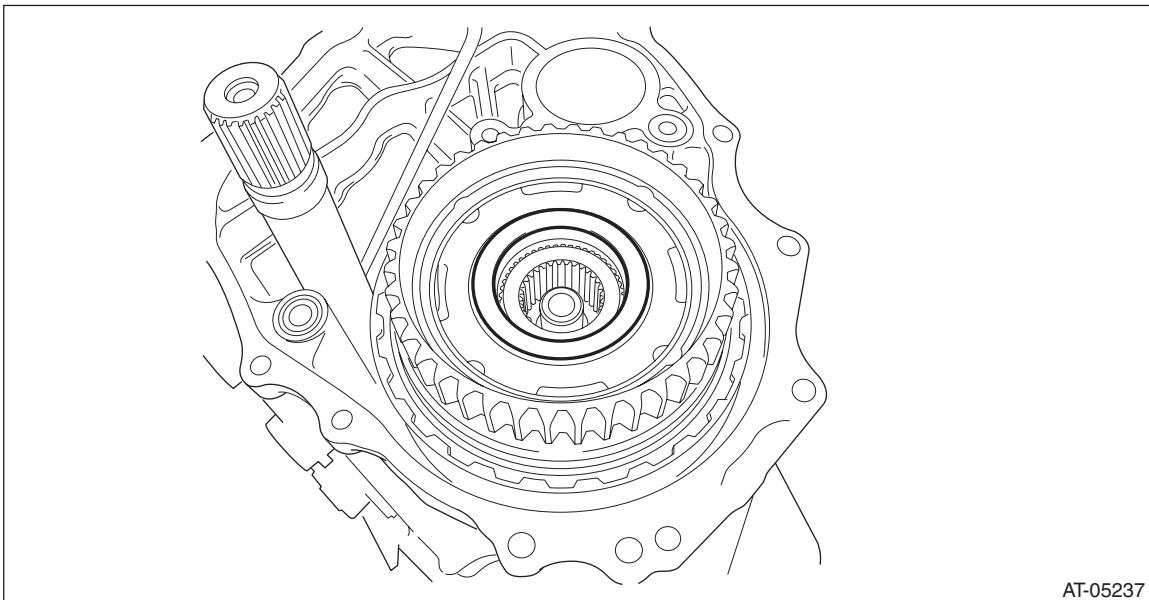


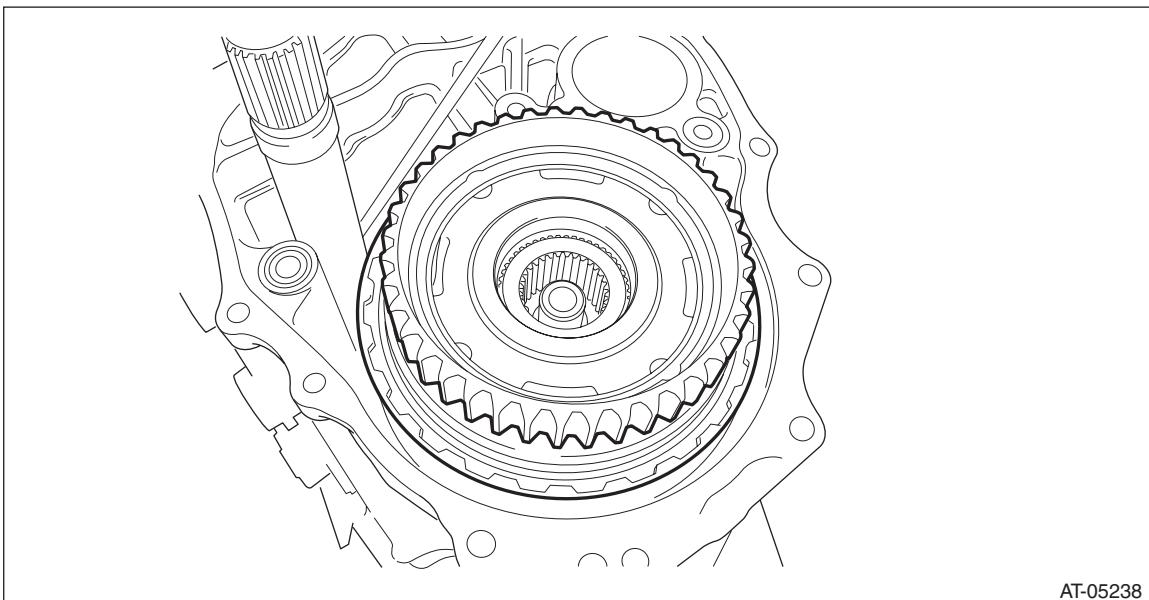
37. Forward Clutch Assembly

A: REMOVAL

- 1) Remove the transmission from the vehicle. <Ref. to CVT(TR690)-56, REMOVAL, Automatic Transmission Assembly.>
- 2) Remove the extension case. <Ref. to CVT(TR690)-142, REMOVAL, Extension Case.>
- 3) Remove the rear drive shaft. <Ref. to CVT(TR690)-146, REMOVAL, Rear Drive Shaft.>
- 4) Remove the transfer clutch assembly. <Ref. to CVT(TR690)-151, REMOVAL, Transfer Clutch.>
- 5) Remove the center differential carrier. <Ref. to CVT(TR690)-154, REMOVAL, Center Differential Carrier.>
- 6) Remove the transfer reduction driven gear. <Ref. to CVT(TR690)-158, REMOVAL, Transfer Reduction Driven Gear.>
- 7) Remove the intermediate case. <Ref. to CVT(TR690)-165, REMOVAL, Intermediate Case.>
- 8) Remove the thrust needle bearing.



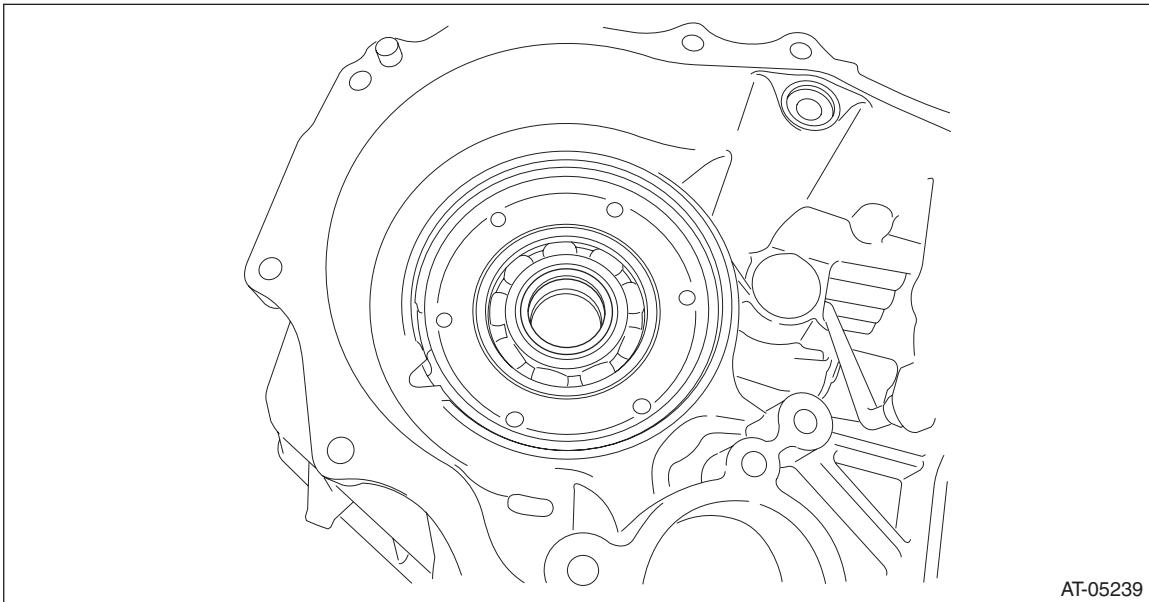
- 9) Remove the forward clutch assembly.



Forward Clutch Assembly

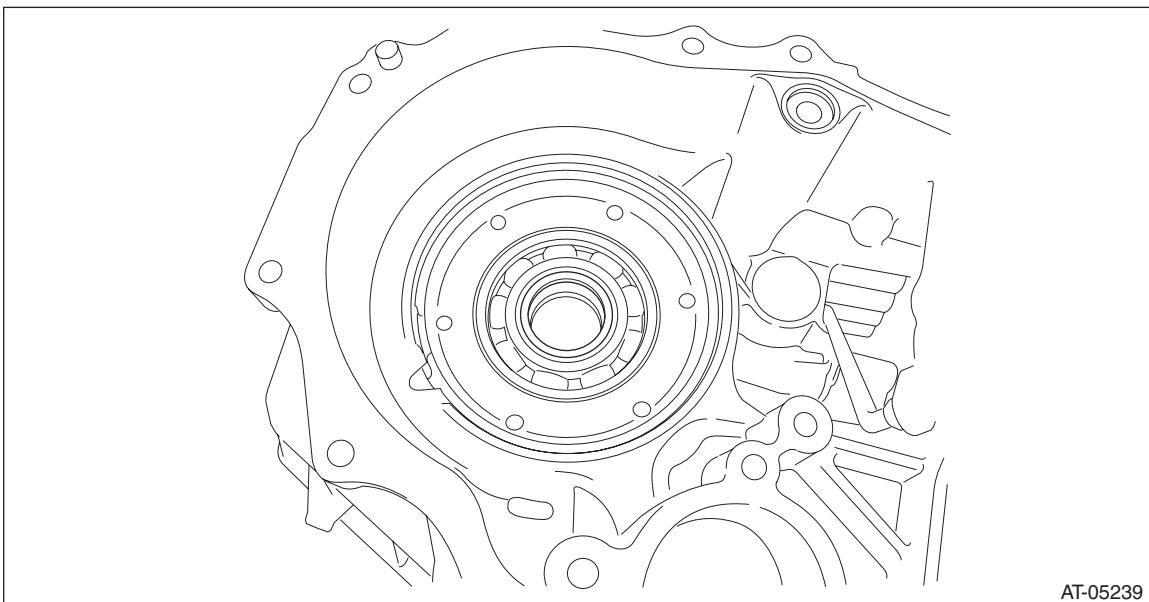
CONTINUOUSLY VARIABLE TRANSMISSION

- 10) Remove the washer.



