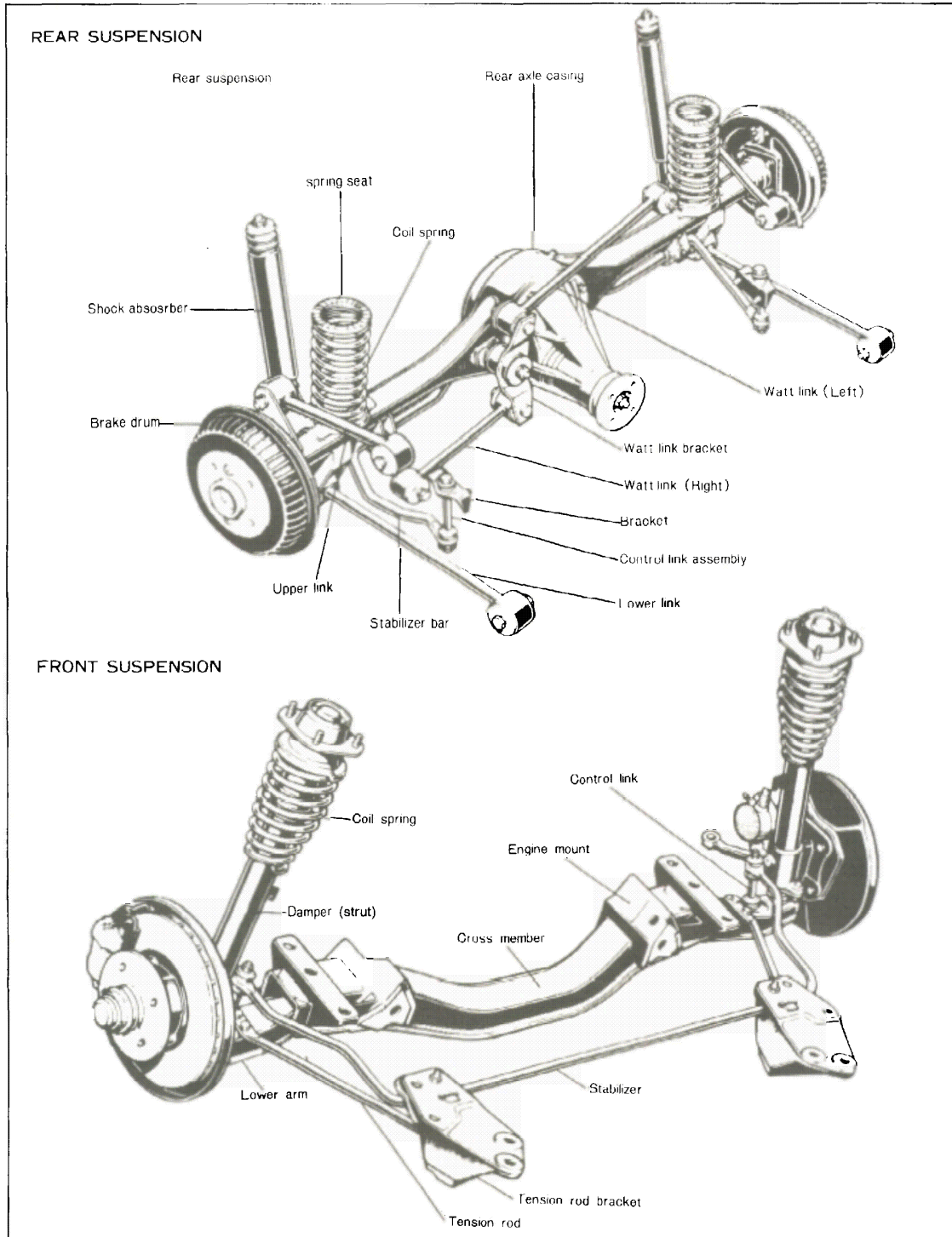


SUSPENSION

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OUTLINE

STRUCTURAL VIEW



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SPECIFICATIONS

Front Suspension

Suspension type		Strut type	
Spring type		Coil spring	
Spring dimensions	Wire dia.	mm (in)	12.0 (0.47)
	Coil dia.	mm (in)	123 (4.84) and 65 (2.56)
	Free length	mm (in)	Left hand side 327 (12.87) Right hand side 325 (12.80)
	Coil number		4.8
Shock absorber type		Cylindrical double-acting type	
Stabilizer type		Torsion bar type	

Rear Suspension

Suspension type		Strut type	
Spring type		Coil spring	
Spring dimensions	Wire dia.	mm (in)	10.0 (0.39)
	Coil dia.	mm (in)	105 (4.13)
	Free length	mm (in)	323.5 (12.74)
	Coil number		6.05
Shock absorber type		Cylindrical double-acting type	
Stabilizer type		Torsion bar type	

47U13X-053

TROUBLESHOOTING GUIDE

Problem	Possible Cause	Remedy	Page
Body "rolls"	Weakened stabilizer	Replace	13-11
	Worn or deteriorated stabilizer and suspension arm installation bushing	Replace	
	Shock absorber malfunction	Replace	
Poor riding comfort	Weakened coil spring	Replace	13-5
	Malfunction of shock absorbers	Replace	
Body tilt	Worn coil spring	Replace	13-8
	Worn stabilizer and suspension arm installation bushing	Replace	

