

DAIHATSU

F73, F78

(F70, F75, F77)

☆ TRANSFER

TRANSMISSION & TRANSFER

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TR

R7TR00001-00000

In the sections bearing "☆" marks, the model codes "F70, 75, 77" should read as "F73 and F78".

After checking the contents of the relevant sections of the F73, F78 manual, we found that the contents remained the same. Therefore, we are using the sections as they are in this manual.

NO. 9705

TRANSFER

TRANSMISSION & TRANSFER SPECIFICATIONS

1. Specifications

[]: Turbo charger equipped

Item			Model	F70, F75, F77	
Transmission model			4VH	5VH	
Transmission	Type		Constant-mesh type		←
	Gear ratio	1st	3.647	3.647 [3.477]	
		2nd	2.136	2.136 [2.037]	
		3rd	1.484	1.484 [1.317]	
		4th	1.000	←	
		5th	—	0.860 [0.820]	
		Reverse	4.351	4.351 [4.148]	
	Gear oil capacity		L	2.2	2.9
Transfer	Type		Constant-mesh type		←
	Gear ratio	High	1.297	←	
		Low	2.370	←	
	Gear oil capacity		L	1.3	←

WRE91-TR002

2. A label showing the production year, month and date of the transmission and transfer assembly has been affixed to the upper surface of the clutch housing case. At its upper column the label indicates the specifications of the transmission and transfer assembly in a form of alphanumeric letters (e.g. F31, 03B, 03C and 01B).

Label

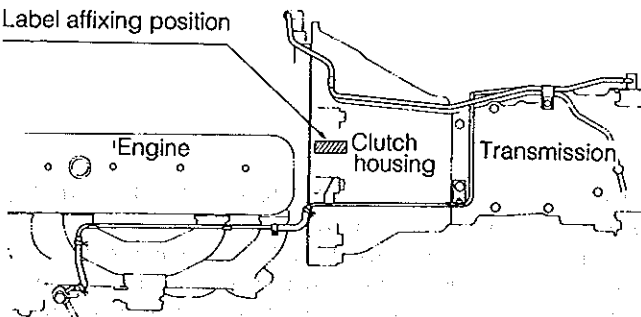
Example

65A	(A)
F70MDW	(B)
07C058	(C)

- (A) Transmission & transfer assembly specifications
 (B) Model
 (C) Production year, month, date

Model		Standard	Option	
			3rd gear ratio	Finland specifications
F70	R H D	R F31 MDT F65		MDT F66
	L H D	MDW2 F03		MDW F08
F75	R H D			
	L H D	MBHW 3A3		MBHW 08A
F77	R H D	PR 01B	PR 03B	PR 03C

Label affixing position

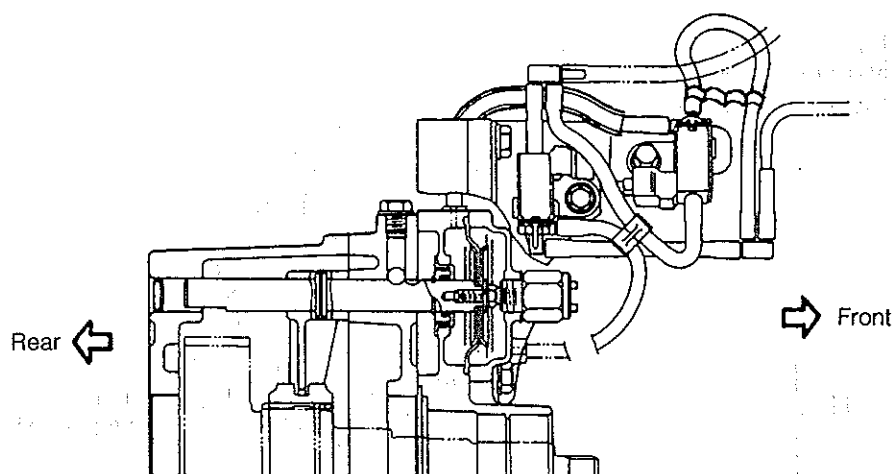
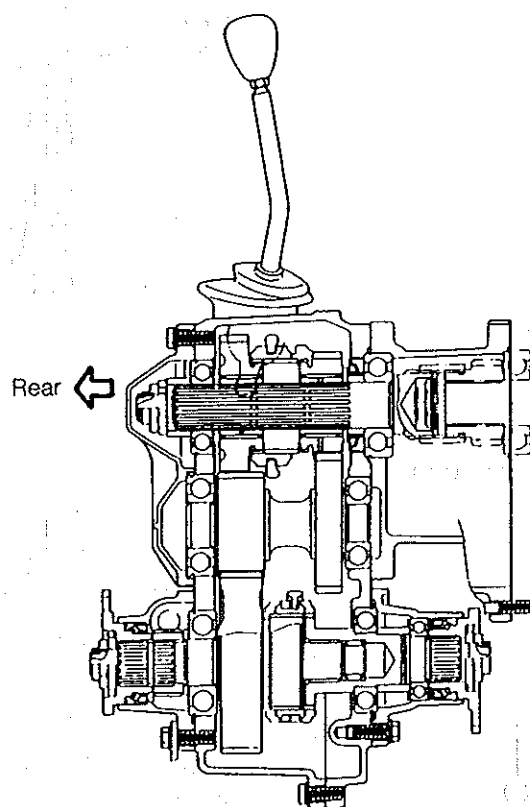


WRE91-TR003

EMPLOYMENT OF TRANSFER POWER SHIFT

For easier operation of the transfer, the transfer power shift has become standard equipment on the EL grade of European and Australian specifications.

In addition to those motor vehicles above, the power shift is available as optional equipment on those motor vehicles mounted with Type DL engine and 5-speed transmission (except for motor vehicles equipped with mechanical winch).

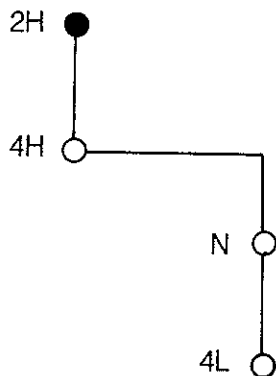


TRANSFER

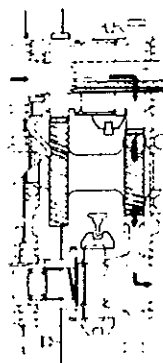
SHIFT PATTERN

The four possible gear positions are 2H, 4H, N and 4L. The power from the transmission is transmitted into the transfer as follows:

2H (2-rear wheel drive, high range)
This position is used for normal driving.

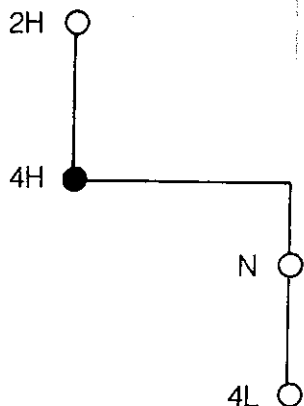


From transmission

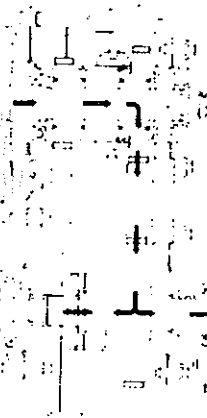


To rear propeller shaft

4H (4-wheel drive, high range)
This position is most suitable for snowy road driving.



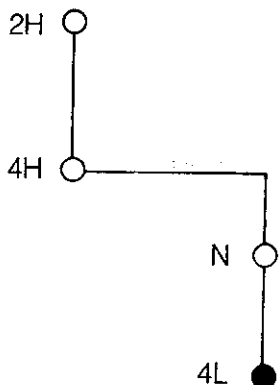
From transmission



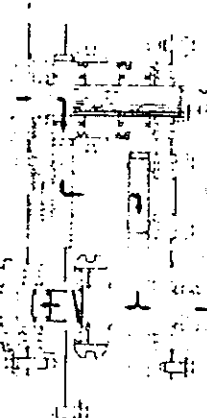
To front propeller shaft

To rear propeller shaft

4L (4-wheel drive, low range)
This position is used for driving on steep upgrades, and muddy, sandy, or irregular terrains.



From transmission



To front propeller shaft

To rear propeller shaft

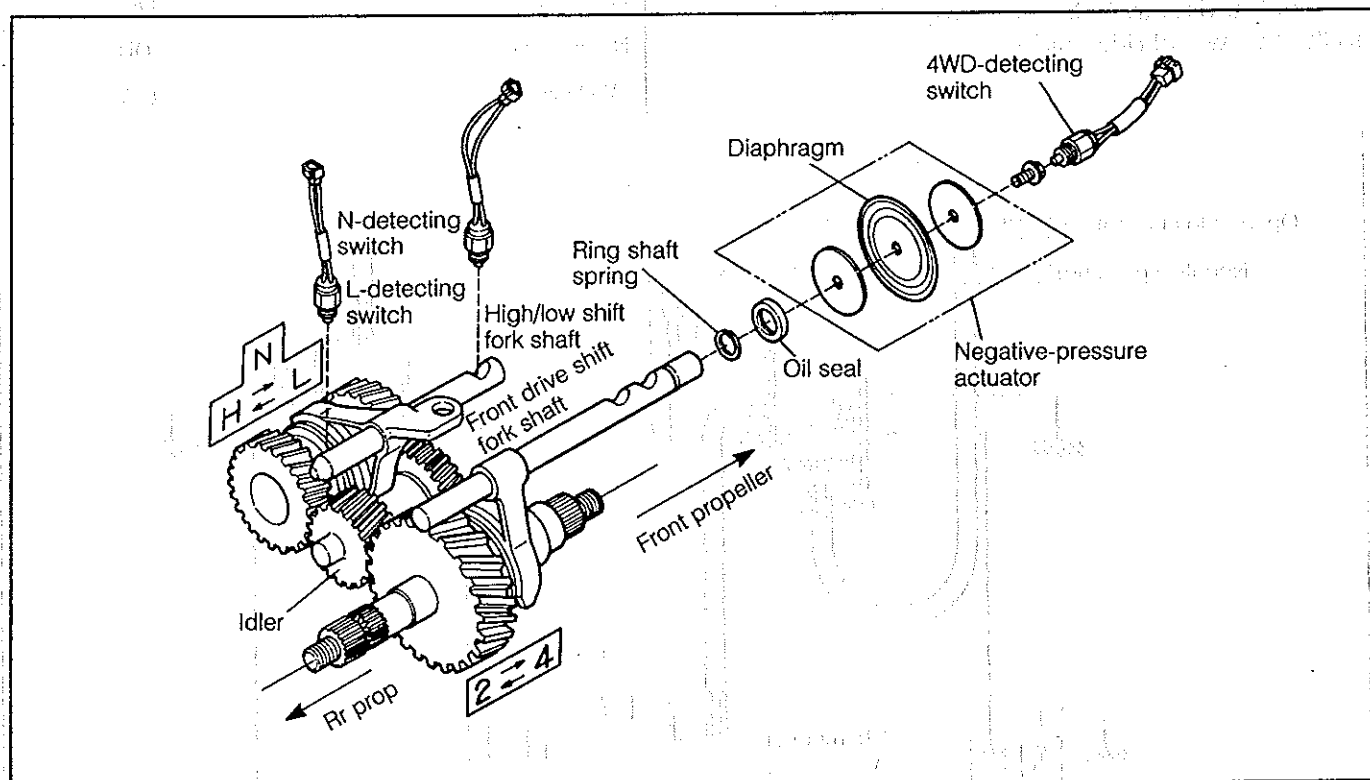
(1) DESCRIPTION

The shift from the two-wheel drive to the four-wheel drive and vice versa can be performed by means of a newly-provided power shift switch which utilizes a negative pressure:

The negative pressure which has been generated by the negative-pressure pump or has been taken from the intake manifold is transmitted to a diaphragm type actuator provided inside the transfer case.

Consequently, the thrust generated by the actuator is transmitted directly to the drive shift fork shaft. In this way, the shift from the two-wheel drive to the four-wheel drive and vice versa is performed.

The negative pressure is controlled by two VSV's. For improved response of the actuator, these VSV's have been installed near the actuator (at the transmission case side).



WRE91-TR006

(2) BASIC OPERATION

Power shift switch	Transfer shift lever position	Driving conditions
 OFF	○ 2H ● N ○ 4L	2-wheel drive (for high speed operation) Neutral 4-wheel drive (for low-speed operation)
 ON	○ 2H ● N ○ 4L	4-wheel drive (for high speed operation) Neutral 4-wheel drive (for low-speed operation)

As is evident from the table above, it is possible to select your desirable driving conditions through the combination of positions of the power shift switch and the transfer shift lever.

WRE91-TR007

TRANSFER

OPERATION

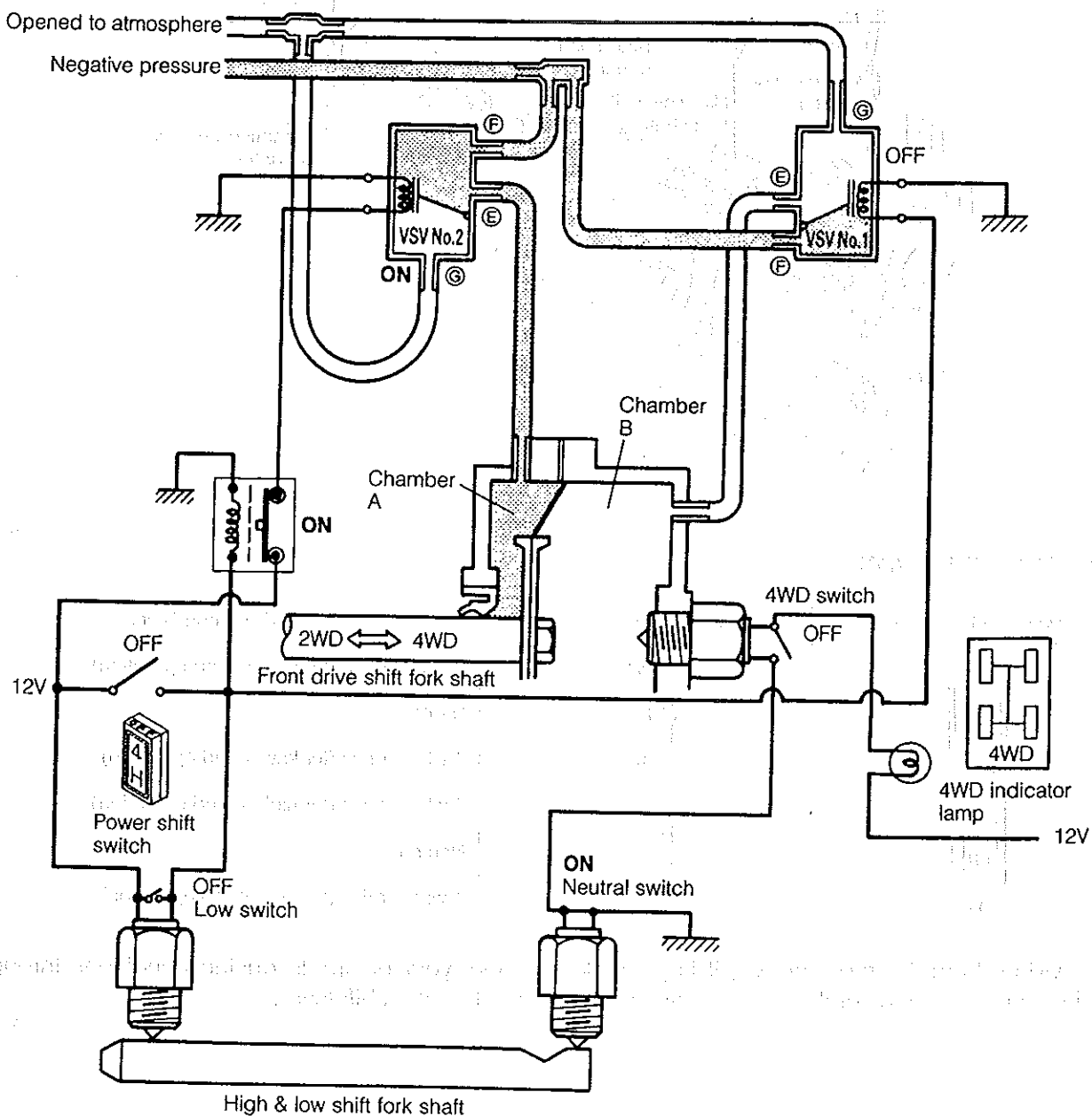
Two-rear-wheel drive

A negative pressure from the VSV No. 2 is applied to the chamber A of the negative pressure actuator. At this stage, the atmospheric pressure is applied to the chamber B of the negative pressure actuator from the VSV No. 1. Consequently, because of the difference in air pressure being applied to the diaphragm, the front drive shift fork shaft which is connected directly to the diaphragm will be shifted to the two-wheel drive side.

Power shift switch	Transfer shift lever position
OFF	2H

Operating conditions of each switch

VSV No. 1	OFF
VSV No. 2	ON
Low switch	OFF
Neutral switch	ON
4WD switch	OFF



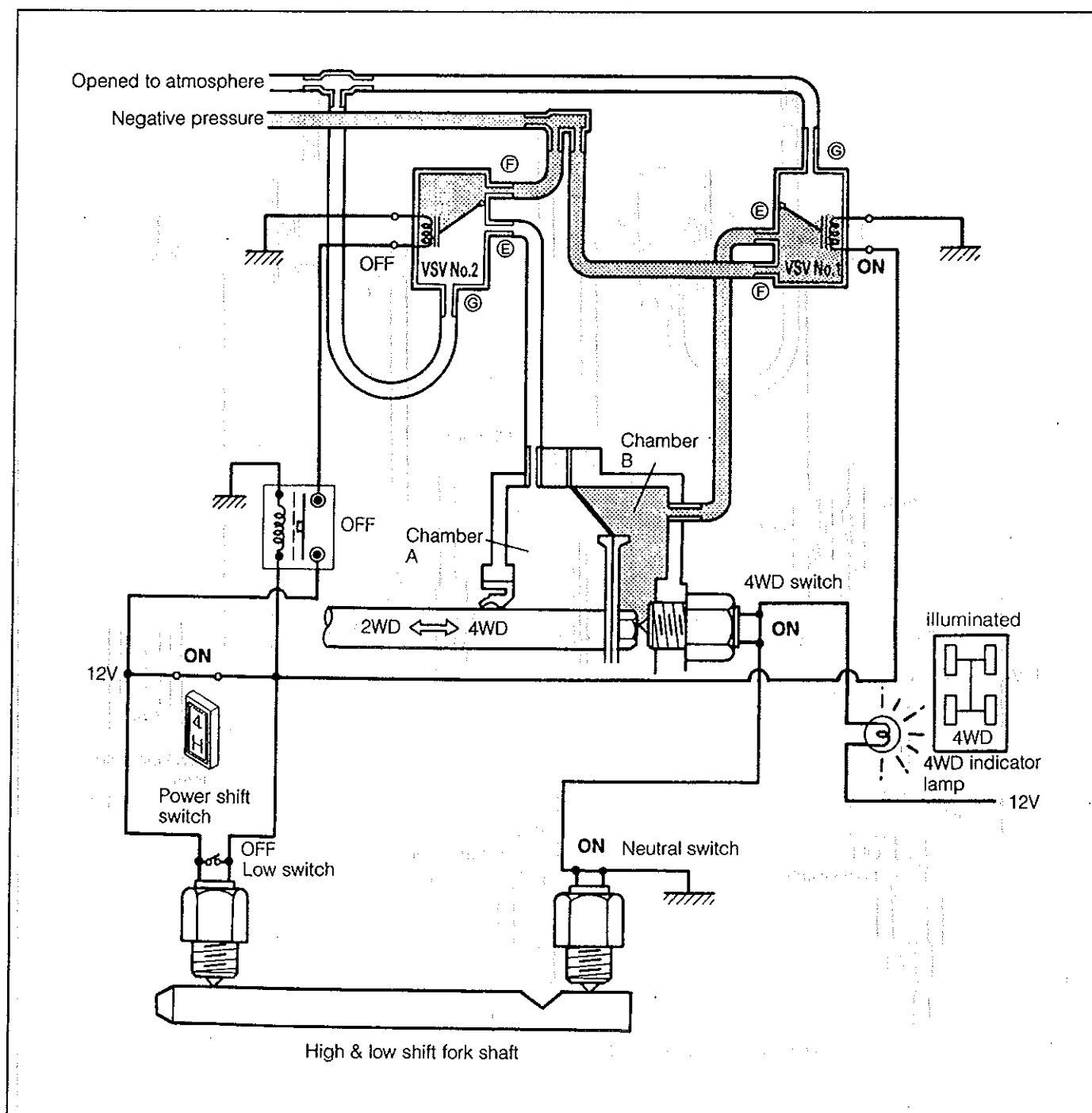
Four-wheel drive (High-speed running range)

A negative pressure is applied to the chamber B of the negative pressure actuator through the VSV No. 1. At this stage, the atmospheric pressure is applied to the chamber A of the negative pressure actuator from the VSV No. 2. Consequently, because of the difference in air pressure being applied to the diaphragm, the front drive shift fork shaft which is connected directly to the diaphragm will be shifted to the four-wheel drive side.

Power shift switch	Transfer shift lever position
ON	2H

Operating conditions of each switch

VSV No. 1	ON
VSV No. 2	OFF
Low switch	OFF
Neutral switch	ON
4WD switch	ON



WRE91-TR009

TRANSFER

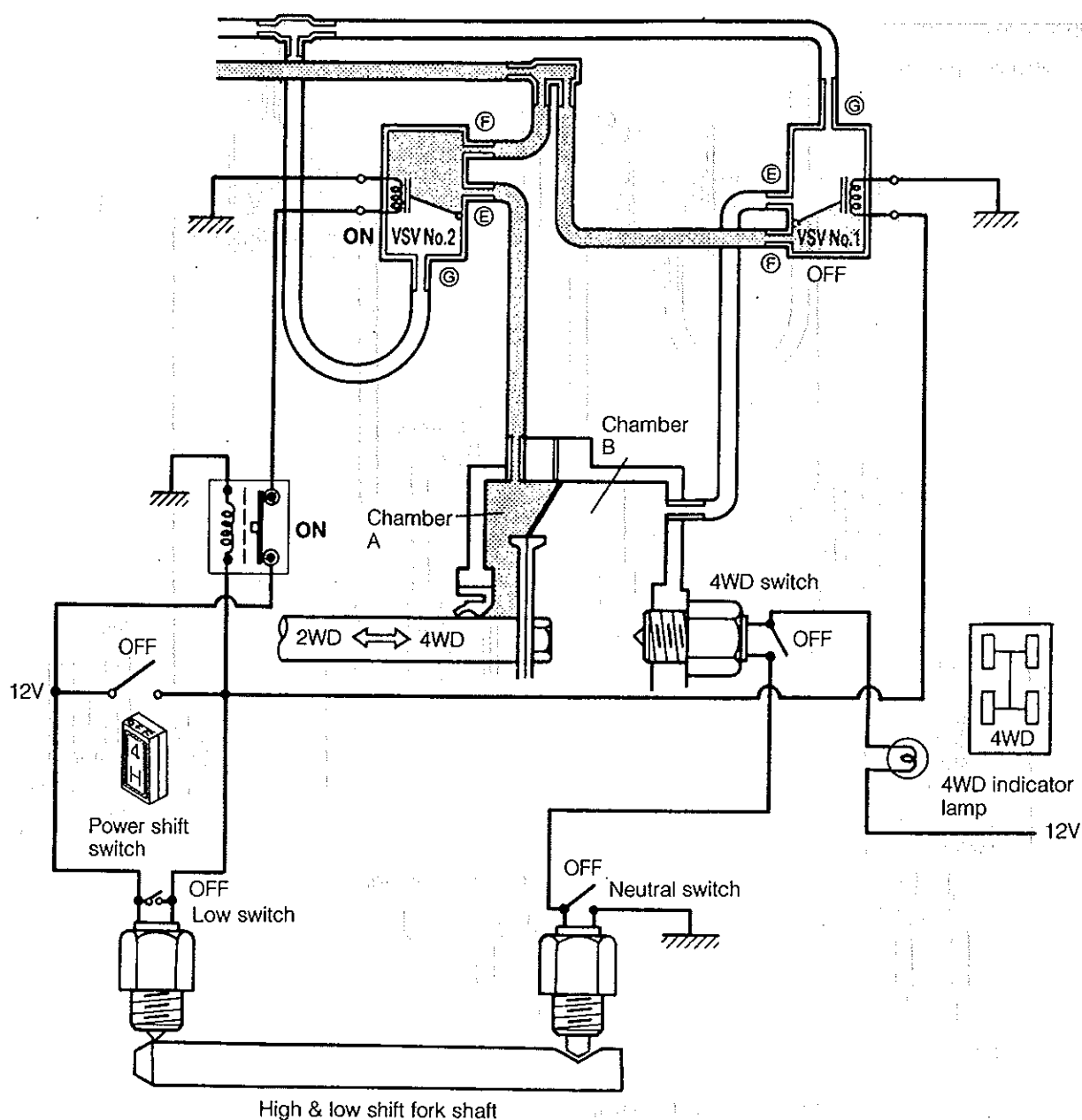
Two-wheel drive, neutral

The negative pressure is transmitted in the same way as with cases where the transfer shift lever is in the 2H position with the power switch turned OFF. Since the high/low shift fork shaft is in the neutral position, the driving force of the drive shaft will not be transmitted to any component.

Power shift switch	Transfer shift lever position
OFF	N

Operating conditions of each switch

VSV No. 1	OFF
VSV No. 2	ON
Low switch	OFF
Neutral switch	OFF
4WD switch	OFF



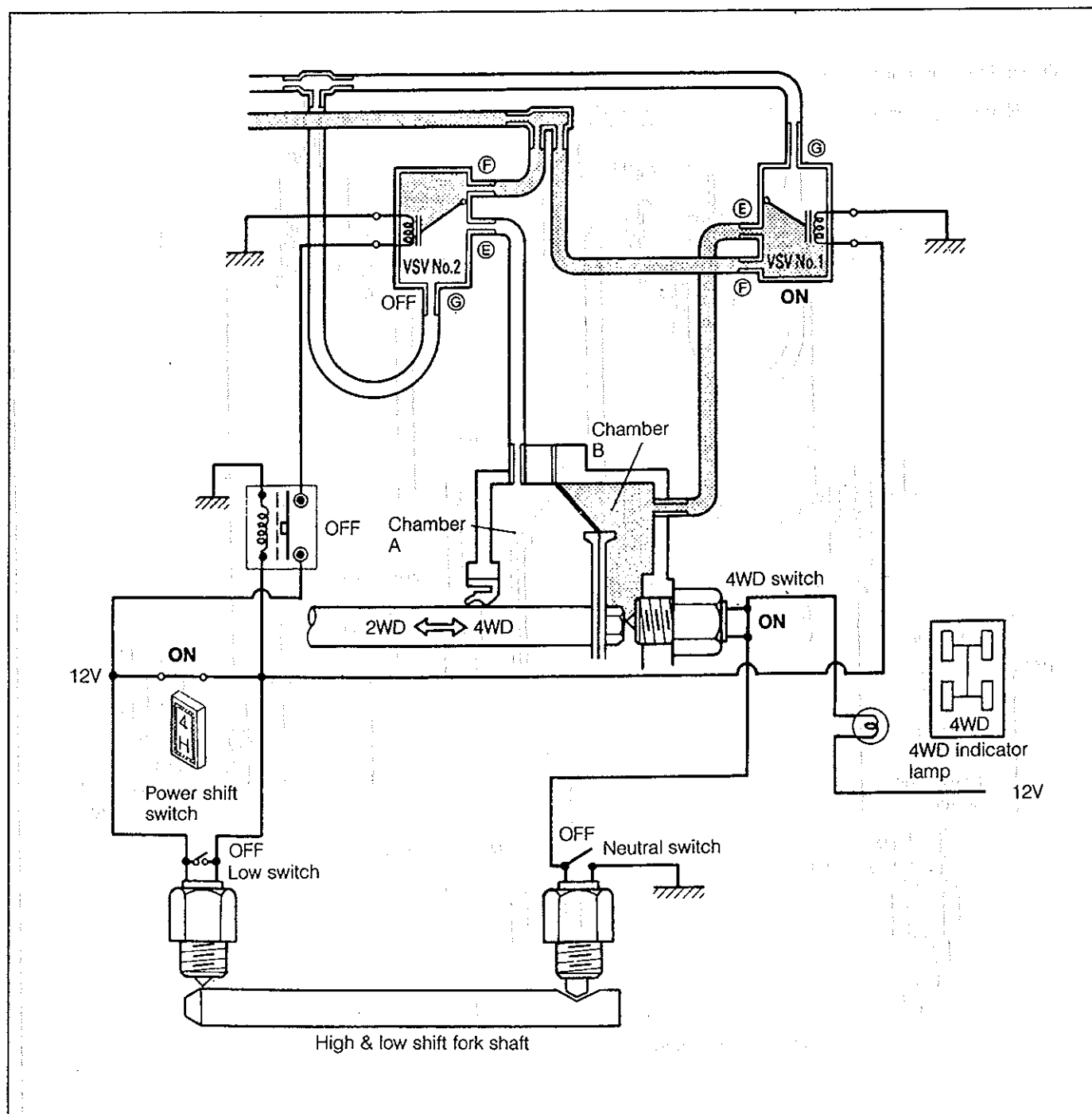
Four-wheel drive, neutral

The negative pressure is transmitted in the same way as with cases where the transfer shift lever is in the 2H position with the power switch turned ON. Since the high/low shift fork shaft is in the neutral position, the driving force of the drive shaft will not be transmitted to any component.

