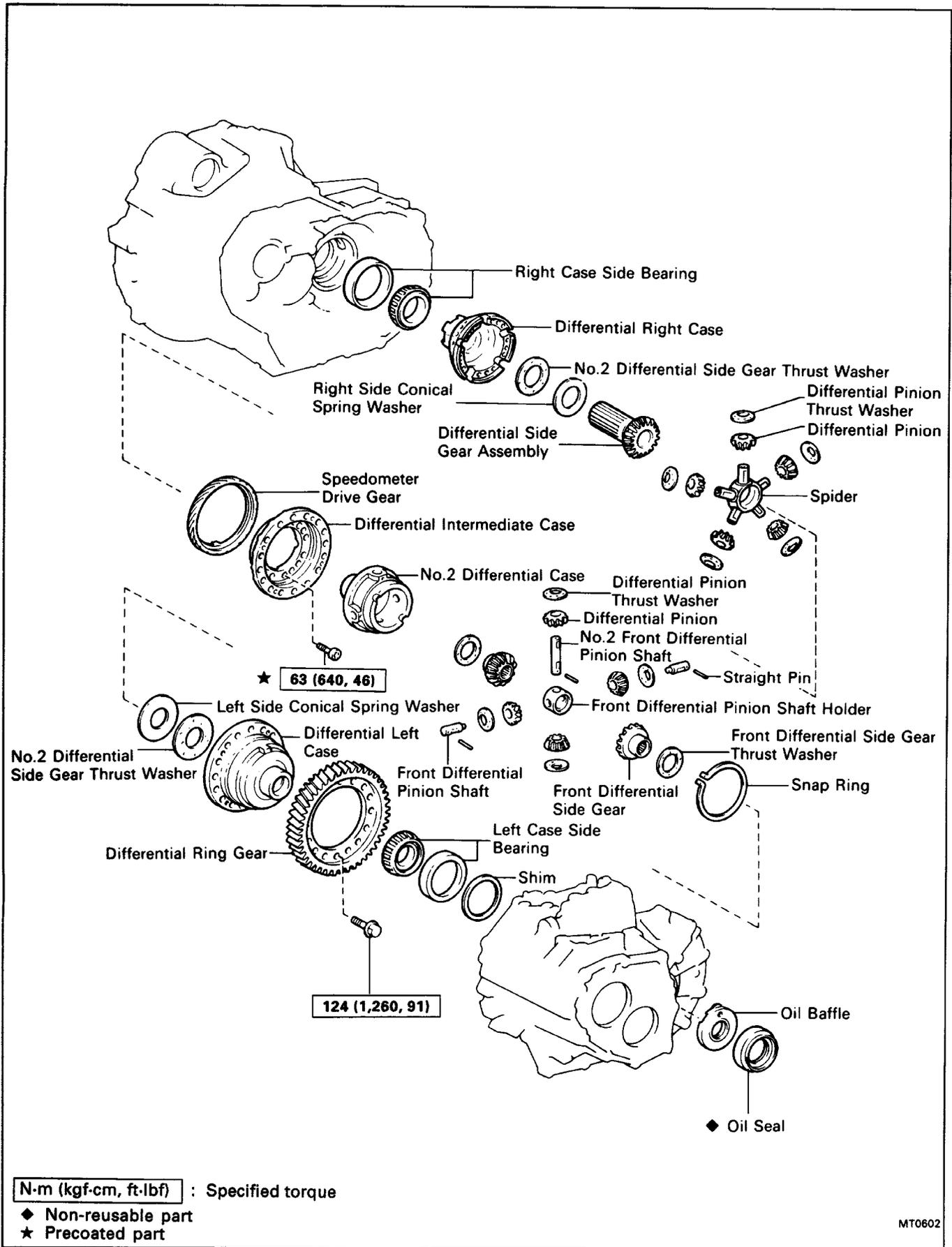
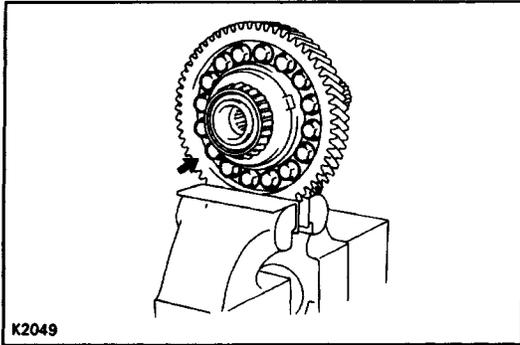


Differential Case



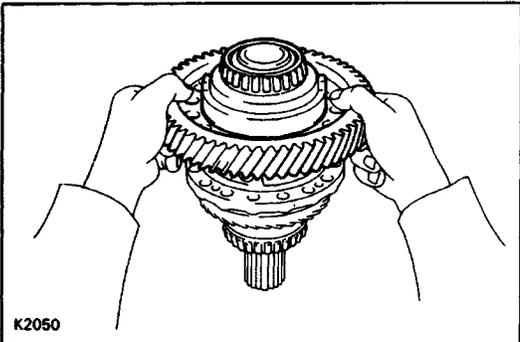


DISASSEMBLY OF DIFFERENTIAL CASE

1. REMOVE DIFFERENTIAL LEFT CASE

(a) Remove the sixteen bolts.

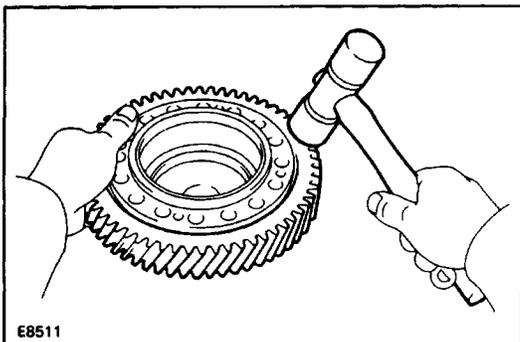
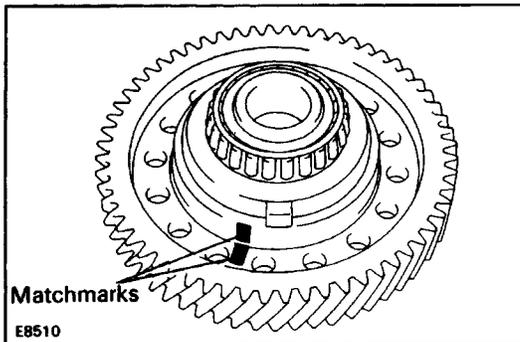
(b) Remove the differential left case up ward.



