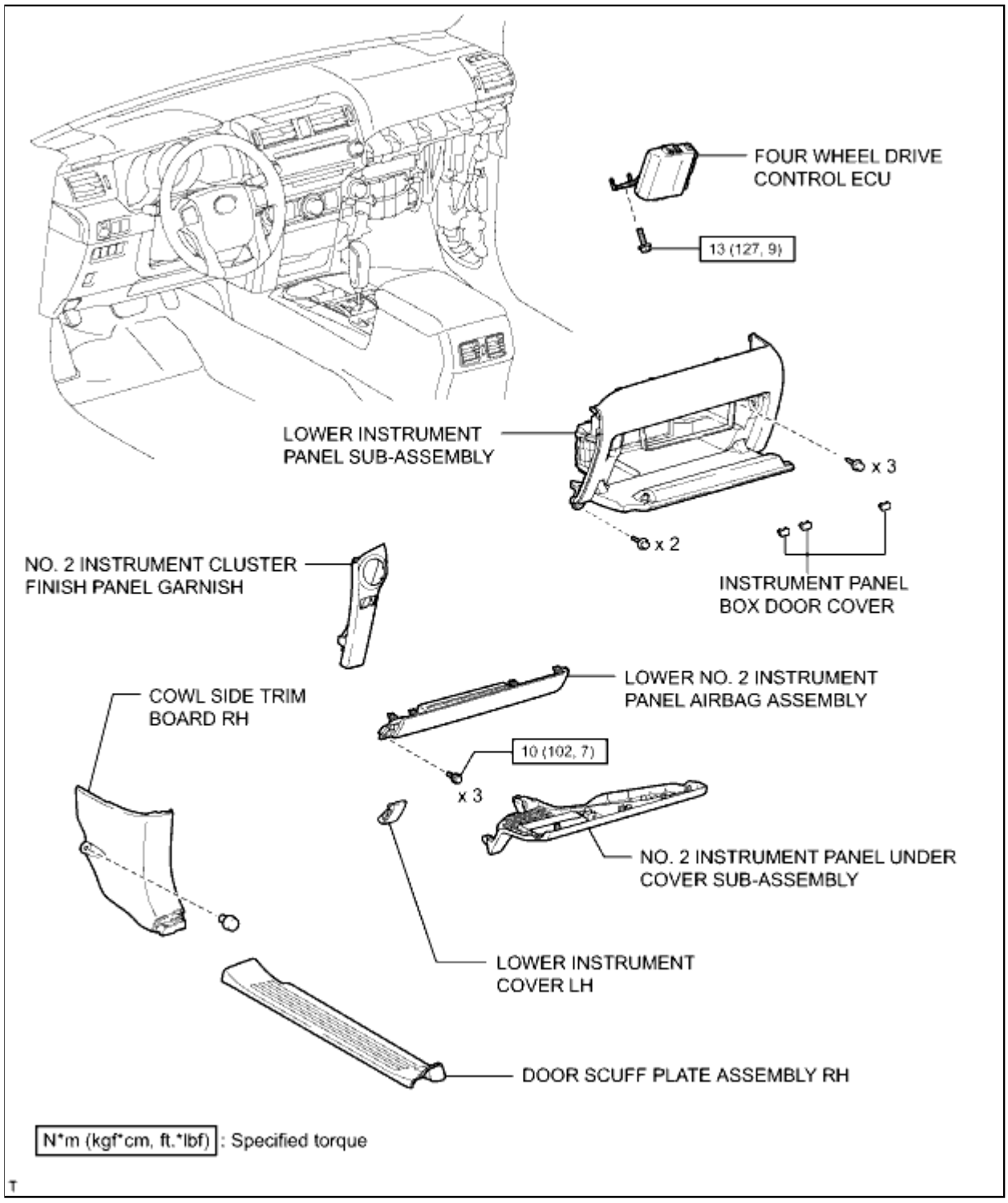
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479R001X
Title: VF2A TRANSFER / 4WD / AWD: 4WD CONTROL ECU: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479S001X
Title: VF2A TRANSFER / 4WD / AWD: 4WD CONTROL ECU: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

2. REMOVE DOOR SCUFF PLATE ASSEMBLY RH INFO

3. REMOVE COWL SIDE TRIM BOARD RH INFO

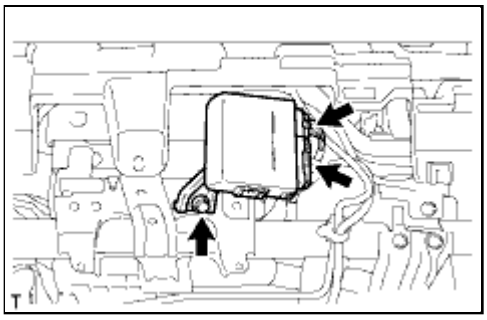
4. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

5. REMOVE LOWER INSTRUMENT COVER LH INFO

6. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

7. REMOVE INSTRUMENT PANEL BOX DOOR COVER INFO

8. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO



9. REMOVE FOUR WHEEL DRIVE CONTROL ECU

(a) Disconnect the 2 connectors.

(b) Remove the bolt and four wheel drive control ECU.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479Q001X
Title: VF2A TRANSFER / 4WD / AWD: 4WD CONTROL ECU: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL FOUR WHEEL DRIVE CONTROL ECU

(a) Install the four wheel drive control ECU with the bolt.

Torque: 13 N·m (127 kgf·cm, 9ft·lbf)

(b) Connect the 2 connectors.

2. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

3. INSTALL INSTRUMENT PANEL BOX DOOR COVER INFO

4. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

5. REMOVE LOWER INSTRUMENT COVER LH INFO

6. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

7. INSTALL COWL SIDE TRIM BOARD RH INFO

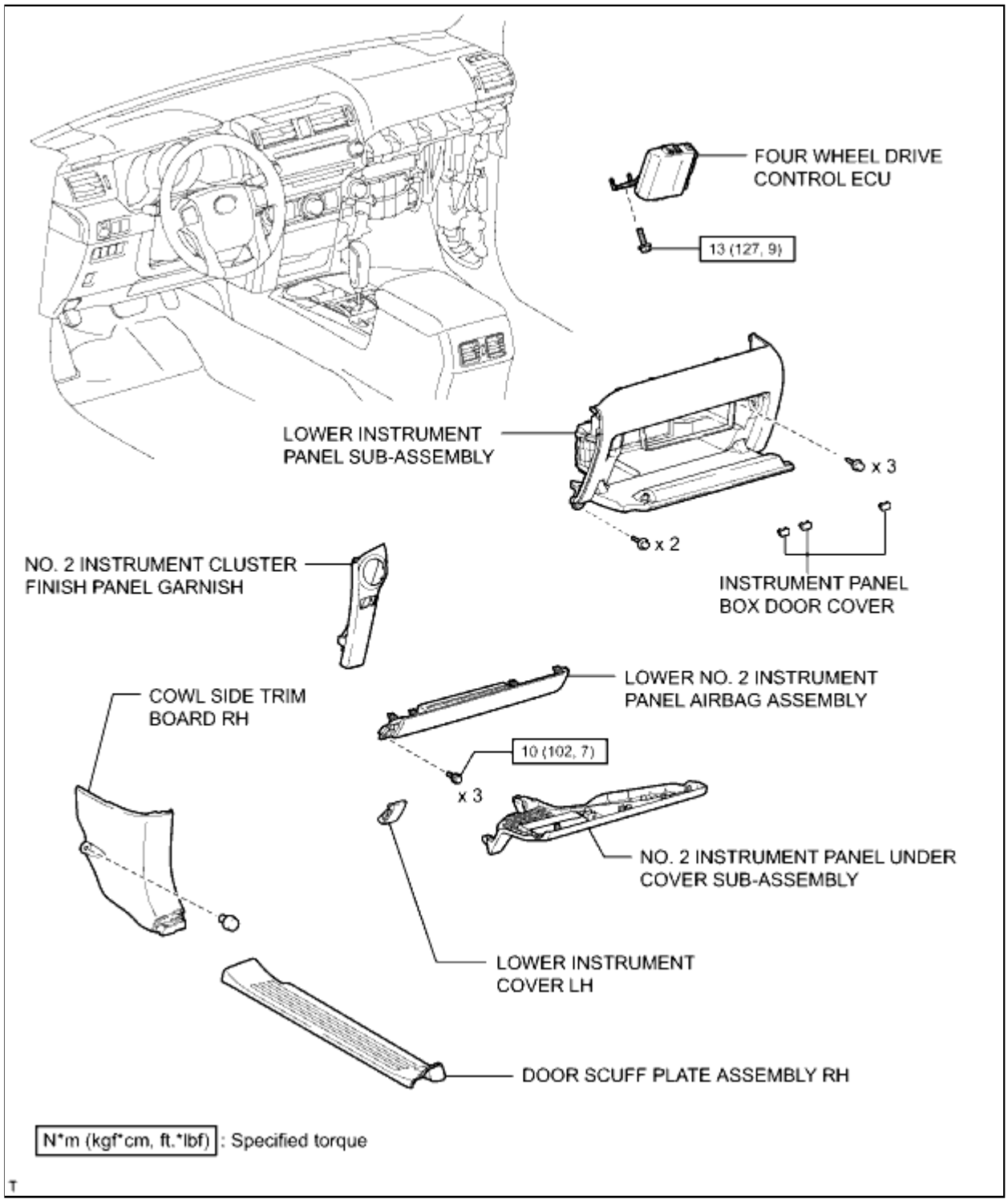
8. INSTALL DOOR SCUFF PLATE ASSEMBLY RH INFO

9. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479R000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL ECU: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479S000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL ECU: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

2. REMOVE DOOR SCUFF PLATE ASSEMBLY RH INFO

3. REMOVE COWL SIDE TRIM BOARD RH INFO

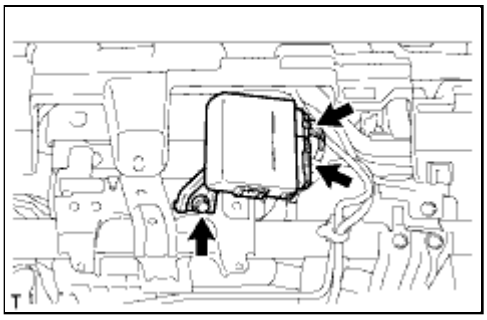
4. REMOVE NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

5. REMOVE LOWER INSTRUMENT COVER LH INFO

6. REMOVE LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

7. REMOVE INSTRUMENT PANEL BOX DOOR COVER INFO

8. REMOVE LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO



9. REMOVE FOUR WHEEL DRIVE CONTROL ECU

(a) Disconnect the 2 connectors.

(b) Remove the bolt and four wheel drive control ECU.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479Q000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL ECU: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL FOUR WHEEL DRIVE CONTROL ECU

(a) Install the four wheel drive control ECU with the bolt.

Torque: 13 N·m (127 kgf·cm, 9ft·lbf)

(b) Connect the 2 connectors.

2. INSTALL LOWER INSTRUMENT PANEL SUB-ASSEMBLY INFO

3. INSTALL INSTRUMENT PANEL BOX DOOR COVER INFO

4. INSTALL LOWER NO. 2 INSTRUMENT PANEL AIRBAG ASSEMBLY INFO

5. INSTALL LOWER INSTRUMENT COVER LH INFO

6. INSTALL NO. 2 INSTRUMENT PANEL UNDER COVER SUB-ASSEMBLY INFO

7. INSTALL COWL SIDE TRIM BOARD RH INFO

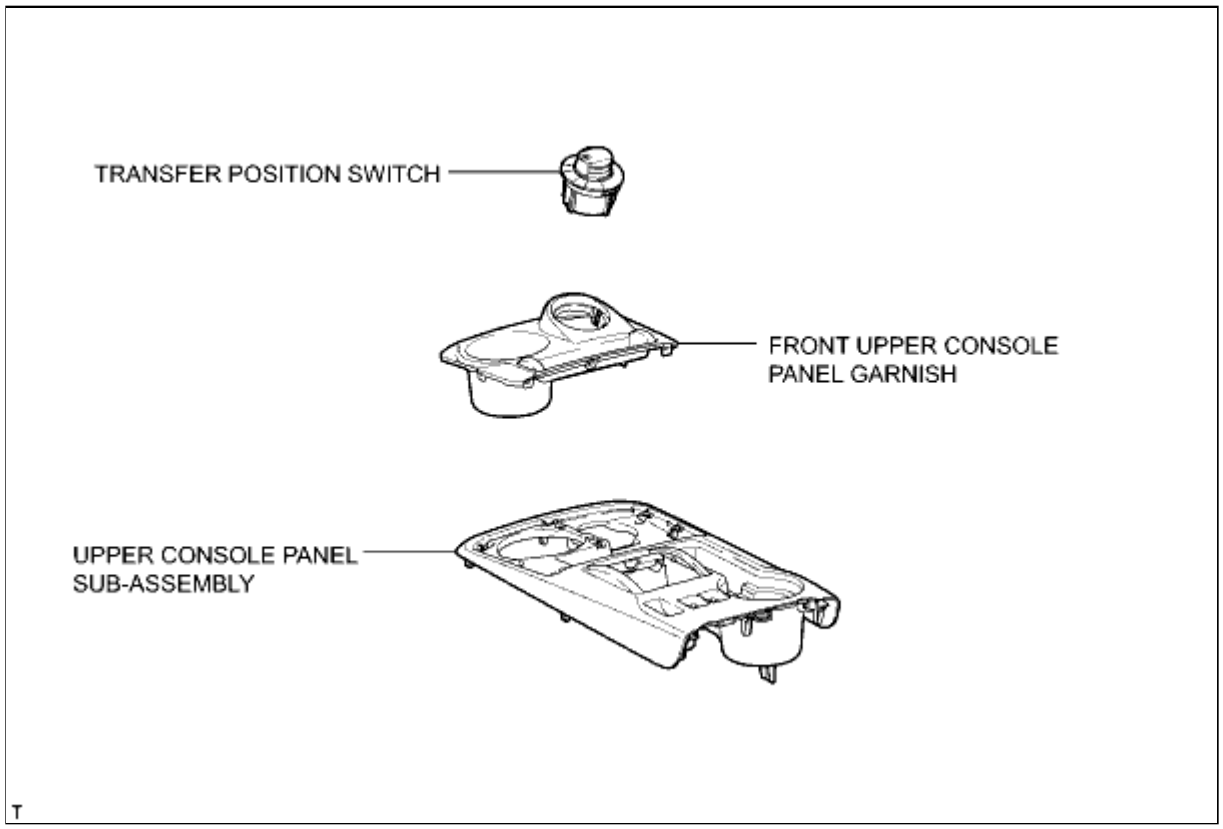
8. INSTALL DOOR SCUFF PLATE ASSEMBLY RH INFO

9. INSTALL NO. 2 INSTRUMENT CLUSTER FINISH PANEL GARNISH INFO

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479N000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL SWITCH: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030KN008X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL SWITCH: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

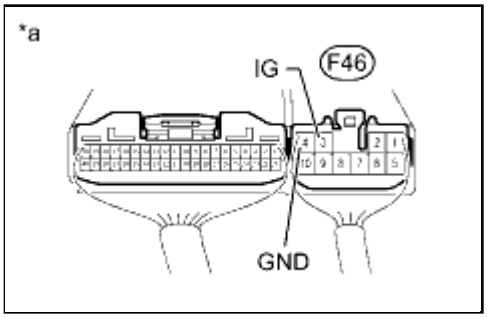
1. INSPECT TRANSFER POSITION SWITCH

(a) Check the harness and connector (four wheel drive control ECU - battery and body ground).

(1) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F46-3 (IG) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, inspect the harness, fuse or connector. If the harness or connector is malfunctioning, repair or replace the harness or connector. If the harness or connector is normal, replace the four wheel drive control ECU INFO .

If there is a malfunction, repair or replace the harness or connector.

(2) Measure the resistance according to the value(s) in the table below.

Standard resistance:

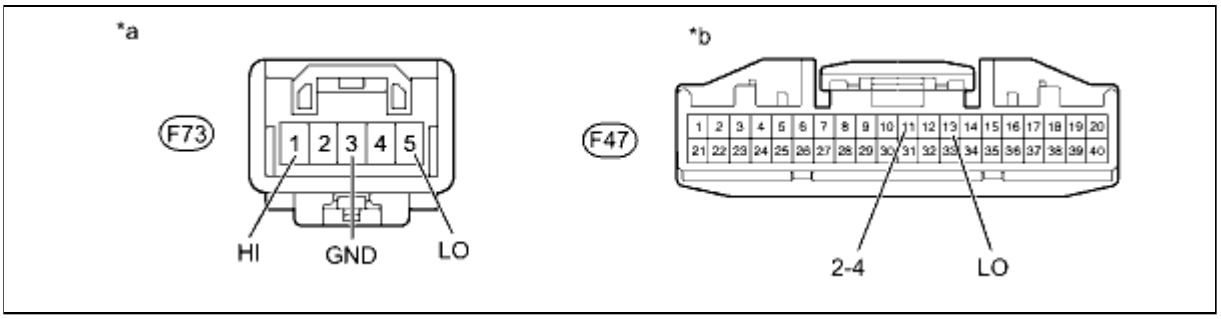
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F46-4 (GND) - Body ground	Always	Below 1 Ω

(b) Check the harness and connector (transfer position switch - four wheel drive control ECU).

(1) Disconnect the F47 ECU connector.

(2) Disconnect the F73 switch connector.

(3) Measure the resistance according to the value(s) in the table below.



Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F73-5 (LO) - F47-13 (LO)	Always	Below 1 Ω
F73-5 (LO) - Body ground	Always	100 kΩ or higher
F73-3 (GND) - Body ground	Always	Below 1 Ω
F73-1 (HI) - F47-11 (2-4)	Always	Below 1 Ω
F73-1 (HI) - Body ground	Always	100 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Transfer Position Switch)	*b	Front view of wire harness connector (to Four Wheel Drive Control ECU)

If the result is not as specified, repair or replace the harness or connector.

(c) Check the transfer position switch.

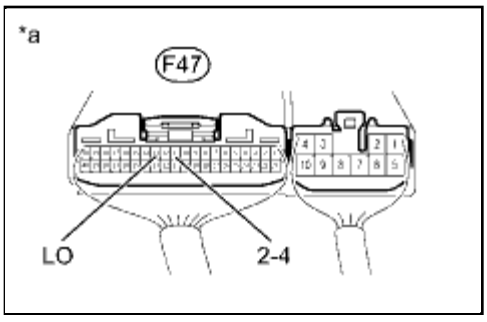
(1) Turn the ignition switch off.

(2) Connect the F73 switch connector.

(3) Connect the F47 ECU connector.

(4) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F47-11 (2-4) - Body ground	Ignition switch ON Transfer position switch H4F	Below 1.5 V
	Ignition switch ON Transfer position switch H4L	Below 1.5 V

	Ignition switch ON Transfer position switch L4L	10.5 to 14 V
F47-13 (LO) - Body ground	Ignition switch ON Transfer position switch H4F	10.5 to 14 V
	Ignition switch ON Transfer position switch H4L	Below 1.5 V
	Ignition switch ON Transfer position switch L4L	Below 1.5 V

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

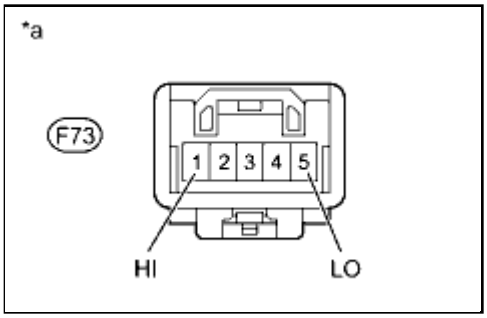
If the result is not as specified, check the four wheel drive control ECU.

(d) Check the four wheel drive control ECU.

(1) Disconnect the F73 switch connector.

(2) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F73-1 (HI) - Body ground	Ignition switch ON	10.5 to 14 V
F73-5 (LO) - Body ground	Ignition switch ON	10.5 to 14 V

Text in Illustration

*a	Front view of wire harness connector

	(to Transfer Position Switch)

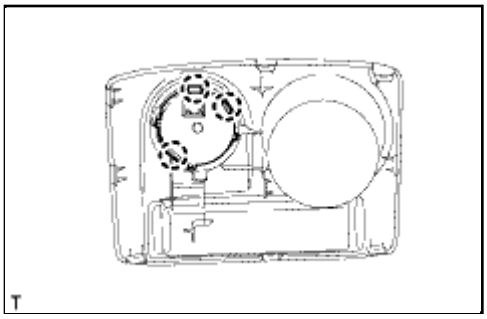
If the voltage is not as specified, replace the four wheel drive control ECU INFO . If the voltage is normal, replace the transfer position switch INFO .

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479O000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL SWITCH: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

2. REMOVE FRONT UPPER CONSOLE PANEL GARNISH INFO

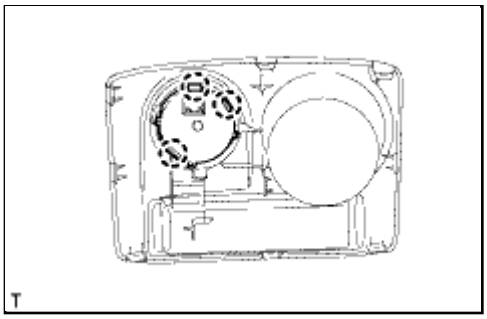


3. REMOVE TRANSFER POSITION SWITCH

(a) Detach the 3 claws and remove the transfer position switch.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479M000X
Title: VF4BM TRANSFER / 4WD / AWD: 4WD CONTROL SWITCH: INSTALLATION (2010 4Runner)		

INSTALLATION



1. INSTALL TRANSFER POSITION SWITCH

(a) Attach the 3 claws to install the transfer position switch.

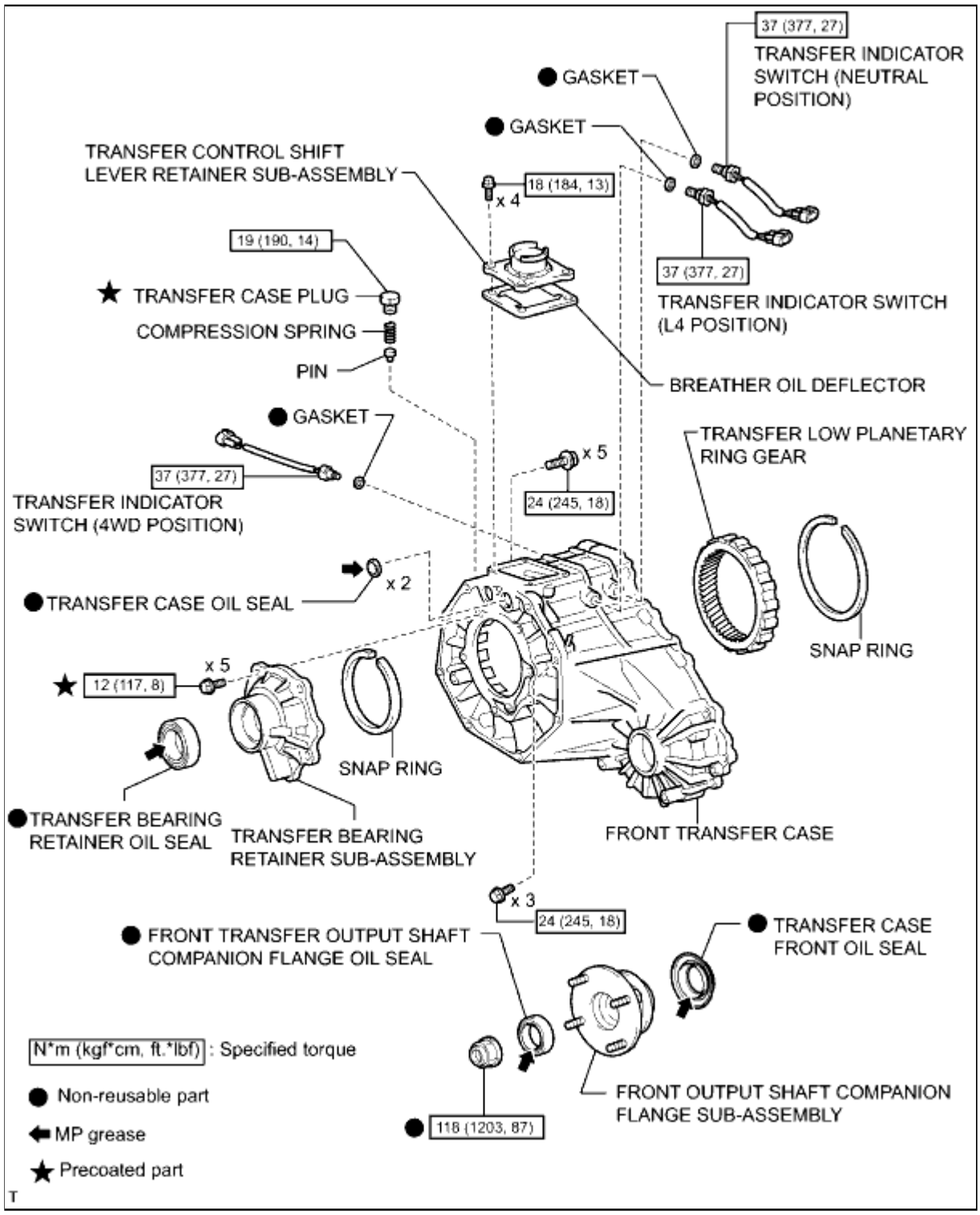
2. INSTALL FRONT UPPER CONSOLE PANEL GARNISH INFO

3. INSTALL UPPER CONSOLE PANEL SUB-ASSEMBLY INFO

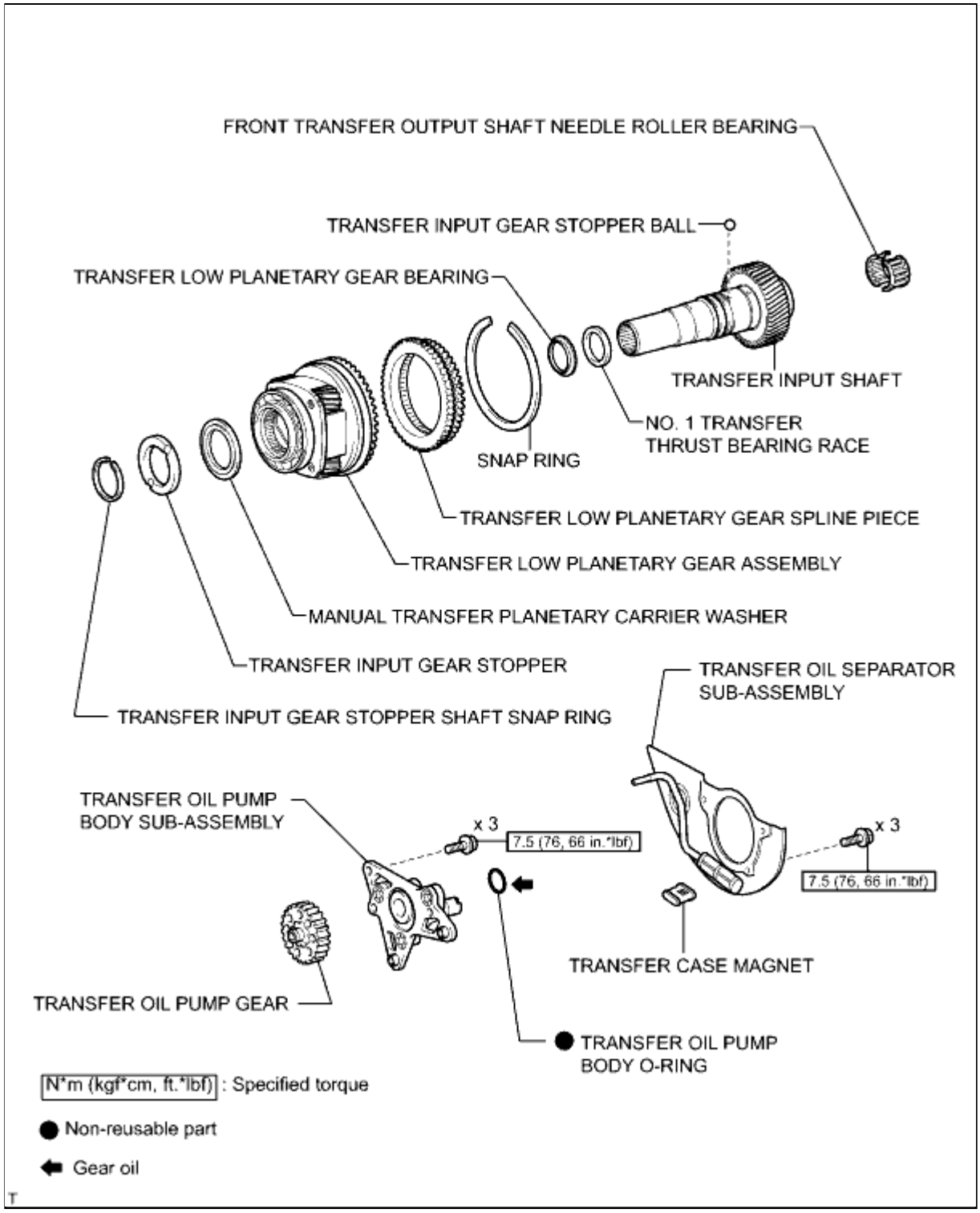
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LX00NX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: COMPONENTS (2010 4Runner)		

COMPONENTS

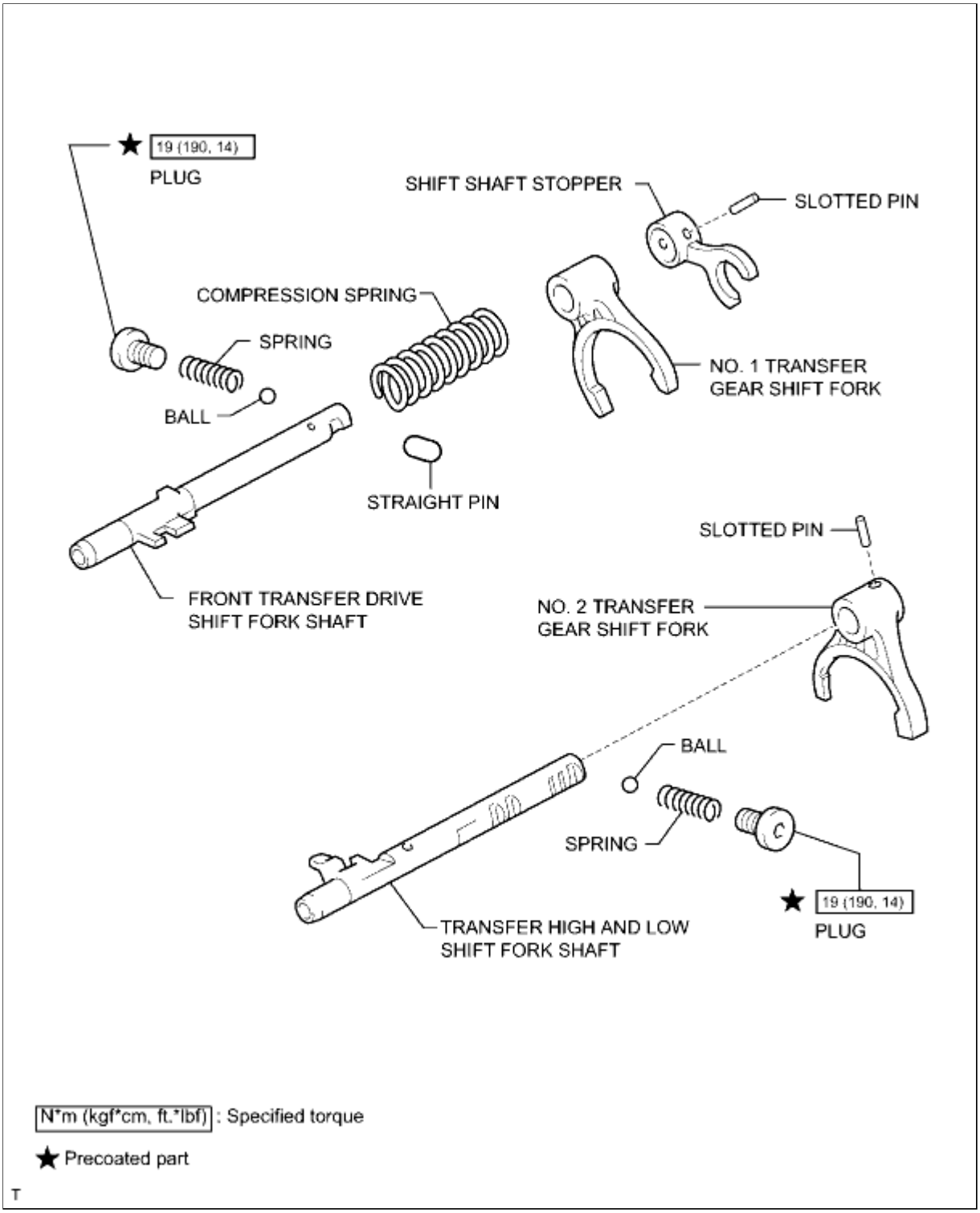
ILLUSTRATION



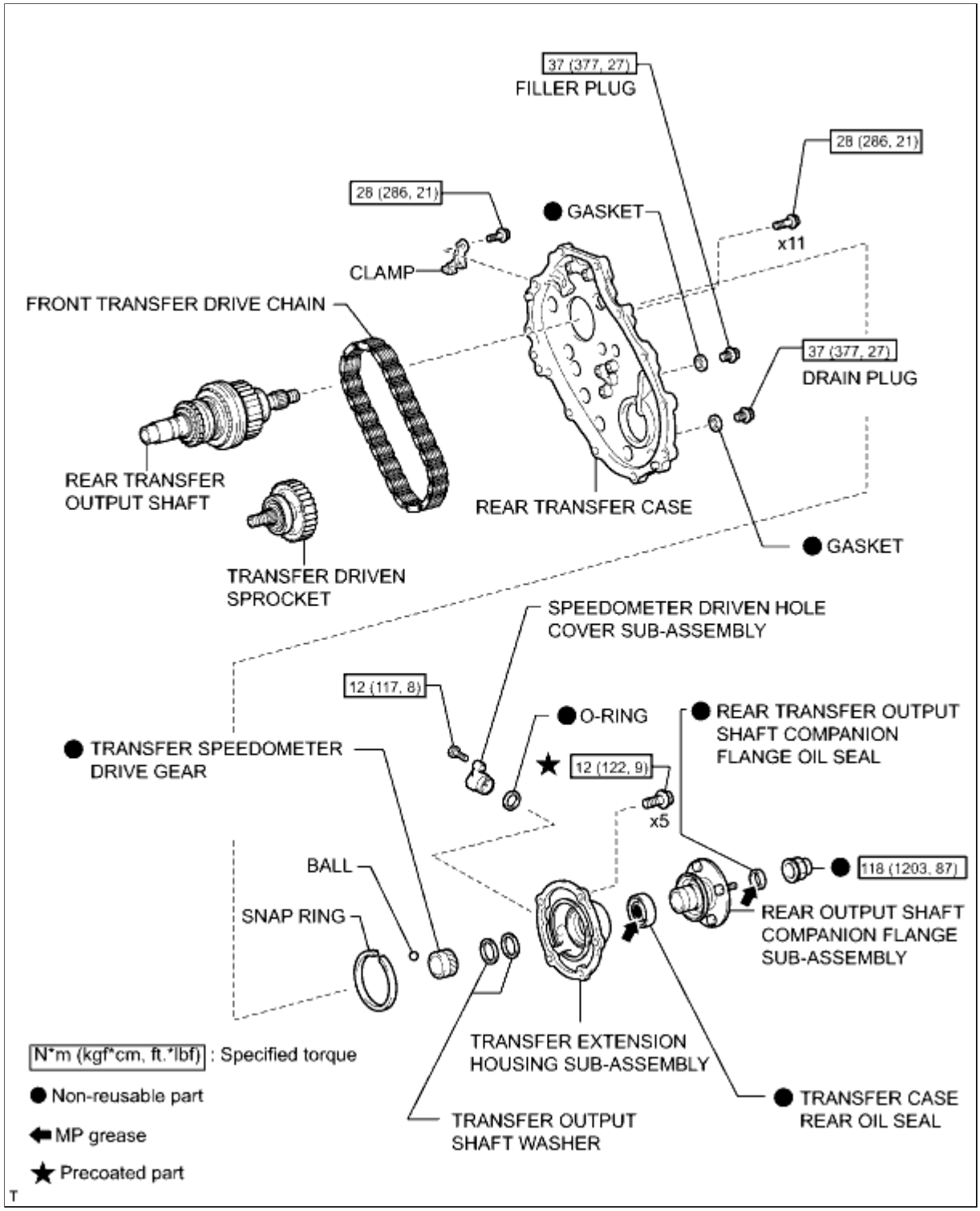
ILLUSTRATION



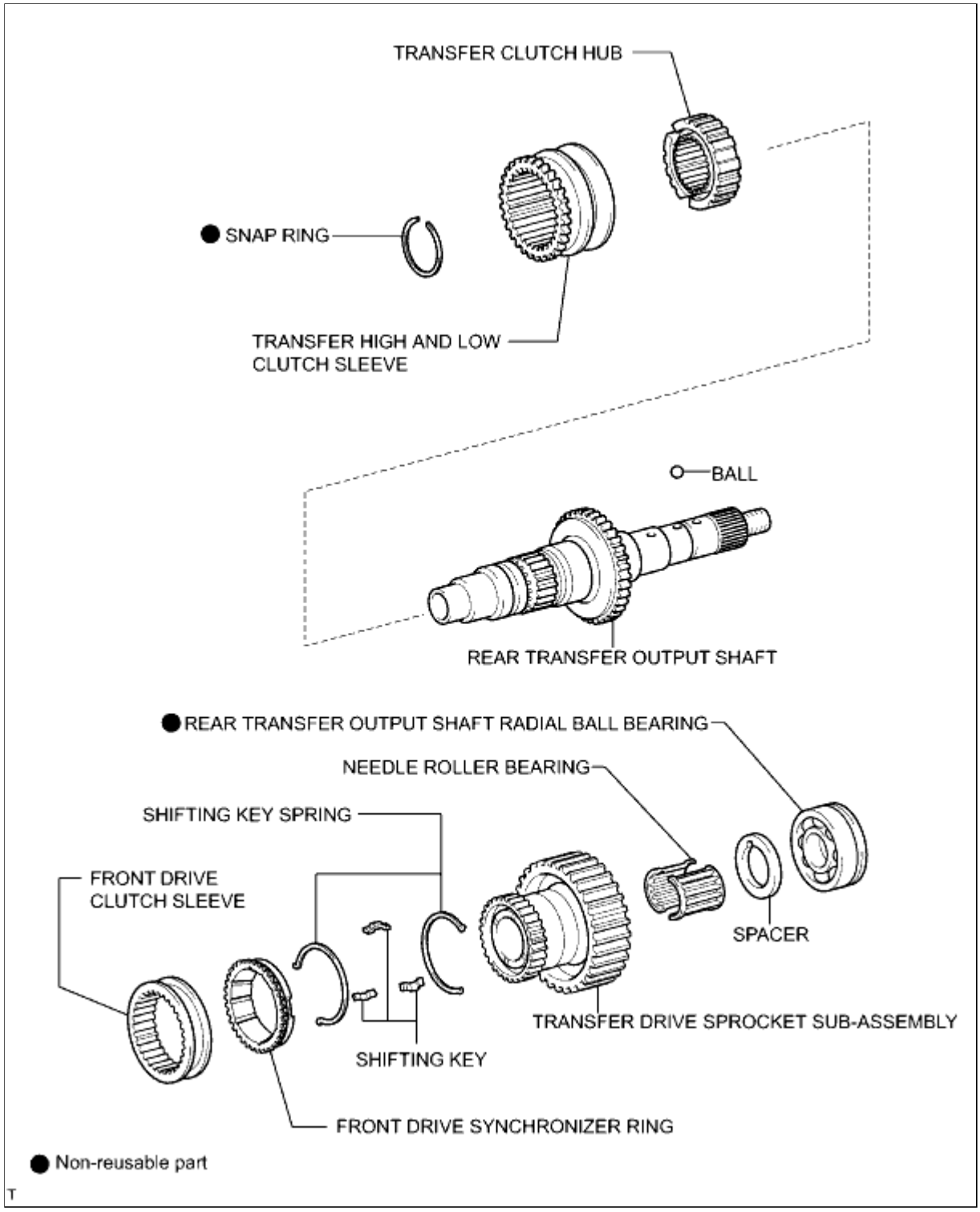
ILLUSTRATION



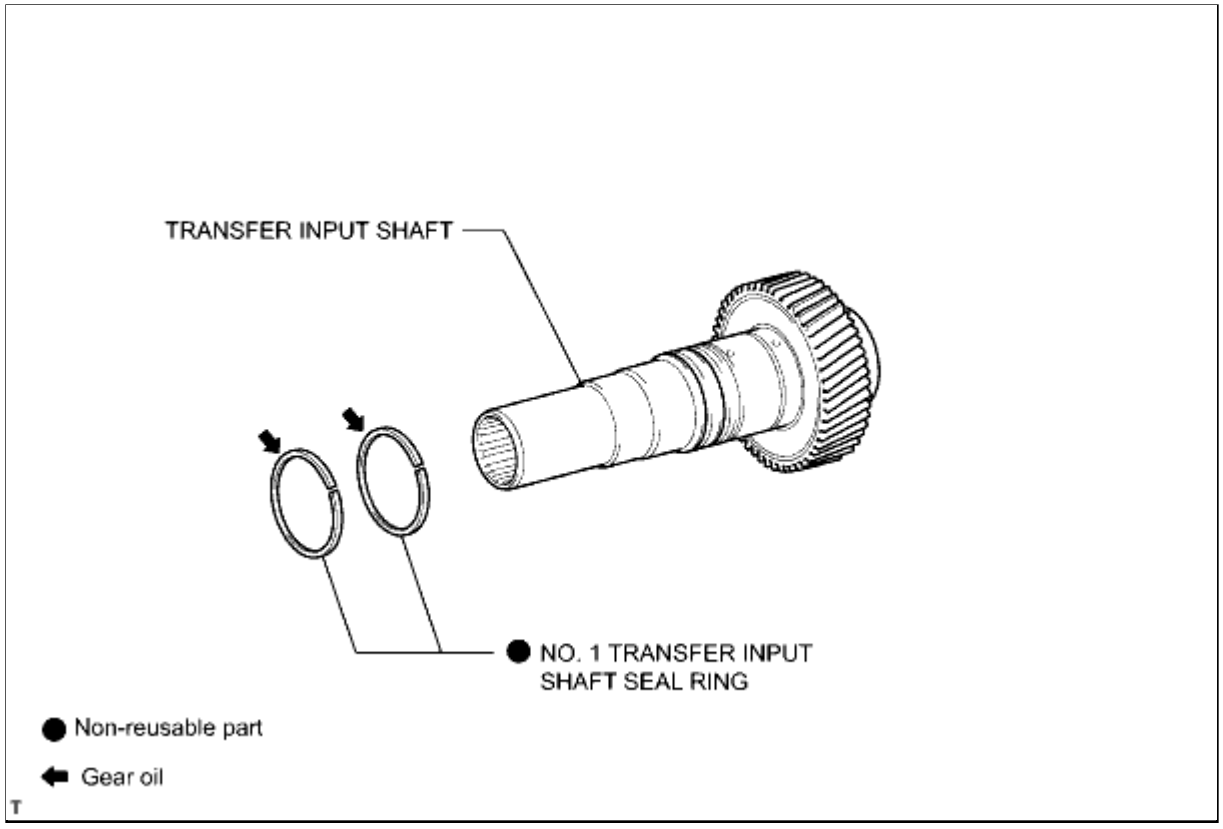
ILLUSTRATION



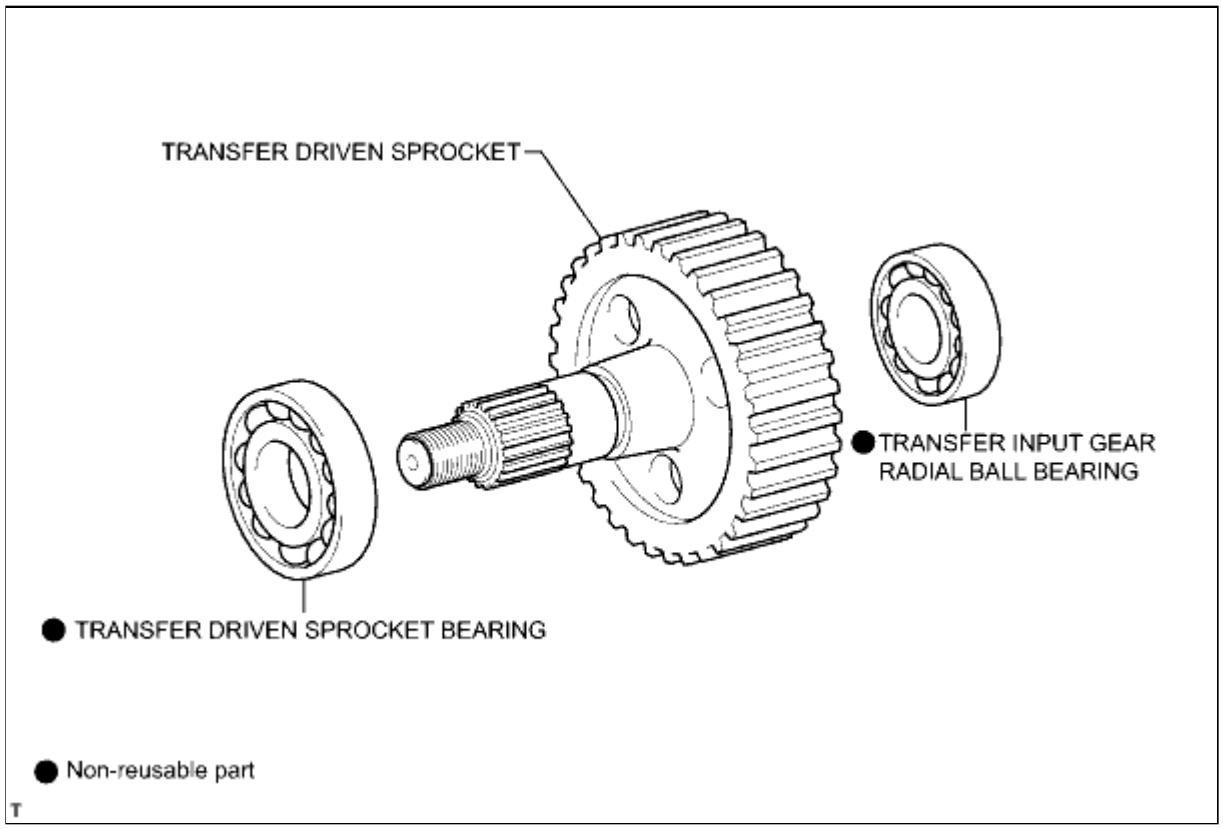
ILLUSTRATION



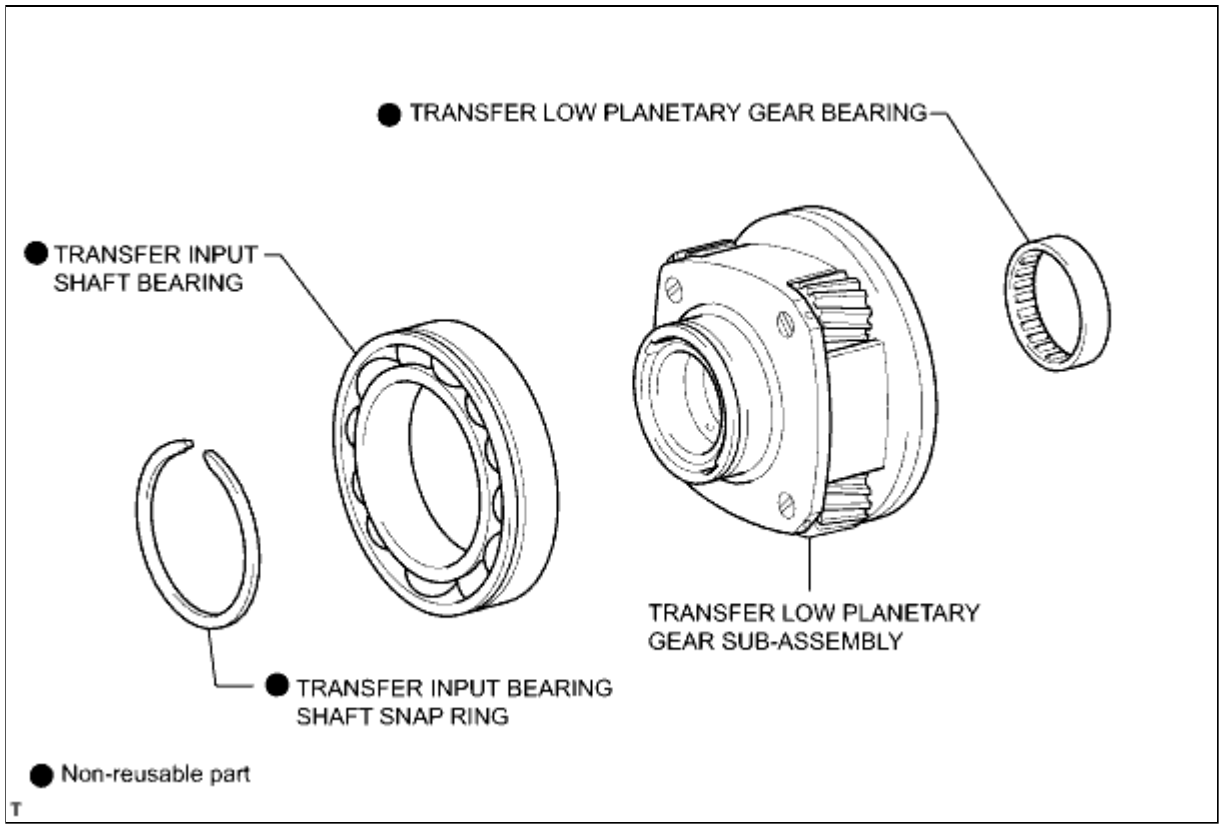
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



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Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LY00JX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: REMOVAL (2010 4Runner)		

REMOVAL

1. DRAIN TRANSFER OIL INFO

2. REMOVE AUTOMATIC TRANSMISSION ASSEMBLY

(a) Remove the automatic transmission INFO .

