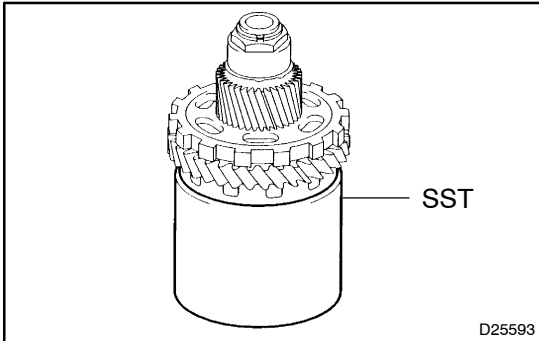
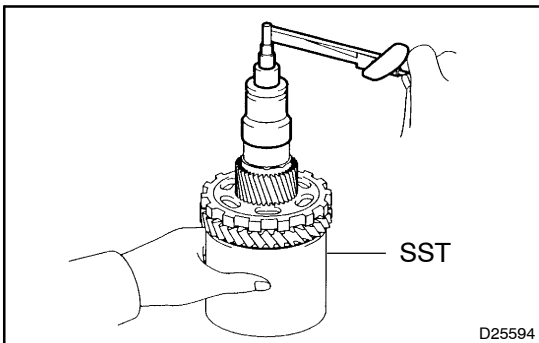


UNDERDRIVE PLANETARY GEAR ASSY (U140E/U140F) OVERHAUL



1. INSPECT UNDERDRIVE PLANETARY GEAR PRELOAD

- (a) Using SST, fix the U/D planetary gear assy.
SST 09387-00050



- (b) Using SST and a torque wrench, measure the turning torque of U/D planetary gear assy while rotating the torque wrench at 60 rpm.

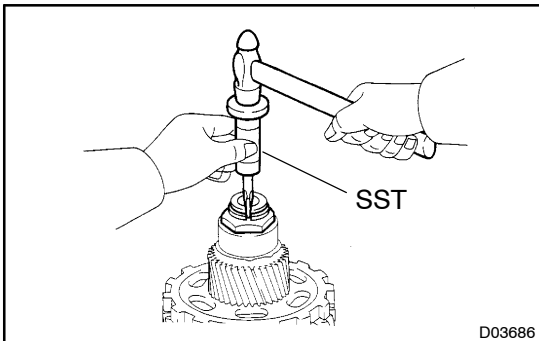
SST 09387-00050

Turning torque at 60 rpm.:

0.10 – 4.41 N·m (1.0 – 45 kgf·cm, 0.9 – 39 in.·lbf)

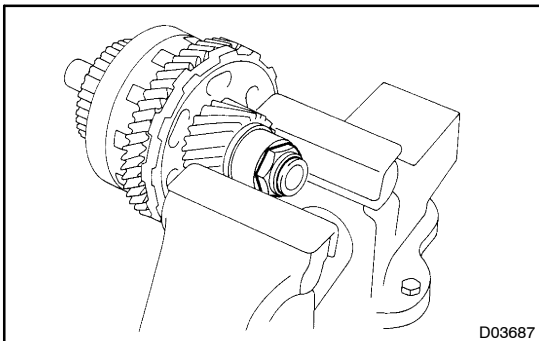
HINT:

Use a torque wrench with a fulcrum length of 160 mm (6.3 in.).



2. REMOVE UNDERDRIVE INPUT SHAFT NUT

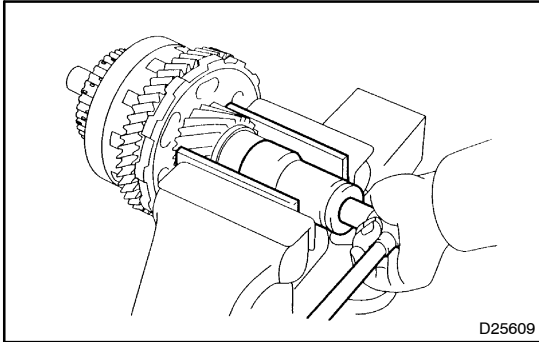
- (a) Using SST, loosen the staked part of the nut.
SST 09930-00010 (09931-00010, 09931-00020),
09387-00050