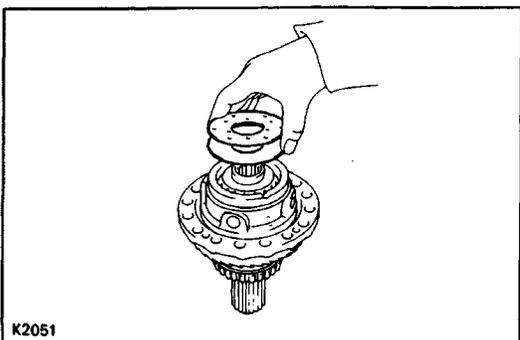
2. REMOVE RING GEAR

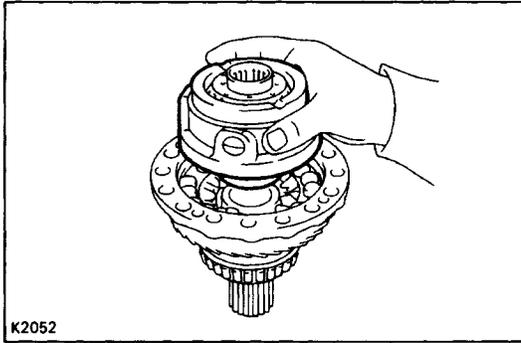
(a) Place the matchmarks on both the differential case and ring gear.

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

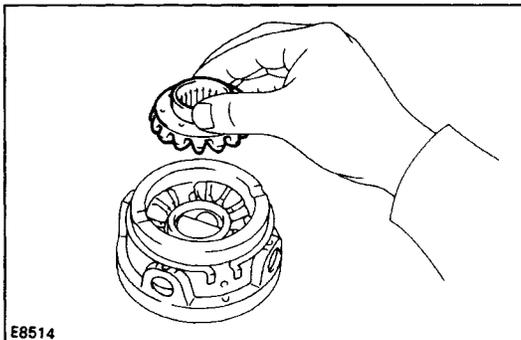


3. REMOVE NO.2 DIFFERENTIAL SIDE GEAR THRUST WASHER AND CONICAL SPRING WASHER



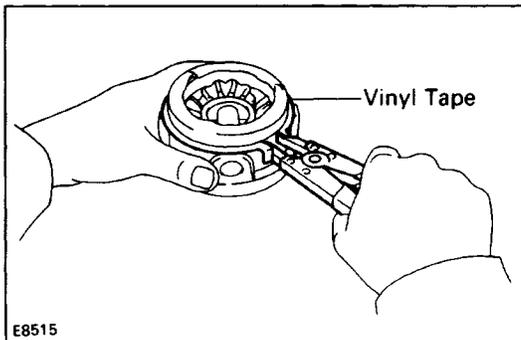


4. REMOVE DIFFERENTIAL NO.2 CASE ASSEMBLY

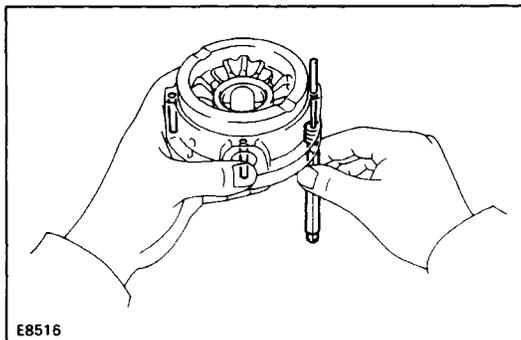


5. DISASSEMBLY DIFFERENTIAL NO.2 CASE

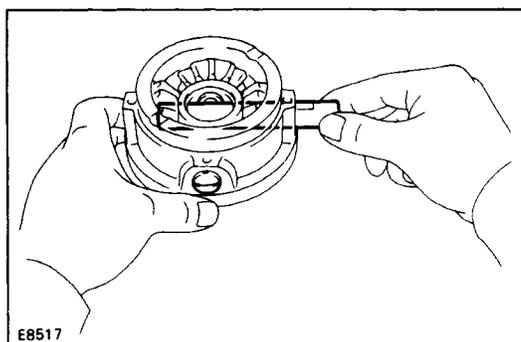
- (a) Remove the front differential side gear together with thrust washer.
- (b) Remove the front differential side gear thrust washer from the side gear.



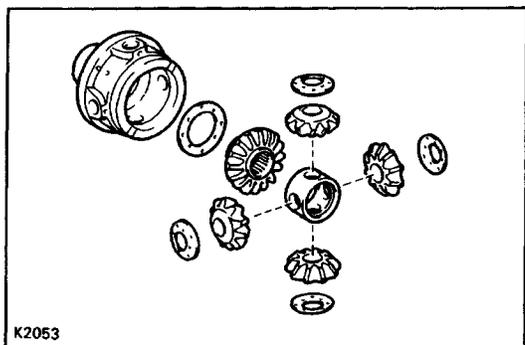
- (c) Using snap ring pliers, remove the snap ring.
HINT: Before removing the shaft snap ring, wrap vinyl tape around the case prevent from damage.



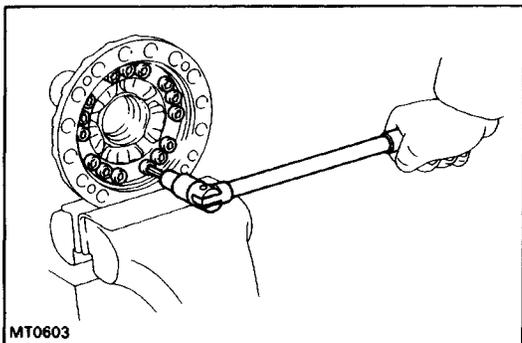
- (d) Using a pin punch, push out the three straight pins.



- (e) Remove the two front differential pinion shafts and No.2 front differential pinion shaft.

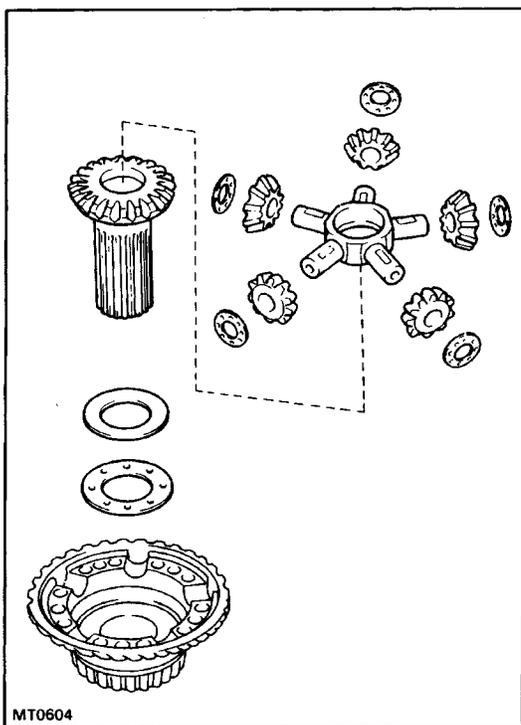


(f) Remove the pinion shaft holder, four differential pinions, pinion thrust washers, front side gear and thrust washer from the differential No.2 case.