3. REMOVE TRANSFER ASSEMBLY

(a) Remove the 8 bolts.

(b) Remove the transfer from the transmission.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LZ007X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

1. REMOVE TRANSFER INDICATOR SWITCH (4WD POSITION) INFO

2. REMOVE TRANSFER INDICATOR SWITCH (L4 POSITION) INFO

3. REMOVE TRANSFER INDICATOR SWITCH (NEUTRAL POSITION) INFO

4. REMOVE TRANSFER CONTROL SHIFT LEVER RETAINER SUB-ASSEMBLY

(a) Remove the 4 bolts and retainer.

5. REMOVE BREATHER OIL DEFLECTOR

(a) Remove the breather oil deflector.

6. REMOVE TRANSFER BEARING RETAINER SUB-ASSEMBLY

(a) Remove the 5 bolts and bearing retainer.

HINT:

If necessary, tap the bearing retainer with a plastic-faced hammer to remove it.

7. REMOVE TRANSFER BEARING RETAINER OIL SEAL

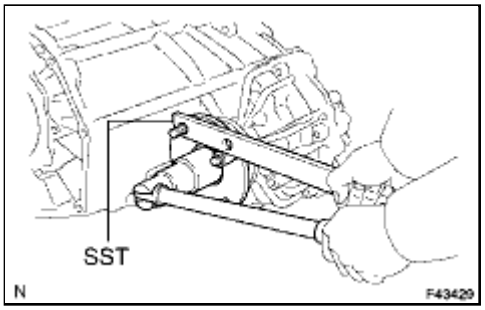
(a) Using a screwdriver and hammer, tap off the oil seal from the bearing retainer.

NOTICE:

Be careful not to damage the oil seal and bearing retainer contact surfaces.

8. REMOVE FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY

(a) Using a chisel and hammer, loosen the staked part of the lock nut.



(b) Using SST to hold the companion flange, remove the lock nut.

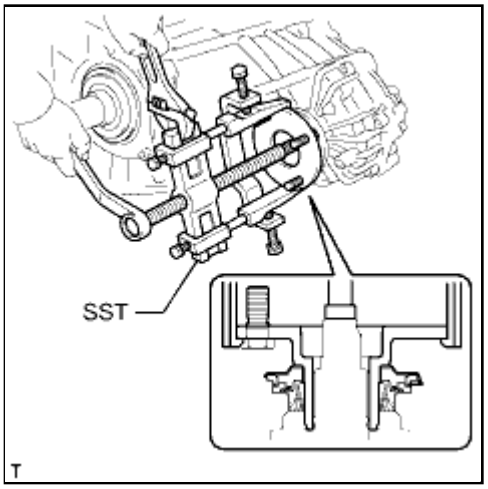
SST: 09330-00021

(c) Using SST, remove the companion flange.

SST: 09950-40011

09951-04020

09952-04010



09953-04030
09954-04010
09955-04051
09957-04010
09958-04011

9. REMOVE FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

(a) Using a screwdriver and hammer, tap out the oil seal from the companion flange.

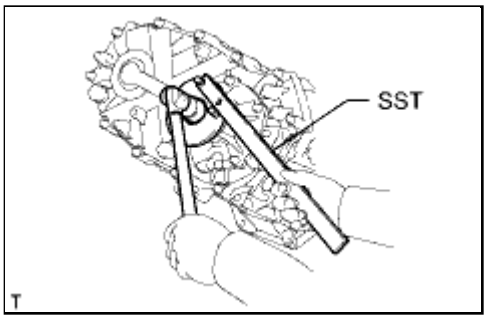
NOTICE:

Be careful not to damage the oil seal and companion flange contact surfaces.

10. REMOVE TRANSFER CASE FRONT OIL SEAL INFO

11. REMOVE REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY

(a) Using a chisel and hammer, loosen the staked part of the lock nut.



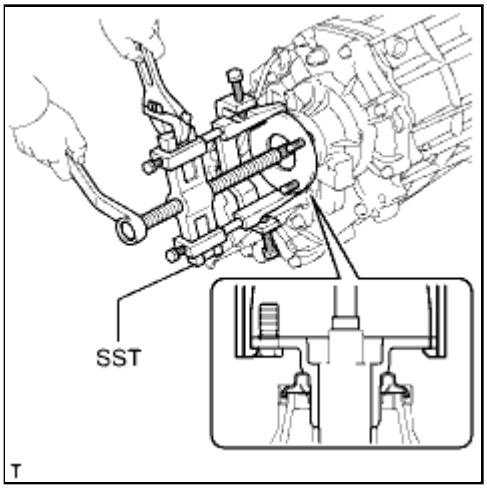
(b) Using SST to hold the companion flange, remove the lock nut.

SST: 09330-00021

(c) Using SST, remove the companion flange.

SST: 09950-40011

09951-04020
09952-04010
09953-04030
09954-04010
09955-04051
09957-04010
09958-04011



12. REMOVE REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

(a) Using a screwdriver and hammer, tap out the oil seal from the companion flange.

NOTICE:

Be careful not to damage the oil seal and companion flange contact surfaces.

13. REMOVE TRANSFER CASE REAR OIL SEAL INFO

14. REMOVE SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

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

(b) Remove the O-ring from the hole cover.

15. REMOVE TRANSFER EXTENSION HOUSING SUB-ASSEMBLY

(a) Remove the 5 bolts and extension housing.

HINT:

If necessary, tap the extension housing with a plastic-faced hammer to remove it.

16. REMOVE TRANSFER OUTPUT SHAFT WASHER

(a) Remove the 2 output shaft washers.

17. REMOVE TRANSFER SPEEDOMETER DRIVE GEAR

(a) Remove the speedometer drive gear and ball.

18. REMOVE REAR TRANSFER CASE

(a) Remove the 12 bolts and clamp.

(b) Remove the rear transfer case.

HINT:

If necessary, tap the rear transfer case with a plastic-faced hammer to remove it.

19. REMOVE FRONT TRANSFER DRIVE SHIFT FORK SHAFT

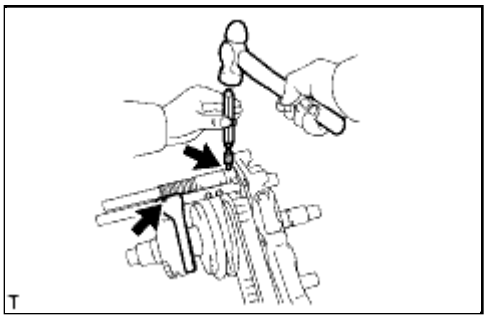
(a) Using a hexagon wrench, remove the 2 plugs.

(b) Using a magnet hand, remove the 2 springs and 2 balls from both holes.

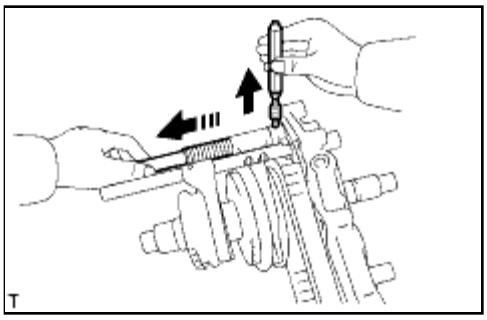
(c) Mount the rear transfer case in a vise.

NOTICE:

Place aluminum plates on the vise to prevent damage to the rear transfer case.



(d) Using a 5 mm pin punch and hammer, tap off the 2 slotted pins from the shift shaft stopper and No. 2 transfer gear shift fork.



(e) Hold the shift fork shaft in place by hand when removing the pin punch.

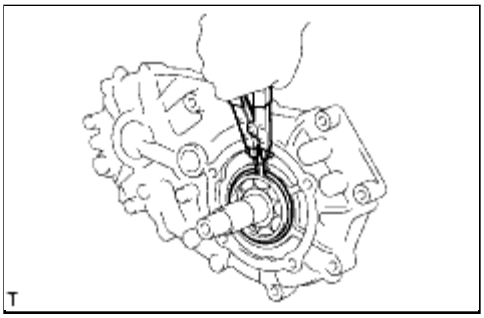
(f) Remove the shift fork shaft, No. 1 gear shift fork, spring and shift shaft stopper.

(g) Using a magnet hand, remove the straight pin.

20. REMOVE TRANSFER HIGH AND LOW SHIFT FORK SHAFT

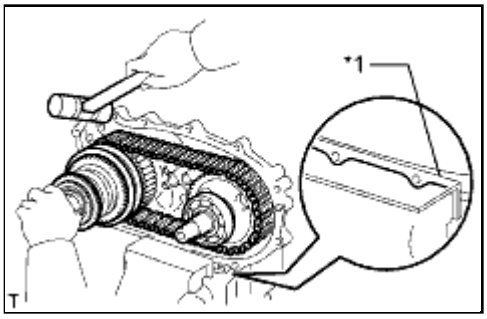
(a) Remove the shift fork shaft and No. 2 gear shift fork.

21. REMOVE REAR TRANSFER OUTPUT SHAFT, FRONT TRANSFER DRIVE CHAIN AND TRANSFER DRIVEN SPROCKET



(a) Using a snap ring expander, remove the snap ring.

(b) Using a plastic-faced hammer, carefully tap the rear

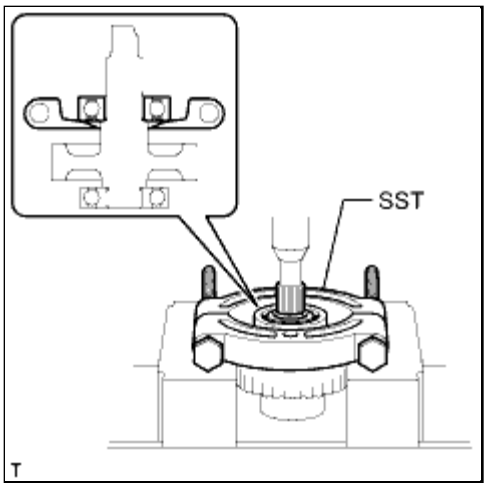


transfer case and remove the output shaft together with the drive chain and driven sprocket.

Text in Illustration

*1	Aluminum Plate

(c) Remove the output shaft and driven sprocket from the drive chain.



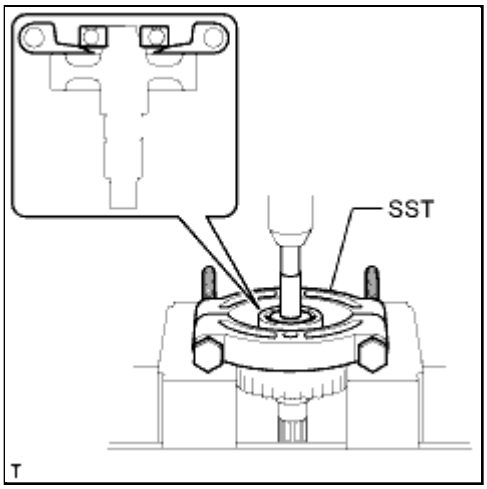
22. REMOVE TRANSFER DRIVEN SPROCKET BEARING

(a) Using SST and a press, press out the bearing.

SST: 09555-55010

NOTICE:

Be careful not to drop or damage the driven sprocket.



23. REMOVE TRANSFER INPUT GEAR RADIAL BALL BEARING

(a) Using SST, a press and steel bar, press out the bearing.

SST: 09555-55010

NOTICE:

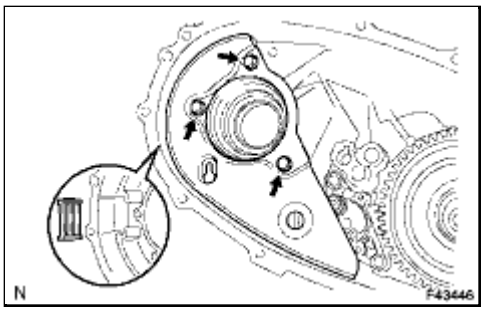
Be careful not to drop or damage the driven sprocket.

24. REMOVE FILLER PLUG

(a) Remove the filler plug and gasket.

25. REMOVE DRAIN PLUG

(a) Remove the drain plug and gasket.



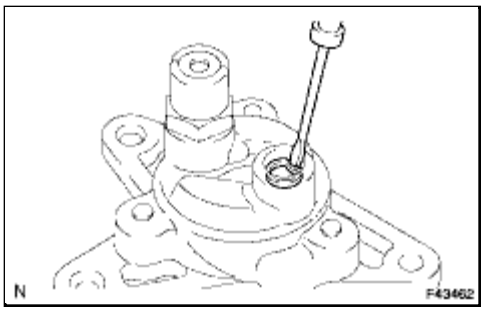
26. REMOVE TRANSFER OIL SEPARATOR SUB-ASSEMBLY

(a) Remove the 3 bolts and oil separator.

27. REMOVE TRANSFER CASE MAGNET

28. REMOVE TRANSFER OIL PUMP BODY SUB-ASSEMBLY

(a) Remove the 3 bolts and oil pump body.



29. REMOVE TRANSFER OIL PUMP BODY O-RING

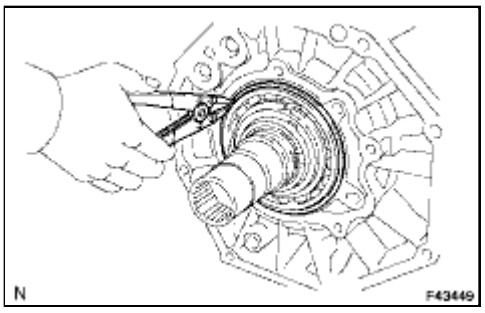
(a) Using a screwdriver, remove the O-ring from the oil pump body.

NOTICE:

Be careful not to damage the oil pump body.

30. REMOVE TRANSFER OIL PUMP GEAR

(a) Remove the oil pump gear.



31. REMOVE TRANSFER LOW PLANETARY GEAR ASSEMBLY WITH TRANSFER INPUT SHAFT

(a) Using a snap ring expander, remove the snap ring.

(b) Remove the low planetary gear together with the input shaft.

32. REMOVE TRANSFER CASE PLUG

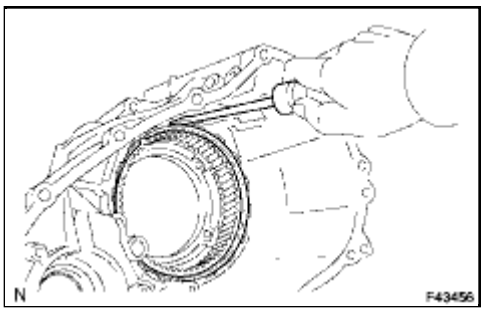
(a) Remove the case plug.

33. REMOVE COMPRESSION SPRING

(a) Remove the spring.

34. REMOVE PIN

(a) Remove the pin.



35. REMOVE TRANSFER LOW PLANETARY RING GEAR

(a) Using a screwdriver, pry out the snap ring.

NOTICE:

Be careful not to damage the front transfer case.

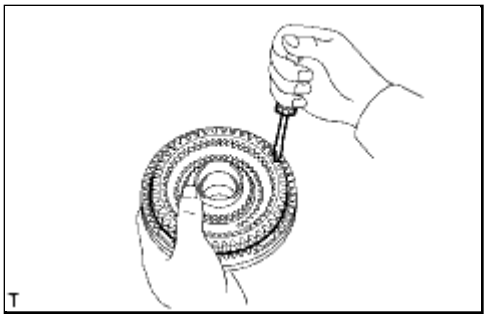
(b) Remove the ring gear from the front transfer case.

36. REMOVE TRANSFER CASE OIL SEAL

(a) Using a screwdriver and hammer, tap out the 2 oil seals.

NOTICE:

Be careful not to damage the oil seal and front transfer case contact surfaces.



37. REMOVE TRANSFER LOW PLANETARY GEAR SPLINE PIECE

(a) Using a screwdriver, pry out the snap ring.

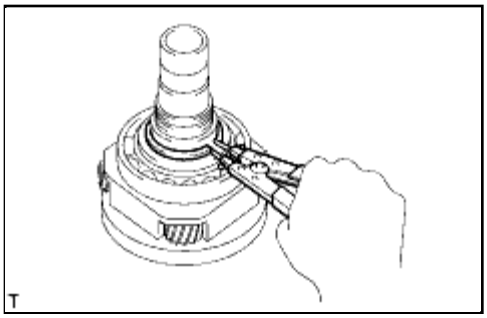
NOTICE:

Be careful not to damage the low planetary gear.

(b) Remove the spline piece.

38. REMOVE FRONT TRANSFER OUTPUT SHAFT NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing.



39. REMOVE TRANSFER INPUT GEAR STOPPER SHAFT SNAP RING

(a) Using a snap ring expander, remove the snap ring.

40. REMOVE TRANSFER INPUT GEAR STOPPER

(a) Remove the input gear stopper.

41. REMOVE TRANSFER INPUT GEAR STOPPER BALL

(a) Remove the ball.

42. REMOVE MANUAL TRANSFER PLANETARY CARRIER WASHER

(a) Remove the washer.

43. REMOVE TRANSFER INPUT SHAFT

(a) Remove the input shaft.

44. REMOVE NO. 1 TRANSFER THRUST BEARING RACE

(a) Remove the bearing race.

45. REMOVE TRANSFER LOW PLANETARY GEAR BEARING

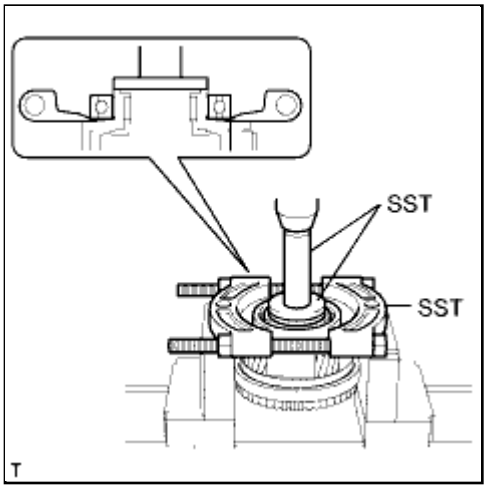
(a) Remove the bearing.

46. REMOVE NO. 1 TRANSFER INPUT SHAFT SEAL RING

(a) Remove the 2 seal rings.

47. REMOVE TRANSFER INPUT SHAFT BEARING

(a) Using a snap ring expander, remove the snap ring.



(b) Using SST and a press, press out the bearing.

SST: 09555-55010

SST: 09950-70010

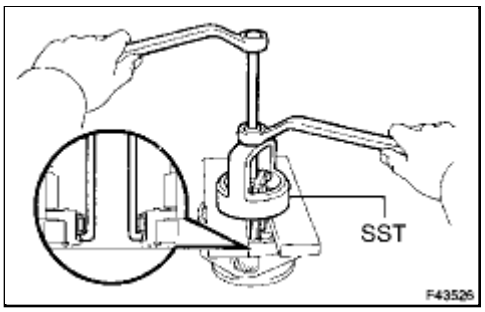
09951-07150

SST: 09950-60020

09951-00750

NOTICE:

Be careful not to drop or damage the low planetary gear.



48. REMOVE TRANSFER LOW PLANETARY GEAR BEARING

(a) Using SST, remove the bearing.

SST: 09612-65014

09612-01030

09612-01050

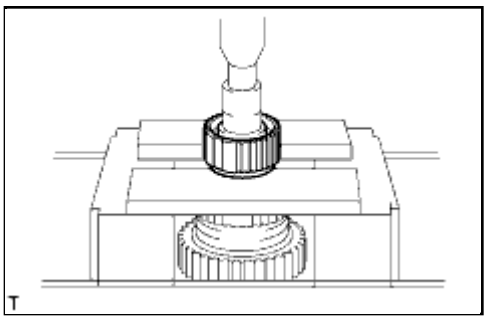
NOTICE:

Hang SST securely between the bearing and low planetary gear.

49. REMOVE TRANSFER CLUTCH HUB

(a) Using a snap ring expander, remove the snap ring.

(b) Remove the high and low clutch sleeves.

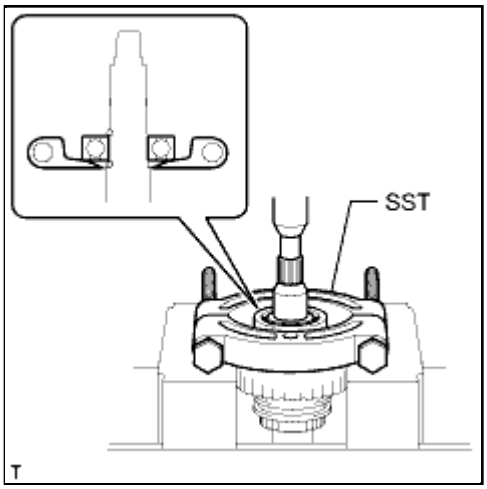


(c) Using a press, press out the clutch hub.

NOTICE:

Be careful not to drop or damage the clutch hub.

50. REMOVE REAR TRANSFER OUTPUT SHAFT RADIAL BALL BEARING



(a) Using SST and a press, press out the bearing.

SST: 09555-55010

NOTICE:

Be careful not to drop or damage the output shaft.

51. REMOVE TRANSFER DRIVE SPROCKET SUB-ASSEMBLY

(a) Remove the spacer and ball.

(b) Remove the drive sprocket with front drive clutch sleeve.

(c) Remove the needle roller bearing.

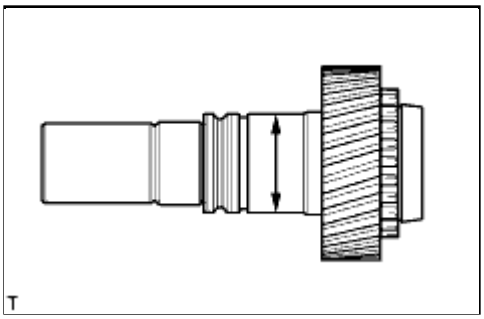
(d) Remove the front drive synchronizer ring.

(e) Remove the front drive sleeve, 3 shifting keys and 2 shifting key springs from the drive sprocket.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LW007X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: INSPECTION (2010 4Runner)		

INSPECTION

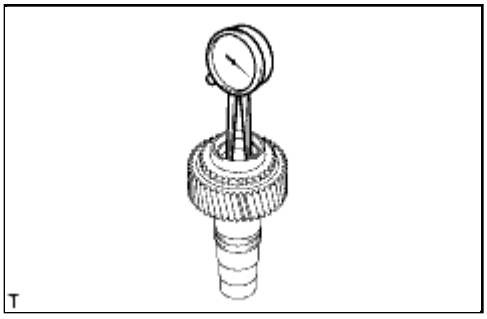
1. INSPECT TRANSFER INPUT SHAFT



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

Minimum diameter:
47.59 mm (1.88 in.)

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

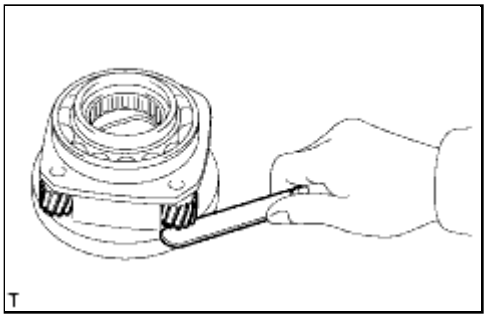


(b) Using a dial indicator, measure the inside diameter of the input shaft bushing.

Maximum inside diameter:
39.14 mm (1.54 in.)

If the inside diameter is more than the maximum, replace the input shaft.

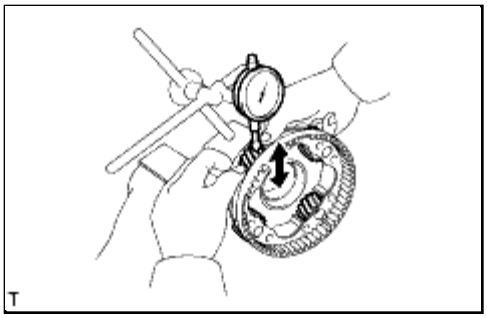
2. INSPECT PLANETARY PINION GEAR THRUST CLEARANCE



(a) Using a feeler gauge, measure the thrust clearance of the pinion gear.

Standard clearance:
0.11 to 0.84 mm (0.00433 to 0.0331 in.)
Maximum clearance:
0.84 mm (0.0331 in.)

If the clearance is more than the maximum, replace the low planetary gear.

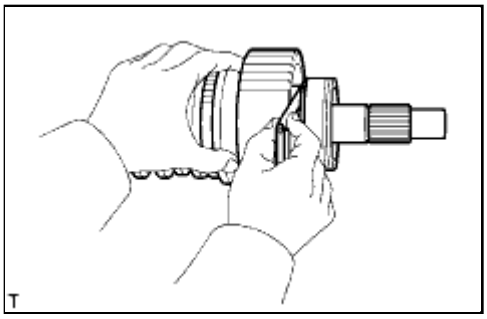


3. INSPECT PLANETARY PINION GEAR RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance of the pinion gear.

Standard clearance:
0.009 to 0.038 mm (0.000354 to 0.00150 in.)
Maximum clearance:
0.038 mm (0.00150 in.)

If the clearance is more than the maximum, replace the low planetary gear.

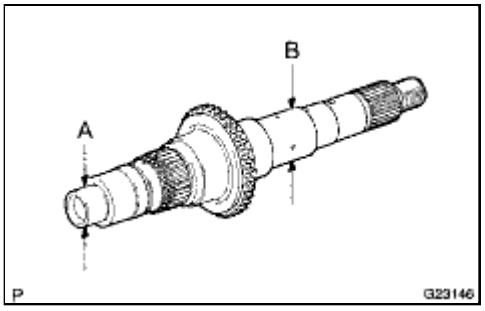


4. INSPECT TRANSFER DRIVE SPROCKET THRUST CLEARANCE

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

Standard clearance:
0.10 to 0.25 mm (0.00394 to 0.00984 in.)
Maximum clearance:
0.25 mm (0.00984 in.)

If the thrust clearance is more than the maximum, replace the drive sprocket.



5. INSPECT REAR TRANSFER OUTPUT SHAFT

(a) Using a micrometer, measure the diameter of the output shaft journal.

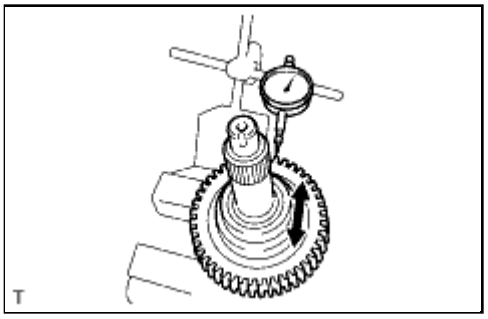
Minimum Diameter:

JOURNAL	SPECIFIED CONDITION
A	27.98 mm (1.102 in.)
B	36.98 mm (1.457 in.)

If the diameter is less than the minimum, replace the output shaft.

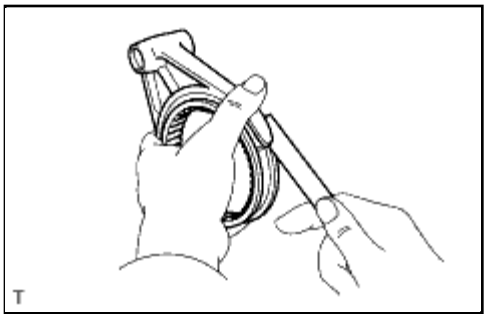
6. INSPECT TRANSFER DRIVE SPROCKET RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance between the drive sprocket and output shaft with the needle roller bearing installed.



Standard radial clearance:
0.010 to 0.055 mm (0.000394 to 0.00217 in.)
Maximum radial clearance:
0.055 mm (0.00217 in.)

If the radial clearance is more than the maximum, replace the drive sprocket or needle roller bearing.

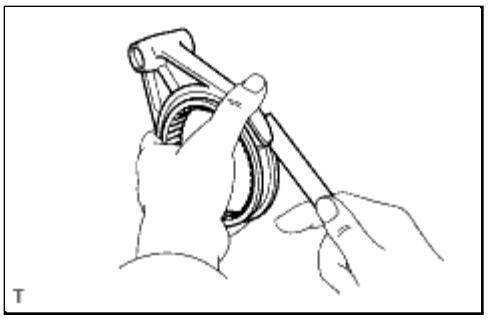


7. INSPECT TRANSFER HIGH AND LOW CLUTCH SLEEVE AND NO. 2 TRANSFER GEAR SHIFT FORK CLEARANCE

(a) Using a feeler gauge, measure the clearance between the clutch sleeve and No. 2 gear shift fork.

Maximum clearance:
1.0 mm (0.0394 in.)

If the clearance is more than the maximum, replace the clutch sleeve or No. 2 gear shift fork.



8. INSPECT FRONT DRIVE CLUTCH SLEEVE AND NO. 1 TRANSFER GEAR SHIFT FORK CLEARANCE

(a) Using a feeler gauge, measure the clearance between the clutch sleeve and No. 1 gear shift fork.

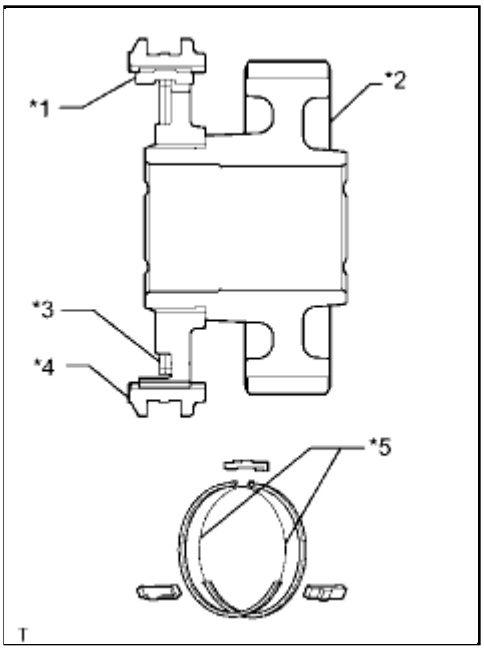
Maximum clearance:
1.0 mm (0.0394 in.)

If the clearance is more than the maximum, replace the clutch sleeve or No. 1 gear shift fork.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010M0007X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: REASSEMBLY (2010 4Runner)		

REASSEMBLY

1. INSTALL TRANSFER DRIVE SPROCKET SUB-ASSEMBLY



Text in Illustration

*1	Shifting Key
*2	Drive Sprocket
*3	Key Spring
*4	Clutch Sleeve
*5	Key Spring Opening

(a) Apply gear oil to the connecting areas of the clutch sleeve and drive sprocket.

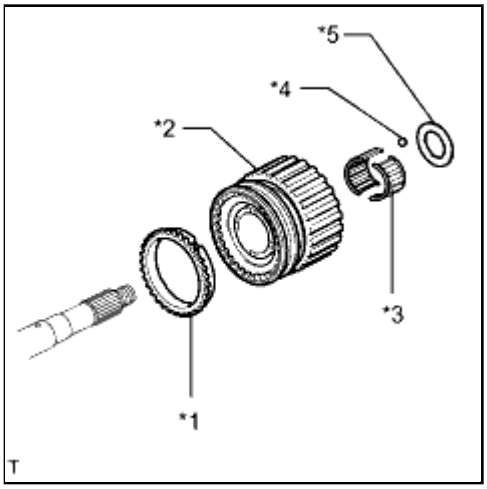
(b) Install the clutch sleeve and 3 shifting keys to the drive sprocket with the 2 shifting key springs.

NOTICE:

- Install the clutch sleeve in the correct direction.
- Install the key springs so that their openings do not overlap as shown in the illustration.
- Make sure that the key springs are firmly connected to the shifting keys.
- Make sure that the clutch sleeve and drive sprocket move smoothly.

(c) Apply gear oil to the front drive synchronizer ring taper cone side.

(d) Install the front drive synchronizer ring.



Text in Illustration

*1	Front Drive Synchronizer Ring
*2	Drive Sprocket with Front Drive Clutch Sleeve
*3	Needle Roller Bearing
*4	Ball
*5	Spacer

(e) Apply gear oil to the output shaft and needle roller bearing.

(f) Install the needle roller bearing to the drive sprocket.

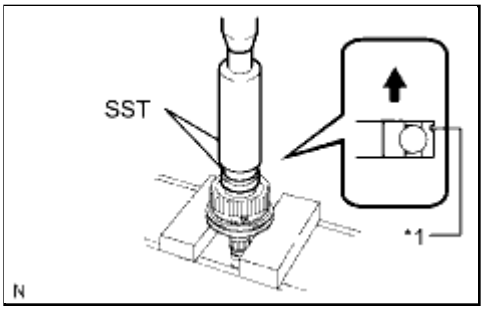
(g) Install the drive sprocket (with clutch sleeve).

(h) Install the ball. Then install the spacer so that the spacer is aligned with the ball.

2. INSTALL REAR TRANSFER OUTPUT SHAFT RADIAL BALL BEARING

(a) Apply gear oil to the connecting areas of the output shaft and bearing.

(b) Using SST and a press, press in a new bearing with the outer race snap ring groove facing toward the rear.



SST: 09316-60011

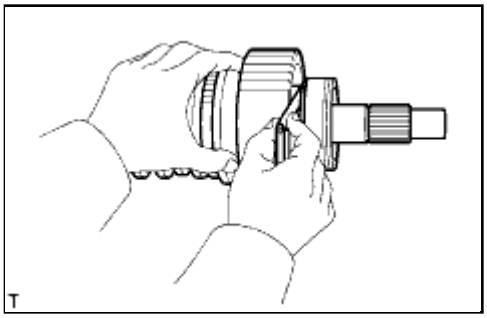
09316-00011

09316-00071

Text in Illustration

*1	Groove
	Rear

3. CHECK TRANSFER DRIVE SPROCKET THRUST CLEARANCE



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

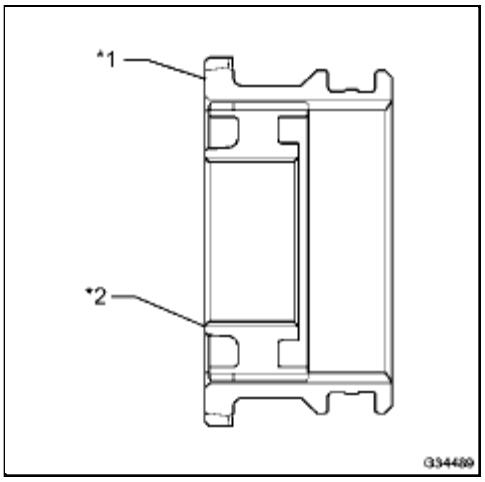
Standard thrust clearance:
0.10 to 0.25 mm (0.00394 to 0.00984 in.)
Maximum thrust clearance:
0.25 mm (0.00984 in.)

If the thrust clearance is more than the maximum, replace the drive sprocket.

4. INSTALL TRANSFER CLUTCH HUB

(a) Apply gear oil to the connecting areas of the clutch sleeve and clutch hub.

(b) Install the clutch sleeve to the clutch hub.



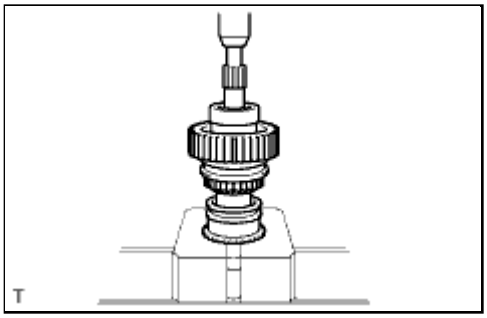
Text in Illustration

*1	Clutch Sleeve
*2	Clutch Hub

NOTICE:

- Install the clutch sleeve in the correct direction.
- Make sure that the clutch sleeve and clutch hub move smoothly.

(c) Apply gear oil to the connecting areas of the clutch sleeve and output shaft.

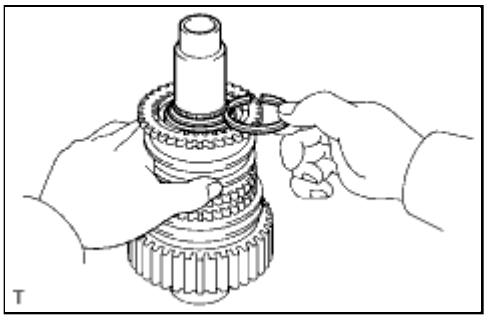


(d) Using a press, press in the clutch hub.

5. INSTALL TRANSFER OUTPUT SHAFT SNAP RING

(a) Select a new snap ring that allows the minimum axial free play.

Standard Snap Ring Thickness:

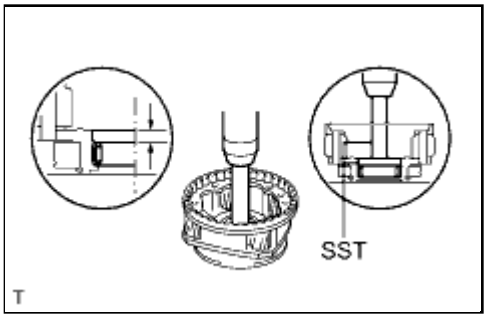


MARK	SPECIFIED CONDITION
K	2.00 to 2.05 mm (0.0787 to 0.0807 in.)
L	2.05 to 2.10 mm (0.0807 to 0.0827 in.)
A	2.10 to 2.15 mm (0.0827 to 0.0846 in.)
B	2.15 to 2.20 mm (0.0846 to 0.0866 in.)
C	2.20 to 2.25 mm (0.0866 to 0.0886 in.)
D	2.25 to 2.30 mm (0.0886 to 0.0906 in.)
E	2.30 to 2.35 mm (0.0906 to 0.0925 in.)
F	2.35 to 2.40 mm (0.0925 to 0.0945 in.)
G	2.40 to 2.45 mm (0.0945 to 0.0965 in.)
H	2.45 to 2.50 mm (0.0965 to 0.0984 in.)
J	2.50 to 2.55 mm (0.0984 to 0.1004 in.)

(b) Using a snap ring expander, install the snap ring.

NOTICE:

Make sure that the snap ring is firmly installed to the groove.



6. INSTALL TRANSFER LOW PLANETARY GEAR BEARING

(a) Using SST and a press, press in a new bearing.

SST: 09950-60010

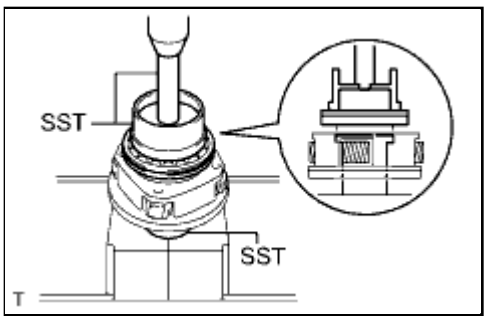
09951-00570

SST: 09950-70010

09951-00710

Standard depth:

7.7 to 8.3 mm (0.303 to 0.327 in.)



7. INSTALL TRANSFER INPUT SHAFT BEARING

(a) Using SST and a press, press in a new bearing with the groove facing forward.

SST: 09223-15020

SST: 09515-30010

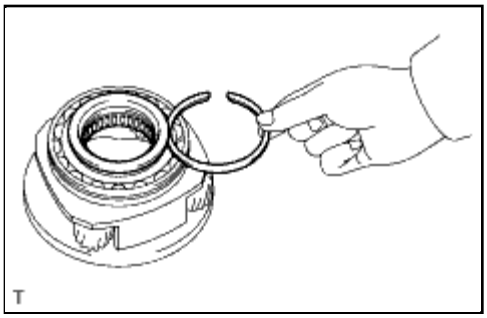
SST: 09950-70010

09951-07100

8. INSTALL TRANSFER INPUT BEARING SHAFT SNAP RING

(a) Select a new snap ring that allows 0.1 mm (0.00394 in.) or less of axial free play.

Standard Snap Ring Thickness:

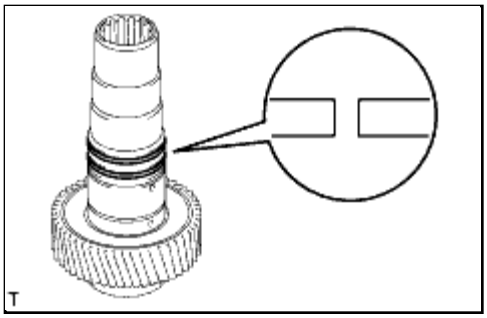


MARK	SPECIFIED CONDITION
1	1.45 to 1.50 mm (0.0571 to 0.0591 in.)
2	1.50 to 1.55 mm (o.0591 to 0.0610 in.)
3	1.55 to 1.60 mm (0.0610 to 0.0630 in.)
4	1.60 to 1.65 mm (0.0630 to 0.0650 in.)
5	1.65 to 1.70 mm (0.0650 to 0.0669 in.)

(b) Using a snap ring expander, install the snap ring.

NOTICE:

Make sure that the snap ring is firmly installed to the groove.



9. INSTALL NO. 1 TRANSFER INPUT SHAFT SEAL RING

(a) Apply gear oil to 2 new seal rings.

