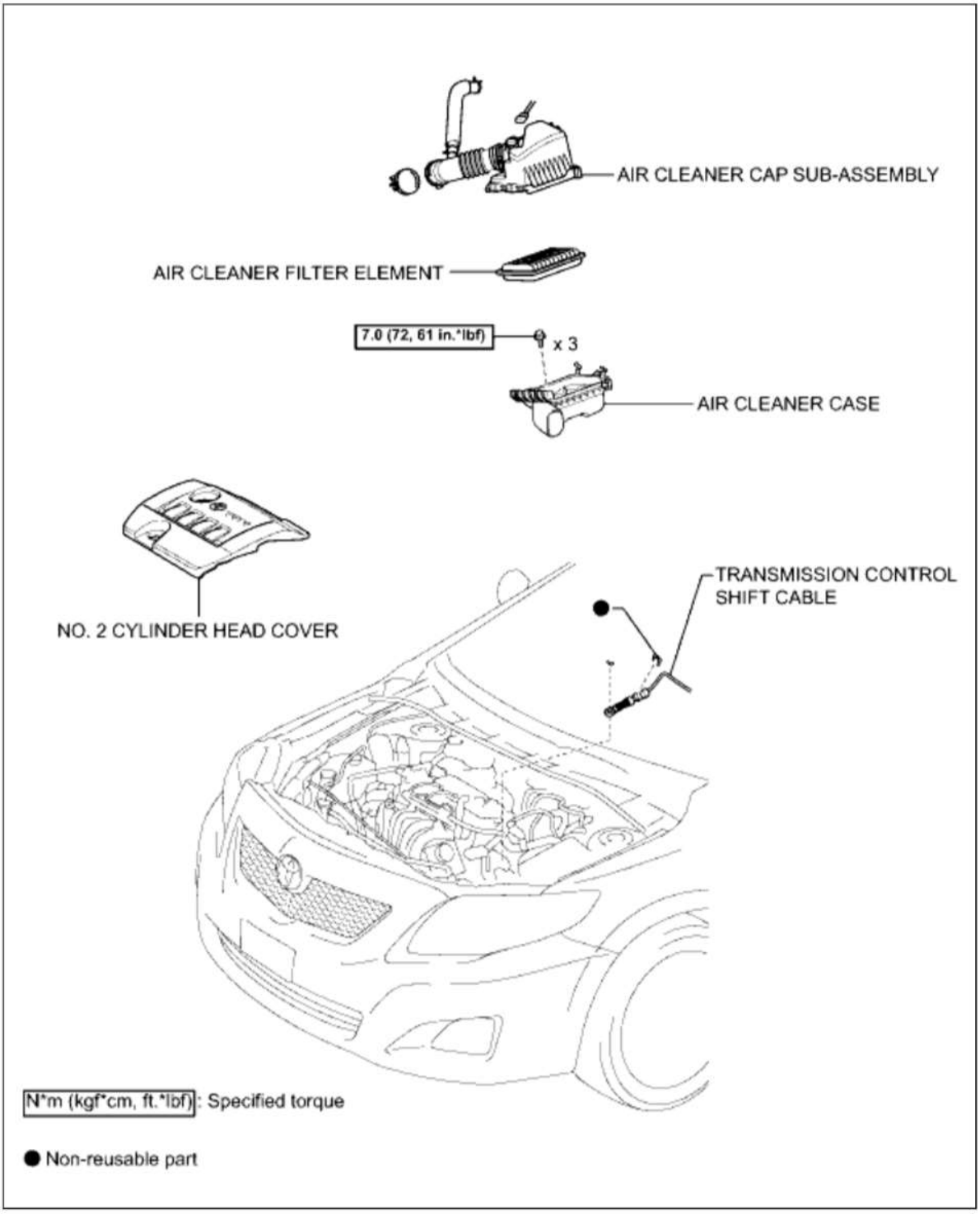
Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032KE016X
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: COMPONENTS (2010 Corolla)		

COMPONENTS

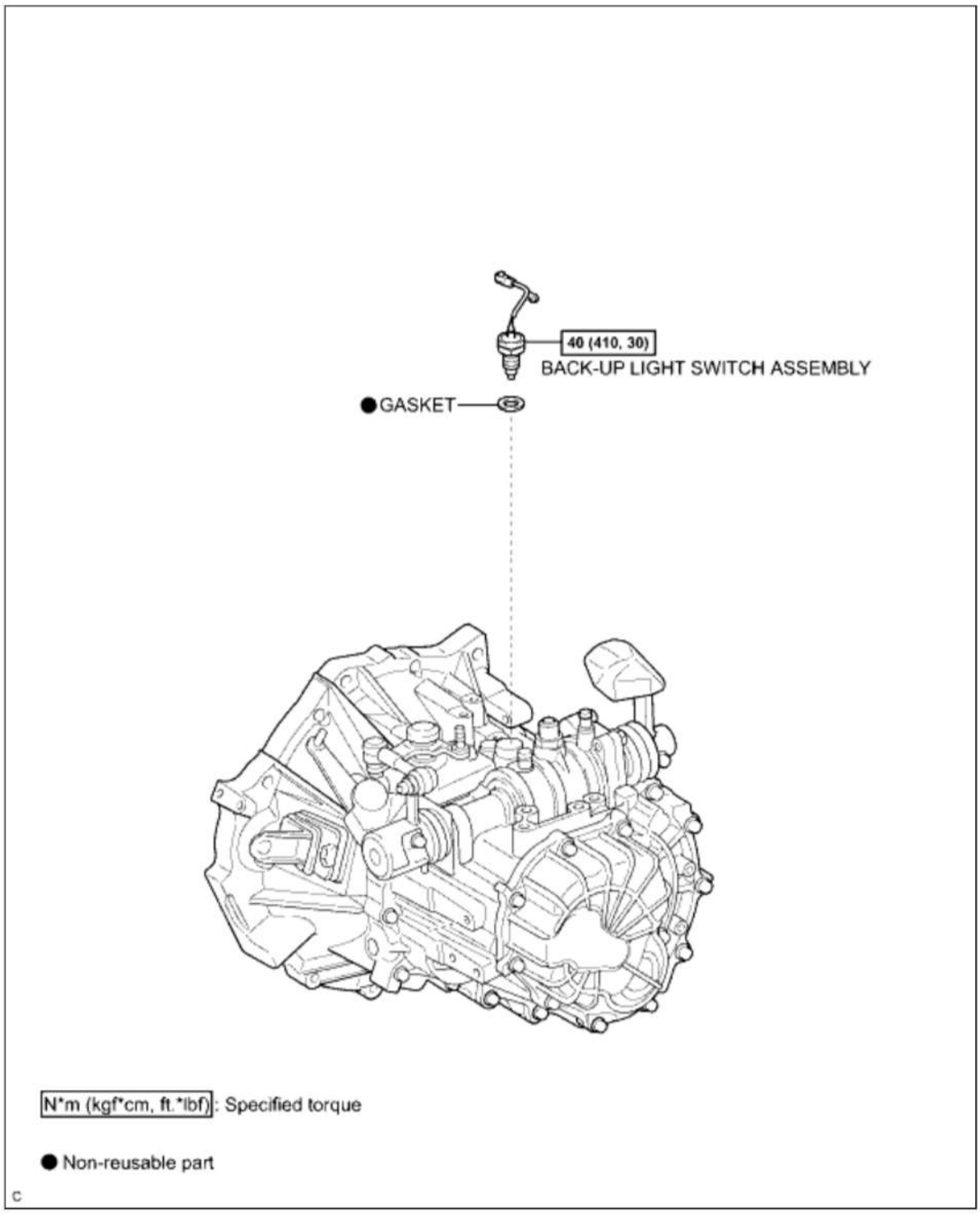
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001YVL01PX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: REMOVAL (2010 Corolla)		

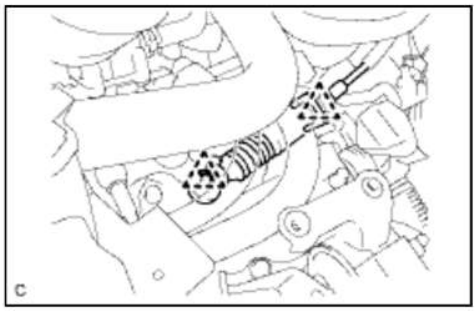
REMOVAL

1. REMOVE NO. 2 CYLINDER HEAD COVER INFO

2. REMOVE AIR CLEANER CAP SUB-ASSEMBLY INFO

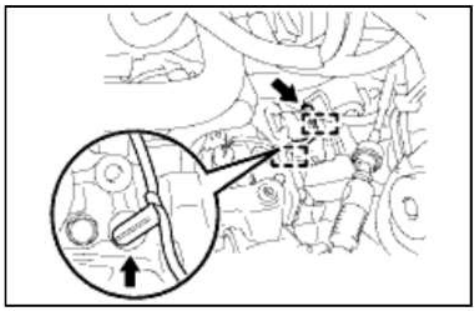
3. REMOVE AIR CLEANER CASE INFO

4. DISCONNECT TRANSMISSION CONTROL SHIFT CABLE



(a) Remove the 2 clips, and disconnect the transmission control shift cable.

5. REMOVE BACK-UP LIGHT SWITCH ASSEMBLY

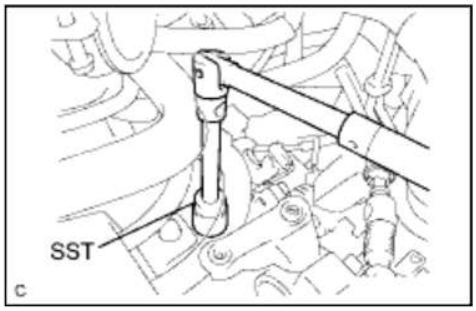


(a) Disconnect the back-up light switch connector and 2 clamps.

(b) Using SST, remove the back-up light switch and gasket from the transaxle case.

SST: 09817-16011

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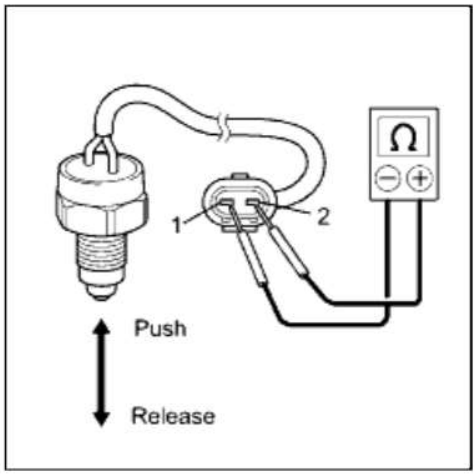


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000017MP01OX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT BACK-UP LIGHT SWITCH ASSEMBLY



(a) Measure the resistance of the switch.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Released	10 kΩ or higher

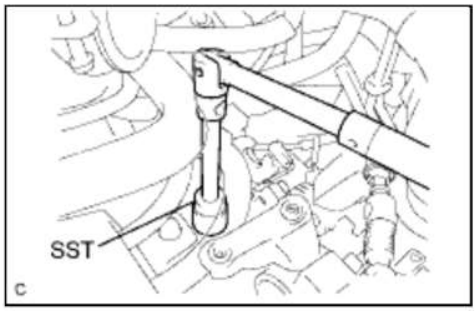
If the result is not as specified, replace the back-up light switch assembly.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001YVJ01PX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: INSTALLATION (2010 Corolla)		

INSTALLATION

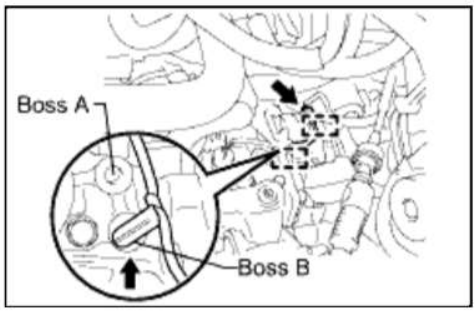
1. INSTALL BACK-UP LIGHT SWITCH ASSEMBLY



(a) Using SST, install the back-up light switch and a new gasket to the transaxle case.

SST: 09817-16011

Torque: 40 N·m (410 kgf·cm, 30ft·lbf)



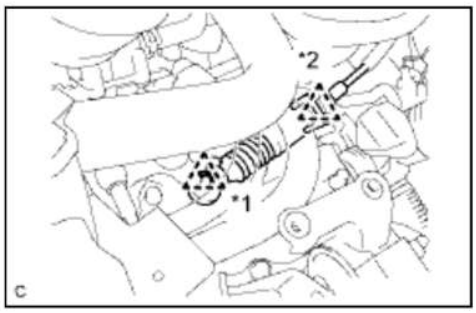
(b) Install the 2 clamps.

NOTICE:

Be sure to use boss B.

(c) Connect the back-up light switch connector.

2. CONNECT TRANSMISSION CONTROL SHIFT CABLE



(a) Connect the transmission control shift cable with the clip*1.

(b) Connect the transmission control shift cable with a new clip*2.

3. INSTALL AIR CLEANER CASE INFO

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4. INSTALL AIR CLEANER CAP SUB-ASSEMBLY INFO

5. INSTALL NO. 2 CYLINDER HEAD COVER INFO



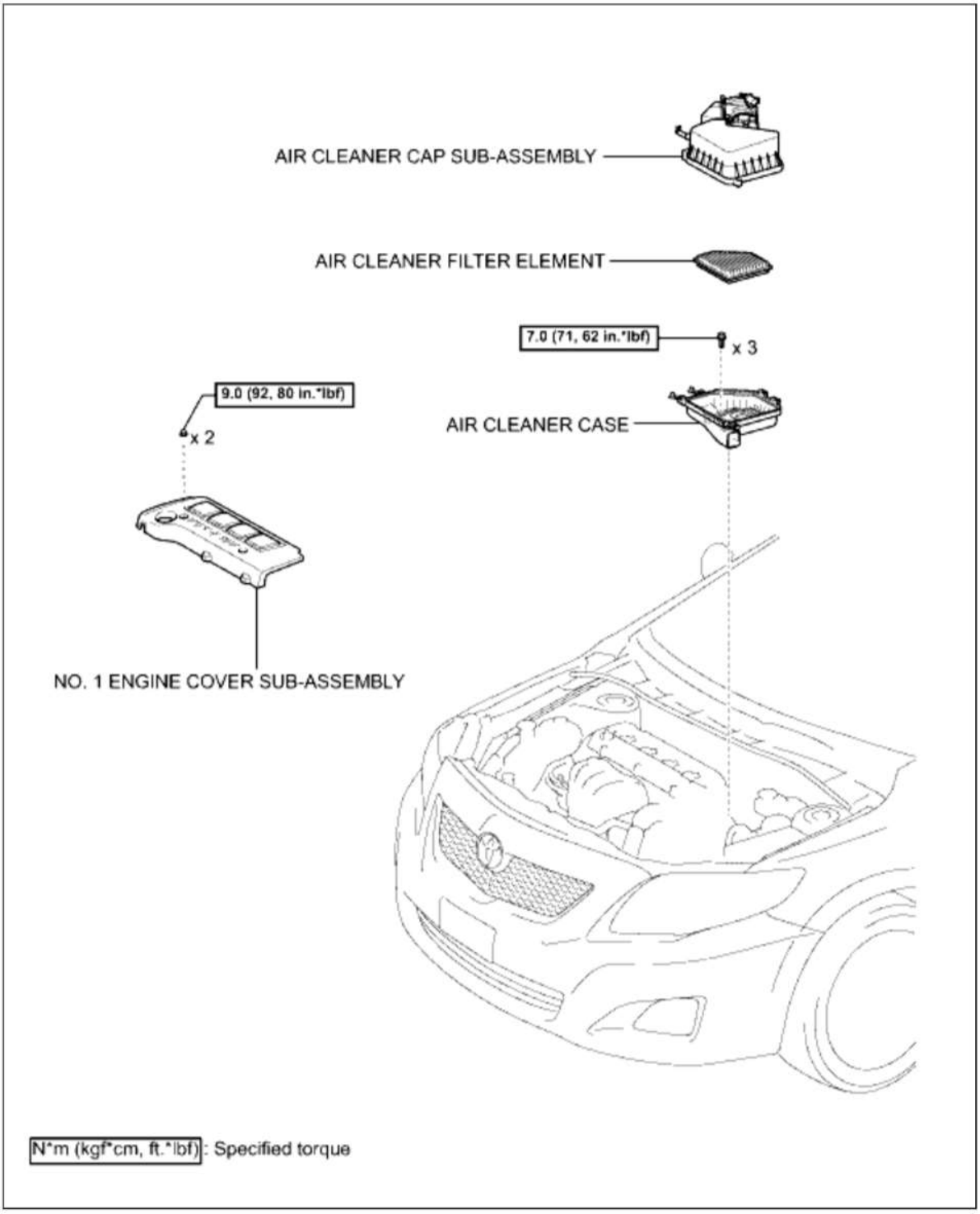
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000032KE017X
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: COMPONENTS (2010 Corolla)		

COMPONENTS

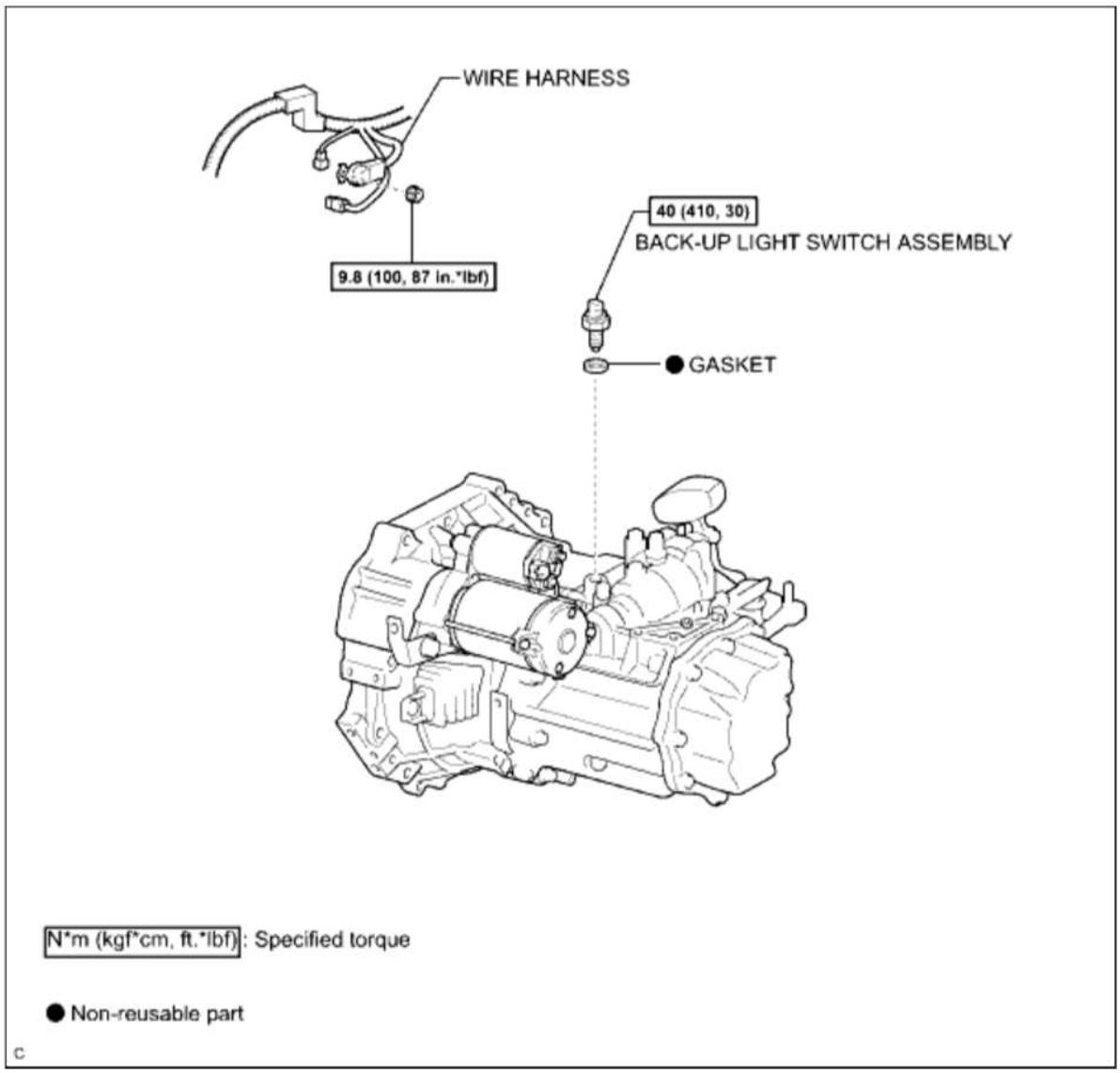
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001YVL01QX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: REMOVAL (2010 Corolla)		

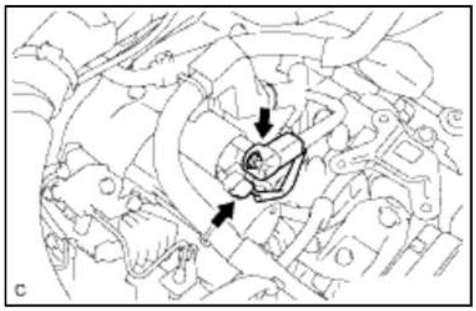
REMOVAL

1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY INFO

2. REMOVE AIR CLEANER CAP SUB-ASSEMBLY INFO

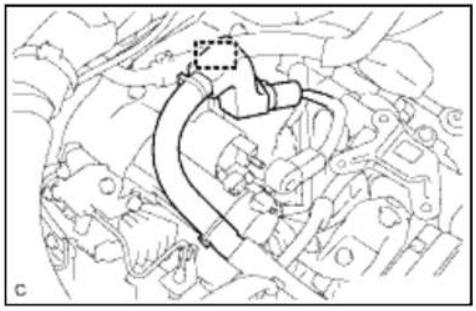
3. REMOVE AIR CLEANER CASE INFO

4. DISCONNECT WIRE HARNESS



(a) Disconnect the terminal 50 connector from the starter assembly.

(b) Remove the nut and disconnect the wire harness from terminal 30.

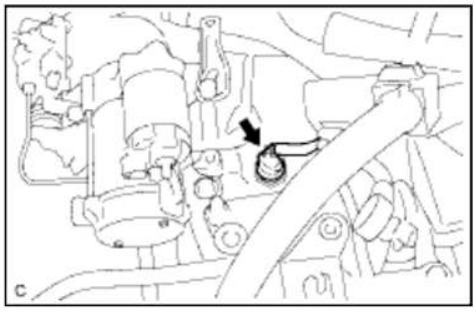


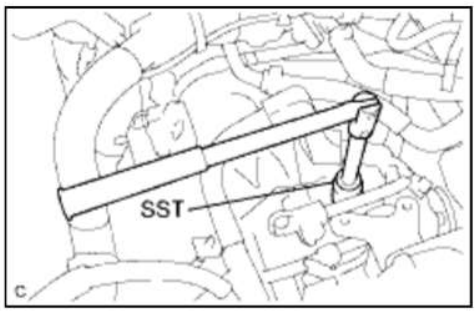
(c) Disconnect the wire harness clamp.

5. REMOVE BACK-UP LIGHT SWITCH ASSEMBLY

(a) Disconnect the back-up light switch connector.

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(b) Using SST, remove the back-up light switch and gasket from the transaxle case.

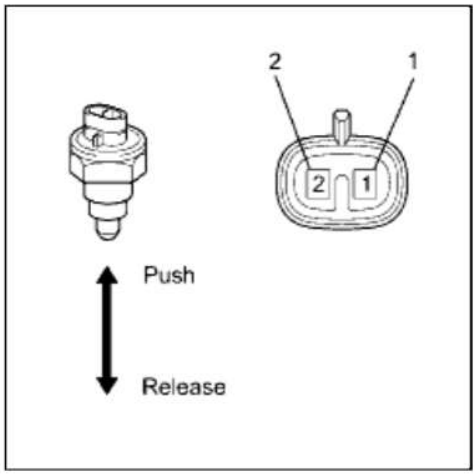
SST: 09817-16011

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM0000017MP01PX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT BACK-UP LIGHT SWITCH ASSEMBLY



(a) Measure the resistance of the switch.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Released	10 kΩ or higher

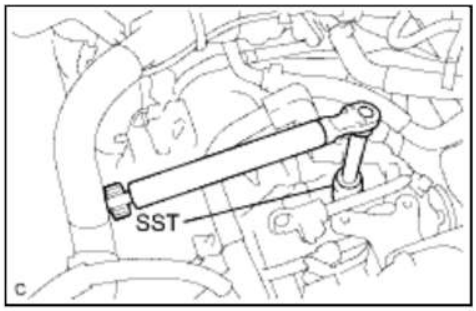
If the result is not as specified, replace the switch assembly.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001YVJ01QX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: BACK-UP LIGHT SWITCH: INSTALLATION (2010 Corolla)		

INSTALLATION

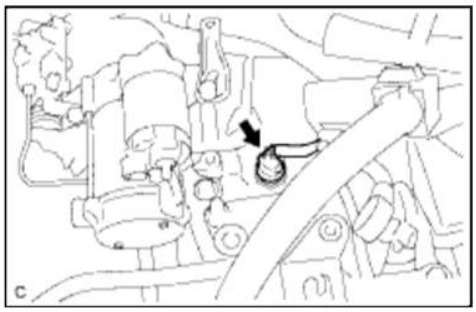
1. INSTALL BACK-UP LIGHT SWITCH ASSEMBLY



(a) Using SST, install the back-up light switch and a new gasket to the transaxle case.

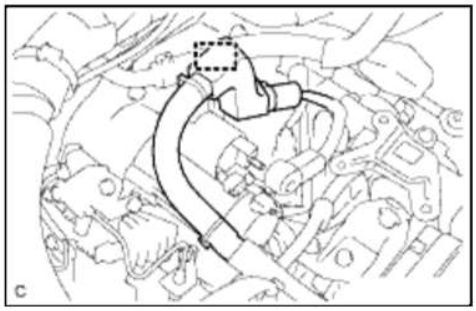
SST: 09817-16011

Torque: 40 N·m (410 kgf·cm, 30ft·lbf)



(b) Connect the back-up light switch connector.

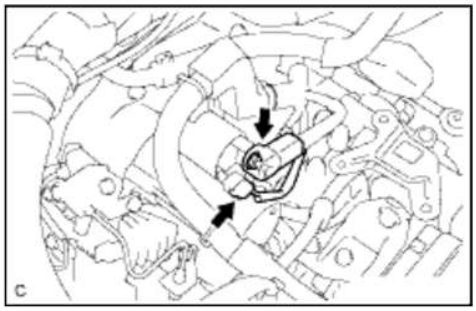
2. CONNECT WIRE HARNESS



(a) Connect the wire harness to the wire harness clamp.

(b) Connect the terminal 50 connector to the starter assembly.

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(c) Connect the wire harness to terminal 30 and install the nut. Then, attach the terminal cap.

Torque: 9.8 N·m (100 kgf·cm, 87in·lbf)

3. INSTALL AIR CLEANER CASE INFO

4. INSTALL AIR CLEANER CAP SUB-ASSEMBLY INFO

5. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY INFO

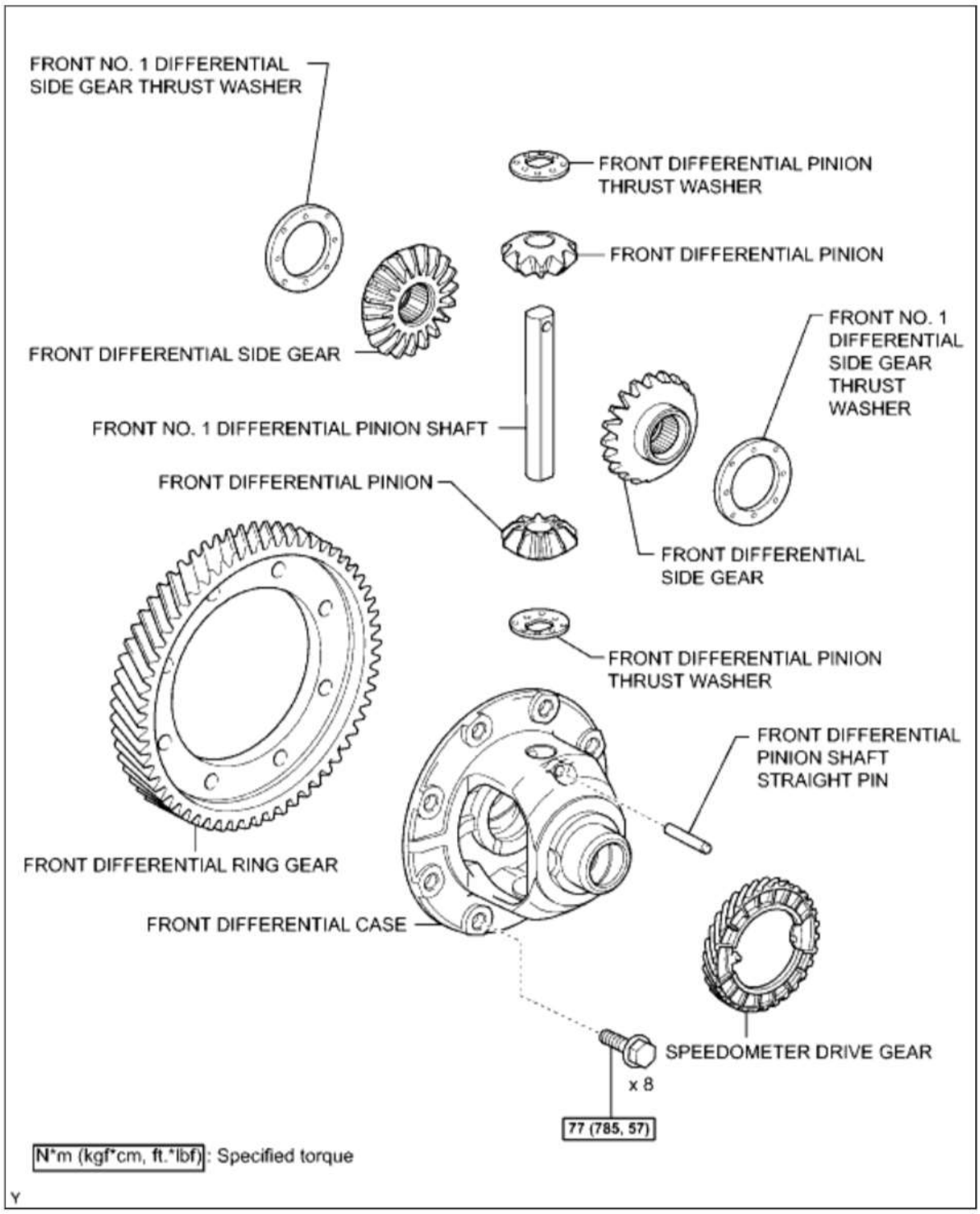
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3H01XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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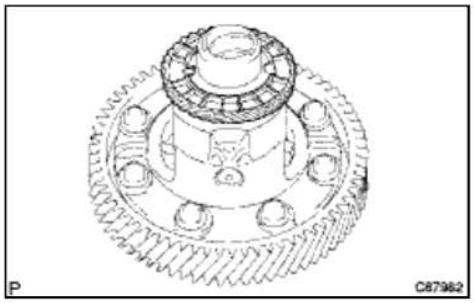


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1001XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: DISASSEMBLY (2010 Corolla)		

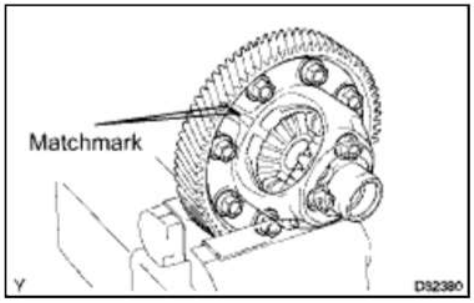
DISASSEMBLY

1. REMOVE SPEEDOMETER DRIVE GEAR



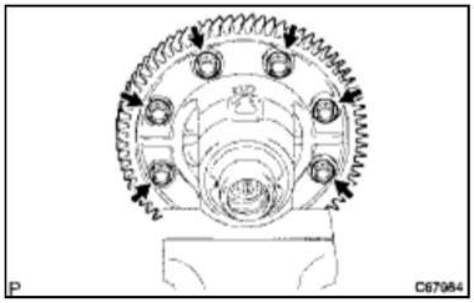
(a) Remove the speedometer drive gear from the front differential case.

2. REMOVE FRONT DIFFERENTIAL RING GEAR



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

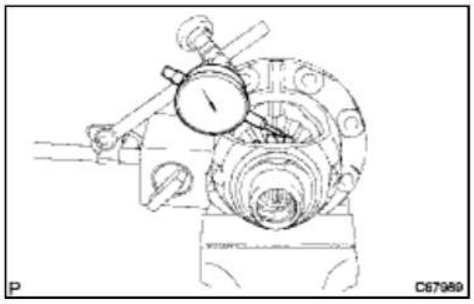
(b) Remove the 8 bolts.



(c) Using a plastic hammer, remove the front differential ring gear from the front differential case.

3. INSPECT FRONT DIFFERENTIAL SIDE GEAR BACKLASH

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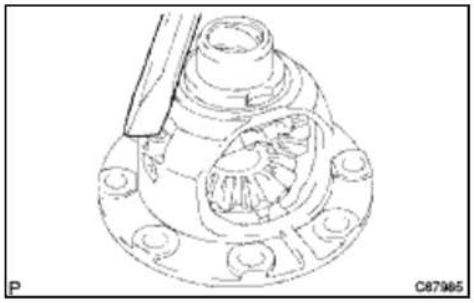


(a) Secure the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

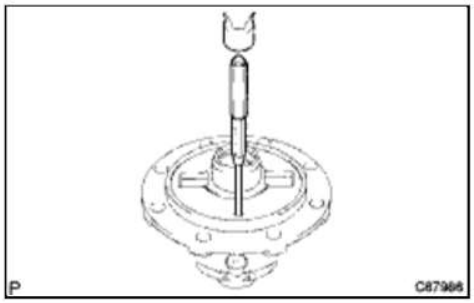
Standard backlash:
0.05 to 0.20 mm (0.00197 to 0.00787 in.)

If the backlash is out of specification, adjust it using new side gear thrust washers INFO .

4. REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN

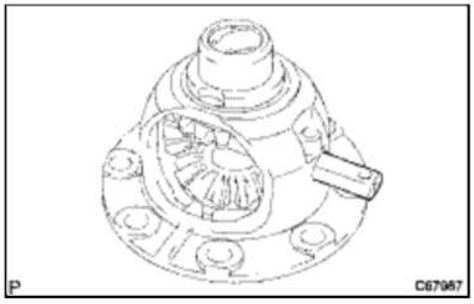


(a) Using a chisel and a hammer, loosen the staked part of the front differential case.



(b) Using a pin punch (φ3 mm) and a hammer, remove the front differential pinion shaft straight pin from the front differential case.

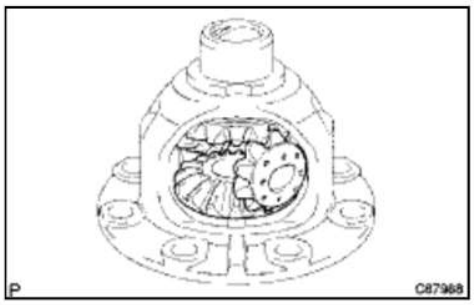
5. REMOVE FRONT NO. 1 DIFFERENTIAL PINION SHAFT



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

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6. REMOVE FRONT DIFFERENTIAL SIDE GEAR



(a) Remove the 2 front differential pinions, 2 front differential pinion thrust washers, 2 No. 1 front differential side gear thrust washers, and 2 front differential side gears from the front differential case.

HINT:

While rotating the front differential pinion, remove the 2 pinions and 2 side gears.

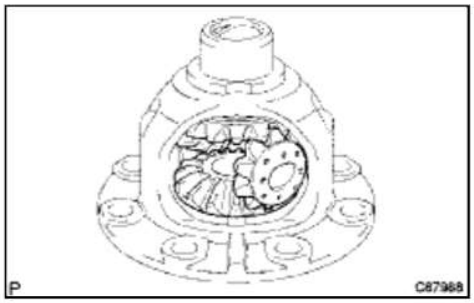
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1101XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL FRONT DIFFERENTIAL SIDE GEAR



(a) Coat the contact surfaces of the front differential side gears with gear oil.

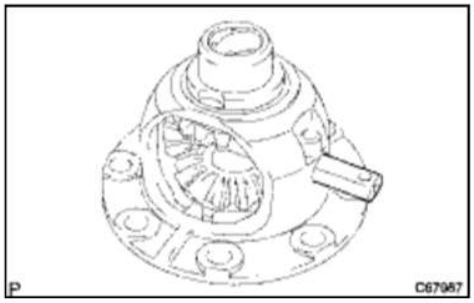
(b) Install the 2 front No. 1 differential side gear thrust washers onto the 2 front differential side gears.

(c) Install the 2 front differential side gears, 2 front differential pinions, and 2 front differential pinion thrust washers onto the front differential case.

HINT:

While rotating the front differential side gears, install the 2 front differential pinions and 2 front differential pinion thrust washers.

2. INSTALL FRONT NO. 1 DIFFERENTIAL PINION SHAFT



(a) Coat the front No. 1 differential pinion shaft with MP grease.

(b) Install the front No. 1 differential pinion shaft onto the front differential case so that the hole for the front differential pinion shaft straight pin is aligned with the hole in the front differential case.

3. ADJUST FRONT DIFFERENTIAL SIDE GEAR BACKLASH

(a) Install the front differential pinion to the front differential

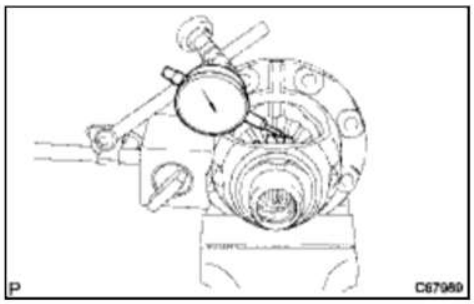
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case side. Using a dial indicator, measure the front differential side gear backlash.

Standard backlash:
0.05 to 0.20 mm (0.00197 to 0.00787 in.)

If the backlash is out of specification, replace the side gear thrust washers.

Thrust Washer Thickness:

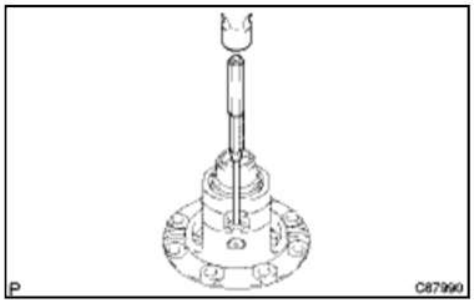


PARTS NO.	THICKNESS MM (IN.)
41361-22140	0.95 (0.0374)
41361-22020	1.00 (0.0394)
41361-22150	1.05 (0.0413)
41361-22030	1.10 (0.0433)
41361-22160	1.15 (0.0452)
41361-22040	1.20 (0.0472)

HINT:

- Measure the thickness with a micrometer to select a proper thrust washer because the thrust washers do not have any distinguishing marks.
- Select washers of the same thickness for both the right and left sides.

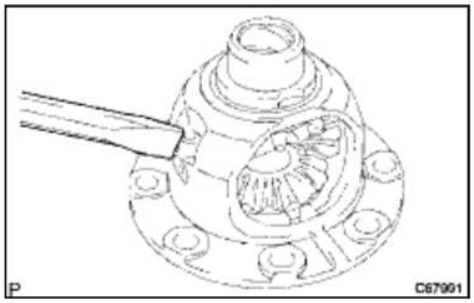
4. INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN



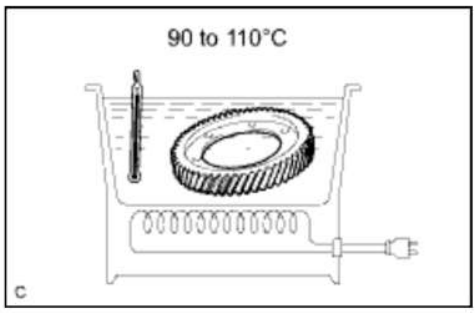
(a) Using a pin punch (φ3 mm) and a hammer, install the front differential pinion shaft straight pin onto the front differential case.

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

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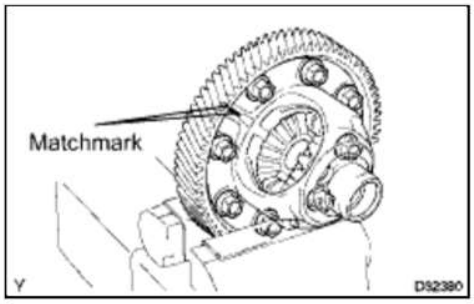


5. INSTALL FRONT DIFFERENTIAL RING GEAR



(a) Clean the contact surfaces of the front differential case and ring gear.

(b) Using a heater, heat the front differential ring gear to 90 to 110°C (194 to 230°F).



(c) After moisture on the ring gear has completely evaporated, align the matchmarks quickly install the front differential case with quickly install the front differential ring gear

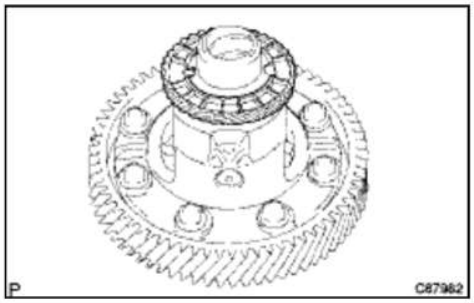
(d) Install the 8 bolts.

Torque: 77 N·m (785 kgf·cm, 57ft·lbf)

6. INSTALL SPEEDOMETER DRIVE GEAR

(a) Install the speedometer drive gear onto the front differential case.

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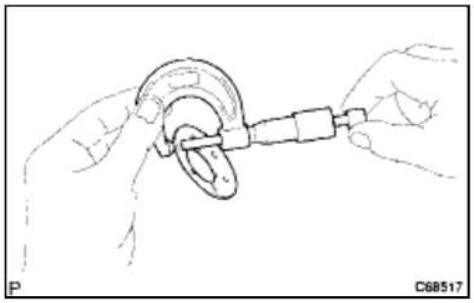


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0Z01XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT FRONT DIFFERENTIAL PINION THRUST WASHER

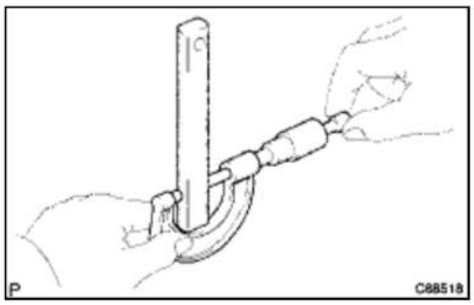


(a) Using a micrometer, measure the thickness of the front differential pinion thrust washer.

Minimum thickness:
0.92 mm (0.0362 in.)

If the thickness is less than the minimum, replace the front differential pinion thrust washer.

2. INSPECT FRONT NO. 1 DIFFERENTIAL PINION SHAFT



(a) Using a micrometer, measure the outer diameter of the front No. 1 differential pinion shaft.

Minimum outer diameter:
16.982 mm (0.6685 in.)

If the outer diameter is less than the minimum, replace the front No. 1 differential pinion shaft.

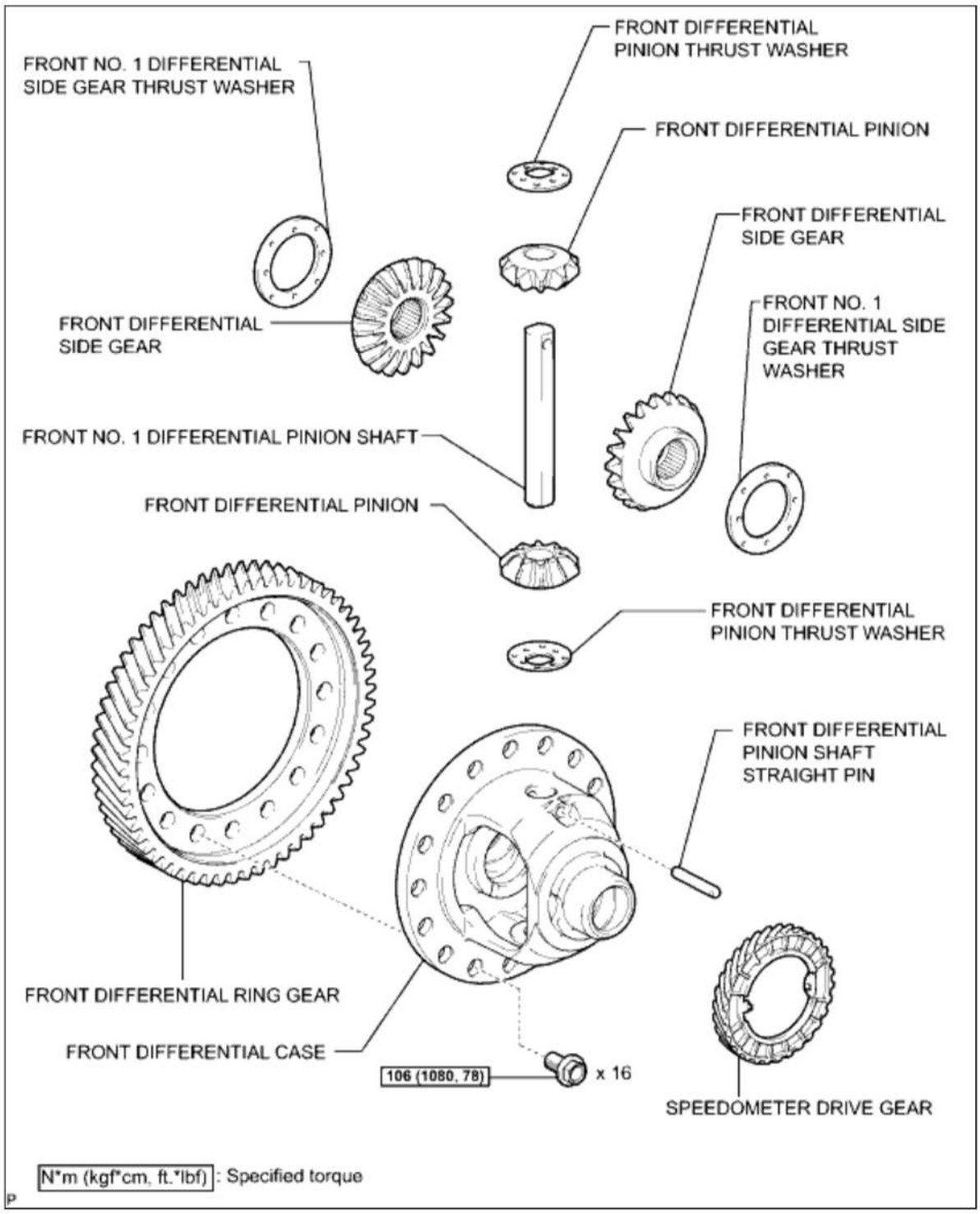
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2600QX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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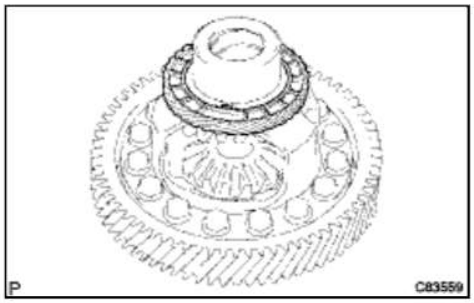


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2700EX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: DISASSEMBLY (2010 Corolla)		

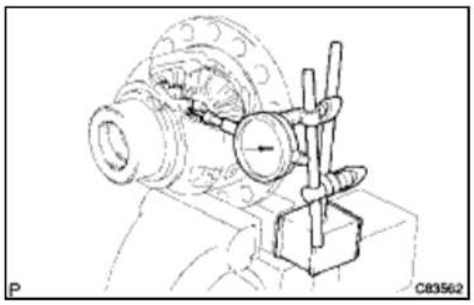
DISASSEMBLY

1. REMOVE SPEEDOMETER DRIVE GEAR



(a) Remove the speedometer drive gear from the front differential case assembly.

2. INSPECT FRONT DIFFERENTIAL SIDE GEAR BACKLASH

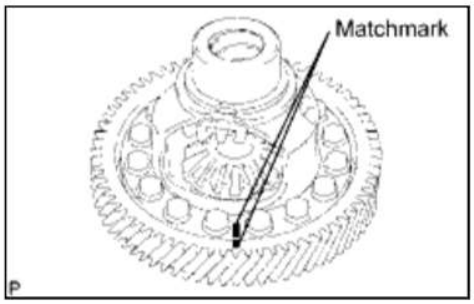


(a) Hold the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

Standard backlash:
0.05 to 0.20 mm (0.00197 to 0.00787 in.)

If the backlash is out of specification, adjust it using new side gear thrust washers INFO .

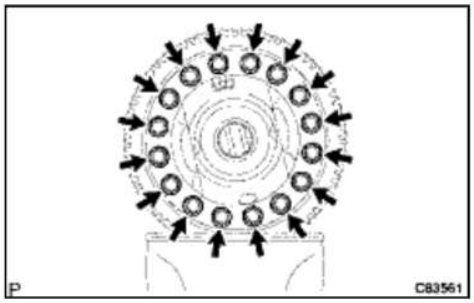
3. REMOVE FRONT DIFFERENTIAL RING GEAR



(a) Put matchmarks on the front differential ring gear and the front differential case.

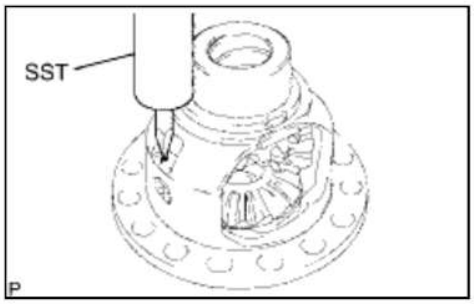
(b) Remove the 16 bolts.

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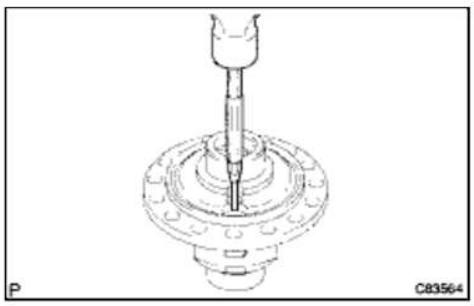
(c) Using a plastic hammer, remove the front differential case.

4. REMOVE FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN



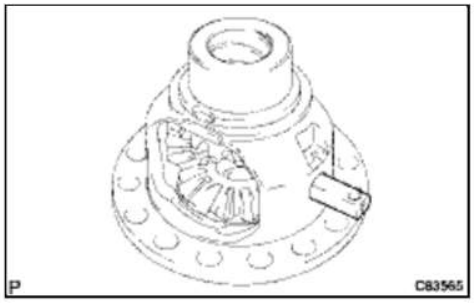
(a) Using SST and a hammer, unstake the staked part of the front differential case.

SST: 09930-00010



(b) Using a pin punch and a hammer, remove the front differential pinion shaft straight pin from the front differential case.

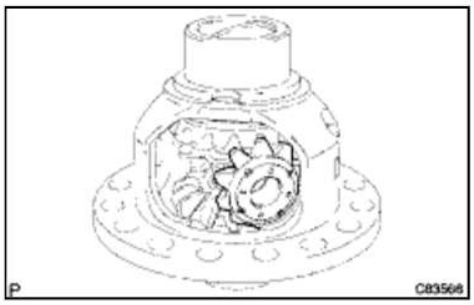
5. REMOVE FRONT NO. 1 DIFFERENTIAL PINION SHAFT



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

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6. REMOVE FRONT DIFFERENTIAL SIDE GEAR



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

HINT:

Remove the 2 pinion thrust washers and side gear thrust washers while turning the front differential pinion.

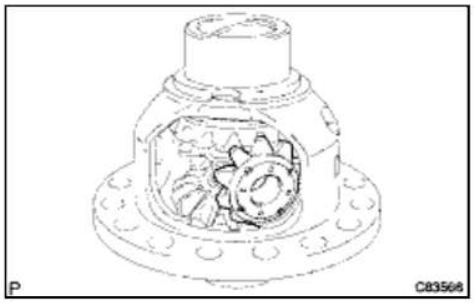
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2800EX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL FRONT DIFFERENTIAL SIDE GEAR



(a) Coat the rotating surface of the front differential side gear with gear oil.

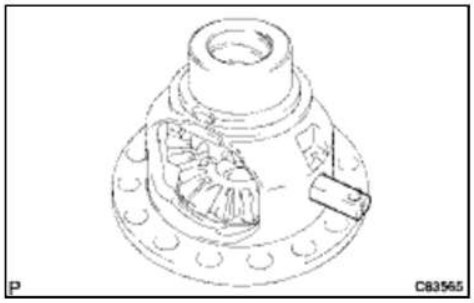
(b) Install the 2 front differential side gear thrust washers to the 2 front differential side gears.

(c) Install the 2 front differential side gears, 2 front differential pinions, and 2 front differential side gear thrust washers to the front differential case.

HINT:

Install the 2 front differential pinions with the front differential washers while turning the front differential pinion.

2. INSTALL FRONT NO. 1 DIFFERENTIAL PINION SHAFT



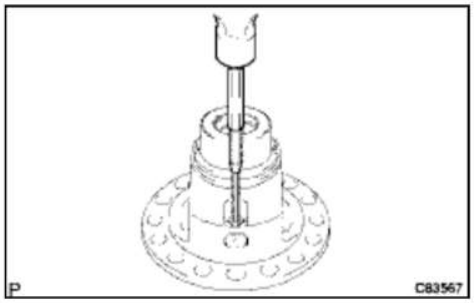
(a) Coat the rotating surface of the front No. 1 differential pinion shaft with gear oil.

(b) Install the front No. 1 differential pinion shaft to the front differential case so that the hole for the front differential pinion shaft straight pin is aligned with the hole in the front differential case.

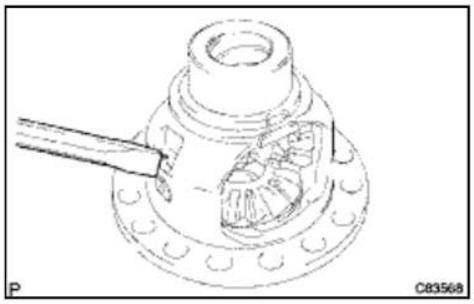
3. INSTALL FRONT DIFFERENTIAL PINION SHAFT STRAIGHT PIN

(a) Using a pin punch and a hammer, install the front differential pinion shaft straight pin to the front differential

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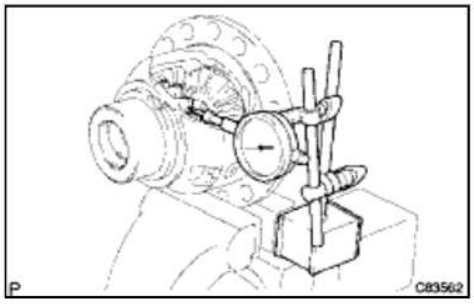


case.



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

4. ADJUST FRONT DIFFERENTIAL SIDE GEAR BACKLASH



(a) Hold the front differential pinion to the front differential case side. Using a dial indicator, measure the front differential side gear backlash.

Standard backlash:
0.05 to 0.20 mm (0.00197 to 0.00787 in.)

(b) If backlash is out of specification, select another front differential side gear thrust washer and adjust backlash.

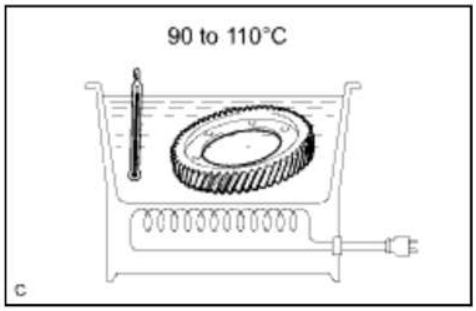
Thrust Washer:

PART NO.	THICKNESS: MM (IN.)	MARK
41361-28230	1.00 (0.0394)	1
41361-28240	1.10 (0.0433)	2
41361-28250	1.20 (0.0472)	3

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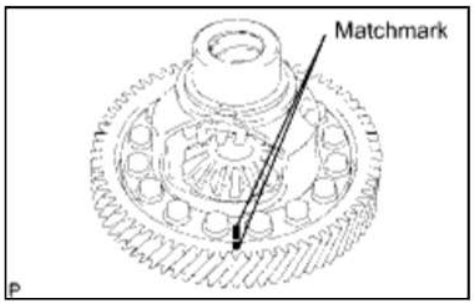
PART NO.	THICKNESS: MM (IN.)	MARK
41361-28260	1.30 (0.0512)	4

5. INSTALL FRONT DIFFERENTIAL RING GEAR



(a) Clean the surface that contacts the differential case.

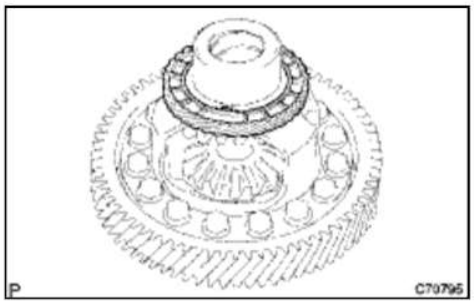
(b) Using a heater, heat the front differential ring gear to 90 to 110°C (194 to 230°F).



(c) After moisture on the ring gear has completely evaporated, align the matchmarks and quickly install the front differential ring gear to the front differential case with the 16 bolts.

Torque: 106 N·m (1081 kgf·cm, 78ft·lbf)

6. INSTALL SPEEDOMETER DRIVE GEAR



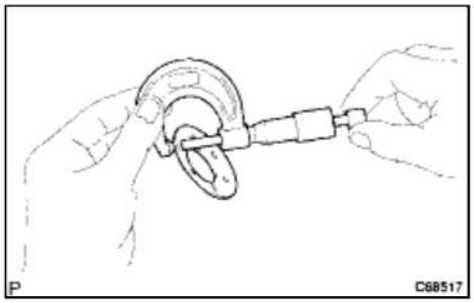
(a) Install the speedometer drive gear to the front differential case.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2500QX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL CASE: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT FRONT DIFFERENTIAL PINION THRUST WASHER

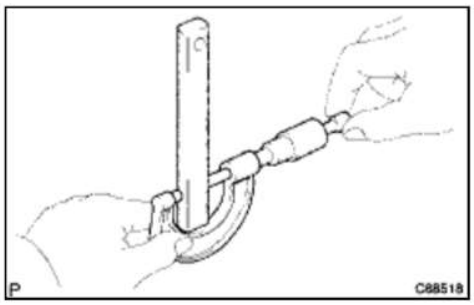


(a) Using a micrometer, measure the thickness of the front differential pinion thrust washer.

Minimum thickness:
0.9 mm (0.0354 in.)

If the thickness is less than the minimum, replace the front differential pinion thrust washer.

2. INSPECT NO. 1 FRONT DIFFERENTIAL PINION SHAFT



(a) Using a micrometer, measure the outside diameter of the No. 1 front differential pinion shaft.

Minimum diameter:
17.975 mm (0.70768 in.)

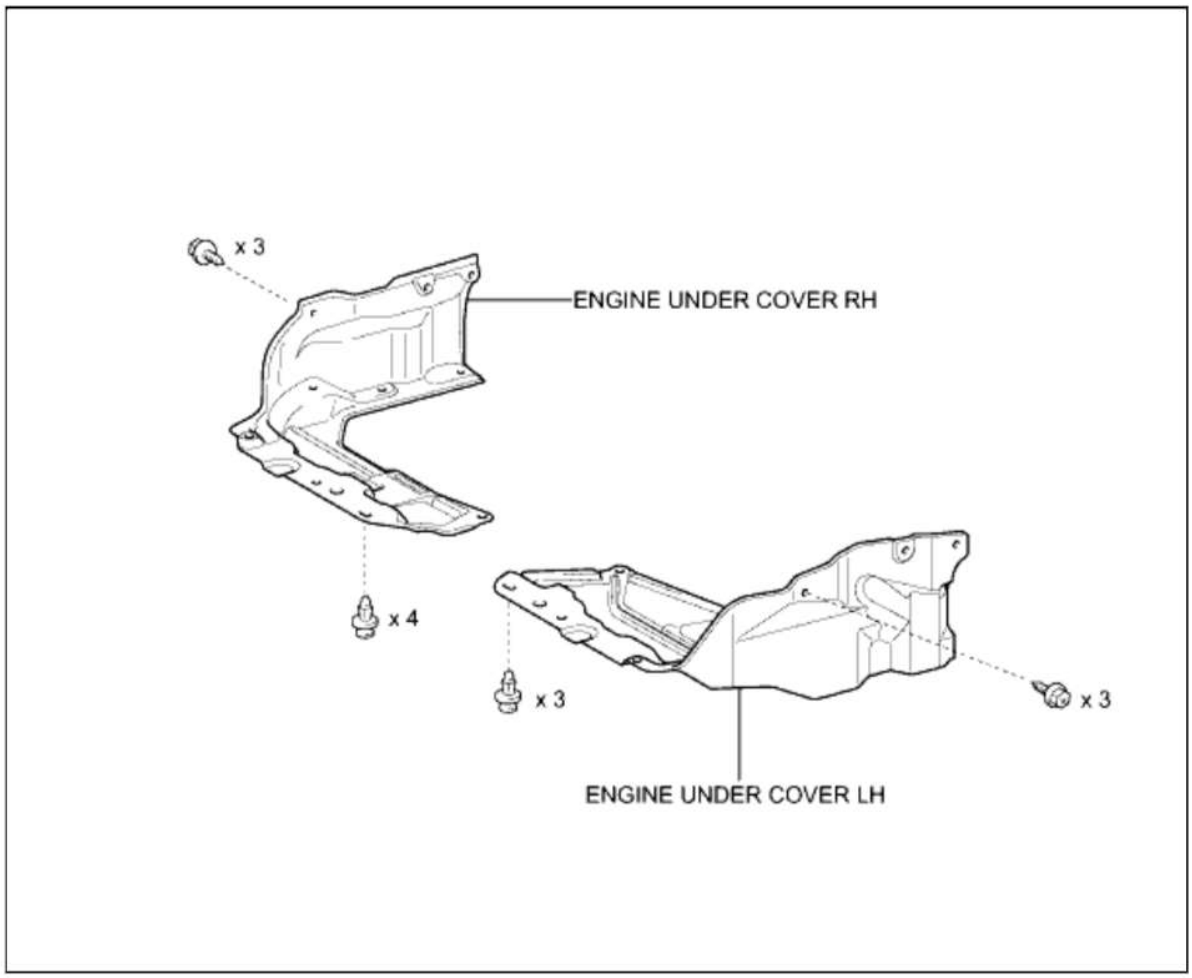
If the outer diameter is less than the minimum, replace the No. 1 front differential pinion shaft.

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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3M01QX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL OIL SEAL: COMPONENTS (2010 Corolla)		

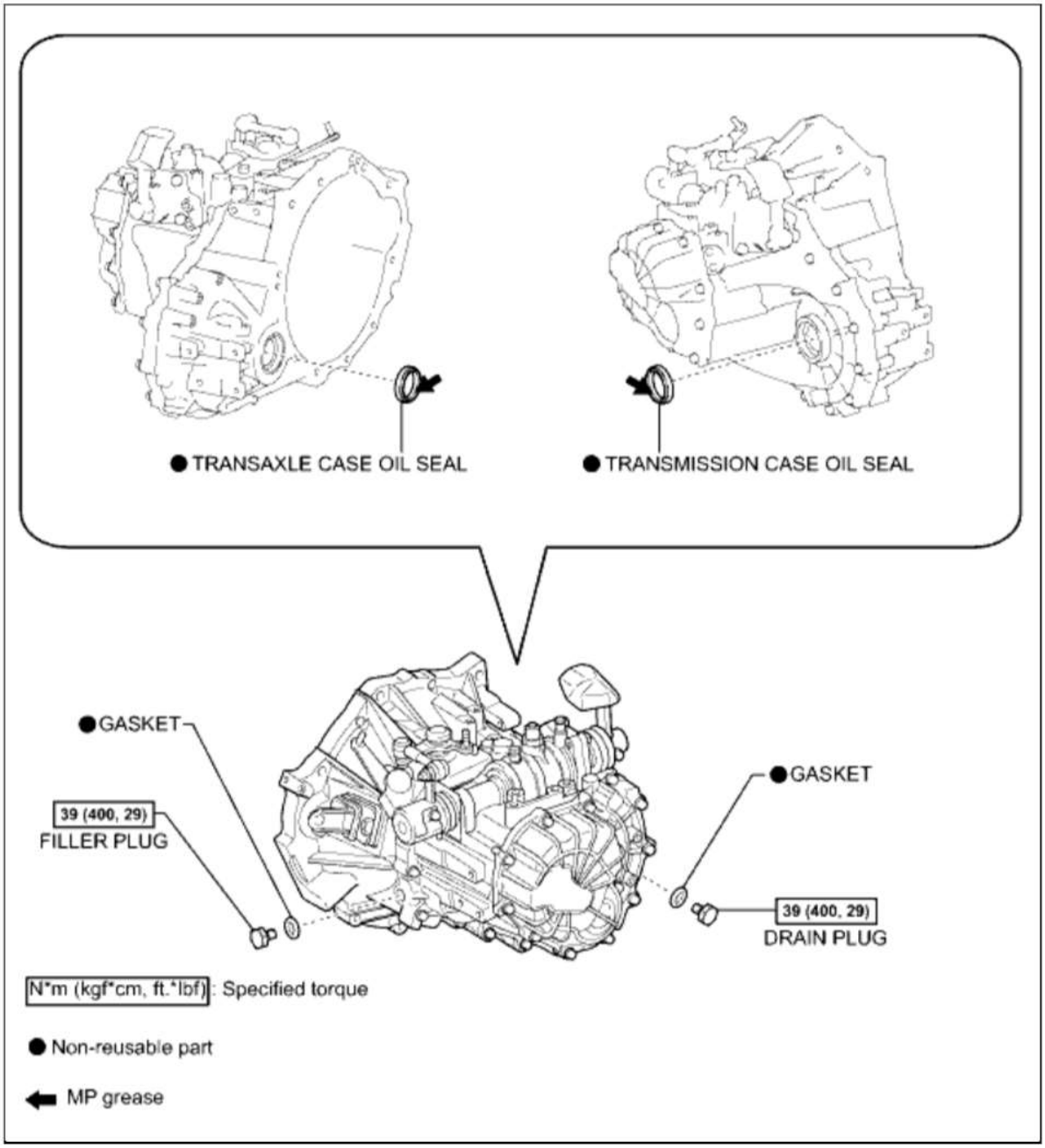
COMPONENTS

ILLUSTRATION



ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001STW02SX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL OIL SEAL: REPLACEMENT (2010 Corolla)		

REPLACEMENT

1. REMOVE ENGINE UNDER COVER LH

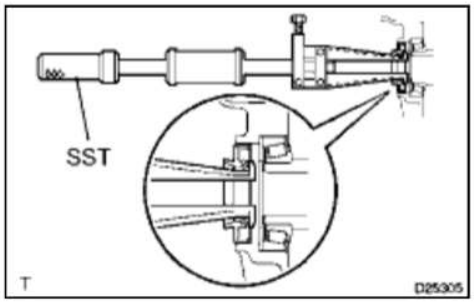
2. REMOVE ENGINE UNDER COVER RH

3. DRAIN MANUAL TRANSAXLE OIL INFO

4. REMOVE FRONT DRIVE SHAFT ASSEMBLY

INFO .

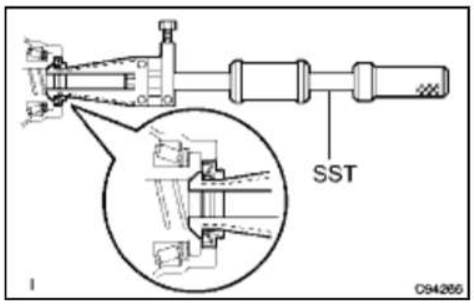
5. REMOVE TRANSMISSION CASE OIL SEAL



(a) Using SST, remove the transmission case oil seal.

SST: 09308-00010

6. REMOVE TRANSAXLE CASE OIL SEAL



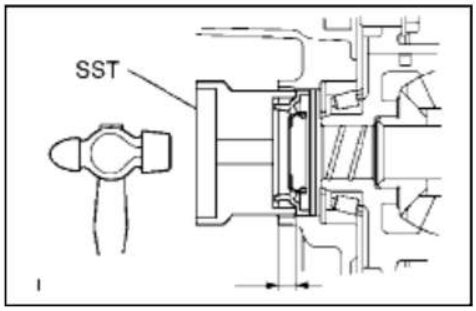
(a) Using SST, remove the transaxle case oil seal.

SST: 09308-00010

7. INSTALL TRANSMISSION CASE OIL SEAL

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

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(b) Using SST and a hammer, tap in the oil seal.

SST: 09710-26011

09710-05061

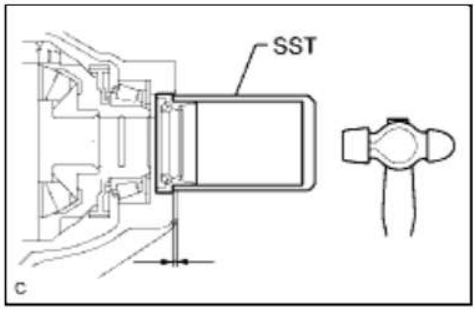
Standard depth:

9.6 to 10.2 mm (0.378 to 0.402 in.)

NOTICE:

Do not damage the oil seal lip.

8. INSTALL TRANSAXLE CASE OIL SEAL



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

(b) Using SST and a hammer, tap in the oil seal.

SST: 09636-20010

Standard depth:

1.6 to 2.2 mm (0.0630 to 0.0866 in.)

NOTICE:

Do not damage the oil seal lip.

9. INSTALL FRONT DRIVE SHAFT ASSEMBLY

INFO .

10. ADD MANUAL TRANSAXLE OIL INFO

11. INSPECT MANUAL TRANSAXLE OIL INFO

12. INSTALL ENGINE UNDER COVER LH

13. INSTALL ENGINE UNDER COVER RH

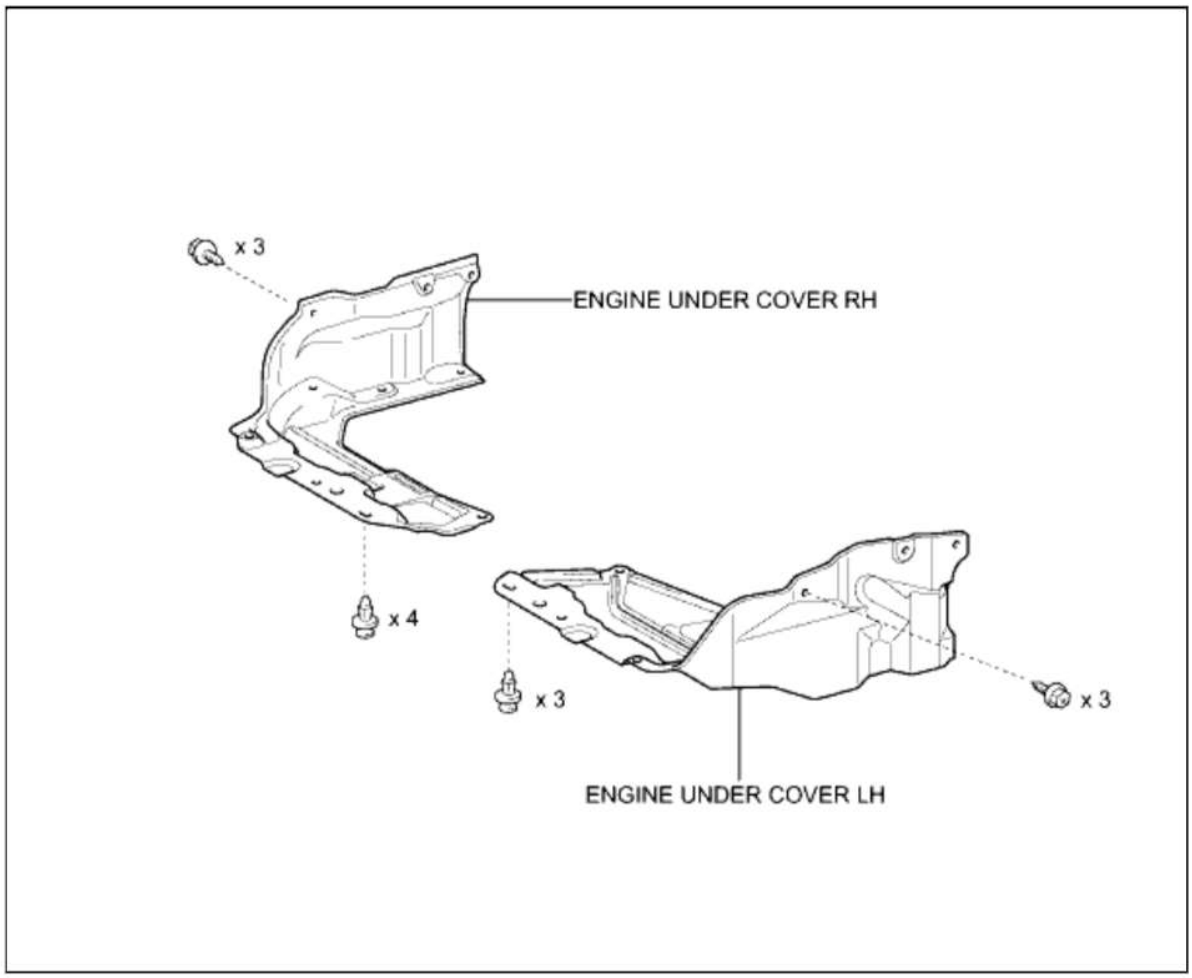
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001COS00EX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL OIL SEAL: COMPONENTS (2010 Corolla)		

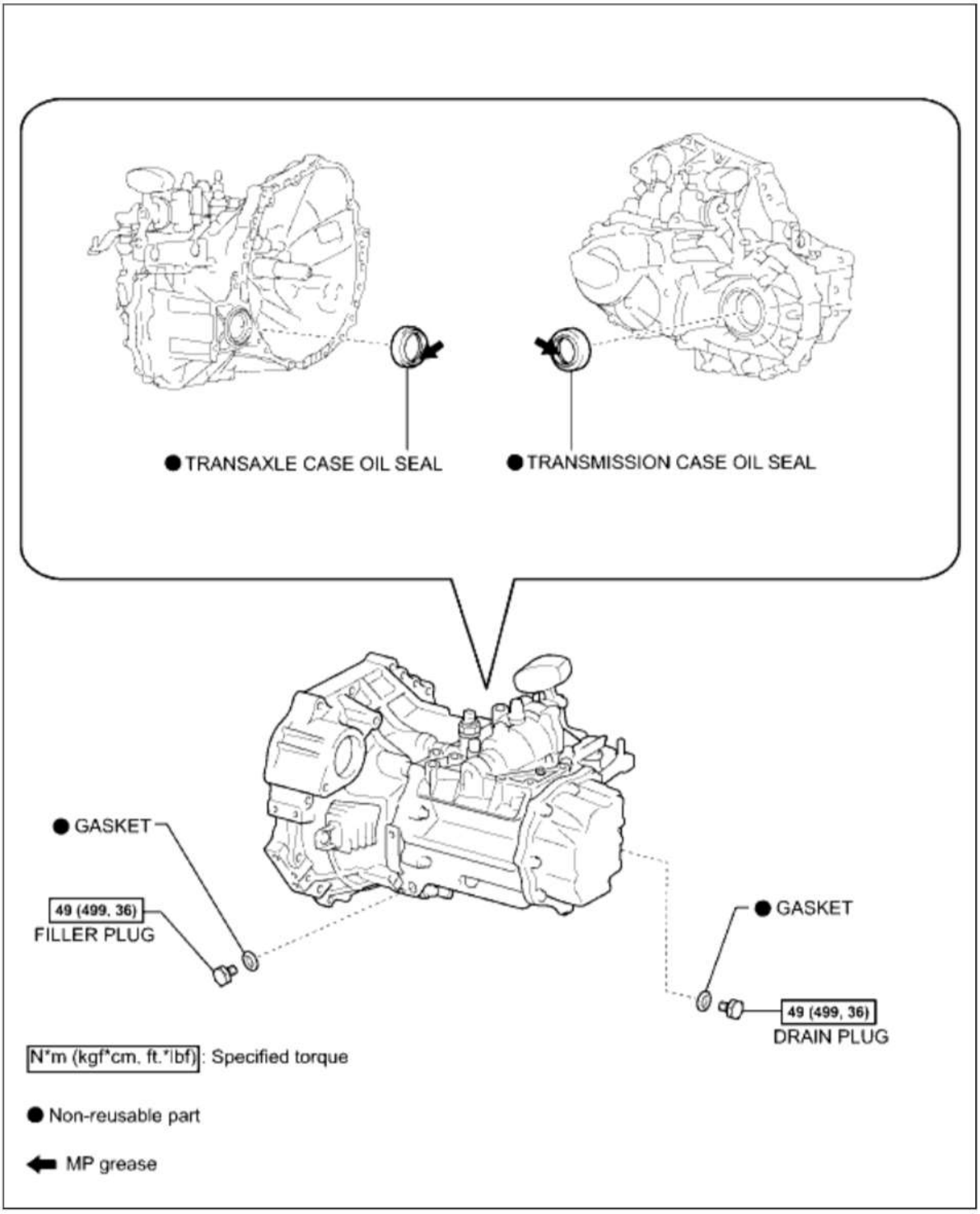
COMPONENTS

ILLUSTRATION



ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000003BHS005X
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: DIFFERENTIAL OIL SEAL: REPLACEMENT (2010 Corolla)		

REPLACEMENT

1. REMOVE ENGINE UNDER COVER LH

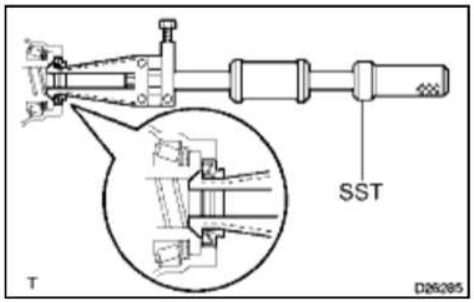
2. REMOVE ENGINE UNDER COVER RH

3. DRAIN MANUAL TRANSAXLE OIL INFO

4. REMOVE FRONT DRIVE SHAFT ASSEMBLY

INFO .

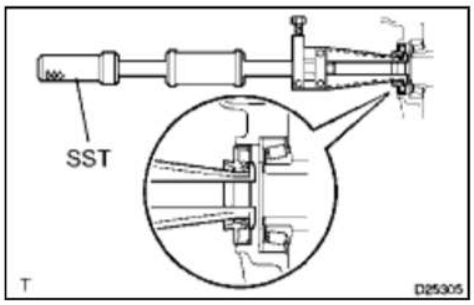
5. REMOVE TRANSAXLE CASE OIL SEAL



(a) Using SST, remove the transaxle case oil seal.

SST: 09308-00010

6. REMOVE TRANSMISSION CASE OIL SEAL



(a) Using SST, remove the transmission case oil seal.

SST: 09308-00010

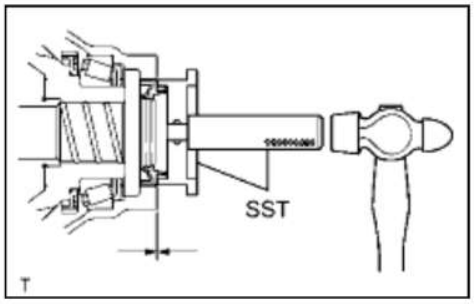
7. INSTALL TRANSAXLE CASE OIL SEAL

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

(b) Using SST and a hammer, tap in the oil seal.

SST: 09608-10010

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SST: 09950-70010

09951-07200

Standard depth:

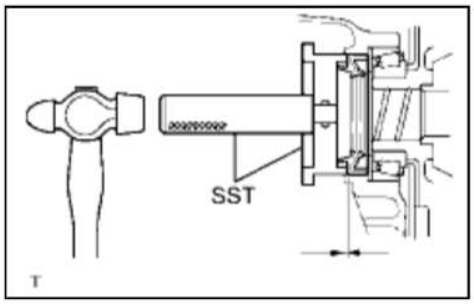
-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

NOTICE:

Do not damage the oil seal lip.

8. INSTALL TRANSMISSION CASE OIL SEAL

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



(b) Using SST and a hammer, tap in the oil seal.

SST: 09608-32010

SST: 09950-70010

09951-07200

Standard depth:

3.0 to 4.0 mm (0.118 to 0.158 in.)

NOTICE:

Do not damage the oil seal lip.

9. INSTALL FRONT DRIVE SHAFT ASSEMBLY

INFO .

10. ADD MANUAL TRANSAXLE OIL INFO

11. INSPECT MANUAL TRANSAXLE OIL INFO

12. INSTALL ENGINE UNDER COVER LH

13. INSTALL ENGINE UNDER COVER RH

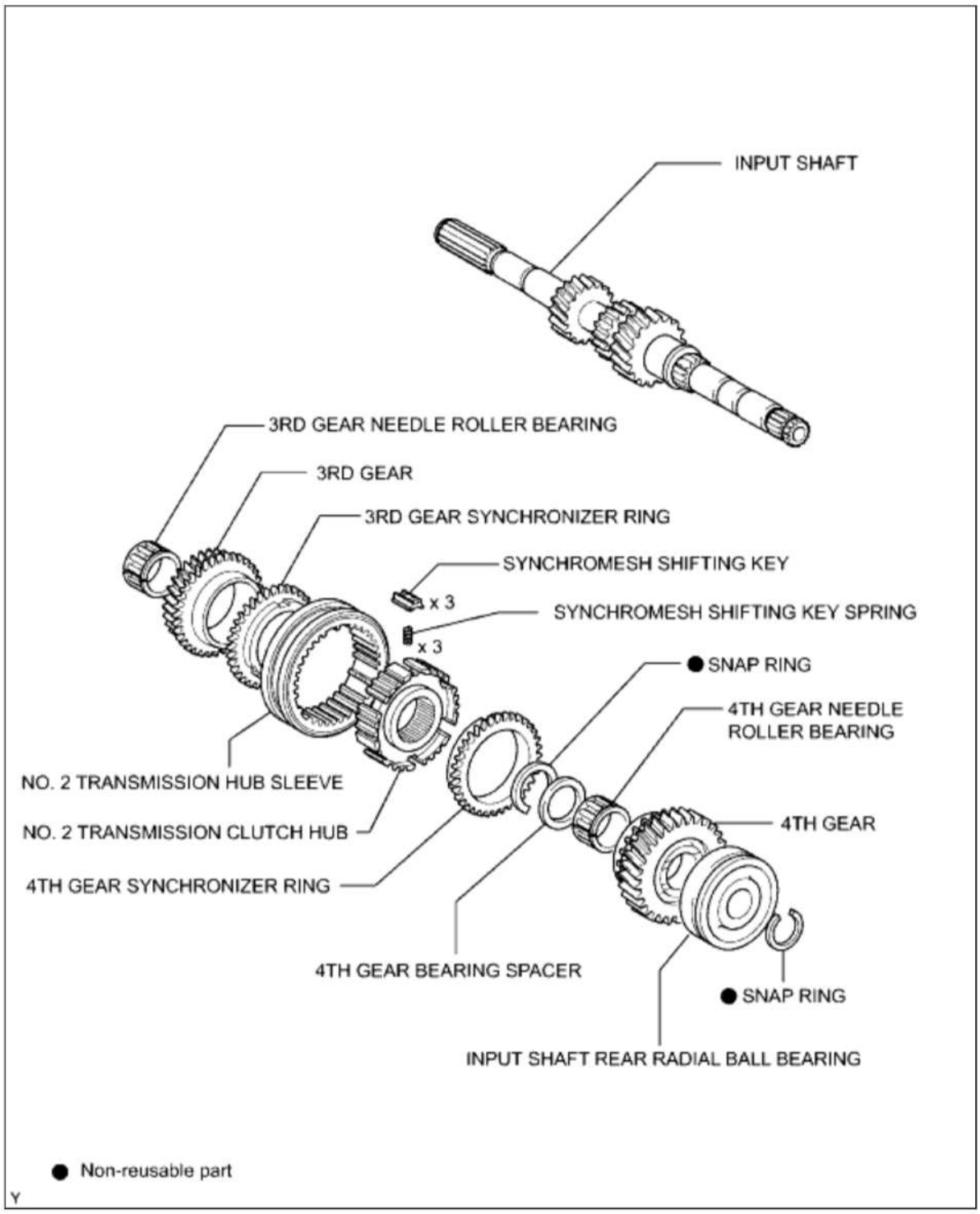
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3G01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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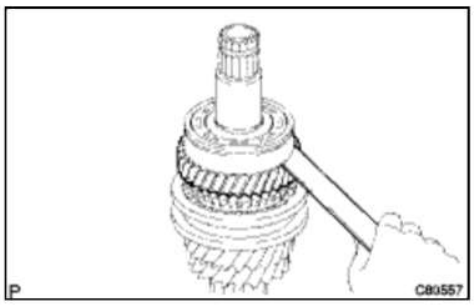


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0X01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. INSPECT 4TH GEAR THRUST CLEARANCE

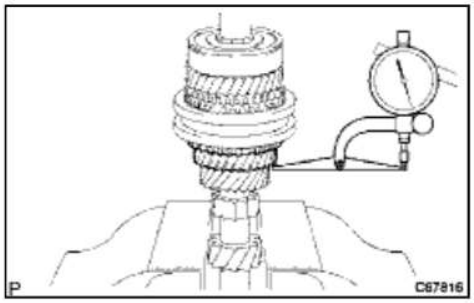


(a) Using a feeler gauge, measure the 4th gear thrust clearance.

Standard clearance:
0.10 to 0.55 mm (0.00394 to 0.0217 in.)
Maximum clearance:
0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 4th gear or input shaft rear radial ball bearing.

2. INSPECT 3RD GEAR THRUST CLEARANCE

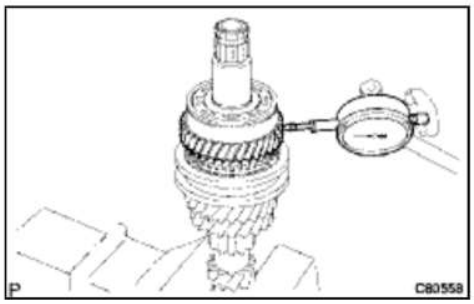


(a) Using a dial indicator, measure the 3rd gear thrust clearance.

