

AXIOM

SUSPENSION

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FRONT SUSPENSION

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Service Precaution

WARNING: THIS VEHICLE HAS A SUPPLEMENTAL RESTRAINT SYSTEM (SRS). REFER TO THE SRS COMPONENT AND WIRING LOCATION VIEW IN ORDER TO DETERMINE WHETHER YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING. WHEN YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING, REFER TO THE SRS SERVICE INFORMATION. FAILURE TO FOLLOW WARNINGS COULD RESULT IN POSSIBLE AIR BAG DEPLOYMENT, PERSONAL INJURY, OR OTHERWISE UNNEEDED SRS SYSTEM REPAIRS.

CAUTION: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. ISUZU will call out those fasteners that require a replacement after removal. ISUZU will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (Paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

General Description

The front suspension is designed to allow each wheel to compensate for changes in the road surface level without greatly affecting the opposite wheel. Each wheel is independently connected to the frame by a steering knuckle, ball joint assemblies, and upper and lower control arms. The front wheels are held in proper relationship to each other by two tie-rods which are connected to steering arms on the knuckles, and to a steering unit.

All models have a front suspension system consisting of control arms, stabilizer bar, shock absorber and a torsion bar. The front end of the torsion bar is attached to the lower control arm. The rear of the torsion bar is mounted into a height control arm at the crossmember. Vehicle trim height is controlled by adjusting this arm.

Shock absorbers are mounted between the brackets on the frame and the lower control arms. The lower portion of

each shock absorber is attached to the lower control arm. The upper portion of each shock absorber extends through a frame bracket and is secured with two rubber bushings, two retainers and a nut.

Ball joint assemblies are bolted to the outer end of the upper and lower control arm and are attached to the steering knuckle.

The inner ends of the upper control arm have pressed in bushings. Bolts, passing through the bushing, attach the control arm to the frame. The inner ends of the lower control arm are attached to the frame by bolts passing through the bushings.

Side roll of the front suspension is controlled by a spring steel stabilizer bar. It is mounted in rubber bushings, which are held to the frame by brackets. The ends of the stabilizer bar are connected to the lower control arms by links.

Diagnosis

Condition	Possible cause	Correction
Vehicle Pulls	Mismatched or uneven tires.	Replace tire.
	Tires not adequately inflated.	Adjust tire pressure.
	Broken or sagging springs.	Replace spring.
	Radial tire lateral force.	Replace tire.
	Improper wheel alignment.	Adjust wheel alignment.
	Brake dragging in one wheel.	Repair brake.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension part(s).
	Faulty shock absorbers.	Replace shock absorber.
	Parts in power steering valve defective.	Replace power steering unit.
Abnormal or Excessive Tire Wear	Sagging or broken spring.	Replace spring.
	Tire out of balance.	Balance or replace tire.
	Improper wheel alignment.	Check front end alignment.
	Faulty shock absorber.	Replace shock absorber.
	Hard driving.	Replace tire.
	Overloaded vehicle.	Replace tire and reduce load.
	Tires not rotated periodically.	Replace or rotate tire.
	Worn or loose road wheel bearings.	Replace wheel bearing.
	Wobbly wheel or tires.	Replace wheel or tire.
	Tires not adequately inflated.	Adjust the pressure.
Wheel Hop	Blister or bump on tire.	Replace tire.
	Improper shock absorber operation.	Replace shock absorber.

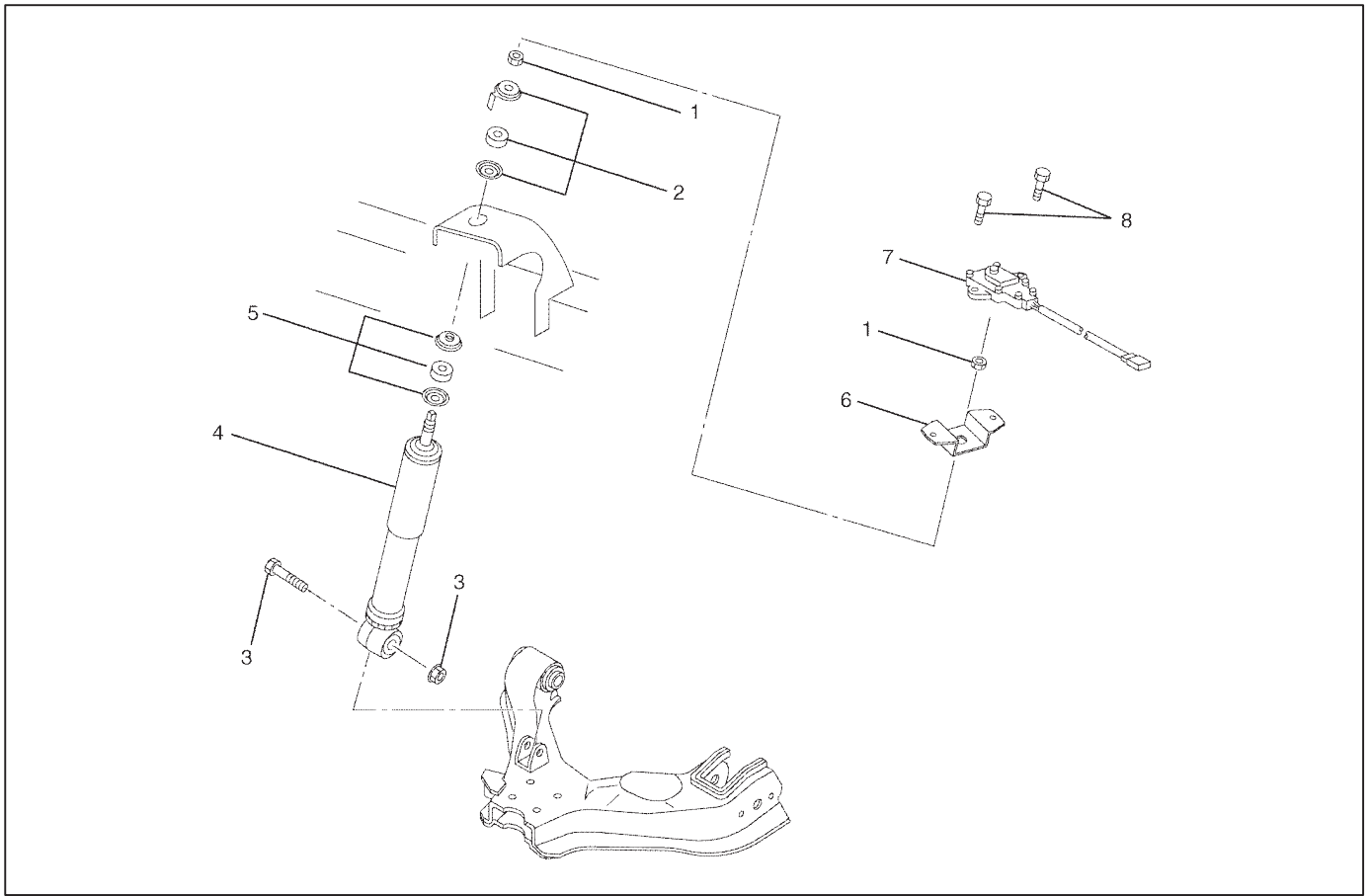
Condition	Possible cause	Correction
Shimmy, Shake or Vibration	Tire or wheel out of balance.	Balance wheels or replace tire/or wheel.
	Loose wheel bearings.	Replace wheel bearing.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
	Excessive wheel runout.	Repair or replace wheel and/or tire.
	Blister or bump on tire.	Replace tire.
	Excessive loaded radial runout of tire/wheel assembly.	Replace tire or wheel.
	Improper wheel alignment.	Check wheel alignment.
	Loose or worn steering linkage.	Tighten or replace steering linkage.
	Loose steering unit.	Tighten steering unit.
	Tires not adequately inflated.	Adjust tire pressure.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension parts.
	Faulty shock absorber.	Replace shock absorber.
	Hub bearing preload misadjustment.	Adjust preload.
	Parts in power steering valve defective.	Replace power steering unit.
Hard Steering	Bind in steering linkage ball studs, upper or lower ball joint.	Replace ball joint.
	Improper wheel alignment.	Check wheel alignment.
	Tire not adequately inflated.	Inflate tires to proper pressure.
	Bind in steering column or shaft.	Repair or replace.
	Improper power steering system operation.	Repair or replace. Refer to <i>Steering section</i> .
Too Much Play In Steering	Wheel bearings worn.	Replace wheel bearings.
	Loose steering unit or linkage.	Retighten or repair.
	Worn or loose steering shaft universal joint.	Retighten or replace steering shaft.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
Poor Steering Wheel Returnability	Bind in steering linkage ball joints.	Replace ball joints.
	Bind in upper or lower ball joints.	Replace ball joints.
	Bind in steering column and shaft.	Repair or replace.
	Bind in steering gear.	Check and repair steering gear.
	Improper wheel alignment.	Adjust wheel alignment.
	Tires not adequately inflated.	Adjust pressure.
	Loose steering wheel nut.	Retighten.
	Worn wheel bearing.	Replace.

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Condition	Possible cause	Correction
Abnormal Noise	Worn, sticky or loose upper or lower ball joint, steering linkage ball joints or drive axle joints.	Replace.
	Faulty shock absorbers.	Replace.
	Worn upper or lower control arm bushing.	Replace.
	Loose stabilizer bar.	Retighten bolts or replace bushings.
	Loose wheel nuts.	Tighten nuts. Check for elongated wheel nut holes. Replace wheel if required.
	Loose suspension bolts or nuts.	Retighten suspension bolts or nuts.
	Broken or otherwise damaged wheel bearings.	Replace wheel bearing.
	Broken suspension springs.	Replace spring.
	Loose steering unit.	Retighten mounting bolt.
	Faulty steering unit.	Replace steering unit.
Wandering or Poor Steering Stability	Mismatched or unevenly worn tires.	Replace tire or inflate tires to proper pressure.
	Loose steering linkage ball joints.	Replace ball joints.
	Faulty shock absorbers.	Replace shock absorber.
	Loose stabilizer bar.	Tighten or replace stabilizer bar or bushings.
	Broken or sagging springs.	Replace spring (pairs).
	Improper wheel alignment.	Adjust wheel alignment.
Erratic Steering When Braking	Worn wheel bearings.	Replace wheel bearings.
	Broken or sagging springs.	Replace spring (pairs).
	Leaking caliper.	Repair or replace caliper.
	Warped discs.	Replace brake disc.
	Badly worn brake pads.	Replace brake pads.
	Tires are inflated unequally.	Inflate tires to proper pressure.
Low or Uneven Trim Height	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
	Incorrect springs.	Adjust or replace torsion bar.
Suspension Bottoms	Vehicle overloaded.	Reduce load.
	Faulty shock absorber.	Replace shock absorber.
	Incorrect, broken or sagging springs.	Replace springs.
Body Leans	Loose stabilizer bar.	Tighten stabilizer bar bolts or replace bushings.
	Faulty shock absorber, struts or mounting.	Replace shock absorber.
	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
Cupped Tires	Worn wheel bearings.	Replace wheel bearing.
	Excessive tire or wheel run out.	Replace tire or wheel.
	Worn ball joints.	Replace ball joints.
	Tire out of balance.	Adjust tire balance.

Shock Absorber

Shock Absorber and Associated Parts



450R200001

Legend

- | | |
|-------------------------------|-------------------------------|
| (1) Nut | (5) Rubber Bushing and Washer |
| (2) Rubber Bushing and Washer | (6) Actuator Bracket |
| (3) Bolt and Nut | (7) Actuator |
| (4) Shock Absorber | (8) Screw |

Removal

1. Raise the vehicle and support it with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel Replacement in this section*.
3. Remove bolt and nut.
4. Remove ISC Actuator and Bracket. Refer to *Intelligent Suspension*.
5. Remove nut.
6. Remove rubber bushing and washer.
7. Remove shock absorber.
8. Remove rubber bushing and washer.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.
Check the following parts :

- Shock absorber
- Rubber bushing

Installation

1. Install rubber bushing and washer.
2. Install shock absorber.
3. Install rubber bushing and washer.
4. Install nut, then tighten it to the specified torque.

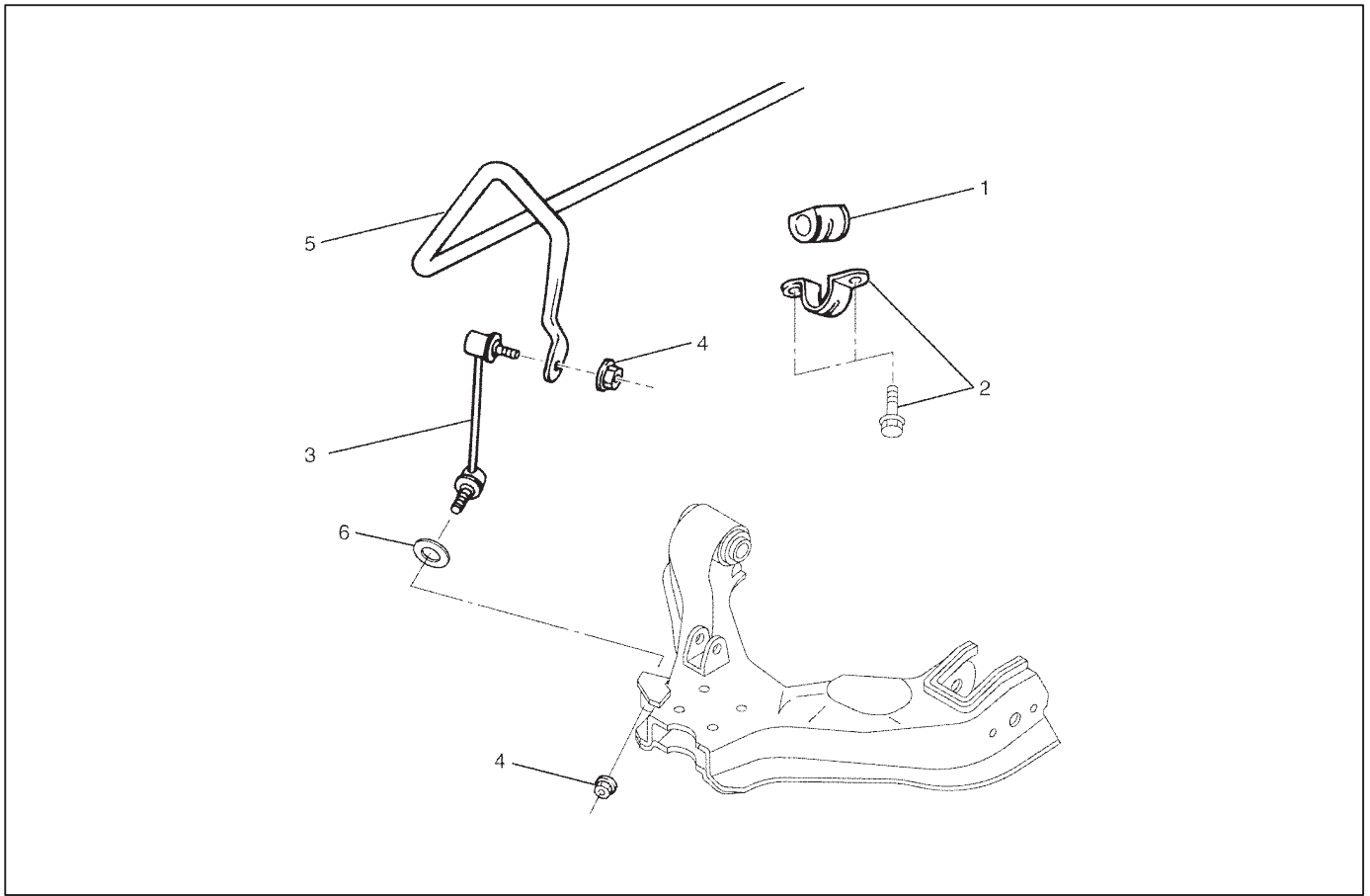
Torque: 20 N·m (14 lb ft)

5. Install ISC Actuator and Bracket. Refer to *Intelligent Suspension*.
6. Install bolt and nut, then tighten to the specified torque.

Torque: 93 N·m (69 lb ft)

Stabilizer Bar

Stabilizer Bar and Associated Parts



410R200001

Legend

- | | |
|----------------------|--------------------|
| (1) Rubber Bushing | (4) Nut |
| (2) Bracket and Bolt | (5) Stabilizer Bar |
| (3) Link | (6) Washer |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove the stone guard.
3. Remove wheel and tire assembly. Refer to *Wheel Replacement in this section*.
4. Remove nut.

CAUTION: Be careful not to break the ball joint boot.

5. Remove link.
6. Remove bracket.
7. Remove stabilizer bar.
8. Remove rubber bushing.

Check the following parts :

- Stabilizer bar
- Rubber bushing
- Link ball joint

Installation

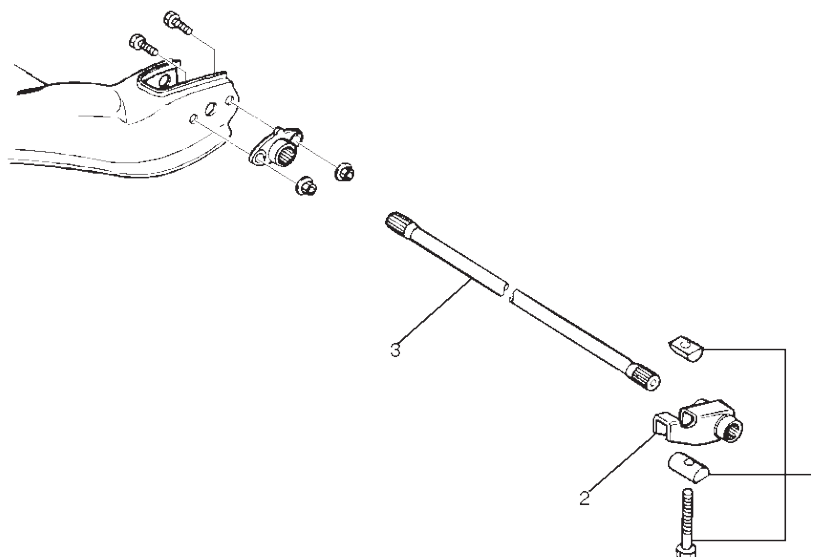
1. Install rubber bushing.
2. Install stabilizer bar.
3. Install bracket, then tighten it to the specified torque.
Torque: 25 N·m (18 lb ft)
4. Install link and Washer.
5. Install nut, then tighten it to the specified torque.
Torque: 50 N·m (37 lb ft)

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Torsion Bar

Torsion Bar and Associated Parts



410RS003

Legend

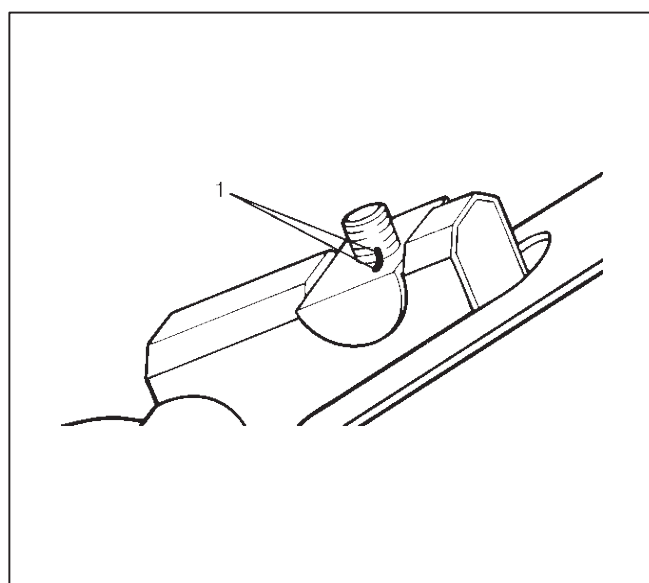
(1) Adjust Bolt, End Piece and Seat

(2) Height Control Arm

(3) Torsion Bar

Removal

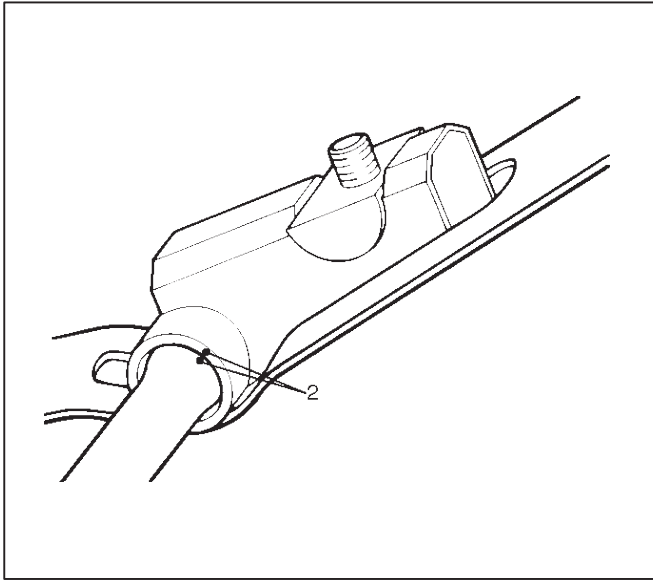
1. Raise the vehicle and support the frame with suitable safety stands.
2. Apply the setting marks(1) to the adjust bolt and end piece, then remove adjust bolt, end piece and seat.



410RS004

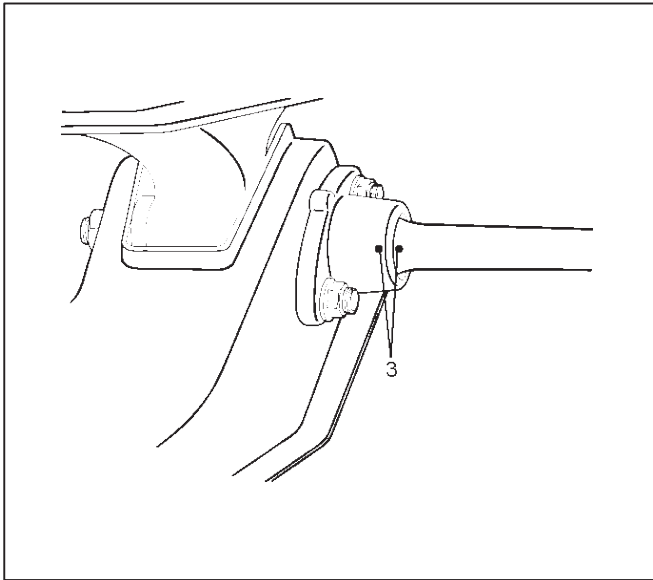
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3. Apply the setting marks(2) to the height control arm and torsion bar, then remove height control arm.



410RS005

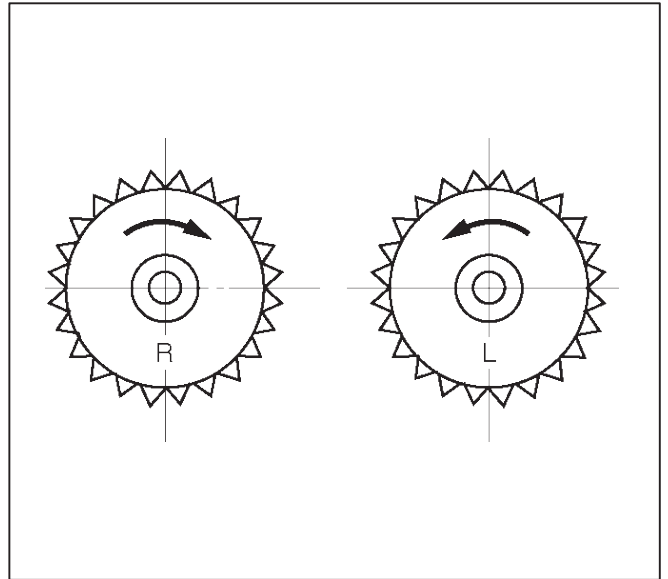
4. Apply the setting marks(3) to the torsion bar and lower control arm, then remove torsion bar.



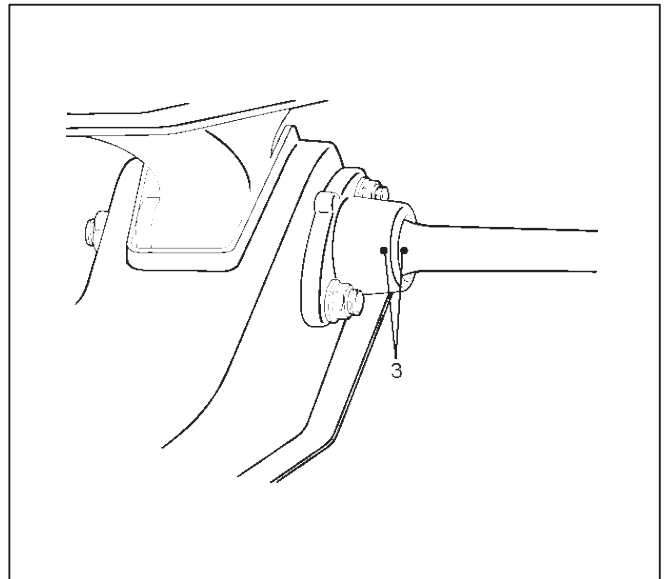
410RS006

Installation

1. Apply grease to the serrated portions, then install torsion bar. Make sure the bars are on their correct respective sides and align the setting marks(3).



410RS007



410RS008

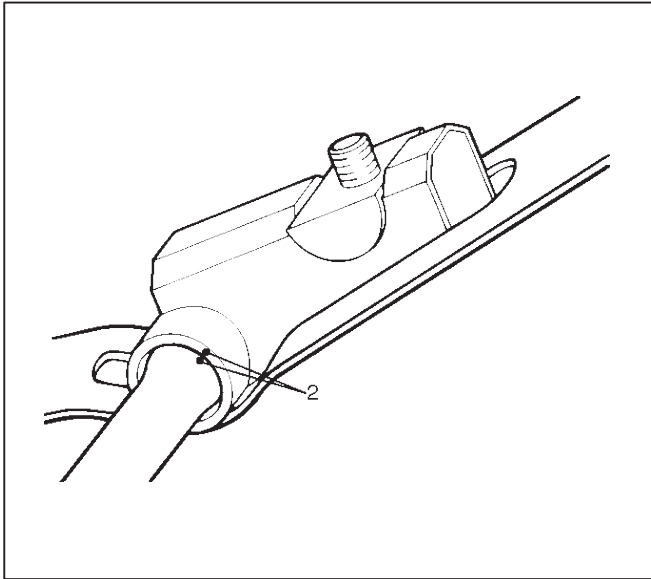
Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

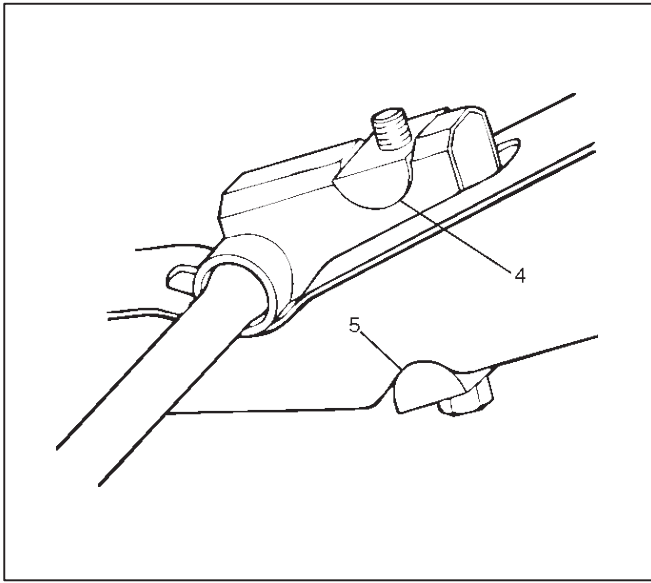
Check the following parts:

- Torsion bar
- Height control arm
- Adjust bolt
- Rubber seat

2. Apply grease to the portion that fits into the bracket then install height control arm and align the setting marks(2).



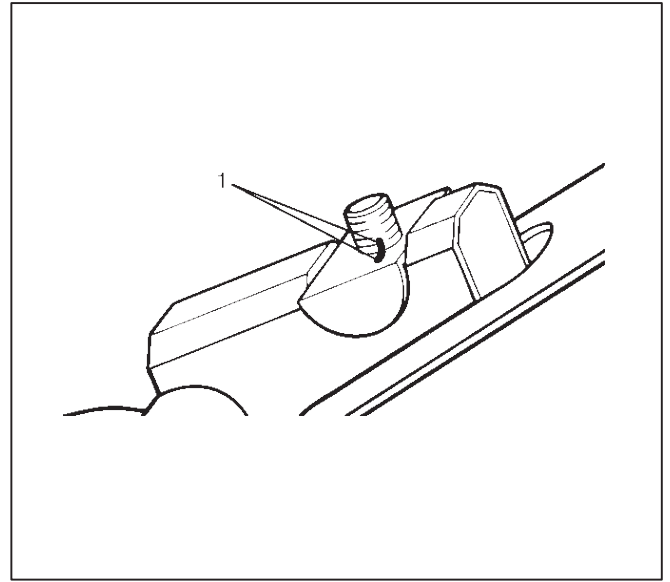
3. Apply grease to the bolt portion of the end piece(4). Apply grease to the portion of the seat(5) that fits into the bracket.



4. Apply grease to the serrated portions.

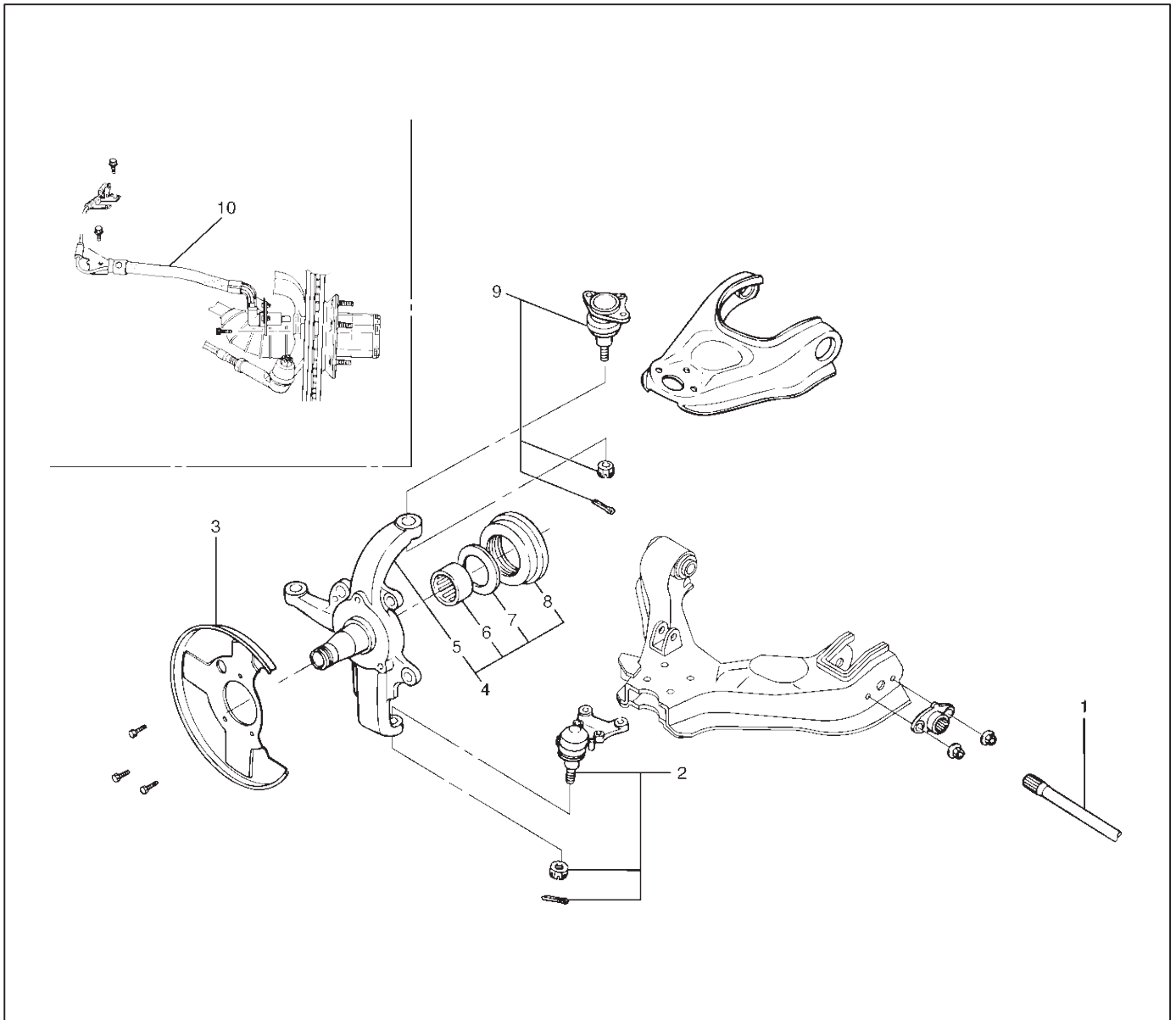
5. Install adjust bolt and seat, then turn the adjust bolt to the setting mark(1) applied during disassembly.

NOTE: Adjust the trim height. Refer to *Front End Alignment Inspection and Adjustment in Steering section*.



Knuckle

Knuckle and Associated Parts



410RW006

Legend

- | | |
|--|--|
| (1) Torsion Bar | (6) Needle Bearing (4WD MODEL) |
| (2) Lower Ball Joint, Nut and Cotter Pin | (7) Thrust Washer (4WD MODEL) |
| (3) Back Plate | (8) Oil Seal (4WD MODEL) |
| (4) Knuckle Assembly | (9) Upper Ball Joint, Nut and Cotter Pin |
| (5) Knuckle | (10) Wheel Speed Sensor |

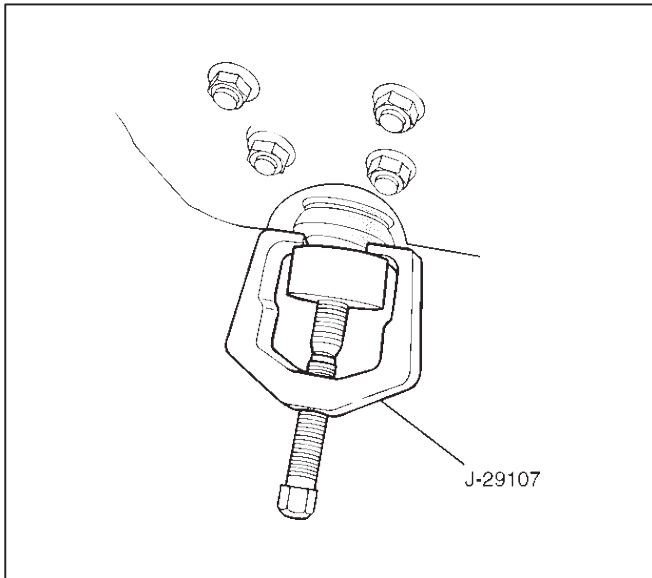
Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel in this section*.
3. Remove the brake caliper. Refer to *Disc Brakes in Brake section*.
4. Remove the hub assembly. Refer to *Front Hub and Disk in this section*.
5. Remove tie-rod end from the knuckle. Refer to *Power Steering Unit in Steering section*.
6. Remove the speed sensor from the knuckle.
7. Loosen torsion bar by height control arm adjust bolt, then remove torsion bar. Refer to *Torsion Bar in this section*.
8. Remove wheel speed sensor.

9. Remove back plate.

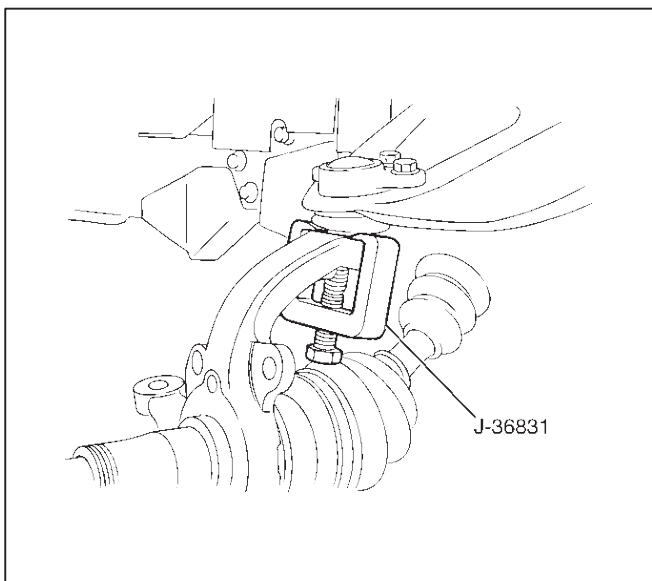
10. Remove lower ball joint by using remover J-29107.

CAUTION: Be careful not to damage the ball joint boot.



11. Remove upper ball joint by using remover J-36831.

CAUTION: Be careful not to damage the ball joint boot.

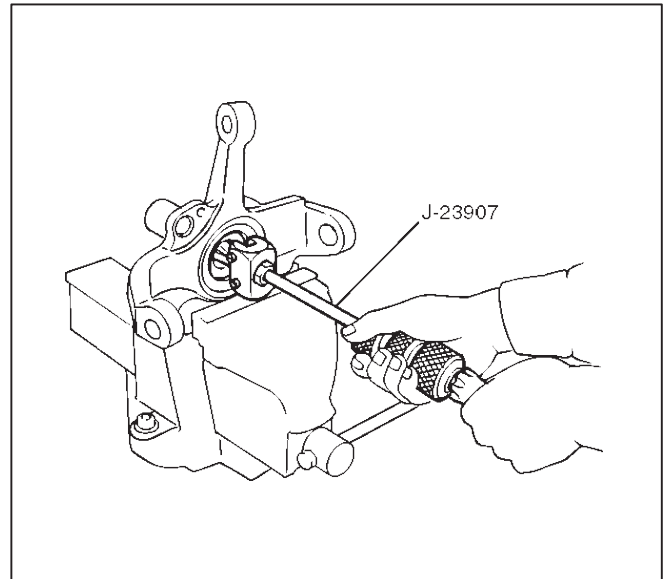


12. Remove knuckle assembly.

13. Remove oil seal (Except 2WD model).

14. Remove washer (Except 2WD model).

15. Remove needle bearing by using remover J-23907 (Except 2WD model).



Inspection and Repair

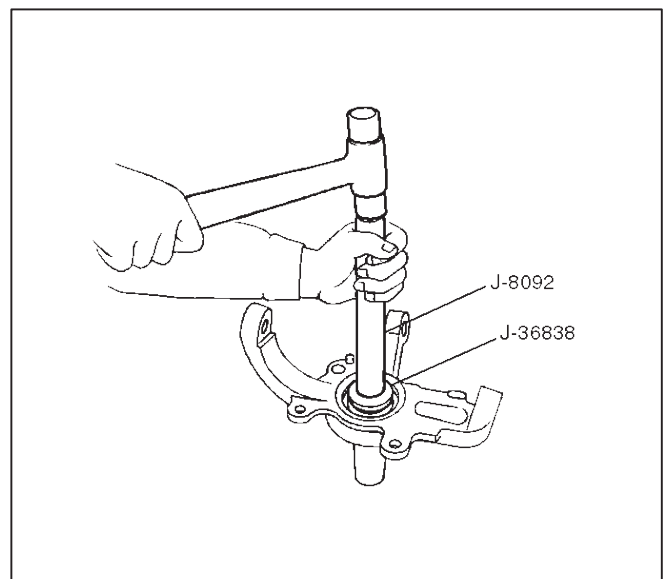
Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Knuckle
- Knuckle arm
- Needle bearing
- Thrust washer

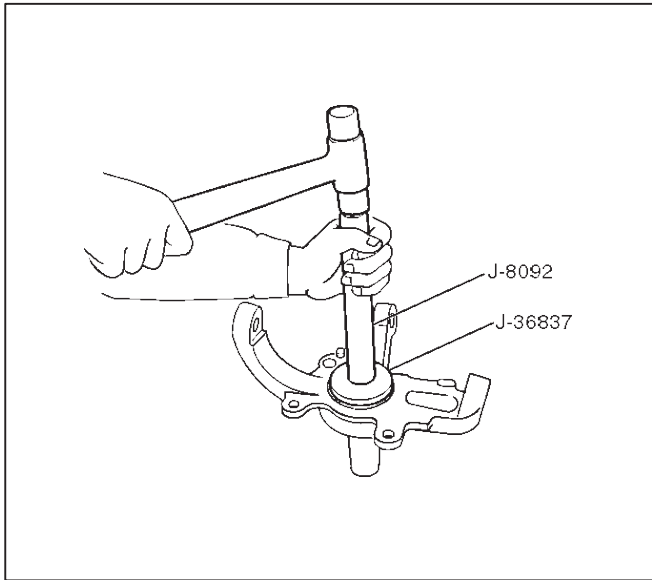
Installation

1. Apply appropriate amount of multipurpose type grease to the new bearing (Approx. 5 g) and install needle bearing by using installer J-36838 and J-8092 (Except 2WD model).



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2. Apply multipurpose type grease to the thrust washer, and install washer with chamfered side facing knuckle (Except 2WD model).
3. Use a new oil seal, and apply multipurpose type grease to the area surrounded by the lip (approx. 2 g). Then use installer J-36837 and J-8092 to install oil seal. After fitting the oil seal to the installer, drive it to the knuckle using a hammer or bench press until the tool front face contacts with the thrust washer (Except 2WD model).

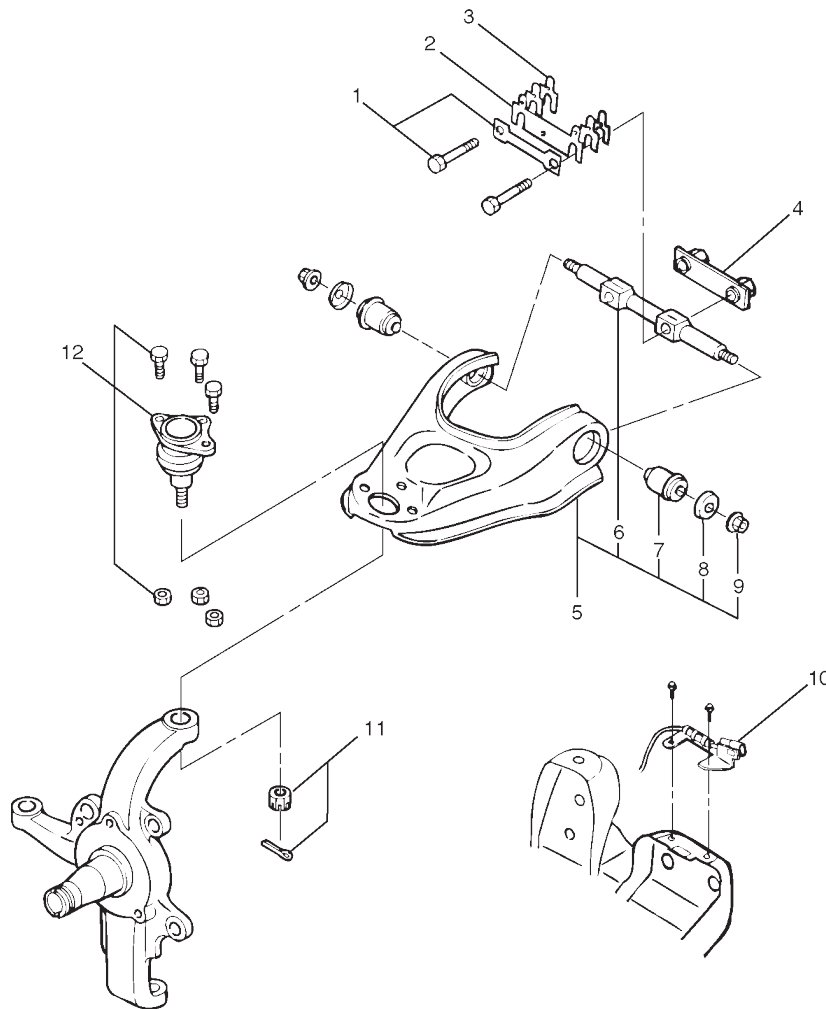


4. Install knuckle assembly.
5. Install upper ball joint and tighten the nut to the specified torque, with just enough additional torque to align cotter pin holes. Install new cotter pin.
Torque: 98 N·m (72 lb ft)
6. Install lower ball joint and tighten the nut to the specified torque, with just enough additional torque to align cotter pin holes. Install new cotter pin.
Torque: 147 N·m (108 lb ft)
7. Install back plate.
8. Install wheel speed sensor.
9. Install torsion bar, refer to *Torsion Bar in this section*.

NOTE: Adjust the trim height. Refer to *Front End Alignment Inspection and Adjustment in Steering*.