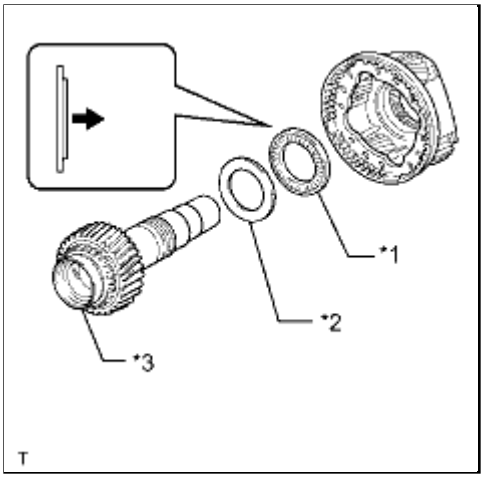
(b) Install the 2 seal rings to the input shaft.

NOTICE:

When installing the seal ring, make sure not to expand it so that its inner diameter exceeds 65 mm (2.56 in.).

10. INSTALL TRANSFER LOW PLANETARY GEAR BEARING

(a) Install the bearing to the low planetary gear.



Text in Illustration

*1	Low Planetary Gear Bearing
*2	No. 1 Thrust Bearing Race
*3	Input Shaft
➡	Front

NOTICE:

Install the bearing in the correct direction.

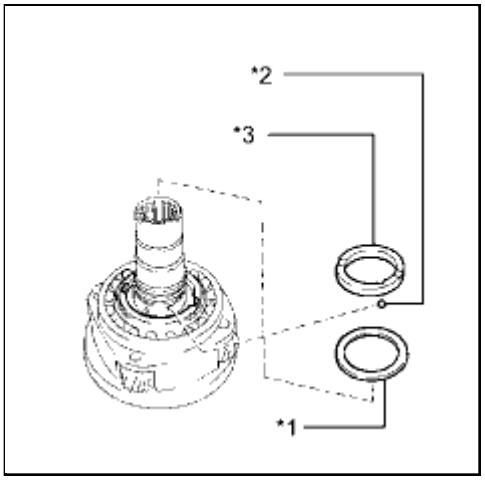
11. INSTALL NO. 1 TRANSFER THRUST BEARING RACE

(a) Install the bearing race to the low planetary gear.

12. INSTALL TRANSFER INPUT SHAFT

(a) Apply gear oil to the contact surfaces of the input shaft and low planetary gear.

(b) Install the input shaft to the low planetary gear.



13. INSTALL MANUAL TRANSFER PLANETARY CARRIER WASHER

Text in Illustration

*1	Planetary Carrier Washer
*2	Input Gear Stopper Ball
*3	Input Gear Stopper

(a) Apply gear oil to the washer.

(b) Install the washer to the low planetary gear.

14. INSTALL TRANSFER INPUT GEAR STOPPER BALL

(a) Install the ball to the low planetary gear.

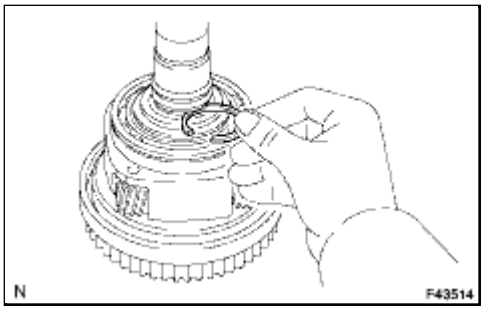
15. INSTALL TRANSFER INPUT GEAR STOPPER

(a) Install the stopper to the low planetary gear.

16. INSTALL TRANSFER INPUT GEAR STOPPER SHAFT SNAP RING

(a) Select a new snap ring that allows 0.05 to 0.15 mm (0.00196 to 0.00590 in.) of axial free play.

Standard Snap Ring Thickness:

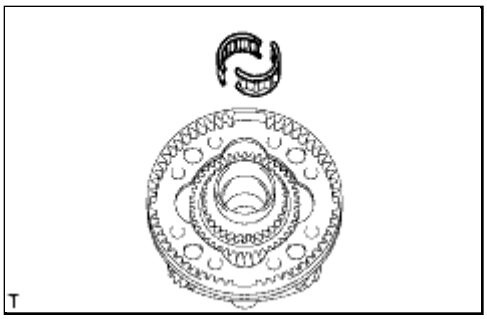


MARK	SPECIFIED CONDITION
A	2.10 to 2.15 mm (0.0827 to 0.0846 in.)
B	2.15 to 2.20 mm (0.0846 to 0.0866 in.)
C	2.20 to 2.25 mm (0.0866 to 0.0886 in.)
D	2.25 to 2.30 mm (0.0886 to 0.0906 in.)
E	2.30 to 2.35 mm (0.0906 to 0.0925 in.)
F	2.35 to 2.40 mm (0.0925 to 0.0945 in.)
G	2.40 to 2.45 mm (0.0945 to 0.0965 in.)
H	2.45 to 2.50 mm (0.0965 to 0.0984 in.)
J	2.50 to 2.55 mm (0.0984 to 0.1004 in.)
K	2.55 to 2.60 mm (0.1004 to 0.1024 in.)
L	2.60 to 2.65 mm (0.1024 to 0.1043 in.)
M	2.65 to 2.70 mm (0.1043 to 0.1063 in.)
N	2.70 to 2.75 mm (0.1063 to 0.1083 in.)
P	2.75 to 2.80 mm (0.1083 to 0.1102 in.)
Q	2.80 to 2.85 mm (0.1102 to 0.1122 in.)
R	2.85 to 2.90 mm (0.1122 to 0.1142 in.)
S	2.90 to 2.95 mm (0.1142 to 0.1161 in.)
T	2.95 to 3.00 mm (0.1161 to 0.1181 in.)
U	3.00 to 3.05 mm (0.1181 to 0.1201 in.)

(b) Using a snap ring expander, install the snap ring.

NOTICE:

Make sure that the snap ring is firmly installed to the groove.

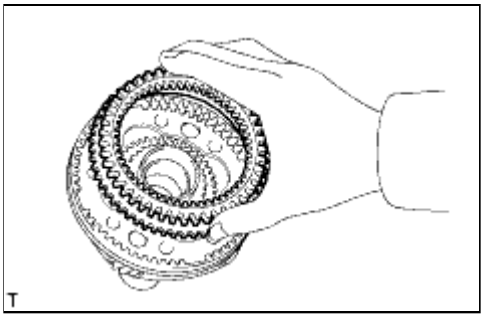


17. INSTALL FRONT TRANSFER OUTPUT SHAFT NEEDLE ROLLER BEARING

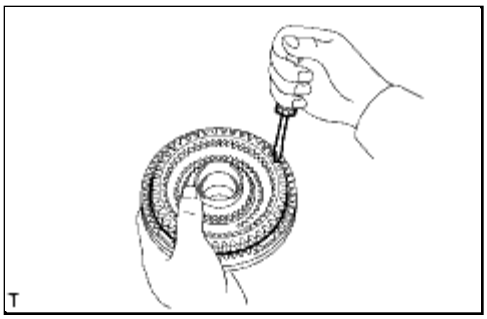
(a) Apply gear oil to the bearing.

(b) Install the bearing to the low planetary gear.

18. INSTALL TRANSFER LOW PLANETARY GEAR SPLINE PIECE



(a) Install the gear spline piece to the low planetary gear.

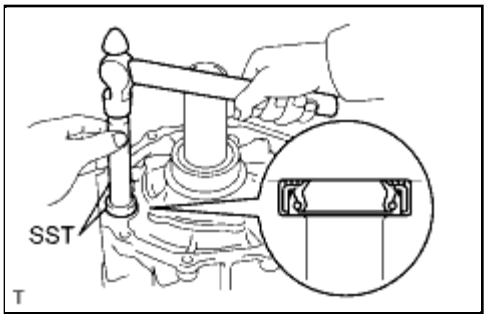


(b) Using a screwdriver, install the snap ring.

NOTICE:

Be careful not to damage the gear spline piece.

19. INSTALL TRANSFER CASE OIL SEAL



(a) Using SST and a hammer, tap in 2 new oil seals until their surfaces are flush with the case upper surface.

SST: 09950-60010

09951-00230

SST: 09950-70010

09951-07100

Oil seal depth:

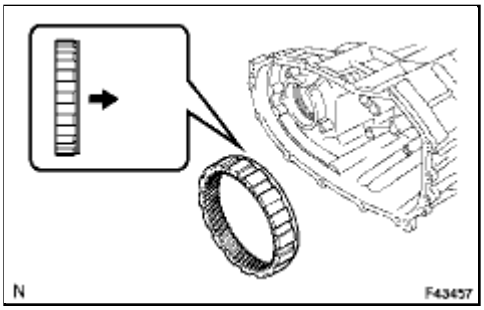
-0.5 to 0.5 mm (-0.0197 to 0.0197 in.)

NOTICE:

Be careful not to damage the front case.

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

20. INSTALL TRANSFER LOW PLANETARY RING GEAR



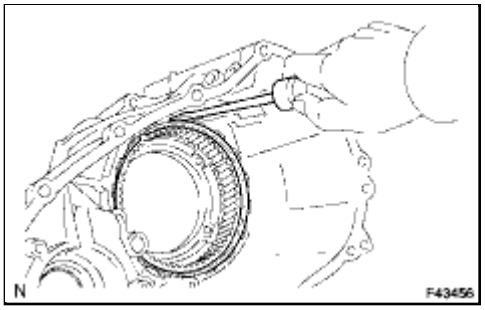
(a) Install the ring gear to the front transfer case.

Text in Illustration

➡	Front

NOTICE:

Install the ring gear in the correct direction.



(b) Using a screwdriver, install the snap ring.

NOTICE:

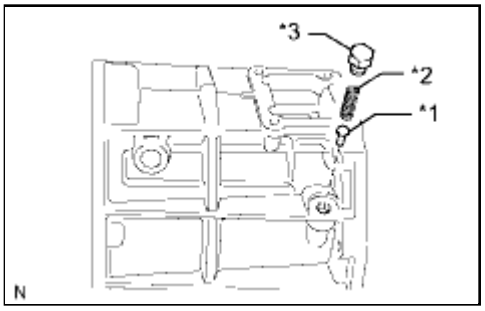
Make sure that the snap ring is firmly installed to the groove.

21. INSTALL PIN

(a) Install the pin.

Text in Illustration

*1	Pin
*2	Compression Spring



*3	Case Plug

22. INSTALL COMPRESSION SPRING

(a) Install the spring.

23. INSTALL TRANSFER CASE PLUG

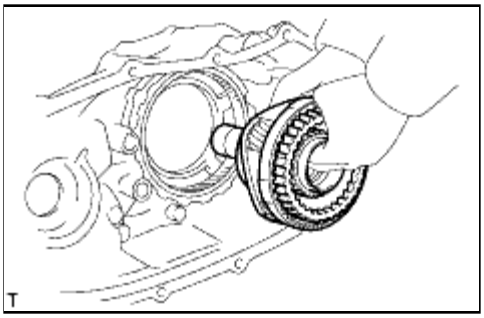
(a) Apply adhesive to the threads of the plug.

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

(b) Install the plug.

Torque: 19 N·m (190 kgf·cm, 14ft·lbf)

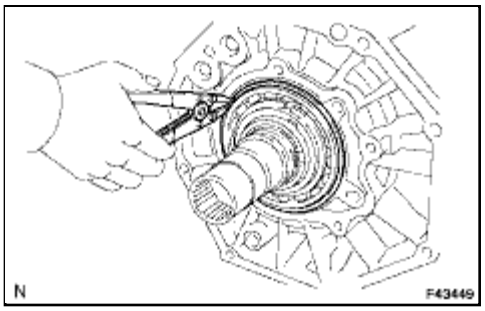
24. INSTALL TRANSFER LOW PLANETARY GEAR ASSEMBLY WITH TRANSFER INPUT SHAFT



(a) Install the low planetary gear together with the input shaft.

HINT:

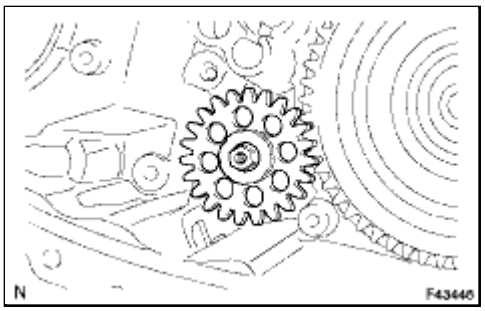
If necessary, heat the front case to between approximately 50 and 80°C (122 and 176°F).



(b) Using a snap ring expander, install the snap ring.

NOTICE:

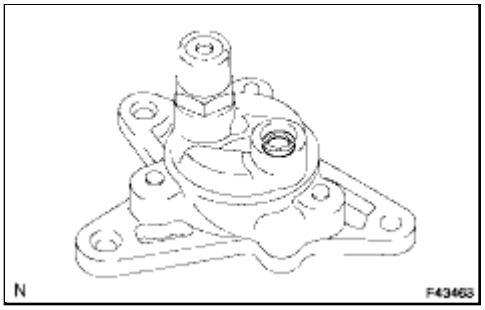
Make sure that the snap ring is firmly installed to the groove.



25. INSTALL TRANSFER OIL PUMP GEAR

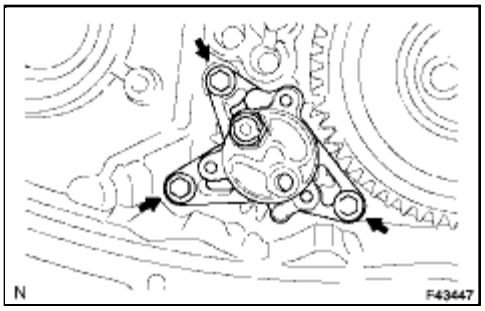
(a) Apply gear oil to the sliding surface of the oil pump gear.

(b) Install the oil pump gear.



26. INSTALL TRANSFER OIL PUMP BODY O-RING

(a) Coat a new O-ring with gear oil and install it to the pump body.

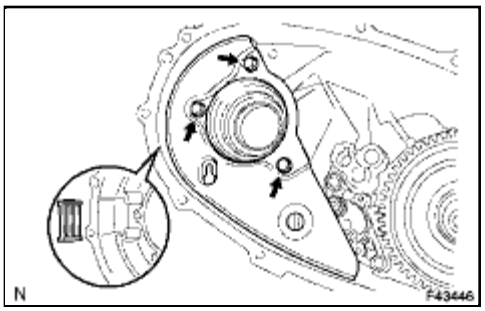


27. INSTALL TRANSFER OIL PUMP BODY SUB-ASSEMBLY

(a) Install the oil pump body with the 3 bolts.

Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

28. INSTALL TRANSFER CASE MAGNET



29. INSTALL TRANSFER OIL SEPARATOR SUB-ASSEMBLY

(a) Install the oil separator with the 3 bolts.

Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

30. INSTALL FILLER PLUG

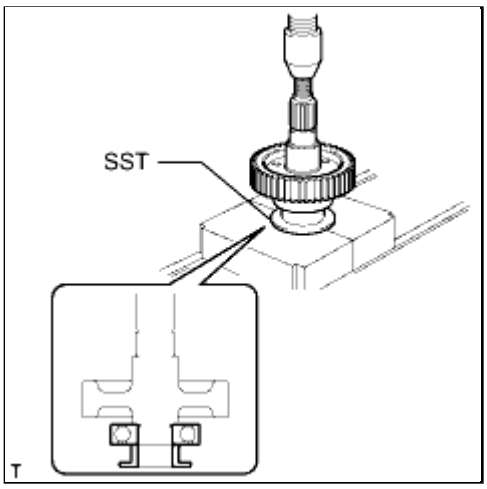
(a) Install a new gasket and the filler plug.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

31. INSTALL DRAIN PLUG

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

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)



32. INSTALL TRANSFER INPUT GEAR RADIAL BALL BEARING

(a) Apply gear oil to the contact surfaces of the bearing and driven sprocket.

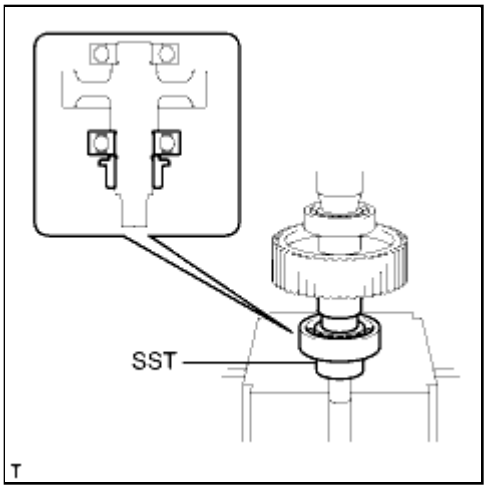
(b) Using SST and a press, press in a new bearing.

SST: 09316-60011

09316-00031

NOTICE:

After press-fitting the bearing to the driven sprocket, check that the bearing moves smoothly.



33. INSTALL TRANSFER DRIVEN SPROCKET BEARING

(a) Apply gear oil to the contact surfaces of the bearing and driven sprocket.

(b) Using SST and a press, press in a new bearing.

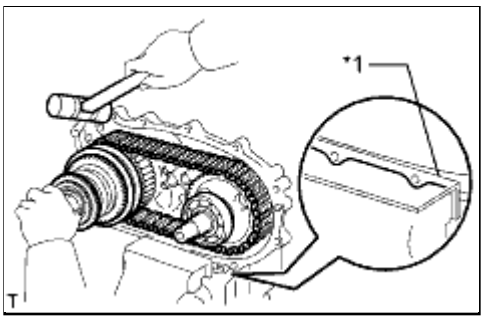
SST: 09316-60011

09316-00071

NOTICE:

After press-fitting the bearing to the driven sprocket, check that the bearing moves smoothly.

34. INSTALL REAR TRANSFER OUTPUT SHAFT, FRONT TRANSFER DRIVE CHAIN AND TRANSFER DRIVEN SPROCKET



(a) Mount the rear transfer case in a vise.

Text in Illustration

*1	Aluminum Plate

NOTICE:

Place aluminum plates on the vise to prevent damage to the rear transfer case.

(b) Install the output shaft and driven sprocket to the drive chain.

(c) Install the output shaft, drive chain and driven sprocket to the rear transfer case.

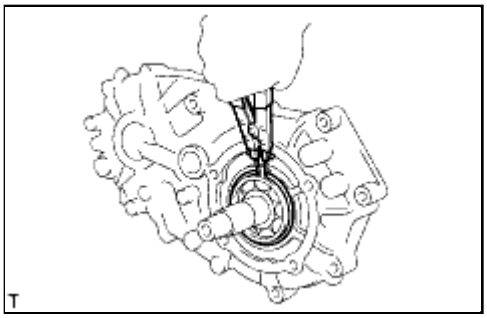
NOTICE:

When installing the output shaft, make sure that the installation of the synchronizer ring, sleeve and shifting keys is not affected.

HINT:

Check that the output shaft and driven sprocket turn smoothly.

If necessary, heat the rear transfer case to between approximately 50 and 80°C (122 and 176°F).



(d) Using a snap ring expander, install the snap ring.

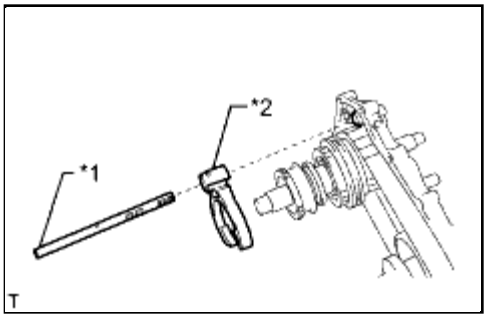
NOTICE:

Make sure that the snap ring is firmly installed to the groove.

35. INSTALL TRANSFER HIGH AND LOW SHIFT FORK SHAFT

(a) Apply gear oil to the connecting areas of the shift fork shaft and each part.

(b) Install the shift fork shaft and No. 2 gear shift fork.



Text in Illustration

*1	Shift Fork Shaft
*2	No. 2 Gear Shift Fork

NOTICE:

Install the shift fork shaft and No. 2 gear shift fork in the correct directions.

(c) Install the spring and ball to the hole.

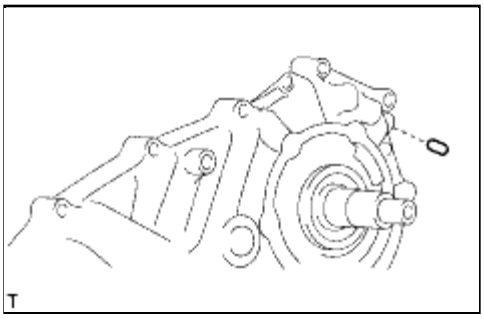
(d) Apply adhesive to the threads of the plug.

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

(e) Using a hexagon wrench, install the plug.

Torque: 19 N·m (190 kgf·cm, 14ft·lbf)

36. INSTALL FRONT TRANSFER DRIVE SHIFT FORK SHAFT

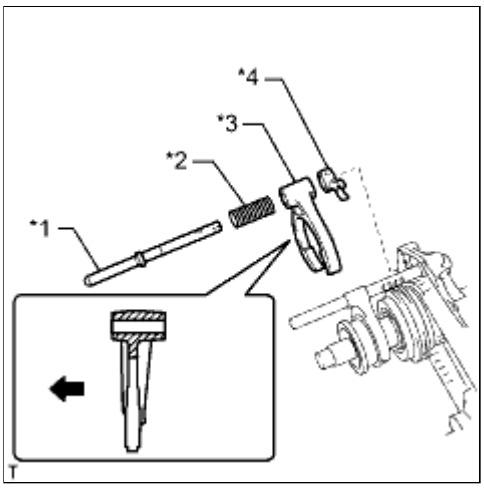


(a) Apply gear oil to the straight pin.

(b) Install the straight pin to the hole.

(c) Apply gear oil to the connecting areas of the shift fork shaft and each part.

(d) Install the shift fork shaft, No. 1 gear shift fork, spring and shift shaft stopper.



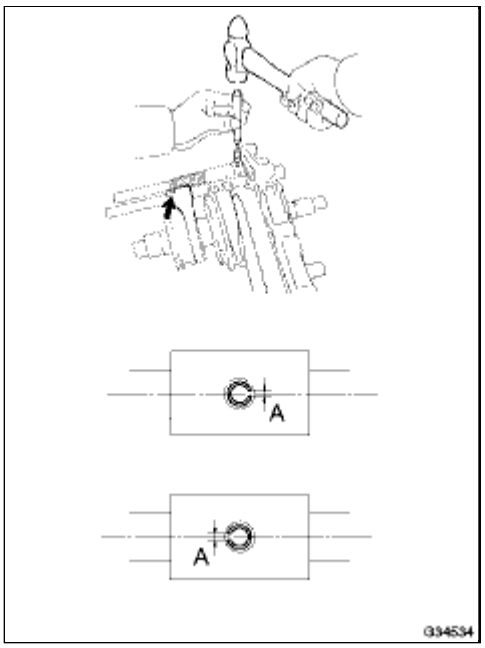
Text in Illustration

*1	Shift Fork Shaft
*2	Spring
*3	No. 1 Gear Shift Fork
*4	Shift Shaft Stopper

➡	Front

NOTICE:

Install the shift fork shaft, No. 1 gear shift fork and shift shaft stopper in the correct directions.

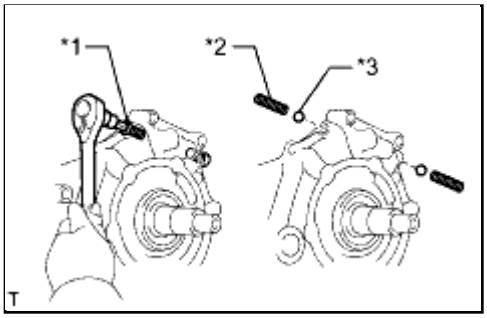


(e) Using a pin punch and hammer, install the 2 slotted pins.

NOTICE:

When installing the slotted pins, make sure that groove A of the pin is facing in the same direction as the shaft.

(f) Install the spring and ball to the hole.



Text in Illustration

*1	Plug
*2	Spring
*3	Ball

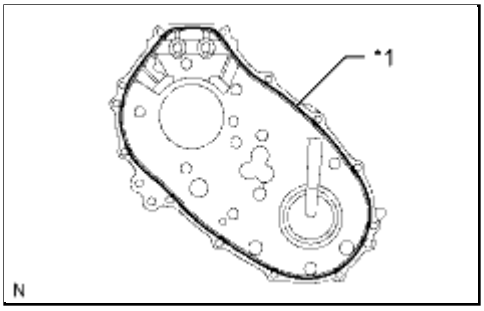
(g) Apply adhesive to the threads of the plug.

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

(h) Using a hexagon wrench, install the plug.

Torque: 19 N·m (190 kgf·cm, 14ft·lbf)

37. INSTALL REAR TRANSFER CASE



(a) Apply seal packing to the rear transfer case as shown in the illustration.

Seal packing:

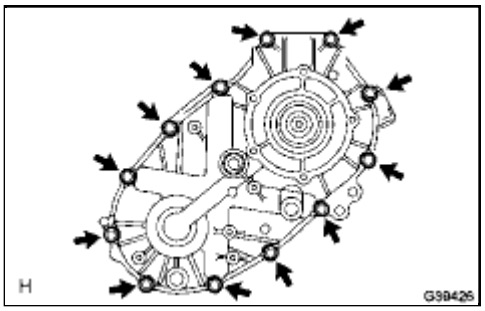
Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

Text in Illustration

*1	Seal Packing

NOTICE:

If the removed rear transfer case will be reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the rear transfer case contact surface, 2) clean off any remaining old seal packing from the rear transfer case contact surface, and 3) reapply seal packing to the rear transfer case.



(b) Install the clamp and rear case with the 12 bolts.

Torque: 28 N·m (286 kgf·cm, 21ft·lbf)

NOTICE:

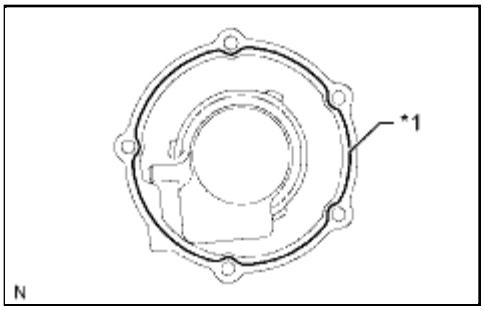
Tighten the bolts of the rear transfer case within 10 minutes of applying the seal packing. The seal packing will dry very quickly.

38. INSTALL TRANSFER SPEEDOMETER DRIVE GEAR

(a) Install the speedometer drive gear and ball.

39. INSTALL TRANSFER OUTPUT SHAFT WASHER

(a) Install the 2 output washers.



40. INSTALL TRANSFER EXTENSION HOUSING SUB-ASSEMBLY

(a) Apply seal packing to the extension housing as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

Text in Illustration

*1	Seal Packing

NOTICE:

If the removed extension housing will be reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the housing contact surface, 2) clean off any remaining old seal packing from the housing contact surface, and 3) reapply seal packing to the housing.

(b) Apply adhesive to the threads of the bolts.

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

(c) Install the extension housing with the 5 bolts.

Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

NOTICE:

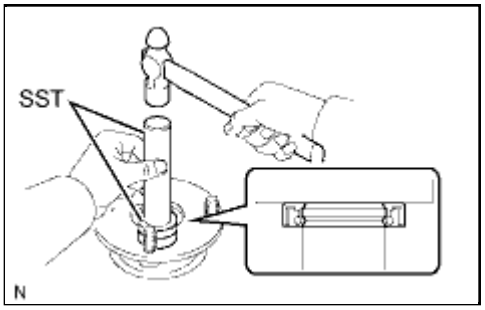
Tighten the bolts of the extension housing within 10 minutes of applying the seal packing. The seal packing will dry very quickly.

41. INSTALL SPEEDOMETER DRIVEN HOLE COVER SUB-ASSEMBLY

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

Torque: 12 N·m (117 kgf·cm, 8ft·lbf)

42. INSTALL TRANSFER CASE FRONT OIL SEAL



43. INSTALL FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

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

SST: 09950-60010

09951-00320

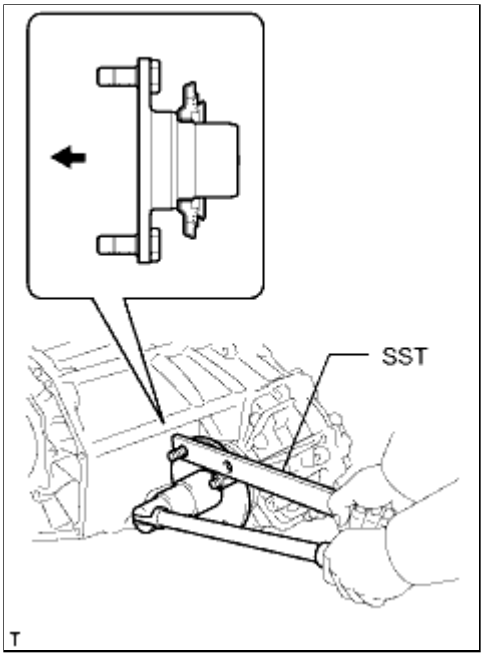
SST: 09950-70010

09951-07100

NOTICE:

Be careful not to damage the companion flange.

44. INSTALL FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY



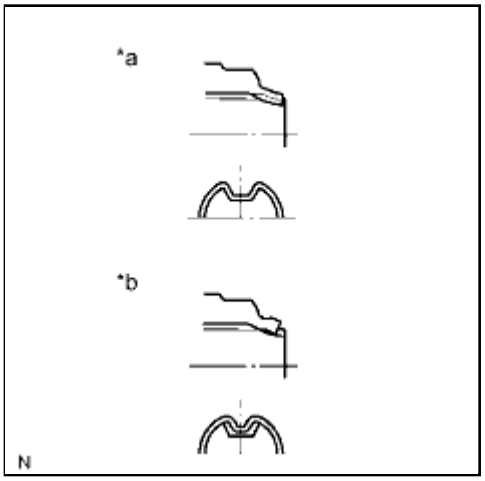
(a) Apply gear oil to the connecting areas of the companion flange and driven sprocket.

(b) Install the companion flange to the driven sprocket.

(c) Using SST to hold the companion flange, install a new lock nut.

SST: 09330-00021

Torque: 118 N·m (1203 kgf·cm, 87ft·lbf)



(d) Using a chisel and hammer, stake the lock nut to the driven sprocket.

Text in Illustration

*a	CORRECT
*b	INCORRECT

NOTICE:

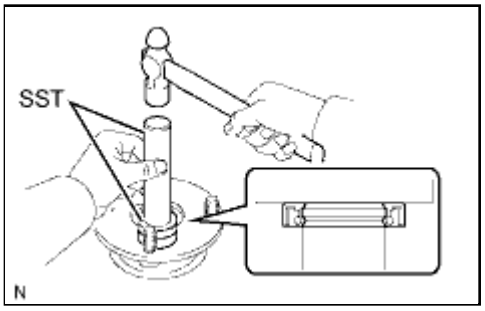
- Securely stake the shaft to the lock nut groove.
- Be careful not to damage parts around the lock nut.
- Do not apply excessive force to the shaft.

45. INSTALL TRANSFER CASE REAR OIL SEAL

46. INSTALL REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

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

SST: 09950-60010



09951-00320

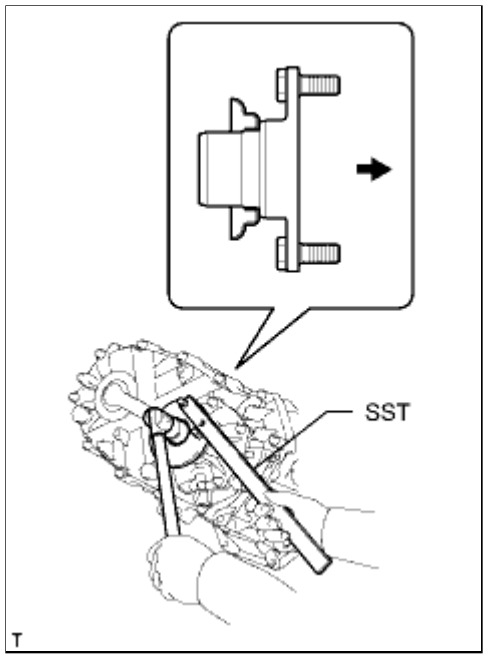
SST: 09950-70010

09951-07100

NOTICE:

Be careful not to damage the companion flange.

47. INSTALL REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY



(a) Apply gear oil to the connecting areas of the companion flange and output shaft.

(b) Install the companion flange to the output shaft.

(c) Using SST to hold the companion flange, install a new lock nut.

SST: 09330-00021

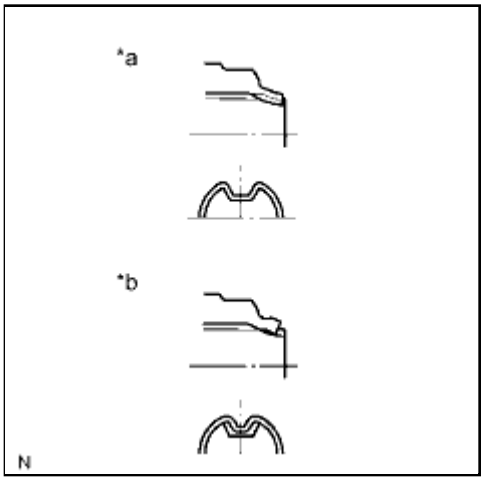
Torque: 118 N·m (1203 kgf·cm, 87ft·lbf)

(d) Using a chisel and hammer, stake the lock nut.

Text in Illustration

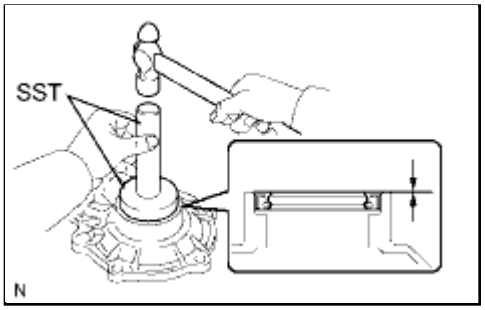
*a	CORRECT
*b	INCORRECT

NOTICE:



- Securely stake the shaft to the lock nut groove.
- Be careful not to damage parts around the lock nut.
- Do not apply excessive force to the shaft.

48. INSTALL TRANSFER BEARING RETAINER OIL SEAL



(a) Using SST and a hammer, tap in a new oil seal until its surface is flush with the bearing retainer upper surface.

SST: 09950-60010

09951-00590

SST: 09950-70010

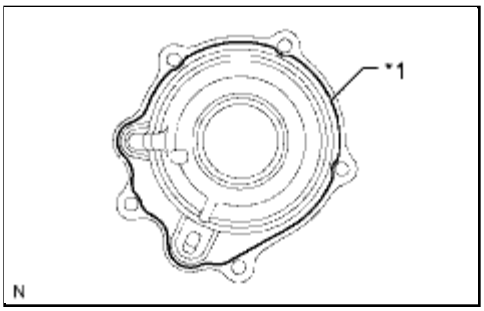
09951-07100

NOTICE:

Be careful not to damage the bearing retainer.

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

49. INSTALL TRANSFER BEARING RETAINER SUB-ASSEMBLY



(a) Apply seal packing to the bearing retainer as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent

Text in Illustration

*1	Seal Packing

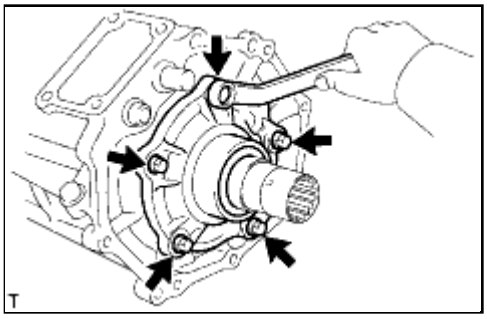
NOTICE:

If the removed bearing retainer will be reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the retainer contact surface, 2) clean off any remaining old seal packing from the retainer contact surface, and 3) reapply seal packing to the retainer.

(b) Apply sealant to the bolt threads.

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent



(c) Install the retainer with the 5 bolts.

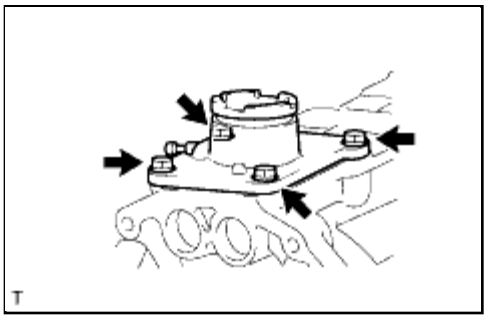
Torque: 12 N·m (117 kgf·cm, 8ft·lbf)

NOTICE:

Tighten the bolts of the bearing retainer within 10 minutes of applying the seal packing. The seal packing will dry very quickly.

50. INSTALL BREATHER OIL DEFLECTOR

(a) Install the breather oil deflector.



51. INSTALL TRANSFER CONTROL SHIFT LEVER RETAINER SUB-ASSEMBLY

(a) Install the retainer with the 4 bolts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

52. INSTALL TRANSFER INDICATOR SWITCH (4WD POSITION) INFO

53. INSTALL TRANSFER INDICATOR SWITCH (L4 POSITION) INFO

54. INSTALL TRANSFER INDICATOR SWITCH (NEUTRAL POSITION) INFO

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LV00JX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL TRANSFER ASSEMBLY

(a) Install the transfer to the transmission.

(b) Install the 8 bolts.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

2. INSTALL AUTOMATIC TRANSMISSION ASSEMBLY

(a) Install the automatic transmission INFO .

3. ADD TRANSFER OIL INFO

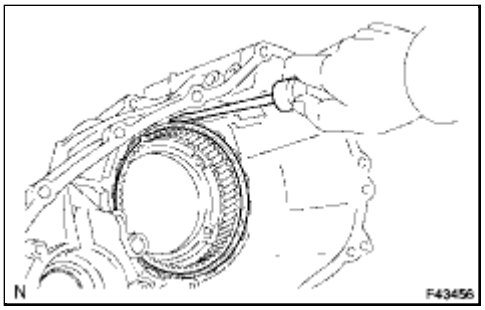
4. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016PY00HX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: REASSEMBLY (2010 4Runner)		

REASSEMBLY

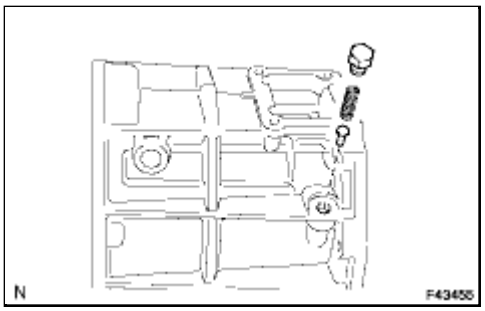
1. INSTALL TRANSFER LOW PLANETARY RING GEAR

(a) Install the low planetary ring gear to the front transfer case.



(b) Using a screwdriver, install the snap ring.

2. INSTALL PIN



(a) Install the pin.

3. INSTALL COMPRESSION SPRING

(a) Install the spring.

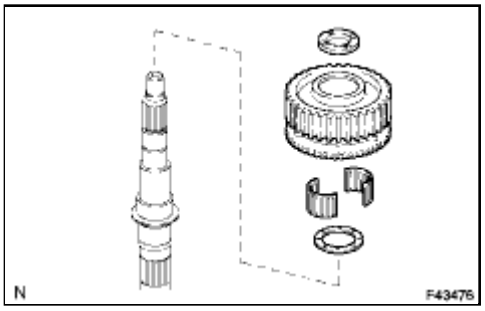
4. INSTALL TRANSFER CASE PLUG

(a) Install the transfer case plug.

Torque: 19 N·m (190 kgf·cm, 14ft·lbf)

5. INSTALL TRANSFER OUTPUT SHAFT PLATE WASHER

(a) Install the washer.



6. INSTALL TRANSFER DRIVE SPROCKET BEARING

(a) Install the bearing.

7. INSTALL TRANSFER DRIVE SPROCKET SUB-ASSEMBLY

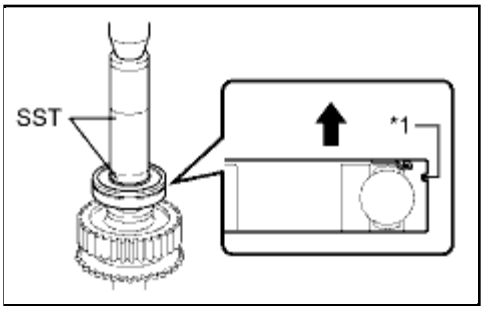
(a) Install the transfer drive sprocket.

8. INSTALL NO. 1 TRANSFER OUTPUT SHAFT SPACER

(a) Install the output shaft spacer.

9. INSTALL REAR TRANSFER OUTPUT SHAFT RADIAL BALL BEARING

(a) Using SST and a press, install a new bearing.



SST: 09316-60011

09316-00011

09316-00071

Text in Illustration

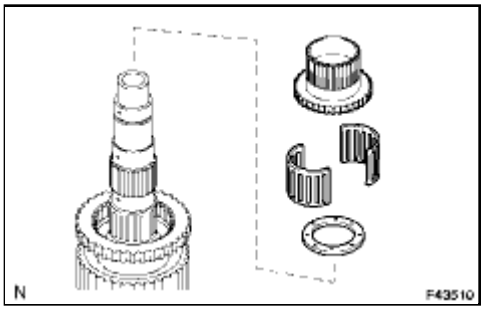
*1	Groove
➡	Rear

NOTICE:

Install the bearing so that the bearing snap ring groove faces the rear.

10. INSTALL TRANSFER OUTPUT SHAFT PLATE WASHER

(a) Install the washer.



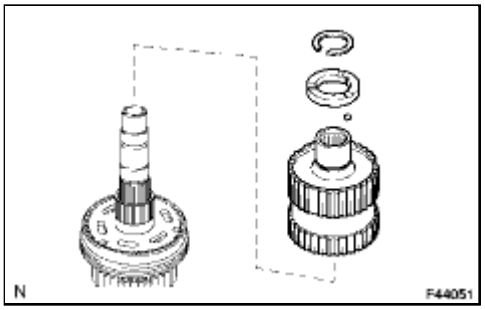
11. INSTALL TRANSFER OUTPUT SHAFT FRONT NEEDLE ROLLER BEARING

(a) Install the needle roller bearing.

12. INSTALL TRANSFER CLUTCH HUB

(a) Install the transfer clutch hub.

13. INSTALL CENTER DIFFERENTIAL CASE



(a) Install the center differential case.

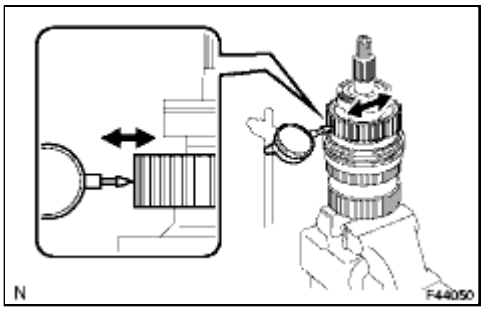
14. INSTALL TRANSFER OUTPUT SHAFT SPACER BALL

(a) Install the ball.

15. INSTALL NO. 2 TRANSFER OUTPUT SHAFT SPACER

(a) Install the spacer.

(b) Using a snap ring expander, install the snap ring.



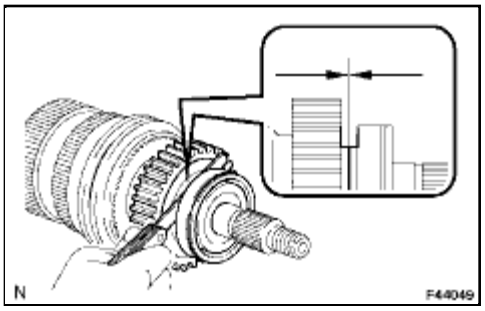
16. INSPECT DRIVE SPROCKET RADIAL CLEARANCE

(a) Using a dial indicator, measure the radial clearance of the drive sprocket.

Standard clearance:
0.01 to 0.06 mm (0.000394 to 0.00236 in.)
Maximum clearance:
0.06 mm (0.00236 in.)

If the clearance is more than the maximum, replace the drive sprocket, rear output shaft or bearing.

17. INSPECT DRIVE SPROCKET THRUST CLEARANCE

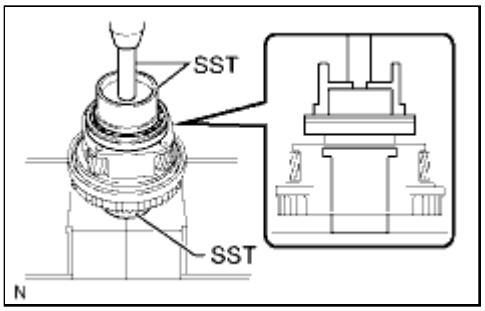


(a) Using a feeler gauge, measure the thrust clearance of the drive sprocket.

Standard clearance:
0.15 to 0.24 mm (0.00591 to 0.00944 in.)
Maximum clearance:
0.24 mm (0.00944 in.)

If the clearance is more than the maximum, replace the drive sprocket.

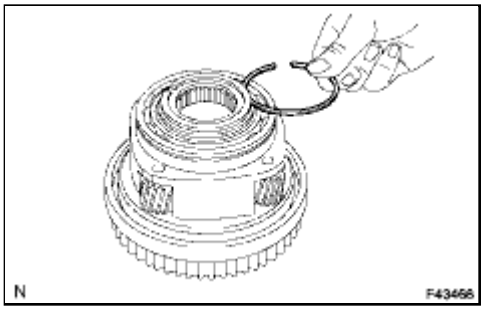
18. INSTALL TRANSFER INPUT SHAFT BEARING



(a) Using SST and a press, install a new bearing with the groove facing forward.

