SUSPENSION AND AXLE
**TROUBLESHOOTING**

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

<table>
<thead>
<tr>
<th>Parts Name</th>
<th>Tires</th>
<th>Cold tire inflation pressure</th>
<th>Wheel alignment</th>
<th>Springs</th>
<th>Stabilizer bar</th>
<th>Shock absorber</th>
<th>Ball joint</th>
<th>Hub bearings</th>
<th>Steering linkage</th>
<th>Steering gear</th>
<th>Suspension parts</th>
<th>Overloaded</th>
<th>Wheel balance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Wander/pulls</td>
<td>1</td>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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</tr>
<tr>
<td>Bottoming</td>
<td></td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sways/pitches</td>
<td>1</td>
<td>2</td>
<td>3</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Front wheel shimmy</td>
<td>1</td>
<td>4</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td>7</td>
<td>8</td>
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<tr>
<td>Abnormal tire wear</td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

See Page

SA–2
GENERAL INSPECTION

1. INSPECT TIRE
   (a) Check the tires for wear and for the proper inflation pressure.
      Cold inflation pressure:
      See page SA–96
   (b) 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.
      Unbalance after adjustment:
      8.0 g (0.018 lb) or less

3. CHECK WHEEL BEARING LOOSENESS
   (a) Check the backlash in bearing shaft direction.
      Maximum: 0.05 mm (0.0020 in.)
   (b) Check the axle hub deviation.
      Maximum: 0.05 mm (0.0020 in.)

4. CHECK FRONT SUSPENSION FOR LOOSENESS
5. CHECK STEERING LINKAGE FOR LOOSENESS
6. CHECK BALL JOINT FOR EXCESSIVE LOOSENESS
7. CHECK SHOCK ABSORBERS WORK PROPERLY
   • Check for oil leaks
   • Check mounting bushings for looseness
   • Bounce the vehicle up and down several times to stabilize the suspension.
WHEEL ALIGNMENT

FRONT WHEEL ALIGNMENT

1. MEASURE VEHICLE HEIGHT
   Front vehicle height:
   SEDAN/COUPE:
<table>
<thead>
<tr>
<th>Tire size</th>
<th>Front</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>210 mm (8.27 in.)</td>
</tr>
<tr>
<td>P205/65R15</td>
<td>213 mm (8.39 in.)</td>
</tr>
</tbody>
</table>
   WAGON:
<table>
<thead>
<tr>
<th>Tire size</th>
<th>Front</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>210 mm (8.27 in.)</td>
</tr>
<tr>
<td>P205/65R15</td>
<td>214 mm (8.43 in.)</td>
</tr>
</tbody>
</table>

Measuring point:
Measure from the ground to the center of the front side lower arm mounting bolt.

NOTICE: Before inspecting the wheel alignment, adjust the vehicle height to specification.
If the vehicle height is not standard, try to adjust it by pushing down on or lifting the body.

2. INSTALL CAMBER – CASTER – KINGPIN GAUGE ONTO VEHICLE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER
   Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER, CASTER AND STEERING AXIS INCLINATION
<table>
<thead>
<tr>
<th></th>
<th>SEDAN/COUPE</th>
<th>WAGON</th>
</tr>
</thead>
<tbody>
<tr>
<td>Camber (Left–right error)</td>
<td>$-0^\circ 35' \pm 45'$ (45' or less)</td>
<td>$-0^\circ 35' \pm 45'$ (45' or less)</td>
</tr>
<tr>
<td>Caster (Left–right error)</td>
<td>$1^\circ 10' \pm 45'$ (45' or less)</td>
<td>$1^\circ 05' \pm 45'$ (45' or less)</td>
</tr>
<tr>
<td>Steering axis inclination</td>
<td>$13^\circ 05' \pm 45'$</td>
<td>$13^\circ 00' \pm 45'$</td>
</tr>
</tbody>
</table>

HINT: Camber, caster and steering axis inclination are not adjustable. If measurements are not within specification, inspect the suspension parts for damaged and/or worn out parts and replace them as necessary.
4. INSPECT TOE-IN

Toe-in (total):
\[
A+B \ 0° \pm 0.2°
\]
\[
(C-D \ 0 \pm 2 \text{ mm}, \ 0 \pm 0.08 \text{ in.})
\]
If the toe-in is not within specification, adjust it at the tie rod end.

5. ADJUST TOE-IN

(a) Remove the boot clamps.
(b) Loosen the tie rod end lock nuts.
(c) Turn the left and right tie rod ends an equal amount to adjust the toe-in.
HINT: Ensure that the lengths of the left and right tie rod end length are the same.

**Tie rod end length difference:**
1.5 mm (0.059 in.) or less
(d) Torque the tie rod end lock nuts.
**Torque:** 74 N·m (750 kgf·cm, 54 ft·lb)
(e) Place the boot on the seat and install the clamp.
HINT: Make sure that the boots are not twisted.

7. INSPECT WHEEL ANGLE

Wheel angle:

**SEDAN/COUPE:**

<table>
<thead>
<tr>
<th>Tire size</th>
<th>Inside wheel</th>
<th>Outside wheel (reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>37° 20’ ± 2’</td>
<td>32° 10’</td>
</tr>
<tr>
<td>P205/65R15</td>
<td>36° 00’ ± 2’</td>
<td>31° 15’</td>
</tr>
</tbody>
</table>

**WAGON:**

<table>
<thead>
<tr>
<th>Tire size</th>
<th>Inside wheel</th>
<th>Outside wheel (reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>37° 20’ ± 2’</td>
<td>32° 15’</td>
</tr>
<tr>
<td>P205/65R15</td>
<td>36° 00’ ± 2’</td>
<td>31° 20’</td>
</tr>
</tbody>
</table>

If the wheel angles differ from specification, check the left and right tie rod end length.

**Tie rod end length difference:**
1.5 mm (0.059 in.) or less
REAR WHEEL ALIGNMENT

7. MEASURE VEHICLE HEIGHT
Rear vehicle height:
SEDAN/COUPE:

<table>
<thead>
<tr>
<th>Tire size</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>P 195/78 R 14</td>
<td>262 mm (10.31 in.)</td>
</tr>
<tr>
<td>P205/65 R15</td>
<td>267 mm (10.51 in.)</td>
</tr>
</tbody>
</table>

WAGON:

<table>
<thead>
<tr>
<th>Tire size</th>
<th>Rear</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>272 mm (10.71 in.)</td>
</tr>
<tr>
<td>P205/65 R15</td>
<td>277 mm (10.91 in.)</td>
</tr>
</tbody>
</table>

Measuring point:
Measure from the ground to the center of the strut rod mounting bolt.

NOTICE: Before inspecting the wheel alignment, adjust the vehicle height to specification.
If the vehicle height is not standard, try to adjust it by pushing down on or lifting the body.

2. INSTALL CAMBER – CASTER – KINGPIN GAUGE ONTO VEHICLE OR POSITION VEHICLE ON WHEEL ALIGNMENT TESTER
Follow the specific instructions of the equipment manufacturer.

3. INSPECT CAMBER

<table>
<thead>
<tr>
<th>Camber (Left–right error)</th>
<th>SEDAN/COUPE</th>
<th>WAGON</th>
</tr>
</thead>
<tbody>
<tr>
<td>– 0 26° ± 45° (45° or less)</td>
<td>– 0 15° ± 45° (45° or less)</td>
<td></td>
</tr>
</tbody>
</table>

HINT: Camber is not adjustable, if measurement is not within specification, inspect and replace the suspension parts as necessary.

4. INSPECT TOE–IN
Toe–in (total):
A+B 0.4 ± 0.2
(C – D 4 ± 2 mm, 0.16 ± 0.08 in.)
If the toe–in is not within the specification, adjust it at the No.2 lower suspension arm.
5. ADJUST TOE–IN
(a) Measure the length of the left and right No.2 lower suspension arm.
   **Left–right difference:**
   1 mm (0.04 in.) or less
   If the left–right difference is greater than the specification, adjust the length.
(b) Loosen the lock nuts.
(c) Turn the left and right adjusting tubes an equal amount to adjust toe–in.
   HINT: One full turn of each adjusting tube will adjust the toe–in by about 0.6 (6.7 mm, 0.264 in.).
(d) Torque the lock nuts.
   **Torque:** 56 N·m (570 kgf·cm, 41 ft·lbf)
FRONT AXLE

DESCRIPTION
The wheel bearings are double-row angular ball bearings combined with the oil seal. They have a small rolling resistance and are free from maintenance.
The preload of the bearings can be determined only by tightening the axle hub nut to a specified torque, improving serviceability.
## PREPARATION
### SST (SPECIAL SERVICE TOOLS)

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Tool Description</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>09310–35010</td>
<td>Countershaft Bearing Replacer</td>
<td>Bearing removal, Axle shaft installation</td>
</tr>
<tr>
<td>09316–60010</td>
<td>Transmission &amp; Transfer Bearing Replacer</td>
<td>Dust deflector Installation</td>
</tr>
<tr>
<td>(09316–00010)</td>
<td>Replacer Pipe</td>
<td></td>
</tr>
<tr>
<td>(09316–00040)</td>
<td>Replacer &quot;C&quot;</td>
<td></td>
</tr>
<tr>
<td>09520–00031</td>
<td>Rear Axle Shaft Puller</td>
<td></td>
</tr>
<tr>
<td>09608–32010</td>
<td>Steering Knuckle Oil Seal Replacer</td>
<td>Bearing installation, Axle hub installation, Dust deflector installation</td>
</tr>
<tr>
<td>09628–10011</td>
<td>Ball Joint Puller</td>
<td>Hub bolt removal</td>
</tr>
<tr>
<td>09628–62011</td>
<td>Ball Joint Puller</td>
<td></td>
</tr>
<tr>
<td>09950–00020</td>
<td>Bearing Remover</td>
<td></td>
</tr>
</tbody>
</table>

## RECOMMENDED TOOLS

<table>
<thead>
<tr>
<th>Item Number</th>
<th>Tool Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>09905–00013</td>
<td>Snap Ring Pliers</td>
</tr>
</tbody>
</table>

## EQUIPMENT

<table>
<thead>
<tr>
<th>Item Description</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial indicator</td>
<td></td>
</tr>
<tr>
<td>Torque wrench</td>
<td></td>
</tr>
</tbody>
</table>
FRONT AXLE HUB COMPONENTS

- **Front Axle Hub**
- **Brake Caliper**
- **ABS Speed Sensor**
- **Cotter Pin**
- **Snap Ring**
- **Dust Deflector**
- **Steering Knuckle**
- **Dust Cover**
- **Hub Bolt**
- **Axle Hub**

**Specifications**

- N·m (kgf·cm, ft·lbf) : Specified torque
- ◆ Non-reusable part
STEERING KNUCKLE WITH AXLE HUB REMOVAL

1. JACK UP VEHICLE, REMOVE FRONT WHEEL
2. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION
   (a) Remove the 2 brake caliper set bolts.
   (b) Hang up the brake caliper using wire, etc.
   (c) Remove the disc.
   (d) Place the 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 greater than the specified maximum, replace the bearing.