B: INSTALLATION

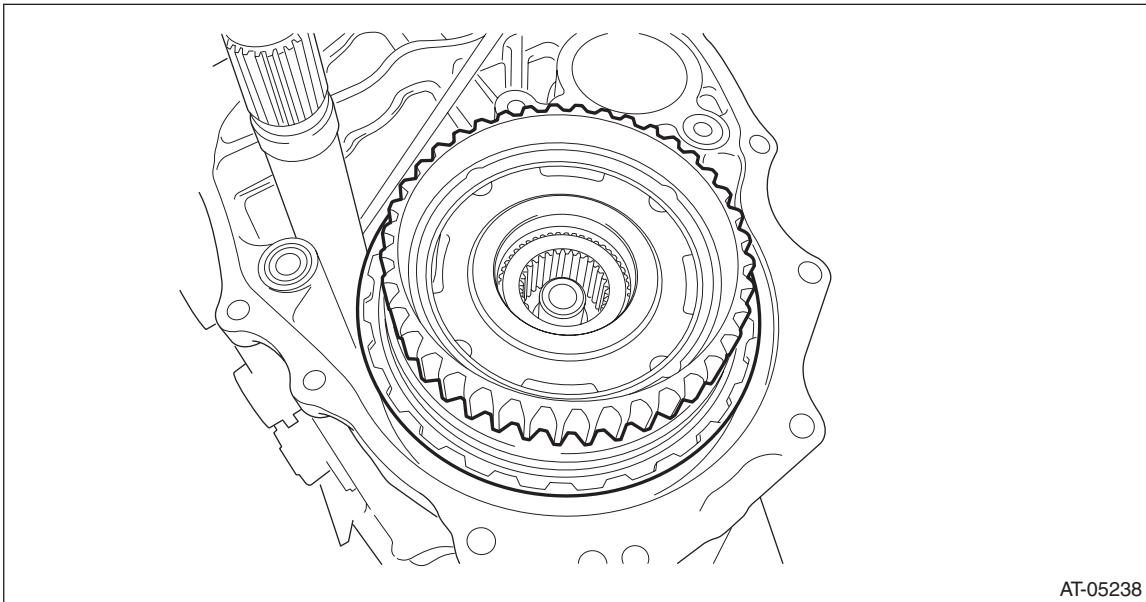
- 1) Select a washer. <Ref. to CVT(TR690)-199, ADJUSTMENT, Forward Clutch Assembly.>
- 2) Install the selected washer.



Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

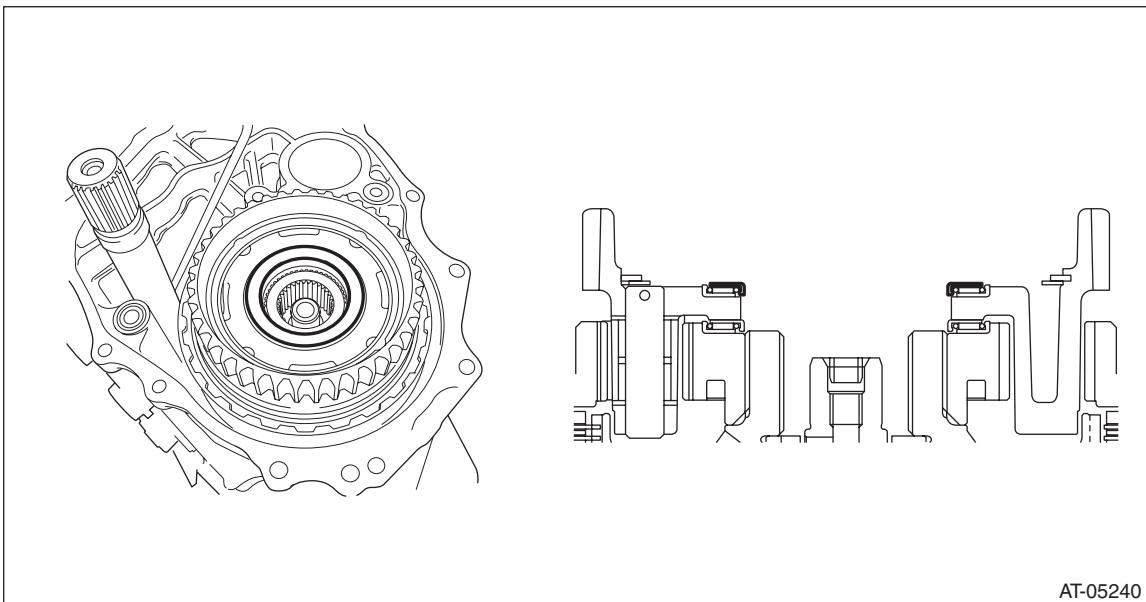
- 3) Install the forward clutch assembly.



- 4) Install the thrust needle bearing.

NOTE:

Install the thrust needle bearing in the correct direction.



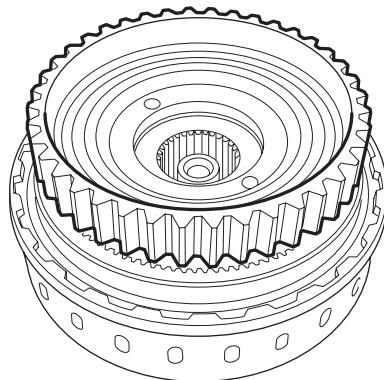
- 5) Install the intermediate case. <Ref. to CVT(TR690)-166, INSTALLATION, Intermediate Case.>
- 6) Install the transfer reduction driven gear assembly. <Ref. to CVT(TR690)-158, INSTALLATION, Transfer Reduction Driven Gear.>
- 7) Install the center differential carrier. <Ref. to CVT(TR690)-155, INSTALLATION, Center Differential Carrier.>
- 8) Install the transfer clutch assembly. <Ref. to CVT(TR690)-151, INSTALLATION, Transfer Clutch.>
- 9) Install the rear drive shaft. <Ref. to CVT(TR690)-146, INSTALLATION, Rear Drive Shaft.>
- 10) Install the extension case. <Ref. to CVT(TR690)-143, INSTALLATION, Extension Case.>
- 11) Install the transmission to vehicle. <Ref. to CVT(TR690)-69, INSTALLATION, Automatic Transmission Assembly.>

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

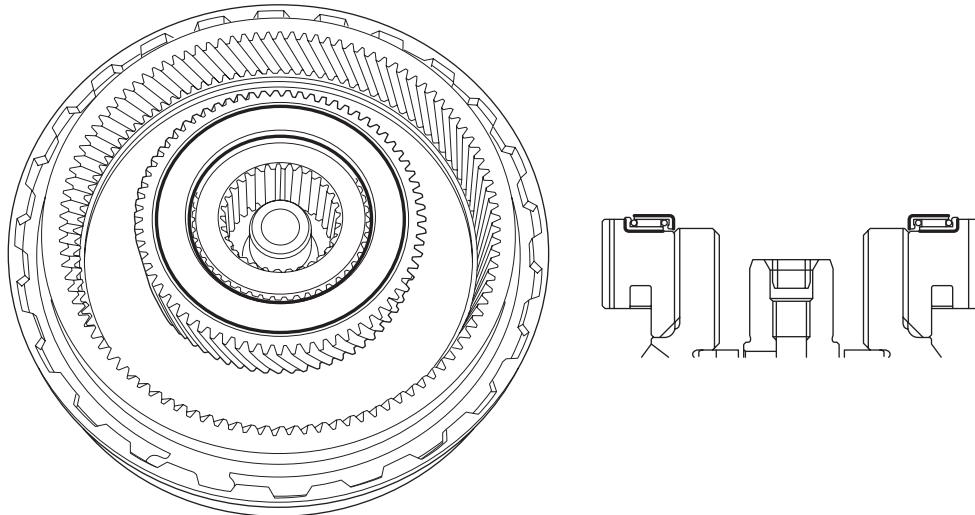
C: DISASSEMBLY

- 1) Remove the planetary carrier assembly.



AT-06555

- 2) Remove the thrust needle bearing.