SST: 09223-15020
SST: 09515-30010
SST: 09950-70010
09951-07100

19. INSTALL TRANSFER INPUT BEARING SHAFT SNAP RING



(a) Select a new snap ring that allows minimal axial play.

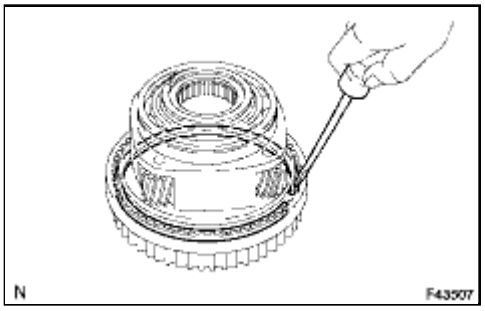
Standard Snap Ring Thickness:

MARK	SPECIFIED CONDITION
1	1.45 to 1.50 mm (0.0571 to 0.0591 in.)
2	1.50 to 1.55 mm (0.0591 to 0.0610 in.)
3	1.55 to 1.60 mm (0.0610 to 0.0630 in.)
4	1.60 to 1.65 mm (0.0630 to 0.0650 in.)
5	1.65 to 1.70 mm (0.0650 to 0.0669 in.)

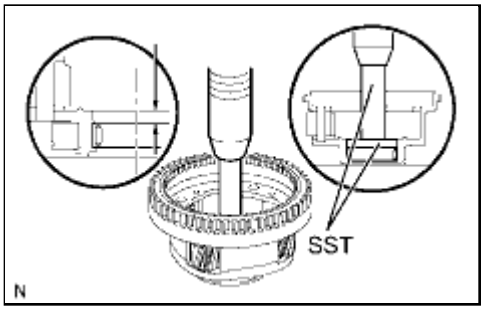
(b) Using a snap ring expander, install the snap ring.

20. INSTALL TRANSFER LOW PLANETARY GEAR SPLINE PIECE

(a) Using a screwdriver, install the low planetary gear spline



piece and snap ring.



21. INSTALL TRANSFER LOW PLANETARY GEAR BEARING

(a) Using SST and a press, press in a new low planetary gear bearing.

SST: 09950-60010

09951-00570

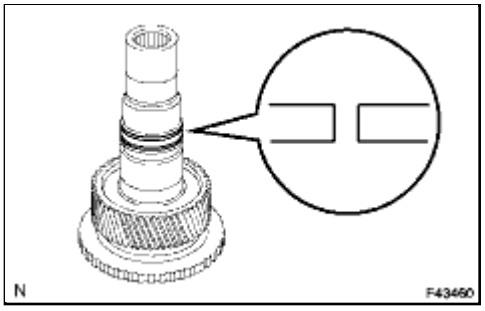
SST: 09950-70010

09951-07100

Standard depth:

7.7 to 8.3 mm (0.304 to 0.326 in.)

22. INSTALL NO. 1 TRANSFER INPUT SHAFT SEAL RING



(a) Apply gear oil to 2 new seal rings.

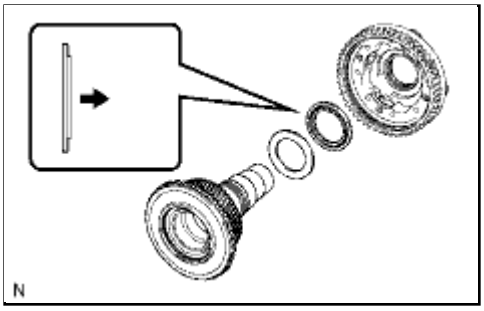
(b) Install the 2 seal rings to the input shaft.

NOTICE:

When installing the seal ring, make sure not to expand it so that its inner diameter exceeds 65 mm (2.55 in.).

23. INSTALL TRANSFER LOW PLANETARY GEAR THRUST BEARING

(a) Install the bearing.



Text in Illustration

➡	Front

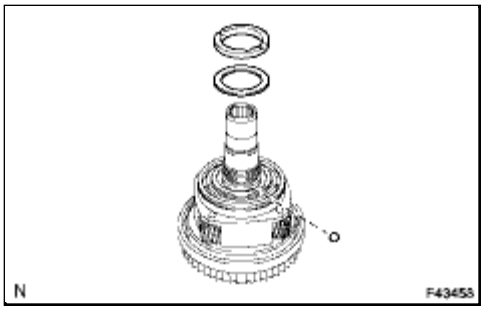
24. INSTALL NO. 1 TRANSFER THRUST BEARING RACE

(a) Install the thrust bearing race.

25. INSTALL TRANSFER INPUT SHAFT

(a) Install the transfer input shaft.

26. INSTALL MANUAL TRANSFER PLANETARY CARRIER WASHER



(a) Install the washer.

27. INSTALL TRANSFER INPUT GEAR STOPPER BALL

(a) Install the ball.

28. INSTALL TRANSFER INPUT GEAR STOPPER

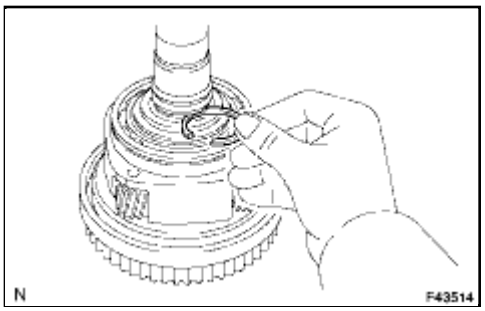
(a) Install the input gear stopper.

29. INSTALL TRANSFER INPUT GEAR STOPPER SHAFT SNAP RING

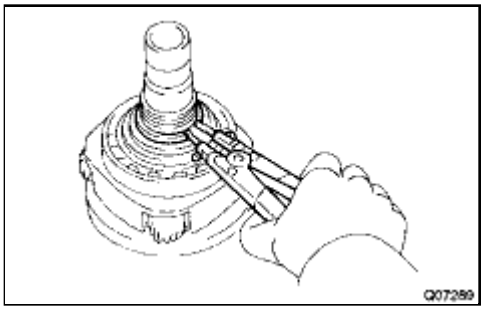
(a) Select a new input gear stopper shaft snap ring that allows 0.05 to 0.15 mm (0.00197 to 0.00590 in.) of axial play.

Standard Snap Ring Thickness:

MARK	SPECIFIED CONDITION



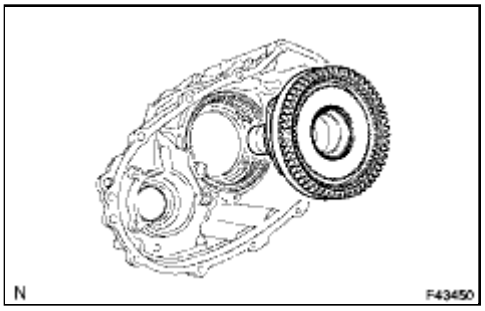
A	2.10 to 2.15 mm (0.0827 to 0.0846 in.)
B	2.15 to 2.20 mm (0.0846 to 0.0866 in.)
C	2.20 to 2.25 mm (0.0866 to 0.0886 in.)
D	2.25 to 2.30 mm (0.0886 to 0.0906 in.)
E	2.30 to 2.35 mm (0.0906 to 0.0925 in.)
F	2.35 to 2.40 mm (0.0925 to 0.0945 in.)
G	2.40 to 2.45 mm (0.0945 to 0.0965 in.)
H	2.45 to 2.50 mm (0.0965 to 0.0984 in.)
J	2.50 to 2.55 mm (0.0984 to 0.100 in.)
K	2.55 to 2.60 mm (0.100 to 0.102 in.)
L	2.60 to 2.65 mm (0.102 to 0.104 in.)
M	2.65 to 2.70 mm (0.104 to 0.106 in.)
N	2.70 to 2.75 mm (0.106 to 0.108 in.)
P	2.75 to 2.80 mm (0.108 to 0.110 in.)
Q	2.80 to 2.85 mm (0.110 to 0.112 in.)
R	2.85 to 2.90 mm (0.112 to 0.114 in.)
S	2.90 to 2.95 mm (0.114 to 0.116 in.)
T	2.95 to 3.00 mm (0.116 to 0.118 in.)
U	3.00 to 3.05 mm (0.118 to 0.120 in.)

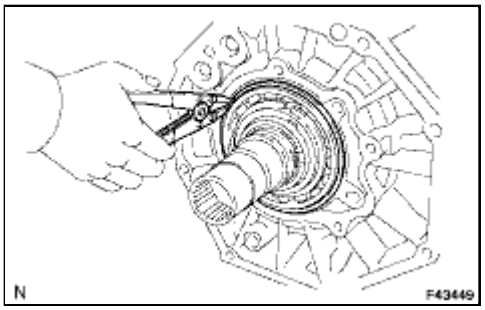


(b) Using a snap ring expander, install the snap ring.

30. INSTALL LOW PLANETARY GEAR ASSEMBLY WITH TRANSFER INPUT SHAFT SUB-ASSEMBLY

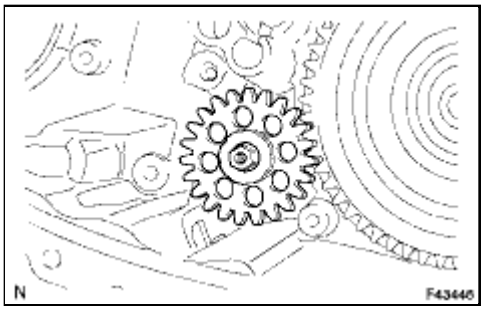
(a) Install the low planetary gear together with the input shaft.





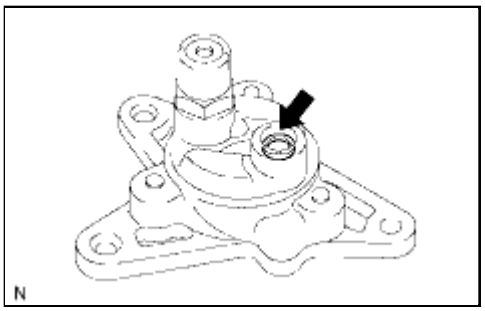
(b) Using a snap ring expander, install the shaft snap ring.

31. INSTALL TRANSFER OIL PUMP GEAR



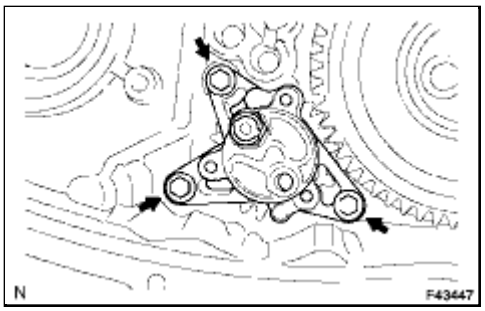
(a) Install the transfer oil pump gear.

32. INSTALL TRANSFER OIL PUMP BODY O-RING



(a) Coat a new O-ring with gear oil and install it to the oil pump body.

33. INSTALL TRANSFER OIL PUMP BODY SUB-ASSEMBLY

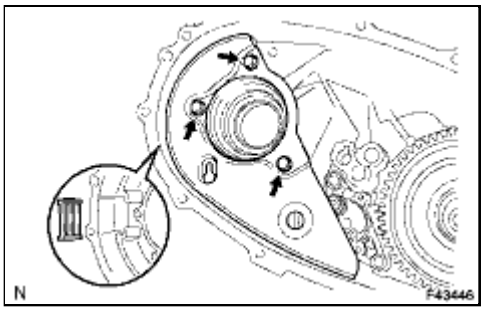


(a) Install the oil pump body with the 3 bolts.

Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

34. INSTALL TRANSFER CASE MAGNET

35. INSTALL TRANSFER OIL SEPARATOR SUB-ASSEMBLY



(a) Install the oil separator with the 3 bolts.

Torque: 7.5 N·m (76 kgf·cm, 66in·lbf)

36. INSTALL FILLER PLUG

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

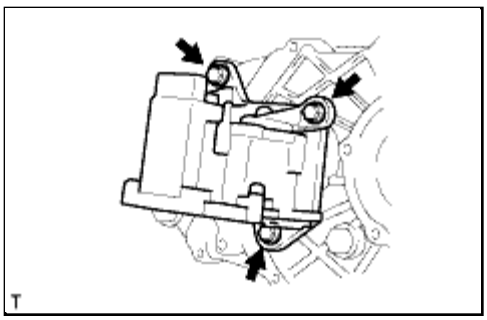
Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

37. INSTALL DRAIN PLUG

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

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

38. INSTALL TRANSFER SHIFT ACTUATOR ASSEMBLY

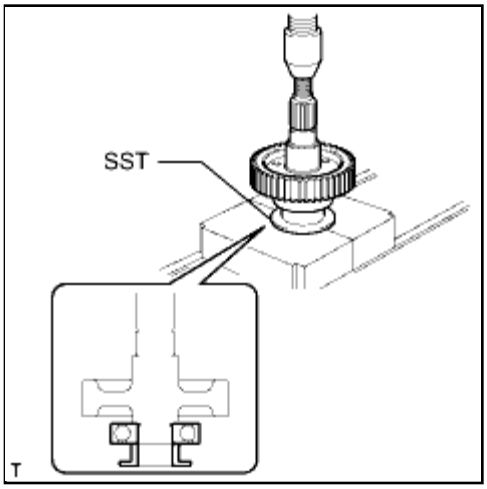


(a) Install the shift actuator with the 3 bolts.

Torque: 20 N·m (204 kgf·cm, 15ft·lbf)

(b) Using a screwdriver and hammer, tap on the 2 snap rings.

39. INSTALL TRANSFER INPUT GEAR RADIAL BALL BEARING

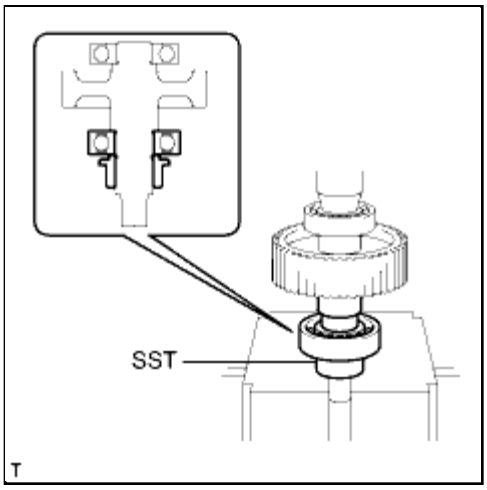


(a) Using SST and a press, install a new input gear radial ball bearing.

SST: 09316-60011

09316-00031

40. INSTALL TRANSFER DRIVEN SPROCKET BEARING

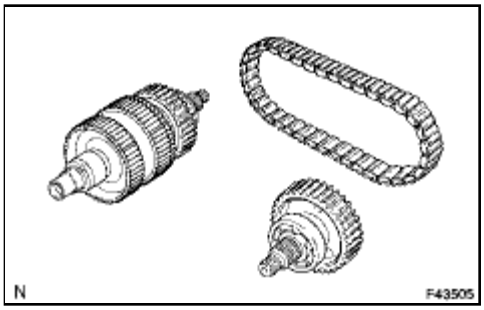


(a) Using SST and a press, install a new driven sprocket bearing.

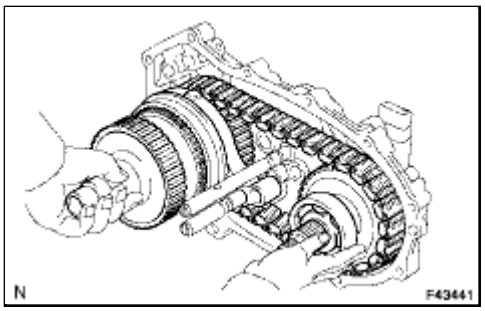
SST: 09316-60011

09316-00071

41. INSTALL REAR OUTPUT SHAFT SUB-ASSEMBLY, FRONT DRIVE CHAIN AND DRIVEN SPROCKET SUB-ASSEMBLY



(a) Install the rear output shaft and drive sprocket to the front drive chain.



(b) Install the rear output shaft, front drive chain and driven sprocket to the rear transfer case.

HINT:

Check that the rear output shaft and driven sprocket turn without much effort.

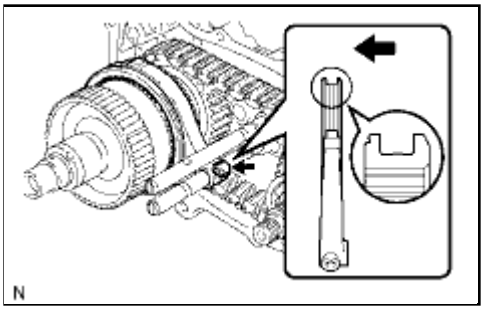
(c) Using a snap ring expander, install the snap ring.

NOTICE:

Make sure that the snap ring is firmly installed to the groove.

42. INSTALL CENTER DIFFERENTIAL LOCK FORK SUB-ASSEMBLY WITH FRONT DRIVE CLUTCH SLEEVE

(a) Install the center differential lock fork and front drive clutch sleeve.



Text in Illustration

➡	Front

NOTICE:

Install the clutch sleeve in the correct direction.

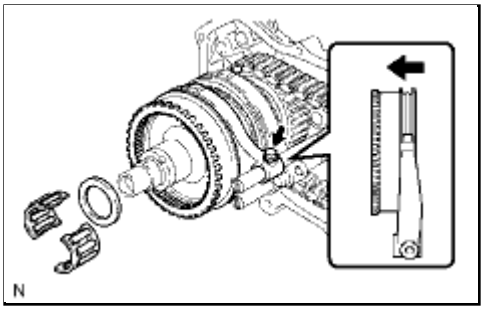
(b) Install the bolt.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

(c) Using a screwdriver and hammer, drive in the snap ring.

43. INSTALL NO. 2 TRANSFER GEAR SHIFT FORK SUB-ASSEMBLY WITH TRANSFER HIGH AND LOW CLUTCH SLEEVE

(a) Install the No. 2 gear shift fork and high and low clutch sleeve.



Text in Illustration

➡	Front

NOTICE:

Install the clutch sleeve in the correct direction.

(b) Install the bolt.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

44. INSTALL TRANSFER OUTPUT SHAFT FRONT NEEDLE ROLLER BEARING

(a) Install the needle roller bearing to the input shaft.

45. INSTALL TRANSFER OUTPUT SHAFT SPACER

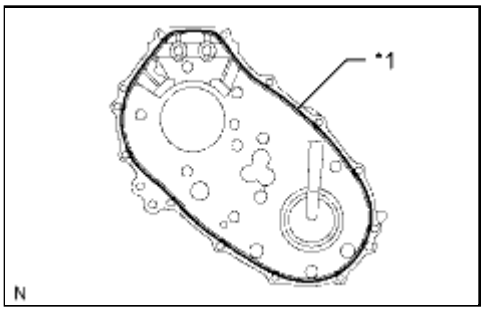
(a) Install the transfer output shaft spacer to the input shaft.

46. INSTALL REAR TRANSFER CASE

(a) Apply seal packing to the rear transfer case as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent



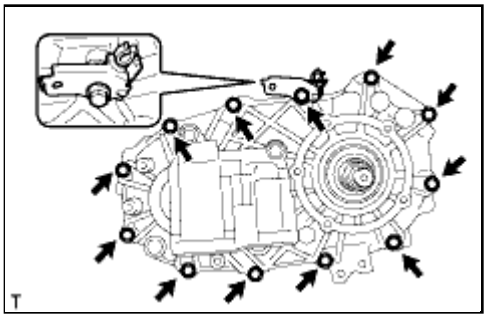
Text in Illustration

*1	Seal Packing

NOTICE:

If the removed rear transfer case is reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the rear transfer case contact surface, 2) clean off any remaining old seal packing from the rear transfer case contact surface, and 3) reapply seal packing to the rear transfer case.

(b) Install the clamp and rear transfer case with the 12 bolts.

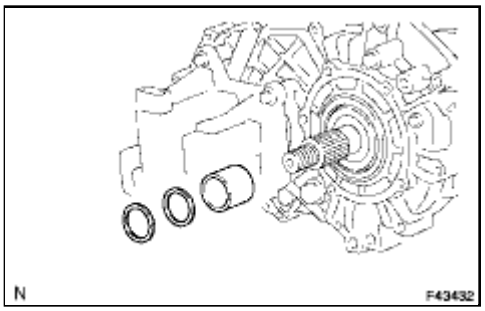


Torque: 28 N·m (286 kgf·cm, 21ft·lbf)

NOTICE:

Tighten the bolts of the rear transfer case within 10 minutes of applying the seal packing. The seal packing will dry very quickly.

47. INSTALL COLLAR



(a) Install the collar.

48. INSTALL TRANSFER OUTPUT SHAFT WASHER

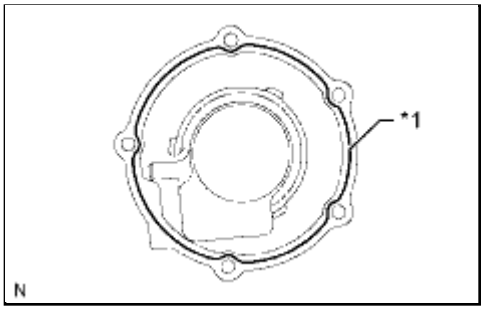
(a) Install the 2 washers.

49. INSTALL TRANSFER EXTENSION HOUSING SUB-ASSEMBLY

(a) Apply seal packing to the extension housing as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent



Text in Illustration

*1	Seal Packing

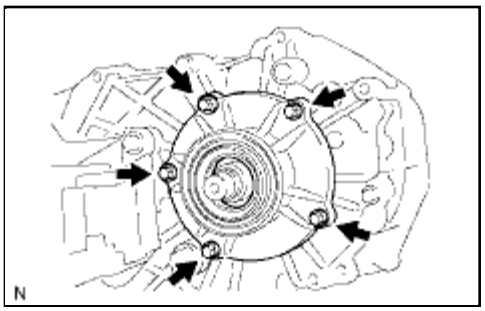
NOTICE:

If the removed extension housing will be reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the housing contact surface, 2) clean off any remaining old seal packing from the housing contact surface, and 3) reapply seal packing to the housing.

(b) Apply adhesive to the threads of the bolts.

Adhesive:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent



(c) Install the extension housing with the 5 bolts.

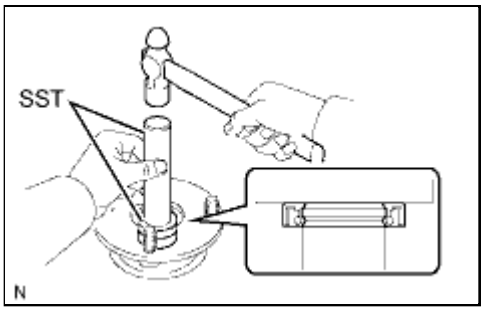
Torque: 12 N·m (122 kgf·cm, 9ft·lbf)

NOTICE:

Tighten the bolts of the extension housing within 10 minutes of applying the seal packing. The seal packing will dry very quickly.

50. INSTALL TRANSFER CASE REAR OIL SEAL INFO

51. INSTALL REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL



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

SST: 09950-60010

09951-00320

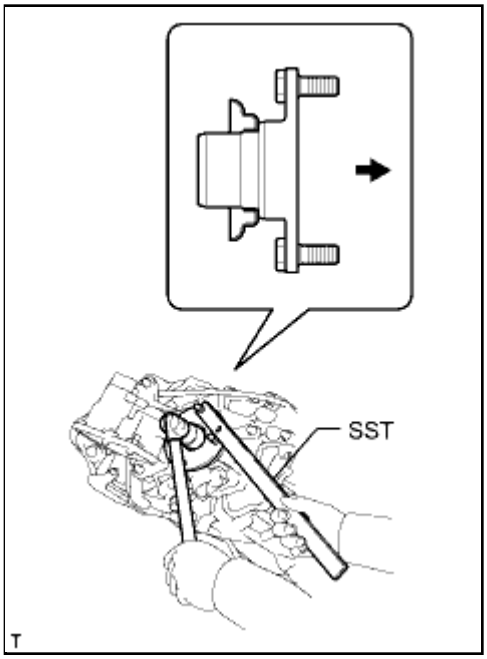
SST: 09950-70010

09951-07100

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

52. INSTALL REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY

(a) Apply gear oil to the connecting areas of the companion flange and output shaft.



(b) Install the companion flange to the output shaft.

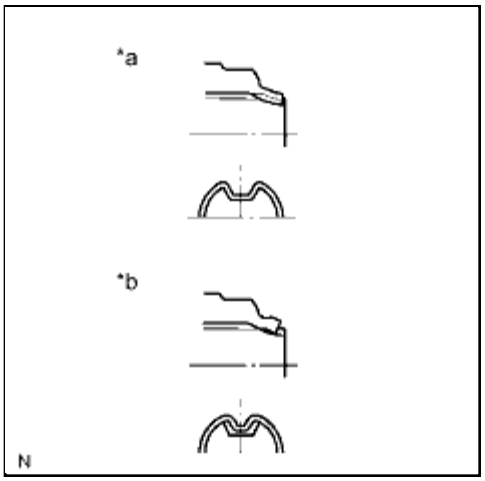
Text in Illustration

➡	Rear

(c) Using SST to hold the companion flange, install a new lock nut.

SST: 09330-00021

Torque: 118 N·m (1203 kgf·cm, 87ft·lbf)



(d) Using a chisel and hammer, stake the lock nut.

Text in Illustration

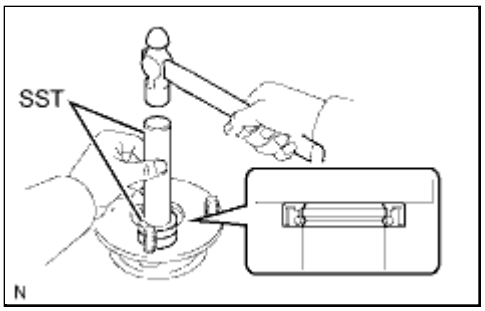
*a	Correct
*b	Incorrect

NOTICE:

- Securely stake the shaft to the lock nut groove.
- Be careful not to damage the parts around the lock nut.
- Do not apply excessive force to the shaft.

53. INSTALL TRANSFER CASE FRONT OIL SEAL INFO

54. INSTALL FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL



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

SST: 09950-60010

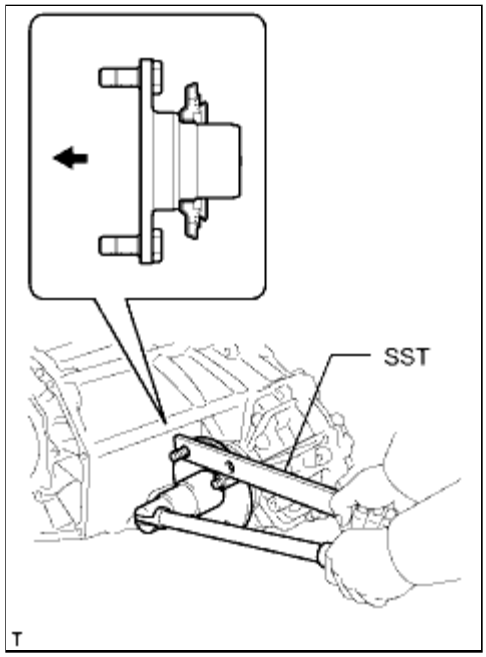
09951-00320

SST: 09950-70010

09951-07100

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

55. INSTALL FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY



(a) Apply gear oil to the connecting areas of the companion flange and driven sprocket.

(b) Install the companion flange to the driven sprocket.

Text in Illustration

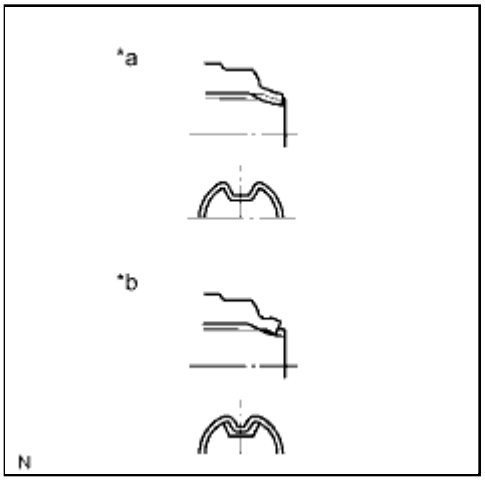
➡	Front

(c) Using SST to hold the companion flange, install a new lock nut.

SST: 09330-00021

Torque: 118 N·m (1203 kgf·cm, 87ft·lbf)

(d) Using a chisel and hammer, stake the lock nut.



Text in Illustration

*a	Correct
*b	Incorrect

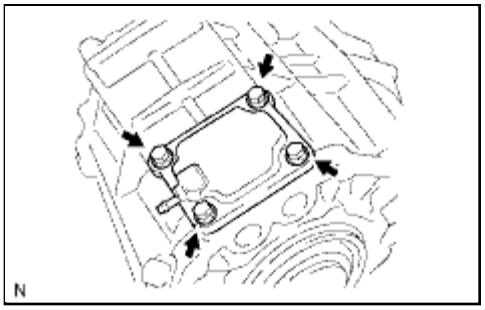
NOTICE:

- Securely stake the shaft to the lock nut groove.
- Be careful not to damage the parts around the lock nut.
- Do not apply excessive force to the shaft.

56. INSTALL BREATHER OIL DEFLECTOR

(a) Install the oil deflector.

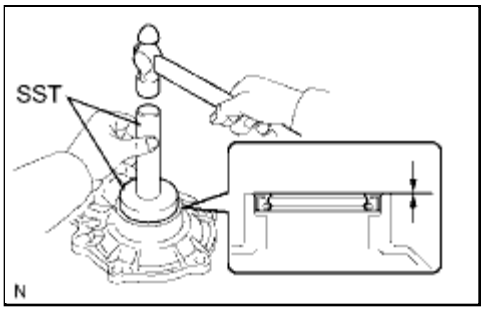
57. INSTALL TRANSFER CASE COVER SUB-ASSEMBLY



(a) Install the case cover with the 4 bolts.

Torque: 18 N·m (184 kgf·cm, 13ft·lbf)

58. INSTALL TRANSFER RH BEARING RETAINER OIL SEAL



(a) Using SST and a hammer, drive in a new oil seal until its surface is flush with the retainer upper surface.

SST: 09950-60010

09951-00590

SST: 09950-70010

09951-07100

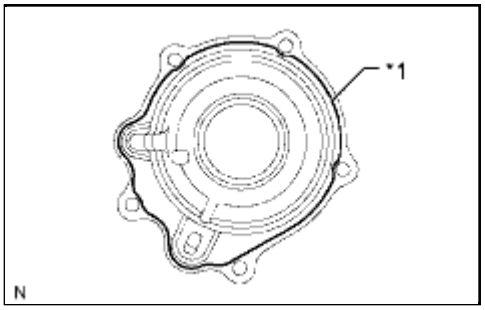
(b) Coat the lip of the oil seal with MP grease.

59. INSTALL TRANSFER RH BEARING RETAINER SUB-ASSEMBLY

(a) Apply seal packing to the bearing retainer as shown in the illustration.

Seal packing:

Toyota Genuine Seal Packing 1281, Three Bond 1281 or equivalent



Text in Illustration

*1	Seal Packing

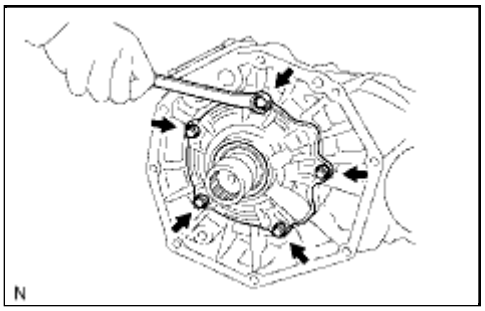
NOTICE:

If the removed bearing retainer is reused, be sure to perform the following before reinstalling it: 1) using a knife, cut off any old seal packing on the retainer contact surface, 2) clean off any remaining old seal packing from the retainer contact surface, and 3) reapply seal packing to the retainer.

(b) Apply sealant to the bolt threads.

Sealant:

Toyota Genuine Adhesive 1344, Three Bond 1344 or equivalent

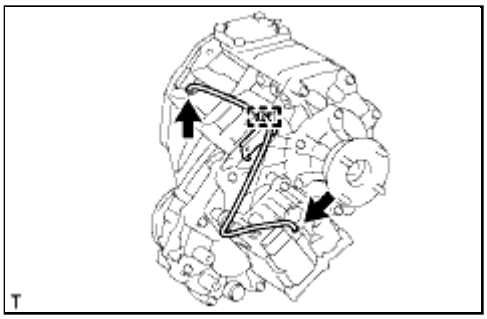


(c) Install the retainer with the 5 bolts.

Torque: 12 N·m (117 kgf·cm, 8ft·lbf)

NOTICE:

Tighten the bolts of the bearing retainer within 10 minutes of applying the seal packing. The seal packing will dry very quickly.



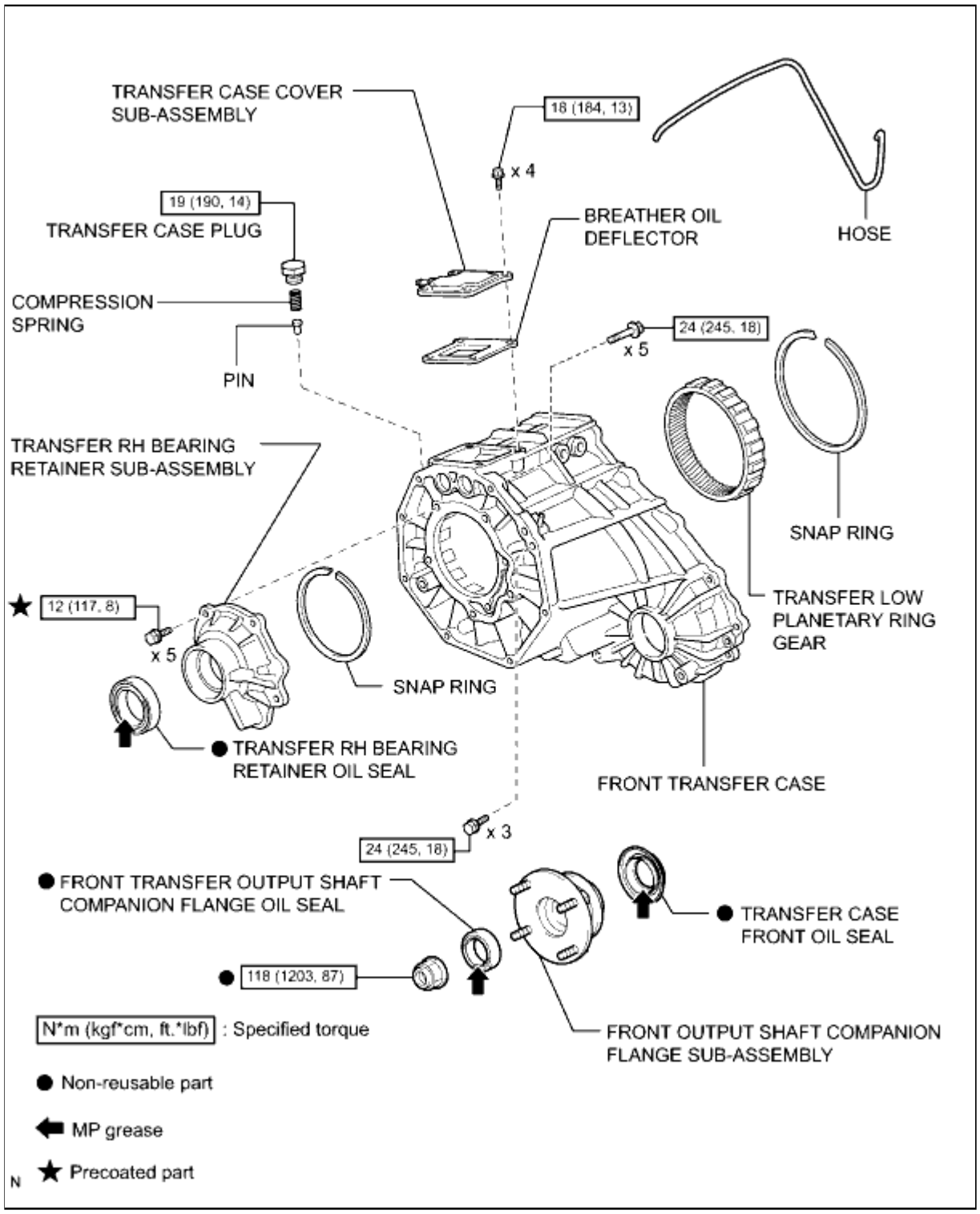
60. INSTALL HOSE

(a) Attach the clamp and install the hose.

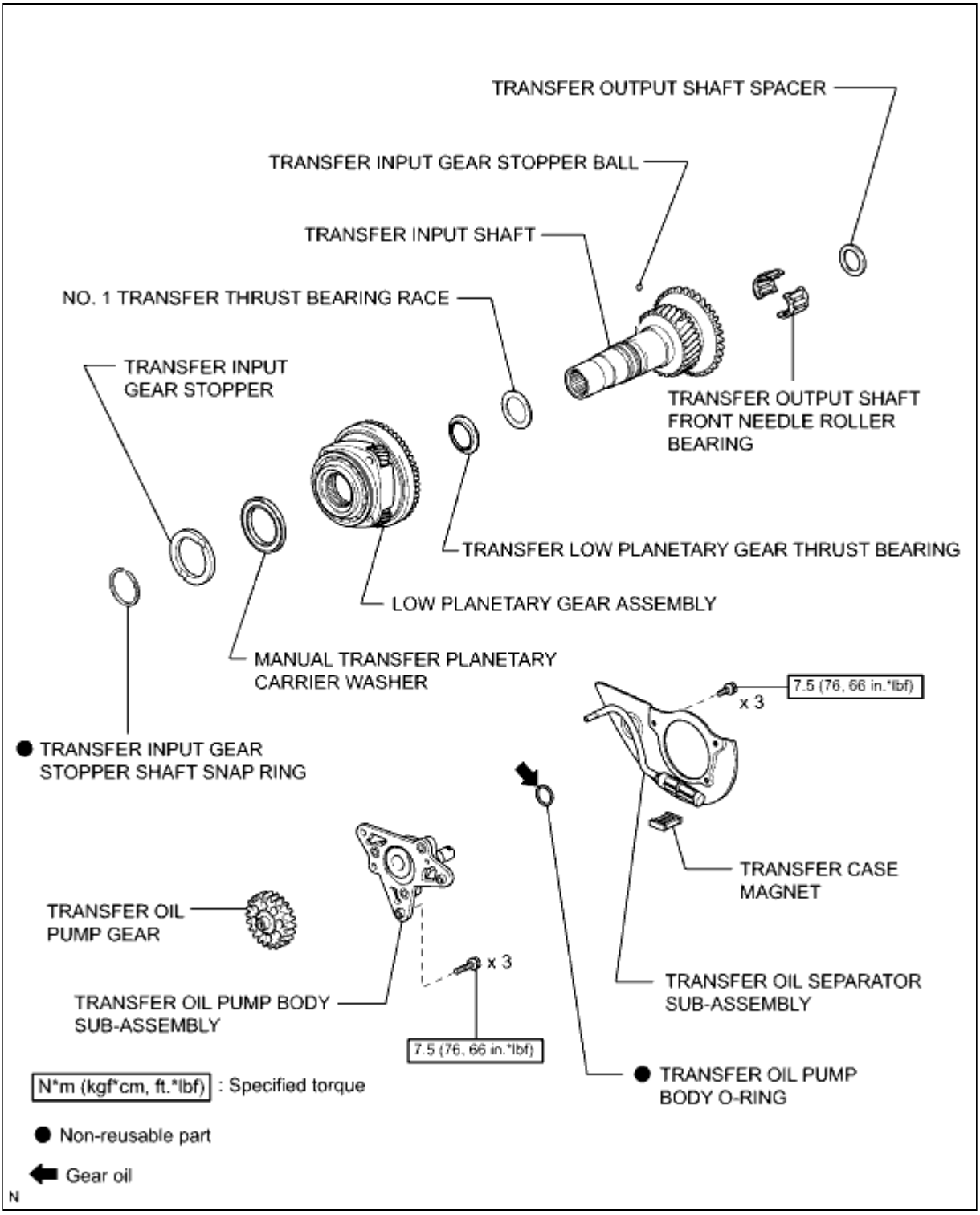
Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016PW00QX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: COMPONENTS (2010 4Runner)		