   (e) 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.)
   If greater than the specified maximum, replace the axle hub.

3. REMOVE DRIVE SHAFT LOCK NUT
   (a) Install the disc and brake caliper.
   (b) Remove the cotter pin and lock cap.
   (c) While applying the brakes, remove the nut.
   (d) Remove the brake caliper and disc.
4. w/ ABS:
   REMOVE ABS SPEED SENSOR
   Remove the ABS speed sensor from the steering knuckle.

5. LOOSEN NUTS ON LOWER SIDE OF SHOCK ABSORBER
   HINT: Do not remove the bolts.
6. DISCONNECT TIE ROD END FROM STEERING KNUCKLE
   (a) Remove the cotter pin and remove the nut.
   (b) Using SST, disconnect the tie rod end from the steering knuckle.
       SST 09628–62011

7. DISCONNECT LOWER BALL JOINT FROM LOWER ARM
   Remove the bolt and the two nuts.

8. REMOVE STEERING KNUCKLE WITH AXLE HUB
   (a) Remove the 2 nuts and bolts on lower side of the shock absorber.

   (b) Remove the steering knuckle with axle hub.

FRONT AXLE HUB DISASSEMBLY
1. REMOVE DUST DEFLECTOR
   Using a screwdriver, remove the dust deflector.
2. REMOVE LOWER BALL JOINT
(a) Remove the cotter pin and nut.
(b) Using SST, remove the lower ball joint.
   SST 09628–62011

3. REMOVE AXLE HUB
(a) Using SST, remove the axle hub.
   SST 09520–00031

(b) Using SST and a press, remove the inner race (outside) from the axle hub.
   SST 09950–00020

4. REMOVE DUST COVER
Remove the 4 bolts and dust cover—.

5. REMOVE BEARING FROM STEERING KNUCKLE
(a) Using snap ring pliers, remove the snap ring.
FRONT AXLE HUB ASSEMBLY

1. INSTALL BEARING
   (a) Using SST and a press, install a new bearing to the steering knuckle.
       SST 09608–32010
   (b) Place the inner race on the outside of the bearing.
   (c) Using SST and a hammer, remove the bearing.
       SST 09310–35010

2. INSTALL DUST COVER
   Place the dust cover and torque the 4 bolts.
   Torque: 8.3 N·m (85 kgf·cm, 74 in.·lbf)

3. INSTALL FRONT AXLE HUB
   Using SST and a press, install the axle hub.
   SST 09310 – 35010, 09608 – 32010
4. INSTALL LOWER BALL JOINT
   (a) Install the lower ball joint and torque the nut.
   Torque: 123 N·m (1,250 kgf·cm, 90 ft·lbf)
   (b) Install a new cotter pin.

5. INSTALL DUST DEFLECTOR
   Using SST and a hammer, install a new dust deflector.
   SST 09316–60010(09316–00010, 09316–00040)
   09608–32010
   HINT: Align the holes for the ABS speed sensor in the dust deflector and steering knuckle.

STEERING KNUCKLE WITH AXLE HUB INSTALLATION

1. INSTALL STEERING KNUCKLE
   (a) Place the steering knuckle and temporarily install the 2 bolts and nut on lower side of shock absorber.
   HINT: Coat the threads of nuts with engine oil.

   (b) Connect the lower ball joint to the lower arm and tighten the bolt and nuts.
   Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)

2. CONNECT TIE ROD END TO STEERING KNUCKLE
   (a) Connect the tie rod end to the steering knuckle and tighten the nut.
   Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)
   (b) Install a new cotter pin.
3. TORQUE BOLTS ON LOWER SIDE OF SHOCK ABSORBER
   Torque: 211 N·m (2,150 kgf·cm, 156 ft·lbf)

4. w/ ABS:
   INSTALL ABS SPEED SENSOR
   Torque: 7.8 N·m (80 kgf·cm, 69 in.·lbf)

5. INSTALL FRONT BRAKE CALIPER
   (a) Install the disc.
   (b) Install the brake caliper.
      Torque: 107 N·m (1,090 kgf·cm, 79 ft·lbf)

6. INSTALL DRIVE SHAFT LOCK NUT
   (a) While applying the brakes, install the nut.
      Torque: 294 N·m (3,000 kgf·cm, 217 ft·lbf)
   (b) Install the lock cap and a new cotter pin.

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

8. INSPECT FRONT WHEEL ALIGNMENT
   (SEE PAGE SA–4)

HUB BOLT REPLACEMENT

1. JACK UP VEHICLE AND REMOVE FRONT WHEEL
2. REMOVE FRONT BRAKE CALIPER AND DISC

3. REMOVE HUB BOLT
   Using SST, remove the hub bolt.
   SST 09628 –10011
4. INSTALL HUB BOLT
(a) Install washer and nut to the hub bolt as shown in the illustration.
(b) Install the hub bolt with torquing the nut. Install the hub bolt with torquing the nut.

5. INSTALL FRONT DISC AND BRAKE CALIPER
   Torque: 107 N·m (1,090 kgf·cm, 79 ft·lbf)

6. INSTALL FRONT WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
FRONT DRIVE SHAFT
(1 MZ–FE)

DESCRIPTION
The drive shaft has a cross–groove type CVJ (Constant Velocity Joint) on the differential side and Rzeppa type CVJ on the wheel side.
## PREPARATION
### SST (SPECIAL SERVICE TOOLS)

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>09608–1 6041</td>
<td>Front Hub Bearing Adjusting Tool</td>
</tr>
<tr>
<td>(09608–02020)</td>
<td>Bolt &amp; Nut</td>
</tr>
<tr>
<td>(09608–02040)</td>
<td>Retainer</td>
</tr>
<tr>
<td>09628–62011</td>
<td>Ball Joint Puller</td>
</tr>
<tr>
<td>(09726–00030)</td>
<td>Spacer</td>
</tr>
<tr>
<td>09726–10010</td>
<td>Lower Suspension Arm Bushing Remover &amp; Replacer</td>
</tr>
<tr>
<td>(09726–00030)</td>
<td>Spacer</td>
</tr>
<tr>
<td>09923–00020</td>
<td>Hexagon 8 mm Wrench</td>
</tr>
<tr>
<td>09950–00020</td>
<td>Bearing Remover</td>
</tr>
<tr>
<td>09521–24010</td>
<td>Drive Shaft Boot Clamping Tool</td>
</tr>
<tr>
<td>09240–00020</td>
<td>Wire Gauge Set</td>
</tr>
<tr>
<td>09242–00190</td>
<td>Wire Gauge</td>
</tr>
</tbody>
</table>

## RECOMMENDED TOOLS

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>09905–00012</td>
<td>Snap Ring No. 1 Expander</td>
</tr>
</tbody>
</table>

For removing and installing snap ring.

Corrected 6/07/01 – MH
EQUIPMENT

Torque wrench

LUBRICANT

<table>
<thead>
<tr>
<th>Drive shaft</th>
<th>Item</th>
<th>Capacity</th>
</tr>
</thead>
<tbody>
<tr>
<td>Toyota type</td>
<td>Outboard joint grease</td>
<td>120–130 g (4.2–4.6 oz.)</td>
</tr>
<tr>
<td></td>
<td>Inboard joint grease</td>
<td>133–153 g (4.7–5.4 oz.)</td>
</tr>
</tbody>
</table>

SSM (SPECIAL SERVICE MATERIALS)

| 08826–00801 Seal Packing 1121, THREE BOND 1121 or equivalent | Drive shaft inboard joint cover |
FRONT DRIVE SHAFT 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 SST.
SST 09608–16041(09608–02020, 09608–02040)

1. REMOVE FRONT FENDER APRON SEAL

2. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT
   (a) Remove the cotter pin and lock nut cap.
   (b) Loosen the bearing lock nut while depressing the brake pedal.

3. DRAIN TRANSMAXLE OIL
4. DISCONNECT TIE ROD END FROM STEERING KNUCKLE
   (a) Remove the cotter pin and nut from the tie rod end.
   (b) Using SST, disconnect the tie rod end from the steering knuckle.
   SST 09628–62011

5. DISCONNECT STABILIZER BAR LINK FROM LOWER ARM
   Remove the nut and disconnect the stabilizer bar link from lower arm.
6. DISCONNECT STEERING KNUCKLE FROM LOWER BALL JOINT
(a) Remove the bolt and the 2 nuts.
(b) Disconnect the steering knuckle from the lower ball joint.

7. LOOSEN 6 BOLTS HOLDING DRIVE SHAFT TO DIFFERENTIAL SIDE GEAR SHAFT OR CENTER DRIVE SHAFT
(a) Place matchmarks on the drive shaft and side gear shaft or center drive shaft.
   NOTICE: Do not use a punch to mark the matchmarks. Use paint, etc.
(b) Using SST, loosen the 6 hexagon bolts while depressing the brake pedal.
   SST 09923 – 00020
HINT: Do not remove the bolts, leave them finger tight to avoid dropping the drive shaft.

8. DISCONNECT DRIVE SHAFT FROM AXLE HUB
(a) Using a plastic hammer, discontinued the drive shaft from the axle hub.
   NOTICE: Cover the drive shaft boot with cloth to protect it from damage.
(b) Push the front axle hub toward the outside of the vehicle, and separate the drive shaft from the axle hub.

9. REMOVE LH DRIVE SHAFT
(a) Using hub nut wrench and hammer handle or equivalent, pull out the drive shaft as shown.
(b) Using a screwdriver, remove the snap ring.

10. REMOVE RH DRIVE SHAFT
(a) Remove the bearing lock bolt.

(b) Using pliers, remove the snap ring, and pull out the drive shaft.
FRONT DRIVE SHAFT INSTALLATION

1. INSTALL LH DRIVE SHAFT
   (a) Using pliers, install a new snap ring.
   (b) Coat gear oil to the side gear shaft and differential case sliding surface.
   (c) Using a brass bar and hammer, tap in the drive shaft until it makes contact with the pinion shaft.