13 TROUBLESHOOTING GUIDE

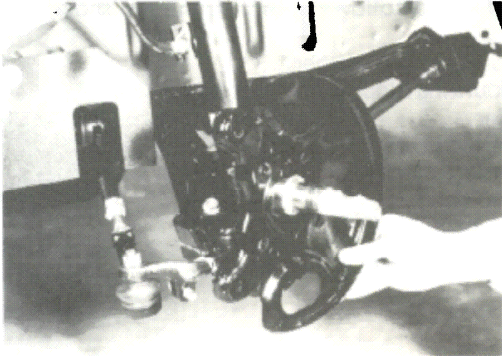
Problem	Possible Cause	Remedy	Page
Abnormal noise from suspension system	Poor lubrication or wear of lower arm ball joint Looseness of peripheral connections Malfunction of shock absorbers Worn or deteriorated stabilizer and suspension arm installation bushing Wear or damage of front strut bearing	Replace Tighten Replace Replace Replace	13-5
"Heavy" steering wheel operation	Lower arm ball joint stuck Ball joints stuck or damaged Ball joints insufficiently lubricated; foreign material; abnormal wear Improperly adjusted wheel alignment (toe-in) Worn or damaged steering gear bushing Improperly adjusted pinion pre-load Damaged steering gear Insufficient grease on steering gear Malfunction of steering shaft universal joint Low tire pressure Abnormal tire wear	Replace Replace Lubricate or replace Adjust Replace Adjust Replace Add grease Repair or replace Adjust Replace	10A-13
Steering wheel pulls to one side	Weakened coil spring Lower arm and stabilizer installation bushing worn or damaged Deformed knuckle arm Lower arm deformed or loose Improperly adjusted wheel alignment (toe-in) Deformed steering linkage Deformed wheel bearing Uneven tire pressure Abnormal tire wear (left and right are worn differently) Brakes dragging	Replace Replace Replace Replace or tighten Adjust Replace Replace Adjust Replace Repair	
Steering wheel vibrates	Suspension arm and stabilizer installation bushing worn or deteriorated Worn lower arm ball joint Shock absorber malfunction or looseness Improperly adjusted wheel alignment (toe-in) Deformed linkage Worn or damaged joints Improperly adjusted pinion pre-load Worn steering gear bushing Loose steering shaft universal joint Malfunction of wheel bearing Abnormal tire wear Tire tread depth different (left/right) Deformed or unbalanced wheel	Replace Replace Replace or tighten Adjust Replace Replace Adjust Replace Replace Replace Replace Replace Replace or repair	13-16 10A-13
Excessive steering wheel play	Worn or damaged lower arm installation bushing Improperly adjusted pinion pre-load Worn or damaged joints Loose steering shaft universal joint	Replace Adjust Replace Replace	
General instability	Weakened coil springs Malfunction of shock absorbers Wear or deterioration of lower arm or stabilizer installation bushing Improperly adjusted wheel alignment Deformed linkage Worn or damaged joints Improperly adjusted pinion pre-load Loose steering shaft universal joint Incorrect tire pressure Deformed or unbalanced wheel Malfunction of wheel bearing	Replace Replace Replace Adjust Replace Replace Adjust Replace Adjust Repair or replace Replace	12-4, 5

47U13X-052

FRONT SHOCK ABSORBERS

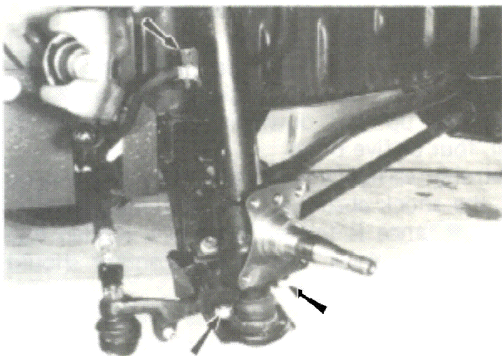
REMOVING FRONT SHOCK ABSORBERS

1. Raise the front end of the vehicle and support it with stands.
2. Remove the wheel hub assembly from the front shock absorber.
3. Remove the backing plate.



57U13X-001

4. Remove the flexible hose attaching clip.
5. Remove the bolts attaching the knuckle arm to absorber.

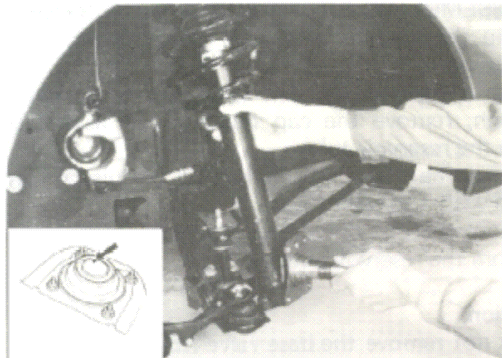


47U13X-002

6. Remove the absorber mounting block attaching nuts and remove the shock absorber assembly.

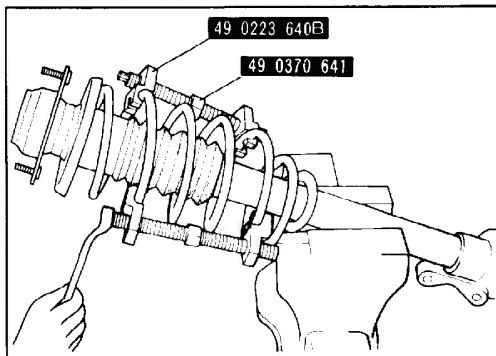
Caution

Before loosening the attaching nuts, note the triangle marked position.



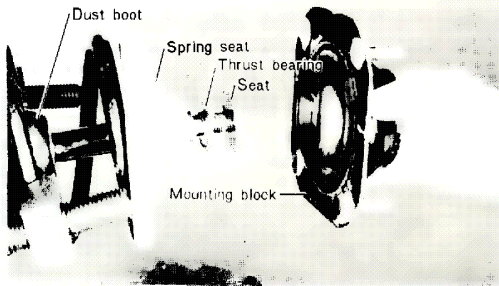
47U13X-003

7. Hold the shock absorber mounting block in a vise and loosen the lock nut a few turns. **Do not remove it.**
8. Compress the coil spring using the **coil spring compressor** (49 0223 640B and 49 0370 641).



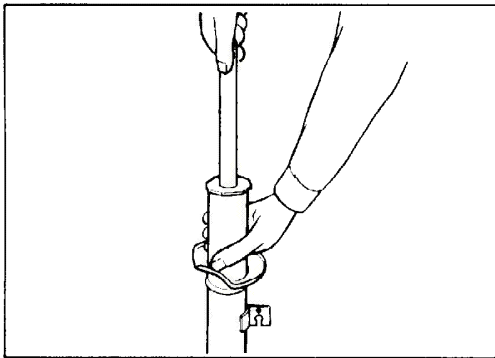
47U13X-004

13 FRONT SHOCK ABSORBERS



47U13X-005

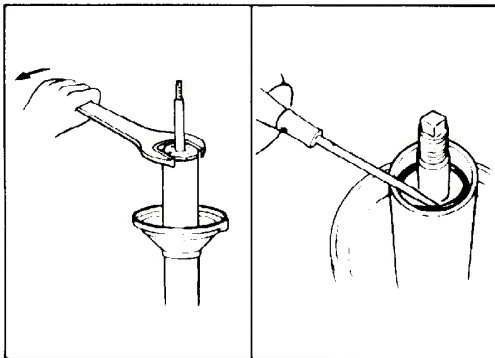
9. Remove the following parts from the shock absorber.
 - 1) Lock nut and washer
 - 2) Mounting block and adjusting plat
 - 3) Seat
 - 4) Thrust bearing
 - 5) Spring upper seat
 - 6) Coil spring
 - 7) Dust boot
 - 8) Bound bumper



47U13X-006

INSPECTION BEFORE DISSASSEMBLING FRONT SHOCK ABSORBERS

1. To test the shock absorber, hold the shock absorber in an upright position and work the piston rod up and down in its full length of travel, four or five times.
If a strong resistance is felt due to hydraulic pressure, the shock absorber is functioning properly. If no resistance is felt or there is a sudden free movement in travel, the shock absorber should be repaired.
2. If excessive amount of fluid is evident on the exterior of the shock absorber, the shock absorber should be repaired.