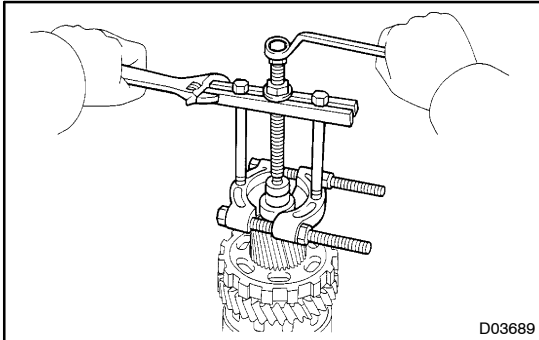
- (b) Clamp the U/D planetary gear in soft jaw vise.

NOTICE:

Be careful not to damage the differential drive pinion.



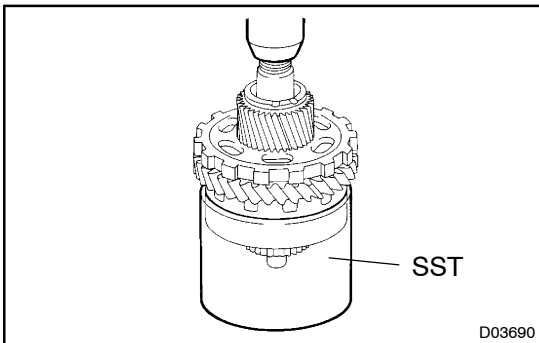
- (c) Using a socket wrench, remove lock nut.



3. REMOVE CYLINDRICAL ROLLER BEARING RACE INNER

- (a) Using SST, remove the cylindrical roller bearing race inner.

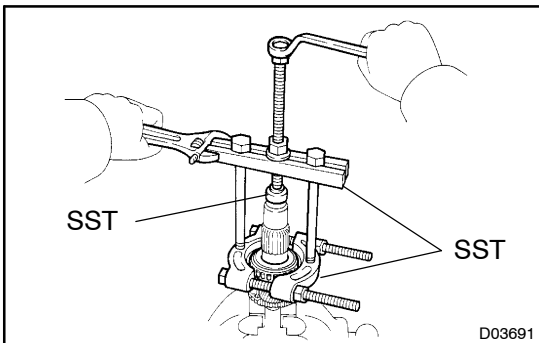
SST 09950-00020, 09950-00030, 09950-60010
(09951-00340)



4. REMOVE UNDERDRIVE PLANETARY GEAR ASSY

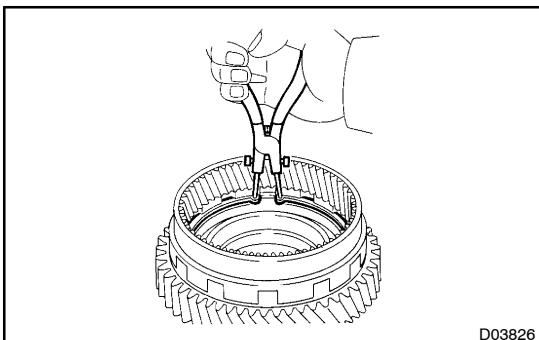
- (a) Using SST and press, remove the differential drive pinion, parking lock gear, counter driven gear with U/D planetary ring gear and front tapered roller bearing.