AT-05243

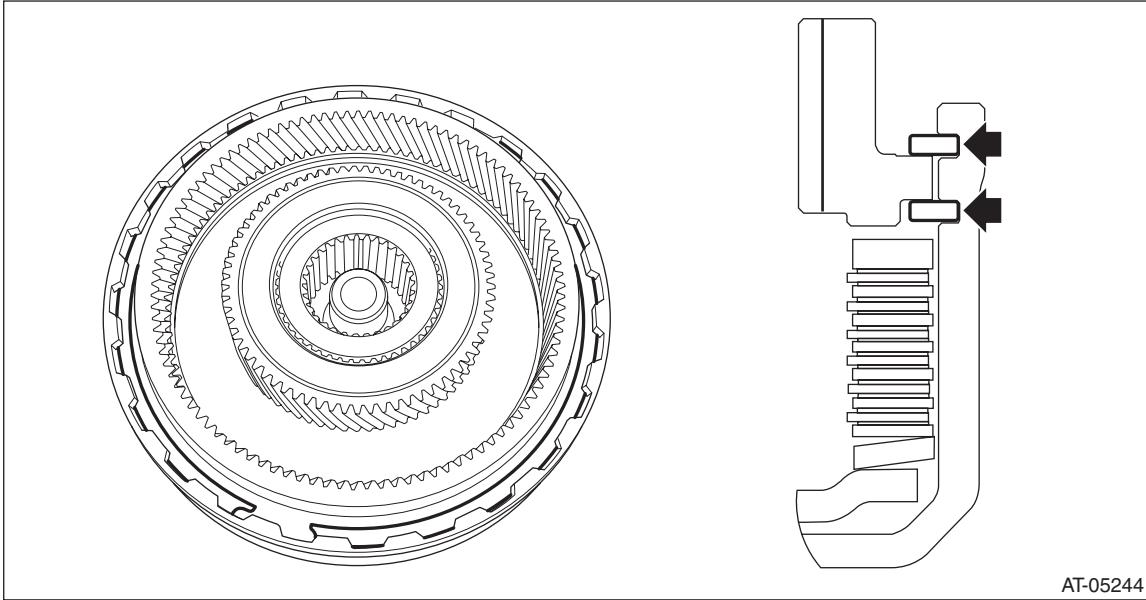
Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

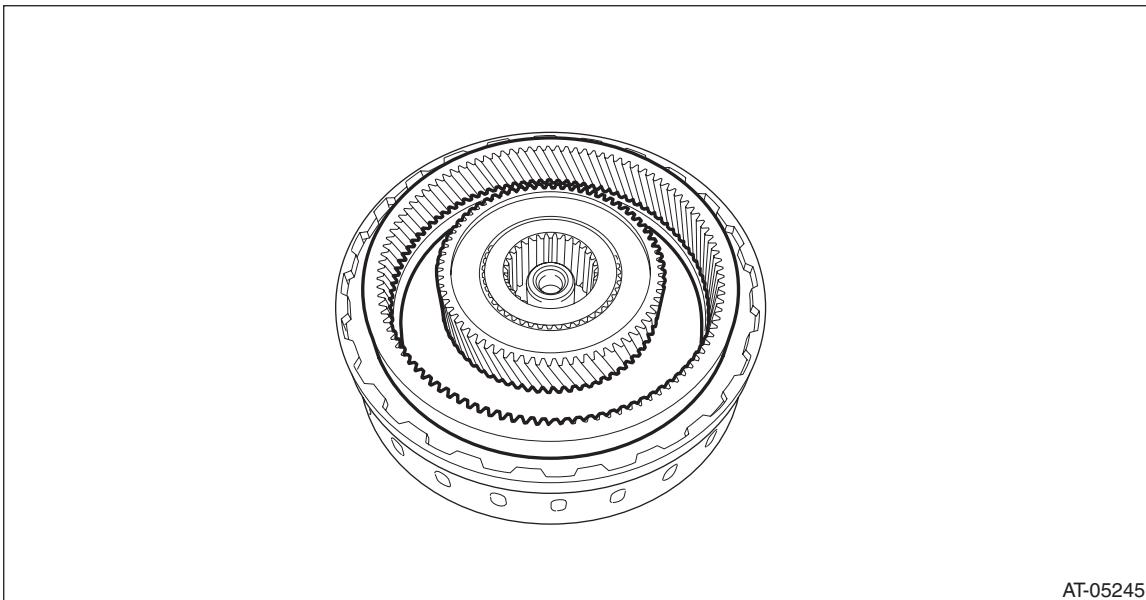
3) Remove the snap ring.

NOTE:

Use marking or labeling to the upper snap ring for measurement of the snap ring thickness when selecting the retaining plate.



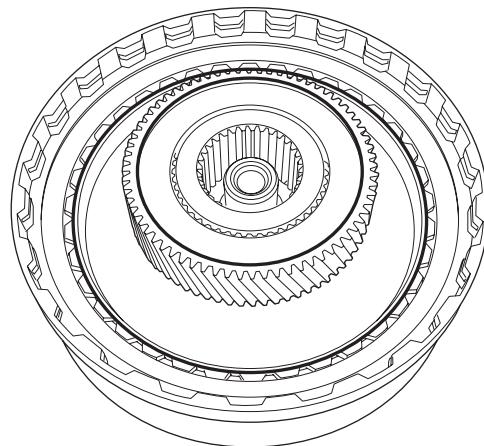
4) Remove the internal gear.



Forward Clutch Assembly

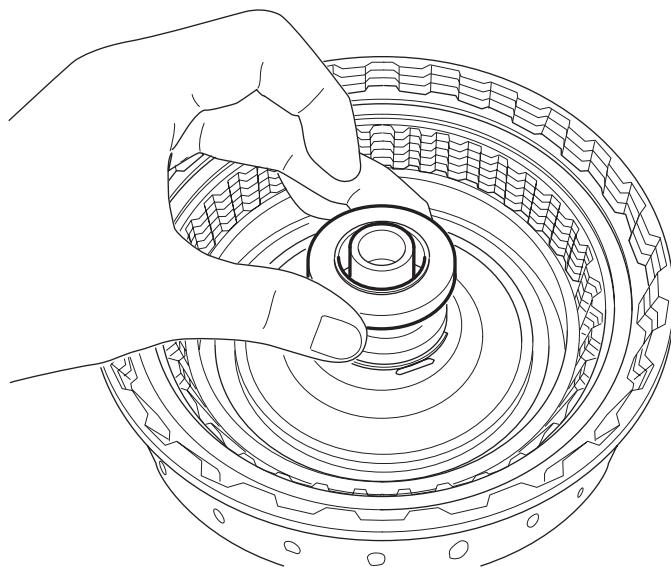
CONTINUOUSLY VARIABLE TRANSMISSION

5) Remove the sun gear.



AT-05246

6) Remove the washer.

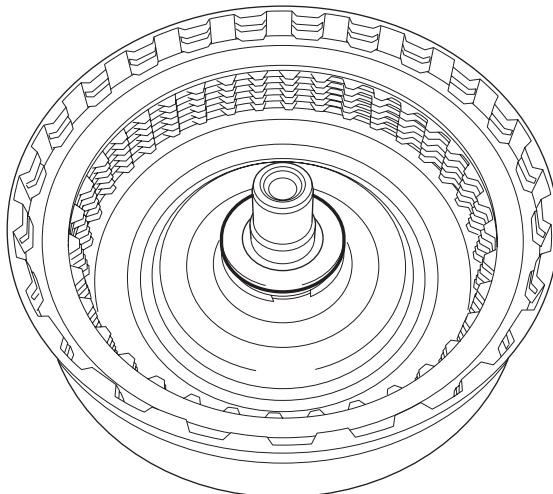


AT-05256

Forward Clutch Assembly

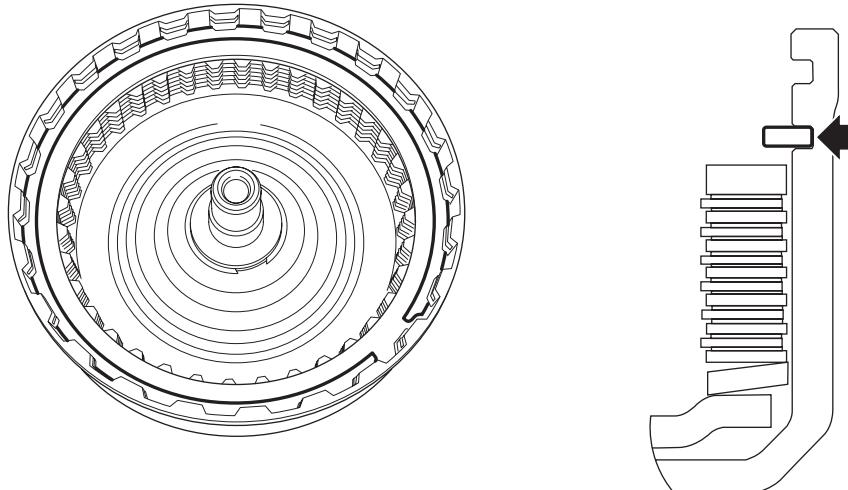
CONTINUOUSLY VARIABLE TRANSMISSION

7) Remove the thrust needle bearing.



AT-05247

8) Remove the snap ring.