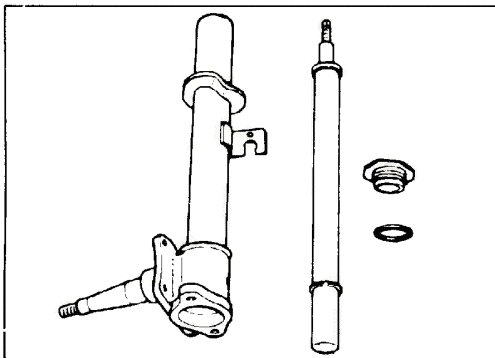
47U13X-007

DISSASSEMBLING FRONT SHOCK ABSORBERS

1. Clamp the reservoir tube in a vise equipped with soft jaws.
2. Using a spanner 52 mm (2.05 in) or monkey wrench, remove the cap nut and seal assembly from the reservoir tube.
3. Remove the "O" ring installed on the piston rod guide with a suitable tool.
4. Pull out the piston rod and pressure tube assembly from the reservoir tube.

Caution

Does not remove the base valve from the pressure tube and piston from the piston rod.

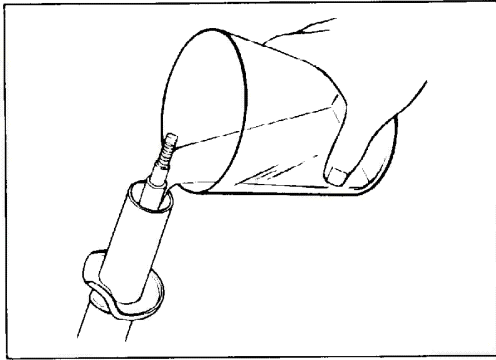


47U13X-008

INSPECTING FRONT SHOCK ABSORBERS

Inspect the disassembled parts, and repair or replace and part found defective.

1. Inspect the reservoir tube for deformation, crack or damage.
2. Inspect the mounting block for crack, deterioration or any damage.
3. Inspect the mounting bearing for slackness or abnormal noise by rotating it.
4. Inspect the coil spring for signs of fatigue, crack or any damage.
5. Inspect the cap nut for damaged threads, and inspect the oil seal lip for wear or damage.



47U13X-009

ASSEMBLING FRONT SHOCK ABSORBERS

Assemble the front shock absorber in the reverse order of disassembly, **noting** the following points. When installing the cartridge type damper, the procedures from 1 to 5 are not required.

1. Fill the reservoir tube with correct amount of shock absorber fluid. The capacity of fluid should be **225 cc (13.7 cu-in)**.

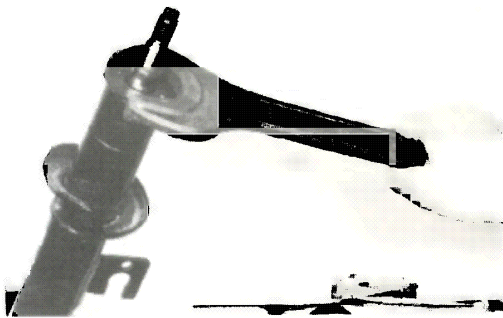


47U13X-010

2. Install the **pilot** (49 0259 590) over the threads of the piston rod.
3. Apply grease to the lip of the oil seal, and insert the cap nut carefully through the pilot and onto the piston rod.

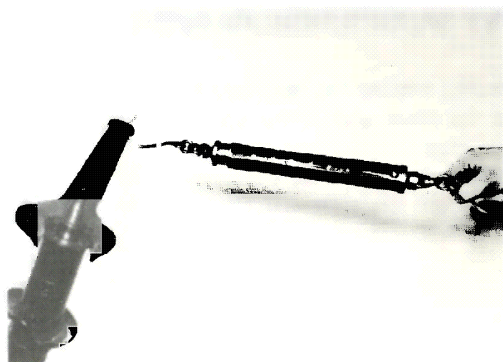
Caution

The cap nut and oil seal assembly should be replaced with new ones.



47U13X-011

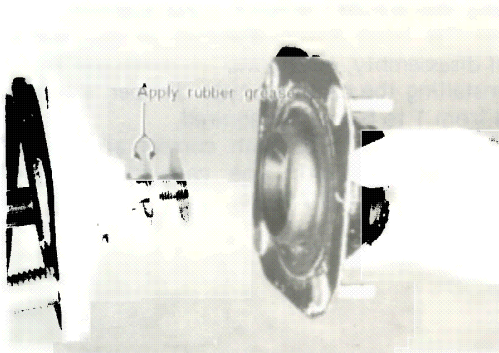
4. Tighten the cap nut temporarily, ensuring that the piston rod is extended to its maximum length, with the **spanner or monkey wrench**.



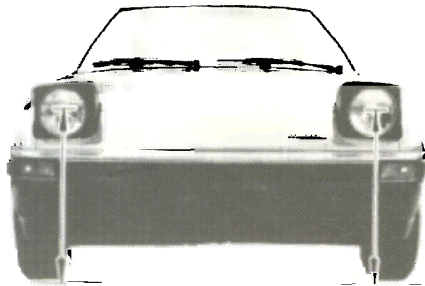
47U13X-012

5. Fully lower the piston rod and tighten the cap nut to a torque of **50 ~ 60 N-m (36 ~ 43 ft-lb)**.
6. When assembling the cartridge type damper, tighten the cap nut to **80 ~ 150 N-m (58 ~ 108 ft-lb)**.

