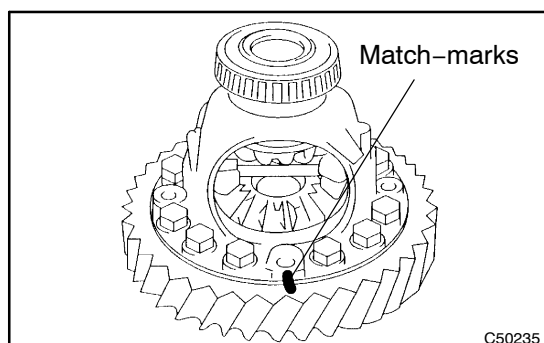


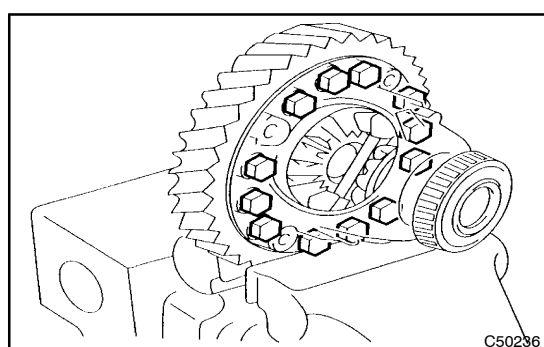
FRONT DIFFERENTIAL ASSY (U140E) OVERHAUL

4006M-01

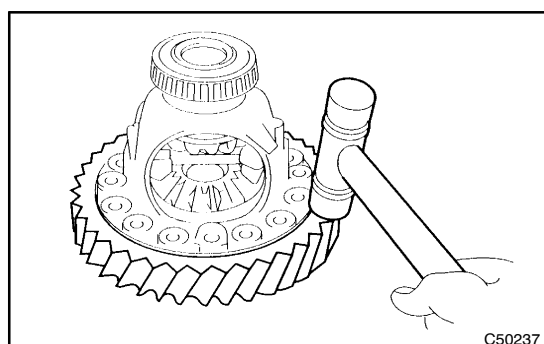


1. REMOVE FRONT DIFFERENTIAL RING GEAR

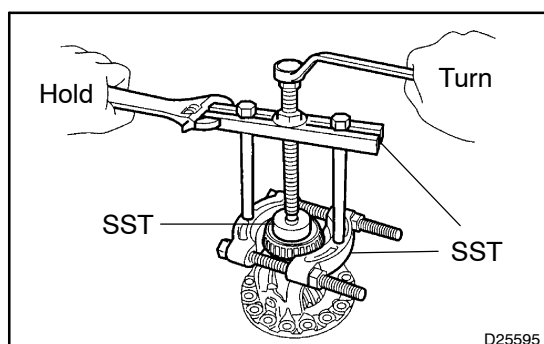
- (a) Place the match-marks on the ring gear and differential case.



- (b) Remove the 12 bolts.



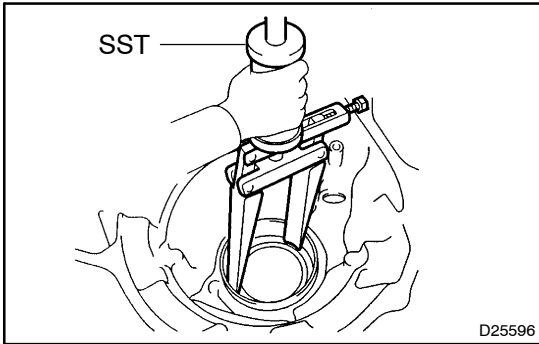
- (c) Using a plastic hammer, tap on the ring gear to remove it from the case.



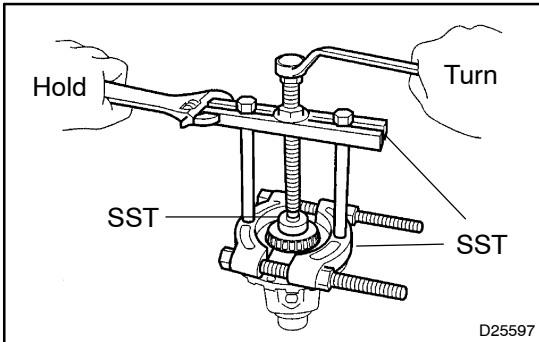
2. REMOVE FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

- (a) Using SST, remove the front differential case front tapered roller bearing from the differential case.