Standard clearance:
0.10 to 0.35 mm (0.00394 to 0.0138 in.)
Maximum clearance:
0.35 mm (0.0138 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 3rd gear or input shaft.

3. INSPECT 4TH GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 4th gear radial clearance between the gear and shaft.

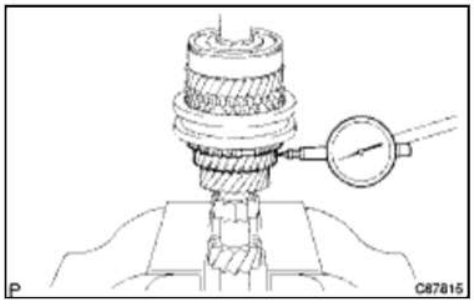
Standard clearance:
NSK made bearing
0.009 to 0.050 mm (0.000354 to 0.00197 in.)
JTEKT made bearing
0.009 to 0.050 mm (0.000354 to 0.00197 in.)
Maximum clearance:
NSK made bearing
0.050 mm (0.00197 in.)
JTEKT made bearing

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0.050 mm (0.00197 in.)

If the clearance exceeds the maximum, replace the 4th gear, 4th gear needle roller bearing or input shaft.

4. INSPECT 3RD GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 3rd gear radial clearance.

Standard clearance:

NSK made bearing

0.015 to 0.056 mm (0.000591 to 0.00220 in.)

JTEKT made bearing

0.015 to 0.058 mm (0.000591 to 0.00228 in.)

Maximum clearance:

NSK made bearing

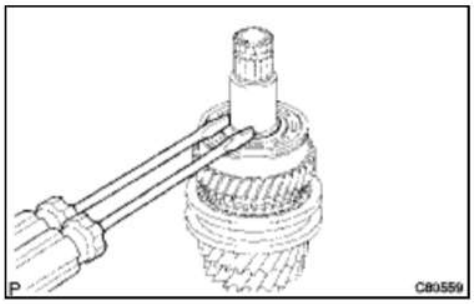
0.056 mm (0.00220 in.)

JTEKT made bearing

0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 3rd gear, 3rd gear needle roller bearing or input shaft.

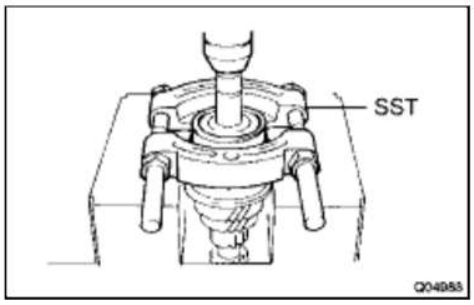
5. REMOVE 4TH GEAR



(a) Using 2 screwdrivers and a hammer, remove the input shaft rear bearing shaft snap ring from the input shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying off.



(b) Using SST and a press, remove the input shaft rear radial ball bearing and 4th gear from the input shaft.

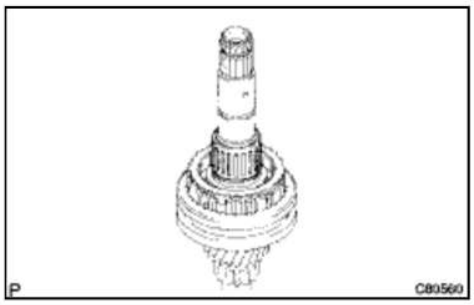
SST: 09950-00020

HINT:

- Do not tighten SST excessively.
- Support the input shaft assembly by hand to prevent it from dropping off.

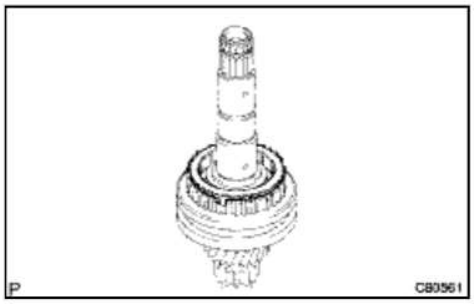
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6. REMOVE 4TH GEAR NEEDLE ROLLER BEARING



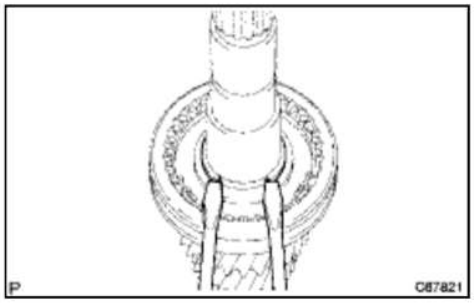
(a) Remove the 4th gear needle roller bearing and 4th gear bearing spacer from the input shaft.

7. REMOVE 4TH GEAR SYNCHRONIZER RING



(a) Remove the 4th gear synchronizer ring from the No. 2 transmission clutch hub.

8. REMOVE 3RD GEAR



(a) Using 2 screwdrivers and a hammer, remove the No. 2 clutch hub setting shaft snap ring from the input shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying off.

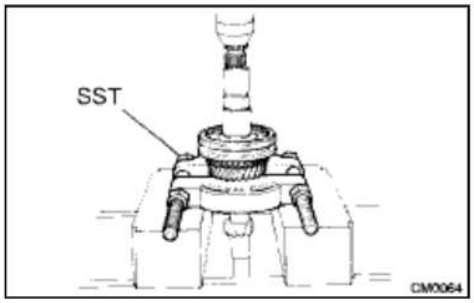
(b) Using SST and a press, remove the No. 2 transmission clutch hub and 3rd gear from the input shaft.

SST: 09950-00020

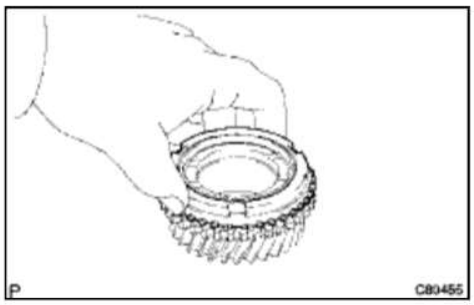
NOTICE:

- Do not tighten SST excessively.
- Support the input shaft by hand to prevent it from dropping off.

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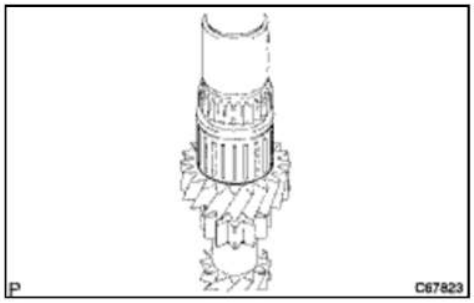


9. REMOVE 3RD GEAR SYNCHRONIZER RING



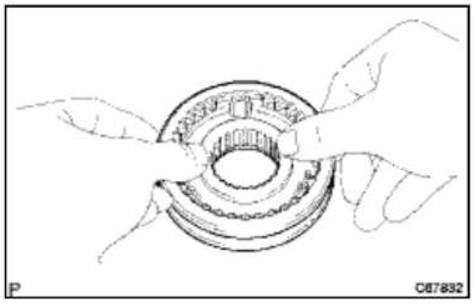
(a) Remove the 3rd gear synchronizer ring from the 3rd gear.

10. REMOVE 3RD GEAR NEEDLE ROLLER BEARING



(a) Remove the 3rd gear needle roller bearing from the input shaft.

11. REMOVE NO. 2 TRANSMISSION HUB SLEEVE



(a) Remove the No. 2 transmission hub sleeve, 3 shifting keys, and 3 shifting key springs from the No. 2 transmission clutch hub.

NOTICE:

Use a piece of cloth to keep the shifting keys and shifting key springs from flying off.

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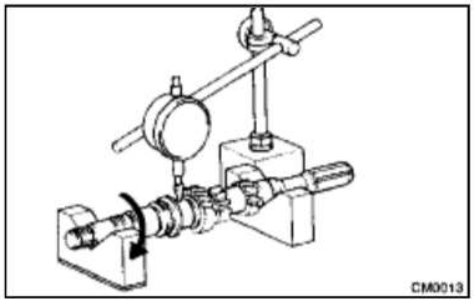


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0W01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: INSPECTION (2010 Corolla)		

INSPECTION

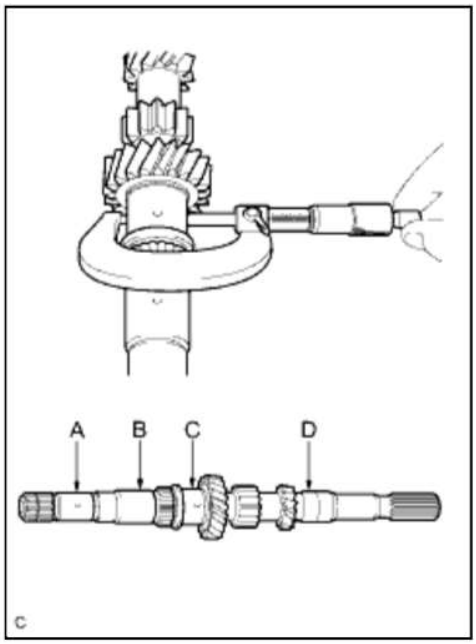
1. INSPECT INPUT SHAFT



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

Maximum runout:
0.015 mm (0.000591 in.)

If the runout exceeds the maximum, replace the input shaft.



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

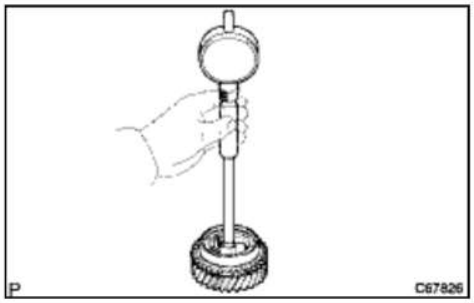
Standard outer diameter:
Part A
24.885 to 24.900 mm (0.9797 to 0.9803 in.)
Part B
28.991 to 29.006 mm (1.1414 to 1.1420 in.)
Part C
30.985 to 31.000 mm (1.2198 to 1.2204 in.)
Part D
24.985 to 25.000 mm (0.9836 to 0.9842 in.)
Minimum outer diameter:
Part A
24.885 mm (0.9797 in.)
Part B
28.991 mm (1.1414 in.)
Part C
30.985 mm (1.2198 in.)
Part D
24.985 mm (0.9836 in.)

If any of the outer diameters are less than the minimum, replace the input shaft.

2. INSPECT 4TH GEAR

(a) Using a cylinder gauge, measure the inside diameter of the

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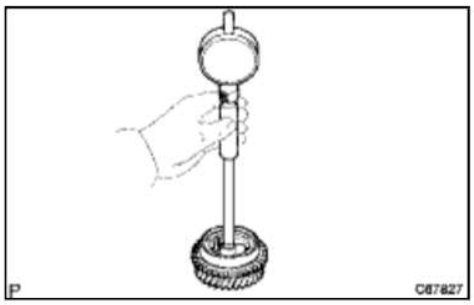


4th gear.

Standard inside diameter:
34.015 to 34.031 mm (1.3391 to 1.3398 in.)
Maximum inside diameter:
34.031 mm (1.3398 in.)

If the inside diameter exceeds the maximum, replace the 4th gear.

3. INSPECT 3RD GEAR

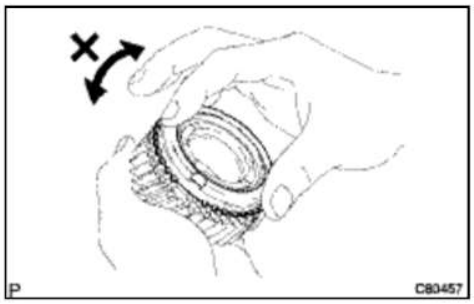


(a) Using a cylinder gauge, measure the inside diameter of the 3rd gear.

Standard inside diameter:
36.015 to 36.031 mm (1.4179 to 1.4185 in.)
Maximum inside diameter:
36.031 mm (1.4185 in.)

If the inside diameter exceeds the maximum, replace the 3rd gear.

4. INSPECT 4TH GEAR SYNCHRONIZER RING



(a) Check for wear and damage.

(b) Coat the 4th gear cone with gear oil.

(c) Turn the synchronizer ring in one direction while pushing it against the 4th gear cone.

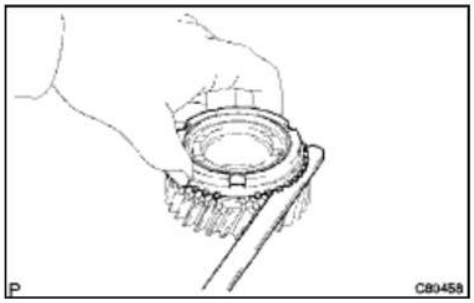
(d) Check that the ring locks.

If the synchronizer ring does not lock, replace the synchronizer ring.

(e) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

Standard clearance:
0.75 to 1.65 mm (0.0295 to 0.0649 in.)
Minimum clearance:

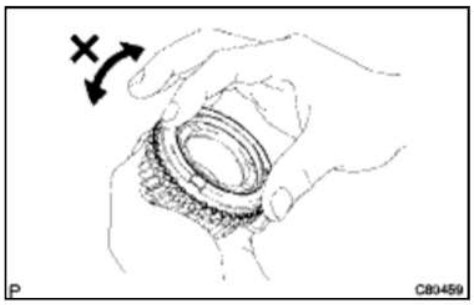
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0.75 mm (0.0295 in.)

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

5. INSPECT 3RD GEAR SYNCHRONIZER RING



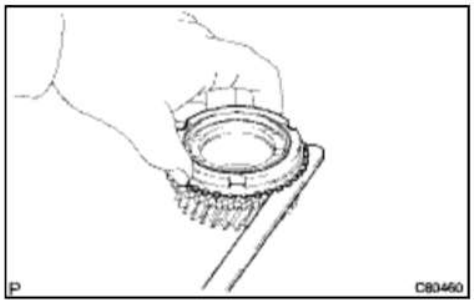
(a) Check for wear and damage.

(b) Coat the 3rd gear cone with gear oil.

(c) Turn the synchronizer ring in one direction while pushing it against the 3rd gear cone.

(d) Check that the ring locks.

If the synchronizer ring does not lock, replace the synchronizer ring.



(e) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

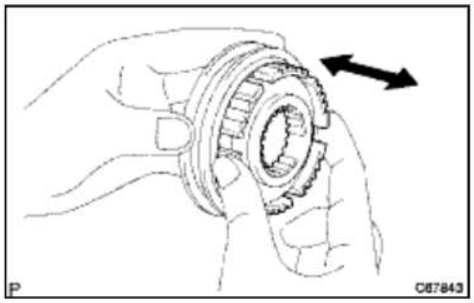
Standard clearance:
0.65 to 1.75 mm (0.0256 to 0.0689 in.)
Minimum clearance:
0.65 mm (0.0256 in.)

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

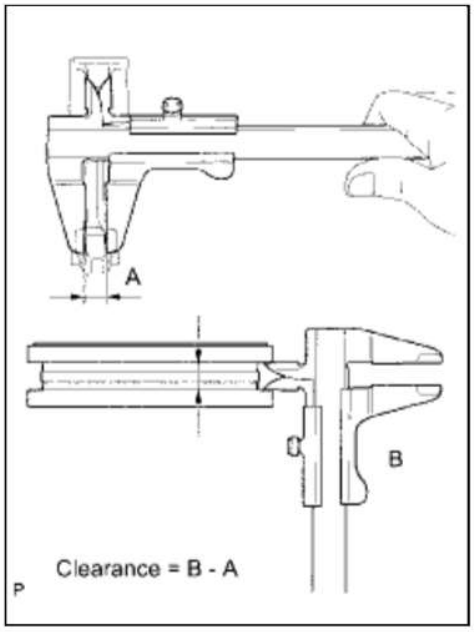
6. INSPECT NO. 2 TRANSMISSION HUB SLEEVE

(a) Check the sliding condition between the No. 2 transmission hub sleeve and the No. 2 transmission clutch hub.

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(b) Check that the edges of the No. 2 transmission hub sleeve spline gear are not worn down.



(c) Using a vernier caliper, measure the width of the No. 2 transmission hub sleeve groove (B) and the thickness of the claw part on the No. 2 gear shift fork (A), and calculate the clearance.

Standard clearance (B - A):
0.15 to 0.35 mm (0.00591 to 0.0137 in.)

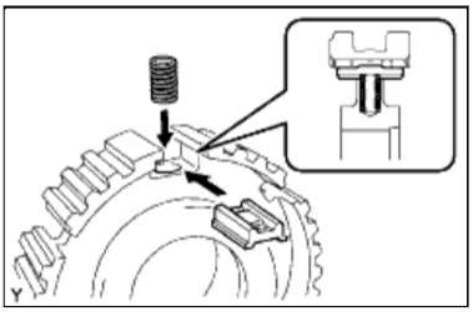
If the clearance is out of the specification, replace the No. 2 transmission hub sleeve and No. 2 gear shift fork.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0Y01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: REASSEMBLY (2010 Corolla)		

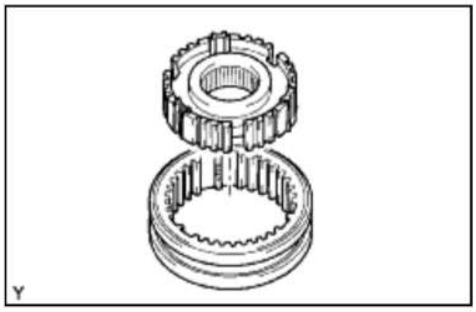
REASSEMBLY

1. INSTALL NO. 2 TRANSMISSION HUB SLEEVE



(a) Coat the No. 2 transmission hub sleeve with gear oil.

(b) Install the 3 synchromesh shifting key springs and 3 synchromesh shifting keys to the No. 2 transmission clutch hub.

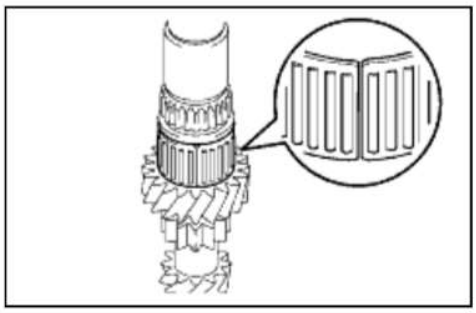


(c) Install the No. 2 transmission clutch hub onto the No. 2 transmission hub sleeve.

NOTICE:

Position the No. 2 transmission hub sleeve and No. 2 transmission clutch hub correctly as shown in the illustration.

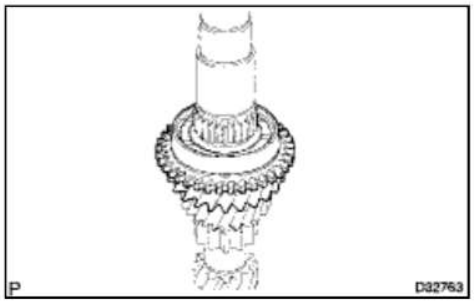
2. INSTALL 3RD GEAR NEEDLE ROLLER BEARING



(a) Coat the 3rd gear needle roller bearing with gear oil and install it onto the input shaft.

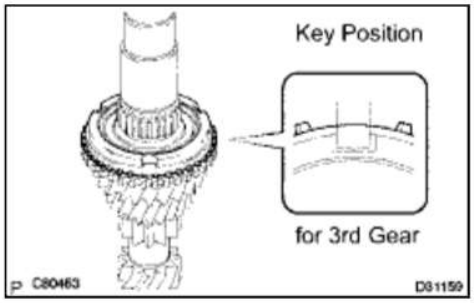
3. INSTALL 3RD GEAR

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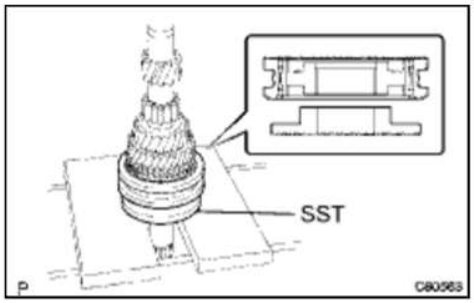
(a) Coat the 3rd gear with gear oil and install it onto the input shaft.

4. INSTALL 3RD GEAR SYNCHRONIZER RING



(a) Coat the 3rd gear synchronizer ring with gear oil and install it onto the 3rd gear.

5. INSTALL NO. 2 TRANSMISSION CLUTCH HUB



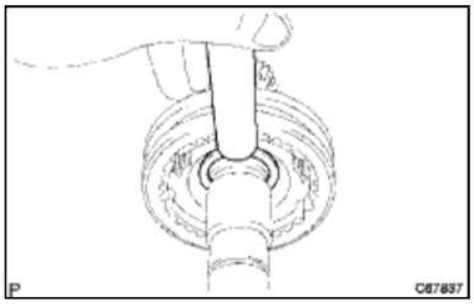
(a) Using SST and a press, install the No. 2 transmission clutch hub onto the input shaft.

SST: 09316-60011

09316-00021

NOTICE:

Fit the synchromesh shifting keys into the grooves of the synchronizer ring correctly.



(b) Select a snap ring that will allow minimal axial play.

Standard clearance:

0.1 mm (0.00394 in.) or less

Snap Ring Thickness:

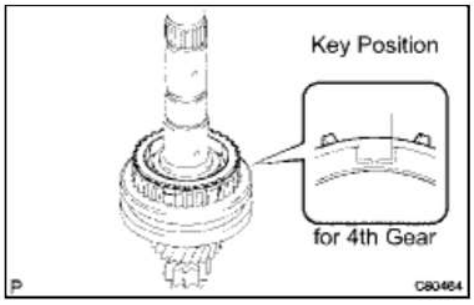
MARK	THICKNESS MM (IN.)	MARK	THICKNESS MM (IN.)
0	2.30 (0.0906)	3	2.48 (0.0976)

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1	2.36 (0.0929)	4	2.54 (0.1000)
2	2.42 (0.0953)	5	2.60 (0.1024)

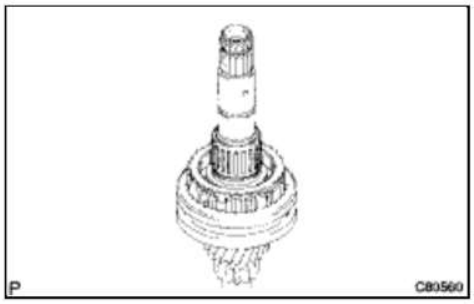
(c) Using a brass bar and a hammer, install the snap ring onto the input shaft.

6. INSTALL 4TH GEAR SYNCHRONIZER RING



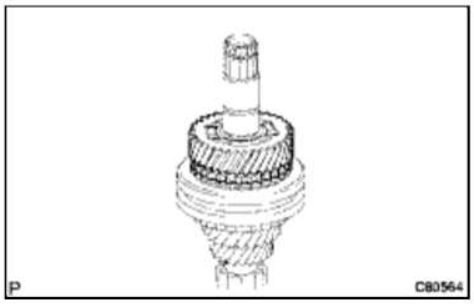
(a) Coat the 4th gear synchronizer ring with gear oil and install it onto the No. 2 transmission clutch hub.

7. INSTALL 4TH GEAR NEEDLE ROLLER BEARING



(a) Coat the 4th gear needle roller bearing and 4th gear bearing spacer with gear oil and install them onto the No. 2 transmission clutch hub.

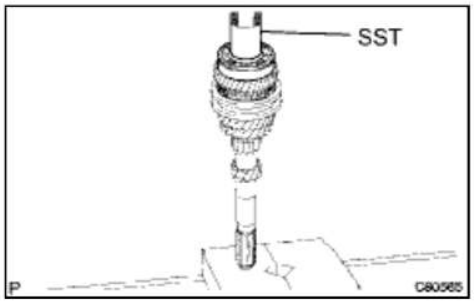
8. INSTALL 4TH GEAR



(a) Coat the 4th gear with gear oil and install it onto the input shaft.

9. INSTALL INPUT SHAFT REAR RADIAL BALL BEARING

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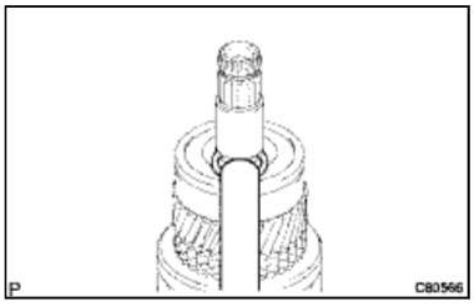


(a) Using SST and a press, install the input shaft rear radial ball bearing onto the input shaft.

SST: 09608-04031

(b) Select a snap ring that will allow minimum axial play.

Standard clearance:
0.1 mm (0.00394 in.) or less
Snap Ring Thickness:



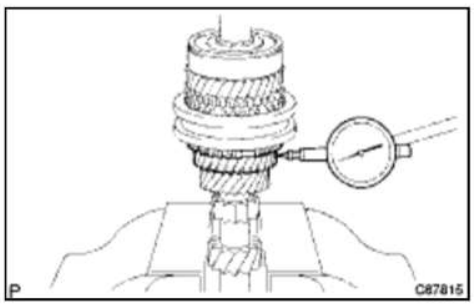
MARK	THICKNESS MM (IN.)	MARK	THICKNESS MM (IN.)
A	2.29 (0.0901)	D	2.47 (0.0972)
B	2.35 (0.0925)	E	2.53 (0.0996)
C	2.41 (0.0948)	F	2.59 (0.1019)

(c) Using a brass bar and a hammer, install the snap ring onto the input shaft.

NOTICE:

Do not damage the journal surface of the snap ring.

10. INSPECT 3RD GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 3rd gear radial clearance.

Standard clearance:

NSK made bearing

0.015 to 0.056 mm (0.000591 to 0.00220 in.)

JTEKT made bearing

0.015 to 0.058 mm (0.000591 to 0.00228 in.)

Maximum clearance:

NSK made bearing

0.056 mm (0.00220 in.)

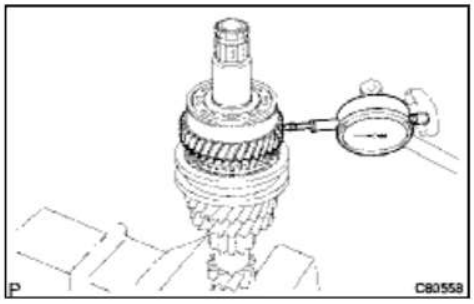
JTEKT made bearing

0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 3rd gear, 3rd gear needle roller bearing or input shaft.

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11. INSPECT 4TH GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 4th gear radial clearance between the gear and shaft.

Standard clearance:

NSK made bearing

0.009 to 0.050 mm (0.000354 to 0.00197 in.)

JTEKT made bearing

0.009 to 0.050 mm (0.000354 to 0.00197 in.)

Maximum clearance:

NSK made bearing

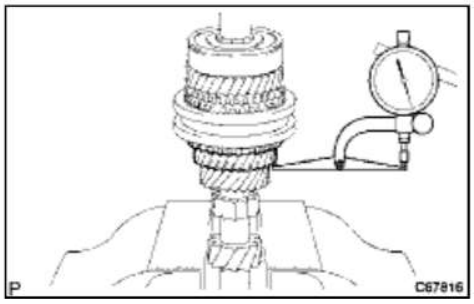
0.050 mm (0.00197 in.)

JTEKT made bearing

0.050 mm (0.00197 in.)

If the clearance exceeds the maximum, replace the 4th gear, 4th gear needle roller bearing or input shaft.

12. INSPECT 3RD GEAR THRUST CLEARANCE



(a) Using a dial indicator, measure the 3rd gear thrust clearance.

Standard clearance:

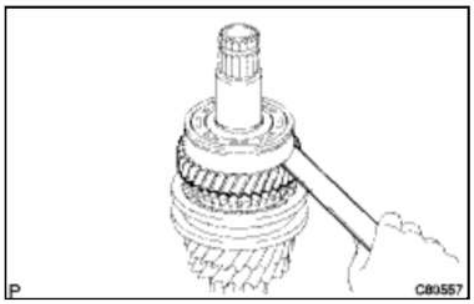
0.10 to 0.35 mm (0.00394 to 0.0138 in.)

Maximum clearance:

0.35 mm (0.0138 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 3rd gear or input shaft.

13. INSPECT 4TH GEAR THRUST CLEARANCE



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

Standard clearance:

0.10 to 0.55 mm (0.00394 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 2 transmission clutch hub, 4th gear or input shaft rear radial ball bearing.

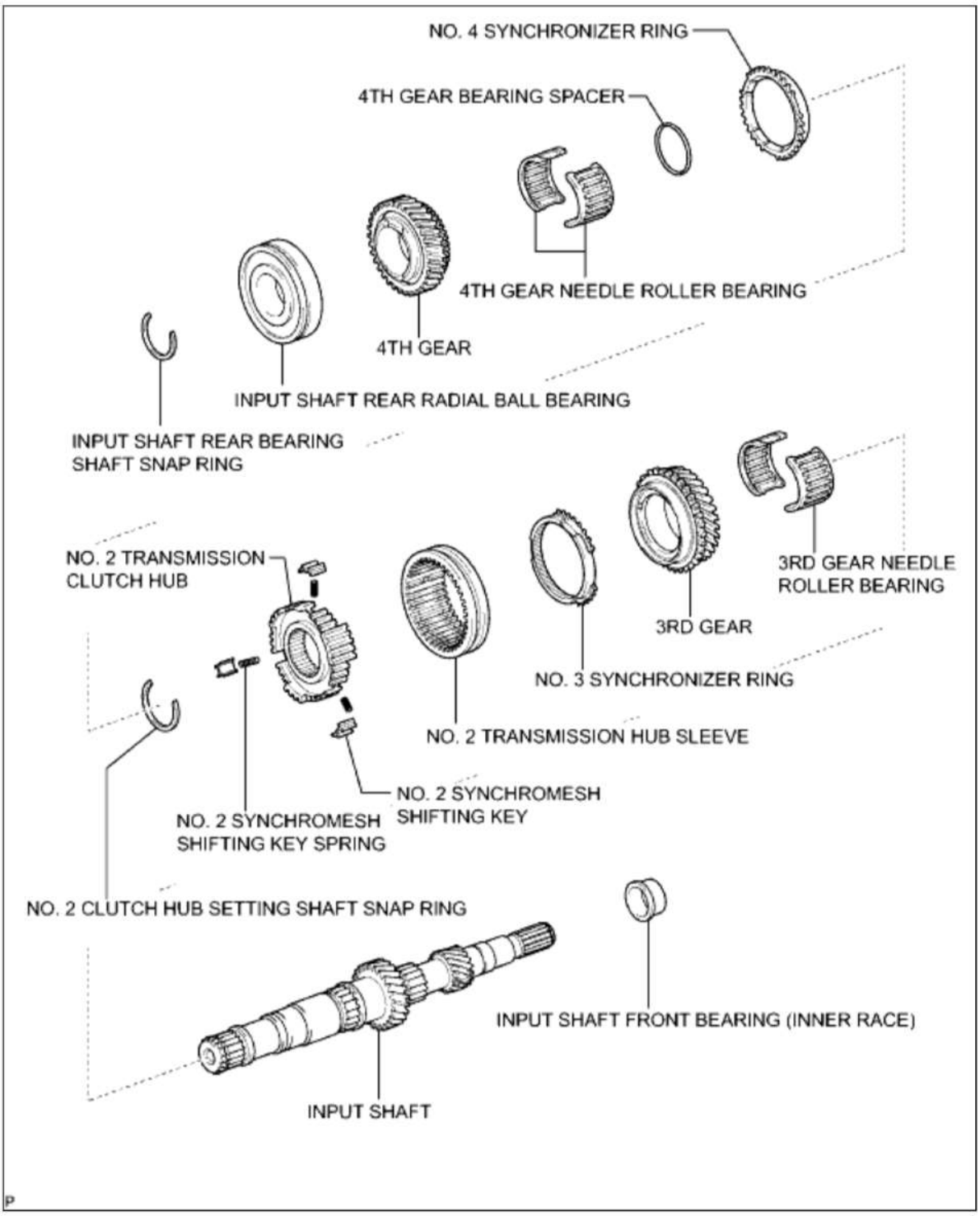
cardiagn.com

Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1V00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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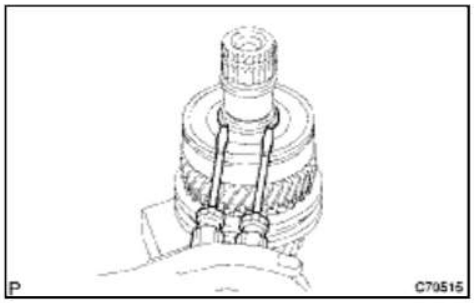


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1W00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. REMOVE 4TH GEAR

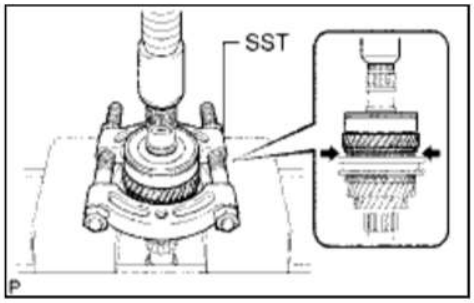


(a) Hold the input shaft assembly in a vise using aluminum plates.

(b) Using 2 screwdrivers and a hammer, remove the input shaft rear bearing shaft snap ring from the input shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying.



(c) Using SST and a press, remove the input shaft rear bearing and 4th gear.

SST: 09950-00020

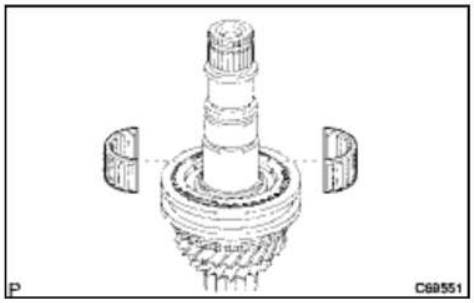
NOTICE:

Do not overtighten SST.

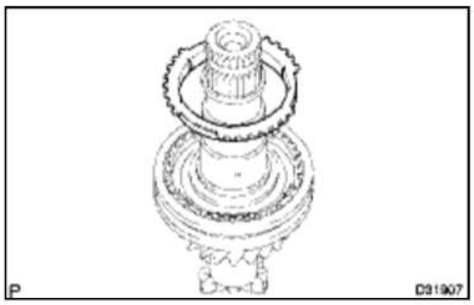
2. REMOVE 4TH GEAR NEEDLE ROLLER BEARING

(a) Remove the 4th gear needle roller bearing from the input shaft.

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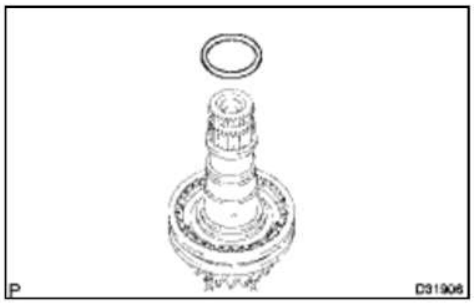


3. REMOVE NO. 4 SYNCHRONIZER RING



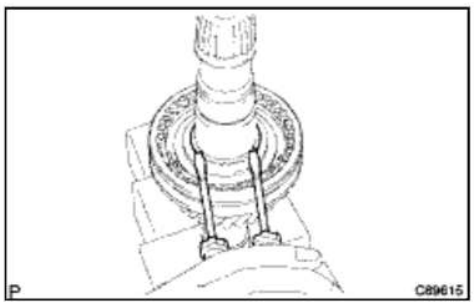
(a) Remove the No. 4 synchronizer ring from the No. 2 transmission clutch hub.

4. REMOVE 4TH GEAR BEARING SPACER



(a) Remove the 4th gear bearing spacer from the No. 2 transmission clutch hub.

5. REMOVE 3RD GEAR

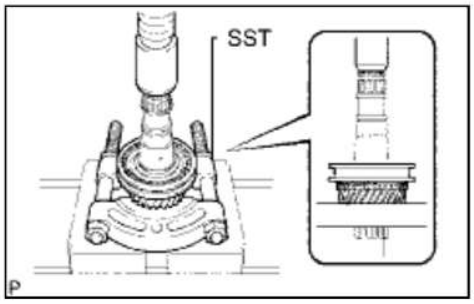


(a) Using 2 screwdrivers and a hammer, remove the No. 2 clutch hub setting shaft snap ring from the input shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying.

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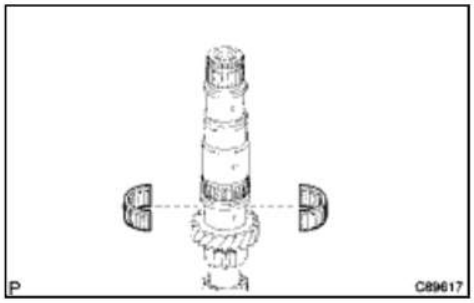
(b) Using SST and a press, remove the No. 2 transmission clutch hub and 3rd gear from the input shaft.

SST: 09950-00020

NOTICE:

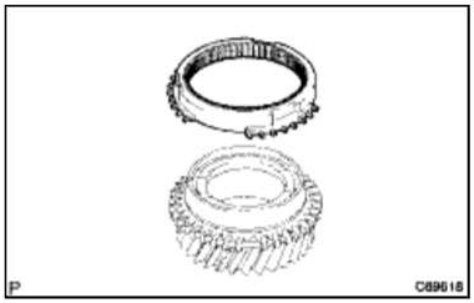
Do not overtighten SST.

6. REMOVE 3RD GEAR NEEDLE ROLLER BEARING



(a) Remove the 3rd gear needle roller bearing from the input shaft.

7. REMOVE NO. 3 SYNCHRONIZER RING



(a) Remove the No. 3 synchronizer ring from the 3rd gear.

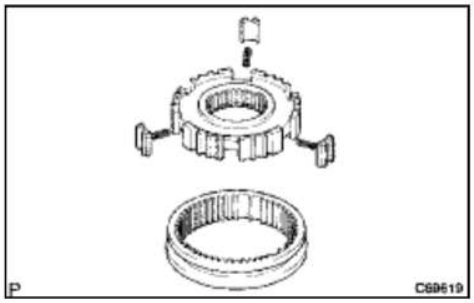
8. REMOVE NO. 2 TRANSMISSION HUB SLEEVE

(a) Remove the No. 2 transmission hub sleeve, 3 No. 2 synchromesh shifting keys, and 3 No. 2 synchromesh shifting key springs from the No. 2 transmission clutch hub.

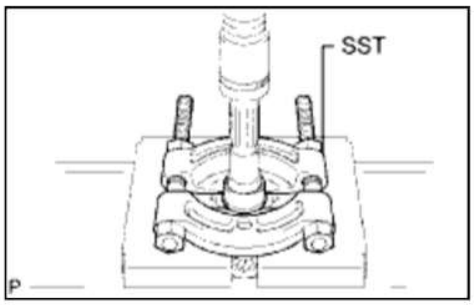
HINT:

Use a cloth to keep the shifting keys and shifting key springs from flying.

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9. REMOVE INPUT SHAFT FRONT BEARING



(a) Using SST and a press, remove the input shaft front bearing (inner race) from the input shaft.

SST: 09950-00020

NOTICE:

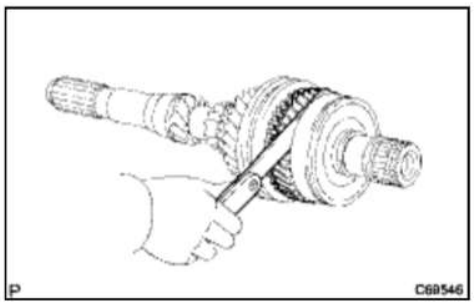
Do not overtighten SST.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1U00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT 4TH GEAR THRUST CLEARANCE

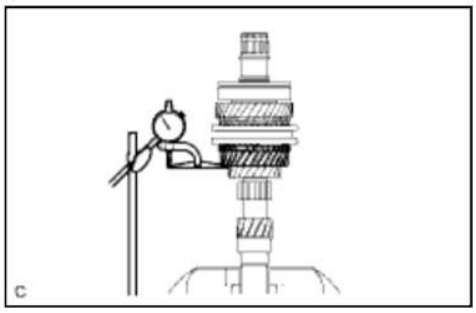


(a) Using a feeler gauge, measure the 4th gear thrust clearance.

Standard clearance:
0.10 to 0.57 mm (0.00393 to 0.0224 in.)

If the clearance is out of specification, replace the No. 2 transmission clutch hub, 4th gear, or input shaft rear radial ball bearing.

2. INSPECT 3RD GEAR THRUST CLEARANCE

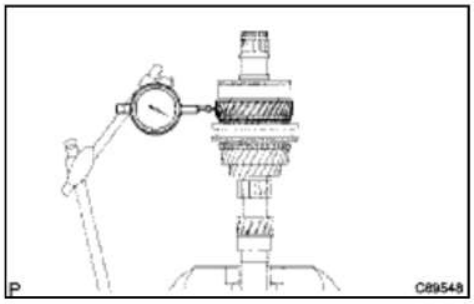


(a) Using a dial indicator, measure the 3rd gear thrust clearance.

Standard clearance:
0.10 to 0.35 mm (0.00393 to 0.0138 in.)

If the clearance is out of specification, replace the No. 2 transmission clutch hub, 3rd gear, or input shaft.

3. INSPECT 4TH GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 4th gear radial clearance.

Standard Clearance:

BEARING	STANDARD CLEARANCE MM (IN.)
KOYO made	0.009 to 0.053 (0.000354 to 0.00208)
NSK made	0.009 to 0.051 (0.000354 to 0.00201)

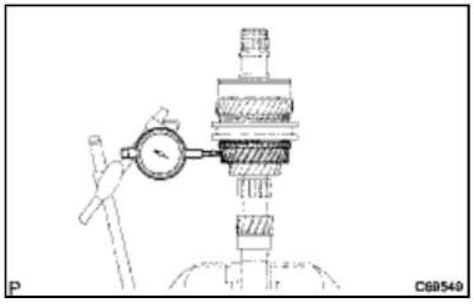
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If the clearance is out of specification, replace the 4th gear, needle roller bearing, or input shaft.

4. INSPECT 3RD GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the 3rd gear radial clearance.

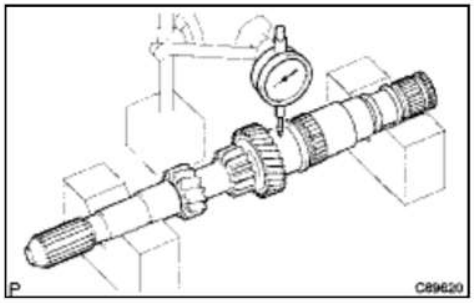
Standard Clearance:



BEARING	STANDARD CLEARANCE MM (IN.)
KOYO made	0.009 to 0.053 (0.000354 to 0.00208)
NSK made	0.009 to 0.051 (0.000354 to 0.00201)

If the clearance is out of specification, replace the 3rd gear, needle roller bearing, or input shaft.

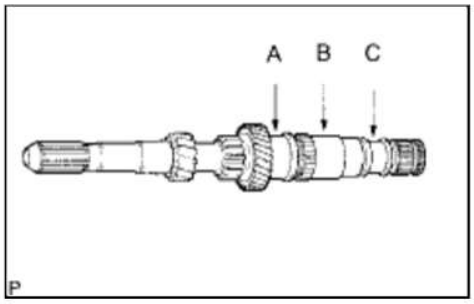
5. INSPECT INPUT SHAFT



(a) Using V-blocks and a dial indicator, inspect the shaft for runout.

Maximum runout:
0.03 mm (0.00118 in.)

If the runout exceeds the maximum, replace the input shaft.



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

Outside Diameter:

PART	STANDARD OUTSIDE DIAMETER MM (IN.)	MINIMUM OUTSIDE DIAMETER MM (IN.)
A	35.984 to 36.000 (1.4167 to 1.4173)	35.984 (1.4167)

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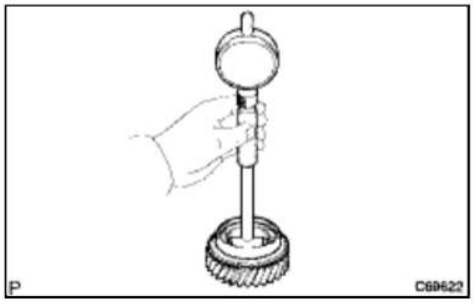
B	35.984 to 36.000 (1.4167 to 1.4173)	35.984 (1.4167)
C	27.957 to 27.972 (1.1007 to 1.1013)	27.957 (1.1007)

If the outside diameter is less than the minimum, replace the input shaft.

6. INSPECT 4TH GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 4th gear.

Inside diameter:



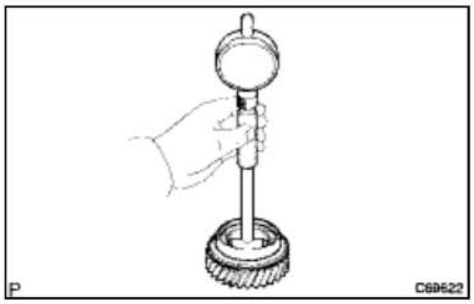
STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
42.009 to 42.025 (1.6539 to 1.6545)	42.025 (1.6545)

If the inside diameter exceeds the maximum, replace the 4th gear.

7. INSPECT 3RD GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 3rd gear.

Inside Diameter:

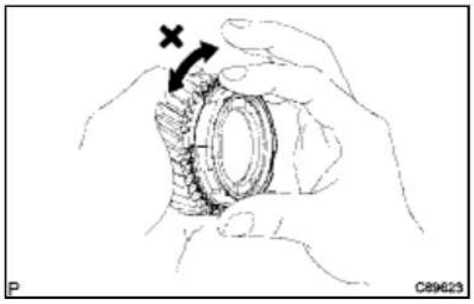


STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
43.009 to 43.025 (1.6933 to 1.6939)	43.025 (1.6939)

If the inside diameter exceeds the maximum, replace the 3rd gear.

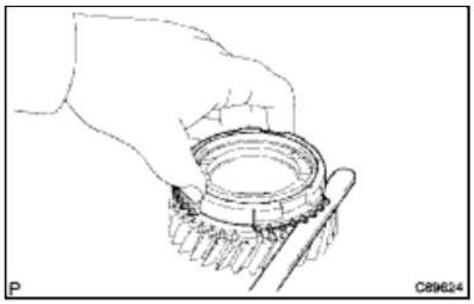
8. INSPECT NO. 4 SYNCHRONIZER RING

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(a) Coat the 4th gear cone with gear oil. Turn the No. 4 synchronizer ring in one direction while pushing it against the 4th gear cone. Check that the ring locks.

If the No. 4 synchronizer ring does not lock, replace the ring or the 4th gear.

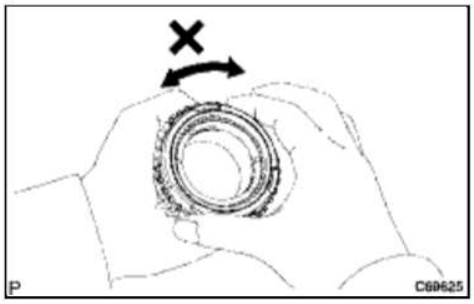


(b) Using a feeler gauge, measure the clearance between the No. 4 synchronizer ring back and 4th gear spline end.

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

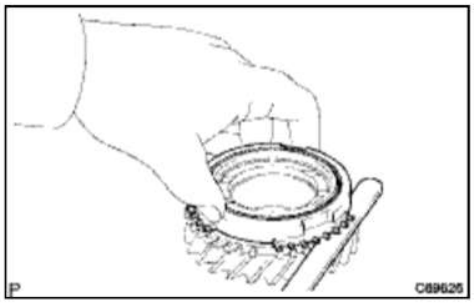
If the clearance is out of specification, replace the synchronizer ring.

9. INSPECT NO. 3 SYNCHRONIZER RING



(a) Coat the 3rd gear cone with gear oil. Turn the synchronizer outer ring in one direction while pushing it against the 3rd gear cone. Check that the ring locks.

If the synchronizer outer ring does not lock, replace the ring or the 3rd gear.



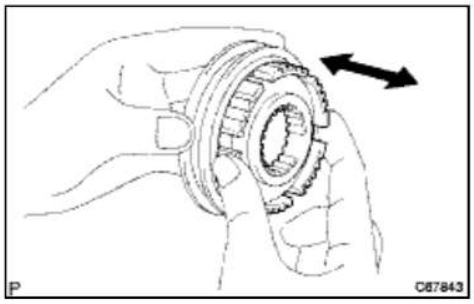
(b) Using a feeler gauge, measure the clearance between the No. 3 synchronizer ring back and 3rd gear spline end.

Standard clearance:
0.65 to 1.75 mm (0.0256 to 0.0689 in.)

If the clearance is out of specification, replace the No. 3 synchronizer ring.

10. INSPECT NO. 2 TRANSMISSION HUB SLEEVE

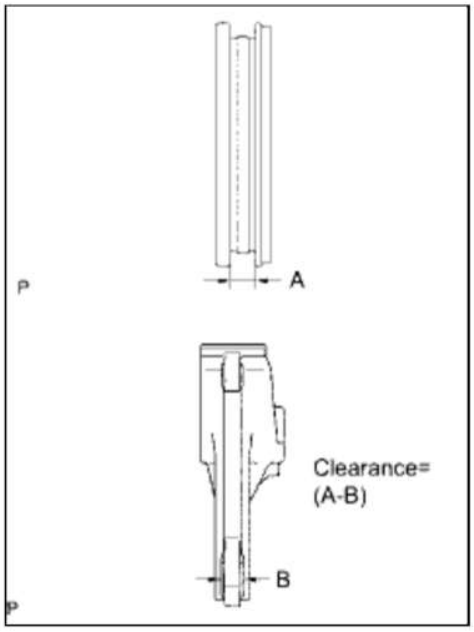
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(a) Inspect the sliding condition between the No. 2 transmission hub sleeve and No. 2 transmission clutch hub.

(b) Inspect the tip of the spline gear on the No. 2 transmission hub sleeve for wear.

If any defects are found, replace the transmission hub sleeve or the transmission clutch hub.



(c) Using a vernier caliper, measure the width of the No. 3 transmission hub sleeve groove and the thickness of the claw part on the No. 1 gear shift fork, and calculate the clearance.

Standard clearance:

0.11 to 0.69 mm (0.00433 to 0.0272 in.) {A - B}

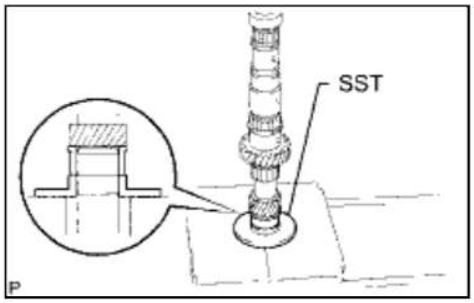
If the clearance is out of specification, replace the No. 2 transmission hub sleeve and No. 2 gear shift fork with new ones.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1X00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: INPUT SHAFT: REASSEMBLY (2010 Corolla)		

REASSEMBLY

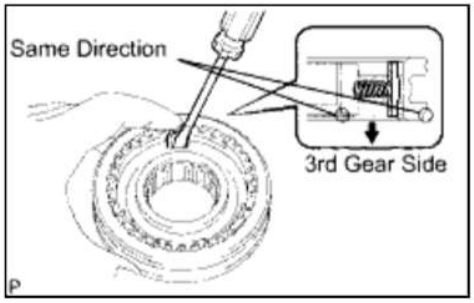
1. INSTALL INPUT SHAFT FRONT BEARING



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

SST: 09608-00071

2. INSTALL NO. 2 TRANSMISSION HUB SLEEVE



(a) Coat the No. 2 transmission hub sleeve with gear oil.

(b) Install the 3 synchromesh key springs with the No. 2 transmission hub sleeve.

NOTICE:

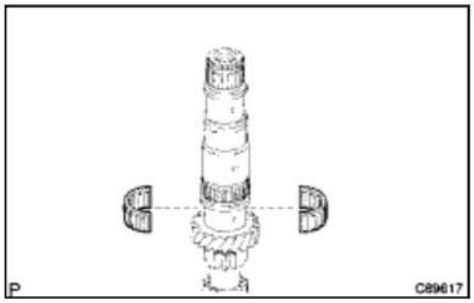
Install the No. 2 transmission clutch hub sleeve and the No. 2 transmission clutch hub in the correct direction.

(c) Using a screwdriver, install the synchromesh shifting key to the input shaft.

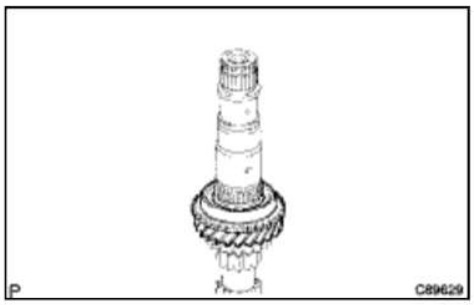
3. INSTALL 3RD GEAR NEEDLE ROLLER BEARING

(a) Coat the 3rd gear bearing with gear oil and install it to the input shaft.

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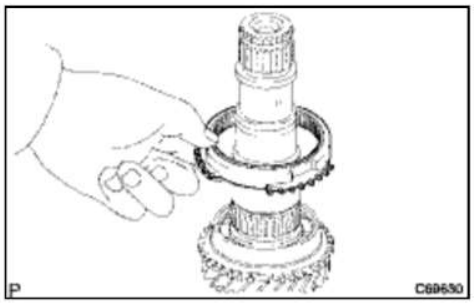


4. INSTALL 3RD GEAR



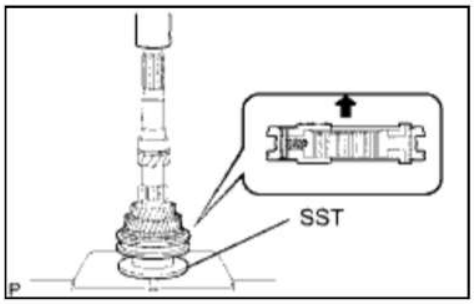
(a) Coat the 3rd gear with gear oil and install it to the input shaft.

5. INSTALL NO. 3 SYNCHRONIZER RING



(a) Coat the No. 3 synchronizer ring with gear oil and install it to the 3rd gear.

6. INSTALL NO. 2 TRANSMISSION CLUTCH HUB



(a) Using SST and a press, install the No. 2 transmission clutch hub to the input shaft.

SST: 09316-60011

09316-00041

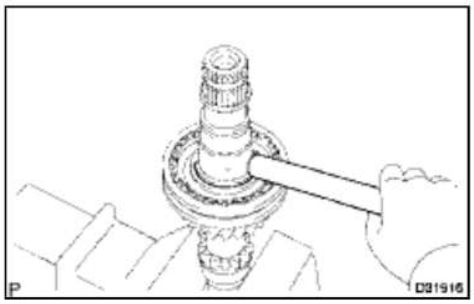
NOTICE:

- Align the claw of the clutch hub No. 2 with the notch of the No. 3 synchronizer ring.
- Make sure that the 3rd gear can rotate.

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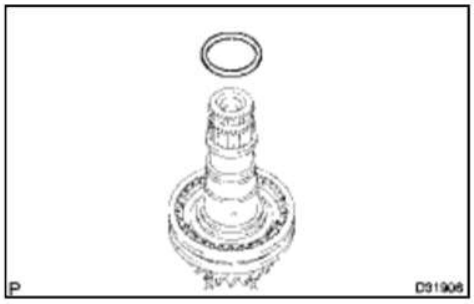
(b) Select a snap ring so that clearance between the No. 2 transmission clutch hub and the No. 2 clutch hub shaft snap ring will be within the specified range. Using a brass bar and a hammer, install the snap ring.

Standard clearance:
0.1 mm (0.00394 in.) or less
Snap Ring Thickness:



PART NO.	THICKNESS: MM (IN.)	MARK
90520-34003	2.30 to 2.35 (0.0906 to 0.0925)	H
90520-34004	2.35 to 2.40 (0.0925 to 0.0945)	J
90520-34005	2.40 to 2.45 (0.0945 to 0.0965)	K
90520-34006	2.45 to 2.50 (0.0965 to 0.0984)	L
90520-34007	2.50 to 2.55 (0.0984 to 0.1004)	M
90520-34008	2.55 to 2.60 (0.1004 to 0.1024)	N
90520-34009	2.60 to 2.65 (0.1024 to 0.1043)	P

7. INSTALL 4TH GEAR BEARING SPACER

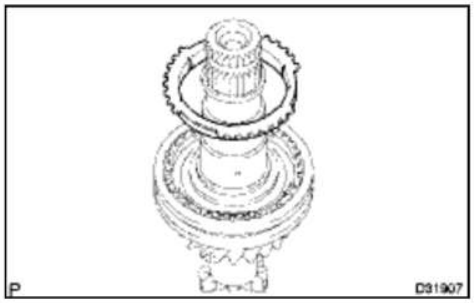


(a) Coat the 4th gear bearing spacer with gear oil and install it to the input shaft.

8. INSTALL NO. 4 SYNCHRONIZER RING

(a) Coat the No. 4 synchronizer ring with gear oil and install it to the No. 2 transmission clutch hub.

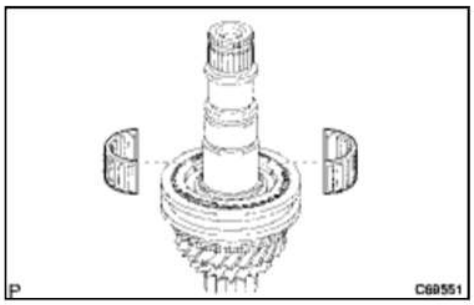
cardiagn.com



NOTICE:

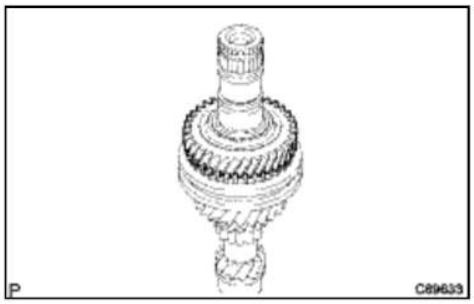
Align the claw of the No. 2 clutch hub with the notch of the No. 4 synchronizer ring.

9. INSTALL 4TH GEAR NEEDLE ROLLER BEARING



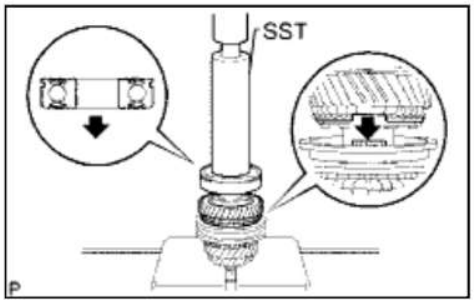
(a) Coat the 4th gear needle roller bearing with gear oil and install it to the input shaft.

10. INSTALL 4TH GEAR



(a) Coat the 4th gear with gear oil and install it to the input shaft.

11. INSTALL INPUT SHAFT REAR RADIAL BALL BEARING



(a) Using SST and a press, install the input shaft rear radial ball bearing to the input shaft.

SST: 09608-06041

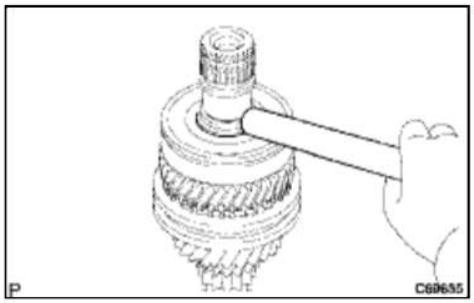
NOTICE:

- Install the bearing with its groove facing rearward.
- Make sure that the 3rd gear can rotate.

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(b) Select a snap ring so that the clearance between the input shaft radial ball rear bearing and the input shaft rear bearing snap ring will be within the specified range. Using a brass bar and a hammer, install the snap ring.

Standard clearance:
0.1 mm (0.00394 in.) or less
Snap Ring Thickness:



PART NO.	THICKNESS: MM (IN.)	MARK
90520-30008	2.35 to 2.40 (0.0925 to 0.0945)	1
90520-30009	2.40 to 2.45 (0.0945 to 0.0965)	2
90520-30010	2.45 to 2.50 (0.0965 to 0.0984)	3
90520-30011	2.50 to 2.55 (0.0984 to 0.1004)	4
90520-30012	2.55 to 2.60 (0.1004 to 0.1024)	5
90520-30013	2.60 to 2.65 (0.1024 to 0.1043)	6
90520-30021	2.65 to 2.70 (0.1043 to 0.1063)	7
90520-30022	2.70 to 2.75 (0.1063 to 0.1083)	8

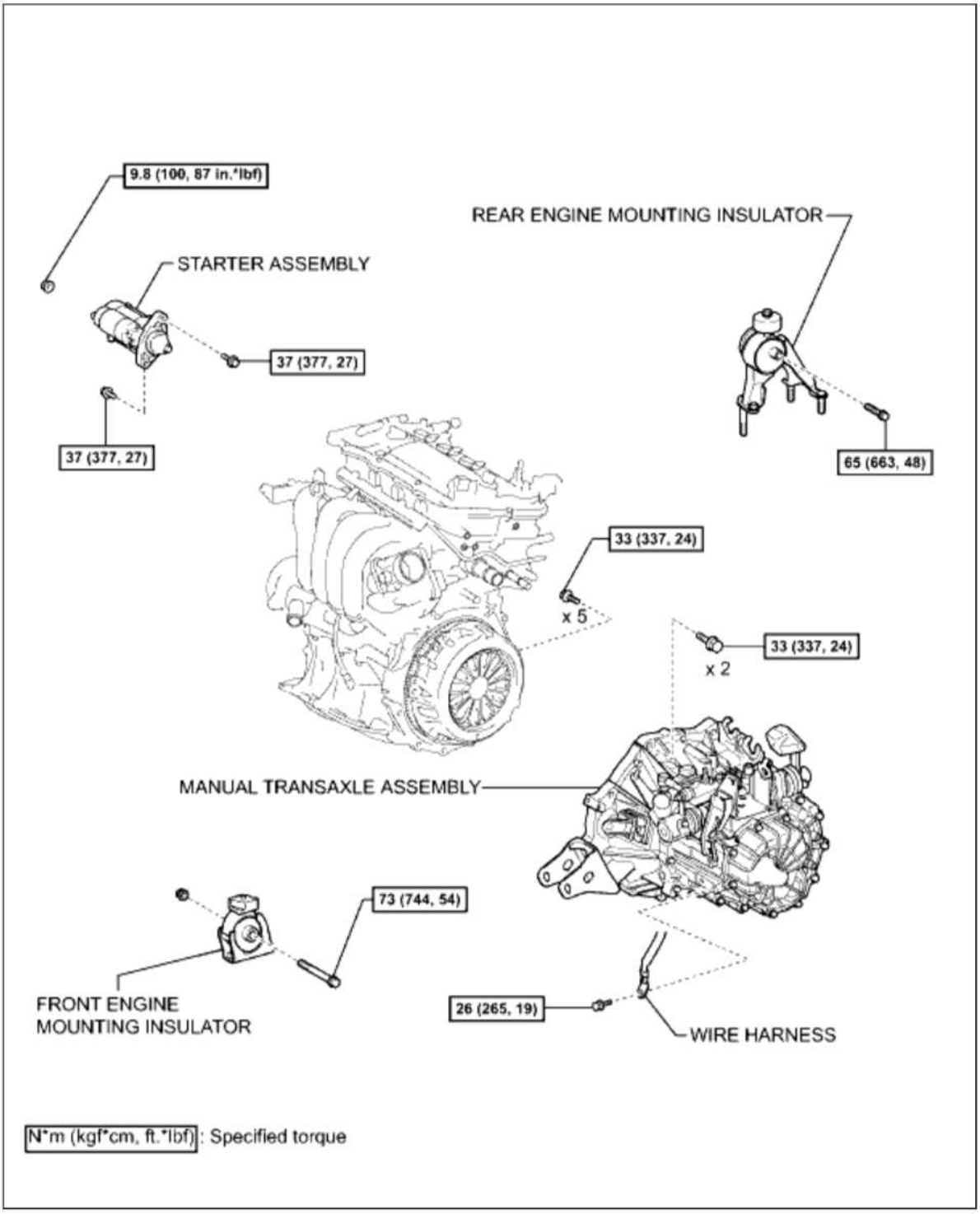
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3V02HX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: COMPONENTS (2010 Corolla)		

COMPONENTS

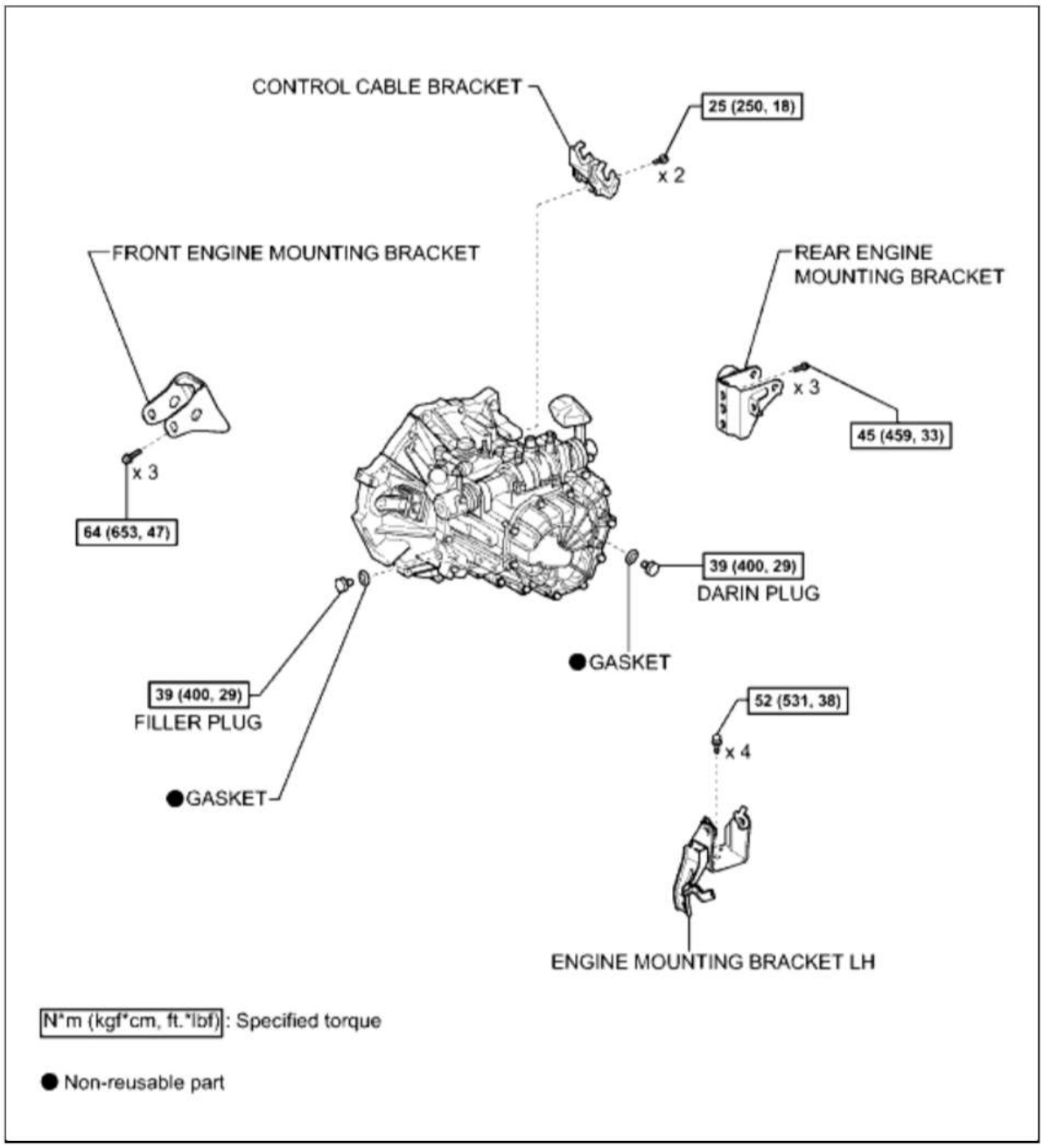
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3W02OX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE

HINT:

See the steps from "Discharge Fuel System Pressure" through "Remove Engine Assembly With Transaxle" INFO

.

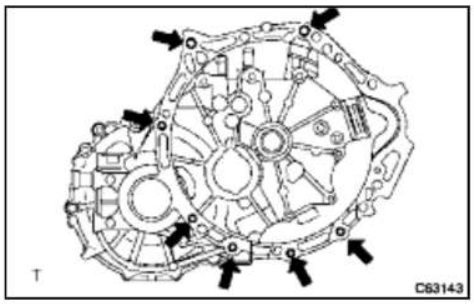
2. REMOVE REAR ENGINE MOUNTING INSULATOR INFO

3. REMOVE FRONT ENGINE MOUNTING INSULATOR INFO

4. INSTALL ENGINE HANGER INFO

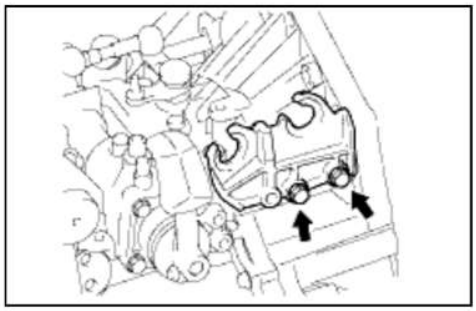
5. REMOVE STARTER ASSEMBLY INFO

6. REMOVE MANUAL TRANSAXLE ASSEMBLY



(a) Remove the 7 bolts and the manual transaxle.

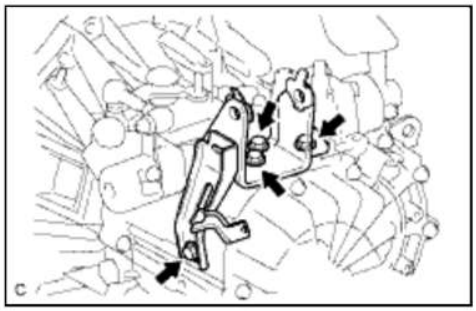
7. REMOVE CONTROL CABLE BRACKET



(a) Remove the 2 bolts and the control cable bracket.

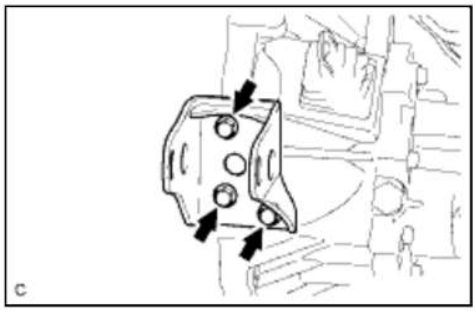
8. REMOVE ENGINE MOUNTING BRACKET LH

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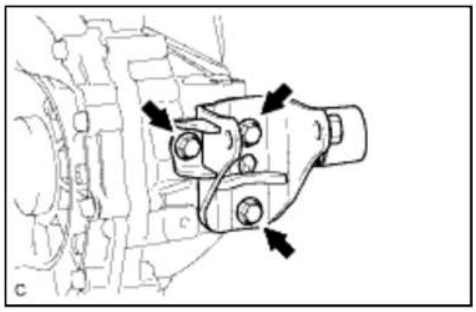
(a) Remove the 4 bolts and the engine mounting bracket LH.

9. REMOVE FRONT ENGINE MOUNTING BRACKET



(a) Remove the 3 bolts and the front engine mounting bracket.

10. REMOVE REAR ENGINE MOUNTING BRACKET



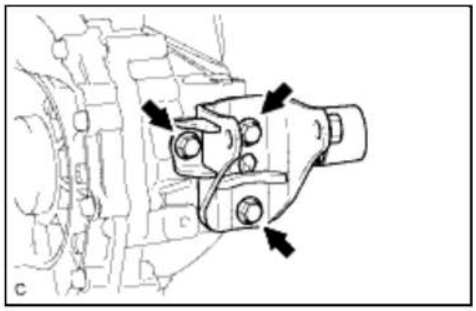
(a) Remove the 3 bolts and the rear engine mounting bracket.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3U02OX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: INSTALLATION (2010 Corolla)		

INSTALLATION

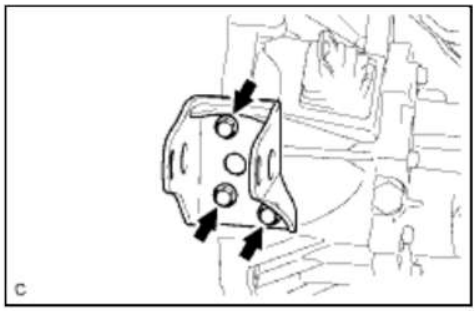
1. INSTALL REAR ENGINE MOUNTING BRACKET



(a) Install the rear engine mounting bracket with the 3 bolts.

Torque: 45 N·m (459 kgf·cm, 33ft·lbf)

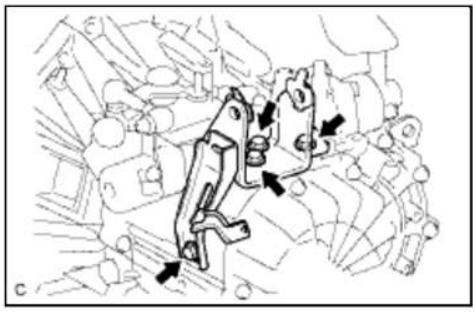
2. INSTALL FRONT ENGINE MOUNTING BRACKET



(a) Install the front engine mounting bracket with the 3 bolts.

Torque: 64 N·m (653 kgf·cm, 47ft·lbf)

3. INSTALL ENGINE MOUNTING BRACKET LH



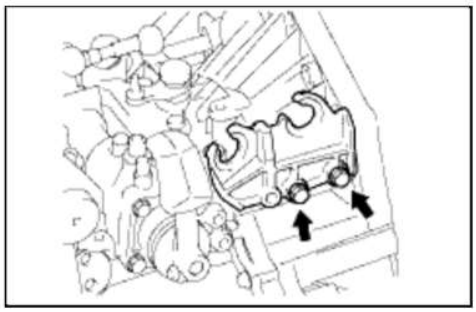
(a) Temporarily install the engine mounting bracket LH with the 4 bolts.

(b) Tighten the 4 bolts.

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Torque: 52 N·m (531 kgf·cm, 38ft·lbf)

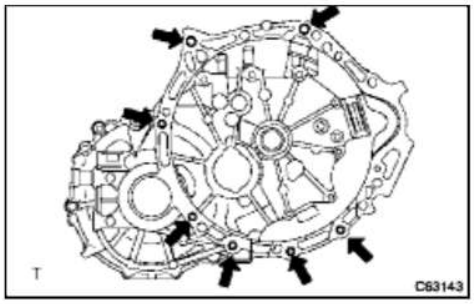
4. INSTALL CONTROL CABLE BRACKET



(a) Install the control cable bracket with the 2 bolts.

Torque: 25 N·m (250 kgf·cm, 18ft·lbf)

5. INSTALL MANUAL TRANSAXLE ASSEMBLY



(a) Align the input shaft with the clutch disc and install the manual transaxle onto the engine.

(b) Install the 7 bolts.

Torque: 33 N·m (337 kgf·cm, 24ft·lbf)

NOTICE:

- Insert dowel pins into the dowel holes securely so that the end face of the transaxle assembly fits close against the engine assembly before tightening the bolts.
- Make sure that the dowel pins are not loose, bent, damaged or scratched and then install the transaxle onto the engine with the contact surfaces of the engine and transaxle flat against each other.

6. INSTALL STARTER ASSEMBLY INFO

7. INSTALL REAR ENGINE MOUNTING INSULATOR INFO

8. INSTALL FRONT ENGINE MOUNTING INSULATOR INFO

9. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE

HINT:

See the steps from "Install Engine Assembly With Transaxle" through "Check ABS Speed Sensor Signa" INFO .

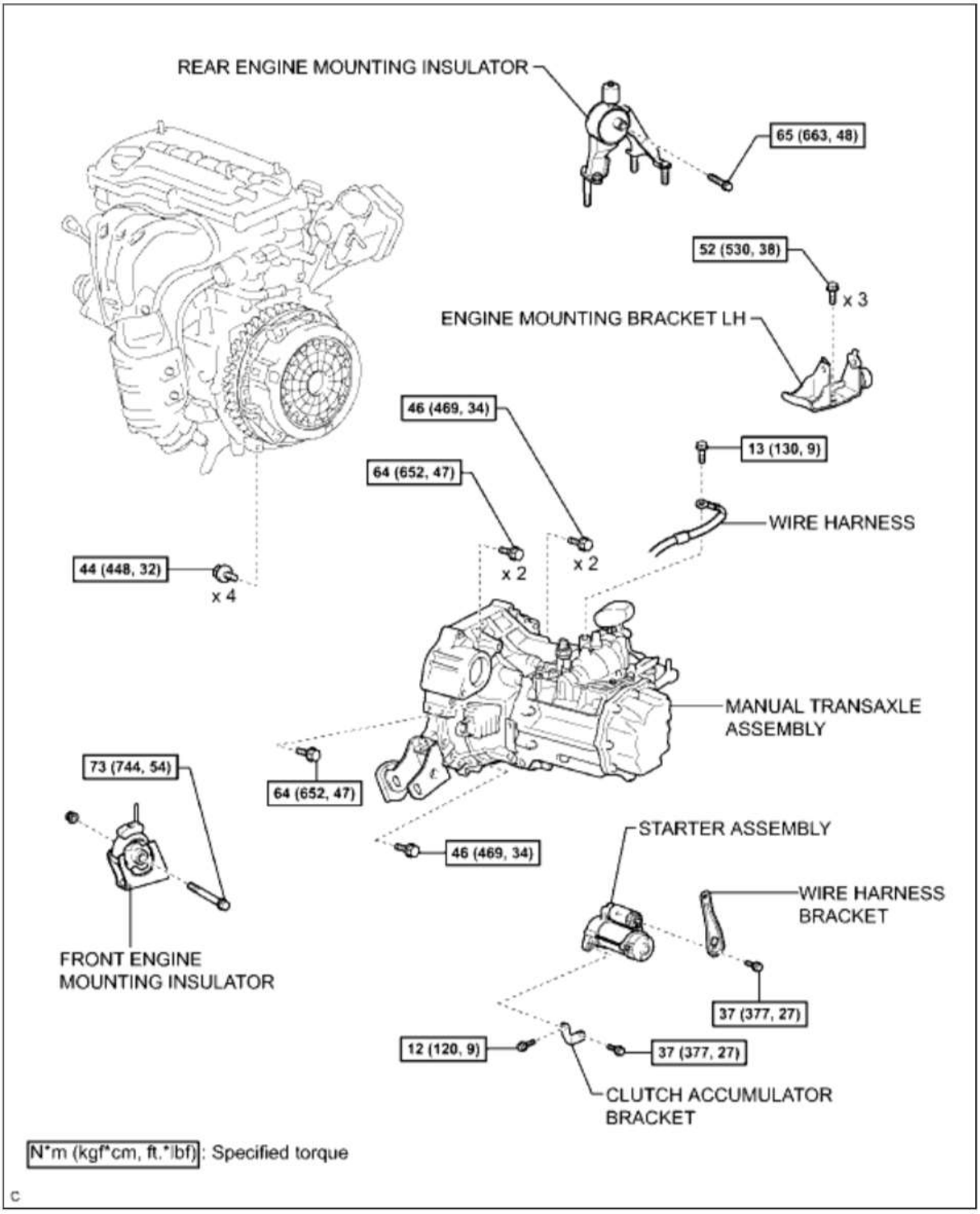
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3V02IX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: COMPONENTS (2010 Corolla)		

COMPONENTS

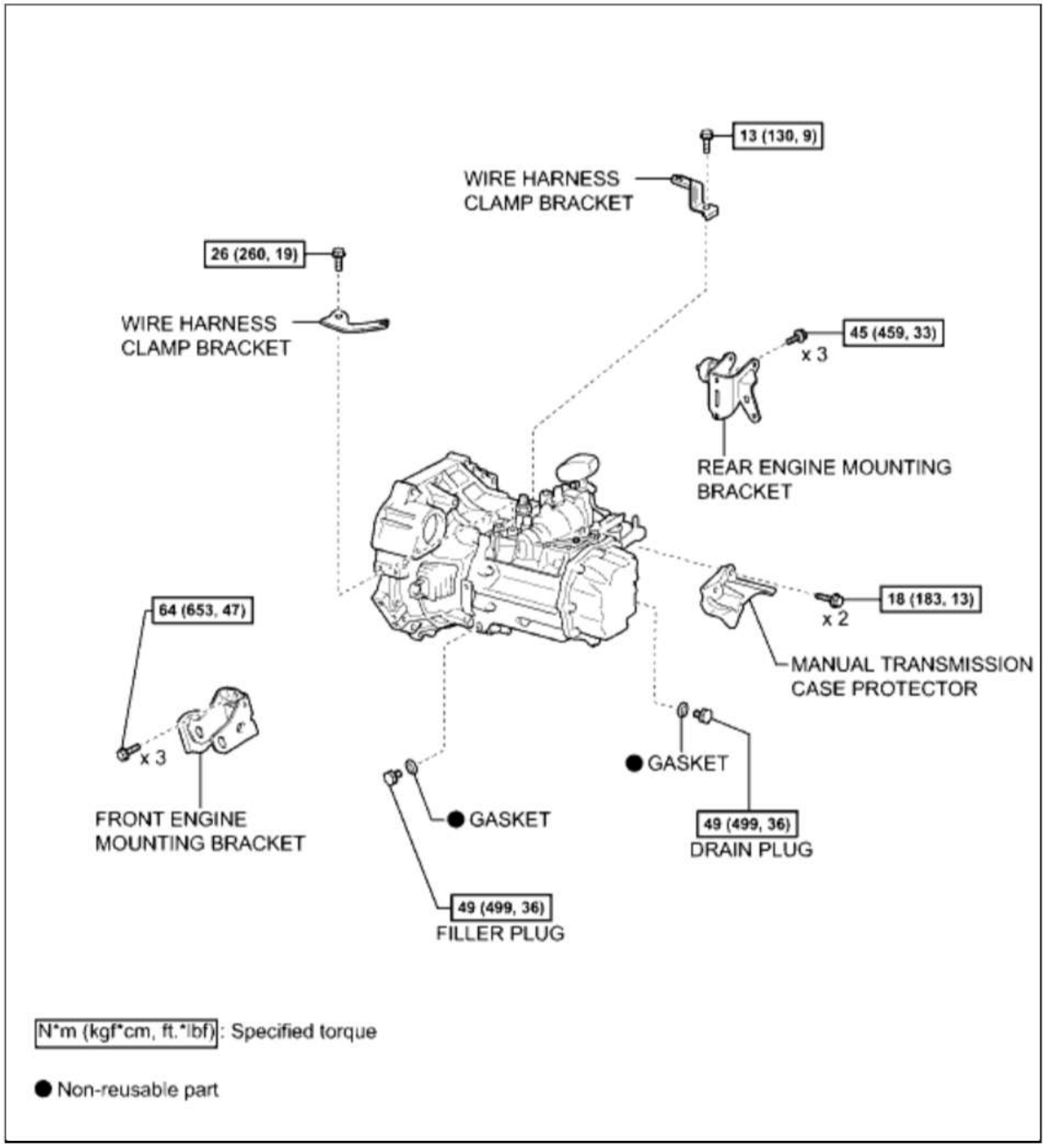
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3W02PX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE ENGINE ASSEMBLY WITH TRANSAXLE

HINT:

See the steps from "Discharge Fuel System Pressure" through "Remove Engine Assembly With Transaxle" INFO

.

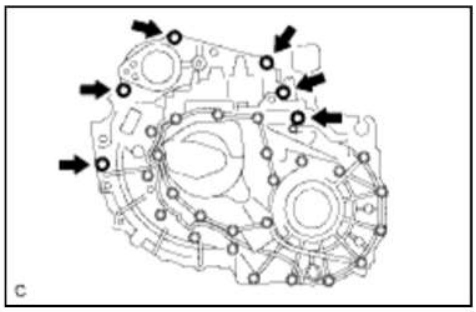
2. INSTALL ENGINE HANGER INFO

3. REMOVE FRONT ENGINE MOUNTING INSULATOR INFO

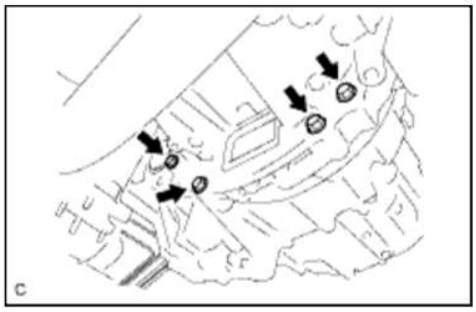
4. REMOVE REAR ENGINE MOUNTING INSULATOR INFO

5. REMOVE STARTER ASSEMBLY INFO

6. REMOVE MANUAL TRANSAXLE ASSEMBLY



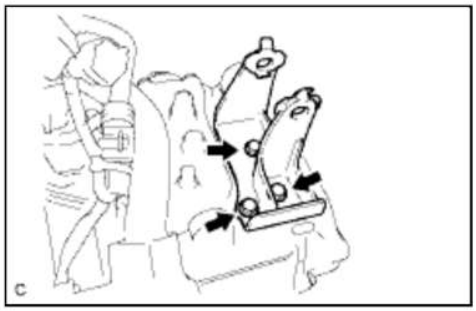
(a) Remove the 6 bolts.



(b) Remove the 4 bolts and the manual transaxle.

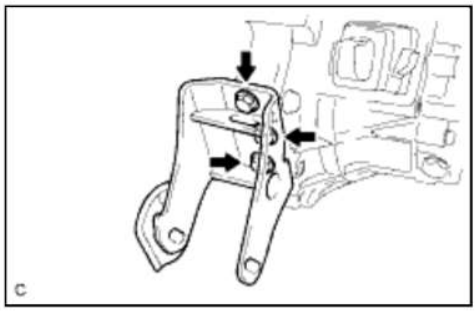
7. REMOVE ENGINE MOUNTING BRACKET LH

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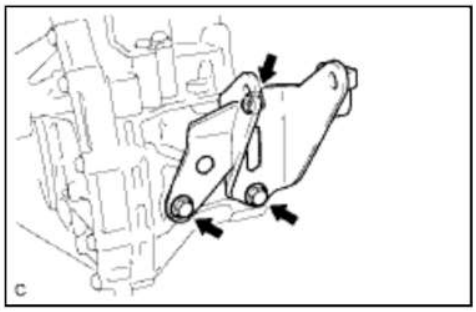
(a) Remove the 3 bolts and the engine mounting bracket LH.