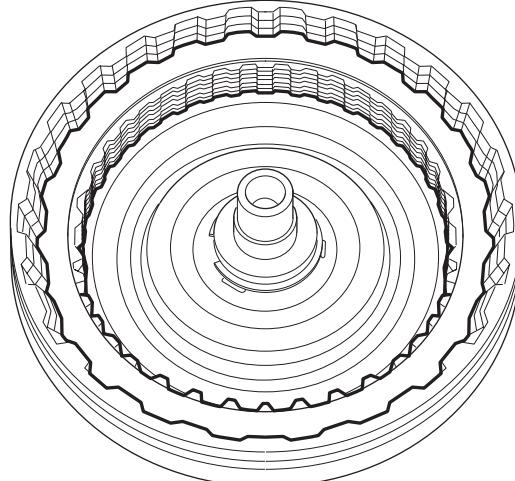


AT-05248

Forward Clutch Assembly

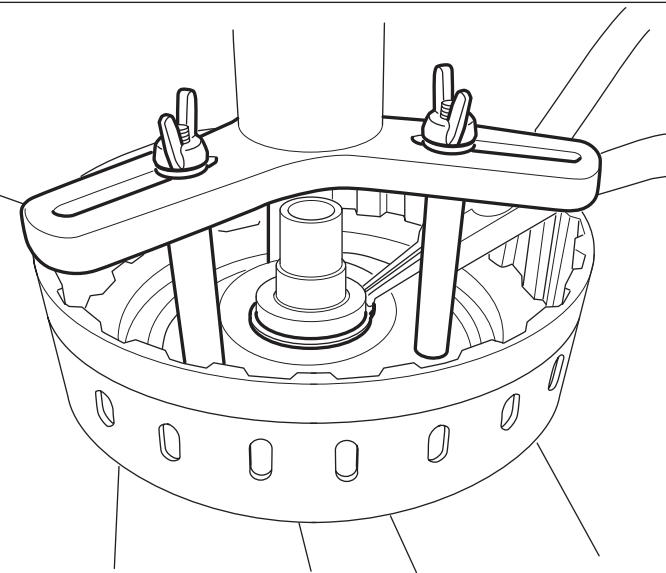
CONTINUOUSLY VARIABLE TRANSMISSION

9) Remove the retaining plate, drive plate, driven plate and dish plate.



AT-05249

10) Using the ST, remove the snap ring.
ST 18762AA001 COMPRESSOR SPECIAL TOOL

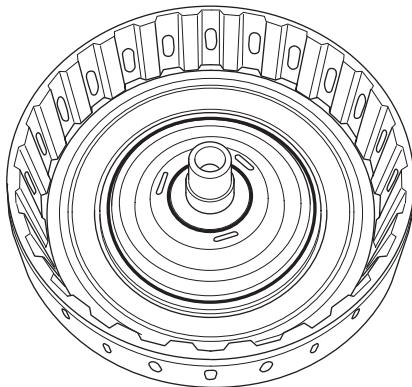


AT-05250

Forward Clutch Assembly

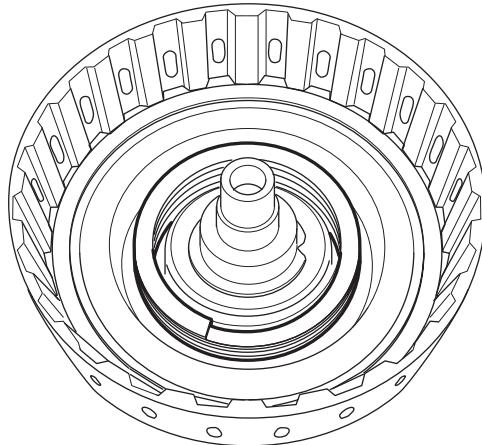
CONTINUOUSLY VARIABLE TRANSMISSION

11) Remove the forward clutch piston retainer.



AT-05251

12) Remove the return spring.

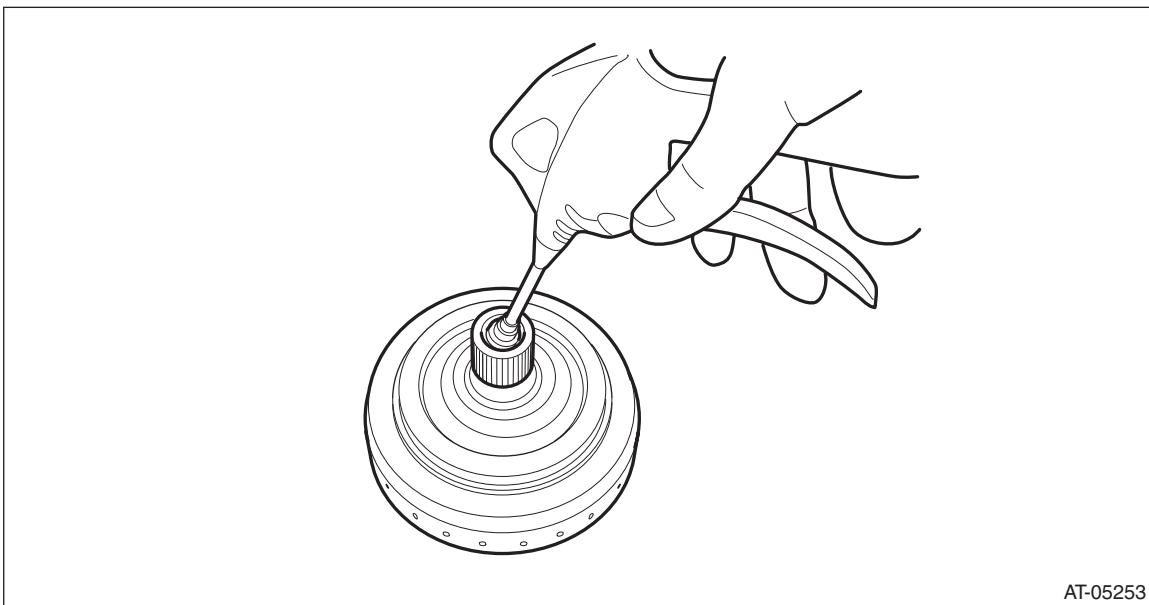


AT-05252

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

- 13) Remove the forward clutch piston by blowing compressed air intermittently from end of forward clutch drum.



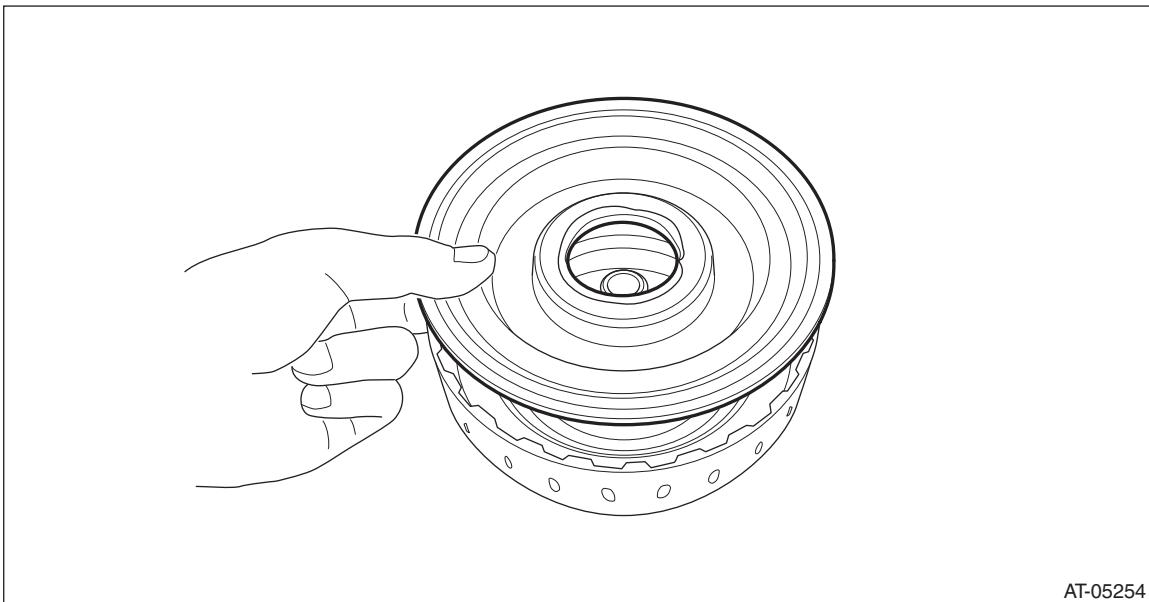
AT-05253

D: ASSEMBLY

- 1) Install the forward clutch piston to forward clutch drum.

NOTE:

- Apply CVTF to the seal of forward clutch piston.
- Insert it all the way to the end.

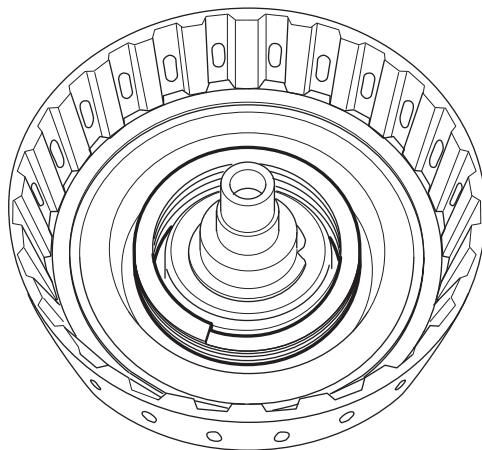


AT-05254

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

2) Install the return spring.

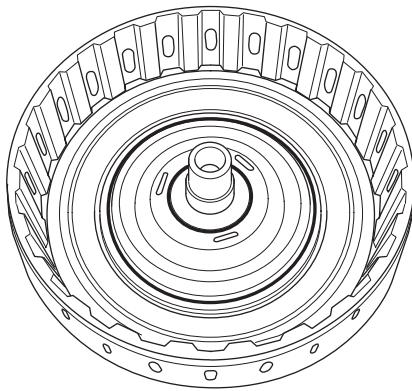


AT-05252

3) Install the forward clutch piston retainer.