HINT:
- Before installing the drive shaft, set the snap ring opening side facing downward.
- Whether or not the side gear shaft is making contact with the pinion shaft can be known by the sound or feeling when driving it in.

2. CHECK INSTALLATION OF LH DRIVE SHAFT
   (a) Check that there is 2–3 mm (0.08–0.12 in.) of play in the axial direction.
   (b) Check that the drive shaft can not be removed by hand.

3. INSTALL RH DRIVE SHAFT
   (a) Coat gear oil to the inboard joint and differential sliding surface.
   (b) Install the drive shaft to the transaxle through the bearing bracket.

   NOTICE: Do not damage the oil seal lip.
   (c) Using pliers, install a new snap ring.
   (d) Install a new bearing lock bolt and tighten it.

   Torque: 32 N\,m (330 kgf\,cm, 24 ft\,lb)
4. CONNECT DRIVE SHAFT TO AXLE HUB
Install the outboard joint side of the drive shaft to the axle hub.

   NOTICE: Do not damage the boot.

5. CONNECT STEERING KNUCKLE TO LOWER ARM
   Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)

6. TIGHTEN 6 HEXAGON BOLTS
Using SST, tighten the 6 hexagon bolts while depressing the brake pedal.
   SST 09043–88010
   Torque: 65 N·m (660 kgf·cm, 48 ft·lbf)

7. CONNECT STABILIZER BAR LINK TO LOWER ARM
   Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

8. CONNECT TIE ROD END TO STEERING KNUCKLE
   (a) Connect the tie rod end to the steering knuckle and torque the nut.
      Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)
   (b) Install a new cotter pin.
      HINT: If the cotter pin hole does not line up, correct by tightening the nut by the smallest amount possible.
1. CHECK DRIVE SHAFT
(a) Check to see that there is no play in the inboard and outboard joints.
(b) Check to see that the inboard joint slides smoothly in the thrust direction.
(c) Check to see that there is no significant play in the radial direction of the inboard joint.
(d) Check the boot for damage.

2. DISCONNECT CENTER DRIVE SHAFT OR SIDE GEAR SHAFT
(a) Using SST, remove the 6 bolts and 3 washers, and disconnect the center drive shaft or side gear shaft from the drive shaft.
   SST 09923–00020
   NOTICE: Do not compress the inboard boot.
(b) Remove the joint end cover gasket from the drive shaft.
(c) Use bolts, nuts and washers to keep the inboard joint together.
   NOTICE: Tighten the bolts by hand to avoid scratching the flange surface.
3. TOYOTA TYPE: REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS
Using a screwdriver, remove the inboard and outboard joint clamps.

GKN TYPE: REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS
(a) Using a boot clamp tool, draw hooks together and remove the clamps.

(b) Using side cutters, cut the small boot clamps and remove them.

4. DISASSEMBLE INBOARD JOINT
(a) Place matchmarks on the inboard joint and drive shaft.

(b) Using a snap ring expander remove the snap ring.
(c) Using SST, a socket wrench and a press, remove the inboard joint from the drive shaft.
   SST 09726–10010(09726–00030)
(d) Remove the bolts, nuts and washers.

(e) Using a screwdriver and a hammer, pry around the whole perimeter of the inboard joint cover.
(f) Using a screwdriver, remove the inboard joint from inboard joint cover.
   NOTICE: When lifting the inboard joint, hold onto the inner race and outer race.

5. REMOVE BOOTS
Remove the inboard joint boot and outboard joint boot.

6. LH DRIVE SHAFT:
   DISASSEMBLE SIDE GEAR SHAFT
Using a screwdriver, remove the dust cover.

7. RH DRIVE SHAFT:
   DISASSEMBLE CENTER DRIVE SHAFT
(a) Using a press, press out the transaxle side dust cover.
FRONT DRIVE SHAFT ASSEMBLY

1. RH DRIVE SHAFT:
   ASSEMBLE CENTER DRIVE SHAFT
   (a) Install a new snap ring to the center drive shaft.
   (b) Using a press and extension bar, press in a new bearing.
   (c) Using a snap ring expander, install a new snap ring.

   (b) Using SST and a press, press out the drive shaft side dust cover.
   SST 09950–00020

   (c) Using snap ring pliers, remove the snap ring.

   (d) Using a press, press out the bearing.
   (e) Remove the snap ring.
3. INSTALL NEW OUTBOARD JOINT BOOT AND NEW BOOT CLAMP

HINT:
• Before installing the boot, wrap vinyl tape around the spline of the shaft to prevent damaging the boot.
• Temporarily install the new boot and new clamps to the outboard joint.

(d) Using a press, press in a new drive shaft side dust cover.
HINT: The clearance between the dust cover and the bearing should be kept in the range shown in the illustration.
(e) Using a press, press in a new transaxle side dust cover.

2. LH DRIVE SHAFT:
ASSEMBLE SIDE GEAR SHAFT
Using a press, press in a new dust cover.

3. INSTALL NEW OUTBOARD JOINT BOOT AND NEW BOOT CLAMP

HINT:
• Before installing the boot, wrap vinyl tape around the spline of the shaft to prevent damaging the boot.
• Temporarily install the new boot and new clamps to the outboard joint.

4. ASSEMBLE BOOT TO OUTBOARD JOINT
Before assembling the boot, pack in grease.
HINT: Use the grease supplied in the boot kit.
Grease capacity:
135–155 g (4.8–5.5 oz.)

5. INSTALL NEW BOOT CLAMPS AND INBOARD JOINT BOOT
Temporarily install the 2 new boot clamps and inboard joint boot.
6. ASSEMBLE NEW INBOARD JOINT COVER
(a) Clean contacting surfaces of any residual packing material using cleaner.
(b) Apply seal packing to the inboard joint cover as shown in the illustration.
   Seal packing:
   Part No. 08826–00801. THREE BOND 1122 or equivalent
   HINT: Avoid applying an excess amount to the surface.
(c) Align the bolt holes of the cover with those of the inboard joint, then insert the hexagon bolts.
(d) Use a plastic hammer to tap the rim of the inboard joint cover into place. Do this in the order shown, and repeat several times.
(e) Use bolts, nuts and washers to keep the inboard joint together.
   NOTICE: Tighten the bolts by hand to avoid scratching the flange surface.

7. ASSEMBLE INBOARD JOINT
(a) Align the matchmarks placed before disassembly.
(b) Using a brass bar and hammer, tap the inboard joint onto the drive shaft.
   NOTICE: Check that the brass bar is touching the inner race, and not the cage.
(c) Using a snap ring expander, install a new snap ring.
   NOTICE: Work carefully so that the outer race does not come off.
8. ASSEMBLE INBOARD JOINT BOOT TO INBOARD JOINT

Pack in grease to the inboard tulip and boot.
HINT: Use the grease supplied in the boot kit.

Grease capacity:
140–150 g (4.9–5.3 oz.)

9. ASSEMBLE BOOT CLAMPS TO BOTH BOOTS

(a) Be sure the boots are in the shaft groove.
(b) Ensure that the boots are not stretched or contracted when the drive shaft is at standard length.

Drive shaft standard length:
452.35±2.0 mm (17.8090±0.079 in.)

(c) Holding the clamp near the closing hooks, using pliers, position the holers in the clamp’s free end over the closing hooks.
(d) Secure clamp by drawing the closing hooks together.

(e) Check that the clamp at closed position is the same as that shown in the illustration.

(f) Secure the clamp onto the boot.
(g) Place SST onto the clamp
SST 09521 – 24010
10. PACK IN GREASE TO CENTER DRIVE SHAFT OR SIDE GEAR SHAFT

Pack grease into the center drive shaft or side gear shaft.

Grease capacity:

50–60 g (1.8–2.1 oz.)

HINT: Use the grease supplied in the boot kit.

11. CONNECT DRIVE SHAFT AND CENTER DRIVE SHAFT OR SIDE GEAR SHAFT

(a) Remove the bolts, nuts and washers.
(b) Align the matchmarks on the drive shaft and center drive shaft or side gear shaft.
(c) Place a new gasket on the inboard joint.
(d) Install the center drive shaft or side gear shaft to the drive shaft.

NOTICE: When moving the drive shaft, do not compress the inboard boot.
(e) Install the 3 washers and 6 hexagon bolts, and using SST, temporarily tighten them.

SST 09923–00020

12. CHECK DRIVE SHAFT

(a) Check to see that there is no play in the inboard joint and outboard joint.
(b) Check to see that the inboard joint slides smoothly in the thrust direction.
FRONT DRIVE SHAFT (5S–FE)

DESCRIPTION
The drive has a tripod type CVJ (Constant Velocity Joint) on the differential side and Rzeppa type CVJ on the wheel side.
## PREPARATION

### SST (SPECIAL SERVICE TOOLS)

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Description</th>
<th>Notes</th>
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<tr>
<td>0950fi–35010</td>
<td>Differential Drive Pinion Rear Bearing Replacer</td>
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<tr>
<td>09608–1fi041</td>
<td>Front Hub Bearing Adjusting Tool</td>
<td></td>
</tr>
<tr>
<td>(09608–02020)</td>
<td>Bolt &amp; Nut</td>
<td></td>
</tr>
<tr>
<td>(09608–02040)</td>
<td>Retainer</td>
<td></td>
</tr>
<tr>
<td>09628–62011</td>
<td>Ball Joint Puller</td>
<td>Tie rod end</td>
</tr>
<tr>
<td>09950–00020</td>
<td>Bearing Remover</td>
<td>Center drive shaft dust cover</td>
</tr>
<tr>
<td>09521–24010</td>
<td>Drive Shaft Boot Clamping Tool</td>
<td></td>
</tr>
<tr>
<td>09240–00020</td>
<td>Wire Gauge Set</td>
<td></td>
</tr>
<tr>
<td>(09242–00190)</td>
<td>Wire Gauge</td>
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## RECOMMENDED TOOLS

<table>
<thead>
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<th>Tool Code</th>
<th>Description</th>
<th>Notes</th>
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</thead>
<tbody>
<tr>
<td>09905–00012</td>
<td>Snap Ring No. 1 Expander</td>
<td>For removing and installing snap ring</td>
</tr>
</tbody>
</table>

## EQUIPMENT

- Torque wrench

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FRONT DRIVE SHAFT COMPONENTS

Drive Shaft (RH)

Snap Ring

Lock Bolt

32 (330, 24)

Fender Apron Seal

Tie Rod End

Cotter Pin

Lock Nut Cap

Stabilizer Bar Link

Outboard Joint Shaft

39 (400, 29)

Boot Clamp (TOYOTA Type)

Boot Clamp (GKN Type)

Inboard Joint Shaft

Center Bearing

Boot

Snap Ring

Dust Cover

Tripod Joint

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

Non-reusable part
FRONT DRIVE SHAFT 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 bearing first support it with SST.
SST 09608–16041(09608–02020,09608–02040)

1. REMOVE FRONT FENDER APRON SEAL

2. REMOVE COTTER PIN, LOCK NUT CAP AND LOCK NUT
   (a) Remove the cotter pin and lock nut cap.
   (b) Loosen the bearing lock nut while depressing the brake pedal.