COMPONENTS

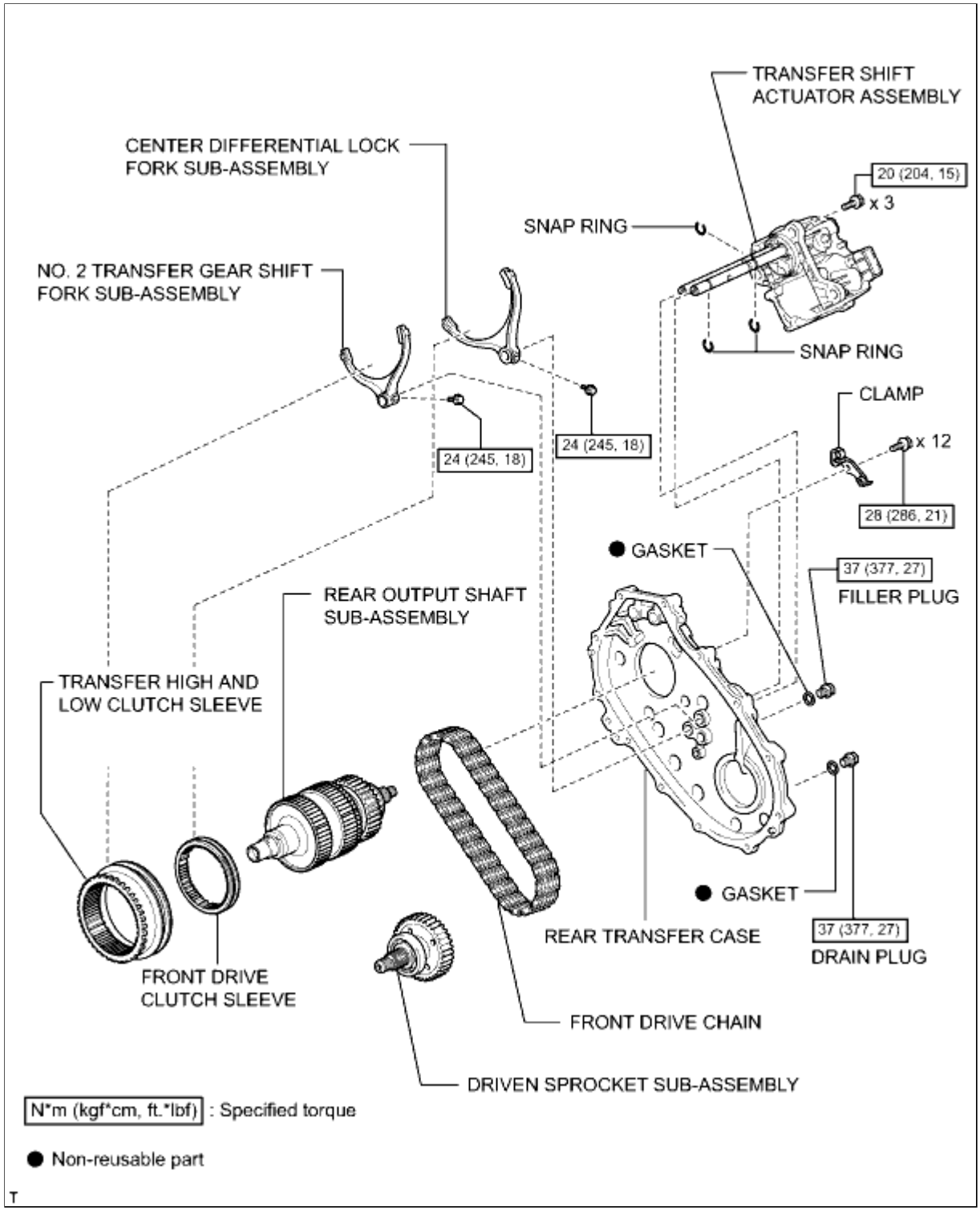
ILLUSTRATION



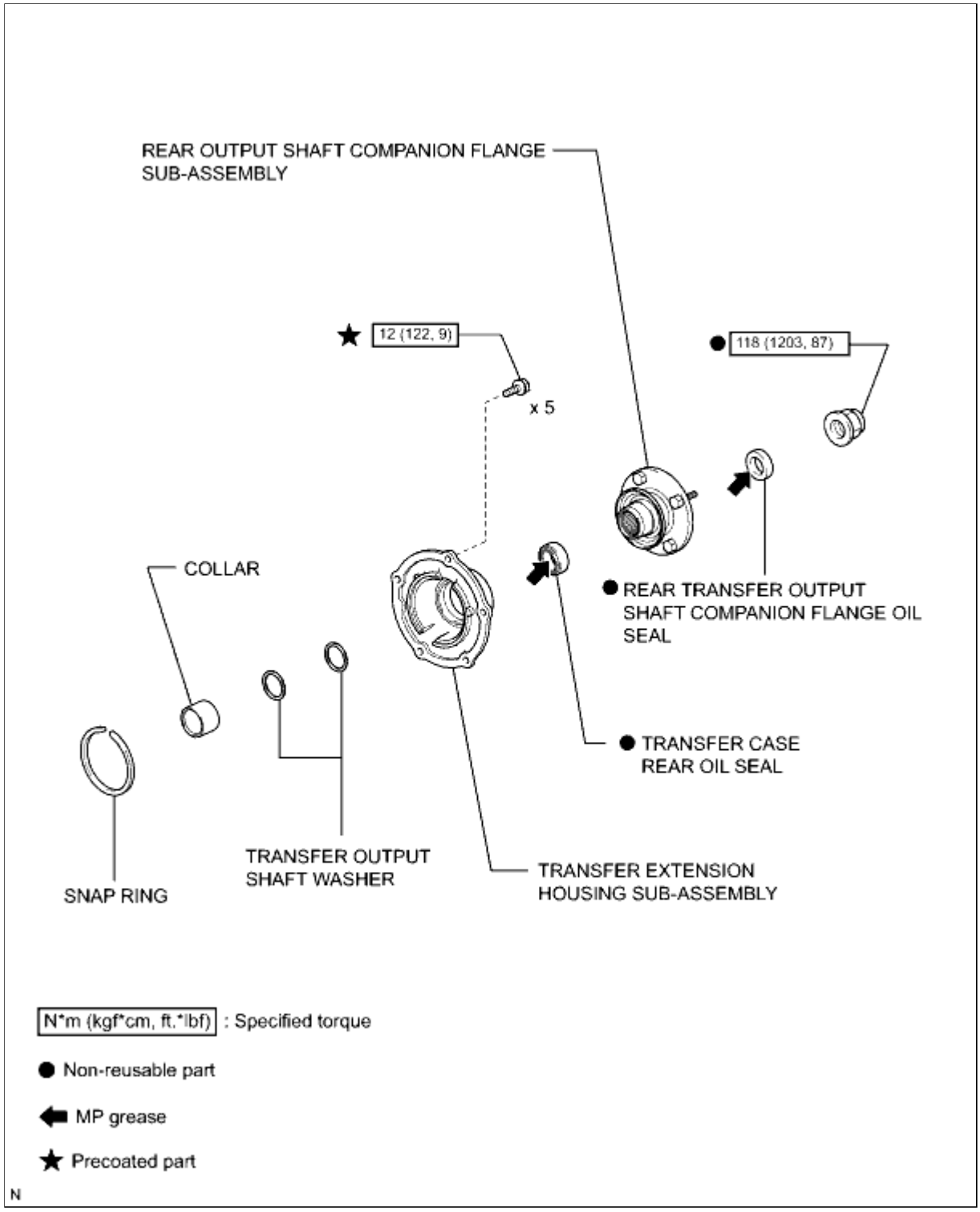
ILLUSTRATION



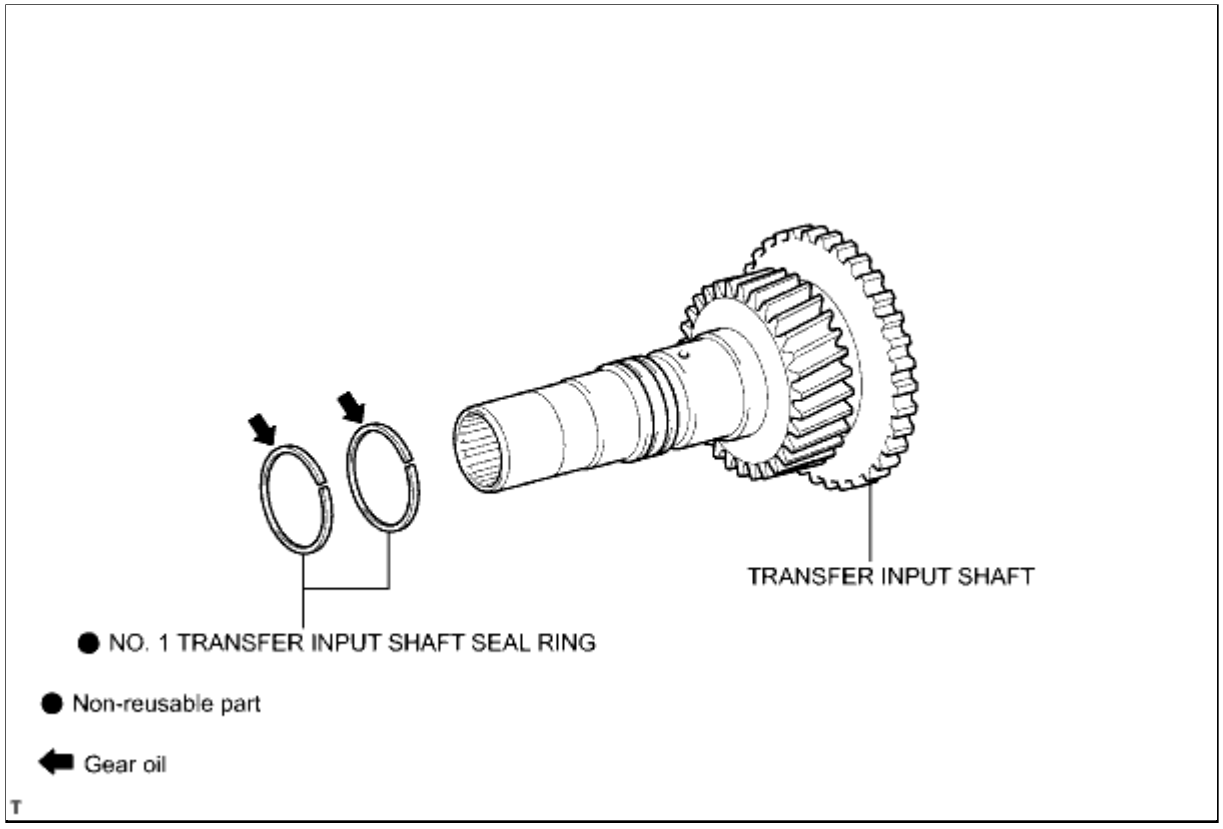
ILLUSTRATION



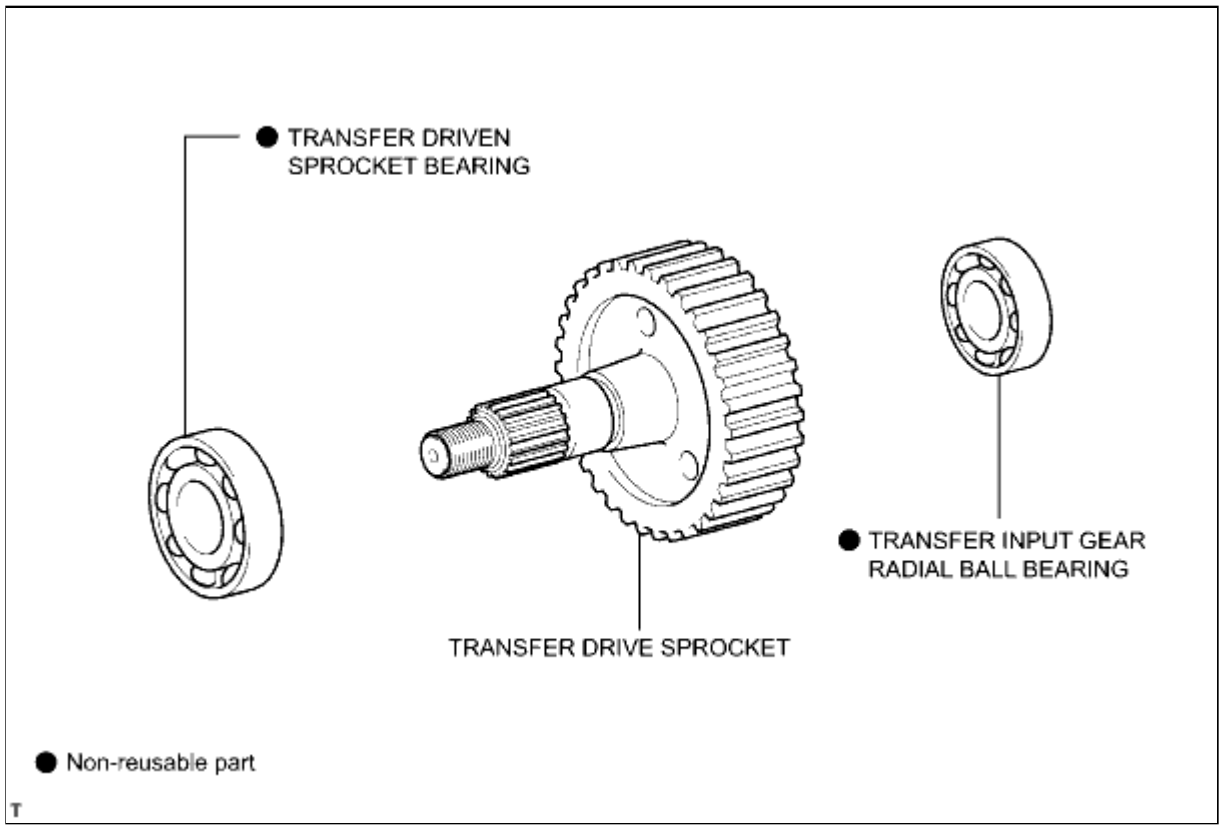
ILLUSTRATION



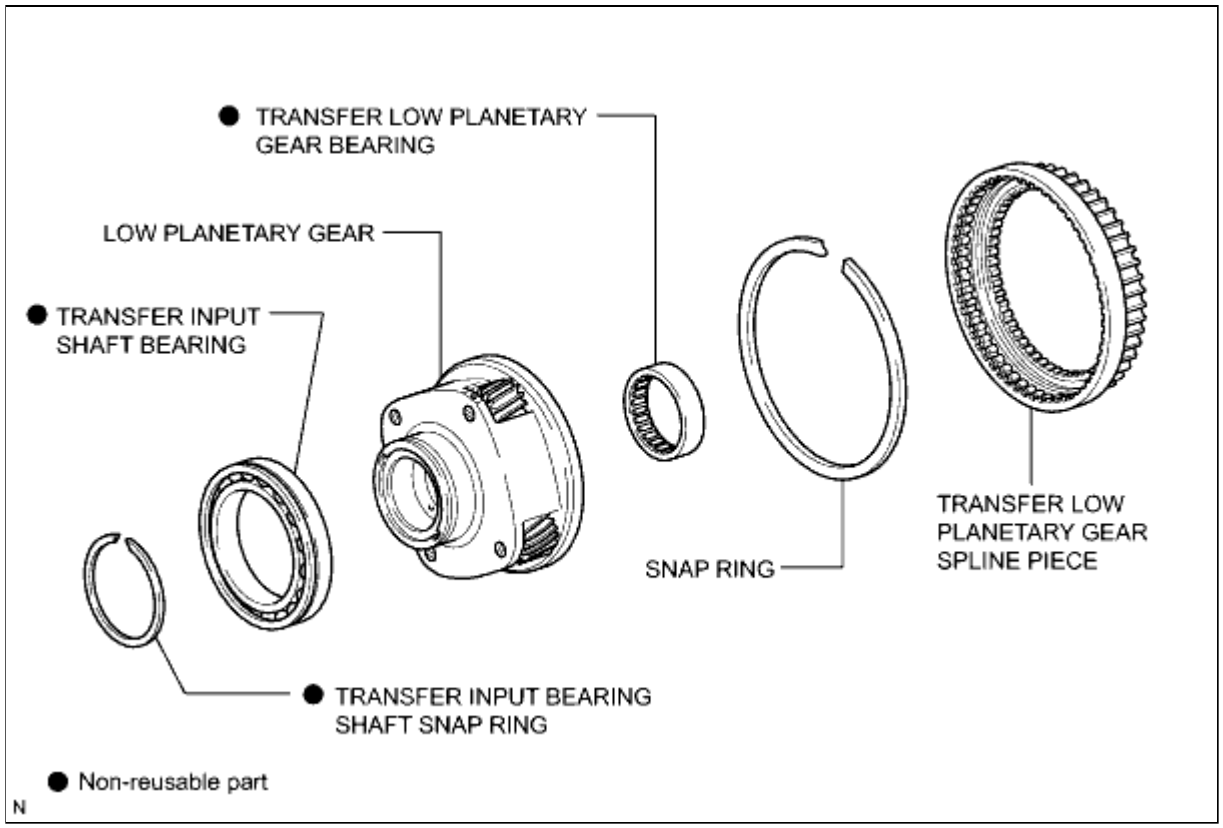
ILLUSTRATION



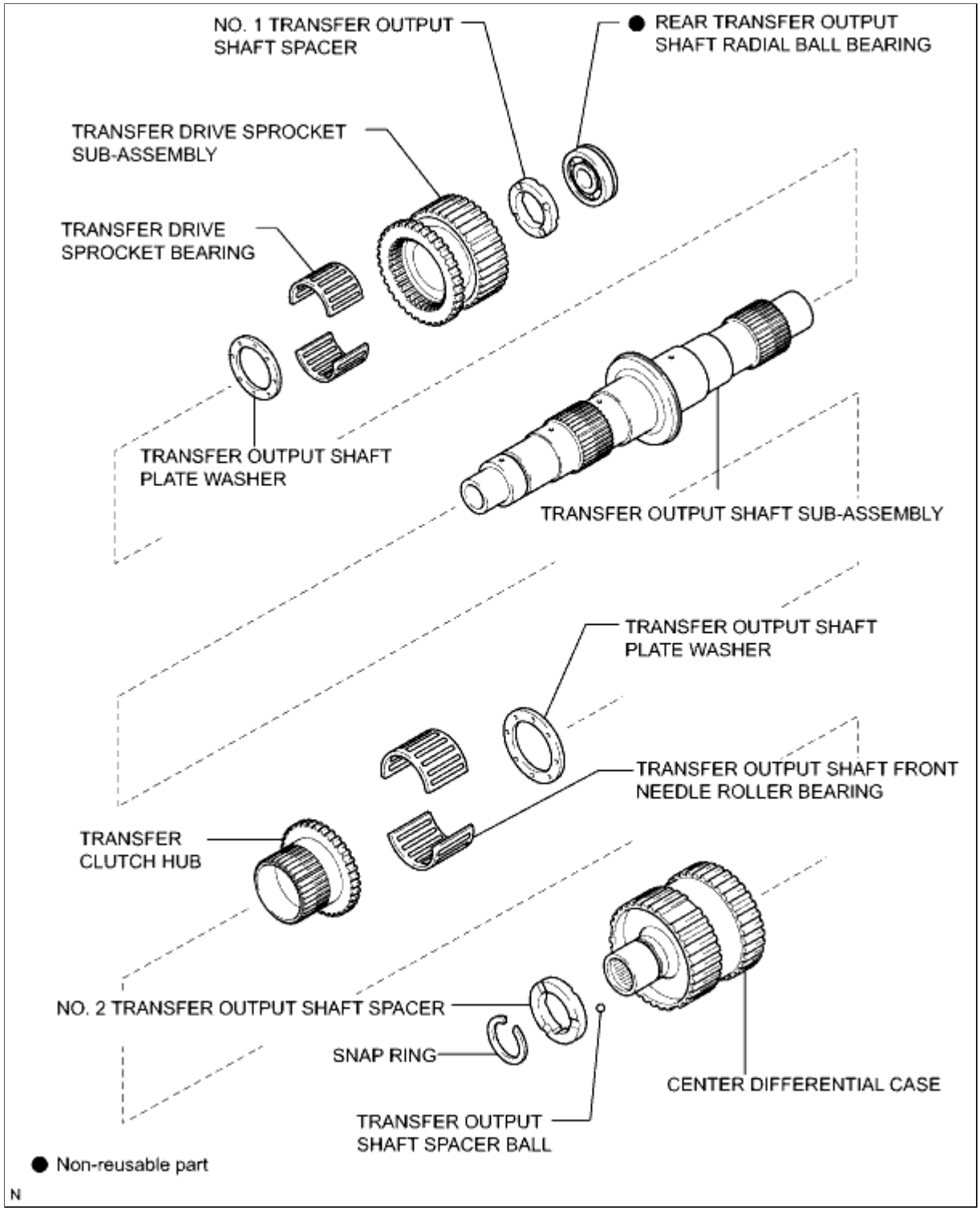
ILLUSTRATION



ILLUSTRATION



ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016PX00HX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: DISASSEMBLY (2010 4Runner)		

DISASSEMBLY

1. REMOVE HOSE

(a) Detach the clamp and remove the hose.

2. REMOVE TRANSFER RH BEARING RETAINER SUB-ASSEMBLY

(a) Remove the 5 bolts and bearing retainer.

HINT:

If necessary, tap the bearing retainer with a plastic-faced hammer to remove it.

3. REMOVE TRANSFER RH BEARING RETAINER OIL SEAL

(a) Using a screwdriver and hammer, remove the oil seal from the bearing retainer.

4. REMOVE TRANSFER CASE COVER SUB-ASSEMBLY

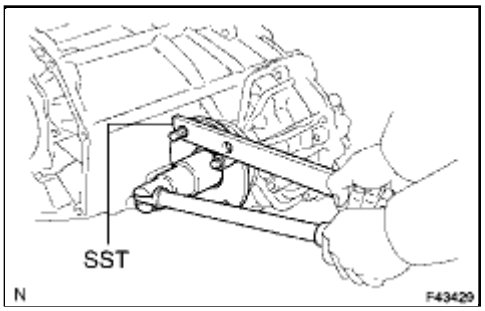
(a) Remove the 4 bolts and case cover.

5. REMOVE BREATHER OIL DEFLECTOR

(a) Remove the oil deflector.

6. REMOVE FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY

(a) Using a chisel and hammer, loosen the staked part of the lock nut.



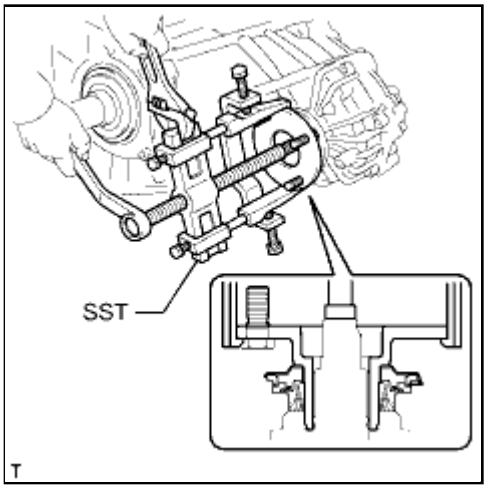
(b) Using SST to hold the companion flange, remove the lock nut.

SST: 09330-00021

(c) Using SST, remove the companion flange.

SST: 09950-40011

09951-04020
09952-04010
09953-04030
09954-04010
09955-04051
09957-04010
09958-04011



7. REMOVE FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

(a) Using a screwdriver and hammer, tap out the oil seal from the companion flange.

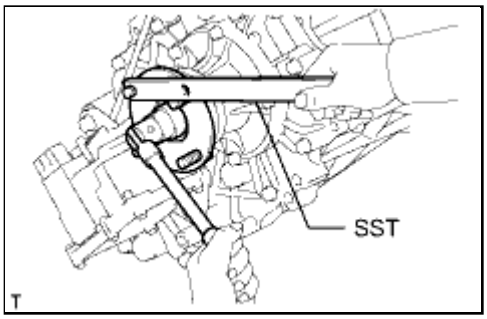
NOTICE:

Be careful not to damage the oil seal and companion flange contact surfaces.

8. REMOVE TRANSFER CASE FRONT OIL SEAL INFO

9. REMOVE REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY

(a) Using a chisel and hammer, loosen the staked part of the lock nut.



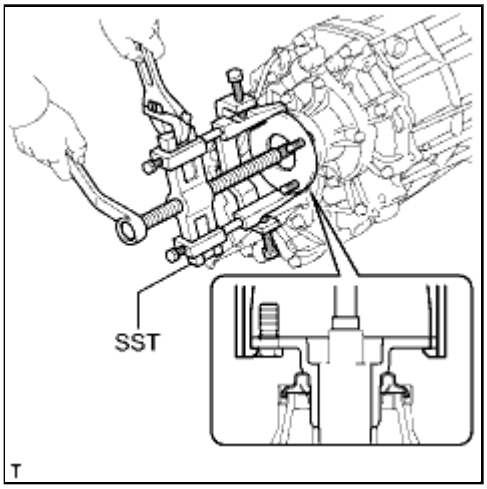
(b) Using SST to hold the companion flange, remove the lock nut.

SST: 09330-00021

(c) Using SST, remove the companion flange.

SST: 09950-40011

09951-04020
09952-04010
09953-04030
09954-04010
09955-04051
09957-04010
09958-04011



10. REMOVE REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL

(a) Using a screwdriver and hammer, tap out the oil seal from the companion flange.

NOTICE:

Be careful not to damage the oil seal and companion flange contact surfaces.

11. REMOVE TRANSFER CASE REAR OIL SEAL INFO

12. REMOVE TRANSFER EXTENSION HOUSING SUB-ASSEMBLY

(a) Remove the 5 bolts and extension housing.

HINT:

If necessary, tap the extension housing with a plastic-faced hammer to remove it.

13. REMOVE TRANSFER OUTPUT SHAFT WASHER

(a) Remove the 2 washers.

14. REMOVE COLLAR

(a) Remove the collar.

15. REMOVE REAR TRANSFER CASE

(a) Remove the 12 bolts and clamp.

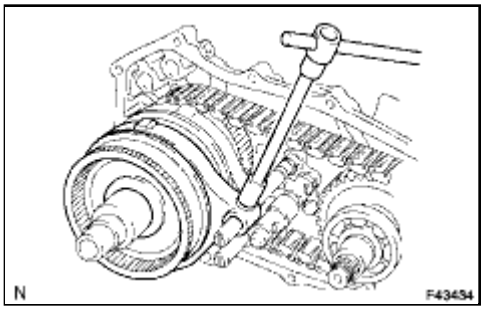
(b) Remove the rear transfer case.

HINT:

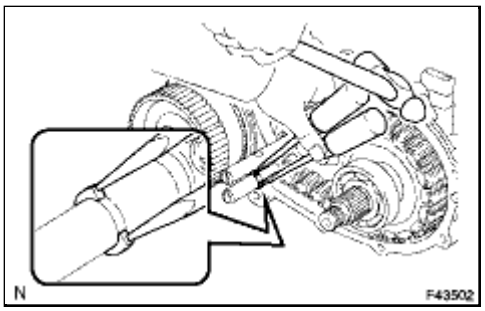
If necessary, tap the rear transfer case with a plastic-faced hammer to remove it.

16. REMOVE NO. 2 TRANSFER GEAR SHIFT FORK SUB-ASSEMBLY WITH TRANSFER HIGH AND LOW CLUTCH SLEEVE

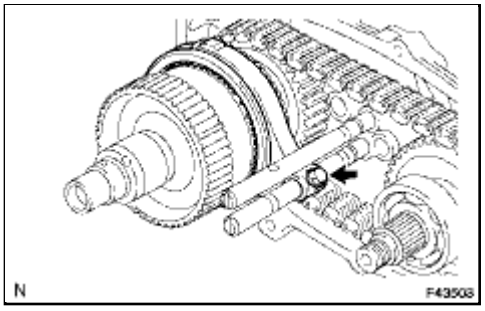
(a) Remove the bolt, No. 2 gear shift fork, and high and low clutch sleeve.



17. REMOVE CENTER DIFFERENTIAL LOCK FORK SUB-ASSEMBLY WITH FRONT DRIVE CLUTCH SLEEVE



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



(b) Remove the bolt, center differential lock fork and front drive clutch sleeve.

18. REMOVE REAR OUTPUT SHAFT SUB-ASSEMBLY, FRONT DRIVE CHAIN AND DRIVEN SPROCKET SUB-ASSEMBLY

(a) Mount the rear transfer case in a vise.

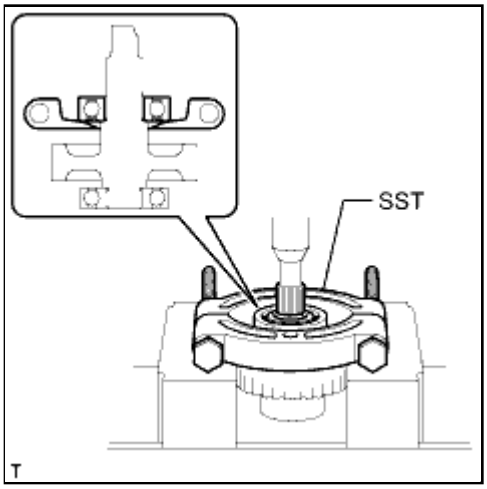
(b) Using a snap ring expander, remove the snap ring.

(c) Using a plastic-faced hammer, carefully tap the rear transfer case, and remove the rear output shaft together with the front drive chain and driven sprocket.

(d) Remove the rear output shaft, front drive chain and driven sprocket.

19. REMOVE TRANSFER DRIVEN SPROCKET BEARING

(a) Using SST and a press, remove the driven sprocket



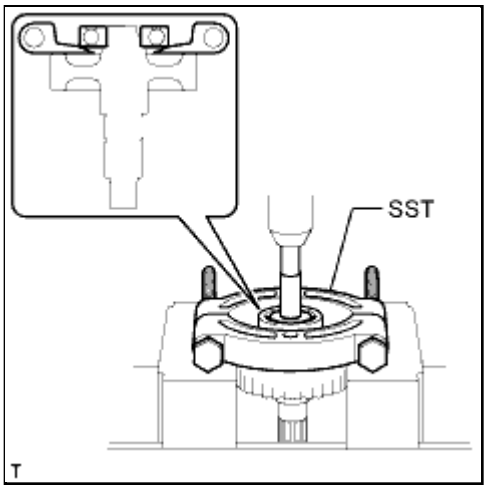
bearing.

SST: 09555-55010

NOTICE:

Be careful not to drop or damage the driven sprocket.

20. REMOVE TRANSFER INPUT GEAR RADIAL BALL BEARING



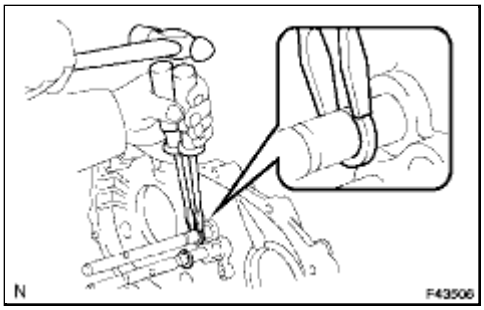
(a) Using SST and a press, remove the transfer input gear radial ball bearing.

SST: 09555-55010

NOTICE:

Be careful not to drop or damage the driven sprocket.

21. REMOVE TRANSFER SHIFT ACTUATOR ASSEMBLY



(a) Using 2 screwdrivers and a hammer, tap off the 2 snap rings.

(b) Remove the 3 bolts and transfer shift actuator.

22. REMOVE FILLER PLUG

(a) Remove the filler plug and gasket.

23. REMOVE DRAIN PLUG

(a) Remove the drain plug and gasket.

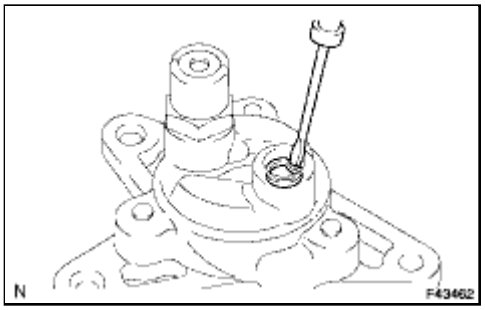
24. REMOVE TRANSFER OIL SEPARATOR SUB-ASSEMBLY

(a) Remove the 3 bolts and oil separator.

25. REMOVE TRANSFER CASE MAGNET

26. REMOVE TRANSFER OIL PUMP BODY SUB-ASSEMBLY

(a) Remove the 3 bolts and oil pump body.



27. REMOVE TRANSFER OIL PUMP BODY O-RING

(a) Using a screwdriver, remove the oil pump body O-ring.

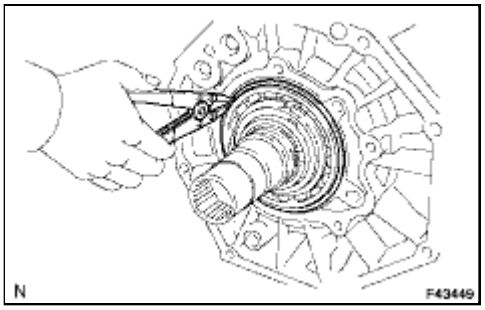
NOTICE:

Be careful not to damage the oil pump body.

28. REMOVE TRANSFER OIL PUMP GEAR

(a) Remove the transfer oil pump gear.

29. REMOVE LOW PLANETARY GEAR ASSEMBLY WITH TRANSFER INPUT SHAFT SUB-ASSEMBLY



(a) Using a snap ring expander, remove the snap ring.

(b) Remove the low planetary gear together with the input shaft.

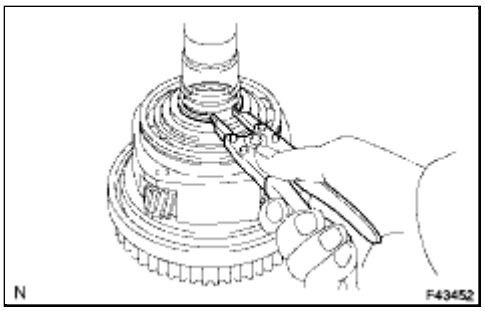
30. REMOVE TRANSFER OUTPUT SHAFT SPACER

(a) Remove the transfer output shaft spacer.

31. REMOVE TRANSFER OUTPUT SHAFT FRONT NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing.

32. REMOVE TRANSFER INPUT GEAR STOPPER SHAFT SNAP RING



(a) Using a snap ring expander, remove the snap ring.

33. REMOVE TRANSFER INPUT GEAR STOPPER

(a) Remove the input gear stopper.

34. REMOVE TRANSFER INPUT GEAR STOPPER BALL

(a) Remove the ball.

35. REMOVE MANUAL TRANSFER PLANETARY CARRIER WASHER

(a) Remove the washer.

36. REMOVE TRANSFER INPUT SHAFT

(a) Remove the transfer input shaft.

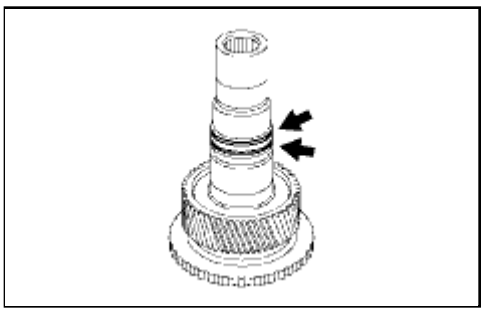
37. REMOVE NO. 1 TRANSFER THRUST BEARING RACE

(a) Remove the thrust bearing race.

38. REMOVE TRANSFER LOW PLANETARY GEAR THRUST BEARING

(a) Remove the bearing.

39. REMOVE NO. 1 TRANSFER INPUT SHAFT SEAL RING



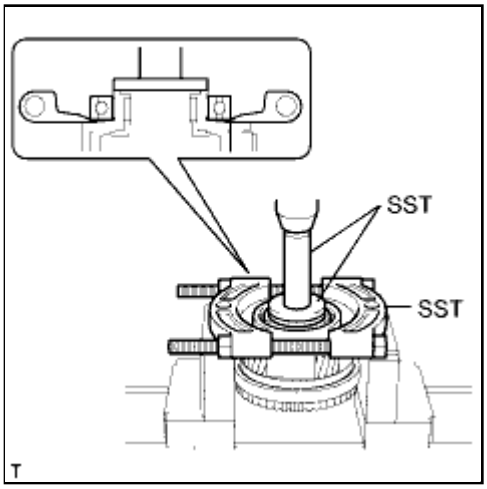
(a) Remove the 2 seal rings.

40. REMOVE TRANSFER INPUT SHAFT BEARING

(a) Using a snap ring expander, remove the snap ring.

(b) Using SST and a press, remove the input shaft bearing.

SST: 09555-55010



SST: 09950-70010

09951-07150

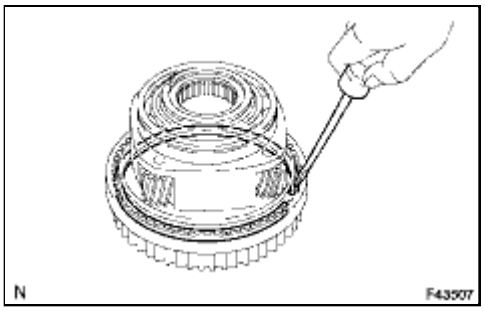
SST: 09950-60020

09951-00750

NOTICE:

Be careful not to drop or damage the low planetary gear.

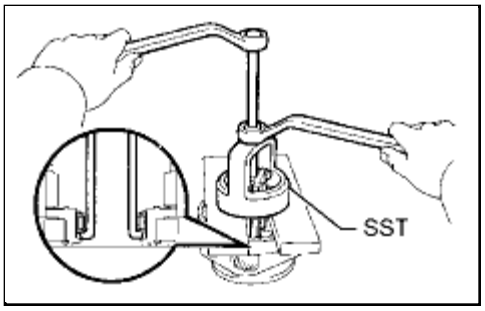
41. REMOVE TRANSFER LOW PLANETARY GEAR SPLINE PIECE



(a) Using a screwdriver, remove the snap ring.

(b) Remove the low planetary gear spline piece.

42. REMOVE TRANSFER LOW PLANETARY GEAR BEARING



(a) Using SST, remove the low planetary gear bearing.

SST: 09612-65014

09612-01030

09612-01050

NOTICE:

Make sure SST fits securely in the space between the bearing and low planetary gear.

43. REMOVE NO. 2 TRANSFER OUTPUT SHAFT SPACER

(a) Using a snap ring expander, remove the snap ring.

(b) Remove the spacer.

44. REMOVE TRANSFER OUTPUT SHAFT SPACER BALL

(a) Remove the ball.

45. REMOVE CENTER DIFFERENTIAL CASE

(a) Remove the center differential case.

46. REMOVE TRANSFER CLUTCH HUB

(a) Remove the transfer clutch hub.

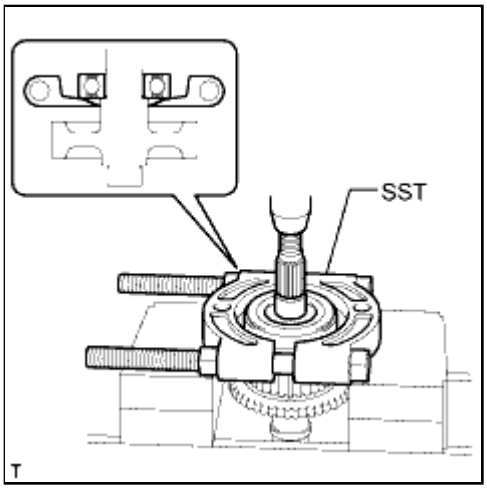
47. REMOVE TRANSFER OUTPUT SHAFT FRONT NEEDLE ROLLER BEARING

(a) Remove the needle roller bearing.

48. REMOVE TRANSFER OUTPUT SHAFT PLATE WASHER

(a) Remove the washer.

49. REMOVE REAR TRANSFER OUTPUT SHAFT RADIAL BALL BEARING



(a) Using SST and a press, remove the bearing.

SST: 09555-55010

50. REMOVE NO. 1 TRANSFER OUTPUT SHAFT SPACER

(a) Remove the output shaft spacer.

51. REMOVE TRANSFER DRIVE SPROCKET SUB-ASSEMBLY

(a) Remove the transfer drive sprocket.

52. REMOVE TRANSFER DRIVE SPROCKET BEARING

(a) Remove the bearing.

53. REMOVE TRANSFER OUTPUT SHAFT PLATE WASHER

(a) Remove the washer.

54. REMOVE TRANSFER CASE PLUG

(a) Remove the transfer case plug.

55. REMOVE COMPRESSION SPRING

(a) Remove the spring.

56. REMOVE PIN

(a) Remove the pin.

57. REMOVE TRANSFER LOW PLANETARY RING GEAR

(a) Using a screwdriver, remove the snap ring.

(b) Remove the low planetary ring gear from the front transfer case.

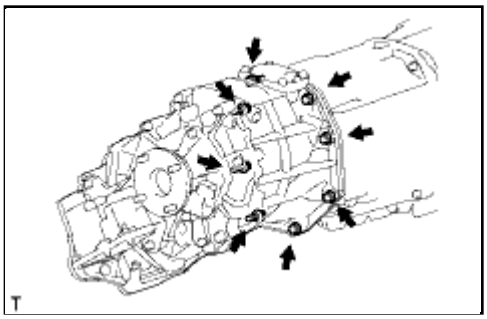
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001QHY00ZX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE AUTOMATIC TRANSMISSION WITH TRANSFER

(a) Remove the automatic transmission with transfer INFO .

2. REMOVE TRANSFER ASSEMBLY



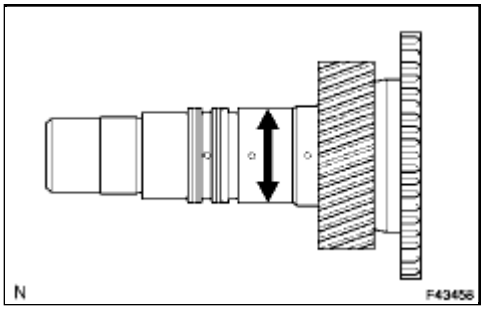
(a) Remove the 8 bolts.

(b) Remove the transfer from the automatic transmission.

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000016TL00HX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT TRANSFER INPUT SHAFT

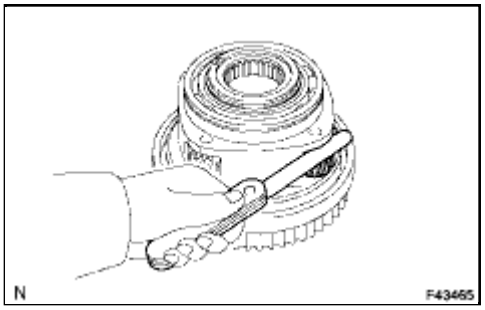


(a) Using a micrometer, measure the outer diameter of the input shaft journal surface.

Minimum diameter:
47.59 mm (1.88 in.)

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

2. INSPECT PLANETARY PINION GEAR THRUST CLEARANCE

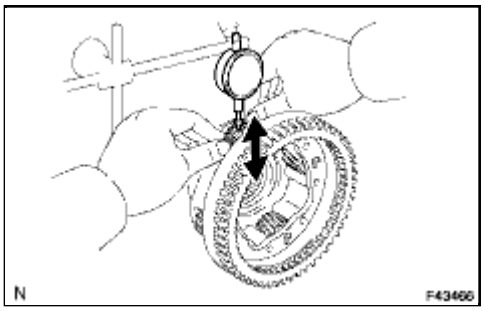


(a) Using a feeler gauge, measure the thrust clearance of the planetary pinion gear.

Standard clearance:
0.11 to 0.84 mm (0.00434 to 0.0330 in.)
Maximum clearance:
0.84 mm (0.0330 in.)

If the clearance is more than the maximum, replace the planetary gear.

3. INSPECT PLANETARY PINION GEAR RADIAL CLEARANCE

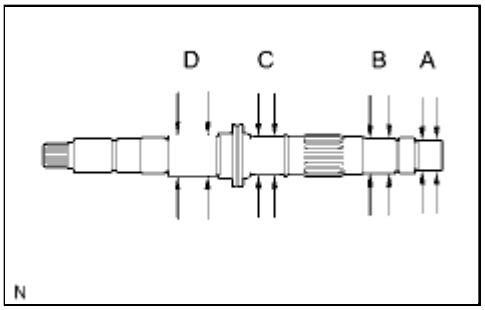


(a) Using a dial indicator, measure the radial clearance of the planetary pinion gear.

Standard clearance:
0.009 to 0.038 mm (0.000355 to 0.00149 in.)
Maximum clearance:
0.038 mm (0.00149 in.)

If the clearance is more than the maximum, replace the planetary gear.

4. INSPECT TRANSFER OUTPUT SHAFT REAR



(a) Using a micrometer, measure the outer diameter of the output shaft rear journal surfaces.

Standard diameter:

Journal A

27.98 to 27.99 mm (1.1015 to 1.1019 in.)

Journal B

31.98 to 32.00 mm (1.2591 to 1.2598 in.)

Journal C

34.98 to 35.00 mm (1.3772 to 1.3779 in.)

Journal D

36.98 to 37.00 mm (1.4560 to 1.4566 in.)

Minimum diameter:

Journal A

27.98 mm (1.1015 in.)

Journal B

31.98 mm (1.2591 in.)

Journal C

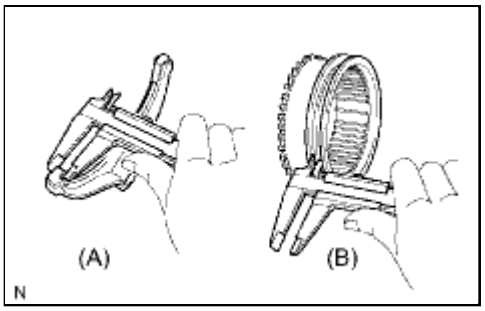
34.98 mm (1.3772 in.)

Journal D

36.98 mm (1.4560 in.)

If the outer diameter is less than the minimum, replace the rear output shaft.

5. INSPECT TRANSFER HIGH AND LOW CLUTCH SLEEVE AND NO. 2 TRANSFER GEAR SHIFT FORK CLEARANCE



(a) Using a vernier caliper, measure the thickness of the shift fork claw.

Standard thickness (A):
10 mm (0.394 in.)

(b) Using a vernier caliper, measure the width of the groove of the high and low clutch sleeve.

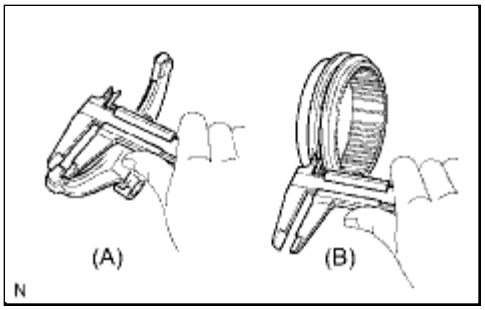
Standard width (B):
10.5 mm (0.413 in.)

(c) Calculate the clearance between the high and low clutch sleeve and shift fork.

Standard clearance (B) - (A):
0.26 to 0.84 mm (0.0103 to 0.0330 in.)
Maximum clearance (B) - (A):
0.84 mm (0.0330 in.)

If the clearance is more than the maximum, replace the high and low clutch sleeve or shift fork.

6. INSPECT FRONT DRIVE CLUTCH SLEEVE AND CENTER DIFFERENTIAL LOCK FORK SUB-ASSEMBLY CLEARANCE



(a) Using a vernier caliper, measure the thickness of the center differential lock fork claw.

Standard thickness (A):
10 mm (0.394 in.)

(b) Using a vernier caliper, measure the width of the groove of the front drive clutch sleeve.

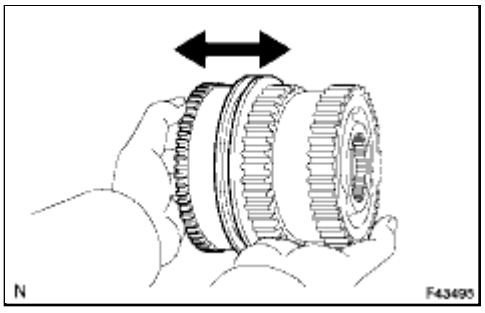
Standard width (B):
10.5 mm (0.413 in.)

(c) Calculate the clearance between the front drive clutch sleeve and differential lock fork.

Standard clearance (B) - (A):
0.26 to 0.84 mm (0.0103 to 0.0330 in.)
Maximum clearance (B) - (A):
0.84 mm (0.0330 in.)

If the clearance is more than the maximum, replace the front drive clutch sleeve or differential lock fork.

7. INSPECT CENTER DIFFERENTIAL CASE AND TRANSFER HIGH AND LOW CLUTCH SLEEVE

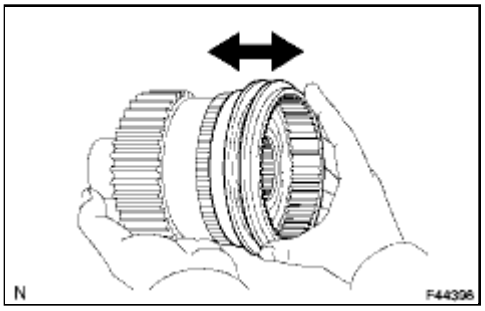


(a) Check that the splines of the clutch sleeve are not worn.

(b) Install the clutch sleeve to the center differential case and check that the clutch sleeve moves smoothly.

8. INSPECT CENTER DIFFERENTIAL CASE AND FRONT DRIVE CLUTCH SLEEVE

(a) Check that the splines of the clutch sleeve are not worn.



(b) Install the clutch sleeve to the center differential case and check that the clutch sleeve moves smoothly.

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000001QHX00ZX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER ASSEMBLY: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL TRANSFER ASSEMBLY

(a) Install the transfer assembly with the 8 bolts.

Torque: 24 N·m (245 kgf·cm, 18ft·lbf)

NOTICE:

Take care not to damage the adaptor rear oil seal with the transfer input gear spline.

2. INSTALL AUTOMATIC TRANSMISSION WITH TRANSFER

(a) Install the automatic transmission with transfer INFO .

