

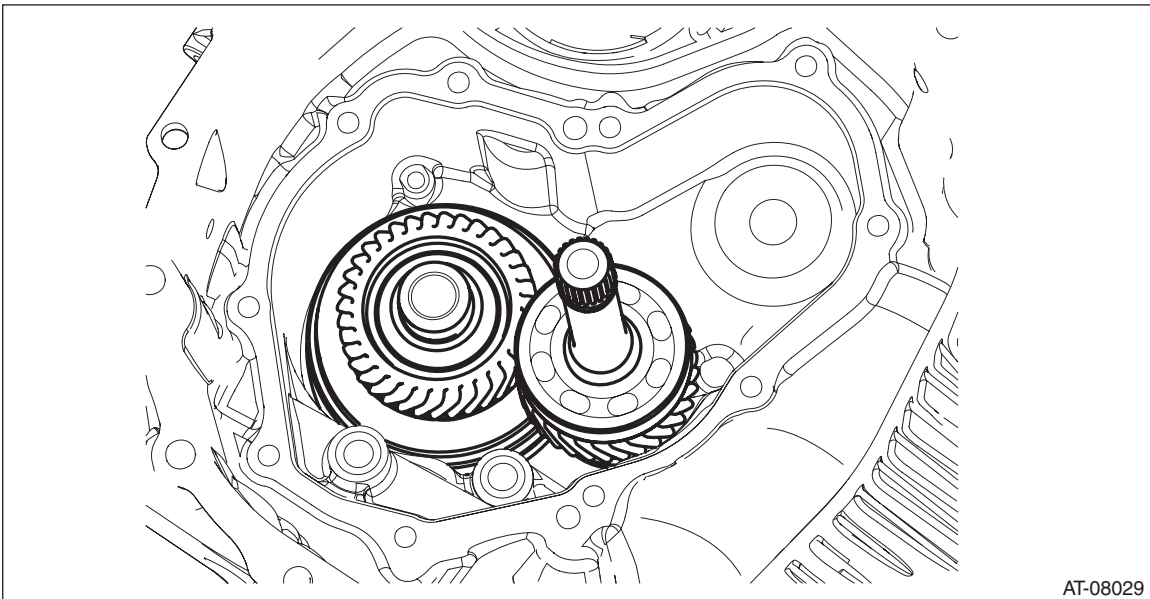
### 48.Front Reduction Drive Gear

#### A: REMOVAL

- 1) Remove the transmission assembly from the vehicle.<Ref. to CVT(TR690)-56, REMOVAL, Automatic Transmission Assembly.>
- 2) Remove the air breather hose.<Ref. to CVT(TR690)-134, REMOVAL, Air Breather Hose.>
- 3) Remove the oil pan and control valve body.<Ref. to CVT(TR690)-109, REMOVAL, Control Valve Body.>
- 4) Remove the transmission harness.<Ref. to CVT(TR690)-120, REMOVAL, Transmission Harness.>
- 5) Remove the primary speed sensor.<Ref. to CVT(TR690)-102, REMOVAL, Primary Speed Sensor.>
- 6) Remove the extension case.<Ref. to CVT(TR690)-140, REMOVAL, Extension Case.>
- 7) Remove the rear drive shaft.<Ref. to CVT(TR690)-143, REMOVAL, Rear Drive Shaft.>
- 8) Remove the transfer clutch assembly.<Ref. to CVT(TR690)-148, REMOVAL, Transfer Clutch.>
- 9) Remove the transfer reduction driven gear assembly.<Ref. to CVT(TR690)-160, REMOVAL, Transfer Reduction Driven Gear.>
- 10) Remove the intermediate case.<Ref. to CVT(TR690)-167, REMOVAL, Intermediate Case.>
- 11) Remove the forward clutch assembly.<Ref. to CVT(TR690)-182, REMOVAL, Forward Clutch Assembly.>
- 12) Remove the transmission case.<Ref. to CVT(TR690)-213, REMOVAL, Transmission Case.>
- 13) Remove the primary pulley, secondary pulley and variator chain.<Ref. to CVT(TR690)-231, REMOVAL, Primary Pulley and Secondary Pulley.>
- 14) Remove the drive pinion shaft assembly.<Ref. to CVT(TR690)-247, REMOVAL, Drive Pinion Shaft Assembly.>
- 15) Remove the converter case cover.<Ref. to CVT(TR690)-295, REMOVAL, Converter Case Cover.>
- 16) Remove the front reduction drive gear and front reduction driven gear together.

