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	Suspected Area	Seepage
	14. Tire (Worn or improperly inflated)	SA–2
	15.Wheel alignment (Incorrect)	SA–4
		SA-7
Wander/eulle	16.Steering linkage (Loose or worn)	-
wander/puils	17.Hub bearing (Worn)	SA–9
		SA-33
	18. Steering gear (Out of adjustment or broken)	SR-32
	19.Suspension parts (Worn)	-
	1. Vehicle (Overloaded)	-
	2. Spring (Weak)	SA-15
Bottoming		SA-50
	3. Shock absorber (Worn)	SA-18
		SA-53
	1. Tire (Worn or improperly inflated)	SA–2
	2. Stabilizer bar (Bent or broken)	SA-28
Sways/pitches		SA-61
	3. Shock absorber (Worn)	SA-18
		SA-53
	1. Tire (Worn or improperly inflated)	SA–2
	2. Wheel (Out of balance)	SA–2
	3. Shock absorber (Worn)	SA–18
Front wheel shimmy	4. Wheel alignment (Incorrect)	SA–4
From wheel shimming	5. Ball joint (Worn)	SA-25
	6. Hub bearing (Worn)	SA–9
	7. Steering linkage (Loose or worn)	-
	8. Steering gear (Out of adjustment or broken)	SR-32
	1. Tire (Worn or improperly inflated)	SA–2
	2. Wheel alignment (Incorrect)	SA–4
Abnormal tire wear	3. Shock absorber (Worn)	SA-18
		SA-53
	4. Suspension parts (Worn)	-

SA0CB-06

TIRE AND WHEEL

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1. INSPECT TIRE
```

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

SA1SU-01

Tire size	Front kPa (kgf/cm ² , psi)	Rear kPa (kgf/cm ² , psi)
185/55R1581V	180 (1.8, 26)	-
205/50R1585V	-	220 (2.2, 32)



(b) Using a dial indicator, check the tire runout. **Tire runout: 1.0 mm (0.039 in.) or less**





2. 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

3. CHECK WHEEL BEARING LOOSENESS

(a) Using a dial indicator, check the backlash near the center of the axle hub.

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: 0.07 mm (0.0028 in.)

- If the deviation exceeds the maximum, replace the axle hub.
- 4. CHECK FRONT SUSPENSION FOR LOOSENESS

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





FRONT WHEEL ALIGNMENT INSPECTION

SA1CK-09

1. MEASURE VEHICLE HEIGHT

Vehicle height:

Front*1	204 mm (8.03 in.)
Rear*2	270 mm (10.63 in.)

*¹: Front measuring point

Measure the distance from the ground to the center of the front side lower suspension arm mounting bolt.

*2: Rear measuring point

Measure the distance from the ground to the center of the front side strut rod mounting bolt.

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.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION

Camber, caster and steering axis inclination:

Camber		$-0^{\circ}47' \pm 45' (-0.78^{\circ} \pm 0.75^{\circ})$
	Right-left error	45' (0.75°) or less
Caster		3°08' ± 45' (3.13° ± 0.75°)
	Right-left error	45' (0.75°) or less
Steering axis inclination		14°52' ± 45' (14.87° ± 0.75°)
	Right-left error	45' (0.75°) 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 NOTICE:

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

(a) Remove the front wheel.







- (b) Remove the 2 nuts on the lower side of the shock absorber.
- (c) Coat the threads of the nuts with engine oil.
- (d) Temporarily install the 2 nuts.

- (e) Adjust the camber by pushing or pulling the lower side of the shock absorber in the direction in which the camber adjustment is required.
- (f) Tighten the nuts.
 Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf)
 (g) Install the front wheel.

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

(h) Check the camber.

HINT:

• Try to adjust the camber to the center of the specified value.

• Adjusting value for the set bolts is $6' - 30' (0.1^{\circ} - 0.5^{\circ})$. If the camber is not within the specified value, using the following table, estimate how much additional camber adjustment will be required, and select the camber adjusting bolt. **NOTICE:**

Tighten the adjusting bolt with a washer and a new nut.

	Bolt	Set	Bolt		Adjust	ing Bolt	
		90105	-14140	90105	-14146	90105	-14147
	\backslash			1 [Dot	2 C	Oots
		C		¢		¢	1)
	Adjusting Value	1	2	1	2	1	2
	15'	•			•		
	30'	•					•
	45'			•			•
	1°00'					•	•
N							F11783

(i) Do the steps mentioned above again. Between step (b) and (c), replace 1 or 2 selected bolts.

HINT:

When replacing the 2 bolts, replace 1 bolt for each time.





5. INSPECT TOE-IN Toe-in:

Toe-in	A + B: 0°09' ± 12' (0.15° ± 0.2°)
(total)	C – D: 1.5 ± 2 mm (0.06 ± 0.08 in.)

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

6. ADJUST TOE-IN

- (a) Remove the rack boot set 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 the same.