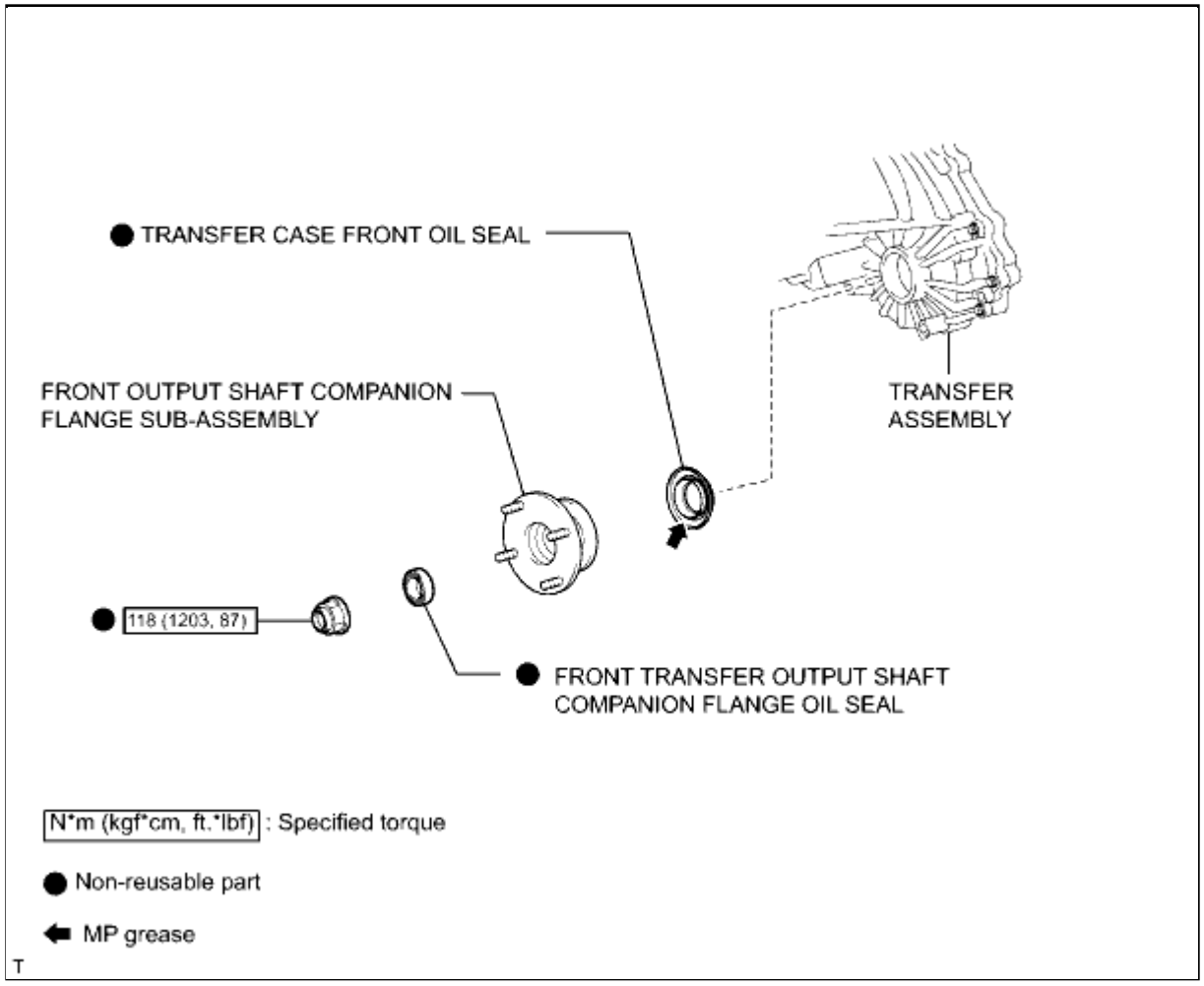
3. ADD TRANSFER OIL INFO

4. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LN00MX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER CASE FRONT OIL SEAL: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000025K8005X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER CASE FRONT OIL SEAL: REPLACEMENT (2010 4Runner)		

REPLACEMENT

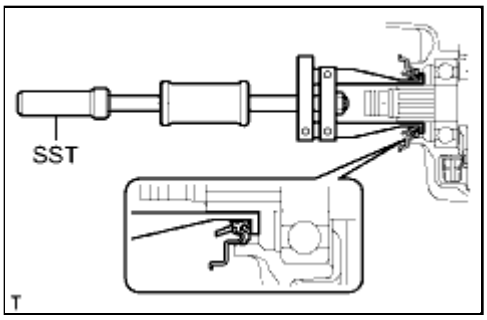
1. DRAIN TRANSFER OIL INFO

2. REMOVE FRONT PROPELLER SHAFT ASSEMBLY

(a) Remove the front propeller shaft INFO .

3. REMOVE FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

4. REMOVE FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO



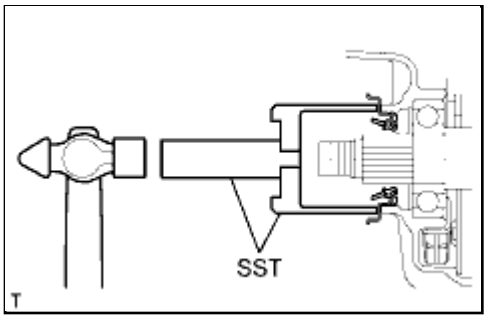
5. REMOVE TRANSFER CASE FRONT OIL SEAL

(a) Using SST, tap out the oil seal.

SST: 09308-00010

NOTICE:

Be careful not to damage the oil seal and case front contact surface.



6. INSTALL TRANSFER CASE FRONT 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 until its metal ring contacts the case.

SST: 09649-17010

SST: 09950-70010

09951-07100

7. INSTALL FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO

8. INSTALL FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

9. INSTALL FRONT PROPELLER SHAFT ASSEMBLY

(a) Install the front propeller shaft INFO .

10. ADD TRANSFER OIL INFO

11. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000025K8006X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER CASE FRONT OIL SEAL: REPLACEMENT (2010 4Runner)		

REPLACEMENT

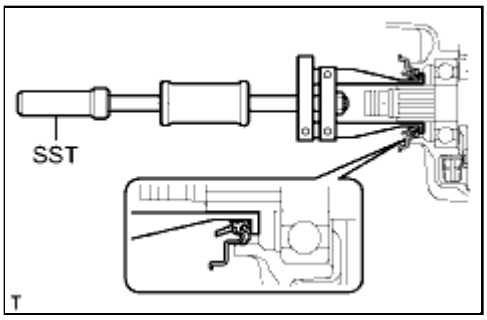
1. DRAIN TRANSFER OIL INFO

2. REMOVE FRONT PROPELLER SHAFT ASSEMBLY

(a) Remove the front propeller shaft INFO .

3. REMOVE FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

4. REMOVE FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO



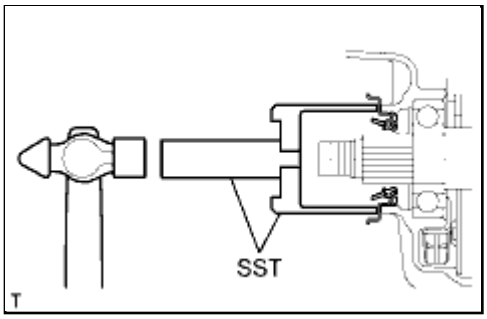
5. REMOVE TRANSFER CASE FRONT OIL SEAL

(a) Using SST, tap out the oil seal.

SST: 09308-00010

NOTICE:

Be careful not to damage the oil seal and front case contact surface.



6. INSTALL TRANSFER CASE FRONT 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 until its metal ring contacts the case.

SST: 09649-17010

SST: 09950-70010

09951-07100

7. INSTALL FRONT TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO

8. INSTALL FRONT OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

9. INSTALL FRONT PROPELLER SHAFT ASSEMBLY

(a) Install the front propeller shaft INFO .

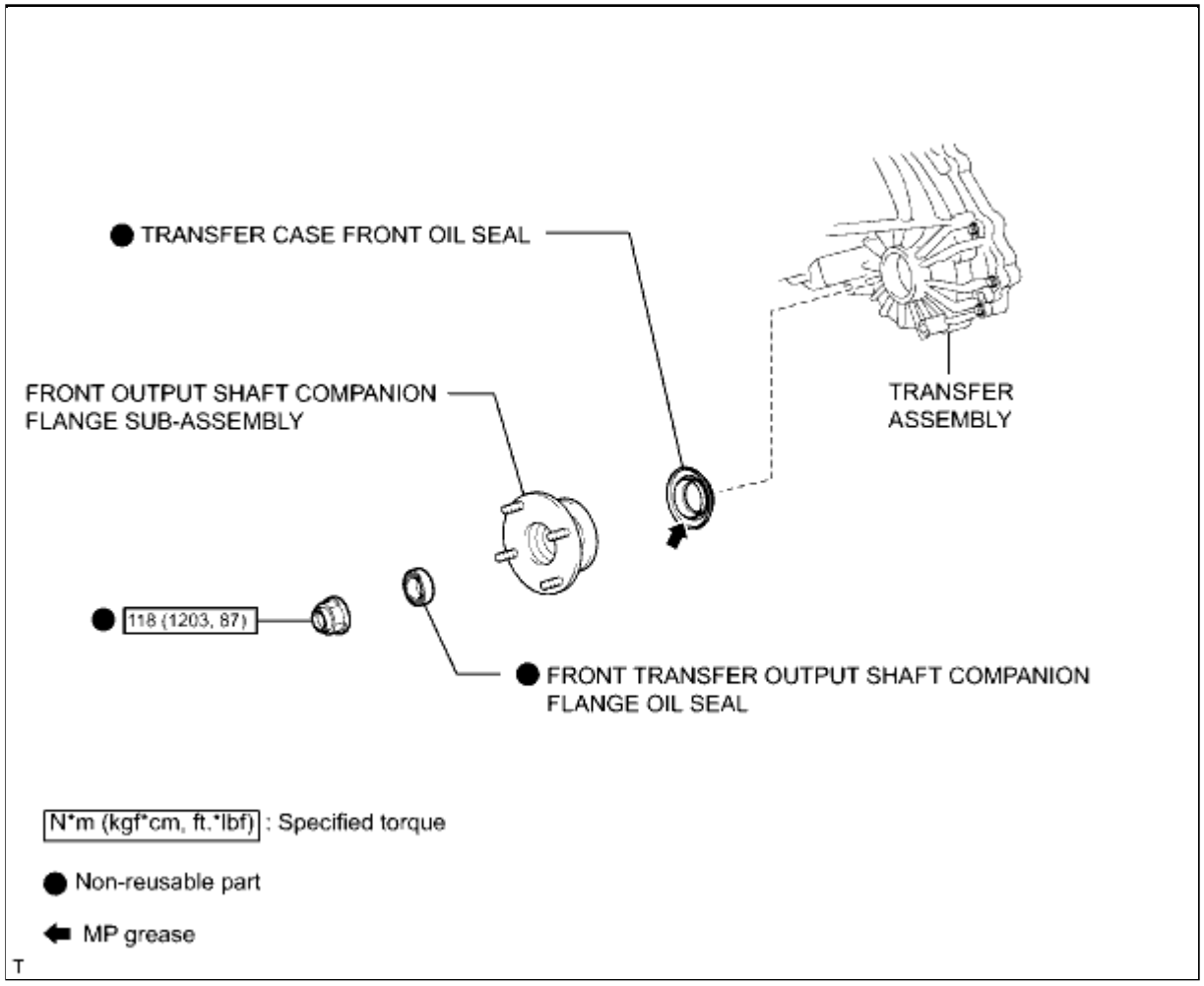
10. ADD TRANSFER OIL INFO

11. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LN00NX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER CASE FRONT OIL SEAL: COMPONENTS (2010 4Runner)		

COMPONENTS

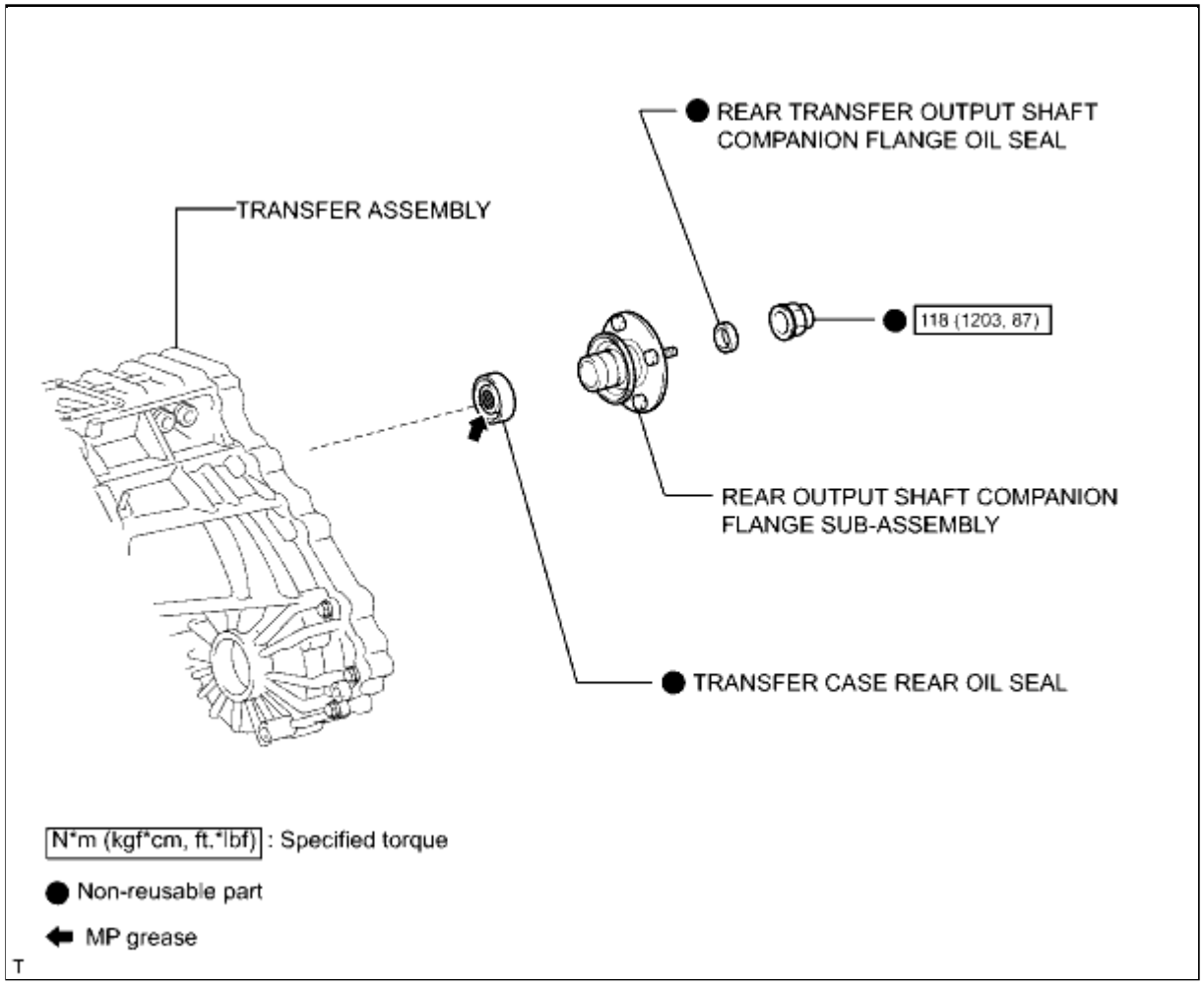
ILLUSTRATION



Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LQ00MX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER CASE REAR OIL SEAL: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000026FK005X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER CASE REAR OIL SEAL: REPLACEMENT (2010 4Runner)		

REPLACEMENT

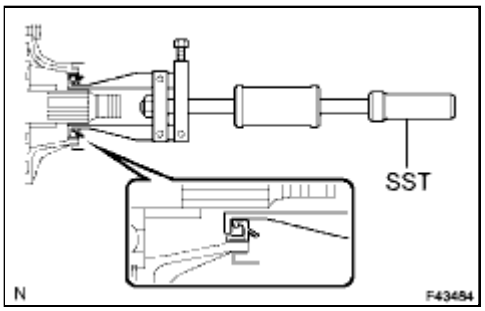
1. DRAIN TRANSFER OIL INFO

2. REMOVE REAR PROPELLER SHAFT ASSEMBLY

(a) Remove the rear propeller shaft INFO .

3. REMOVE REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

4. REMOVE REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO



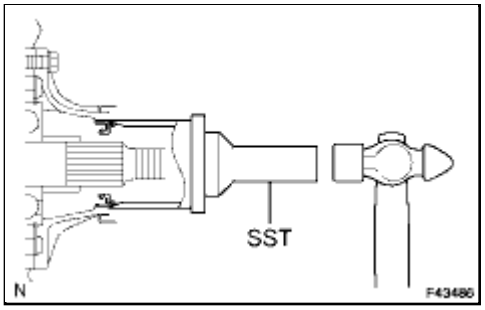
5. REMOVE TRANSFER CASE REAR OIL SEAL

(a) Using SST, tap out the oil seal.

SST: 09308-00010

NOTICE:

Be careful not to damage the oil seal and rear case contact surface.



6. INSTALL TRANSFER CASE REAR 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 until its surface is flush with the case upper surface.

SST: 09223-46011

SST: 09631-32020

7. INSTALL REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO

8. INSTALL REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

9. INSTALL PROPELLER SHAFT ASSEMBLY

(a) Install the rear propeller shaft INFO .

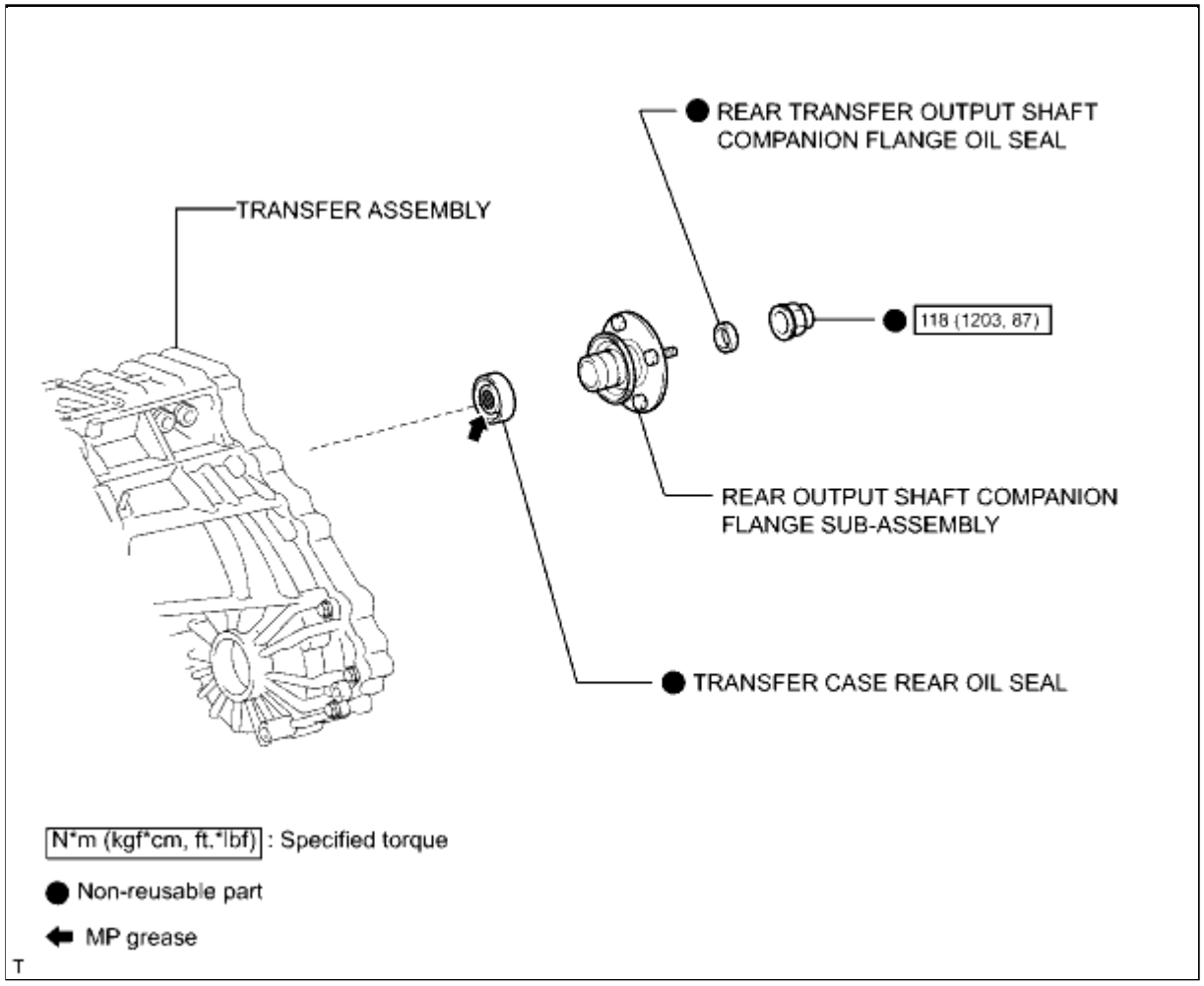
10. ADD TRANSFER OIL INFO

11. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000010LQ00NX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER CASE REAR OIL SEAL: COMPONENTS (2010 4Runner)		

COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000026FK006X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER CASE REAR OIL SEAL: REPLACEMENT (2010 4Runner)		

REPLACEMENT

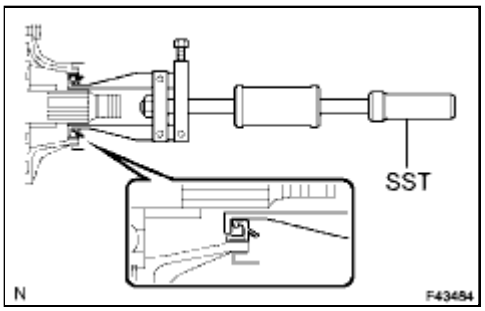
1. DRAIN TRANSFER OIL INFO

2. REMOVE REAR PROPELLER SHAFT ASSEMBLY

(a) Remove the rear propeller shaft INFO .

3. REMOVE REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

4. REMOVE REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO



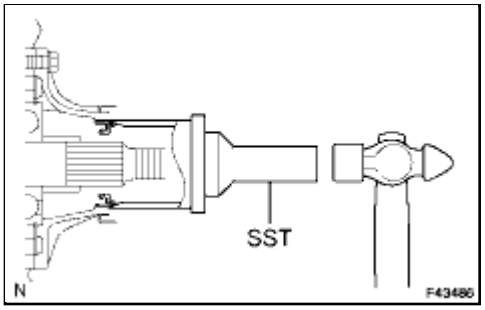
5. REMOVE TRANSFER CASE REAR OIL SEAL

(a) Using SST, tap out the oil seal.

SST: 09308-00010

NOTICE:

Be careful not to damage the oil seal and rear case contact surface.



6. INSTALL TRANSFER CASE REAR 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 until its surface is flush with the case upper surface.

SST: 09223-46011

SST: 09631-32020

7. INSTALL REAR TRANSFER OUTPUT SHAFT COMPANION FLANGE OIL SEAL INFO

8. INSTALL REAR OUTPUT SHAFT COMPANION FLANGE SUB-ASSEMBLY INFO

9. INSTALL PROPELLER SHAFT ASSEMBLY

(a) Install the rear propeller shaft INFO .

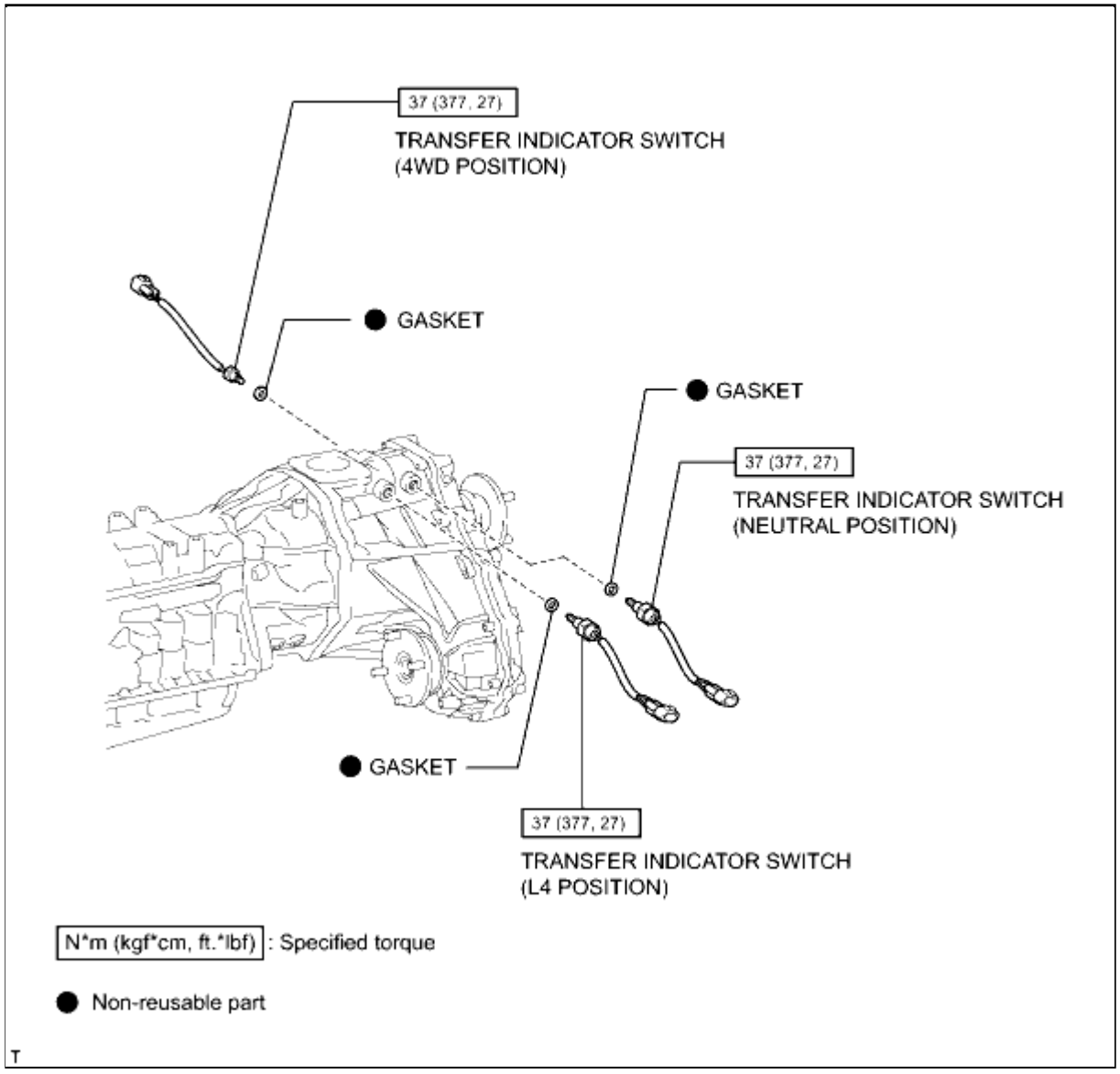
10. ADD TRANSFER OIL INFO

11. CHECK FOR TRANSFER OIL LEAK

Last Modified: 5-10-2010	6.4 K	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479B000X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER INDICATOR SWITCH: COMPONENTS (2010 4Runner)		

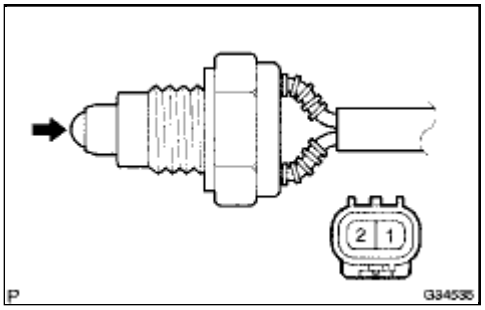
COMPONENTS

ILLUSTRATION



Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000015HR007X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER INDICATOR SWITCH: INSPECTION (2010 4Runner)		

INSPECTION



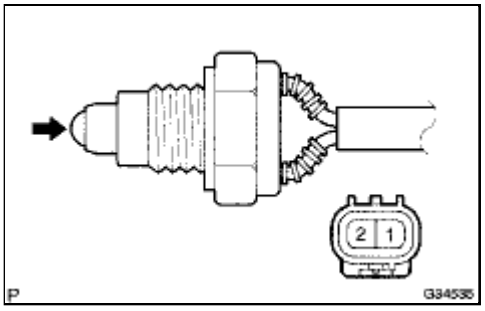
1. INSPECT TRANSFER INDICATOR SWITCH (4WD POSITION)

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Not pushed	100 kΩ or higher

If the resistance is not as specified, replace the switch.



2. INSPECT TRANSFER INDICATOR SWITCH (L4 POSITION)

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:

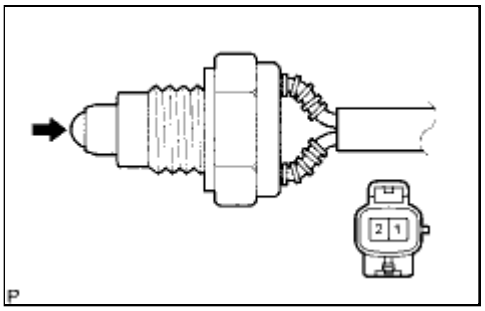
TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Not pushed	100 kΩ or higher

If the resistance is not as specified, replace the switch.

3. INSPECT TRANSFER INDICATOR SWITCH (NEUTRAL POSITION)

(a) Measure the resistance according to the value(s) in the table below.

Standard Resistance:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
1 - 2	Pushed	Below 1 Ω
1 - 2	Not pushed	100 kΩ or higher

If the resistance is not as specified, replace the switch.

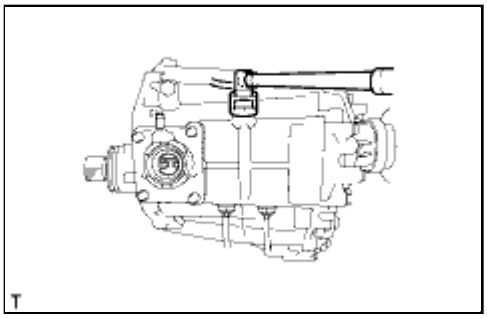
Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479C000X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER INDICATOR SWITCH: REMOVAL (2010 4Runner)		

REMOVAL

1. REMOVE AUTOMATIC TRANSMISSION WITH TRANSFER

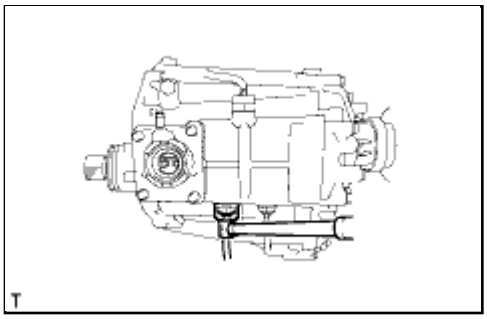
(a) Remove the automatic transmission INFO .

2. REMOVE TRANSFER INDICATOR SWITCH (4WD POSITION)



(a) Using SST, remove the indicator switch and gasket.

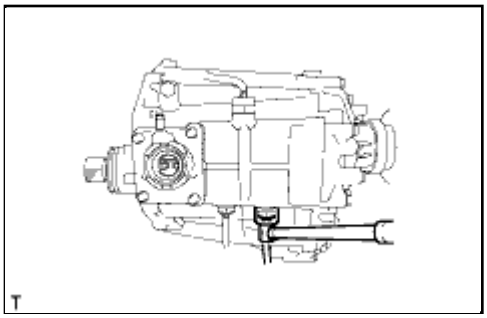
SST: 09817-16011



3. REMOVE TRANSFER INDICATOR SWITCH (L4 POSITION)

(a) Using SST, remove the indicator switch and gasket.

SST: 09817-16011



4. REMOVE TRANSFER INDICATOR SWITCH (NEUTRAL POSITION)

(a) Using SST, remove the indicator switch and gasket.

SST: 09817-16011

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479A000X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER INDICATOR SWITCH: INSTALLATION (2010 4Runner)		

INSTALLATION

1. INSTALL TRANSFER INDICATOR SWITCH (4WD POSITION)

(a) Using SST, install a new gasket and the indicator switch.

SST: 09817-16011

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

2. INSTALL TRANSFER INDICATOR SWITCH (L4 POSITION)

(a) Using SST, install a new gasket and the indicator switch.

SST: 09817-16011

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

3. INSTALL TRANSFER INDICATOR SWITCH (NEUTRAL POSITION)

(a) Using SST, install a new gasket and the indicator switch.

SST: 09817-16011

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

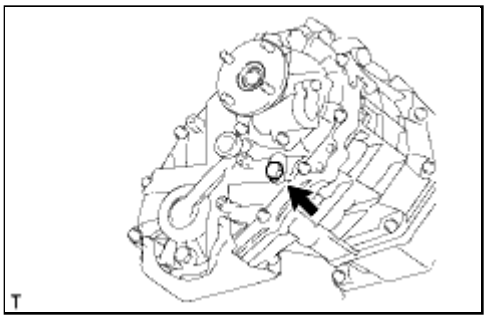
4. INSTALL AUTOMATIC TRANSMISSION WITH TRANSFER

(a) Install the automatic transmission INFO .

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000000308O00IX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER OIL: ON-VEHICLE INSPECTION (2010 4Runner)		

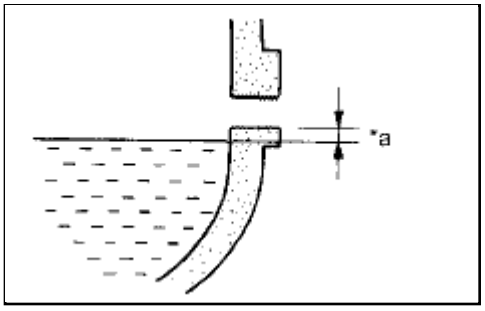
ON-VEHICLE INSPECTION

1. CHECK TRANSFER OIL



(a) Remove the filler plug and gasket.

(b) Check that the oil level is between 0 to 5.0 mm (0 to 0.196 in.) from the bottom lip of the filler plug hole.



Text in Illustration

*a	0 to 5 mm

If the result is not as specified, add transfer oil.

NOTICE:

Too much or too little oil will lead to transfer problems.

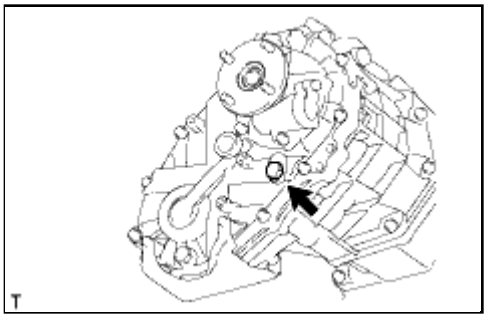
(c) When the oil level is too low, check for oil leaks.

(d) Install a new gasket to the filler plug and then tighten the plug.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

2. ADD TRANSFER OIL

(a) Remove the filler plug and gasket.



(b) Add oil so that the oil level is between 0 to 5.0 mm (0 to 0.196 in.) from the bottom lip of the filler plug hole.

NOTICE:

- Add oil slowly.
- Add oil a little at a time, waiting several minutes between each addition of oil.

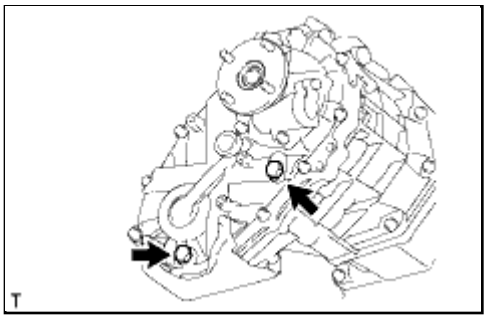
(c) Wait approximately 5 minutes and check that the oil level has not changed.

(d) Install a new gasket to the filler plug and then tighten the plug.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030S600IX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER OIL: REPLACEMENT (2010 4Runner)		

REPLACEMENT



1. DRAIN TRANSFER OIL

(a) Remove the filler plug and gasket.

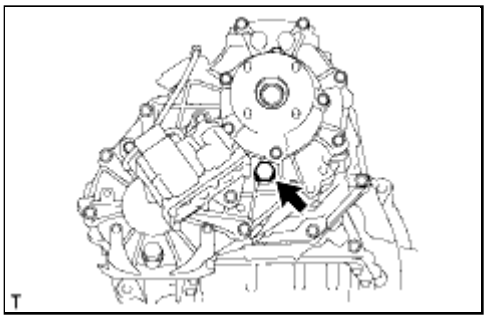
(b) Remove the drain plug and gasket, and drain the transfer oil.

2. ADD TRANSFER OIL INFO

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000000308O00HX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER OIL: ON-VEHICLE INSPECTION (2010 4Runner)		

ON-VEHICLE INSPECTION

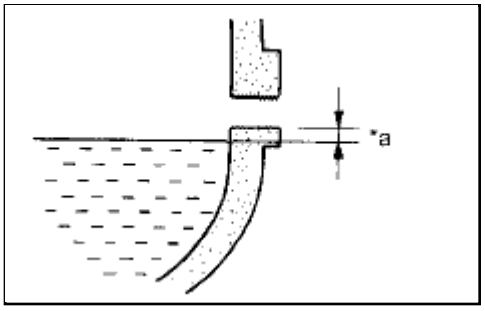
1. CHECK TRANSFER OIL



(a) Remove the filler plug and gasket.

(b) Check that the oil level is between 0 to 5.0 mm (0 to 0.196 in.) from the bottom lip of the filler plug hole.

If the result is not as specified, add transfer oil.



Text in Illustration

*a	0 to 5 mm

NOTICE:

Too much or too little oil will lead to transfer problems.

(c) When the oil level is too low, check for oil leaks.

(d) Install a new gasket to the filler plug and then tighten the plug.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

2. ADD TRANSFER OIL

(a) Remove the filler plug and gasket.

(b) Add oil so that the oil level is between 0 to 5.0 mm (0 to 0.196 in.) from the bottom lip of the filler plug hole.

NOTICE:

- Add oil slowly.
- Add oil a little at a time, waiting several minutes between each addition of oil.

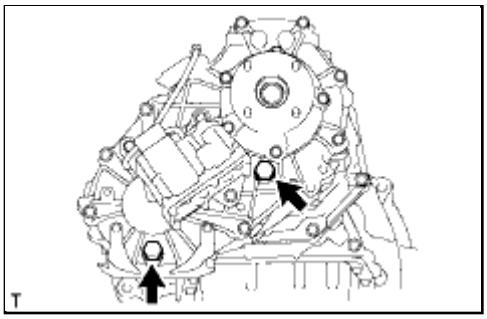
(c) Wait approximately 5 minutes and check that the oil level has not changed.

(d) Install a new gasket to the filler plug and then tighten the plug.

Torque: 37 N·m (377 kgf·cm, 27ft·lbf)

Last Modified: 5-10-2010	6.4 A	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030S600HX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER OIL: REPLACEMENT (2010 4Runner)		

REPLACEMENT



1. DRAIN TRANSFER OIL

(a) Remove the filler plug and gasket.

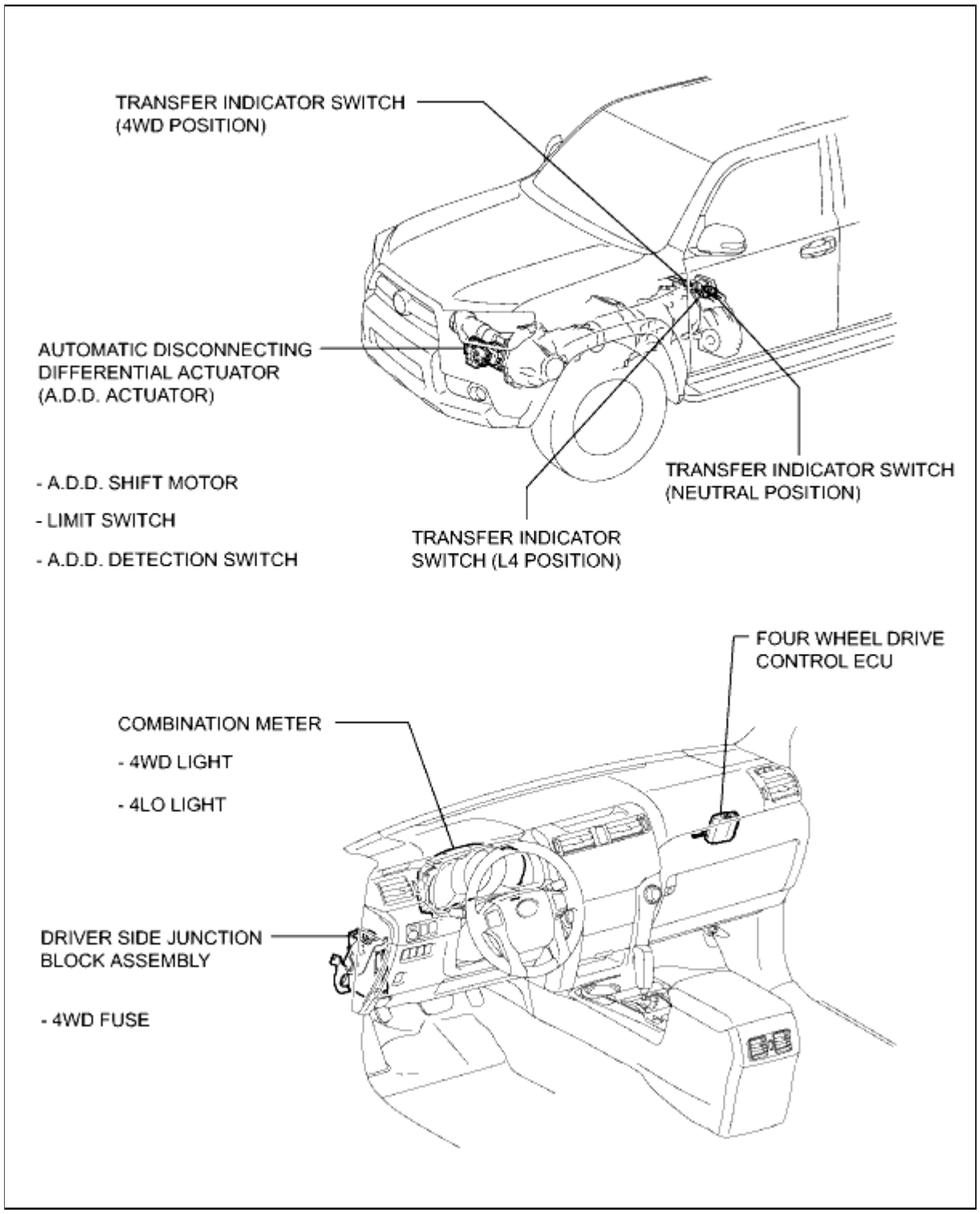
(b) Remove the drain plug and gasket, and drain the transfer oil.

2. ADD TRANSFER OIL INFO

Last Modified: 5-10-2010	6.4 R	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000112D00KX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PARTS LOCATION (2010 4Runner)		

PARTS LOCATION

ILLUSTRATION



Last Modified: 5-10-2010	6.4 L	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000112C00YX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PRECAUTION (2010 4Runner)		

PRECAUTION

1. IGNITION SWITCH EXPRESSION

HINT:

The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	Off	Off
Ignition Switch ON	ON	On (IG)
Ignition Switch ACC	ACC	On (ACC)
Engine Start	START	Start

2. PRECAUTION

(a) Before disassembling the transfer assembly, thoroughly clean it to remove any foreign matter. This will help prevent contamination during disassembly and reassembly.

(b) When removing the transfer cover or any other light alloy parts, do not pry them off with a screwdriver or other tool that may cause damage. Instead, tap the parts with a plastic-faced hammer.

(c) Always arrange removed parts in the order they were removed and protect them from foreign matter.

(d) Before installation of each part, thoroughly clean and dry it. Then apply transfer oil to it. Do not use alkaline chemicals to clean aluminum parts, rubber parts or ring gear set bolts. Also, do not use non-residue solvent or other cleaning oils to clean O-rings, oil seals or rubber parts.

(e) Coat sliding surfaces and rotating parts with hypoid gear oil.

(f) Do not fix a part directly in a vise. Place aluminum plates between the part and vise.

(g) Replace any damaged or deformed snap rings with new ones.

(h) Do not allow the case mating surfaces to be scratched. Scratches may lead to oil leakage.

(i) Using a razor blade and gasket scraper, remove old FIPG from the sealing surface.

(j) Clean all parts to remove excess FIPG completely.

(k) Clean the sealing surface with solvent so that no residue remains on the sealing surface.

(l) Apply FIPG in a continuous line of approximately 1.2 mm (0.0472 in.) in diameter along the sealing surface.

(m) Be sure to assemble parts within 10 minutes of FIPG application. Otherwise, the FIPG must be removed and reapplied.

(n) After sealing parts, do not allow oil to come into contact with the seal for at least 1 hour.

