

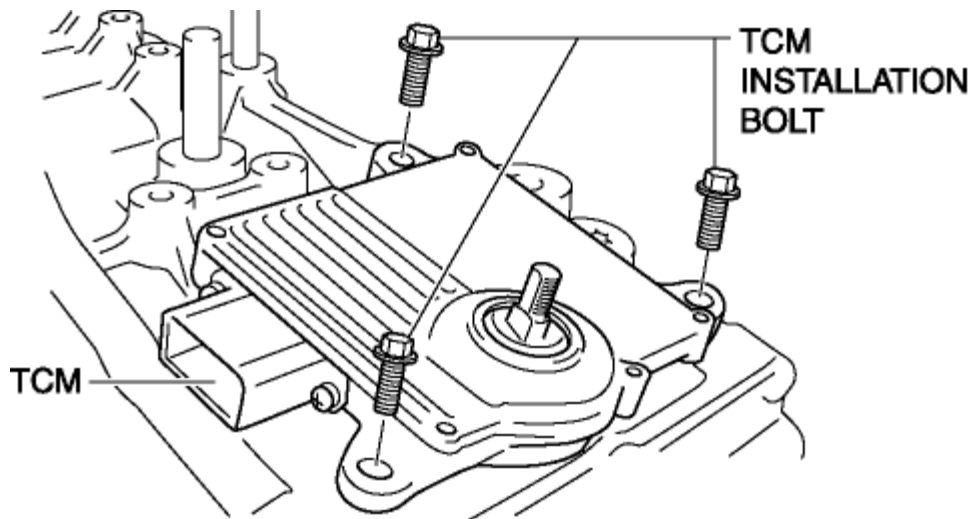
2012 - Mazda6 - Transmission/ Transaxle

VEHICLE SPEED SENSOR (VSS) REMOVAL/ INSTALLATION [AY6A-EL]

CAUTION:

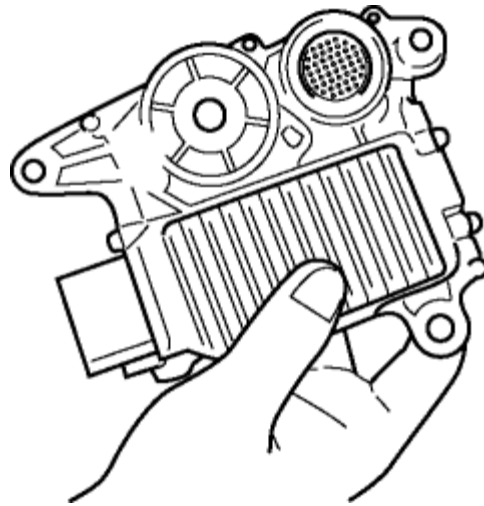
- Water or foreign objects entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign objects on the connector when disconnecting it.
- If foreign materials are stuck to the VSS, disturbance by magnetic flux can cause sensor output to be abnormal and thereby negatively affect control. Make sure that foreign materials such as iron filings are not stuck to the VSS during installation.

1. Drain the ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT \[AY6A-EL\]](#) .)
2. Remove the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION \[AY6A-EL\]](#) .)
3. Remove the TCM.

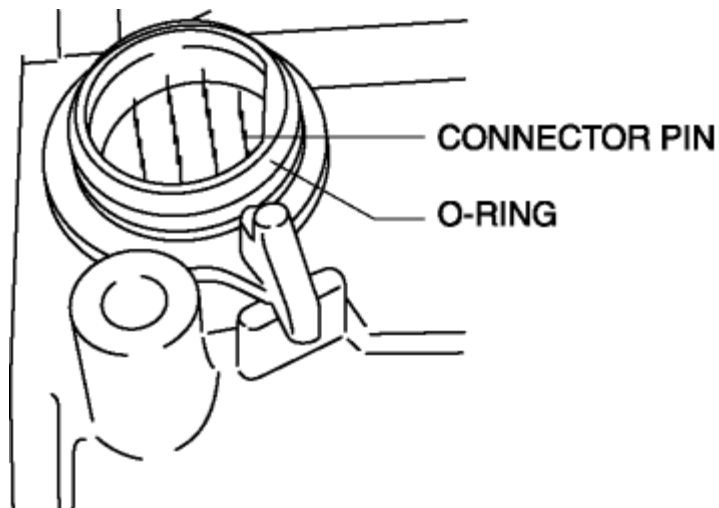


CAUTION:

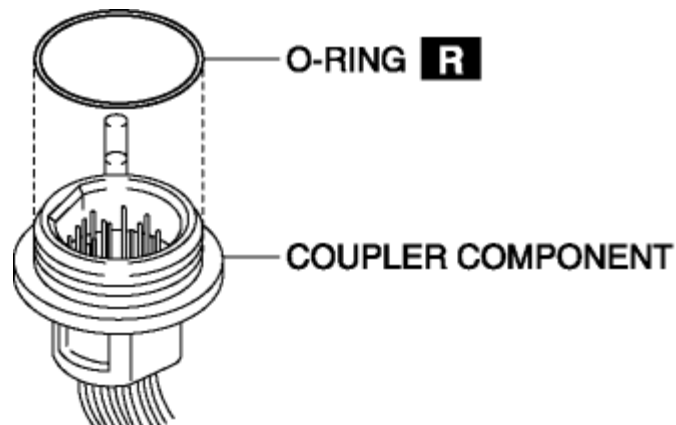
- Do not touch the terminals.



4. Inspect the condition of the connector pin of the coupler component (foreign material, bent pins, broken pins) and O-ring after the TCM is removed.



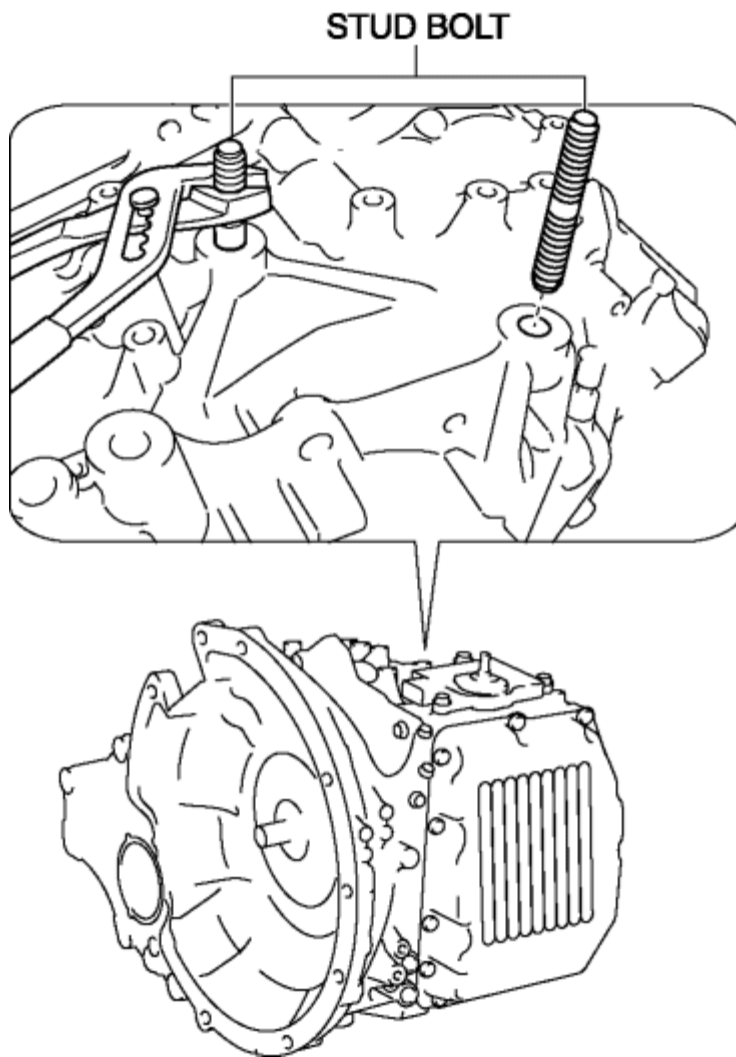
5. Remove the O-ring from the coupler component.



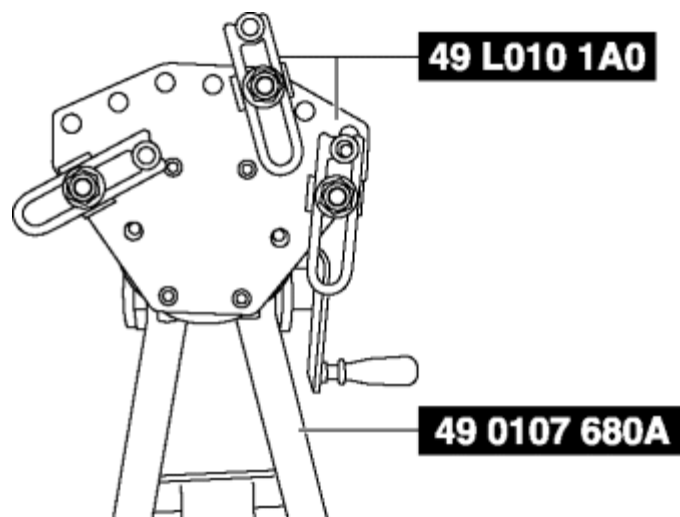
6. Clean the transaxle. (See [AUTOMATIC TRANSAXLE CLEANING \[AY6A-EL\]](#).)

7. Remove the torque converter. (See [TORQUE CONVERTER REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

8. Remove the stud bolts.



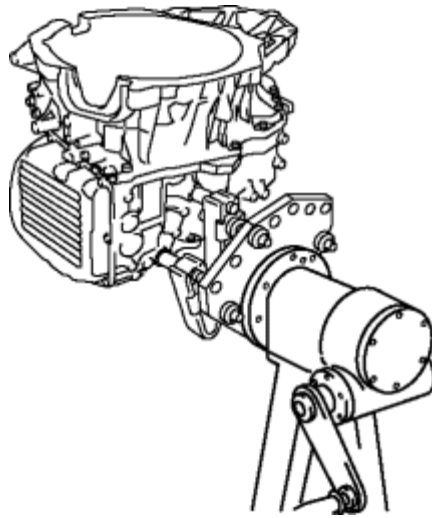
9. Set the **SSTs** as shown in the figure.



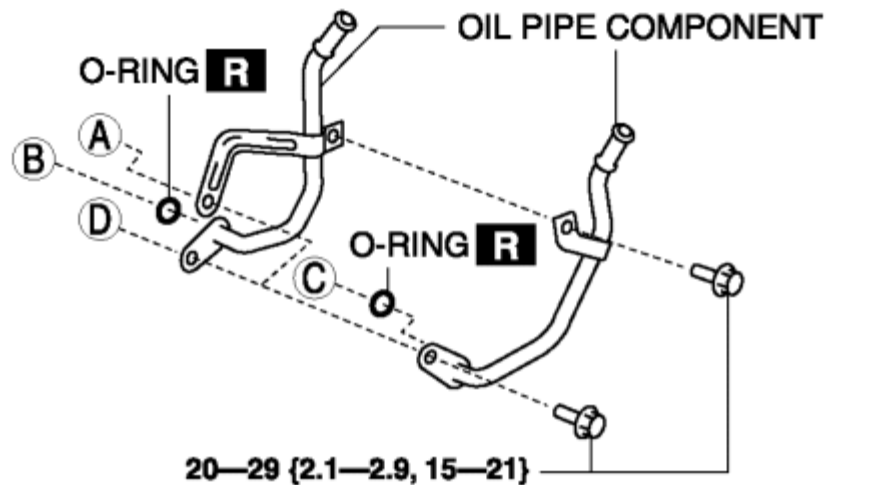
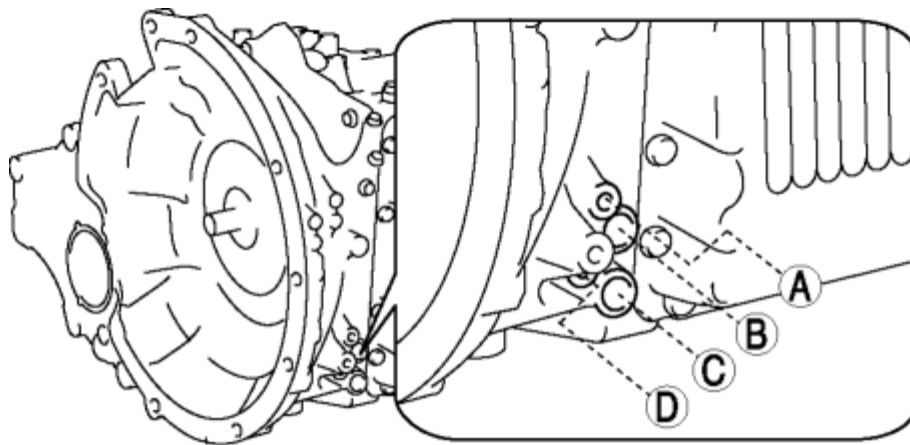
CAUTION:

- When installing the SST to the transaxle, use bolts (M12×1.25) with a thread length of 90 mm {3.5 in}.

10. Install the **SST** to the position where the transaxle stud bolts were removed.



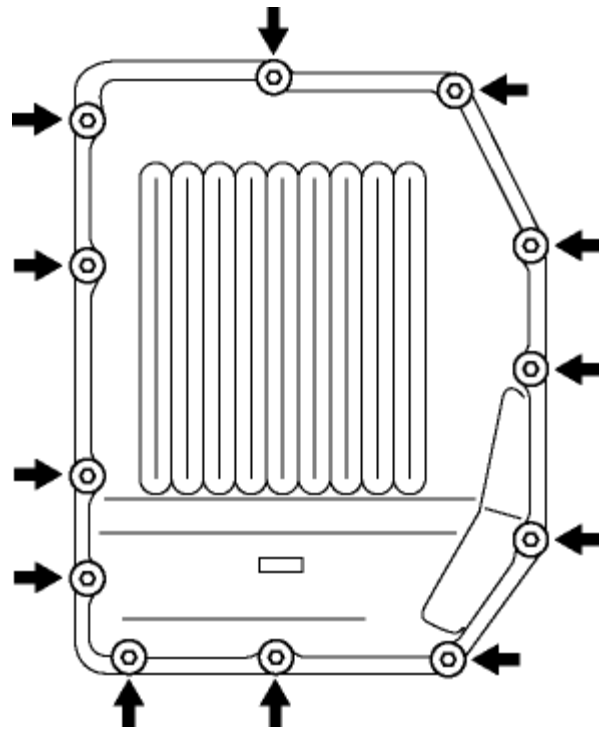
11. Remove the oil pipe component and O-rings.



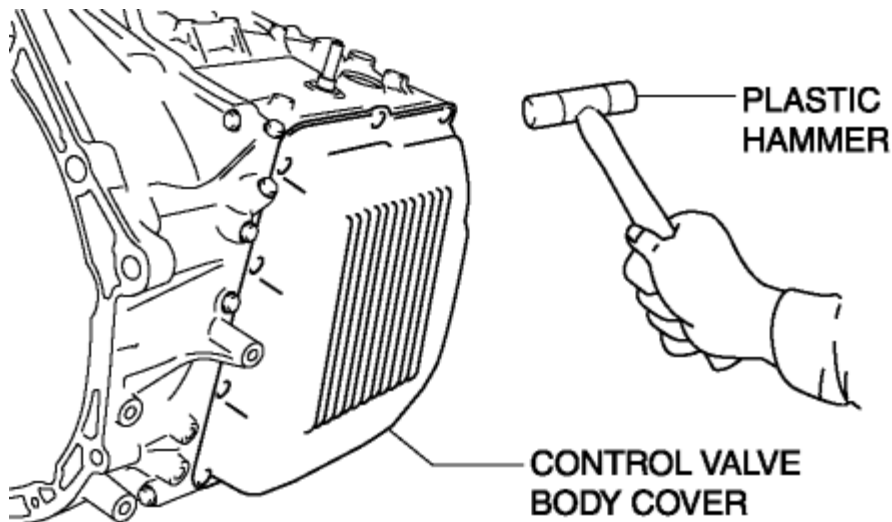
N·m {kgf·m, ft·lbf}

12. Refer to the "Automatic Transaxle Disassembly/assembly Precaution" before disassembling/assembling the transaxle. (See [AUTOMATIC TRANSAXLE DI SASSEMBLY/ ASSEMBLY PRECAUTION \[AY6A-EL\]](#).)

13. Remove the control valve body cover.



14. Using a plastic hammer, tap the control valve body cover to remove it.

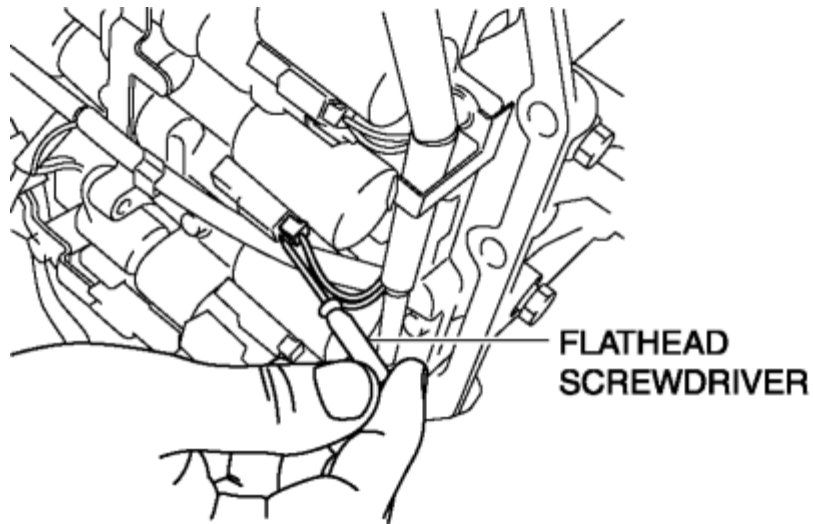


CAUTION:

- Do not damage the fitting surface of the transaxle case and the control valve body cover.
- Do not deform the control valve body cover.

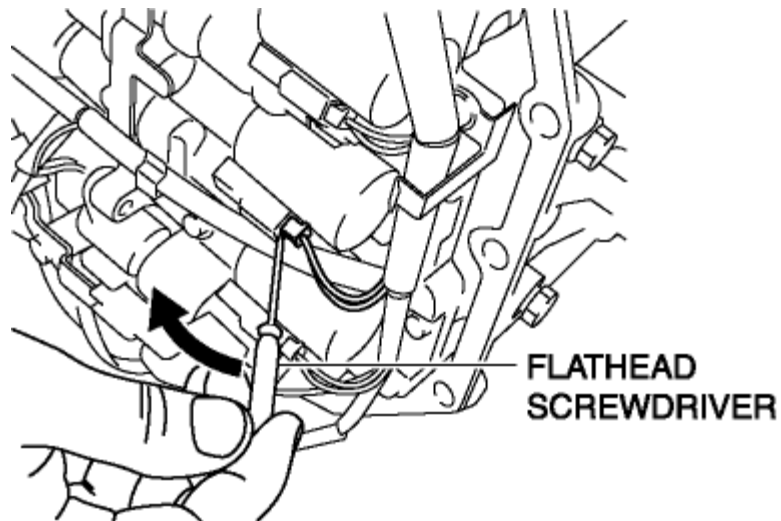
NOTE:

- Disconnect the solenoid connector according to the following procedure:
 - Insert a precision flathead screwdriver from the backside into the connector as shown in the figure.



CAUTION:

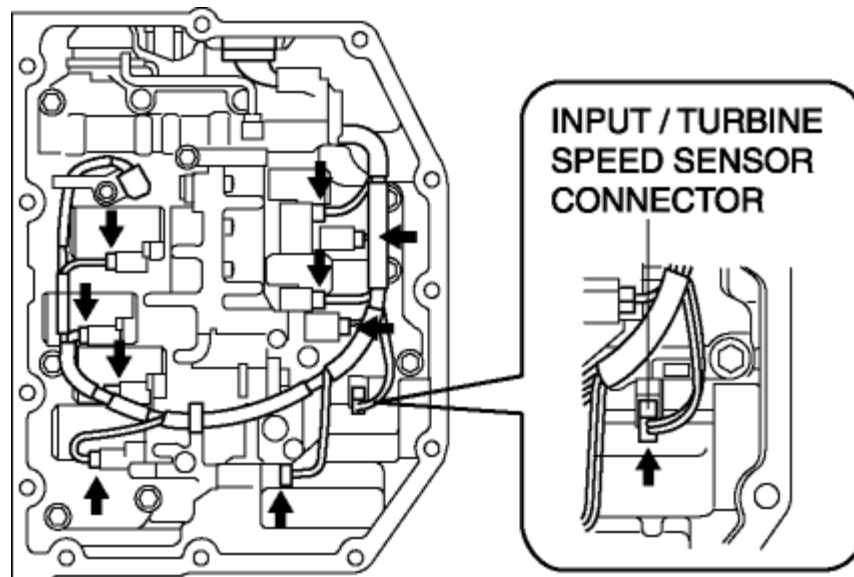
- Do not damage the solenoid valves and connectors with the flathead screwdriver.
- Pry the flathead screwdriver in the direction of the arrow and disconnect the connector.



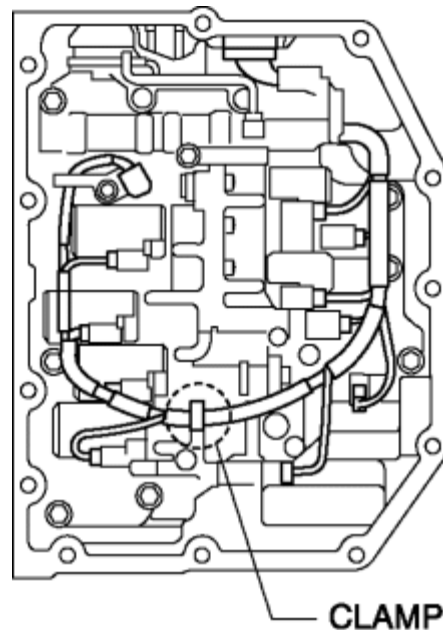
CAUTION:

- When disconnecting connectors, grasp the connectors, not the wiring harnesses. Otherwise, the wiring harnesses may be pulled out of the connector causing poor contact.

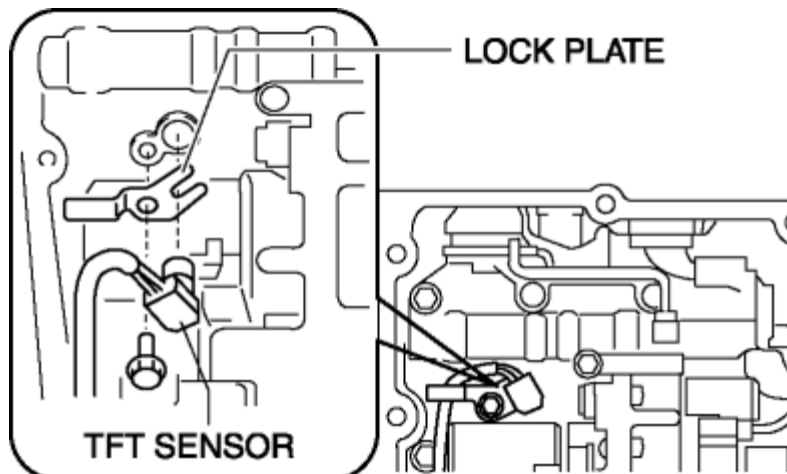
15. Disconnect the solenoid connectors, VSS connector and the input/turbine speed sensor connector.



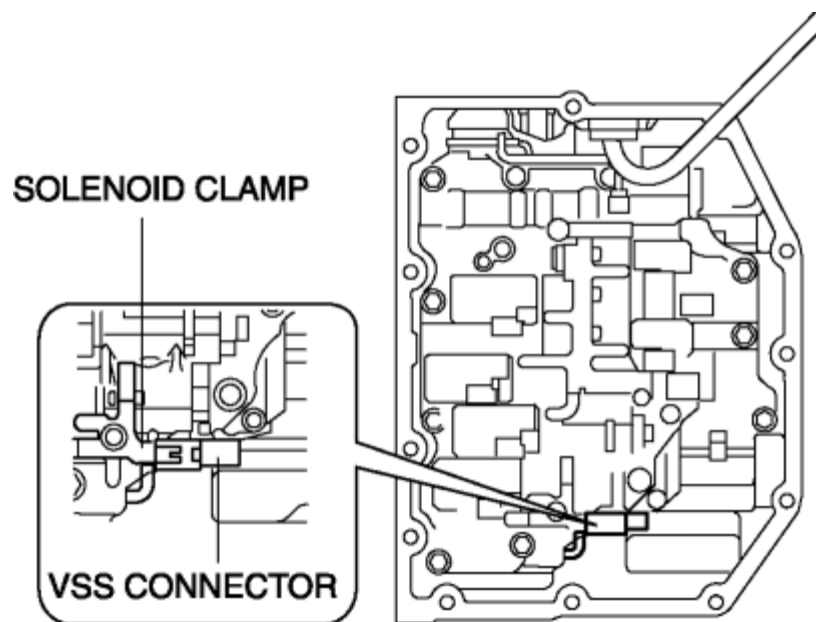
16. Disconnect the coupler component from the clamp.



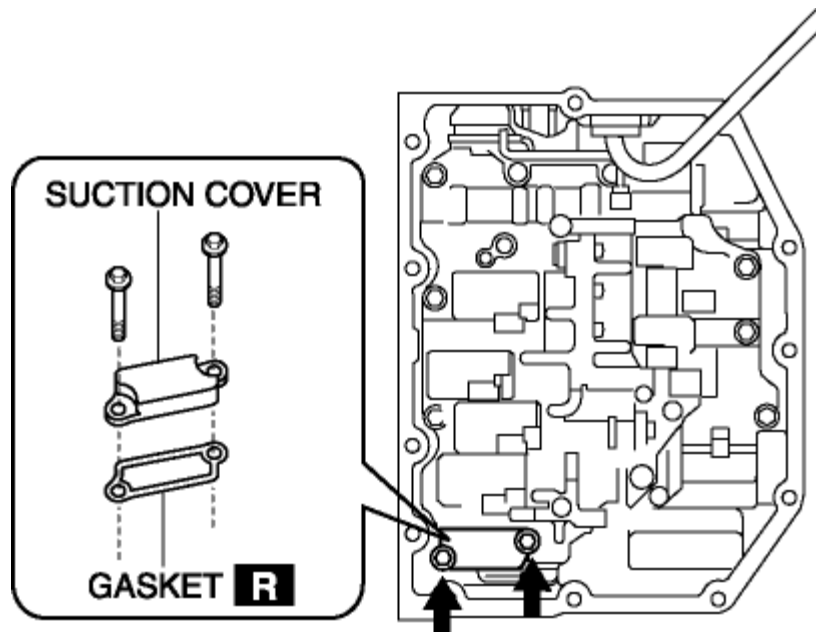
17. Remove the lock plate, and pull out the TFT sensor from the control valve body.



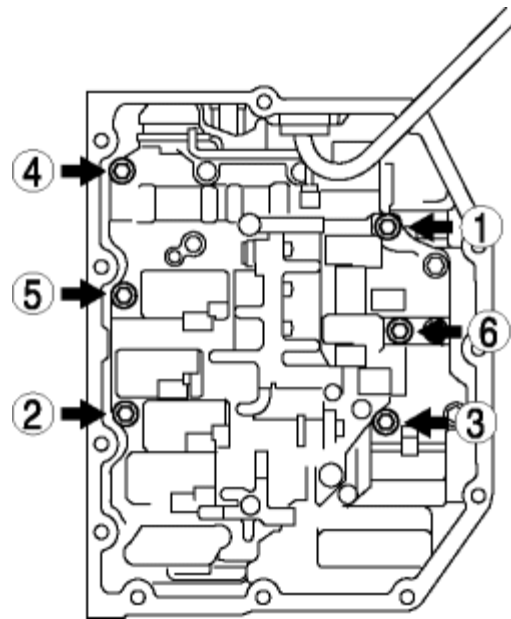
18. Remove the VSS connector from the solenoid clamp.



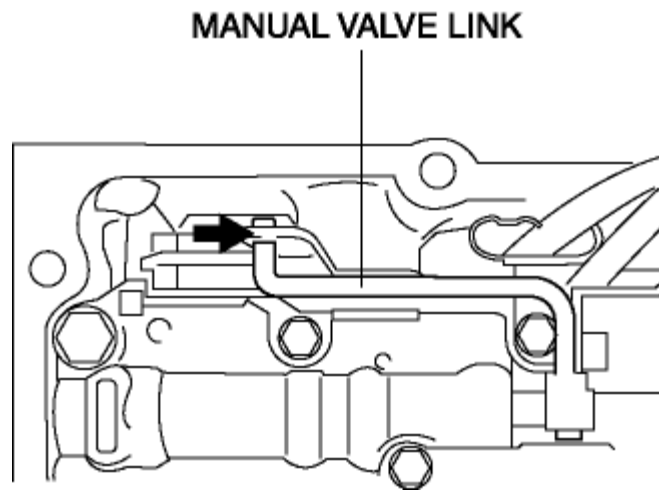
19. Remove the suction cover and the gasket.



20. Remove the control valve body installation bolts in the order shown in the figure.



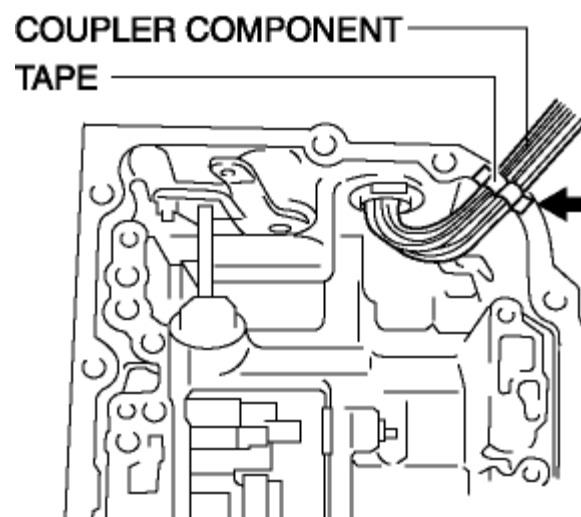
21. Disconnect the manual valve link and remove the control valve body component.



CAUTION:

- Do not drop the control valve body component.

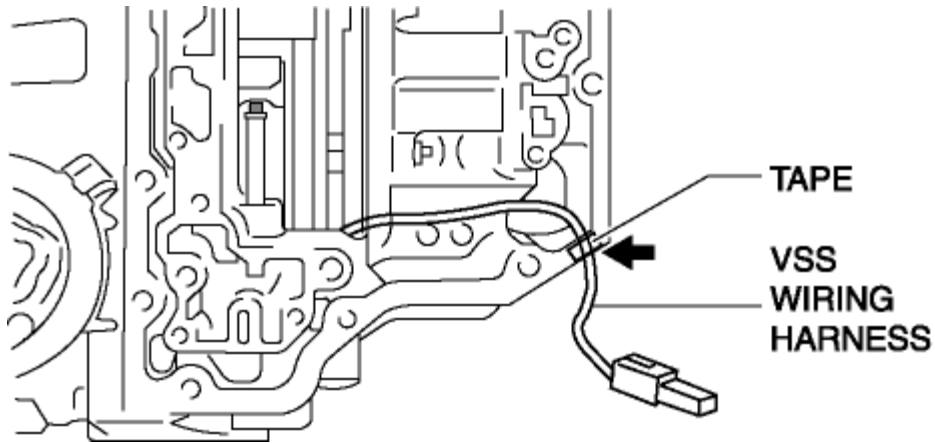
22. Fix the coupler component with tape to the transaxle case as shown in the figure.



NOTE:

- Be sure to secure the coupler component with tape so that it will not interfere with the control valve body component.

23. Fix the VSS wiring harness with tape to the transaxle case as shown in the figure.



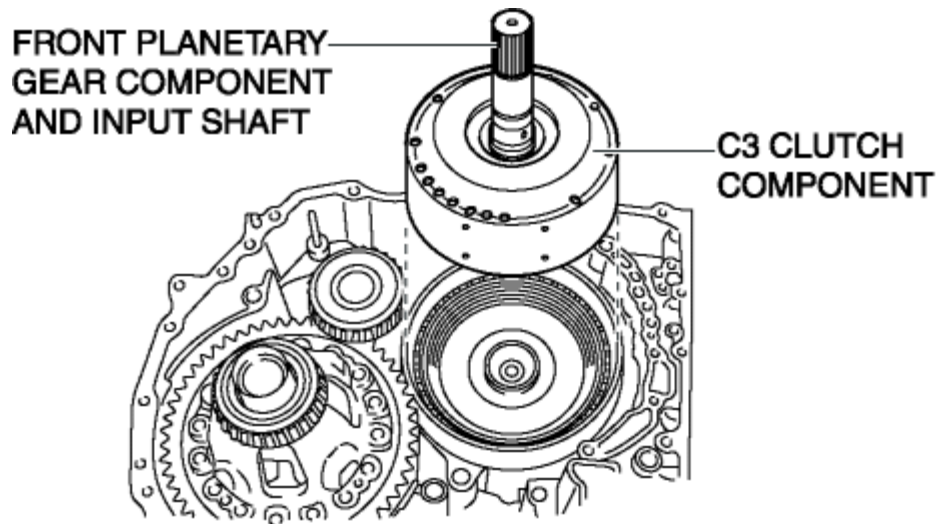
NOTE:

- Be sure to secure the VSS with tape so that they will not interfere with the control valve body component.

24. Remove the converter housing. (See [CONVERTER HOUSING REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

25. Remove the oil pump component and oil strainer as a single unit. (See [OIL PUMP REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

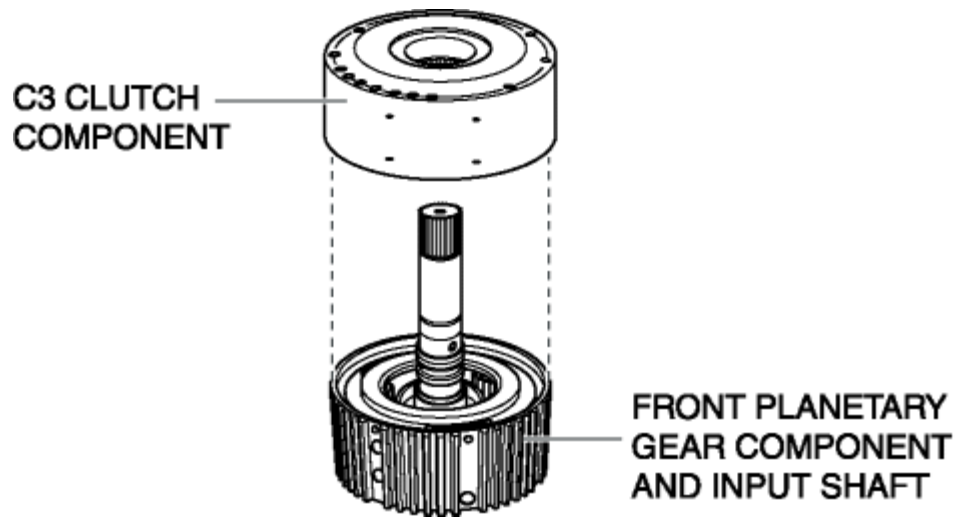
26. Remove the C3 clutch component, front planetary gear component and input shaft.



NOTE:

- In some cases, the input shaft may be detached with the thrust bearing attached.

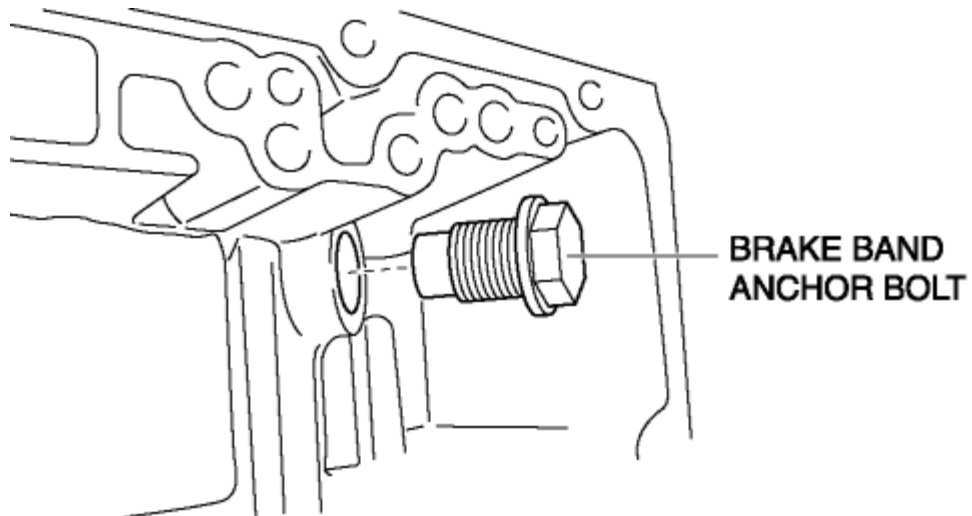
27. Remove the C3 clutch component from the front planetary gear component and input shaft.



