

4. Rear Differential

A: REMOVAL

- 1) Set the vehicle on a lift.
- 2) Disconnect the ground cable from the battery.
- 3) Shift the select lever or gear shift lever to neutral.
- 4) Release the parking brake.
- 5) Jack-up the vehicle and support it with rigid racks.
- 6) Remove the rear exhaust pipe and muffler.

Non-turbo model

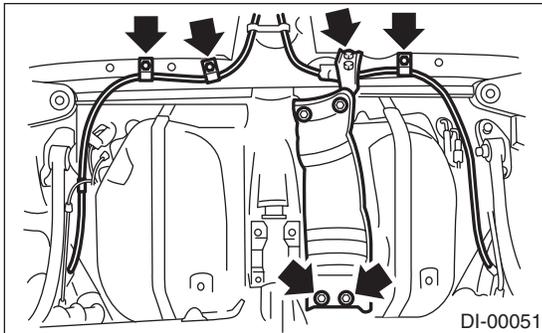
<Ref. to EX (H4SO)-8, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX (H4SO)-9, REMOVAL, Muffler.>

Turbo model

<Ref. to EX(H4DOTC)-13, REMOVAL, Rear Exhaust Pipe.> <Ref. to EX(H4DOTC)-15, REMOVAL, Muffler.>

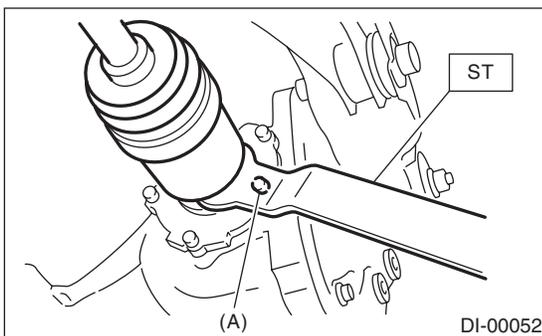
7) Remove the propeller shaft. <Ref. to DS-12, REMOVAL, Propeller Shaft.>

8) Remove the clamps and bracket of parking brake cable.



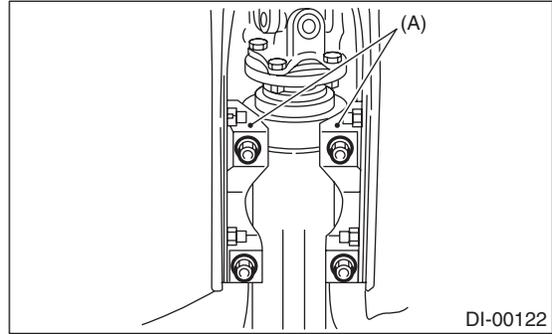
9) Remove the DOJ of rear drive shaft from rear differential using ST. <Ref. to DI-39, REPLACEMENT, Rear Differential Side Oil Seal.>

ST 28099PA100 DRIVE SHAFT REMOVER



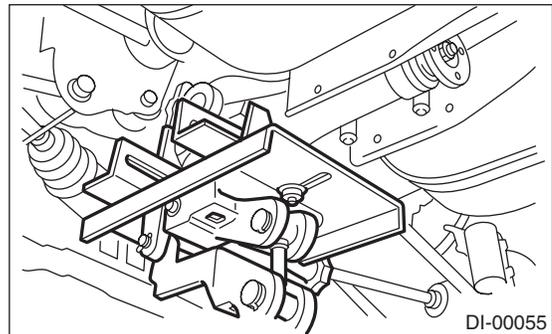
(A) Bolt

10) Remove the lower bracket.

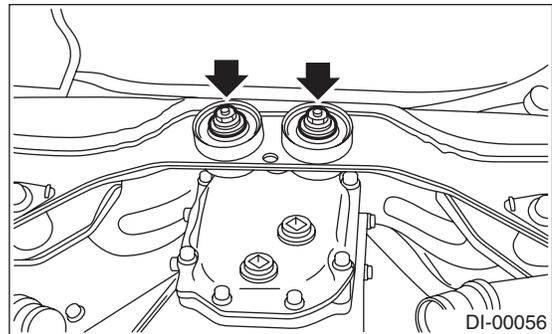


(A) Lower bracket

11) Support the rear differential with the transmission jack.



12) Remove the self-locking nuts and bolts.



Rear Differential

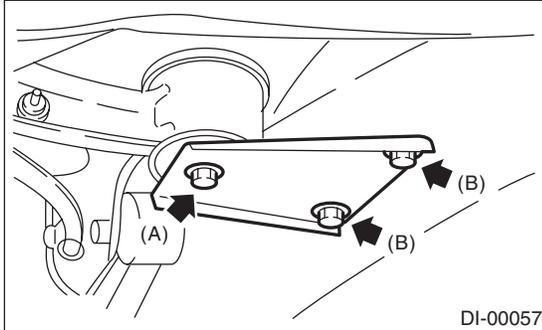
DIFFERENTIALS

13) Remove the bolts which secure the differential front member to the vehicle.

Loosen the bolt A first, then remove the bolt B.

NOTE:

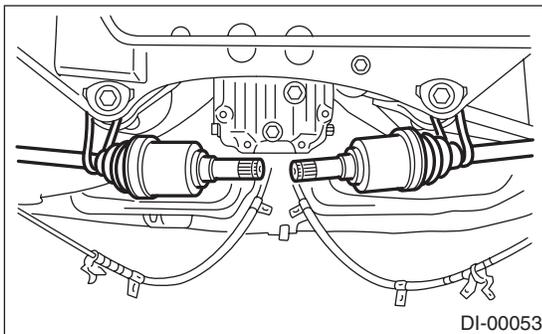
Instruct your co-worker to hold the differential front member so that it will not fall.



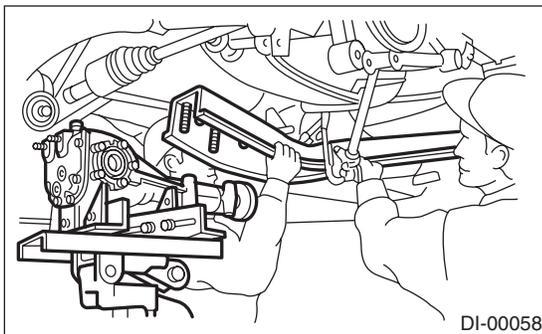
- (A) Bolt A
- (B) Bolt B

14) Remove the bolt A.

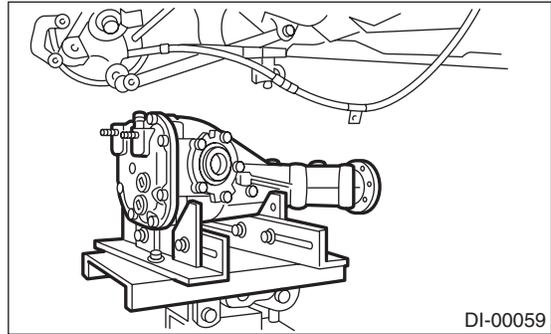
15) Suspend the rear drive shaft to the rear cross-member using wire.



16) While slowly lowering the transmission jack, move the rear differential forward, and remove the differential front member and the rear differential from vehicle.



17) Remove the rear differential from the differential front member.



B: INSTALLATION

Install in the reverse order of removal.

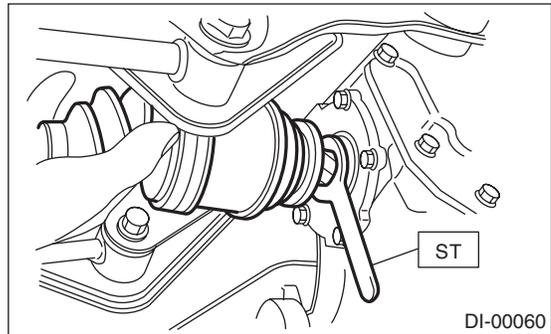
1) Position the differential front member with the vehicle by passing the member under the parking brake cable and securing it to rear differential.

NOTE:

When installing the rear differential front member, be careful of the order for installation of the upper and lower stoppers.

2) Install the DOJ of the drive shaft into the rear differential. <Ref. to DI-39, REPLACEMENT, Rear Differential Side Oil Seal.>

ST 28099PA090 SIDE OIL SEAL PROTECTOR



3) Installing procedure hereafter is in the reverse order of removal.

4) After installing, fill the differential carrier with gear oil up to the bottom of the filler plug hole. <Ref. to DI-16, Differential Gear Oil.>

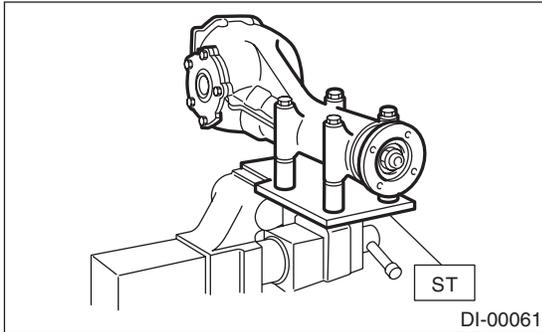
C: DISASSEMBLY

To detect the real cause of trouble, inspect the following items before disassembling.