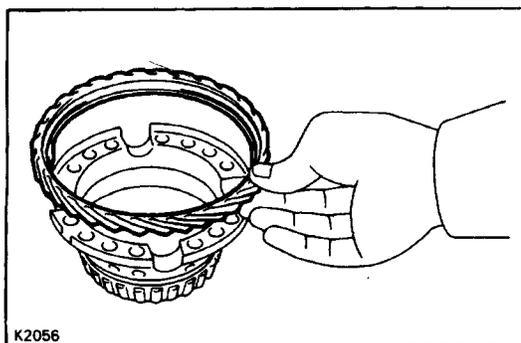
6. REMOVE DIFFERENTIAL INTERMEDIATE CASE

Using a torx wrench, remove the fifteen torx screws and differential intermediate case.

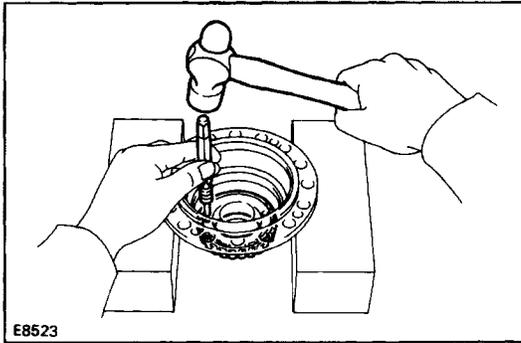


7. DISASSEMBLY DIFFERENTIAL RIGHT CASE

(a) Remove the differential spider, five pinions, pinion thrust washers, side gear subassembly, conical spring washer and No.2 side gear thrust washer.

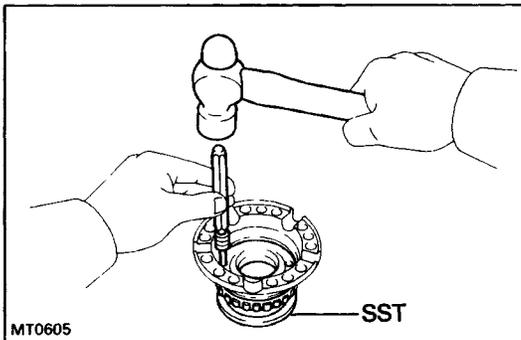


8. REMOVE SPEEDOMETER DRIVE GEAR



9. REMOVE SIDE BEARING

- (a) Using a pin punch and hammer, drive out the side bearing evenly through two holes in the differential left case.



- (b) Using a pin punch, hammer and SST, drive out the side bearing evenly through four holes in the differential right case.

SST 09316-60010 (09316-00020)

INSPECTION OF DIFFERENTIAL CASE

1. MEASURE DIFFERENTIAL LEFT CASE

Using a cylinder gauge, measure the inner diameter of the differential left case bushing.

Standard clearance:
A 111.000–111.035 mm (4.3701–4.3714 in.)
B 90.500–90.535 mm (3.5630–3.5644 in.)

Maximum diameter:
A 110.060 mm (4.3331 in.)
B 90.560 mm (3.5653 in.)

2. MEASURE DIFFERENTIAL NO.2 CASE

Using a micrometer, measure the outer diameter of differential No.2 case.

Standard clearance:
A 110.929–110.964 mm (4.3673–4.3686 in.)
B 90.429–90.464 mm (3.5606–3.5615 in.)
C 35.000–35.025 mm (1.3778–1.3789 in.)

Minimum diameter:
A 110.850 mm (4.3642 in.)
B 90.350 mm (3.5571 in.)

Maximum diameter:
C 35.030 mm (1.3791 in.)

3. MEASURE CONICAL SPRING WASHER

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

Standard height:

Left conical spring washer

2.60–2.80 mm (0.102–0.110 in.)

Right conical spring washer

1.70–1.90 mm (0.067–0.075 in.)

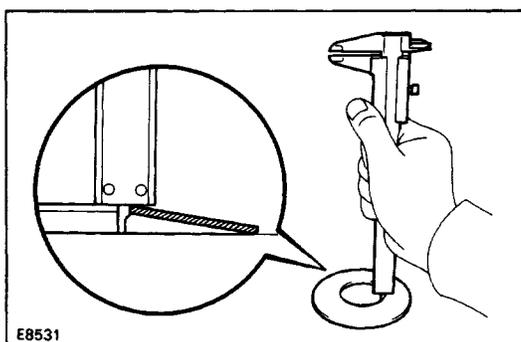
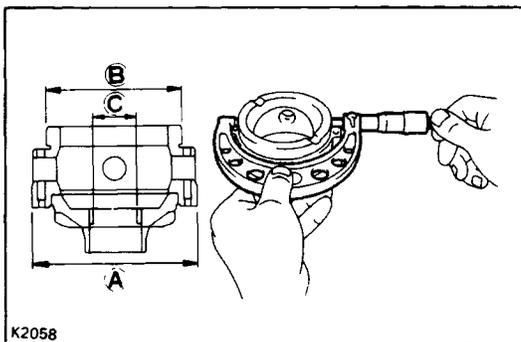
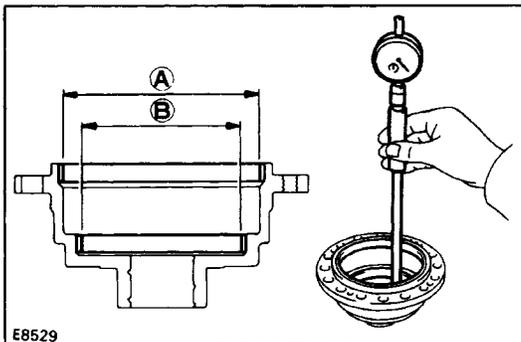
Minimum height:

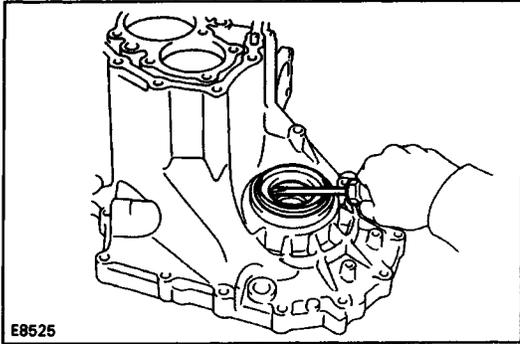
Left conical spring washer

2.50 mm (0.098 in.)

Right conical spring washer

1.60 mm (0.063 in.)

