

## ■ DIFFERENTIAL OIL INSPECTION

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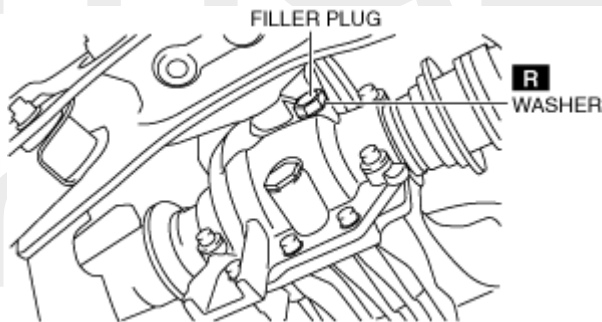
### Replacement Part

Washer

Quantity: 1

Location of use: Filler plug

1. Place the vehicle on level ground.
2. Remove the filler plug and washer.
3. Verify that the oil is at the brim of the filler plug hole.
4. If it is low, add the specified oil.
5. Install a new washer and the filler plug, and tighten.



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### Tightening torque

40—53 N·m {4.1—5.4 kgf·m, 30—39 ft·lbf}

## ■ DIFFERENTIAL OIL REPLACEMENT

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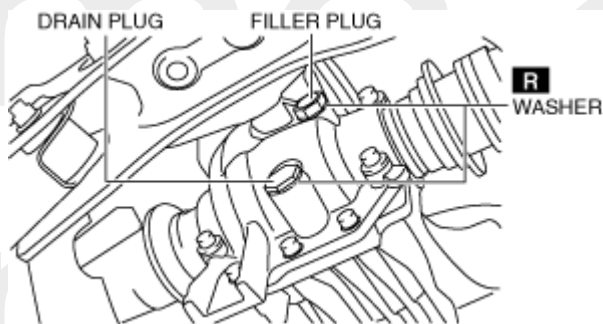
### Replacement Part

Washer	Washer
Quantity: 1	Quantity: 1
Location of use: Drain plug	Location of use: Filler plug

### Oil and Chemical Type

Rear differential oil
Type: MAZDA LONG LIFE HYPOID GEAR OIL SG1

- 1.Place the vehicle on level ground.
- 2.Remove the filler plug.
- 3.Remove the drain plug and drain the differential oil into a container.



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- 4.Install a new washer and the drain plug, and tighten.

#### Tightening torque

40—53 N·m {4.1—5.4 kgf·m, 30—39 ft·lbf}

- 5.Add the specified differential oil from the filler plug until the level reaches the brim of the plug hole.

Rear differential oil type	Rear differential oil capacity (approx. quantity)
MAZDA LONG LIFE HYPOID GEAR OIL SG1	0.35 L {0.37 US qt, 0.31 Imp qt}

6. After filling with differential oil, perform oil level inspection.

7. Install a new washer and the filler plug, and tighten.

Tightening torque

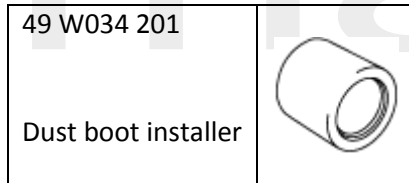
40—53 N·m {4.1—5.4 kgf·m, 30—39 ft·lbf}

## ■ OIL SEAL (COUPLING COMPONENT) REPLACEMENT

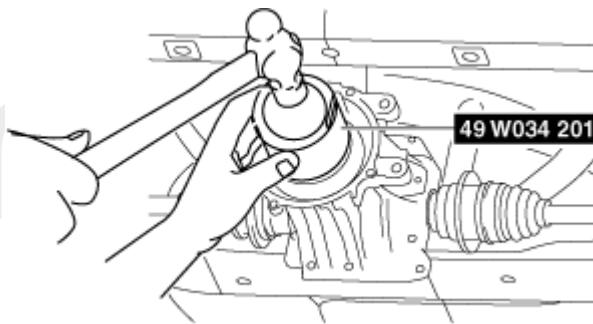
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Special Service Tool (SST)



1. Drain the differential oil into a container. (See DIFFERENTIAL OIL REPLACEMENT.)
2. Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)
3. Remove the propeller shaft. (See PROPELLER SHAFT REMOVAL/INSTALLATION.)
4. Remove the coupling component. (See COUPLING COMPONENT REMOVAL/INSTALLATION.)
5. Remove the oil seal from the differential carrier using a screwdriver or similar tool.
6. Apply differential oil to the new oil seal lip.
7. Install the new oil seal to the differential carrier using the SST.



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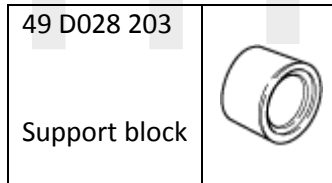
8. Install the coupling component. (See COUPLING COMPONENT REMOVAL/INSTALLATION.)
9. Install the propeller shaft. (See PROPELLER SHAFT REMOVAL/INSTALLATION.)
10. Add the specified differential oil from the filler plug. (See DIFFERENTIAL OIL REPLACEMENT.)
11. Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)

## ■ OIL SEAL (SIDE GEAR) REPLACEMENT

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Special Service Tool (SST)



1. Switch the ignition ON (engine off).
2. Release the electric parking brake.
3. Switch the ignition off.
4. Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)
5. Remove the wheels and tires. (See WHEEL AND TIRE REMOVAL/INSTALLATION.)
6. Remove the drain plug and the drain differential oil into a container. (See DIFFERENTIAL OIL REPLACEMENT.)
7. Install a new washer and the drain plug, and tighten.

Tightening torque

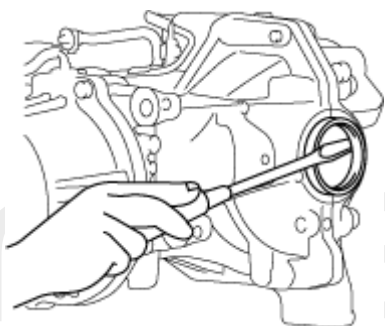
40—53 N·m {4.1—5.4 kgf·m, 30—39 ft·lbf}

8. Remove the rear drive shaft. (See REAR DRIVE SHAFT REMOVAL/INSTALLATION.)
9. Remove the clip from the drive shaft.

Caution

- Wrap the end of a screwdriver with cloth to prevent scratches to the inside of the differential casing.

10. Remove the oil seal from the differential casing using a screwdriver.



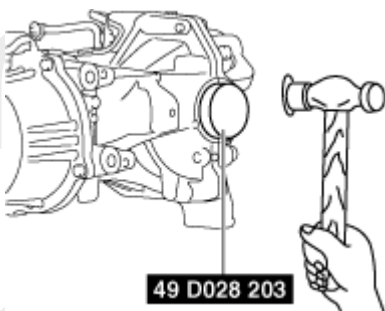
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11. Apply differential oil to the new oil seal lip.

Note

- Install the oil seal at a straight angle.

12. Install the new oil seal to the differential carrier using the SST.



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13. After installing the new clip onto the drive shaft, insert the drive shaft into the differential. (See REAR DRIVE SHAFT REMOVAL/INSTALLATION.)

14. Verify that the drive shaft cannot be pulled out.

15. Add the specified differential oil. (See DIFFERENTIAL OIL REPLACEMENT.)

16. After adding the oil, perform an oil level inspection. (See DIFFERENTIAL OIL INSPECTION.)

17. Install a new washer and the oil filler plug, and tighten.

Tightening torque

40—53 N·m {4.1—5.4 kgf·m, 30—39 ft·lbf}

18. Install the wheels and tires. (See WHEEL AND TIRE REMOVAL/INSTALLATION.)

19.Connect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)

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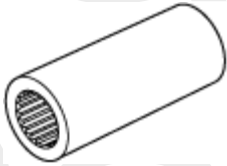
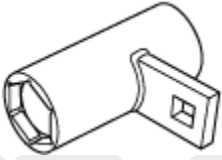
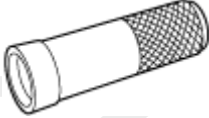

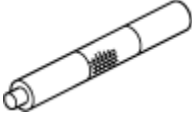
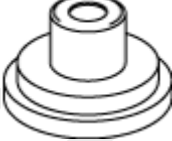


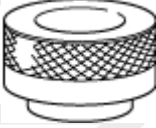

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## REAR DIFFERENTIAL ASSEMBLY

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Special Service Tool (SST)

49 D028 203  Support block		49 W034 201  Dust boot installer		49 L027 006  Serrate socket	
49 L027 007  Hex socket		49 F401 331  Bearing installer body		49 G030 338  Attachment E	
49 M005 797  Oil seal installer		49 L025 002  Bearing installer		49 F027 007  Attachment $\phi$ 72	
49 B032 335A  Oil seal installer		49 V001 525  Bearing installer		49 JP01 002  Holder side bearing	

Replacement Part

Bearing outer race  Quantity: 2  Location of use: Bearing	Spacer  Quantity: 1  Location of use: Drive pinion	Collapsible spacer  Quantity: 1  Location of use: Drive pinion
Locknut  Quantity: 1  Location of use: Drive pinion	Oil seal (side gear)  Quantity: 2  Location of use: Side gear	Oil seal (Coupling component)  Quantity: 1  Location of use: Coupling component

