FRONT AND REAR AXLES

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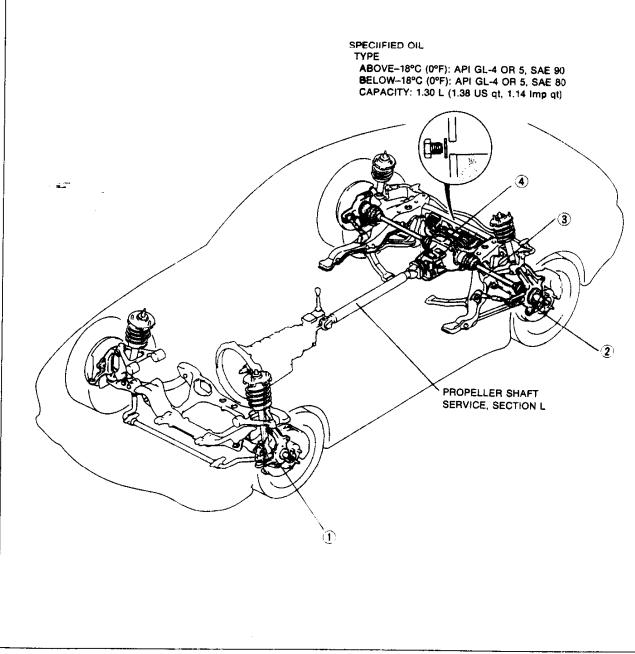
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Disassembly / Inspection /	13		-
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2. Rear axle	F3-		
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Assembly	page	M_1	2
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3. Drive shaft	
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О.	Drive shall		
	Preinspection	page	M–14
	Removal / Installation	bage	M-15
	Overhaull	page	M18
4.	Differential	. 0	
	Differential oil	page	M23
	Oil seal	page	M–24
	Removal / Installation	page	M27
	Disassemebly / Inspection	page	M-30
	Assembly	page	M-34

M-2

OUTLINE

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SPECIFICATION

	Engine / Transmission		13B	
ltem			MT	AT
Front ax	ile			
Bearing	type		Unitized angu	lar ball bearing
Rear ax	•			
Bearing	type		Unitized angu	lar ball bearing
Drive sh	aft			
Туре			Constant v	elocity joint
Length (between center	s of joints) mm {in}	484.2	{19.06}
Diameter	r	mm {in}	29.0	{1.14}
Different	ti al ini			
Туре	· · · · · · · · · · · · · · · · · · ·		Torque se	insing LSD
Reductio	on gear		Нуроі	d gear
Different	ntial gear		Worn	n gear
Reductio	n ratio		4.100	3.909
Number	of tooth	Ring gear	41	43
Number	UT LEELIT	Drive pinion gear	10	11
Ring gea	ar size	mm {in}	204.2	(8.038)
	Grade	mm {in}	API service	e GL-4 or 5
Oil	Viscosity		Above- 18°C	(0°F): SAE 90
00	Viscosity		Below- 18°C	(0°F): SAE 80
	Capacity	L {US at, Imp qt}	1.30 {1.	38, 1.14}

TROUBLESHOOTING GUIDE

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Problem	Possible Cause	Action	Page
Front axle			
Steering wheel vibration	Worn or damaged wheel bearing	Replace	M- 5
Pulls or one-sided braking	Worn or damaged wheel bearing	Replace	M- 5
Rear axle			
Abnormal noise	Worn or damaged wheel bearing Bent drive shaft Worn drive shaft spline	Replace Replace Replace	M-12 M-15 M-15
Differential			
Abnormal noise	Insufficient differential oil Incorrect differential oil Worn or damaged side bearing Worn or damaged ring gear Worn or damaged drive pinion bearing Worn or damaged gear in LSD assembly Worn side gear spline Improperly adjusted drive pinion gear preload Improperly adjusted ring gear backlash Poor contact of ring gear teeth	Add oil Replace Replace Replace Replace gear case Replace Adjust Adjust Adjust	M-23 M-23 M-30 M-30 M-30 M-30 M-30 M-38 M-39 M-41
Heat bildup	Insufficient differential oil Insufficient drive pinion gear backlash Excessive bearing preload	Add oil Adjust Adjust	M-23 M-39 M-38
Oil leakage	Excessive differential oil Worn or damaged oil seal Loose differential carrier	Remove oil Replace Tighten or repair	M-23 M-24 M-30
No differential operation	Misassembled or damageo	Repair or replace	M-30

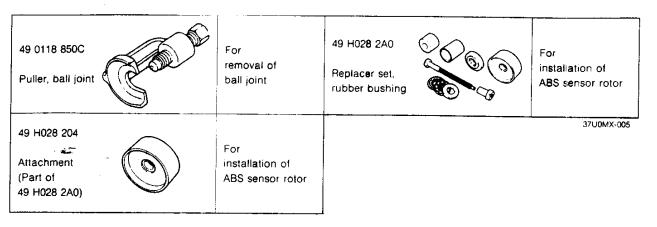
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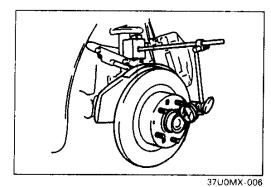
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FRONT AXLE

PREPARATION SST





WHEEL HUB / STEERING KNUCKLE Preinspection Wheel bearing play

- 1. Position a dial indicator against the wheel hub.
- 2. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
- 3. If the bearing play exceeds specification, check and adjust the wheel hub nut torque or replace the wheel hub assembly, if necessary.

Wheel bearing play: 0.05 mm {0.002 in} max.

Removal / Inspection / Installation

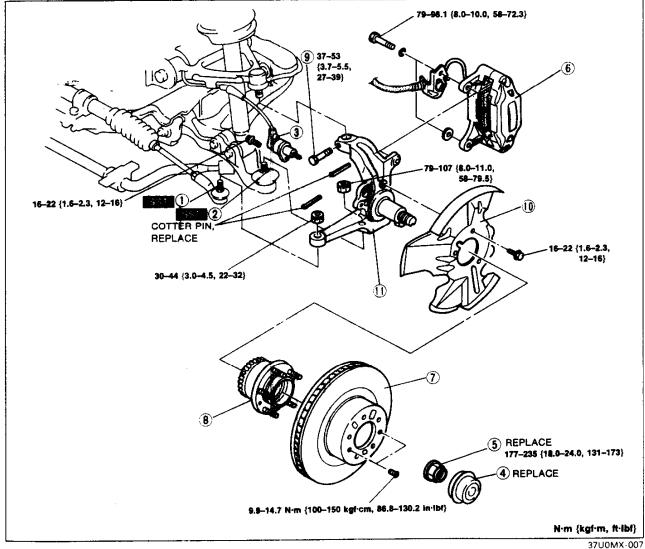
- 1. Jack up the front of the vehicle and support it on safety stands.
- 2. Remove the wheel.

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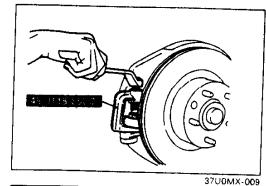
- 3. Remove in the order shown in the figure, referring to Removal Note.
- 4. Inspect all parts and repair or replace as necessary.
- 5. Install in the reverse order of removal, referring to Installation Note.
- 6. Install the wheel. (Tightening torque: 89--117 N·m {9.0-12.0 kgf·m, 65-86 in·lbf})
- 7. After installation, check the front wheel alignment. (Refer to Section R.)



1. Tie rod end ball joint
Removal Note page M-6
Service Section N
2. Lower arm ball joint
Removal Note page M-6
Service Section R
3. ABS wheel-speed sensor
Service Section P
4. Hub cap
5. Wheel hub nut
Installation Note page M6
6. Brake caliper assembly
Removal Note page M-6
Service Section P

- 7. Disc plate
- 10. Dust cover Inspect for cracks and damage
- 11. Steering knuckle Inspect for cracks and damage

M--5



Removal note Tie rod end ball joint

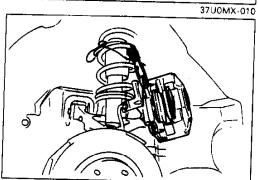
- 1. Loosen the tie rod end nut until it is flush with the enc of the stud.
- 2. With the nut protecting the tie rod end stud, separate the tie rod end from the steering knuckle by using the **SST**.