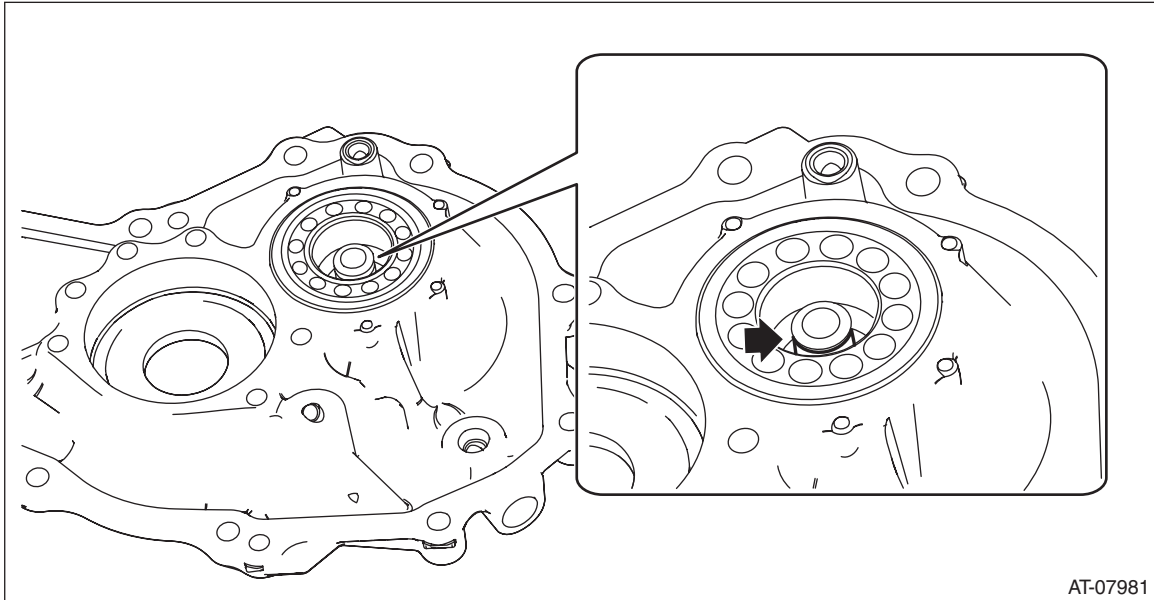
#### NOTE:

Remove the front reduction driven shaft while holding it.



- 17) Remove the shims of the front reduction driven gear from the converter case.

18) Remove the seal rings.

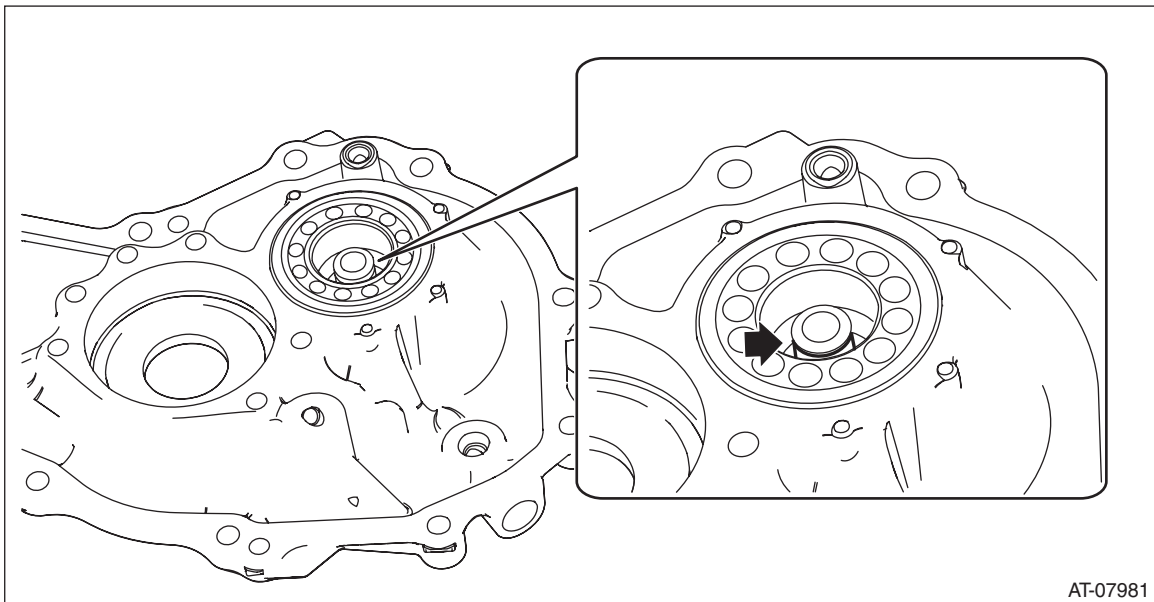


### B: INSTALLATION

- 1) Clean the mating surface of converter case cover and converter case.
- 2) Select the shim for front reduction drive gear.<Ref. to CVT(TR690)-310, ADJUSTMENT, Front Reduction Drive Gear.>
- 3) Apply CVTF to the shims and install on the bearing catch surface of the front reduction driven gear.
- 4) Install the seal ring to converter case cover.