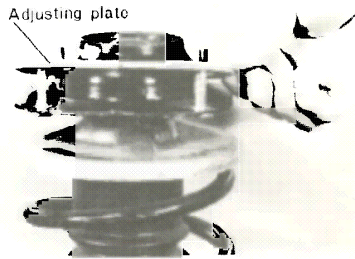
13 FRONT SUSPENSION ARMS



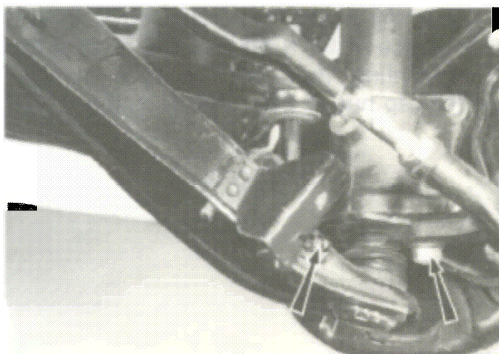
47U13X-013



47U13X-014



47U13X-015



47U13X-016

INSTALLING FRONT SHOCK ABSORBERS

Install the shock absorber in the reverse order of removing, **noting** the following points.

1. When installing the thrust bearing, apply a thin coat of rubber grease to the bearing on both sides.
2. When installing the mounting block to the vehicle, place the triangle mark to its original position. If the mounting block is replaced, adjust the wheel alignment as described on Page 10A-13.
3. The lower end of the coil spring should be butt against the formed shoulder in the spring seat.

4. After installing the front shock absorber to the vehicle, measure the distance between level ground and head light on both sides. The difference between each should not exceed **15 mm (0.59 in)**.

If it is not within the specification, adjust the difference by inserting the adjusting plate between the mounting block and suspension tower.

Caution

Do not use more than two adjusting plates at one side.

5. Adjust the front wheel bearing preload to specified value.

Specified tightening torques:

Piston rod to mounting block

65 ~ 82 N-m (47 ~ 59 ft-lb)

Mounting block to suspension tower

23 ~ 30 N-m (17 ~ 22 ft-lb)

Steering knuckle to caliper mounting adaptor

35 ~ 45 N-m (25 ~ 33 ft-lb)

Caliper mounting adaptor to caliper bracket

45 ~ 55 N-m (33 ~ 40 ft-lb)

Knuckle arm to shock absorber

95 ~ 119 N-m (43 ~ 51 ft-lb)

FRONT SUSPENSION ARM

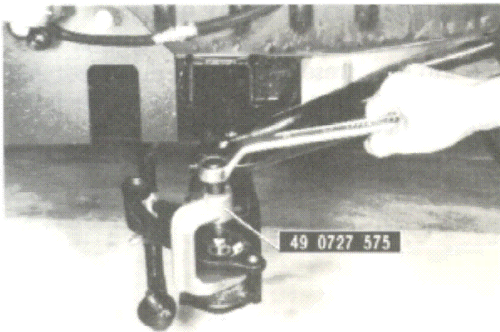
REMOVING FRONT SUSPENSION ARMS

1. Raise the front end of the vehicle and support it with stands.
2. Remove the front wheel.
3. Remove the knuckle arm attaching bolts to the steering knuckle.



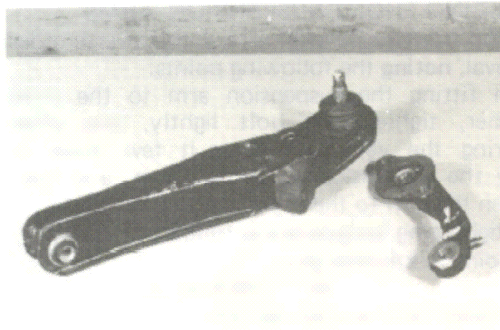
47U13X-017

4. Disconnect the tie rod end, using the **puller** (49 0118 850C).
5. Disconnect the stabilizer bar.
6. Disconnect the tension rod.



47U13X-018

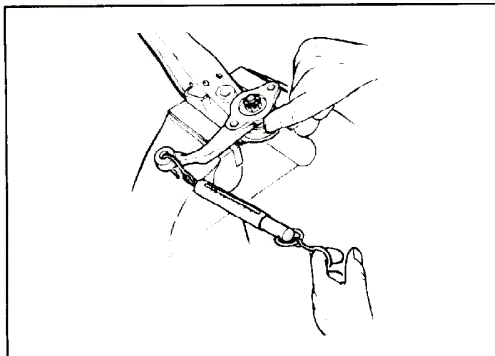
7. Disconnect the knuckle arm, using the **puller** (49 0727 575).
8. Remove the suspension arm attaching bolt and remove the suspension arm.



47U13X-019

INSPECTING FRONT SUSPENSION ARMS

1. Inspect the suspension arm and arm bushing for deformation or any damage.
2. Inspect the ball joint dust boot for wear, flaw or any damage.
3. Inspect the steering knuckle arm for cracks and deformation.



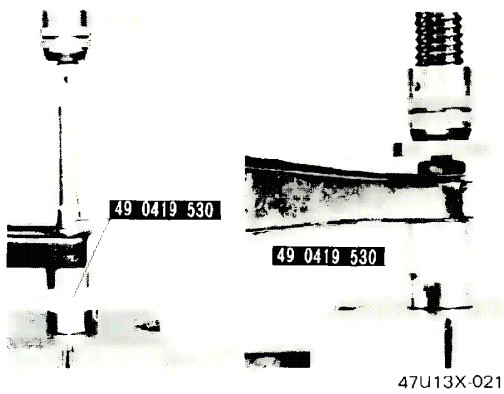
47U13X-020

4. Hold the suspension arm in a vise and attach the steering knuckle arm to the ball joint.
5. Rotate the ball stud for few turns to allow the stud to snug down.
6. Hook the spring scale in the hole of the knuckle arm for connecting the tie-rod and hold the knuckle arm with a finger.
7. Pull the spring scale and take a reading. If the reading is **lower than 0.4 kg (14 oz)**, replace the whole assembly.

Caution

The suspension arm and ball joint cannot be disassembled from each other. If either is defective, replace the suspension arm and ball joint as an assembly.

13 FRONT SUSPENSION ARMS



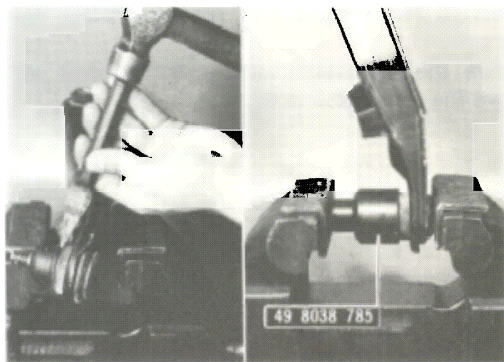
47U13X-021

REPLACING FRONT SUSPENSION ARM BUSHING

1. Press out the bushing toward the front using the **puller and installer** (49 0419 530).
2. Press in the new bushing into the suspension arm from front side, using the **puller and installer** (49 0419 530).