Rack end length difference: 1.5 mm (0.059 in.) or less

(e) Torque the tie rod end lock nuts.Torque: 47 N·m (479 kgf·cm, 35 ft·lbf)

(f) Place the boots on the seats and install the clips. HINT:

Make sure that the boots are not twisted.

7. INSPECT WHEEL ANGLE

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

Inside wheel	38°03' ± 2° (38.05° ± 2°)
Outside wheel: Reference	32°56' (32.93°)
	02 00 (02.00)

If the right and left inside wheel angles differ from the specified value, check the right and left rack end lengths.

REAR WHEEL ALIGNMENT INSPECTION

SA1SV-01

SA-7

- 1. MEASURE VEHICLE HEIGHT (See page SA-4)
- 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:

Camber	-1°05' ± 45' (-1.08° ± 0.75°)
Right-lefterror	45' (0.75°) or less

If the camber is not within the specified value, inspect the suspension parts for damage and/or wear and replace them if necessary because camber is not adjustable.



4. INSPECT TOE-IN Toe-in:

Toe–in	A + B: 0°18' ± 12' (0.3° ± 0.2°)
(total)	$C - D: 3 \pm 2 \text{ mm} (0.12 \pm 0.08 \text{ in.})$

If the toe-in is not within the specified value, adjust it at the adjusting cam.

- (a) Loosen the lower arm adjusting cam set nut.
- (b) Adjust the toe-in by turning the adjusting cam. **Right-left error: 0.3 mm (0.012 in.) or less**

HINT:

F11372

- Try to adjust the toe-in to the center of the specified value.
- Control value toe changes about 1.7 mm per 1 scale.
- (c) Torque the lower arm adjusting cam set nut.
 Torque: 87 N-m (887 kgf-cm, 64 ft-lbf)

FRONT AXLE HUB COMPONENTS

109 (1,112, 80) ABS Speed Sensor Connector 140(1,430,103) **Brake Caliper** Steering Knuckle 56(571,41) 49 (500, 36) **Dust Cover** ♦ Cotter Pin Axle Hub Assembly Disc 98 (1,000, 72) Cotter Pin X ♦ ABS Speed Sensor Lower Suspension Arm Tie Rod End Axle Hub N·m (kgf·cm, ft·lbf) : Specified torque Non-reusable part F11355

SA07B-07

1.

2. (a)

REMOVAL

SA1SW-01





REMOVE FRONT WHEEL

- Backlash Deviation
- b) Support the brake caliper securely.

REMOVE BRAKE CALIPER AND DISC

Remove the 2 bolts, brake caliper and disc.

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

- 3. CHECK BEARING BACKLASH AND AXLE HUB DEVI-ATION
- (a) Using a dial indicator, check the backlash near the center of the axle hub.

Maximum: 0.05 mm (0.0020 in.)

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

(b) 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.

4. DISCONNECT ABS SPEED SENSOR CONNECTOR



5. REMOVE FRONT AXLE HUB

Remove the 4 bolts, axle hub assembly and dust cover. Torque: 56 N·m (571 kgf·cm, 41 ft·lbf)





Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf) HINT:

Don't remove the 2 bolts and 2 nuts.



7. DISCONNECT LOWER SUSPENSION ARM

(a) Remove the cotter pin and nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf) HINT:

At the time of installation, please refer to the following items.

- After stabilizing the suspension, torque the nut.
- If the holes for a new cotter pin are not aligned tighten the nut further up to 60°.
- (b) Using SST, disconnect the lower suspension arm. SST 09628–62011







(a) Remove the cotter pin and nut. **Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)**

HINT:

At the time of installation, if the holes for a new cotter pin are not aligned, tighten the nut further up to 60° .

- P F11155
- (b) Using SST, disconnect the tie rod end. SST 09610–20012
- 9. REMOVE STEERING KNUCKLE
- (a) Remove the 2 bolts, 2 nuts on the lower side of the shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.(b) Remove the steering knuckle.

DISASSEMBLY

REMOVE ABS SPEED SENSOR

- (a) Using a pin punch and hammer, drive out the 2 pins, and remove the 2 attachments from SST.
 - SST 09520-00031 (09520-00040, 09521-00020)



(b) Mount the axle hub assembly in a soft jaw vise. **NOTICE:**

Replace the axle hub assembly if it is dropped or a strong shock is given to it.

- (c) Using SST and 2 bolts (Diameter: 12 mm, Pitch: 1.5 mm), remove the ABS speed sensor.
 - SST 09520–00031 (09520–00040, 09521–00020), 09950–00020

NOTICE:

- Do not allow any foreign matter to stick to the sensor rotor.
- Pull out the ABS speed sensor straightly not to damage the sensor rotor.
- If the sensor rotor is damaged, replace the axle hub assembly.
- Do not scratch the contacting surface of the axle hub and speed sensor.