#### Oil and Chemical Type

Rear differential oil  Type: MAZDA LONG LIFE HYPOID GEAR OIL SG1	Sealant  Type: TB1217C or equivalent
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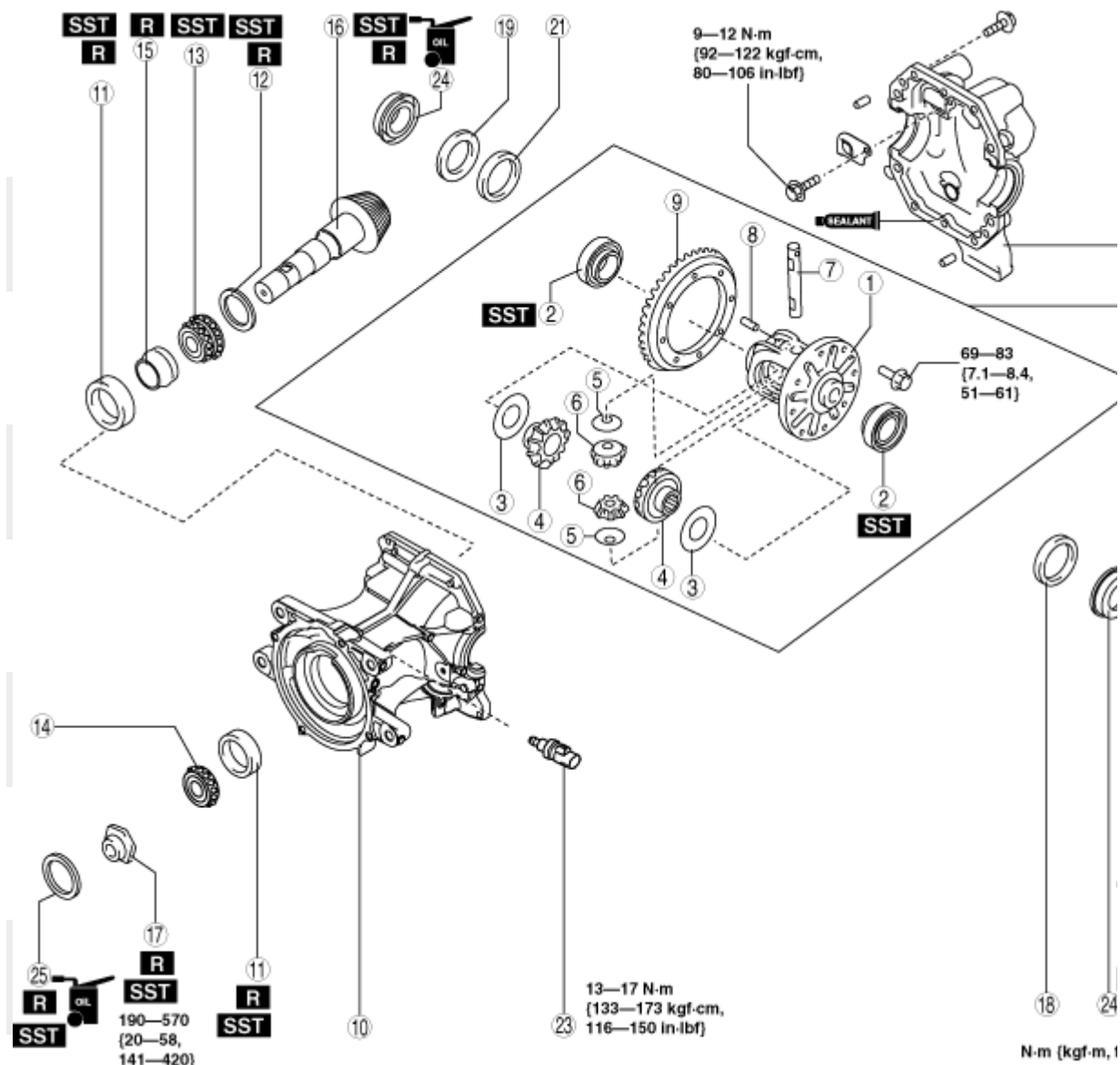
#### Warning

- The engine stand is equipped with a self-lock mechanism, however, if the rear differential is in a tilted condition, the self-lock mechanism could become inoperative. If the rear differential unexpectedly rotates it could cause injury, therefore do not maintain the rear differential in a tilted condition. When turning the rear differential, grasp the rotation handle firmly.

#### Caution

- Clean away the old sealant before applying the new sealant.
- Install the rear cover before the applied sealant starts to harden.
- Allow the sealant to set at least 30 minutes after installation before filling the differential with the specified oil.

1. Assemble in the order indicated in the table.



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1	Gear case
2	Side bearing (See Side Bearing Assembly Note.)
3	Thrust washer (See Thrust washer Assembly Note.)
4	Side gear
5	Thrust washer
6	Pinion gear
7	Pinion shaft
8	Pin
9	Ring gear (See Ring Gear Assembly Note.)
10	Differential carrier
11	Bearing outer race (See Bearing Outer Race Assembly Note.)
12	Spacer (See Spacer, Bearing Inner Race Assembly Note.)
13	Bearing inner race (rear bearing) (See Spacer, Bearing Inner Race Assembly Note.)
14	Bearing inner race (front bearing) (See Spacer, Bearing Inner Race Assembly Note.)
15	Collapsible spacer
16	Drive pinion

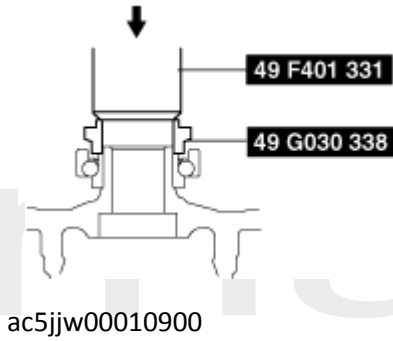
17	Locknut (See Locknut Assembly Note.)
18	Adjusting shim (LH) (See Adjusting Shim Assembly Note.)
19	Spacer
20	Rear differential component
21	Adjusting shim (RH) (See Adjusting Shim Assembly Note.)
22	Rear cover (See Rear Cover Assembly Note.)
23	Differential oil temperature sensor
24	Oil seal (Side gear) (See Oil Seal (Side gear) Assembly Note.)
25	Oil seal (Coupling component) (See Oil Seal (Coupling component) Assembly Note.)

#### Side Bearing Assembly Note

##### Caution

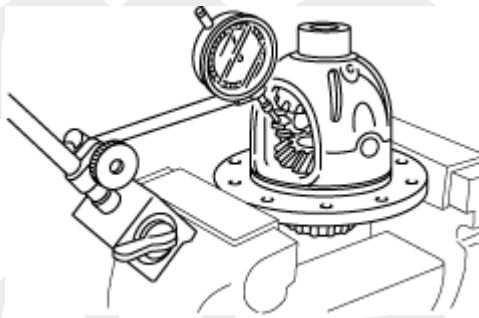
- Do not mix up the left and right side bearing inner races.

1. Press the side bearing inner races into the gear case using the SSTs.



#### Thrust washer Assembly Note

1. Assemble the side gears, thrust washers and pinion gears to the gear case, then assemble the knock pin.
2. After assembling the knock pin, make a crimp so that the pin will not come out of the gear case.
3. Set a dial gauge to the pinion gear as indicated in the figure.



4. Secure one of the side gears.
5. Move the pinion gear and measure the backlash at the end of the pinion gear.
  - If the backlash exceeds the standard, use the thrust washers to adjust.

Rear differential backlash of pinion gear and side gear

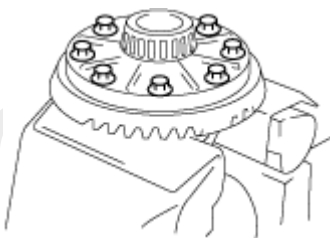
0.1 mm {0.004 in} or less

Thrust washer thickness

Identification mark	Thickness
9	0.90 mm {0.035 in}
95	0.95 mm {0.037 in}
0	1.00 mm {0.0394 in}
05	1.05 mm {0.0413 in}
1	1.10 mm {0.0433 in}

#### Ring Gear Assembly Note

1.Align the marks placed on the ring gear case at the time of disassembly and tighten the bolts in diagonal order.



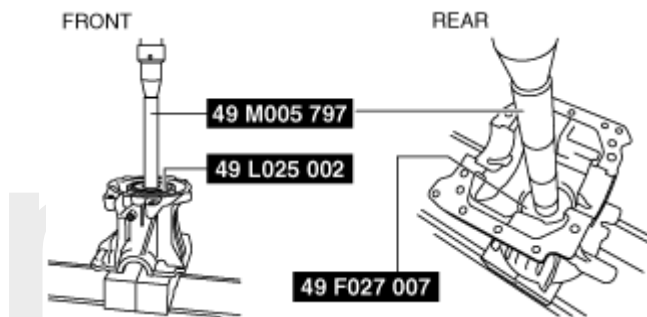
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#### Tightening torque

69—83 N·m {7.1—8.4 kgf·m, 51—61 ft·lbf}

#### Bearing Outer Race Assembly Note

1.Press in the bearing outer race using the SSTs and a press.