Caution

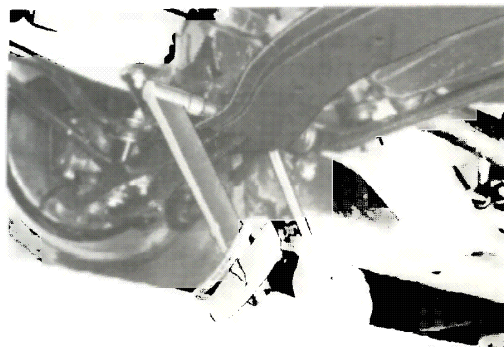
When pressing in the bushing, there must be no lubricant on the bushing or suspension arm bore.



47U13X-022

REPLACING BALL JOINT DUST BOOT

1. Remove the dust boot, using a suitable tool.
2. Fill the lithium grease to the new dust boot and press in the dust boot to the ball joint, using the **dust boot installer** (49 8038 785).



47U13X-023

INSTALLING FRONT SUSPENSION ARMS

Install the front suspension arm in the reverse order of removal, **noting** the following points.

1. When fitting the suspension arm to the cross member, tighten the bolt lightly, and after lowering the vehicle, bounce it few times to allow the suspension to settle down, and then tighten the bolt to the specified torque.
2. **The tightening torques are as follows:**

Ball joint to knuckle arm

95 ~ 119 N-m (43 ~ 51 ft-lb)

Suspension arm to cross member

40 ~ 55 N-m (29 ~ 40 ft-lb)

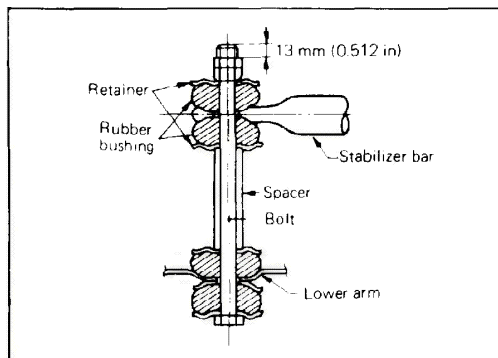
Tension rod to suspension arm

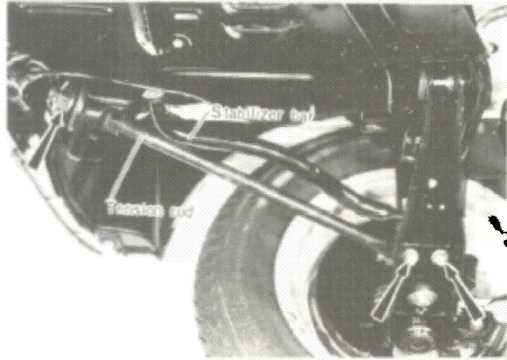
55 ~ 69 N-m (40 ~ 50 ft-lb)

Knuckle arm to shock absorber

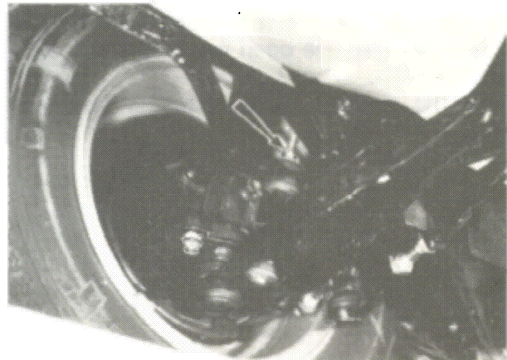
95 ~ 119 N-m (43 ~ 51 ft-lb)

3. When installing the stabilizer bar to the suspension arm, tighten the nut as specified in the illustration.

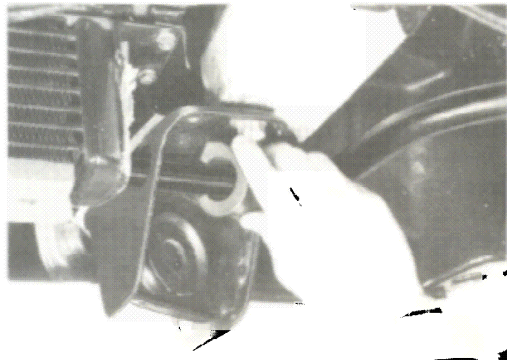




47U13X-024



47U13X-025



47U13X-026

TENSION ROD AND STABILIZER BAR

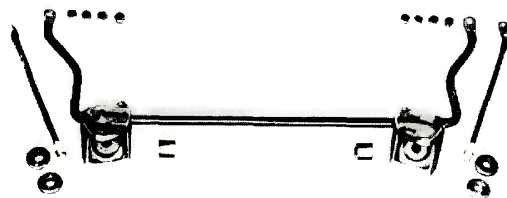
REMOVING TENSION ROD AND STABILIZER BAR

1. Raise the front end of the vehicle and support it with stands.
2. Remove the engine under cover.
3. Remove the tension rod attaching nuts.
4. Remove the tension rod.
5. Disconnect both ends of the stabilizer bar from the right and left control link.

6. Remove the stabilizer bar support plates and rubber bushings.
7. Remove the right and left brackets mounting the tension rod and stabilizer bar, together with the stabilizer bar.

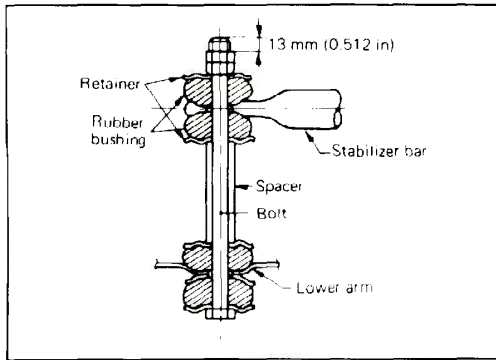
INSPECTING TENSION ROD AND STABILIZER BAR

Inspect the removed parts for cracks, deformation, damage or weakness.
If defective, replace the parts as necessary.