Upper Control Arm

Upper Control Arm and Associated Parts



450R200004

Legend

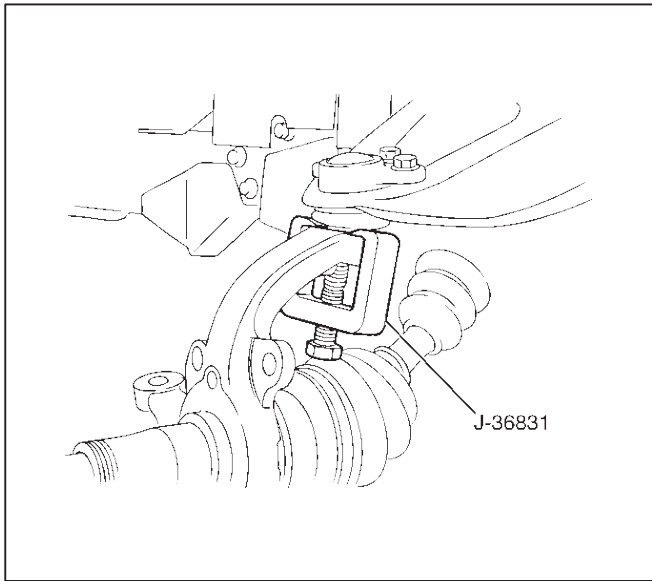
- | | |
|--------------------------------|-------------------------|
| (1) Bolt and Plate | (7) Bushing |
| (2) Camber Shims | (8) Plate |
| (3) Caster Shims | (9) Nut |
| (4) Nut Assembly | (10) Speed Sensor Cable |
| (5) Upper Control Arm Assembly | (11) Nut and Cotter Pin |
| (6) Fulcrum Pin | (12) Upper Ball Joint |

Removal

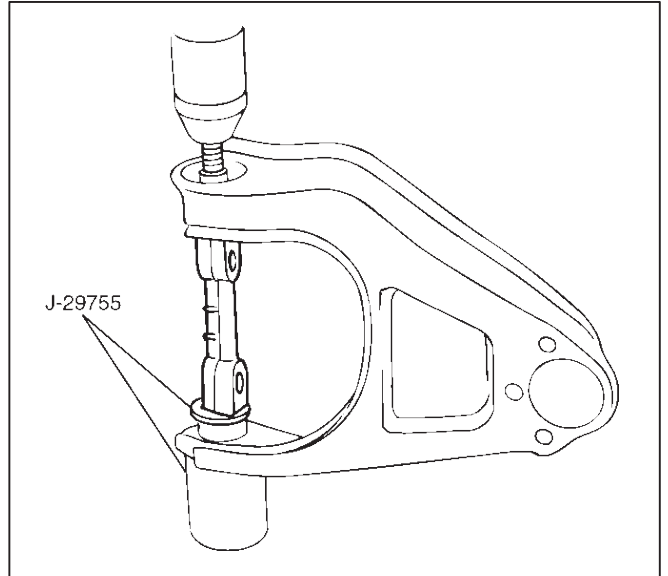
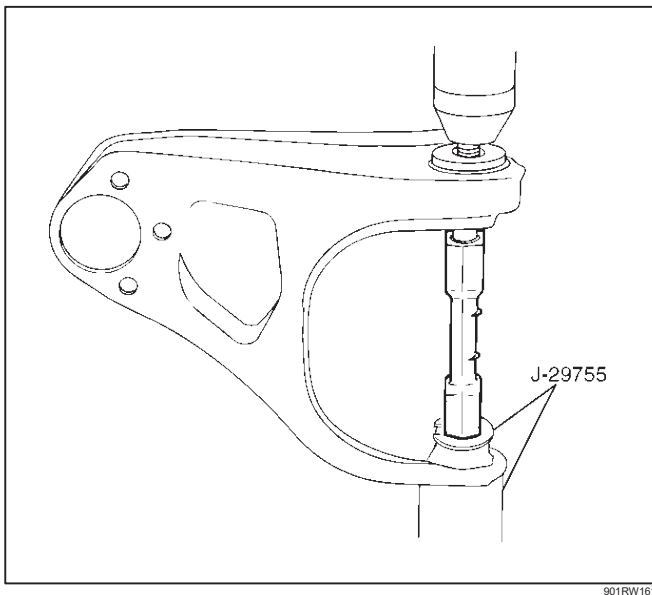
1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel in this section*.
3. Remove the brake caliper and disconnect brake pipe. Refer to *Disc Brakes in Brake section*.
4. Support lower control arm with a jack.
5. Remove speed sensor cable.
6. Remove nut and cotter pin then use remover J-36831.

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CAUTION: Be careful not to damage the ball joint boot.



7. Remove upper ball joint.
8. Remove bolt and plate.
9. Remove nut assembly.
10. Remove camber shims and note the positions and number of shims.
11. Remove caster shims and note the positions and number of shims.
12. Remove upper control arm assembly.
13. Remove nut.
14. Remove plate.
15. Remove bushing by using remover J-29755.



16. Remove fulcrum pin.

Inspection and Repair

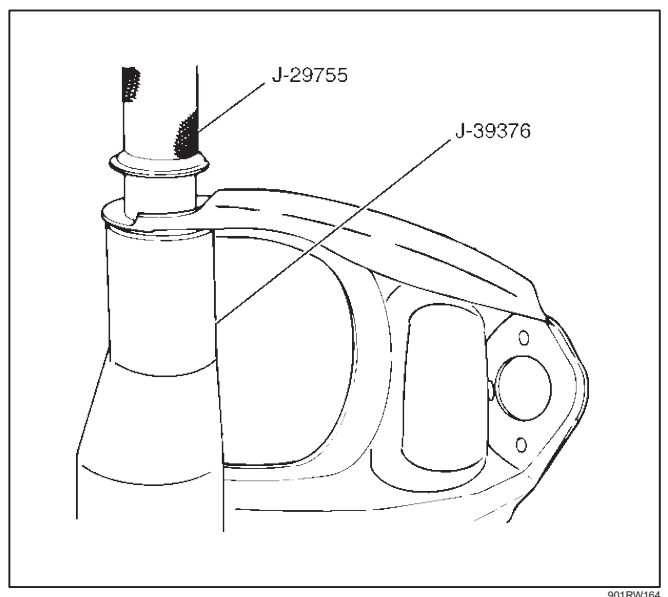
Make necessary parts replacement if wear, damage, corrosion or any other abnormal conditions are found through inspection.

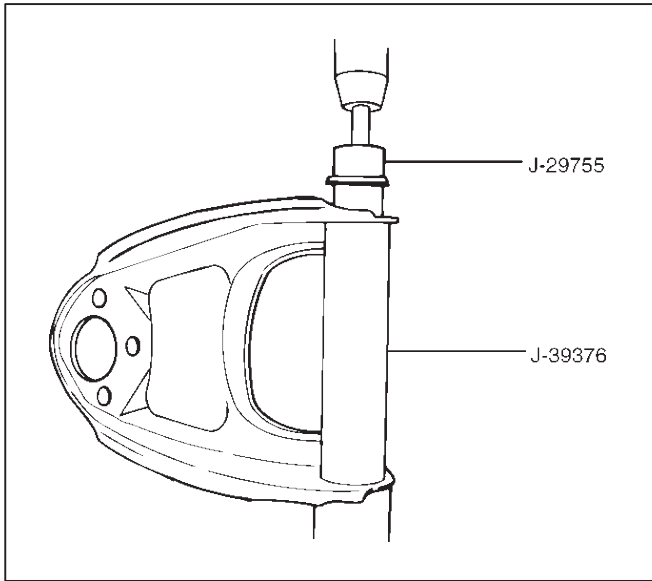
Check the following parts:

- Upper control arm
- Bushing
- Fulcrum pin

Installation

1. Install fulcrum pin.
2. Install bushing by using installer J-29755 and J-39376.





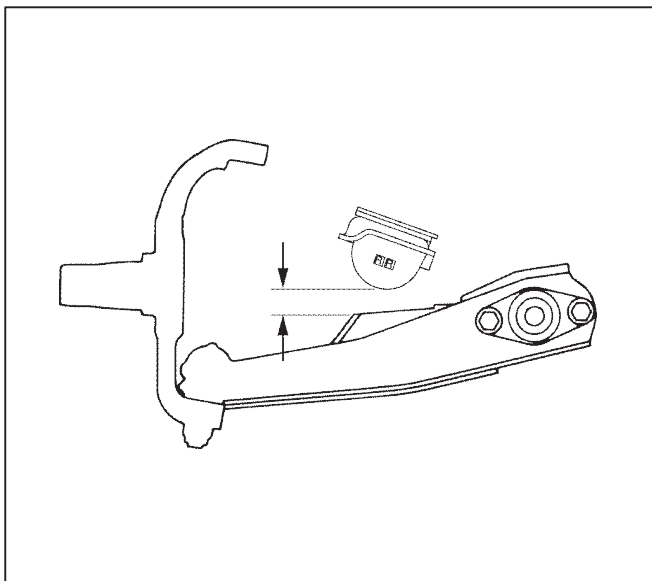
3. Install plate.

4. Install nut and tighten fulcrum pin nut finger-tight.

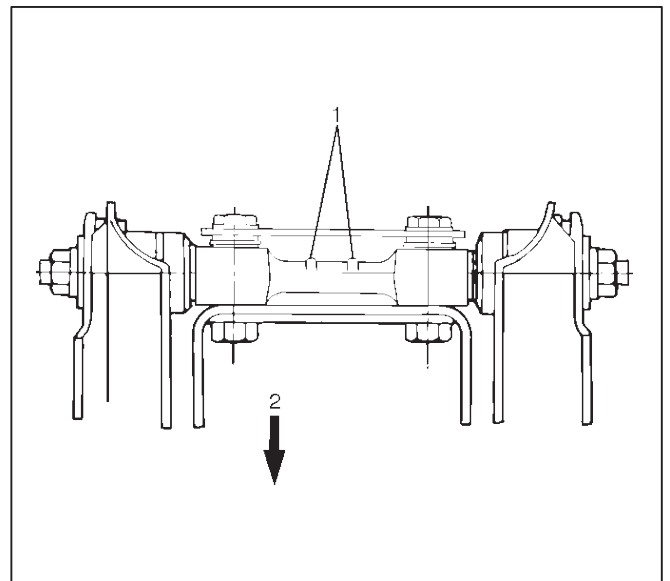
NOTE: Torque fulcrum pin nut after adjusting buffer clearance.

Buffer clearance: 15 mm (0.59 in)

Torque: 108 N·m (80 lb ft)



5. Install upper control arm assembly with the fulcrum pin projections turned inward.

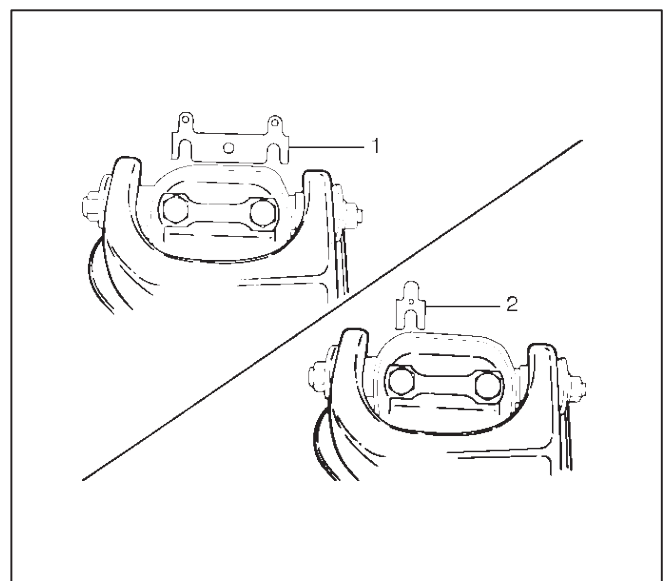


Legend

- (1) Projection
- (2) Outward

6. Install the caster shims(2) between the chassis frame and fulcrum pin.

7. Install the camber shims(1) between the chassis frame and fulcrum pin.



8. Install nut assembly.

9. Install bolt and plate, then tighten the bolt to the specified torque.

Torque: 152 N·m (112 lb ft)

10. Install upper ball joint and tighten it to the specified torque.

Torque: 57 N·m (42 lb ft)

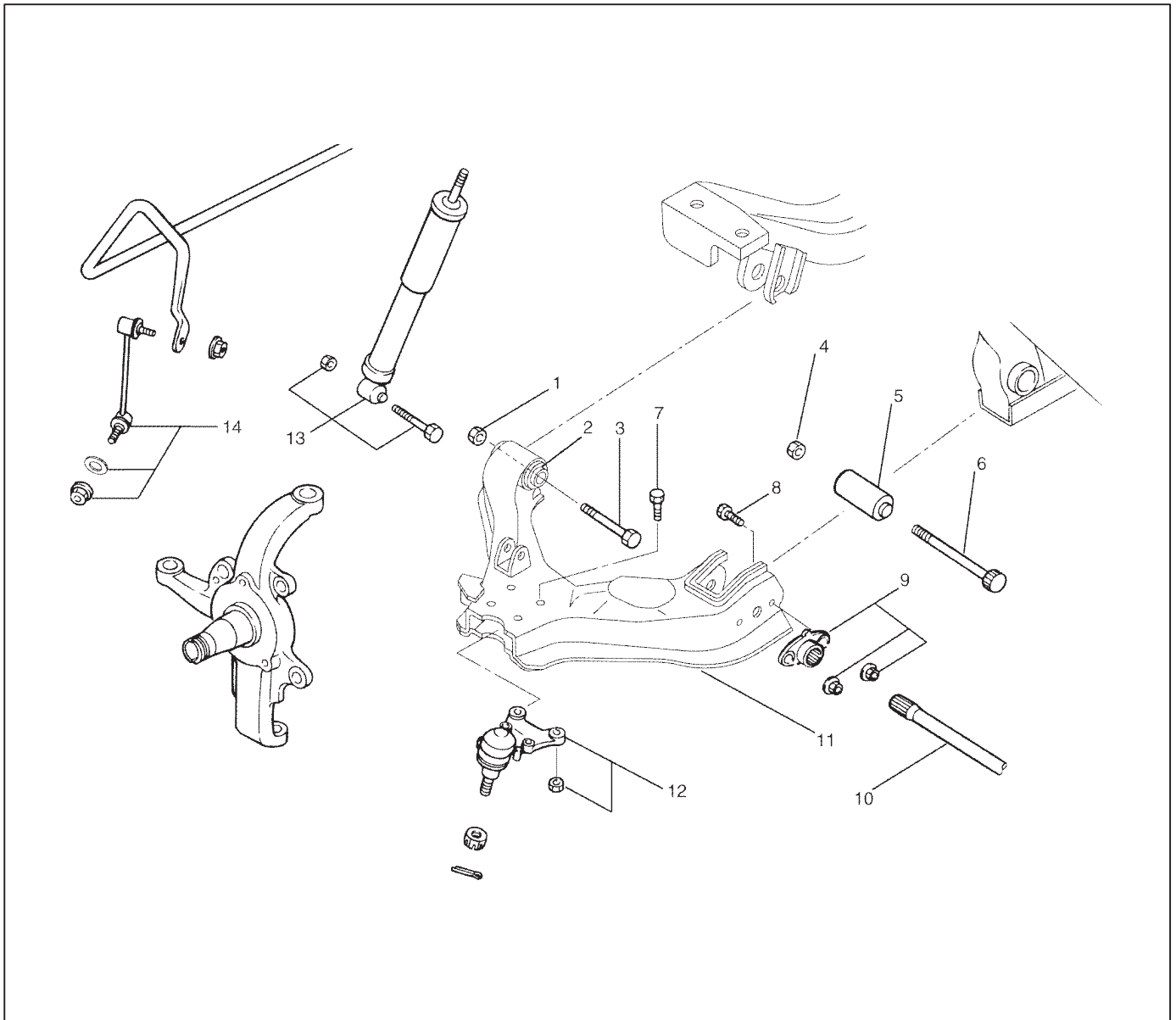
11. Install nut and cotter pin then tighten the nut to the specified torque, with just enough additional torque to align cotter pin holes. Install new cotter pin.

Torque: 98 N·m (72 lb ft)

12. Install speed sensor cable.

Lower Control Arm

Lower Control Arm and Associated Parts



450R200003

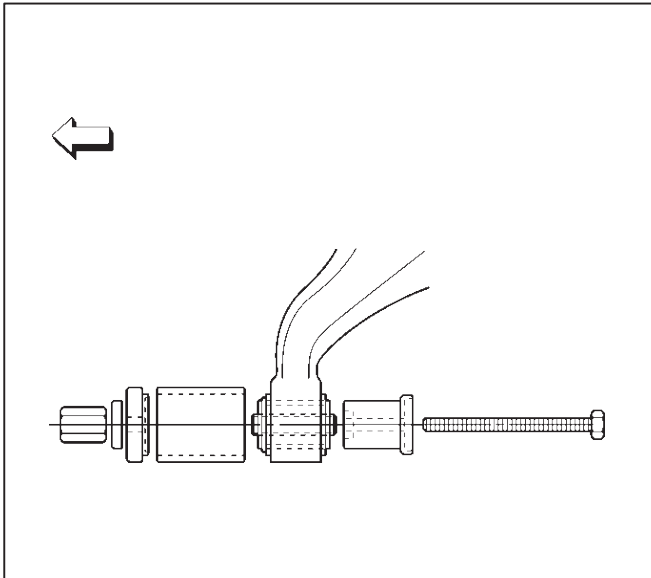
Legend

- | | |
|----------------------------|-------------------------------------|
| (1) Nut, Front | (8) Bolt, Torsion Bar Arm |
| (2) Bush, Front | (9) Torsion Bar Arm Bracket and Nut |
| (3) Bolt, Front | (10) Torsion Bar |
| (4) Nut, Rear | (11) Lower Control Arm |
| (5) Bush, Rear | (12) Lower Ball Joint and Nut |
| (6) Bolt, Rear | (13) Shock Absorber |
| (7) Bolt, Lower Ball Joint | (14) Stabilizer Link |

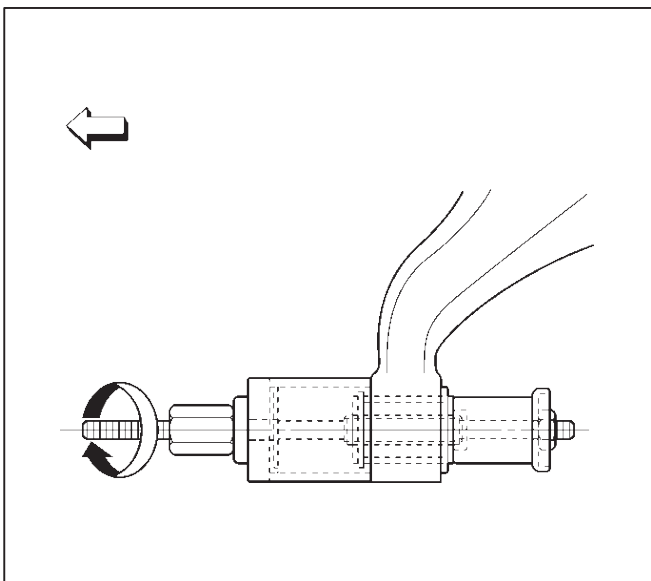
Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel in this section*.
3. Remove the tie-rod end from the knuckle. Refer to *Power Steering Unit in Steering section*.
4. Remove the retaining ring from the front axle driving shaft to release the shaft from hub(Except 2WD model). Refer to *Front Hub and Disc in Driveline/Axle section*.
5. Support lower control arm with a jack.

6. Remove front nut.
7. Remove rear nut.
8. Remove torsion bar, refer to *Torsion Bar in this section*.
9. Remove torsion bar arm bracket.
10. Disconnect the stabilizer link at the lower control arm.
11. Remove the shock absorber lower end from the lower control arm.
12. Remove the lower ball joint from the lower control arm.
13. Remove front bolt.
14. Remove rear bolt.
15. Remove lower control arm.
16. Remove torsion bar arm bolt.
17. Remove lower ball joint bolt.
18. Remove front bushing by using remover J-36833.

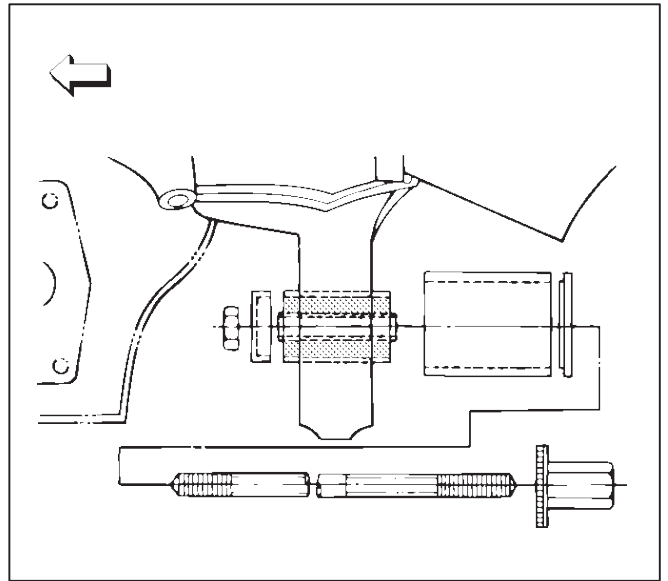


901RW154

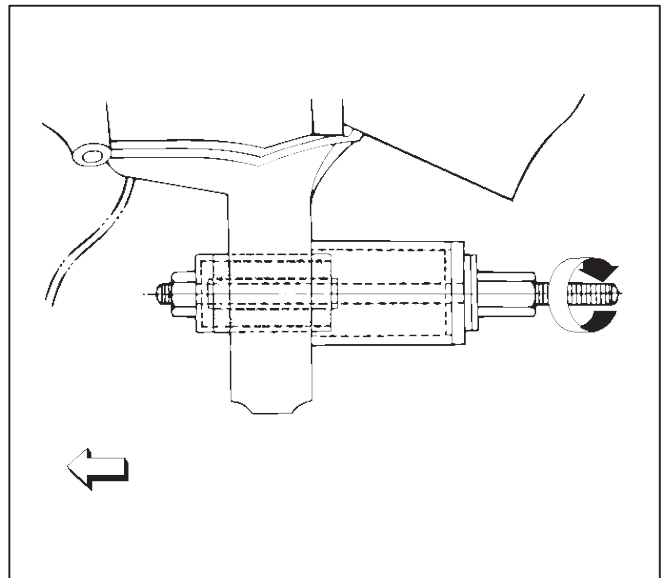


901RW155

19. Remove rear bushing by using remover J-36834.



901RW051



901RW052

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

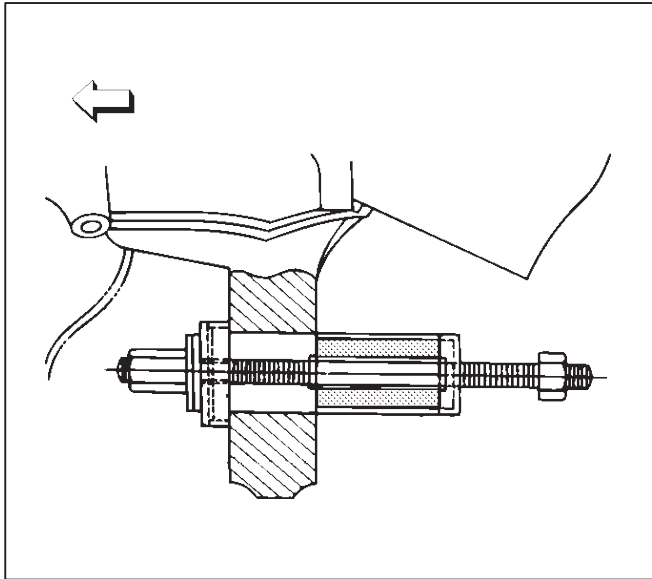
Check the following parts:

- Lower control arm
- Bushing

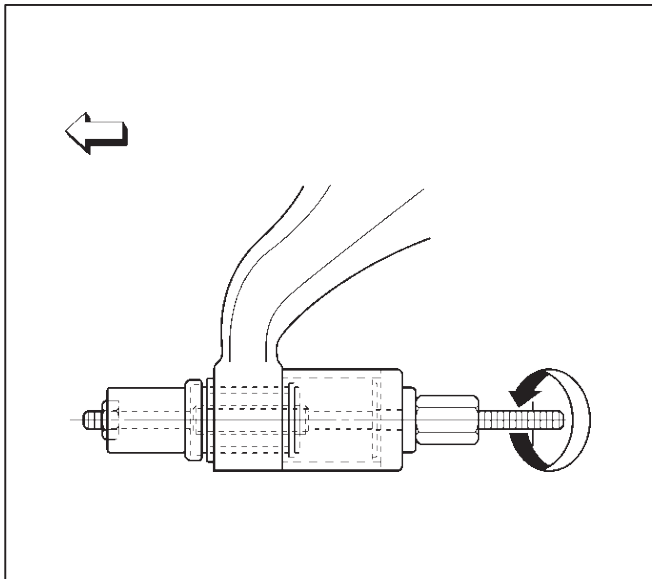
3C-18 FRONT SUSPENSION

Installation

1. Install rear bushing by using installer J-36834.



2. Install front bushing by using installer J-36833.



3. Install lower ball joint bolt.
4. Install torsion bar arm bolt.
5. Install lower control arm.
6. Install rear bolt.
7. Install front bolt.
8. Install lower ball joint and tighten it to the specified torque.
Torque: 116 N·m (85 lb ft)
9. Install shock absorber and tighten it to the specified torque.
Torque: 93 N·m (69 lb ft)
10. Install stabilizer link and tighten it to the specified torque.
Torque: 50 N·m (37 lb ft)

11. Install torsion bar arm bracket and tighten it to the specified torque.

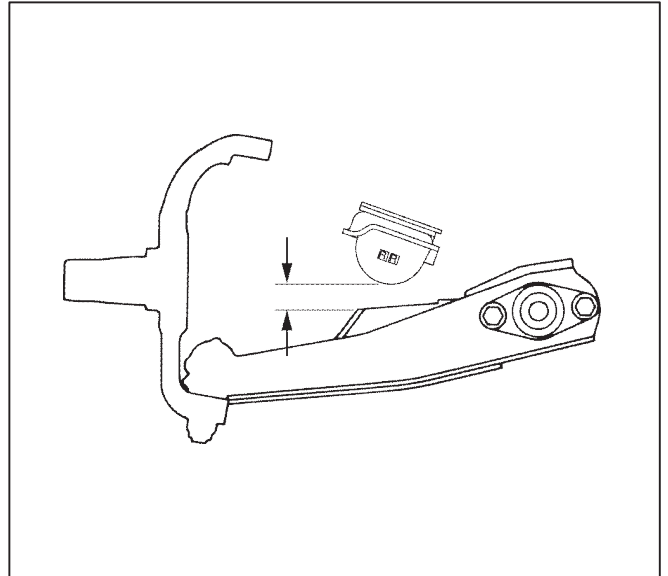
Torque: 116 N·m (85 lb ft)

12. Install Torsion bar, refer to *Torsion Bar* in this section.
13. Install rear nut and tighten lower link nut finger-tight.

NOTE: Torque lower control arm nut after adjusting buffer clearance.

Buffer clearance: 15 mm (0.59 in)

Torque: 235 N·m (174 lb ft)



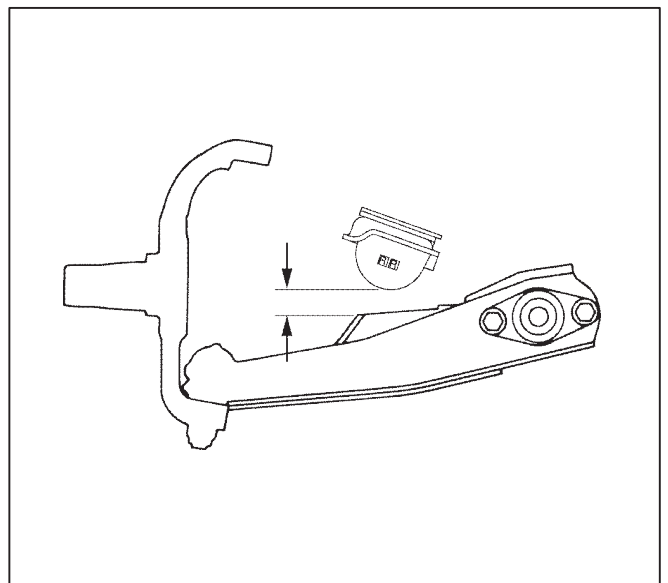
14. Install front nut then tighten lower link nut finger-tight.

NOTE: Torque lower control arm nut after adjusting buffer clearance .

Buffer clearance: 15 mm (0.59 in)

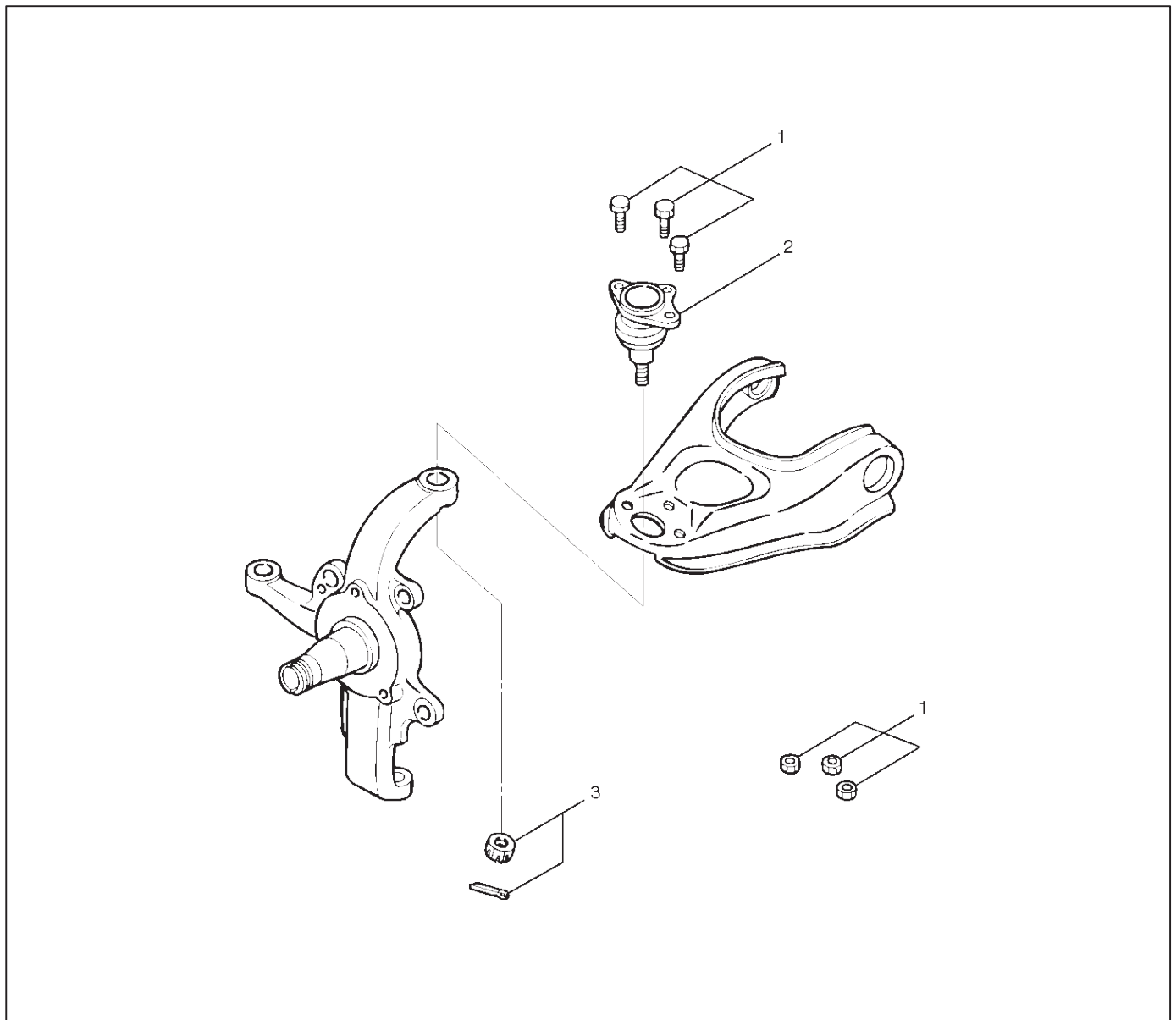
Torque: 186 N·m (137 lb ft)

NOTE: Adjust the trim height. Refer to *Front End Alignment Inspection and Adjustment in Steering* section.



Upper Ball Joint

Upper Ball Joint and Associated Parts



450RW004

Legend

(1) Bolt and Nut

(2) Upper Ball Joint

(3) Nut and Cotter Pin

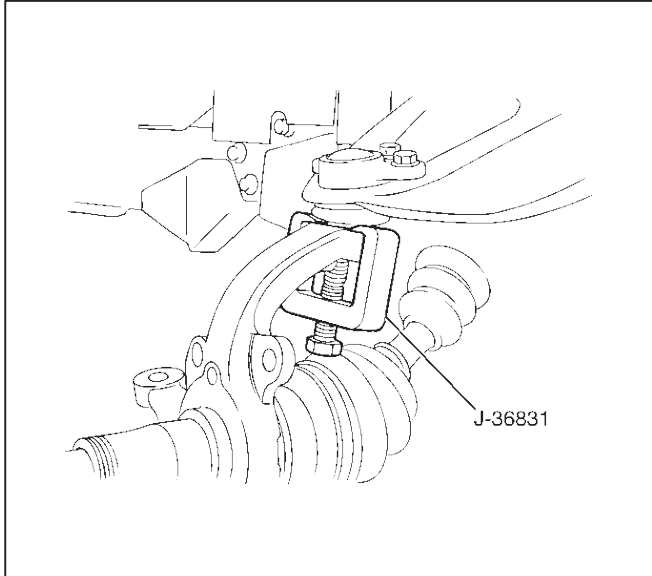
Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove the speed sensor from the knuckle.

3C-20 FRONT SUSPENSION

3. Remove upper ball joint nut and cotter pin, then use remover J-36831 to remove the upper ball joint from the knuckle.

CAUTION: Be careful not to damage the ball joint boot.

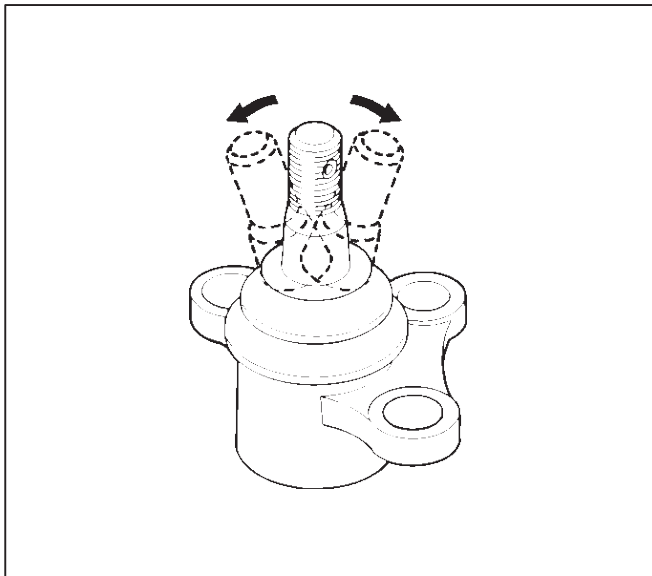


4. Remove bolt and nut.
5. Remove upper ball joint.

Inspection and Repair

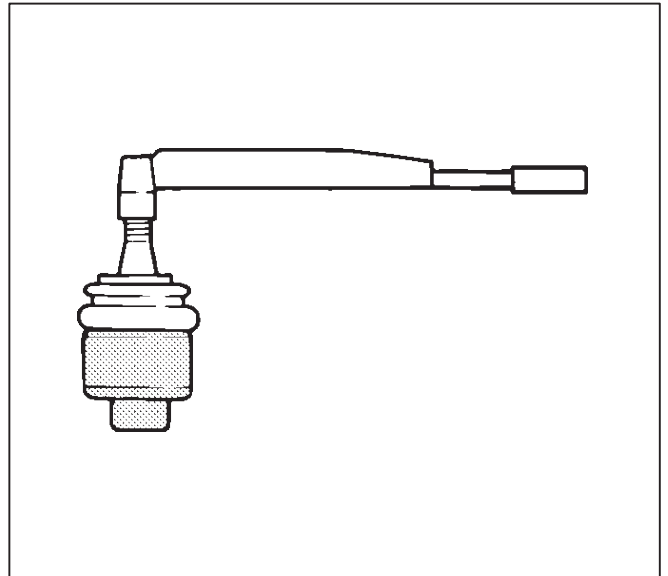
Make necessary parts replacement if wear, damage, corrosion or any other abnormal conditions are found through inspection.

- Inspect the lower end boot for damage or grease leak. Move the ball joint as shown in the figure to confirm its normal movement.
- Inspect screw/taper area of ball for damage.
- If any defects are found by the above inspections, replace the ball joint assembly with a new one.



- After moving the ball joint 4 or 5 times, attach nut then measure the preload.

Starting torque: 0.5 –3.2 N·m (0.4–2.4 lb ft)



If the above limits specified are exceeded, replace the ball joint assembly.

Installation

1. Install upper ball joint.
2. Install bolt and nut, then tighten them to the specified torque.

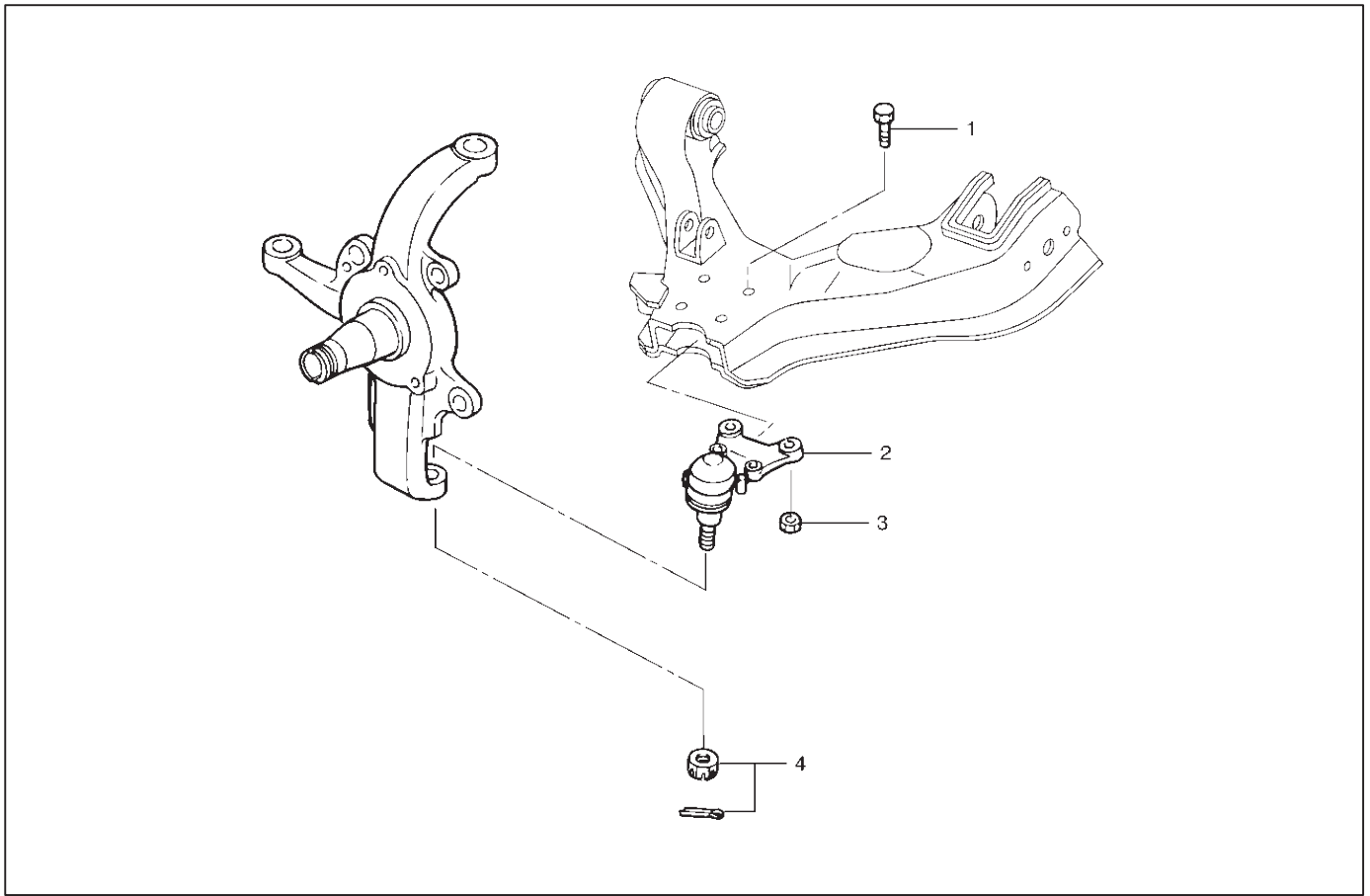
Torque: 57 N·m (42 lb ft)

3. Install nut and cotter pin, then tighten the nut to the specified torque with just enough additional torque to align cotter pin holes. Install new cotter pin.

Torque: 98 N·m (72 lb ft)

Lower Ball Joint

Lower Ball Joint and Associated Parts



450RW011

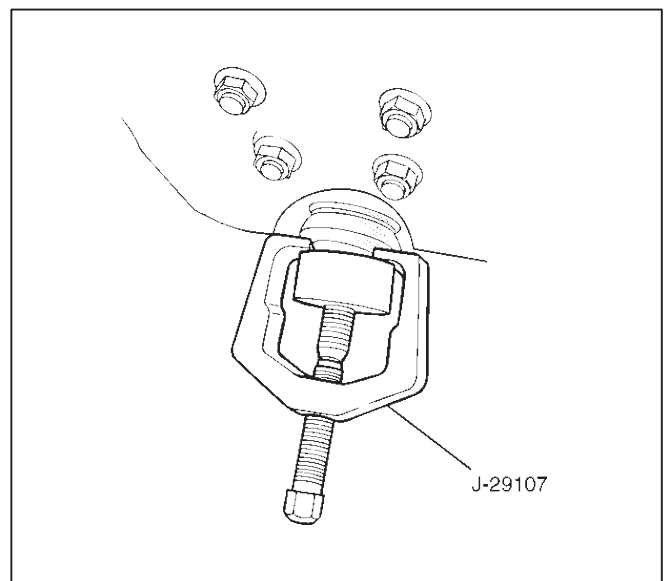
Legend

- | | |
|----------------------|------------------------|
| (1) Bolt | (3) Nut |
| (2) Lower Ball Joint | (4) Nut and Cotter Pin |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel in this section*.
3. Remove the tie-rod end from the knuckle. Refer to *Power Steering Unit in Steering section*.
4. Remove the retaining ring from the front axle driving shaft to release the shaft from hub(Except 2WD model). Refer to *Front Hub and Disc in Driveline/Axle section*.
5. Support lower control arm with a jack.
6. Remove lower ball joint nut and cotter pin, then use remover J-29107 to remove the lower ball joint from the knuckle.

CAUTION: Be careful not to damage the ball joint boot.