3. DRAIN TRANSAXLE OIL
4. DISCONNECT TIE ROD END FROM STEERING KNUCKLE
   (a) Remove the cotter pin and nut from the steering knuckle.
   (b) Using SST, disconnect the tie rod end from the steering knuckle.
      SST 09628–62011

5. DISCONNECT STABILIZER BAR LINK FROM LOWER ARM
   Remove the nut and disconnect the stabilizer bar link from lower arm.
6. DISCONNECT STEERING KNUCKLE FROM LOWER BALL JOINT
(a) Remove the bolt and the 2 nuts.
(b) Disconnect the steering knuckle from lower ball joint.

7. DISCONNECT DRIVE SHAFT FROM AXLE HUB
Using a plastic hammer, disconnect the drive shaft from the axle hub.
NOTICE: Cover the drive shaft boot with cloth to protect it from damage.

8. REMOVE LH DRIVE SHAFT
(a) Using hub nut wrench and hammer handle or an equivalent, pull out the drive shaft as shown.

(b) Using a screwdriver, remove the snap ring.

9. REMOVE RH DRIVE SHAFT
(a) Remove the bearing lock bolt.
FRONT DRIVE SHAFT INSTALLATION

1. INSTALL LH DRIVE SHAFT
   (a) Using a snap ring expander, install a new snap ring.
   
   (b) Coat gear oil to the inboard joint tulip and differential case sliding surface.
   (c) Using a brass bar and hammer, tap in the drive shaft until it makes contact with the pinion shaft.

   HINT:
   • Before installing the drive shaft, set the snap ring opening side facing downward.
   • Whether or not the drive shaft is making contact with the pinion shaft can be known by the sound or feeling when driving it in.

2. CHECK INSTALLATION OF LH DRIVE SHAFT
   (a) Check that there is 2–3 mm (0.08–0.12 in.) of play in the axial direction.
   (b) Check that the drive shaft can not be removed by hand.

3. INSTALL RH DRIVE SHAFT
   (a) Coat gear oil to the inboard joint and differential sliding surface.
   (b) Install the drive shaft to the transaxle through the bearing bracket.

   NOTICE: Do not damage the oil seal lip.
   (c) Using pliers, install a new snap ring.
4. CONNECT DRIVE SHAFT TO AXLE HUB
Install the outboard joint side of the drive shaft to the axle hub.

   NOTICE: Do not damage the boot.

5. CONNECT STEERING KNUCKLE TO LOWER ARM
   Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)

6. CONNECT STABILIZER BAR LINK TO LOWER ARM
   Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

7. CONNECT TIE ROD END TO STEERING KNUCKLE
   (a) Connect the tie rod end to the steering knuckle and torque the nut.
       Torque: 49 N·m (500 kgf cm, 36 ft·lbf)
   (b) Install a new cotter pin.
       HINT: (f the cotter pin hole does not line up, correct by tightening the nut by the smallest amount possible.)
8. INSTALL BEARING LOCK NUT, LOCK NUT CAP AND NEW COTTER PIN
   (a) Install and torque the bearing lock nut.
      Torque: 284 N·m (3,000 kgf·cm, 217 ft·lbf)
   (b) Install the lock nut cap and secure it with a new cotter pin.

9. FILL TRANSAXLE WITH FLUID
10. INSTALL FRONT FENDER APRON SEAL
11. CHECK FRONT WHEEL ALIGNMENT

FRONT DRIVE SHAFT DISASSEMBLY

1. CHECK DRIVE SHAFT
   (a) Check to see that there is no play in the outboard joint.
   (b) Check to see that the inboard joint slides smoothly in the thrust direction.
   (c) Check to see that there is not significant play in the radial direction of the inboard joint.
   (d) Check for damage to boots.

2. TOYOTA TYPE:
   REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS
   (a) Using a screwdriver, remove the 4 boot clamps.
   (b) Slide the inboard joint boot toward the outboard joint.

GKN TYPE:
   REMOVE INBOARD AND OUTBOARD JOINT BOOT CLAMPS
   (a) Using a boot clamp tool, draw hooks together and remove the 2 large clamps.
3. DISASSEMBLE INBOARD JOINT TULIP
   (a) Place matchmarks on the tripod and inboard joint tulip or center drive shaft.
   NOTICE: Do not punch the marks.
   (b) Remove the inboard joint tulip or center drive shaft from the drive shaft.

4. REMOVE TRIPOD JOINT
   (a) Using a snap ring expander remove the snap ring.
   (b) Using a snap ring expander, temporarily, slide the snap ring toward the outboard joint side.
   (c) Place matchmarks on the drive shaft and tripod.
   (d) Using a brass bar and a hammer, remove the tripod joint from the drive shaft.
6. REMOVE DUST COVER
   LH Drive Shaft:
   Using SST and a press, press out the dust cover from the inboard joint tulip.
   SST 09950–00020

5. REMOVE INBOARD AND OUTBOARD JOINT BOOTS
   Slide out the two boots.
   NOTICE: Do not disassemble the outboard joint.

6. REMOVE DUST COVER
   RH Drive Shaft:
   Using a press, press out the dust cover from the center drive shaft.
   SST 09950–00020

7. RH DRIVE SHAFT:
   DISASSEMBLE CENTER DRIVE SHAFT
   (a) Using SST and a press, press out the dust cover.
   SST 09950–00020
   (b) Using a snap ring expander, remove the snap ring.
(c) Using a press, press out the bearing.
(d) Remove the snap ring.

FRONT DRIVE SHAFT ASSEMBLY

1. RH DRIVE SHAFT:
   ASSEMBLE CENTER DRIVE SHAFT
   (a) Install a new snap ring to the center drive shaft.
   (b) Using a steel plate and press, press in the bearing.

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

(d) Using SST, an extension bar and press, press in a new dust cover.
   SST 09506 – 35010
HINT: The clearance between the dust cover and the bearing should be kept in the range shown in the illustration.

2. INSTALL DUST COVER
   LH Drive Shaft:
   Using a press, install a new dust cover.
3. TEMPORARILY INSTALL OUTBOARD JOINT BOOT AND NEW BOOT CLAMPS
Temporarily install the boot and 2 new boot clamps for the outboard joint to the drive shaft.
HINT: Before installing the boot, wrap vinyl tape around the spline of the drive shaft to prevent damaging the boot.

4. TEMPORARILY INSTALL INBOARD JOINT BOOT AND NEW BOOT CLAMPS
Temporarily install the boot and 2 new boot clamps for the inboard joint to the drive shaft.

5. INSTALL TRIPOD JOINT
(a) Using a snap ring expander, install a new snap ring.
(b) Place the beveled side of the tripod joint axial spline toward the outboard joint.
(c) Align the matchmarks placed before removal.

RH Drive Shaft:
Using a steel plate and press, press in a new dust cover until the distance from the tip of the center drive shaft to the dust cover falls within the specification as shown in the illustration.
6. INSTALL BOOT TO OUTBOARD JOINT
Before assembling the boot, fill grease into the out–board joint and boot.
HINT: Use the grease supplied in the boot kit.

Grease capacity:
TOYOTA Type:
120–130 g (4.2–4.6 oz.)
GKN Type:
140–160 g (4.9–5.6 oz.)

Grease color:
Black

7. INSTALL INBOARD JOINT TULIP TO FRONT DRIVE SHAFT
(a) Pack in the grease to the boot and inboard joint tulip.
HINT: Use the grease supplied in the boot kit.

Grease capacity:
TOYOTA Type:
232–242 g (8.2–8.5 oz.)
GKN Type:
185–215 g (6.5–7.6 oz.)

Grease color:
Yellow ocher

(d) Using a brass bar and hammer, tap in the tripod joint to the drive shaft.
NOTICE: Do not tap the roller.

(e) Using a snap ring expander, install a new snap ring.
(b) Align the matchmarks placed before removal, and install the inboard joint tulip to the drive shaft.

(c) Install the boot to the inboard joint tulip.

S. TOYOTA TYPE:
ASSEMBLE BOOT CLAMPS TO BOTH BOOTS
(a) Be sure the boot is in the shaft groove.
(b) Ensure that the boot is not stretched or contracted when the drive shaft is at standard length.

**Drive shaft standard length:**
- LH 608.1 ±5.0 mm (23.941 ±0.197 in.)
- RH 866.2 ±5.0 mm (34.102 ±0.197 in.)

(c) Using a screwdriver, bend the band and lock it as shown in the illustration.

GKN TYPE:
ASSEMBLE BOOT CLAMPS TO BOTH BOOT
(a) Be sure the boots are in the shaft groove.
(b) Ensure that the boot is not stretched or contracted when the drive shaft is at standard length.

**Drive shaft standard length:**
- LH 609Z ±2.0 mm (23.984 ±0.079 in.)
- RH 880.8 ±2.0 mm (34.677 ±0.079 in.)

(c) Using a boot clamp tool, place pincer jaws in closing hooks of large clamps.
(d) Secure clamp by drawing closing hooks together.
(e) Check that the clamp at closed position is the same as in the illustration.

(f) Secure the clamp onto the boot.

(g) Place SST onto the clamp.

   SST 09521 – 24010

(h) Tighten SST so that the clamp is pinched.

   HINT: Pinch the inboard side of the boot clamp, as shown in the illustration.

   NOTICE: Do not overtighten the SST.

(i) Using SST, adjust the clearance of the clamp.

