

Chapter 10 Suspension and steering

Contents

Adjustable suspension (turbo models) — general information	20	Rear stabilizer bar — removal and installation	7
Balljoint and transverse link — removal and installation	6	Steering lock — removal and installation	13
Front stabilizer bar — removal and installation	4	Steering system — general information	11
Front spring and strut components — removal and installation	3	Steering wheel — removal and installation	12
Power steering system — maintenance and adjustment	14	Steering wheel play — adjustment	19
Power steering system — bleeding	16	Suspension arm — removal and installation	10
Power steering pump — removal and installation	15	Suspension system — general information	1
Rack and pinion unit — removal and installation	18	Tension rod — removal and installation	5
Rear spring — removal and installation	9	Tie rod and boot — removal and installation	17
Rear shock absorber — removal and installation	8	Tire changing procedure	21
		Wheel bearings — removal, inspection and adjustment	2

Specifications

Front suspension	Strut with coil spring	
Rear suspension	Independent rear suspension, semi-trailing arm	
Steering overall gear ratio	17.1	
Power steering fluid	Dexron	
type	0.9 liter (1-7/8 US pints)	
capacity		
Torque specifications	Kg-m	Ft-lbs
Front suspension		
wheel hub bearing lock nut	2.5 to 3.0	18 to 22
wheel hub to disc rotor	5.0 to 7.0	36 to 51
wheel nut	8.0 to 10.0	58 to 72
knuckle arm to side rod	5.5 to 10.0	40 to 72
knuckle arm to knuckle spindle	7.3 to 9.9	53 to 72
torque member fixing bolt	7.3 to 9.9	53 to 72
knuckle spindle to baffle plate	0.33 to 0.44	2.4 to 3.2
tie rod lock nut	8 to 10	58 to 72
lower balljoint to knuckle arm	9.8 to 12.2	71 to 88
strut assembly		
strut mounting insulator fixing bolt	3.2 to 4.3	23 to 31
piston rod lock nut	7 to 9	51 to 65
transverse link to suspension member	9.5 to 11.5	69 to 83
tension rod to tension rod bracket	4.5 to 5.5	33 to 40
tension bracket to body	3 to 4	22 to 29
tension rod to transverse link	4.3 to 6.0	31 to 43
stabilizer bar clamp to body	3 to 4	22 to 29
stabilizer bar to transverse link	1.6 to 2.2	12 to 16
suspension member to body	7 to 9	51 to 65
Rear suspension		
wheel nut	8.0 to 10.0	58 to 72
wheel bearing lock nut	30 to 40	217 to 289
three way connector mounting bolt	0.5 to 0.7	3.6 to 5.1
connector to brake tube	1.5 to 1.8	11 to 13
shock absorber		
lower end fixing bolt	6 to 8	43 to 58
upper end fixing bolt	3.2 to 4.3	23 to 31
locking nut (adjustable shock absorber)	5.0 to 6.5	34 to 46
suspension member to suspension member stay	8 to 11	58 to 80
suspension member stay to body	2.0 to 2.6	14 to 19
suspension member to suspension arm	10 to 12	72 to 87
spring seat stay to suspension arm		
front	6 to 8	43 to 58
rear	7 to 9	51 to 65
stay to parking cable clamp	1.6 to 2.1	12 to 15
stabilizer bar to suspension arm	1.6 to 2.1	12 to 15
stabilizer bar clamp to suspension member	3.2 to 4.3	23 to 31

Steering column		
steering wheel nut	5.0 to 6.0	36 to 43
column joint fixing bolt		
1984 thru 1986	3.3 to 3.9	24 to 28
1987 on	2.4 to 3.0	17 to 22
Steering gear and linkage		
tie rod lock nut	8.0 to 10.0	58 to 72
tie rod to knuckle arm	5.5 to 10.0	40 to 72
Oil pump		
mounting bracket to engine	1.4 to 1.8	10 to 13
oil pump casing to sub bracket	3.2 to 4.3	23 to 31
adjusting bar bracket to mounting bracket	1.6 to 2.1	12 to 15
sub bracket to adjusting bar	1.6 to 2.1	12 to 15
rear cover fixing bolt	3.9 to 5.3	28 to 38
suction pipe to casing		
1984 thru 1987	0.9 to 1.2	6.5 to 8.7
1988 on	1.4 to 1.8	10 to 13
low pressure pipe to steering gear	2.8 to 4.0	20 to 29
high pressure pipe to steering gear	1.5 to 2.5	11 to 18
high pressure pipe connector bolt on pump	5.0 to 7.0	36 to 51
oil pressure switch	1.6 to 2.4	12 to 17

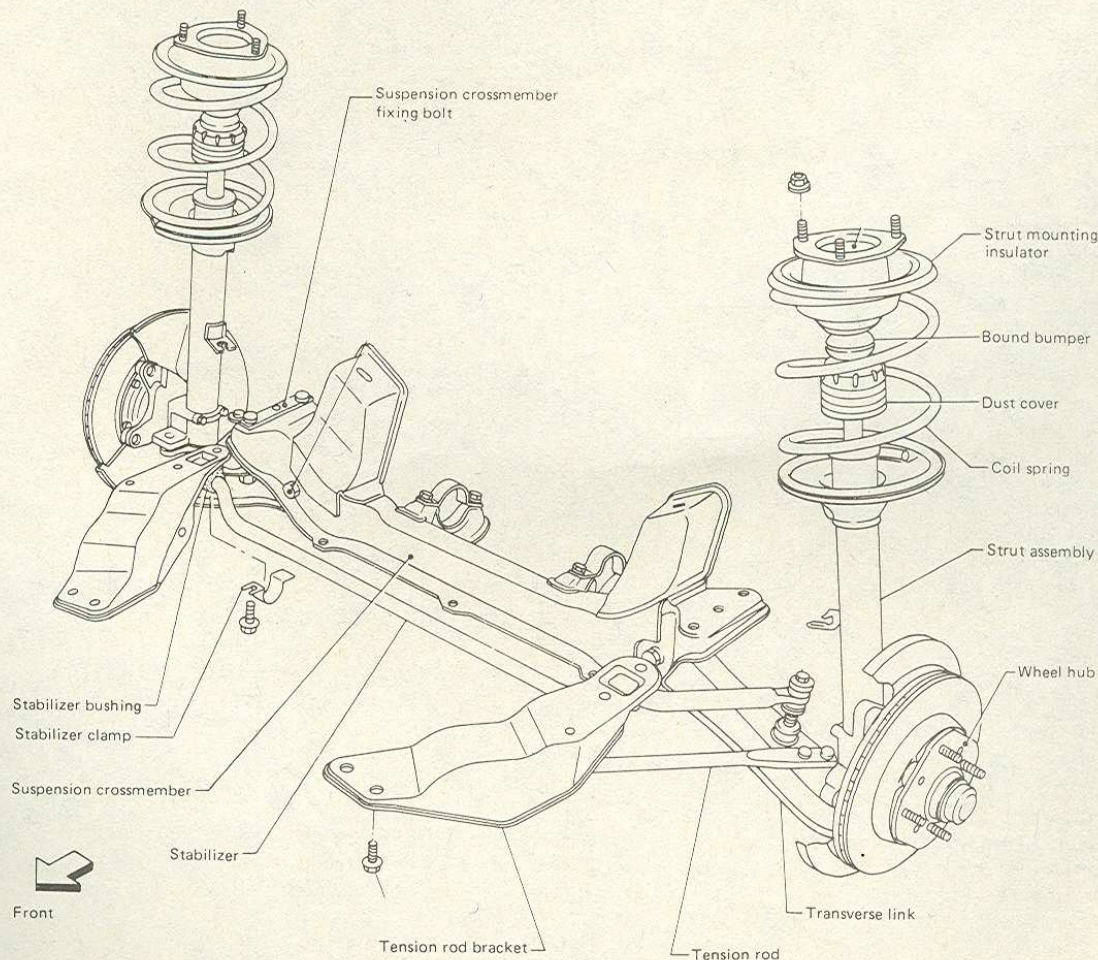
1 Suspension system — general information

Refer to illustrations 1.1 and 1.4

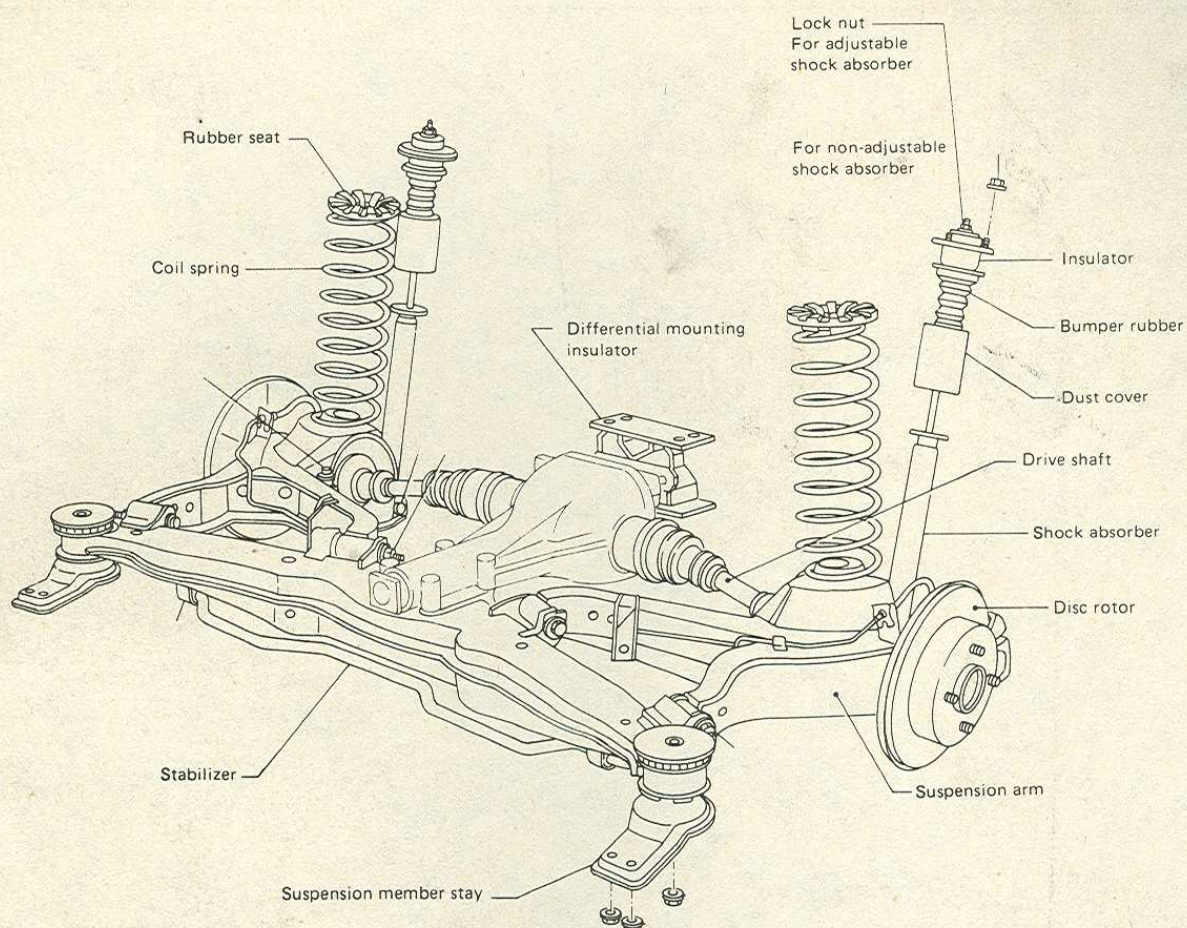
This vehicle features an independent front suspension (see illustration) of MacPherson strut design. The strut uses a combination shock absorber and spring assembly which is mounted to the steering knuckle.

The front spindles, on which the front hubs are mounted, are also part of the strut assembly.