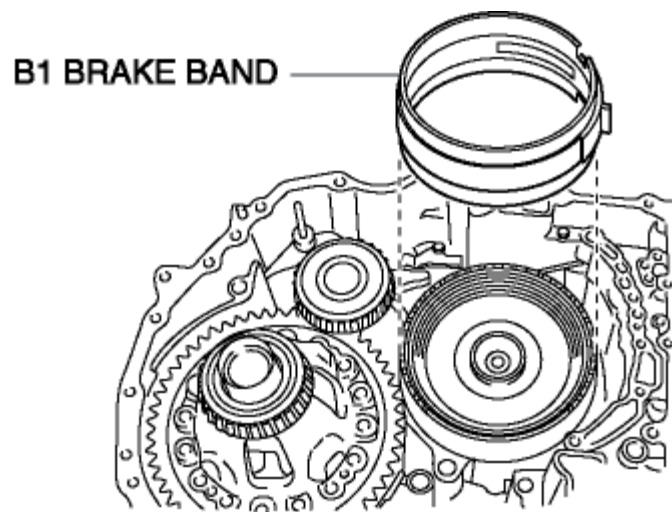
NOTE:

- In some cases, the C3 clutch component may be detached with the thrust washer attached.

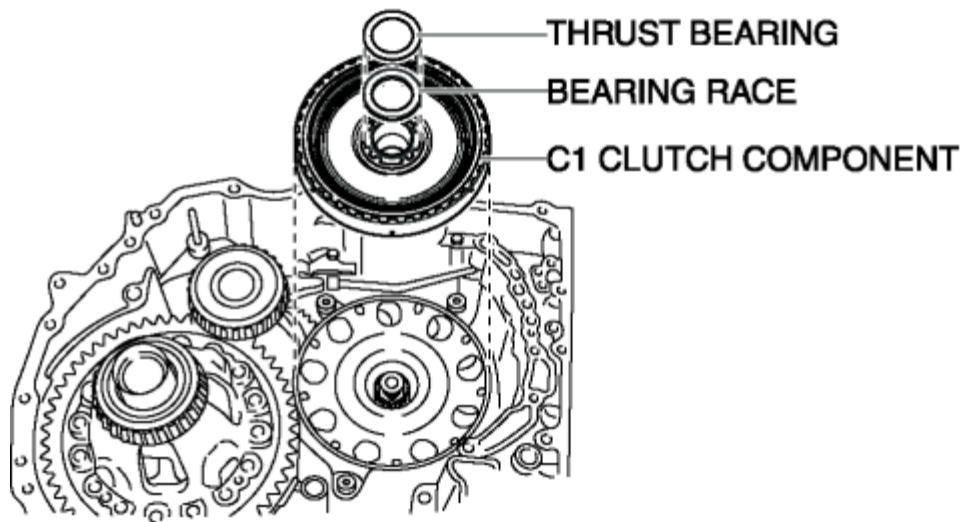
28. Remove the brake band anchor bolt.



29. Remove the B1 brake band.



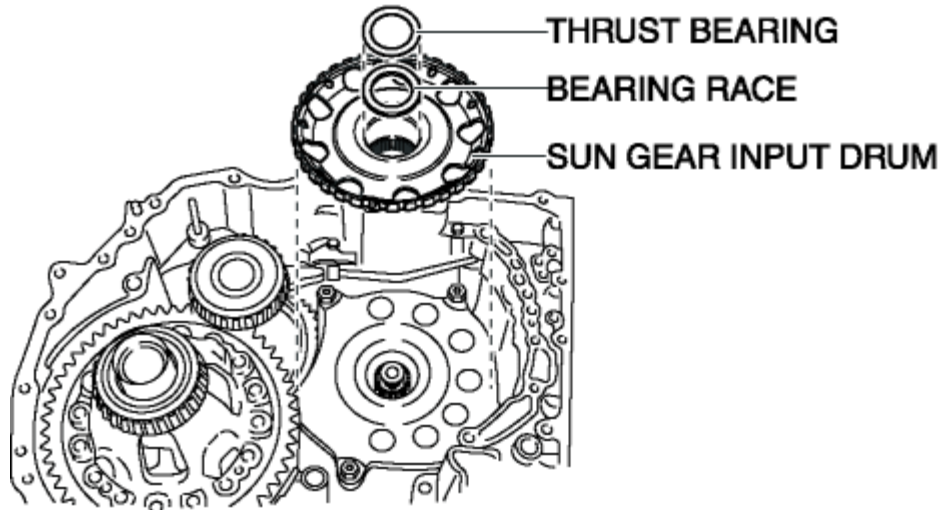
30. Remove the thrust bearing, bearing race and the C1 clutch component.



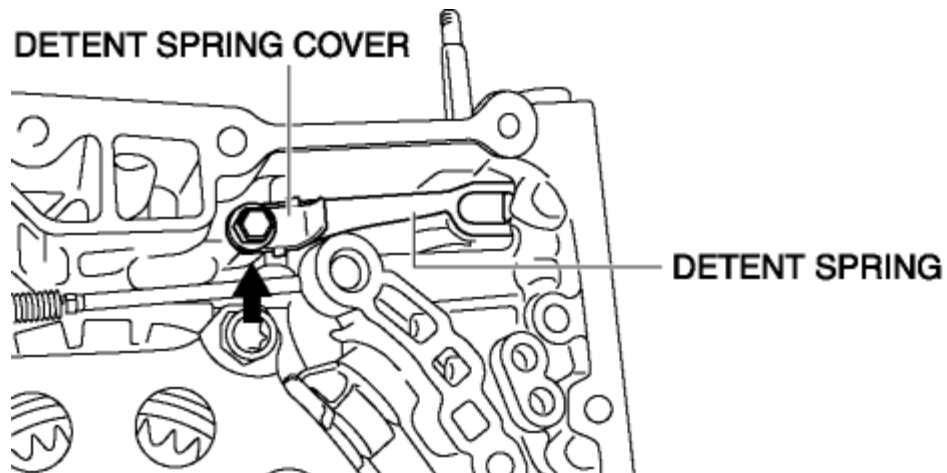
NOTE:

- In some cases, the C1 clutch component may be detached with the thrust bearing attached.

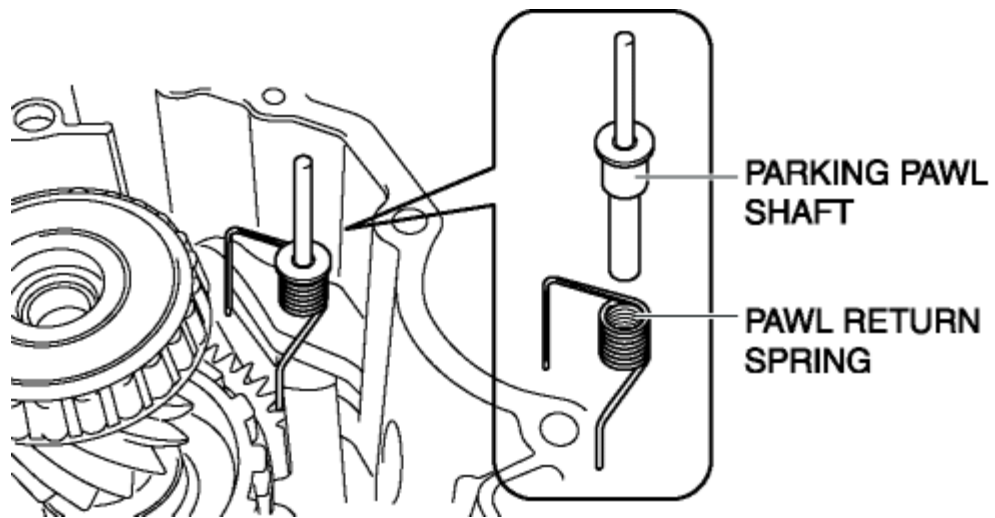
31. Remove the thrust bearing, bearing race and the sun gear input drum.



32. Remove the detent spring cover and detent spring.



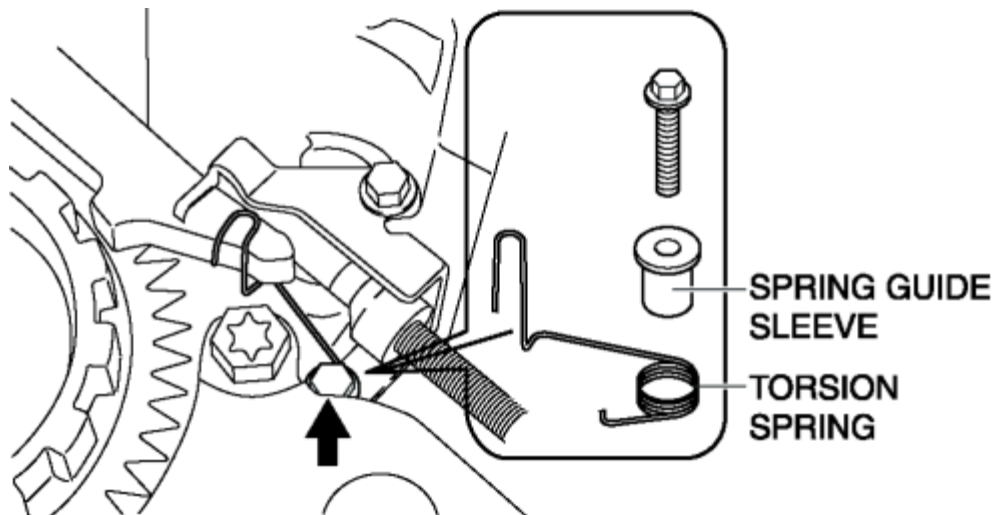
33. Remove the pawl return spring and the parking pawl shaft.



CAUTION:

- Be careful not to apply too much force to the pawl return spring.

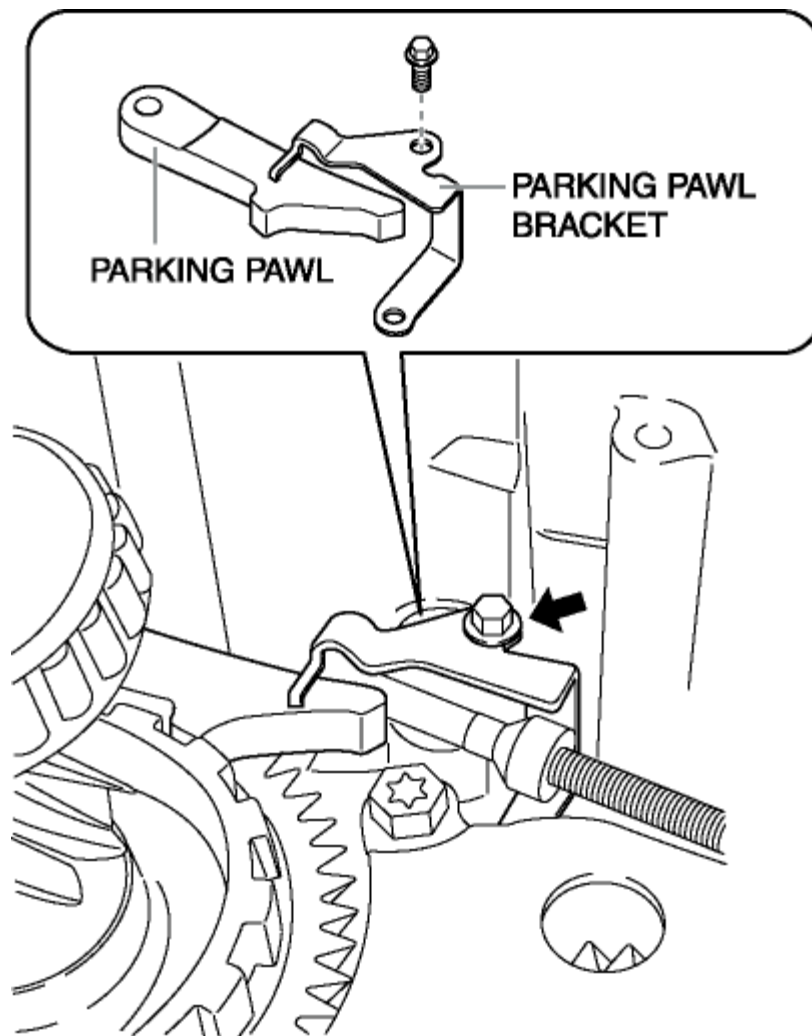
34. Remove the torsion spring and the spring guide sleeve.



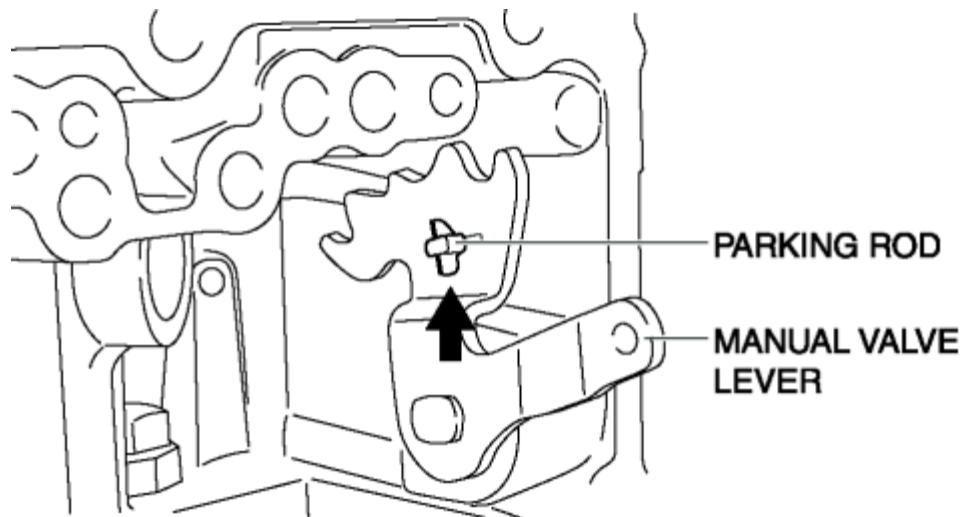
CAUTION:

- Be careful not to apply too much force to the torsion spring.

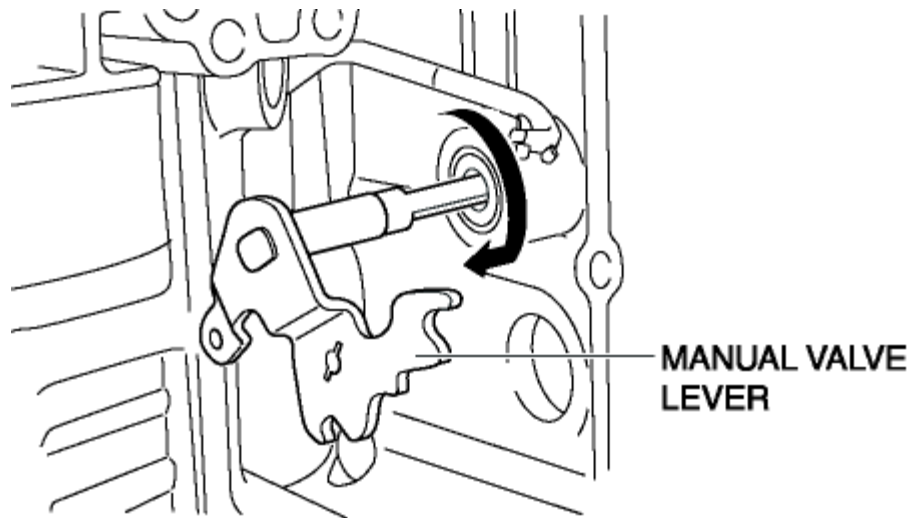
35. Remove the parking pawl and the parking pawl bracket.



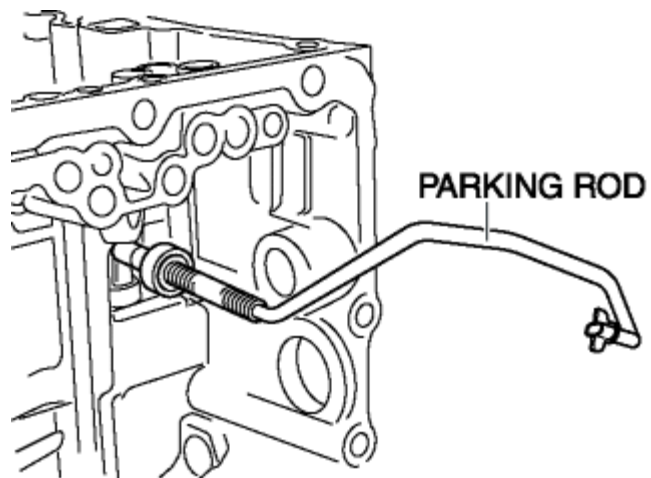
36. Disconnect the parking rod from the manual valve lever.



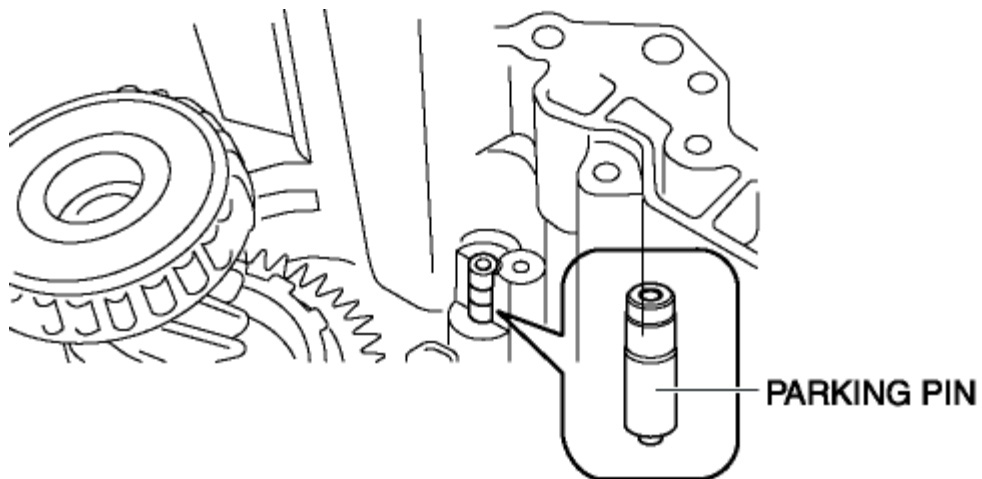
37. Remove the manual valve lever from the transaxle case.



38. Remove the parking rod from the transaxle case.



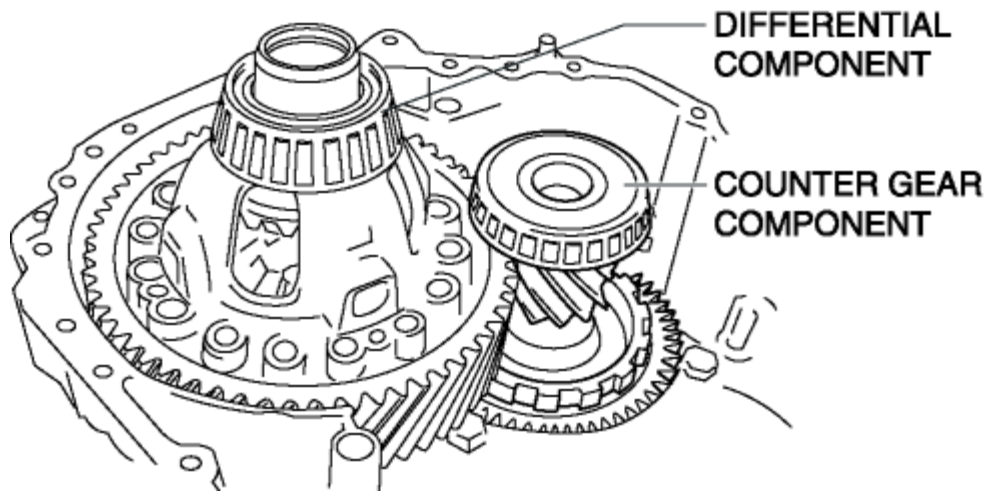
39. Remove the parking pin from the transaxle case.



NOTE:

- Inspect the direction of the parking pin.

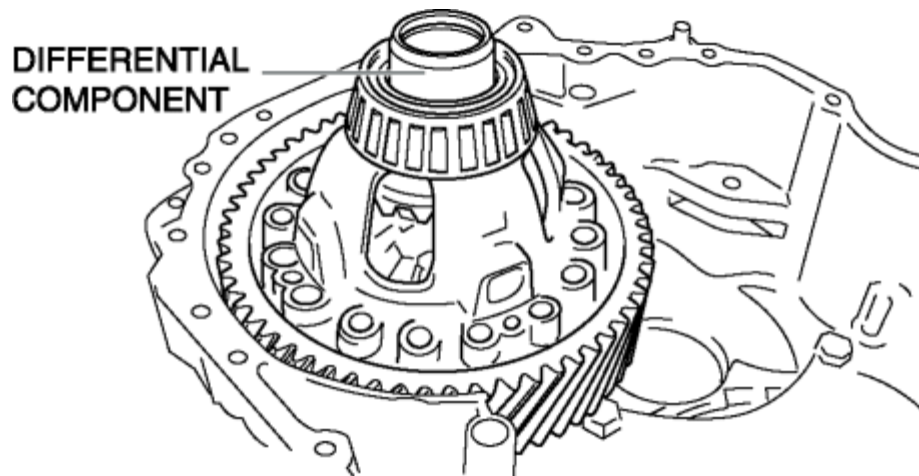
40. Remove the counter gear component.



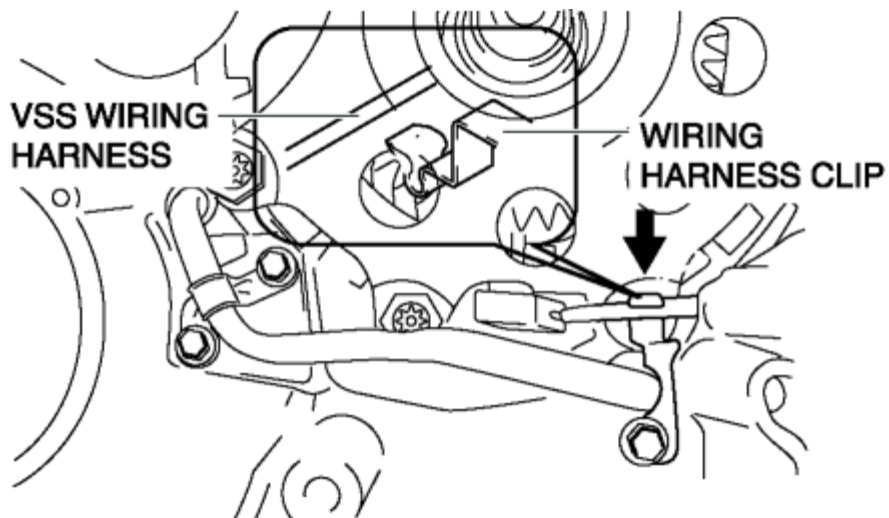
NOTE:

- For easy removal, tilt the counter gear component slightly.

41. Remove the differential component.



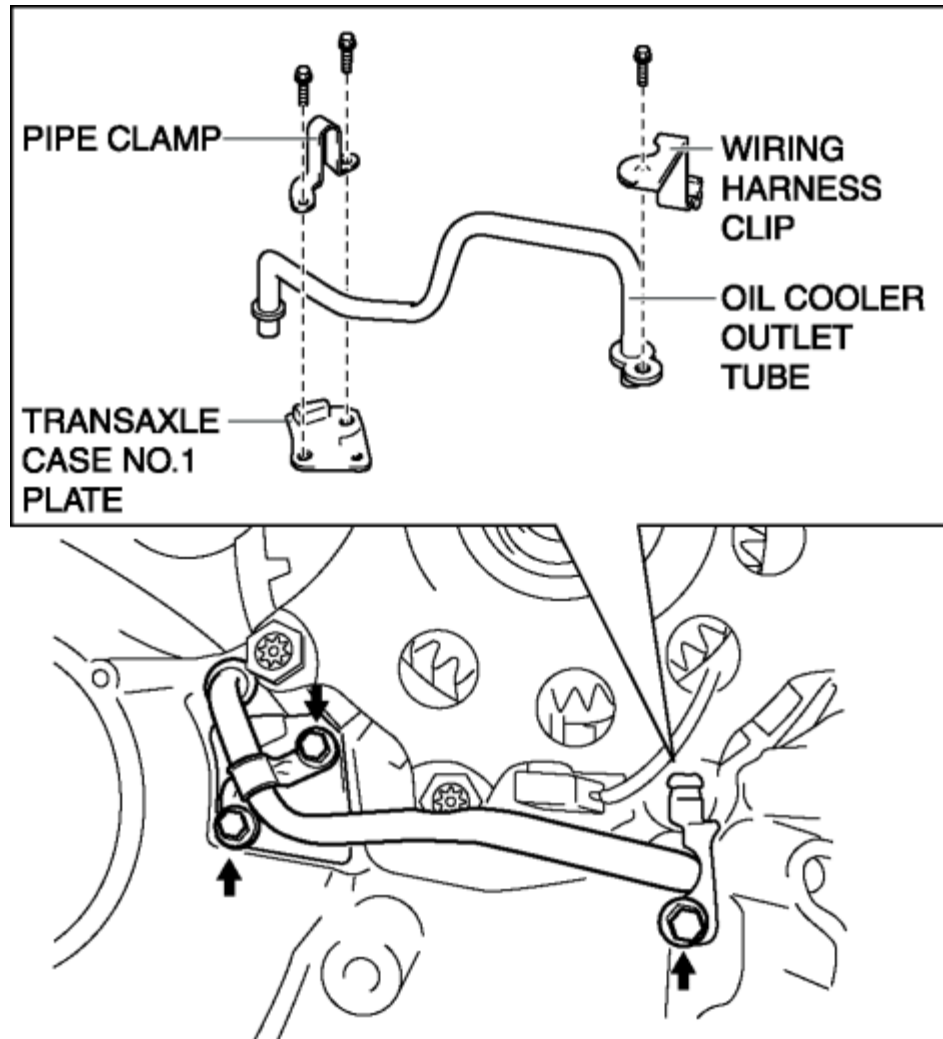
42. Disconnect the VSS wiring harness from the wiring harness clip.



CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

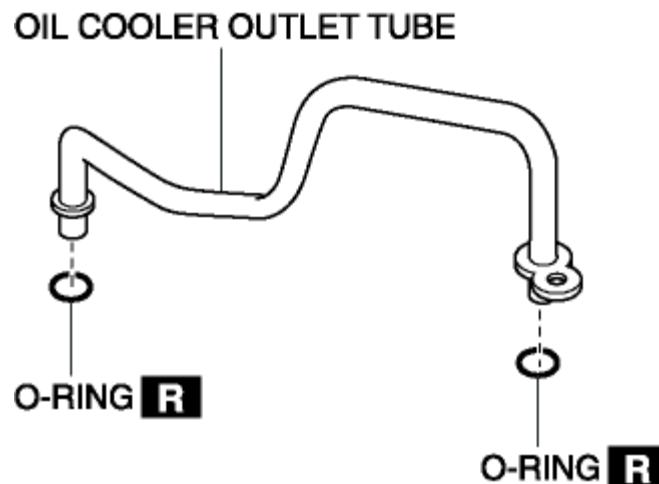
43. Remove the pipe clamp, transaxle case No.1 plate, wiring harness clip and the oil cooler outlet tube.



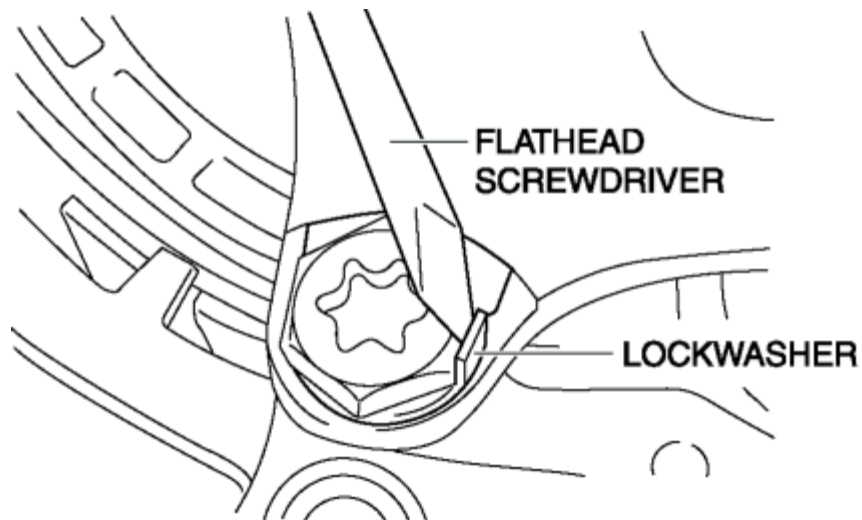
CAUTION:

- Do not damage the oil cooler outlet tube.

44. Remove the O-rings from the oil cooler outlet tube.



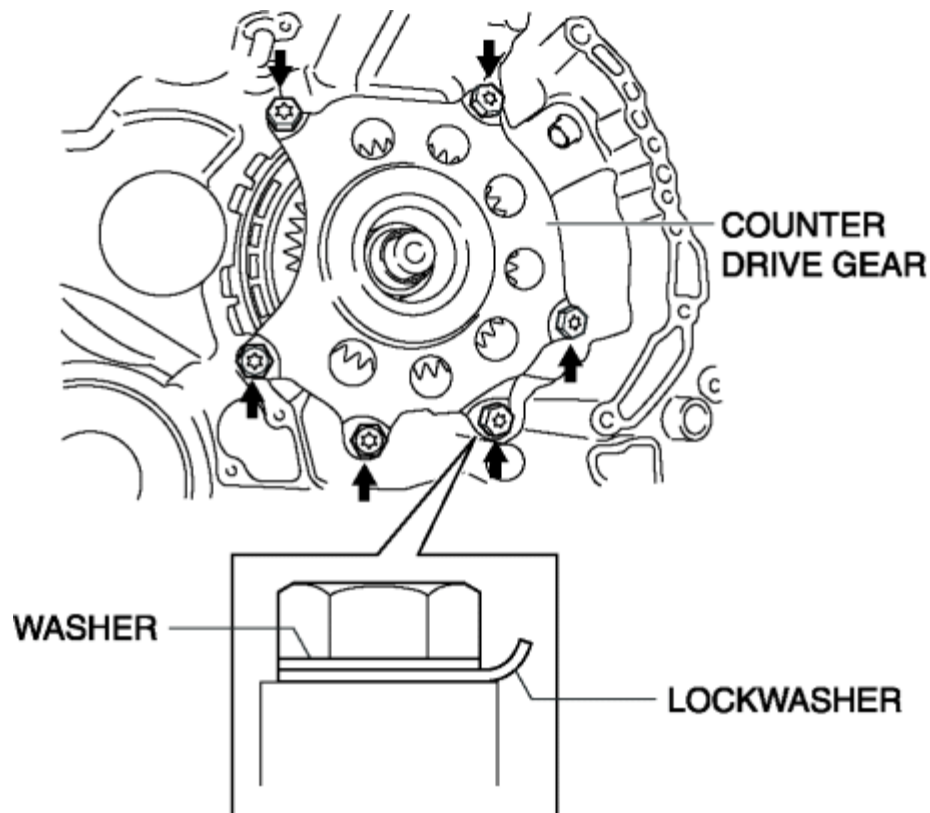
45. Using a flathead screwdriver and a hammer, pry back the crimp on the lockwashers.



CAUTION:

- If the lockwashers crimp is not completely pried back, the tool cannot fit over the bolt properly and the bolt cannot be loosened.

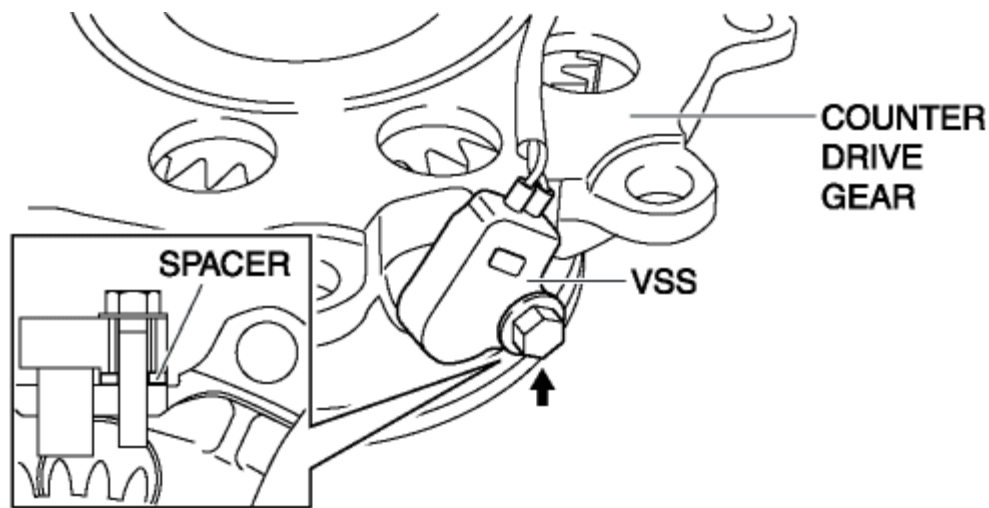
46. Remove the lockwashers, washers and the counter drive gear.



CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

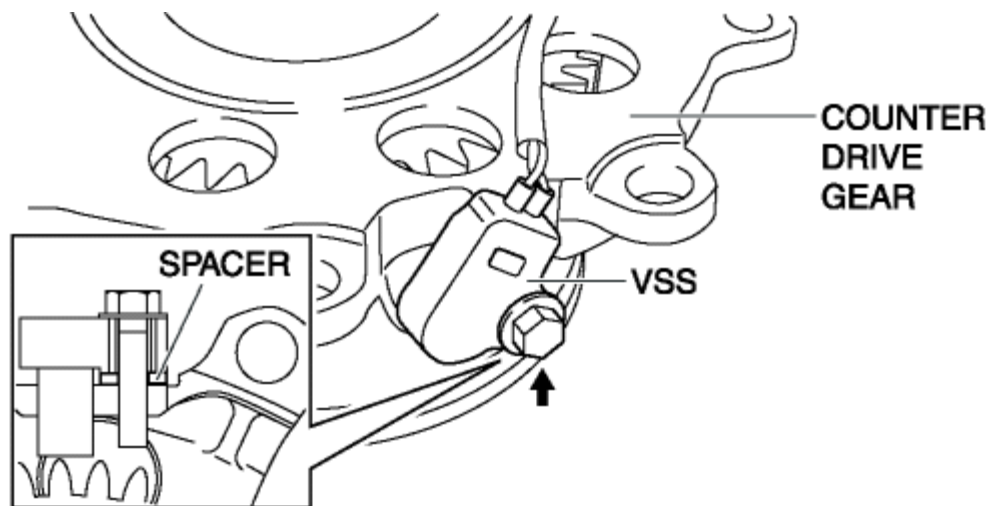
47. Remove the VSS and spacer from the counter drive gear.



CAUTION:

- Do not damage the VSS.

48. Install the VSS and spacer to the counter drive gear.



CAUTION:

- Do not damage the VSS.