NOTE:

Apply CVTF to the sealing area of forward clutch piston retainer.



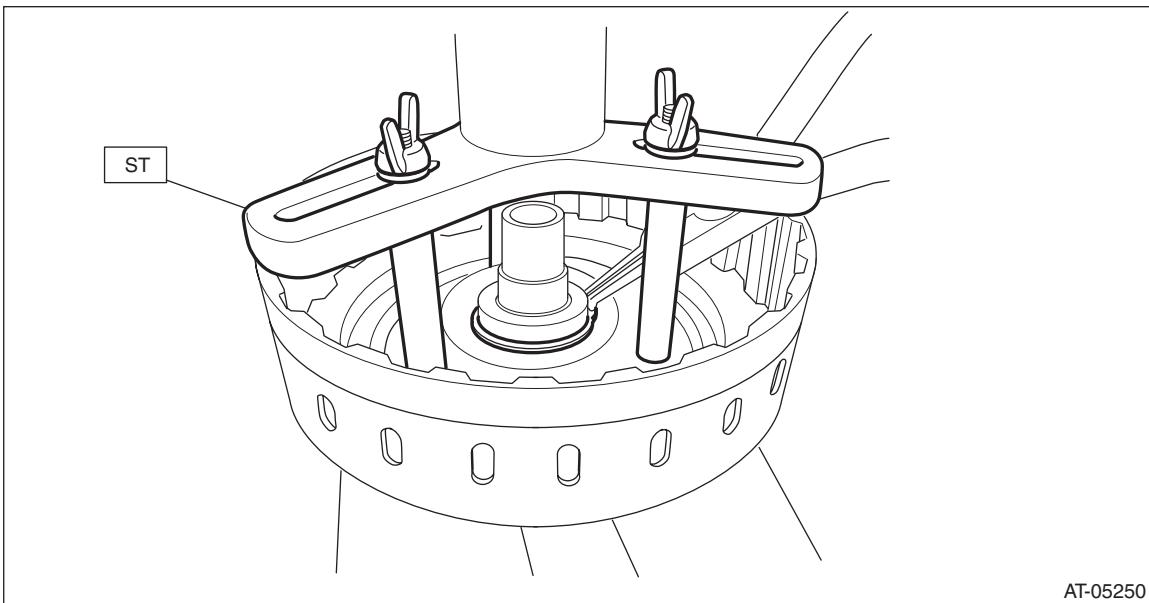
AT-05251

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

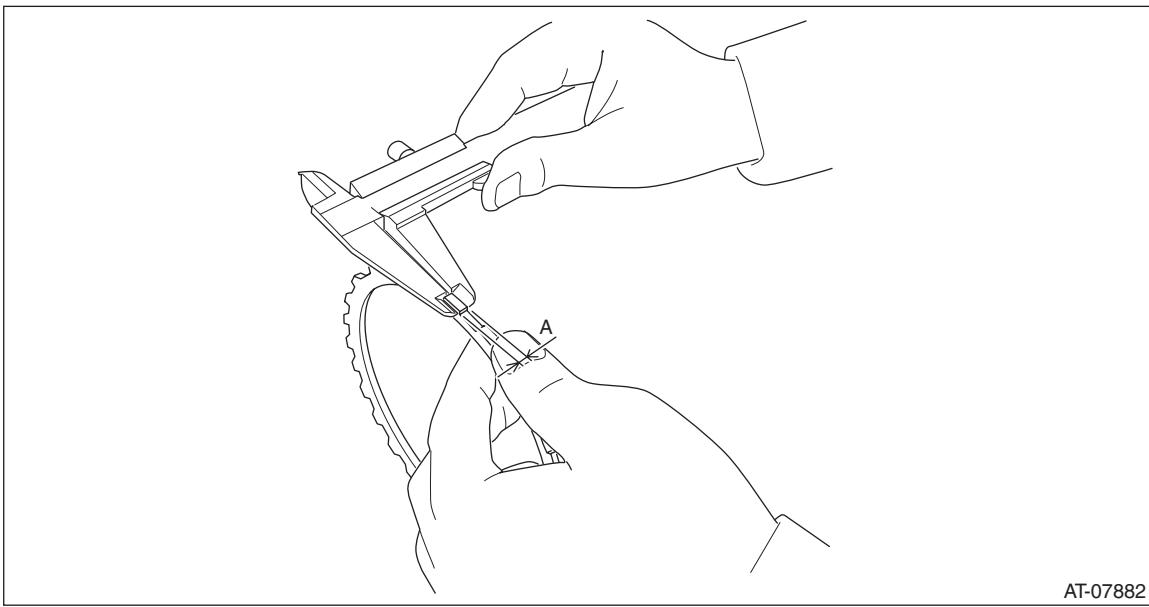
4) Compress the return spring using the ST to install the snap ring.

ST 18762AA001 COMPRESSOR SPECIAL TOOL



AT-05250

5) Measure thickness "A" of the retaining plate installed.

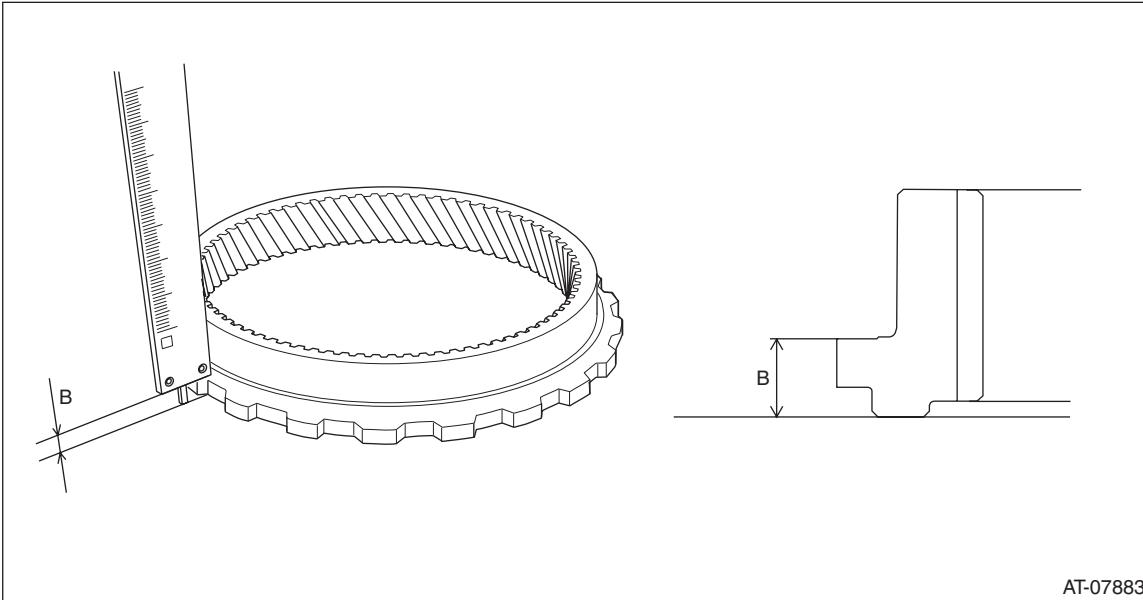


AT-07882

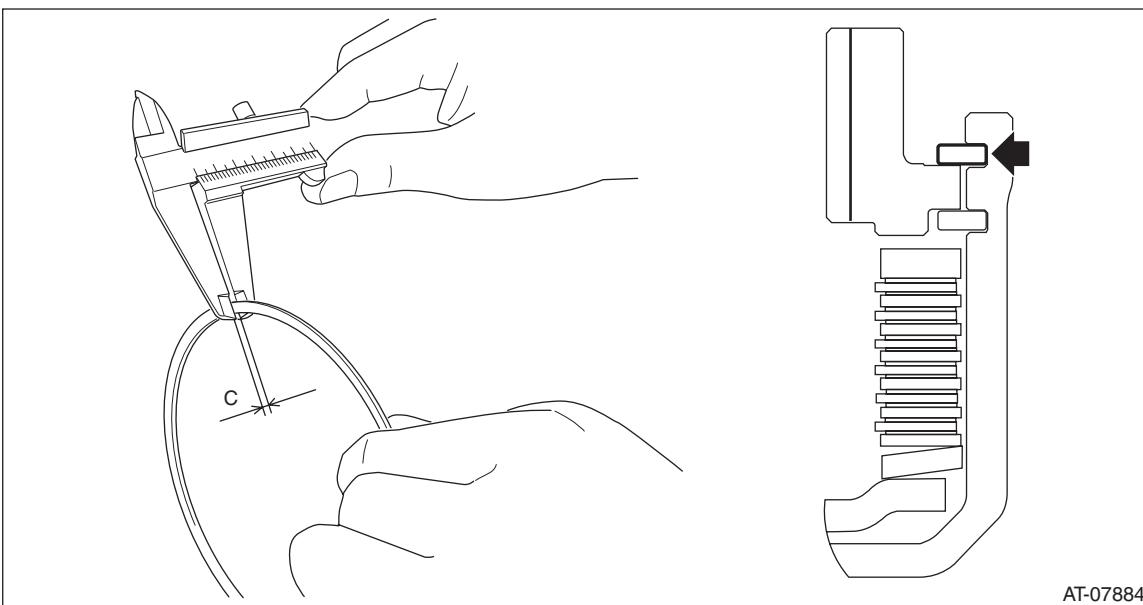
Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

6) Measure thickness "B" of the internal gear on a surface plate.