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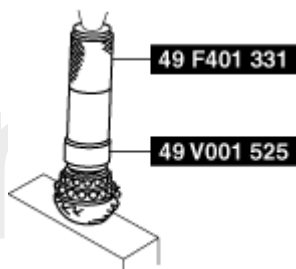
#### Spacer, Bearing Inner Race Assembly Note

1. Install a new spacer of the same size as the originally installed spacer.

Spacer thickness

Identification mark	Thickness (mm {IN})	Identification mark	Thickness (mm {IN})
08	3.08 {0.1213}	29	3.29 {0.1295}
09	3.095 {0.1219}	30	3.305 {0.1301}
11	3.11 {0.1224}	32	3.32 {0.1307}
12	3.125 {0.1230}	33	3.335 {0.1313}
14	3.14 {0.1236}	35	3.35 {0.1319}
15	3.155 {0.1242}	36	3.365 {0.1325}
17	3.17 {0.1248}	38	3.38 {0.1331}
18	3.185 {0.1254}	39	3.395 {0.1337}
20	3.20 {0.1260}	41	3.41 {0.1343}
21	3.215 {0.1266}	42	3.425 {0.1348}
23	3.23 {0.1272}	44	3.44 {0.1354}
24	3.245 {0.1278}	45	3.455 {0.1360}
26	3.26 {0.1283}	47	3.47 {0.1366}
27	3.275 {0.1289}	—	—

2. Press the bearing inner race (rear bearing) into the drive pinion using the SSTs and a press.

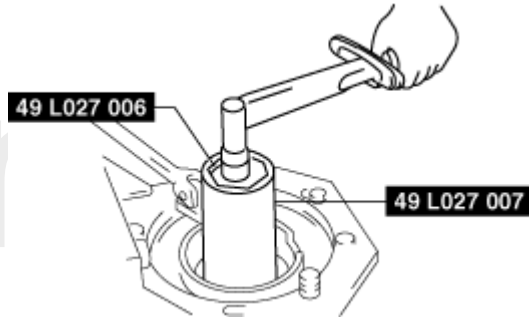


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Locknut Assembly Note

### Drive pinion preload adjustment

1. Apply differential oil to a new locknut.
2. Assemble a new collapsible spacer, bearing inner race (front bearing), spacer and locknut to the drive pinion, and temporarily tighten the locknut.
3. Turn the serrated part of the drive pinion by hand to seat the bearing.
4. Tighten the locknut temporarily tightened in Step 1 from the lower limit of the specified tightening torque using the SSTs, and make this the specified preload.



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- If the specified preload cannot be obtained within the specified tightening torque, replace the collapsible spacer and inspect again.

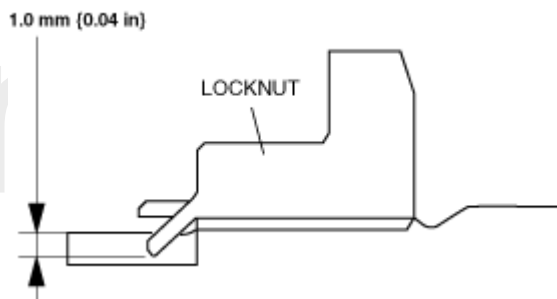
### Tightening torque

190—570 N·m {20—58 kgf·m, 141—420 ft·lbf}

### Rear differential drive pinion preload

0.2—0.5 N·m {2.1—5.0 kgf·cm, 1.8—4.4 in·lbf}

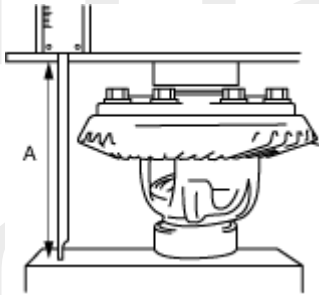
5. Crimp the locknut using a chisel and hammer.



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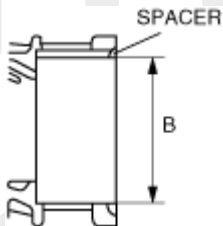
### Adjusting Shim Assembly Note

1. Assemble the differential carrier to the SSTs.
2. Assemble the spacer to the differential carrier.
3. Using a vernier caliper and straight edge, measure the height of the rear differential component. This is dimension A.



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4. Measure the width of the installed differential in the differential carrier with the spacer installed. This is value B.



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5. The combined thickness of the left and right adjusting shims is obtained by the following formula.

$$C1 = B - A + 0.115 \text{ mm } \{0.00453 \text{ in}\} \quad C2 = B - A + 0.205 \text{ mm } \{0.00807 \text{ in}\}$$

6. If the combined thickness of the previously installed adjusting shims is between C1 and C2, use the shims as they are.

7. If the combined thickness of the previously installed adjusting shims is not between C1 and C2, or if the adjusting shims have to be replaced, select two appropriate adjusting shims from the table below.

Adjusting shim thickness

Identification mark	Thickness (mm {IN})	Identification mark	Thickness (mm {IN})
339	3.39 {0.133}	393	3.93 {0.155}
342	3.42 {0.135}	396	3.96 {0.156}
345	3.45 {0.136}	399	3.99 {0.157}
348	3.48 {0.13}	402	4.02 {0.158}
351	3.51 {0.138}	405	4.05 {0.159}
354	3.54 {0.139}	408	4.08 {0.161}
357	3.57 {0.141}	411	4.11 {0.162}
360	3.60 {0.142}	414	4.14 {0.163}
363	3.63 {0.143}	417	4.17 {0.164}
366	3.66 {0.144}	420	4.20 {0.165}
369	3.69 {0.145}	423	4.23 {0.167}
372	3.72 {0.146}	426	4.26 {0.168}
375	3.75 {0.148}	429	4.29 {0.169}
378	3.78 {0.149}	432	4.32 {0.170}
381	3.81 {0.150}	435	4.35 {0.171}
384	3.84 {0.151}	438	4.38 {0.172}
387	3.87 {0.152}	441	4.41 {0.174}
390	3.90 {0.154}	—	—

#### Caution

- If adjusting shims are to be reused, do not mix up the left and right shims.
- Do not mix up the left and right side bearing outer races and spacers.

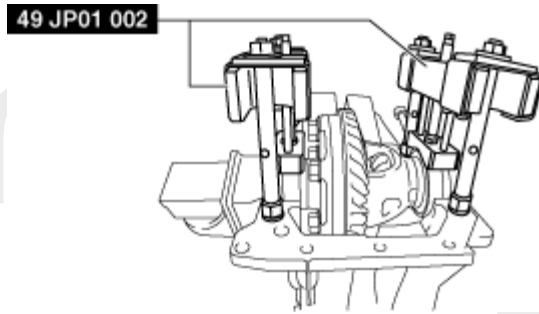
8. Assemble the rear differential component to the differential carrier.

9. Tap the selected adjusting shim between the spacer and the bearing race with a plastic hammer.

10. Perform the ring gear and drive pinion backlash adjustment.

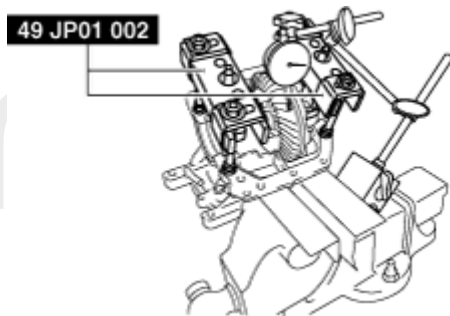
Note

- Install the SST so that it does not contact the ring gear.



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- (1) Install the SST and dial gauge to the differential carrier using a vise as shown in the figure.



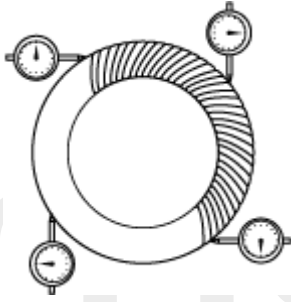
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SST tightening torque

5.0 N·m {51 kgf·cm, 44 in·lbf}

Note

- Measure the backlash at 4 locations around the ring gear. Make sure that 1 of the 4 locations is within the standard, and the minimum value for the 4 locations is 0.05 mm in or more and the variance is 0.07 mm or less.



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(2) Secure the drive pinion and measure the backlash from when the ring gear is moved.

Drive pinion and ring gear backlash

Standard: 0.09–0.14 mm {0.004–0.005 in}

Minimum: 0.05 mm {0.002 in} or more

Variance: 0.07 mm {0.003 in} or less

- If the backlash is not within the specification, adjust the gear case component by moving it in the axial direction.

Note

- When moving the gear case component in the axial direction, replace the adjusting shims. If the adjusting shim on the right side is replaced with one that is 0.03 mm {0.001 in} thicker, replace the one on the left with one that is 0.03 mm {0.001 in} thinner.

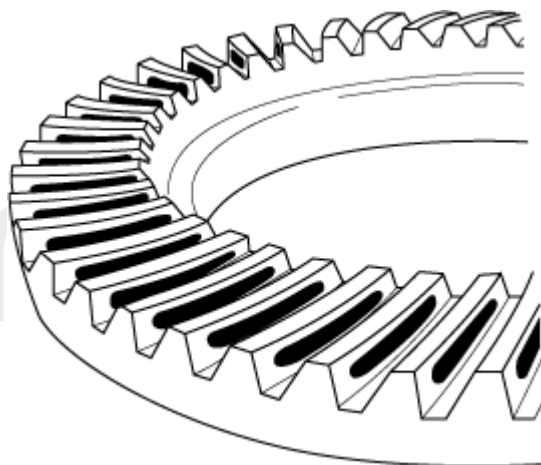
Adjusting shim thickness

Identification mark	Thickness (mm {IN})	Identification mark	Thickness (mm {IN})
339	3.39 {0.133}	393	3.93 {0.155}
342	3.42 {0.135}	396	3.96 {0.156}
345	3.45 {0.136}	399	3.99 {0.157}
348	3.48 {0.13}	402	4.02 {0.158}
351	3.51 {0.138}	405	4.05 {0.159}
354	3.54 {0.139}	408	4.08 {0.161}
357	3.57 {0.141}	411	4.11 {0.162}
360	3.60 {0.142}	414	4.14 {0.163}
363	3.63 {0.143}	417	4.17 {0.164}
366	3.66 {0.144}	420	4.20 {0.165}
369	3.69 {0.145}	423	4.23 {0.167}
372	3.72 {0.146}	426	4.26 {0.168}
375	3.75 {0.148}	429	4.29 {0.169}
378	3.78 {0.149}	432	4.32 {0.170}
381	3.81 {0.150}	435	4.35 {0.171}
384	3.84 {0.151}	438	4.38 {0.172}
387	3.87 {0.152}	441	4.41 {0.174}
390	3.90 {0.154}	—	—

11. Inspect the drive pinion and ring gear teeth contact points.

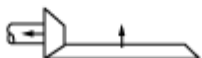
(1) Coat both surfaces of the ring gear uniformly with a thin red lead coating. (2) While rotating the ring gear back and forth by hand, rotate the drive pinion several times and inspect the tooth contact. (3) Inspect the tooth contacts in four locations around the ring gear, and check that the tooth contacts showing the red lead coating are the same as the pattern indicated in the figure.