Tightening torque

- 3.9—6.9 N·m {40—70 kgf·cm, 35—61 in·lbf}

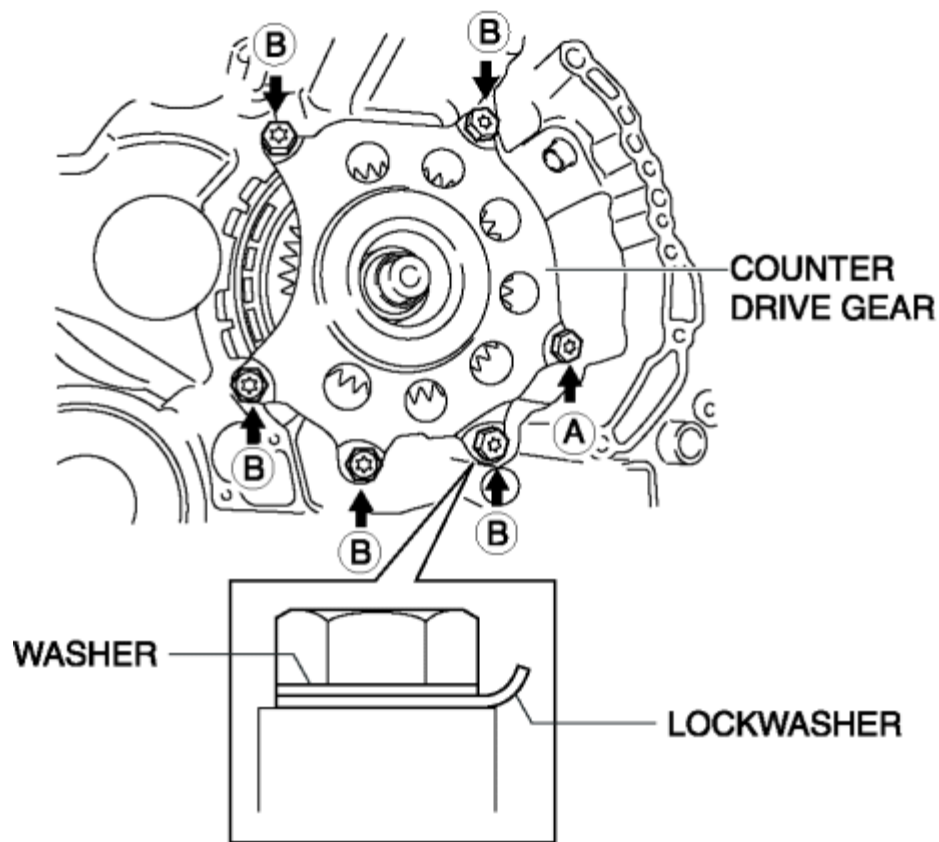
49. Apply ATF to the spline on the counter drive gear and spline on the ring gear.

50. Install the counter drive gear to the transaxle case.

CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

51. Install the lockwashers and washers with bolts.



NOTE:

- Verify that the claws of the lockwashers are facing upward.

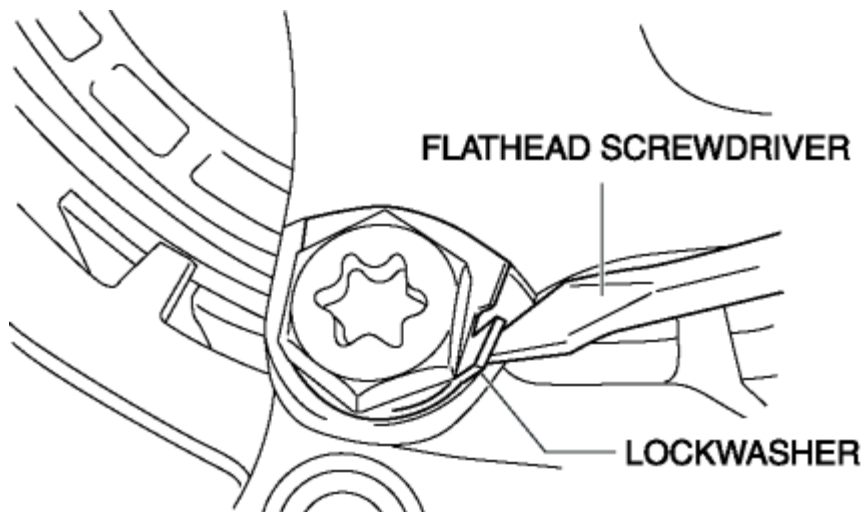
Tightening torque

- 57—67 N·m {5.9—6.8 kgf·cm, 43—49 ft·lbf}

Bolt length (measured from below the head)

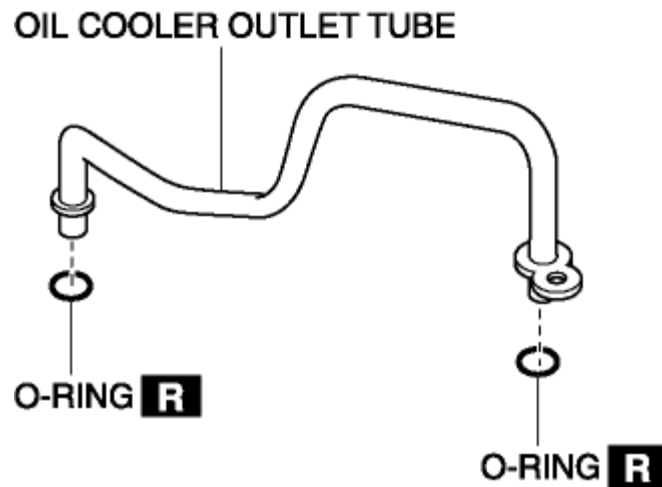
- A: 29 mm {1.1 in}
- B: 36 mm {1.4 in}

52. Using a flathead screwdriver and a hammer, pry back the crimp locking the lockwashers.

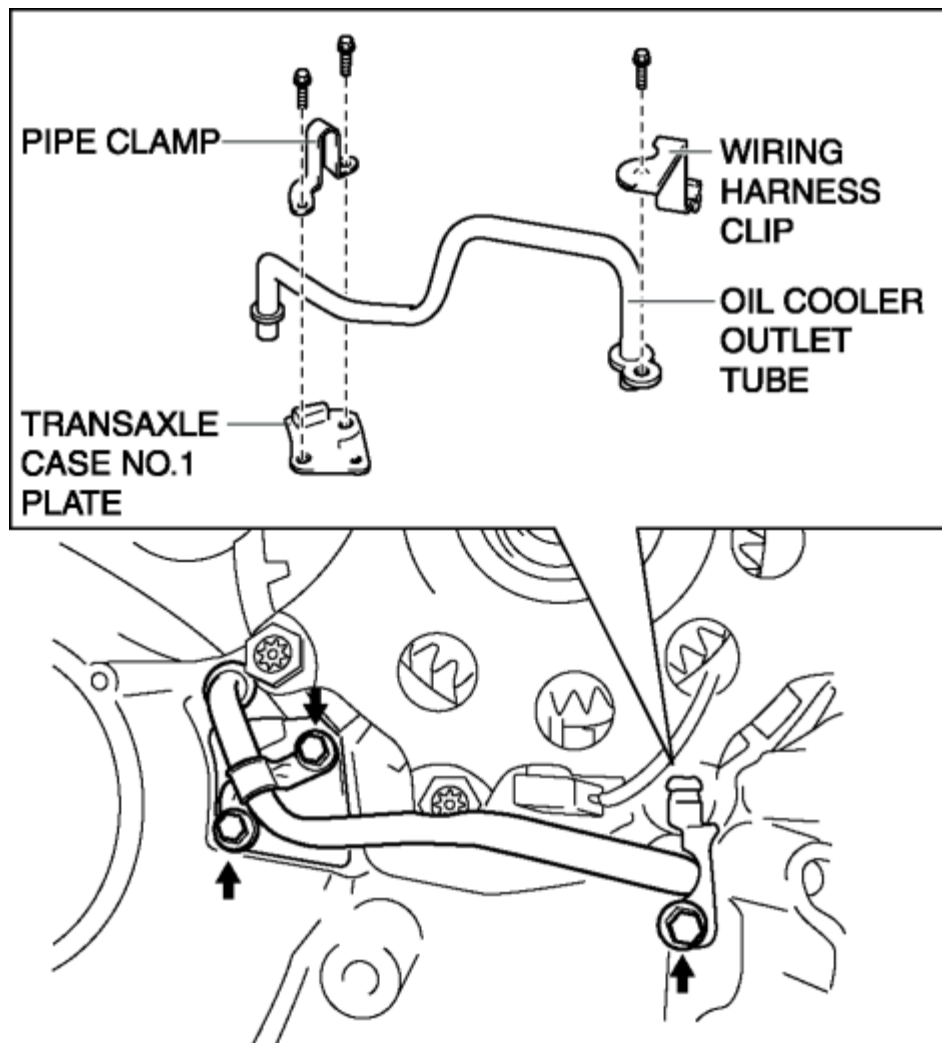


53. Apply ATF to the new O-rings.

54. Install the new O-rings to the oil cooler outlet tube.



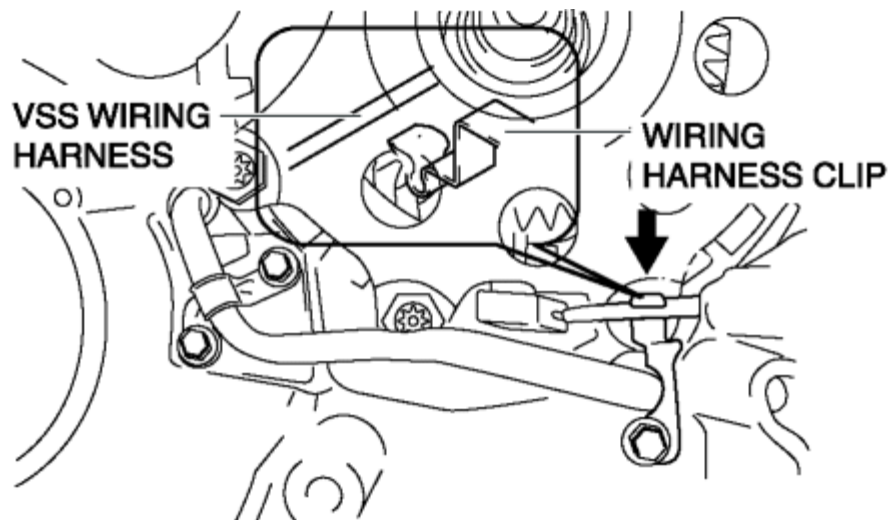
55. Install the oil cooler outlet tube, pipe clamp, transaxle case No.1 plate and the wiring harness clip to the converter housing.



Tightening torque

- 8–11 N·m {82–122 kgf·cm, 71–97 in·lbf}

56. Connect the VSS wiring harness to the wiring harness clip.

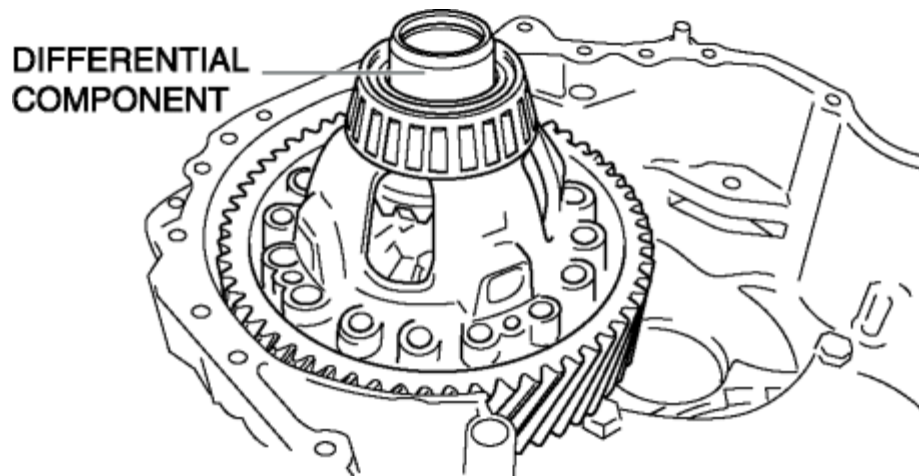


CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

57. Apply ATF to the bearing and gear of the differential component.

58. Install the differential component to the transaxle case.

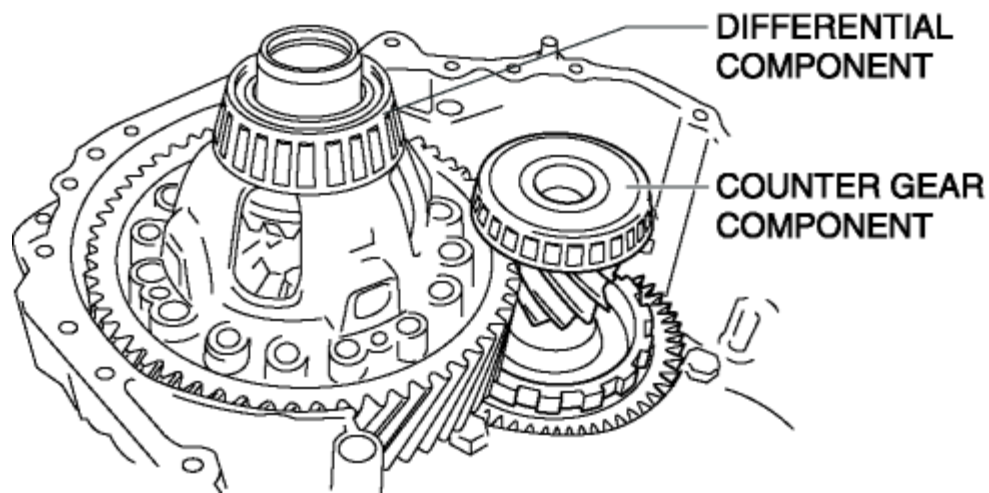


CAUTION:

- Do not damage the oil seal (transaxle case side).

59. Apply ATF to the bearing and gear of the counter gear component.

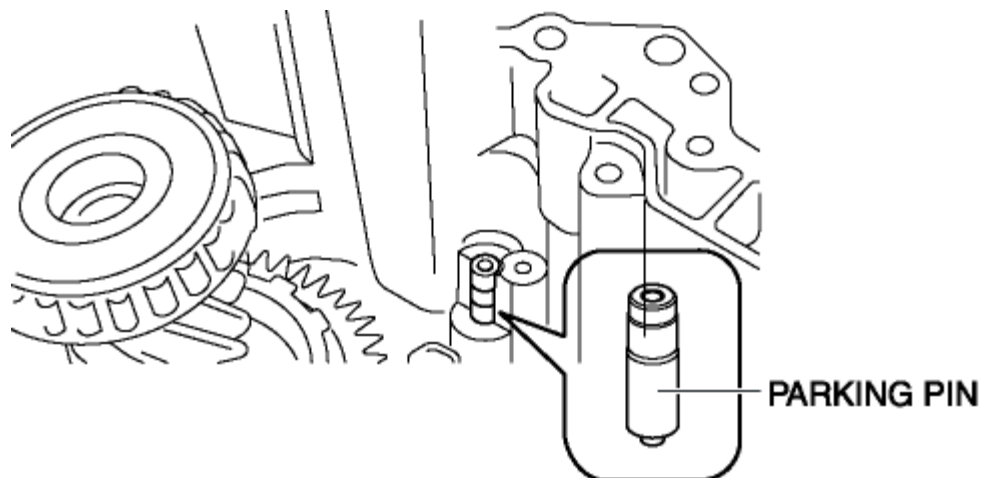
60. Install the counter gear component to the transaxle case.



NOTE:

- If it is difficult to install the counter gear component, remove the differential component and then install the counter gear component. Install the differential component again.
- For easy installation, tilt the counter gear component slightly.

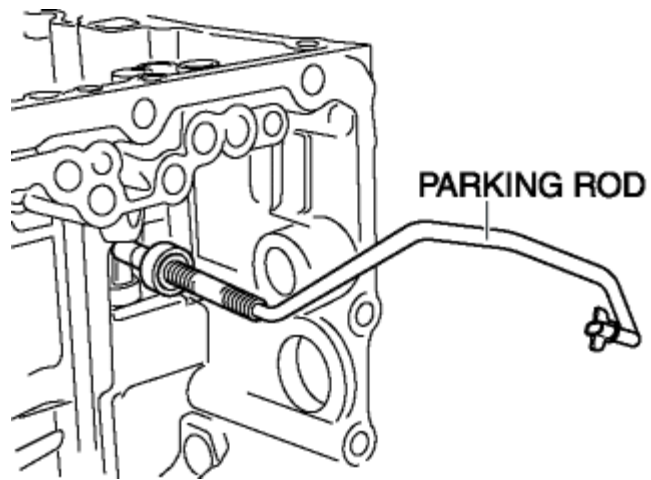
61. Install the parking pin to the transaxle case.



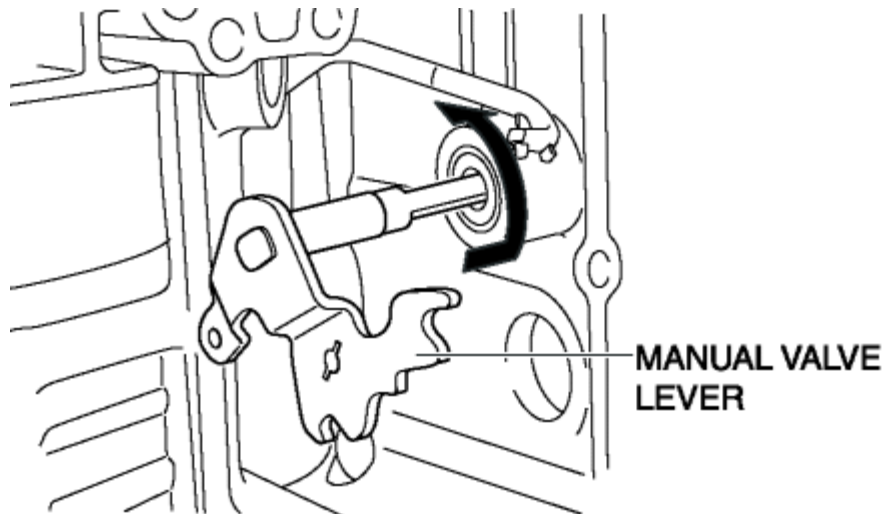
CAUTION:

- Verify to install the parking pin as shown in the figure.

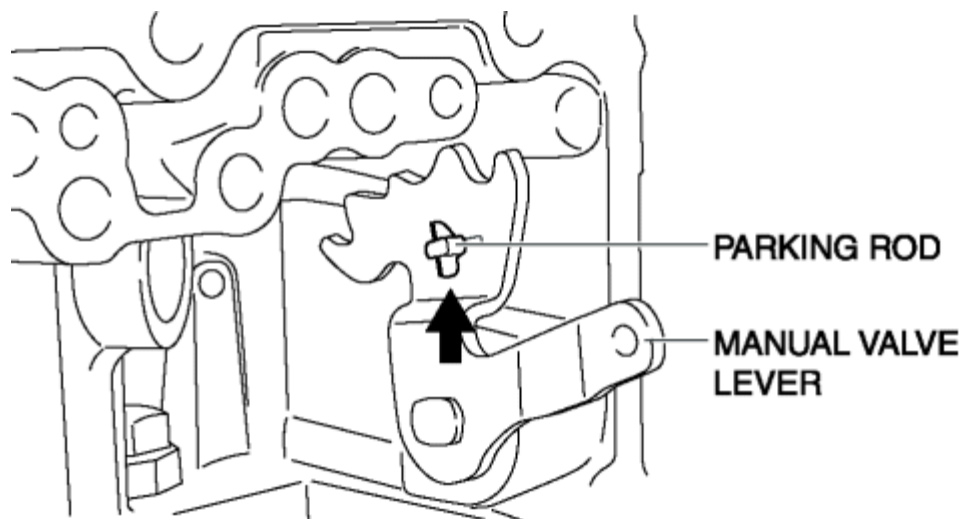
62. Insert the parking rod to the transaxle case.



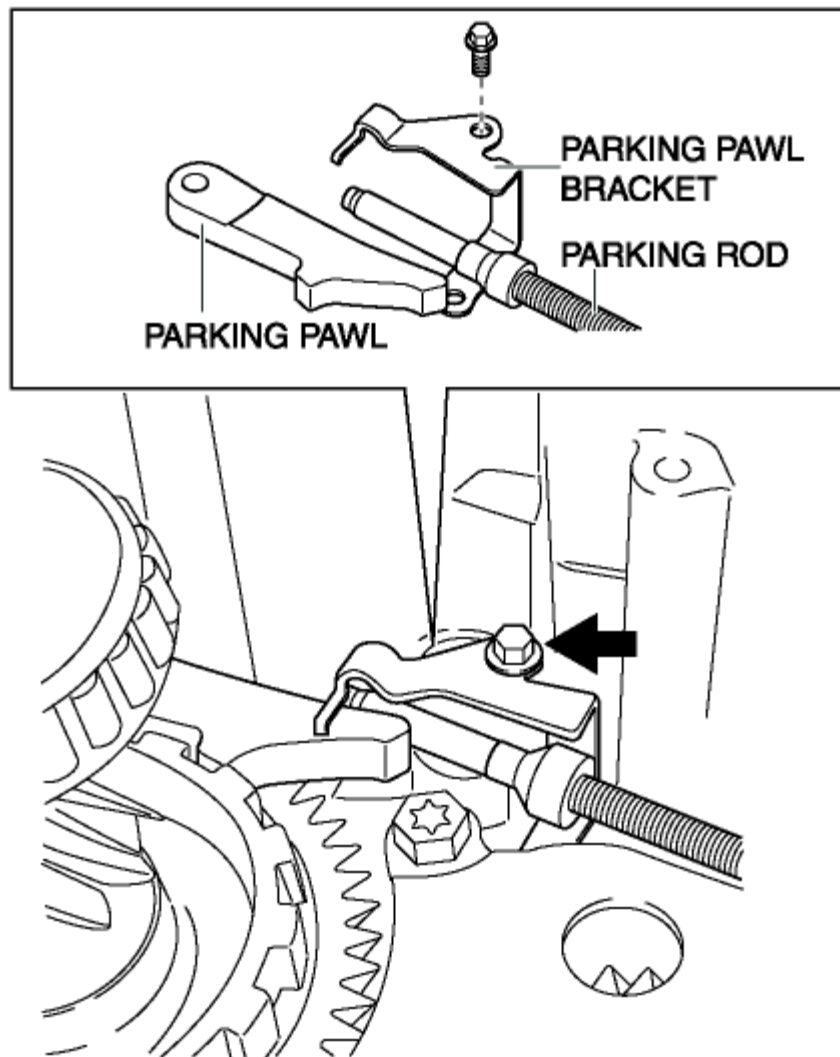
63. Install the manual valve lever to the transaxle case.



64. Connect the parking rod to the manual valve lever.



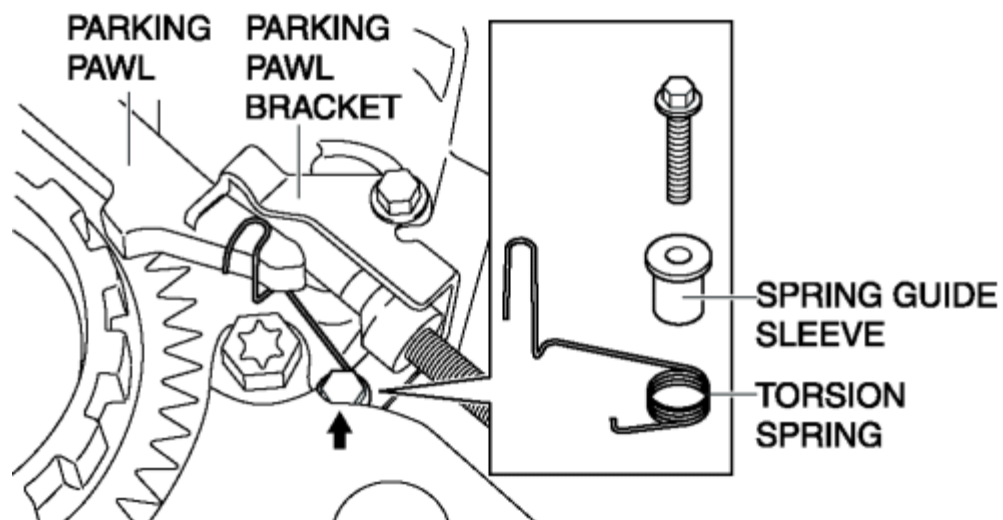
65. Install the parking pawl, parking pawl bracket and the parking rod to the transaxle case.



Tightening torque

- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

66. Install the spring guide sleeve and the torsion spring.



CAUTION:

- Do not apply too much force to the torsion spring.

NOTE:

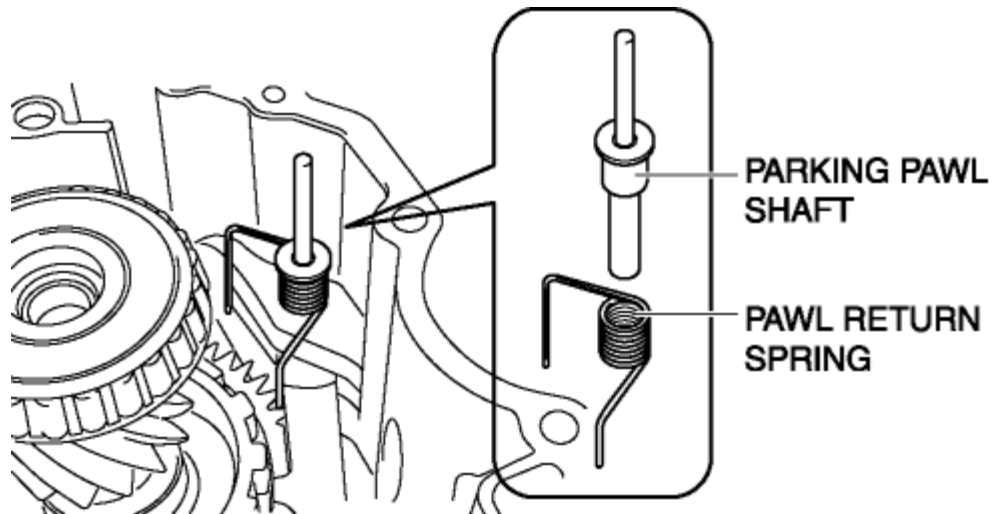
- Install the torsion spring to the position of the parking pawl and parking pawl bracket shown in the figure together with the spring guide sleeve and torsion spring installed.

Tightening torque

- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

67. Install the pawl return spring to the parking pawl shaft.

68. Install the pawl return spring and the parking pawl shaft to the transaxle case.

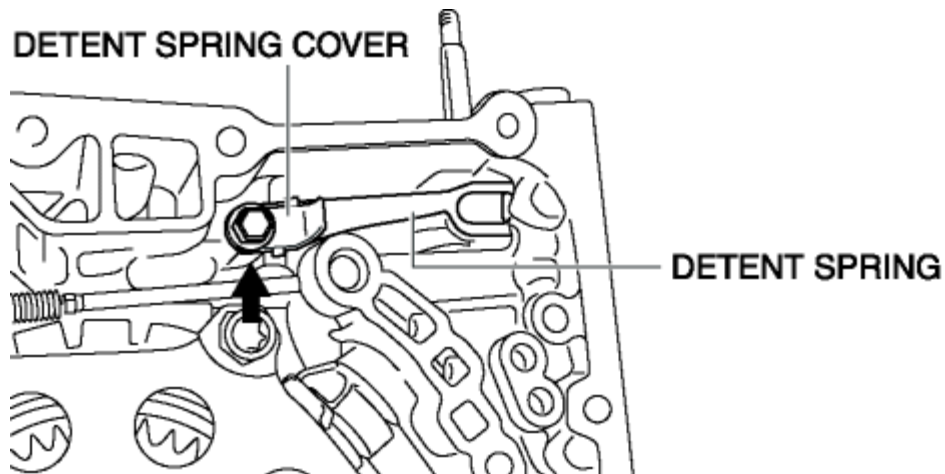
**CAUTION:**

- Do not apply too much force to the pawl return spring.

NOTE:

- When installing the pawl return spring to transaxle case, install the parking pawl side of the spring, then install the parking pawl shaft.

69. Install the detent spring cover and detent spring to the transaxle case.

**CAUTION:**

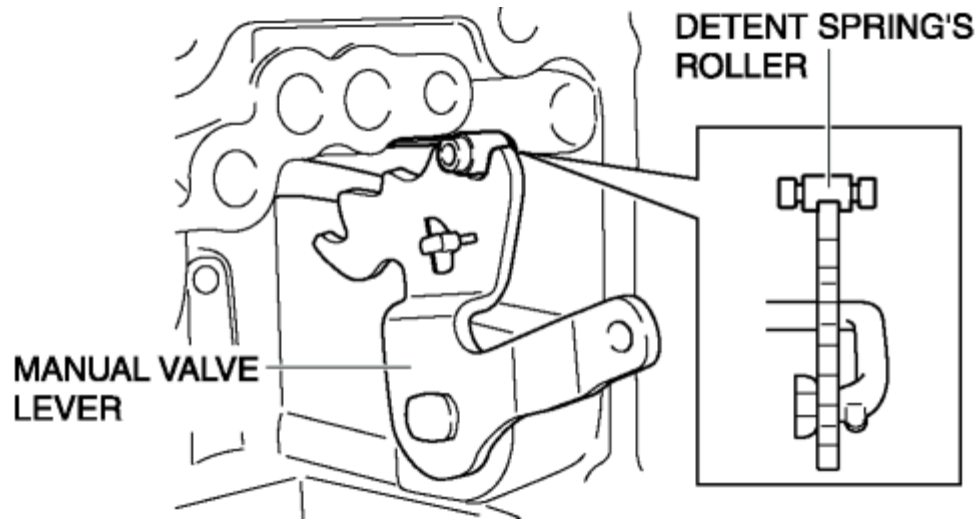
- Do not apply too much force to the detent spring.

Tightening torque

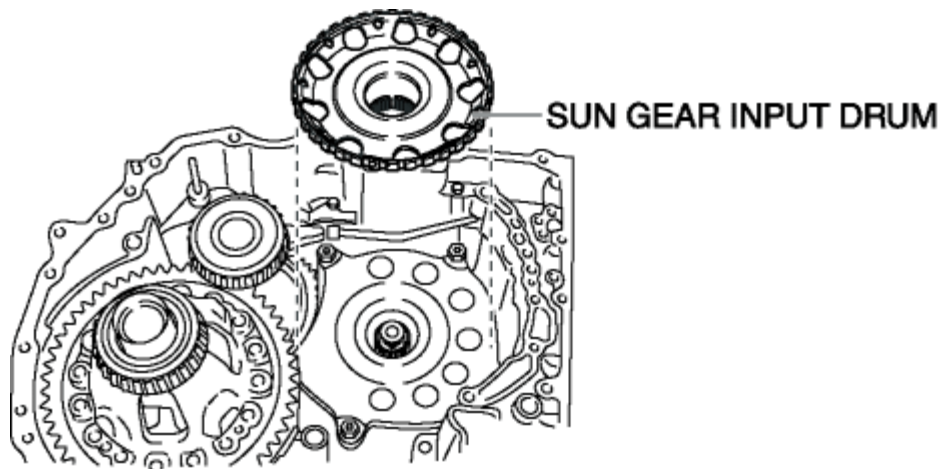
- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

NOTE:

- When installing, ensure that the center of the detent spring's roller fits the center of the manual valve lever.

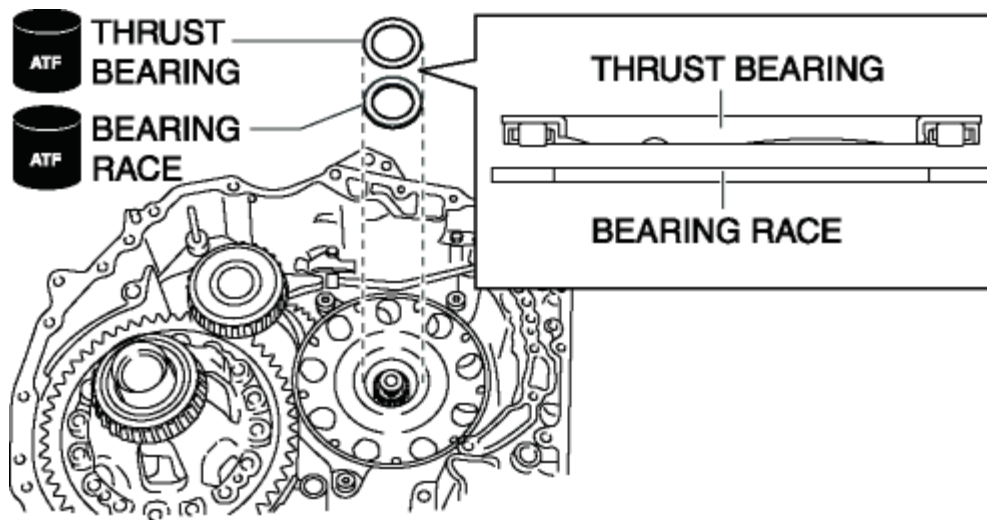


70. Install the sun gear input drum to the transaxle case.

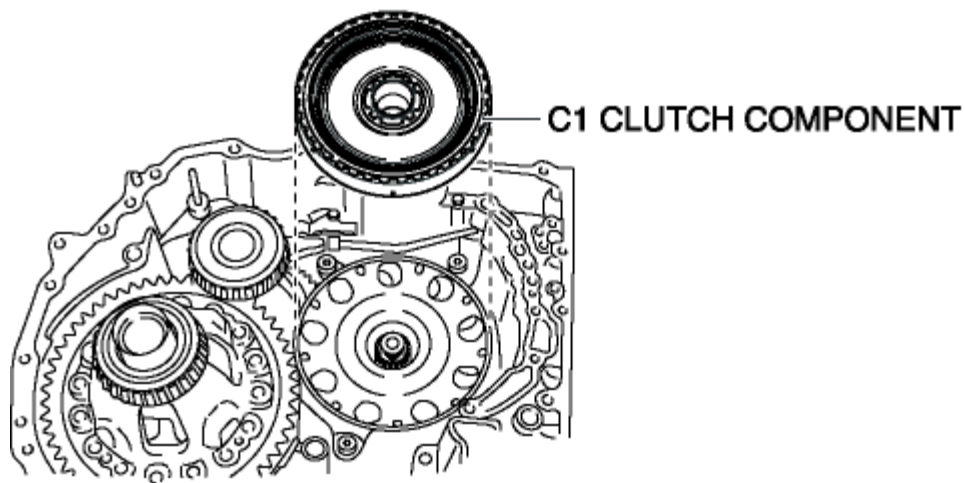


71. Apply ATF to the bearing race and the thrust bearing.

72. Install the bearing race and thrust bearing to the transaxle case as shown in the figure.

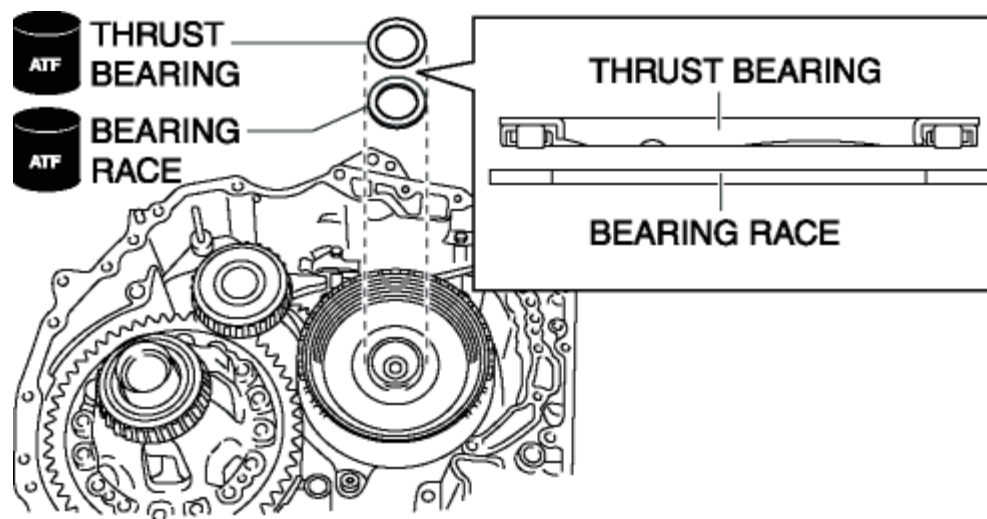


73. Install the C1 clutch component to the transaxle case.

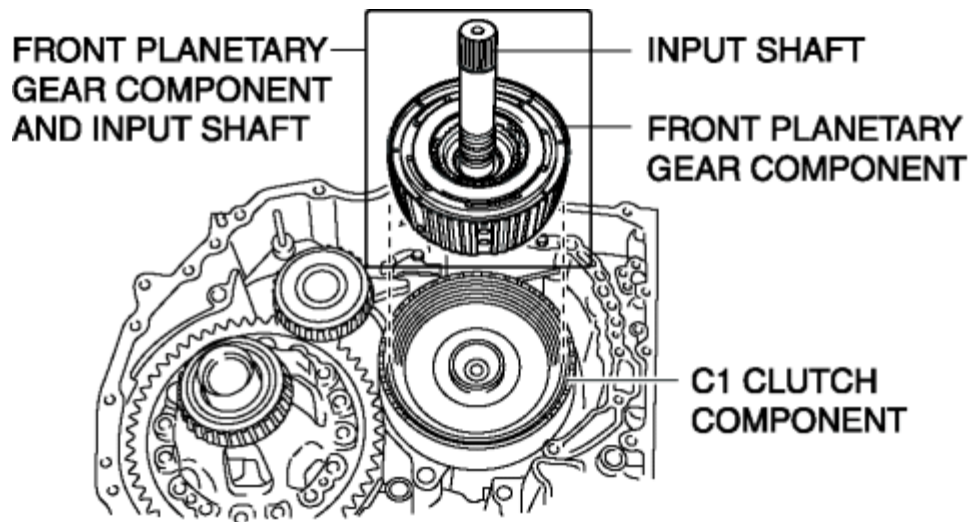


74. Apply ATF to the bearing race and the thrust bearing.

75. Install the bearing race and thrust bearing to the transaxle case as shown in the figure.



76. Install the front planetary gear component and input shaft to the transaxle case.



CAUTION:

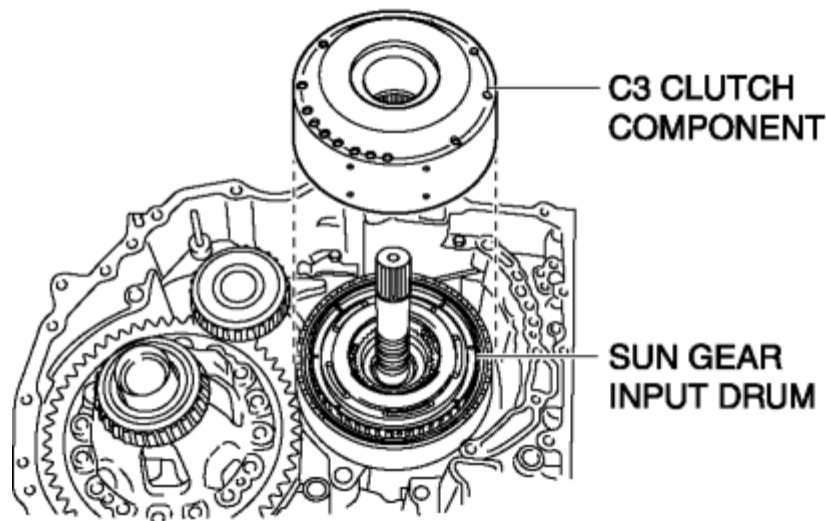
- If the input shaft is not held during installation, the thrust washer might come off.