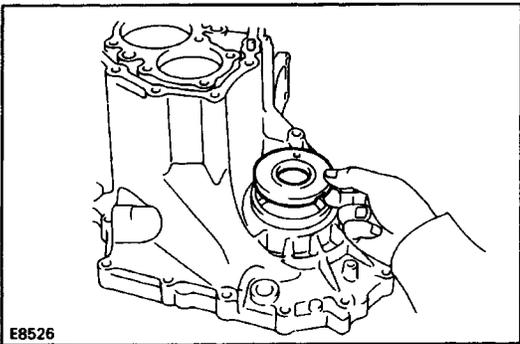




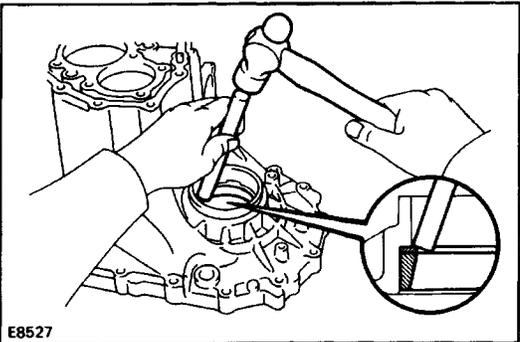
4. (Transmission Case Side)

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

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

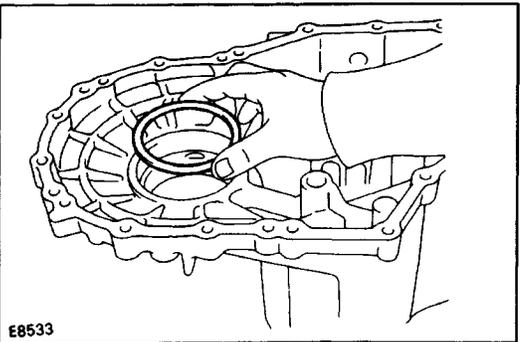


(b) Remove the transmission oil baffle.



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

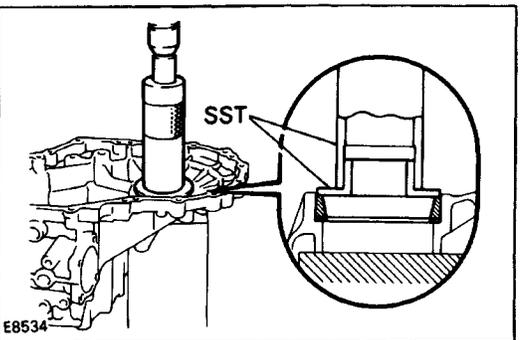
(d) Remove the adjust shim.



(e) Install the adjust shim.

(See page MT-207)

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

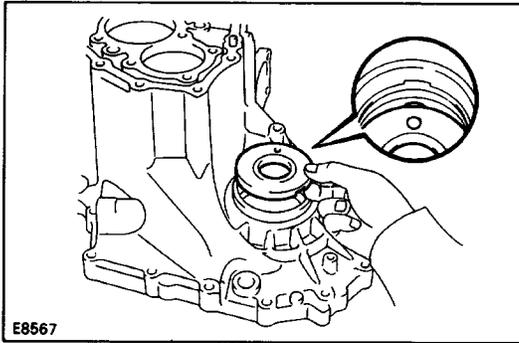


(f) Using SST and a press, install the tapered roller bearing outer race.

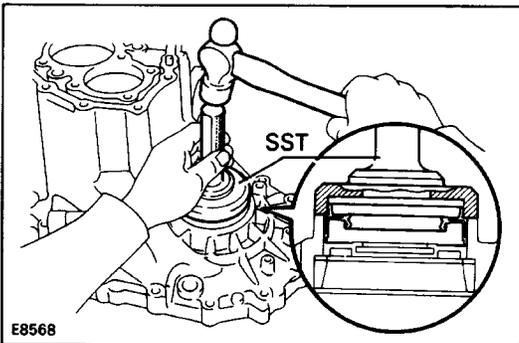
SST

09316-60010

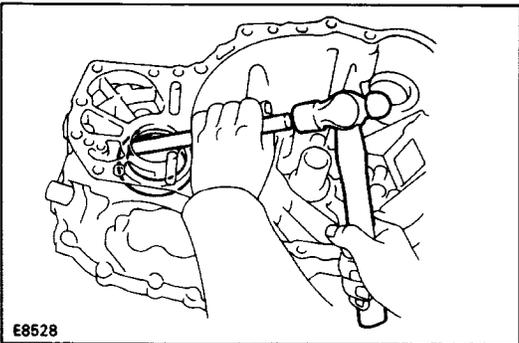
(09316-00010,09316-00040)



- (g) install the transmission oil baffle.
 HINT: Install the transmission oil baffle projection into the case side cutout.



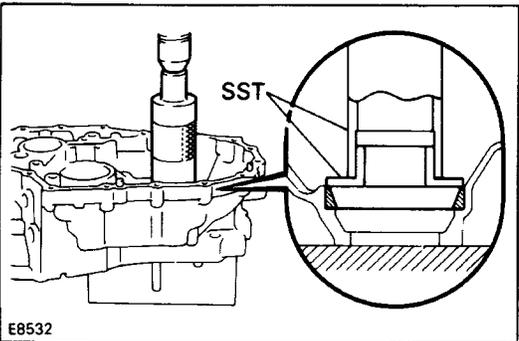
- (h) Using SST and a hammer, drive in a new oil seal.
 SST 09223-15010
 (i) Coat the lip of the oil seal with MP grease.



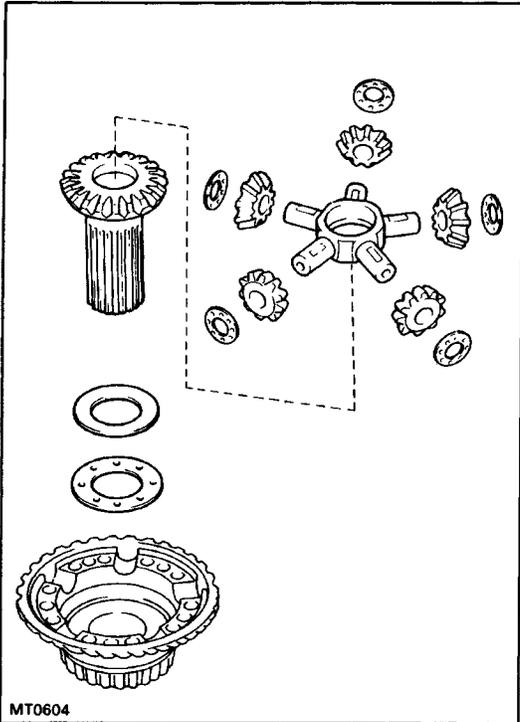
5. (Transfer Case Side)

IF NECESSARY, REPLACE TAPERED ROLLER BEARING OUTER RACE

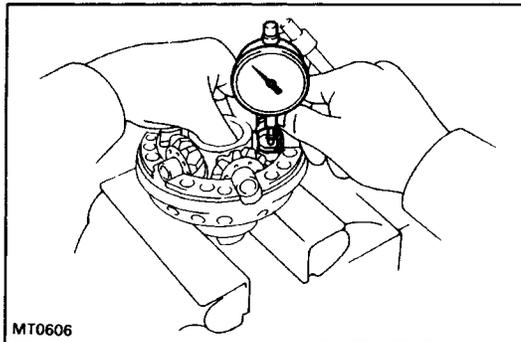
- (a) Using a brass bar and hammer, drive out the bearing outer race lightly and evenly through the cut-out portion on the transaxle case.