- Tooth contact of hypoid driven gear and drive pinion, and backlash
- Hypoid driven gear runout on its back surface
- Total preload of drive pinion

1) Set the ST on vise and install the differential assembly to ST.

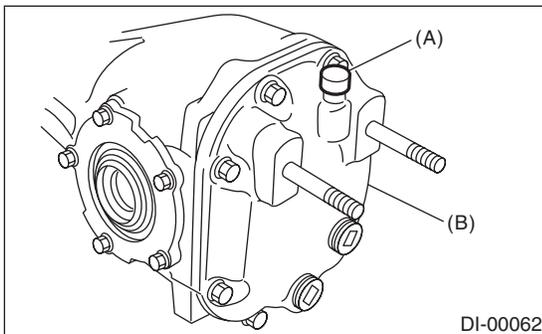
ST 398217700 ATTACHMENT



- 2) Drain the gear oil by removing the plug.
 3) Remove the air breather cap.

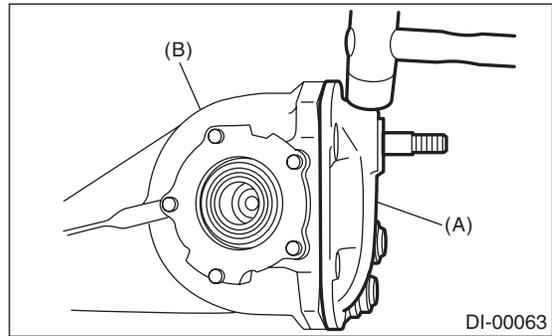
NOTE:

- Do not attempt to replace the air breather cap unless necessary.
- Replace the air breather cap with a new part when removing.



- (A) Air breather cap
 (B) Rear cover

4) Remove the bolts, and then remove the rear cover.



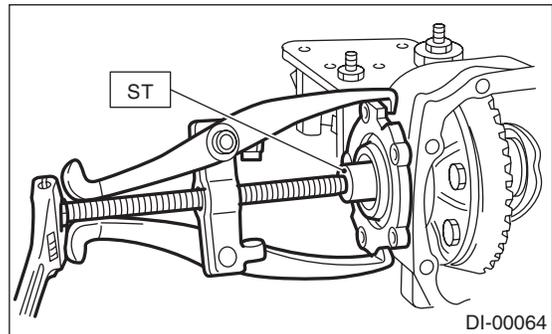
- (A) Rear cover
 (B) Differential carrier

5) Keep the side bearing retainers RH and LH separately for easier reassembly. Remove the side bearing retainer attaching bolts, set the ST to differential case, and extract the side bearing retainers RH and LH with a puller.

NOTE:

Each shim, which is installed to adjusted the side bearing preload, should be kept together with its mating retainer.

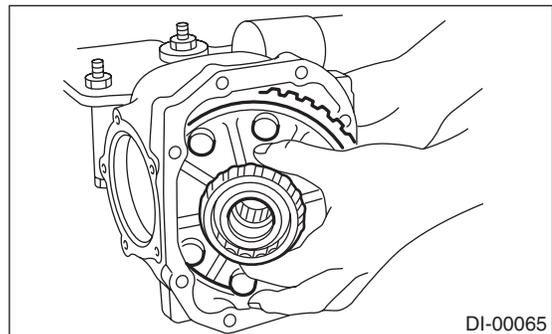
ST 398457700 ATTACHMENT



6) Pull out the differential case assembly from differential carrier.

NOTE:

Be careful not to hit the teeth against the case.



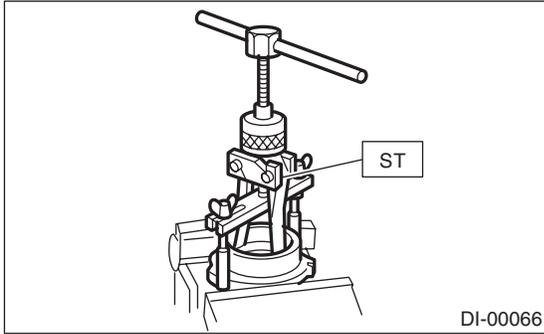
- 7) Remove the O-ring from side bearing retainer.
 8) Remove the oil seal from the side bearing retainer. <Ref. to DI-39, REPLACEMENT, Rear Differential Side Oil Seal.>

Rear Differential

DIFFERENTIALS

9) Using the ST, remove the bearing cup from the side bearing retainer.

ST 398527700 PULLER ASSY

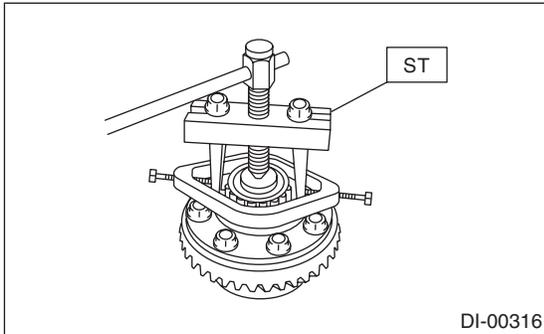


10) Remove the bearing cone with ST.

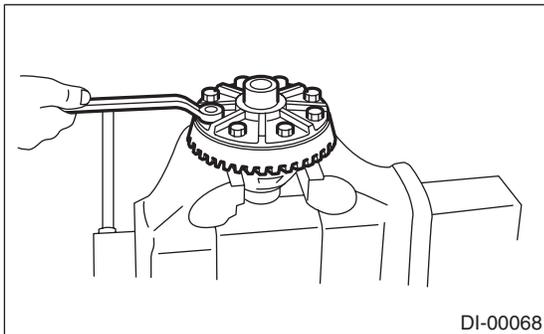
NOTE:

- Do not attempt to disassemble the parts unless necessary.
- Set the puller so that its claws catch the edge of the bearing cone.
- Never mix up the RH and LH bearing races and cones.

ST 18759AA000 PULLER ASSY



11) Remove the hypoid driven gear by loosening the hypoid driven gear bolts.

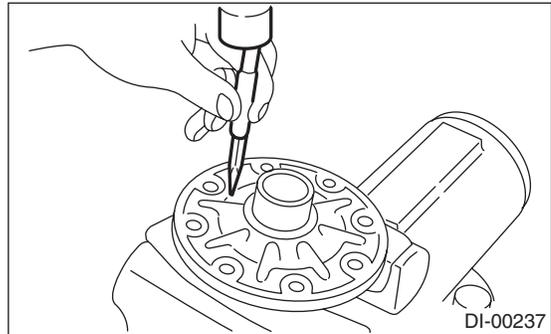


12) Drive out the pinion shaft lock pin from hypoid driven gear side (Model without LSD).

NOTE:

The lock pin is staked at the pin hole end on the differential carrier. Do not drive it out forcibly before removing the stake.

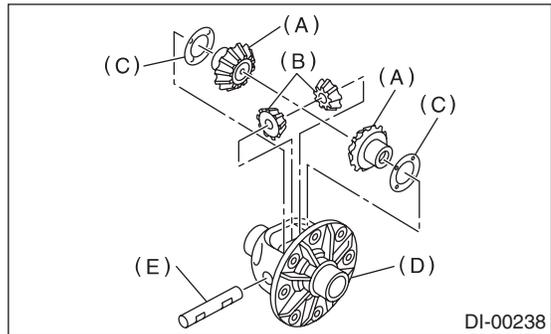
ST 899904100 STRAIGHT PIN REMOVER



13) Draw out the pinion mate shaft and remove pinion mate gears, side gears and thrust washers. (Model without LSD)

NOTE:

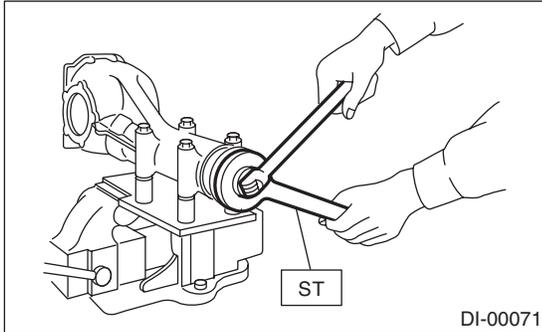
The gears should be marked or kept separated right and left, and front and rear as well as thrust washers.