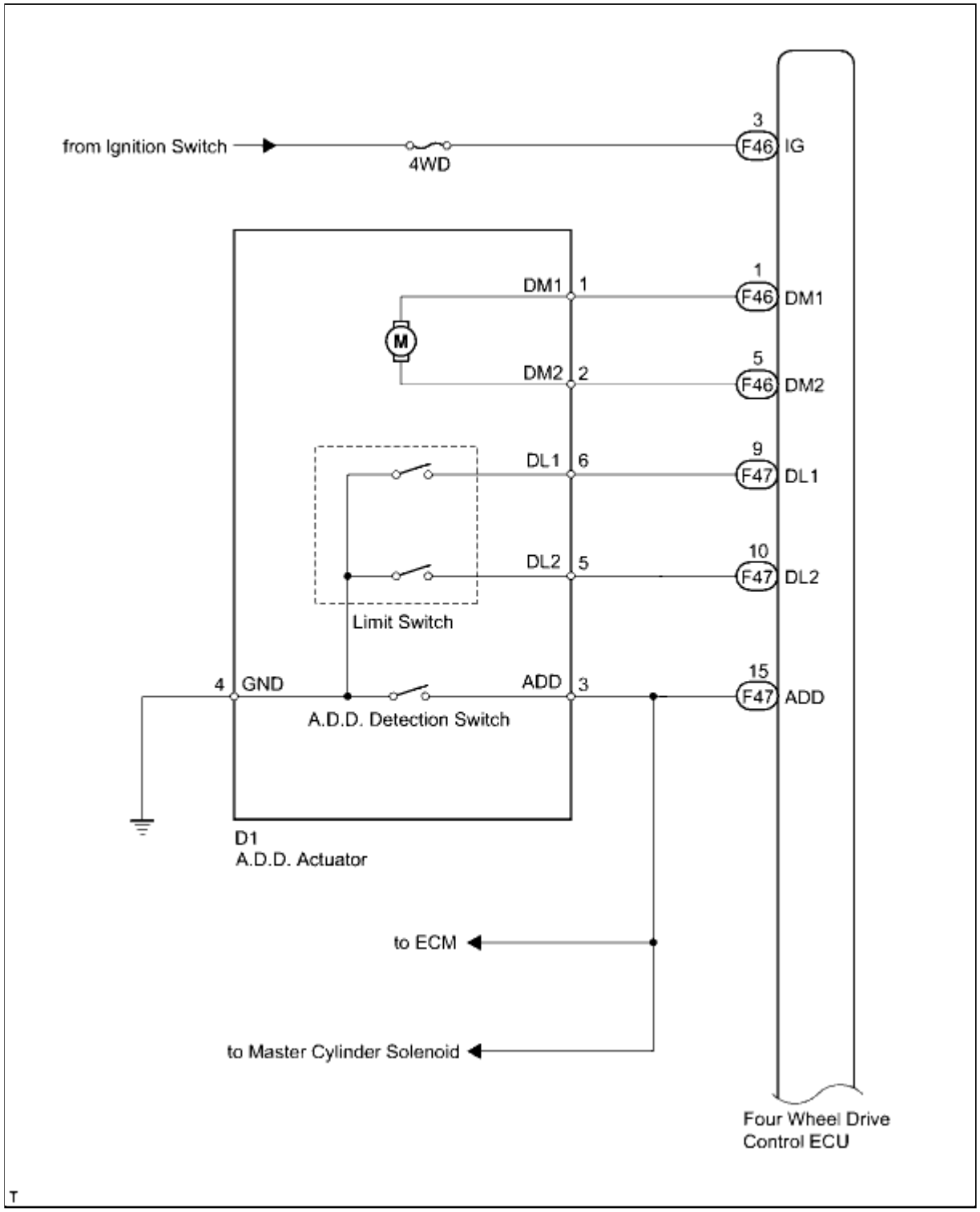
(o) Do not allow scratches on surfaces which contact oil seals or gaskets. Scratches may lead to oil

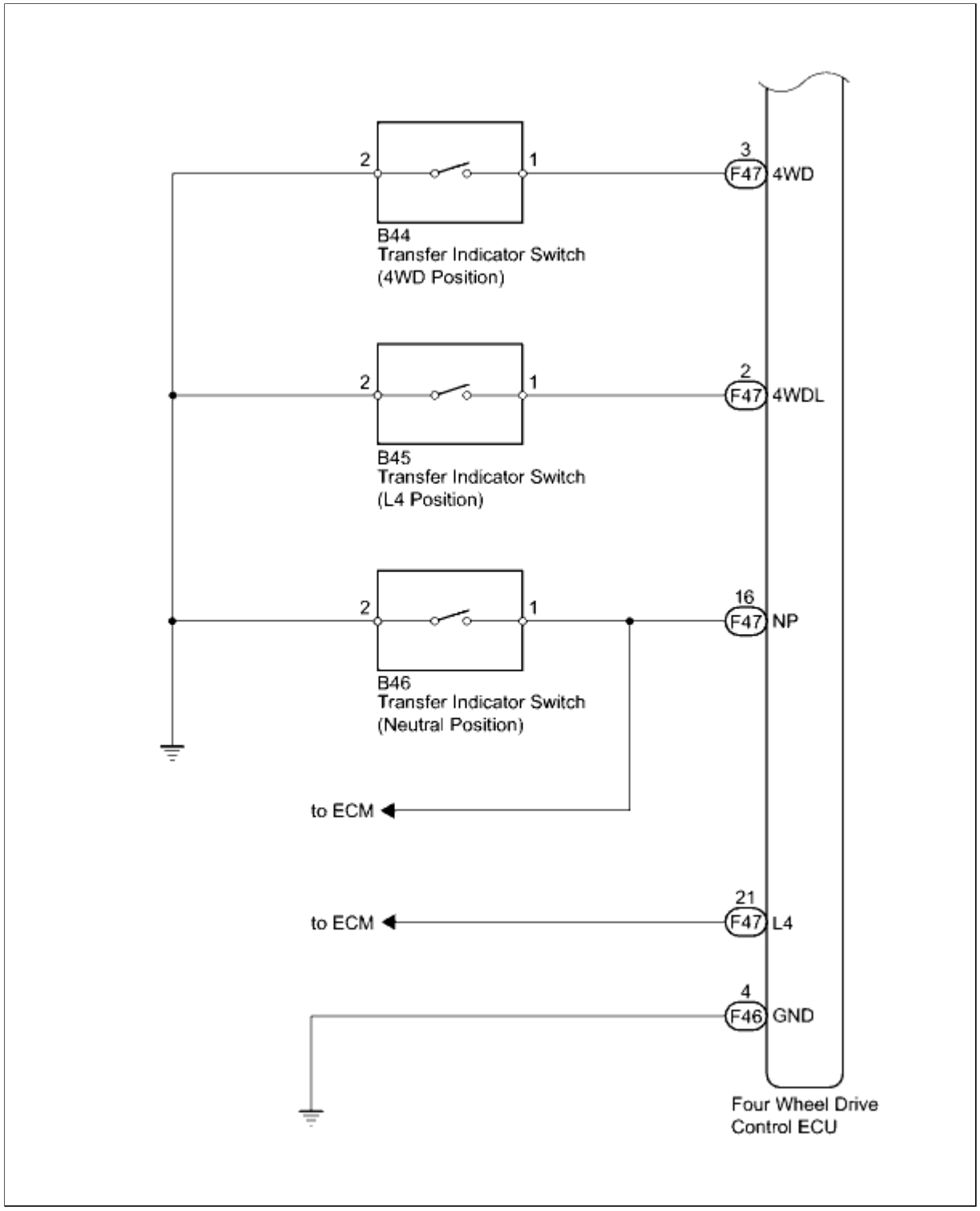
leakage.

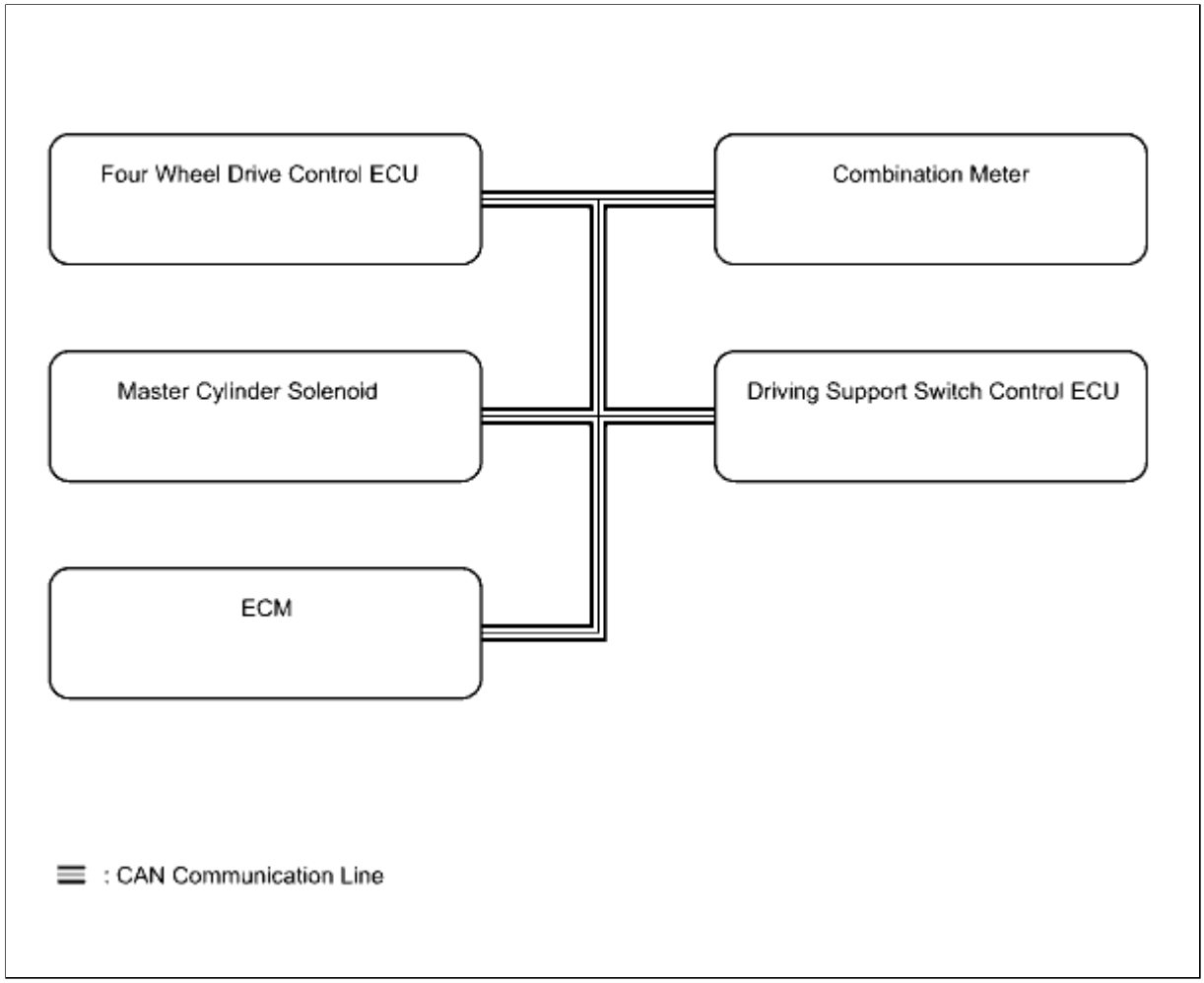
(p) When press-fitting an oil seal, be careful not to damage the lip of the oil seal or its periphery.

Last Modified: 5-10-2010	6.4 U	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000112F00JX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: SYSTEM DIAGRAM (2010 4Runner)		

SYSTEM DIAGRAM







Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000112G00JX
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: INSPECTION (2010 4Runner)		

INSPECTION

1. TRANSFER SYSTEM

NOTICE:

- To shift from H2 to H4, move the transfer shift lever while keeping the wheels facing straight ahead.
- To shift from H4 to L4, stop the vehicle, move the shift lever to N and then move the transfer shift lever.
- To shift from L4 to H4, stop the vehicle, move the shift lever to N and then move the transfer shift lever.

2. INSPECT INDICATOR LIGHT

(a) 4WD Indicator Light:

(1) Start the engine.

(2) Move the transfer shift lever from the H2 position to the H4, L4 or N position.

(3) Check that the 4WD indicator light illuminates.

OK:

4WD indicator light comes on or 4WD indicator light comes on after blinking.

If the result is not as specified, inspect the transfer indicator switch (4WD position) and four wheel drive control ECU. If the system is normal, there may be a malfunction in the CAN communication system or combination meter. In this case, first check the CAN communication system INFO. Then check the combination meter INFO.

(b) 4LO Indicator Light:

(1) Turn the ignition switch to ON.

(2) Move the shift lever to N (vehicle is stopped).

(3) Move the transfer shift lever from the H2, H4 or N position to the L4 position.

(4) Check the 4LO indicator light.

OK:

4LO indicator light comes on or 4LO indicator light comes on after blinking.

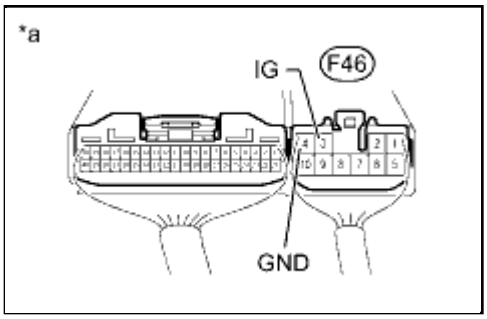
If the result is not as specified, inspect the transfer indicator switch (L4 position) and four wheel drive control ECU. If the system is normal, there may be a malfunction in the CAN communication system or combination meter. In this case, first check the CAN communication system INFO. Then check the combination meter INFO.

3. INSPECT FOUR WHEEL DRIVE CONTROL ECU (POWER SUPPLY)

(a) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F46-3 (IG) - Body ground	Ignition switch ON	11 to 14 V



Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, inspect the fuse, harness or connector. If the harness or connector is malfunctioning, repair or replace the harness or connector. If the harness or connector is normal, replace the four wheel drive control ECU INFO .

(b) Measure the resistance according to the value(s) in the table below.

Standard resistance:

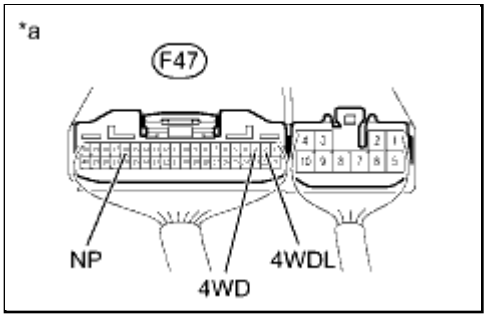
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
A29-4 (GND) - Body ground	Always	Below 1 Ω

If the result is not as specified, repair or replace the harness, fuse or connector.

4. INSPECT FOUR WHEEL DRIVE CONTROL ECU (TRANSFER INDICATOR SWITCH)

(a) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F47-2 (4WDL) - Body ground	Ignition switch ON Transfer shift lever position H2 or H4	10.5 to 14 V
	Ignition switch ON Transfer shift lever position L4 or N	Below 1.5 V

F47-3 (4WD) - Body ground	Ignition switch ON Transfer shift lever position H2	10.5 to 14 V
	Ignition switch ON Transfer shift lever position H4, L4 or N	Below 1.5 V
F47-16 (NP) - Body ground	Ignition switch ON Transfer shift lever position N	Below 1.5 V
	Ignition switch ON Transfer shift lever position not N	9.5 to 14 V

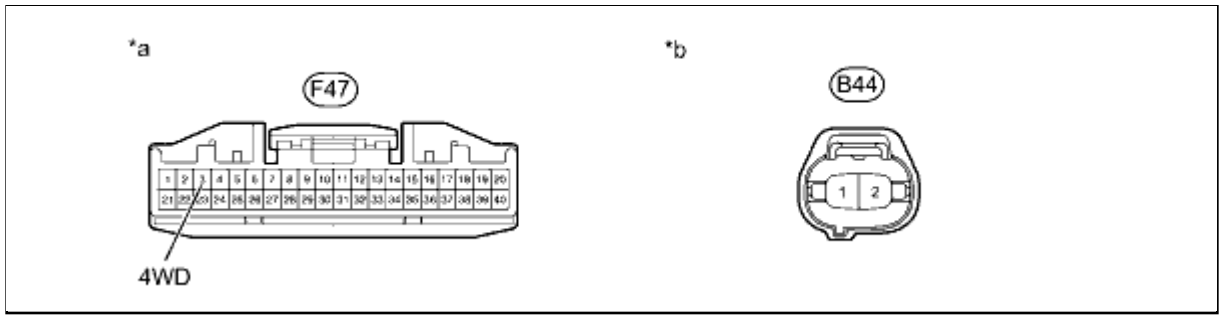
Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, check the power supply. If the power supply is normal, inspect the transfer indicator switch INFO .

5. CHECK HARNESS AND CONNECTOR (FOUR WHEEL DRIVE CONTROL ECU - TRANSFER INDICATOR SWITCH)

(a) Check the transfer indicator switch (4WD position).



(1) Disconnect the F47 ECU connector.

(2) Disconnect the B44 switch connector.

(3) Measure the resistance according to the value(s) in the table below.

Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION

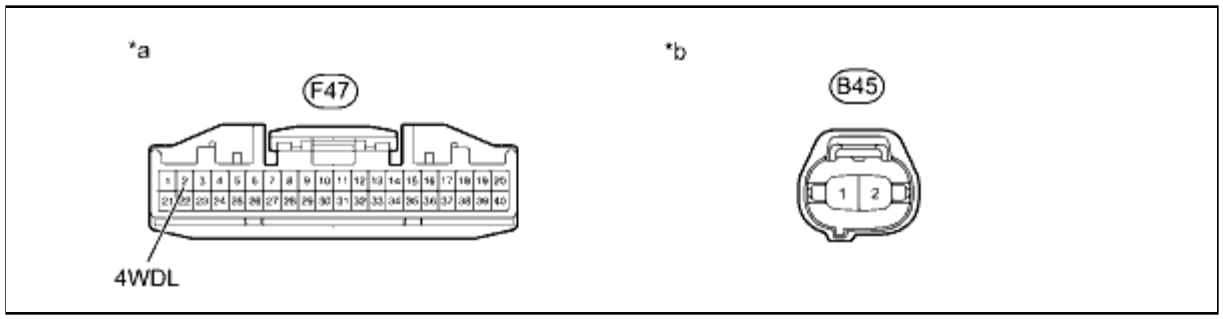
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-3 (4WD) - B44-1	Always	Below 1 Ω
F47-3 (4WD) - Body ground	Always	100 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to Transfer Indicator Switch)

If the result is not as specified, repair or replace the harness or connector.

(b) Check the transfer indicator switch (L4 position).



(1) Disconnect the F47 ECU connector.

(2) Disconnect the B45 switch connector.

(3) Measure the resistance according to the value(s) in the table below.

Standard resistance:

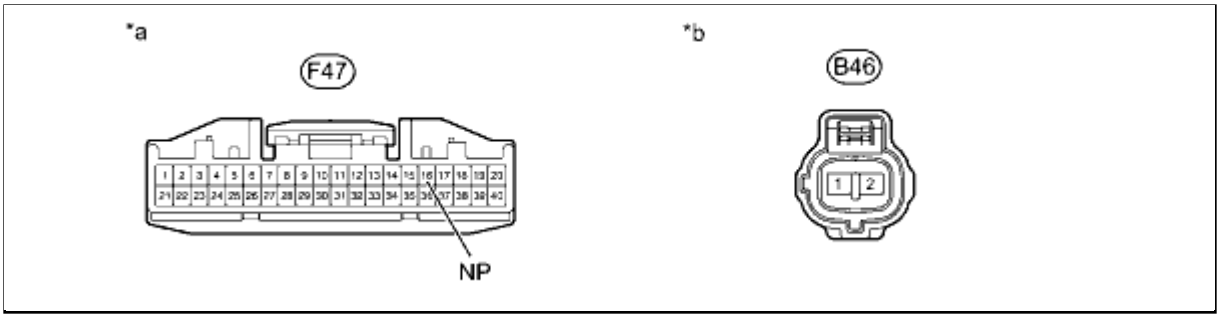
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-2 (4WDL) - B45-1	Always	Below 1 Ω
F47-2 (4WDL) - Body ground	Always	100 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to Transfer Indicator Switch)

If the result is not as specified, repair or replace the harness or connector.

(c) Check the transfer indicator switch (neutral position).



(1) Disconnect the F47 ECU connector.

(2) Disconnect the B46 switch connector.

(3) Measure the resistance according to the value(s) in the table below.

Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-16 (NP) - B45-1	Always	Below 1 Ω
F47-16 (NP) - Body ground	Always	100 kΩ or higher

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to Transfer Indicator Switch)

If the result is not as specified, repair or replace the harness or connector.

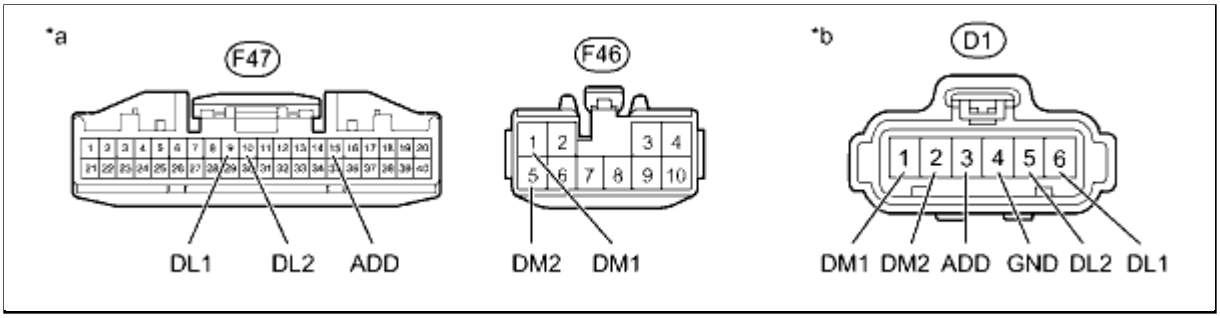
6. INSPECT A.D.D. ACTUATOR

(a) Check the harness and connector (ECU - A.D.D. actuator).

(1) Disconnect the F46 and F47 ECU connectors.

(2) Disconnect the D1 actuator connector.

(3) Measure the resistance according to the value(s) in the table below.



Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-9 (DL1) - D1-6 (DL1)	Always	Below 1 Ω

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-9 (DL1) - Body ground	Always	100 kΩ or higher
F47-10 (DL2) - D1-5 (DL2)	Always	Below 1 Ω
F47-10 (DL2) - Body ground	Always	100 kΩ or higher
F47-15 (ADD) - D1-3 (ADD)	Always	Below 1 Ω
F47-15 (ADD) - Body ground	Always	100 kΩ or higher
F46-1 (DM1) - D1-1 (DM1)	Always	Below 1 Ω
F46-1 (DM1) - Body ground	Always	100 kΩ or higher
F46-5 (DM2) - D1-2 (DM2)	Always	Below 1 Ω
F46-5 (DM2) - Body ground	Always	100 kΩ or higher
D1-4 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to A.D.D. Actuator)

If the result is not as specified, repair or replace the harness or connector. If the harness or connector is normal, check the ECU output voltage.

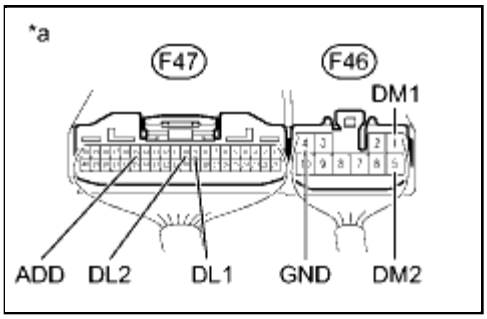
(b) Check the four wheel drive control ECU (A.D.D. actuator).

(1) Connect the F46 and F47 ECU connectors.

(2) Connect the D1 actuator connector.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F46-1 (DM1) - F46-4 (GND)	Ignition switch ON Transfer shift lever position H2 → H4, L4 or N (During operation of A.D.D. actuator motor from FREE to LOCK)	10 to 14 V
	Ignition switch ON Transfer shift lever position H2 → H4, L4 or N (A.D.D. actuator motor stopped)	Below 1.5 V
	Ignition switch ON Transfer shift lever	

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, determine if the malfunction is on the ECU side or the actuator side by disconnecting the connector of the A.D.D. actuator, and then checking the ECU output voltage.

(c) Check the four wheel drive control ECU.

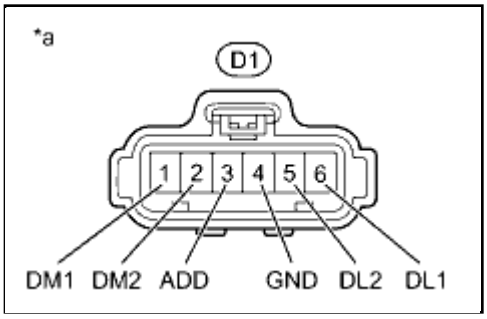
(1) Connect the F46 and F47 ECU connectors.

(2) Disconnect the D1 actuator connector.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
D1-3 (ADD) - D1-4 (GND)	Ignition switch ON	9.5 to 14 V
D1-5 (DL2) - D1-4 (GND)	Ignition switch ON	10.5 to 14 V
D1-6 (DL1) - D1-4 (GND)	Ignition switch ON	10.5 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to A.D.D. Actuator)

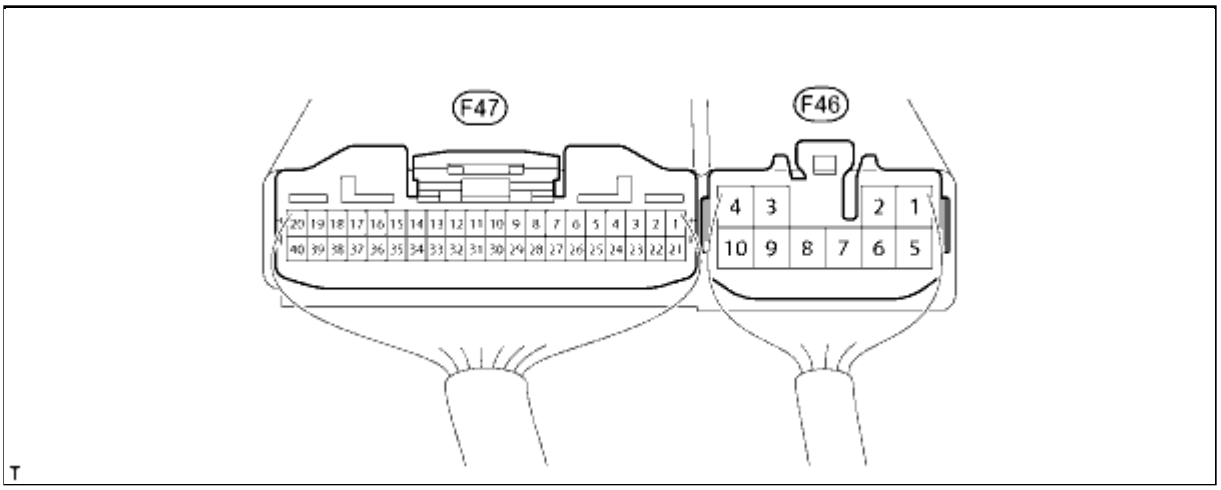
If the result is not as specified, replace the four wheel drive control ECU INFO . If the voltage is normal, inspect the A.D.D. actuator, because the voltage applied to the motor cannot be measured.

(d) Inspect the A.D.D. actuator INFO .

Last Modified: 5-10-2010	6.4 U	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030AB008X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: TERMINALS OF ECU (2010 4Runner)		

TERMINALS OF ECU

1. CHECK 4WD CONTROL ECU



(a) Measure the voltage and resistance according to the value(s) in the table below.

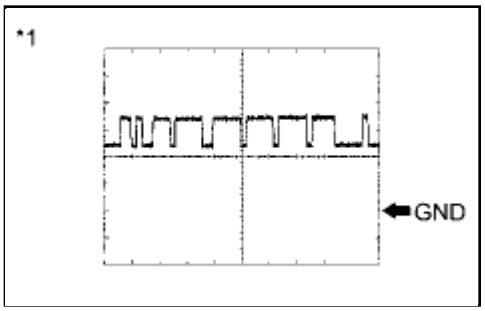
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F47-2 (4WDL) - F46-4 (GND)	L - W-B	Transfer indicator switch (L4 position)	Ignition switch ON Transfer shift lever position H2 or H4	10.5 to 14 V
			Ignition switch ON Transfer shift lever position L4 or N	Below 1.5 V
F47-3 (4WD) - F46-4 (GND)	B - W-B	Transfer indicator switch (4WD position)	Ignition switch ON Transfer shift lever position H2	10.5 to 14 V
			Ignition switch ON Transfer shift lever position H4, L4 or N	Below 1.5 V
F47-9 (DL1) - F46-4 (GND)	LG - W-B	A.D.D. actuator limit switch	Ignition switch ON Transfer shift lever position H2	Below 1.5 V
			Ignition switch ON Transfer shift lever position H4, L4 or N	10.5 to 14 V
F47-10 (DL2) - F46-4 (GND)	GR - W-B	A.D.D. actuator limit switch	Ignition switch ON Transfer shift lever position H2	10.5 to 14 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			Ignition switch ON Transfer shift lever position H4, L4 or N	Below 1.5 V
F47-15 (ADD) - F46-4 (GND)	W - W-B	A.D.D. detection switch	Ignition switch ON Transfer shift lever position H2	9.5 to 14 V
			Ignition switch ON Transfer shift lever position H4, L4 or N	Below 1.5 V
F47-16 (NP) - F46-4 (GND)	R - W-B	Transfer indicator switch (Neutral position)	Ignition switch ON Transfer shift lever position N	Below 1.5 V
			Ignition switch ON Transfer shift lever position not N	10.5 to 14 V
F47-19 (CANH) - F46-4 (GND)	G - W-B	CAN communication line	Ignition switch ON	Pulse generation (See waveform 1)
F47-20 (CANL) - F46-4 (GND)	W - W-B	CAN communication line	Ignition switch ON	Pulse generation (See waveform 2)
F47-21 (L4) - F46-4 (GND)	R - W-B	Transfer L4 signal	Ignition switch ON Transfer shift lever position H2 or H4	10 to 14 V
			Ignition switch ON Transfer shift lever position L4 or N	Below 1.5 V
F46-1 (DM1) - F46-4 (GND)	B - W-B	A.D.D. actuator motor	Ignition switch ON Transfer shift lever position H2 → H4, L4 or N (During operation of A.D.D. actuator motor from FREE to LOCK)	10 to 14 V
			Ignition switch ON Transfer shift lever position H2 → H4, L4 or N (A.D.D. actuator motor stopped)	Below 1.5 V
F46-3 (IG) - F46-4 (GND)	R - W-B	IG power	Ignition switch ON	11 to 14 V
F46-4 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F46-5 (DM2) - F46-4 (GND)	Y - W-B	A.D.D. actuator motor	Ignition switch ON Transfer shift lever position H4, L4 or N → H2 (During operation of A.D.D. actuator motor from LOCK to FREE)	10 to 14 V
			Ignition switch ON Transfer shift lever position H4, L4 or N → H2 (A.D.D. actuator motor stopped)	Below 1.5 V

(b) Using an oscilloscope, check waveform 1.

Waveform 1 (Reference)



ITEM	CONTENT
Terminal No. (Symbols)	F47-19 (CANH) - F46-4 (GND)
Tool setting	1 V/DIV., 10 µsec./DIV.
Condition	Engine stopped and ignition switch ON

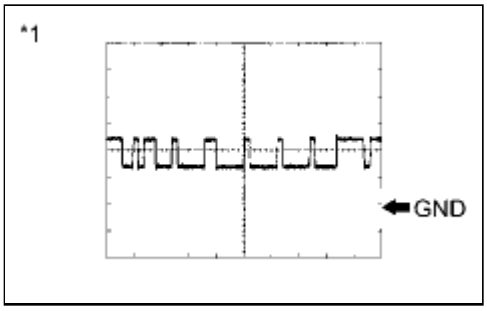
Text in Illustration

*1	Waveform 1

HINT:

The waveform varies depending on the CAN communication signal.

(c) Using an oscilloscope, check waveform 2.



Waveform 2 (Reference)

ITEM	CONTENT
Terminal No. (Symbols)	F47-20 (CANL) - F46-4 (GND)
Tool setting	1 V/DIV., 10 µsec./DIV.

Condition	Engine stopped and ignition switch ON

Text in Illustration

*1	Waveform 2

HINT:

The waveform varies depending on the CAN communication signal.

Last Modified: 5-10-2010	6.4 T	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000011JJ011X
Title: VF2A TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PROBLEM SYMPTOMS TABLE (2010 4Runner)		

PROBLEM SYMPTOMS TABLE

HINT:

- 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.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Transfer System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Noise	Oil (Level low)	INFO
	Oil (Wrong)	INFO
	Transfer faulty	INFO
Oil leakage	Oil (Level too high)	INFO
	Gasket (Damaged)	INFO
	Oil seal (Worn or damaged)	INFO
	O-ring (Worn or damaged)	INFO
Hard to shift or does not shift	Shifting key spring (Damaged)	INFO
	Synchronizer spring (Worn or damaged)	INFO
4WD indicator light does not come on	Harness or connector	INFO
	Combination meter	INFO
	CAN communication system	INFO
	Four wheel drive control ECU	INFO
	Transfer indicator switch (for 4WD position)	INFO
4WD indicator light remains on	Four wheel drive control ECU	INFO
	Transfer indicator switch (for 4WD position)	INFO
	Combination meter	INFO
Shift from 2WD (H2) to 4WD (H4) is	Transfer indicator switch (for 4WD position)	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
impossible	A.D.D. actuator	INFO
	Harness or connector	INFO
	ECM	INFO
	Four wheel drive control ECU	INFO
Shift from 4WD (H4) to 2WD (H2) is impossible	Transfer indicator switch (for 4WD position)	INFO
	A.D.D. actuator	INFO
	Harness or connector	INFO
	ECM	INFO
	Four wheel drive control ECU	INFO
Shift from 4WD (H4) to 4WD (L4) is impossible	Transfer indicator switch (for 4WD position)	INFO
	Transfer indicator switch (for L4 position)	INFO
	Transfer indicator switch (for neutral position)	INFO
	Harness or connector	INFO
	ECM	INFO
Shift from 4WD (L4) to 4WD (H4) is impossible	Transfer indicator switch (for 4WD position)	INFO
	Transfer indicator switch (for L4 position)	INFO
	Transfer indicator switch (for neutral position)	INFO
	Harness or connector	INFO
	ECM	INFO

Last Modified: 5-10-2010	6.4 G	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030AI007X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: INSPECTION (2010 4Runner)		

INSPECTION

1. INSPECT INDICATOR LIGHT

(a) 4LO Indicator Light:

(1) Turn the ignition switch to ON.

(2) Move the shift lever to N (vehicle is stopped).

(3) Change the transfer position switch from H4L to L4L.

(4) Check the 4LO indicator light.

OK:

4LO indicator light comes on or 4LO indicator light comes on after blinking.

If the result is not as specified, inspect the switch, four wheel drive control ECU and transfer shift actuator assembly. If the system is normal, there may be a malfunction in the CAN communication system or combination meter. In this case, first check the CAN communication system INFO. Then check the combination meter INFO.

(b) Center Differential Lock Indicator Light:

(1) Turn the ignition switch to ON.

(2) Change the transfer position switch from H4F to H4L.

(3) Check the center differential lock indicator light.

OK:

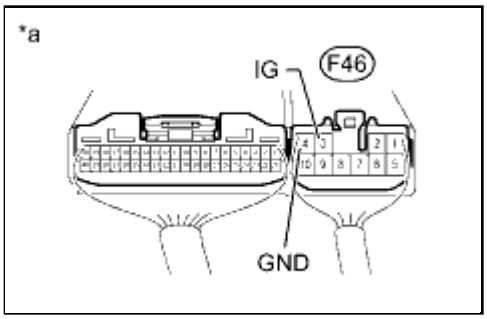
Center differential lock indicator light comes on or Center differential lock indicator light comes on after blinking

If the result is not as specified, inspect the switches, four wheel drive control ECU, transfer and shift actuator. If the system is normal, there may be a malfunction in the CAN communication system or combination meter. In this case, first check the CAN communication system INFO. Then check the combination meter INFO.

2. INSPECT FOUR WHEEL DRIVE CONTROL ECU (POWER SUPPLY)

(a) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F46-3 (IG) - Body ground	Ignition switch ON	11 to 14 V

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, inspect the harness, fuse or connector. If the harness or connector is malfunctioning, repair or replace the harness or connector. If the harness or connector is normal, replace the four wheel drive control ECU INFO .

(b) Measure the resistance according to the value(s) in the table below.

Standard resistance:

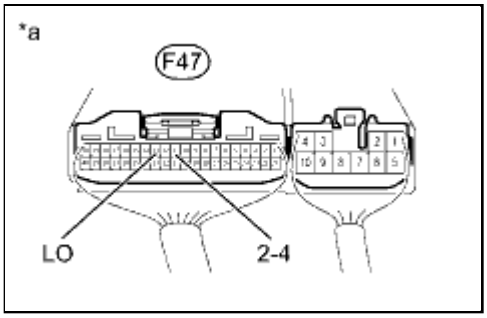
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F46-4 (GND) - Body ground	Always	Below 1 Ω

If the result is not as specified, repair or replace the harness or connector.

3. INSPECT FOUR WHEEL DRIVE CONTROL ECU (TRANSFER POSITION SWITCH)

(a) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F47-11 (2-4) - Body ground	Ignition switch ON Transfer position switch H4F	Below 1.5 V
	Ignition switch ON Transfer position switch H4L	Below 1.5 V
	Ignition switch ON Transfer position switch L4L	10.5 to 14 V
F47-13 (LO) - Body ground	Ignition switch ON Transfer position switch H4F	10.5 to 14 V
	Ignition switch ON Transfer position switch H4L	Below 1.5 V

	Ignition switch ON Transfer position switch L4L	Below 1.5 V

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, check the power supply. If the power supply is normal, inspect the transfer position switch INFO.

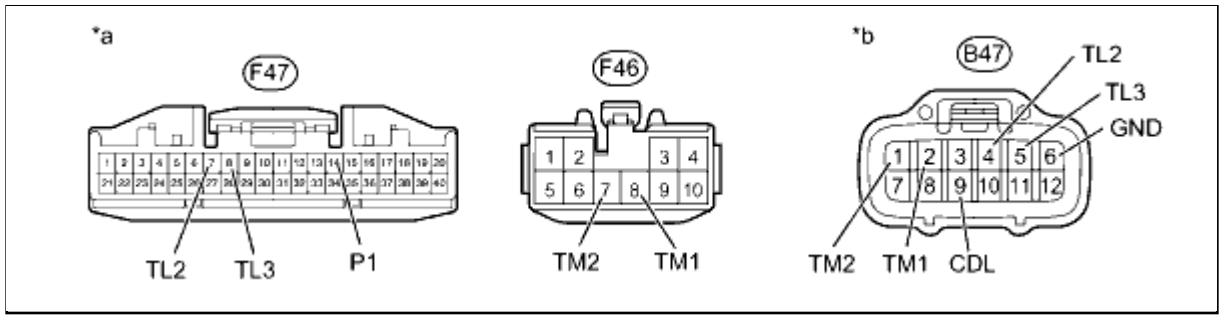
4. INSPECT MULTI MODE TRANSFER SHIFT ACTUATOR

(a) Check the harness and connector between four wheel drive control ECU and transfer shift actuator assembly (multi mode transfer shift actuator).

(1) Disconnect the B47 actuator connector.

(2) Disconnect the F47 and F46 ECU connectors.

(3) Measure the resistance according to the value(s) in the table below.



Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-7 (TL2) - B47-4 (TL2)	Always	Below 1 Ω
F47-7 (TL2) - Body ground	Always	100 kΩ or higher
F47-8 (TL3) - B47-5 (TL3)	Always	Below 1 Ω
F47-8 (TL3) - Body ground	Always	100 kΩ or higher
F47-14 (P1) - B47-9 (CDL)	Always	Below 1 Ω
F47-14 (P1) - Body ground	Always	100 kΩ or higher
F46-7 (TM2) - B47-1 (TM2)	Always	Below 1 Ω

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F46-7 (TM2) - Body ground	Always	100 kΩ or higher
F46-8 (TM1) - B47-2 (TM1)	Always	Below 1 Ω
F46-8 (TM1) - Body ground	Always	100 kΩ or higher
B47-6 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to Transfer Shift Actuator Assembly)

If the result is not as specified, repair or replace the harness or connector. If the harness or connector is normal, check the ECU output voltage.

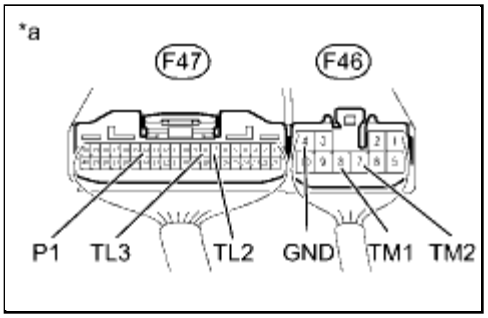
(b) Check the four wheel drive control ECU (multi mode transfer shift actuator circuit).

(1) Connect the F47 and F46 ECU connectors.

(2) Connect the B47 actuator connector.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:



TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
F46-8 (TM1) - F46-4 (GND)	Ignition switch ON Transfer position switch H4F → H4L (During operation of multi mode transfer shift actuator motor from FREE to LOCK)	10 to 14 V
	Ignition switch ON Transfer position switch H4F → H4L (Multi mode transfer shift actuator motor stopped)	Below 1.5 V
F46-7 (TM2) - F46-4 (GND)	Ignition switch ON Transfer position switch H4L → H4F (During operation of multi mode transfer shift actuator motor from LOCK to FREE)	10 to 14 V

	Ignition switch ON Transfer position switch H4L → H4F (Multi mode transfer shift actuator motor stopped)	Below 1.5 V
F47-7 (TL2) - F46-4 (GND)	Ignition switch ON Transfer position switch H4L or L4L	Below 1.5 V
	Ignition switch ON Transfer position switch H4F	10.5 to 14 V
F47-8 (TL3) - F46-4 (GND)	Ignition switch ON Transfer position switch H4L or L4L	10.5 to 14 V
	Ignition switch ON Transfer position switch H4F	Below 1.5 V
F47-14 (P1) - F46-4 (GND)	Ignition switch ON Transfer position switch H4F	9.5 to 14 V
	Ignition switch ON Transfer position switch H4L or L4L	Below 1.5 V

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, determine if a malfunction is on the ECU side or actuator side by disconnecting the connector of the transfer shift actuator, and then check the ECU output voltage.

(c) Check the four wheel drive control ECU output voltage.

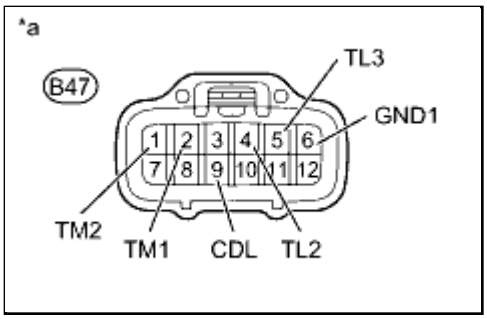
(1) Disconnect the B47 actuator connector.

(2) Connect the F47 and F46 ECU connectors.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
B47-9 (CDL) - B47-6 (GND1)	Ignition switch ON	9.5 to 14 V
B47-4 (TL2) - B47-6 (GND1)	Ignition switch ON	10.5 to 14 V
B47-5 (TL3) - B47-6 (GND1)	Ignition switch ON	10.5 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Transfer Shift Actuator Assembly)

If the result is not as specified, replace the four wheel drive control ECU . If the voltage is normal, inspect the multi mode transfer shift actuator, because the voltage applied to the motor cannot be measured.

(d) Inspect the multi mode transfer shift actuator (transfer shift actuator assembly).

(1) Remove the transfer shift actuator assembly .

(2) Check the LOCK to FREE switch.

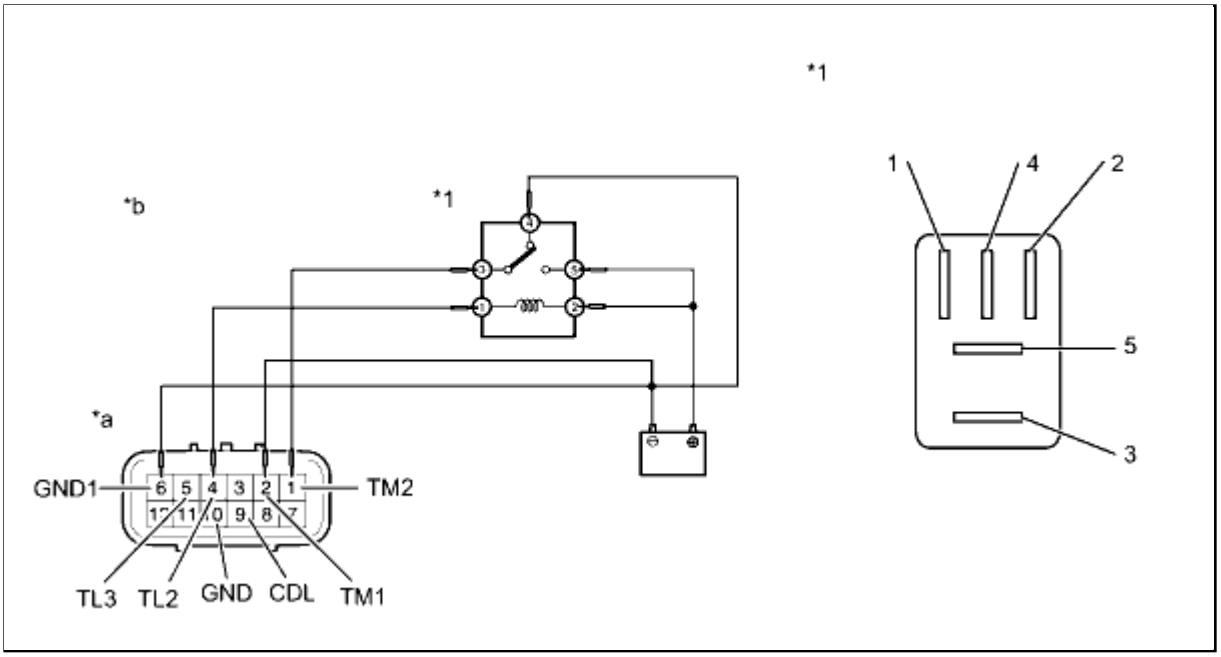
Connect lines via a relay as shown in the illustration, then check that the actuator fork moves from the LOCK to FREE position.