- (b) Using SST and a press, install the tapered roller bearing outer race.
 SST09316-60010(09316-00010, 09316-00040)



MT0604



MT0606

ASSEMBLY OF DIFFERENTIAL CASE

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

1. 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 subassembly, spider, five pinions and pinion thrust washers to the differential right case.

HINT: Thrust 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 backlash: 0.05–0.20 mm
(0.0020–0.0079 in.)**

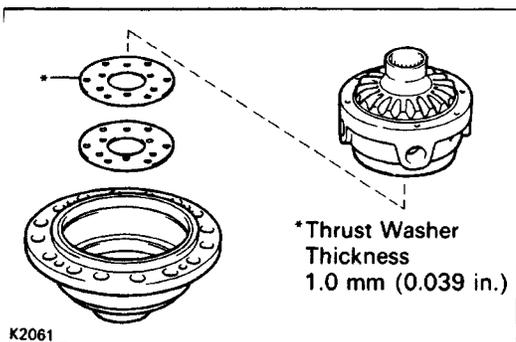
HINT: Push the pinion gear of the right side of the differential case.

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.

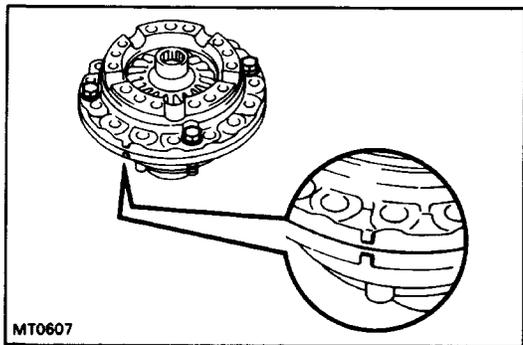
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
–	0.80 (0.0315)	–	1.15 (0.0453)
–	0.85 (0.0335)	–	1.20 (0.0472)
–	0.90 (0.0354)	–	1.25 (0.0492)
–	0.95 (0.0374)	–	1.30 (0.0512)
–	1.00 (0.0394)	–	1.35 (0.0531)
–	1.05 (0.0413)	–	1.40 (0.0551)
–	1.10 (0.0433)		

(c) Remove the differential right case.
(No.2 Differential Case)

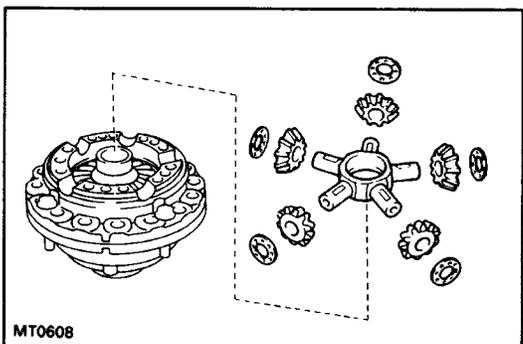
(a) Install the No.2 side gear thrust washer, (Temporarily install) 1.0 mm (0.039 in.) size thrust washer and differential No.2 case to the differential left case.
HINT: Thrust washer 1.0 mm (0.039 in.) size is for check of backlash.



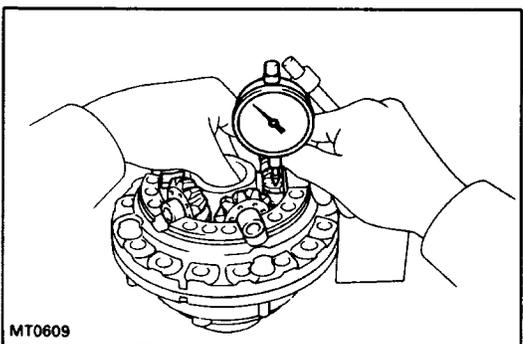
K2061



(b) Using four transmission case cover bolts, install the differential intermediate case to the left case.
 HINT: Align the alignment marks on the differential left case and connect the intermediate case.



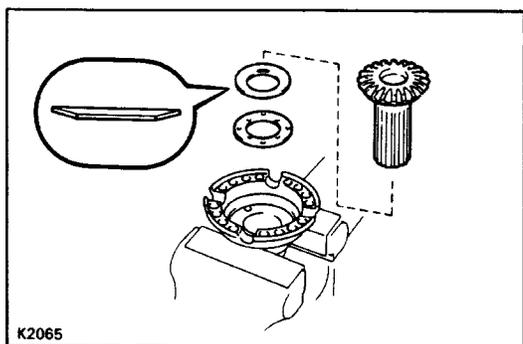
(c) Install the differential spider, five pinions and pinion thrust washers to the differential intermediate case.



(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 differential intermediate case.
 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.)	Mark	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)		

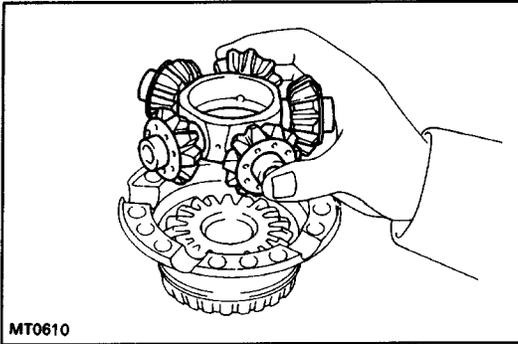
(e) Remove the differential case.



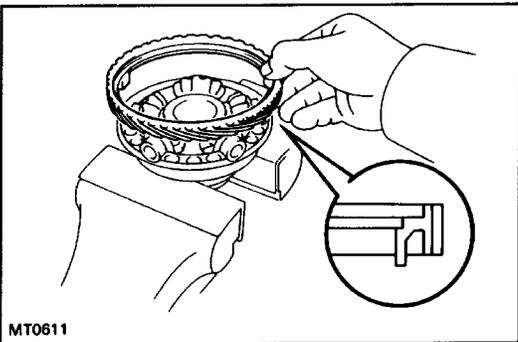
2. ASSEMBLY DIFFERENTIAL RIGHT CASE

(a) Install the No.2 side gear thrust washer (previously selected), conical spring washer and differential side gear subassembly to the right case.

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

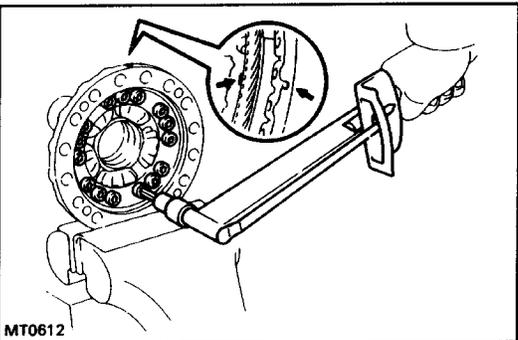


- (b) Install the differential spider, five pinion and pinion thrust washers to the differential right case.