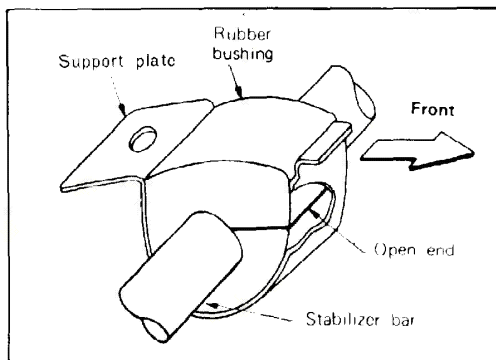


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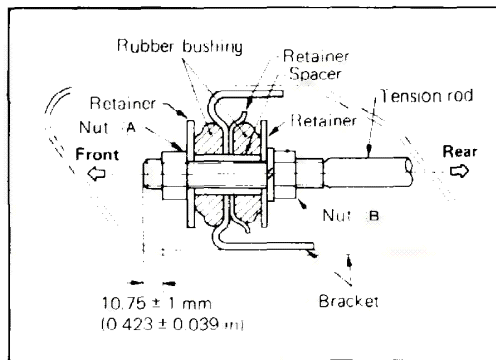
13 TENSION ROD AND STABILIZER BAR



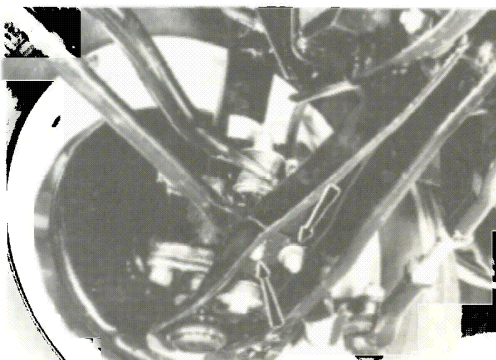
47U13X-028



47U13X-029



47U13X-030



47U13X-031

INSTALLING TENSION ROD AND STABILIZER BAR

Install the tension rod and stabilizer bar in the reverse order of removing, **noting** the following points.

1. Install the brackets to the frame together with the stabilizer bar and tighten the bracket attaching bolts.
2. Install the both ends of the stabilizer bar to the control link and tighten the nuts to the specification as shown in figure.
3. Install the stabilizer rubber bushing with the support plate, so that the open end of the bushing is toward the front.
Tighten the support plate attaching bolt temporarily.

4. Install the front end of the tension rod to the bracket and tighten the nut (A) to the specification as shown in figure.

Then, tighten the nut (B) to the specified torque. When installing the rubber bushing on the tension rod, face the flat surface of the bushing toward the bracket.

Tightening torque of nut (B):

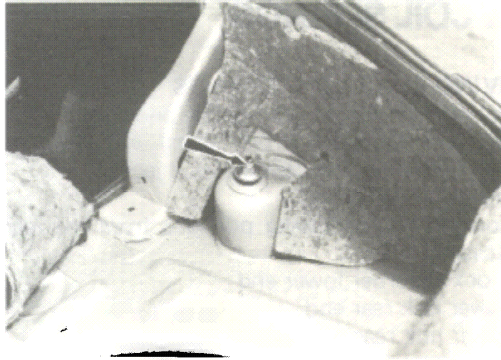
110 ~ 150 N-m (80 ~ 108 ft-lb)

5. Install the rear end of the tension rod to the suspension arm and tighten the nuts to the specification.

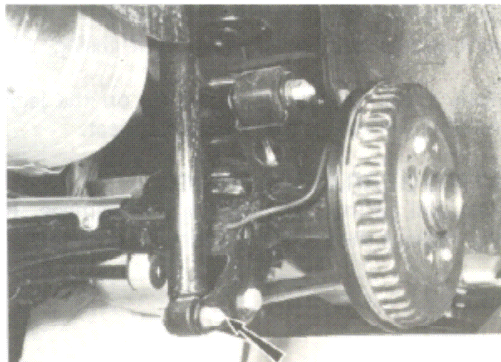
Tightening torque: 55 ~ 69 N-m (40 ~ 50 ft-lb)

6. Lower the vehicle and bounce it few times. Then, finally tighten the support plate of the stabilizer bar.

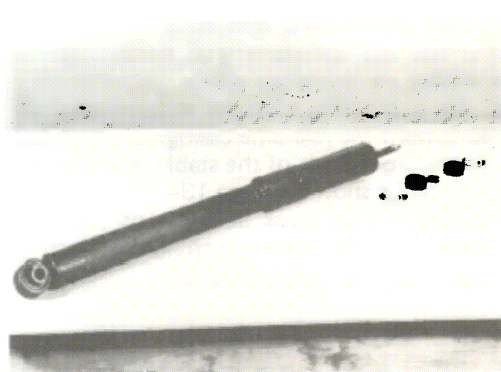
Tightening torque: 38 ~ 47 N-m (27 ~ 34 ft-lb)



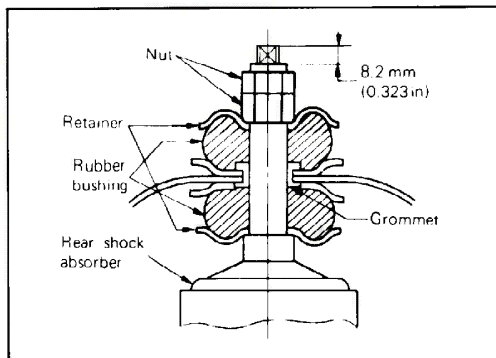
47U13X-032



47U13X-033



47U13X-034



47U13X 035

REAR SHOCK ABSORBERS

REMOVING REAR SHOCK ABSORBERS

1. Raise the rear end of the vehicle and support the lower link bracket (front side) with stands.
2. Remove the rear wheel.
3. Remove the side trim in the luggage compartment and disconnect the shock absorber upper end.
4. Remove the shock absorber lower end and take out the shock absorber.

INSPECTING REAR SHOCK ABSORBERS

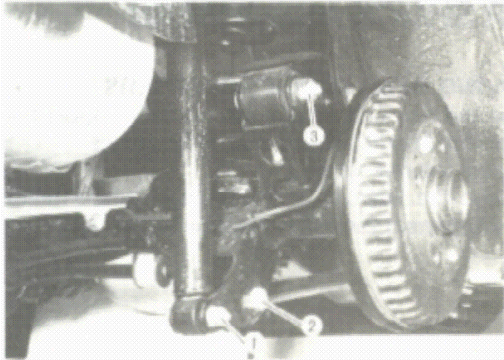
Inspect the shock absorber for function, noise, fluid leakage, and bushing wear. Replace the shock absorber if anything is found defective.