#### NOTE:

- Use new seal rings.
- When installing the seal rings, do not expand the seal rings too much.



## Front Reduction Drive Gear

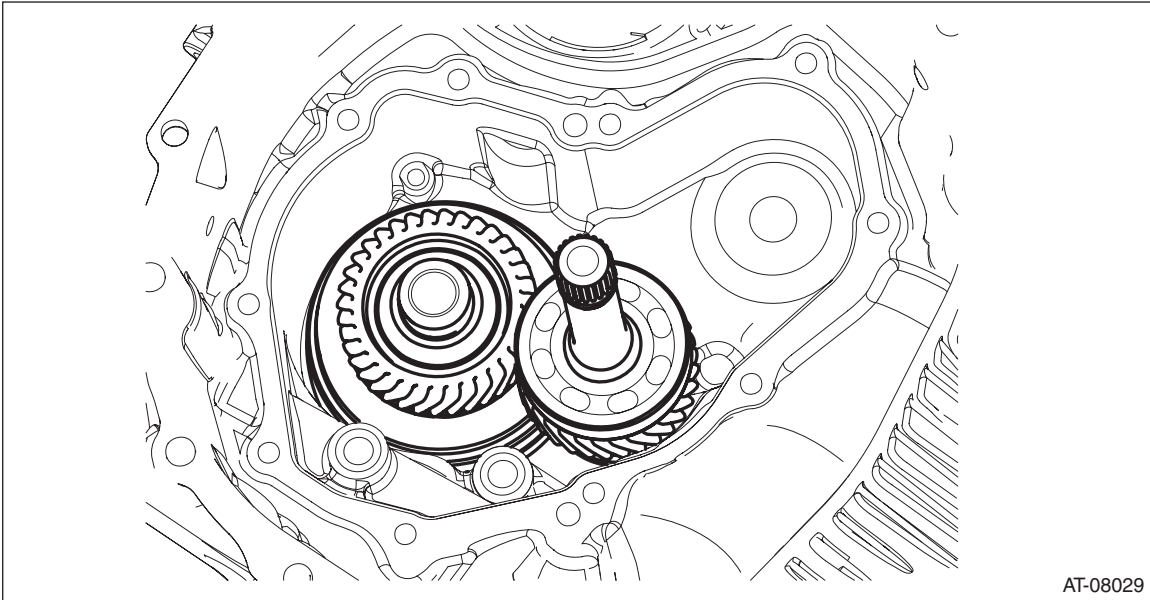
### CONTINUOUSLY VARIABLE TRANSMISSION

---

5) Install the front reduction drive gear and front reduction driven gear together.