Power shift switch	Transfer shift lever position
ON	N

Operating conditions of each switch

VSV No. 1	ON
VSV No. 2	OFF
Low switch	OFF
Neutral switch	OFF
4WD switch	ON



TRANSFER

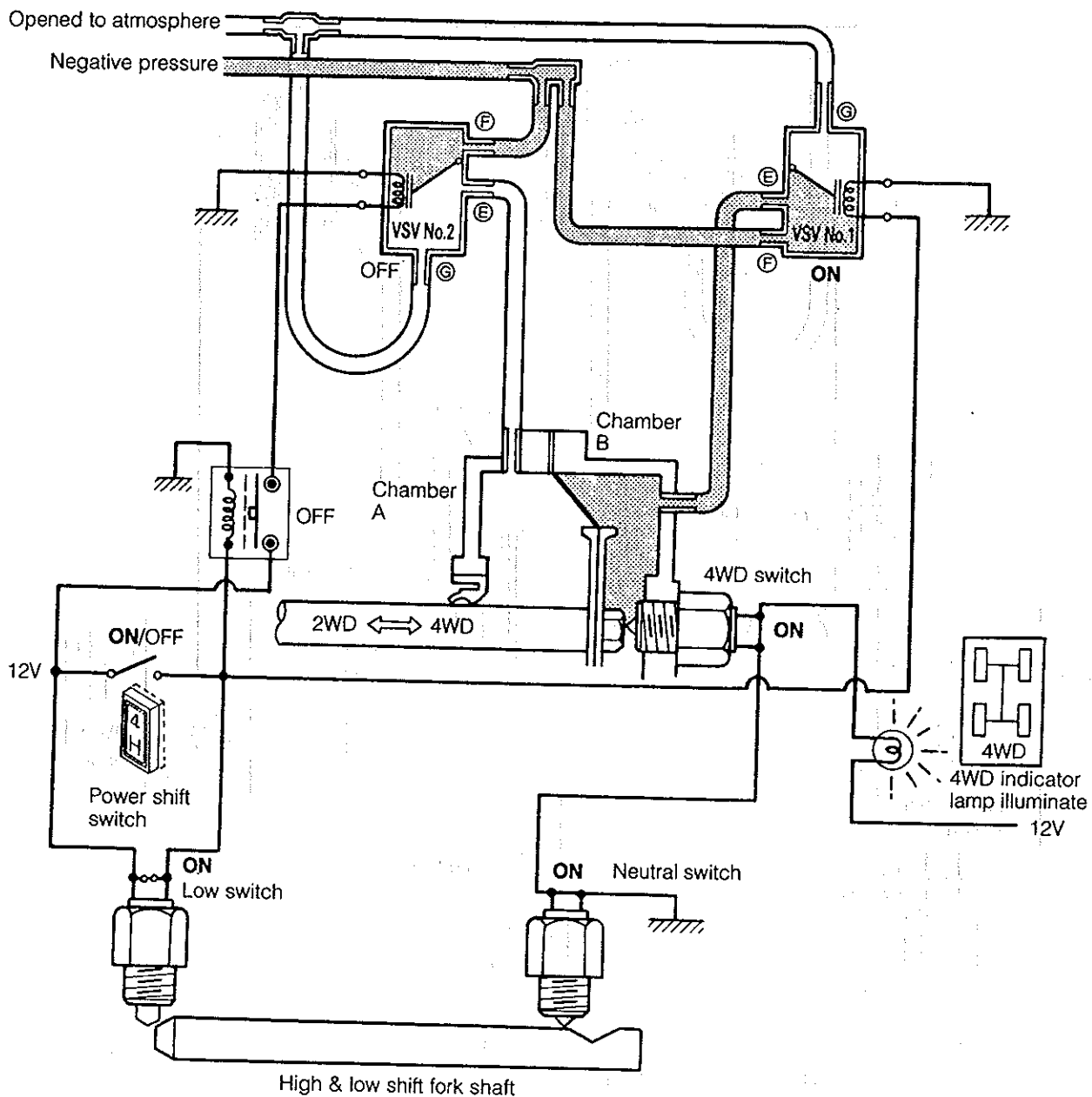
Four-wheel drive, (Low speed running range)

The negative pressure is transmitted in the same way as with cases where the transfer shift lever is in the 2H position with the power switch turned ON. Since the low switch is turned ON, the VSV No. 2 is OFF regardless of the state of the power shift switch. As a result, the motor vehicle is driven on the four-wheel drive.

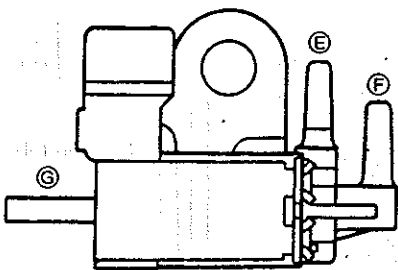
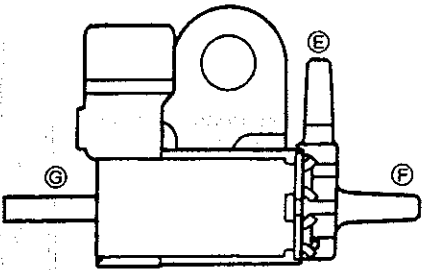
Power shift switch	Transfer shift lever position
ON/OFF	4L

Operating conditions of each switch

VSV No. 1	ON
VSV No. 2	OFF
Low switch	ON
Neutral switch	ON
4WD switch	ON



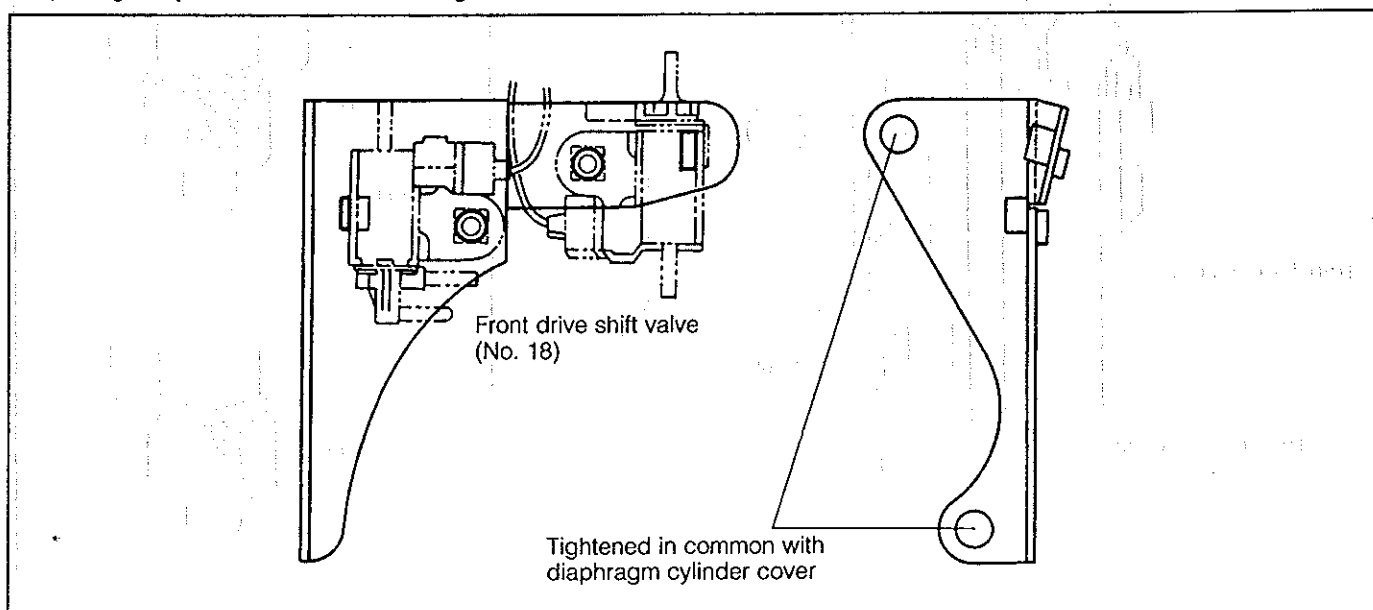
FRONT DRIVE SHIFT CONTROL VACUUM SWITCHING VALVE

		VSV No. 1	VSV No. 2												
Shape															
Operation		<table border="1"> <tr> <th></th><th>Port E</th><th>Port F</th><th>Port G</th></tr> <tr> <td>Energized</td><td>○</td><td>○</td><td></td></tr> <tr> <td>Not energized</td><td>○</td><td></td><td>○</td></tr> </table>		Port E	Port F	Port G	Energized	○	○		Not energized	○		○	
	Port E	Port F	Port G												
Energized	○	○													
Not energized	○		○												
Timing	4WD	Energized	Not energized												
	2WD	Not energized	Energized												
Coupler color		White	Blue												

WRE91-TR013

VACUUM SHIFT CONTROL VALVE BRACKET

This bracket has been newly provided so as to install the VSV. This bracket is tightened in common by the diaphragm cylinder cover attaching bolts.

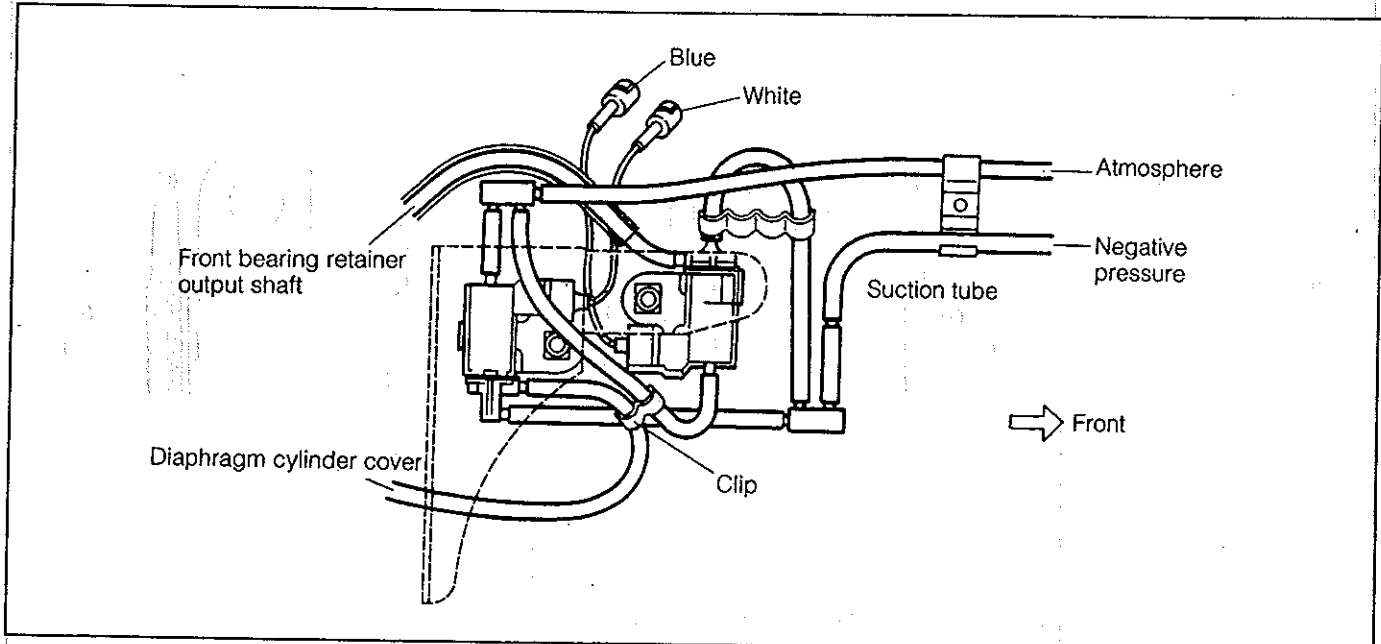


WRE91-TR014

TRANSFER

VACUUM HOSE

Vacuum hoses are used to transmit a negative pressure to various parts.



WRE91-TR015

TRANSPOSITION DETECTION SWITCH

Purpose

Low-detection switch ①

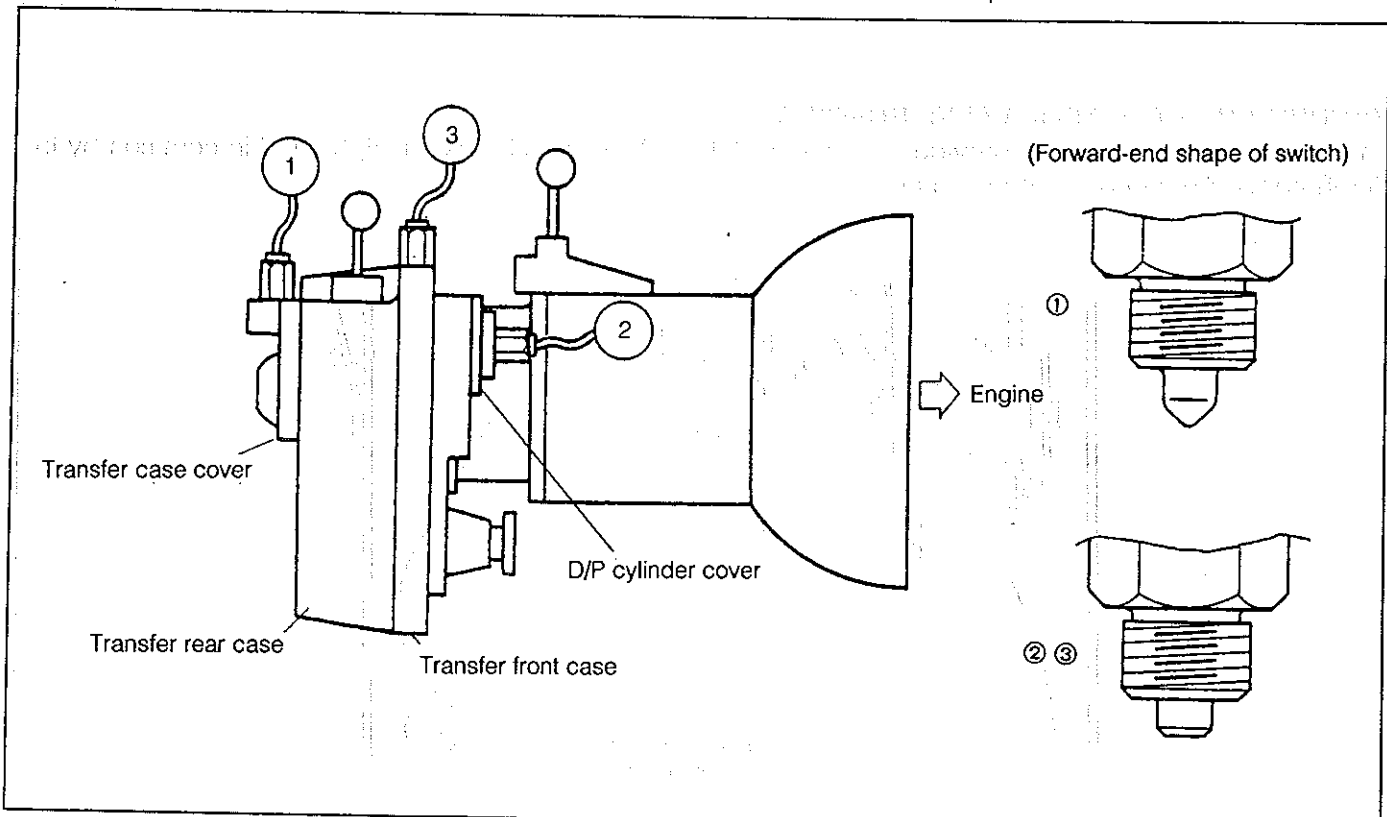
This switch is used to select the 4WD when the transfer shift lever is in the 4L position.

4WD-detection switch ②

This switch actuates the 4WD indicator lamp.

Neutral-detection switch ③

This switch detects the neutral position and actuates the 4WD indicator lamp.



WRE91-TR016

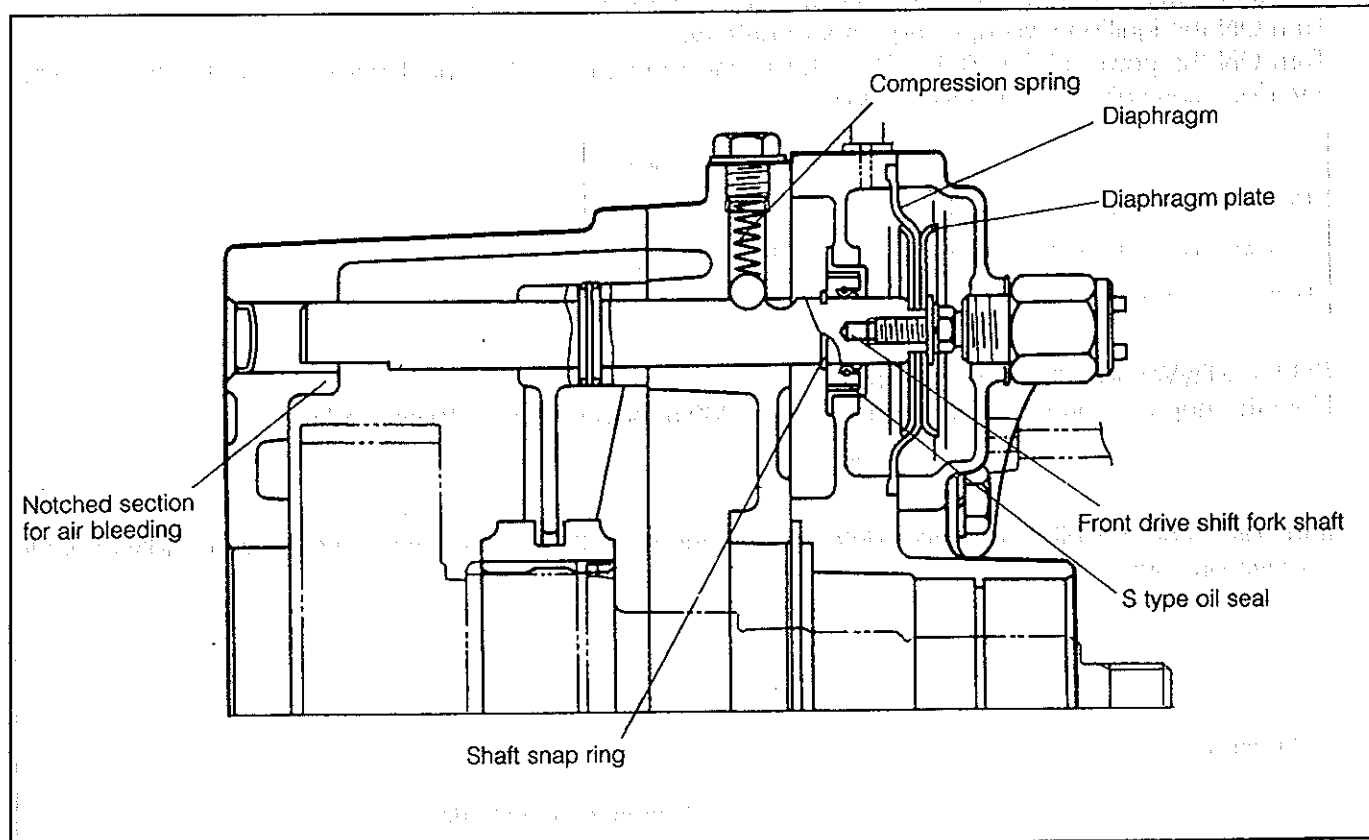
SHAFT SNAP RING

Since the front drive shift fork shaft always receives a thrust from the actuator, the case and snap ring serve as a stopper for shaft stroke.

COMPRESSION SPRING

Its spring constant has been changed in accordance with the change in thrust by the actuator.

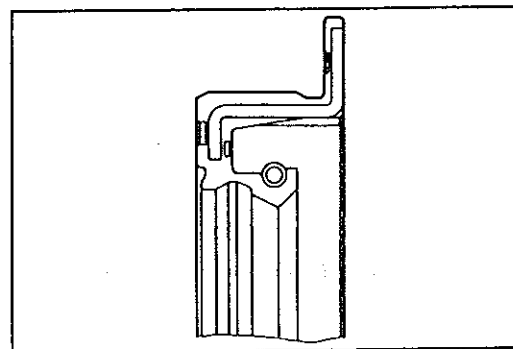
$$k = 2.0 \rightarrow k = 0.2$$



WRE91-TR017

S TYPE OIL SEAL

An air (negative pressure) seal which slides in an axial direction has been employed.



WRE91-TR018

TRANSFER

AIR-TIGHTNESS INSPECTION OF POWER SHIFT SWITCH DIAPHRAGM BY IN-VEHICLE INSPECTION OR BY UNIT INSPECTION TRANSMISSION AND TRANSFER ASSEMBLY

In-vehicle inspection

- Warm up the engine. (After the engine has warmed up, stop the engine.)
- Disconnect the negative-pressure pipe (B) at the section (A) indicated in the figure below.
- Connect a MityVac to the negative-pressure pipe at the section (A).
- Turn ON the ignition switch, using a spare battery.
- Turn ON the power shift switch. At each running range, move the shift lever to one of the transfer shift lever positions given in the table below.

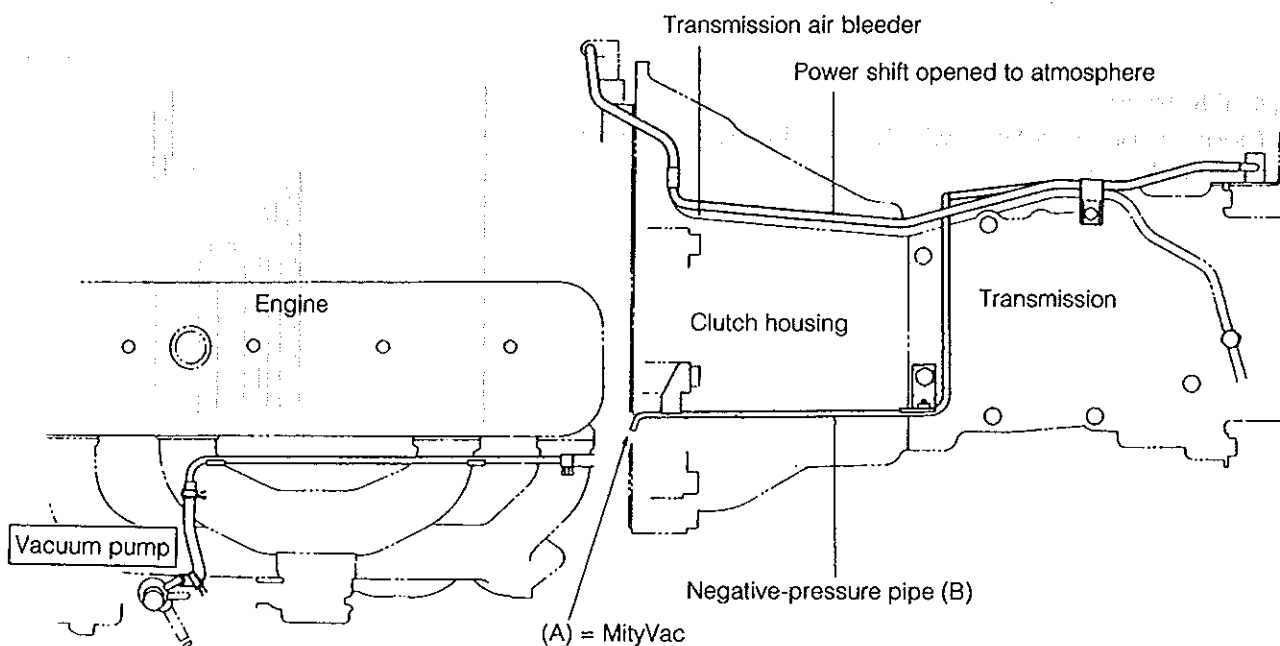
	Transfer shift lever position
High-speed running range	2H
Four-wheel drive, neutral	N
Low-speed running range	4L

- Set the MityVac to -200 mmHg manually.
- Hold the negative pressure of the MityVac at -200 mmHg for about 10 seconds.



- If the diaphragm exhibits damage, deterioration and so forth, the negative pressure will rapidly return to positive pressure.