SA1SX-01

REASSEMBLY

INSTALL NEW ABS SPEED SENSOR

(a) Clean the contacting surface of the axle hub and a new ABS speed sensor.

SA1SY-01

NOTICE:

Do not allow any foreign matter to stick to the sensor rotor.

- (b) Place the ABS speed sensor on the axle hub so that the connector is set at the bottom under the on-vehicle condition.
- (c) Using SST and a press, install a new ABS speed sensor to the axle hub.
 - SST 09527-10011, 09710-04101,

09950-60020 (09951-00680)

NOTICE:

- Do not tap the speed sensor with a hammer directly.
- Check that there should be no foreign matter on the speed sensor detection portion.
- Press in the ABS speed sensor straightly and slowly.



INSTALLATION

Installation is in the reverse order of removal (See page SA-9).

HINT:

After installation, check the ABS speed sensor signal (See page DI–163) and front wheel alignment (See page SA–4).

SA07F-06

FRONT WHEEL HUB BOLT REPLACEMENT 1. REMOVE FRONT WHEEL





2. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.



3. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628-10011



4. INSTALL HUB BOLT

- (a) Install a washer and a nut to a new hub bolt as shown in the illustration.
- (b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.
- (c) Remove the 3 nuts and washer.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc and brake caliper with the 2 bolts.

Torque: 109 N·m (1,112 kgf·cm, 80 ft·lbf)
6. INSTALL FRONT WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

FRONT SHOCK ABSORBER COMPONENTS

SA10J-04

SA-15



SA1SZ-01

- REMOVAL 1. REMOVE FRONT WHEEL
 - Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)



2. DISCONNECT ABS SPEED SENSOR WIRE HARNESS CLAMP FROM SHOCK ABSORBER

Remove the bolt, nut and disconnect the ABS speed sensor wire harness clamp.

- Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)
- 3. DISCONNECT FLEXIBLE HOSE

Remove the bolt and disconnect the flexible hose from the shock absorber bracket.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)

4. REMOVE SHOCK ABSORBER WITH COIL SPRING

(a) Loosen the 2 nuts on the lower side of shock absorber. **Torque: 140 N·m (1,430 kgf·cm, 103 ft·lbf)**

HINT:

11162

Don't remove the 2 bolts and 2 nuts.



- (b) Remove the 3 nuts on the upper side of the shock absorber.
 - Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)
- (c) Remove the No. 1 suspension support.
- (d) Remove the 2 nuts and 2 bolts on the lower side of shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.

(e) Remove the shock absorber with coil spring.

SA0CS-06





DISASSEMBLY

REMOVE 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 cap.
- (c) Using a screwdriver to hold the spring seat, remove the nut.

HINT:

Tape the screwdriver before use.

NOTICE:

Be careful not to damage the spring seat.

(d) Remove the suspension support, dust seal, spring seat, upper insulator, coil spring and spring bumper.

SA0CT-06



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.

NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA-19.

DISPOSAL

SA0L8-06



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 in the illustration to discharge the gas inside. CAUTION:
 - When drilling, chips may fly out, work carefully.
 - The gas is colorless, odorless and non-poisonous.

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 lower seat.

(c) Install the upper insulator.

(d) Install the spring seat to the shock absorber. HINT:

Align the piston rod notch and the spring seat hole.

(e) Install the dust seal and suspension support.





(f) Using a screwdriver to hold the suspension support, install a new nut.

Torque: 51 N·m (520 kgf·cm, 38 ft·lbf)

HINT:

Tape the screwdriver before use.

NOTICE:

Be careful not to damage the spring seat.

- (g) Remove the SST.
 - SST 09727–30021 (09727–00010, 09727–00021, 09727–00031)
- (h) Apply MP grease into the suspension support.
- (i) Install the cap.

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

INSTALLATION

Installation is in the reverse order of removal (See page SA-16). HINT:

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

SA10P-03

FRONT LOWER SUSPENSION ARM COMPONENTS

SA1OR-03



SA1TC-01

REMOVAL 1. REMOVE FRONT WHEEL





(a) Remove the nut, and disconnect the stabilizer bar link from the stabilizer bar.

HINT:

F11149

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

(b) Remove the nut, stabilizer bar link, 3 retainers and 2 cushions.

3. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.
- 4. DISCONNECT ABS SPEED SENSOR CONNECTOR





Remove the 4 bolts, axle hub assembly and dust cover.



6. DISCONNECT LOWER SUSPENSION ARM FROM STEERING KNUCKLE

(a) Remove the cotter pin and nut.



 (b) Using SST, disconnect the lower suspension arm from the steering knuckle.
 SST 09628–62011



7. REMOVE LOWER SUSPENSION ARM

Remove the 4 bolts, nut, suspension member brace and front lower suspension arm.

NOTICE:

Don't turn the nut.

