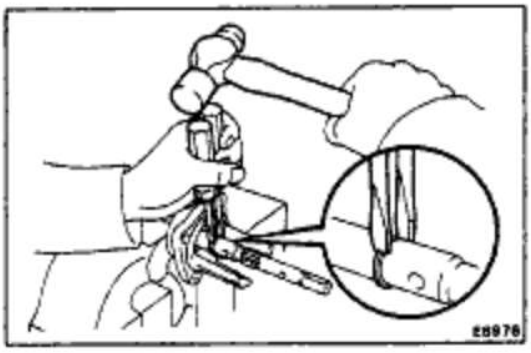
(e) Remove the shift interlock plate cover and No. 1 shift inner lever from the shift interlock plate.



3. REMOVE SELECT INNER LEVER

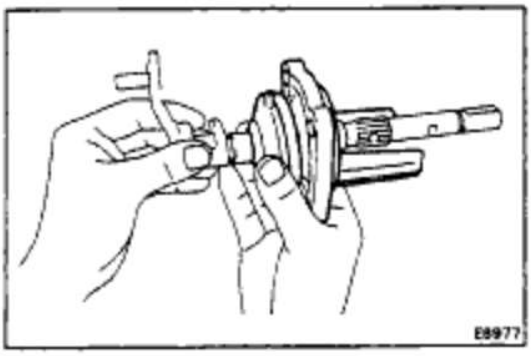
(a) Using a pin punch and hammer, drive out the slotted spring pin.

(b) Remove the select inner lever, No.1 compression spring and No.1 select spring seat.

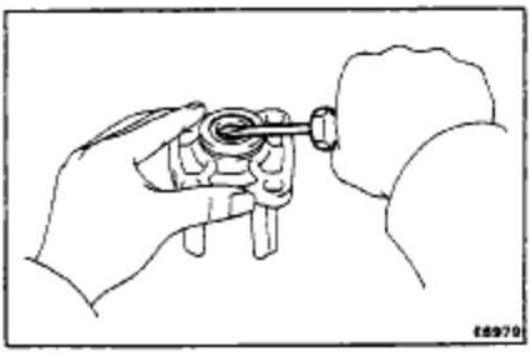


4. REMOVE SNAP RING

Using two screwdrivers and a hammer, remove the snap ring.

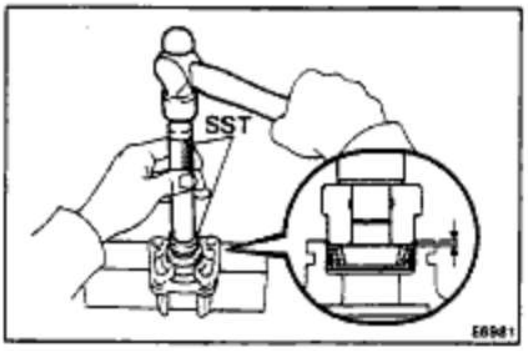


5. REMOVE CONTROL SHAFT COVER AND DUST BOOT



6. 1F NECESSARY, REPLACE CONTROL SHAFT COVER OIL SEAL

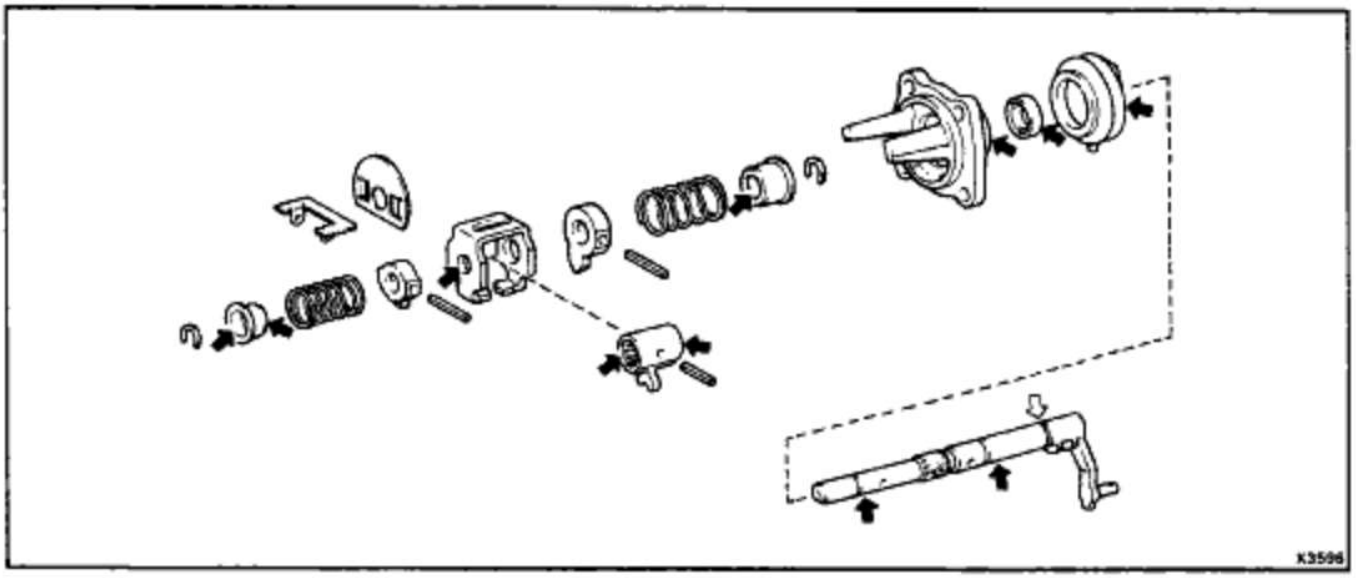
(a) Using a screwdriver, remove oil seal.



(b) Using SST and a hammer, drive in the new oil seal.
SST 09620–30010 (09631–00020, 09627–30010)
Oil seal depth: 0 – 1.0 mm (0 – 0.039 in.)
(c) Apply MP grease to the oil seal.

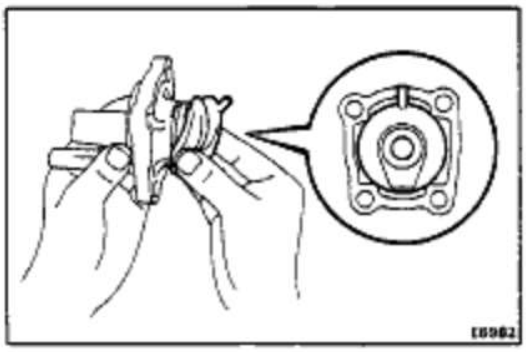
ASSEMBLY OF SHIFT AND SELECT LEVER SHAFT ASSEMBLY

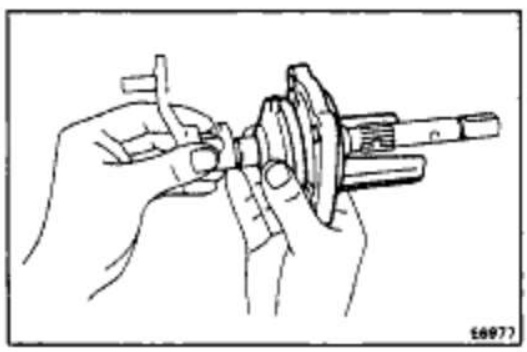
7. APPLY SHAFT WITH MP GREASE. AS SHOWN



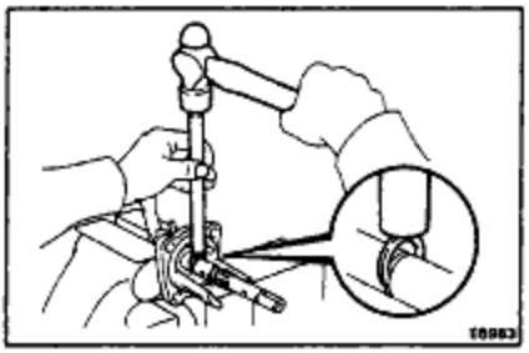
2. INSTALL SHIFT AND SELECT LEVER SHAFT

(a) Install the boot to the control shaft cover, as shown.



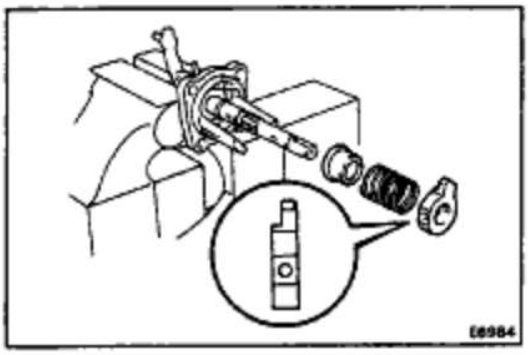


(b) Install the shift and select lever shaft to the control shaft cover.



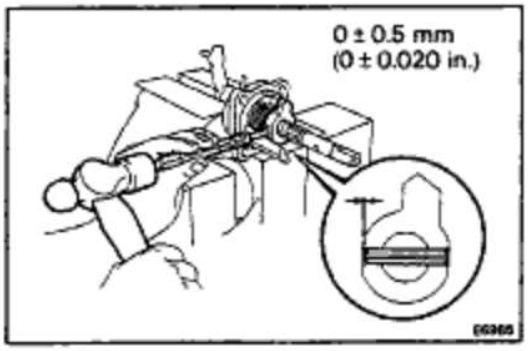
3. INSTALL SNAP RING

Using a brass bar and hammer, install the snap ring and spring seat.

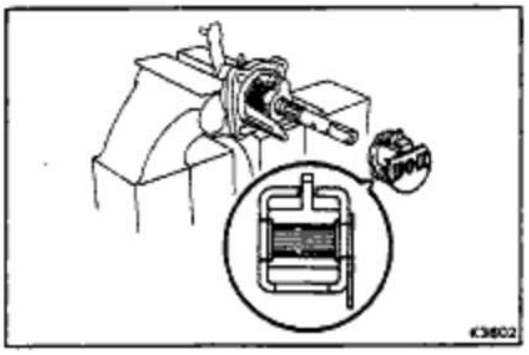


4. INSTALL SELECT INNER LEVER

(a) Install the No.1 spring seat, No–1 select spring and select inner lever, as shown.

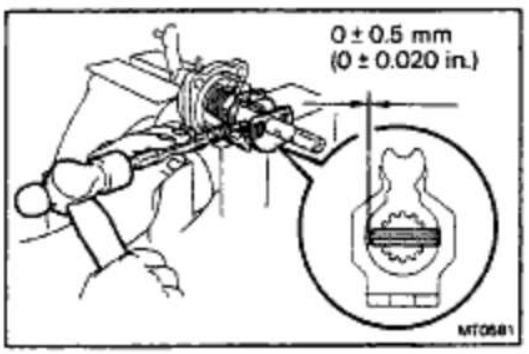


(b) Using a pin punch and hammer, drive in the slotted spring pin.

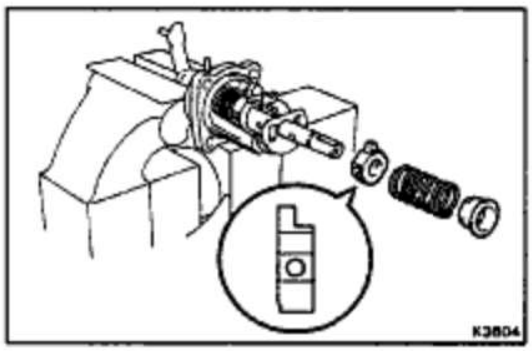


5. INSTALL SHIFT INTERLOCK PLATE AND NO.1 SHIFT INNER LEVER

(a) Place the No–1 shift inner lever into the interlock plate.
(b) Install the shift interlock plate cover to the interlock plate.

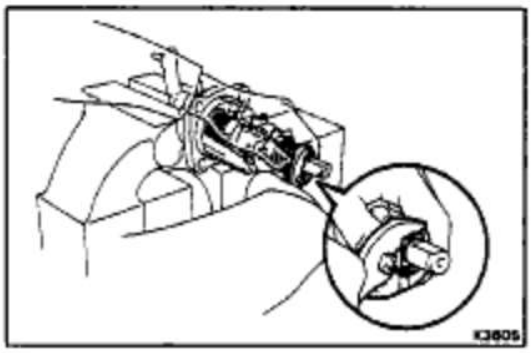


(c) Using a pin punch and hammer, drive in the slotted spring pin.
(d) Check that the shift interlock plate turns smoothly.

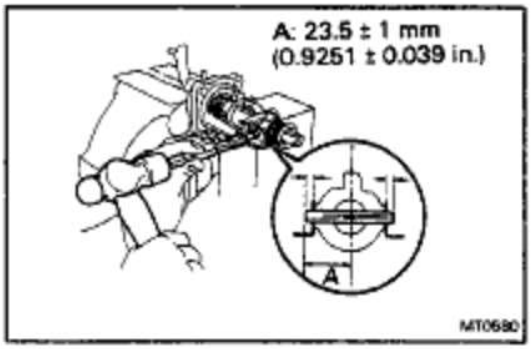


6. INSTALL NO.2 SHIFT INNER LEVER

(a) Install the No.2 shift inner lever, No.2 compression spring, transmission oil baffle and No.2 select spring seat, as shown.

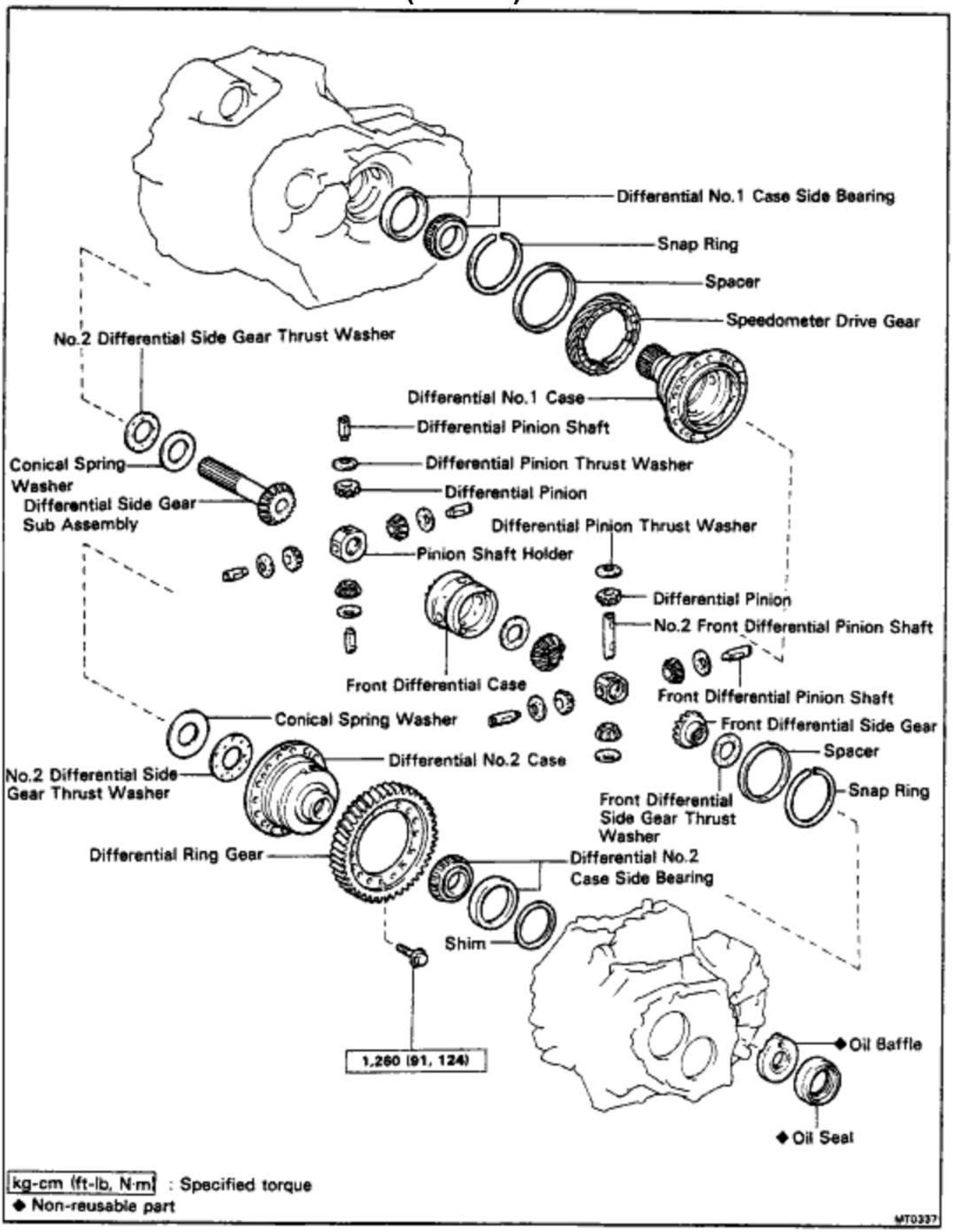


(b) Install the snap ring.

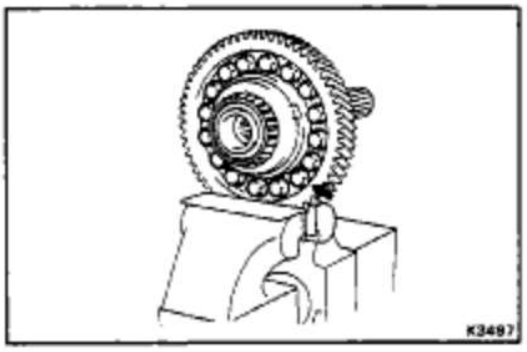


(c) Using a pin punch and hammer, drive in the slotted spring pin.

Differential Case Assembly (E56F5)

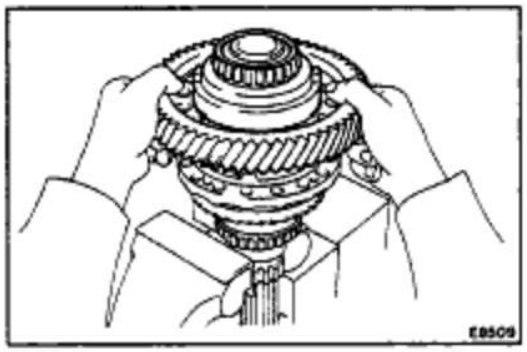


DISASSEMBLY OF DIFFERENTIAL CASE

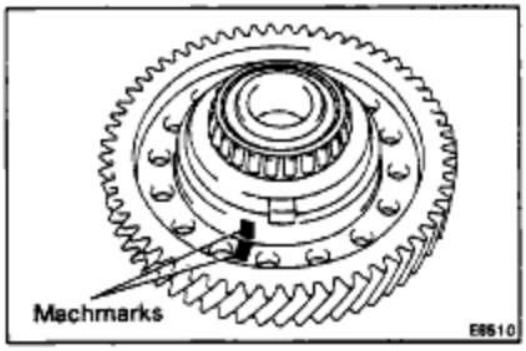


1. REMOVE DIFFERENTIAL CASE

(a) Remove the sixteen bolts.

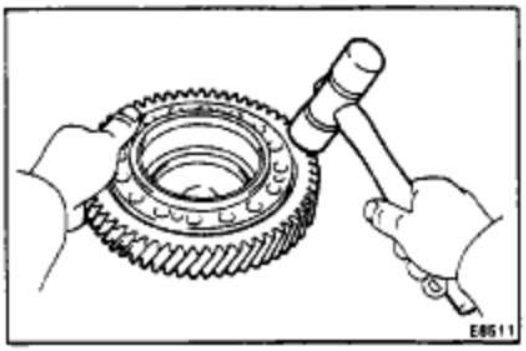


(b) Remove the differential No.2 case upward.

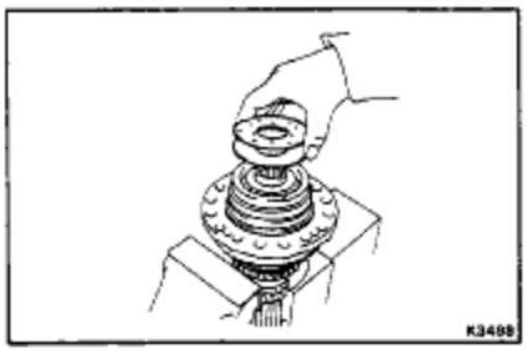


2. REMOVE RING GEAR

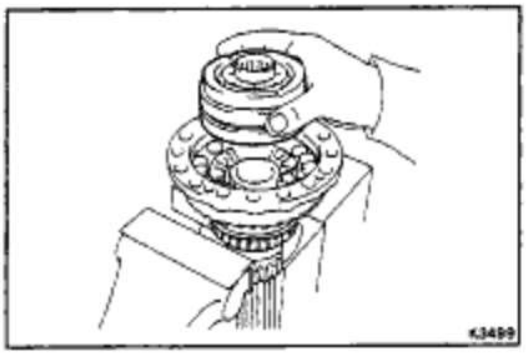
(a) Place the matchmarks on both the differential No.2 case and ring gear.



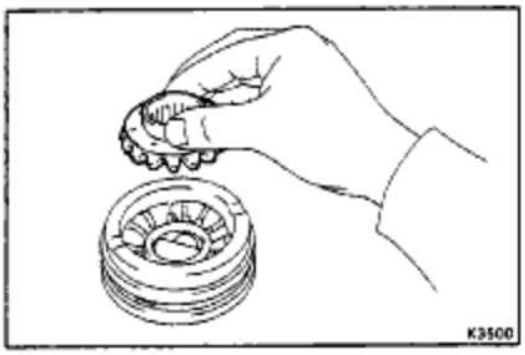
(b) Using a plastic hammer, tap out the ring gear.



3. REMOVE NO.2 DIFFERENTIAL SIDE GEAR THRUST WASHER AND CONICAL SPRING WASHER



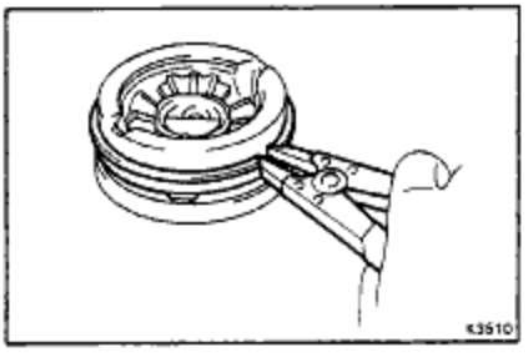
4. REMOVE FRONT DIFFERENTIAL CASE ASSEMBLY



5. DISASSEMBLE FRONT DIFFERENTIAL CASE ASSEMBLY

(a) Remove the front differential side gear together with thrust washer.

(b) Remove the front differential side gear thrust washer from the side gear.

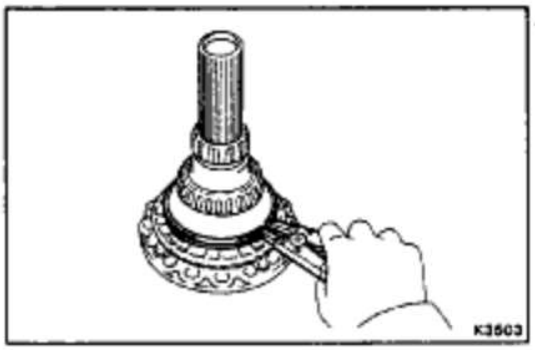


(c) Using snap ring pliers, remove the snap ring.
HINT: Before removing the shaft snap ring, wrap vinyl tape around the case prevent the it from damage.

(d) Remove the spacer.



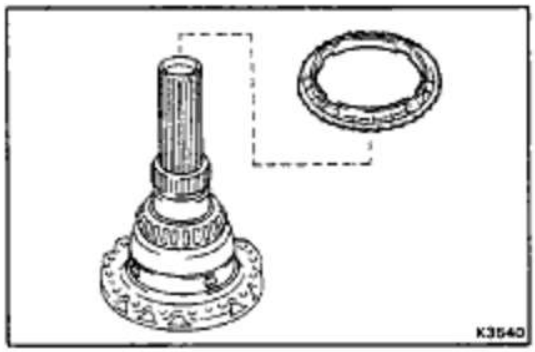
(e) Remove the No.2 pinion shaft, two pinion shafts, pinion holder, four differential pinions, four thrust washers, front differential side gear and thrust washer from the front differential case.



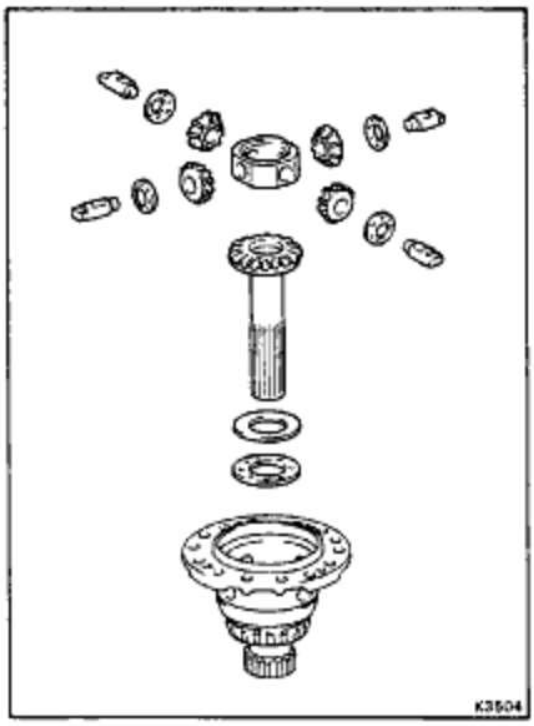
6. REMOVE SPEEDOMETER DRIVE GEAR AND SPACER

(a) Using snap ring pliers, remove the snap ring.

(b) Remove the spacer.