   SST 09240 – 00020

   Clearance:

   1.9 mm (0.075 in.) or less
FRONT SUSPENSION

DESCRIPTION

The front suspension is MacPherson strut type suspension with L–shape lower arm.
## PREPARATION

### SST (SPECIAL SERVICE TOOLS)

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<td>Dust deflector installation</td>
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<td>(09316–00010)</td>
<td>Replacer Pipe</td>
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<tr>
<td>(09316–00040)</td>
<td>Replacer ‘C’</td>
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<tr>
<td>09608–32010</td>
<td>Steering Knuckle Oil Seal Replacer</td>
<td>Dust deflector installation</td>
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<tr>
<td>09628–62011</td>
<td>Ball Joint Puller</td>
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<tr>
<td>09727–00045</td>
<td>Arm Set “B”</td>
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<tr>
<td>09727–30020</td>
<td>Coil Spring Compressor</td>
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<tr>
<td>09729–22031</td>
<td>Front Spring Upper Seat Holder</td>
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## RECOMMENDED TOOLS

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<tr>
<td>09025–00010</td>
<td>Small Torque Wrench</td>
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## EQUIPMENT

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<th>Description</th>
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<tr>
<td>Torque wrench</td>
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</table>
FRONT SHOCK ABSORBER COMPONENTS

- Suspension Upper Support
- Upper Insulator
- Coil Spring
- Spring Bumper
- Lower Insulator

N-m (kgf-cm, ft-lbf) : Specified torque
◆ Non-reusable part
FRONT SHOCK ABSORBER REMOVAL

1. JACK UP VEHICLE AND REMOVE FRONT WHEEL
2. REMOVE BRAKE HOSE AND ABS SPEED SENSOR WIRE (W/ ABS) FROM SHOCK ABSORBER

3. DISCONNECT SHOCK ABSORBER FROM STEERING KNUCKLE
Remove the 2 nuts and bolts and disconnect the shock absorber from the steering knuckle.

4. REMOVE SHOCK ABSORBER WITH COIL SPRING
(a) Remove the 3 nuts on upper side of the shock absorber.
(b) Remove the shock absorber with coil spring.

5. REMOVE COIL SPRING
(a) Using SST, compress the coil spring.
   SST 09727–00045,09727–30020
   NOTICE: When holding the shock absorber with the coil spring removed, do not hold it by the spring lower seat. Also, do not knock the spring lower seat.
(b) Install a bolt and 2 nuts to the bracket at the lower portion of the shock absorber and secure it in a vise.
FRONT SHOCK ABSORBER INSPECTION

1. INSPECT SHOCK ABSORBER
Compress and extend the shock absorber rod and check that there is no abnormal resistance or unusual operation sounds. If there is any abnormality, replace the shock absorber with a new one.

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

FRONT SHOCK ABSORBER DISPOSAL
1. FULLY EXTEND SHOCK ABSORBER ROD
2. DRILL HOLE TO REMOVE GAS FROM CYLINDER
Using a drill, make a hole in the cylinder as shown to remove the gas inside.

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

7. INSTALL LOWER INSULATOR ONTO SHOCK ABSORBER

4. INSTALL UPPER INSULATOR AND UPPER SUPPORT
   (a) Install the upper insulator to the upper support.

2. INSTALL SPRING BUMPER TO PISTON ROD

3. INSTALL COIL SPRING
   (a) Using SST, compress the coil spring.
      SST  09727–00045,09727–30020
   (b) Install the coil spring to the shock absorber.
      HINT: Fit the lower end of the coil spring into the gap of the lower seat.
5. INSTALL SHOCK ABSORBER WITH COIL SPRING
Place the shock absorber and install the 3 nuts.
   Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

6. CONNECT SHOCK ABSORBER TO STEERING KNUCKLE
   (a) Coat the threads of the nuts with engine oil.
   (b) Install the 2 bolts and nuts.
     Torque: 211 N·m (2,150 kgf·cm, 156 ft·lbf)
7. INSTALL BRAKE HOSE AND ABS SPEED SENSOR WIRE (W/ ABS) TO SHOCK ABSORBER
   Brake hose
   Torque: 29 N·m (300 kgf·cm, 22 ft lbf)
   ABS wire
   Torque: 5.4 N·m (55 kgf·cm, 48 in. lbf)

8. INSTALL FRONT WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft lbf)

9. INSPECT FRONT WHEEL ALIGNMENT
   (See page SA–4)
LOWER SUSPENSION ARM COMPONENTS

N·m (kgf·cm, ft·lbf) : Specified torque
* Non-reusable part
LOWER ARM REMOVAL

1. JACK UP VEHICLE AND REMOVE FRONT WHEEL
2. REMOVE FRONT FENDER APRON SEAL

3. REMOVE DRIVE SHAFT LOCK NUT
   (a) Remove the cotter pin and lock cap.
   (b) While applying the brakes, remove the nut.

4. DISCONNECT TIE ROD END FROM STEERING KNUCKLE
   (a) Remove the cotter pin and remove the nut.
   (b) Using SST, disconnect the tie rod end from the steering knuckle.
      SST 09628–62011

5. REMOVE LEFT AND RIGHT STABILIZER END BRACKETS FROM LOWER ARMS

6. DISCONNECT LOWER ARM FROM LOWER BALL JOINT
   Remove the bolt and 2 nuts.
7. REMOVE DRIVE SHAFT FROM AXLE HUB
(a) Remove the drive shaft from the axle hub.
(b) Hang up the drive shaft using wire, etc.
   NOTICE: Be careful not to damage the drive shaft boot and ABS sensor rotor.

8. REMOVE LOWER ARM
(a) Remove the 2 bolts on front side of the lower arm.
(b) Remove the bolt and nut on rear side of the lower arm.
(c) Remove the lower arm.
(d) Remove the lower arm bushing stopper from the lower arm shaft.

LOWER ARM INSTALLATION

1. INSTALL LOWER ARM
(a) Place the lower arm and temporarily install the rear side bolt and nut
(b) Install the lower arm bushing stopper to the lower arm shaft.
(c) Install the 2 bolts on the front side of the lower arm.
   Torque: 206 N·m (2,100 kgf·cm, 152 ft·lbf)

(d) Tighten the bolt on rear side of the lower arm.
   Torque: 206 N·m (2,100 kgf·cm, 152 ft·lbf)

2. INSTALL DRIVE SHAFT TO AXLE HUB

3. CONNECT LOWER ARM TO LOWER BALL JOINT
   Install the bolt and 2 nuts.
   Torque: 127 N·m (1,300 kgf·cm, 94 ft·lbf)

4. INSTALL LEFT AND RIGHT STABILIZER END BRACKETS TO LOWER ARMS
   Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)
5. CONNECT TIE ROD END TO STEERING KNUCKLE
(a) Connect the tie rod end to the steering knuckle and tighten the nut.
   Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)
(b) Install a new cotter pin.

6. INSTALL DRIVE SHAFT LOCK NUT
(a) While applying the brakes, install the nut.
   Torque: 294 N·m (3,000 kgf·cm, 217 ft·lbf)
(b) Install the lock cap and a new cotter pin.

7. INSTALL FRONT FENDER APRON SEAL
8. INSTALL FRONT WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
9. INSPECT FRONT WHEEL ALIGNMENT
   (See page SA–4)
LOWER BALL JOINT COMPONENTS

Dust Deflector

Cotter Pin

Brake Caliper

Lower Ball Joint

ABS Speed Sensor

Cotter Pin

Disc

107 (1,090, 79)

211 (2,150, 156)

7.8 (80, 69 in.-lb)

294 (3,000, 217)

127 (1,300, 94)

49 (500, 36)

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

◆ Non-reusable part
LOWER BALL JOINT REMOVAL

1. REMOVE STEERING KNUCKLE WITH AXLE HUB
(See page SA–11)

2. REMOVE LOWER BALL JOINT
(a) Using a screwdriver, remove the dust deflector.
(b) Remove the cotter pin and nut.
(c) Using SST, remove the lower ball joint.
   SST 09628–62011

LOWER BALL JOINT INSPECTION

1. INSPECT BALL JOINT FOR ROTATION CONDITION
   (a) As shown, flip the ball joint stud back and forth 5
       times before installing the nut.
   (b) Using a torque gauge, turn the nut continuously one
       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, 8.7–26 in. lbf)

LOWER BALL JOINT INSTALLATION

1. INSTALL LOWER BALL JOINT
   (a) Install the lower ball joint and tighten the nut.
      Torque: 123 N·m (1,250 kgf·cm, 90 ft·lbf)
   (b) Install a new cotter pin.
2. INSTALL DUST DEFLECTOR
Using SST and a hammer, install a new dust deflector.
SST 09316–60010 (09316–00010, 09316–00040)
09608–32010
HINT: Align the hoses for the ABS speed sensor in the
dust deflector and steering knuckle.
3. INSTALL STEERING KNUCKLE WITH AXLE HUB
(See page SA–15)
STABILIZER BAR
COMPONENTS

- Stabilizer Bar Link
- Retainer
- Bushing
- Fender Apron Seal
- Gasket
- Cotter Pin
- Front Exhaust Pipe Stay
- Clamp
- Exhaust Front Pipe (1MZ-FE)
- Exhaust Front Pipe (5S-FE)

N-m (kgf-cm, ft-lbf): Specified torque
◆ Non-reusable part
STABILIZER BAR REMOVAL

1. JACK UP VEHICLE AND REMOVE LEFT AND RIGHT FRONT WHEELS
2. REMOVE LEFT AND RIGHT FENDER APRON SEALS

3. DISCONNECT LEFT AND RIGHT TIE ROD ENDS FROM STEERING KNUCKLES
   (a) Remove the cotter pin and nut.
   (b) Using SST, disconnect the tie rod end from the steering knuckle.
       SST 09628–62011

4. REMOVE LEFT AND RIGHT STABILIZER BAR LINKS

5. REMOVE LEFT AND RIGHT STABILIZER BAR BUSHINGS
   (a) Remove the left and right bushing retainers.
   (b) Remove the stabilizer bar bushings.

6. REMOVE EXHAUST FRONT PIPE
   5S–FE Engine:
       (See page EG–139)
   1 MZ–FE Engine:
       (See page EG–188)

7. REMOVE STEERING GEAR BOX MOUNTING BOLTS AND NUTS
8. REMOVE STABILIZER BAR  
HINT: Lift the steering gear box and remove the stabilizer bar.

STABILIZER BAR LINK INSPECTION

1. INSPECT BALL JOINT FOR ROTATION CONDITION  
(a) Flip the ball joint stud back and forth 5 times as shown in the illustration, before installing the nut.  
(b) Using a torque gauge, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the fifth turn.  
   Turning torque:  
   \[0.05–1.0 \text{ N} \cdot \text{m} \quad (0.5–10 \text{ kgf} \cdot \text{cm}, \ 0.4–8.7 \text{ in.} \cdot \text{lbf})\]  
   If not within specification, replace the stabilizer bar link.