SST 09387-00050



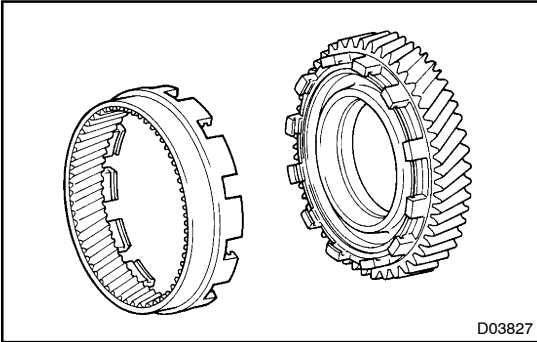
- (b) Clamp the U/D planetary gear in soft jaw vise.
(c) Using SST, remove the rear tapered roller bearing from the U/D planetary gear.

SST 09950-00020, 09950-00030, 09950-60010
(09951-00340)

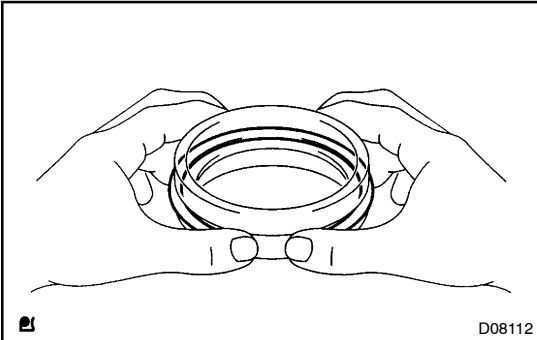


5. REMOVE UNDERDRIVE PLANETARY RING GEAR

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

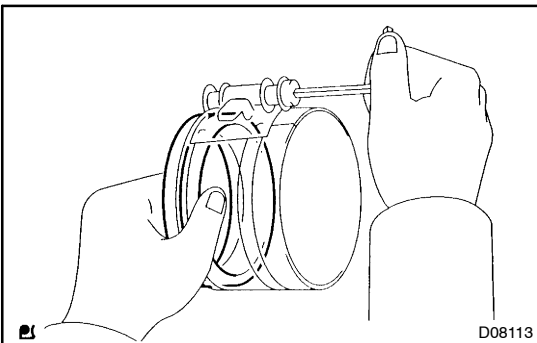


- (b) Remove the U/D planetary ring gear from the counter driven gear.

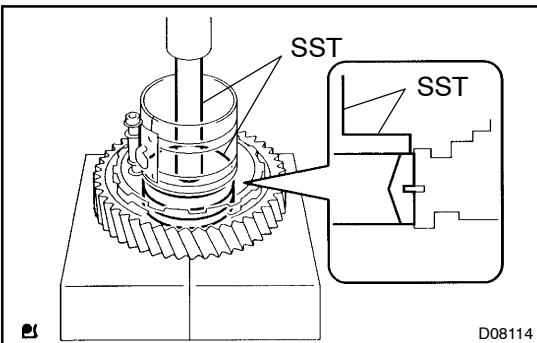


6. INSTALL UNDERDRIVE PLANETARY RING GEAR

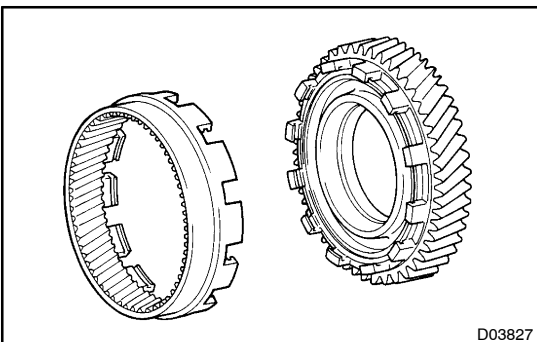
- (a) Install a new snap ring to the outer race of the tapered roller bearing.



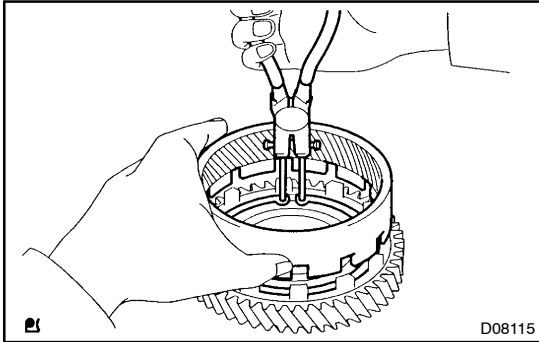
- (b) Using a piston ring compressor, squeeze the snap ring.