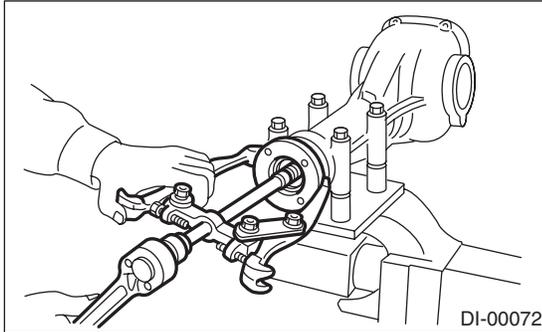
- (A) Side gear
- (B) Pinion mate gear
- (C) Thrust washer
- (D) Differential case
- (E) Pinion mate shaft

14) Remove the self-locking nut while holding the companion flange with ST.

ST 498427200 FLANGE WRENCH



15) Extract the companion flange with a puller.

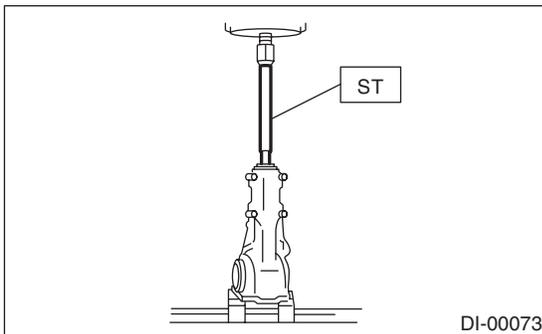


16) Press the end of drive pinion shaft and extract it together with rear bearing cone, pinion height adjusting washer and washer.

NOTE:

Hold the drive pinion so as not to drop it.

ST 398467700 DRIFT

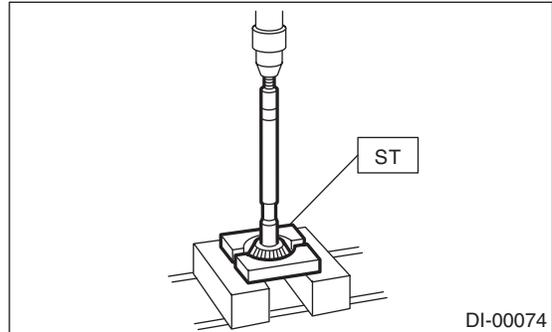


17) Remove the rear bearing cone from drive pinion by supporting the cone with ST.

NOTE:

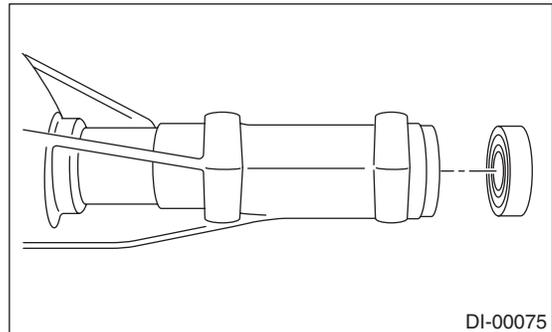
Place the replacer so that its center-recessed side faces the pinion gear.

ST 398517700 REPLACER



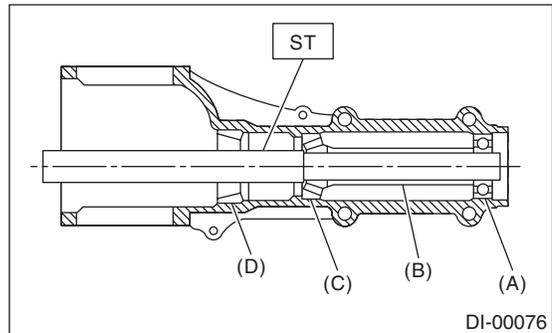
18) Remove the front oil seal from differential carrier using ST.

ST 398527700 PULLER ASSY



19) Remove the pilot bearing together with front bearing cone using ST.

ST 398467700 DRIFT

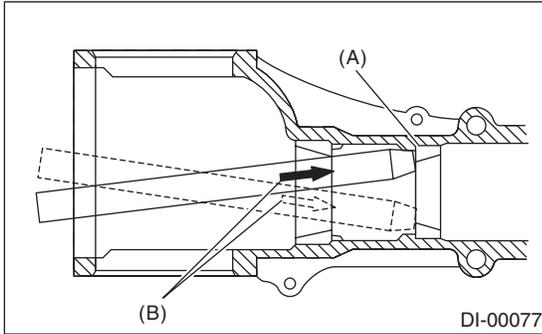


- (A) Pilot bearing
- (B) Collar
- (C) Front bearing
- (D) Rear bearing cup

Rear Differential

DIFFERENTIALS

20) When replacing the bearings, hit out the front bearing cup and rear bearing cup in this order from outside of the case using a brass bar.

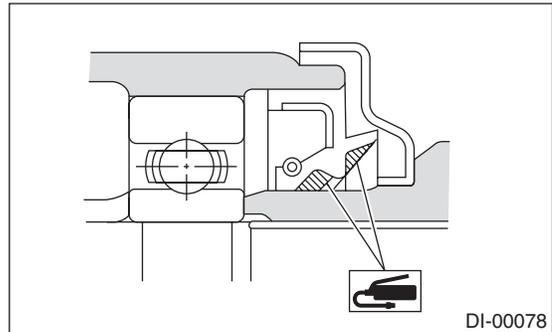


- (A) 2 cutout portions along diagonal lines
- (B) Tap alternately with brass bar.

D: ASSEMBLY

NOTE:

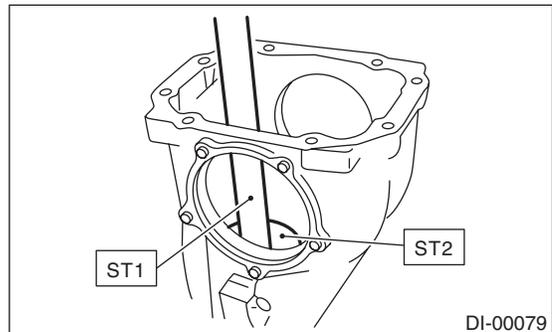
- Assemble in the reverse order of disassembly.
- Check and adjust each part during assembly.
- Keep the shims and washers in order, so that they are not improperly installed.
- Thoroughly clean the surfaces on which the shims, washers and bearings are to be installed.
- Apply gear oil when installing the bearings and thrust washers.
- Be careful not to mix up the RH and LH bearing races.
- Use a new O-ring and gasket.
- Replace the oil seal with a new part at every disassembly. Install the oil seal.
- Apply grease to the lips.
- Be careful not to mix up the differential oil seal RH and LH.



1) Adjusting preload for front and rear bearings
Adjust the bearing preload between front and rear bearings with collar and washer. Pinion height adjusting washer is not affected by this adjustment. The adjustment must not be carried out with oil seal inserted.

(1) Install the rear bearing race (rear) into differential carrier with ST1 and ST2.

ST1 398477701 HANDLE
ST2 398477703 DRIFT 2



(2) Install the rear bearing race (front) into differential carrier with ST1 and ST2.

ST1 398477701 HANDLE
ST2 398477702 DRIFT

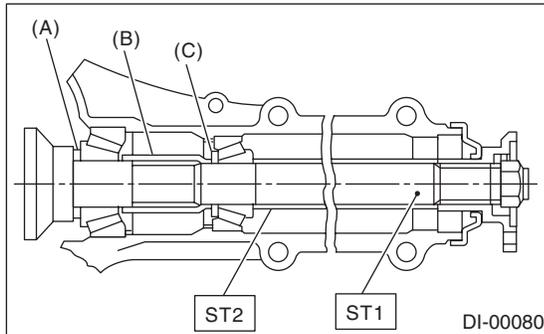
(3) Insert the ST1 into carrier with the pinion height adjusting washer and rear bearing cone fitted onto it.

NOTE:

- If tooth contact is normal in the inspection before disassembling, verify that the washer is not deformed, and then re-use the used washer.
- Use new rear bearing cone.

(4) Install the preload adjusting collar and washer, front bearing cone, ST2, companion flange, and washer and self-locking nut.

ST1 398507702 DUMMY SHAFT
ST2 398507703 DUMMY COLLAR



- (A) Pinion height adjusting washer
- (B) Preload adjusting collar
- (C) Preload adjusting washer

(5) Rotate the ST1 by hand to make it secured, and tighten the self-locking nut while measuring the preload with spring balance. Select the preload adjusting washer and collar so that the specified preload is obtained when nut is tightened to the specified torque.

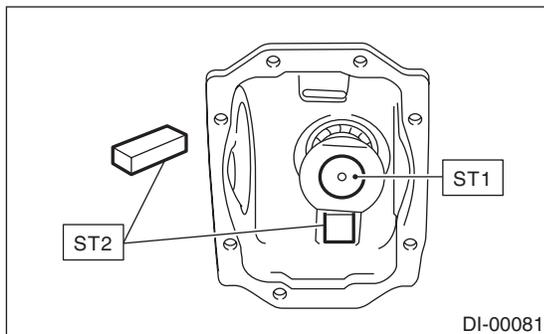
NOTE:

- Use a new self-locking nut.
- Be careful not to give excessive preload.
- When tightening the self-locking nut, lock ST1 with ST2 as shown in the figure.

