TROUBLESHOOTING

PROBLEM SYMPTOMS TABLE

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.

Symptom	Suspect Area	See page
	1. Vehicle (Overloaded)	-
	2. Spring (Weak)	SA-19
Bottoming		SA-109
	3. Shock absorber (Worn)	SA-23
		SA-114
	1. Tire (Worn or improperly inflated)	SA-3
	2. Stabilizer bar (Bent or broken)	SA-44
Sways/pitches		SA-130
	3. Shock absorber (Worn)	SA-23
		SA-114
	1. Tire (Worn or improperly inflated)	SA-3
	2. Wheel (Out of balance)	SA-3
	3. Shock absorber (Worn)	SA-23
	4. Wheel alignment (Incorrect)	SA-5
Front whool objective	5. Ball joint (Worn)	SA-31
From wheel shimmy		SA-39
		SA-42
	6. Hub bearing (Loose or worn)	SA-12
	7. Steering linkage (Loose or worn)	-
	8. Steering gear (Out of adjustment or broken)	SR-46
	1. Tire (Improperly inflated)	SA-3
	2. Wheel alignment (Incorrect)	SA-5
Abnormal tira waar		SA-9
	3. Shock absorber (Worn)	SA-23
		SA-114
	4. Suspension parts (Worn)	-
	1. Oil level (Low or wrong grade)	SA-69
Noise in rear differential	2. Excessive backlash between pinion and ring gear	SA-76
	3. Ring, pinion or side gears (Worn or chipped)	SA-76
	4. Side bearing (Worn)	SA-76
	1. Oil level (Too high or wrong grade)	SA-69
	2. Drive pinion oil seal (Worn or damaged)	SA-67
Oil leak from rear differential	3. Side gear oil seal (Worn or damaged)	SA-72
	4. Companion flange (Loose or damaged)	SA-81
	5. Side gear shaft (Damaged)	SA-76

SA0R1-07

REPAIR PROCEDURES

HINT:

This is a flow chart for vehicle pull.



(1) The vehicle can keep straight but the steering wheel has some angle. STEERING OFF CENTER (See page SR-9) (2) The vehicle cannot keep straight. STEERING PULL

SA28F-01

TIRE AND WHEEL

1. INSPECT TIRE

(a) Check the tires for wear and proper inflation pressure.Cold tire inflation pressure:

(SEDAN):

Tire size	Front kpa (kgf/cm ² ,psi)	Rear kpa (kgf/cm ² ,psi)
215/45ZR17	230 (2.3, 33) *1 300 (3.0, 44) *2	230 (2.3, 33) *1 300 (3.0, 44) *2
P205/55R16 89V	230 (2.3, 33) *1 300 (3.0, 44) *2	230 (2.3, 33) *1 300 (3.0, 44) *2

(WAGON):

Tire size	Front kpa (kgf/cm ² ,psi)	Rear kpa (kgf/cm ² ,psi)
215/45ZR17	230 (2.3, 33) *1 300 (3.0, 44) *2	-
225/45ZR17	-	240 (2.4, 35) *1 310 (3.1, 45) *2
P205/55R16 89V	230 (2.3, 33) *1 300 (3.0, 44) *2	230 (2.3, 33) *1 320 (3.2, 46) *2

*1: For driving under 160 km/h (100 mph)

*2: For driving at 160 km/h (100 mph) or over



(b) Check the tire runout. Tire runout: 1.4 mm (0.055 in.) or less



2. ROTATING TIRES NOTICE:

Tires must not be rotated for wagon due to the difference in size between the front and rear tires. HINT:

- Rotate tires as shown in the illustration as rotation.
- Rotate as shown in (B) if the spare tire is included in the rotation.

SA-3

3.

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INSPECT WHEEL BALANCE

- (a) Check and adjust the off-the-car balance.
- (b) If necessary, check and adjust the on-the-car balance. Imbalance after adjustment: 8.0 g (0.018 lb) or less





NOTICE:

- Adhere the sticking type balance weight to the flat position as shown in the illustration.
- Push the balance weight securely with a finger to adhere it to the position.

(Pushing force: 10 kgf/more than 2 secs.)

- After cleaning the surface which the balance weight will be adhered to of dirt, oil and water with a cleaning detergent, adhere the balance weight to the surface.
- Do not touch the sticking surface of the tape.
- Do not use the once used balance weight.
- Please use the TOYOTA genuine sticking type balance weight.



4. CHECK WHEEL BEARING LOOSENESS

- (a) Check the backlash in the bearing shaft direction. Maximum: 0.05 mm (0.0020 in.)
- (b) Check the axle hub deviation. Maximum: 0.05 mm (0.0020 in.)
- 5. CHECK FRONT SUSPENSION FOR LOOSENESS
- 6. CHECK STEERING LINKAGE FOR LOOSENESS
- 7. CHECK BALL JOINT FOR LOOSENESS AND EXCESSIVE PLAY (See page SA-39)
- 8. CHECK SHOCK ABSORBER WORKS PROPERLY
- Check if oil leaks
- Check mounting bushings for wear
- Bounce front and rear of the vehicle



FRONT WHEEL ALIGNMENT INSPECTION

MEASURE VEHICLE HEIGHT

1. MEASURE VEHICLE H Vehicle height (SEDAN):

(Canada):

Front vehicle height	Rear vehicle height
66 mm (2.60 in.)	66 mm (2.60 in.)

(Except Canada):

Front vehicle height	Rear vehicle height
72 mm (2.83 in.)	85 mm (3.35 in.)

Vehicle height (WAGON):

(Canada):

Front vehicle height	Rear vehicle height
56 mm (2.20 in.)	58 mm (2.28 in.)

(Except Canada):

Front vehicle height	Rear vehicle height
66 mm (2.60 in.)	66 mm (2.60 in.)

Measuring points:

- A: Ground clearance of the front No .1 lower suspension arm mounting bolt center.
- B: Ground clearance of the front wheel center.
- C: Ground clearance of the rear wheel center.
- D: Ground clearance of the No. 2 lower suspension arm mounting bolt (Suspension member side) tail center. Vehicle height:
- Front: B A

Rear: C - D

NOTICE:

Before inspecting the wheel alignment, adjust the vehicle height to the specified value.

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



2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TES-TER

Follow the specific instructions of the equipment manufacturer.

SA1IU-07

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination (SEDAN): (Canada):

Camber		-0 °21' ± 30' (-0.35° ± 0.5°)
	Right-left error	30' (0.5°) or less
Caster		5°46' ± 30' (5.77° ± 0.5°)
	Right-left error	30' (0.5°) or less
Steering axis inclination		9°16' ± 30' (9.27° ± 0.5°)
	Right-left error	30' (0.5°) or less

(Except Canada):

Camber		-0 °30' ± 30' (-0.5° ± 0.5°)
	Right-left error	30' (0.5°) or less
Caster		6°07' ± 30' (6.12° ± 0.5°)
	Right-left error	30' (0.5°) or less
Steering axis inclination		9°25' ± 30' (9.42° ± 0.5°)
	Right-left error	30' (0.5°) or less

Camber, caster and steering axis inclination (WAGON): (Canada):

Camber		-0 °05' ± 30' (-0.08° ± 0.5°)
	Right-left error	30' (0.5°) or less
Caster		5°31' ± 30' (5.52° ± 0.5°)
	Right-left error	30' (0.5°) or less
Steering axis inclination		8°59' ± 30' (8.98° ± 0.5°)
	Right-left error	30' (0.5°) or less

(Except Canada):

Camber		-0 °21' ± 30' (-0.35° ± 0.5°)
	Right-left error	30' (0.5°) or less
Caster		5°46' ± 30' (5.77° ± 0.5°)
	Right-left error	30' (0.5°) or less
Steering axis inclination		9°16' ± 30' (9.27° ± 0.5°)
	Right-left error	30' (0.5°) or less

If the caster and steering axis inclination are not within the specified values, after the camber has been correctly adjusted, recheck the suspension parts for damaged and/or worn out parts.

4. ADJUST CAMBER

HINT:

After adjusting the camber, inspect the caster and toe-in.

- (a) Loosen the camber adjusting cam nut of the No. 1 lower suspension arm.
- (b) Turn the camber adjusting cam of the No. 1 lower suspension arm and adjust the camber.

HINT:

- Try to adjust the camber to the center of the specified value.
- Camber will change about 7.5' (0.13°) with each graduation of the adjusting cam.



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(c) Torque the camber adjusting cam nut of the No. 1 lower suspension arm.
 Torque: 184 N-m (1,880 kgf-cm, 136 ft-lbf)

SA-7







Toe-in:

Toe-in	A + B: $0^{\circ}06' \pm 12' (0.1^{\circ} \pm 0.2^{\circ})$
(total)	C - D: 1 ± 2 mm (0.04 ± 0.08 in.)

If the toe-in is not within the specified value, adjust it at the rack ends.

6. ADJUST TOE-IN

- (a) Using pliers, remove the boot clips.
- (b) Loosen the tie rod end lock nuts.
- (c) Turn the right and left rack ends by an equal amount to adjust the toe-in.

HINT:

Try to adjust the toe-in to the center of the specified value.



(d) Make sure that the lengths of the right and left rack ends are same.

Rack end length difference: 1.5 mm (0.059 in.) or less(e) Torque the tie rod end lock nuts.

Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)

(f) Place the boots on the seats and using pliers, install the clips.

HINT:

Make sure that the boots are not twisted.

(g) Perform the zero point calibration of yaw rate and deceleration sensor (See page DI-507).

7.



INSPECT WHEEL ANGLE

Turn the steering wheel fully, and measure the turning angle. Wheel turning angle (SEDAN): (Canada):

Inside wheel 41°02' (39°02' - 42°02') 41.03° (39.03° - 42.03°) Outside wheel (Reference) 33°30' 33.5°

(Except Canada):

Inside wheel	41°01' (39°01' - 42°01') 41.02° (39.02° - 42.02°)
Outside wheel (Reference)	33°23′ 33.38°

Wheel turning angle (WAGON):

(Canada):

Inside wheel	41°03' (39°03' - 42°03') 41.05° (39.05° - 42.05°)
Outside wheel (Reference)	33°40′ 33.6°

(Except Canada):

Inside wheel	41°02' (39°02' - 42°02') 41.03° (39.03° - 42.03°)
Outside wheel (Reference)	33°30′ 33.5°

If the right and left inside wheel angles differ from the specified value, inspect the toe-in.

REAR WHEEL ALIGNMENT INSPECTION

SA0R4-08

- 1. MEASURE VEHICLE HEIGHT (See page SA-5)
- 2. INSTALL CAMBER-CASTER-KINGPIN GAUGE OR POSITION VEHICLE ON WHEEL ALIGNMENT TES-TER

Follow the specific instructions of the equipment manufacturer. 3. **INSPECT CAMBER**

Camber (SEDAN):

(Canada):

Camber		-0 °23' ± 30' (-0.38° ± 0.5°)
	Right-left error	30' (0.5°) or less
(Except Canada):		
Camber		-0 °55' ± 30' (-0.92° ± 0.5°)

30' (0.5°) or less

Right-left error	

Camber (WAGON):

(Canada):

Camber		-0 °04' ± 30' (-0.07° ± 0.5°)
	Right-left error	30' (0.5°) or less

(Except Canada):

Camber		-0 °23' ± 30' (-0.38° ± 0.5°)
	Right-left error	30' (0.5°) or less

If the camber is not within the specified valve, after the toe-in is inspected, see step 5. to adjust.



A B F03479

4. INSPECT TOE-IN

Toe-in:

Toe-in	A + B: 0°12' ± 12' (0.2° ± 0.2°)
(total)	C - D: 2 ± 2 mm (0.08 ± 0.08 in.)

If the toe-in is not within the specified valve, after the camber is inspected, see step 5. to adjust.

5. ADJUST CAMBER AND TOE-IN

- (a) Measure the lengths of the toe control link "A" and No. 2 lower suspension arm "B", as shown in the illustration.
- (b) Obtain the difference between "A" and "B".
- (c) Employ the same manner described above to the other side.
- (d) Obtain the difference between right and left from the values obtained above.

Right and left difference: 4.0 mm (0.157 in.) or less

If they are not within the specified value, adjust the lengths of them by turning the adjusting cam.

(e) Inspect the camber and toe-in.





- (f) Adjust the camber.
 - Loosen the camber adjusting cam nut of the No. 2 lower suspension arm.
 - (2) Turn the camber adjusting cam of the No. 2 lower suspension arm and adjust the camber.