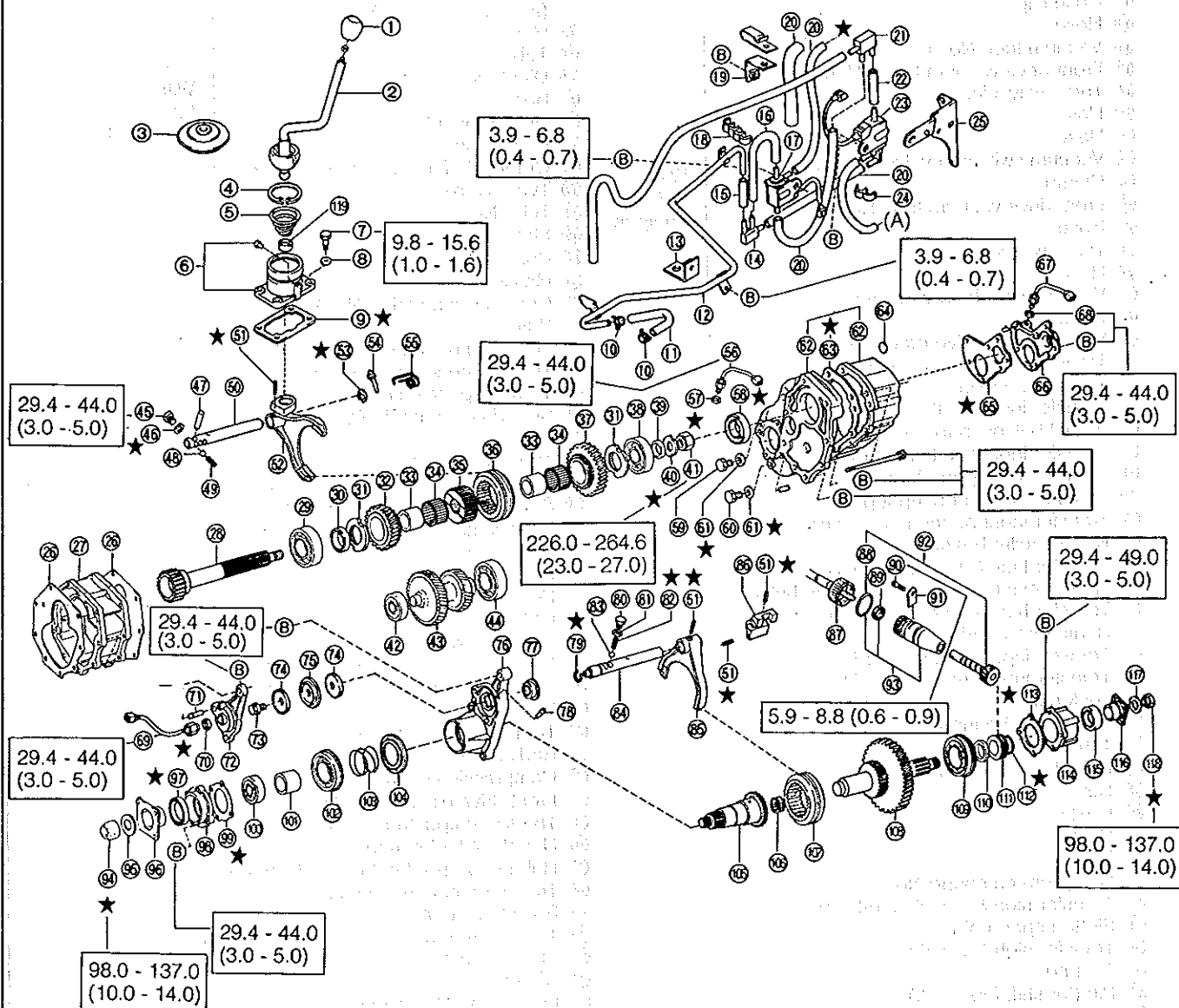
F70 series



WRE91-TR019

TRANSFER (5-Speed) COMPONENTS

□ : Tightening torque
Unit : N·m (kgf·m)
★ : Non-reusable parts



TRANSFER

- ① Shift lever knob S/A
- ② Transfer shift lever
- ③ Shift lever boot
- ④ Hole snap ring
- ⑤ Conical spring
- ⑥ Transfer shift lever retainer S/A
- ⑦ Bolt
- ⑧ Washer
- ⑨ Transfer shift lever retainer gasket
- ⑩ Hose clip
- ⑪ Hose
- ⑫ Vacuum tube No. 1
- ⑬ Front drive vacuum tube LH front bracket
- ⑭ Three-way joint
- ⑮ Hose
- ⑯ Hose
- ⑰ Vacuum switching valve Ay No. 2
- ⑱ Clamp
- ⑲ Front drive vacuum tube RH rear bracket
- ⑳ Hose
- ㉑ Three-way joint
- ㉒ Hose
- ㉓ Vacuum switching valve Ay
- ㉔ Clamp
- ㉕ Vacuum shift valve bracket
- ㉖ Transfer case front gasket
- ㉗ Transfer adapter
- ㉘ Transfer input shaft
- ㉙ Radial ball bearing
- ㉚ Transfer input shaft spacer No. 1
- ㉛ Transfer input gear thrust washer
- ㉜ Transfer low speed input gear
- ㉝ Transfer input bearing inner race
- ㉞ Needle roller bearing
- ㉟ Transfer high & low clutch hub
- ㊱ Hub sleeve (for high & low clutch hub)
- ㊲ Transfer high speed input gear
- ㊳ Radial ball bearing
- ㊴ Transfer input shaft spacer No. 2
- ㊵ Transfer input shaft spacer No. 3
- ㊶ Lock nut
- ㊷ Radial ball bearing
- ㊸ Transfer idle gear
- ㊹ Radial ball bearing
- ㊺ Bolt
- ㊻ Gasket
- ㊼ Roller
- ㊽ Ball
- ㊾ Compression spring No. 2
- ㊿ Transfer high & low shift fork shaft
- 1 Slotted spring pin
- 2 Transfer high & low shift fork
- 3 "E" ring
- 4 Pin (for shift fork shaft)
- 5 Torsion spring
- 6 Transmission position detect switch
- 7 Gasket
- 8 Type "S" oil seal
- 9 Filler plug
- 0 Drain plug

With
P.S.S.
equipped

- 1 Gasket
- 2 Transfer case
- 3 Transfer case gasket
- 4 Tight plug
- 5 Transfer case cover gasket No. 1
- 6 Transfer case cover No. 1
- 7 Transfer position detect switch (for N detection)
- 8 Gasket
- 9 Transmission position switch Ay
(for 4WD detection)
- 0 Gasket
- 1 Tube
- 2 Diaphragm cylinder cover
- 3 Bolt
- 4 Diaphragm plate
- 5 Diaphragm
- 6 Output shaft bearing front retainer
- 7 Type "S" oil seal
- 8 Tube No. 2
- 9 Shaft snap ring
- 0 Bolt
- 1 Gasket
- 2 Compression spring No. 1
- 3 Ball
- 4 Transfer front drive shift fork shaft
- 5 Transfer front drive shift fork
- 6 Transfer gear shift head
- 7 Speedometer cable Ay
- 8 "O" ring
- 9 Type "V" oil seal
- 0 Bolt
- 1 Speedometer sleeve lock plate
- 2 Speedometer driven gear
- 3 Speedometer shaft sleeve
- 4 Lock nut
- 5 Plate washer
- 6 Output shaft companion flange
- 7 Type "T" oil seal
- 8 Output shaft bearing retainer front
- 9 Output shaft bearing retainer front gasket
- 0 Bearing
- 1 Transfer output shaft spacer
- 2 Radial ball bearing
- 3 Compression spring
- 4 Front drive disengage plate
- 5 Transfer output front shaft
- 6 Needle roller bearing
- 7 Hub sleeve (for front drive clutch hub)
- 8 Transfer output rear shaft
- 9 Radial ball bearing
- 0 Transfer rear output shaft spacer No. 3
- 1 Speedometer drive gear
- 2 "O" ring
- 3 Output shaft bearing rear retainer gasket
- 4 Output shaft bearing rear retainer
- 5 Type "T" oil seal
- 6 Output shaft companion flange
- 7 Plate washer
- 8 Lock nut
- 9

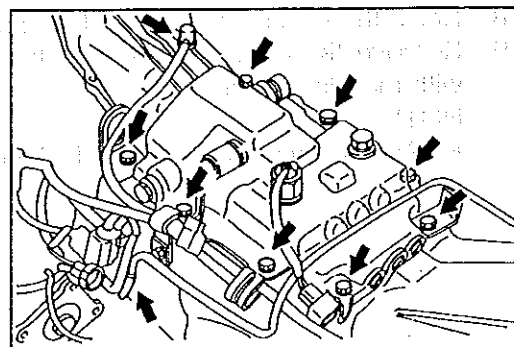
With
P.S.S.
equipped

REMOVAL

1. Remove the transmission & transfer assembly from the vehicle. (Refer to the MT section.)
2. Remove the transmission case cover with the gasket by removing the eight bolts.

NOTE:

- Never reuse the removed gasket.

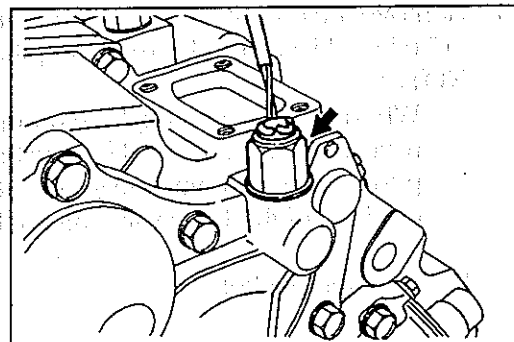


WRE91-TR022

3. Remove the transfer position detect switch with the gasket.

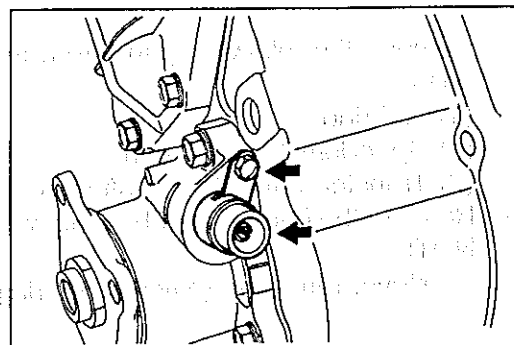
NOTE:

- Never reuse the removed gasket.



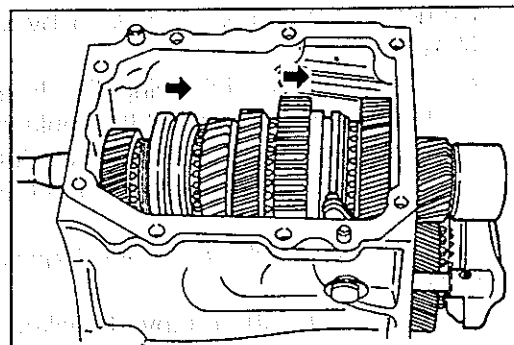
WRE91-TR023

4. Remove the speedometer shaft sleeve by removing the bolt.



WRE91-TR024

5. Interlock the 1st gear with the 3rd gear.

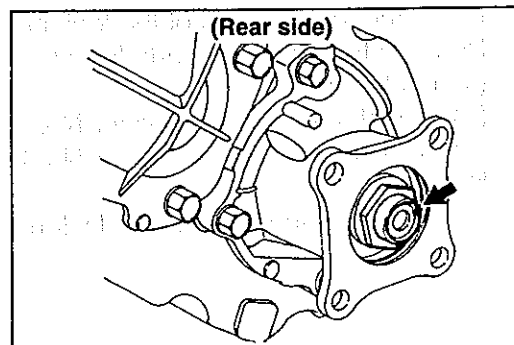


WRE91-TR025

6. Raise the lock section of the lock nut.
7. Remove the output shaft companion flange and plate washer by removing the lock nut.

NOTE:

- Never reuse the removed lock nut.



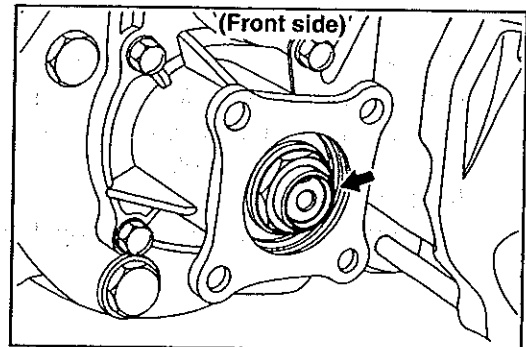
WRE91-TR026

TRANSFER

8. Raise the lock section of the lock nut.
9. Remove the companion flange by removing the lock nut with the plate washer.

NOTE:

- Never reuse the removed lock nut.

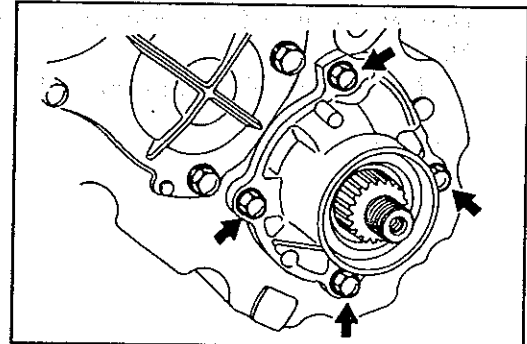


WRE91-TR027

10. Remove the output shaft bearing rear retainer, with the type "T" oil seal installed, by removing the four bolts.

NOTE:

- When the four bolts tightening the output shaft bearing rear retainer are reused or new bolts of the replacement parts are used, completely wipe off or wash the threaded portions of the bolts with solvent before using the bolts.



WRE91-TR028

11. Remove the gasket.

NOTE:

- Never reuse the removed gasket.

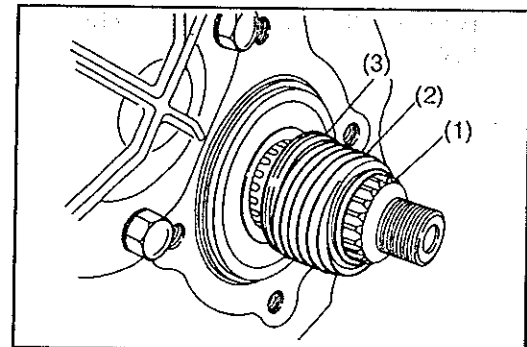
12. Remove the following parts from the transfer output rear shaft.

- (1) "O" ring
- (2) Speedometer drive gear
- (3) Transfer rear output shaft spacer No. 3

13. Remove the output shaft bearing retainer gasket.

NOTE:

- Never reuse the removed "O" ring and gasket.

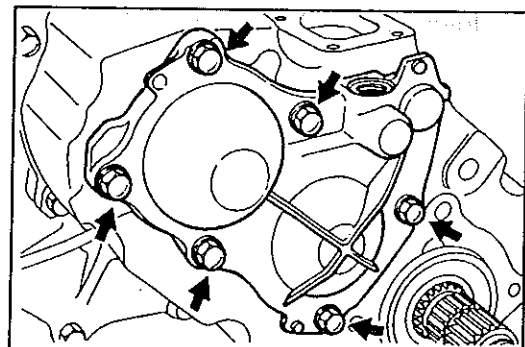


WRE91-TR029

14. Remove the transfer case No. 1 by removing the six bolts.

NOTE:

- The six bolts tightening the transfer case No. 1 are reused or new bolts of the replacement parts are used, completely wipe off or wash the threaded portions of the bolts with solvent before using the bolts.



WRE91-TR030

15. Remove the transfer case No. 1 gasket.

NOTE:

- Never reuse the removed gasket.

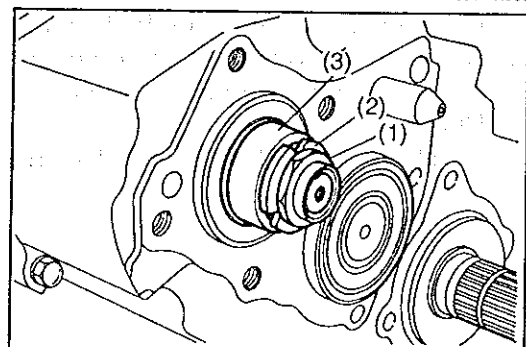
16. Raise the lock section of the lock nut.

17. Remove the following parts from the transfer input shaft.

- (1) Lock nut
- (2) Transfer input shaft spacer No. 3
- (3) Transfer input shaft spacer No. 2

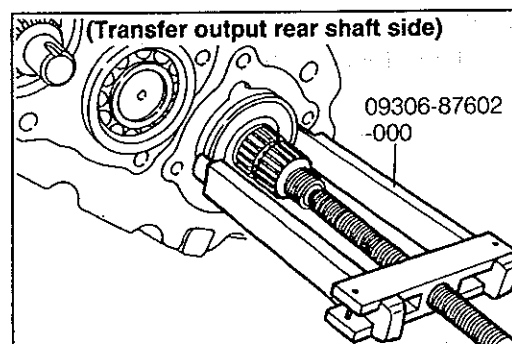
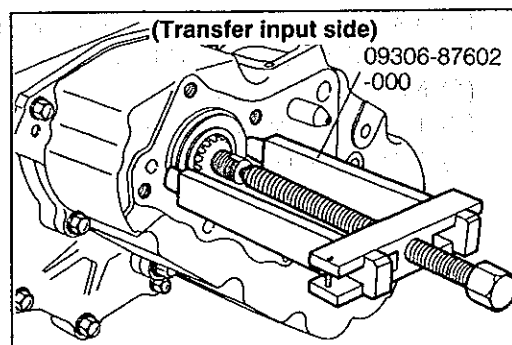
NOTE:

- Never reuse the removed lock nut.



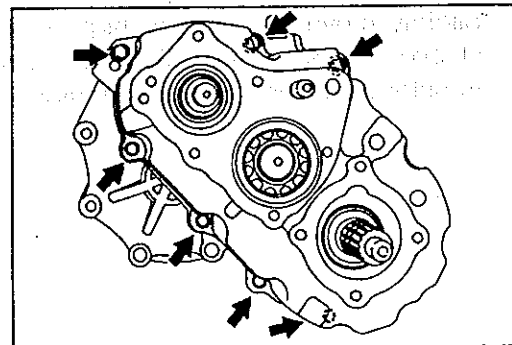
WRE91-TR031

18. Detach the stop ring of the radial ball bearing in the transfer output rear shaft.
19. Remove the radial ball bearing, using the following SST.
SST: 09306-87602-000



WRE91-TR032

20. Remove the seven bolts of the transfer case.



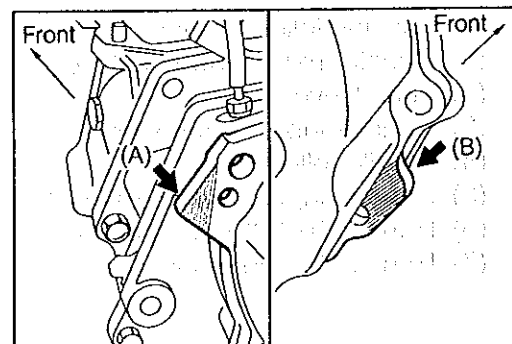
WRE91-TR033

21. While lightly tapping the transfer case at the rib sections (A) and (B), using a plastic hammer or the like, remove the transfer case together with the radial ball bearing of the transfer output rear shaft.

22. Remove the transfer gasket.

NOTE:

- Never reuse the removed gasket.



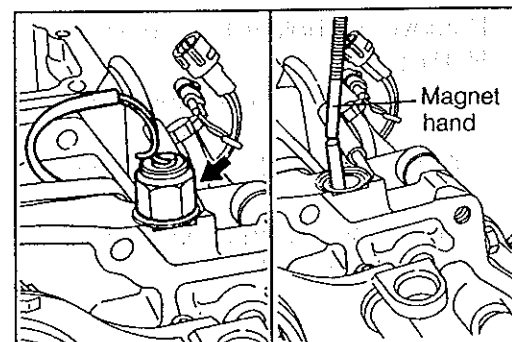
WRE91-TR034

23. Remove the transfer position detect switch with the gasket.

NOTE:

- Never reuse the removed gasket.

24. Remove the roller, using a standard magnet hand tool.

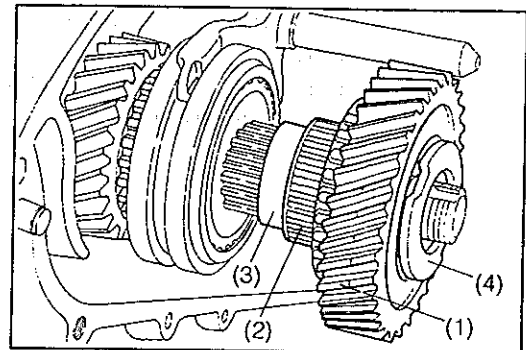


WRE91-TR035

TRANSFER

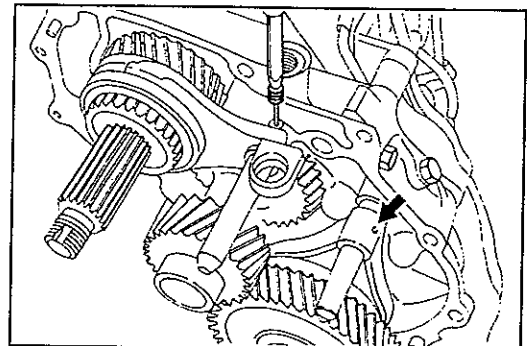
25. Remove the following parts from the transfer input shaft.

- (1) Transfer high speed input gear
- (2) Needle roller bearing
- (3) Transfer input bearing inner race
- (4) Transfer input shaft spacer No. 3



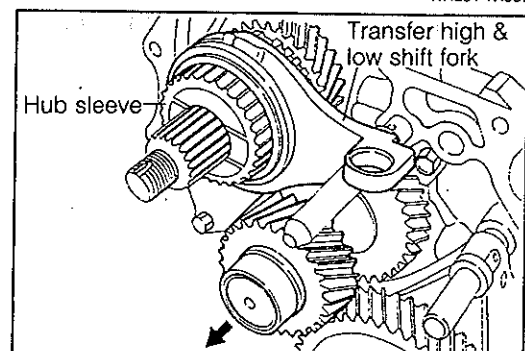
WRE91-TR036

26. Drive off the slotted spring pin of the transfer high & low clutch fork and transfer high speed clutch fork.



WRE91-TR037

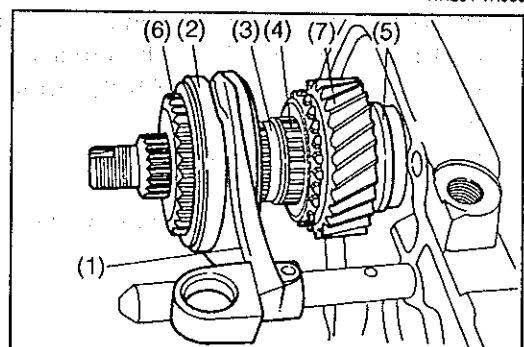
27. Slightly move the transfer high & low shift fork and hub sleeve as a set toward the transfer rear side. Pull out the transfer idler gear toward your side.



WRE91-TR038

28. Remove the following parts from the transfer input shaft.

- (1) Transfer high & low shift fork
- (2) Hub sleeve
- (3) Transfer input bearing inner race
- (4) Needle roller bearing
- (5) Transfer input gear thrust washer
- (6) Transfer high & low clutch hub
- (7) Transfer low speed input gear



WRE91-TR039

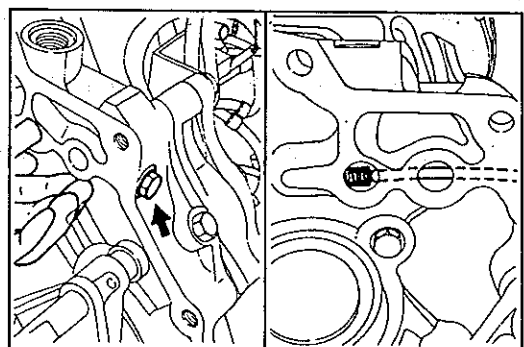
29. Remove the bolt with the gasket.

NOTE:

- Never reuse the removed gasket.

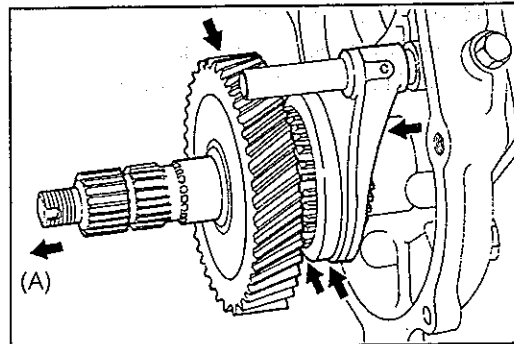
30. Pull out the transfer front drive shift fork shaft toward your side.

31. Remove the ball and compression spring, using a standard magnet hand tool.



WRE91-TR040

32. Pull out the transfer front drive shift fork, hub sleeve and transfer output rear shaft as a set toward your side (A).



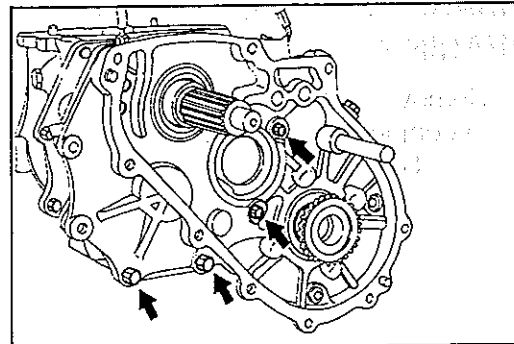
WRE91-TR041

33. Remove the transfer case with the following parts installed by removing the four bolts.

- (1) Transfer output front shaft
- (2) Power shift-related parts
- (3) Output shaft bearing front retainer-related parts
- (4) Gasket

NOTE:

- Never reuse the removed gasket.

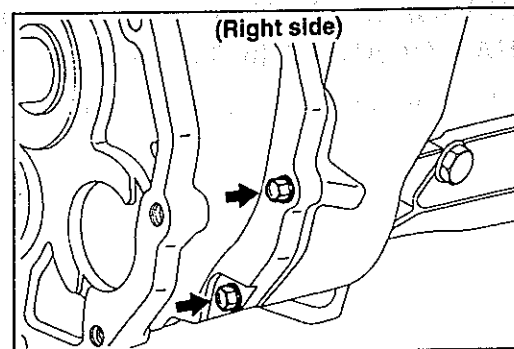
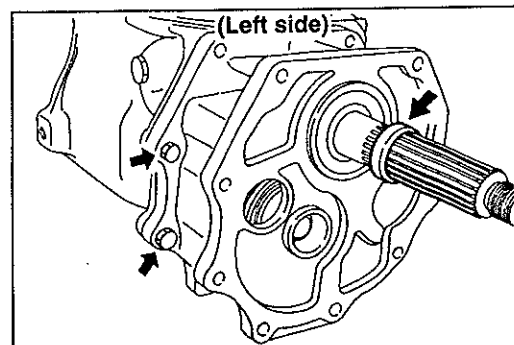


WRE91-TR042

34. Remove the transfer input shaft spacer No.1.
 35. Remove the transfer adapter with the radial ball bearing and transfer input shaft installed by removing the four bolts.
 36. Remove the transfer case front gasket.

NOTE:

- Never reuse the removed gasket.

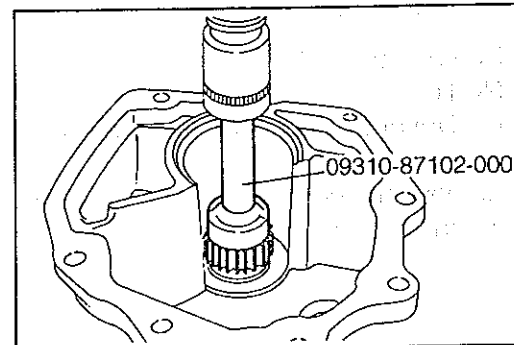


WRE91-TR043

DISASSEMBLY OF TRANSFER ADAPTER

1. Remove the transfer input shaft with the bearing installed, using the following SST.

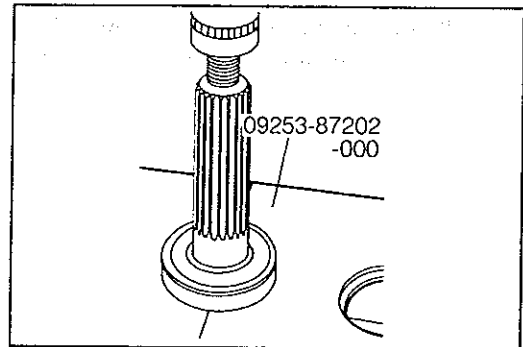
SST: 09310-87102-000



WRE91-TR044

TRANSFER

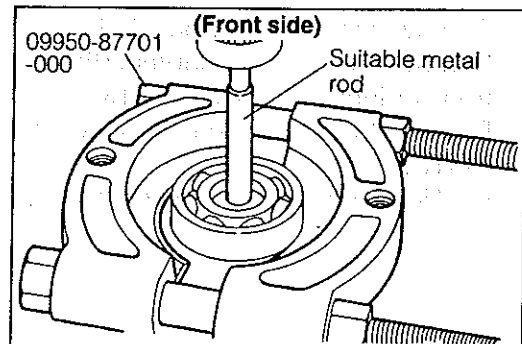
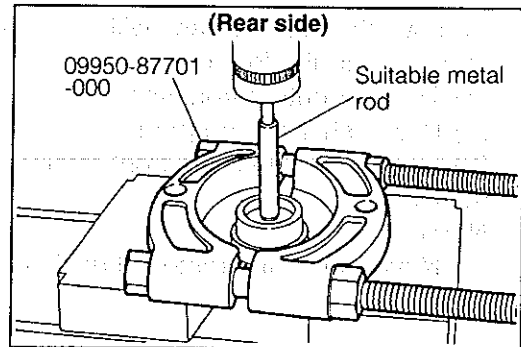
2. Remove the radial ball bearing, using the following SST in conjunction with a press.
SST: 09253-87202-000



WRE91-TR045

DISASSEMBLY OF TRANSFER IDLER GEAR BEARING

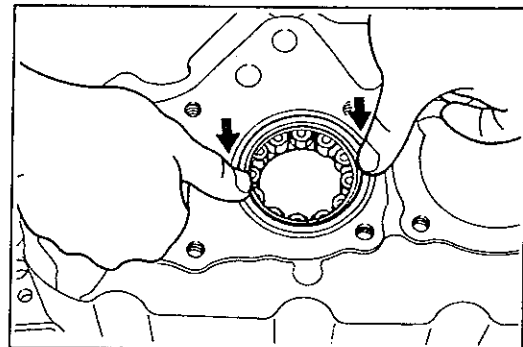
1. Remove the front and rear bearings, using the following SST in conjunction with a press.
SST: 09950-87701-000



WRE91-TR046

DISASSEMBLY OF TRANSFER IDLER GEAR REAR BEARING IN TRANSFER FRONT CASE

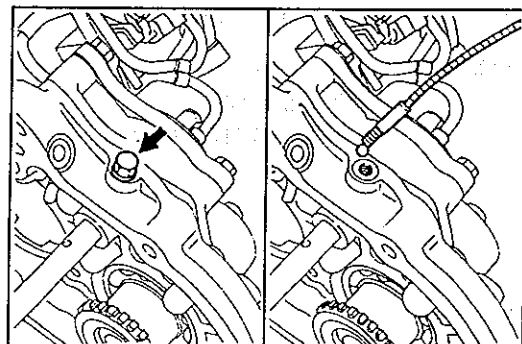
1. Remove the bearing by pushing its outer race with your fingers.



WRE91-TR047

DISASSEMBLY OF TRANSFER FRONT CASE

1. Remove the bolt with the gasket.
NOTE:
 - Never reuse the removed gasket.
2. Remove the compression spring and ball, using a standard magnet hand tool.



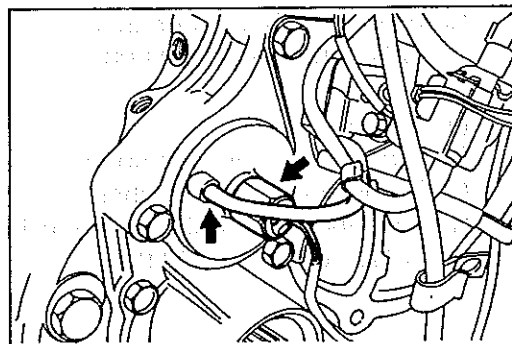
WRE91-TR048

2. Remove the transmission position switch assembly with the gasket.

NOTE:

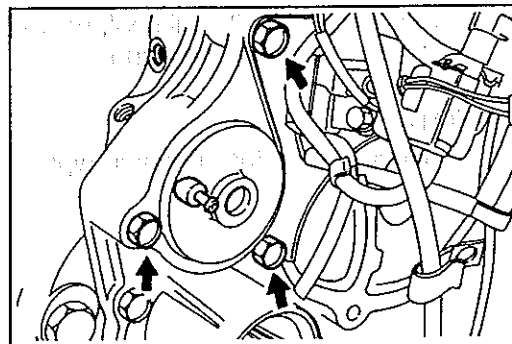
- Never reuse the removed gasket.