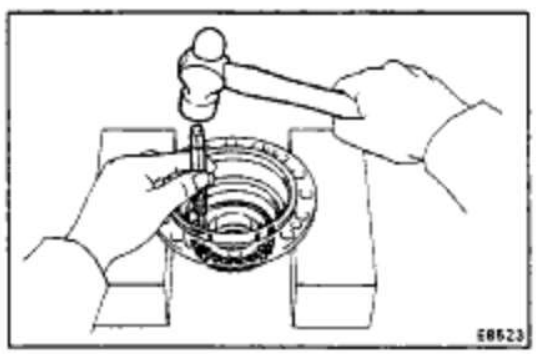


(c) Remove the speedometer drive gear.



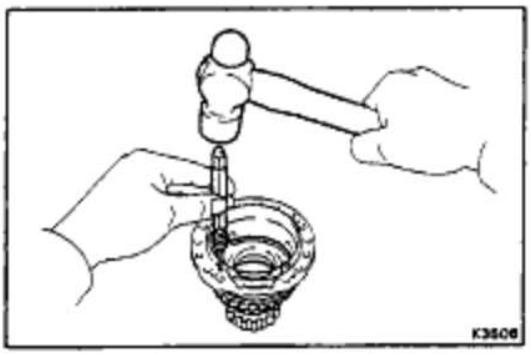
7. DISASSEMBLE DIFFERENTIAL NO.1 CASE

Remove the four pinion shafts, pinion holder, four differential pinions, four thrust washers, side gear sub assembly, conical spring washer and No.2 thrust washer.

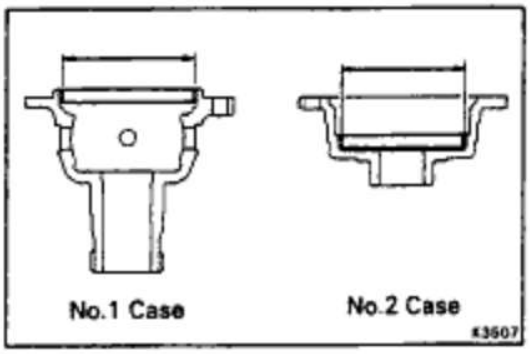


8. REMOVE SIDE BEARING

(a) Using a pin punch and hammer, drive out the side bearing evenly through two holes in the differential No. 1 case.



(b) Using a pin punch and hammer, drive out the side bearing evenly through two holes in the differential No–2 case.



INSPECTION OF DIFFERENTIAL CASE

1. MEASURE DIFFERENTIAL NO.1 AND NO.2 CASE

Using a cylinder gauge, measure the inner diameter of the differential No.1 and No.2 case.

Standard diameter:

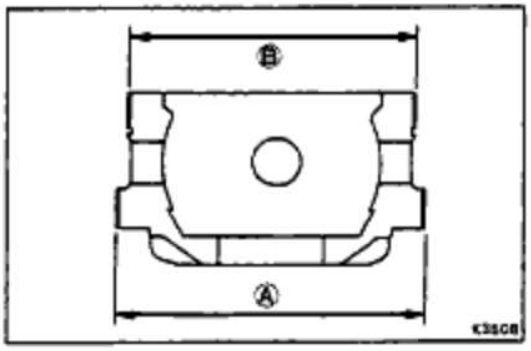
No–1 case 104.000 – 104.035 mm (4.0945 – 4.0959 in.)

No.2 case 97.000 – 97.035 mm (3.8189 – 3.8203 in.)

Maximum diameter:

No.1 case 104.060 mm (4.0968 in.)

No.2 case 97.060 mm (3.8213 in.)



2. MEASURE FRONT DIFFERENTIAL CASE

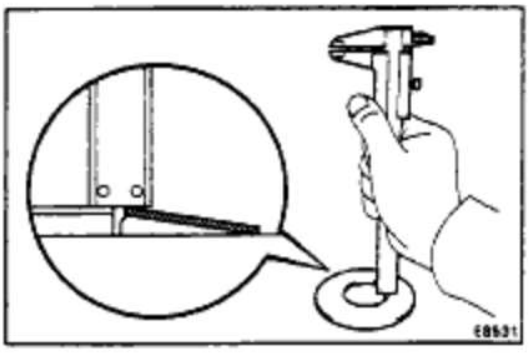
Using a micrometer, measure the outer diameter of front differential case.

Standard diameter: A 103.929 – 103.964 mm (4.0917 – 4.0931 in.)

B 96.929 – 96.964 mm (3.8161 – 3.8175 in.)

Minimum diameter: A 103.850 mm (4.0886 in.)

B 96.850 mm (3.8130 in.)



3. MEASURE CONICAL SPRING WASHER

Using a caliper, measure the height of the conical spring washer.

Standard height:

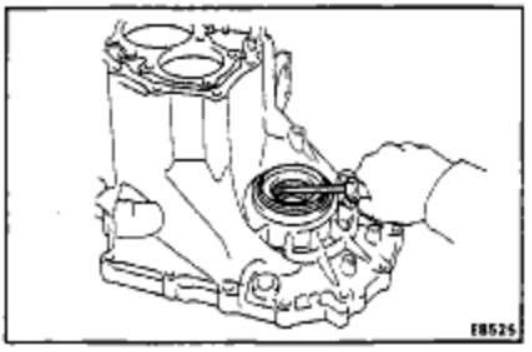
No.1 case conical spring washer 1.85 – 2.05 mm (0.073 – 0.081 in.)

No.2 case conical spring washer 2.60 – 2.80 mm (0.102 – 0.110 in.)

Minimum height:

No–1 case conical spring washer 1.75 mm (0.069 in.)

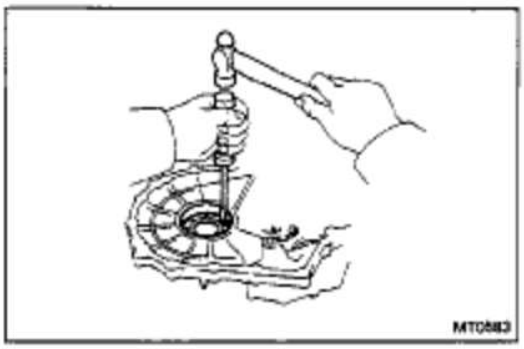
No.2 case conical spring washer 2.50 mm (0.098 in.)



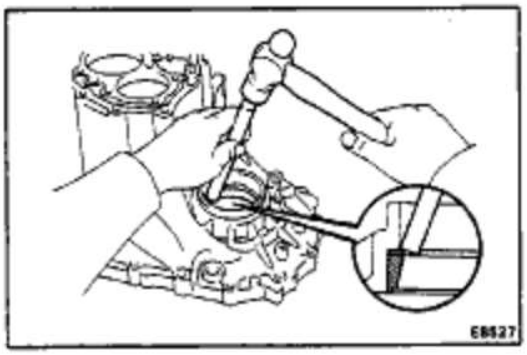
4. (TRANSMISSION CASE SIDE)

IF NECESSARY, REPLACE OIL SEAL AND TAPERED ROLLER BEARING OUTER RACE

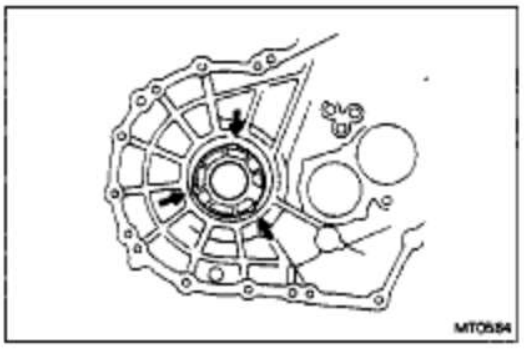
(a) Using a screwdriver, remove the oil seal.



(b) Using a screw driver and hammer, drive out the transmission oil baffle.

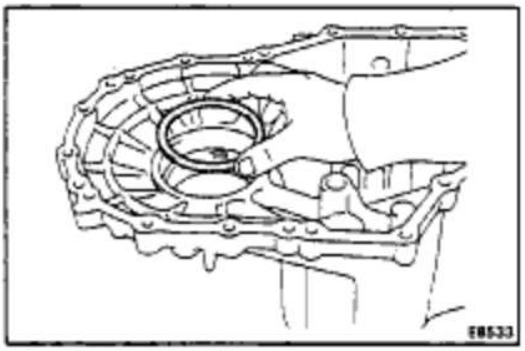


(c) Using a brass bar and hammer, drive out the bearing outer race lightly and evenly.
(d) Remove the adjusting shim.

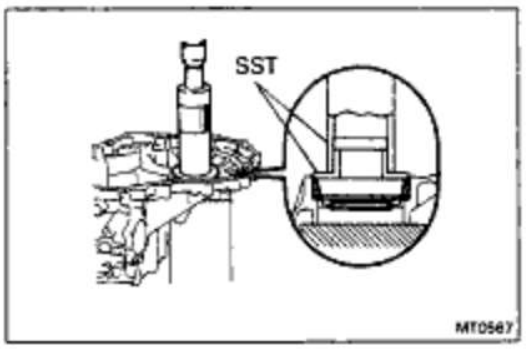


(e) Install the new transmission oil baffle.
HINT:

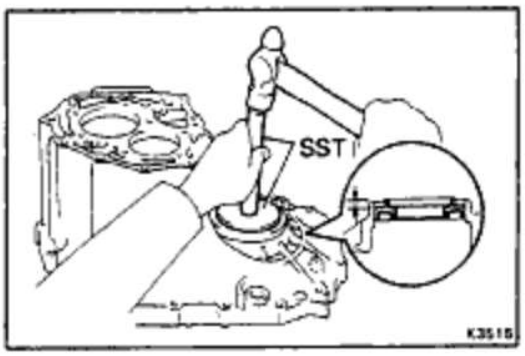
- Install the transmission oil baffle projection into the case side cutout.
- Do not install the oil baffle when adjusting the differential side bearing preload.



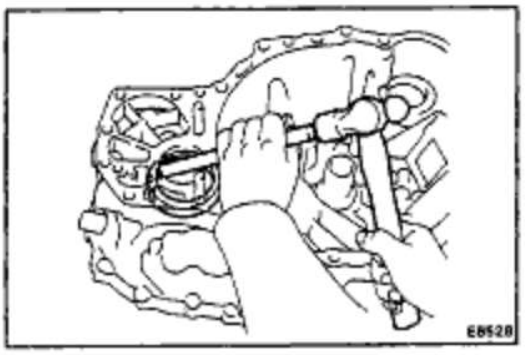
(f) Install the adjusting shim.
(See page MT– 168)
HINT: First select and install a shirr of lesser thickness than before.



Using SST and a press, install the taper roller bearing outer race.
SST 09316–60010 (09316–00010,09316–00040)

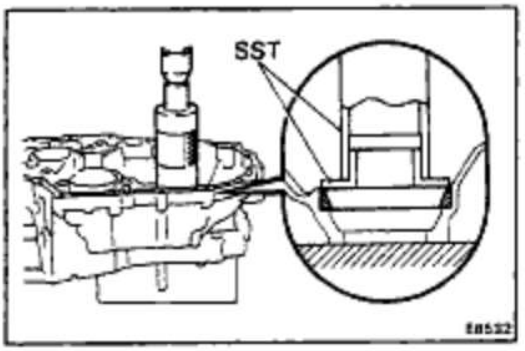


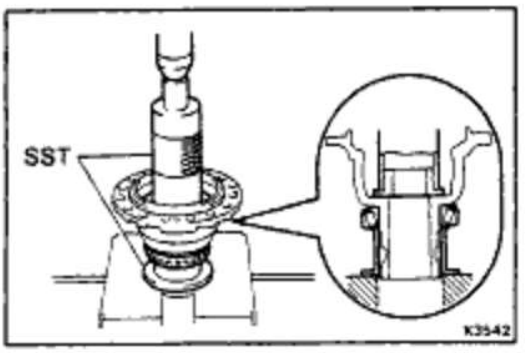
(h) Using SST, drive in a new oil seal.
SST 09223–15010
Drive in depth: 6.0 – 7.0 mm
(0.4–0.5ft–lb,0.6–0.7N–m)
(I) Coat the lip of the oil seal with MP grease.



5. (TRANSAXLE CASE SIDE)
IF NECESSARY, REPLACE TAPERED ROLLER BEAR–ING OUTER RACE
(a) Using a brass bar and hammer, drive out the bearing outer race lightly and evenly through the cut–out position on the transaxle case.

(b) Using SST and a press, install the tapered roller bearing outer race.
SST 09316–60010 (09316–00010, 09316–00040)

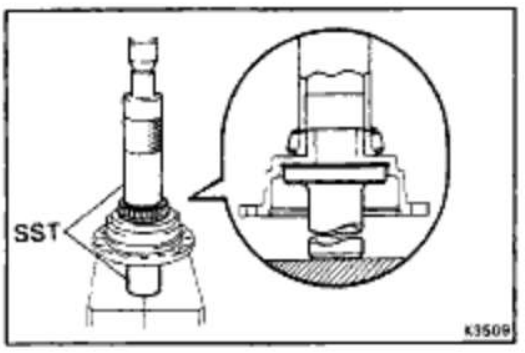




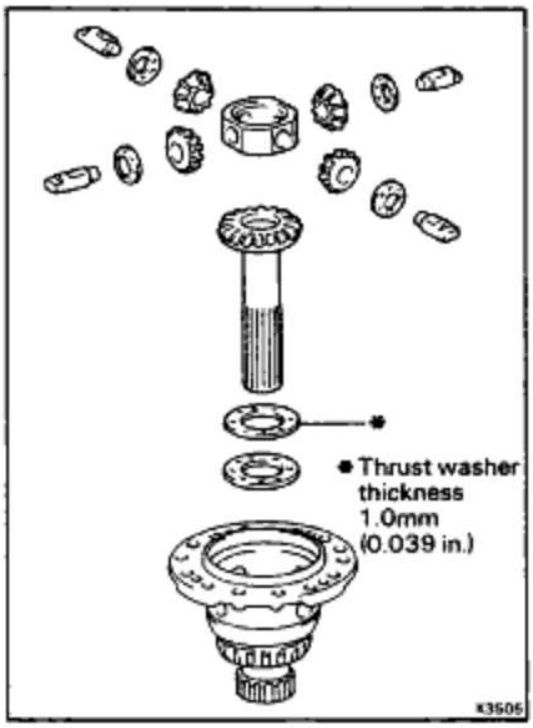
ASSEMBLY OF DIFFERENTIAL CASE

HINT: Coat all of the sliding surface with gear oil before assembly.

1. INSTALL SIDE BEARING
(a) Using SST and a press, install the side bearing to the differential No.1 case.
SST 09316–60010 (06316–00010, 09316–00020), 09316–20011



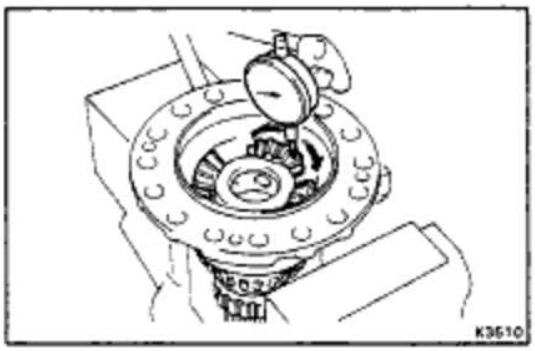
(b) Using SST and a press, install the side bearing to the differential No.2 case.
SST 09309–36010, 09316–60010 (09316–00010)



2. CHECK AND ADJUST CENTER DIFFERENTIAL SIDE GEAR BACKLASH (Differential Side Gear Sub Assembly)

(a) Install the No.2 side gear thrust washer, (temporarily install) 1.0 mm (0.039 in.) size thrust washer, differential side gear sub assembly, four pinions, four thrust washers, pinion shaft holder and four shafts to the differential No. 1 case.

HINT: Trust washer 1.0 mm (0.039 in.) size is for check of backlash.



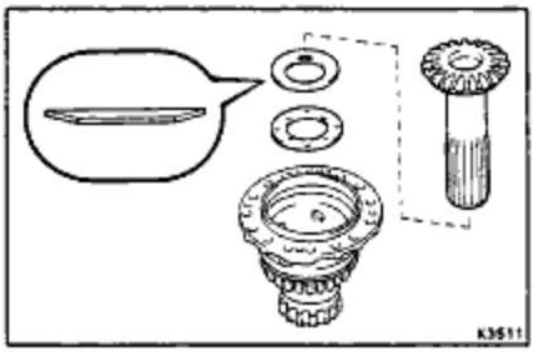
(b) Using a dial indicator, measure the backlash of one pinion gear while holding the differential side gear sub assembly toward the case.

Standard clearance: 0.05 – 0.20 mm (0.0020 – 0.0079 in.)

HINT: Referring to the table below, select the No.2 thrust washer which will ensure that the backlash is within specification. Try to select a washer of the same size.

Thickness mm(in.)	Thickness mm (in.)
0.80 (0.0315)	1.15 (0.0453)
0.85 (0.0335)	1.20 (0.0472)
0.90 (0.0354)	1.25 (0.0492)
0.95 (0.0374)	1.30 (0.0512)
1.00 (0.0394)	1.35 (0.0531)
1.05 (0.0413)	1.40 (0.0551)
1.10 (0.0433)	

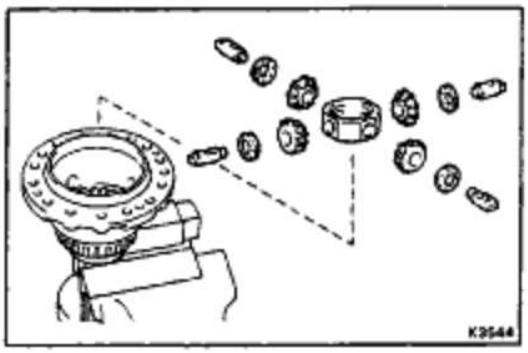
(e) Remove the differential No. 1 case.



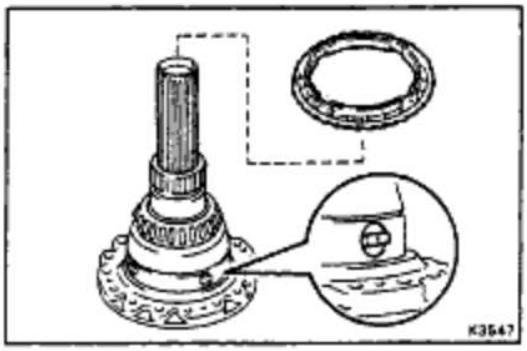
3. ASSEMBLE DIFFERENTIAL NO–1 CASE

(a) Install the No.2 side gear thrust washer (Previously selected), conical spring washer and differential side gear sub assembly to the No–1 case.

HINT: Be carful not to mistake the direction of conical spring washer.

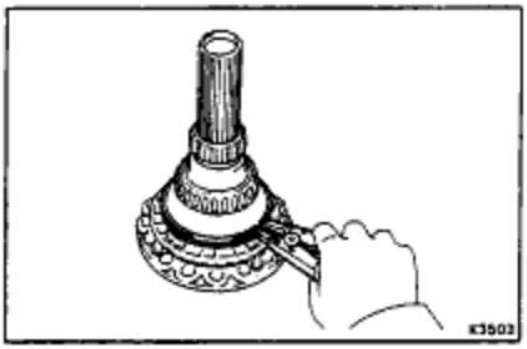


(b) Install the four pinion thrust washers, four differential pinions, shaft holder and four shafts to the No. 1 case.



4. INSTALL SPEEDOMETER DRIVE GEAR

(a) Install the speedometer drive gear as shown in the figure.



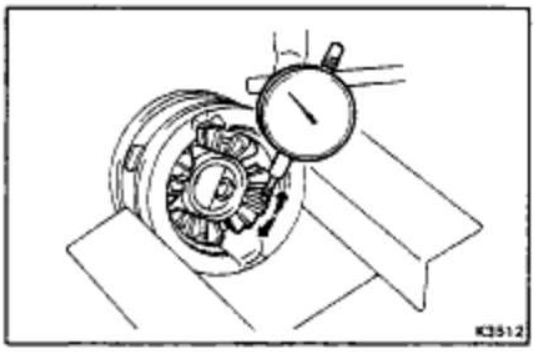
(b) Install the spacer.

(c) Using snap ring pliers, install the snap ring.



5. CHECK AND ADJUST FRONT DIFFERENTIAL SIDE GEAR BACKLASH

(a) Install the front differential side gear thrust washer, side gear, shaft holder, four pinions, four thrust washers, No–2 shaft and two shafts to the front differential case.



(d) Using a dial indicator, measure the backlash of one pinion gear while holding the front differential side.
gear toward the case.

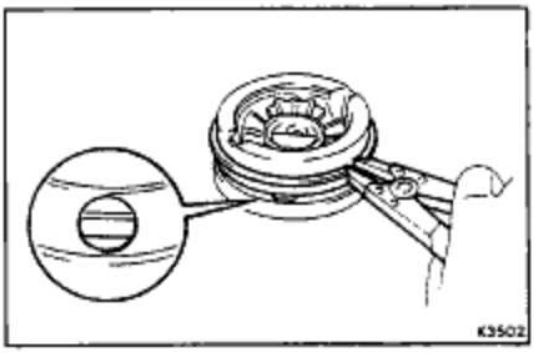
Standard backlash: 0.05 – 0.20 mm
I0.0020 – 0.0079 in.)

HINT: Do not mount the surface of No.2 differential case which contacts with bushing in a vise.

Referring to the table below, select the thrust washer which will ensure that the backlash is within specification.

Try to select a washer of the same size.

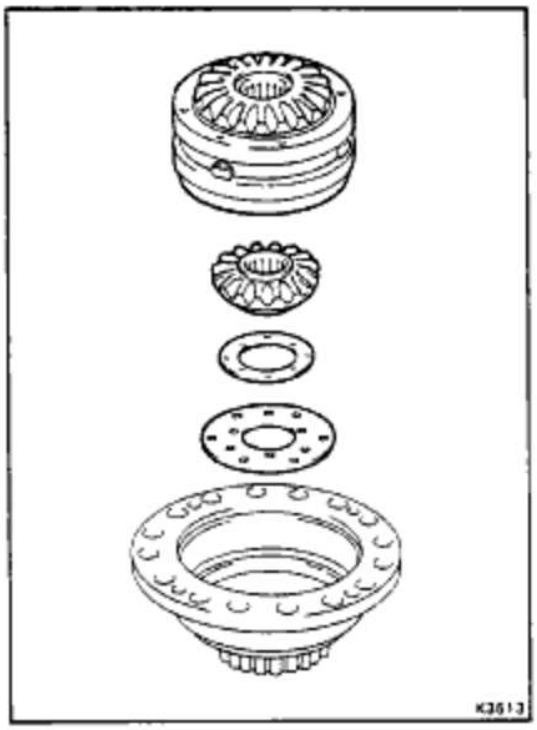
Mark	Thickness	mm (in.)
B	1.00	(0.0394)
C	1.05	(0.0413)
D	1.10	(0.0433)
E	1.15	(0.0453)
F	1.20	(0.0472)
G	1.25	(0.0492)



6. INSTALL SNAP RING

Using snap ring pliers, install the shaft snap ring toward to as shown.

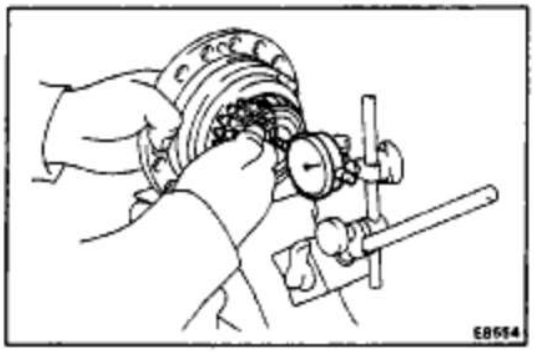
HINT: Before installing the shaft snap ring, wrap vinyl tape around the case prevent the it from damage.



7. CHECK AND ADJUST FRONT DIFFERENTIAL SIDE GEAR THRUST CLEARANCE
(Differential No.2 Case)

(a) Install the No.2 side gear thrust washer, front differential side gear thrust washer, side gear and front differential case assembly to the differential No–2 case.

HINT: Engage the front differential side gear and pinion gear of No.2 case.



(b) Using a dial indicator, measure the thrust clearance of front differential side gear while holding the No.2 case on the left side.

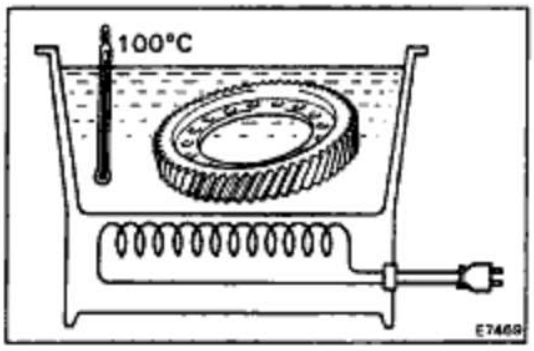
Standard clearance: 0.14 – 0.21 mm (0.006 – 0.008 in.)

HINT: Turning the side gear a bit, check the maximum value of thrust clearance.

Referring to the table below, select the thrust washer which. will ensure that the thrust clearance within specification. Try to select a washer of the same size.

Mark	Thickness mm (in.)	Mark	Thickness mm(in.)
A	0.95 (0.0374)	F	1.20 (0.0472)
B	1.00 (0.0394)	G	1.25 (0.0492)
C	1.05 (0.0413)	H	1.30 (0.0512)
D	1.10 (0.0433)	J	1.35 (0.0531)
E	1.15 (0.0453)	K	1.40 (0.0551)

(c) Remove the differential No.2 case.



8. INSTALL RING GEAR

(a) Clean the contact surface of the differential No.2 case.