ST1 398507704 BLOCK
ST2 398507702 DUMMY SHAFT

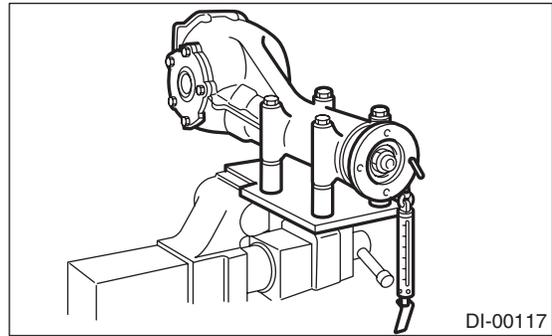
Tightening torque:

181.5 N·m (18.5 kgf·m, 134 ft·lb)



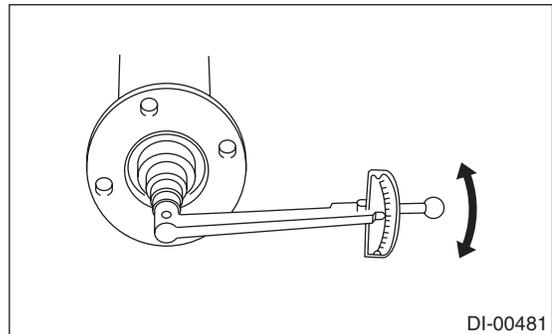
Initial load:

17.7 — 38.8 N (1.8 — 4.0 kgf, 4.0 — 8.7 lb)



Initial torque:

0.67 — 1.47 N·m (0.07 — 0.15 kgf·m, 0.49 — 1.08 ft·lb)



Preload adjusting washer	Part No.	Thickness mm (in)
	383705200	2.59 (0.1020)
	383715200	2.57 (0.1012)
	383725200	2.55 (0.1004)
	383735200	2.53 (0.0996)
	383745200	2.51 (0.0988)
	383755200	2.49 (0.0980)
	383765200	2.47 (0.0972)
	383775200	2.45 (0.0965)
	383785200	2.43 (0.0957)
	383795200	2.41 (0.0949)
	383805200	2.39 (0.0941)
	383815200	2.37 (0.0933)
	383825200	2.35 (0.0925)
383835200	2.33 (0.0917)	
383845200	2.31 (0.0909)	
Preload adjusting collar	Part No.	Length mm (in)
	383695201	56.2 (2.213)
	383695202	56.4 (2.220)
	383695203	56.6 (2.228)
	383695204	56.8 (2.236)
	383695205	57.0 (2.244)
	383695206	57.2 (2.252)

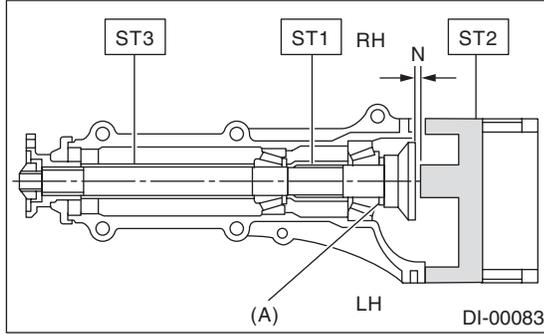
Rear Differential

DIFFERENTIALS

2) Adjusting drive pinion height:
Adjust the drive pinion height with washer installed between the rear bearing cone and the back of pinion gear.

(1) Attach ST2.

ST1 398507702 DUMMY SHAFT
ST2 398507701 DIFFERENTIAL CARRIER GAUGE
ST3 398507703 DUMMY COLLAR



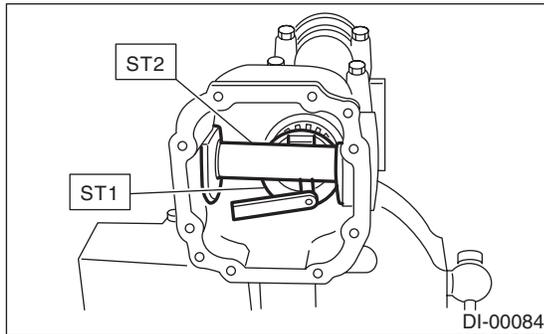
(A) Pinion height adjusting washer

(2) Measure the clearance N between the end of ST2 and the end surface of ST1 by using a thickness gauge.

NOTE:

Make sure there is no clearance between the case and ST2.

ST1 398507702 DUMMY SHAFT
ST2 398507701 DIFFERENTIAL CARRIER GAUGE



(3) Obtain the thickness of pinion height adjusting washer to be inserted from the following formula, and replace the temporarily installed washer with this one.

$$T = T_o + N - (H \times 0.01) - 0.20 \text{ mm (0.008 in)}$$

NOTE:

Use copies of this page.

T	Thickness of pinion height adjusting washer mm (in)
To	Thickness of washer temporarily inserted mm (in)
N	Clearance of thickness gauge mm (in)
H	Figure marked on drive pinion head
Memo:	

(Example of calculation)

$$T_o = 2.20 + 1.20 = 3.40 \text{ mm}$$

$$N = 0.23 \text{ mm}$$

$$H = +1$$

$$T = 3.40 + 0.23 - 0.01 - 0.20 = 3.42$$

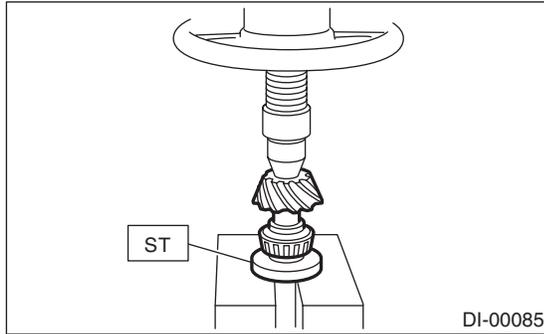
Result: Thickness = 3.42 mm

Therefore use the washer 383605200.

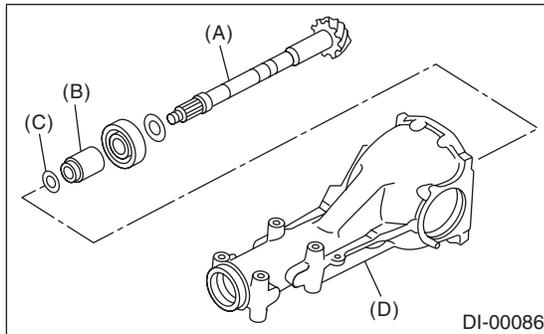
Pinion height adjusting washer	
Part No.	Thickness mm (in)
383495200	3.09 (0.1217)
383505200	3.12 (0.1228)
383515200	3.15 (0.1240)
383525200	3.18 (0.1252)
383535200	3.21 (0.1264)
383545200	3.24 (0.1276)
383555200	3.27 (0.1287)
383565200	3.30 (0.1299)
383575200	3.33 (0.1311)
383585200	3.36 (0.1323)
383595200	3.39 (0.1335)
383605200	3.42 (0.1346)
383615200	3.45 (0.1358)
383625200	3.48 (0.1370)
383635200	3.51 (0.1382)
383645200	3.54 (0.1394)
383655200	3.57 (0.1406)
383665200	3.60 (0.1417)
383675200	3.63 (0.1429)
383685200	3.66 (0.1441)

3) Install the selected pinion height adjusting washer on drive pinion, and press the rear bearing cone into position with ST.

ST 398177700 INSTALLER



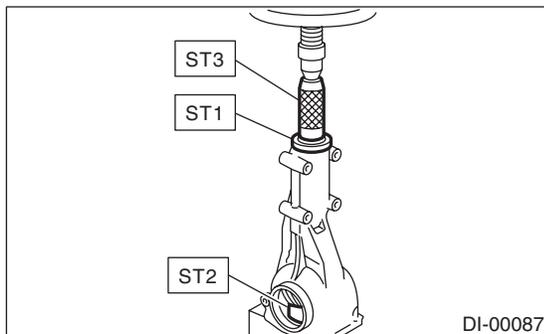
4) Insert the drive pinion into the differential carrier, and install the selected bearing preload adjusting collar and washer.



- (A) Drive pinion
- (B) Bearing preload adjusting collar
- (C) Bearing preload adjusting washer
- (D) Differential carrier

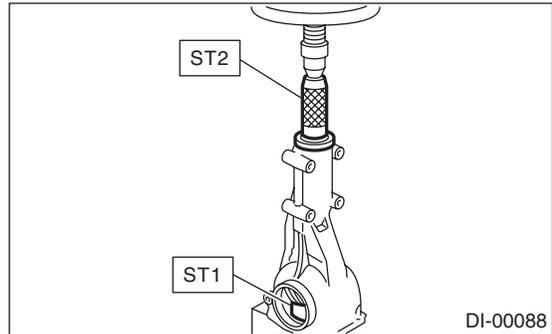
5) Press-fit the front bearing cone into case with ST1, ST2 and ST3.