NOTICE:

- Perform this inspection with the actuator removed from the vehicle. If this inspection is performed with the actuator installed to the vehicle, the actuator will be damaged.
- When inspecting the actuator, operate it with the lines connected via a relay. If the lines are not connected via a relay and battery voltage is directly applied to the actuator, the actuator will be damaged.

HINT:

When performing the operation described above, use the stop LP relay.



1. After the LOCK to FREE switch is complete, inspect the center differential lock detection switch and limit switch.

   Standard resistance:

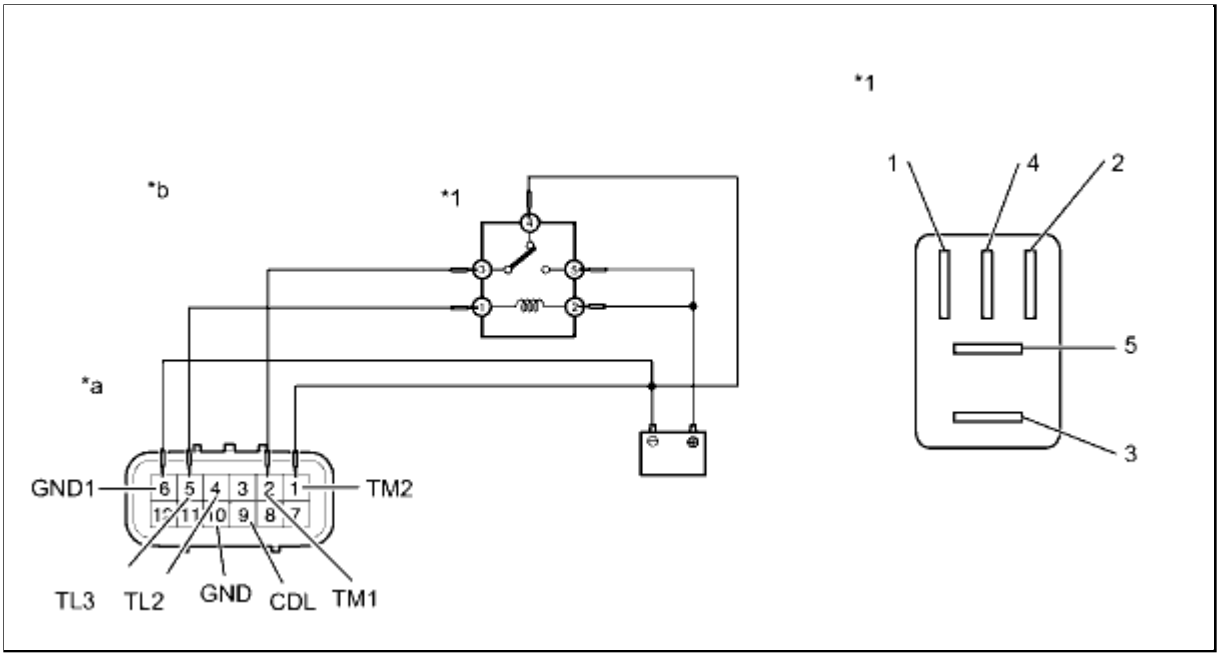
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
4 (TL2) - 6 (GND1)	After LOCK to FREE switch is complete	0.5 MΩ or higher
5 (TL3) - 6 (GND1)	After LOCK to FREE switch is complete	Below 12.5 Ω
9 (CDL) - 10 (GND)	After LOCK to FREE switch is complete	0.5 MΩ or higher

Text in Illustration

*1	Stop LP Relay	-	-
*a	Component without harness connected (Transfer Shift Actuator Assembly)	*b	LOCK to FREE

(3) Check the FREE to LOCK switch.

Connect lines via a relay as shown in the illustration, then check that the actuator fork moves from the FREE to LOCK position.



1. After the FREE to LOCK switch is complete, inspect the center differential lock detection switch and limit switch.

Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
4 (TL2) - 6 (GND1)	After FREE to LOCK switch is complete	Below 12.5 Ω
5 (TL3) - 6 (GND1)	After FREE to LOCK switch is complete	0.5 MΩ or higher
9 (CDL) - 10 (GND)	After FREE to LOCK switch is complete	Below 12.5 Ω

Text in Illustration

*1	Stop LP Relay	-	-
*a	Component without harness connected (Transfer Shift Actuator Assembly)	*b	FREE to LOCK

If the result is not as specified, replace the transfer shift actuator assembly INFO . If the transfer shift actuator assembly is normal, replace the four wheel drive control ECU INFO .

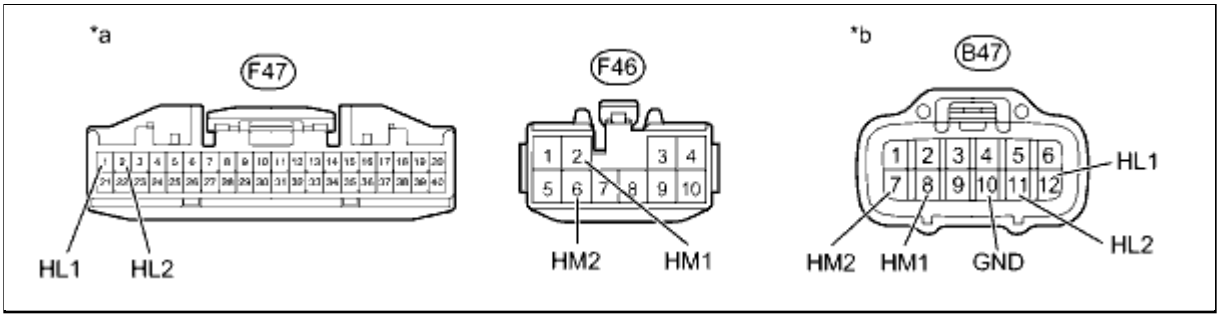
5. INSPECT HIGH-LOW TRANSFER SHIFT ACTUATOR

(a) Check the harness and connector between four wheel drive control ECU and transfer shift actuator (high-low transfer shift actuator).

(1) Disconnect the B47 actuator connector.

(2) Disconnect the F47 and F46 ECU connector.

(3) Measure the resistance according to the value(s) in the table below.



Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
F47-1 (HL1) - B47-12 (HL1)	Always	Below 1 Ω
F47-1 (HL1) - Body ground	Always	100 kΩ or higher
F47-2 (HL2) - B47-11 (HL2)	Always	Below 1 Ω
F47-2 (HL2) - Body ground	Always	100 kΩ or higher
F46-2 (HM1) - B47-8 (HM1)	Always	Below 1 Ω
F46-2 (HM1) - Body ground	Always	100 kΩ or higher
F46-6 (HM2) - B47-7 (HM2)	Always	Below 1 Ω
F46-6 (HM2) - Body ground	Always	100 kΩ or higher
B47-10 (GND) - Body ground	Always	Below 1 Ω

Text in Illustration

*a	Front view of wire harness connector (to Four Wheel Drive Control ECU)	*b	Front view of wire harness connector (to Transfer Shift Actuator Assembly)

If the result is not as specified, repair or replace the harness or connector. If the harness or connector is normal, check the ECU output voltage.

(b) Check the four wheel drive control ECU (high-low transfer shift actuator circuit).

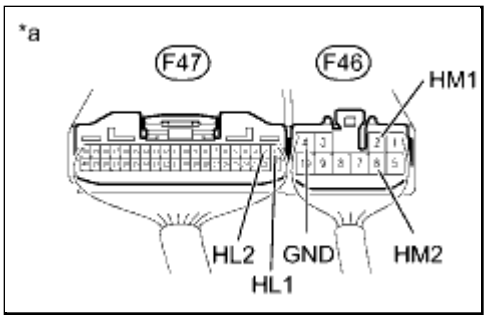
(1) Connect the F47 and F46 ECU connectors.

(2) Connect the B47 actuator connector.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION



F46-6 (HM2) - F46-4 (GND)	Ignition switch ON Transfer position switch L4L → H4L (During operation of high-low transfer shift actuator motor from LOW to HIGH)	10 to 14 V
	Ignition switch ON Transfer position switch L4L → H4L (High-low transfer shift actuator motor stopped)	Below 1.5 V
F46-2 (HM1) - F46-4 (GND)	Ignition switch ON Transfer position switch H4L → L4L (During operation of high-low transfer shift actuator motor from HIGH to LOW)	10 to 14 V
	Ignition switch ON Transfer position switch H4L → L4L (High-low transfer shift actuator motor stopped)	Below 1.5 V
F47-1 (HL1) - F46-4 (GND)	Ignition switch ON Transfer position switch H4F or H4L	10.5 to 14 V
	Ignition switch ON Transfer position switch L4L	Below 1.5 V
F47-2 (HL2) - F46-4 (GND)	Ignition switch ON Transfer position switch H4F or H4L	Below 1.5 V
	Ignition switch ON Transfer position switch L4L	10.5 to 14 V

Text in Illustration

*a	Component with harness connected (Four Wheel Drive Control ECU)

If the result is not as specified, determine if the malfunction is on the ECU side or actuator side by disconnecting the connector of the high-low transfer

shift actuator, and then checking the ECU output voltage.

(c) Check the four wheel drive control ECU output voltage.

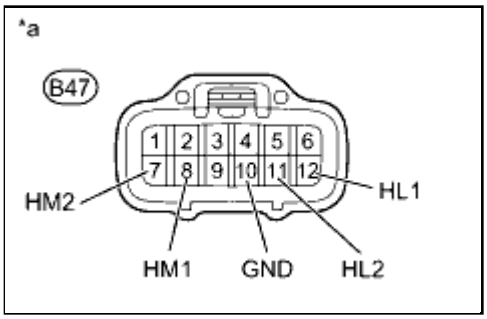
(1) Connect the F47 and F46 ECU connectors.

(2) Disconnect the B47 actuator connector.

(3) Measure the voltage according to the value(s) in the table below.

Standard voltage:

TESTER CONNECTION	SWITCH CONDITION	SPECIFIED CONDITION
B47-11 (HL2) - B47-10 (GND)	Ignition switch ON	10.5 to 14 V
B47-12 (HL1) - B47-10 (GND)	Ignition switch ON	10.5 to 14 V



Text in Illustration

*a	Front view of wire harness connector (to Transfer Shift Actuator Assembly)

If the result is not as specified, replace the four wheel drive control ECU . If the voltage is normal, inspect the high-low transfer shift actuator, because the voltage applied to the motor cannot be measured.

(d) Inspect the high-low transfer shift actuator transfer shift actuator assembly.

(1) Remove the transfer shift actuator assembly .

(2) Check the HIGH to LOW switch.

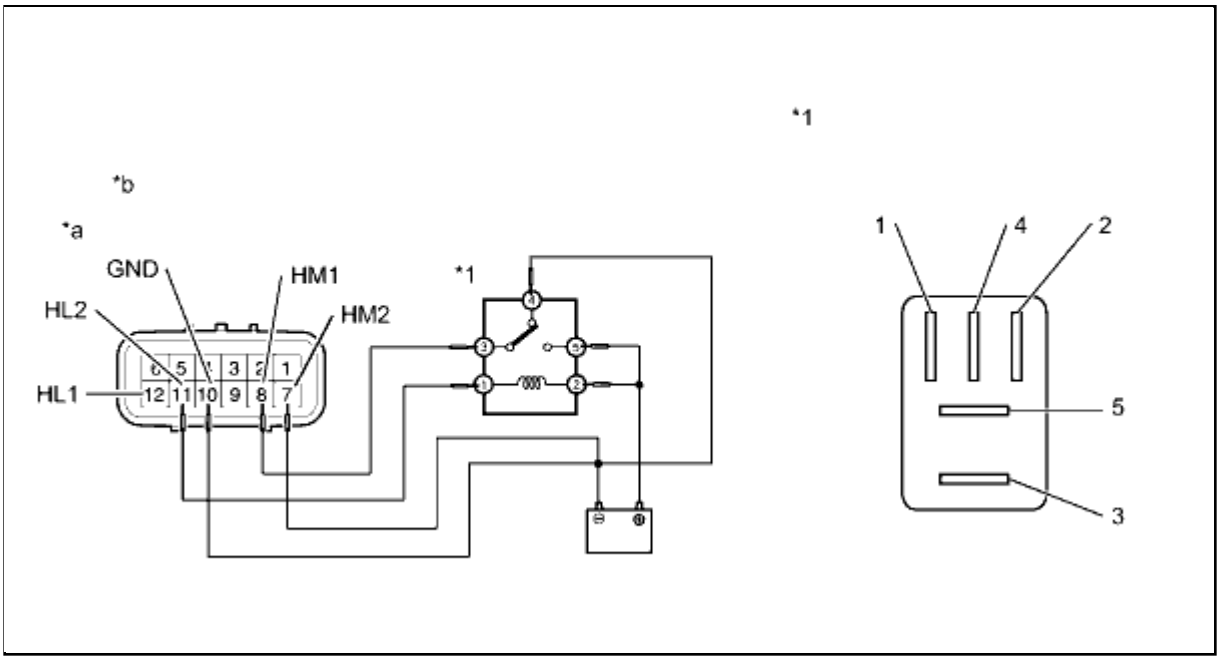
Connect lines via a relay as shown in the illustration, then check that the actuator fork moves from the HIGH to LOW position.

NOTICE:

- Perform this inspection with the actuator removed from the vehicle. If this inspection is performed with the actuator installed to the vehicle, the actuator will be damaged.
- When inspecting the actuator, operate it with the lines connected via a relay. If the lines are not connected via a relay and battery voltage is directly applied to the actuator, the actuator will be damaged.

HINT:

When performing the operation described above, use the stop LP relay.



1. After the HIGH to LOW switch is complete, inspect the limit switch.

   Standard resistance:

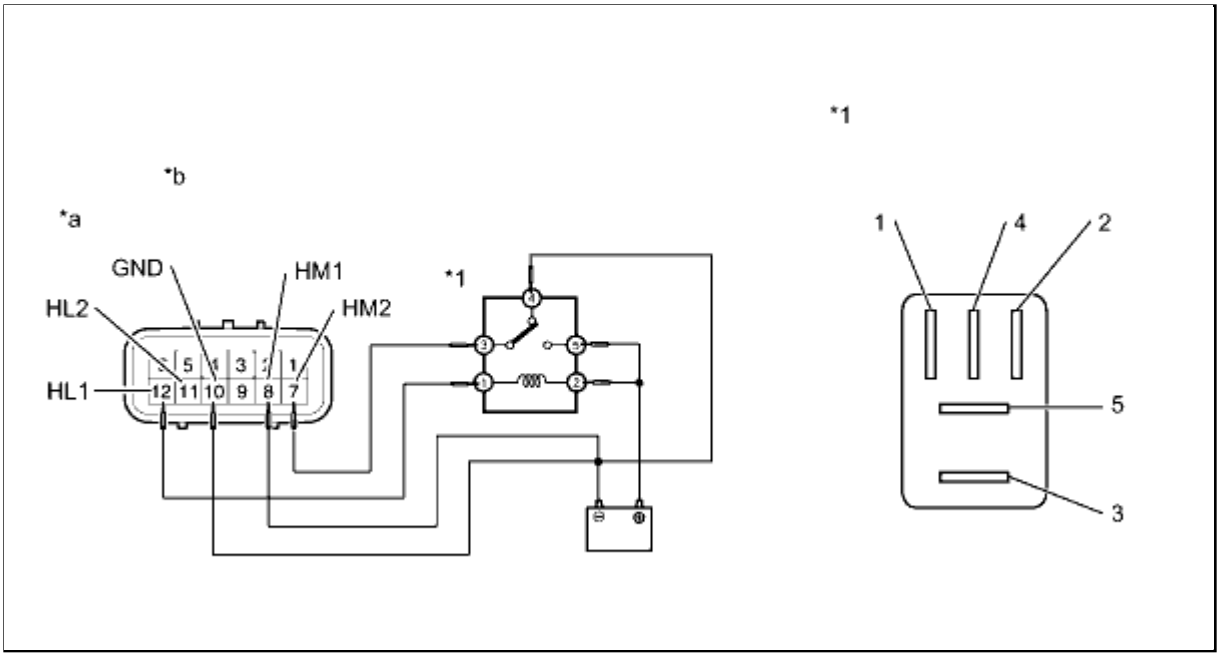
TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
12 (HL1) - 10 (GND)	After HIGH to LOW switch is complete	Below 12.5 Ω
11 (HL2) - 10 (GND)	After HIGH to LOW switch is complete	0.5 MΩ or higher

Text in Illustration

*1	Stop LP Relay	-	-
*a	Component without harness connected (Transfer Shift Actuator Assembly)	*b	HIGH to LOW

(3) Check the LOW to HIGH switch.

Connect lines via a relay as shown in the illustration, then check that the actuator fork moves from the LOW to HIGH position.



1. After the LOW to HIGH switch is complete, inspect the limit switch.

Standard resistance:

TESTER CONNECTION	CONDITION	SPECIFIED CONDITION
12 (HL1) - 10 (GND)	After LOW to HIGH switch is complete	0.5 MΩ or higher
11 (HL2) - 10 (GND)	After LOW to HIGH switch is complete	Below 12.5 Ω

Text in Illustration

*1	Stop LP Relay	-	-
*a	Component without harness connected (Transfer Shift Actuator Assembly)	*b	LOW to HIGH

If the result is not as specified, replace the transfer shift actuator assembly INFO . If the transfer shift actuator assembly is normal, replace the four wheel drive control ECU INFO .

Last Modified: 5-10-2010	6.4 L	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000112C00ZX
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PRECAUTION (2010 4Runner)		

PRECAUTION

1. IGNITION SWITCH EXPRESSION

HINT:

The type of ignition switch used on this model differs according to the specifications of the vehicle. The expressions listed in the table below are used in this section.

EXPRESSION	IGNITION SWITCH (POSITION)	ENGINE SWITCH (CONDITION)
Ignition Switch off	Off	Off
Ignition Switch ON	ON	On (IG)
Ignition Switch ACC	ACC	On (ACC)
Engine Start	START	Start

2. PRECAUTION

(a) Before disassembling the transfer assembly, thoroughly clean it to remove any foreign matter. This will help prevent contamination during disassembly and reassembly.

(b) When removing the transfer cover or any other light alloy parts, do not pry them off with a screwdriver or other tool that may cause damage. Instead, tap the parts with a plastic-faced hammer.

(c) Always arrange removed parts in the order they were removed and protect them from foreign matter.

(d) Before installation of each part, thoroughly clean and dry it. Then apply transfer oil to it. Do not use alkaline chemicals to clean aluminum parts, rubber parts or ring gear set bolts. Also, do not use non-residue solvent or other cleaning oils to clean O-rings, oil seals or rubber parts.

(e) Coat sliding surfaces and rotating parts with hypoid gear oil.

(f) Do not fix a part directly in a vise. Place aluminum plates between the part and vise.

(g) Replace any damaged or deformed snap rings with new ones.

(h) Do not allow the case mating surfaces to be scratched. Scratches may lead to oil leakage.

(i) Using a razor blade and gasket scraper, remove old FIPG from the sealing surface.

(j) Clean all parts to remove excess FIPG completely.

(k) Clean the sealing surface with solvent so that no residue remains on the sealing surface.

(l) Apply FIPG in a continuous line of approximately 1.2 mm (0.0472 in.) in diameter along the sealing surface.

(m) Be sure to assemble parts within 10 minutes of FIPG application. Otherwise, the FIPG must be removed and reapplied.

(n) After sealing parts, do not allow oil to come into contact with the seal for at least 1 hour.

(o) Do not allow scratches on surfaces which contact oil seals or gaskets. Scratches may lead to oil

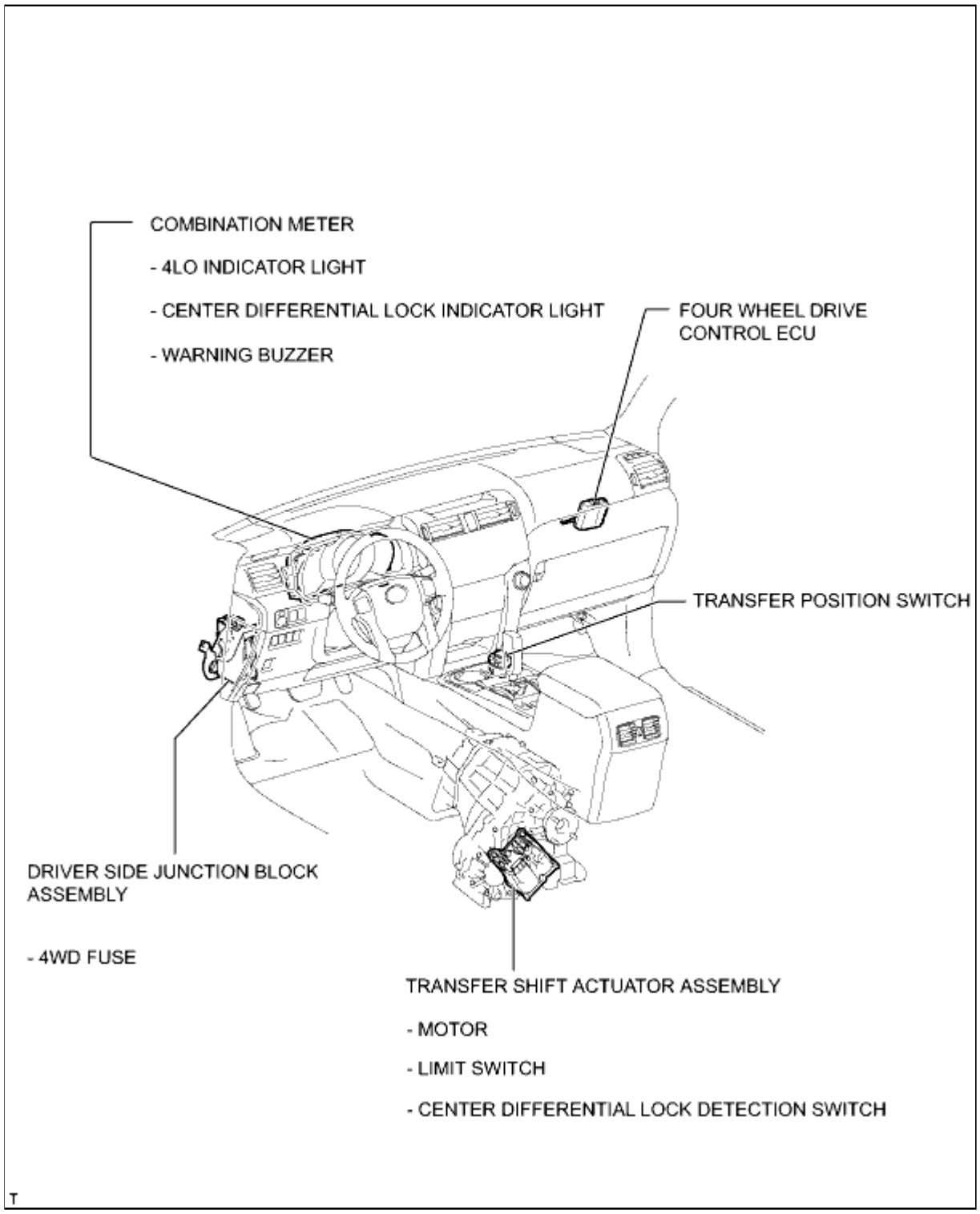
leakage.

(p) When press-fitting an oil seal, be careful not to damage the lip of the oil seal or its periphery.

Last Modified: 5-10-2010	6.4 R	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479G000X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PARTS LOCATION (2010 4Runner)		

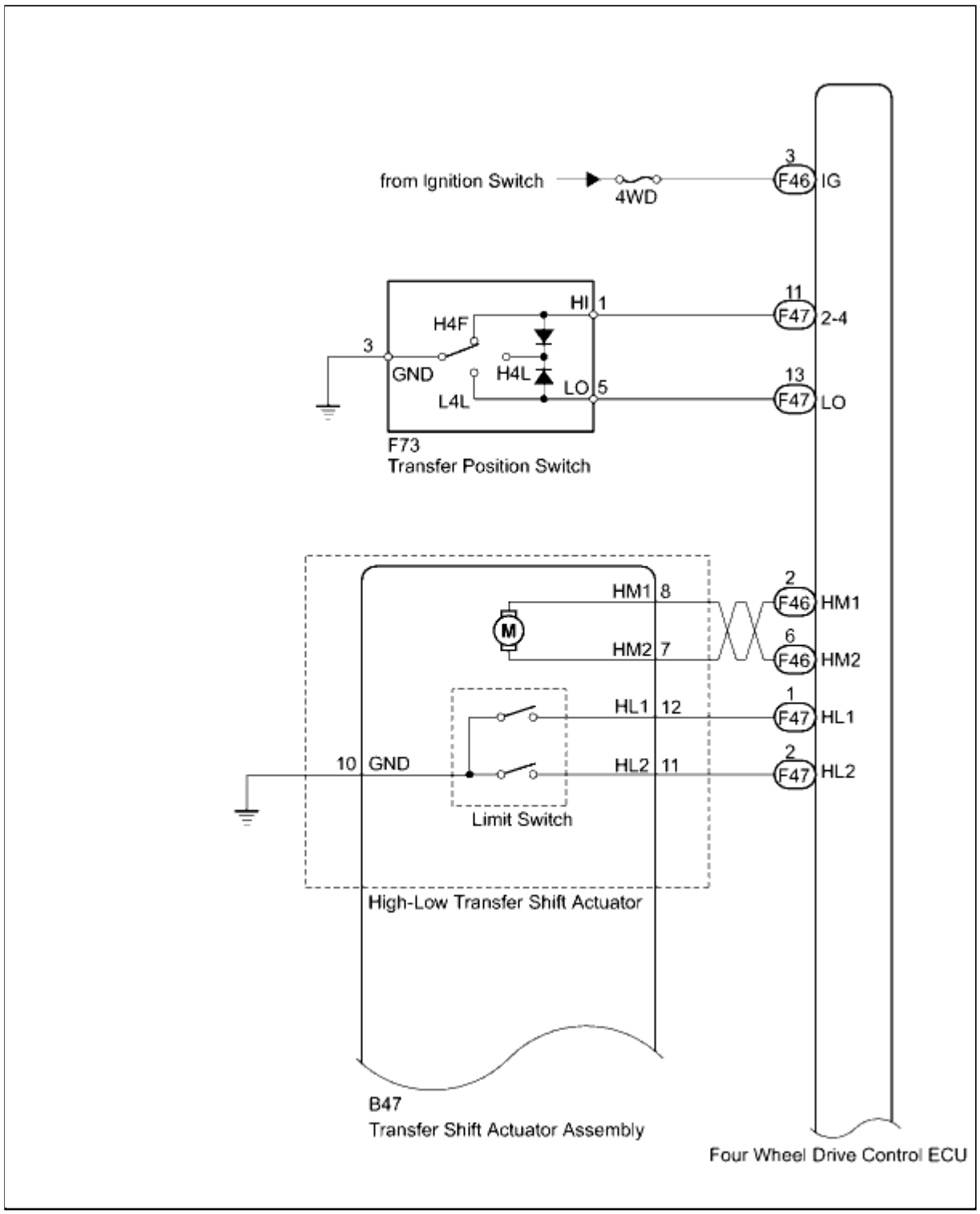
PARTS LOCATION

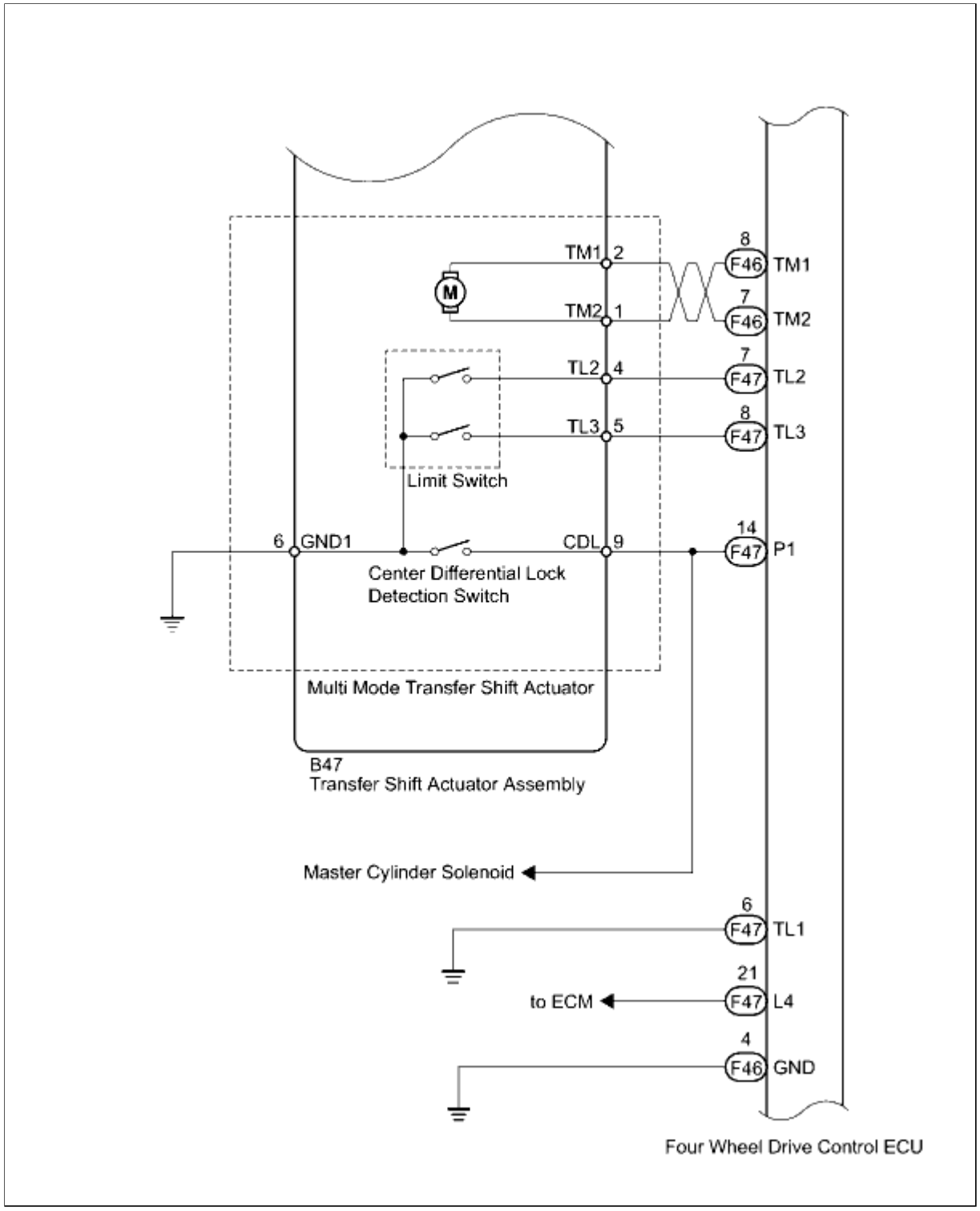
ILLUSTRATION

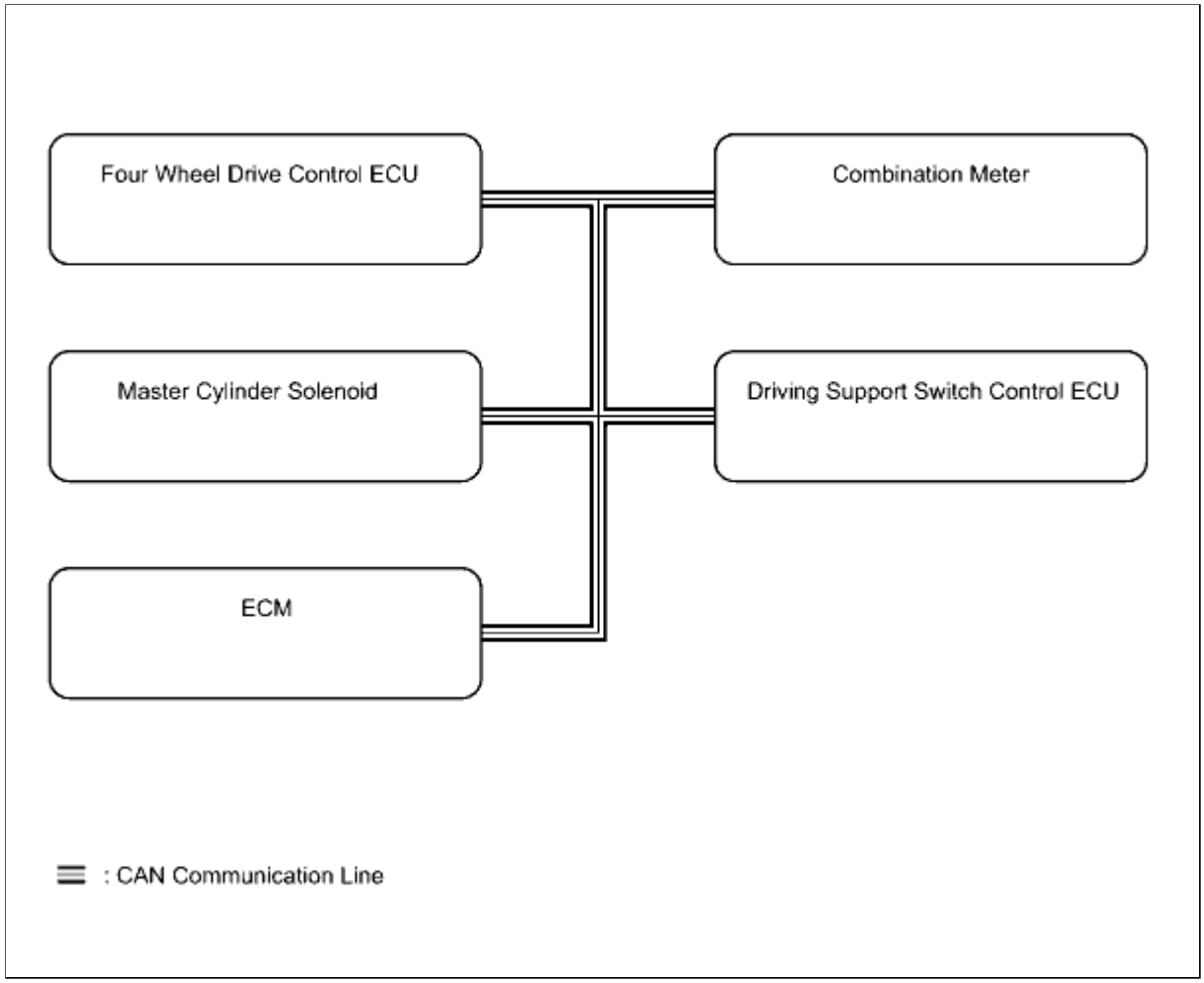


Last Modified: 5-10-2010	6.4 U	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM00000479K000X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: SYSTEM DIAGRAM (2010 4Runner)		

SYSTEM DIAGRAM



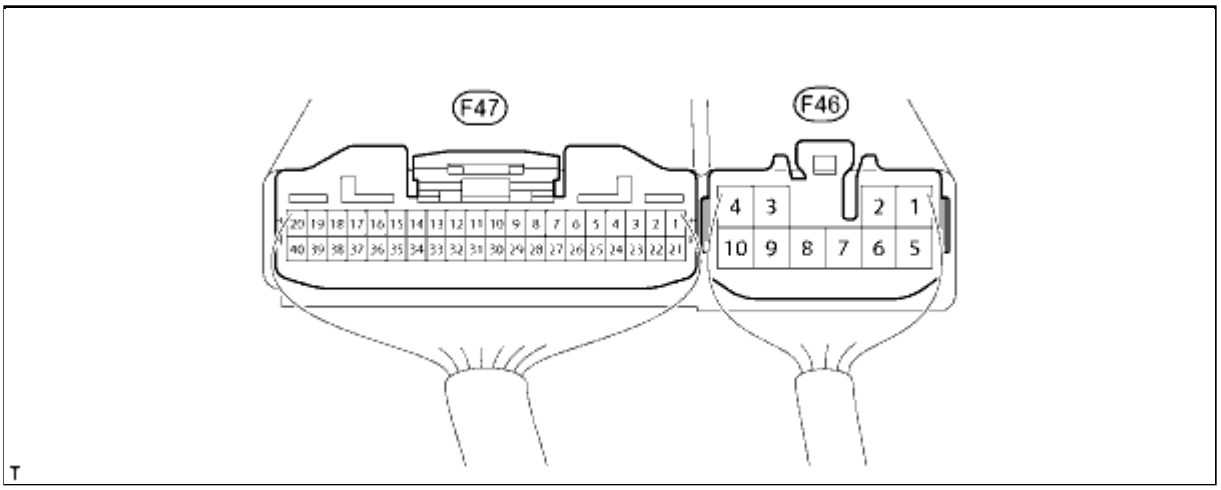




Last Modified: 5-10-2010	6.4 U	**From:** 200908
Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM0000030AB007X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: TERMINALS OF ECU (2010 4Runner)		

TERMINALS OF ECU

1. CHECK FOUR WHEEL DRIVE CONTROL ECU



(a) Measure the voltage and resistance according to the value(s) in the table below.

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F47-1 (HL1) - F46-4 (GND)	GR - W-B	High-low transfer shift actuator limit switch	Ignition switch ON Transfer position switch H4F or H4L	10.5 to 14 V
			Ignition switch ON Transfer position switch L4L	Below 1.5 V
F47-2 (HL2) - F46-4 (GND)	LG - W-B	High-low transfer shift actuator limit switch	Ignition switch ON Transfer position switch H4F or H4L	Below 1.5 V
			Ignition switch ON Transfer position switch L4L	10.5 to 14 V
F47-6 (TL1) - F46-4 (GND)	W-B - W-B	Transfer operating switch mode selection signal	Always	Below 1 Ω
F47-7 (TL2) - F46-4 (GND)	L - W-B	Multi mode transfer shift actuator limit switch	Ignition switch ON Transfer position switch H4L or L4L	Below 1.5 V
			Ignition switch ON Transfer position switch H4F	10.5 to 14 V

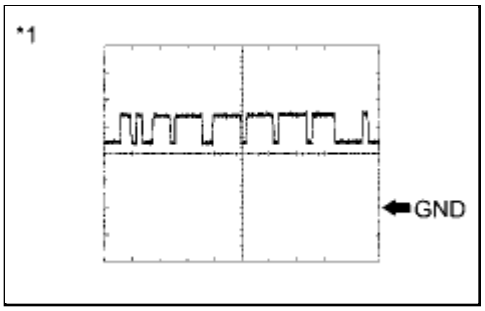
TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
F47-8 (TL3) - F46-4 (GND)	R - W-B	Multi mode transfer shift actuator limit switch	Ignition switch ON Transfer position switch H4L or L4L	10.5 to 14 V
			Ignition switch ON Transfer position switch H4F	Below 1.5 V
F47-11 (2-4) - F46-4 (GND)	W - W-B	Transfer position switch	Ignition switch ON Transfer position switch H4F or H4L	Below 1.5 V
			Ignition switch ON Transfer position switch L4L	10.5 to 14 V
F47-13 (LO) - F46-4 (GND)	B - W-B	Transfer position switch	Ignition switch ON Transfer position switch H4F	10.5 to 14 V
			Ignition switch ON Transfer position switch H4L or L4L	Below 1.5 V
F47-14 (P1) - F46-4 (GND)	W - W-B	Multi mode transfer shift actuator Center differential lock position detection switch	Ignition switch ON Transfer position switch H4F	9.5 to 14 V
			Ignition switch ON Transfer position switch H4L or L4L	Below 1.5 V
F47-19 (CANH) - F46-4 (GND)	G - W-B	CAN communication line	Ignition switch ON	Pulse generation (See waveform 1)
F47-20 (CANL) - F46-4 (GND)	W - W-B	CAN communication line	Ignition switch ON	Pulse generation (See waveform 2)
F47-21 (L4) - F46-4 (GND)	R - W-B	Transfer L4 signal	Ignition switch ON Transfer position switch H4F or H4L	10 to 14 V
			Ignition switch ON Transfer position switch L4L	Below 1.5 V
F46-2 (HM1) - F46-4 (GND)	B - W-B	High-low transfer shift actuator motor	Ignition switch ON Transfer position switch H4L → L4L (During operation of high-low transfer shift actuator motor from HIGH to LOW)	10 to 14 V
			Ignition switch ON Transfer position switch H4L → L4L (High-low transfer shift	Below 1.5 V

TERMINAL NO. (SYMBOL)	WIRING COLOR	TERMINAL DESCRIPTION	CONDITION	SPECIFIED CONDITION
			actuator motor stopped)	
F46-3 (IG) - F46-4 (GND)	R - W-B	IG power	Ignition switch ON	11 to 14 V
F46-4 (GND) - Body ground	W-B - Body ground	Ground	Always	Below 1 Ω
F46-6 (HM2) - F46-4 (GND)	W - W-B	High-low transfer shift actuator motor	Ignition switch ON Transfer position switch L4L → H4L (During operation of high-low transfer shift actuator motor from LOW to HIGH)	10 to 14 V
			Ignition switch ON Transfer position switch L4L → H4L (High-low transfer shift actuator motor stopped)	Below 1.5 V
F46-7 (TM2) - F46-4 (GND)	V - W-B	Multi mode transfer shift actuator motor	Ignition switch ON Transfer position switch H4L → H4F (During operation of multi mode transfer shift actuator motor from LOCK to FREE)	10 to 14 V
			Ignition switch ON Transfer position switch H4L → H4F (Multi mode transfer shift actuator motor stopped)	Below 1.5 V
F46-8 (TM1) - F46-4 (GND)	P - W-B	Multi mode transfer shift actuator motor	Ignition switch ON Transfer position switch H4F → H4L (During operation of multi mode transfer shift actuator motor from FREE to LOCK)	10 to 14 V
			Ignition switch ON Transfer position switch H4F → H4L (Multi mode transfer shift actuator motor stopped)	Below 1.5 V

(b) Using an oscilloscope, check waveform 1.

Waveform 1 (Reference)

ITEM	CONTENT



Terminal No. (Symbols)	F47-19 (CANH) - F46-4 (GND)
Tool setting	1 V/DIV., 10 µsec./DIV.
Condition	Engine stopped and ignition switch ON

Text in Illustration

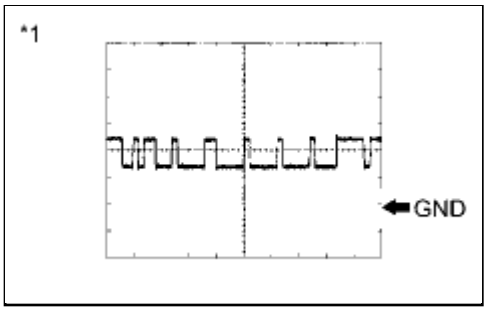
*1	Waveform 1

HINT:

The waveform varies depending on the CAN communication signal.

(c) Using an oscilloscope, check waveform 2.

Waveform 2 (Reference)



ITEM	CONTENT
Terminal No. (Symbols)	F47-20 (CANL) - F46-4 (GND)
Tool setting	1 V/DIV., 10 µsec./DIV.
Condition	Engine stopped and ignition switch ON

Text in Illustration

*1	Waveform 2

HINT:

The waveform varies depending on the CAN communication signal.

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Model Year: 2010	**Model:** 4Runner	**Doc ID:** RM000003BB7001X
Title: VF4BM TRANSFER / 4WD / AWD: TRANSFER SYSTEM: PROBLEM SYMPTOMS TABLE (2010 4Runner)		

PROBLEM SYMPTOMS TABLE

HINT:

- 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.
- Inspect the fuses and relays related to this system before inspecting the suspected areas below.

Transfer System

SYMPTOM	SUSPECTED AREA	SEE PAGE
Noise	Oil (Level low)	INFO
	Oil (Wrong)	INFO
	Transfer faulty	INFO
Oil leakage	Oil (Level too high)	INFO
	Gasket (Damaged)	INFO
	Oil seal (Worn or damaged)	INFO
	O-ring (Worn or damaged)	INFO
Switch from HIGH (H4L) to LOW (L4L) is impossible	Harness or connector	INFO
	Transfer shift actuator assembly	INFO
	CAN communication system	INFO
	Transfer position switch	INFO
	Four wheel drive control ECU	INFO
	Transfer faulty	INFO
Switch from LOW (L4L) to HIGH (H4L) is impossible	Harness or connector	INFO
	Transfer shift actuator assembly	INFO
	CAN communication system	INFO
	Transfer position switch	INFO
	Four wheel drive control ECU	INFO
	Transfer faulty	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
Switch from FREE (H4F) to LOCK (H4L) is impossible	Harness or connector	INFO
	Transfer shift actuator assembly	INFO
	CAN communication system	INFO
	Transfer position switch	INFO
	Four wheel drive control ECU	INFO
	Transfer faulty	INFO
Switch from LOCK (H4L) to FREE (H4F) is impossible	Harness or connector	INFO
	Transfer shift actuator assembly	INFO
	CAN communication system	INFO
	Transfer position switch	INFO
	Four wheel drive control ECU	INFO
	Transfer faulty	INFO
4LO indicator light does not come on	Harness or connector	INFO
	Combination meter	INFO
	CAN communication system	INFO
	Four wheel drive control ECU	INFO
	Transfer position switch	INFO
	Transfer shift actuator assembly	INFO
4LO indicator light remains on	Four wheel drive control ECU	INFO
	Transfer position switch	INFO
	Combination meter	INFO
Center differential lock indicator light does not come on	Harness or connector	INFO
	Combination meter	INFO
	CAN communication system	INFO
	Four wheel drive control ECU	INFO
	Transfer position switch	INFO
	Transfer shift actuator assembly	INFO
Center differential lock indicator light remains on	Four wheel drive control ECU	INFO
	Transfer position switch	INFO

SYMPTOM	SUSPECTED AREA	SEE PAGE
	Combination meter	INFO