INSPECTION

- SA1L3-02
- 1. INSPECT LOWER SUSPENSION ARM BALL JOINT BOOT FOR DAMAGE



- 2. INSPECT LOWER 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 at a rate of 2 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.59 - 3.43 N·m (6 - 35 kgf·cm, 5.2 - 30 in.-lbf)





INSTALLATION

1. INSTALL LOWER SUSPENSION ARM

 (a) If use a new lower suspension arm, install a new washer. Using SST, a wooden block and a press, press in a new washer to a new lower suspension arm.

SA1TD-01

Standard distance C	0.8 ± 0.2 mm (0.031 ± 0.008 in.)
Difference (A – B)	0 – 1.5 mm (0 – 0.059 in.)
	710 05061)

- SST 09710-26011 (09710-05061)
- (b) Temporarily install the lower suspension arm and suspension member brace with the 4 bolts and nut.

HINT:

After stabilizing the suspension, torque the bolts.

- (c) Tighten the bolt A.
 - Torque: 73 N·m (745 kgf·cm, 54 ft·lbf)
- (d) Tighten the bolt B.
 Torque: 87 N-m (887 kgf-cm, 64 ft-lbf)
 NOTICE:

Don't turn the nut.

(e) Tighten the 2 bolts C.Torque: 75 N·m (765 kgf·cm, 55 ft·lbf)



- 2. CONNECT LOWER SUSPENSION ARM TO STEERING KNUCKLE
- (a) Connect the lower suspension arm to the steering knuckle with the nut.

HINT:

After stabilizing the suspension, torque the nut.

Torque: 98 N·m (1,000 kgf·cm, 72 ft·lbf)

(b) Install a new cotter pin.

HINT:

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



- **INSTALL FRONT AXLE HUB** 3. Install the dust cover and axle hub with the 4 bolts. Torque: 56 N·m (571 kgf·cm, 41 ft·lbf)
- CONNECT ABS SPEED SENSOR CONNECTOR 4.



INSTALL DISC AND BRAKE CALIPER 5. Install the disc and brake caliper with the 2 bolts.

Torque: 109 N·m (1,112 kgf·cm, 80 ft·lbf)

6. **INSTALL STABILIZER BAR LINK**

- Install the stabilizer bar link, 3 retainers and 2 cushions to (a) the lower suspension arm with the nut. Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)
- (b) Connect the stabilizer bar link to the stabilizer bar with the nut.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

HINT:

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

7. **INSTALL FRONT WHEEL** Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

FRONT STABILIZER BAR COMPONENTS

SA10H-04



REMOVAL

SA10I-04

1. REMOVE RH OR LH SIDE FRONT WHEEL Torque: 103 N·m (1,050 kgf-cm, 76 ft-lbf)



2. REMOVE STABILIZER BAR LINKS

(a) Remove the nut, and disconnect the stabilizer bar link from the stabilizer bar.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

HINT:

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

(b) Remove the nut, stabilizer bar link, 3 retainers and 2 cushions.

Torque: 18 N·m (184 kgf·cm, 13 ft·lbf)

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



3. REMOVE STABILIZER BAR

(a) Remove the 2 bolts, bracket and bushing.Torque: 30 N·m (306 kgf·cm, 22 ft·lbf)

HINT:

At the time of installation, please refer to the following items.

- Install the bushing so that the cutout will face to the rear.
- The distance between the bushings is 832 mm.
- (b) Employ the same manner described above to the other side.
- (c) Remove the stabilizer bar.

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INSPECTION



INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTA-TION 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 at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

INSTALLATION

Installation is in the reverse order of removal (See page SA-29). HINT:

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

REAR AXLE CARRIER COMPONENTS

Rear Shock Absorber 8.0 (82, 71 in.-lbf) Drive Shaft 173(1,765,128) ABS Speed Sensor 5.0 (51, 44 in.-lbf) Wire Harness Clamp Axle Carrier with Axle Hub 59 (602, 44) 111 78 (796, 58) No. 2 Lower Suspension Arm 49 (500, 36) **Brake Caliper** 103(1,051,76) Strut Rod No. 1 Lower Suspension Arm Disc Lock Nut 216 (2,200, 159) Snap Ring Bearing Axle Carrier **Dust Cover** N·m (kgf·cm, ft·lbf) : Specified torque Axle Hub ♦ Non-reusable part F11358

SA1P7-02

REMOVAL

1.

SA1T1-01

- F09417
 - 2. CHECK BEARING BACKLASH AND AXLE HUB DEVI-ATION
 - (a) Remove the 2 bolts, brake caliper and disc.

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

(b) Support the brake caliper securely.

REMOVE REAR WHEEL

Backlash Deviation ((



(c) Using a dial indicator, check the backlash near the center of the axle hub.

Maximum: 0.05 mm (0.0020 in.)

If the backlash exceeds the maximum, replace the bearing.

(d) 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.