ST1 398507703 DUMMY COLLAR
 ST2 399780104 WEIGHT
 ST3 899580100 INSTALLER



6) Insert the collar, then press-fit the pilot bearing with ST1 and ST2.

ST1 399780104 WEIGHT
 ST2 899580100 INSTALLER

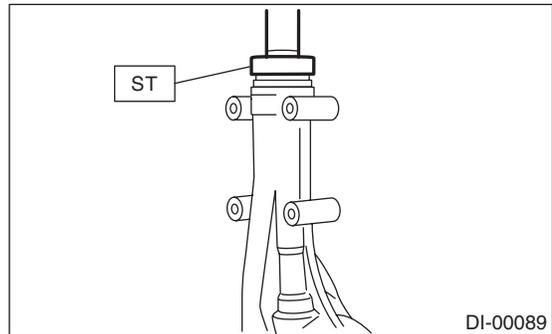


7) Fit a new oil seal with ST.

NOTE:

- Press-fit until the oil seal end comes 1 mm (0.04 in) inward from end of carrier.
- Apply grease to the oil seal lips.

ST 498447120 INSTALLER

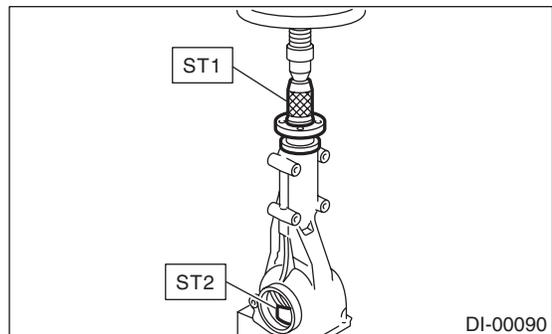


8) Press-fit the companion flange with ST1 and ST2.

NOTE:

Be careful not to damage the bearing.

ST1 899874100 INSTALLER
 ST2 399780104 WEIGHT



9) Apply Lock Tite on the drive pinion shaft thread and new self-locking nut seat.

Lock Tite:

THREE BOND 1324 (Part No. 004403042)

Rear Differential

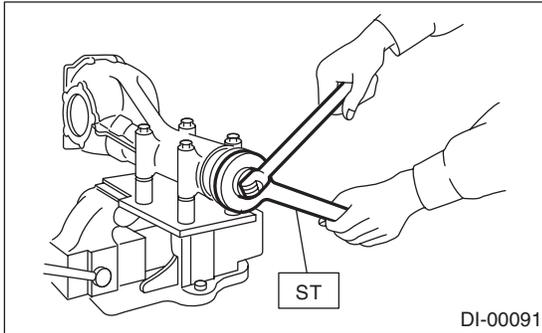
DIFFERENTIALS

10) Attach the self-locking nut. Then, tighten it with the ST.

ST 498427200 FLANGE WRENCH

Tightening torque:

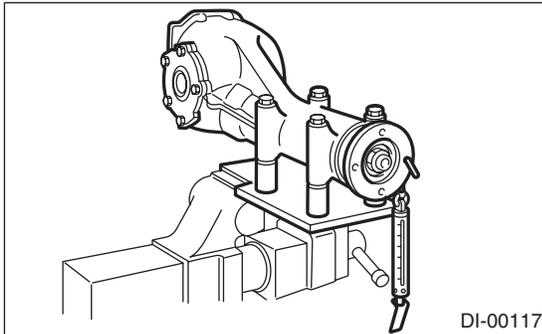
181.5 N·m (18.5 kgf·m, 134 ft·lb)



11) Measure the initial torque or the initial load.

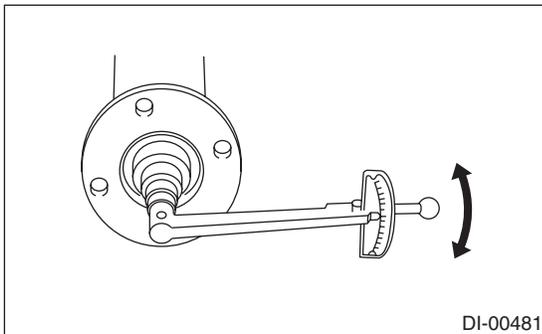
Initial load:

17.7 — 38.8 N (1.8 — 4.0 kgf, 4.0 — 8.7 lb)



Initial torque:

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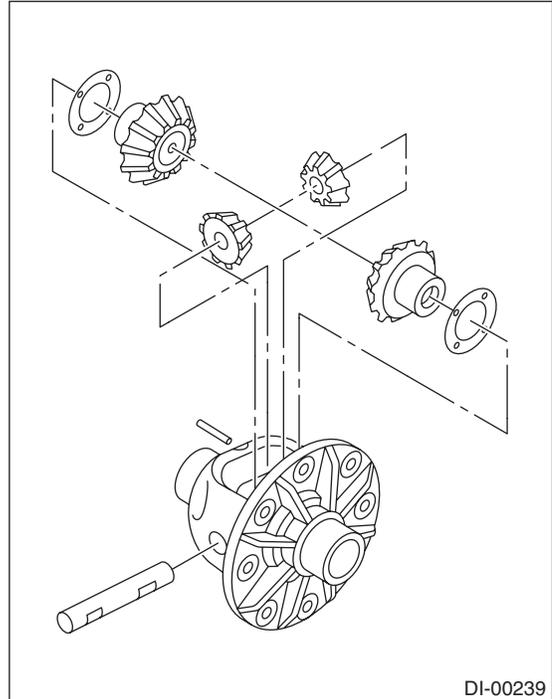


12) Assembling differential case

Install the side gears and pinion mate gears, with their thrust washers and pinion mate shaft, into the differential case. (Model without LSD)

NOTE:

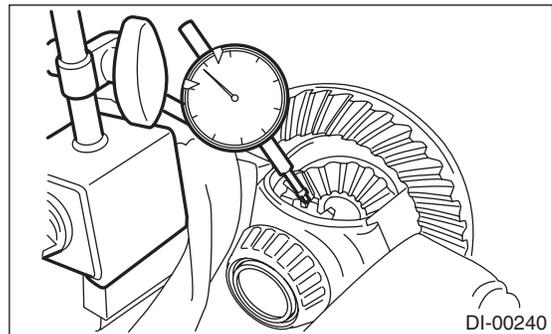
- Apply gear oil on both sides of the washer and on the side gear shaft before installing.
- Insert the pinion mate shaft into the differential case by aligning the lock pin holes.



(1) Measure the side gear backlash.

Side gear backlash:

0.10 — 0.20 mm (0.004 — 0.008 in)



(2) Adjust the side gear backlash as specified by selecting side gear thrust washer.

Side gear thrust washer	
Part No.	Thickness mm (in)
383445201	0.75 — 0.80 (0.0295 — 0.0315)
383445202	0.80 — 0.85 (0.0315 — 0.0335)
383445203	0.85 — 0.90 (0.0335 — 0.0354)

(3) Check the condition of rotation after applying oil to the gear tooth surfaces and thrust surfaces.

(4) After inserting the pinion shaft lock pin into differential case, stake the both sides of the hole to prevent pin from falling off.

13) Apply Loc Tite to bolt threads and install the hypoid driven gear to differential case.

Lock Tite:

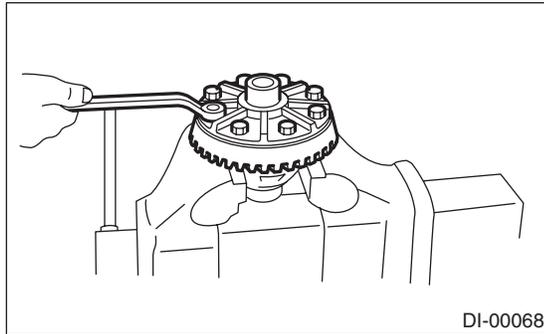
THREE BOND 1324 (Part No. 004403042) or equivalent

NOTE:

Tighten diagonally while tapping the bolt heads.

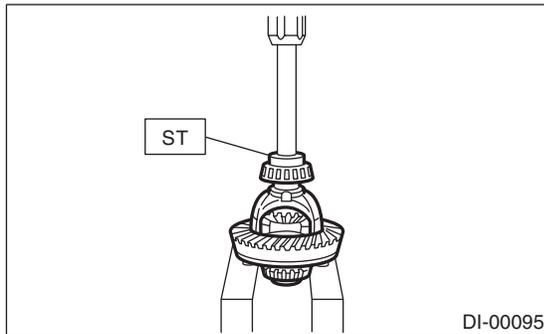
Tightening torque:

103 N·m (10.5 kgf-m, 76.0 ft-lb)



14) Press the side bearing into differential case using ST.