**CAUTION:**

**Be careful not to detach the spline of input clutch and the spline of front reduction driven shaft.**



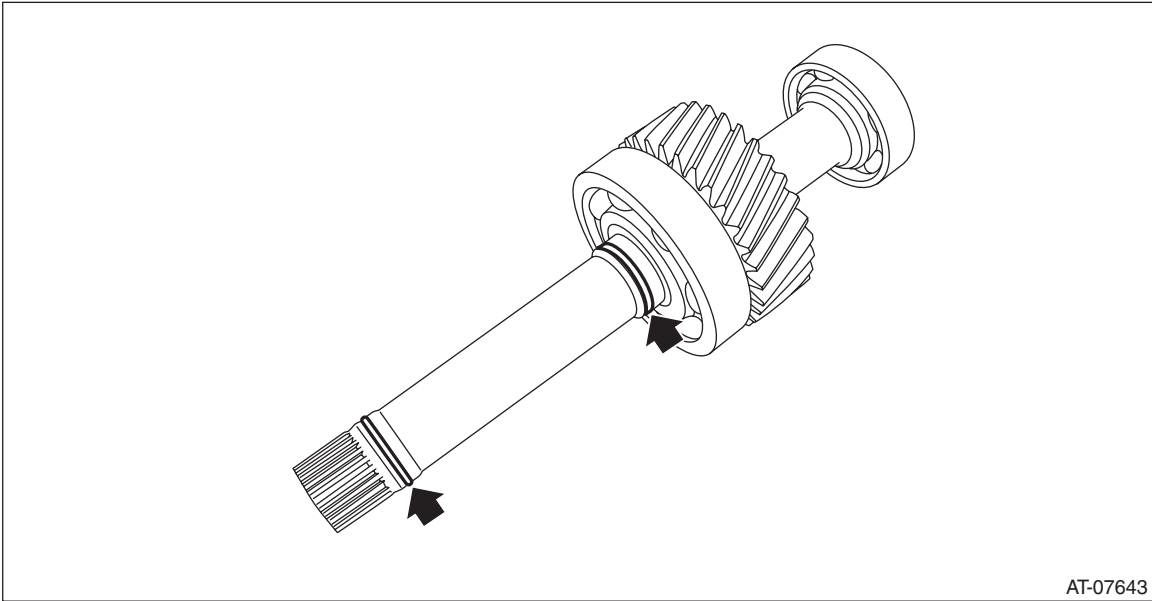
- 6) Install the converter case cover.<Ref. to CVT(TR690)-298, INSTALLATION, Converter Case Cover.>
- 7) Install the drive pinion shaft assembly.<Ref. to CVT(TR690)-249, INSTALLATION, Drive Pinion Shaft Assembly.>
- 8) Install the primary pulley, secondary pulley and variator chain.<Ref. to CVT(TR690)-235, INSTALLATION, Primary Pulley and Secondary Pulley.>
- 9) Install the transmission case.<Ref. to CVT(TR690)-215, INSTALLATION, Transmission Case.>
- 10) Install the forward clutch assembly.<Ref. to CVT(TR690)-183, INSTALLATION, Forward Clutch Assembly.>
- 11) Install the intermediate case.<Ref. to CVT(TR690)-168, INSTALLATION, Intermediate Case.>
- 12) Install the transfer reduction driven gear assembly.<Ref. to CVT(TR690)-160, INSTALLATION, Transfer Reduction Driven Gear.>
- 13) Install the transfer clutch assembly.<Ref. to CVT(TR690)-149, INSTALLATION, Transfer Clutch.>
- 14) Install the rear drive shaft.<Ref. to CVT(TR690)-143, INSTALLATION, Rear Drive Shaft.>
- 15) Install the extension case.<Ref. to CVT(TR690)-141, INSTALLATION, Extension Case.>
- 16) Install the primary speed sensor.<Ref. to CVT(TR690)-103, INSTALLATION, Primary Speed Sensor.>
- 17) Install the transmission harness.<Ref. to CVT(TR690)-122, INSTALLATION, Transmission Harness.>
- 18) Install the control valve body and oil pan.<Ref. to CVT(TR690)-113, INSTALLATION, Control Valve Body.>
- 19) Install the air breather hose.<Ref. to CVT(TR690)-134, INSTALLATION, Air Breather Hose.>
- 20) Install the transmission assembly to the vehicle.<Ref. to CVT(TR690)-69, INSTALLATION, Automatic Transmission Assembly.>

# Front Reduction Drive Gear

CONTINUOUSLY VARIABLE TRANSMISSION

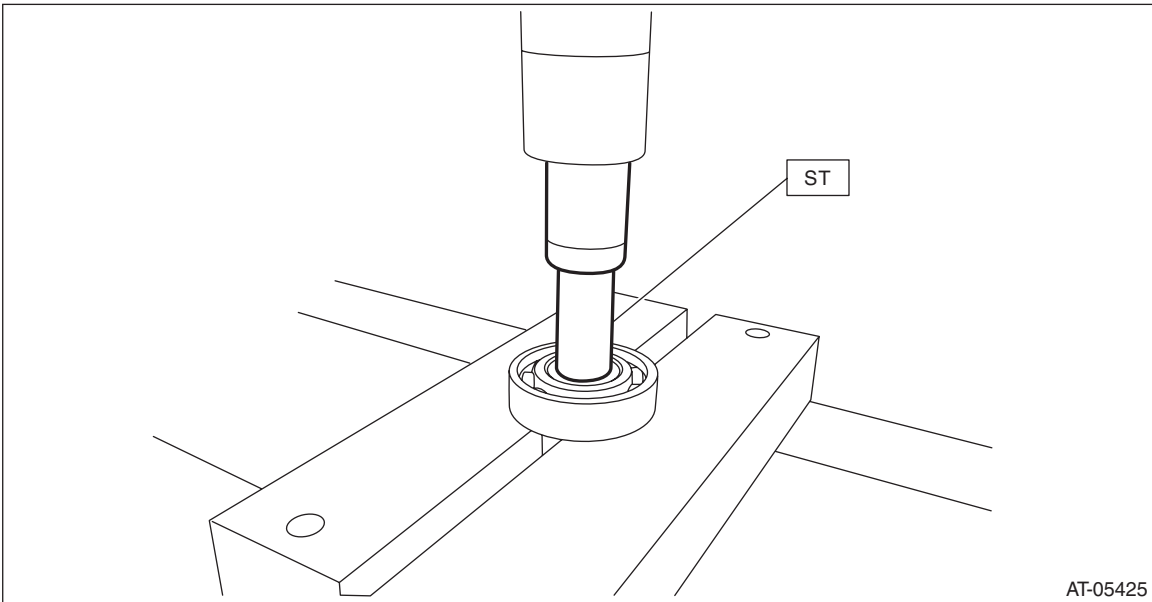
## C: DISASSEMBLY

1) Remove the seal ring and O-ring.