8. REMOVE FRONT ENGINE MOUNTING BRACKET



(a) Remove the 3 bolts and the front engine mounting bracket.

9. REMOVE REAR ENGINE MOUNTING BRACKET

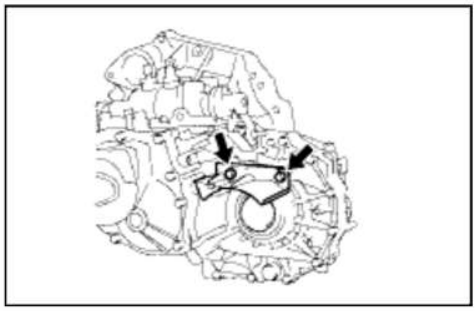


(a) Remove the 3 bolts and the rear engine mounting bracket.

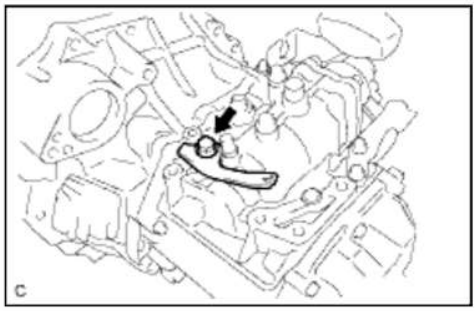
10. REMOVE MANUAL TRANSMISSION CASE PROTECTOR

(a) Remove the 2 bolts and the manual transmission case protector.

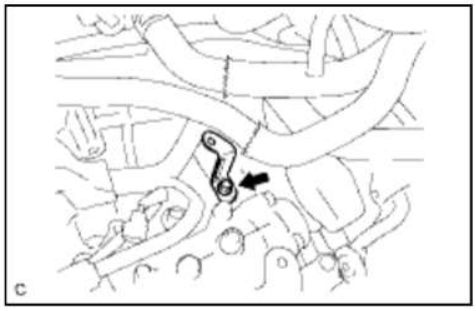
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11. REMOVE WIRE HARNESS CLAMP BRACKET



(a) Remove the bolt and wire harness clamp bracket.



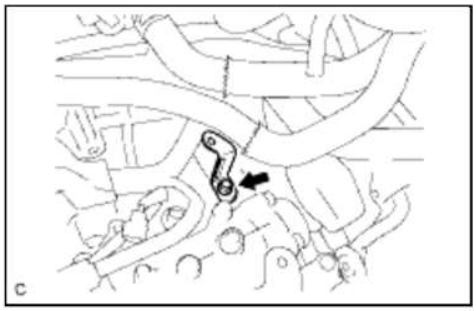
(b) Remove the bolt and wire harness clamp bracket.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3U02PX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE ASSEMBLY: INSTALLATION (2010 Corolla)		

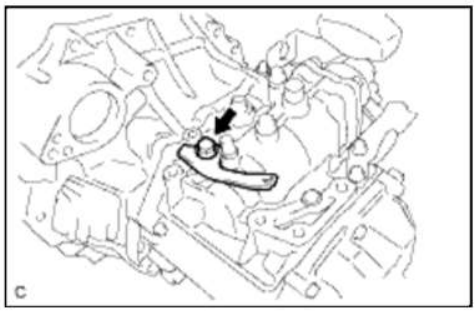
INSTALLATION

1. INSTALL WIRE HARNESS CLAMP BRACKET



(a) Install the wire harness clamp with the bolt.

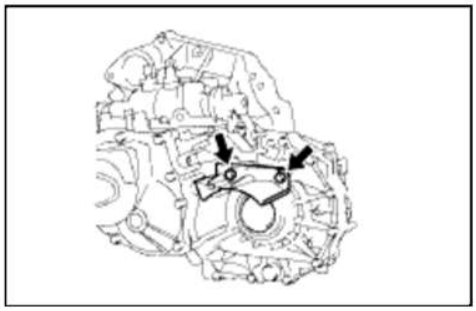
Torque: 13 N·m (130 kgf·cm, 9ft·lbf)



(b) Install the wire harness clamp bracket with the bolt.

Torque: 26 N·m (260 kgf·cm, 19ft·lbf)

2. INSTALL MANUAL TRANSMISSION CASE PROTECTOR

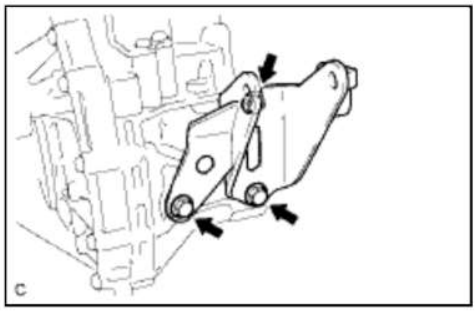


(a) Install the manual transmission case protector with the 2 bolts.

Torque: 18 N·m (183 kgf·cm, 13ft·lbf)

3. INSTALL REAR ENGINE MOUNTING BRACKET

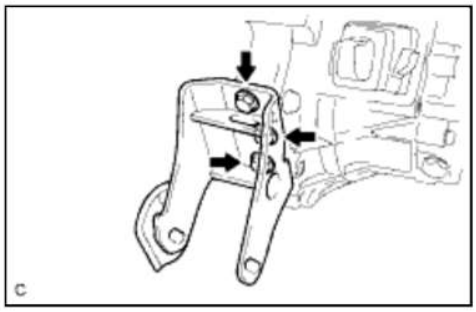
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(a) Install the rear engine mounting bracket with the 3 bolts.

Torque: 45 N·m (459 kgf·cm, 33ft·lbf)

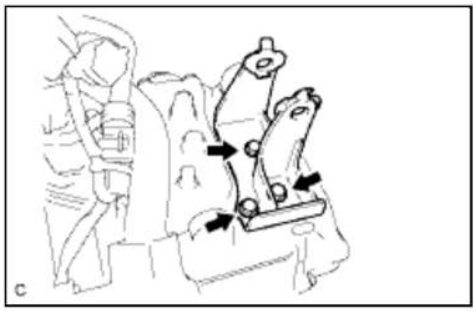
4. INSTALL FRONT ENGINE MOUNTING BRACKET



(a) Install the front engine mounting bracket with the 3 bolts.

Torque: 64 N·m (653 kgf·cm, 47ft·lbf)

5. INSTALL ENGINE MOUNTING BRACKET LH



(a) Temporarily install the engine mounting bracket LH with the 3 bolts.

(b) Tighten the 3 bolts.

Torque: 52 N·m (530 kgf·cm, 38ft·lbf)

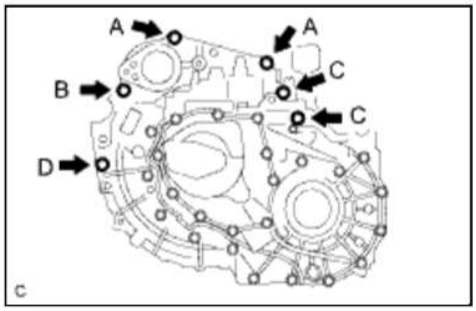
6. INSTALL MANUAL TRANSAXLE ASSEMBLY

(a) Align the input shaft with the clutch disc and install the manual transaxle onto the engine.

(b) Install the 6 bolts.

Bolt A - Torque: 64 N·m (652 kgf·cm, 47ft·lbf)
Bolt B - Torque: 64 N·m (652 kgf·cm, 47ft·lbf)

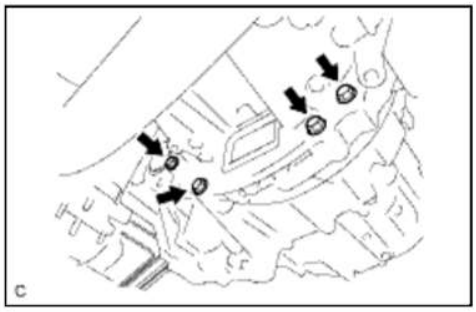
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Bolt C - Torque: 46 N·m (469 kgf·cm, 34ft·lbf)
Bolt D - Torque: 46 N·m (469 kgf·cm, 34ft·lbf)

NOTICE:

- Insert dowel pins into the dowel holes securely so that the end face of the transaxle assembly fits close against the engine assembly before tightening the bolts.
- Make sure that the dowel pins are not loose, bent, damaged or scratched and then install the transaxle onto the engine with the contact surfaces of the engine and transaxle flat against each other.



(c) Install the 4 bolts.

Torque: 44 N·m (448 kgf·cm, 32ft·lbf)

7. INSTALL STARTER ASSEMBLY INFO

8. TEMPORARILY TIGHTEN FRONT ENGINE MOUNTING INSULATOR INFO

9. TEMPORARILY TIGHTEN REAR ENGINE MOUNTING INSULATOR INFO

10. INSTALL ENGINE ASSEMBLY WITH TRANSAXLE

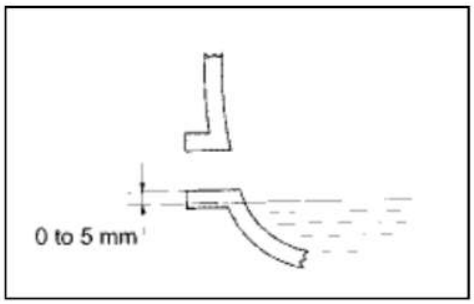
HINT:

See the steps from "Install Engine Assembly With Transaxle" through "Check ABS Speed Sensor Signal" INFO .

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3K01NX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE OIL: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION



1. INSPECT TRANSAXLE OIL

(a) Stop the vehicle in a level place.

(b) Remove the transmission filler plug and the gasket.

(c) Check that the oil surface is within 5 mm (0.197 in.) of the bottom of the transmission filler plug opening.

NOTICE:

- Excessively large or small amounts of oil may cause problems.
- After replacing the oil, drive the vehicle and check the oil level again.

(d) Check for oil leakage when the oil level is low.

(e) Install the transmission filler plug and a new gasket.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Z2L019X
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE OIL: REPLACEMENT (2010 Corolla)		

REPLACEMENT

1. REMOVE ENGINE UNDER COVER LH

2. DRAIN MANUAL TRANSAXLE OIL

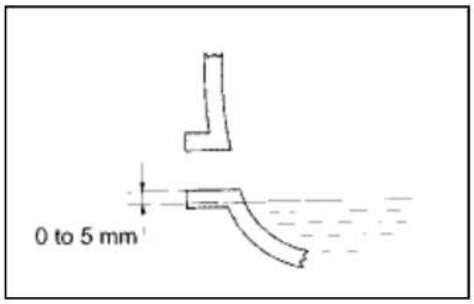
(a) Remove the filler plug and the gasket.

(b) Remove the drain plug and gasket, and then drain the manual transaxle oil.

3. ADD MANUAL TRANSAXLE OIL

(a) Install a new gasket and the drain plug.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)



(b) Add manual transaxle oil.

(c) Install the transmission filler plug and a new gasket.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)

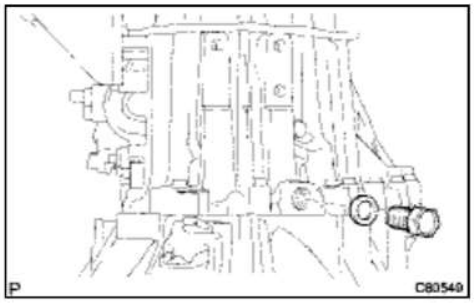
4. INSPECT MANUAL TRANSAXLE OIL INFO

5. INSTALL ENGINE UNDER COVER LH

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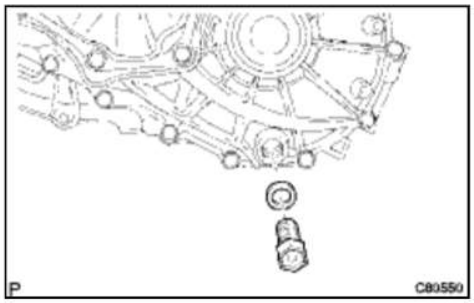
Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1501QX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY



1. REMOVE MANUAL TRANSMISSION FILLER PLUG

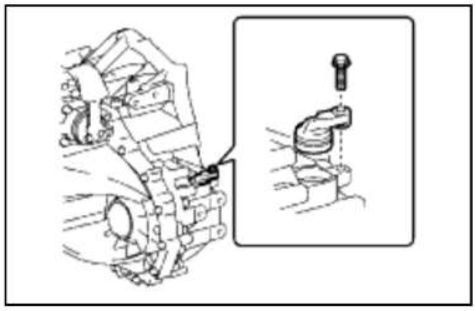
(a) Remove the manual transmission filler plug and gasket from the manual transmission case.



2. REMOVE DRAIN PLUG SUB-ASSEMBLY

(a) Remove the drain plug sub-assembly and gasket from the manual transmission case.

3. REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

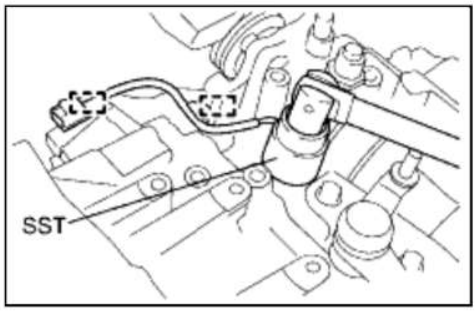


(a) Remove the bolt and speedometer driven hole cover sub-assembly from the transaxle case.

(b) Remove the O-ring from the speedometer driven hole cover sub-assembly.

4. REMOVE BACK-UP LIGHT SWITCH ASSEMBLY

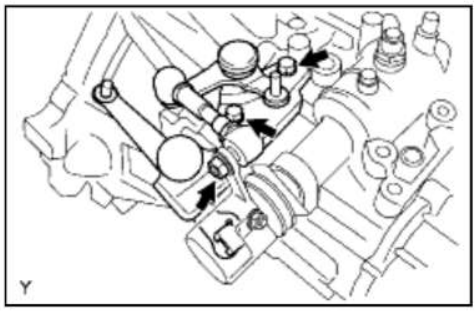
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(a) Separate the back-up light switch wire harness from the 2 clamps.

(b) Using SST, remove the back-up light switch assembly and gasket from the manual transmission case.

SST: 09817-16011

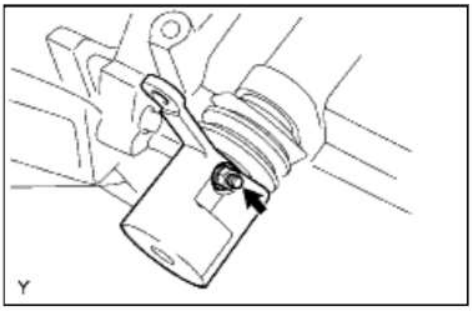


5. REMOVE SELECTING BELLCRANK ASSEMBLY

(a) Remove the 2 bolts, nut and selecting bellcrank assembly from the manual transmission case.

(b) Remove the control bellcrank dust cover.

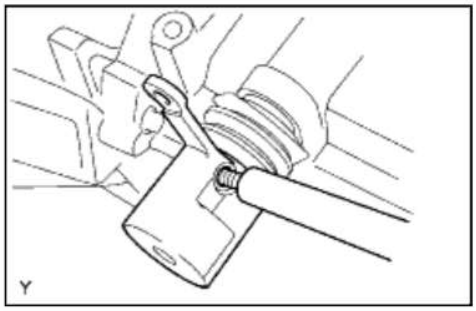
6. REMOVE FLOOR SHIFT CONTROL SHIFT LEVER



(a) Remove the nut and washer.

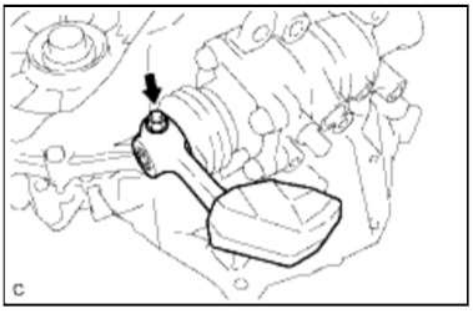
(b) Using a brass bar and a hammer, remove the lock pin.

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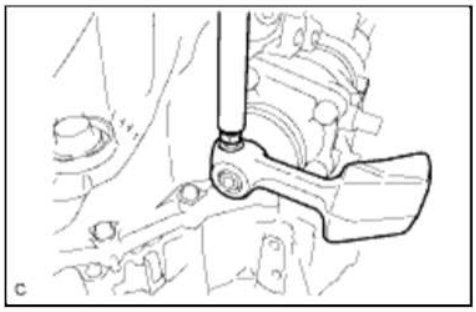


(c) Remove the floor shift control shift lever and dust boot.

7. REMOVE SHIFT LEVER DAMPER

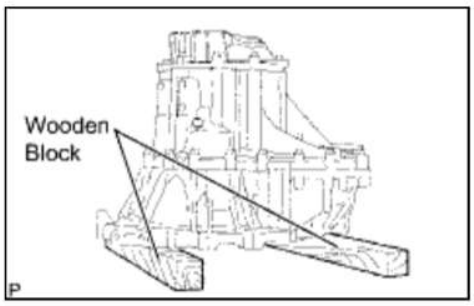


(a) Remove the nut and washer.



(b) Using a brass bar and a hammer, remove the lock pin.

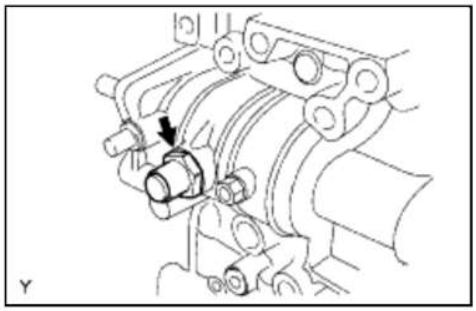
(c) Remove the shift lever damper and dust boot.



8. PREPARE MANUAL TRANSAXLE ASSEMBLY

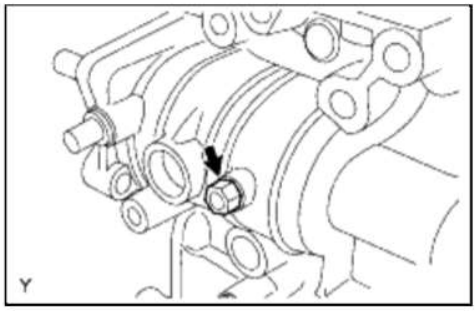
(a) Place the manual transaxle assembly on wooden blocks.

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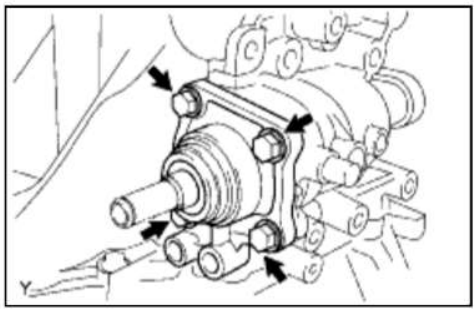
9. REMOVE NO. 1 LOCK BALL ASSEMBLY

(a) Remove the No. 1 lock ball assembly from the manual transmission case.



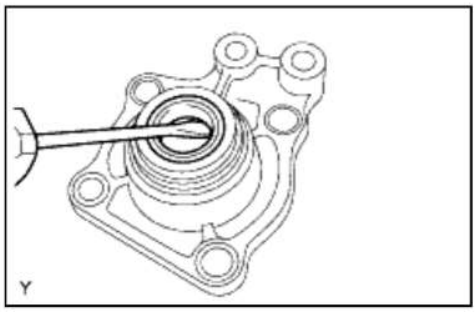
10. REMOVE SHIFT GUIDE PIN

(a) Remove the shift guide pin and washer from the manual transmission case.



11. REMOVE CONTROL SHAFT COVER

(a) Remove the 4 bolts, control shaft cover and gasket from the manual transmission case.

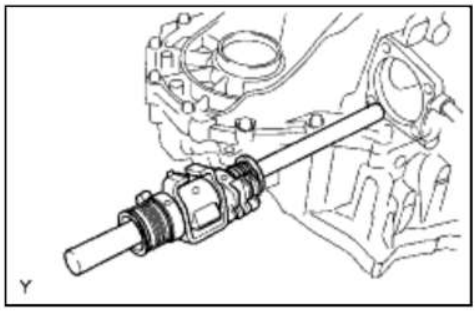


12. REMOVE CONTROL SHAFT COVER OIL SEAL

(a) Using a screwdriver, remove the control shaft cover oil seal from the control shaft cover.

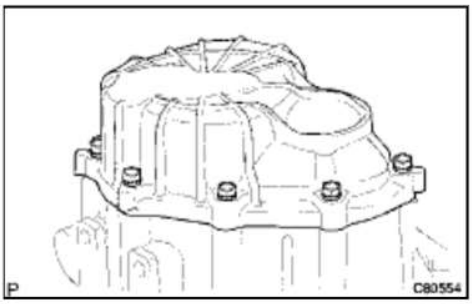
13. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY

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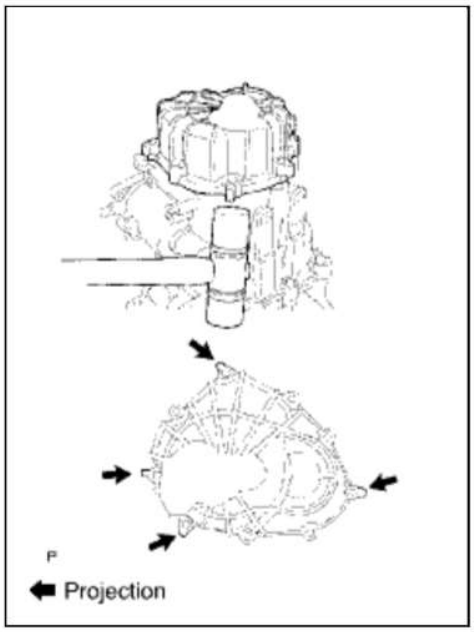


(a) Remove the shift and select lever shaft assembly from the manual transmission case.

14. REMOVE MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY



(a) Remove the 9 bolts.



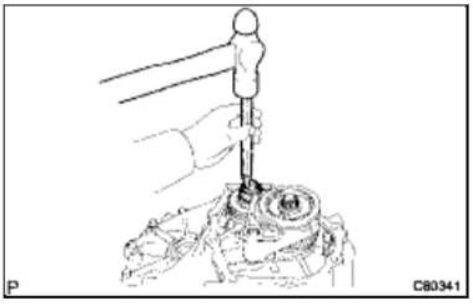
(b) Using a plastic hammer, carefully tap the projections of the manual transmission case cover sub-assembly to remove the manual transmission case cover from the manual transmission case.

NOTICE:

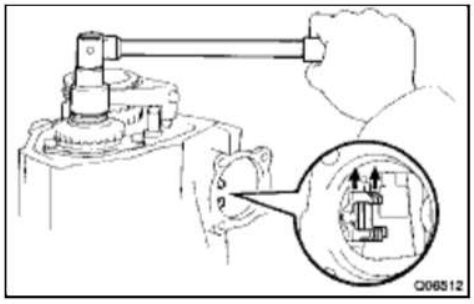
Do not damage the manual transmission case.

15. REMOVE MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT

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(a) Using a chisel and a hammer, loosen the staked part of the manual transmission output shaft rear set nut.

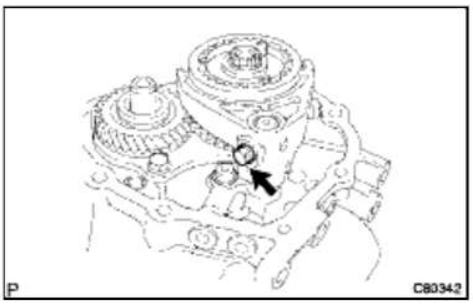


(b) Engage 2 gears simultaneously to lock the transmission.

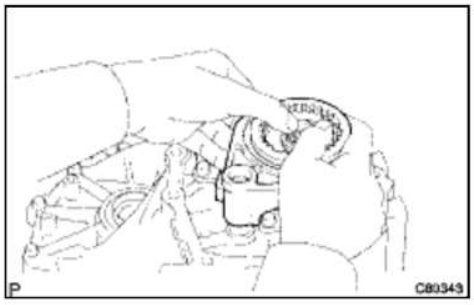
(c) Remove the manual transmission output shaft rear set nut.

(d) Disengage the 2 gears.

16. REMOVE NO. 3 GEAR SHIFT FORK



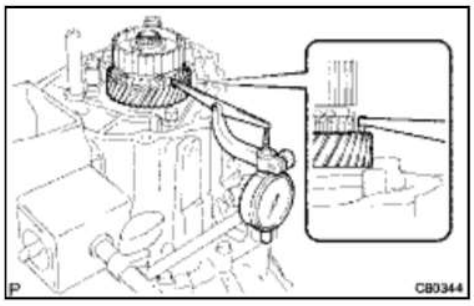
(a) Remove the gear shift fork lock bolt from the No. 3 gear shift fork.



(b) Remove the No. 3 transmission hub sleeve with the No. 3 gear shift fork from the No. 3 transmission clutch hub.

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17. INSPECT 5TH GEAR THRUST CLEARANCE

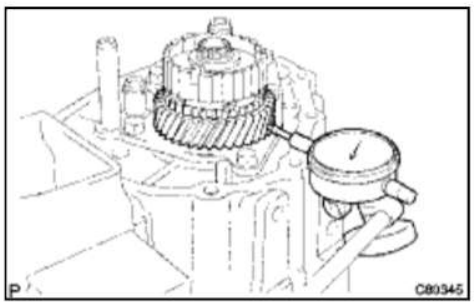


(a) Using a dial indicator, measure the 5th gear thrust clearance.

Standard clearance:
0.10 to 0.55 mm (0.00394 to 0.0217 in.)
Maximum clearance:
0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 3 transmission clutch hub, 5th gear or input shaft rear radial ball bearing.

18. INSPECT 5TH GEAR RADIAL CLEARANCE

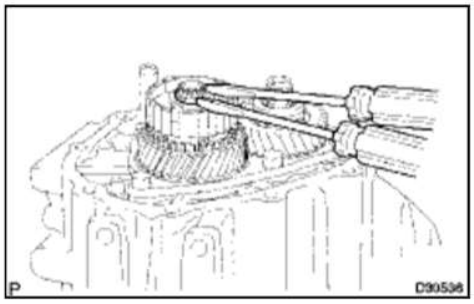


(a) Using a dial indicator, measure the 5th gear radial clearance.

Standard clearance:
NSK made bearing
0.015 to 0.056 mm (0.000591 to 0.00220 in.)
JTEKT made bearing
0.015 to 0.058 mm (0.000591 to 0.00228 in.)
Maximum clearance:
NSK made bearing
0.056 mm (0.00220 in.)
JTEKT made bearing
0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 5th gear, 5th gear needle roller bearing or input shaft.

19. REMOVE NO. 3 TRANSMISSION CLUTCH HUB



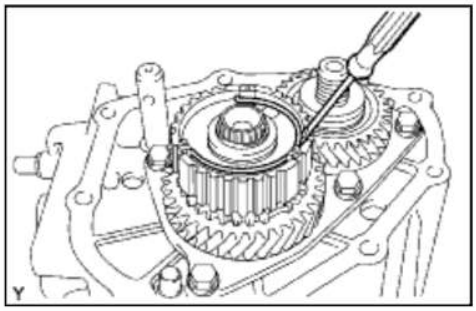
(a) Using 2 screwdrivers and a hammer, tap out the snap ring.

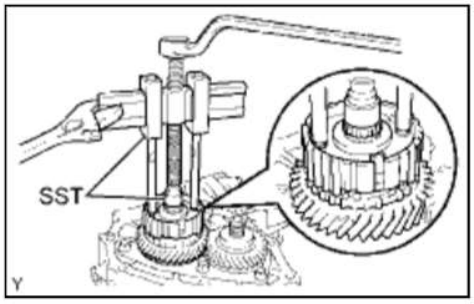
HINT:

Use a piece of cloth to keep the snap ring from flying off.

(b) Using a screwdriver, remove the synchromesh shifting key spring from the No. 3 transmission clutch hub.

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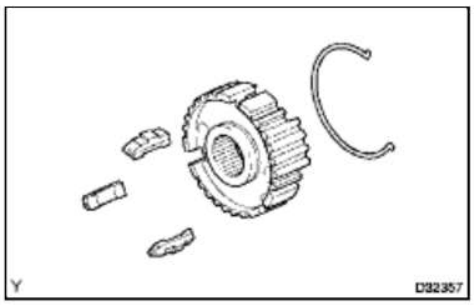
(c) Using SST, remove the No. 3 transmission clutch hub, 5th gear, and No. 3 synchronizer ring from the input shaft.

SST: 09950-50013

09951-05010
09952-05010
09953-05020
09954-05031
09957-04010

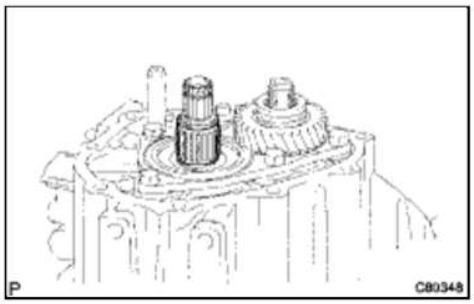
SST: 09950-60010

09951-00200



(d) Remove the 3 synchromesh shifting keys and synchromesh shifting key spring from the No. 3 transmission clutch hub.

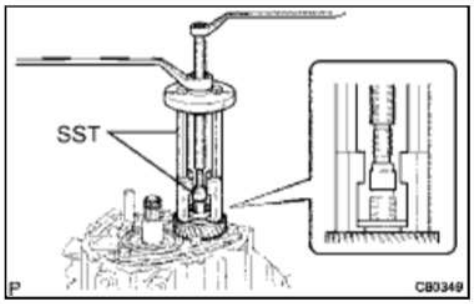
20. REMOVE 5TH GEAR NEEDLE ROLLER BEARING



(a) Remove the 5th gear needle roller bearing and 5th gear bearing spacer from the input shaft.

21. REMOVE 5TH DRIVEN GEAR

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(a) Using SST, remove the 5th driven gear from the output shaft.

SST: 09950-30012

09951-03010

09953-03010

09954-03010

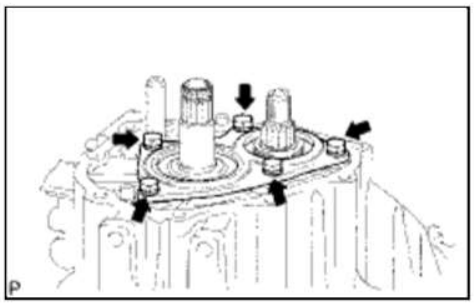
09955-03021

SST: 09950-60010

09951-00180

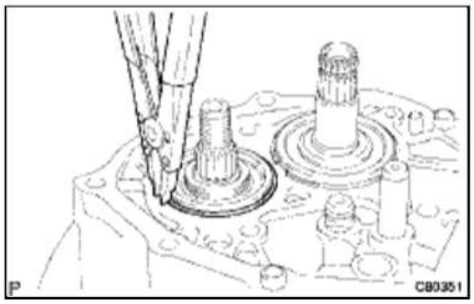
09952-06010

22. REMOVE REAR BEARING RETAINER



(a) Remove the 5 bolts and rear bearing retainer from the manual transmission case.

23. REMOVE OUTPUT SHAFT REAR BEARING HOLE SNAP RING

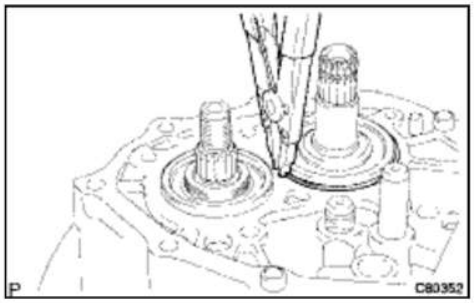


(a) Using a snap ring expander, remove the output shaft rear bearing hole snap ring from the output shaft.

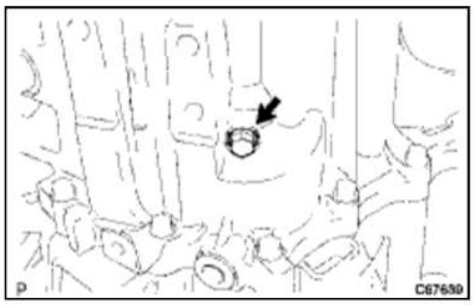
24. REMOVE INPUT SHAFT REAR BEARING HOLE SNAP RING

(a) Using a snap ring expander, remove the input shaft rear bearing hole snap ring from the input shaft.

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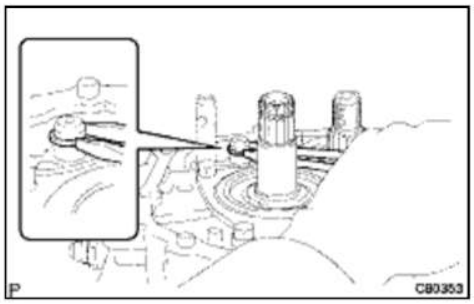


25. REMOVE REVERSE IDLER GEAR SHAFT BOLT



(a) Remove the reverse idler gear shaft bolt and gasket from the manual transmission case.

26. REMOVE SHIFT FORK SHAFT SNAP RING

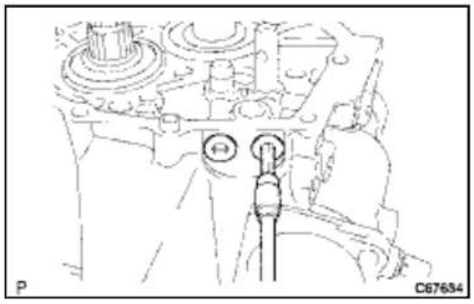


(a) Using 2 screwdrivers and a hammer, tap out the snap ring from the No. 2 gear shift fork shaft.

HINT:

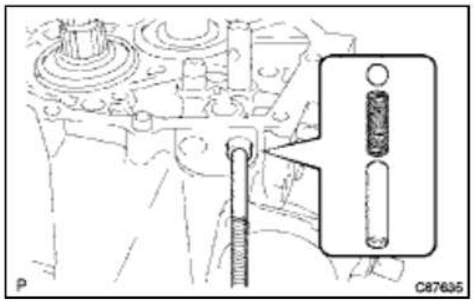
Use a piece of cloth to keep the snap ring from flying off.

27. REMOVE SHIFT DETENT BALL

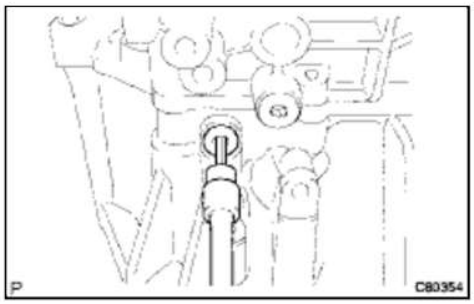


(a) Using a hexagon wrench, remove the 2 shift detent ball plugs from the manual transmission case.

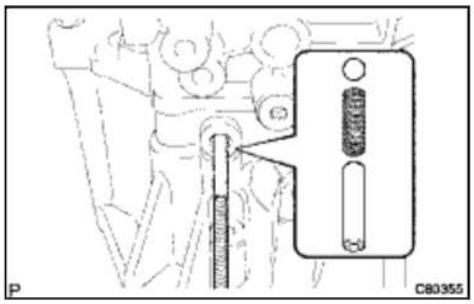
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(b) Using a magnetic pick-up tool, remove the 2 shift spring seats, 2 shift detent ball springs, and 2 shift detent balls from the manual transmission case.

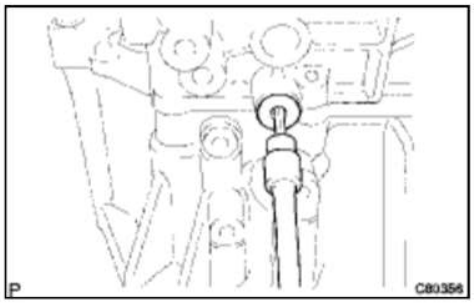


(c) Using a hexagon wrench, remove the shift detent ball plug from the transaxle case.



(d) Using a magnetic pick-up tool, remove the seat, spring and ball from the transaxle case.

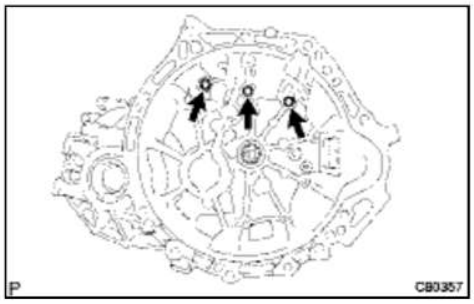
28. REMOVE NO. 2 LOCK BALL ASSEMBLY



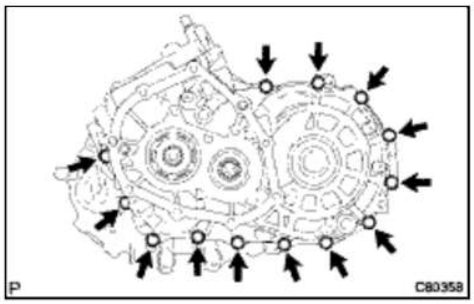
(a) Using a hexagon wrench, remove the No. 2 lock ball assembly from the manual transmission case.

29. REMOVE MANUAL TRANSMISSION CASE

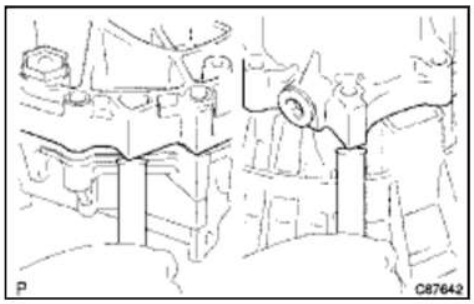
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(a) Remove the 3 bolts from the transaxle case.



(b) Remove the 13 bolts from the manual transmission case.

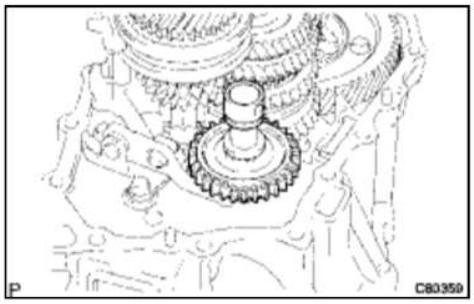


(c) Using a brass bar and a hammer, carefully tap the projections of the manual transmission case to remove the transmission case from the transaxle case.

NOTICE:

Do not damage the manual transmission case or transaxle case.

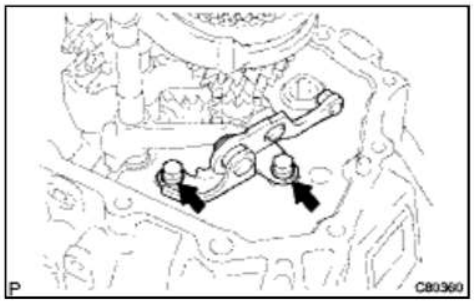
30. REMOVE REVERSE IDLER GEAR SUB-ASSEMBLY



(a) Remove the reverse idler gear sub-assembly, thrust washer, and reverse idler gear shaft from the transaxle case.

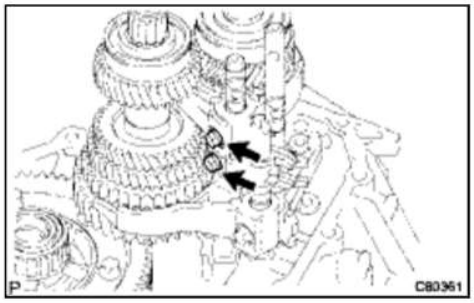
31. REMOVE REVERSE SHIFT ARM BRACKET ASSEMBLY

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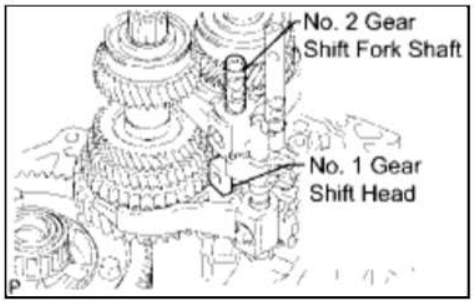


(a) Remove the 2 bolts and reverse shift arm bracket assembly from the transaxle case.

32. REMOVE NO. 2 GEAR SHIFT FORK SHAFT

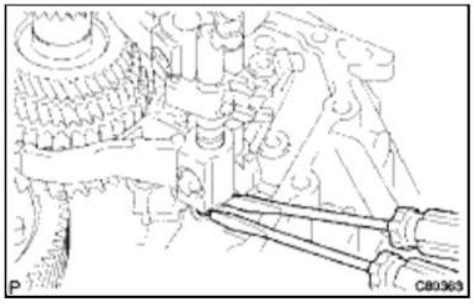


(a) Remove the 2 bolts from the No. 2 gear shift fork and No. 1 gear shift head.



(b) Remove the No. 2 gear shift fork shaft and No. 1 gear shift head from the transaxle case.

33. REMOVE NO. 1 GEAR SHIFT FORK SHAFT

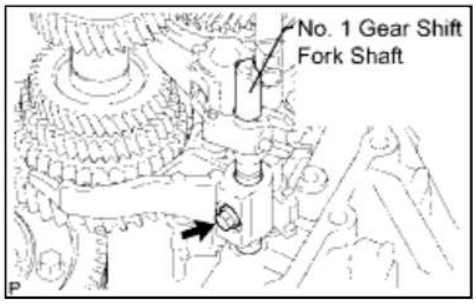


(a) Using 2 screwdrivers and a hammer, tap out the snap ring.

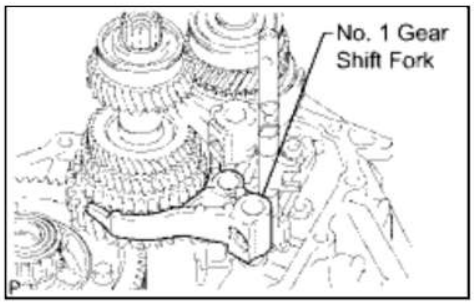
HINT:

Use a piece of cloth to keep the snap ring from flying off.

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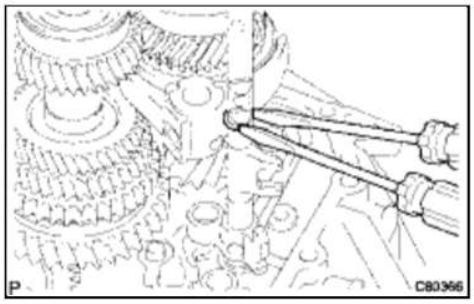


(b) Remove the shift fork set bolt and No. 1 gear shift fork shaft from the No. 1 gear shift fork.



(c) Remove the No. 1 gear shift fork.

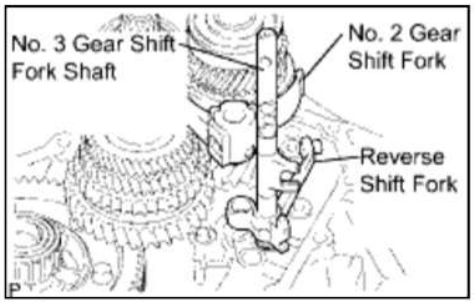
34. REMOVE NO. 3 GEAR SHIFT FORK SHAFT



(a) Using 2 screwdrivers and a hammer, tap out the snap ring from the No. 3 gear shift fork shaft.

HINT:

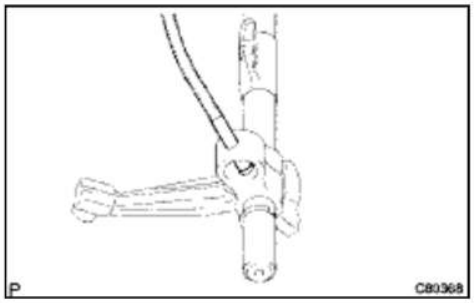
Use a piece of cloth to keep the snap ring from flying off.



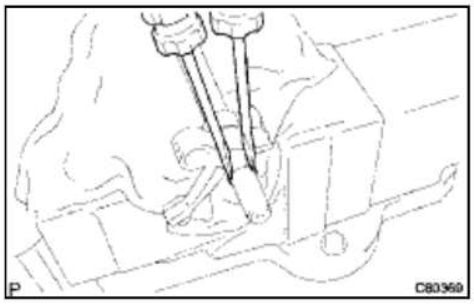
(b) Remove the No. 3 gear shift fork shaft together with the reverse shift fork and No. 2 gear shift fork from the manual transaxle case.

(c) Using a magnetic pick-up tool, remove the 2 reverse shift

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fork balls from the reverse shift fork.



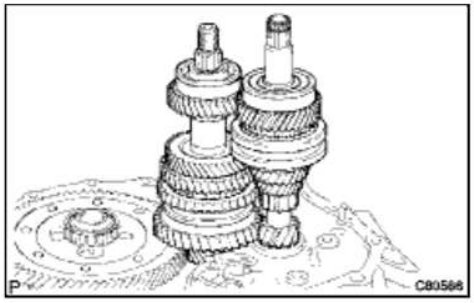
(d) Using 2 screwdrivers and a hammer, tap the snap ring out of the No. 3 shift fork shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying off.

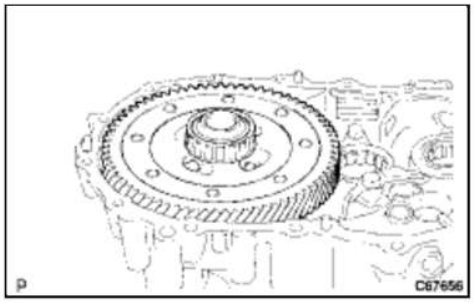
(e) Remove the reverse shift fork from the No. 3 gear shift fork shaft.

35. REMOVE INPUT SHAFT ASSEMBLY



(a) Remove the input shaft assembly and output shaft assembly from the transaxle case.

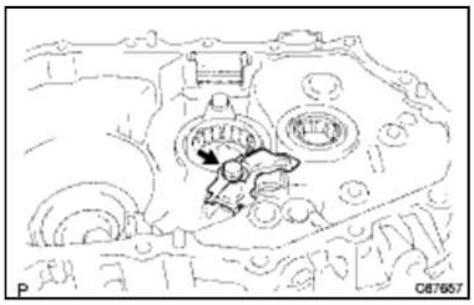
36. REMOVE DIFFERENTIAL CASE ASSEMBLY



(a) Remove the differential case assembly from the transaxle case.

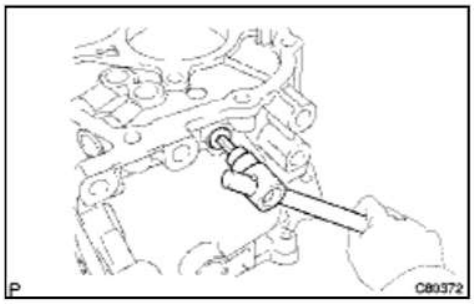
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37. REMOVE MANUAL TRANSAXLE CASE RECEIVER

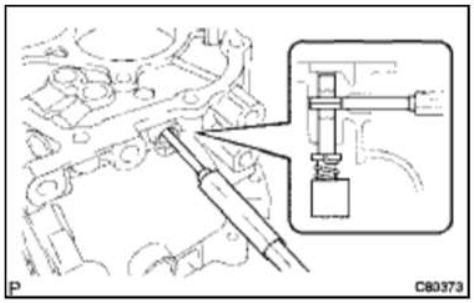


(a) Remove the bolt and manual transaxle case receiver from the transaxle case.

38. REMOVE REVERSE RESTRICT PIN ASSEMBLY



(a) Using a hexagon wrench, remove the reverse restrict pin assembly from the manual transmission case.



(b) Using a pin punch (φ5 mm) and a hammer, drive out the slotted spring pin and remove the reverse restrict pin assembly from the manual transmission case.

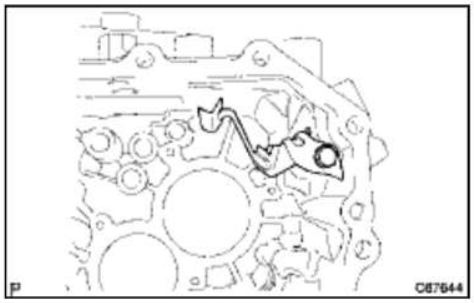
39. REMOVE NO. 1 OIL RECEIVER PIPE

(a) Remove the bolt and No. 1 oil receiver pipe from the manual transmission case.

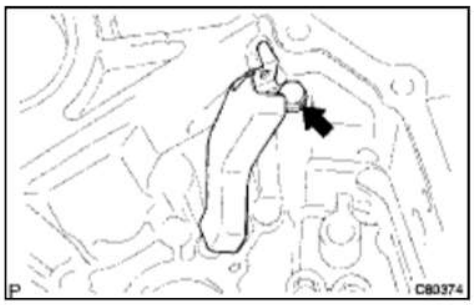
NOTICE:

Do not damage the No. 1 oil receiver pipe.

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40. REMOVE NO. 2 OIL RECEIVER PIPE

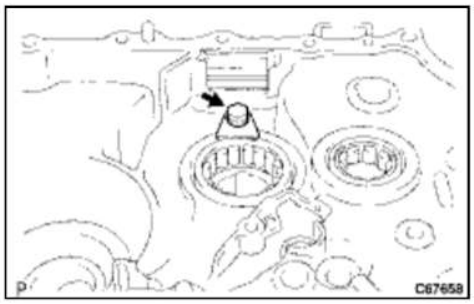


(a) Remove the bolt and No. 2 oil receiver pipe from the manual transmission case.

NOTICE:

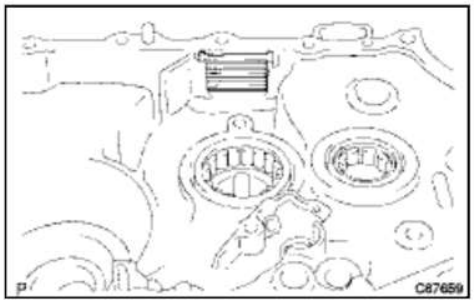
Do not damage the No. 2 oil receiver pipe.

41. REMOVE BEARING LOCK PLATE



(a) Remove the bolt and bearing lock plate from the transaxle case.

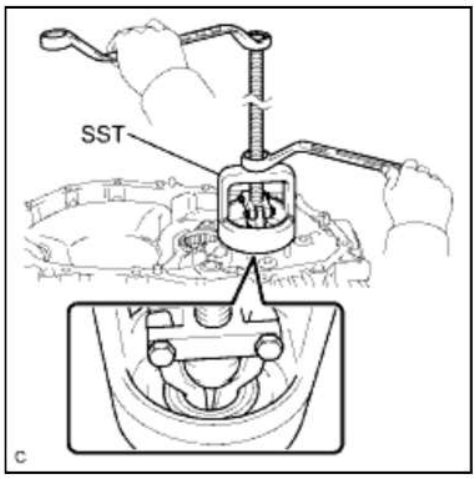
42. REMOVE TRANSMISSION MAGNET



(a) Remove the transmission magnet from the transaxle case.

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43. REMOVE INPUT SHAFT FRONT BEARING



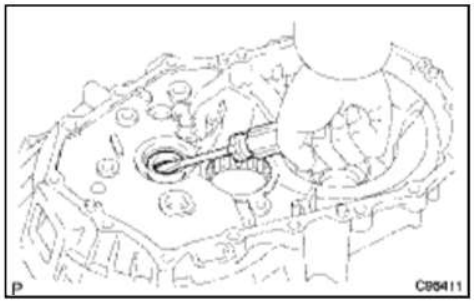
(a) Using SST, remove the input shaft front bearing from the transaxle case.

SST: 09612-65014

09612-01050

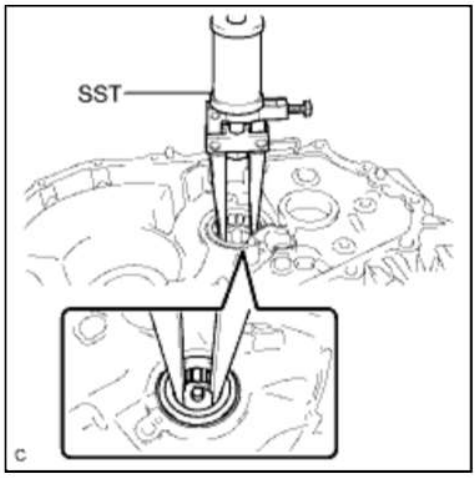
09612-01060

44. REMOVE FRONT TRANSAXLE CASE OIL SEAL



(a) Using a screwdriver, remove the front transaxle case oil seal from the transaxle case.

45. REMOVE OUTPUT SHAFT FRONT BEARING



(a) Using SST, remove the output shaft front bearing from the transaxle case.

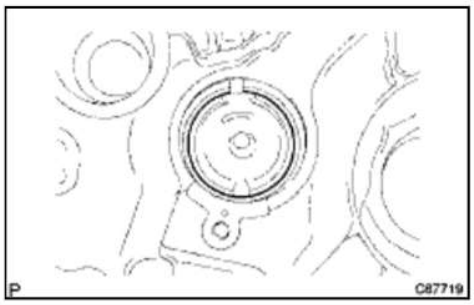
SST: 09308-00010

NOTICE:

Do not apply excessive force to the front transaxle case when installing SST.

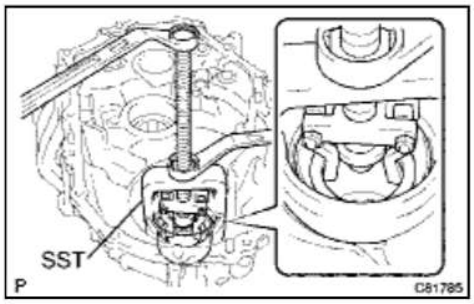
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46. REMOVE OUTPUT SHAFT COVER



(a) Remove the output shaft cover from the transaxle case.

47. REMOVE FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING

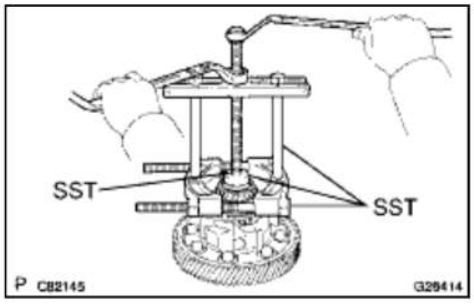


(a) Using SST, remove the front differential case front tapered roller bearing (outer race) and plate washer from the transaxle case.

SST: 09612-65014

09612-01040

09612-01050



(b) Using SST, remove the front differential case front tapered roller bearing (inner race) from the differential case assembly.

SST: 09950-00020

SST: 09950-00030

SST: 09950-40011

09957-04010

SST: 09950-60010

09951-00360

48. REMOVE TRANSAXLE CASE OIL SEAL

(a) Using SST and a hammer, remove the transaxle case oil seal from the transaxle case.

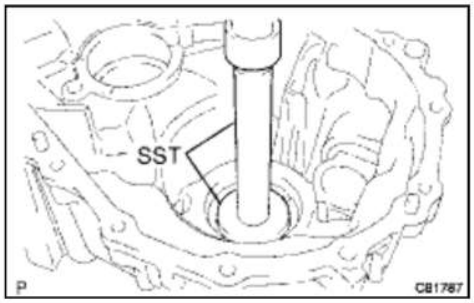
SST: 09950-60010

09951-00530

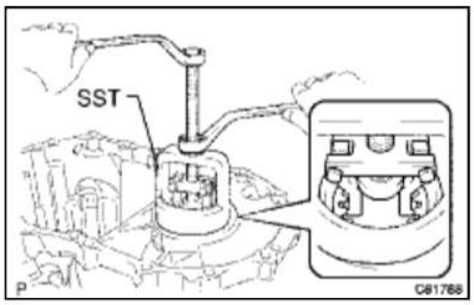
SST: 09950-70010

09951-07150

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49. REMOVE FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING



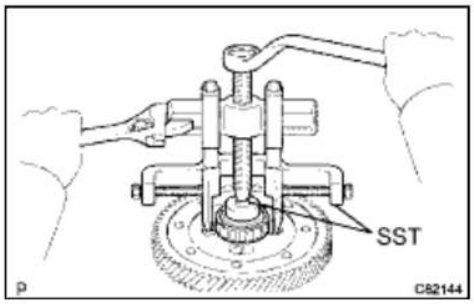
(a) Using SST, remove the front differential case rear tapered roller bearing (outer race) and plate washer from the transmission case.

SST: 09612-65014

09612-01040

09612-01050

(b) Using SST, remove the front differential case rear tapered roller bearing (inner race) from the front differential case.



SST: 09950-40011

09951-04010

09952-04010

09953-04020

09954-04010

09955-04061

09957-04010

09958-04011

SST: 09950-60010

09951-00360

50. REMOVE TRANSMISSION CASE OIL SEAL

(a) Using SST and a hammer, drive out the transmission case oil seal from the manual transmission case.

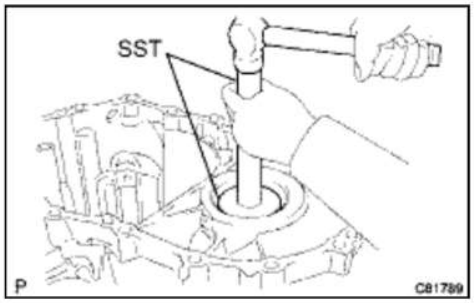
SST: 09950-60010

09951-00530

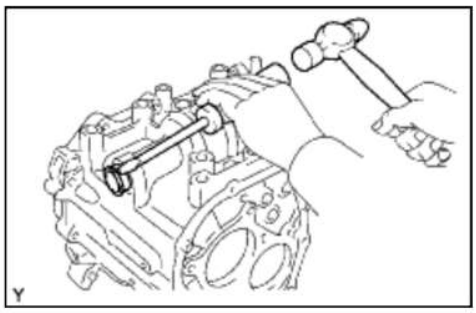
SST: 09950-70010

09951-07150

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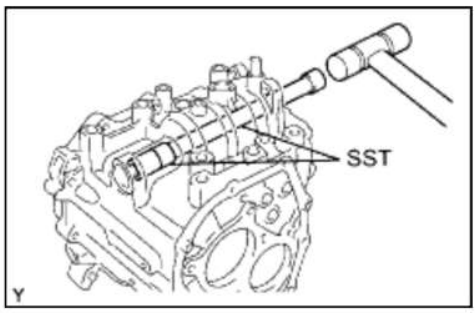


51. REMOVE SHIFT AND SELECT LEVER SHAFT OIL SEAL



(a) Using a screwdriver and a hammer, remove the shift and select lever shaft oil seal.

52. REMOVE SHIFT AND SELECT LEVER SHAFT SLIDE BALL BEARING



(a) Using SST and a plastic hammer, remove the shift and select lever shaft slide ball bearing.

SST: 09950-60010

09951-00220

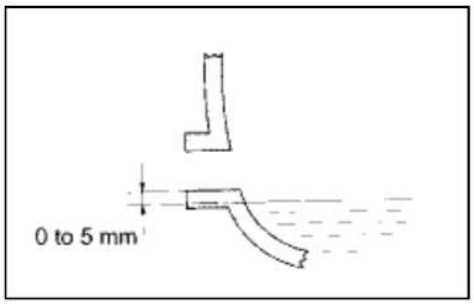
SST: 09950-70010

09951-07200

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3K01OX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE OIL: ON-VEHICLE INSPECTION (2010 Corolla)		

ON-VEHICLE INSPECTION



1. INSPECT TRANSAXLE OIL

(a) Stop the vehicle in a level place.

(b) Remove the transmission filler plug and the gasket.

(c) Check that the oil surface is within 5 mm (0.197 in.) of the bottom of the transmission filler plug opening.

NOTICE:

- Excessively large or small amounts of oil may cause problems.
- After replacing the oil, drive the vehicle and check the oil level again.

(d) Check for oil leakage when the oil level is low.

(e) Install the transmission filler plug and a new gasket.

Torque: 49 N·m (499 kgf·cm, 36ft·lbf)

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002Z2L01AX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE OIL: REPLACEMENT (2010 Corolla)		

REPLACEMENT

1. REMOVE ENGINE UNDER COVER LH

2. DRAIN MANUAL TRANSAXLE OIL

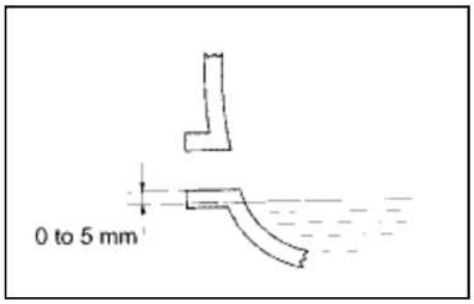
(a) Remove the filler plug and the gasket.

(b) Remove the drain plug and gasket, and then drain the manual transaxle oil.

3. ADD MANUAL TRANSAXLE OIL

(a) Install a new gasket and the drain plug.

Torque: 49 N·m (499 kgf·cm, 36ft·lbf)



(b) Add manual transaxle oil.

(c) Install the transmission filler plug and a new gasket.

Torque: 49 N·m (499 kgf·cm, 36ft·lbf)

4. INSPECT MANUAL TRANSAXLE OIL INFO

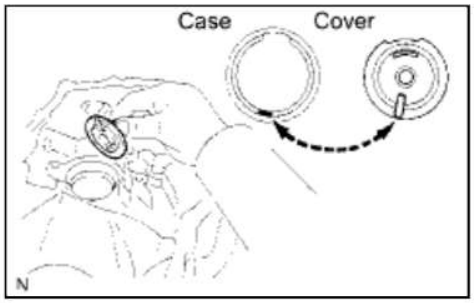
5. INSTALL ENGINE UNDER COVER LH

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1601QX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL OUTPUT SHAFT COVER

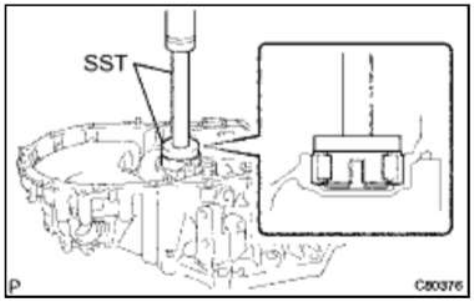


(a) Coat the output shaft cover with MP grease and install it onto the transaxle case.

NOTICE:

Insert the output shaft cover key into the case groove.

2. INSTALL OUTPUT SHAFT FRONT BEARING



(a) Coat a new output shaft front bearing with gear oil.

(b) Using SST and a press, install it onto the transaxle case.

SST: 09950-60010

09951-00550

SST: 09950-70010

09951-07150

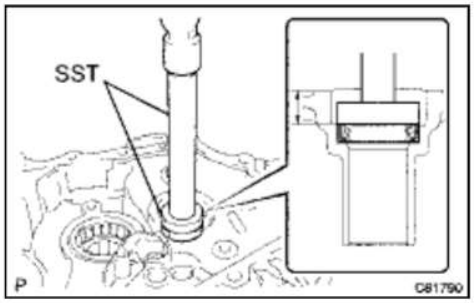
NOTICE:

- Install the new bearing in the correct direction as shown in the illustration.
- When replacing the output shaft front bearing, replace the output shaft front bearing inner race at the same time.

3. INSTALL FRONT TRANSAXLE CASE OIL SEAL

(a) Using SST and a hammer, install a new front transaxle case oil seal onto the transaxle case.

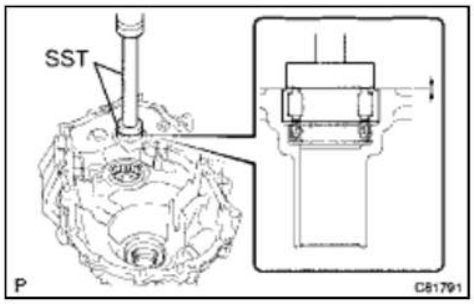
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SST: 09950-60010
09951-00370
SST: 09950-70010
09951-07150
Driven in depth:
15.6 to 16.0 mm (0.6141 to 0.6299 in.)

(b) Coat the lip of the front transaxle case oil seal with MP grease.

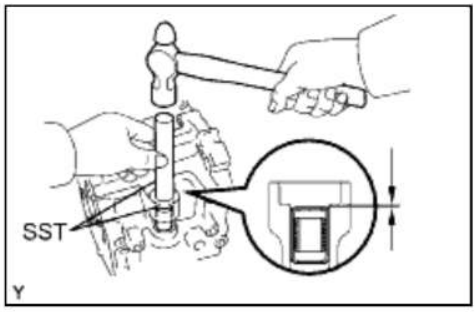
4. INSTALL INPUT SHAFT FRONT BEARING



(a) Coat a new input shaft front bearing with gear oil, and using SST and a press, install it onto the transaxle case.

SST: 09950-60010
09951-00420
SST: 09950-70010
09951-07150
Driven in depth:
0 to 0.3 mm (0 to 0.0118 in.)

5. INSTALL SHIFT AND SELECT LEVER SHAFT SLIDE BALL BEARING



(a) Using SST and a hammer, install a new shift and select lever shaft slide ball bearing onto the manual transmission case.

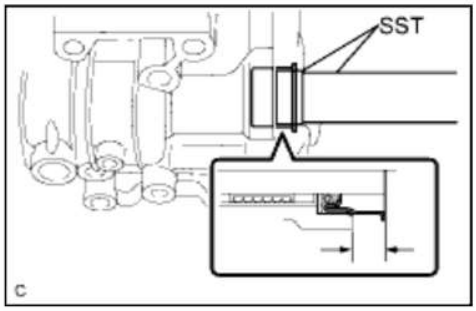
SST: 09950-60010
09951-00220
SST: 09950-70010
09951-07100
Driven in depth:
0 to 0.5 mm (0 to 0.0197 in.)

6. INSTALL SHIFT AND SELECT LEVER SHAFT OIL SEAL

(a) Using SST, install a new shift and select lever shaft oil seal onto the manual transmission case.

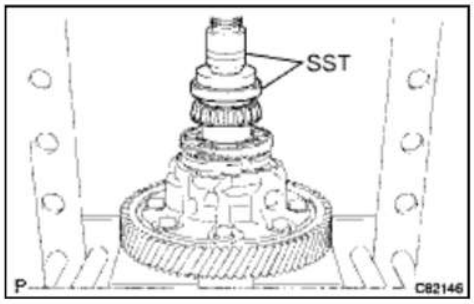
SST: 09950-70010
09951-07150
SST: 09950-60010
09951-00240
Driven in depth:

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9.7 to 10.3 mm (0.382 to 0.406 in.)

7. INSTALL FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING



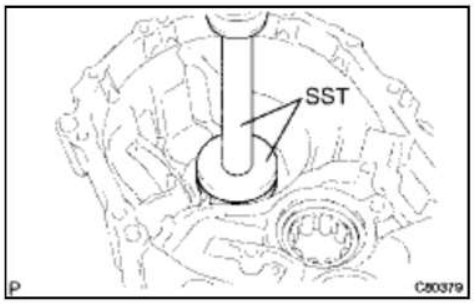
(a) Using SST and a press, install a new front differential case front tapered roller bearing (inner race) onto the front differential case.

SST: 09350-32014

09351-32120

SST: 09950-60010

09951-00530



(b) Using SST and a press, install the front differential case front tapered roller bearing (outer race) together with the plate washer onto the transaxle case.

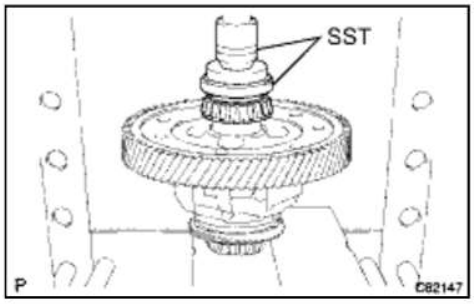
SST: 09950-60020

09951-00680

SST: 09950-70010

09951-07150

8. INSTALL FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING



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

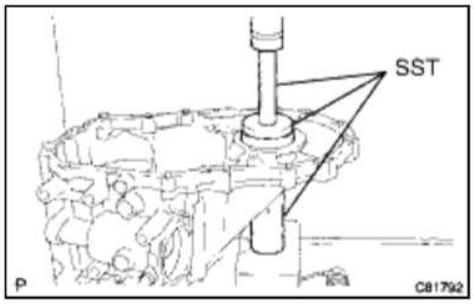
SST: 09350-32014

09351-32120

SST: 09950-60010

09951-00530

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(b) Using SST and a press, install the front differential case rear tapered roller bearing (outer race) with the plate washer onto the manual transmission case.

SST: 09309-36010

SST: 09950-60020

09951-00710

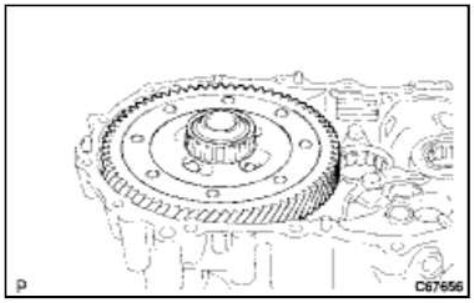
SST: 09950-70010

09951-07150

HINT:

Use a plate washer of the same thickness as the removed one.

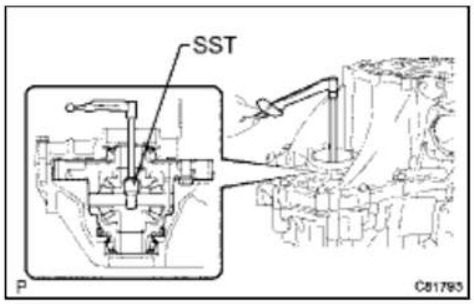
9. ADJUST DIFFERENTIAL SIDE BEARING PRELOAD



(a) Coat the differential case assembly with gear oil and install it onto the transaxle case.

(b) Install the manual transmission case with the 16 bolts.

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)



(c) Using SST and a torque wrench, turn the differential case assembly clockwise and counterclockwise 2 or 3 times to allow the bearings to settle.

SST: 09564-32011

(d) Using SST and a torque wrench, measure the preload.

SST: 09564-32011

Preload (at starting):

New bearing

0.8 to 1.5 N*m (8 to 16 kgf*cm, 7 to 13 in.*lbf)

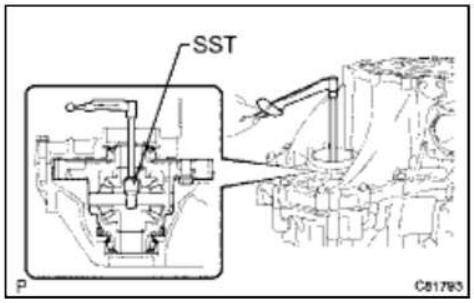
Used bearing

cardiagn.com

0.5 to 0.9 N*m (5 to 10 kgf*cm, 5 to 8 in.*lbf)

If the preload is out of the specification, select a different plate washer.

Plate Washer Thickness:



MARK	THICKNESS MM (IN.)	MARK	THICKNESS MM (IN.)
AA	2.10 (0.0827)	LL	2.60 (0.102)
BB	2.15 (0.0846)	MM	2.65 (0.104)
CC	2.20 (0.0866)	NN	2.70 (0.106)
DD	2.25 (0.0886)	PP	2.75 (0.108)
EE	2.30 (0.0906)	QQ	2.80 (0.110)
FF	2.35 (0.0925)	RR	2.85 (0.112)
GG	2.40 (0.0945)	SS	2.90 (0.114)
HH	2.45 (0.0965)	TT	2.95 (0.1161)
JJ	2.50 (0.0984)	UU	3.00 (0.118)
KK	2.55 (0.1004)	-	-

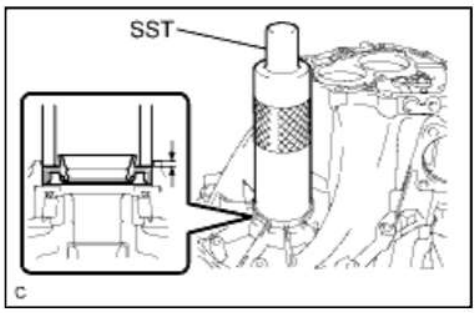
HINT:

The preload changes by approximately 0.3 to 0.4 N*m (3 to 4 kgf*cm, 3 to 4 in.*lbf) per each 0.05 mm (0.0020 in.) change in the plate washer thickness.

(e) Remove the 16 bolts and the manual transmission case.

(f) Remove the differential case assembly from the transaxle case.

10. INSTALL TRANSMISSION CASE OIL SEAL



(a) Using SST and a hammer, install a new transmission case oil seal onto the manual transmission case.

SST: 09316-60011

09316-00011

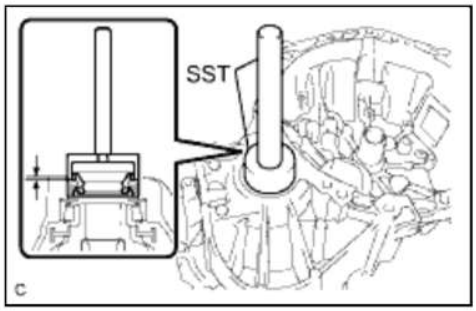
Driven in depth:

9.6 to 10.2 mm (0.378 to 0.402 in.)

(b) Coat the lip of the front transmission case oil seal with MP grease.

11. INSTALL TRANSAXLE CASE OIL SEAL

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(a) Using SST and a hammer, install a new transaxle case oil seal onto the transaxle case.

SST: 09710-20011

09710-06071

SST: 09950-70010

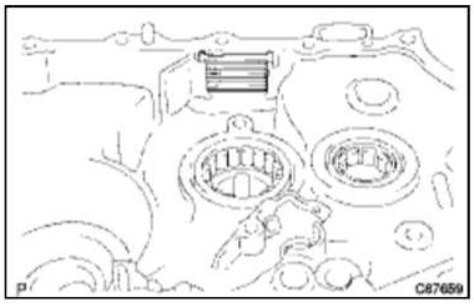
09951-07150

Driven in depth:

1.6 to 2.2 mm (0.0630 to 0.0866 in.)

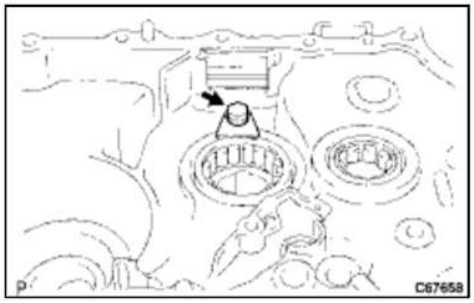
(b) Coat the lip of the transaxle case oil seal with MP grease.

12. INSTALL TRANSMISSION MAGNET



(a) Clean the transmission magnet and install it onto the transaxle case.

13. INSTALL BEARING LOCK PLATE



(a) Install the bearing lock plate onto the transaxle case with the bolt.

Torque: 11 N·m (115 kgf·cm, 8ft·lbf)

14. INSTALL NO. 1 OIL RECEIVER PIPE

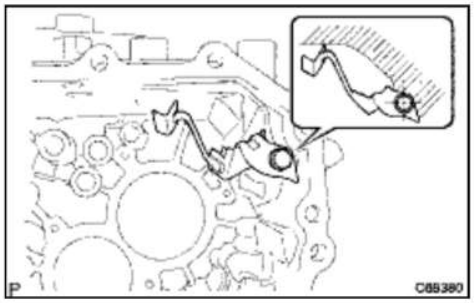
(a) Install the No. 1 oil receiver pipe onto the manual transmission case with the bolt.

Torque: 17 N·m (175 kgf·cm, 13ft·lbf)

NOTICE:

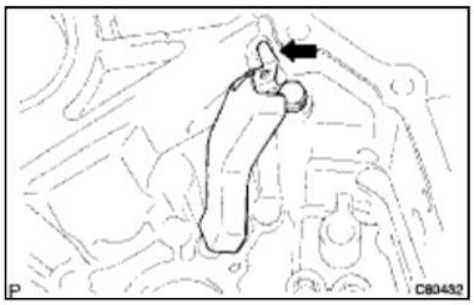
- Do not deform the No. 1 oil receiver pipe.
- Install the No. 1 oil receiver pipe while holding it against

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the manual transmission case as shown in the illustration.

15. INSTALL NO. 2 OIL RECEIVER PIPE



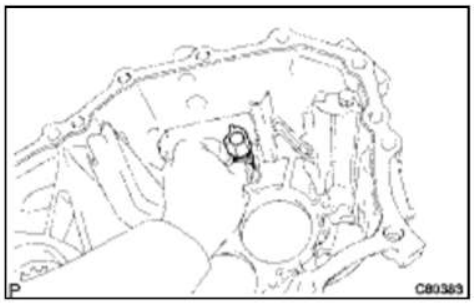
(a) Install the No. 2 oil receiver pipe onto the manual transmission case with the bolt.

Torque: 17 N·m (175 kgf·cm, 13ft·lbf)

NOTICE:

- Do not deform the No. 2 oil receiver pipe.
- Install the No. 2 oil receiver pipe while holding it against the manual transmission case as shown in the illustration.

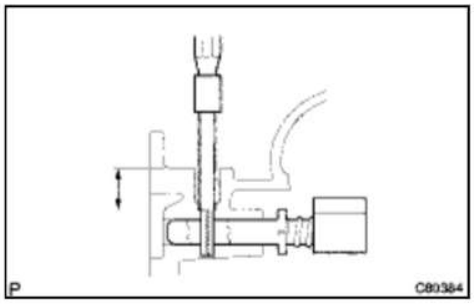
16. INSTALL REVERSE RESTRICT PIN ASSEMBLY



(a) Install the reverse restrict pin assembly onto the manual transmission case.

NOTICE:

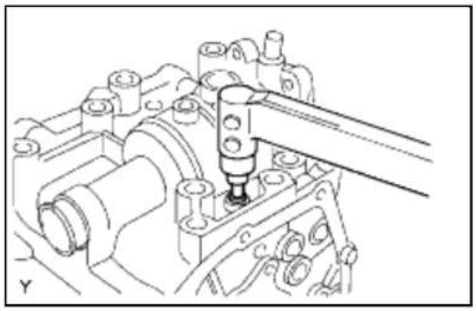
Set the reverse restrict pin assembly in the correct direction.



(b) Using a pin punch (φ5 mm) and a hammer, install the slotted spring pin onto the reverse restrict pin assembly.

Drive in depth:
15.5 to 16.5 mm (0.6102 to 0.6496 in.)

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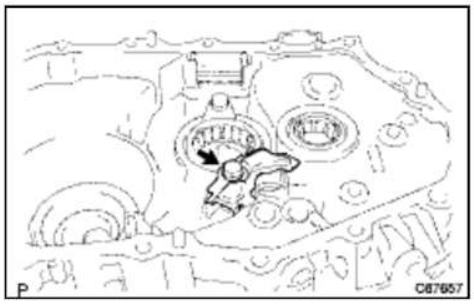
(c) Apply sealant to the reverse restrict pin plug.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

(d) Using a hexagon wrench and a torque wrench, install the reverse restrict pin plug onto the manual transmission case.

Torque: 13 N·m (130 kgf·cm, 9ft·lbf)

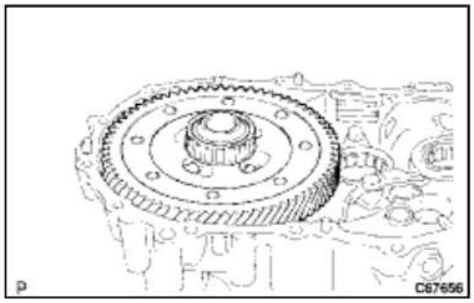
17. INSTALL MANUAL TRANSAXLE CASE RECEIVER



(a) Install the manual transaxle case receiver onto the transaxle case with the bolt.

Torque: 11 N·m (115 kgf·cm, 8ft·lbf)

18. INSTALL DIFFERENTIAL CASE ASSEMBLY

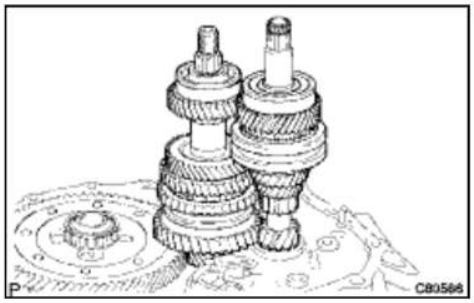


(a) Coat the differential case tapered roller bearing with gear oil and install the differential case assembly onto the transaxle case.

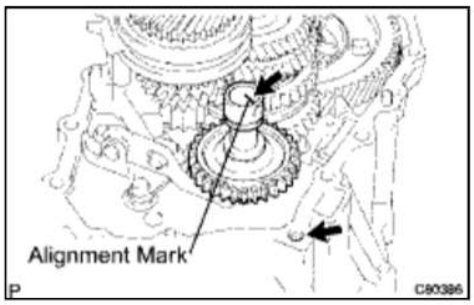
19. INSTALL INPUT SHAFT ASSEMBLY

(a) Coat the sliding and rotating surfaces of the input and output shafts with gear oil and install them onto the transaxle case.

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20. INSTALL REVERSE IDLER GEAR SUB-ASSEMBLY

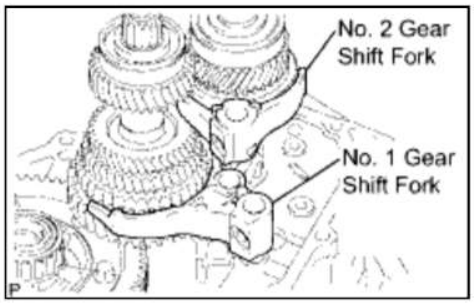


(a) Coat the reverse idler gear sub-assembly, thrust washer and reverse idler gear shaft with gear oil, and install them as shown in the illustration.

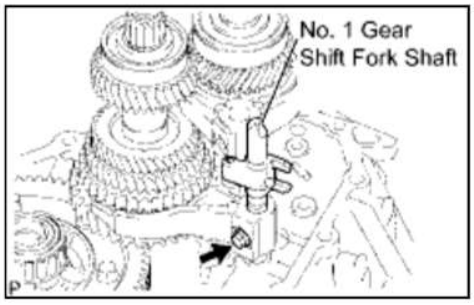
HINT:

Align the mark on the reverse idler gear shaft with the bolt hole as shown in the illustration.

21. INSTALL NO. 1 GEAR SHIFT FORK SHAFT



(a) Coat the No. 1 gear shift fork and No. 2 gear shift fork with gear oil and install them.



(b) Coat the No. 1 gear shift fork shaft with gear oil and install it.

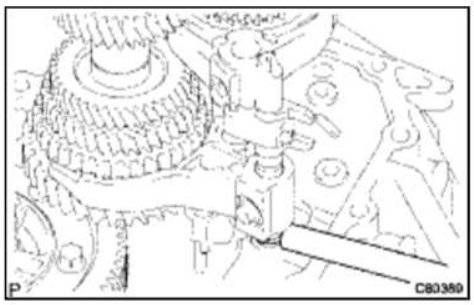
(c) Apply sealant to the shift fork set bolt.

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Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

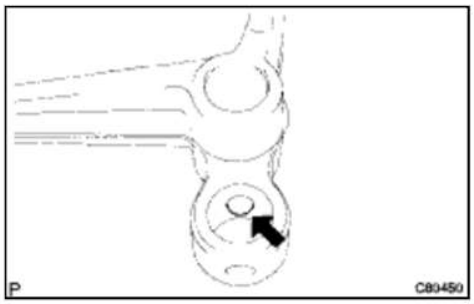
(d) Install the shift fork set bolt.

Torque: 16 N·m (160 kgf·cm, 12ft·lbf)



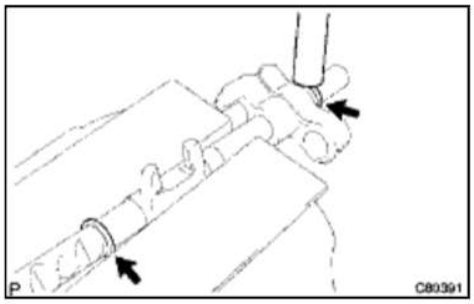
(e) Using a brass bar and a hammer, install a new shaft snap ring onto the No. 1 gear shift fork shaft.

22. INSTALL NO. 3 GEAR SHIFT FORK SHAFT



(a) Coat the 2 shift fork balls with MP grease and install them onto the reverse shift fork.

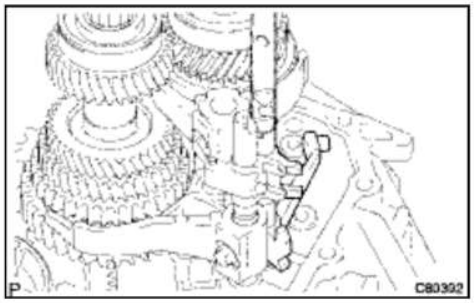
(b) Install the reverse shift fork onto the No. 3 gear shift fork shaft.



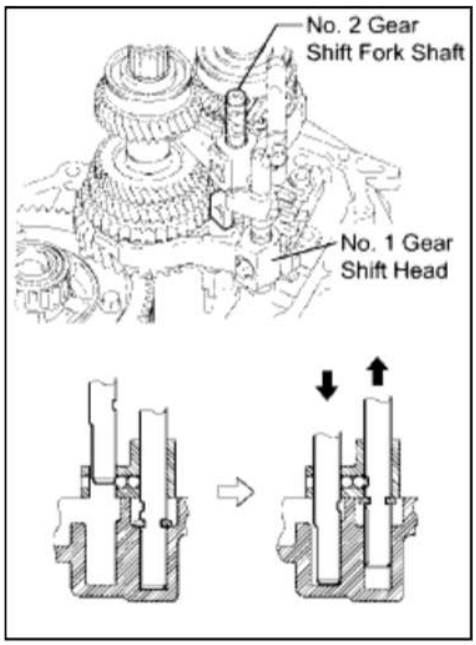
(c) Using a brass bar and a hammer, install 2 new shift fork shaft snap rings onto the No. 3 shift fork shaft.

(d) Coat the No. 3 gear shift fork shaft with gear oil and install it.

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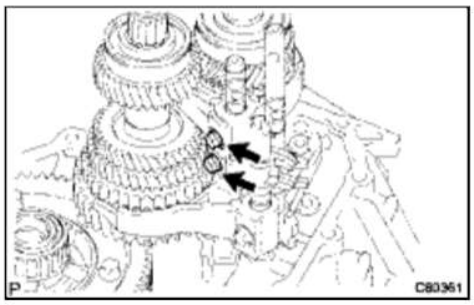
23. INSTALL NO. 2 GEAR SHIFT FORK SHAFT



(a) Coat the No. 1 gear shift head and No. 2 gear shift fork shaft with gear oil and install them.

NOTICE:

To avoid interference from the 2 shift fork balls, lift up the No. 3 gear shift fork shaft to the position shown in the illustration.