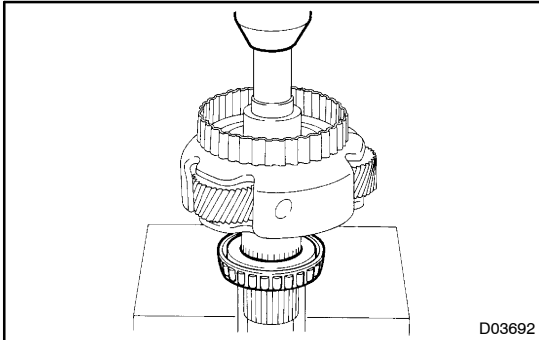
- (c) Using SST a press, press in the outer race of the tapered roller bearing.
SST 09950-60020 (09951-00890), 09950-70010 (09951-07100)



- (d) Install the U/D planetary ring gear to the counter driven gear.



- (e) Using snap ring pliers, install the snap ring.

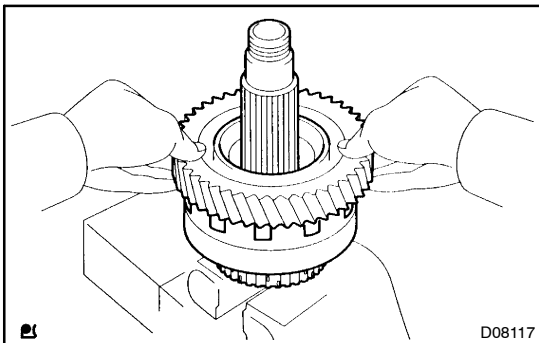


7. INSTALL UNDERDRIVE PLANETARY GEAR ASSY

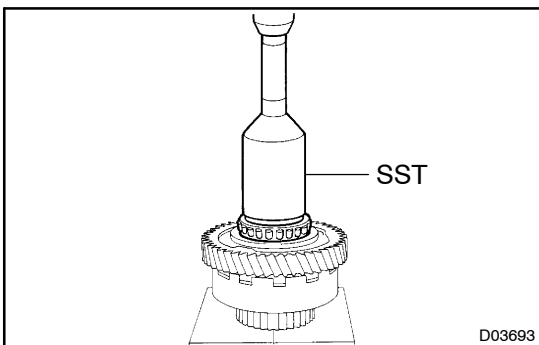
- (a) Using a press, press in the rear tapered roller bearing to the U/D planetary gear.

NOTICE:

Press in the bearing until it becomes flat at the bottom.



- (b) Install the counter driven gear with planetary ring gear to the U/D planetary gear.

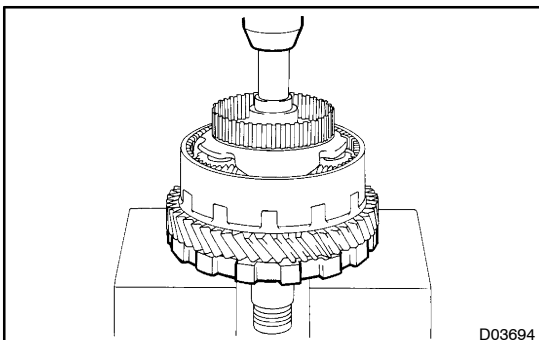


- (c) Using a SST and a press, press in the front tapered roller bearing.