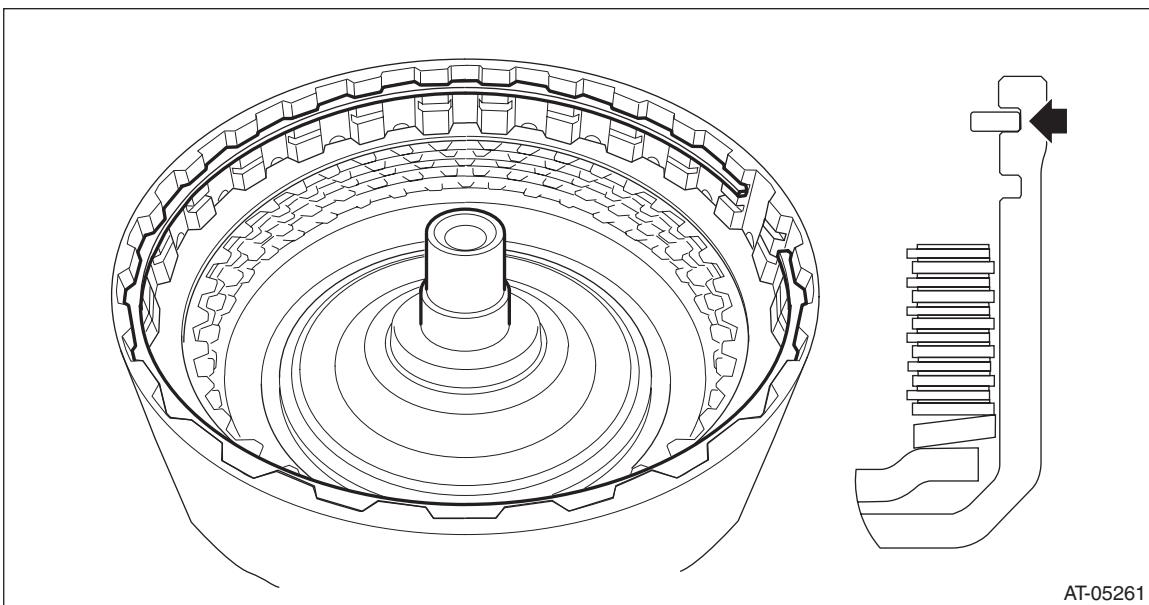
7) Measure thickness "C" of labelled or marked snap ring.



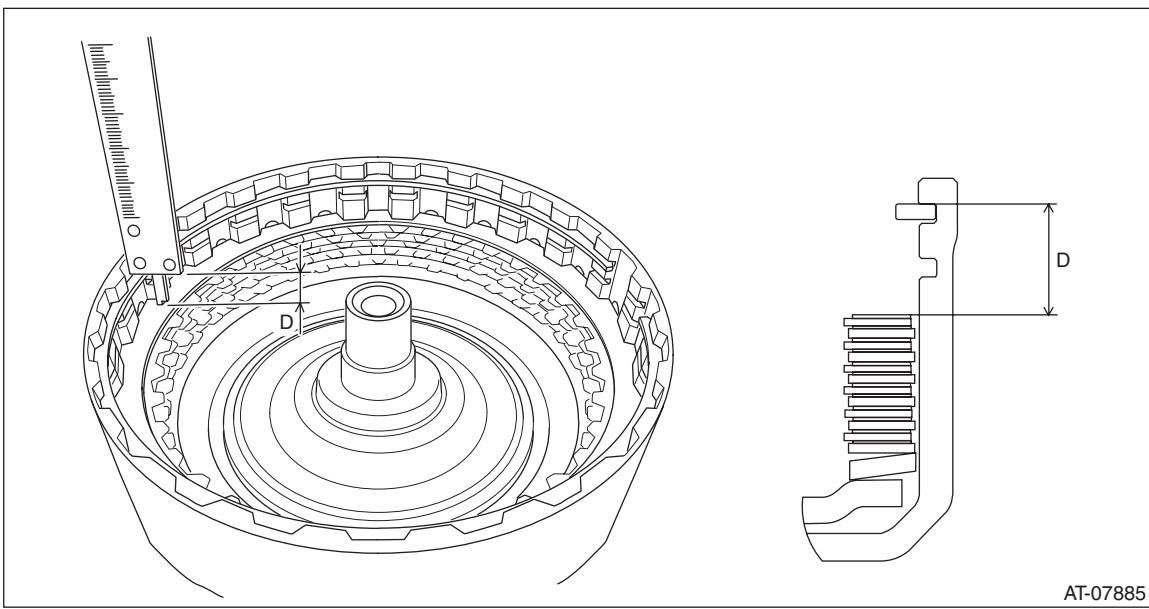
Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

- 8) Install the dish plate, drive plate and driven plate.
- 9) Install the snap ring at the location (upper groove) indicated in the figure.



- 10) Measure depth "D" of snap ring and driven plate while lifting the snap ring.

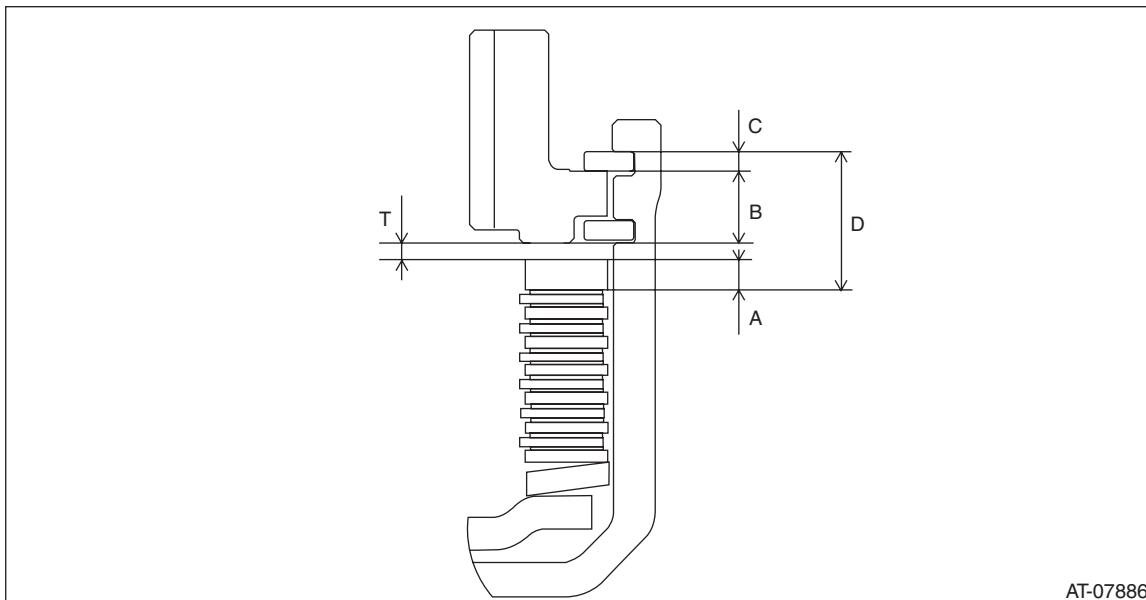


Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

11) Calculate clearance "T" from internal gear to retaining plate with the obtained value from step 5) through step 10).

Formula: $T \text{ mm (in)} = D - A - B - C$



12) If the value "T" obtained from step 11) exceeds the limit for use, replace the drive plate and driven plate with new parts and select the retaining plate within the initial standard value.

Initial standard:

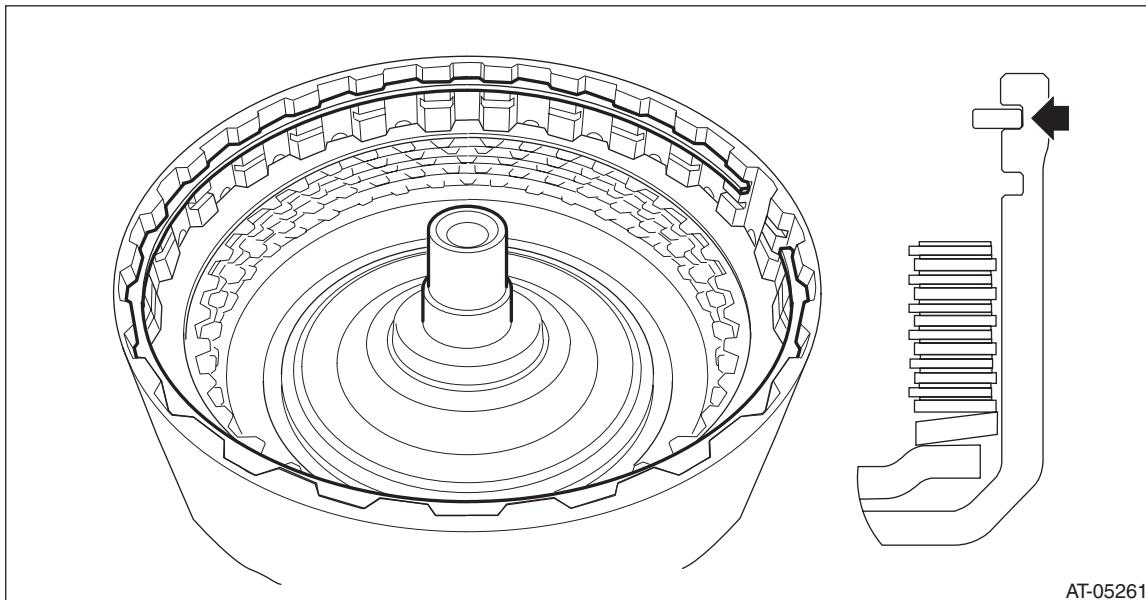
1.2 — 1.6 mm (0.047 — 0.063 in)