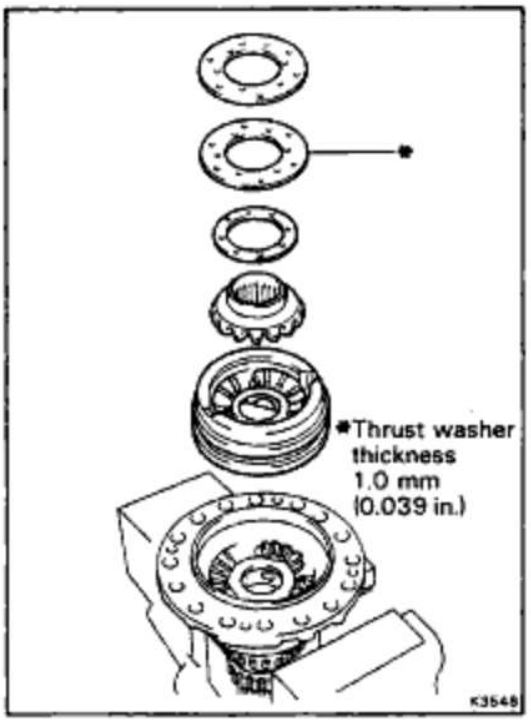
(b) Heat the ring gear to about 100°C (212°F) in an oil bath.

NOTICE: Do not heat the ring gear above 110°C (230°F).

(c) Clean the contact surface of the ring gear with cleaning solvent.

(d) Then quickly install the ring gear on the differential No.2 case. .

HINT: Align the matchmarks on the differential No.2 case and connect the ring gear.

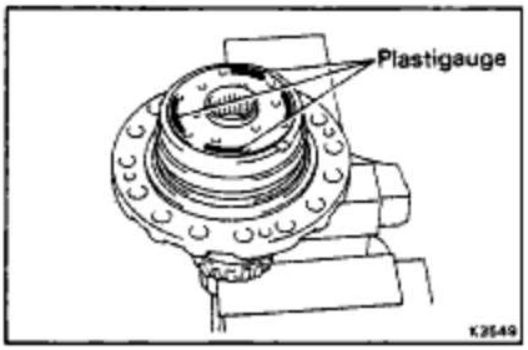


9. SELECT CENTER DIFFERENTIAL SIDE GEAR THRUST WASHER

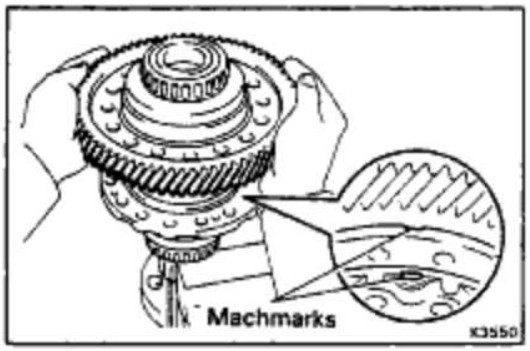
(a) Install the front differential case assembly, side gear, thrust washer, (Temporarily install) 1.0 mm (0.039 in.) size No.2 thrust washer and No.2 thrust washer to the differential No. 1 case assembly.

HINT: Thrust washer 1.0 mm (0.039 in.) size is for check of backlash.

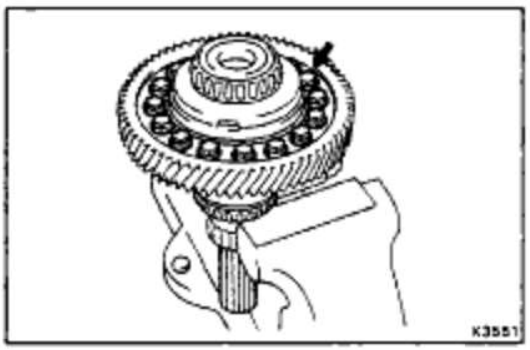
Engage the front differential side gear and pinion gear of No. 1 case.



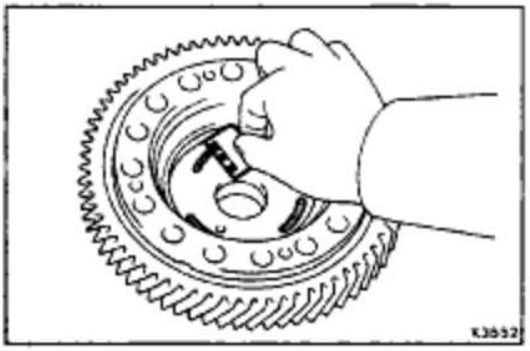
(b) Clean the No.2 side gear thrust washer and No.2case.
(c) Place the Plastigauge onto the No.2 thrust washer as shown in the figure.
HINT: Place the Platigauge in four positions on top of the side gear thrust washer so that they are above the axes of the three pinion shafts inside the differential No–1 case.



Place the Plastigauge so that is as close as possible to the outer side of the No.2 thrust washer.
(d) Install the No.2 case.
HINT: Align the matchmarks on the differential No. 1 case and connect the No.2 case.
Do not turn the No.2 case.



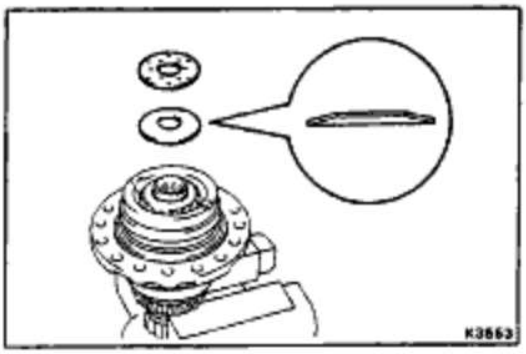
(e) Install and torque the sixteen bolts.
Torque: 1,260 kg–cm (91 ft–lb, 124 N–m)



(f) Remove the sixteen bolts and differential No.2 case up ward.
(g) Measure the Plastigauge at its widest point.
Standard clearance: 0.155 – 0.250 mm (0.0061 – 0.0098 in.)
HINT: Referring to the table below, select the thrust washer which will ensure that the backlash is within specification. Try to select a washer of the same size.

Thickness mm(in.)	Thickness mm(in.)
0.80 (0.0315)	1.15 (0.0453)
0.85 (0.0335)	1.20 (0.0472)
0.90 (0.0354)	1.25 (0.0492)
0.95 (0.0374)	1.30 (0.0512)
1.00 (0.0394)	1.35 (0.0531)
1.05 (0.0413)	1.40 (0.0551)
1.10 (0.0433)	

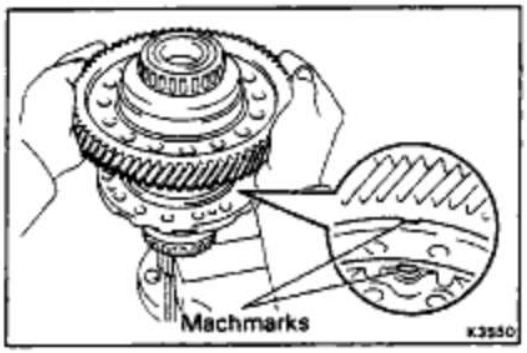
(h) Remove the differential No.2 case, No.2 thrust washer and (Temporarily install) 1.0 mm (0.039 in.) thrust washer.



10. INSTALL DIFFERENTIAL NO.2 CASE

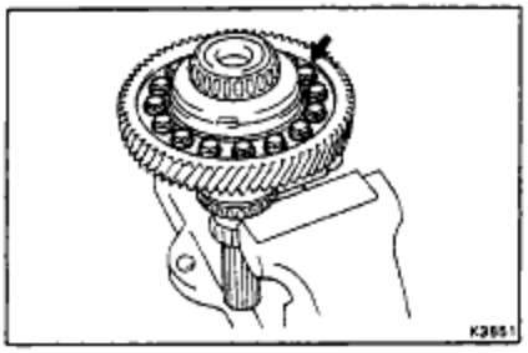
(a) Install the conical spring washer and No.2 side gear thrust washer (Previously selected).

HINT: Be careful not to mistake the direction of conical spring washer.



(a) Install the differential No.2 case to the No. 1 case.

HINT: Align the matchmarks on the differential No.1 case and connect the N.2 case.

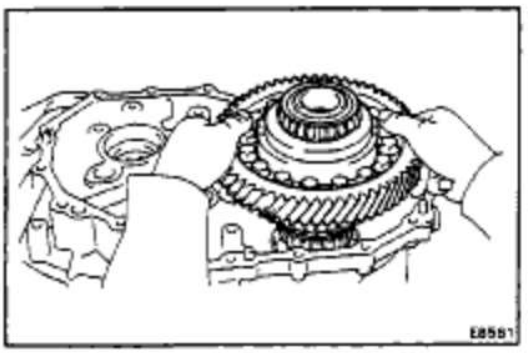


(c) Install and torque the sixteen bolts.

Torque: 1,260 kg–cm (91 ft–ib, 124 N–m)

11. INSTALL DIFFERENTIAL CASE ASSEMBLY

Install the differential case assembly –to the transaxle case.



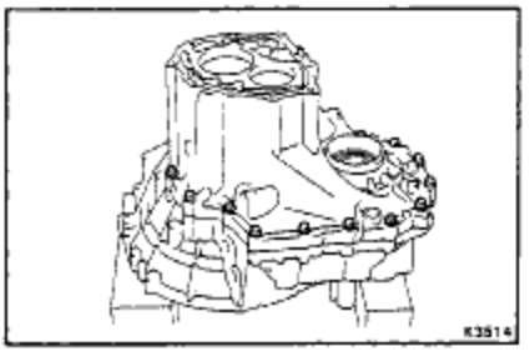
12. INSTALL TRANSMISSION CASE

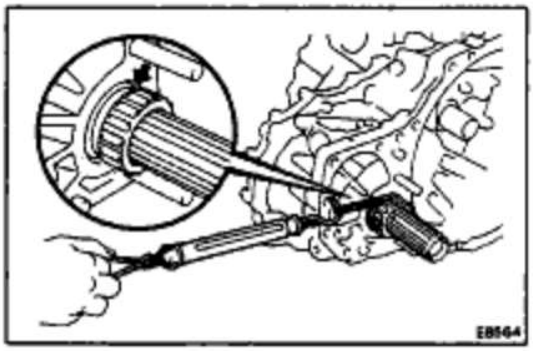
(a) Install the transmission case.

HINT: If necessary, tap on the case with a plastic hammer.

(b) Install and torque the seventeen bolts.

Torque: 300 kg–cm (22 ft–lb, 29 N–m)





13. ADJUST DIFFERENTIAL SIDE BEARING PRELOAD

(a) Turn the differential case assembly counterclockwise and clockwise several time.

(b) Using a spring tension gauge, measure the differential case assembly preload.

Preload (at starting)

New bearing

3.2 – 6.3 kg

(7.1 –13.9 lb,31.4–61.8N)

Reused bearing

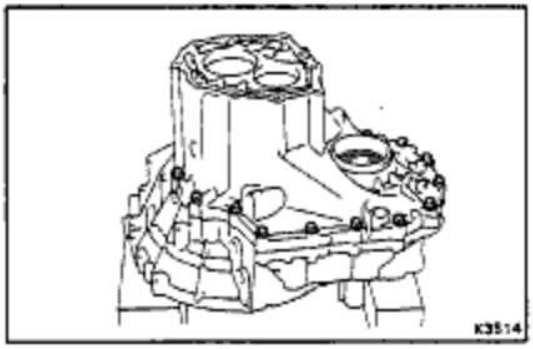
2.0 – 4.0 kg

(4.4–8.81b,19.6–39.2N)

If the preload is not within specification, select the thrust washers.

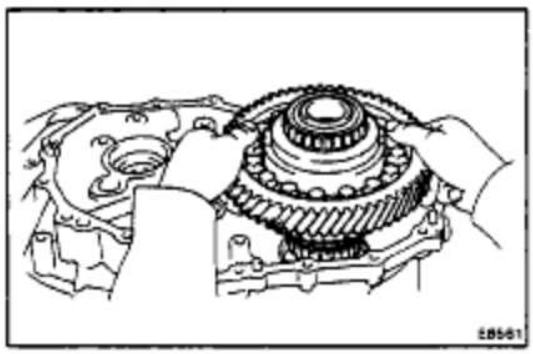
HINT: The preload will change about 2.4 kg (5.3 lb, 23.5 N) with each shim thinness.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	2.00 (0.0787)	9	2.45 (0.0965)
1	2.05 (0.0807)	A	2.50 (0.0984)
2	2.10 (0.0827)	B	2.55 (0.1004)
3	2.15 (0.0846)	C	2.60 (0.1024)
4	2.20 (0.0866)	D	2.65 (0.1043)
5	2.25 (0.0886)	E	2.70 (0.1063)
6	2.30 (0.0906)	F	2.75 (0.1083)
7	2.35 (0.0925)	G	2.80 (0.1102)
8	2.40 (0.0945)	H	2.85 (0.1122)

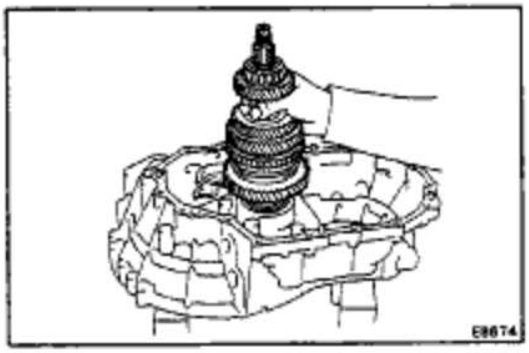


14. REMOVE TRANSMISSION CASE

Remove the seventeen bolts and tap off the case with a plastic hammer.



15. REMOVE DIFFERENTIAL CASE ASSEMBLY



INSTALLATION OF COMPONENT PARTS

(See pages MT–118 to MT–120)

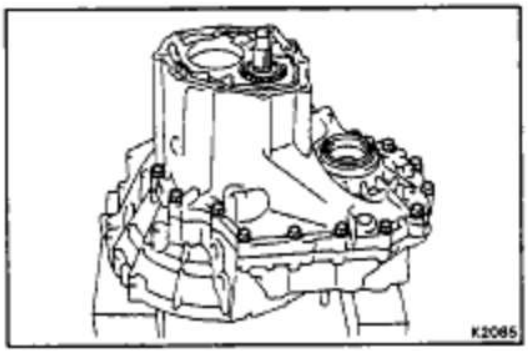
HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

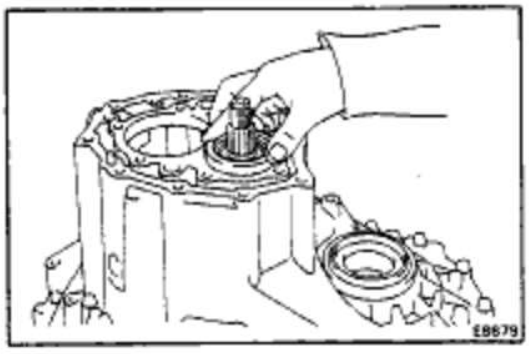
1. ADJUST OUTPUT SHAFT PRELOAD

(a) Install the output shaft assembly to the transaxle case.

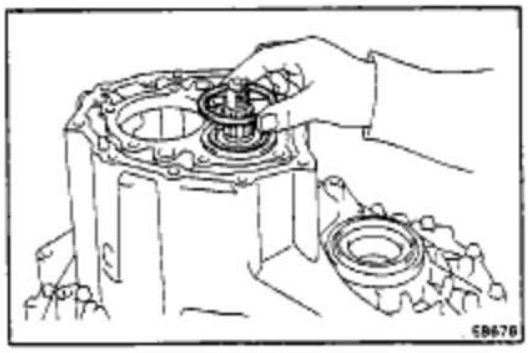
(b) Install the transmission case to the transaxle case.
If necessary, tap on the case with a plastic hammer.

(e) Install and torque the seventeen bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m)

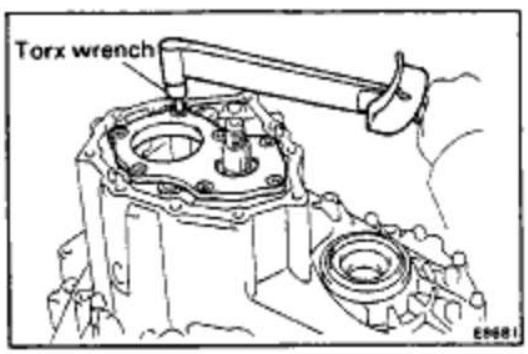




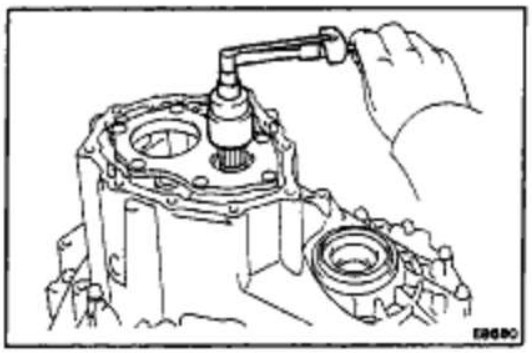
(d) Install the output shaft rear bearing outer race.



(e) Install the adjusting shim.
HINT: When re–using the output shaft rear bearing, first install a shim of the same thickness as before. If installing a new bearing, first select and install a shim of lesser thickness than before.



(f) Using a torx wrench, install and torque the seven torx screws.
Torx wrench T45 09042–00050
Torque: 430 kg–cm (31 ft–lb, 42 N–m)



(g) Install the new lock nut to the output shaft.

(h) Turn the output shaft counterclockwise and clockwise several times.

(i) Using a torque meter, measure the preload of the output shaft.

Preload (at starting)

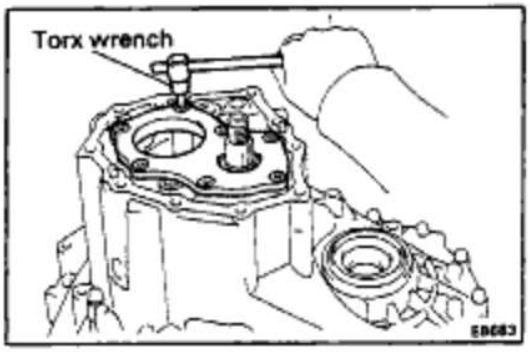
Now bearing 8.0 – 16.0 kg–cm
(6.9 – 13.9 in.–lb, 0.8 – 1.6 N–m)

Reused bearing 5.0 – 10.0 kg–cm
(4.3 – 8.7 in.–lb, 0.5 – 1.0 N–m)

If the preload is not within specification, select the thrust washers.

HINT: The preload will change about 4 5 kg–cm (3.5 4.3 in.–lb, 0.4 – 0.5 N–m) with each shim thickness.

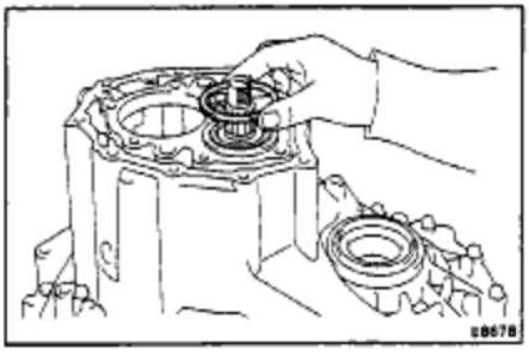
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
0	1.30 (0.0512)	D	1.95 (0.0768)
1	1.35 (0.0531)	E	2.00 (0.0787)
2	1.40 (0.0551)	F	2.05 (0.0807)
3	1.45 (0.0571)	G	2.10 (0.0827)
4	1.50 (0.0591)	H	2.15 (0.0846)
5	1.55 (0.0610)	J	2.20 (0.0866)
6	1.60 (0.0630)	K	2.25 (0.0886)
7	1.65 (0.0650)	L	2.30 (0.0906)
8	1.70 (0.0669)	M	2.35 (0.0925)
9	1.75 (0.0689)	N	2.40 (0.0945)
A	1.80 (0.0709)	P	2.45 (0.0965)
B	1.85 (0.0728)	Q	2.50 (0.0984)
C	1.90 (0.0748)		

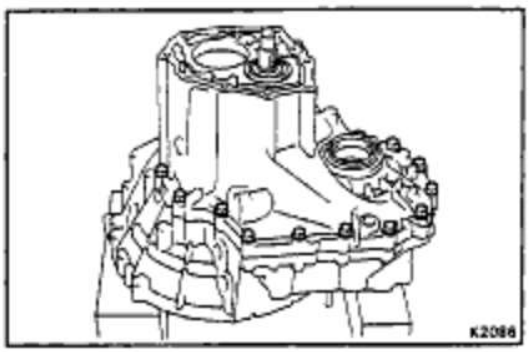


(j) Remove the lock nut.

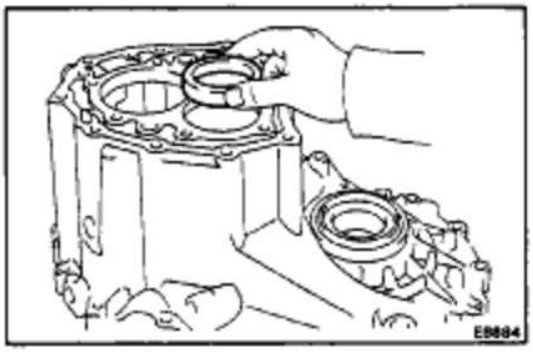
(k) Using a torx wrench, remove the seven torx screws.
Torx wrench T45 09042–00050

(l) Remove the adjust shim.

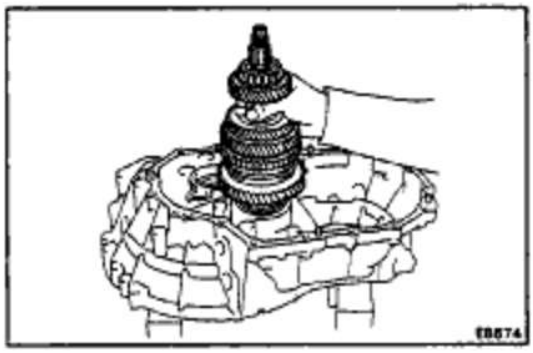




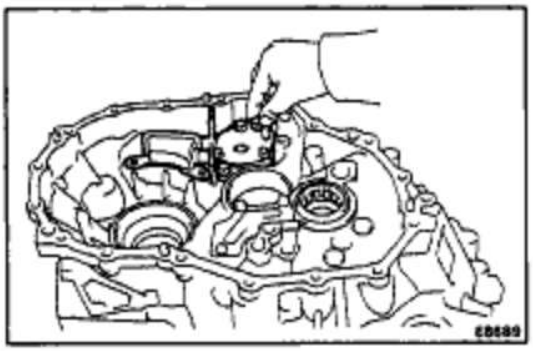
(m) Remove the seventeen bolts and tap off the case with a plastic hammer.



(n) Remove the output shaft rear bearing outer race.



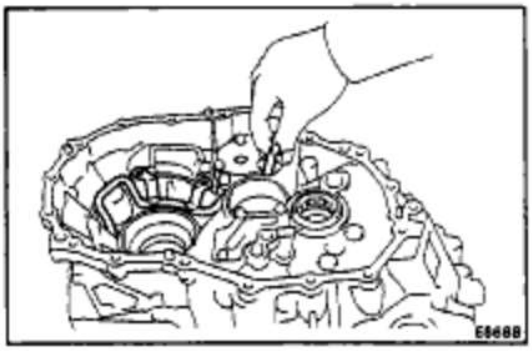
(o) Remove the output shaft assembly.



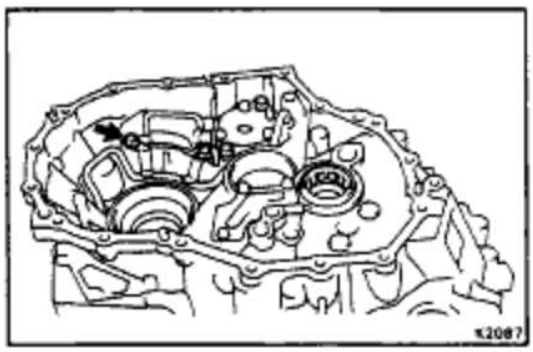
2. INSTALL OIL PUMP ASSEMBLY AND OIL PIPE

(a) Install the oil pump assembly and temporarily tighten the two bolts.

HINT: Do not drop the oil pump gasket.

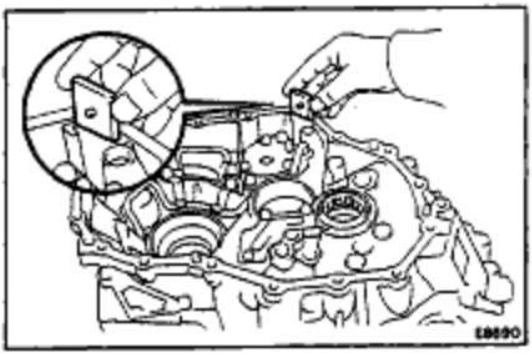


(b) Install the oil pipe.

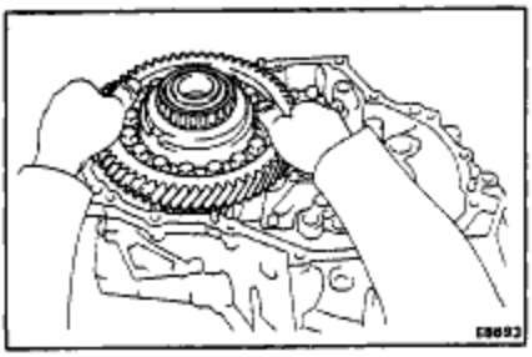


(c)Torque the four bolts.