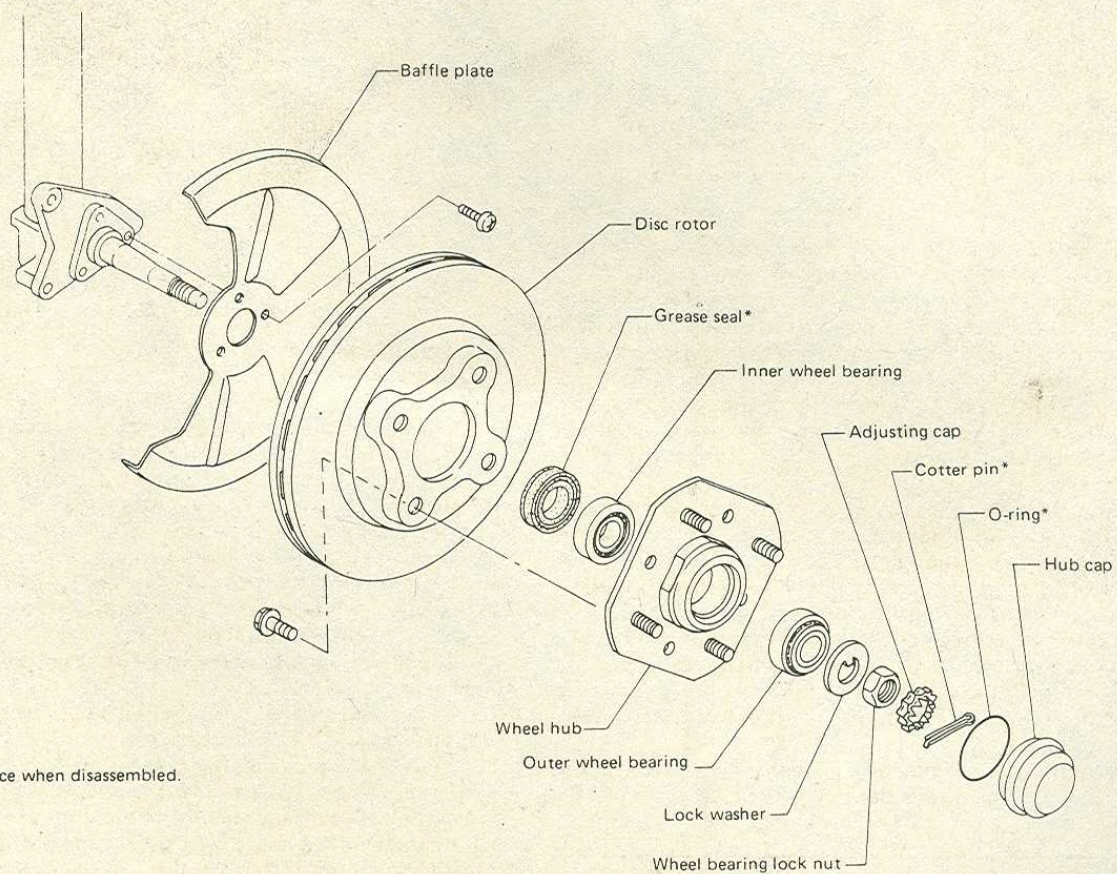
A lower control arm (transverse link) which pivots on the front crossmember is attached to the steering knuckle by way of a balljoint. The balljoint allows for free movement between the transverse link and the front wheel when the strut compresses during normal driving.



1.1 Front suspension components

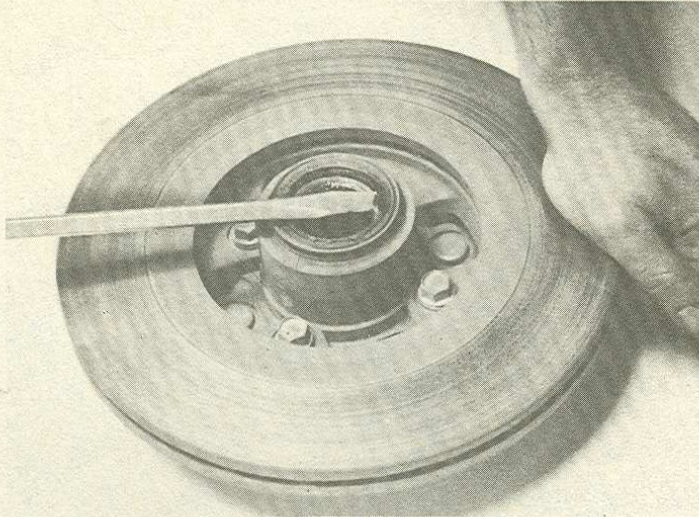


1.4 Rear suspension components

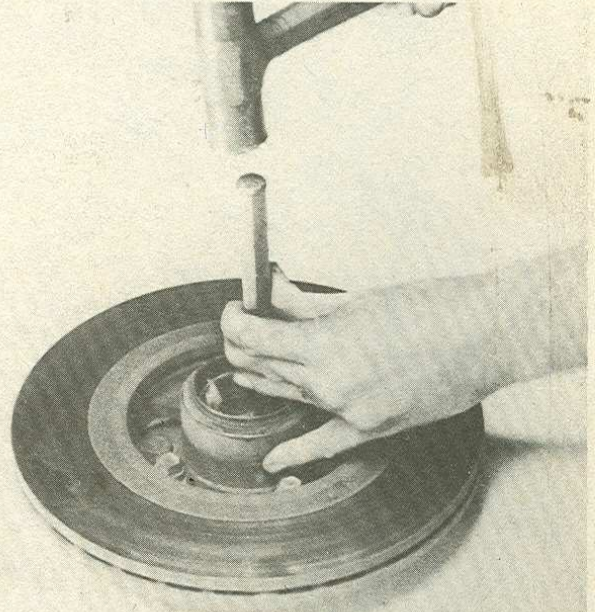


* Replace when disassembled.

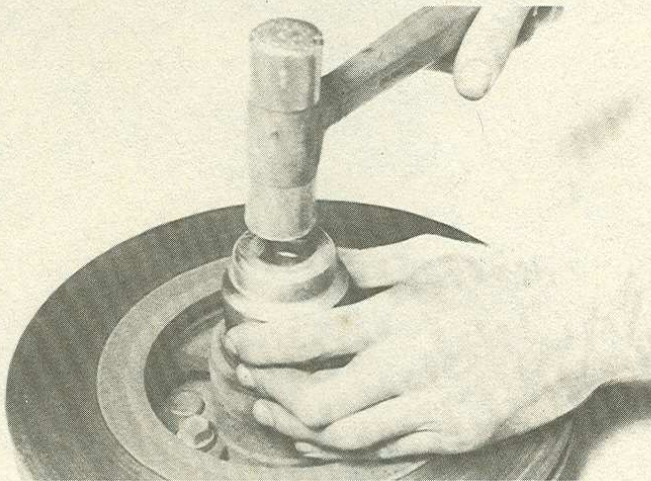
2.4 Exploded view of the front hub assembly



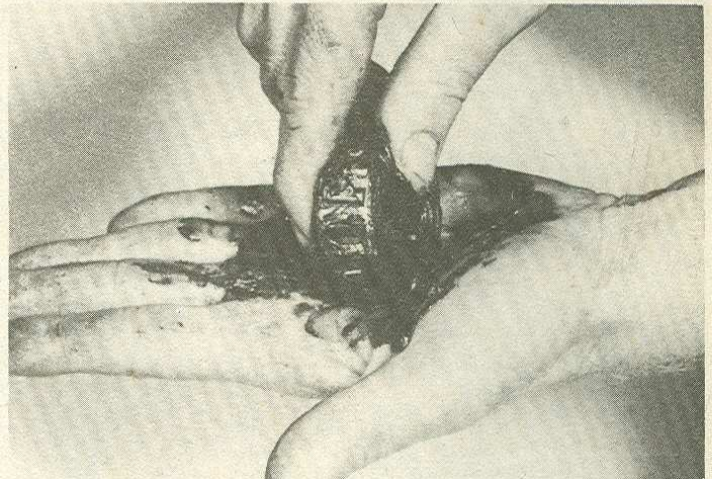
2.9 Pry the inner bearing grease seal out of the hub



2.13 Use a brass drift to drive the race from the hub



2.14 Use a socket to drive the race into the hub



2.15 Work the grease into the bearings and be sure to pack enough between the rollers and cage

Front and rear forces are controlled by tension rods, and a front stabilizer bar is installed to control body roll in corners.

The rear suspension (see illustration) is also independent, made up of a crossmember assembly, suspension arm assemblies, and coil springs which are independent of the shock absorbers. A rear stabilizer bar is installed to help control body roll.

The suspension member is bolted directly to the body and supports the front of the differential. The wheels and lower mounts of the shock absorbers are mounted to the suspension arms, which pivot on the suspension member.

Standard non-adjustable shocks found on some models are sealed hydraulic units. They are non-adjustable, non-refillable and cannot be disassembled. They are mounted at the bottom to a bracket on the axle housing and at the top to the body. Some models have electronically actuated adjustable damping of the shocks. A switch located on the console allows for three settings and transfers the information to the actuator mounted on top of the shock assembly. The adjustable shock absorbers are rebuildable, but due to the complexity of the job it is advisable to have your Nissan dealer or other specialist service the unit.

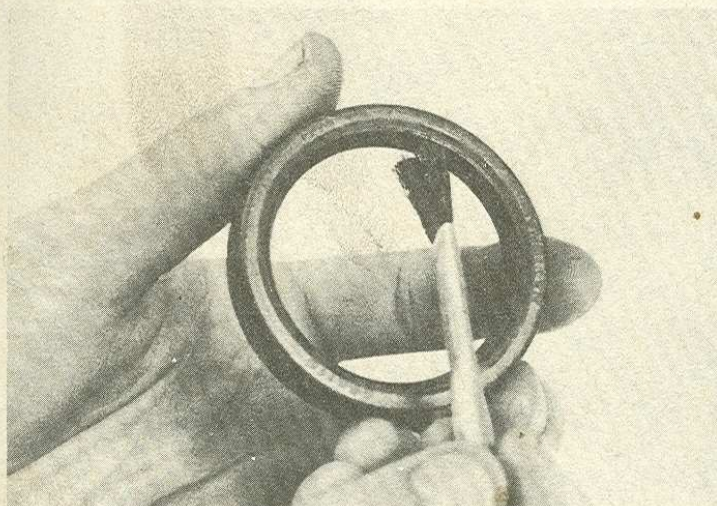
Never attempt to heat or straighten any suspension part, as this can weaken the metal or in other ways damage the part.

2 Wheel bearings — removal, inspection and adjustment

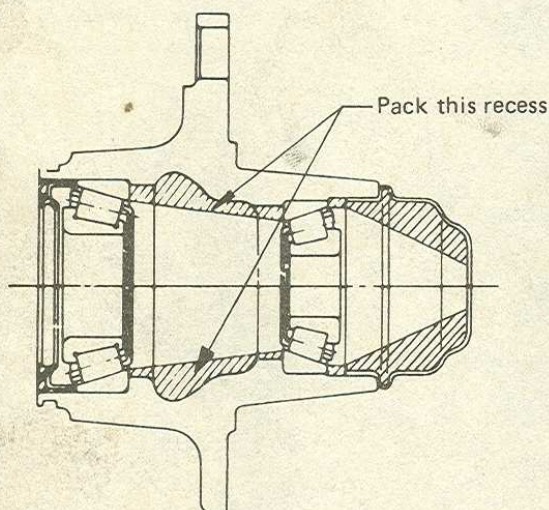
Refer to illustrations 2.4, 2.9, 2.13, 2.14, 2.15, 2.18, 2.19, 2.20 and 2.21

- 1 Raise the vehicle and support it securely on jackstands.

- 2 Remove the wheel.
- 3 Remove the brake caliper (Chapter 9).
- 4 Pry off the dust cap (see illustration) and remove the O-ring.
- 5 Remove the cotter pin and discard it.
- 6 Pull the wheel bearing locking cap off of the wheel bearing nut.
- 7 Remove the wheel bearing nut and washer from the spindle.
- 8 Remove the hub and rotor components from the spindle. Be prepared to catch the outside bearing.
- 9 Lay the rotor face down on a work bench and use a screwdriver to pry out the inner bearing grease seal (see illustration).
- 10 Remove the inner bearing.
- 11 Use parts solvent to remove all traces of old grease from the bearings, hub and spindle.
- 12 Inspect the bearings for cracks, heat discoloration, bent rollers, etc. and replace if necessary.
- 13 If the bearing race shows cracks, scoring or uneven surface wear it will have to be replaced along with the bearing. Use a brass drift to carefully drive the race out of the hub (see illustration).
- 14 Install a new race using a socket to carefully drive the race into its seat (see illustration). **Caution:** Wheel bearings and bearing races are replaced as a matched set. Never use an old bearing in a new race or a new bearing in an old race.
- 15 Use high temperature front wheel bearing grease to pack the bearings. Work the grease fully into the bearings, forcing the grease between the rollers and cage (see illustration).