(b) Coat the 2 shift lock bolts with sealant and install them onto the No. 2 gear shift fork and No. 1 shift head.

Sealant:

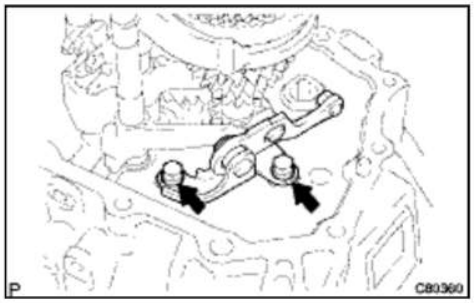
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 16 N·m (160 kgf·cm, 12ft·lbf)

24. INSTALL REVERSE SHIFT ARM BRACKET ASSEMBLY

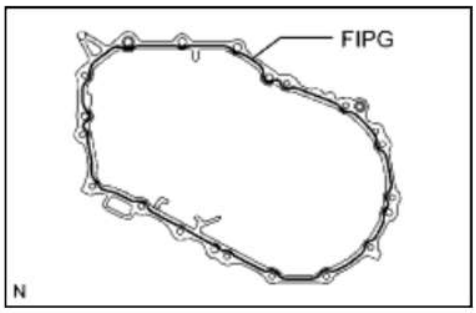
(a) Install the reverse shift arm bracket assembly onto the front transaxle case with the 2 bolts.

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Torque: 17 N·m (175 kgf·cm, 13ft·lbf)

25. INSTALL MANUAL TRANSMISSION CASE



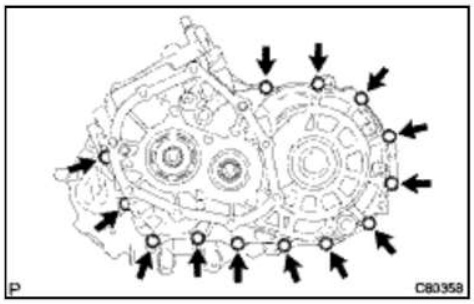
(a) Apply FIPG to the manual transmission case as shown in the illustration.

FIPG:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

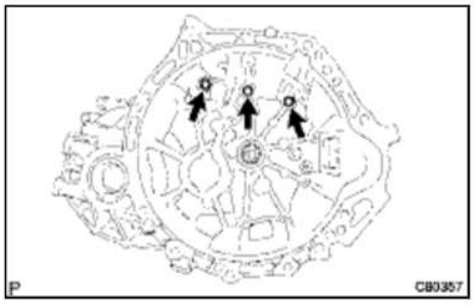
NOTICE:

Assemble the parts within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.



(b) Install the 13 bolts onto the manual transmission side.

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)



(c) Coat the 3 bolts with sealant and install them onto the manual transaxle side.

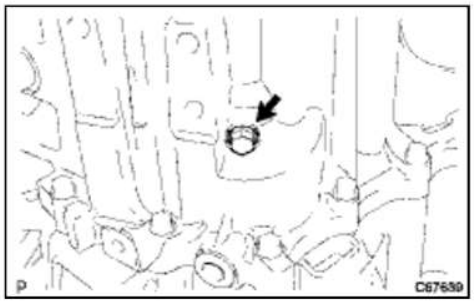
Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)

26. INSTALL REVERSE IDLER GEAR SHAFT BOLT

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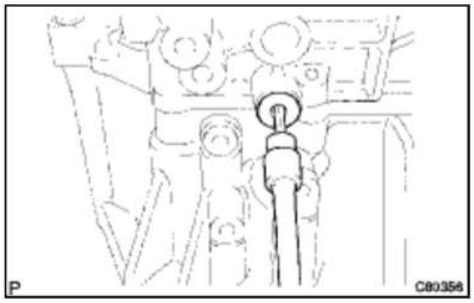


(a) Coat the reverse idler gear shaft bolt with sealant and install it with a new gasket.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)

27. INSTALL NO. 2 LOCK BALL ASSEMBLY

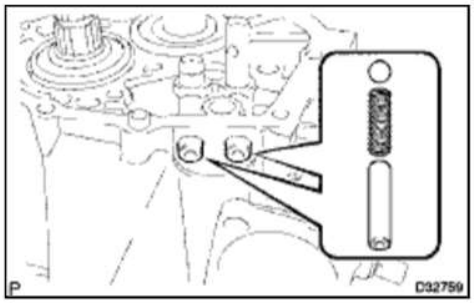


(a) Coat the No. 2 lock ball assembly with sealant and install it using a hexagon wrench.

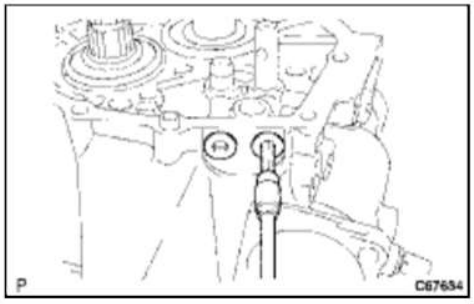
Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)

28. INSTALL SHIFT DETENT BALL



(a) Install the 2 shift detent balls, 2 shift detent ball springs, and 2 shift spring seats onto the manual transmission case.

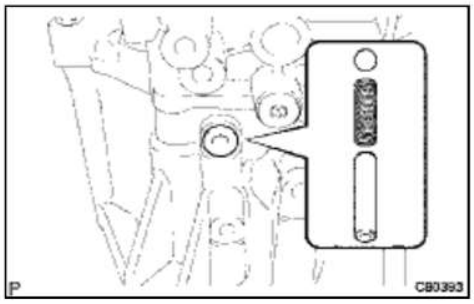


(b) Coat the threads of the 2 shift detent ball plugs with sealant and install them using a hexagon wrench.

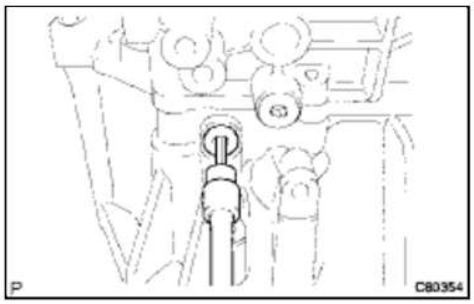
Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 22 N·m (224 kgf·cm, 16ft·lbf)

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(c) Install the shift detent ball, shift detent ball compression spring, and spring seat onto the transaxle case.

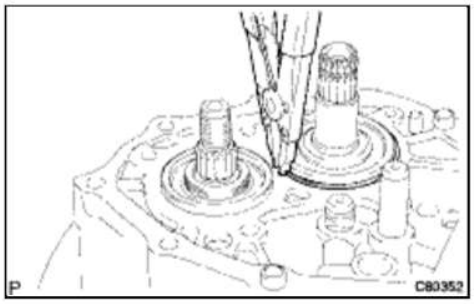


(d) Coat the threads of the shift detent ball plug with sealant and install it using a hexagon wrench.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

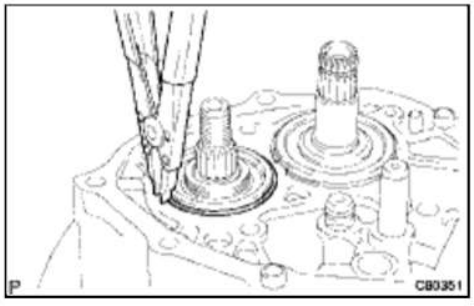
Torque: 22 N·m (224 kgf·cm, 16ft·lbf)

29. INSTALL INPUT SHAFT REAR BEARING HOLE SNAP RING



(a) Using a snap ring expander, install a new input shaft rear bearing hole snap ring onto the input shaft.

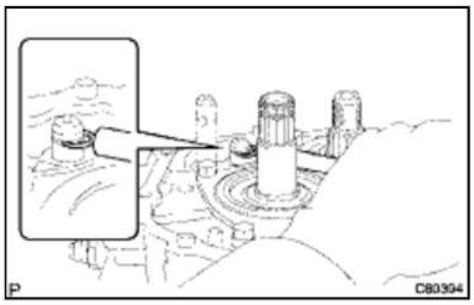
30. INSTALL OUTPUT SHAFT REAR BEARING HOLE SNAP RING



(a) Using a snap ring expander, install a new output shaft rear bearing hole snap ring onto the output shaft.

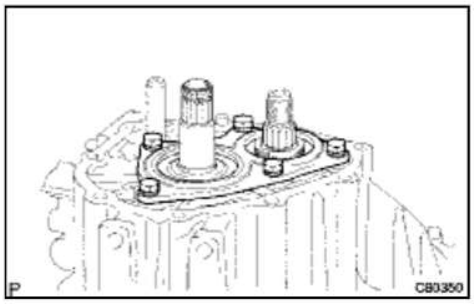
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31. INSTALL SHIFT FORK SHAFT SNAP RING



(a) Using a brass bar and a hammer, install a new shift fork shaft snap ring onto the No. 2 shift fork shaft.

32. INSTALL REAR BEARING RETAINER

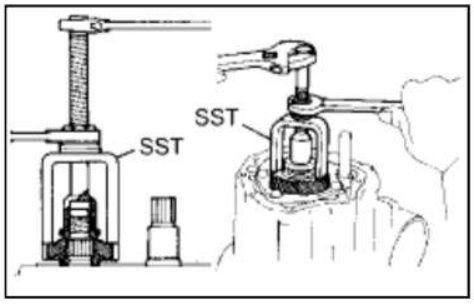


(a) Coat the 5 bolts with sealant and install the rear bearing retainer onto the manual transmission case with the 5 bolts.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 27 N·m (280 kgf·cm, 20ft·lbf)

33. INSTALL 5TH DRIVEN GEAR



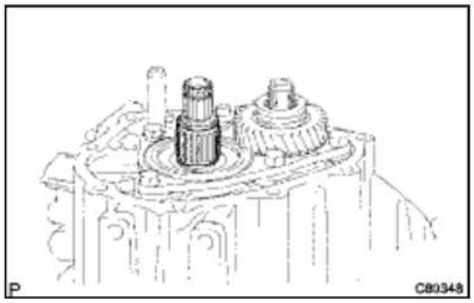
(a) Using SST, install the 5th driven gear onto the output shaft.

SST: 09309-12020

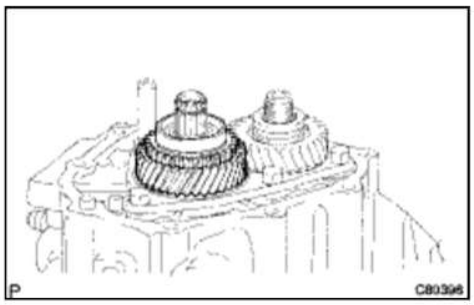
34. INSTALL 5TH GEAR NEEDLE ROLLER BEARING

(a) Coat the 5th gear needle roller bearing and 5th gear bearing spacer with gear oil, and install them onto the input shaft.

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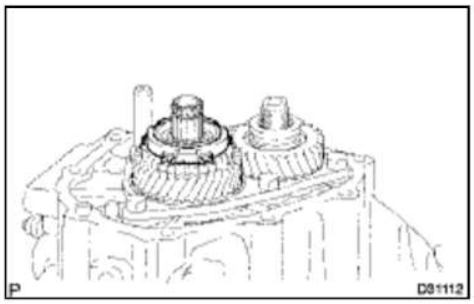


35. INSTALL 5TH GEAR



(a) Coat the 5th gear with gear oil and install it onto the input shaft.

36. INSTALL NO. 3 SYNCHRONIZER RING



(a) Coat the No. 3 synchronizer ring with gear oil and install it onto the 5th gear.

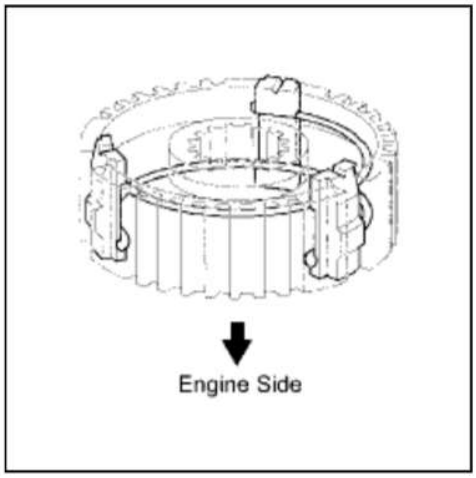
37. INSTALL NO. 3 TRANSMISSION CLUTCH HUB

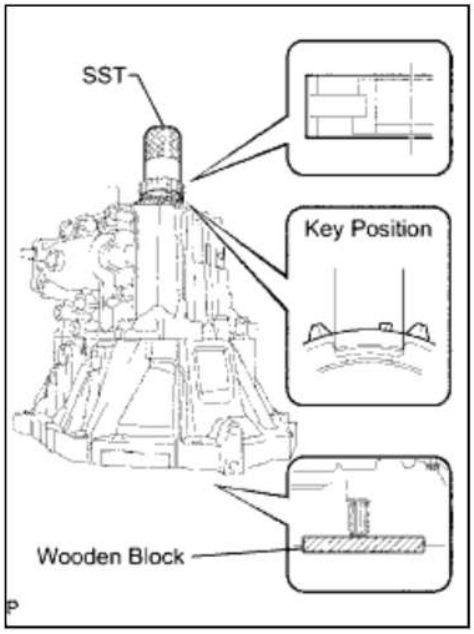
(a) Install the 3 synchromesh shifting keys and 2 synchromesh shifting key springs onto the No. 3 transmission clutch hub as shown in the illustration.

NOTICE:

Do not set the 2 shifting key spring openings in the same position.

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(b) Using SST and a hammer, install the No. 3 transmission clutch hub onto the input shaft.

SST: 09636-20010

NOTICE:

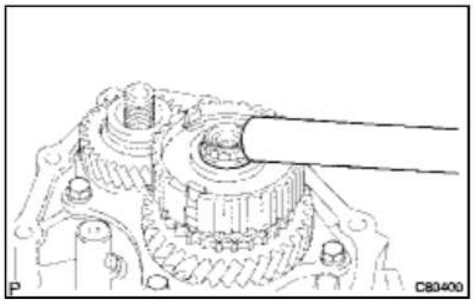
- Do not install the No. 3 transmission clutch hub in the wrong direction.
- Install the No. 3 transmission clutch hub with the No. 3 synchronizer ring key groove and the No. 3 synchromesh shifting key aligned.
- Check that the 5th gear can rotate smoothly.
- Place a suitable sized wooden block to support the input shaft.

(c) Select a snap ring that will allow minimum axial play.

Clearance:
0.1 mm (0.00394 in.) or less
Snap Ring Thickness:

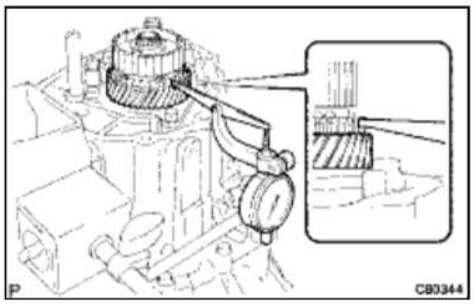
MARK	THICKNESS MM (IN.)	MARK	THICKNESS MM (IN.)
A	2.25 (0.0886)	E	2.49 (0.0980)
B	2.31 (0.0909)	F	2.55 (0.1004)
C	2.37 (0.0933)	G	2.61 (0.1028)
D	2.43 (0.0957)	-	-

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(d) Using a brass bar and a hammer, install a new snap ring onto the input shaft.

38. INSPECT 5TH GEAR THRUST CLEARANCE

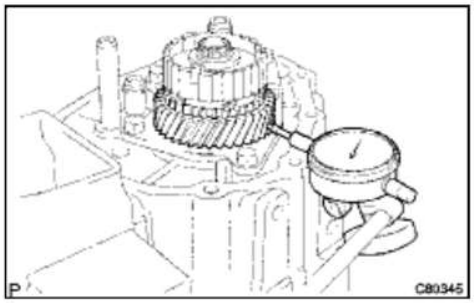


(a) Using a dial indicator, measure the 5th gear thrust clearance.

Standard clearance:
0.10 to 0.55 mm (0.00394 to 0.0217 in.)
Maximum clearance:
0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 3 transmission clutch hub, 5th gear or input shaft rear radial ball bearing.

39. INSPECT 5TH GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 5th gear radial clearance.

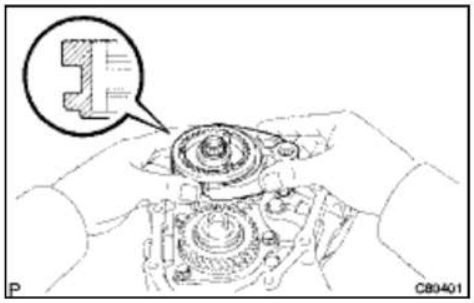
Standard clearance:
NSK made bearing
0.015 to 0.056 mm (0.000591 to 0.00220 in.)
JTEKT made bearing
0.015 to 0.058 mm (0.000591 to 0.00228 in.)
Maximum clearance:
NSK made bearing
0.056 mm (0.00220 in.)
JTEKT made bearing
0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 5th gear, 5th gear needle roller bearing or input shaft.

40. INSTALL NO. 3 GEAR SHIFT FORK

(a) Coat the No. 3 transmission clutch hub sleeve with gear oil and install it together with the No. 3 gear shift fork onto

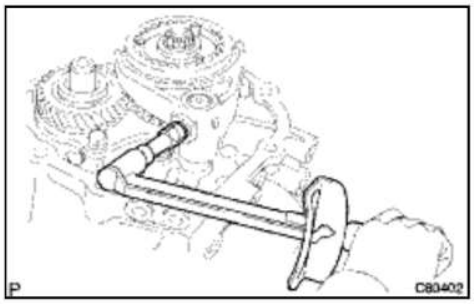
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the No. 3 transmission clutch hub.

HINT:

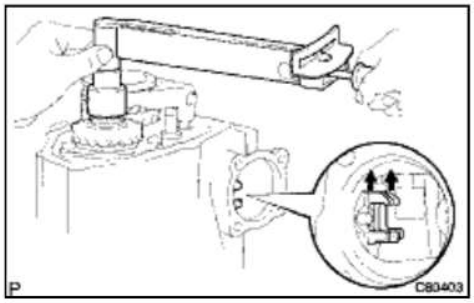
Set the No. 3 transmission clutch hub in the correct direction.



(b) Coat the gear shift fork lock bolt with sealant and install it onto the No. 3 gear shift fork.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent
Torque: 16 N·m (160 kgf·cm, 12ft·lbf)

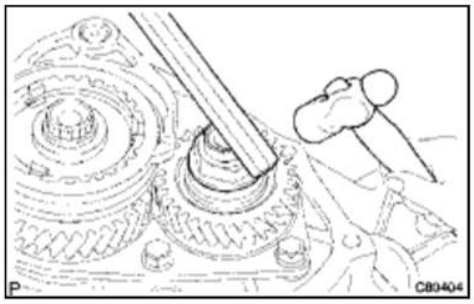
41. INSTALL MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT



(a) Engage 2 gears simultaneously to lock the transmission.

(b) Install a new manual transmission output shaft rear set nut.

Torque: 118 N·m (1200 kgf·cm, 87ft·lbf)

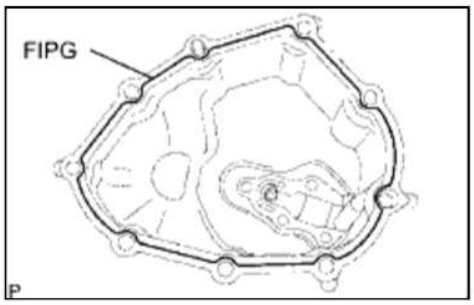


(c) Using a chisel and a hammer, stake the manual transmission output shaft rear set nut.

(d) Disengage the 2 gears.

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42. INSTALL MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY



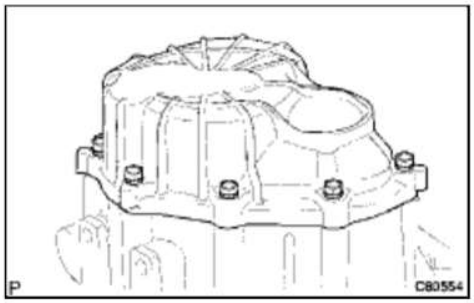
(a) Apply FIPG to the manual transmission case cover sub-assembly as shown in the illustration.

FIPG:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTICE:

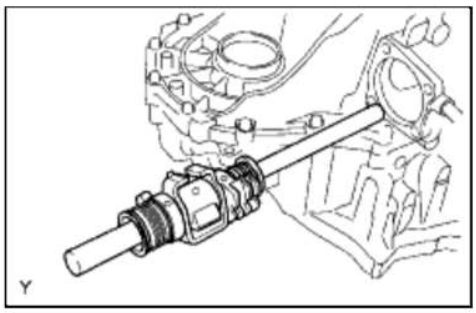
Assemble the parts within 10 minutes of application. Otherwise, the packing (FIPG) material must be removed and reapplied.



(b) Install the manual transmission case cover sub-assembly onto the manual transmission case with the 9 bolts.

Torque: 21 N·m (214 kgf·cm, 15ft·lbf)

43. INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY



(a) Coat the shift and select lever shaft assembly with gear oil and install it onto the transmission case.

44. INSTALL CONTROL SHAFT COVER OIL SEAL

(a) Using SST and a hammer, install a new control shaft cover oil seal onto the control shaft cover.

SST: 09950-60010

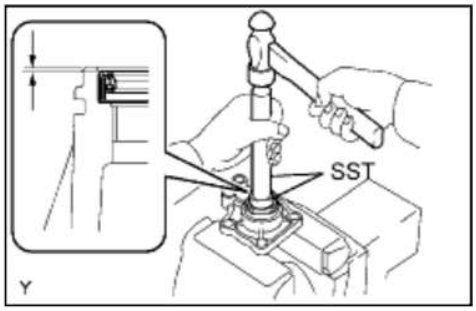
09951-00280

SST: 09950-70010

09951-07150

Driven in depth:

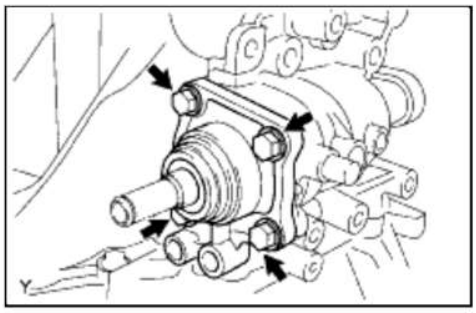
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0.2 to 1.2 mm (0.00787 to 0.0472 in.)

(b) Coat the control shaft cover oil seal with MP grease.

45. INSTALL CONTROL SHAFT COVER



(a) Coat the threads of the 4 bolts with sealant. Install a new gasket and the control shaft cover onto the manual transmission case with the 4 bolts.

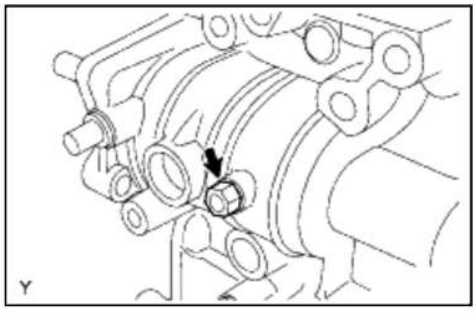
Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 20 N·m (200 kgf·cm, 14ft·lbf)

NOTICE:

Set the claws of the shift interlock plate into the shift head part of the gear shift fork shaft securely.

46. INSTALL SHIFT GUIDE PIN



(a) Coat the threads of the shift guide pin with sealant.

Sealant:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

(b) Install the washer and shift guide pin.

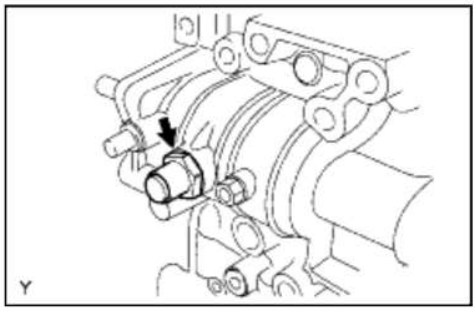
Torque: 11 N·m (112 kgf·cm, 8ft·lbf)

47. INSTALL NO. 1 LOCK BALL ASSEMBLY

(a) Coat the threads of the No. 1 lock ball assembly with sealant and install it onto the manual transmission case.

Sealant:

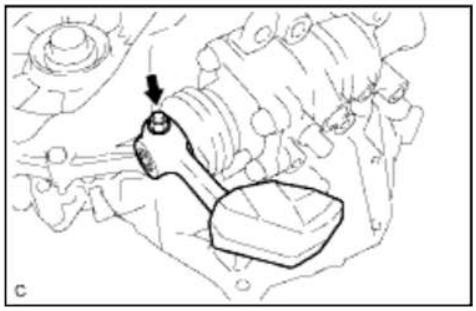
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Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

Torque: 29 N·m (300 kgf·cm, 22ft·lbf)

48. INSTALL SHIFT LEVER DAMPER



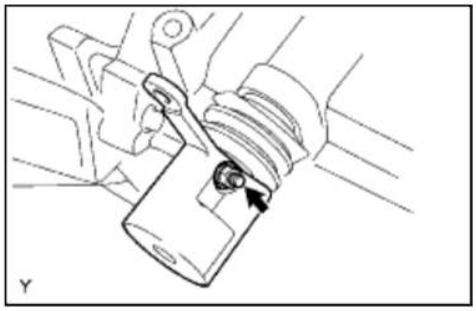
(a) Install the dust boot onto the control shaft cover.

(b) Install the shift lever damper with the lock pin onto the shift and select lever shaft assembly.

(c) Install the washer with the nut.

Torque: 12 N·m (120 kgf·cm, 9ft·lbf)

49. INSTALL FLOOR SHIFT CONTROL SHIFT LEVER



(a) Install the dust boot onto the shift and select lever shaft oil seal.

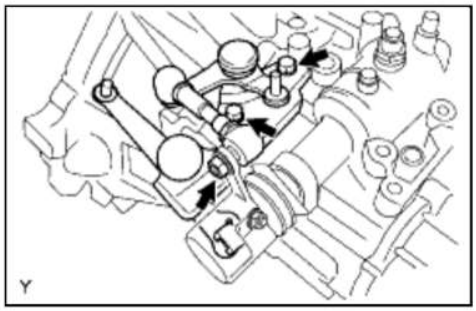
(b) Install the floor shift control shift lever with the lock pin onto the shift and select lever shaft assembly.

(c) Install the washer with the nut.

Torque: 12 N·m (120 kgf·cm, 9ft·lbf)

50. INSTALL SELECTING BELLCRANK ASSEMBLY

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(a) Install the selecting bellcrank assembly together with the control bellcrank dust cover onto the manual transmission case with the 2 bolts and nut.

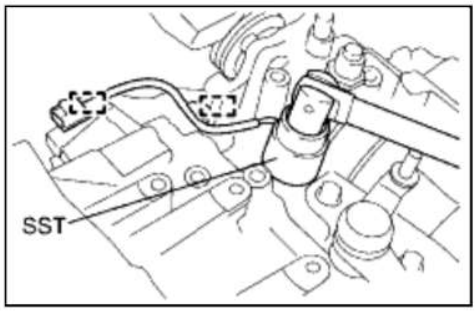
Torque: 25 N·m (250 kgf·cm, 18ft·lbf) for bolt

Torque: 12 N·m (120 kgf·cm, 9ft·lbf) for nut

NOTICE:

Apply MP grease to the inside surface of the control shift lever bush.

51. INSTALL BACK-UP LIGHT SWITCH ASSEMBLY



(a) Using SST, install the back-up light switch assembly onto the manual transmission case with a new gasket.

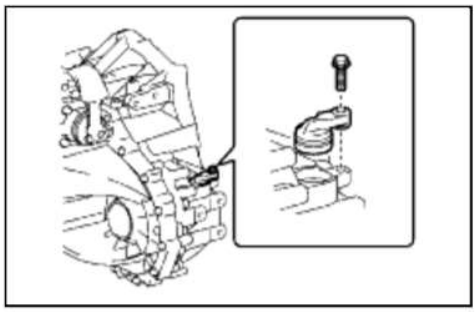
SST: 09817-16011

Torque: 40 N·m (410 kgf·cm, 30ft·lbf)

(b) Install the back-up light switch wire harness into the 2 clamps.

52. INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

(a) Install a new O-ring onto the speedometer driven hole cover sub-assembly.



(b) Install the speedometer driven hole cover sub-assembly onto the manual transaxle case with the bolt.

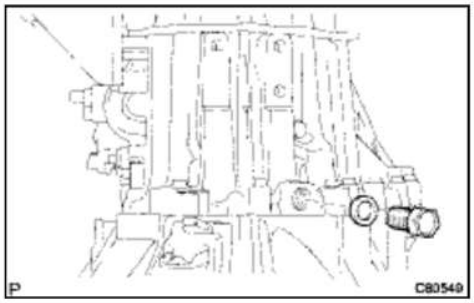
Torque: 11 N·m (115 kgf·cm, 8ft·lbf)

53. INSTALL MANUAL TRANSMISSION FILLER PLUG

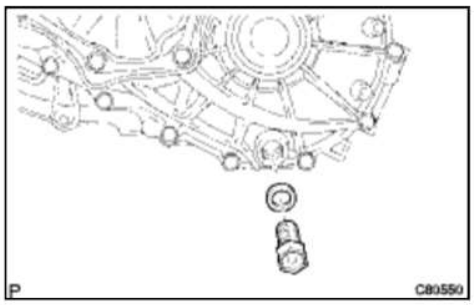
(a) Install the manual transmission filler plug onto the manual transmission case with a new gasket.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)

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54. INSTALL DRAIN PLUG SUB-ASSEMBLY



(a) Install the drain plug onto the manual transmission case with a new gasket.

Torque: 39 N·m (400 kgf·cm, 29ft·lbf)

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Last Modified: 3-10-2010	6.4 T	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001R1G01FX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE SYSTEM: PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

HINT:

If possible, perform a road test as part of diagnosis. Note any unusual behavior, and conditions that cause the problem to occur. Based on the power flow and configuration of the gears in the transaxle, determine what parts require special attention if inspection and disassembly is necessary.

Manual Transaxle System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Abnormal noise	Oil level (Low)	INFO
	Oil (Wrong)	-
	Clutch release bearing (Worn or damaged)	INFO
	Clutch disc (Worn or damaged)*1	INFO
	Synchronizer ring (Input shaft) (Worn or damaged)	INFO
	Synchronizer ring (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Bearing (Input shaft) (Worn or damaged)	INFO
	Bearing (Output shaft) (Worn or damaged)	INFO
	Bearing (Differential case) (Worn or damaged)	INFO
Oil leak	Oil level (High)	INFO
	Gasket (Damaged)	INFO
	Oil seal (Worn or damaged)	INFO
Hard shifting or impossible to shift	Oil (Wrong)	-

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Clutch (Dragging)	INFO
	Shift and select lever assembly (Worn or damaged)	INFO
	Control cable (Faulty)	INFO
	Shift fork (Worn)	INFO
	Synchronizer ring (Input shaft) (Worn or damaged)	INFO
	Synchronizer ring (Output shaft) (Worn or damaged)	INFO
	Shift key spring (Input shaft) (Worn or damaged)	INFO
	Shift key spring (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Hub sleeve (Input shaft) (Worn or damaged)	INFO
	Hub sleeve (Output shaft) (Worn or damaged)	INFO
Jumps out of gear or shift lever moves excessively	Shift fork (Worn)	INFO
	Hub sleeve (Input shaft) (Worn or damaged)	INFO
	Hub sleeve (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Bearing (Input shaft) (Worn or damaged)	INFO
	Bearing (Output shaft) (Worn or damaged)	INFO

*1: If the clutch torsional damper springs are worn, they can produce a load-related noise similar to a bad bearing or gear rattle.

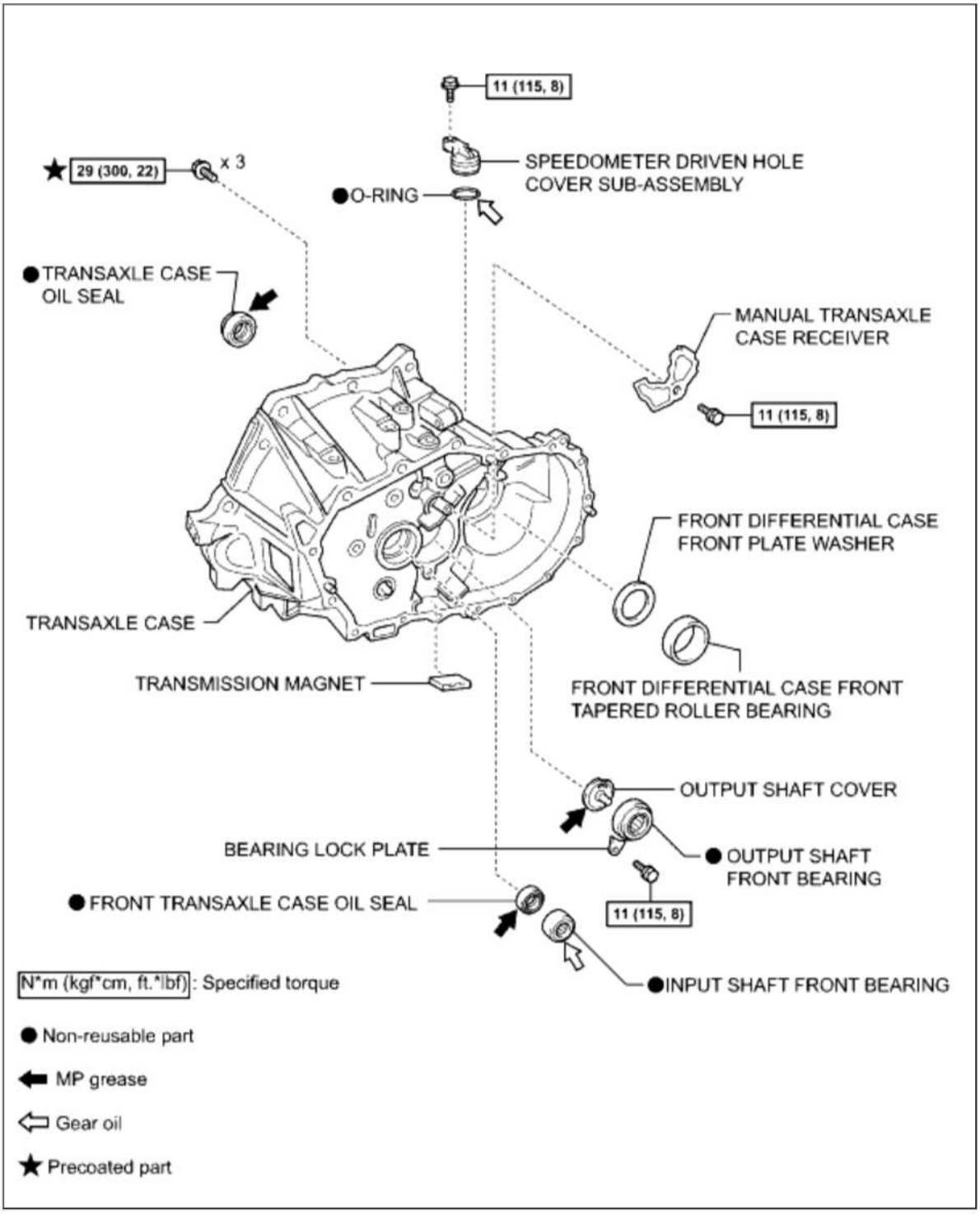
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3J01OX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: COMPONENTS (2010 Corolla)		

COMPONENTS

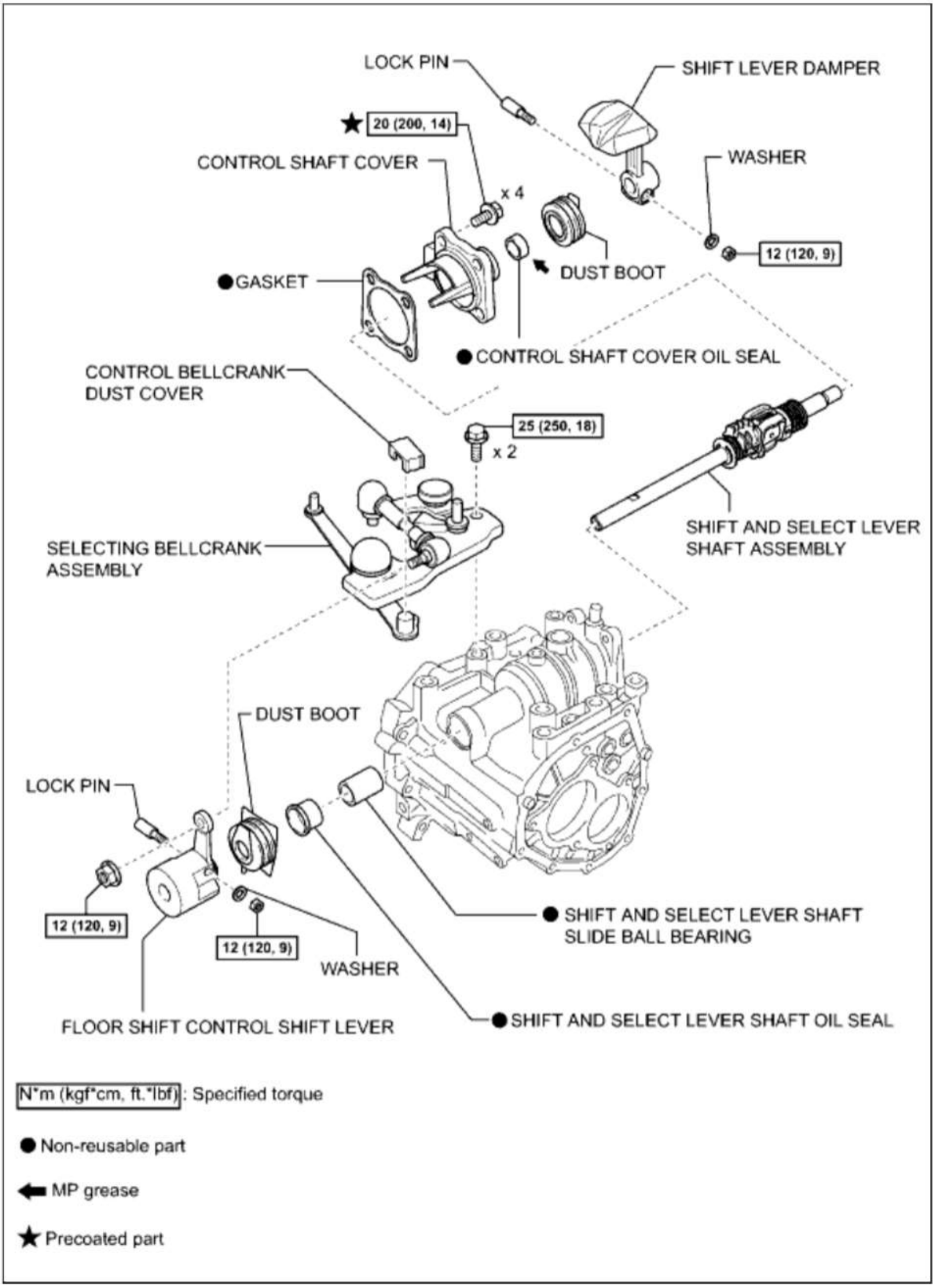
ILLUSTRATION

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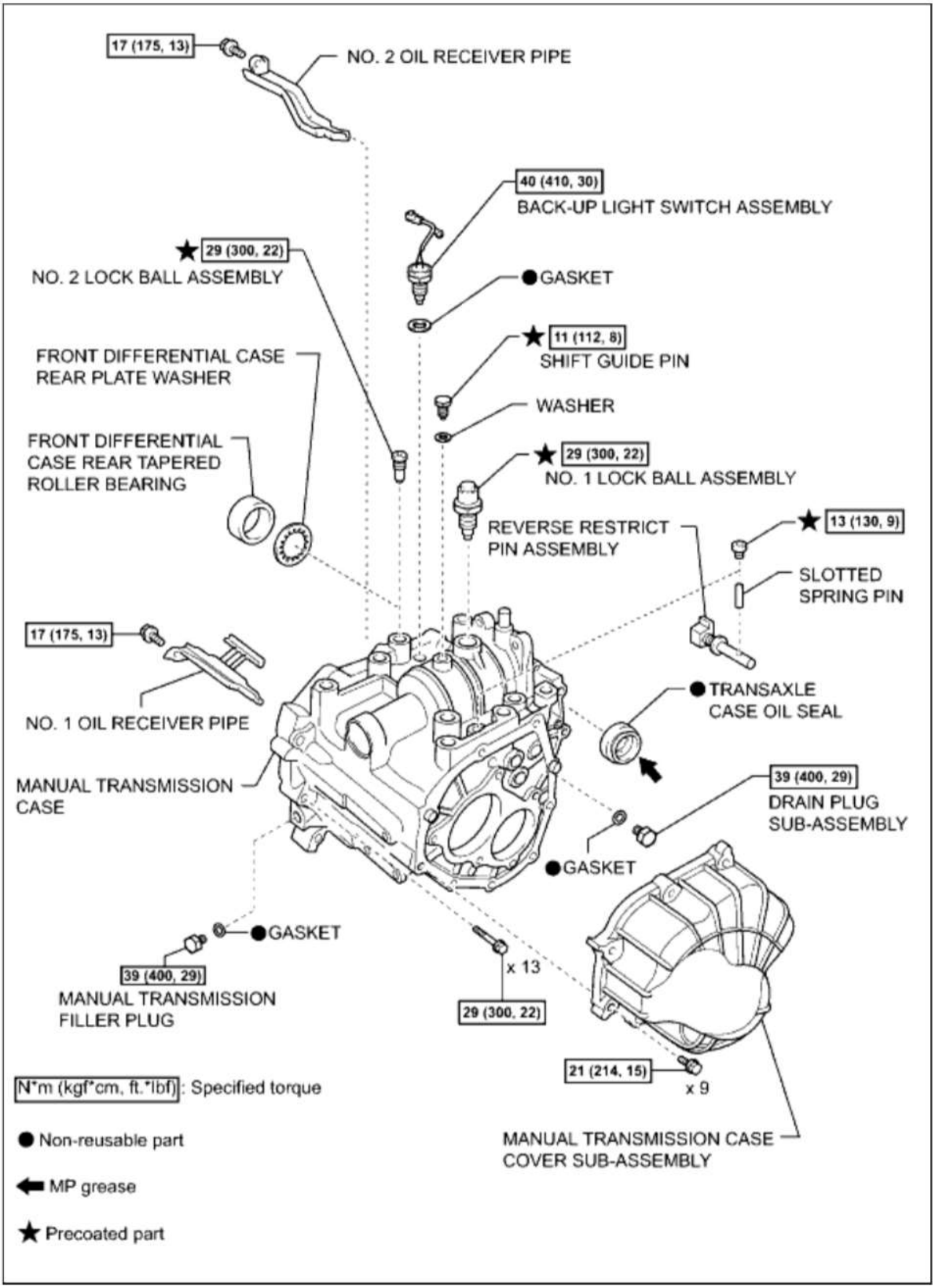
ILLUSTRATION

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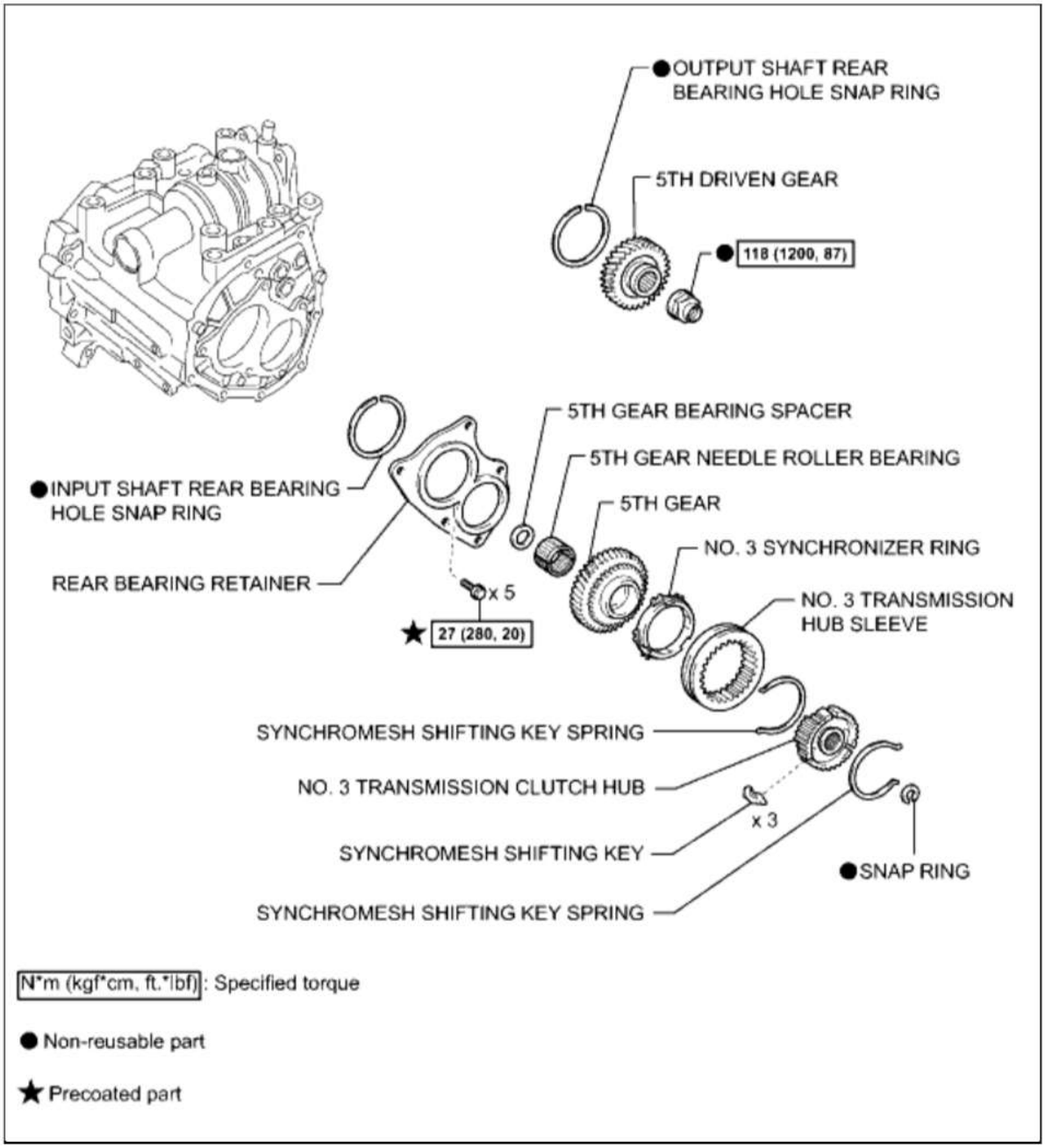
ILLUSTRATION

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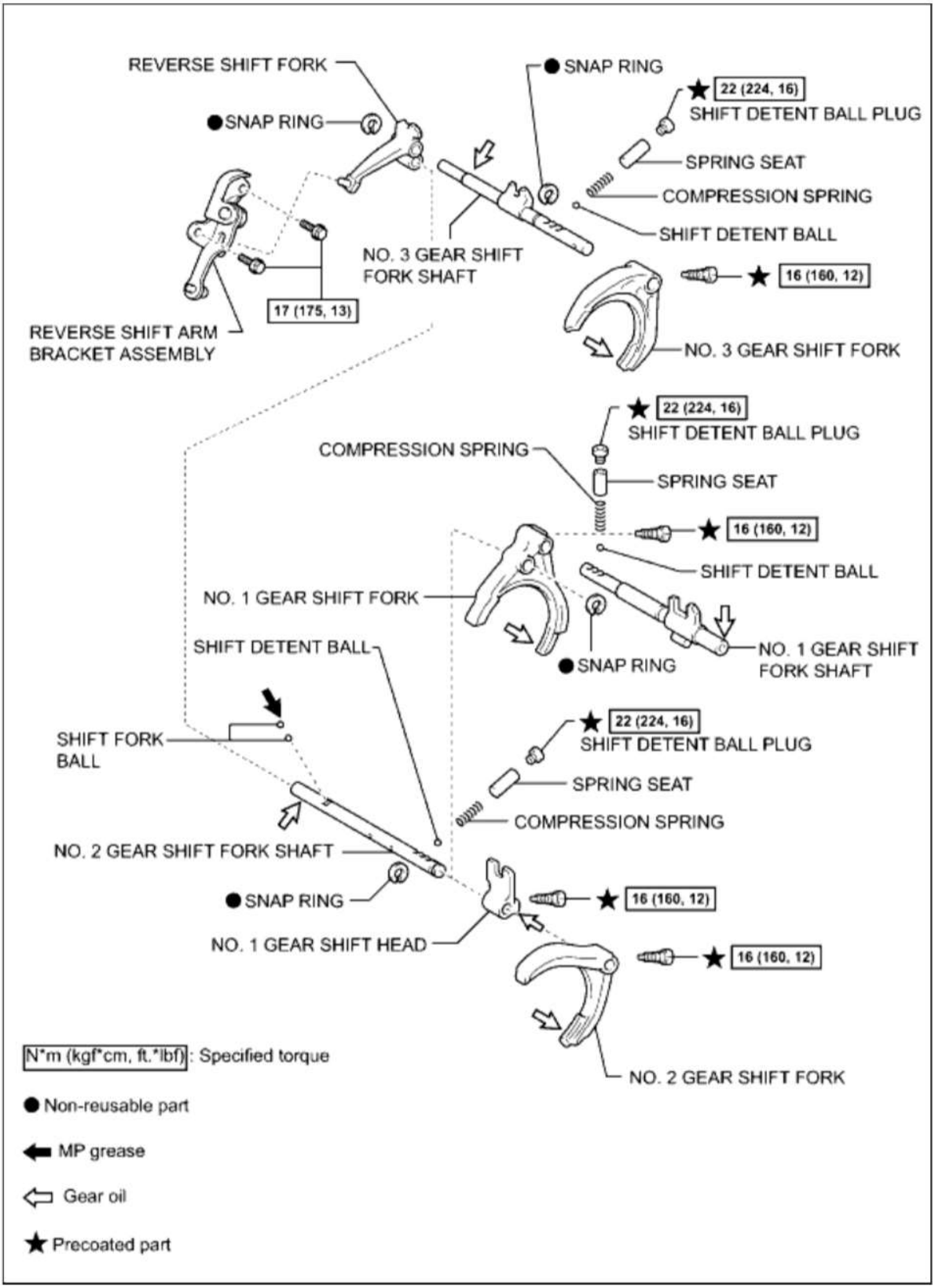
ILLUSTRATION

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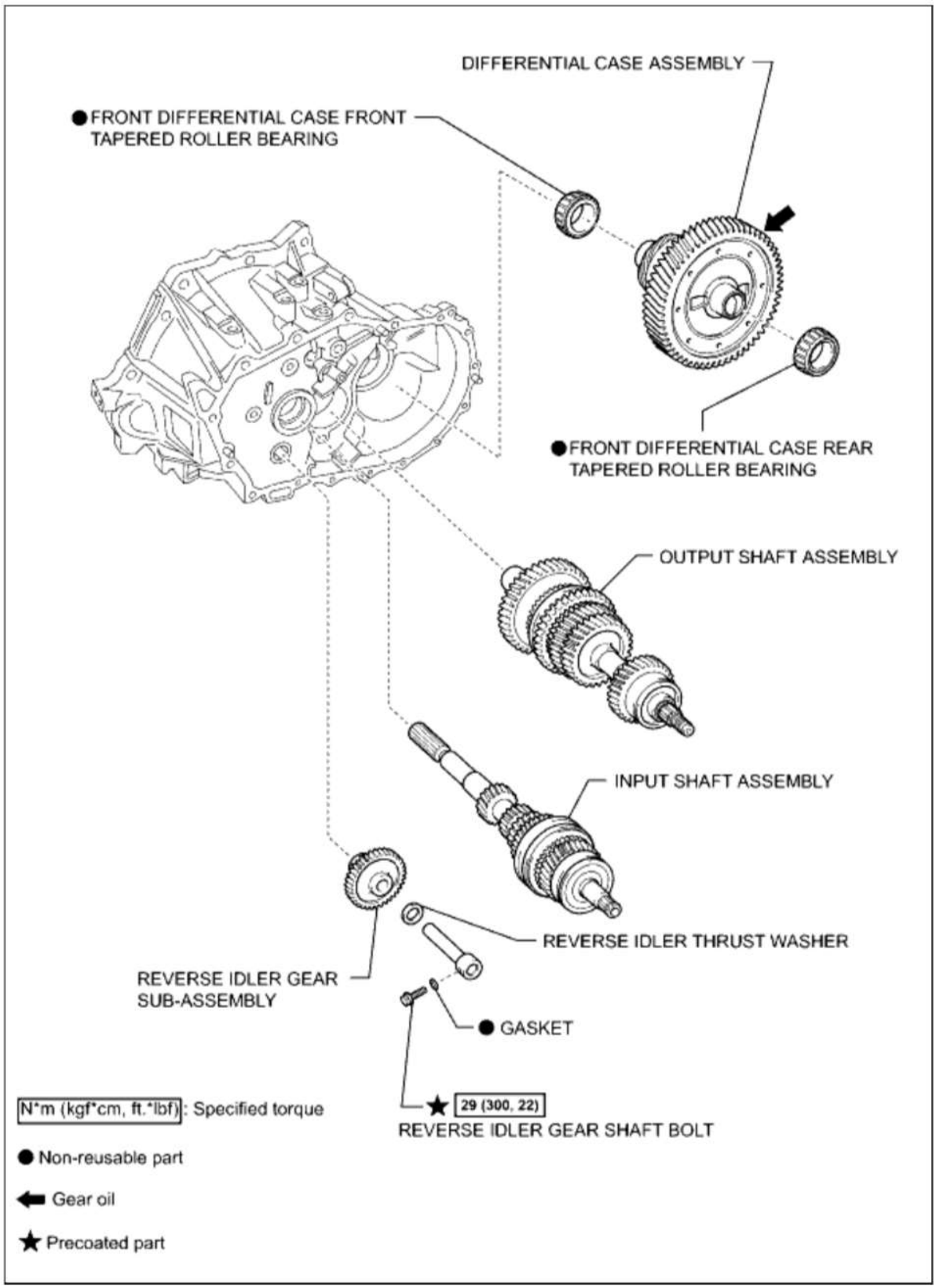
ILLUSTRATION

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Last Modified: 3-10-2010	6.4 T	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001R1G01GX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE SYSTEM: PROBLEM SYMPTOMS TABLE (2010 Corolla)		

PROBLEM SYMPTOMS TABLE

Use the table below to help determine the cause of problem symptoms. If multiple suspected areas are listed, the potential causes of the symptoms are listed in order of probability in the "Suspected Area" column of the table. Check each symptom by checking the suspected areas in the order they are listed. Replace parts as necessary.

HINT:

If possible, perform a road test as part of diagnosis. Note any unusual behavior, and conditions that cause the problem to occur. Based on the power flow and configuration of the gears in the transaxle, determine what parts require special attention if inspection and disassembly is necessary.

MANUAL TRANSAXLE SYSTEM:

SYMPTOM	SUSPECTED AREA	SEE PAGE
Abnormal noise	Oil level (Low)	INFO
	Oil (Wrong)	-
	Clutch release bearing (Worn or damaged)	INFO
	Clutch disc (Worn or damaged)*1	INFO
	Synchronizer ring (Input shaft) (Worn or damaged)	INFO
	Synchronizer ring (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Bearing (Input shaft) (Worn or damaged)	INFO
	Bearing (Output shaft) (Worn or damaged)	INFO
	Bearing (Differential case) (Worn or damaged)	INFO
Oil leak	Oil level (High)	INFO
	Gasket (Damaged)	INFO
	Oil seal (Worn or damaged)	INFO
Hard shifting or impossible to shift	Oil (Wrong)	-

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SYMPTOM	SUSPECTED AREA	SEE PAGE
	Clutch (Dragging)	INFO
	Shift and select lever assembly (Worn or damaged)	INFO
	Control cable (Faulty)	INFO
	Shift fork (Worn)	INFO
	Synchronizer ring (Input shaft) (Worn or damaged)	INFO
	Synchronizer ring (Output shaft) (Worn or damaged)	INFO
	Shift key spring (Input shaft) (Worn or damaged)	INFO
	Shift key spring (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Hub sleeve (Input shaft) (Worn or damaged)	INFO
	Hub sleeve (Output shaft) (Worn or damaged)	INFO
Jumps out of gear or shift lever moves excessively	Shift fork (Worn)	INFO
	Hub sleeve (Input shaft) (Worn or damaged)	INFO
	Hub sleeve (Output shaft) (Worn or damaged)	INFO
	Gear (Input shaft) (Worn or damaged)	INFO
	Gear (Output shaft) (Worn or damaged)	INFO
	Bearing (Input shaft) (Worn or damaged)	INFO
	Bearing (Output shaft) (Worn or damaged)	INFO

*1: If the clutch torsional damper springs are worn, they can produce a load-related noise similar to a bad bearing or gear rattle.

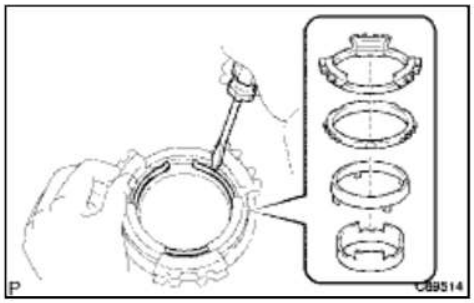


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1T00FX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: REASSEMBLY (2010 Corolla)		

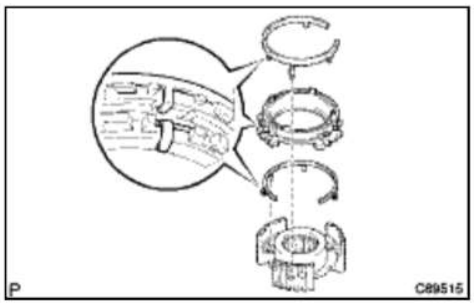
REASSEMBLY

1. INSTALL SYNCHRONIZER PULL RING



(a) Install the No. 5 synchronizer ring middle, No. 5 synchronizer ring outer, and synchronizer pull ring to the No. 5 synchronizer ring inner. Using a screwdriver, secure them with the snap ring.

2. INSTALL NO. 3 SYNCHROMESH SHIFTING KEY SPRING



(a) Install the No. 3 synchromesh shifting key spring to the No. 3 transmission clutch hub.

NOTICE:

Align the projection of the shifting key spring with the hole of the No. 3 clutch hub.

(b) Install the synchronizer ring set and No. 3 synchromesh shifting key spring to the No. 3 transmission clutch hub.

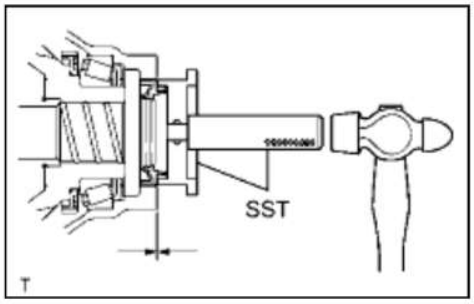
NOTICE:

- Engage the shifting key spring claw to the center of the teeth of the synchronizer ring.
- Align the projection of the shifting key spring with the hole of the No. 3 clutch hub.

3. INSTALL TRANSAXLE CASE OIL SEAL

(a) Coat the new transaxle case oil seal lip with MP grease.

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(b) Using SST and a hammer, install a transaxle case oil seal.

SST: 09608-10010

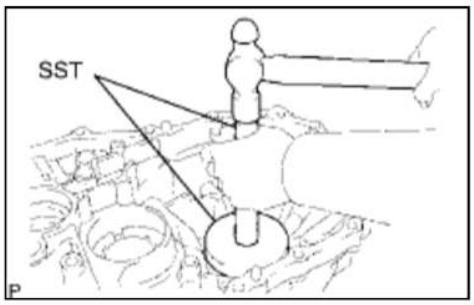
SST: 09950-70010

09951-07200

Oil seal installation depth:

-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

4. INSTALL FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING



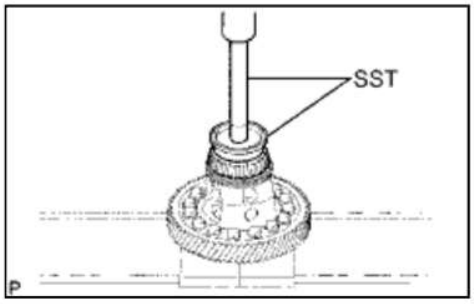
(a) Using SST and a hammer, install the front differential case front tapered roller bearing (outer race) to the manual transaxle case.

SST: 09950-60020

09951-00910

SST: 09950-70010

09951-07100



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

SST: 09950-70010

09951-07100

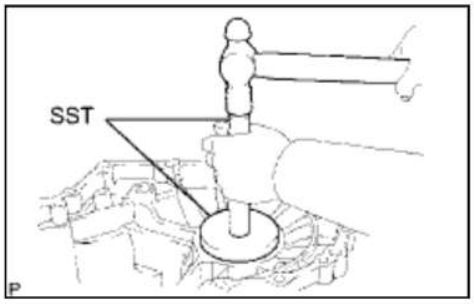
09951-07150

SST: 09608-10010

5. INSTALL FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

(a) Install the front differential case rear shim.

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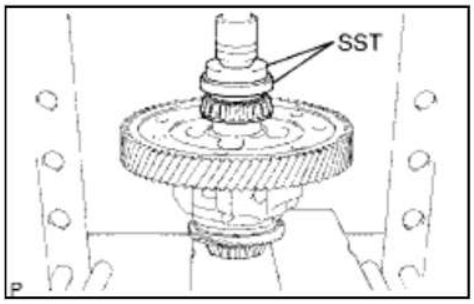
(b) Using SST and a hammer, install the front differential case rear tapered roller bearing (outer race).

SST: 09950-60020

09951-00890

SST: 09950-70010

09951-07100



(c) Using SST and a press, install the front differential case rear tapered roller bearing (inner race).

SST: 09631-12090

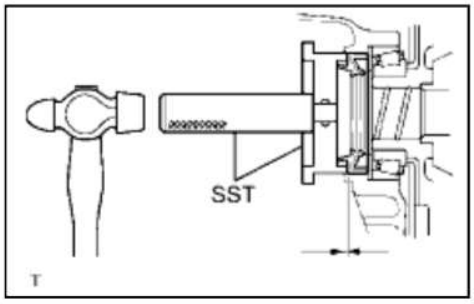
SST: 09950-60010

09951-00600

SST: 09950-70010

09951-07100

6. INSTALL TRANSMISSION CASE OIL SEAL



(a) Using SST and a hammer, install a new transmission case oil seal to the manual transmission case.

SST: 09608-32010

SST: 09950-70010

09951-07150

Oil seal installation depth:
3.0 to 4.0 mm (0.118 to 0.156 in.)

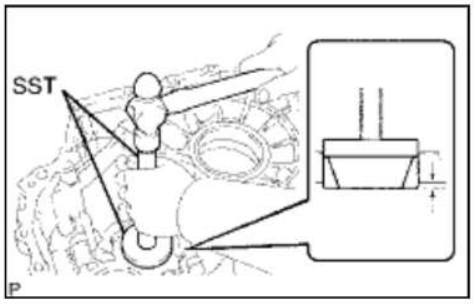
(b) Coat the transmission case oil seal lip with MP grease.

7. INSTALL OUTPUT SHAFT REAR BEARING

(a) Using SST and a hammer, install the output shaft rear bearing (outer race) to the manual transmission case.

SST: 09950-60020

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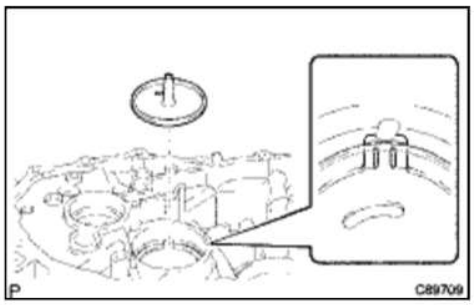
09951-00680

SST: 09950-70010

09951-07100

Clearance:
3.8 to 4.4 mm (0.150 to 0.173 in.)

8. INSTALL OUTPUT SHAFT COVER

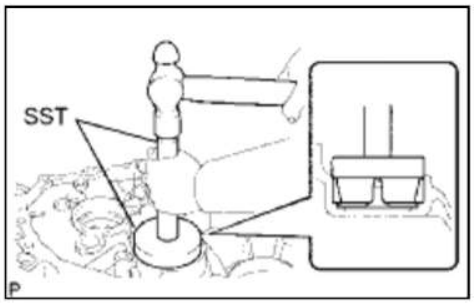


(a) Coat the output shaft cover with MP grease, and install it to the manual transaxle case.

NOTICE:

Align the projection of the output shaft cover with the transmission groove.

9. INSTALL OUTPUT SHAFT FRONT BEARING



(a) Using SST and a hammer, install the new output shaft front bearing (outer race).

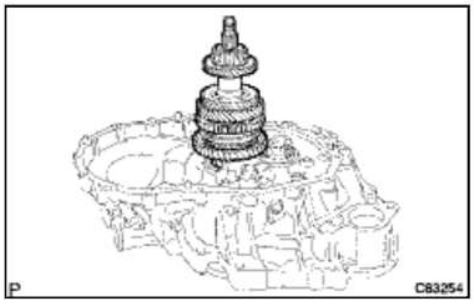
SST: 09950-60020

09951-00730

SST: 09950-70010

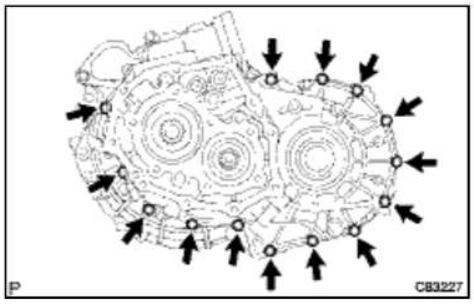
09951-07100

10. ADJUST OUTPUT SHAFT BEARING PRELOAD



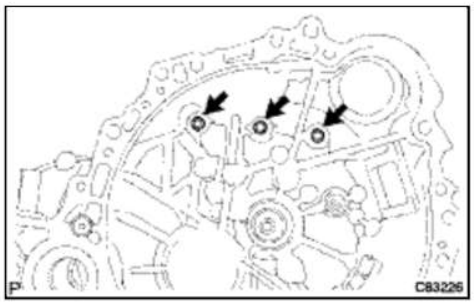
(a) Install the output shaft to the manual transaxle case.

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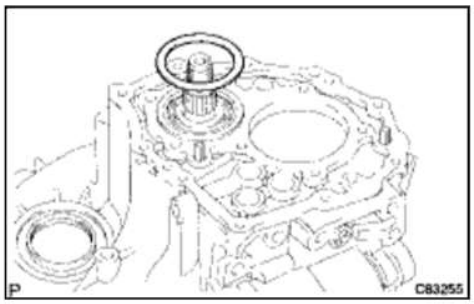
(b) Install the transmission case to the manual transaxle case with the 14 bolts.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

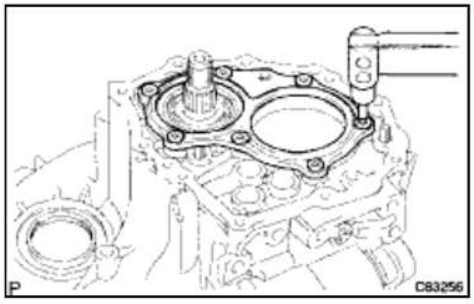


(c) Install the 3 bolts to the manual transaxle case.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)



(d) Install the output shaft rear bearing case shim to the output shaft.

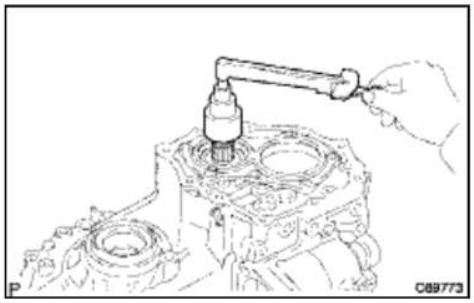


(e) Using a "TORX" socket wrench (T45), install the rear bearing retainer to the manual transmission case with the 7 screws.

Torque: 43 N·m (438 kgf·cm, 32ft·lbf)

(f) Turn the output shaft in both directions to make sure that it turns smoothly.

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(g) Using a socket wrench and torque wrench, inspect the preload.

Preload:

BEARING	PRELOAD N*M (KGF*CM, IN.*LBF)
New	0.8 to 1.6 (8.16 to 16.32, 7.1 to 14.2)
Used	0.5 to 1.0 (5.10 to 10.20, 4.4 to 8.9)

(h) If preload is not as specified, select a proper output shaft rear bearing shim and adjust it.

HINT:

The preload of all the output shaft rear bearing shim varies in torque from about 0.04 to 0.06 N*m (0.408 to 0.612 kgf*cm, 0.35 to 0.53 in.*lbf).

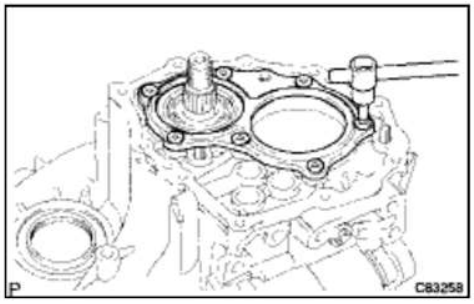
Shim:

PART NO.	THICKNESS MM (IN.)	MARK
90564-59001	1.30 (0.0512)	0
90564-59002	1.35 (0.0531)	1
90564-59003	1.40 (0.0551)	2
90564-59004	1.45 (0.0571)	3
90564-59005	1.50 (0.0591)	4
90564-59006	1.55 (0.0610)	5
90564-59007	1.60 (0.0630)	6
90564-59008	1.65 (0.0650)	7
90564-59009	1.70 (0.0669)	8
90564-59010	1.75 (0.0689)	9
90564-59011	1.80 (0.0709)	A
90564-59012	1.85 (0.0728)	B

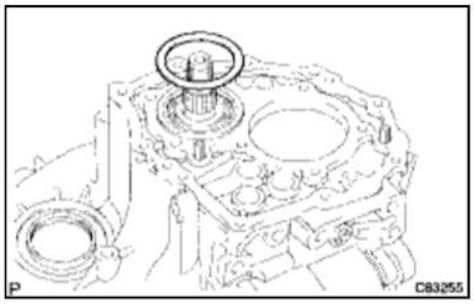
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PART NO.	THICKNESS MM (IN.)	MARK
90564-59013	1.90 (0.0748)	C
90564-59014	1.95 (0.0768)	D
90564-59015	2.00 (0.0787)	E
90564-59016	2.05 (0.0807)	F
90564-59017	2.10 (0.0827)	G
90564-59018	2.15 (0.0846)	H
90564-59019	2.20 (0.0866)	J
90564-59020	2.25 (0.0886)	K
90564-59021	2.30 (0.0906)	L
90564-59022	2.35 (0.0925)	M
90564-59023	2.40 (0.0945)	N
90564-59024	2.45 (0.0965)	P
90564-59025	2.50 (0.0984)	Q

(i) Remove the output shaft rear set nut from the output shaft.



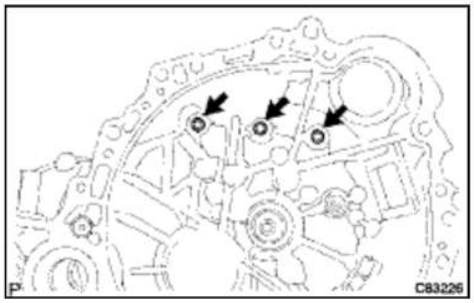
(j) Using a "TORX" socket wrench (T45), remove the 7 screws and rear bearing retainer from the manual transmission case.

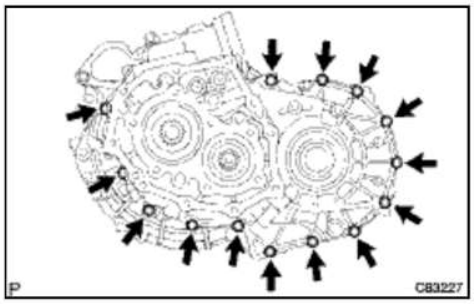


(k) Remove the output shaft rear bearing shim from the output shaft.

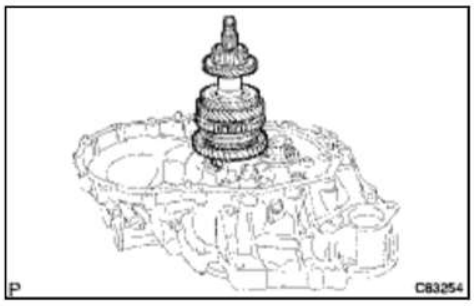
(l) Remove the 3 bolts.

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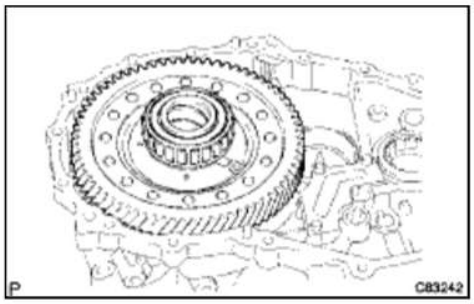


(m) Remove the 14 bolts and manual transmission case from the manual transaxle case.



(n) Remove the output shaft assembly from the front manual transaxle case.

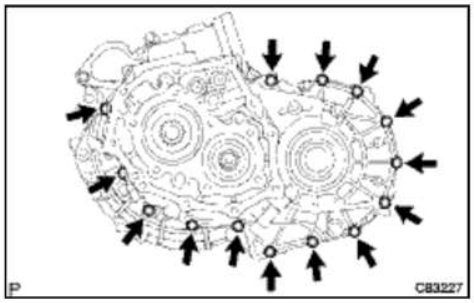
11. ADJUST TAPERED ROLLER BEARING PRELOAD



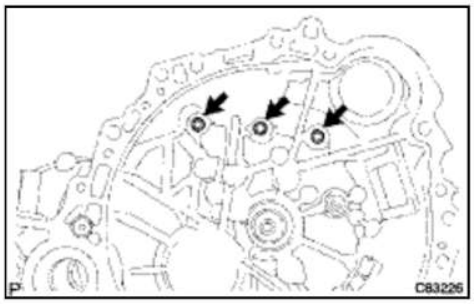
(a) Install the differential case assembly to the manual transaxle case.

(b) Install the 14 bolts and manual transmission case to the manual transaxle case.

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Torque: 29 N·m (296 kgf·cm, 21ft·lbf)



(c) Install the 3 bolts to the manual transaxle case.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

(d) Using SST, turn the differential in both directions to make sure that it turns smoothly.

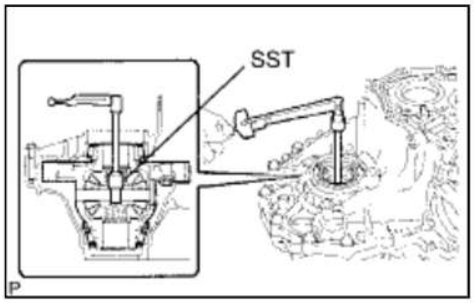
SST: 09564-32011

(e) Using SST and a torque wrench, inspect preload.

SST: 09564-32011

Preload:

BEARING	PRELOAD N*M (KGF*CM, IN.*LBF)
New	0.8 to 1.6 (8.16 to 16.32, 7.1 to 14.2)
Used	0.5 to 1.0 (5.10 to 10.2, 4.4 to 8.9)



If preload is not as specified, select a proper front differential case rear shim and adjust it.

HINT:

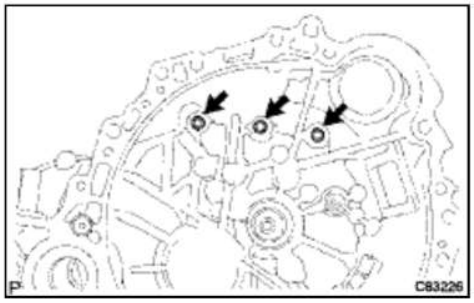
The preload of all the front differential case rear shims varies in torque from about 0.04 to 0.06 N*m (0.408 to 0.612 kgf*cm, 0.35 to 0.53 in.*lbf).

Shim:

PART NO.	THICKNESS MM (IN.)	MARK

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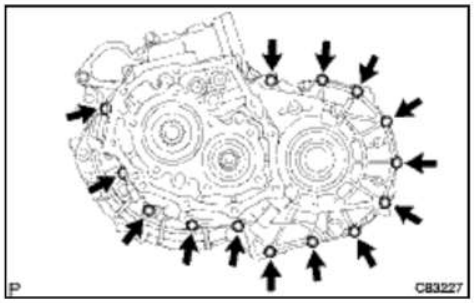
90564-56055	2.00 (0.0787)	0
90564-56056	2.05 (0.0807)	1
90564-56057	2.10 (0.0827)	2
90564-56058	2.15 (0.0846)	3
90564-56059	2.20 (0.0866)	4
90564-56060	2.25 (0.0886)	5
90564-56061	2.30 (0.0906)	6
90564-56062	2.35 (0.0925)	7
90564-56063	2.40 (0.0945)	8
90564-56064	2.45 (0.0965)	9
90564-56065	2.50 (0.0984)	A
90564-56066	2.55 (0.1004)	B
90564-56067	2.60 (0.1024)	C
90564-56068	2.65 (0.1043)	D
90564-56069	2.70 (0.1063)	E
90564-56070	2.75 (0.1083)	F
90564-56071	2.80 (0.1102)	G
90564-56072	2.85 (0.1122)	H

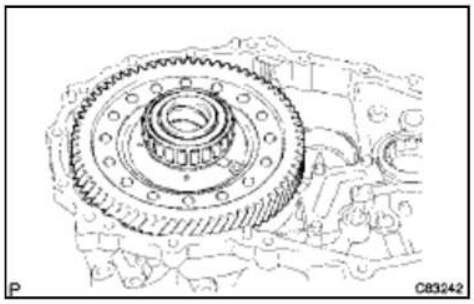


(f) Remove the 3 bolts.

(g) Remove the 14 bolts and manual transmission case from the manual transaxle case.

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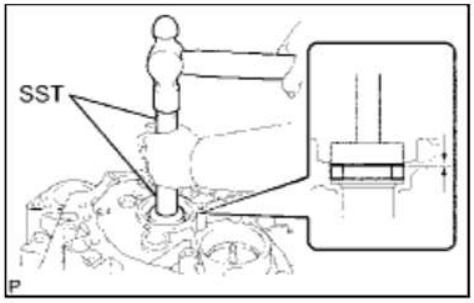




(h) Remove the differential case assembly from the manual transaxle case.

12. INSTALL FRONT TRANSAXLE CASE COVER OIL SEAL

(a) Coat the lip of a new front transaxle case cover oil seal with MP grease.



(b) Using SST and a hammer, install the new front transaxle case cover oil seal to the manual transaxle case.

SST: 09950-60010

09951-00420

SST: 09950-70010

09951-07150

Clearance:

1.0 to 2.0 mm (0.0394 to 0.0787 in.)

13. INSTALL INPUT SHAFT FRONT BEARING

(a) Coat a new input shaft front bearing with gear oil.

(b) Using SST and a hammer, install the bearing to the manual transaxle case.

SST: 09950-60010

09951-00570

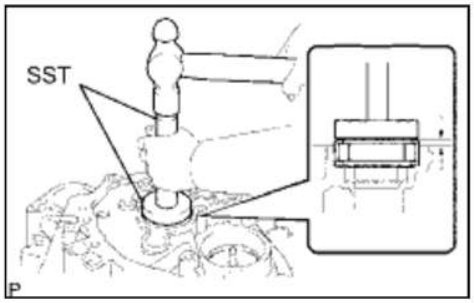
SST: 09950-70010

09951-07150

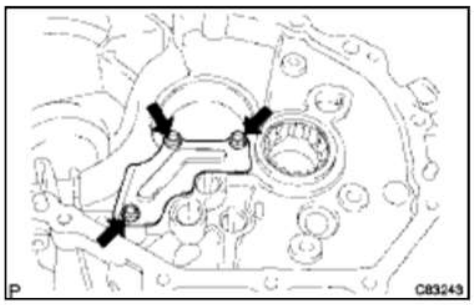
Clearance:

4.28 to 4.6 mm (0.169 to 0.181 in.)

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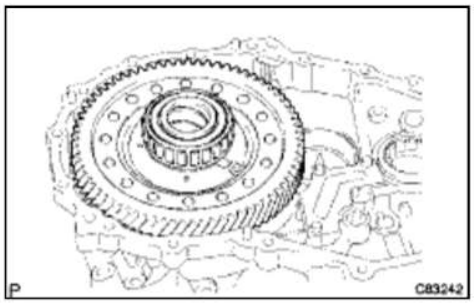
14. INSTALL MANUAL TRANSAXLE CASE RECEIVER



(a) Install the manual transaxle case receiver to the manual transaxle case with the 3 bolts.

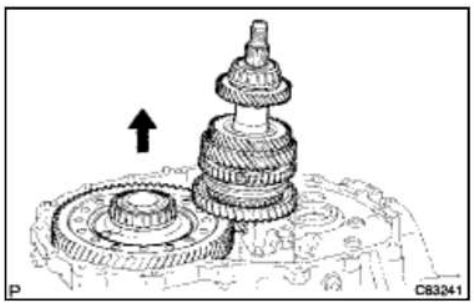
Torque: 7.0 N·m (71 kgf·cm, 62in·lbf)

15. INSTALL DIFFERENTIAL CASE ASSEMBLY



(a) Coat the differential case tapered roller bearing with gear oil, and install the differential case assembly to the manual transaxle case.

16. INSTALL OUTPUT SHAFT ASSEMBLY

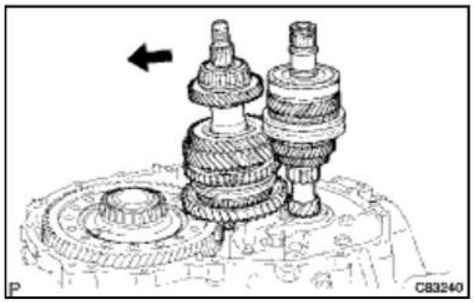


(a) Apply gear oil to each sliding part of the output shaft assembly.

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(b) Lift the differential case assembly while tilting output shaft assembly, and install it to the manual transaxle case.

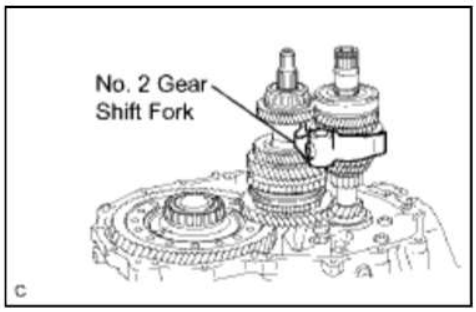
17. INSTALL INPUT SHAFT ASSEMBLY



(a) Apply gear oil to each sliding part of the input shaft assembly.

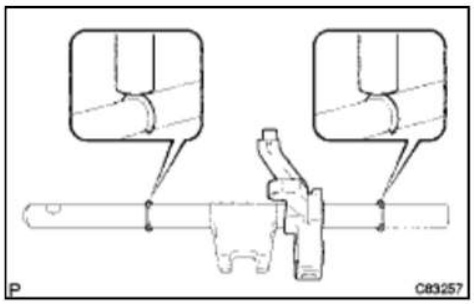
(b) Install the input shaft assembly to the manual transaxle case while tilting the output shaft assembly.

18. INSTALL NO. 2 GEAR SHIFT FORK



(a) Coat the No. 2 gear shift fork with gear oil, and install it to the input shaft assembly.

19. INSTALL NO. 3 GEAR SHIFT FORK

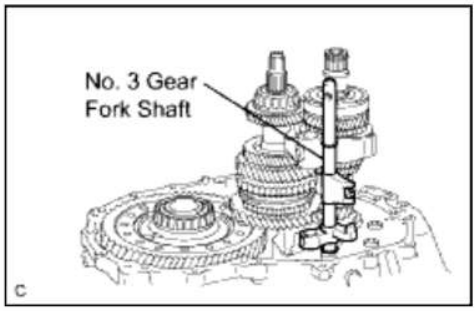


(a) Install the No. 3 gear shift fork to the No. 3 gear shift fork shaft.

(b) Using a brass bar and a hammer, install the 2 shift fork shaft snap rings to the gear shift fork shaft.

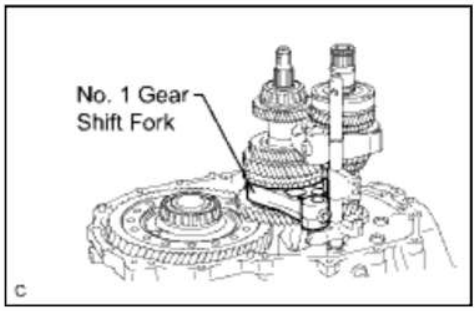
(c) Apply gear oil to each sliding part of the No. 3 gear shift

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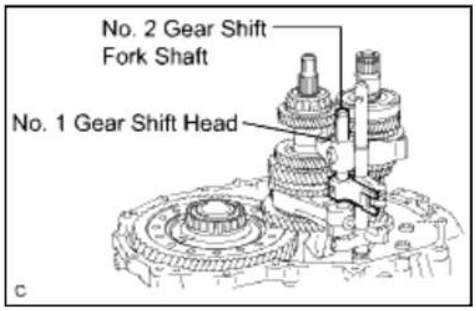
fork shaft, and install it to the manual transaxle case.

20. INSTALL NO. 1 GEAR SHIFT FORK



(a) Apply gear oil to each sliding part of the No. 1 gear shift fork, and install it to the output shaft assembly.

21. INSTALL NO. 2 GEAR SHIFT FORK SHAFT



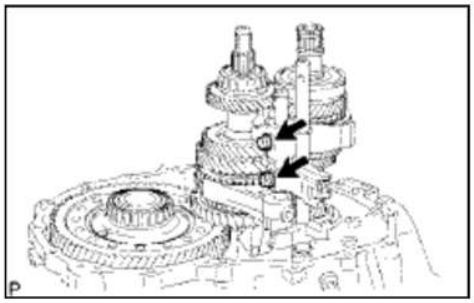
(a) Install the No. 1 gear shift head to the No. 2 gear shift fork shaft.

(b) Apply gear oil to each sliding part of the No. 2 gear shift fork shaft, and install it to the manual transaxle case.