Limit thickness:

2.4 mm (0.09 in)

Retaining plate	
Item number	Thickness mm (in)
31567AB670	3.2 (0.126)
31567AB660	3.0 (0.118)
31567AB650	2.8 (0.110)
31567AB640	2.6 (0.102)

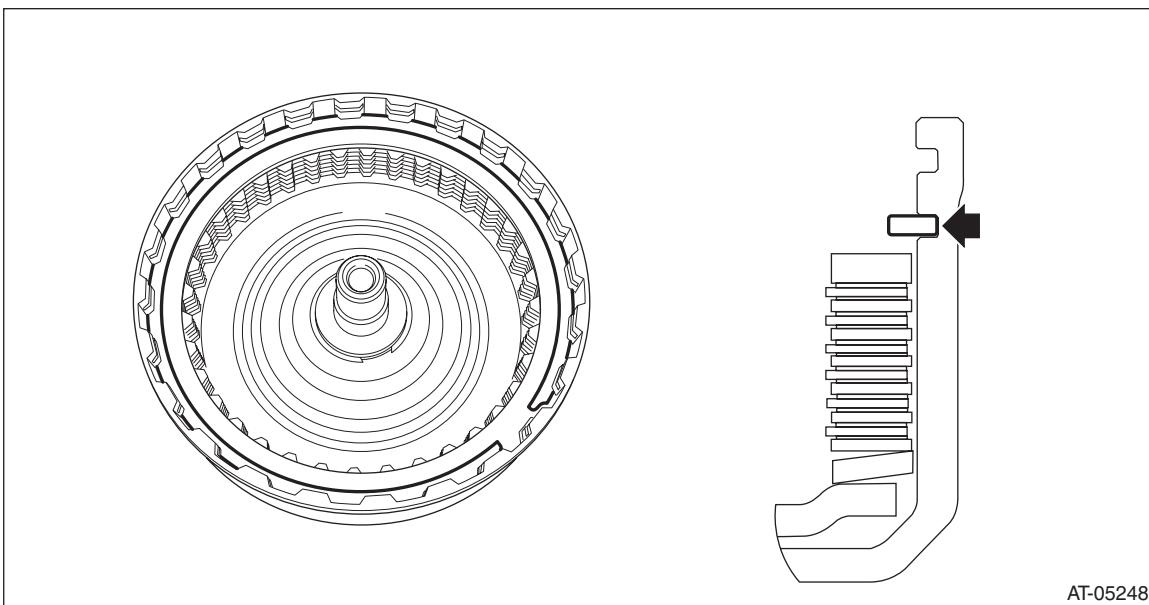
13) Remove the snap ring.



Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

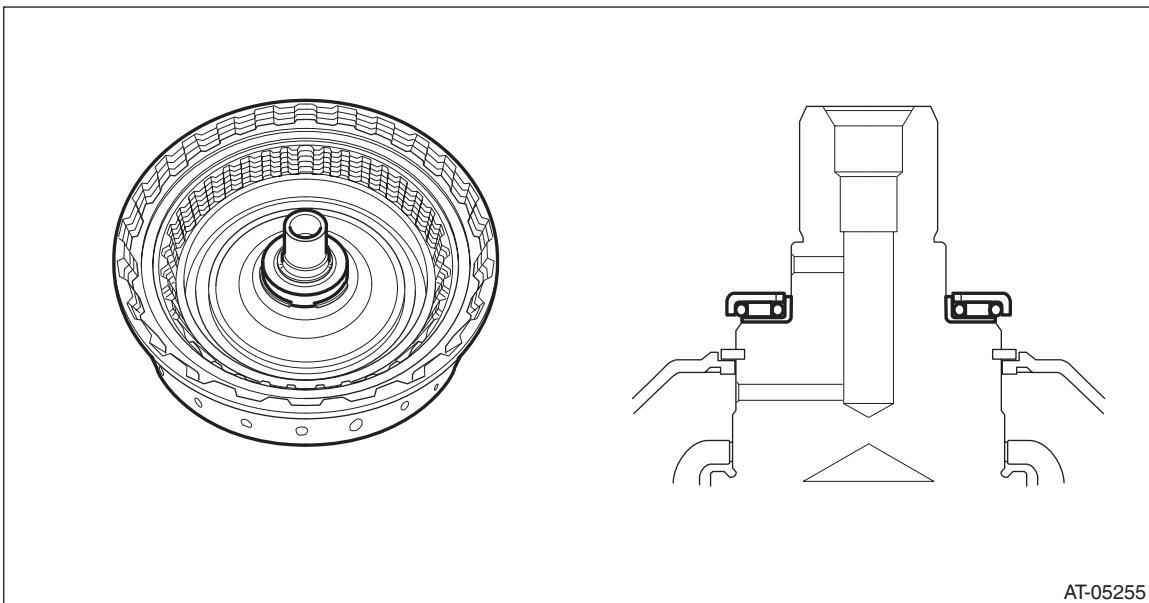
- 14) Replace with the selected retaining plate to install.
- 15) Install the snap ring to the lower groove.



- 16) Install the thrust needle bearing.

NOTE:

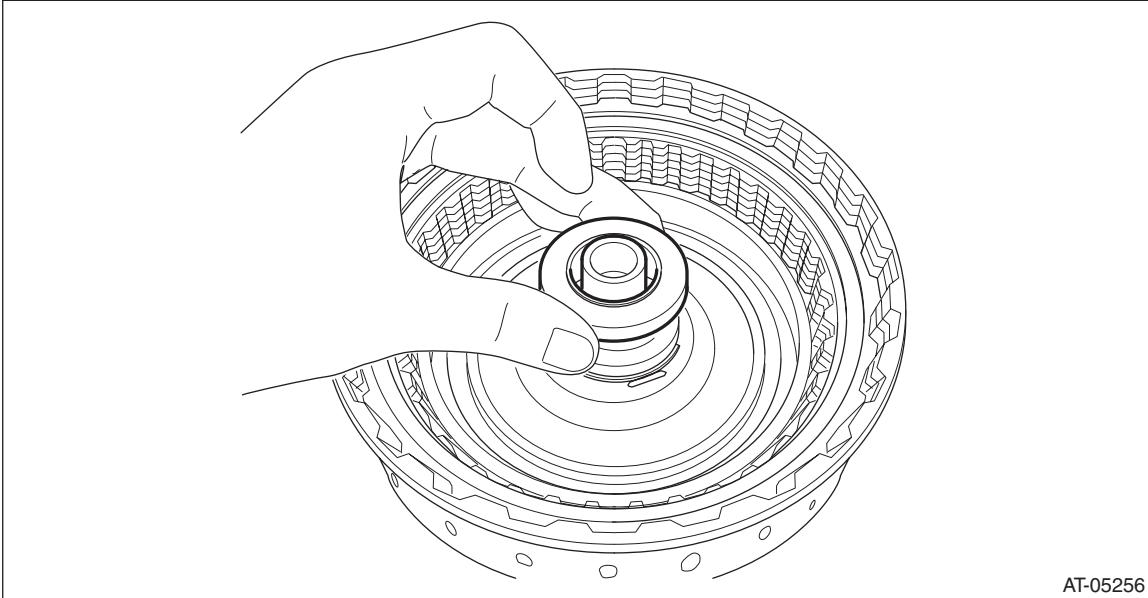
Install the thrust needle bearing in the correct direction.



Forward Clutch Assembly

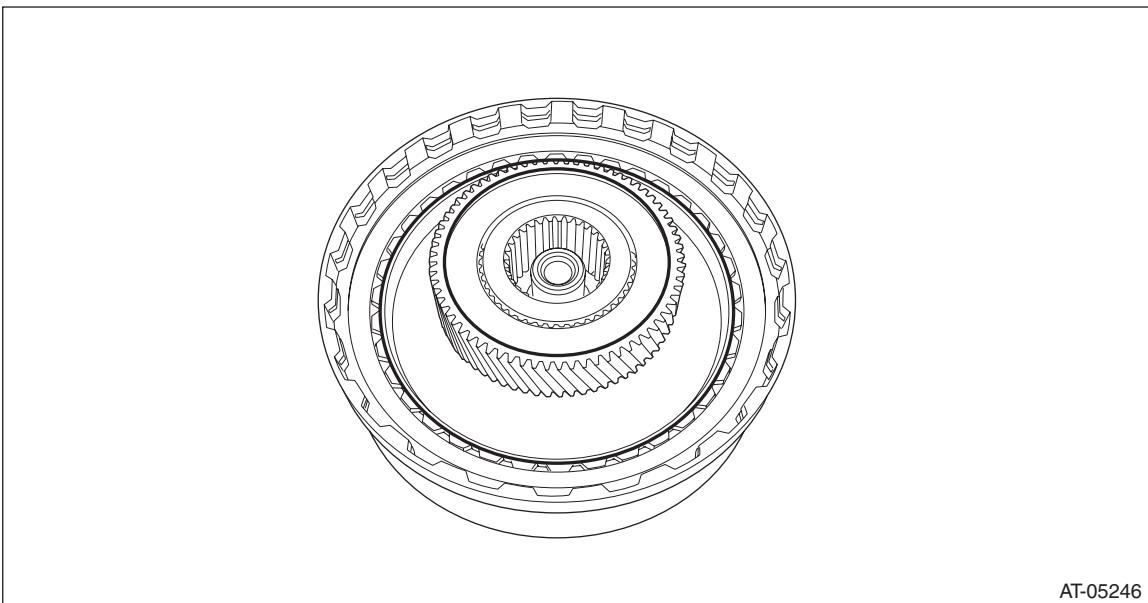
CONTINUOUSLY VARIABLE TRANSMISSION

17) Install the washer.