HINT:

Camber will change about 5.0' (0.08°) with each graduation of the adjusting cam.

- (3) Torque the camber adjusting cam nut.
- Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)

(g) Adjust the toe-in.

- (1) Loosen the camber adjusting cam nut of the toe control link.
- (2) Turn the camber adjusting cam of the toe control link and adjust the toe-in.

HINT:

Toe-in will change about 4.0 mm (0.157 in.) with each graduation of the adjusting cam.

(3) Torque the camber adjusting cam nut.Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

FRONT AXLE HUB COMPONENTS

 Clip 118 (1,200, 87) ନ୍ତ୍ର -65 (660, 50) 8.0 (82, 71 in.-Ibf) **Brake Caliper** Hub Bolt ABS Speed Sensor Disc 113 (1,150, 83) Lock Nut Steering Knuckle 147 (1,500, 108) Bearing (0) 10 Snap Ring Grease Cap ٠ Ø Oil Seal 8.3 (85, 74 in.-lbf) **ABS Speed Sensor** Rotor ଡ Brake Dust Cover-Axle Hub 6 MO N·m (kgf·cm, ft·lbf) : Specified torque ♦ Non-reusable part Ν F07643

SA0R5-08

SA0R6-06

REMOVAL 1. REMOVE FRONT WHEEL





- 2. REMOVE FRONT BRAKE CALIPER AND DISC
- (a) Remove the 2 bolts and brake caliper from the steering knuckle.
- (b) Support the brake caliper securely.
- (c) Remove the disc.
- 3. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION
- (a) Using a dial indicator near the center of the axle hub and check the backlash in the bearing shaft direction.
 Maximum: 0.05 mm (0.0020 in.)

If the backlash exceeds the maximum, replace the bearing.

(b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
 Maximum: 0.05 mm (0.0020 in)

Maximum: 0.05 mm (0.0020 in.)

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

4. REMOVE ABS SPEED SENSOR

Remove the bolt and disconnect the ABS speed sensor from the steering knuckle.

- 5. REMOVE STEERING KNUCKLE WITH AXLE HUB
- (a) Remove the clip and nut.



(b) Using SST, remove the steering knuckle from the upper suspension arm.

SST 09610-20012

(c) Temporarily install the steering knuckle to the upper suspension arm with the nut.



- (d) Remove the 2 bolts and disconnect the lower ball joint from the steering knuckle.
- (e) Remove the nut and steering knuckle with the axle hub from the upper suspension arm.

DISASSEMBLY

1. REMOVE GREASE CAP

Using a screwdriver and hammer, remove the grease cap from the steering knuckle.



2. REMOVE LOCK NUT

(a) Mount the axle hub in a soft jaw vise. HINT:

Close the vise until it holds hub bolts. Do not tighten further.

- (b) Using a chisel and hammer, loosen the staked part of the lock nut.
- (c) Using a socket wrench (32 mm), remove the lock nut.
- 3. REMOVE ABS SPEED SENSOR ROTOR AND AXLE HUB
- (a) Remove the 4 bolts and shift the brake dust cover toward the outside.





(b) Using SST, remove the ABS speed sensor rotor and axle hub from the steering knuckle.

SST 09950-40011 (09951-04020, 09952-04010, 09953-04020, 09954-04010, 09955-04051, 09957-04010, 09958-04011)

NOTICE:

Take care not to scratch the serrations of the sensor rotor.(c) Remove the brake dust cover.

4. REMOVE INNER RACE (OUTSIDE)

Using SST, remove the inner race from the axle hub.

SST 09950-00020, 09950-40011 (09951-04020, 09953-04030, 09957-04010), 09950-50013 (09952-05010, 09954-05031, 09955-05040)

NOTICE:

Be careful not to damage the axle hub.



5. REMOVE OIL SEAL

Using SST, remove the oil seal from the steering knuckle. SST 09308-00010

6. **REMOVE BEARING**

- (a) Using snap ring pliers, remove the snap ring from the steering knuckle.
- (b) Using SST and a press, remove the bearing from the steering knuckle.
 - SST 09950-60010 (09951-00560), 09950-70010 (09951-07150)





REASSEMBLY

1. INSTALL BEARING

- (a) Using SST and a press, install a new bearing to the steering knuckle.
 - SST 09502-24010, 09950-60020 (09951-00710), 09950-70010 (09951-07150)

NOTICE:

If the inner race and balls come loose from the bearing outer race, make sure that they are installed on the same side as before.

(b) Using snap ring pliers, install a new snap ring to the steering knuckle.



SST SST F08237

2. INSTALL OIL SEAL

- Using SST and a hammer, install a new oil seal until it is flush with the end surface of the steering knuckle.
 SST 09608-32010
- (b) Coat MP grease to the oil seal lip.
- 3. INSTALL AXLE HUB
- (a) Install the brake dust cover to the steering knuckle with the 4 bolts.

Torque: 8.3 N·m (85 kgf·cm, 74 in.-lbf)

- (b) Using SST and a press, install the axle hub to the steering knuckle.
 - SST 09316-60011 (09316-00011, 09316-00071), 09608-32010

4. INSTALL ABS SPEED SENSOR ROTOR

Install the speed sensor rotor to the steering knuckle with its concave surface facing to the inner side.

NOTICE:

Do not scratch the serrations of the sensor rotor.

- 5. INSTALL LOCK NUT
- (a) Using a socket wrench (32 mm), install a new lock nut. Torque: 147 N·m (1,500 kgf·cm, 108 ft·lbf)
- (b) Using a chisel and hammer, stake the lock nut.
- 6. INSTALL GREASE CAP

Using a screwdriver and hammer, install the grease cap to the steering knuckle.

INSTALLATION

- 1. INSTALL STEERING KNUCKLE WITH AXLE HUB
- (a) Temporarily install the steering knuckle to the upper suspension arm with the nut.
- (b) Connect the steering knuckle to the lower ball joint with the 2 bolts. Torque: 113 N·m (1,150 kgf-cm, 83 ft-lbf)
- (c) Torque the nut on the upper side of the steering knuckle.
- Torque: 65 N·m (660 kgf·cm, 50 ft·lbf) (d) Install a new clip.
- If the holes for the clip are not aligned, tighten the nut further up to 60° .
- 2. CONNECT ABS SPEED SENSOR TO STEERING KNUCKLE Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)
- 3. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION (See page SA-12)
- 4. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts. Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

- 5. INSTALL FRONT WHEEL Torquo: 102 N m (1,050 kgf om 76 ft lb)
- Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 6. DEPRESS BRAKE PEDAL SEVERAL TIMES
- 7. CHECK FRONT WHEEL ALIGNMENT (See page SA-5)
- 8. CHECK ABS SPEED SENSOR SIGNAL (See page DI-437 or DI-507)

FRONT WHEEL HUB BOLT REPLACEMENT 1. REMOVE FRONT WHEEL





2. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts and brake caliper from the steering knuckle.
- (b) Support the brake caliper securely.
- (c) Remove the disc.



3. REMOVE HUB BOLT

Using SST and a brass bar or an equivalent to hold, remove the hub bolt.

SST 09628-1001 1



4. INSTALL HUB BOLT

- (a) Install a washer and nut to a new hub bolt, as shown in the illustration.
- (b) Using a brass bar or an equivalent to hold, install the hub bolt by torquing the nut.
- 5. INSTALL DISC AND BRAKE CALIPER
- (a) Install the disc.

6.

- (b) Install the brake caliper and 2 bolts to the steering knuckle.
 - Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf) INSTALL FRONT WHEEL

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

FRONT SHOCK ABSORBER COMPONENTS



SA-19



REMOVAL

- 1. REMOVE FRONT WHEEL
- 2. **REMOVE IGNITER**
- (a) Disconnect the connector.
- (b) Remove the bolt, nut and igniter.





- 3. DISCONNECT ABS SPEED SENSOR AND WIRE HARNESS CLAMP
- (a) Remove the bolt and disconnect the ABS speed sensor from the steering knuckle.
- (b) Remove the bolt and disconnect the ABS speed sensor wire harness clamp from the shock absorber.
- 4. DISCONNECT UPPER SUSPENSION ARM FROM STEERING KNUCKLE
- (a) Remove the clip and nut.
- (b) Using SST, disconnect the upper suspension arm. SST 09610-20012
- (c) Support the steering knuckle securely.



5. DISCONNECT HEIGHT CONTROL SENSOR LINK

Remove the nut and disconnect the height control sensor link from lower arm.



6. DISCONNECT STABILIZER BAR LINK FROM STABI-LIZER BAR

Remove the nut and disconnect the stabilizer bar link. HINT:

If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.

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- 7. REMOVE FRONT SHOCK ABSORBER WITH COIL SPRING
- (a) Remove the nut and bolt, and disconnect the shock absorber from the shock absorber bracket.
- (b) Remove the cap from the suspension support.



(c) Loosen the nut in the center of the suspension support. **NOTICE:**

Do not remove it.

HINT:

If not disassembling the shock absorber, it is not necessary to loosen the nut.

- (d) Remove the 3 nuts and shock absorber with coil spring from the body.
- (e) SEDAN:

Remove the No. 3 front spring reinforcement from the shock absorber.





DISASSEMBLY

REMOVE SUSPENSION SUPPORT AND COIL SPRING

(a) Using SST, compress the coil spring. SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

- (b) Remove the suspension support nut.
- (c) Remove the suspension support, upper insulator, coil spring and spring bumper from the shock absorber.

SA0RE-07



INSPECTION

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, see DISPOSAL on page $\ensuremath{\mathsf{SA-24}}$.

DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER PISTON ROD

SA0RF-07



- 2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER
- (a) Place the shock absorber horizontally to prevent the oil from coming out.
- (b) Using a drill, make a hole on the top of the shell as shown to discharge the gas inside.

CAUTION:

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



REPLACEMENT 1. REMOVE BUSHING

Using SST and a press, remove the bushing.

SST 09710-28021 (09710-08031), 09710-30021 (09710-03131), 09950-70010 (09951-07100)



2. INSTALL BUSHING

Using SST and a press, install a new bushing.

SST 09710-28021 (09710-08031), 09710-30021 (09710-03131), 09950-70010 (09951-07100)

HINT:

Install the bushing until it is flush with the bushing bracket of the shock absorber.

SA28H-01

REASSEMBLY

1. INSTALL SPRING BUMPER TO PISTON ROD



2. INSTALL COIL SPRING

(a) Using SST, compress the coil spring.

NOTICE:

Do not use an impact wrench. It will damage the SST.

(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.

3. INSTALL UPPER INSULATOR TO SHOCK ABSORBER





4. INSTALL SUSPENSION SUPPORT

(a) Install the suspension support to the shock absorber, as shown in the illustration.

HINT:

Align the bolt of the suspension support with the cut-out of the upper insulator.

- (b) Temporarily tighten a new lock nut.
- (c) Align the suspension support with the shock absorber lower bolt as shown in the illustration.

5. REMOVE SST

SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

HINT:

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

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SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

SA20J-02

INSTALLATION

- INSTALL FRONT SHOCK ABSORBER WITH COIL 1. SPRING
- SEDAN: (a) Install the No. 3 front spring reinforcement to the shock absorber.
- Install the shock absorber to the body with the 3 nuts. (b) Torque: 35 N·m (360 kgf·cm, 26 ft·lbf)
- Connect the shock absorber to the shock absorber brack-(c) et with the bolt and nut.

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

HINT:

After stabilizing the suspension, torque the nut.

(d) Torque the nut in the center of the suspension support. Torque: 34 N·m (350 kgf·cm, 25 ft·lbf)

HINT:

If the shock absorber has not been disassembled, it is not necessary to torque the nut.

- Install the cap to the suspension support. (e)
- CONNECT STABILIZER BAR LINK TO STABILIZER 2. BAR

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf) HINT:

If the ball joint turns together with the nut, use a 5 mm hexagon wrench to hold the stud.



CONNECT HEIGHT CONTROL SENSOR LINK

- Set the lower arm to the vehicle height.
- Install the sensor link to the lower arm bracket with a nut. Torque: 5.4 N·m (55 kgf·cm, 48 in.-lbf)

NOTICE:

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- Be careful not to brake the link fixing pin until the above operation is completed.
- The pin can the broken after completion of the above, however, the sensor arm rotation angle shall not exceed the range of $\pm 70^{\circ}$ from the standard vehicle height.
- 4. **CONNECT UPPER SUSPENSION ARM TO STEERING KNUCKLE**
- Connect the upper suspension arm with the nut. (a) Torque: 65 N·m (660 kgf·cm, 50 ft·lbf)
- Install a new clip. (b)

If the holes for the clip are not aligned, tighten the nut further up to 60° .