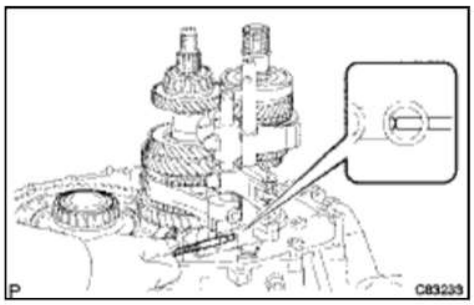
(c) Install the shift fork set bolt and shift head set bolt to the No. 1 gear shift head.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

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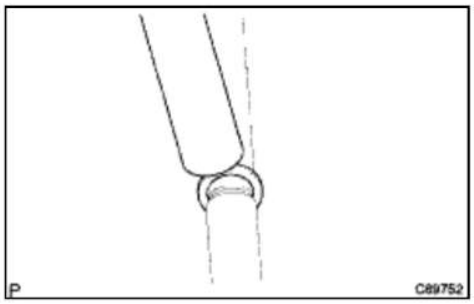


22. INSTALL REVERSE SHIFT FORK ROLLER

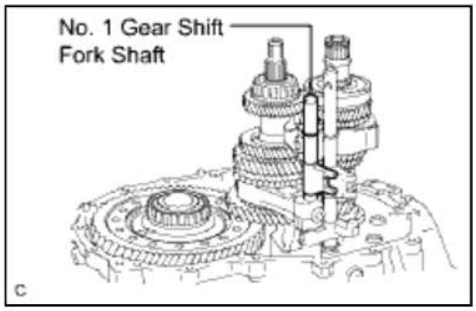


(a) Using a magnetic pick-up tool, install the reverse shift fork roller to the reverse shift fork.

23. INSTALL NO. 1 GEAR SHIFT FORK SHAFT

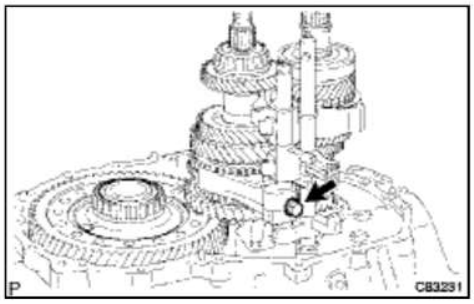


(a) Using a brass bar and a hammer, install the shift fork shaft snap ring to the No. 1 shift fork shaft.



(b) Install the No. 1 gear shift fork shaft to the manual transaxle case.

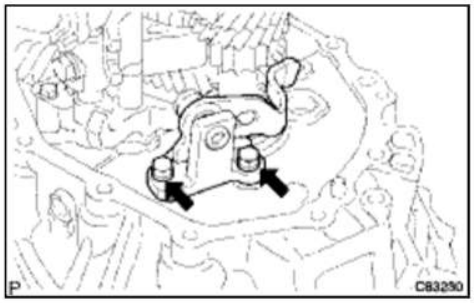
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(c) Install the shift fork set bolt to the No. 1 gear shift fork.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

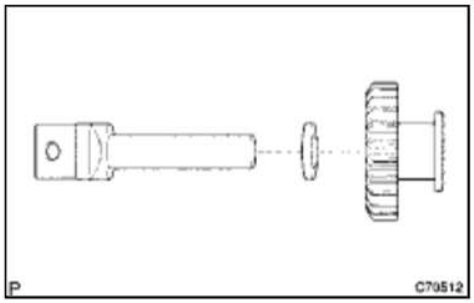
24. INSTALL REVERSE SHIFT ARM BRACKET ASSEMBLY



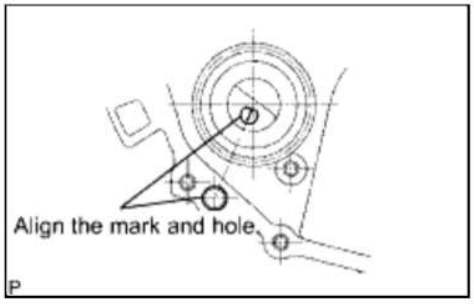
(a) Install the reverse shift arm bracket assembly to the manual transaxle case with the 2 bolts.

Torque: 17 N·m (173 kgf·cm, 13ft·lbf)

25. INSTALL REVERSE IDLER GEAR SUB-ASSEMBLY



(a) Coat the reverse idler gear and reverse idler thrust washer with MP grease, and install them to the reverse idler gear shaft.



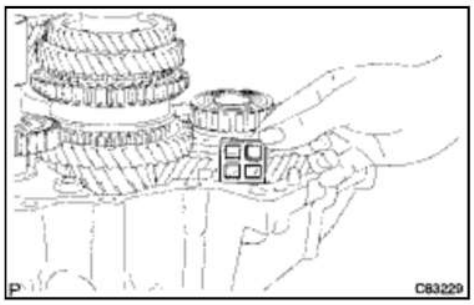
(b) Install the reverse idler gear to the manual transaxle case.

HINT:

Align the mark of the reverse idler gear shaft with the bolt hole.

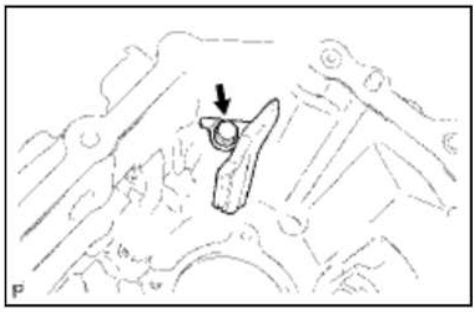
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26. INSTALL TRANSMISSION MAGNET



(a) Clean the transmission magnet and install it to the manual transaxle case.

27. INSTALL NO. 1 OIL RECEIVER PIPE



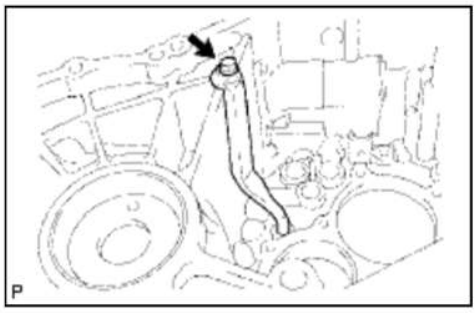
(a) Install the No. 1 oil receiver pipe to the manual transmission case with the bolt.

Torque: 17 N·m (173 kgf·cm, 13ft·lbf)

NOTICE:

Do not damage the pipe.

28. INSTALL NO. 2 OIL RECEIVER PIPE



(a) Install the No. 2 oil receiver pipe to the manual transmission case with the bolt.

Torque: 17 N·m (173 kgf·cm, 13ft·lbf)

NOTICE:

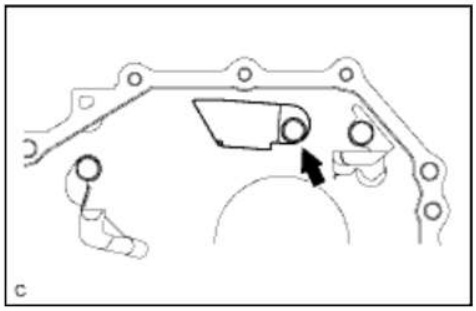
Do not damage the pipe.

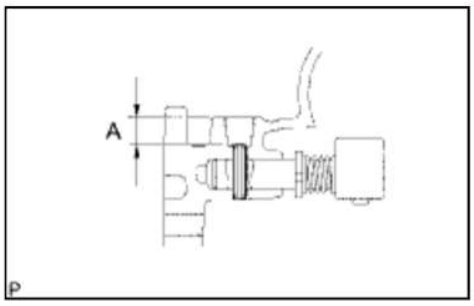
29. INSTALL REVERSE RESTRICT PIN ASSEMBLY

(a) Install the transmission oil baffle and reverse restrict pin with the bolt.

Torque: 17 N·m (173 kgf·cm, 13ft·lbf)

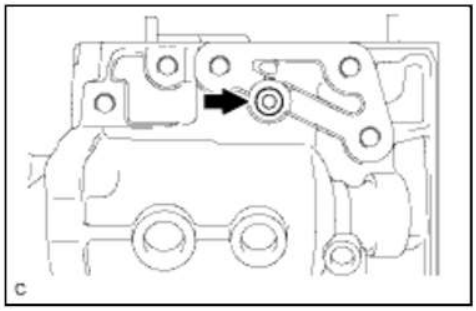
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(b) Using a pin punch (φ 5 mm), install the slotted pin to the reverse restrict pin assembly.

Clearance A:
12.5 to 13.5 mm (0.492 to 0.531 in.)

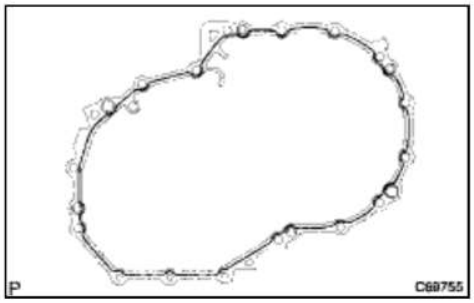


(c) Coat the reverse restrict pin plug with adhesive. Using a hexagon wrench (6 mm), install the manual transmission case.

Torque: 13 N·m (133 kgf·cm, 10ft·lbf)

Adhesive:
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

30. INSTALL MANUAL TRANSMISSION CASE



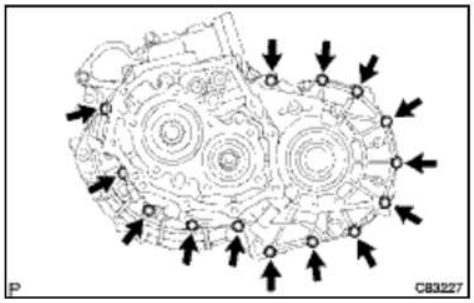
(a) Apply a bead of FIPG to the manual transmission case as shown in the illustration.

HINT:

Install the manual transmission case within 10 minutes after applying FIPG.

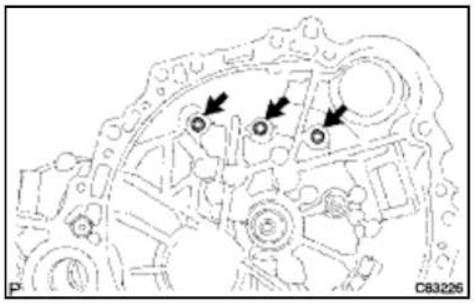
(b) Install the manual transmission case to the manual

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transaxle case with the 14 bolts.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)



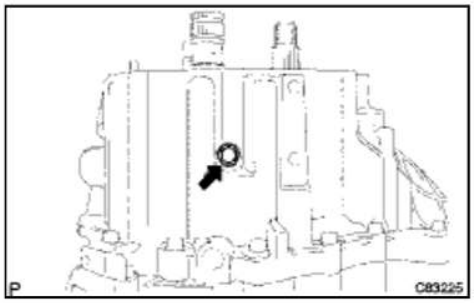
(c) Coat the 3 bolts with adhesive.

Adhesive:
Toyota Genuine Adhesive 1324, Three Bond 1324 or equivalent

(d) Install the 3 bolts to the manual transaxle case.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

31. INSTALL REVERSE IDLER GEAR SHAFT BOLT



(a) Coat the bolt with adhesive. Install a new gasket to the manual transmission case with the bolt.

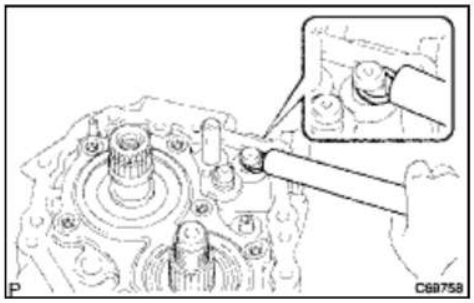
Torque: 30 N·m (306 kgf·cm, 22ft·lbf)

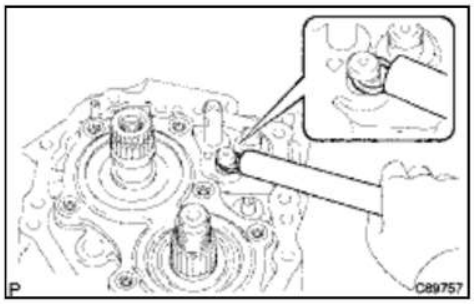
Adhesive:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

32. INSTALL SHIFT FORK SHAFT SNAP RING

(a) Using a brass bar and a hammer, install the shift fork shaft snap ring to the No. 1 gear shift fork shaft.

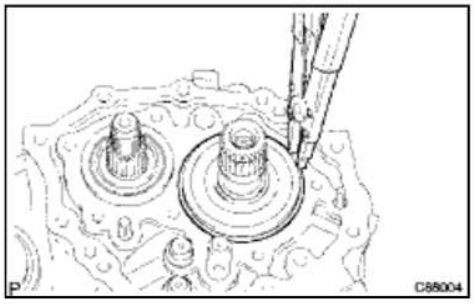
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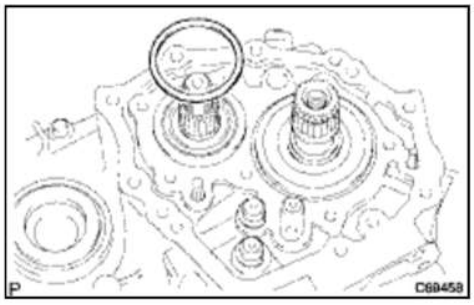
(b) Using a brass bar and a hammer, install the shift fork shaft snap ring to the No. 2 gear shift fork shaft.

33. INSTALL INPUT SHAFT REAR BEARING SHAFT SNAP RING



(a) Using a snap ring expander, install the input shaft rear bearing shaft snap ring.

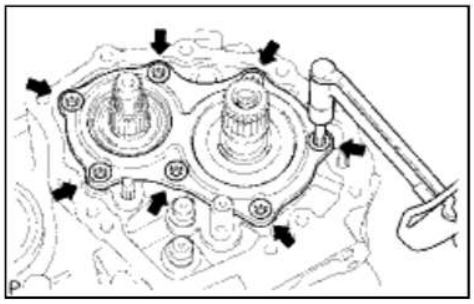
34. INSTALL OUTPUT SHAFT REAR BEARING SHIM



(a) Install the output shaft rear bearing shim to the output shaft.

35. INSTALL REAR BEARING RETAINER

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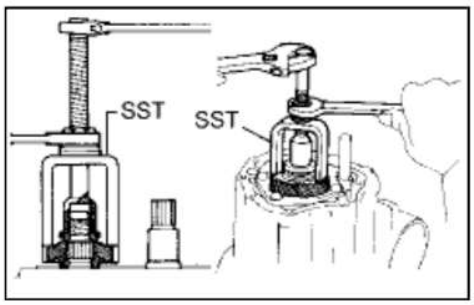
(a) Coat the 7 screws with adhesive.

Adhesive:
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

(b) Using a "TORX" socket wrench (T45), install the rear bearing retainer to the manual transmission case with the 7 screws.

Torque: 43 N·m (438 kgf·cm, 32ft·lbf)

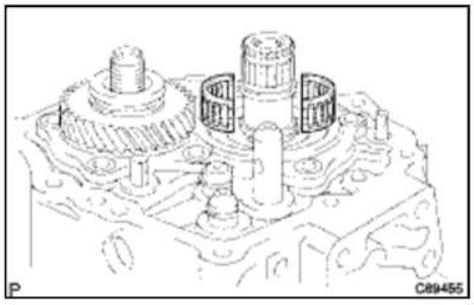
36. INSTALL 5TH DRIVEN GEAR



(a) Using SST, install the 5th driven gear to the output shaft.

SST: 09309-12020

37. INSTALL 5TH GEAR NEEDLE ROLLER BEARING

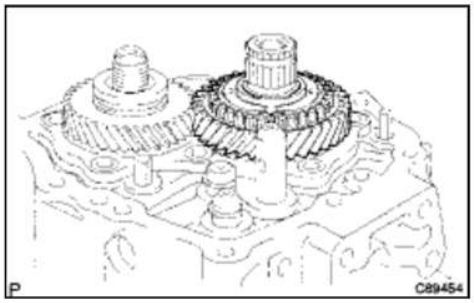


(a) Coat the 5th gear needle roller bearing with gear oil and install it to the input shaft.

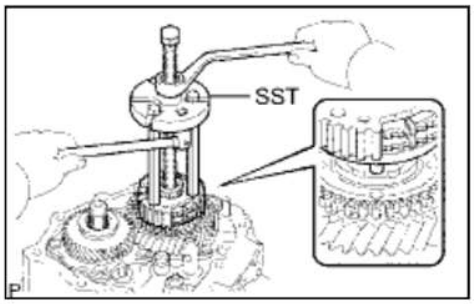
38. INSTALL 5TH GEAR

(a) Coat the 5th gear with gear oil and install it to the input shaft.

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39. INSTALL NO. 3 TRANSMISSION CLUTCH HUB



(a) Using SST, install the No. 3 transmission clutch hub to the input shaft.

SST: 09950-30012

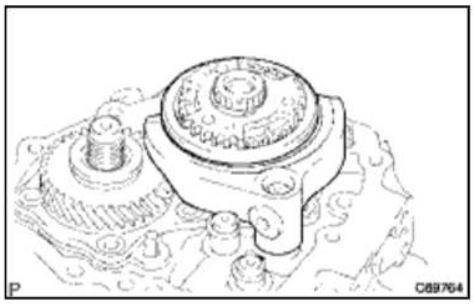
09951-03010

09953-03010

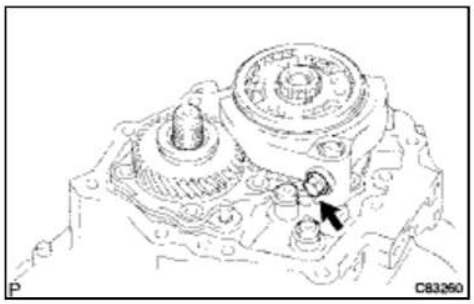
09954-03010

NOTICE:

Align the projection of the synchronizer ring with the hole in the 5th gear.



(b) Install the No. 3 transmission hub sleeve and No. 3 gear shift fork to the No. 3 transmission clutch hub.



(c) Coat the shift fork set bolt with adhesive and install it to the No. 3 gear shift fork.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

Adhesive:

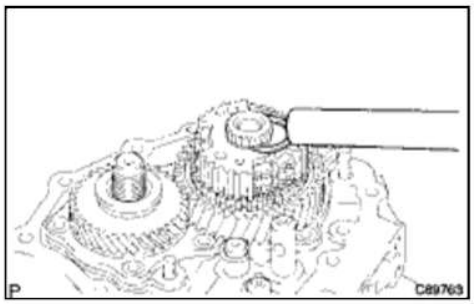
Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

(d) Select a snap ring that will allow minimal axial play. Using

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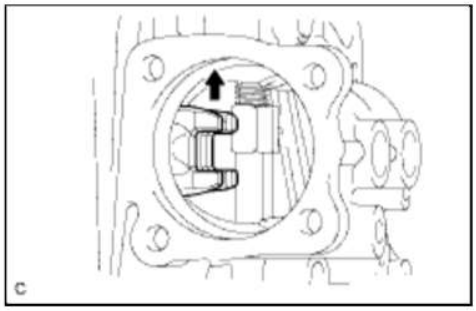
a brass bar and a hammer, install the shaft snap ring.

Clearance:
0.1 mm (0.00394 in.) or less
Snap Ring:



PART NO.	THICKNESS: MM (IN.)	MARK
90520-27061	1.75 to 1.80 (0.0689 to 0.0709)	a
90520-27062	1.80 to 1.85 (0.0709 to 0.0728)	b
90520-27063	1.85 to 1.90 (0.0728 to 0.0748)	c
90520-27064	1.90 to 1.95 (0.0748 to 0.0768)	d
90520-27065	1.95 to 2.00 (0.0768 to 0.0787)	e
90520-27066	2.00 to 2.05 (0.0787 to 0.0807)	f
90520-27067	2.05 to 2.10 (0.0807 to 0.0827)	g
90520-27068	2.10 to 2.15 (0.0827 to 0.0846)	h
90520-27069	2.15 to 2.20 (0.0846 to 0.0866)	j

40. INSTALL MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT

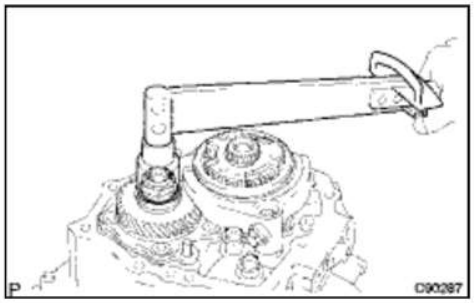


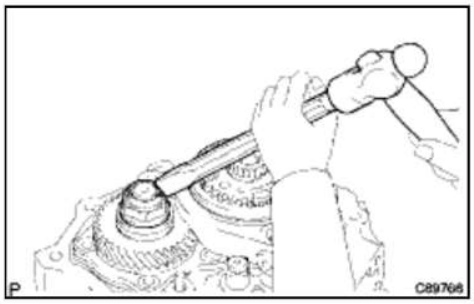
(a) Engage the 1st and 2nd gears simultaneously.

(b) Install a new manual transmission output shaft rear set nut.

Torque: 123 N·m (1254 kgf·cm, 90ft·lbf)

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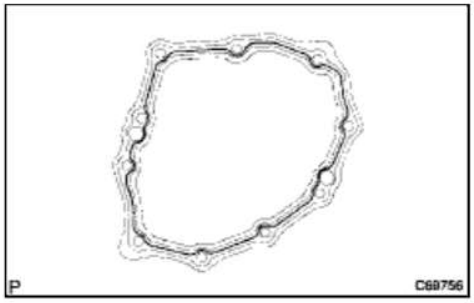




(c) Using a chisel and a hammer, stake the manual transmission output shaft rear set nut.

(d) Disengage the gears.

41. INSTALL MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY



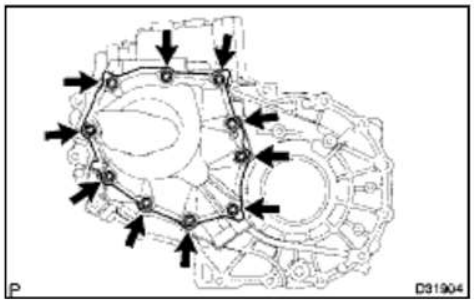
(a) Apply FIPG to the manual transmission case cover sub-assembly as shown in the installation.

FIPG:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

NOTICE:

Install the part within 10 minutes after applying packing material (FIPG).

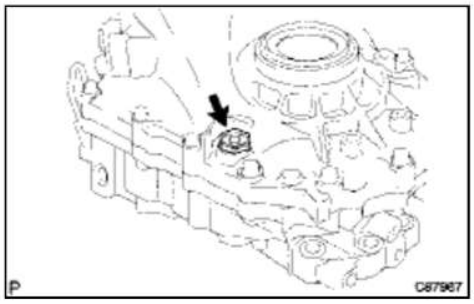


(b) Install the manual transmission case cover sub-assembly to the manual transaxle case with the 10 bolts.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

42. INSTALL DRAIN PLUG SUB-ASSEMBLY

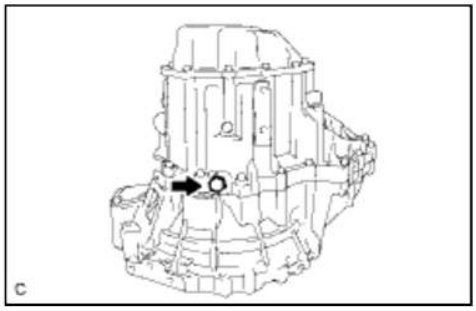
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(a) Install the drain plug sub-assembly to the manual transmission case with a new gasket.

Torque: 49 N·m (500 kgf·cm, 36ft·lbf)

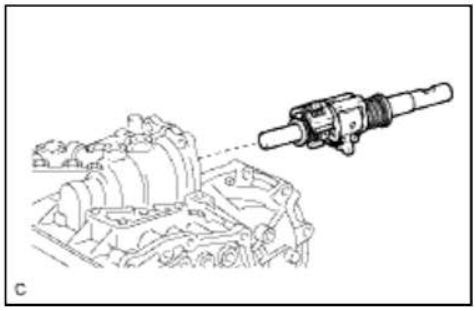
43. INSTALL MANUAL TRANSMISSION FILLER PLUG



(a) Install the manual transmission filler plug to the transaxle case with a new gasket.

Torque: 49 N·m (500 kgf·cm, 36ft·lbf)

44. INSTALL SHIFT AND SELECT LEVER SHAFT ASSEMBLY



(a) Coat the shift and select lever shaft assembly with gear oil, and install it to the manual transmission case.

45. INSTALL CONTROL SHAFT COVER

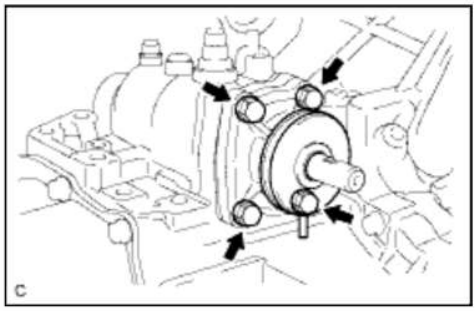
(a) Coat the 4 bolts with adhesive. Install a new gasket and the control shaft cover with the bolts.

Torque: 20 N·m (204 kgf·cm, 15ft·lbf)

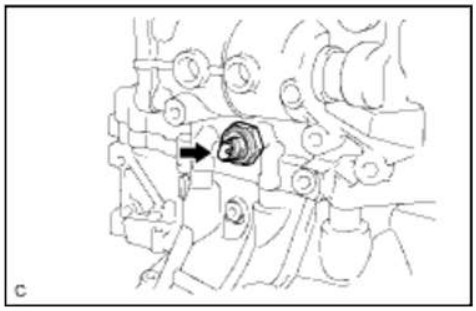
Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

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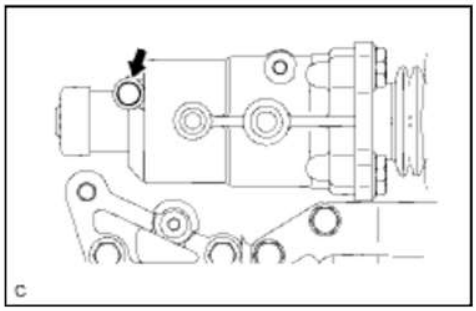
46. INSTALL BACK-UP LIGHT SWITCH ASSEMBLY



(a) Install the back-up light switch assembly to the manual transmission case with a new gasket.

Torque: 40 N·m (408 kgf·cm, 30ft·lbf)

47. INSTALL MANUAL TRANSMISSION BREATHER PLUG



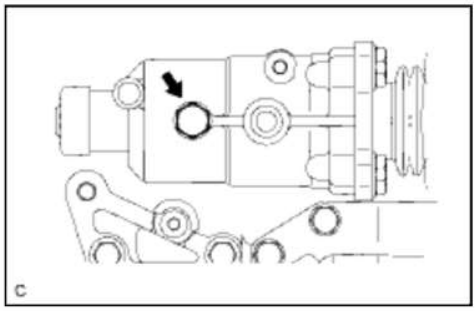
(a) Install the manual transmission breather plug to the manual transmission case.

48. INSTALL SHIFT GATE PIN

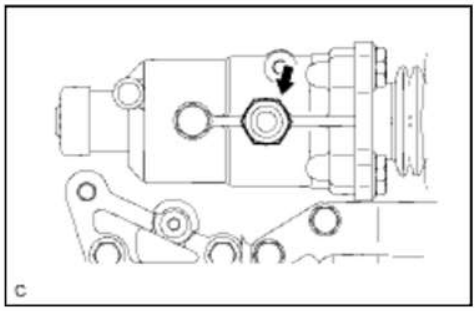
(a) Install the shift gate pin to the manual transmission case.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

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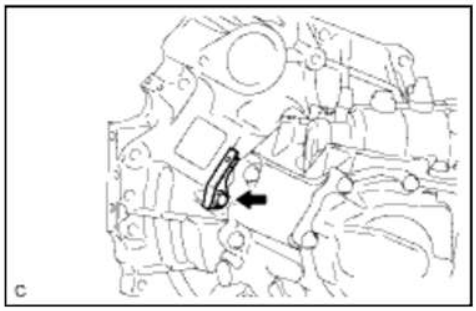
49. INSTALL NO. 1 LOCK BALL ASSEMBLY



(a) Install the No. 1 lock ball assembly to the manual transmission case.

Torque: 29 N·m (296 kgf·cm, 21ft·lbf)

50. INSTALL NO. 2 CLUTCH TUBE BRACKET



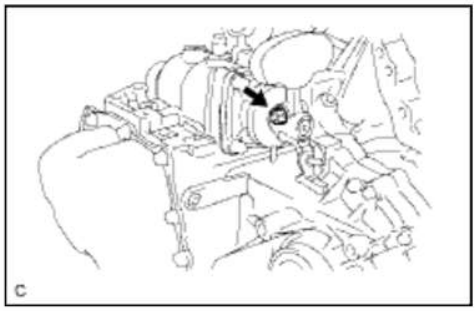
(a) Install the No. 2 clutch tube bracket with the bolt.

Torque: 15 N·m (153 kgf·cm, 11ft·lbf)

51. INSTALL CONTROL SHIFT LEVER

(a) Install the control shift lever with the shift outer lever lock pin to the shift and select lever shaft.

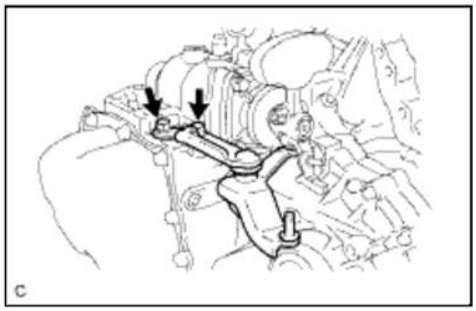
cardiagn.com



(b) Install the spring washer with the nut.

Torque: 12 N·m (120 kgf·cm, 9ft·lbf)

52. INSTALL SELECTING BELLCRANK ASSEMBLY



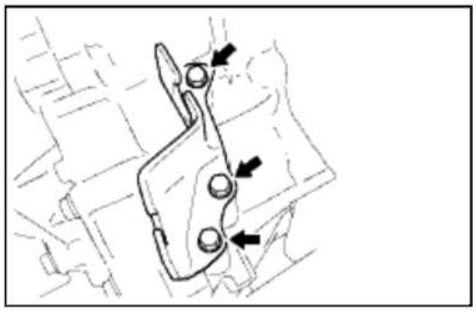
(a) Coat the 2 bolts with adhesive. Install the selecting bellcrank assembly to the manual transmission case with the bolts.

Torque: 20 N·m (204 kgf·cm, 15ft·lbf)

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

53. INSTALL CONTROL CABLE BRACKET



(a) Install the control cable bracket to the manual transaxle case with the 3 bolts.

Torque: 17 N·m (173 kgf·cm, 12ft·lbf)

54. INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

(a) Install a new O-ring and the speedometer driven hole cover sub-assembly to the transmission case with the bolt.

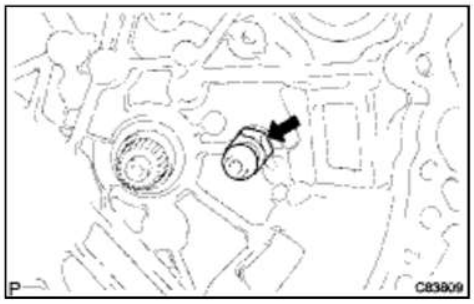
Torque: 5.5 N·m (56 kgf·cm, 48in·lbf)

55. INSTALL CLUTCH RELEASE FORK BOOT

(a) Install the clutch release fork boot to the manual transaxle case.

56. INSTALL RELEASE FORK SUPPORT

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(a) Using a deep socket wrench, install the release fork support to the manual transaxle case.

Torque: 47 N·m (480 kgf·cm, 36ft·lbf)

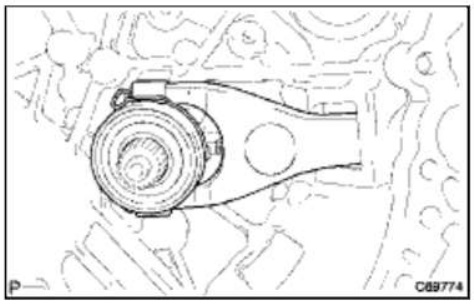
57. INSTALL CLUTCH RELEASE BEARING ASSEMBLY

(a) Coat the clutch release bearing assembly with release hub grease, and install it to the clutch release fork sub-assembly.

Sealant:
Toyota Genuine Release Hub Grease or equivalent

(b) Apply clutch spline grease to the input shaft spline.

58. INSTALL CLUTCH RELEASE FORK SUB-ASSEMBLY



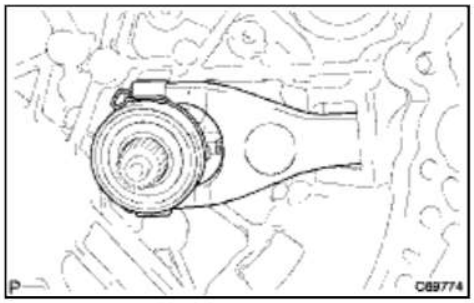
(a) Install the clutch release fork sub-assembly to the input shaft.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1S00FX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. REMOVE CLUTCH RELEASE FORK SUB-ASSEMBLY

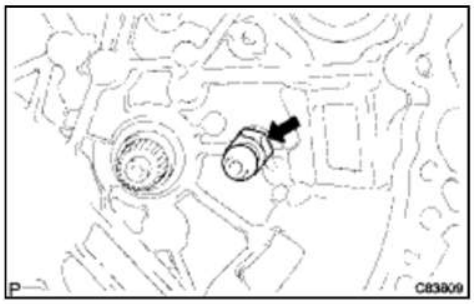


(a) Remove the clutch release fork sub-assembly together with the clutch release bearing assembly from the manual transaxle case.

2. REMOVE CLUTCH RELEASE BEARING ASSEMBLY

(a) Remove the clutch release bearing assembly and release bearing hub clip from the clutch release fork sub-assembly.

3. REMOVE RELEASE FORK SUPPORT



(a) Remove the release fork support from the manual transaxle case.

4. REMOVE CLUTCH RELEASE FORK BOOT

(a) Remove the clutch release fork boot from the manual transaxle case.

5. REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

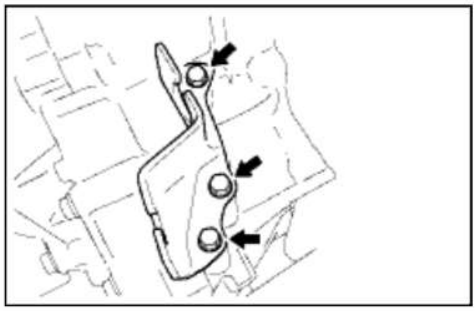
(a) Remove the bolt and speedometer driven hole cover sub-assembly.

(b) Remove the O-ring.

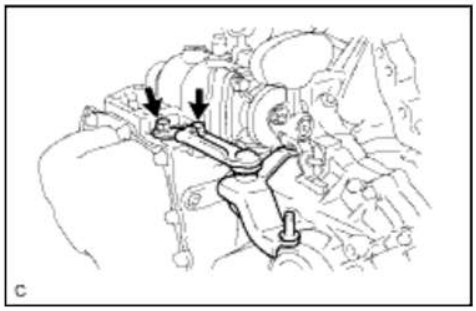
6. REMOVE CONTROL CABLE BRACKET

(a) Remove the 3 bolts and control cable bracket.

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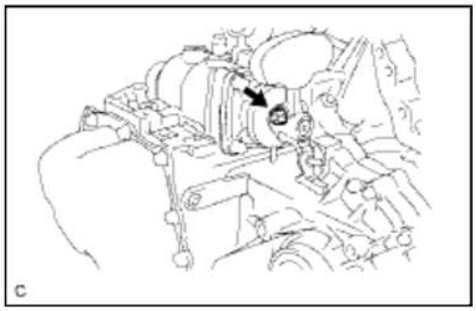


7. REMOVE SELECTING BELLCRANK ASSEMBLY

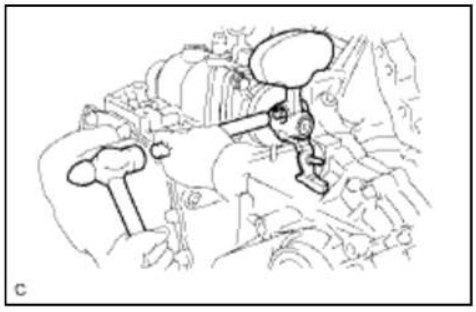


(a) Remove the 2 bolts and selecting bellcrank assembly from the manual transmission case.

8. REMOVE CONTROL SHIFT LEVER



(a) Remove the nut and spring washer.

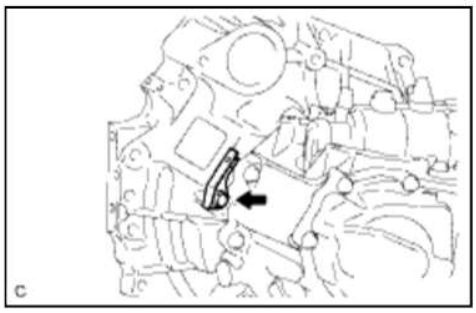


(b) Using a brass bar and hammer, remove the shift outer lever lock pin.

(c) Remove the control shift lever.

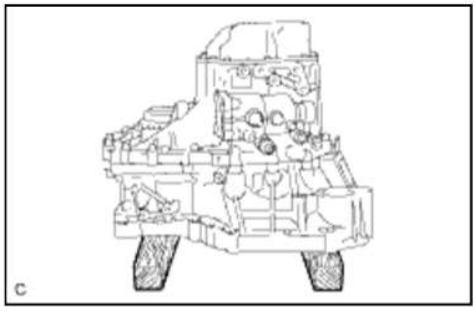
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9. REMOVE NO. 2 CLUTCH TUBE BRACKET



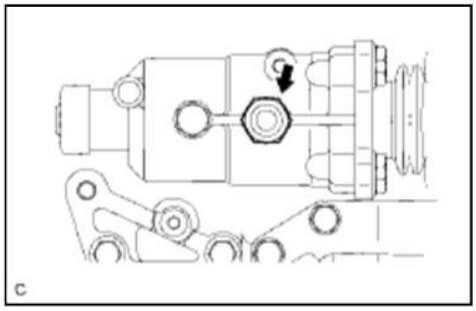
(a) Remove the bolt and No. 2 clutch tube bracket.

10. SECURE MANUAL TRANSAXLE ASSEMBLY



(a) Place the manual transaxle assembly on wooden blocks.

11. REMOVE NO. 1 LOCK BALL ASSEMBLY

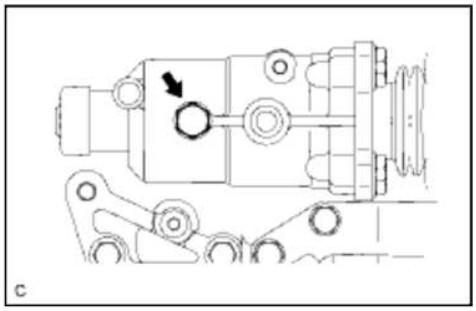


(a) Remove the No. 1 lock ball assembly from the manual transmission case.

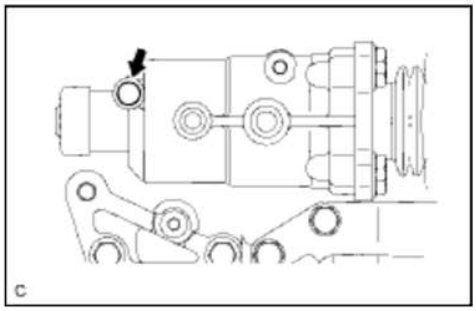
12. REMOVE SHIFT GATE PIN

(a) Remove the shift gate pin from the manual transmission case.

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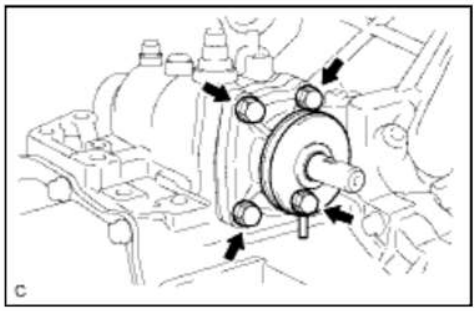


13. REMOVE MANUAL TRANSMISSION BREATHER PLUG



(a) Remove the manual transmission breather plug.

14. REMOVE CONTROL SHAFT COVER

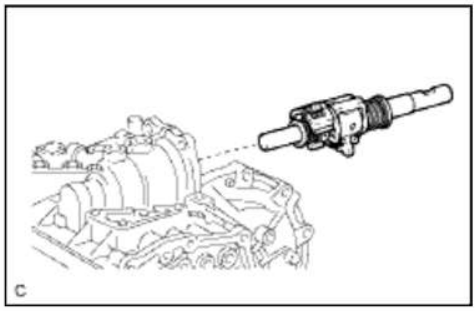


(a) Remove the 4 bolts and control shaft cover from the manual transmission case.

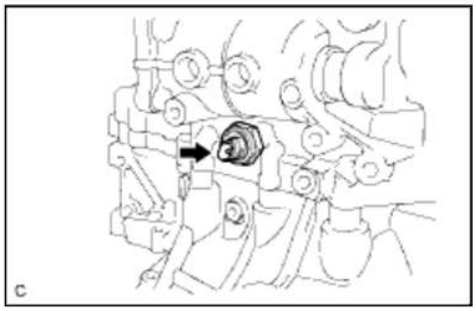
15. REMOVE SHIFT AND SELECT LEVER SHAFT ASSEMBLY

(a) Remove the shift and select lever shaft assembly from the manual transmission case.

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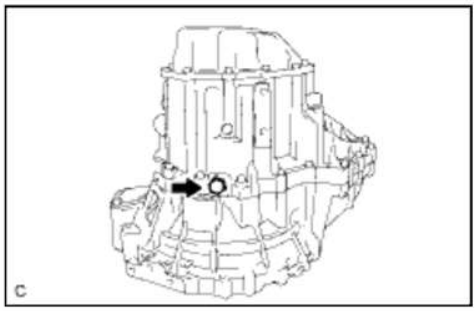


16. REMOVE BACK-UP LIGHT SWITCH ASSEMBLY



(a) Remove the back-up light switch assembly and gasket from the manual transmission case.

17. REMOVE MANUAL TRANSMISSION FILLER PLUG

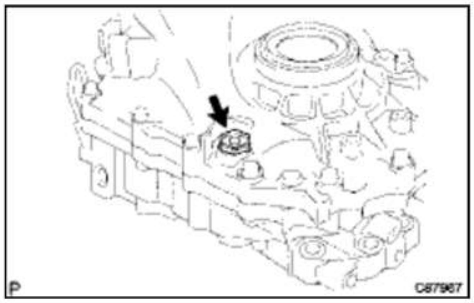


(a) Remove the manual transmission filler plug and gasket from the manual transmission case.

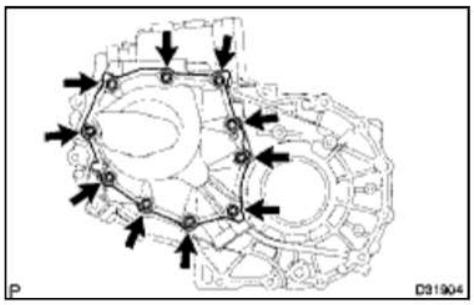
18. REMOVE DRAIN PLUG SUB-ASSEMBLY

(a) Remove the drain plug sub-assembly and gasket from the manual transmission case.

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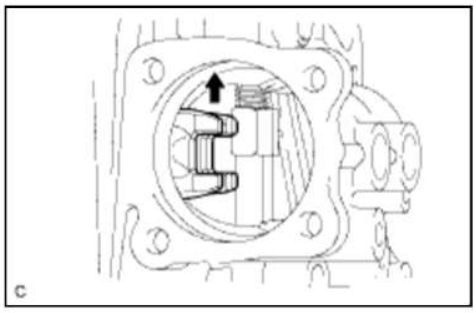


19. REMOVE MANUAL TRANSMISSION CASE COVER SUB-ASSEMBLY

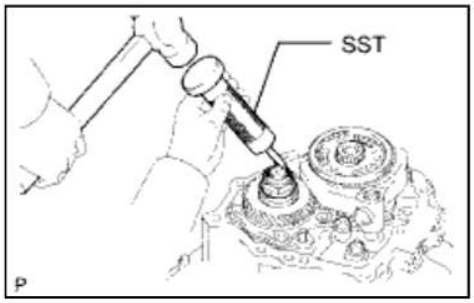


(a) Remove the 10 bolts and manual transmission case cover from the manual transmission case.

20. REMOVE MANUAL TRANSMISSION OUTPUT SHAFT REAR SET NUT



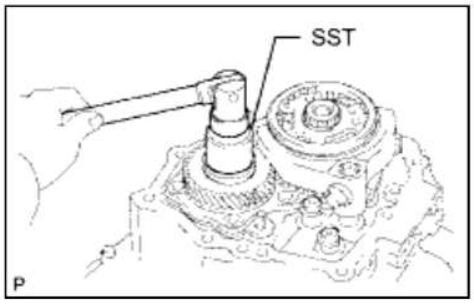
(a) Engage the 1st and 2nd gears simultaneously.



(b) Using SST and a hammer, unstake the manual transmission output shaft rear set nut.

SST: 09930-00010

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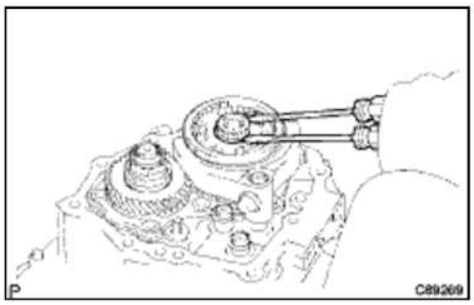


(c) Using SST, remove the manual transmission output shaft rear set nut from the output shaft.

SST: 09229-55010

(d) Disengage the gears.

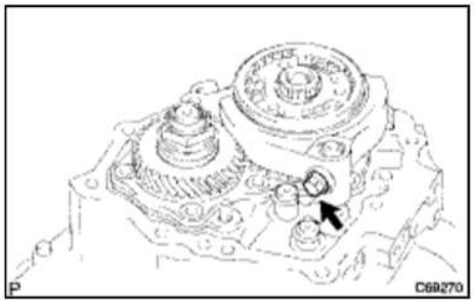
21. REMOVE NO. 3 TRANSMISSION CLUTCH HUB



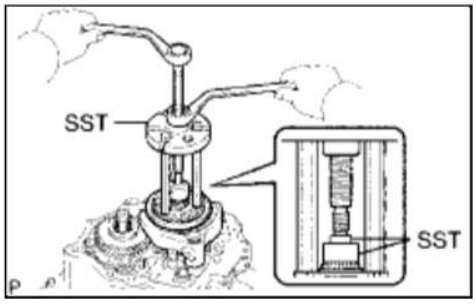
(a) Using 2 screwdrivers and a hammer, remove the transmission clutch hub No. 3 shaft snap ring from the input shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying.



(b) Remove the shift fork set bolt from the No. 3 gear shift fork.



(c) Using SST, remove the No. 3 transmission clutch hub and No. 3 gear shift fork from the input shaft.

SST: 09950-30012

09951-03010

09953-03010

09954-03010

SST: 09950-50013

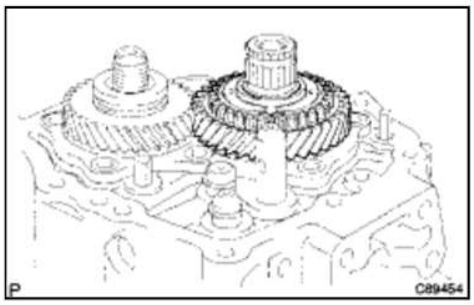
09957-04010

SST: 09950-60010

09951-00280

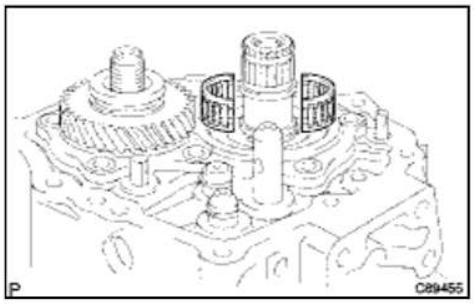
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22. REMOVE 5TH GEAR



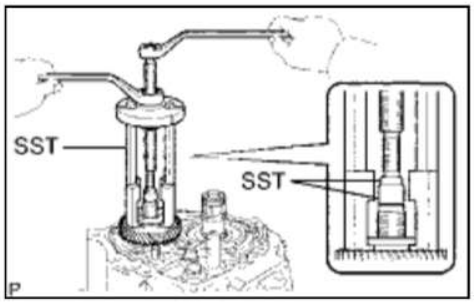
(a) Remove the 5th gear from the input shaft.

23. REMOVE 5TH GEAR NEEDLE ROLLER BEARING



(a) Remove the 5th gear needle roller bearing from the input shaft.

24. REMOVE 5TH DRIVEN GEAR



(a) Using SST, remove the 5th driven gear from the output shaft.

SST: 09950-30012

09951-03010

09953-03010

09954-03010

09957-04010

SST: 09950-60010

09951-00180

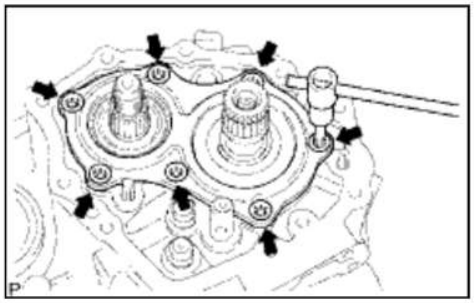
09955-03011

SST: 09950-50013

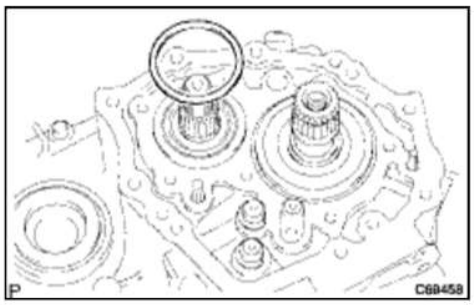
25. REMOVE REAR BEARING RETAINER

(a) Using a "TORX" socket wrench (T45), remove the 7 "TORX" screws and rear bearing retainer from the manual transmission case.

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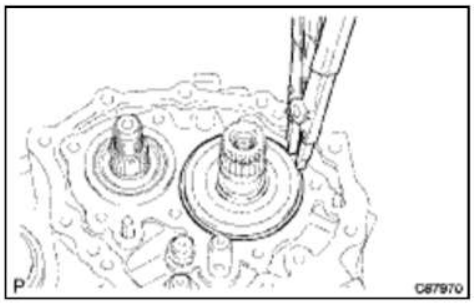


26. REMOVE OUTPUT SHAFT REAR BEARING SHIM



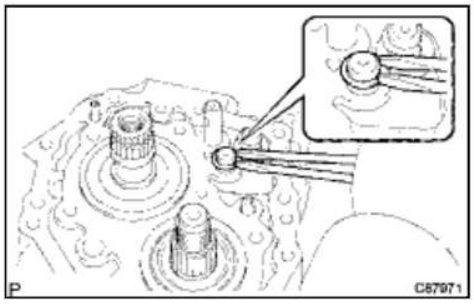
(a) Remove the output shaft rear bearing shim from the output shaft.

27. REMOVE INPUT SHAFT REAR BEARING SHAFT SNAP RING



(a) Using a snap ring expander, remove the input shaft rear bearing shaft snap ring from the input shaft.

28. REMOVE SHIFT FORK SHAFT SNAP RING

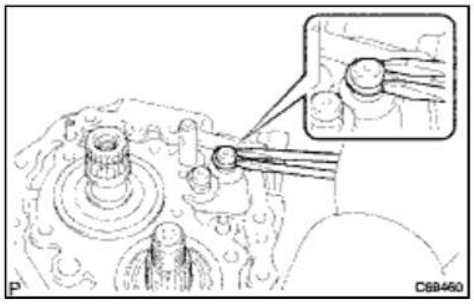


(a) Using 2 screwdrivers and a hammer, remove the shift fork shaft snap ring from the No. 1 gear shift fork shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying.

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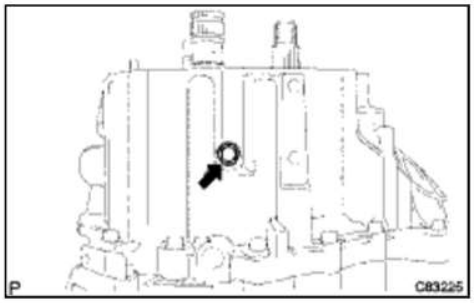


(b) Using 2 screwdrivers and a hammer, remove the shift fork shaft snap ring from the No. 2 gear shift fork shaft.

HINT:

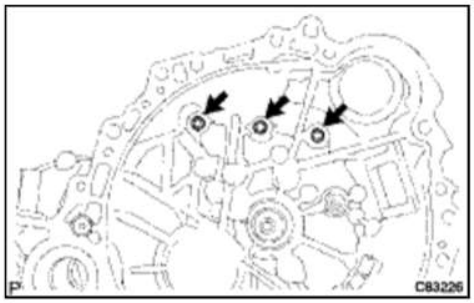
Use a piece of cloth to keep the snap ring from flying.

29. REMOVE REVERSE IDLER GEAR SHAFT BOLT

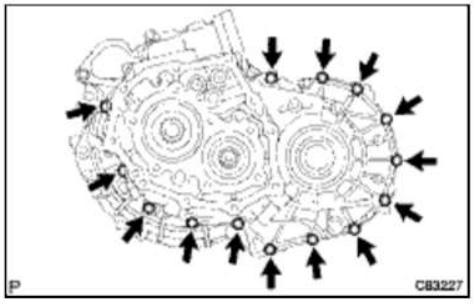


(a) Remove the reverse idler gear shaft bolt and gasket.

30. REMOVE MANUAL TRANSMISSION CASE



(a) Remove the 3 bolts from the manual transaxle case.

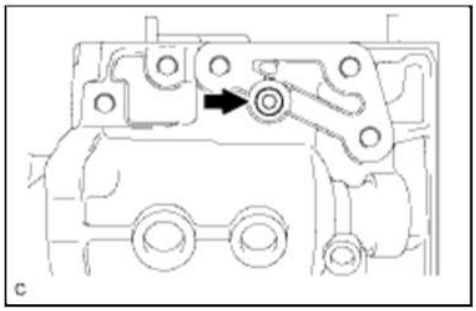


(b) Remove the 14 bolts from the manual transmission case.

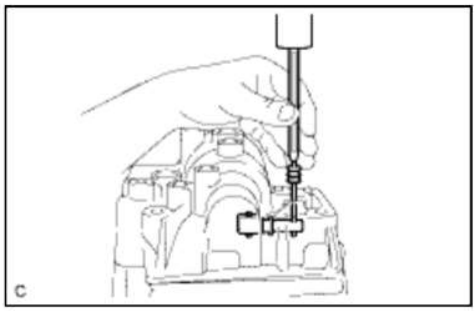
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(c) Using a plastic hammer, carefully tap the manual transmission case to remove it.

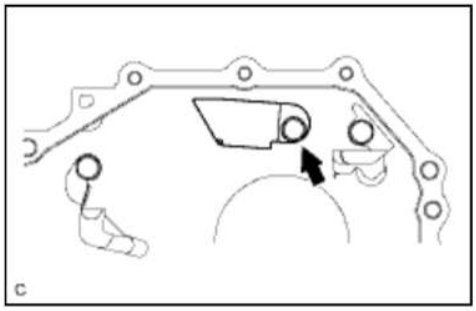
31. REMOVE REVERSE RESTRICT PIN ASSEMBLY



(a) Using a hexagon wrench (6 mm), remove the reverse restrict pin plug from the manual transmission case.



(b) Using a pin punch (φ 5 mm) and hammer, remove the slotted pin.



(c) Remove the bolt, transmission oil baffle and reverse restrict pin assembly.

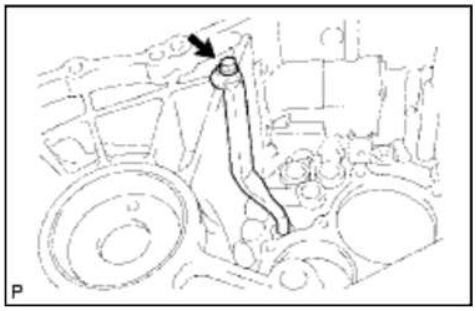
32. REMOVE NO. 2 OIL RECEIVER PIPE

(a) Remove the bolt and No. 2 oil receiver pipe from the manual transmission case.

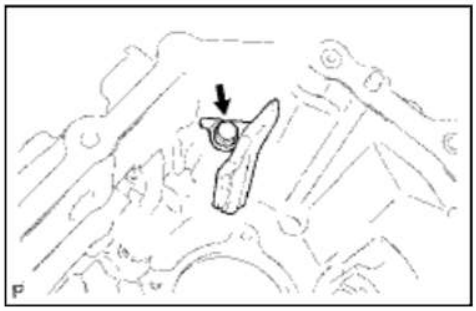
NOTICE:

Do not damage the pipe.

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33. REMOVE NO. 1 OIL RECEIVER PIPE

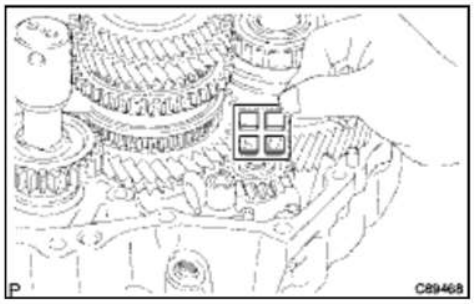


(a) Remove the bolt and No. 1 oil receiver pipe from the manual transmission case.

NOTICE:

Do not damage the pipe.

34. REMOVE TRANSMISSION MAGNET

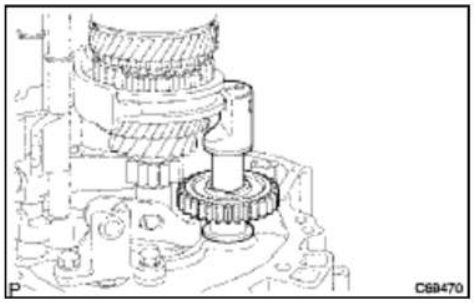


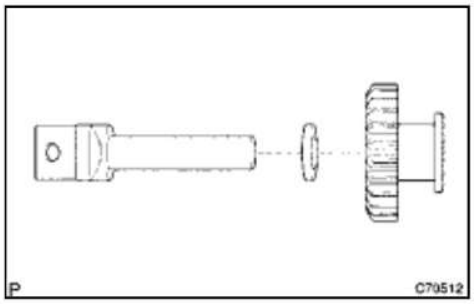
(a) Remove the transmission magnet from the manual transaxle case.

35. REMOVE REVERSE IDLER GEAR SUB-ASSEMBLY

(a) Remove the reverse idler gear sub-assembly from the manual transaxle case.

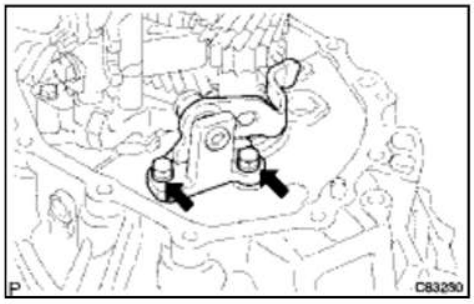
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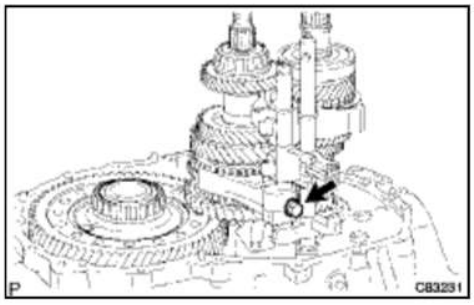
(b) Remove the reverse gear and reverse idler thrust washer from the reverse idler gear shaft.

36. REMOVE REVERSE SHIFT ARM BRACKET ASSEMBLY



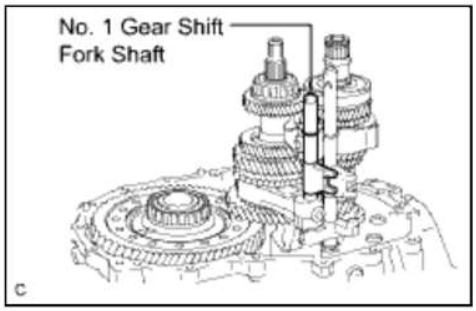
(a) Remove the 2 bolts and reverse shift arm bracket assembly from the manual transaxle case.

37. REMOVE NO. 1 GEAR SHIFT FORK SHAFT

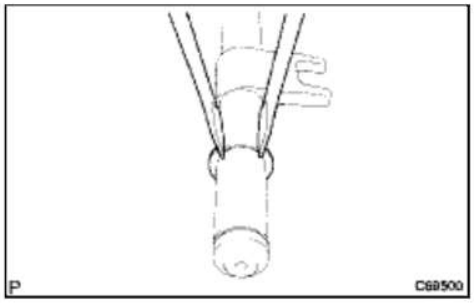


(a) Remove the shift fork set bolt from the No. 1 gear shift fork.

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(b) Pull out the No. 1 gear shift fork shaft while pulling up the No. 3 gear shift fork shaft.

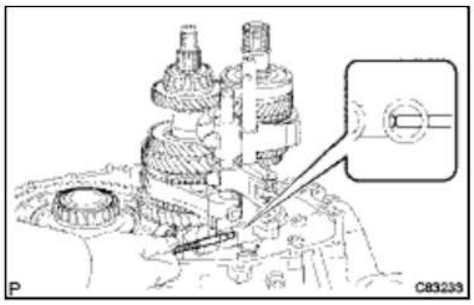


(c) Using 2 screwdrivers and a hammer, remove the shift fork shaft snap ring from the No. 1 gear shift fork shaft.

HINT:

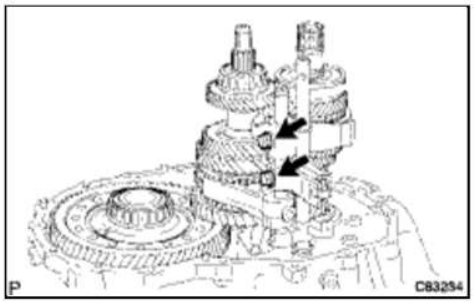
Use a piece of cloth to keep the snap ring from flying.

38. REMOVE REVERSE SHIFT FORK ROLLER



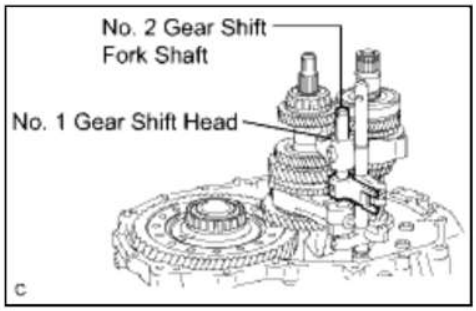
(a) Using a magnetic pick-up tool, remove the reverse shift fork roller from the reverse shift fork.

39. REMOVE NO. 2 GEAR SHIFT FORK SHAFT



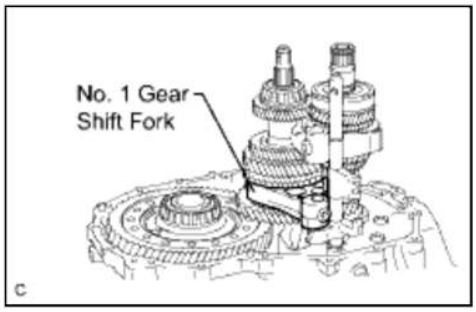
(a) Remove the shift fork set bolt and shift head set bolt from the No. 2 gear shift fork and No. 1 gear shift head.

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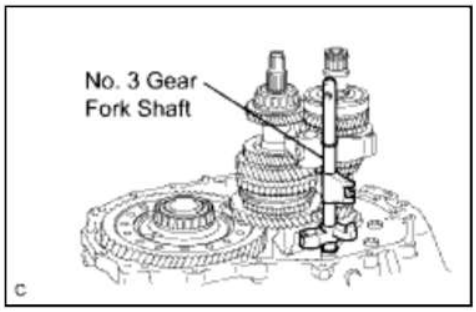
(b) Remove the No. 2 gear shift fork shaft and No. 1 gear shift head from the manual transaxle case.

40. REMOVE NO. 1 GEAR SHIFT FORK

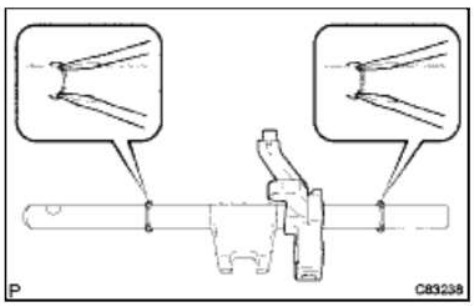


(a) Remove the No. 1 gear shift fork.

41. REMOVE NO. 3 GEAR SHIFT FORK SHAFT



(a) Remove the No. 3 gear shift fork shaft from the manual transaxle case.

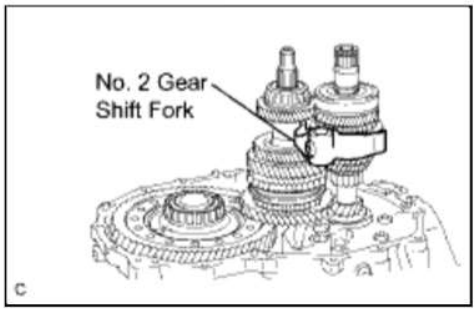


(b) Using 2 screwdrivers and a hammer, remove the 2 shift fork shaft snap rings from the No. 3 gear shift fork shaft.

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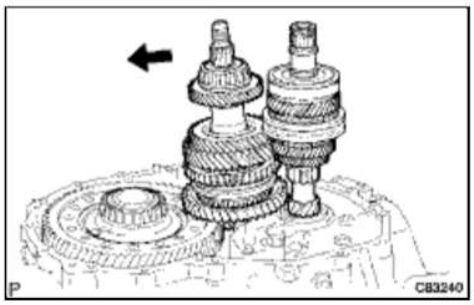
(c) Remove the reverse shift fork from the No. 3 gear shift fork shaft.

42. REMOVE NO. 2 GEAR SHIFT FORK



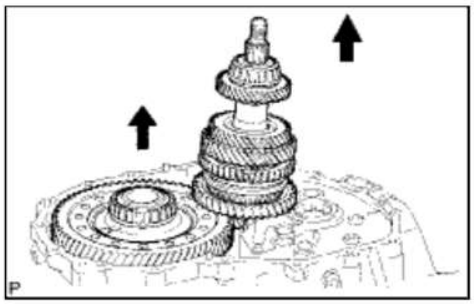
(a) Remove the No. 2 gear shift fork from the input shaft assembly.

43. REMOVE INPUT SHAFT ASSEMBLY



(a) Tilt the output shaft, and then remove the input shaft from the manual transaxle case.

44. REMOVE OUTPUT SHAFT ASSEMBLY



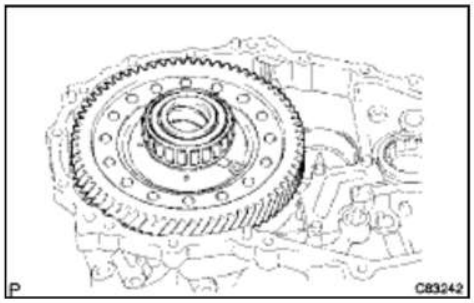
(a) Lift the differential case assembly while tilting the output shaft assembly.

(b) Remove the output shaft assembly from the manual transaxle case.

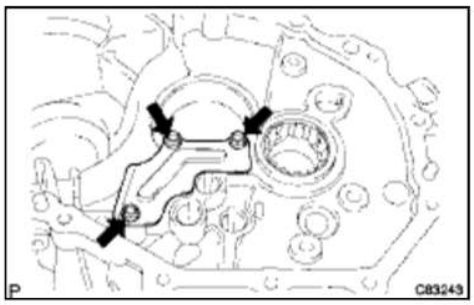
45. REMOVE DIFFERENTIAL CASE ASSEMBLY

(a) Remove the differential case assembly from the manual transaxle case.

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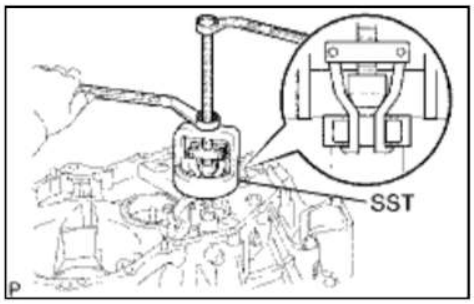


46. REMOVE MANUAL TRANSAXLE CASE RECEIVER



(a) Remove the 3 bolts and manual transaxle case receiver from the manual transaxle case.

47. REMOVE INPUT SHAFT FRONT BEARING



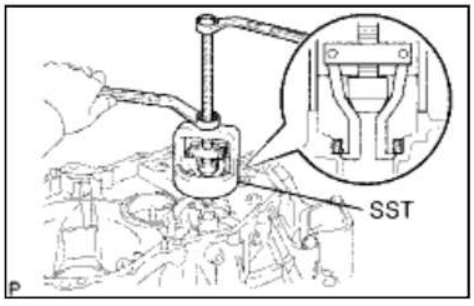
(a) Using SST, remove the input shaft front bearing (outer race) from the manual transaxle case.

SST: 09612-65014

09612-01040

09612-01050

48. REMOVE FRONT TRANSAXLE CASE COVER OIL SEAL



(a) Using SST, remove the front transaxle case cover oil seal from the manual transaxle case.

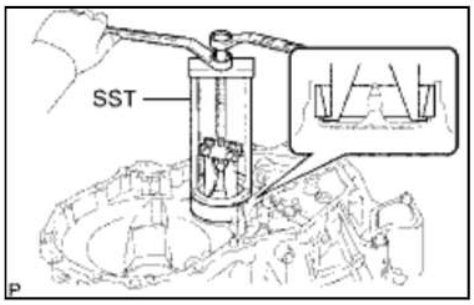
SST: 09612-65014

09612-01040

09612-01050

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49. REMOVE OUTPUT SHAFT FRONT BEARING



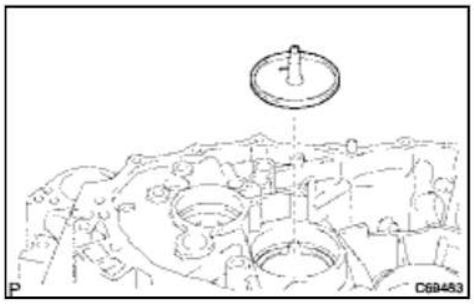
(a) Using SST, remove the output shaft front bearing (outer race) from the manual transaxle case.

SST: 09387-00041

09387-02020

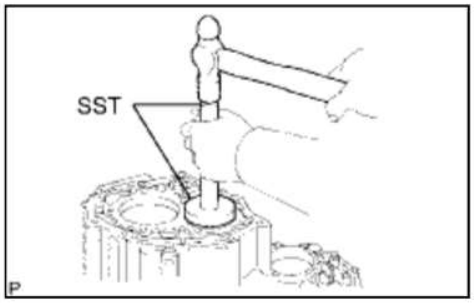
09387-02010

50. REMOVE OUTPUT SHAFT COVER



(a) Remove the output shaft cover from the manual transaxle case.

51. REMOVE OUTPUT SHAFT REAR BEARING



(a) Using SST and a hammer, remove the output shaft rear bearing from the manual transmission case (outer race).

SST: 09950-60010

09951-00680

SST: 09950-70010

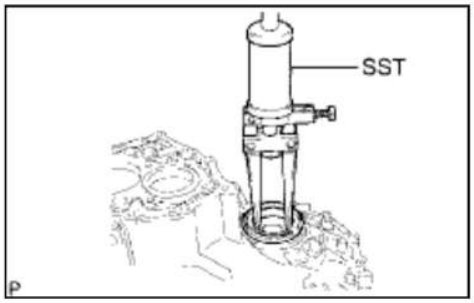
09951-07100

52. REMOVE TRANSMISSION CASE OIL SEAL

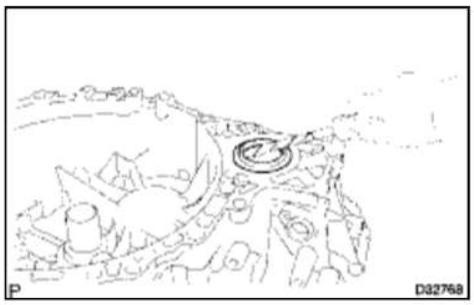
(a) Using SST, remove the transmission case oil seal from the manual transmission case.

SST: 09308-00010

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53. REMOVE TRANSAXLE CASE OIL SEAL

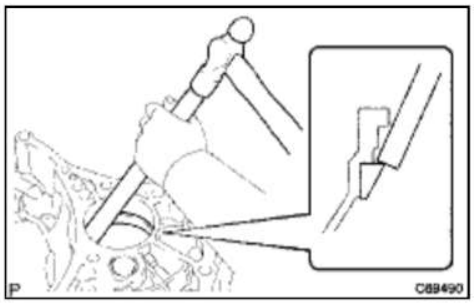


(a) Using a screwdriver, remove the transaxle case oil seal.

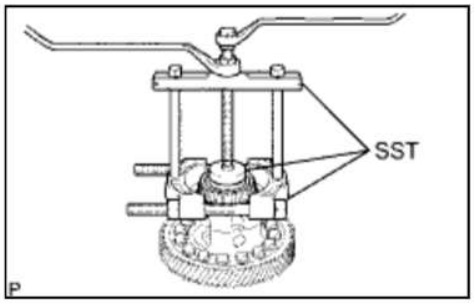
HINT:

Tape the screwdriver tip before use to avoid damage.

54. REMOVE FRONT DIFFERENTIAL CASE FRONT TAPERED ROLLER BEARING



(a) Using a brass bar and a hammer, remove the front differential case front tapered roller bearing (outer race) from the manual transaxle case.

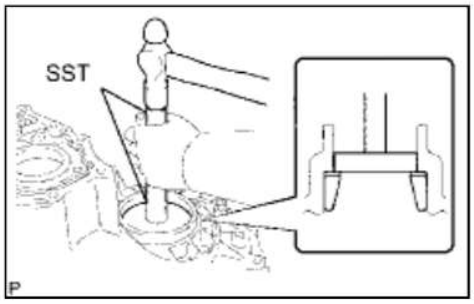


(b) Using SST, remove the front differential case front tapered roller bearing from the front differential case.

SST: 09950-00020
SST: 09950-00030
SST: 09950-40011
09957-04010
SST: 09950-60010
09951-00560

55. REMOVE FRONT DIFFERENTIAL CASE REAR TAPERED ROLLER BEARING

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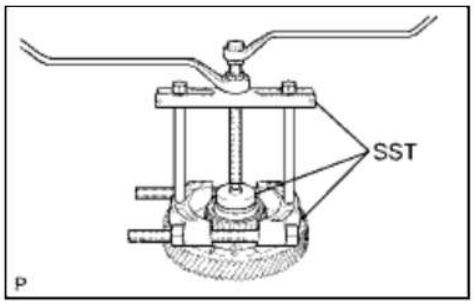
(a) Using SST and a hammer, remove the front differential case rear tapered roller bearing (outer race) and front differential case rear shim from the manual transmission case.

SST: 09950-60020

09951-00790

SST: 09950-70010

09951-07100



(b) Using SST, remove the front differential case rear tapered roller bearing (inner race) from the front differential case.

SST: 09950-60020

SST: 09950-00030

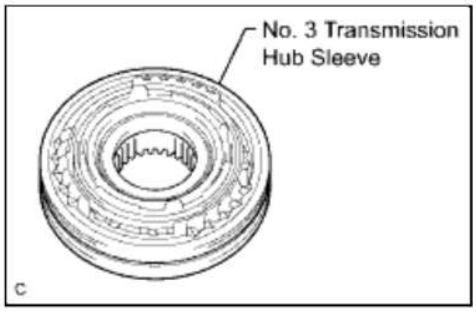
SST: 09950-40011

09957-04010

SST: 09950-60010

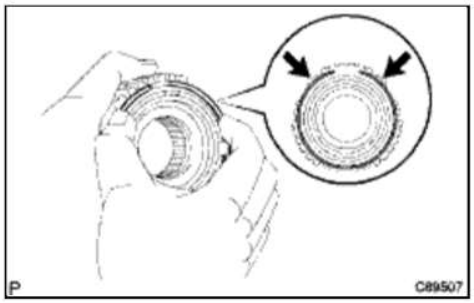
09951-00490

56. REMOVE NO. 3 TRANSMISSION HUB SLEEVE



(a) Remove the No. 3 transmission hub sleeve from the No. 3 transmission clutch hub.

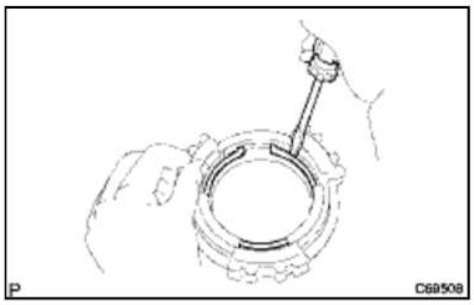
57. REMOVE NO. 3 SYNCHROMESH SHIFTING KEY SPRING



(a) Remove the 2 No. 3 synchromesh shifting key springs from the No. 3 transmission clutch hub while pushing on the No. 3 synchromesh shifting key spring.

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58. REMOVE SYNCHRONIZER PULL RING



(a) Using a screwdriver, remove the synchronizer pull ring snap ring.

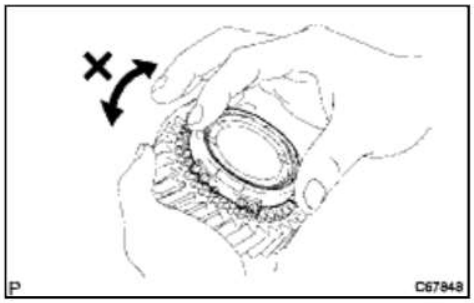
(b) Remove the synchronizer pull ring, No. 5 synchronizer ring outer, No. 5 synchronizer ring inner, and No. 5 synchronizer ring middle from the No. 5 synchronizer ring inner.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1401QX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT NO. 3 SYNCHRONIZER RING



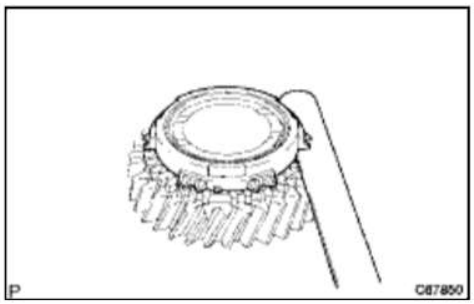
(a) Check for wear and damage.

(b) Coat the 5th gear cone with gear oil.

(c) Turn the synchronizer ring in one direction while pushing it against the 5th gear cone.

(d) Check that the ring locks.

If the synchronizer ring does not lock, replace the synchronizer ring.



(e) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

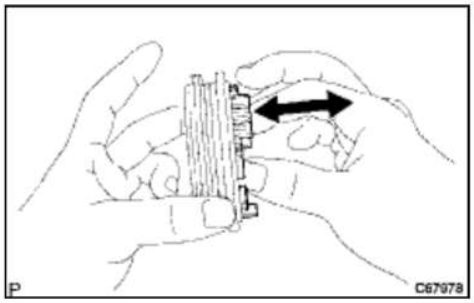
Standard clearance:
0.75 to 1.65 mm (0.0295 to 0.0649 in.)
Minimum clearance:
0.75 mm (0.0295 in.)

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

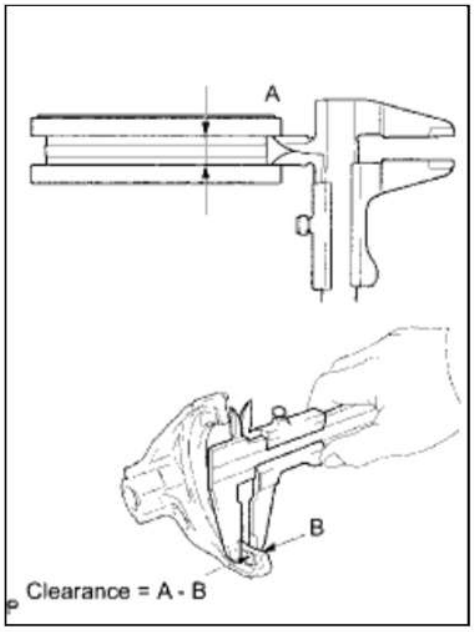
2. INSPECT NO. 3 TRANSMISSION HUB SLEEVE

(a) Check the sliding condition between the No. 3 transmission hub sleeve and the No. 3 transmission clutch hub.

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(b) Check that the edges of the No. 3 transmission hub sleeve spline gear are not worn down.



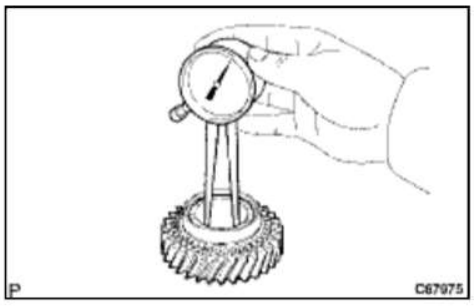
(c) Using a vernier caliper, measure the width of the No. 3 transmission hub sleeve groove (A) and the thickness of the claw part on the No. 3 gear shift fork (B), and calculate the clearance.

Standard clearance (A - B):
0.3 to 0.5 mm (0.0118 to 0.0197 in.)

If the clearance exceeds the standard, replace the No. 3 transmission hub sleeve and No. 3 gear shift fork.

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3. INSPECT 5TH GEAR

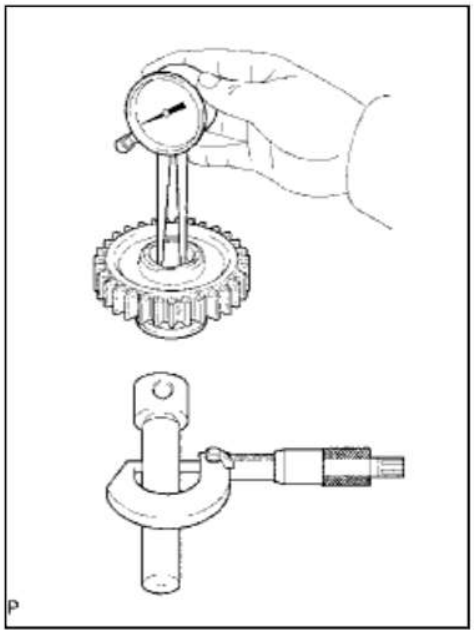


(a) Using a caliper gauge, measure the inside diameter of the 5th gear.

Standard inside diameter:
29.915 to 29.931 mm (1.1778 to 1.1783 in.)
Maximum inside diameter:
29.931 mm (1.1783 in.)

If the inside diameter exceeds the maximum, replace the 5th gear.

4. INSPECT REVERSE IDLER GEAR SUB-ASSEMBLY



(a) Using a caliper gauge, inspect the reverse idler gear.

Standard inside diameter:
18.040 to 18.058 mm (0.7102 to 0.7109 in.)
Maximum inside diameter:
18.058 mm (0.7109 in.)

If the inside diameter exceeds the maximum, replace the reverse idler gear sub-assembly.

(b) Using a micrometer, inspect the reverse idler gear shaft.

Standard outer diameter:
17.966 to 17.984 mm (0.7073 to 0.7080 in.)
Minimum outer diameter:
17.966 mm (0.7073 in.)

If the outer diameter is less than the minimum, replace the reverse idler gear shaft.