Lower arm ball joint

 Loosen the nut until it is flush with the end of the stud.
 With the nut protecting the ball joint stud, separate the ball joint from the knuckle by using the SST.

Brake caliper assembly

Hang the brake caliper assembly out of the way as shown in the figure.



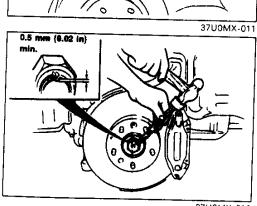
Installation note Wheel hub nut

1. Install a new hub nut and stake it as shown.

Tightening terque: 177-235 N·m {18.0--24.0 kgf·m, 131--173 ft·lbf}

2. Measure the wheel bearing play. (Refer to page M-4.)

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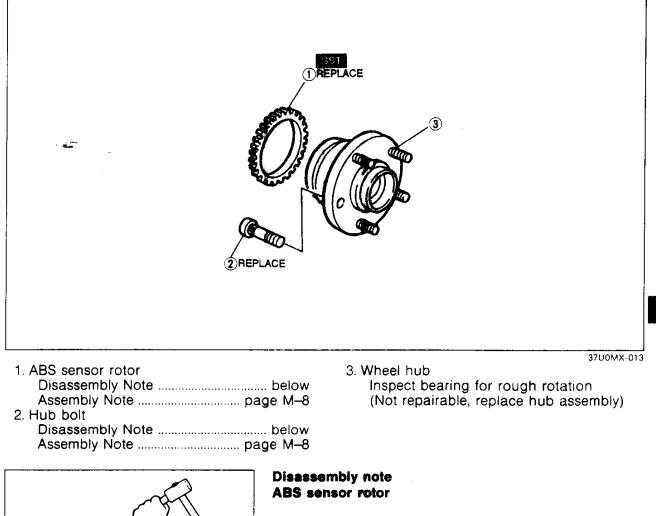
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Disassembly / Inspection / Assembly

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- 1. Disassemble in the order shown in the figure, referring to Disassembly Note.
- 2. Inspect all parts and repair or replace as necessary.
- 3. Assemble in the reverse order of disassembly, referring to Assembly Note.



Caution

- Do not remove the sensor rotor if not necessary.
- Do not reuse the sensor rotor if removed.

Remove the sensor rotor by using a brass bar and a hammer.

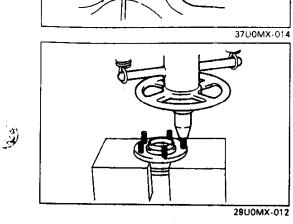
Hub bolt

Caution

- Do not remove the hub bolts if not necessary.
- Do not reuse the hub bolts if removed.

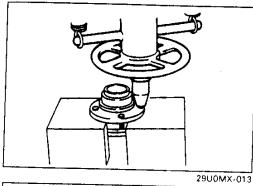
Remove the hub bolts by using a press.

M-7



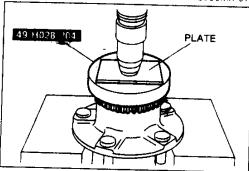
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FRONT AXLE



Assembly note Hub bolt

Press in new hub bolts.



ABS sensor rotor

Press on the new sensor rotor by using the SST.

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Sector sectors and

REAR AXLE

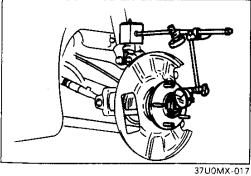
PREPARATION

SST

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49 G033 102 Handle	For removal of axle flange	49 G033 105 Attachment	For removal of axle flange
49 F026 103-	For removal of axle flange	49 F027 0A1 Installer set, bearing	For removal of wheel bearing and installation of axle flange
49 F027 004 Attachment (Part of 49 F027 0A1)	For installation of wheel bearing	49 F027 005 Attachment (part of 49 F027 0A1)	For removal of wheel bearing and installation of axle flange
49 H034 201 Block, support	For installation of wheel bearing		37U0MX-016



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WHEEL HUB Preinspection Wheel bearing play

- 1. Position a dial indicator against the wheel hub.
- 2. Push and pull the wheel hub by hand in the axial direction and measure the wheel bearing play.
- 3. If the bearing play exceeds specification, check and adjust the wheel hub nut torque or replace the wheel bearing, if necessary.

Wheel bearing play: 0.05 mm {0.002 in} max.

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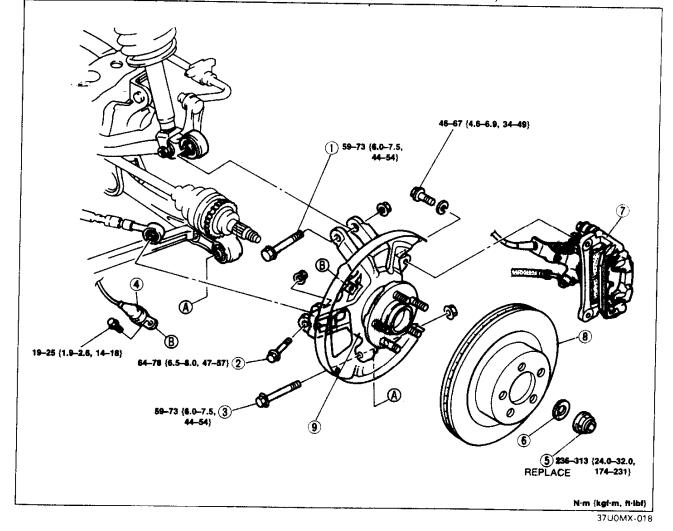
REAR AXLE

Removal / Inspection / Installation

- 1. Jack up the rear of the vehicle and support it on safety stands.
- 2. Remove the wheel.

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- 3. Remove in the order shown in the figure, referring to Removal Note.
- 4. Inspect all parts and repair or replace as necessary.
- 5. Install in the reverse order of removal, referring to installation Note.
- 6. Install the wheel. (Tightening torque: 89-117 N m {9.0-12.0 kgf m, 65-86 ft lbf})
- 7. After installation, check the rear wheel alignment. (Refer to Section R.)



1. Bolt (upper arm)

2. Bolt (toe control link)

and the second second

- 3. Bolt (I-arm)
- 4. ABS wheel-speed sensor

Installation Note page M-11 6. Washer

7. Brake caliper assembly	
Removal Note	page M-11
Service	Section P
8. Disc plate	
Service	Section P
9. Rear hub support assembly	
Removal Note	page M-11
Disassembly / Inspection /	
Assembly	page M-12

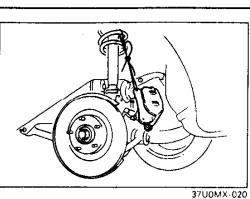
M-10

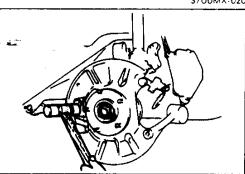
REAR AXLE

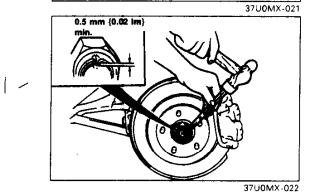




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Removal note Brake caliper assembly

Hang the brake caliper assembly as shown in the figure.

Rear hub support assembly

Note

 If the drive shaft is stuck to the wheel hub, install a used nut until it is flush with the end of the shaft. Tap the nut with a brass hammer to drive out the drive shaft.