5.



- CONNECT ABS SPEED SENSOR AND WIRE HAR-NESS CLAMP Torque: Bolt A: 8.0 N·m (82 kgf·cm, 71 in.·lbf) Bolt B: 5.0 N·m (51 kgf·cm, 44 in.·lbf)
- 6. INSTALL IGNITER
- (a) Install the bolt, nut and igniter.
- (b) Connect the connector.
- 7. INSTALL FRONT WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 8. CHECK FRONT WHEEL ALIGNMENT (See page SA-5)
- 9. CHECK ABS SPEED SENSOR SIGNAL w/ VSC (See page DI-507) w/o VSC (See page DI-437)

FRONT UPPER SUSPENSION ARM COMPONENTS



SA0RI-09

REMOVAL

- 1. REMOVE FRONT WHEEL
- 2. REMOVE FRONT SHOCK ABSORBER (See page SA-20)



Remove the 2 bolts and upper suspension arm from the body.



SA0RJ-06

INSPECTION

SA0RK-07

F07655

1. INSPECT UPPER SUSPENSION ARM BALL JOINT BOOT FOR DAMAGE

- 2. INSPECT UPPER SUSPENSION ARM BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously 1 turn per 2 - 4 seconds and take the torque reading on the 5th turn.

Turning torque:

1.0 - 3.4 N·m (10 - 35 kgf·cm, 9 - 30 in.-lbf)

INSTALLATION

INSTALL UPPER SUSPENSION ARM TO BODY 1. Torque: 59 N·m (600 kgf·cm, 44 ft·lbf)

HINT:

After stabilizing the suspension, torque the bolt.

- 2. INSTALL FRONT SHOCK ABSORBER (See page SA-27)
- 3. **INSTALL FRONT WHEEL** Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 4. CHECK FRONT WHEEL ALIGNMENT (See page SA-5)
- 5. CHECK ABS SPEED SENSOR SIGNAL w/ VSC (See page DI-507) w/o VSC (See page DI-437)

FRONT LOWER SUSPENSION ARM COMPONENTS



SAORM-08

REMOVAL

- 1. REMOVE FRONT WHEEL
- 2. REMOVE ENGINE UNDER COVER AND ENGINE UN-DER COVER NO. 2

SA20K-02

3. REMOVE RH AND LH REAR ENGINE UNDER COVER



4. DISCONNECT HEIGHT CONTROL SENSOR LINK

Remove the nut and disconnect the height control sensor link from lower arm.

- N F07657
- 5. **REMOVE FRONT SUSPENSION MEMBER BRACE** Remove the 8 bolts and suspension member brace.







7. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts and brake caliper from the steering knuckle.
- (b) Support the brake caliper securely.
- (c) Remove the disc.
- 8. DISCONNECT TIE ROD END FROM LOWER BALL JOINT
- (a) Remove the clip and nut.

Date :



(b) Using SST, disconnect the tie rod end. SST 09610-20012



9. REMOVE STABILIZER BAR LINK

Remove the 2 nuts and stabilizer bar link. HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

10. DI Al Remove 11. DI LC (a) Re

F07661

10. DISCONNECT SHOCK ABSORBER FROM SHOCK ABSORBER BRACKET

Remove the nut and bolt and disconnect the shock absorber.

- 11. DISCONNECT LOWER BALL JOINT FROM NO. 1 LOWER SUSPENSION ARM
- (a) Remove the cotter pin and nut.



(b) Using SST, disconnect the lower ball joint. SST 09628-6201 1



- 12. DISCONNECT STEERING GEAR ASSEMBLY
- (a) Remove the 4 bolts, housing bracket and disconnect the steering gear assembly.

NOTICE:

Be careful not to damage the return tube and pressure feed tube.

(b) Support the steering gear assembly securely.



13. REMOVE NO. 1 LOWER SUSPENSION ARM

- (a) Place matchmarks on the cam plate and suspension member.
- (b) Remove the nut, washer, cam plate, cam bolt and No.1 lower suspension arm from the suspension member.

14. REMOVE SHOCK ABSORBER LOWER BRACKETRemove the bolt and shock absorber lower bracket from the No.1 lower suspension arm.
INSTALLATION

 INSTALL SHOCK ABSORBER LOWER BRACKET TO NO. 1 LOWER SUSPENSION ARM Torque: 25 N·m (250 kgf·cm, 18 ft·lbf)



2. INSTALL NO. 1 LOWER SUSPENSION ARM

Install the No. 1 lower suspension arm to the suspension member with the cam bolt, cam plate, washer and nut.
 Torque: 184 N-m (1,880 kgf-cm, 136 ft-lbf)

HINT:

After stabilizing the suspension, align the matchmarks on the cam plate and suspension member, and torque the nut.

(b) Connect the lower ball joint to the No. 1 lower suspension arm with the nut.

Torque: 123 N·m (1,250 kgf·cm, 91 ft·lbf)

(c) Install a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60° .

3. CONNECT STEERING GEAR ASSEMBLY Torque: 74 N·m (755 kgf·cm, 55 ft·lbf)

NOTICE:

Be careful not to damage the return tube and pressure feed tube.

4. CONNECT SHOCK ABSORBER TO FRONT SHOCK ABSORBER BRACKET

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



5. INSTALL STABILIZER BAR LINK Torque: Nut A: 49 N·m (500 kgf·cm, 36 ft·lbf)

Nut B: 95 N·m (970 kgf·cm, 70 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

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SUSPENSION AND AXLE - FRONT LOWER SUSPENSION ARM



CONNECT HEIGHT CONTROL SENSOR LINK

- (a) Set the lower arm to the vehicle height.
- (b) Install the sensor link to the lower arm bracket with a nut. Torque: 5.4 N·m (55 kgf·cm, 48 in.·lbf)

NOTICE:

6.

- Be careful not to brake the link fixing pin until the above operation is completed.
- The pin can the broken after completion of the above, however, the sensor arm rotation angle shall not exceed the range of $\pm 70^{\circ}$ from the standard vehicle height.
- 7. CONNECT TIE ROD END TO LOWER BALL JOINT
- (a) Connect the tie rod end to the lower ball joint with the nut.
 Torque: 54 N·m (550 kgf·cm, 40 ft·lbf)
- (b) Install a new clip.

HINT:

If the holes for the clip are not aligned, tighten the nut further up to 60° .

8. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts.

- Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)
- 9. CONNECT NO. 2 LOWER SUSPENSION ARM TO NO. 1 LOWER SUSPENSION ARM Torque: 245 N-m (2,500 kgf-cm, 181 ft-lbf)

HINT:

After stabilizing the suspension, torque the bolt.



10. INSTALL FRONT SUSPENSION MEMBER BRACE Torque: Bolt A: 119 N·m (1,210 kgf·cm, 88 ft-lbf)

Bolt B: 58 N·m (590 kgf·cm, 43 ft·lbf)

HINT:

- Install the bolt A through the No.2 lower suspension arm.After stabilizing the suspension, torque the bolt A.
- 11. INSTALL RH AND LH REAR ENGINE UNDER COVER
- 12. INSTALL ENGINE UNDER COVER AND ENGINE UN-
 - DER COVER NO. 2
- 13. INSTALL FRONT WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 14. DEPRESS BRAKE PEDAL SEVERAL TIMES
- 15. CHECK FRONT WHEEL ALIGNMENT (See page SA-5)



FRONT LOWER BALL JOINT ON-VEHICLE INSPECTION



INSPECT LOWER BALL JOINT EXCESSIVE PLAY ON-VE-HICLE

- (a) Remove the front wheel 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: 0.9 mm (0.035 in.)

If it is not within the specified value, replace the lower ball joint.

COMPONENTS



REMOVAL

1. REMOVE FRONT WHEEL





- 2. REMOVE BRAKE CALIPER
- (a) Remove the 2 bolts and brake caliper from the steering knuckle.
- (b) Support the brake caliper securely.
- (c) Remove the disc.
- 3. DISCONNECT TIE ROD END FROM LOWER BALL JOINT
- (a) Remove the clip and nut.
- (b) Using SST, disconnect the tie rod end. SST 09610-20012
- 4. DISCONNECT LOWER BALL JOINT FROM LOWER SUSPENSION ARM
- (a) Remove the cotter pin and nut.



(b) Using SST, remove the lower ball joint. SST 09628-6201 1

5. REMOVE LOWER BALL JOINT

Remove the 2 bolts and lower ball joint from the steering knuckle.

INSPECTION

1. INSPECT LOWER BALL JOINT BOOT FOR DAMAGE

SA1IX-03



- 2. INSPECT LOWER BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using torque wrench, turn the nut continuously 1 turn per 2 4 seconds and take the torque reading on the 5th turn.
 Turning torque:

0.5 - 3.0 N·m (5 - 30 kgf·cm, 0.4 - 26 in.-lbf)

INSTALLATION

- 1. INSTALL LOWER BALL JOINT
- (a) Install the lower ball joint to the steering knuckle with the 2 bolts.
 Torque: 113 N-m (1,150 kgf-cm, 83 ft-lbf)
- (b) Connect the lower ball joint to the No. 1 lower suspension arm with the nut. **Torque: 123 N·m (1,250 kgf·cm, 91 ft·lbf)**
- (c) Install a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60°.

- 2. CONNECT TIE ROD END TO LOWER BALL JOINT
- (a) Connect the tie rod end with the nut.
- Torque: 54 N·m (550 kgf·cm, 40 ft·lbf)

(b) Install a new clip.

If the holes for the clip are not aligned, tighten the nut further up to 60°.

3. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts.

Torque: 118 N·m (1,200 kgf·cm, 87 ft·lbf)

- 4. INSTALL FRONT WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 5. CHECK FRONT WHEEL ALIGNMENT (See page SA-5)

SA-43

FRONT STABILIZER BAR COMPONENTS



SA0RU-08

REMOVAL

1.

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N F07669

2. REMOVE RH AND LH STABILIZER BAR LINKS

(a) Remove the 2 nuts and stabilizer bar link. HINT:

REMOVE ENGINE UNDER COVER

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

(b) Employ the same manner described above to the other side.



3. REMOVE STABILIZER BAR

Remove the 4 bolts and stabilizer bar.

4. REMOVE 2 BRACKETS AND BUSHINGS FROM STA-BILIZER BAR

INSPECTION

1. INSPECT STABILIZER BAR LINK BALL JOINT BOOT FOR DAMAGE



- 2. INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times before installing the nut.
- (b) Using a torque wrench, turn the stud continuously 1 turn per 2 4 seconds and take the torque reading on the 5th turn.

Turning torque:

0.05 - 1.9 N·m (0.5 - 20 kgf·cm, 0.4 - 16 in.-lbf)



INSTALLATION

1. INSTALL 2 BUSHINGS AND BRACKETS TO STABILIZ-ER BAR

HINT:

- Install the bushing to the stabilizer bar so that the cutout of the bushing faces the front of the vehicle, as shown in the illustration.
- Install the bushing to the outside of the paint line on the stabilizer bar.

2. INSTALL STABILIZER BAR

Install the stabilizer bar to the body with the 4 bolts. Torque: 23 N·m (235 kgf·cm, 17 ft·lbf)



3. INSTALL RH AND LH STABILIZER BAR LINKS Torque: Nut A: 74 N·m (755 kgf·cm, 55 ft·lbf)

Nut B: 95 N·m (970 kgf·cm, 70 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

4. INSTALL ENGINE UNDER COVER

SA1IZ-04

REAR AXLE CARRIER COMPONENTS



SA1J0-04



REMOVAL

- 1. REMOVE REAR WHEEL
- 2. DISCONNECT ABS SPEED SENSOR FROM REAR AXLE CARRIER

SA1J1-03

Remove the bolt and disconnect the ABS speed sensor.