AT-07643

2) Using the ST, remove the ball bearing from front reduction drive gear.  
ST 899864100 REMOVER



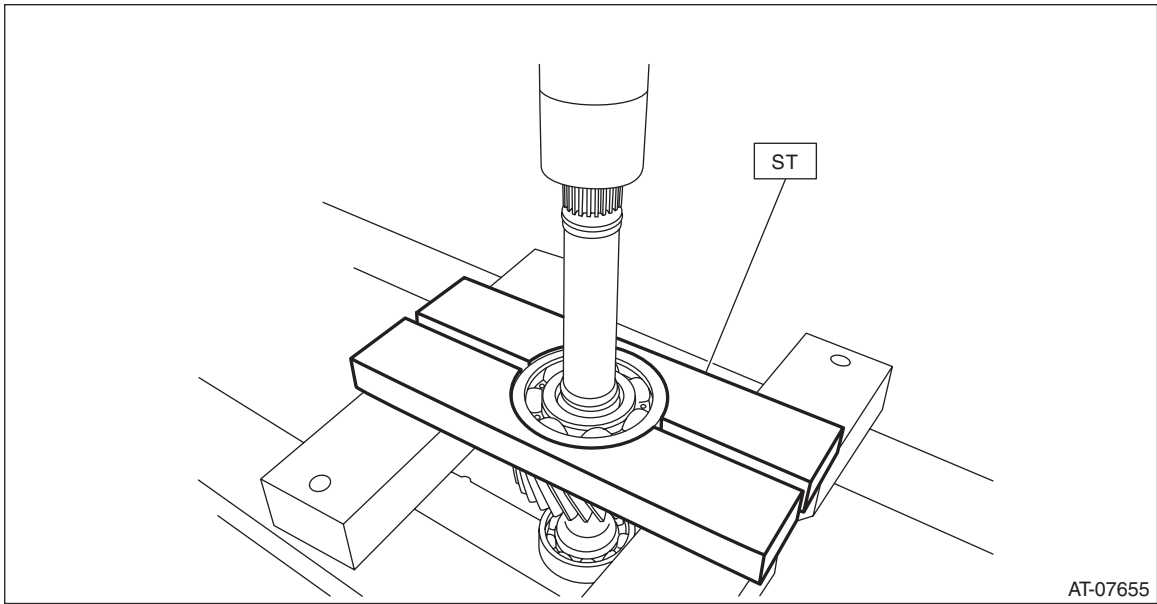
AT-05425

## Front Reduction Drive Gear

### CONTINUOUSLY VARIABLE TRANSMISSION

3) Using the ST, remove the ball bearing from front reduction drive gear.

ST 498077000 REMOVER



AT-07655

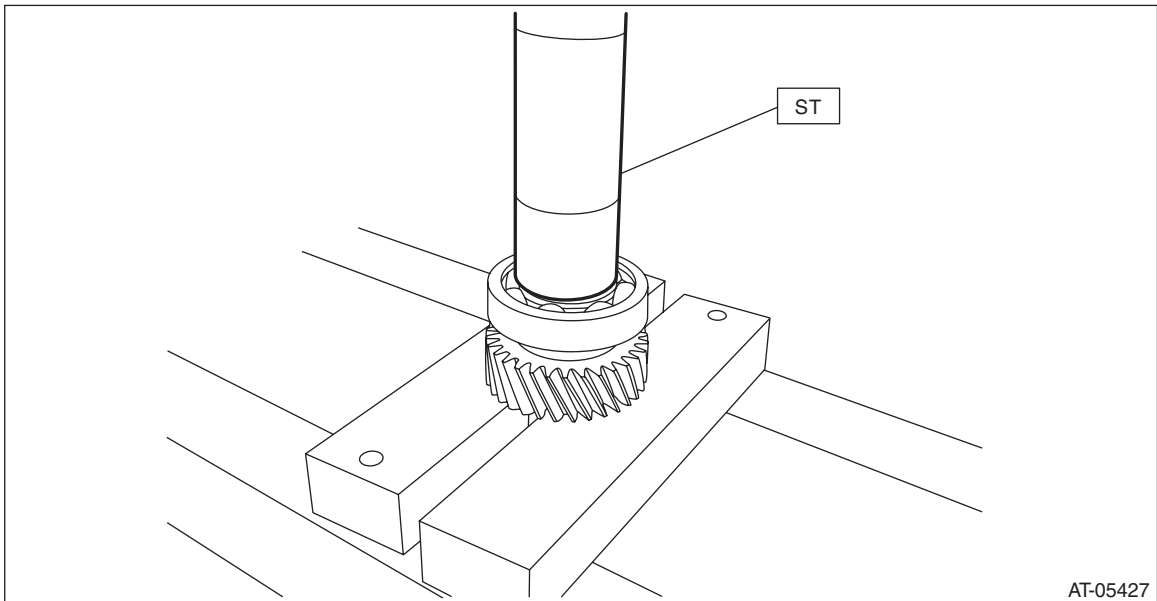
## D: ASSEMBLY

1) Using the ST, install the ball bearing to front reduction drive gear.