STABILIZER BAR INSTALLATION

1. POSITION STABILIZER BAR  
HINT: Lift the steering gear box and position the stabilizer bar.

2. INSTALL STEERING GEAR BOX MOUNTING BOLTS AND NUTS  
   Torque: 181 N-m (1.850 kgf-cm, 134 ft-lbf)

3. INSTALL EXHAUST FRONT PIPE  
   SS–FE Engine:  
   (See page EG–139)  
   1 MZ–FE Engine:  
   (See page EG–189)
6. CONNECT LEFT AND RIGHT TIE ROD ENDS TO STEERING KNUCKLES
   (a) Connect the tie rod end to the steering knuckle and tighten the nut.
       Torque: 49 N m (500 kgf cm, 36 ft lbf)
   (b) Install a new cotter pin.

5. INSTALL LEFT AND RIGHT STABILIZER BAR LINKS
   Torque: 39 N m (400 kgf cm. 29 ft lbf)

4. INSTALL LEFT AND RIGHT STABILIZER BAR BUSHINGS
   (a) Install the stabilizer bar bushings.
   (b) Install the bushing retainers and bolts.
       Torque: 19 N m (195 kgf cm, 14 ft lbf)

7. INSTALL LEFT AND RIGHT FENDER APRON SEALS

8. INSTALL FRONT WHEELS AND LOWER VEHICLE
   Torque: 103 N m (1,050 kgf cm, 76 ft lbf)
REAR AXLE

DESCRIPTION
The rear axle uses oil–sealed double–row angular ball bearings for wheel bearings. There is no need for bearing grease maintenance or preload adjustment.
## PREPARATION

### SST (SPECIAL SERVICE TOOLS)

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Description</th>
<th>Relevance</th>
</tr>
</thead>
<tbody>
<tr>
<td>09608–32010</td>
<td>Steering Knuckle oil Seal Replacer</td>
<td>Axle hub installation (w/o ABS)</td>
</tr>
<tr>
<td>09628–10011</td>
<td>Ball Joint Puller</td>
<td>Hub bolt removal</td>
</tr>
<tr>
<td>09636–20010</td>
<td>Upper Ball Joint Dust Cover Replacer</td>
<td>Axle hub installation (w/o ASS)</td>
</tr>
<tr>
<td>09950–20017</td>
<td>Universal Puller</td>
<td>(w/o ABS)</td>
</tr>
</tbody>
</table>

## EQUIPMENT

<table>
<thead>
<tr>
<th>Item</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>Dial indicator</td>
<td></td>
</tr>
<tr>
<td>Torque wrench</td>
<td></td>
</tr>
</tbody>
</table>
REAR AXLE HUB
COMPONENTS

N-m (kgf·cm, ft·lb): Specified torque
◆ Non-reusable part
REAR AXLE HUB REMOVAL

1. JACK UP VEHICLE AND REMOVE REAR WHEEL
2. W/ DISC BRAKE:
   REMOVE BRAKE CALIPER AND DISC
   (a) Remove the 2 brake caliper set bolts.
   (b) Hang up the brake caliper using wire, etc.
   (c) Remove the disc.

3. w/ DRUM BRAKE:
   REMOVE BRAKE DRUM
4. CHECK BEARING BACKLASH AND AXLE HUB DEVIATION
   (a) Place the 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 greater than the specified maximum, replace the bearing.
   (b) Using a dial indicator, check the deviation at the surface of the axle hub outside the hub bolt.
      Maximum: 0.47 mm (0.0028 in.)
      If greater than the specified maximum, replace the axle shaft and bearing.

6. REMOVE REAR AXLE HUB
   (a) Remove the 4 bolts and rear axle hub.
   (b) Remove the O-ring.
REAR AXLE HUB DISASSEMBLY

**NOTICE:** If equipped with ABS, do not disassemble the rear axle shaft and bearing.

1. **REMOVE LOCK NUT**
   (a) Using a hammer and chisel, release the nut caulking.
   (b) Remove the lock nut.

2. **REMOVE AXLE SHAFT FROM BEARING**
   (a) Using SST, remove the axle shaft from bearing.
      SST 09950 – 20017
   (b) Using SST, remove the inner race (outside) from the axle shaft.
      SST 09950–20017

REAR AXLE HUB ASSEMBLY

1. **INSTALL AXLE SHAFT TO BEARING**
   (a) Using SST and a press, install the axle shaft to a new bearing.
      ST 09608–32010,09636–20010
   (b) Install a new lock nut.
      Torque: 123 N·m (1250 kgf·cm, 90 ft·lbf)
      (c) Stake the lock nut.
REAR AXLE HUB INSTALLATION

1. INSTALL REAR AXLE HUB
   (a) Install a new 0–ring.
   HINT: Coat the 0–ring with MP grease.
   (b) Install the rear axle hub with the 4 bolts.
   Torque: 80 N·m (820 kgf·cm, 59 ft·lbf)

2. w/ DISC BRAKE:
   INSTALL DISC AND BRAKE CALIPER.
   (a) Install the disc.
   (b) Install the brake caliper.
   Torque: 47 N·m (475 kgf·cm, 34 ft·lbf)

3. w/ DRUM BRAKE:
   INSTALL BRAKE DRUM

4. INSTALL REAR WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

HUB BOLT REPLACEMENT

1. JACK UP VEHICLE AND REMOVE REAR WHEEL
2. REMOVE REAR DISC OR DRUM
3. REMOVE HUB BOLT
   Using SST, remove the hub bolt.
   SST 09628–10011

4. INSTALL HUB BOLT
   Install washer– and nut to the hub bolt as shown in the illustration, and install the hub bolt by tightening the nut.

5. INSTALL REAR DISC OR DRUM
6. INSTALL REAR WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)
REAR AXLE CARRIER REMOVAL

1. REMOVE REAR AXLE HUB
2. w/ DRUM BRAKE:
   REMOVE BRAKE HOSE FROM SHOCK ABSORBER

3. REMOVE BACKING PLATE FROM REAR AXLE CARRIER
   Hang up the backing plate using wire, etc.

4. w/ ABS:
   REMOVE ABS SPEED SENSOR
   Remove the ABS speed sensor from rear axle carrier.

5. WAGON only:
   REMOVE LSPV SPRING
   Disconnect the LSPV spring from the lower arm.

6. REMOVE REAR AXLE CARRIER
   (a) Loosen the 3 nuts.
   HINT: Do not remove the bolts.
REAR AXLE CARRIER INSTALLATION

1. INSTALL REAR AXLE CARRIER
(a) Place the rear axle carrier and temporarily install the 3 bolts and nuts.
(b) Remove the bolt and nut and disconnect the strut rod from the rear axle carrier.
(c) Remove the 3 nuts and bolts.
(d) Remove the rear axle carrier.

(b) Connect the strut rod to the rear axle carrier.
(c) Temporarily install the bolt and nut.
(d) Torque the 3 nuts.
   Lower side of shock absorber:
   Torque: 255 N·m (2,600 kgf·cm, 188 ft·lbf)
   Lower arm:
   Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)
2. w/ ABS:
   INSTALL ABS SPEED SENSOR
   Install the ABS speed sensor to the rear axle carrier.
   Torque: 7.8 N·m (80 kgf·cm, 69 in.-lb)

3. WAGON only:
   INSTALL LSPV SPRING
   Connect the LSPV spring to the lower arm.
   Torque: 13 N·m (130 kgf·cm, 9.4 ft-lb)

4. INSTALL BACKING PLATE AND REAR AXLE HUB
   (a) Place the backing plate.
   (b) Install a new O-ring.
   (c) Install the rear axis hub.
   Torque: 80 N·m (820 kgf·cm, 59 ft-lb)

5. w/ DRUM BRAKE:
   INSTALL BRAKE LINE TO SHOCK ABSORBER
   Torque: 29 N·m (300 kgf·cm, 22 ft-lb)

6. STABILIZE SUSPENSION
   (a) Install the rear wheel and lower the vehicle.
   (b) Bounce the vehicle up and down several times to stabilize the suspension.

7. TORQUE STRUT ROD BOLT
   (a) Jack up the vehicle and support the body.
   (b) Remove the rear wheel.
   (c) Support the rear axle carrier with a jack.
   (d) Torque the bolt.
   Torque: 113 N·m (1,150 kgf·cm, 83 ft-lb)

8. INSTALL REAR WHEEL AND LOWER VEHICLE
   Torque: 103 N·m (1,050 kgf·cm, 76 ft-lb)
REAR SUSPENSION

DESCRIPTION
The rear suspension is a dual-link strut independent suspension type composed of two lower arms in parallel at the side, and strut rods which extend forward.
## PREPARATION

### SST (SPECIAL SERVICE TOOLS)

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Tool Name</th>
</tr>
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<tbody>
<tr>
<td>09727–30020</td>
<td>Coil Spring Compressor</td>
</tr>
<tr>
<td>09729–22031</td>
<td>Front Spring Upper Seat Holder</td>
</tr>
</tbody>
</table>

## RECOMMENDED TOOLS

<table>
<thead>
<tr>
<th>Tool Code</th>
<th>Tool Name</th>
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<tbody>
<tr>
<td>09025–00010</td>
<td>Small Torque Wrench</td>
</tr>
</tbody>
</table>

## EQUIPMENT

<table>
<thead>
<tr>
<th>Tool</th>
</tr>
</thead>
<tbody>
<tr>
<td>Torque wrench</td>
</tr>
</tbody>
</table>
REAR SHOCK ABSORBER REMOVAL

1. SEDAN/COUPE
   REMOVE REAR SEAT AND PACKAGE TRAY TRIM
   (SEE THE BO SECTION)

WAGON:
   REMOVE REAR SIDE SEATBACK AND TONNEAU
   SIDE COVER
   (SEE PAGE BO SECTION)

2. JACK UP VEHICLE AND REMOVE REAR WHEEL

3. WAGON ONLY:
   DISCONNECT LSPV SPRING FROM LOWER ARM

4. REMOVE ABS SPEED SENSOR WIRE (w/ ABS) AND
   BRAKE HOSE FROM SHOCK ABSORBER

5. DISCONNECT STABILIZER BAR LINK FROM
   SHOCK ABSORBER

6. REMOVE SHOCK ABSORBER WITH COIL SPRING
   (a) Loosen the 2 nuts on lower side of shock absorber.
7. REMOVE COIL SPRING

(a) Remove the cap.

(b) Using SST, compress the coil spring.