901RW163

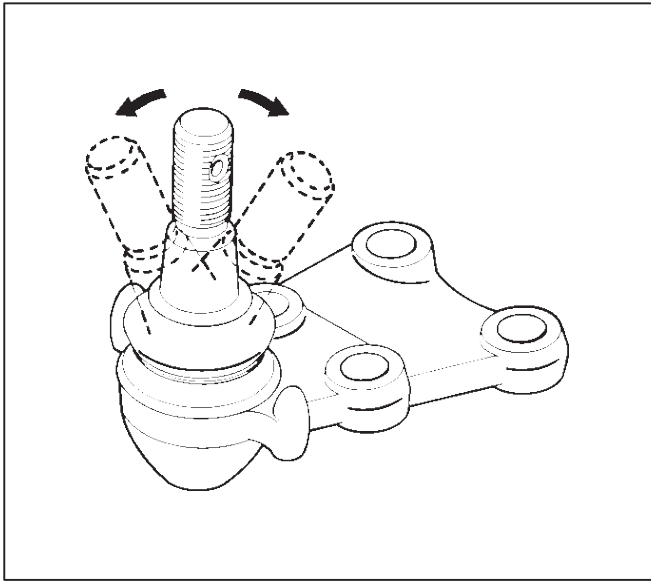
3C-22 FRONT SUSPENSION

7. Remove nut.
8. Remove bolt.
9. Remove lower ball joint.

Inspection and Repair

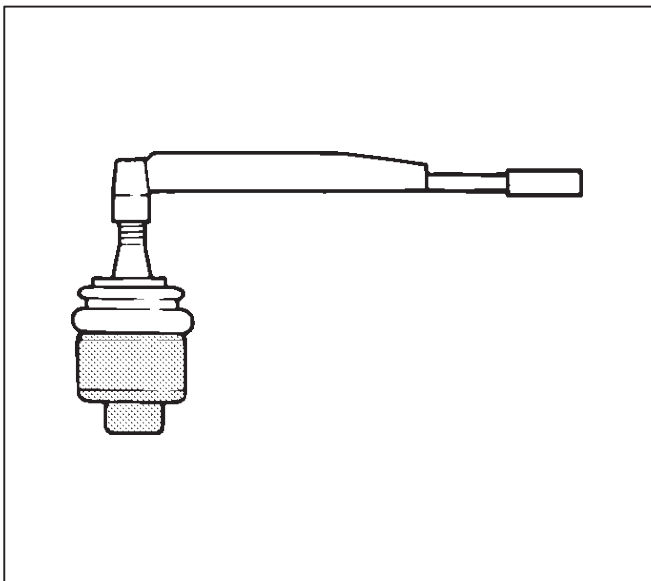
Make necessary parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

- Inspect the lower end boot for damage or grease leak. Move the ball joint as shown in the figure to confirm its normal movement .
- Inspect screw/taper area of ball for damage.
- If any defects are found by the above inspections, replace the ball joint assembly with a new one.



- After moving the ball joint 4 or 5 times, attach nut the measure the preload.

Starting torque: 0.5–6.4 N·m (0.4–4.7 lb ft)



- If the above limits specified are exceeded, replace the ball joint assembly.

Installation

1. Install lower ball joint.
2. Install bolt.
3. Install nut and tighten it to the specified torque.

Torque: 116 N·m (85 lb ft)

4. Install ball joint nut, then tighten it to the specified torque with just enough additional torque to align cotter pin holes. Install new cotter pin.

Torque: 147 N·m (108 lb ft)

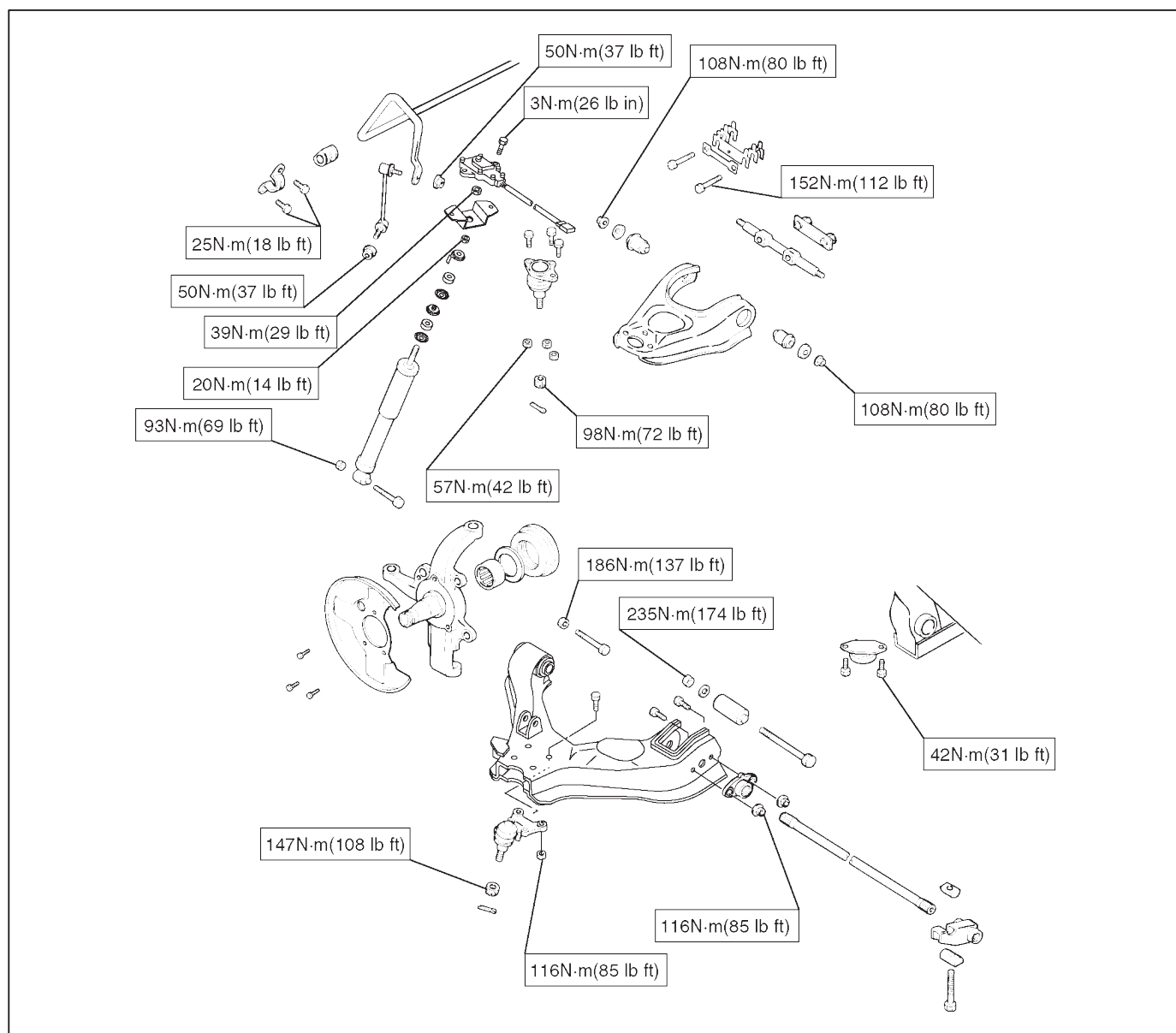
Main Data and Specifications

General Specifications

Front suspension	Type	Independent wishbone arms, torsion bar spring with stabilizer bar.
Torsion bar spring	Length	1142 mm (45.0 in)
	Diameter	29.0 mm (1.14 in)
Front shock absorber	Type	Hydraulic, double acting, telescopic
	Piston diameter	30.0 mm (1.18 in)
	Stroke	115.0 mm (4.53 in)
	Compressed length	255.0 mm (10.04 in)
	Extended length	370.0 mm (14.57 in)
Stabilizer bar	Diameter	25.0 mm (0.98 in)

3C-24 FRONT SUSPENSION

Torque Specifications



Special Tools

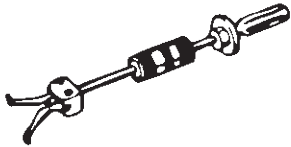
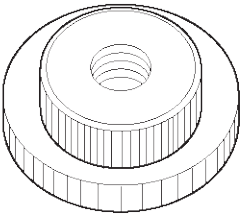
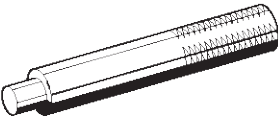
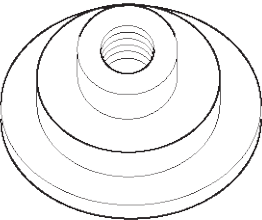
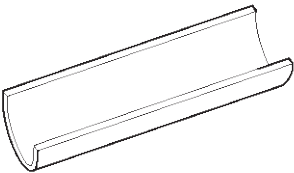
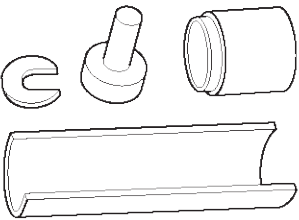
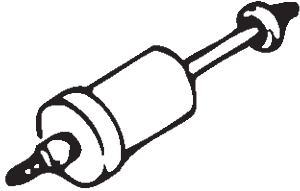
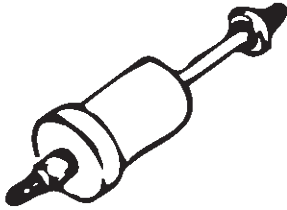
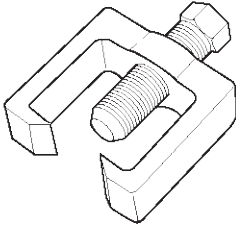
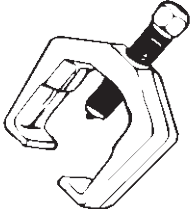
ILLUSTRATION	TOOL NO. TOOL NAME
 901RS283	J-23907 Remover; Needle bearing
 901RS284	J-36838 Installer; Needle bearing
 901RS285	J-8092 Grip
 901RS162	J-36837 Installer; Oil seal
 901RS286	J-39376 Installer; Upper arm bushing
 901RS287	J-29775 Remover and Installer Upper arm bushing

ILLUSTRATION	TOOL NO. TOOL NAME
 901RS288	J-36833 Remover and Installer kit; Lower arm front bushing
 901RS289	J-36834 Remover and Installer kit; Lower arm rear bushing
 901RS290	J-36831 Ball joint remover
 901RS279	J-29107 Tie-rod end remover

AXIOM (Vehicles Produced Before July/31/2001)

SUSPENSION

REAR SUSPENSION

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Service Precaution

WARNING: THIS VEHICLE HAS A SUPPLEMENTAL RESTRAINT SYSTEM (SRS). REFER TO THE SRS COMPONENT AND WIRING LOCATION VIEW IN ORDER TO DETERMINE WHETHER YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING. WHEN YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING, REFER TO THE SRS SERVICE INFORMATION. FAILURE TO FOLLOW WARNINGS COULD RESULT IN POSSIBLE AIR BAG DEPLOYMENT, PERSONAL INJURY, OR OTHERWISE UNNEEDED SRS SYSTEM REPAIRS.

CAUTION: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. ISUZU will call out those fasteners that require a replacement after removal. ISUZU will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (Paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

General Description

The rear suspension is a 5-link, coil spring type suspension with a stabilizer bar, consisting of two trailing links, two upper links, lateral rod, shock absorber, and stabilizer. In this suspension, the links are specially arranged to enable the rear axle to move freely, thereby expanding suspension stroke, reducing friction, and improving lateral rigidity and roll control. All these result in improved stability, riding comfort, and rough road maneuverability.

Each link connects the axle housing with the frame through a runner bushing. The axle housing is supported by the trailing links and upper links longitudinally and by the lateral rod latitudinally.

Diagnosis

Condition	Possible cause	Correction
Vehicle Pulls	Mismatched or uneven tires.	Replace tire.
	Tires not adequately inflated.	Adjust tire pressure.
	Broken or sagging springs.	Replace spring.
	Radial tire lateral force.	Replace tire.
	Improper wheel alignment.	Adjust wheel alignment.
	Brake dragging in one wheel.	Repair brake.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension part(s).
	Faulty shock absorbers.	Replace shock absorber.
	Parts in power steering valve defective.	Replace power steering unit.
Abnormal or Excessive Tire Wear	Sagging or broken spring.	Replace spring.
	Tire out of balance.	Balance or replace tire.
	Improper wheel alignment.	Check front end alignment.
	Faulty shock absorber.	Replace shock absorber.
	Hard driving.	Replace tire.
	Overloaded vehicle.	Replace tire and reduce load.
	Tires not rotated periodically.	Replace or rotate tire.
	Worn or loose road wheel bearings.	Replace wheel bearing.
	Wobbly wheel or tires.	Replace wheel or tire.
	Tires not adequately inflated.	Adjust the pressure.
Wheel Hop	Blister or bump on tire.	Replace tire.
	Improper shock absorber operation.	Replace shock absorber.
Shimmy, Shake or Vibration	Tire or wheel out of balance.	Balance wheels or replace tire/or wheel.
	Loose wheel bearings.	Replace wheel bearing.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
	Excessive wheel runout.	Repair or replace wheel and/or tire.
	Blister or bump on tire.	Replace tire.
	Excessive loaded radial runout of tire/wheel assembly.	Replace tire or wheel.
	Improper wheel alignment.	Check wheel alignment.
	Loose or worn steering linkage.	Tighten or replace steering linkage.
	Loose steering unit.	Tighten steering unit.
	Tires not adequately inflated.	Adjust tire pressure.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension parts.
	Faulty shock absorber.	Replace shock absorber.
	Hub bearing preload misadjustment.	Adjust preload.
	Parts in power steering valve defective.	Replace power steering unit.

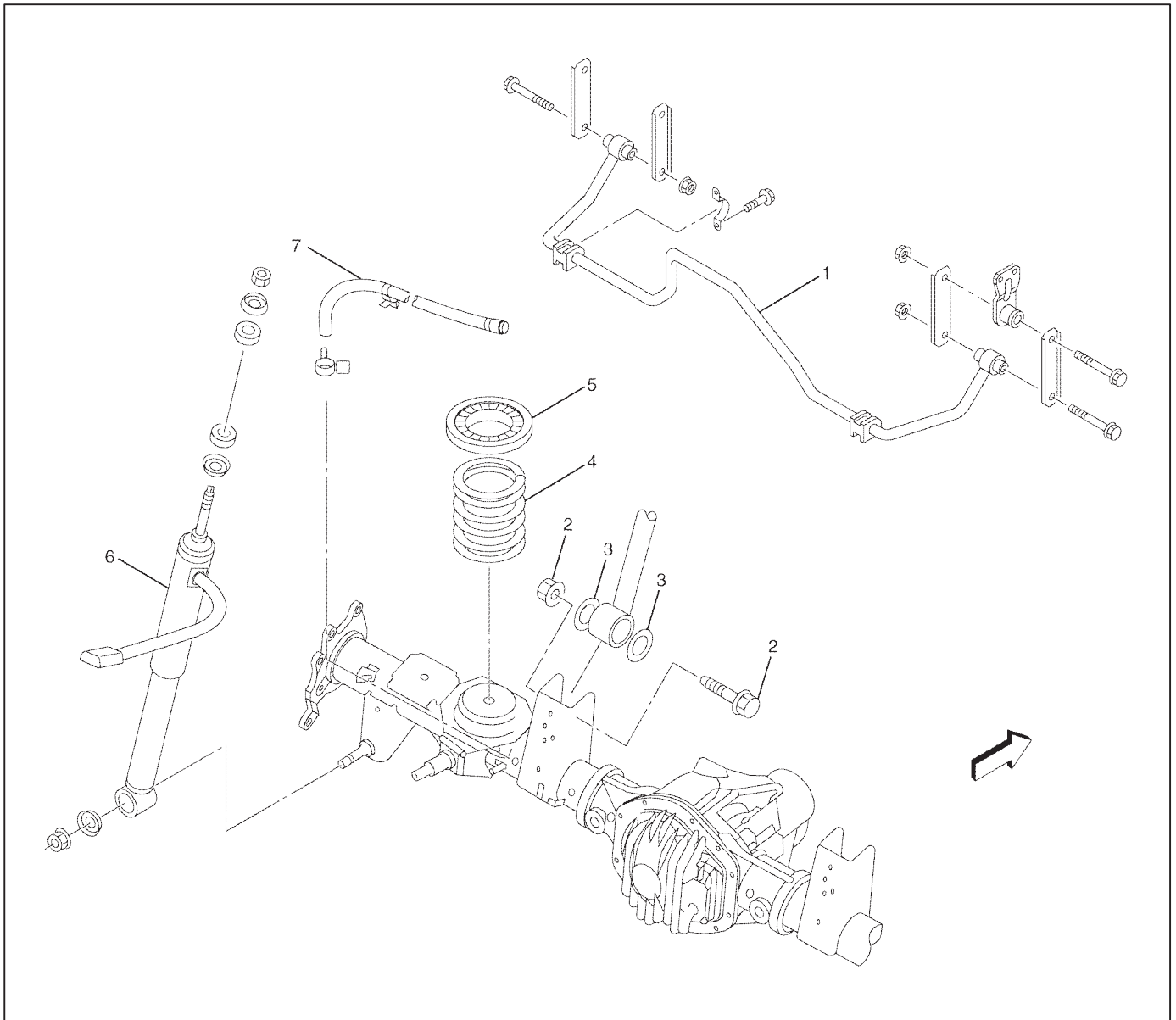
Condition	Possible cause	Correction
Hard Steering	Bind in steering linkage ball studs, upper or lower ball joint.	Replace ball joint.
	Improper wheel alignment.	Check wheel alignment.
	Tire not adequately inflated.	Inflate tires to proper pressure.
	Bind in steering column or shaft.	Repair or replace.
	Improper power steering system operation.	Repair or replace. Refer to <i>Steering section</i> .
Too Much Play In Steering	Wheel bearings worn.	Replace wheel bearings.
	Loose steering unit or linkage.	Retighten or repair.
	Worn or loose steering shaft universal joint.	Retighten or replace steering shaft.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
Poor Steering Wheel Returnability	Bind in steering linkage ball joints.	Replace ball joints.
	Bind in upper or lower ball joints.	Replace ball joints.
	Bind in steering column and shaft.	Repair or replace.
	Bind in steering gear.	Check and repair steering gear.
	Improper wheel alignment.	Adjust wheel alignment.
	Tires not adequately inflated.	Adjust pressure.
	Loose steering wheel nut.	Retighten.
	Worn wheel bearing.	Replace.
Abnormal Noise	Worn, sticky or loose upper or lower ball joint, steering linkage ball joints or drive axle joints.	Replace.
	Faulty shock absorbers.	Replace.
	Worn upper or lower control arm bushing.	Replace.
	Loose stabilizer bar.	Retighten bolts or replace bushings.
	Loose wheel nuts.	Tighten nuts. Check for elongated wheel nut holes. Replace wheel if required.
	Loose suspension bolts or nuts.	Retighten suspension bolts or nuts.
	Broken or otherwise damaged wheel bearings.	Replace wheel bearing.
	Broken suspension springs.	Replace spring.
	Loose steering unit.	Retighten mounting bolt.
	Faulty steering unit.	Replace steering unit.
Wandering or Poor Steering Stability	Mismatched or unevenly worn tires.	Replace tire or inflate tires to proper pressure.
	Loose steering linkage ball joints.	Replace ball joints.
	Faulty shock absorbers.	Replace shock absorber.
	Loose stabilizer bar.	Tighten or replace stabilizer bar or bushings.
	Broken or sagging springs.	Replace spring (pairs).
	Improper wheel alignment.	Adjust wheel alignment.

3D-4 REAR SUSPENSION

Condition	Possible cause	Correction
Erratic Steering When Braking	Worn wheel bearings.	Replace wheel bearings.
	Broken or sagging springs.	Replace spring (In pairs).
	Leaking caliper.	Repair or replace caliper.
	Warped discs.	Replace brake disc.
	Badly worn brake pads.	Replace brake pads.
	Tires are inflated unequally.	Inflate tires to proper pressure.
Low or Uneven Trim Height	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
	Incorrect springs.	Adjust or replace torsion bar.
Suspension Bottoms	Vehicle overloaded.	Reduce load.
	Faulty shock absorber.	Replace shock absorber.
	Incorrect, broken or sagging springs.	Replace springs.
Body Leans	Loose stabilizer bar.	Tighten stabilizer bar bolts or replace bushings.
	Faulty shock absorber, struts or mounting.	Replace shock absorber.
	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
Cupped Tires	Worn wheel bearings.	Replace wheel bearing.
	Excessive tire or wheel run out.	Replace tire or wheel.
	Worn ball joints.	Replace ball joints.
	Tire out of balance.	Adjust tire balance.

Coil Spring

Coil Spring and Associated Parts



460R200001

Legend

- | | |
|------------------------------------|--------------------|
| (1) Stabilizer Bar | (4) Coil Spring |
| (2) Upper Link Fixing Bolt and Nut | (5) Insulator |
| (3) Rubber Plate | (6) Shock Absorber |
| | (7) Breather Hose |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Support the rear axle case with a jack.
3. Disconnect brake hose at the crossmember.
4. Remove breather hose.
5. Remove upper link fixing bolt, nut and rubber plate on the rear axle case (left-side only).
6. Disconnect the stabilizer bar at the stabilizer link.
7. Remove the shock absorber from the axle case.
8. Remove spring insulator.
9. Remove the insulator and coil spring while lowering the rear axle case.

CAUTION: Be sure not to let the brake hose, parking brake cable, and breather hose extend to their full length.

Inspection and Repair

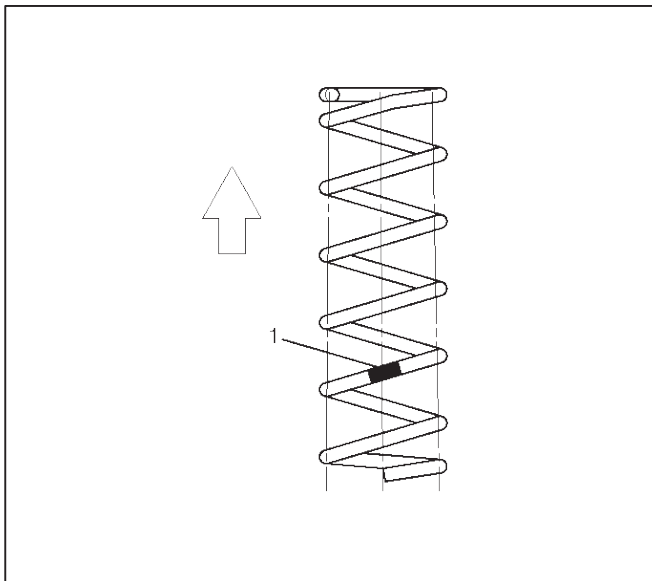
Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Coil spring
- Insulator

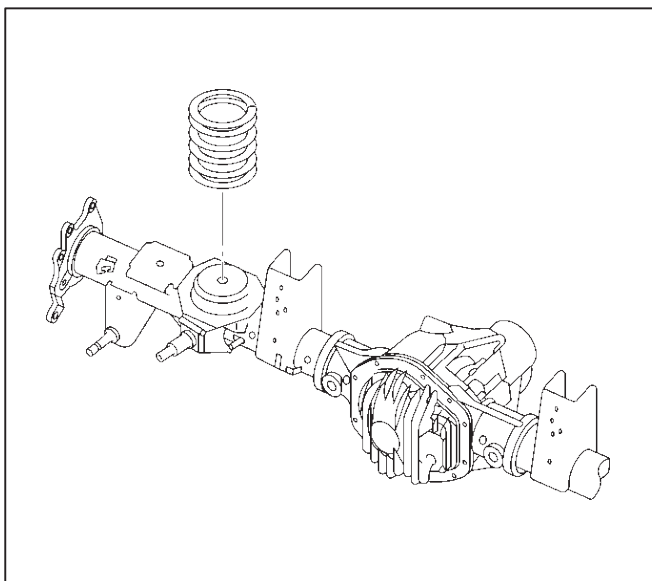
Installation

1. Install coil spring and make sure that the coil spring is installed in the proper position. Paint mark(1) should be downward.



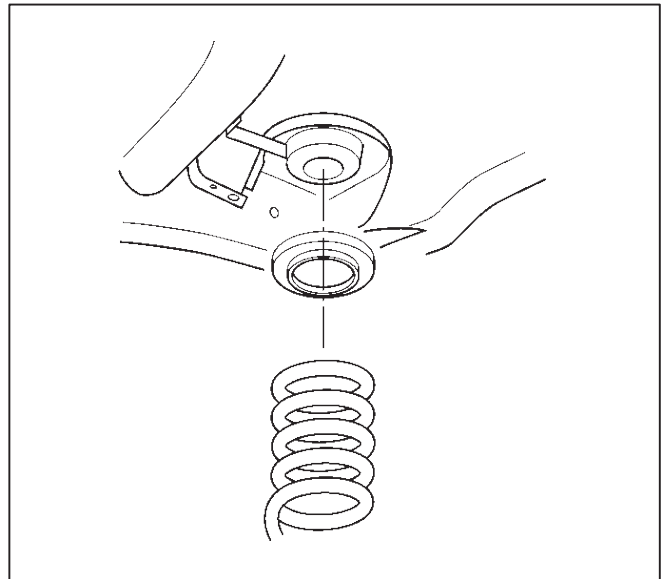
460RW001

2. Fit the end of the coil spring to the coil spring seat and mount the coil spring on the rear axle case.



460RW004

3. Install the insulator on the coil spring. Jack up the axle case gently with the top of the coil spring set to the spring seat on the frame side.



460RW013

4. Install shock absorber and make sure that installed in the proper position. (Refer to *Intelligent Suspension*)
Tighten the nut lightly, then retighten it to the specified torque after the vehicle is at curb height.

NOTE: When mounting shock absorber, be sure not to use grease on bushings or any other nearby part.

Torque: 78 N·m (58 lb ft)

5. Install stabilizer bar.

Torque: 31 N·m (23 lb ft)

6. Install upper link with rubber plate and tighten fixing bolt.

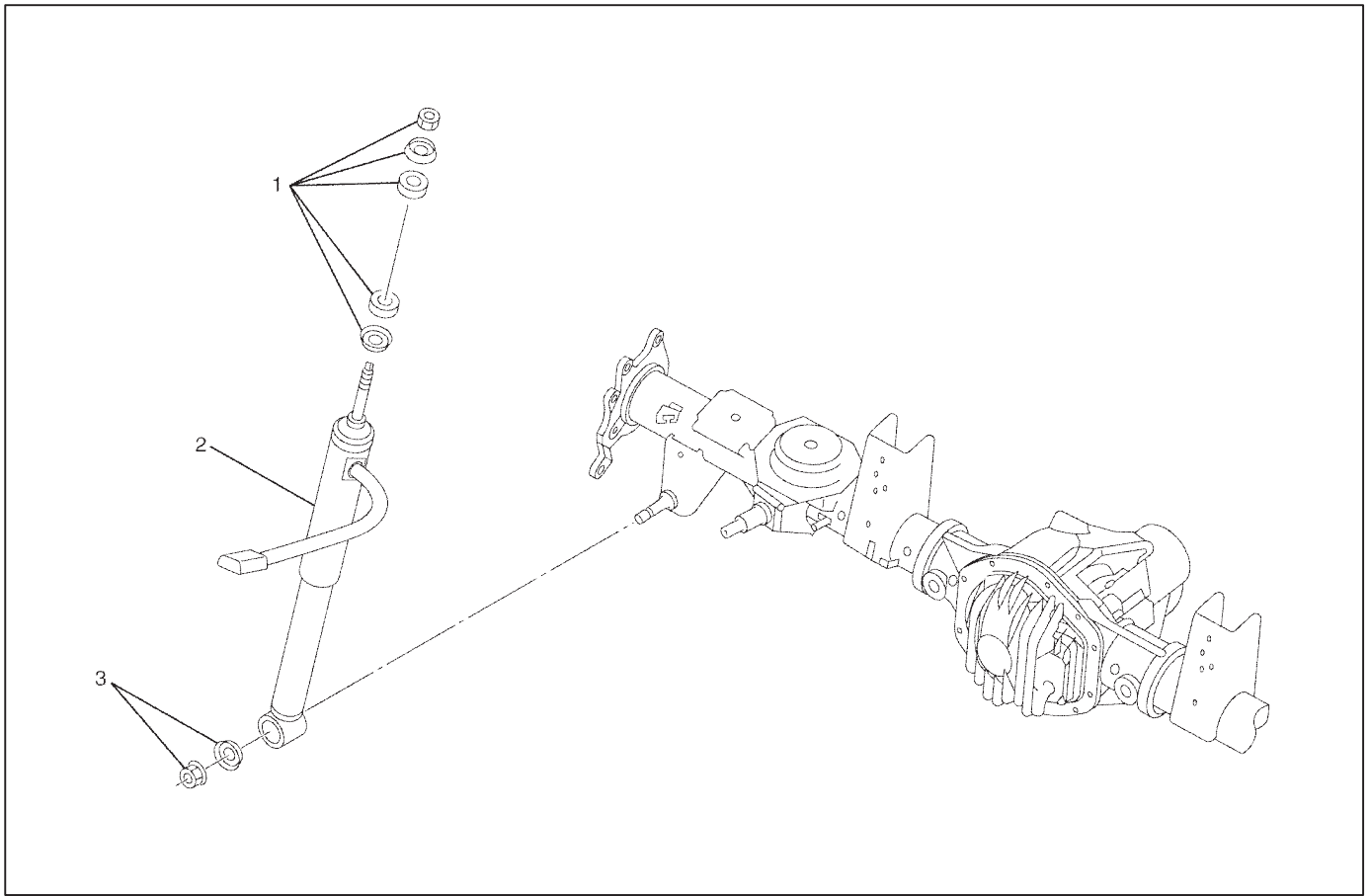
Torque: 137 N·m (101 lb ft)

7. Install breather hose.

8. Connect brake hose and bleed the brake system.
Refer to *Bleeding the Brake Hydraulic System in Brake section*.

Shock Absorber

Shock Absorber and Associated Parts



461R200001

Legend

(1) Nut, Bush and Washer

(2) Shock Absorber

(3) Nut and Washer

Removal

1. Remove shock absorber fixing nut, bush and washer (upper side).
2. Remove shock absorber fixing nut and washer (lower side).
3. Remove shock absorber.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Shock absorber
- Rubber bushing

NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.

Installation

1. Install shock absorber. When mounting shock absorber, make sure to be installed in the proper position and not to use grease on bushings or any other nearby part. (Refer to *Intelligent Suspension*)
2. Install nut and washer (lower side), then tighten the nut lightly. Retighten to the bolt and nut specified torque after the vehicle is at curb height.

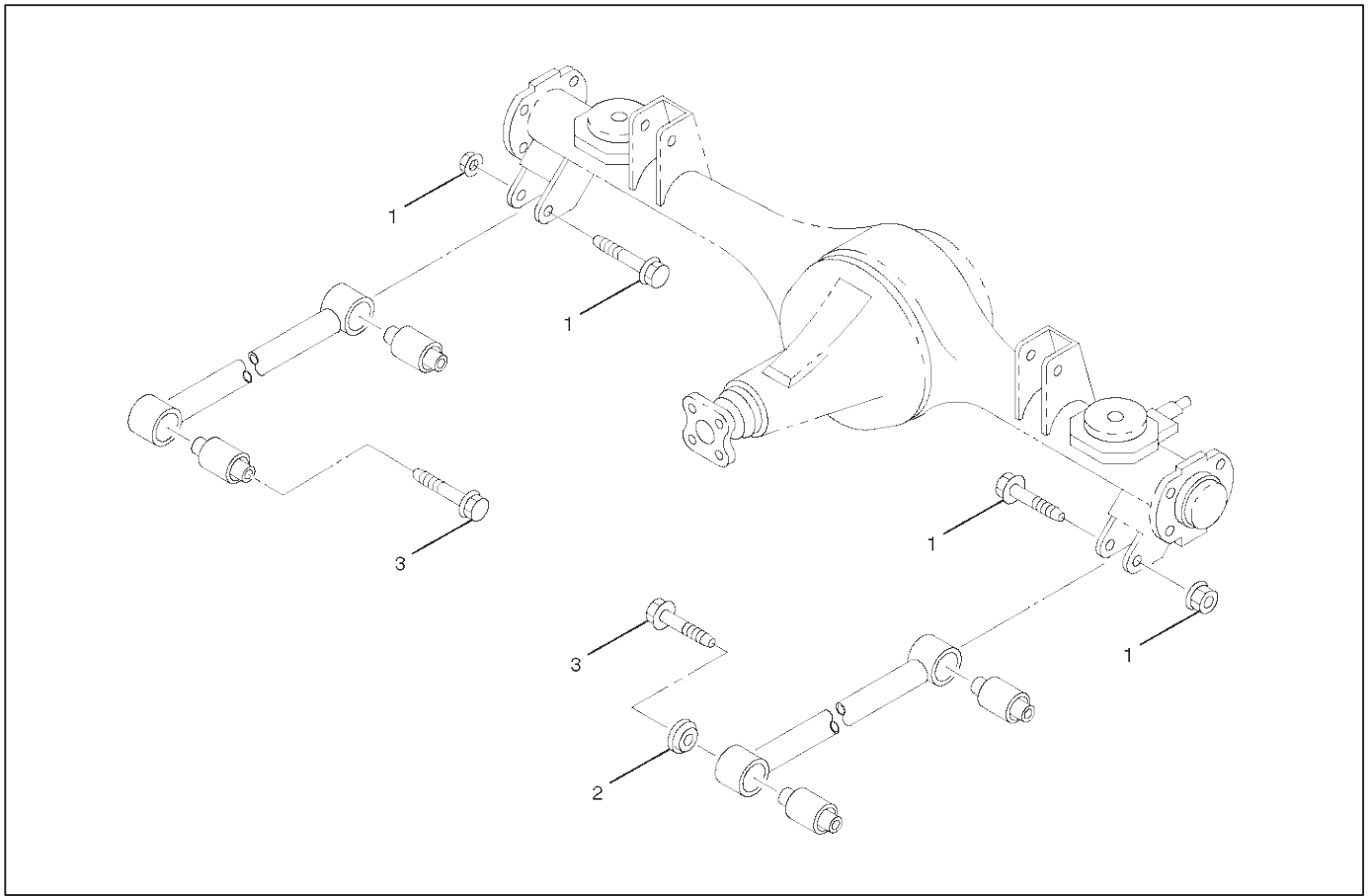
Torque: 78 N·m (58 lb ft)

3. Install nut, bush and washer (upper side), then tighten the nut lightly. Retighten to the nut specified torque after the vehicle is at curb height.

Torque: 20 N·m (14 lb ft)

Trailing Link

Trailing Link and Associated Parts



460RW005

Legend

(1) Bolt and Nut (Axle side)

(2) Protector (Left side only)

(3) Bolt (Frame side)

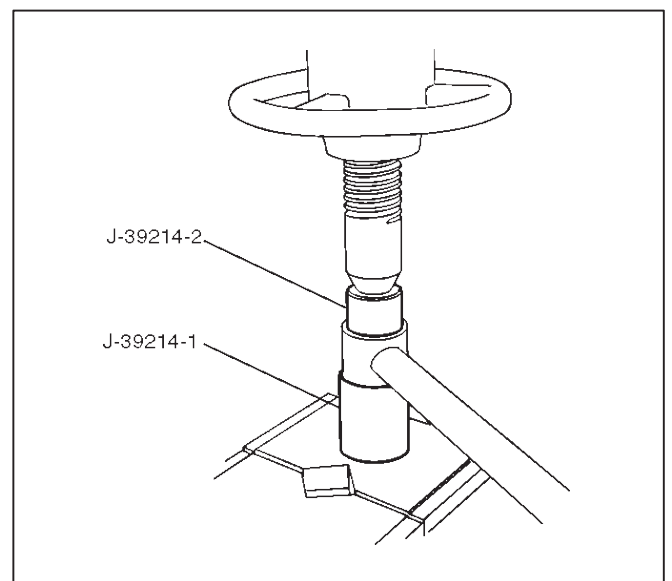
Removal

1. Remove the parking brake cable from the trailing link.
2. Remove the trailing link fixing bolt, nut and protector.
3. Remove trailing link.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

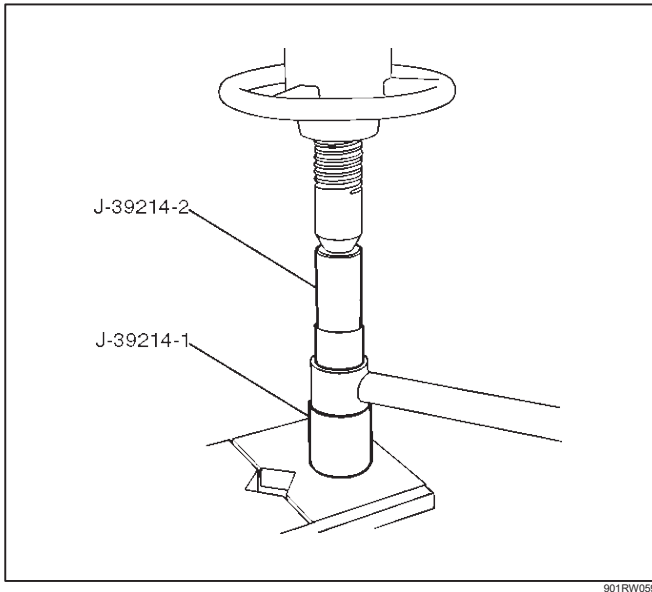
1. Trailing link
2. Rubber bushing
 - Remove the rubber bushing by using remover J-39214.



901RW058

- Install the rubber bushing by using installer J-39214.

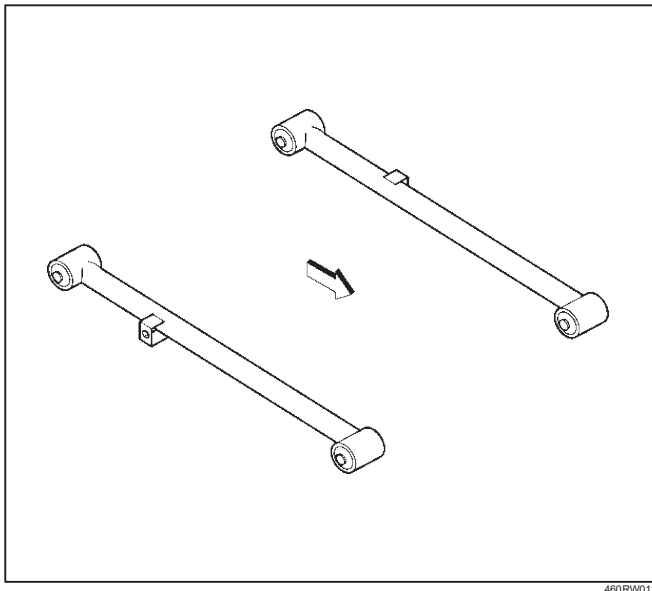
NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.



Installation

1. Install trailing link. Make sure that the trailing link is in its correct position.

NOTE: When mounting trailing link, be sure not to use grease on bushings or any other nearby part.



2. Install bolt, nut and protector. Tighten the bolts and nuts lightly, then retighten them to the specified torque after the vehicle is at curb height.

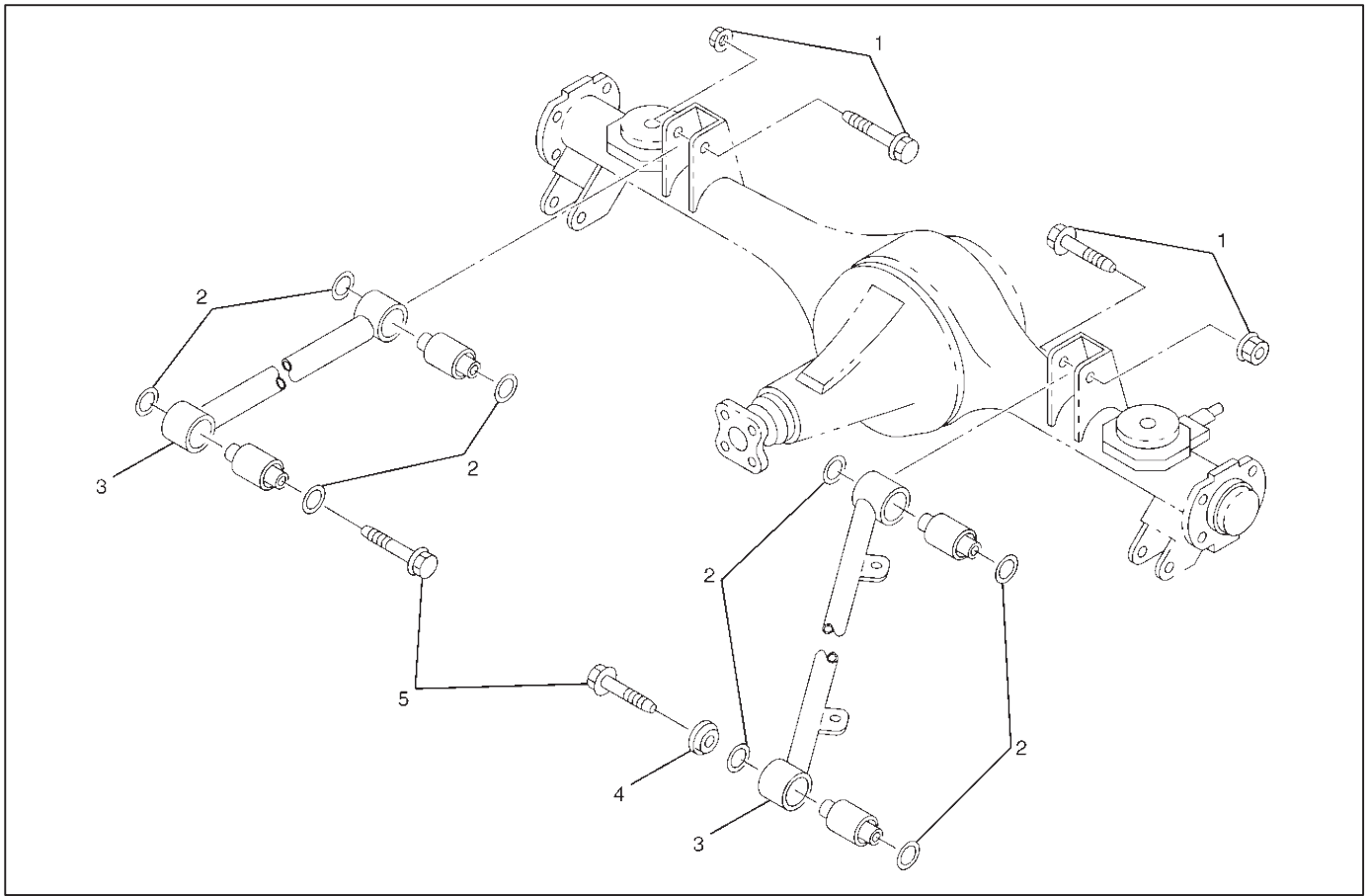
Torque: 137 N·m (101 lb ft)

3. Install parking brake cable.

CAUTION: The parking brake cable should not be overstrained or slackened.

Upper Link

Upper Link and Associated Parts



460RW006

Legend

- | | |
|------------------------------|--------------------------------|
| (1) Bolt and Nut (Axle side) | (3) Upper Link |
| (2) Rubber Plate | (4) Protector (Left side only) |
| | (5) Bolt (Frame side) |

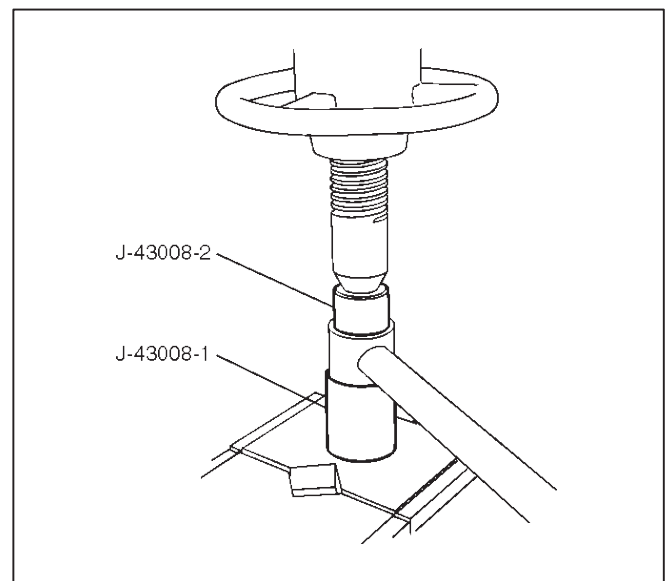
Removal

1. Remove fuel tank. Refer to *Engine Fuel in Engine section*.
2. Remove the speed sensor cable from the upper link.
3. Remove bolt, nut, rubber plate and protector.
4. Remove upper link.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

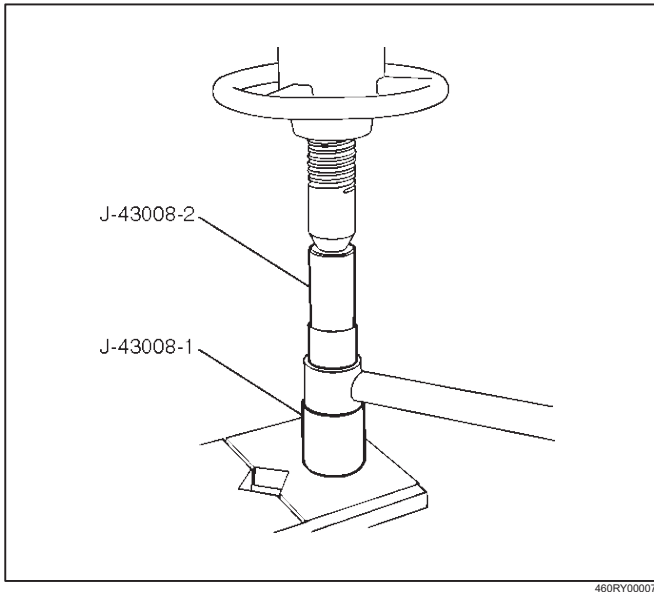
1. Upper link
2. Rubber bushing
 - Remove the rubber bushing by using remover J-43008.