3. INSTALL SPEEDOMETER DRIVE GEAR

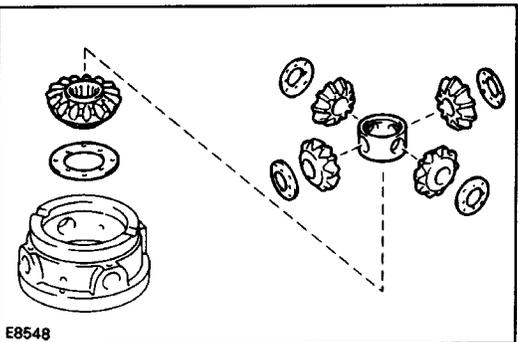
Install the speedometer drive gear to the differential right case.



4. INSTALL DIFFERENTIAL INTERMEDIATE CASE

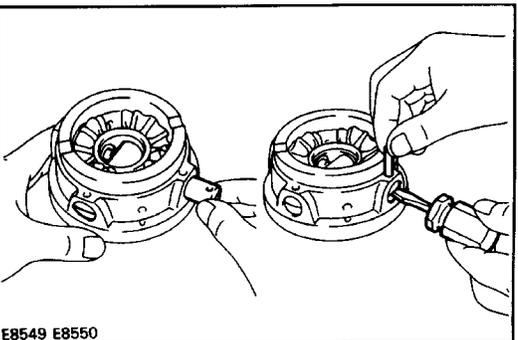
- (a) Align the alignment marks on the right case and connect the intermediate case.
 (b) Install the fifteen to
 • x screws. Using a torx wrench, tighten the screws uniformly and a little at a time in succession. Torque the screws.

Torque: 63 N-m (640 kgf-cm, 46 ft-lbf)

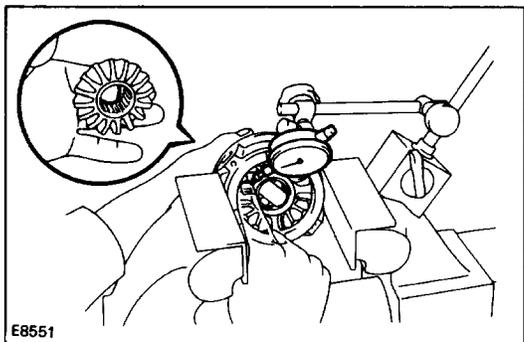


5. CHECK AND ADJUST FRONT SIDE GEAR BACKLASH (Differential No.2 Case)

- (a) Install the front differential side gear thrust washer, side gear, pinion shaft holder, four pinions and thrust washers.



- (b) Fit No.2 case pin hole and pinion shaft pin hole, install the No.2 pinion shaft and two pinion shafts to the No2 case.
 (c) Install the three straight pins.

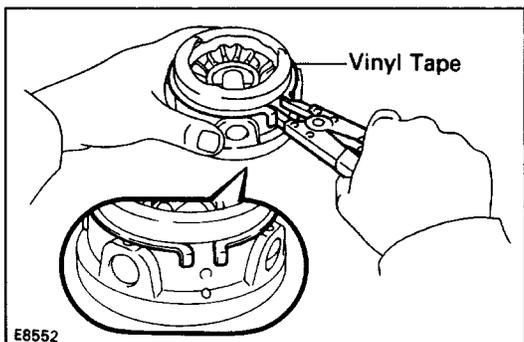


(d) Using a dial indicator, measure the backlash of one pinion gear while holding the front differential side gear toward the case.

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

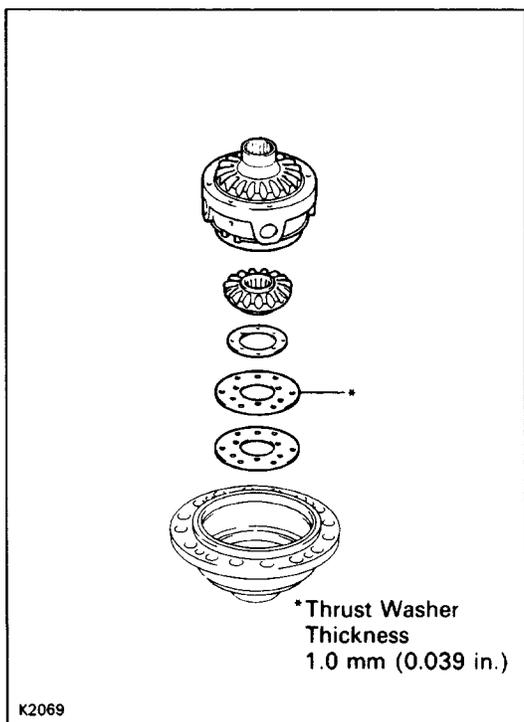
Mark	Thickness	mm (in.)
B	1.00	(0.0394)
C	1.05	(0.0413)
D	1.10	(0.0433)
E	1.15	(0.0453)
F	1.20	(0.0472)
G	1.25	(0.0492)



6. INSTALL SNAP RING

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

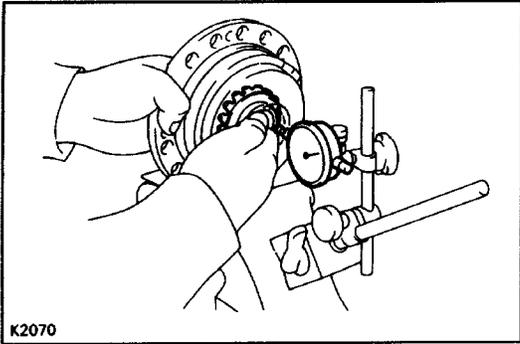
HINT: Before installing the shaft snap ring, wrap vinyl tape around the case prevent from damage.



7. CHECK AND ADJUST FRONT DIFFERENTIAL SIDE GEAR THRUST CLEARANCE (Differential Left Case)

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

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.

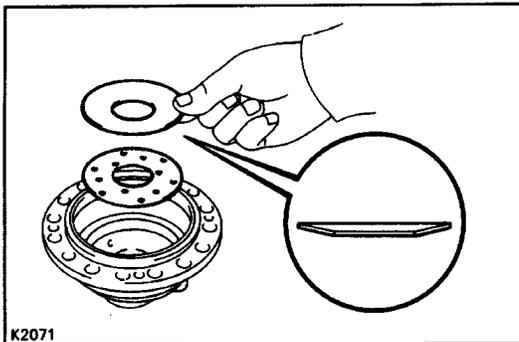
Standard clearance: 0.14–0.21 mm
(0.006–0.008 in.)

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.