NOTE:

- Align the spline of the C1 clutch component before installing the front planetary gear component and input shaft.
- Hold the C1 clutch component and install the front planetary gear component while holding the input shaft.

77. Apply ATF to the bushing of the C3 clutch component.

78. Install the C3 clutch component to the transaxle case.

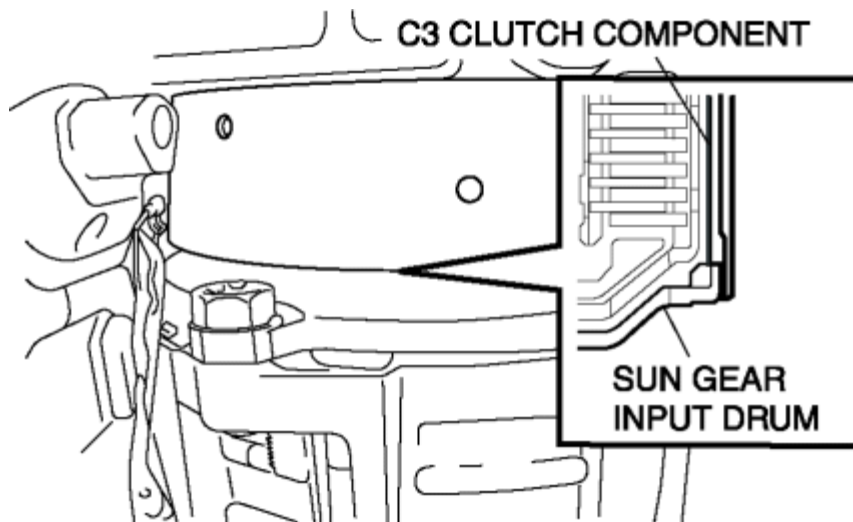


NOTE:

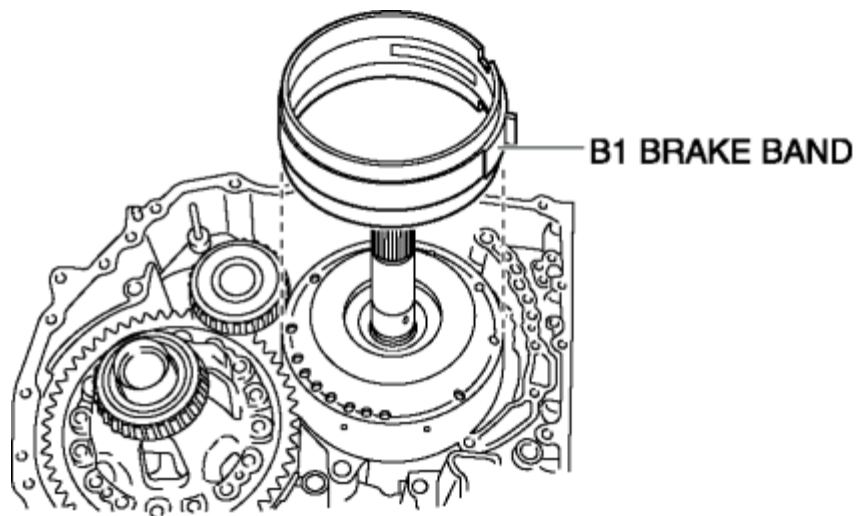
- Before installing the C3 clutch component, align the spline of the C3 clutch component and the spline of the sun gear input drum.

NOTE:

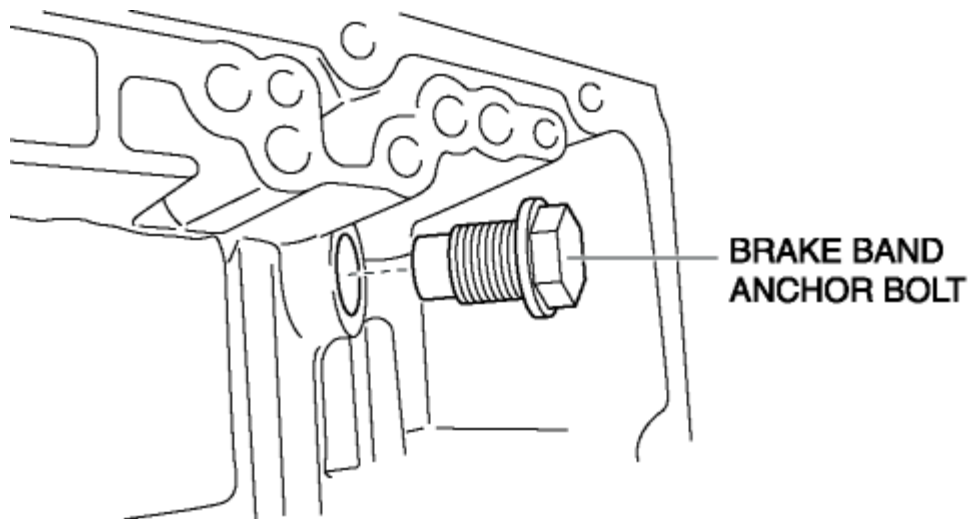
- Install the C3 clutch component so that it engages with the sun gear input drum as shown in the figure.



79. Install the B1 brake band to the transaxle case.



80. Install the brake band anchor bolt to the transaxle case.



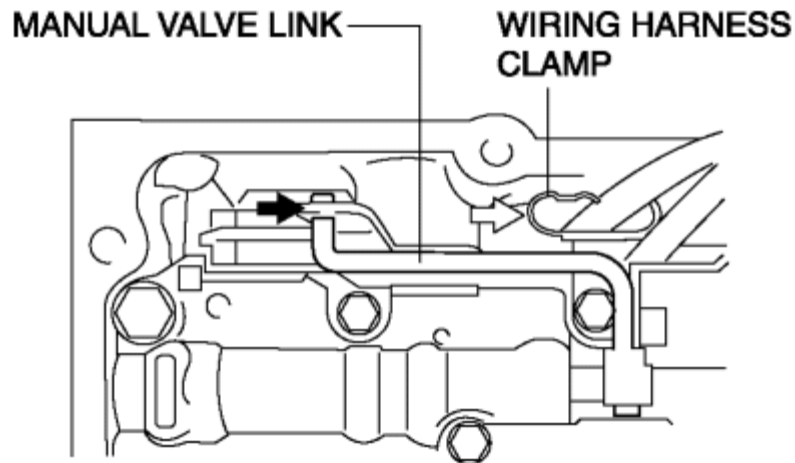
Tightening torque

- 134—199 N·m {14—20 kgf·m, 99—146 ft·lbf}

81. Install the oil pump component and oil strainer as a single unit. (See [OIL PUMP REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

82. Install the converter housing. (See [CONVERTER HOUSING REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

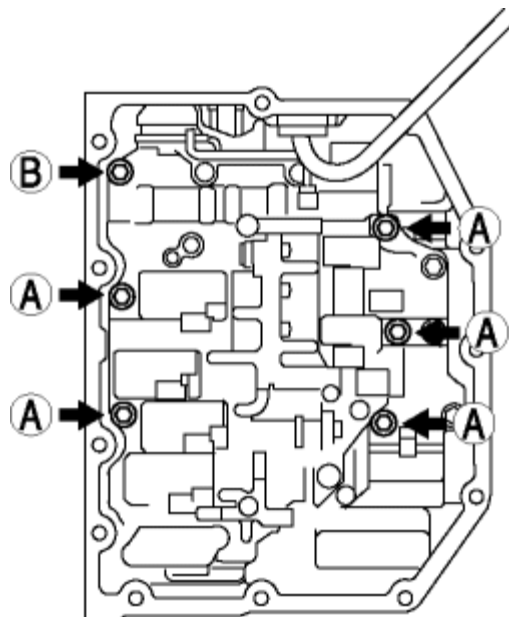
83. Connect the manual valve link and install the control valve body component.



CAUTION:

- When installing the control valve body component, secure the coupler component to the wiring harness clamp.
- Do not pinch the coupler component between the transaxle case and the control valve body component.

84. Temporarily install the control valve body component with the bolts.



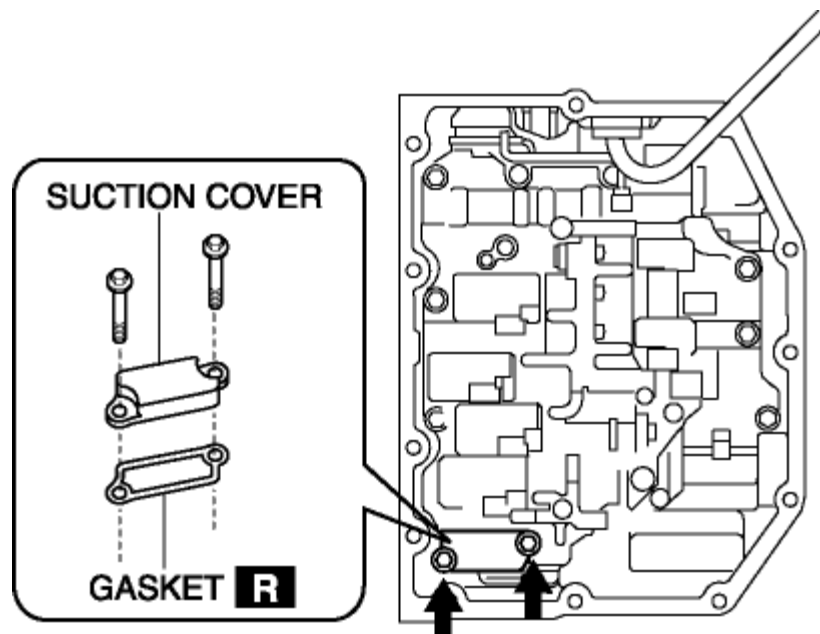
NOTE:

- Aligning the bolt holes, temporarily tighten the bolt by hand.

Bolt length (measured from below the head)

- A: 21 mm {0.83 in}
- B: 31 mm {1.2 in}

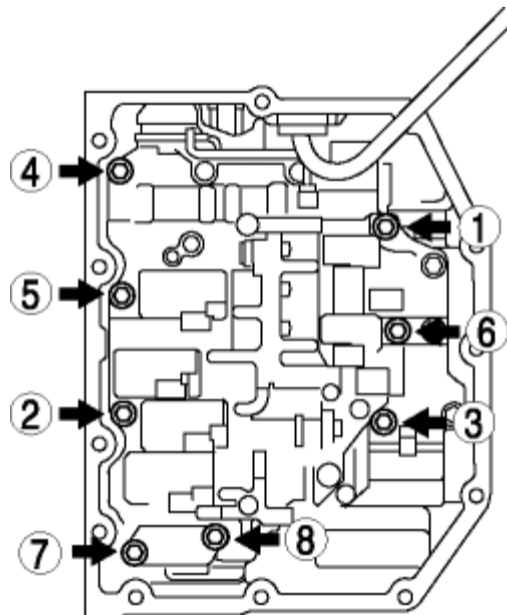
85. Temporarily install the suction cover and a new gasket with the bolts.



NOTE:

- Aligning the bolt holes, temporarily tighten the bolt by hand.

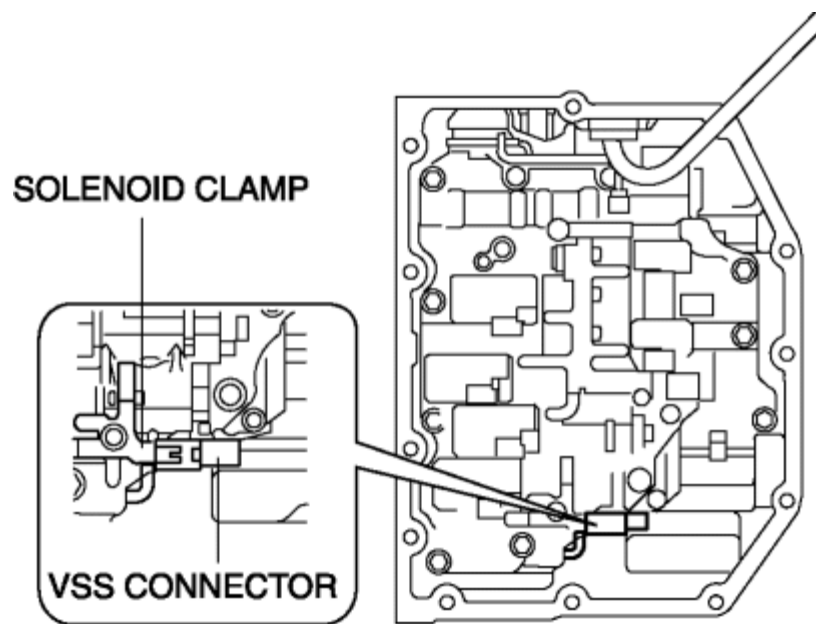
86. Tighten the bolts in the order shown in the figure.



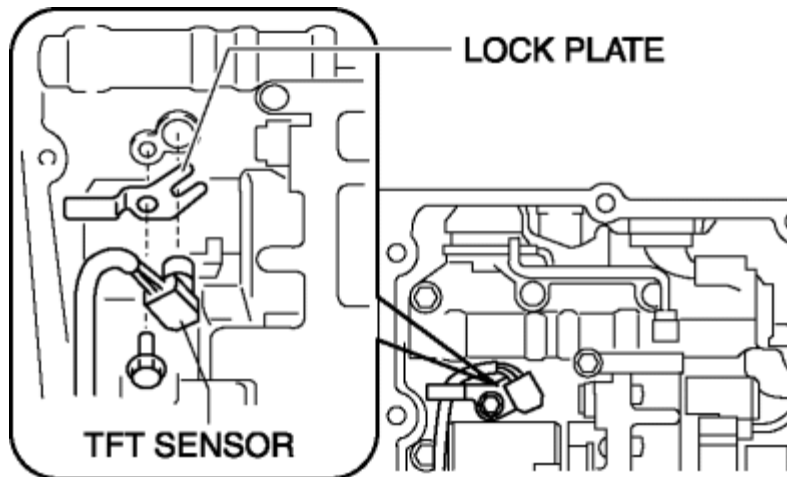
Tightening torque

- 8—12 N·m {82—122 kgf·cm, 71—106 in·lbf}

87. Install the connector of the VSS to the solenoid clamp.



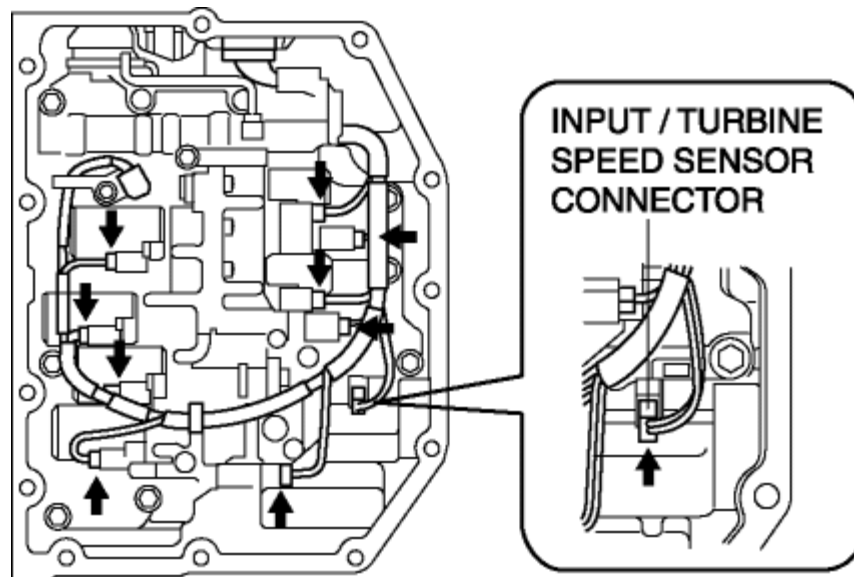
88. Install the TFT sensor with the lock plate and a bolt to the control valve body component as shown in the figure.



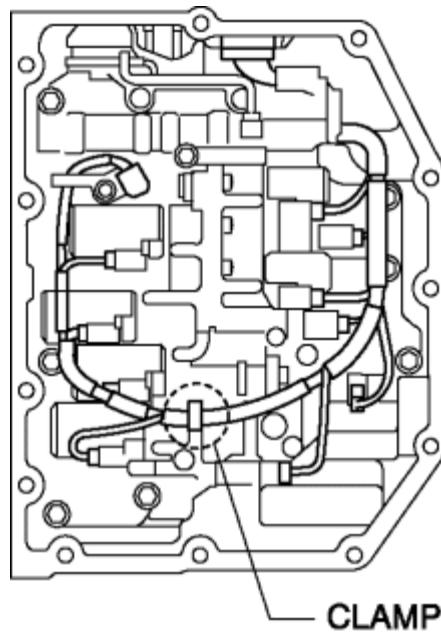
Tightening torque

- 6.0—8.0 N·m {62—81 kgf·cm, 54—70 in·lbf}

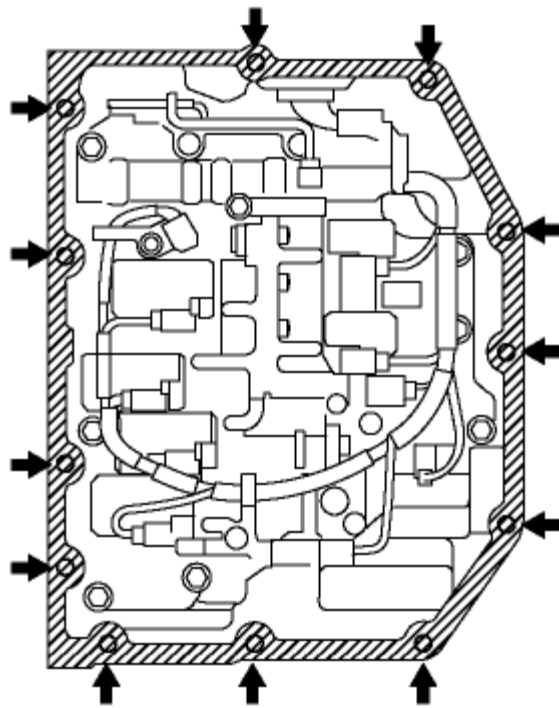
89. Connect the solenoid connectors, VSS connector and the input/turbine speed sensor connector.



90. Connect the coupler component to the clamps.



91. Clean sealant and oil off the contact surface of the transaxle case with the control valve body cover and the bolt holes.

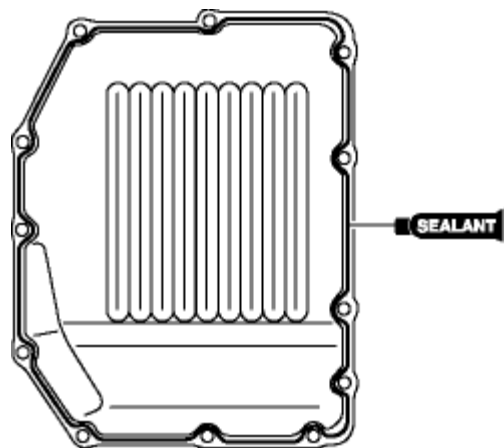


NOTE:

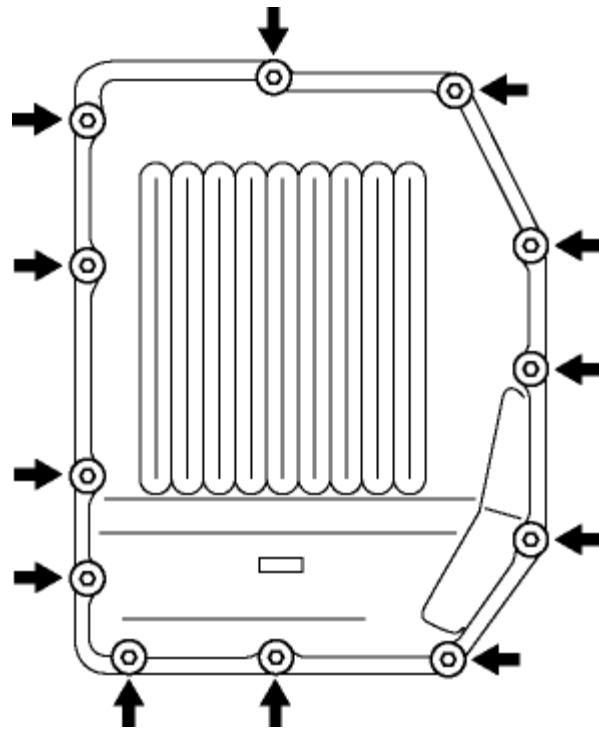
- Completely remove sealant and oil with white gasoline or similar.

92. Clean oil off the contact surface of the new control valve body cover with the transaxle case.

93. Apply sealant to the new control valve body cover as shown in the figure.



94. Install the new control valve body cover with new seal bolts before the applied sealant starts to harden.



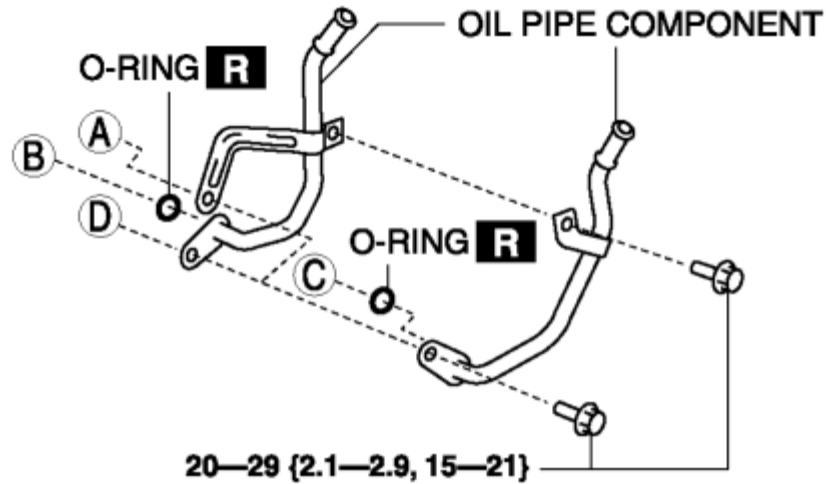
CAUTION:

- Be careful that the coupler component will not become caught between the control valve body cover and transaxle case.

Tightening torque

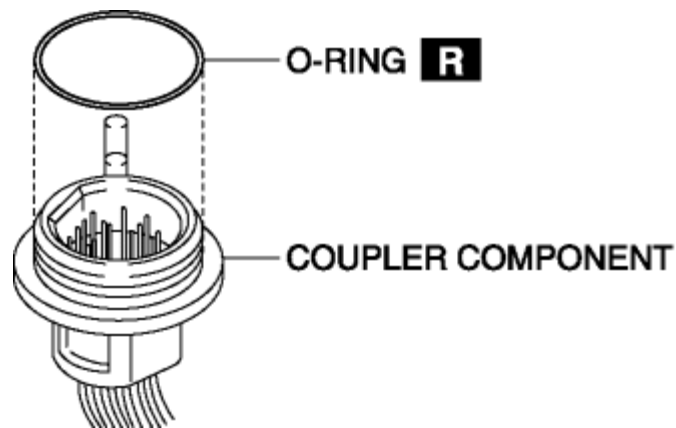
- 10—15 N·m {102—152 kgf·cm, 89—132 in·lbf}

95. Install the oil pipe component and O-rings.



N·m {kgf·m, ft·lbf}

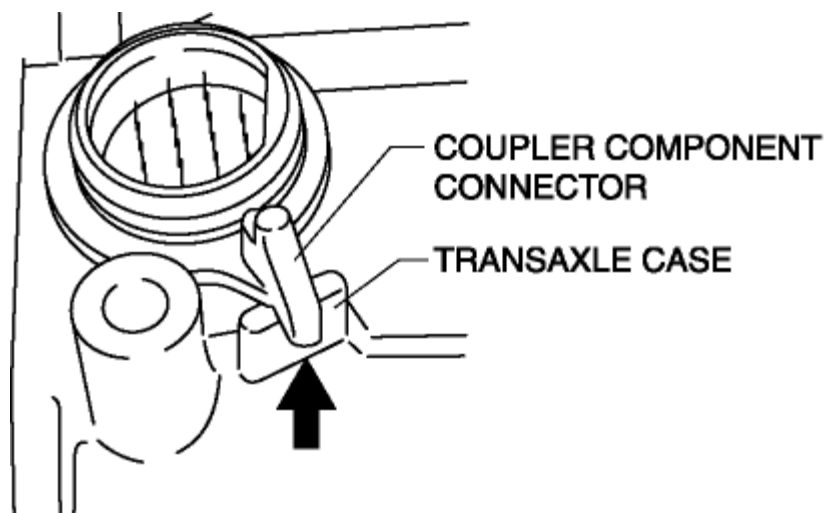
96. Install a new O-ring to the coupler component.



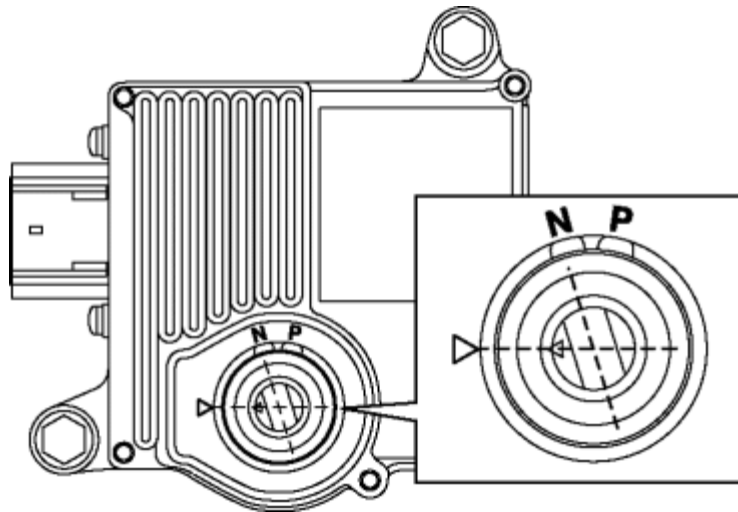
CAUTION:

- Do not apply ATF to the O-ring.

97. Align the transaxle case and coupler component connector.



98. Be sure to match the position of the TCM marking.

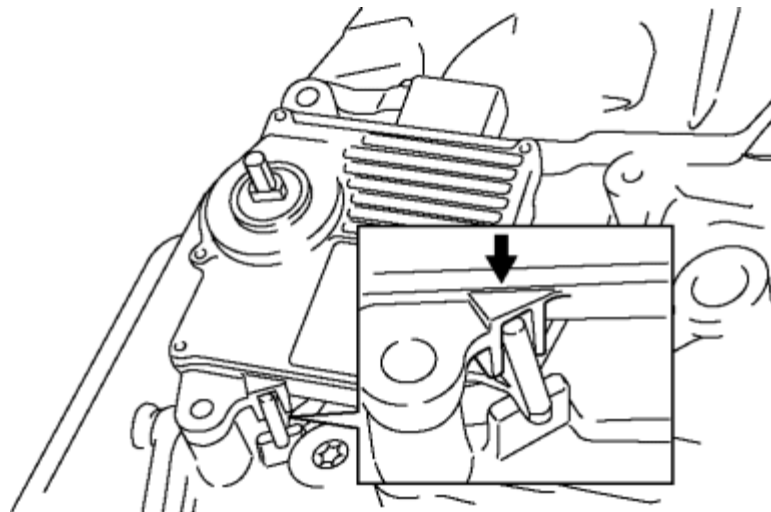


CAUTION:

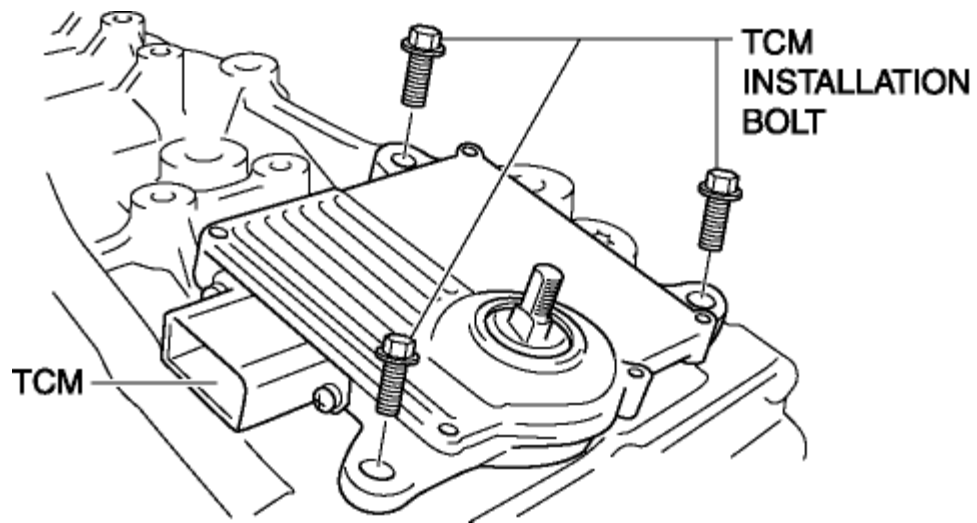
- Do not turn more than 60° from the marking.

99. Install the TCM.

100. Verify the correct positioning of the TCM and coupler component.



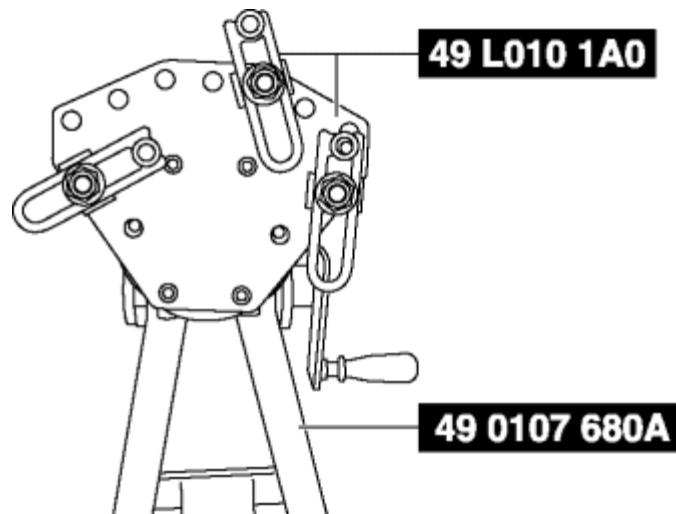
101. Tighten the TCM installation bolts.



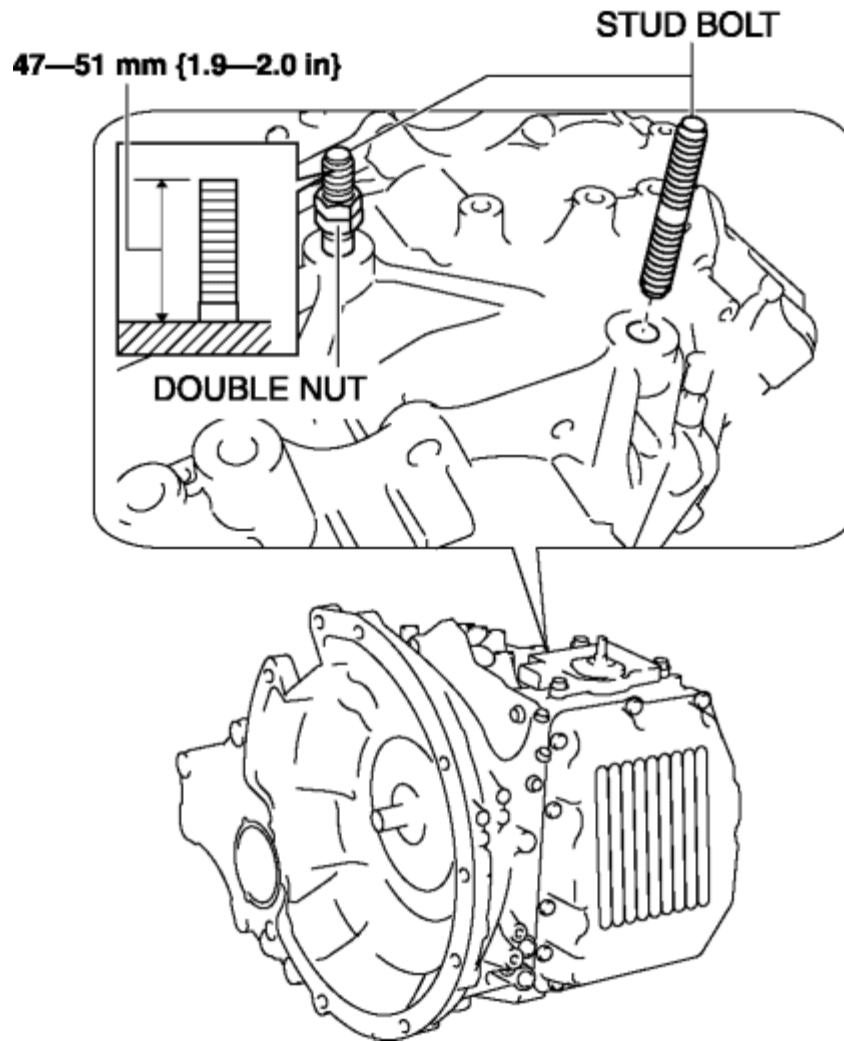
Tightening torque

- 20—29 N·m {2.1—2.9 kgf·m, 15—21 ft·lbf}

102. Remove the **SSTs**.



103. Install the stud bolts using double nutted.



CAUTION:

- Do not repair the threads using a tap or other tools.
- Do not damage the transaxle case.
- Do not overtighten the stud bolts. (The stud bolts should remain protruded from the end of the transaxle case more than 47 mm {1.9 in}.)
- If any of the stud bolts is overtightened, the transaxle case may be damaged (holes in the case may result).
- If the transaxle case is damaged, the transaxle must be replaced.

