

SUSPENSION AND AXLE

TROUBLESHOOTING	SA- 2	DIFFERENTIAL LOCKING SYSTEM.....	SA-103
GENERAL INSPECTION	SA- 3	REAR SUSPENSION	
WHEEL ALIGNMENT		PREPARATION	SA-109
FRONT WHEEL ALIGNMENT	SA- 4	COIL SPRING AND SHOCK ABSORBER.....	SA-109
FRONT AXLE		LATERAL CONTROL ROD	SA-111
PREPARATION	SA- 9	UPPER AND LOWER CONTROL ARM	SA-112
FRONT AXLE HUB	SA-11	STABILIZER BAR	SA-112
FREE WHEEL HUB	SA-16	SERVICE SPECIFICATIONS	SA-114
FRONT DRIVE SHAFT			
PREPARATION	SA-17		
FRONT DRIVE SHAFT	SA-18		
FRONT DIFFERENTIAL			
PREPARATION	SA-23		
ON-VEHICLE REPAIR.....	SA-27		
ASSEMBLY REMOVAL			
AND INSTALLATION.....	SA-30		
DIFFERENTIAL CARRIER	SA-32		
FRONT SUSPENSION			
PREPARATION	SA-46		
FRONT SHOCK ABSORBER	SA-48		
UPPER SUSPENSION ARM.....	SA-52		
LOWER SUSPENSION ARM	SA-54		
UPPER BALL JOINT.....	SA-57		
LOWER BALL JOINT	SA-58		
STABILIZER BAR	SA-60		
REAR AXLE			
PREPARATION	SA-62		
REAR AXLE SHAFT	SA-64		
REAR DIFFERENTIAL			
PREPARATION	SA-70		
ON-VEHICLE REPAIR.....	SA-73		
ASSEMBLY REMOVAL			
AND INSTALLATION.....	SA-76		
DIFFERENTIAL CARRIER	SA-78		
DIFFERENTIAL CASE			
(4 Pinion Type).....	SA-93		
(w/ Locking Differential)	SA-96		
(LSD Type)	SA-98		

TROUBLESHOOTING

Use the table below to help you find the cause of the problem. The numbers indicate the priority of the likely cause of the problem. Check each part in order. If necessary, replace these parts.

SA2PM-01

See Page	SA-3	SA-3	SA-4	SA-48,109	SA-60,112	SA-48,109	SA-57,58	SA-11	-	-	SA-46,109	-	SA-3
Parts Name	Tires	Cold tire inflation pressure	Wheel alignment	Springs	Stabilizer bar	Shock absorber	Ball joint	Hub bearings	Steering linkage	Steering gear	Suspension parts	Overloaded	Wheel balance
Wander/pulls	1		2					4	3	5	6		
Bottoming				2		3						1	
Sways/pitches	1				2	3							
Front wheel shimmy	1		4			3	5	6	7	8			2
Abnormal tire wear		1	2			4					3		

V00313

GENERAL INSPECTION

SA2PJ-01

1. INSPECT TIRE

- (a) Check the tires for wear and for the proper inflation pressure.

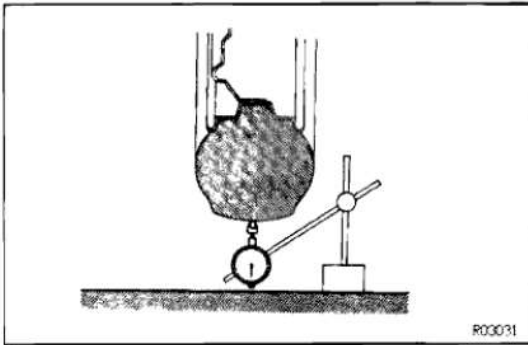
Cold tire inflation pressure

Tire size	Front	Rear
	kPa (kgf/cm ² , psi)	kPa (kgf/cm ² , psi)
215/80R16	3 Door: 190 (1.9, 28)	3 Door: 210 (2.1, 30)*
	5 Door: 180 (1.8, 26)	5 Door: 200 (2.0, 29)*
265/70R16	Europe: 200 (2.0, 29)	Europe: 200 (2.0, 29)
	Others: 180 (1.8, 26)	Others: 180 (1.8, 26)

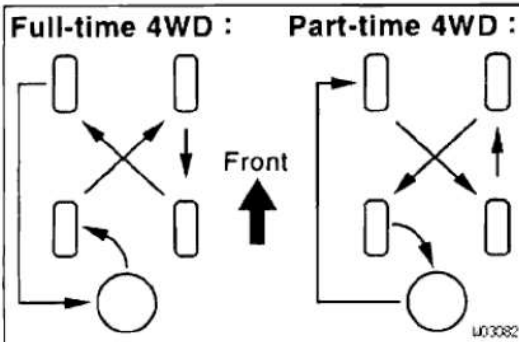
* When the vehicle is laden, rear tire pressure should be 240 kPa (2.4 kgf/cm², 35 psi).

- (b) Check the tire runout.

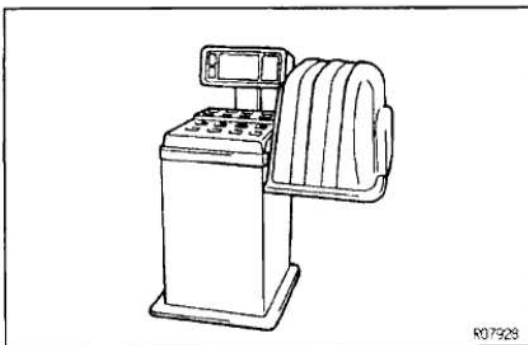
Tire runout: 3.0 mm (0.118 in.) or less



R03031



W03082



R07928

2. ROTATE TIRE

HINT: See the illustration for where to rotate each tire when you include the spare tire in rotation.

3. INSPECT WHEEL BALANCE

- (a) Check and adjust the Off-the-car balance.
 (b) If necessary, check and adjust the On-the-car balance.

Unbalance after adjustment:

14.0 g (0.031 lb) or less

4. CHECK FRONT SUSPENSION FOR LOOSENESS
5. CHECK STEERING LINKAGE FOR LOOSENESS
6. CHECK BALL JOINT FOR LOOSENESS
7. CHECK SHOCK ABSORBER WORKS PROPERLY
 - Check for oil leak.
 - Check the mounting bushings for wear.
 - Bounce front and rear of the vehicle.

SA

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WHEEL ALIGNMENT

FRONT WHEEL ALIGNMENT

SA3PK-01

1. MEASURE VEHICLE HEIGHT

Vehicle height:

3 Door:

Except longitudinal seat:

Front: A – B = 66.0 mm (2.598 in.)

Rear: C – D = 45.5 mm (1.791 in.)

w/ longitudinal seat:

Front: A – B = 68.5 mm (2.696 in.)

Rear: C – D = 36.5 mm (1.437 in.)

5 Door (Malaysia):

w/o Winch:

Front: A – B = 54.5 mm (2.145 in.)

Rear: C – D = 37.0 mm (1.456 in.)

5 Door (Other):

Front: A – B = 62.5 mm (2.460 in.)

Rear: C – D = 39.0 mm (1.535 in.)

Measuring points:

A: Ground clearance of spindle center

B: Ground clearance of front adjusting cam bolt center

C: Ground clearance of rear axle shaft center

D: Ground clearance of lower control arm front bushing center

NOTICE: Before inspecting the wheel alignment, adjust the vehicle height to the specification.

If the vehicle height is not within the specification, try to adjust it by pushing down on or lifting the body.

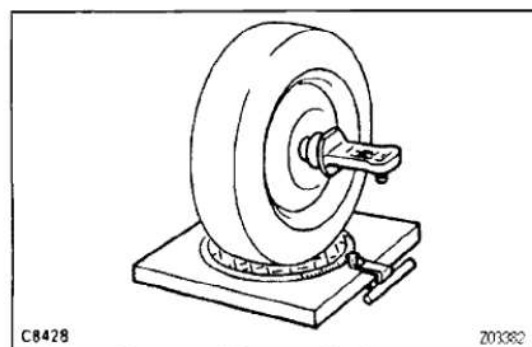
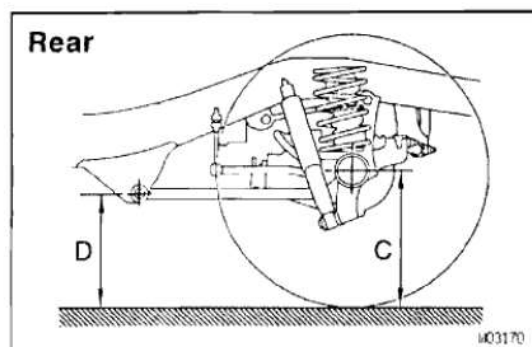
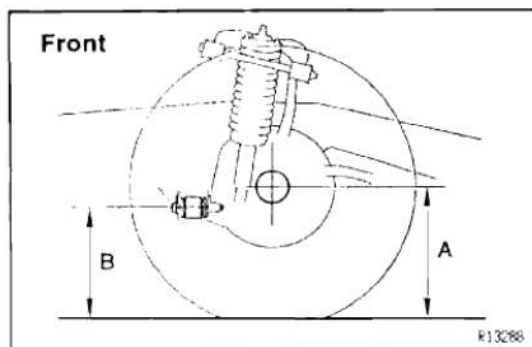
2. INSTALL CAMBER–CASTER–KINGPIN GAUGE OR ONTO WHEEL ALIGNMENT TESTER

Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

3 Door: Except longitudinal seat

Camber		$-0^{\circ}10' \pm 45' (-0.17^{\circ} \pm 0.75^{\circ})$
	Left–right error	30' (0.5°) or less
Caster		$2^{\circ}55' \pm 45' (2.91^{\circ} \pm 0.75^{\circ})$
	Left–right error	30' (0.5°) or less
Steering axis inclination		$10^{\circ}55' \pm 45' (10.91^{\circ} \pm 0.75^{\circ})$
	Left–right error	30' (0.5°) or less



3 Door: w/ longitudinal seat

Camber	$-0^{\circ}10' \pm 45'$ ($-0.17^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Caster	$2^{\circ}40' \pm 45'$ ($2.67^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Steering axis inclination	$10^{\circ}55' \pm 45'$ ($10.91^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less

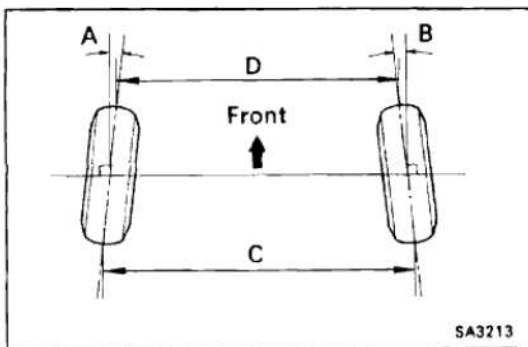
5 Door: Malaysia w/o Winch

Camber	$0^{\circ}05' \pm 45'$ ($0.08^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Caster	$2^{\circ}45' \pm 45'$ ($2.75^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Steering axis inclination	$10^{\circ}40' \pm 45'$ ($10.67^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less

5 Door: Others

Camber	$-0^{\circ}05' \pm 45'$ ($-0.08^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Caster	$2^{\circ}50' \pm 45'$ ($2.83^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less
Steering axis inclination	$10^{\circ}50' \pm 45'$ ($10.83^{\circ} \pm 0.75^{\circ}$)
Left-right error	30' (0.5°) or less

If the steering axis inclination is not within the specification, after the camber and caster have correctly adjusted, recheck the steering knuckle front wheel for bearing or looseness.

**4. INSPECT TOE-IN****3 Door: Except longitudinal seat**

Toe-in	$A+B: 0^{\circ}11' \pm 12'$ ($0.18^{\circ} \pm 0.2^{\circ}$)
(total)	$C-D: 2 \pm 2 \text{ mm}$ ($0.08 \pm 0.08 \text{ in.}$)

3 Door: w/ longitudinal seat

Toe-in	$A+B: 0^{\circ}09' \pm 12'$ ($0.15^{\circ} \pm 0.2^{\circ}$)
(total)	$C-D: 2 \pm 2 \text{ mm}$ ($0.08 \pm 0.08 \text{ in.}$)

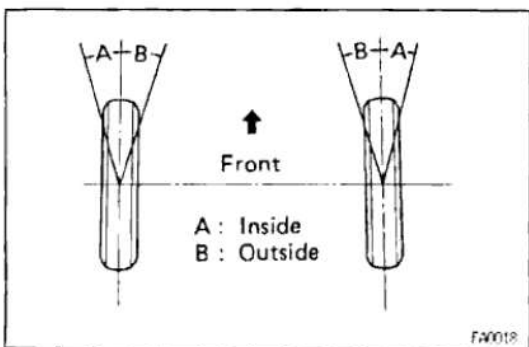
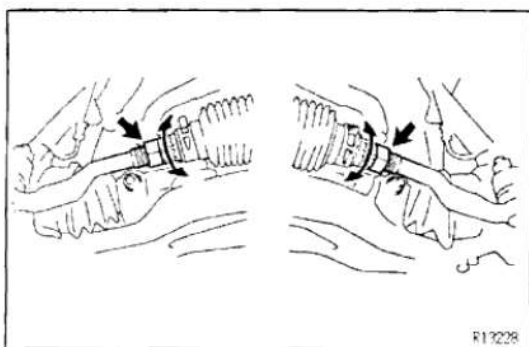
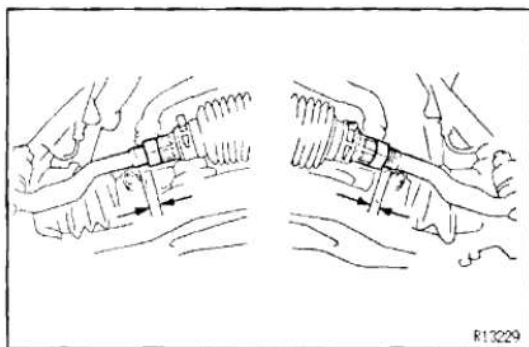
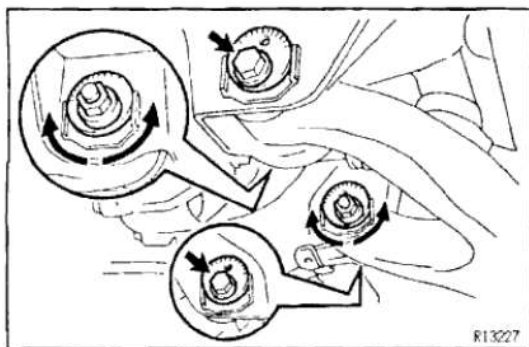
5 Door: Malaysia w/o Winch

Toe-in	$A+B: 0^{\circ}20' \pm 12'$ ($0.33^{\circ} \pm 0.2^{\circ}$)
(total)	$C-D: 4 \pm 2 \text{ mm}$ ($0.16 \pm 0.08 \text{ in.}$)

5 Door: Others

Toe-in	$A+B: 0^{\circ}14' \pm 12'$ ($0.23^{\circ} \pm 0.2^{\circ}$)
(total)	$C-D: 3 \pm 2 \text{ mm}$ ($0.12 \pm 0.08 \text{ in.}$)

If the toe-in is not within the specification, adjust the rack ends.



5. ADJUST CAMBER AND CASTER

NOTICE: After the camber has been adjusted, inspect the toe-in.

- Loosen the front and/or rear adjusting cam nuts.
- Adjust the camber and caster by front and/or rear adjusting cams. (See adjustment chart)

HINT: Try to adjust the camber and caster to the center value.

- Torque the front and/or rear adjusting cam nuts.

Torque: 130 N·m (1,325 kgf·cm, 96 ft·lbf)

6. ADJUST TOE-IN AND WHEEL ANGLE

HINT: First, check or adjust the lengths of the tie rod ends, then adjust the toe-in.

Tie rod end length left-right error:

1.0 mm (0.039 in.) or less

- Remove the boot clamps.
- Loosen the rack end lock nuts.
- Turn the left and right rack ends an equal amount to adjust the toe-in.

HINT: Try to adjust the toe-in to the center value.

- Tighten the rack end lock nuts.

Torque: 55 N·m (560 kgf·cm, 41 ft·lbf)

- Place the boot on the seat and clip it.

HINT: Make sure that the boots are not twisted.

7. INSPECT WHEEL ANGLE

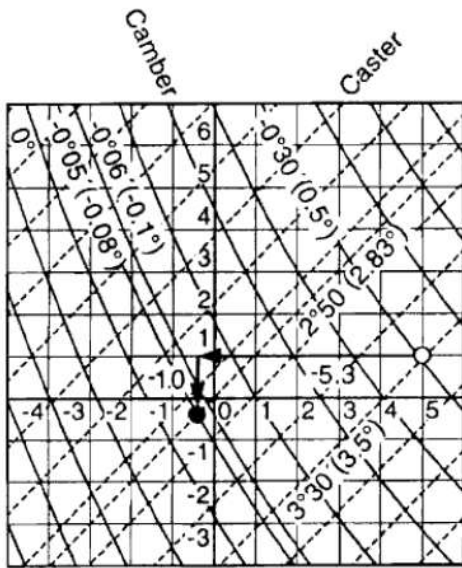
Turn the steering wheel fully, and measure the turning angle.

Inside wheel	35° (33°–36°)
Outside wheel	31° (Reference)

If wheel angle deviates from the specifications, readjust the toe-in and wheel angle within the specifications. At this time, the lengths of the tie rod end may be within less than 1.5 mm (0.059 in.).

Example (5 Door : Except Malaysia w/o Winch)

- = Standard value point
○ = Measurement point



M03131

ADJUSTMENT CHART**HOW TO READ ADJUSTMENT CHART**

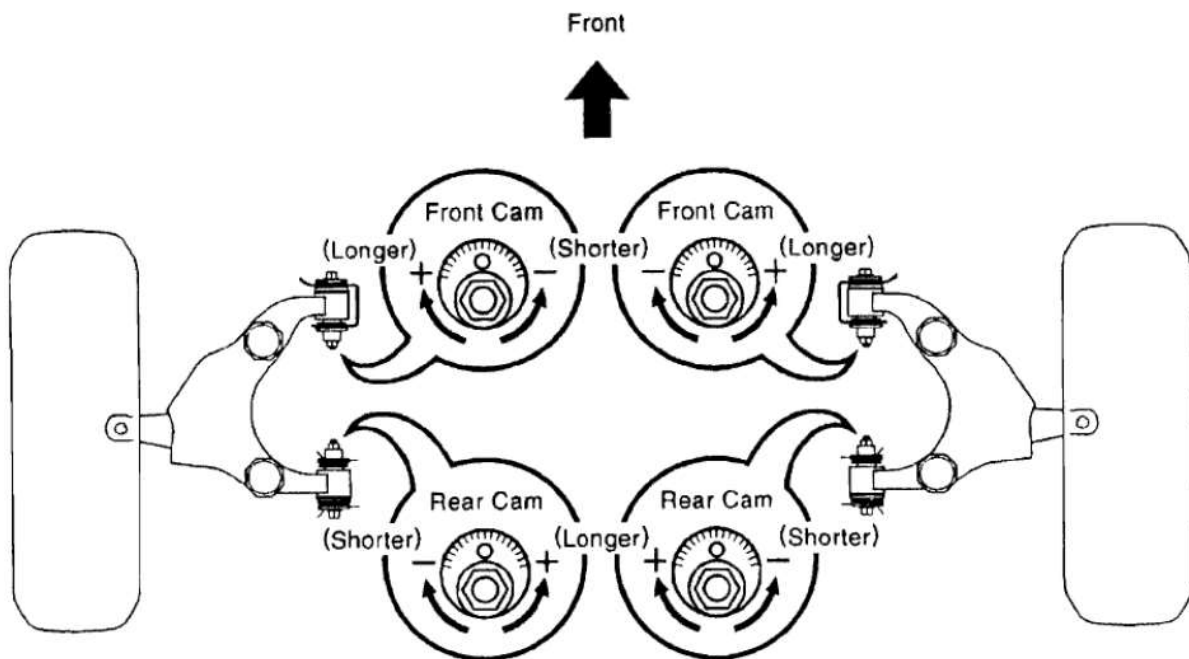
- Find the wheel alignment standard value applicable for the tire size.
- Mark the selected standard value on the adjustment chart.

Example (5 Door: Except Malaysia)**Camber** $-0^{\circ}05' (-0.08^{\circ})$ **Caster** $2^{\circ}50' (2.83^{\circ})$

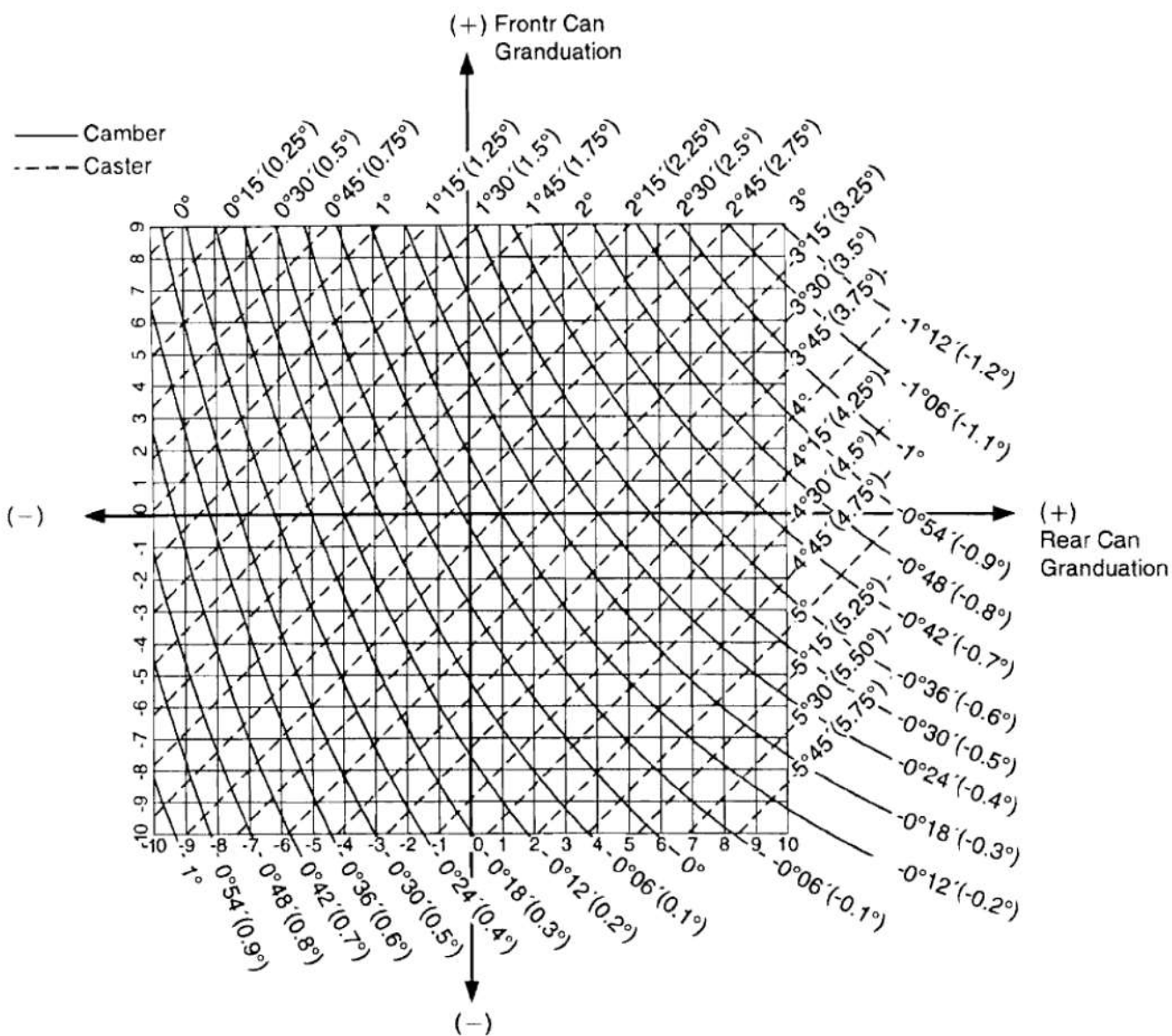
- Mark on the adjustment chart the alignment values measured at the standard vehicle height.

Example:**Camber** $-0^{\circ}30' (-0.5^{\circ})$ **Caster** $3^{\circ}30' (3.5^{\circ})$

- As shown in the illustration, read the distance from the standard value to the measured value, and adjust the front and/or rear adjusting cams accordingly.

Example:**Front cam** $-(\text{Shorter}) 5.3$ **Rear cam** $-(\text{Shorter}) 1.0$ 

M03172

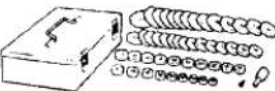
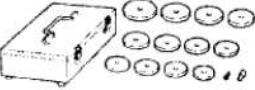


FRONT AXLE

PREPARATION

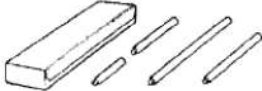
SST (SPECIAL SERVICE TOOLS)

SA096-06

	09223-15030	Oil Seal & Bearing Replacer	Oil seal (outside)
	09318-12010	Transfer Bearing Adjusting Nut Wrench	w/ Free wheel hub: Hub lock nut
	09527-17011	Rear Axle Shaft Bearing Remover	Hub bearing Oil seals
	09649-17010	Steering Knuckle Tool	Axle hub
	09650-17011	Hub Bolt Remover	Hub bolt
	09710-30021	Suspension Bushing Tool Set	Axle hub
	(09710-03051)	Bushing Replacer	
	09950-40010	Puller B Set	Upper ball joint Axle hub
	09950-60010	Replacer Set	w/o Free wheel hub: Bearing spacer
	(09951-00650)	Replacer 65	
	09950-60020	Replacer Set No.2	
	(09951-00810)	Replacer B1	Hub bearing

SA-10

SUSPENSION AND AXLE — FRONT AXLE

	(09951-00910) Replacer 91	Hub bearing
	09950-70010 Handle Set	Hub bearing w/o Free wheel hub: Bearing spacer
	(09951-07150) Handle 150	

RECOMMENDED TOOLS

SA0N7-06

	09905-00012 Snap Ring No.1 Expander .	
	09905-00013 Snap Ring Pliers .	

SA

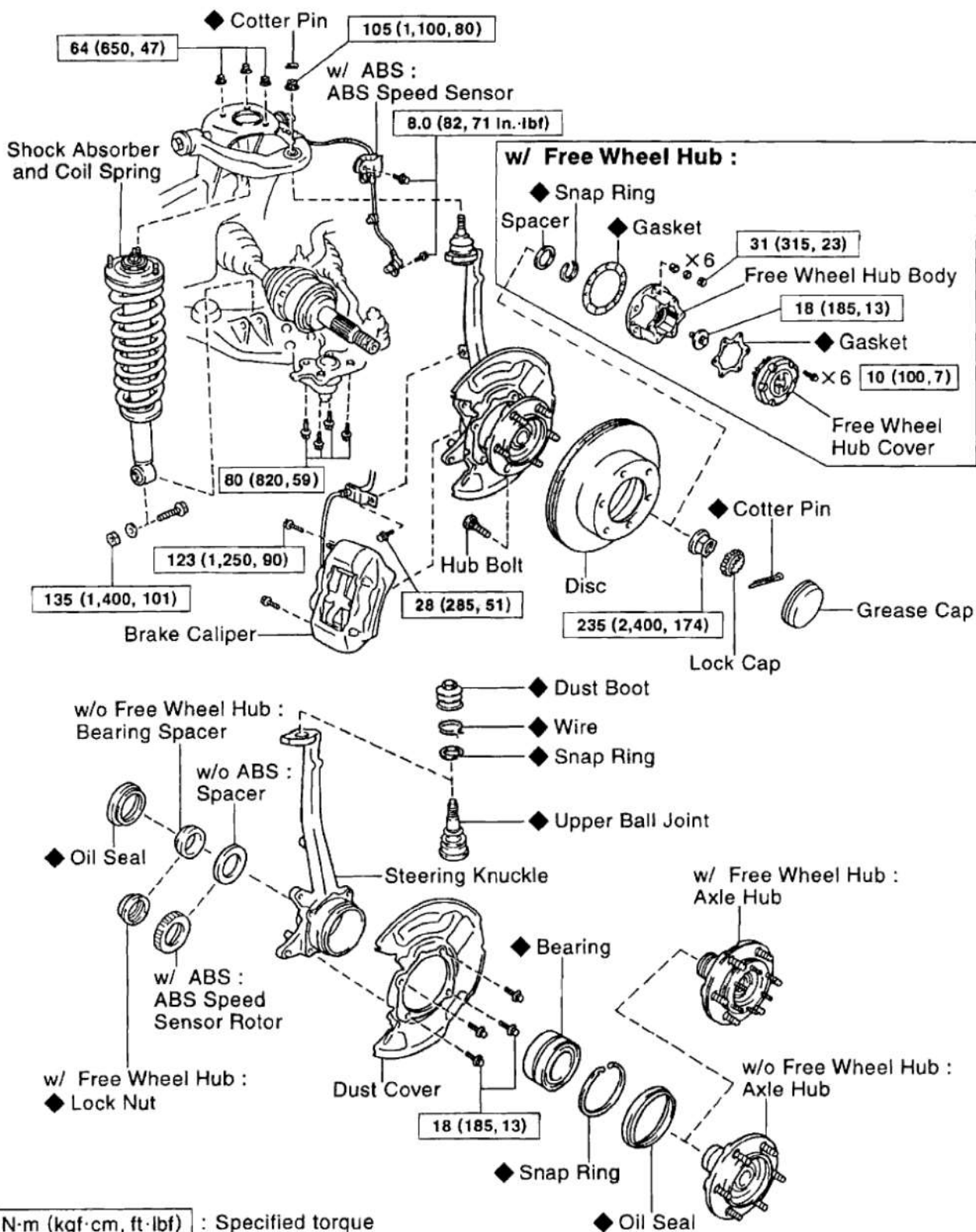
EQUIPMENT

SA0N8-06

Torque wrench	
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FRONT AXLE HUB COMPONENTS

LAON9-07



SA

cardiagn.co

WD2851

STEERING KNUCKLE WITH AXLE HUB REMOVAL

1. REMOVE FRONT WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

2. REMOVE SHOCK ABSORBER

(See page SA-49)

3. DISCONNECT DRIVE SHAFT

w/ Free wheel hub:

- (a) Remove the free wheel hub.

(See page SA-16)

- (b) Using a snap ring expander, remove the snap ring.

- (c) Remove the spacer.

w/o Free wheel hub:

- (a) Using a screwdriver, remove the grease cap.

- (b) Remove the cotter pin and lock cap.

- (c) With apply the brakes, remove the lock nut.

Torque: 235 N·m (2,400 kgf·cm, 174 ft·lbf)

4. w/ABS:

REMOVE ABS SPEED SENSOR AND WIRE HARNESS CLAMP FROM STEERING KNUCKLE

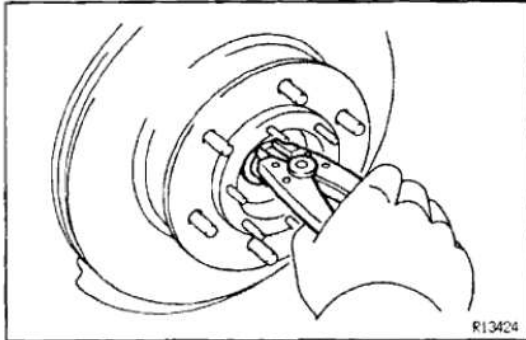
Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)

5. REMOVE BRAKE LINE BRACKET FROM STEERING KNUCKLE

Torque: 28 N·m (285 kgf·cm, 21 ft·lbf)

6. REMOVE FRONT BRAKE CALIPER AND DISC

(See page BR-26)

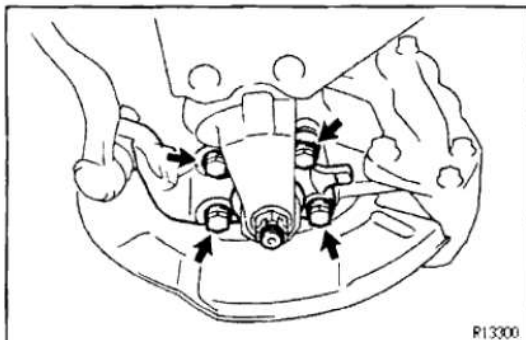


R13424

7. DISCONNECT LOWER BALL JOINT

Remove the 4 bolts and disconnect the lower ball joint.

Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)



R13300

8. REMOVE STEERING KNUCKLE

- (a) Remove the cotter pin and loosen the nut.

Torque: 105 N·m (1,100 kgf·cm, 80 ft·lbf)

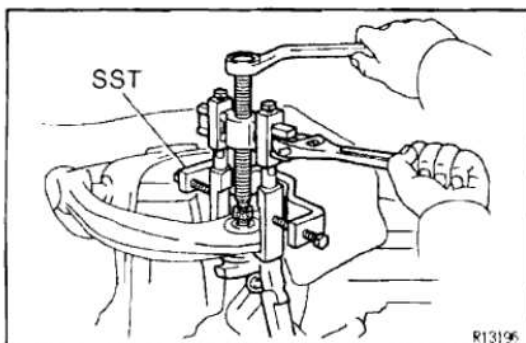
- (b) Using SST, disconnect the steering knuckle.

SST 09950-40010 (09951-04010, 09952-04010, 09553-04020, 09554-04010, 09955-04030, 09958-04010)

- (c) Remove the nut and steering knuckle.

NOTICE: Be careful not to damage the oil seal and drive shaft boot.

REMOVAL HINT: When it is difficult to disconnect the drive shaft, tap the drive shaft with a plastic hammer.

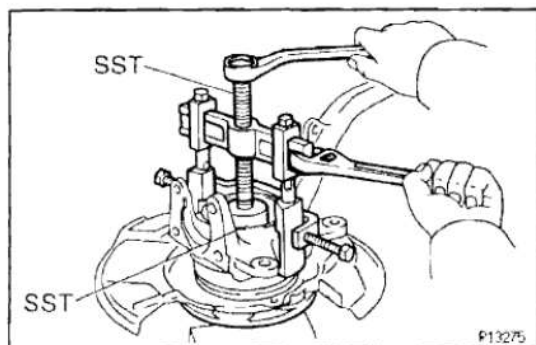
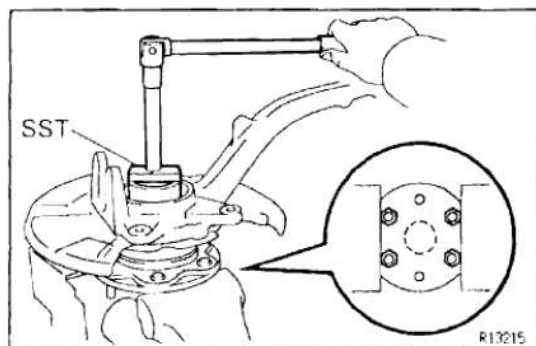


R13196

FRONT AXLE HUB DISASSEMBLY

1. REMOVE OIL SEAL (INSIDE)

- (a) Clamp the axle hub in a soft jaw vise.
HINT: Close vise until it holds hub bolts. Do not tighten further.
- (b) Using a screwdriver, remove the oil seal (inside).



2. w/ Free wheel hub:

REMOVE LOCK NUT AND ABS SPEED SENSOR ROTOR/SPACER

- (a) Using a chisel and hammer, loosen the staked part of the lock nut.
NOTICE: Be careful not to damage the bushing.
- (b) Using SST, remove the lock nut.
SST 09318-12010
- (c) Remove the ABS speed sensor rotor/spacer.
NOTICE: Take care not to scratch the serration of the speed sensor rotor.

3. REMOVE AXLE HUB FROM STEERING KNUCKLE

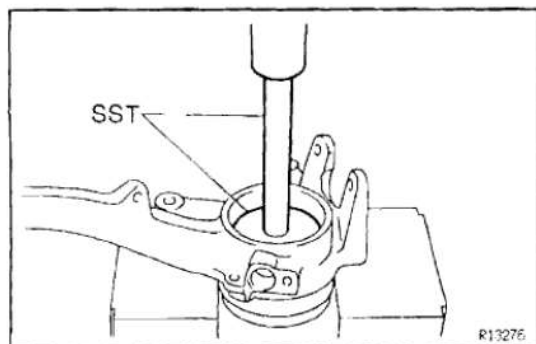
- (a) Remove the 4 bolts and shift the brake dust cover towards the hub side (outside).
- (b) Using SST, remove the axle hub from the steering knuckle.
SST 09710-30020 (09710-03050),
09950-40010 (09951-04020, 09952-04010,
09953-04020, 09954-04010, 09955-04030,
09957-04010, 09958-04010)

(c) w/o Free wheel hub:

Remove the bearing spacer and ABS speed sensor rotor/spacer.

4. REMOVE OIL SEAL (OUTSIDE)

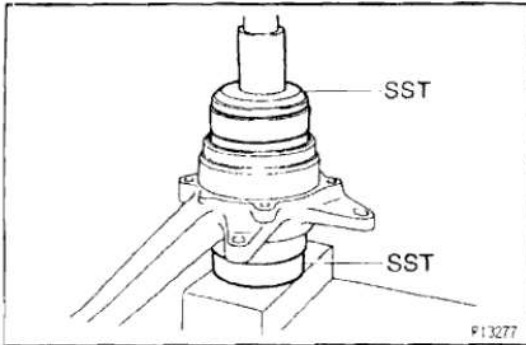
Using a screwdriver, remove the oil seal (outside) from the steering knuckle.



5. REMOVE BEARING FROM STEERING KNUCKLE

- (a) Using snap ring pliers, remove the snap ring.
- (b) Using SST and a press, remove the bearing from the steering knuckle.
SST 09950-60020 (09951-00810),
09950-70010 (09951-07150)

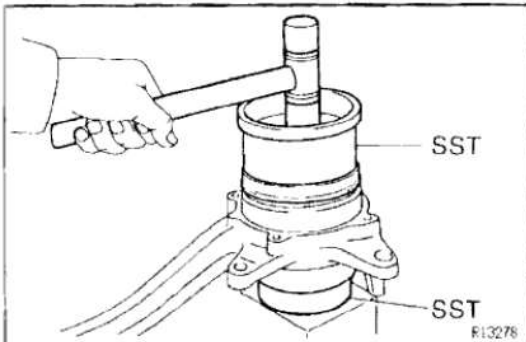
FRONT AXLE HUB ASSEMBLY

**1. INSTALL NEW BEARING**

- (a) Using SST and a press, install a new bearing to the steering knuckle.

SST 09527-17011, 09950-60020 (09951-00910)

- (b) Using snap ring pliers, install the snap ring.

**2. INSTALL NEW OIL SEAL (OUTSIDE)**

- (a) Using SST and a plastic hammer, install a new oil seal (outside).

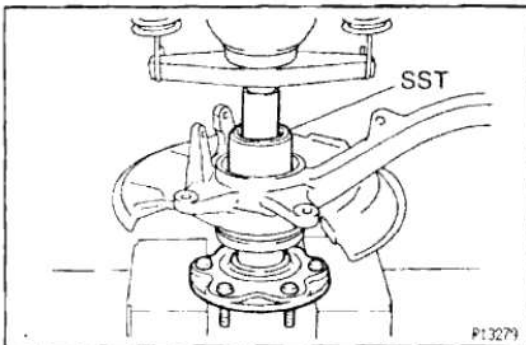
SST 09223-15030, 09527-17011

- (b) Coat MP grease to the oil seal lip.

3. INSTALL AXLE HUB TO STEERING KNUCKLE

- (a) Install the brake dust cover to the steering knuckle with the 4 bolts.

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

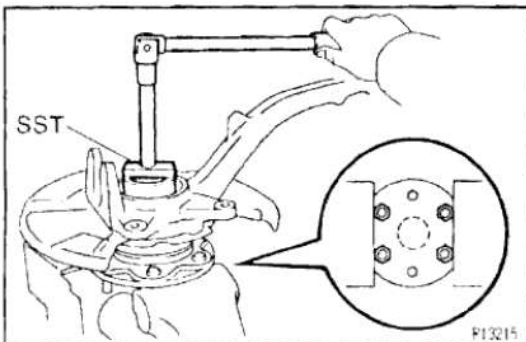


- (b) Using SST and a press, install the axle hub to the steering knuckle.

SST 09649-17010

4. INSTALL ABS SPEED SENSOR ROTOR/SPACER

NOTICE: Do not scratch the serration of the speed sensor rotor.

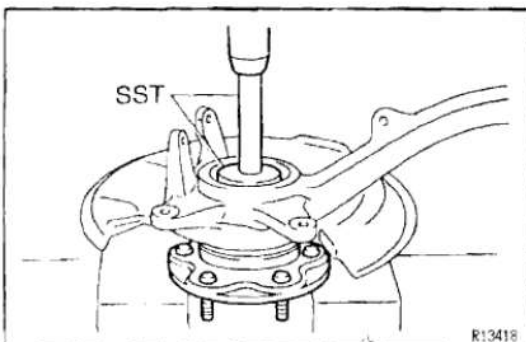
**5. w/ Free wheel hub:****INSTALL NEW LOCK NUT**

- (a) Using SST, install and torque a new nut to the axle hub.

SST 09318-12010

Torque: 274 N·m (2,800 kgf·cm, 203 ft·lbf)

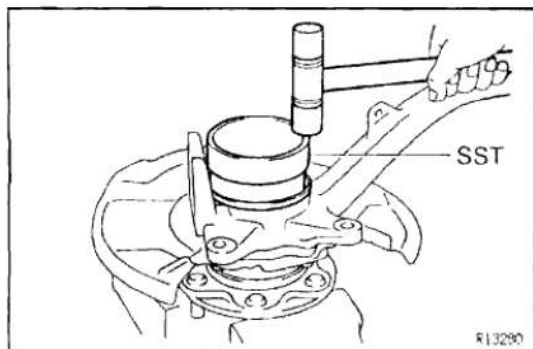
- (b) Using a chisel and hammer, stake the nut.

**6. w/o Free wheel hub:****INSTALL BEARING SPACER**

Using SST and a press, install the bearing spacer.

SST 09950-60010 (09951-00650),

09950-70010 (09951-07150)



7. INSTALL NEW OIL SEAL (INSIDE)

- (a) Using SST and a plastic hammer, install a new oil seal (inside).

SST 09527-17011

HINT: Strike the SST on its circumference evenly.

- (b) Coat MP grease to the oil seal lip.

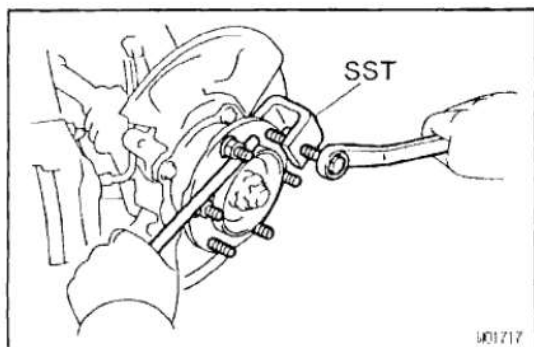
STEERING KNUCKLE WITH AXLE HUB INSTALLATION

SA17J-02

Installation is in the reverse order of removal.

HINT: After installation, check ABS speed sensor signal and front wheel alignment.

(See page BR-59 and SA-4)



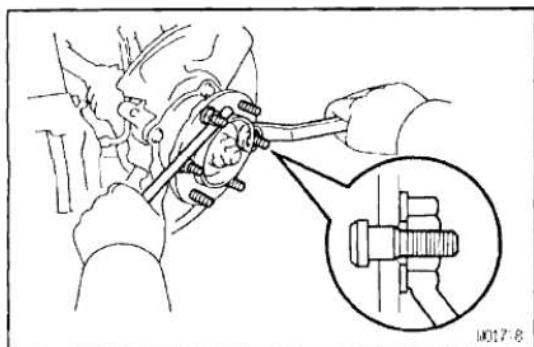
HUB BOLT REPLACEMENT

SA18M-06

1. REMOVE FRONT WHEEL
2. REMOVE BRAKE CALIPER AND DISC
(See page BR-26)
3. REMOVE HUB BOLT

Using SST, remove hub bolt.

SST 09650-17011



4. INSTALL HUB BOLT

Install a washer and nut to the hub bolt as shown in the illustration and install the hub bolt with torquing the nut.

5. INSTALL BRAKE DISC AND CALIPER
(See page BR-29)

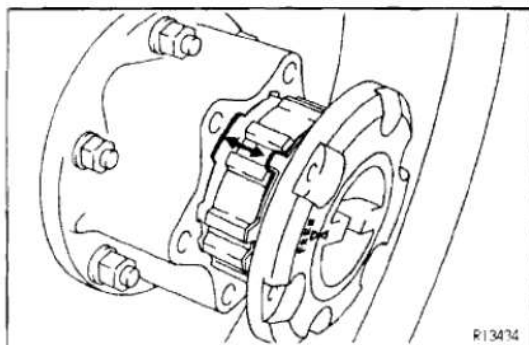
6. INSTALL FRONT WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

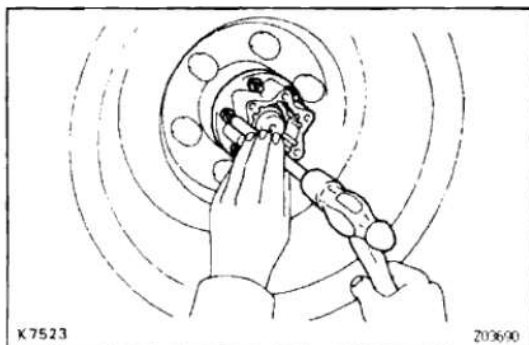
FREE WHEEL HUB COMPONENTS

(See page SA-11)

SA27K-02

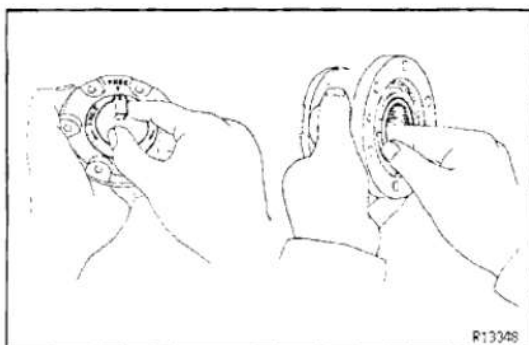


R13474



K7523

Z036/90



R13348

FREE WHEEL HUB REMOVAL

SA1WQ-03

1. REMOVE FREE WHEEL HUB COVER

- Set the control handle to FREE.
- Remove the 6 cover mounting bolts and pull off the cover.

Torque: 10 N·m (100 kgf·cm, 7 ft·lbf)

INSTALLATION HINT: Before install the hub cover, apply MP grease to the clutch splines.

- Remove the gasket.

2. REMOVE BOLT WITH WASHER

Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

3. REMOVE FREE WHEEL HUB BODY

- Remove the 6 mounting nuts and washers.
Torque: 31 N·m (315 kgf·cm, 23 ft·lbf)
- Using a brass bar and hammer, tap on the bolts head and remove the cone washers.
- Pull off the free wheel hub body.
- Remove the gasket.

FREE WHEEL HUB INSPECTION

SA2JZ-06

1. INSPECT COVER, HANDLE AND SEAL

Check the handle moves smoothly.

2. INSPECT INNER HUB

Place the cover in the body and check that the inner hub turns smoothly.

FREE WHEEL HUB INSTALLATION

SA27L-02

Installation is in the reverse order of removal.