460RY0006

- Install the rubber bushing by using to installer J-43008.

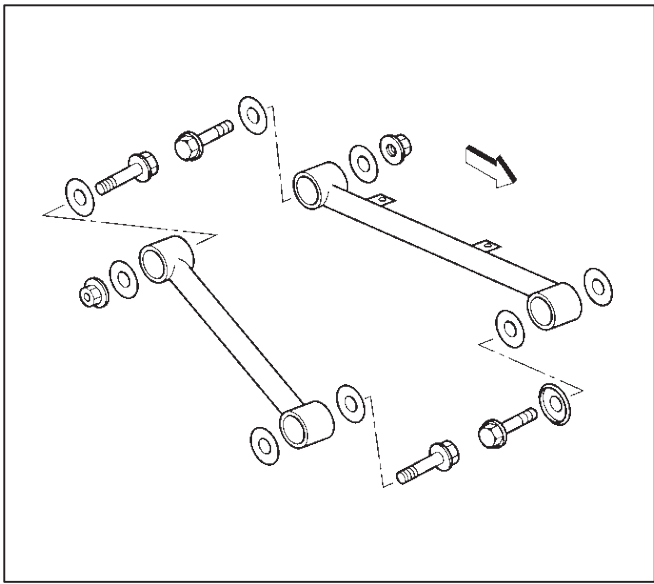
NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.



Installation

1. Install upper link. Make sure that the upper link is in its correct position.

NOTE: When mounting upper link, be sure not to use grease bushings or any other nearby part.



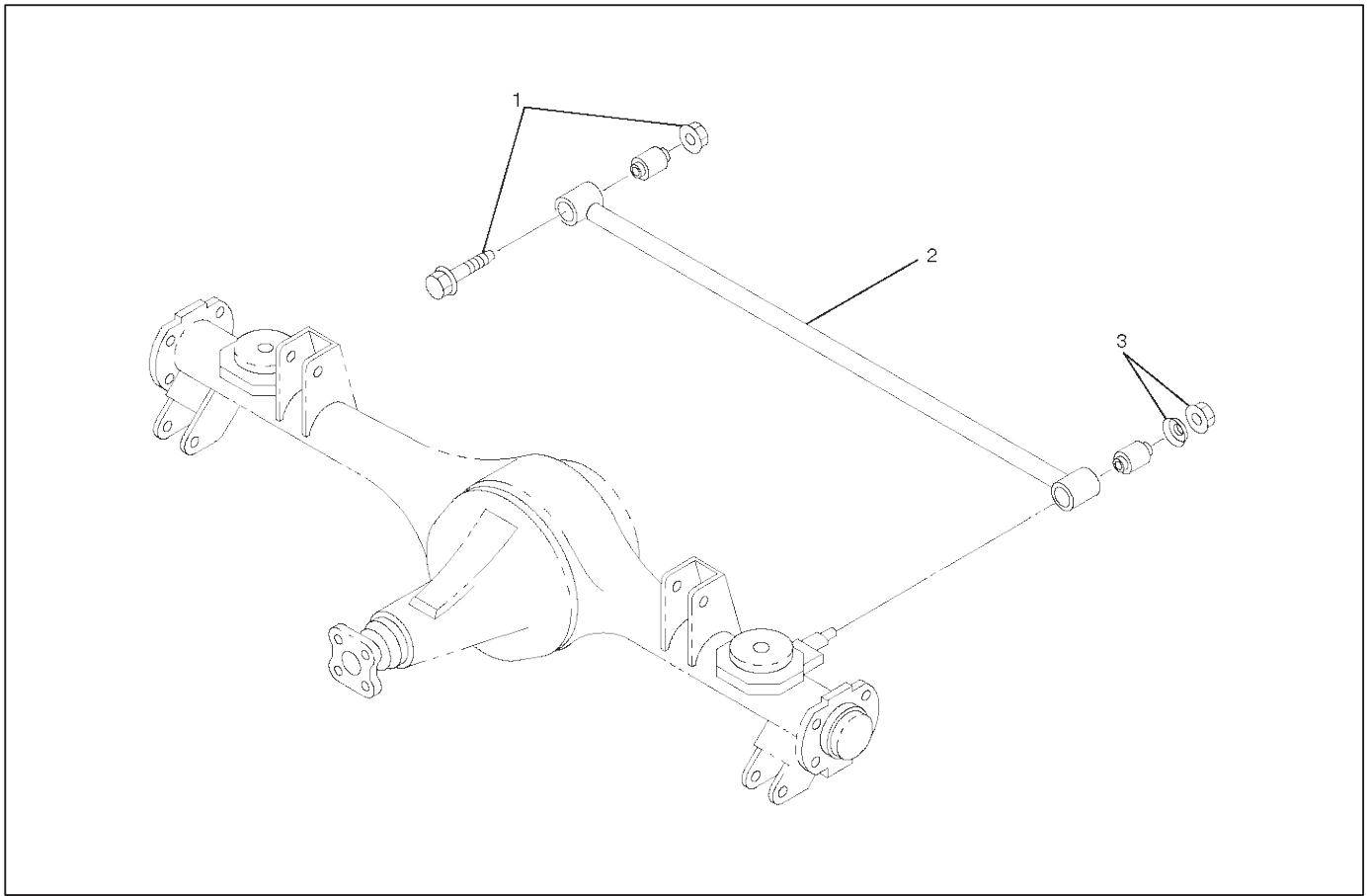
2. Install bolt, nut, rubber plate and protector. Tighten the bolts and nuts lightly, then retighten them to the specified torque after the vehicle is at curb height.

Torque: 137 N·m (101 lb ft)

3. Install speed sensor cable.
4. Install fuel tank.

Lateral Rod

Lateral Rod and Associated Parts



460RW007

Legend

(1) Bolt and Nut (Frame side)

(2) Lateral Rod

(3) Nut and Washer (Axle side)

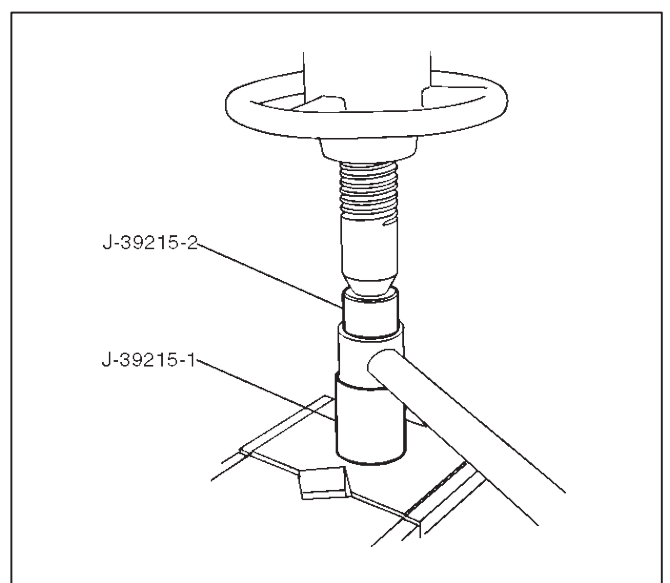
Removal

1. Remove nut and washer.
2. Remove bolt and nut.
3. Remove lateral rod.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

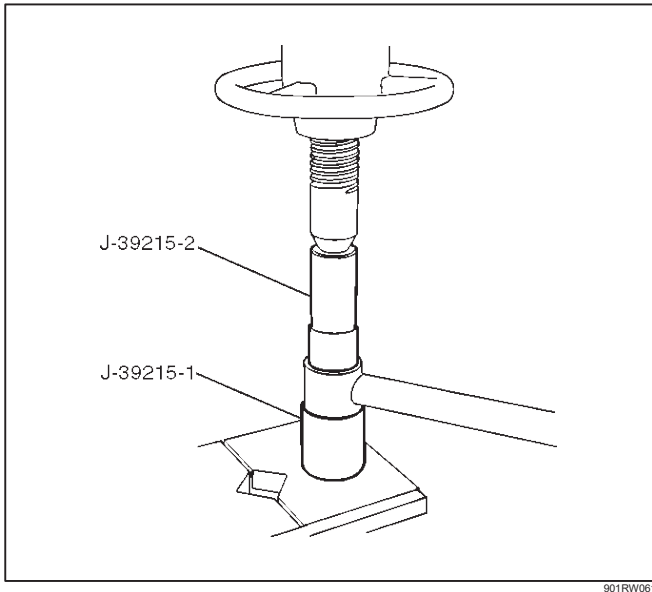
1. Lateral rod
2. Rubber bushing (Frame side)
 - Remove the rubber bushing (Frame side) by using remover J-39215.



901RW060

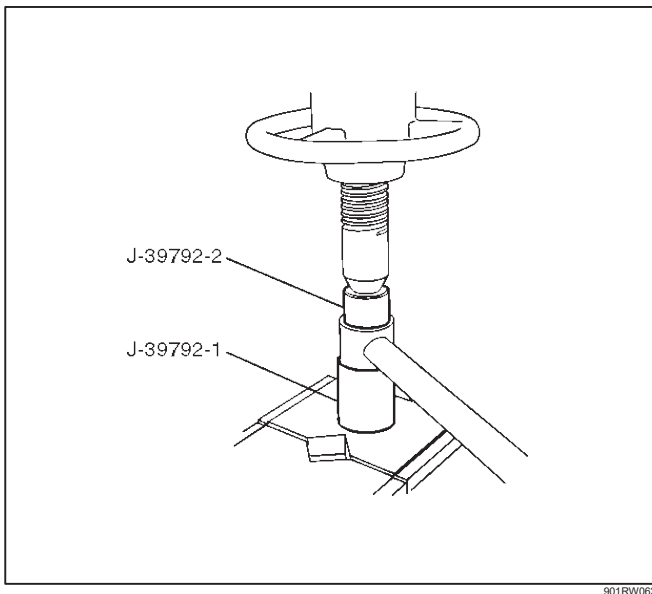
- Install the rubber bushing (Frame side) by using Installer J-39215.

NOTE: When mounting rubber bushings, do not use grease on bushings or any other nearby parts.

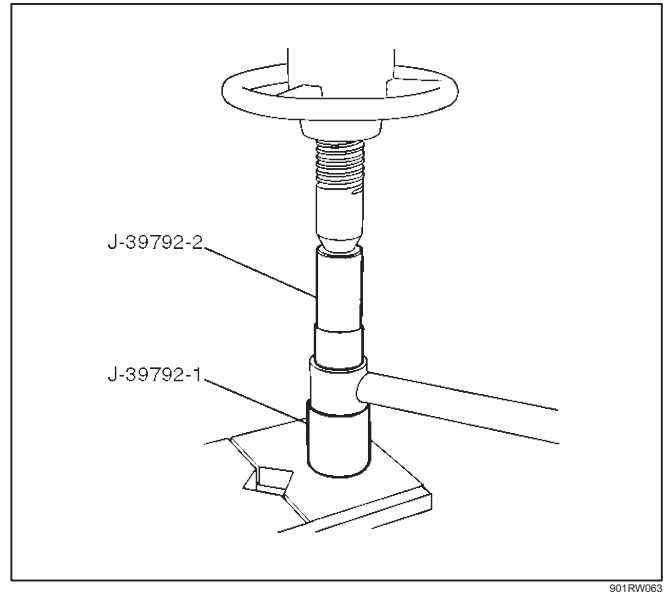


3. Rubber bushing (Axle side)

- Remove the rubber bushing (Axle side) by using remover J-39792.



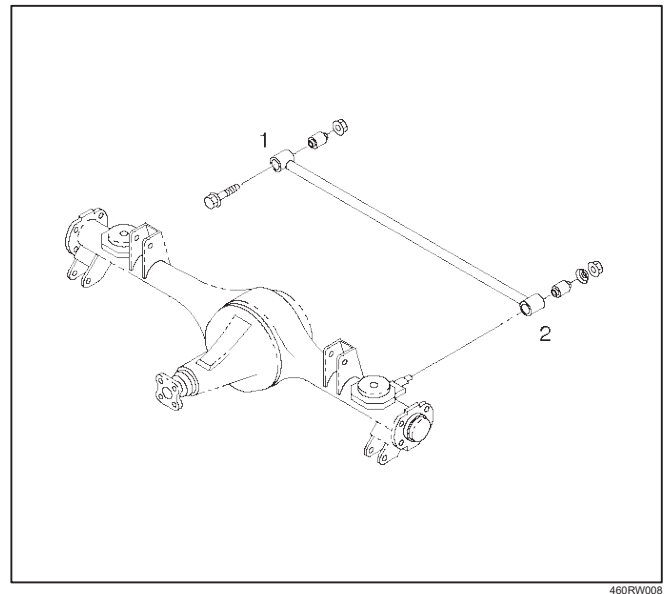
- Install the rubber bushing (Axle side) by using installer J-39792.



Installation

1. Install lateral rod and make sure that the lateral rod is in its correct position.

NOTE: When mounting lateral rod, be sure not to use grease on bushings or any other nearby part.



Legend

- (1) Frame Side
- (2) Axle Side

2. Install bolt and nut (Frame side). Tighten the bolt and nut lightly, then retighten them to the specified torque after the vehicle is at curb height.

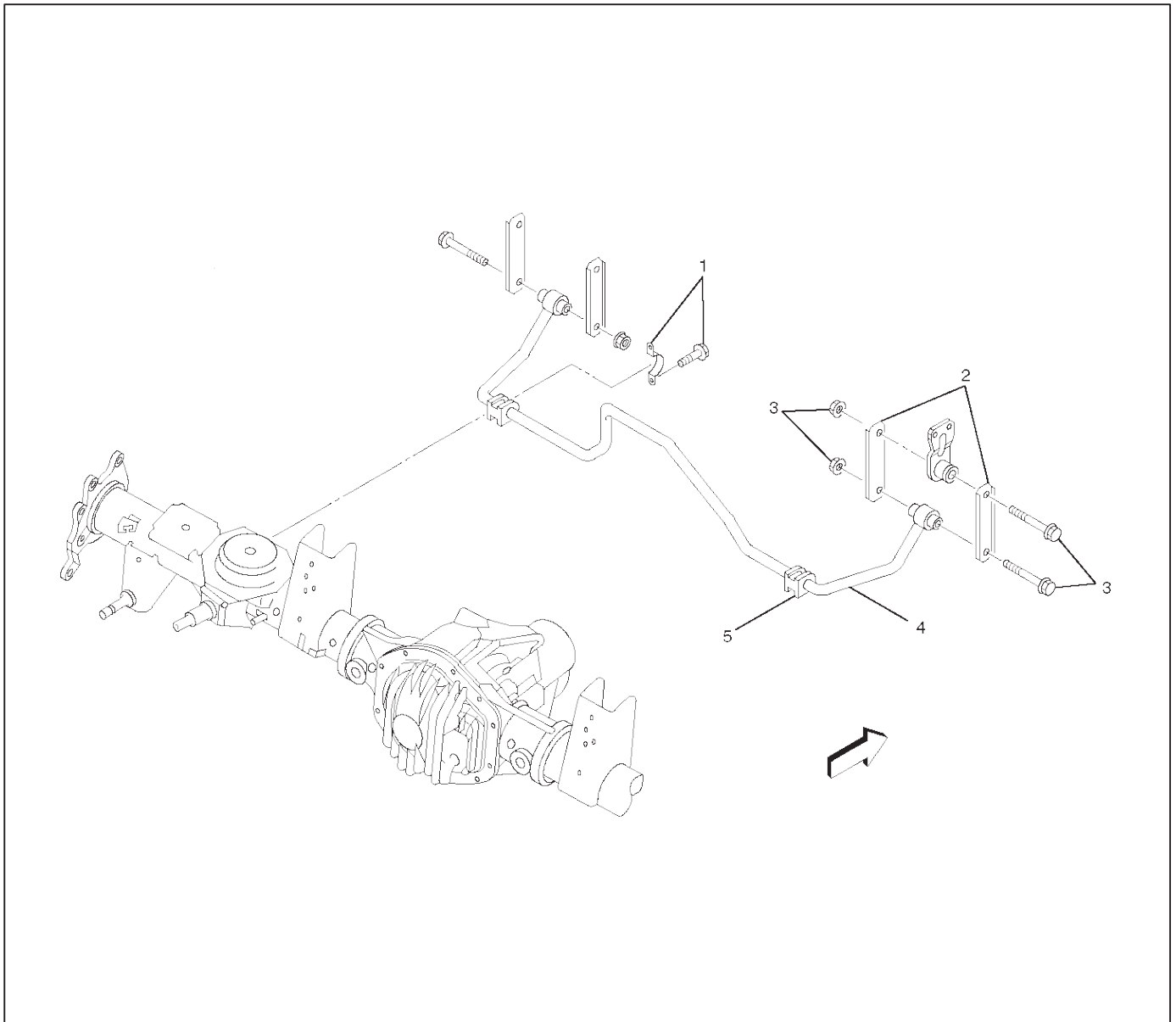
Torque: 137 N·m (101 lb ft)

3. Install nut and washer (Axle side). Tighten the nut lightly, then retighten the nut to the specified torque after the vehicle is at curb height.

Torque: 78 N·m (58 lb ft)

Stabilizer Bar

Stabilizer Bar and Associated Parts



460RW009

Legend

- | | |
|----------------------|--------------------|
| (1) Bracket and Bolt | (3) Bolt and Nut |
| (2) Link | (4) Stabilizer Bar |
| | (5) Rubber Bushing |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel in this section*.
3. Remove bolt and nut.
4. Remove link.
5. Remove bracket.
6. Remove rubber bushing.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Stabilizer bar
- Rubber bushing
- Link

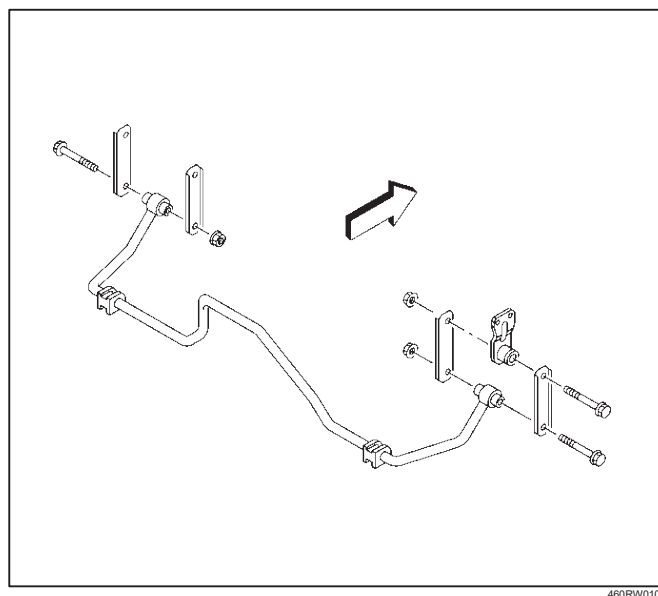
Installation

1. Install rubber bushing.
2. Install bracket to axle housing and tighten to the specified torque.

Torque: 25 N·m (19 lb ft)

3. Install link.
4. Install bolt and nut, then tighten the nut to the specified torque.

Torque: 31 N·m (27 lb ft)



460RW010

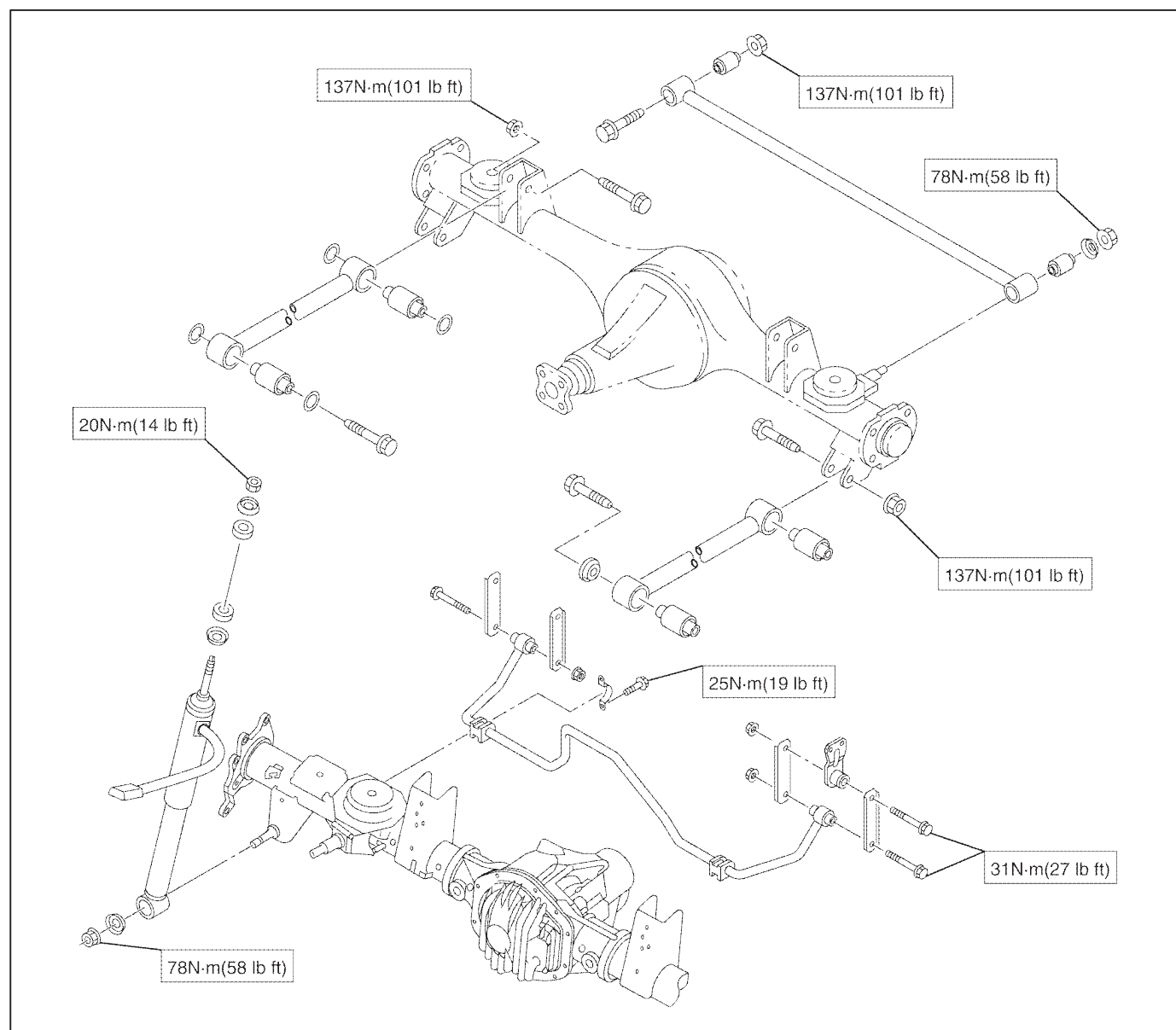
3D-16 REAR SUSPENSION

Main Data and Specifications

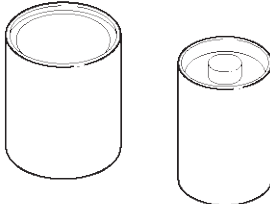
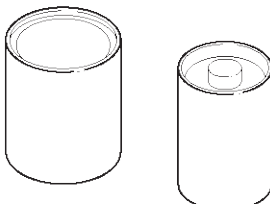
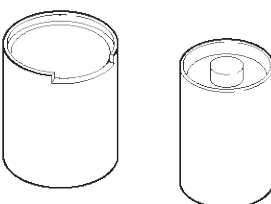
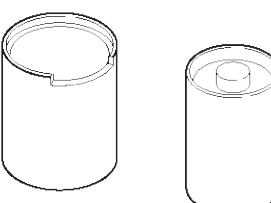
General Specifications

Rear suspension	Type	5-Link, coil spring type with stabilizer bar.
Coil spring	Free length	370.5 mm (14.59 in)
	Spring diameter	12.4 mm (0.49 in)
	Coil diameter (inner)	105 mm (4.13 in)
	Effective No. of turns	5.21
	Total No. of turns	6.71
Shock absorber	Type	Hydraulic, double acting, telescopic
	Piston diameter	30 mm (1.18 in)
	Stroke	159 mm (6.26 in)
	Extended length	518 mm (20.39 in)
	Compressed length	359 mm (14.13 in)
Stabilizer bar	Diameter	18 mm (0.71 in)

Torque Specifications



Special Tools

ILLUSTRATION	TOOL NO. TOOL NAME
 901RS291	J-39214 Remover and Installer; Trailing link bushing
 901RS291	J-43008 Remover and Installer; Upper link bushing
 901RS292	J-39792 Remover and Installer; Lateral rod bushing (Axle side)
 901RS293	J-39215 Remover and Installer; Lateral rod bushing (Frame side)

AXIOM (Vehicles Produced After Aug./1/2001)

REAR SUSPENSION

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Service Precaution

WARNING: THIS VEHICLE HAS A SUPPLEMENTAL RESTRAINT SYSTEM (SRS). REFER TO THE SRS COMPONENT AND WIRING LOCATION VIEW IN ORDER TO DETERMINE WHETHER YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING. WHEN YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING, REFER TO THE SRS SERVICE INFORMATION. FAILURE TO FOLLOW WARNINGS COULD RESULT IN POSSIBLE AIR BAG DEPLOYMENT, PERSONAL INJURY, OR OTHERWISE UNNEEDED SRS SYSTEM REPAIRS.

CAUTION: Always use the correct fastener in the proper location. When you replace a fastener, use ONLY the exact part number for that application. ISUZU will call out those fasteners that require a replacement after removal. ISUZU will also call out the fasteners that require thread lockers or thread sealant. UNLESS OTHERWISE SPECIFIED, do not use supplemental coatings (Paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

General Description

The rear suspension is a 5-link, coil spring type suspension with a stabilizer bar, consisting of two trailing links, two upper links, lateral rod, shock absorber, and stabilizer. In this suspension, the links are specially arranged to enable the rear axle to move freely, thereby expanding suspension stroke, reducing friction, and improving lateral rigidity and roll control. All these result in improved stability, riding comfort, and rough road maneuverability.

Each link connects the axle housing with the frame through a runner bushing. The axle housing is supported by the trailing links and upper links longitudinally and by the lateral rod latitudinally.

Diagnosis

Condition	Possible cause	Correction
Vehicle Pulls	Mismatched or uneven tires.	Replace tire.
	Tires not adequately inflated.	Adjust tire pressure.
	Broken or sagging springs.	Replace spring.
	Radial tire lateral force.	Replace tire.
	Improper wheel alignment.	Adjust wheel alignment.
	Brake dragging in one wheel.	Repair brake.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension part(s).
	Faulty shock absorbers.	Replace shock absorber.
	Parts in power steering valve defective.	Replace power steering unit.
Abnormal or Excessive Tire Wear	Sagging or broken spring.	Replace spring.
	Tire out of balance.	Balance or replace tire.
	Improper wheel alignment.	Check front end alignment.
	Faulty shock absorber.	Replace shock absorber.
	Hard driving.	Replace tire.
	Overloaded vehicle.	Replace tire and reduce load.
	Tires not rotated periodically.	Replace or rotate tire.
	Worn or loose road wheel bearings.	Replace wheel bearing.
	Wobbly wheel or tires.	Replace wheel or tire.
	Tires not adequately inflated.	Adjust the pressure.
Wheel Hop	Blister or bump on tire.	Replace tire.
	Improper shock absorber operation.	Replace shock absorber.
Shimmy, Shake or Vibration	Tire or wheel out of balance.	Balance wheels or replace tire/or wheel.
	Loose wheel bearings.	Replace wheel bearing.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
	Excessive wheel runout.	Repair or replace wheel and/or tire.
	Blister or bump on tire.	Replace tire.
	Excessive loaded radial runout of tire/wheel assembly.	Replace tire or wheel.
	Improper wheel alignment.	Check wheel alignment.
	Loose or worn steering linkage.	Tighten or replace steering linkage.
	Loose steering unit.	Tighten steering unit.
	Tires not adequately inflated.	Adjust tire pressure.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension parts.
	Faulty shock absorber.	Replace shock absorber.
	Hub bearing preload misadjustment.	Adjust preload.
	Parts in power steering valve defective.	Replace power steering unit.

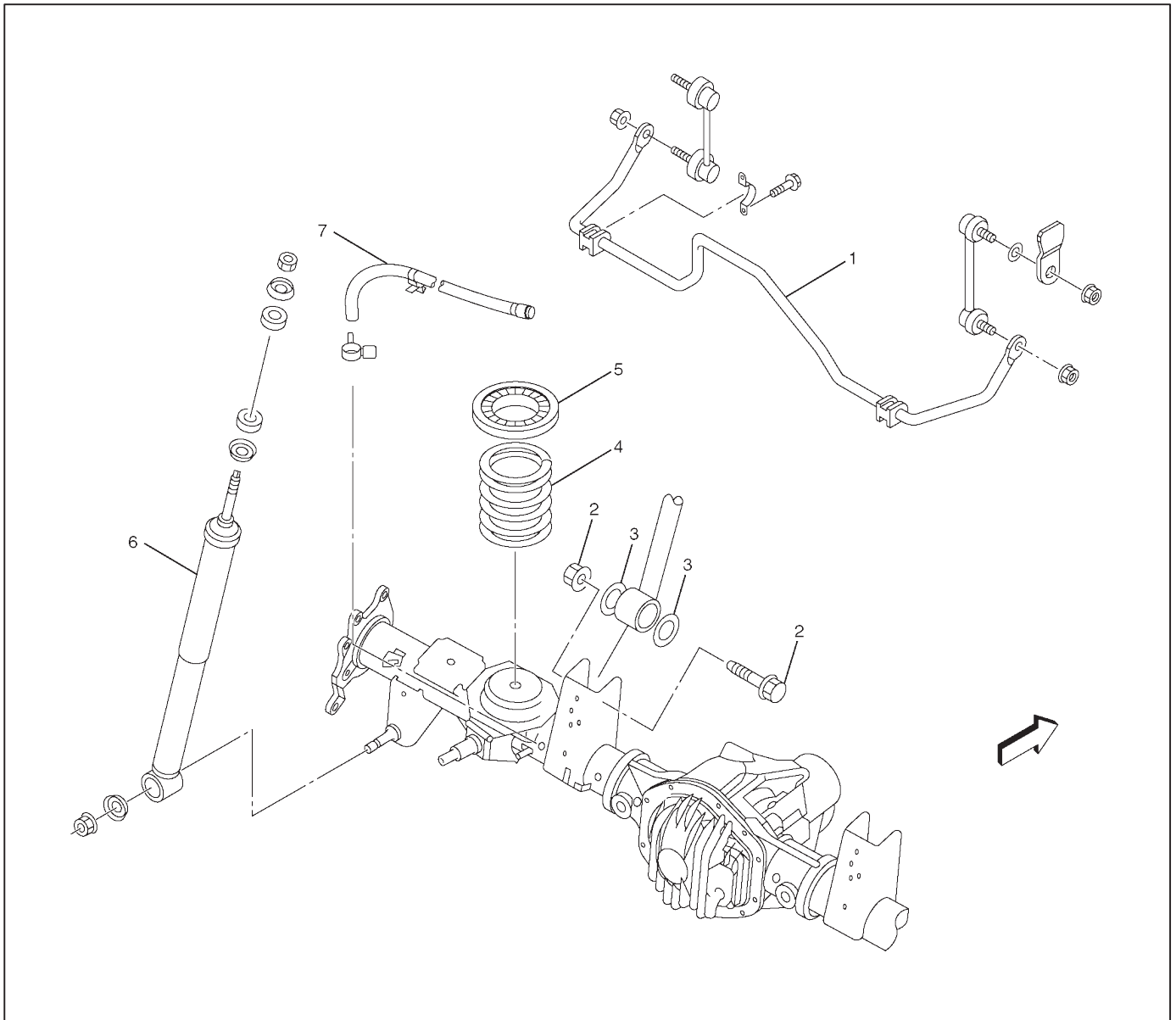
Condition	Possible cause	Correction
Hard Steering	Bind in steering linkage ball studs, upper or lower ball joint.	Replace ball joint.
	Improper wheel alignment.	Check wheel alignment.
	Tire not adequately inflated.	Inflate tires to proper pressure.
	Bind in steering column or shaft.	Repair or replace.
	Improper power steering system operation.	Repair or replace. Refer to <i>Steering</i> section.
Too Much Play In Steering	Wheel bearings worn.	Replace wheel bearings.
	Loose steering unit or linkage.	Retighten or repair.
	Worn or loose steering shaft universal joint.	Retighten or replace steering shaft.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
Poor Steering Wheel Returnability	Bind in steering linkage ball joints.	Replace ball joints.
	Bind in upper or lower ball joints.	Replace ball joints.
	Bind in steering column and shaft.	Repair or replace.
	Bind in steering gear.	Check and repair steering gear.
	Improper wheel alignment.	Adjust wheel alignment.
	Tires not adequately inflated.	Adjust pressure.
	Loose steering wheel nut.	Retighten.
	Worn wheel bearing.	Replace.
	Misassemble Transfer Gear ASM	Reassemble Transfer Gear to proper portion
Abnormal Noise	Worn, sticky or loose upper or lower ball joint, steering linkage ball joints or drive axle joints.	Replace.
	Faulty shock absorbers.	Replace.
	Worn upper or lower control arm bushing.	Replace.
	Loose stabilizer bar.	Retighten bolts or replace bushings.
	Loose wheel nuts.	Tighten nuts. Check for elongated wheel nut holes. Replace wheel if required.
	Loose suspension bolts or nuts.	Retighten suspension bolts or nuts.
	Broken or otherwise damaged wheel bearings.	Replace wheel bearing.
	Broken suspension springs.	Replace spring.
	Loose steering unit.	Retighten mounting bolt.
	Faulty steering unit.	Replace steering unit.
Wandering or Poor Steering Stability	Mismatched or unevenly worn tires.	Replace tire or inflate tires to proper pressure.
	Loose steering linkage ball joints.	Replace ball joints.
	Faulty shock absorbers.	Replace shock absorber.
	Loose stabilizer bar.	Tighten or replace stabilizer bar or bushings.
	Broken or sagging springs.	Replace spring (pairs).
	Improper wheel alignment.	Adjust wheel alignment.

3D-22 REAR SUSPENSION

Condition	Possible cause	Correction
Erratic Steering When Braking	Worn wheel bearings.	Replace wheel bearings.
	Broken or sagging springs.	Replace spring (pairs).
	Leaking caliper.	Repair or replace caliper.
	Warped discs.	Replace brake disc.
	Badly worn brake pads.	Replace brake pads.
	Tires are inflated unequally.	Inflate tires to proper pressure.
Low or Uneven Trim Height	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
	Incorrect springs.	Adjust or replace torsion bar.
	Trim Height out of spec	Adjust Trim height
Suspension Bottoms	Vehicle overloaded.	Reduce load.
	Faulty shock absorber.	Replace shock absorber.
	Incorrect, broken or sagging springs.	Replace springs.
Body Leans	Trim Height out of spec	Adjust Trim height
	Loose stabilizer bar.	Tighten stabilizer bar bolts or replace bushings.
	Faulty shock absorber, struts or mounting.	Replace shock absorber.
	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
Cupped Tires	Worn wheel bearings.	Replace wheel bearing.
	Excessive tire or wheel run out.	Replace tire or wheel.
	Worn ball joints.	Replace ball joints.
	Tire out of balance.	Adjust tire balance.

Coil Spring

Coil Spring and Associated Parts



460R200004

Legend

- | | |
|------------------------------------|--------------------|
| (1) Stabilizer Bar | (4) Coil Spring |
| (2) Upper Link Fixing Bolt and Nut | (5) Insulator |
| (3) Rubber Plate | (6) Shock Absorber |
| | (7) Breather Hose |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Support the rear axle case with a jack.
3. Disconnect brake hose at the crossmember.
4. Remove breather hose.
5. Remove upper link fixing bolt, nut and rubber plate on the rear axle case (left-side only).
6. Disconnect the stabilizer bar at the stabilizer link.
7. Remove the shock absorber from the axle case.
8. Remove spring insulator.
9. Remove the insulator and coil spring while lowering the rear axle case.

CAUTION: Be sure not to let the brake hose, parking brake cable, and breather hose extend to their full length.

Inspection and Repair

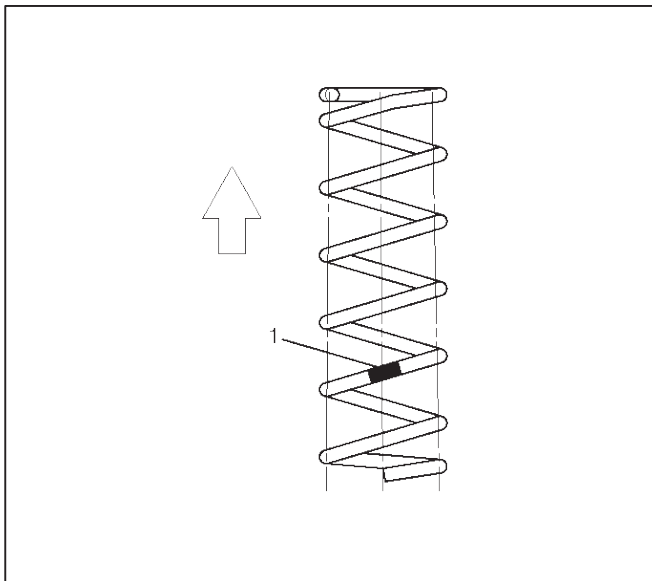
Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Coil spring
- Insulator

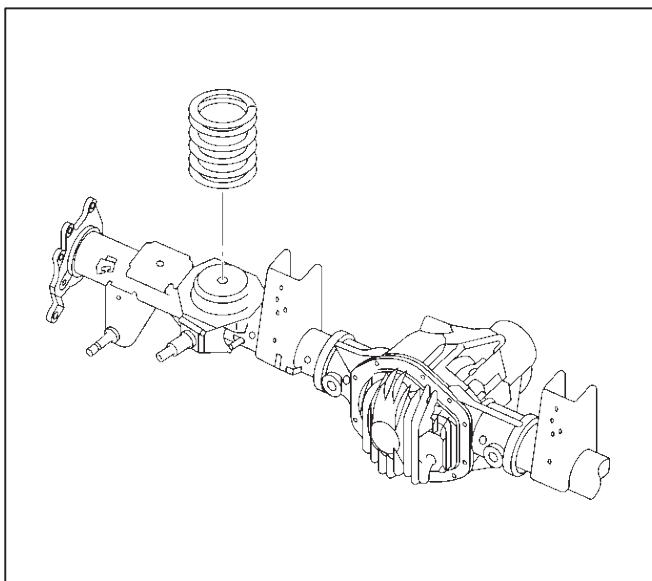
Installation

1. Install coil spring and make sure that the coil spring is installed in the proper position. Paint mark(1) should be downward.



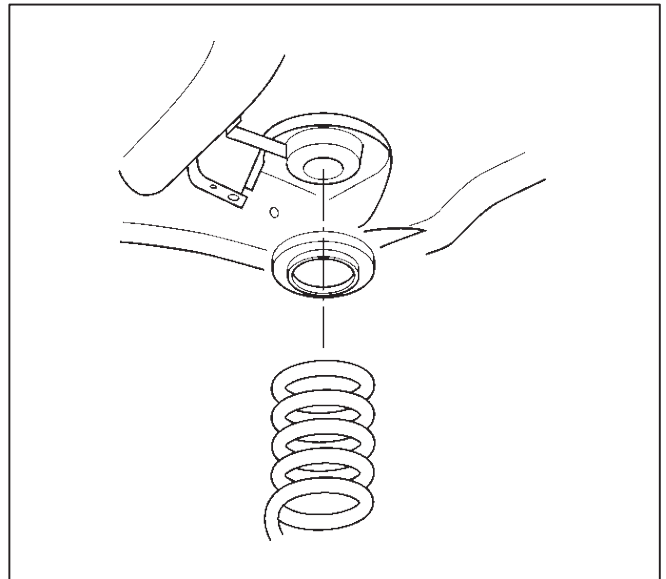
460RW001

2. Fit the end of the coil spring to the coil spring seat and mount the coil spring on the rear axle case.



460RW004

3. Install the insulator on the coil spring. Jack up the axle case gently with the top of the coil spring set to the spring seat on the frame side.



460RW013

4. Install shock absorber and tighten the nut lightly, then retighten it to the specified torque after the vehicle is at curb height.

NOTE: When mounting shock absorber, be sure not to use grease on bushings or any other nearby part.

Torque: 78 N·m (58 lb ft)

5. Install stabilizer bar at the stabilizer link.

Torque: 31 N·m (23 lb ft)

6. Install upper link with rubber plate and tighten fixing bolt.

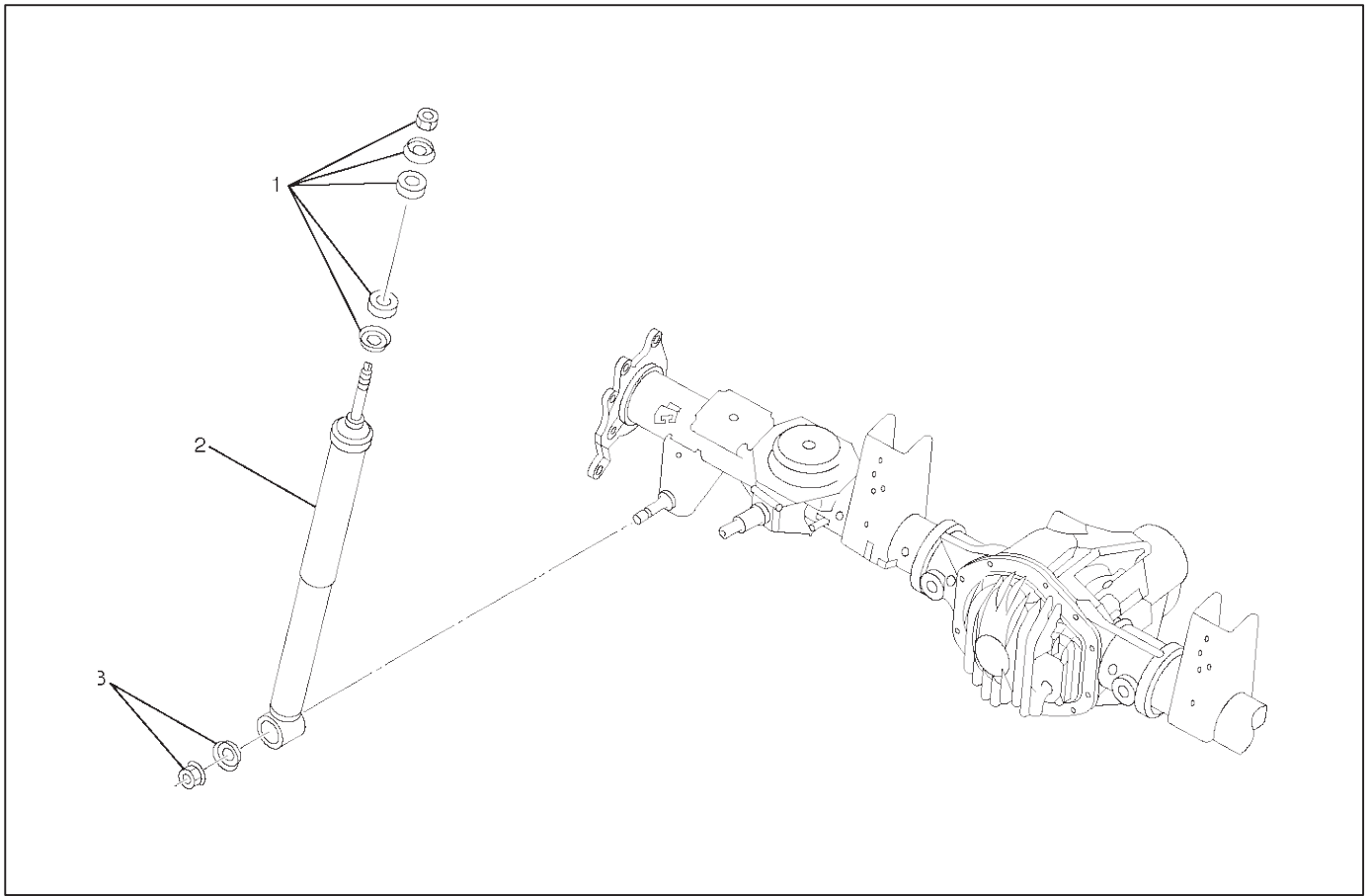
Torque: 137 N·m (101 lb ft)

7. Install breather hose.

8. Connect brake hose and bleed the brake system.
Refer to *Bleeding the Brake Hydraulic System in Brake* section.

Shock Absorber

Shock Absorber and Associated Parts



461RW001

Legend

(1) Nut, Bush and Washer

(2) Shock Absorber

(3) Nut and Washer

Removal

1. Remove shock absorber fixing nut, bush and washer (upper side).
2. Remove shock absorber fixing nut and washer (lower side).
3. Remove shock absorber.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Shock absorber
- Rubber bushing

NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.