SST 09214-76011

NOTICE:

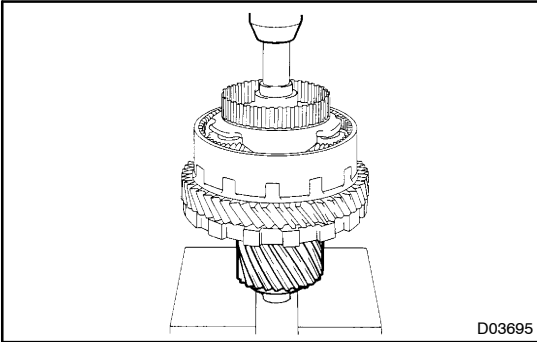
Press in the counter driven gear while rotating it.



- (d) Using a press, press in the parking lock gear.

NOTICE:

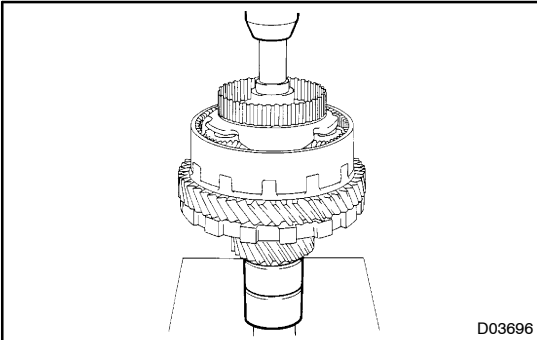
Press in the counter driven gear while rotating it.



- (e) Using a press, press in the differential drive pinion.

NOTICE:

Press in the counter driven gear while rotating it.

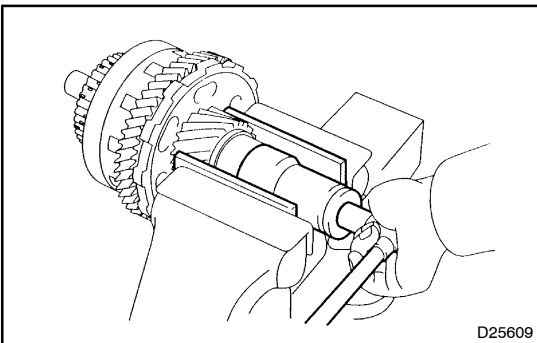


8. INSTALL CYLINDRICAL ROLLER BEARING RACE INNER

- (a) Using a press, press in the cylindrical roller bearing race inner.

NOTICE:

Press in the counter driven gear while rotating it.



9. INSTALL UNDERDRIVE INPUT SHAFT NUT

- (a) Clamp the U/D planetary gear in soft jaw vise.

NOTICE:

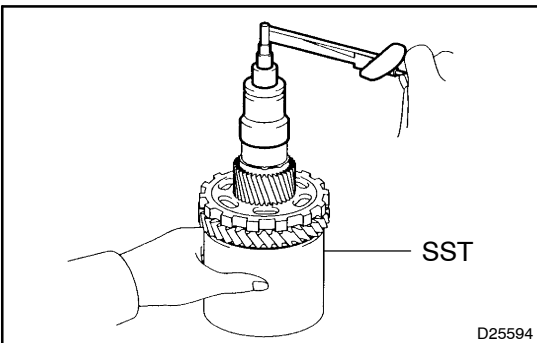
Be careful not to damage the differential drive pinion.

- (b) Using a socket wrench, install a new lock nut.

Torque: 280 N·m (2,855 kgf·cm, 207 in·lbf)

HINT:

Use a torque wrench with a fulcrum length of 750 mm (29.53 in.).



10. INSPECT UNDERDRIVE PLANETARY GEAR PRELOAD

- (a) Using SST and a torque wrench, measure the turning torque of U/D planetary gear assy while rotating the torque wrench at 60 rpm.

SST 09387-00050

Turning torque at 60 rpm.:

0.10 – 4.41 N·m (1.0 – 45 kgf·cm, 0.9 – 39 in·lbf)

HINT:

Use a torque wrench with a fulcrum length of 160 mm (6.30 in.).

- (b) Using a pin punch and a hammer, stake the lock nut.

NOTICE:

Make sure that there are no cracks on the nut.