3. Disconnect the hose.



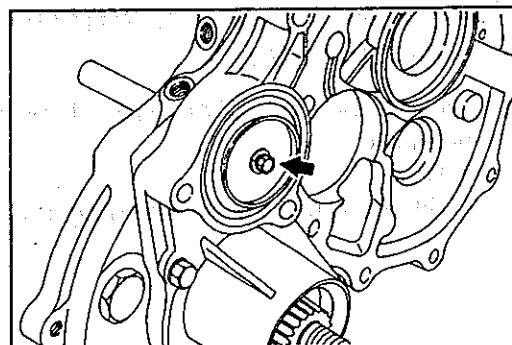
WRE91-TR049

4. Remove the diaphragm cylinder cover with the vacuum shift valve bracket installed by removing the three bolts.



WRE91-TR050

5. Separate the two diaphragms from the diaphragm plate by removing the bolts tightening the transfer front drive shift fork shaft.

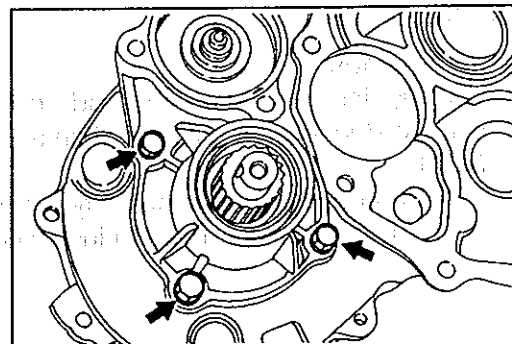


WRE91-TR051

6. Remove the output shaft bearing front retainer with the gasket by removing the three bolts.

NOTE:

- Never reuse the removed gasket.

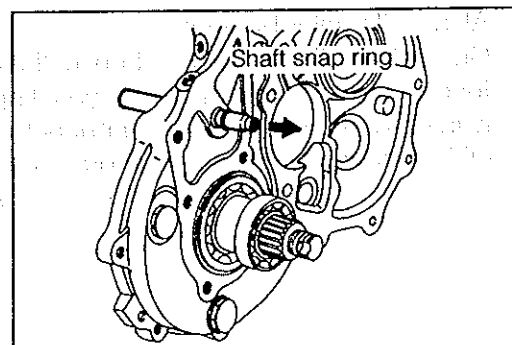


WRE91-TR052

7. Pull out the transfer front drive shift fork shaft with the shaft snap ring installed toward your side.
8. Remove the shaft snap ring.

NOTE:

- Never reuse the removed shaft snap ring.



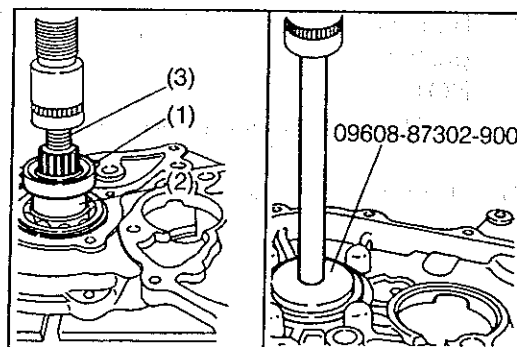
WRE91-TR053

TRANSFER

9. Remove the following parts, using a press.
SST: 09253-87202-000

- (1) Bearing
- (2) Transfer output shaft spacer
- (3) Transfer output front shaft

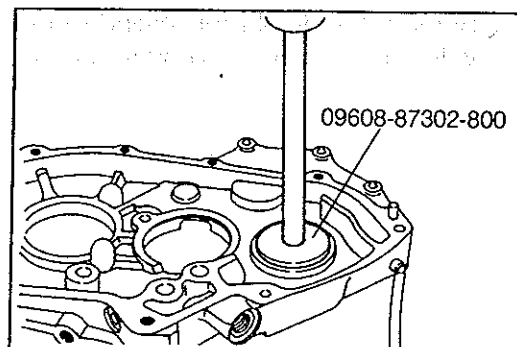
10. Remove the radial ball bearing, using the following SST.
SST: 09608-87302-900



11. Remove the type "S" oil seal, using the following SST.
SST: 09608-87302-800

NOTE:

- Never reuse the removed type "S" oil seal.

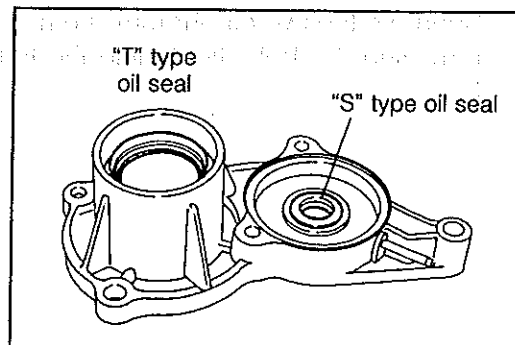


DISASSEMBLY OF DIAPHRAGM CYLINDER COVER OIL SEAL

1. Remove the type "S" and type "T" oil seals, using a suitable metal rod.

NOTE:

- Never reuse the removed type "S" oil seal.



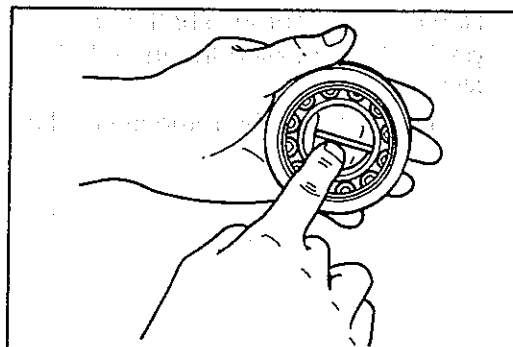
INSPECTION

1. All bearings

Visually inspect the roller and roller guide surface for seizure due to poor oil lubrication and so forth.

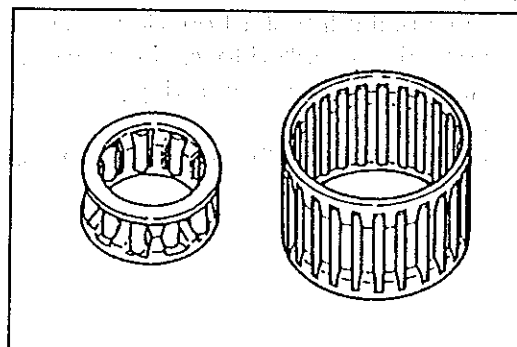
NOTE:

- The right figure indicates a typical example of the transfer idler gear rear bearing inspection.

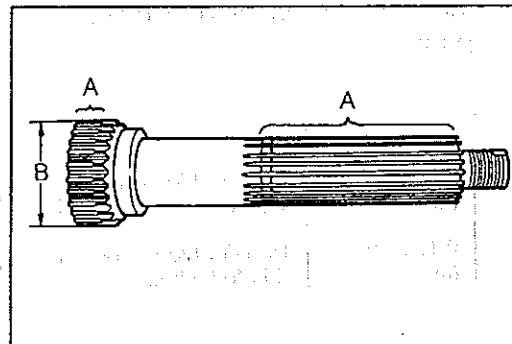


2. All needle roller bearings

Check the roller outer periphery of the needle roller bearing for damage by scratching it by your fingernails. Also, visually inspect the roller outer periphery for seizure due to poor oil lubrication or use of deteriorated oil.



3. Transfer input shaft
- (1) Check the fitting section and spline section (A) of the transmission 5th gear for damage or abnormal wear.
 - (2) Measure the outer diameter (B) section.
Specified Value:
Allowable Limit:
 - (3) Check the shaft for bend at the section (C).
Allowable Limit:

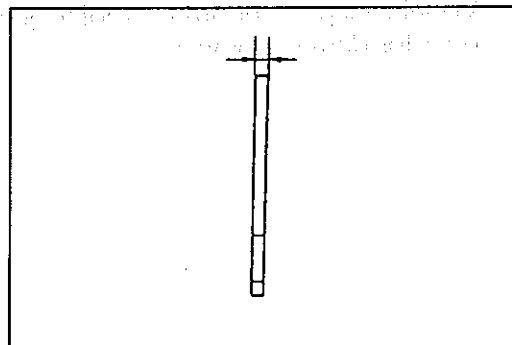


WRE91-TR059

4. Measure the thickness of the transfer input gear thrust washer.

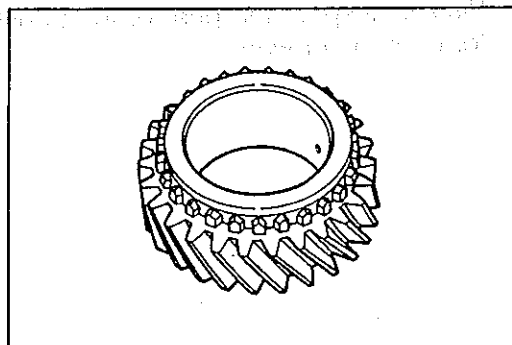
Unit: mm

Specified value	4 ± 0.05
Allowable limit	3.9



WRE91-TR060

5. Visually inspect the transfer high & low speed input gear for damage or wear.

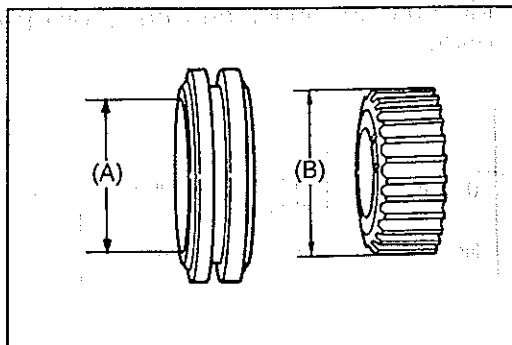


WRE91-TR061

6. Measure the inner and outer diameters of the following parts.

Unit: mm

		Specified value	Allowable limit
Inner diameter (A)	Hub sleeve	$72.5^{+0.2}_{-0}$	72.7
Outer diameter (B)	Transfer high & low clutch hub	$72.5^{+0.10}_{-0.17}$	72.3

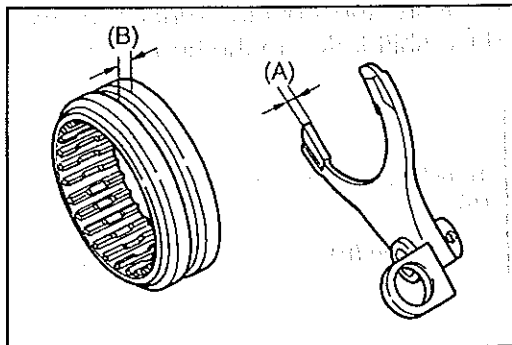


WRE91-TR062

7. Check the contact surface between the transfer high & low shift fork (A) and the transfer high & low clutch hub (B).

Unit: mm

	Specified value	Allowable limit
(A)	$7^{+0.15}_{-0.12}$	6.3
(B)	$7^{+0.053}_{-0}$	7.3



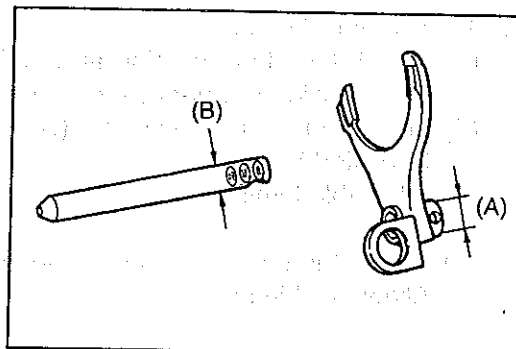
WRE91-TR063

TRANSFER

8. Measure the inner and outer diameters of the following parts.

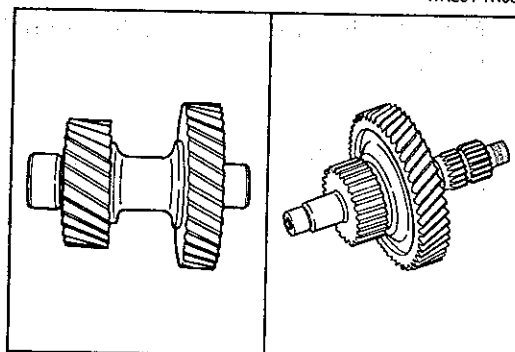
Unit: mm

		Specified value	Allowable limit
Inner diameter (A)	Transfer high & low shift fork	$16^{+0.027}_{-0}$	16.0
Outer diameter (B)	Transfer high & low shift fork shaft	$16^{-0.025}_{-0.040}$	15.07



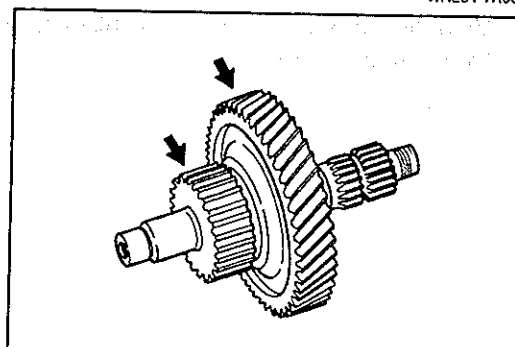
WRE91-TR064

9. Visually inspect the transfer idler gear and transfer output gear for damage or wear.



WRE91-TR065

10. Visually inspect the gear of the transfer output front shaft for damage or wear.

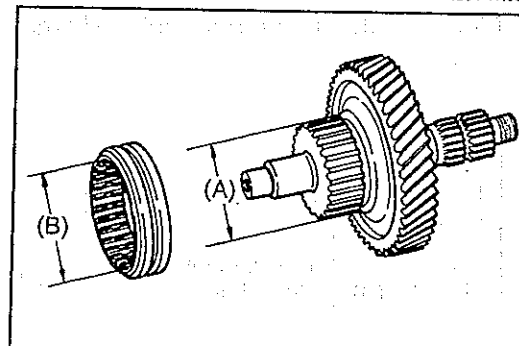


WRE91-TR066

11. Measure the inner and outer diameters of the following parts.

Unit: mm

		Specified value	Allowable limit
Outer diameter	Transfer output rear shaft (A)	$72.5^{-0.10}_{-0.17}$	72.3
Inner diameter	Hub sleeve (B)	$72.5^{+0.2}_{+0}$	72.7

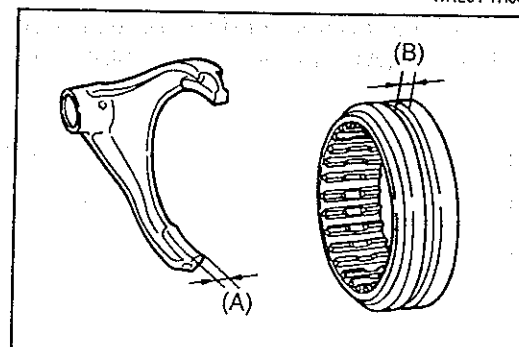


WRE91-TR067

12. Measure the contact surface between the transfer front drive shift fork and the hub sleeve.

Unit: mm

	Specified value	Allowable limit
Transfer front drive shift fork (A)	$7^{-0.1}_{-0.2}$	6.3
Hub sleeve (B)	$7^{+0.058}_{+0}$	7.3

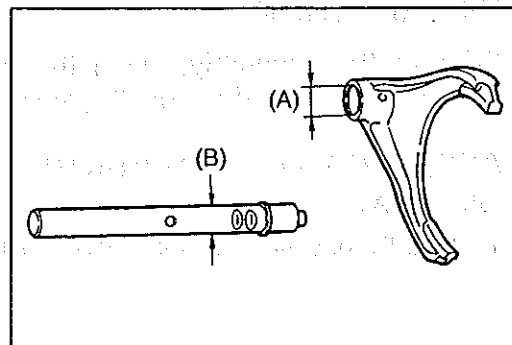


WRE91-TR068

13. Measure the inner and outer diameters of the following parts.

Unit: mm

		Specified value	Allowable limit
Inner diameter	Transfer front drive shift fork (A)	$16^{+0.027}_{+0}$	16.3
Outer diameter	Transfer front drive shift fork shaft (B)	$16^{-0.025}_{-0.040}$	15.06

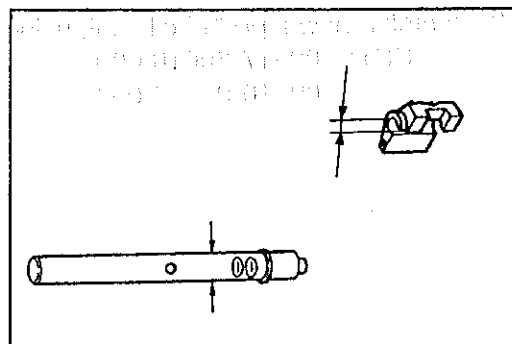


WRE91-TR069

14. Measure the inner and outer diameters of the following parts.

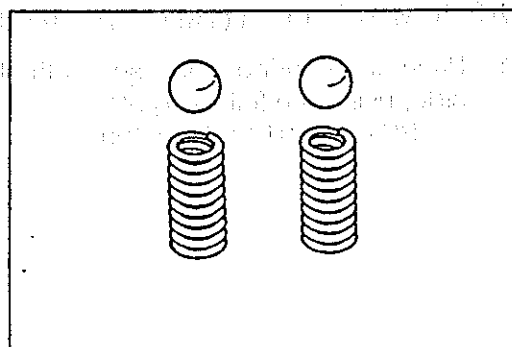
Unit: mm

		Specified value	Allowable limit
Inner diameter	Transfer gear shift head	$16^{+0.054}_{+0.016}$	16.06
Outer diameter	Transfer front drive shift fork shaft	$16^{-0.025}_{-0.040}$	15.06



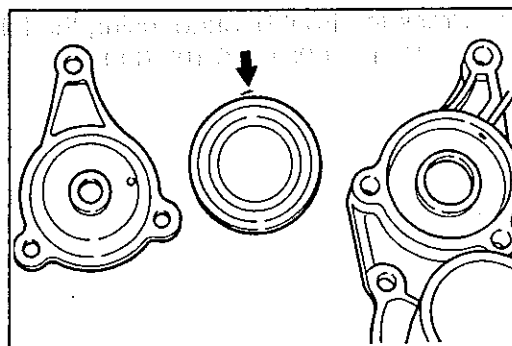
WRE91-TR070

15. Visually inspect the ball and compression spring for damage or abnormal wear.



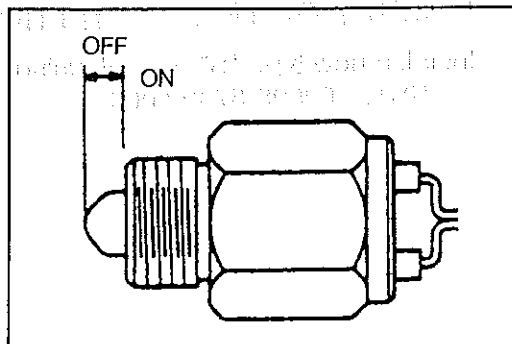
WRE91-TR071

16. Visually inspect the diaphragm, diaphragm cylinder cover and output shaft bearing front retainer for damage, abnormal wear or rupture.



WRE91-TR072

17. Turn ON and OFF the switch section of the transfer position detect switch assembly. Ensure that continuity exists when the switch is turned ON. Also, ensure that no continuity exists when the switch is turned OFF.



WRE91-TR073

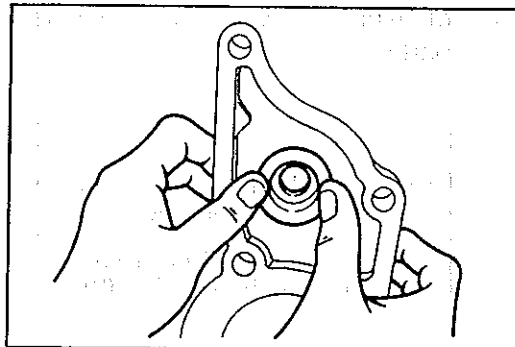
TRANSFER

INSTALLATION

Prior to the assembly, clean the transfer adapter, front case, etc. by removing any dirt, gasket materials or the like.

ASSEMBLY OF DIAPHRAGM CYLINDER COVER OIL SEAL

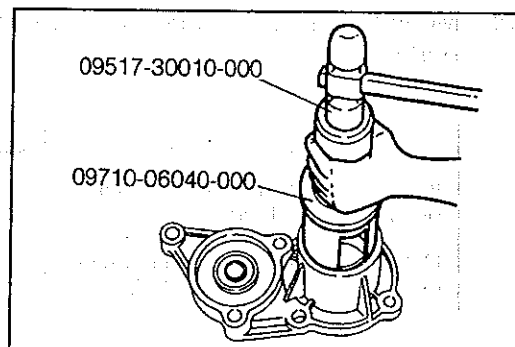
1. Install a new type "S" oil seal by pushing it with your fingers.



WRE91-TR074

2. Install a new type "T" oil seal, using the following SSTs.

SST: 09517-30010-000
09710-06040-000

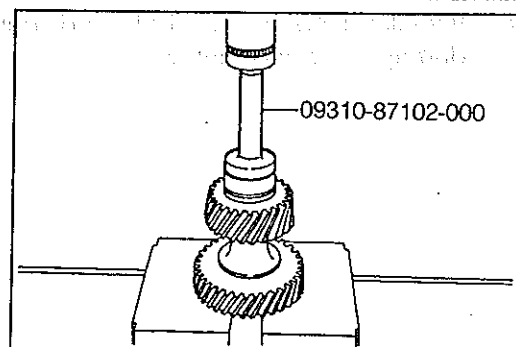


WRE91-TR075

ASSEMBLY OF TRANSFER IDLER GEAR

1. Press the bearing inner race at the transfer idler gear rear side, using the following SST.

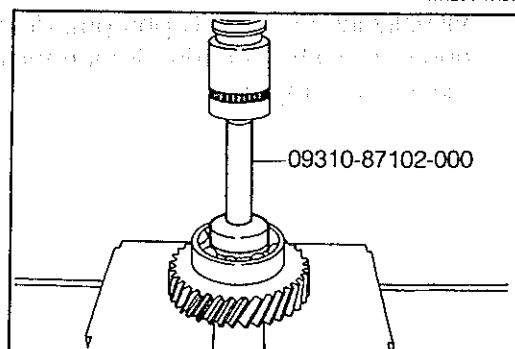
SST: 09310-87102-000



WRE91-TR076

2. Press the front bearing, using the following SST.

SST: 09310-87102-000

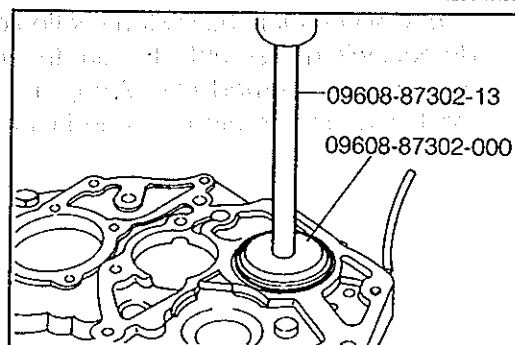


WRE91-TR077

ASSEMBLY OF TRANSFER FRONT CASE

1. Install a new type "S" oil seal, using the following SST.

SST: 09608-87302-000

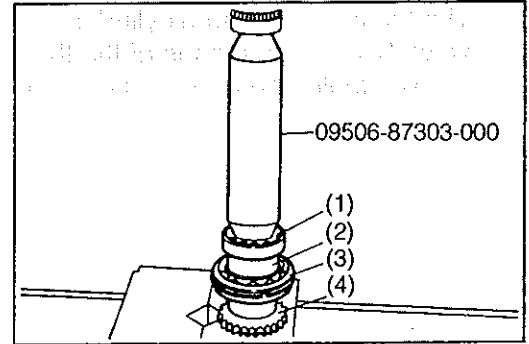


WRE91-TR078

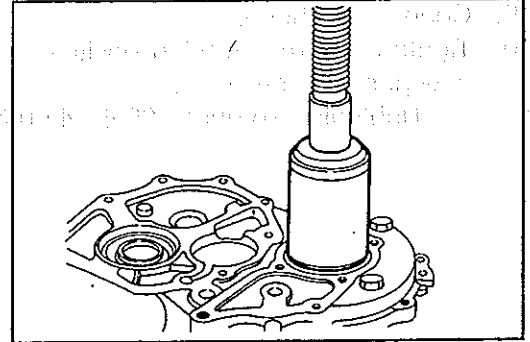
2. Install the following parts, using the following SST in conjunction with a press.

SST: 09506-87303-000

- (1) Bearing
- (2) Transfer output shaft spacer
- (3) Radial ball bearing
- (4) Transfer output front shaft



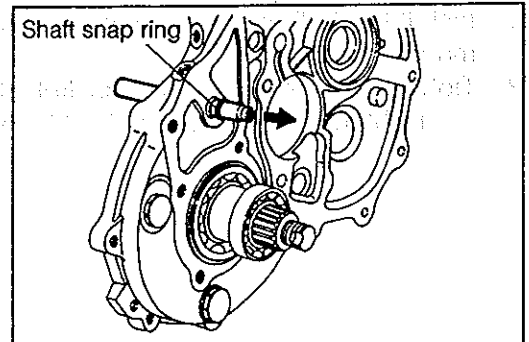
3. Install the aforesaid parts to the transfer front case.



4. Install the transfer front drive shift fork shaft with a new shaft snap ring installed.

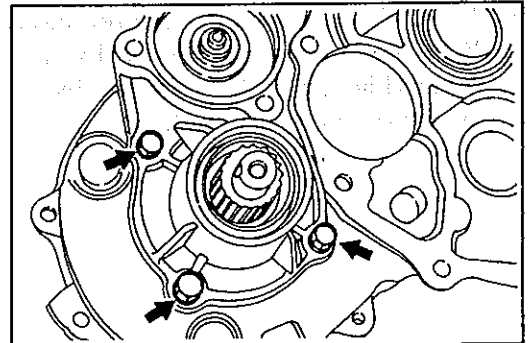
NOTE:

- Positively insert a new shaft snap ring at right angles with the axle of the transfer front drive shift fork shaft.



5. With a new gasket interposed, tighten the output shaft bearing front retainer with the three bolts.

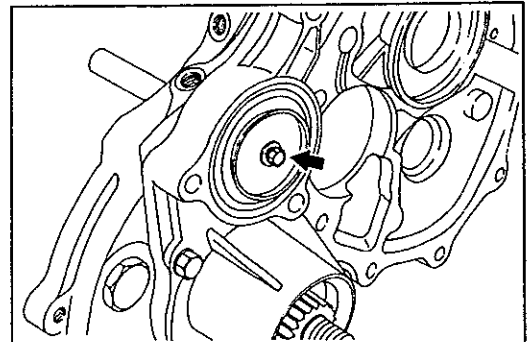
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf-m)



6. Install the diaphragm and two diaphragm plates.

7. Tighten the bolt at the forward end of the transfer front drive shift fork shaft.

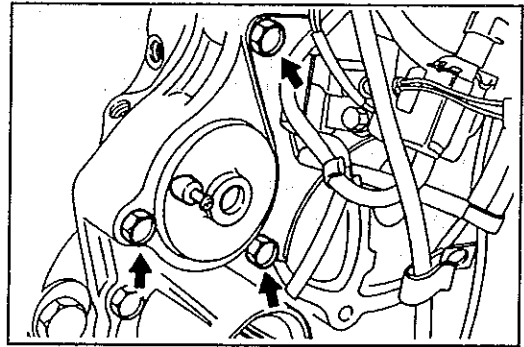
Tightening Torque: 9.8 - 15.7 N·m (1.0 - 1.6 kgf-m)



TRANSFER

8. Tighten the diaphragm cylinder cover with the vacuum shift valve bracket by means of the three bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

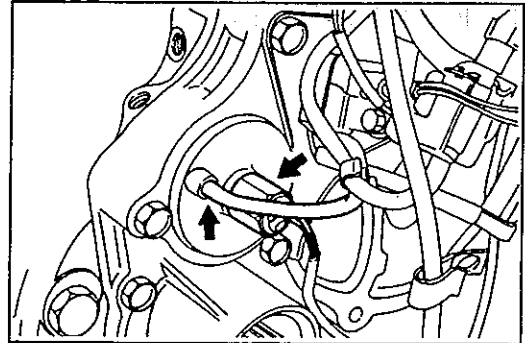


WRE91-TR084

9. Connect the hose.

10. Tighten the transmission position switch assembly with a new gasket interposed.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

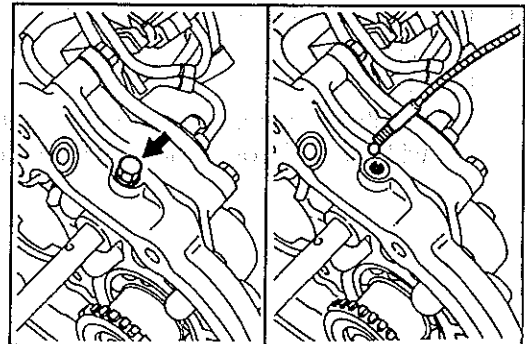


WRE91-TR085

11. Install the ball and compression spring, using a standard magnet hand tool.

12. Tighten the bolt with a new gasket interposed.

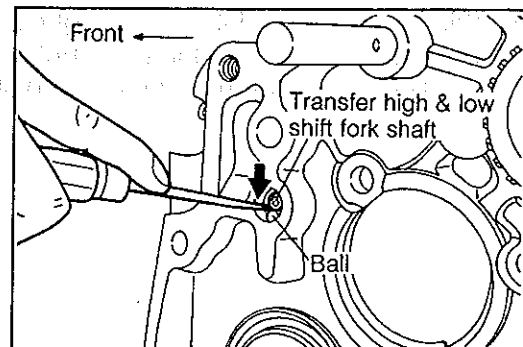
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)



WRE91-TR086

13. Install the compression spring and ball.

14. With the ball pushed down by means of a standard flat screwdriver, install the transfer high & low shift fork shaft by pushing it from the back side.