2.18 Apply a small amount of grease to the inside of the seal lip



2.20 Pack the hub and hub grease cap with multi-purpose grease up to the shaded areas shown

- 16 Apply a thin coat of grease to the spindle at the outer bearing seat, inner bearing seat, shoulder and seal seat.
- 17 Install the inner bearing into the back of the hub and put a little more grease outboard of the bearing.
- 18 Apply a small amount of grease to the inner part of the seal lip (see illustration).
- 19 Place the new seal over the inner bearing and tap the seal with a socket (see illustration) until it is flush with the hub.
- 20 Carefully place the hub assembly onto the spindle and push the grease packed outer bearing into position. Be sure to pack the hub with grease before installation (see illustration).

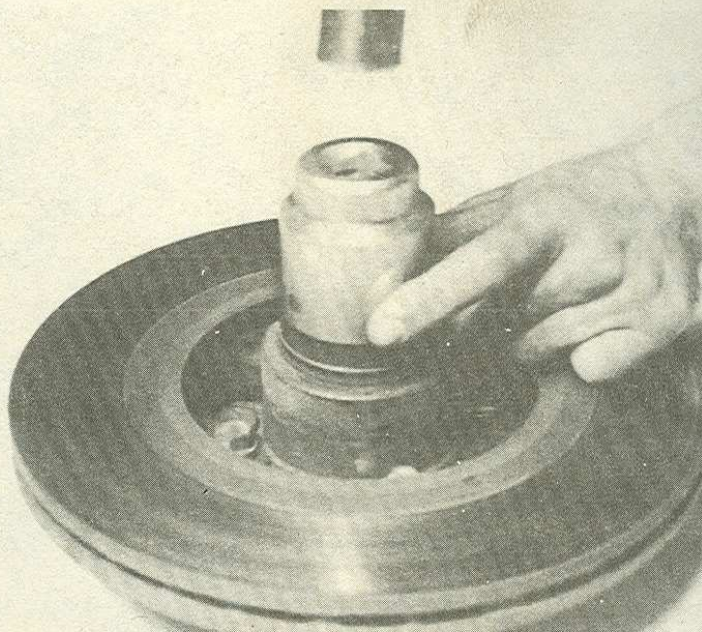
Bearing pre-load

- 21 Install the washer and adjuster nut. Snug the adjuster nut down and turn the rotor in both directions to seat the bearings. Tighten the adjuster nut to the specified torque and then back off the adjuster nut 60° (see illustration).
- 22 Install the adjusting cap and install a new cotter pin.
- 23 Install the dust cap with a new O-ring.
- 24 Remove the jackstands and lower the vehicle.

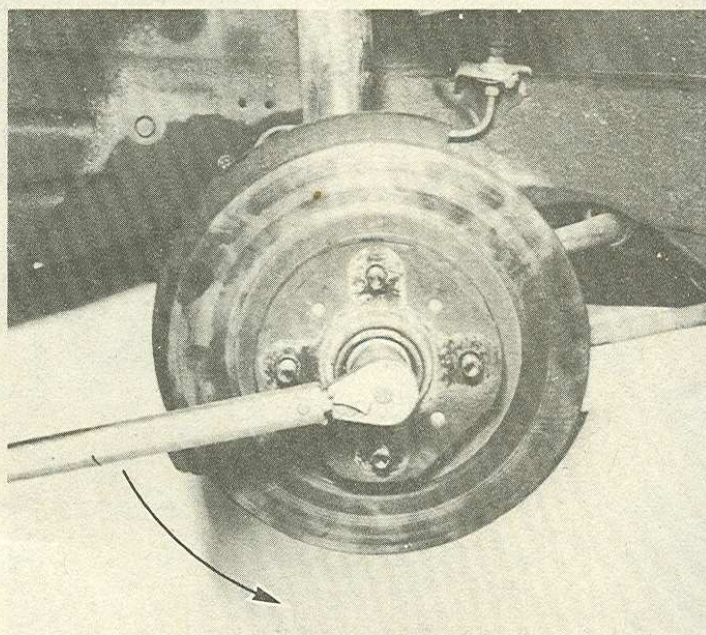
3 Front spring and strut components — removal and installation

Refer to illustrations 3.5, 3.6, and 3.8

- 1 Raise the vehicle and support it securely on jackstands.

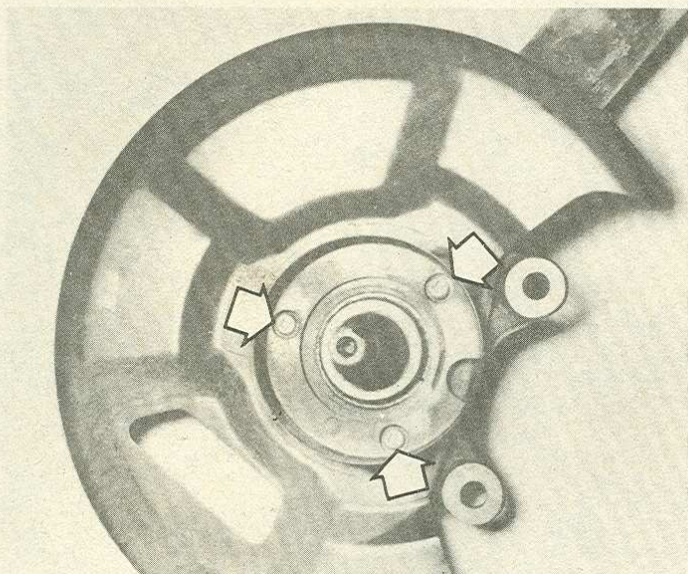


2.19 Carefully drive the grease seal into position using a proper size socket so the seal is driven in evenly

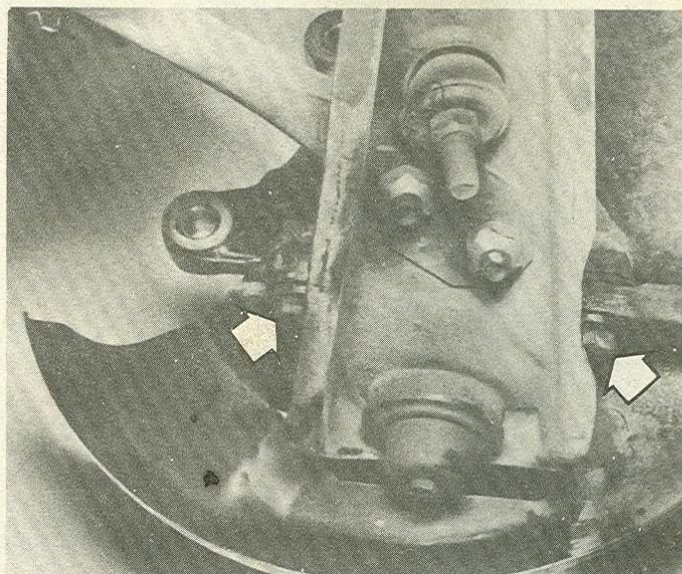


2.21 Once the adjusting nut is tightened to the specified torque, back off the nut 60° (arrow) to set pre-load

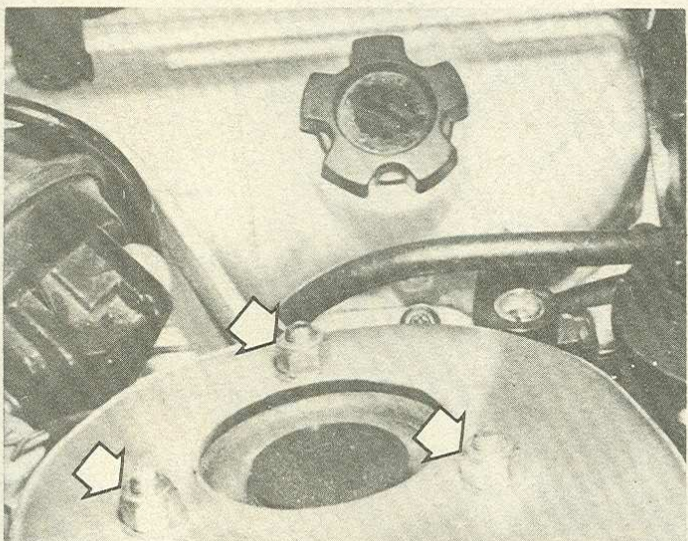
- 2 Remove the wheel.
- 3 Remove the brake caliper (Chapter 9). It will not be necessary to remove the brake line from the caliper. Just disconnect the caliper and wire the caliper to the stabilizer bar out of the work area.
- 4 Remove the rotor (Chapter 9).
- 5 If replacing the strut assembly, remove the baffle plate by removing the three Phillips head screws (see illustration).
- 6 Remove the bolts (three bolts on some models) securing the knuckle arm to the transverse link (see illustration).
- 7 Remove the bottom stabilizer retaining nut to allow the transverse link to lower enough to allow the strut removal.
- 8 Remove the upper retaining nuts and remove the strut assembly from the vehicle (see illustration).
- 9 Install the upper end of the strut and secure it with the retaining nuts.
- 10 Place the bottom of the strut in place over the balljoint and secure the knuckle arm to the transverse link.



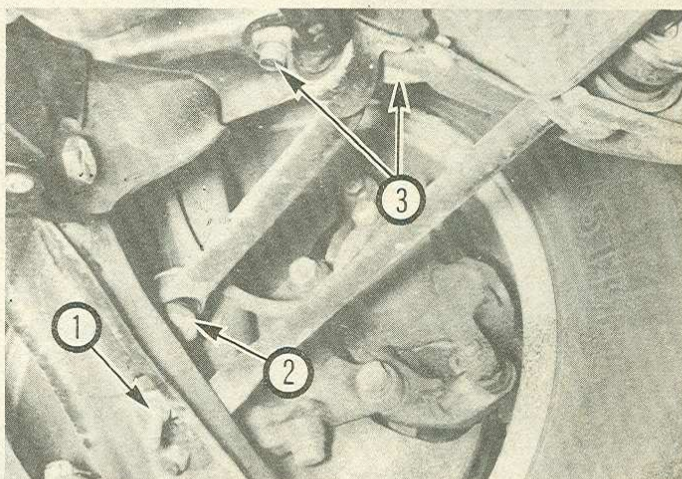
3.5 If replacing the strut or baffle plate, remove the screws and separate the two components



3.6 Remove the bolts (arrows) securing the knuckle arm to the transverse link



3.8 Remove the nuts (arrows) securing the top of the strut to the vehicle



4.3 To disconnect the stabilizer bar first remove the nut (1) at the end of the bar attaching the bar to the transverse link. Remove the bar from the transverse link and note sequence of the bushings (2) removed. Disconnect the bolts (3) to remove the stabilizer support brackets from the body

- 11 Install and tighten the bottom front stabilizer retaining nut.
- 12 If removed, replace the baffle plate and secure with the Phillips head screws.
- 13 Install the rotor (Chapter 9).
- 14 Install the brake caliper (Chapter 9).
- 15 Install the wheel.
- 16 Remove the jackstands and lower the vehicle.

4 Front stabilizer bar — removal and installation

Refer to illustration 4.3

- 1 Raise the front of the vehicle and support it securely on jackstands.
- 2 Remove the splash shield (Section 20).
- 3 Remove the lower nut (see illustration) from the end of the stabilizer.
- 4 Remove the stabilizer links from the transverse links. Remove the bushings, washers and spacers, being sure to keep them in their installed order, and then remove the stabilizer links from the stabilizer bar.
- 5 Remove the bolts and nuts holding the stabilizer support brackets to the body and lift out the stabilizer bar.
- 6 If the stabilizer bar bushings need to be replaced spread them apart

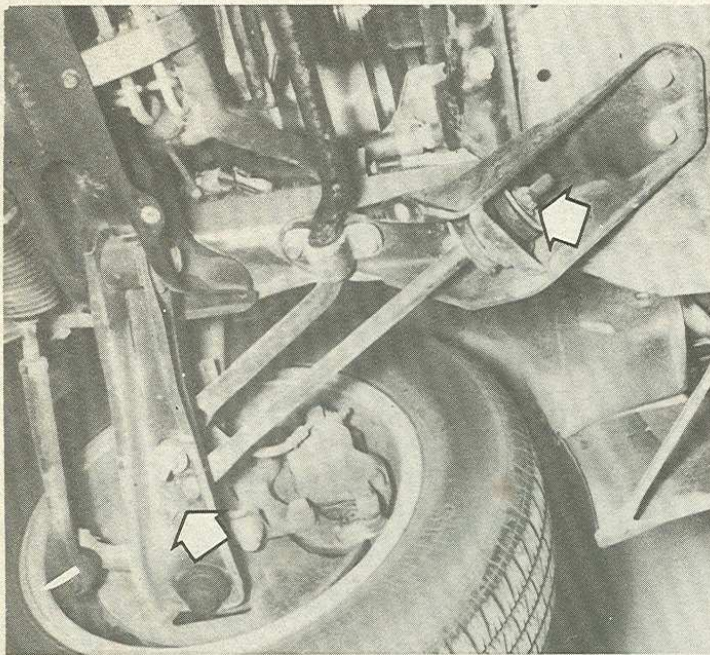
and slide them off the bar.