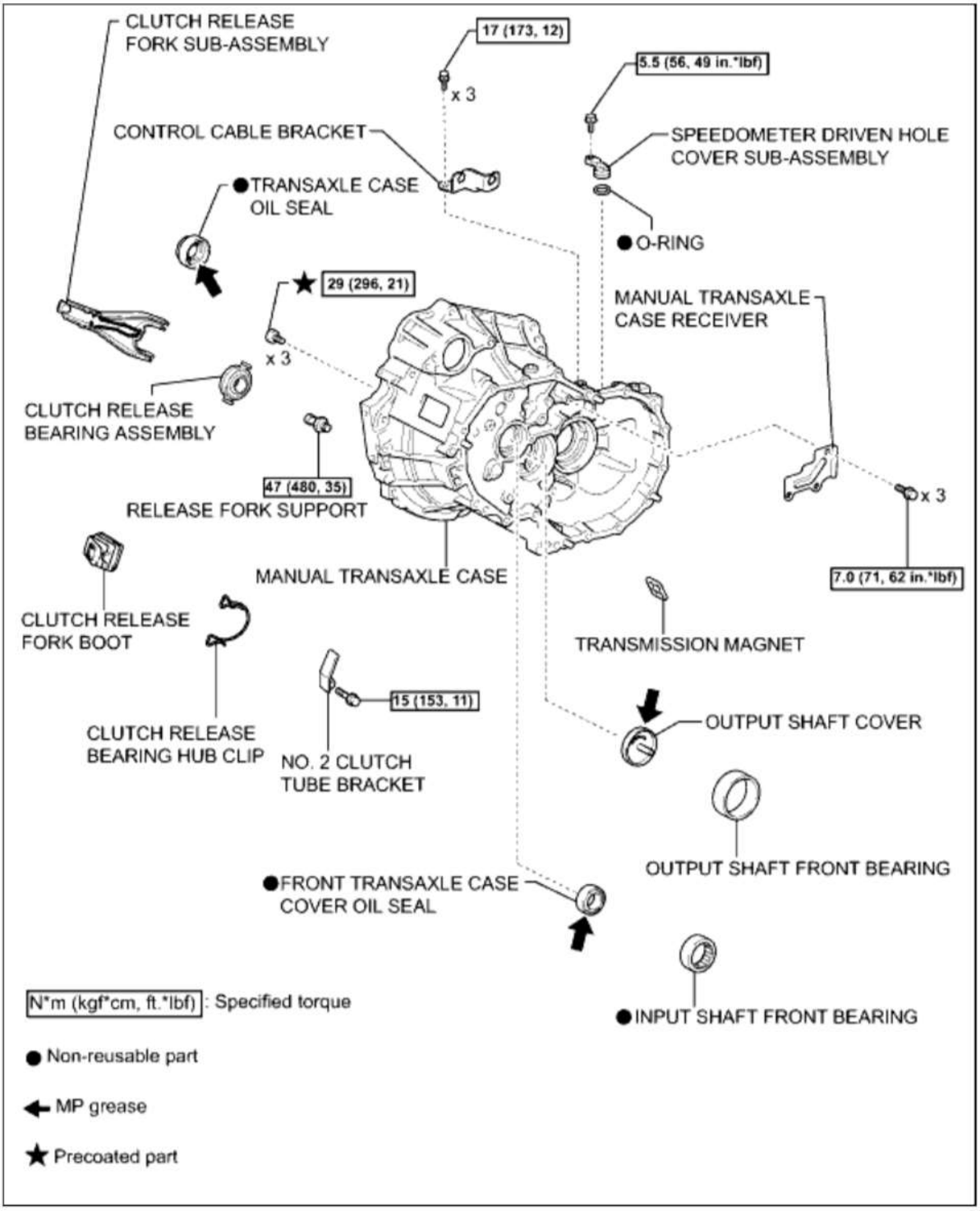
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1R00JX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: COMPONENTS (2010 Corolla)		

COMPONENTS

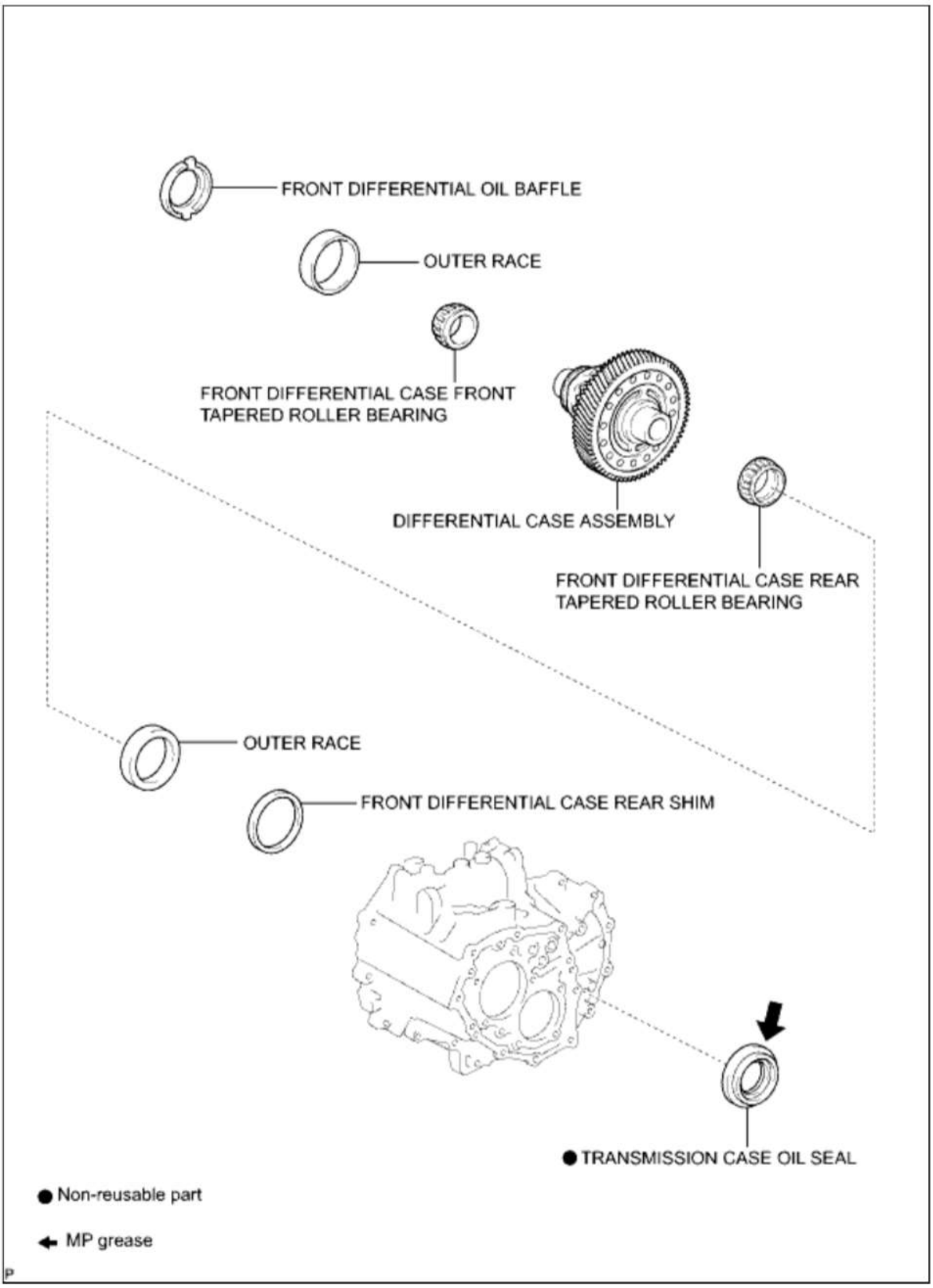
ILLUSTRATION

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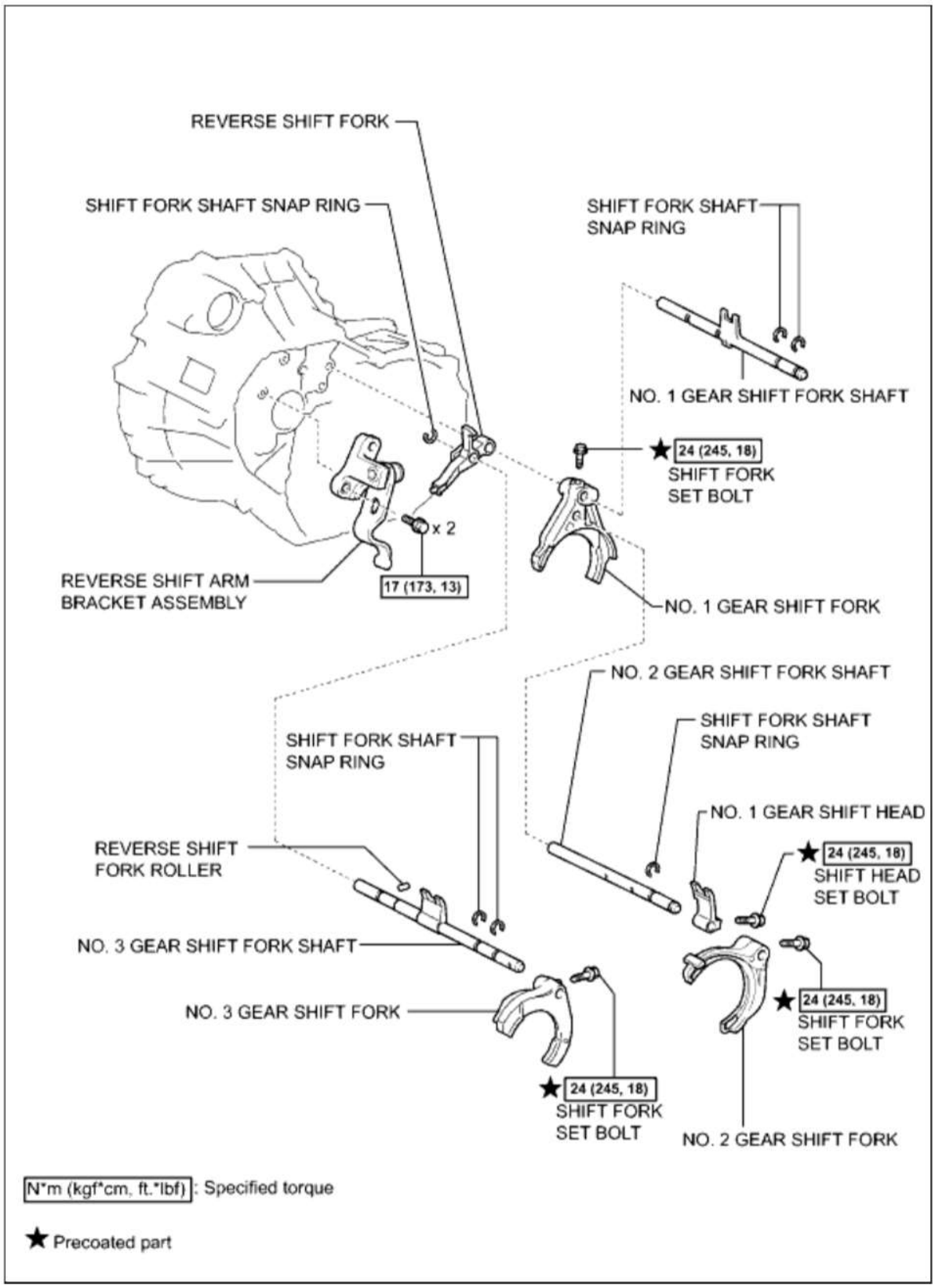
ILLUSTRATION

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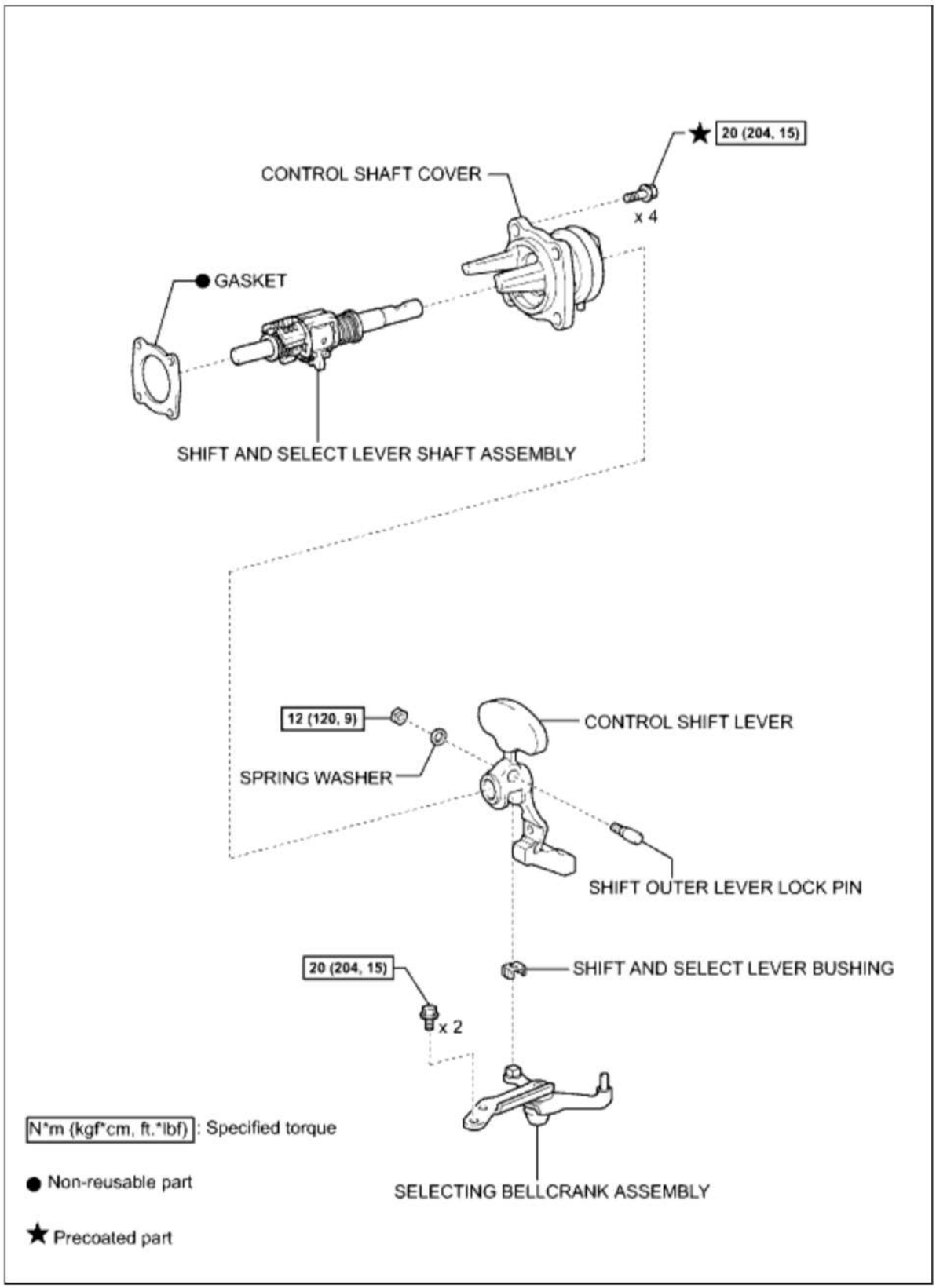
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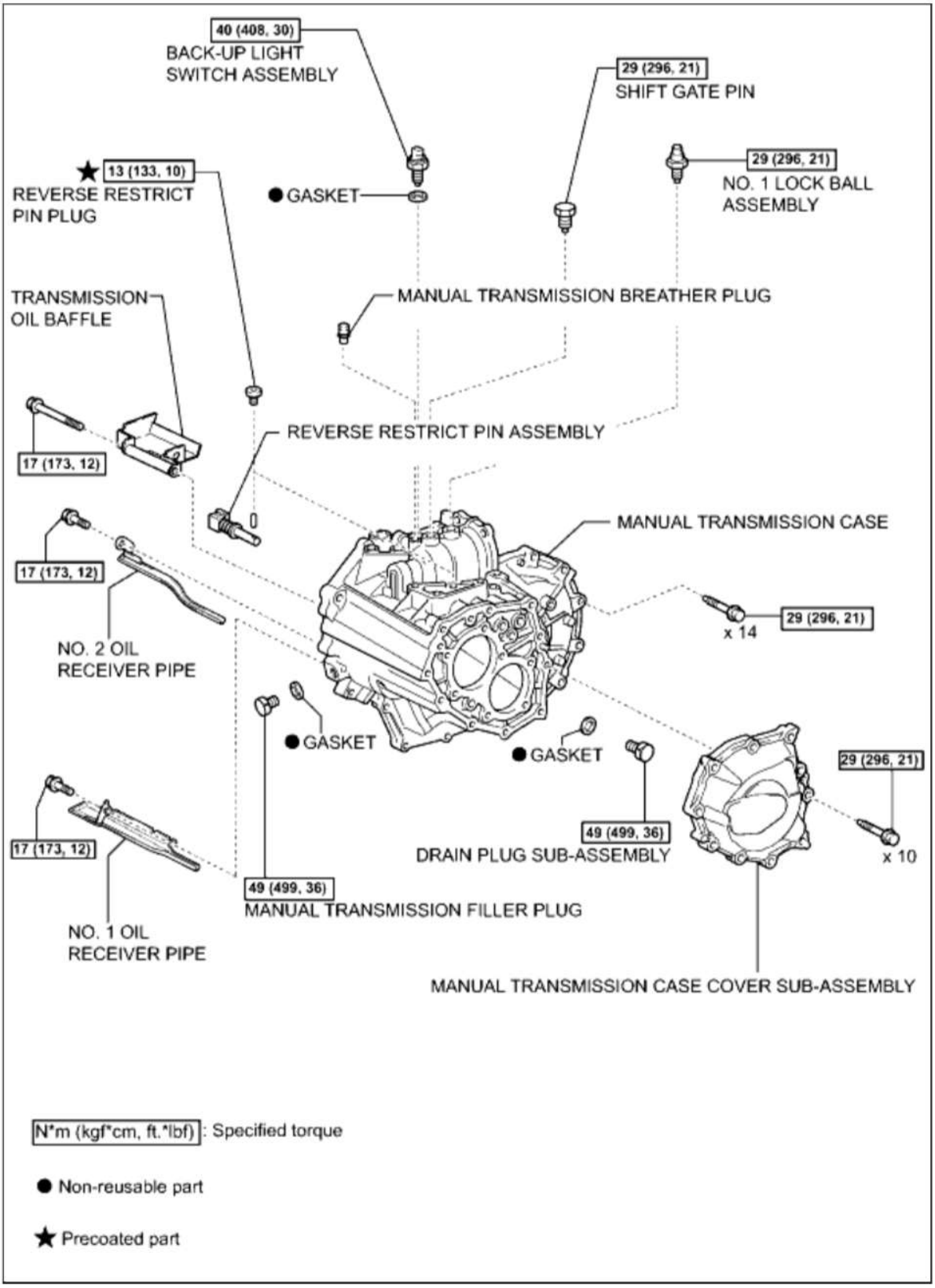
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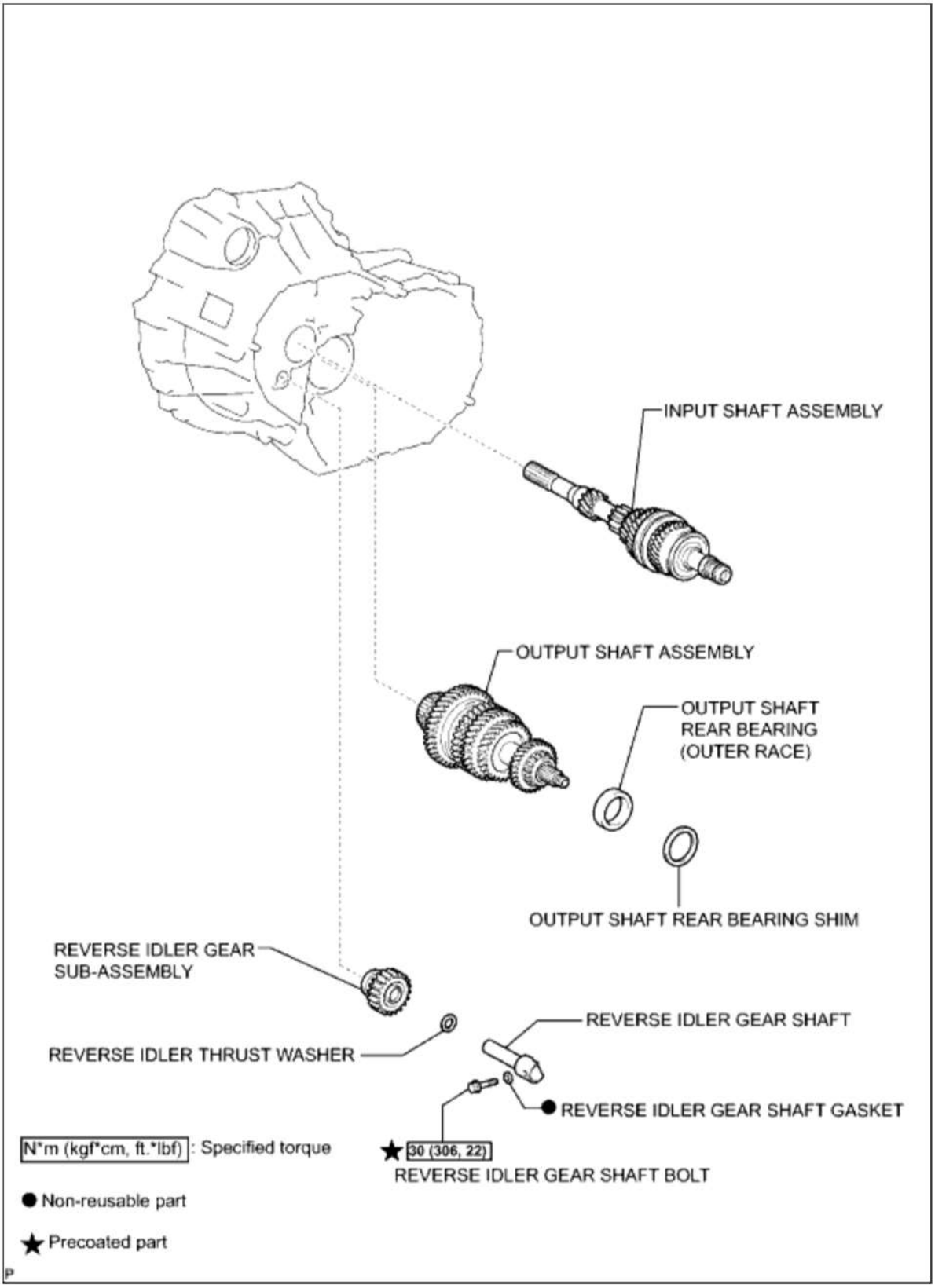
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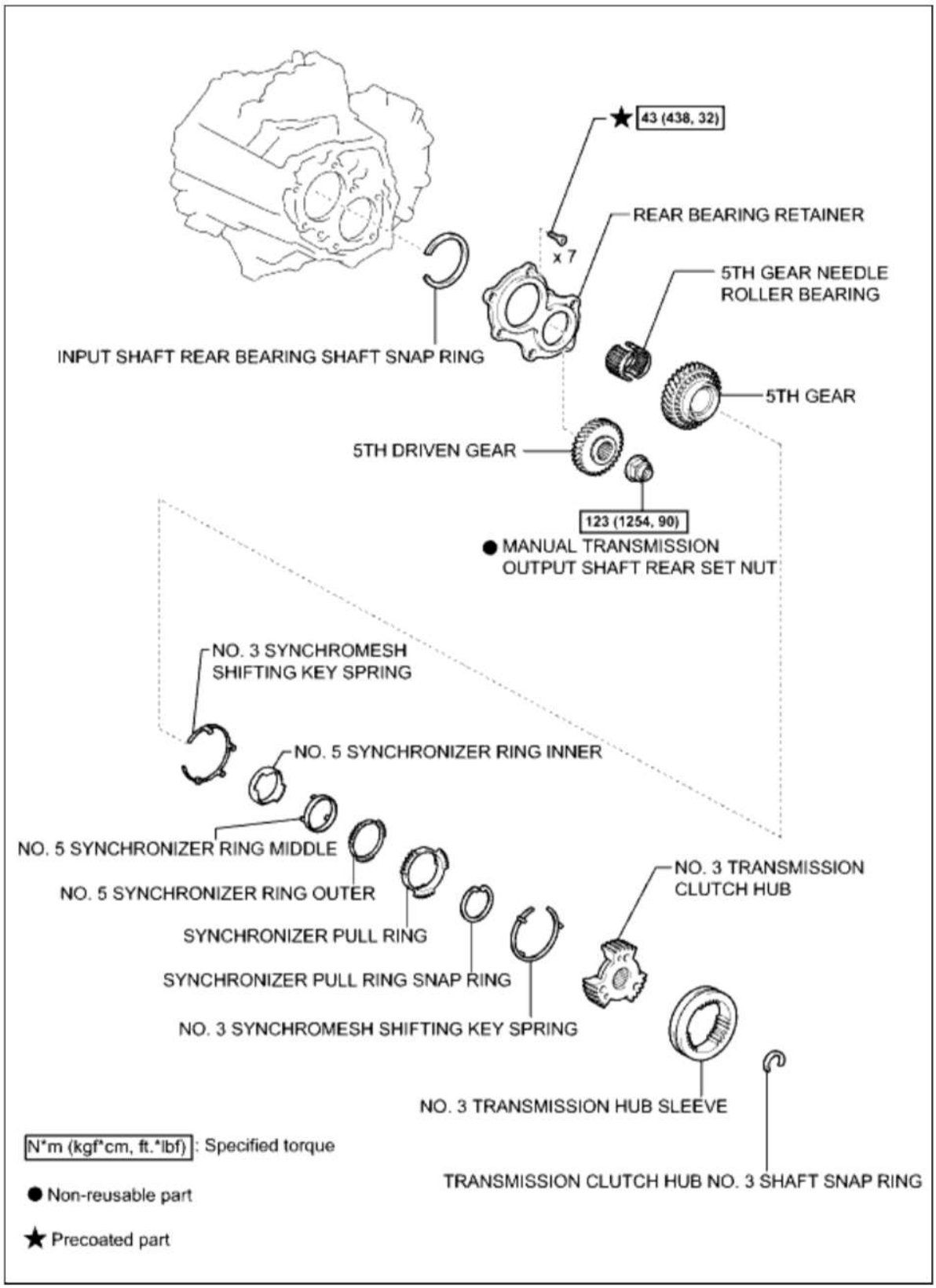
ILLUSTRATION

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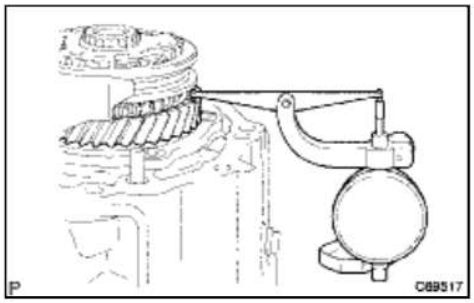


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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1Q00FX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: MANUAL TRANSAXLE UNIT: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT 5TH GEAR THRUST CLEARANCE

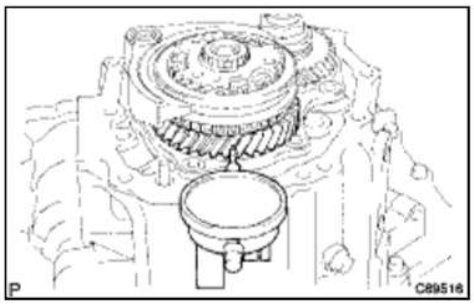


(a) Using a dial indicator, inspect the 5th gear thrust clearance.

Standard clearance:
0.10 to 0.57 mm (0.00394 to 0.0224 in.)

If the clearance is not as specified, replace the No. 3 transmission clutch hub, 5th gear, or input shaft rear radial ball bearing.

2. INSPECT 5TH GEAR RADIAL CLEARANCE

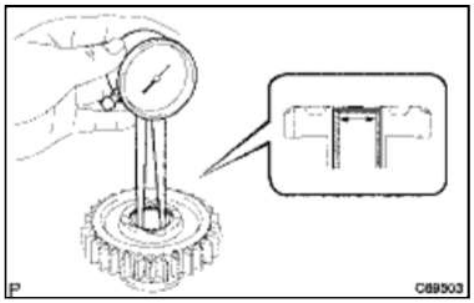


(a) Using a dial indicator, inspect the 5th gear radial clearance.

Standard clearance:
0.009 to 0.050 mm (0.000354 to 0.00197 in.)

If the clearance is not as specified, replace the 5th gear, 5th gear needle roller bearing, or input shaft.

3. INSPECT REVERSE IDLER GEAR SUB-ASSEMBLY



(a) Using a caliper gauge, measure the inside diameter of the reverse idler gear.

Inside Diameter:

STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
20.056 to 20.074 (0.7896 to 0.7903)	20.074 (0.7903)

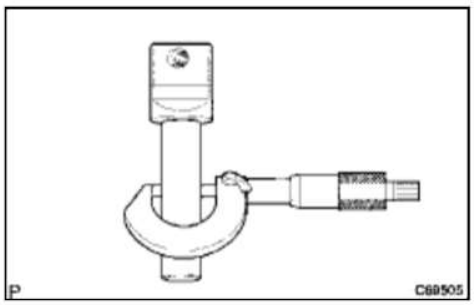
If the inside diameter exceeds the maximum, replace the

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reverse idler gear.

(b) Using a micrometer, measure the outside diameter of the reverse idler gear shaft.

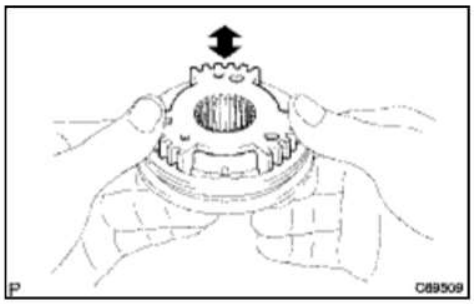
Outside Diameter:



STANDARD OUTSIDE DIAMETER MM (IN.)	MINIMUM OUTSIDE DIAMETER MM (IN.)
19.984 to 20.000 (0.7868 to 0.7874)	19.984 (0.7868)

If the outside diameter is less than the minimum, replace the reverse idler gear shaft.

4. INSPECT NO. 3 TRANSMISSION CLUTCH HUB



(a) Inspect the sliding condition between the No. 3 transmission clutch hub and the No. 3 transmission hub sleeve.

(b) Inspect the tip of the spline gear on the No. 3 transmission hub sleeve for wear.

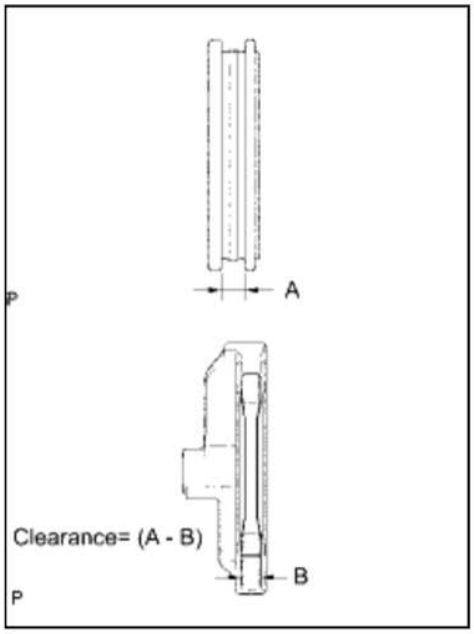
5. INSPECT NO. 3 TRANSMISSION HUB SLEEVE

(a) Using a vernier caliper, measure the width of the No. 3 transmission hub sleeve groove and the thickness of the claw on the No. 3 gear shift fork, and calculate the clearance.

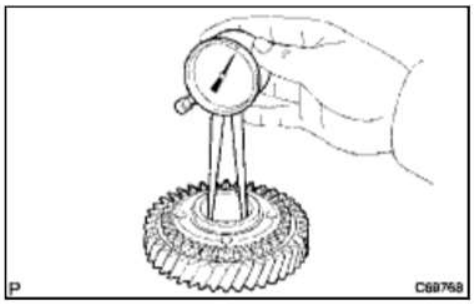
Standard clearance:
0.15 to 0.35 mm (0.00591 to 0.0138 in.) {A - B}

If the clearance is not as specified, replace the No. 3 transmission hub sleeve and No. 3 gear shift fork with new ones.

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6. INSPECT 5TH GEAR



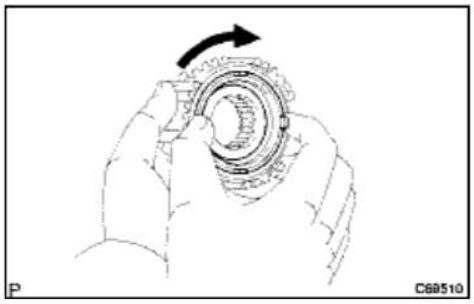
(a) Using a caliper gauge, measure the inside diameter of the 5th gear.

Inside Diameter:

STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
34.981 to 34.997 (1.3772 to 1.3778)	34.997 (1.3778)

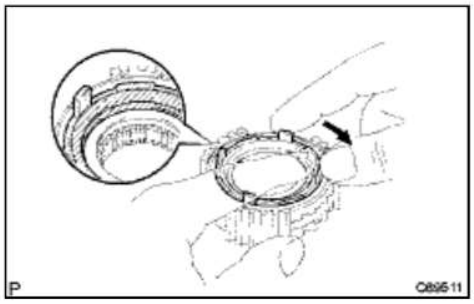
If the inside diameter exceeds the maximum, replace the 5th gear.

7. INSPECT NO. 5 SYNCHRONIZER RING MIDDLE



(a) Check that the No. 5 synchronizer ring middle rotates smoothly.

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(b) Check that the No. 5 synchronizer ring middle does not rotate while pushing it against the No. 3 clutch hub.

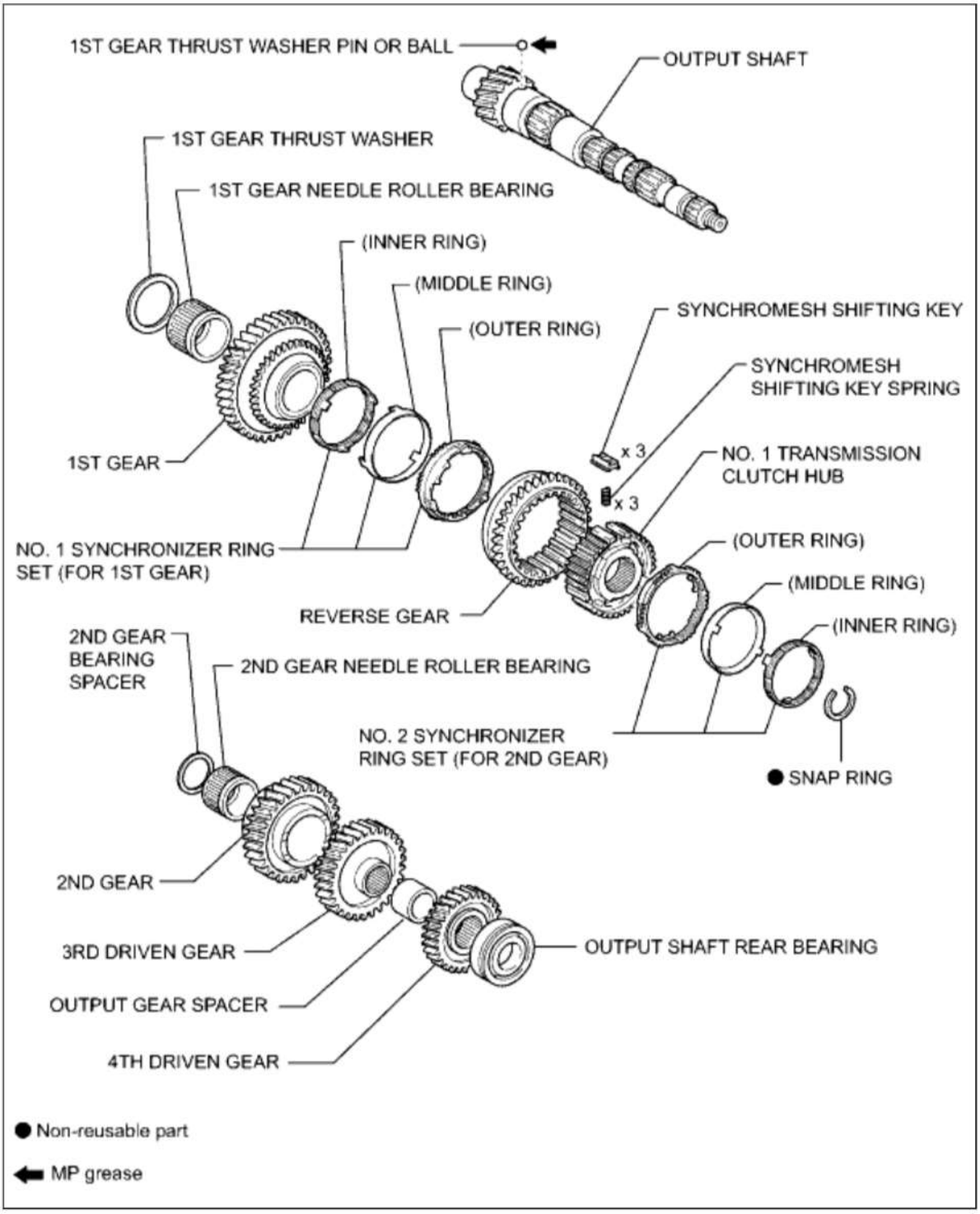
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3F01WX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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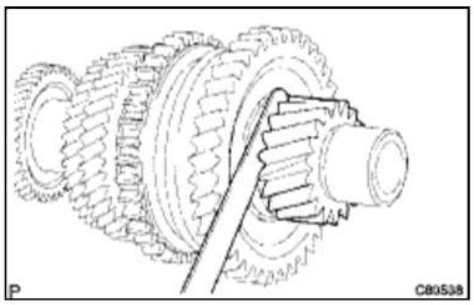
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0U01WX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

1. INSPECT 1ST GEAR THRUST CLEARANCE

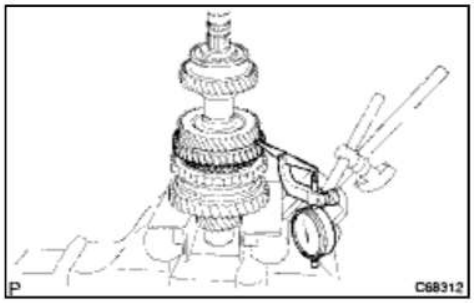


(a) Using a feeler gauge, measure the 1st gear thrust clearance.

Standard clearance:
0.10 to 0.40 mm (0.00394 to 0.0157 in.)
Maximum clearance:
0.40 mm (0.0157 in.)

If the clearance exceeds the maximum, replace the 1st gear thrust washer, 1st gear or No. 1 transmission clutch hub.

2. INSPECT 2ND GEAR THRUST CLEARANCE

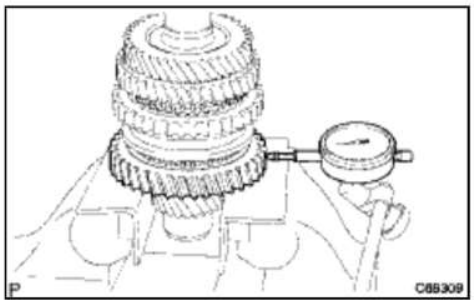


(a) Using a dial indicator, measure the 2nd gear thrust clearance.

Standard clearance:
0.10 to 0.55 mm (0.00394 to 0.0217 in.)
Maximum clearance:
0.55 mm (0.0217 in.)

If the clearance exceeds the maximum, replace the No. 1 transmission clutch hub, 2nd gear or 3rd driven gear.

3. INSPECT 1ST GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 1st gear radial clearance.

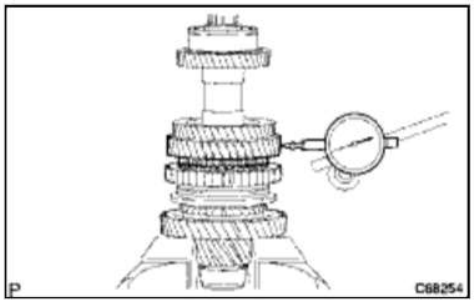
Standard clearance:
NSK made bearing
0.015 to 0.056 mm (0.000591 to 0.00220 in.)
JTEKT made bearing
0.015 to 0.058 mm (0.000591 to 0.00228 in.)
Maximum clearance:
NSK made bearing
0.056 mm (0.00220 in.)
JTEKT made bearing

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0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 1st gear, 1st gear needle roller bearing or output shaft.

4. INSPECT 2ND GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 2nd gear radial clearance.

Standard clearance:

NSK made bearing

0.015 to 0.056 mm (0.000591 to 0.00220 in.)

JTEKT made bearing

0.015 to 0.058 mm (0.000591 to 0.00228 in.)

Maximum clearance:

NSK made bearing

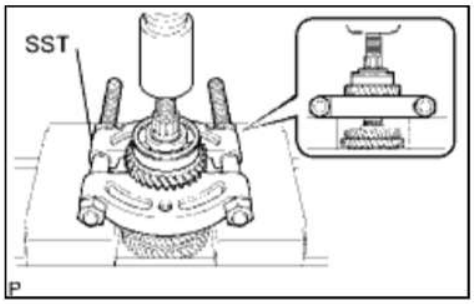
0.056 mm (0.00220 in.)

JTEKT made bearing

0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 2nd gear, 2nd gear needle roller bearing or input shaft.

5. REMOVE 4TH DRIVEN GEAR



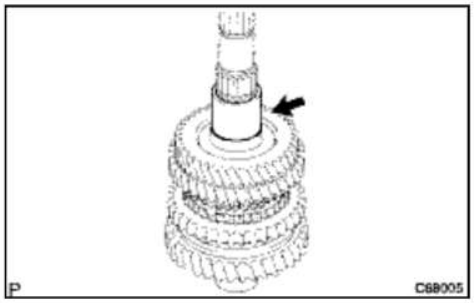
(a) Using SST and a press, remove the output shaft rear bearing and 4th driven gear from the output shaft.

SST: 09950-00020

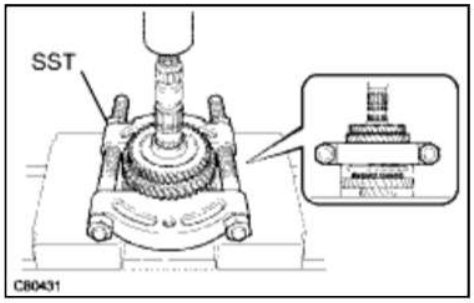
6. REMOVE OUTPUT GEAR SPACER

(a) Remove the output gear spacer from the output shaft.

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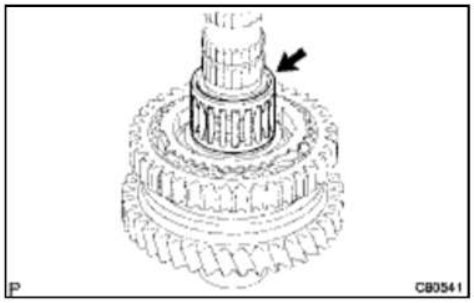
7. REMOVE 2ND GEAR



(a) Using SST and a press, remove the 3rd driven gear with the 2nd gear from the output shaft.

SST: 09950-00020

8. REMOVE 2ND GEAR NEEDLE ROLLER BEARING

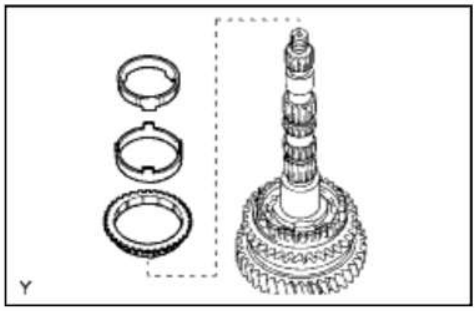


(a) Remove the 2nd gear needle roller bearing and 2nd gear bearing spacer from the output shaft.

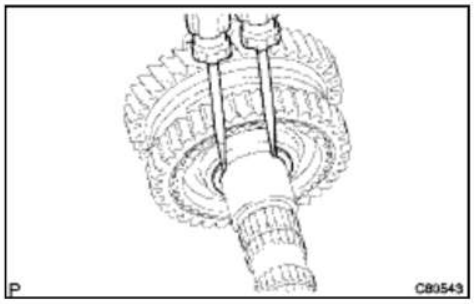
9. REMOVE NO. 2 SYNCHRONIZER RING SET (FOR 2ND GEAR)

(a) Remove the No. 2 synchronizer ring set from the output shaft.

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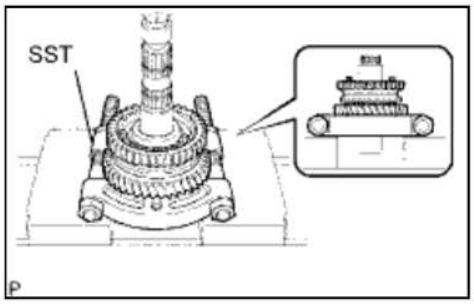
10. REMOVE 1ST GEAR



(a) Using 2 screwdrivers and a hammer, remove the No. 1 clutch hub shaft snap ring from the output shaft.

HINT:

Use a piece of cloth to keep the shaft snap ring from flying off.



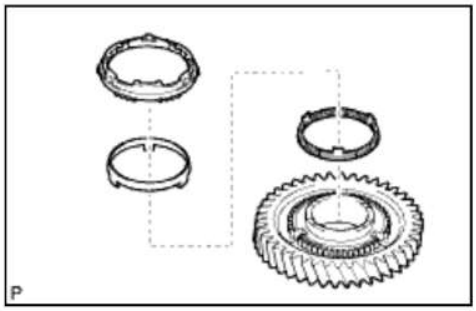
(b) Using SST and a press, remove the No. 1 clutch hub assembly and 1st gear from the output shaft.

SST: 09950-00020

NOTICE:

- Do not tighten SST excessively.
- Support the output shaft by hand to prevent it from dropping off.

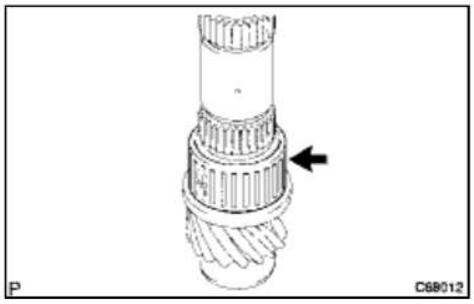
11. REMOVE NO. 1 SYNCHRONIZER RING SET (FOR 1ST GEAR)



(a) Remove the No. 1 synchronizer ring set from the 1st gear.

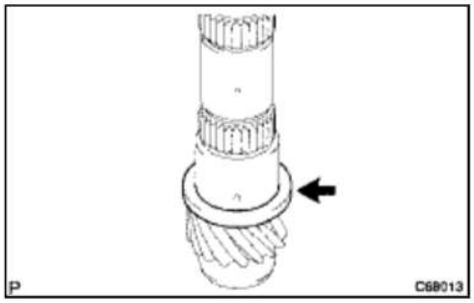
12. REMOVE 1ST GEAR NEEDLE ROLLER BEARING

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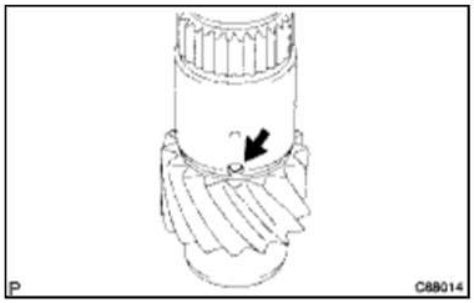
(a) Remove the 1st gear needle roller bearing from the output shaft.

13. REMOVE 1ST GEAR THRUST WASHER



(a) Remove the 1st gear thrust washer from the output shaft.

14. REMOVE 1ST GEAR THRUST WASHER PIN OR BALL



(a) Remove the 1st gear thrust washer pin or ball from the output shaft.

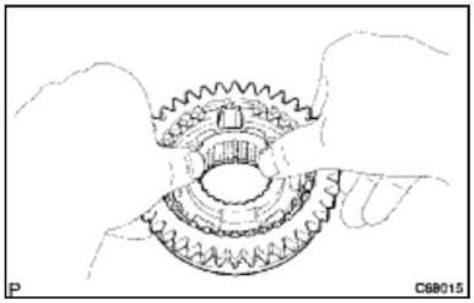
15. REMOVE REVERSE GEAR

(a) Remove the reverse gear, 3 synchromesh shifting keys, and 3 synchromesh shifting key springs from the No. 1 transmission clutch hub.

NOTICE:

Use a piece of cloth to keep the shifting keys and shifting key springs from flying off.

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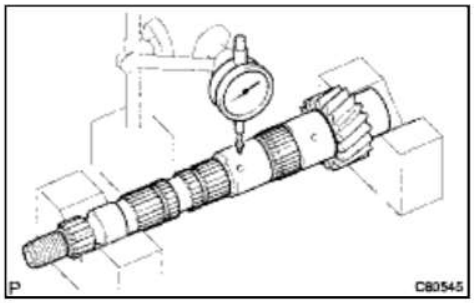
TOYOTA

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0T01WX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: INSPECTION (2010 Corolla)		

INSPECTION

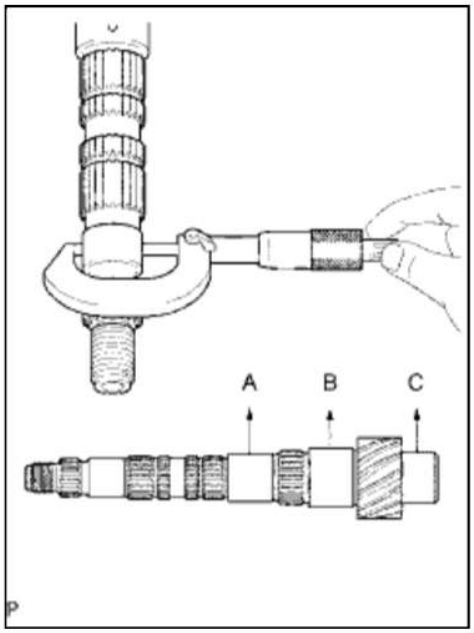
1. INSPECT OUTPUT SHAFT



(a) Using a dial indicator and 2 V-blocks, check the output shaft runout.

Maximum runout:
0.015 mm (0.000591 in.)

If the runout exceeds the maximum, replace the output shaft.



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

Standard outer diameter:

Part A

31.985 to 32.000 mm (1.2592 to 1.2598 in.)

Part B

37.985 to 38.000 mm (1.4955 to 1.4961 in.)

Part C

32.985 to 33.000 mm (1.2986 to 1.2992 in.)

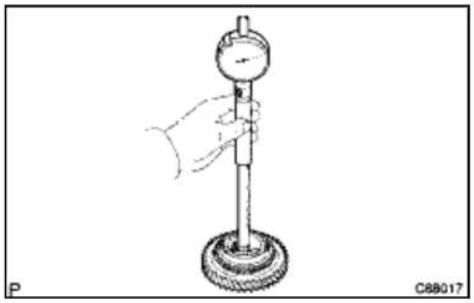
If any of the outer diameters are less than the minimum, replace the output shaft.

2. INSPECT 2ND GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 2nd gear.

Standard inside diameter:
38.015 to 38.031 mm (1.4967 to 1.4972 in.)
Maximum inside diameter:

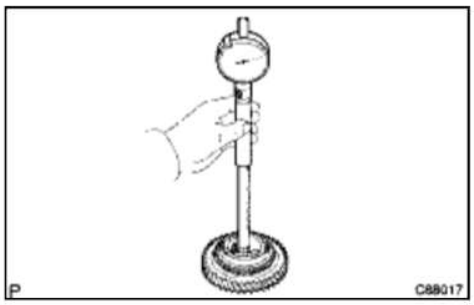
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38.031 mm (1.4972 in.)

If the inside diameter exceeds the maximum, replace the 1st gear.

3. INSPECT 1ST GEAR

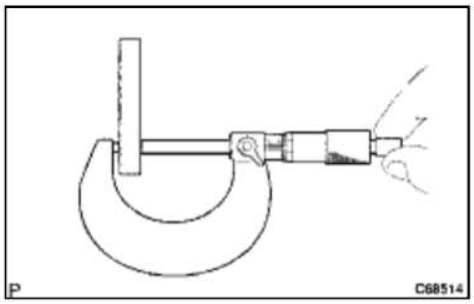


(a) Using a cylinder gauge, measure the inside diameter of the 1st gear.

Standard inside diameter:
44.015 to 44.031 mm (1.7328 to 1.7335 in.)
Maximum inside diameter:
44.031 mm (1.7335 in.)

If the inside diameter exceeds the maximum, replace the 1st gear.

4. INSPECT 1ST GEAR THRUST WASHER



(a) Using a micrometer, measure the 1st gear thrust washer.

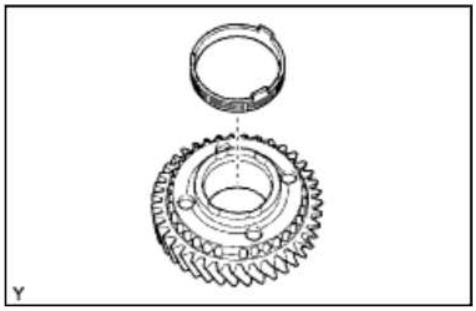
Standard thickness:
5.975 to 6.025 mm (0.2352 to 0.2372 in.)
Minimum thickness:
5.975 mm (0.2352 in.)

If the thickness is less than the minimum, replace the 1st gear thrust washer.

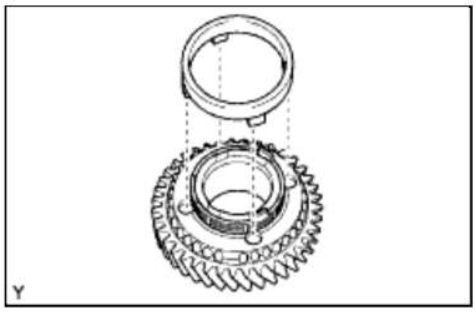
5. INSPECT NO. 2 SYNCHRONIZER RING SET (FOR 2ND GEAR)

(a) Coat the 2nd gear cone and No. 2 synchronizer ring set (inner ring, middle ring, and outer ring) with gear oil.

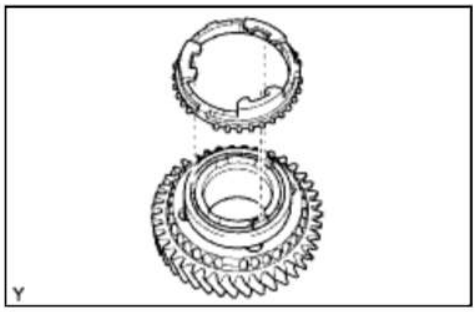
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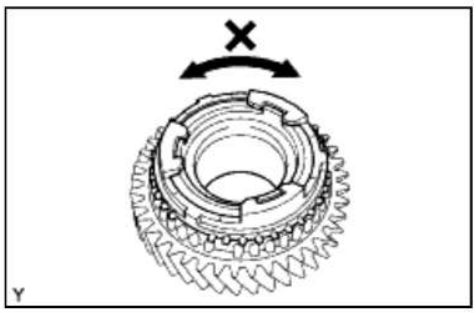
(b) Install the inner ring onto the 2nd gear.



(c) Install the middle ring onto the 2nd gear.



(d) Install the outer ring onto the 2nd gear.



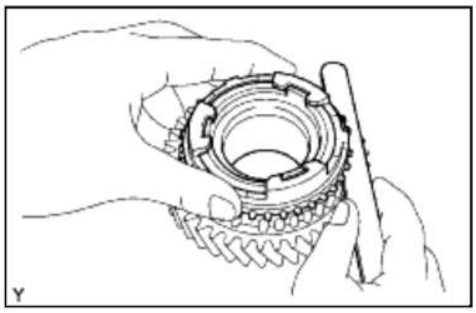
(e) Check for wear and damage.

(f) Turn the synchronizer ring set in one direction while pushing it against the 2nd gear cone.

(g) Check that the ring set locks.

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If the synchronizer ring set does not lock, replace the synchronizer ring set.

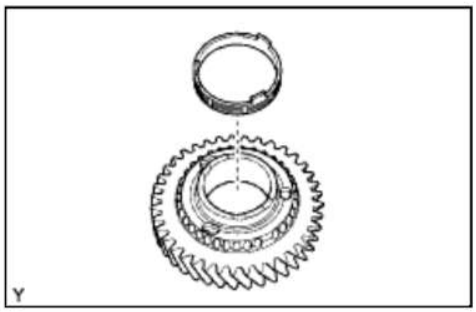


(h) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

Standard clearance:
0.60 to 1.40 mm (0.0236 to 0.0551 in.)
Minimum clearance:
0.60 mm (0.0236 in.)

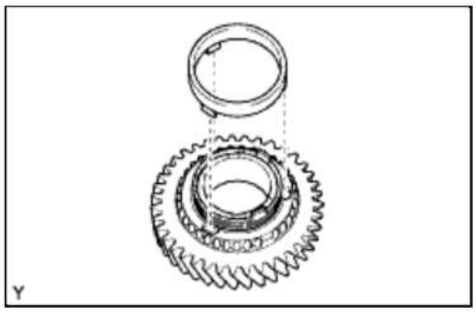
If the clearance is less than the minimum, replace the synchronizer ring set.

6. INSPECT NO. 1 SYNCHRONIZER RING SET (FOR 1ST GEAR)



(a) Coat the 1st gear cone and No. 1 synchronizer ring set (inner ring, middle ring, and outer ring) with gear oil.

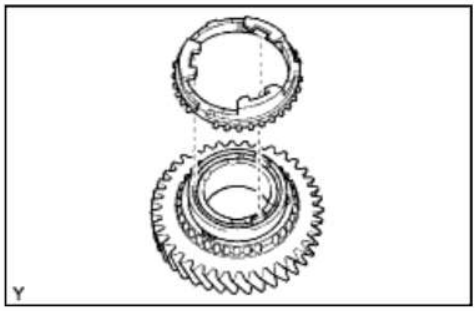
(b) Install the inner ring onto the 1st gear.

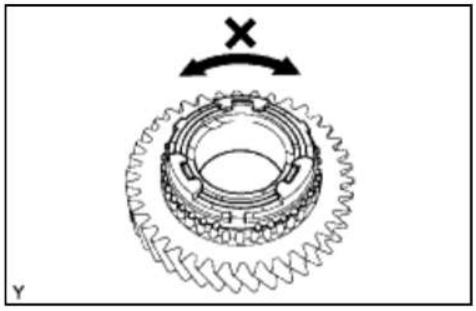


(c) Install the middle ring onto the 1st gear.

(d) Install the outer ring onto the 1st gear.

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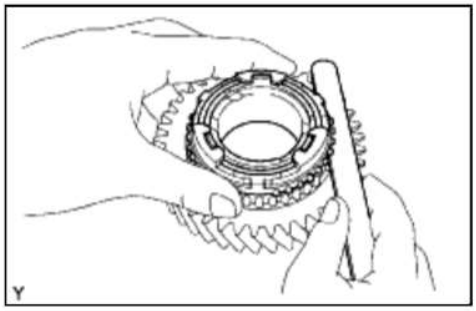


(e) Check for wear and damage.

(f) Turn the synchronizer ring set in one direction while pushing it against the 1st gear cone.

(g) Check that the ring set locks.

If the synchronizer ring set does not lock, replace the synchronizer ring set.



(h) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

Standard clearance:
0.60 to 1.40 mm (0.0236 to 0.0551 in.)
Minimum clearance:
0.60 mm (0.0236 in.)

If the clearance is less than the minimum, replace the synchronizer ring set.

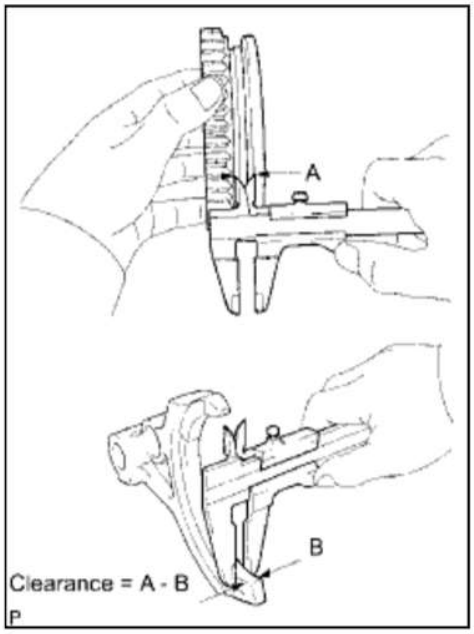
7. INSPECT REVERSE GEAR

(a) Using a vernier caliper, measure the width of the reverse gear groove (A) and the thickness of the claw part on the reverse shift fork (B), and calculate the clearance.

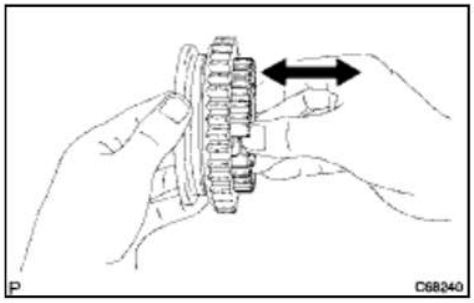
Standard clearance (A - B):
0.15 to 0.35 mm (0.00591 to 0.0138 in.)

If the clearance is out of specification, replace the reverse gear and reverse shift fork.

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8. INSPECT NO. 1 TRANSMISSION CLUTCH HUB



(a) Check that the No. 1 transmission clutch hub and reverse gear slide smoothly.

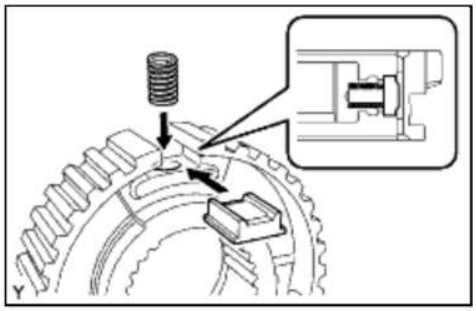
(b) Check that the edges of the reverse gear spline gear are not worn down.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A0V01WX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: REASSEMBLY (2010 Corolla)		

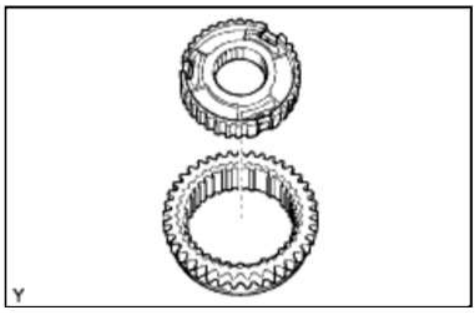
REASSEMBLY

1. INSTALL REVERSE GEAR



(a) Coat the reverse gear and No. 1 transmission clutch hub with gear oil.

(b) Install the 3 synchromesh shifting key springs and 3 synchromesh keys to the No. 1 transmission clutch hub.

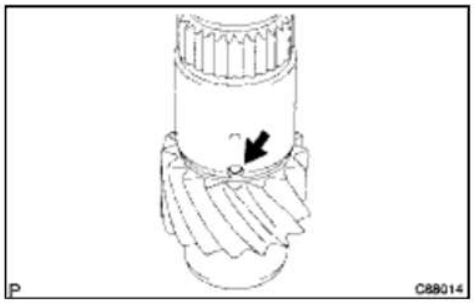


(c) Install the reverse gear onto the No. 1 transmission clutch hub assembly.

NOTICE:

Position the reverse gear and No. 1 transmission clutch hub correctly as shown in the illustration.

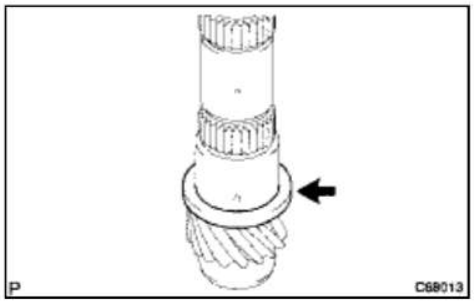
2. INSTALL 1ST GEAR THRUST WASHER PIN OR BALL



(a) Coat the 1st gear thrust washer pin or ball with MP grease and install it onto the output shaft.

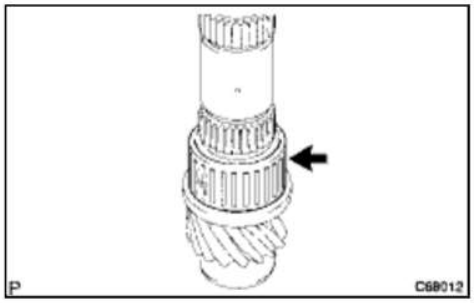
3. INSTALL 1ST GEAR THRUST WASHER

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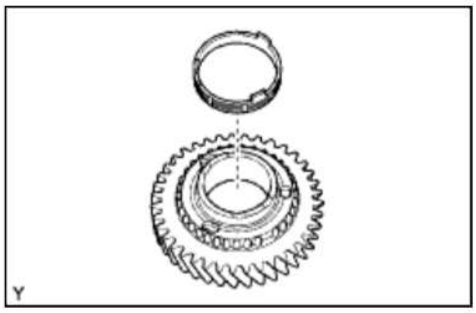
(a) Coat the 1st gear thrust washer with gear oil and install it onto the output shaft.

4. INSTALL 1ST GEAR NEEDLE ROLLER BEARING



(a) Coat the 1st gear needle roller bearing with gear oil and install it onto the output shaft.

5. INSTALL NO. 1 SYNCHRONIZER RING SET (FOR 1ST GEAR)

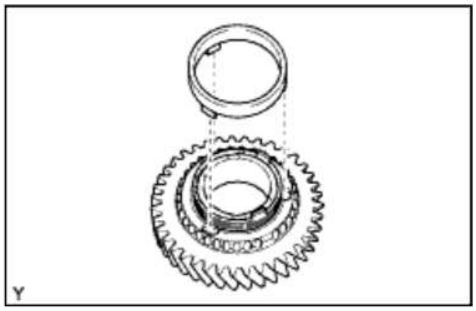


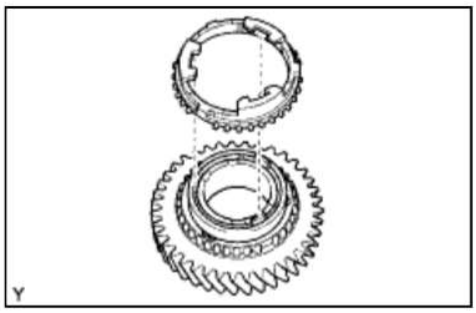
(a) Coat the 1st gear cone and No. 1 synchronizer ring set (inner ring, middle ring, and outer ring) with gear oil.

(b) Install the inner ring onto the 1st gear.

(c) Install the middle ring onto the 1st gear.

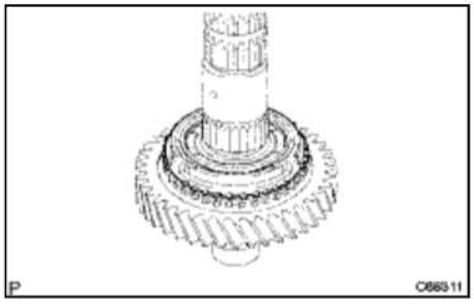
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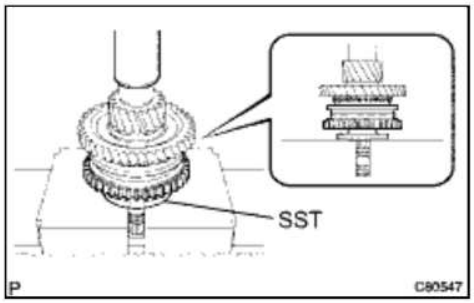
(d) Install the outer ring onto the 1st gear.

6. INSTALL 1ST GEAR



(a) Coat the 1st gear with gear oil and install it onto the output shaft.

7. INSTALL NO. 1 TRANSMISSION CLUTCH HUB



(a) Using SST and a press, install the No. 1 transmission clutch hub onto the output shaft.

SST: 09316-60011

09316-00031

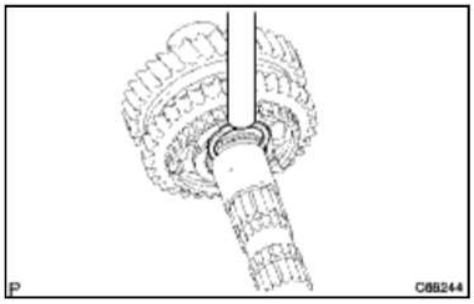
HINT:

- Make sure that the 1st gear can be turned.
- While checking that the 1st gear thrust washer pin or ball is inserted into the groove of the 1st gear thrust washer, press and fit the No. 1 clutch hub.

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(b) Select a snap ring that will allow minimum axial play.

Standard clearance:
0.1 mm (0.00394 in.) or less
Snap Ring Thickness:

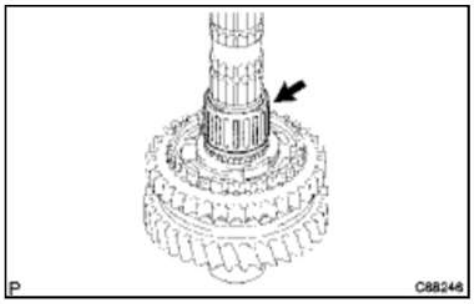


MARK	THICKNESS MM (IN.)	MARK	THICKNESS MM (IN.)
A	2.50 (0.0984)	D	2.68 (0.1055)
B	2.56 (0.1008)	E	2.74 (0.1079)
C	2.62 (0.1031)	F	2.80 (0.1102)

(c) Using a brass bar and a hammer, install the snap ring onto the output shaft.

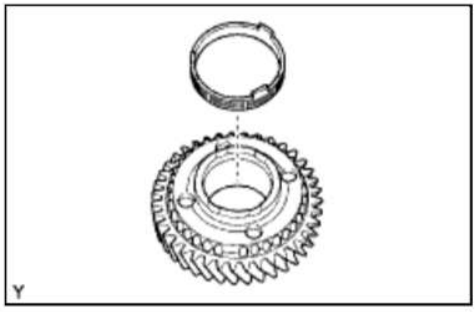
NOTICE:
Do not damage the journal surface of the output shaft.

8. INSTALL 2ND GEAR NEEDLE ROLLER BEARING



(a) Coat the 2nd gear needle roller bearing and 2nd gear bearing spacer with gear oil, and install them onto the output shaft.

9. INSTALL NO. 2 SYNCHRONIZER RING SET (FOR 2ND GEAR)

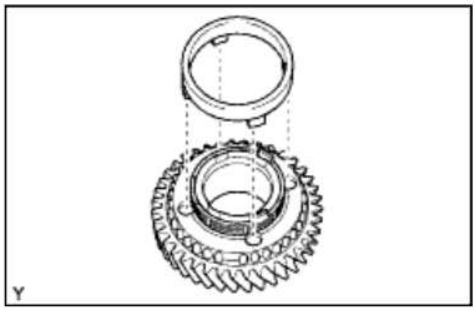


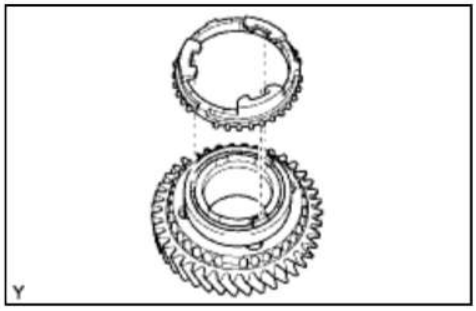
(a) Coat the 2nd gear cone and No. 2 synchronizer ring set (inner ring, middle ring, and outer ring) with gear oil.

(b) Install the inner ring onto the 2nd gear.

(c) Install the middle ring onto the 2nd gear.

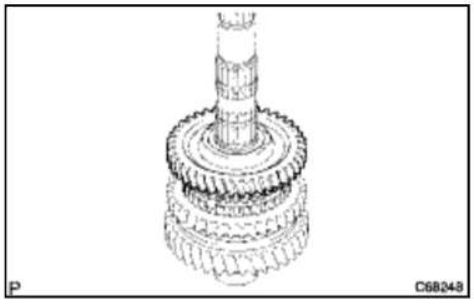
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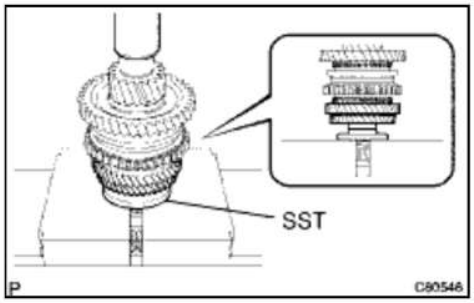
(d) Install the outer ring onto the 2nd gear.

10. INSTALL 2ND GEAR



(a) Coat the 2nd gear with gear oil and install it onto the output shaft.

11. INSTALL 3RD DRIVEN GEAR



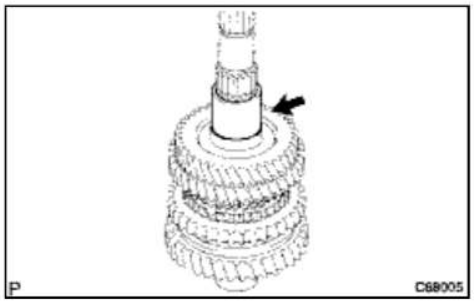
(a) Using SST and a press, install the 3rd driven gear onto the output shaft.

SST: 09316-60011

09316-00031

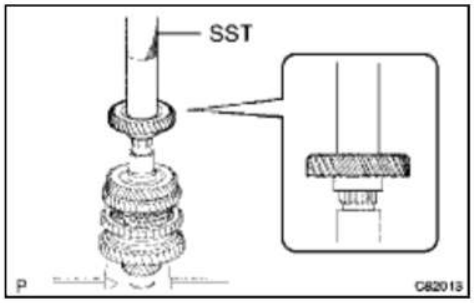
12. INSTALL OUTPUT GEAR SPACER

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(a) Install the output gear spacer onto the output shaft.

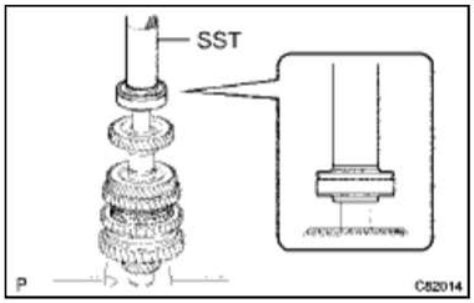
13. INSTALL 4TH DRIVEN GEAR



(a) Using SST and a press, install the 4th driven gear onto the output shaft.

SST: 09612-22011

14. INSTALL OUTPUT SHAFT REAR BEARING



(a) Using SST and a press, install the output shaft rear bearing onto the output shaft.

SST: 09612-22011

15. INSPECT 2ND GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the 2nd gear radial clearance.

Standard clearance:

NSK made bearing

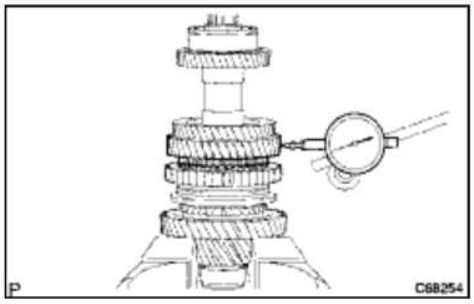
0.015 to 0.056 mm (0.000591 to 0.00220 in.)

JTEKT made bearing

0.015 to 0.058 mm (0.000591 to 0.00228 in.)

Maximum clearance:

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NSK made bearing

0.056 mm (0.00220 in.)

JTEKT made bearing

0.058 mm (0.00228 in.)

If the clearance exceeds the maximum, replace the 2nd gear, 2nd gear needle roller bearing or output shaft.

16. INSPECT 1ST GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the 1st gear radial clearance.

Standard clearance:

NSK made bearing

0.015 to 0.056 mm (0.000591 to 0.00220 in.)

JTEKT made bearing

0.015 to 0.058 mm (0.000591 to 0.00228 in.)

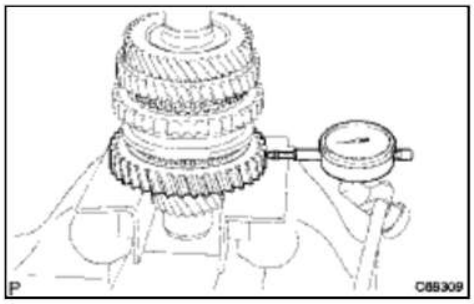
Maximum clearance:

NSK made bearing

0.056 mm (0.00220 in.)

JTEKT made bearing

0.058 mm (0.00228 in.)



If the clearance exceeds the maximum, replace the 1st gear, 1st gear needle roller bearing or input shaft.

17. INSPECT 2ND GEAR THRUST CLEARANCE

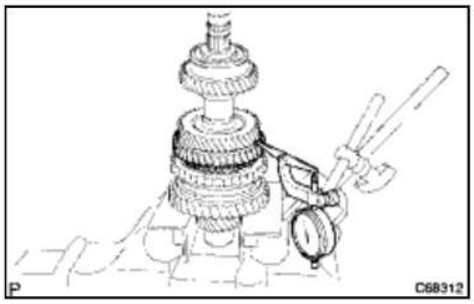
(a) Using a dial indicator, measure the 2nd gear thrust clearance.

Standard clearance:

0.10 to 0.55 mm (0.00394 to 0.0217 in.)

Maximum clearance:

0.55 mm (0.0217 in.)



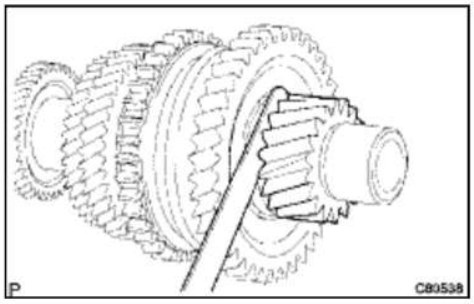
If the clearance exceeds the maximum, replace the No. 1 transmission clutch hub, 2nd gear or 3rd driven gear.

18. INSPECT 1ST GEAR THRUST CLEARANCE

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

Standard clearance:

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0.10 to 0.40 mm (0.00394 to 0.0157 in.)
Maximum clearance:
0.40 mm (0.0157 in.)

If the clearance exceeds the maximum, replace the 1st gear thrust washer, 1st gear or No. 1 transmission clutch hub.

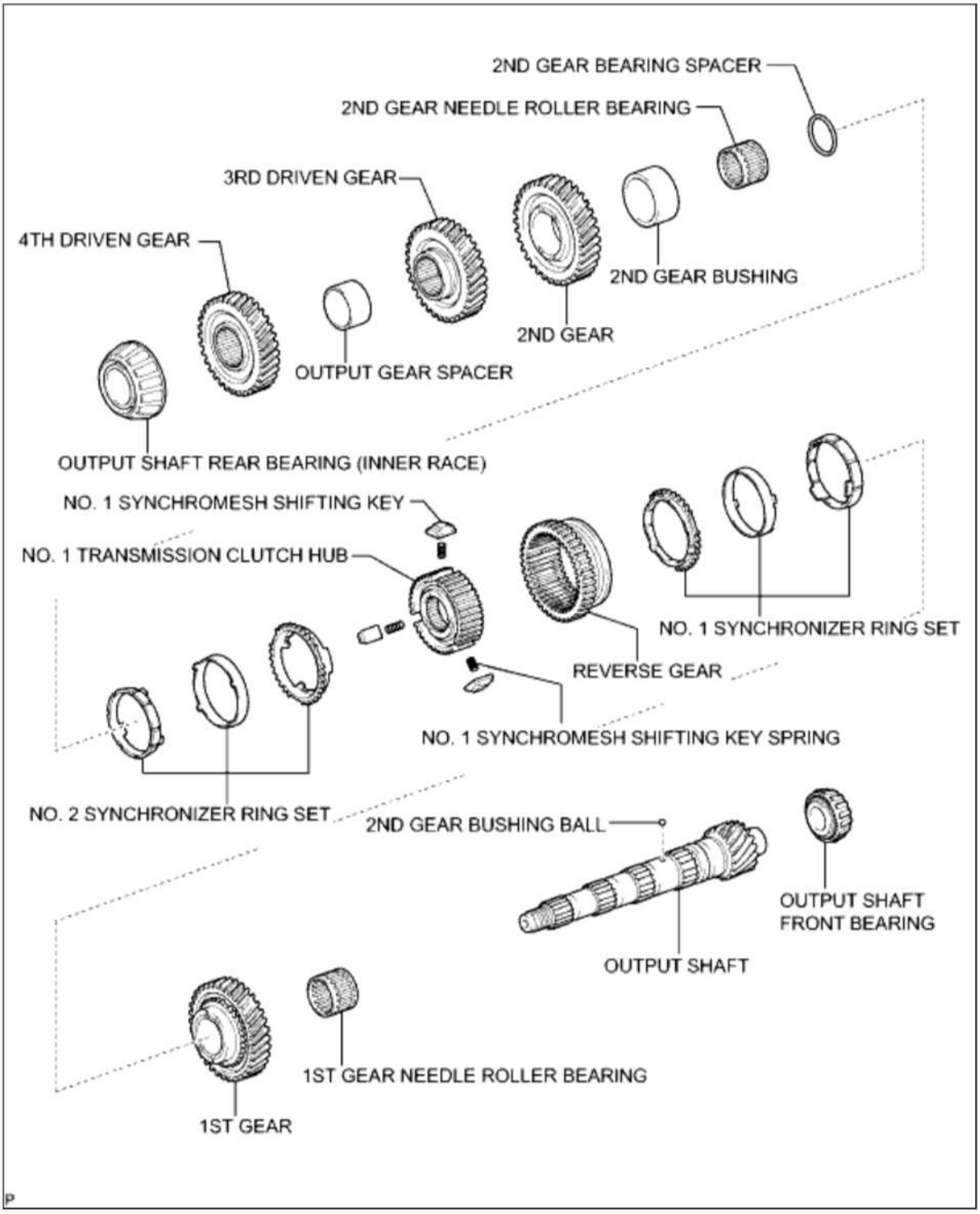
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1Z00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

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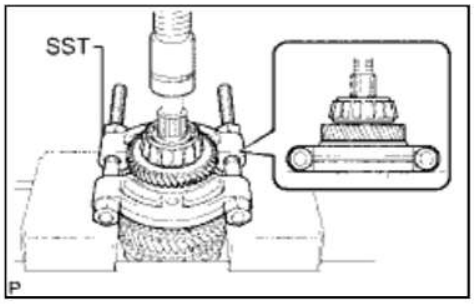


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2000DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: DISASSEMBLY (2010 Corolla)		

DISASSEMBLY

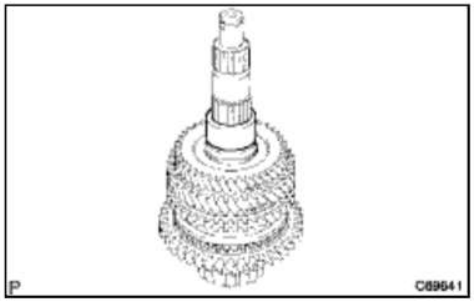
1. REMOVE 4TH DRIVEN GEAR



(a) Using SST and a press, remove the output shaft rear bearing (inner race) and 4th driven gear.

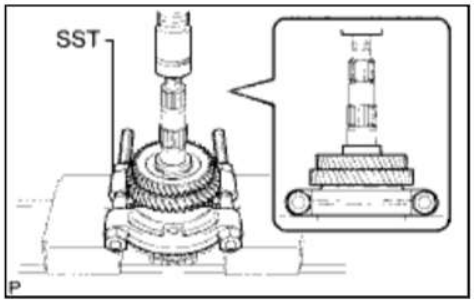
SST: 09950-00020

2. REMOVE OUTPUT GEAR SPACER



(a) Remove the output gear spacer from the output shaft.

3. REMOVE 2ND GEAR

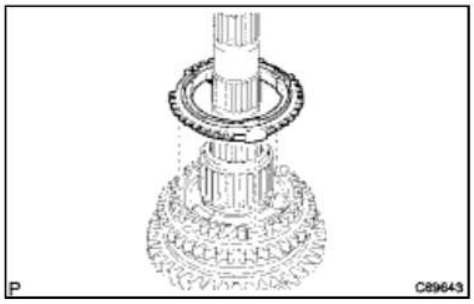


(a) Using SST and a press, remove the 3rd driven gear and 2nd gear from the output shaft.

SST: 09950-00020

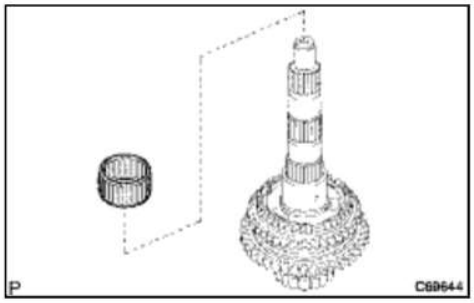
4. REMOVE NO. 2 SYNCHRONIZER RING SET

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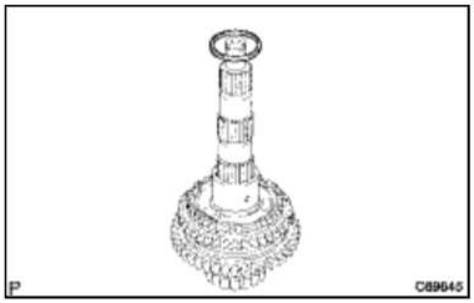
(a) Remove the No. 2 synchronizer ring set from the No. 1 transmission clutch hub.

5. REMOVE 2ND GEAR NEEDLE ROLLER BEARING



(a) Remove the 2nd gear needle roller bearing from the output shaft.

6. REMOVE 2ND GEAR BEARING SPACER

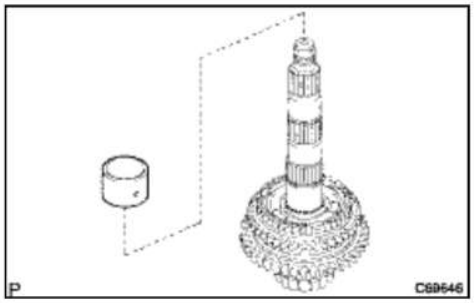


(a) Remove the 2nd gear bearing spacer from the output shaft.

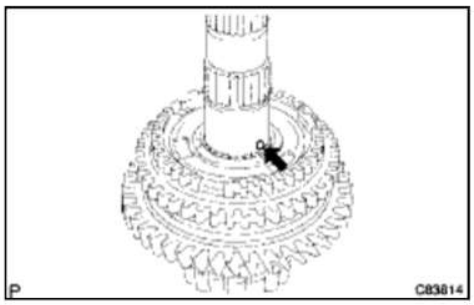
7. REMOVE 2ND GEAR BUSHING

(a) Remove the 2nd gear bushing from the output shaft.

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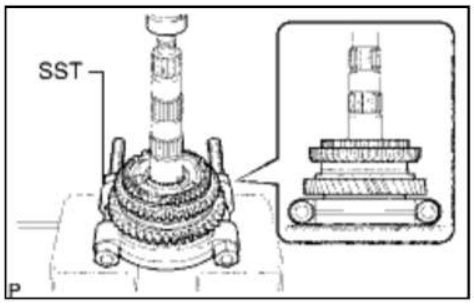


8. REMOVE 2ND GEAR BUSHING BALL



(a) Using a magnetic pick-up tool, remove the 2nd gear bushing ball from the output shaft.

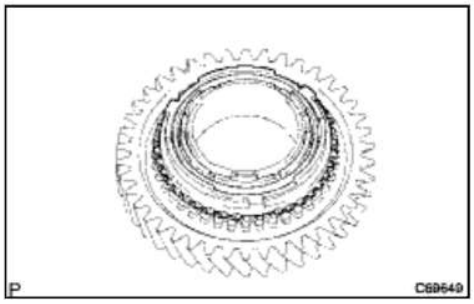
9. REMOVE 1ST GEAR



(a) Using SST and a press, remove the No. 1 transmission clutch hub and 1st gear from the output shaft.

SST: 09950-00020

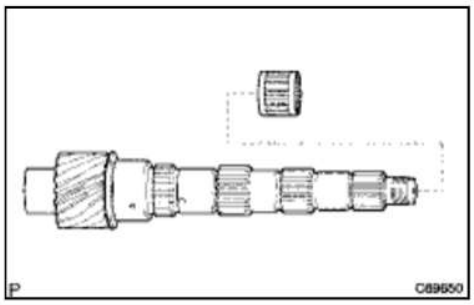
10. REMOVE NO. 1 SYNCHRONIZER RING SET



(a) Remove the No. 1 synchronizer ring set from the 1st gear.