FRONT DRIVE SHAFT

PREPARATION

SST (SPECIAL SERVICE TOOLS)

SA1WR-03

	09240-00020 Wire Gauge Set	Boot clamp clearance adjustment
	09521-24010 Drive Shaft Boot Clamping Tool	Boot clamp
	09628-62011 Ball Joint Puller	Lower ball joint
	09631-10030 Oil Seal Remover	Drive shaft

RECOMMENDED TOOLS

SA02F-0R

	09905-00012 Snap Ring No.1 Expander .	
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EQUIPMENT

SA02G-0W

Torque wrench	
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LUBRICANT

SA02H-1E

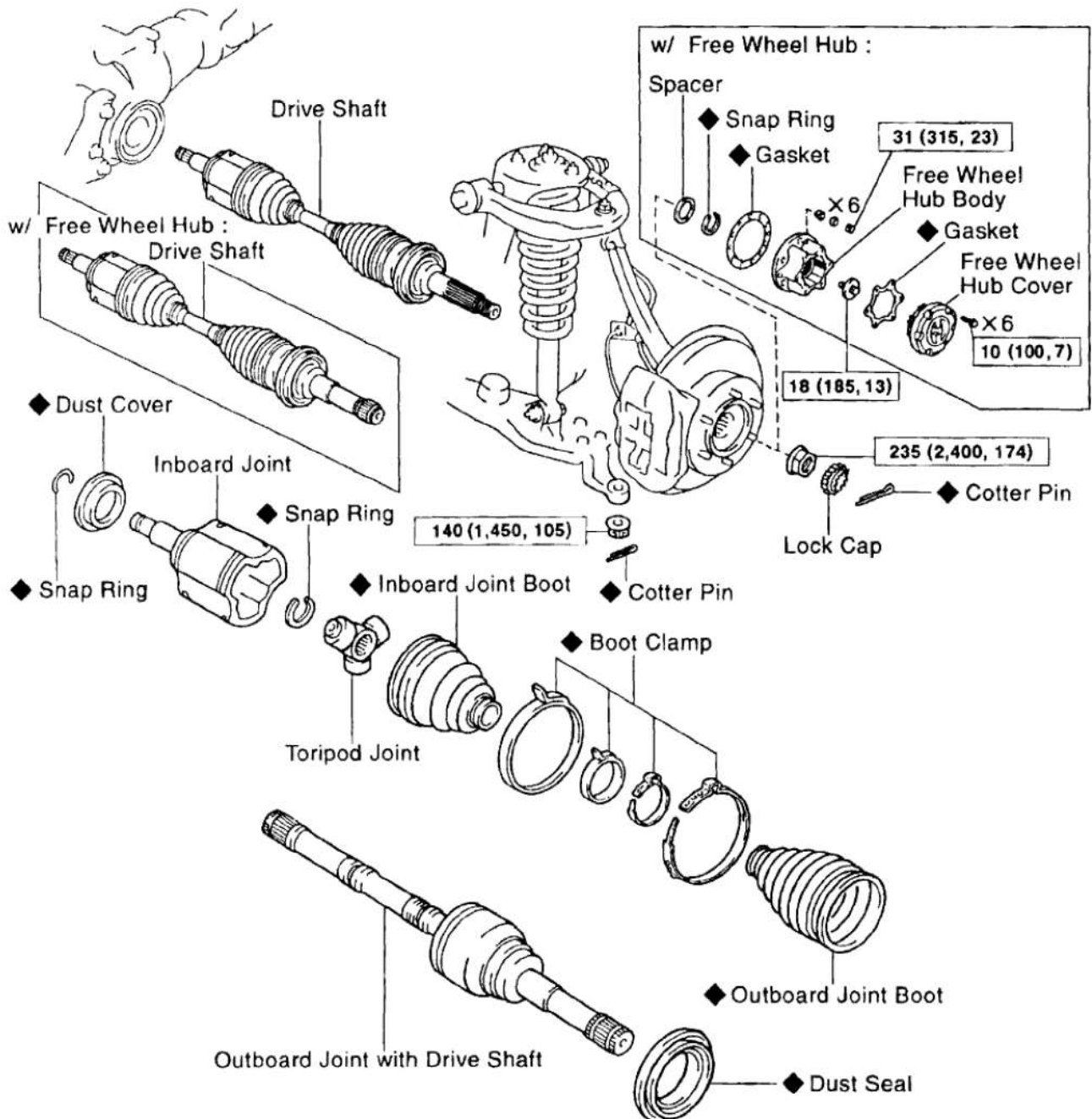
Item	Capacity	Classification
Outboard joint grease	176-186 g (6.20-6.56 oz.)	
Inboard joint grease	255-265 g (8.99-9.34 oz.)	

SA

cardiagn.com

FRONT DRIVE SHAFT COMPONENTS

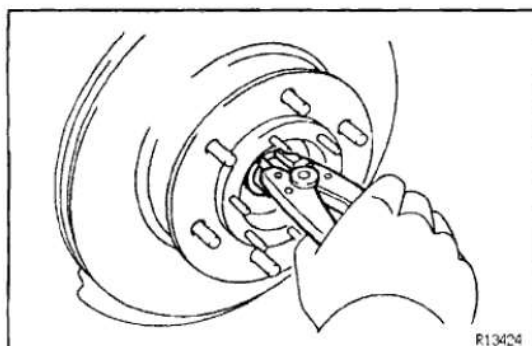
BA063-06



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

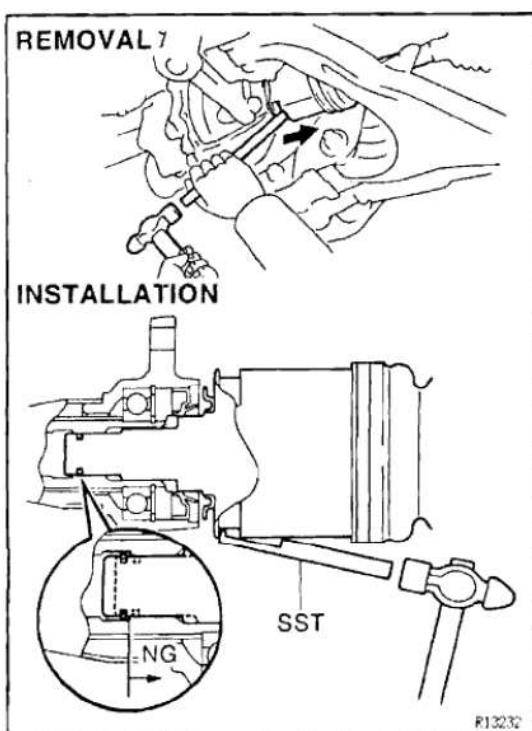
M02862



R13424

FRONT DRIVE SHAFT REMOVAL

1. **REMOVE FRONT WHEEL**
Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)
2. **DRAIN DIFFERENTIAL OIL**
3. **w/ FREE WHEEL HUB:**
REMOVE FREE WHEEL HUB
 - (a) Remove the free wheel hub.
(See page SA-16)
 - (b) Using a snap ring expander, remove the snap ring.
 - (c) Remove the spacer.
4. **w/o FREE WHEEL HUB:**
REMOVE DRIVE SHAFT LOCK NUT
 - (a) Using a screwdriver, remove the grease cap.
 - (b) Remove the cotter pin and lock cap.
 - (c) With apply the brakes, remove the lock nut.
Torque: 235 N·m (2,400 kgf·cm, 174 ft·lbf)



R13232

5. DISCONNECT DRIVE SHAFT

Using a brass bar and hammer, disconnect the drive shaft.

REMOVAL HINT: When it is difficult to disconnect the drive shaft, tap in a screwdriver between the differential tube/differential carrier and drive shaft.

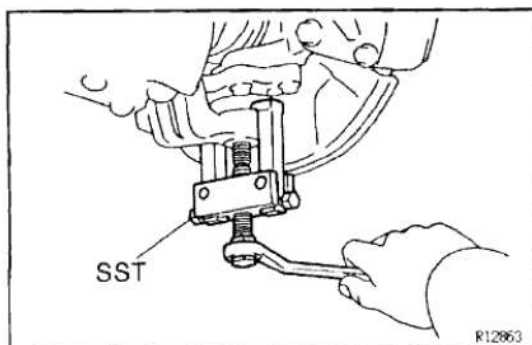
INSTALLATION HINT:

- Before installation, set the snap ring opening side facing downward.
- Using SST and a hammer, strike the inboard joint into the differential. At that time, strike the snags evenly to avoid snags deformation.

SST 09631-10030

- After installation, check that the drive shaft cannot be pull out by hand.

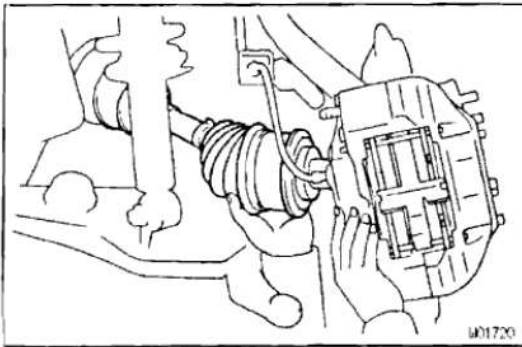
NOTICE: Be careful not to damage the dust cover of the drive shaft.



R12963

6. DISCONNECT LOWER SUSPENSION ARM

- (a) Remove the cotter pin and nut.
Torque: 140 N·m (1,450 kgf·cm, 105 ft·lbf)
- (b) Using SST, disconnect the lower suspension arm.
SST 09628-62011
INSTALLATION HINT: Face the cotter pin hole of the lower ball joint forward.



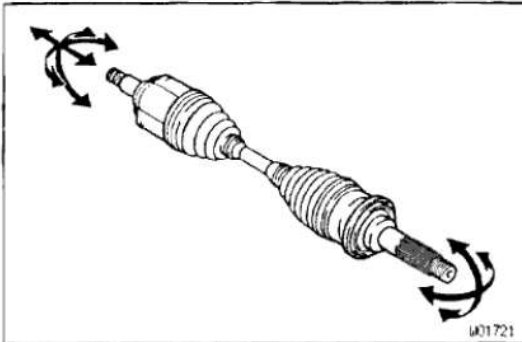
7. REMOVE DRIVE SHAFT

Push the steering knuckle outward and remove the drive shaft.

REMOVAL HINT: When it is difficult to disconnect the drive shaft, tap the drive shaft with a plastic hammer.

NOTICE: Be careful not to damage the oil seal, boots and dust seal.

8. REMOVE SNAP RING FROM INBOARD SHAFT



FRONT DRIVE SHAFT DISASSEMBLY

1. CHECK DRIVE SHAFT

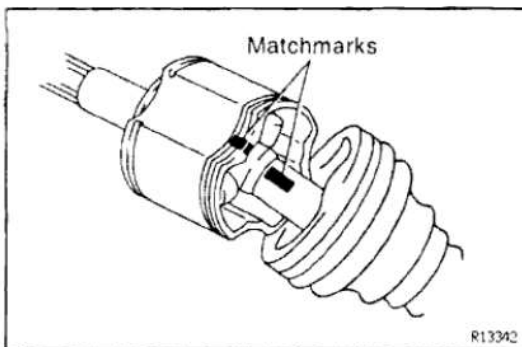
- Check to see that there is no play in the inboard and outboard joints.
- Check to see that the inboard joint slides smoothly in the thrust direction.
- Check to see that there is no significant play in the radial direction of the inboard joint.
- Check the boot for damage.

2. REMOVE INBOARD JOINT BOOT CLAMPS

- Using a screwdriver, remove the 2 inboard joint boot clamps.
- Slide the inboard joint boot toward the outboard joint.

3. REMOVE INBOARD JOINT TULIP

- Place matchmarks on the inboard joint and drive shaft.
- Remove the inboard joint tulip from the drive shaft.



4. REMOVE TRIPOD FROM DRIVE SHAFT

- Using a snap ring expander, remove the snap ring.
- Place matchmarks on the shaft and tripod.
- Using a brass bar and hammer, remove the tripod joint.

NOTICE: Do not tap the roller.

5. REMOVE INBOARD AND OUTBOARD JOINT BOOTS

- Remove the inboard joint boot from the drive shaft.
- Using a side cutter, cut the outboard boot clamps.
- Remove the outboard joint boot from the drive shaft.

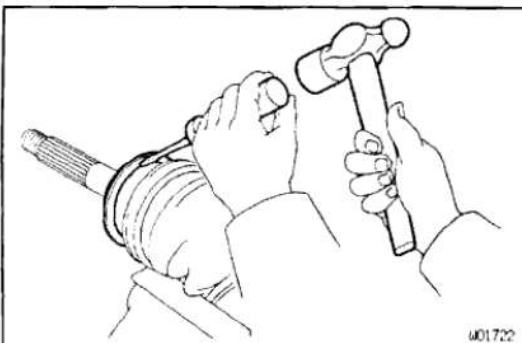
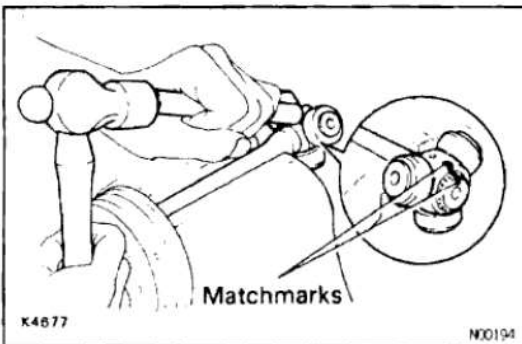
NOTICE: Do not disassemble the outboard joint.

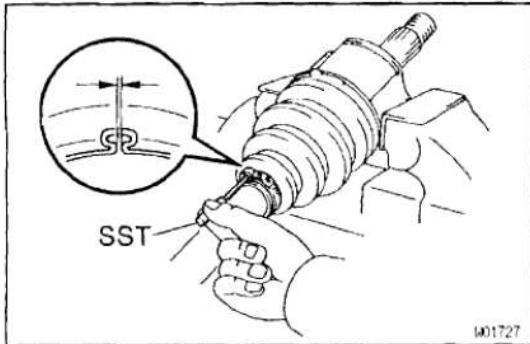
6. REMOVE DUST COVER

Using a screwdriver, remove the dust cover from the inboard joint tulip.

7. REMOVE DUST SEAL

Using a screwdriver and hammer, remove the dust seal from the drive shaft.





FRONT DRIVE SHAFT ASSEMBLY

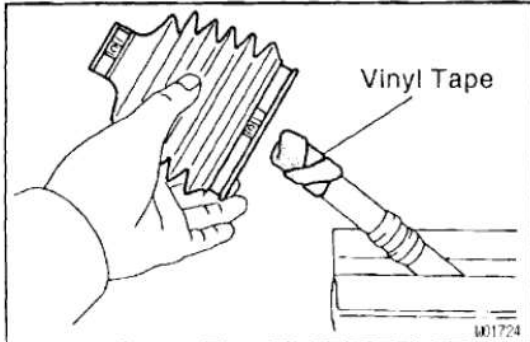
1. INSTALL DUST COVER

Using a screwdriver and hammer, install a new dust cover.

2. INSTALL DUST SEAL

Using a screwdriver and hammer, install a new dust seal.

SST 09613-26010



3. TEMPORARILY INSTALL NEW BOOTS TO DRIVE SHAFT

HINT:

- Before installing the 2 boots, wrap vinyl tape around the spline of the shaft to prevent the boots from damaging.
- Place 2 new clamps to the outboard joint boot and install them to the drive shaft.

4. INSTALL TRIPOD JOINT

- Place the beveled side of the tripod axial spline toward the outboard joint.
- Align the matchmarks placed before installation.
- Using a brass bar and hammer, install the tripod joint onto the drive shaft.

NOTICE: Do not tap the roller.

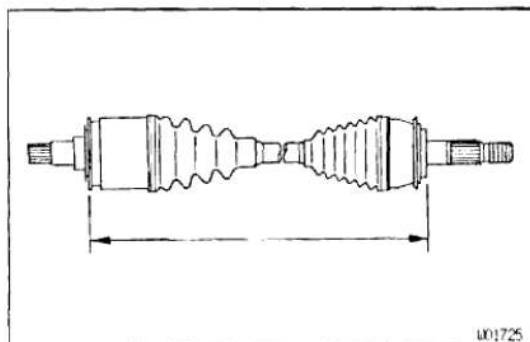
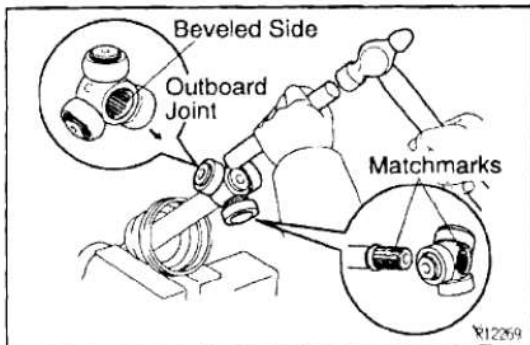
- Using a snap ring expander, install a new snap ring.

5. ASSEMBLE BOOT TO OUTBOARD JOINT

Before assembling the boot, pack the outboard joint and boot with grease in the boot kit.

6. ASSEMBLE BOOT AND INBOARD JOINT TULIP

- Pack the inboard joint and boot with grease in the boot kit.
- Align the matchmarks placed before assembly.
- Install the inboard joint tulip to the drive shaft.
- Temporarily install the boot to the inboard joint tulip.



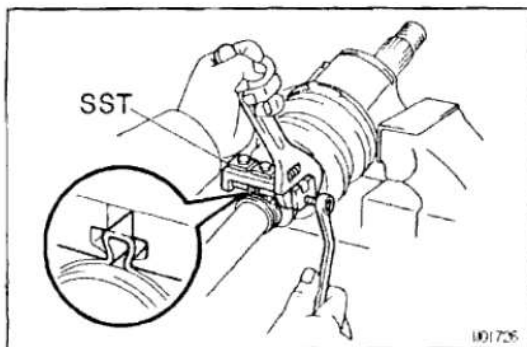
7. ASSEMBLE NEW INBOARD JOINT BOOT CLAMPS TO BOOT

- Make sure that the 2 boots are in the shaft groove.
- Make sure that the 2 boots are not stretched or contracted when the drive shaft is at the standard length.

Drive shaft standard length:

$530.8 \pm 5.0 \text{ mm}$ ($20.898 \pm 0.197 \text{ in.}$)

- Place 2 new inboard joint large boot clamps.
- Bend the band and lock it with a screwdriver.

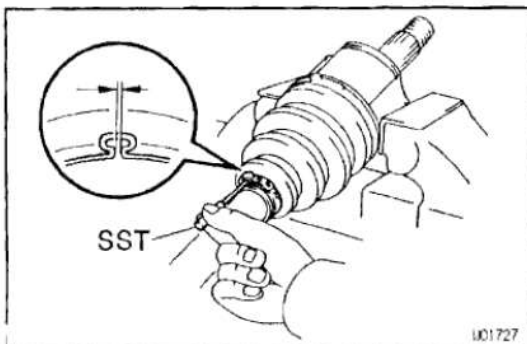


- (e) To assemble the 2 outboard joint boot clamps, pinch the clamps and adjust clearance with SST.

NOTICE: Do not overtighten the SST.

SST 09521-24010

Clearance: 0.8 mm (0.031 in.)



- (f) Measure the clearance of the 2 outboard joint boot clamps with SST.

SST 09240-00020

8. CHECK DRIVE SHAFT

(See page SA-20)

SA

FRONT DRIVE SHAFT INSTALLATION

SA37M-03

Installation is in the reverse order of removal.

HINT: After installation, fill differential with differential oil. (See page SA-29)

FRONT DIFFERENTIAL

PREPARATION

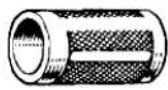
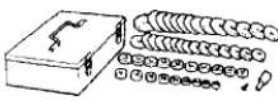
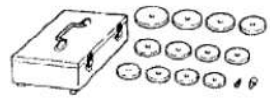
SST (SPECIAL SERVICE TOOLS)

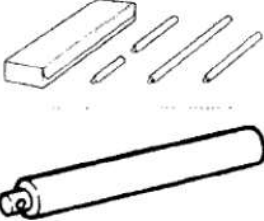
BAZEN-OK

	09223-15020	Oil Seal & Bearing Replacer	Side gear shaft tube oil seal
	09226-10010	Crankshaft Front & Rear Bearing Replacer	Side bearing
	09308-00010	Oil Seal Puller	Side gear shaft tube oil seal Side oil seal
	09308-10010	Oil Seal Puller	Rear oil seal
	09309-37010	Transmission Bearing Replacer	Side gear shaft bearing
	09330-00021	Companion Flange Holding Tool	Companion flange Rear bearing
	09350-20015	TOYOTA Automatic Transmission Tool Set	Intermediate shaft
	09502-12010	Differential Bearing Replacer	Rear bearing outer race
	09506-30012	Differential Drive Pinion Rear Bearing Cone Replacer	Rear bearing
	09554-22010	Differential Oil Seal Replacer	Rear oil seal
	09556-22010	Drive Pinion Front Bearing Remover	Rear bearing
	09564-32011	Differential Preload Adaptor	Ring gear backlash inspection

SA

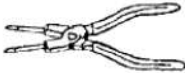
cardiagn.co

	09570-22011 Differential Mounting Cushion Remover & Replacer	Drive pinion bearing race
	09608-32010 Steering Knuckle Oil Seal Replacer	Side oil seal
	09612-65014 Steering Worm Bearing Puller	Rear bearing outer race
	09636-20010 Upper Ball Joint Dust Cover Replacer	Dust deflector
	09950-00020 Bearing Remover	Front bearing Dust deflector
	09950-30010 Puller A Set	Companion flange Front bearing
	09950-40010 Puller B Set	Side bearing Intermediate shaft
	09950-60010 Replacer Set	
	(09951-00380) Replacer 38	Needle bearing
	(09951-00480) Replacer 48	Side bearing
	(09951-00540) Replacer 54	Side bearing outer race (retainer side)
	(09951-00600) Replacer 60	Oil deflector
	(09951-00650) Replacer 65	Side bearing outer race (carrier side)
	09950-60020 Replacer Set No.2	

	(09951-00710) Replacer 71	Oil deflector
	(09951-00790) Replacer 79	Side bearing outer race
	09950-70010 Handle Set (09951-07150) Handle 150	

RECOMMENDED TOOLS

SA087-0C

	09025-00010 Torque Wrench (30 kgf.cm) .	
	09031-00030 Pin Punch .	
	09044-00010 Torx Socket E14 .	
	09905-00012 Snap Ring No.1 Expander .	
	09905-00013 Snap Ring Pliers .	

EQUIPMENT

SA080-0F

Dial indicator or dial indicator with magnetic base	
Micrometer	
Torque wrench	

LUBRICANT

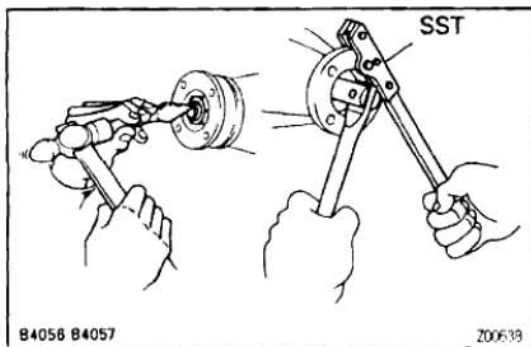
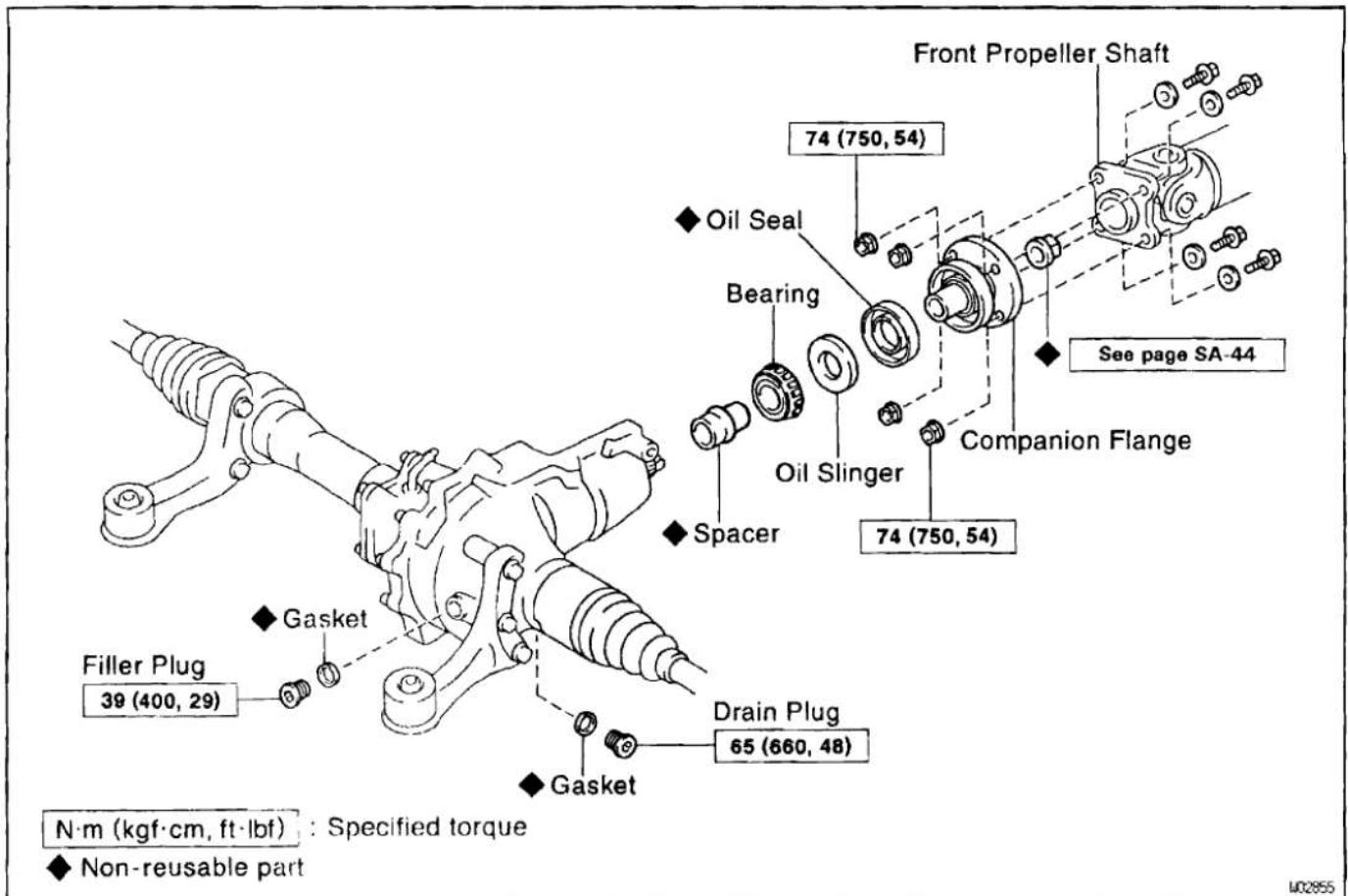
Item	Capacity	Classification
Differential oil	1.10 liters (1.16 US qts, 0.97 Imp.qts)	Hypoid gear oil API GL—5 SAE 90

SSM (SPECIAL SERVICE MATERIALS)

08826—00090	Seal Packing 1281, THREE BOND 1281 or equivalent (FIPG)	Differential carrier x Side bearing retainer Side bearing retainer x Differential tube flange
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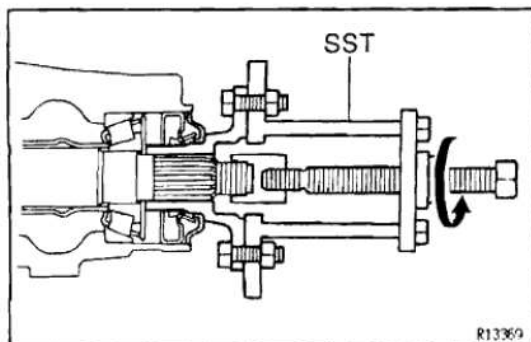
ON-VEHICLE REPAIR COMPONENTS

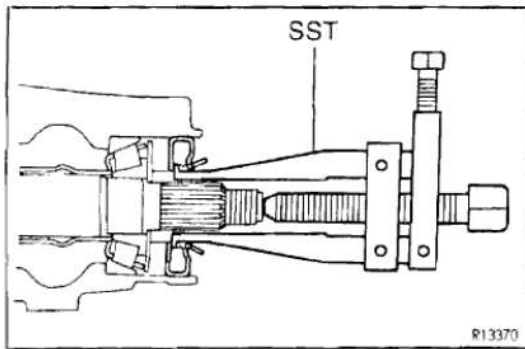
SA048-0C



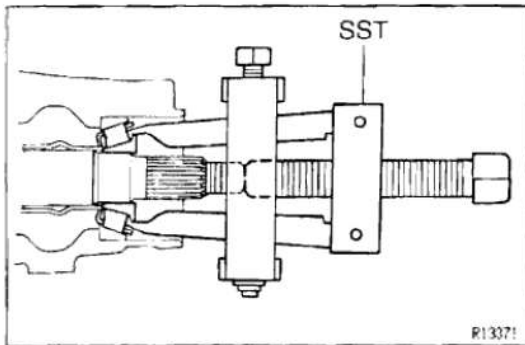
REAR OIL SEAL REPLACEMENT

1. REMOVE ENGINE UNDER COVER
2. REMOVE FRONT PROPELLER SHAFT
(See page PR-3)
3. REMOVE COMPANION FLANGE
 - (a) Using a chisel and hammer, unstake the nut.
 - (b) Using SST to hold the flange, remove the nut.
SST 09330-00021
 - (c) Using SST, remove the companion flange.
SST 09950-30010 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

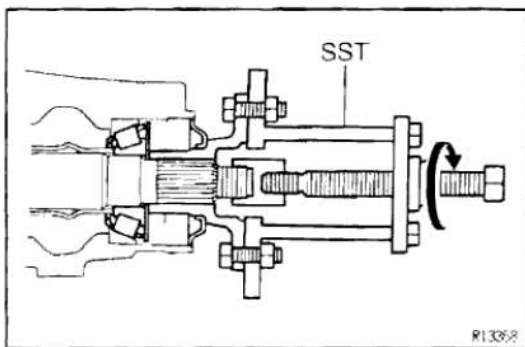


**4. REMOVE OIL SEAL AND OIL SLINGER**

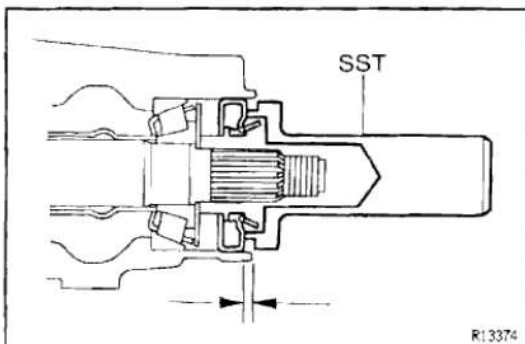
- (a) Using SST, remove the oil seal.
SST 09308-10010
- (b) Remove the oil slinger.

**5. REMOVE REAR BEARING AND BEARING SPACER**

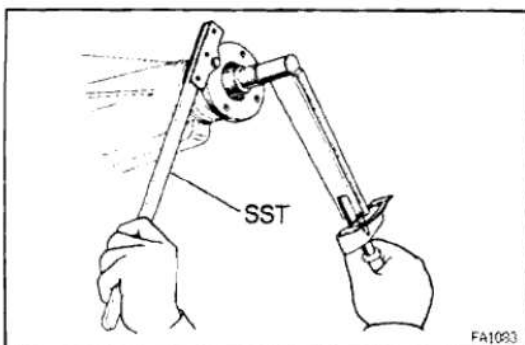
- (a) Using SST, remove the rear bearing from the drive pinion.
SST 09556-22010
- (b) Remove the bearing spacer.

**6. INSTALL BEARING SPACER, REAR BEARING AND OIL SLINGER**

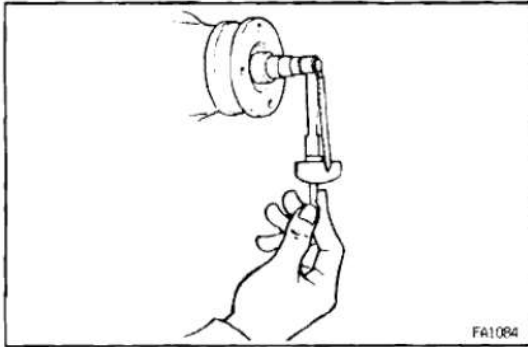
- (a) Install a new bearing spacer, place the rear bearing and oil slinger.
- (b) Using SST and the companion flange, install the rear bearing then remove the companion flange.
SST 09950-30010 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

**7. INSTALL NEW OIL SEAL**

- (a) Coat a new oil seal lip with MP grease.
- (b) Using SST and a hammer, install the oil seal.
SST 09554-22010
Oil seal drive in depth: 4.5 mm (0.177 in.)

**8. INSTALL COMPANION FLANGE**

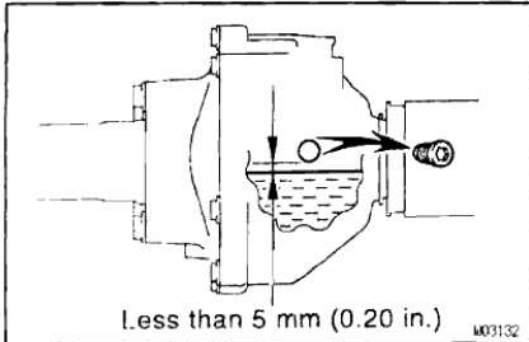
- (a) Place the companion flange on the drive pinion.
- (b) Coat the threads of a new nut with hypoid gear oil.
- (c) Using SST to hold the flange, torque the nut.
SST 09330-00021
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

**9. ADJUST DRIVE PINION PRELOAD**

(See page SA-44)

10. STAKE DRIVE PINION NUT**11. INSTALL FRONT PROPELLER SHAFT**

(See page PR-8)

**12. FILL DIFFERENTIAL WITH DIFFERENTIAL OIL**

Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

Oil type: Hypoid gear oil API GL-5

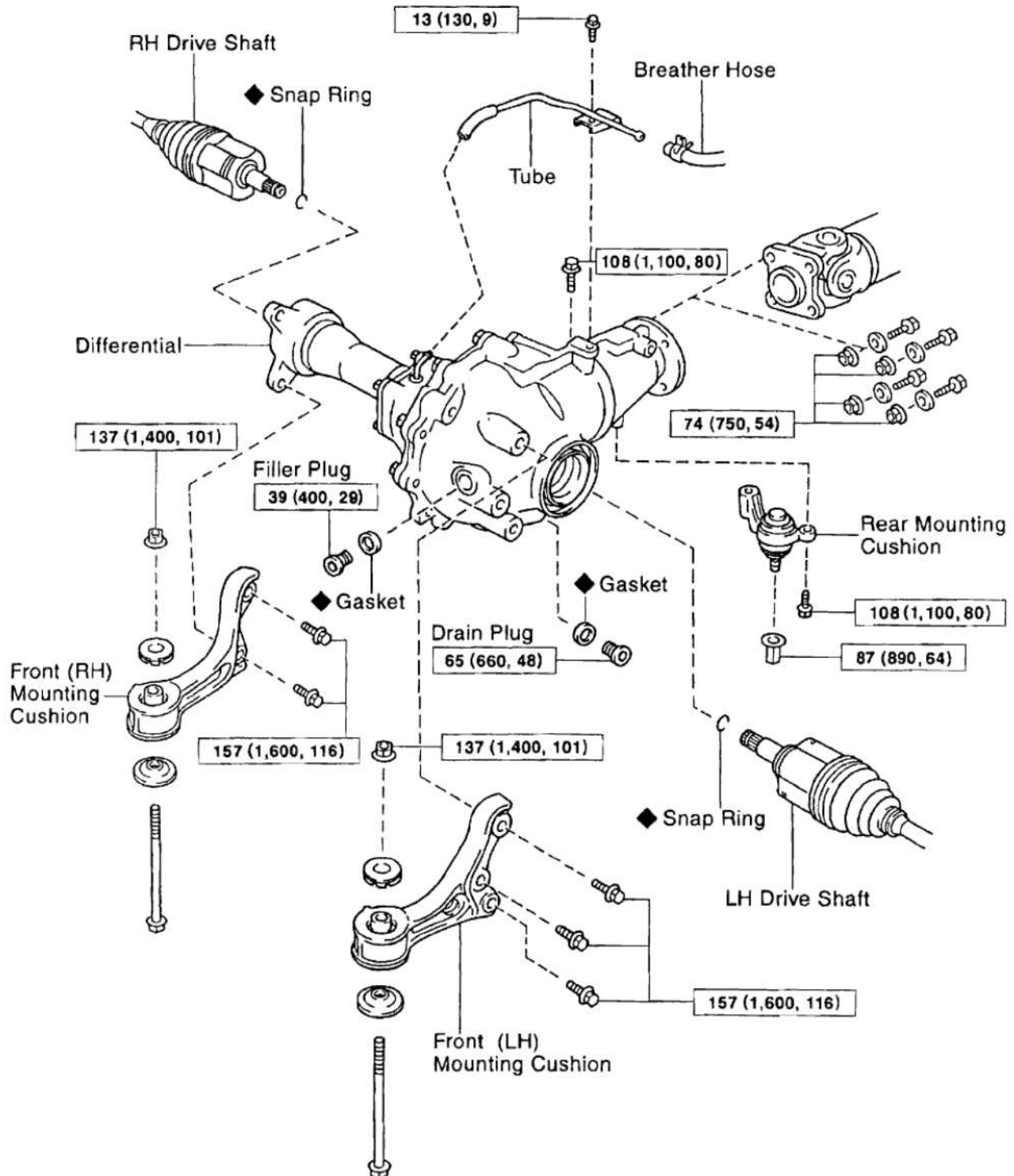
Recommended oil viscosity: SAE 90

Capacity: 1.10 liters (1.16 US qts, 0.97 Imp.qts)

13. INSTALL UNDER COVER

ASSEMBLY REMOVAL AND INSTALLATION COMPONENTS

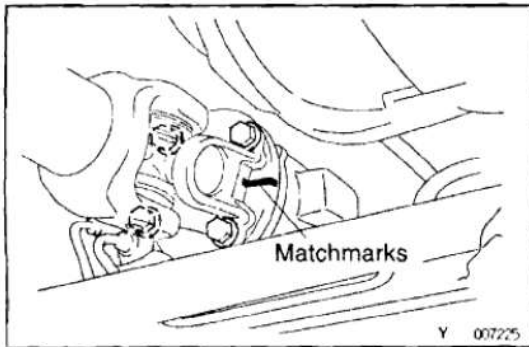
SAGU-0C



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

W02063



FRONT DIFFERENTIAL REMOVAL

1. REMOVE ENGINE UNDER COVER AND DRAIN DIFFERENTIAL OIL

Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

2. REMOVE DRIVE SHAFTS

(See page SA-19)

3. DISCONNECT FRONT PROPELLER SHAFT

(a) Place matchmarks on the flanges.

(b) Remove the 4 nuts, washers and bolts, then disconnect the propeller shaft.

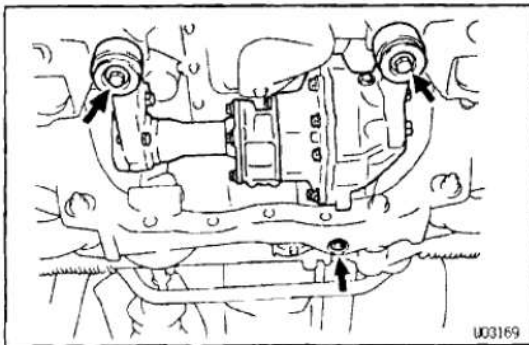
Torque: 74 N·m (750 kgf·cm, 54 ft·lbf)

4. REMOVE BREATHER TUBE FROM DIFFERENTIAL

(a) Disconnect the breather hose.

(b) Remove the bolt and tube from the differential.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)



5. REMOVE FRONT DIFFERENTIAL ASSEMBLY

(a) Support the front differential with a jack.

(b) Remove the rear mounting nut.

Torque: 87 N·m (890 kgf·cm, 64 ft·lbf)

(c) Remove the front mounting bolts.

Torque: 137 N·m (1,400 kgf·cm, 101 ft·lbf)

(d) Lower the jack and remove the front differential assembly.

6. REMOVE DIFFERENTIAL MOUNTING CUSHIONS

(a) Remove the rear mounting cushion.

Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

(b) Remove the front mounting cushions.

Torque: 157 N·m (1,600 kgf·cm, 116 ft·lbf)

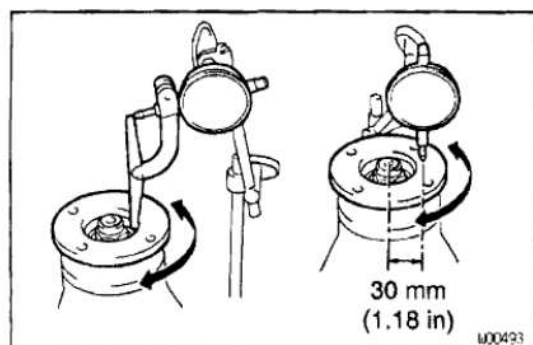
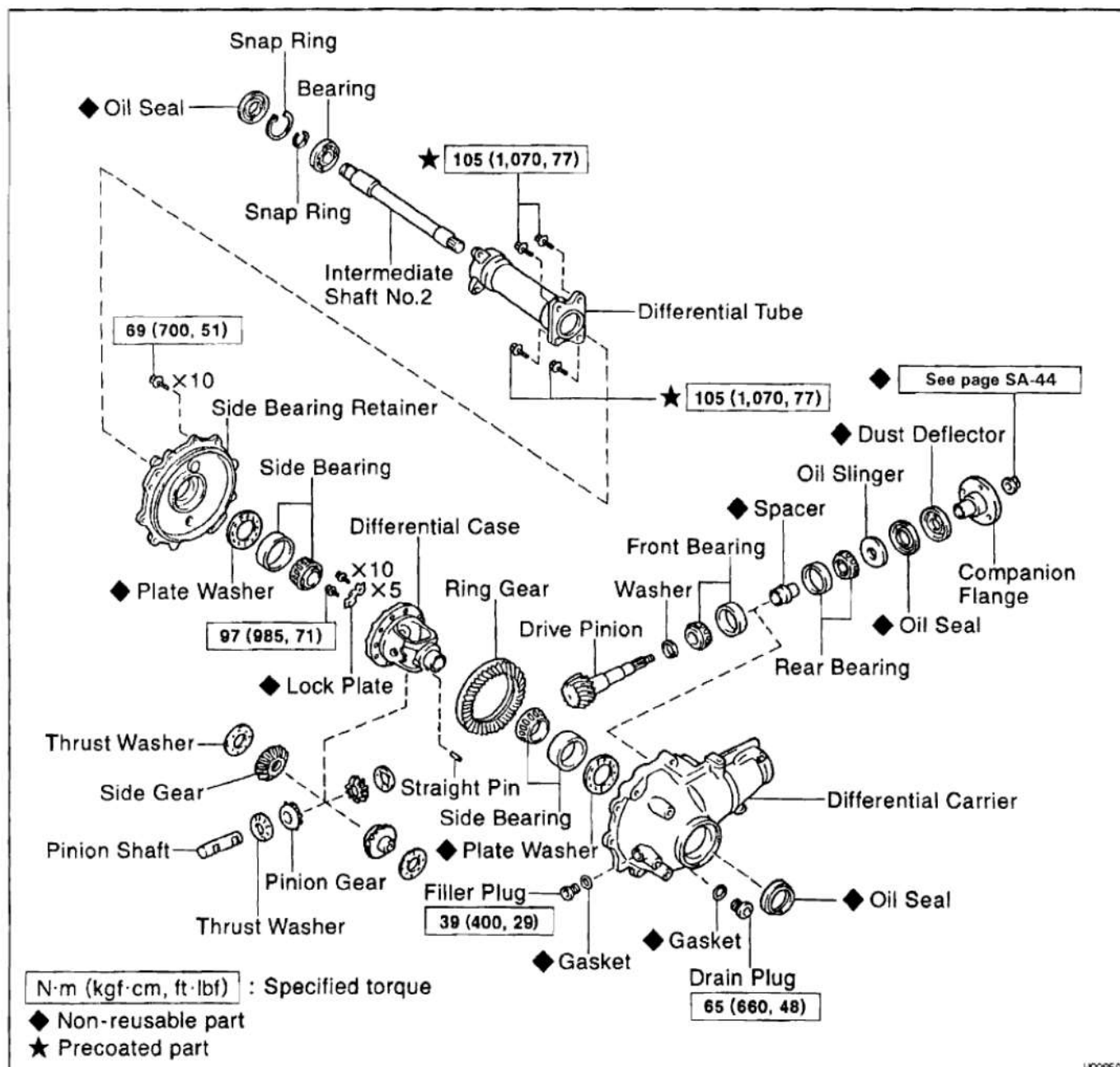
FRONT DIFFERENTIAL INSTALLATION

Installation is in the reverse order of removal.

HINT: After installation, fill differential with differential oil. (See page SA-29)

DIFFERENTIAL CARRIER COMPONENTS

BADM-09



DIFFERENTIAL CARRIER INSPECTION

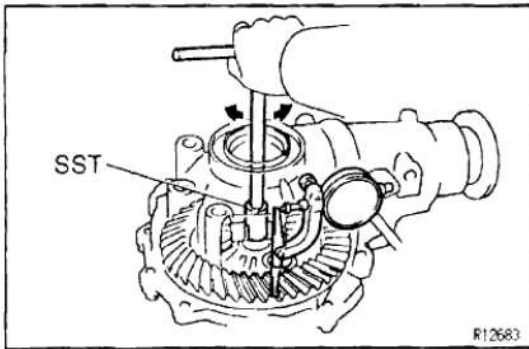
SA1X1-08

1. CHECK RUNOUT OF COMPANION FLANGE

Using a dial indicator, measure the vertical and lateral runout of the companion flange.

Maximum runout: 0.10 mm (0.0039 in.)

If the runout is greater than the maximum, replace the companion flange.



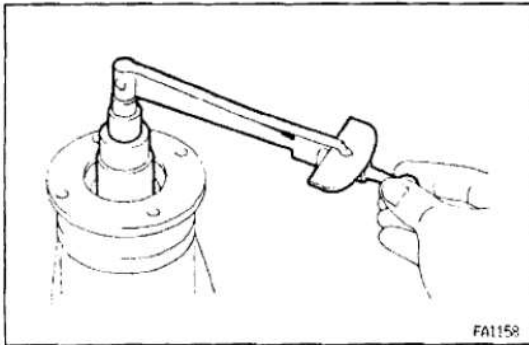
2. CHECK RING GEAR BACKLASH

Using SST and a dial indicator, measure the ring gear backlash.

SST 09564-32011

Backlash: 0.10–0.18 mm (0.0039–0.0071 in.)

If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.



3. MEASURE DRIVE PINION PRELOAD

Using a torque wrench, measure the preload of backlash between the drive pinion and ring gear.

Preload (at starting):

0.6–1.0 N·m (6–10 kgf·cm, 5.2–8.7 in.-lbf)

4. CHECK TOTAL PRELOAD

Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):

Drive pinion preload plus

0.4–0.6 N·m (4–6 kgf·cm, 3.5–5.2 in.-lbf)

If necessary, disassemble and inspect the differential.