Installation

1. Install shock absorber. When mounting shock absorber, be sure not to use grease on bushings or any other nearby part.
2. Install nut and washer (lower side), then tighten the nut lightly. Retighten to the bolt and nut specified torque after the vehicle is at curb height.

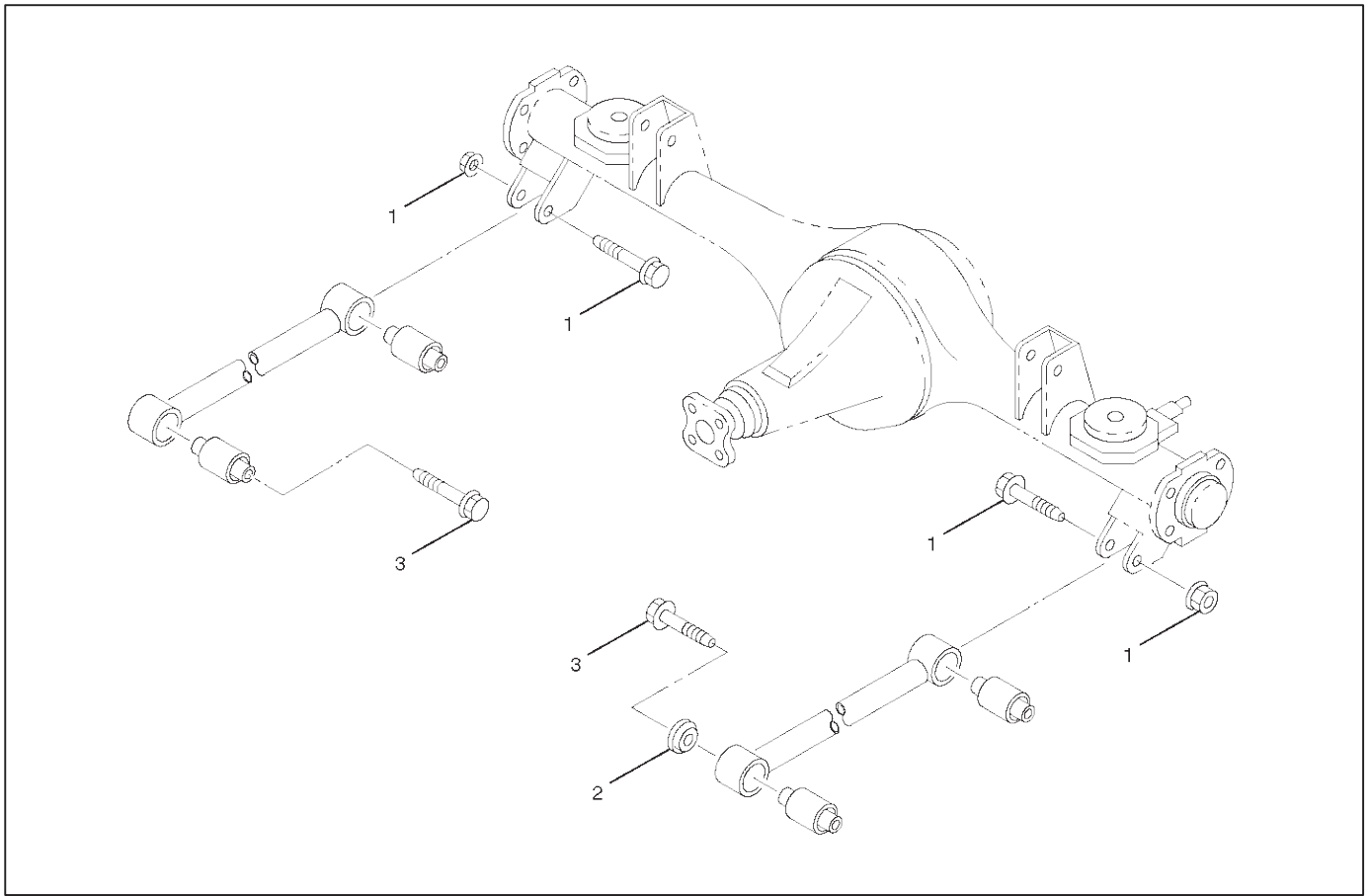
Torque: 78 N·m (58 lb ft)

3. Install nut, bush and washer (upper side), then tighten the nut lightly. Retighten to the nut specified torque after the vehicle is at curb height.

Torque: 20 N·m (14 lb ft)

Trailing Link

Trailing Link and Associated Parts



460RW005

Legend

(1) Bolt and Nut (Axle side)

(2) Protector (Left side only)

(3) Bolt (Frame side)

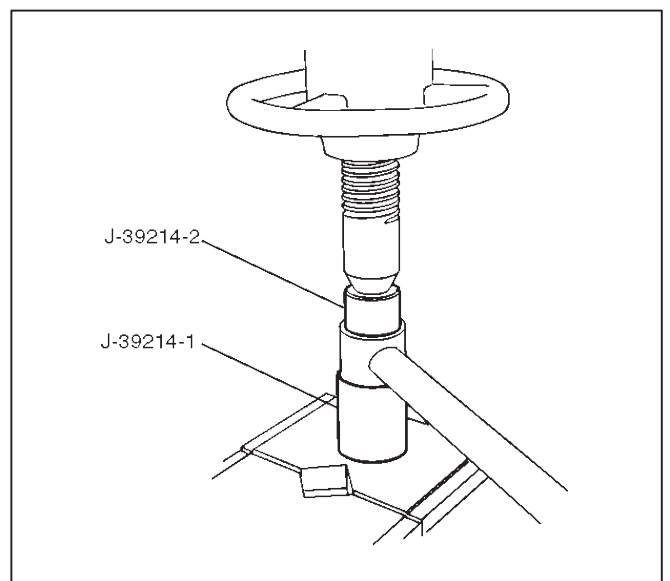
Removal

1. Remove the parking brake cable from the trailing link.
2. Remove the trailing link fixing bolt, nut and protector.
3. Remove trailing link.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

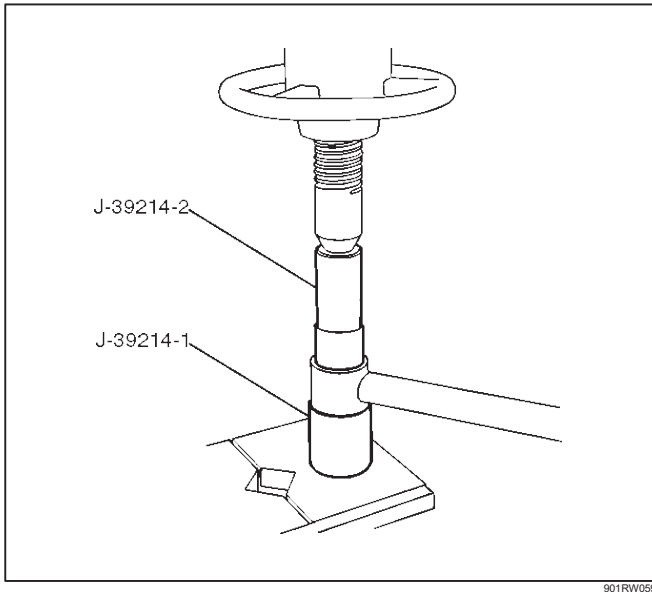
1. Trailing link
2. Rubber bushing
 - Remove the rubber bushing by using remover J-39214.



901RW058

- Install the rubber bushing by using installer J-39214.

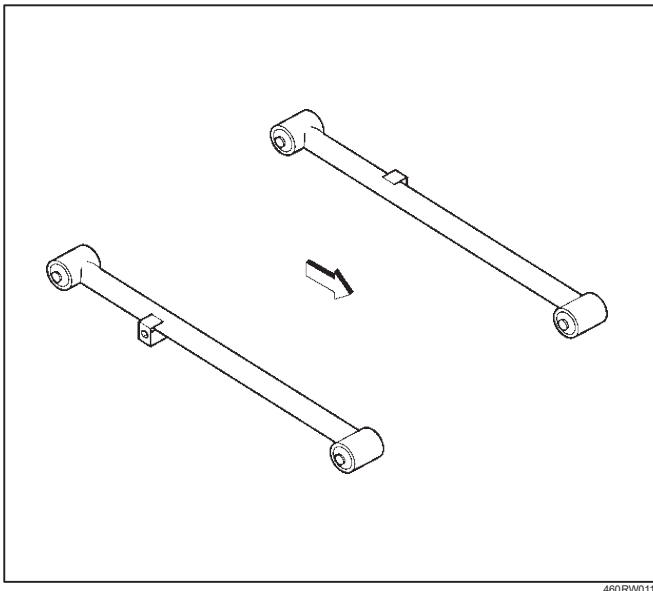
NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.



Installation

1. Install trailing link. Make sure that the trailing link is in its correct position.

NOTE: When mounting trailing link, be sure not to use grease on bushings or any other nearby part.



2. Install bolt, nut and protector. Tighten the bolts and nuts lightly, then retighten them to the specified torque after the vehicle is at curb height.

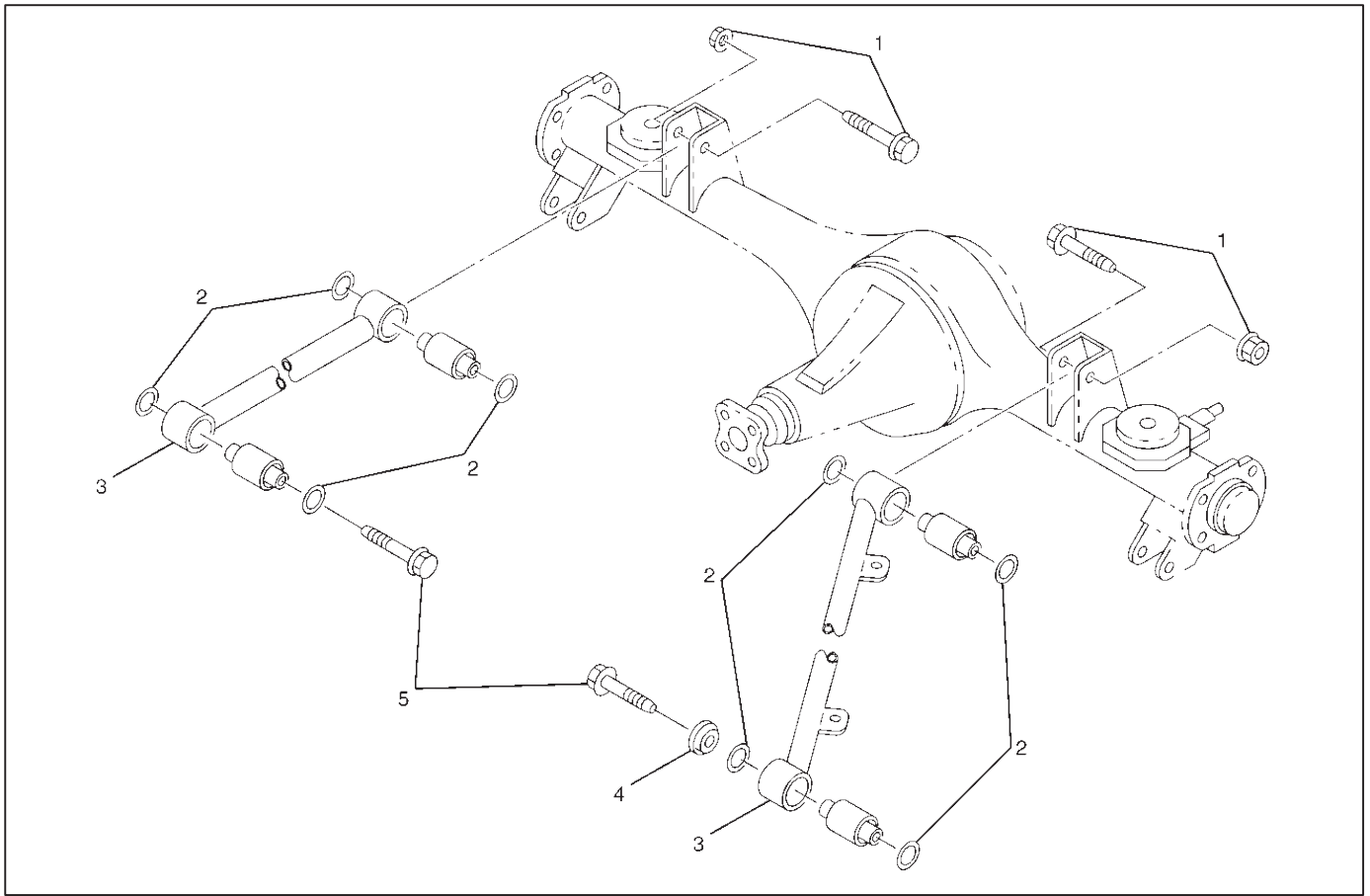
Torque: 137 N·m (101 lb ft)

3. Install parking brake cable.

CAUTION: The parking brake cable should not be overstrained or slackened.

Upper Link

Upper Link and Associated Parts



460RW006

Legend

- | | |
|------------------------------|--------------------------------|
| (1) Bolt and Nut (Axle side) | (3) Upper Link |
| (2) Rubber Plate | (4) Protector (Left side only) |
| | (5) Bolt (Frame side) |

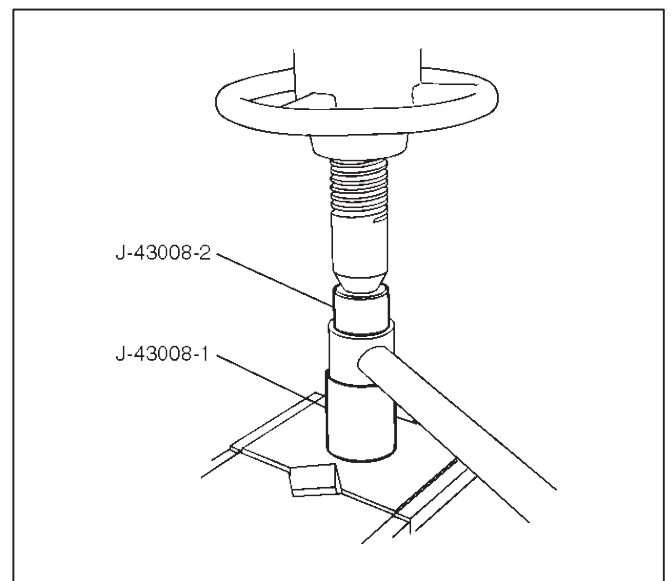
Removal

1. Remove fuel tank. Refer to *Engine Fuel in Engine* section.
2. Remove the speed sensor cable from the upper link.
3. Remove bolt, nut, rubber plate and protector.
4. Remove upper link.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

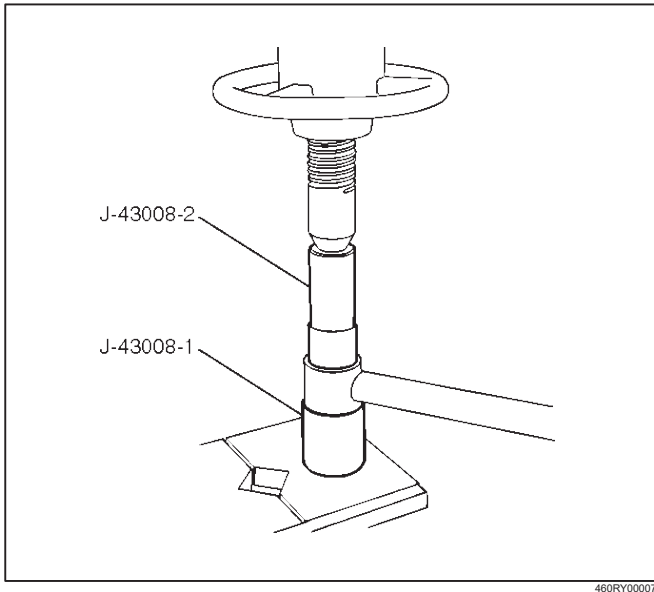
1. Upper link
2. Rubber bushing
 - Remove the rubber bushing by using remover J-43008.



460RY0006

- Install the rubber bushing by using to installer J-43008.

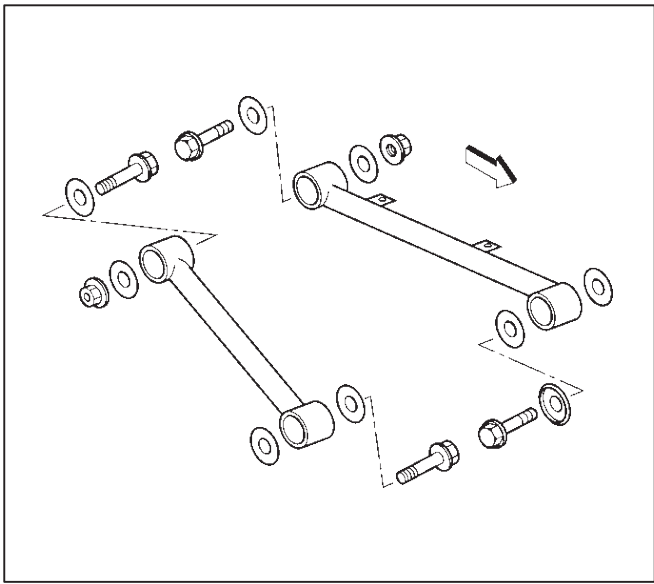
NOTE: When mounting rubber bushings, be sure not to use grease on bushings or any other nearby part.



Installation

1. Install upper link. Make sure that the upper link is in its correct position.

NOTE: When mounting upper link, be sure not to use grease bushings or any other nearby part.



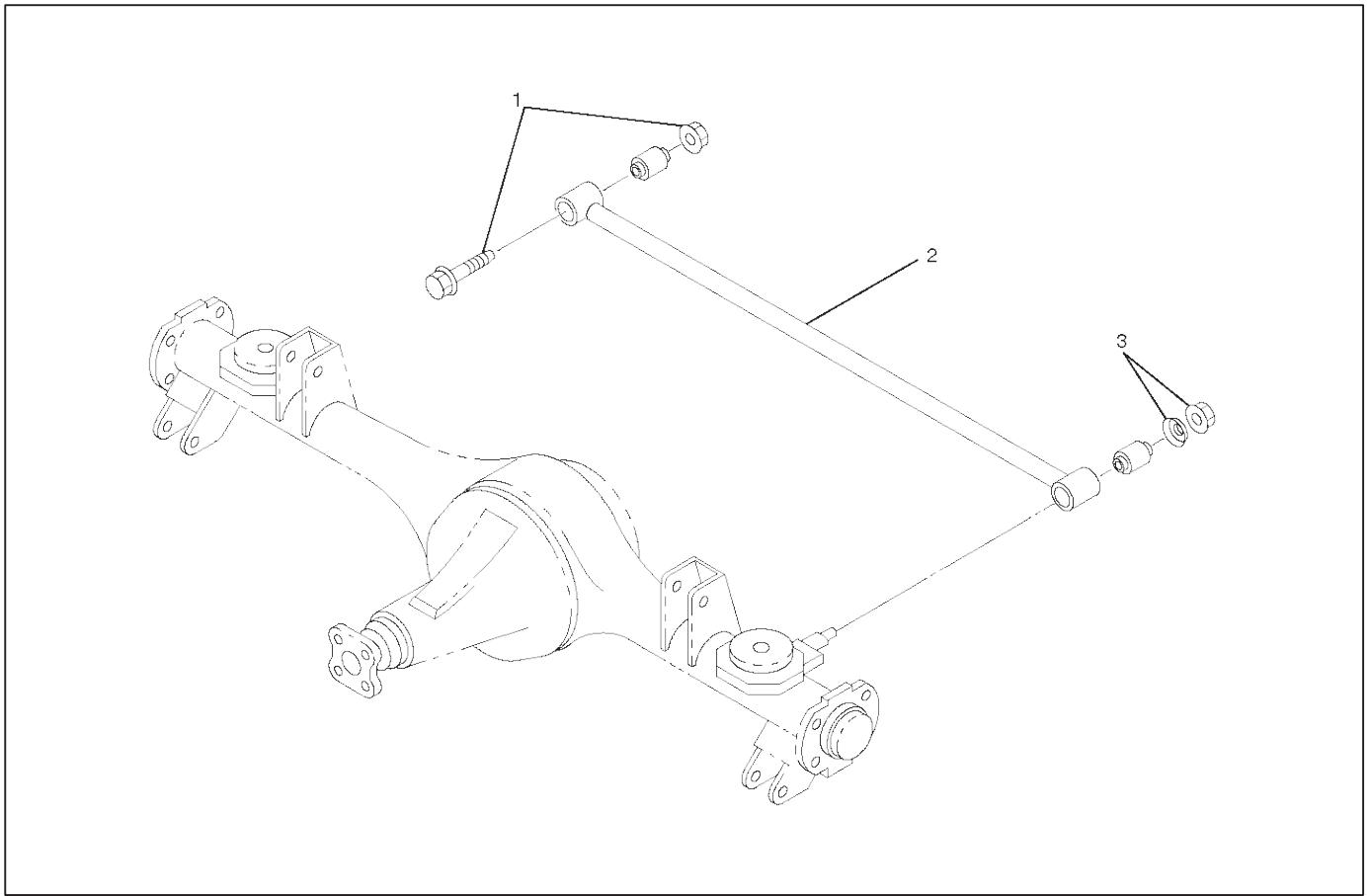
2. Install bolt, nut, rubber plate and protector. Tighten the bolts and nuts lightly, then retighten them to the specified torque after the vehicle is at curb height.

Torque: 137 N·m (101 lb ft)

3. Install speed sensor cable.
4. Install fuel tank.

Lateral Rod

Lateral Rod and Associated Parts



460RW007

Legend

(1) Bolt and Nut (Frame side)

(2) Lateral Rod

(3) Nut and Washer (Axle side)

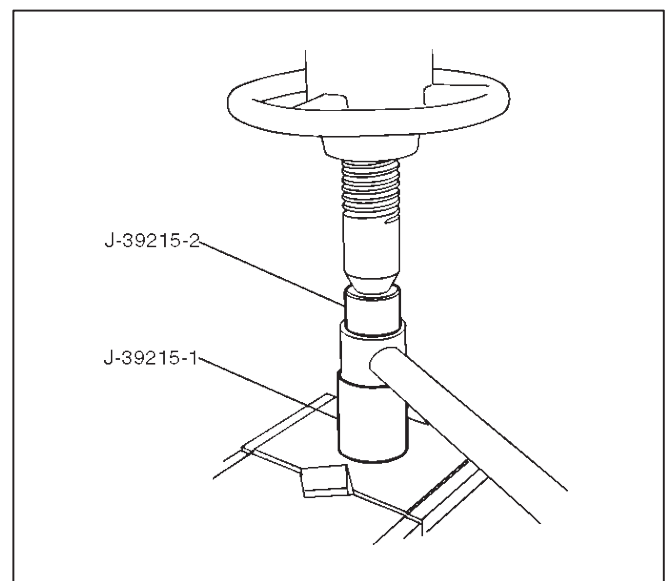
Removal

1. Remove nut and washer.
2. Remove bolt and nut.
3. Remove lateral rod.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

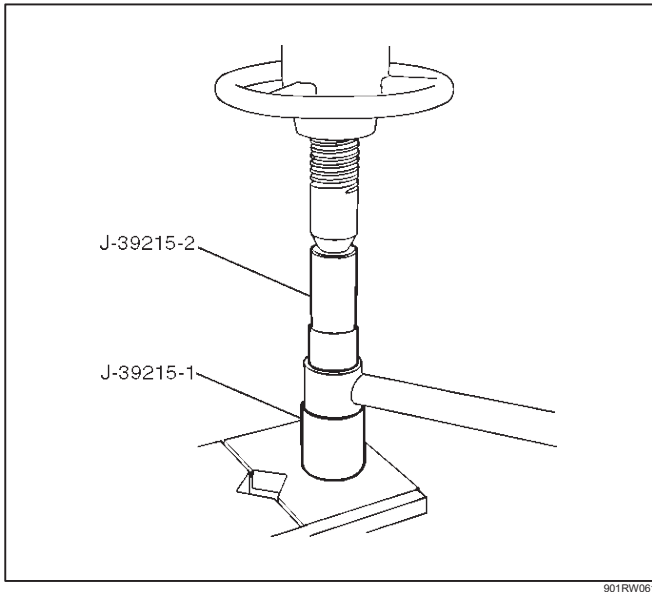
1. Lateral rod
2. Rubber bushing (Frame side)
 - Remove the rubber bushing (Frame side) by using remover J-39215.



901RW060

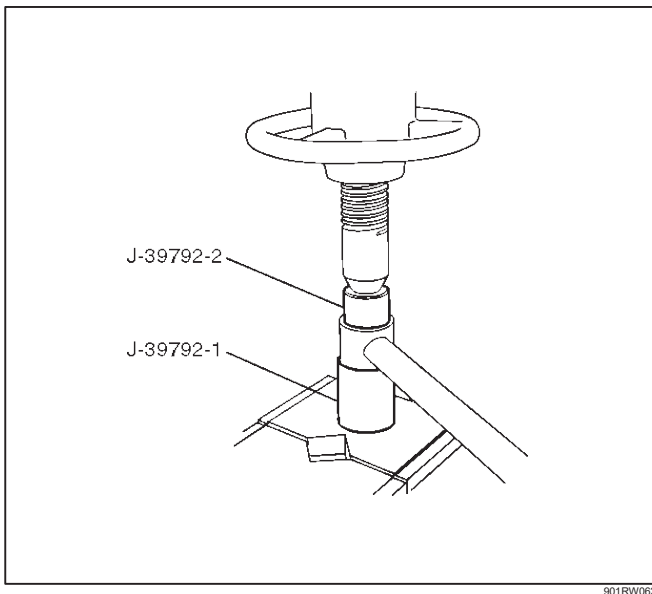
- Install the rubber bushing (Frame side) by using Installer J-39215.

NOTE: When mounting rubber bushings, do not use grease on bushings or any other nearby parts.

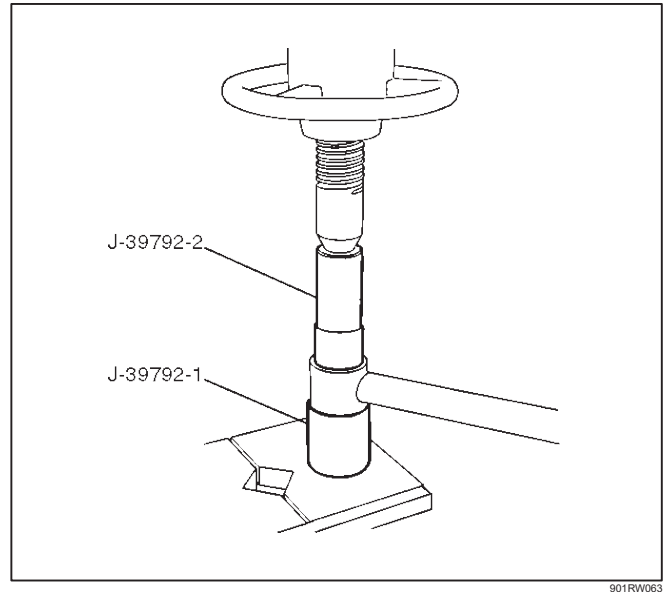


3. Rubber bushing (Axle side)

- Remove the rubber bushing (Axle side) by using remover J-39792.



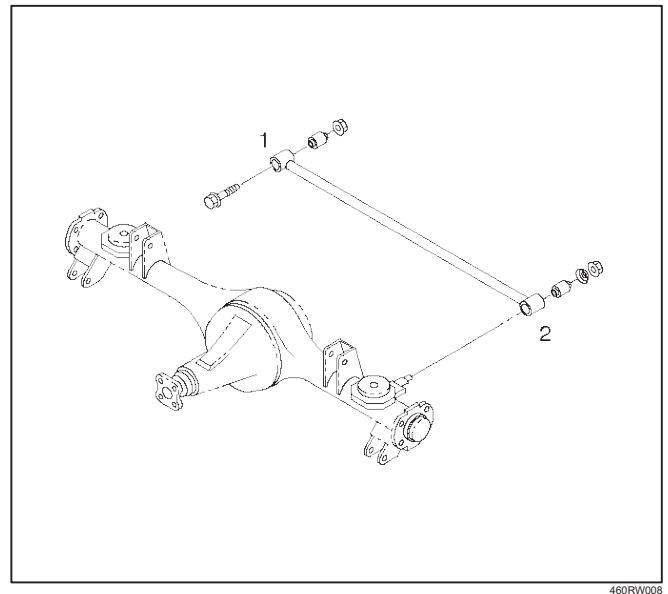
- Install the rubber bushing (Axle side) by using installer J-39792.



Installation

1. Install lateral rod and make sure that the lateral rod is in its correct position.

NOTE: When mounting lateral rod, be sure not to use grease on bushings or any other nearby part.



Legend

- (1) Frame Side
- (2) Axle Side

2. Install bolt and nut (Frame side). Tighten the bolt and nut lightly, then retighten them to the specified torque after the vehicle is at curb height.

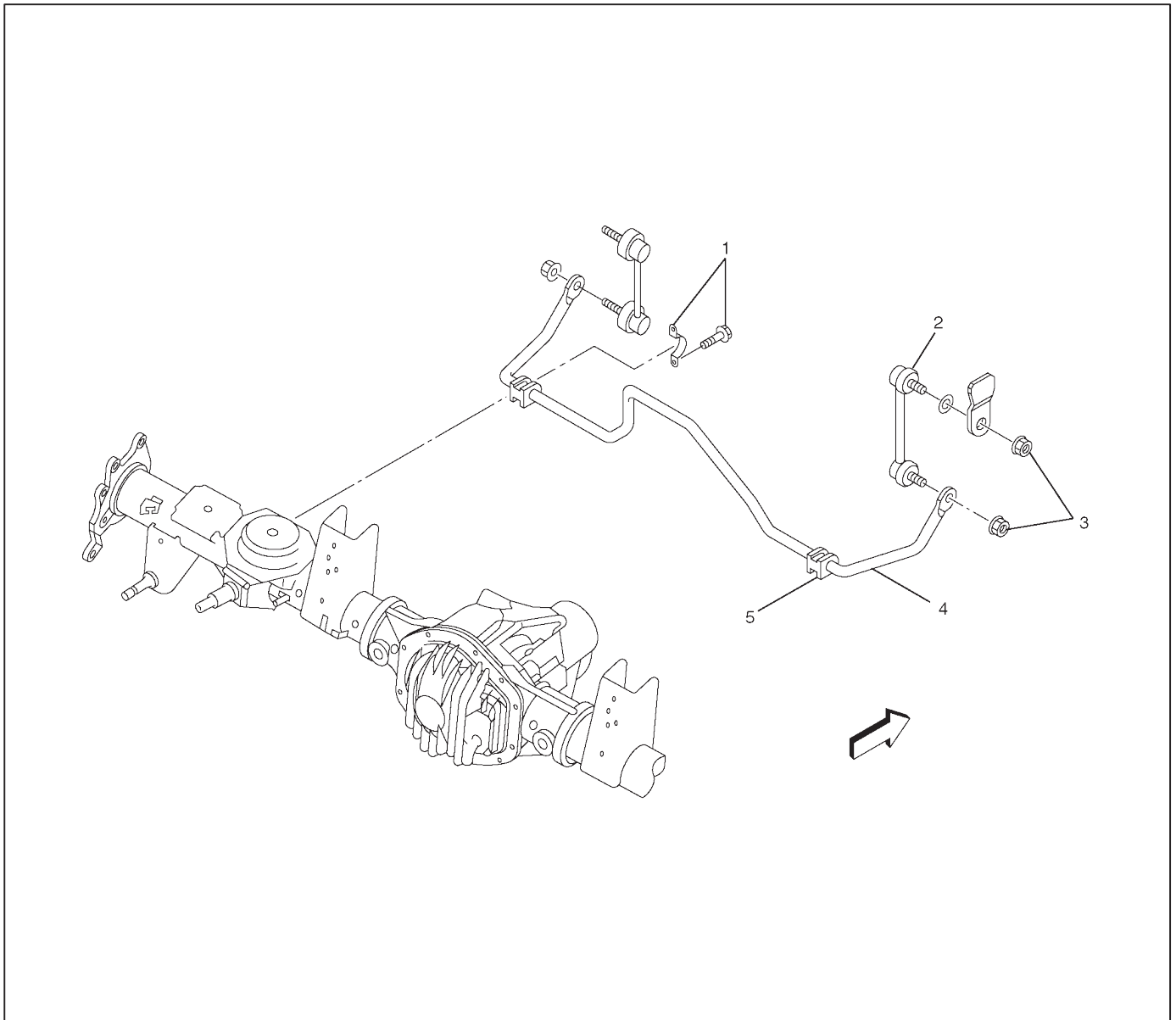
Torque: 137 N·m (101 lb ft)

3. Install nut and washer (Axle side). Tighten the nut lightly, then retighten the nut to the specified torque after the vehicle is at curb height.

Torque: 78 N·m (58 lb ft)

Stabilizer Bar

Stabilizer Bar and Associated Parts



460R200003

Legend

- | | |
|----------------------|--------------------|
| (1) Bracket and Bolt | (3) Nut |
| (2) Link | (4) Stabilizer Bar |
| | (5) Rubber Bushing |

Removal

1. Raise the vehicle and support the frame with suitable safety stands.
2. Remove wheel and tire assembly. Refer to *Wheel* in this section.
3. Remove nut.
4. Remove link.
5. Remove bracket.
6. Remove rubber bushing.

Inspection and Repair

Make necessary correction or parts replacement if wear, damage, corrosion or any other abnormal condition are found through inspection.

Check the following parts:

- Stabilizer bar
- Rubber bushing
- Link

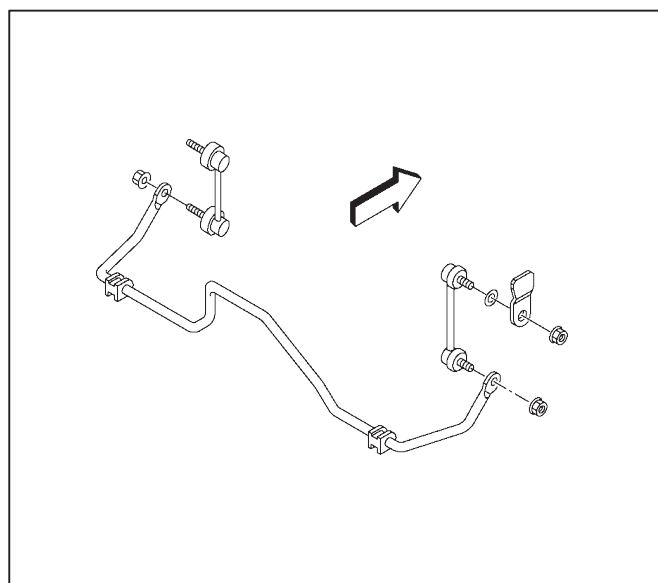
Installation

1. Install rubber bushing.
2. Install bracket to axle housing and tighten to the specified torque.

Torque: 25 N·m (18 lb ft)

3. Install link.
4. Install nut, then tighten the nut to the specified torque.

Torque: 50 N·m (37 lb ft)



460R200002

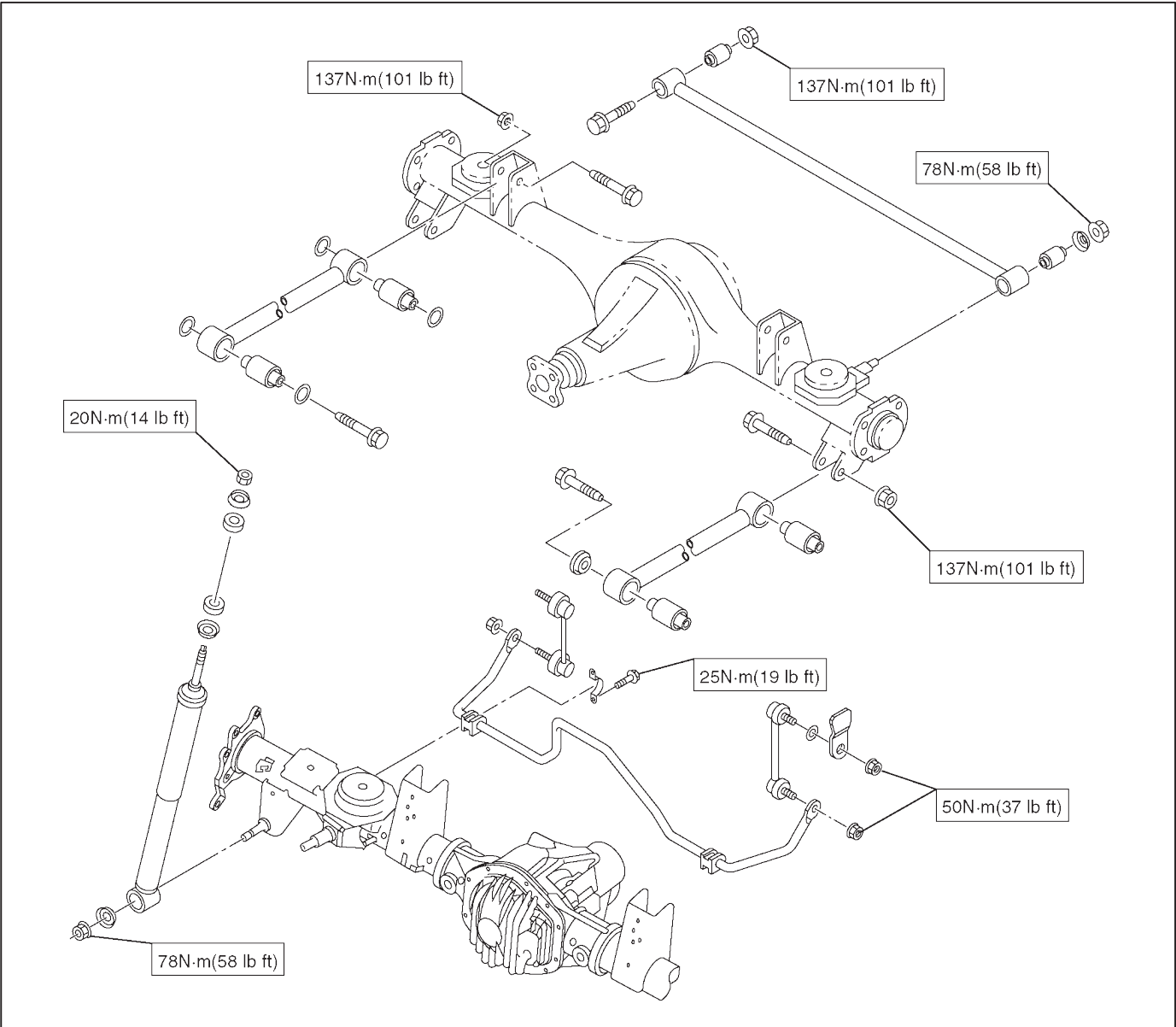
3D-34 REAR SUSPENSION

Main Data and Specifications

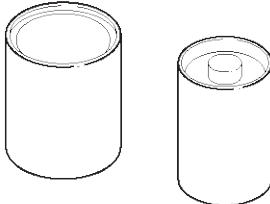
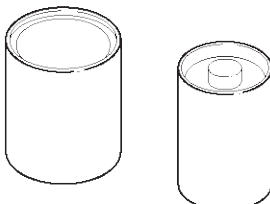
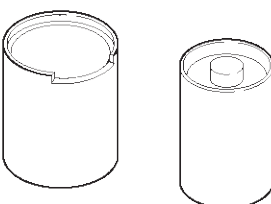
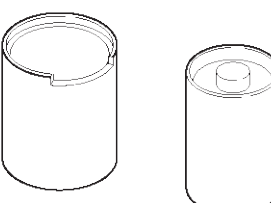
General Specifications

Rear suspension	Type	5-Link, coil spring type with stabilizer bar.
Coil spring	Free length	370.5 mm (14.59 in)
	Spring diameter	12.4 mm (0.49 in)
	Coil diameter (inner)	105 mm (4.13 in)
	Effective No. of turns	5.21
	Total No. of turns	6.71
Shock absorber	Type	Hydraulic, double acting, telescopic
	Piston diameter	30 mm (1.18 in)
	Stroke	159 mm (6.26 in)
	Extended length	518 mm (20.39 in)
	Compressed length	359 mm (14.13 in)
Stabilizer bar	Diameter	18 mm (0.71 in)

Torque Specifications



Special Tools

ILLUSTRATION	TOOL NO. TOOL NAME
 901RS291	J-39214 Remover and Installer; Trailing link bushing
 901RS291	J-43008 Remover and Installer; Upper link bushing
 901RS292	J-39792 Remover and Installer; Lateral rod bushing (Axle side)
 901RS293	J-39215 Remover and Installer; Lateral rod bushing (Frame side)

AXIOM

SUSPENSION

WHEEL AND TIRE SYSTEM

CONTENTS

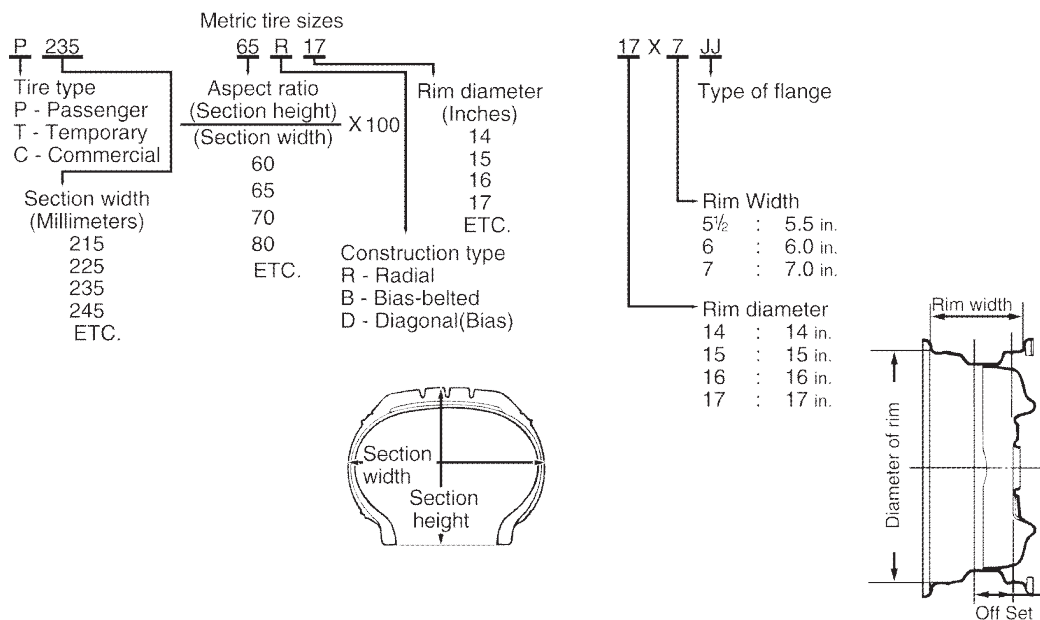
Service Precaution	3E-1	Installation	3E-11
General Description	3E-2	Tire	3E-12
Diagnosis	3E-3	Tire Replacement	3E-12
Wheel	3E-11	General Balance Procedure	3E-12
Wheel and Associated Parts	3E-11	Balancing Wheel and Tire	3E-13
Removal	3E-11	Main Data and Specifications	3E-14

Service Precaution

WARNING: THIS VEHICLE HAS A SUPPLEMENTAL RESTRAINT SYSTEM (SRS). REFER TO THE SRS COMPONENT AND WIRING LOCATION VIEW IN ORDER TO DETERMINE WHETHER YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING. WHEN YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING, REFER TO THE SRS SERVICE INFORMATION. FAILURE TO FOLLOW WARNINGS COULD RESULT IN POSSIBLE AIR BAG DEPLOYMENT, PERSONAL INJURY, OR OTHERWISE UNNEEDED SRS SYSTEM REPAIRS.

CAUTION: Always use the correct fastener in the proper location. When you replace a fastener, use **ONLY** the exact part number for that application. ISUZU will call out those fasteners that require a replacement after removal. ISUZU will also call out the fasteners that require thread lockers or thread sealant. **UNLESS OTHERWISE SPECIFIED**, do not use supplemental coatings (Paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

General Description



METRIC TIRE SIZE FORMAT

RIM SIZE FORMAT

480R200001

Replacement wheels or tires must be equivalent to the originals in load capacity, specified dimension and mounting configuration. Improper size or type may affect bearing life, brake performance, speedometer/odometer calibration, vehicle ground clearance and tire clearance to the body and chassis. All models are equipped with metric sized tubeless steel belted radial tires. Correct tire pressures and driving habits have an important influence on tire life. Heavy cornering, excessively rapid acceleration and unnecessary sharp braking increase premature and uneven wear.