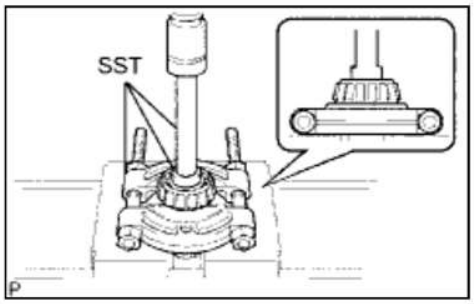
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11. REMOVE 1ST GEAR NEEDLE ROLLER BEARING



(a) Remove the 1st gear needle roller bearing from the output shaft.

12. REMOVE OUTPUT SHAFT FRONT BEARING



(a) Using SST and a press, remove the output shaft front bearing (inner race) from the output shaft.

SST: 09950-00020

SST: 09950-60010

09951-00320

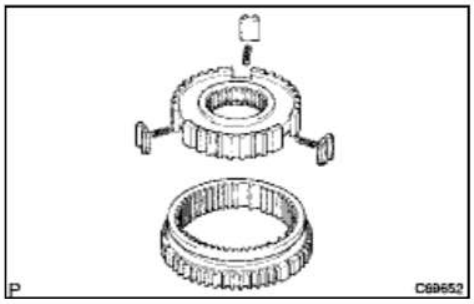
SST: 09950-70010

09951-07150

NOTICE:

Do not overtighten SST.

13. REMOVE REVERSE GEAR



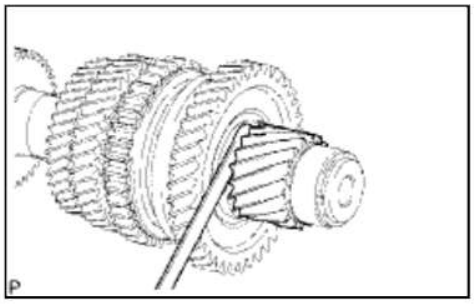
(a) Remove the No. 1 transmission clutch hub, 3 No. 1 synchromesh shifting keys, and 3 No. 1 synchromesh shifting key springs from the reverse gear.

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Last Modified: 3-10-2010	6.4 G	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z1Y00DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: INSPECTION (2010 Corolla)		

INSPECTION

1. INSPECT 1ST GEAR THRUST CLEARANCE

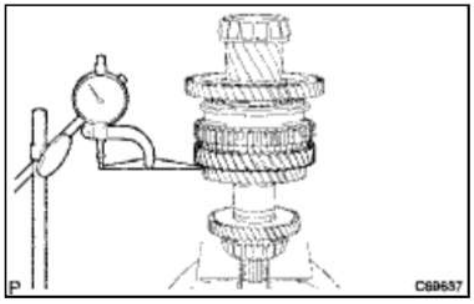


(a) Using a feeler gauge, measure the 1st gear thrust clearance.

Standard clearance:
0.25 to 0.40 mm (0.00984 to 0.0157 in.)

If the clearance is out of specification, replace the 1st gear, or No. 1 transmission clutch hub.

2. INSPECT 2ND GEAR THRUST CLEARANCE

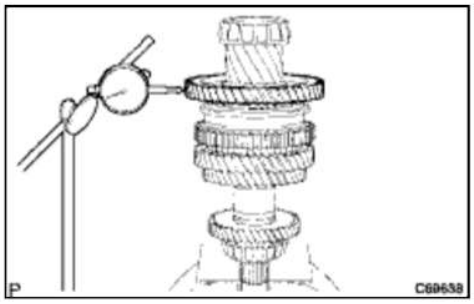


(a) Using a dial indicator, measure the 2nd gear thrust clearance.

Standard clearance:
0.10 to 0.35 mm (0.00394 to 0.0138 in.)

If the clearance is out of specification, replace the No. 1 transmission clutch hub, 2nd gear, or 3rd driven gear.

3. INSPECT 1ST GEAR RADIAL CLEARANCE



(a) Using a dial indicator, measure the 1st gear radial clearance.

Standard Clearance:

BEARING	STANDARD CLEARANCE MM (IN.)
KOYO made	0.009 to 0.053 (0.000354 to 0.00209)

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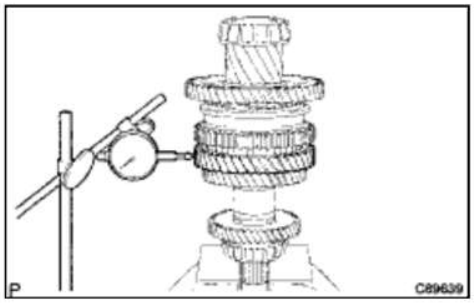
NSK made	0.009 to 0.051 (0.000354 to 0.00201)

If the clearance is out of specification, replace the 1st gear and 1st gear needle roller bearing.

4. INSPECT 2ND GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the 2nd gear radial clearance.

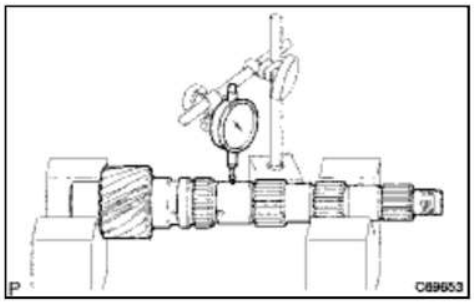
Standard Clearance:



BEARING	STANDARD CLEARANCE MM (IN.)
KOYO made	0.009 to 0.053 (0.000354 to 0.00209)
NSK made	0.009 to 0.051 (0.000354 to 0.00201)

If the clearance is out of specification, replace the 2nd gear and 2nd gear needle roller bearing.

5. INSPECT OUTPUT SHAFT



(a) Using V-blocks and a dial indicator, inspect the shaft for runout.

Maximum runout:
0.03 mm (0.00118 in.)

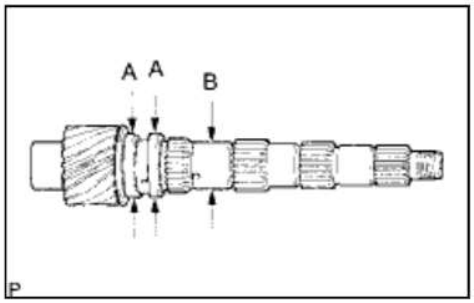
If runout exceeds the maximum, replace the output shaft.

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

Outside Diameter:

PART	STANDARD OUTSIDE	MINIMUM OUTSIDE

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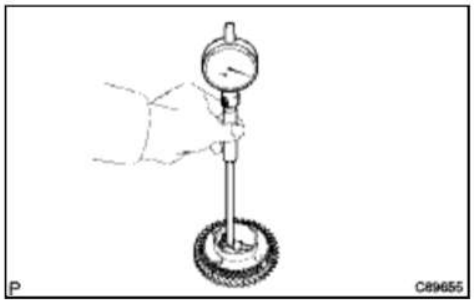
	DIAMETER MM (IN.)	DIAMETER MM (IN.)
A	37.610 to 37.626 (1.4807 to 1.4813)	37.610 (1.4807)
B	34.502 to 34.512 (1.3583 to 1.3587)	34.502 (1.3583)

If the outside diameter is less than the minimum, replace the output shaft.

6. INSPECT 2ND GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 2nd gear.

Inside Diameter:



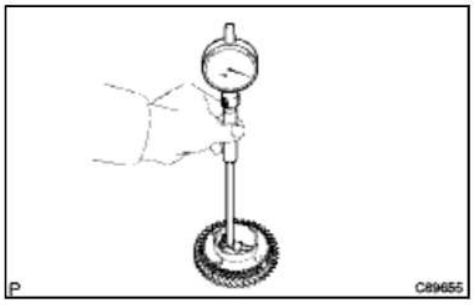
STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
50.009 to 50.025 (1.9689 to 1.9695)	50.025 (1.9695)

If the inside diameter exceeds the maximum, replace the 2nd gear.

7. INSPECT 1ST GEAR

(a) Using a cylinder gauge, measure the inside diameter of the 1st gear.

Inside Diameter:



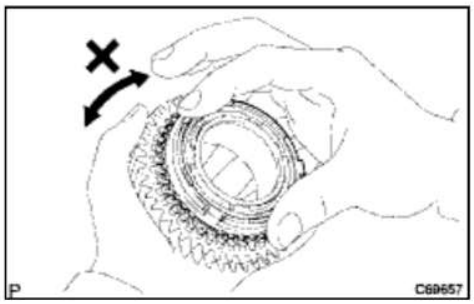
STANDARD INSIDE DIAMETER MM (IN.)	MAXIMUM INSIDE DIAMETER MM (IN.)
51.009 to 51.025 (2.0082 to 2.0089)	51.025 (2.0089)

If the inside diameter exceeds the maximum, replace the 1st gear.

8. INSPECT NO. 2 SYNCHRONIZER RING SET

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(a) Coat the 2nd gear cone with gear oil.

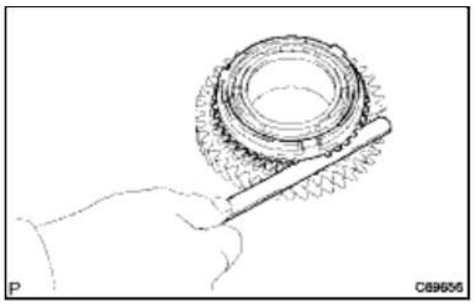


(b) Check for wear and damage.

(c) Turn the synchronizer ring set in one direction while pushing it against the 2nd gear cone.

(d) Check that the ring locks.

If the synchronizer ring set does not lock, replace the synchronizer ring set.



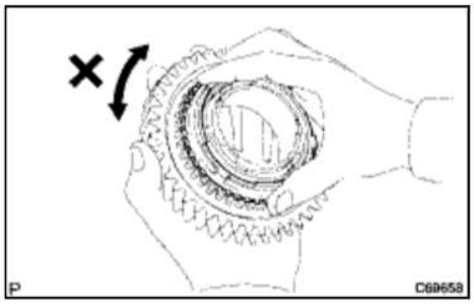
(e) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

Standard clearance:
0.70 to 1.45 mm (0.0276 to 0.0571 in.)

If the clearance is less than the minimum, replace the synchronizer ring set.

9. INSPECT NO. 1 SYNCHRONIZER RING SET

(a) Coat the 1st gear cone with gear oil.



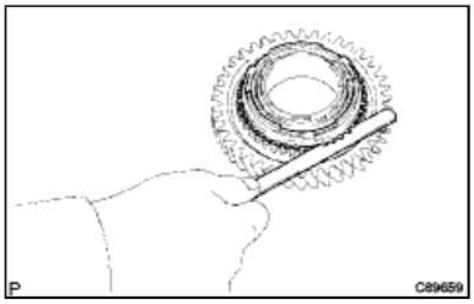
(b) Check for wear and damage.

(c) Turn the synchronizer ring set in one direction while pushing it against the 1st gear cone.

(d) Check that the ring set locks.

If the synchronizer ring set does not lock, replace the synchronizer ring set.

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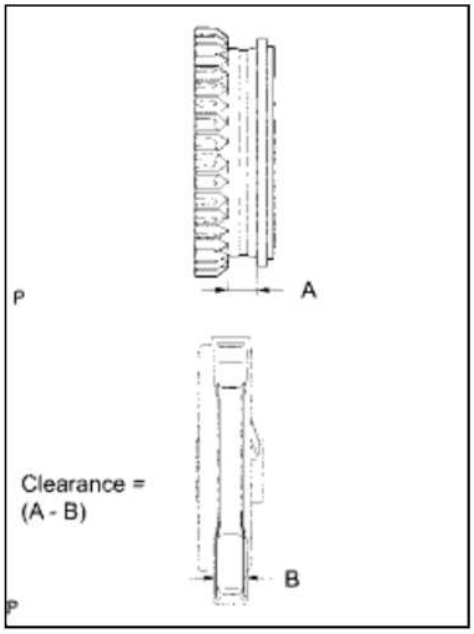


(e) Using a feeler gauge, measure the clearance between the synchronizer ring and the gear spline end.

Standard clearance:
0.70 to 1.45 mm (0.0276 to 0.0571 in.)

If the clearance is less than the minimum, replace the synchronizer ring set.

10. INSPECT REVERSE GEAR

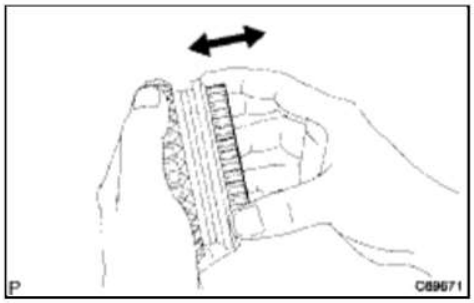


(a) Using a vernier caliper, measure the width of the reverse gear groove and thickness of the claw part on the No. 1 gear shift fork, and calculate the clearance.

Standard clearance:
0.15 to 0.35 mm (0.00591 to 0.0138 in.) {A - B}

If the clearance is out of specification, replace the reverse gear and No. 1 gear shift fork with new ones.

11. INSPECT NO. 1 TRANSMISSION CLUTCH HUB



(a) Check the sliding condition between the No. 1 transmission clutch hub and the reverse gear.

(b) Check the tip of the spline gear on the sleeve of the reverse gear for wear.

If any defects are found, replace the transmission hub sleeve or the transmission clutch hub.

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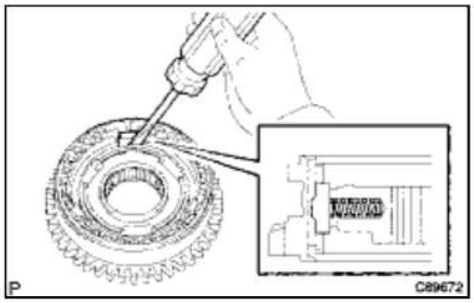


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2100DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: OUTPUT SHAFT: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL REVERSE GEAR



(a) Coat the reverse gear with gear oil.

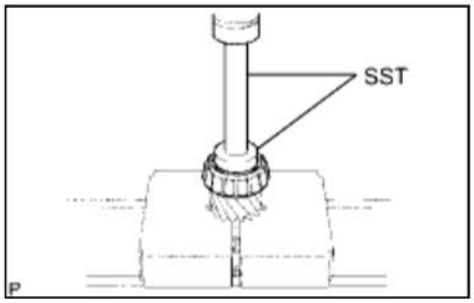
(b) Install the 3 No. 1 synchromesh shifting key springs and No. 1 transmission clutch hub to the reverse gear.

NOTICE:

Assemble the reverse gear and the No. 1 transmission clutch hub in the correct direction.

(c) Using a screwdriver, install the 3 No. 1 synchromesh shifting keys to the reverse gear.

2. INSTALL OUTPUT SHAFT FRONT BEARING



(a) Using SST and a press, install the output shaft front bearing (inner race) to the output shaft.

SST: 09950-60010

09951-00430

SST: 09950-70010

09951-07150

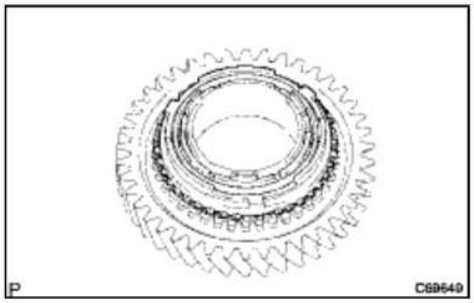
3. INSTALL NO. 1 SYNCHRONIZER RING SET

(a) Coat the No. 1 synchronizer ring set with gear oil and install it to the 1st gear.

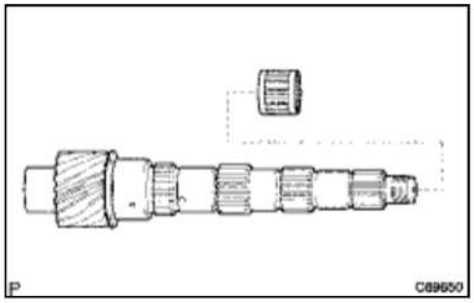
NOTICE:

Align the No. 1 synchronizer ring set with the hole of the 1st gear.

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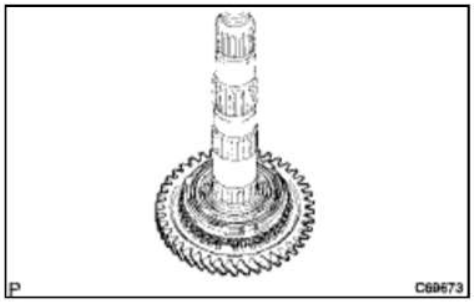


4. INSTALL 1ST GEAR NEEDLE ROLLER BEARING



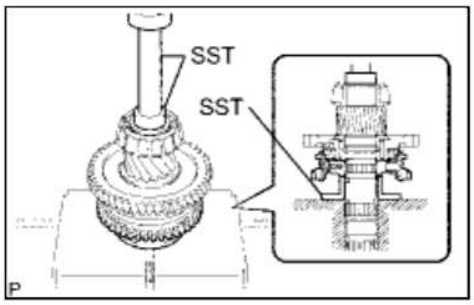
(a) Coat the 1st gear needle roller bearing with gear oil and install it to the output shaft.

5. INSTALL 1ST GEAR



(a) Coat the 1st gear with gear oil and install it to the output shaft.

6. INSTALL NO. 1 TRANSMISSION CLUTCH HUB



(a) Using SST and a press, install the No. 1 transmission clutch hub to the output shaft.

SST: 09316-60011

09316-00031

SST: 09950-60010

09951-00320

SST: 09950-70010

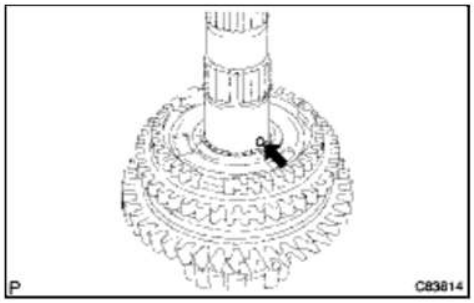
09951-07100

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NOTICE:

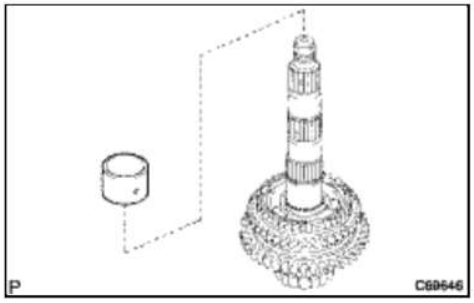
- Align the No. 1 synchronizer ring with the No. 1 synchromesh shifting key.
- Make sure that the 1st gear rotates.

7. INSTALL 2ND GEAR BUSHING BALL



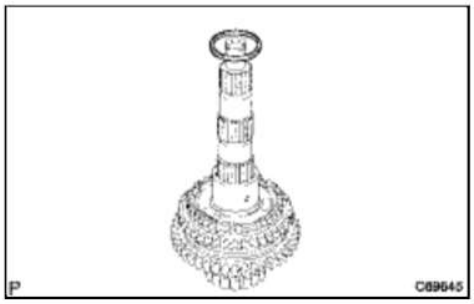
(a) Coat the gear bushing ball with MP grease, and install it to the output shaft.

8. INSTALL 2ND GEAR BUSHING



(a) Coat the 2nd gear bushing with gear oil and install it to the output shaft.

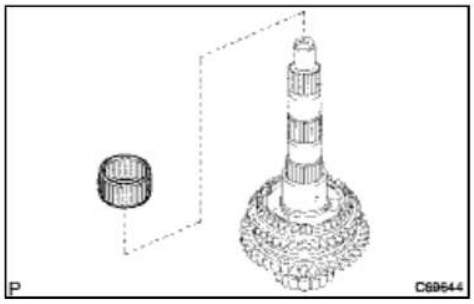
9. INSTALL 2ND GEAR BEARING SPACER



(a) Coat the 2nd gear bearing spacer with gear oil and install it to the output shaft.

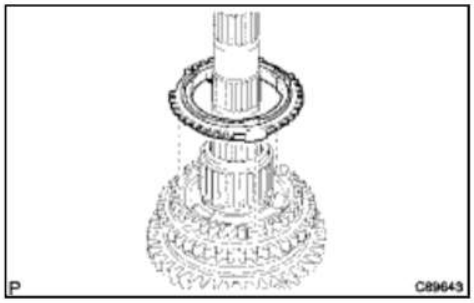
10. INSTALL 2ND GEAR NEEDLE ROLLER BEARING

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(a) Coat the 2nd gear needle roller bearing with gear oil and install it to the output shaft.

11. INSTALL NO. 2 SYNCHRONIZER RING SET

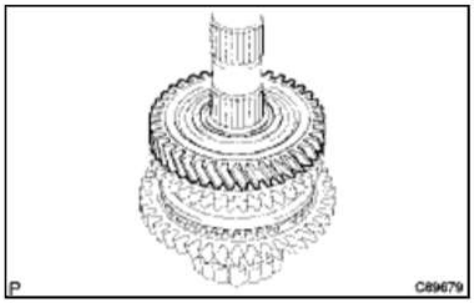


(a) Coat the No. 2 synchronizer ring set with gear oil and install it to the No. 1 transmission clutch hub.

NOTICE:

Align the key groove on the No. 2 synchronizer ring set with the No. 1 synchromesh shifting key.

12. INSTALL 2ND GEAR



(a) Coat the 2nd gear with gear oil and install it to the output shaft.

13. INSTALL 3RD DRIVEN GEAR

(a) Using SST and a press, install the 3rd driven gear to the output shaft.

SST: 09608-00071

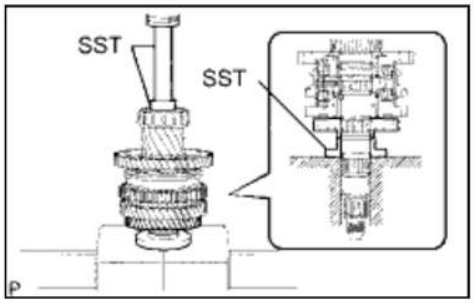
SST: 09950-60010

09951-00320

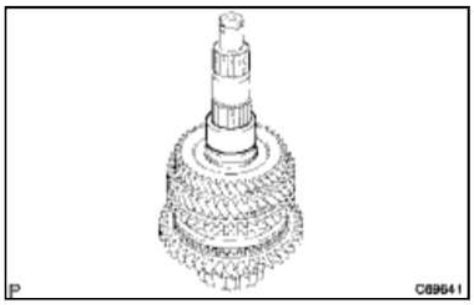
SST: 09950-70010

09951-07100

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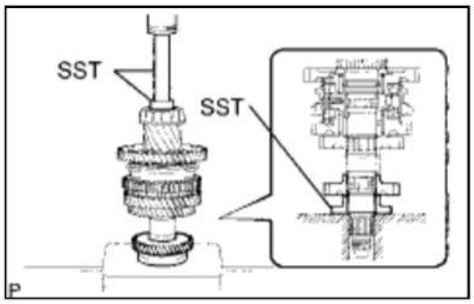


14. INSTALL OUTPUT GEAR SPACER



(a) Install the output gear spacer to the output shaft.

15. INSTALL 4TH DRIVEN GEAR



(a) Using SST and a press, install the 4th driven gear to the output shaft.

SST: 09608-00071

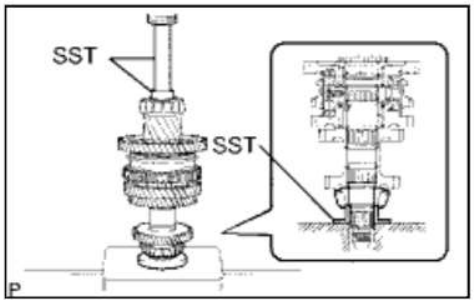
SST: 09950-60010

09951-00320

SST: 09950-70010

09951-07100

16. INSTALL OUTPUT SHAFT FRONT BEARING



(a) Using SST and a press, install the output shaft front bearing (inner race) to the output shaft.

SST: 09506-30012

SST: 09950-60010

09951-00320

SST: 09950-70010

09951-07100

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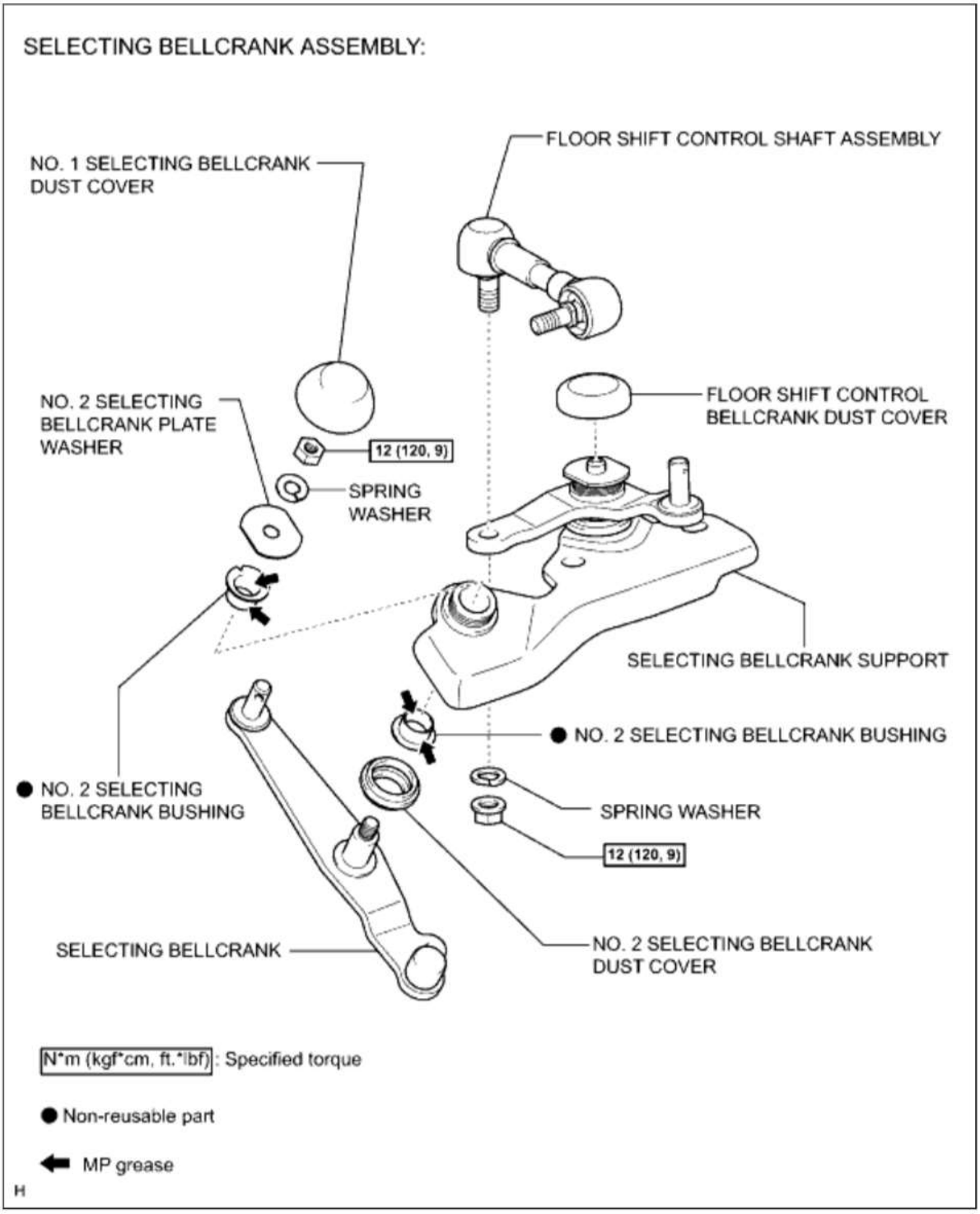
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001B3I01RX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

ILLUSTRATION

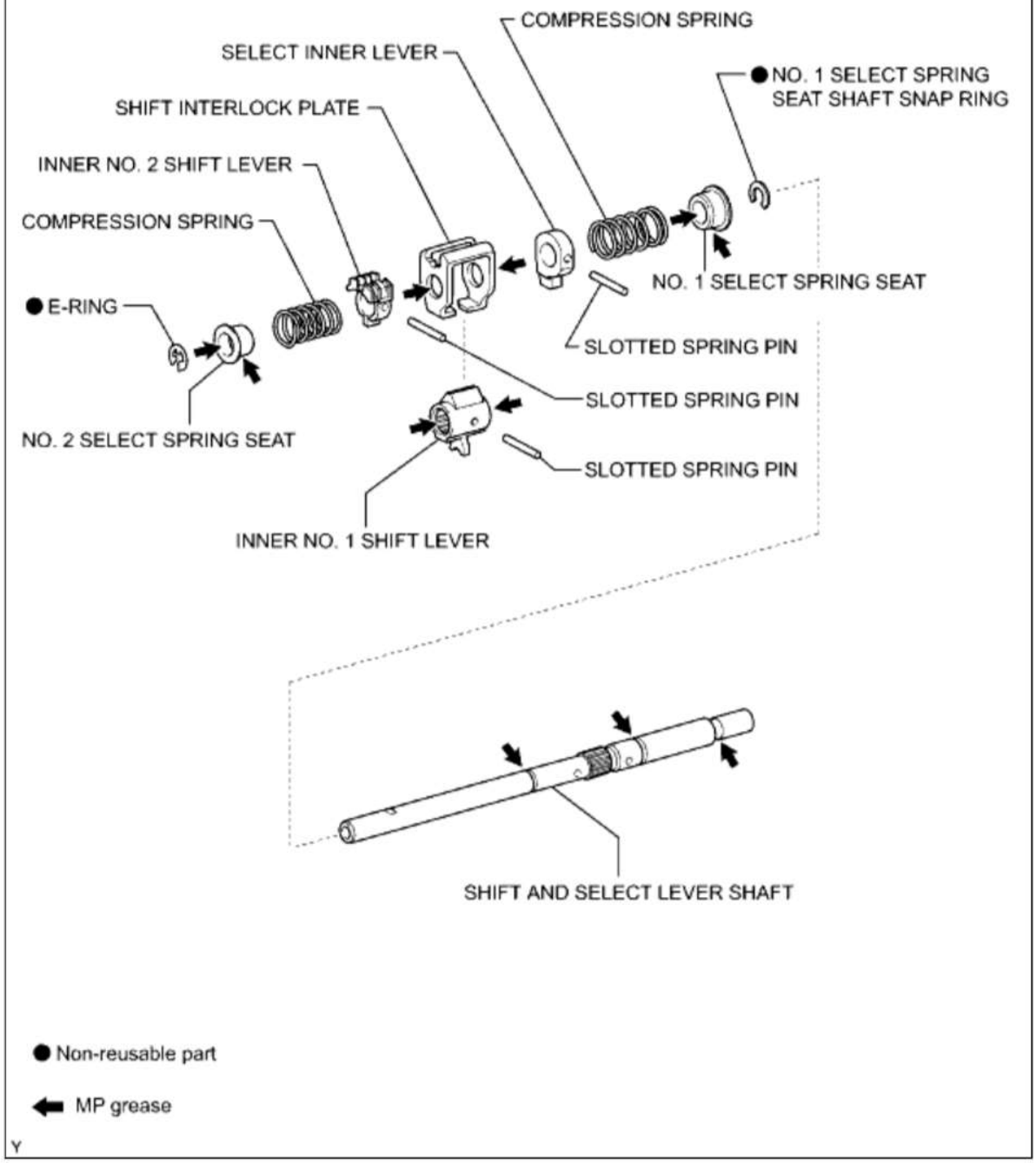
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ILLUSTRATION

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SHIFT AND SELECT LEVER SHAFT ASSEMBLY:



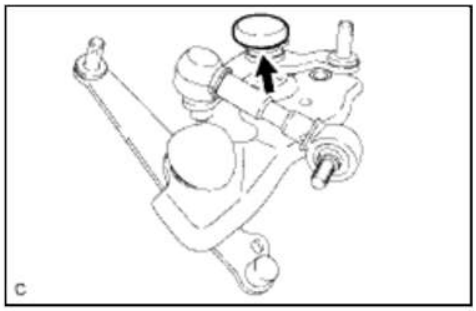
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1201RX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: DISASSEMBLY (2010 Corolla)		

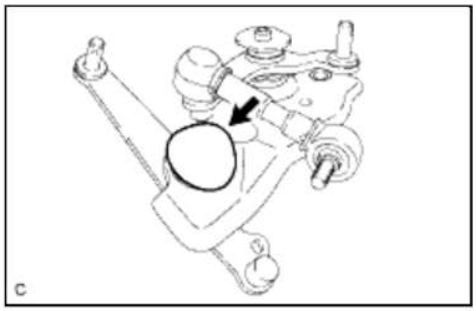
DISASSEMBLY

1. REMOVE FLOOR SHIFT CONTROL BELLCRANK DUST COVER



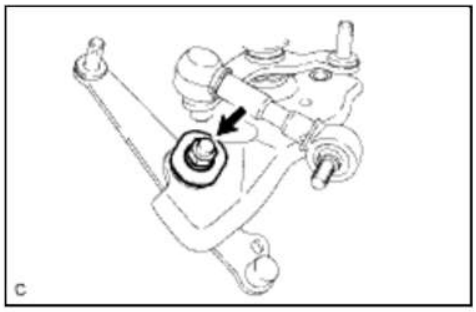
(a) Remove the floor shift control bellcrank dust cover from the selecting bellcrank assembly.

2. REMOVE NO. 1 SELECTING BELLCRANK DUST COVER



(a) Remove the No. 1 selecting bellcrank dust cover from the selecting bellcrank.

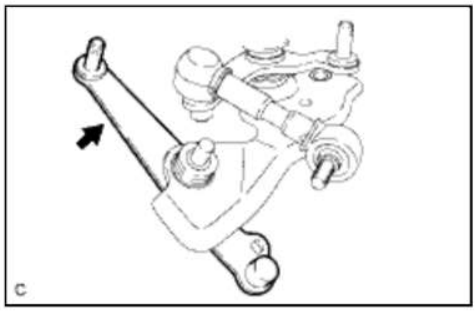
3. REMOVE NO. 2 SELECTING BELLCRANK PLATE WASHER



(a) Remove the nut, spring washer, and selecting bellcrank plate washer from the selecting bellcrank.

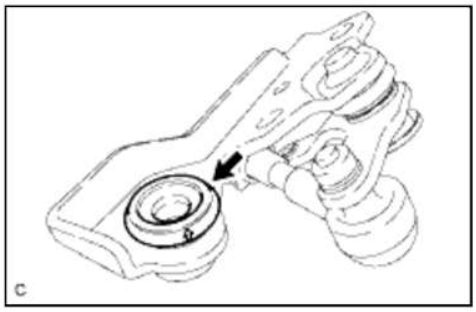
4. REMOVE SELECTING BELLCRANK

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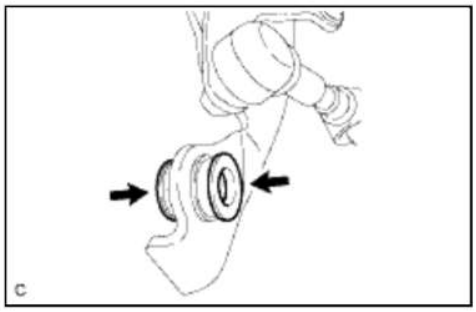
(a) Remove the selecting bellcrank from the selecting bellcrank support.

5. REMOVE NO. 2 SELECTING BELLCRANK DUST COVER



(a) Remove the No. 2 selecting bellcrank dust cover from the selecting bellcrank support.

6. REMOVE NO. 2 SELECTING BELLCRANK BUSHING

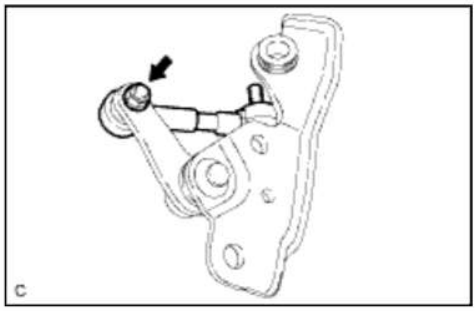


(a) Remove the 2 No. 2 selecting bellcrank bushings from the selecting bellcrank support.

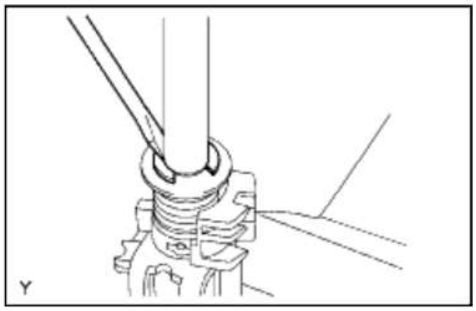
7. REMOVE FLOOR SHIFT CONTROL SHAFT ASSEMBLY

(a) Remove the nut, spring washer, and floor shift control shaft assembly from the selecting bellcrank support.

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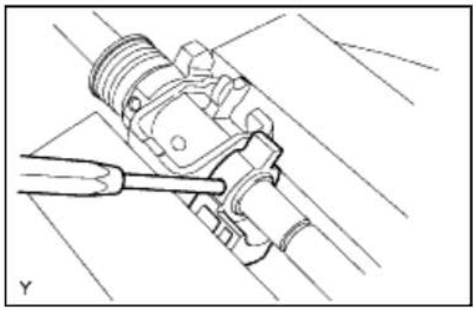


8. REMOVE NO. 2 SELECT SPRING SEAT



(a) Using a screwdriver, remove the E-ring, No. 2 select spring seat and compression spring from the shift and select lever shaft.

9. REMOVE INNER NO. 2 SHIFT LEVER



(a) Using a pin punch (φ5 mm) and a hammer, remove the shift inner lever slotted spring pin and inner No. 2 shift lever from the shift and select lever shaft.

HINT:

Check the orientation of the inner No. 2 shift lever.

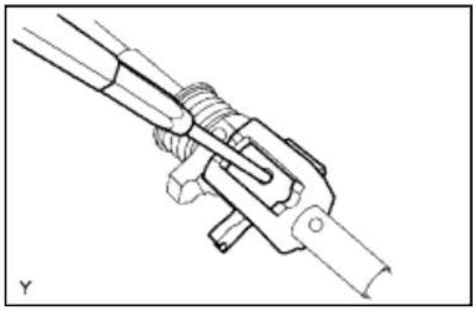
10. REMOVE INNER NO. 1 SHIFT LEVER

(a) Using a pin punch (φ5 mm) and a hammer, remove the shift inner lever slotted spring pin, inner No. 1 shift lever, and shift inter lock plate from the shift and select lever shaft.

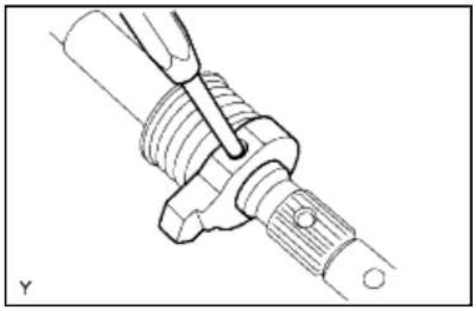
HINT:

Check the orientation of the inner No. 1 shift lever.

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11. REMOVE SELECT INNER LEVER

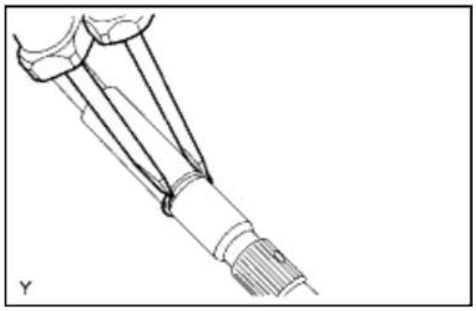


(a) Using a pin punch (φ5 mm) and a hammer, remove the select inner lever slotted spring pin, select inner lever, No. 1 select return compression spring, and No. 1 select spring seat from the shift and select lever shaft.

HINT:

Check the orientation of the select inner lever.

12. REMOVE NO. 1 SELECT SPRING SEAT SHAFT SNAP RING



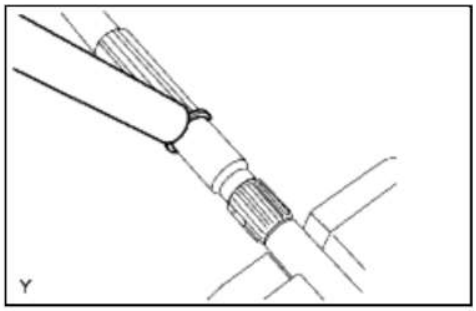
(a) Using 2 screwdrivers and a hammer, remove the No. 1 select spring seat shaft snap ring.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001A1301RX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: REASSEMBLY (2010 Corolla)		

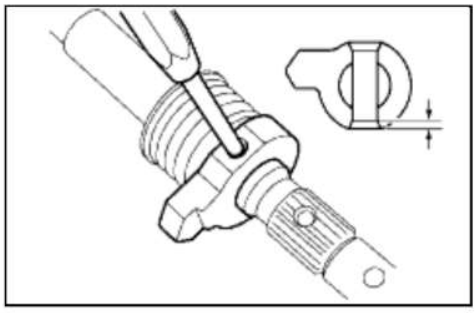
REASSEMBLY

1. INSTALL NO. 1 SELECT SPRING SEAT SHAFT SNAP RING



(a) Coat the shift and select lever shaft with MP grease, and install a new snap ring onto the shift and select lever shaft using a brass bar and a hammer.

2. INSTALL SELECT INNER LEVER



(a) Coat the No. 1 select spring seat with MP grease.

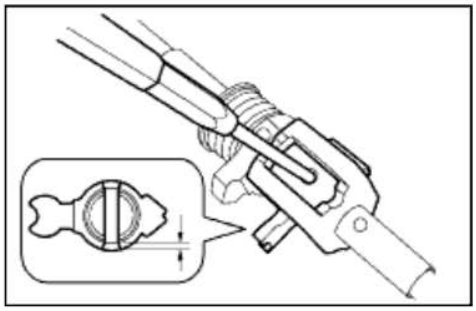
(b) Using a pin punch (φ5 mm) and a hammer, install the No. 1 select spring seat, compression spring, select inner lever, and select inner lever slotted spring pin onto the shift and select lever shaft.

Driven in depth:
3.0 to 4.0 mm (0.1181 to 0.1575 in.)

3. INSTALL INNER NO. 1 SHIFT LEVER

(a) Coat the shift interlock plate and inner No. 1 shift lever with MP grease.

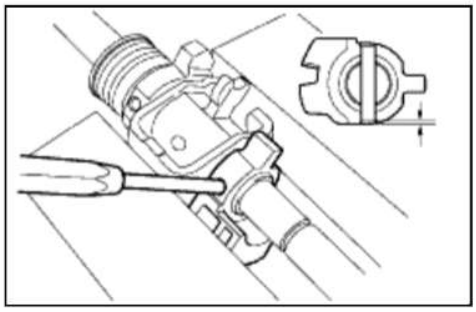
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(b) Using a pin punch (φ5 mm) and a hammer, install the shift interlock plate, inner No. 1 shift lever, and shift inner lever slotted spring pin onto the shift and select lever shaft.

Driven in depth:
-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

4. INSTALL INNER NO. 2 SHIFT LEVER

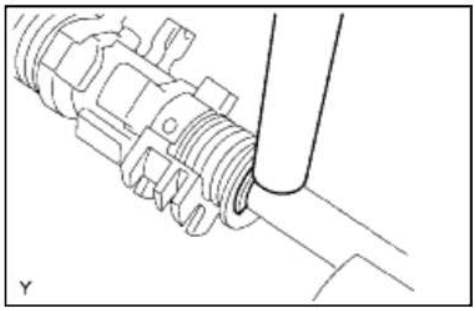


(a) Coat the inner No. 2 shift lever with MP grease.

(b) Using a pin punch (φ5 mm) and a hammer, install the inner No. 2 shift lever and shift inner lever slotted spring pin onto the shift and select lever shaft.

Driven in depth:
1.0 to 2.0 mm (0.0394 to 0.0787 in.)

5. INSTALL NO. 2 SELECT SPRING SEAT

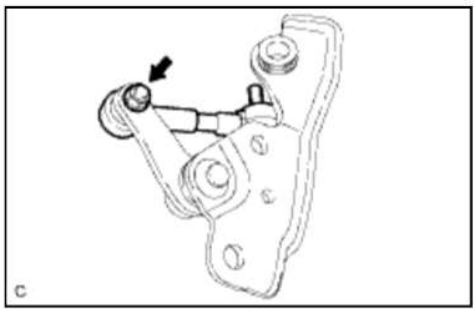


(a) Coat the No. 2 select spring seat with MP grease.

(b) Install the No. 2 select spring seat and compression spring. Using a brass bar and a hammer, install a new E-ring onto the shift and select lever shaft.

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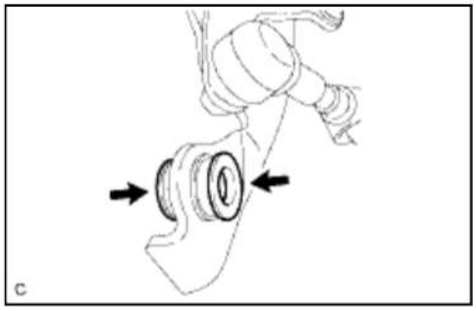
6. INSTALL FLOOR SHIFT CONTROL SHAFT ASSEMBLY



(a) Install the floor shift control shaft assembly to the selecting bellcrank support with the spring washer and nut.

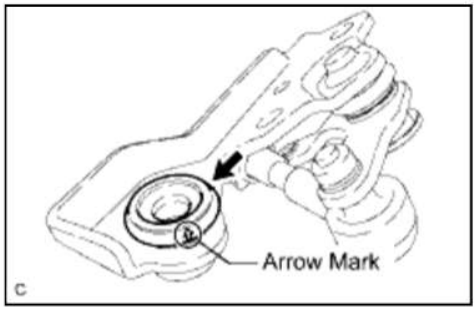
Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

7. INSTALL NO. 2 SELECTING BELLCRANK BUSHING



(a) Install 2 new No. 2 selecting bellcrank bushings to the selecting bellcrank support as shown in the illustration.

8. INSTALL NO. 2 SELECTING BELLCRANK DUST COVER



(a) Install the No. 2 selecting bellcrank dust cover to the selecting bellcrank support.

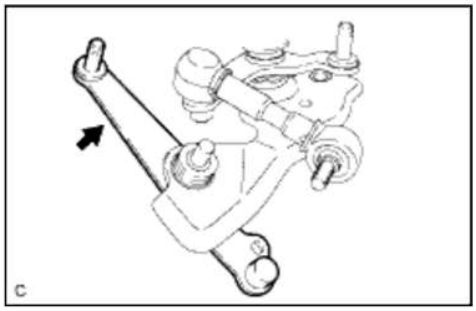
HINT:

Position the arrow mark direction as shown in the illustration.

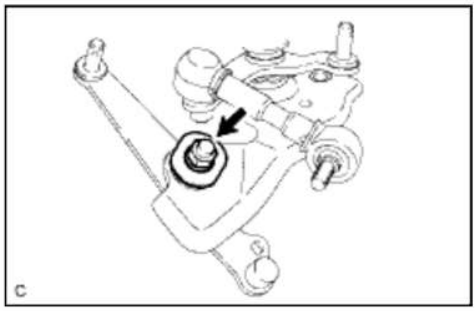
9. INSTALL SELECTING BELLCRANK

(a) Install the selecting bellcrank to the selecting bellcrank support.

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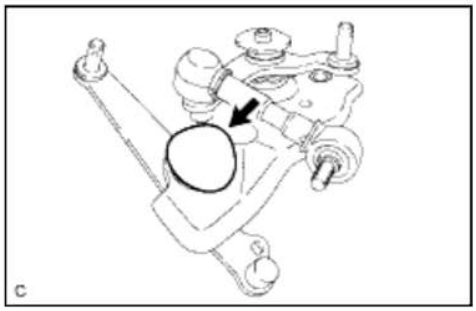
10. INSTALL NO. 2 SELECTING BELLCRANK PLATE WASHER



(a) Install the selecting bellcrank plate washer to the selecting bellcrank with the spring washer and nut.

Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

11. INSTALL NO. 1 SELECTING BELLCRANK DUST COVER

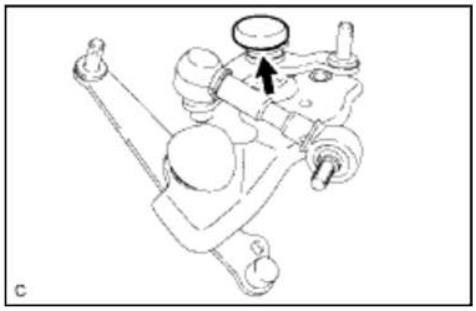


(a) Install the No. 1 selecting bellcrank dust cover to the selecting bellcrank.

12. INSTALL FLOOR SHIFT CONTROL BELLCRANK DUST COVER

(a) Install the floor shift control bellcrank dust cover to the selecting bellcrank assembly.

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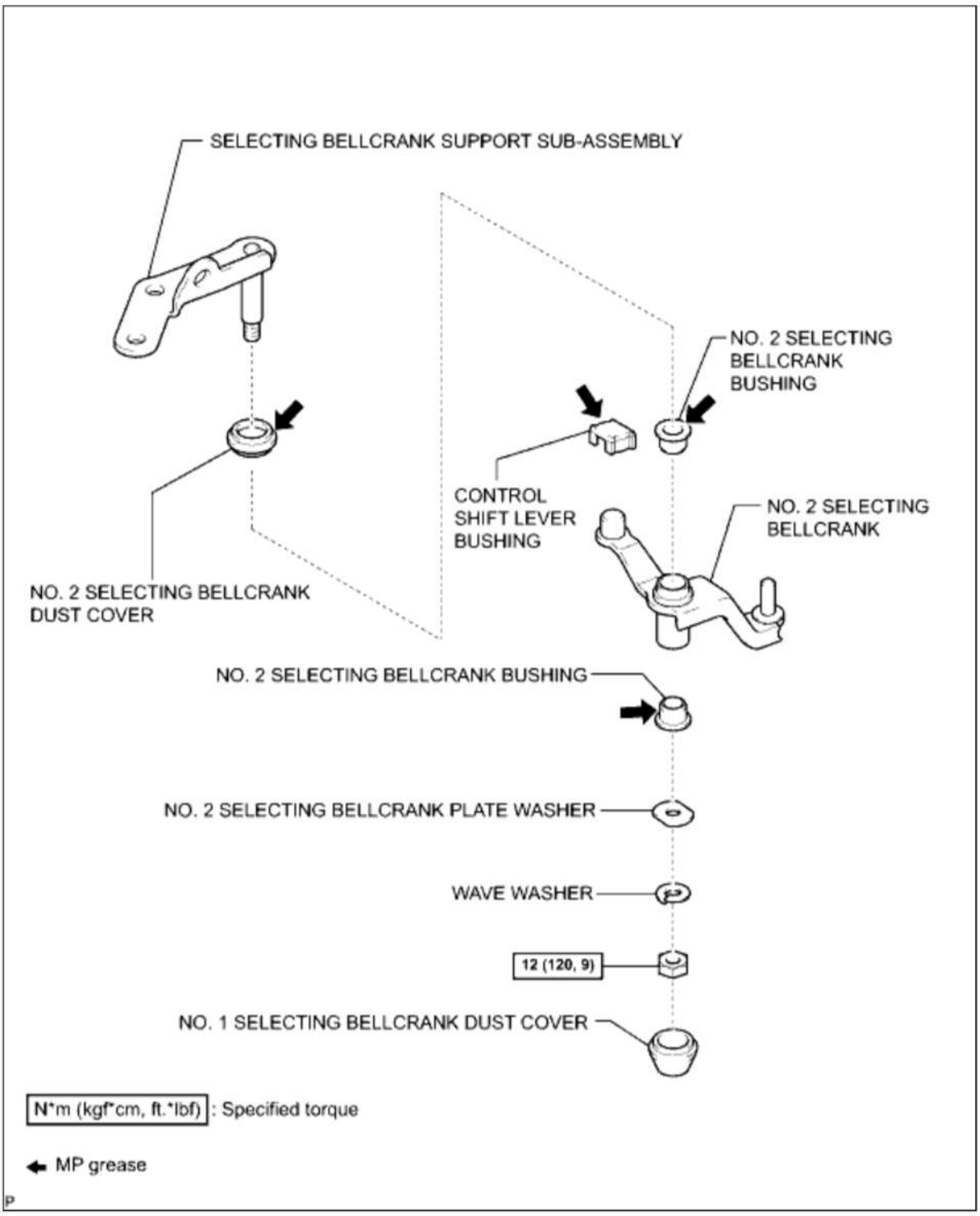
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2200DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: COMPONENTS (2010 Corolla)		

COMPONENTS

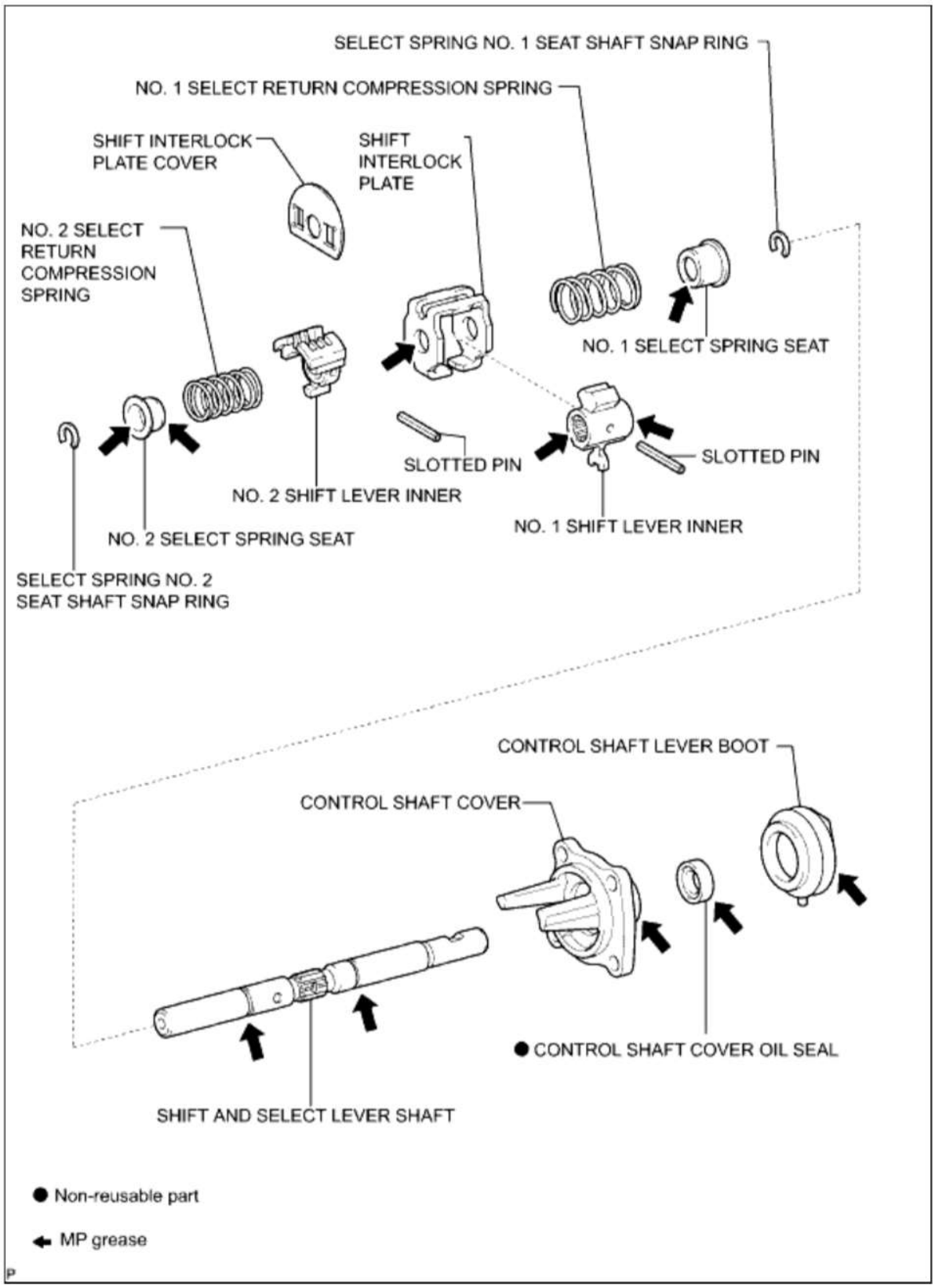
ILLUSTRATION

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ILLUSTRATION

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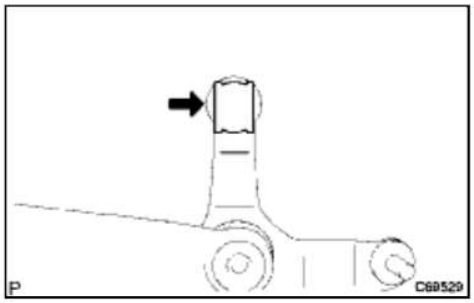


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2300DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: DISASSEMBLY (2010 Corolla)		

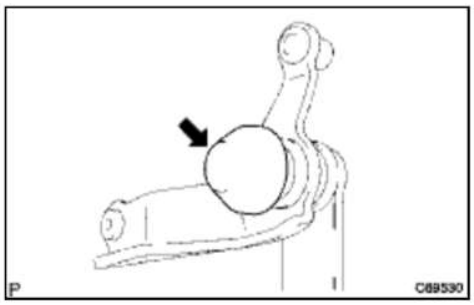
DISASSEMBLY

1. REMOVE CONTROL SHIFT LEVER BUSHING



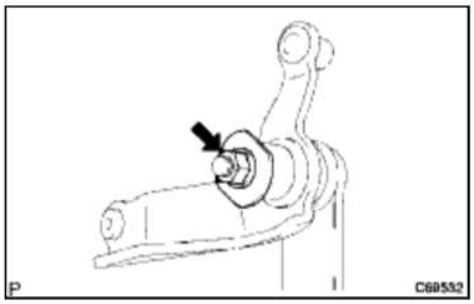
(a) Remove the control shift lever bushing from the No. 2 selecting bellcrank.

2. REMOVE NO. 1 SELECTING BELLCRANK DUST COVER



(a) Remove the No. 1 selecting bellcrank dust cover from the No. 2 selecting bellcrank.

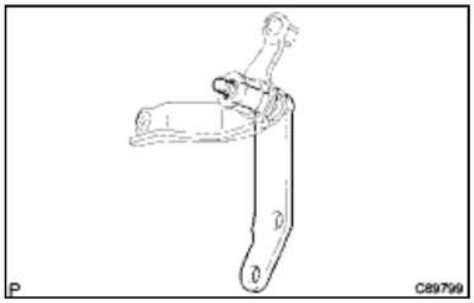
3. REMOVE SELECTING BELLCRANK SUPPORT SUB-ASSEMBLY



(a) Remove the nut, wave washer, and No. 2 selecting bellcrank plate washer from the No. 2 selecting bellcrank.

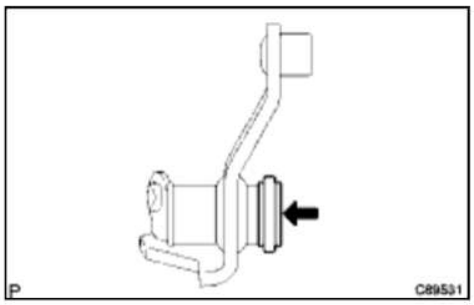
(b) Remove the selecting bellcrank support sub-assembly

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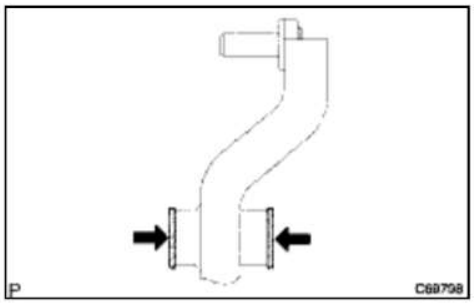
from the No. 2 selecting bellcrank.

4. REMOVE NO. 2 SELECTING BELLCRANK DUST COVER



(a) Remove the No. 2 selecting bellcrank dust cover from the No. 2 selecting bellcrank.

5. REMOVE NO. 2 SELECTING BELLCRANK BUSHING



(a) Remove the No. 2 selecting bellcrank bushing from the No. 2 selecting bellcrank.

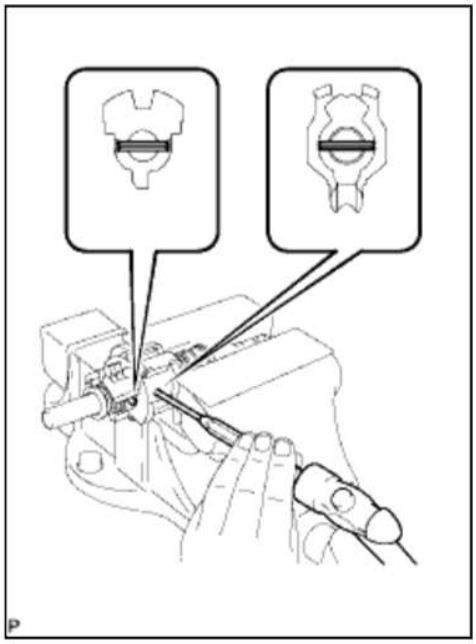
6. REMOVE NO. 2 SHIFT LEVER INNER

(a) Hold the shift and select lever shaft in a vise using aluminum plates.

NOTICE:

Do not damage the shift and select lever shaft.

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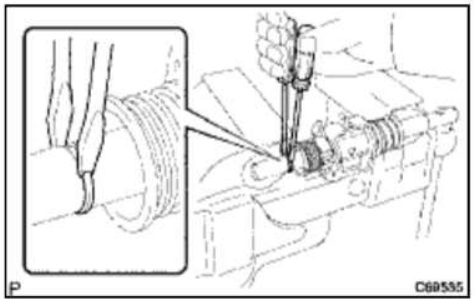


(b) Using a pin punch (φ 5 mm), remove the 2 shift inner lever slotted pins.

NOTICE:

Do not damage the shift and select lever shaft.

(c) Apply force to the No. 1 select return compression spring and No. 2 select return compression spring, then hold them in a vise using aluminum plates.



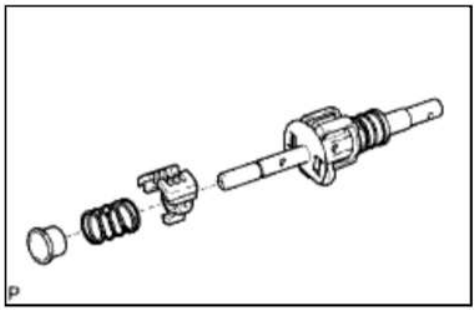
(d) Using 2 screwdrivers and a hammer, remove the select spring No. 2 seat snap ring from the shift and select lever shaft.

HINT:

Use a piece of cloth to keep the snap ring from flying.

NOTICE:

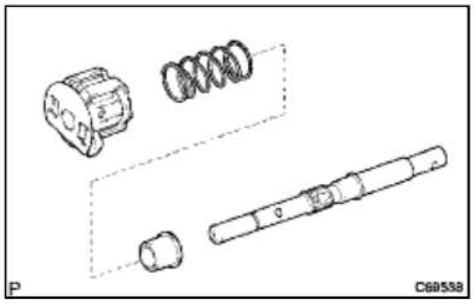
Do not damage the shift and select lever shaft.



(e) Remove the No. 2 select spring seat, No. 2 select return compression spring, and No. 2 shift lever inner from the shift and select lever shaft.

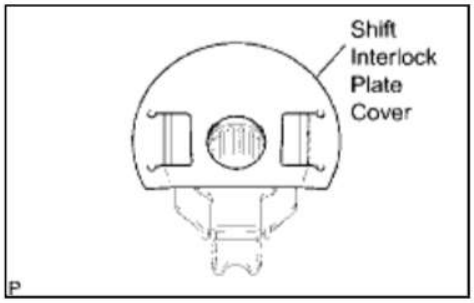
7. REMOVE NO. 1 SELECT SPRING SEAT

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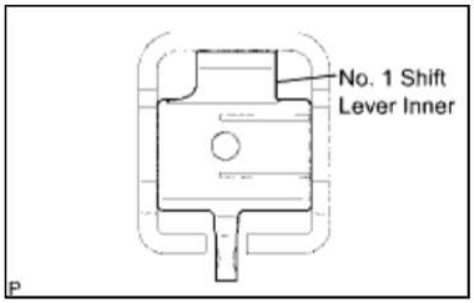
(a) Remove the shift interlock plate, No. 1 select return compression spring and No. 1 select spring seat from the shift and select lever shaft.

8. REMOVE SHIFT INTERLOCK PLATE COVER



(a) Remove the shift interlock plate cover from the shift interlock plate.

9. REMOVE NO. 1 SHIFT LEVER INNER



(a) Remove the No. 1 shift lever inner from the shift interlock plate.

10. REMOVE SELECT SPRING NO. 1 SEAT SHAFT SNAP RING

(a) Using 2 screwdrivers and a hammer, remove the select spring No. 1 seat shaft snap ring.

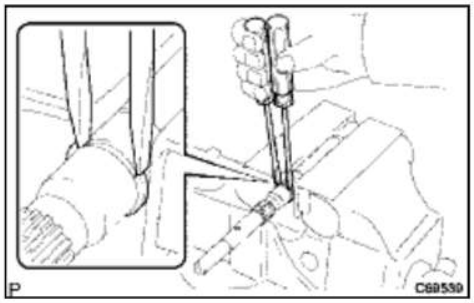
HINT:

Use a piece of cloth to keep the snap ring from flying.

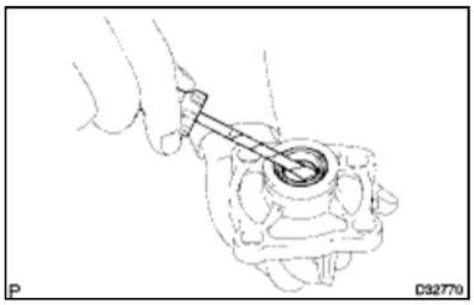
NOTICE:

Do not damage the shift and select lever shaft.

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11. REMOVE CONTROL SHAFT COVER OIL SEAL



(a) Using a screwdriver, remove the control shaft cover oil seal from the control shaft cover.

HINT:

Tape the screwdriver tip before use to avoid damage.

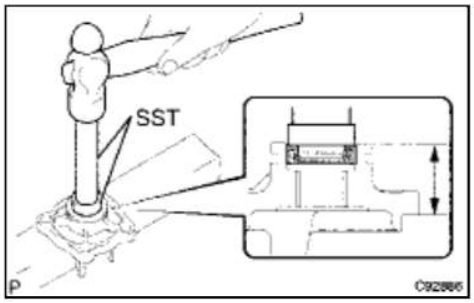
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000000Z2400DX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT AND SELECT LEVER SHAFT: REASSEMBLY (2010 Corolla)		

REASSEMBLY

1. INSTALL CONTROL SHAFT COVER OIL SEAL



(a) Using SST and a hammer, install a new control shaft cover oil seal to the control shaft cover.

SST: 09950-60010

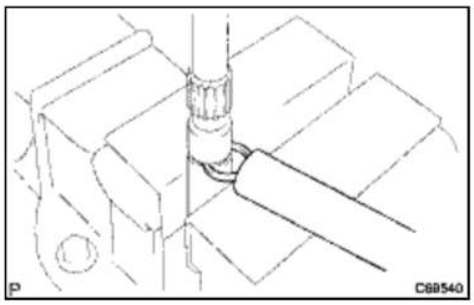
09951-00280

SST: 09950-70010

09951-07100

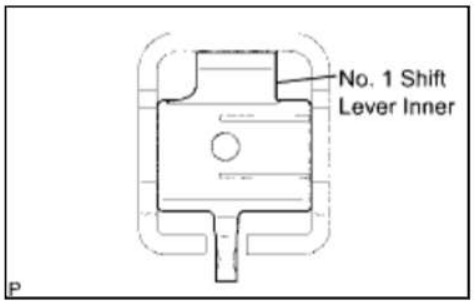
Oil seal installation depth:
28.0 to 29.0 mm (1.1024 to 1.142 in.)

2. INSTALL SELECT SPRING NO. 1 SEAT SHAFT SNAP RING



(a) Using a brass bar and a hammer, install the select spring No. 1 seat shaft snap ring.

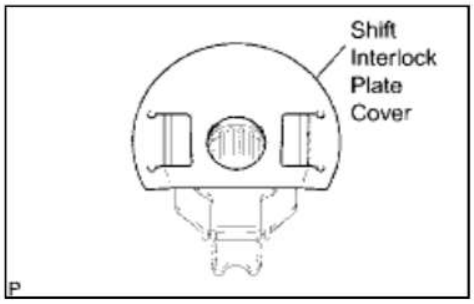
3. INSTALL NO. 1 SHIFT LEVER INNER



(a) Install the No. 1 shift lever inner to the shift interlock plate.

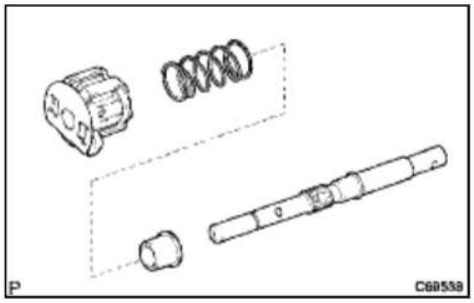
4. INSTALL SHIFT INTERLOCK PLATE COVER

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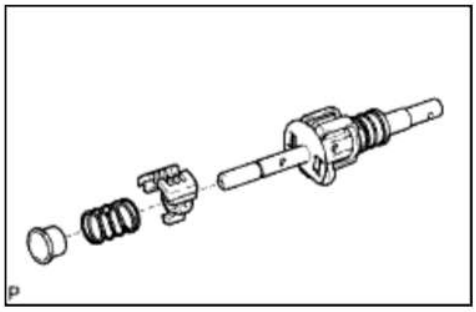
(a) Install the shift interlock plate cover to the shift interlock plate.

5. INSTALL NO. 1 SELECT SPRING SEAT



(a) Install the No. 1 select spring seat, No. 1 select return compression spring, and shift interlock plate to the shift and select lever shaft.

6. INSTALL NO. 2 SHIFT LEVER INNER



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

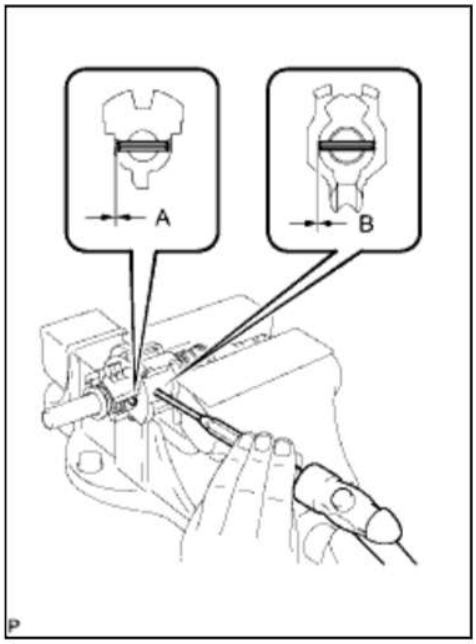
(b) Hold the shift and select lever in a vise using aluminum plates.

(c) Using a brass bar and a hammer, install the select seat snap ring to the shift and select lever shaft.

(d) Using a pin punch (φ 5 mm) and a hammer, install the 2 shift inner lever slotted pins to the shift and select lever shaft.

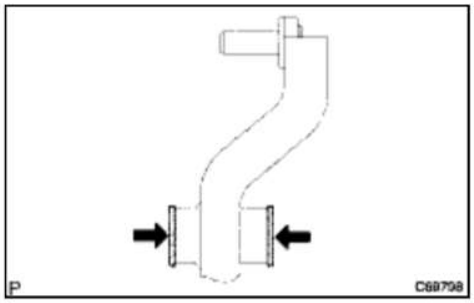
Clearance A:
0.7 to 1.7 mm (0.0276 to 0.0669 in.)
Clearance B:

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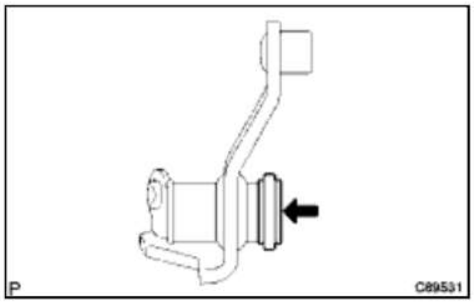
-0.4 to 0.5 mm (-0.0157 to 0.0197 in.)

7. INSTALL NO. 2 SELECTING BELLCRANK BUSHING



(a) Coat the 2 No. 2 selecting bellcrank bushings with MP grease and install them to the No. 2 selecting bellcrank.

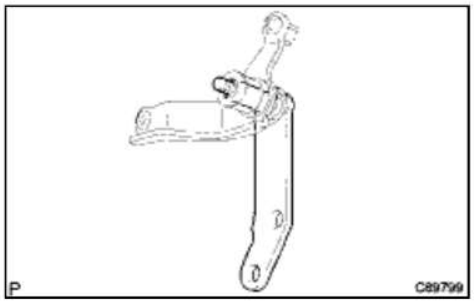
8. INSTALL NO. 2 SELECTING BELLCRANK DUST COVER



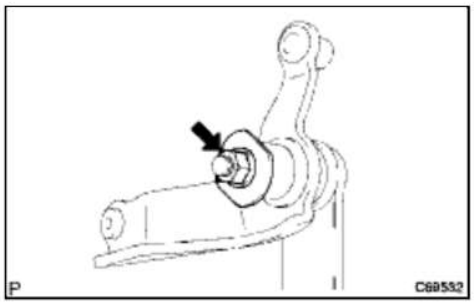
(a) Coat the No. 2 selecting bellcrank dust cover with MP grease and install it to the No. 2 selecting bellcrank.

9. INSTALL SELECTING BELLCRANK SUPPORT SUB-ASSEMBLY

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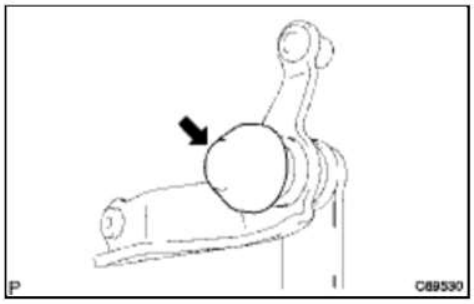
(a) Install the selecting bellcrank support sub-assembly to the No. 2 selecting bellcrank.



(b) Install the No. 2 selecting bellcrank plate washer, wave washer, and nut.

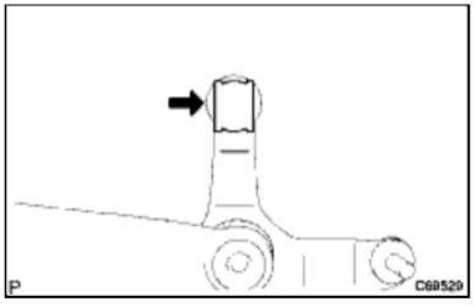
Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

10. INSTALL NO. 1 SELECTING BELLCRANK DUST COVER



(a) Install the No. 1 selecting bellcrank dust cover to the No. 2 selecting bellcrank.

11. INSTALL CONTROL SHIFT LEVER BUSHING



(a) Install the control shift lever bushing to the No. 2 selecting bellcrank.

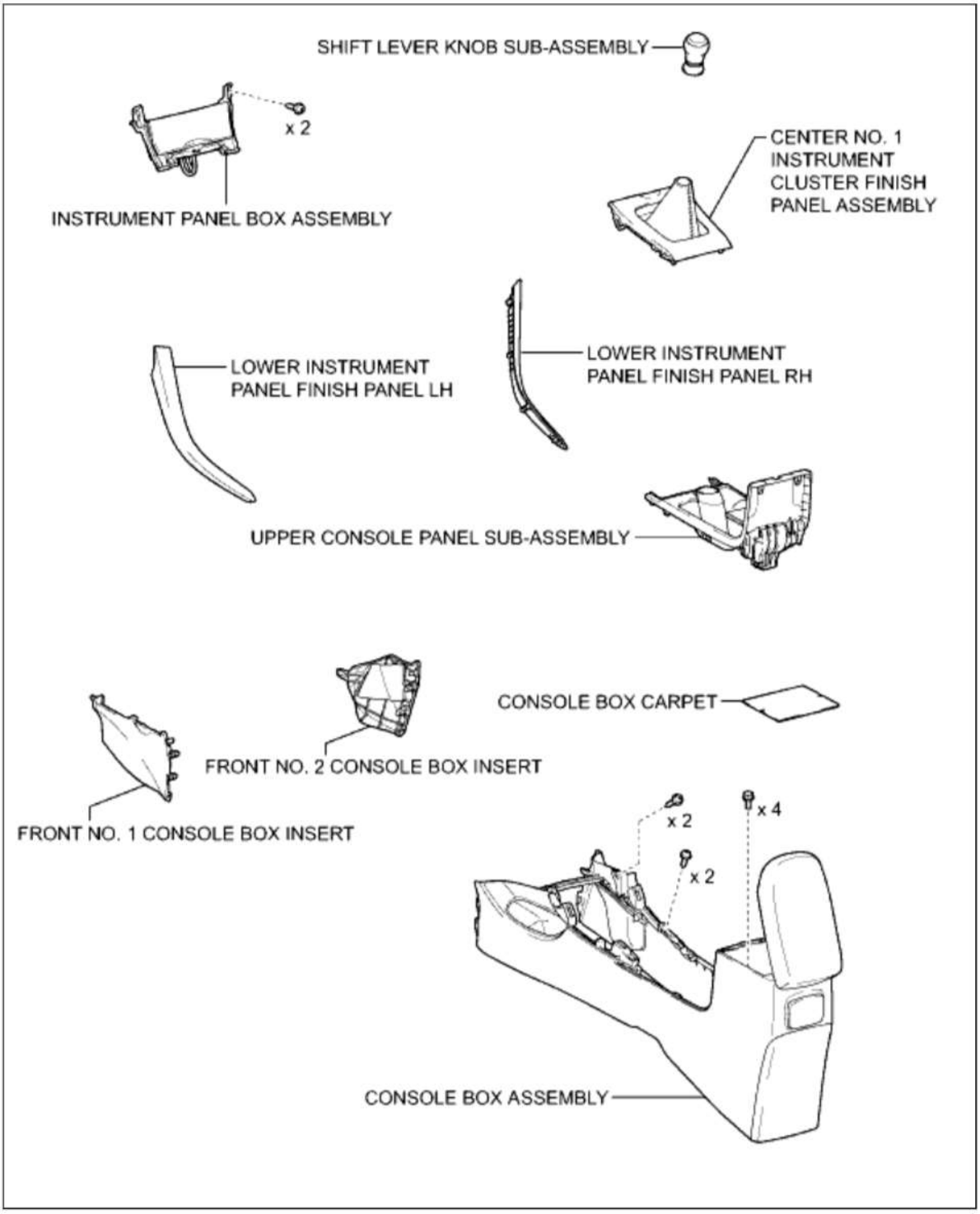
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZO01SX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: COMPONENTS (2010 Corolla)		

COMPONENTS

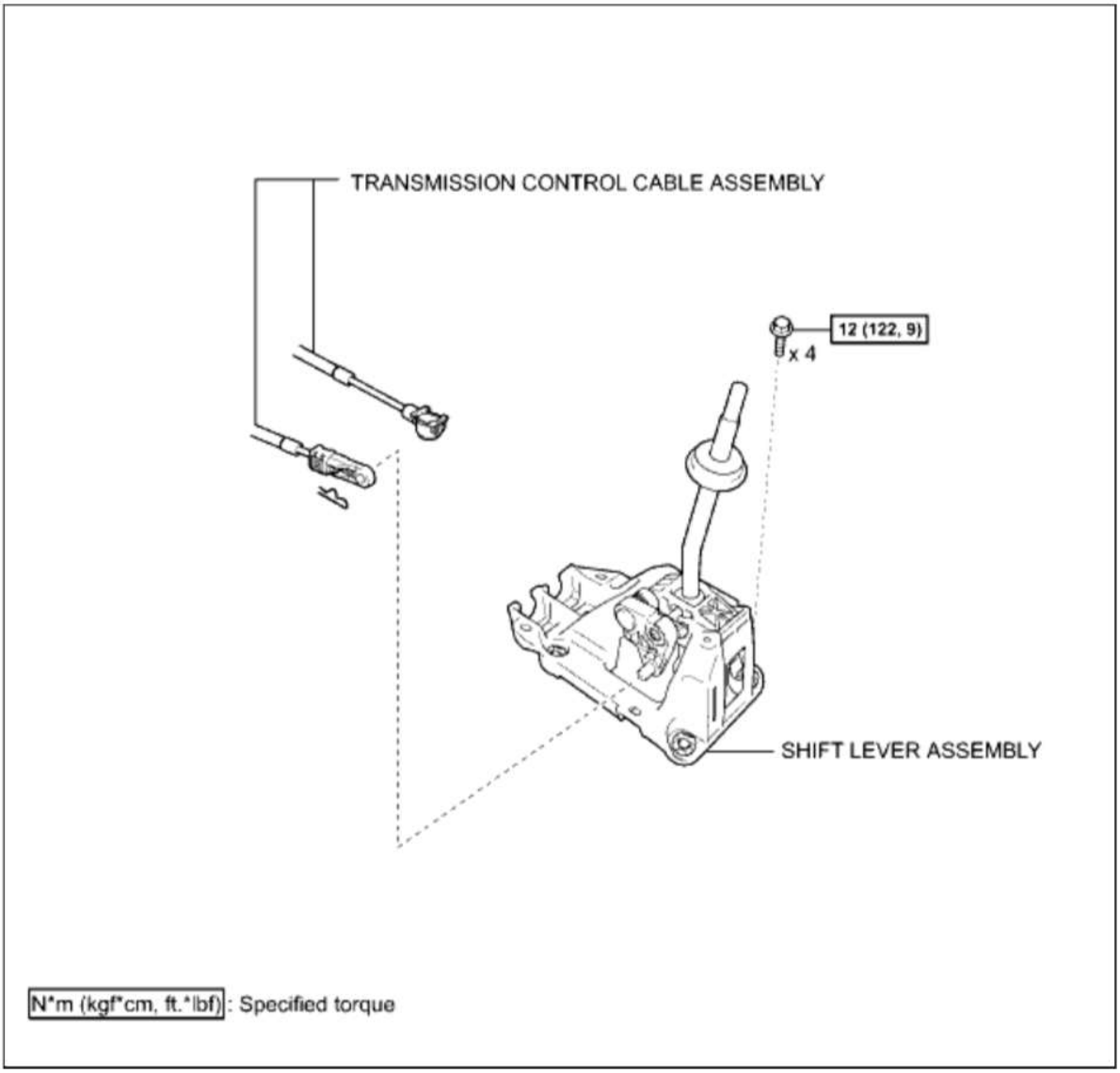
ILLUSTRATION

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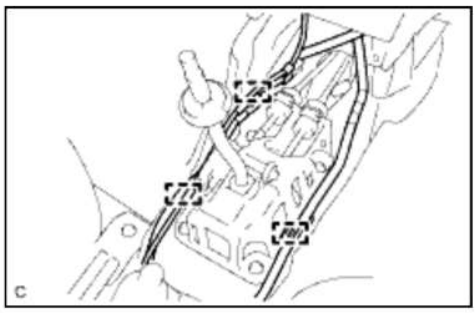
TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZP01XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

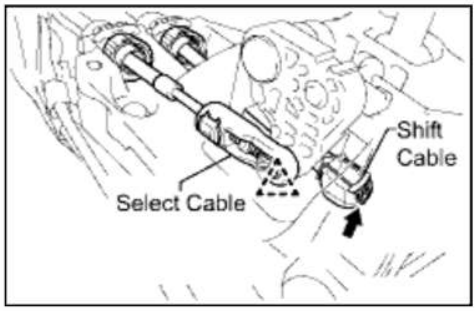
1. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH** INFO
2. **REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH** INFO
3. **REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY** INFO
4. **REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY** INFO
5. **REMOVE INSTRUMENT PANEL BOX ASSEMBLY** INFO
6. **REMOVE FRONT NO. 1 CONSOLE BOX INSERT** INFO
7. **REMOVE FRONT NO. 2 CONSOLE BOX INSERT** INFO
8. **REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY** INFO
9. **REMOVE CONSOLE BOX CARPET** INFO
10. **REMOVE CONSOLE BOX ASSEMBLY** INFO
11. **DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY**



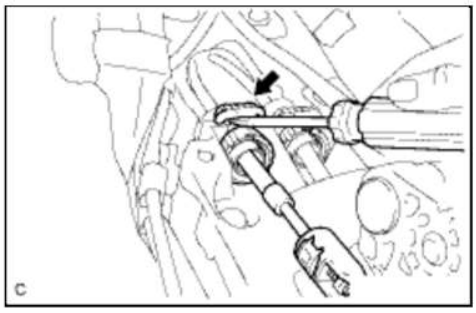
(a) Separate the 3 clamps, and disconnect the wire harness from the shift lever assembly.

(b) Remove the clip and disconnect the control select cable from the shift lever assembly.

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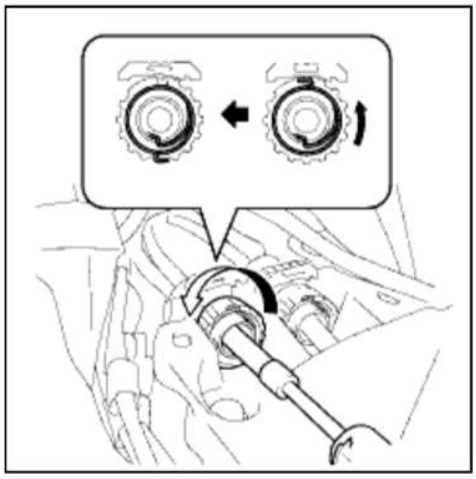
(c) Disconnect the control shift cable from the shift lever assembly.



(d) Using a screwdriver, pull out the transmission control cable.

NOTICE:

Do not remove the stopper. If it is removed, reinstall it to its original position.



(e) Rotate the nut counterclockwise approximately 180° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

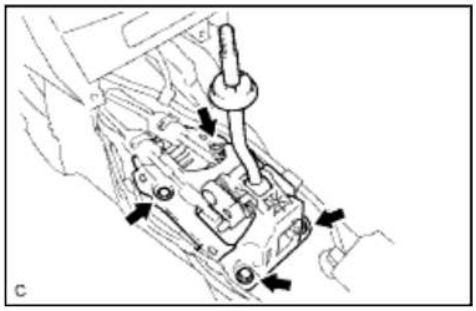
NOTICE:

Do not rotate the nut excessively as it may damage the internal spring and the transmission control cable will not be reusable.