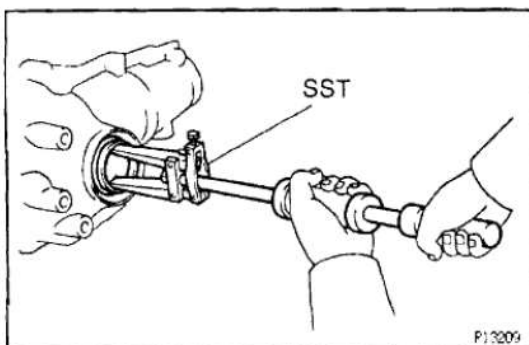
DIFFERENTIAL CARRIER DISASSEMBLY

SA3PO-01

1. REMOVE DIFFERENTIAL TUBE

(a) Remove the bolts.

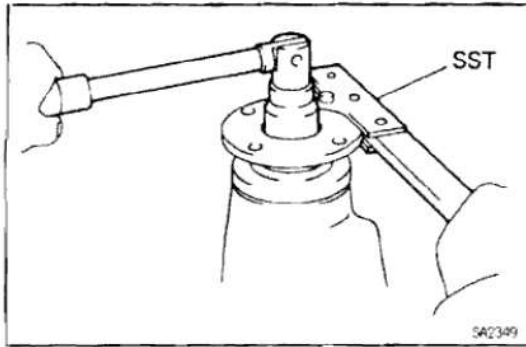
(b) Using a plastic hammer, tap on the differential tube to remove it.



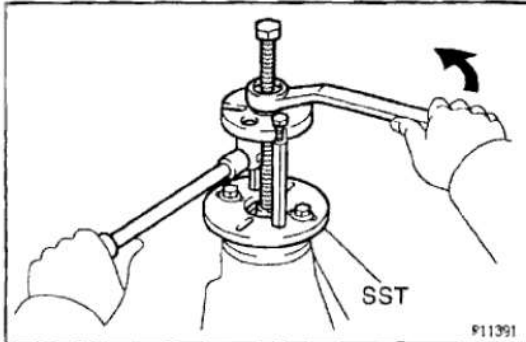
2. REMOVE SIDE OIL SEAL

Using SST, remove the side oil seal.

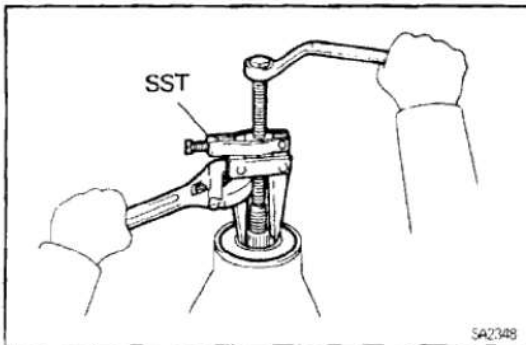
SST 09308-00010

**3. REMOVE COMPANION FLANGE**

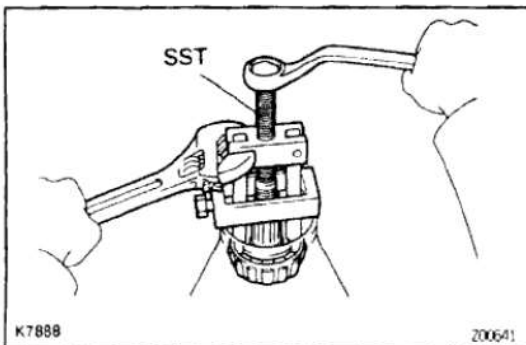
- (a) Using a chisel and hammer, unstake the nut.
- (b) Using SST to hold the flange, remove the nut.
SST 09330-00021



- (c) Using SST, remove the companion flange.
SST 09950-30010 (09951-03010, 09953-03010,
09954-03010, 09955-03030, 09956-03020)

**4. REMOVE OIL SEAL AND OIL SLINGER**

- (a) Using SST, remove the oil seal.
SST 09308-10010
- (b) Remove the oil slinger.

**5. REMOVE REAR BEARING AND BEARING SPACER**

- (a) Using SST, remove the rear bearing from the drive pinion.
SST 09556-22010
- (b) Remove the bearing spacer.

6. REMOVE SIDE BEARING RETAINER

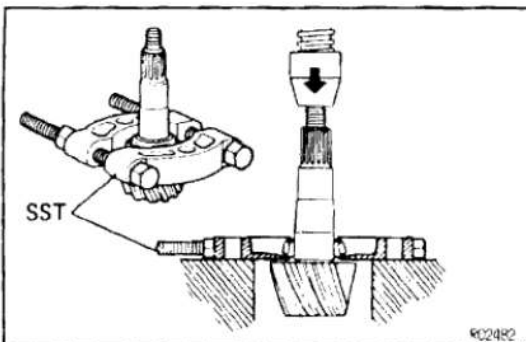
Remove the 10 bolts and tap out the retainer with a plastic hammer.

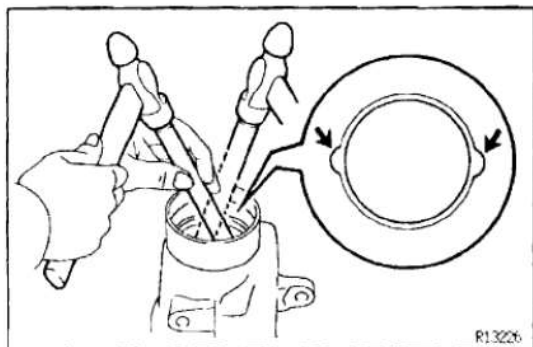
7. REMOVE DIFFERENTIAL CASE ASSEMBLY**8. REMOVE DRIVE PINION FROM DIFFERENTIAL CARRIER****9. REMOVE DRIVE PINION FRONT BEARING**

Using SST and a press, remove the bearing and washer from the drive pinion.

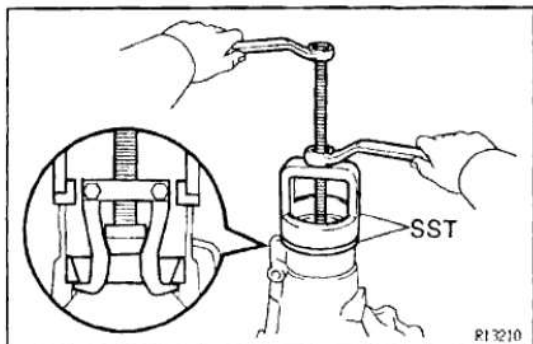
SST 09950-00020

HINT: If the drive pinion or ring gear are damaged, replace them as a set.

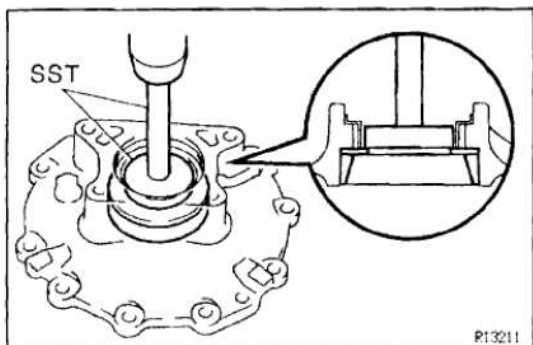


**10. REMOVE DRIVE PINION BEARING OUTER RACES**

- (a) Using a brass bar and hammer, remove the front bearing outer race.



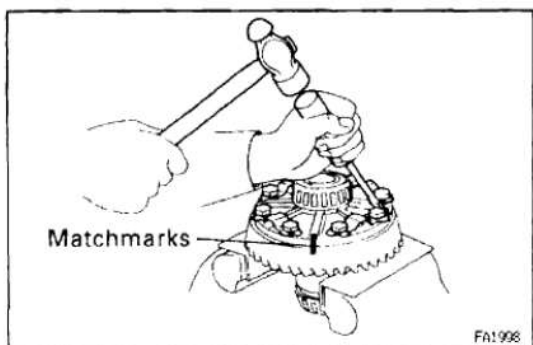
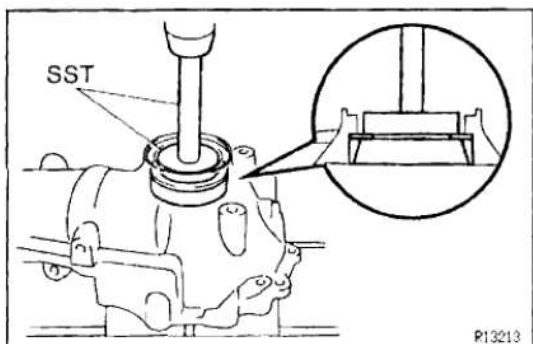
- (b) Using SST, remove the rear bearing outer race.
SST 09502-12010, 09612-65014 (09612-01020, 09612-01050)

**11. REMOVE SIDE BEARING OUTER RACES****HINT:**

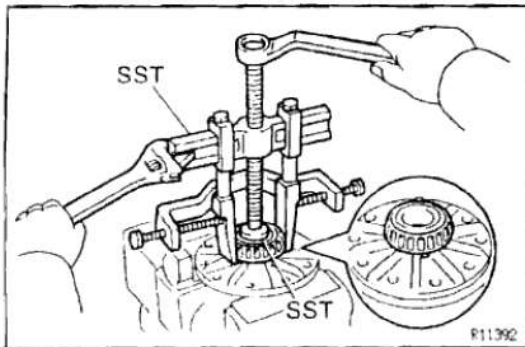
- Measure the plate washer and note the thickness.
- Tag the bearing outer races to show the location for reassembly.

- (a) Using SST and a press, remove the plate washer and outer race from the bearing retainer.
SST 09950-60010 (09951-00540), 09550-70010 (09951-01500)

- (b) Using SST and a press, remove the outer race and place washer from the differential carrier.
SST 09950-60010 (09951-00650), 09950-70010 (09951-07150)

**12. REMOVE RING GEAR**

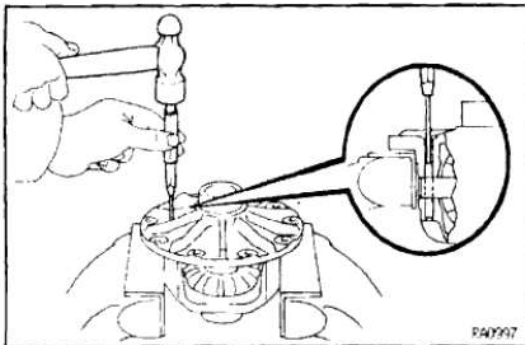
- (a) Place matchmarks on the ring gear and differential case.
- (b) Using a screwdriver, unstake the 5 lock plates.
- (c) Remove the 10 bolts and 5 lock plates.
- (d) Using a plastic hammer, tap on the ring gear to separate it from the differential case.

**13. REMOVE SIDE BEARINGS**

Using SST, remove the 2 side bearings from the differential case.

SST 09950-40010 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09954-04010, 09955-04060, 09957-04010, 09958-04010), 09950-60010 (09951-00480)

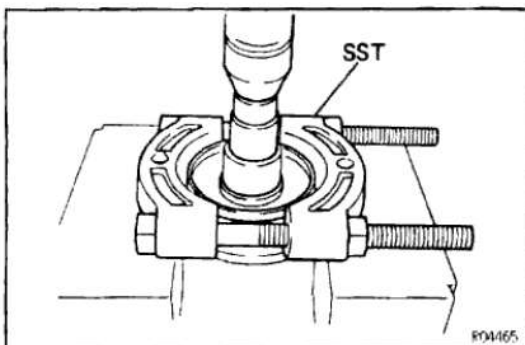
HINT: Fix the claws of SST to the notch in the differential case.

**14. DISASSEMBLE DIFFERENTIAL CASE ASSEMBLY**

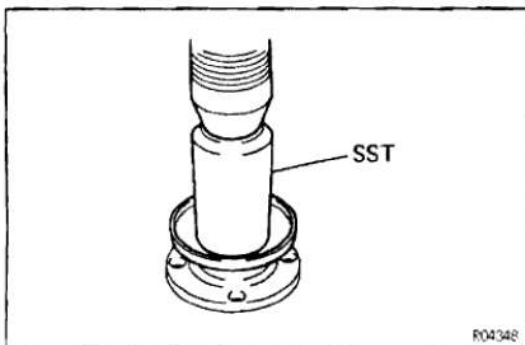
(a) Using a pin punch and hammer, remove the straight pin.

(b) Remove these parts:

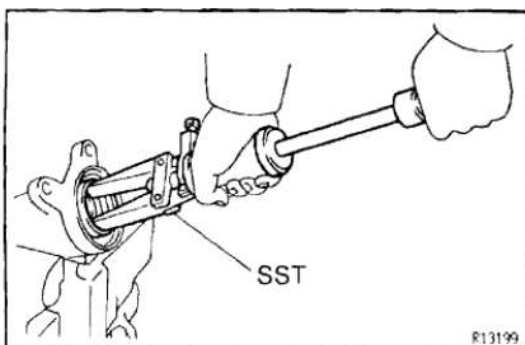
- 2 Pinion shafts
- 2 Pinion gears
- 2 Pinion gear thrust washers
- 2 Side gears
- 2 Side gear thrust washers

**COMPANION FLANGE DUST DEFLECTOR^{SAKKA-06} REPLACEMENT****1. REMOVE DUST DEFLECTOR**

Using SST and a press, remove the dust deflector.
SST 09950-00020

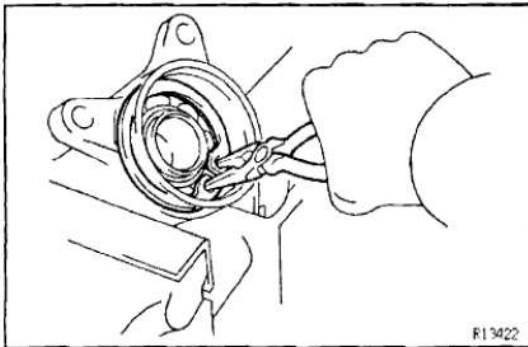
**2. INSTALL NEW DUST DEFLECTOR**

Using SST and a press, install a new dust deflector.
SST 09636-20010

**INTERMEDIATE SHAFT NO.2 REPLACEMENT****1. REMOVE OIL SEAL**

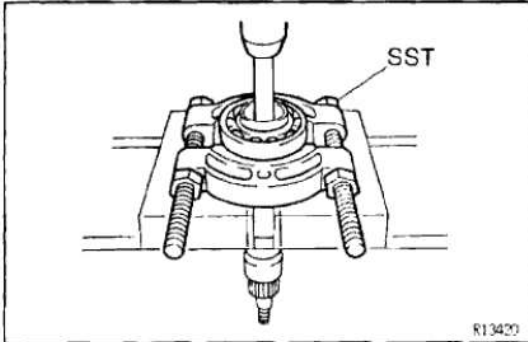
Using SST, remove the oil seal from the differential tube.

SST 09308-00010



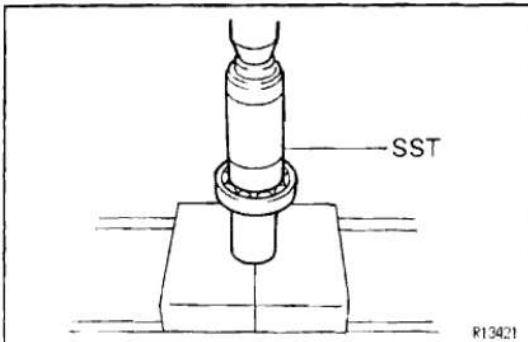
2. REMOVE INTERMEDIATE SHAFT NO.2 FROM DIFFERENTIAL TUBE

- (a) Using needle nose pliers, remove the snap ring.
- (b) Remove the shaft from the differential tube.



3. REMOVE INTERMEDIATE SHAFT NO.2 BEARING

- (a) Using a snap ring expander, remove the snap ring.
- (b) Using SST, a brass bar and press, remove the bearing. SST 09950-00020

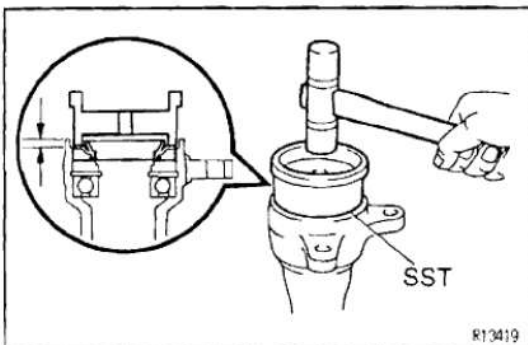


4. INSTALL NEW INTERMEDIATE SHAFT NO.2 BEARING

- (a) Using SST and a press, install a new bearing. SST 09309-37010
- (b) Using a snap ring expander, install the snap ring.

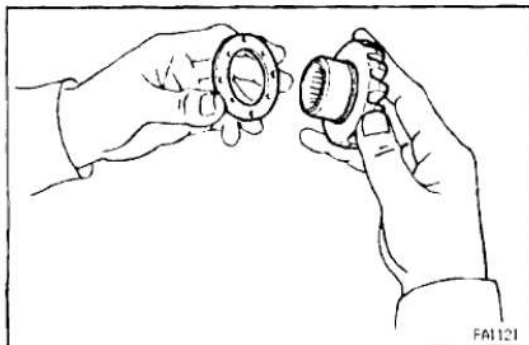
5. INSTALL INTERMEDIATE SHAFT NO.2

- (a) Install the shaft into the differential tube.
- (b) Using needle nose pliers, install the snap ring.

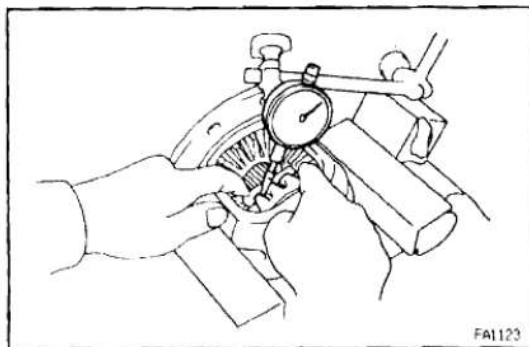


6. INSTALL NEW OIL SEAL

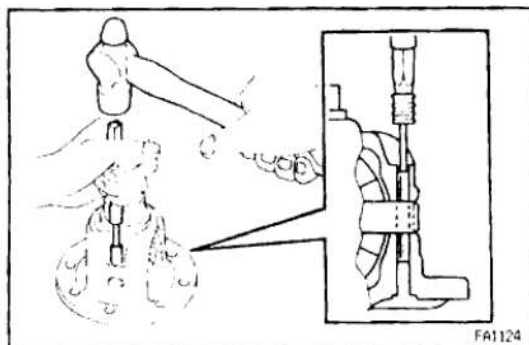
- (a) Using SST, install a new oil seal. SST 09223-15020
Oil seal drive in depth: 5.5 mm (0.217 in.)
- (b) Coat the oil seal lip with MP grease.



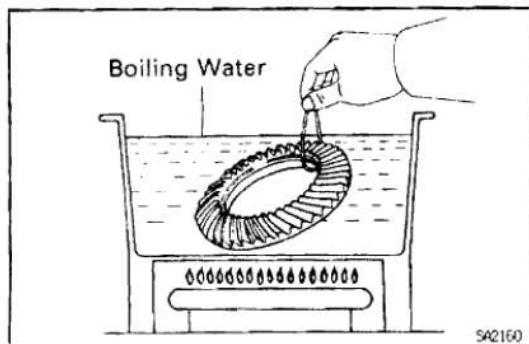
FA1121



FA1123



FA1124



SA2160

DIFFERENTIAL CARRIER ASSEMBLY

1. ASSEMBLE DIFFERENTIAL CASE

- (a) Install the proper thrust washers on the side gears.
HINT: Using the table below, select thrust washers which will ensure that the backlash is within the specifications.

Washer thickness

Thickness mm (in.)	Thickness mm (in.)
0.96–1.04 (0.0378–0.0409)	1.16–1.24 (0.0457–0.0488)
1.06–1.14 (0.0417–0.0449)	1.26–1.34 (0.0496–0.0528)

- (b) Install the side gears, pinion gears, pinion gear thrust washers and pinion shaft in the differential case.
HINT: Align the holes of the differential case and pinion shaft.

- (c) Measure the side gear backlash with holding one pinion gear toward the differential case.

Backlash: 0–0.20 mm (0–0.0079 in.)

If the backlash is not within the specification, install 2 side gear thrust washers with different thicknesses.

2. INSTALL STRAIGHT PIN AND STAKE DIFFERENTIAL CASE

- (a) Using a pin punch and hammer, install the straight pin through the differential case and hole of the pinion shaft.
(b) Stake the differential case.

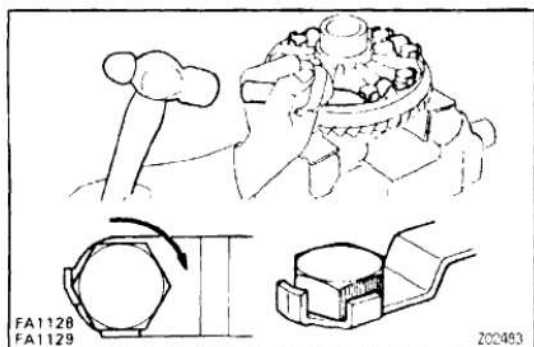
3. INSTALL RING GEAR ON DIFFERENTIAL CASE

- (a) Clean the contact surfaces of the differential case and ring gear.
(b) Heat the ring gear to about 100°C (212°F) in boiling water.
(c) Carefully remove the ring gear from the water.
(d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.

HINT: Align the matchmarks on the ring gear and differential case.

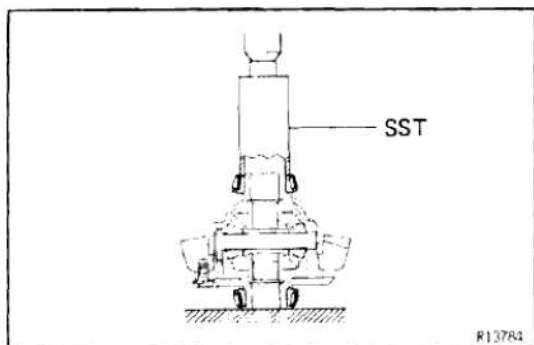
- (e) Temporarily install 5 new lock plates and 10 bolts so that the bolt holes in the ring gear and differential case are not misaligned.
(f) After the ring gear has cooled sufficiently, torque the ring gear set bolts.

Torque: 97 N·m (985 kgf·cm, 71 ft·lbf)



- (g) Using a drift punch and hammer, stake the 5 lock plates.

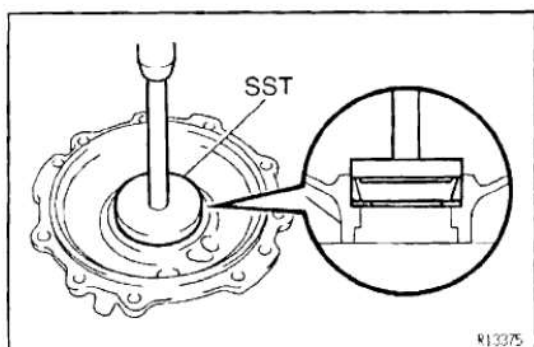
HINT: Stake one claw flush with the flat surface of the bolt. For the claw contacting the protruding portion of the bolt, stake only the half portion of the tightening side.



4. INSTALL SIDE BEARINGS

Using SST and a press, install the 2 bearings into the differential case.

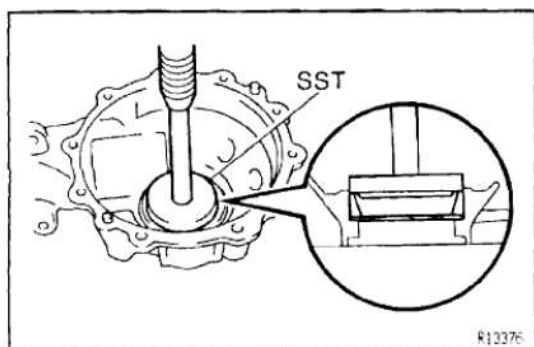
SST 09226-10010



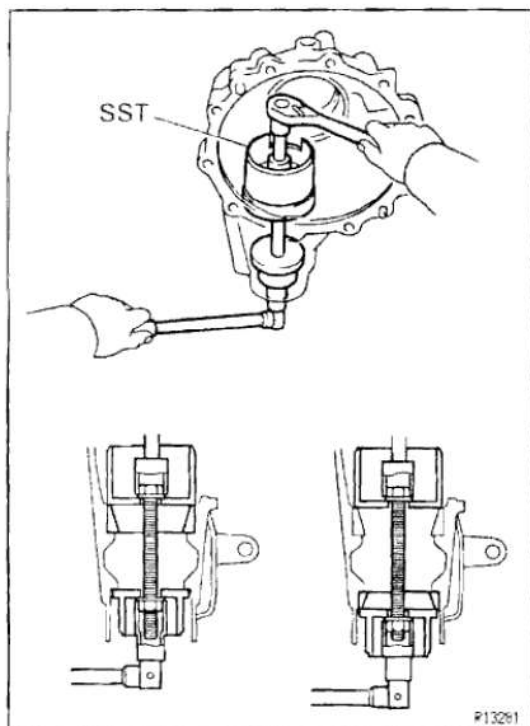
5. INSTALL SIDE BEARING OUTER RACES

HINT: When replacing the 2 side bearings, fit the thinnest washers to each bearing and when reusing the bearings, fit the washers with the same thickness as removed.

- Install a new plate washer to the bearing retainer.
- Using SST and a press, install the bearing outer race.
SST 09950-60020 (09951-00790),
09950-70010 (09951-07150)



- Install a new plate washer to the differential carrier.
- Using SST and a press, install the bearing outer race.
SST 09950-60020 (09951-00790),
09950-70010 (09951-07150)

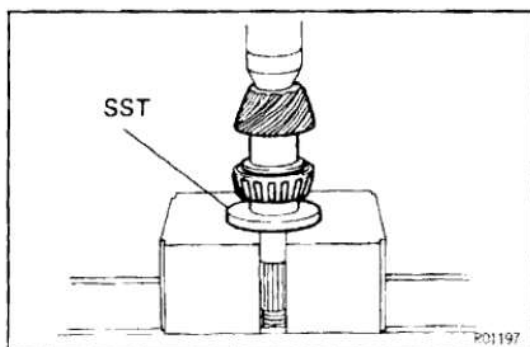


6. INSTALL DRIVE PINION FRONT AND REAR BEARING OUTER RACES

Using SST, install the 2 outer races.

SST 09570-22011

SA



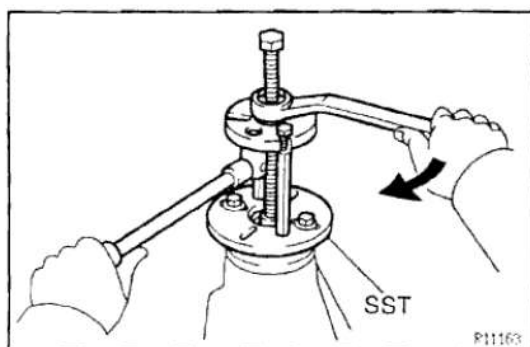
7. INSTALL DRIVE PINION FRONT BEARING

- (a) Install the washer on the drive pinion.

HINT: First fit a washer with the same thickness with the removed washer, then after checking the tooth contact pattern, replace the washer with one of a different thickness if necessary.

- (b) Using SST and a press, install the front bearing onto the drive pinion.

SST 09506-30012



8. TEMPORARILY ADJUST DRIVE PINION PRELOAD

- (a) Install the drive pinion and oil slinger.

HINT: Assemble the spacer and oil seal after adjusting the ring gear tooth contact pattern.

- (b) Using SST, install the rear bearing, oil slinger and companion flange.

SST 09950-30010 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

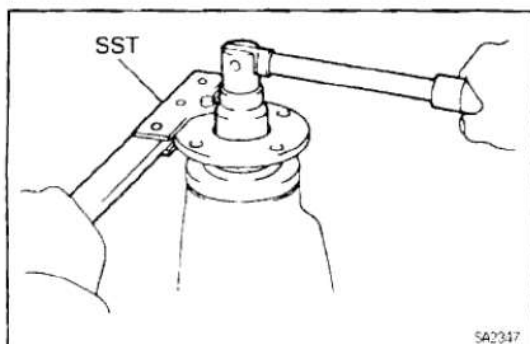
- (c) Coat the threads of the nut with hypoid gear oil.

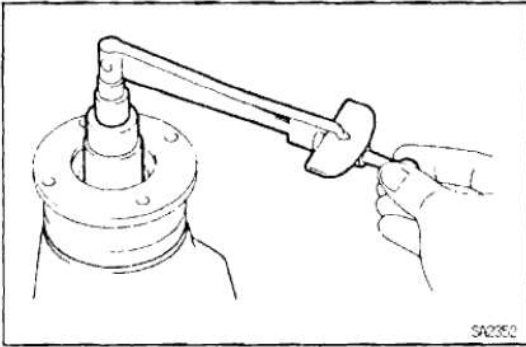
- (d) Adjust the drive pinion preload by tightening the companion flange nut.

Using SST to hold the flange, tighten the nut.

SST 09330-00021

NOTICE: As there is no spacer, tighten the nut a little at a time, being careful not to overtighten it.





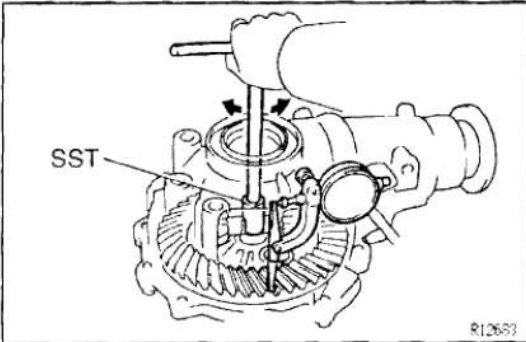
- (e) Using a torque wrench, measure the preload.

New bearing preload (at starting):

1.2–1.9 N·m (12–19 kgf·cm, 10.4–16.5 in.-lbf)

Reused bearing preload (at starting):

0.6–1.0 N·m (6–10 kgf·cm, 5.2–8.7 in.-lbf)



9. INSTALL DIFFERENTIAL CASE IN DIFFERENTIAL CARRIER

10. ADJUST RING GEAR BACKLASH

- (a) Install the side bearing retainer with the 10 bolts.

Torque: 69 N·m (700 kgf·cm, 51 ft-lbf)

- (b) Using SST and a dial indicator, measure the ring gear backlash.

SST 09564–32011

Backlash: 0.10–0.18 mm (0.0039–0.0070 in.)

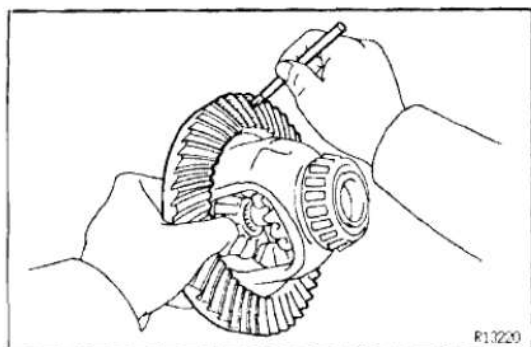
- (c) If it is not within the specification, adjust it by either increasing or decreasing the washers on both sides by an equal amount.

HINT: There should be no clearance between the plate washer and case.

Make sure that there is ring gear backlash.

Washer thickness

Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
2.00–2.02 (0.0787–0.0795)	2.27–2.29 (0.0894–0.0902)	2.54–2.56 (0.1000–0.1008)
2.03–2.05 (0.0799–0.0807)	2.30–2.32 (0.0906–0.0913)	2.57–2.59 (0.1012–0.1020)
2.06–2.08 (0.0811–0.0819)	2.33–2.35 (0.0917–0.0925)	2.60–2.62 (0.1024–0.1031)
2.09–2.11 (0.0823–0.0831)	2.36–2.38 (0.0929–0.0937)	2.63–2.65 (0.1035–0.1043)
2.12–2.14 (0.0835–0.0843)	2.39–2.41 (0.0941–0.0949)	2.66–2.68 (0.1047–0.1055)
2.15–2.17 (0.0846–0.0854)	2.42–2.44 (0.0953–0.0961)	2.69–2.71 (0.1059–0.1067)
2.18–2.20 (0.0858–0.0866)	2.45–2.47 (0.0965–0.0972)	2.72–2.74 (0.1071–0.1079)
2.21–2.23 (0.0870–0.0878)	2.48–2.50 (0.0976–0.0984)	2.75–2.77 (0.1083–0.1091)
2.24–2.26 (0.0882–0.0890)	2.51–2.53 (0.0988–0.0996)	2.78–2.80 (0.1094–0.1102)

**11. MEASURE TOTAL PRELOAD**

Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

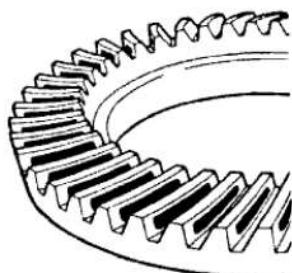
Total preload (at starting):

Drive pinion preload plus

0.4–0.6 N·m (4–6 kgf·cm, 3.5–5.2 in.-lbf)

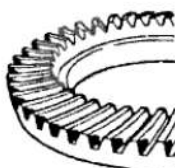
12. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- Remove the side bearing retainer and differential case.
- Coat 3 or 4 teeth at 3 different positions on the ring gear with red lead.
- Install the differential case and side bearing retainer. Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)
- Hold the companion flange firmly and rotate the ring gear in both directions.
- Remove the side bearing retainer and differential case.
- Inspect the tooth contact pattern.

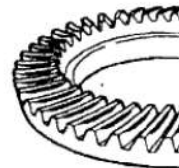


Proper Contact

Heel Contact

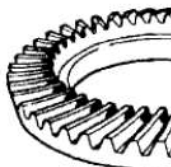


Face Contact

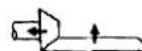
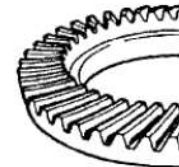


Select an adjusting washer that will bring the drive pinion closer to the ring gear.

Toe Contact



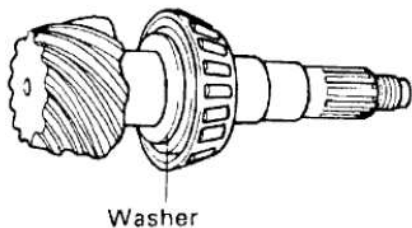
Flank Contact



Select an adjusting washer that will shift the drive pinion away from the ring gear.

K3673

Z00699



Washer

FA2008

If the teeth are not contacting properly, use the following chart to select a proper washer for correction.

Washer thickness

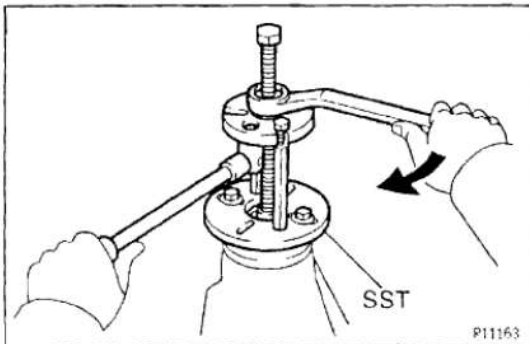
Thickness mm (in.)	Thickness mm (in.)	Thickness mm (in.)
1.69–1.71 (0.0665–0.0673)	1.93–1.95 (0.0760–0.0768)	2.17–2.19 (0.0854–0.0862)
1.72–1.74 (0.0677–0.0685)	1.96–1.98 (0.0772–0.0780)	2.20–2.22 (0.0866–0.0874)
1.75–1.77 (0.0689–0.0697)	1.99–2.01 (0.0783–0.0791)	2.23–2.25 (0.0878–0.0886)
1.78–1.80 (0.0701–0.0709)	2.02–2.04 (0.0795–0.0803)	2.26–2.28 (0.0890–0.0898)
1.81–1.83 (0.0713–0.0720)	2.05–2.07 (0.0807–0.0815)	2.29–2.31 (0.0902–0.0909)
1.84–1.86 (0.0724–0.0732)	2.08–2.10 (0.0819–0.0827)	2.32–2.34 (0.0913–0.0921)
1.87–1.89 (0.0736–0.0744)	2.11–2.13 (0.0831–0.0839)	—
1.90–1.92 (0.0748–0.0756)	2.14–2.16 (0.0843–0.0850)	—

13. REMOVE COMPANION FLANGE AND OIL SLINGER

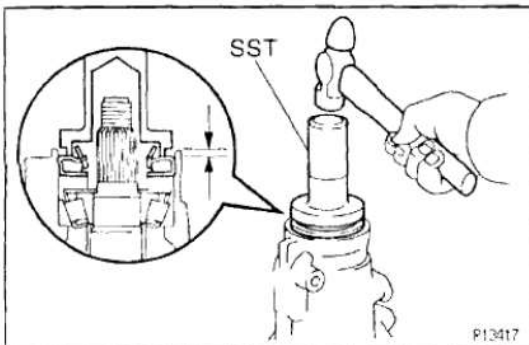
(See page SA–34)

14. REMOVE REAR BEARING

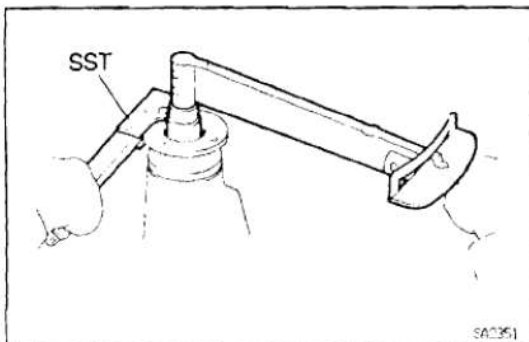
(See page SA–34)

**15. INSTALL NEW BEARING SPACER, REAR BEARING AND OIL SLINGER**

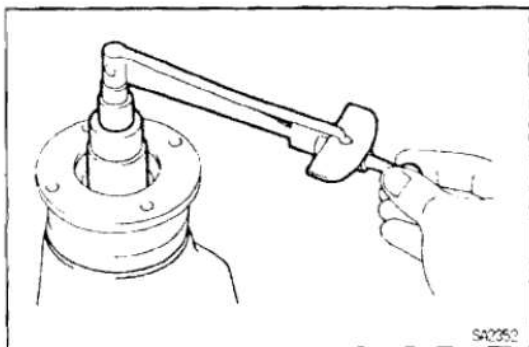
- Install a new bearing spacer and place the rear bearing and oil slinger.
- Using SST and the companion flange, install the rear bearing then remove the companion flange.
SST 09950–30010 (09951–03010, 09953–03010, 09954–03010, 09955–03030, 09956–03020)

**16. INSTALL OIL SEAL**

- Coat a new oil seal lip with MP grease.
- Using SST and a hammer, install the oil seal.
SST 09554–22010
Oil seal drive in depth: 4.5 mm (0.177 in.)

**17. INSTALL COMPANION FLANGE**

- Place the companion flange on the drive pinion.
- Coat the threads of a new nut with hypoid gear oil.
- Using SST to hold the flange, torque the nut.
SST 09330–00021
Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)

**18. ADJUST DRIVE PINION PRELOAD**

Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

New bearing preload (at starting):

1.2–1.9 N·m (12–19 kgf·cm, 10.4–16.5 in.-lbf)

Reused bearing preload (at starting):

0.6–1.0 N·m (6–10 kgf·cm, 5.2–8.7 in.-lbf)

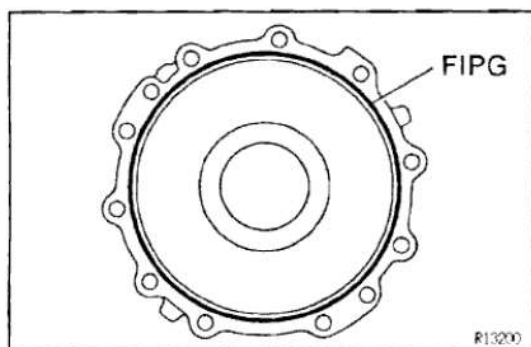
If the preload is greater than the specification, replace the bearing spacer.

If the preload is less than the specification, retighten the nut 13 N·m (130 kgf·cm, 9 ft-lbf) a little at a time until the specified preload is reached.

Maximum torque: 223 N·m (2,275 kgf·cm, 165 ft-lbf)

If the maximum torque is exceeded with retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the nut to reduce the preload.

SA

**19. INSTALL DIFFERENTIAL CASE****20. INSTALL SIDE BEARING RETAINER**

- (a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential carrier and side bearing retainer.
- (b) Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.
- (c) Apply FIPG to the side bearing retainer, as shown.

FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT: Install the side bearing retainer within 10 minutes after applying FIPG.

- (d) Install the side bearing retainer with the 10 bolts.
Torque: 69 N·m (700 kgf·cm, 51 ft-lbf)

21. CHECK TOTAL PRELOAD**22. RECHECK RING GEAR BACKLASH**

(See page SA-33)

23. RECHECK TEETH CONTACT BETWEEN RING GEAR AND DRIVE PINION

(See page SA-42)

24. CHECK RUNOUT OF COMPANION FLANGE

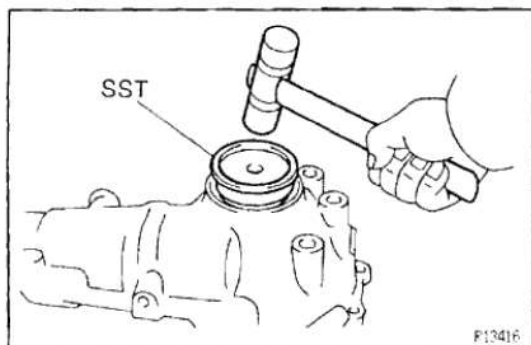
(See page SA-32)

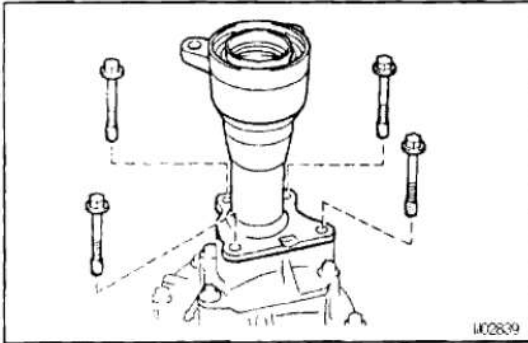
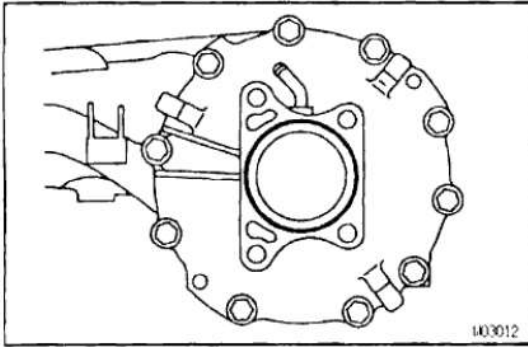
25. STAKE DRIVE PINION NUT**26. INSTALL SIDE OIL SEAL**

- (a) Using SST and a hammer, install a new oil seal until its surface is flush with the differential carrier end.

SST 09608-32010

- (b) Coat the oil seal lip with MP grease.



**27. INSTALL DIFFERENTIAL TUBE TO DIFFERENTIAL**

(a) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential and tube flange.

(b) Clean contacting surfaces of any residual FIPG material using gasoline or alcohol.

(c) Apply FIPG to the differential, as shown.

FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT: Install the differential tube within 10 minutes after applying FIPG.

(d) Install the differential tube to the differential.

(e) Clean the threads of the 4 bolts and retainer bolt holes with toluene or trichlorethylene.

(f) Apply adhesive to 2 or 3 threads of the bolts end.

FIPG: Part No. 08826-00070, THREE BOND 1324 or equivalent

(g) Torque the 4 bolts.

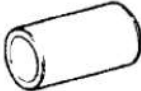
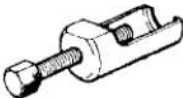
Torque: 105 N·m (1,070 kgf·cm, 77 ft·lbf)

FRONT SUSPENSION

PREPARATION

SST (SPECIAL SERVICE TOOLS)

SA020-1P

	09223-00010	Cover & Seal Replacer	Upper suspension arm bushing
	09309-37010	Transmission Bearing Replacer	Upper ball joint
	09316-20011	Transfer Bearing Replacer	Lower suspension arm bushing
	09506-35010	Differential Drive Pinion Rear Bearing Replacer	Shock absorber bushing
	09610-20012	Pitman Arm Puller	Tie rod end
	09613-26010	Steering Worm Bearing Cone Remover	Upper and lower suspension arm bushing
	09628-62011	Ball Joint Puller	Lower ball joint
	09631-20060	Bearing Guide Nut Wrench	Upper suspension arm bushing
	09632-36010	Steering Vane Pump Bearing Replacer	Shock absorber bushing
	09710-30021	Suspension Bushing Tool Set	Lower suspension arm bushing
	(09710-03121)	Bushing Remover Base	
	09727-00060	Arm Set "C"	Coil spring

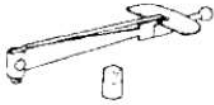
SUSPENSION AND AXLE – FRONT SUSPENSION

SA-47

	09727-30021 Coil Spring Compressor	Coil spring
	09922-10010 Variable Open Wrench	No.1 and No.2 spring bumper
	09950-40010 Puller B Set	Upper ball joint

RECOMMENDED TOOLS

SA02X-06

	09025-00010 Torque Wrench (30 kgf-cm) .	
	09905-00012 Snap Ring No.1 Expander .	

SA

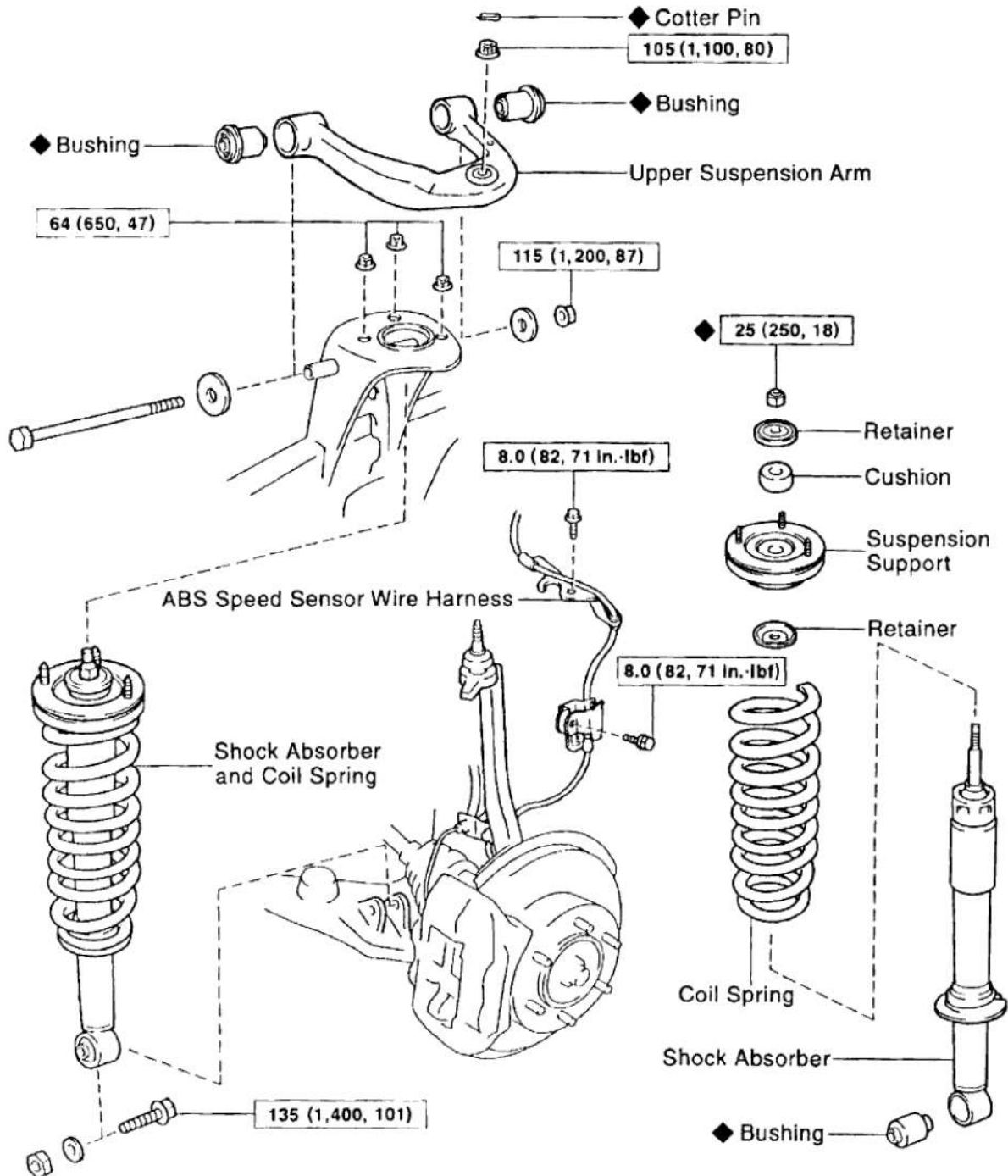
EQUIPMENT

SA02B-16

Torque wrench	
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FRONT SHOCK ABSORBER COMPONENTS

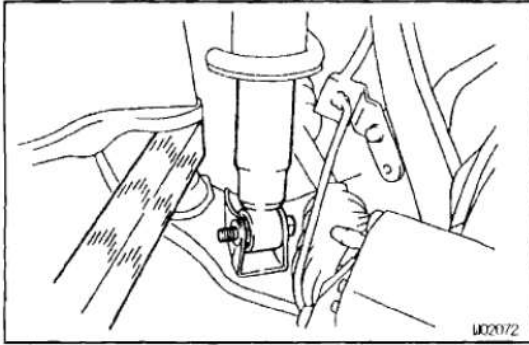
SA06J-09



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

WC2954



FRONT SHOCK ABSORBER REMOVAL

1. REMOVE FRONT WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

2. DISCONNECT SHOCK ABSORBER FROM LOWER SUSPENSION ARM

- (a) Loosen the bolt and remove the shock absorber lower nut.