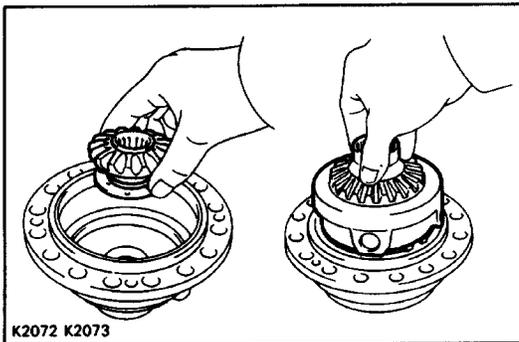
Mark	Thickness mm (in.)	Mark	Thickness mm (in.)
A	0.95 (0.0374)	F	1.20 (0.0472)
B	1.00 (0.0394)	G	1.25 (0.0492)
C	1.05 (0.0413)	H	1.30 (0.0512)
D	1.10 (0.0433)	J	1.35 (0.0531)
E	1.15 (0.0453)	K	1.40 (0.0551)

- (c) Remove the differential left case.



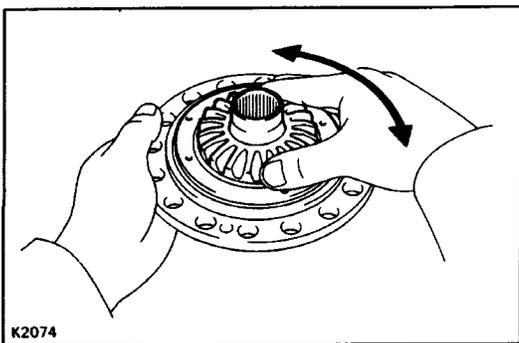
8. ASSEMBLY DIFFERENTIAL LEFT CASE

- (a) Install the No.2 side gear thrust washer (previously selected) and conical spring washer to the left case.
HINT: Be careful not to mistake the direction of conical spring washer.

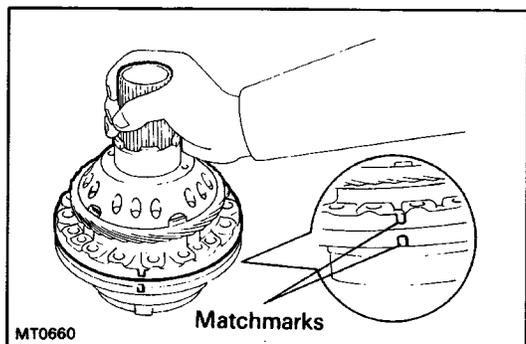


- (b) Install the front differential side gear thrust washer and side gear to the left case.

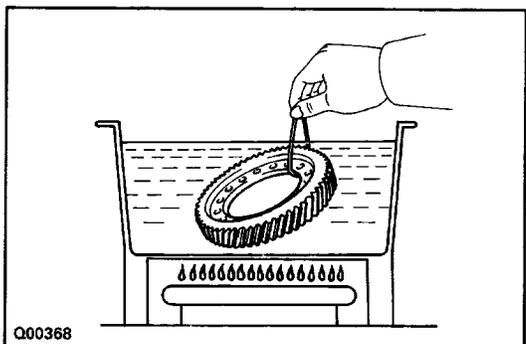
- (c) Install the differential No-2 case assembly.
HINT: Engage the front differential side gear and pinion gear of No.2 case.



- (d) Turning the differential No.2 case, check the turns smoothly.

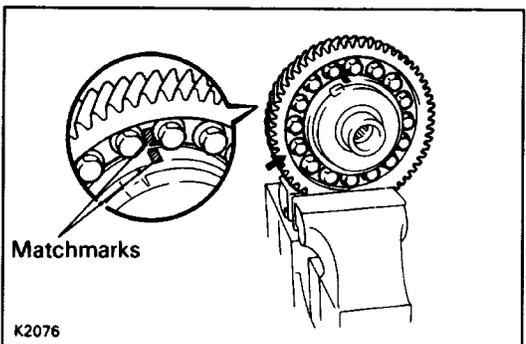


- (e) Install the intermediate case to the differential left case.
 HINT: Align the matchmarks on the differential left case and connect the intermediate case.



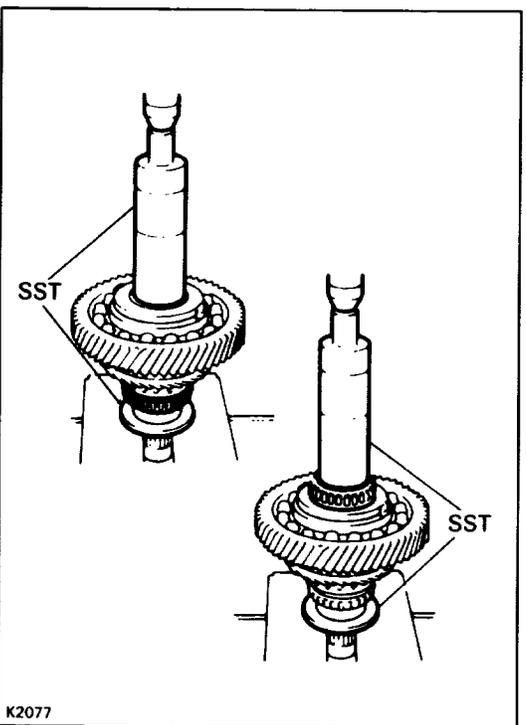
9. INSTALL RING GEAR

- (a) Clean the contact surface of the differential case and the threads of the ring gear and differential case.
 (b) Heat the ring gear in boiling water.
 (c) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.



- (d) Then quickly install the ring gear on the differential case.
 HINT: Align the matchmarks on the differential left case and connect the ring gear.
 (e) Install the sixteen set bolts. Tighten the set bolts uniformly and a little at a time in succession. Torque the bolts.

Torque: 124 N·m (1,260 kgf·cm, 91 ft·lbf)



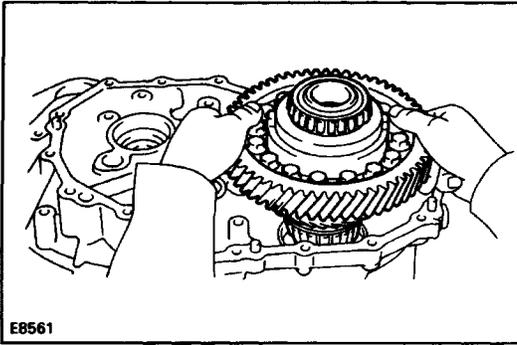
10. INSTALL SIDE BEARING

Using SST and a press, install the side bearing to the differential case.