NOTE:

Use a new ball bearing.

ST 18651AA000 INSTALLER



AT-05427

## Front Reduction Drive Gear

CONTINUOUSLY VARIABLE TRANSMISSION

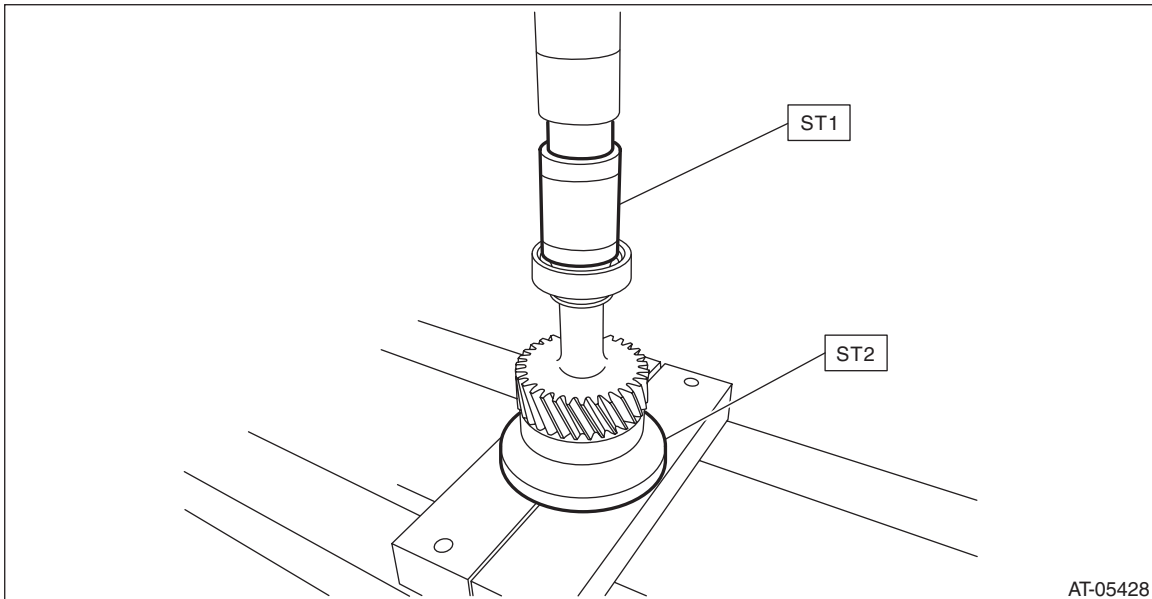
2) Using ST1 and ST2, install the ball bearing to front reduction drive gear.

**NOTE:**

Use a new ball bearing.