WRE91-TR087

INSTALLATION

1. Turn the transfer input shaft clockwise or counterclockwise. Then, install the transfer adapter case with a new gasket interposed.
2. Install the transfer adapter with the four bolts.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

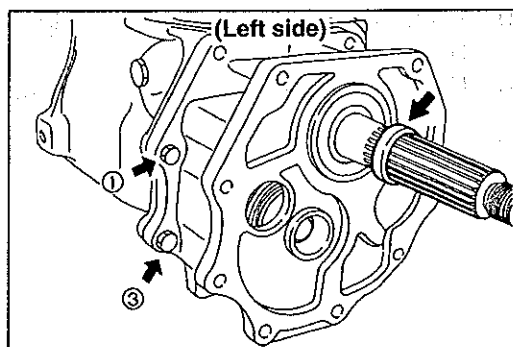
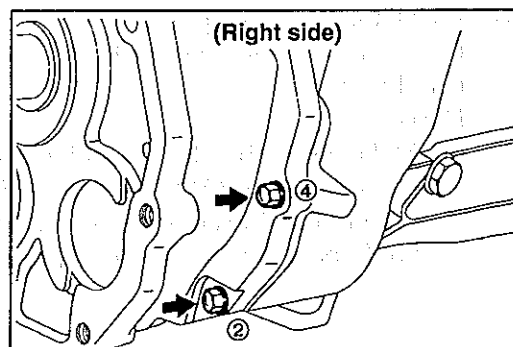
- Be sure to tighten the bolts evenly and diagonally. (The right figure indicates a typical example of the tightening sequence.)

3. Install the transfer input shaft spacer No.1.

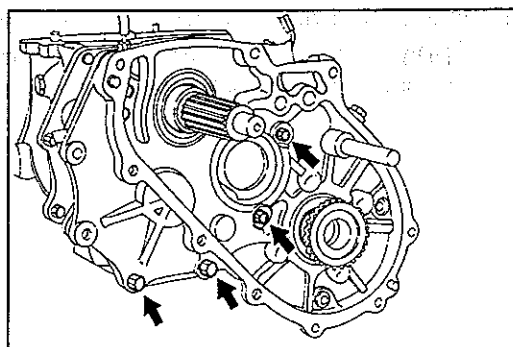
4. Apply gear oil to the outer periphery of the transfer input shaft spacer No.1.
5. With a new gasket interposed, tighten the transfer case with the four bolts.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

6. Place the transfer idler gear.

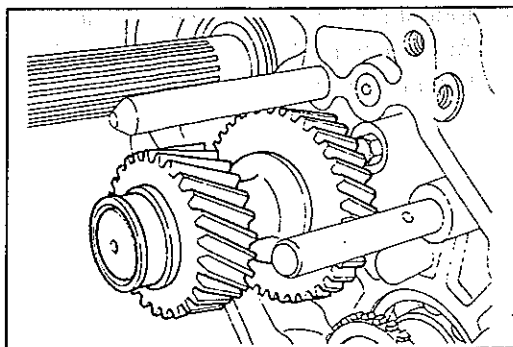
7. Apply gear oil to the outer periphery of the transfer front drive shift fork shaft.



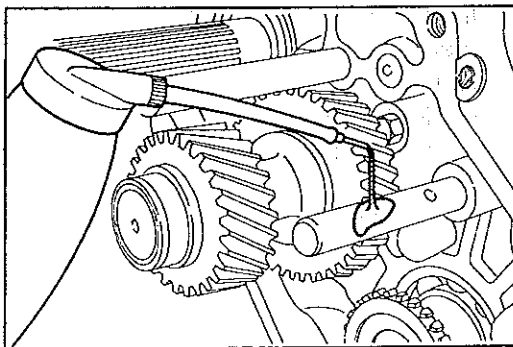
WRE91-TR088



WRE91-TR089



WRE91-TR090



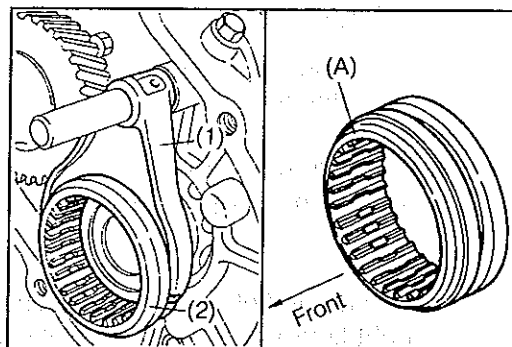
WRE91-TR091

TRANSFER

8. Install the following parts.
 - (1) Transfer front drive shift fork
 - (2) Hub sleeve

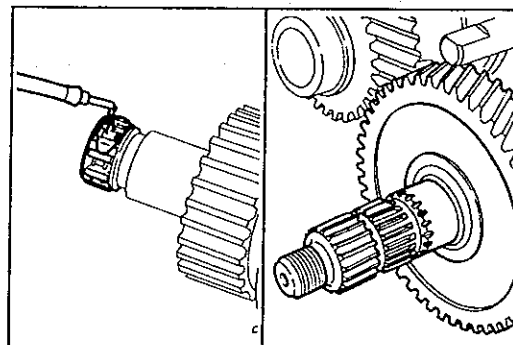
NOTE:

- Make sure that the machine-ground side of the hub sleeve section (A) faces toward front side.
- Ensure that the cut-out section of the front drive shift fork shaft faces toward the transfer idler gear side.



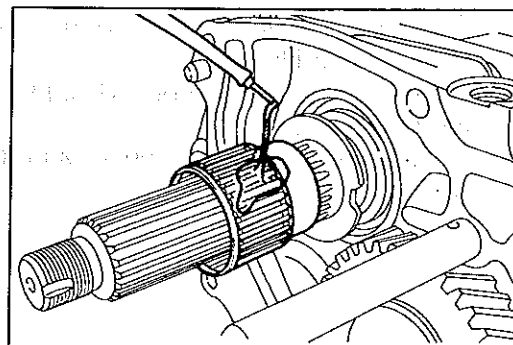
WRE91-TR092

9. Apply gear oil to the outer periphery of the needle roller bearing.
10. Place the transfer output rear shaft.



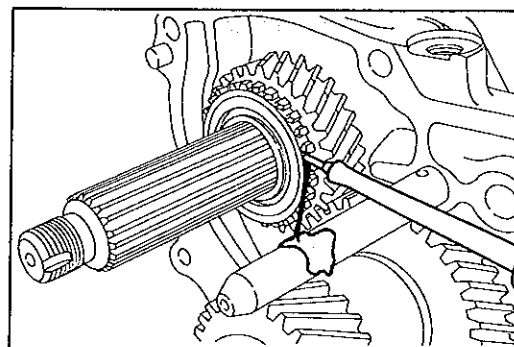
WRE91-TR093

11. Install the transfer input gear thrust washer.
12. Apply gear oil to the transfer input bearing inner race and the outer periphery of the needle roller bearing.



WRE91-TR094

13. Install the transfer low speed input gear.
14. Apply gear oil to the outer periphery of the transfer high & low shift fork shaft.

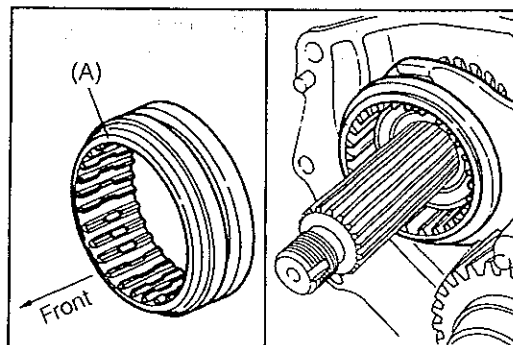


WRE91-TR095

15. Install the transfer high & low shift fork and hub sleeve as a set.

NOTE:

- Make sure that the machine-ground side of the hub sleeve section (A) faces toward front side.

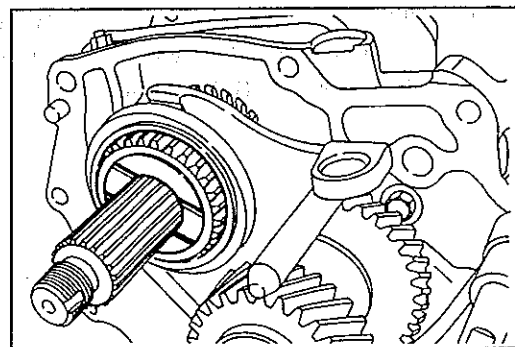


WRE91-TR096

16. Install the transfer high & low clutch hub.

NOTE:

- Make sure that the clutch hub's gear edge surface that is chamfered in wider area faces toward rear side.

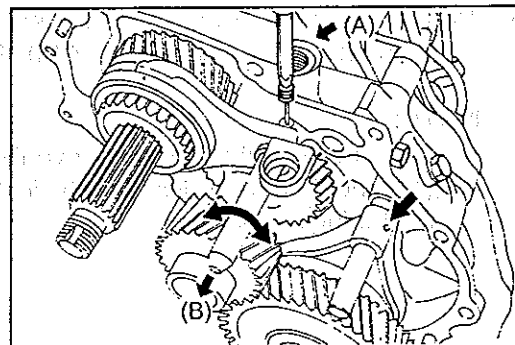


WRE91-TR097

17. Drive a new slotted spring pin.

NOTE:

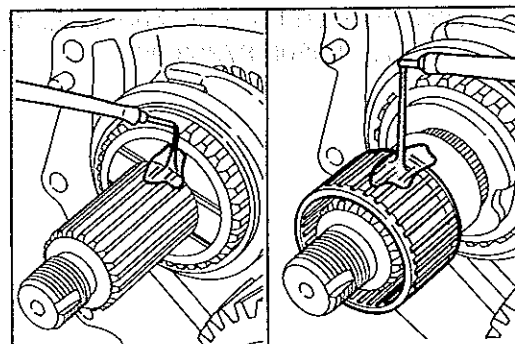
- Prior to drive a new slotted spring pin, rotates the transfer high & low shift fork shaft either clock or counter clockwise while pulling out toward you slightly until the groove section of this shaft meets with the installation hole of roller for transfer position detect switch. If this operation failure to be observed, this notice caused by disengagement of gear.



WRE91-TR098

18. Apply gear oil to the following parts.

- (1) Surface of transfer high & low clutch hub
- (2) Outer periphery of transfer input bearing inner race
- (3) Outer periphery of needle roller bearing

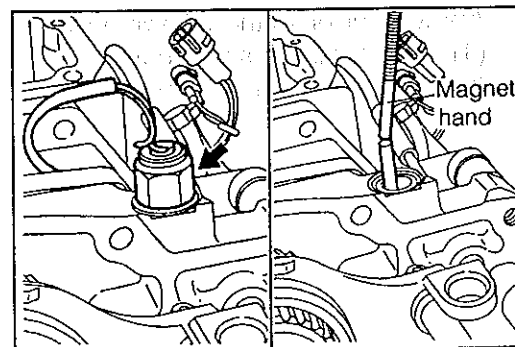


WRE91-TR099

19. Install the roller, using a standard magnet hand tool.

20. Tighten the transfer position detect switch with a new gasket interposed.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

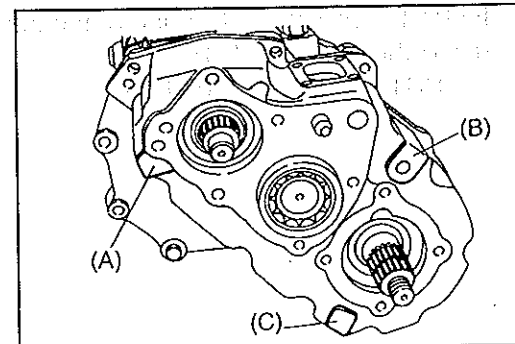


WRE91-TR100

21. Install a new gasket.

22. Temporarily install the rear bearing outer race of the transfer idler gear to the transfer case.

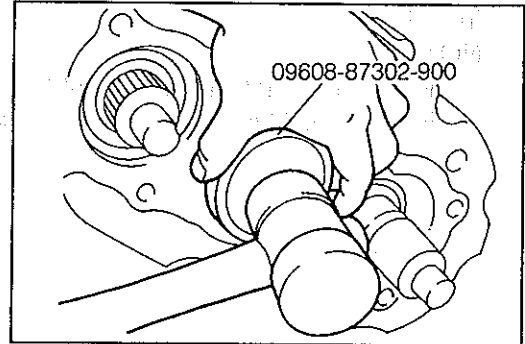
23. Install the transfer case by tapping it evenly and lightly at the sections (A), (B) and (C) by means of a plastic hammer or the like.



WRE91-TR101

TRANSFER

24. Install the transfer idler gear rear bearing, using the following SST in conjunction with a plastic hammer.
SST: 09608-87302-900

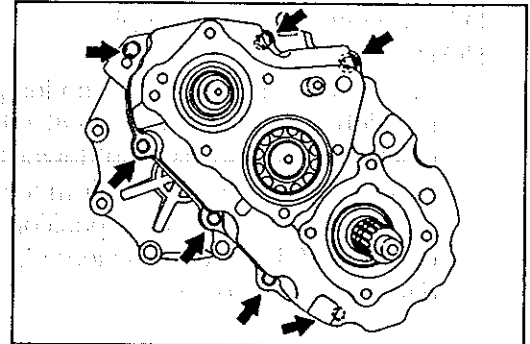


WRE91-TR102

25. Tighten the transfer case with the seven bolts.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

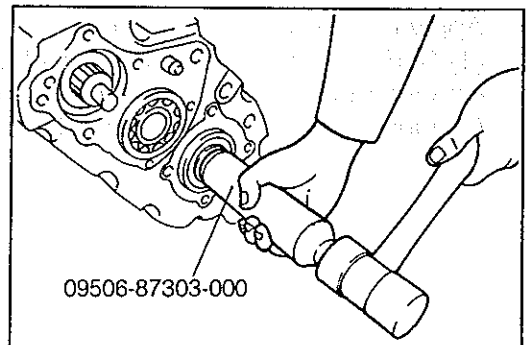
NOTE:

- Be sure to tighten the bolts evenly and diagonally. (The right figure indicates a typical example of the tightening sequence.)



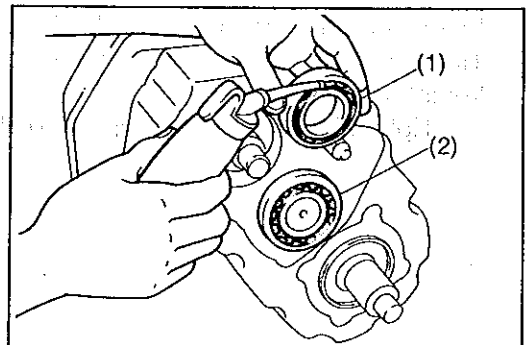
WRE91-TR103

26. Install the radial ball bearing, using the following SST.
SST: 09506-87303-000



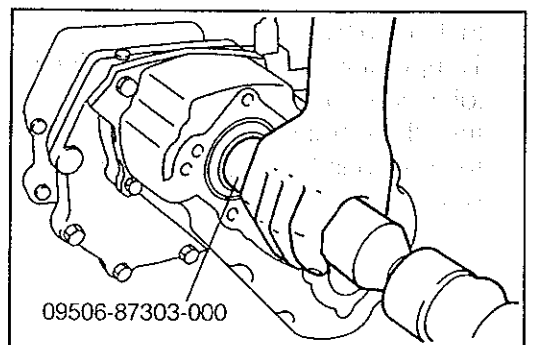
WRE91-TR104

27. Apply gear oil to the following radial ball bearings.
(1) Transfer input shaft rear
(2) Transfer idler gear shaft rear



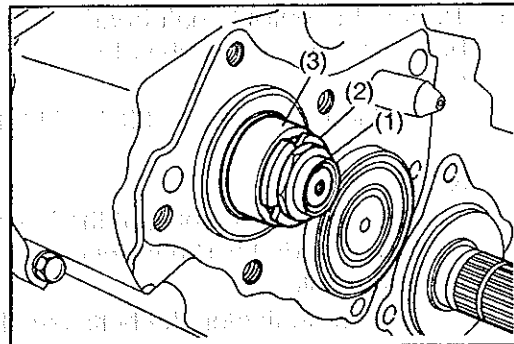
WRE91-TR105

28. Install the radial ball bearing at the transfer input shaft side, using the following SST.
SST: 09506-87303-000



WRE91-TR106

29. Interlock the 1st and 3rd gears.
 30. Install the following parts to the transfer input shaft.
 (1) Transfer input shaft spacer No.2
 (2) Transfer input shaft spacer No.3
 (3) New lock nut



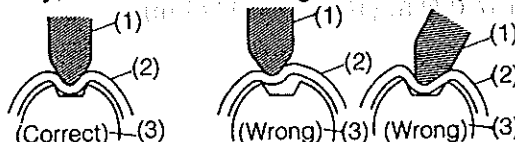
WRE91-TR107

31. Tighten a new lock nut.
 Tightening Torque: 226.0 - 264.0N·m (23.0 - 27.0 kgf·m)

NOTE:

- When staking the lock nut, point a suitable staking tool toward the transfer input shaft axis center and stake the lock nut securely, as shown in the figure below. (Poor staking may cause abnormal noise.)

- (1) Suitable staking tool
 (2) New nut
 (3) Shaft

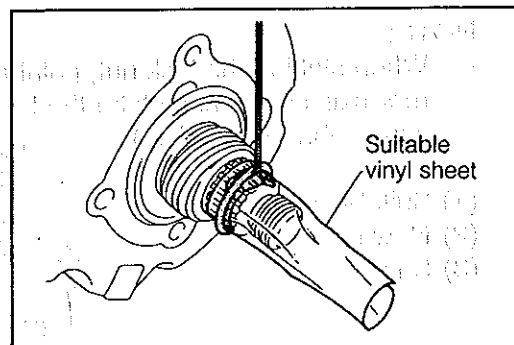


WRE91-TR108

32. Install the following parts to the transfer output rear shaft.
 (1) Transfer rear output shaft spacer No.3
 (2) Speedometer drive gear
 (3) New "O" ring

NOTE:

- Prior to the installation of a new "O" ring, wind a suitable vinyl sheet around the transfer output rear shaft and apply gear oil to the "O" ring installing section.

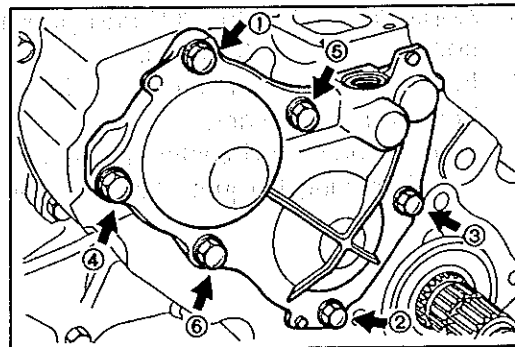


WRE91-TR109

33. With the transfer case No.1 gasket interposed, tighten the transfer case No.1 with the six bolts.
 Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

- Prior to the tightening of the bolts, apply Three Bond 1216 (made by Three Bond) to the threaded portions of the bolts.
- Be sure to tighten the bolts evenly and diagonally. (The right figure indicates a typical example of the tightening sequence.)



WRE91-TR110

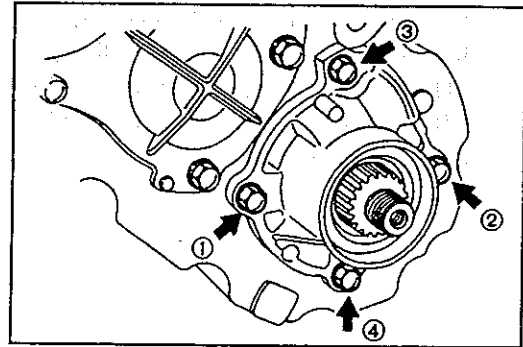
TRANSFER

34. Tighten the output shaft bearing rear retainer with the four bolts with the output shaft bearing rear retainer gasket interposed.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

- Prior to the tightening of the bolts, apply Three Bond 1216 (made by Three Bond) to the threaded portions of the bolts.
- Be sure to tighten the bolts evenly and diagonally. (The right figure indicates a typical example of the tightening sequence.)



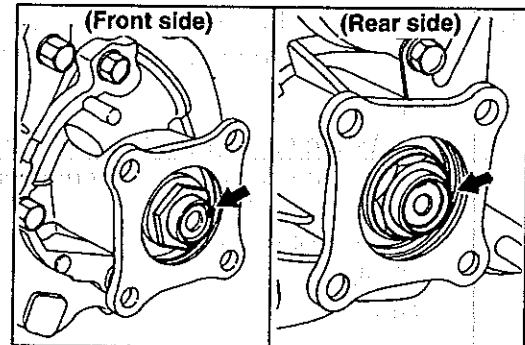
WRE91-TR111

35. Tighten both front and rear transfer output shaft companion flanges by means of new lock nuts and plate washers.

Tightening Torque:

Front: 98.0 - 137.0 N·m (10.0 - 14.0 kgf·m)

Rear: 98.0 - 137.0 N·m (10.0 - 14.0 kgf·m)

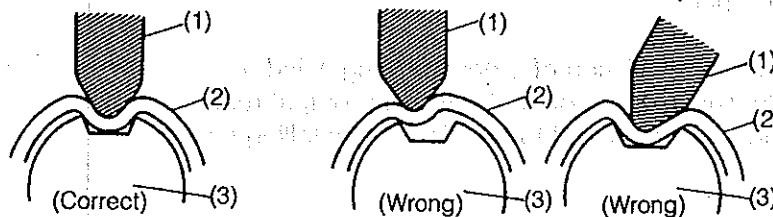


WRE91-TR112

NOTE:

- When staking the lock nut, point a suitable staking tool toward the transfer output shaft front and rear axis center and stake the lock nut securely, as shown in the figure below. (Poor staking may cause abnormal noise.)

- (1) Suitable staking tool
(2) New nut
(3) Shaft



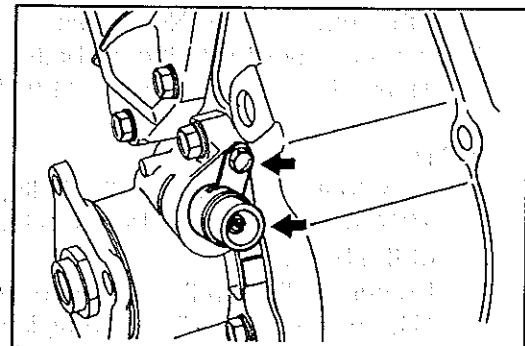
WRE91-TR113

36. Apply gear oil to the "O" ring prior to the insertion of the speedometer shaft sleeve.

37. Insert the speedometer shaft sleeve into the output shaft bearing rear retainer.

38. Tighten the speedometer sleeve lock plate with a bolt.

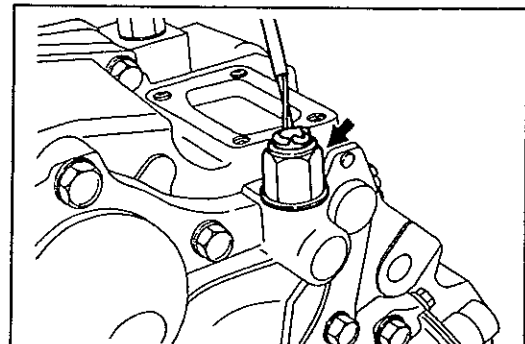
Tightening Torque: 5.9 - 8.8 N·m (0.6 - 0.9 kgf·m)



WRE91-TR114

39. Tighten the transfer position detect switch with a new gasket interposed.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)



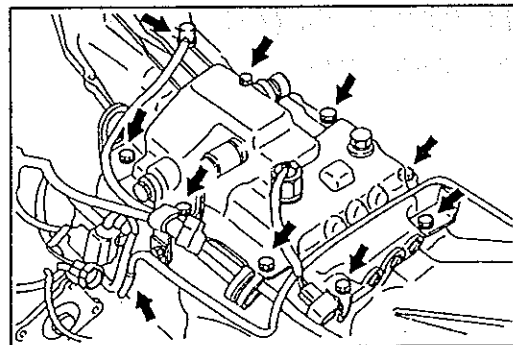
WRE91-TR115

40. With a new gasket interposed, tighten the transmission case cover with the eight bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf-m)

NOTE:

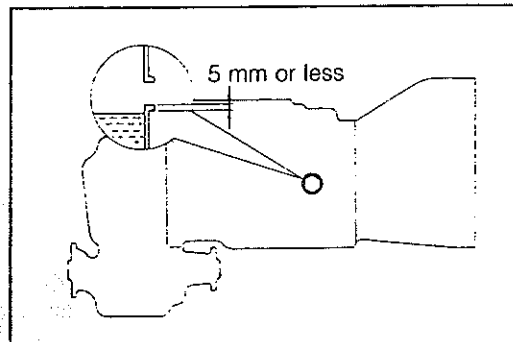
- Be sure to tighten the bolts alternately and evenly. (The right figure indicates a typical example of the tightening sequence.)



WRE91-TR116

41. Install the transmission and transfer assembly to the vehicle. (Refer to the MT section.)
42. Fill the transmission and transfer with oil.

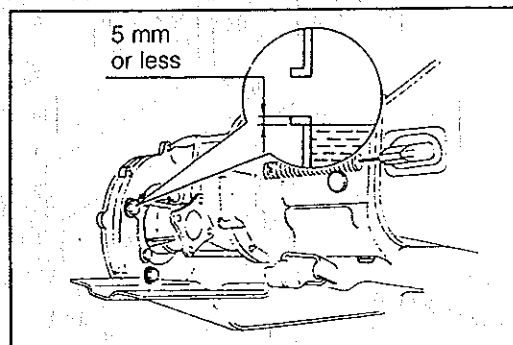
	Oil capacity	API	SAE
T/M	2.9L	GL-3	90
T/F	1.3L	GL-3	75W-90 or 75W-85



WRE91-TR117

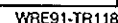
43. Tighten the both transmission and transfer filler plugs with new gasket.