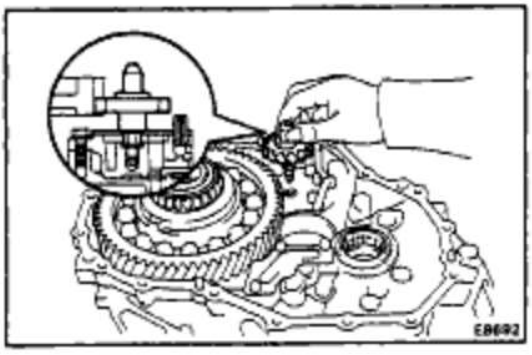
Torque: 175 kg–cm(13 ft–lb, 17 N–m)



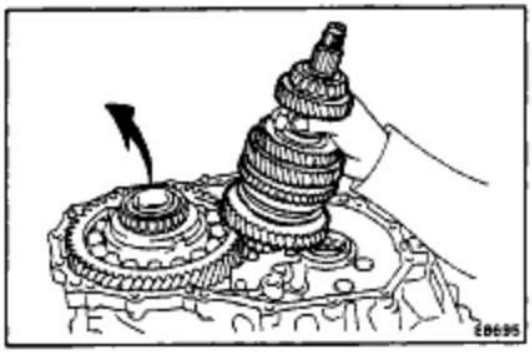
3. INSTALL MAGNET TO TRANSAXLE CASE



4. INSTALL DIFFERENTIAL CASE ASSEMBLY

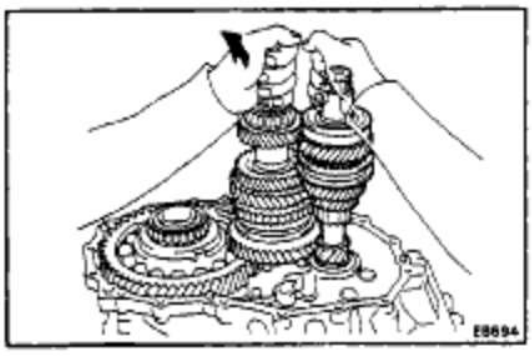


S. INSTALL OIL PUMP DRIVE GEAR



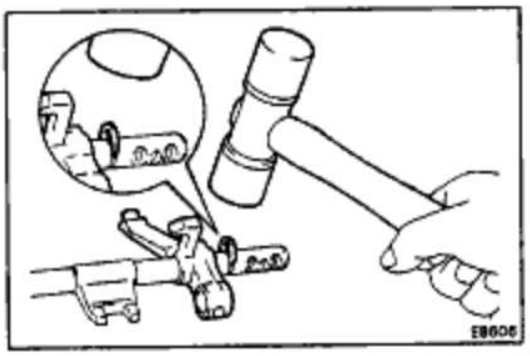
B. INSTALL OUTPUT SHAFT ASSEMBLY

Lifting the differential case assembly, install the output shaft assembly.



7. INSTALL INPUT SHAFT ASSEMBLY

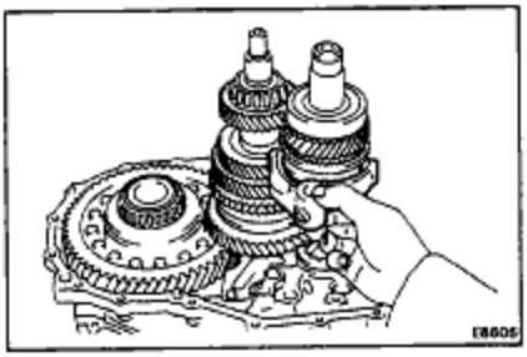
Leaning the output shaft assembly to the differential case side, install the input shaft assembly.
HINT: When you install the input shaft assy, be careful not to scratch the oil seal.



8. INSTALL SNAP RING

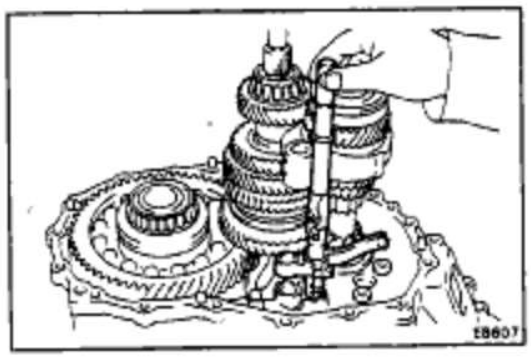
(a) Install the reverse shift fork to the No.3 shift fork.

(b) Using a plastic hammer, install the snap ring.

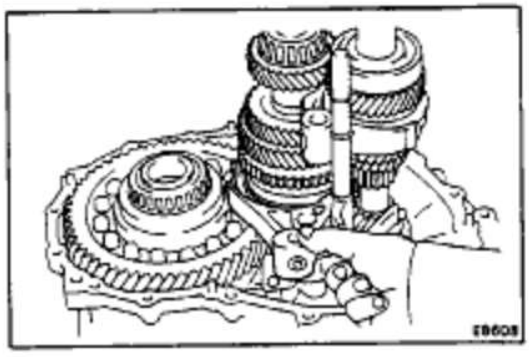


9. INSTALL NO.2 SHIFT FORK AND NO–3 SHIFT FORK SHAFT WITH REVERSE SHIFT FORK

(a) Place No.2 shift fork into the groove of No.2 hub sleeve.

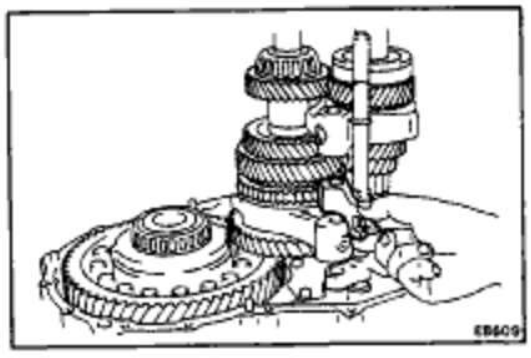


(b) Install the No.3 shift fork shaft with reverse shift fork to the case.

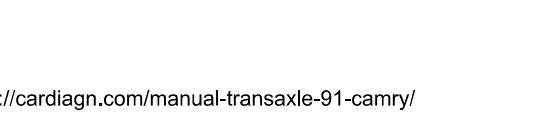


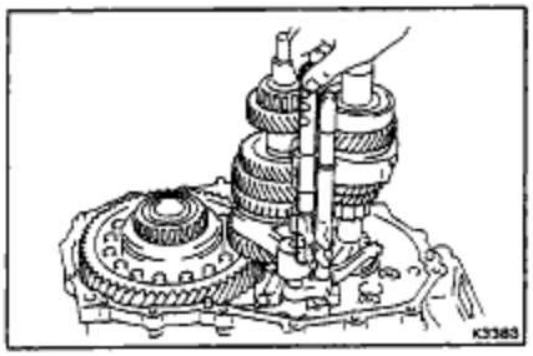
10. INSTALL NO.1 SHIFT FORK, SHIFT HEAD AND N0.2 SHIFT FORK SHAFT.

(a) Place No–1 shift fork into the groove of No.1 hub sleeve.

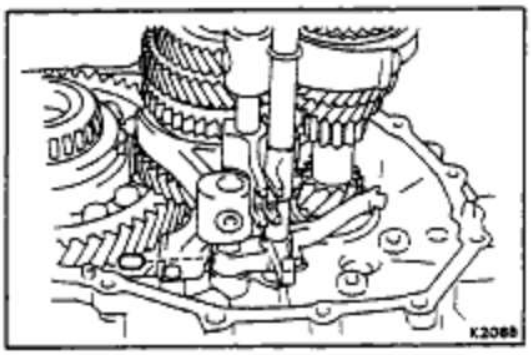


(b) Put shift head onto the No–1 shift fork.





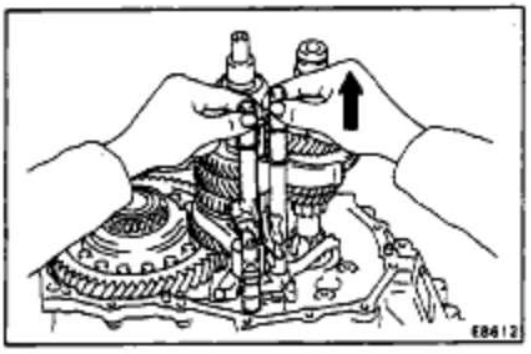
(c) Install the No.2 shift fork shaft to the case, through the No.2 shift fork, the shift head and the No. t shift fork.



11. INSTALL NO.1 SHIFT FORK SHAFT

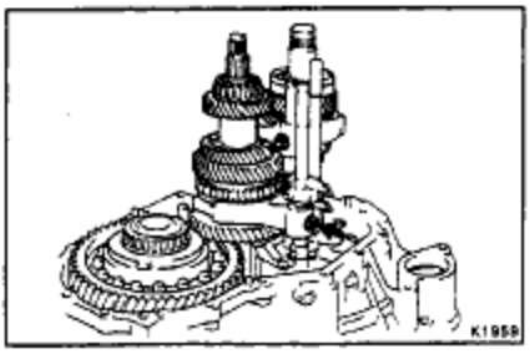
(a) Using a magnetic finger, install the interlock roller into the reverse shift fork.

HINT: Align the groove of No.1 fork shaft with the interlock roller hole of reverse shift fork.



(b) Install the No–1 shift fork shaft to the case, through the No. 1 shift fork and reverse shift fork.

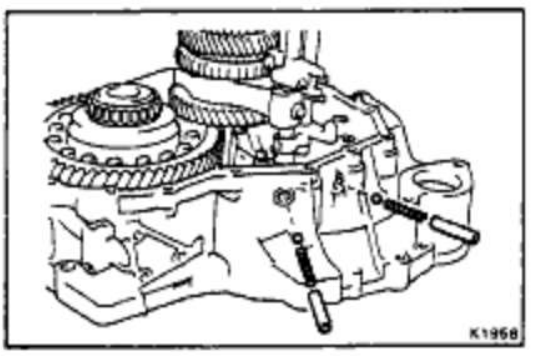
HINT: If it is difficult to put the No.1 shift fork shaft through the reverse shift fork, pull up the No.3 shift fork shaft.



12. INSTALL SET BOLTS

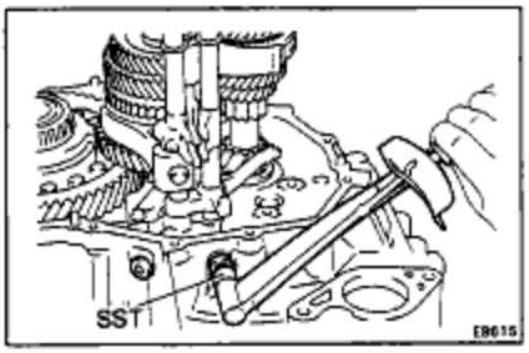
Install and torque the three bolts.

Torque: 240 kg–cm (17 ft–lb, 24 N–m)

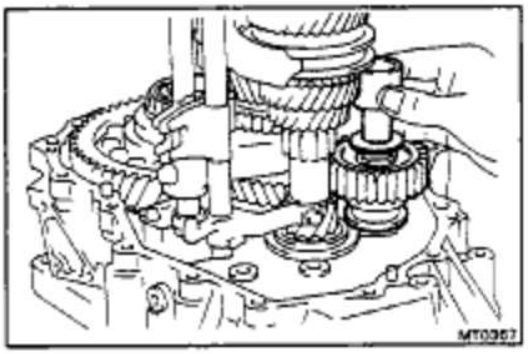


13. INSTALL LOCKING BALLS, SPRINGS, SPRING SEATS AND SCREW PLUGS

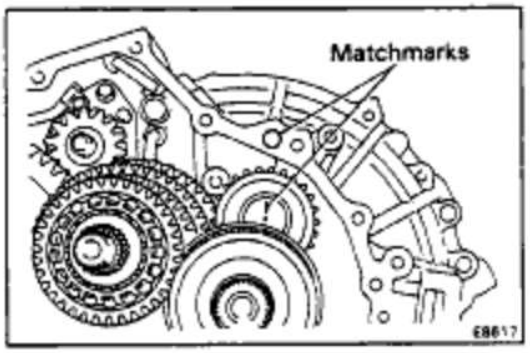
(a) Install the two locking balls, springs and spring seats.



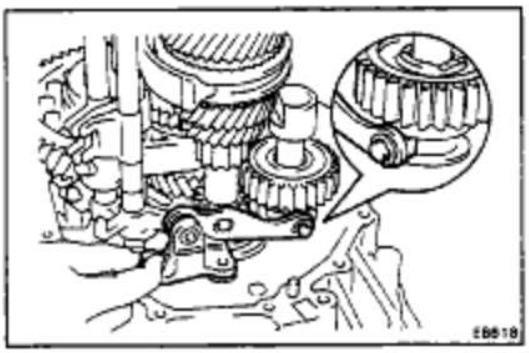
(b) Apply sealant to the two screw plugs.
Sealant: Part No. 08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(c) Using SST, torque the two screw plugs.
SST 09313–30021
Torque: 250 kg–cm (18 ft–lb, 25 N–m)



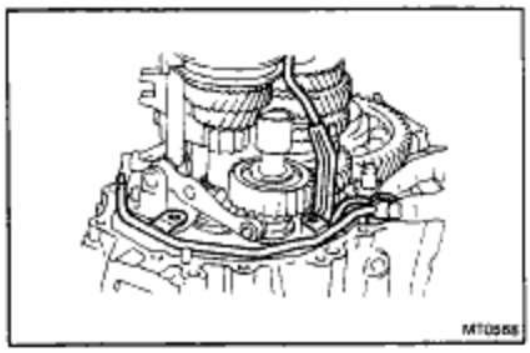
14. INSTALL REVERSE IDLER GEAR SHAFT, THRUST WASHER AND GEAR
(a) Install the reverse idler gear shaft with gear and thrust washer to the case.



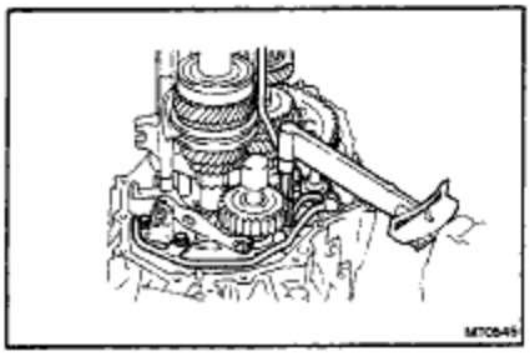
(b) Align the matchmarks, as shown in the illustration.



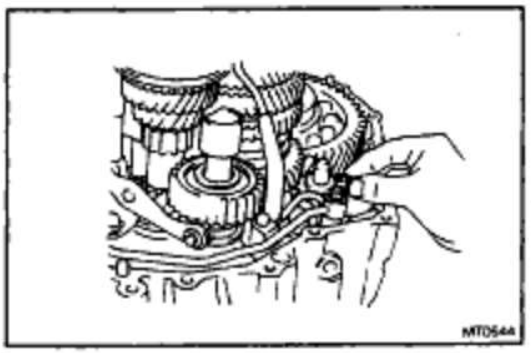
15. INSTALL REVERSE SHIFT ARM BRACKET ASSEMBLY AND NO.2 OIL PIPE
(a) Put the–reverse shift fork pivot into the reverse shift arm and install the reverse shift arm bracket to the transaxle case.
(b) Temporarily install the bolt.



(c) Install the No.2 oil pipe.



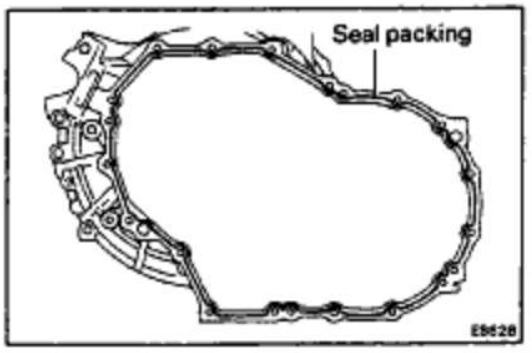
(d) Torque the two oil pipe bolts and reverse shift arm bracket bolt.
Torque: 175 kg–cm (13 ft–lb, 17 N–m)



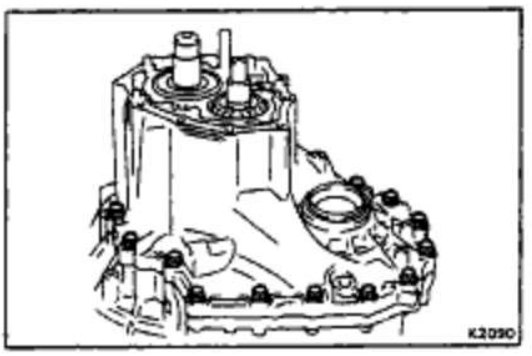
(e) Install a new gasket to the oil pipe.

16. INSTALL TRANSMISSION CASE

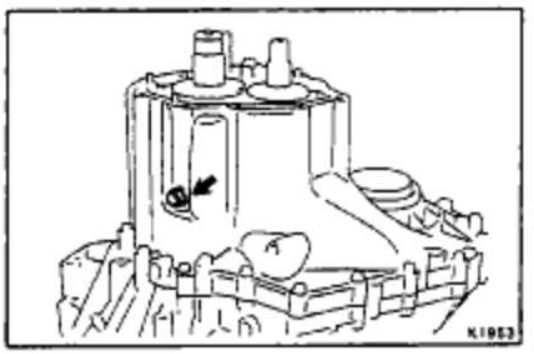
(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transaxle case.
(b) Apply seal packing to the transmission case as shown in the figure.
Seal packing: Part No.08826–00080, THREE BOND 1281 or equivalent

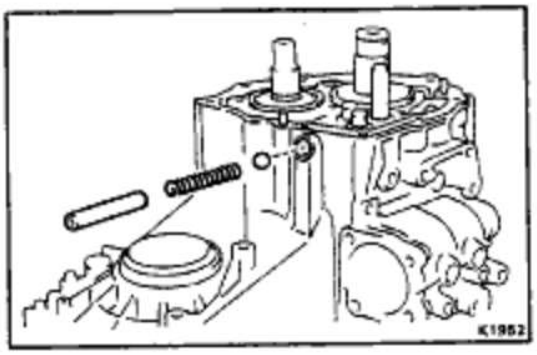


HINT: Install the transmission case as soon as the seal packing is applied.
(c) Install and torque the seventeen bolts.
Transmission case side: Fourteen bolts
Transaxle case side: Three bolts
Torque: 300 kg–cm (22 ft–lb, 29 N–m)



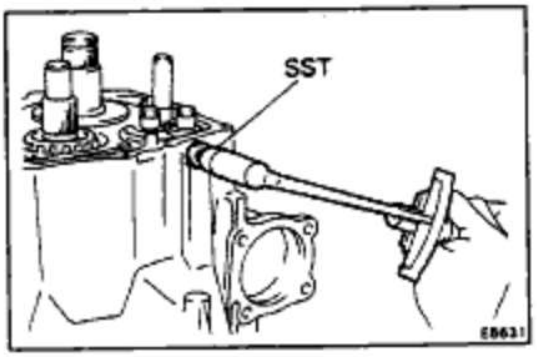
17. INSTALL AND TORQUE REVERSE IDLER GEAR RETAINING BOLT WITH GASKET
Torque: 300 kg–cm (22 ft–lb, 29 N–m)





18. INSTALL LOCKING BALL, SPRING, SPRING SEAT AND SCREW PLUG

(a) Install the locking ball, spring and spring seat.



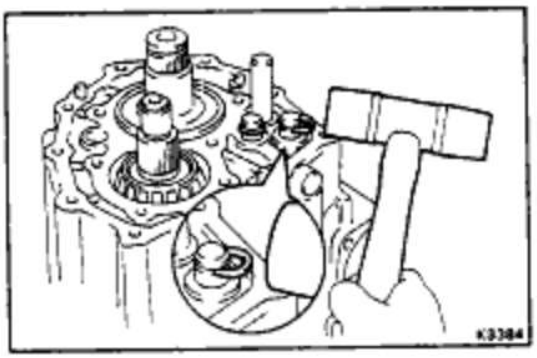
(b) Apply sealant to the screw plug.

Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

(c) Using SST, torque the screw, plug.

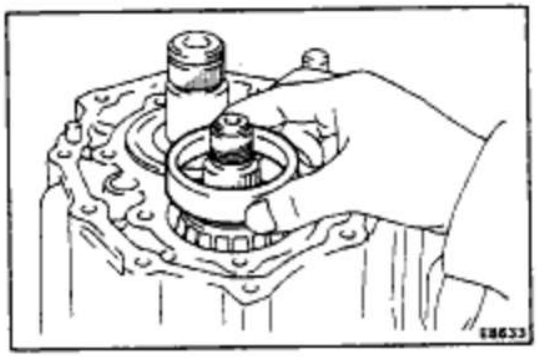
SST 09313–30021

Torque: 250 kg–cm (18 ft–lb, 25 N–m)



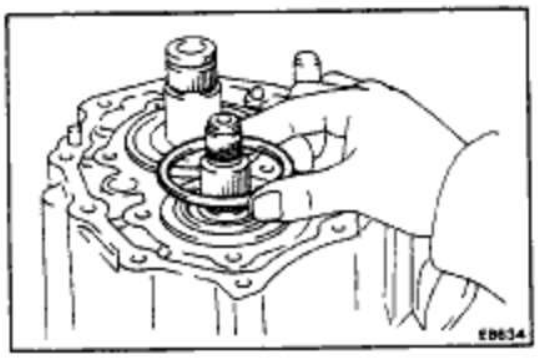
18. INSTALL SNAP RINGS

Using a plastic hammer, install the two snap rings to the shift fork shafts.

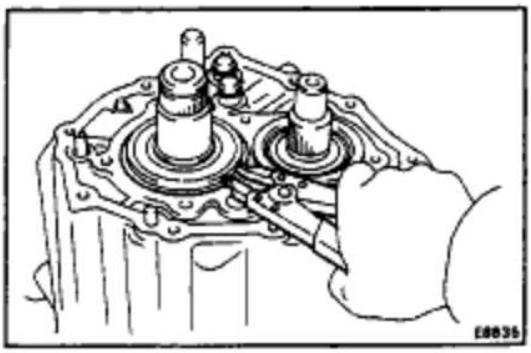


20. INSTALL REAR BEARING RETAINER

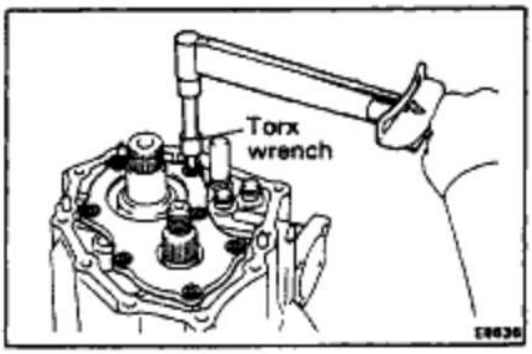
(a) Install the output shaft rear bearing outer race.



(b) Install the adjust shim which is already finished out put shaft preload.

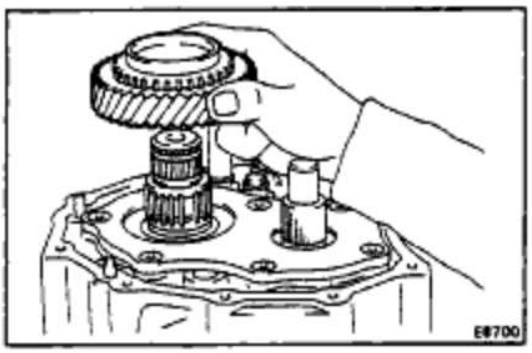


(c) Using snap ring pliers, install the snap ring to the input shaft rear bearing.



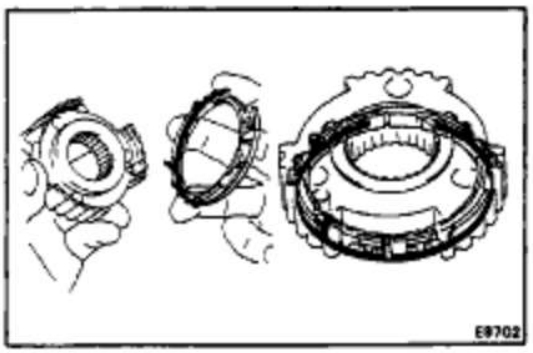
(d) Apply sealant to the, seven screws.
Sealant: Part No.08833–00070, THREE BOND 1324, LOCTITE 242 or equivalent

(e) Using a torx wrench, torque the seven screws.
Tom wrench T45 09042–00050
Torque: 430 kg–cm (31 ft–lb, 42 N–m)

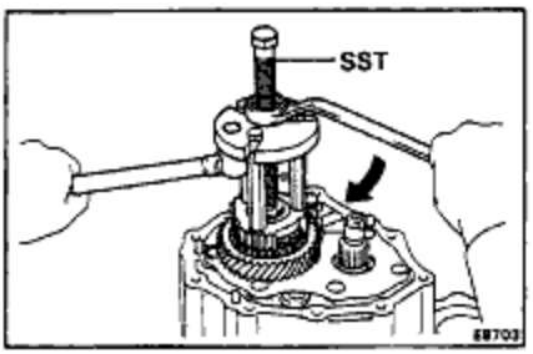


21. INSTALL FIFTH GEAR AND NO–3 CLUTCH HUB

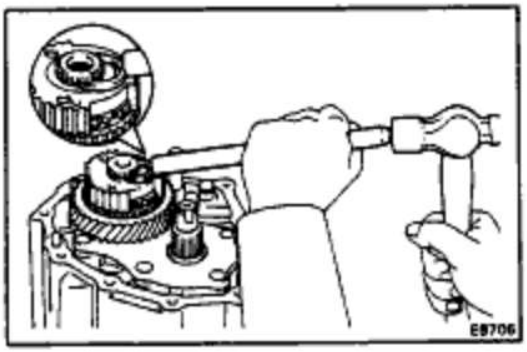
(a) Install the spacer, needle roller bearings and 5th gear.