Torque: 135 N·m (1,400 kgf·cm, 101 ft·lbf)

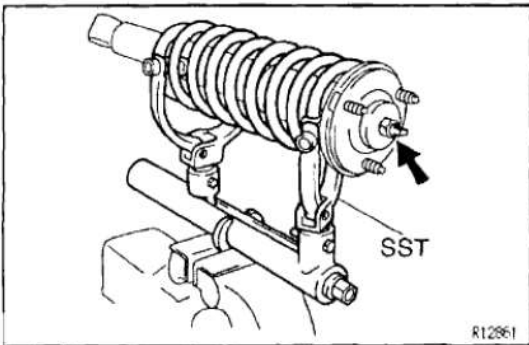
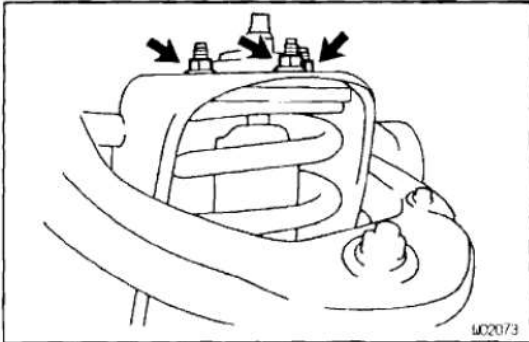
INSTALLATION HINT: After stabilizing the suspension, torque the bolt.

- (b) With lowering the lower suspension arm, remove the bolt and disconnect the shock absorber.

3. REMOVE SHOCK ABSORBER AND COIL SPRING

Remove the 3 nuts, shock absorber and coil spring.

Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)



FRONT SHOCK ABSORBER DISASSEMBLY

REMOVE SUSPENSION SUPPORT AND COIL SPRING

- (a) Using SST, compress the coil spring until there is a clearance on both ends.

SST 09727-00060, 09727-30021

NOTICE:

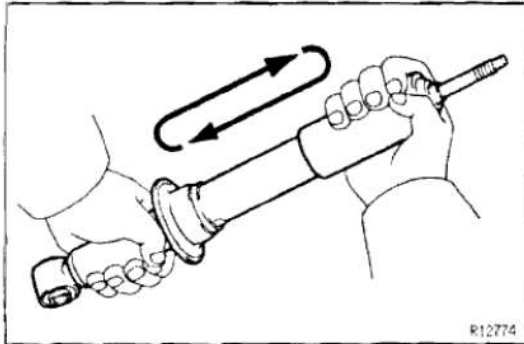
To avoid damage to SST:

- Set SST arms to allow clearance to hold a 8-roll coil between them.
- Do not compress the coil spring more than necessary.
- Do not use an impact wrench.

- (b) Remove suspension support center nut.

- (c) Remove these parts:

- Retainer
- Cushion
- Suspension support
- Coil spring



FRONT SHOCK ABSORBER INSPECTION

SA09L-06

INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual operation sounds.

If there is any abnormality, replace the shock absorber with a new one.

NOTICE: When discarding the shock absorber, use the following procedure.

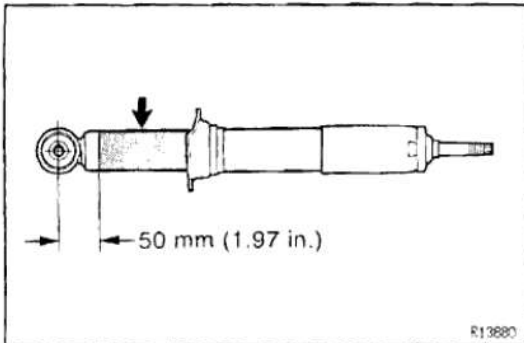
FRONT SHOCK ABSORBER DISPOSAL

SA09M-06

1. FULLY EXTEND SHOCK ABSORBER ROD
2. DRILL HOLE TO REMOVE GAS FROM CYLINDER

Using a drill, make a hole in the cylinder as shown to remove the gas inside.

CAUTION: The gas coming out is harmless, but be careful of chips which may fly up when drilling.



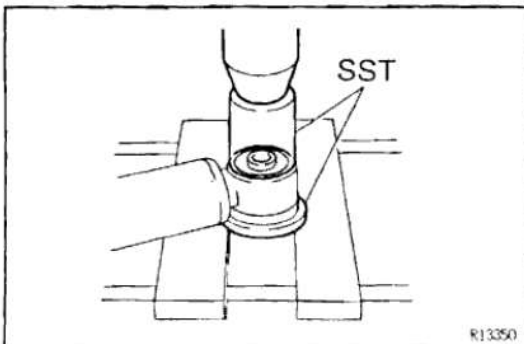
SA

SHOCK ABSORBER BUSHING REPLACEMENT

SA106-06

1. REMOVE BUSHING

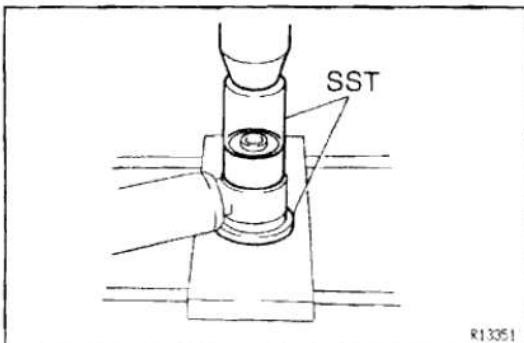
Using SST and a press, remove the bushing.
SST 09506-35010, 09632-36010

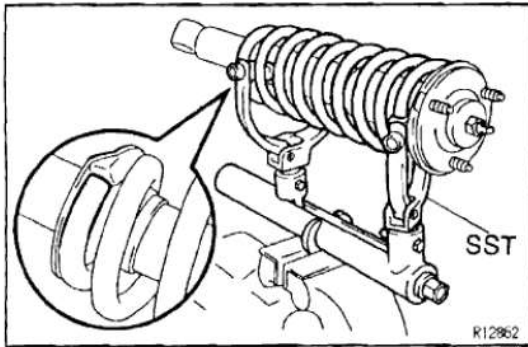


2. INSTALL NEW BUSHING

Using SST and a press, install a new bushing.
SST 09506-35010, 09632-36010

HINT: Do not apply grease or oil to the bushing.





FRONT SHOCK ABSORBER ASSEMBLY ^{SA371-01}

1. INSTALL COIL SPRING TO SHOCK ABSORBER

- (a) Using SST, compress the coil spring.
SST 09727-00060, 09727-30021

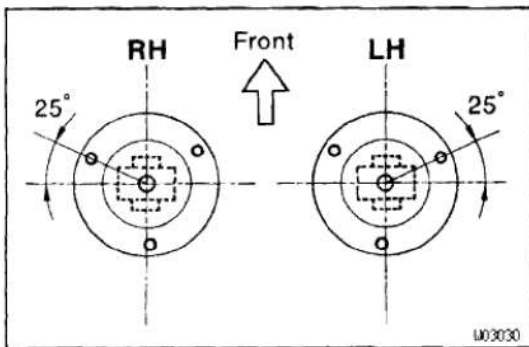
NOTICE:

To avoid damage to SST:

- Set SST arms to allow clearance to hold a 8-roll coil between them.
- Do not compress the coil spring more than necessary.
- Do not use an impact wrench.

- (b) Install the coil spring to the shock absorber.

HINT: Fit the lower end of the coil spring into the gap of the spring seat of the shock absorber.



2. INSTALL SUSPENSION SUPPORT

- (a) Install the retainer, suspension support, and cushion to the rod.
- (b) Temporarily tighten a new suspension support center nut.
- (c) Align the suspension support with the shock absorber lower bushing, as shown.

HINT: Face the lower end of the coil spring to the outside of the vehicle.

- (d) Remove the SST.

HINT: After removing the SST, recheck the direction of the suspension support.

- (e) Torque the suspension center nut.

Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)

FRONT SHOCK ABSORBER INSTALLATION ^{SA372-01}

Installation is in the reverse order of removal.

UPPER SUSPENSION ARM COMPONENTS

SA390-03

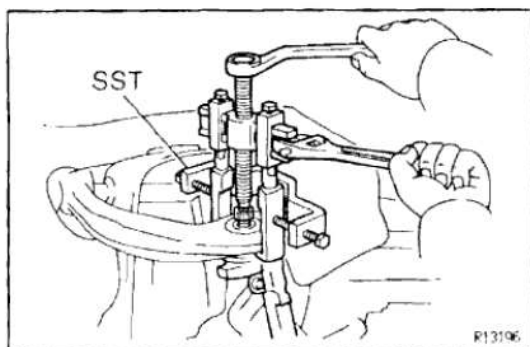
(See page SA-48)

UPPER SUSPENSION ARM REMOVAL

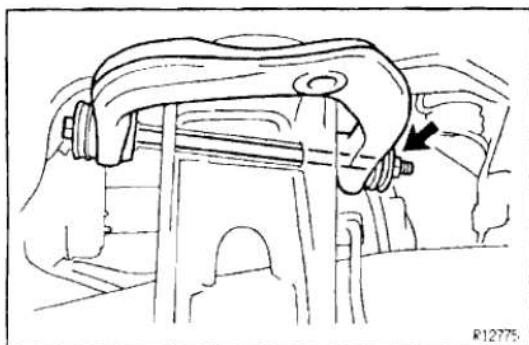
SA190-04

1. REMOVE SHOCK ABSORBER WITH COIL SPRING
(See page SA-49)
2. w/ ABS:
DISCONNECT ABS SPEED SENSOR WIRE HARNESS CRAMP
Torque: 8.0 N·m (82 kgf·cm, 71 in.-lbf)

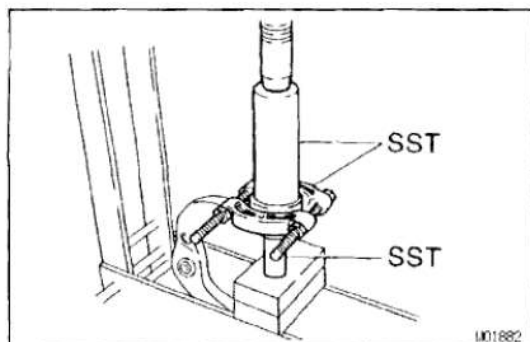
SA



3. DISCONNECT UPPER BALL JOINT
 - (a) Remove the cotter pin and loosen the nut.
Torque: 105 N·m (1,100 kgf·cm, 80 ft·lbf)
 - (b) Using SST, disconnect the upper ball joint.
SST 09950-40010 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04030, 09958-04010)
 - (c) Support the steering knuckle securely.
 - (d) Remove the nut.



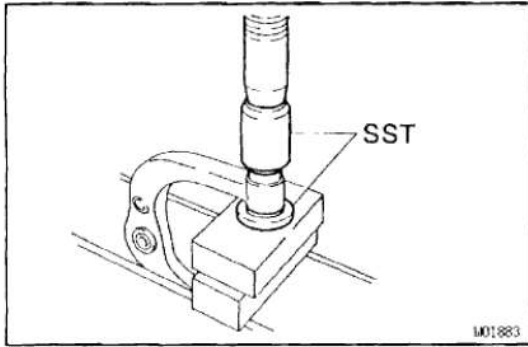
4. REMOVE UPPER SUSPENSION ARM
Remove the nut, bolt and upper suspension arm.
Torque: 115 N·m (1,200 kgf·cm, 87 ft·lbf)
INSTALLATION HINT: After stabilizing the suspension, torque the nut.



UPPER SUSPENSION ARM BUSHING REPLACEMENT

SA2PU-01

1. REMOVE BUSHING
 - (a) Using a chisel and hammer, pry up the flange of the bushing.
 - (b) Using SST and a press, remove the bushing.
SST: 09613-26010, 09631-20060, 09950-00020

**2. INSTALL NEW BEARING**

Using SST and a press, install a new bushing.

SST: 09223-00010, 09506-35010

UPPER SUSPENSION ARM INSTALLATION

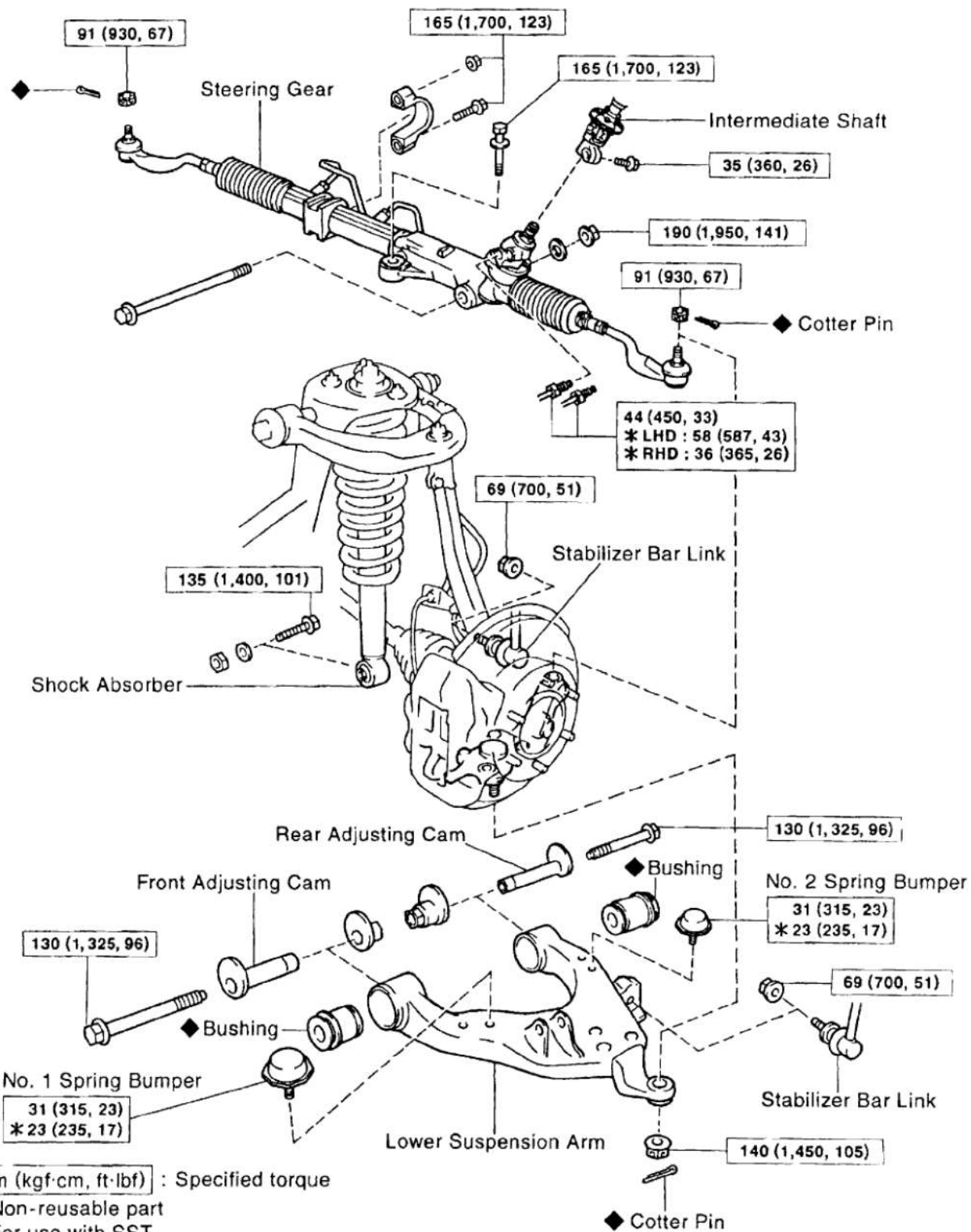
Installation is in the reverse order of removal.

HINT: After installation, check front wheel alignment.

(See page SA-4)

LOWER SUSPENSION ARM COMPONENTS

SAOP1-08



cardiagn.com

LOWER SUSPENSION ARM REMOVAL**1. REMOVE FRONT WHEEL**

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

2. REMOVE STEERING GEAR ASSEMBLY

(See page SR-64)

3. DISCONNECT STABILIZER BAR LINK

(See page SA-60)

4. DISCONNECT SHOCK ABSORBER FROM LOWER SUSPENSION ARM

(See page SA-49)

5. DISCONNECT LOWER BALL JOINT

(a) Support the upper suspension arm and steering knuckle securely.

(b) Remove the cotter pin and nut from the lower ball joint.

Torque: 140 N·m (1,450 kgf·cm, 105 ft·lbf)

(c) Using SST, disconnect the lower ball joint from the lower suspension arm.

SST 09610-20012

NOTICE: Be careful not to damage the lower ball joint.**INSTALLATION HINT:** Face the cotter pin hale of the lower ball joint forward.**6. REMOVE LOWER SUSPENSION ARM**

(a) Place matchmarks on the front and rear adjusting cams.

(b) Remove the nuts, adjusting cams and lower suspension arm.

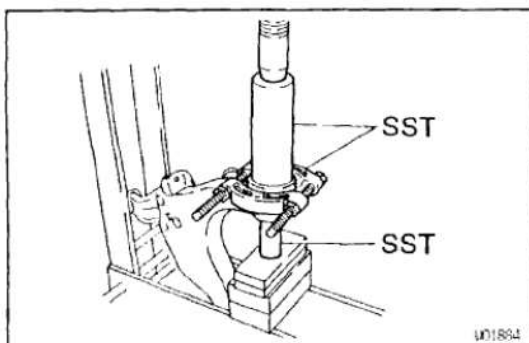
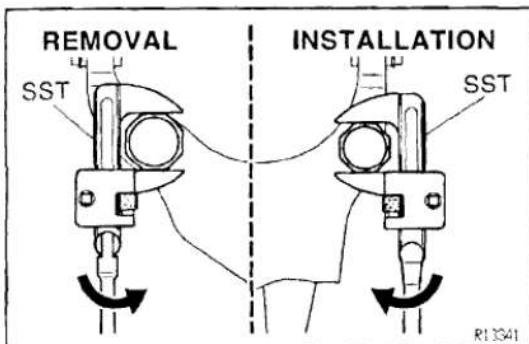
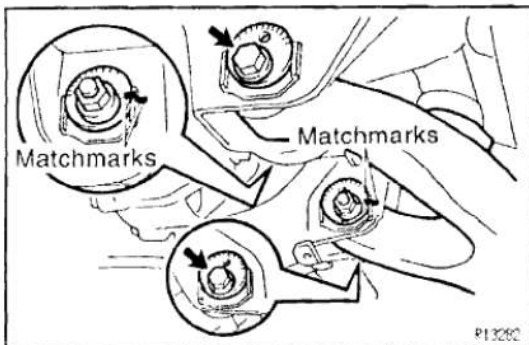
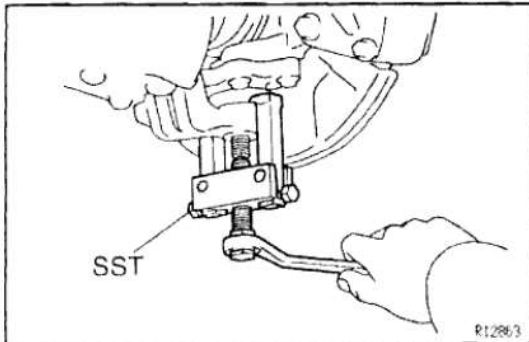
Torque: 130 N·m (1,325 kgf·cm, 96 ft·lbf)

7. REMOVE NO.1 AND NO.2 SPRING BUMPERS

Using SST, remove the No. 1 and No. 2 spring bumpers.

SST 09922-10010

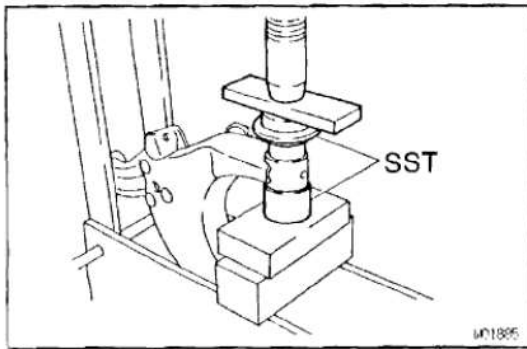
Torque: 23 N·m (235 kgf·cm, 17 ft·lbf)

INSTALLATION HINT: Use a torque wrench with a fulcrum length of 34.5 cm (13.6 in.).**LOWER SUSPENSION ARM BUSHING REPLACEMENT****1. REMOVE BUSHING**

(a) Using a chisel and hammer, pry up the flange of the bushing.

(b) Using SST and a press, remove the bushing.

SST 09613-26010, 09632-36010, 09950-00020

**2. INSTALL NEW BUSHING**

Using SST and a press, install a new bushing.

SST 09316-20011, 09710-30021 (09710-03121)

LOWER SUSPENSION ARM INSTALLATION

Installation is in the reverse order of removal.

HINT: After installation, check front wheel alignment.

(See page SA-4)

UPPER BALL JOINT COMPONENTS

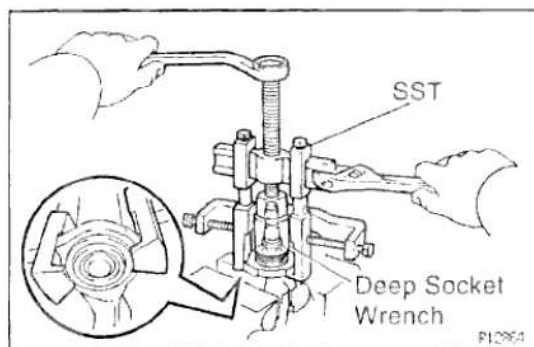
SA3PW-01

(See page SA-11)

UPPER BALL JOINT REMOVAL

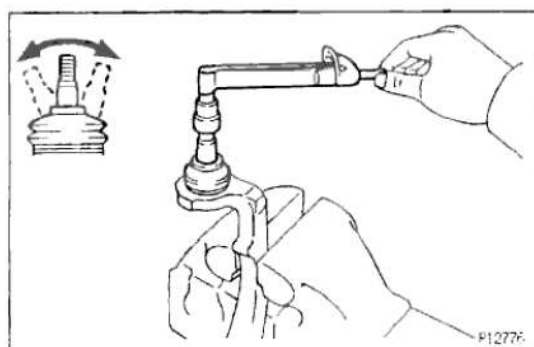
SA2PX-01

1. REMOVE STEERING KNUCKLE WITH AXLE HUB
(See page SA-12)



2. REMOVE UPPER BALL JOINT

- (a) Remove the wire and boot.
- (b) Using SST and a deep socket wrench, remove the upper ball joint.
SST 09950-40010 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04030, 09957-04010, 09958-04010)



UPPER BALL JOINT INSPECTION

SA3PY-01

INSPECT BALL JOINT FOR ROTATION CONDITION

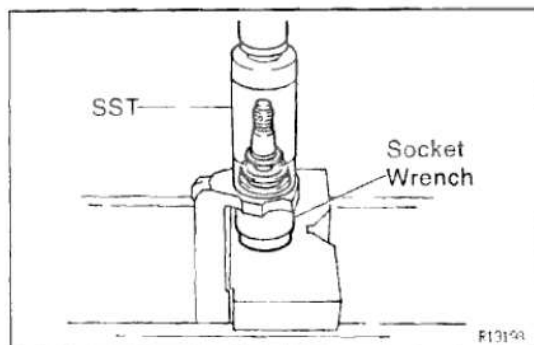
- (a) As shown, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously one turn every 2-4 seconds and take the torque reading on the 5th turn.

Torque (turning):

0.7 - 4.4 N·m (7 - 45 kgf·cm, 6 - 39 in.-lbf)

SA3PZ-01

UPPER BALL JOINT INSTALLATION

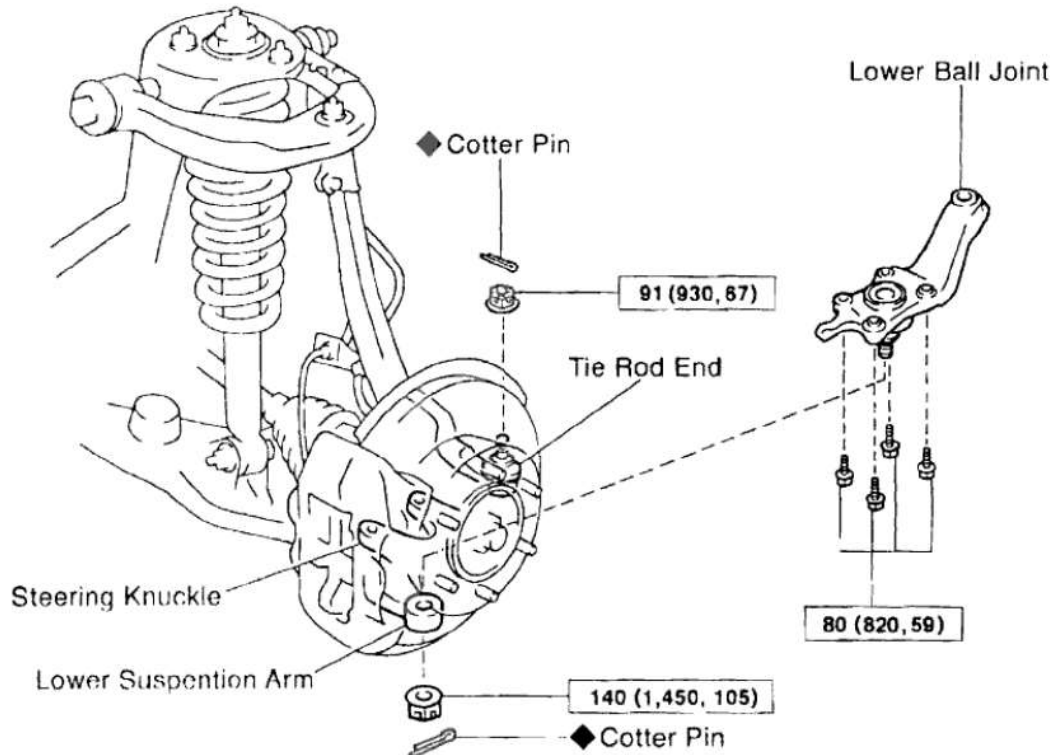


1. INSTALL UPPER BALL JOINT

- (a) Using SST and a socket wrench, install a new ball joint.
SST 09309-37010
 - (b) Using a snap ring expander, install a new snap ring.
 - (c) Install a new boot and fix it with a new wire.
HINT: Use the grease supplied in the kit.
2. INSTALL STEERING KNUCKLE WITH AXLE HUB
(See page SA-15)

LOWER BALL JOINT COMPONENTS

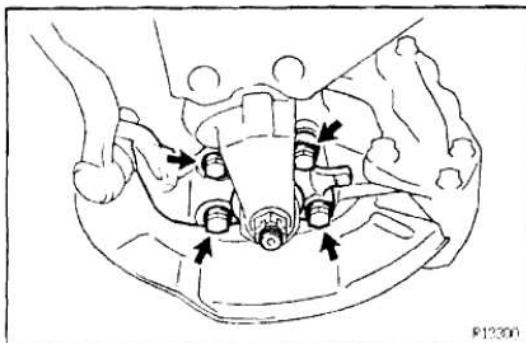
SA200-01



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

U02854



LOWER BALL JOINT REMOVAL

SA201-01

1. REMOVE FRONT WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

2. DISCONNECT TIE ROD END

(a) Loosen the 4 bolts.

Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

REMOVAL HINT: Do not remove the bolts.

(b) Remove the cotter pin and nut from the tie rod end.

Torque: 91 N·m (930 kgf·cm, 67 ft·lbf)

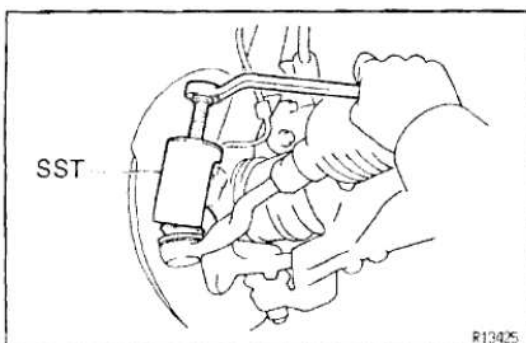
(c) Using SST, disconnect the tie rod end from the steering knuckle.

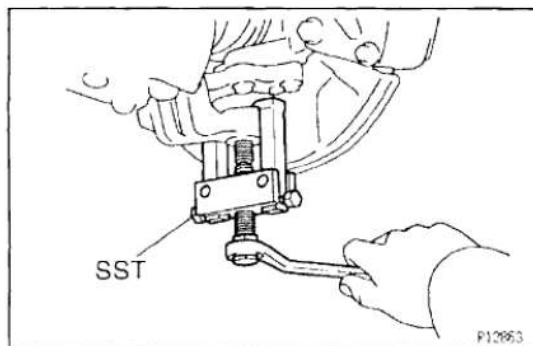
SST 09610-20012

3. REMOVE LOWER BALL JOINT

(a) Remove the cotter pin and nut from the lower ball joint.

Torque: 140 N·m (1,450 kgf·cm, 105 ft·lbf)





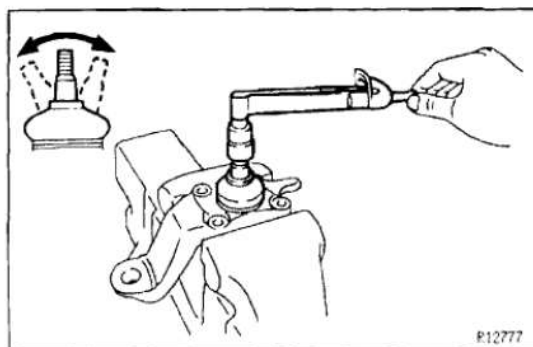
- (b) Using SST, disconnect the lower ball joint from the lower suspension arm.

SST 09628-62011

INSTALLATION HINT: Face the cotter pin hole of the lower ball joint forward.

- (c) Remove the 4 bolts.
(d) With lifting the upper suspension arm and steering knuckle, remove the lower ball joint.

REMOVAL HINT: After removing the lower ball joint, support the upper suspension arm and steering knuckle securely.



LOWER BALL JOINT INSPECTION

SA203-01

INSPECT BALL JOINT FOR ROTATION CONDITION

- (a) As shown, flip the ball joint stud back and forth 5 times, before installing the nut.
(b) Using a torque wrench, turn the nut continuously one turn each 2 — 4 seconds and take the torque reading on the 5th turn.

Turning torque:

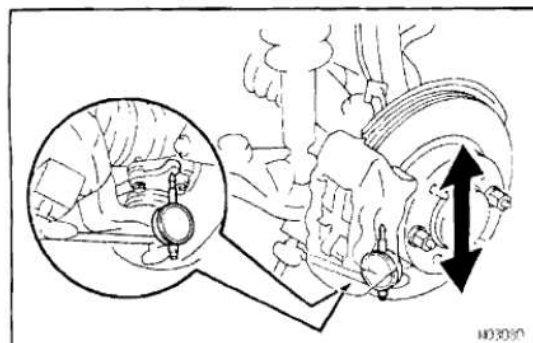
0.1 — 2.5 N·m (1 — 25 kgf·cm, 1 — 22 in.-lbf)

SA204-01

LOWER BALL JOINT INSTALLATION

Installation is in the reverse order of removal.

HINT: After installation, check front wheel alignment.
(See page SA-4)



LOWER BALL JOINT EXCESSIVE PLAY ON —VEHICLE INSPECTION

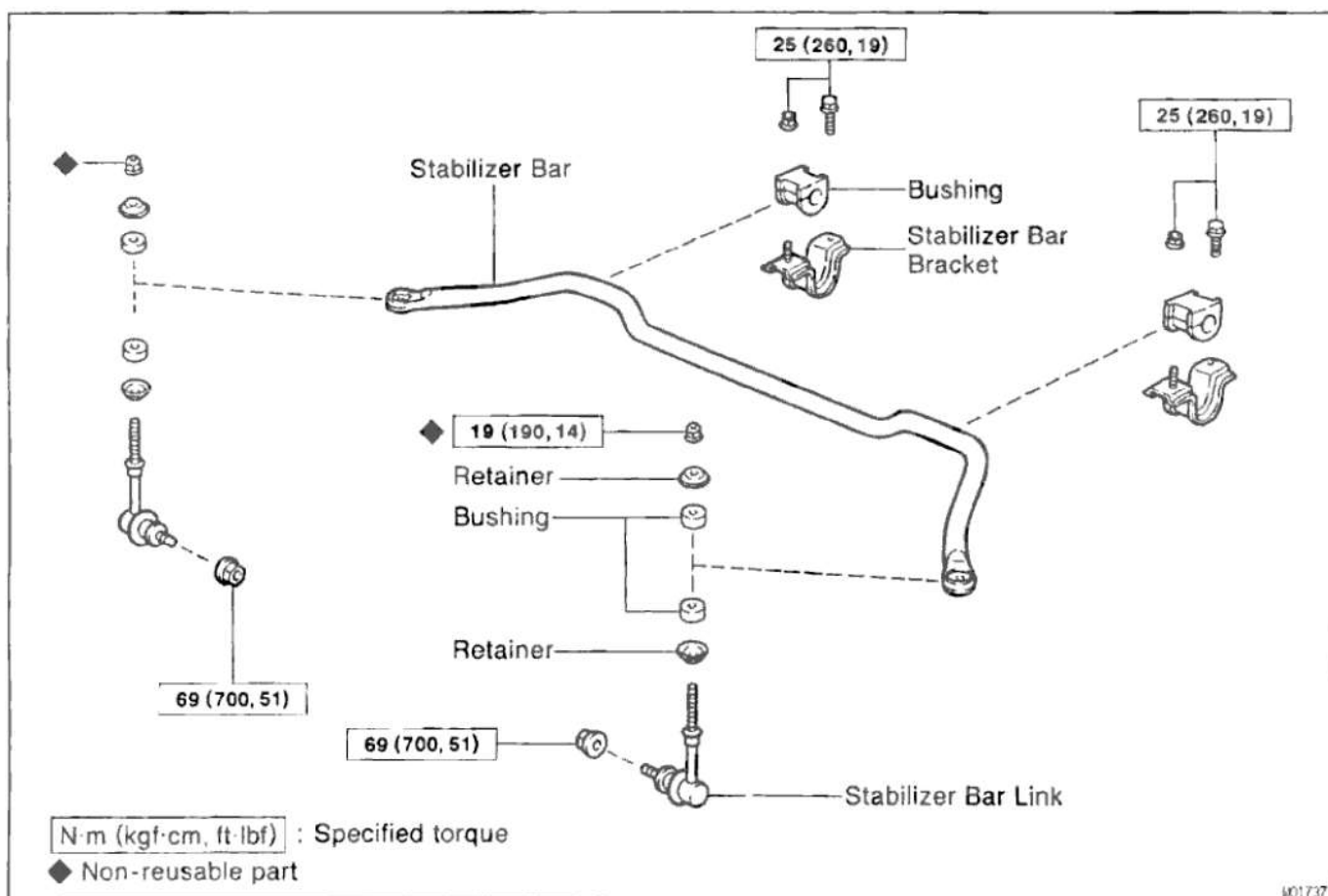
SA204-01

- (a) Remove the tire and install the hub nuts to the disc.
(b) Using a dial indicator, check the lower ball joint for excessive play when you push the hub nuts up and down with a force of 294 N (30 kgf, 66 lbf).

Maximum: 0.5 mm (0.020 in.)

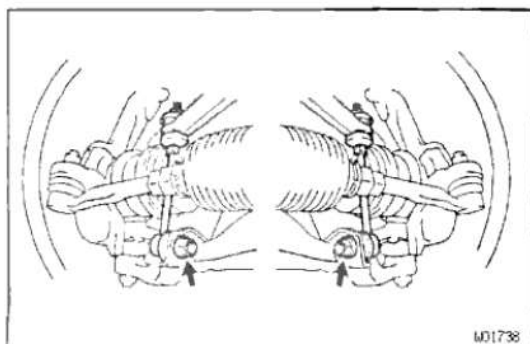
STABILIZER BAR COMPONENTS

SAOPA-06



W01737

SA1WM-04



STABILIZER BAR REMOVAL

1. REMOVE FRONT WHEELS

Torque: 110 N-m (1,150 kgf-cm, 83 ft-lbf)

2. DISCONNECT STABILIZER BAR LINKS

Remove the 2 nuts and disconnect the stabilizer bar links from the lower suspension arm.

Torque: 69 N-m (700 kgf-cm, 51 ft-lbf)

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench to hold the stud.

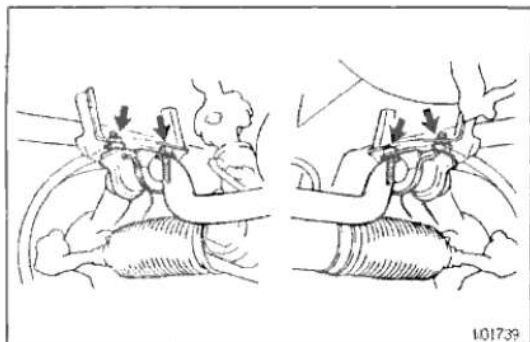
3. REMOVE STABILIZER BAR

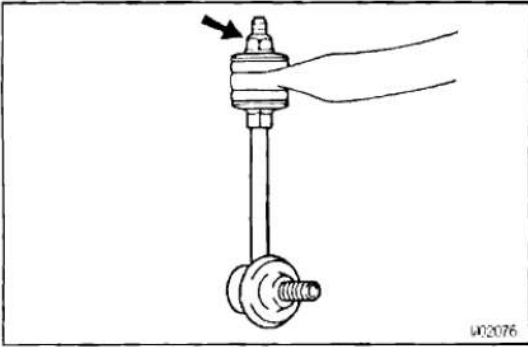
(a) Remove the 2 bolts, nuts and stabilizer bar with the bushings and brackets.

Torque: 25 N-m (260 kgf-cm, 19 ft-lbf)

(b) Remove the 2 brackets and bushings from the stabilizer bar.

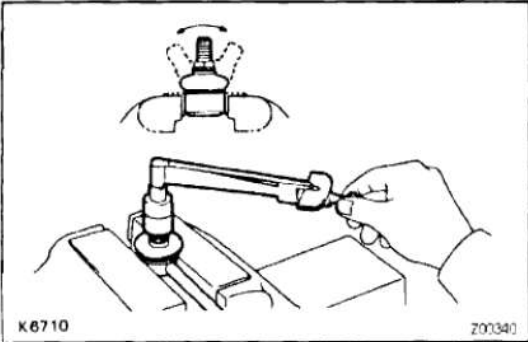
INSTALLATION HINT: Install the bushings to the stabilizer bar so that the cutout of the bushings faces the front of the vehicle.



**4. REMOVE STABILIZER BAR LINKS**

Hold the stabilizer bar link, remove the nuts, retainers and bushings.

Torque: 19 N·m (190 kgf·cm, 14 ft·lbf)

**STABILIZER BAR LINK INSPECTION**

SA026-19

INSPECT BALL JOINT FOR ROTATION CONDITION

- (a) As shown, flip the ball joint stud back and forth 5 times before installing the nut.
- (b) Using a torque wrench, turn the stud continuously one turn every 2 – 4 seconds and take the torque reading on the 5th turn.

Torque (turning):

0.05 – 2.0 N·m (0.5 – 20 kgf·cm, 0.4 – 17 in·lbf)

SA387-03

STABILIZER BAR INSTALLATION

Installation is in the reverse order of removal.

SA

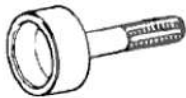
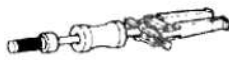
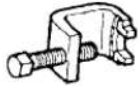
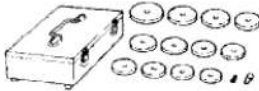
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REAR AXLE

PREPARATION

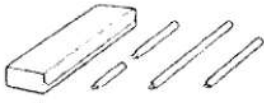
SST (SPECIAL SERVICE TOOLS)

SA208-02

	09223-56010 Crankshaft Rear Oil Seal Replacer	Rear axle bearing
	09308-00010 Oil Seal Puller	Oil seal
	09316-60011 Transmission & Transfer Bearing Replacer	Axle shaft Bearing retainer
	(09316-00051) Replacer "D"	
	09515-30010 Rear Wheel Bearing Replacer	Rear axle bearing
	09521-25011 Rear Axle Shaft Puller	Rear axle shaft
	09650-17011 Hub Bolt Remover	Hub bolt
	09950-60010 Replacer Set	Axle bearing
	(09951-00560) Replacer 56	
	(09951-00610) Replacer 61	Outer oil seal
	09950-60020 Replacer Set No.2	
	(09951-00710) Replacer 71	Inner oil seal

SUSPENSION AND AXLE — REAR AXLE

SA-63

	(09951-00890) Replacer 89	Axle bearing
	09950-70010 Handle Set	Inner and outer oil seal

EQUIPMENT

SA308-01

Dial indicator with magnetic base	
Torque wrench	

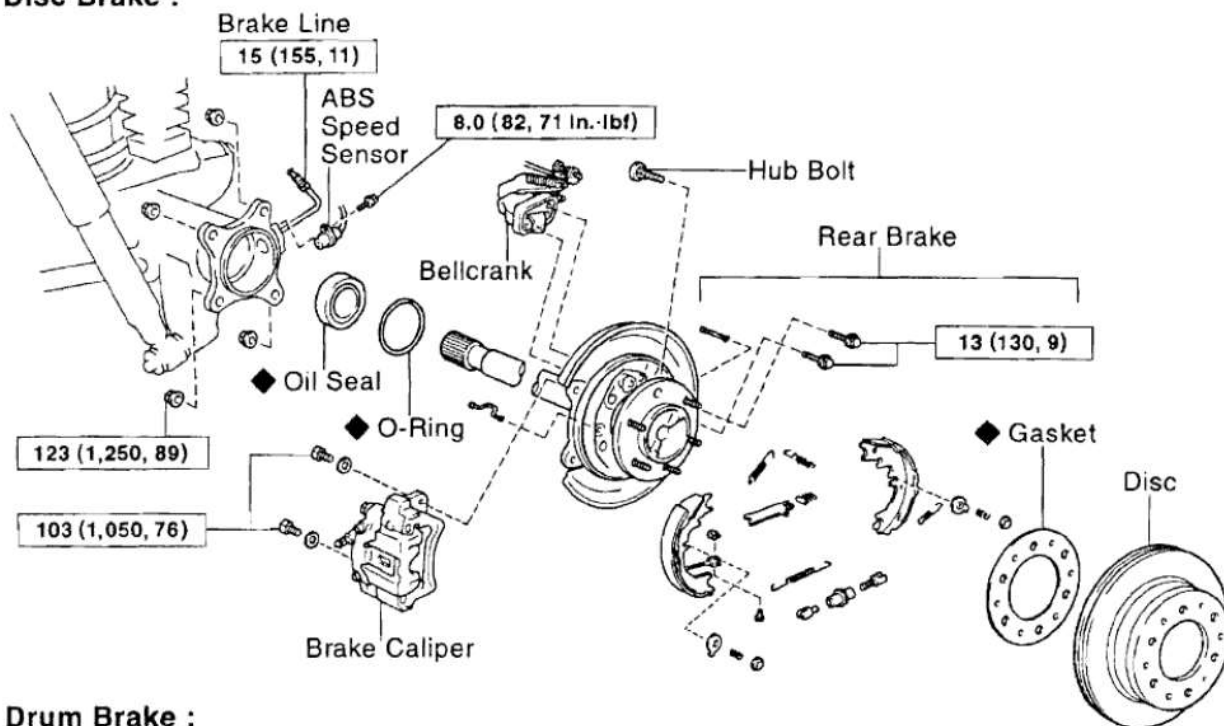
SA

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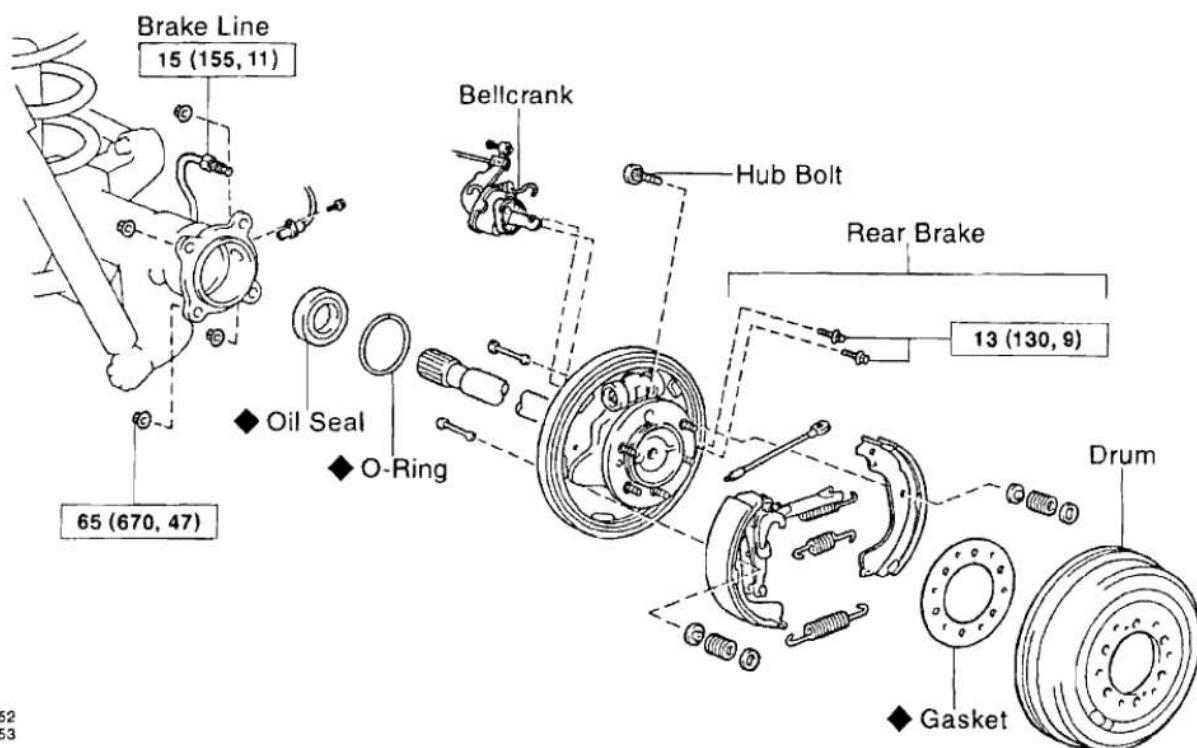
REAR AXLE SHAFT COMPONENTS

8A207-01

Disc Brake :



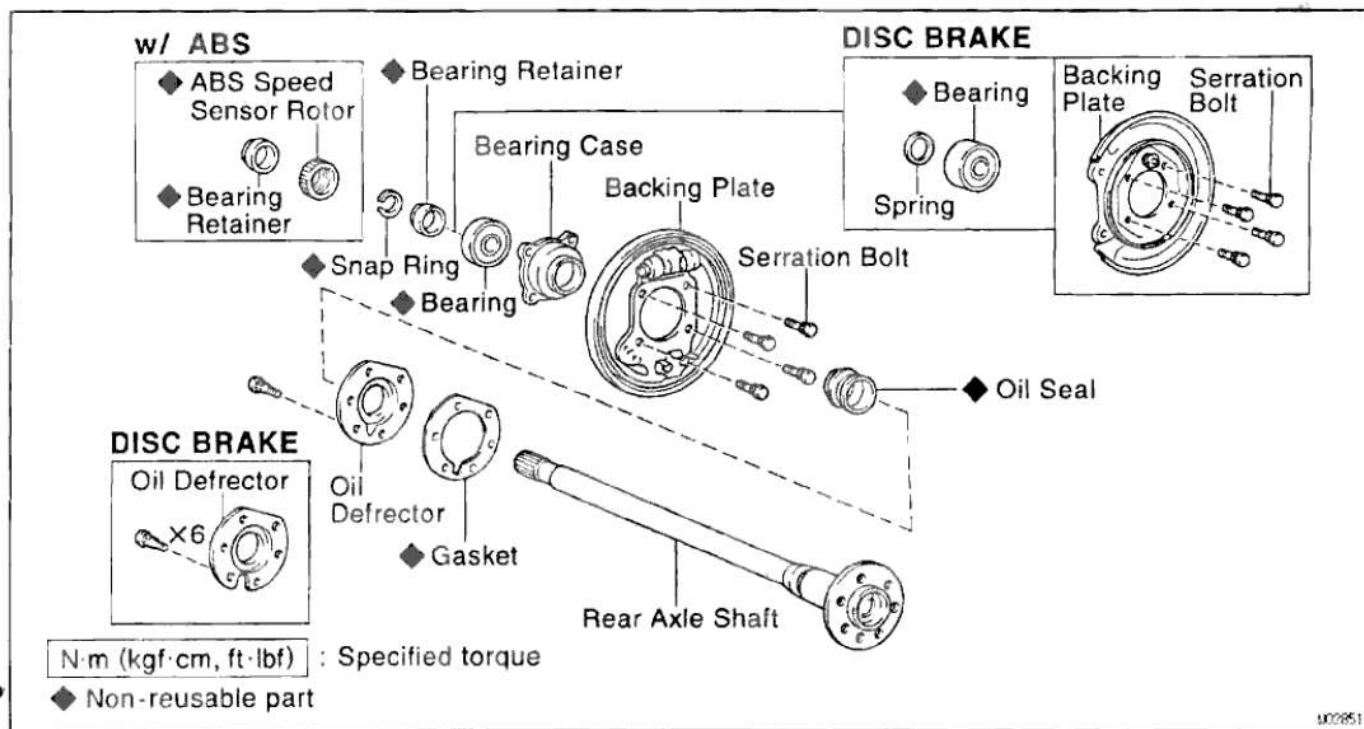
Drum Brake :


W02852
W02853

N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

Z18P17



REAR AXLE SHAFT REMOVAL

1. REMOVE REAR WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

2. DRUM BRAKE:

REMOVE BRAKE DRUM

DISC BRAKE:

REMOVE CALIPER AND DISC

- (a) Remove the 2 bolts and brake caliper from the rear axle housing.

Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

- (b) Support the brake caliper securely.

- (c) Remove the disc.

3. CHECK BEARING BACKLASH AND AXLE SHAFT DEVIATION

- (a) Using a dial indicator, check the backlash in the bearing shaft direction.

Maximum: 0.7 mm (0.027 in.)

If the backlash exceeds the maximum, replace the bearing.

- (b) Using a dial indicator, check the deviation at the surface of the axle shaft outside the hub bolt.

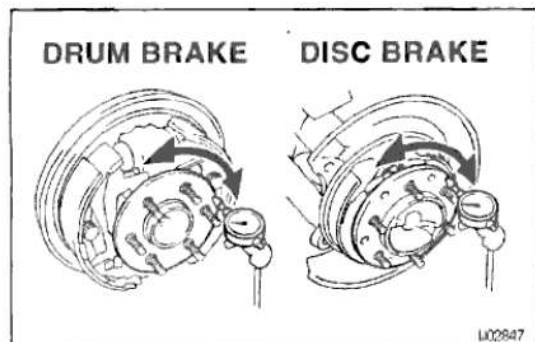
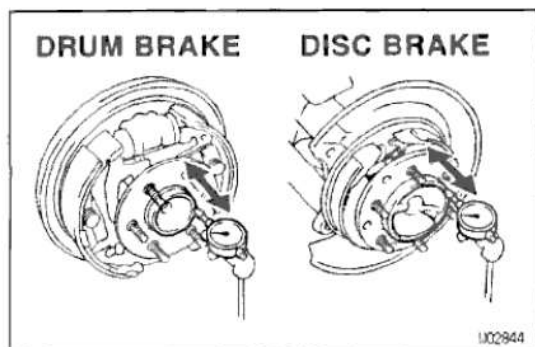
Maximum: 0.1 mm (0.0039 in.)

If the deviation exceeds the maximum, replace the axle shaft.

4. w/ ABS:

REMOVE ABS SPEED SENSOR FROM REAR AXLE HOUSING

Torque: 8.0 N·m (82 kgf·cm, 71 in·lbf)



5. REMOVE REAR BRAKE ASSEMBLY
(See page BR-30 and 39)
6. REMOVE REAR AXLE SHAFT ASSEMBLY
 - (a) Remove the 4 backing plate mounting nuts.
Torque:

Drum brake: 65 (670 kgf-cm, 47 ft-lbf)

Disc brake: 123 (1,250 kgf-cm, 89 ft-lbf)

- (b) Pull out the rear axle shaft assembly.
NOTICE: Be careful not to damage the oil seal.

7. REMOVE O-RING FROM REAR AXLE HOUSING REAR AXLE SHAFT COMPONENTS INSPECTION AND REPAIR

SAZ08-01

1. w/ ABS:
REMOVE BEARING RETAINER (DIFFERENTIAL SIDE) AND ABS SPEED SENSOR ROTOR

- (a) Attach 4 nuts to the serration bolts and remove the serration bolts from the backing plate using a hammer.

NOTICE: Do not reuse the nuts previously removed from the vehicle.

- (b) Grind the retainer and sensor rotor surfaces using a grinder, then chisel them out with a chisel.
- (c) Attach washers and nuts to the 4 serration bolts, then torque the nuts to install the serration bolts to the backing plate.
- (d) Remove the 4 nuts from the serration bolts.

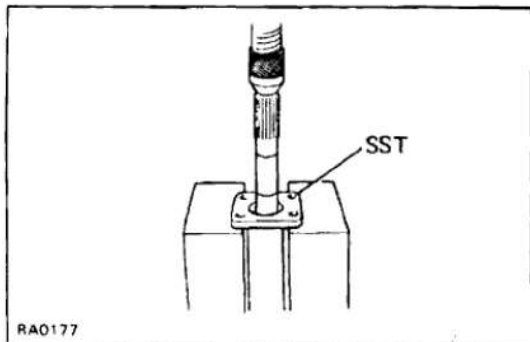
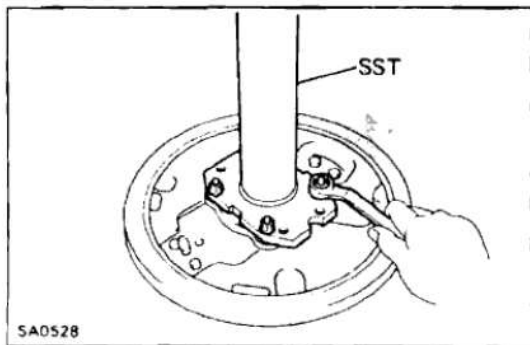
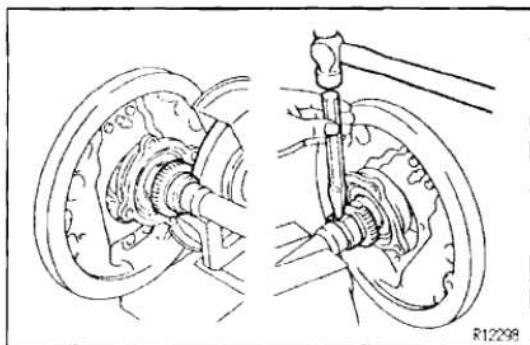
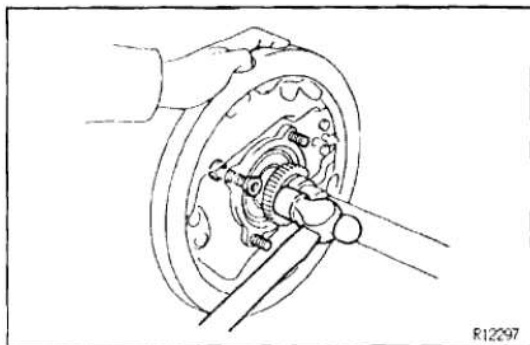
2. REMOVE SNAP RING FROM AXLE SHAFT

Using a snap ring expander, remove the snap ring.

3. REMOVE REAR AXLE SHAFT FROM BACKING PLATE

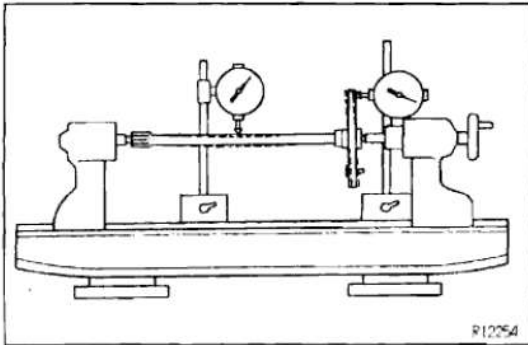
- (a) Position SST on the backing plate with the 4 nuts.
SST 09521-25011

- (b) Using a press, remove the rear axle shaft with the bearing retainer from the backing plate.
- (c) Remove the SST.



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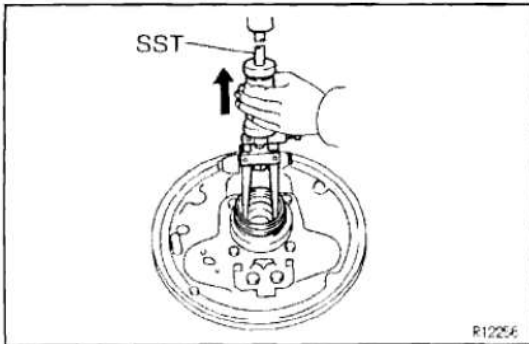
**4. INSPECT AXLE SHAFT**

Maximum runout:

Shaft runout: 2.0 mm (0.079 in.)

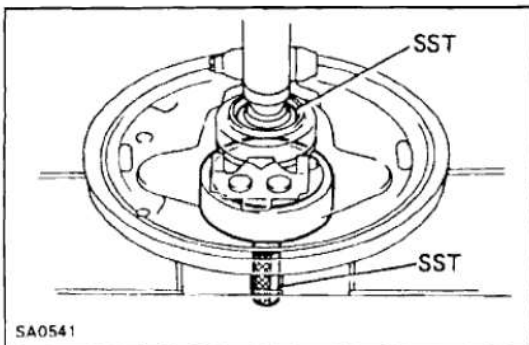
Flange runout: 0.1 mm (0.004 in.)

If the rear axle shaft or flange are damaged or worn, or if runout is greater than the maximum, replace the rear axle shaft.

**5. REMOVE OUTER OIL SEAL**

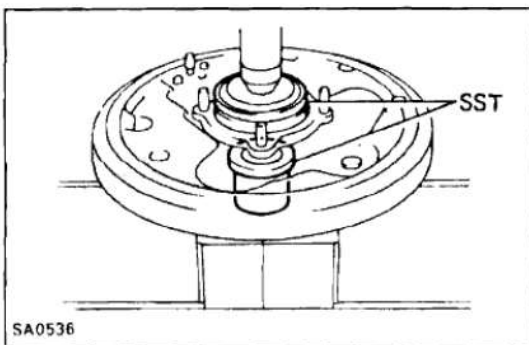
Using SST, remove the oil seal.

SST 09308-00010

**6. REPLACE REAR AXLE BEARING**

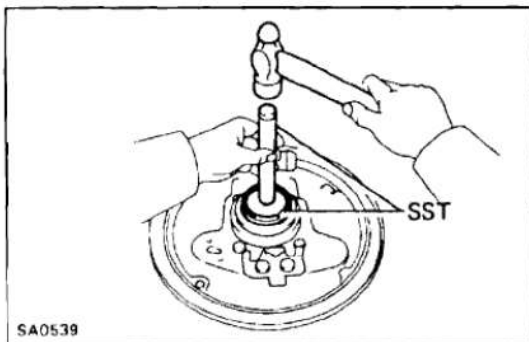
(a) Using SST, remove the bearing.

SST 09223-56010, 09950-60010 (09951-00560)



(b) Using SST, install a new bearing.

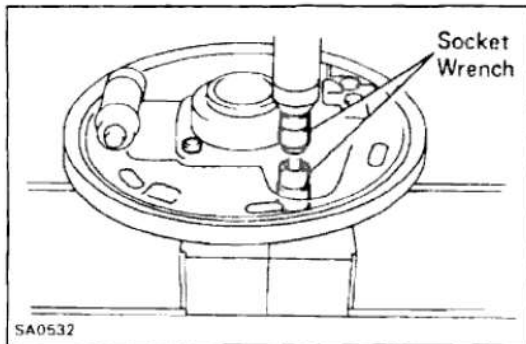
SST 09515-30010, 09950-60020 (09951-00890)

**7. INSTALL NEW OUTER OIL SEAL**

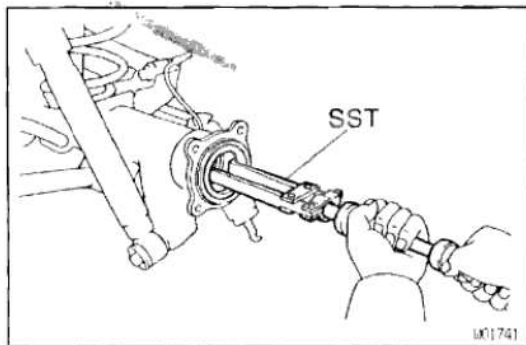
Using SST and a hammer, install a new oil seal.

SST 09950-60010 (09951-00610),

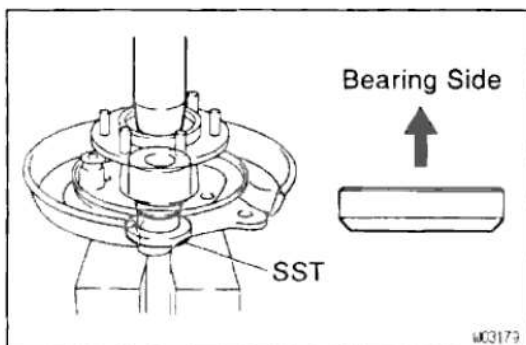
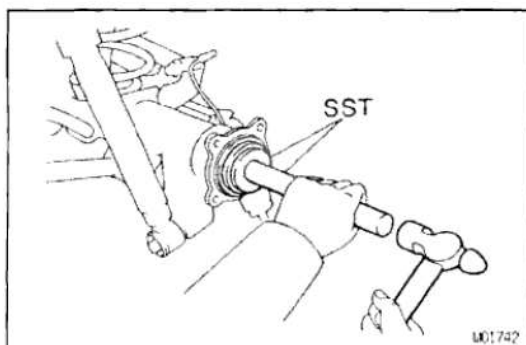
09950-70010 (09951-07150)

**8. REPLACE BEARING CASE**

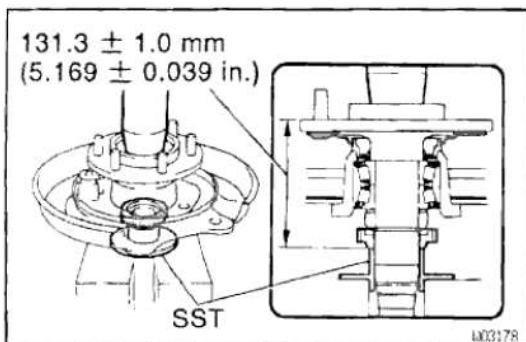
- Remove the oil seal (outer side) and bearing.
- Install 4 nuts to the serration bolts.
- Using a hammer, remove the 4 serration bolts and remove the bearing case.
- Position the backing plate on a new bearing case and, using 2 socket wrenches, install the 4 serration bolts.
- Install a new bearing and oil seal (outer side).

**9. REPLACE OIL SEAL (INNER SIDE)**

- Using SST, remove the oil seal.
SST 09308-00010
- Using SST and a hammer, install a new oil seal.
SST 09950-60020 (09951-00710),
09950-70010 (09951-07150)
- Apply MP grease to the oil seal lip.

**10. INSTALL REAR AXLE SHAFT IN BACKING PLATE**

- Apply MP grease to the oil seal lip.
- Install the backing plate and bearing retainer on the rear axle shaft.
- Using SST and a press, install the rear axle shaft into the backing plate.
SST 09316-60010 (09316-00050)
- Using snap ring pliers, install a new snap ring.

**11. w/ ABS:****INSTALL ABS SPEED SENSOR ROTOR AND BEARING RETAINER (DIFFERENTIAL SIDE)**

Using SST and a press, install a new sensor rotor and new bearing retainer to the axle shaft.

SST 09316-60010 (09316-00050)

Standard length:

131.3 ± 1.0 mm (5.169 ± 0.039 in.)

REAR AXLE SHAFT INSTALLATION

Installation is in the reverse order of removal.

HINT: After installation, bleed brake system, check ABS speed sensor signal and for leaks.

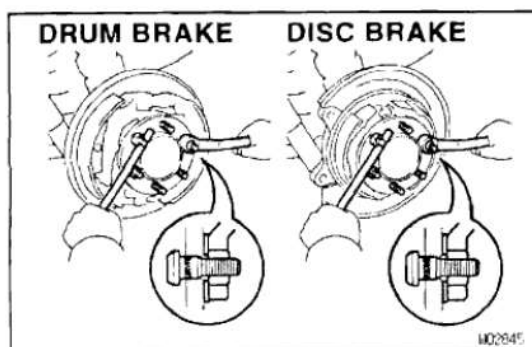
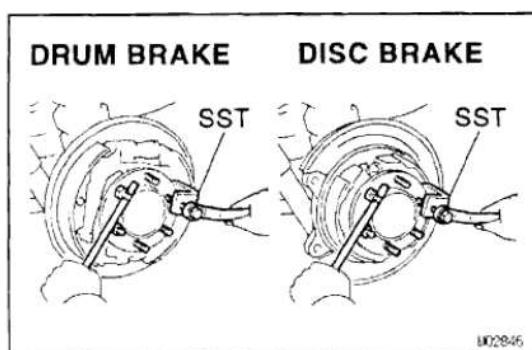
(See page BR-6, 59)

HUB BOLT REPLACEMENT

1. REMOVE REAR WHEEL
2. DRUM BRAKE:
REMOVE BRAKE DRUM
DISC BRAKE:
REMOVE REAR BRAKE CALIPER AND DISC
(See page SA-39)

3. REMOVE HUB BOLT
Using SST, remove the hub bolt.
SST 09650-17011

4. INSTALL HUB BOLT
Install a washer and nut to a new hub bolt, as shown in the illustration, and install the hub bolt with torquing the nut.
5. DRUM BRAKE:
INSTALL BRAKE DRUM
DISC BRAKE:
INSTALL DISC AND REAR BRAKE CALIPER
(See page SA-42)
6. INSTALL REAR WHEEL
Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

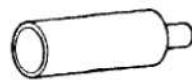
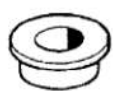
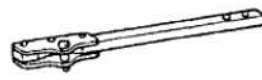


REAR DIFFERENTIAL

PREPARATION

SST (SPECIAL SERVICE TOOLS)

SA20C-01

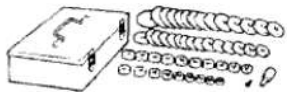
	09214-76011	Crankshaft Pulley Replacer	Oil seal
	09223-15020	Oil Seal & Bearing Replacer	Side bearing
	09308-00010	Oil Seal Puller	Front bearing outer race
	09308-10010	Oil Seal Puller	Oil seal
	09316-60011	Transmission & Transfer Bearing Replacer	Bearing outer race w/ LSD Oil storage ring
	(09316-00011)	Replacer Pipe	
	(09316-00021)	Replacer "A"	
	(09316-00051)	Replacer "D"	
	09330-00021	Companion Flange Holding Tool	Companion flange
	09504-00011	Differential Side Bearing Adjusting Nut Wrench	Side bearing
	09506-30012	Differential Drive Pinion Rear Bearing Cone Replacer	Rear bearing
	09556-22010	Drive Pinion Front Bearing Remover	Front bearing

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SUSPENSION AND AXLE – REAR DIFFERENTIAL

SA-71

	09726-40010 Lower Control Shaft Bearing Replacer	Dust deflector
	09950-00020 Bearing Remover	Dust deflector Rear bearing
	09950-30010 Puller A Set	Companion flange Front bearing
	09950-40010 Puller B Set	Side bearing
	09950-60010 Replacer Set	Side bearing
	(09951-00480) Replacer 48	
	(09951-00550) Replacer 55	
	09950-60020 Replacer Set No.2	Side bearing
	(09951-00730) Replacer 73	
	09950-70010 Handle Set	Side bearing
	09960-10010 Variable Pin Wrench Set	Adjusting nut

RECOMMENDED TOOLS

SA300-01

	09025-00010 Torque Wrench (30 kgf-cm) .	
	09031-00030 Pin Punch .	



09082-00040 TOYOTA Electrical Tester.

EQUIPMENT

SA20E-01

Dial indicator with magnetic base	
Micrometer	
Torque wrench	

LUBRICANT

SA20F-01

Item	Capacity	Classification
Differential oil (w/o Diff.lock) 3 Door: 2.3 liters (2.43 US qts, 2.02 Imp.qts) 5 Door: 2.6 liters (2.75 US qts, 2.29 Imp.qts)		Hypoid gear oil API GL-5 Above - 18°C (0°F) SAE 90 Below - 18°C (0°F) SAE 80W-90 or 80W
Differential oil (w/ Diff. lock) 3 Door: 2.6 liters (2.75 US qts, 2.29 Imp.qts) 5 Door: 2.9 liters (3.06 US qts, 2.55 Imp.qts)		Hypoid gear oil API GL-5 Above - 18°C (0°F) SAE 90 Below - 18°C (0°F) SAE 80W-90 or 80W
Differential oil (w/ LSD) 3 Door: 2.3 liters (2.43 US qts, 2.02 Imp.qts) 5 Door: 2.6 liters (2.75 US qts, 2.29 Imp.qts)		Hypoid gear oil LSD API GL-5 Above - 18°C (0°F) SAE 90 Below - 18°C (0°F) SAE 80W-90 or 80W

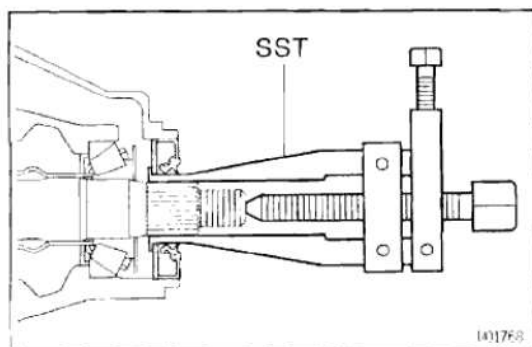
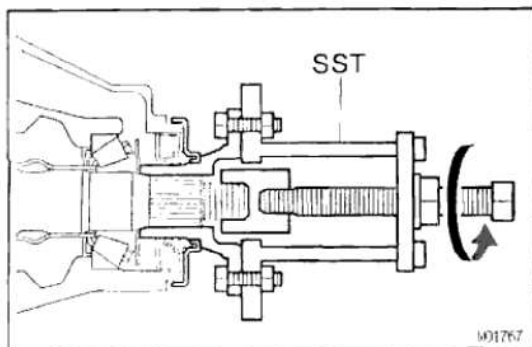
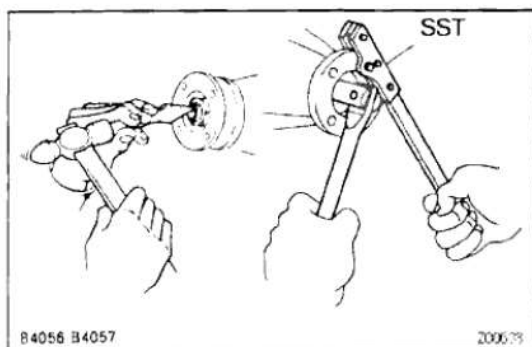
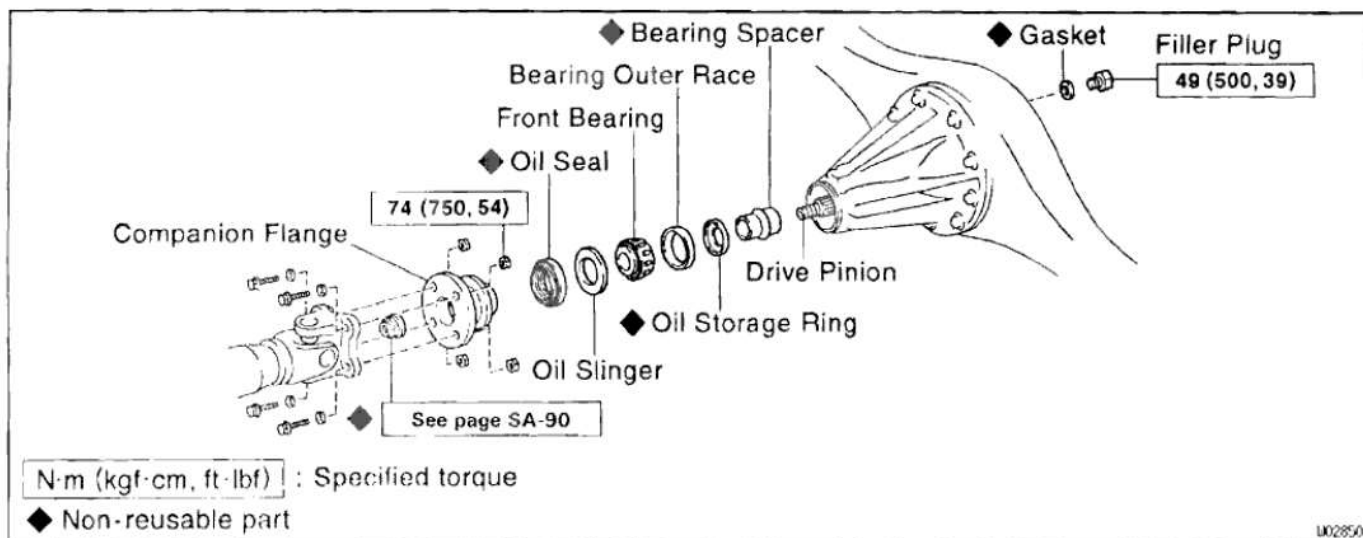
SSM (SPECIAL SERVICE MATERIALS)

SA20G-01

08826-00090	Seal Packing 1281, THREE BOND 1281 or equivalent (FIPG)	Cover x Differential carrier Actuator x Differential carrier
08833-00080	Adhesive 1344, THREE BOND 1344, LOCTITE 242 or equivalent	Shift fork shaft set bolt Pinion shaft pin

ON-VEHICLE REPAIR COMPONENTS

8A20H-01

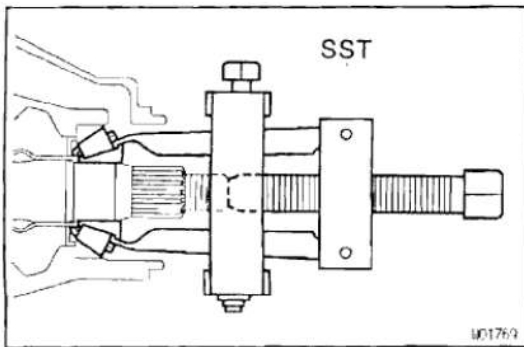


FRONT OIL SEAL REPLACEMENT

8A20J-01

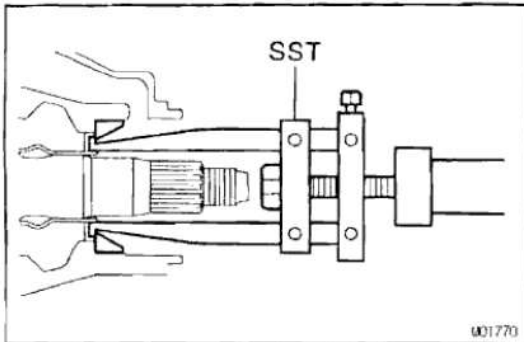
1. DRAIN DIFFERENTIAL OIL
2. REMOVE REAR PROPELLER SHAFT
(See page PR-3)
3. REMOVE COMPANION FLANGE
 - (a) Using a chisel and hammer, loosen the staked part of the nut.
 - (b) Using SST to hold the flange, remove the nut.
SST 09330-00021
 - (c) Using SST, remove the companion flange.
SST 09950-30010 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)
4. REMOVE OIL SEAL
Using SST, remove the oil seal.
SST 09308-10010
5. REMOVE OIL SLINGER

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**6. REMOVE FRONT BEARING**

Using SST, remove the front bearing from the drive pinion.

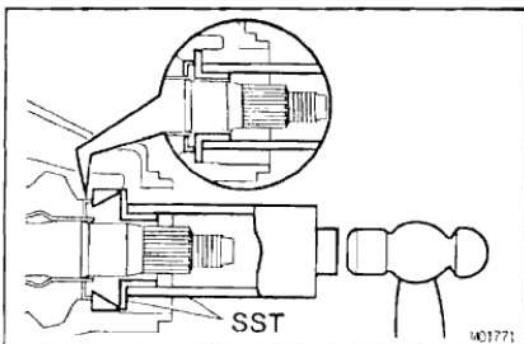
SST 09556-22010

**7. REMOVE FRONT BEARING OUTER RACE AND OIL STORAGE RING**

(a) Using SST, remove the front bearing outer race.

SST 09308-00010

(b) Using a screwdriver, bend the oil storage ring and remove it.

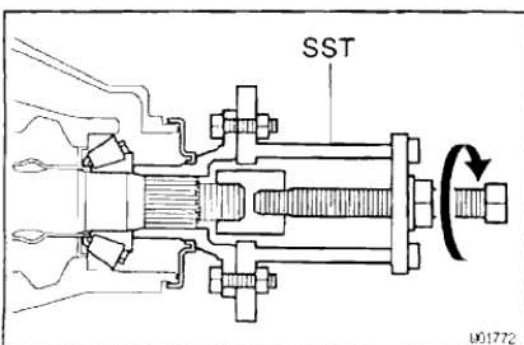
8. REMOVE BEARING SPACER**9. INSTALL NEW BEARING SPACER****10. INSTALL OIL STORAGE RING AND FRONT BEARING OUTER RACE**

(a) Using SST and a hammer, install a new oil storage ring.

SST 09316-60011 (09316-00011, 09316-00021)

(b) Using SST and a hammer, install the front bearing outer race.

SST 09316-60011 (09316-00011, 09316-00021)

**11. INSTALL FRONT BEARING**

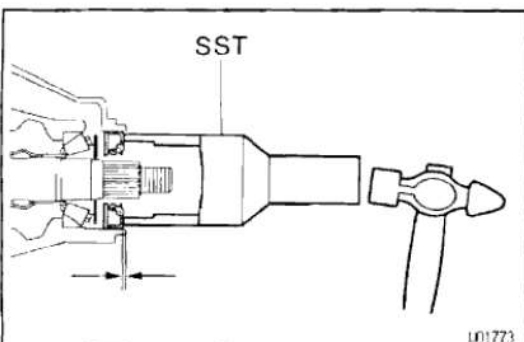
(a) Place the front bearing.

(b) Place the oil slinger.

(c) Using SST and companion flange, install the front bearing, then remove the companion flange.

SST 09950-30010 (09951-03010, 09953-03010,

09954-03010, 09955-03030, 09956-03030)

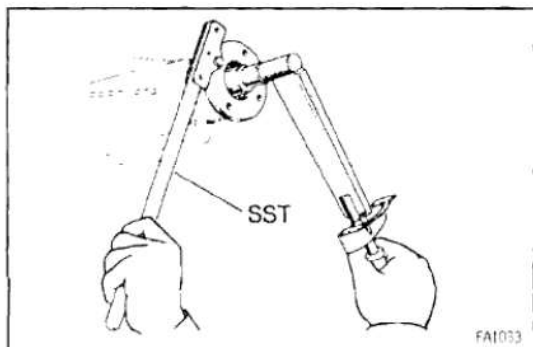
**12. INSTALL NEW OIL SEAL**

(a) Apply MP grease to a new oil seal.

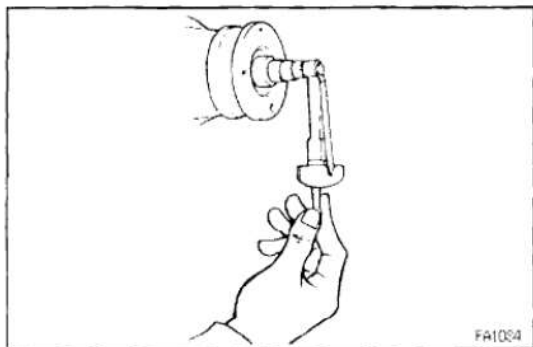
(b) Using SST and a hammer, install the oil seal.

SST 09214-76011

Oil seal drive in depth: 1.0 mm (0.039 in.)

**13. INSTALL COMPANION FLANGE**

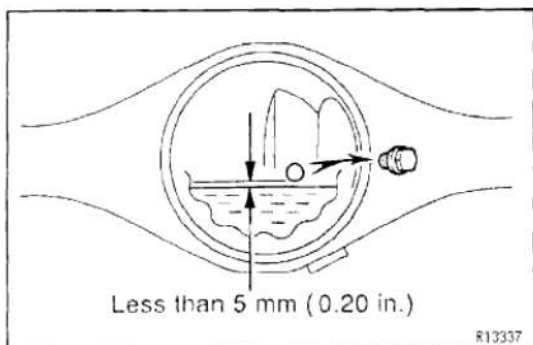
- (a) Place the companion flange on the drive pinion.
- (b) Apply light coat of hypoid gear oil on threads of a new companion flange nut.
- (c) Using SST to hold the flange, torque the nut.
SST 09330-00021
Torque: 196 N·m (2,000 kgf·cm, 145 ft·lbf)

**14. ADJUST DRIVE PINION PRELOAD**

(See page SA-90)

15. STAKE DRIVE PINION NUT**16. INSTALL REAR PROPELLER SHAFT**

(See page PR-8)

**17. FILL DIFFERENTIAL WITH DIFFERENTIAL OIL**

Torque: 49 N·m (500 kgf·cm, 39 ft·lbf)

Oil type:

w/ LSD: Hypoid gear oil LSD API GL-5

Others: Hypoid gear oil API GL-5

Recommended oil viscosity:

Above -18°C (0°F) SAE 90

Below -18°C (0°F) SAE 80W-90 or 80W

Capacity:

3 Door:

w/o Diff. lock: 2.3 liters (2.43 US qts, 2.02 Imp.qts)

w/ Diff. lock: 2.6 liters (2.75 US qts, 2.29 Imp.qts)

w/ LSD: 2.3 liters (2.43 US qts, 2.02 Imp.qts)

5 Door:

w/o Diff. lock: 2.6 liters (2.75 US qts, 2.29 Imp.qts)

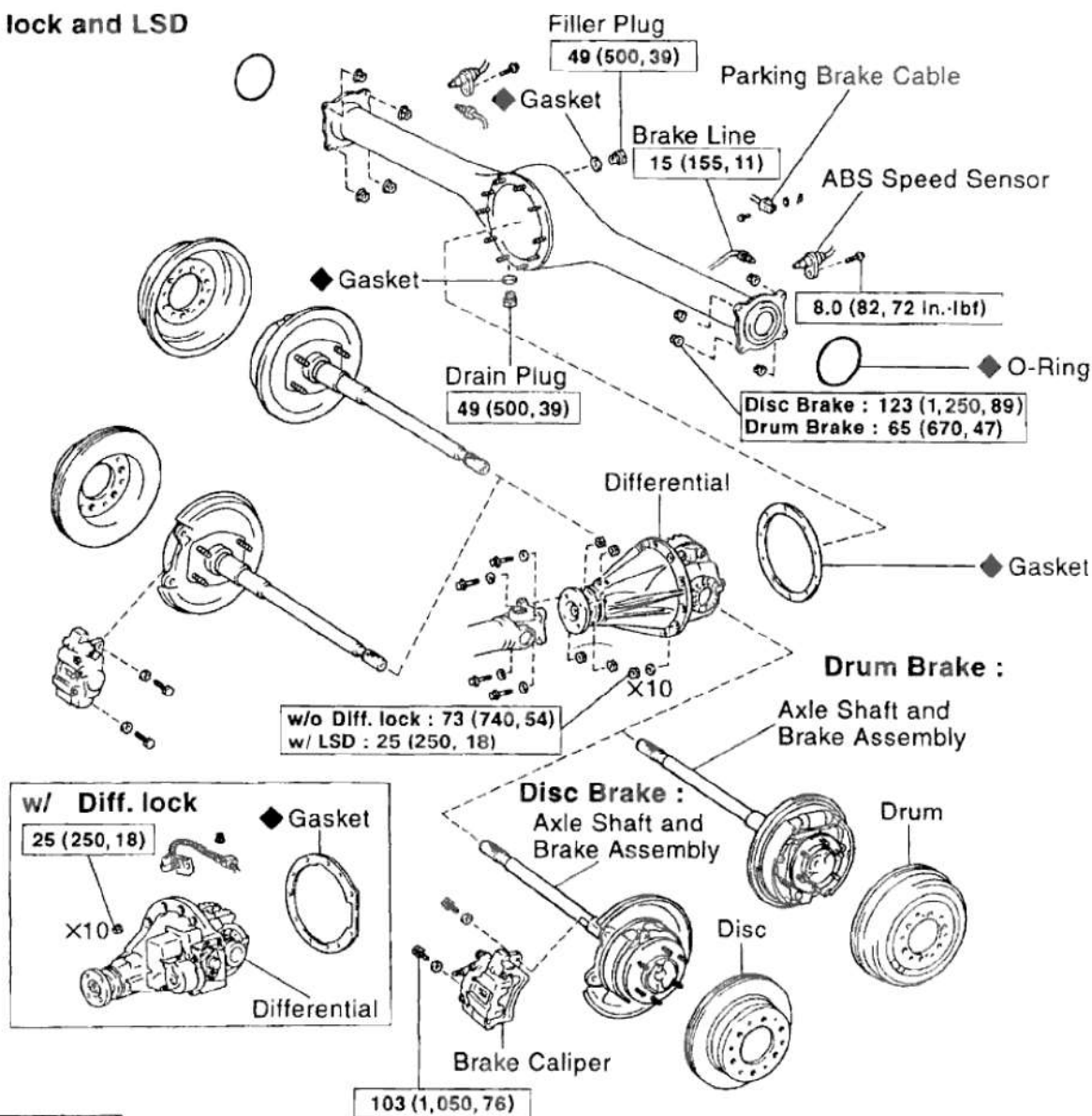
w/ Diff. lock: 2.9 liters (3.06 US qts, 2.55 Imp.qts)

w/ LSD: 2.6 liters (2.75 US qts, 2.29 Imp.qts)

ASSEMBLY REMOVAL AND INSTALLATION COMPONENTS

SA30K-C1

w/o Diff. lock and LSD



N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

1002957

DIFFERENTIAL REMOVAL

1. w/ DIFF. LOCK:

SHIFTING DIFF. LOCK POSITION

- Turn the ignition switch to the ON position.
- Push the differential lock control switch to the ON position and lock the rear differential.

HINT: Rotating the tires, check they are in the differential lock condition.

SA30L-C1

- (c) Disconnect the cable from the negative terminal of the battery.

2. DRAIN DIFFERENTIAL OIL

Torque: 49 N·m (500 kgf·cm, 39 ft·lbf)

3. REMOVE REAR AXLE SHAFTS

(See page SA-65)

4. REMOVE REAR PROPELLER SHAFT

(See page PR-3)

5. w/ DIFF. LOCK:

DISCONNECT CONNECTORS AND TUBE

INSTALLATION HINT:

- When connecting the tube of the harness side to the hose of the actuator side, its depth of insertion is 15 mm (0.59 in.).
- Take care that water or equivalent dose not adhere to the connector and hose.

6. REMOVE DIFFERENTIAL CARRIER ASSEMBLY

- (a) Remove the 10 nuts, washers and differential carrier assembly.

NOTICE: Be careful not to damage the installation surface.

Torque:

w/o Diff. lock: 73 N·m (740 kgf·cm, 54 ft·lbf)

w/ Diff. lock: 25 N·m (250 kgf·cm, 18 ft·lbf)

w/ LSD: 25 N·m (250 kgf·cm, 18 ft·lbf)

- (b) Remove the gasket.

INSTALLATION HINT (w/ Diff. lock):

- Before installation, check differential lock operation connect the connector of the actuator to the connector of the vehicle side.
- Before installation, check that the sleeves on work with switching over the differential lock control switch.

After checking, lock the rear differential.

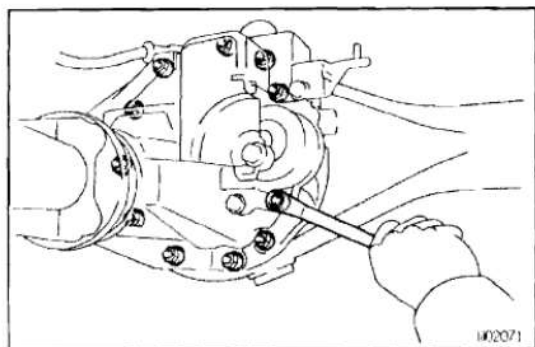
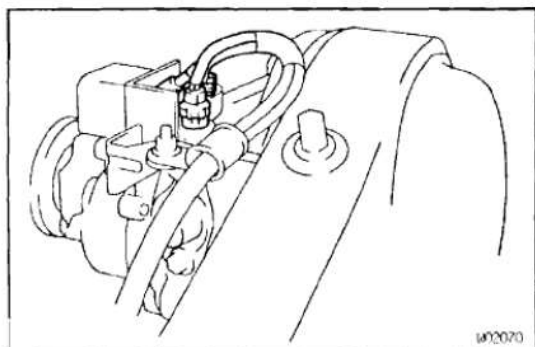
BAZOM-01

DIFFERENTIAL INSTALLATION

Installation is in the reverse order of removal.

HINT:

- After installation, fill the differential with differential oil. (See page SA-75)
- w/ Diff. lock:
After installation, Check the diff. lock operation. (See page SA-105)
After installation, check that the breather plug at the end of the breather tube (inside of the LH frame) is not damaged or worn.