- If the tooth contact is good, wipe off the red lead coating.
- If it is not good, adjust the pinion height, then adjust the backlash.



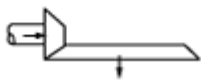
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— If toe and flank contact appears as shown in the figure, replace the spacer with a thinner one, and move the drive pinion outward.



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— If heel and face contact appears as indicated in the figure, replace the spacer with a thicker one and move the drive pinion inward.



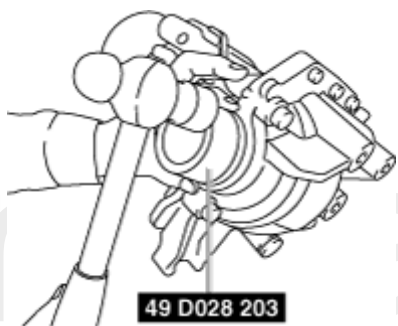
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# Spacer thickness

Identification mark	Thickness (mm {IN})	Identification mark	Thickness (mm {IN})
08	3.08 {0.1213}	29	3.29 {0.1295}
09	3.095 {0.1219}	30	3.305 {0.1301}
11	3.11 {0.1224}	32	3.32 {0.1307}
12	3.125 {0.1230}	33	3.335 {0.1313}
14	3.14 {0.1236}	35	3.35 {0.1319}
15	3.155 {0.1242}	36	3.365 {0.1325}
17	3.17 {0.1248}	38	3.38 {0.1331}
18	3.185 {0.1254}	39	3.395 {0.1337}
20	3.20 {0.1260}	41	3.41 {0.1343}
21	3.215 {0.1266}	42	3.425 {0.1348}
23	3.23 {0.1272}	44	3.44 {0.1354}
24	3.245 {0.1278}	45	3.455 {0.1360}
26	3.26 {0.1283}	47	3.47 {0.1366}
27	3.275 {0.1289}	—	—

## Oil Seal (Side gear) Assembly Note

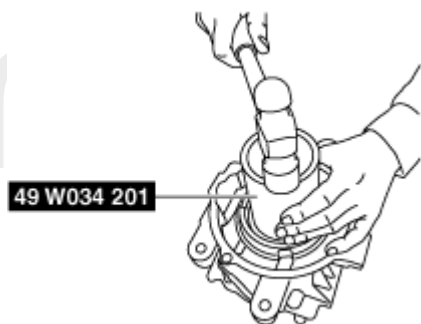
1. Apply differential oil to the new oil seal lip.
2. Assemble the oil seal using the SSTs.



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#### Oil Seal (Coupling component) Assembly Note

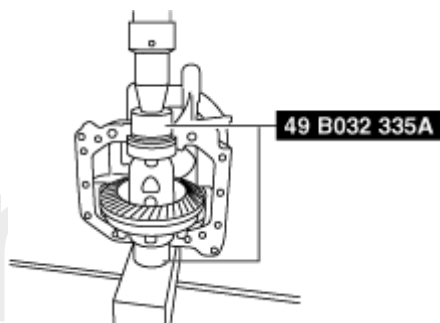
1. Apply differential oil to the new oil seal lip.
2. Assemble the oil seal using the SSTs.



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#### Rear Cover Assembly Note

1. Clean the alignment surface of the carrier and rear cove.
2. Apply pressure to the case using a press and install the rear cover using the SSTs (49 B032 335A) as shown in the figure.

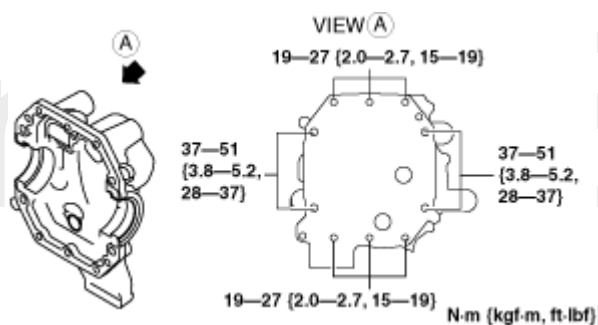


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#### Caution

- Do not apply pressure of 2 t or more.

3. Install the bolts with the specified torque as shown in the figure.



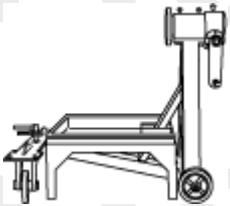

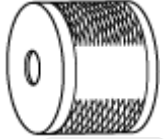


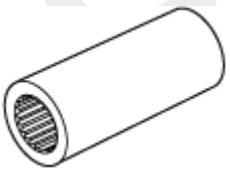
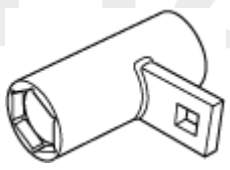

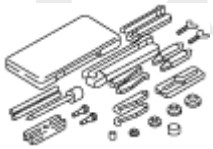
ac5wzw00002866

## REAR DIFFERENTIAL DISASSEMBLY

id031400146500

id031400146500

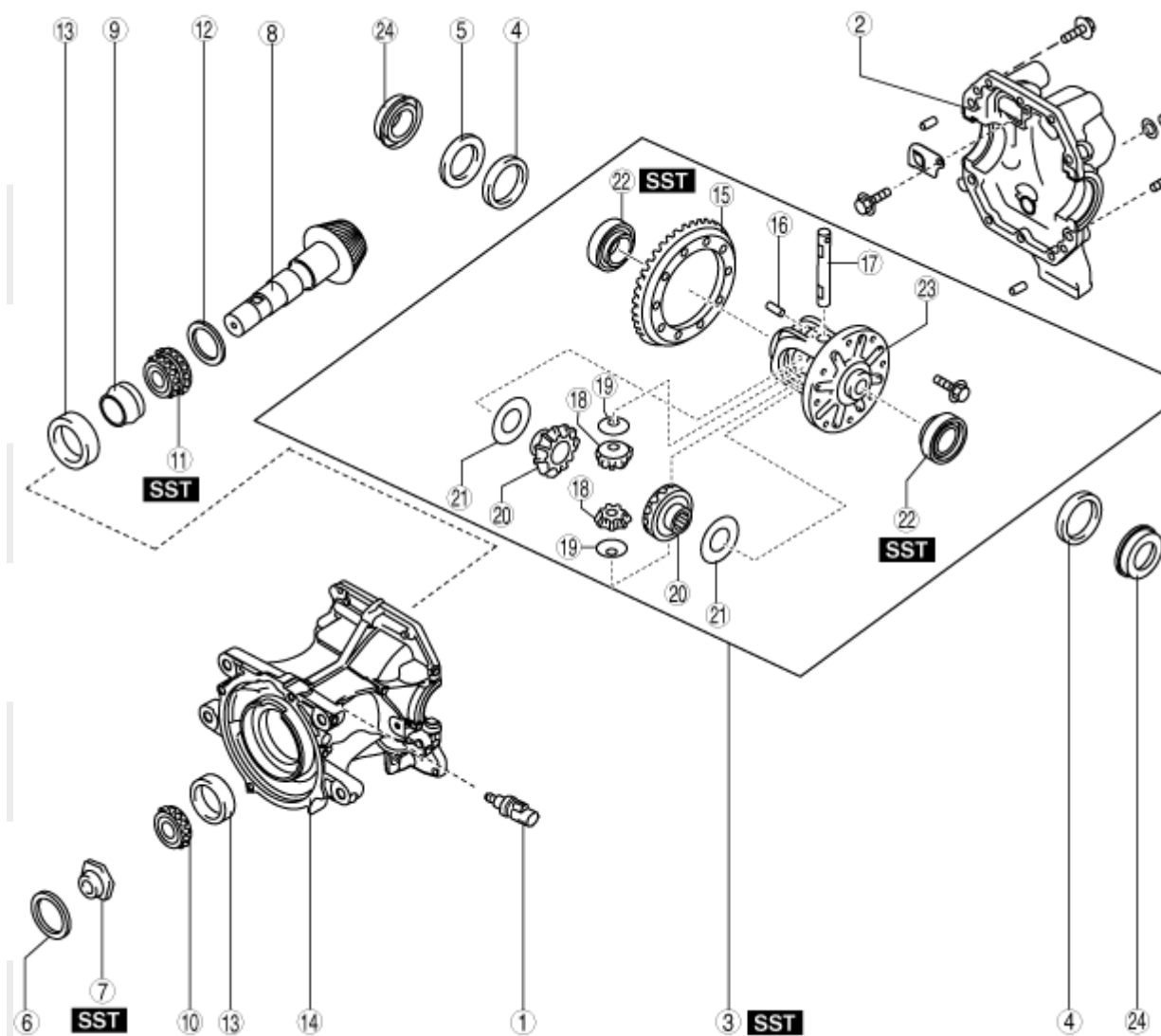
Special Service Tool (SST)

49 0107 680A  Engine stand		49 L027 0A2  Diff hanger set		49 T032 317  Weight	
49 T032 316  Shaft		49 L027 004  Gear case remover		49 L027 006  Serrate socket	
49 L027 007  Hex socket		49 H027 002  Bearing remover		49 0839 425C  Bearing puller set	

### Warning

- The engine stand is equipped with a self-lock mechanism, however, if the rear differential is in a tilted condition, the self-lock mechanism could become inoperative. If the rear differential unexpectedly rotates it could cause injury, therefore do not maintain the rear differential in a tilted condition. When turning the rear differential, grasp the rotation handle firmly.