AT-05256

18) Install the sun gear.

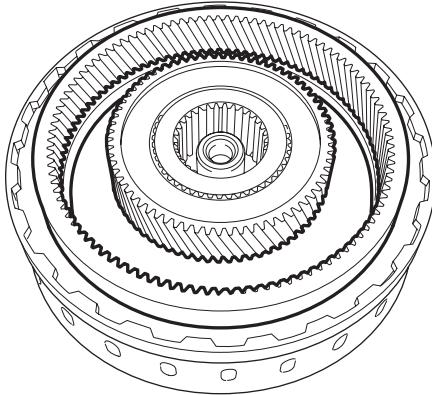


AT-05246

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

19) Install the internal gear.



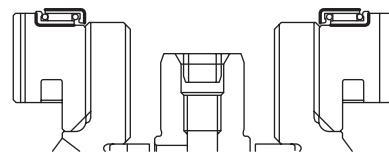
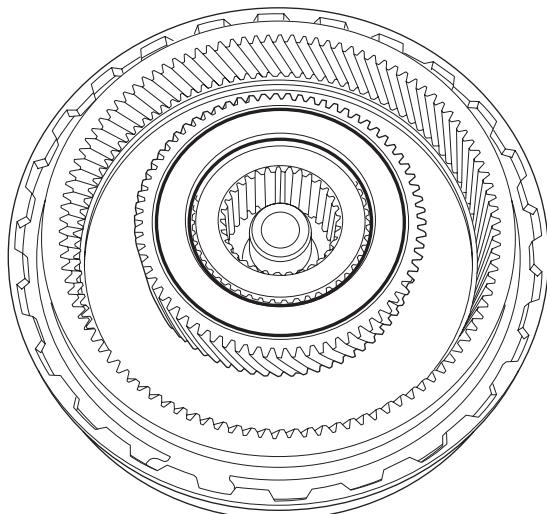
AT-05245

20) Install the snap ring.

21) Install the thrust needle bearing.

NOTE:

Make sure to install in the right direction.

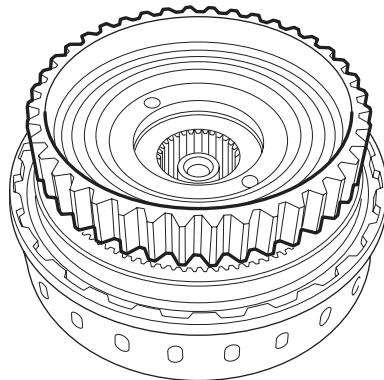


AT-05243

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

22) Install the planetary carrier assembly.



AT-06555

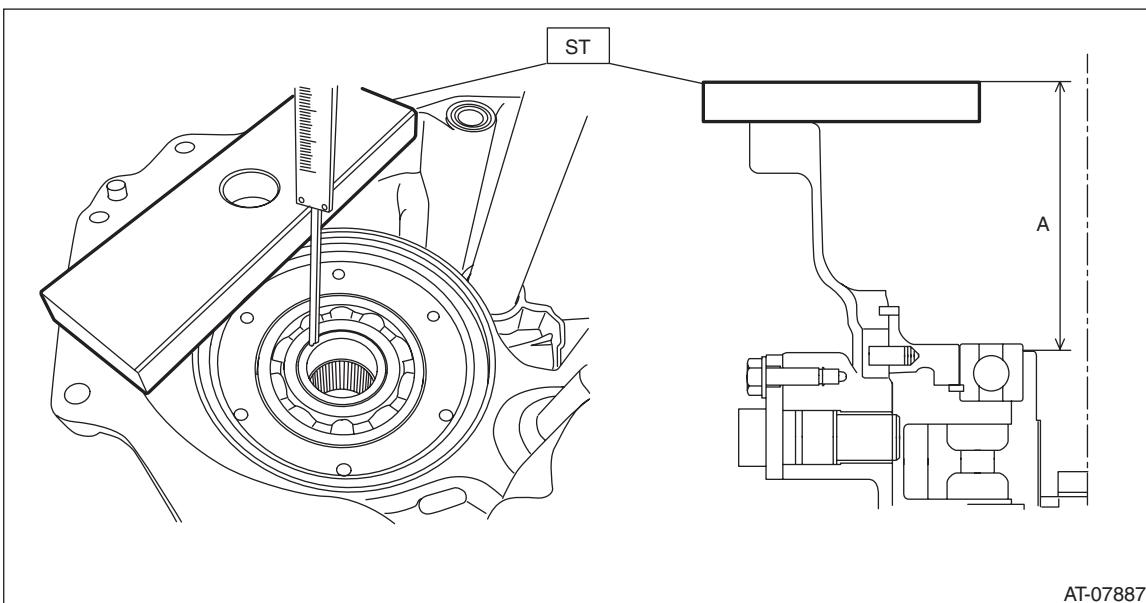
E: INSPECTION

- Check the forward clutch drum, internal gear, sun gear and forward clutch piston lip for wear or damage.
- Inspect the drive plate facing for wear and damage.
- Check the driven plate for discoloration (burnt color).
- Check for worn snap ring, fatigue or damaged return spring or deformed spring retainer.
- Make sure the clearance between retaining plate and internal gear of forward clutch is within the limit. If it exceeds the standard, replace the forward clutch assembly. <Ref. to CVT(TR690)-190, ASSEMBLY, Forward Clutch Assembly.>

F: ADJUSTMENT

1) Measure depth "A" from the ST upper face to the washer catch surface.

ST 398643600 GAUGE



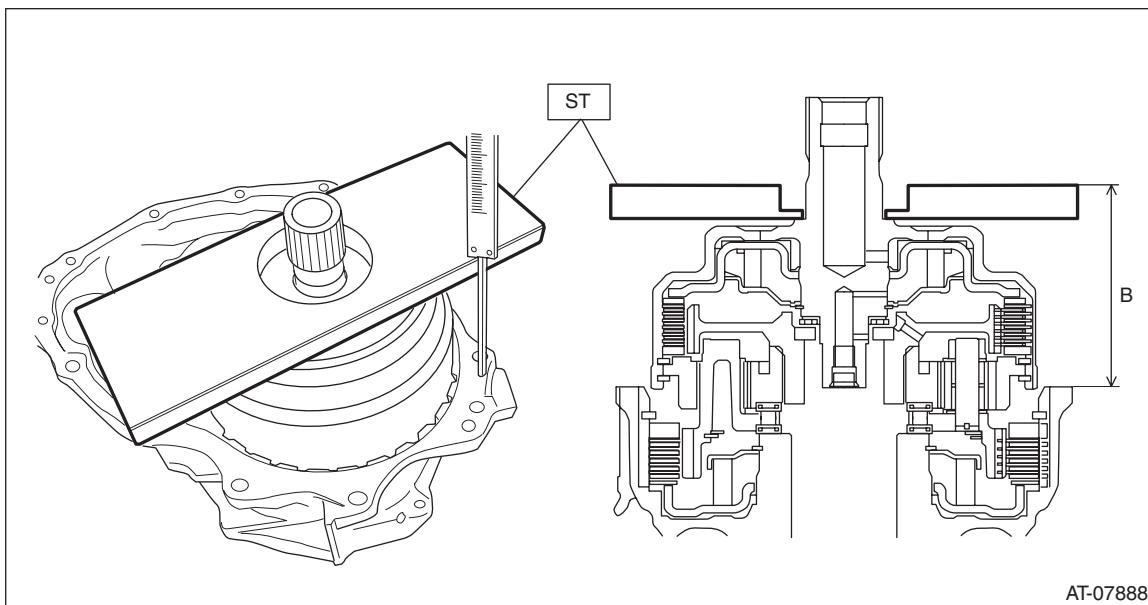
AT-07887

2) Install the forward clutch assembly to intermediate case.

Forward Clutch Assembly

CONTINUOUSLY VARIABLE TRANSMISSION

3) Setting the ST, measure height "B" from the ST upper side to the intermediate case mating surface.
ST 499575600 GAUGE



4) Obtain the thickness of washer using the following formula.

Calculation formula:

$$T \text{ (mm)} = (A - 15) - (B - 15) - (0.35 - 0.70)$$

$$[T \text{ (in)} = (A - 0.591) - (B - 0.591) - (0.014 - 0.028)]$$

T: Washer thickness

A: Depth from the ST upper face to the washer catch surface

B: Height from the upper surface of the ST to the mating surface of the intermediate case

15 mm (0.591 in): Thickness of ST

0.35 — 0.70 mm (0.014 — 0.028 in): Clearance

5) Select the washer to meet the value "T" obtained from step 4).

Washer	
Part No.	Washer thickness mm (in)
803034040	1.0 (0.039)
803034041	1.2 (0.047)
803034042	1.4 (0.055)
803034043	1.6 (0.063)