SST 09950-00020, 09950-00030, 09950-60010
(09951-00500)

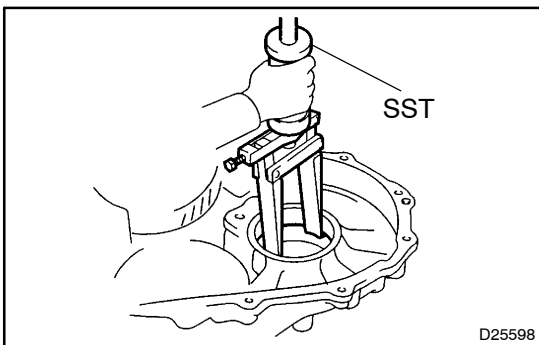


- (b) Using SST, remove the front differential case front tapered roller bearing outer race.
SST 09308-00010

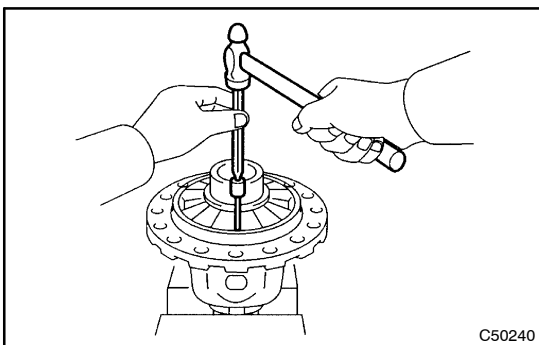


3. REMOVE FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

- (a) Using SST, remove the front differential case rear tapered roller bearing from the differential case.
SST 09950-00020, 09950-00030, 09950-60010 (09951-00500)

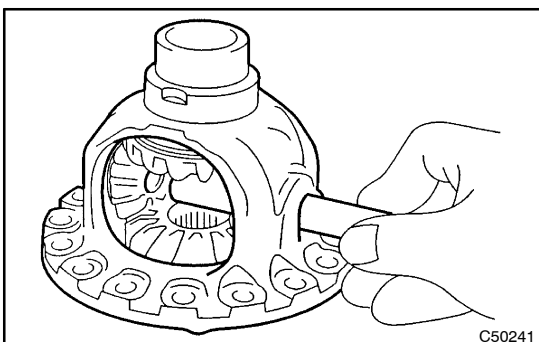


- (b) Using SST, remove the front differential case rear tapered roller bearing outer race.
SST 09308-00010



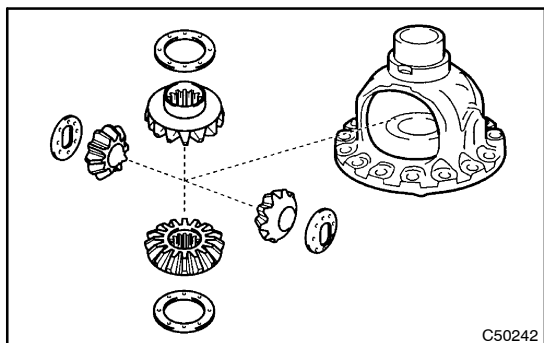
4. REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN

- (a) Using a pin punch and a hammer, install straight pin.
NOTICE:
Before removing the straight pin, unstake it with a pin punch.