- 7 Inspect the stabilizer link bolts and bushings for any cracks or other damage and replace as necessary.
- 8 Fit the stabilizer support brackets onto the stabilizer bar. If marked, the bracket marked with an L goes on the left side of the bar.
- 9 Raise the stabilizer bar into position and loosely install both nuts and mounting bolts.
- 10 Install the links through the transverse link and stabilizer bar.
- 11 Install the stabilizer link nuts and torque them to the specified torque.
- 12 Lower the car to the ground so that the full weight of the car is on the wheels, then tighten the stabilizer bar mounting bolts and nuts to the specified torque.

5 Tension rod — removal and installation

Refer to illustration 5.3

- 1 Raise the vehicle and support it securely on jackstands.
- 2 Remove the wheel.



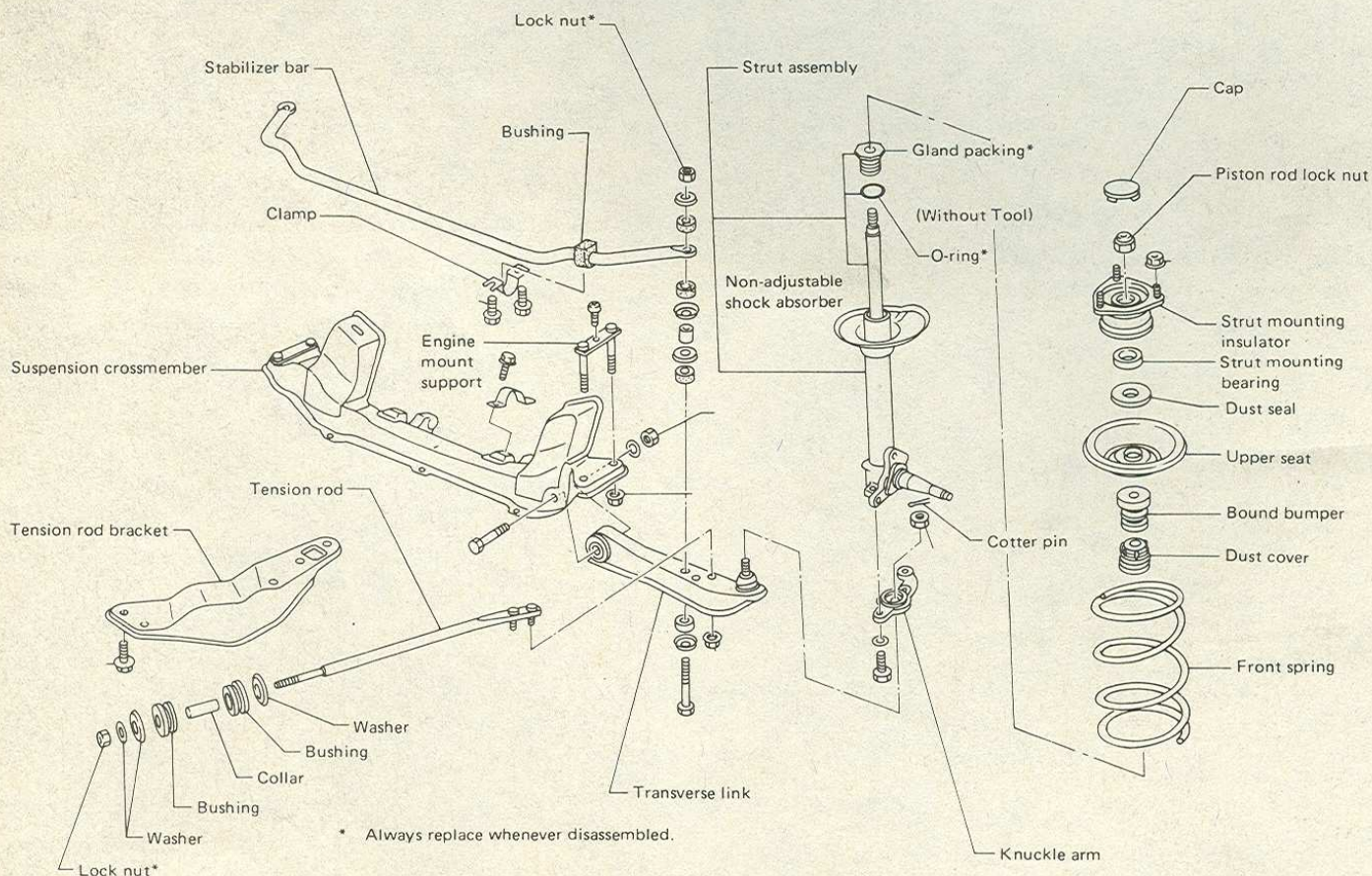
5.3 Remove the bolts securing the rod to the transverse link (arrow) and remove the nut at the other end of the rod (arrow)

- 3 Remove the two nuts securing the tension rod to the transverse link (see illustration).
- 4 Remove the nut securing the tension rod to the tension rod bracket. Note the sequence of the bushings when removing the rod from the bracket.
- 5 Insert the rod into the bracket, assembling bushing in their original locations.
- 6 Install the other end of the rod on the transverse link.
- 7 Install the wheel.
- 8 Remove the jackstands and lower the vehicle.

6 Balljoint and transverse link — removal and installation

Refer to illustrations 6.4 and 6.6

- 1 Raise the front of the vehicle and support it securely on jackstands.
- 2 Remove the wheel.
- 3 Remove the splash shield (Section 20).
- 3 Remove the front stabilizer bar. Note the position of the washers and spacers for reinstallation.
- 4 Remove the nuts attaching the tension rod (see illustration) to the transverse link.
- 5 Remove the cotter pin and nut attaching the side rod to the steering knuckle and separate the two. Remove the bolts attaching the steering knuckle to the strut.
- 6 Remove the pivot bolt holding the inner end of the transverse link to the crossmember (see illustration).
- 7 Remove the transverse link.
- 8 Place the transverse link in a vise and remove the bolt attaching



6.4 Exploded view of the front suspension components

the steering knuckle and balljoint to the transverse link. Replace the transverse link if the balljoint is damaged.

9 If the transverse link bushing needs to be replaced it will be necessary to replace the entire transverse link.

10 Install the transverse link to the crossmember but do not tighten the pivot bolt until the car has been lowered to the ground.

11 Install the nut and cotter pin attaching the side rod to the steering knuckle.

12 Attach the steering knuckle to the the strut.

13 Attach the tension rod to the transverse link.

14 Install the front stabilizer bar.

15 Install the splash shield.

16 Replace the wheel.

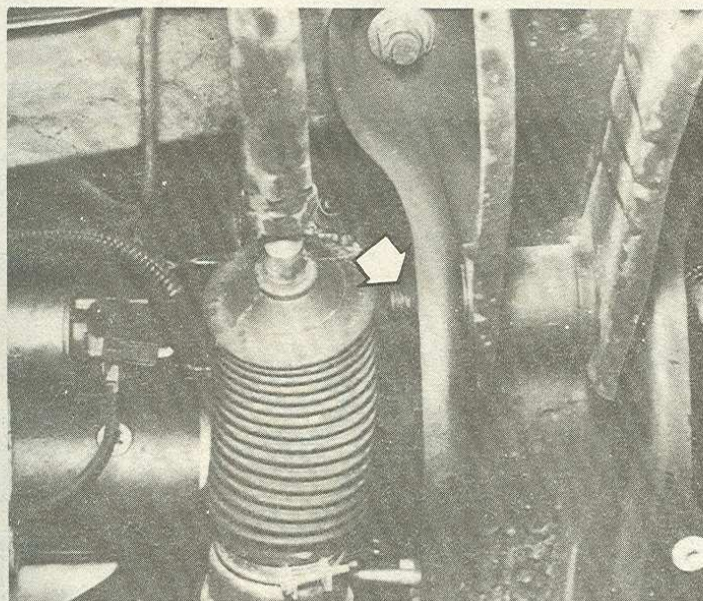
17 Remove the jackstands and lower the vehicle.

18 Tighten the transverse link pivot bolt.

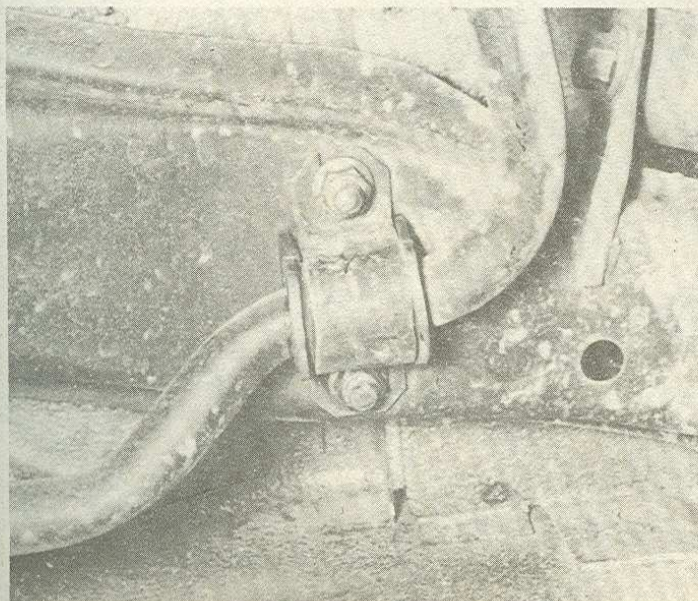
7 Rear stabilizer bar — removal and installation

Refer to illustration 7.2 and 7.3

1 Raise rear of the vehicle and support it securely on jackstands.



6.6 Remove the transverse link pivot bolt (arrow) to remove the link



7.3 Remove the stabilizer bar mounting brackets

2 Remove the stabilizer bar link bolts that pass through the suspension arms (see illustration).

3 Remove the bolts attaching the stabilizer bar mounting brackets to the suspension crossmember (see illustration) and remove the bar.

4 If the bushings exhibit any hardening or cracking they should be replaced.

5 Install the stabilizer bar with the bushings and brackets in place and install the retaining bolts. **Note:** Final tightening of these bolts should be carried out once the vehicle is lowered to the ground under curb weight.

6 Install the stabilizer bar link bolts that pass through the suspension arms.

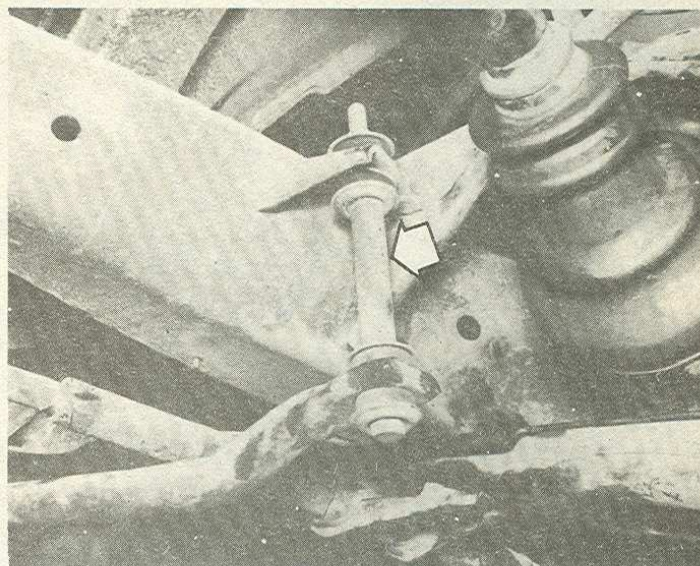
7 Remove the jackstands and lower the vehicle.