3. REMOVE NO. 1 REAR FLOOR BOARD



- (a) Remove the 2 bolts and brake caliper from the axle carrier.
- (b) Support the brake caliper securely.
- (c) Remove the disc.
- (d) Using a dial indicator near the center of the axle hub and check the backlash in the bearing shaft direction.
 Maximum: 0.05 mm (0.0020 in.)
- If the backlash exceeds the maximum, replace the bearing.
- Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
 Maximum: 0.07 mm (0.0028 in.)
- If the deviation exceeds the maximum, replace the axle hub.
- (f) Install the disc, brake caliper and 2 bolts to the axle carrier.
 - Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)
- 5. REMOVE DRIVE SHAFT (See page SA-59)
- 6. REMOVE BRAKE CALIPER AND DISC
- (a) Remove the 2 bolts and brake caliper from the axle carrier.
- (b) Support the brake caliper securely.
- (c) Remove the disc.
- 7. REMOVE PARKING BRAKE SHOE (See page BR-42)
- 8. DISCONNECT PARKING BRAKE CABLE FROM BACKING PLATE

Remove the 2 bolts and disconnect the parking brake cable.







- 9. LOOSEN NO. 2 LOWER SUSPENSION ARM MOUNT-ING NUT (OUTSIDE)
- (a) Place matchmarks on the cam bolt and No. 2 lower suspension arm.
- (b) Loosen the nut of the No. 2 lower suspension arm (outside).
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SST

10. DISCONNECT NO. 1 LOWER SUSPENSION FROM REAR AXLE CARRIER

Remove the nut and bolt and disconnect the No. 1 lower suspension arm.

- 11. DISCONNECT TOE CONTROL LINK FROM AXLE CARRIER
- (a) Remove the nut.
- (b) Using SST, disconnect the toe control link. SST 09610-20012
- 12. DISCONNECT UPPER SUSPENSION ARM FROM REAR AXLE CARRIER
- (a) Remove the nut.



(b) Using SST, disconnect the upper suspension arm. SST 09628-6201 1

NOTICE:

F07677

Support the axle carrier.

13. REMOVE REAR AXLE CARRIER

Remove the nut, cam plate, cam bolt and axle carrier from the No. 2 lower suspension.

DISASSEMBLY

1. REMOVE DUST DEFLECTOR

Using a screwdriver, remove the dust deflector.



2. REMOVE AXLE HUB

- (a) Remove the 2 bolts, nuts and pin.
- (b) Mount the axle carrier in a vise.
- HINT:

Use a set of soft jaws in the vise to protect the axle carrier. **NOTICE:**

Do not tighten the vise too tight.





(d) Remove the backing plate.



- (e) Using SST, remove the bearing inner race from the axle hub.
 - SST 09950-00020, 09950-40011 (09951-04020, 09953-04030, 09957-04010), 09950-50013 (09952-05010, 09954-05021, 09955-05040), 09950-60010 (09951-00480)

NOTICE:

Be careful not to damage the axle hub.

3. REMOVE BEARING

(a) Using snap ring pliers, remove the snap ring from the axle carrier.

SA1J2-04



- (b) Using SST and a press, remove the bearing from the axle carrier.
 - SST 09950-60010 (09951-00650), 09950-70010 (09951-07100)



REASSEMBLY

1. INSTALL BEARING

(a) Using SST and a press, install a new bearing to the axle carrier.

SA0S1-05

SST 09223-15020, 09527-17011, 09950-70010 (09951-07100)

- (b) Using snap ring pliers, install a new snap ring to the axle carrier.
- 2. INSTALL AXLE HUB
- (a) Install the backing plate, pin, 2 bolts and nuts.Torque: 59 N-m (600 kgf-cm, 43 ft-lbf)



- (b) Using SST and a press, install the axle hub to the axle carrier.
 - SST 09527-17011, 09950-60020 (09551-00750), 09950-70010 (09951-07100)



3. INSTALL DUST DEFLECTOR

Using SST and a hammer, install a new dust deflector to the axle carrier.

SST 09527-17011, 09950-60020 (09951-01030), 09950-70010 (09951-07100)

HINT:

Align the speed sensor installation hole of dust deflector and that of axle carrier.

SA1J3-05

INSTALLATION

1. INSTALL REAR AXLE CARRIER

- (a) Temporarily install the axle carrier to the upper suspension arm with a new nut.
- (b) Connect the No. 1 lower suspension arm to the axle carrier with the bolt and nut.

Torque: 75 N·m (765 kgf·cm, 55 ft·lbf)

HINT:

After stabilizing the suspension, torque the nut.

(c) Connect the No. 2 lower suspension arm to the axle carrier with the cam bolt, cam plate and nut.

Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)

HINT:

After stabilizing the suspension, align the matchmarks on the cam bolt and No. 2 lower suspension arm, torque the nut.

(d) Connect the toe control link to the axle carrier with a new nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

- (e) Torque the nut on the upper side of the axle carrier.Torque: 108 N·m (1,100 kgf·cm, 80 ft·lbf)
- 2. CONNECT PARKING BRAKE CABLE TO BACKING PLATE

Torque: 7.8 N·m (80 kgf·cm, 69 in.-lbf)

- 3. INSTALL PARKING BRAKE SHOE (See page BR-45)
- 4. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts. Torque: 104 N-m (1,065 kgf-cm, 77 ft-lbf)

- 5. INSTALL DRIVE SHAFT (See page SA-66)
- 6. INSTALL NO. 1 REAR FLOOR BOARD
- 7. CONNECT ABS SPEED SENSOR TO REAR AXLE CARRIER

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

- 8. CHECK BEARING BACKLASH AND AXLE HUB DEVI-ATION (See page SA-50)
- 9. INSTALL REAR WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 10. DEPRESS BRAKE PEDAL SEVERAL TIMES
- 11. CHECK REAR WHEEL ALIGNMENT (See page SA-9)
- 12. CHECK ABS SPEED SENSOR SIGNAL (See page DI-437 or DI-507)



REAR WHEEL HUB BOLT REPLACEMENT 1. REMOVE REAR WHEEL





REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts and brake caliper from the axle carrier.
- (b) Support the brake caliper securely.
- (c) Remove the disc.



3. REMOVE HUB BOLT

Using SST and a screwdriver or an equivalent to hold, remove the hub bolt.

SST 09628-1001 1



4. INSTALL HUB BOLT

- (a) Install a washer and nut to a new bolt, as shown in the illustration.
- (b) Using a screwdriver or an equivalent to hold, install the hub bolt by turning the nut.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc, brake caliper and 2 bolts to the axle carrier. Torque: 104 N-m (1,065 kgf-cm, 77 ft-lbf)

6. INSTALL REAR WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf) REAR DRIVE SHAFT COMPONENTS



SA1J4-04





REMOVAL

NOTICE:

The hub bearing could be damaged if it is subjected to the vehicle weight, such as when moving the vehicle with the drive shaft removed.

SA-59

SA1QX-03

Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with SST.

SST 09608-16042 (09608-02021, 09608-02041)

- After disconnecting the drive shaft from the axle hub, work carefully so as not to damage the ABS speed sensor rotor serration on the drive shaft.
- 1. REMOVE REAR WHEEL
- 2. LH side:
 - REMOVE NO. 1 REAR FLOOR BOARD
- 3. RH side:
 - REMOVE EXHAUST TAIL PIPE
- (a) Remove the 2 bolts and disconnect the exhaust tail pipe from the center pipe.
- (b) Disconnect the 4 O-rings and remove the exhaust tail pipe.
- (c) Support the front pipe and center pipe securely.
- (d) Remove the gasket.





- (a) Remove the cotter pin and lock cap.
- (b) While depressing the brake pedal, using a socket wrench (32 mm), remove the nut.

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5. REMOVE REAR SUSPENSION MEMBER BRACE

Remove the 2 bolts and suspension member brace.





(a) Place matchmarks on the drive shaft and side gear shaft. **NOTICE:**

Do not punch to marks.

- (b) Using 8 mm hexagon wrench, remove the 6 hexagon bolts and 3 washers, while applying the brakes.
- (c) Disconnect the inboard joint from the differential side gear shaft.

NOTICE:

Be careful not to damage the boots and end cover.

(d) Using a brass bar and hammer, lightly tap the end of the drive shaft to disengage the axle hub and remove the drive shaft.

NOTICE:

Be careful not to damage the boots, ABS speed sensor rotor of the drive shaft and oil seal of the axle hub bearing.



SA0JZ-06



DISASSEMBLY

1. CHECK DRIVE SHAFT

(a) Check to see that the joints slide smoothly in the axial direction.

If a large angle is applied for the cross-groove type joint, the joint will be felt like it is catching, but this does not indicate an abnormality.

- (b) Check the boots for damage or crack.
- (c) Check the ABS speed sensor rotor for damage.
- 2. REMOVE END COVER
- (a) Using a screwdriver, remove the end cover.





NOTICE:

Tighten the bolts by hand to avoid scratching the flange surface.

3. REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS

Using a side cutter, cut the boot clamps and remove them.





4. REMOVE INBOARD JOINT

(a) Place matchmarks on the inboard joint and outboard joint shaft.

NOTICE:

Do not punch the marks.

- (b) Using a snap ring expander, remove the snap ring.
- (c) Slide the inboard joint boot toward the outboard joint.
- Using SST, an extension bar and press, remove the inboard joint from the outboard joint shaft.
 SST 09726-12023 (09726-01031)
- (e) Remove the bolts, nuts and washers.

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- (f) Clamp the inboard joint in a soft jaw vise.
- (g) Using a screwdriver and hammer, pry around the whole perimeter of the inboard joint cover and remove the inboard joint.

NOTICE:

To prevent the balls from falling, remove the inboard joint by holding the inner and outer races.5. REMOVE BOOTS

Remove the inboard and outboard joint boots.

6. REMOVE NO. 2 DUST DEFLECTOR

- (a) Clamp the outboard joint in a soft jaw vise.
- (b) Using a screwdriver and hammer, remove the No. 2 dust deflector.

NOTICE:

Be careful not to damage the ABS speed sensor rotor.



REASSEMBLY

1. INSTALL NO. 2 DUST DEFLECTOR

Using SST and a press, install a new No. 2 dust deflector. SST 09309-36010, 09502-12010

NOTICE:

Be careful not to damage the ABS speed sensor rotor.2. ASSEMBLE INBOARD JOINT

If the joint has come apart, reassemble it in the following order.

Matchmarks

(a) Align the matchmarks placed before removal.







If the matchmarks have disappeared, do the following procedure.

- (1) Install the inner race to the cage.
- (2) Install the outer race so that the wide indented part is at the same side as the indented part of the inner race.

The cage does not have the specified attachment direction.

- (3) Match the narrow projections of the inner race with the wide projections of the outer race.
- (b) Tilt the cage and inner race to the side and insert the balls one by one.

NOTICE:

When the cage and inner race are tilted over, support the joint with your hand to prevent the balls from falling out.



3. TEMPORARILY INSTALL BOOTS AND BOOT CLAMPS

(a) Place 4 new boot clamps to each new boot. HINT:

Before installing the boots, wrap vinyl tape around the spline of the shaft to prevent boots from being damaged.

(b) Install the 2 boots with clamps to the drive shaft.

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SA0K0-08

2005 LEXUS IS300 (RM1140U)



INSTALL INBOARD JOINT COVER

- (a) Remove any packing material on the inboard joint.
- (b) Apply FIPG to a new inboard joint cover as shown in the illustration.

HINT:

4.

- Use FIPG supplied with a new end cover.
- Do not apply too much.
- (c) Remove grease from the surface of the inboard joint facing to the cover.
- (d) Align the bolt holes in the cover with those of the inboard joint, then insert the hexagon bolts.



(e) Using a plastic hammer, tap the rim of the inboard joint cover into place. Do this in the order shown, and repeat several times.



5. INSTALL INBOARD JOINT

- (a) Align the matchmarks placed before removal.
- (b) Using a brass bar and hammer, install the inboard joint to outboard joint shaft.

NOTICE:

Check that the brass bar is not touching the cage, but inner race.

(c) Using a snap ring expander, install a new snap ring.

6. ASSEMBLE BOOTS TO JOINTS

Before assembling the boots, pack with only the same amount of grease that was wiped off.

Grease capacity:

Outboard joint grease	170 - 180 g (0.37 - 0.40 lb, 6.0 - 6.3 oz.)
Inboard joint grease	144 - 154 g (0.32 - 0.34 lb, 5.1 - 5.4 oz.)
HINT	

Use the grease supplied in the boot kit.

NOTICE:

• Keep grease off the joint connection groove of the boot.

Pack with grease all over the ball contact surface inside the joint.









7. CHECK DRIVE SHAFT STANDARD LENGTH Drive shaft standard length:

RH	585.35 mm (23.045 in.)
LH	539.75 mm (21.250 in.)

HINT:

The drive shaft is designed to move ± 20 mm (0.79 in.) from the normal position.