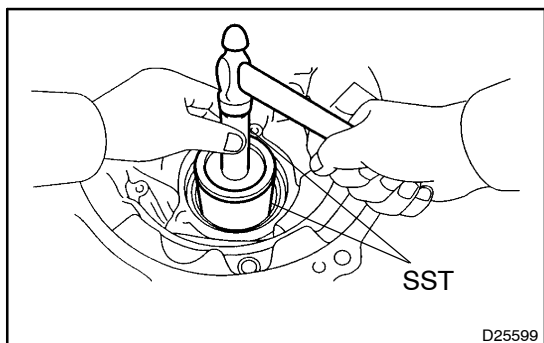
5. REMOVE FRONT DIFFERENTIAL PINION SHAFT NO.1

- (a) Remove the front differential pinion shaft No. 1 from the differential case.



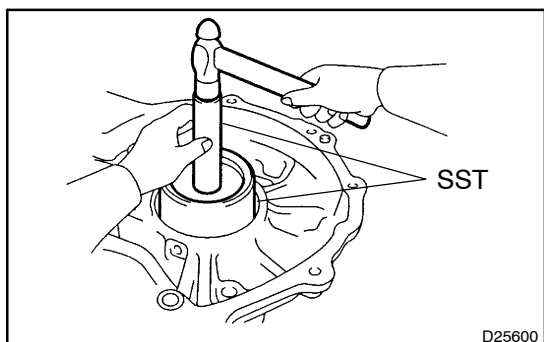
6. REMOVE FRONT DIFFERENTIAL SIDE GEAR

- (a) Remove the 2 front differential pinions, 2 pinion thrust washers, 2 front differential side gears and 2 side gear thrust washers from the differential case.



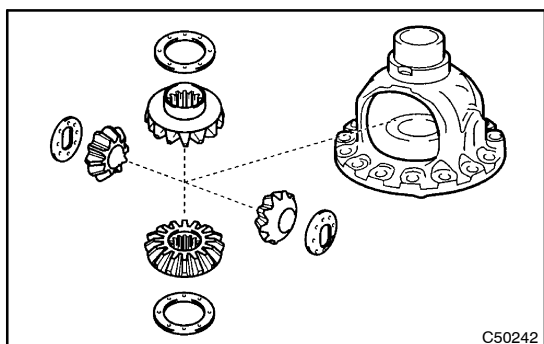
7. REMOVE TRANSAXLE HOUSING OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09950-70010 (09951-07100), 09215-00013 (09215-00471)



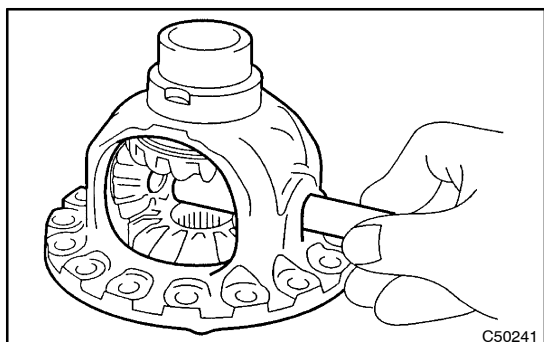
8. REMOVE DIFFERENTIAL SIDE BEARING RETAINER OIL SEAL

- (a) Using SST, remove the oil seal.
SST 09950-70010 (09951-07100), 09608-10010



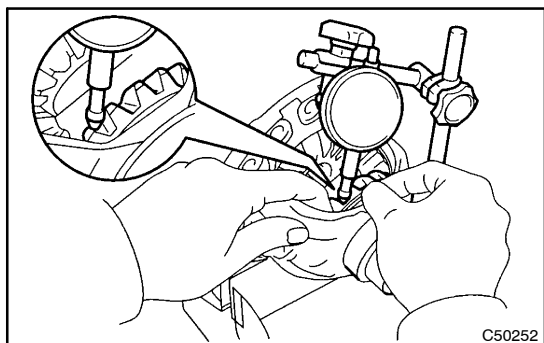
9. INSTALL FRONT DIFFERENTIAL SIDE GEAR

- (a) Coat the 2 front differential side gears, 2 side gear thrust washers, 2 front differential pinions and 2 pinion thrust washers with ATF and install them to the differential case.



10. INSTALL FRONT DIFFERENTIAL PINION SHAFT NO.1

- (a) Coat the front differential pinion shaft No. 1 with ATF, install it to the differential case.