SA

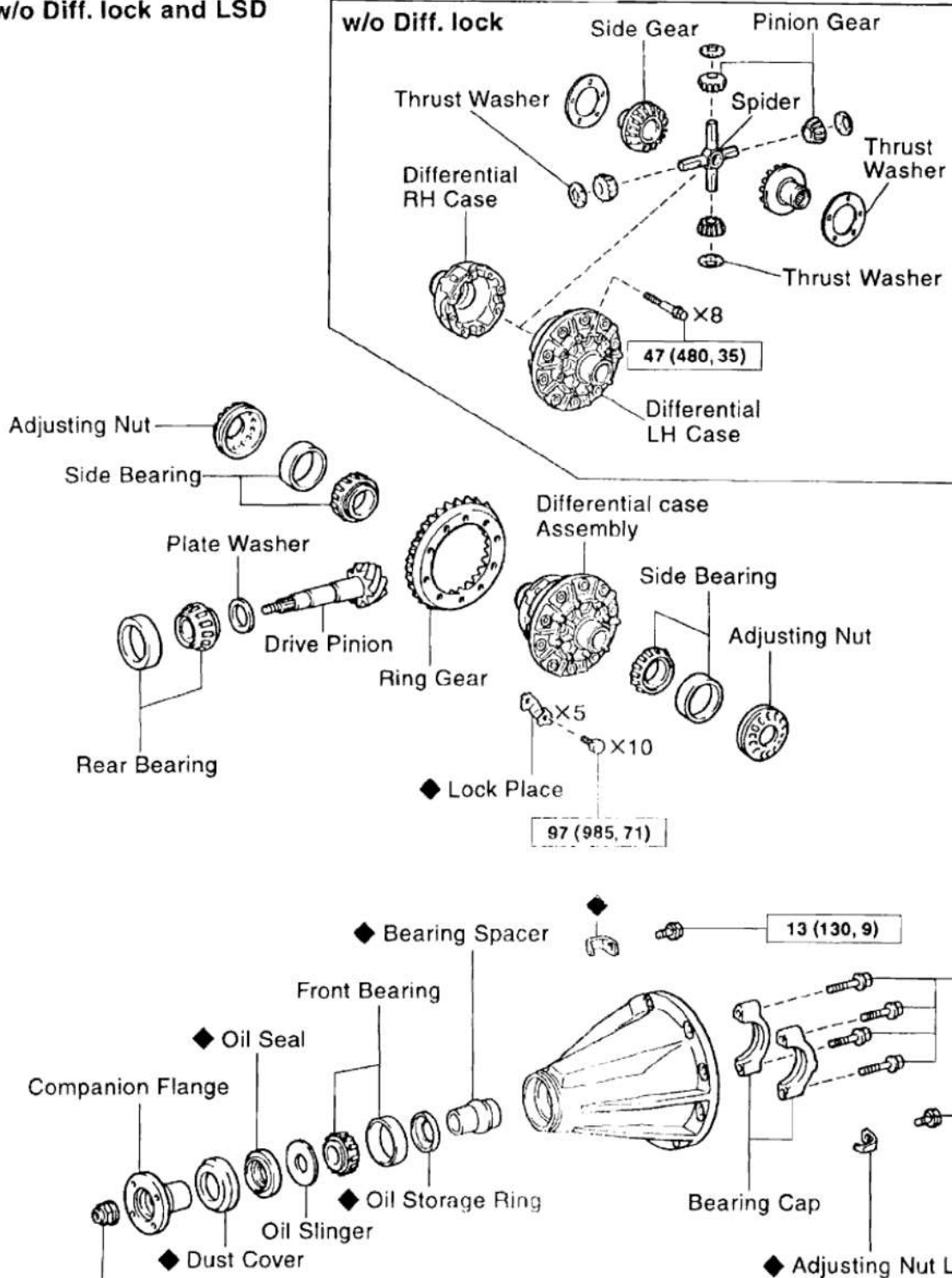
cardiagn.com

DIFFERENTIAL CARRIER COMPONENTS

BA30N-01

w/o Diff. lock and LSD

w/o Diff. lock



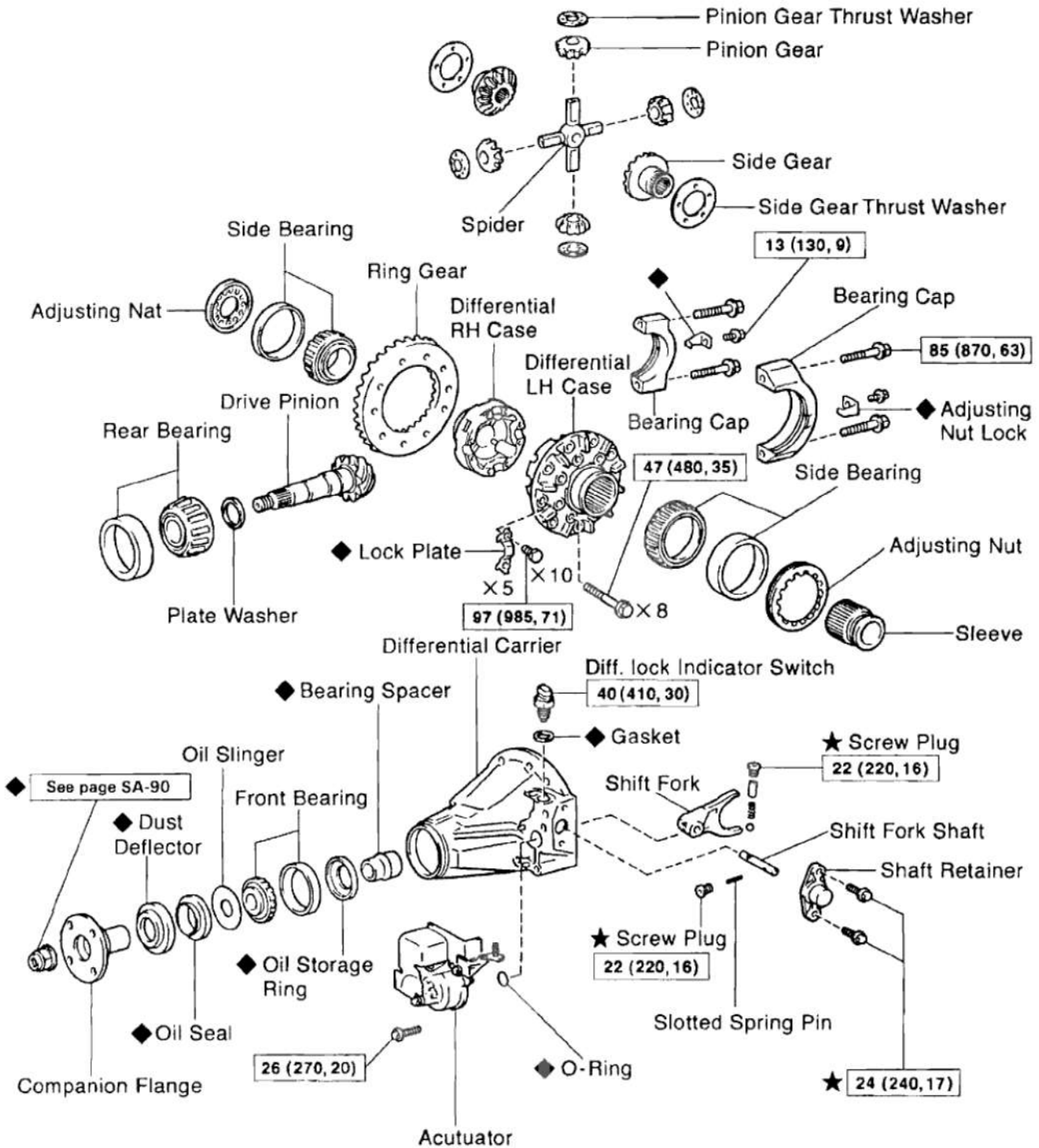
N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

U000899

cardiagn.com

w/ Diff. lock



W01776

N·m (kgf·cm, ft·lbf) : Specified torque

◆ Non-reusable part

★ Precoated part

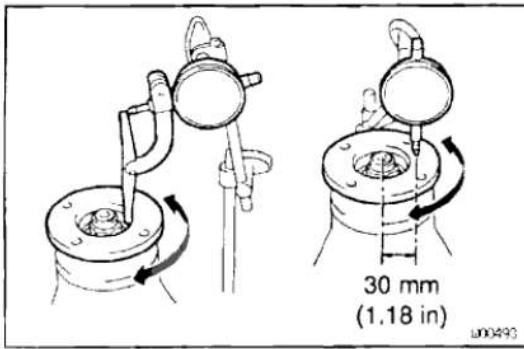
Z18524

DIFFERENTIAL CARRIER INSPECTION**1. CHECK RUNOUT OF COMPANION FLANGE**

Using a dial indicator, measure the vertical and lateral runout of the companion flange.

Maximum runout: 0.10 mm (0.0039 in.)

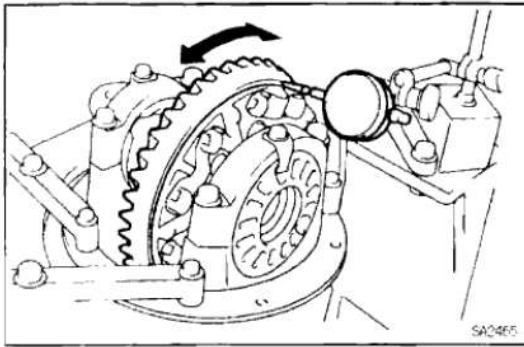
If the runout are not within the specification, replace the companion flange.

**2. CHECK RING GEAR RUNOUT**

Using a dial indicator, measure the ring gear runout.

Maximum runout: 0.07 mm (0.0028 in.)

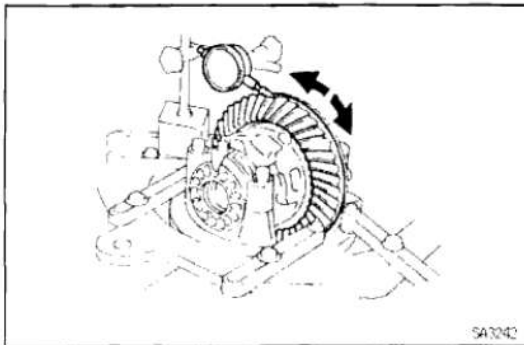
If the runout is not within the specification, replace the ring gear.

**3. CHECK RING GEAR BACKLASH**

Using a dial indicator, measure the ring gear backlash.

Backlash: 0.13 — 0.18 mm (0.0051 — 0.0071 in.)

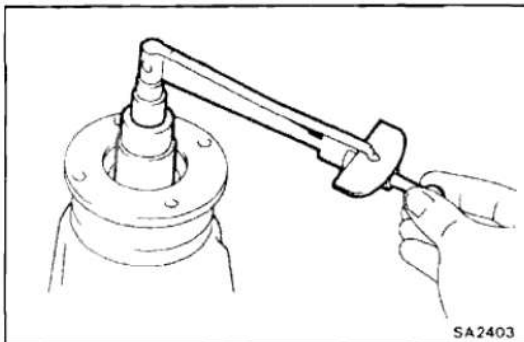
If the backlash is not within the specification, adjust the side bearing preload or repair as necessary.

**4. MEASURE DRIVE PINION PRELOAD**

Using a torque wrench, measure the preload of backlash between the drive pinion and ring gear.

Preload (at starting):

0.5 — 0.8 N·m (5 — 8 kgf·cm, 4.3 — 6.9 in.-lbf)

**5. CHECK TOTAL PRELOAD**

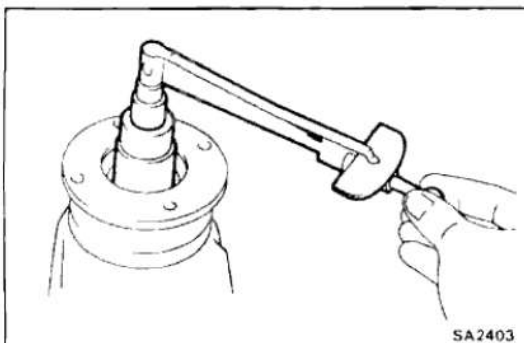
Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

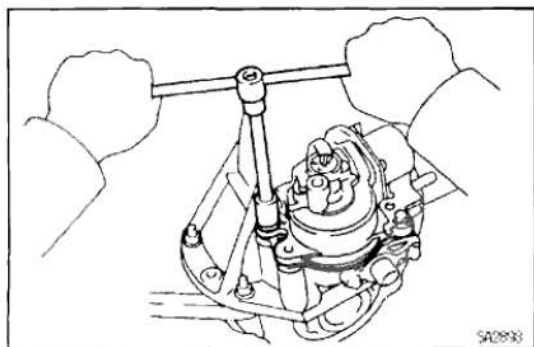
Total preload (at starting):

Drive pinion preload plus

0.4 — 0.6 N·m (4 — 6 kgf·cm, 3.5 — 5.2 in.-lbf)

If necessary, disassemble and inspect the differential.

6. CHECK TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION (See page SA-88)



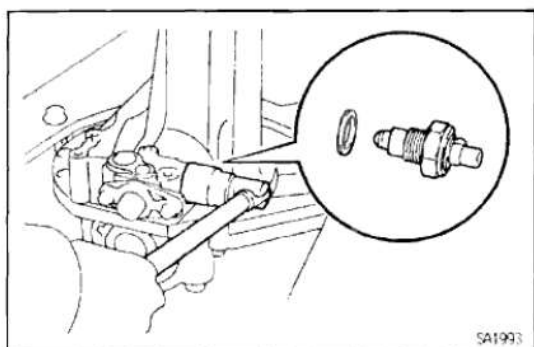
DIFFERENTIAL CARRIER DISASSEMBLY

SA200-01

1. w/ DIFF. LOCK:

REMOVE ACTUATOR

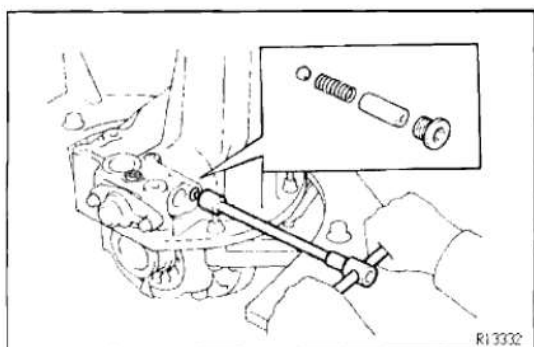
- (a) Remove the bolt and actuator from the differential carrier.
- (b) Remove the O-ring.



2. w/ DIFF. LOCK:

REMOVE INDICATOR SWITCH

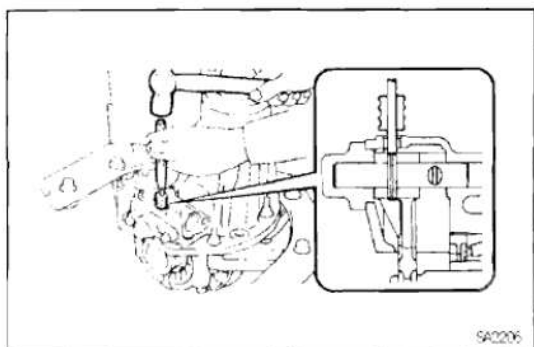
Remove the indicator switch and gasket.



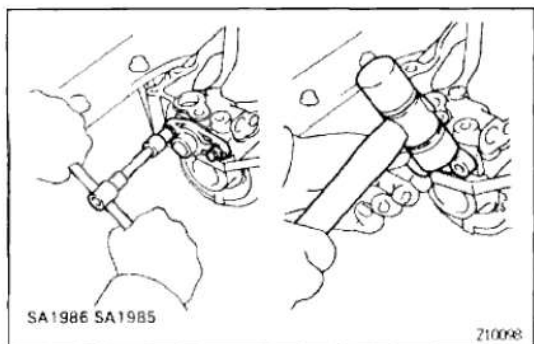
3. w/ DIFF. LOCK:

REMOVE SHIFT FORK SHAFT

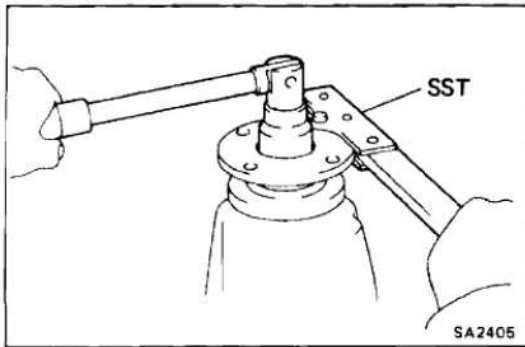
- (a) Using a hexagon wrench, remove the 2 straight screw plugs.
- (b) Remove the spring seat, compression spring and ball.



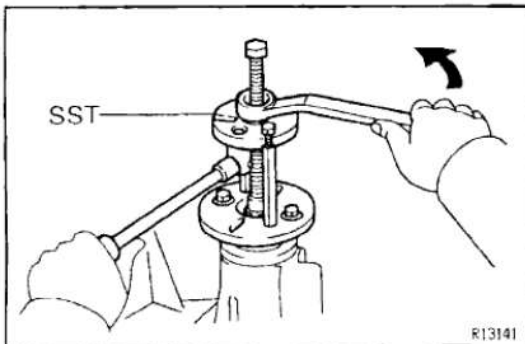
- (c) Using a pin punch and hammer, remove the slotted spring pin.



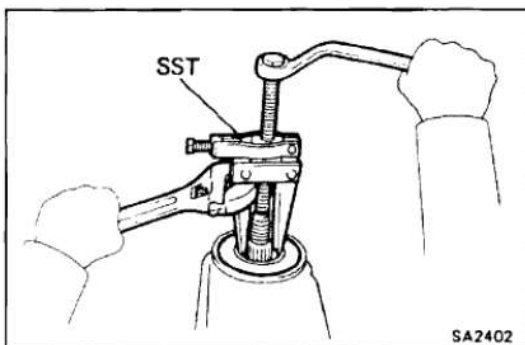
- (d) Remove the 2 bolts from the shaft retainer.
- (e) Using a plastic hammer, remove the shaft retainer.
- (f) Remove the shift fork shaft.
HINT: Pull out the shift fork shaft with a screwdriver turned round.

**4. REMOVE COMPANION FLANGE**

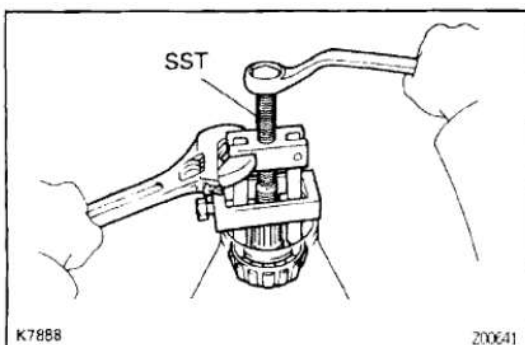
- (a) Using a chisel and hammer, unstake the nut.
- (b) Using SST to hold the flange, remove the nut.
SST 09330-00021



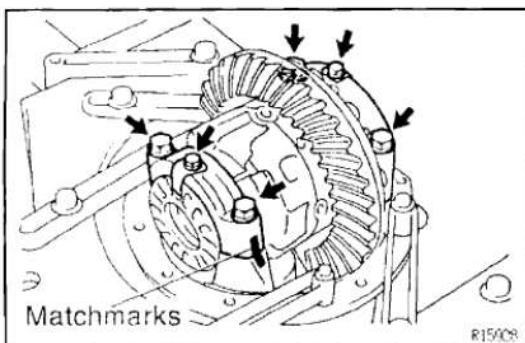
- (c) Using SST, remove the companion flange.
SST 09950-30010 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)

**5. REMOVE OIL SEAL AND OIL SLINGER**

- (a) Using SST, remove the oil seal from the differential carrier.
SST 09308-10010
- (b) Remove the oil slinger.

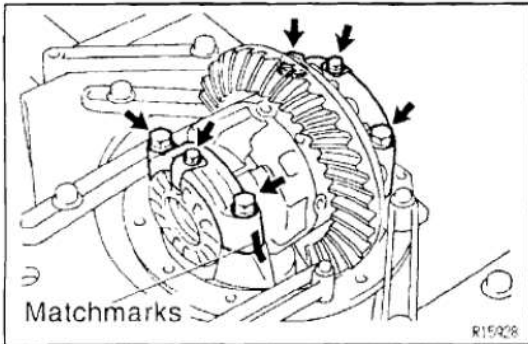
**6. REMOVE FRONT BEARING**

Using SST, remove the front bearing from the drive pinion.
SST 09556-22010

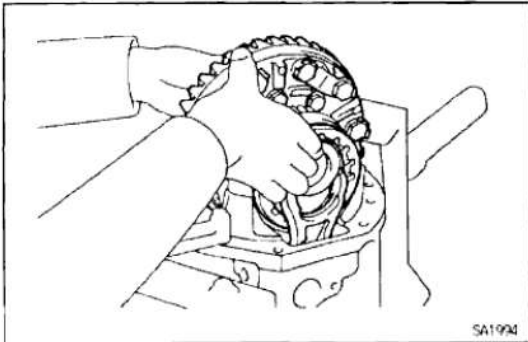
**7. REMOVE DIFFERENTIAL CASE w/o Diff. lock and LSD:**

- (a) Place matchmarks on the bearing cap and differential carrier.
- (b) Remove the 2 adjusting nut locks.
- (c) Remove the 4 bolts and 2 bearing caps.
- (d) Remove the 2 adjusting nuts.
- (e) Remove the differential case with the side bearing outer races from the differential carrier.

HINT: Tag the disassembled parts to show the location for reassembly.

**w/ Diff lock:**

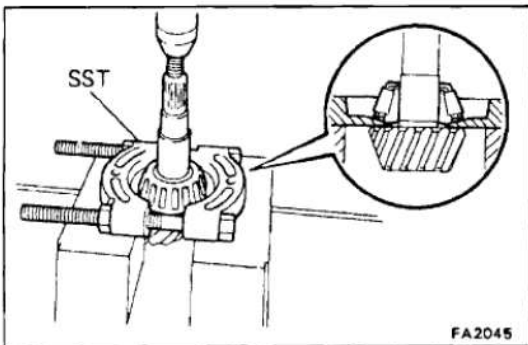
- (a) Place matchmarks on the bearing cap and differential carrier.
- (b) Remove the 2 adjusting nut locks.
- (c) Remove the 4 bolts and 2 bearing caps.



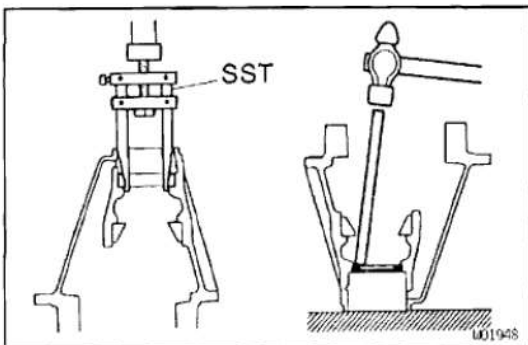
- (d) Remove the differential case with side bearing outer races, adjusting nut and sleeve from the differential carrier.
- (e) Remove the shift fork.

8. REMOVE DRIVE PINION AND BEARING SPACER

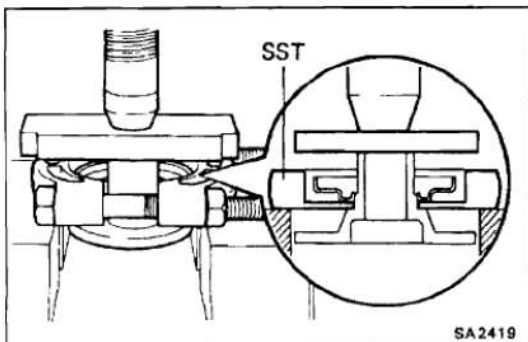
- (a) Remove the drive pinion with the rear bearing.
- (b) Remove the bearing spacer.

**9. REMOVE DRIVE PINION REAR BEARING**

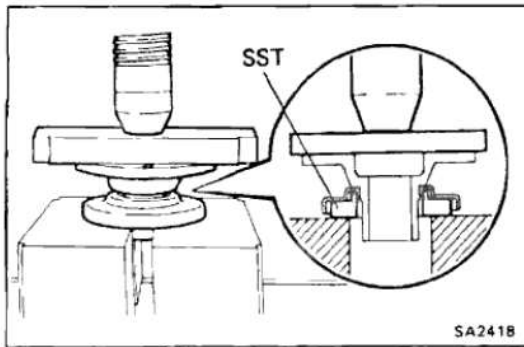
- (a) Using SST and a press, remove the bearing from the drive pinion.
SST 09950-00020
HINT: If the drive pinion or ring gear are damaged, replace them as a set.
- (b) Remove the plate washer from the drive pinion.

**10. REMOVE FRONT AND REAR BEARING OUTER RACES AND OIL STORAGE RING**

- (a) Using SST, remove the front bearing outer race.
SST 09308-00010
- (b) Using a brass bar and hammer, remove the oil storage ring.
- (c) Using a brass bar and hammer, remove the rear bearing outer race.

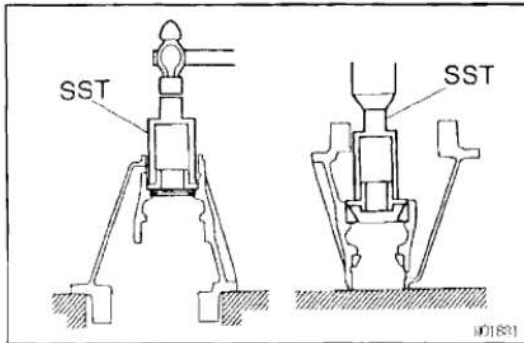
**COMPANION FLANGE DUST DEFLECTOR REPLACEMENT****1. REMOVE DUST DEFLECTOR**

Using SST and a press, remove the dust deflector.
SST 09950-00020



2. INSTALL NEW DUST DEFLECTOR

Using SST and a press, install a new dust deflector.
SST 09726-40010



DIFFERENTIAL CARRIER ASSEMBLY

1. INSTALL NEW OIL STORAGE RING AND DRIVE PINION FRONT AND REAR BEARING OUTER RACES

- (a) Using SST and a hammer, install a new oil storage ring.

SST 09316-60011 (09316-00011, 09316-00021)

- (b) Using SST and a press, install the outer races.

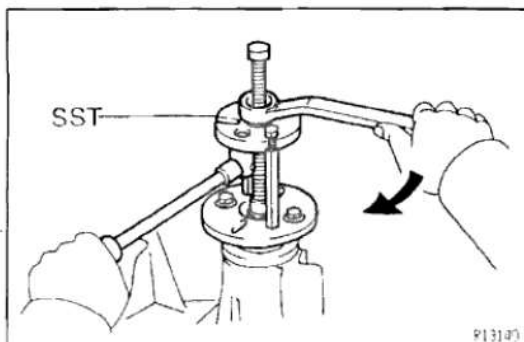
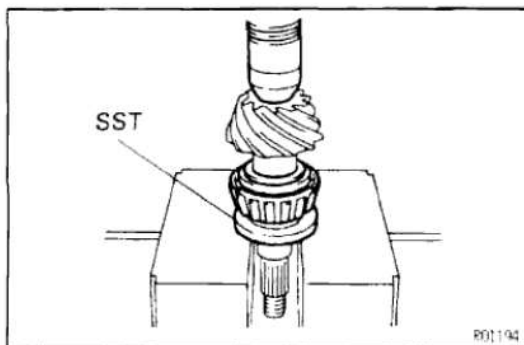
SST 09316-60011 (09316-00011, 09316-00021, 09316-00051)

2. INSTALL DRIVE PINION REAR BEARING

- (a) Install the plate washer on the drive pinion.

- (b) Using SST and a press, install the rear bearing onto the drive pinion.

09506-30012

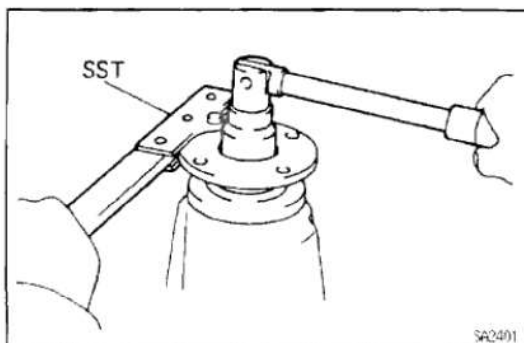


3. TEMPORARILY ADJUST DRIVE PINION PRELOAD

- (a) Install the drive pinion, front bearing and oil slinger.
HINT: Assemble the spacer and oil seal after adjusting the gear contact pattern.

- (b) Install the companion flange with SST.

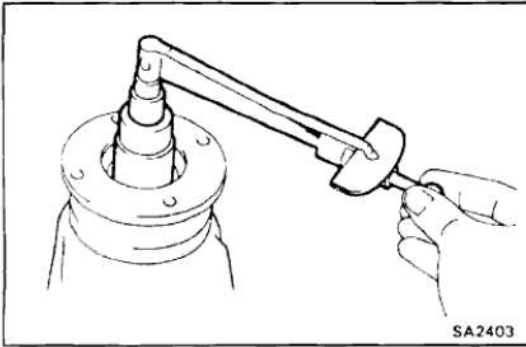
SST 09950-30010 (09951-06010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)



- (c) Adjust the drive pinion preload by tightening the companion flange nut.

SST 09330-00021

NOTICE: As there is no spacer, tighten a little at a time, being careful not to overtighten.



- (d) Using a torque wrench, measure the preload.

Preload (at starting):

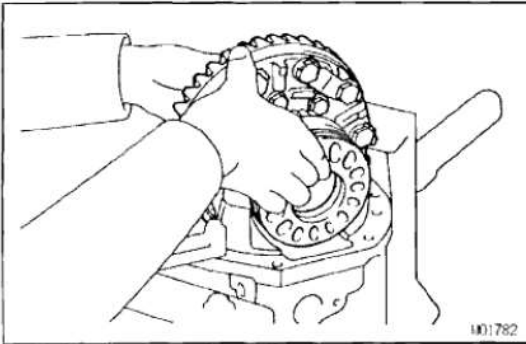
New bearing:

0.9–1.6 N·m (10–16 kgf·cm, 8.7–13.9 in.-lbf)

Reused bearing:

0.5–0.8 N·m (5–8 kgf·cm, 4.3–6.9 in.-lbf)

HINT: Measure the total preload after first turning the bearing clockwise and counterclockwise several times to make the bearing smooth.



4. INSTALL DIFFERENTIAL CASE IN CARRIER w/o Diff. lock and LSD:

- (a) Place the bearing outer race on their respective bearings. Make sure that the left and right outer races are not interchanged.

- (b) Install the case in the carrier.

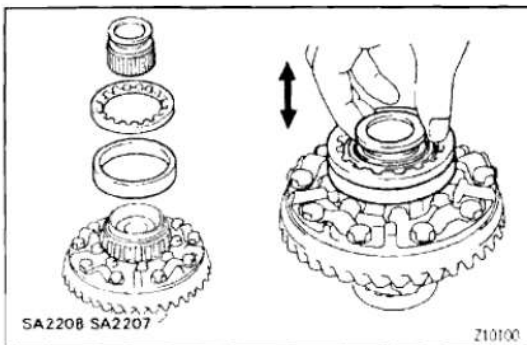
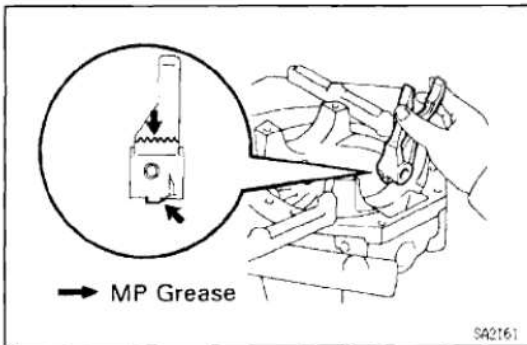
HINT: Make sure that there is a backlash between the ring gear and drive pinion.

- (c) Install the adjusting nuts on the carrier, making sure the nuts are threaded properly.

w/ Diff. lock:

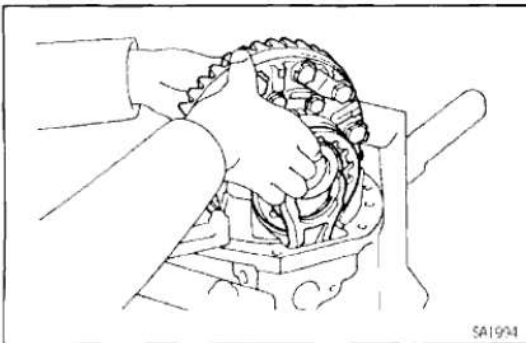
- (a) Apply MP grease on the rack of the shift fork and connecting part of the indicator switch.

- (b) Insert the shift fork into the differential carrier, as shown.



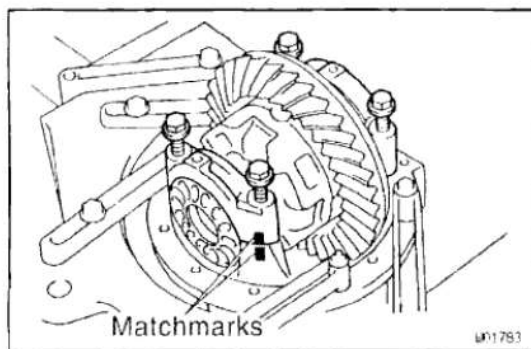
- (c) Place the outer races, adjusting nut and left side to sleeve.

HINT: Check that the sleeve moves smoothly.



- (d) Install the shift fork in the groove of the sleeve holding it by hand and install the case in the carrier.

HINT: Make sure that there is backlash between the ring gear and drive pinion.

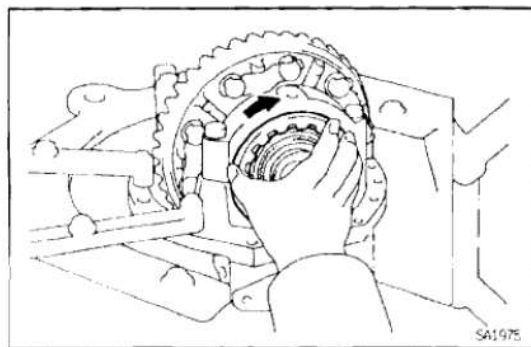


5. INSTALL BEARING CAPS

w/o Diff. lock and LSD:

Align the matchmarks on the cap and carrier. Screw in the 2 bearing cap bolts 2 or 3 turns and press down the bearing cap by hand.

HINT: If the bearing cap does not fit tightly on the carrier, the adjusting nuts are not threaded properly. Reinstall the adjusting nuts if necessary.

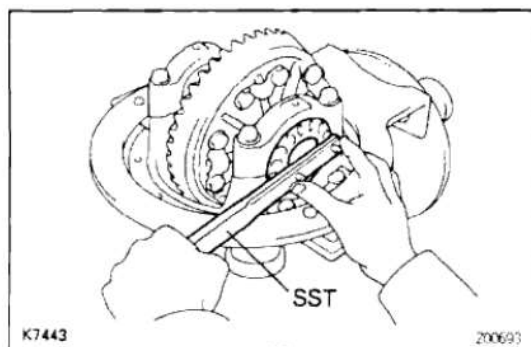


w/o Diff. lock:

Align the matchmarks on the cap and carrier. Screw in the 2 bearing cap bolts 2 or 3 turns and press down the bearing cap by hand.

HINT: If the bearing cap does not fit tightly on the carrier, the adjusting nuts are not threaded properly. Reinstall the adjusting nuts if necessary.

SA



6. ADJUST SIDE BEARING PRELOAD

w/o Diff. lock and LSD:

- (a) Tighten the 4 bearing cap bolts to the specified torque, and loosen them to the point where they can be turned by hand.

Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)

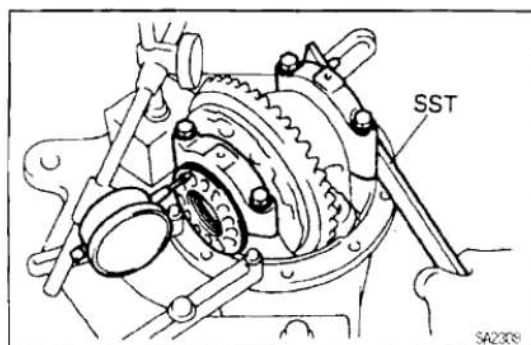
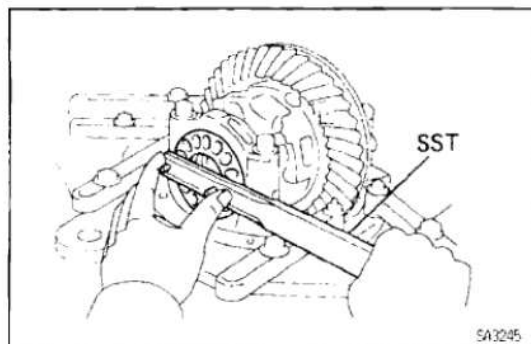
- (b) Fully tighten the 4 bearing cap bolts by hand.
- (c) Using SST, tighten the adjusting nut on the ring gear back side until the ring gear has a backlash of about 0.2 mm (0.008 in.).

SST 09504-00011

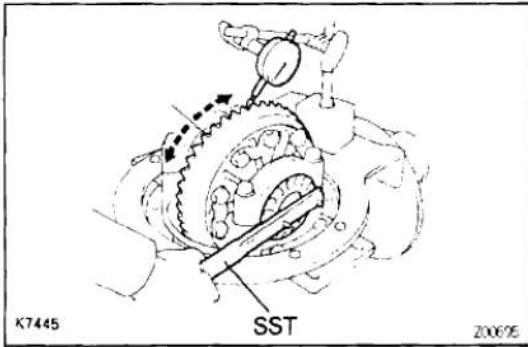
- (d) With turning the ring gear, use SST to fully tighten the adjusting nut on the ring gear teeth side.

After the bearings are settled, loosen the adjusting nut on the drive pinion side.

SST 09504-00011



- (e) Place a dial indicator on the top of the adjusting nut on the ring gear back side.
- (f) Adjust the side bearing for zero preload by tightening the other adjusting nut until the pointer on the indicator bearings to move.
- (g) Tighten the adjusting nut 1-1.5 notches from the zero preload position.



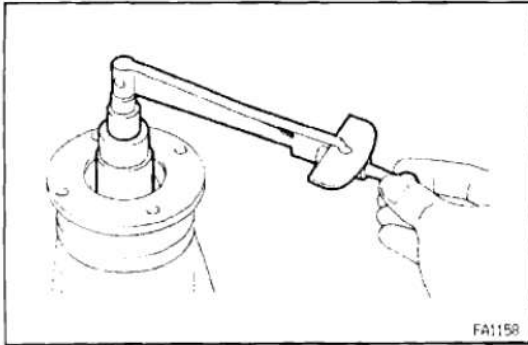
- (h) Using a dial indicator, adjust the ring gear backlash until it is within the specification.

Backlash: 0.13–0.18 mm (0.0051–0.0071 in.)

HINT: The backlash is adjusted by turning the left and right adjusting nuts equal amounts. For example, loosen the nut of the left side one notch and tighten the nut on the right side one notch.

- (i) Torque the bearing cap bolts.

Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)



- (j) Recheck the ring gear backlash.

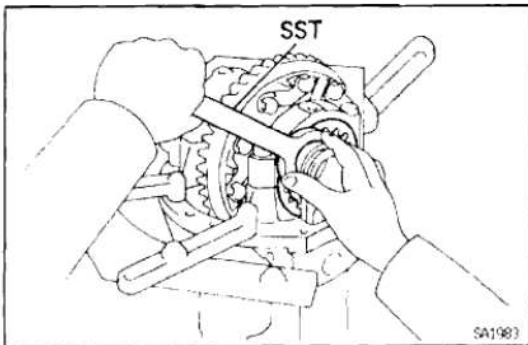
Backlash: 0.13–0.18 mm (0.0051–0.0071 in.)

- (k) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):

Drive pinion preload plus

0.4–0.6 N·m (4–6 kgf·cm, 3.5–5.2 in·lbf)



w/ Diff. lock:

- (a) Torque the 4 bearing cap bolts to the specified torque, then loosen them to the point where the adjusting nut can be turned by hand.

Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)

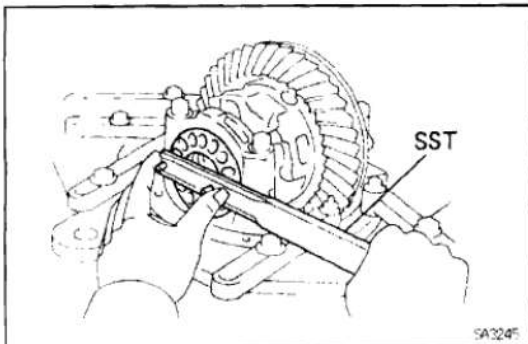
- (b) Fully tighten the 4 bearing cap bolts by hand.

- (c) Using SST, torque the adjusting nut on the ring gear side until the ring has a backlash of about 0.2 mm (0.008 in.).

SST 09960–10010

- (d) With turning the ring gear, use SST to fully tighten the adjusting nut on the drive pinion side. After the bearings are settled, loosen the adjusting nut on the drive pinion side.

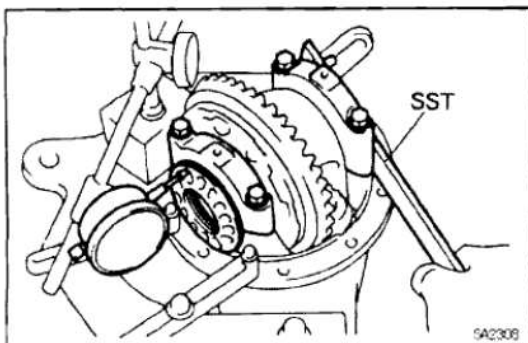
SST 09504–00011

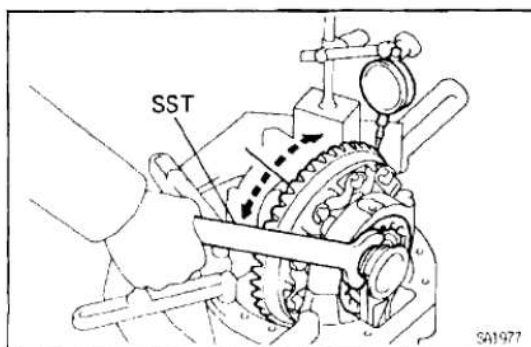


- (e) Place a dial indicator on the top of the adjusting nut on the ring gear side.

- (f) Adjust the side bearing for zero preload by tightening the other adjusting nut until the pointer on the indicator bearings to move.

- (g) Torque the adjusting nut until 1–1.5 notches from the zero preload position.





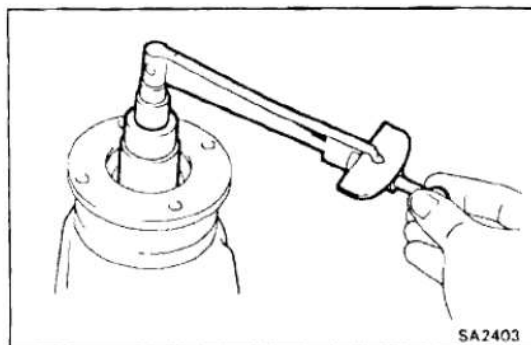
- (h) Using a dial indicator, adjust the ring gear backlash until it is within the specification.

Backlash: 0.13–0.18 mm (0.0051–0.0071 in.)

HINT: The backlash is adjusted by turning the left and right side one notch.

- (i) Torque the bearing cap bolts.

Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)



- (j) Recheck the ring gear backlash.

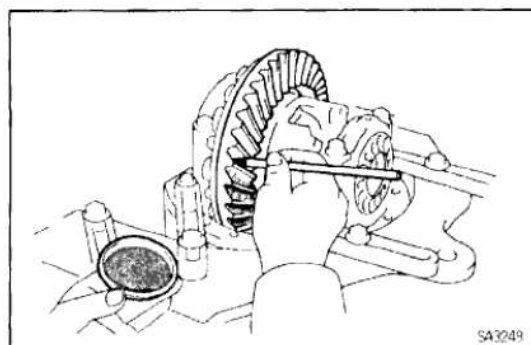
Backlash: 0.13–0.18 mm (0.0051–0.0071 in.)

- (k) Using a torque wrench, measure the preload with the teeth of the drive pinion and ring gear in contact.

Total preload (at starting):

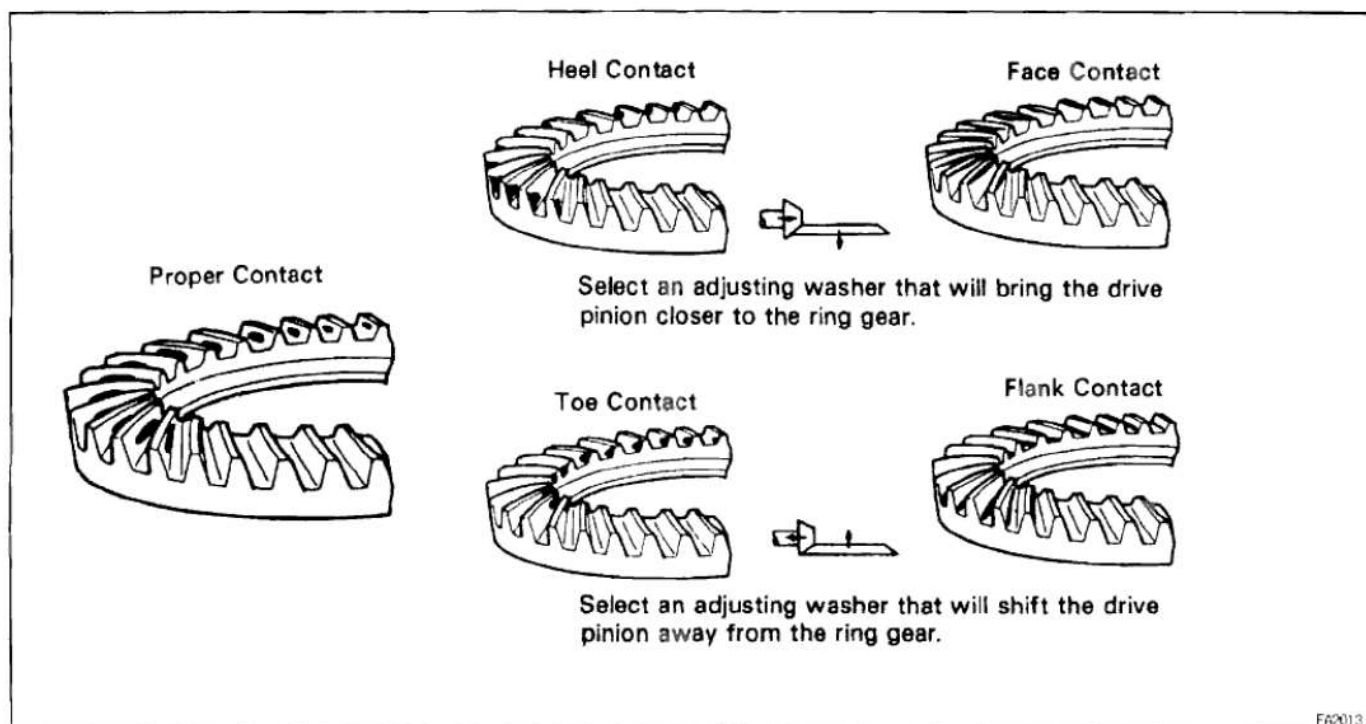
Drive pinion preload plus

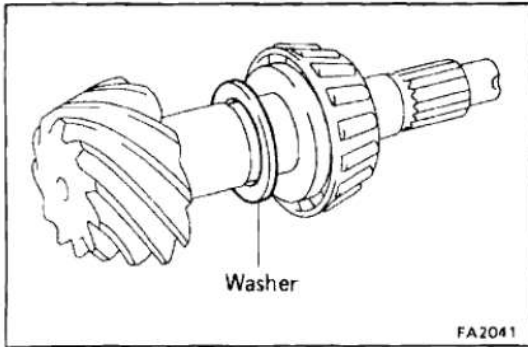
0.4–0.6 N·m (4–6 kgf·cm, 3.5–5.2 in·lbf)



7. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

- (a) Coat 3 or 4 teeth at the 3 different positions on the ring gear with red lead.
- (b) Hold the companion flange firmly and rotate the ring gear in both directions.
- (c) Inspect the tooth pattern.





If the teeth are not contacting properly, use the following chart to select a proper washer for correction.

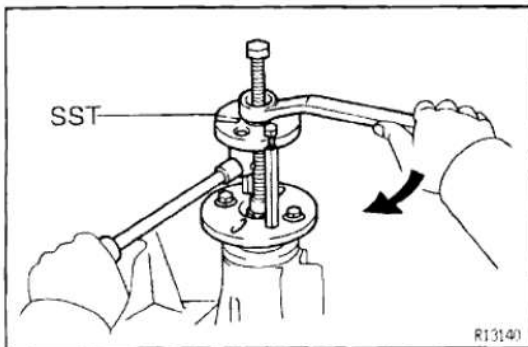
Thickness mm (in.)	Thickness mm (in.)
1.70 (0.0669)	2.03 (0.0799)
1.73 (0.0681)	2.06 (0.0811)
1.76 (0.0693)	2.09 (0.0823)
1.79 (0.0705)	2.12 (0.0835)
1.82 (0.0717)	2.15 (0.0846)
1.85 (0.0728)	2.18 (0.0858)
1.88 (0.0740)	2.21 (0.0870)
1.91 (0.0752)	2.24 (0.0882)
1.94 (0.0764)	2.27 (0.0894)
1.97 (0.0776)	2.30 (0.0906)
2.00 (0.0787)	2.33 (0.0917)

8. REMOVE COMPANION FLANGE

(See page SA-82)

9. REMOVE OIL SLINGER AND FRONT BEARING

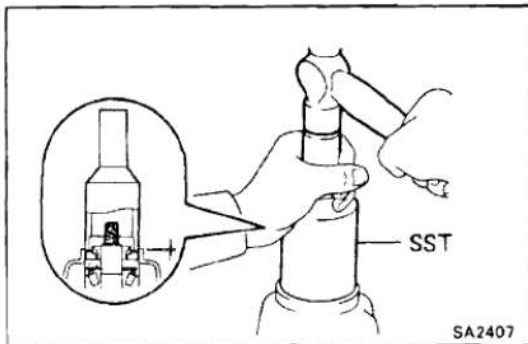
(See page SA-82)



10. INSTALL BEARING SPACER AND FRONT BEARING

- Place a new bearing spacer on the shaft.
- Place the front bearing and oil slinger.
- Using SST and the companion flange, install the front bearing then remove the companion flange.