1. Disassemble in the order indicated in the table.



ac5jjw00010895

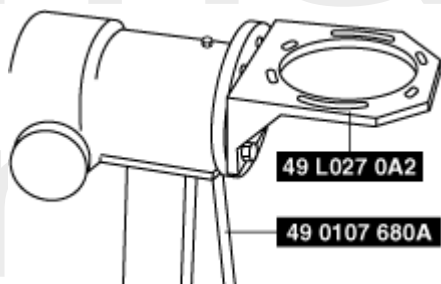
mazDa  
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1	Differential oil temperature sensor
2	Rear cover (See Rear Cover Disassembly Note.)
3	Rear differential component (See Rear Differential Component Disassembly Note.)
4	Adjusting shim
5	Spacer
6	Oil seal (Coupling component)
7	Locknut (See Locknut Disassembly Note.)
8	Drive pinion (See Drive Pinion Disassembly Note.)
9	Collapsible spacer
10	Bearing inner race (front bearing)
11	Bearing inner race (rear bearing) (See Bearing Inner Race (Rear Bearing) Disassembly Note.)
12	Spacer
13	Bearing outer race (See Bearing Outer Race Disassembly Note.)
14	Differential carrier
15	Ring gear (See Ring Gear Disassembly Note.)
16	Pin

17	Pinion shaft
18	Pinion gear
19	Thrust washer
20	Side gear
21	Thrust washer
22	Side bearing (See Side Bearing Disassembly Note.)
23	Gear case
24	Oil seal (side gear)

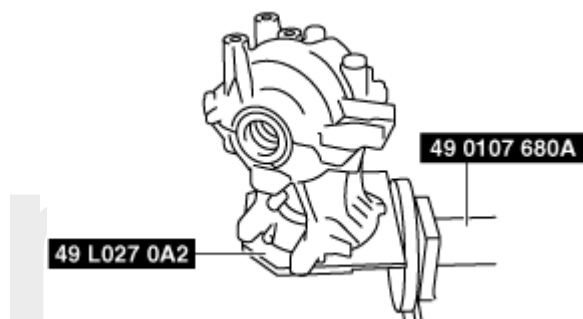
#### Rear Cover Disassembly Note

1.Install the SSTs to the engine stand.



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2.Install the rear differential to the SSTs.

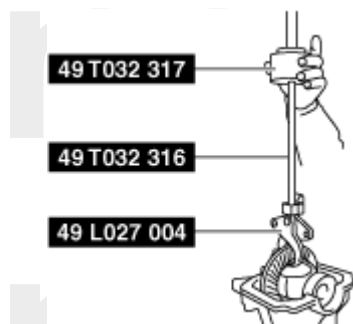


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3.Remove the rear cover.

#### Rear Differential Component Disassembly Note

1.If the rear differential component cannot be removed by hand, remove the rear differential component using the SSTs.

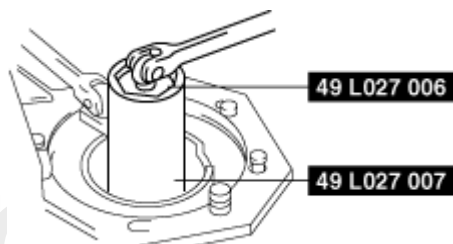


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2.Mark or otherwise distinguish between the removed left and right adjusting shims, spacers and side bearing outer races so that they are not mixed up at the time of reassembly.

#### Locknut Disassembly Note

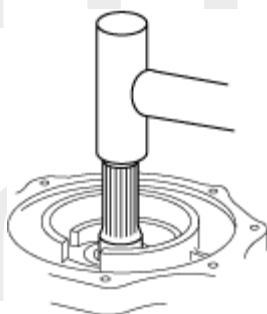
1.Remove the locknut using the SSTs.



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#### Drive Pinion Disassembly Note

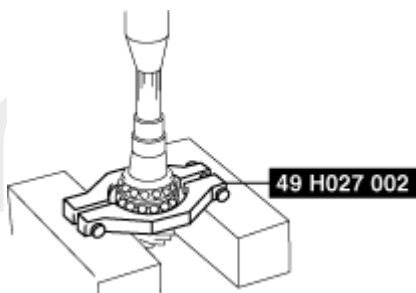
1. Remove the drive pinion by lightly tapping with a copper hammer.



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#### Bearing Inner Race (Rear Bearing) Disassembly Note

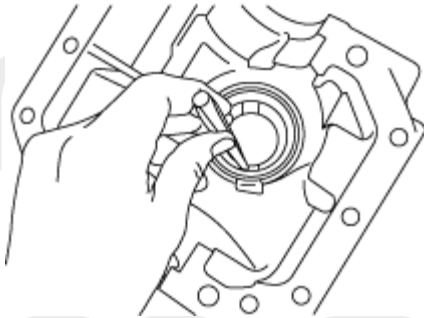
1. Remove the bearing inner races (rear bearing) using the SST and a press.



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### Bearing Outer Race Disassembly Note

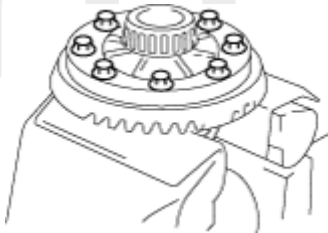
1.Remove the bearing outer races using the 2 grooves in the carrier and alternately tapping the sides of the races with a brass bar.



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### Ring Gear Disassembly Note

1.Secure the gear case in a vise and remove the bolts.



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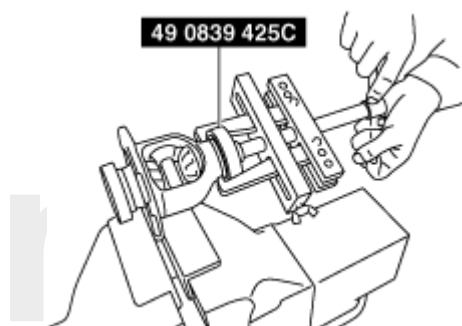
2.Lightly tap around the ring gear using a plastic hammer to remove the ring gear from the gear case.

### Side Bearing Disassembly Note

#### Caution

- Mark or otherwise distinguish between the left and right side bearings so that they are not mixed up at the time of reassembly.

1.Remove the side bearing inner races from the gear case using the SST.



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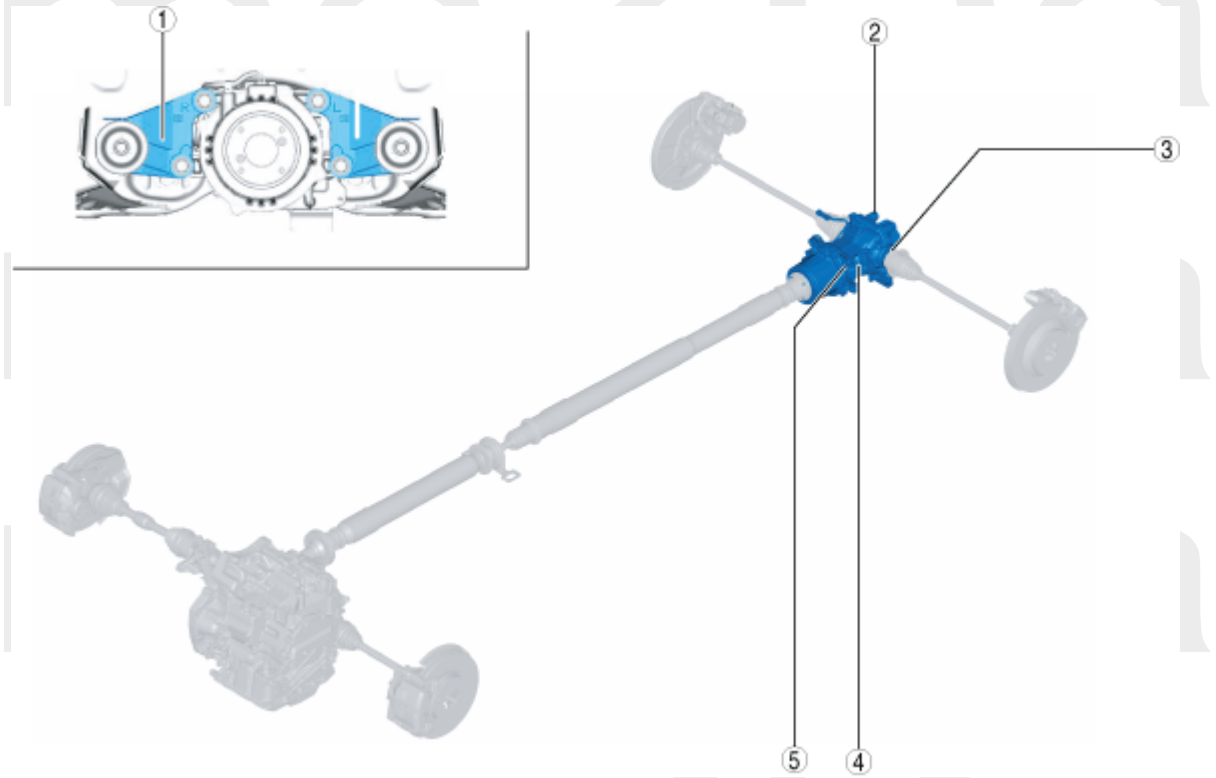
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## REAR DIFFERENTIAL LOCATION INDEX