11. INSPECT BACKLASH

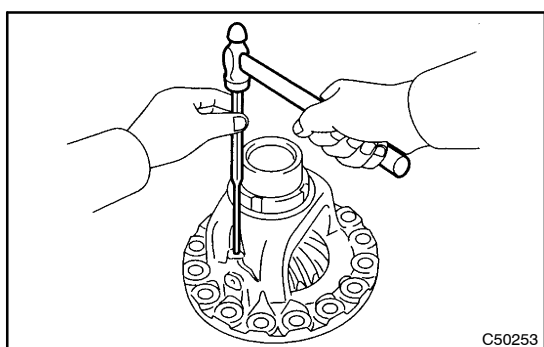
- (a) Using a dial indicator, inspect the backlash of the side gear.

Standard backlash:

0.05 – 0.20 mm (0.0020 – 0.0079 in.)

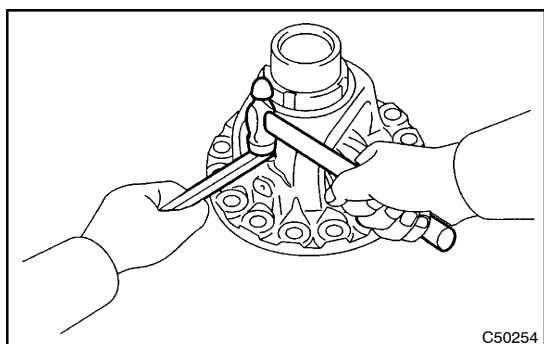
Thrust washer thickness

Mark	Thickness
–	1.625 mm (0.0640 in.)
–	1.725 mm (0.0679 in.)
–	1.825 mm (0.0719 in.)



12. INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN

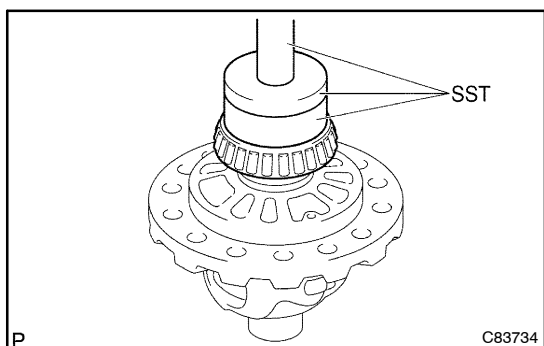
- (a) Using a pin punch and a hammer, install the pinion shaft straight pin.



- (b) Using a chisel and a hammer, stake the differential case.

NOTICE:

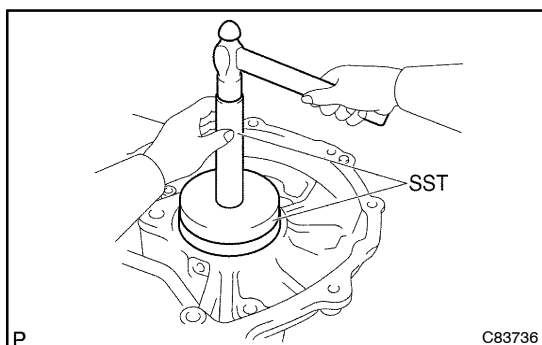
Stake it after adjusting the backlash.



13. INSTALL FR DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

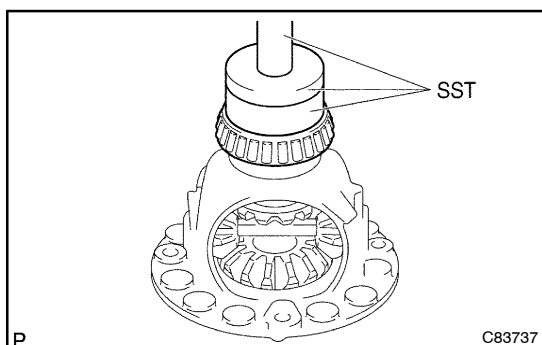
- (a) Using SST and a press, install the front differential case rear tapered roller bearing to the differential case.