ST 398237700 DRIFT



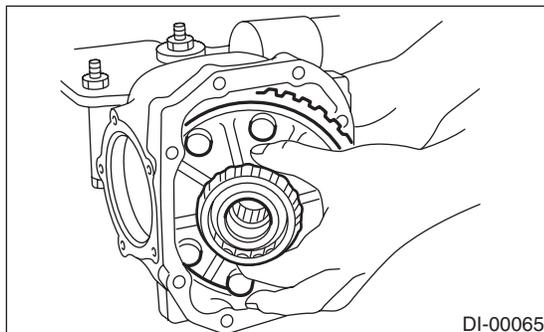
15) Press the side bearing cone into the side bearing retainer using the ST.

ST 398487700 DRIFT

16) Adjusting the side bearing retainer shims

(1) The hypoid driven gear backlash and the side bearing preload can be adjusted by the side bearing retainer shim thickness.

(2) Install the differential case assembly into differential carrier in the reverse order of disassembly.



(3) Install the side bearing retainer shims to retainers RH and LH from which they were installed.

NOTE:

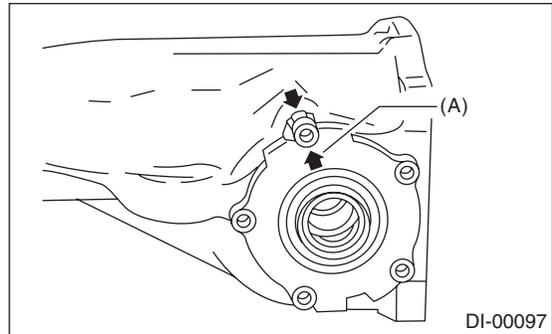
Replace the broken or corroded side retainer shim and O-ring with new parts of same thickness.

Side bearing retainer shim	
Part No.	Thickness mm (in)
383475201	0.20 (0.0079)
383475202	0.25 (0.0098)
383475203	0.30 (0.0118)
383475204	0.40 (0.0157)
383475205	0.50 (0.0197)

(4) Align the arrow mark on differential carrier with the mark on side retainer during installation.

NOTE:

- Replace the O-ring with a new part.
- Be careful that the bearing roller does not damage the side bearing cone.

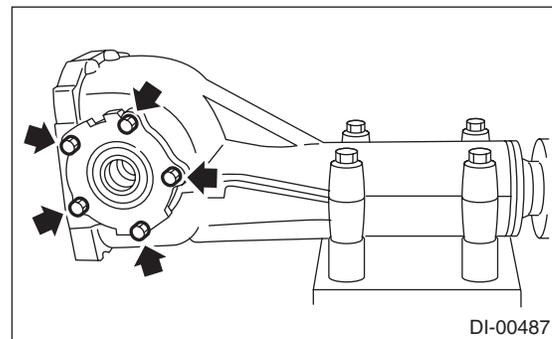


(A) Arrow mark

(5) Tighten the side bearing retainer bolts.

Tightening torque:

10.5 N·m (1.1 kgf-m, 7.7 ft-lb)



Rear Differential

DIFFERENTIALS

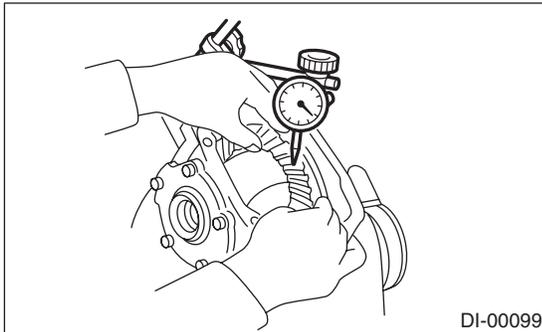
(6) Measure the backlash between hypoid driven gear and drive pinion. Set the magnet base on differential carrier. Align the contact point of dial gauge with the tooth surface of hypoid driven gear, and move the hypoid driven gear while securing the drive pinion. Read the value indicated on dial gauge. If the backlash is not within the range of specifications, adjust the side bearing retainer shim using the following procedures.

•**When backlash exceeds 0.2 mm (0.008 in):**
Reduce the hypoid driven gear back surface shim thickness and increase the hypoid driven gear tooth surface side shim thickness.

•**When backlash is less than 0.1 mm (0.004 in):**
Increase the hypoid driven gear back surface shim thickness and reduce the tooth surface side shim thickness.

Backlash:

0.10 — 0.20 mm (0.004 — 0.008 in)



(7) At the same time, measure the amount of the drive pinion preload. Compared with the resistance when differential case is not installed, if the total preload is not within specification, adjust the thickness of side bearing retainer shims, increasing/reducing both shims by an even amount at a time.

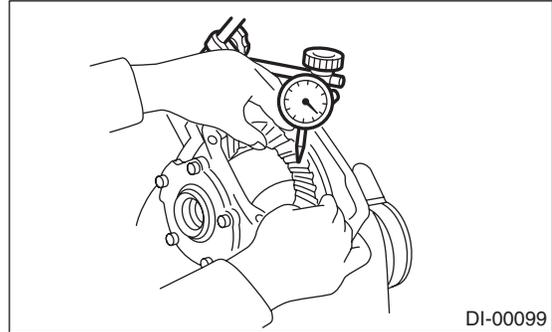
Total preload:

20.7 — 54.4 N (2.1 — 5.5 kgf, 4.7 — 12.2 lb)

17) Recheck the backlash between hypoid driven gear and pinion.

Backlash:

0.10 — 0.20 mm (0.004 — 0.008 in)

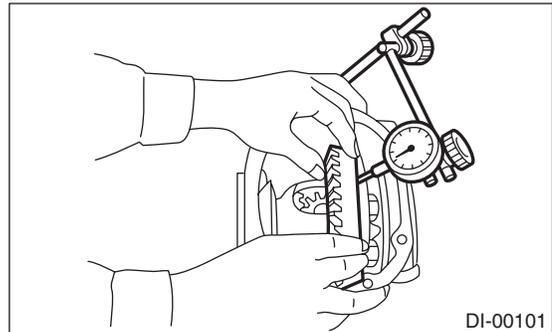


18) Check the hypoid driven gear runout on its back surface, and make sure that pinion and hypoid driven gear rotates smoothly.

If the hypoid driven gear runout on its rear face exceeds the limit, check for any foreign objects between hypoid driven gear and differential case, and for any deformation of the case or gear.

Hypoid driven gear runout on its back surface:

0.05 mm (0.0020 in) or less



19) Checking and adjusting the tooth contact of hypoid driven gear

(1) Apply an even coat of red lead on both sides of three or four teeth on the hypoid driven gear. Check the contact pattern after rotating the hypoid driven several revolutions back and forth until a definite contact pattern appears on the hypoid driven gear.

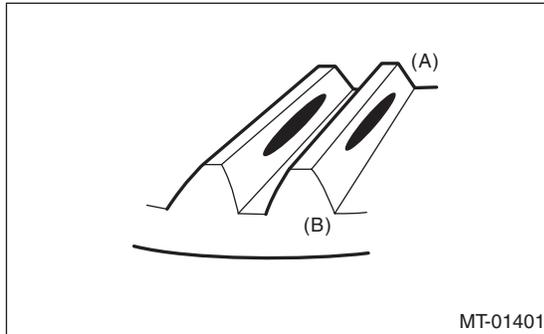
(2) When the contact pattern is not correct, re-adjust.

NOTE:

Be sure to wipe off the red lead completely after the adjustment is completed.

- Correct tooth contact

Check item: Tooth contact pattern is slightly shifted toward toe side under no-load rotation. (When driving, it moves towards the heel side.)

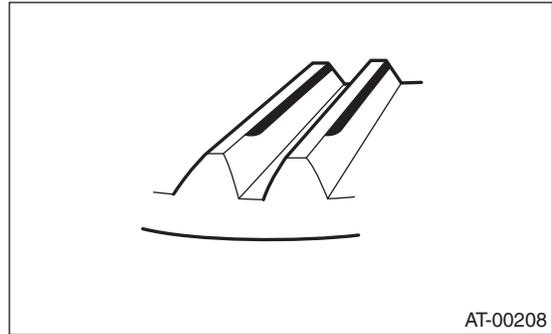


- (A) Toe side
- (B) Heel side

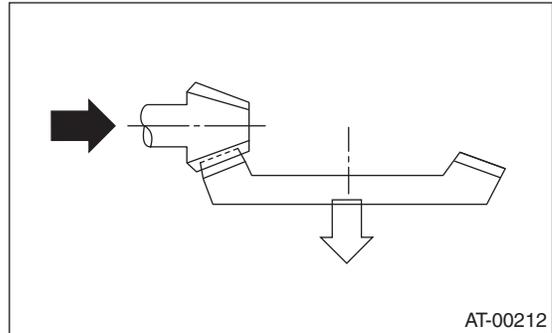
- Face contact

Check item: Backlash is too large.