   SST 09727–30020

(c) Install a bolt and 2 nuts to the bracket at the lower portion of the shock absorber and secure it in a visa.

(d) Lower the rear axle carrier and remove the 2 bolts.

(e) Remove the shock absorber with coil spring.

(c) Remove the 3 nuts of upper support.
REAR SHOCK ABSORBER 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, use the following procedure.

REAR SHOCK ABSORBER DISPOSAL

1. FULLY EXTEND SHOCK ABSORBER ROD
2. DRILL HOLE TO REMOVE GAS FROM CYLINDER
Using a drill, make a hole in the cylinder as shown to remove the gas inside.

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

REAR SHOCK ABSORBER INSTALLATION

1. INSTALL LOWER INSULATOR ONTO SHOCK ABSORBER

(d) Using SST to hold the upper support, remove the nut. SST 09729–22031

(e) Remove the following parts.
  - Suspension upper support
  - Upper insulator
  - Coil spring
  - Spring bumper
  - Lower insulator
2. INSTALL SPRING BUMPER TO PISTON ROD

3. INSTALL COIL SPRING
   (a) Using SST, compress the coil spring
       SST 09727–30020

   (b) Install the coil spring to the shock absorber.
       HINT: Fit the lower end of the coil spring into the gap
       of the lower seat.

4. INSTALL UPPER INSULATOR AND UPPER SUPPORT
   (a) Before installing the upper support and insulator,
       apply the lithium or silicon based grease as shown in
       the illustration.

   (b) Install the upper insulator to the upper support.
       HINT: Match the bolt of the upper support with the
       cut–off part of the insulator.
(c) Install the upper support to the piston rod.

(d) Using SST to hold the upper support, install a new nut.
SST 09729–22031
Torque: 49 N·m (500 kgf·cm, 36 ft·lbf)

(e) Rotate the upper support and set it in the direction shown in the illustration.
(f) Remove the SST.
HINT: After removing SST, again check the direction of the upper support.
(g) Install the cap.

5. INSTALL SHOCK ABSORBER WITH COIL SPRING
Install the shock absorber and install the 3 nuts of upper support.
Torque: 39 N·m (400 kgf·cm, 29 ft·lbf)

6. CONNECT SHOCK ABSORBER TO REAR AXLE CARRIER
(a) Coat the threads of the nuts with engine oil.
(b) Install the 2 bolts and nuts.
Torque: 255 N·m (2,600 kgf·cm, 188 ft·lbf)
7. CONNECT STABILIZER BAR LINK TO SHOCK ABSORBER
   Torque: 64 N·m (650 kgf·cm, 47 ft·lbf)

8. INSTALL ABS SPEED SENSOR WIRE (w/ ABS) AND BRAKE HOSE TO SHOCK ABSORBER
   Brake hose
   Torque: 29 N·m (300 kgf·cm, 22 ft·lbf)
   ABS wire
   Torque: 5.4 N·m (55 kgf·cm, 48 in·lbf)

9. WAGON only:
   CONNECT LSPV SPRING FROM LOWER ARM
   Torque: 13 N·m (130 kgf·cm, 9 ft·lbf)

10. INSTALL REAR WHEEL AND LOWER VEHICLE
    Torque: 103 N·m (1,050 kgf·cm, 76 ft·lbf)

11. SEDAN/COUPE:
    INSTALL PACKAGE TRAY TRIM AND REAR SEAT
    (See the BO section)
    WAGON:
    INSTALL TONNEAU SIDE COVER AND REAR SIDE SEATBACK
    (See the BO section)
LOWER SUSPENSION ARM AND STRUT ROD COMPONENTS
LOWER SUSPENSION ARM AND STRUT ROD REMOVAL

1. JACK UP VEHICLE AND REMOVE REAR WHEEL
2. REMOVE STRUT ROD
   (a) Remove the 2 bolts and nuts.
   (b) Remove the strut rod.

3. WAGON only:
   DISCONNECT LSPV SPRING FROM LOWER ARM

4. REMOVE NO.2 LOWER SUSPENSION ARM
   (a) Remove the 2 nuts and washers.
   (b) Remove the No.2 lower suspension arm.

5. REMOVE LEFT AND RIGHT STABILIZER BUSHING RETAINER
6. REMOVE EXHAUST CENTER PIPE AND TALE PIPE
   5S–FE Engine:
   (See page EG1–139)
   1MZ–FE Engine:
   (See page EG2–189)

7. REMOVE NO.1 LOWER SUSPENSION ARM
   (a) Support the suspension member with a jack.
NO.2 LOWER SUSPENSION ARM

DISASSEMBLY

1. DISASSEMBLE NO.2 LOWER SUSPENSION ARM
(a) Loosen the 2 lock nuts.
(b) Turn the adjusting tube and disassemble the No.2 lower suspension arm.
(c) Remove the lock nuts from the arms.

NO.2 LOWER SUSPENSION ARM
ASSEMBLY

1. ASSEMBLE NO.2 LOWER SUSPENSION ARM
(a) Install the lock nuts to the arms.
(b) Turn the adjusting tube and assemble the No.2 lower suspension arm.
(c) Lower the suspension member.

(d) Remove the No. 1 lower suspension arm with the 2 bolts and the washer.

(b) Remove the 6 nuts and the left and right suspension member lower stopper.
2. INSTALL SUSPENSION MEMBER TO BODY
   (a) Jack up the suspension member.
   (b) Install the suspension member lower supports and the 6 nuts.

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

   Nut B:
   Torque: 38 N·m (390 kgf·cm, 28 ft·lbf)

3. INSTALL LEFT AND RIGHT STABILIZER BUSHING RETAINERS
   Torque: 19 N·m (195 kgf·cm, 14 ft·lbf)

4. INSTALL EXHAUST CENTER PIPE AND TALE PIPE
   5S–FE Engine:
   (See page EG1–139)
   1MZ–FE Engine:
   (See page EG2–189)
5. INSTALL NO.2 LOWER SUSPENSION ARM
(a) Install the No.2 lower suspension arm with the 3 washers.
   HINT: Face the paint mark to the rear.
(b) Temporarily install the 2 lock nuts.

6. WAGON only:
   CONNECT LSPV SPRING TO LOWER ARM
   Torque: 13 N·m (130 kgf·cm, 9.4 ft·lbf)

7. INSTALL STRUT ROD
   Place the strut rod and temporarily install the 2 bolts and nuts.

8. TORQUE BOLTS AND NUTS
(a) Torque the nut on outside of the lower arm.
   Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)
(b) Install the rear wheel and lower the vehicle.
(c) Bounce the vehicle up and down several times to stabilize the suspension.

(d) Jack up the vehicle and support the body with stands.
(e) Remove the rear wheel.
(f) Support the rear axle carrier with a jack.
(g) Torque the nut on inside of lower arm.
   Torque: 181 N·m (1,850 kgf·cm, 134 ft·lbf)
(h) Torque the strut rod set bolts.
   Torque: 113 N·m (1,150 kgf·cm, 83 ft·lbf)

9. INSTALL REAR WHEEL AND LOWER VEHICLE
10. INSPECT AND ADJUST REAR WHEEL ALIGNMENT
   (See page SA–6)

11. TORQUE NO.2 LOWER SUSPENSION ARM LOCK NUTS
    Torque: 56 N·m (570 kgf·cm, 41 ft·lbf)
STABILIZER BAR LINK INSPECTION

(a) Flip the ball joint stud back and forth 5 times as shown in the illustration, before installing the nut.

(b) Using a torque gauge, turn the nut continuously one turn every 2–4 seconds and take the torque reading on the fifth turn.

Turning torque:

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

If not within specification, replace the stabilizer bar link.
## SERVICE SPECIFICATIONS

### SERVICE DATA

<table>
<thead>
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<th>SEDAN/COUPE</th>
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### SUSPENSION AND AXLE SERVICE SPECIFICATIONS

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<tr>
<th>Cold tire inflation pressure</th>
<th>Tire size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P195/70R14 90H</td>
<td>180 kPa (1.8 kgf/cm², 26 psi)</td>
</tr>
<tr>
<td></td>
<td>P205/65R15 92H</td>
<td>180 kPa (1.8 kgf/cm², 26 psi)</td>
</tr>
<tr>
<td></td>
<td>P205/65R15 92V</td>
<td>220 kPa (2.2 kgf/cm², 32 psi)</td>
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<table>
<thead>
<tr>
<th>Tire runout</th>
<th>Unbalance after adjustment</th>
<th>1.0 mm (0.039 in.) or less</th>
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<table>
<thead>
<tr>
<th>Wheel balance</th>
<th>8.0 g (0.018 lb) or less</th>
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<table>
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<tr>
<th>Vehicle height</th>
<th>Tire size</th>
<th>Height</th>
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<tbody>
<tr>
<td></td>
<td>P195/70R14</td>
<td>210 mm (8.27 in.)</td>
</tr>
<tr>
<td></td>
<td>P205/65R15</td>
<td>213 mm (8.39 in.)</td>
</tr>
</tbody>
</table>

| Outside wheel (reference) | P195/70R14 | 37°20′ ± 2° |
| Inside wheel | P205/65R15 | 36°00′ ± 2° |

| Camber | −0°35′ ± 45′ |
|        | 45° or less   |

| Caster | 1°10′ ± 45′ |
|        | 45° or less  |

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<tr>
<th>Steering axis inclination</th>
<th>13°05′ ± 45′</th>
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</table>

<table>
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<tr>
<th>Wheel angle</th>
<th>Tire size</th>
<th>Inside wheel</th>
<th>Outside wheel</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>P195/70R14</td>
<td>37°20′ ± 2°</td>
<td>32°10′</td>
</tr>
<tr>
<td></td>
<td>P205/65R15</td>
<td>36°00′ ± 2°</td>
<td>31°15′</td>
</tr>
</tbody>
</table>

| Rear wheel alignment | Toe– in (total) | 0.4° ± 0.2° (4 ± 2 mm, 0.16 ± 0.08 in.) |
|                      | Camber        | −0°26′ ± 45′ |
|                      | Left – right error | 45° or less |

<table>
<thead>
<tr>
<th>Front axle</th>
<th>Axle bearing backlash</th>
<th>0.05 mm (0.0020 in.) or less</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Axle hub deviation</td>
<td>0.05 mm (0.0020 in.) or less</td>
</tr>
</tbody>
</table>

| Front suspension | Lower ball joint turning torque | 1.0 – 2.9 N·m (10 – 30 kgf·cm, 8.7 – 26 in·lbf) |
|                 | Stabilizer bar link turning torque | 0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in·lbf) |