SST 09950-30010 (09951-06010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)

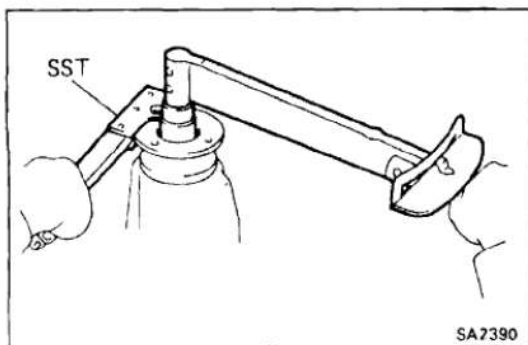


11. INSTALL OIL SEAL

- Apply MP grease to the oil seal lip.
- Using SST and a hammer, install a new oil seal.

SST 09214-76011

Oil seal drive in depth: 1.0 mm (0.039 in.)



12. INSTALL COMPANION FLANGE

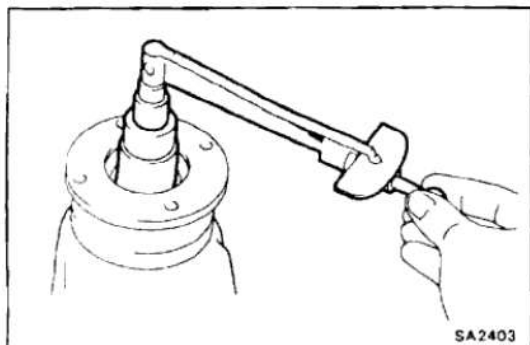
- Place the companion flange on the drive pinion.
- Install a new nut.

HINT: Coat the threads of a new nut with hypoid gear oil.

- Using SST to hold the flange, tighten the nut.

SST 09330-00021

Torque: 196 N·m (2,000 kgf·cm, 145 ft·lbf)



SA2403

13. ADJUST DRIVE PINION PRELOAD

Using a torque wrench, measure the preload of the backlash between the drive pinion and ring gear.

Preload (at starting):

New bearing:

0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)

Reused bearing:

0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.-lbf)

If preload is greater than the specification, replace the bearing spacer.

If preload is less than the specification, retighten the nut a little at a time with a torque of 13 N·m (130 kgf·cm, 9 ft·lbf) until the specified preload is reached.

Maximum torque: 343 N·m (3,500 kgf·cm, 253 ft·lbf)

If the maximum torque is exceeded with retightening the nut, replace the bearing spacer and repeat the preload procedure. Do not back off the pinion nut to reduce the preload.

14. RECHECK RING GEAR BACKLASH

(See page SA-80)

15. RECHECK TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

(See page SA-88)

16. CHECK RUNOUT OF COMPANION FLANGE

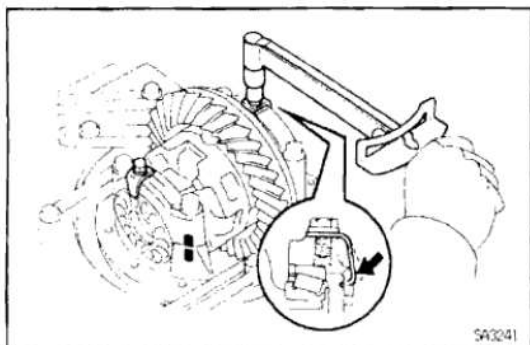
(See page SA-80)

17. STAKE DRIVE PINION NUT**18. INSTALL ADJUSTING NUT LOCKS**

(a) Install 2 new nut locks on the bearing caps.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

(b) After tightening bolts, bend the nut locks.

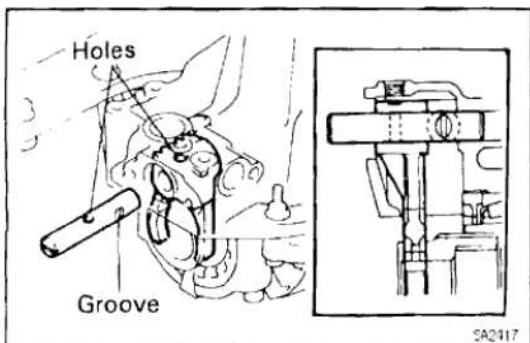


SA2041

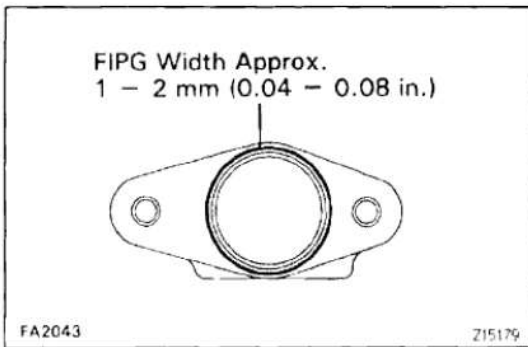
19. w/ DIFF. LOCK:**INSTALL SHIFT FORK SHAFT**

(a) Apply MP grease onto the outer circuit of the fork shaft.

(b) Install the fork shaft to match the hole of the shift fork and that of the shift fork shaft.



SA2117

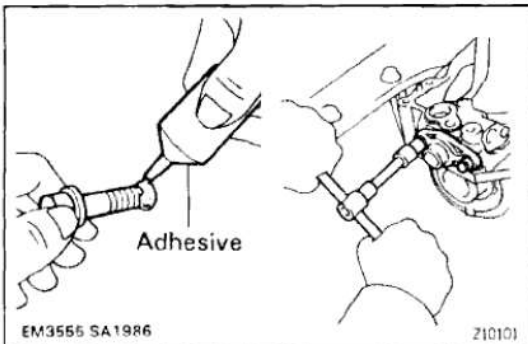


- (c) Remove any FIPG material and be careful not to drop oil on the contacting surface of the differential carrier and shaft retainer.

- (d) Apply FIPG to the carrier, as shown.

FIPG: Part No. 08826-00090, THREE BOND 1281 or equivalent

HINT: Install the shaft retainer within 10 minutes after applying FIPG.



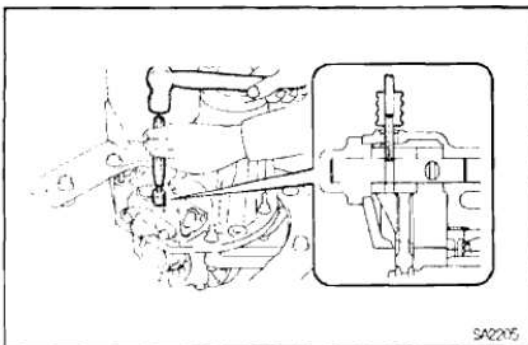
- (e) Clean the threads of the bolts and retainer bolts holes with toluene or trichlorethylene.

- (f) Apply adhesive to 2 or 3 threads of the mount bolt end.

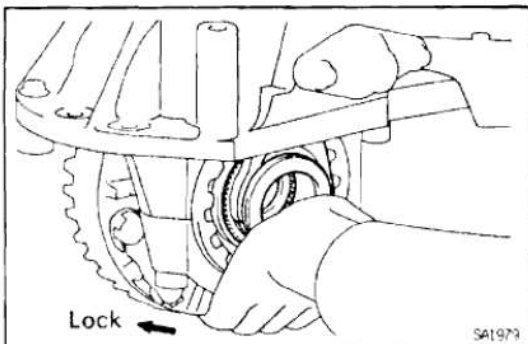
Adhesive: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (g) Tighten the shaft retainer with the 2 bolts.

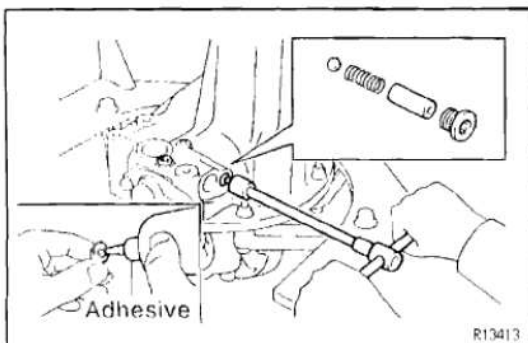
Torque: 24 N·m (240 kgf·cm, 17 ft·lbf)



- (h) Using a pin punch and hammer, install the slotted spring pin to shift fork.



- (i) Shift the fork deeply and keep the differential lock condition.



- (j) Install the ball, compression spring and spring seat.

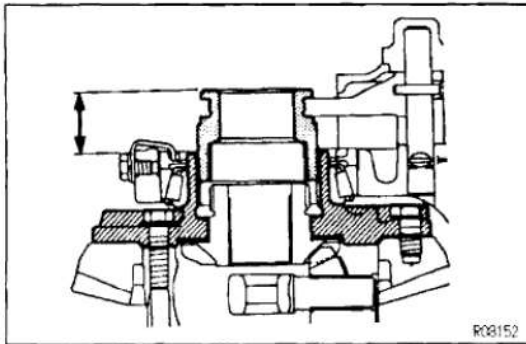
- (k) Clean the threads of 2 plugs and plug holes with toluene or trichlorethylene.

- (l) Apply adhesive to the plug threads.

Adhesive: Part No. 08833-00080, THREE BOND 1344, LOCTITE 242 or equivalent

- (m) Using a hexagon wrench, install and tighten the screw plugs.

Torque: 22 N·m (220 kgf·cm, 16 ft·lbf)

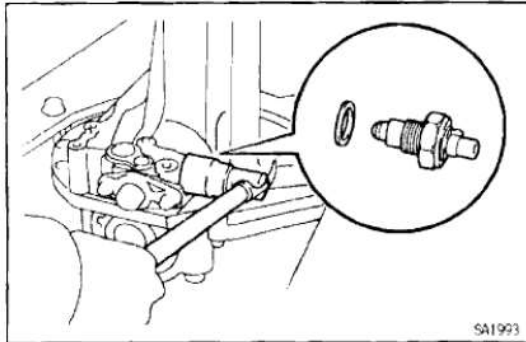
**20. w/ DIFF. LOCK:****MEASURE DISTANCE BETWEEN SLEEVE AND DIFFERENTIAL CASE END SIDE**

Measure distance between the sleeve and tip of the differential case when differential is free and locked.

Standard distance:

LOCK: 17.44 – 18.86 mm (0.6866 – 0.7425 in.)

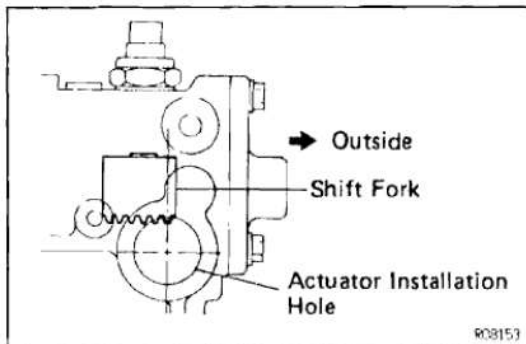
FREE: 32.40 – 33.90 mm (1.2756 – 1.3346 in.)

**21. w/ DIFF. LOCK****INSTALL INDICATOR SWITCH**

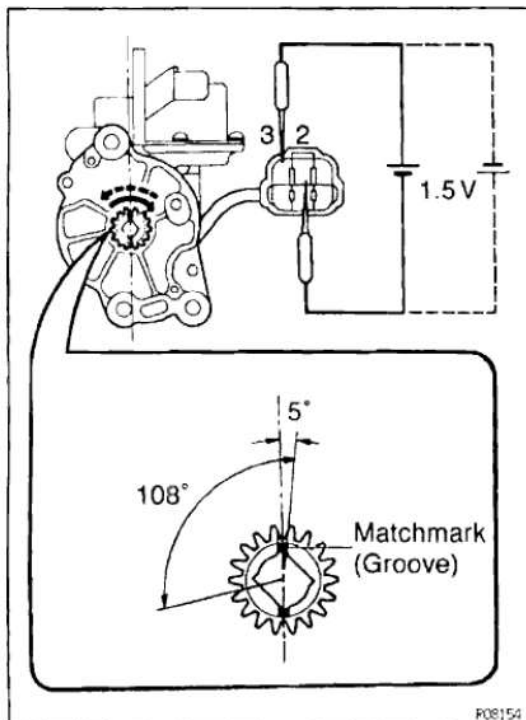
Install the indicator switch with a new gasket.

Torque: 40 N·m (410 kgf·cm, 30 ft·lbf)

SA

**22. w/ DIFF. LOCK****INSTALL ACTUATOR**

- (a) Check that the outermost rack tooth of the shift fork is virtually above the center line of the actuator installation hole.



- (b) Ensure that the matchmarks of the pinion of the actuator is in the extent between zero and 5 degrees clockwise above the center line of the actuator.

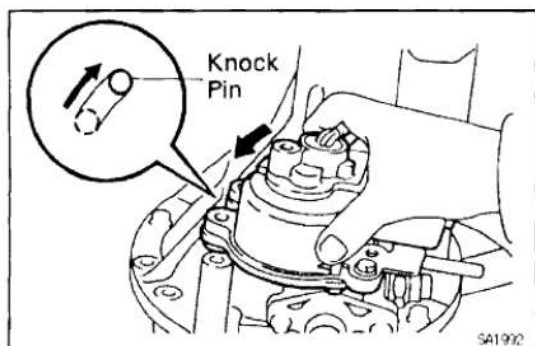
NOTICE:

- If the matchmarks are not in this extent, rotate the pinion to be matched.
- Do not supply the battery positive voltage directly between terminals.
- If the matchmarks come to the extension limit of the rotation, do not electrify moreover.

- (c) Install a new O-ring to the actuator.

- (d) Apply a light coat of gear oil on the O-ring.

- (e) Apply MP grease to the gear part.



- (f) Insert the actuator so that the long hole on the actuator side fits with the knock pin on the carrier side. **HINT:** Do not damage the O-ring of the actuator.
- (g) Align the actuator with the long hole and rotate the actuator counterclockwise when the knock pin reaches the right-hand side.
- (h) Install the actuator to the differential carrier with the bolt so that the outermost rack tooth of the shift fork will fit the matchmarks of the pinion of the actuator.
Torque: 26 N·m (270 kgf·cm, 20 ft·lbf)

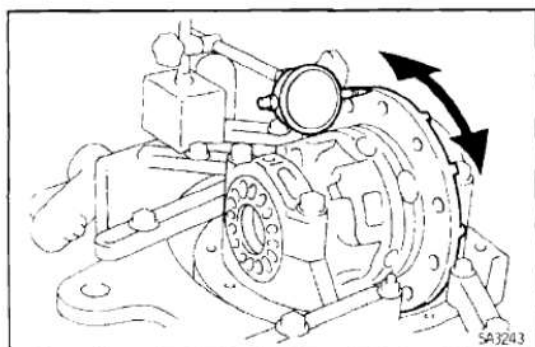
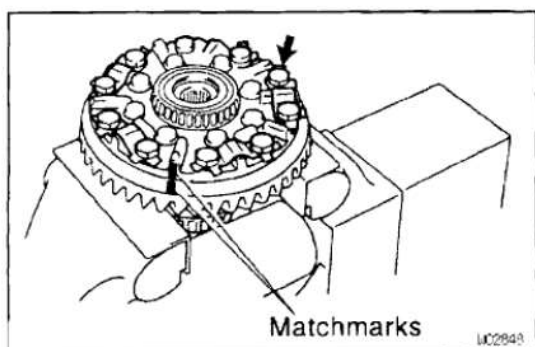
DIFFERENTIAL CASE

(4 Pinion Type)

COMPONENTS

(See page SA-78)

SA301-01



DIFFERENTIAL CASE DISASSEMBLY

SA301-01

1. REMOVE RING GEAR

- (a) Place matchmarks on the ring gear and differential case.
- (b) Using a screwdriver and hammer, unstake the 5 lock plates.
- (c) Remove the 10 ring gear set bolts and 5 lock plates.
- (d) Using a plastic hammer, tap on the ring gear to separate it from the differential case.

2. CHECK DIFFERENTIAL CASE RUNOUT

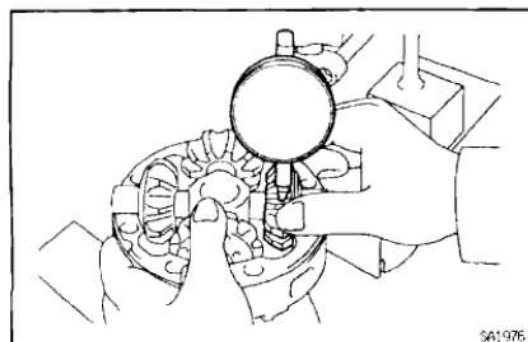
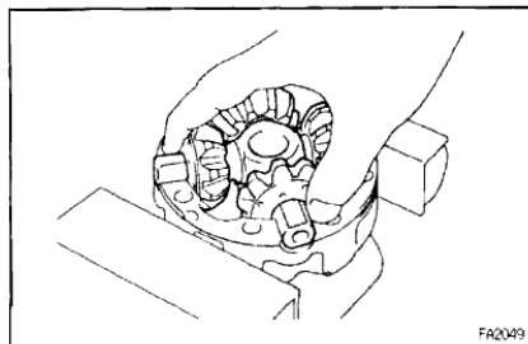
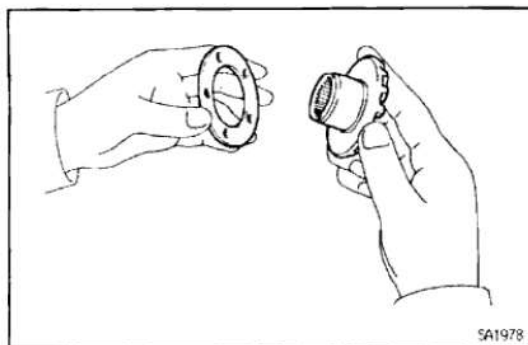
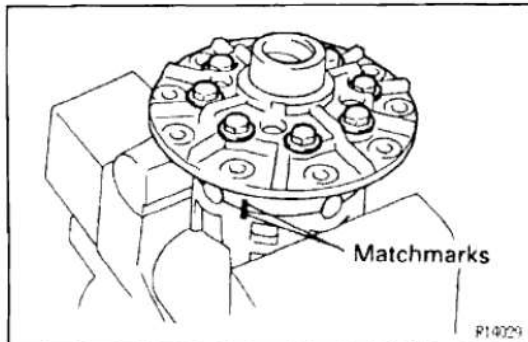
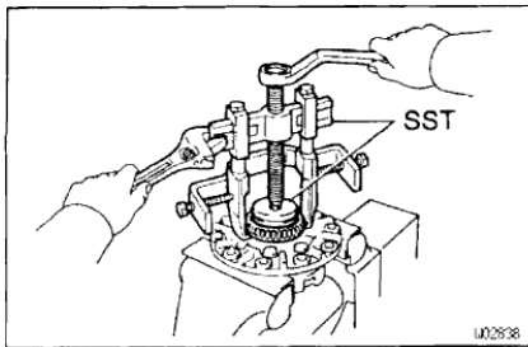
- (a) Place the bearing outer races on their respective bearings. Check that the left and right outer races are not interchanged.
- (b) Install the differential case in the differential carrier.
- (c) When there is no play left in the side bearings, install the plate washers.
- (d) Align the matchmarks on the bearing cap and differential carrier.
- (e) Install and uniformly tighten the 4 bearing cap bolts in several passes.
- (f) Using a dial indicator, measure the differential case runout.

Maximum runout: 0.07 mm (0.0028 in.)

- (g) Remove the differential case.

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3. REMOVE SIDE BEARINGS FROM DIFFERENTIAL CASE

Using SST, remove the side bearings from the differential case.

SST 09950-40010 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04060, 09957-04010, 09958-04010), 09950-60010 (09951-00480)

HINT: Fix the claws of SST to the notches in the differential case.

4. DISASSEMBLE DIFFERENTIAL CASE

- Place matchmarks on the LH and RH cases.
- Remove the 8 bolts uniformly, a little at a time.
- Using a plastic hammer, separate the LH and RH cases.
- Remove these parts:
 - 2 Side gears
 - 2 Side gear thrust washers
 - 4 Spider and Pinion gears
 - 4 Pinion gear thrust washers

DIFFERENTIAL CASE ASSEMBLY

1. ASSEMBLE DIFFERENTIAL CASE

- Apply all of the sliding and rotating surfaces with gear oil.
- Install the side gear thrust washer to the side gear.
- Install the side gear to the RH case.

- Install the 4 pinion gears and pinion gear thrust washers to the spider.

- Install the 4 pinion gears with spider to the RH case.

- Using a dial indicator, measure the side gear backlash with holding the side gear and spider.

Standard backlash: 0.05–0.20 mm (0.0020–0.0079 in.)

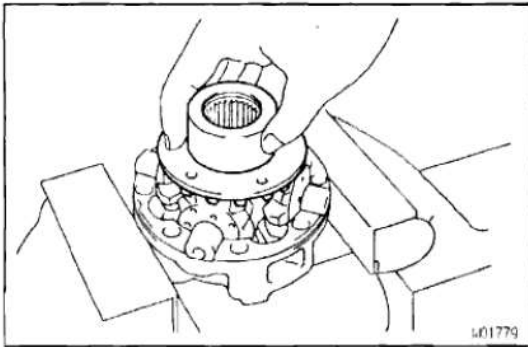
HINT:

- Measure at all 4 locations.
- Measure the backlash at the RH case at the LH case.

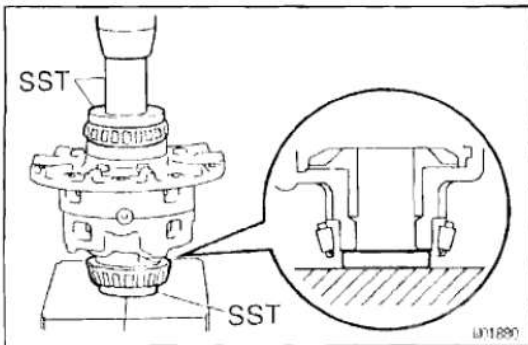
If the backlash is not within the specification, install a thrust washer of a different thickness.

Thrust washer thickness

Thickness mm (in.)	Thickness mm (in.)
0.9 (0.035)	1.2 (0.047)
1.0 (0.039)	1.3 (0.051)
1.1 (0.043)	—



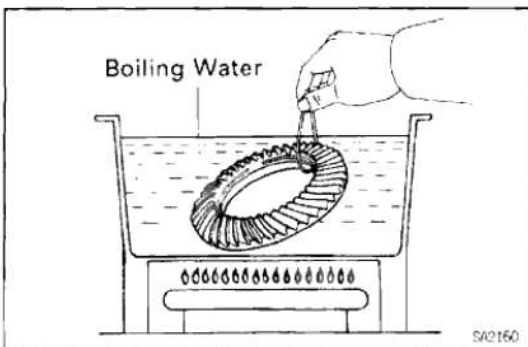
- (g) Install the side gear and side gear thrust washer to the RH case.
- (h) Install the pinion gears and spider to the RH case.
- (i) Install the side gear and side gear thrust washer to the RH case.
- (j) Align the matchmarks on the LH and RH cases.
- (k) Torque the 8 bolts uniformly, a little at a time.
Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)



2. INSTALL SIDE BEARINGS

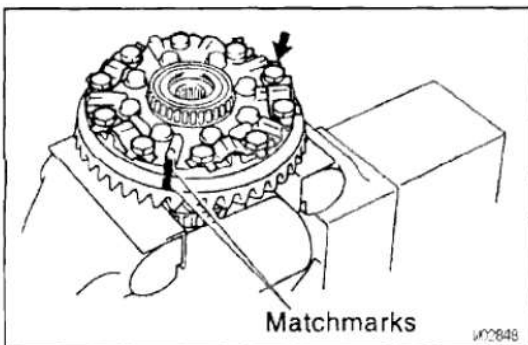
Using SST and a press, install the side bearings on the differential case.

SST 09950-60010 (09951-00480, 09951-00550),
09950-70010 (09951-07150)

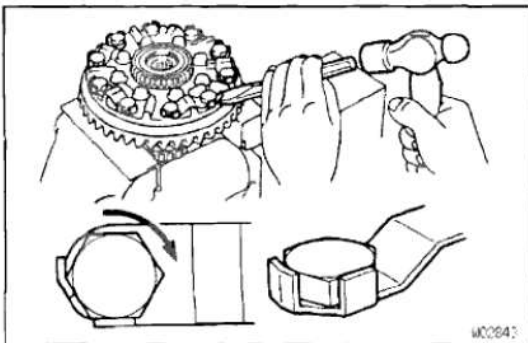


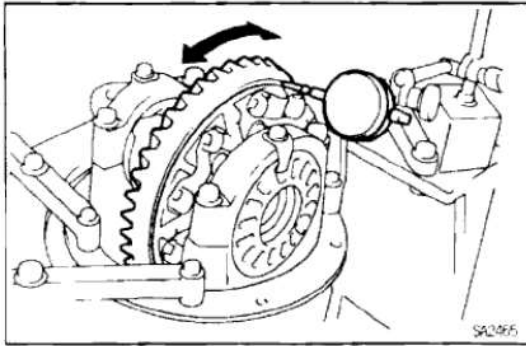
3. INSTALL RING GEAR ON DIFFERENTIAL CASE

- (a) Clean the contact surfaces of the differential case and ring gear.
- (b) Heat the ring gear to about 100°C (212°F) in boiling water.
- (c) Carefully remove the ring gear from the boiling water.
- (d) After the moisture on the ring gear has completely evaporated, quickly install the ring gear to the differential case.
- (e) Align the matchmarks on the ring gear and differential case.
- (f) Temporarily install 5 new lock plates and 10 set bolts.
- (g) After the ring gear cools down enough, tighten the set bolts uniformly and a little at a time.
Torque: 97 N·m (985 kgf·cm, 71 ft·lbf)



- (h) Using a drift punch and hammer, stake the 10 lock plates.
HINT: Stake 1 claw flush with the flat surface of the bolt.
For the claw contacting the protruding portion of the bolt, stake the half on the tightening side.





4. CHECK RING GEAR RUNOUT

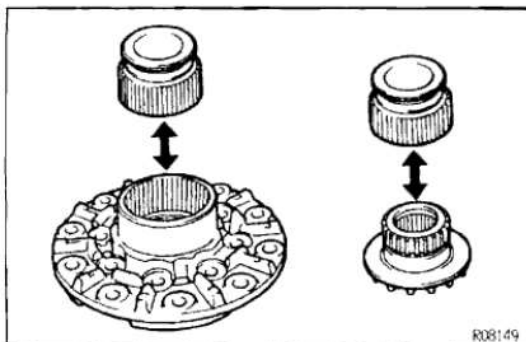
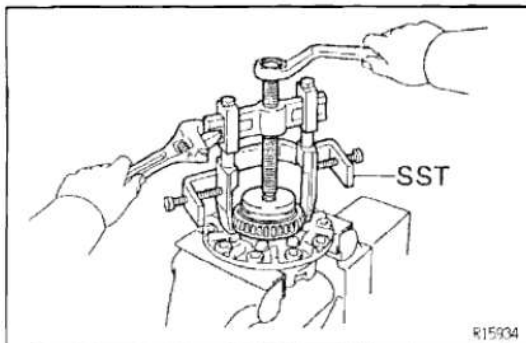
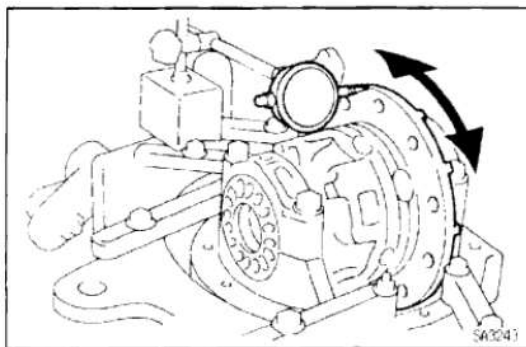
- Install the differential case onto the carrier and tighten the adjusting nut just to where there is no play in the bearings.
- Using a dial indicator, check the ring gear runout.
Maximum runout: 0.10 mm (0.0039 in.)
- Remove the differential case from the carrier.

DIFFERENTIAL CASE (w/ Locking Differential) COMPONENTS

(See page SA-79)

SA30W-01

SA



DIFFERENTIAL CASE DISASSEMBLY

SA30X-01

1. REMOVE RING GEAR

(See page SA-93)

2. CHECK DIFFERENTIAL CASE RUNOUT

- Install the differential case in the differential carrier and tighten the adjusting nut just to where there is no play in the bearing.
- Using a dial indicator, measure the differential case runout.

Maximum runout: 0.07 mm (0.0028 in.)

- Remove the differential case.

3. REMOVE SIDE BEARINGS FROM DIFFERENTIAL CASE

Using SST, remove the side bearings from the differential case.

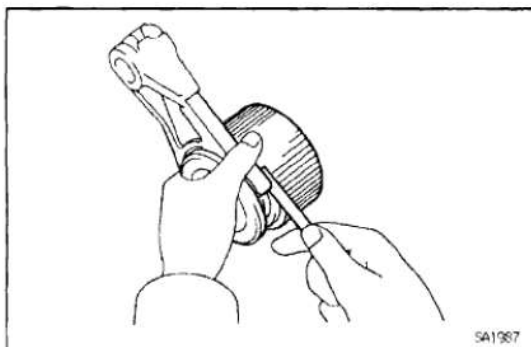
SST 09950-40010 (09951-04010, 09952-04010, 09953-04020, 09954-04010, 09955-04060, 09957-04010, 09958-04010), 09950-60020 (09951-00730)

4. DISASSEMBLE DIFFERENTIAL CASE

(See page SA-94)

5. INSPECT SLEEVE

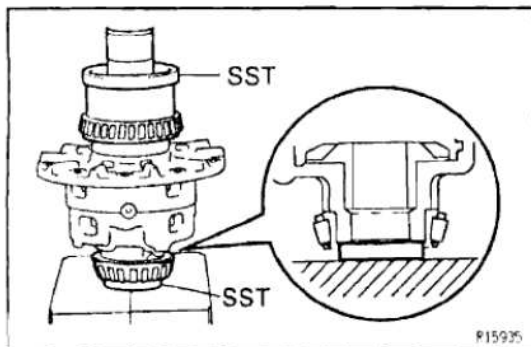
- Install the sleeve to the differential case (LH) and check that it moves smoothly.
- Install the sleeve to the side gear and check it moves smoothly.



6. MEASURE CLEARANCE OF SHIFT FORK AND SLEEVE

Using a feeler gauge, measure the clearance between the shift fork and sleeve.

Clearance (Reference): 0.15 – 0.35 mm (0.006 – 0.014 in.)



DIFFERENTIAL CASE ASSEMBLY

SA30Y-01

1. ASSEMBLE DIFFERENTIAL CASE

(See page SA-94)

2. INSTALL SIDE BEARINGS

Using SST and a press, install the side bearings on the differential case.

SST 09223-15020, 09950-60010 (09951-00480, 09951-00550) 09950-60020 (09951-00730)

3. INSTALL RING GEAR ON DIFFERENTIAL CASE

(See page SA-95)

4. CHECK RING GEAR RUNOUT

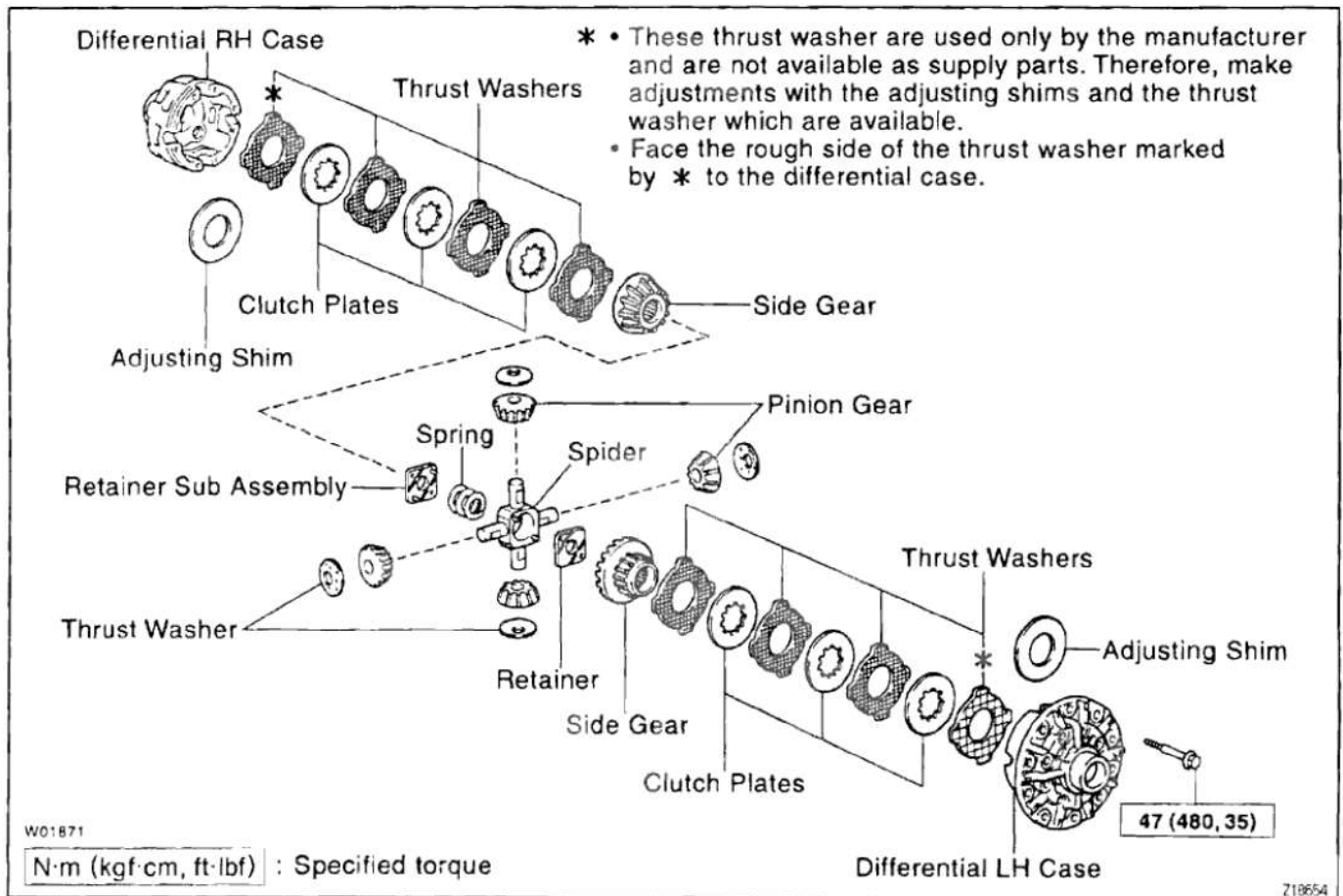
(See page SA-96)

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DIFFERENTIAL CASE (LSD Type) COMPONENTS

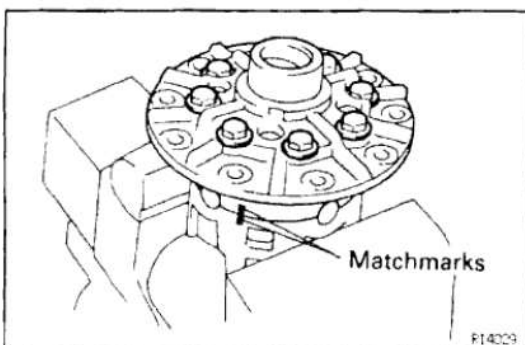
SA202-01

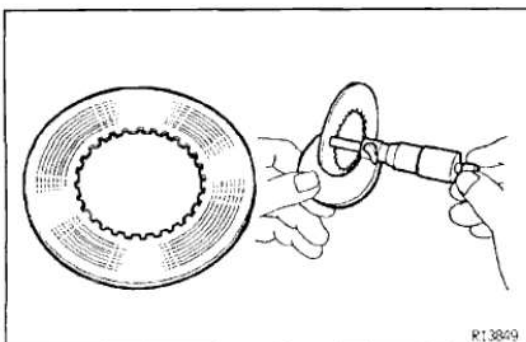
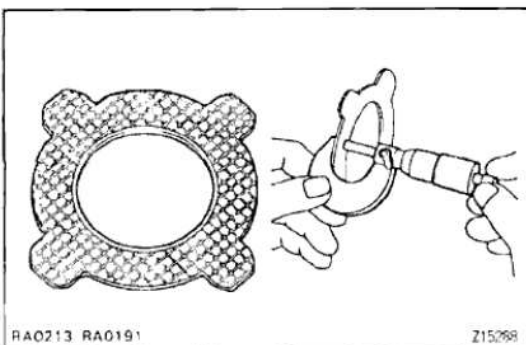
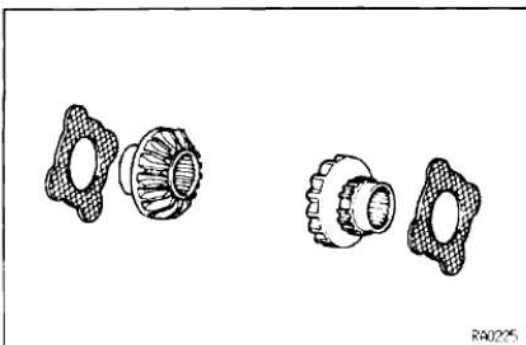
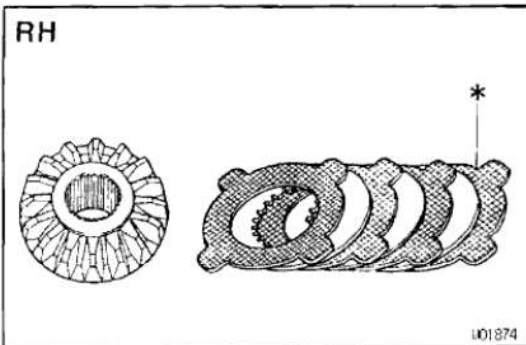
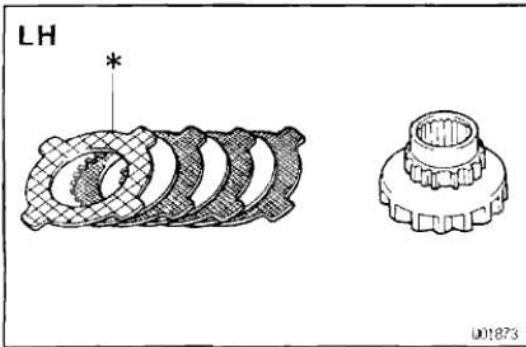


DIFFERENTIAL CASE DISASSEMBLY

SA290-01

1. REMOVE RING GEAR
(See page SA-93)
2. CHECK DIFFERENTIAL CASE RUNOUT
(See page SA-93)
3. REMOVE SIDE BEARING FROM DIFFERENTIAL CASE (See page SA-94)
4. DISASSEMBLE DIFFERENTIAL CASE
 - (a) Place matchmarks on the LH and RH cases.
 - (b) Remove the 8 bolts uniformly, a little at a time.
 - (c) Using a plastic hammer, separate the LH and RH cases.





5. REMOVE THESE PARTS FROM DIFFERENTIAL LH AND RH CASES:

HINT: Keep the disassembled parts in order.

(a) Remove the these parts from the LH case:

HINT: Face the rough side of the thrust washer marked by "*" to the differential case.

- Side gear
- 4 Side gear thrust washers
- 3 Clutch plates

(b) Remove the these parts from the RH case:

HINT: Face the rough side of the thrust washer marked by "*" to the differential case.

- Spring retainer
- Compression spring
- Spider with pinion gear
- Spring retainer sub assembly
- Side gear
- 4 Side gear thrust washers
- 3 Clutch plates

COMPONENTS INSPECTION

1. REPLACE PARTS THAT ARE DAMAGED OR WORN

HINT: If replacing the side gear, also replace the thrust washer that contacts with it.

2. INSPECT SIDE GEAR THRUST WASHERS FOR WEAR OR DAMAGE

Using a micrometer, measure that the contact surface of the thrust washer is even and check that no bare metal is showing.

Thickness (For reference):

1.77–1.86 mm (0.0697–0.0732 in.)

If necessary, replace the thrust washer.

HINT: If replacing the thrust washer, also replace the clutch plate that contacts with it.

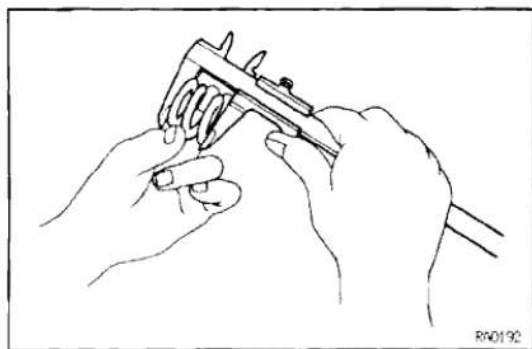
3. INSPECT CLUTCH PLATE FOR WEAR OF DAMAGE

Using a micrometer, measure the contact surface of the clutch plate and check that there is no abnormal wear.

Thickness (For reference):

1.57–1.63 mm (0.0618–0.0642 in.)

If necessary, replace the clutch plate.



- 4. INSPECT COMPRESSION SPRING FREE LENGTH**
Using vernier calipers, measure the free length of the spring.
Length (For reference): 27.0 mm (1.063 in.)

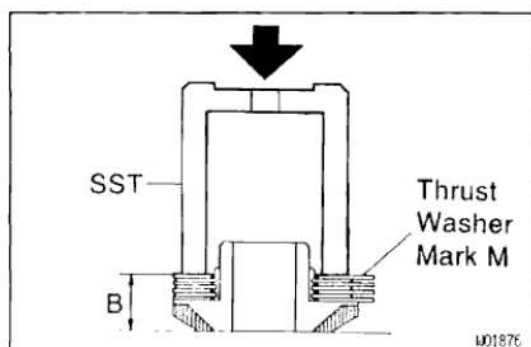
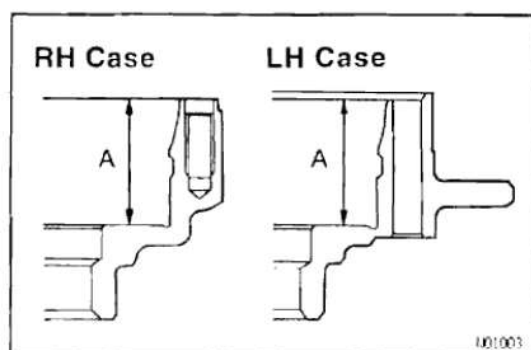
DIFFERENTIAL CASE ASSEMBLY

SA1002-01

HINT:

- When reusing the side gear, thrust washers and clutch plates, skip the STEP 1.
- Using a shop rag, clean off any foreign matter from the parts.
- Apply all of the sliding and rotating surfaces with LSD oil.

SA



1. SELECT ADJUSTING SHIM(S)

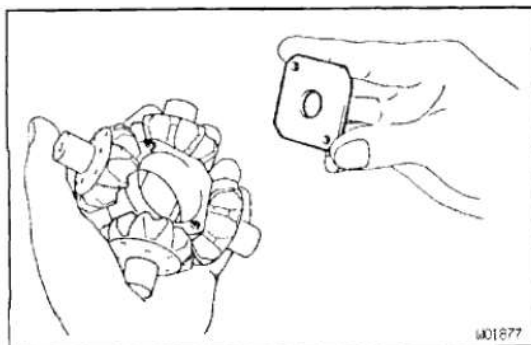
- (a) Measure the differential case dimension "A", as shown in the illustration.
- (b) Install the thrust washers (face their fine side to the side gear) and clutch plates on the side gear.
HINT: Install the new thrust washer (Mark M) instead of the thrust washers (Mark B—L) to the differential case side.
- (c) Using SST to press down the thrust washers and clutch plates with about 10 kgf (22 lbf) of pressure, measure dimension "B", as shown in the illustration.
SST 09649-17010
- (d) Referring to the following selection table, select the proper adjusting shim(s).

		mm (in.)											
A \ B	41.48 (1.6331)	41.50 (1.6339)	41.52 (1.6346)	41.54 (1.6354)	41.56 (1.6362)	41.58 (1.6370)	41.60 (1.6378)	41.62 (1.6386)	41.64 (1.6394)	41.66 (1.6402)	41.68 (1.6409)	41.70 (1.6417)	41.72 (1.6425)
24.66 (0.9709)													
24.68 (0.9717)												C + C + E	
24.70 (0.9724)													
24.72 (0.9732)													
24.74 (0.9740)												C + C + A	
24.76 (0.9748)													
24.78 (0.9756)											C + C + C		
24.80 (0.9764)													
24.82 (0.9772)											E + E		
24.84 (0.9780)											D + E		
24.86 (0.9787)													
24.88 (0.9795)													
24.90 (0.9803)											D + D		
24.92 (0.9811)													
24.94 (0.9819)										C + D			
24.96 (0.9827)													
24.98 (0.9835)										C + C			
25.00 (0.9843)													
25.02 (0.9850)													
25.04 (0.9858)										B + C			
25.06 (0.9866)													
25.08 (0.9874)										B + B			
25.10 (0.9882)													
25.12 (0.9890)									E				
25.14 (0.9898)								D					
25.16 (0.9905)	A		B			C							
25.18 (0.9913)													

Adjusting shim mark and thickness

A	0.15 (0.0059)	B	0.20 (0.0079)	C	0.25 (0.0098)	D	0.30 (0.0118)	E	0.35 (0.0138)
---	---------------	---	---------------	---	---------------	---	---------------	---	---------------

Y V0776R

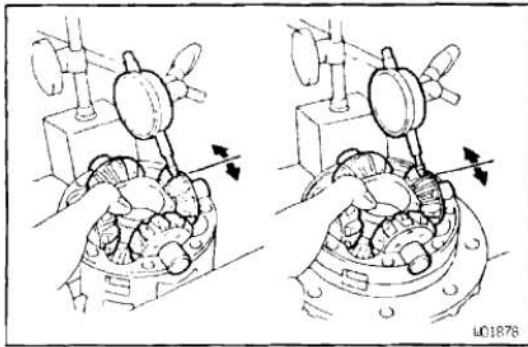
**2. CHECK SIDE GEAR BACKLASH**

- (a) Install the clutch plates, thrust washers and side gear to the LH and RH differential cases.

HINT: If necessary, install the adjusting shim(s).

- (b) Install the 4 pinion gears and thrust washers to the spider.
- (c) Align the spring LH retainer holes with the spider knock pins and install the LH retainer.
- (d) Install the pinion gear and spider to the differential LH case.

HINT: Install the spider to the LH case tightly and do not move the spring retainer.



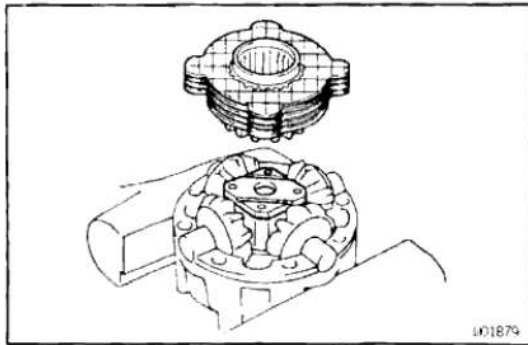
- (e) Using a dial indicator, check the side gear backlash with holding the side gear and spider.

Backlash: 0.05 – 0.20 mm (0.0019 – 0.0079 in.)

HINT:

- Measure at all 4 locations.
- Measure the backlash at the LH case and at the RH case.

If the backlash is not within the specification, select the adjusting shim(s).



3. ASSEMBLE DIFFERENTIAL CASE

- (a) Reinstall the spider and spring retainer to the differential RH case.

HINT: Install the spider to the RH case tightly and do not move the spring retainer.