- (e) Install the disc and brake caliper with the 2 bolts.
- Torque: 59 N·m (602 kgf·cm, 44 ft·lbf) 3. REMOVE DRIVE SHAFT LOCK NUT
- (a) Using SST and a hammer, unstake the staked part of the lock nut.

SST 09930-00010

(b) While applying the brakes, remove the nut. Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)

HINT:

At the time of installation, use a new lock nut.

- 4. REMOVE BRAKE CALIPER AND DISC
- (a) Remove the 2 bolts, brake caliper and disc.Torque: 59 N·m (602 kgf·cm, 44 ft·lbf)
- (b) Support the brake caliper securely.

SUSPENSION AND AXLE - REAR AXLE CARRIER

5.



REMOVE ABS SPEED SENSOR

- (a) Remove the bolt and ABS speed sensor from the axle carrier.
 - Torque: 8.0 N·m (82 kgf·cm, 71 in.·lbf)
- (b) Remove the bolt, and disconnect the wire harness clamp from the axle carrier.
 Torque: 5.0 N·m (51 kgf·cm, 44 in.-lbf)



6. LOOSEN 2 NUTS ON LOWER SIDE OF SHOCK AB-SORBER

Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.

F0948

7. DISCONNECT STRUT ROD

Remove the bolt and nut, and disconnect the strut rod from the rear axle carrier.

Torque: 78 N·m (796 kgf·cm, 58 ft·lbf) NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

8. DISCONNECT NO. 1 LOWER SUSPENSION ARM

Remove the bolt and nut, and disconnect the No. 1 lower suspension arm from the rear axle carrier.

Torque: 103 N·m (1,051 kgf·cm, 76 ft-lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

9. DISCONNECT NO. 2 LOWER SUSPENSION ARM

(a) Remove the nut.

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

HINT:

At the time of installation, please refer to the following items.

- Use a new nut.
- After stabilizing the suspension, torque the nut.



 (b) Using SST, disconnect the No. 2 lower suspension arm from the rear axle carrier.
 SST 09610–20012



10. DISCONNECT DRIVE SHAFT

Using a plastic hammer, disconnect the drive shaft from the axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.

11. REMOVE AXLE CARRIER WITH AXLE HUB

(a) Remove the 2 bolts, 2 nuts and 4 washers on the lower side of the shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.(b) Remove the axle carrier with axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.



DISASSEMBLY

1. REMOVE AXLE HUB

- (a) Using SST, remove the axle hub. SST 09520-00031 (09520-00040, 09521-00010,
 - 09521-00020)
- SST F02694



- (b) Using SST and a press, remove the inner race (outside) from the axle hub.
 - SST 09950-00020, 09950-60010 (09951-00380), 09950-70010 (09951-07150)

2. REMOVE DUST COVER

Remove the 3 bolts and dust cover.

3. REMOVE BEARING FROM AXLE CARRIER

- (a) Using snap ring pliers, remove the snap ring.
- (b) Place the inner race on the outside of the bearing.
- (c) Using SST and a press, remove the bearing. SST 09310–35010, 09527–17011

SA1T3-01



REASSEMBLY

1. INSTALL BEARING

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

SST 09950-60020 (09951-00730), 09950-70010 (09951-07150)

(b) Using snap ring pliers, install a new snap ring.

2. INSTALL DUST COVER

Install the dust cover with the 3 bolts.

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



3. INSTALL AXLE HUB

Using SST and a press, install the axle hub.

SST 09608–32010, 09950–60010 (09951–00550) 09950–70010 (09951–07150)

INSTALLATION

SA1PA-02

Installation is in the reverse order of removal (See page SA-33).

HINT:

After installation, check the ABS speed sensor signal (See page DI–163) and rear wheel alignment (See page SA–7).

REAR WHEEL HUB BOLT REPLACEMENT 1. REMOVE REAR WHEEL



F09417

. REMOVE BRAKE CALIPER AND DISC

- (a) Remove the 2 bolts, brake caliper and disc.
- (b) Support the brake caliper securely.



3. REMOVE HUB BOLT

Using SST, 2 nuts and a screwdriver or an equivalent, remove the hub bolt.

SST 09628-10011



4. INSTALL HUB BOLT

- (a) Install a washer and nut to a new hub bolt as shown in the illustration.
- (b) Using a screwdriver or an equivalent to hold, install the hub bolt by torquing the nut.
- (c) Remove the 3 nuts and washer.

5. INSTALL DISC AND BRAKE CALIPER

Install the disc and brake caliper with the 2 bolts.

Torque: 59 N·m (602 kgf·cm, 44 ft·lbf) 6. INSTALL REAR WHEEL

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

SA1PB-02

REAR DRIVE SHAFT COMPONENTS



SA0JX-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.

Therefore, if it is absolutely necessary to place the vehicle weight on the hub bearing, first support it with the 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 serrations on the drive shaft.