8 Tighten the retaining bolts to the specified torque.

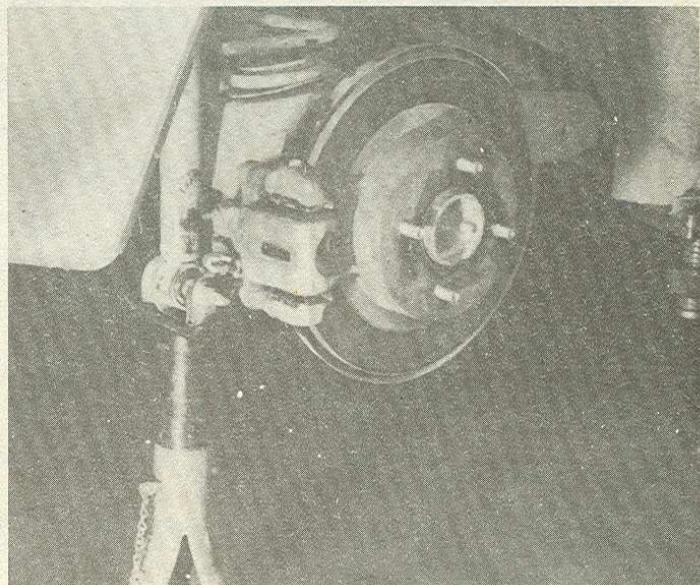
8 Rear shock absorber — removal and installation

Refer to illustrations 8.1, 8.3, 8.4 and 8.5

1 Raise the vehicle and support it by placing jackstands under the spring seat stays (see illustration).



7.2 Remove the stabilizer bar link bolts (arrow) that pass through the suspension arm



8.1 Place the jackstand under the spring seat stay to support the weight of the suspension arm once the shock absorber is removed

- 2 Remove the wheel.
- 3 Remove the bolt (see illustration) securing the shock absorber to the spring seat stay.
- 4 From inside the rear compartment of the vehicle remove the speaker cover (Chapter 11) to gain access to the top of the shock absorber and remove the shock absorber mounting insulator nuts (see illustration). Push down on the studs to lower the shock mounting insulator which will gain access to the shock piston rod holding point inside the fender well. On adjustable shock models, disconnect the electrical connector.
- 5 Use a wrench to hold the shock absorber piston rod hold point (see illustration) and use a socket to remove the shock absorber top nut.
- 6 Work the bottom of the shock absorber out of the spring seat stay and lower it out the bottom of the vehicle. Note the sequence of the insulator dust cover and washers. If it is an adjustable shock absorber note the sub-harness location.
- 7 Install the shock absorber by making sure the insulator and cover

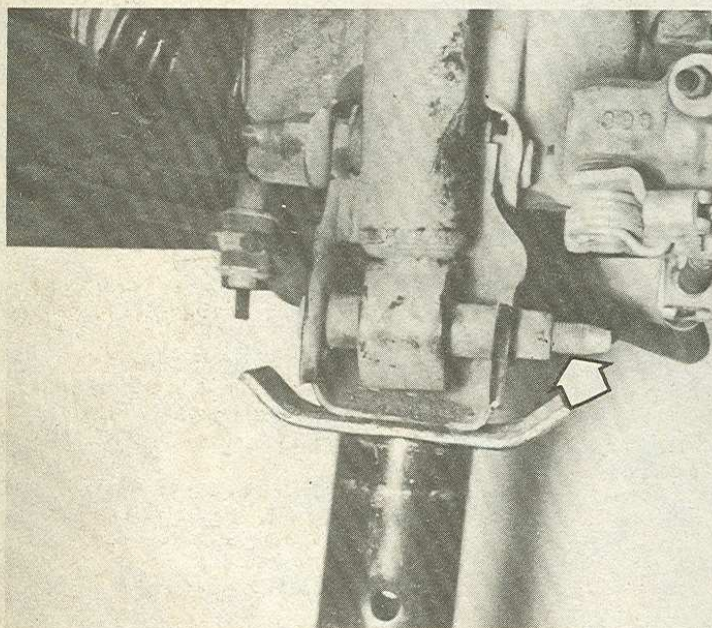
are in the proper sequence and insert the top of the shock absorber through the opening. If equipped, install the electrical connector. Let the mounting insulator hang down and while placing a wrench on the piston hold point. Install the rod top bolt.

- 8 Install the lower shock absorber to spring seat stay bolt and loosely tighten the nut.
- 9 Replace the wheel.
- 10 Remove the jackstands and lower the vehicle.
- 11 Tighten the bottom shock absorber retainer.
- 12 Replace the speaker cover.

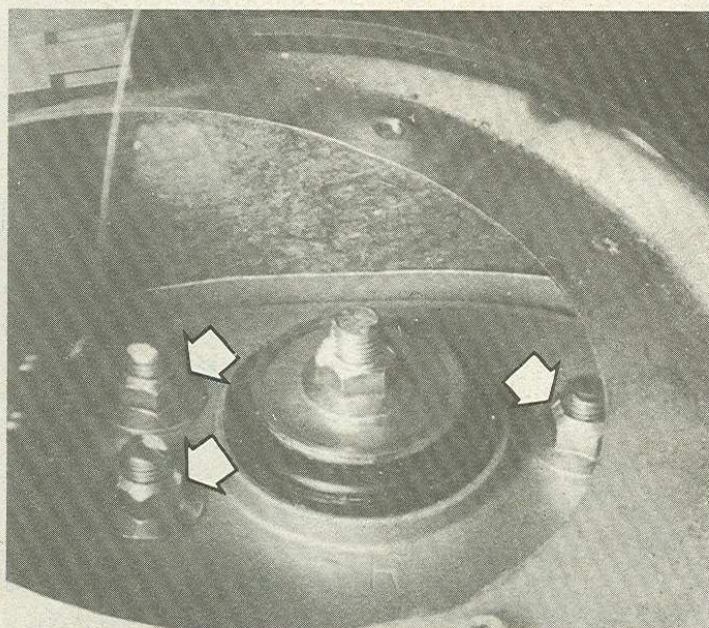
9 Rear spring — removal and installation

Refer to illustrations 9.2, 9.5 and 9.8

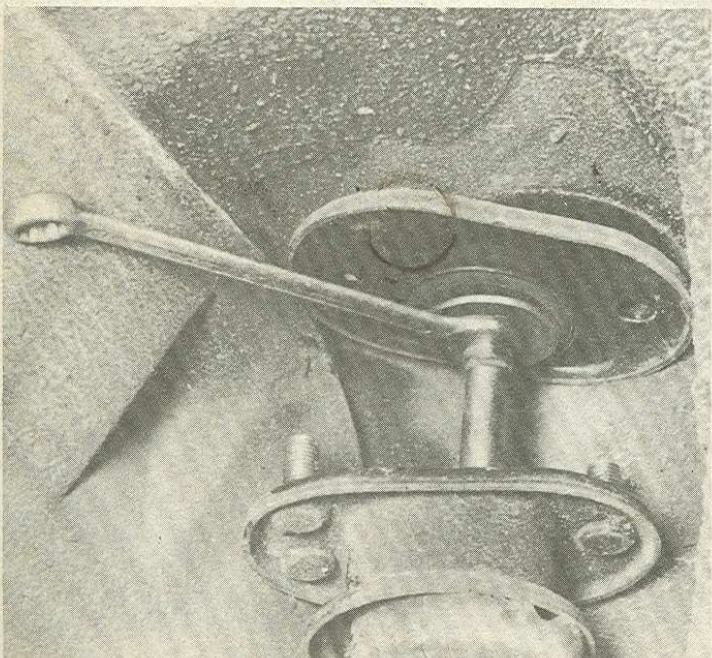
- 1 Remove the driveaxle (Chapter 8).



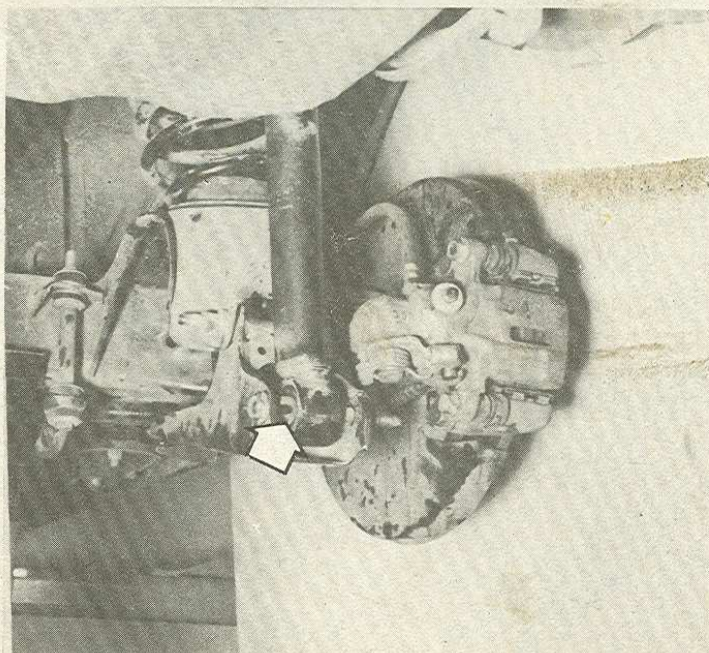
8.3 Remove the lower shock absorber through bolt



8.4 Remove the shock absorber insulator nuts (arrows) and push down on the stud bolts to release the insulator

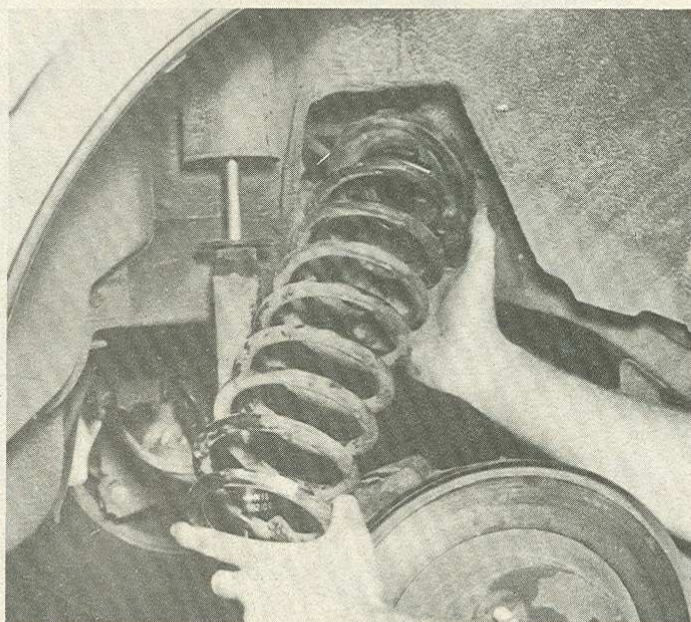


8.5 Use a wrench wedged against the fender well to hold the shock absorber piston while you remove the top nut

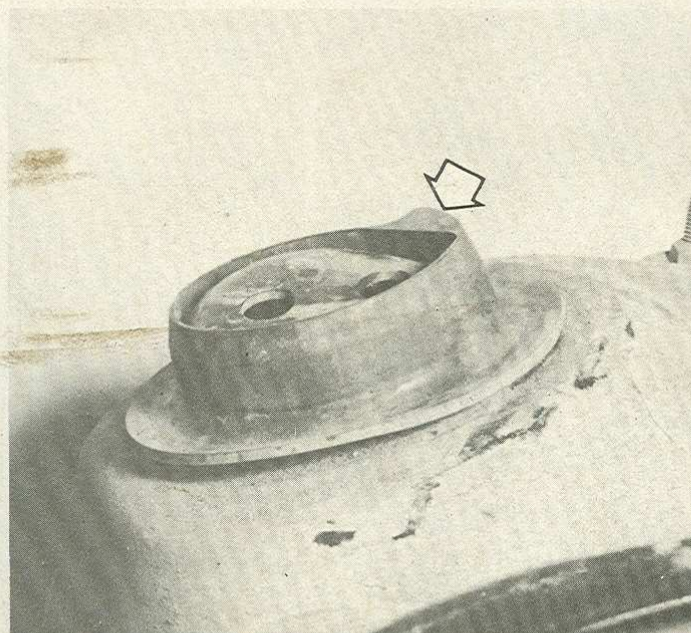


9.2 Remove the lower shock absorber-to-spring seat stay bolt

- 2 With the jackstands under the suspension arms so the springs are compressed, remove the lower shock absorber retaining bolt (see illustration).
- 3 Position a jack under the differential carrier and raise the vehicle which will relieve the tension from the springs. Place jackstands under the frame rails on both sides to support the vehicle.
- 4 Mark the spring to indicate the bottom position.
- 5 Press down on the suspension arm and lift the bottom of the spring off of the rubber spring seat insulator (see illustration). Note the installed location of the rubber insulator.
- 6 Inspect the spring for deformation or cracks and replace if necessary.
- 7 Check the upper and lower spring seat rubber insulators for damage and replace if necessary.
- 8 The lower spring seat insulator has to be set in its original position. Place the rubber seat onto the suspension arm with the notch facing the inside of the vehicle (see illustration).