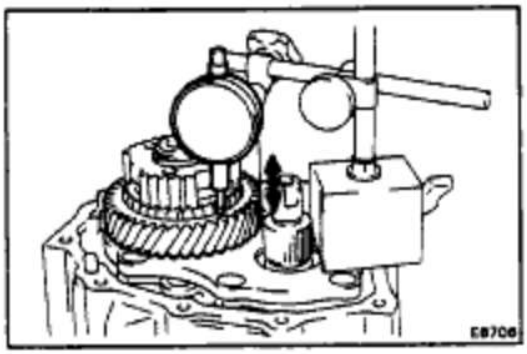
(b) Install the synchronizer ring and key spring to the No–3 clutch hub.



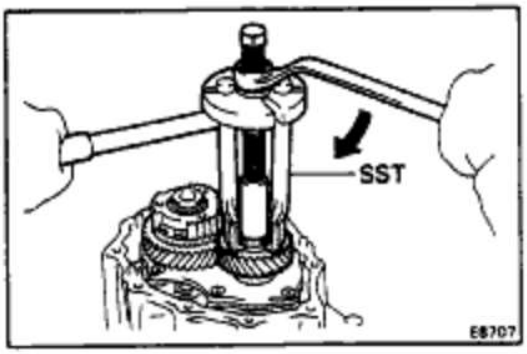
(c) Using SST, install the No.3 clutch hub with synchronizer ring and key spring.
SST 09310–17010 I09310–07010, 09310–07020, 09310–070301



(d) Select a snap ring that will allow minimum axial play and install it on the shaft.



(e) Using a dial indicator, measure the 5th gear thrust clearance.
Standard clearance: 0.10 – 0.57 mm (0.004 – 0.022 in.)

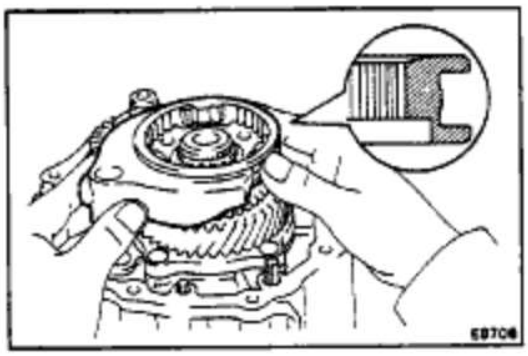


22. INSTALL FIFTH DRIVEN GEAR

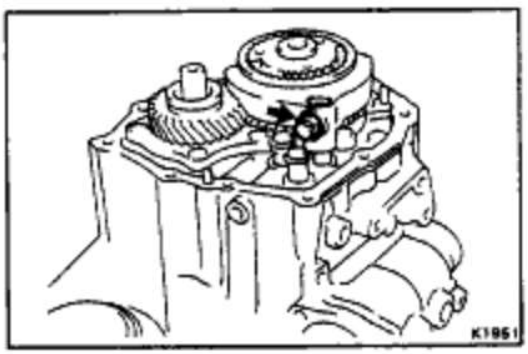
Using SST, install the 5th driven gear.
SST 09310–17010 (09310–07010, 09310–07020 09310–07040, 09310–07050)

23. INSTALL NO.3 HUB SLEEVE AND NO.3 SHIFT FORK

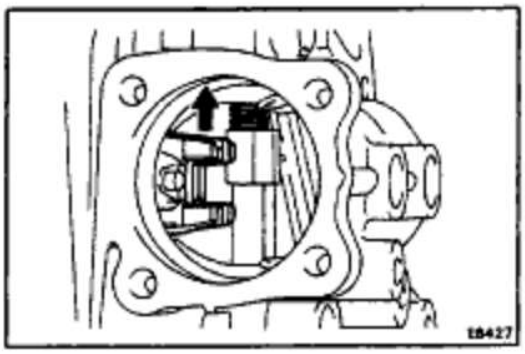
(a) Install the No.3 hub sleeve and No.3 shift fork.



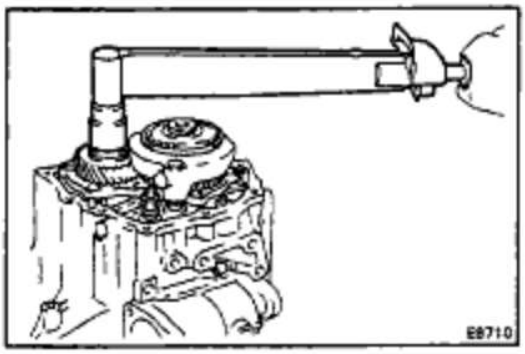
(b) install and torque the set bolt.
Torque: 240 kg–cm (17 ft–lb, 24 N–m)



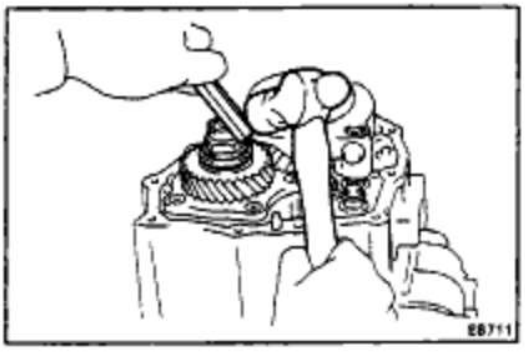
24. INSTALL LOCK NUT



(a) Engage the gear double meshing.

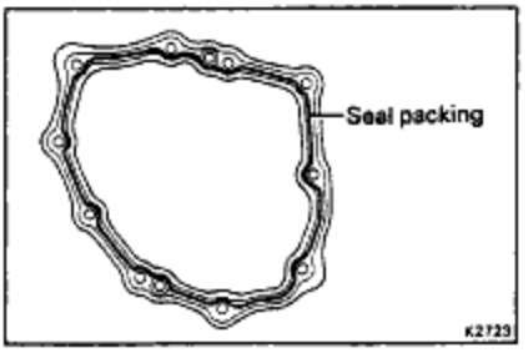


(b) install and torque a new lock nut.
Torque: 1,250 kg–cm (90 ft–lb, 123 N–m)



(e) Stake the lock nut.
(d) Disengage the gear double meshing.

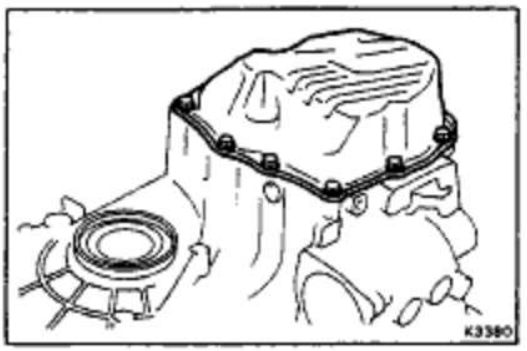
25. INSTALL TRANSMISSION CASE COVER

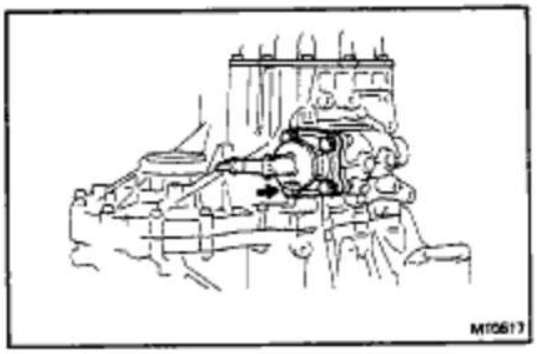


(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transmission case cover.
(b) Apply seal packing to the transmission case as shown in the figure.
Seal packing: Part No.08826–00090, THREE BOND
1281 or equivalent

HINT: Install the transmission case cover as soon as the seal packing is applied.

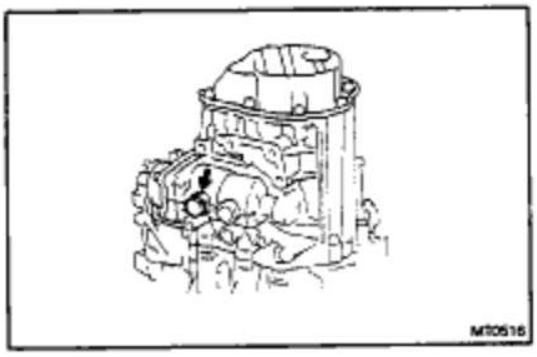
Install and torque the ten bolts.
Torque: 300 kg–cm (22 ft–lb, 29 N–m)

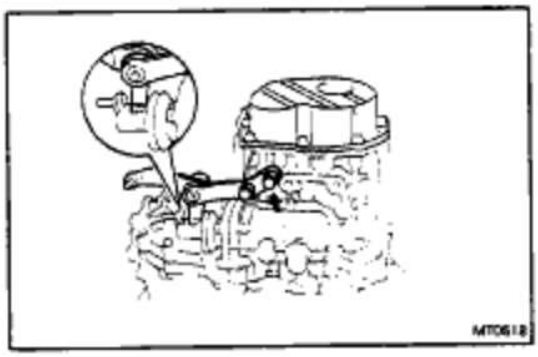




26. INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY

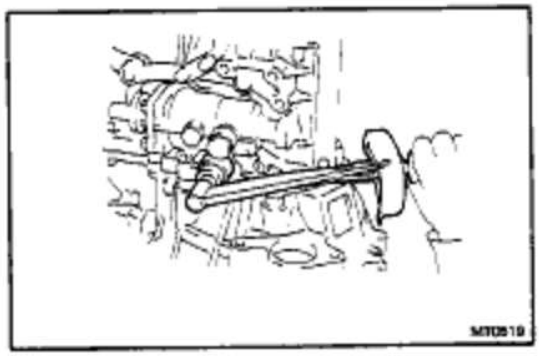
(a) Install the shift and select lever shaft assembly and new gasket.
(b) Apply sealant to the bolt threads.
Sealant: Part No.08833–00O80, THREE BOND 1344, LOCTITE 242 or equivalent
(e) Install and torque the four bolts.
Torque: 200 kg–cm (14 ft–lb, 20 N–m)
(d) Install and torque the lock bolt with the new gasket.
Torque: 500 kg–cm (36 ft–lb, 49 N–m)





27. INSTALL NO.2 SELECTING BELLCRANK WITH SELECTING BELLCRANK SUPPORT

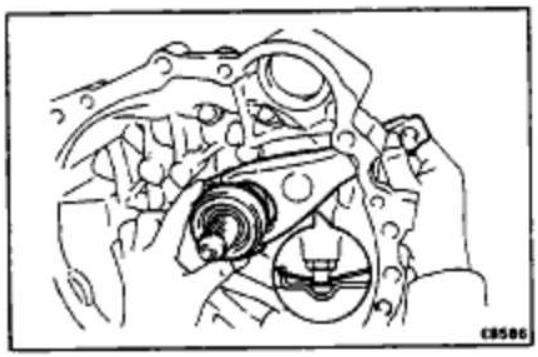
(a) Apply sealant to the bolt threads.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent
(b) Install and torque the two bolts.
Torque: 200 kg–cm (14 ft–lb, 20 N–m)



28. INSTALL BACK–UP LIGHT SWITCH

Install and torque the back–up light switch with the new gasket.
Torque: 410 kg–cm (30 ft–lb, 40 N–m)

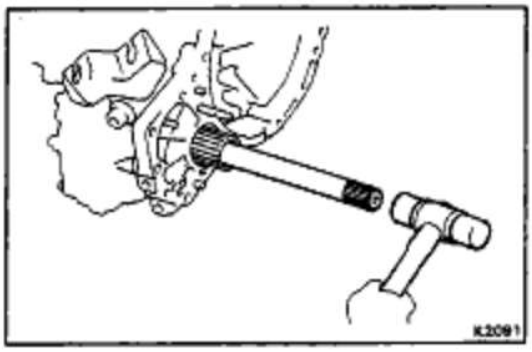
29. INSTALL SPEEDOMETER DRIVEN GEAR



30. INSTALL RELEASE FORK AND BEARING

Apply molybdenum disulphide lithium base grease to the following part:

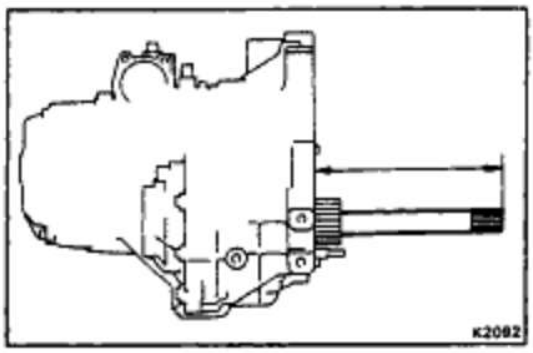
- Input shaft spline
- Release fork contact surface



31. INSTALL DIFFERENTIAL SIDE GEAR INTERMEDIATE SHAFT

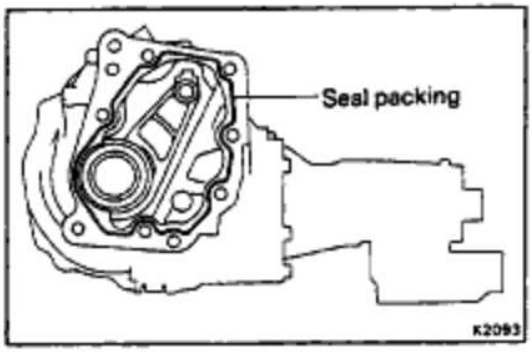
(a) Apply MP grease to the intermediate shaft.

(b) Using a plastic hammer, correctly drive the intermediate shaft straight until the top of it touches the differential pinion shaft.



HINT: Keeping the intermediate shaft on the pinion shaft of differential, measure the point in the illustration.

Protrusion length: 255.5 mm (10.059 in.)



32. INSTALL TRANSFER ASSEMBLY

(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transfer or transaxle.

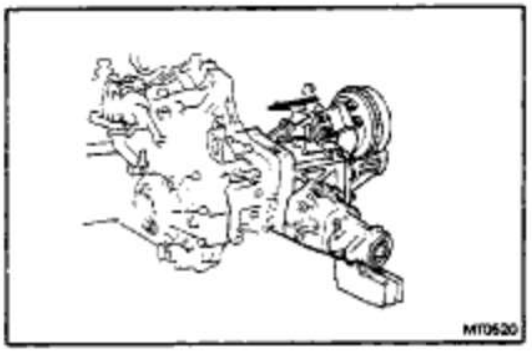
(b) Apply seal packing to the transfer as shown in the figure.

Seal packing: Part No.08826–00090, THREE BOND 1281 or equivalent

HINT: Install the transfer as soon as the seal packing is applied.

(c) Install the transfer assembly to the transaxle assembly

HINT: Shift into 4th gear, install the transfer assembly while turning the input shaft of the transaxle.

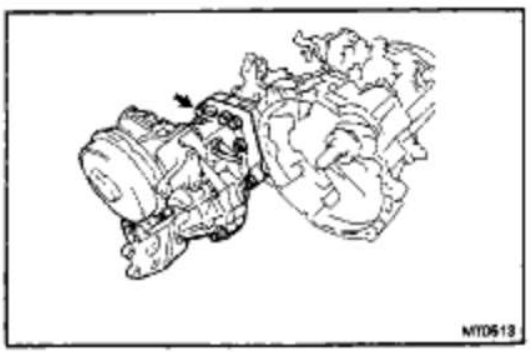


(d) Apply sealant to the bolt threads.

Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 or equivalent

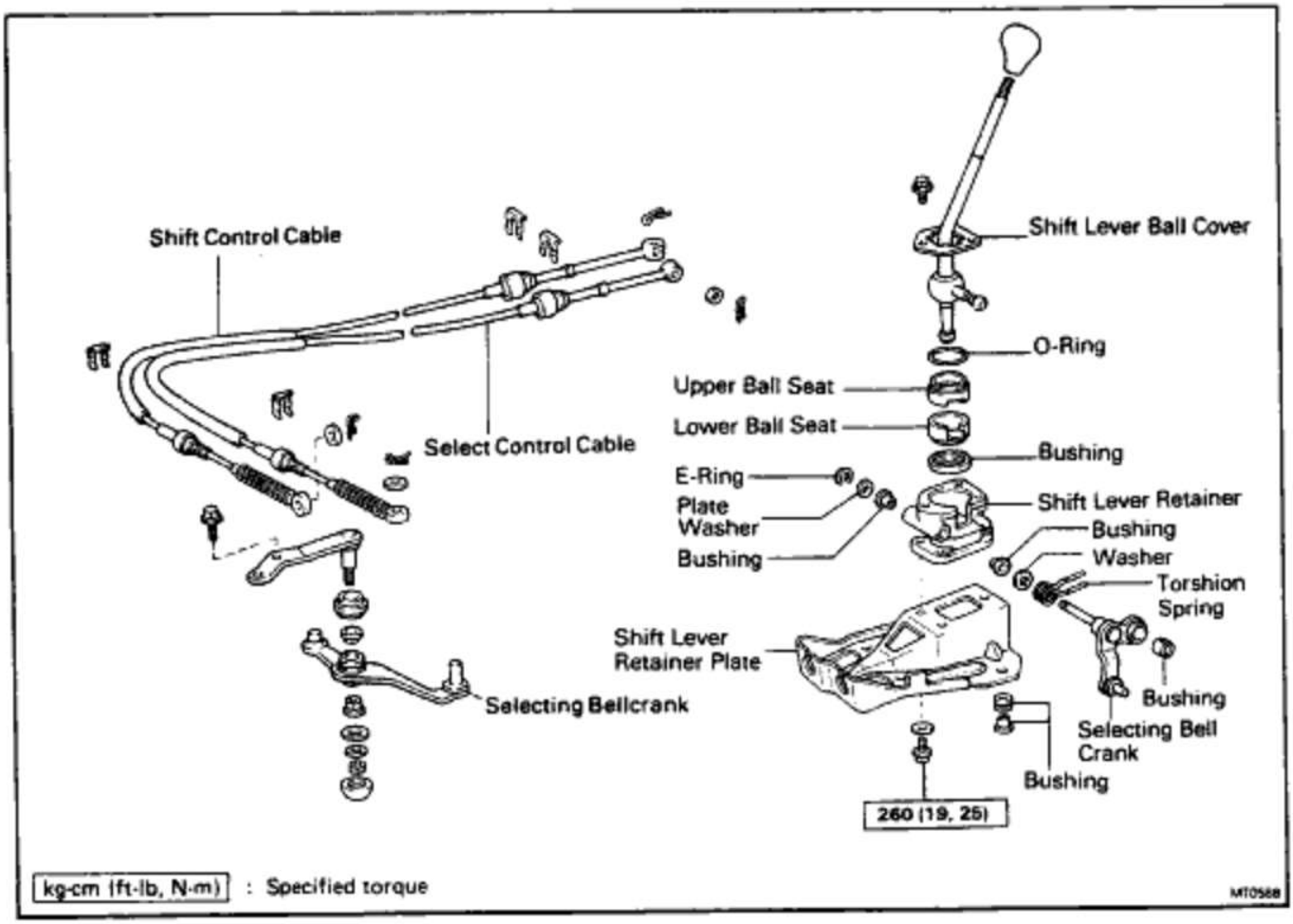
(e) Install and torque the three bolts and five nuts.

Torque: 700 kg–cm (51 ft–lb, 69 N–m)



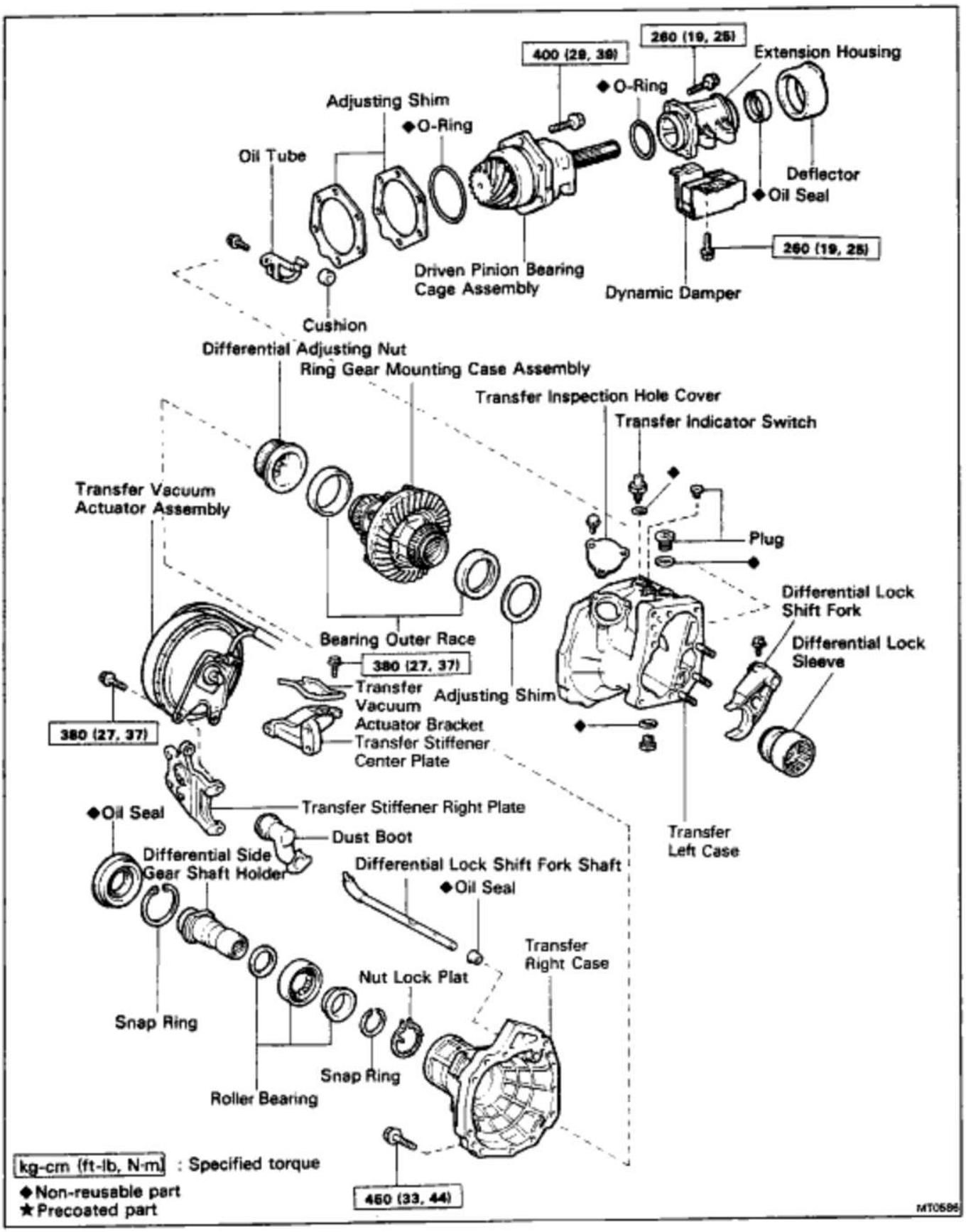
SHIFT LEVER AND CONTROL CABLE

COMPONENTS

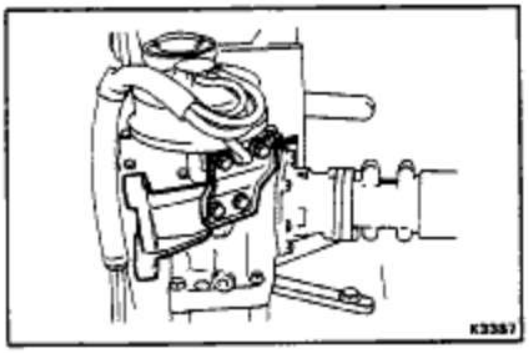


Transfer Assembly (E56F5)

COMPONENT



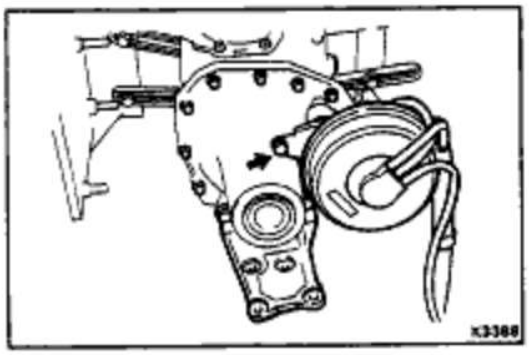
DISASSEMBLY OF TRANSFER COMPONENT PARTS



1. REMOVE TRANSFER VACUUM ACTUATOR

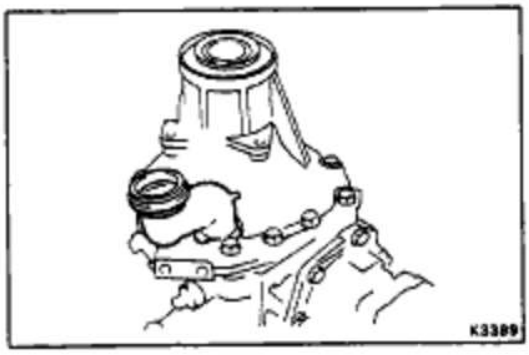
(a) Remove the four bolts.

(b) Remove the actuator bracket and stiffener center plate.



(c) Remove the three bolts.

(d) Remove the vacuum actuator.