id031400800300

id031400800300



ac5jjw00010904

1	Rear differential mount rubber (See REAR DIFFERENTIAL MOUNT RUBBER REMOVAL/INSTALLATION.)
2	Differential oil (See DIFFERENTIAL OIL INSPECTION.) (See DIFFERENTIAL OIL REPLACEMENT.)
3	Oil seal (side gear) (See OIL SEAL (SIDE GEAR) REPLACEMENT.)
4	Rear differential (See REAR DIFFERENTIAL REMOVAL/INSTALLATION.) (See REAR DIFFERENTIAL DISASSEMBLY.) (See REAR DIFFERENTIAL ASSEMBLY.)
5	Oil seal (coupling component) (See OIL SEAL (COUPLING COMPONENT) REPLACEMENT.)

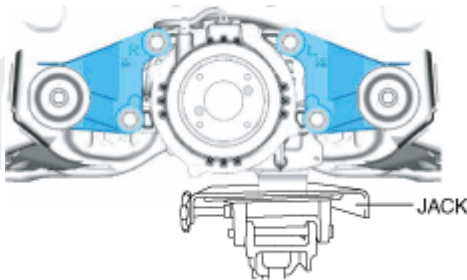
## ■ REAR DIFFERENTIAL MOUNT RUBBER REMOVAL/INSTALLATION

id031400803000

id031400803000

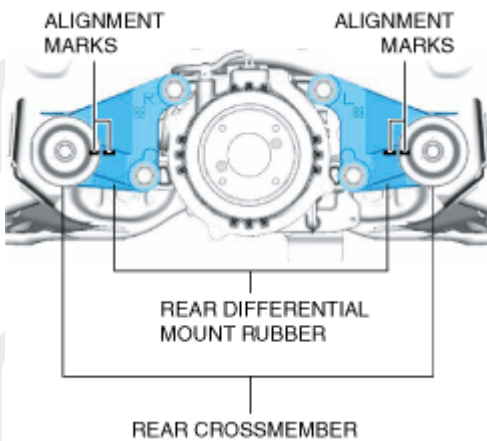
1.Remove the fuel tank. (See FUEL TANK REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) (See FUEL TANK REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See FUEL TANK REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)

2.Support the rear differential component using a jack.



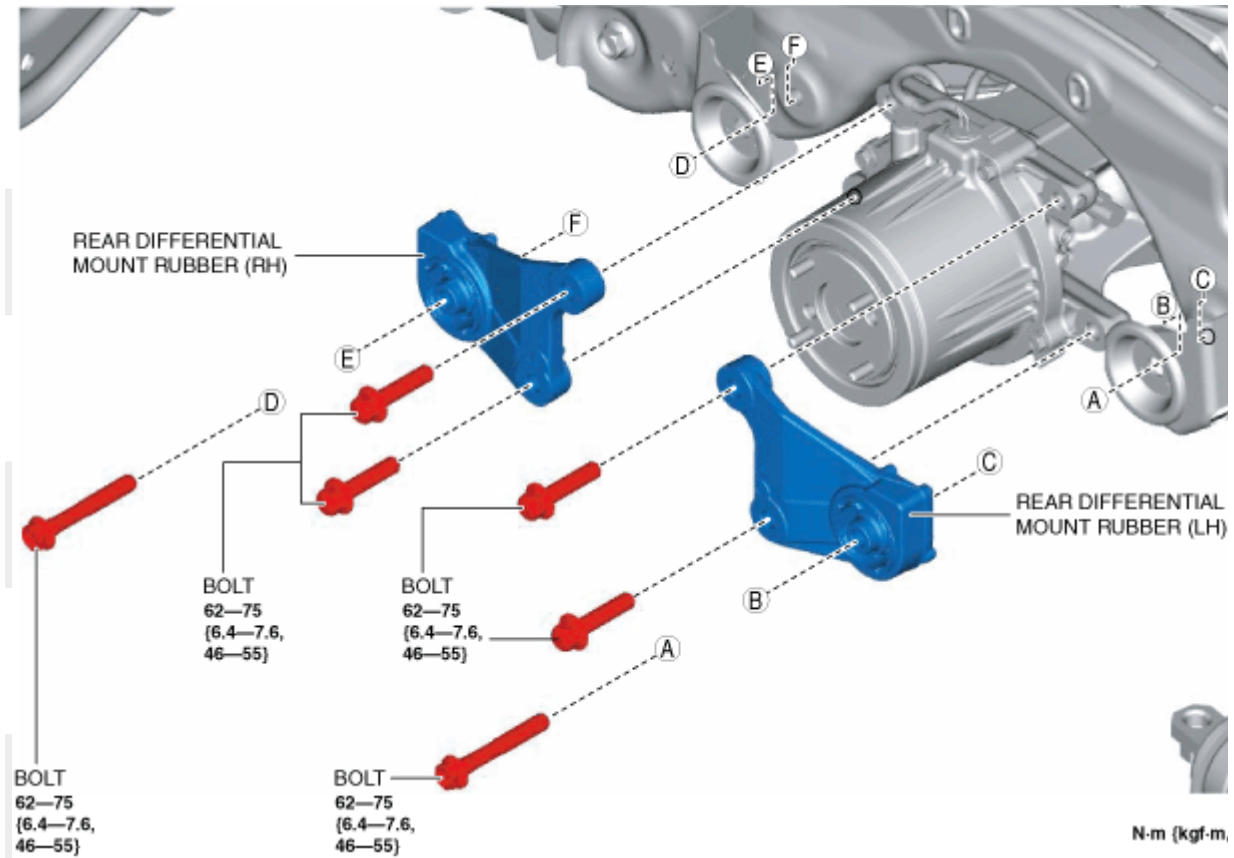
ac5uuw00009363

3.Place alignment marks on the rear crossmember and rear differential mount rubber as shown in the figure.



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4.Remove the rear differential mount rubber.

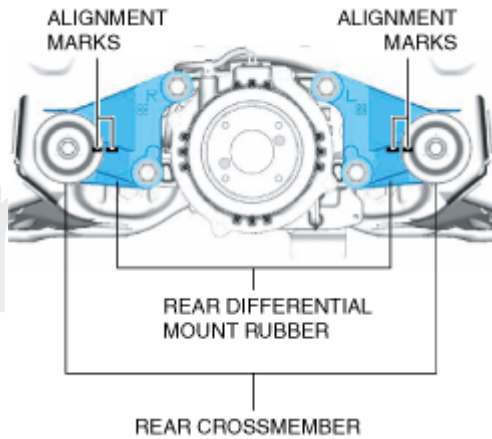


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5. Install in the reverse order of removal. (See Rear Differential Mount Rubber, Bolt Installation Note.)

#### Rear Differential Mount Rubber, Bolt Installation Note

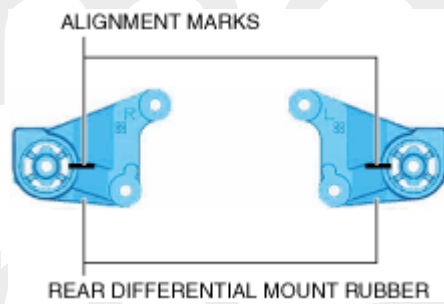
1. Align the alignment marks on the rear crossmember and rear differential mount rubber, and install the rear differential mount rubber.



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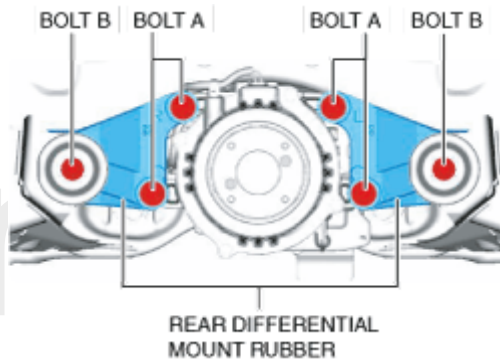
#### Note

- When newly replacing the rear differential mount rubber, place alignment marks on the new part in the same positions as the removed rear differential mount rubber.



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2. Temporarily tighten bolts A and B.



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3.Remove the transmission jack.

4.Shake the rear differential forward and back/left and right to improve the installation fit of the rear differential.

5.Completely tighten bolts in the order of A and B.