104. Remove the double nutted from the stud bolts.

105. Install the torque converter. (See [TORQUE CONVERTER REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

106. Install the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

107. Add ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) LEVEL ADJUSTMENT \[AY6A-EL\]](#).)

108. Perform the "Neutral Position Learning". (See [TCM NEUTRAL POSITION LEARNING \[AY6A-EL\]](#).)

109. Adjust the ATF level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) LEVEL ADJUSTMENT \[AY6A-EL\]](#).)

110. Perform the "Mechanical System Test". (See [MECHANICAL SYSTEM TEST \[AY6A-EL\]](#).)

111. Perform the "Road Test". (See [ROAD TEST \[AY6A-EL\]](#).)

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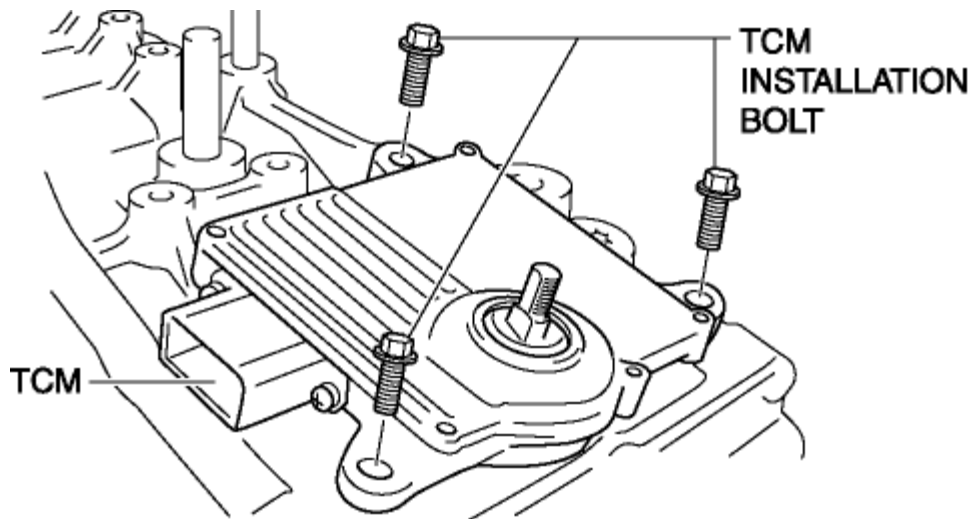
2012 - Mazda6 - Transmission/ Transaxle

VEHICLE SPEED SENSOR (VSS) REMOVAL/ INSTALLATION [AY6A-EL]

CAUTION:

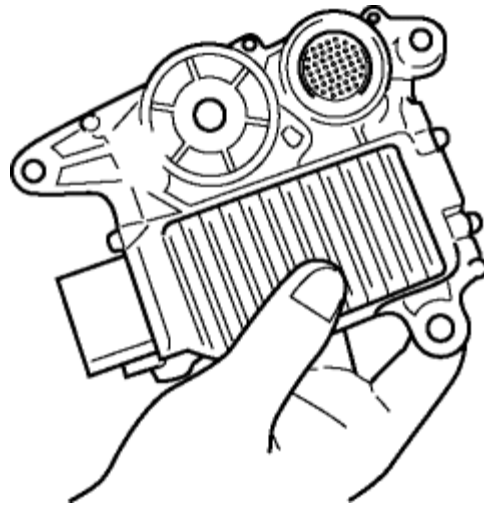
- Water or foreign objects entering the connector can cause a poor connection or corrosion. Be sure not to drop water or foreign objects on the connector when disconnecting it.
- If foreign materials are stuck to the VSS, disturbance by magnetic flux can cause sensor output to be abnormal and thereby negatively affect control. Make sure that foreign materials such as iron filings are not stuck to the VSS during installation.

1. Drain the ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) REPLACEMENT \[AY6A-EL\]](#).)
2. Remove the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)
3. Remove the TCM.

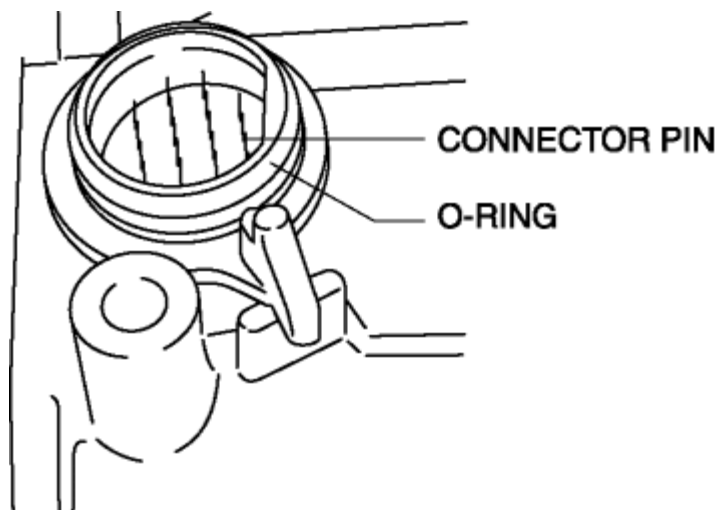


CAUTION:

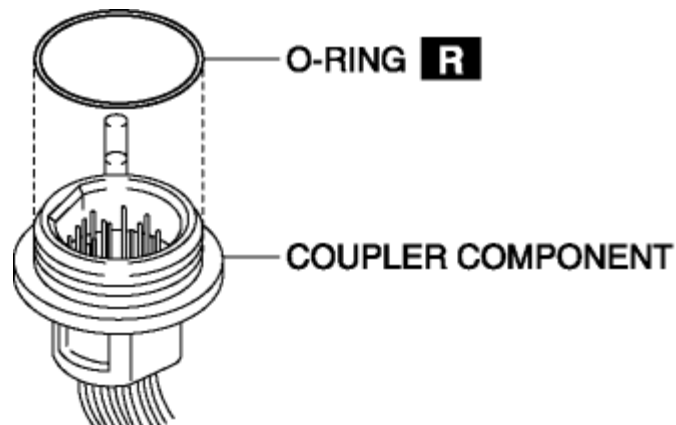
- Do not touch the terminals.



4. Inspect the condition of the connector pin of the coupler component (foreign material, bent pins, broken pins) and O-ring after the TCM is removed.



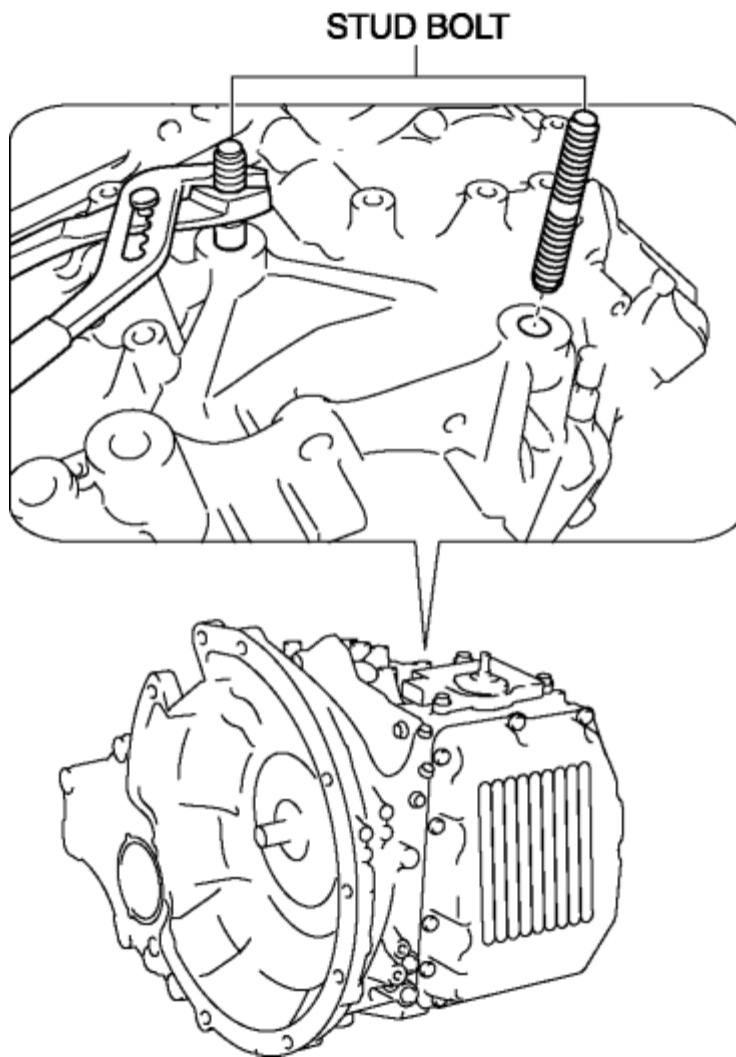
5. Remove the O-ring from the coupler component.



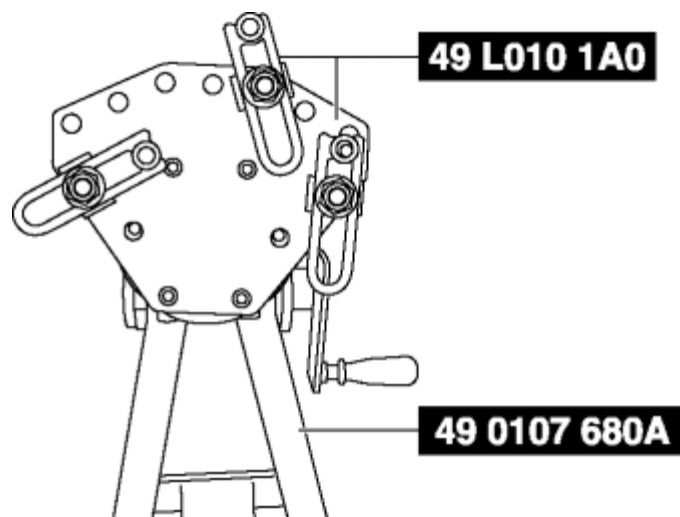
6. Clean the transaxle. (See [AUTOMATIC TRANSAXLE CLEANING \[AY6A-EL\]](#).)

7. Remove the torque converter. (See [TORQUE CONVERTER REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

8. Remove the stud bolts.



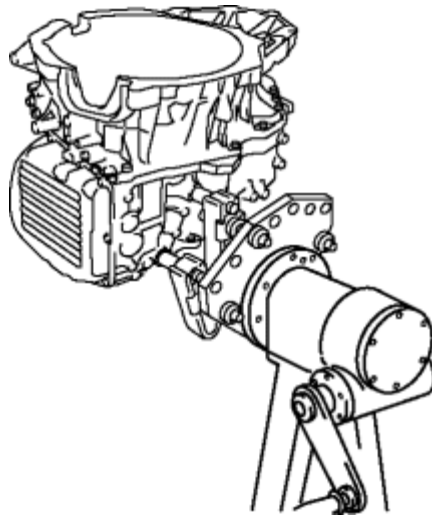
9. Set the **SSTs** as shown in the figure.



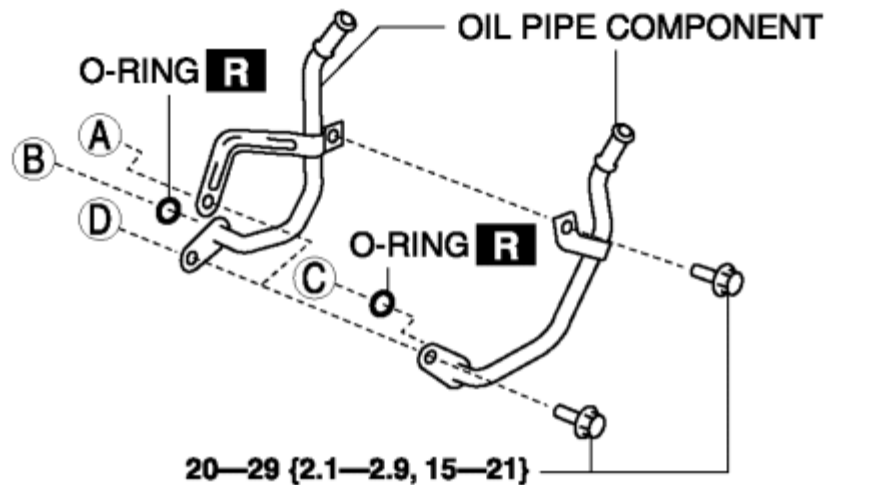
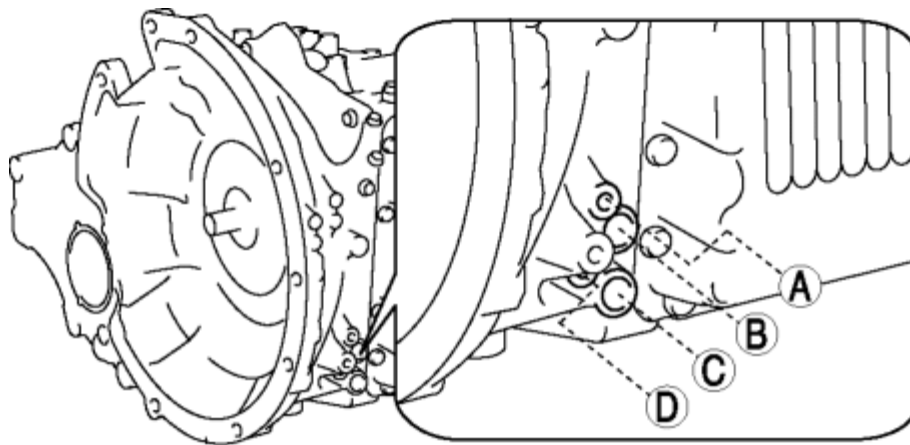
CAUTION:

- When installing the SST to the transaxle, use bolts (M12×1.25) with a thread length of 90 mm {3.5 in}.

10. Install the **SST** to the position where the transaxle stud bolts were removed.



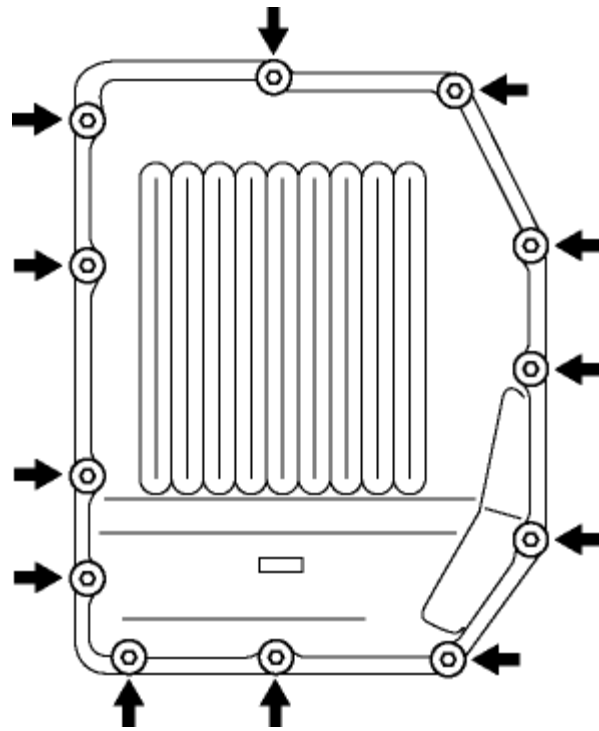
11. Remove the oil pipe component and O-rings.



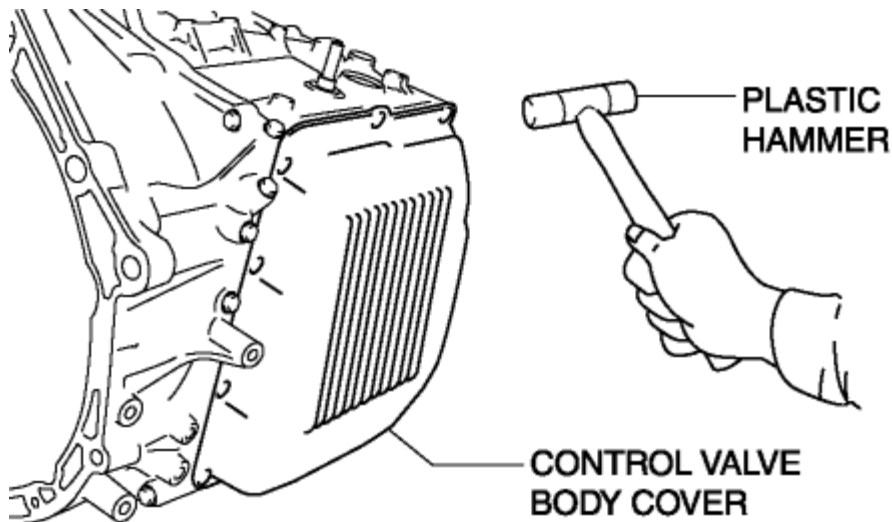
N·m {kgf·m, ft·lbf}

12. Refer to the "Automatic Transaxle Disassembly/assembly Precaution" before disassembling/assembling the transaxle. (See [AUTOMATIC TRANSAXLE DI SASSEMBLY/ ASSEMBLY PRECAUTION \[AY6A-EL\]](#).)

13. Remove the control valve body cover.



14. Using a plastic hammer, tap the control valve body cover to remove it.

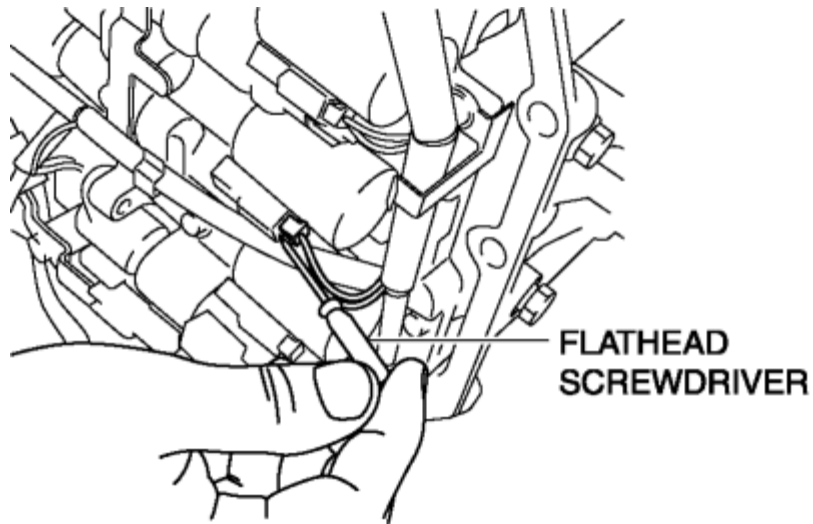


CAUTION:

- Do not damage the fitting surface of the transaxle case and the control valve body cover.
- Do not deform the control valve body cover.

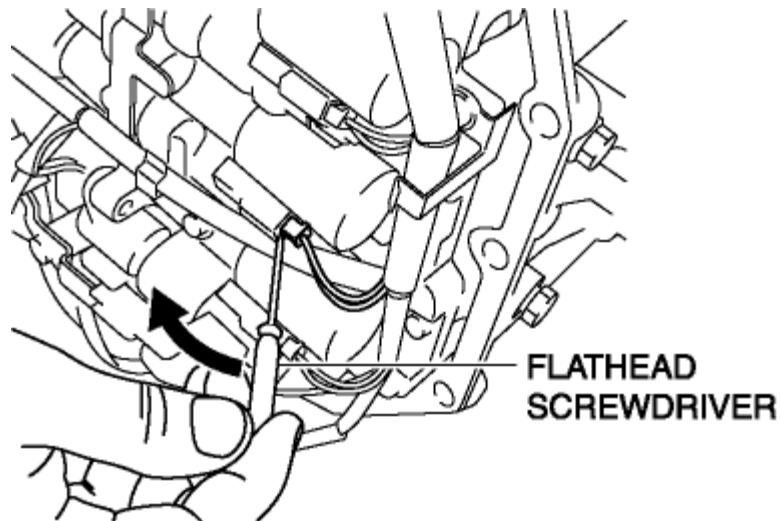
NOTE:

- Disconnect the solenoid connector according to the following procedure:
 - Insert a precision flathead screwdriver from the backside into the connector as shown in the figure.



CAUTION:

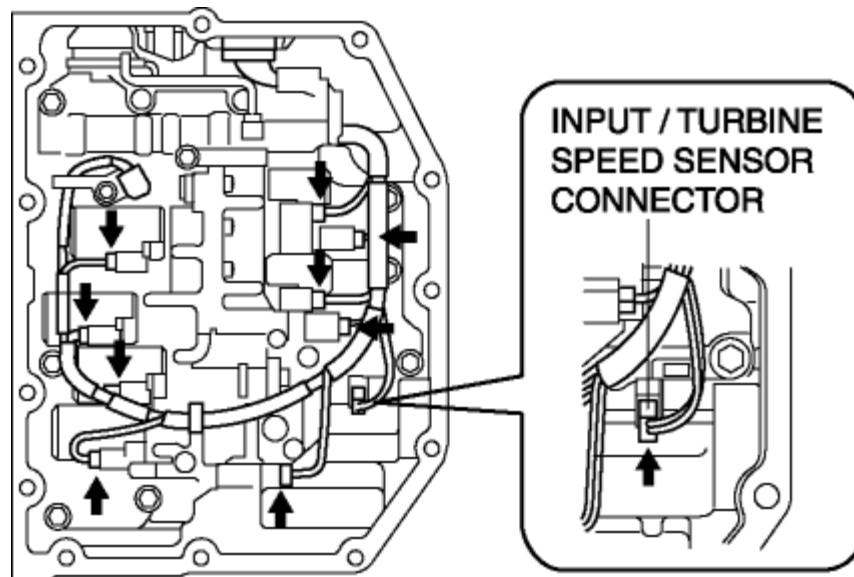
- Do not damage the solenoid valves and connectors with the flathead screwdriver.
- Pry the flathead screwdriver in the direction of the arrow and disconnect the connector.



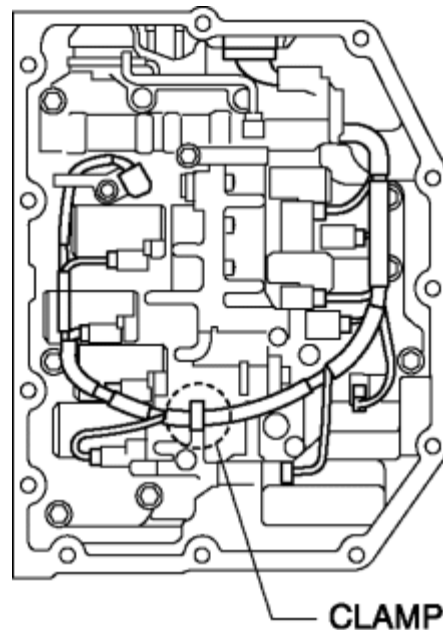
CAUTION:

- When disconnecting connectors, grasp the connectors, not the wiring harnesses. Otherwise, the wiring harnesses may be pulled out of the connector causing poor contact.

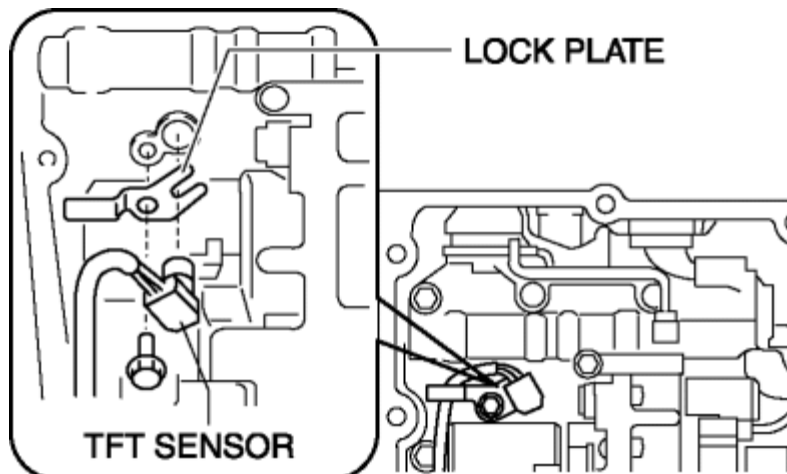
15. Disconnect the solenoid connectors, VSS connector and the input/turbine speed sensor connector.



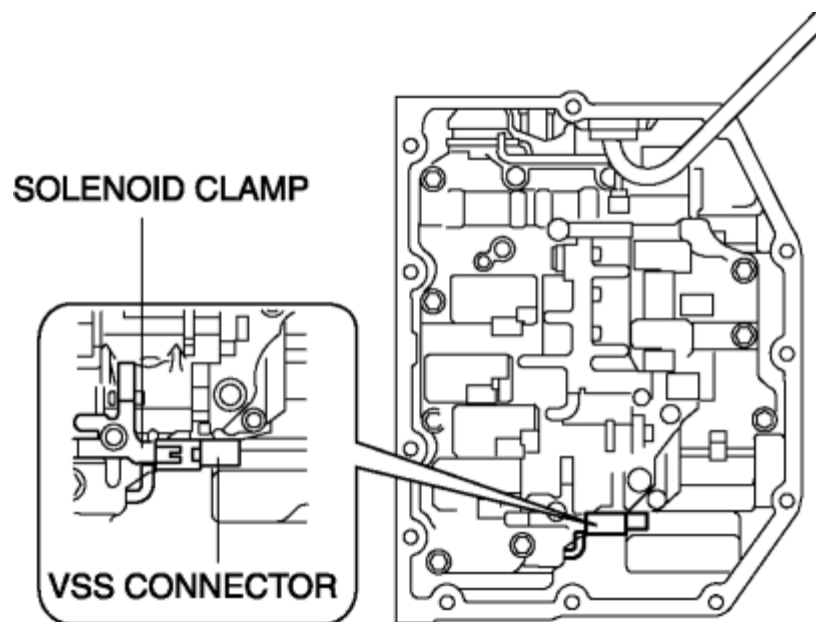
16. Disconnect the coupler component from the clamp.



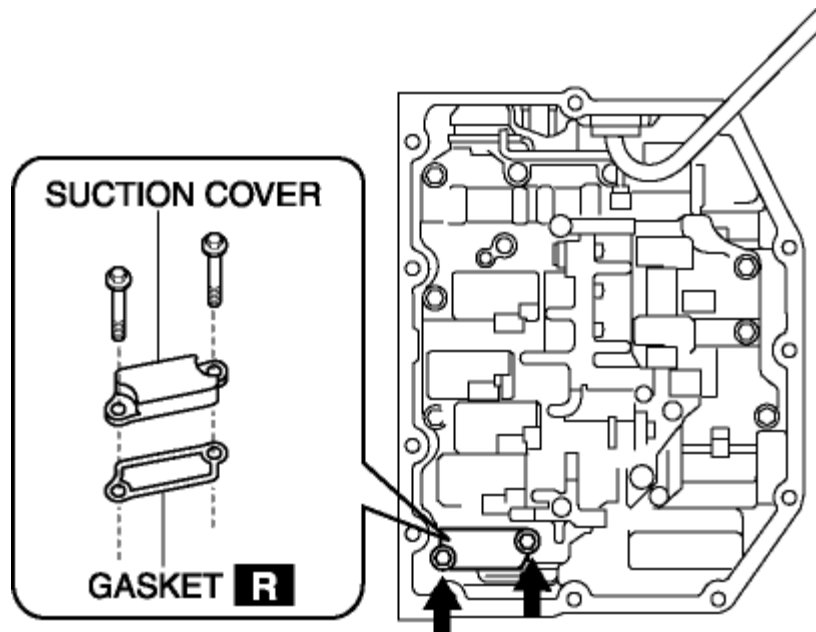
17. Remove the lock plate, and pull out the TFT sensor from the control valve body.



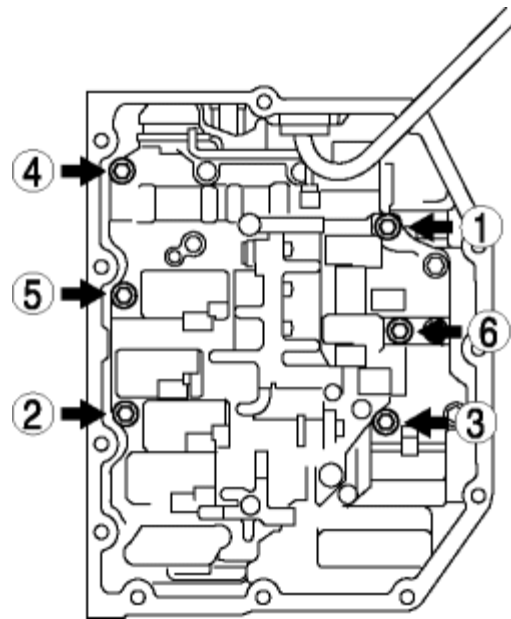
18. Remove the VSS connector from the solenoid clamp.



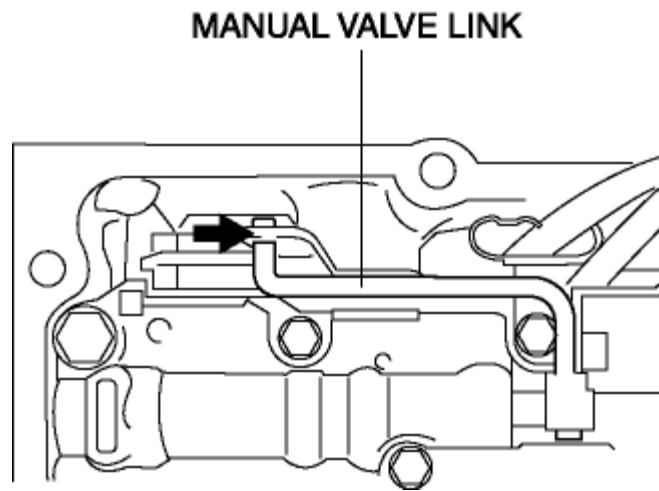
19. Remove the suction cover and the gasket.



20. Remove the control valve body installation bolts in the order shown in the figure.



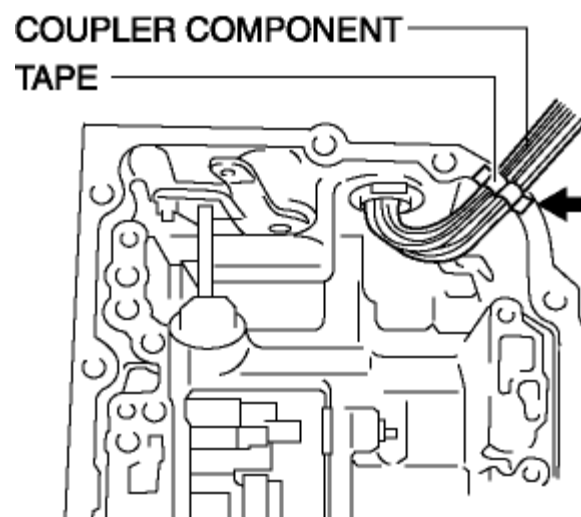
21. Disconnect the manual valve link and remove the control valve body component.



CAUTION:

- Do not drop the control valve body component.

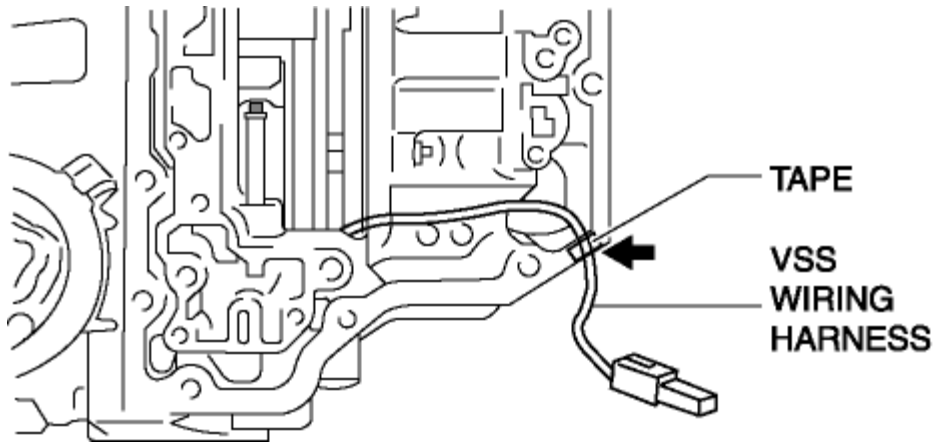
22. Fix the coupler component with tape to the transaxle case as shown in the figure.



NOTE:

- Be sure to secure the coupler component with tape so that it will not interfere with the control valve body component.

23. Fix the VSS wiring harness with tape to the transaxle case as shown in the figure.



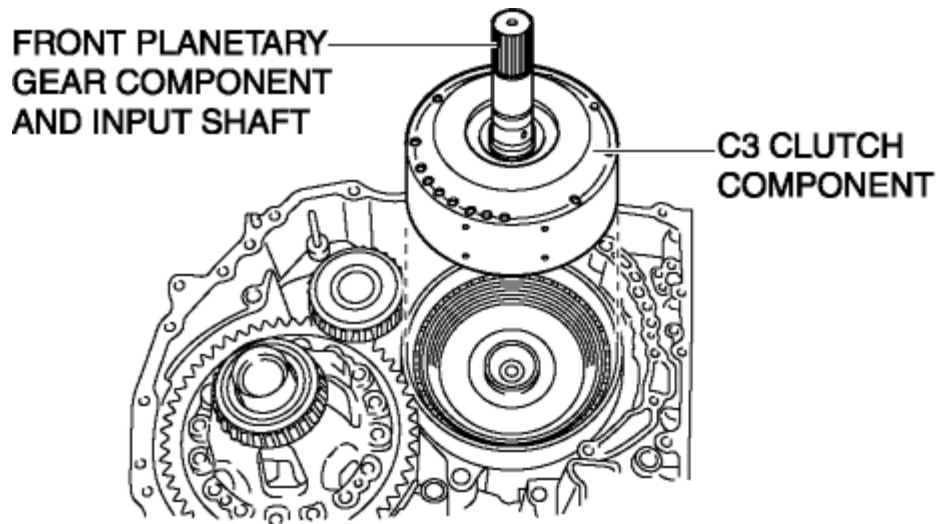
NOTE:

- Be sure to secure the VSS with tape so that they will not interfere with the control valve body component.

24. Remove the converter housing. (See [CONVERTER HOUSING REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

25. Remove the oil pump component and oil strainer as a single unit. (See [OIL PUMP REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

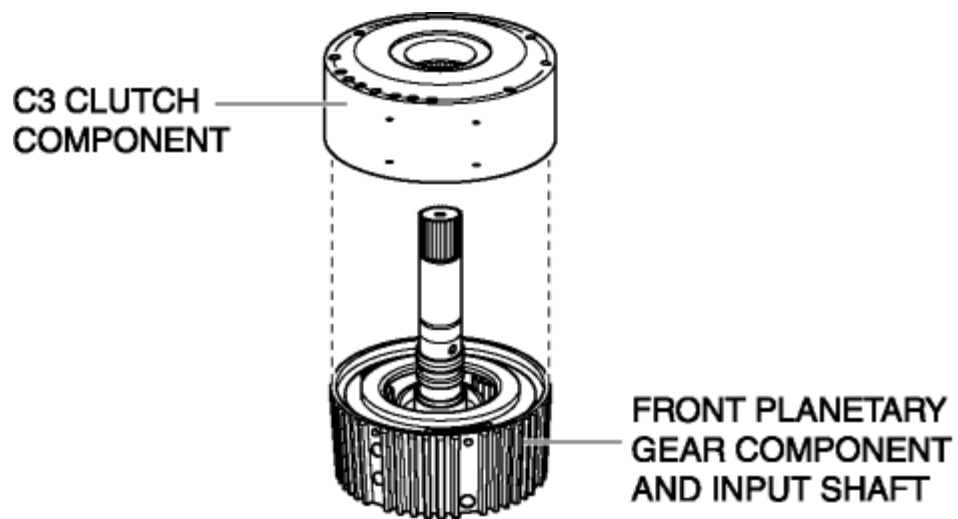
26. Remove the C3 clutch component, front planetary gear component and input shaft.



NOTE:

- In some cases, the input shaft may be detached with the thrust bearing attached.

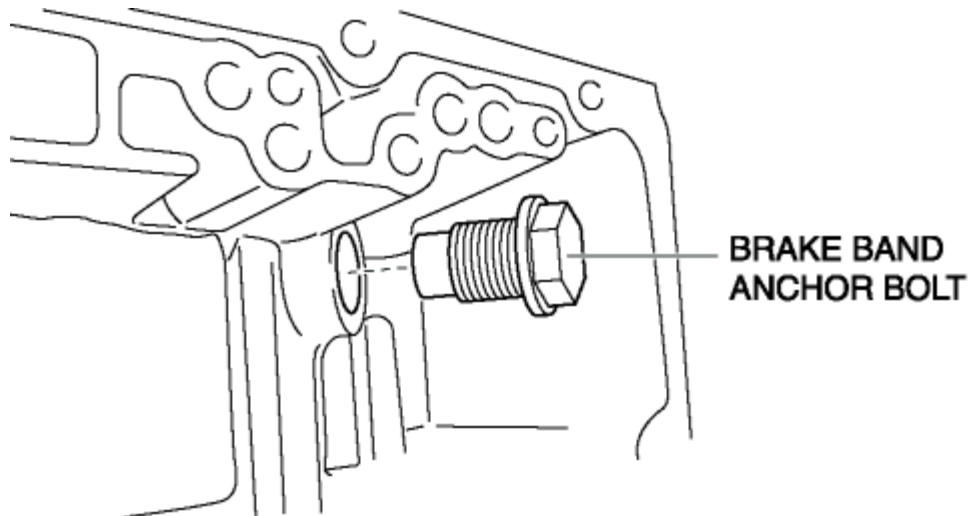
27. Remove the C3 clutch component from the front planetary gear component and input shaft.