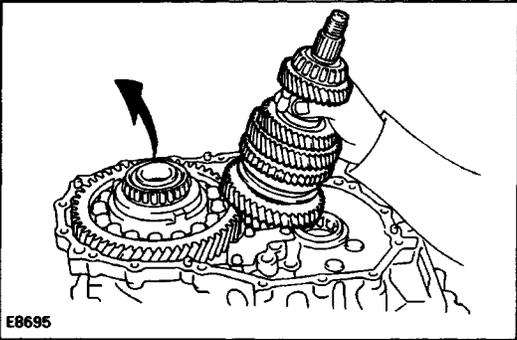
SST 09316-20011 and 09316-60010 (09316-00010)

11. ADJUST OUTPUT SHAFT PRELOAD

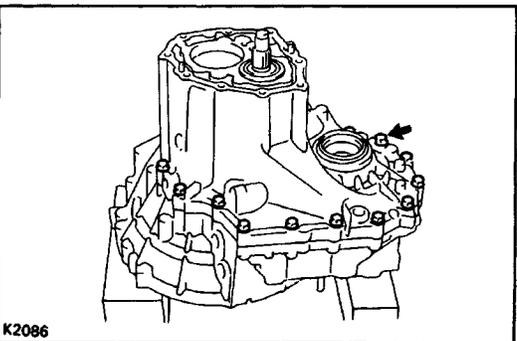
(See page MT-208)



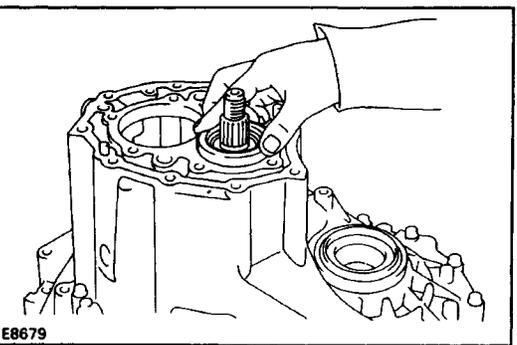
12. INSTALL DIFFERENTIAL CASE ASSEMBLY
 Install the differential case assembly to the transaxle case.



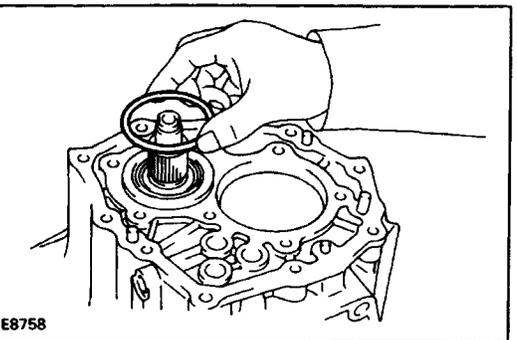
13. INSTALL OUTPUT SHAFT ASSEMBLY
 Lift up the differential case, install the output shaft assembly.



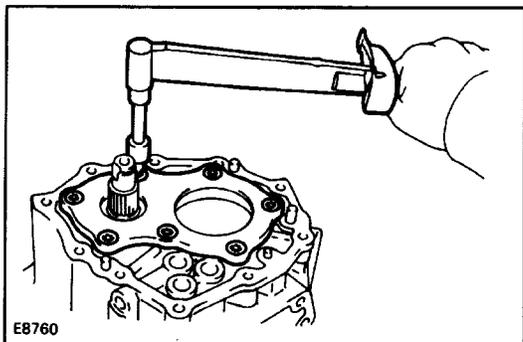
14. INSTALL TRANSMISSION CASE
 (a) Install the transmission case.
 HINT: If necessary, tap on the case with a plastic hammer.
 (b) Install and torque the seventeen bolts.
 Torque: 29 N-m (300 kgf-cm, 22 ft-lbf)



15. INSTALL OUTPUT SHAFT REAR TAPERED ROLLER BEARING OUTER RACE



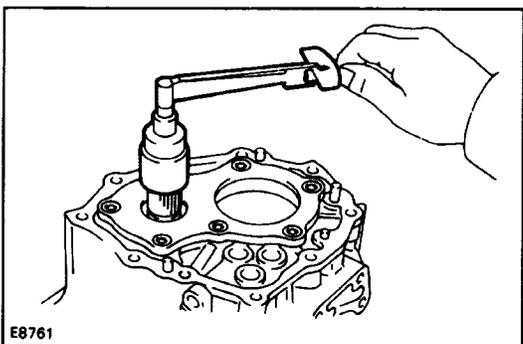
16. INSTALL ADJUST SHIM
 (See page MT-207)
 HINT: Install the previously selected shim.



17. INSTALL REAR BEARING RETAINER

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

Torque: 42 N-m (430 kgf-cm, 31 ft-lbf)



18. 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

0.2–0.4 Nm

(1.9–3.7 kgf-cm, 1.6–3.2 in.-lbf)

Reused bearing

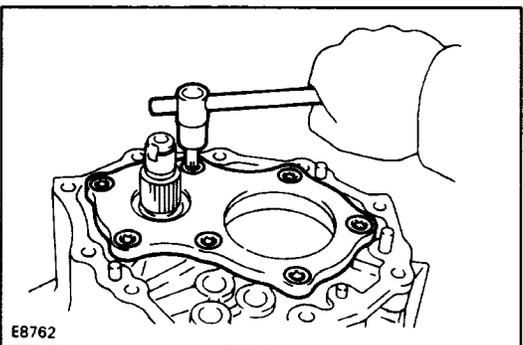
Add output shaft preload

0.1–0.2 N . m

(1.2–2.3 kgf-cm, 1.0–2.0 in.-lbf)

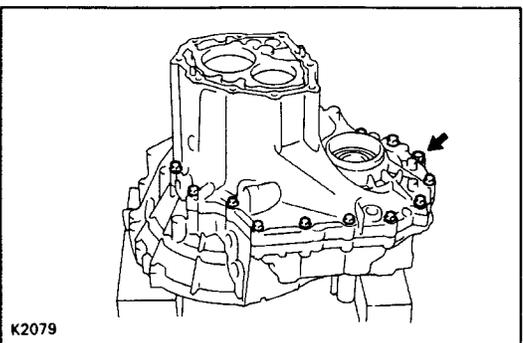
If the preload is not within specification, select the thrust washers.

HINT: The preload will change about 0.13 N-m (1.3 kgf-cm, 1.13 in.-lbf) with each shim thickness.



19. REMOVE REAR BEARING RETAINER

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

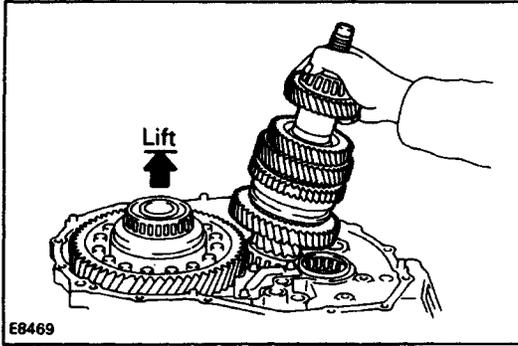


20. REMOVE ADJUST SHIM

21. REMOVE TRANSMISSION CASE

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

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)



22. REMOVE OUTPUT SHAFT ASSEMBLY
23. REMOVE DIFFERENTIAL CASE ASSEMBLY