8. INSTALL NEW BOOT CLAMPS TO BOTH BOOTS

- (a) Place SST onto the inboard joint large boot clamp. SST 09521-24010
- (b) Tighten SST so that the clamp is pinched. **NOTICE:**

Do not overtighten the SST.

(c) Using SST, adjust the clearance of the clamp. SST 09240-00020

Clearance: 0.8 mm (0.031 in.) or less

- (d) Employ the same manner to the other clamps.
- 9. INSTALL END COVER
- (a) Remove grease from the surface of the inboard joint facing to the cover.
- (b) Apply FIPG supplied with a new end cover.
- (c) Align the bolt holes in the cover with those of the inboard joint.
- (d) Install the 6 hexagon bolts and 3 washers from the end cover side.
- (e) Install 6 nuts to the boot side.
- (f) Using a 8 mm hexagon wrench, tighten the bolts. Do this in the order shown, and repeat several times.
- (g) Check that the claw of the end cover touches the inboard joint.
- 10. CHECK DRIVE SHAFT (See page SA-61)

Date :

INSTALLATION

- 1. INSTALL REAR DRIVE SHAFT
- (a) Install the drive shaft to the axle hub. **NOTICE:**

Be careful not to damage the boots and ABS speed sensor rotor of the drive shaft and oil seal of the axle hub bearing.

- T Matchmarks F08721
- (b) Align the matchmarks and connect the drive shaft to the side gear shaft.

NOTICE:

Be careful not to damage the boots and end cover.

- Using 8 mm hexagon wrench, install the 3 washers and 6 hexagon bolts, while applying the brakes.
 Torque: 68 N-m (695 kgf-cm, 50 ft-lbf)
- 2. INSTALL REAR SUSPENSION MEMBER BRACE Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)
- 3. INSTALL LOCK NUT, LOCK CAP AND COTTER PIN
- (a) While applying brakes, using a socket wrench (32 mm), install a new nut.

Torque: 289 N·m (2,950 kgf·cm, 213 ft·lbf)

(b) Install the lock cap and a new cotter pin.

If the holes for the cotter pin are not aligned, tighten the nut further up to 60° .

4. LH side:

INSTALL NO. 1 REAR FLOOR BOARD

- 5. RH side: INSTALL EXHAUST TAIL PIPE
- (a) Install a new gasket.
- (b) Install the exhaust tail pipe to the 4 O-rings.
- (c) Connect the exhaust tail pipe to the center pipe with the 2 bolts and 2 springs.

Torque: 43 N·m (440 kgf·cm, 32 ft·lbf)

- 6. CHECK REAR WHEEL ALIGNMENT (See page SA-9)
- 7. CHECK ABS SPEED SENSOR SIGNAL (See page DI-437 or DI-507)

REAR DIFFERENTIAL FRONT OIL SEAL COMPONENTS



SA-67

SA1J9-05



SA28E-01

REPLACEMENT

- 1. REMOVE NO. 1 REAR FLOOR BOARD
- 2. DRAIN DIFFERENTIAL OIL
- 3. REMOVE EXHAUST PIPE ASSEMBLY
- 4. REMOVE PROPELLER SHAFT (See page PR-4)



SST

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 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)



6. REMOVE REAR DIFFERENTIAL FRONT OIL SEAL AND OIL SLINGER (a) Using SST remove the oil seal

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

REMOVE FRONT BEARING AND BEARING SPACER

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



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8. INSTALL BEARING SPACER, FRONT BEARING AND OIL SLINGER

Install a new bearing spacer, front bearing and oil slinger. HINT:

Install the bearing spacer with its larger diameter side facing the rearward.

- 9. INSTALL REAR DIFFERENTIAL FRONT OIL SEAL
- (a) Using SST and hammer, install a new oil seal. SST 09554-22010

Oil seal drive in depth:

- 2.00 ± 0.45 mm (0.0787 ± 0.0177 in.)
- (b) Coat MP grease to the oil seal lip.

SST

2.0 ± 0.45 mm (0.0787 ± 0.0177 in.)

SST

F07692

F07693



10. INSTALL COMPANION FLANGE

- (a) Using SST, install the companion flange. SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03030)
- (b) Coat the threads of a new nut with hypoid gear oil LSD.
- Using SST to hold the flange, torque the nut while checking the preload.
 SST 09330-00021

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11. ADJUST DRIVE PINION PRELOAD

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

Preload (at starting):

New bearing:

0.98 - 1.57 N·m (10 - 16 kgf·cm, 8.7 - 13.9 in.·lbf) Reused bearing:

0.49 - 0.78 N·m (5 - 8 kgf·cm, 4.3 - 6.9 in.-lbf)

If the preload is greater than the specified value, replace the bearing spacer.

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

Torque: 338 N·m (3,445 kgf·cm, 249 ft·lbf) or less

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

12. STAKE DRIVE PINION NUT

Using a chisel and hammer, stake the nut.

- 13. INSTALL PROPELLER SHAFT (See page PR-10)
- 14. INSTALL EXHAUST PIPE ASSEMBLY
- 15. FILL AND CHECK DIFFERENTIAL OIL LEVEL Torque: 49 N·m (500 kgf·cm, 39 ft·lbf)
- 16. INSTALL NO. 1 REAR FLOOR BOARD

REAR DIFFERENTIAL SIDE GEAR SHAFT OIL SEAL COMPONENTS




SA1QY-03

REPLACEMENT

- 1. REMOVE NO. 1 REAR FLOOR BOARD
- 2. DRAIN DIFFERENTIAL OIL



3. REMOVE REAR SUSPENSION MEMBER BRACE Remove the 2 bolts and suspension member brace.



4. DISCONNECT DRIVE SHAFT FROM SIDE GEAR SHAFT

(a) Place matchmarks on the drive shaft and side gear shaft. **NOTICE:**

Do not punch the matchmarks.

- (b) Using a 8 mm hexagon wrench, remove the 6 hexagon bolts and 3 washers, while applying the brakes.
- (c) Disconnect the drive shaft from the differential side gear shaft.

NOTICE:

Be careful not to damage the boots and end cover.

(d) Support the drive shaft securely.



5. REMOVE SIDE GEAR SHAFT

- (a) Using SST and 2 bolts, remove the side gear shaft. SST 09520-24010
- (b) Using needle-nose pliers, remove the snap ring from the side gear shaft.



6. **REMOVE SIDE GEAR SHAFT OIL SEAL** Using SST, remove the oil seal.

SST 09308-00010

T T F07686

7. INSTALL SIDE GEAR SHAFT OIL SEAL

(a) Using SST and a hammer, install a new oil seal. SST 09554-22010

Oil seal drive in depth: 0 ± 0.50 mm (0 ± 0.0197 in.)

- (b) Coat MP grease to the oil seal lip.
- 8. INSTALL SIDE GEAR SHAFT
- (a) Using needle-nose pliers, install a new snap ring to the side gear shaft.
- (b) Coat the MP grease to the snap ring.



(c) Using SST and 2 bolts, install the side gear shaft. SST 09520-24010

NOTICE:

Be careful not to damage the side gear shaft oil seal. HINT:

- Before installing the side gear shaft, set the snap ring with it's opening side facing downward.
- Whether the side gear shaft is in contact with the side gear or not can be known from the sound or feeling when driving it.
- (d) Check that the side gear shaft will not come out by trying to pull it out by hand.



- 9. CONNECT DRIVE SHAFT TO SIDE GEAR SHAFT
- (a) Align the matchmarks and connect the drive shaft to the side gear shaft.

NOTICE:

Be careful not to damage the boots and end cover.

- (b) Using a 8 mm hexagon wrench, install the 3 washers and 6 hexagon bolts, while applying the brakes.
 Torque: 68 N-m (695 kgf-cm, 50 ft-lbf)
- 10. INSTALL REAR SUSPENSION MEMBER BRACE Torque: 50 N·m (510 kgf·cm, 37 ft-lbf)
- 11. FILL AND CHECK DIFFERENTIAL OIL LEVEL (See page SA-69)
- 12. INSTALL NO. 1 REAR FLOOR BOARD

REAR DIFFERENTIAL CARRIER COMPONENTS



SA1JC-05





REMOVAL

- 1. REMOVE NO. 1 REAR FLOOR BOARD
- 2. DRAIN DIFFERENTIAL OIL



3. DISCONNECT 2 STABILIZER BAR BRACKETS

Remove the 4 bolts and 2 brackets from the rear suspension member.

4. DISCONNECT STABILIZER BAR LINK FROM STABI-LIZER BAR

Remove the 2 nuts and disconnect the stabilizer bar links. HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

- 5. REMOVE PROPELLER SHAFT (See page PR-4)
- 6. REMOVE EXHAUST PIPE ASSEMBLY





- (a) Remove the 2 bolts and suspension member brace.
- (b) Employ the same manner described above to the other side.



8. DISCONNECT RH AND LH DRIVE SHAFTS FROM SIDE GEAR SHAFTS

(a) Place matchmarks on the drive shaft and side gear shaft. **NOTICE:**

Do not punch the matchmarks.

- (b) Using a 8 mm hexagon wrench, remove the 6 hexagon bolts and 3 washers, while applying the brakes.
- (c) Disconnect the drive shaft from the differential side gear shaft.

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NOTICE:

Be careful not to damage the boots and end cover.

- (d) Support the drive shaft securely.
- (e) Employ the same manner described above to the other side.
- 9. REMOVE REAR DIFFERENTIAL CARRIER AS-SEMBLY
- (a) Support the rear differential carrier assembly with a jack.
- (b) Using a hexagon wrench (12 mm), remove the 3 hexagon bolts.

- - (c) Remove the 2 bolts, lower mount stoppers and rear differential carrier assembly from the rear suspension member.
 NOTICE:

Do not let the rear differential carrier assembly interfere with the drive shaft.

(d) Remove the 2 upper mount stoppers from the rear differential carrier.



SA1JE-04

DISASSEMBLY

- 1. REMOVE DIFFERENTIAL CARRIER COVER
- (a) Remove the 8 bolts from the carrier cover.
- (b) Using a brass bar and hammer, separate the cover from the carrier.
- (c) Remove the breather plug from the differential carrier cover.
- (d) Remove the bolt and oil deflector from the differential carrier cover.
- 2. REMOVE DIFFERENTIAL CARRIER STRAIGHT PIN

Using pliers, remove the straight pin from the differential carrier.

3. SET DIFFERENTIAL CARRIER TO OVERHAUL STAND, ETC.



4. CHECK COMPANION FLANGE RUNOUT

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

Maximum runout: 0.09 mm (0.0035 in.)

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



5. CHECK RING GEAR RUNOUT

Using a dial indicator, while turning the companion flange measure the ring gear runout.

Maximum runout: 0.07 mm (0.0028 in.)

If the runout is greater than the maximum, replace the ring gear and drive pinion as a set.



6. CHECK RING GEAR BACKLASH

Using a dial indicator, while holding the companion flange measure the ring gear backlash.

Backlash: 0.13 - 0.18 mm (0.0051 - 0.0071 in.) HINT:

Measure at 3 or more places on the circumference of the ring gear.

If the backlash is not within the specified value, adjust the backlash (See page $\ensuremath{\mathsf{SA-88}}$).



7. MEASURE DRIVE PINION PRELOAD

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

- Preload (at starting):
- 0.49 0.78 N·m (5 8 kgf·cm, 4.3 6.9 in.-lbf)

SST T F08730

8. REMOVE SIDE GEAR SHAFTS

- (a) Using SST and 2 bolts, remove the 2 side gear shafts from the differential carrier.
 - SST 09520-24010
- (b) Using a screwdriver, remove the 2 snap rings from the side gear shafts.

9. CHECK TOTAL PRELOAD

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

Total preload (at starting):

Drive pinion preload plus

0.39 - 0.59 N·m (4 - 6 kgf·cm, 3.5 - 5.2 in.·lbf)

If necessary, disassemble and inspect the differential.

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

11. 2 pinion differential:

CHECK SIDE GEAR BACKLASH

Using a dial indicator, measure the side gear backlash while holding one pinion gear toward the differential case.

Backlash: 0.05 - 0.20 mm (0.0020 - 0.0079 in.)

If the backlash is not within the specified value, install the correct thrust washers (See page SA-88).



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12. REMOVE SIDE GEAR SHAFT OIL SEALS

Using SST, remove the 2 side gear shaft oil seals. SST 09308-00010

- 13. REMOVE COMPANION FLANGE
- (a) Using a chisel and hammer, unstake the nut.