Installation note Wheel hub nut

1. Install a new hub nut and stake it as shown.

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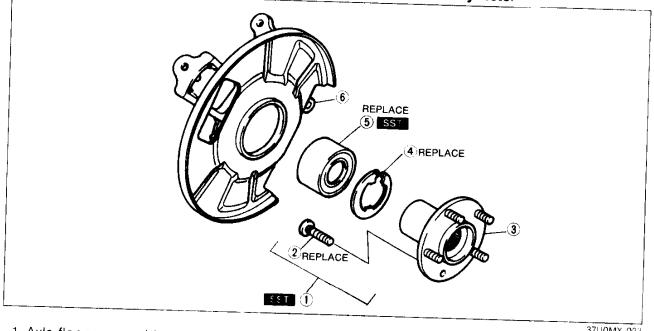
Tightening torque:

236-313 N·m {24.0--32.0 kgf·m, 174--231 ft·lbf}

2. Check the wheel bearing play. (Refer to page M-9.)

Disassembly / Inspection / Assembly

- 1. Disassemble in the order shown in the figure, referring to Disassembly Note.
- 2. Inspect all parts and repair or replace as necessary.
- 3. Assemble in the reverse order of disassembly, referring to Assembly Note.



L Axle flange assembly
Disassembly Note
Assembly Note
Disassembly Note page M-13 Assembly Note page M-13

- 3. Axle flange
- Inspect for cracks and damage
- 4 Retaining ring 5 Wheel bearing Disassembly Note page M-13 Assembly Note page M-13

37U0MX-023

6. Rear hub support assembly Inspect for cracks and damage

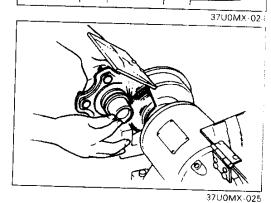


Disassembly note Axle flange assembly

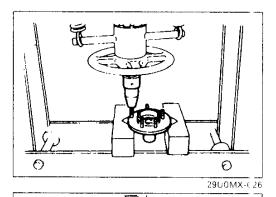
1. Remove the axle flange assembly by using the SST.

Caution

- Do not damage the axle flange.
- 2. Grind a section of the bearing race until approx. 0.5 mm {0.02 in} thickness remains.
- 3. Cut the race by using a chisel and remove it.



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Hub bolt

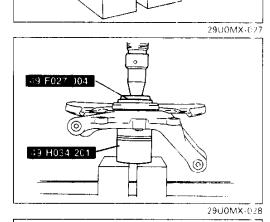
Caution

- Do not remove the hub bolts if not necessary.
- Do not reuse the hub bolts if removed.

Remove the hub bolts by using a press.

Wheel bearing

Remove the wheel bearing by using the SST.



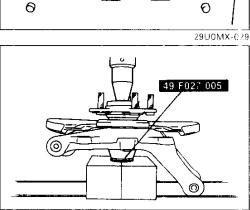
49 H034 201

Assembly note Wheel bearing

Install the new wheel bearing by using the SST.

Hub bolt

Press in new hub bolts.



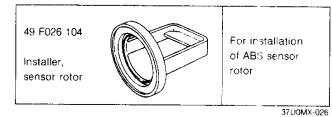
29U0MX-030

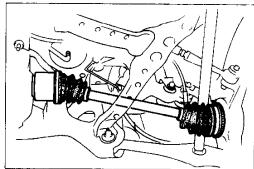
Axle flange assembly

Install the axle flange assembly by using the SST.

DRIVE SHAFT

PREPARATION





(TRIPOD JOINT) Preinspection Drive shaft 1. Check the dus

DRIVE SHAFT

- 1. Check the dust boot on the drive shaft for cracks, damage, grease leakage, and a loose boot band.
- 2. Check the drive shaft for bending, cracks, and wear of the joints and splines.

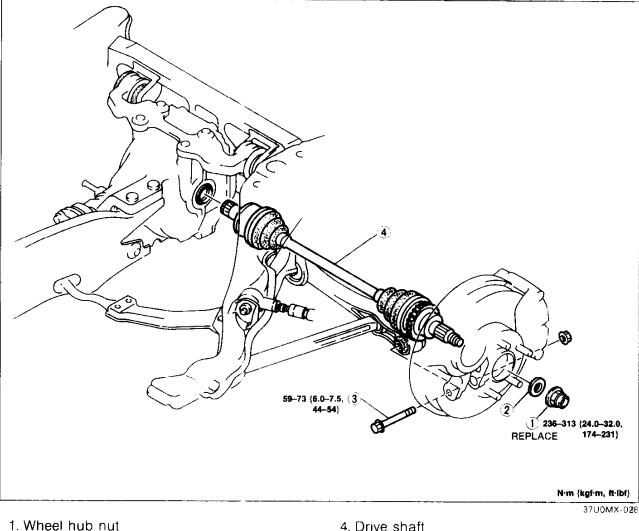
week obtain the average of the constraints.

3. Repair or replace the drive shaft as necessary.

37U0MX-027

Removal / Installation

- 1. Jack up the rear of the vehicle and support it on safety stands.
- 2. Remove the wheel.
- 3. Remove in the order shown in the figure, referring to Removal Note.
- 4. Install in the reverse order of removal, referring to Installation Note.
- 5. Install the wheel. (Tightening torque: 89-117 N·m {9.0-12.0 kgf·m, 65-86 ft·lbf})
- 6. Check the rear wheel alignment. (Refer to Section R.)



- 2 Washer
- 3. Bolt (I-arm)

. Drive shaft		
Removal Note	page	M-16
Installation Note		
Overhaul	page	M-18

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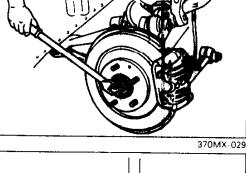


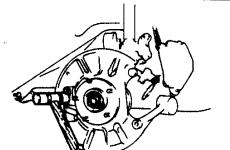
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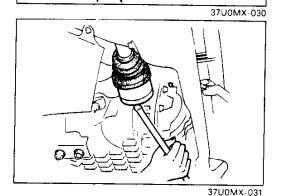
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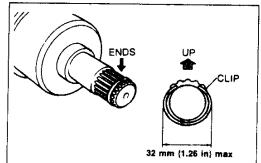












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DRIVE SHAFT

Removal note Wheel hub nut

Caution

• Do not damage the drive shaft.

- 1. Raise the staked portion of the hub nut by usin chisel.
- 2. Lock the hub by applying the parking brakes.
- 3. Remove the hub nut.

Drive shaft

Note

- If the drive shaft is stuck in the rear hub support install a used nut until it is flush with the end of shaft. Tap the nut with a brass hammer to drive the drive shaft.
- 1. Pull the rear hub support from the drive shaft.

Caution

- Do not damage the oil seal.
- 2. Remove the drive shaft from the differential by using pry bar.

installation note Drive shaft

Caution

- Do not excessively spread the clip when installi it.
- Measure the outside diameter of the clip aff installing it on the shaft. Replace the clip if exceeds the specification.
- 1. Install a new clip on the drive shaft.

Caution

Do not damage the oil seal.

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2. With the ends of the clip facing upward, push the dri shaft into the differential.

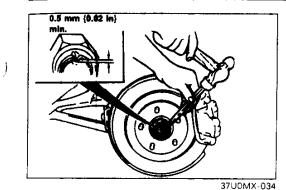
Note

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• After installation, pull outward on the tripod joi outer ring and verify that the drive shaft is held t the clip.