Diagnosis

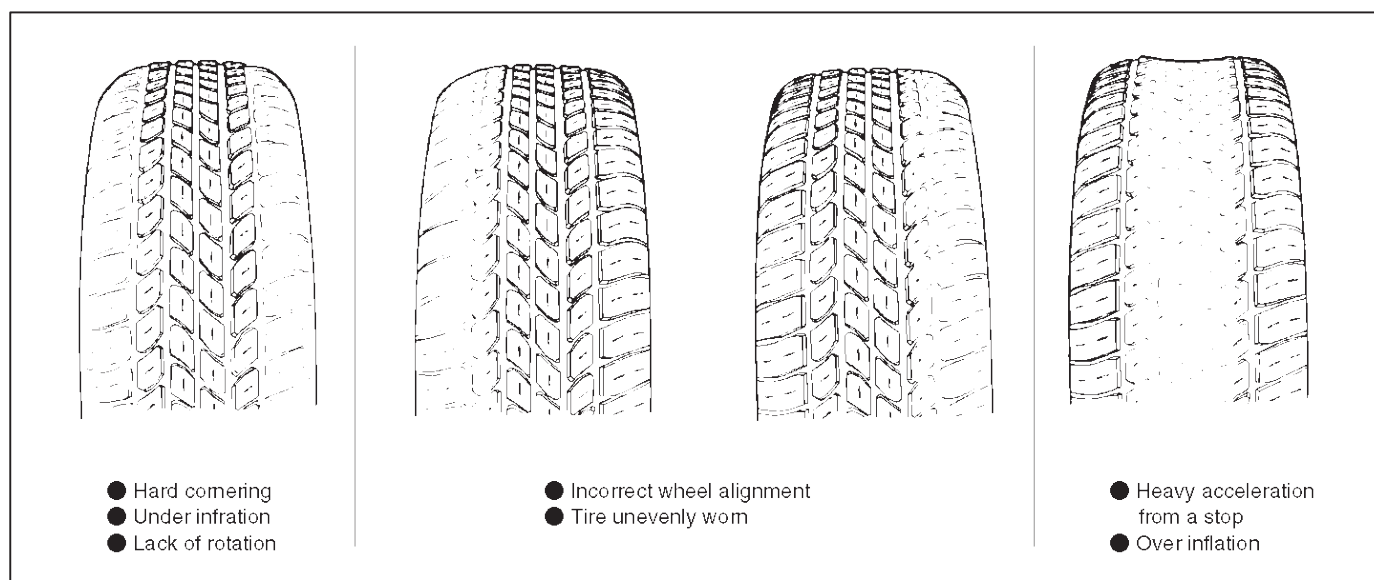
Condition	Possible cause	Correction
Vehicle Pulls	Mismatched or uneven tires.	Replace tire.
	Tires not adequately inflated.	Adjust tire pressure.
	Broken or sagging springs.	Replace spring.
	Radial tire lateral force.	Replace tire.
	Improper wheel alignment.	Adjust wheel alignment.
	Brake dragging in one wheel.	Repair brake.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension part(s).
	Faulty shock absorbers.	Replace shock absorber.
	Parts in power steering valve defective.	Replace power steering unit.
Abnormal or Excessive Tire Wear	Sagging or broken spring.	Replace spring.
	Tire out of balance.	Balance or replace tire.
	Improper wheel alignment.	Check front end alignment.
	Faulty shock absorber.	Replace shock absorber.
	Hard driving.	Replace tire.
	Overloaded vehicle.	Replace tire and reduce load.
	Tires not rotated periodically.	Replace or rotate tire.
	Worn or loose road wheel bearings.	Replace wheel bearing.
	Wobbly wheel or tires.	Replace wheel or tire.
	Tires not adequately inflated.	Adjust the pressure.
Wheel Hop	Blister or bump on tire.	Replace tire.
	Improper shock absorber operation.	Replace shock absorber.
Shimmy, Shake or Vibration	Tire or wheel out of balance.	Balance wheels or replace tire/or wheel.
	Loose wheel bearings.	Replace wheel bearing.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
	Excessive wheel runout.	Repair or replace wheel and/or tire.
	Blister or bump on tire.	Replace tire.
	Excessive loaded radial runout of tire/wheel assembly.	Replace tire or wheel.
	Improper wheel alignment.	Check wheel alignment.
	Loose or worn steering linkage.	Tighten or replace steering linkage.
	Loose steering unit.	Tighten steering unit.
	Tires not adequately inflated.	Adjust tire pressure.
	Loose, bent or broken front or rear suspension parts.	Tighten or replace the appropriate suspension parts.
	Faulty shock absorber.	Replace shock absorber.
	Hub bearing preload misadjustment.	Adjust preload.
	Parts in power steering valve defective.	Replace power steering unit.

3E-4 WHEEL AND TIRE SYSTEM

Condition	Possible cause	Correction
Hard Steering	Bind in steering linkage ball studs, upper or lower ball joint.	Replace ball joint.
	Improper wheel alignment.	Check wheel alignment.
	Tire not adequately inflated.	Inflate tires to proper pressure.
	Bind in steering column or shaft.	Repair or replace.
	Improper power steering system operation.	Repair or replace. Refer to <i>Steering section</i> .
Too Much Play In Steering	Wheel bearings worn.	Replace wheel bearings.
	Loose steering unit or linkage.	Retighten or repair.
	Worn or loose steering shaft universal joint.	Retighten or replace steering shaft.
	Worn steering linkage ball joints.	Replace ball joints.
	Worn upper or lower end ball joints.	Replace ball joints.
Poor Steering Wheel Returnability	Bind in steering linkage ball joints.	Replace ball joints.
	Bind in upper or lower ball joints.	Replace ball joints.
	Bind in steering column and shaft.	Repair or replace.
	Bind in steering gear.	Check and repair steering gear.
	Improper wheel alignment.	Adjust wheel alignment.
	Tires not adequately inflated.	Adjust pressure.
	Loose steering wheel nut.	Retighten.
	Worn wheel bearing.	Replace.
Abnormal Noise	Worn, sticky or loose upper or lower ball joint, steering linkage ball joints or drive axle joints.	Replace.
	Faulty shock absorbers.	Replace.
	Worn upper or lower control arm bushing.	Replace.
	Loose stabilizer bar.	Retighten bolts or replace bushings.
	Loose wheel nuts.	Tighten nuts. Check for elongated wheel nut holes. Replace wheel if required.
	Loose suspension bolts or nuts.	Retighten suspension bolts or nuts.
	Broken or otherwise damaged wheel bearings.	Replace wheel bearing.
	Broken suspension springs.	Replace spring.
	Loose steering unit.	Retighten mounting bolt.
	Faulty steering unit.	Replace steering unit.
Wandering or Poor Steering Stability	Mismatched or unevenly worn tires.	Replace tire or inflate tires to proper pressure.
	Loose steering linkage ball joints.	Replace ball joints.
	Faulty shock absorbers.	Replace shock absorber.
	Loose stabilizer bar.	Tighten or replace stabilizer bar or bushings.
	Broken or sagging springs.	Replace spring (pairs).
	Improper wheel alignment.	Adjust wheel alignment.

Condition	Possible cause	Correction
Erratic Steering When Braking	Worn wheel bearings.	Replace wheel bearings.
	Broken or sagging springs.	Replace spring (pairs).
	Leaking caliper.	Repair or replace caliper.
	Warped discs.	Replace brake disc.
	Badly worn brake pads.	Replace brake pads.
	Tires are inflated unequally.	Inflate tires to proper pressure.
Low or Uneven Trim Height	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
	Incorrect springs.	Adjust or replace torsion bar.
Suspension Bottoms	Vehicle overloaded.	Reduce load.
	Faulty shock absorber.	Replace shock absorber.
	Incorrect, broken or sagging springs.	Replace springs.
Body Leans	Loose stabilizer bar.	Tighten stabilizer bar bolts or replace bushings.
	Faulty shock absorber, struts or mounting.	Replace shock absorber.
	Broken or sagging springs.	Replace springs (In pairs).
	Vehicle overloaded.	Reduce load.
Cupped Tires	Worn wheel bearings.	Replace wheel bearing.
	Excessive tire or wheel run out.	Replace tire or wheel.
	Worn ball joints.	Replace ball joints.
	Tire out of balance.	Adjust tire balance.

Irregular and Premature Wear



480RS001

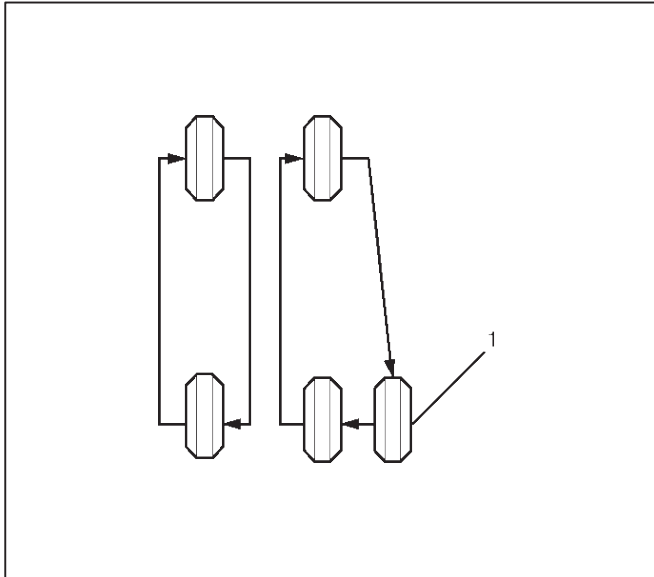
Irregular and/or premature wear has many causes. Some of them are incorrect inflation pressures, lack of tire rotation, poor driving habits or improper wheel alignment. Incorrect inflation is common cause of tire premature wear.

NOTE: Due to their design, radial tires tend to wear faster in the shoulder area, particularly on the front tires. This makes regular rotation especially necessary. After rotation, be sure to check wheel nut torque, and set tire pressures.

3E-6 WHEEL AND TIRE SYSTEM

Tire Rotation

Tire rotation is recommended to equalize wear for longer tire life.



Legend

(1) Spare Tire

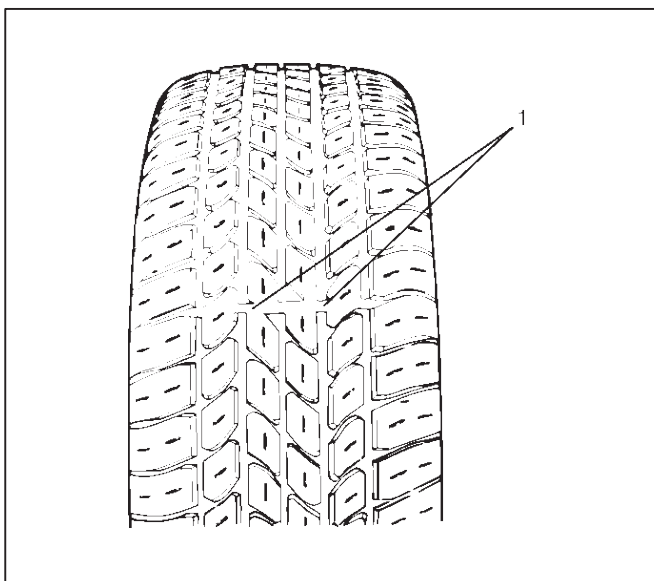
If the following conditions are noted, rotate the tires:

- Front tire wear is different from rear.
- Uneven wear exists across the tread of any tire.
- Left and right front tire wear is unequal.
- Left and right rear tire wear is unequal.

Check wheel alignment if the following conditions are noted:

- Left and right front tire wear is unequal.
- Wear is uneven across the tread of any front tire.
- Front tire treads have a scuffed appearance with "feather" edges on one side of the tread ribs or blocks.

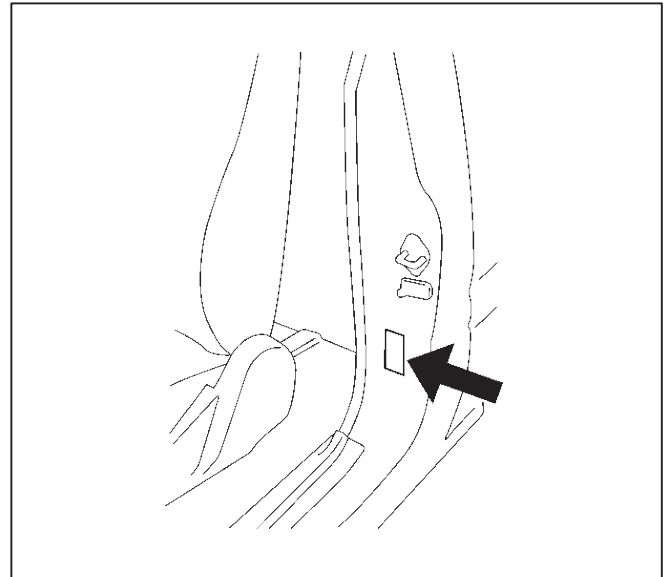
Tread Wear Indicators



The original equipment tires have built-in tread wear indicators(1) to show when tires need replacement. These

indicators may appear as wide bands. When the indicators appear in two or more grooves at three locations, tire replacement is recommended.

Inflation of Tires



Tire pressure, in cold condition (after vehicle has set for three hours or more, and driven less than one mile), should be checked monthly or before any extended trip. Tire pressure increases approximately 15% when the tires become hot during driving. Tire pressure specification is shown on the label located on the left door lock pillar.

NOTE: Check the tire pressure whenever irregular wear is found. Tire inflation greatly affects tire wear. If the alignment check does not reveal any alignment problems, check the condition of the shock absorbers and wheel/tire balance.

Diagnosis List

If the following conditions are noted, rotation is required.

1. Front tire wear is different from rear.
2. Uneven wear exists across the tread of any tire.
3. Left and right front tire wear is unequal.
4. Left and right rear tire wear is unequal.

If the following conditions are noted, check the wheel alignment.

1. Left and right front tire wear is unequal.
2. Uneven wear exists across the tread of any tire.
3. Front tire treads have scuffed appearance with "feather" edges on one side of tread ribs or blocks.
4. There is cupping, flat spotting etc.

Higher than recommended pressure can cause:

1. Hard ride.
2. Poor steering stability.
3. Rapid and uneven wear at center of the tread.

Lower than recommended pressure can cause:

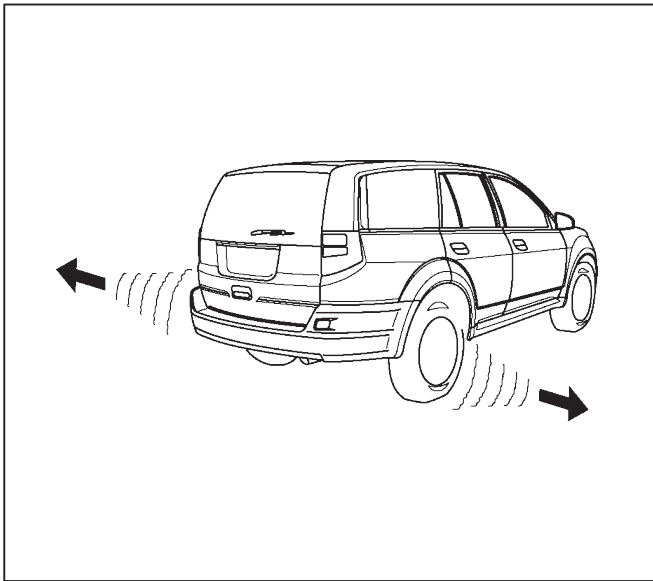
1. Tire squeal on turns.
2. Hard steering.
3. Rapid and uneven wear on the edges of the tread.
4. Tire rim bruises and rupture.

5. Tire cord breakage.
6. High tire temperatures.
7. Reduced handling.
8. Reduced fuel economy.

Unequal pressure on same axle can cause:

1. Uneven braking.
2. Steering lead.
3. Reduced handling.
4. Swerve on acceleration.

Radial Tire Waddle



Waddle is side-to-side movement at the front and/or rear of the car. It can be caused by the steel belt not being straight within the tire, or by excessive lateral runout of the tire or wheel. It is most noticeable at low speed, about 8 to 48 km/h (5 to 30 mph). It may also cause rough ride at 80 to 113 km/h (50 to 70 mph).

The car can be road tested to see which end of the car has the faulty tire. If the tire causing the waddle is on the rear, the rear end of the car will "waddle". From the driver's seat, it feels as if someone is pushing on the side of the car.

If the faulty tire is on the front, the waddle is more easily seen. The front sheet metal appears to be moving back and forth. It feels as if the driver's seat is the pivot point in the car.

Another more time-consuming method of determining the faulty tire is substituting tire and wheel assemblies that are known to be good. Follow these steps:

1. Drive the car to determine if the waddle is coming from the front or rear.
2. Install tire and wheel assemblies known to be good (from a similar car) in place of those on the end of the car which is waddling. If the waddle cannot be isolated to front or rear, start with the rear tires.
3. Road test again. If improvement is noted, install the original tire and wheel assemblies one at a time until the faulty tire is found. If no improvement is noted, install tires known to be good in place of all four. Then, install the originals one at a time until the faulty tire is found.

Radial Tire Lead/Pull

"Lead/Pull" is vehicle deviation from a straight path, on a level road with no pressure on the steering wheel.

Lead is usually caused by:

1. Poorly manufactured radial tires.
2. Uneven brake adjustment.
3. Wheel alignment.

The way in which a tire is built can produce lead in a car. An example of this is placement of the belt. Off-center belts on radial tires can cause the tire to develop a side force while rolling straight down the road and the tire will tend to roll like a cone.

The "Radial Tire Lead/Pull Correction" chart should be used to make sure that front wheel alignment is not mistaken for tire lead.

Rear tires will not cause lead/pull.

3E-8 WHEEL AND TIRE SYSTEM

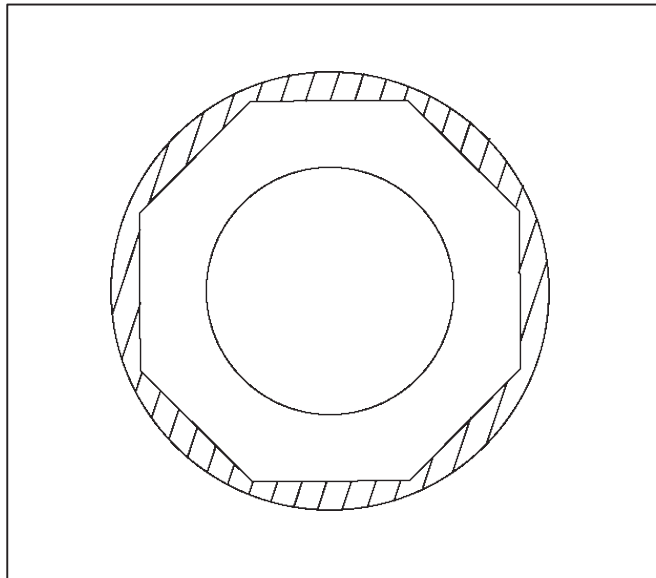
Radial Tire Lead/Pull Correction Chart

Step	Action	Yes	No
1	1. Inflate tires to recommended pressure. 2. Road test vehicle on level uncrowned road. Was a problem corrected?	End.	Go to <i>Step 2</i>
2	Switch front tires side to side and road test again. Was a problem corrected?	If roughness results, replace tires.	Go to <i>Step 3</i>
3	Did the vehicle lead in same direction?	Go to <i>Step 4</i>	Go to <i>Step 5</i>
4	Put tires back in original position and check alignment. Was a problem corrected?	End.	Go to <i>Step 5</i>
5	Install known good tire on one front side. Was a problem corrected?	Replace tire.	Install a known good tire in place of other front tire. If lead corrected, replace tire.

Typical examples of abnormal tire ahead wear and major causes:

CAUTION: Similar wear patterns can be caused by worn suspension parts, misalignment of wheels and tires, and other suspension related problems.

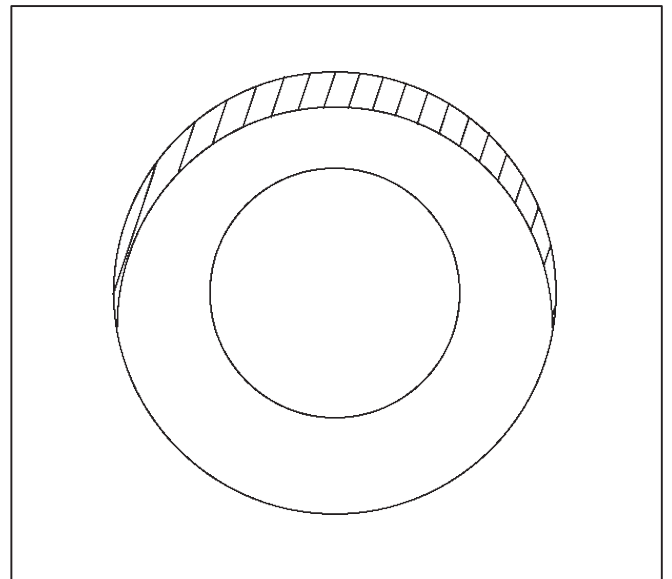
Spotty wear – wear localized on shoulder sections, and in an extreme cases, the tire becomes polygonal in shape.



480RW002

1. Tire or wheel out of round or distorted.
2. Hub or knuckle out of round or distorted.
3. Play in hub bearings or ball joint.
4. Rotating parts out of balance.

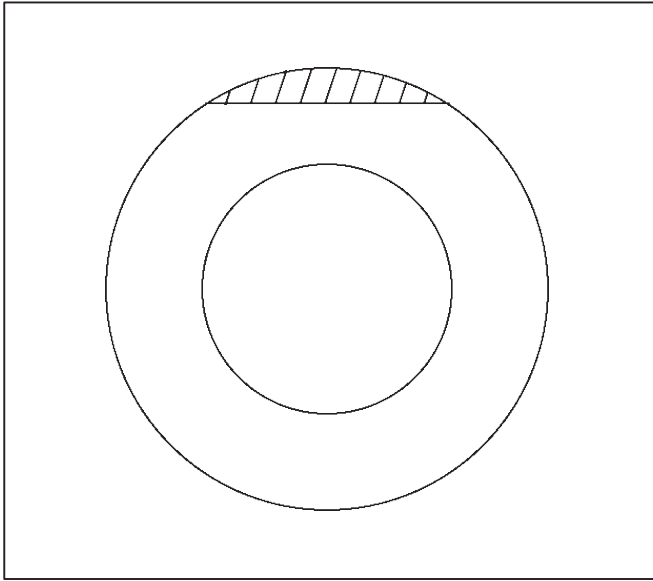
Tread wear one-sided.



480RW003

1. Rotating parts out of balance.
2. Tire or wheel out of round.
3. Hub or knuckle out of round or distorted.

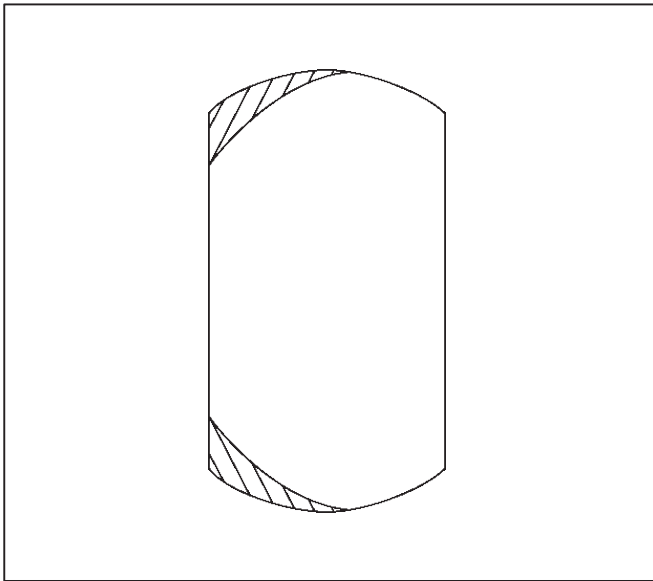
Localized tread wear.



480RW004

1. Once spotty wear develops in tread due to hard braking or abrupt starting, localized wear tends to be promoted.

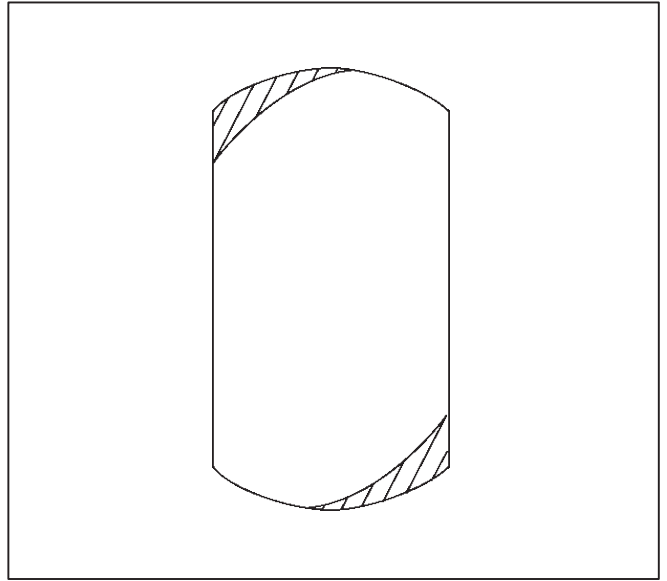
Shoulder wear (generally wear develops in outer shoulder):



480RW005

1. Camber or toe-in incorrect.
2. Shoulder wear caused by repeated hard-cornering.

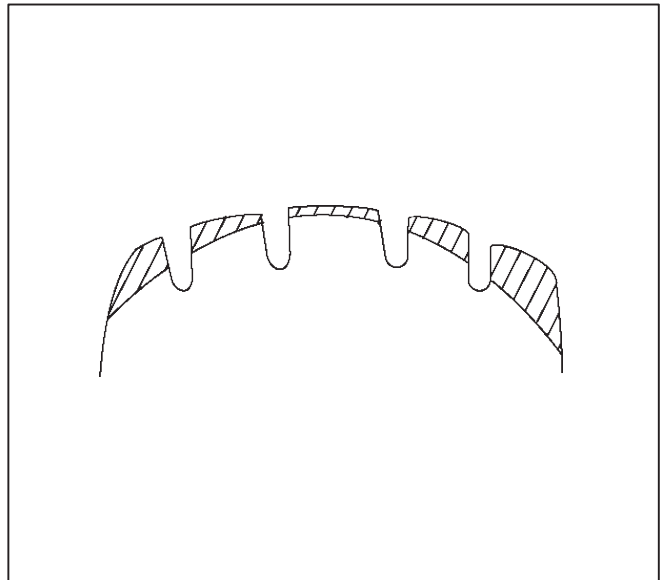
Wear in shoulders at points opposed to each other.



480RW006

1. Tire or wheel out of round or distorted.
2. Play in bearings or ball joint.

Premature wear in shoulders.

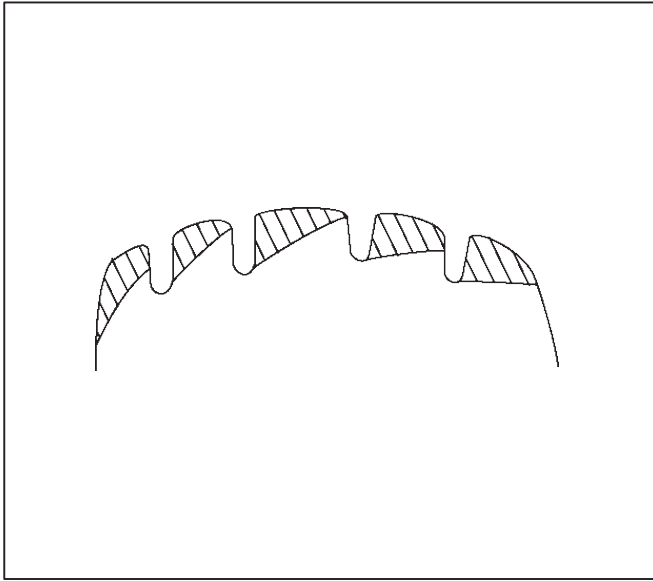


480RW007

1. Flexing of tire excessive due to under-inflation.

3E-10 WHEEL AND TIRE SYSTEM

One sided feather edging.

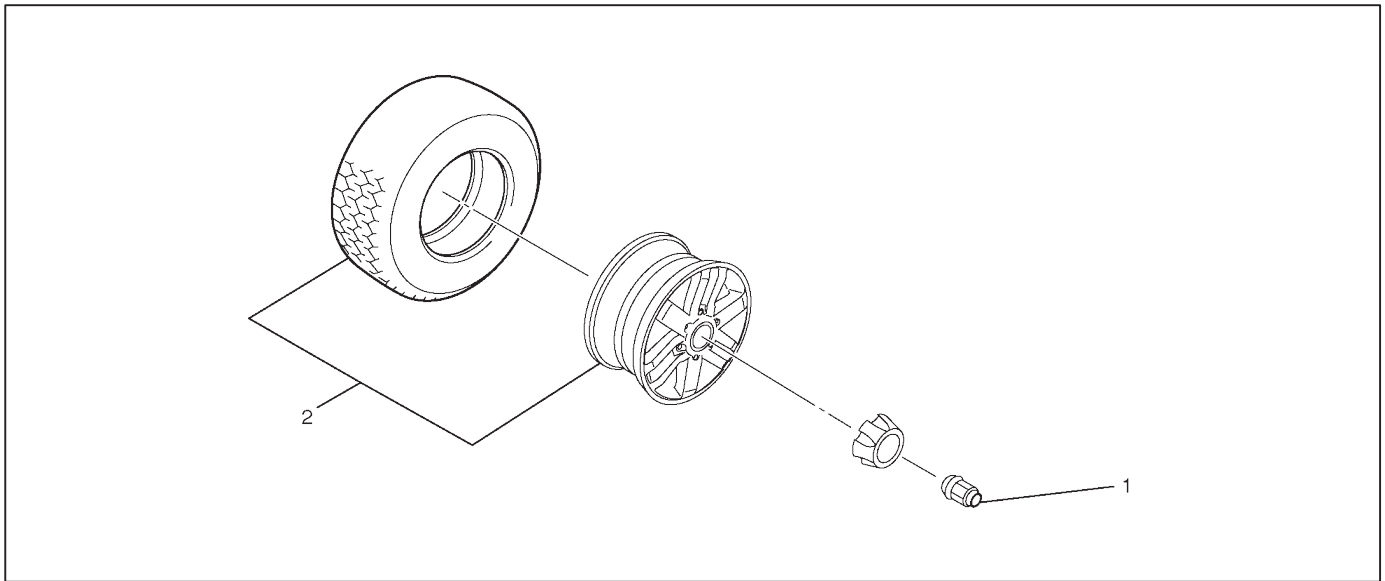


480RW008

1. Wear caused by repeated hard cornering.
2. Camber or toe-in incorrect.

Wheel

Wheel and Associated Parts



480R200004

Legend

- (1) Wheel Lug Nut
- (2) Alumi Wheel and Tire

Removal

1. Loosen wheel lug nut by approximately 180° (half a rotation), then raise the vehicle and remove the nuts.
2. Remove wheel and tire.

NOTE: Never use heat to loosen a tight wheel lug nut. The application of heat to the hub can shorten the life of the wheel and may cause damage to wheel bearings.

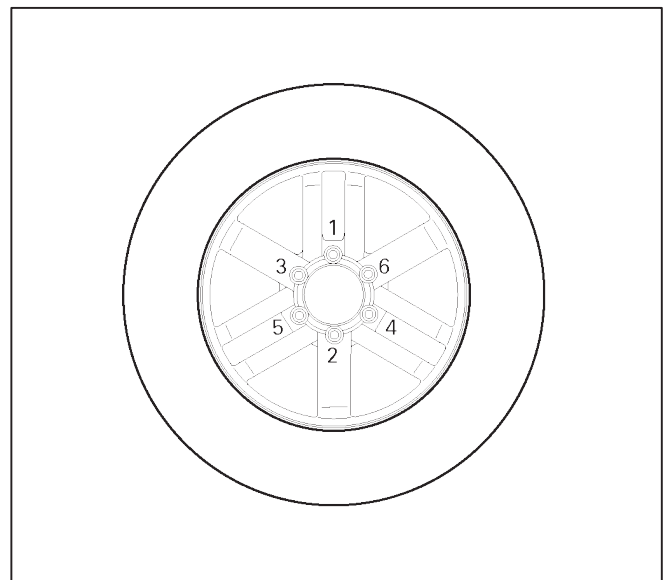
Installation

1. Install wheel and tire.
2. Install wheel lug nut, and lower the vehicle. Tighten the wheel lug nuts to the specified torque in numerical order.

Torque: 118 N·m (87 lb ft)

CAUTION: Before installing wheels, remove any build-up of corrosion on the wheel mounting surface and brake disc mounting surface by scraping and wire brushing. Installing wheels without good metal-to-metal contact at mounting surfaces can cause wheel nuts to loosen, which can later allow a wheel to come off while the vehicle is moving.

NOTE: Valve caps should be on the valve stems to keep dust and water out.



480R200003

Tire

Tire Replacement

When replacement is necessary, the original metric tire size should be used. Most metric tire sizes do not have exact corresponding alphanumeric tire sizes. It is recommended that new tires be installed in pairs on the same axle. If necessary to replace only one tire, it should be paired with tire having the most tread, to equalize braking traction.

CAUTION: Do not mix different types of tires such as radial, bias and bias-belted tires except in emergencies, because vehicle handling may be seriously affected and may result in loss of control.

Tire Dismounting

Remove valve cap on valve stem and deflate the tire. Then use a tire changing machine to mount or dismount tires. Follow the equipment manufacturer's instruction. Do not use hand tools or tire lever alone to change tires as they may damage the tire beads or wheel rim.

Tire Mounting

Rim bead seats should be cleaned with a wire brush or coarse steel wool to remove lubricants, and light rust. Before mounting a tire, the bead area should be well lubricated with an approved tire lubricant.

After mounting, inflate the tire to 196kPa (28 psi) so that beads are completely seated. Inflate the air to specified pressure and install valve cap to the stem.

WARNING: NEVER STAND OVER TIRE WHEN INFLATING. BEAD MAY BREAK WHEN BEAD SNAPS OVER RIM'S SAFETY HUMP AND CAUSE SERIOUS PERSONAL INJURY.

NEVER EXCEED 240 KPA (35 PSI) PRESSURE WHEN INFLATING. IF 240 KPA (35 PSI) PRESSURE WILL NOT SEAT BEADS, DEFLATE, RE-LUBRICATE AND RE-INFLATE. OVER INFLATION MAY CAUSE THE BEAD TO BREAK AND CAUSE SERIOUS PERSONAL INJURY.

Tire Repair

There are many different materials on the market used to repair tires.

Manufacturers have published detailed instructions on how and when to repair tires. These instructions can be obtained from the tire manufacturer if they are not included with the repair kit.

Wheel Inspection

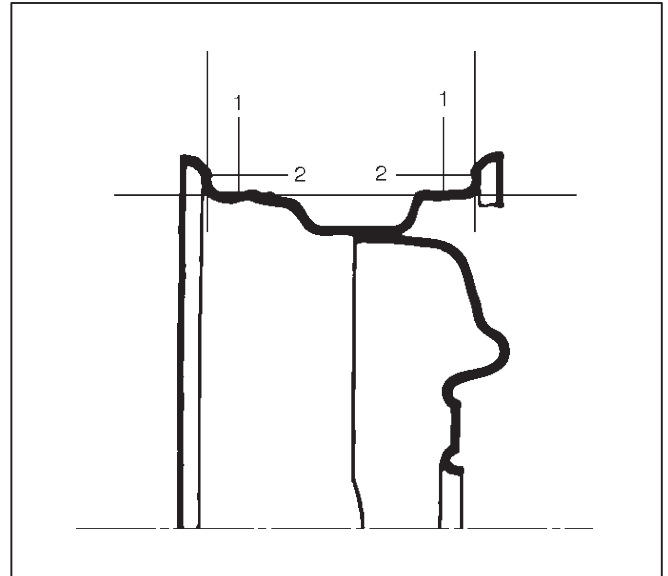
Damaged wheels and wheels with excessive run-out must be replaced.

Wheel run out at rim (Base on hub Bore):

Aluminum

1- Vertical play: Less than 0.55 mm (0.022 in)

2- Horizontal play: Less than 0.55 mm (0.022 in)



480RS012

General Balance Procedure

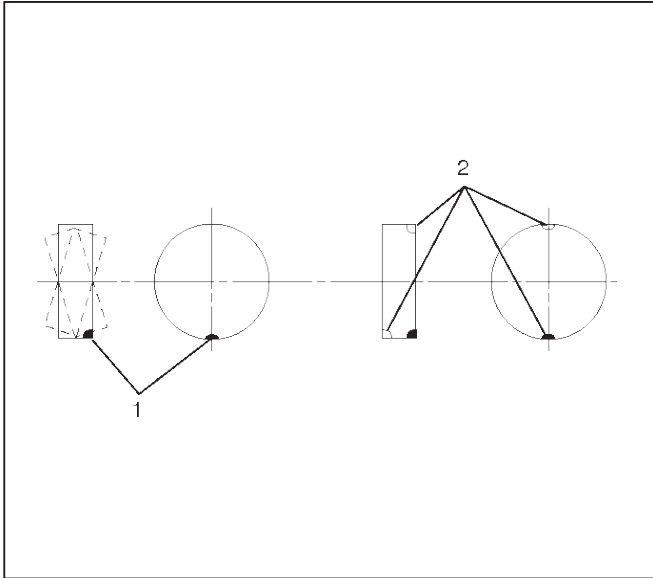
Deposits of mud, etc. must be cleaned from the inside of the rim.

The tire should be inspected for the following: match mount paint marks, bent rims, bulges, irregular tire wear, proper wheel size and inflation pressure. Then balance according to the equipment manufacturer's recommendations.

There are two types of wheel and tire balance.

Static balance is the equal distribution of weight around the wheel.

Assemblies that are statically unbalanced cause a bouncing action called tramp. This condition will eventually cause uneven tire wear.

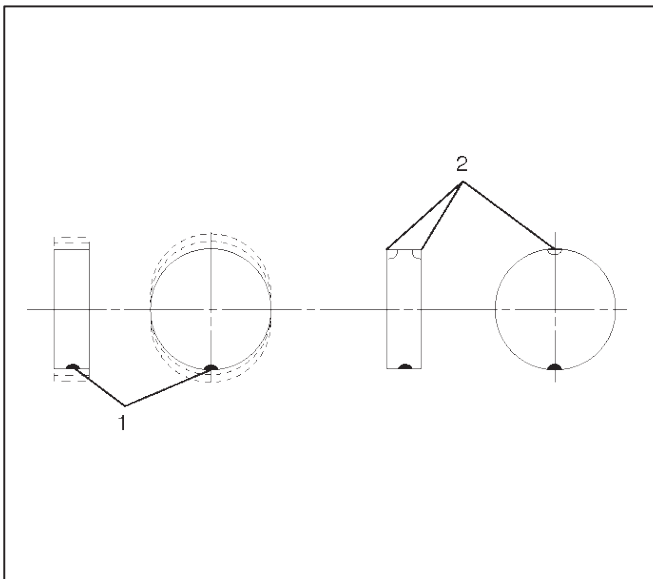


480RS013

Legend

- (1) Heavy Spot Wheel Shimmy
- (2) Add Balance Weights Here

Dynamic balance is the equal distribution of weight on each side of the wheel center-line so that when the tire spins there is no tendency for the assembly to move from side to side. Assemblies that are dynamically unbalanced may cause shimmy.



480RS014

Legend

- (1) Heavy Spot Wheel Hop
- (2) Add Balance Weights Here

WARNING: STONES SHOULD BE REMOVED FROM THE TREAD TO AVOID OPERATOR INJURY DURING SPIN BALANCING AND TO OBTAIN A GOOD BALANCE.

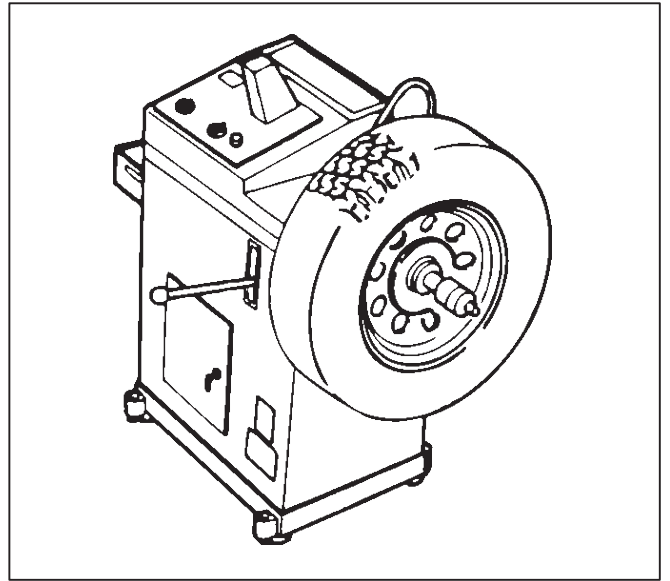
Balancing Wheel and Tire

On-vehicle Balancing

On-Vehicle balancing methods vary with equipment and tool manufacturers. Be sure to follow each manufacturer's instructions during balancing operation.

Off-vehicle Balancing

Most electronic off-vehicle balancers are more accurate than the on-vehicle spin balancers. They are easy to use and give a dynamic balance. Although they do not correct for drum or disc unbalance (as on-vehicle spin balancing does), they are very accurate.