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(b) Using SST to hold the flange, remove the nut. SST 09330-00021



Using SST, remove the companion flange.
 SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)



- 14. REMOVE FRONT OIL SEAL AND OIL SLINGER
- (a) Using SST, remove the oil seal from the differential carrier. SST 09308-10010
- (b) Remove the oil slinger.



15. REMOVE FRONT BEARING

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

If the front bearing is damaged or worn, replace the front bearing.



16. REMOVE DIFFERENTIAL CASE ASSEMBLY

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

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(c) Using SST and a plastic hammer, remove the 2 plate washers.

SST 09504-22012

HINT:

- Measure the plate washer and note down the thickness.
 - (d) Remove the differential case with the bearing outer races from the differential carrier.

HINT:

Tag the bearing outer races to show the location for reassembling.

17. REMOVE DRIVE PINION AND BEARING SPACER FROM DIFFERENTIAL CARRIER



18. REMOVE REAR BEARING

- (a) Using SST and a press, remove the rear bearing from the drive pinion.
 - SST 09950-00020

HINT:

If the drive pinion or ring gear is damaged, replace them as a set.

(b) Remove the washer.



19. REMOVE FRONT AND REAR BEARING OUTER RACES

Using a brass bar and hammer, remove the front and rear bearing outer races.



20. 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 bolts and 5 lock plates.
- (d) Using a plastic hammer, tap around on the ring gear equally to separate it from the differential case.

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Date :

21. CHECK DIFFERENTIAL CASE RUNOUT

- (a) Place the bearing outer races on their respective bearings. Check that the right and left outer races are not interchanged.
- (b) Install the assembled plate washers onto the side bearings.
- (c) Install the differential case in the differential carrier. HINT:

If it is difficult to install the differential case into the carrier, replace the plate washer with a thinner one.

However, select a plate washer that allows no clearance between it and the carrier.

- N KATCHMARKS
- (d) Align matchmarks on the bearing cap and differential carrier.
- (e) Install and uniformly tighten the 4 bolts a little at a time.



Using a dial indicator, while turning the companion flange measure the differential case runout.
 Maximum runout: 0.07 mm (0.0028 in.)

If the runout is greater than the maximum, replace the differential case and side bearings as a set.

(g) Remove the differential case.



22. REMOVE SIDE BEARINGS

- (a) 2 pinion differential: Using SST, remove the 2 side bearings from the differential case.
 - SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00480)

HINT:

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

Date :

- (b) Torque sensing LSD ring gear side:
 - Using SST, remove the side bearing from the differential case.
 - SST 09950-40011 (09951-04020, 09952-04010, 09953-04030, 09954-04010, 09955-04061, 09957-04010, 09958-04011), 09950-60010 (09951-00480)

HINT:

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

- (c) Torque sensing LSD ring gear back side: Using SST, remove the side bearing from the differential case.
 - SST 09950-00020, 09950-40011 (09951-04020, 09953-04030, 09957-04010), 09950-50012 (09952-05010, 09954-05030, 09955-05040)
- N F07321
- 23. 2 pinion differential: DISASSEMBLE DIFFERENTIAL CASE ASSEMBLY

NOTICE:

If equipped with torque sensing LSD, do not disassemble the differential case.

- (a) Using a pin punch (5 mm) and hammer, remove the straight pin.
- (b) Remove the pinion shaft, 2 pinion gears, pinion gear thrust washers, side gears and side gear thrust washers from the differential case.





SA1R0-03

REPLACEMENT

- **REPLACE COMPANION FLANGE DUST DEFLECTOR,** 1. **IF NECESSARY**
- Using SST and a press, remove the dust deflector. (a) SST 09950-00020

Using SST and a press, install a new dust deflector. (b) NOTICE:

SST 09710-04061

Do not deform the dust deflector.

- 2. SST (a)
- R09980

- **REPLACE SIDE GEAR SHAFT DUST COVER, IF NEC-**ESSARY
- Using SST and a press, remove the dust cover. SST 09950-00020

Using SST and a press, install a new dust cover. (b) SST 09502-24010, 09950-60020 (09951-00780), 09950-70010 (09950-07150)

REASSEMBLY

HINT:

Using a shop rag, clean off any foreign object from the parts.

SA1JF-05

- Apply all of the sliding and rotating surfaces with hypoid gear oil.
- 1. 2 pinion differential: MEASURE SIDE GEAR BACKLASH AND REAS-SEMBLE DIFFERENTIAL CASE
- (a) Install the 2 thrust washers to the 2 side gears.
- (b) Install the 2 side gears, pinion gears, pinion gear thrust washers and pinion shaft in the differential case.

HINT:

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Align the holes of the differential case and pinion shaft.

Using a dial indicator, measure the side gear backlash while holding one pinion gear toward the differential case.
 Backlash: 0.05 - 0.20 mm (0.0020 - 0.0079 in.)

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

Thickness mm (in.)	Thickness mm (in.)
1.6 (0.062)	1.8 (0.071)
1.7 (0.067)	-

- 2 pinion differential: INSTALL STRAIGHT PIN AND STAKE DIFFERENTIAL CASE
- (a) Using a 5 mm pin punch and hammer, install the straight pin through the differential case and hole of the pinion shaft.
- (b) Using a chisel and hammer, stake the outside of the differential case pin hole.

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 approx. 100°C (212°F) in boiling water.
- (c) Carefully take the ring gear out of the boiling 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 10 ring gear set bolts.

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

(g) Using a chisel and hammer, stake the 5 lock plates. HINT:

Stake the claws of the lock plates to fix the bolts. For the claw contacting the protruding portion of the bolt, stake only the half of it along the tightening direction.

4. INSTALL SIDE BEARINGS

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

SST 09710-04081, 09950-60010 (09951-00600), 09950-70010 (09951-07100)

5. CHECK RING GEAR RUNOUT

- (a) Place the bearing outer races on their respective bearings. Check that the right and left outer races are not interchanged.
- (b) Install the assembled plate washers onto the side bearings.
- (c) Install the differential case in the differential carrier. HINT:

If it is difficult to install the differential case into the carrier, replace the plate washer with a thinner one.

However, select a plate washer that allows no clearance between it and the carrier.

- (d) Align matchmarks on the bearing cap and differential carrier.
- (e) Install and uniformly tighten the 4 bolts a little at a time.

- (f) Using a dial indicator, measure the ring gear runout. Maximum runout: 0.07 mm (0.0028 in.)
- (g) Remove the differential case.

- 6. INSTALL FRONT AND REAR BEARING OUTER RACES
- (a) Using SST and a press, install the front bearing outer race.
 - SST 09950-60020 (09951-00710), 09950-70010 (09951-07150)
- (b) Using SST and a press, install the rear bearing outer race. SST 09950-60020 (09951-00790), 09950-70010 (09951-07200)

7. INSTALL REAR BEARING

(a) Install the washer on the drive pinion.

HINT:

First fit a washer with the same thickness as the washer which was removed, 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 rear bearing onto the drive pinion.

SST 09506-30012

- 8. TEMPORARILY ADJUST DRIVE PINION PRELOAD
- (a) Install the drive pinion and front bearing. HINT:

Assemble the spacer and oil seal after adjusting the gear contact pattern.

(b) Install the oil slinger.

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- (c) Using SST, install the companion flange.
 - SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)

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SST SST SA2450

(d) Using SST to hold the flange and adjust the drive pinion preload by tightening the nut.

NOTICE:

- Coat the nut and threads of the drive pinion with hypoid gear oil LSD.
- As there is no spacer, tighten the nut a little at a time, being careful not to overtighten.
- (e) Using a torque wrench, measure the drive pinion preload using the backlash between the drive pinion and ring gear.

Preload (at starting):

New bearing:

0.98 - 1.57 N·m (10 - 16 kgf·cm, 8.7 - 13.9 in.·lbf) Reused bearing:

0.49 - 0.78 N·m (5 - 8 kgf·cm, 4.3 - 6.9 in.-lbf)

HINT:

Measure the drive pinion preload after turning the bearing clockwise and counterclockwise several times to make the bearing smooth.

- 9. INSTALL DIFFERENTIAL CASE IN DIFFERENTIAL CARRIER
- (a) Place the bearing outer races on their respective bearings. Check that the right and left outer races are not interchanged.
- (b) Install the differential case in the differential carrier.

10. ADJUST RING GEAR BACKLASH

(a) Install the plate washer on the ring gear back side. HINT:

Make sure that the ring gear has backlash.

(b) Tap on the ring gear with a plastic hammer so that the washer fits to the bearing.

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- Using a dial indicator, while holding the companion flange, measure the ring gear backlash.
 Backlash (Reference):
 - 0.13 0.18 mm (0.0051 0.0071 in.)

(d) Select a plate washer for back side ring gear, using the backlash as reference.

Side plate washer thickness:

Thickness mm (in.)	Thickness mm (in.)
2.58 (0.1016)	3.04 (0.1197)
2.60 (0.1024)	3.06 (0.1205)
2.62 (0.1031)	3.08 (0.1213)
2.64 (0.1039)	3.10 (0.1220)
2.66 (0.1047)	3.12 (0.1228)
2.68 (0.1055)	3.14 (0.1236)
2.70 (0.1063)	3.16 (0.1244)
2.72 (0.1071)	3.18 (0.1252)
2.74 (0.1079)	3.20 (0.1260)
2.76 (0.1087)	3.22 (0.1268)
2.78 (0.1094)	3.24 (0.1276)
2.80 (0.1102)	3.26 (0.1283)
2.82 (0.1110)	3.28 (0.1291)
2.84 (0.1118)	3.30 (0.1299)
2.86 (0.1126)	3.32 (0.1307)
2.88 (0.1134)	3.34 (0.1315)
2.90 (0.1142)	3.36 (0.1323)
2.92 (0.1150)	3.38 (0.1331)
2.94 (0.1157)	3.40 (0.1339)
2.96 (0.1165)	3.42 (0.1346)
2.98 (0.1173)	3.44 (0.1354)
3.00 (0.1181)	3.46 (0.1362)
3.02 (0.1189)	3.48 (0.1370)

- (e) Select a ring gear teeth side plate washer so that there is no clearance between the outer race and case.
- (f) Remove the plate washers and differential case.

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Install the plate washer into the ring gear back side of the (g) carrier.

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- (h) (i)
 - Place the other plate washer onto the differential case together with the outer race, and install the differential case with the outer race into the carrier.
 - Tap on the ring gear with a plastic hammer so that the washers fit to the bearing.
- F08257

(j) Using a dial indicator, while holding the companion flange measure the ring gear backlash.

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

If the backlash is not within the specified value, adjust it by either increasing or decreasing the thickness of 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.

- 11. ADJUST SIDE BEARING PRELOAD
- Remove the ring gear teeth side plate washer and using (a) a micrometer, measure the thickness.
- Using the backlash as a reference, install a new washer (b) 0.06 - 0.09 mm (0.0024 - 0.0035 in.) thicker than the washer removed.

HINT:

Select a washer which can be pressed in 2/3 of the way with your finger.

- (c) Using a plastic hammer, install the plate washer.
- (d) Align matchmarks on the bearing cap and differential carrier.
- (e) Tighten the 4 bolts. Torque: 85 N·m (870 kgf·cm, 63 ft·lbf)

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(f) Using a dial indicator, while holding the companion flange adjust the ring gear backlash until it is within the specified value.

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

If the backlash is not within the specified value, adjust by either increasing or decreasing the thickness of washers on both sides by an equal amount.

HINT:

The backlash will change by about 0.02 mm (0.0008 in.) corresponding to 0.03 mm (0.0012 in.) change in the plate washer.

12. MEASURE TOTAL PRELOAD

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

Total preload (at starting): Drive pinion preload plus

0.39 - 0.59 N·m (4 - 6 kgf·cm, 3.5 - 5.2 in.·lbf)

13. INSPECT TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION

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

If the teeth are not contacting properly, use the following table to select a proper washer for correction. Washer thickness:

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 (0.0822)
1.79 (0.0704)	2.12 (0.0835)
1.82 (0.0717)	2.15 (0.0847)
1.85 (0.0729)	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 (0.0918)

- 14. REMOVE COMPANION FLANGE (See page SA-81)
- 15. REMOVE OIL SLINGER
- 16. REMOVE FRONT BEARING (See page SA-81)
- 17. INSTALL BEARING SPACER

Install a new bearing spacer.

HINT:

Face the spacer with the large inner diameter to the rear side.