SST 09550-60010, 09950-60020 (09951-00680),
09950-70010 (09951-07100)



- (b) Using SST and a hammer, install the front differential case tapered roller bearing front outer race to the trans-axle housing.

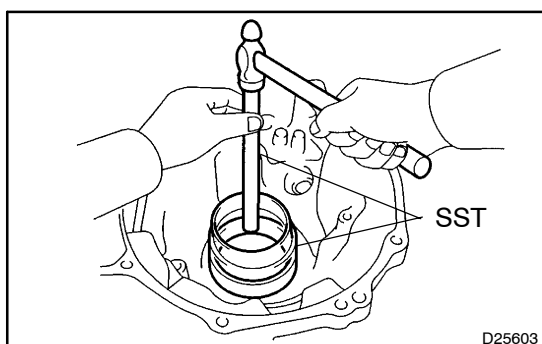
SST 09550-60010, 09950-60020 (09951-00680),
09950-70010 (09951-07100, 09951-00890)



14. INSTALL FR DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

- (a) Using SST and a press, install the front differential case front tapered roller bearing to the differential case.

SST 09550-60010, 09950-60020 (09951-00680),
09950-70010 (09951-07100, 09951-00890)

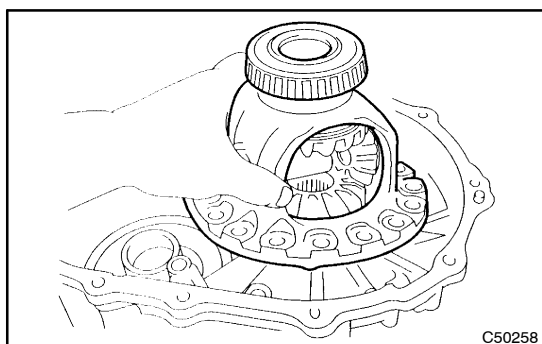


- (b) Using SST and a hammer, install the front differential case tapered roller bearing front outer race to the trans-axle housing.

SST 09550-60010, 09950-60020 (09951-00680),
09950-70010 (09951-07100, 09951-00890)

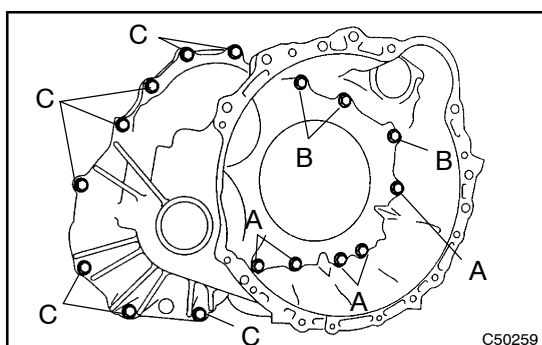
NOTICE:

Clearance is not allowed between the bearing and trans-axle housing.



15. ADJUST DIFFERENTIAL SIDE BEARING RRELOAD

- (a) Install the differential assy to the transaxle case.



- (b) Clean the matching surfaces of the transaxle case and transaxle housing.

- (c) Install the transaxle housing to the transaxle case and tighten them with the 16 bolts.

Torque:

Bolt A: 22.1 N·m (225 kgf·cm, 16.3 ft·lbf)

Bolt B and C: 29.4 N·m (300 kgf·cm, 21.7 ft·lbf)

Bolt length:

Bolt A: 50 mm (1.969 in.)

Bolt B: 50 mm (1.969 in.)**Bolt C: 42 mm (1.654 in.)****HINT:**

Usually, bolt A is a non-reusable bolt. In this case, however, it can be used after cleaning it.

- (d) Using SST, turn the differential assy right and left 2 or 3 times to allow the bearing settle.

SST 09564-32011

- (e) Using SST and torque wrench, measure the turning torque of the differential.