INSTALLING REAR SHOCK ABSORBERS

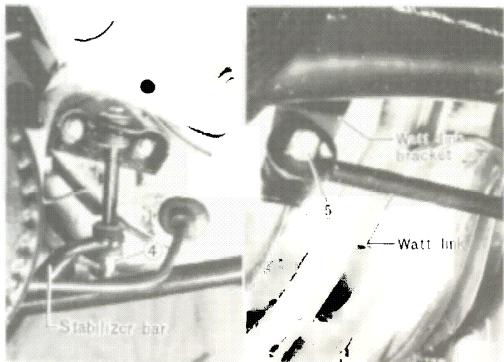
Install the rear shock absorber in the reverse order of removal.

Cautions

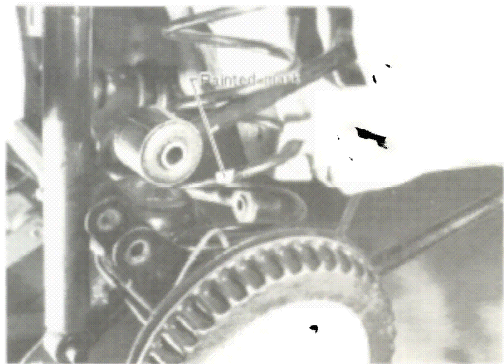
- a) Tighten the shock absorber lower end to 65 ~ 82 N·m (47 ~ 59 ft-lb).
- b) Tighten the shock absorber upper end to the specification as shown in figure.
- c) When installing the shock absorber on left hand side, install the lower side attaching bolt with its head positioned toward the inside.



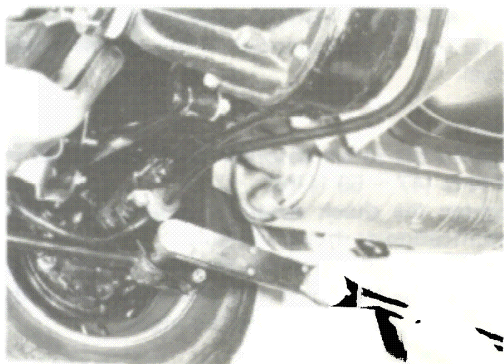
47U13X-036



47U13X-037



47U13X-038



47U13X-039

REAR COIL SPRINGS

REMOVING REAR COIL SPRINGS

1. Raise the rear end of the vehicle and support the lower link brackets (front sides) with stands. Support the rear axle casing with a jack.
2. Remove the rear wheel.
3. Disconnect the following portions from the rear axle casing.
 - 1) Shock absorber lower end
 - 2) Lower link rear end
 - 3) Upper link rear end
 - 4) Stabilizer bar front ends (if equipped)
 - 5) Right and left watt links at rear axle casing
4. Carefully lower the rear axle casing on the jack and remove the coil spring and rubber seat.

INSPECTING REAR COIL SPRINGS

Check the coil spring for crack or any damage. If necessary, replace the coil spring with a new one.

INSTALLING REAR COIL SPRINGS

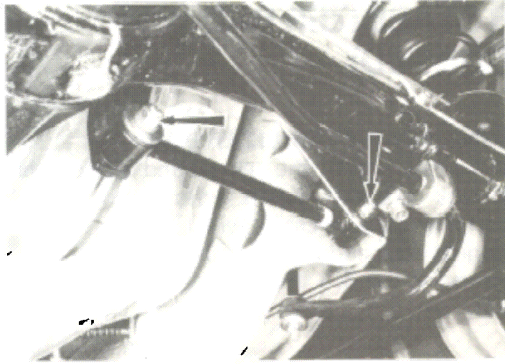
Install the rear coil springs in the reverse order of removal, **noting** the following points.

1. Install the coil spring with the painted mark positioned toward the rear axle casing.
2. Tighten the front ends of the stabilizer bar to the specifications as shown in Page 13-12.
3. When installing the shock absorber on left hand side, install the lower side attaching bolt with its head positioned toward the inside.
4. When installing the upper link, lower link, rear shock absorbers lower end and watt links, tighten the bolts and nuts temporarily, and after lowering the vehicle, tighten them to specified torque.

Upper and lower links to bracket tightening torque: 77 ~ 105 N-m (56 ~ 65 ft-lb)

Watt link to bracket on rear axle casing tightening torque: 65 ~ 82 N-m (47 ~ 59 ft-lb)

Rear shock absorber lower end to bracket tightening torque: 65 ~ 82 N-m (47 ~ 59 ft-lb)



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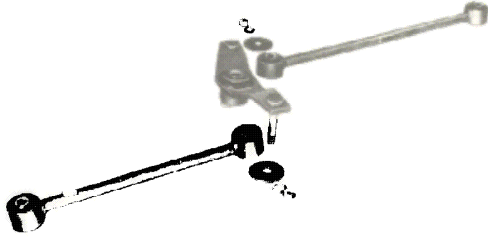
WATT LINK

REMOVING WATT LINK

1. Raise the rear end of the vehicle and support the lower link brackets (front sides) with stands. Support the rear axle casing with a jack.
2. Disconnect the right watt link from the body frame.
3. Disconnect the left watt link from the body frame.
4. Remove the watt link bracket attaching nut. Then remove the bracket together with both links.
5. Remove the each link from the bracket.

INSPECTING WATT LINK

Inspect the removed parts for the cracks, deformation, or any damage, and replace if defective.



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INSTALLING WATT LINK

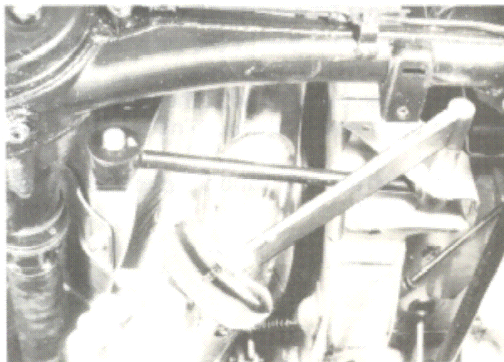
Install the watt links and bracket in the reverse order of removal, **noting** the following points.

1. Install each watt link with the painted mark positioned toward the front side and outside.
2. When installing the removed parts, tighten them temporarily, and after lowering the vehicle, tighten them to the specified torque.