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M-16



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Wheel hub nut

1. Install a new hub nut and stake it as shown.

Tightening torque: 286–31\$ N·m {24.0–32.0 kgf·m, 174–231 ft·lbf}

2. Check the wheel bearing play. (Refer to page M-9.)

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Overhaul

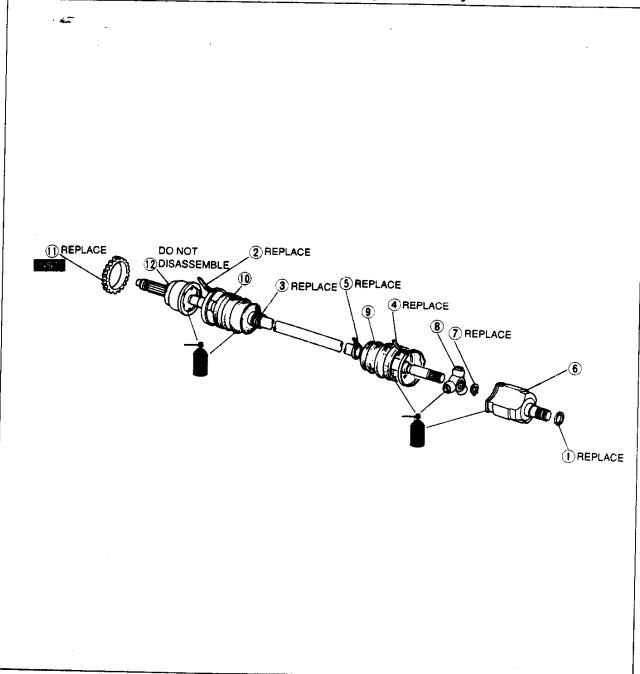
Caution

- Secure the joint in a vise with protective material (such as aluminum plates) on the vise jaws.
- Be careful that dust or other foreign material does not enter the joint while the work is being performed.
- Do not disassemble the wheel side ball joint.
- · Do not wash the joint unless it is being disassembled.

1. Disassemble in the order shown in the figure, referring to Disassembly Note.

2. Inspect all parts and repair or replace as necessary.

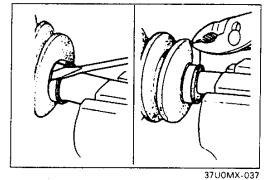
3. Assemble in the reverse order of disassembly, referring to Assembly Note.



1. Clip
2. Boot band
Disassembly Note below
Assembly Note page M-21
3. Boot band
Disassembly Note below
Assembly Note page M-21
4. Boot band
Disassembly Note
Assembly Note page M-21
5. Boot band
Disassembly Note below
Assembly Note page M-21
6. Outer ring
Disessembly Note below
Inspect inside bore for wear,
corrosion, and scoring
Assembly Note page M-21
7. Snap ring
Disassembly Note below
Assembly Note page M-21
-

8. Tripod joint
Disassembly Note below
Inspect for wear and damage
Assembly Note page M-21
9. Boot
Disassembly Note page M-20
Inspect for damage
Assembly Note page M-20
10. Boot
Disassembly Note page M-20
Inspect for damage
Assembly Note
11. ABS sensor rotor
Disassembly Note page M-20
Assembly Note page M-20
12. Shaft and ball joint assembly
Inspect splines for damage and wear
Inspect wheel-side joint for excessive
play and rough rotation.

37U0MX-036



MARKS

Disassembly note Boot band

Caution

- Do not remove the wheel side boot band if not necessary.
- 1. Pry up the locking tabs of the boot band by using a screwdriver.
- 2. Remove the band by using pliers.

Outer ring

Mark the outer ring and the shaft for proper reassembly.

Snap ring / Tripod joint

- 1. Mark the shaft and tripod joint for proper reassembly.
- 2. Remove the snap ring by using snap-ring pliers.

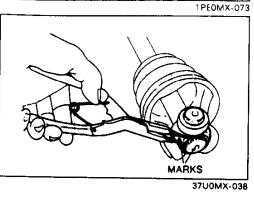
Caution

- Do not damage the bearings.
- 3. Drive the tripod joint from the shaft by using a bar and a hammer.

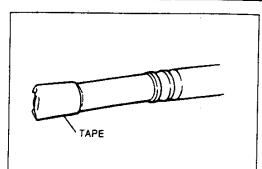


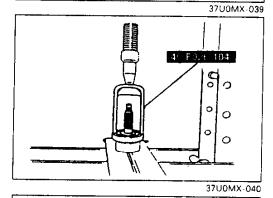
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M-19





DIFFERENTAL SIDE

(B) 100.5 mm (3.957 in)

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WHEEL SIDE

A 105.3 mm (4.146 in)

Boot

Caution

• Do not remove the wheel side boot if not necessary.

Wrap the splines of the shaft with tape to prevent damaging the boot.

ABS sensor rotor

Caution

1PEDMX-075

- Do not remove the sensor rotor if not necessary.
- Do not reuse the sensor rotor if removed.

Tap the sensor rotor off the drive shaft by using a chisel and a hammer.

Assembly note ABS sensor rotor

Set a new sensor rotor on the drive shaft and press it on by using the **SST**.

Boot

Caution

- The wheel-side and differential side boots are different. Do not misassemble them.

(A)

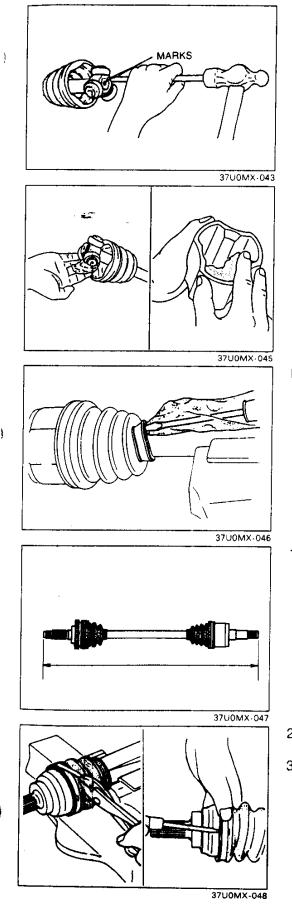
1. Wrap the splines of the differential side shaft, and install the boot.

Caution

- Use the specified grease that it is supplied in the boot and joint kits.
- 2. Fill the wheel side boot with the specified grease.

Grease amount: 100-120g (3.53-4.23 oz)

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Tripod joint / Snap ring

Caution

Do not damage the bearing.

- 1. Align the marks and install the tripod joint by using a bar and a hammer.
- 2. Install a new snap ring by using snap-ring pliers.

Outer ring

Caution

 Use the specified grease that it is supplied in the boot and joint kits.

Fill the outer ring and boot (differential side) with the specified grease.

Grease amount: 170-190g (6.01-6.70 oz)

Boot band

Caution

- . Be sure the boot is not dented or twisted.
- Carefully lift up the small end of the boot to release any trapped air.
- 1. Measure the length of drive shaft,

Drive shaft length: 791.2-801.2 mm {31.15-31.54 in}

- 2. Fold the new boot band back by pulling on the end with pliers.
- 3. Lock the end of the boot band by bending the locking tabs.
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M-21

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DIFFERENTIAL

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PREPARATION SST

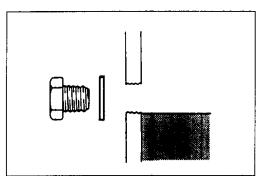
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49 V001 795 Installer, oil seal	For installation of oil seal (companion flange)	49 B001 795 Installer, oil seal	For installation of oil seal (s ide bearing)	
49 U027 003 Installer, oil seal	For installation of oil seal (side bearing)	49 B001 797 Handle (Part of 49 B001 795)	For installation of oil seal (side bearing)	
49 M005 561 Hanger, differential carrier	For disassembly / assembly of differential	49 0107 680A Stand, engine	For disassembly / assembly of differential	
49 S120 710 Holder, coupling flange	For removal / installation of companion flange nut	49 0839 425C Puller set, bearing	For Removal of companion flange and side bearing	÷
49 H027 002 Remover, bearing	For removal of rear bearing	49 UB71 525 Installer, bearing	For installation of side bearing	
49 J027 002 Collar	For adjustment of pinion h ei ght	49 J027 001 Installer, bearing	For installation of rear bearing race	
49 F027 007 Attachment φ 72	For installation of front bearing race	49 8531 567 Collar A (Part of 49 8531 565)	For adjustment of pinion height	
49 8531 565 Dinion model (C) (C) (C) (C)	For adjustment of pinion height	49 0660 555 Gauge block (Part of 49 F027 0A0)	For adjustment of pinion height	© j

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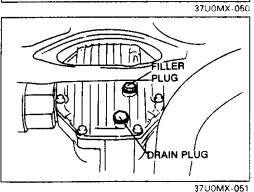
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49 F027 0A0 Gauge set, pinion height adjustment	For adjustment of pinion height	49 F401 330B Installer set, bearing	For installation of rear bearing
49 0727 570 Gauge body, pinion height (Part of 49 F027 0A0)	For adjustment of pinion height	49 G030 338 Attachment E	For installation of rear bearing
49 F401 331 Body (Part of 49 F401 330B)	For installation of rear bearing		37U0MX-049



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DIFFERENTIAL OIL Inspection

Caution

• Position the vehicle level.