<table>
<thead>
<tr>
<th>Rear axle</th>
<th>Axle bearing backlash</th>
<th>0.05 mm (0.0020 in.) or less</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Axle hub deviation</td>
<td>0.07 mm (0.0028 in.) or less</td>
</tr>
</tbody>
</table>

| Rear suspension | Stabilizer bar link turning torque | 0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in·lbf) |
### WAGON

<table>
<thead>
<tr>
<th>Cold tire inflation pressure</th>
<th>Tire size</th>
<th>Pressure</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front</td>
<td>Rear</td>
</tr>
<tr>
<td>For all roads including full rated loads</td>
<td>P195/70R14 90H</td>
<td>220 kPa (2.2 kgf/cm², 32 psi)</td>
</tr>
<tr>
<td></td>
<td>P205/65R15 92H</td>
<td>220 kPa (2.2 kgf/cm², 32 psi)</td>
</tr>
<tr>
<td>Optional inflation for reduced loads (1 or 4 passengers)</td>
<td>P195/70R14 90H</td>
<td>200 kPa (2.0 kgf/cm², 29 psi)</td>
</tr>
<tr>
<td></td>
<td>P205/65R15 92H</td>
<td>200 kPa (2.0 kgf/cm², 29 psi)</td>
</tr>
</tbody>
</table>

| Tire runout | 1.0 mm (0.039 in.) or less |
| Wheel balance | Unbalance after adjustment | 8.0 g (0.018 lb) or less |

<table>
<thead>
<tr>
<th>Vehicle height</th>
<th>Tire size</th>
<th>Height</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Front</td>
<td>Rear</td>
</tr>
<tr>
<td>P195/70R14</td>
<td>210 mm (8.27 in.)</td>
<td>272 mm (10.71 in.)</td>
</tr>
<tr>
<td>P205/65R15</td>
<td>214 mm (8.43 in.)</td>
<td>277 mm (10.91 in.)</td>
</tr>
</tbody>
</table>

<p>| Front wheel alignment | Toe – in (total) | 0° ± 0.2° (0 ± 2 mm, 0 ± 0.08 in.) |</p>
<table>
<thead>
<tr>
<th>Wheel angle</th>
<th>Tire size</th>
<th>Inside wheel</th>
<th>Outside wheel (reference)</th>
</tr>
</thead>
<tbody>
<tr>
<td>P195/70R14</td>
<td>37°20’ ± 2°</td>
<td>32°15’</td>
<td></td>
</tr>
<tr>
<td>P205/65R15</td>
<td>36°00’ ± 2°</td>
<td>31°20’</td>
<td></td>
</tr>
</tbody>
</table>

| Camber Left– right error | –0°35’ ± 45’ |
|                          | 45’ or less  |
| Caster Left– right error | 1°05’ ± 45’  |
|                          | 45’ or less  |
| Steering axis inclination | 13°00’ ± 45’ |

| Rear wheel alignment | Toe – in (total) | 0.4° ± 0.2° (4 ± 2 mm, 0.16 ± 0.08 in.) |
|                     | Camber Left – right error | –0°15’ ± 45’ |
|                     |                          | 45’ or less  |

| Front axle | Axle bearing backlash | 0.05 mm (0.0020 in.) or less |
|           | Axle hub deviation    | 0.05 mm (0.0020 in.) or less |

| Front suspension | Lower ball joint turning torque | 1.0 – 2.9 N·m (10 – 30 kgf·cm, 8.7 – 26 in.-lbf) |
|                 | Stabilizer bar link turning torque | 0.05 – 1.0 N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf) |

| Rear axle | Axle bearing backlash | 0.05 mm (0.0020 in.) or less |
|          | Axle hub deviation    | 0.07 mm (0.0028 in.) or less |

| Rear suspension | Stabilizer bar link turning torque | 0.05 – 1.0N·m (0.5 – 10 kgf·cm, 0.4 – 8.7 in.-lbf) |
## TORQUE SPECIFICATIONS
### FRONT

<table>
<thead>
<tr>
<th>Part tightened</th>
<th>N·m</th>
<th>kgf·cm</th>
<th>ft-lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Tie rod end lock nut</td>
<td>74</td>
<td>750</td>
<td>54</td>
</tr>
<tr>
<td>Steering knuckle x Shock absorber</td>
<td>211</td>
<td>2,150</td>
<td>156</td>
</tr>
<tr>
<td>Steering knuckle x Brake caliper</td>
<td>107</td>
<td>1,090</td>
<td>79</td>
</tr>
<tr>
<td>Steering knuckle x Tie rod end</td>
<td>49</td>
<td>500</td>
<td>36</td>
</tr>
<tr>
<td>Axle hub nut</td>
<td>294</td>
<td>3,000</td>
<td>217</td>
</tr>
<tr>
<td>Ball joint x Lower arm</td>
<td>127</td>
<td>1,300</td>
<td>94</td>
</tr>
<tr>
<td>Ball joint x Steering knuckle</td>
<td>123</td>
<td>1,250</td>
<td>90</td>
</tr>
<tr>
<td>Steering knuckle x Disc brake dust cover</td>
<td>8.3</td>
<td>85</td>
<td>74 in.-lb</td>
</tr>
<tr>
<td>Drive shaft x Side gear shaft (1 MZ–FE)</td>
<td>65</td>
<td>660</td>
<td>48</td>
</tr>
<tr>
<td>Drive shaft center bearing lock bolt</td>
<td>32</td>
<td>330</td>
<td>24</td>
</tr>
<tr>
<td>Suspension upper support x Body</td>
<td>80</td>
<td>820</td>
<td>59</td>
</tr>
<tr>
<td>Suspension upper support x Piston rod</td>
<td>49</td>
<td>500</td>
<td>36</td>
</tr>
<tr>
<td>Brake hose x Shock absorber</td>
<td>29</td>
<td>300</td>
<td>22</td>
</tr>
<tr>
<td>ABS speed sensor wire x Shock absorber</td>
<td>5.4</td>
<td>55</td>
<td>48 in.-lb</td>
</tr>
<tr>
<td>Lower arm set bolt</td>
<td>206</td>
<td>2,100</td>
<td>152</td>
</tr>
<tr>
<td>Lower arm x Stabilizer bar link bracket</td>
<td>58</td>
<td>570</td>
<td>41</td>
</tr>
<tr>
<td>Stabilizer bar bushing retainer</td>
<td>19</td>
<td>195</td>
<td>14</td>
</tr>
<tr>
<td>Stabilizer bar link set nut</td>
<td>39</td>
<td>400</td>
<td>29</td>
</tr>
<tr>
<td>Steering gear box set bolt</td>
<td>181</td>
<td>1,850</td>
<td>134</td>
</tr>
<tr>
<td>Front exhaust pipe stay x Clamp (1 MZ–FE)</td>
<td>29</td>
<td>300</td>
<td>22</td>
</tr>
<tr>
<td>Front exhaust pipe stay x Body (1 MZ–FE)</td>
<td>21</td>
<td>210</td>
<td>15</td>
</tr>
</tbody>
</table>

### REAR

<table>
<thead>
<tr>
<th>Part tightened</th>
<th>N·m</th>
<th>kgf·cm</th>
<th>ft-lbf</th>
</tr>
</thead>
<tbody>
<tr>
<td>Brake caliper x Rear axle carrier</td>
<td>47</td>
<td>475</td>
<td>34</td>
</tr>
<tr>
<td>Axle bearing set bolt</td>
<td>80</td>
<td>820</td>
<td>59</td>
</tr>
<tr>
<td>Bearing lock nut (w/o ABS)</td>
<td>123</td>
<td>1,250</td>
<td>90</td>
</tr>
<tr>
<td>Shock absorber x Rear axle carrier</td>
<td>255</td>
<td>2,600</td>
<td>188</td>
</tr>
<tr>
<td>Brake hose x Shock absorber</td>
<td>29</td>
<td>300</td>
<td>22</td>
</tr>
<tr>
<td>ABS speed sensor set bolt</td>
<td>7.8</td>
<td>80</td>
<td>69 in.-lb</td>
</tr>
<tr>
<td>ABS speed sensor wire x Shock absorber</td>
<td>5.4</td>
<td>55</td>
<td>48 in.-lb</td>
</tr>
<tr>
<td>Suspension upper support x Body</td>
<td>39</td>
<td>400</td>
<td>29</td>
</tr>
<tr>
<td>Suspension upper support x Piston rod</td>
<td>49</td>
<td>500</td>
<td>36</td>
</tr>
<tr>
<td>Lower suspension arm x Suspension member</td>
<td>181</td>
<td>1,850</td>
<td>134</td>
</tr>
<tr>
<td>Lower suspension arm X Rear axis carrier</td>
<td>181</td>
<td>1,850</td>
<td>134</td>
</tr>
<tr>
<td>Strut rod x Body</td>
<td>113</td>
<td>1,150</td>
<td>83</td>
</tr>
<tr>
<td>Strut rod x Rear axle carrier</td>
<td>113</td>
<td>1,150</td>
<td>83</td>
</tr>
<tr>
<td>Suspension member x Body (17mm)</td>
<td>51</td>
<td>520</td>
<td>38</td>
</tr>
<tr>
<td>Suspension member x Body (14mm)</td>
<td>38</td>
<td>390</td>
<td>28</td>
</tr>
<tr>
<td>LSPV spring x Lower suspension arm</td>
<td>13</td>
<td>130</td>
<td>9.4</td>
</tr>
<tr>
<td>Stabilizer bar bushing retainer</td>
<td>19</td>
<td>195</td>
<td>14</td>
</tr>
<tr>
<td>Stabilizer bar link set nut</td>
<td>64</td>
<td>650</td>
<td>47</td>
</tr>
<tr>
<td>Drive shaft</td>
<td>Item</td>
<td>Capacity</td>
<td></td>
</tr>
<tr>
<td>-------------</td>
<td>-----------------------</td>
<td>---------------------------</td>
<td></td>
</tr>
<tr>
<td>Toyota type</td>
<td>Outboard joint grease</td>
<td>120–130 g (4.2–4.6 oz.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inboard joint grease</td>
<td>232–242 g (8.2–8.5 oz.)</td>
<td></td>
</tr>
<tr>
<td>GKN type</td>
<td>Outboard joint grease</td>
<td>140–160 g (4.9–5.6 oz.)</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Inboard joint grease</td>
<td>185–215 g (6.5–7.6 oz.)</td>
<td></td>
</tr>
</tbody>
</table>