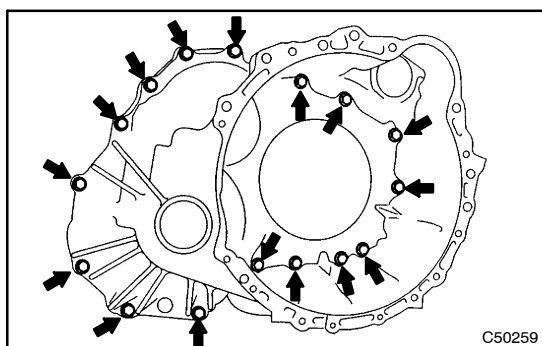
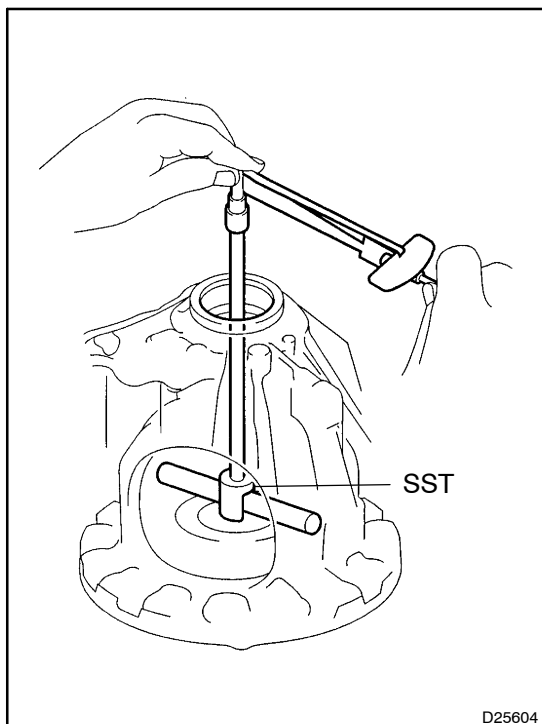
SST 09564-32011

Turning torque at 60 rpm:**New bearing****0.20 – 0.69 N·m (2.0 – 7.0 kgf·cm, 1.8 – 6.1 in.·lbf)****Used bearing****0.10 – 0.35 N·m (1.0 – 3.6 kgf·cm, 0.9 – 3.1 in.·lbf)****HINT:**

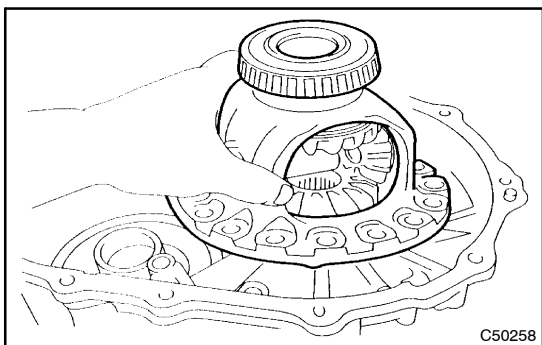
If the turning torque is not within the specified value, refer to the table below and select a thrust washer which turning torque is within the specified value.

Flange thickness: mm (in.)

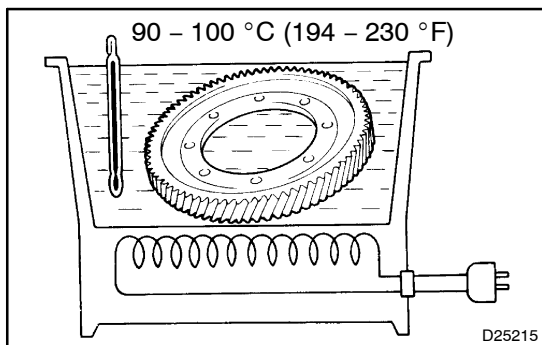
Mark	Thickness	Mark	Thickness
0	2.00 (0.0787)	9	2.45 (0.0965)
1	2.05 (0.0807)	A	2.50 (0.0984)
2	2.10 (0.0827)	B	2.55 (0.1004)
3	2.15 (0.0846)	C	2.60 (0.1024)
4	2.20 (0.0866)	D	2.65 (0.1043)
5	2.25 (0.0886)	E	2.70 (0.1063)
6	2.30 (0.0906)	F	2.75 (0.1083)
7	2.35 (0.0925)	G	2.80 (0.1102)
8	2.40 (0.0945)	H	2.85 (0.1122)



- (f) Remove the 16 bolts and the transaxle housing.