- (b) Install the compression spring and spring retainer sub assembly.
- (c) Install the side gear, thrust washers and clutch plates.
- (d) Align the matchmarks and assemble the RH and LH cases.

HINT: Be careful not to drop the side gear and check the pinion and side gear alignment.

- (e) Tighten the 8 bolts uniformly, a little at a time.

Torque: 47 N·m (480 kgf·cm, 35 ft·lbf)

4. INSTALL SIDE BEARINGS

(See page SA-95)

5. INSTALL RING GEAR ON DIFFERENTIAL CASE

(See page SA-95)

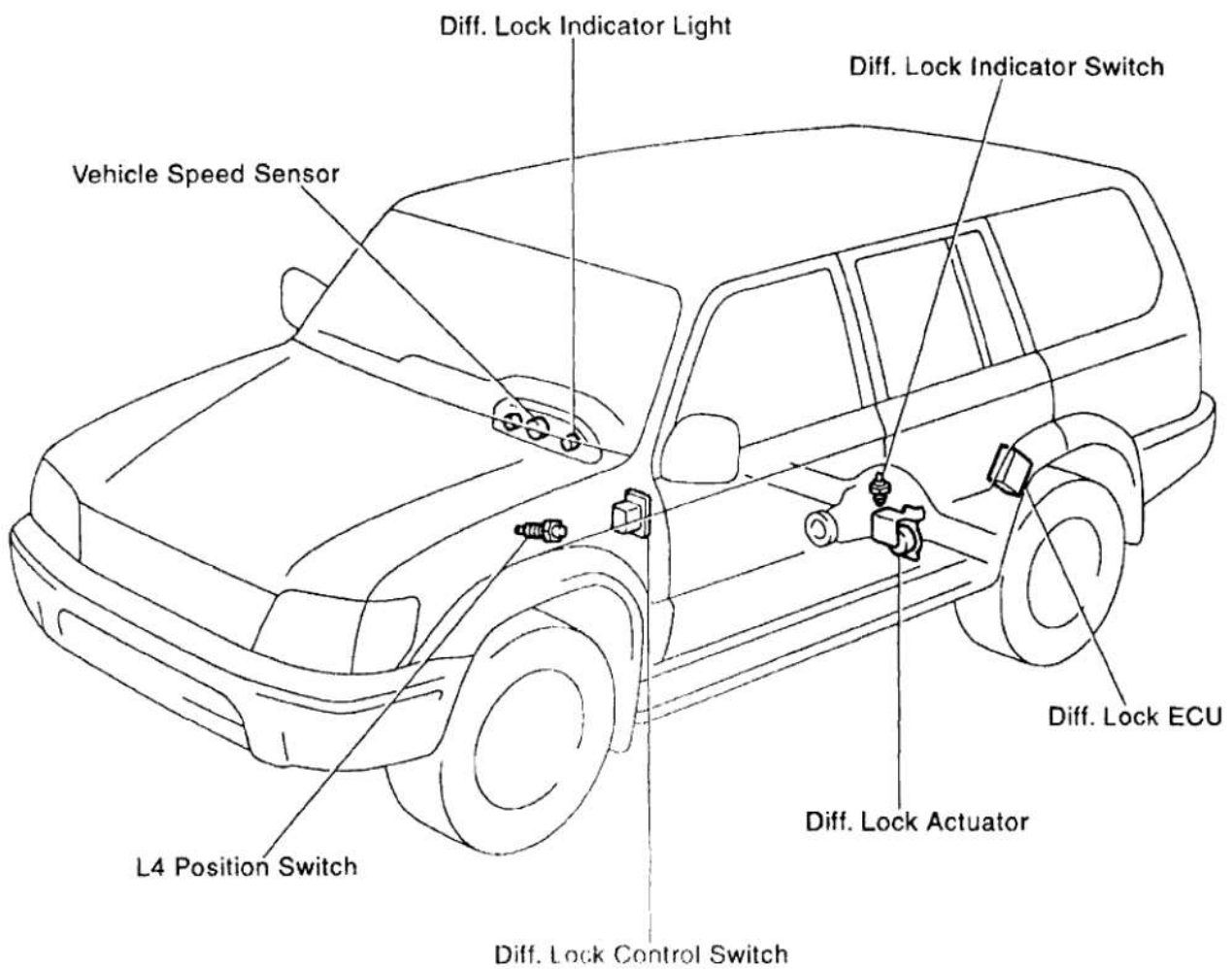
6. CHECK RING GEAR RUNOUT

(See page SA-96)

DIFFERENTIAL LOCKING SYSTEM

LOCATION

SA393-01



WD2850

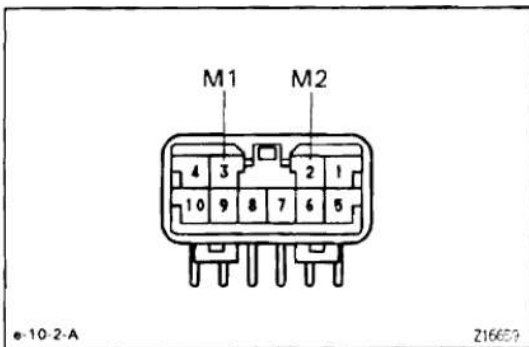
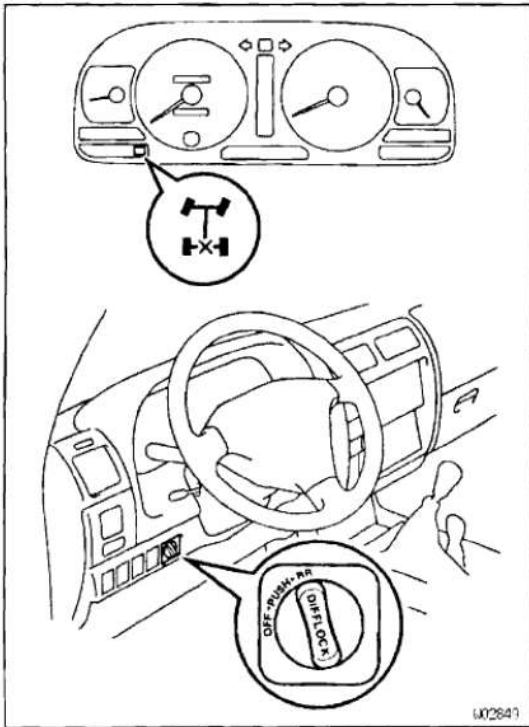
SA

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TROUBLESHOOTING

- Check that the L4 mode is set.
- When switching differential Free↔Lock, the indicator lamp will blink if the gears of the differential lock sleeve are not meshed. If this occurs, when the tires are rotated to apply differential power to the differential, the differential locks and the indicator lamp light up.

Problem	Possible cause	Remedy	Page
Indicator lights do not light up.	Fusible link blown	Replace fusible link	—
	GAUGE fuse blown	Replace fuse and check for short	—
	Bulb burned out	Replace bulb	—
	Wiring or ground faulty	Repair as necessary	—
Indicator lights do not light up (Differential lock control switch ON)	DIFF fuse blown	Replace fuse and check for short	—
	Differential lock control switch	Check switch	SA-107
	Diff. Lock ECU faulty	Check ECU	SA-106
	Wiring or ground faulty	Repair as necessary	—
DIFF LOCK does not operate	Differential lock indicator switch faulty	Check switch	SA-107
	Differential lock actuator faulty	Check actuator	SA-107
	Diff. Lock ECU faulty	Check ECU	SA-106
	Differential carrier faulty	Repair as necessary	SA-78
	Wiring or ground faulty	Repair as necessary	—
After DIFF LOCK, lock not released when vehicle speed higher than approx. 8 km/h (5 mph).	Speed sensor faulty	Check sensor	BE-56
	Diff. Lock ECU faulty	Check ECU	SA-106
	Wiring or ground faulty	Repair as necessary	—



SYSTEM INSPECTION

1. INSPECT INDICATOR LIGHT

Check that the indicator lights light up for approx. 1 second when the ignition switch is turned ON.

2. INSPECT DIFFERENTIAL LOCK OPERATION

- Jack up the vehicle then start the engine.
- Shift the transfer shift lever to L4 position.
- When the Diff. lock control switch is set to ON position, the indicator light is turned on.

Differential lock is applied to the rear wheel at this time.

HINT: If the gears of the differential lock system are not meshed, the indicator light remains blinking, so rotate the tires to mesh the gear.

- When the Diff. lock control switch is at OFF position, the indicator light goes off.

Differential lock is released for the rear wheel at this time.

- Check the voltage between the terminals of the Diff. lock ECU when switching the Diff. lock control switch with the speedometer, registering approx. 8 km/h (5 mph) or more.

Switch position	Terminal	Specified value
ON	M1 – M2	0.5V or less (No change)

- Check that the indicator lights blink when 2WD mode is set.

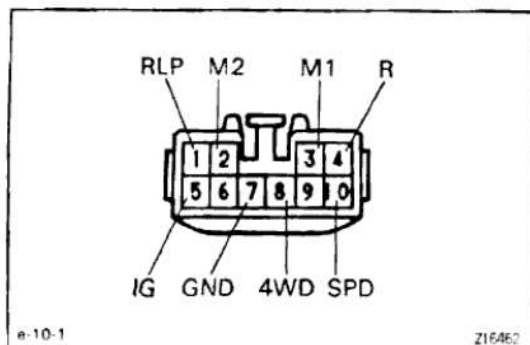
Diff. lock is released for both the rear wheels at this time.

- Return the Diff. lock control switch to OFF.
- Stop the engine and lower the vehicle.

DIFF. LOCK SYSTEM CIRCUIT INSPECTION

1. INSPECT BATTERY POSITIVE VOLTAGE

Battery positive voltage: 10 – 14 V



2. INSPECT SYSTEM CIRCUIT WITH CONNECTOR DISCONNECTED

Disconnect the connector from the 4WD control ECU and inspect the connector on the wire harness side, as shown in the chart.

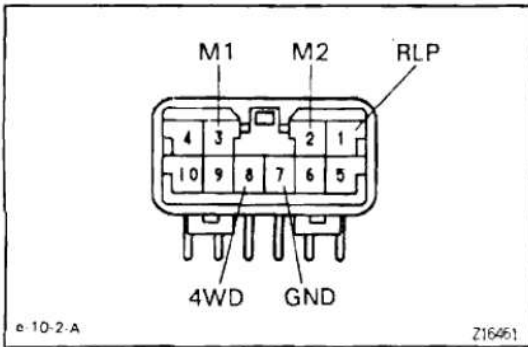
Trouble Part	Tester Connection	Check Item	Condition		Specified Valve
RR Differential Lock Actuator	M1 – M2	Resistance	—		Less than 100 Ω
Body Ground	GND – Body ground	Continuity			Continuity
Speed Sensor	SPD – Body ground		Vehicle moves slowly	1 pulse each 40 cm (15.75 in.)	
DIFF Fuse	IG – Body ground	Voltage	Ignition Switch ON	—	10 – 14 V
Rear Differential Lock Indicator Switch	RLP – Body ground			Indicator light ON	About 0 V
				Indicator light OFF	10 – 14 V
L4 Position Switch	4WD – Body ground			Indicator light ON	About 0 V
				Indicator light OFF	10 – 14 V
Differential Lock Control Switch	R – Body ground			Differential lock Control Switch OFF	10 – 14 V
		Differential lock Control Switch OFF	About 0 V		

VD8107

HINT: If the circuit is not as specified, check and repair or replace the trouble part shown in the table above.

3. INSPECT SYSTEM CIRCUIT WITH CONNECTOR CONNECTED

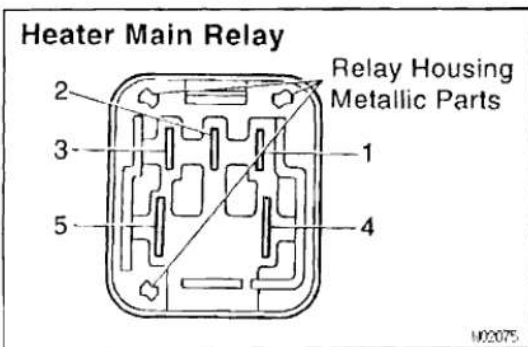
- Turn the ignition switch to ON position.
- Keep the center Diff. lock condition.
- Remove the Diff. lock ECU.
- Using a voltmeter, measure the voltage when the differential lock control switch is in the position, as shown below.



Tester Connection ⊕ – ⊖	Switch position	Specified valve
4WD – GND	–	0.5 V or less
RLP – GND	ON	0.5 V or less
M1 – M2	OFF – ON	10 – 14 V (Approx. 1 sec.)
M2 – M1	ON – OFF	0.5 V or less

V08002

- If the circuit is not as specified, replace the ECU.
(e) Install the ECU in place.



DIFF. LOCK COMPONENTS INSPECTION

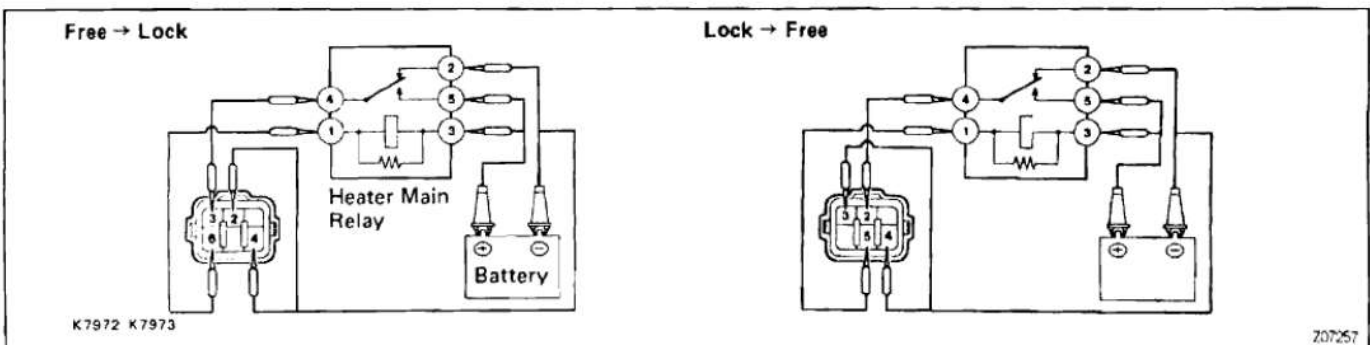
1. INSPECT ACTUATOR OPERATION

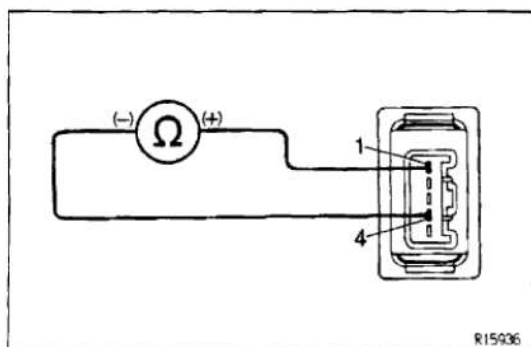
- Jack up the vehicle.
- Use the heater main relay and connect it, as shown below.

NOTICE: Connect the terminals being careful not to touch the neighboring terminals or metallic parts of relay housing.

- Rotate the tire and check that differential lock has occurred.

If operation is not as specified, replace the actuator.

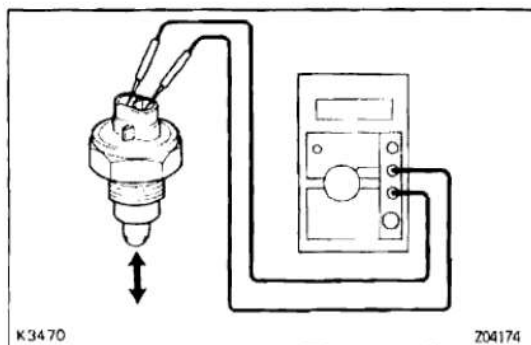




2. INSPECT DIFF. LOCK CONTROL SWITCH CONTINUITY

Inspect the switch continuity between terminal 1 to terminal 4.

HINT: If it is not continuity, replace the switch.



3. INSPECT DIFF. LOCK POSITION SWITCH

(a) Check that there is continuity between terminals when the switch is pushed (differential connected position).

(b) Check that there is no continuity when the switch is free (differential disconnected position).

HINT: If operation is not as specified, replace the switch.

4. INSPECT TRANSFER L4 SWITCH

(See page TR-17, 55)

5. INSPECT VEHICLE SPEED SENSOR

(See page BE-56)

DIFF. LOCK ACTUATOR REMOVAL AND INSTALLATION

(See page SA-81 and 92)

REAR SUSPENSION

PREPARATION

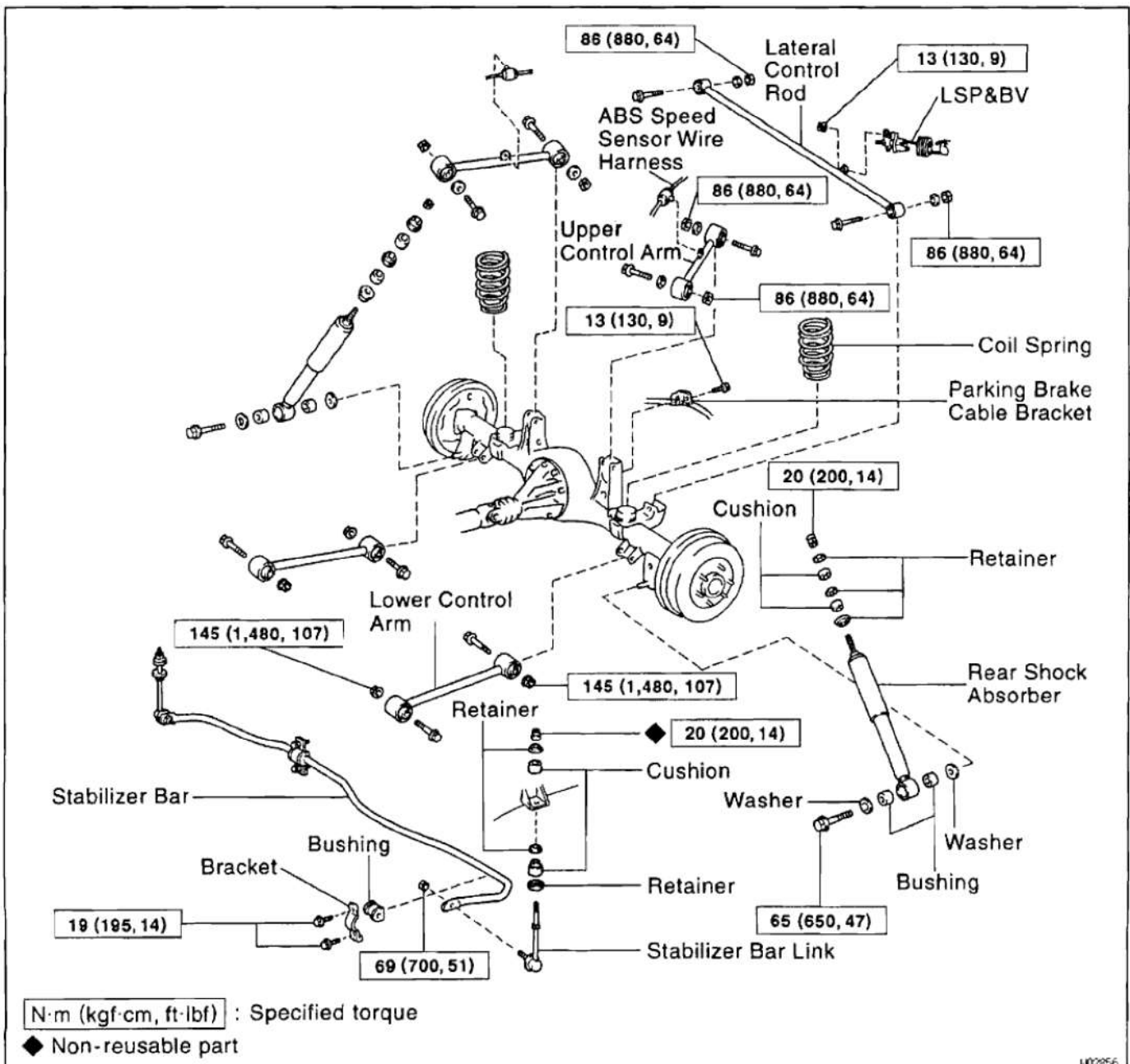
EQUIPMENT

Torque wrench

SA298-01

COIL SPRING AND SHOCK ABSORBER COMPONENTS

SA298-01



REAR SHOCK ABSORBER AND COIL**1. JACK UP AND SUPPORT VEHICLE**

Jack up the rear axle housing and support the frame with stands. Hold the rear axle housing with a jack.

2. REMOVE WHEEL

Torque: 110 N·m (1,150 kgf·cm, 83 ft·lbf)

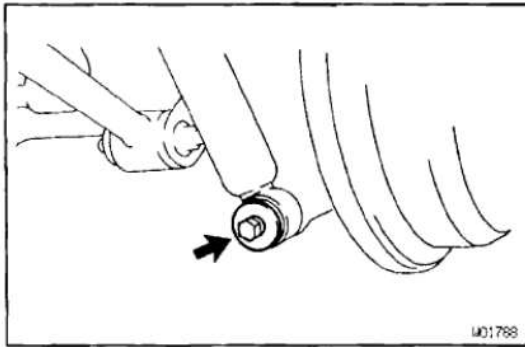
3. REMOVE PARKING BRAKE CABLE BRACKET FROM REAR AXLE HOUSING

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

4. DISCONNECT REAR SHOCK ABSORBER

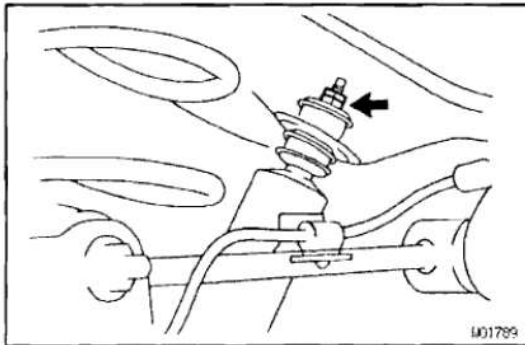
- (a) Remove the bolt, washers and bushings, holding the shock absorber to the rear axle housing and disconnect the shock absorber.

Torque: 65 N·m (650 kgf·cm, 47 ft·lbf)



U01788

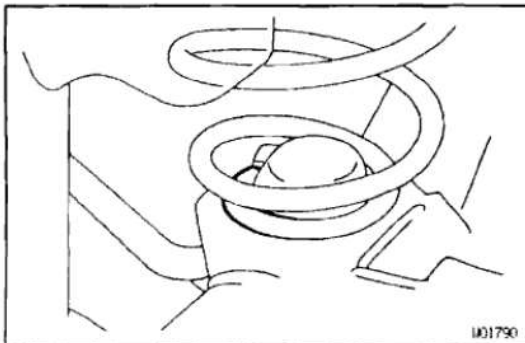
SA



U01789

- (b) Turn the shock absorber with holding the nut, and remove the retainers, cushion and shock absorber.

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

5. DISCONNECT STABILIZER BAR BRACKETS (See page SA-113)**6. DISCONNECT LATERAL CONTROL ROD FROM FRAME (See page SA-111)**

U01790

7. REMOVE COIL SPRING

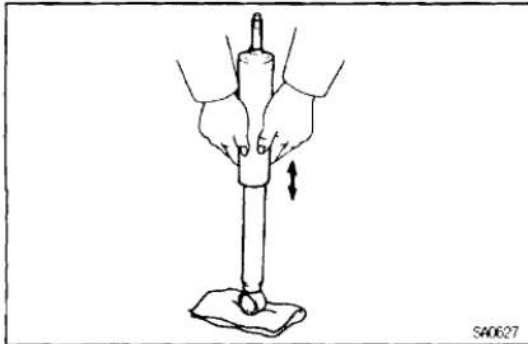
- (a) Lower the rear axle housing.

NOTICE: Be careful not to snag the brake line.

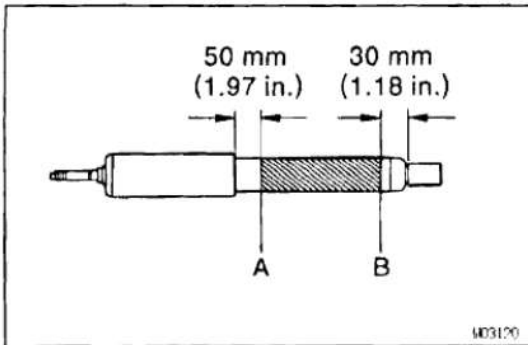
- (b) With lowering the rear axle housing, remove the coil spring.

INSTALLATION HINT: Check that the coil spring end is installed correctly.

If the coil spring end is not in the correct position, reinstall the coil spring.



SA0627



WD3120

REAR SHOCK ABSORBER INSPECTION

BA3PC-01

1. INSPECT SHOCK ABSORBER

Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual operation sounds.

If there is any abnormality, replace the shock absorber with a new one.

NOTICE: When discarding the shock absorber, use the following procedure.

2. GAS FILLED TYPE:

DISCARD SHOCK ABSORBER

Before discarding the shock absorber, drill a hole 2 – 3 mm (0.079 – 0.118 in.) in diameter at the location shown in the illustration (A–B) to release the gas inside.

NOTICE:

- When drilling, chips may fly out; work carefully.
- The gas is colorless, odorless, and non-poisonous.

REAR SHOCK ABSORBER AND COIL SPRING INSTALLATION

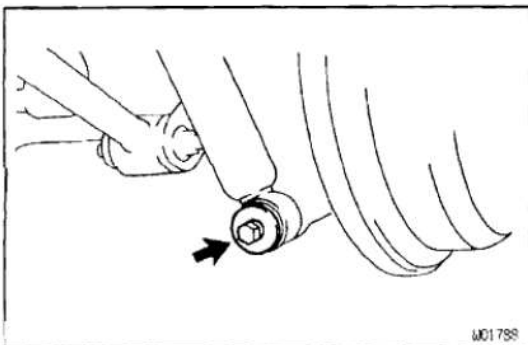
BA2RD-01

Installation is in the reverse order of removal.

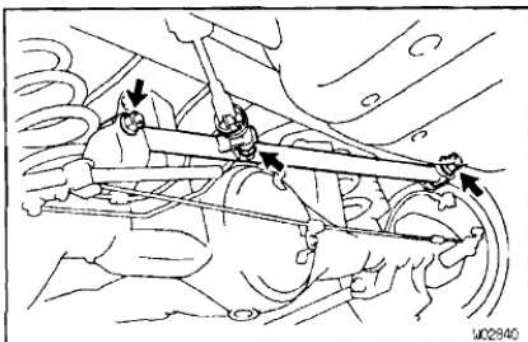
LATERAL CONTROL ROD COMPONENTS

BA2RE-01

(See page SA-109)



WD1788



WD2940

LATERAL CONTROL ROD REMOVAL

BA2RF-01

1. JACK UP AND SUPPORT VEHICLE

Jack up the rear axle housing and support the frame with stands. Hold the rear axle housing with a jack.

2. DISCONNECT RH SHOCK ABSORBER

Remove the bolt, washers and bushings, holding the RH shock absorber to the rear axle housing and disconnect the shock absorber.

Torque: 65 N·m (650 kgf·cm, 47 ft·lbf)

3. REMOVE LATERAL CONTROL ROD

(a) w/ LSP & BV:

Remove the bolt and disconnect the LSP & BV.

Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

(b) Remove the 2 nuts, washers and bolts and remove the lateral control rod.

Torque: 86 N·m (880 kgf·cm, 64 ft·lbf)

INSTALLATION HINT: After stabilizing the suspension, torque the nut.

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LATERAL CONTROL ROD INSTALLATION SA39G-01

Installation is in the reverse order of removal.

UPPER AND LOWER CONTROL ARM COMPONENTS SA39H-01

(See page SA-109)

UPPER AND LOWER CONTROL ARM REMOVAL SA39J-01**1. JACK UP AND SUPPORT VEHICLE**

Jack up the rear axle housing and support the frame with stands. Hold the rear axle housing with a jack.

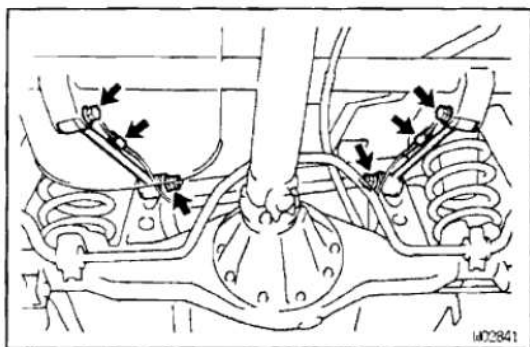
2. w/ ABS:

DISCONNECT ABS SPEED SENSOR WIRE HARNESS FROM UPPER SUSPENSION ARM

3. REMOVE UPPER CONTROL ARM

Remove the 2 nuts, washers and bolts holding the upper control arm and remove the upper control arm.
Torque: 86 N·m (880 kgf·cm, 64 ft·lbf)

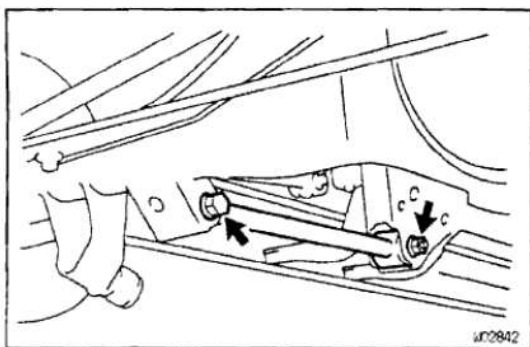
INSTALLATION HINT: After stabilizing the suspension, torque the nut.

**4. REMOVE LOWER CONTROL ARM**

Remove the 2 nuts and bolts holding the lower control arm and remove the lower control arm.

Torque: 145 N·m (1,480 kgf·cm, 107 ft·lbf)

INSTALLATION HINT: After stabilizing the suspension, torque the nut.

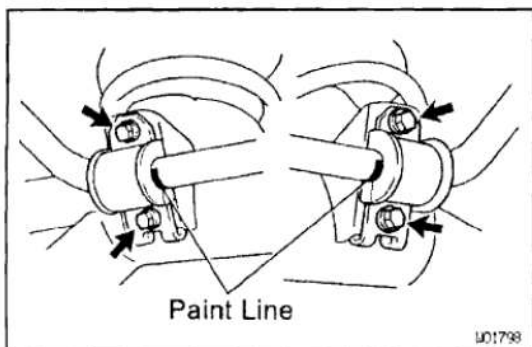
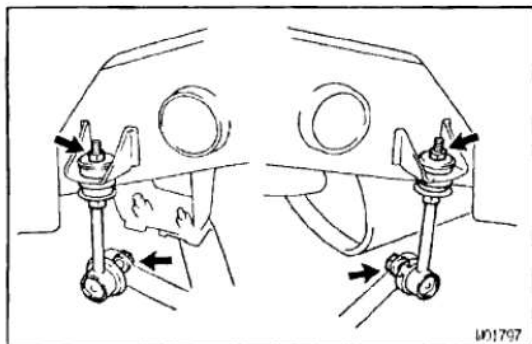
**UPPER AND LOWER CONTROL ARM INSTALLATION** SA39K-01

Installation is in the reverse order of removal.

STABILIZER BAR COMPONENTS SA39L-01

(See page SA-109)

SA20M-01



STABILIZER BAR REMOVAL

1. JACK UP AND SUPPORT VEHICLE

2. REMOVE BOTH STABILIZER BAR LINKS

- (a) Remove the nuts and disconnect the stabilizer bar from the stabilizer bar links.

Torque: 69 N·m (700 kgf·cm, 51 ft·lbf)

HINT: If the ball joint stud turns together with the nut, use a hexagon wrench to hold the stud.

- (b) Hold the stabilizer bar link with a wrench and remove the nuts, retainers, cushions and links.

Torque: 20 N·m (200 kgf·cm, 14 ft·lbf)

- (c) Remove the retainers and cushions from the stabilizer bar links.

3. REMOVE STABILIZER BAR FROM REAR AXLE HOUSING

Remove the 4 bolts and stabilizer bar with bushings and brackets.

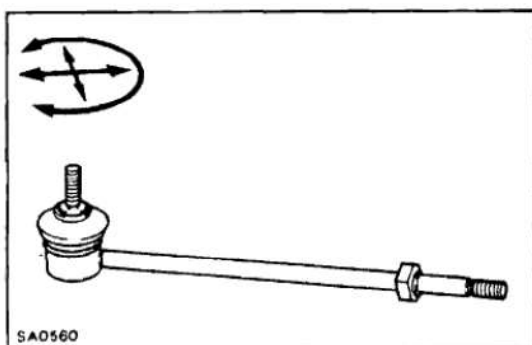
Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

INSTALLATION HINT:

- Install the bushing on the paint line on the stabilizer bar.
- Install the bushings to the stabilizer bar so that the cutout of the bushing face the under of the vehicle, as shown.

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STABILIZER BAR LINK INSPECTION

SA20M-01

INSPECT STABILIZER BAR LINK

Rotate the ball joint stud in all directions.

If the movement is not smooth and free, replace the stabilizer link.

STABILIZER BAR INSTALLATION

SA20M-01

Installation is in the reverse order of removal.

SERVICE SPECIFICATIONS

SERVICE DATA

Cold tire inflation pressure	Tire size		Pressure		kPa (kgf/cm ² , psi)	
			Front	Rear		
	215/80 R16	3 Door	190 (1.9, 28)	210 (2.1, 30)*		
		5 Door	180 (1.8, 26)	200 (2.0, 29)*		
265/70 R16	Europe	200 (2.0, 29)	200 (2.0, 29)			
	Others	180 (1.8, 26)	180 (1.8, 26)			
* When the vehicle is laden, rear tire pressure should be 240 kPa (2.4 kgf/cm ² , 35 psi)						
Wheel alignment	Vehicle height		mm (in.)	Model	Front A – B	Rear C – D
	A : Ground clearance of spindle center			3 Door Except longitudinal seat	66.0 (2.598)	45.5 (1.791)
	B : Ground clearance of front adjusting cam bolt center			3 Door w/ longitudinal seat	68.5 (2.696)	36.5 (1.437)
	C : Ground clearance of rear axle shaft center			5 Door w/o Winch	54.5 (2.145)	37.0 (1.456)
	D : Ground clearance of lower control arm front bushing center			5 Door Others	62.5 (2.460)	39.0 (1.535)
	Camber	3 Door	Except longitudinal seat	-0°10' ± 45' (-0.17° ± 0.75°)		
			w/ longitudinal seat	-0°10' ± 45' (-0.17° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
		5 Door	Malaysia w/o Winch	0°05' ± 45' (0.08° ± 0.75°)		
			Others	-0°05' ± 45' (-0.08° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
	Caster	3 Door	Except longitudinal seat	2°55' ± 45' (2.91° ± 0.75°)		
			w/ longitudinal seat	2°40' ± 45' (2.67° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
		5 Door	Malaysia w/o Winch	2°45' ± 45' (2.75° ± 0.75°)		
			Others	2°50' ± 45' (2.83° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
	Steering axis inclination	3 Door	Except longitudinal seat	10°55' ± 45' (10.91° ± 0.75°)		
			w/ longitudinal seat	10°55' ± 45' (10.91° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
		5 Door	Malaysia w/o Winch	10°40' ± 45' (10.67° ± 0.75°)		
			Others	10°50' ± 45' (10.83° ± 0.75°)		
			Left-right error	30' (0.5°) or less		
	Toe-in (total)	3 Door	Except longitudinal seat	0°11' ± 12' (0.18° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.)		
			w/ longitudinal seat	0°09' ± 12' (0.15° ± 0.2°, 2 ± 2 mm, 0.08 ± 0.08 in.)		
		5 Door	Malaysia w/o Winch	0°20' ± 12' (0.33° ± 0.2°, 4 ± 2 mm, 0.16 ± 0.08 in.)		
			Others	0°14' ± 12' (0.23° ± 0.2°, 3 ± 2 mm, 0.12 ± 0.08 in.)		
Wheel angle	Inside wheel		35° (33° – 36°)			
	Outside wheel		31° (Reference)			
Front drive shaft	Front drive shaft length		530.8 ± 5.0 mm (20.898 ± 0.197 in.)			
Front suspension	Upper ball joint turning torque		0.7 – 4.4 N·m (7 – 45 kgf·cm, 6 – 39 in.-lb)			
	Lower ball joint turning torque		0.1 – 2.5 N·m (1 – 25 kgf·cm, 1 – 22 in.-lb)			
Rear axle shaft	Shaft runout		Max.	2.0 mm (0.079 in.)		
	Flange runout		Max.	0.1 mm (0.004 in.)		

Front differential	Companion flange vertical runout		Max.	0.10 mm (0.0039 in.)
	Companion flange lateral runout		Max.	0.10 mm (0.0039 in.)
	Drive pinion preload (at starting)	New bearing		1.2 – 1.9 N·m (12 – 19 kgf·cm, 10.4 – 16.5 in.-lbf)
		Reused bearing		0.6 – 1.0 N·m (6 – 10 kgf·cm, 5.2 – 8.7 in.-lbf)
	Total preload (at starting)			Drive pinion preload plus 0.4 – 0.6 N·m (4 – 6 kgf·cm, 3.5 – 5.2 in.-lbf)
	Drive pinion to ring gear backlash			0.10 – 0.18 mm (0.0039 – 0.0071 in.)
	Side gear backlash			0 – 0.20 mm (0 – 0.0079 in.)
	Rear oil seal drive in depth			4.5 mm (0.177 in.)
	Side oil seal drive in depth			0 mm (0 in.)
	Side tube oil seal drive in depth			5.5 mm (0.217 in.)
	Side gear thrust washer thickness			mm (in.)
	0.96 – 1.04 (0.0378 – 0.0409)			1.16 – 1.24 (0.0457 – 0.0488)
	1.06 – 1.14 (0.0417 – 0.0449)			1.26 – 1.34 (0.0496 – 0.0528)
	Side bearing adjusting washer thickness			mm (in.)
	2.00 – 2.02 (0.0787 – 0.0795)	2.27 – 2.29 (0.0894 – 0.0902)		2.54 – 2.56 (0.1000 – 0.1008)
	2.03 – 2.05 (0.0799 – 0.0807)	2.30 – 2.32 (0.0906 – 0.0913)		2.57 – 2.59 (0.1012 – 0.1020)
	2.06 – 2.08 (0.0811 – 0.0819)	2.33 – 2.35 (0.0917 – 0.0925)		2.60 – 2.62 (0.1024 – 0.1031)
	2.09 – 2.11 (0.0823 – 0.0831)	2.36 – 2.38 (0.0929 – 0.0937)		2.63 – 2.65 (0.1035 – 0.1043)
	2.12 – 2.14 (0.0835 – 0.0843)	2.39 – 2.41 (0.0941 – 0.0949)		2.66 – 2.68 (0.1047 – 0.1055)
	2.15 – 2.17 (0.0846 – 0.0854)	2.42 – 2.44 (0.0953 – 0.0961)		2.69 – 2.71 (0.1059 – 0.1067)
	2.18 – 2.20 (0.0858 – 0.0866)	2.45 – 2.47 (0.0965 – 0.0972)		2.72 – 2.74 (0.1071 – 0.1079)
	2.21 – 2.23 (0.0870 – 0.0878)	2.48 – 2.50 (0.0976 – 0.0984)		2.75 – 2.77 (0.1083 – 0.1091)
	2.24 – 2.26 (0.0882 – 0.0890)	2.51 – 2.53 (0.0988 – 0.0996)		2.78 – 2.80 (0.1094 – 0.1102)
	Drive Pinion bearing adjusting washer thickness			mm (in.)
	1.69 – 1.71 (0.0665 – 0.0673)	1.93 – 1.95 (0.0760 – 0.0768)		2.17 – 2.19 (0.0854 – 0.0862)
	1.72 – 1.74 (0.0677 – 0.0685)	1.96 – 1.98 (0.0772 – 0.0780)		2.20 – 2.22 (0.0866 – 0.0874)
	1.75 – 1.77 (0.0689 – 0.0697)	1.99 – 2.01 (0.0783 – 0.0791)		2.23 – 2.25 (0.0878 – 0.0886)
	1.78 – 1.80 (0.0701 – 0.0709)	2.02 – 2.04 (0.0795 – 0.0803)		2.26 – 2.28 (0.0890 – 0.0898)
	1.81 – 1.83 (0.0713 – 0.0720)	2.05 – 2.07 (0.0807 – 0.0815)		2.29 – 2.31 (0.0902 – 0.0909)
	1.84 – 1.86 (0.0724 – 0.0732)	2.08 – 2.10 (0.0819 – 0.0827)		2.32 – 2.34 (0.0913 – 0.0921)
	1.87 – 1.89 (0.0736 – 0.0744)	2.11 – 2.13 (0.0831 – 0.0839)		—
	1.90 – 1.92 (0.0748 – 0.0756)	2.14 – 2.16 (0.0843 – 0.0850)		—

Rear differential	Companion flange vertical runout		Max.	0.10 mm (0.0039 in.)		
	Companion flange lateral runout		Max.	0.10 mm (0.0039 in.)		
	Ring gear runout		Max.	0.07 mm (0.0028 in.)		
	Differential case runout		Max.	0.07 mm (0.0028 in.)		
	Drive pinion preload (at starting)	New bearing	0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)			
		Reused bearing	0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.-lbf)			
	Total preload (at starting)		Drive pinion preload plus 0.4 – 0.6 N·m (4 – 6 kgf·cm, 3.5 – 5.2 in.-lbf)			
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)			
	Side gear backlash		0.05 – 0.20 mm (0.0020 – 0.0080 in.)			
	Shift fork to sleeve clearance		0.15 – 0.35 mm (0.006 – 0.0014 in.)			
	Oil seal drive in depth		1.0 mm (0.039 in.)			
	Side gear thrust washer thickness mm (in.)					
	0.9 (0.035)		1.0 (0.039)		1.1 (0.043)	
			1.2 (0.047)		1.3 (0.051)	
	Drive pinion preload adjusting shim thickness					
	1.70 (0.0669)		1.88 (0.0740)		2.06 (0.0811)	
			2.24 (0.0882)			
	1.73 (0.0681)		1.91 (0.0752)		2.09 (0.0823)	
			2.27 (0.0894)			
	1.76 (0.0693)		1.94 (0.0764)		2.12 (0.0835)	
		2.30 (0.0906)				
1.79 (0.0705)		1.97 (0.0776)		2.15 (0.0846)		
		2.33 (0.0917)				
1.82 (0.0717)		2.00 (0.0787)		2.18 (0.0858)		
		—				
1.85 (0.0728)		2.03 (0.0799)		2.21 (0.0870)		
		—				
Rear differential (LSD)	Companion flange vertical runout		Max.	0.10 mm (0.0039 in.)		
	Companion flange lateral runout		Max.	0.10 mm (0.0039 in.)		
	Ring gear runout		Max.	0.07 mm (0.0028 in.)		
	Differential case runout		Max.	0.07 mm (0.0028 in.)		
	Drive pinion to ring gear backlash		0.13 – 0.18 mm (0.0051 – 0.0071 in.)			
	Side gear backlash		0.05 – 0.20 mm (0.0019 – 0.0079 in.)			
	Drive pinion preload	New bearing	0.9 – 1.6 N·m (10 – 16 kgf·cm, 8.7 – 13.9 in.-lbf)			
		Reused bearing	0.5 – 0.8 N·m (5 – 8 kgf·cm, 4.3 – 6.9 in.-lbf)			
	Total preload (at starting)		Drive pinion preload plus 0.4 – 0.6 N·m (4 – 6 kgf·cm, 3.5 – 5.2 in.-lbf)			
	Side gear thrust washer thickness (For reference)		1.77 – 1.86 mm (0.0697 – 0.0732 in.)			
	Clutch plate thickness (For reference)		1.57 – 1.63 mm (0.0618 – 0.0642 in.)			
	Compression spring free length (For reference)		22.35 mm (0.880 in.)			
	Side gear adjusting shim thickness mm (in.)					
	0.15 (0.0059)		0.20 (0.0079)		0.25 (0.0098)	
	0.30 (0.0118)		0.35 (0.0138)		—	

TORQUE SPECIFICATION

FRONT:

Part tightened	N·m	kgf·cm	ft·lbf
Hub nut	110	1,150	83
Rack end lock nut	55	560	41
Steering knuckle x Lower ball joint	80	820	59
Tie rod end x Lower ball joint	91	930	67
Steering knuckle x Brake caliper	123	1,250	90
Steering knuckle x Bracket	28	285	21
Steering knuckle x Brake dust cover	18	185	13
Drive shaft lock nut	235	2,400	174
Upper suspension arm x Upper ball joint	105	1,100	80
Lower suspension arm x Frame	130	1,325	96
Upper suspension arm x Frame	115	1,200	87
Lower suspension arm x Lower ball joint	140	1,450	105
Lower suspension arm x No. 1, No. 2 spring bumper	23 (31)	235 (315)	17 (23)
Frame x Suspension support	64	650	47
Shock absorber x Suspension support	25	250	18
Lower suspension arm x Shock absorber	135	1,400	101
Lower suspension arm x Stabilizer bar link	69	700	51
Stabilizer bar x Stabilizer bar link	19	190	14
Stabilizer bar bracket x Frame	25	260	19
ABS speed sensor x Steering knuckle	8.0	82	71 in·lbf
ABS speed sensor wire clamp x Steering knuckle	8.0	82	71 in·lbf
ABS speed sensor wire clamp x Upper suspension arm	8.0	82	71 in·lbf
Differential x Propeller shaft	74	750	54
Drive pinion nut	See page SA-44		
Differential front mounting cushion x Frame	137	1,400	101
Differential rear mounting cushion x Frame	87	890	64
Differential front mounting cushion x Differential	157	1,600	116
Differential rear mounting cushion x Differential	108	1,100	80
Ring gear x Differential case	97	985	71
Differential carrier x Differential tube	105	1,070	77
Differential carrier x Side bearing retainer	69	700	51
Drain plug	65	660	48
Filler plug	39	400	29

(): For use without SST

REAR:

Part tightened	N·m	kgf·cm	ft·lbf
Hub nut	110	1,150	83
Axle housing x Backing plate	Disc brake:	123	1,250
	Drum brake:	65	670
Brake line	15	155	11
Parking brake bellcrank bracket x Backing plate	13	130	9
Shock absorber x Axle housing	65	650	47
Piston rod set nut	20	200	14
Upper control arm x Frame	86	880	64
Upper control arm x Axle housing	86	880	64
Lower control arm x Frame	145	1,480	107
Lower control arm x Axle housing	145	1,480	107
Lateral control rod x Frame	86	880	64
Lateral control rod x Axle housing	86	880	64
Stabilizer bar x Stabilizer bar link	69	700	51
Stabilizer bar bracket x Axle housing	19	195	14
Stabilizer bar link x Frame	20	200	14
LSP & BV x Lateral control rod	13	130	9
Parking brake cable bracket x Axle housing	13	130	9
ABS speed sensor x Axle housing	8.0	82	71 in·lbf
Differential x Propeller shaft	74	750	54
Drive pinion nut	See page SA-90		
Differential carrier x Axle housing	w/o Diff. lock:	73	740
	w/ Diff. lock and LSD:	25	250
Differential carrier x Bearing cap	85	870	63
Differential case x Ring gear	97	985	71
Adjusting nut lock x Bearing cap	13	130	9
Differential RH case x Differential LH case	47	480	35
Differential carrier x Diff. lock indicator switch	40	410	31
Differential carrier x Shaft retainer	24	240	17
Differential carrier x Screw plug	22	220	16
Differential carrier x Actuator	26	270	20
Drain plug and filler plug	49	500	36