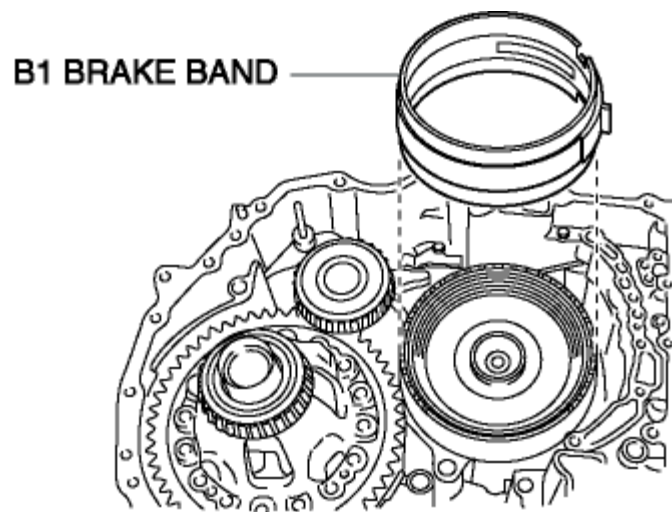
NOTE:

- In some cases, the C3 clutch component may be detached with the thrust washer attached.

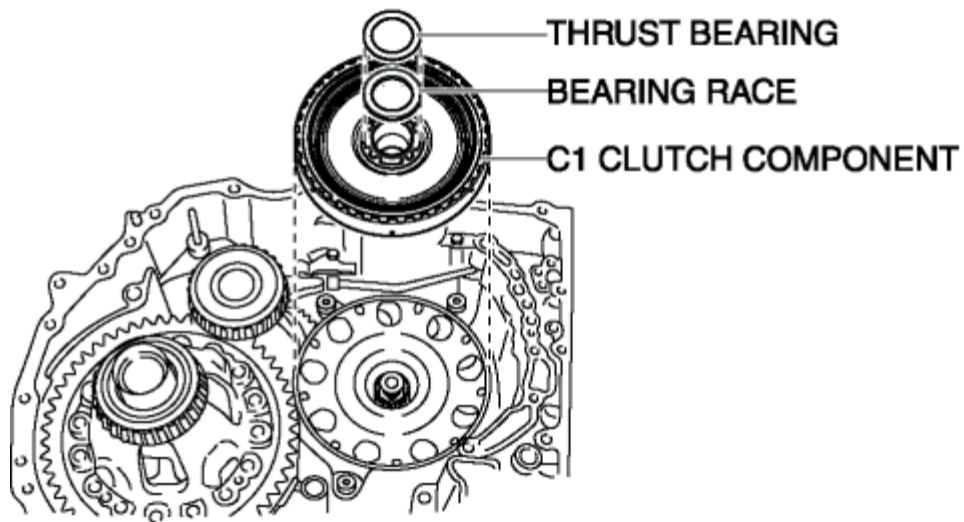
28. Remove the brake band anchor bolt.



29. Remove the B1 brake band.



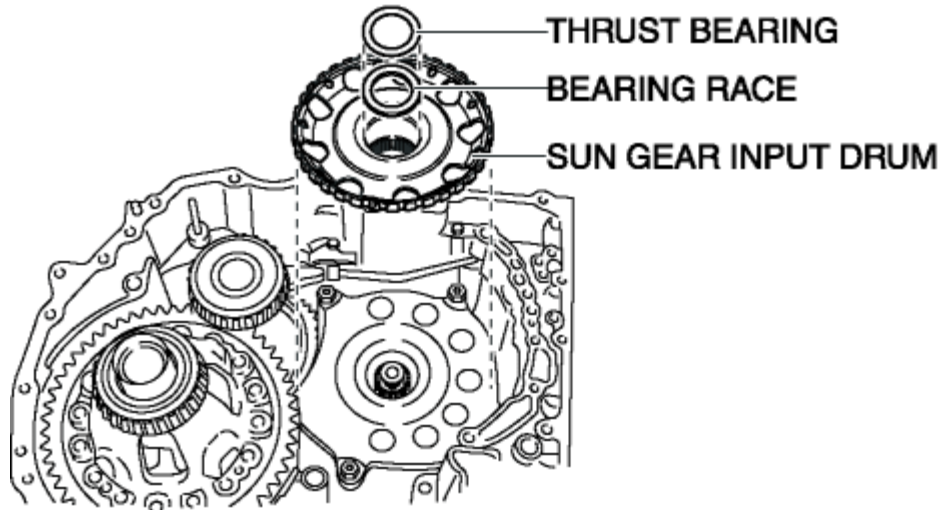
30. Remove the thrust bearing, bearing race and the C1 clutch component.



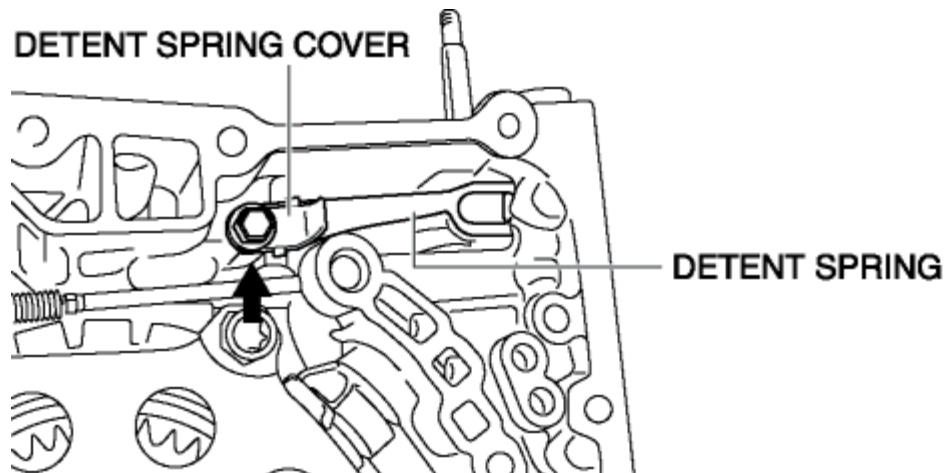
NOTE:

- In some cases, the C1 clutch component may be detached with the thrust bearing attached.

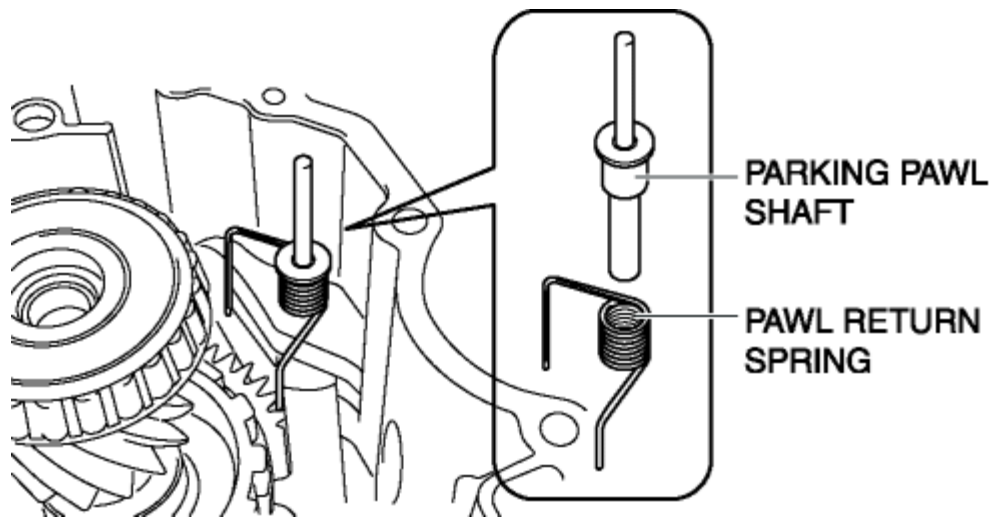
31. Remove the thrust bearing, bearing race and the sun gear input drum.



32. Remove the detent spring cover and detent spring.



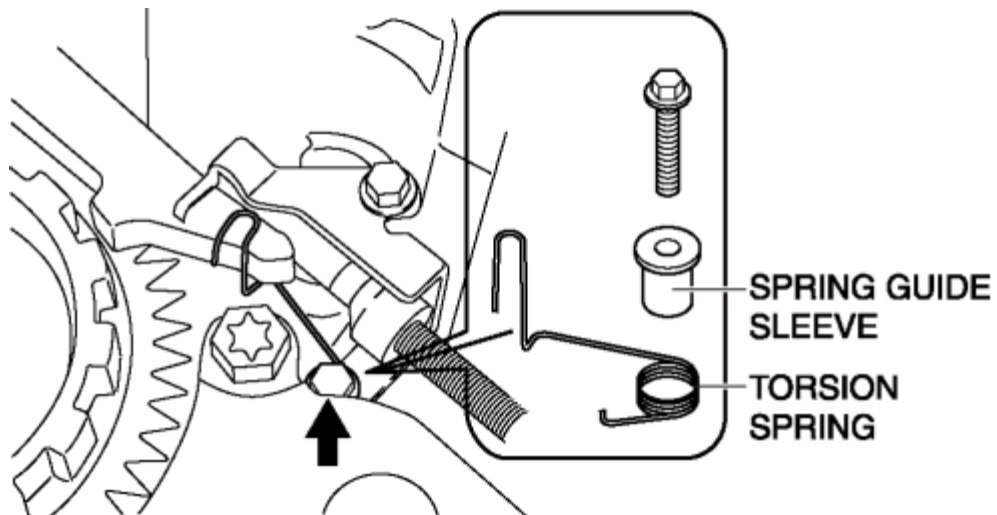
33. Remove the pawl return spring and the parking pawl shaft.



CAUTION:

- Be careful not to apply too much force to the pawl return spring.

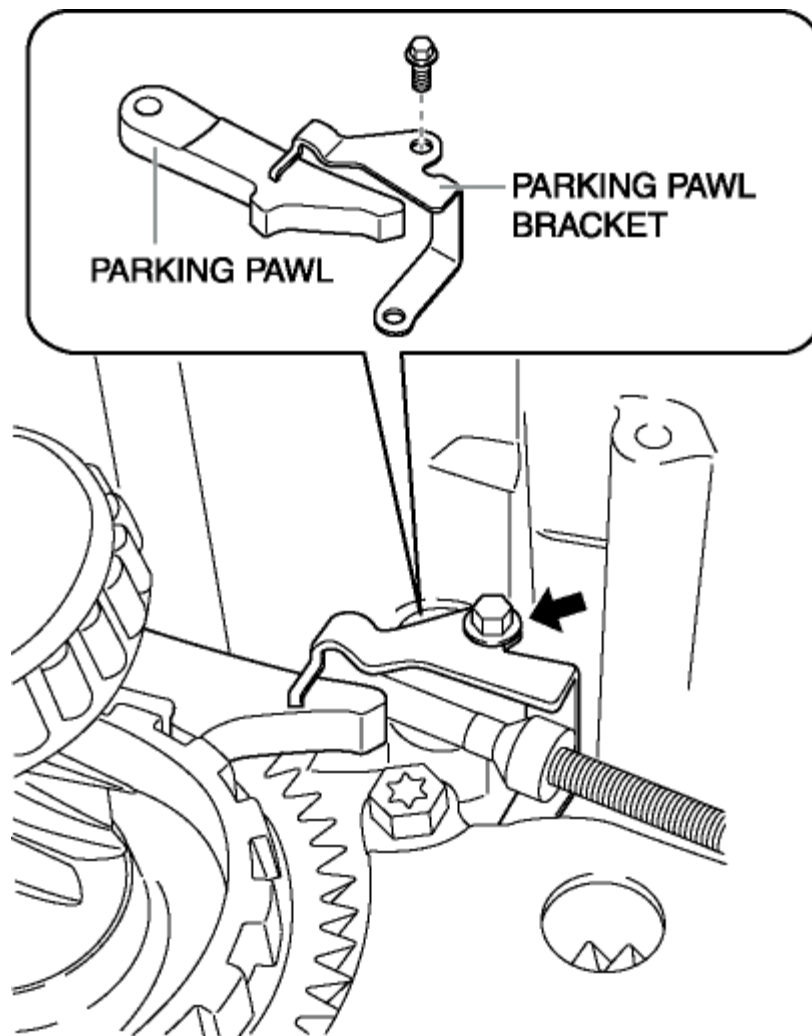
34. Remove the torsion spring and the spring guide sleeve.



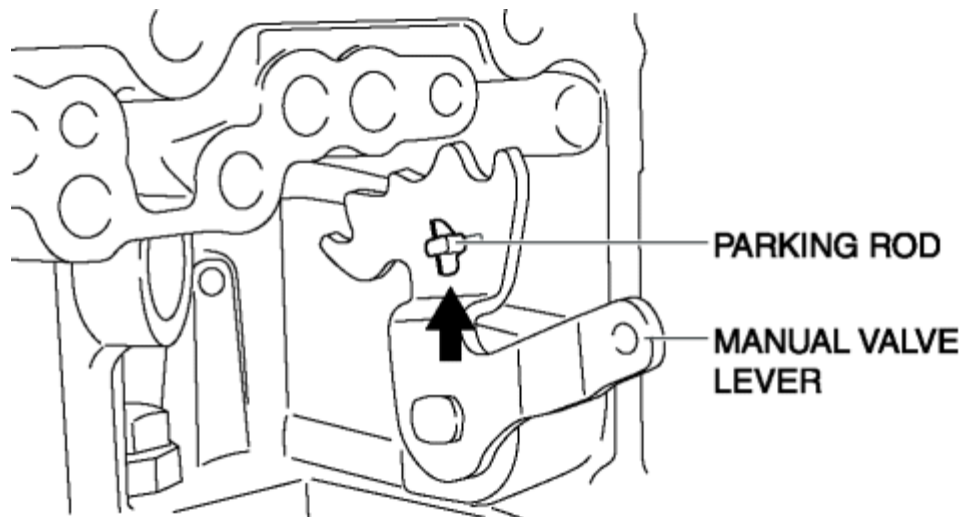
CAUTION:

- Be careful not to apply too much force to the torsion spring.

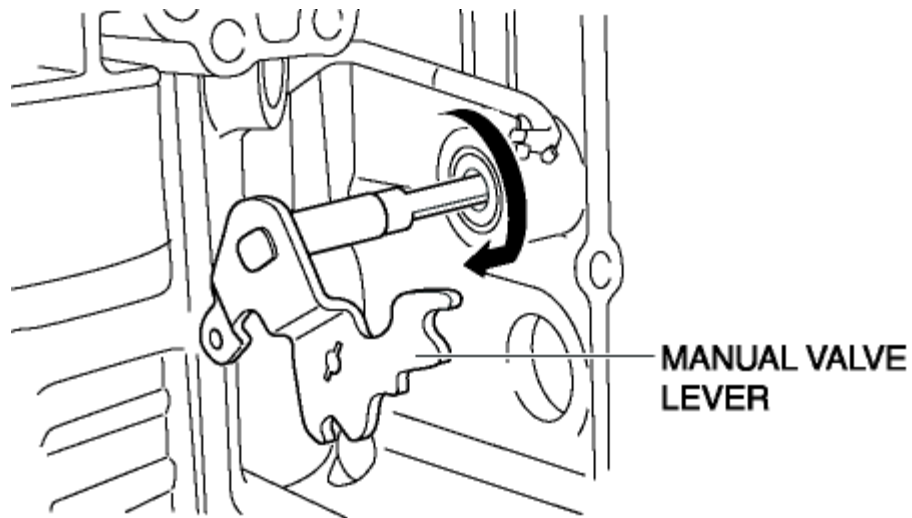
35. Remove the parking pawl and the parking pawl bracket.



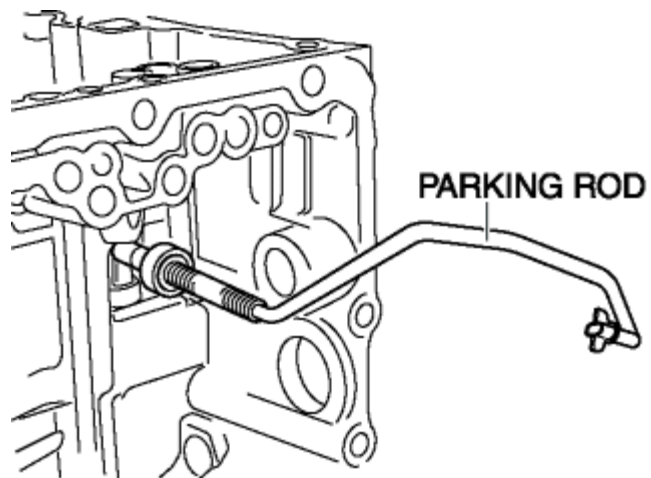
36. Disconnect the parking rod from the manual valve lever.



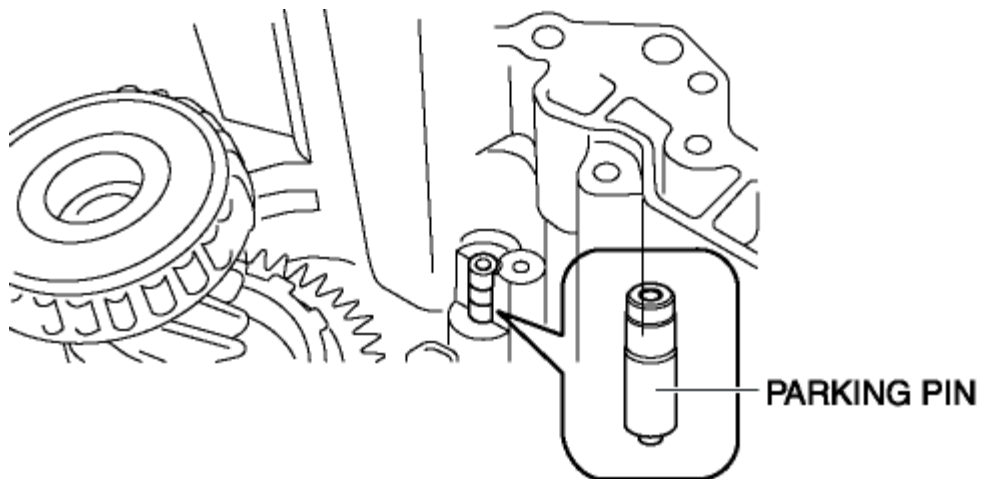
37. Remove the manual valve lever from the transaxle case.



38. Remove the parking rod from the transaxle case.



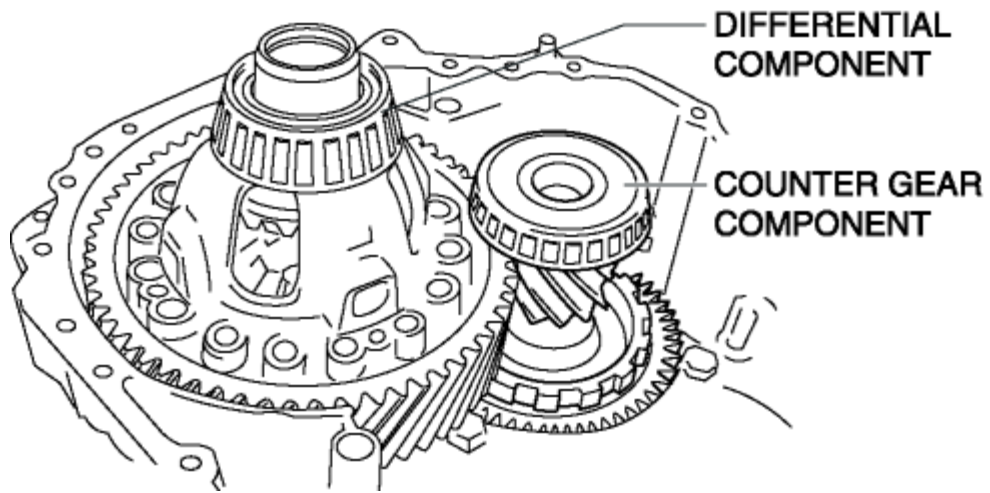
39. Remove the parking pin from the transaxle case.



NOTE:

- Inspect the direction of the parking pin.

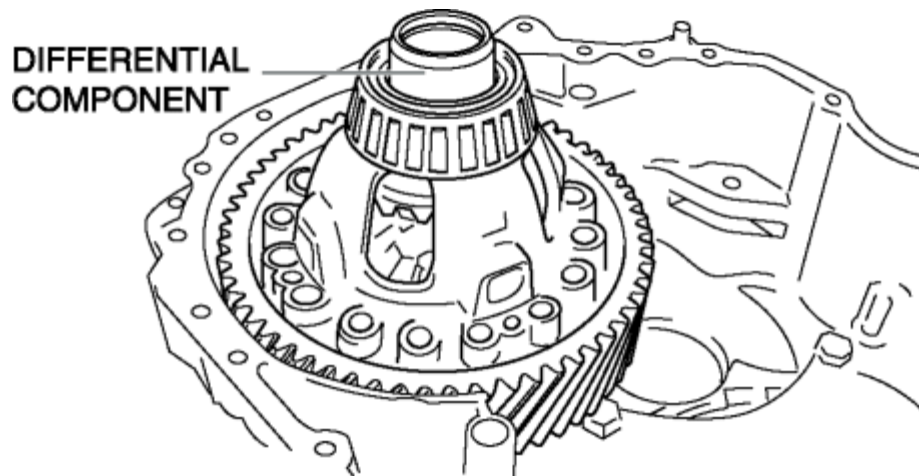
40. Remove the counter gear component.



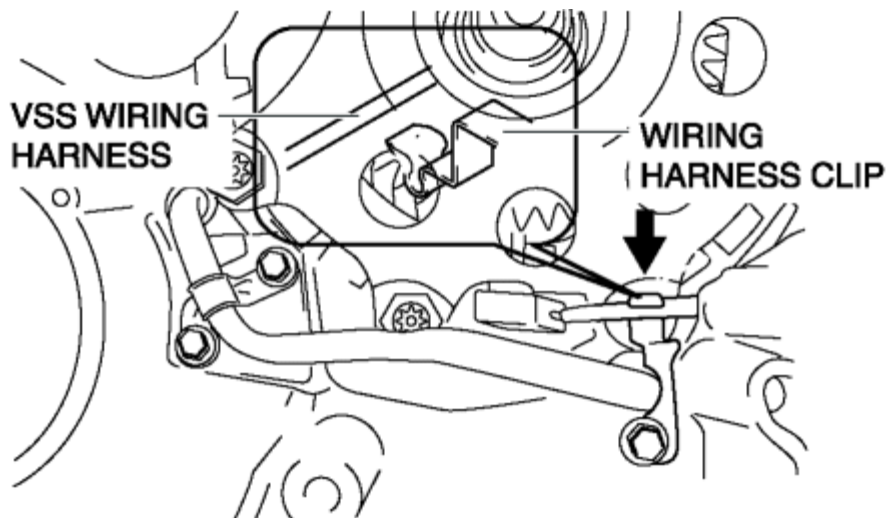
NOTE:

- For easy removal, tilt the counter gear component slightly.

41. Remove the differential component.



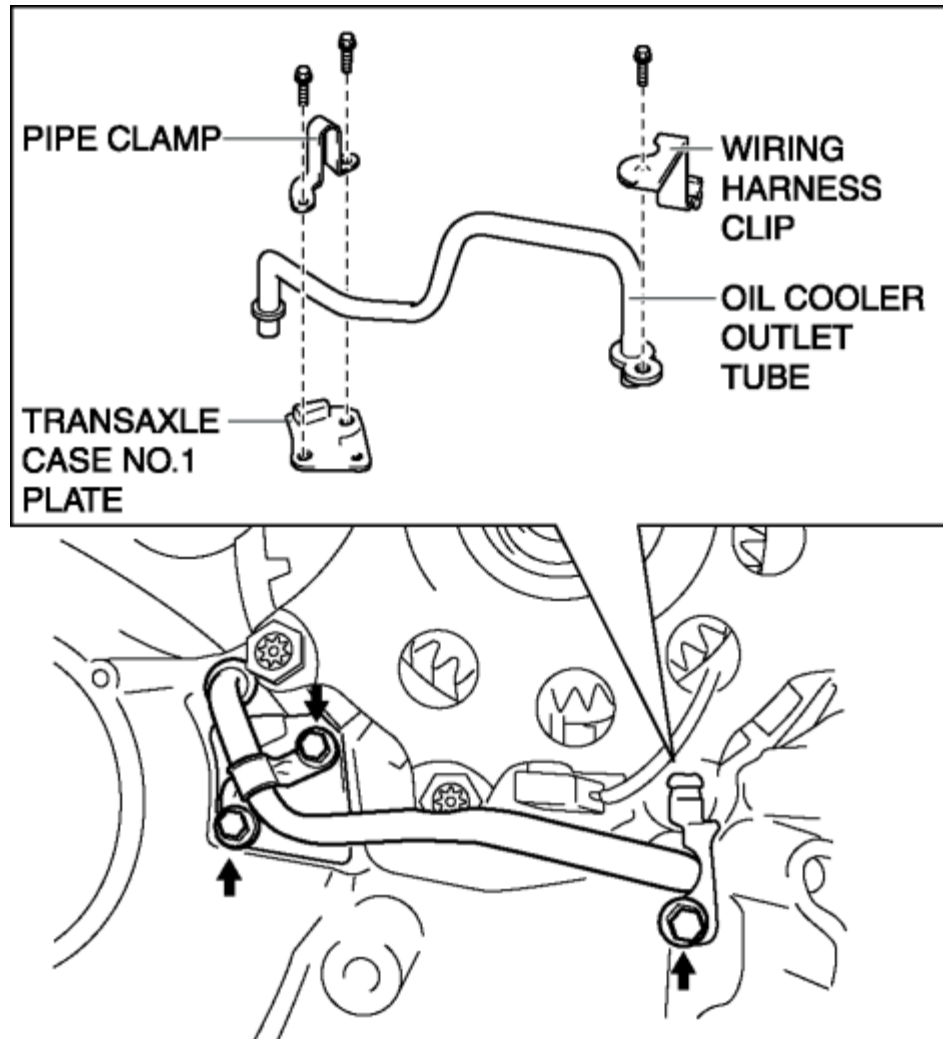
42. Disconnect the VSS wiring harness from the wiring harness clip.



CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

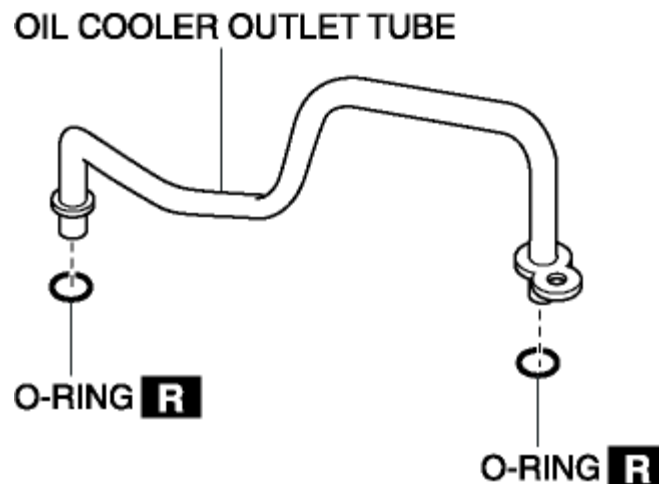
43. Remove the pipe clamp, transaxle case No.1 plate, wiring harness clip and the oil cooler outlet tube.



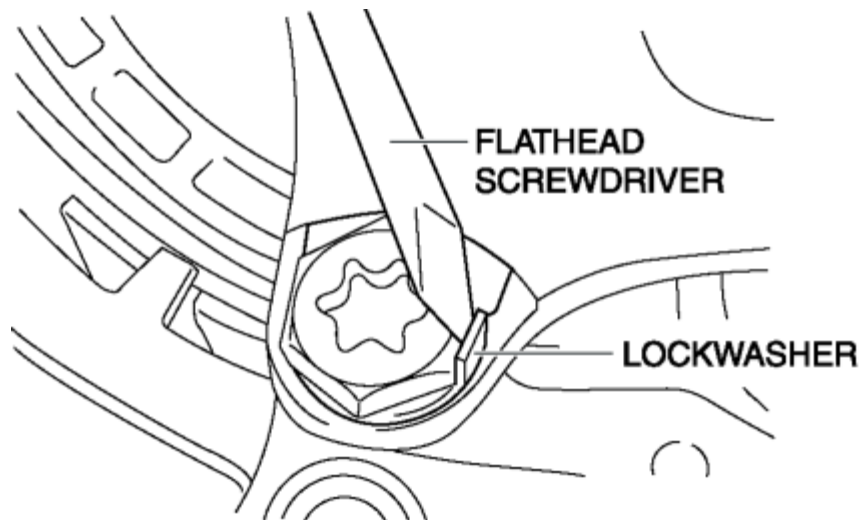
CAUTION:

- Do not damage the oil cooler outlet tube.

44. Remove the O-rings from the oil cooler outlet tube.



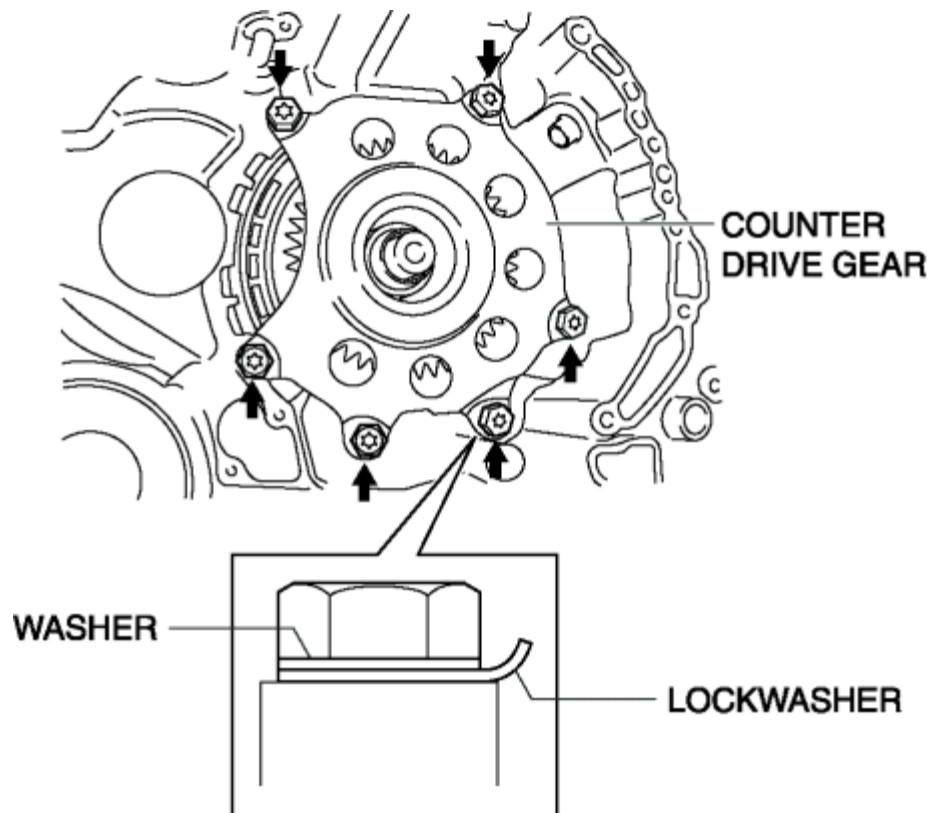
45. Using a flathead screwdriver and a hammer, pry back the crimp on the lockwashers.



CAUTION:

- If the lockwashers crimp is not completely pried back, the tool cannot fit over the bolt properly and the bolt cannot be loosened.

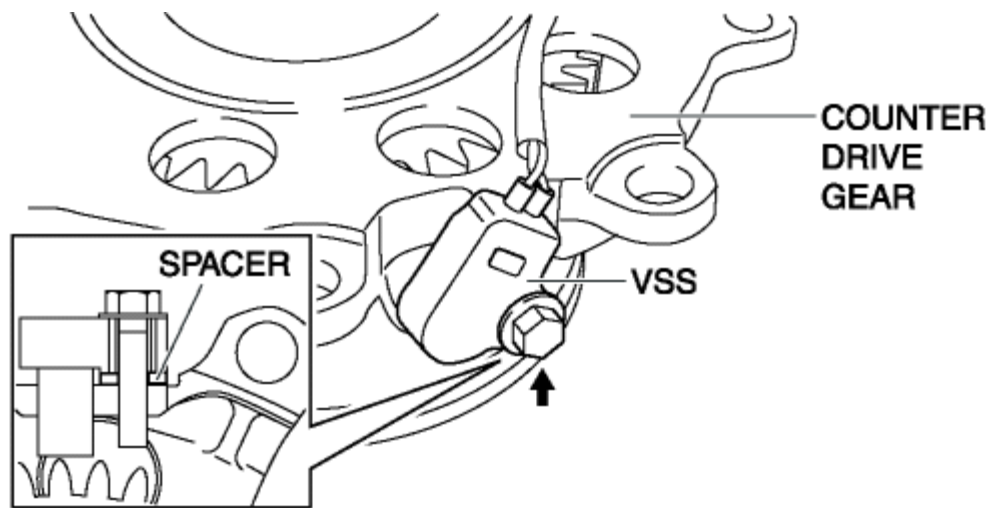
46. Remove the lockwashers, washers and the counter drive gear.



CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

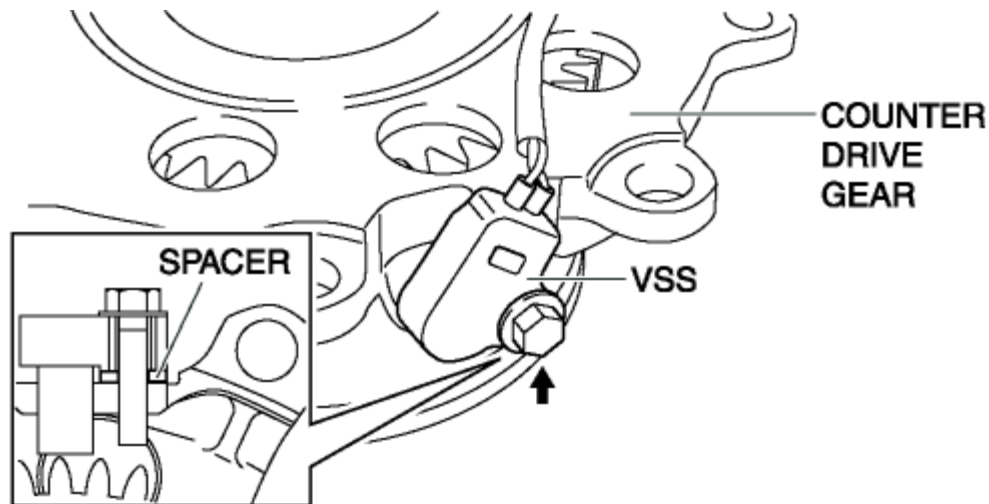
47. Remove the VSS and spacer from the counter drive gear.



CAUTION:

- Do not damage the VSS.

48. Install the VSS and spacer to the counter drive gear.



CAUTION:

- Do not damage the VSS.