- 1. Remove the filler plug.
- 2. Verify that the oil is at the bottom of the filler plug hole. If it is low, add the specified oil.
- 3. Install a new washer and the filler plug.

Tightening torque: 39-53 N·m {4:0-5.5 kgf·m, 29-39 ft·lbf}

Replacement

- 1. Remove the filler and drain plugs.
- 2. Drain the differential oil into a suitable container.
- 3. Wipe the plugs clean.
- 4. Install a new washer and the drain plug.

Tightening torque: 39-53 N·m {4.0-5.5 kgf·m, 29-39 ft·lbf}

5. Add the specified oil from the filler plug hole unit it reaches the bottom of the hole.

Specified oil

Туре

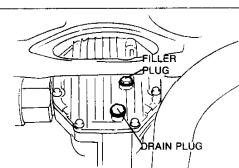
Above - 18°C {0°F}: API GL-4 or 5, SAE 90 Below - 18°C {0°F}: API GL-4 or 5, SAE 80 Capacity: 1.30 L {1.38 US gt, 1.14 imp gt}

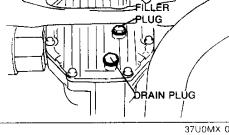
6. Install a new washer and the filler plug.

Tightening torque: 39-58 N·m {4,0-5.5 kgf·m, 29-39 ft·lbf}

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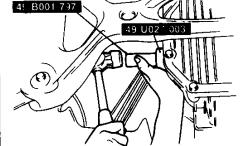
DIFFERENTIAL

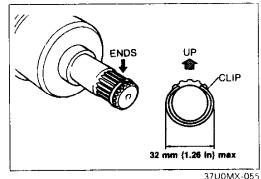


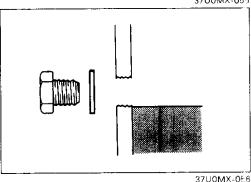












OIL SEAL

Replacement Oil seal (side bearing)

- 1. Remove the filler and drain plugs.
- 2. Drain the differential oil into a suitable container.
- 3. Wipe the plugs clean.
- 4. Install a new washer and the drain plug.

Tightening torque: 39-53 N·m {4.0-5.5 kgf·m, 29-39 ft-lbf}

- 5. Remove the drive shaft. (Refer to page M-15.)
- 6. Remove the clip from the drive shaft.

Caution

- Use a screwdriver covered with a rag to prevent damaging the differential carrier.
- 7. Prv out the oil seal.
- 8. Apply clean differential oil to the lip of a new oil seal.
- 9. Install the oil seal by using the SST.

Caution

37U0MX-05-1

- Measure the outside diameter of the clip after installing it on the shaft. Replace the clip if it exceeds the specification.
- 10. Install a new clip onto the drive shaft.

Caution

• Do not damage the oil seal.

- 11. Install the drive shaft with the ends of the clip facing upward.
- 12. Verify that the drive shaft is seated into the side gear by pulling it outward by hand. It should not come out.
- 13. Add the specified oil through the filler plug hole until it reaches the bottom of the hole.

Specified oil

Type

Above - 18°C {0°F}: API GL-4 or 5, SAE 90 Below - 18°C {0°F}: API GL-4 or 5, SAE 80 Capacity: 1.30 L {1.38 US qt, 1.14 Imp qt}

14. Install a new washer and the filler plug.

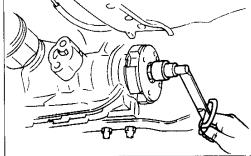
Tightening torque: 39-54 N·m {4.0-5.5 kgf·m, 29-40 ft·lbf}

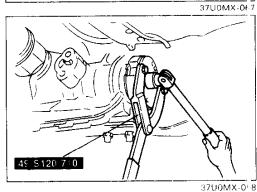
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15. Check for oil leakage.









- **Oil seal (companion flange)**
- 1. Remove the filler and drain plugs.
- 2. Drain the differential oil into a suitable container.
- 3. Wipe the plugs clean.
- 4. Install a new washer and the drain plug.

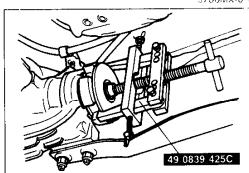
Tightening torque: 40-53 N·m {4.0-5.5 kgf·m, 29-39 ft·lbf}

- 5. Mark the propeller shaft and differential companion flange for proper reinstallation.
- 6. Remove the nuts and bolts and remove the propeller shaft.
- 7. Measure and record the rotation staring torque of the drive pinion.

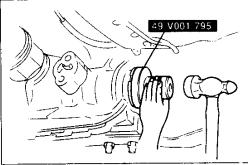
Note

- Measure the torque within the range of the drive pinion backlash.
- 8. Using the SST to hold the companion flange, remove the nut.

9. Use the SST to remove the companion flange. 10. Remove the oil seal by using a screwdriver.



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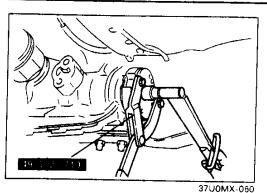
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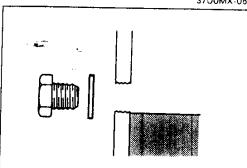
11. Apply clean differential oil to the lip of the new oil seal. 12. Install the oil seal by using the SST.

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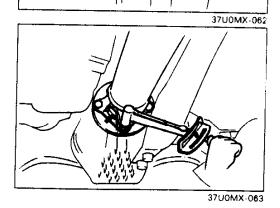


DIFFERENTIAL





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13. Using the **SST**, hold the companion flange and tighten the new companion flange nut to the specified torque.

Tightening torque:

128-284 N·m {13.0-29.0 kgf·m, 94.1-209 ft·lbf}

- 14. Loosen the nut. Retighten it to get the starting torque recorded in Step 7.
- 15. Add the specified oil through the filler plug hole un il it reaches the bottom of the hole.

Specified oil

Type Above -- 18°C {0°F}: API GL-4 or 5, SAE 90 Below -- 18°C {0°F}: API GL-4 or 5, SAE 80 Capacity: 1.30 L {1.38 US qt, 1.14 imp qt}

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16. Install a new washer and the filler plug.

Tightening torque: 40-58 N·m {4.0-5.5 kgf·m, 29-39 ft·lbf}

17. Check for oil leakage.

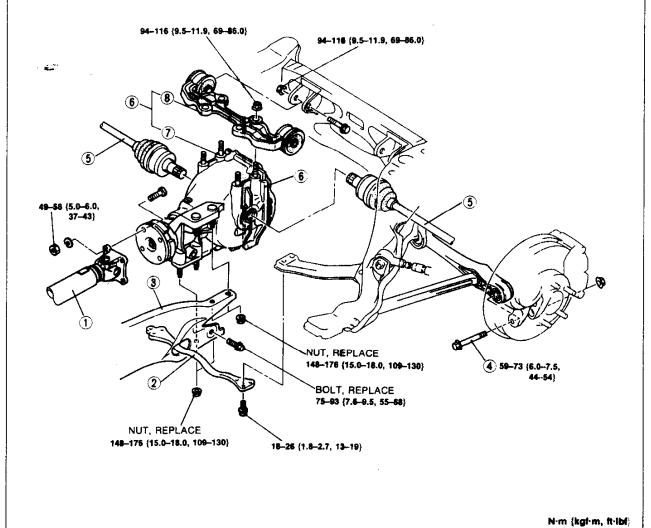
18. Align the marks and install the propeller shaft.