- 1. REMOVE REAR WHEEL Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
- 2. REMOVE ENGINE UNDER COVERS
- 3. DRAIN GEAR OIL



4. REMOVE DRIVE SHAFT LOCK NUT

(a) Using SST and a hammer, unstake the staked part of the lock nut.

SST 09930-00010

(b) While applying the brakes, remove the nut. Torque: 216 N·m (2,200 kgf·cm, 159 ft·lbf)

HINT:

At the time of installation, use a new lock nut.



Remove the bolt, and disconnect the flexible hose from the shock absorber.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)





6. LOOSEN 2 NUTS ON LOWER SIDE OF SHOCK AB-SORBER

Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf) HINT:

Don't remove the 2 bolts and 2 nuts.

SA1T4-01



DISCONNECT STRUT ROD

Remove the bolt and nut, and disconnect the strut rod from the rear axle carrier.

Torque: 78 N·m (796 kgf·cm, 58 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

7.

At the time of installation, after stabilizing the suspension, torque the bolt.

8. DISCONNECT NO. 1 LOWER SUSPENSION ARM

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

Torque: 103 N·m (1,051 kgf·cm, 76 ft·lbf)

NOTICE:

Don't turn the nut.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolt.

9. DISCONNECT NO. 2 LOWER SUSPENSION ARM

(a) Remove the nut.

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

HINT:

At the time of installation, please refer to the following items.

- Use a new nut.
- After stabilizing the suspension, torque the nut.



(b) Using SST, disconnect the No. 2 lower suspension arm. SST 09610–20012



10. REMOVE ONLY VERY BOTTOM BOLT, NUT AND 2 WASHERS OF SHOCK ABSORBER

HINT:

At the time of installation, coat the nut's thread with engine oil.

²⁰⁰⁰ MR2 (RM760U)



11. **DISCONNECT DRIVE SHAFT FROM AXLE HUB** Using a plastic hammer, disconnect the drive shaft from the axle hub.

NOTICE:

Be careful not to damage the boot and ABS speed sensor rotor.





Remove the 2 bolts on the center bearing bracket and pull out the drive shaft together with the center bearing case.

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

Be careful not to damage the oil seal and dust cover.



13. LH drive shaft: REMOVE DRIVE SHAFT

(a) Using a brass bar and hammer, remove the drive shaft. **NOTICE:**

Be careful not to damage the oil seal and dust cover. HINT:

At the time of installation, please refer to the following items.

- Apply gear oil to the inboard joint shaft and differential case sliding surfaces.
- Before installing the drive shaft, set the snap ring with its opening side facing downward.
- Whether inboard joint shaft is in contact with pinion shaft or not can be known from the sound or feeling.
- After installation, check that there is 2 3 mm (0.08 0.12 in.) of play in the axial direction.
- After installation, check that the drive shaft cannot be removed by hand.
- (b) Using a screwdriver, remove the snap ring from the inboard joint shaft.







DISASSEMBLY

1. DISASSEMBLE DRIVE SHAFT

- (a) Check the drive shaft.
 - (1) Check to see that there is no remarkable play in the outboard joint.

SA1T5-01

- (2) Check to see that the inboard joint slides smoothly in the thrust direction.
- (3) Check to see that there is no remarkable play in the radial direction of the inboard joint.
- (4) Check the boots for damage.
- (b) Remove the inboard and outboard joint boot clamps.
 - (1) Using a screwdriver, unclamp the 2 inboard joint boot clamps.
 - (2) Using a side cutter, cut the 2 outboard joint boot clamps and remove them.
- (c) Remove the inboard joint shaft.
 - (1) Slide the inboard joint boot toward the outboard joint.
 - (2) Place matchmarks on the inboard joint shaft, tripod and outboard joint shaft.

NOTICE:

Do not punch the marks.

- (3) Remove the inboard joint shaft from the outboard joint shaft.
- (d) Remove the tripod.
 - (1) Using a snap ring expander, remove the snap ring.
 - (2) Place matchmarks on the outboard joint shaft and tripod.

NOTICE:

Do not punch the marks.

(3) Using a brass bar and hammer, remove the tripod from the outboard joint shaft.

NOTICE:

Do not tap the roller.

(e) Remove the inboard and outboard joint boots and inboard joint clamps.

NOTICE:

Do not disassemble the outboard joint.



DISASSEMBLE INBOARD JOINT SHAFT

(a) LH:

2.

Remove the dust cover. Using SST and a press, remove the dust cover. SST 09950–00020



(b) RH:

Remove the transaxle side dust cover. Using a press, remove the transaxle side dust cover.





(c) RH:

Remove the center bearing.

- (1) Using a screwdriver, remove the outside snap ring.
- (2) Using a press, remove the center bearing case.
- (3) Using a pin punch and a hammer, remove the straight pin from the center bearing case.