Watt link to bracket on body frame tightening torque: 65 ~ 82 N-m (47 ~ 59 ft-lb)

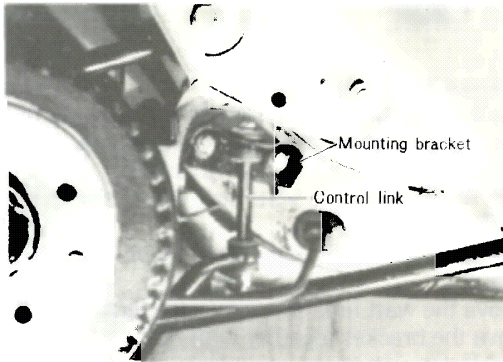
Watt link to bracket on rear axle casing tightening torque: 65 ~ 82 N-m (47 ~ 59 ft-lb)

Watt link bracket to rear axle casing tightening torque: 77 ~ 105 N-m (56 ~ 76 ft-lb)

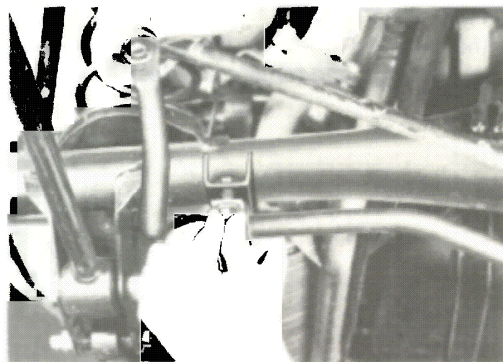


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13 REAR STABILIZER BAR



47U13X-044



47U13X-045

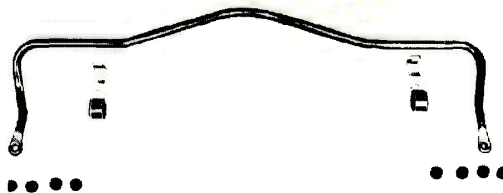
REAR STABILIZER BAR (IF EQUIPPED)

REMOVING REAR STABILIZER BAR

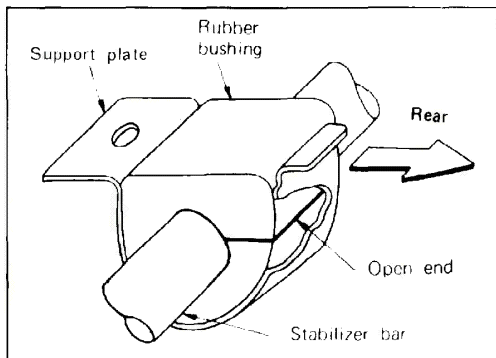
1. Raise the rear end of the vehicle and support the lower link brackets (front sides) with stands. Support the rear axle casing with a jack.
2. Disconnect both ends of the stabilizer bar.
3. If necessary, remove the stabilizer bar mounting bracket.
4. Remove the stabilizer bar support plates and rubber bushings.
5. Remove the stabilizer bar.

INSPECTING REAR STABILIZER BAR

Inspect the removed parts for crack, deformation or any damage, and replace if defective.



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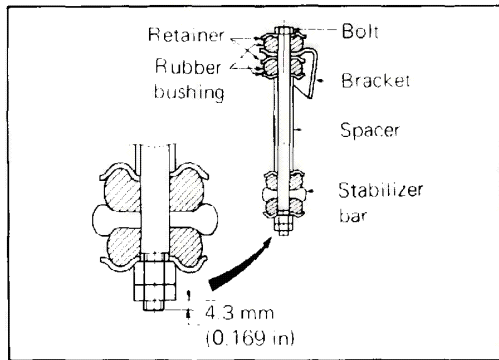


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INSTALLING REAR STABILIZER BAR

Install the rear stabilizer bar in the reverse order of removal, **noting** the following points.

1. Install the rubber bushing with the support plate so that the open end of the bushing is toward the rear.
2. Temporarily tighten the support plate attaching bolt.

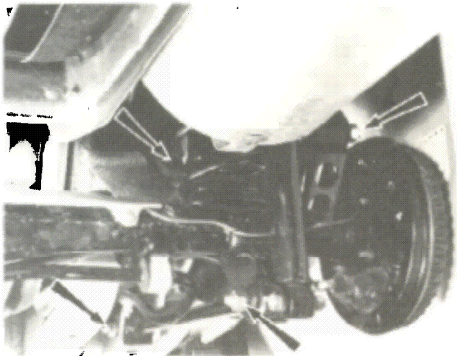


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3. Tighten both ends of the stabilizer bar to the stabilizer bar bracket as shown in figure.
4. Lower the vehicle and tighten the stabilizer bar support plate to specification.

Support plate to rear axle casing tightening torques: 32 ~ 47 N-m (23 ~ 34 ft-lb)

Stabilizer bar mounting bracket to body frame tightening torques: 38 ~ 53 N-m (27 ~ 38 ft-lb)

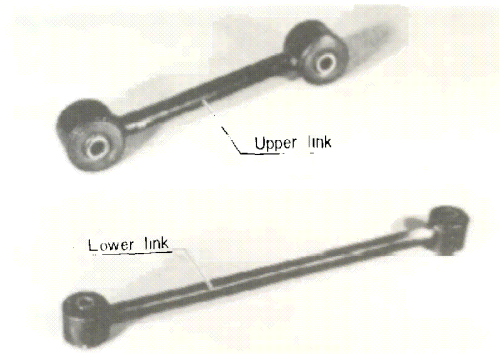


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UPPER AND LOWER LINKS

REMOVING UPPER AND LOWER LINKS

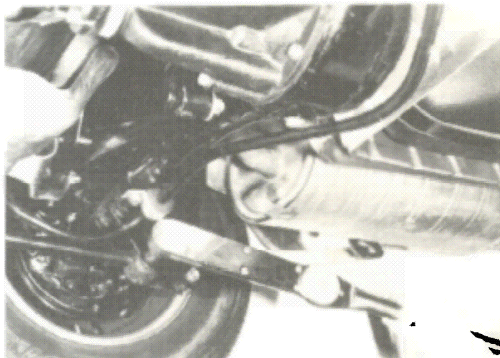
1. Raise the rear end of the vehicle and support the lower link brackets (front side) with stands. Support the rear axle casing with a jack.
2. Remove the rear wheel.
3. Remove the link attaching bolts and nuts, and remove the upper and lower links.



47U13X-050

INSPECTING UPPER AND LOWER LINKS

Inspect the upper and lower links for cracks, deformation or any damage, and replace if defective.



47U13X-051

INSTALLING UPPER AND LOWER LINKS

Install the upper and lower links in the reverse order of removal, **noting** the following points.

1. When connecting the upper link rear end to the bracket, install the mounting bolt with its head positioned toward the inside.
2. When installing the links, tighten the link attaching bolts and nuts temporarily, and after lowering the vehicle, tighten them to **77 ~ 105 N-m (56 ~ 76 ft-lb)**.