Tightening torque

62—75 N·m {6.4—7.6 kgf·m, 46—55 ft·lbf}

## ■ REAR DIFFERENTIAL REMOVAL/INSTALLATION

id031400146400

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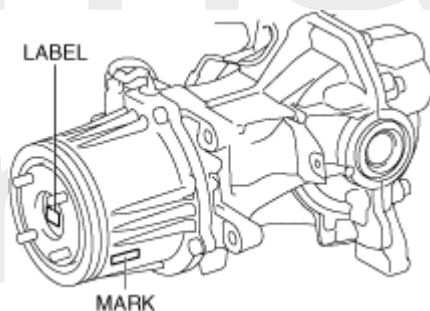
### Oil and Chemical Type

Sealant

Type: TB1217C or equivalent

### Caution

- Performing the following procedures could cause an open circuit in the rear ABS wheel-speed sensor wiring harness if it is pulled by mistake. Before servicing, disconnect the rear ABS wheel-speed sensor and set it aside so that the wiring harness will not be pulled by mistake.
- If the characteristic value of a new coupling component is not input to the AWD control module or the characteristic value is input incorrectly after replacing the coupling component, it could result in the following conditions:
  - The system does not operate normally.
  - A problem with durability of the coupling component occurs.
- After replacing the coupling component, read out the characteristic value of a new coupling component and write it to the AWD control module. (See COUPLING COMPONENT CALIBRATION DATA WRITING.)
- Read out the characteristic value of the coupling component from the label or mark shown in the figure.



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### Note

- The AWD control module stores the characteristic value of the coupling component before replacement.
- If the characteristic value of a new coupling component is not written, the AWD control module does not store the value.

1. Switch the ignition ON (engine off).
2. Release the electric parking brake.
3. Switch the ignition off.
4. Disconnect the negative battery terminal. (See NEGATIVE BATTERY TERMINAL DISCONNECTION/CONNECTION.)
5. Remove the wheels and tires. (See WHEEL AND TIRE REMOVAL/INSTALLATION.)
6. Drain the rear differential oil into a container. (See DIFFERENTIAL OIL REPLACEMENT.)
7. Remove the following parts: (See FLOOR UNDER COVER REMOVAL/INSTALLATION.)

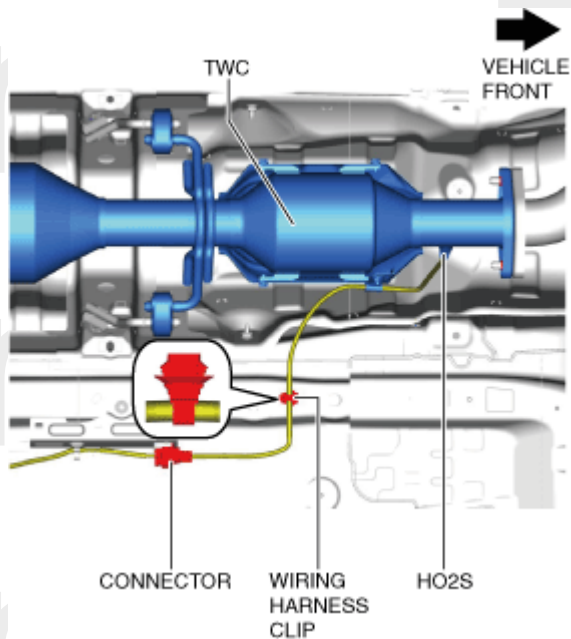
(1) Floor under cover No.2 (2) Floor under cover No.1

8. Remove the following parts: (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].) (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].) (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)

(1) Insulator (2) Brace bar (3) Tunnel member

9. For SKYACTIV-G 2.5 (Without cylinder deactivation) vehicles, perform the following procedure.

(1) Disconnect the HO2S connector and the wiring harness clip.

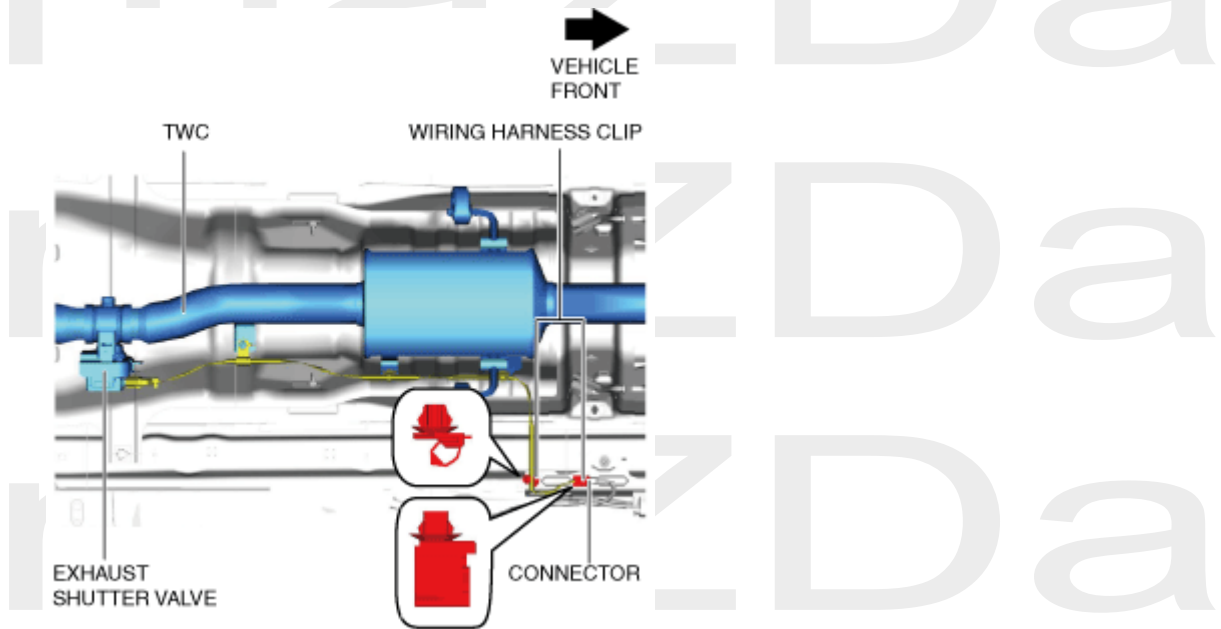


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(2) Remove the TWC. (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.0, SKYACTIV-G 2.5 (WITHOUT CYLINDER DEACTIVATION)].)

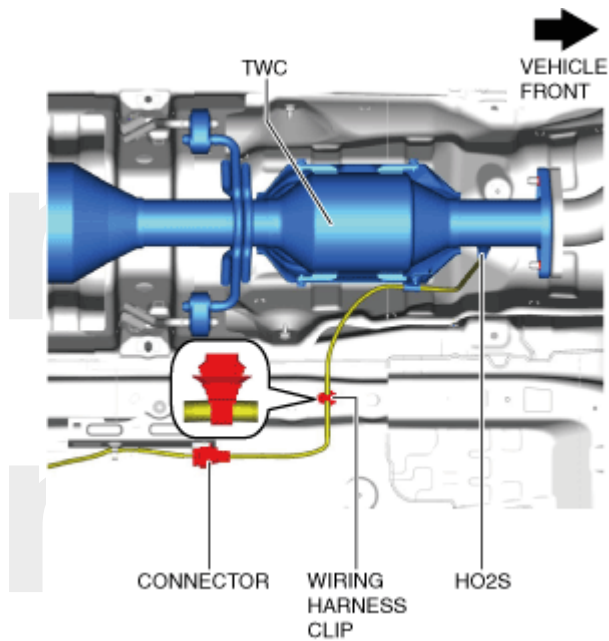
10. For SKYACTIV-G 2.5 (With cylinder deactivation) vehicles, perform the following procedure.

(1) Disconnect the exhaust shutter valve connector.



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(2) Disconnect the wiring harness clips. (3) Disconnect the HO2S connector and the wiring harness clip.

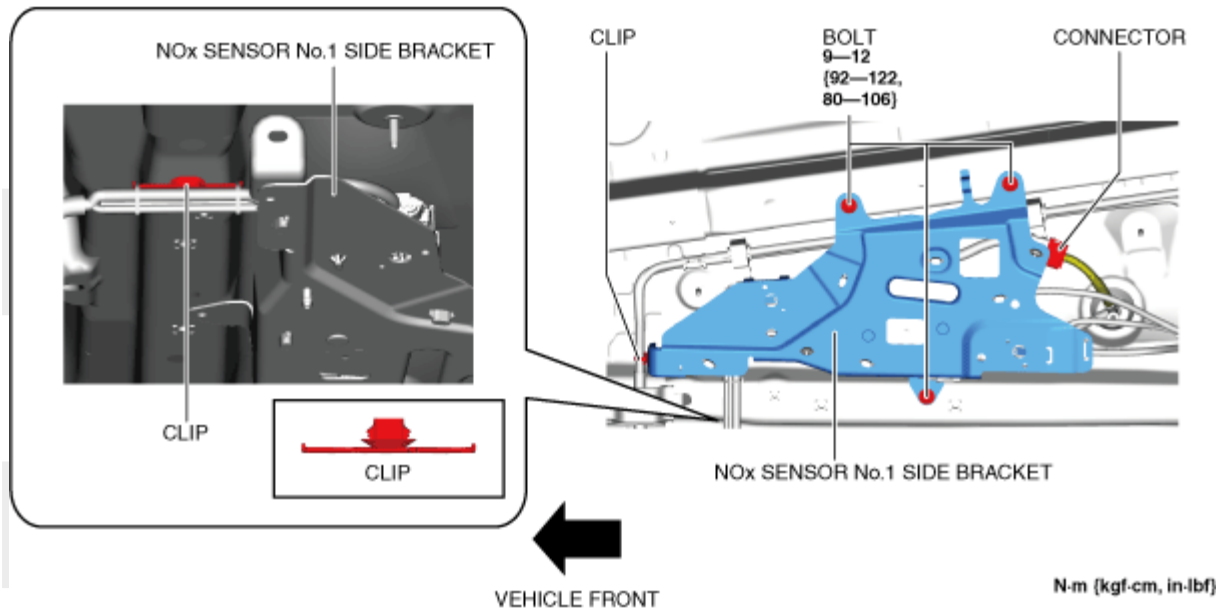


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(4) Remove the TWC. (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-G 2.5 (WITH CYLINDER DEACTIVATION)].)