2. REMOVE DUST BOOT

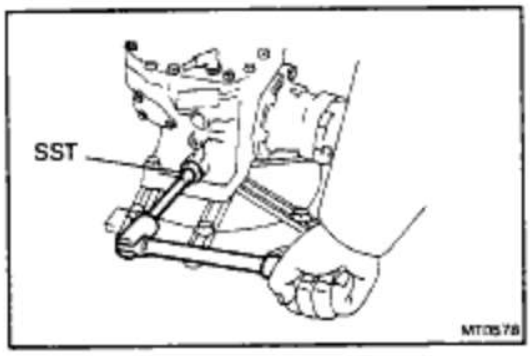


3. REMOVE DIFFERENTIAL LOCK SHIFT FORK SHAFT

(a) Remove transfer indicator switch.

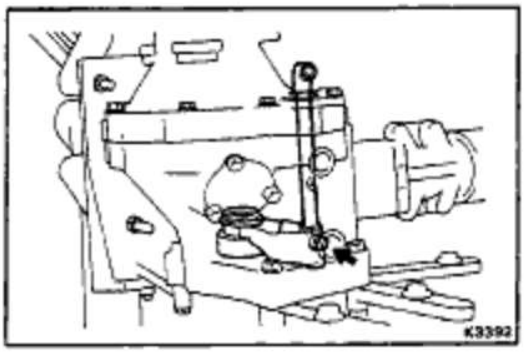
(b) Using SST, remove the plug.

SST 09313–30021



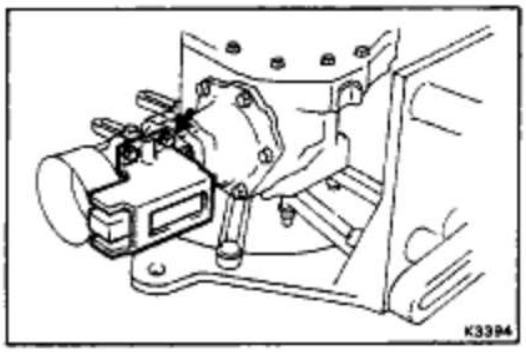
(c) Using SST, remove the plug.

SST 09043–38100



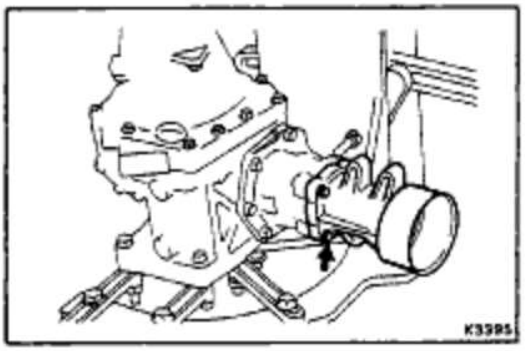
(d) Remove the set bolt.

(e) Remove the shift fork shaft, shift fork and sleeve.



4. REMOVE DYNAMIC DAMPER

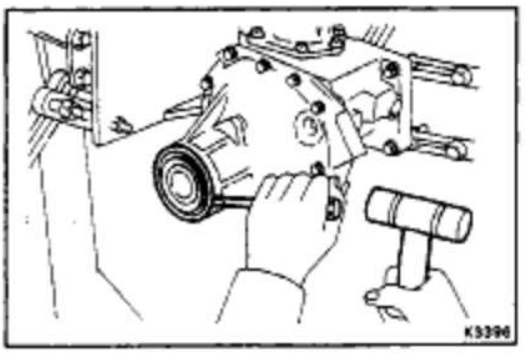
Remove the four bolts and dynamic damper.



5. REMOVE EXTENSION HOUSING

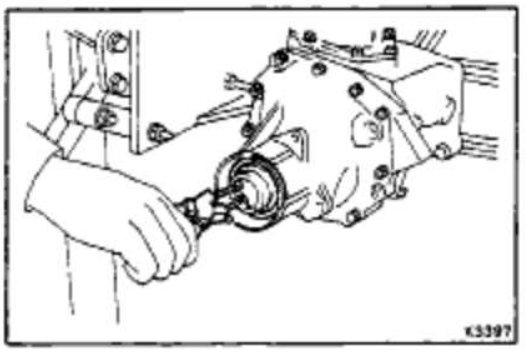
(a) Remove the four bolts and tap off the housing with a plastic hammer.

(b) Remove the O–ring and the dust deflector from the extension housing.

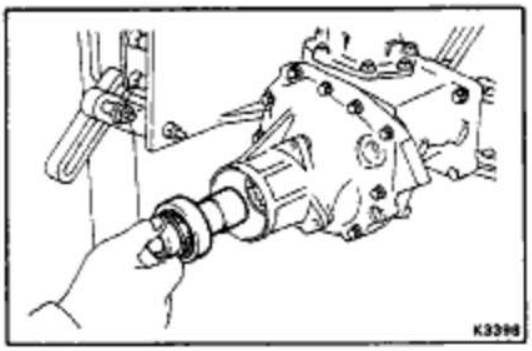


6. REMOVE SIDE GEAR SHAFT HOLDER

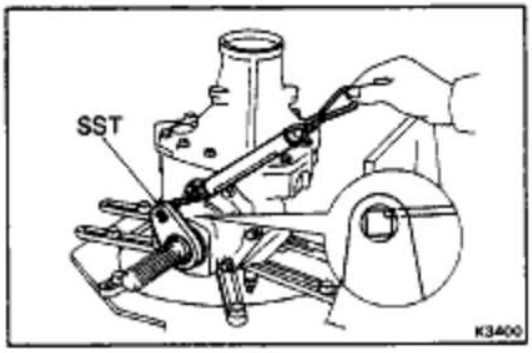
(a) Using a screwdriver and hammer, remove the oil seal.



(b) Using snap ring pliers, remove the snap ring.



(c) Remove the shaft holder.



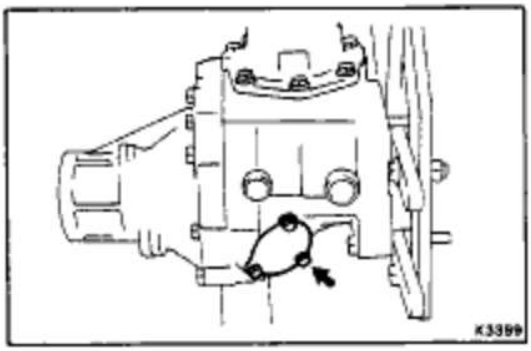
7. CHECK PRELOAD

(a) Using SST and a spring tension gauge, measure the driven pinion preload of the backlash between the driven pinion and ring gear.
SST 09326–20011

Preload (at starting): 0.9 – 1.4 kg (2–3 lb, 9– 14 N)

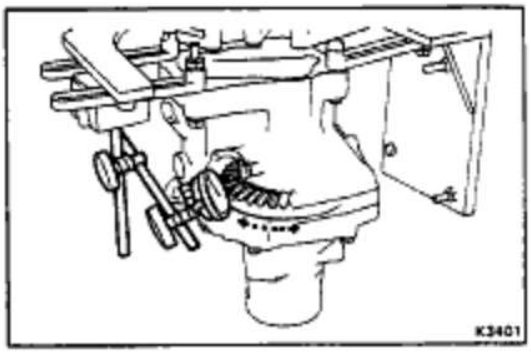
(a) Using SST and a spring tension gauge, measure the total preload.
SST 09326–20011

Preload (at starting):
Add driven pinion preload
0.5–0.90 (1–2 lb,5–9 N)



8. REMOVE TRANSFER INSPECTION HOLE COVER

Remove the three bolts and a cover.

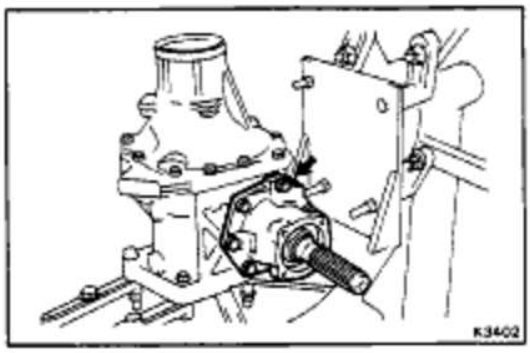


9. CHECK RING GEAR BACKLASH

Using a dial indicator, measure the ring gear backlash.

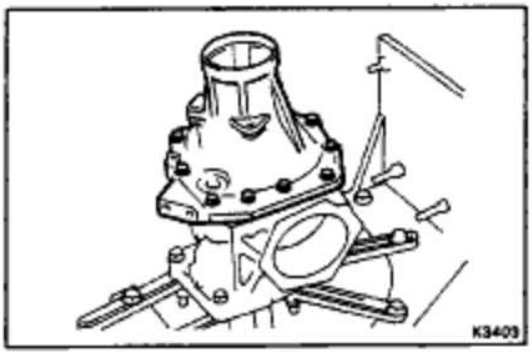
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

10. CHECK TOOTH CONTACT (Seepage MT–183)



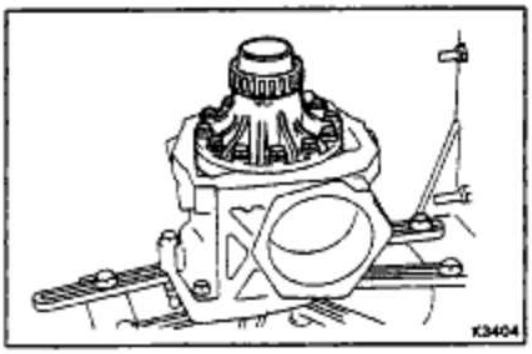
11. REMOVE DRIVEN PINION BEARING CAGE ASSEMBLY

(a) Remove the six bolts and tap off a plastic hammer.
(b) Remove the 4–ring and shim from the driven pinion bearing cage.

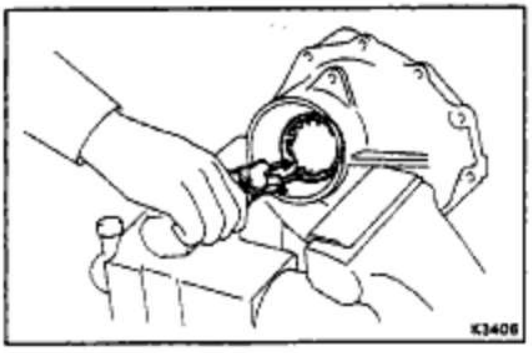


12. REMOVE TRANSFER RIGHT CASE

Remove the ten bolts and tap off the case with a plastic hammer.

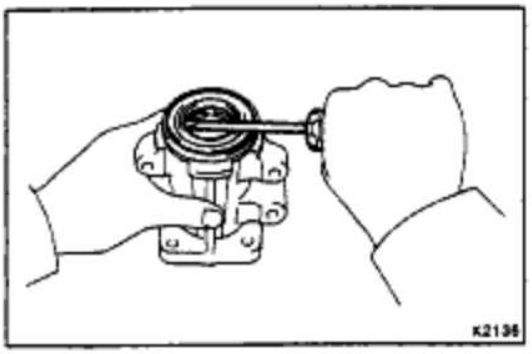


13. REMOVE RING GEAR MOUNTING CASE ASSEMBLY



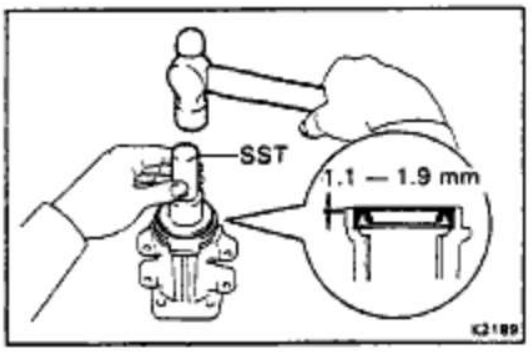
14. REMOVE ADJUSTING NUT LOCK PLATE

Using snap ring pliers, remove the lock plate from the transfer right case.

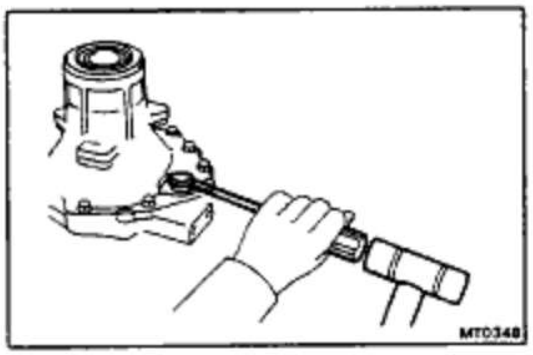


15. IF NECESSARY, REPLACE EXTENSION HOUSING OIL SEAL

(a) Using a screwdriver, remove the oil seal.

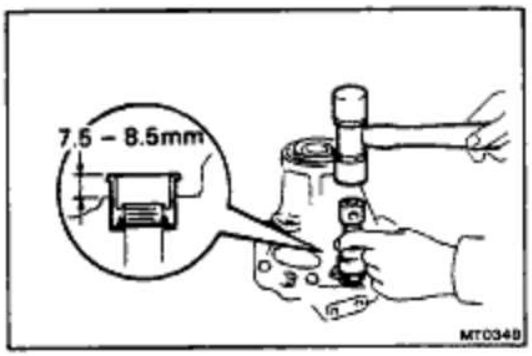


(b) Using SST and a hammer, drive in a new oil seal.
SST 09325–20010
Oil seal depth: 1.1 – 1.9 mm (0.043 – 0.075 in.)
(c) Coat the lip of oil seal with MP grease.



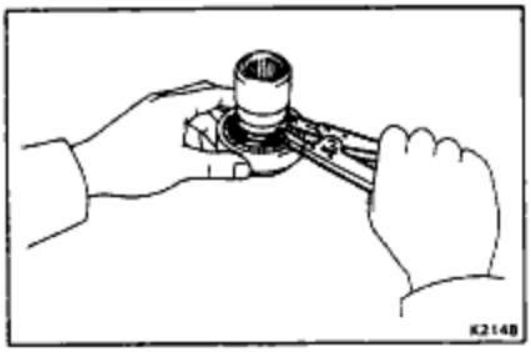
16. IF NECESSARY, REPLACE SHIFT FORK SHAFT OIL SEAL

(a) Using a screwdriver and hammer, remove the oil seal.



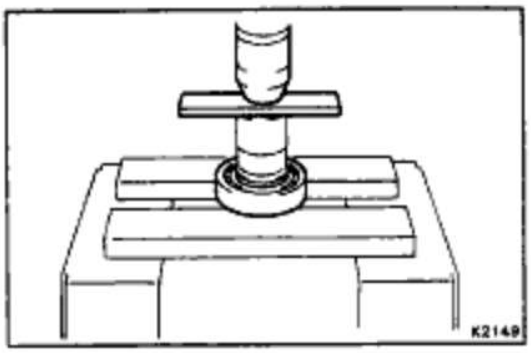
(b) Coat the lip of oil seal with MP grease.

(c) Using a socket wrench and hammer, drive in a new oil seal as shown.
Oil seal height: 7.5 – 8.5 mm (0.295 – 0.335 in.)

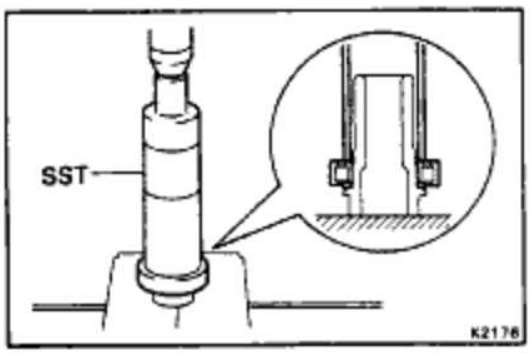


17. IF NECESSARY, REPLACE SIDE GEAR SHAFT HOLDER BEARING

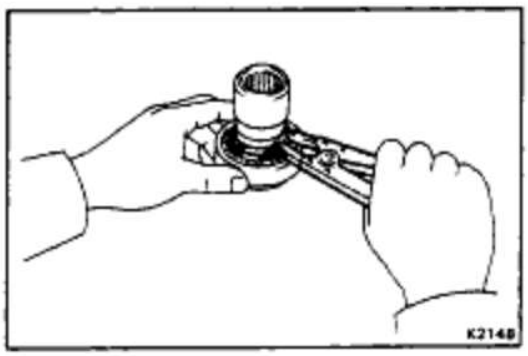
(a) Using snap ring pliers, remove the snap ring.



(b) Using a press, remove the bearing from the side gear shaft holder.

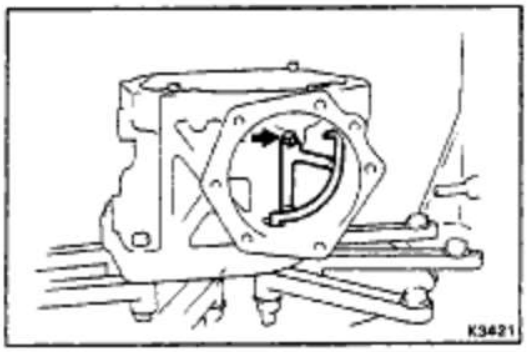


(c) Using SST and a press, install a new bearing as shown.
SST 09316–60010 (09316–00010)

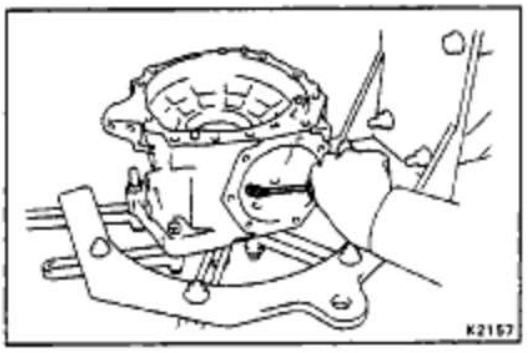


(d) Using snap ring pliers, install the snap ring.

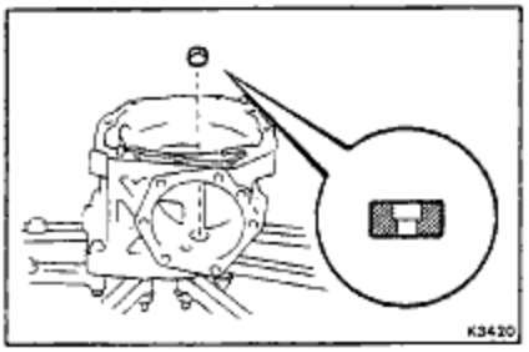
18. IF NECESSARY, REPLACE TRANSFER OIL TUBE



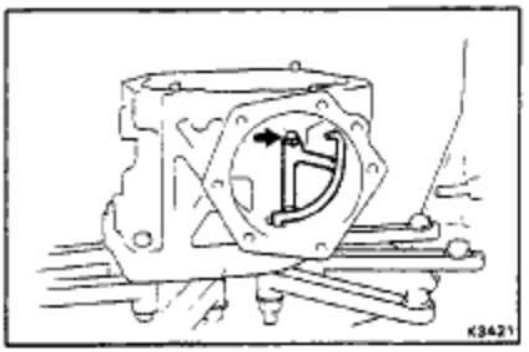
(a) Remove the bolt and oil tube.



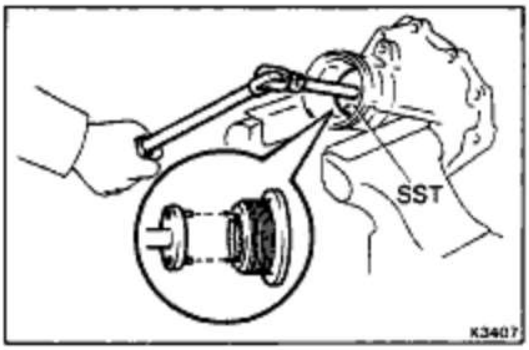
(b) Using a screwdriver, remove the cushion.



(c) Install anew cushion.



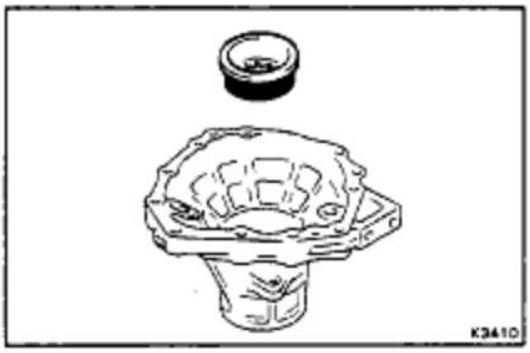
(d) Install the oil tube.
(e) Install and torque the bolt.
Torque: 130 kg–cm (9 ft–lb, 13 N–m)



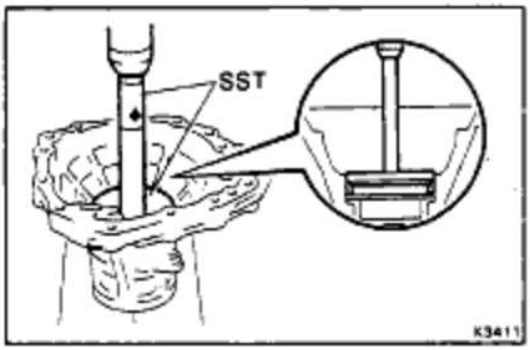
19. IF NECESSARY, REPLACE RING GEAR MOUNTING CASE SIDE BEARING OUTER RACE

(Transfer Right Case)

(a) Using SST, turn the bearing adjusting nut, remove the outer race and bearing adjusting nut.
SST 09318–20010

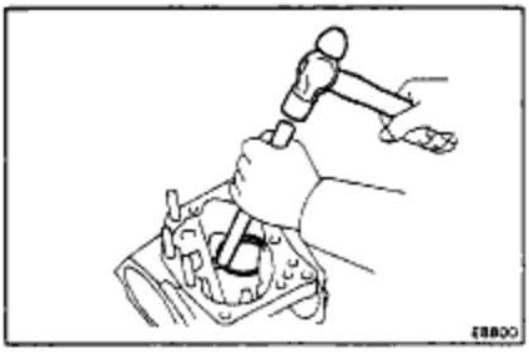


(b) Install the bearing adjusting nut until it touches the lip of the case.
HINT: If the nut is difficult to turn, use SST (09318–20010).

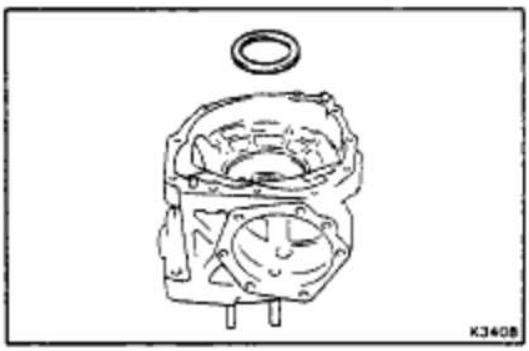


(c) Using SST and a press, install the press until it is almost touching the bearing adjusting nut.
SST 09608–35014 (09608–06020, 09608–06160)

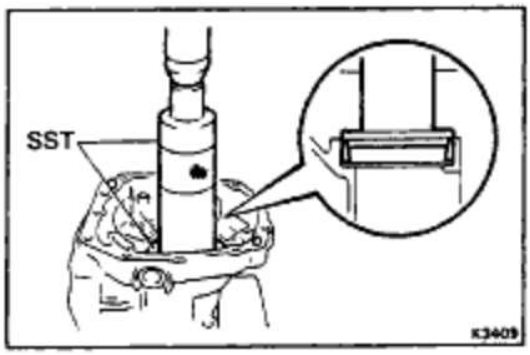
(Transfer Left Case)



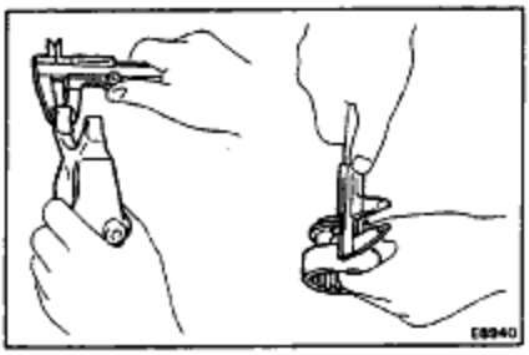
(a) Using a brass bar and hammer, drive out the bearing outer race lightly and evenly.
Remove the plate washer.



(c) Install the plate washer.
HINT: First install a washer of the same thickness as before.



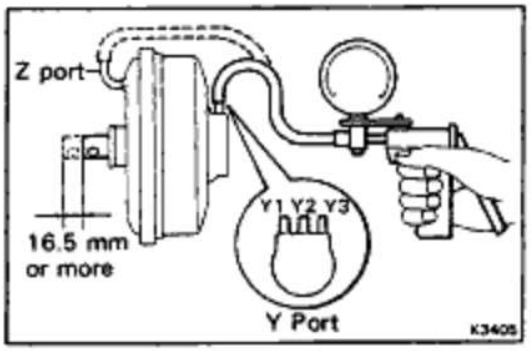
(d) Using. SST and a press, install the outer race.
SST 09316–60010 (09316–00010, 09316–00060)



20. MEASURE CLEARANCE OF DIFFERENTIAL LOCK SHIFT FORK AND SLEEVE

Measure the clearance between the shift fork and sleeve.

Maximum clearance: 1.0 mm (0.039 in.)