Contact pattern



Corrective action: Increase the thickness of pinion height adjusting washer according to the procedure for bringing the drive pinion closer to the hypoid driven gear.



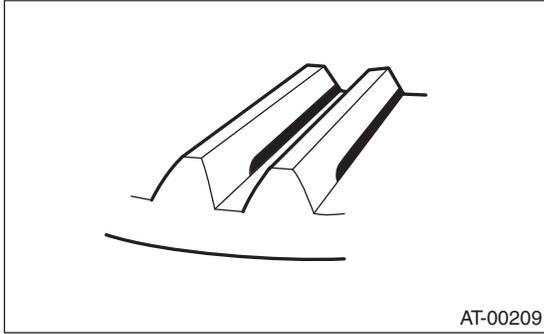
Rear Differential

DIFFERENTIALS

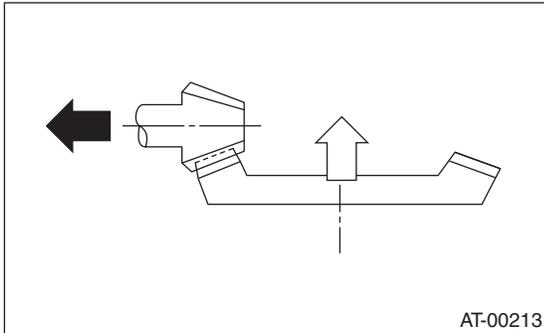
- Flank contact

Check item: Backlash is too small.

Contact pattern



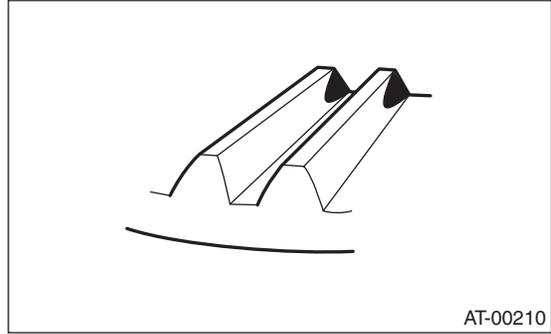
Corrective action: Reduce the thickness of pinion height adjusting washer according to the procedure for moving the drive pinion away from hypoid driven gear.



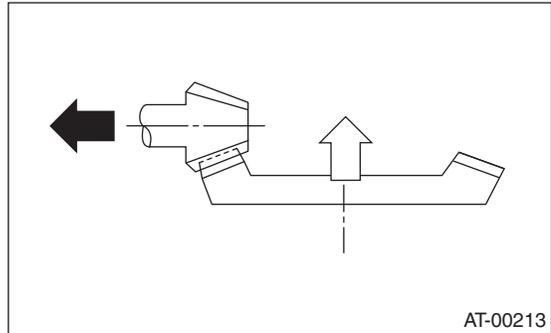
- Toe contact (inside contact)

Check item: Contact area is too small.

Contact pattern



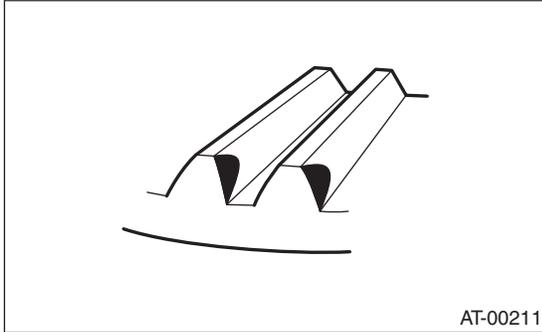
Corrective action: Reduce the thickness of pinion height adjusting washer according to the procedure for moving the drive pinion away from hypoid driven gear.



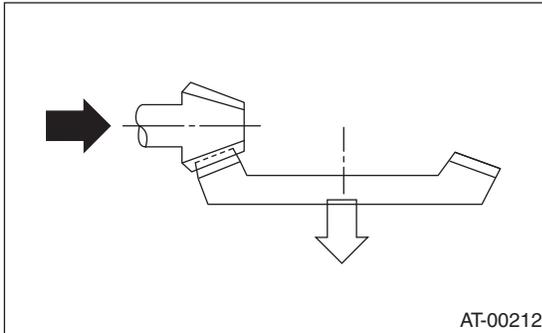
- Heel contact (outside end contact)

Check item: Contact area is too small.

Contact pattern



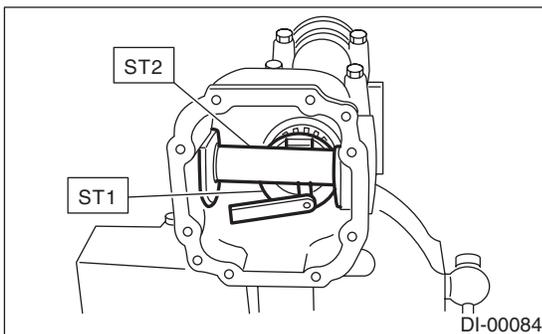
Corrective action: Increase the thickness of pinion height adjusting washer according to the procedure for bringing the drive pinion close to the hypoid driven gear.



20) If proper tooth contact is not obtained, once again adjust the drive pinion height by changing the RH and LH side bearing retainer shims and the hypoid gear backlash.

(1) Drive pinion height

- | | | |
|-----|-----------|----------------------------|
| ST1 | 398507702 | DUMMY SHAFT |
| ST2 | 398507701 | DIFFERENTIAL CARRIER GAUGE |



$$T = T_o + N - (H \times 0.01) - 0.20 \text{ (mm)}$$

Place:

T = Thickness of the pinion height adjusting washer (mm)

T_o = Thickness of the washer temporarily assembled (mm)

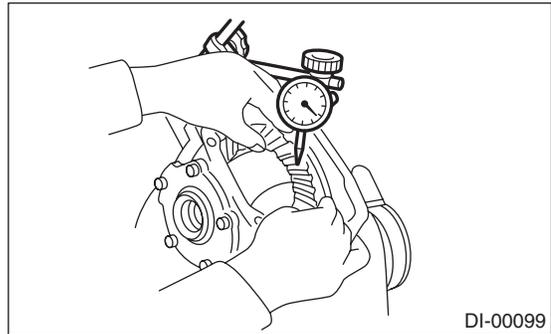
N = Clearance measured by thickness gauge (mm)

H = Figure marked on drive pinion head

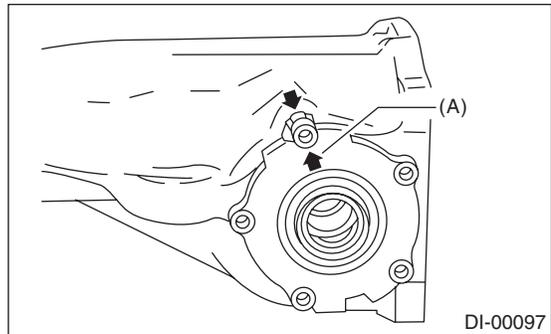
(2) Hypoid gear backlash

Backlash:

0.10 — 0.20 mm (0.004 — 0.008 in)



- 21) Remove the RH and LH side bearing retainer.
- 22) Install the O-rings and the side bearing retainer shims to both the left and right side bearing retainers.
- 23) Install the oil seals to the left and right side bearing retainers. <Ref. to DI-39, REPLACEMENT, Rear Differential Side Oil Seal.>
- 24) Align the arrow mark on differential carrier with the mark on side retainer during installation.



(A) Arrow mark

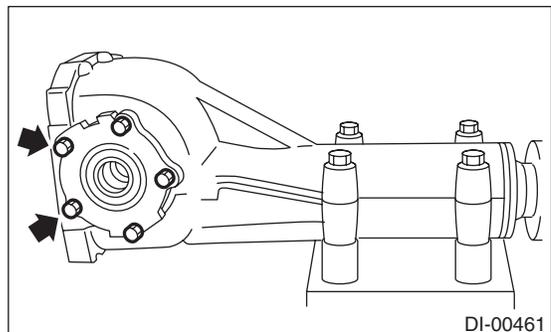
- 25) Apply liquid gasket to the bolts indicated by arrow marks, and install the side bearing retainer.