9.5 Press down on the suspension arm and lift the bottom of the spring off the rubber spring seat insulator



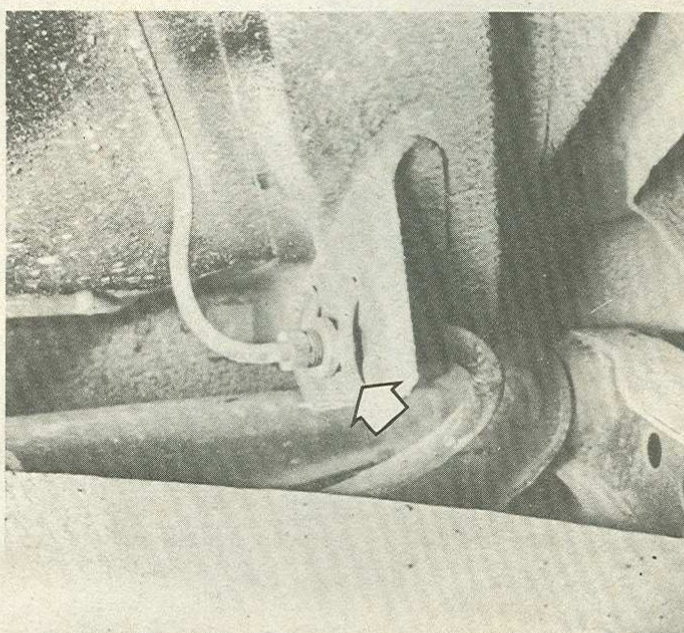
9.8 Install the bottom rubber spring seat insulator in its original location and with the notch facing inward

- 9 Note the reference mark painted on the spring bottom and install the top spring seat insulator onto the top of the spring.
- 10 Install the top of the spring onto its retaining recess and press down on the suspension arm to install the bottom of the spring.
- 11 Place a jack under the spring seat stay and lift the suspension arm. Place a jackstand under the suspension arm and remove the jack.
- 12 Install the bottom of the shock absorber into the spring seat stay mounting bracket and secure the bolt.
- 13 Install the driveaxle.
- 14 Remove the jackstands and lower the vehicle.

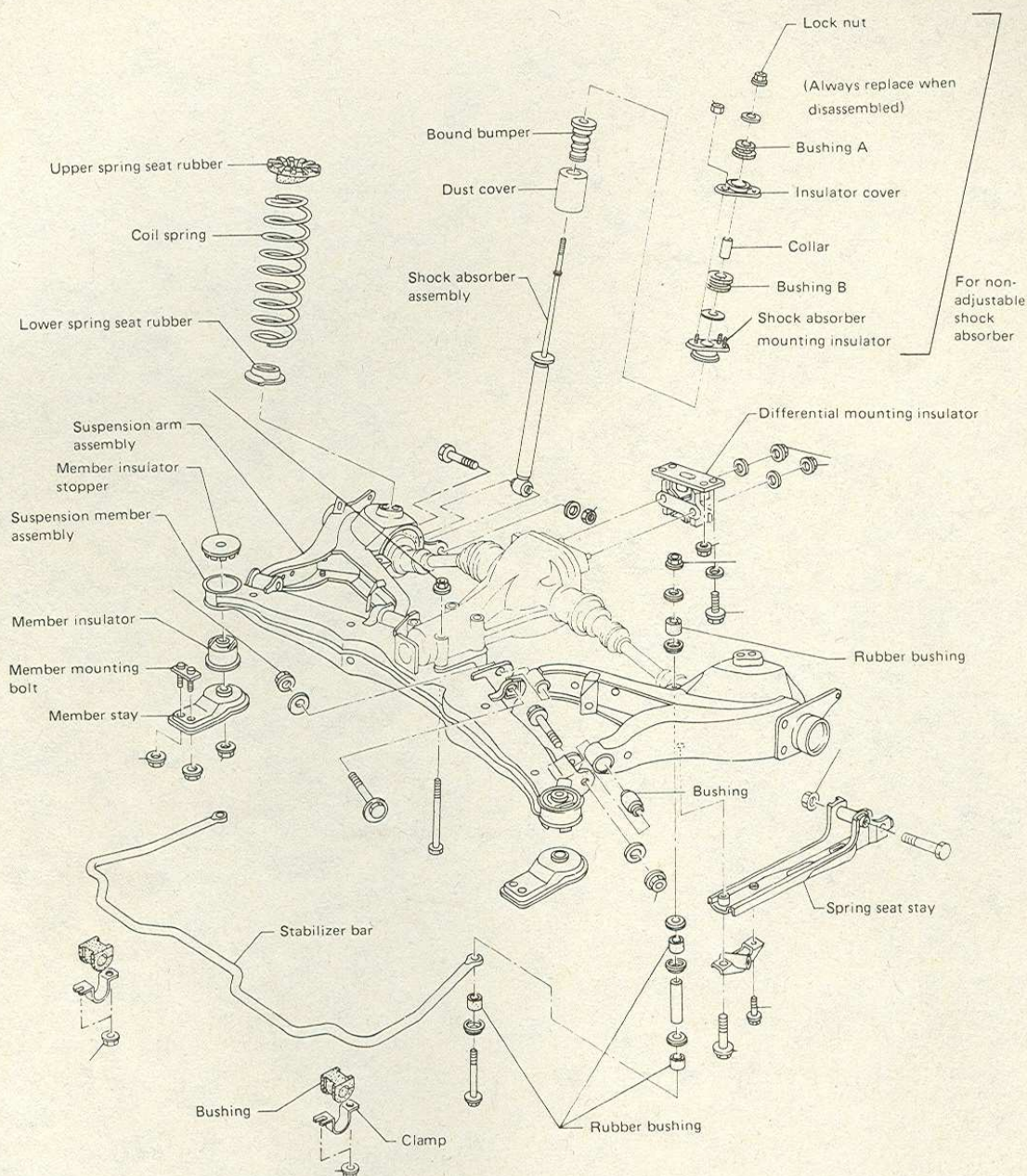
10 Suspension arm — removal and installation

Refer to illustrations 10.4, 10.5a and 10.5b

- 1 Remove the rear spring (Section 9).
- 2 Remove the rear stabilizer bar (Section 7).
- 3 Remove the brake caliper and brake rotor (Chapter 9).
- 4 Use a flare nut wrench to disconnect the brake line hose where the metal hydraulic brake line-to-rubber hose connection bracket is attached to the body (see illustration). Use pliers to remove the spring clip to free the rubber hose.
- 5 Locate the two through bolts securing the suspension arm to the suspension crossmember (see illustration) and note the head of the innermost retaining bolt and the alignment marks notched in the special bolt head/washer component (see illustration). If the marks are not easily visible use paint and mark the bolt location in relation to the suspension arm. The special bolt/washer component is used to align the wheel assembly.
- 6 Remove the two retaining through bolts and note location and sequence of any bushings and washers before removing the suspension arm.
- 7 Inspect the suspension arm for deformation and structural cracks and replace if necessary. Check the bushing for wear or other damage and if replacement is necessary, take the suspension to your Nissan dealer or other qualified service center to have the bushing replaced with a press.
- 8 Install the suspension arm and match the alignment marks made during removal on the innermost through bolt. Final tightening of these bolts should be carried out once the wheels are mounted and the vehicle is on the ground under curb weight.
- 9 Connect the rubber hydraulic hose to the bracket retaining it to the body and secure it with the spring clip.
- 10 Attach the metal hydraulic brake line to the rubber brake hose.



10.4 Use a flare nut wrench to disconnect the brake hose at the body mounting bracket and remove the spring clip (arrow) to free the hose



10.5a Exploded view of the rear suspension

- 11 Install the rear spring (Section 9).
- 12 Install the rear stabilizer bar (Section 7).
- 13 Install the rotor and brake caliper (Chapter 9).
- 14 Bleed the hydraulic system (Chapter 9).
- 15 Remove the jackstands and lower the vehicle.
- 16 Tighten suspension arm through bolts and the lower shock absorber and rear stabilizer bar mounting bolts to the specified torque.

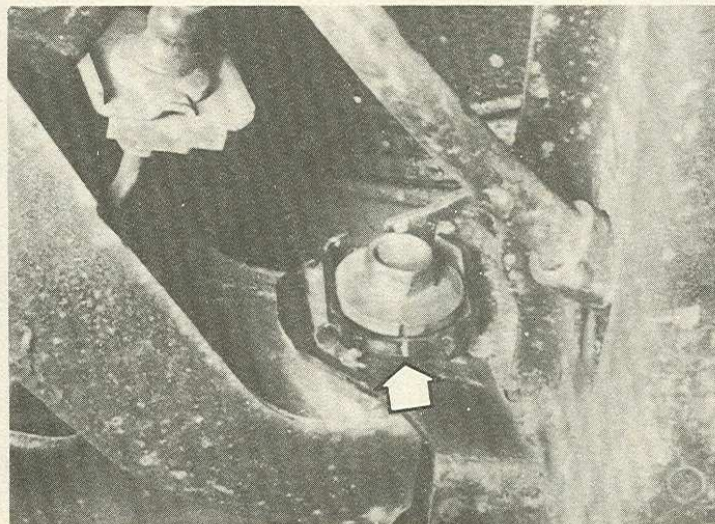
11 Steering system — general information

Refer to illustrations 11.1a and 11.1b

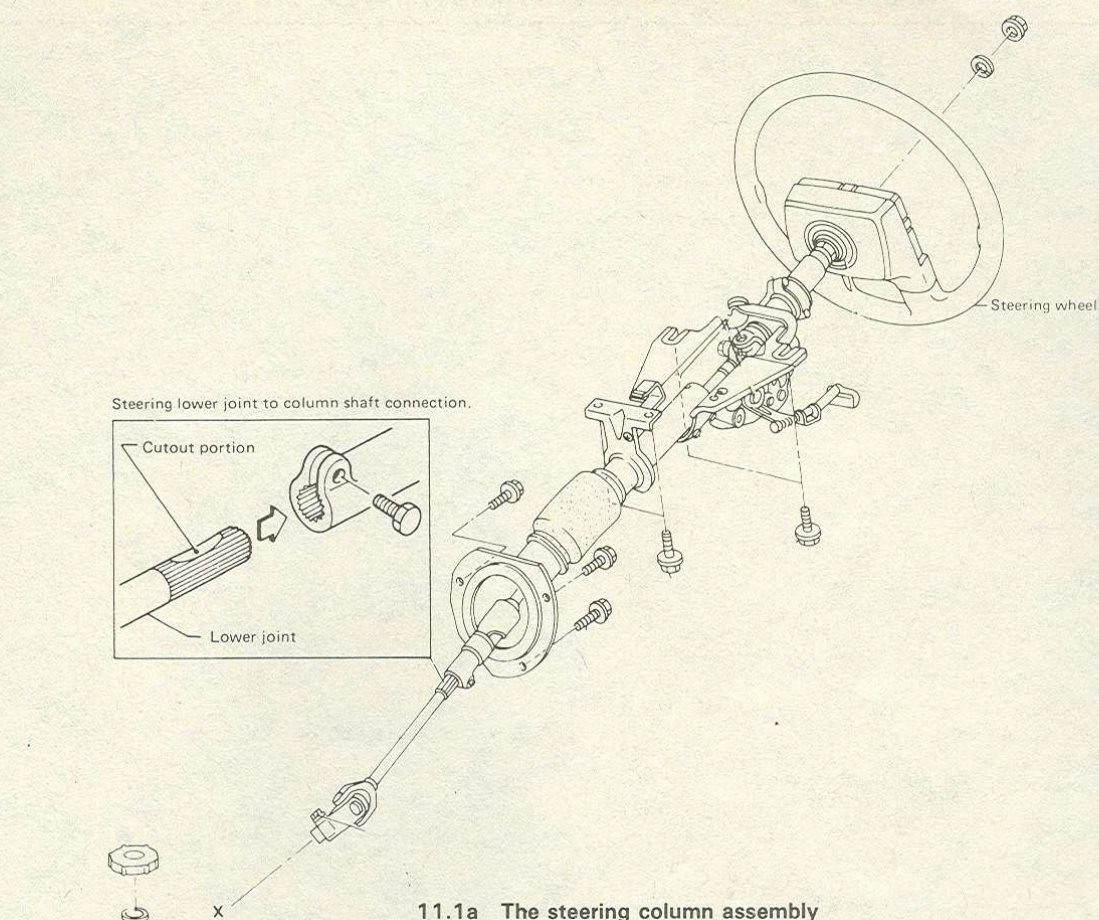
The components that make up the steering system are the steering wheel, steering column and the rack-and-pinion assembly (see illustrations).