Tightening torque: 49-58 N·m {5.0-6.0 kgf·m, 37-43 ft·lbf}

DIFFERENTIAL (TORQUE SENSING LSD)

Removal / Installation

- 1 Remove the exhaust pipe. (Refer to Seciton F.)
- 2. Remove in the order shown in the figure, referring to Removal Note.
- 3. Install in the reverse order of removal, referring to Installation Note.
- 4. After installation, check the rear wheel alignment. (Refer to Section R.)
- 5. Refill the differential with the specified type and amount of oil. (Refer to page M-23.)
- 6. Install the exhaust pipe. (Refer to Seciton F.)



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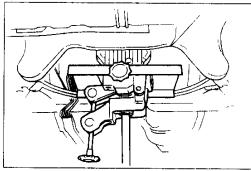
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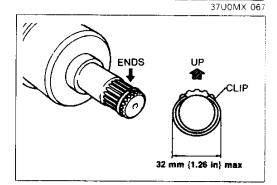
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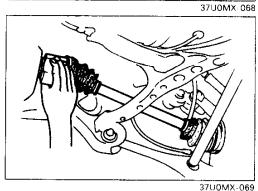
4. Bolt (I-arm)

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Removal note Propeller shaft

- 1. Mark the propeller shaft and differential companion flange for proper reassembly.
- 2. Remove the nuts and bolts and remove the propeller shaft.

Drive shaft

Caution

- Do not damage the oil seal.
- 1. Remove the drive shaft from the differential by using a pry bar.
- 2. Pull outward on the rear hub support and disc plate to disconnect the drive shaft from the differential.

Differential assembly

- 1. Support the differential on a jack.
- 2. Remove the differential.

Installation note Drive shaft

Caution

- Do not excessively spread the clip when installing it.
- Measure the outside diameter of the clip after installing it on the shaft. Replace the clip if it exceeds the specification.
- 1. Install a new clip on the drive shaft.

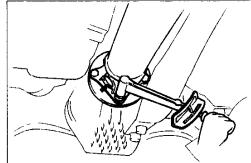
Caution

- Do not damage the oil seal.
- 2. With the ends of the clip facing upward, push the drive shaft into the differential.

Note

• After installation, pull outward on the tripod joint outer ring and verify that the drive shaft is held by the clip.

M-28



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Propeller shaft

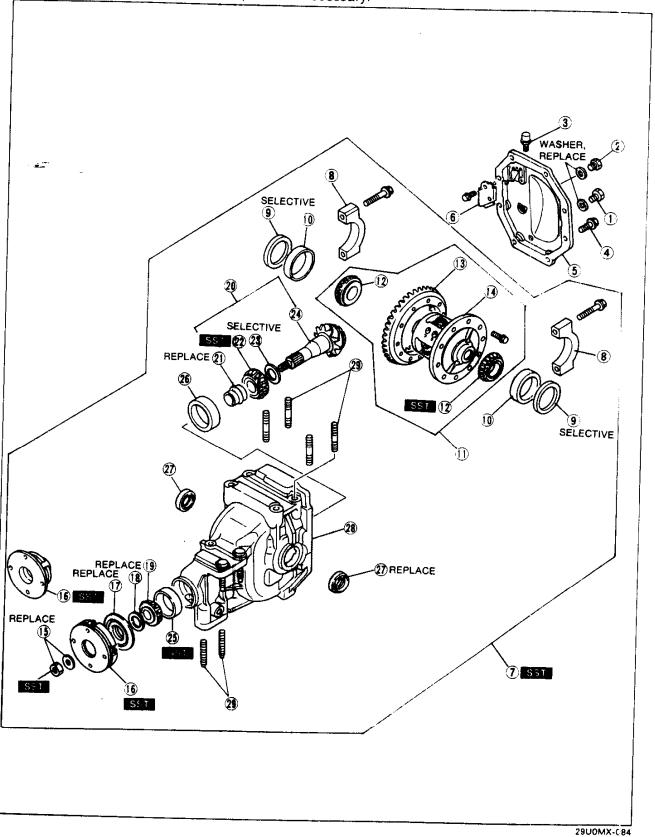
Align the marks and install the propeller shaft.

Tightening torque: 49-59 N·m {5.0-6.0 kgf·m, 37-43 ft·lbf}

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Disassembly / Inspection

- 1. Disassemble in the order shown in the figure, referring to **Disassembly Note**.
- 2. Inspect all parts and repair or replace as necessary.



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- 1. Drain plug
- 2. Filler plug
- 3. Breather
- Inspect for clogging
- 4. Carrier bolt
- 5. Rear cover
- 6. Baffle

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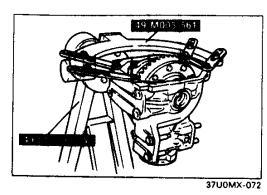
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- 7. Differential gear assembly Disassembly Note below
- 8. Bearing cap Disassembly Note page M-32
- 9. Adjustment shim Disassembly Note page M-32
- 11. Gear casë assembly
- 12. Side bearing
 Disassembly Note page M-32
 Inspect for damage and rough rotation
 13. Ring gear
- Inspect gear teeth for wear and cracks 14. Gear case (Torsen LSD assembly)
- Inspect gear teeth for wear and cracks Inspect housing for cracks and damage
- 15. Companion flange nut and washer Disassembly Note page M-32

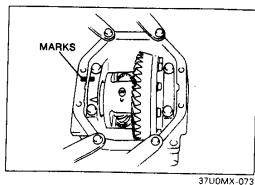
- 16. Companion flange
- Disassembly Note page M-33 17. Oil seal (companion flange)
- 18. Spacer
- 19. Front bearing
- Inspect for damage and rough rotation 20. Drive pinion assembly
- Disassembly Note page M-33
- 21. Collapsible spacer
- 22. Rear bearing Disassembly Note page M-33 Inspect for damage and rough rotation
- 23. Spacer
- 24. Drive pinion Inspect splines for wear and damage Inspect gear teeth for wear and cracks
- 25. Front bearing race Disassembly Note page M-33 Inspect for cracks and damage
- 26. Rear bearing race Disassembly Note page M--33 Inspect for cracks and damage
- 27. Oil seal (side bearing)
- 28. Differential carrier
- Inspect for cracks and damage 29. Stud
- 29. Stud

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Disassembly note Differential gear assembly

Mount the differential gear assembly on the SSTs.



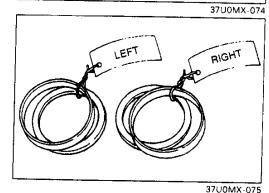
Bearing cap

- 1. Mark the bearing caps and differential carrier for proper reassembly.
- 2. Remove the bearing caps.

Adjustment shim and side bearing race

Caution

- Do not damage the oil seal, bearing race, or differential carrier.
- Do not push against the bearing races.
- 1. Drive out the an adjustment shim. Remove the gear case assembly, the side bearing races, and the other adjustment shim.
- 2. Tag the right and left adjustment shims and side bearing races for proper reassembly.



Side bearing

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Caution

- Mark the side bearings for right and left side.
- Use protective plates in a vise.

Remove the side bearings from the gear case by using the **SST**.

Companion flange nut

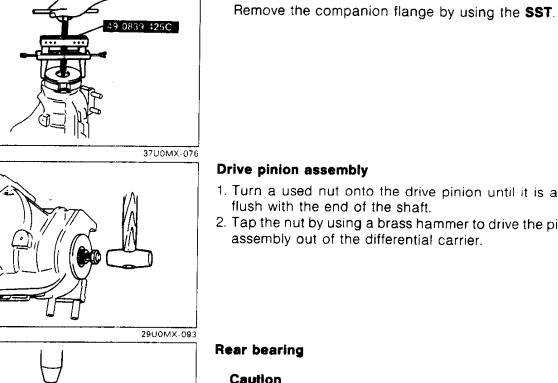
Hold the companion flange by using the **SST** and remove the nut.

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Companion flange



1. Turn a used nut onto the drive pinion until it is about

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2. Tap the nut by using a brass hammer to drive the pinion assembly out of the differential carrier.

Caution

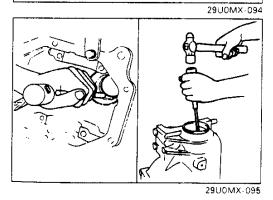
 Support the drive pinion by hand so that it will not fall.