- (4) Using SST and a press, remove the dust cover.
- SST 09950-00020
- (5) Using a snap ring expander, remove the inside snap ring.

- (6) Using a press, remove the center bearing.
- (7) Using a snap ring expander, remove the outside snap ring.



REASSEMBLY

1. REASSEMBLE INBOARD JOINT SHAFT

(a) LH: Install the dust cover. Using a press, install a new dust cover.



(b) RH:

Install the center bearing.

(1) Using a pin punch and a hammer, install the straight pin into the center bearing case.

- (2) Using SST and a press, install a new center bearing into the bearing case.
- SST 09950-60010 (09951-00650), 09950-70010 (09951-07150)
- (3) Using a screwdriver, install a new outside snap ring.
- (4) Using SST and a press, install the center bearing with the bearing case assembly to the inboard joint shaft.
- SST 09710-30021 (09710-03141)
- (5) Using a snap ring expander, install a new inside snap ring.
- (6) Using SST, an extension bar and a press, install a new dust cover.

SST 09506-35010

HINT:

The clearance between the dust cover and bearing should be kept in the ranges as shown in the illustration.







2000 MR2 (RM760U)





(c) RH:

Install the transaxle side dust cover.

Using a steel plate and press, install a new transaxle side dust cover until the distance from the tip of the inboard joint shaft to the dust cover reaches the specified value, as shown in the illustration.

2. REASSEMBLE DRIVE SHAFT

(a) Temporarily install new outboard and inboard joint boots and new clamps.

HINT:

Before installing the boots, wrap the spline of the outboard joint shaft with vinyl tape to prevent them from being damaged.

- (1) Place 2 new clamps on a new outboard joint boot and install them to the outboard joint shaft.
- (2) Place 2 new clamps on a new inboard joint boot and install them to the outboard joint shaft.
- (b) Install the tripod.
 - (1) Place the beveled side of the tripod axial spline toward the outboard joint.
 - (2) Align the matchmarks placed before removal.
 - (3) Using a brass bar and hammer, tap in the tripod to the outboard joint shaft.

NOTICE:

Do not tap the roller.

- (4) Using a snap ring expander, install a new snap ring.
- Install the boot to outboard joint.
 Before assembling the boot, pack the outboard joint and boot with grease in the boot kit.
 Grease capacity: (Color = Yellow ocher)

140 – 155 g (4.9 – 5.5 oz.)

- (d) Install the inboard joint shaft to outboard joint shaft.
 - (1) Pack the inboard joint and boot with grease in the boot kit.

Grease capacity: (Color = Yellow ocher) 180 - 190 g (6.3 - 6.7 oz.)

- (2) Align the matchmarks placed before removal, and install the inboard joint shaft to the outboard joint shaft.
- (3) Temporarily install the boot to the inboard joint.



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SUSPENSION AND AXLE - REAR DRIVE SHAFT







(e) Assemble the boot clamps to both boots.

- (1) Make sure that the boots are on the shaft grooves.
- (2) Make sure that the boots are not stretched or contracted when the drive shaft is at standard length.

Drive shaft standard length:

	014.1 ± 0.0 mm (02.001 ± 0.107 m.)
LH	570.4 ± 5.0 mm (22.457 ± 0.197 in.)

- (3) Bend the band and lock the inboard joint boot clamps with a screwdriver.
- (4) Secure the 2 outboard joint boot clamps onto the boot.
- (5) Place SST onto the outboard joint large boot clamp.
- SST 09521-24010
- (6) Tighten the SST so that the large clamp is pinched.

NOTICE:

Do not overtighten the SST.

(7) Using SST, adjust the clearance of the large clamp.SST 09240–00020

Clearance: 0.8 mm (0.031 in.) or less

(8) Employ the same manner to the outboard joint small boot clamp.

INSTALLATION

Installation is in the reverse order of removal (See page SA-41).

HINT:

After installation, check the ABS speed sensor signal (See page DI–163) and rear wheel alignment (See page SA–7).

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Date :

SA0K1-04

REAR SHOCK ABSORBER COMPONENTS

SA1OU-02



REMOVAL

SA1T7-01



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

2. DISCONNECT STABILIZER BAR LINK

Remove the nut, and disconnect the stabilizer bar link from the shock absorber.

Torque: 44 N·m (449 kgf·cm, 32 ft·lbf)

HINT:

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

3. DISCONNECT FLEXIBLE HOSE

Remove the bolt, and disconnect the flexible hose from the shock absorber.

Torque: 29 N·m (296 kgf·cm, 21 ft·lbf)



4. REMOVE REAR SHOCK ABSORBER

 (a) Loosen the 2 nuts on the lower side of shock absorber. Torque: 173 N·m (1,765 kgf·cm, 128 ft·lbf)

HINT:

Don't remove the 2 bolts and 2 nuts.



(b) Remove the 3 nuts on the upper side of the shock absorber and disconnect the suspension upper brace from shook absorber.