480RS015

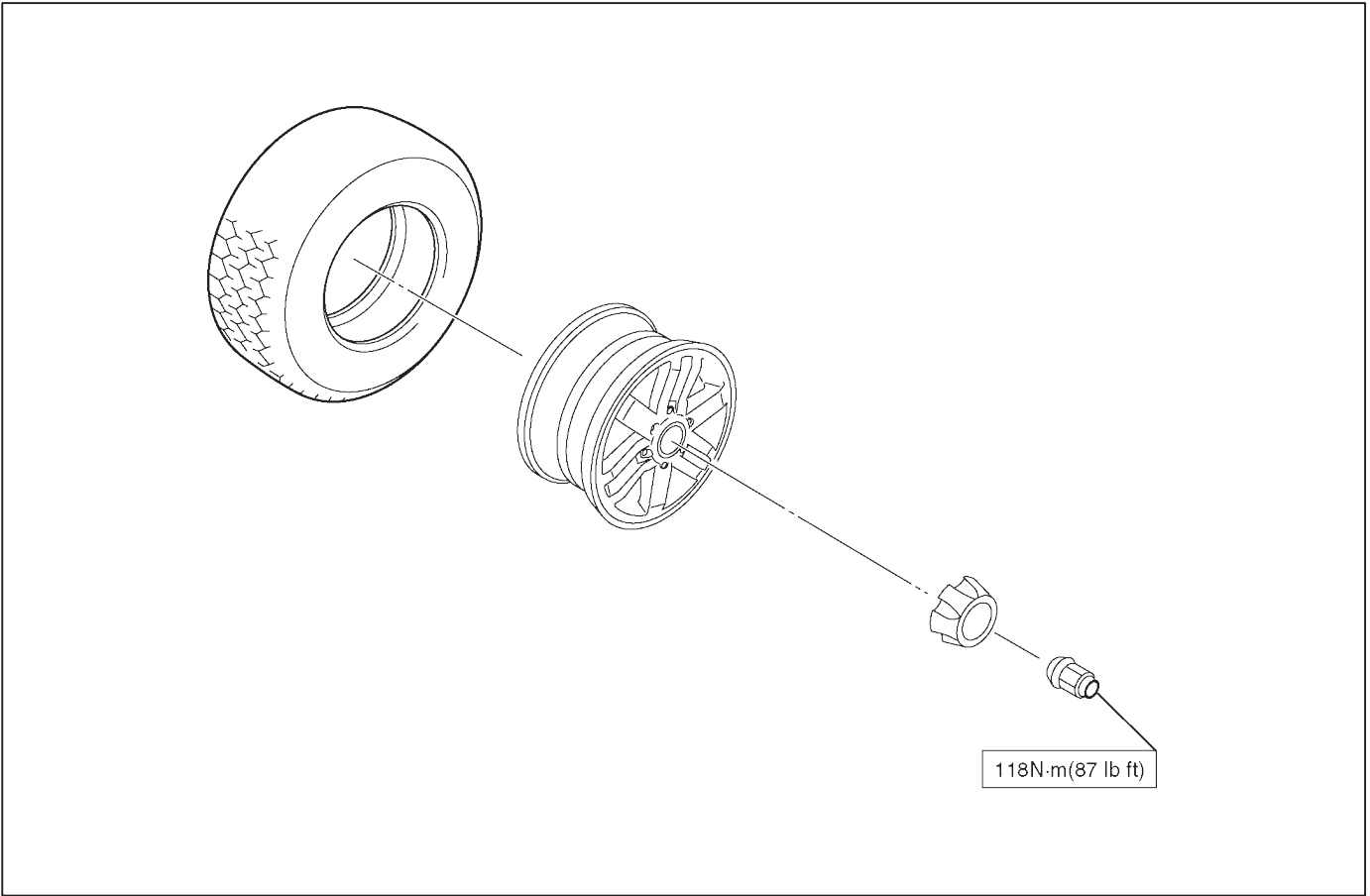
3E-14 WHEEL AND TIRE SYSTEM

Main Data and Specifications

General Specifications

Wheels	Size	17 × 7JJ
	Offset	38.0 mm (1.50 in)
	P.C.D., wheel studs	139.7 mm (5.50 in)
Standard tire	Size	P235/65R17
	Pressure(Front)	180 kPa (26 psi)
	Pressure(Rear)	180 kPa (26 psi)

Torque Specifications



AXIOM

SUSPENSION

INTELLIGENT SUSPENSION CONTROL

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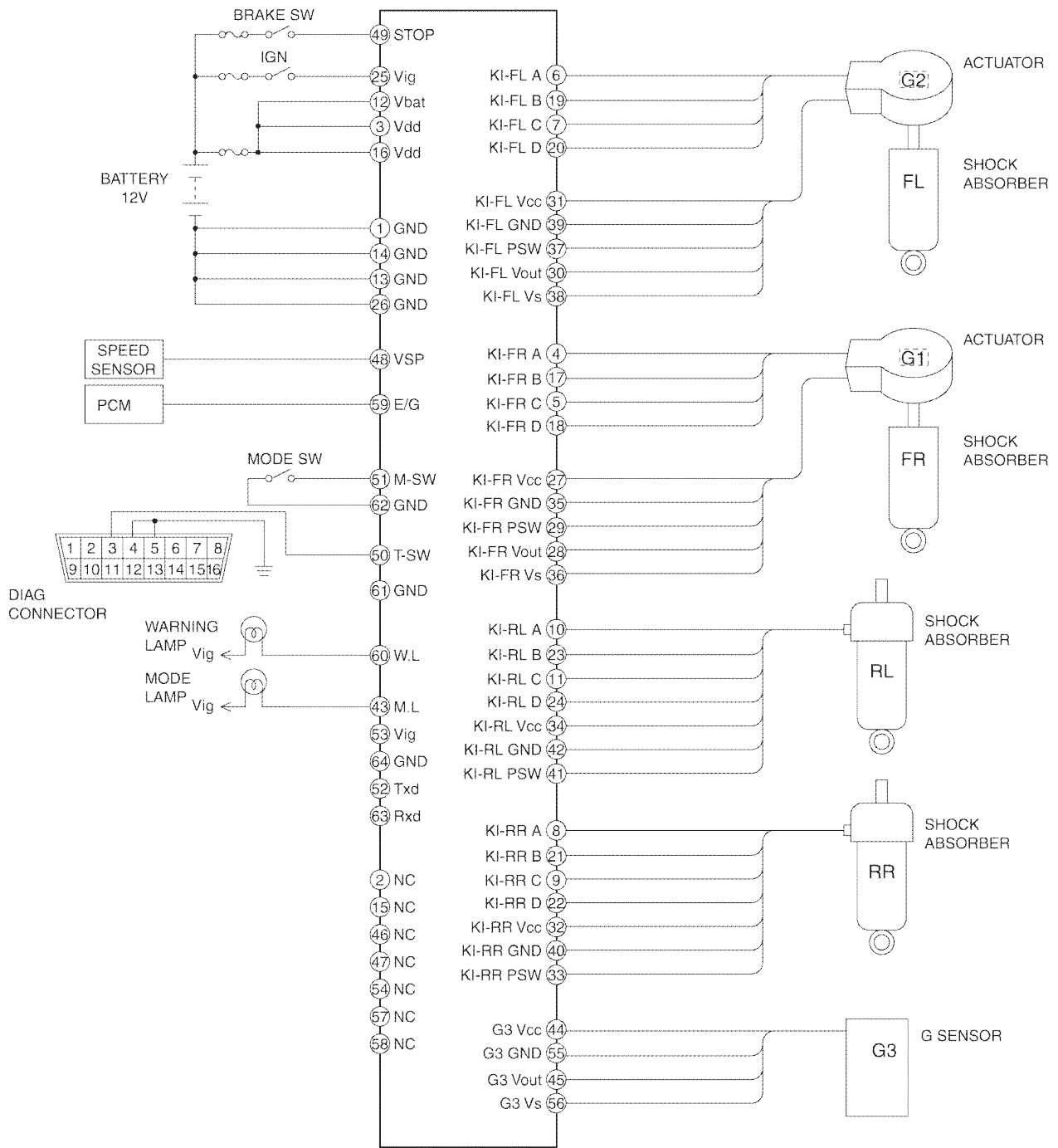
Service Precaution

WARNING: THIS VEHICLE HAS A SUPPLEMENTAL RESTRAINT SYSTEM (SRS). REFER TO THE SRS COMPONENT AND WIRING LOCATION VIEW IN ORDER TO DETERMINE WHETHER YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING. WHEN YOU ARE PERFORMING SERVICE ON OR NEAR THE SRS COMPONENTS OR THE SRS WIRING, REFER TO THE SRS SERVICE INFORMATION. FAILURE TO FOLLOW WARNINGS COULD RESULT IN POSSIBLE AIR BAG DEPLOYMENT, PERSONAL INJURY, OR OTHERWISE UNNEEDED SRS SYSTEM REPAIRS.

CAUTION: Always use the correct fastener in the proper location. When you replace a fastener, use **ONLY** the exact part number for that application. ISUZU will call out those fasteners that require a replacement after removal. ISUZU will also call out the fasteners that require thread lockers or thread sealant. **UNLESS OTHERWISE SPECIFIED**, do not use supplemental coatings (Paints, greases, or other corrosion inhibitors) on threaded fasteners or fastener joint interfaces. Generally, such coatings adversely affect the fastener torque and the joint clamping force, and may damage the fastener. When you install fasteners, use the correct tightening sequence and specifications. Following these instructions can help you avoid damage to parts and systems.

General Description

Intelligent suspension control uses a microcomputer as a control unit to judge running conditions including engine revolution from Powertrain Control Module, vehicle speed from vehicle speed sensor, a brake switch signal, and vertical and lateral G-sensor signal, then sets optimum damping force so that best running stability can be achieved.



CONTROL UNIT PIN ASSIGNMENT

1	2	3	4	5	6	7	8	9	10	11	12	13	27	28	29	30	31	32	33	34	43	44	45	46	47	48	49	50	51	52	53
14	15	16	17	18	19	20	21	22	23	24	25	26	35	36	37	38	39	40	41	42	54	55	56	57	58	59	60	61	62	63	64

PIN ASSIGNMENT TABLE

PIN No.	NAME	PIN No.	NAME	PIN No.	NAME	PIN No.	NAME
1	GND	17	KI-FR B	33	KI-RR PSW	49	STOP
2	NC	18	KI-FR D	34	KI-RL Vcc	50	T-SW
3	Vdd	19	KI-FL B	35	KI-FR GND	51	M-SW
4	KI-FR A	20	KI-FL D	36	KI-FR Vs	52	Txd
5	KI-FR C	21	KI-RR B	37	KI-FL PSW	53	Vig
6	KI-FL A	22	KI-RR D	38	KI-FL Vs	54	NC
7	KI-FL C	23	KI-RL B	39	KI-FL GND	55	G3 GND
8	KI-RR A	24	KI-RL D	40	KI-RR GND	56	G3 Vs
9	KI-RR C	25	Vig	41	KI-RL PSW	57	NC
10	KI-RL A	26	GND	42	KI-RL GND	58	NC
11	KI-RL C	27	KI-FR Vcc	43	M.L	59	E/G
12	Vbat	28	KI-FR Vout	44	G3 Vcc	60	W.L
13	GND	29	KI-FR PSW	45	G3 Vout	61	GND
14	GND	30	KI-FL Vout	46	NC	62	GND
15	NC	31	KI-FL Vcc	47	NC	63	Rxd
16	Vdd	32	KI-RR Vcc	48	VSP	64	GND

NC: NO CONNECTION

System Components

Control Unit, 3 Vertical G-sensors, Lateral G-sensor, 4 Actuators, 4 Adjustable Damping Force Shock Absorbers, and Warning Lamp.

Control Unit

The Control Unit consists of Adjustable Damping Force Shock Absorber control circuits, fault detector, and a fail-safe. It drives the actuator according to the signal from each sensor.

The Control Unit has a self-diagnosing function which can indicate faulty circuits during diagnosis.

The Control Unit is mounted in the center of the instrument panel.

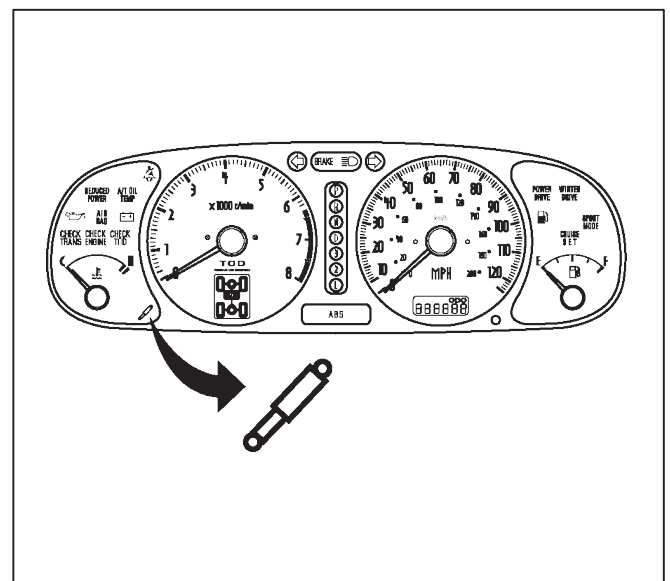
Actuator

Front actuators installed on front shock absorbers and rear actuator installed inside rear shock absorbers control damping force of shock absorber by the Control Unit signal.

Adjustable Damping Force Shock Absorber

This type shock absorber is used in front and rear intelligent suspension. According to running condition the Control Unit changes shock absorber damping force and obtains good running stability.

Warning Lamp



Vehicles equipped with the Intelligent Suspension Control have an amber warning lamp in the instrument panel. The warning lamp will illuminate if a malfunction in the Intelligent Suspension Control is detected by the Control Unit. In case of an important electronic malfunction, the Control Unit will turn "ON" the warning lamp.

Vertical G-Sensor

Front G-sensors installed inside front actuators and the rear G-sensor installed on the rear left frame side detect the vehicle vertical gravity and send a signal to the Control Unit.

Lateral G-Sensor

The G-sensor installed inside the Control Unit detects the vehicle turning speed and sends a signal to the Control Unit.

Acronyms and Abbreviations

Several acronyms and abbreviations are commonly used throughout this section:

BATT

Battery

DLC

Data Link Connector

DTC

Diagnostic Trouble Code

FL

Front Left

FR

Front Right

GND

Ground

HARN

Harness

IG

Ignition

PCM

Powertrain Control Module

RL

Rear Left

RR

Rear Right

SW

Switch

W/L

Warning Lamp

Vout

Voltage output

General Diagnosis

General Information

Intelligent Suspension Control troubles can be classified into two types, those which can be detected by the warning lamp and those which can be detected as a vehicle abnormality by the driver.

In either case, locate the fault in accordance with the "BASIC DIAGNOSTIC FLOWCHART" and repair.

Please refer to *Section 3 for the diagnosis of mechanical troubles such as abnormal noise, vehicle pulls, excessive tire wear, wheel hop and shimmy, shake or vibration.*

Service Precautions

Required Tools and Items:

- Box Wrench
- Special Tool

Some diagnosis procedures in this section require the installation of a special tool.

J-39200 High Impedance Multimeter

When circuit measurements are requested, use a circuit tester with high impedance.

Computer System Service Precautions

The Intelligent Suspension Control interfaces directly with the Control Unit which is a control computer that is similar in some regards to the Powertrain Control Module. These modules are designed to withstand normal current draws associated with vehicle operation. However care must be taken to avoid overloading any of the Control Unit circuits. In testing for opens or shorts, do not ground or apply voltage to any of the circuits unless instructed to do so by the appropriate diagnostic procedure. These circuits should only be tested with a high impedance multimeter (J-39200) or special tools as described in this section. Power should never be removed or applied to any control module with the ignition in the "ON" position. Before removing or connecting battery cables, fuses or connectors, always turn the ignition switch to the "OFF" position.

General Service Precautions

The following are general precautions which should be observed when servicing and diagnosing the Intelligent Suspension Control and/or other vehicle systems. Failure to observe these precautions may result in Intelligent Suspension Control damage.

- If welding work is to be performed on the vehicle using an electric arc welder, the Control Unit connectors should be disconnected before the welding operation begins.
- The Control Unit connectors should never be connected or disconnected with the ignition "ON".

Parts Handling

Be careful when handling the actuator, control unit, or G-sensor. They should not be dropped or thrown, because the semi-conductor G-sensor tip damage may result.

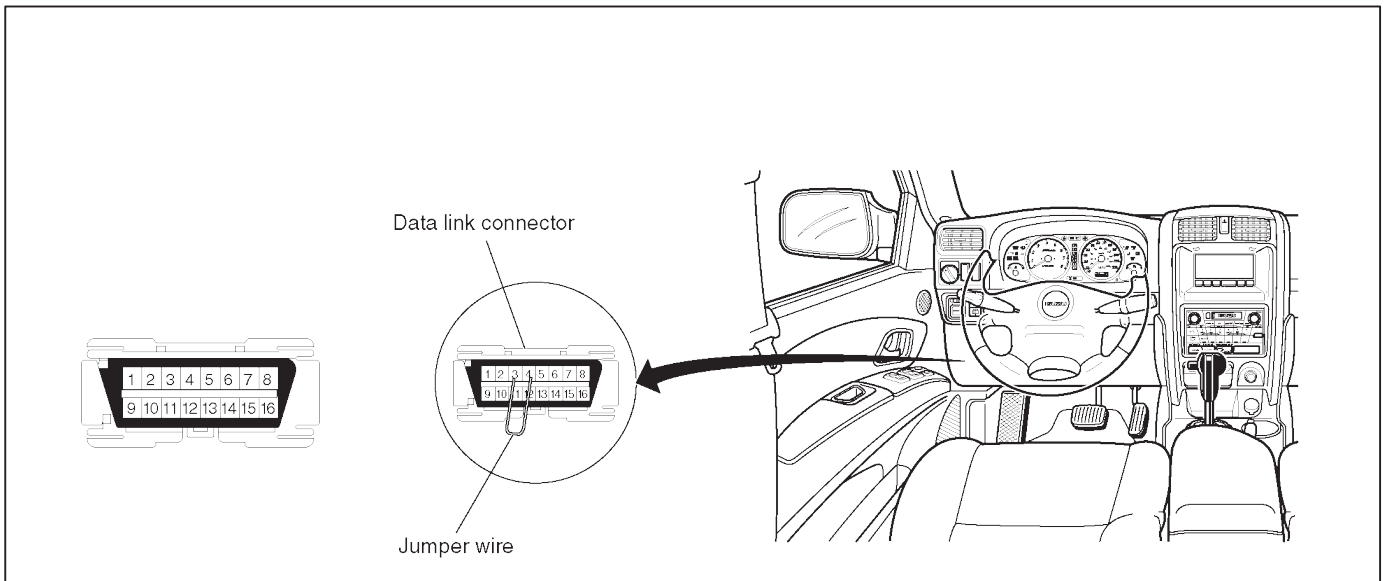
FLASHING CODES

1. ON BOARD DIAGNOSIS (SELF-DIAGNOSIS)

1. The Control Unit conducts a self-test of most of the wiring and components in the system each time the key is turned ON. If a fault is detected the Control Unit will store a Diagnostic Trouble Code (DTC) in memory. It's a number that corresponds to a specific problem.
2. When the problem detected is important: the warning lamp turns on until the fault is repaired and the Control Unit memory is cleared.

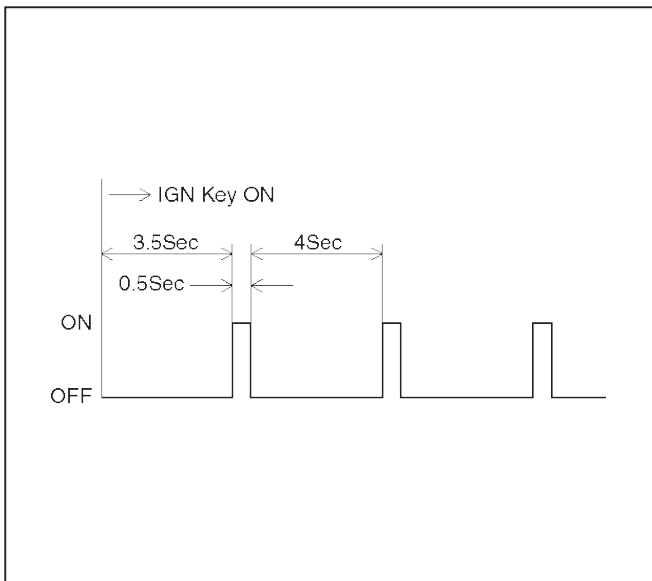
2. DIAGNOSTIC TROUBLE CODES (DTC)

1. DTC can be expressed by flashing times of warning lamp by shorting together terminals 3 and 4 or 5 of the Diagnosis Connector (C-39) located left side of instrument panel.



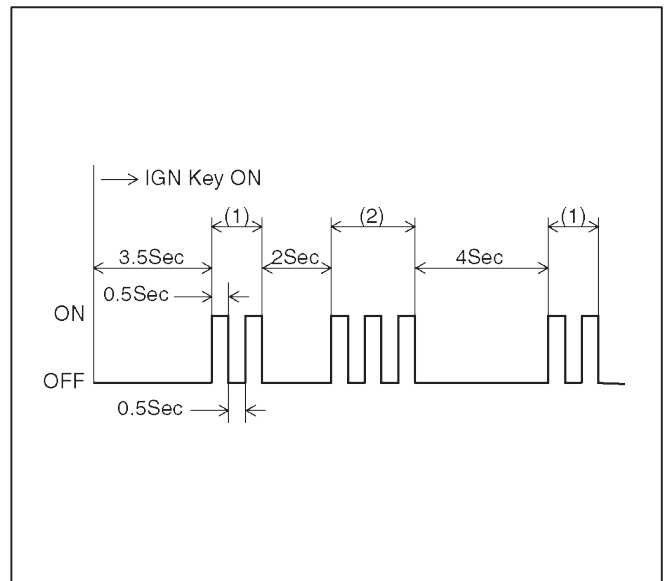
350R200002

Normal



F03RY00001

Abnormal

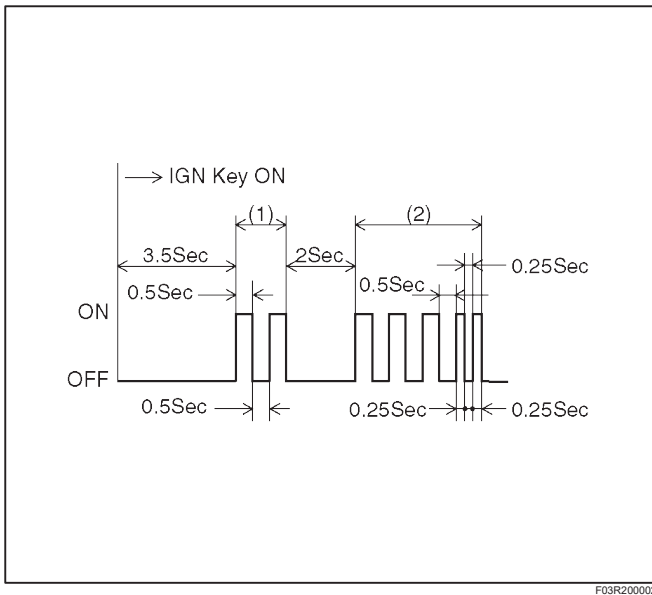


F03R200001

Legend

- (1) Diagnostic Trouble Code 2
- (2) Diagnostic Trouble Code 3

It depends below in the case that the code that also, shows a malfunction place is added.



F03R200002

Legend

- (1) Diagnostic Trouble Code 2
- (2) Diagnostic Trouble Code 3 + Position Code
Position Code
 - 1: Actuator Front RH, G-sensor Front RH
 - 2: Actuator Front LH, G-sensor Front LH
 - 3: Actuator Rear RH, G-sensor Rear
 - 4: Actuator Rear LH, Lateral G-sensor

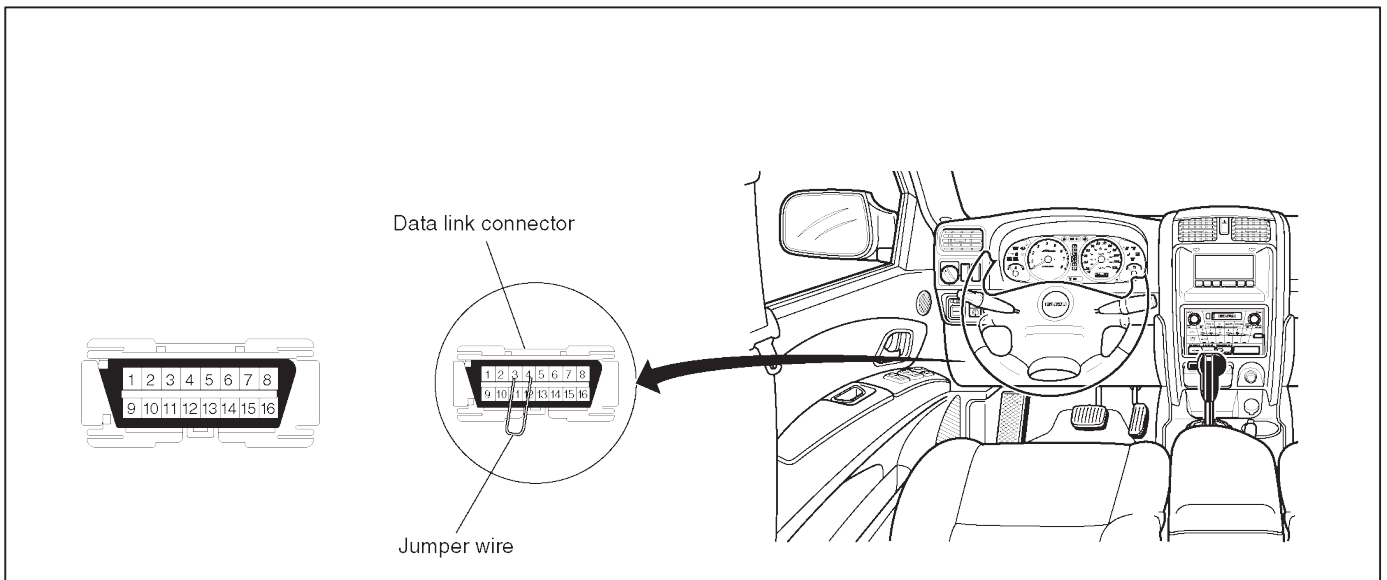
2. After this, the warning lamp will be OFF for 3.5 seconds and then will flash each DTC.
 - a. When there are more than 9 flashes this means that the indicator is constantly flashing, OFF for 4 seconds ON for 0.5 seconds. In this case there is no DTC stored in memory.
 - b. When there are less than 9 flashes you will see DTC codes in ascending order.

CLEAR DTC

Remark: If you clear the DTC (Diagnosis Trouble Codes) you will not be able to read any codes recorded during the last Trouble.

Remark: To be able to use the DTC again to identify a problem you will need to reproduce the fault or the problem. This may require a new test drive or just turning the ignition on (this depends on the nature of the fault).

1. Short the Diagnosis Connector C-39 terminal 3 to terminal 4 or 5 (ground).
- IF it is flashing and the flash is 0.5 seconds ON and 4 seconds OFF without interruption, this means that there is no DTC. The DTCs are already cleared.



350R200002

2. IF a code is flashed, wait until the lamp is flashing.
3. Conduct brake switch ON/OFF 6 or more times on condition that one operation is within 2 seconds.

INTERMITTENT CONDITIONS

If the Warning Lamp flashes a diagnostic trouble code as intermittent, or if after a test drive a DTC does not reappear though the detection conditions for this DTC are present: the problem is most likely a faulty electrical connection or loose wiring. Terminals and grounds should always be the prime suspect. Intermittents rarely occur inside sophisticated electronic components such as the Control Unit.

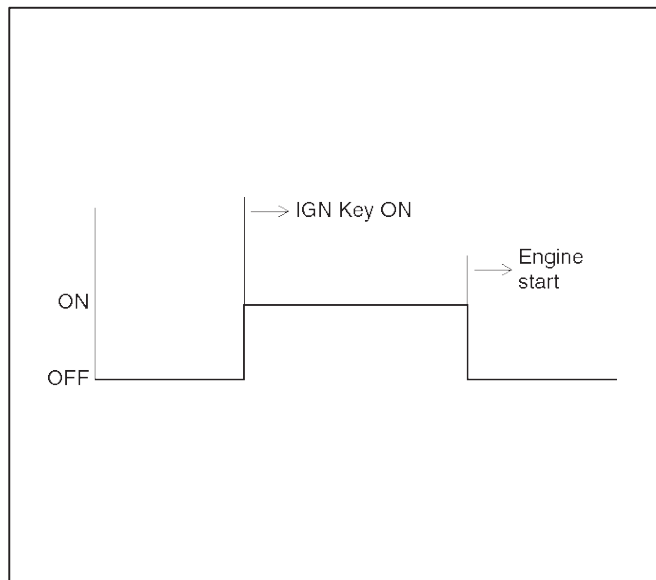
Use the DTC information to understand which wires and sensors are involved.

When an intermittent problem is encountered, check suspect circuits for:

1. Poor terminal to wire connection.
2. Terminals not fully seated in the connector body (backed out).
3. Improperly formed or damaged terminals.
4. Loose, dirty, or corroded ground connections:
HINT: Any time you have an intermittent in more than one circuit, check whether the circuits share a common ground connection.
5. Pinched or damaged wires.
6. Electro-Magnetic Interference (EMI):
HINT: Check that all wires are properly routed away from spark plug wires, distributor wires, coil, and generator. Also check for improperly installed electrical options, such as lights, 2-way radios, etc.

BULB CHECK

When the starter switch is turned on in the normal state, the Control Unit turns on the Warning Lamp to check the bulb. After the engine starts, the Warning Lamp turns off.

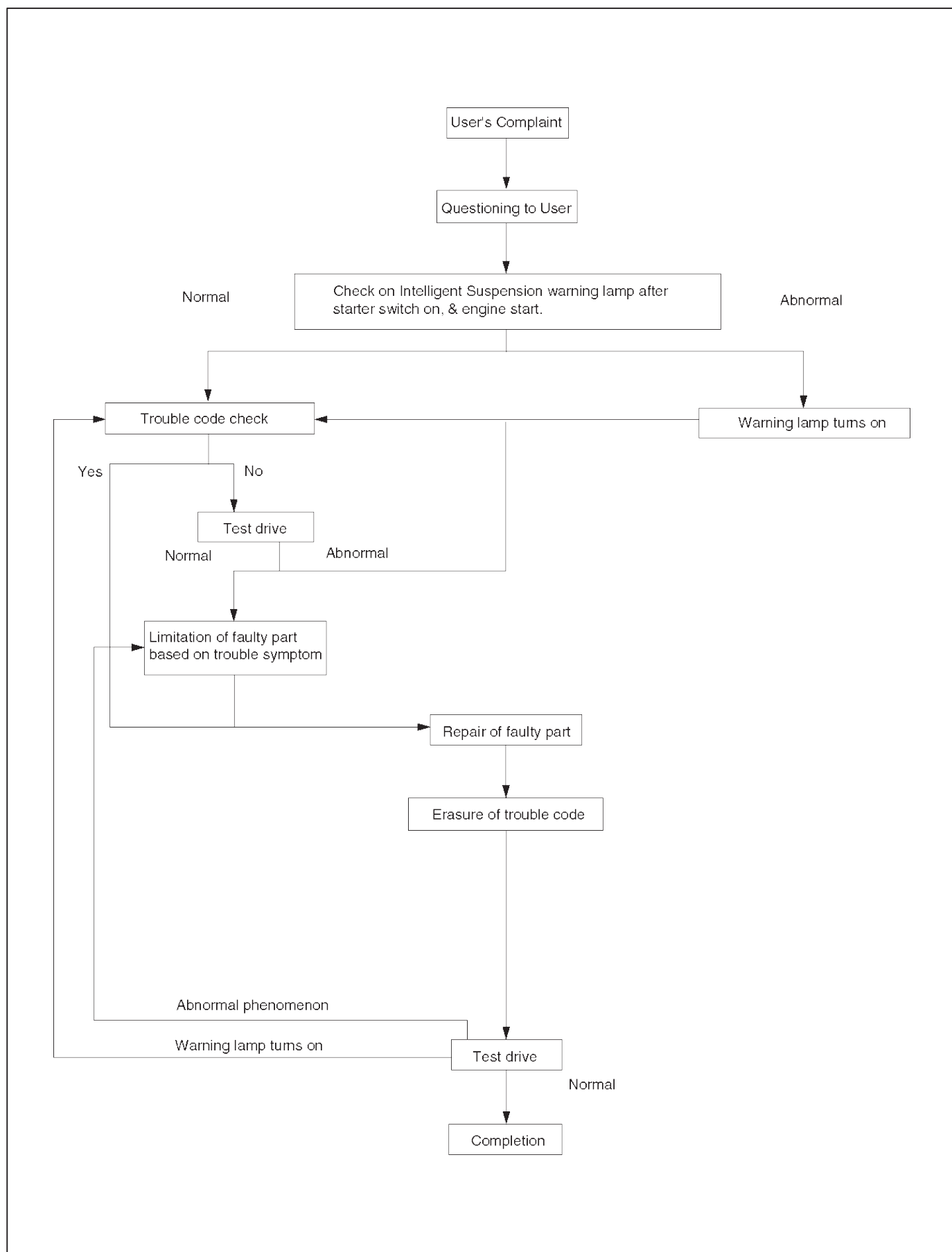


F03RY00003

DTC CHECK

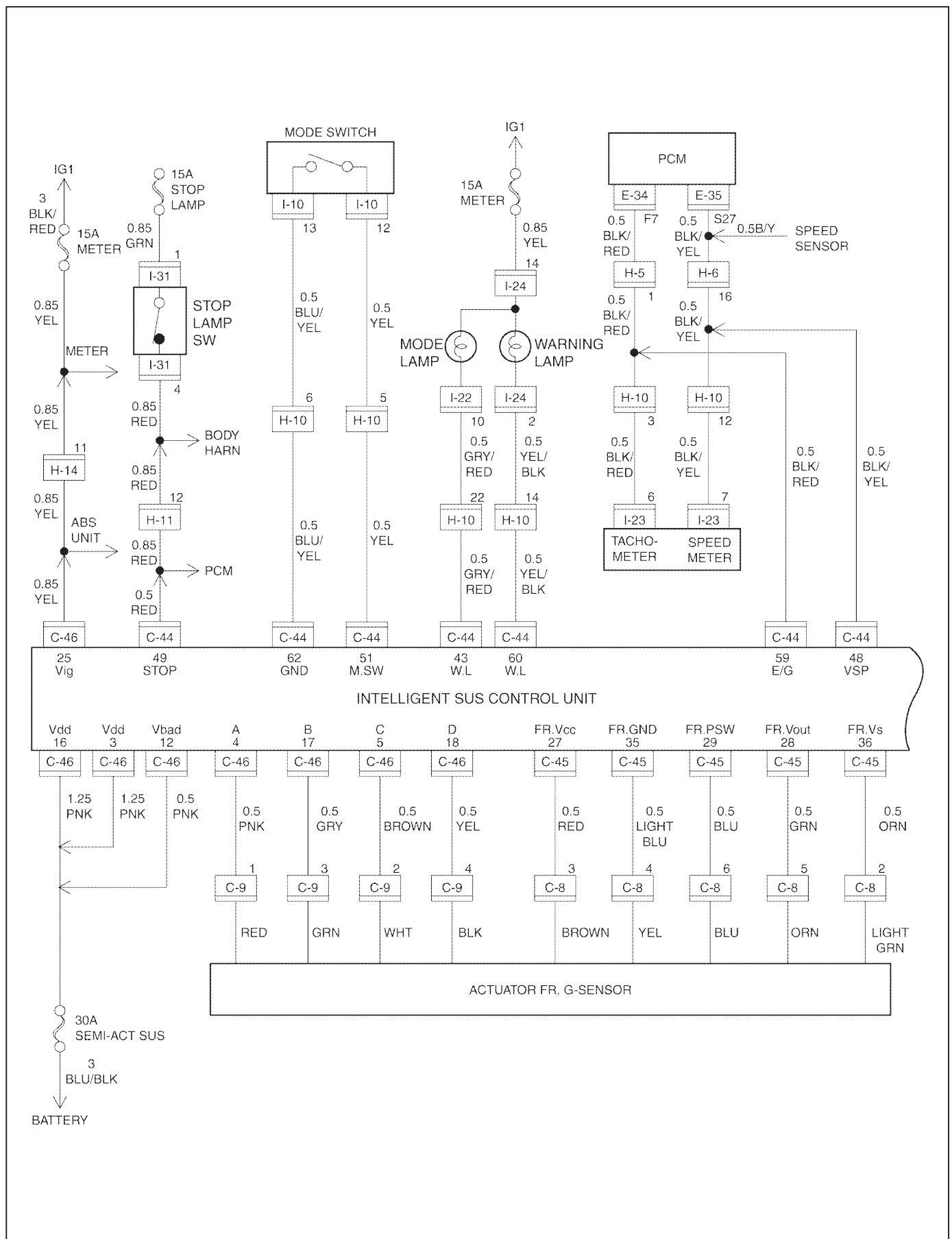
1. Diagnosis Trouble Codes (DTC) have been identified by FLASHING CODES.
2. You have written the list of the DTC. The order of the malfunctions has no meanings for this Control Unit. Usually only one or two malfunctions should be set for a given problem.
3. Check directly the DTCs you identified. The DTC are sorted by number:
DIAGNOSTIC TROUBLE CODES.

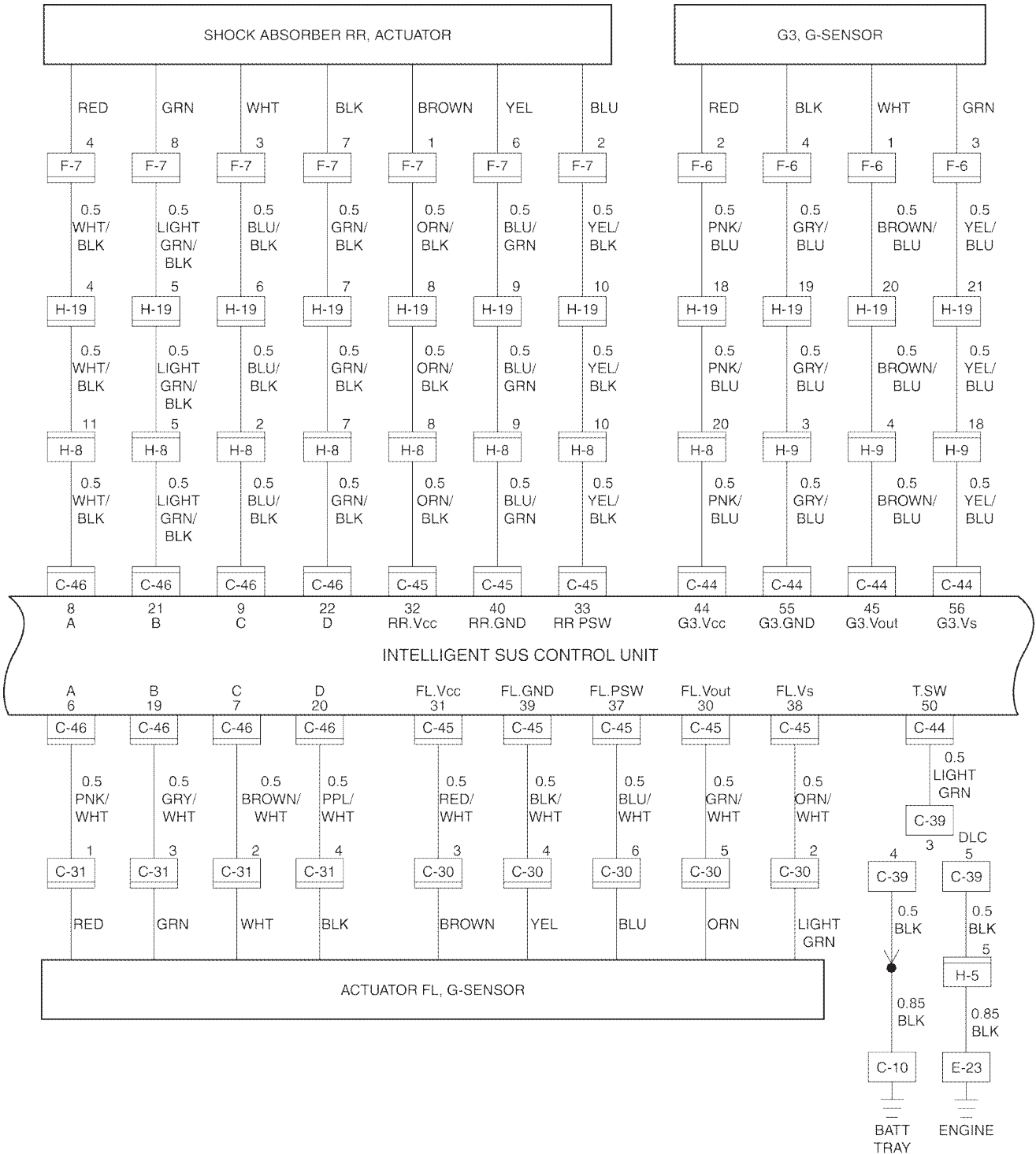
Basic Diagnosis Flow



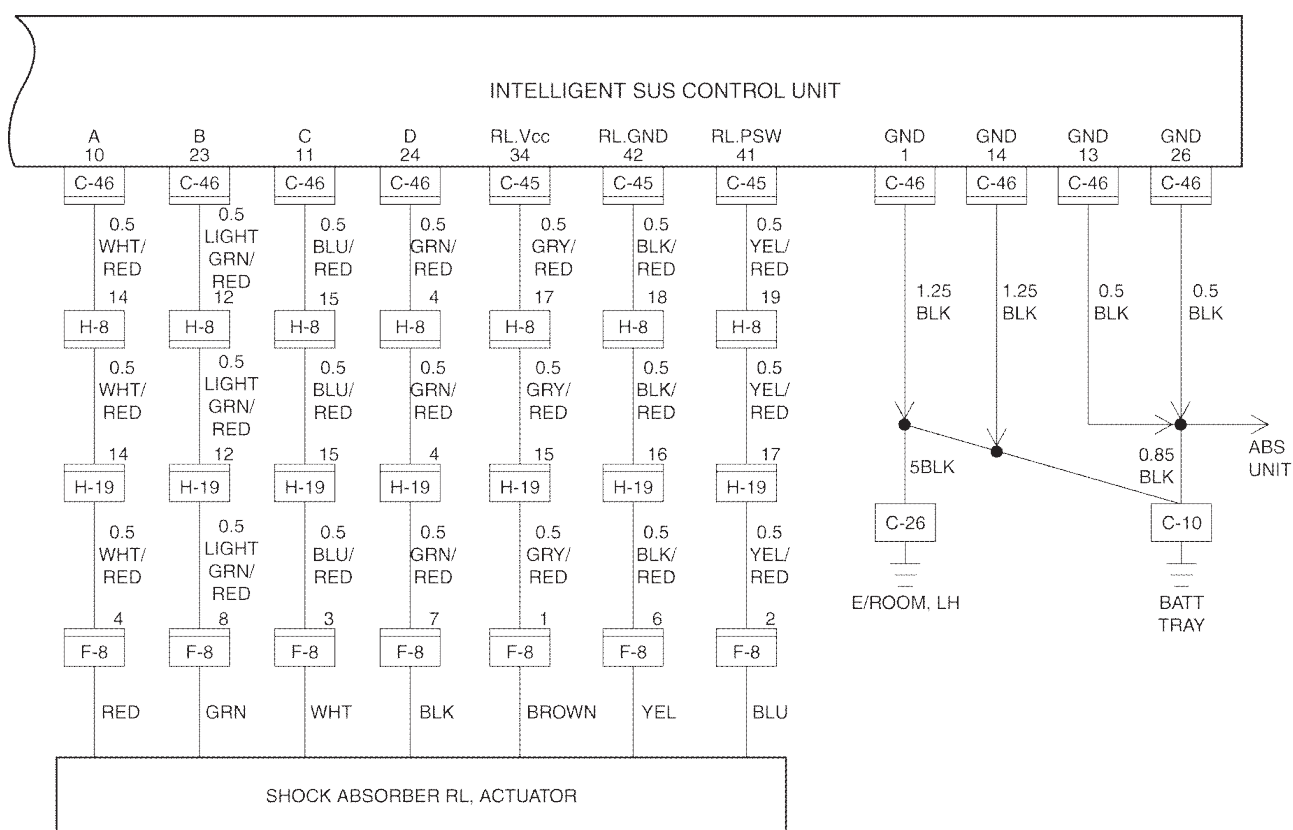
3F-10 INTELLIGENT SUSPENSION

Circuit Diagram

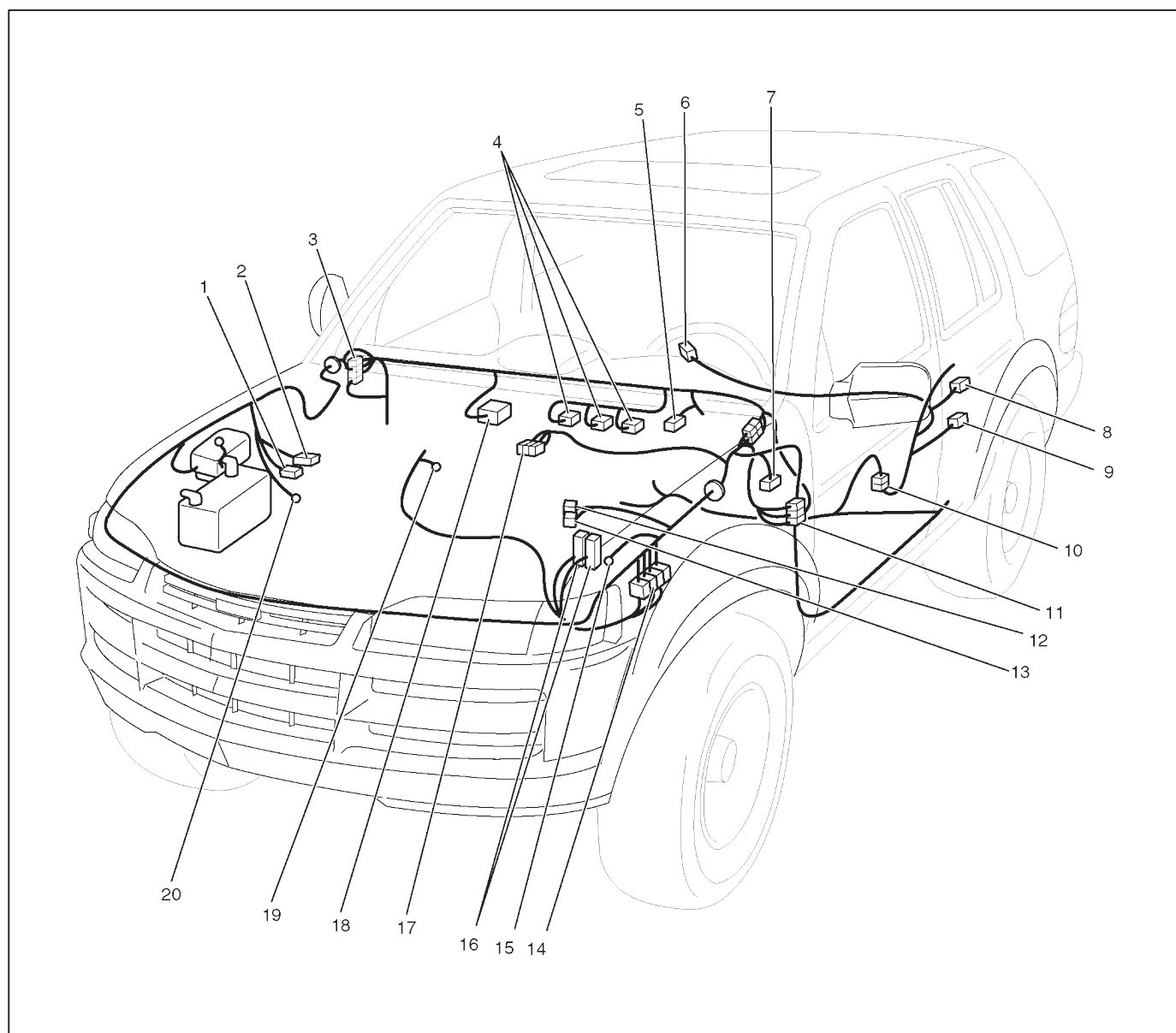




3F-12 INTELLIGENT SUSPENSION



Parts Location



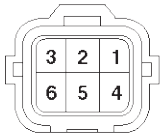
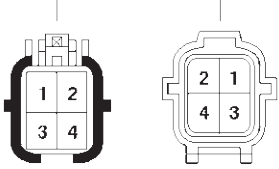
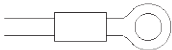
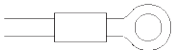
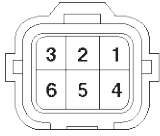
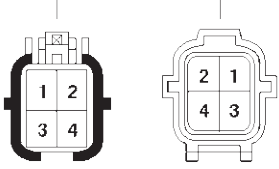
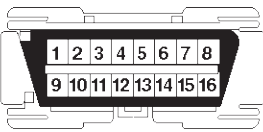
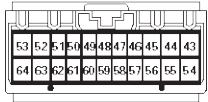
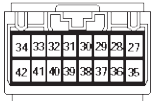
810R200001