Tightening Torque: 29.4 - 49.0 N·m (3.0 - 5.0 kgf-m)



WRE91-TR218

TRANSFER (4-Speed) COMPONENTS



- ① Shift lever knob S/A
- ② Transfer shift lever
- ③ Shift lever boot
- ④ Hole snap ring
- ⑤ Conical spring
- ⑥ Transfer shift lever retainer S/A
- ⑦ Transfer shift lever retainer gasket
- ⑧ Transfer input shaft
- ⑨ Transfer input shaft spacer No. 1
- ⑩ Type "S" oil seal
- ⑪ Transmission position switch A/Y (for 4WD detection)
- ⑫ Gasket
- ⑬ Filler plug
- ⑭ Gasket
- ⑮ Drain plug
- ⑯ Transfer case gasket
- ⑰ Transfer case
- ⑱ Union
- ⑲ Tight plug
- ⑳ Transfer input gear thrust washer
- ㉑ Transfer low speed input gear
- ㉒ Transfer input bearing inner race
- ㉓ Needle roller bearing
- ㉔ Transfer high & low clutch hub
- ㉕ Hub sleeve (for high & low clutch hub)
- ㉖ Roller
- ㉗ Transfer high & low shift fork shaft
- ㉘ Ball
- ㉙ Compression spring No. 2
- ㉚ "E" ring
- ㉛ Transfer high & low shift fork
- ㉜ "E" ring
- ㉝ Pin (for shift fork shaft)
- ㉞ Torsion spring
- ㉟ Transfer high speed input gear
- ㊱ Transfer input gear thrust washer
- ㊲ Radial ball bearing
- ㊳ Transfer input shaft spacer No. 2
- ㊴ Transfer input shaft spacer No. 3
- ㊵ Lock nut
- ㊶ Transfer case cover gasket No. 1
- ㊷ Transfer case cover No. 1
- ㊸ Bolt
- ㊹ Gasket
- ㊺ Compression spring No. 1
- ㊻ Transfer front drive shift fork shaft
- ㊼ Compression spring
- ㊽ Roller
- ㊾ Transfer front drive shift fork
- ㊿ Slotted spring pin
- ① Slotted spring pin
- ② Transfer gear shift head
- ③ Radial ball bearing
- ④ Transfer idler gear
- ⑤ Radial ball bearing
- ⑥ Lock nut
- ⑦ Conical spring washer
- ⑧ Output shaft companion flange
- ⑨ Type "T" oil seal
- ⑩ Output shaft bearing front retainer
- ⑪ Output shaft bearing front retainer gasket
- ⑫ Bearing
- ⑬ Transfer output shaft spacer
- ⑭ Radial ball bearing
- ⑮ Compression spring
- ⑯ Front drive disengage plate
- ⑰ Transfer output front shaft
- ⑱ Needle roller bearing
- ⑲ Hub sleeve (for front drive clutch hub)
- ⑳ Transfer output rear shaft
- ㉑ Radial ball bearing
- ㉒ Transfer rear output shaft spacer No. 3
- ㉓ Speedometer drive gear
- ㉔ "O" ring
- ㉕ Output shaft bearing rear retainer gasket
- ㉖ Output shaft bearing rear retainer
- ㉗ Type "T" oil seal
- ㉘ Output shaft companion flange
- ㉙ Conical spring washer
- ㉚ Lock nut
- ㉛ Speedometer sleeve lock plate
- ㉜ "O" ring
- ㉝ Type "V" oil seal
- ㉞ Speedometer shaft sleeve (㉚ + ㉛)
- ㉟ Speedometer driven gear (㉚ + ㉛ + ㉜)
- ㊱ Transfer position detect switch (for N detection)
- ㊲ Gasket

TRANSFER

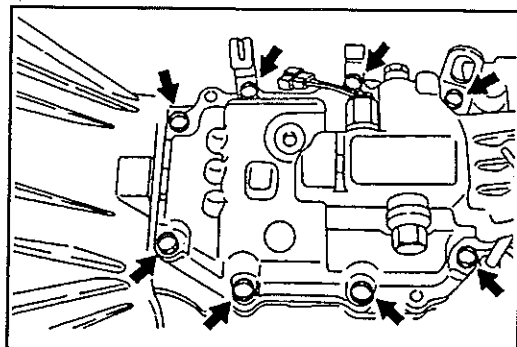
REMOVAL

Remove the transmission and transfer assembly from the vehicle.

1. Remove the transmission case cover with the transmission case cover gasket by removing the eight bolts.

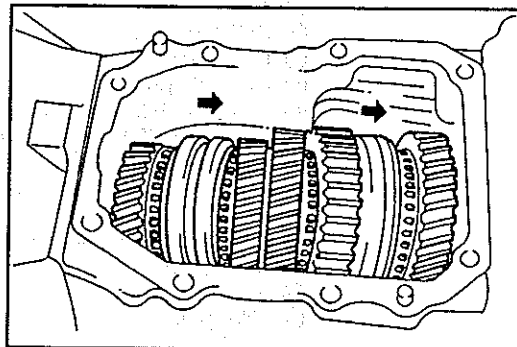
NOTE:

- Never reuse the removed gasket.



WRE91-TR120

2. Interlock the 1st gear with the 3rd gear.

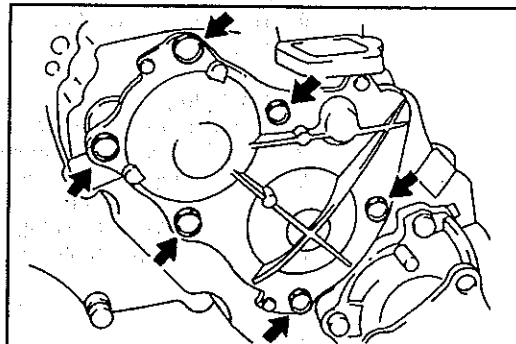


WRE91-TR121

3. Remove the transfer case cover No. 1 with the transfer case cover No. 1 gasket by removing the six bolts.

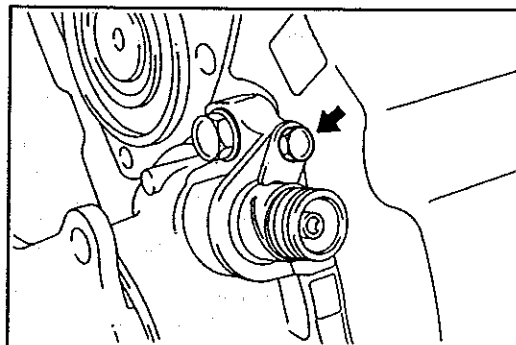
NOTE:

- Since the threaded portions of the six bolts have been coated with resin, thoroughly wash the threaded portions in advance if the removed bolts are reused or new bolts are used.
- Never reuse the removed gasket.



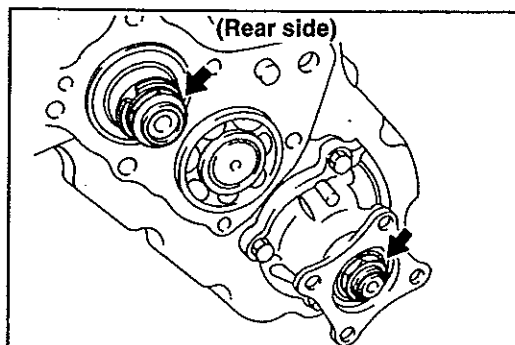
WRE91-TR122

4. Remove the speedometer shaft sleeve with the speedometer driven gear installed by removing the speedometer sleeve lock plate by means of the bolt.

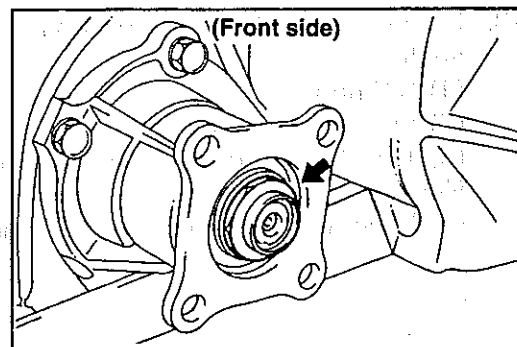


WRE91-TR123

5. Raise the lock section of the lock nut.
6. Remove the lock nut.



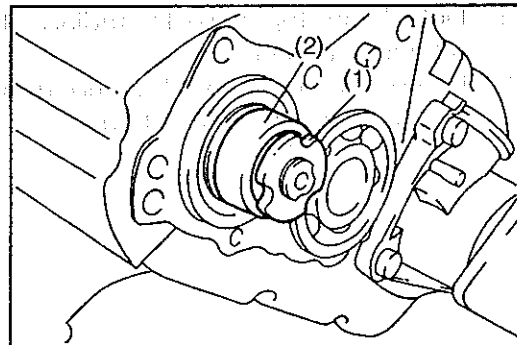
WRE91-TR124



WRE91-TR125

7. Remove the following parts from the transfer input shaft.

- (1) Transfer input shaft spacer No. 3
- (2) Transfer input shaft spacer No. 2

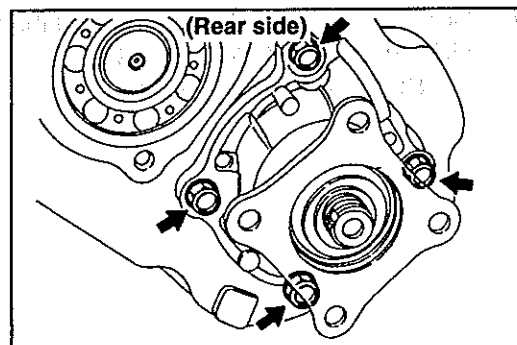


WRE91-TR126

8. Remove the output shaft bearing rear retainer with the output shaft companion flange installed by removing the four bolts.

NOTE:

- Since the threaded portions of the six bolts have been coated with resin, thoroughly wash the threaded portions in advance if the removed bolts are reused or new bolts are used.



WRE91-TR127

9. Remove the output shaft bearing rear retainer gasket.

NOTE:

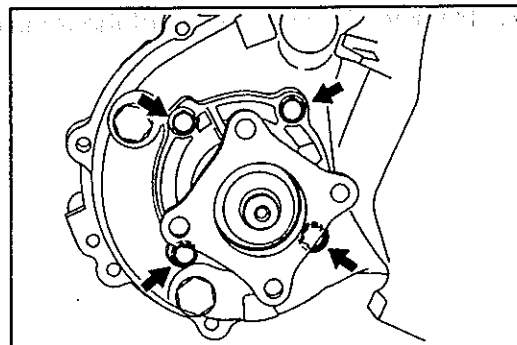
- Never reuse the removed gasket.

10. Remove the output shaft bearing front retainer with the output shaft companion flange installed by removing the four bolts.

11. Remove the output shaft bearing front retainer gasket.

NOTE:

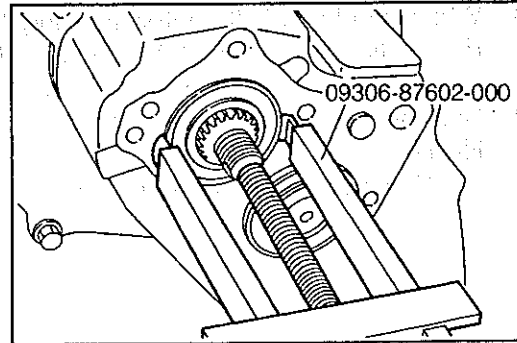
- Never reuse the removed gasket.



WRE91-TR128

12. Remove the radial ball bearing from the transfer input shaft, using the following SST.

SST: 09306-87602-000



WRE91-TR129

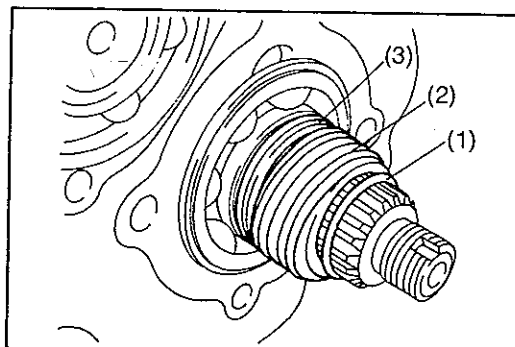
TRANSFER

13. Remove the following parts from the transfer output rear shaft.

- (1) "O" ring
- (2) Speedometer drive gear
- (3) Transfer rear output shaft spacer No. 3

NOTE:

- Never reuse the removed "O" ring.

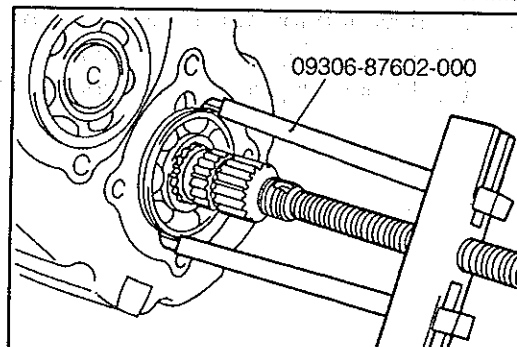


WRE91-TR130

14. Detach the stop ring of the radial ball bearing at the transfer output rear shaft.

15. Remove the radial ball bearing, using the following SST.

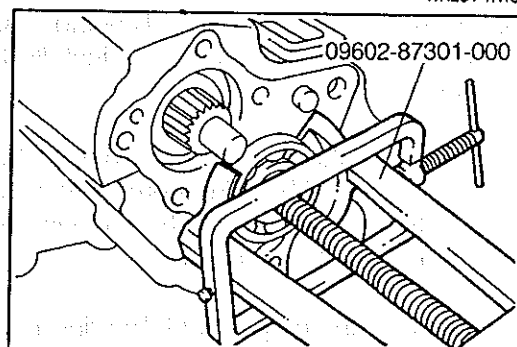
SST: 09306-87602-000



WRE91-TR131

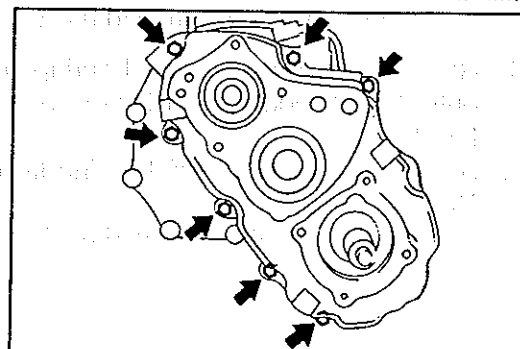
16. Remove the radial ball bearing at the transfer idler gear rear side, using the following SST.

SST: 09602-87301-000



WRE91-TR132

17. Remove the seven bolts of the transfer case.



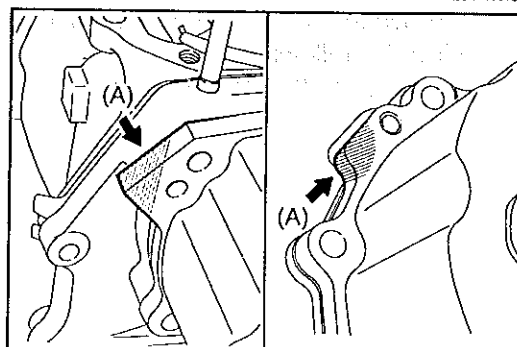
WRE91-TR133

18. While evenly and alternately tapping the transfer case at the rib sections (two points) from the direction (A), using a plastic hammer or the like, remove the transfer case.

19. Remove the transfer case gasket.

NOTE:

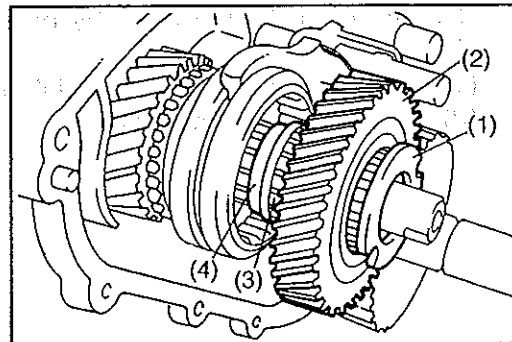
- Never reuse the removed gasket.



WRE91-TR134

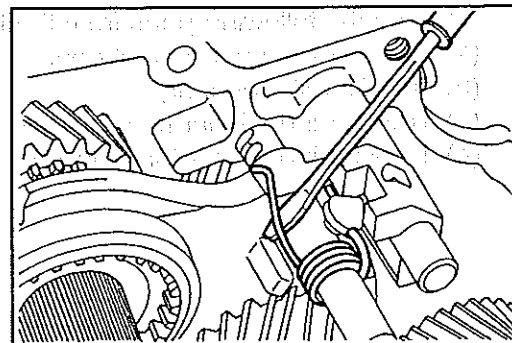
20. Remove the following parts from the transfer input shaft.

- (1) Transfer input gear thrust washer
- (2) Transfer high speed input gear
- (3) Needle roller bearing
- (4) Transfer input inner race bearing



WRE91-TR135

21. Remove the torsion spring, using a standard flat screwdriver.



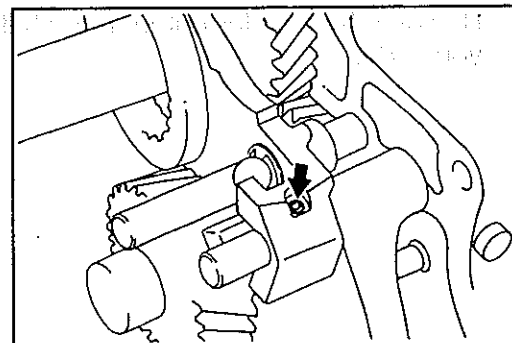
WRE91-TR136

22. Drive out the slotted spring pin, using a standard pin punch.

NOTE:

- Never reuse the removed slotted spring pin.

23. Remove the transfer gear shift head from the transfer front drive shift fork shaft.



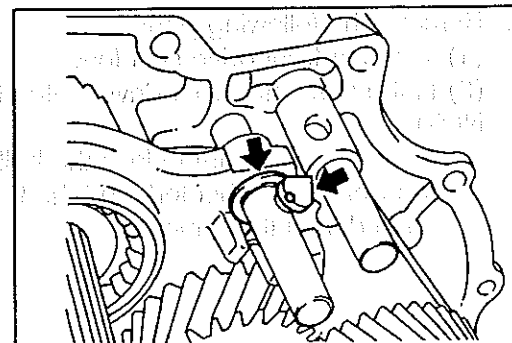
WRE91-TR137

24. Remove the pin (for the shift fork shaft).

25. Remove the "E" ring.

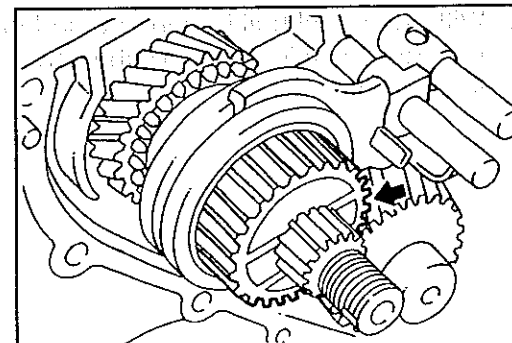
NOTE:

- Never reuse the removed "E" ring.



WRE91-TR138

26. Remove the transfer high & low clutch hub.

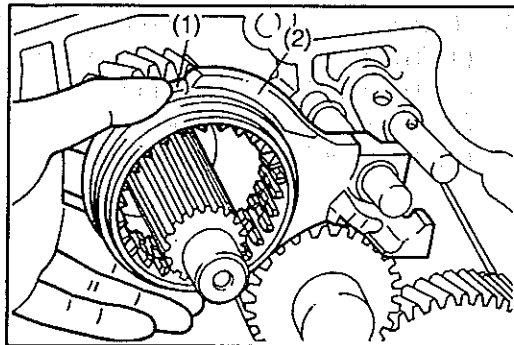


WRE91-TR139

TRANSFER

27. Remove the following parts by pulling them toward your side.

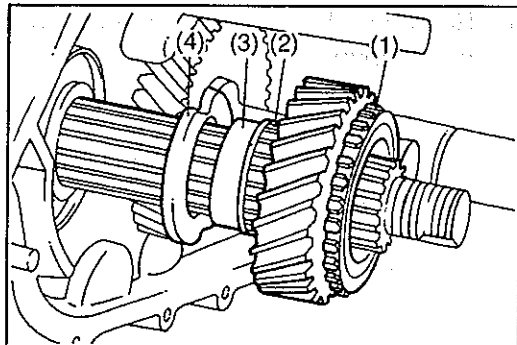
- (1) Hub sleeve (for high & low clutch hub)
- (2) Transfer high & low shift fork



WRE91-TR139

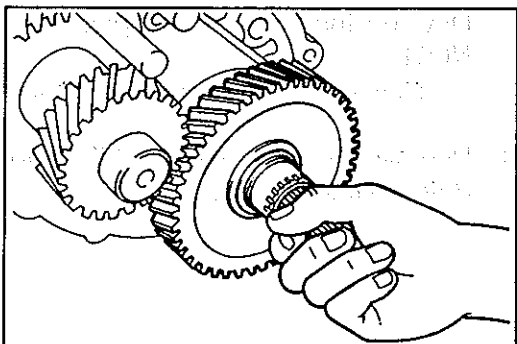
28. Remove the following parts from the transfer input shaft.

- (1) Transfer low speed input gear
- (2) Needle roller bearing
- (3) Transfer input inner race bearing
- (4) Transfer input gear thrust washer



WRE91-TR140

29. Remove the transfer output rear shaft by pulling it toward your side.



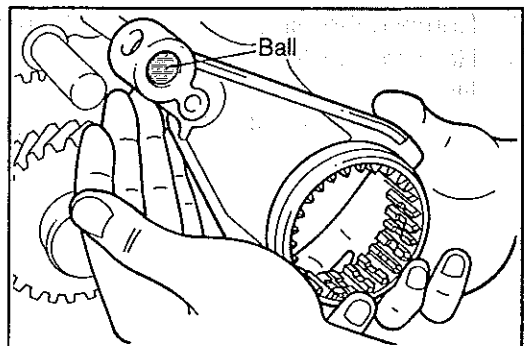
WRE91-TR141

30. Remove the following parts.

- (1) Transfer front drive shift fork
- (2) Hub sleeve (for front drive clutch hub)

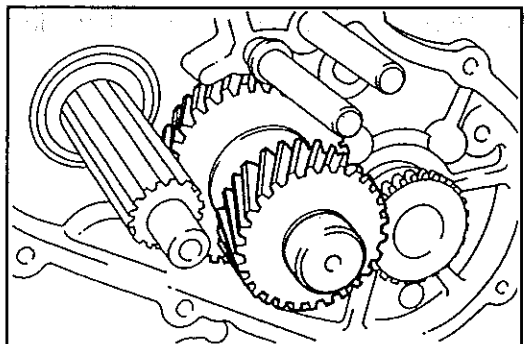
NOTE:

- Be very careful not to lose the ball placed between the front drive shift fork and the front drive shift fork shaft during the removal.



WRE91-TR142

31. With the radial ball bearing at the front side of the transfer idler gear installed, remove the transfer idler gear by pulling it toward your side.

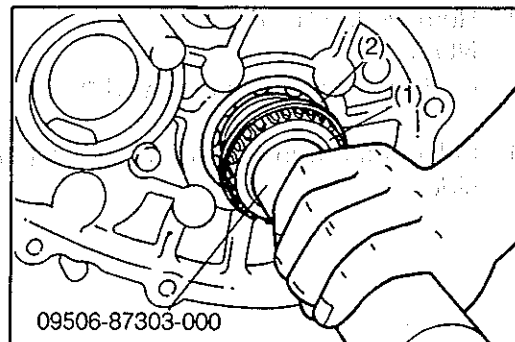


WRE91-TR143

32. Remove the following parts as a set from the transfer front case to the front side, using the following SST.

SST: 09506-87303-000

- (1) Transfer output front shaft
- (2) Front drive disengage plate
- (3) Radial ball bearing



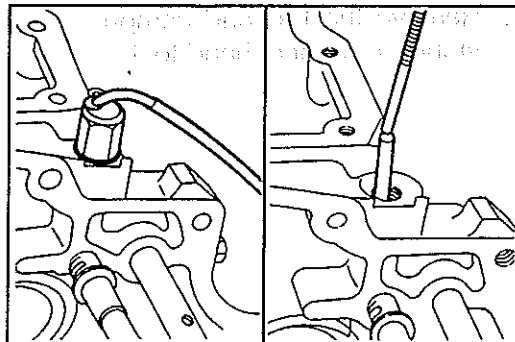
WRE91-TR144

33. Remove the transmission position detect switch assembly with the gasket.

NOTE:

- Never reuse the removed gasket.

34. Remove the roller, using a standard magnet hand tool.



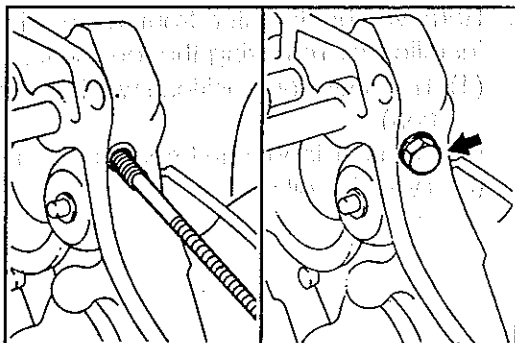
WRE91-TR145

35. Remove the bolt with the gasket.

NOTE:

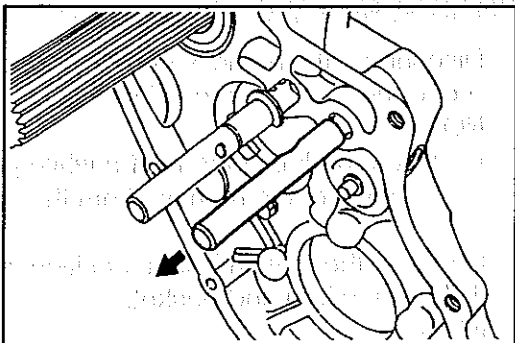
- Never reuse the removed gasket.

36. Remove the compression spring and ball, using a standard magnet hand tool.



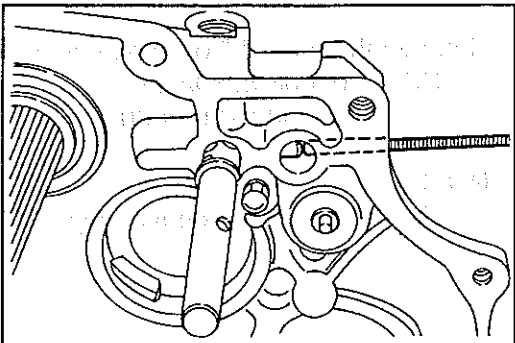
WRE91-TR146

37. Remove the transfer front drive shift fork shaft by pulling it toward your side.



WRE91-TR147

38. Remove the roller, using a standard magnet hand tool.



WRE91-TR148

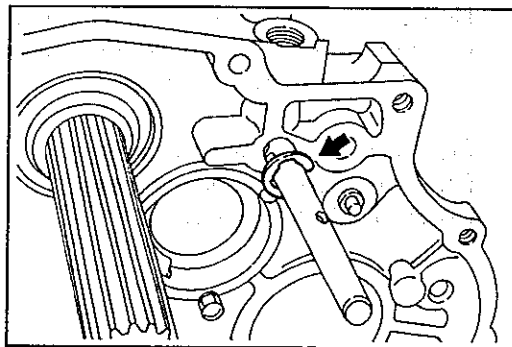
TRANSFER

9. Remove the "E" ring.

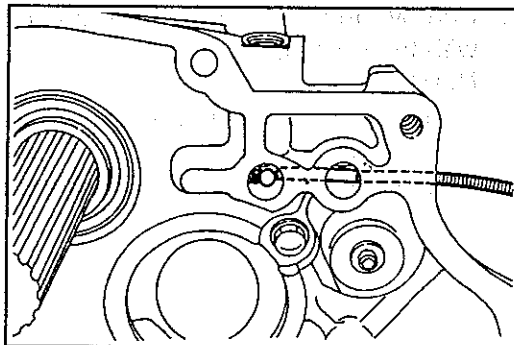
NOTE:

- Never reuse the removed "E" ring.

0. Pull out the transfer high & low shift fork shaft toward your side.

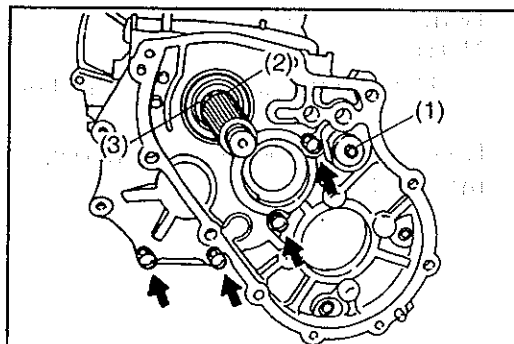


1. Remove the ball and compression spring No. 2, using a standard magnet hand tool.



2. Remove the transfer front case with the following parts installed by removing the four bolts.

- (1) Transmission position switch assembly (for 4WD detection)
- (2) Transfer input shaft spacer No. 1
- (3) Type "S" oil seal



DISASSEMBLY OF TRANSFER FRONT CASE

1. Disconnect the harness from the coupler. (For the removal procedure, refer to the BE section.)

NOTE:

- Put a mark by means of a white pen prior to the removal of the harness from the coupler.

2. Remove the transmission position switch assembly (for 4WD detection) and gasket.

NOTE:

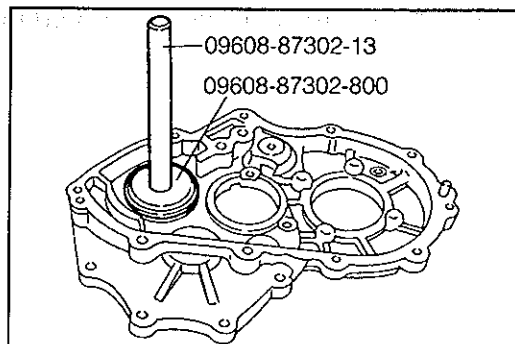
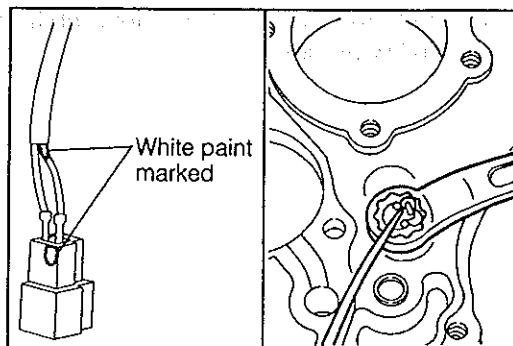
- Never reuse the removed gasket.