- (g) Remove the differential assy.



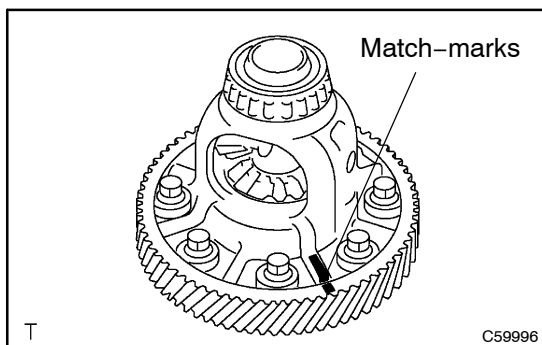
16. INSTALL FRONT DIFFERENTIAL RING GEAR

- (a) Using ATF and heater, heat the front differential ring gear to 90 - 110 °C (194.0 - 230.0 °F).

NOTICE:

Do not overheat the ring gear to 110 °C (230.0 °F) or more.

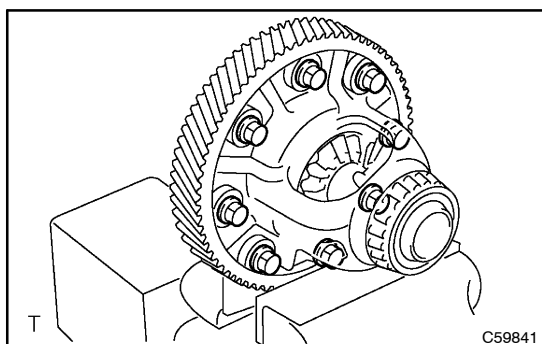
- (b) Clean the contact surface of the front differential case.



- (c) Set the match-marks, install the front differential ring gear case quickly.

NOTICE:

Do not install the bolts while the ring gear is hot.

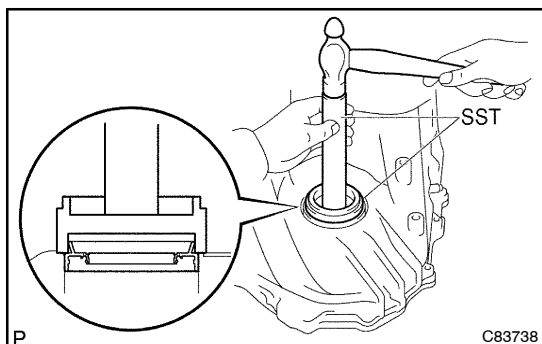


- (d) Tighten the 12 bolts.

Torque: 95.1 N·m (970 kgf·cm, 70 ft·lbf)

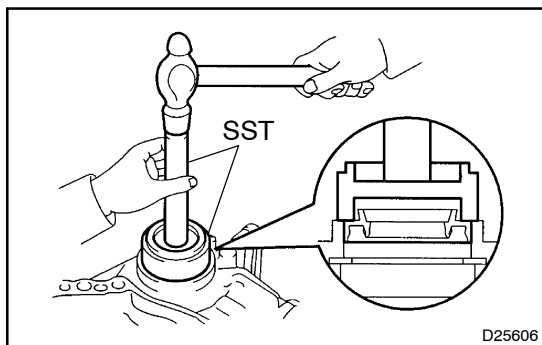
NOTICE:

Tighten the bolts a little at a time in diagonal order.



17. INSTALL DIFFERENTIAL SIDE BEARING RETAINER OIL SEAL

- (a) Using SST and a hammer, install a new oil seal.
SST 09223-15020, 09950-70010 (09951-07100)
- (b) Coat the lip of oil seal with a little MP grease.

**18. INSTALL TRANSAXLE HOUSING OIL SEAL**

- (a) Using SST and a hammer, drive into a new oil seal.
SST 09710-30050, 09950-70010 (09951-07100)
- (b) Coat the lip of the oil seal with a little MP grease.