Remove the rear bearing by using the SST.

Front bearing race and rear bearing race

Remove the bearing races by alternately tapping the sides of the races at the grooves in the differential carrier.

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M-33

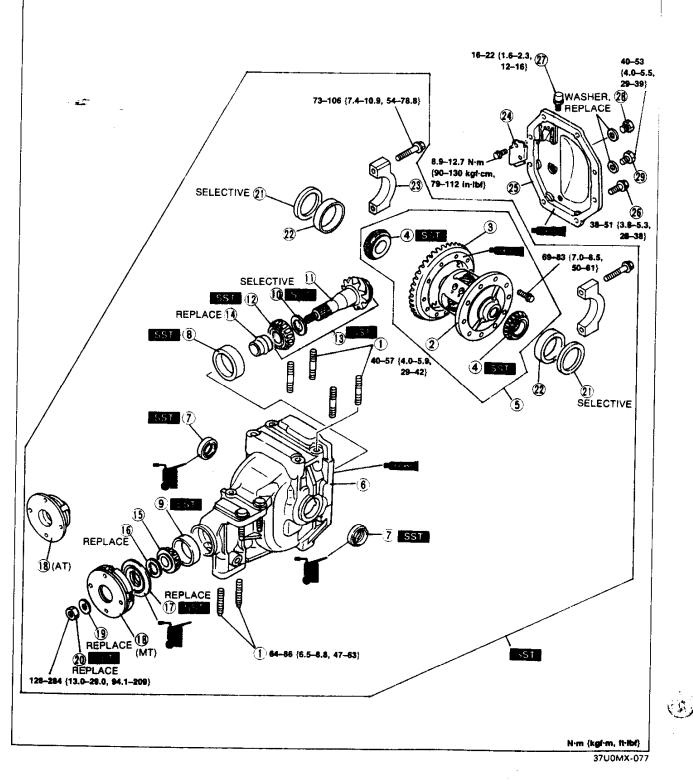
Assembly

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Caution

• Install the rear cover within 10 minutes after applying sealant. Allow the sealant to set at least 30 minutes after installation before filling the differential with the specified oil.

Assemble in the other shown in the figure, referring to Assembly Note.



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1. Stud
2. Gear case (Torsen LSD assembly)
3. Ring gear
Assembly Note page M-35
4. Side bearing
Assembly Note
5. Gear case assembly
6. Differential carrier
7. Oil seal (side gear)
Assembly Note page M-35
8. Rear bearing race
Assembly Note page M-36 9. Front bearing race
Assembly Note page M-36
Assembly Note page M-36
11. Drive pinion
12. Rear bearing
Assembly Note page M-37
13. Drive pinion assembly
Assembly Note
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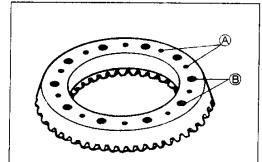
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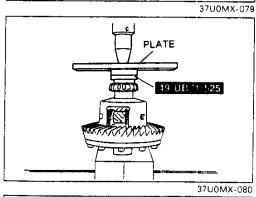
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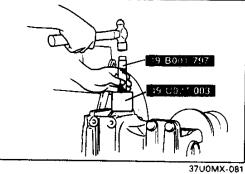
14. Collapsible spacer
15. Front bearing
16. Spacer
17. Oil seal (companion flange)
Assembly Note page M-38
18.Companion flange
Assemble Note page M-38
19. Washer
20. Companion flange nut
Assembly Note page M-39
21. Adjustment shim
Assembly Note page M-39
22. Side bearing race
23. Bearing cap
Assemble Note page M-40
24. Baffle
25. Rear cover
26. Carrier bolt
27. Breather
28. Filler plug
29. Drain plug



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Assembly note Ring gear

Note

- Apply approx. 0.04 cc {0.0024 cu in} of threadlocking compound at each point.
- 1. Apply thread-locking compound to bolt threads A and points B of the gear back face.
- 2. Install the ring gear onto the gear case.

Tightening torque: 69–83 N·m {7.0–8.5 kgf·m, 50–61 ft·lbf}

Side bearing

Caution

• Do not mistake the right and left bearings

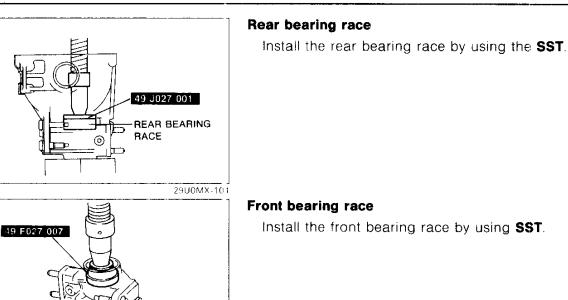
Press the side bearings on by using the SST.

Oil seal

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- 1. Apply differential oil to the lips of the new seals.
- 2. Install the seals by using the SST.

DIFFERENTIAL



Spacer (adjustment of pinion height)

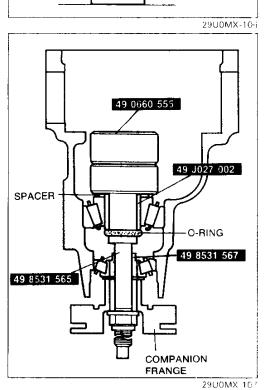
Note

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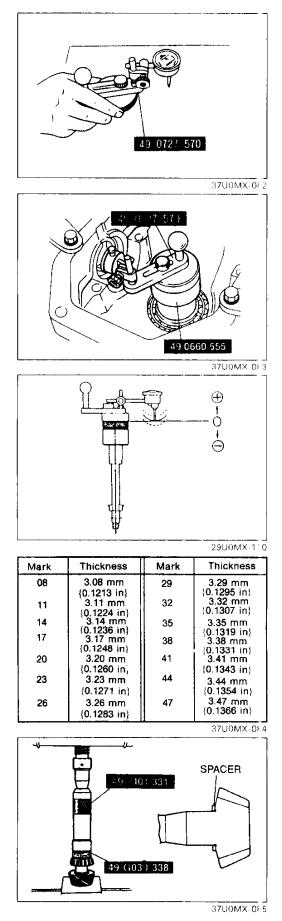
- Use the spacer that was removed.
- Install the spacer with the beveled side facing the drive pinion.
- 1. Install the spacer, rear bearing and O-ring onto the **SST** as shown in the figure.
- 2 Install this assembly into the differential carrier.
- 3. Install the **SST** (collar), front bearing, companion flange, washer and nut.
- 4. Tighten the nut just enough so that the companion flange can still be turned by hand.
- 5. Place the **SST** (gauge block) atop the **SST** (pinion model).



O-RING

SPACER

M--36



6. Place the **SST** on a surface plate and set the dial indicator to Zero.

- 7. Set the SST (gauge body) atop the SST (gauge block).
- 8. Place the feeler of the dial indicator so that it contacts the side bearing saddle in the carrier. Measure the lowest position on the left and right sides of the carrier.

9. Add the two (left and right) values obtained in Step 8 and divide the total by 2.

Specification : 0 mm {0 in}

Note

- Spacers are available in increments of 0.03 mm {0.002 in}. Select the spacer thickness that is closest to that necessary.
- 10. If not within specification, adjust the pinion height by installing the proper spacer.

Rear bearing

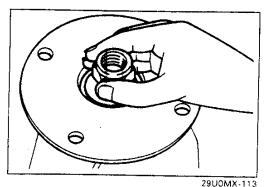
Note

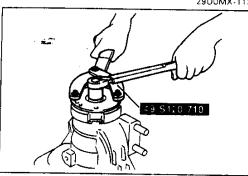
- Install the spacer selected by the adjustment of pinion height.
- Install the spacer with the beveled side facing the drive pinion.
- Press on until the force required suddenly increases.

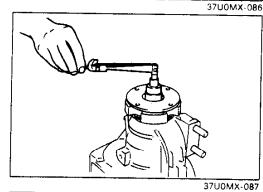
Press on the spacer and rear bearing by using the SST.