3. Remove the type "S" oil seal, using the following SSTs.

SST: 09608-87302-13
09608-87302-800

NOTE:

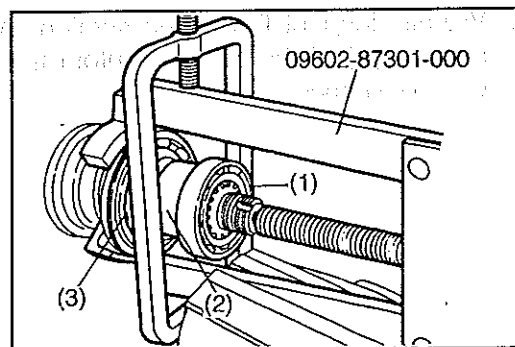
- Never reuse the removed type "S" oil seal.



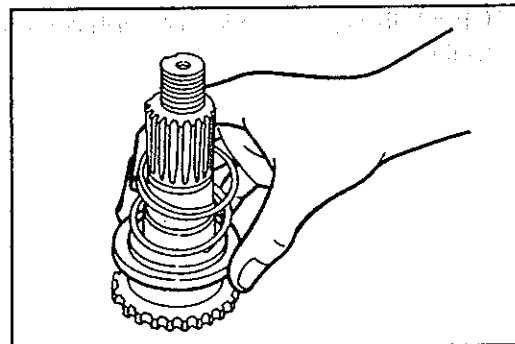
DISASSEMBLY OF TRANSFER OUTPUT FRONT SHAFT

1. Remove the following parts, using the following SST.
SST: 09602-87301-000

- (1) Bearing
- (2) Transfer output shaft spacer
- (3) Radial ball bearing

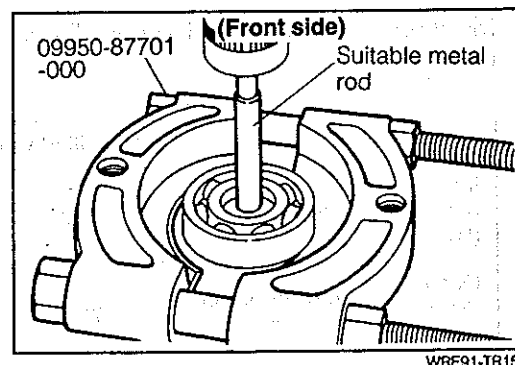


2. Remove the compression spring.
3. Remove the front drive disengage plate.



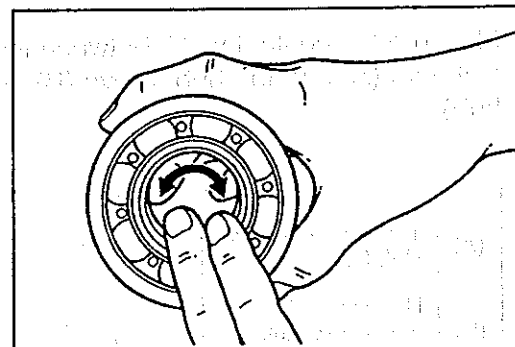
DISASSEMBLY OF TRANSFER IDLER GEAR BEARING (FRONT)

1. Remove the bearing, using the following SST in combination with a suitable metal rod and a press.
SST: 09950-87701-000

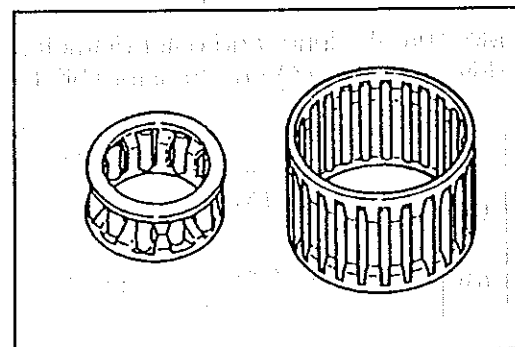


INSPECTION

1. Radial ball bearings
Rotate the bearing inner race by applying force with your finger. Check to see if the bearing inner race rotates smoothly without any sticking.

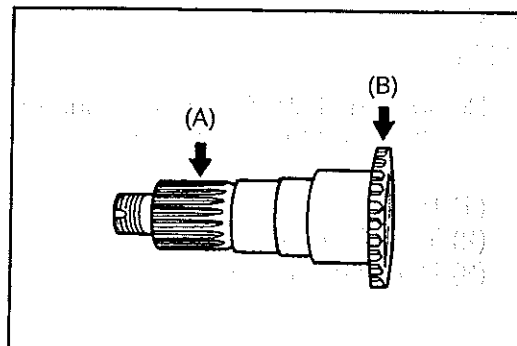


2. Needle roller bearings
Check the outer periphery of the needle roller bearing for damage by scratching it by your fingernail. Also, visually inspect the outer periphery for seizure due to poor oil lubrication or use of deteriorated oil.



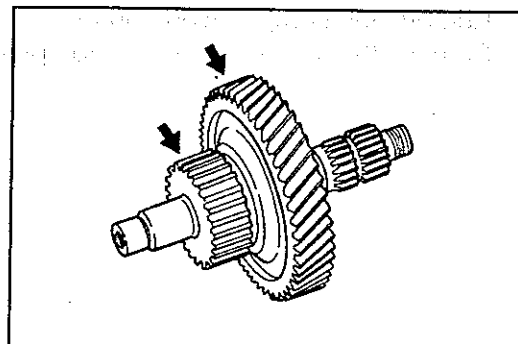
TRANSFER

3. Visually inspect the spline section (A) and gear chamfer section (B) of the transfer output front shaft for abnormal wear or damage.



WRE91-TR159

4. Check the gear section of each gear for damage or abnormal wear.

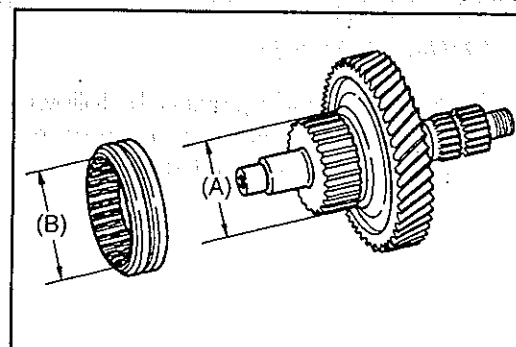


WRE91-TR160

5. Measure the inner and outer diameters of the following parts.

Unit: mm

		Specified value	Allowable limit
Inner diameter (B)	Hub sleeve	$72.5^{+0.2}_{+0}$	72.7
Outer diameter (A)	Transfer output rear shaft	$72.5^{+0.10}_{-0.17}$	72.3

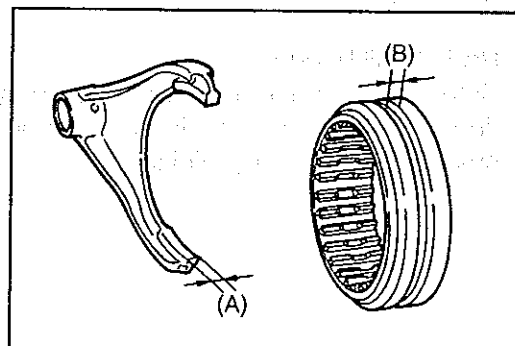


WRE91-TR161

6. Measure the contact width between the transfer front drive shift fork (A) and the hub sleeve (B) (for high & low clutch hub).

Unit: mm

		Specified value	Allowable limit
(A)	Transfer front drive shift fork	$7^{+0.35}_{-0.45}$	6.0
(B)	Hub sleeve (for high & low clutch hub)	$7^{+0.058}_{+0}$	7.3

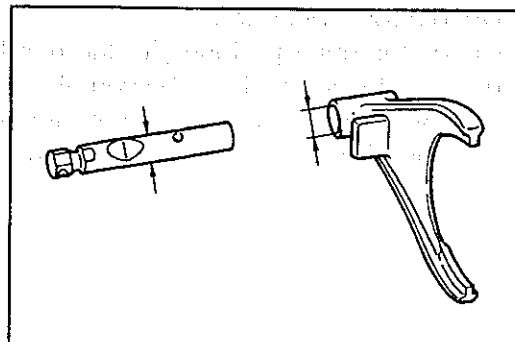


WRE91-TR162

7. Measure the inner and outer diameters of the transfer front drive shift fork (A) and transfer shift fork shaft.

Unit: mm

		Specified value	Allowable limit
(A)	Transfer front drive shift fork	$16^{+0.024}_{+0.005}$	16.03
(B)	Transfer front drive shift fork shaft	$16^{+0.016}_{-0.043}$	15.95

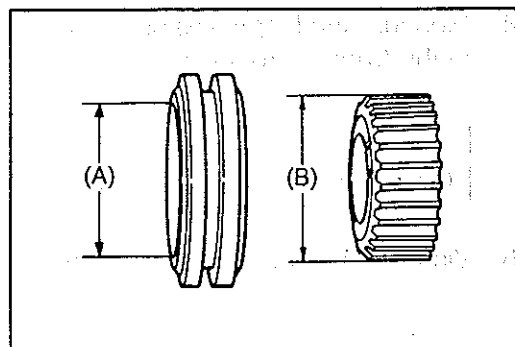


WRE91-TR163

8. Measure the outer diameter (A) of the transfer high & low clutch hub and inner diameter of the hub sleeve (for high & low clutch).

Unit: mm

	Specified value	Allowable limit
(A) Transfer high & low clutch hub	$72.5^{+0.2}_{+0}$	72.7
(B) Hub sleeve (for high & low clutch)	$72.5^{-0.10}_{-0.17}$	72.3

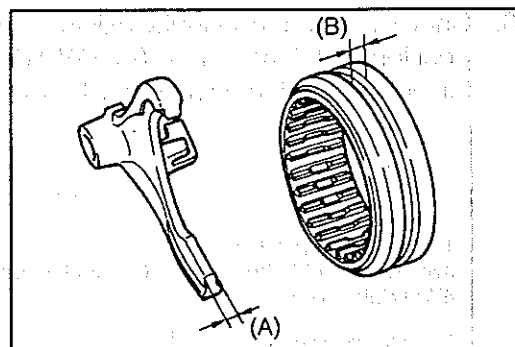


WRE91-TR164

9. Measure the contact surface between the transfer high & low shift fork (A) and the hub sleeve (B) (for the high & low clutch).

Unit: mm

	Specified value	Allowable limit
(A) Transfer high & low shift fork	$7^{-0.15}_{-0.20}$	6.3
(B) Hub sleeve (for high & low clutch)	$7^{+0.058}_{+0}$	7.3

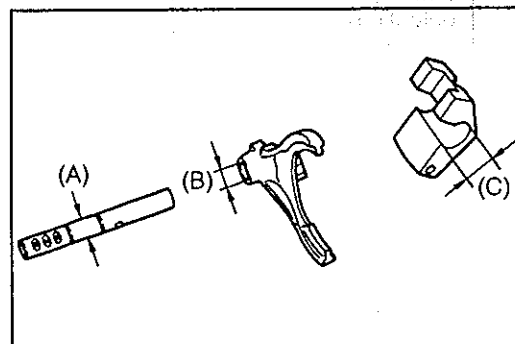


WRE91-TR165

10. Measure the inner and outer diameters of the transfer high & low shift fork shaft (A), transfer high & low shift fork (B) and transfer gear shift head (C).

Unit: mm

	Specified value	Allowable limit
(A) Transfer high & low shift fork shaft	$16^{-0.025}_{-0.040}$	15.06
(B) Transfer high & low shift fork	$16^{+0.024}_{+0.006}$	16.03
(C) Transfer gear shift head	$16^{+0.059}_{+0.016}$	16.06

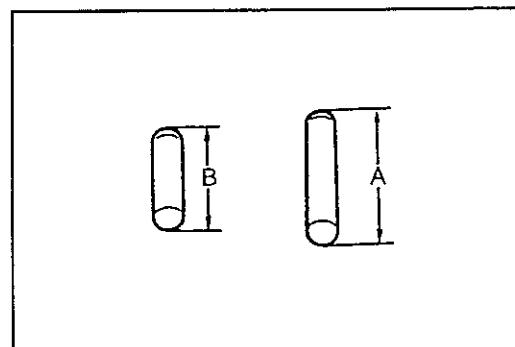


WRE91-TR166

11. Measure the length of the rollers.

Unit: mm

	Specified value	Allowable limit
(A) For transfer high & low shift fork shaft	36.5 ± 0.1	36.4
(B) Transfer front drive shift fork shaft	$19^{+0}_{-0.2}$	18.8

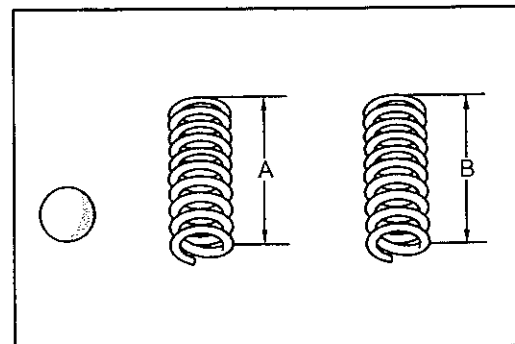


WRE91-TR167

12. Visually inspect the ball for wear or damage.
13. Measure the length of the compression springs No.1 and No.2.

Unit: mm

Compression spring	Specified value	Allowable limit
No. 1	21.9 ± 0.7	21.2
No. 2	↑	↑



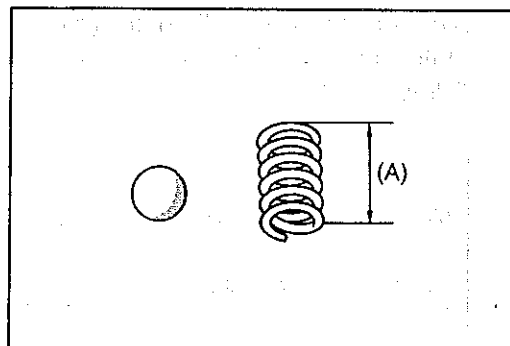
WRE91-TR168

TRANSFER

14. Measure the length (A) of the compression spring installed in the transfer front drive shift fork.

Unit: mm

	Specified value	Allowable limit
Compression spring	17.8 ±0.7	17.1

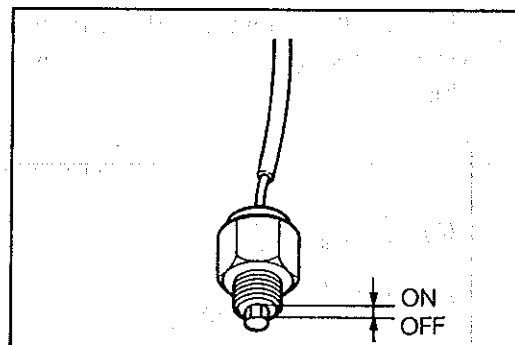


WRE91-TR169

15. Visually inspect the ball for wear or damage.

16. Check to see if continuity exists between the transmission position switch assembly (for 4WD detection) and the transfer position detect switch (for L or H detection).

	Continuity	
	ON	OFF
Transmission position switch assembly (for 4WD detection)	Continuity exists.	No continuity exists.
Transfer position detect switch (for L or H detection)	↑	↑

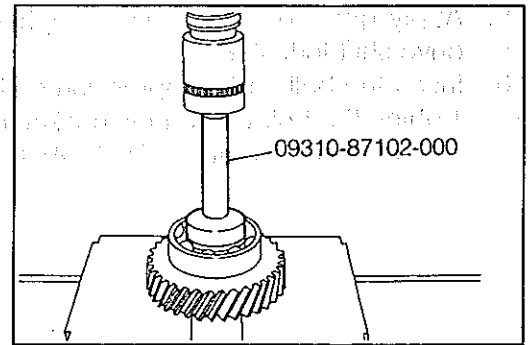


WRE91-TR170

ASSEMBLY OF TRANSFER IDLER GEAR BEARING (FRONT)

1. Install the bearing, using the following SST in conjunction with a press.

SST: 09310-87102-000



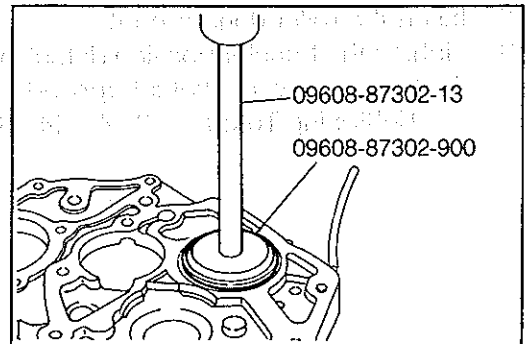
WRE91-TR171

ASSEMBLY OF TRANSFER FRONT CASE

1. Install a new oil seal, using the following SSTs.

SST: 09608-87302-13

09608-87302-900

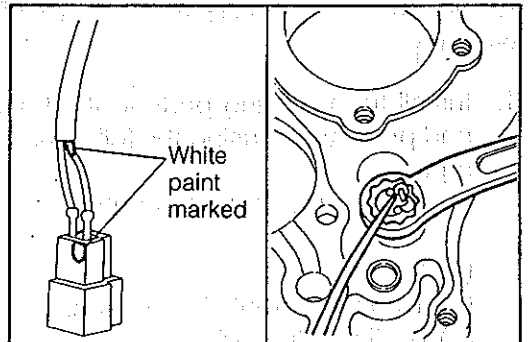


WRE91-TR172

2. Tighten the transmission position switch assembly (for 4WD detection) with a new gasket interposed.

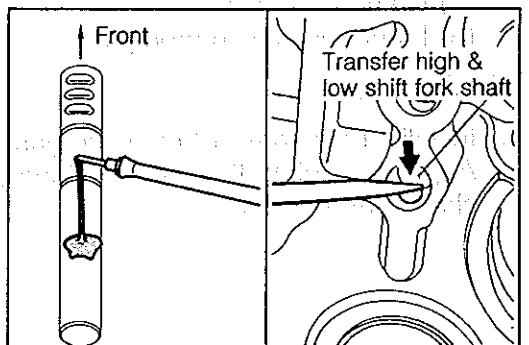
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

3. Connect the harness to the coupler.



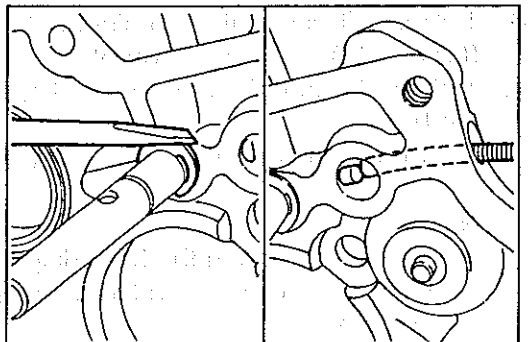
WRE91-TR173

4. Place the compression spring No. 2 and ball, using a standard magnet hand tool.
5. Apply gear oil to the outer periphery of the transfer high & low shift fork shaft.
6. With the ball pushed down by means of a standard flat screwdriver, insert the transfer high & low shift fork shaft from the rear side of the shaft.



WRE91-TR174

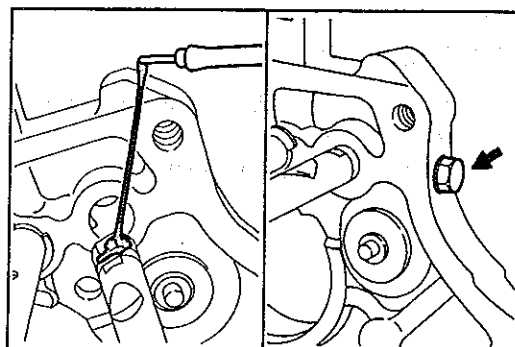
7. Install a new "E" ring, using a standard flat screwdriver.
8. Insert the roller by means of a standard magnet hand tool.



WRE91-TR175

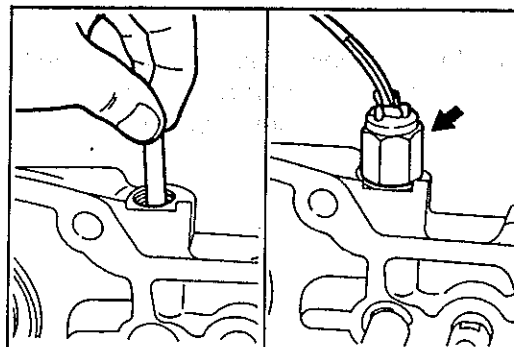
TRANSFER

9. Apply gear oil to the outer periphery of the transfer front drive shift fork shaft.
10. Insert the ball and compression spring No. 1.
11. Tighten the bolt with a new gasket interposed.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf-m)



WRE91-TR176

12. Insert the roller (longer one).
13. Tighten the transfer position detect switch (for L or H detection) with a new gasket interposed.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf-m)



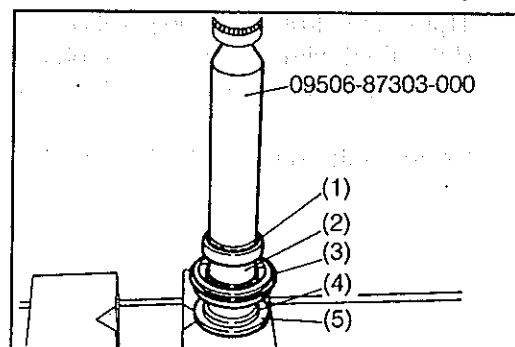
WRE91-TR177

ASSEMBLY OF TRANSFER OUTPUT FRONT SHAFT

1. Install the following parts to the transfer output front shaft and press them, using the following SST in conjunction with a press.

SST: 09506-87303-000

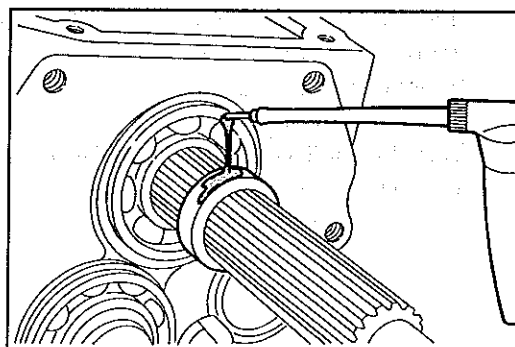
- (1) Bearing
- (2) Transfer output shaft spacer
- (3) Radial ball bearing
- (4) Compression spring
- (5) Front drive disengage plate



WRE91-TR178

INSTALLATION

1. Install a new transfer front case gasket.
2. Apply gear oil to the outer periphery of the transfer input shaft spacer No. 1.



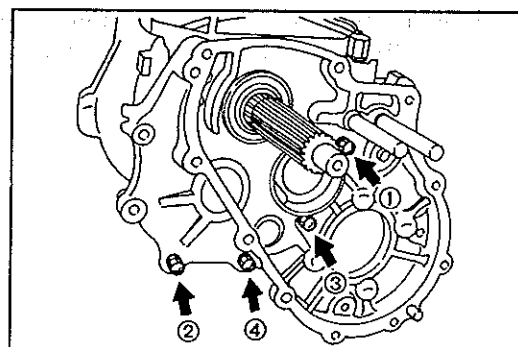
WRE91-TR179

3. Temporarily install the transfer front case with the two bolts ((1) and (2) in the right figure).
4. Tighten the transfer front case after temporarily tightening the bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf-m)

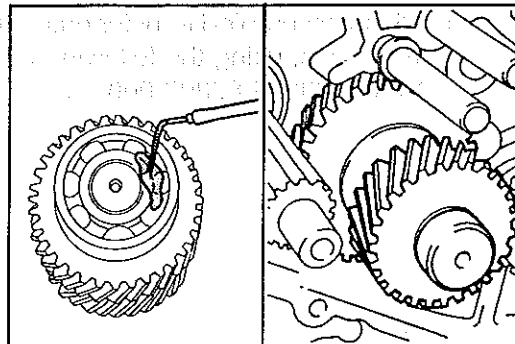
NOTE:

- Be sure to tighten the bolts diagonally and evenly. (The right figure indicates a typical example of the tightening sequence.)



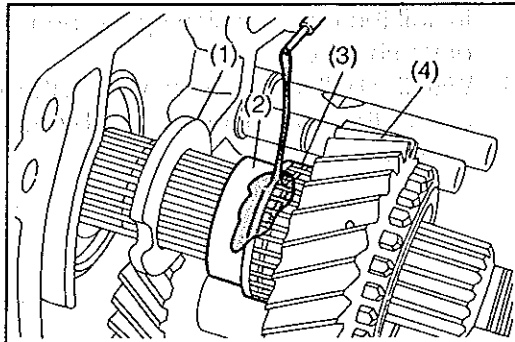
WRE91-TR180

5. Apply gear oil to the bearing at the transfer idler gear front side.
6. Install the transfer idler gear.



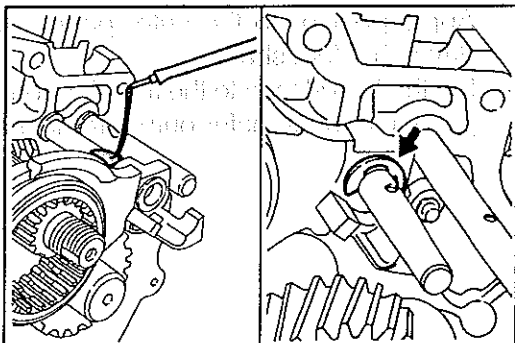
WRE91-TR181

7. Apply gear oil to the transfer input shaft spacer No. 4 and the outer periphery of the needle roller bearing.
8. Install the following parts to the transfer input shaft.
 - (1) Transfer input gear thrust washer
 - (2) Transfer input shaft spacer No. 4
 - (3) Needle roller bearing
 - (4) Transfer low speed input gear



WRE91-TR182

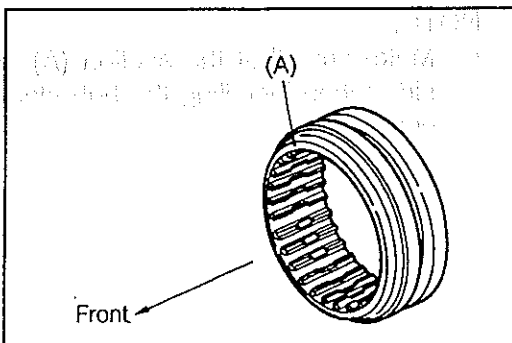
9. Apply gear oil to the outer periphery of the transfer high & low shift fork shaft.
10. Install the transfer high & low shift fork together with the transfer high & low clutch hub to the transfer high & low shift fork shaft.
11. Install a new "E" ring.



WRE91-TR183

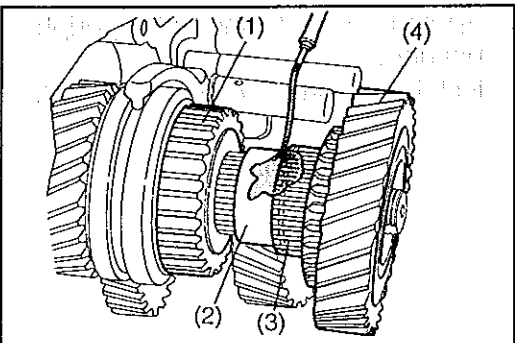
NOTE:

- Make sure that the hub sleeve section (A) faces toward the front side.



WRE91-TR184

12. Apply gear oil to the transfer input shaft spacer No. 4 and the outer periphery of the needle roller bearing.
13. Install the following parts to the transfer input shaft.
 - (1) Transfer high & low clutch hub
 - (2) Transfer input shaft spacer No. 4
 - (3) Needle roller bearing
 - (4) Transfer high speed input gear

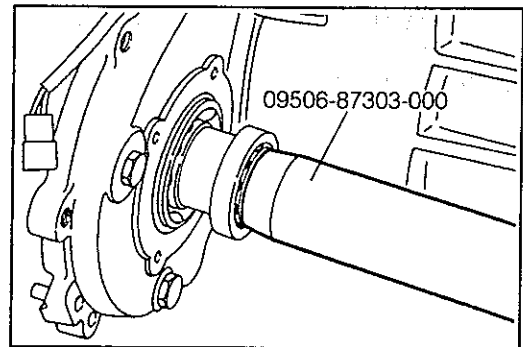


WRE91-TR185

TRANSFER

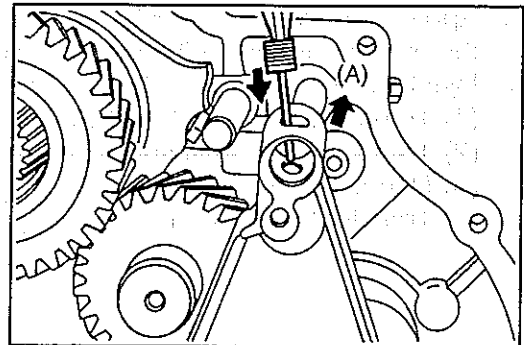
14. Install the assembled transfer output front shaft to the transfer front case, using the following SST.