21. INSPECT TRANSFER VACUUM ACTUATOR

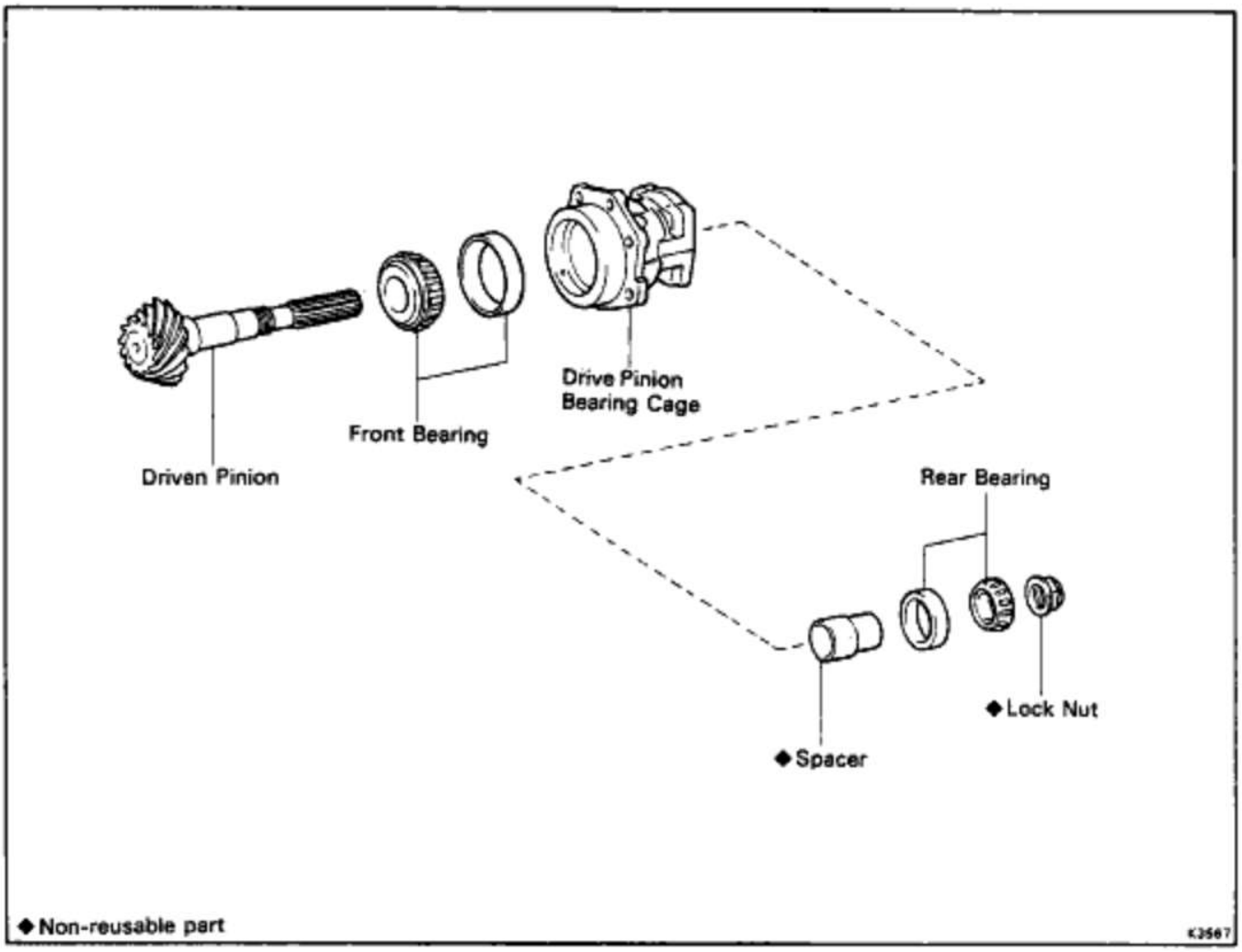
(a) the push rod.

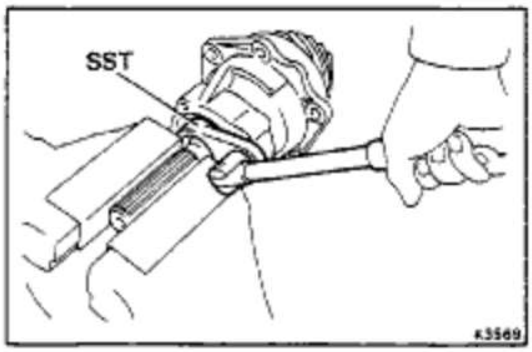
(b) Apply a vacuum of 500 mmHg to port Y1 and Y2.
Move in the push rod and measure the push rod strake.
Push rod strake: 16.5 mm (0.650 in.) or more

(c) Apply a vacuum of 500 mmHg to port Y3. Check that no remain the vacuum in actuator.
If not, replace the actuator.

(d) After the check, apply a vacuum of 500 mmHg to port Y of the actuator (Put the differential lock on the free side).

DRIVEN PINION. BEARING CAGE ASSEMBLY





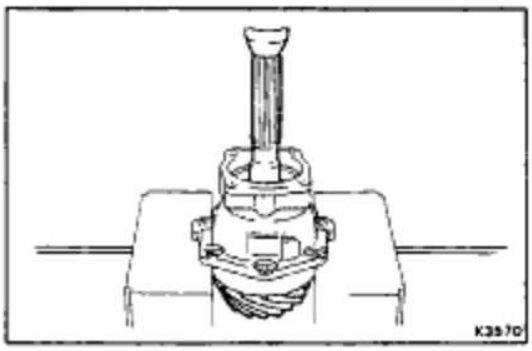
DISASSEMBLY OF DRIVEN PINION BEARING CAGE

1. REMOVE LOCK NUT

(a) Unstake the lock nut.

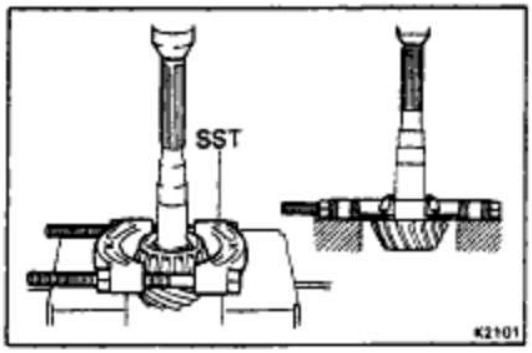
(b) Using SST, remove the luck nut.

SST 09326–20011



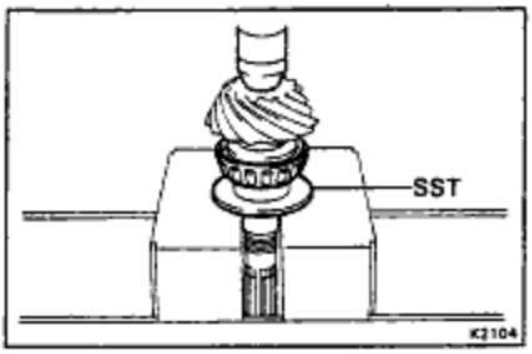
2. REMOVE DRIVEN PINION

Using a press, remove the driven pinion, rear bearing and spacer.

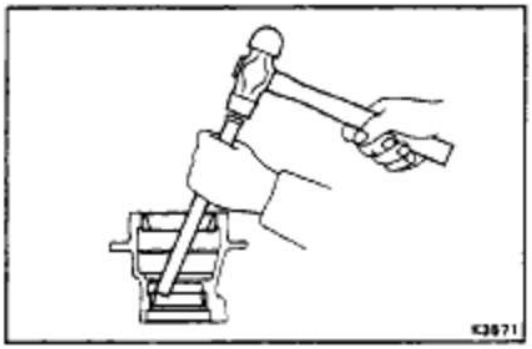


3. IF NECESSARY, REPLACE DRIVEN PINION FRONT BEARING

(a) Using SST and a press, remove the front bearing.
SST 09950–00020



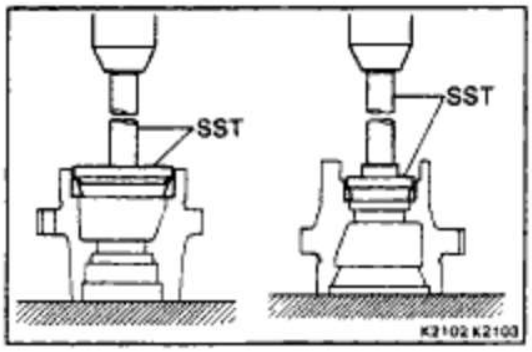
(b) Using SST and a press, install the front bearing.
SST 09506–35010



4. IF NECESSARY, REPLACE FRONT AND REAR BEARING OUTER RACE

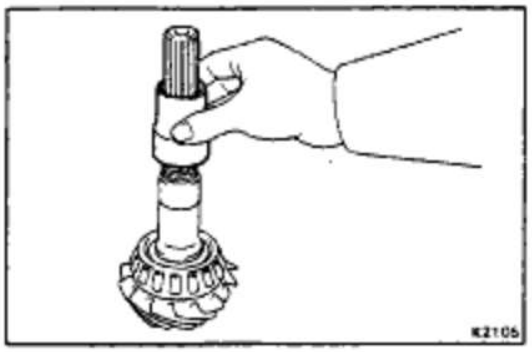
(a) Using a brass bar and hammer, drive out the bearing outer race race lightly and evenly.

HINT: Be careful not to damage the drive pinion bearing cage and earing outer race.



(b) Using SST and a press, install the front bearing outer race.
SST 09608–35014 (09608–06020, 09608–06210)

(c) Using SST and a press, install the rear bearing outer race.
SST 09550–10012 (09252–10010, 09555–10010)



ASSEMBLY OF DRIVEN PINION BEARING CAGE

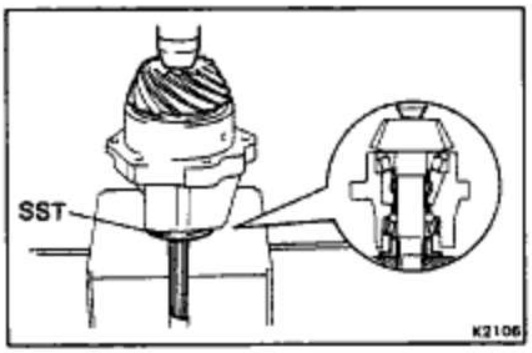
(See page MT– 178)

HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

1. INSTALL DRIVEN PINION BEARING CAGE

(a) Install a new bearing spacer.

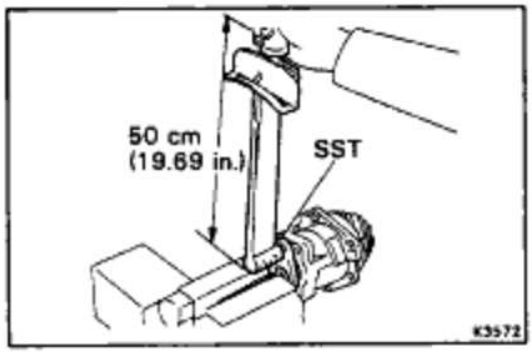
HINT: Insert the spacer with the smaller facing upwards.



(b) Using SST and a press, install the rear bearing.

HINT: Press down until the pinion can just move slightly up and down.

SST 09316–60010 (09316–00020)



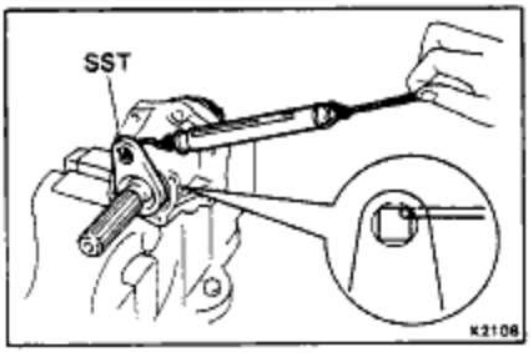
2. ADJUST DRIVEN PINION PRELOAD

(a) Using SST, install and torque the new lock nut.

SST 09326–20011

Torque: 1,000 kg–cm (72 ft–lb, 90 N–m)

HINT: Use a torque wrench with a fulcrum length of 50 cm (19.69 in.).



(b) Using SST and a spring tension gauge, measure the driven pinion preload.

HINT: Turn the driven pinion right and left two or three times to allow the bearings to settle.

Preload (at starting) :

Now bearing

1.8–2.9kg(4.0–6.41b,17.6–28.4N)

Reused bearing

0.9–1.4kg(2.0–3.11b,8.8–13.7N)

*** If preload is greater than specification, replace the bearing spacer.**

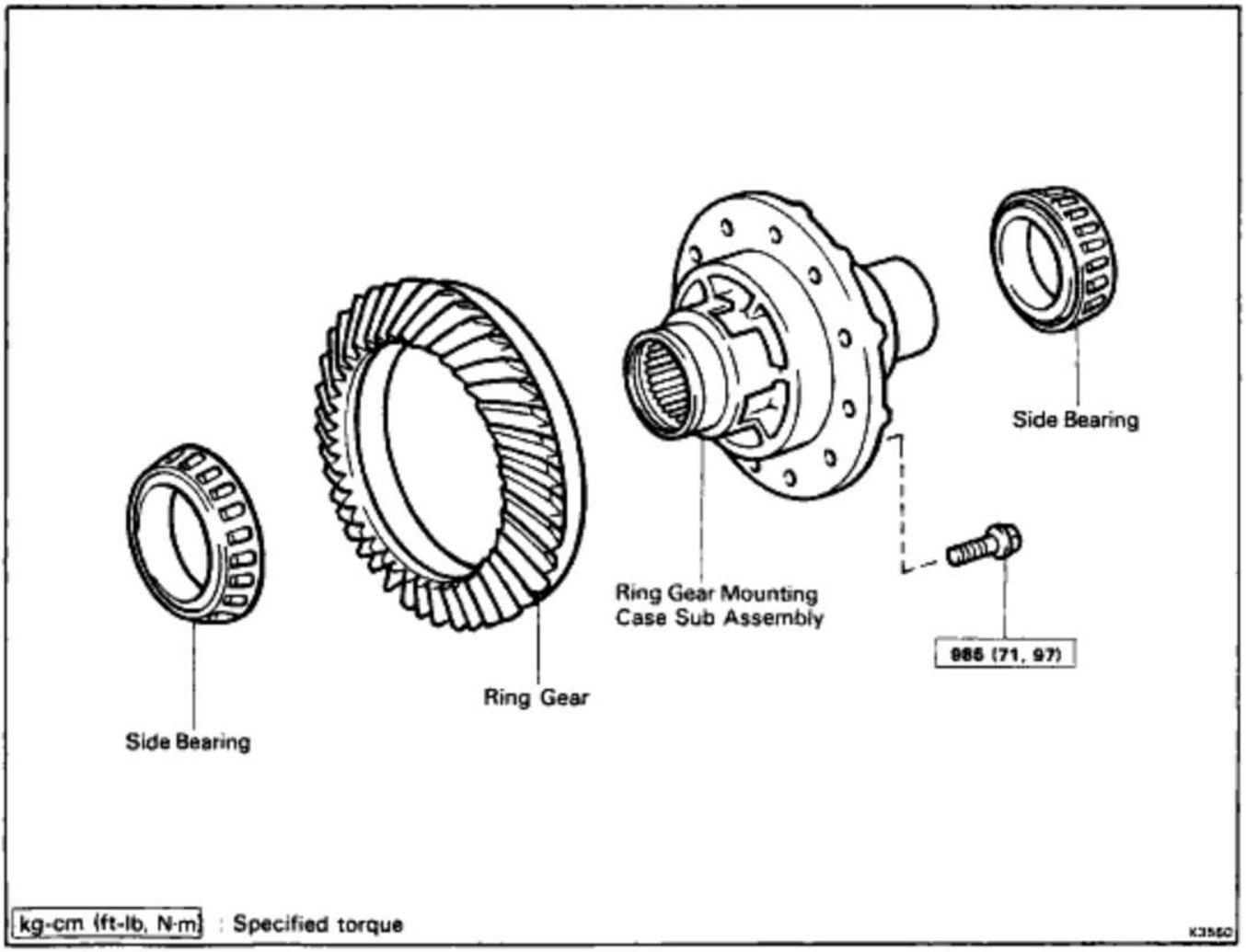
*** If preload is less than specification, retighten the nut 5 – 10° at a time until the specified preload is reached.**

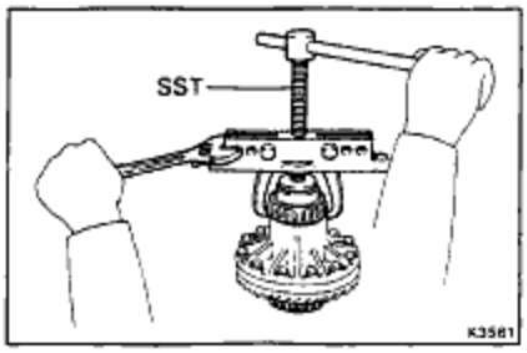
If the maximum torque is exceed while retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the pinion nut to reduce the preload.

Maximum torque: 2,200 kg–cm (159 ft–lb, 216 N–m)

3. STAKE LOCK NUT

RING GEAR MOUNTING CASE ASSEMBLY

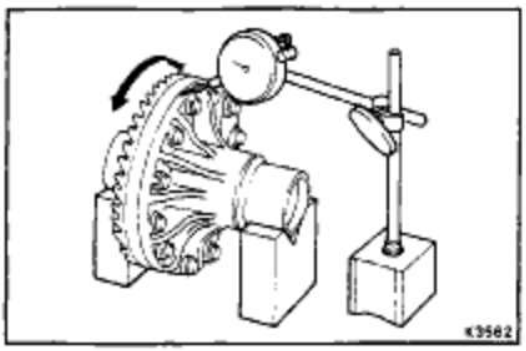




DISASSEMBLY OF RING GEAR MOUNTING CASE

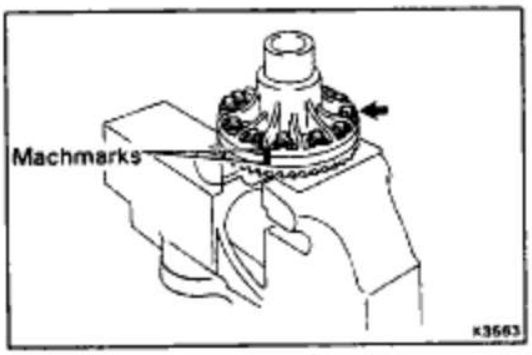
1. REMOVE MOUNTING CASE SIDE BEARING

Using SST, remove the side bearing.
SST 09950–20017



2. CHECK RING GEAR RUNOUT

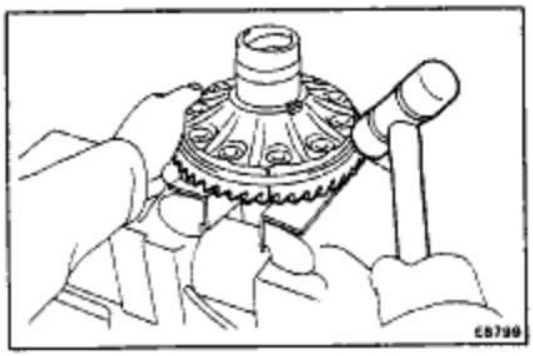
Using a dial indicator, check the ring gear runout.
Maximum runout: 0.1 mm (0.004 in.)



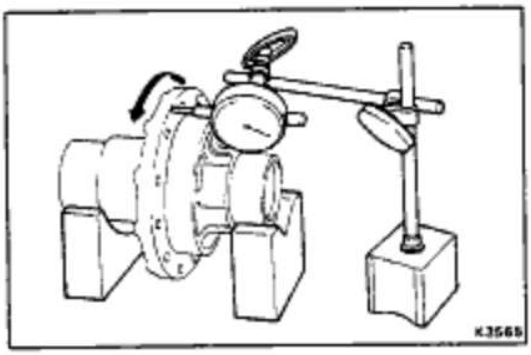
3. REMOVE RING GEAR

(a) Place the matchrmarks on both the mounting case and ring gear.

(b) Remove the twelve bolts.



(c) Using a plastic hammer, tap out the ring gear.



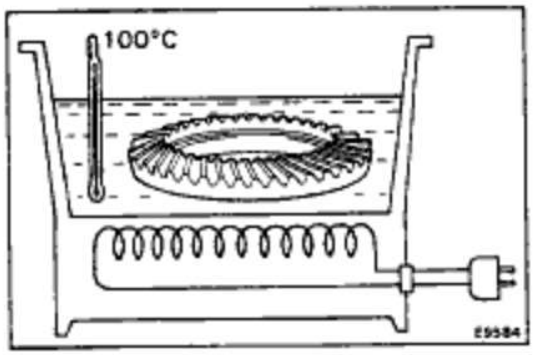
INSPECTION OF RING GEAR MOUNTING CASE

1. CHECK RING GEAR MOUNTING CASE RUNOUT

HINT: Perform only when the limit is exceeded in the ring gear runout inspection.

(a) Using a dial indicator, check the mounting case

Maximum runout: 0.1 mm (0.004 in.)



ASSEMBLY OF RING GEAR MOUNTING CASE

1. INSTALL RING GEAR

(a) Clean the contact surface of the differential case.

(b) Heat the ring gear to about 100˚C (21 20F) in an oil bath.

(e) Clean the contact surface of the ring gear with cleaning solvent.

(d) Then quickly install the ring gear on the differential case.

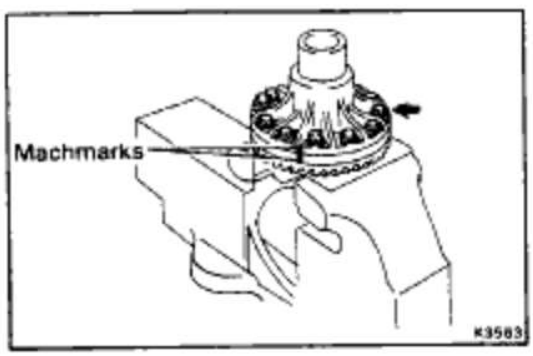
(e) Align the marks on the ring gear and differential case

NOTICE: Do not heat the ring gear more than 11O˚C (230˚F).

(f) Coat the ring gear set bolts with gear oil.

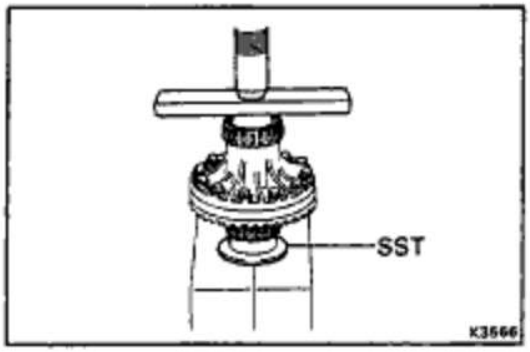
(g) Install and torque the set bolts uniformly, a little at a time.

Torque: 985 kg–cm (71 ft–lb, 97 N–m)



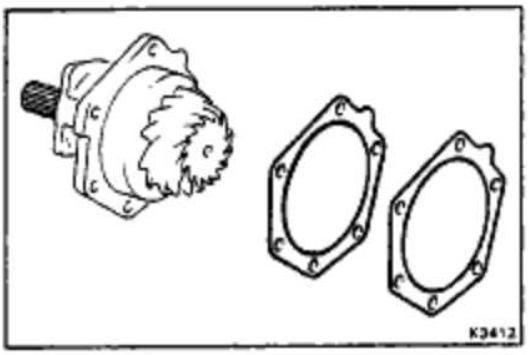
2. CHECK RING GEAR RUNOUT

(See page MT– 181)



3. INSTALL MOUNTING CASE SIDE BEARING

Using SST and a press, install the two side bearing.
SST 09316–20011
NOTE: Bearing inner diameter
Ring gear tooth side 55 mm (2.2 in.)
Ring gear back side 54 mm (2.1 in.)



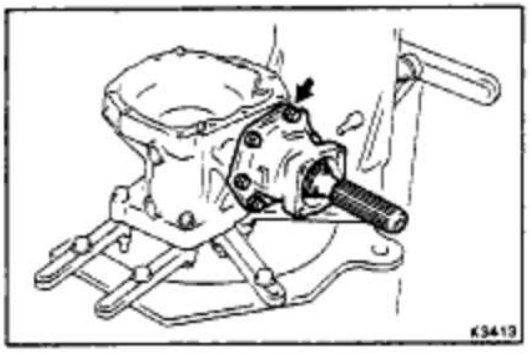
ASSEMBLY OF TRANSFER COMPONENT PARTS

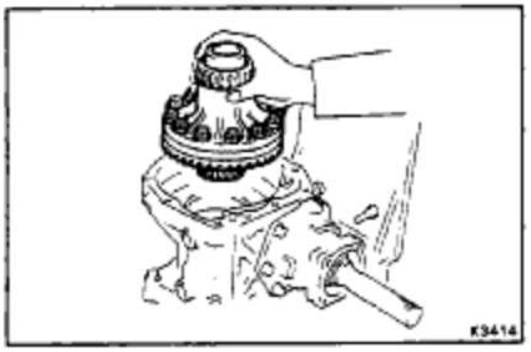
(See page MT–169)

HINT: Coat all of the sliding and rotating surface with gear oil before assembly.

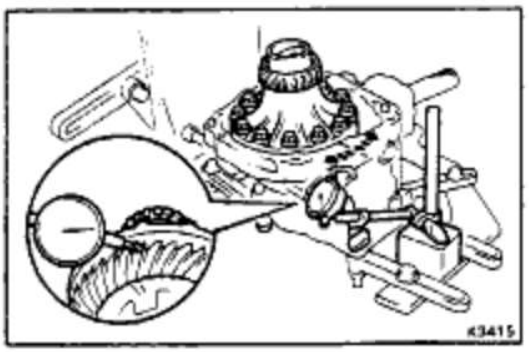
1. ADJUST RING GEAR BACKLASH

(a) Install the adjust shim to the driven pinion bearing cage assembly.
HINT: First install a shim of the same thickness as before.
(b) Install the driven pinion bearing cage assembly to the transfer left case.
(e) Install and torque the six bolts.
Torque: 400 kg–cm (29 ft–lb, 39 N–m)
HINT: Do not install the O–ring.