ST1 499757002 PRESS SNAP RING

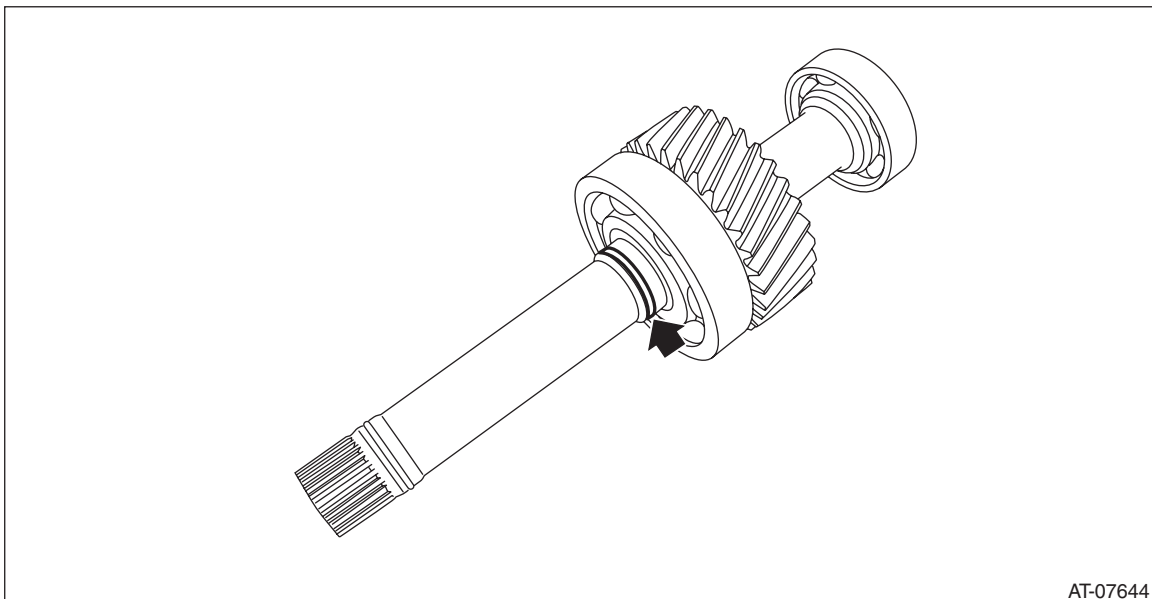
ST2 398177700 INSTALLER



3) Install the seal ring.

**NOTE:**

- Use a new seal ring.
- When installing the seal ring, do not expand the seal ring too much.
- Install the O-ring when installing the torque converter assembly.



## E: INSPECTION

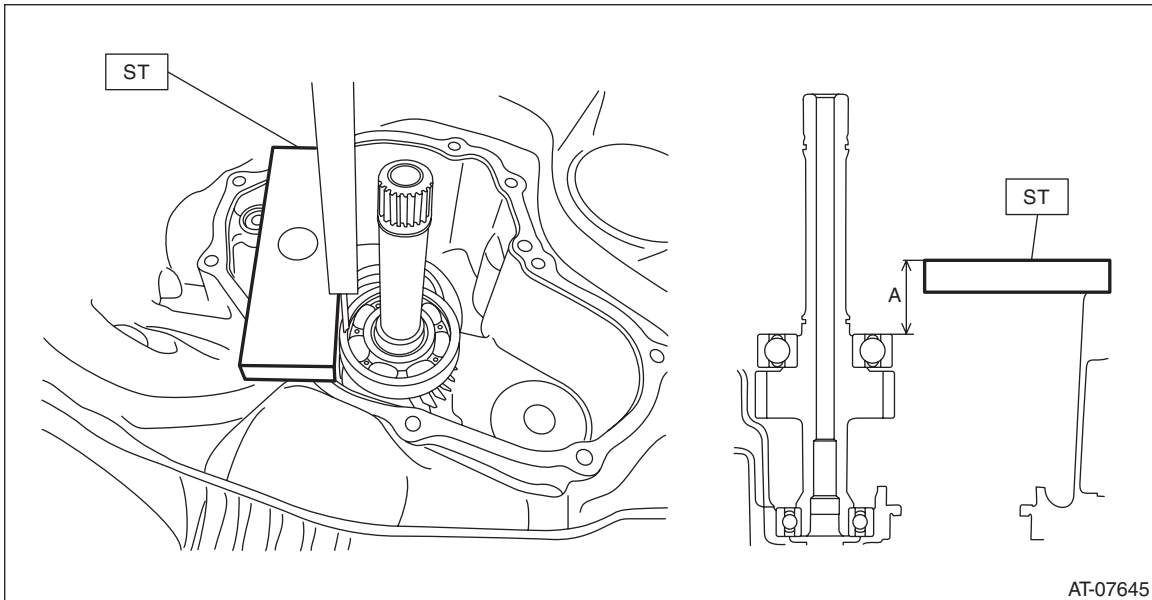
- Replace if its tooth surfaces are broken, damaged or excessively worn.
- Check the bearing for seizure or wear.
- Apply CVTF to bearing and rotate the bearing to check for noise or dragging etc.