The steering system is a rack and pinion type which is power assisted. The steering action is transferred through either a tilt or standard steering column. Inside the rack and pinion housing the pinion gear works the rack, which operates the side rods that control the steering knuckles. If the power steering system loses its hydraulic pressure it will still function manually, though with increased effort.

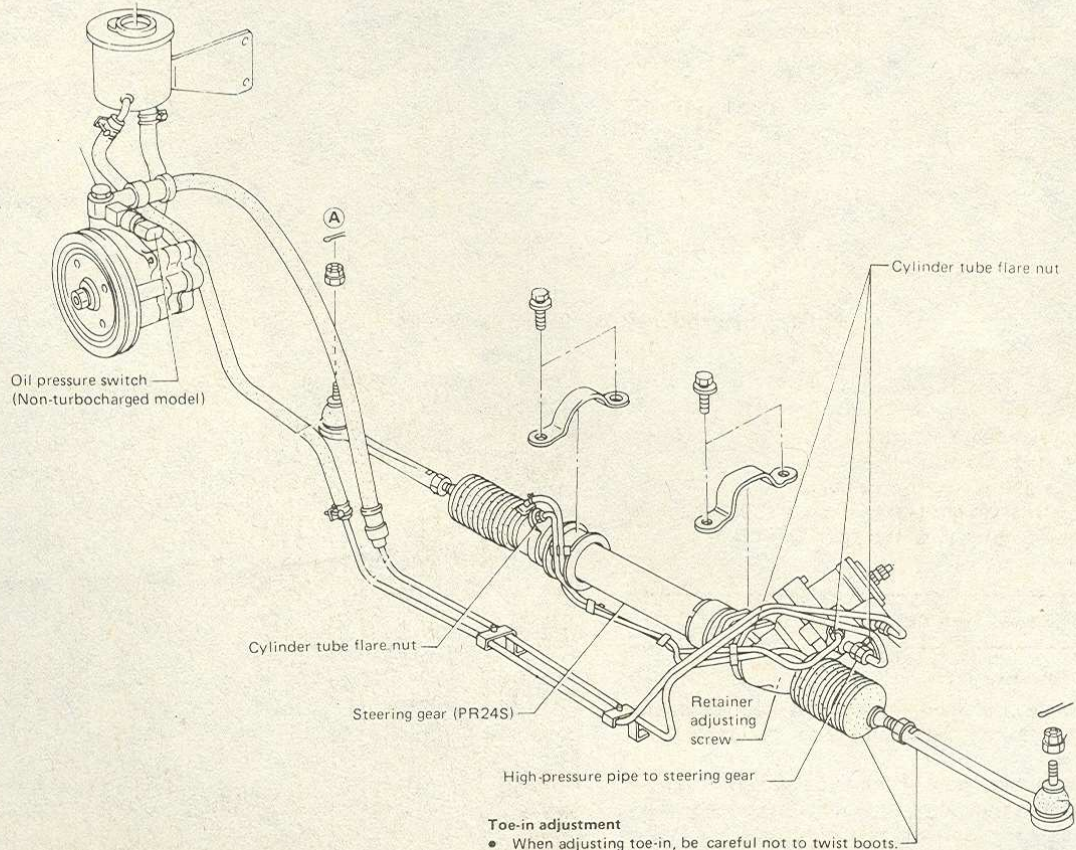
The steering column is of the collapsible, energy-absorbing type, designed to compress in the event of a front end collision to minimize



10.5b Note the alignment notch on the special bolt head/washer securing the suspension arm to the suspension crossmember

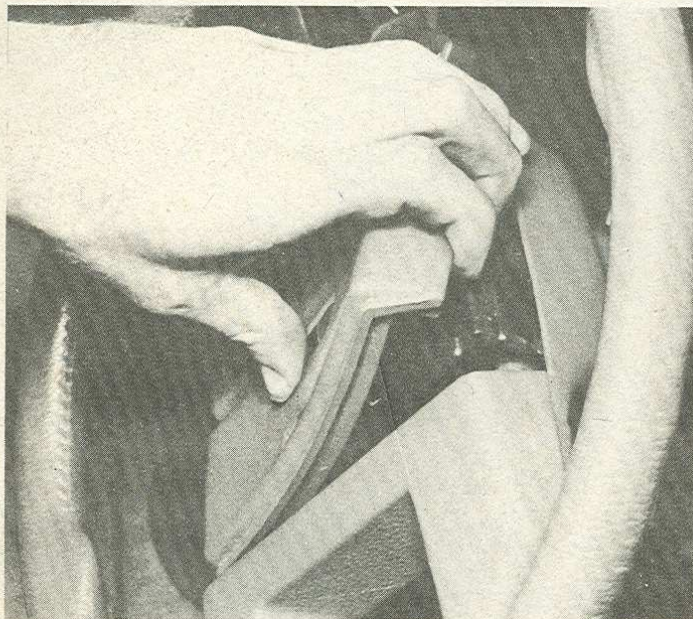


11.1a The steering column assembly

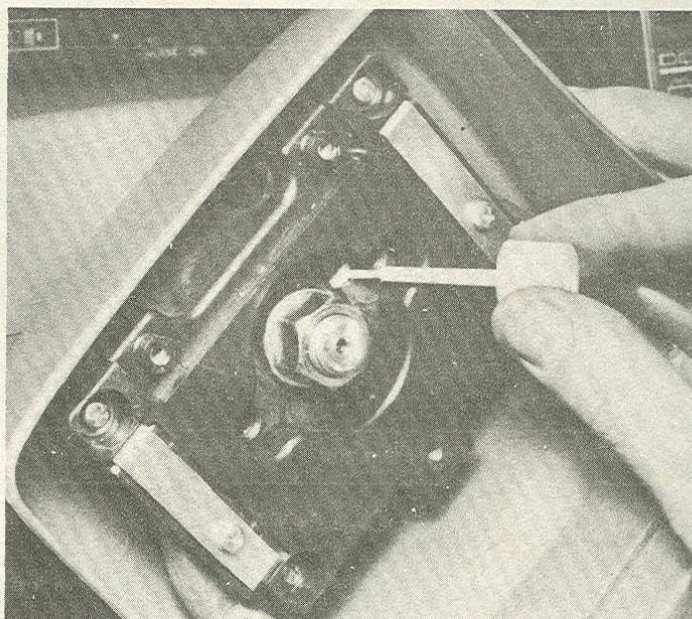
**Toe-in adjustment**

- When adjusting toe-in, be careful not to twist boots.

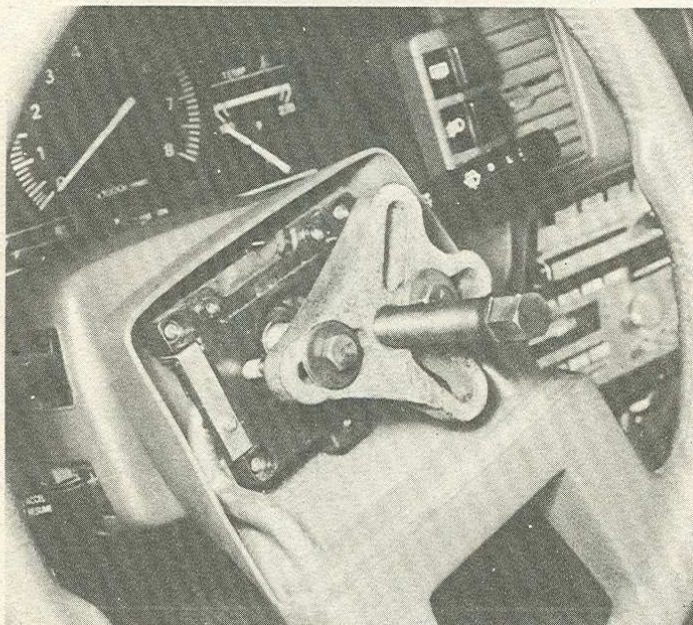
11.1b Rack and pinion steering gear with hydraulic power assistance



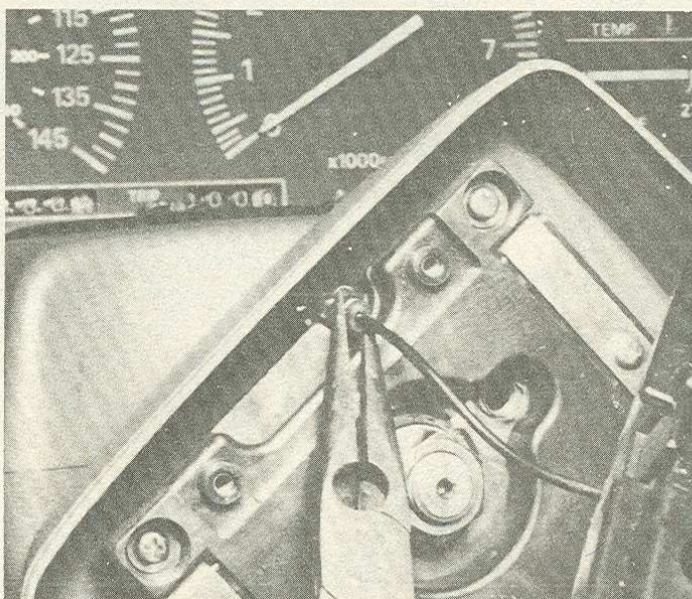
12.2 Carefully pry the steering wheel center trim piece from the steering wheel



12.3 Mark the relation of the steering wheel to the column shaft so the wheel can be installed in its original position



12.5a Install the steering wheel puller and turn the forcing bolt to pull the steering wheel from the shaft



12.5b If necessary, remove the horn assembly and disconnect the electrical connector

injury to the driver. The column also houses the ignition switch, steering column lock, headlight switch, turn signal control, headlight dimmer switch, windshield wiper and washer control and, on GL models, the cruise control switch.

Due to the column's collapsible design, it is important that only the specified screws, bolts and nuts be used as designated and that they be tightened to the specified torque. Other precautions particular to this design are noted in appropriate Sections.

12 Steering wheel — removal and installation

Refer to illustrations 12.2, 12.3, 12.5a and 12.5b

1 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come into contact with the

negative terminal of the battery.

2 Carefully pry the center finish piece from the steering wheel (see illustration). The trim piece is fastened at the top (center) and on each side by pop-out type fasteners.

3 Use a dab of paint or suitable marker to mark the relationship of the steering wheel to the column shaft (see illustration).

4 Remove the steering wheel nut and washer.

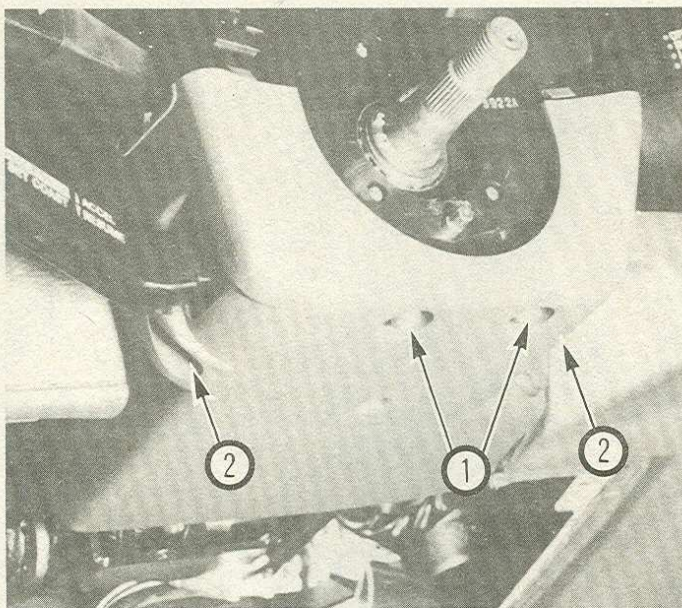
5 Install a steering wheel puller (see illustration) and remove the steering wheel from the shaft. **Note:** If necessary, remove the horn switch assembly by removing the screws and disconnecting the electrical connector (see illustration). **Note:** Springs are located under the assembly on each of the screws.