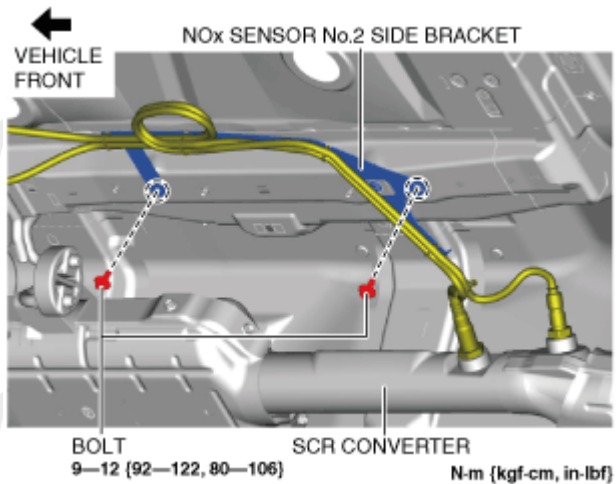
11. For SKYACTIV-D 2.2 vehicles, perform the following procedure.

(1) Disconnect the quick release connector from the urea injector. (See UREA INJECTOR REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (See QUICK RELEASE CONNECTOR (EMISSION SYSTEM) REMOVAL/INSTALLATION [SKYACTIV-D 2.2].) (2) Remove the clips.



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- (3) Remove the bolts. (4) Disconnect the connector. (5) Set the NOx sensor No.1 side bracket aside. (6) Remove the bolts.



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- (7) Set the NOx sensor No.2 side bracket aside. (8) Remove the following parts as a single unit.

- NOx sensor No.1 side bracket
- NOx sensor No.2 side bracket

- SCR converter (See EXHAUST SYSTEM REMOVAL/INSTALLATION [SKYACTIV-D 2.2].)

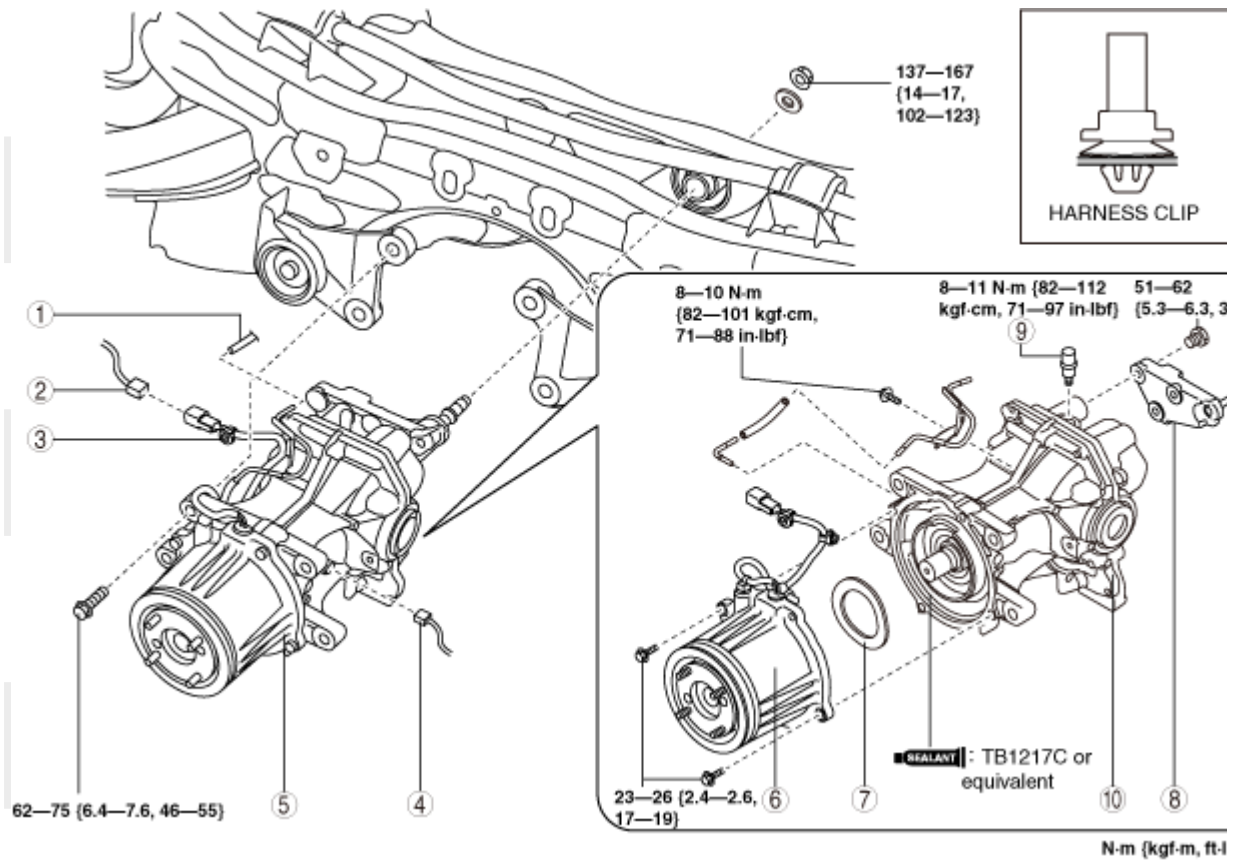
12. Remove the propeller shaft. (See PROPELLER SHAFT REMOVAL/INSTALLATION.)

13. Remove the rear drive shaft. (See REAR DRIVE SHAFT REMOVAL/INSTALLATION.)

14. Remove in the order indicated in the table.

15. Install in the reverse order of removal.

16. Add the specified rear differential oil. (See DIFFERENTIAL OIL REPLACEMENT.)



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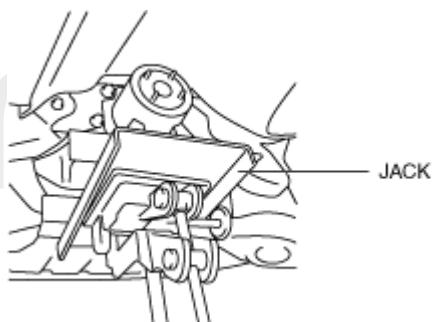
1	Hose
2	Connector (AWD solenoid)
3	Harness clip
4	Connector (differential oil temperature sensor)
5	Rear differential component (See Rear Differential Component Removal Note.)
6	Coupling component
7	Washer
8	Rear differential mounting bracket (See Rear Differential Mounting Bracket Installation Note.)
9	Breather
10	Rear differential

#### Rear Differential Component Removal Note

##### Warning

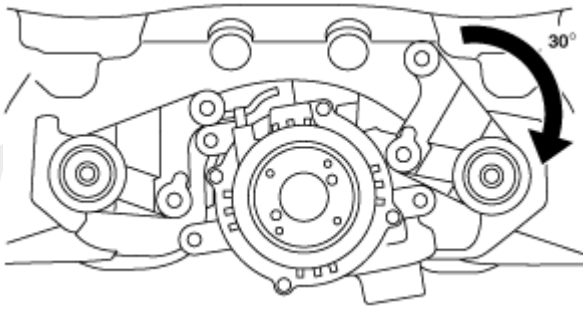
- Always verify that the rear differential component is securely supported by a jack. If the rear differential component falls off, it can cause serious injury or death, and damage to the vehicle.

1.Support the rear differential using a jack.



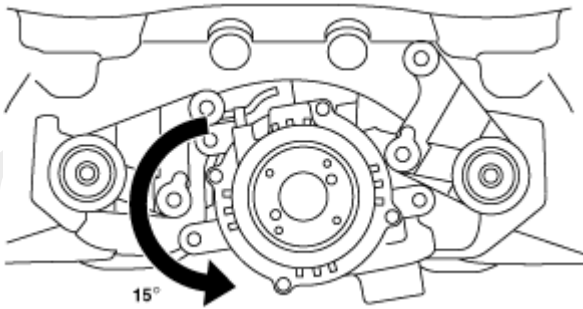
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2. Loosen the differential mounting bracket bolt and rotate the bracket as shown in the figure.



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3. Rotate the rear differential as shown in the figure, and then remove the rear differential.



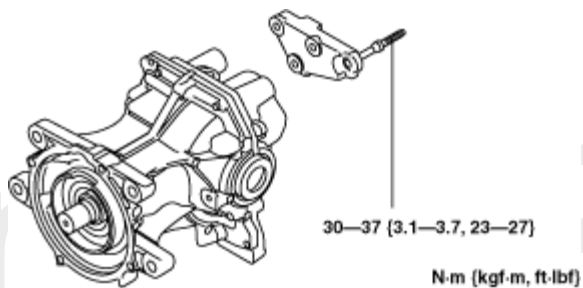
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#### Rear Differential Mounting Bracket Installation Note

##### Caution

- Retighten the rear differential mounting bracket stud bolt when the rear differential mounting bracket nut is loosened.

1. Tighten the rear differential mounting bracket stud bolt.



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Tightening torque

30-37 N·m {3.1-3.7 kgf·m, 23-27 ft·lbf}