Tightening torque

- 3.9—6.9 N·m {40—70 kgf·cm, 35—61 in·lbf}

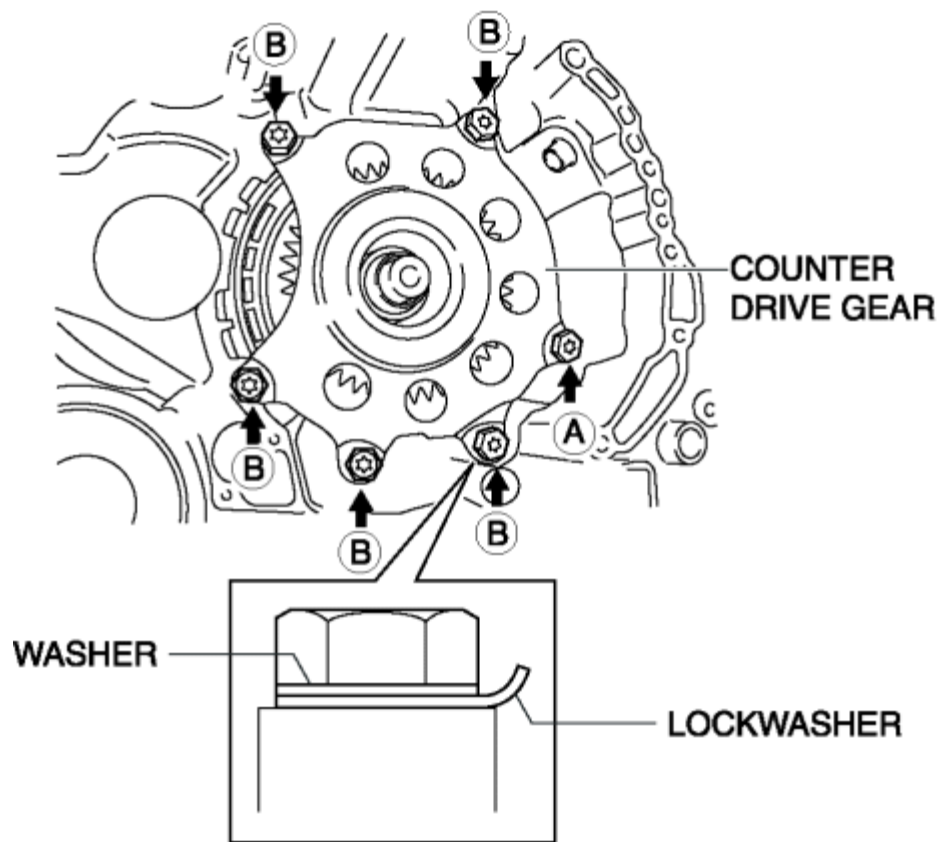
49. Apply ATF to the spline on the counter drive gear and spline on the ring gear.

50. Install the counter drive gear to the transaxle case.

CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

51. Install the lockwashers and washers with bolts.



NOTE:

- Verify that the claws of the lockwashers are facing upward.

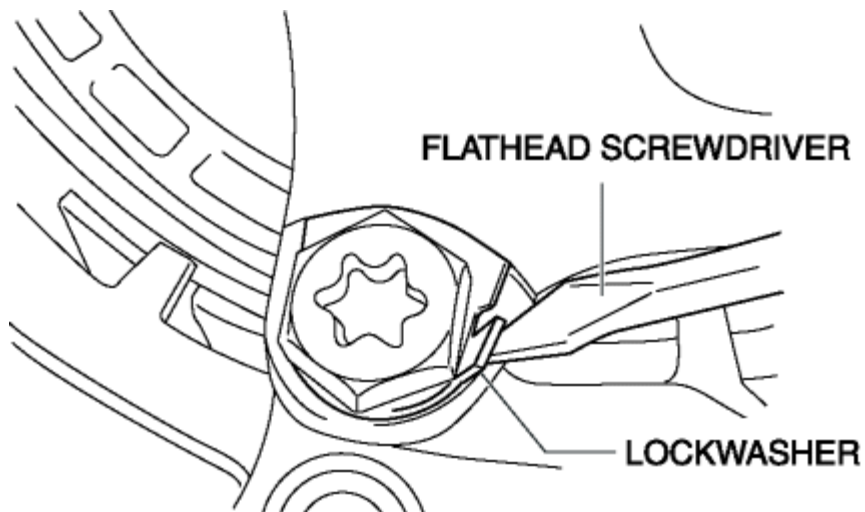
Tightening torque

- 57—67 N·m {5.9—6.8 kgf·cm, 43—49 ft·lbf}

Bolt length (measured from below the head)

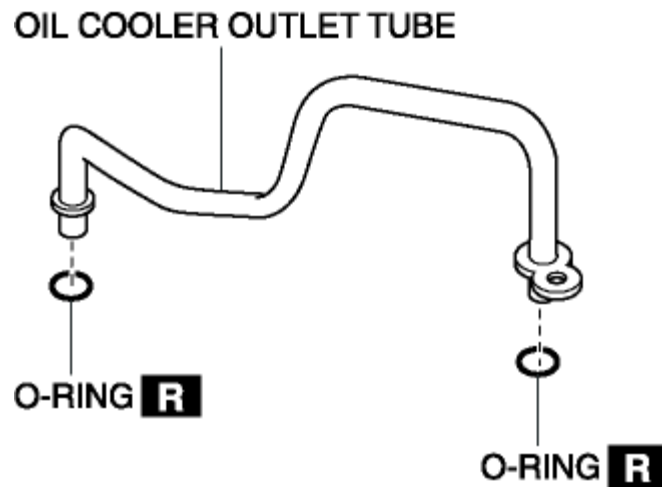
- A: 29 mm {1.1 in}
- B: 36 mm {1.4 in}

52. Using a flathead screwdriver and a hammer, pry back the crimp locking the lockwashers.

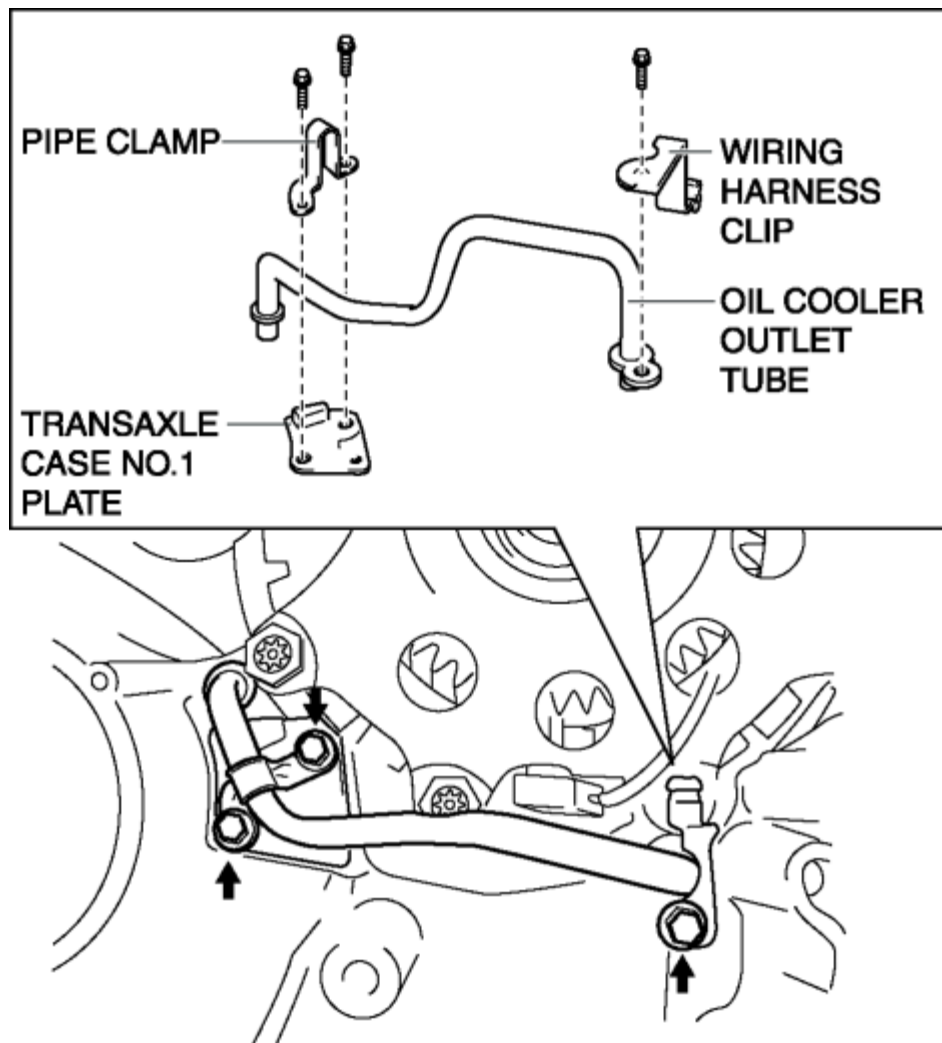


53. Apply ATF to the new O-rings.

54. Install the new O-rings to the oil cooler outlet tube.



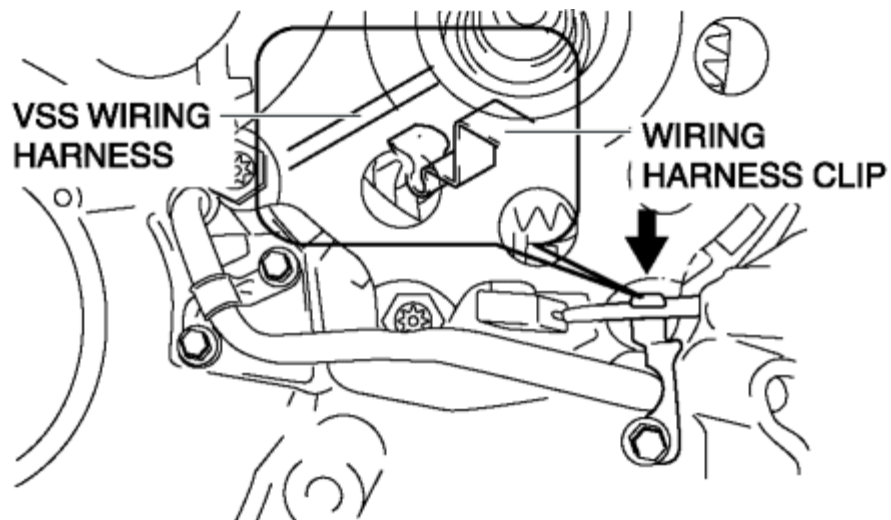
55. Install the oil cooler outlet tube, pipe clamp, transaxle case No.1 plate and the wiring harness clip to the converter housing.



Tightening torque

- 8–11 N·m {82–122 kgf·cm, 71–97 in·lbf}

56. Connect the VSS wiring harness to the wiring harness clip.

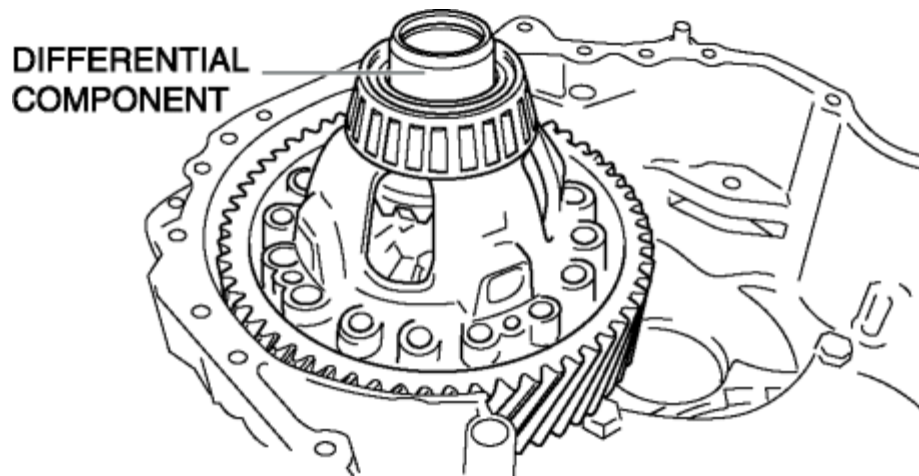


CAUTION:

- Do not damage the VSS wiring harness.
- Do not pull hard on the VSS wiring harness.

57. Apply ATF to the bearing and gear of the differential component.

58. Install the differential component to the transaxle case.

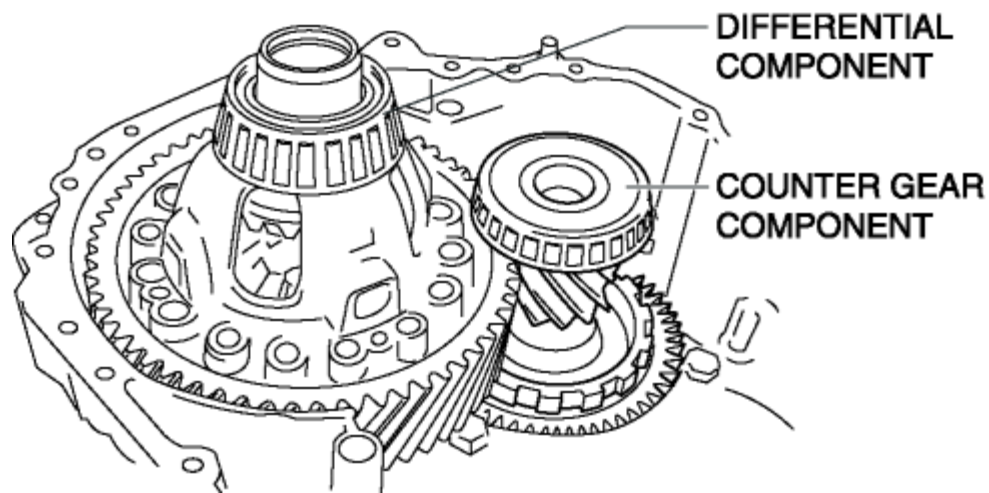


CAUTION:

- Do not damage the oil seal (transaxle case side).

59. Apply ATF to the bearing and gear of the counter gear component.

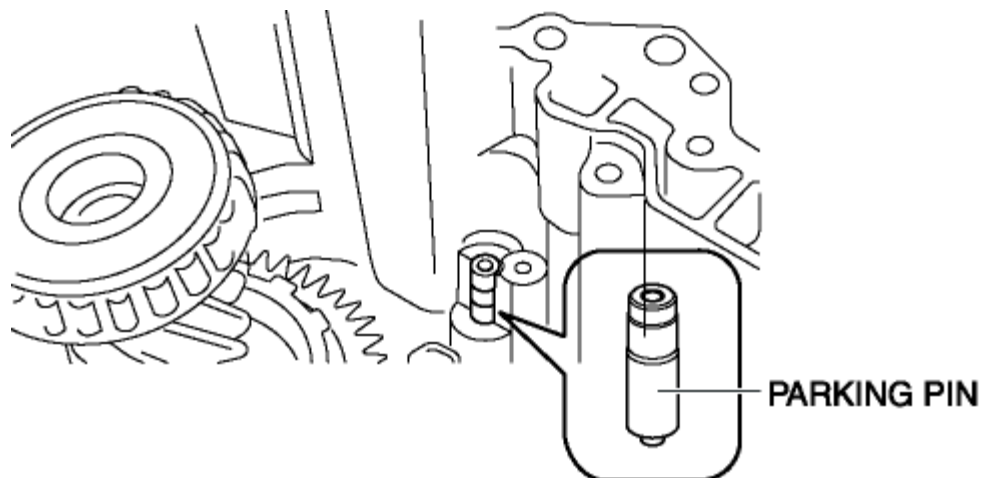
60. Install the counter gear component to the transaxle case.



NOTE:

- If it is difficult to install the counter gear component, remove the differential component and then install the counter gear component. Install the differential component again.
- For easy installation, tilt the counter gear component slightly.

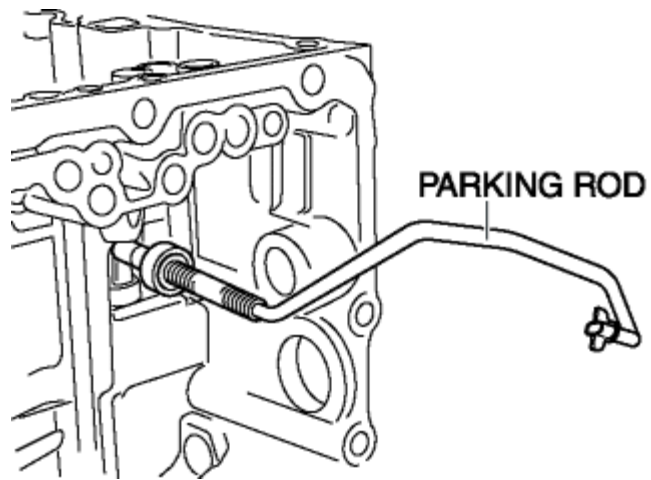
61. Install the parking pin to the transaxle case.



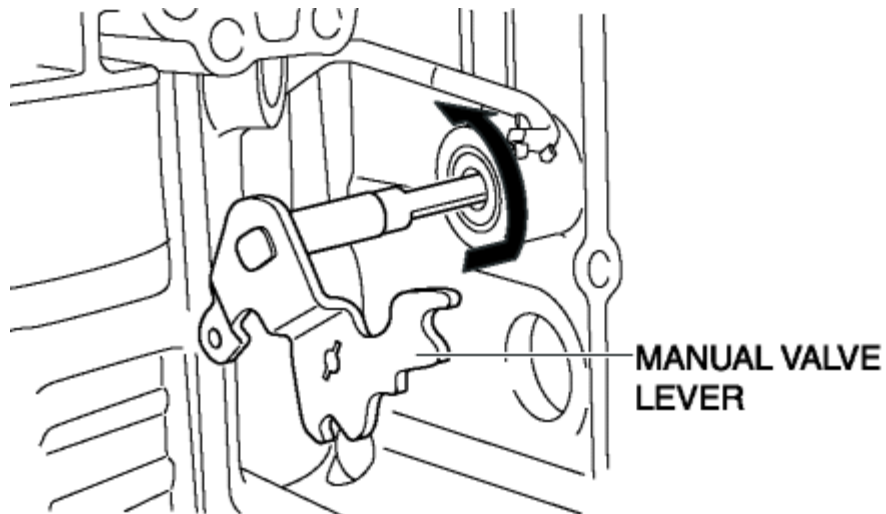
CAUTION:

- Verify to install the parking pin as shown in the figure.

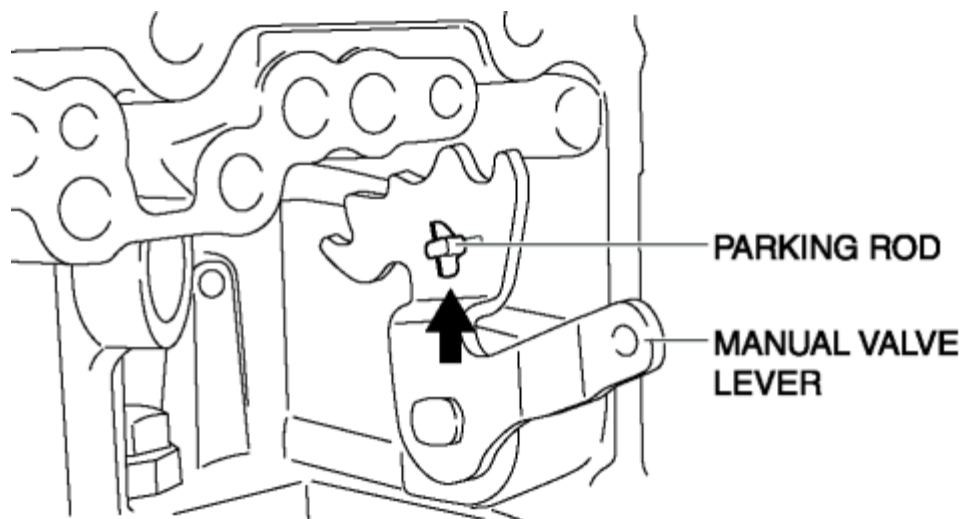
62. Insert the parking rod to the transaxle case.



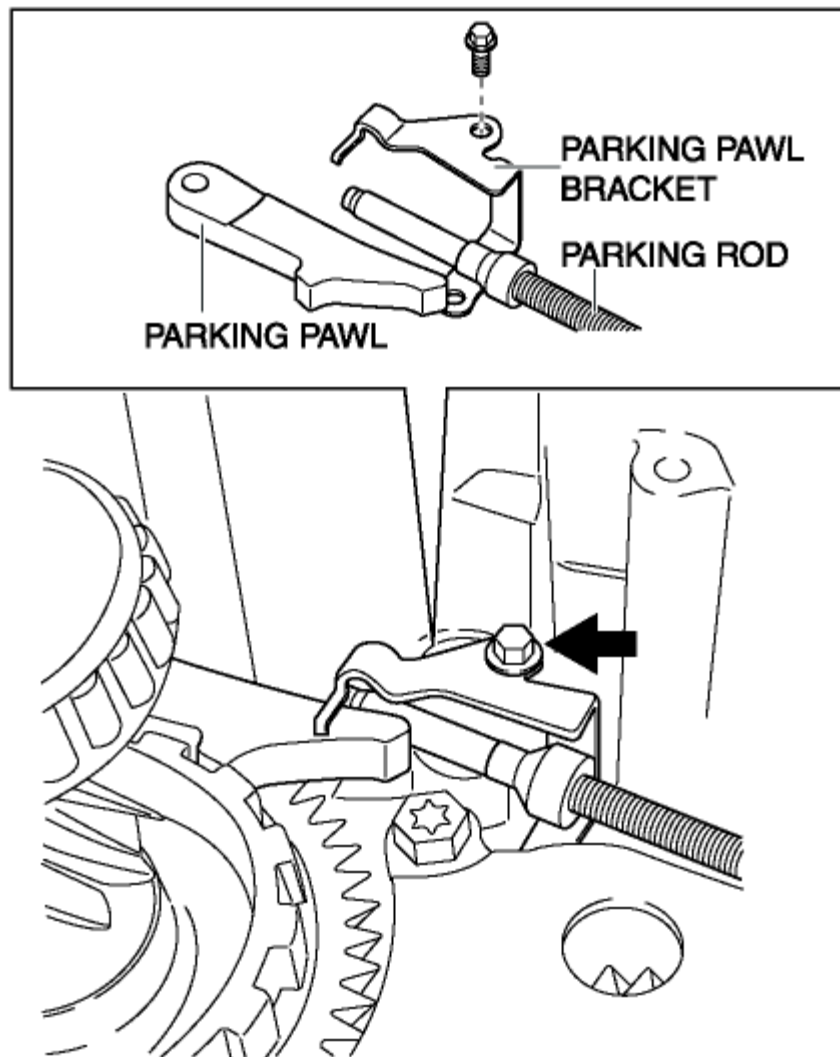
63. Install the manual valve lever to the transaxle case.



64. Connect the parking rod to the manual valve lever.



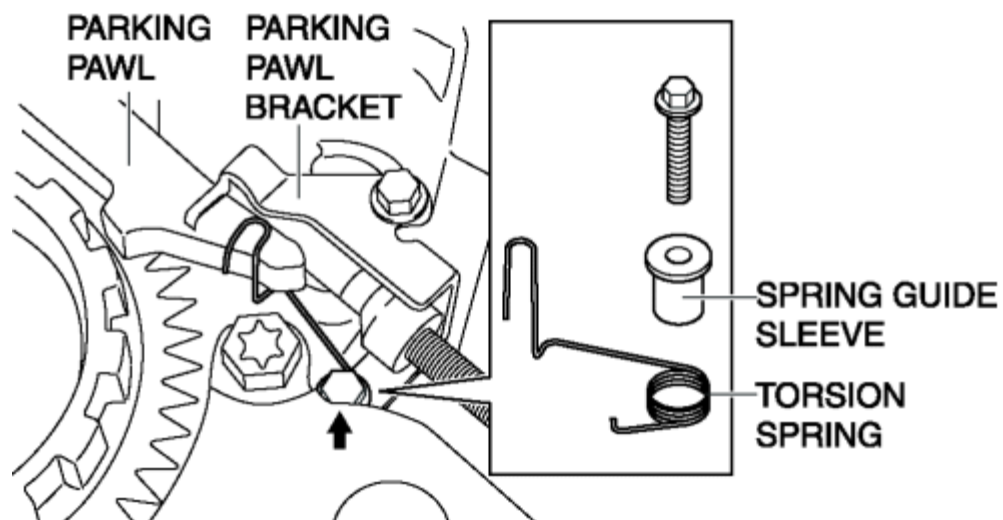
65. Install the parking pawl, parking pawl bracket and the parking rod to the transaxle case.



Tightening torque

- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

66. Install the spring guide sleeve and the torsion spring.



CAUTION:

- Do not apply too much force to the torsion spring.

NOTE:

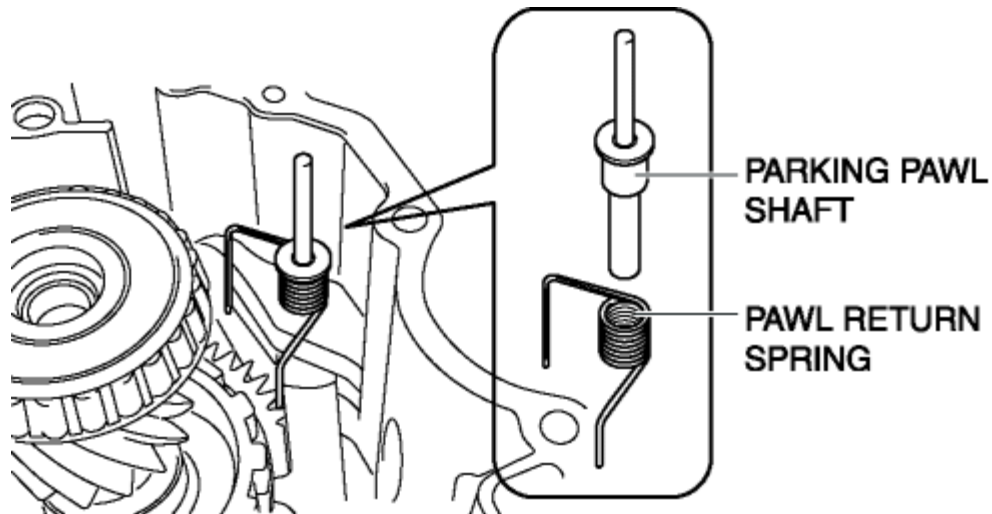
- Install the torsion spring to the position of the parking pawl and parking pawl bracket shown in the figure together with the spring guide sleeve and torsion spring installed.

Tightening torque

- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

67. Install the pawl return spring to the parking pawl shaft.

68. Install the pawl return spring and the parking pawl shaft to the transaxle case.



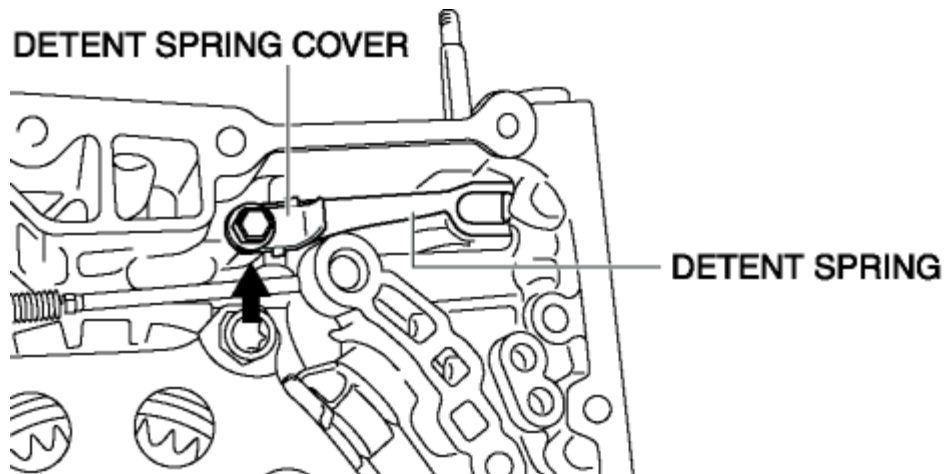
CAUTION:

- Do not apply too much force to the pawl return spring.

NOTE:

- When installing the pawl return spring to transaxle case, install the parking pawl side of the spring, then install the parking pawl shaft.

69. Install the detent spring cover and detent spring to the transaxle case.



CAUTION:

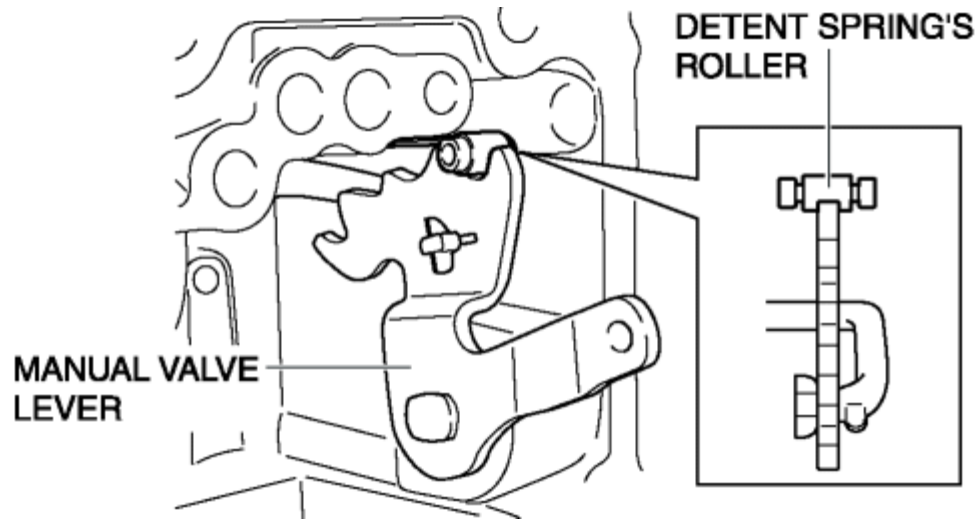
- Do not apply too much force to the detent spring.

Tightening torque

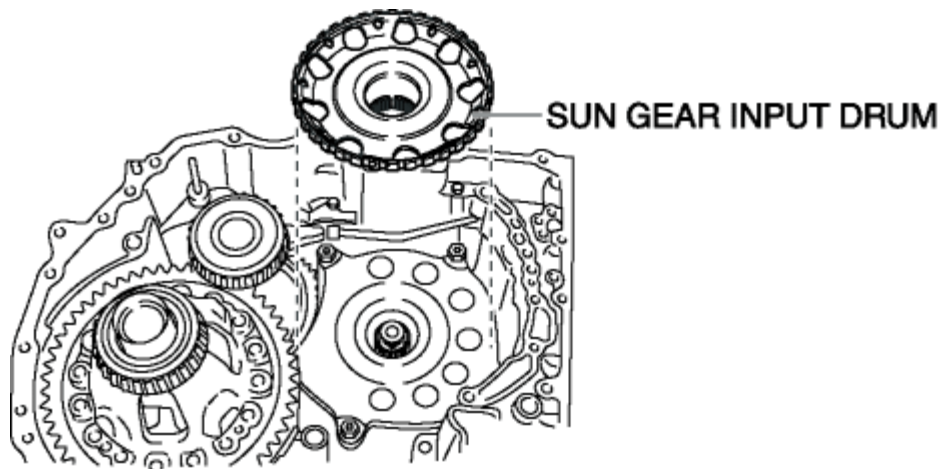
- 8—11 N·m {82 —112 kgf·cm, 71—97 in·lbf}

NOTE:

- When installing, ensure that the center of the detent spring's roller fits the center of the manual valve lever.

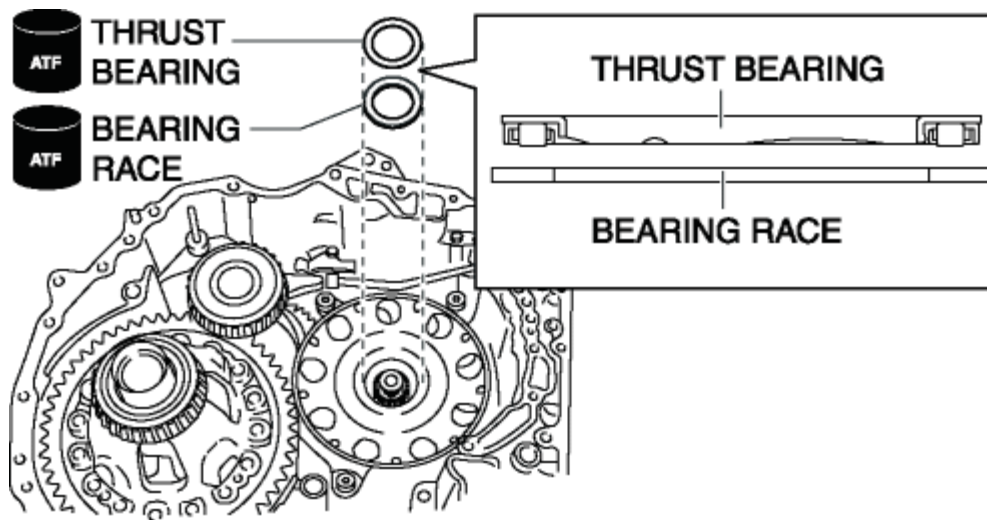


70. Install the sun gear input drum to the transaxle case.

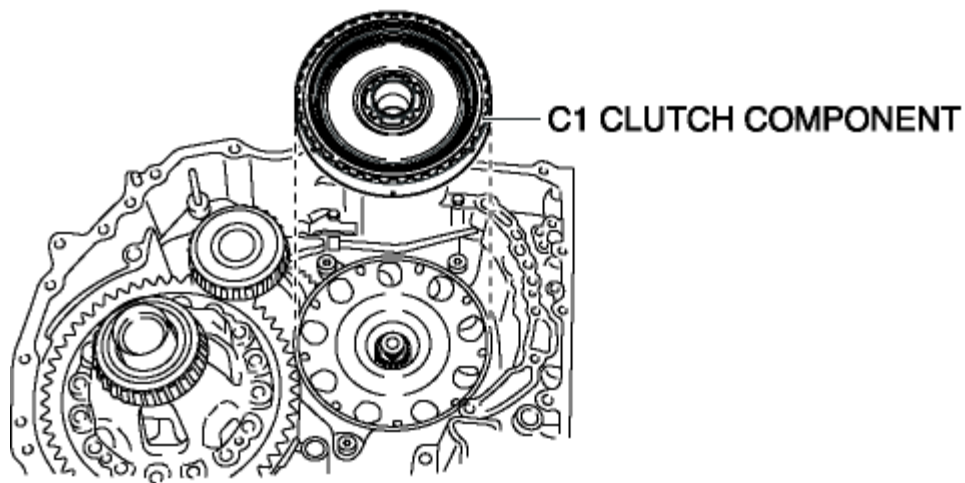


71. Apply ATF to the bearing race and the thrust bearing.

72. Install the bearing race and thrust bearing to the transaxle case as shown in the figure.

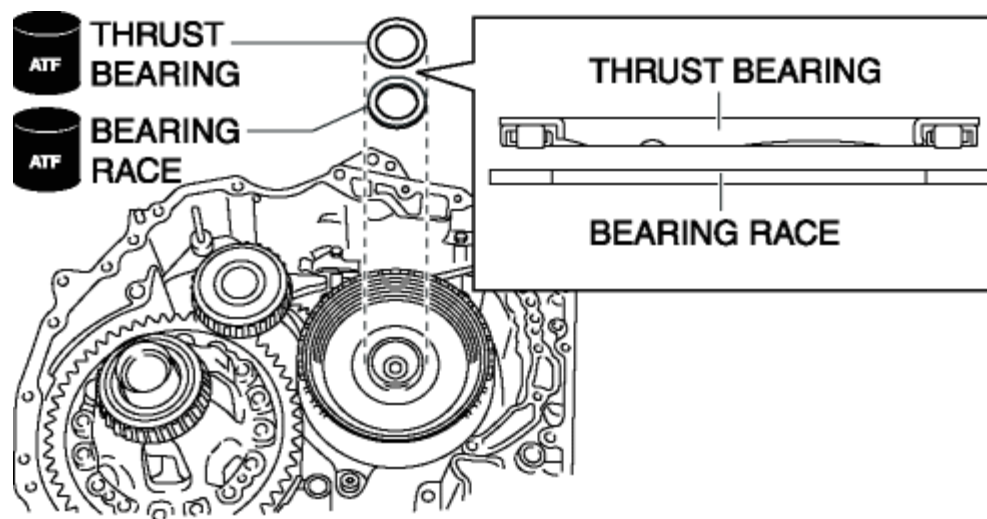


73. Install the C1 clutch component to the transaxle case.

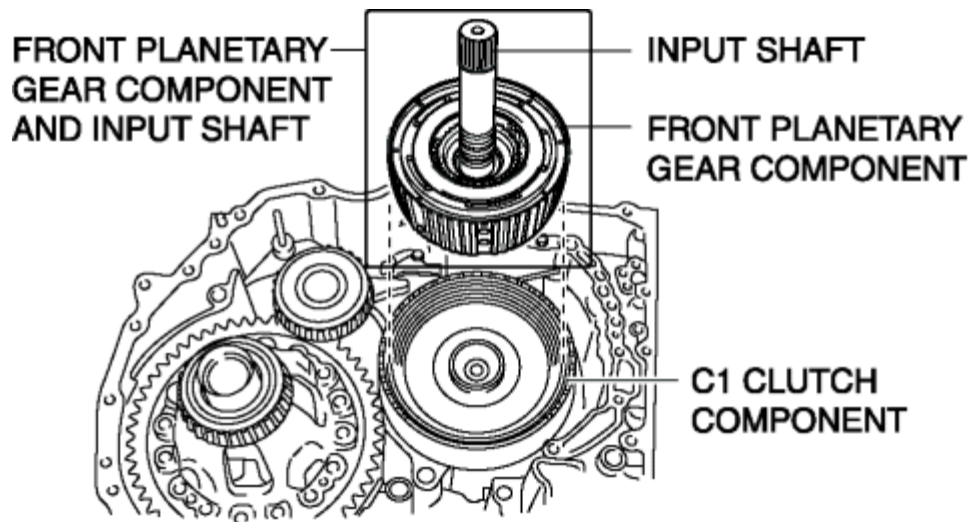


74. Apply ATF to the bearing race and the thrust bearing.

75. Install the bearing race and thrust bearing to the transaxle case as shown in the figure.



76. Install the front planetary gear component and input shaft to the transaxle case.



CAUTION:

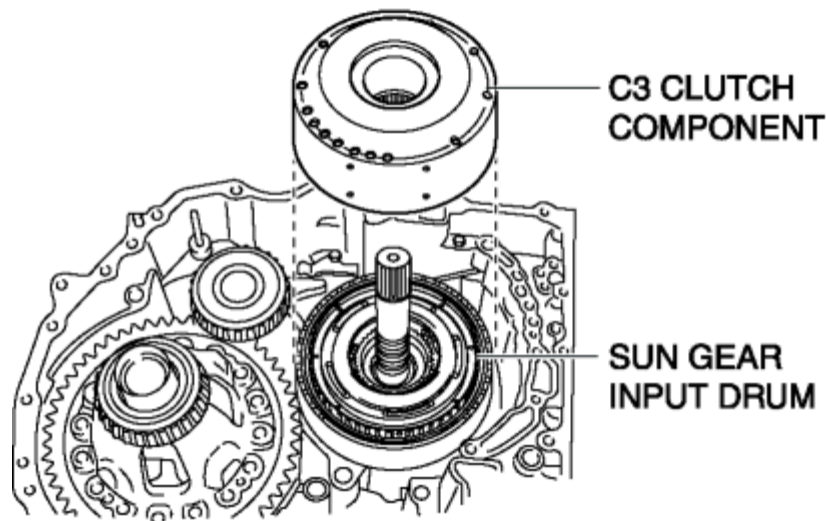
- If the input shaft is not held during installation, the thrust washer might come off.