Liquid gasket:

THREE BOND 1105 (Part No. 004403010) or equivalent

Tightening torque:

10.5 N·m (1.1 kgf·m, 7.7 ft·lb)



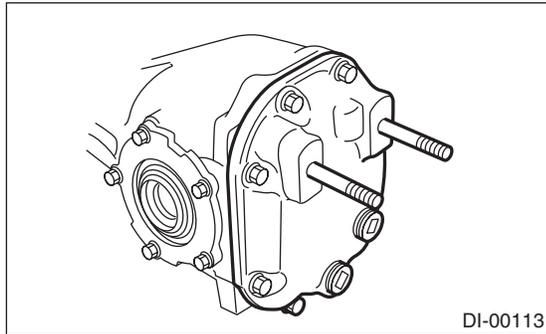
Rear Differential

DIFFERENTIALS

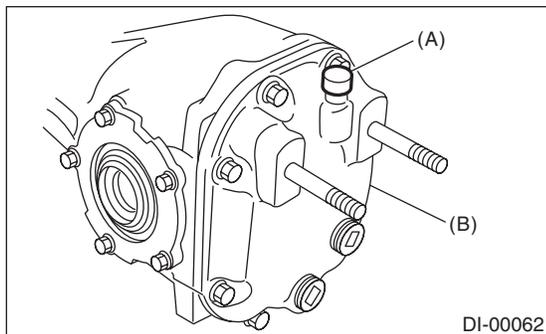
26) Install the new gasket and rear cover and tighten the bolts to specified torque.

Tightening torque:

29.5 N·m (3.0 kgf-m, 21.8 ft-lb)



27) Install the new air breather cap.



(A) Air breather cap

(B) Rear cover

28) Install the drain plug and filler plug.

Tightening torque:

49 N·m (5.0 kgf-m, 36.2 ft-lb)

E: INSPECTION

Wash all the disassembled parts clean, and examine them for wear, damage and other defects. Repair or replace the defective parts as necessary.

1) Hypoid driven gear and drive pinion

- If there is evidently an abnormal tooth contact, find out the cause and adjust until the teeth contact correctly. Replace the gear if there is an excessive worn or an incapable adjustment.

- If crack, cutout or seizure is found, replace the parts as a set. Slight damage of some teeth can be corrected by oil stone or the like.

2) Bearing

Replace if seizure, peeling, wear, rust, dragging during rotation, noise or other defect is evident.

3) Oil seal

Replace if deformed or damaged, and at every disassembling.

4) Differential carrier

Replace if the bearing bores are worn or damaged.

5) Differential case

Replace if its sliding surfaces are worn or cracked.

6) Companion flange

Replace if the oil seal lip contacting surface has flaws.

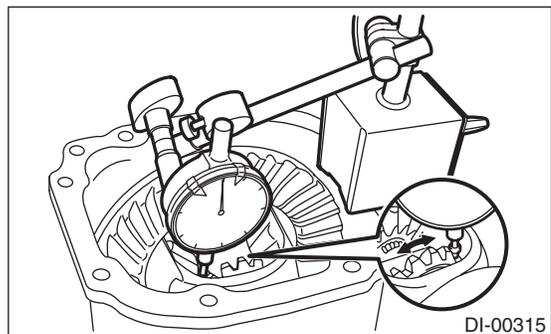
1. SIDE GEAR BACKLASH

Using a dial gauge, check the backlash of side gear. (Model without LSD)

Side gear backlash:

0.1 — 0.2 mm (0.004 — 0.008 in)

If the side gear backlash is not within the specification, select the side gear thrust washer and adjust the side gear backlash as specified.



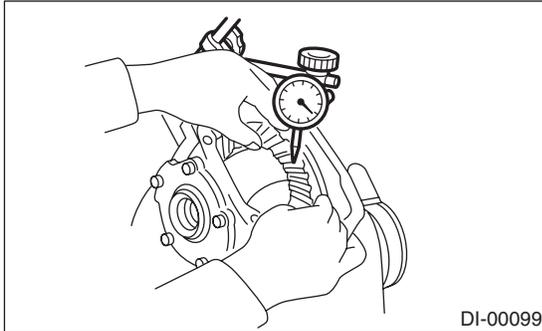
2. HYPOID DRIVEN GEAR BACKLASH

Using a dial gauge, check the backlash of hypoid driven gear.

Hypoid driven gear backlash:

0.1 — 0.2 mm (0.004 — 0.008 in)

If the hypoid driven gear backlash is not within the specification, adjust the side bearing preload or repair if necessary.



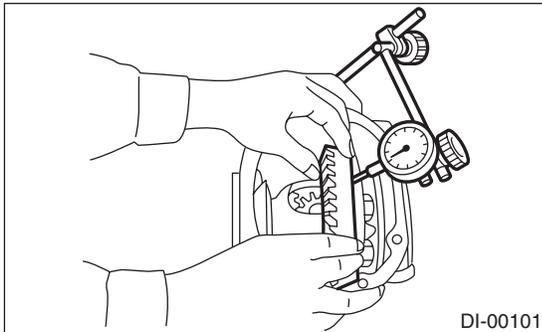
3. HYPOID DRIVEN GEAR RUNOUT ON ITS BACK SURFACE

Using a dial gauge, check the hypoid driven gear runout on its back surface.

Hypoid driven gear runout on its back surface:

0.05 mm (0.0020 in) or less

If the hypoid driven gear runout exceeds 0.05 mm (0.0020 in), replace the hypoid driven gear.



4. TOOTH CONTACT BETWEEN HYPOID DRIVEN GEAR AND DRIVE PINION

Inspect the tooth contact between hypoid driven gear and drive pinion. <Ref. to DI-24, ASSEMBLY, Rear Differential.>

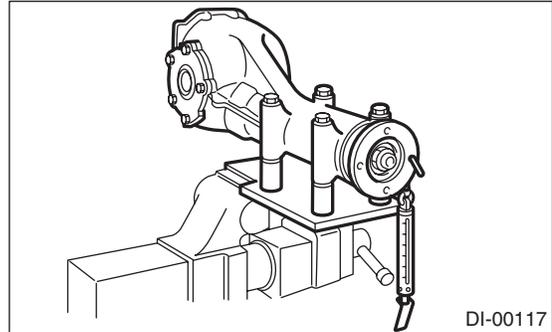
5. TOTAL PRELOAD

Using a spring balance, check the total preload.

Total preload:

20.7 — 54.4 N (2.1 — 5.5 kgf, 4.7 — 12.2 lb)

If the increase of the resistance is not within the specification, adjust the side bearing retainer shims.

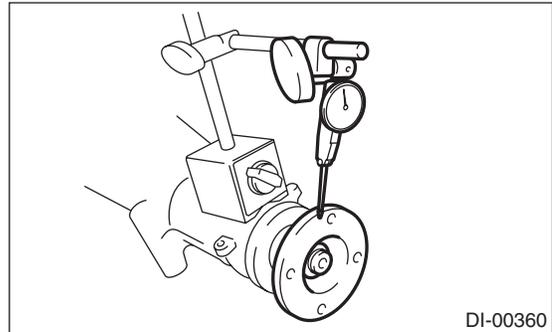


6. COMPANION FLANGE

- 1) If rust or dirt is attached to the companion flange, remove them.
- 2) Set a dial gauge at a companion flange surface (mating surface of propeller shaft and companion flange), and then measure the companion flange runout.

Limit of runout:

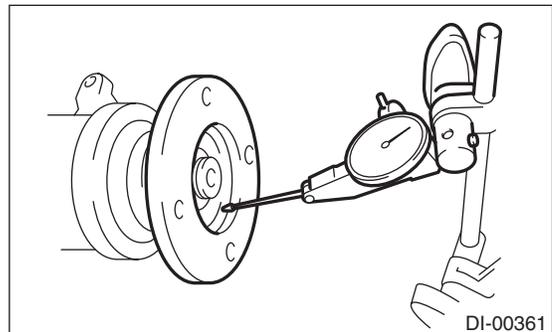
0.08 mm (0.0031 in)



- 3) Set the gauge inside of the companion flange, and measure the runout.

Limit of runout:

0.08 mm (0.0031 in)



Rear Differential

DIFFERENTIALS

4) If either runout exceeds the limit, move the phase of companion flange and drive pinion 90° each, and find the point where the runout is within the limit.

5) If the runout exceeds the limit after changing the phase, replace the companion flange and recheck the runout.

6) If the runout exceeds the limit after replacing the companion flange, the drive pinion may be assembled incorrectly or bearing is faulty.

F: ADJUSTMENT

1. SIDE GEAR BACKLASH

Adjust the side gear backlash.

<Ref. to DI-24, ASSEMBLY, Rear Differential.>

2. HYPOID DRIVEN GEAR BACKLASH

Adjust the hypoid driven gear backlash.

<Ref. to DI-24, ASSEMBLY, Rear Differential.>

3. TOOTH CONTACT BETWEEN HYPOID DRIVEN GEAR AND DRIVE PINION

Adjust the tooth contact between hypoid driven gear and drive pinion gear.

<Ref. to DI-24, ASSEMBLY, Rear Differential.>

4. TOTAL PRELOAD

Adjust the side bearing shim.

<Ref. to DI-24, ASSEMBLY, Rear Differential.>