18. INSTALL FRONT BEARING AND OIL SLINGER

Using SST and a hammer, install a new oil seal.
 SST 09554-3001 1
 Oil seal drive in depth:

 $2.00 \pm 0.45 \text{ mm} (0.0797 \pm 0.0177)$

- 2.00 ± 0.45 mm (0.0787 ± 0.0177 in.)
- (b) Coat MP grease to the oil seal lip.

20. INSTALL COMPANION FLANGE

- (a) Using SST, install the companion flange.
 - SST 09950-30012 (09951-03010, 09953-03010, 09954-03010, 09955-03030, 09956-03020)
- (b) Coat the thread of a new nut with hypoid gear oil LSD.

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(c) Using SST to hold the flange, tighten the nut. SST 09330-00021

SA2352

ADJUST DRIVE PINION PRELOAD 21.

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

Preload (at starting):

New bearing:

0.98 - 1.57 N·m (10 - 16 kgf·cm, 8.7 - 13.9 in.-lbf) **Reused bearing:**

0.49 - 0.78 N·m (5 - 8 kgf·cm, 4.3 - 6.9 in. lbf)

If the preload is greater than the specified value, replace the bearing spacer.

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

SST 09330-00021

Torque: 338 N·m (3,443 kgf·cm, 249 ft·lbf) or less

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

- 22. RECHECK TOTAL PRELOAD (See page SA-81)
- 23. **RECHECK RING GEAR BACKLASH (See page SA-81**)
- 24. RECHECK TOOTH CONTACT BETWEEN RING GEAR AND DRIVE PINION (See step. 13)
- 25. **CHECK COMPANION FLANGE RUNOUT (See page SA-81**)

STAKE DRIVE PINION NUT 26.

Using a chisel and hammer, stake the nut.

27. **INSTALL SIDE GEAR SHAFT OIL SEALS**

(a) Using SST and a press, install 2 new oil seals. 09554-22010 SST

Oil seal drive in depth:

- 0 ± 0.50 mm (0 ± 0.0197 in.)
- Coat MP grease to the oil seal lip. (b)
- 28. **INSTALL SIDE GEAR SHAFTS**
- Using needle-nose pliers, install 2 new snap rings to the (a) side gear shafts.
- Coat the MP grease to the snap rings (b)

(c) Using SST and 2 bolts, install the side gear shaft to the differential carrier.

SST 09520-24010

NOTICE:

Be careful not to damage the side gear shaft oil seal. HINT:

- Before installing the side gear shaft, set the snap ring with it's opening side facing downward.
- Whether the side gear shaft is in contact with the side gear or not can be known from the sound or feeling when driving it.
- (d) Check that the side gear shaft will not come out by trying to pull it out by hand.
- (e) Employ the same manner described above to the other side.
- 29. REMOVE DIFFERENTIAL CARRIER FROM OVER-HAUL STAND, ETC.

30. INSPECT DIFFERENTIAL CARRIER

Using vernier calipers, measure the distance between the right and left side gear shafts, as shown in the illustration.

Standard distance: 279.7 mm (11.012 in.) or less 31. INSTALL DIFFERENTIAL CARRIER STRAIGHT PIN Using a plastic hammer, install the straight pin.

- 32. INSTALL DIFFERENTIAL CARRIER COVER
- (a) Install the oil deflector with the bolt to the carrier cover.Torque: 8.0 N-m (82 kgf-cm, 71 in.-lbf)
- (b) Install the breather plug to the carrier cover. Torque: 21 N·m (210 kgf-cm, 15 ft-lbf)
- (c) Remove any old FIPG material and be careful not to drop oil on the contact surfaces of the differential carrier and carrier cover.
- (d) Clean both installation surfaces of loose FIPG and oil material with gasoline or alcohol.

(e) Apply FIPG to the carrier cover, as shown in the illustration.

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

HINT:

- Allow on overlap of 10 mm (0.37 in.) or more between the start and end of FIPG application.
- Install the carrier cover within 3 minutes after applying FIPG.

(f) Install the differential carrier cover with the 8 bolts. Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

HINT:

Do not add oil or drive the vehicle immediately after installing the cover, and leave it as it is for an hour or more.

Also, for 12 hours or more, avoid rapid acceleration/deceleration.

SA1JG-05

INSTALLATION

1. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY

(a) Install the 2 upper mount stoppers on the rear differential carrier assembly.

HINT:

Use the upper mount stopper which was removed.

(b) Support the rear differential carrier assembly with a jack and temporally install the lower mount stoppers and 2 new front side set bolts.

NOTICE:

Do not let the rear differential carrier assembly interfere with the drive shaft.

(c) Using a 12 mm hexagon wrench, install the 3 rear side set hexagon bolts.

Torque: 142 N·m (1,450 kgf·cm, 105 ft·lbf) Torque the 2 front side set bolts.

- (d) Torque the 2 front side set bolts. Torque: 95 N-m (970 kgf-cm, 70 ft-lbf)
 (e) Lower the jack.
- 2. CONNECT RH AND LH DRIVE SHAFTS TO SIDE GEAR SHAFTS
- (a) Align the matchmarks, and connect the drive shaft to the side gear shaft.

NOTICE:

Be careful not to damage the boots and end cover.

- (b) Using a 8 mm hexagon wrench, install the 3 washers and 6 hexagon bolts, while applying the brakes.
 - Torque: 68 N·m (695 kgf·cm, 50 ft·lbf)
- (c) Employ the same manner described above to the other side.
- 3. INSTALL RH AND LH REAR SUSPENSION MEMBER BRACES

Torque: 50 N·m (510 kgf·cm, 37 ft·lbf)

- 4. INSTALL PROPELLER SHAFT (See page PR-10)
- 5. INSTALL EXHAUST PIPE ASSEMBLY

6. CONNECT STABILIZER BAR LINK TO STABILIZER BAR

Torque: 44 N·m (449 kgf·cm, 33 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

- 7. **CONNECT 2 STABILIZER BAR BRACKETS TO REAR** SUSPENSION MEMBER Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)
 - FILL AND CHECK DIFFERENTIAL OIL LEVEL
- 8. (See page SA-69)
- **INSTALL NO. 1 REAR FLOOR BOARD** 9.

SA-101

DIFFERENTIAL MOUNTING CUSHION COMPONENTS

REPLACEMENT

- 1. REMOVE REAR WHEELS
- 2. REMOVE REAR DIFFERENTIAL CARRIER AS-SEMBLY (See page SA-79)

- 3. DISCONNECT RH AND LH ABS SPEED SENSORS AND WIRE HARNESS
- (a) Remove the bolt and disconnect the ABS speed sensor from the rear axle carrier.
- (b) Remove the bolt and disconnect the ABS speed sensor wire harness clamp from the toe control link.
- (c) Employ the same manner described above to the other side.
- 4. REMOVE RH AND LH REAR FENDER APRON SEALS

REMOVE RH AND LH BRAKE CALIPERS

- (a) Remove the 2 bolts and brake caliper from the axle carrier.
- (b) Support the brake caliper securely.
- (c) Employ the same manner described above to the other side.

6. DISCONNECT HEIGHT CONTROL SENSOR LINK

Remove the nut and disconnect the height control sensor link from lower arm bracket.

N F07699

- 7. DISCONNECT RH AND LH SHOCK ABSORBERS FROM NO. 2 LOWER SUSPENSION ARMS
- (a) Remove the nut and bolt, and disconnect the shock absorber.
- (b) Employ the same manner described above to the other side.

8. REMOVE RH AND LH REAR SUSPENSION MEMBER LOWER BRACES

Remove the 8 bolts, 4 clips and 2 lower braces.

N F07701

9. DISCONNECT PARKING BRAKE CABLE

- (a) Disconnect the parking brake cable from the 4 clamps.
- (b) Remove the 2 bolts and disconnect the parking brake cable.

10. REMOVE REAR SUSPENSION MEMBER

- (a) Support the rear suspension member with a jack.
- (b) Remove the 8 bolts, 2 rear suspension member stoppers and 2 differential support member lower stoppers.
- (c) Lower the rear suspension member.
- (d) Remove the rear suspension member rear upper and lower stoppers from the rear suspension member.

11. REMOVE DIFFERENTIAL MOUNTING CUSHION

Using SST, remove the differential mounting cushion. SST 09316-12010, 09570-24010

NOTICE:

- When driving out the mounting cushion, be careful not to touch the suspension member with the SST.
- Align the SST straight so that the bolt of the SST is parallel with the center line of the mounting cushion.
- When installing the bolts to the RH and LH differential mounting cushions, make sure that the bolts are passed through the correct holes in the SST, as shown in the illustration.

12. INSTALL DIFFERENTIAL MOUNTING CUSHION Using SST, install the cushion so that the marks are positioned, as shown in the illustration.

SST 09570-24010

NOTICE:

- Be careful not to confuse RH and LH sides, and its top and bottom.
- Set the SST after temporarily installing the differential mounting cushion into the member so as not to install at an angle.
- To confirm that the differential mounting cushion is aligned straight in relation to the member, check that the SST is fully in contact with all of the cushion.
- 13. INSTALL REAR SUSPENSION MEMBER
- (a) Install the rear suspension member rear upper and lower stoppers to the rear suspension member.

(b) Install the 2 differential support member lower stopper, rear suspension member stopper with the 8 bolts.
 Torque:

A bolt: 127 N-m (1,300 kgf-cm, 94 ft-lbf) B bolt: 19 N-m (195 kgf-cm, 14 ft-lbf) Lower the jack.

- (c) Lower the jack.
 14. CONNECT PARKING BRAKE CABLE Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)
- 15. INSTALL RH AND LH REAR SUSPENSION MEMBER LOWER BRACES

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

16. CONNECT RH AND LH SHOCK ABSORBERS TO NO. 2 LOWER SUSPENSION ARMS Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)

SUSPENSION AND AXLE - DIFFERENTIAL MOUNTING CUSHION

- 17. CONNECT HEIGHT CONTROL SENSOR LINK
- (a) Set the lower arm to the vehicle height.
- (b) Install the sensor link to the lower arm bracket with a nut. Torque: 5.4 N-m (55 kgf-cm, 48 in.-lbf)

NOTICE:

- Be careful not to brake the link fixing pin until the above operation is completed.
- The pin can be broken after completion of the above, however, the sensor arm rotation angle shall not exceed the range of \pm 70° from the standard vehicle height.
- 18. INSTALL RH AND LH BRAKE CALIPERS TO STEER-ING KNUCKLES

Torque: 104 N·m (1,065 kgf·cm, 77 ft·lbf)

19. INSTALL RH AND LH REAR FENDER APRON SEALS

20. CONNECT RH AND LH ABS SPEED SENSORS AND WIRE HARNESS Torque: Bolt A: 8.0 N·m (82 kgf·cm, 71 in.·lbf)

Bolt B: 5.0 N·m (51 kgf·cm, 44 in.-lbf)

- 21. INSTALL REAR DIFFERENTIAL CARRIER ASSEMBLY (See page SA-99)
- 22. INSTALL REAR WHEELS Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 23. DEPRESS BRAKE PEDAL SEVERAL TIMES
- 24. CHECK REAR WHEEL ALIGNMENT (See page SA-9)
- 25. CHECK ABS SPEED SENSOR SIGNAL w/o VSC (See page DI-437) w/VSC (See page DI-507)
REAR SHOCK ABSORBER COMPONENTS



1778

SA28I-02



SA28J-01

- **REMOVAL** 1. REMOVE REAR WHEEL
- 2. SEDAN: REMOVE LUGGAGE COMPARTMENT TRIM SIDE COVER
- (a) Remove the luggage compartment trim No. 2 cover.



Remove the luggage compartment trim rear cover.
 Remove the 2 bolts and 2 luggage compartment floor hooks.



- (d) Remove the 4 screws and luggage compartment trim side cover.
- 3. WAGON: REMOVE DECK TRIM SIDE PANEL ASSEMBLY
- (a) Remove the rear seat cushion. (See page BO-204)
- (b) Remove the tonneau cover assembly.
- (c) Remove the bolt and rear seat belt assembly outer.
- (d) Remove the side seatback assembly. (See page BO-204)
- (e) Remove the seat board carpets.
- (f) Remove the 2 bolts and rear floor board No. 4.
- (g) Remove 2 bolts, 2 rope hook assemblies and deck floor box front.
- (h) Remove the rear floor board No. 2, No. 3 and deck board No. 2.
- (i) Remove the deck side trim box LH, RH and the spare wheel cover tray.



(k) Remove the 3 clips.