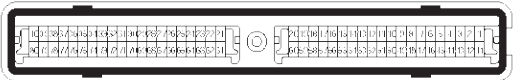
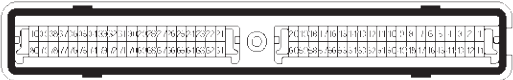
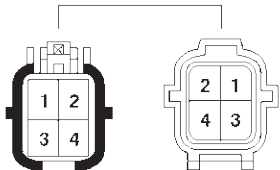
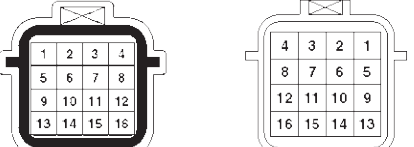
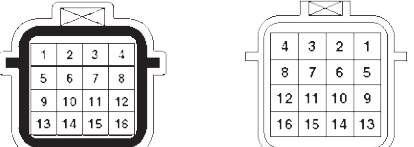
Legend

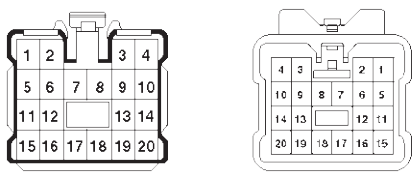
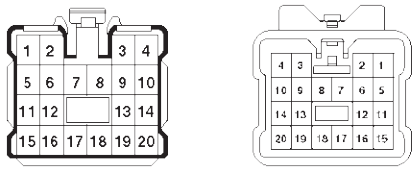
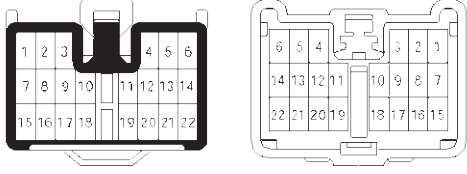
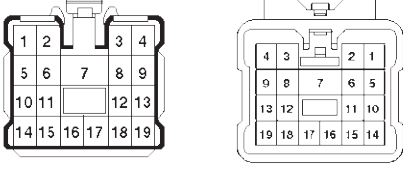
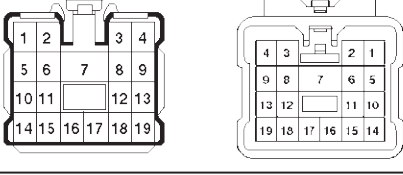
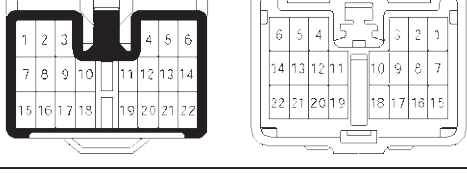
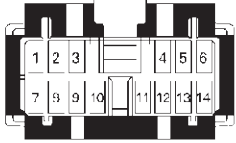
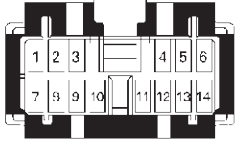
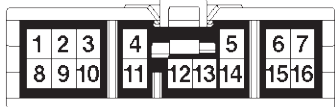
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|----------------------|-----------------------|
| (1) C-9 | (11) H-9, H-10 |
| (2) C-8 | (12) C-30 |
| (3) H-8, H-11, H-14 | (13) C-31 |
| (4) I-24, I-23, I-22 | (14) H-5, H-6 |
| (5) I-31 | (15) C-26 |
| (6) F-7 | (16) E-34, E-35 |
| (7) C-39 | (17) C-46, C-45, C-44 |
| (8) F-8 | (18) I-10 |
| (9) F-6 | (19) E-23 |
| (10) H-19 | (20) C-10 |

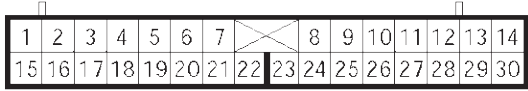
3F-14 INTELLIGENT SUSPENSION

Connector List

No.	Connector face
C-8	
C-9	
C-10	
C-26	
C-30	
C-31	
C-39	
C-44	
C-45	

No.	Connector face
C-46	
E-23	
E-34	
E-35	
F-6	
F-7	
F-8	
H-5	
H-6	

No.	Connector face
H-8	
H-9	
H-10	
H-11	
H-14	
H-19	
I-10	
I-22	
I-23	

No.	Connector face
I-24	
I-31	

3F-16 INTELLIGENT SUSPENSION

Diagnostic Trouble Code (DTC) Identification

DTC No.	DTC NAME	CODE MEMORY	WARNING LAMP
2	Actuator Coil Over Current	Yes	OFF
3	Actuator Coil/Position Sensor Open Circuit or Short	Yes	ON
4	G-Sensor Open Circuit or Short	Yes	ON
5	Vehicle Speed Sensor Open Circuit or Short	Yes	OFF
6	Stop Lamp Switch Open Circuit, Short or Contact Point Trouble	Yes	OFF
7	Engine Speed Signal Open Circuit or Short	Yes	OFF
9	Control Unit Abnormality	Yes	OFF

DTC2 Actuator Coil Over Current

Circuit Description

The A, B, C, and D are the actuator motor coil terminals. DC 12V driving voltage is applied between terminals A and C and terminals B and D so that the shock absorber oil valves are rotated at every 7.5° step feed.

Diagnostic Aids

- Inspect the wiring for poor electrical connections between the control unit 24 way connector and the actuator connectors. Look for possible bent, backed out, deformed, or damaged terminals. Check for weak terminal tension as well.
Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.
- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.

DTC2 Actuator Coil Over Current

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the actuator connectors C-31, C-9, F-8, and F-7. 3. Measure the resistance between the actuator side connector C-9 terminals 1 and 2. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 2	Go to Step 3
2	1. Measure the resistance between the actuator side connector C-9 terminals 3 and 4. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 4	Go to Step 3
3	Replace the actuator FR.	—	Go to Step 4	—
4	1. Measure the resistance between the actuator side connector C-31 terminals 1 and 2. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 5	Go to Step 6
5	1. Measure the resistance between the actuator side connector C-31 terminals 3 and 4. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 7	Go to Step 6
6	Replace the actuator FL.	—	Go to Step 7	—
7	1. Measure the resistance between the shock absorber side connector F-7 terminals 3 and 4. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 8	Go to Step 9
8	1. Measure the resistance between the shock absorber side connector F-7 terminals 7 and 8. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 10	Go to Step 9
9	Replace the rear shock absorber RR.	—	Go to Step 10	—
10	1. Measure the resistance between the shock absorber side connector F-8 terminals 3 and 4. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 11	Go to Step 12
11	1. Measure the resistance between the shock absorber side connector F-8 terminals 7 and 8. Is the resistance within the specified value?	6.4–7.2Ω	Go to Step 13	Go to Step 12

DTC2 Actuator Coil Over Current (Cont'd)

Step	Action	Value(s)	Yes	No
12	Replace the rear shock absorber RL.	—	Go to <i>Step 16</i>	—
13	If all steps are correct, check the continuity between the control unit connector C-46 terminal 1 and connector terminal C46-4, C46-17, C46-5, C46-18, C46-6, C46-19, C46-7, C46-20, C46-8, C46-21, C46-9, C46-22, C46-10, C46-23, C46-11, and C46-24. Is there continuity?	—	Go to <i>Step 15</i>	Go to <i>Step 14</i>
14	Repair the circuit.	—	Go to <i>Step 16</i>	—
15	Replace the control unit.	—	Go to <i>Step 16</i>	—
16	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to <i>"Basic Diagnosis Flow"</i> .	Go to <i>Step 16</i>

DTC3 Actuator Coil/Position Sensor Open Circuit or Short

Circuit Description

The A, B, C, and D are the actuator motor coil terminals. DC 12V driving voltage is applied between terminals A and C and terminals B and D so that the shock absorber oil valves are rotated at every 7.5° step feed. The PSW is actuator position signal and detects relative angles between the piston-rod and the control-rod. The actuator outputs the PSW to the control unit.

Diagnostic Aids

- Inspect the wiring for poor electrical connections between the control unit 16 way connector and the actuator connectors. Look for possible bent, backed out, deformed, or damaged terminals. Check for weak terminal tension as well.
Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.
- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.

DTC3 Actuator Coil/Position Sensor Open Circuit or Short

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the actuator connectors C-46, C-31, C-9, F-8, and F-7. Is there continuity between the connector C-9 terminals 1 and 2?	—	Go to Step 2	Go to Step 3
2	Is there continuity between the connector C-9 terminals 3 and 4?	—	Go to Step 4	Go to Step 3
3	Replace the actuator FR.	—	Go to Step 4	—
4	Is there continuity between the connector C-31 terminals 1 and 2?	—	Go to Step 5	Go to Step 6
5	Is there continuity between the connector C-31 terminals 3 and 4?	—	Go to Step 7	Go to Step 6
6	Replace the actuator FL.	—	Go to Step 7	—
7	Is there continuity between the connector F-7 terminals 3 and 4?	—	Go to Step 8	Go to Step 9
8	Is there continuity between the connector F-7 terminals 7 and 8?	—	Go to Step 10	Go to Step 9
9	Replace the rear shock absorber RR.	—	Go to Step 10	—
10	Is there continuity between the connector F-8 terminals 3 and 4?	—	Go to Step 11	Go to Step 12
11	Is there continuity between the connector F-8 terminals 7 and 8?	—	Go to Step 13	—
12	Replace the rear shock absorber RL.	—	Go to Step 13	—
13	Is there continuity between the connector C-9 terminal 1 and connector C-46 terminal 4?	—	Go to Step 14	Go to Step 15
14	Is there continuity between the connector C-9 terminal 3 and connector C-46 terminal 17?	—	Go to Step 16	Go to Step 15
15	Repair the circuit.	—	Go to Step 16	—

DTC3 Actuator Coil/Position Sensor Open Circuit or Short (Cont'd)

Step	Action	Value(s)	Yes	No
16	Is there continuity between the connector C-9 terminal 2 and connector C-46 terminal 5?	—	Go to Step 17	Go to Step 18
17	Is there continuity between the connector C-9 terminals 4 and connector C-46 terminal 18?	—	Go to Step 19	Go to Step 18
18	Repair the circuit.	—	Go to Step 19	—
19	Is there continuity between the connector C-31 terminal 1 and connector C-46 terminal 6?	—	Go to Step 20	Go to Step 21
20	Is there continuity between the connector C-31 terminal 3 and connector C-46 terminal 19?	—	Go to Step 22	Go to Step 21
21	Repair the circuit.	—	Go to Step 22	—
22	Is there continuity between the connector C-31 terminal 2 and connector C-46 terminal 7?	—	Go to Step 23	Go to Step 24
23	Is there continuity between the connector C-31 terminal 4 and connector C-46 terminal 20?	—	Go to Step 25	Go to Step 24
24	Repair the circuit.	—	Go to Step 25	—
25	Is there continuity between the connector F-7 terminal 4 and connector C-46 terminal 8?	—	Go to Step 26	Go to Step 27
26	Is there continuity between the connector F-7 terminal 8 and connector C-46 terminal 21?	—	Go to Step 28	Go to Step 27
27	Repair the circuit.	—	Go to Step 28	—
28	Is there continuity between the connector F-7 terminal 3 and connector C-46 terminal 9?	—	Go to Step 29	Go to Step 30
29	Is there continuity between the connector F-7 terminal 7 and connector C-46 terminal 22?	—	Go to Step 31	Go to Step 30
30	Repair the circuit.	—	Go to Step 31	—
31	Is there continuity between the connector F-8 terminal 4 and connector C-46 terminal 10?	—	Go to Step 32	Go to Step 33
32	Is there continuity between the connector F-8 terminal 8 and connector C-46 terminal 23?	—	Go to Step 34	Go to Step 33
33	Repair the circuit.	—	Go to Step 34	—
34	Is there continuity between the connector F-8 terminal 3 and connector C-46 terminal 11?	—	Go to Step 35	Go to Step 36
35	Is there continuity between the connector F-8 terminal 7 and connector C-46 terminal 24?	—	Go to Step 37	Go to Step 36
36	Repair the circuit.	—	Go to Step 37	—
37	1. Disconnect the terminals C-45, C-8, C-30, F-7, and F-8. Is there continuity between the connector-terminal C45-29 and C8-6, C45-37 and C30-6, C45-33 and F7-2, C45-41 and F8-2?	—	Go to Step 38	Go to Step 41

DTC3 Actuator Coil/Position Sensor Open Circuit or Short (Cont'd)

Step	Action	Value(s)	Yes	No
38	Is there continuity between the connector C-46 terminal 1 (GND) and the connector C-45 terminals 29, 33, 37, and 41?	—	Go to Step 41	Go to Step 39
39	Is there the continuity between connector-terminal C45-27 and C45-35, C45-31 and C45-39, C45-32 and C45-40, and C45-34 and C45-42?	—	Go to Step 41	Go to Step 40
40	Is there the continuity between connector C-46 terminal 1 and connector C-45 terminals 27, 31, 32, and 34?	—	Go to Step 41	Go to Step 42
41	Repair the circuit.	—	Go to Step 44	—
42	1. If all steps are correct, replace following units one by one in the following order. Give a test drive and if normal, reinstall it. 1) actuator FR, 2) actuator FL, rear shock absorber, 3) RR and 4) RL. Does the DTC3 remain?	—	Go to Step 43	Go to Step 44
43	Replace the control unit.	—	Go to Step 44	—
44	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to "Basic Diagnosis Flow".	Go to Step 44

DTC4 G-Sensor Open Circuit or Short

Circuit Description

The G-sensor sends the voltage (Vout) corresponding to the vehicle vertical gravity to the control unit.

The control unit supplies DC 5V power (Vcc) to each G-sensor.

The control unit watches the G-sensor operation through Vcc signal.

Diagnostic Aids

- Inspect the wiring for poor electrical connections between the control unit connectors and the actuator connectors. Look for possible bent, backed out, deformed, or damaged terminals. Check for weak terminal tension as well.

Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.

- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.

DTC4 G-Sensor Open Circuit or Short

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the connectors C-45, C-44, C-8, C-30, and F-6. Is there the continuity between the connector-terminal C45-28 and C8-5, C45-30 and C30-5, and C44-45 and F6-1?	—	Go to Step 2	Go to Step 5
2	Is there continuity between the connector-terminal C45-27 and C8-3, C45-31 and C30-3, and C44-44 and F6-2?	—	Go to Step 3	Go to Step 5
3	Is there the continuity between the connector-terminal C45-36 and C8-2, C45-38 and C30-2, and C44-56 and F6-3?	—	Go to Step 4	Go to Step 5
4	1. Disconnect the connectors C-46, C-45, and C-44. Is there the continuity between the connector-terminal C45-28 and C45-35, C45-30 and C45-39, C44-45 and C44-55, C45-27 and C45-35, C45-31 and C45-39, C44-44 and C44-55, C45-36 and C45-35, C45-38 and C45-39, and C44-56 and C44-55?	—	Go to Step 5	Go to Step 7
5	Repair the circuit.	—	Go to Step 6	—
6	Replace following units one by one in the following order. Give a test drive and if normal, reinstall it. 1) G3-sensor 2) Actuator FL 3) Actuator FR 4) Control Unit	—	Go to Step 7	—
7	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to "Basic Diagnosis Flow."	Go to Step 7

DTC5 Vehicle Speed Sensor Open Circuit or Short

Circuit Description

Output speed information is provided to the control unit by the vehicle speed sensor. The vehicle speed sensor produces a pulsing AC voltage. The AC voltage level and number of pulses increases as the speed of the vehicle increases. The control unit then converts the pulsing voltage to vehicle speed.

Diagnostic Aids

- Inspect the wiring for poor electrical connections between the control unit 48 way connector and the speed sensor connectors. Look for possible bent, backed out, deformed, or damaged terminals. Check for weak terminal tension as well.
Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.
- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.

DTC5 Vehicle Speed Sensor Open Circuit or Short

Step	Action	Value(s)	Yes	No
1	1. Jack up and support the rear axle on the stand. 2. Change the transfer mode to 2WD, using TOD switch on instrument panel. 3. Shift the transmission lever in a forward position and rotate the rear wheels. Does the speedo-meter operate?	—	Go to Step 2	Go to Step 3
2	1. Open the throttle and rev up engine speed. 2. Using a volt meter, measure the voltage between the meter B connector I-23 terminals 7 and 16 (GND). Does the voltage change alternately at the specified values?	0V and 12V	Go to Step 7	Go to Step 5
3	1. Turn off the starter switch and disconnect the control connectors C-46 and C-44. 2. Check the continuity between the vehicle speed sensor connector terminal 3 and meter B connector I-23 terminal 7. Is there continuity?	—	Go to Step 4	Go to Step 6
4	1. Check the continuity between the control unit connector C-46 terminal 1 and control unit connector C-44 terminal 48. Is there continuity?	—	Go to Step 5	Go to Step 6
5	Repair or replace the vehicle speed sensor.	—	Go to Step 8	—
6	Repair the circuit between the vehicle speed sensor connector terminal 3 and the meter B connector I-23 terminal 7 or the circuit between the control unit connector C-44 terminal 48 and the speed sensor connector terminal 3.	—	Go to Step 8	—

DTC5 Vehicle Speed Sensor Open Circuit or Short (Cont'd)

Step	Action	Value(s)	Yes	No
7	Repair the circuit between the connector H-6 terminal 16 and the control unit connector C-44 terminal 48 or replace the control unit.	—	Go to <i>Step 8</i>	—
8	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to " <i>Basic Diagnosis Flow.</i> "	Go to <i>Step 8</i>

About the vehicle speed sensor connector terminal 3,
Refer to section *Wiring System in Body and Accessories*.

DTC6 Stop Lamp Switch Open Circuit or Short

Circuit Description

The brake switch is used to indicate brake pedal status. The normally opened brake switch signal voltage circuit is opened.

Brake switch supplies a B+ signal on circuit RED to the control unit when the brakes are applied. The control unit uses this signal to work dive control when the brakes are applied.

Diagnostic Aids

- Inspect the wiring for poor electrical connections at the control unit and brake switch. Look for possible bent, backed out, deformed or damaged terminals. Check for weak terminal tension as well. Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.
- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.
- Check customer driving habits and/or unusual driving conditions (i.e. stop and go, highway).
- Check brake switch for proper mounting and adjustment.

DTC6 Stop Lamp Switch Open Circuit or Short

Step	Action	Value(s)	Yes	No
1	1. With the engine "off", turn the ignition switch "on". If ABS code is set, check applicable fuse. 2. Apply then release the brake pedal. Does the brake lamp come on when the brake pedal is applied and does it come off when the brake pedal is released?	—	Go to <i>Diagnostic Aids</i>	Go to <i>Step 2</i>
2	1. Connect the test light to ground. 2. Back probe ignition feed circuit terminal I-31 terminal 1 at the brake switch. Is the test light "on"?	—	Go to <i>Step 3</i>	Go to <i>Step 4</i>
3	1. Connect the test light to ground. 2. Back probe circuit terminal I-31 terminal 4 at the brake switch. Is the test light "off"?	—	Go to <i>Step 7</i>	Go to <i>Step 5</i>
4	Repair the open in battery feed circuit terminal I-31 terminal 1 to the brake switch. If fuse is open, check circuit terminal I-31 terminal 4 for a short to ground. Is the replacement complete?	—	Go to <i>Step 13</i>	—
5	Disconnect brake switch connector I-31 and ignition switch "on". Is the test light "on"?	—	Go to <i>Step 8</i>	Go to <i>Step 6</i>
6	Check the brake switch short (I-31 terminal 1 and I-31 terminal 4). Was a problem found?	—	Go to <i>Step 9</i>	Go to <i>Step 10</i>
7	Check circuit terminal I-31 terminal 4 for a short to voltage. Ignition switch "on". Is the test light "on"?	—	Go to <i>Step 8</i>	Go to <i>Step 10</i>
8	1. Disconnect the control unit connector C-44. 2. Check circuit terminal I-31 terminal 4 for a short to voltage. Was a problem found?	—	Go to <i>Step 13</i>	Go to <i>Step 10</i>

DTC6 Stop Lamp Switch Open Circuit or Short (Cont'd)

Step	Action	Value(s)	Yes	No
9	Replace the brake switch. Is the replacement complete?	—	Go to <i>Step 13</i>	—
10	1. Turn the ignition "off". 2. Reconnect the control unit connector C-44. Turn the ignition "on". Does the brake lamp come on when the brake pedal is applied and does it come off when the brake pedal is released?	—	Go to <i>Diagnostic Aids</i>	Go to <i>Step 11</i>
11	Check the control unit for faulty or intermittent connections. Was a problem found and corrected?	—	Go to <i>Step 13</i>	Go to <i>Step 12</i>
12	Replace the control unit. Is the replacement complete?	—	Go to <i>Step 13</i>	—
13	1. After the repair is complete, clear the DTC. 2. Conduct a test drive. 3. Review the DTC. Has the last test failed or is the current DTC displayed?	—	Begin diagnosis again Go to <i>Step 1</i>	Go to <i>Repair verified</i>

DTC7 Engine Speed Signal Open Circuit or Short

Circuit Description

PCM (Powertrain Control Module) converts signals from the crankshaft position sensor into the engine speed signals (pulse) and sends these to the control unit and tachometer.

Diagnostic Aids

- Inspect the wiring for poor electrical connections at the control unit connector. Look for possible bent, backed out, deformed, or damaged terminals. Check for weak terminal tension as well.
Also check for a chafed wire that could short to bare metal or other wiring. Inspect for a broken wire inside the insulation.
- When diagnosing for a possible intermittent short or open condition, move the wiring harness while observing test equipment for a change.
- Check harness routing for a potential short to ground in circuit BLK/RED.

DTC7 Engine Speed Signal Open Circuit or Short

Step	Action	Value(s)	Yes	No
1	NOTE: Confirm that DTC P0336 or P0337 does not exist. If either exists, warning lamps, "CHECK ENGINE" and "CHECK TRANS" are turned on. Repair the engine, referring to section 6E <i>Driveability and Emission</i> . 1. Turn on the starter switch. 2. Start the engine. 3. Open the throttle and rev up engine speed. Does the tachometer operate according to engine speed?	—	Go to Step 3	Go to Step 2
2	Repair the tachometer, referring to section 8D <i>Wiring System in Body and Accessories</i> .	—	Go to Step 6	—
3	1. Turn off the starter switch. 2. Check continuity between the control unit connector C-44 terminal 59 and PCM connector E-34 terminal F7. Is there continuity ?	—	Go to Step 4	Go to Step 5
4	Replace the control unit.	—	Go to Step 6	—
5	Repair the circuit.	—	Go to Step 6	—
6	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. 3. Conduct a test drive. Has the last test failed or does the current DTC exist?	—	Begin diagnosis again Go to Step 1	Repair verified

DTC9 Control Unit Abnormality

Replace the control unit.

DTC9-1 Control Unit Blown Fuse for FR Actuator

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the actuator connector C-9. 3. Measure the resistance between the actuator side connector C-9 terminals 1 and 2. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 2</i>	Go to <i>Step 3</i>
2	1. Measure the resistance between the actuator side connector C-9 terminals 3 and 4. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 4</i>	Go to <i>Step 3</i>
3	Replace the actuator FR.	—	Go to <i>Step 7</i>	—
4	1. If all steps are correct, check the continuity between the control unit connector C-46 terminal 1 and connector-terminal C46-4, C46-17, C46-5, C46-18. Is there continuity?	—	Go to <i>Step 5</i>	Go to <i>Step 6</i>
5	Repair the circuit.	—	Go to <i>Step 7</i>	—
6	Replace the control unit.	—	Go to <i>Step 7</i>	—
7	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to <i>“Basic Diagnosis FLOW”</i> .	Go to <i>Step 7</i>

DTC9-2 Control Unit Blown Fuse for FL Actuator

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the actuator connector C-31. 3. Measure the resistance between the actuator side connector C-31 terminals 1 and 2. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 2</i>	Go to <i>Step 3</i>
2	1. Measure the resistance between the actuator side connector C-31 terminals 3 and 4. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 4</i>	Go to <i>Step 3</i>
3	Replace the actuator FL.	—	Go to <i>Step 7</i>	—
4	1. If all steps are correct, check the continuity between the control unit connector C-46 terminal 1 and connector-terminal C46-6, C46-19, C46-7, C46-20. Is there continuity?	—	Begin diagnosis again Go to <i>Step 5</i>	Go to <i>Step 6</i>
5	Repair the circuit.	—	Go to <i>Step 7</i>	—
6	Replace the control unit.	—	Go to <i>Step 7</i>	—
7	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to “ <i>Basic Diagnosis FLOW</i> ”.	Go to <i>Step 7</i>

DTC9-3 Control Unit Blown Fuse for RR Shock Absorber

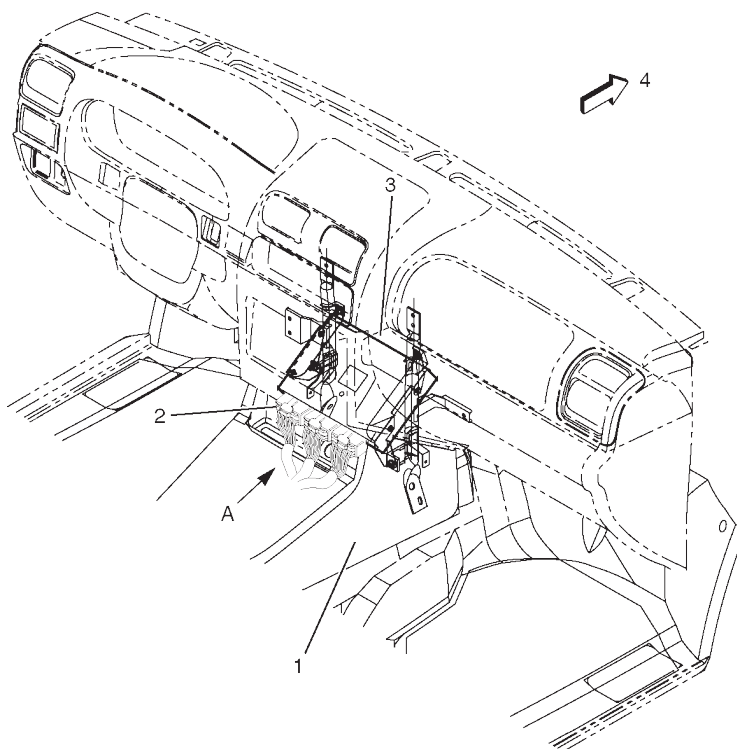
Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the shock absorber connector F-7. 3. Measure the resistance between the shock absorber side connector F-7 terminals 3 and 4. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 2</i>	Go to <i>Step 3</i>
2	1. Measure the resistance between the shock absorber side connector F-7 terminals 7 and 8. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 4</i>	Go to <i>Step 3</i>
3	Replace the shock absorber RR.	—	Go to <i>Step 7</i>	—
4	1. If all steps are correct, check the continuity between the control unit connector C-46 terminal 1 and connector-terminal C46-8, C46-21, C46-9, C46-22. Is there continuity?	—	Begin diagnosis again Go to <i>Step 5</i>	Go to <i>Step 6</i>
5	Repair the circuit.	—	Go to <i>Step 7</i>	—
6	Replace the control unit.	—	Go to <i>Step 7</i>	—
7	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to “ <i>Basic Diagnosis FLOW</i> ”.	Go to <i>Step 7</i>

DTC9-4 Control Unit Blown Fuse for RL Shock Absorber

Step	Action	Value(s)	Yes	No
1	1. Turn off the starter switch. 2. Disconnect the shock absorber connector F-8. 3. Measure the resistance between the shock absorber side connector F-8 terminals 3 and 4. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 2</i>	Go to <i>Step 3</i>
2	1. Measure the resistance between the shock absorber side connector F-8 terminals 7 and 8. Is the resistance within the specified value?	6.4– 7.2Ω	Go to <i>Step 4</i>	Go to <i>Step 3</i>
3	Replace the shock absorber RL.	—	Go to <i>Step 7</i>	—
4	1. If all steps are correct, check the continuity between the control unit connector C-46 terminal 1 and connector-terminal C46-10, C46-23, C46-11, C46-24. Is there continuity?	—	Begin diagnosis again Go to <i>Step 5</i>	Go to <i>Step 6</i>
5	Repair the circuit.	—	Go to <i>Step 7</i>	—
6	Replace the control unit.	—	Go to <i>Step 7</i>	—
7	1. Reconnect all components, ensure all components are properly mounted. 2. Clear the DTC. Was this step finished?	—	Go to “ <i>Basic Diagnosis FLOW</i> ”.	Go to <i>Step 7</i>

Control Unit

Control Unit and Associated Parts



828R200001

Legend

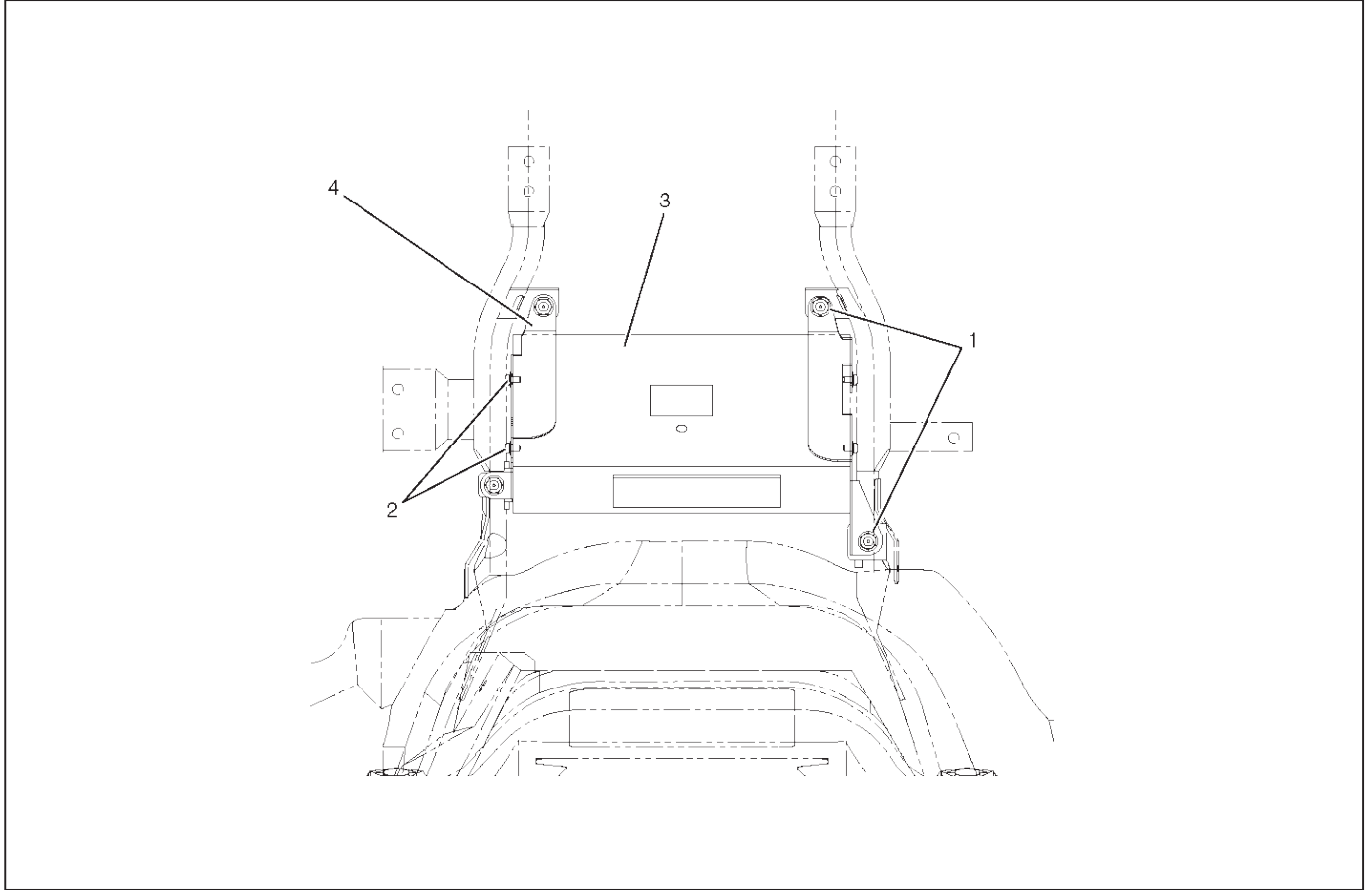
- (1) Front Console
- (2) Connector

- (3) Control Unit
- (4) Front

Removal

1. Disconnect the battery ground cable.
2. Remove the front console assembly.
Refer to *Consoles in Body and Accessories* section.
3. Disconnect the connector from the control unit.

View A



828RY00002

Legend

- (1) Nut
- (2) Screw

- (3) Control Unit
- (4) Bracket

4. Remove 4 nuts.
5. Disconnect the control unit with brackets.
6. Remove 4 screws.
7. Disconnect the control unit from brackets.

Installation

To install, follow the removal steps in the reverse order, noting the following points.

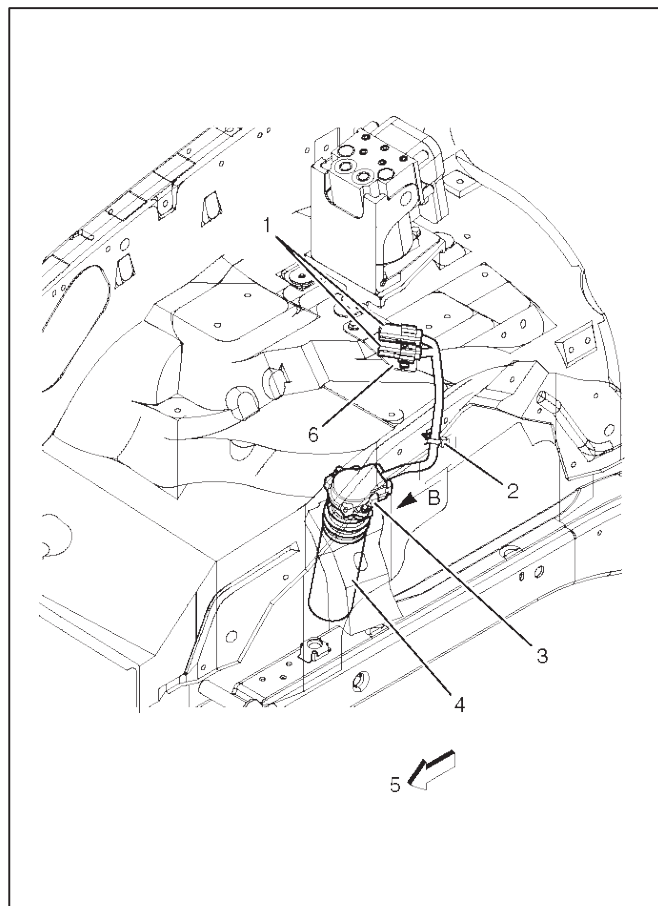
Torque:

Nut (1) 8N·m (69 lb in)

Front Actuator

Front Actuator and Associated Parts

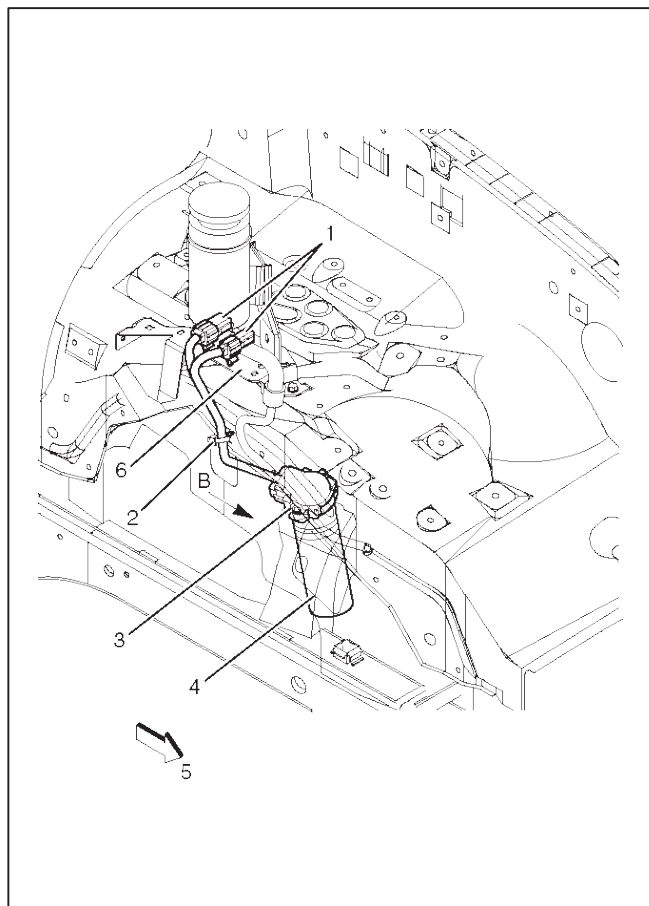
RH



Legend

- (1) Connector
- (2) Clip
- (3) Actuator
- (4) Shock Absorber
- (5) Front
- (6) Bracket

LH



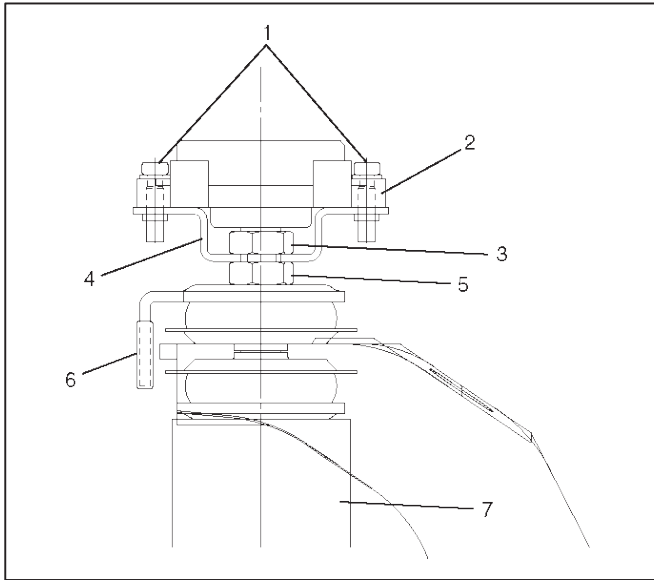
Legend

- (1) Connector
- (2) Clip
- (3) Actuator
- (4) Shock Absorber
- (5) Front
- (6) Bracket

Removal

1. Disconnect the battery ground cable.
2. Disconnect the connector from the harness and remove the connector from the bracket.
3. Remove the clip.

View B



Legend

- (1) Screw
- (2) Actuator
- (3) Nut
- (4) Bracket
- (5) Nut
- (6) Washer
- (7) Shock Absorber

1. Remove 2 screws.
 2. Remove the actuator.
 3. Remove the nut (3).
 4. Disconnect bracket.
 5. Remove the nut (5).
 6. Disconnect the washer.
 7. Remove the shock absorber.
- Refer to *Shock Absorber in this section*.

Inspection and Repair

Refer to *Shock Absorber in this section*.

Installation

1. Install the shock absorber.
Refer to *Shock Absorber in this section*.
2. Install the washer and nut (5), then tighten it to the specified torque.
Torque: 15 N·m (11 lb ft)
3. Install the bracket and nut (3), then tighten it to the specified torque.
Torque: 39 N·m (29 lb ft)

NOTE: Fix the lower nut with wrench not to turn and tighten upper nut.

4. Fit the top of the shock absorber rod in the connection part of the actuator.

NOTE:

The mating section is width fitting across flats.

If these normally fit, the distance between the actuator lower face and the bracket upper face is about 1 mm.

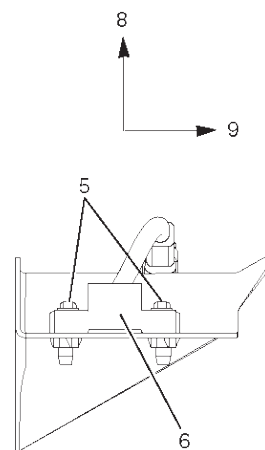
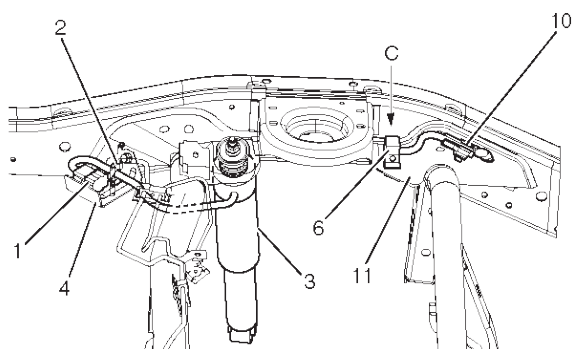
5. Install 2 screws then tighten it to the specified torque.
3 N·m (26 lb in)
6. Connect the connector to the harness and insert the connector to the bracket.
7. Connect the actuator harness with the clip.
8. Connect the battery ground cable.

Rear Shock Absorber

Rear Shock Absorber and Associated Parts

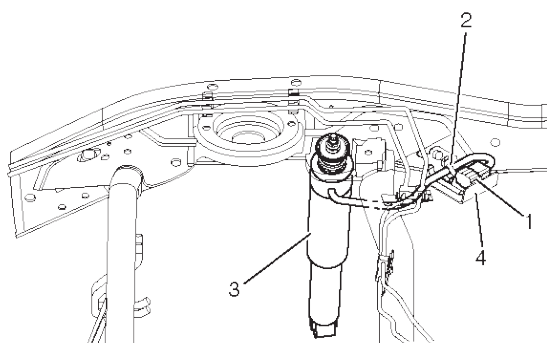
LH

LH



Detail C

RH



Legend

- (1) Connector
- (2) Clip
- (3) Rear Shock Absorber
- (4) Bracket
- (5) Bolt

- (6) G-Sensor
- (7) Front
- (8) Upper
- (9) Right
- (10) Connector
- (11) Gusset

Removal

1. Disconnect the battery ground cable.
2. Disconnect the connector (1) from the harness and remove the connector (1) from the bracket (4).
3. Remove the clip (2).
4. Remove the rear shock absorber (3).
Refer to *Shock Absorber in this section*.
5. Disconnect the connector (10) from the harness and remove the connector (10) from the gusset (11).
6. Remove the 2 bolts (5).
7. Disconnect the G-sensor (6).

Inspection and Repair

Refer to Shock Absorber in this section.

Installation

1. Set the G-sensor on the gusset (11).
2. Install 2 bolts (5) then tighten it to the specified torque.
Torque: 7 N·m (61 lb in)
3. Connect the connector (10) to the harness and insert the connector (10) to the gusset (11).
4. Install the rear shock absorber (3).
Refer to *Shock Absorber in this section*.
5. Connect the connector (1) to the harness and insert the connector (1) to the bracket (4).
6. Insert the clip (2) to the bracket (4).
7. Connect the battery ground cable.