# Front Reduction Drive Gear

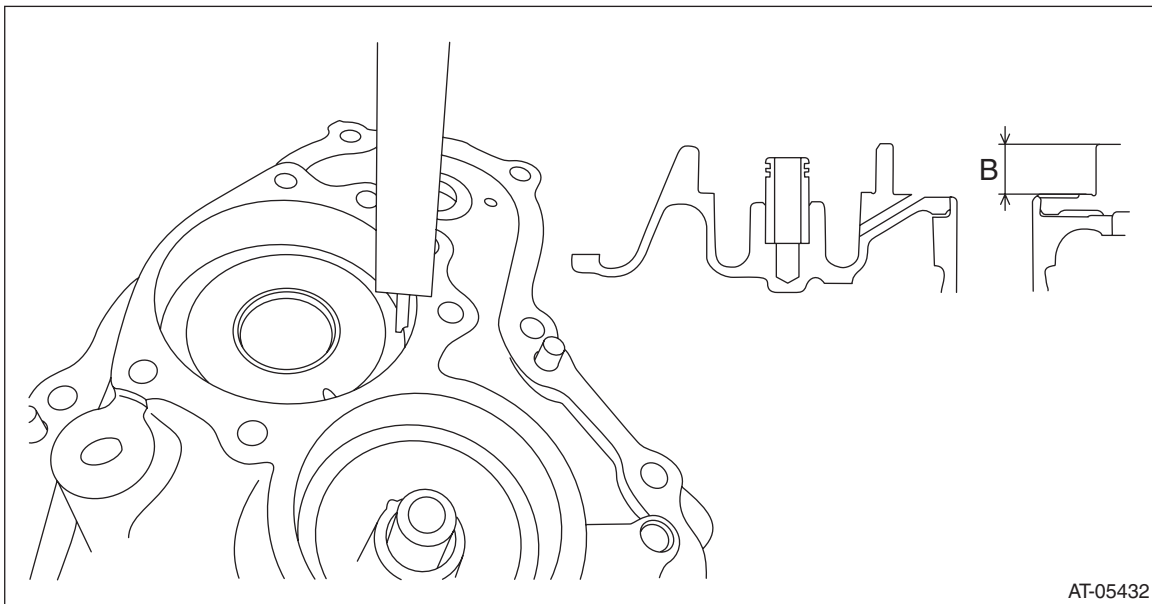
CONTINUOUSLY VARIABLE TRANSMISSION

## F: ADJUSTMENT

- 1) Measure height "A" from the ST upper face to the bearing end face using the ST.  
ST 398643600 GAUGE



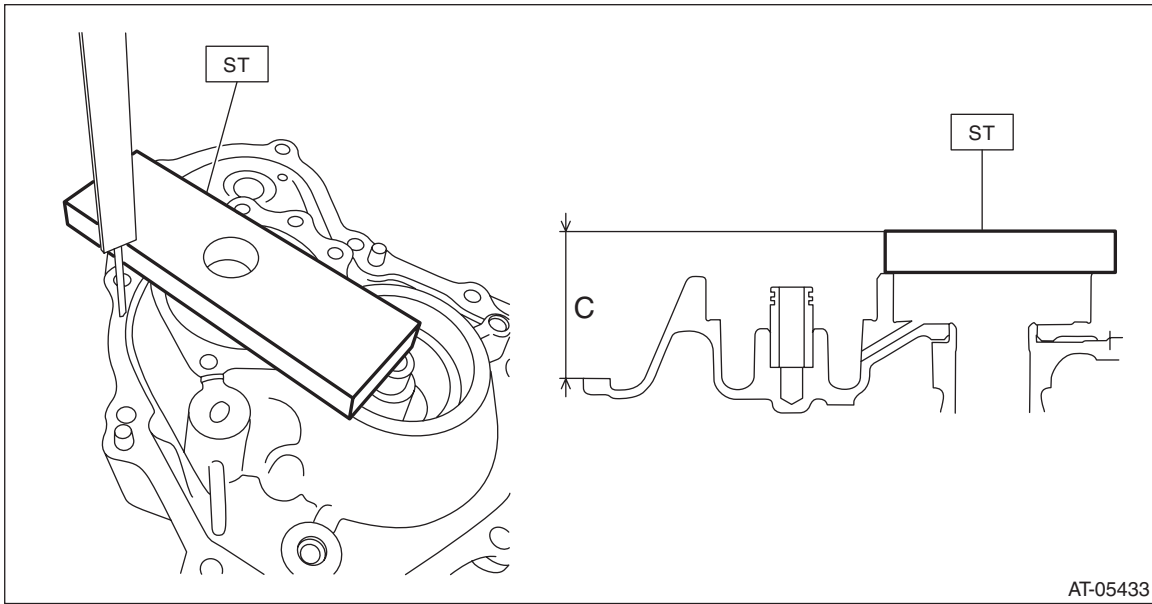
- 2) Measure depth "B" from the converter case cover upper face to the bearing catch surface.



# Front Reduction Drive Gear

CONTINUOUSLY VARIABLE TRANSMISSION

3) Using the ST, measure height “C” from the ST upper face to the converter case cover mating surface.  
ST 398643600 GAUGE



AT-05433

4) Using the following formula, calculate clearance “T” to select shims.

Calculation formula:

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

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

T: Clearance

A: Depth from the ST upper face to the bearing end surface

B: Depth from the converter case cover upper face to the bearing catch surface

C: Height from the ST upper face to the converter case cover mating surface

15 mm (0.591 in): Thickness of ST

Clearance “T” mm (in)	Thickness of shim mm (in)	Part No.
1.070 — 1.174 (0.042 — 0.045)	1.0 (0.039)	31288AA160
1.175 — 1.274 (0.046 — 0.049)	1.1 (0.043)	31288AA170
1.275 — 1.374 (0.050 — 0.053)	1.2 (0.047)	31288AA180
1.375 — 1.474 (0.054 — 0.057)	1.3 (0.051)	31288AA220
1.475 — 1.580 (0.058 — 0.062)	1.4 (0.055)	31288AA230