(I) Using a screwdriver, remove the rear floor finish plate. HINT:

Tape the screwdriver tip before use.

- (m) Remove the deck trim side panel assembly. (See page BO-164)
- 4. REMOVE NO. 2 LOWER SUSPENSION ARM (See page SA-34)



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5. REMOVE REAR SHOCK ABSORBER WITH COIL SPRING

(a) Loosen the nut in the center of the suspension support. **NOTICE:**

Do not remove it.

HINT:

If not disassembling the shock absorber, it is not necessary to loosen the nut.

- (b) Remove the 3 nuts from the body.
- (c) Remove the 2 bolts and shock absorber with the coil spring from the body.



SA0SK-07



DISASSEMBLY

REMOVE SUSPENSION SUPPORT AND COIL SPRING

(a) Using SST, compress the coil spring. SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

- (b) Remove the suspension support nut.
- (c) Remove the washer, cushion, suspension support, upper insulator, coil spring, collar, cushion and spring bumper.



INSPECTION INSPECT SHOCK ABSORBER

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

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

SA0SL-07

NOTICE:

When discarding the shock absorber, see DISPOSAL on page SA-115.

DISPOSAL

SA0SM-07



1. FULLY EXTEND SHOCK ABSORBER ROD

2. DRILL HOLE TO DISCHARGE GAS FROM CYLINDER Using a drill, make a hole in the cylinder as shown to discharge the gas inside.

CAUTION:

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

SA0SN-08



REASSEMBLY

INSTALL SUSPENSION SUPPORT AND COIL SPRING

(a) Using SST, compress the coil spring. SST 09727-30021 (09727-00010, 09727-00021,

09727-00031)

NOTICE:

Do not use an impact wrench. It will damage the SST.

(b) Install the coil spring to the shock absorber. HINT:

TIINT: Fit the lowe

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

(c) Install the spring bumper, cushion, collar, upper insulator, suspension support, cushion and washer to the shock absorber and temporarily tighten a new nut.



- (d) Rotate the suspension support, as shown in the illustration.
- (e) Remove the SST.

SST 09727-30021 (09727-00010, 09727-00021, 09727-00031)

HINT:

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

INSTALLATION

- 1. INSTALL REAR SHOCK ABSORBER WITH COIL SPRING
- (a) Install the suspension support to the body with the 3 nuts.
 Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)
- (b) Connect the shock absorber with coil spring to the body with the 2 bolts. **Torque: 18 N-m (185 kgf-cm, 13 ft-lbf)**
- (c) Torque the nut in the center of the suspension support.Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)

HINT:

If the shock absorber has not been disassembled, it is not necessary to torque the nut.

- 2. INSTALL NO. 2 LOWER SUSPENSION ARM (See page SA-125)
- 3. SEDAN: INSTALL LUGGAGE COMPARTMENT TRIM SIDE COVER
- (a) Install the 4 screws and luggage compartment trim side cover.
- (b) Install the 2 bolts and 2 luggage compartment floor hooks.
- (c) Install the luggage compartment trim rear cover and luggage compartment trim No. 2 cover.
- 4. WAGON: INSTALL DECK TRIM SIDE PANEL ASSEMBLY
- (a) Install the deck trim side panel assembly. (See page BO-169)
- (b) Install the rear floor finish plate with 3 clips.
- (c) Install the 2 rope hook assemblies and 2 bolts.
- (d) Install the deck side trim box LH, RH and the spare wheel cover tray.
- (e) Install the rear floor board No. 2, No. 3 and deck board No. 2.
- (f) Install the 2 bolts, 2 rope hook assemblies and deck floor box front.
- (g) Install the rear floor board No. 4 with 2 bolts.
- (h) Install the seat board carpets.
- (i) Install the side seatback assembly. (See page BO-210)
- (j) Install the rear seat belt assembly outer with the bolt.
- (k) Install the tonneau cover assembly.
- (I) Install the rear seat cushion. (See page BO-210)
- 5. INSTALL REAR WHEEL

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

6. CHECK REAR WHEEL ALIGNMENT (See page SA-9)

SA0SO-08

REAR UPPER SUSPENSION ARM COMPONENTS



SA-119

REMOVAL

- 1. REMOVE REAR WHEEL
- 2. REMOVE DRIVE SHAFT (See page SA-59)
- 3. REMOVE UPPER SUSPENSION ARM
- (a) Remove the nut.



(b) Using SST, disconnect the upper suspension arm from the axle carrier.

SST 09628-6201 1

(c) Support the axle carrier securely.

(d) Remove the 2 nuts, washers, bolts and upper suspension arm from the body.



SA0SR-08

INSPECTION

1. INSPECT UPPER SUSPENSION ARM BALL JOINT BOOT FOR DAMAGE



- 2. INSPECT UPPER SUSPENSION ARM BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using torque wrench, turn the nut continuously 1 turn per 2 4 seconds and take the torque reading on the 5th turn.Turning torque:

1.0 - 2.9 N·m (10 - 30 kgf·cm, 9 - 26 in.·lbf)

SA1JK-05



INSTALLATION

1. INSTALL UPPER SUSPENSION ARM

 (a) Install the upper suspension arm to the body with the 2 bolts, washers and 2 nuts.
 Torque: Nut A: 88 N·m (900 kgf·cm, 65 ft·lbf)

Nut B: 74 N·m (755 kgf·cm, 55 ft·lbf)

HINT:

After stabilizing the suspension arm, torque the nut.

(b) Connect the upper suspension arm to the axle carrier with a new nut.

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

- 2. INSTALL DRIVE SHAFT (See page SA-66)
- 3. INSTALL REAR WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 4. CHECK REAR WHEEL ALIGNMENT (See page SA-9)
- 5. CHECK ABS SPEED SENSOR SIGNAL w/ VSC (See page DI-507) w/o VSC (See page DI-437)

REAR LOWER SUSPENSION ARM COMPONENTS

SA0ST-08



SA20N-03

- REMOVAL
- **REMOVE REAR WHEEL** 1.
- 2. **REMOVE REAR FENDER APRON SEAL**



DISCONNECT HEIGHT CONTROL SENSOR LINK 3. Remove the nut and disconnect the height control sensor link from lower arm bracket.

- F08223
- 4. **REMOVE NO. 1 LOWER SUSPENSION ARM** Remove the 2 bolts, nuts, and No. 1 lower suspension arm.

F08224 N





- 5. **REMOVE NO. 2 LOWER SUSPENSION ARM**
- Remove the nut, bolt and bracket, and disconnect the sta-(a) bilizer bar link from the No. 2 lower suspension arm.
- (b) Remove the bolt and nut, and disconnect the shock absorber from the No. 2 lower suspension arm.
- Place matchmarks on the cam bolt and No. 2 lower sus-(c) pension arm.
- Remove the nut, cam plate and cam bolt, and disconnect (d) the axle carrier.

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(e) Remove the nut, washer, bolt and No. 2 lower suspension arm from the rear suspension member.

SA20O-03

INSTALLATION

1. INSTALL NO. 2 LOWER SUSPENSION ARM

(a) Install the No. 2 lower suspension arm to the rear suspension member with bolt, washer and nut.

Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)

HINT:

After stabilizing the suspension, torque the nut.

(b) Connect the No. 2 lower suspension arm to the axle carrier with the cam bolt, cam plate and nut.

Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf)

HINT:

After stabilizing the suspension, align the matchmarks on the cam bolt and No. 2 lower suspension arm, and torque the nut.

(c) Connect the shock absorber to the No. 2 lower suspension arm with the bolt and nut.

Torque: 110 N·m (1,120 kgf·cm, 81 ft·lbf) HINT:

After stabilizing the suspension, torque the nut.

- (d) Connect the stabilizer bar link to the No. 2 lower suspension arm with the bracket, bolt and nut.
 - Torque: 30 N·m (305 kgf·cm, 22 ft·lbf)
- 2. INSTALL NO. 1 LOWER SUSPENSION ARM

Install the No. 1 lower suspension arm with the 2 bolts and nuts. Torque: 75 N·m (765 kgf·cm, 55 ft·lbf)

HINT:

After stabilizing the suspension, torque the bolt.

3. CONNECT HEIGHT CONTROL SENSOR LINK

- (a) Set the lower arm to the vehicle height.
- (b) Install the sensor link to the lower arm bracket with a nut. Torque: 5.4 N-m (55 kgf-cm, 48 in.-lbf)

NOTICE:

- Be careful not to brake the link fixing pin until the above operation is completed.
- The pin can be broken after completion of the above, however, the sensor arm rotation angle shall not exceed the range of \pm 70° from the standard vehicle height.
- 4. INSTALL REAR FENDER APRON SEAL
- 5. INSTALL REAR WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 6. CHECK REAR WHEEL ALIGNMENT (See page SA-9)
- CHECK ABS SPEED SENSOR SIGNAL w/ VSC (See page DI-507) w/o VSC (See page DI-437)





TOE CONTROL LINK COMPONENTS



SA0SW-07

REMOVAL

- 1. REMOVE REAR WHEEL
- 2. REMOVE REAR FENDER APRON SEAL
- 3. DISCONNECT ABS SPEED SENSOR WIRE HARNESS FROM TOE CONTROL LINK

Remove the bolt and disconnect the ABS speed sensor wire harness.

- 4. REMOVE TOE CONTROL LINK
- (a) Remove the nut.
- (b) Using SST, disconnect the toe control link from the axle carrier.

SST 09610-20012

- (c) Place matchmarks on the cam plate and rear suspension member.
- (d) Remove the nut, cam plate, cam bolt, toe control link piece and toe control link from the axle carrier.





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SA0SX-07

SA0SY-07

INSPECTION

1. INSPECT TOE CONTROL LINK BALL JOINT BOOT FOR DAMAGE



- 2. INSPECT TOE CONTROL LINK BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously 1 turn per 2 - 4 seconds and take the torque reading on the 5th turn.

Turning torque:

1.0 - 2.5 N·m (10 - 25 kgf·cm, 9 - 22 in.-lbf)

SA1JN-05



INSTALLATION

1. INSTALL TOE CONTROL LINK

Install the toe control link, toe control link piece to the rear suspension member with the cam bolt, cam plate and nut.
 Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

HINT:

After stabilizing the suspension arm, align the matchmarks on the cam plate and rear suspension member, and torque the nut.

(b) Connect the toe control link to the axle carrier with a new nut.

Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

- 2. CONNECT ABS SPEED SENSOR WIRE HARNESS TO TOE CONTROL LINK Torque: 5.0 N·m (51 kgf·cm, 44 in.·lbf)
- 3. INSTALL REAR FENDER APRON SEAL
- 4. INSTALL REAR WHEEL
- Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf) 5. CHECK REAR WHEEL ALIGNMENT (See page SA-9)

REAR STABILIZER BAR COMPONENTS



SA0T0-08

SA1JO-04



REMOVAL

1. REMOVE STABILIZER BAR

(a) Remove the 4 nuts, 2 bolts and stabilizer bar links. HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.

- (b) Remove the 4 bolts and stabilizer bar.
- 2. REMOVE 2 BRACKETS AND BUSHINGS FROM STA-BILIZER BAR

SA0T2-07

INSPECTION

1. INSPECT STABILIZER BAR LINK BALL JOINT BOOT FOR DAMAGE



- 2. INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTATION CONDITION
- (a) As shown in the illustration, flip the ball joint stud back and forth 5 times, before installing the nut.
- (b) Using a torque wrench, turn the nut continuously 1 turn per 2 4 seconds and take the torque reading on the 5th turn.

Turning torque:

0.05 - 1.0 N·m (0.5 - 10 kgf·cm, 0.4 - 9.0 in.-lbf)







INSTALLATION

1. INSTALL 2 BUSHINGS AND BRACKETS TO STABILIZ-ER BAR

HINT:

- Install the bushing to the outside of the paint line on the stabilizer bar.
- Install the bushing to the stabilizer bar so that the cutout of the bushing faces the rear of the vehicle, as shown in the illustration.

2. INSTALL STABILIZER BAR

- (a) Install the stabilizer bar to the body with the 4 bolts.
 Torque: 18 N·m (185 kgf·cm, 13 ft·lbf)
- (b) Install the 2 stabilizer bar links with the 2 bolts and 4 nuts. **Torque:**

Bolt: 30 N·m (305 kgf·cm, 22 ft·lbf) Nut: 65 N·m (663 kgf·cm, 48 ft·lbf)

HINT:

If the ball joint turns together with the nut, use a hexagon wrench (5 mm) to hold the stud.