Torque: 80 N·m (816 kgf·cm, 59 ft·lbf)

(c) Remove the 2 nuts, 2 bolts and 4 washers on the lower side of shock absorber.

HINT:

At the time of installation, coat the nut's thread with engine oil.

- (d) Remove the shock absorber with coil spring.
- (e) Remove the suspension support cover.

2000 MR2 (RM760U)



DISASSEMBLY REMOVE 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) Hold the suspension support in a vise.
- (c) Remove the nut, collar, suspension support, coil spring and spring bumper.



SA08C-05



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.

NOTICE:

When disposing of the shock absorber, see DISPOSAL on page SA–54.

DISPOSAL

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 in the illustration to discharge the gas inside. CAUTION:
- When drilling, chips may fly out, work carefully.
- The gas is colorless, odorless and non-poisonous.

SA08D--05

SA1T8-01



REASSEMBLY

1. INSTALL 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) Insert the coil spring to the shock absorber. HINT:

HIN I:

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

- 2. INSTALL SPRING BUMPER
- 3. INSTALL SUSPENSION SUPPORT

(a) Position the suspension support. HINT:

Align the piston rod notch and the suspension support hole.

- (b) Temporarily install the collar and a new center nut.
- (c) Align the suspension support with the shock absorber lower bracket, as shown.
- (d) Hold the suspension support in a vise.
- (e) Tighten the center nut.
 Torque: 73 N-m (745 kgf-cm, 54 ft-lbf)
 (f) Remove the SST.
 - SST 09727–30021 (09727–00010, 09727–00021, 09727–00031)
- (g) Recheck the direction of the spring bracket.



INSTALLATION

SA1OY-02

Installation is in the reverse order of removal (See page SA–51). HINT:

After installation, check the rear wheel alignment (See page SA-7).

SA1T9-01

REAR LOWER SUSPENSION ARM AND STRUT ROD COMPONENTS



REMOVAL

1. REMOVE ENGINE UNDER COVERS

SA1TA-01



2. REMOVE STRUT ROD

Remove the 2 bolts, 2 nuts and strut rod.

Torque: 78 N·m (796 kgf·cm, 58 ft·lbf) NOTICE:

Don't turn the nuts.

HINT:

At the time of installation, after stabilizing the suspension, torque the bolts.

3. REMOVE NO. 1 LOWER SUSPENSION ARM

Remove the 2 bolts, 2 nuts and No. 1 lower suspension arm. **Torque:**

87 N·m (887 kgf·cm, 64 ft·lbf) for bolt A 103 N·m (1,051 kgf·cm, 76 ft·lbf) for Bolt B

NOTICE:

Don't turn the nuts.

HINT:

F11146

At the time of installation, after stabilizing the suspension, torque the nuts.

4. REMOVE NO. 2 LOWER SUSPENSION ARM

- (a) Place matchmarks on both the cam plate and suspension member.
- P Matchmarks



(b) Remove the nut, cam plate and cam bolt. Torque: 87 N·m (887 kgf·cm, 64 ft·lbf)

HINT:

At the time of installation, after stabilizing the suspension, torque the nut.

(c) Remove the nut. Torque: 49 N-m (500 kgf-cm, 36 ft-lbf)

2000 MR2 (RM760U)

HINT:

At the time of installation, please refer to the following items.

SA-59

- Use a new nut.
- After stabilizing the suspension, torque the nut.

- P F09449
- (d) Using SST, remove the No. 2 lower suspension arm. SST 09610–20012

INSTALLATION

SA1TB-01

Installation is in the reverse order of removal (See page SA–58). HINT:

After installation, check the rear wheel alignment (See page SA-7).

REAR STABILIZER BAR COMPONENTS



SA1PI-02

SA1PJ-02

REMOVAL

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





(a) Remove the 2 nuts and stabilizer bar link. Torque: 44 N-m (449 kgf-cm, 32 ft-lbf)

HINT:

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

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

3. REMOVE STABILIZER BAR

(a) Remove the 2 bolts, bracket and bushing.Torque: 39 N·m (398 kgf·cm, 29 ft·lbf)

HINT:

At the time of installation, please refer to the following items.

- Install the bushing so that the cutout and arrow mark will face to the front.
- The distance between the bushings is 965.8 mm.
- The side on which the discrimination mark is applied on the stabilizer bar is RH side.
- (b) Employ the same manner described above to the other side.
- (c) Remove the stabilizer bar.



SA1FD-03



INSPECTION INSPECT STABILIZER BAR LINK BALL JOINT FOR ROTA-TION 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 at a rate of 2 – 4 seconds per 1 turn and take the torque reading on the 5th turn.

Turning torque:

0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf)

INSTALLATION

Installation is in the reverse order of removal (See page SA-62).

SA1PK-02