SST: 09506-87303-000



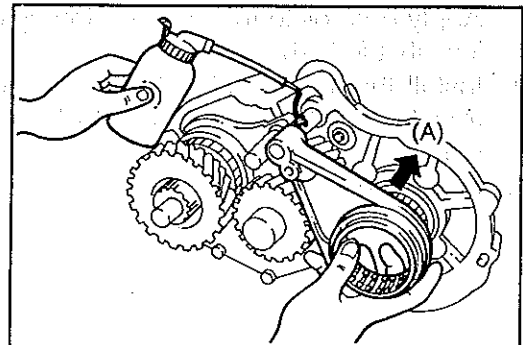
WRE91-TR186

15. Install the compression spring and ball to the transfer front drive shift fork.
16. With the ball pushed down, push the transfer front drive shift fork in the front direction (A) by means of a standard pin punch.



WRE91-TR187

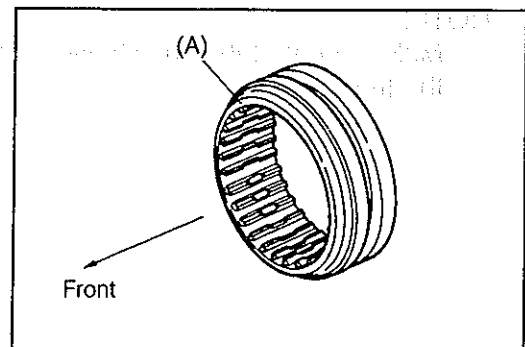
17. Apply gear oil to the outer periphery of the transfer front drive shift fork shaft.
18. Set the hub sleeve to the transfer front drive shift fork. Then, push it in the transfer output front shaft direction (A).



WRE91-TR188

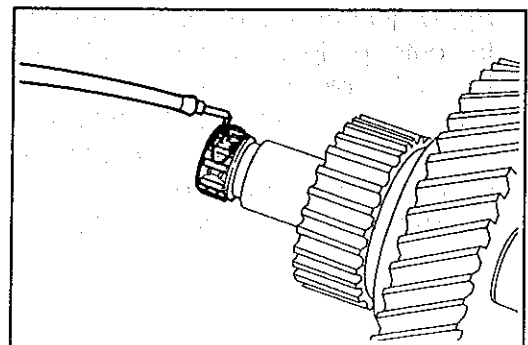
NOTE:

- Make sure that the section (A) faces toward the front side when installing the hub sleeve (for the front drive clutch hub).



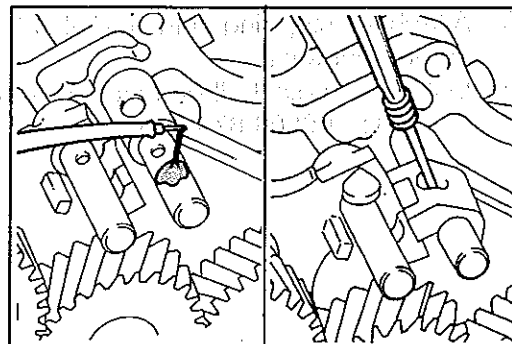
WRE91-TR189

19. Apply gear oil to the outer periphery of the needle roller bearing.
20. Install the transfer output rear shaft.



WRE91-TR190

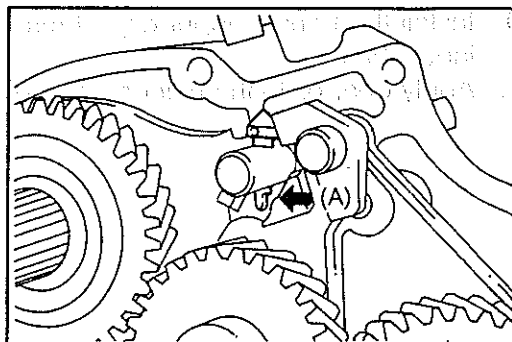
21. Apply gear oil to the outer periphery of the transfer front drive shift fork shaft.
22. Install the pin (for the shift fork shaft) to the transfer high & low shift fork shaft.
23. Install the transfer gear shift head to the transfer front drive shift fork shaft with a new slotted spring pin, using a standard pin punch.



WRE91-TR191

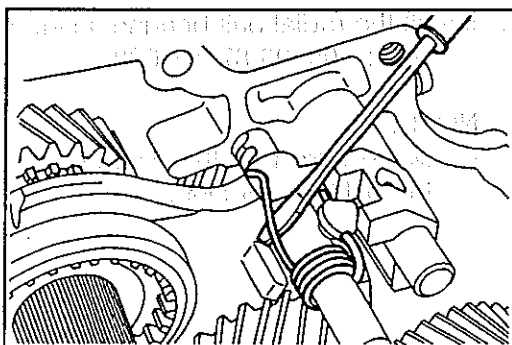
NOTE:

- Make sure that the cut-out section (A) of the pin (for the shift fork shaft) faces toward the transfer gear shift head side.



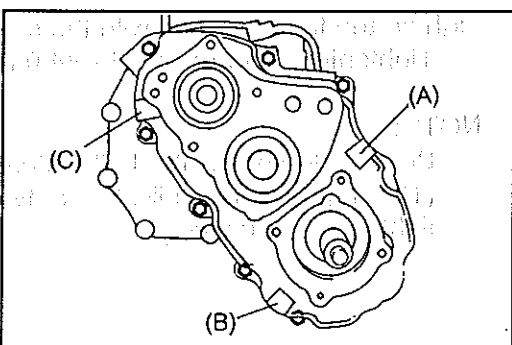
WRE91-TR192

24. Install the torsion spring by means of a standard flat screwdriver.



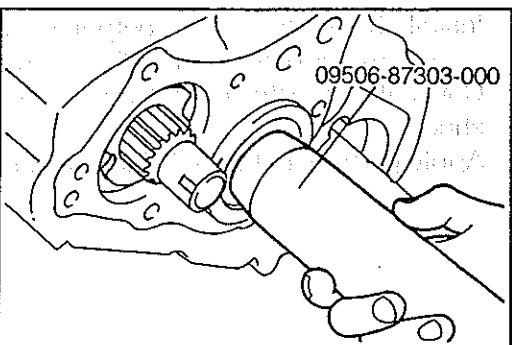
WRE91-TR193

25. Install a new transfer case gasket.
26. Install the transfer case, by lightly tapping it at the rib sections (A), (B) and (C), using a plastic hammer or the like.



WRE91-TR194

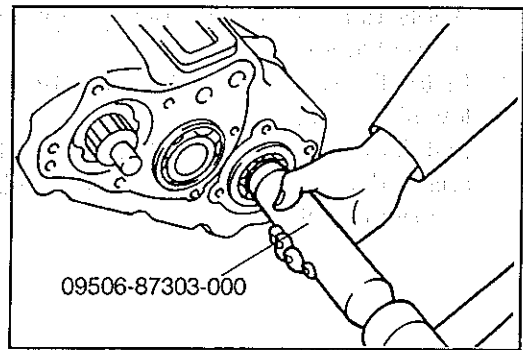
27. Install the transfer idler gear rear bearing, using the following SST.
SST: 09506-87303-000



WRE91-TR195

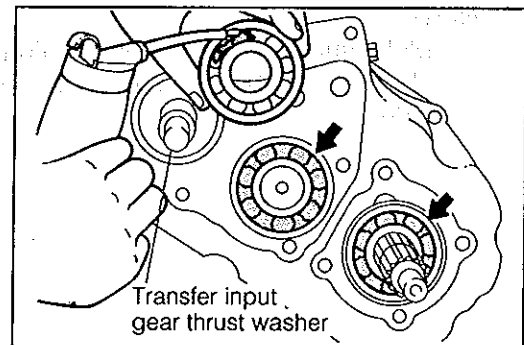
TRANSFER

28. Attach the stop ring of the radial ball bearing at the transfer output rear shaft.
29. Install the radial ball bearing, using the following SST.
SST: 09506-87303-000



WRE91-TR196

30. Install the transfer input gear thrust washer to the transfer input shaft.
31. Apply gear oil to the roller section of each bearing.

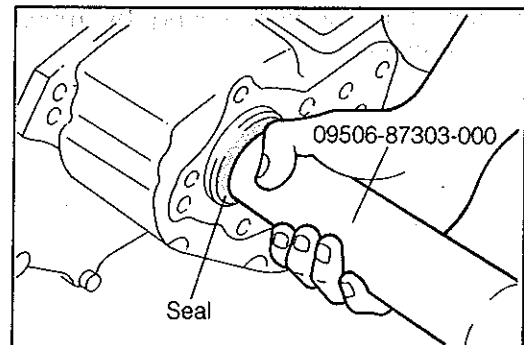


WRE91-TR197

32. Install the radial ball bearing, using the following SST.
SST: 09506-87303-000

NOTE:

- Make sure that the seal surface of the bearing faces toward the rear side.

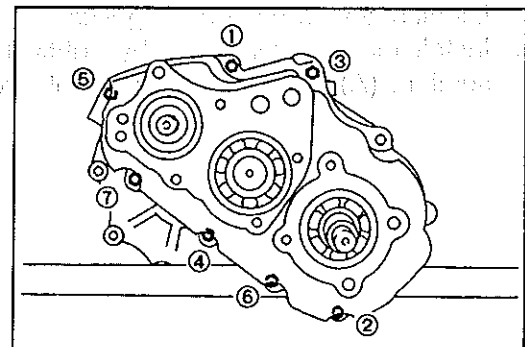


WRE91-TR198

33. Tighten the transfer case with the seven bolts.
Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

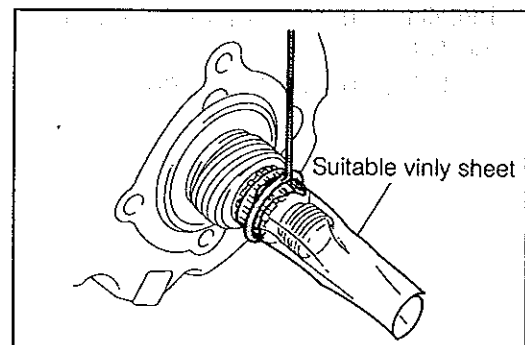
NOTE:

- Be sure to tighten the bolts alternately and diagonally. (The right figure indicates a typical example of the tightening sequence.)



WRE91-TR199

34. Install the transfer rear output shaft spacer No. 3 and speedometer drive gear to the transfer output rear shaft.
35. Cover the transfer output rear shaft with a suitable vinyl sheet.
36. Apply gear oil to the "O" ring and install it in place.



WRE91-TR200

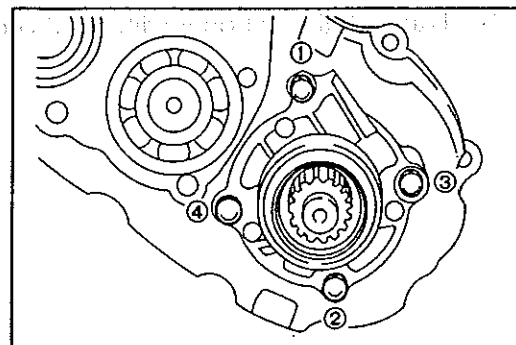
37. Apply Three Bond 1216 (made by Three Bond) to the threaded portion of the bolt.
38. With a new output shaft bearing rear retainer gasket interposed, tighten the output shaft bearing rear retainer with the four bolts.

Tightening Torque: 29.4 - 44.0 N·m
(3.0 - 5.0 kgf·m)

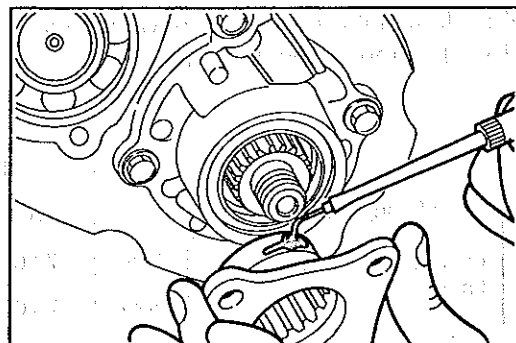
NOTE:

- Be sure to tighten the bolts diagonally and evenly. (The right figure indicates a typical example of the tightening sequence.)

39. Apply gear oil to the outer periphery (the contact surface with the lip section of the type "T" oil seal) of the output shaft companion flange and install it in place.



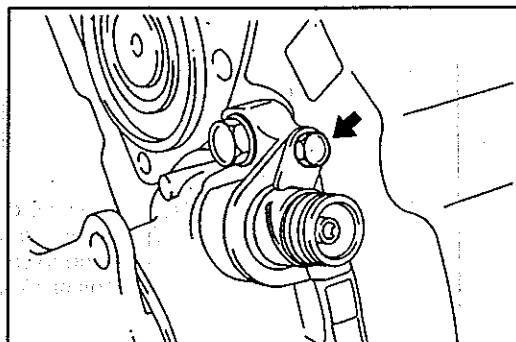
WRE91-TR201



WRE91-TR202

40. Install the speedometer driven gear to the speedometer shaft sleeve. Tighten the speedometer sleeve lock plate with the bolt.

Tightening Torque: 5.9 - 8.8 N·m (0.6 - 0.9 kgf·m)



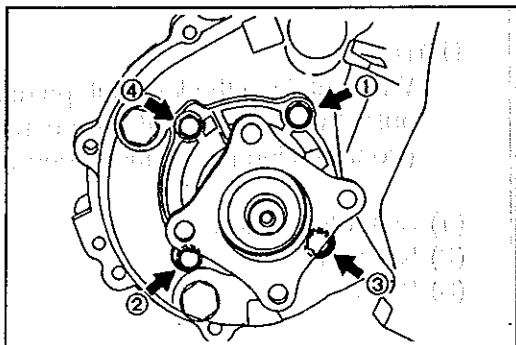
WRE91-TR203

41. With a new gasket interposed, tighten the output shaft bearing front retainer with the output shaft companion flange installed by means of the four bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

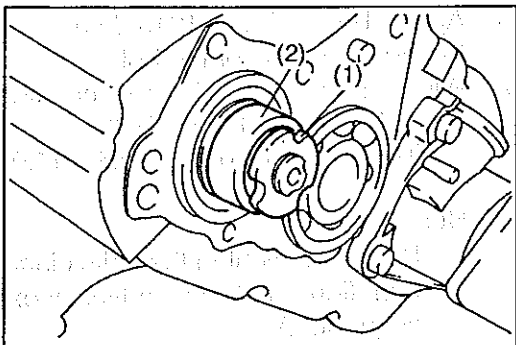
- Be sure to tighten the bolts diagonally and evenly. (The right figure indicates a typical example of the tightening sequence.)



WRE91-TR204

42. Install the following parts to the transfer input shaft.

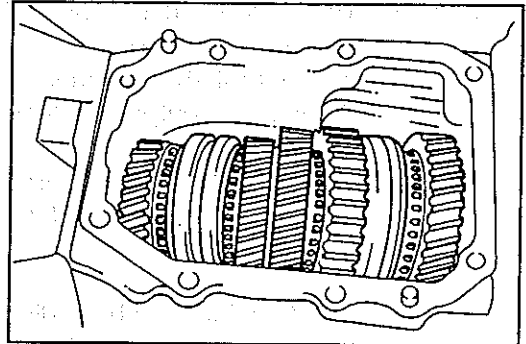
- (1) Transfer input shaft spacer No. 2
- (2) Transfer input shaft spacer No. 3



WRE91-TR205

TRANSFER

43. Interlock the 1st gear with the 3rd gear.

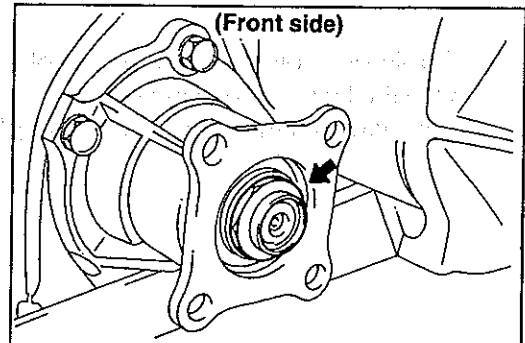


WRE91-TR206

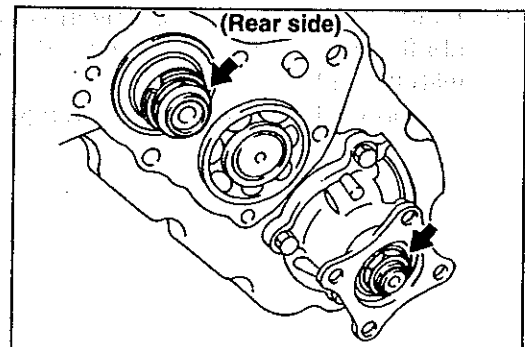
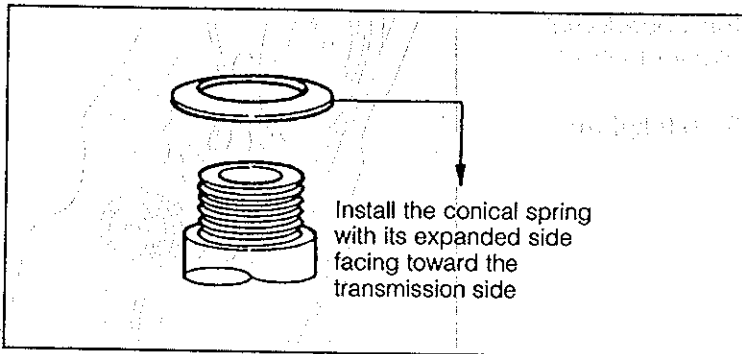
44. Install the conical spring washer.

45. Tighten a new lock nut.

		Tightening Torque	
		N·m	kgf·m
Transfer input shaft		225.4 - 261.6	23.0 - 27.0
Output shaft companion flange	Rear	78.0 - 137.2	10.0 - 14.0
	Front	78.0 - 137.2	10.0 - 14.0



WRE91-TR207

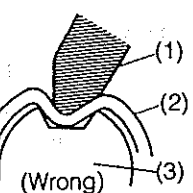
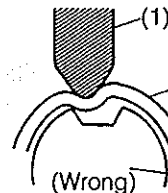
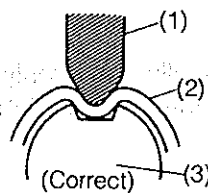


WRE91-TR208

NOTE:

- When staking the lock nut, point a suitable staking tool toward the transfer input shaft and transfer output front, rear shaft axis center and stake the lock nut securely, as shown in the figure below. (Poor staking may cause abnormal noise.)

- (1) Suitable staking tool
(2) New nut
(3) Shaft



WRE91-TR209

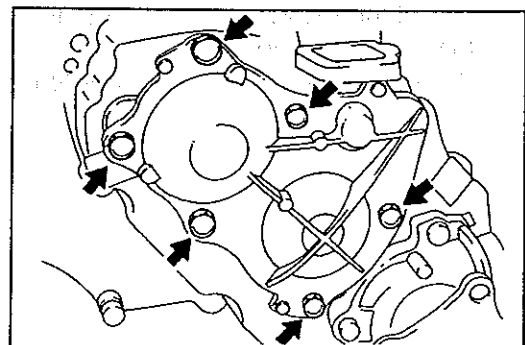
46. Apply Three Bond 1216 (made by Three Bond) to the threaded portion of the bolt.

47. With a new gasket interposed, tighten the transfer case cover No. 1 with the six bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

- Be sure to tighten the bolts diagonally and evenly. (The right figure indicates a typical example of the tightening sequence.)



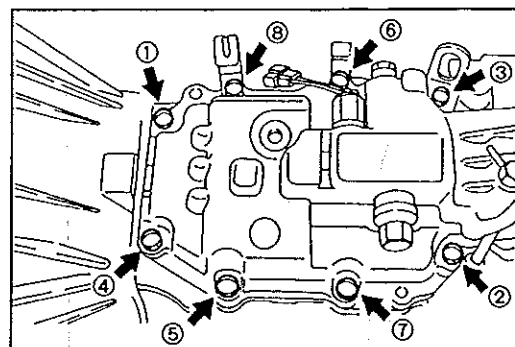
WRE91-TR210

48. With a new gasket interposed, tighten the transmission case cover with the eight bolts.

Tightening Torque: 29.4 - 44.0 N·m (3.0 - 5.0 kgf·m)

NOTE:

- Be sure to tighten the bolts diagonally and evenly. (The right figure indicates a typical example of the tightening sequence.)

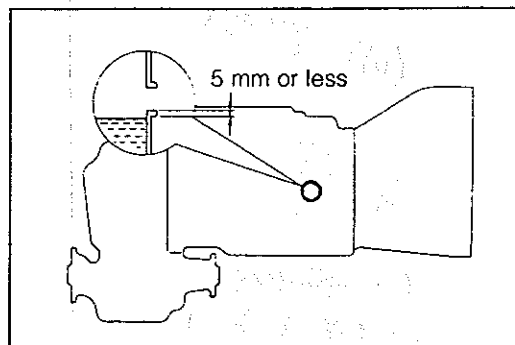


WRE91-TR211

49. Install the transmission and transfer assembly to the vehicle.

50. Fill the transmission and transfer with oil.

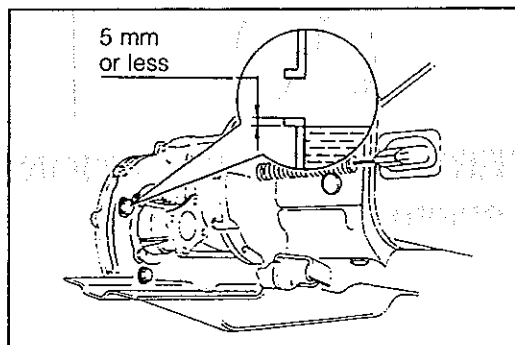
	Oil capacity	API	SAE
T/M	2.2L	GL-3	90
T/F	1.3L	GL-3	75W-90 or 75W-85



WRE91-TR212

51. Tighten the both transmission and transfer filler plugs with new gasket.

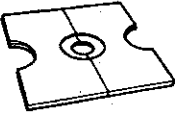
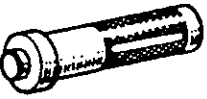
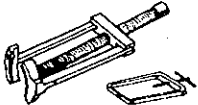
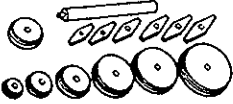
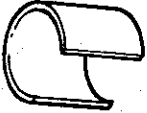
Tightening Torque: 29.4 - 49.0 N·m (3.0 - 5.0 kgf·m)



WRE91-TR219

TRANSFER

SSTs

Shape	Part Number	Part Name
	09253-87202-000 (09253-87201)	Water pump bearing anvil [Crankshaft center bearing anvil]
	09506-87303-000	Differential drive pinion bearing cone front replacer
	09517-30010-000	Rear axle shaft oil seal replacer
	09602-87301-000	Counter gear bearing puller
	09608-87302-000 (09608-87301)	Axle hub & drive pinion bearing tool set
	09710-06040-000	"A" front suspension upper arm bush base

WRE91-TR213

SERVICE SPECIFICATIONS

5-SPEED

Unit: mm

			Specified value	Allowable limit	Remarks
Thickness		Transfer input gear thrust washer	4 ±0.05	3.9	
Diameter	Outer	Transfer high & low clutch hub	72.5 $\begin{smallmatrix} -0.10 \\ -0.17 \end{smallmatrix}$	72.3	
	Bore	Hub sleeve	72.5 $\begin{smallmatrix} +0.2 \\ +0 \end{smallmatrix}$	72.7	
Contact width section		Transfer high & low shift fork	7 $\begin{smallmatrix} -0.15 \\ -0.2 \end{smallmatrix}$	6.3	
		Transfer high & low clutch hub	7 $\begin{smallmatrix} +0.058 \\ +0 \end{smallmatrix}$	7.3	
Diameter	Outer	Transfer high & low shift fork shaft	16 $\begin{smallmatrix} -0.025 \\ -0.040 \end{smallmatrix}$	15.07	
	Inner	Transfer high & low shift fork	16 $\begin{smallmatrix} +0.027 \\ +0 \end{smallmatrix}$	16.0	
Diameter	Outer	Transfer output rear shaft	72.5 $\begin{smallmatrix} -0.10 \\ -0.17 \end{smallmatrix}$	72.3	
	Bore	Hub sleeve	72.5 $\begin{smallmatrix} +0.2 \\ +0 \end{smallmatrix}$	72.7	
Contact width section		Transfer front drive shift fork	7 $\begin{smallmatrix} -0.1 \\ -0.2 \end{smallmatrix}$	6.3	
		Hub sleeve	7 $\begin{smallmatrix} +0.053 \\ +0 \end{smallmatrix}$	7.3	
Diameter	Outer	Transfer front drive shift fork shaft	16 $\begin{smallmatrix} -0.025 \\ -0.040 \end{smallmatrix}$	15.06	
	Inner	Transfer front drive shift fork	16 $\begin{smallmatrix} +0.027 \\ +0 \end{smallmatrix}$	16.03	

WRE91-TR214

4-SPEED

Unit: mm

			Specified value	Allowable limit	Remarks
Diameter	Outer	Transfer output rear shaft	72.5 ^{+0.10} _{-0.17}	72.3	
	Bore	Hub sleeve	72.5 ^{+0.2} ₊₀	72.7	
Contact width section		Transfer front drive shift fork	7 ^{+0.36} _{-0.46}	6.0	
		Hub sleeve (for high & low clutch hub)	7 ^{+0.058} ₊₀	7.3	
Diameter	Outer	Transfer front drive shift fork shaft	16 ^{+0.016} _{-0.043}	15.95	
	Inner	Transfer front drive shift fork	16 ^{+0.024} _{+0.005}	16.03	
Diameter	Outer	Transfer high & low clutch hub	72.5 ^{+0.2} ₊₀	72.7	
	Bore	Hub sleeve (for high & low clutch)	72.5 ^{+0.10} _{-0.17}	72.3	
Contact width section		Transfer high & low shift fork	7 ^{+0.15} _{-0.20}	6.3	
		Hub sleeve	7 ^{+0.058} ₊₀	7.3	
Diameter	Outer	Transfer high & low shift fork shaft	16 ^{+0.025} _{-0.040}	15.06	
	Inner	Transfer high & low shift fork	16 ^{+0.024} _{+0.005}	16.03	
		Transfer gear shift head	16 ^{+0.059} _{+0.016}	16.06	

WRE91-TR215

TIGHTENING TORQUE
5-SPEED

Tightening components	Tightening torque		
	N·m	kgf·m	ft·lb
Transfer shift lever retainer subassembly x Transfer case	9.8 - 15.6	1.0 - 1.6	7.2 - 11.6
Bolt (for transfer high & low shift fork shaft) x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Bolt x Vacuum switching valve No. 2	3.9 - 6.8	0.4 - 0.7	2.9 - 5.1
Transfer input shaft x Lock nut	226.0 - 264.0	23.0 - 27.0	166.0 - 194.4
Transmission position detect switch x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transfer position detect switch x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transmission position switch assembly x Diaphragm cylinder cover	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Diaphragm cylinder cover x Output shaft bearing front retainer	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Output shaft bearing front retainer x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Bolt (for transfer front drive shift fork shaft) x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Output shaft bearing retainer front x Output shaft bearing front retainer	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transfer output front shaft x Lock nut	98.0 - 137.0	10.0 - 14.0	72.0 - 101.0
Transfer output rear shaft x Lock nut	98.0 - 137.0	10.0 - 14.0	72.0 - 101.0
Output shaft bearing rear retainer x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Output shaft bearing rear retainer x Speedometer sleeve lock plate	5.9 - 8.8	0.6 - 0.9	4.3 - 6.5

WRE91-TR216

TRANSFER

4-SPEED

Tightening components	Tightening torque		
	N·m	kgf-m	ft-lb
Transfer shift lever retainer subassembly x Transfer case	9.8 - 15.7	1.0 - 1.6	7.2 - 11.6
Transfer position detect switch x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Filler & drain plug x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transfer case cover No. 1 x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Bolt (for transfer front drive shift fork shaft) x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transfer output front shaft x Lock nut	98.0 - 137.2	10.0 - 14.0	72.0 - 101.0
Output shaft bearing front retainer x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Output shaft bearing rear retainer x Transfer case	29.4 - 49.0	3.0 - 5.0	21.7 - 36.2
Transfer output rear shaft x Lock nut	98.0 - 137.2	10.0 - 14.0	72.0 - 101.0
Output shaft bearing rear retainer x Speedometer sleeve lock plate	5.9 - 8.8	0.6 - 0.9	4.3 - 6.5

WRE91-TR217