12. REMOVE SHIFT LEVER ASSEMBLY

(a) Remove the 4 bolts and the shift lever assembly.

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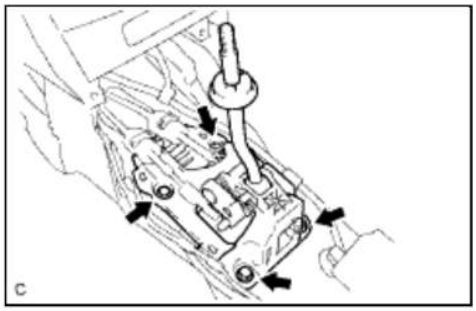


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZN01XX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: INSTALLATION (2010 Corolla)		

INSTALLATION

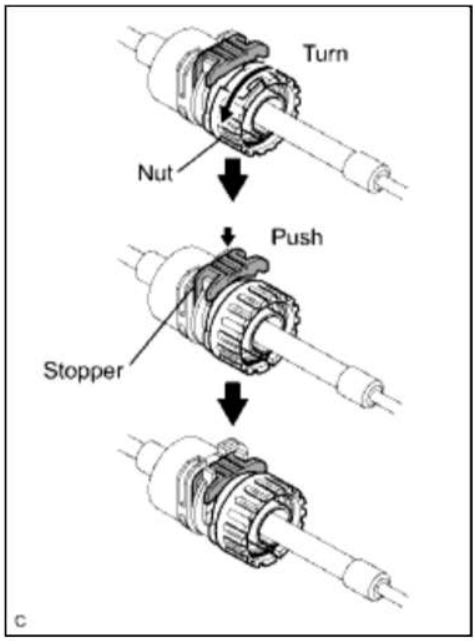
1. INSTALL SHIFT LEVER ASSEMBLY



(a) Install the shift lever assembly with the 4 bolts.

Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

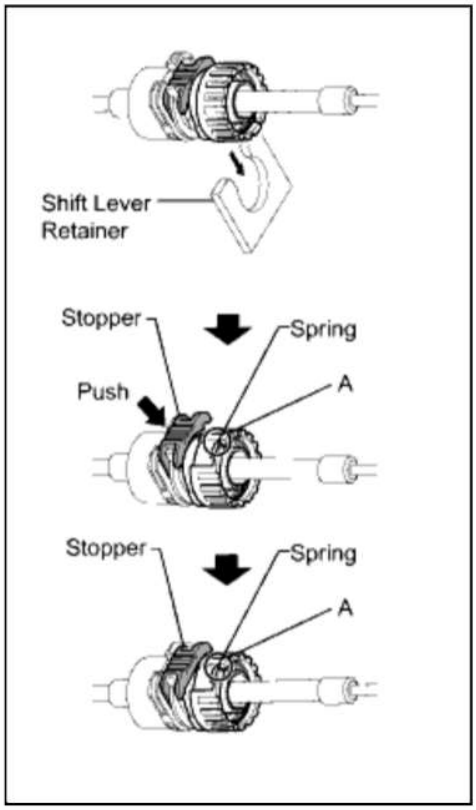
2. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY



(a) Rotate the transmission control cable nut counterclockwise approximately 180° and, while holding the nut in that position, push in the stopper until it makes 2 "click" sounds.

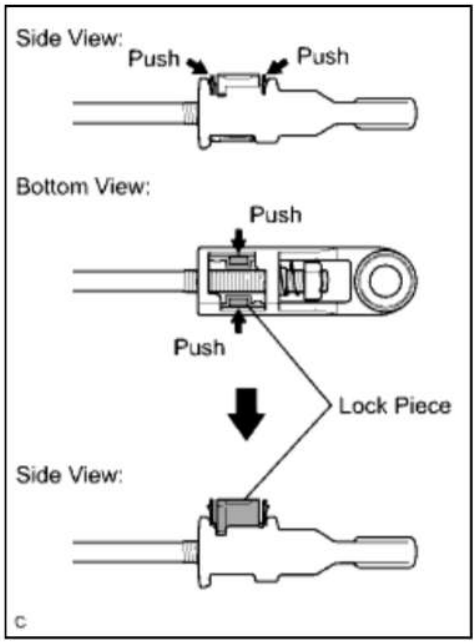
(b) Install the outer part of the transmission control cable to the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and push in the stopper.

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HINT:

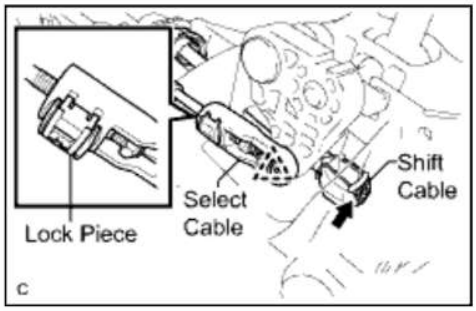
If the stopper cannot be pushed in, slightly rotate the nut clockwise and then push in the stopper.



(c) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece toward each other and upward to pull out the lock piece.

(d) Install the transmission control shift cable to the shift lever assembly.

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(e) Install the control select cable to the shift lever assembly.

NOTICE:

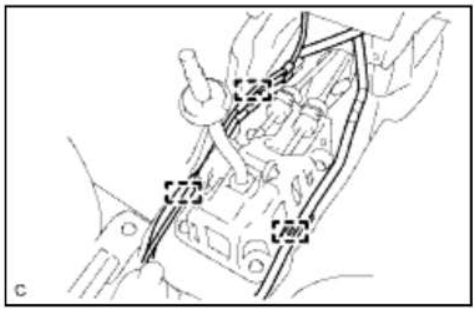
- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(f) Install the clip to the shift lever assembly.

(g) Press in and lock the lock piece to the adjuster case.

NOTICE:

Securely press in the lock piece until the lock engages.



(h) Install the wire harness to the shift lever assembly with the 3 clamps.

3. ADJUST TRANSMISSION CONTROL SELECT CABLE INFO

4. INSTALL CONSOLE BOX ASSEMBLY INFO

5. INSTALL CONSOLE BOX CARPET INFO

6. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

7. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

8. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

9. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

10. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

11. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY INFO

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12. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

13. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO



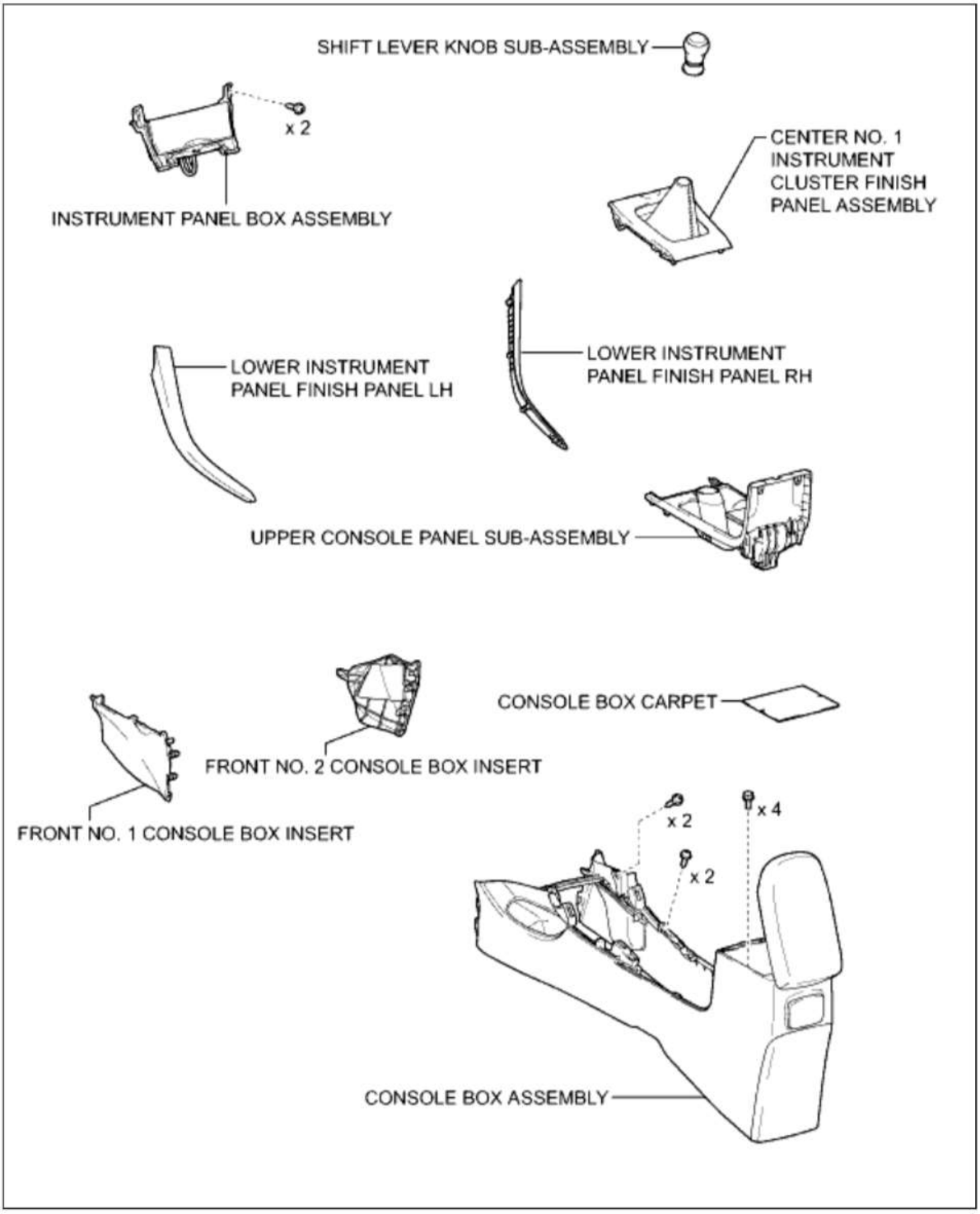
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZO01TX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: COMPONENTS (2010 Corolla)		

COMPONENTS

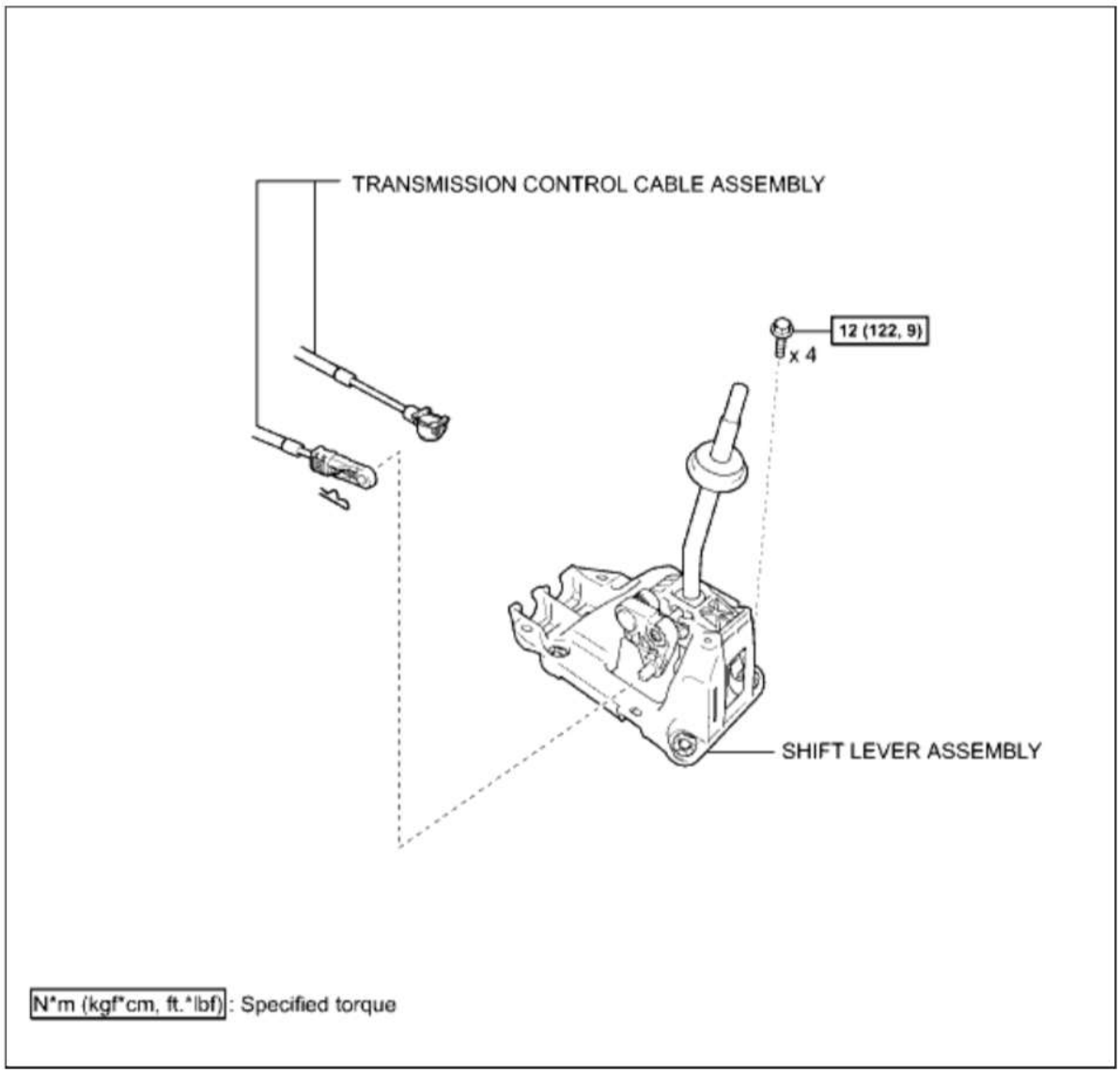
ILLUSTRATION

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TOYOTA

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZP01YX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: REMOVAL (2010 Corolla)		

REMOVAL

1. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

2. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

3. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY INFO

4. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

5. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

6. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

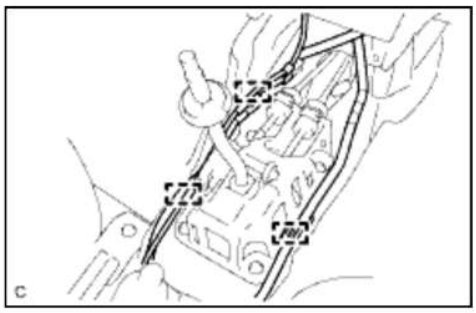
7. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

8. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

9. REMOVE CONSOLE BOX CARPET INFO

10. REMOVE CONSOLE BOX ASSEMBLY INFO

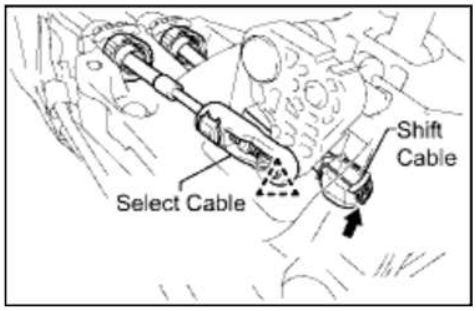
11. DISCONNECT TRANSMISSION CONTROL CABLE ASSEMBLY



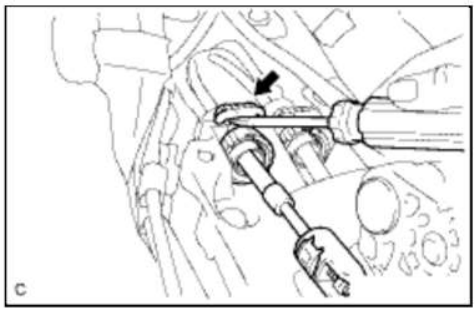
(a) Separate the 3 clamps, and disconnect the wire harness from the shift lever assembly.

(b) Remove the clip, and disconnect the control select cable from the shift lever assembly.

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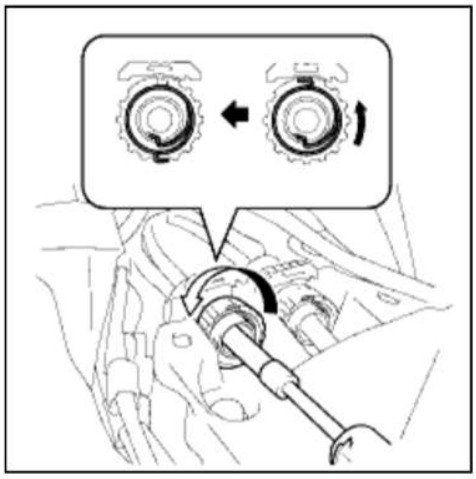
(c) Disconnect the control shift cable from the shift lever assembly.



(d) Using a screwdriver, pull out the transmission control cable stopper.

NOTICE:

Do not remove the stopper. If it is removed, reinstall it to its original position.



(e) Rotate the nut counterclockwise approximately 180° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

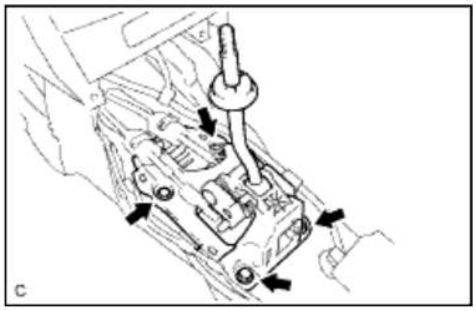
NOTICE:

Do not rotate the nut excessively as it may damage the internal spring and the transmission control cable will not be reusable.

12. REMOVE SHIFT LEVER ASSEMBLY

(a) Remove the 4 bolts and the shift lever assembly.

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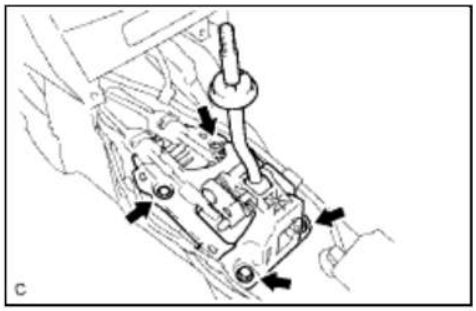


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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001VZN01YX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: SHIFT LEVER ASSEMBLY: INSTALLATION (2010 Corolla)		

INSTALLATION

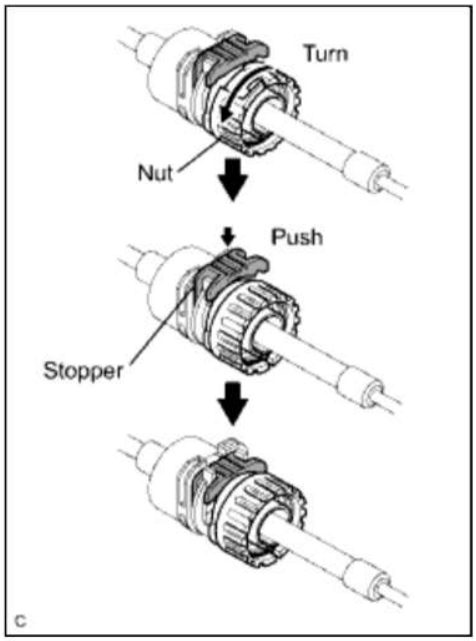
1. INSTALL SHIFT LEVER ASSEMBLY



(a) Install the shift lever assembly with the 4 bolts.

Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

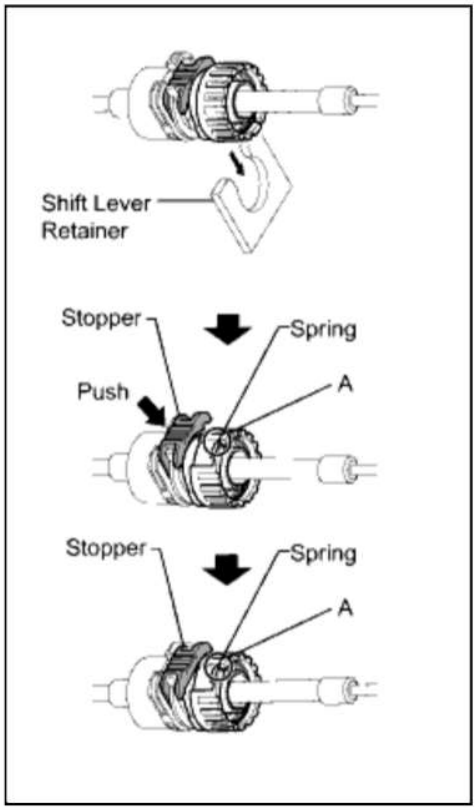
2. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY



(a) Rotate the transmission control cable nut counterclockwise approximately 180° and, while holding the nut in that position, push in the stopper until it makes 2 "click" sounds.

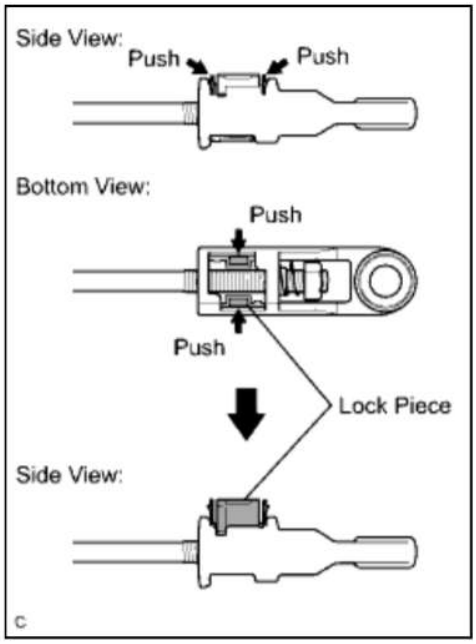
(b) Install the outer part of the transmission control cable to the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and push in the stopper.

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HINT:

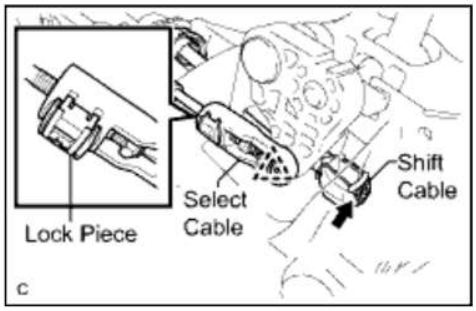
If the stopper cannot be pushed in, slightly rotate the nut clockwise and then push in the stopper.



(c) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece toward each other and upward to pull out the lock piece.

(d) Install the transmission control shift cable to the shift lever assembly.

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(e) Install the control select cable to the shift lever assembly.

NOTICE:

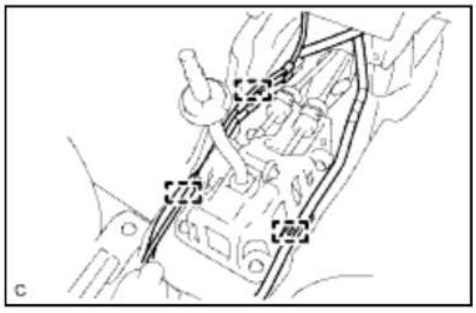
- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(f) Install the clip to the shift lever assembly.

(g) Press in and lock the lock piece to the adjuster case.

NOTICE:

Securely press in the lock piece until the lock engages.



(h) Install the wire harness to the shift lever assembly with the 3 clamps.

3. ADJUST TRANSMISSION CONTROL SELECT CABLE INFO

4. INSTALL CONSOLE BOX ASSEMBLY INFO

5. INSTALL CONSOLE BOX CARPET INFO

6. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

7. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

8. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

9. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

10. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

11. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY INFO

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12. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

13. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO



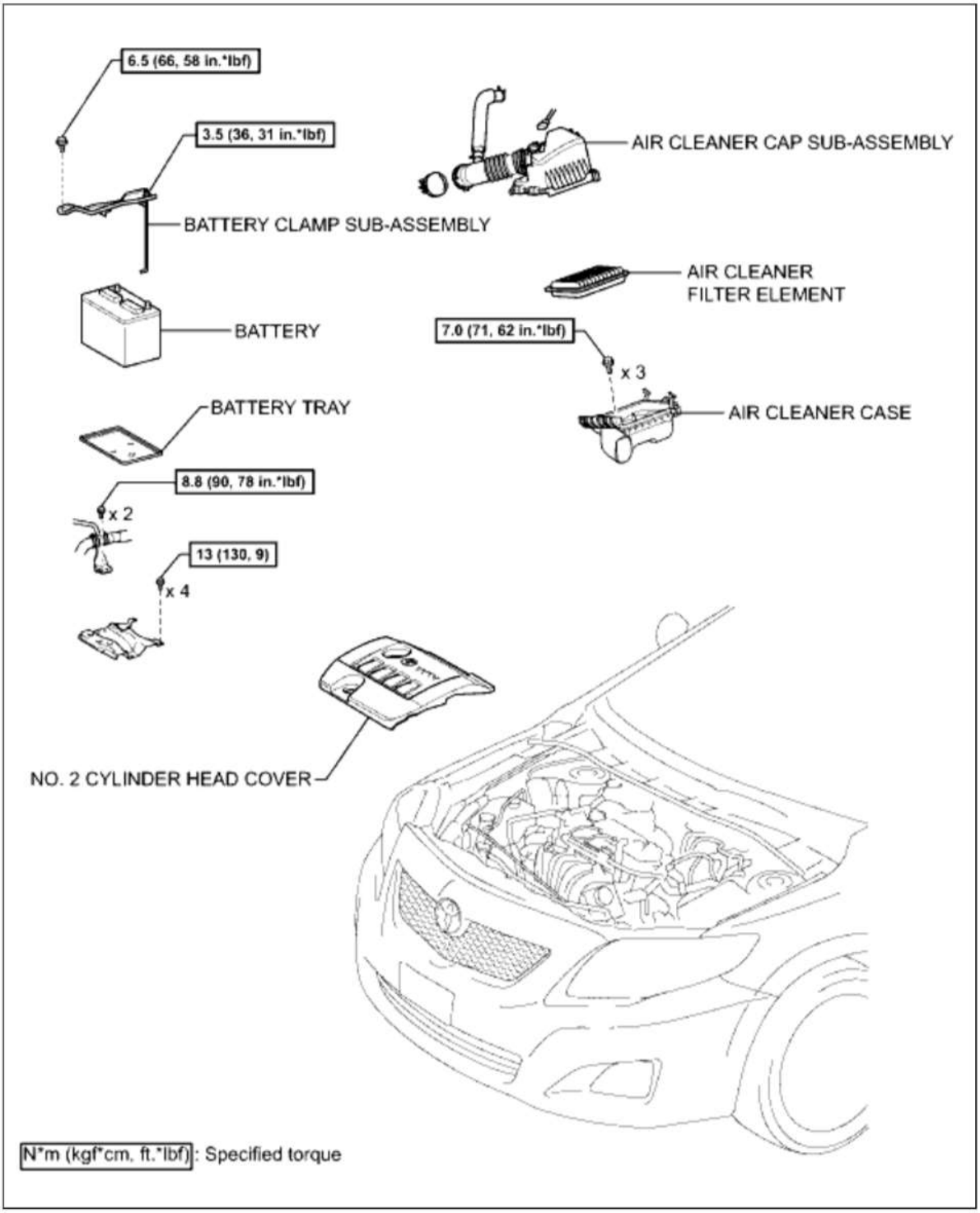
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHF01PX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: COMPONENTS (2010 Corolla)		

COMPONENTS

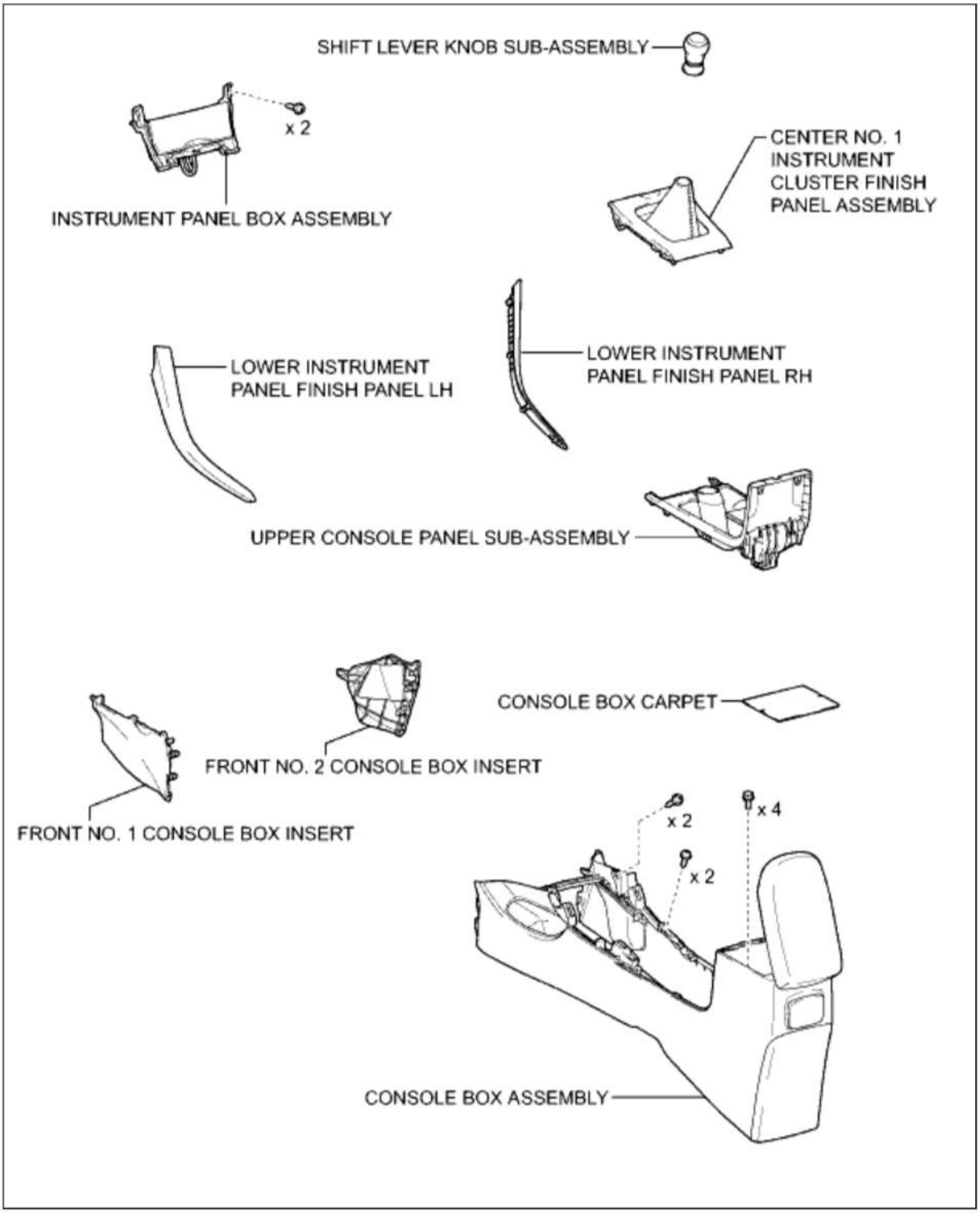
ILLUSTRATION

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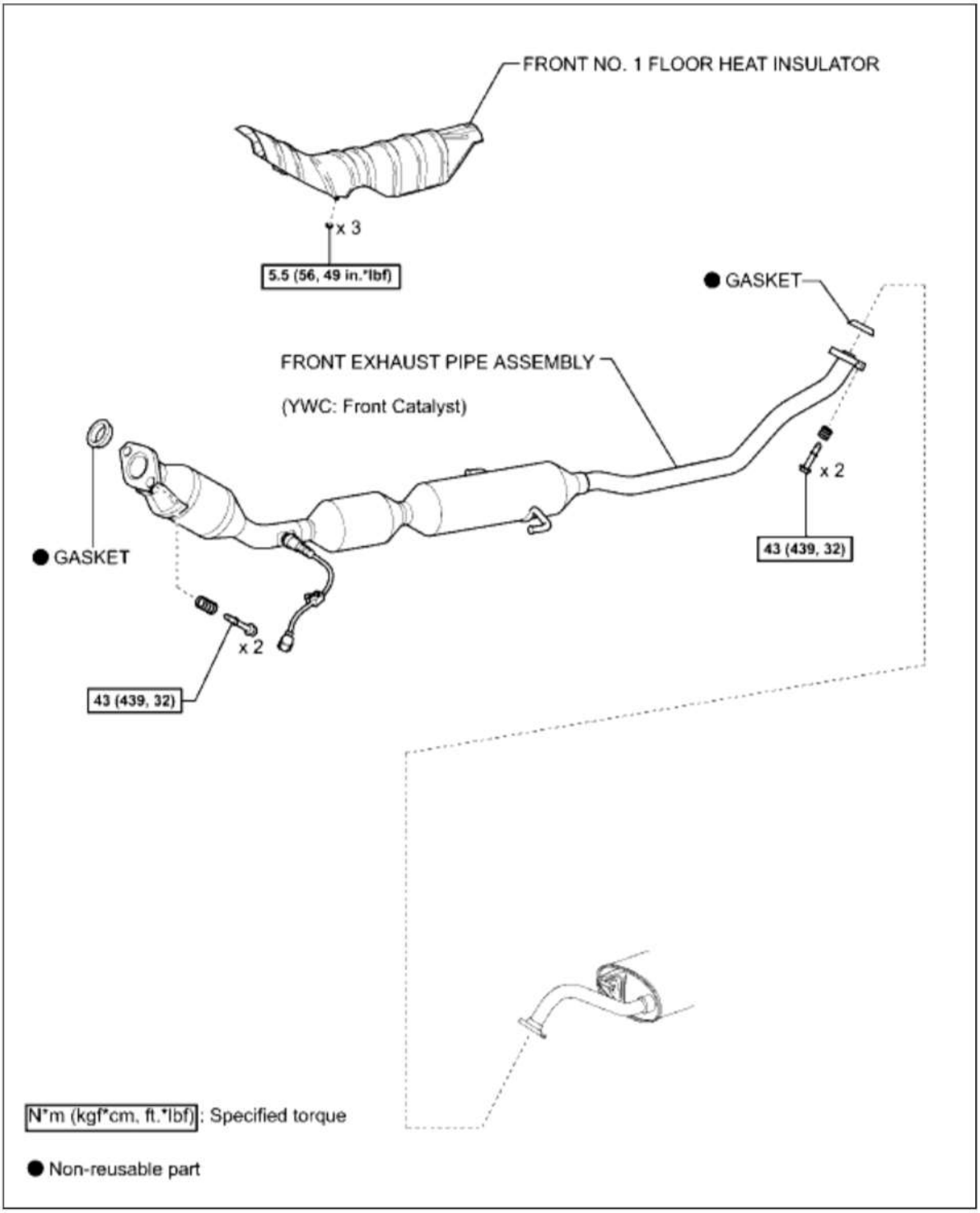
ILLUSTRATION

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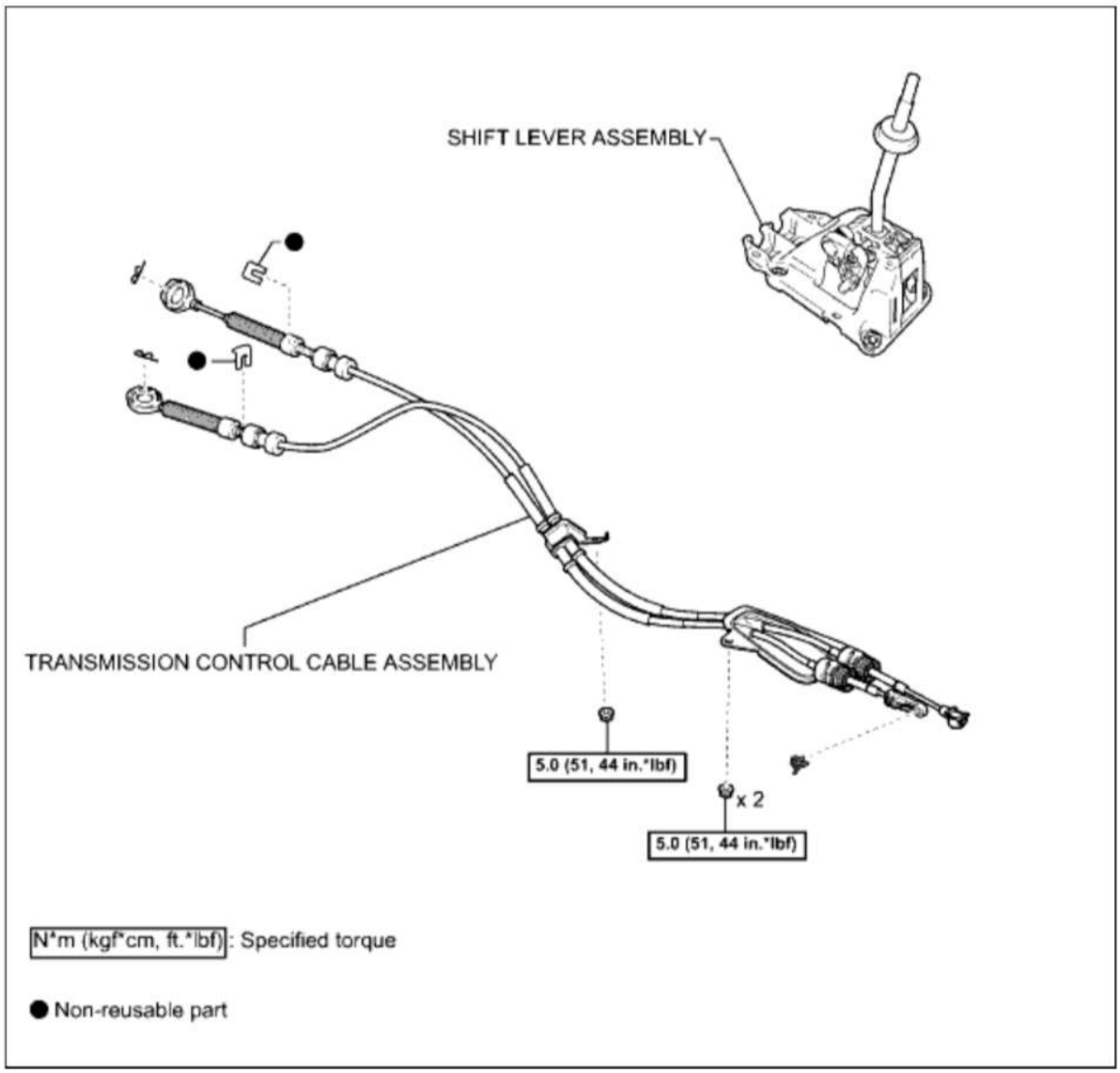
ILLUSTRATION

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ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHG01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: REMOVAL (2010 Corolla)		

REMOVAL

1. DISCONNECT CABLE FROM NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO .

2. REMOVE NO. 2 CYLINDER HEAD COVER INFO

3. REMOVE BATTERY INFO

4. REMOVE BATTERY TRAY

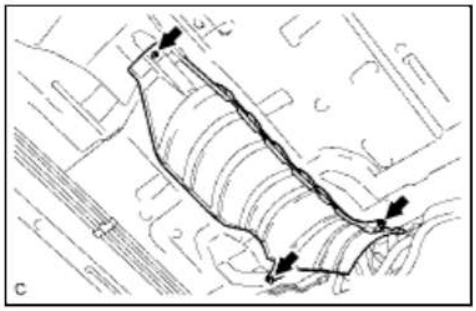
5. REMOVE BATTERY CARRIER INFO

6. REMOVE AIR CLEANER CAP SUB-ASSEMBLY INFO

7. REMOVE AIR CLEANER CASE INFO

8. REMOVE FRONT EXHAUST PIPE ASSEMBLY INFO

9. REMOVE FRONT NO. 1 FLOOR HEAT INSULATOR



(a) Remove the 3 nuts and remove the No. 1 front floor heat insulator.

10. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

11. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

12. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY INFO

13. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

14. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

15. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

16. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

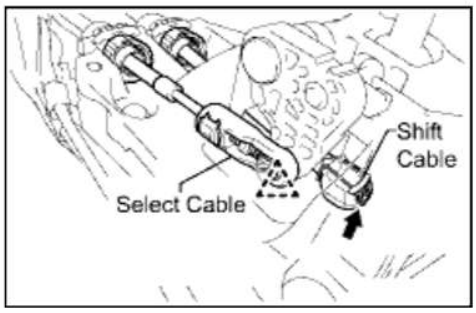
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17. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

18. REMOVE CONSOLE BOX CARPET INFO

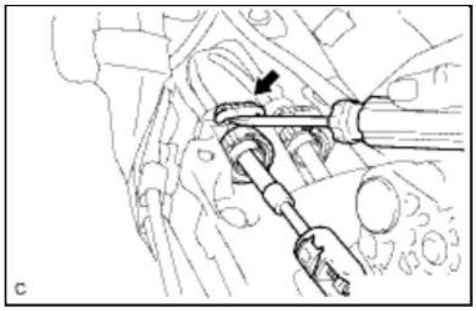
19. REMOVE CONSOLE BOX ASSEMBLY INFO

20. REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY



(a) Disconnect the control shift cable from the shift lever assembly.

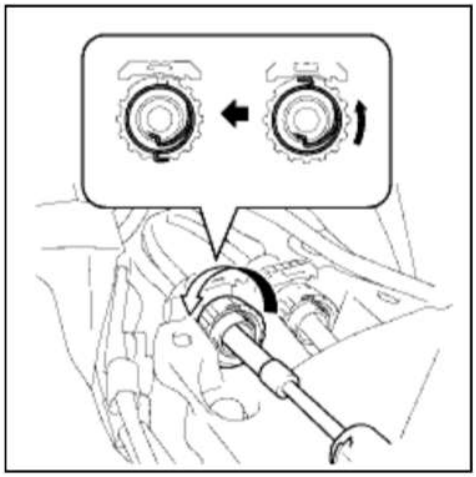
(b) Remove the clip and disconnect the control select cable from the shift lever assembly.



(c) Using a screwdriver, pull out the stopper of the transmission control cable.

NOTICE:

Do not remove the stopper. If it is removed, reinstall it to its original position.

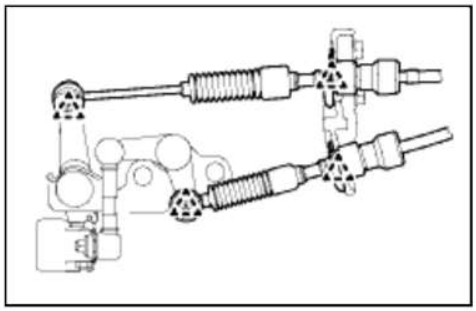


(d) Rotate the nut counterclockwise approximately 180° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

NOTICE:

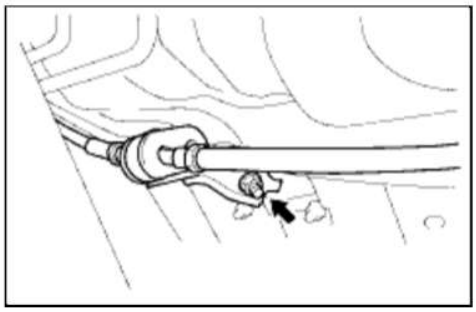
Do not rotate the nut excessively as it may damage the internal spring and the transmission control cable will not be reusable.

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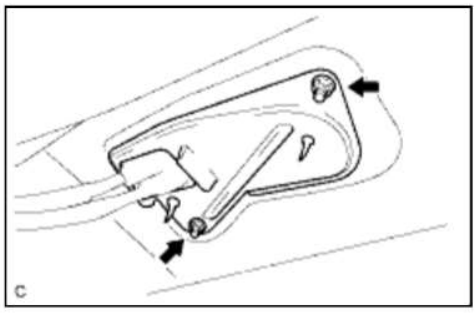


(e) Remove the 2 clips and disconnect the 2 transmission control cables from the transaxle.

(f) Remove the 2 clips and disconnect the 2 transmission control cables from the control cable bracket.



(g) Remove the nut and transmission control cable assembly.



(h) Remove the 2 nuts and transmission control cable assembly.

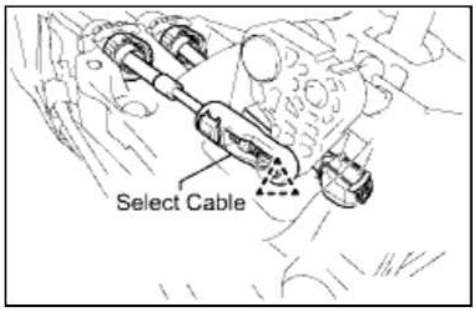
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Last Modified: 3-10-2010	6.4 N	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002YVY00VX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: ADJUSTMENT (2010 Corolla)		

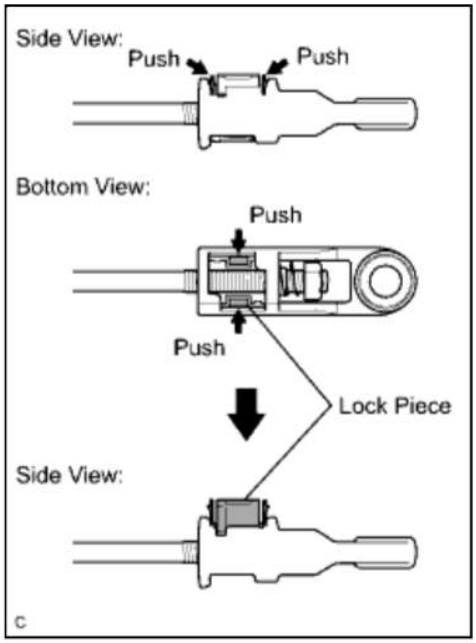
ADJUSTMENT

1. ADJUST TRANSMISSION CONTROL SELECT CABLE

(a) Remove the console box assembly INFO .



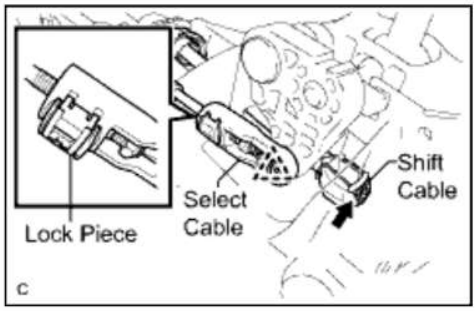
(b) Remove the clip and disconnect the control select cable from the shift lever assembly.



(c) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece toward each other and upward to pull out the lock piece.

(d) Install the transmission control shift cable to the shift lever assembly.

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(e) Install the control select cable to the shift lever assembly.

NOTICE:

- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(f) Install the clip to the shift lever assembly.

(g) Press in and lock the lock piece to the adjuster case.

NOTICE:

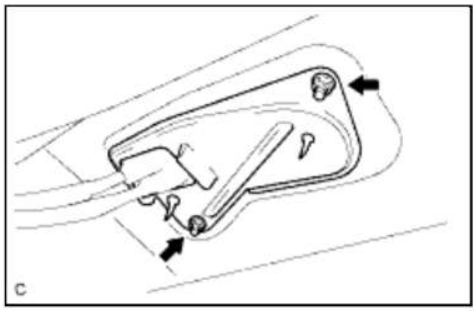
Securely press in the lock piece until the lock engages.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHE01UX
Title: C59 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: INSTALLATION (2010 Corolla)		

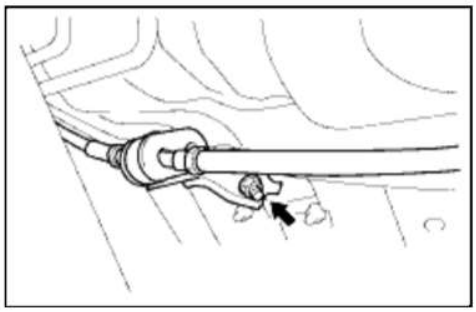
INSTALLATION

1. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY



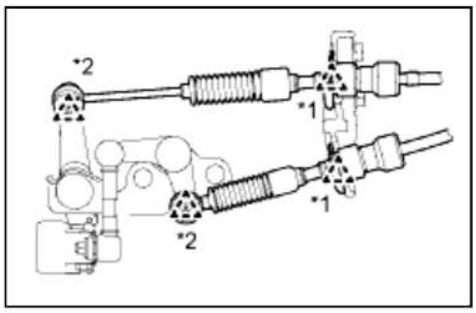
(a) Install the transmission control cable assembly with the 2 nuts.

Torque: 5.0 N·m (51 kgf·cm, 44in·lbf)



(b) Install the transmission control cable assembly with the nut.

Torque: 5.0 N·m (51 kgf·cm, 44in·lbf)

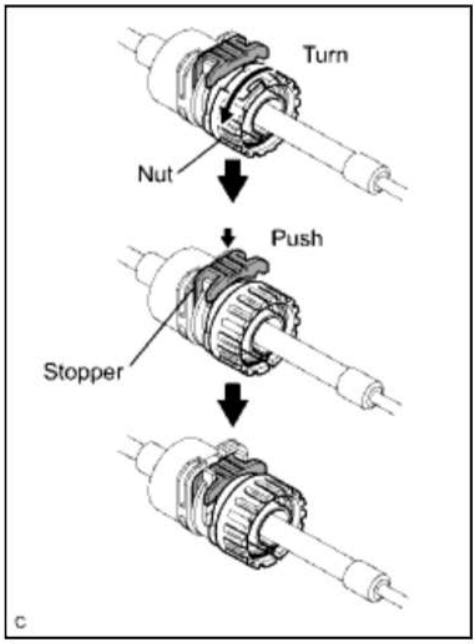


(c) Install the 2 transmission control cables to the control cable bracket with 2 new clips*1.

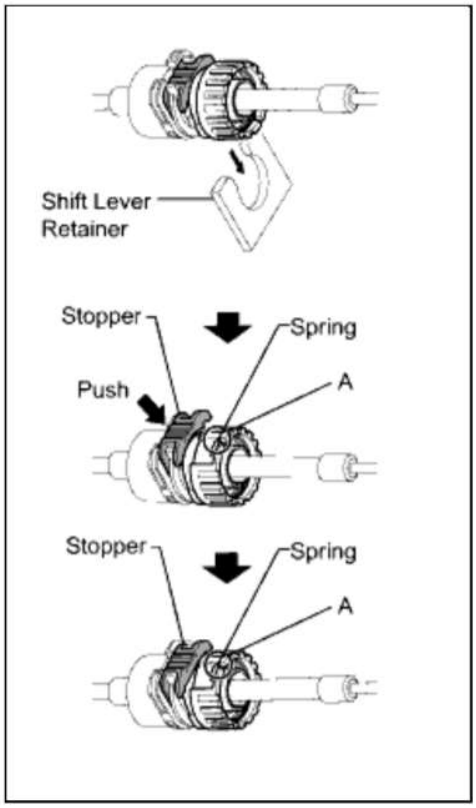
(d) Install the 2 transmission control cables to the transaxle with the 2 clips*2.

(e) Rotate the transmission control cable nut counterclockwise approximately 180° and, while holding

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the nut in that position, press in the stopper until it makes 2 "click" sounds.



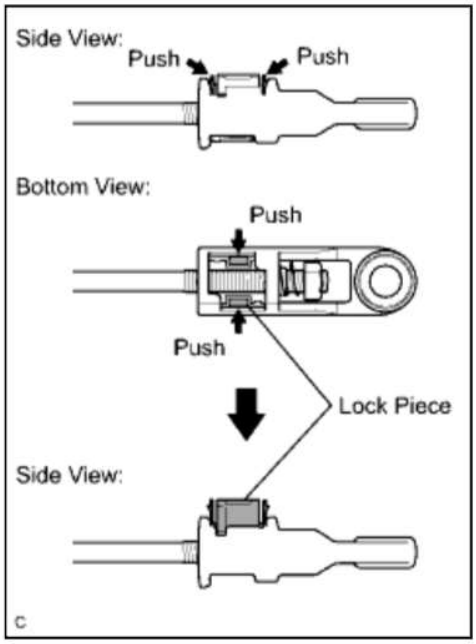
(f) Install the outer part of the transmission control cable to the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and push in the stopper.

HINT:

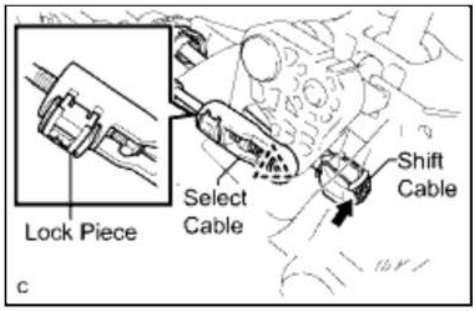
If the stopper cannot be pushed in, slightly rotate the nut clockwise and then push in the stopper.

(g) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece

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toward each other and upward to pull out the lock piece.



(h) Install the transmission control shift cable to the shift lever assembly.

(i) Install the control select cable to the shift lever assembly.

NOTICE:

- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(j) Install the clip to the shift lever assembly.

(k) Press in and lock the lock piece to the adjuster case.

NOTICE:

Securely press in the lock piece until the lock engages.

2. ADJUST TRANSMISSION CONTROL SELECT CABLE INFO

3. INSTALL CONSOLE BOX ASSEMBLY INFO

4. INSTALL CONSOLE BOX CARPET INFO

5. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

6. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

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7. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

8. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

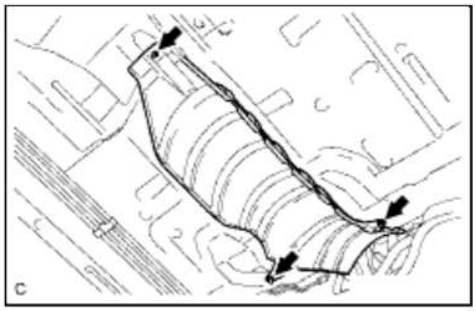
9. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

10. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY INFO

11. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

12. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

13. INSTALL FRONT NO. 1 FLOOR HEAT INSULATOR



(a) Install the No. 1 front floor heat insulator with the 3 nuts.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

14. INSTALL FRONT EXHAUST PIPE ASSEMBLY INFO

15. INSTALL AIR CLEANER CASE INFO

16. INSTALL AIR CLEANER CAP SUB-ASSEMBLY INFO

17. INSTALL BATTERY CARRIER INFO

18. INSTALL BATTERY TRAY

19. INSTALL BATTERY INFO

20. INSPECT FOR EXHAUST GAS LEAK

21. INSTALL NO. 2 CYLINDER HEAD COVER INFO

22. CONNECT CABLE TO NEGATIVE BATTERY TERMINAL

NOTICE:

When disconnecting the cable, some systems need to be initialized after the cable is reconnected INFO **.**

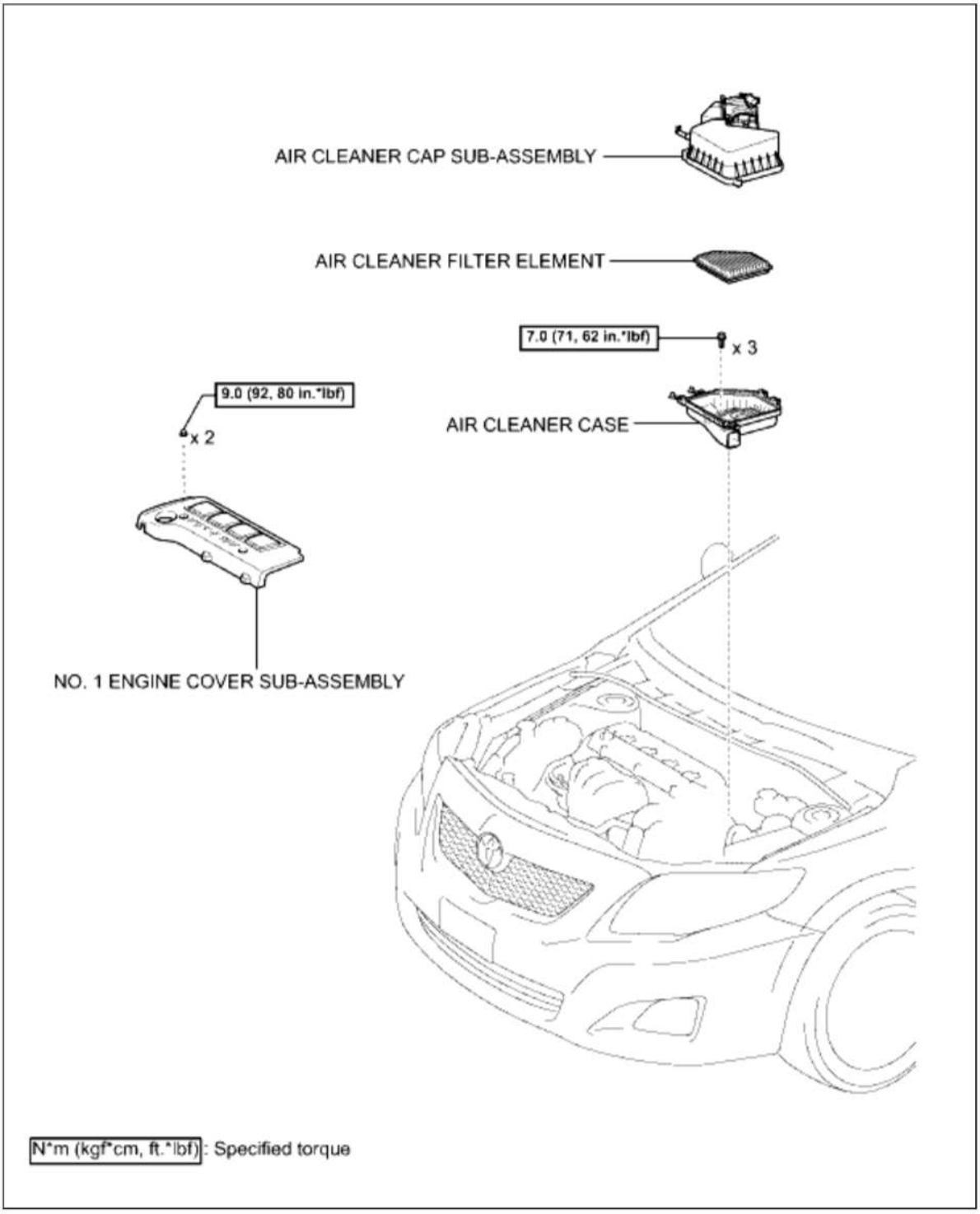
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Last Modified: 3-10-2010	6.4 K	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHF01QX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: COMPONENTS (2010 Corolla)		

COMPONENTS

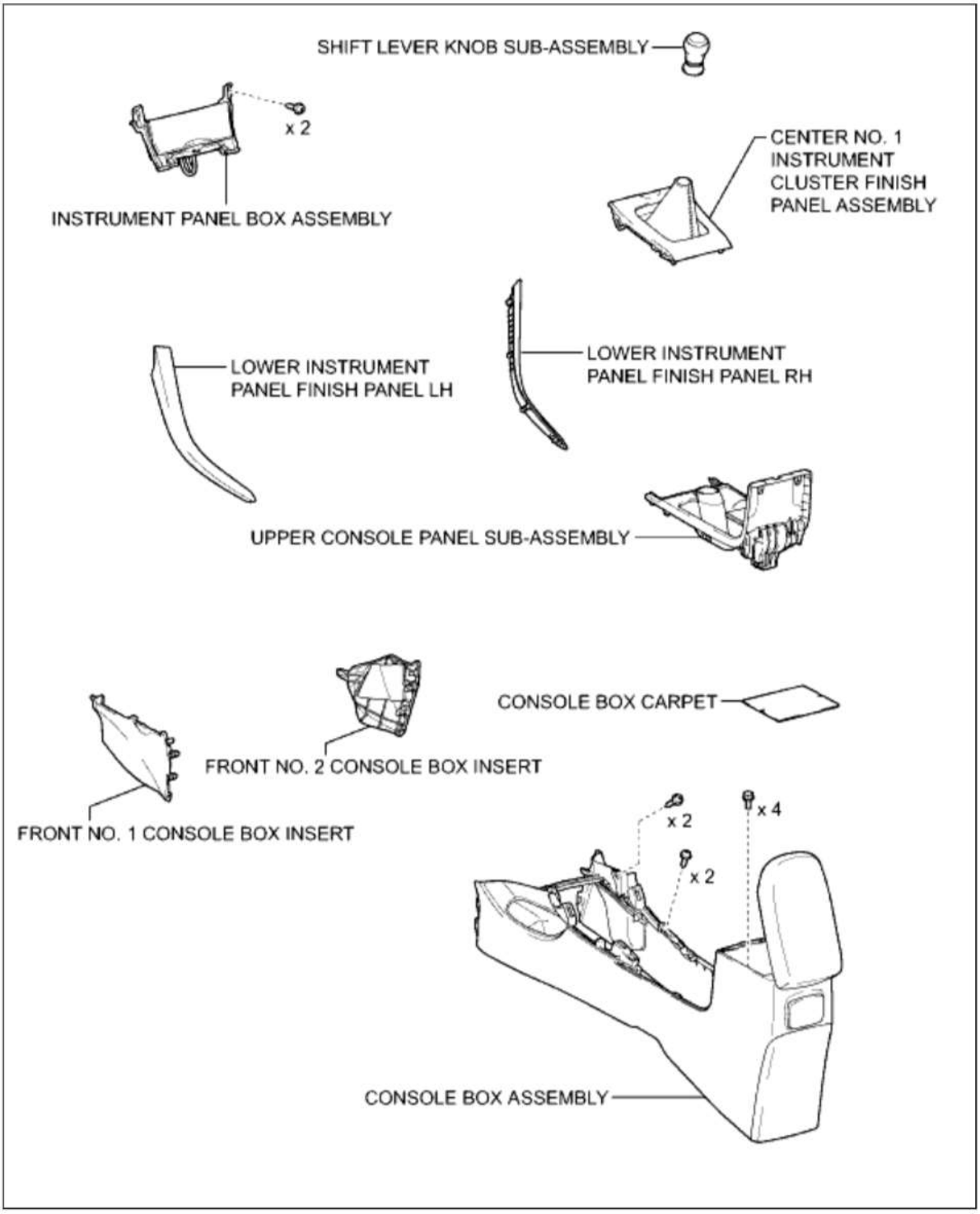
ILLUSTRATION

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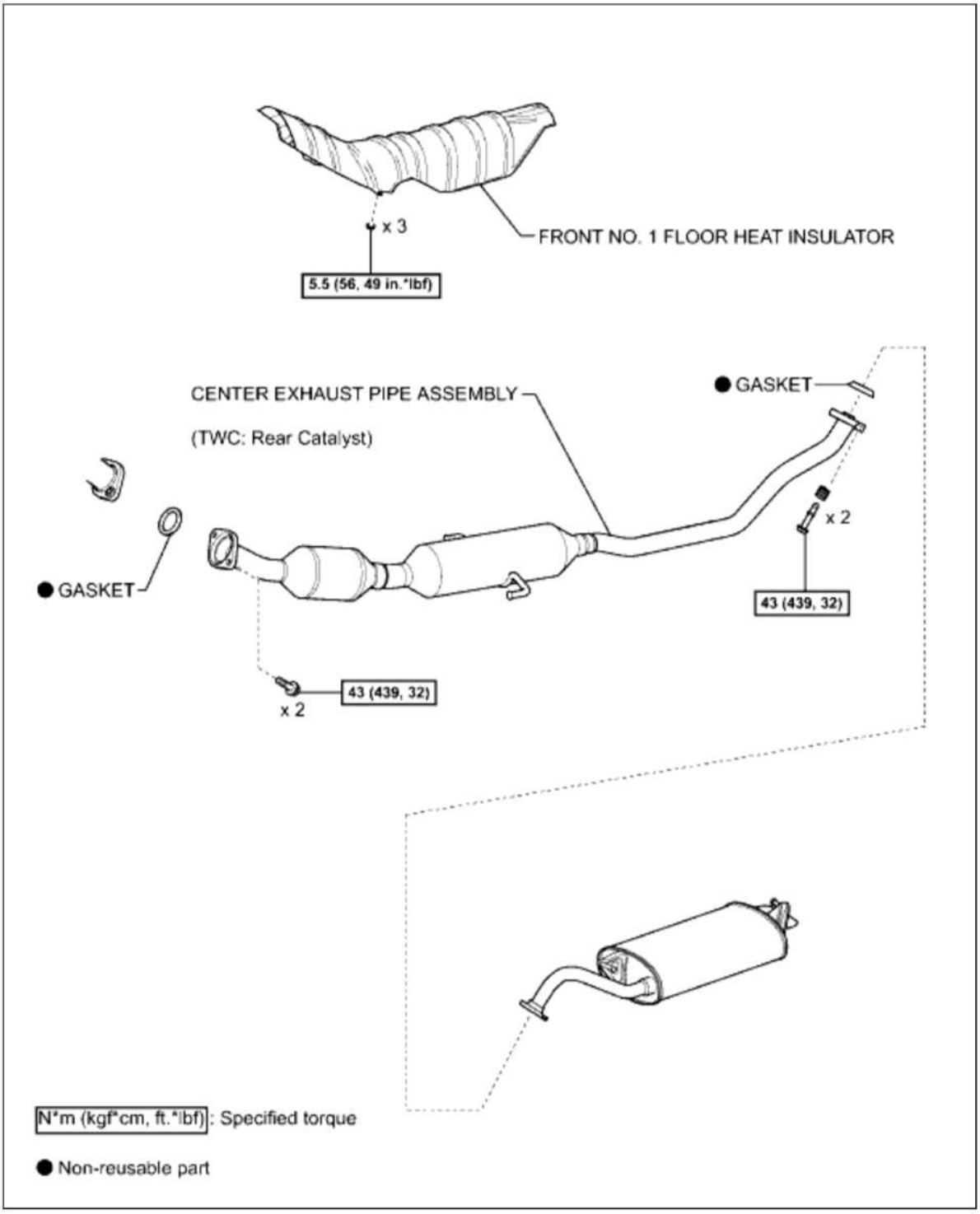
ILLUSTRATION

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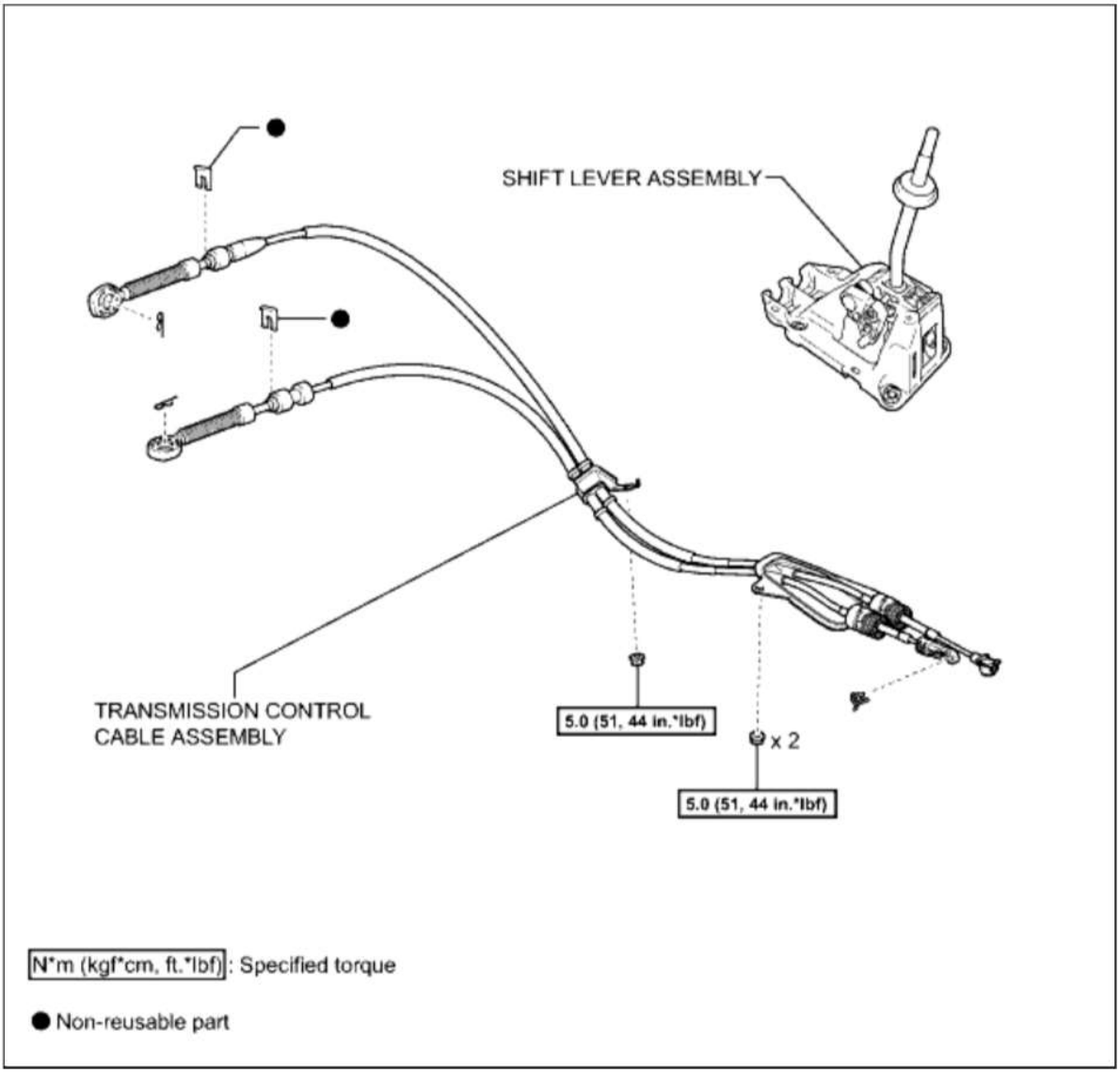
ILLUSTRATION

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ILLUSTRATION

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHG01VX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: REMOVAL (2010 Corolla)		

REMOVAL

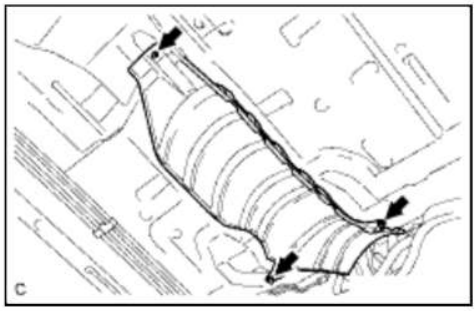
1. REMOVE NO. 1 ENGINE COVER SUB-ASSEMBLY INFO

2. REMOVE AIR CLEANER CAP SUB-ASSEMBLY INFO

3. REMOVE AIR CLEANER CASE INFO

4. REMOVE CENTER EXHAUST PIPE ASSEMBLY INFO

5. REMOVE FRONT NO. 1 FLOOR HEAT INSULATOR



(a) Remove the 3 nuts and remove the No. 1 front floor heat insulator.

6. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

7. REMOVE LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

8. REMOVE SHIFT LEVER KNOB SUB-ASSEMBLY INFO

9. REMOVE CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

10. REMOVE INSTRUMENT PANEL BOX ASSEMBLY INFO

11. REMOVE FRONT NO. 1 CONSOLE BOX INSERT INFO

12. REMOVE FRONT NO. 2 CONSOLE BOX INSERT INFO

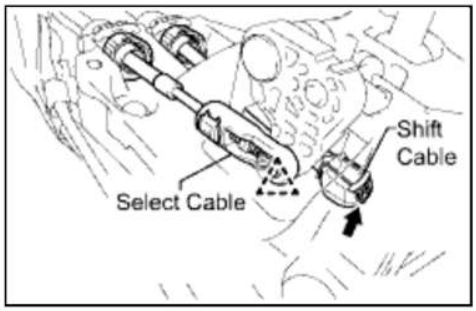
13. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

14. REMOVE CONSOLE BOX CARPET INFO

15. REMOVE CONSOLE BOX ASSEMBLY INFO

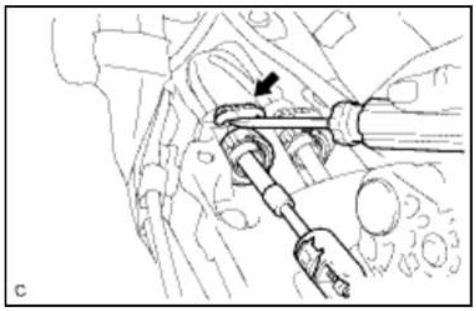
16. REMOVE TRANSMISSION CONTROL CABLE ASSEMBLY

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(a) Disconnect the control shift cable from the shift lever assembly.

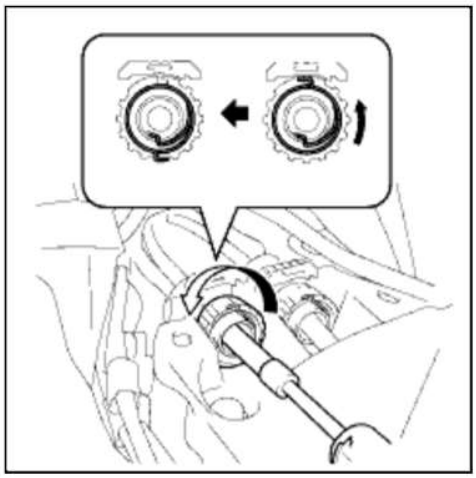
(b) Remove the clip and disconnect the control select cable from the shift lever assembly.



(c) Using a screwdriver, pull out the transmission control cable stopper.

NOTICE:

Do not remove the stopper. If it is removed, reinstall it to its original position.



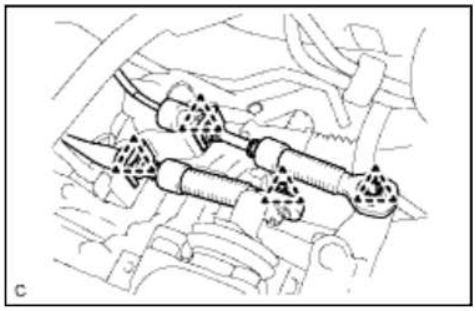
(d) Rotate the nut counterclockwise approximately 180° and, while holding the nut in that position, disconnect the transmission control cable from the shift lever retainer.

NOTICE:

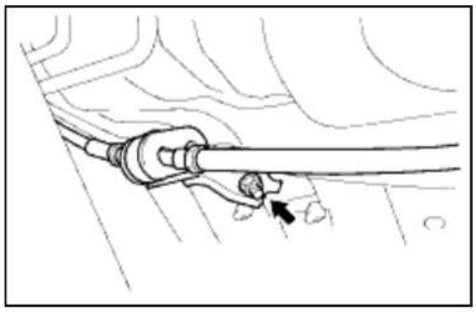
Do not rotate the nut excessively as it may damage the internal spring and the transmission control cable will not be reusable.

(e) Remove the 2 clips and disconnect the 2 transmission control cables from the transaxle.

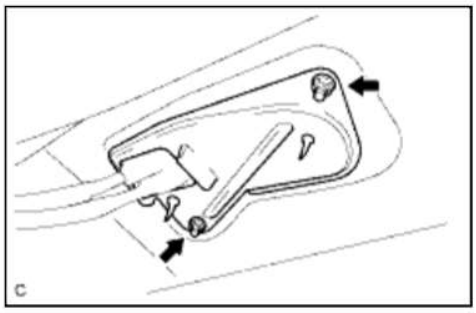
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(f) Remove the 2 clips and disconnect the 2 transmission control cables from the control cable bracket.



(g) Remove the nut and transmission control cable assembly.



(h) Remove the 2 nuts and transmission control cable assembly.

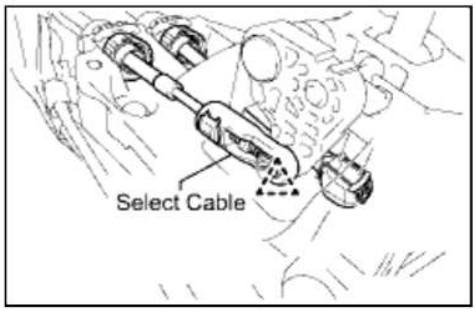
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Last Modified: 3-10-2010	6.4 N	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000002YVY00WX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: ADJUSTMENT (2010 Corolla)		

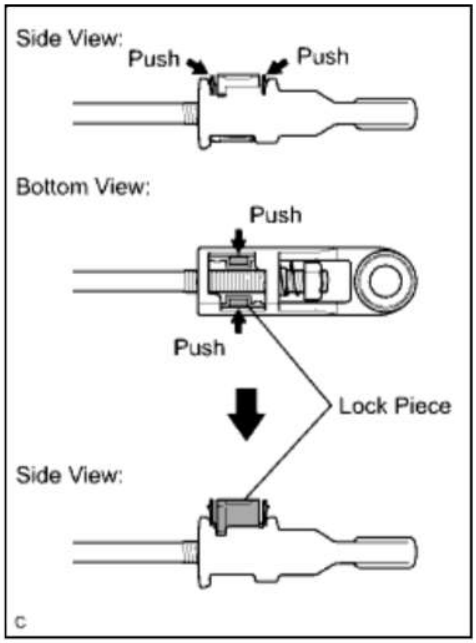
ADJUSTMENT

1. ADJUST TRANSMISSION CONTROL SELECT CABLE

(a) Remove the console box assembly INFO .



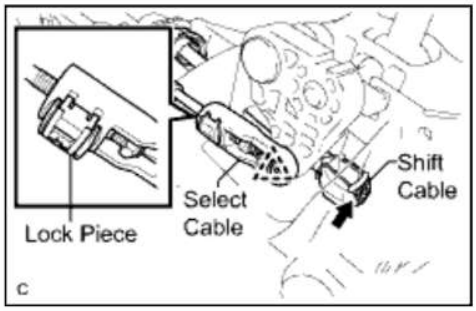
(b) Remove the clip and disconnect the control select cable from the shift lever assembly.



(c) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece toward each other and upward to pull out the lock piece.

(d) Install the transmission control shift cable to the shift lever assembly.

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(e) Install the control select cable to the shift lever assembly.

NOTICE:

- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(f) Install the clip to the shift lever assembly.

(g) Press in and lock the lock piece to the adjuster case.

NOTICE:

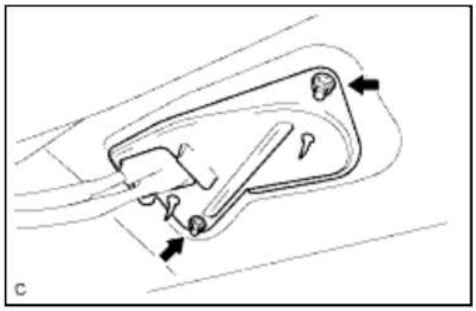
Securely press in the lock piece until the lock engages.

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Last Modified: 3-10-2010	6.4 A	**From:** 200901
Model Year: 2010	**Model:** Corolla	**Doc ID:** RM000001QHE01VX
Title: E351 MANUAL TRANSMISSION / TRANSAXLE: TRANSMISSION CONTROL CABLE: INSTALLATION (2010 Corolla)		

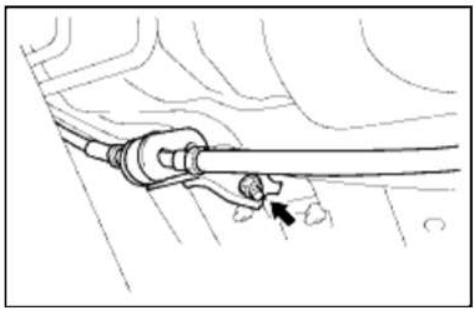
INSTALLATION

1. INSTALL TRANSMISSION CONTROL CABLE ASSEMBLY



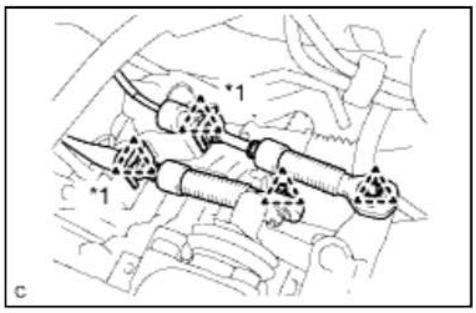
(a) Install the transmission control cable assembly with the 2 nuts.

Torque: 5.0 N·m (51 kgf·cm, 44in·lbf)



(b) Install the transmission control cable assembly with the nut.

Torque: 5.0 N·m (51 kgf·cm, 44in·lbf)

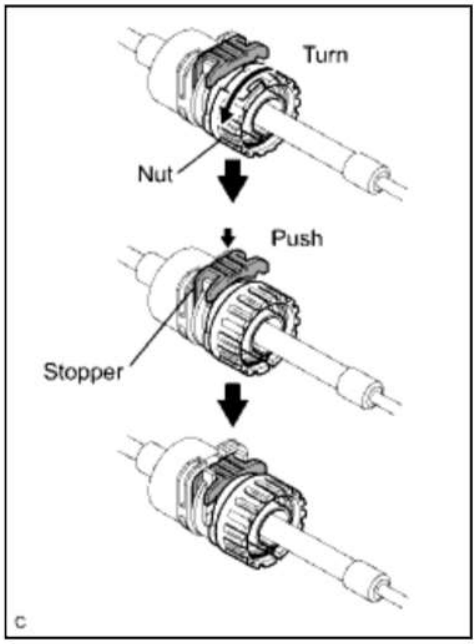


(c) Install the 2 transmission control cables to the control cable bracket with 2 new clips*1.

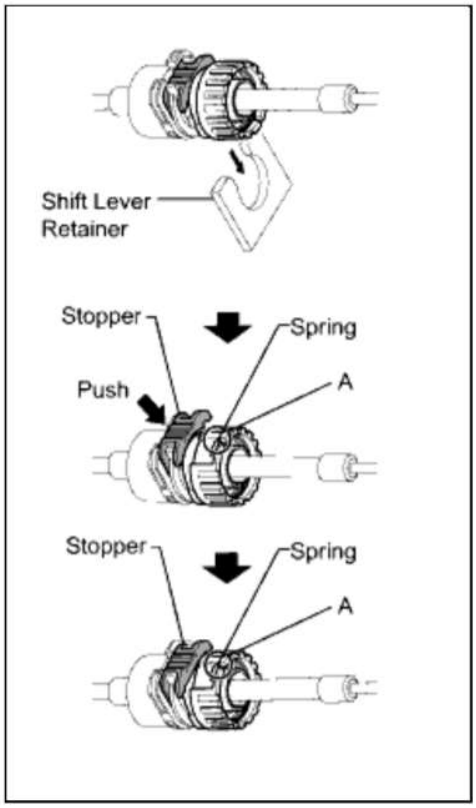
(d) Install the 2 transmission control cables to the transaxle with the 2 clips.

(e) Rotate the transmission control cable nut counterclockwise approximately 180° and, while holding

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the nut in that position, press in the stopper until it makes 2 "click" sounds.



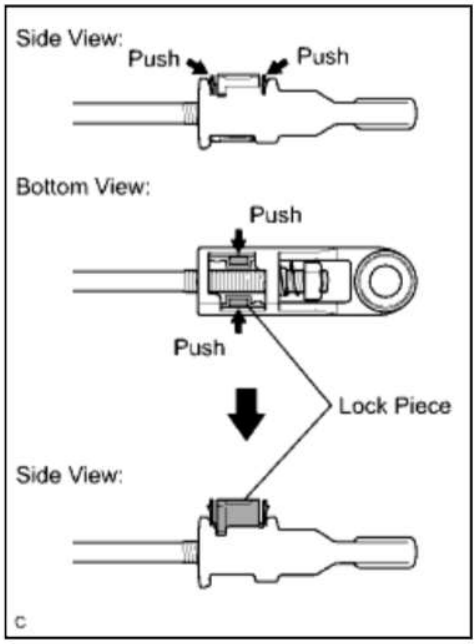
(f) Install the outer part of the transmission control cable to the shift lever retainer, check that the position of the spring is the same as A shown in the illustration, and push in the stopper.

HINT:

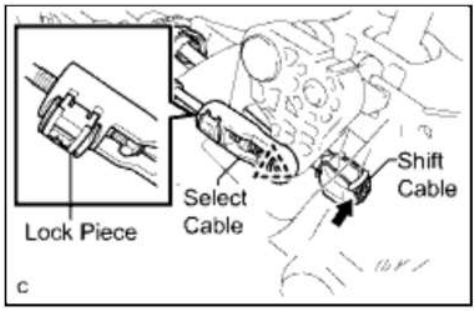
If the stopper cannot be pushed in, slightly rotate the nut clockwise and then push in the stopper.

(g) Push the two claws together at the top of the transmission control cable lock piece. While holding the two claws together, push the two lugs on the bottom of the lock piece

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toward each other and upward to pull out the lock piece.



(h) Install the transmission control shift cable to the shift lever assembly.

(i) Install the control select cable to the shift lever assembly.

NOTICE:

- Make sure to adjust the length at the neutral shift position.
- Make sure that the lock piece is protruding from the adjuster case.

(j) Install the clip to the shift lever assembly.

(k) Press in and lock the lock piece to the adjuster case.

NOTICE:

Securely press in the lock piece until the lock engages.

2. ADJUST TRANSMISSION CONTROL SELECT CABLE INFO

3. INSTALL CONSOLE BOX ASSEMBLY INFO

4. INSTALL CONSOLE BOX CARPET INFO

5. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

6. INSTALL FRONT NO. 1 CONSOLE BOX INSERT INFO

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7. INSTALL FRONT NO. 2 CONSOLE BOX INSERT INFO

8. INSTALL INSTRUMENT PANEL BOX ASSEMBLY INFO

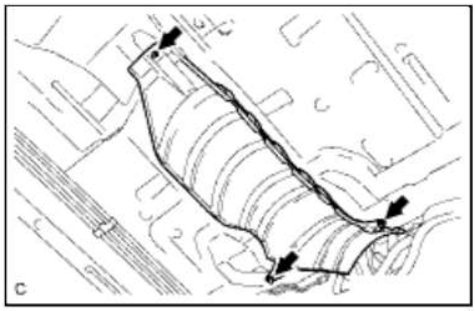
9. INSTALL CENTER NO. 1 INSTRUMENT CLUSTER FINISH PANEL ASSEMBLY INFO

10. INSTALL SHIFT LEVER KNOB SUB-ASSEMBLY INFO

11. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL LH INFO

12. INSTALL LOWER INSTRUMENT PANEL FINISH PANEL RH INFO

13. INSTALL FRONT NO. 1 FLOOR HEAT INSULATOR



(a) Install the No. 1 front floor heat insulator with the 3 nuts.

Torque: 5.5 N·m (56 kgf·cm, 49in·lbf)

14. INSTALL CENTER EXHAUST PIPE ASSEMBLY INFO

15. INSTALL AIR CLEANER CASE INFO

16. INSTALL AIR CLEANER CAP SUB-ASSEMBLY INFO

17. INSPECT FOR EXHAUST GAS LEAK

18. INSTALL NO. 1 ENGINE COVER SUB-ASSEMBLY INFO

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