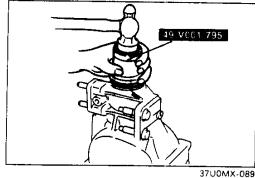
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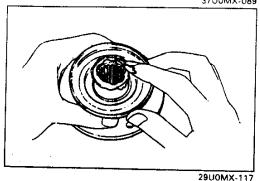
DIFFERENTIAL











M-38

Drive pinion assembly (adjustment of drive pinion preload)

Note

- Perform the following procedure without the companion flange oil seal installed.
- 1. Apply a light coat of grease to the end face of the companion flange.
- 2. Install the drive pinion assembly in the differential carrier.
- 3. Install a new collapsible spacer, front bearing, new front spacer, companion flange, and new washer.
- 4. Temporarily tighten the new companion flange nut.
- 5. Hold the companion flange by using the SST and tighten the nut.

Tightening torque: 128 N·m {13 kgf·m, 94.1 ft·lbf}

- 6. Turn the companion flange several turns by hand to seat the bearings.
- 7. Measure the drive pinion preload.

Note

- Record the tightening torque for proper reinstallation of the companion flange.
- 8. Adjust the preload by tightening the nut and record the tightening torque.

Drive pinion preload:

1.3–1.8 N·m {13–18 kgf-cm, 12–15 in·lbf} Tightening torque:

- 128-284 N·m {13.0-29.0 kgf·m, 94.1--209 ft·lbf}
- 9. If the specified preload is not obtained after tightening the nut to the maximum torque, replace the collapsible spacer with a new one.
- 10. Remove the nut, washer, and companion flange.

Oil seal (companion flange)

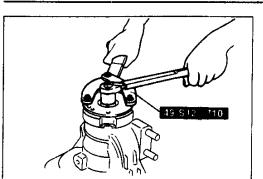
- 1. Apply clean differential oil to the lip of the new oil sea .
- 2. Install the oil seal by using the SST.

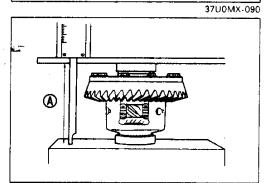
Companion flange

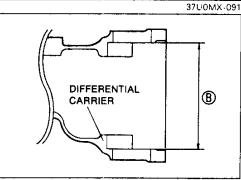
Apply a light coat of grease to the end face of the companion flange.

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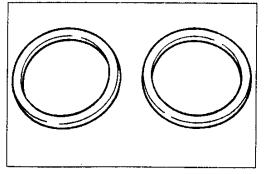
DIFFERENTIAL







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Companion flange nut

- 1. Using the **SST**, hold the companion flange and tighten the nut to the tightening torque recorded in "adjustment of drive pinion preload."
- 2. Verify that the drive pinion preload is within specification.

Drive pinion preload:

1.3-1.8 N·m {13-18 kgf·cm, 12-15 in·lbf}

Adjustment shims (adjustment of ring gear backlash)

1. Install the bearing races and measure the side bearing and gear case assembly height **A** as shown.

Standard height:

158.4-159.6 mm {6.24-6.28 in}

2. Measure the width **B** of the inside of the diffential carrier as shown.

Standard width:

170.9-171.1 mm {6.729-6.736 in}

3. The right and left total adjustment shims thickness **C** is determined by the following.

C mm = B-A mm + (0.01-0.03 mm)C in = B-A in + (0.0004-0.0012 in)

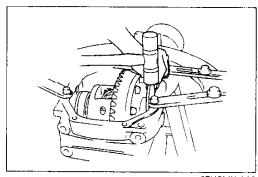
- 4. If **C** is equal to the total thickness of the removed right and left adjustment shims, reuse them.
- 5. If **C** is not equal to the removed shims, or when the shims are to be replaced, select and use the shims from the following table.

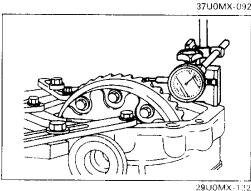
Note

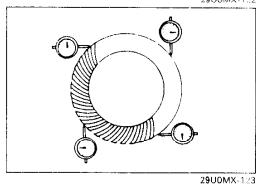
Install the same thickness adjustment shim on both sides.

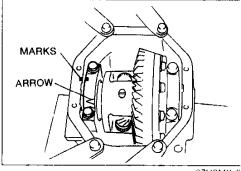
ldentifica- tion mark	Thickness	ldentifica- tion mark	Thickness
550	5.50 mm {0.2165 in}	605	6.05 mm {C.2382 in}
560	5.60 mm {0.2205 in}	610	6.10 mm {0.2402 in}
565	5.65 mm {0.2224 in}	615	6.15 mm {0.2421 in}
570	5.70 mm {0.2244 in}	620	6.20 mm {0.2441 in}
575	5.75 mm {0.2264 in}	625	5.25 mm {0.2461 in}
580	5.80 mm {0.2283 in}	630	6.30 mm {0.2480 in}
585	5.85 mm (0.2303 in)	635	6.35 mm {0.2500 in}
590	5.90 mm (0.2323 in)	640	6.40 mm {0.2520 in}
595	5.95 mm {0.2343 in}	650	6.50 mm {0.2559 in}
600	6.00 mm {0.2362 in}	_	-

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Caution

- Do not interchange the right and left side bearing races.
- When reusing the adjustment shims, do not interchange the right and left shims.
- 6. Install the side bearing races, gear case assembly and one side adjustment shim(s) into the differential carrier.
- 7. Tap the other side adjustment shim(s) in by using a plastic hammer.
- 8. Install the bearing caps and loosely tighten the bolts.
- 9. Mark the ring gear at four points at **approx. 90 degrees** intervals. Mount a dial indicator to the carrier so that the feeler comes into contact at a right angle with one of the ring gear teeth at a point marked.
- 10. Measure the ring gear backlash.

Standard backlash: 0.09-0.11 mm {0.0035-0.0043 in}

- 11. Measure the backlash at the three other marked points, and verify that the minimum backlash is more than 0.05 mm {0.002 in} and the difference between the maximum and minimum is less than 0.07 mm {0.0028 in}.
- 12. If the backlash is not within specification, adjust it by inserting an appropriate adjustment shim at both sides of the carrier.

Note

• When replacing the right adjustment shim with a thinner one, replace the left with an equally thicker one.

Bearing caps

Note

• After installing the bearing caps, check the drive pinion and ring gear tooth contact. (Refer to page M-41.)

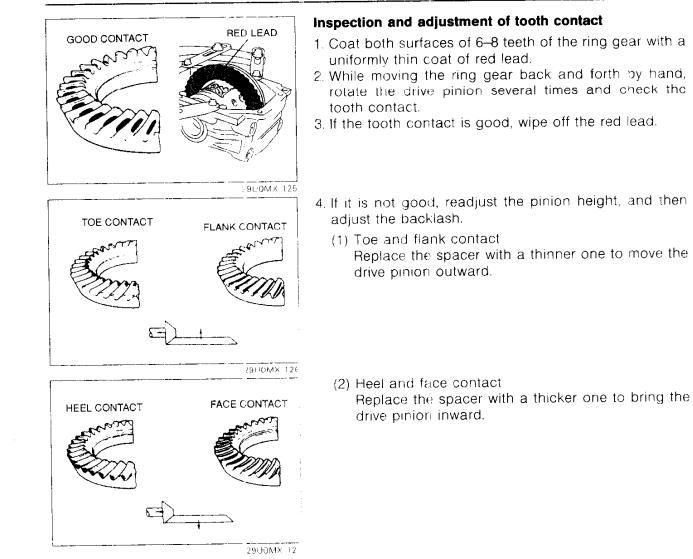
Caution

- Do not interchange the right and left bearing caps.
- 1. Match the marks and face the arrow on the caps outward.
- 2. Tighten the bolts to the specified torque.

Tightening torque:

73-106 N·m {7.4-10.9 kgf·cm, 54-78.8 ft·lbf}

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