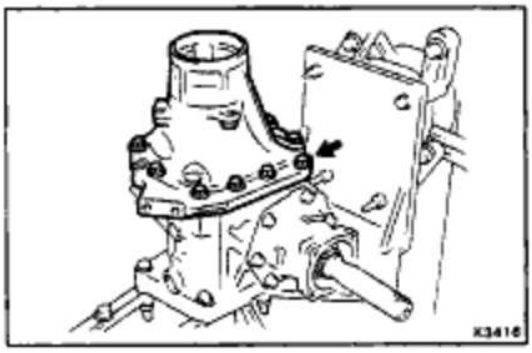
(d) Install the ring gear mounting case assembly to the transfer left case.



(e) Using a dial indicator, measure the ring gear backlash.
Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)
(f) Referring to the table below, select the plate washer which will ensure that the backlash is within specification. Try to select a washer of the same size.

HINT: The backlash will change about 0.02 mm (0.0008 in.) with each shim thickness.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
1	2.13 (0.0839)	13	2.49 (0.0980)
2	2.16 (0.0850)	14	2.52 (0.0980)
3	2.19 (0.0862)	15	2.55 (0.1004)
4	2.22 (0.0874)	16	2.58 (0.1016)
5	2.25 (0.0886)	17	2.61 (0.1028)
6	2.28 (0.0898)	18	2.64 (0.1039)
7	2.31 (0.0909)	19	2.67 (0.1051)
8	2.34 (0.0921)	20	2.70 (0.1063)
9	2.37 (0.0933)	21	2.73 (0.1075)
10	2.40 (0.0945)	22	2.76 (0.1087)
11	2.43 (0.0957)	23	2.79 (0.1098)
12	2.46 (0.0968)	24	2.82 (0.1110)

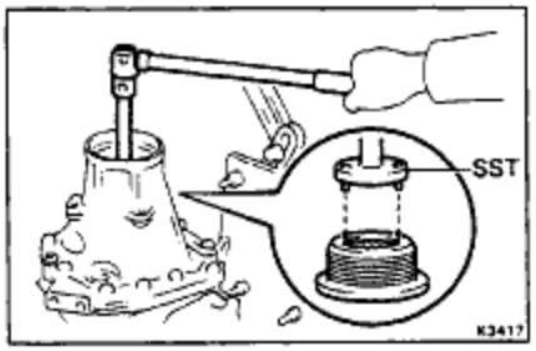


2. ADJUST TOTAL PRELOAD

(a) Install the transfer right case.

(b) Install and torque the twelve bolts.

Torque: 450 kg–cm (33 ft–lb, 44 N–m)



(c) Adjust the total preload by tightening the bearing adjusting nut.

Using SST, tightening the adjusting nut.

SST 09318–20010

HINT: Measure the preload while tightening the adjusting nut a little at a time.

(d) Using SST and a spring tension gauge, measure the total preload.

SST 09326–20011

(Preload at starting):

New bearing

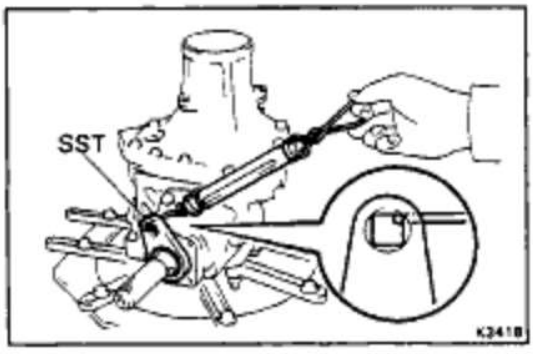
Add driven pinion preload

1.3– 1.4 kg (2.9–3.1 lb, 12.7– 13.7 N)

Reused bearing

Add driven pinion preload

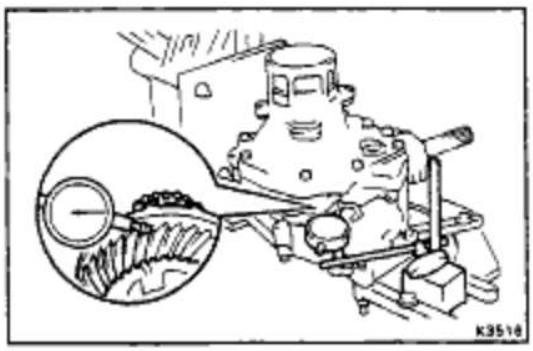
0.5–0.9kg (1.1 –2.0lb,4.9–8.8 N)



HINT: Turn the output shaft counterclockwise and clockwise several times.

(e) When the standard value for total preload is exceeded, remove the transfer right case, push in the adjusting nut and outer race.

Again adjust the total preload.

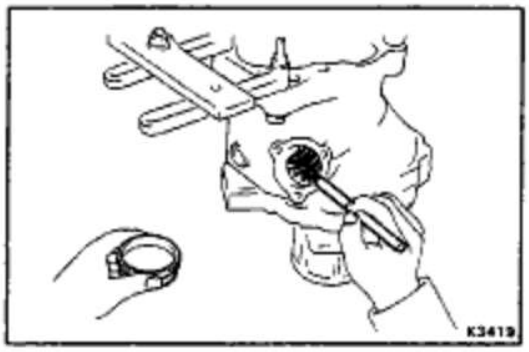


3. CHECK RING GEAR BACKLASH

(a) Using a dial indicator, measure the ring gear backlash.

Backlash: 0.13 – 0.18 mm (0.0051 – 0.0071 in.)

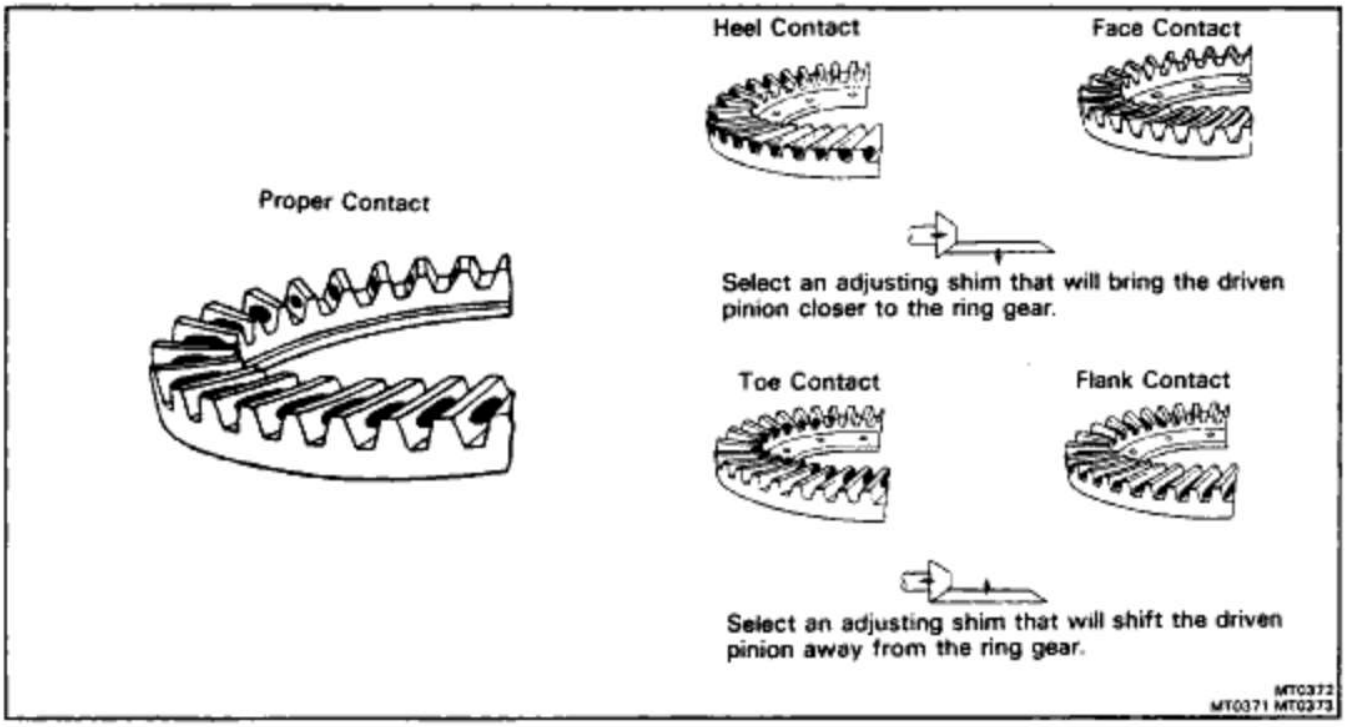
(b) When the backlash is outside the standard value, select a different plate washer to the one selected step 2. Again adjust the backlash and total preload.



4. CHECK TOOTH CONTACT

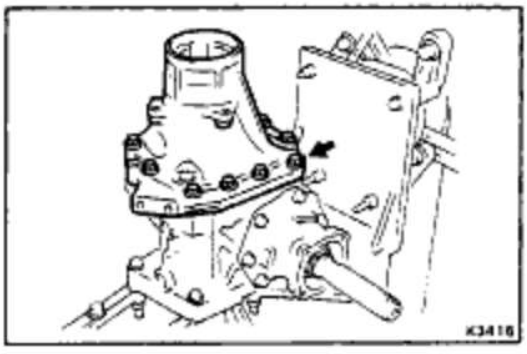
(a) Coat 3 or 4 teeth at four different position on the ring gear with red lead.

(b) Rotate the ring gear, inspect the teeth pattern.



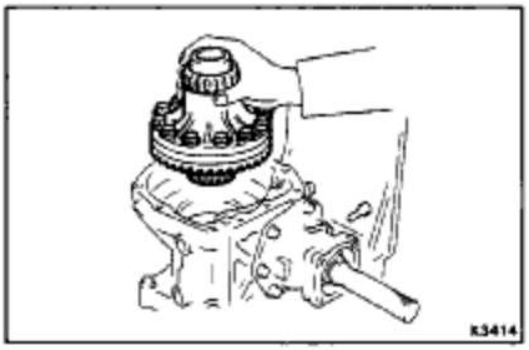
(e) If the teeth are not contacting properly, again select the proper shim and plate.

Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	0.30 (0.0118)	F	0.45 (0.0177)
B	0.33 (0.0130)	G	0.48 (0.0189)
C	0.36 (0.0142)	H	0.51 (0.0201)
D	0.39 (0.0154)	J	0.54 (0.0213)
E	0.42 (0.0165)	K	0.57 (0.0224)

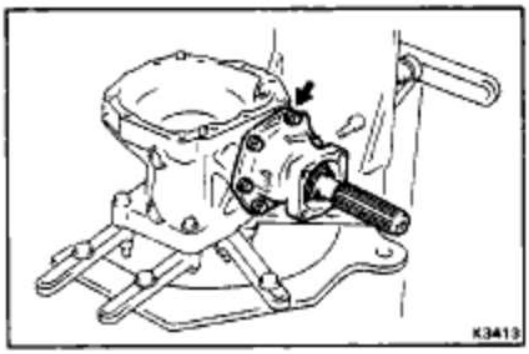


5. REMOVE RING GEAR MOUNTING CASE ASSEMBLY

(a) Remove the twelve bolts and transfer right case.

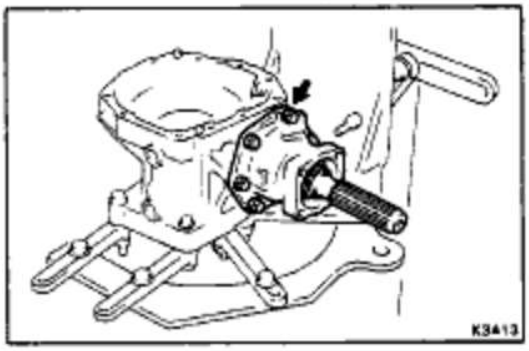


(b) Remove the ring gear mounting case assembly.



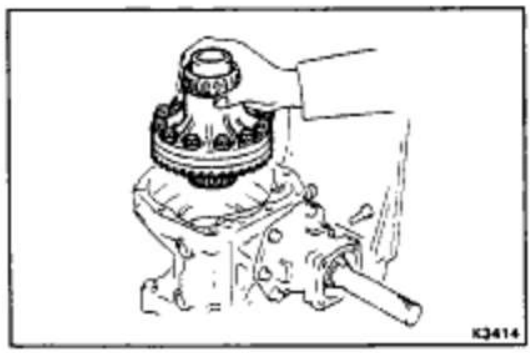
6. REMOVE DRIVEN PINION BEARING CAGE ASSEMBLY

(a) Remove the six bolts and bearing cage assembly.

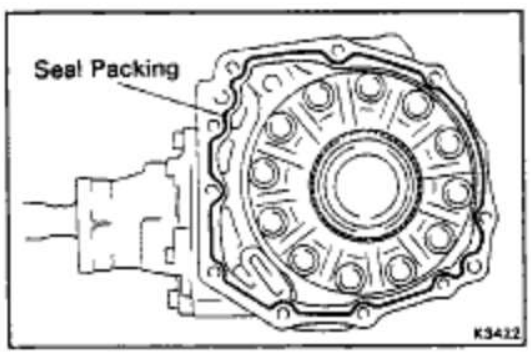


7. INSTALL DRIVEN PINION BEARING CAGE ASSEMBLY

(a) Coat the O–ring with gear oil.
(b) Install the O–ring to the driven pinion bearing cage.
(c) Install the driven pinion bearing cage with adjust shim (Previously selected) to the transfer left case.
(d) Install and torque the six bolts.
Torque: 400 kg–cm (29 ft–lb. 39 N–m)

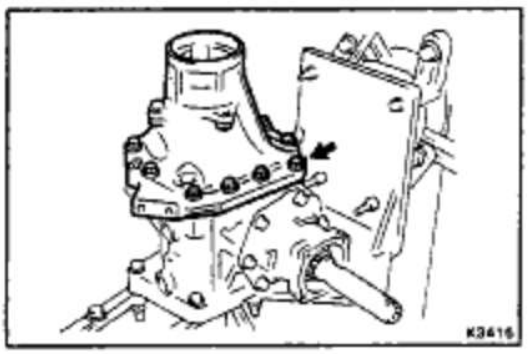


8. INSTALL RING GEAR MOUNTING CASE ASSEMBLY



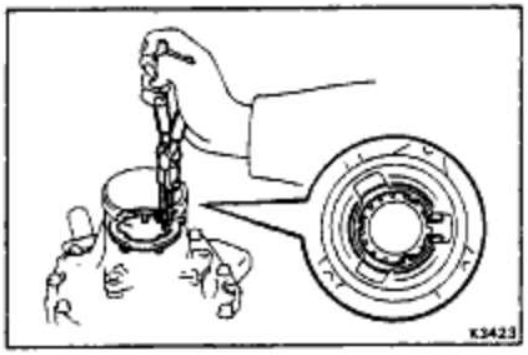
9. INSTALL TRANSFER RIGHT CASE

(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of the transfer left case or right case.
(b) Apply seal packing to the transfer left case as shown in the figure.
Seal packing: Part No.08826–00090, THREE BOND 1281 or equivalent
HINT: Install the transfer right case as soon as the seal packing is applied.

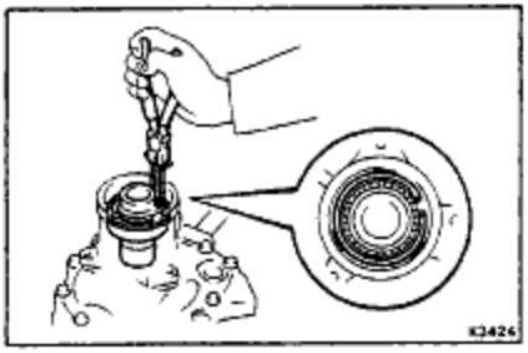


(c) Apply sealant to the bolt threads.
Sealant: Part No.08833–00080, THREE BOND 1344, LOCTITE 242 OR EQUIVALENT
(d) Install and torque the twelve bolts.
Torque: 450 kg–cm (33 ft–lb, 44 N–m)

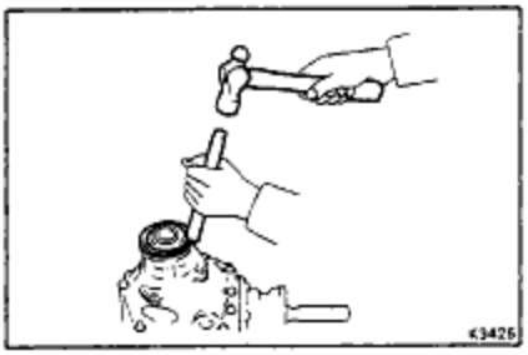
10. CHECK TOTAL PRELOAD
(See page MT– 184)



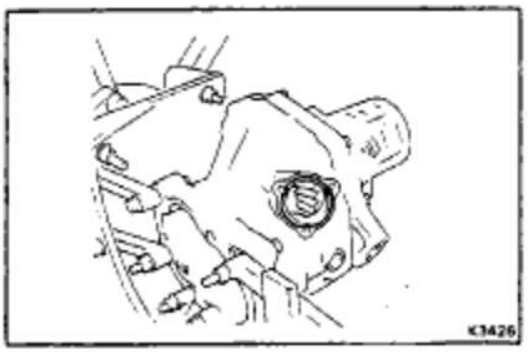
11. INSTALL ADJUSTING NUT LOCK PLATE
Using snap ring pliers, install the lock plate so that the projection from the lock plate fits properly into the groove of the adjusting nut.
HINT: Choose one of the two types of lock plate can be installed, tighten the adjusting nut to the minimum limit.



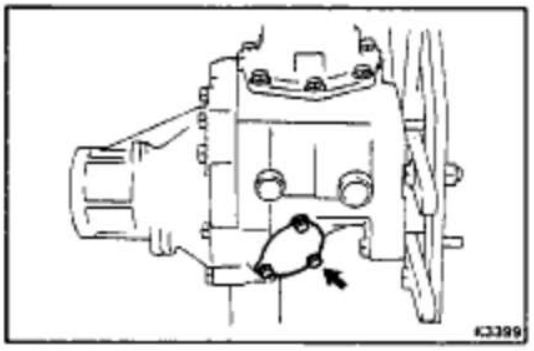
12. INSTALL SIDE GEAR SHAFT SIDE GEAR SHAFT HOLDER
(a) Install the side gear shaft holder to the transfer right case.
(b) Using snap ring pliers, install the snap ring.



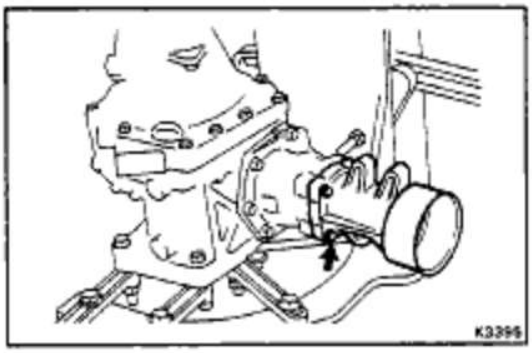
13. INSTALL OIL SEAL
(a) Coat the lip of the oil seal with MP grease.
(b) Using a brass bar and hammer, drive in a new oil seal.



14. INSTALL TRANSFER INSPECTION HOLE COVER
(a) Remove any packing material and be careful not to drop oil on the contacting surfaces of transfer left case or transfer inspection hole cover.
(b) Apply seal packing to the transfer left case as shown in the figure.
Seal packing: Part No.08826–00090, THREE BOND
1281 or equivalent
HINT: Install the transfer inspection hole cover as soon as the seal packing is applied.

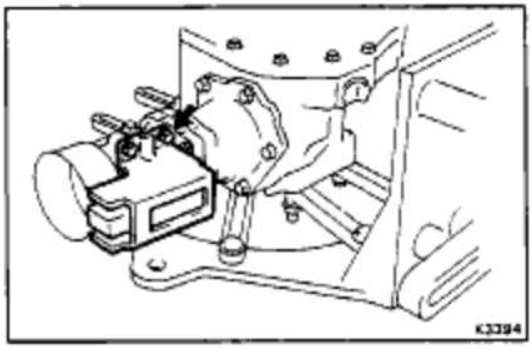


(c) Install and torque the three bolts.
Torque: 160 kg–cm (12 ft–lb, 16 N–M)



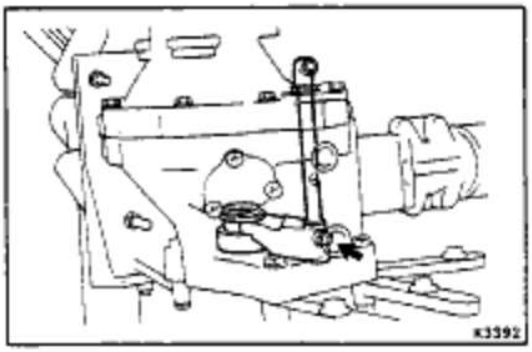
15. INSTALL EXTENSION HOUSING

(a) Coat the O–ring with gear oil.
(b) Install the O–ring to the extension housing.
(c) Install the extension housing to the driven pinion bearing cage.
(e) Install and torque the four bolts.
Torque: 260kg–cm (19 ft–lb, 25 N–m)



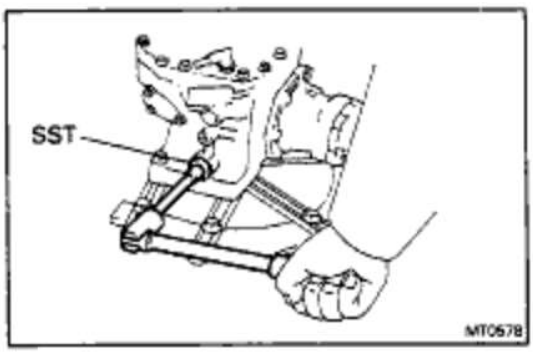
16. INSTALL DYNAMIC DANPER

Install and torque the four bolts.
Torque: 260 kg–cm (19 ft–lb, 25 N–m)

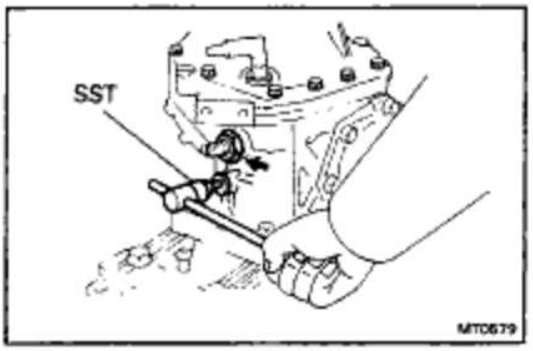


17. INSTALL DIFFERENTIAL LOCK SHIFT FORK SHAFT

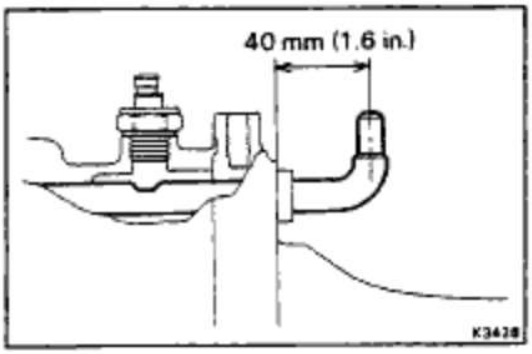
(a) Install the differential lock sleeve with shift fork.
(b) Install and torque the set bolt.
Torque: 160 kg–cm (12 ft–lb, 16 N–m)



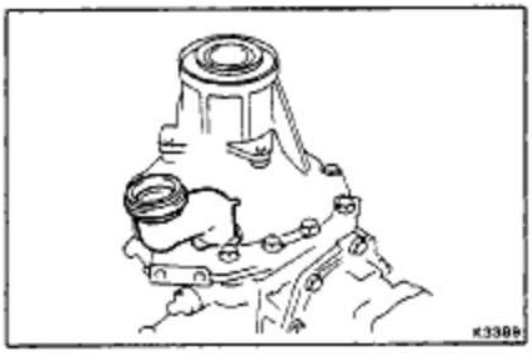
(c) Using SST, install and torque the plug.
SST 09043–36100
Torque: 400 kg–cm (29 ft–lb, 39 N–m)



(d) Install and torque the indicator switch.
Torque: 400 kg–cm (29 ft–lb, 39 N–m)
(e) Using SST, install and torque the plug.
SST 09313–30021
Torque: 250 kg–cm (18 ft–lb, 25 N–m)

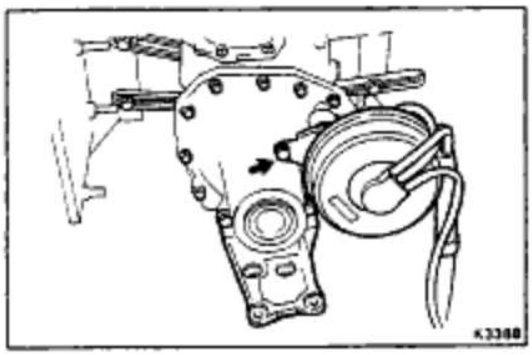


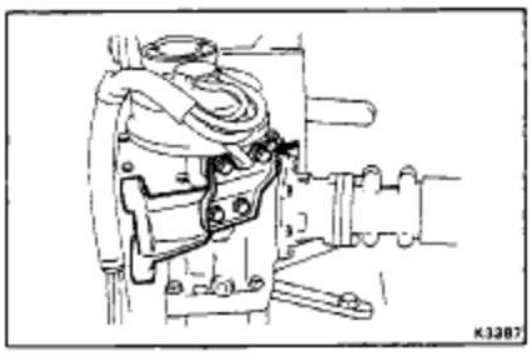
(e) Set the shift fork shaft at the as shown in the figure.



1s. INSTALL DUST BOOT

19. INSTALL TRANSFER VACUUM ACTUATOR
(a) Install the vacuum actuator.
(b) Install and torque the three bolts.





(c) Install the stiffener center plate and actuator bracket.
(d) Install and torque the four bolts.
Torque: 380 kg–cm (27 ft–lb, 37 N–m)