NOTE:

- Align the spline of the C1 clutch component before installing the front planetary gear component and input shaft.
- Hold the C1 clutch component and install the front planetary gear component while holding the input shaft.

77. Apply ATF to the bushing of the C3 clutch component.

78. Install the C3 clutch component to the transaxle case.

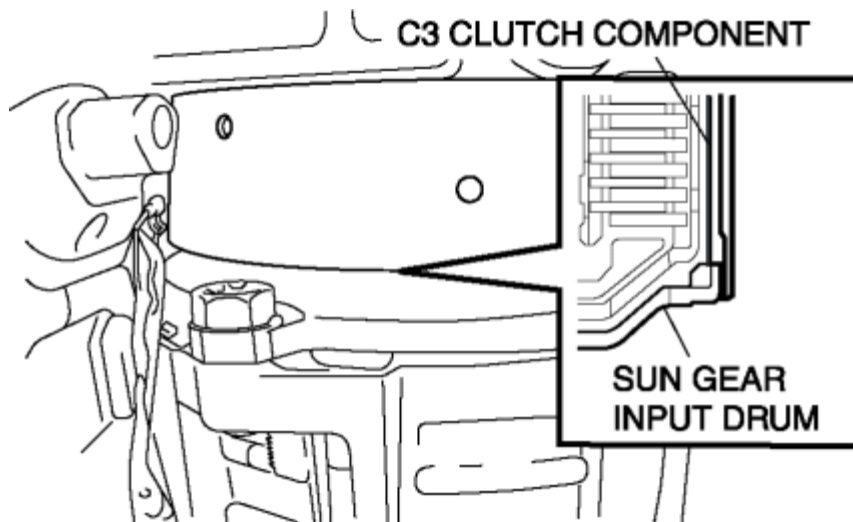


NOTE:

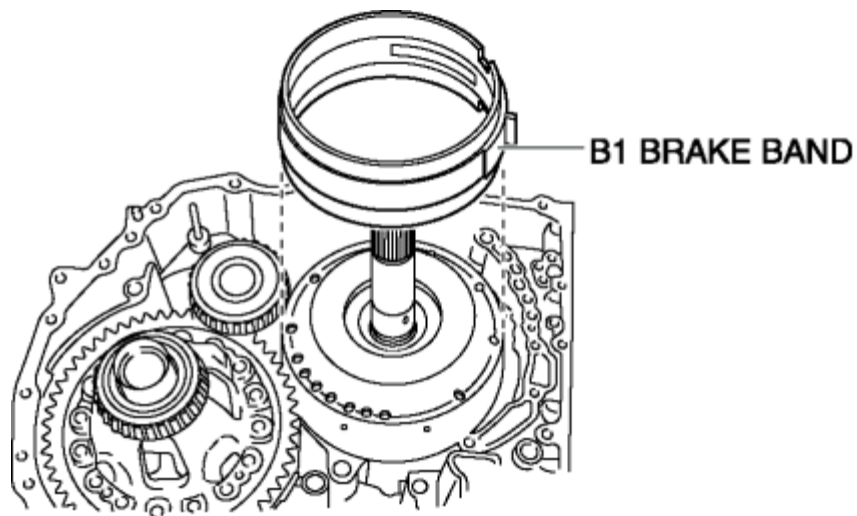
- Before installing the C3 clutch component, align the spline of the C3 clutch component and the spline of the sun gear input drum.

NOTE:

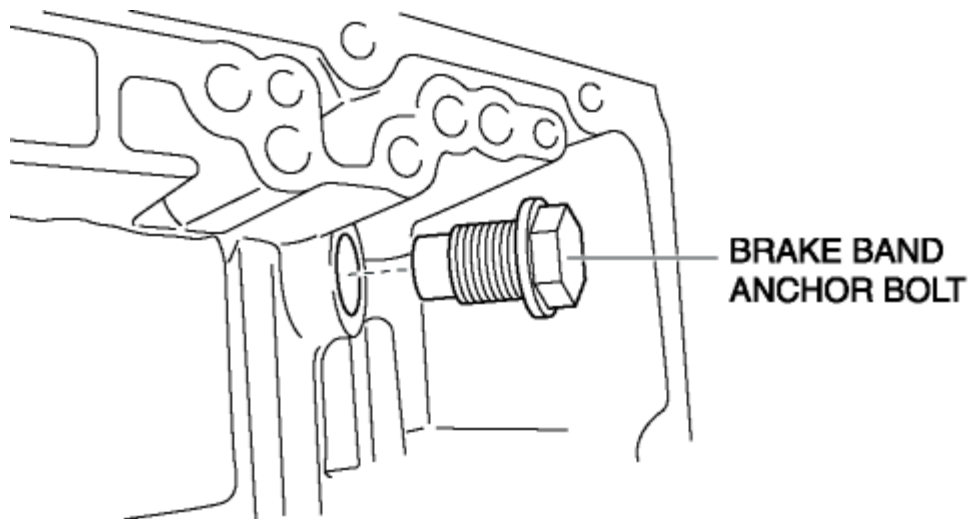
- Install the C3 clutch component so that it engages with the sun gear input drum as shown in the figure.



79. Install the B1 brake band to the transaxle case.



80. Install the brake band anchor bolt to the transaxle case.



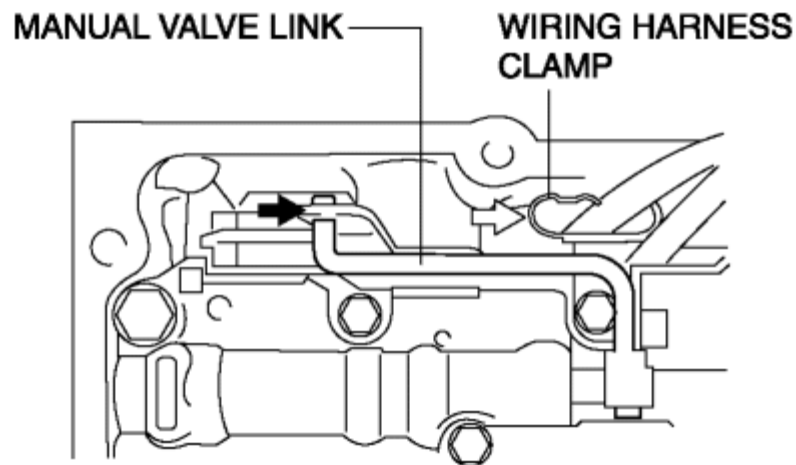
Tightening torque

- 134—199 N·m {14—20 kgf·m, 99—146 ft·lbf}

81. Install the oil pump component and oil strainer as a single unit. (See [OIL PUMP REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

82. Install the converter housing. (See [CONVERTER HOUSING REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

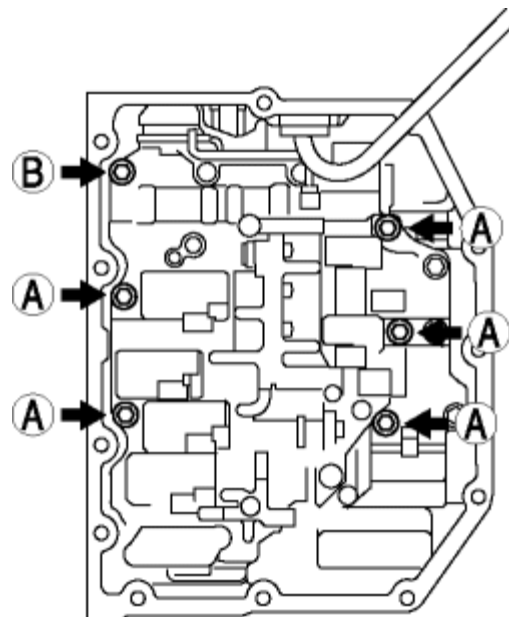
83. Connect the manual valve link and install the control valve body component.



CAUTION:

- When installing the control valve body component, secure the coupler component to the wiring harness clamp.
- Do not pinch the coupler component between the transaxle case and the control valve body component.

84. Temporarily install the control valve body component with the bolts.



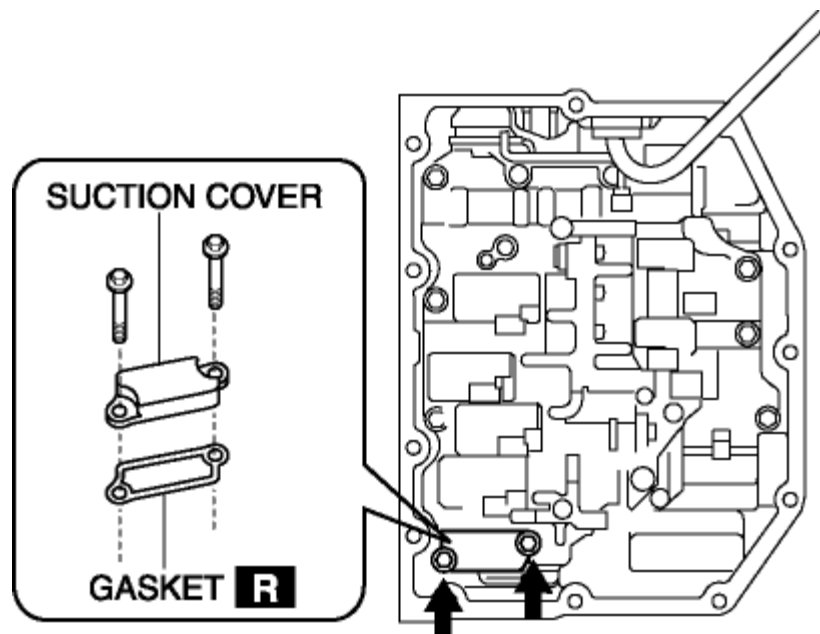
NOTE:

- Aligning the bolt holes, temporarily tighten the bolt by hand.

Bolt length (measured from below the head)

- A: 21 mm {0.83 in}
- B: 31 mm {1.2 in}

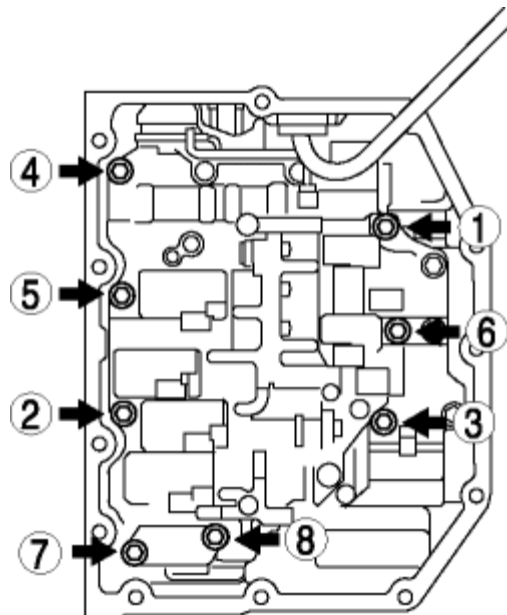
85. Temporarily install the suction cover and a new gasket with the bolts.



NOTE:

- Aligning the bolt holes, temporarily tighten the bolt by hand.

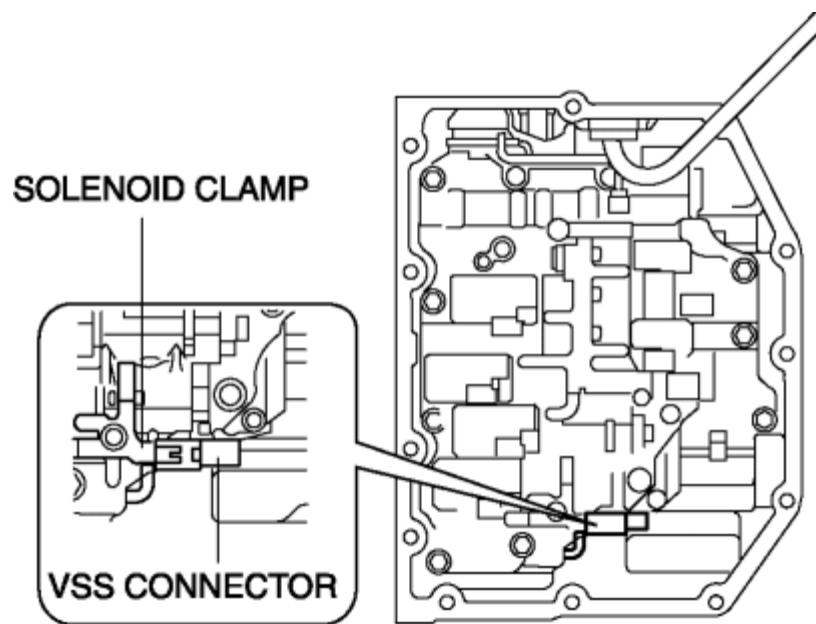
86. Tighten the bolts in the order shown in the figure.



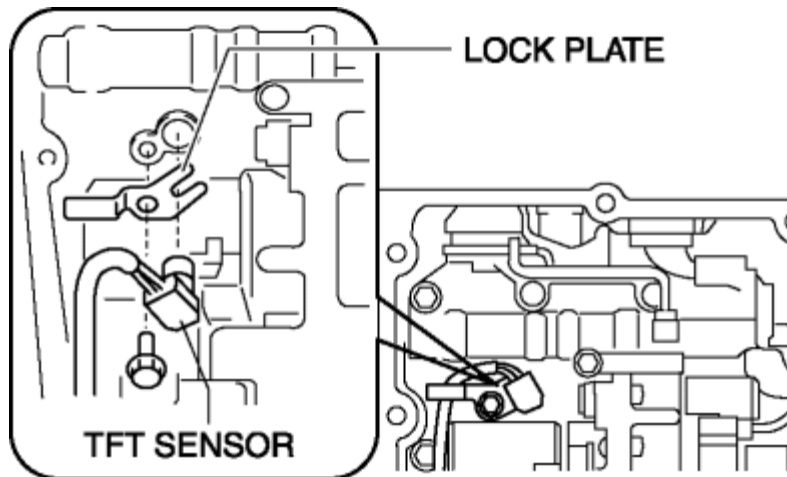
Tightening torque

- 8—12 N·m {82—122 kgf·cm, 71—106 in·lbf}

87. Install the connector of the VSS to the solenoid clamp.



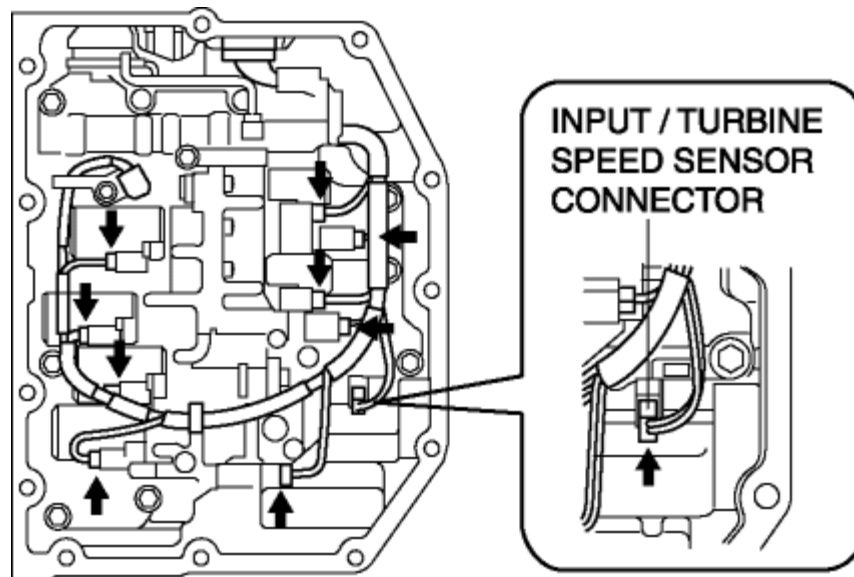
88. Install the TFT sensor with the lock plate and a bolt to the control valve body component as shown in the figure.



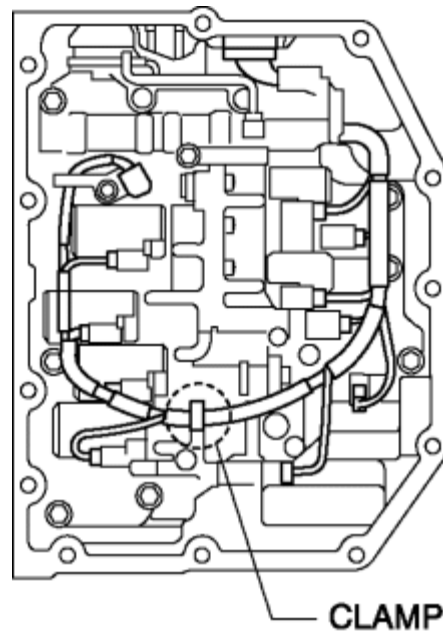
Tightening torque

- 6.0—8.0 N·m {62—81 kgf·cm, 54—70 in·lbf}

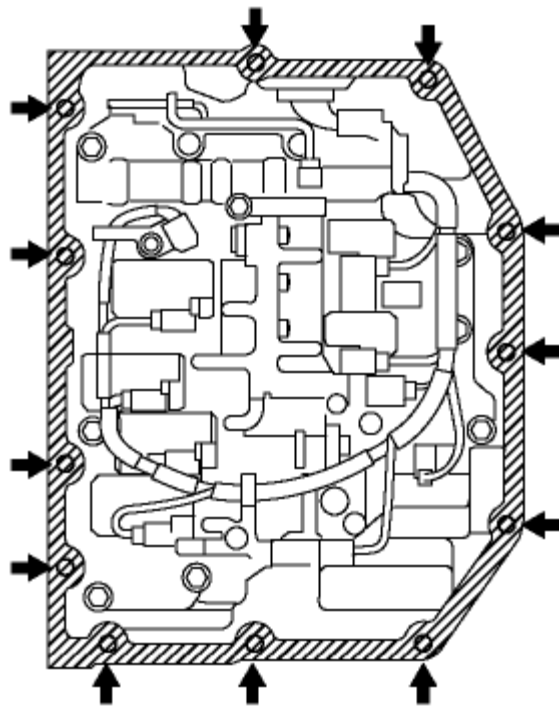
89. Connect the solenoid connectors, VSS connector and the input/turbine speed sensor connector.



90. Connect the coupler component to the clamps.



91. Clean sealant and oil off the contact surface of the transaxle case with the control valve body cover and the bolt holes.

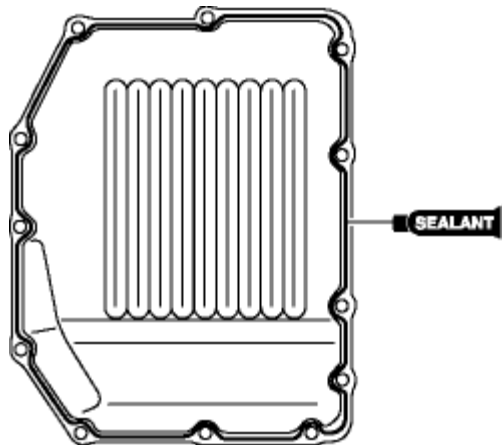


NOTE:

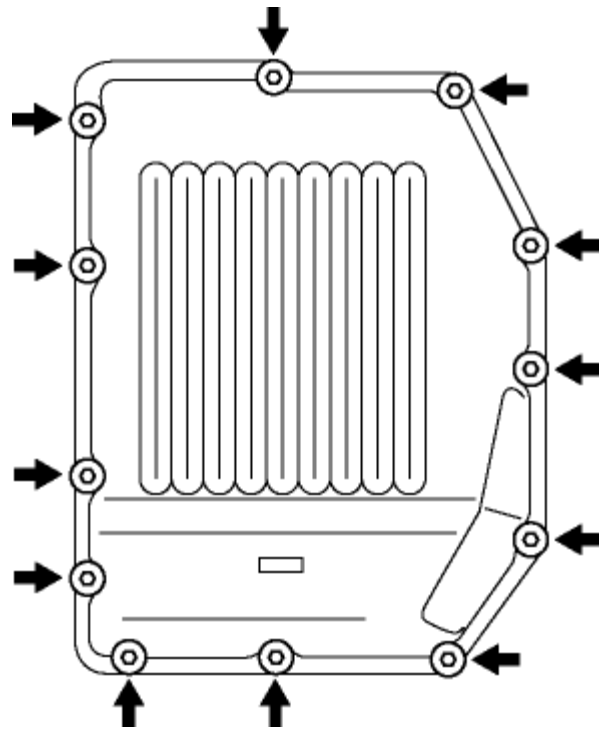
- Completely remove sealant and oil with white gasoline or similar.

92. Clean oil off the contact surface of the new control valve body cover with the transaxle case.

93. Apply sealant to the new control valve body cover as shown in the figure.



94. Install the new control valve body cover with new seal bolts before the applied sealant starts to harden.



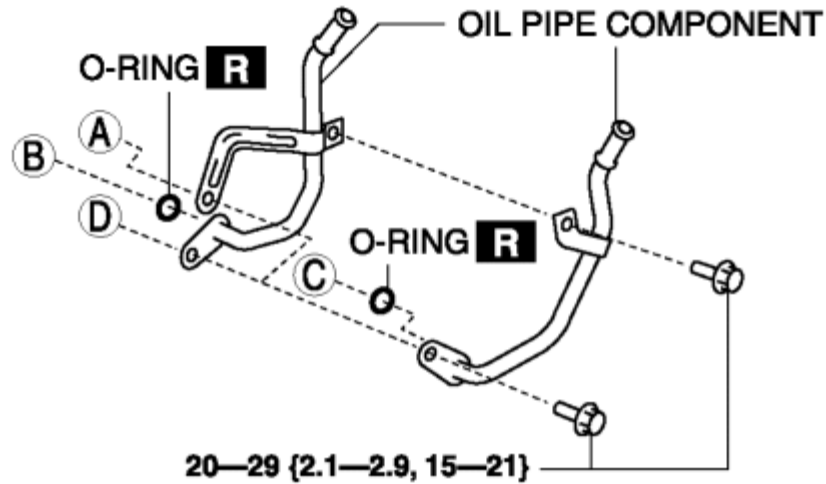
CAUTION:

- Be careful that the coupler component will not become caught between the control valve body cover and transaxle case.

Tightening torque

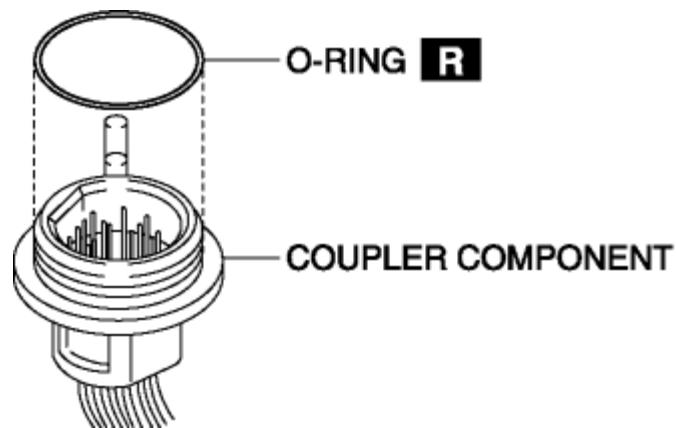
- 10—15 N·m {102—152 kgf·cm, 89—132 in·lbf}

95. Install the oil pipe component and O-rings.



N·m {kgf·m, ft·lbf}

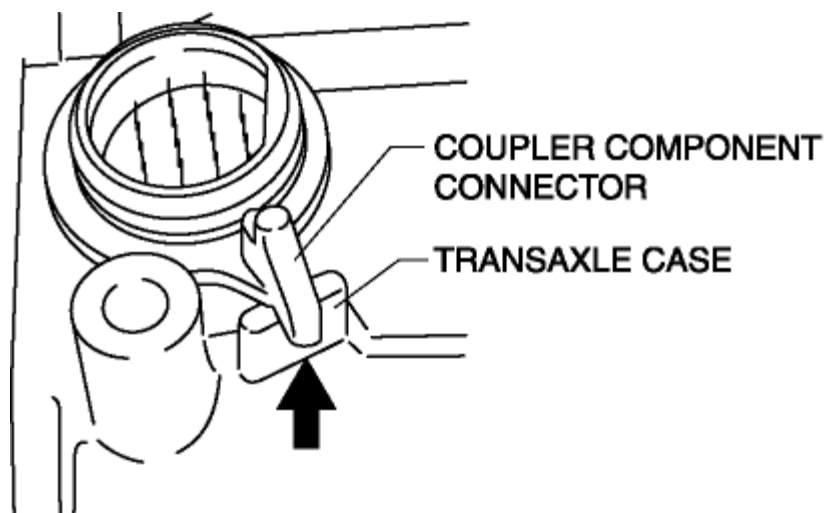
96. Install a new O-ring to the coupler component.



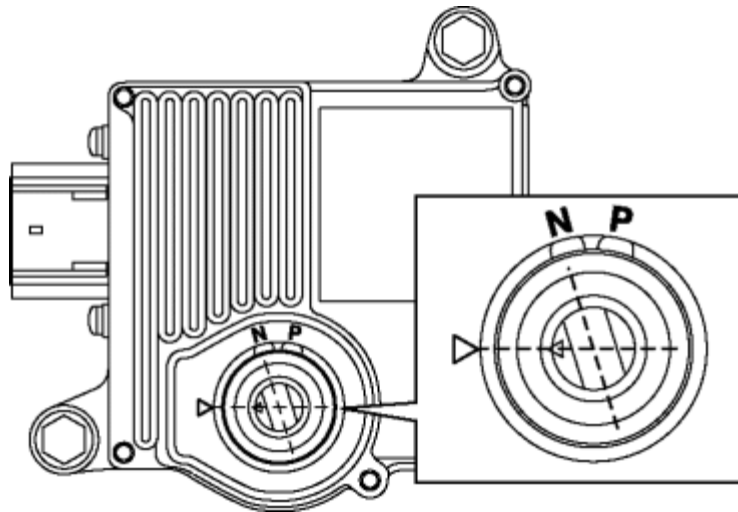
CAUTION:

- Do not apply ATF to the O-ring.

97. Align the transaxle case and coupler component connector.



98. Be sure to match the position of the TCM marking.

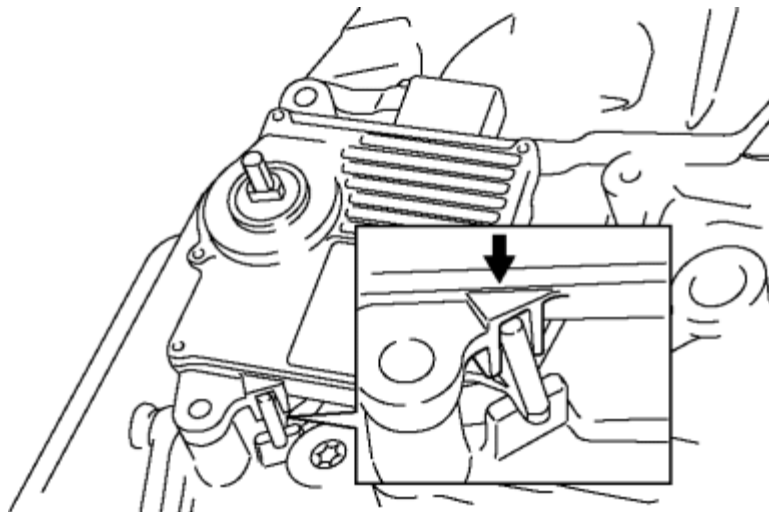


CAUTION:

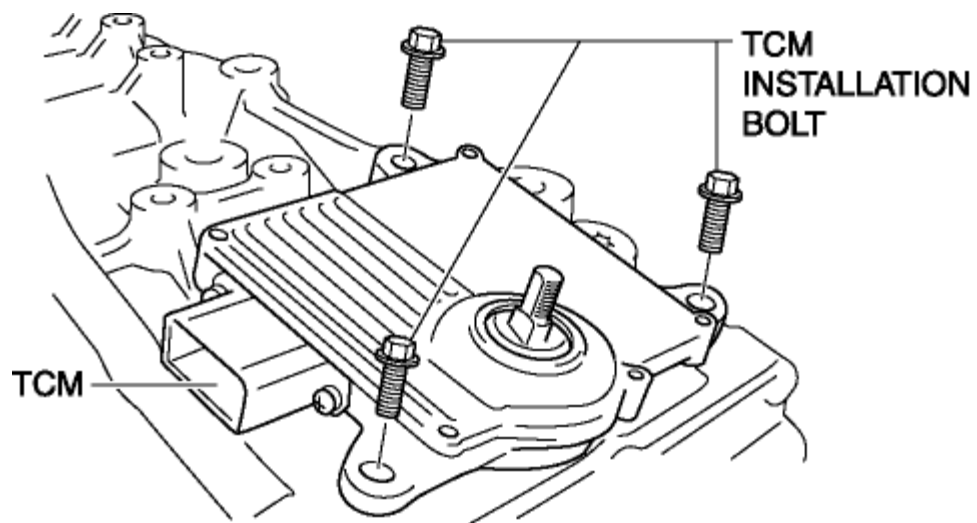
- Do not turn more than 60° from the marking.

99. Install the TCM.

100. Verify the correct positioning of the TCM and coupler component.



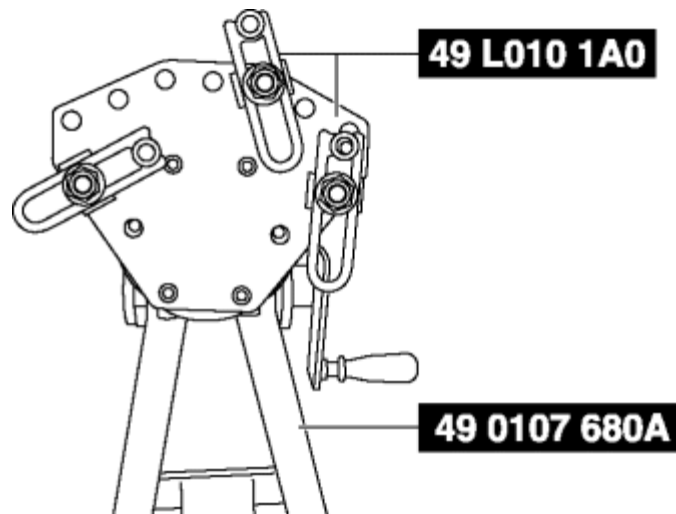
101. Tighten the TCM installation bolts.



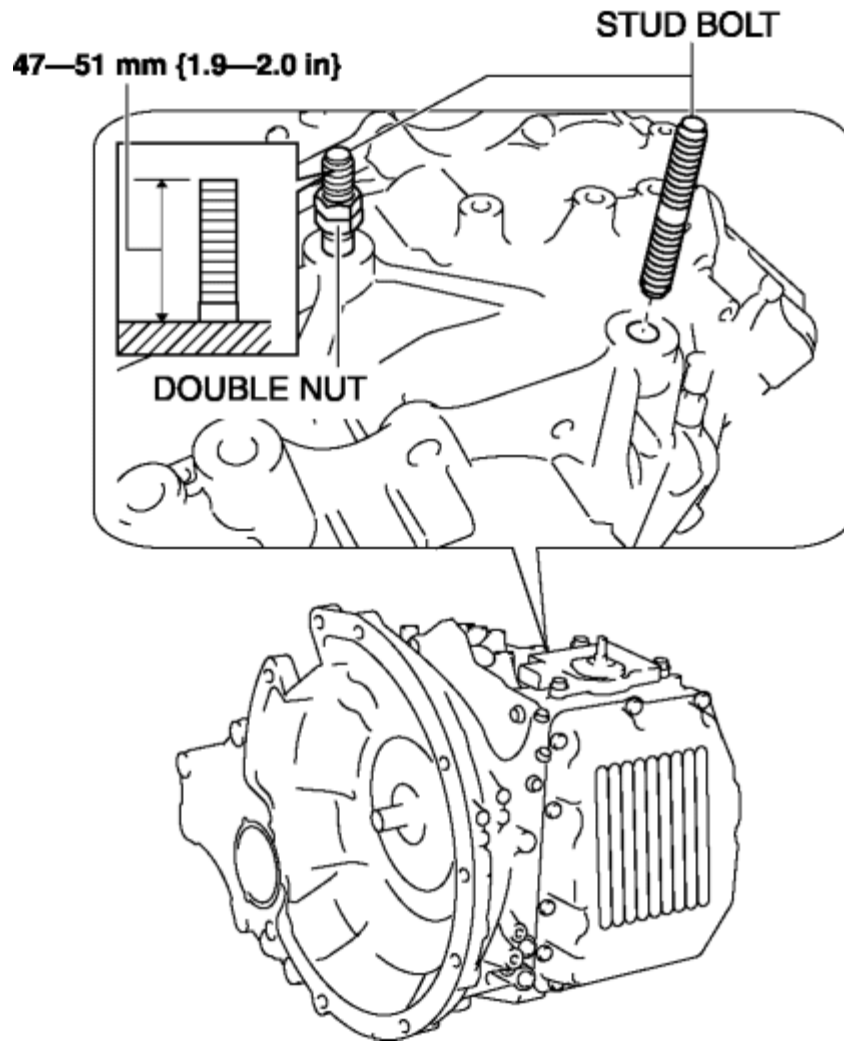
Tightening torque

- 20—29 N·m {2.1—2.9 kgf·m, 15—21 ft·lbf}

102. Remove the **SSTs**.



103. Install the stud bolts using double nutted.



CAUTION:

- Do not repair the threads using a tap or other tools.
- Do not damage the transaxle case.
- Do not overtighten the stud bolts. (The stud bolts should remain protruded from the end of the transaxle case more than 47 mm {1.9 in}.)
- If any of the stud bolts is overtightened, the transaxle case may be damaged (holes in the case may result).
- If the transaxle case is damaged, the transaxle must be replaced.

104. Remove the double nutted from the stud bolts.

105. Install the torque converter. (See [TORQUE CONVERTER REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

106. Install the transaxle. (See [AUTOMATIC TRANSAXLE REMOVAL/ INSTALLATION \[AY6A-EL\]](#).)

107. Add ATF. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) LEVEL ADJUSTMENT \[AY6A-EL\]](#).)

108. Perform the "Neutral Position Learning". (See [TCM NEUTRAL POSITION LEARNING \[AY6A-EL\]](#).)

109. Adjust the ATF level. (See [AUTOMATIC TRANSAXLE FLUID \(ATF\) LEVEL ADJUSTMENT \[AY6A-EL\]](#).)

110. Perform the "Mechanical System Test". (See [MECHANICAL SYSTEM TEST \[AY6A-EL\]](#).)

111. Perform the "Road Test". (See [ROAD TEST \[AY6A-EL\]](#).)

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