6 Align the marks and slide the steering wheel onto the shaft.

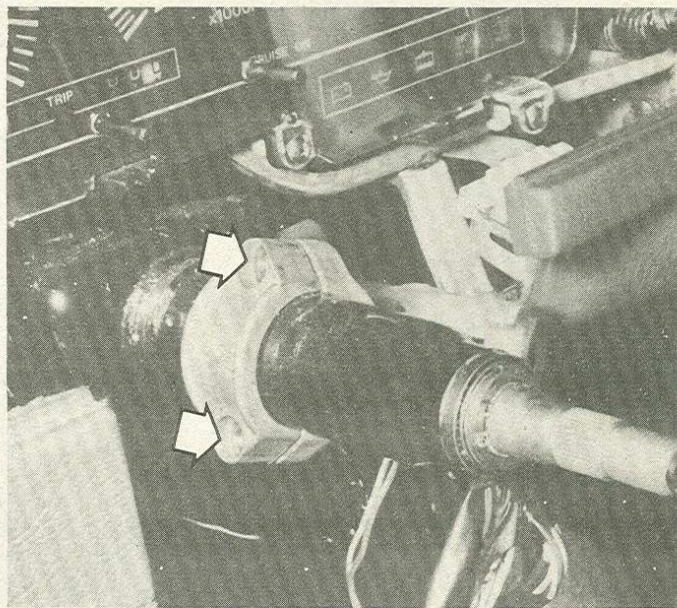
7 Install the steering wheel retaining washer and nut and tighten the nut to the specified torque.

8 Align the horn pad and press it onto the steering wheel.

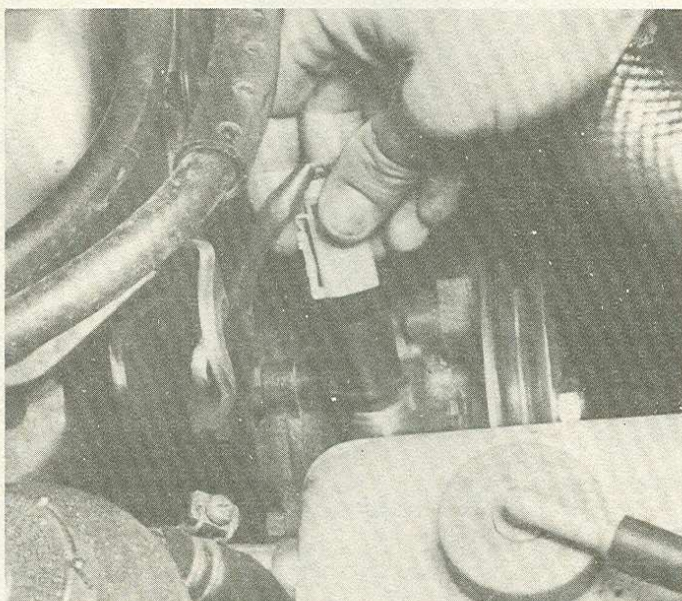
9 Connect the battery negative cable.



13.3 Remove the steering wheel trim piece cover screws and lift the pieces off. (1) removes the bottom piece and (2) removes the top piece



13.6 The shear-head screws (arrows) will have to be drilled out



15.3 Disconnect the electrical connector from the power steering pump by pressing in on the connector tab and pulling the connector up

the thread. Very carefully drill out the center of the screw until a screw extractor can be used to remove the screw.

- 7 Disconnect the ignition switch wires.
- 8 To install, align the mating surface of the steering lock with the hole in the steering column tube. Check the operation of the lock using the key.
- 9 Install the two self-shearing screws in their appropriate holes, making sure the tops snap off.
- 10 Install the dash panel trim piece.
- 11 Install the two cluster panel switches.
- 12 Install the steering column trim covers.
- 13 Install the steering wheel.
- 14 Connect the negative battery cable.

14 Power steering system — maintenance and adjustment

Refer to illustrations 14.1a and 14.1b

- 1 The hydraulic components used in the power steering system include a belt driven pump with a remote reservoir tank, attached to the rack-and-pinion assembly by hoses and metal lines.
- 2 Normal maintenance of the power steering system consists of periodically checking the fluid level in the reservoir, keeping the pump drivebelt tension correct and visually checking the hoses for any evidence of fluid leakage. It will also be necessary, after a system component has been removed, to bleed the system as described in Section 16.

15 Power steering pump — removal and installation

Refer to illustrations 15.3, 15.7, 15.8, 15.9, 15.18a and 15.18b

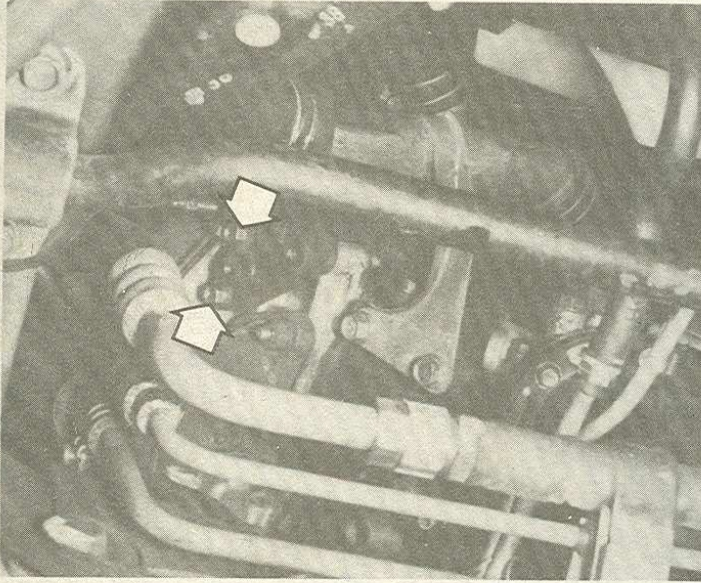
Pump removal

- 1 Remove the power steering pump drivebelt (Chapter 1).
- 2 Disconnect the negative cable at the battery. Place the cable out of the way so it cannot accidentally come in contact with the battery negative terminal.
- 3 Disconnect the power steering pump electrical connector (see illustration) by pressing in on the tab and pulling up on the connector.
- 4 Disconnect the cooling system reservoir by removing the bolts securing it to the fender well and the low fluid level electrical connector, using a small screwdriver to release the tang on the connector. It is

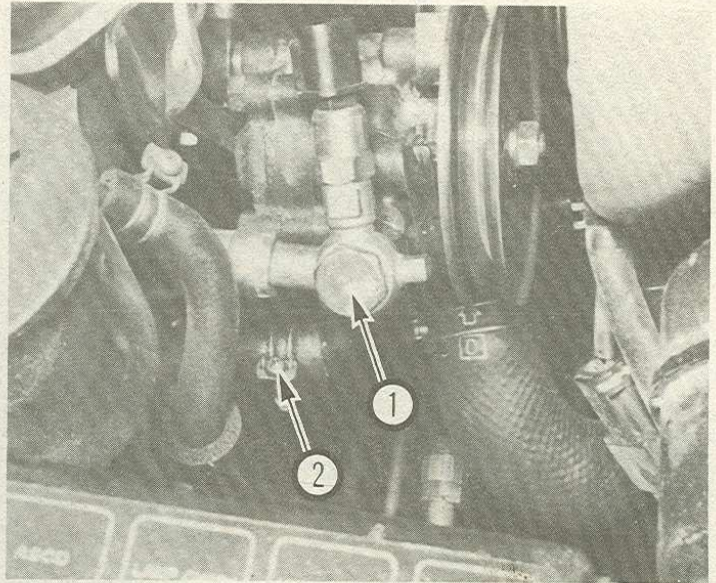
13 Steering lock — removal and installation

Refer to illustrations 13.3 and 13.6

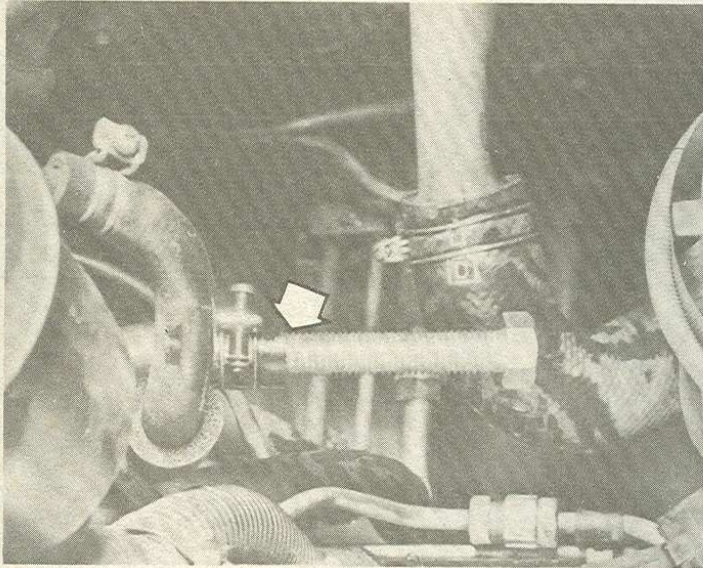
- 1 Obtain two self-shear screws from your Nissan dealer, needed to reinstall the steering lock.
- 2 Remove the steering wheel as described in Section 12.
- 3 Remove the steering column trim covers (see illustration).
- 4 Remove the two cluster panel switches (Chapter 12).
- 5 Remove the dash panel trim piece by removing the screws holding it to the dash.
- 6 The steering lock is secured to the steering shaft with two self-shear screws (see illustration). Removing the shear screws will involve very careful drilling of the screws. Start by center punching the center of the screw. Select a drill that is about the diameter of the root of



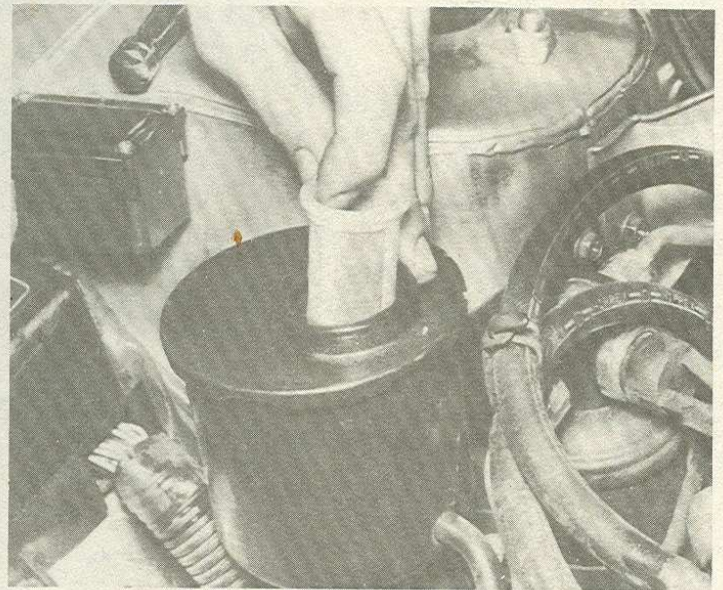
15.7 Remove the pump bracket to engine bolts (arrows)



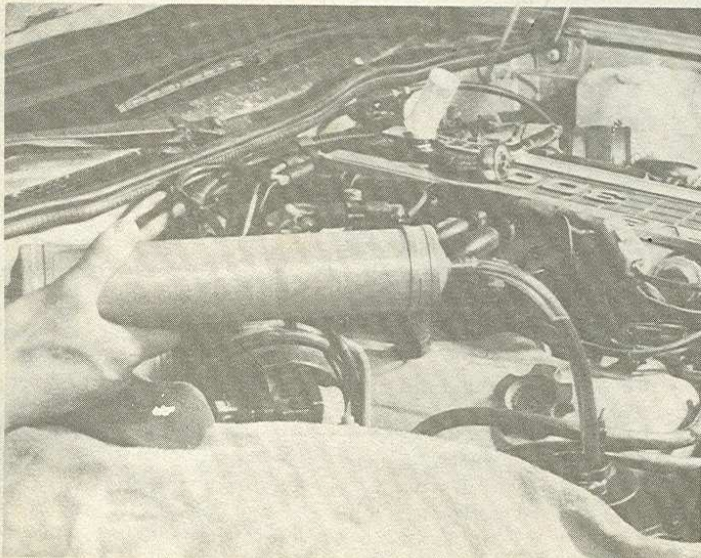
15.8 The banjo bolt (1) secures the high pressure line to the pump and the low pressure line (2) is held on by a hose clamp



15.9 Use a bolt to plug the power steering hose



15.18a Remove the cap and lift the screen from the power steering fluid reservoir



15.18b Use a small hand pump to siphon the fluid from the reservoir

not necessary to disconnect the coolant hose. Simply set the reservoir on the fender well out of your way.

5 Place a catch pan under the vehicle to catch any leaking hydraulic fluid.

6 Remove the bolts retaining the engine lifting bracket and remove the bracket.

7 Remove the bolts securing the pump to the engine block (see illustration).

8 Remove the banjo bolt (see illustration) connecting the high pressure line to the pump and raise the hose up and secure it in the up position.

9 Pull the bottom hose off the pump and cover the end of the hose with your thumb. Lift the pump out of the engine compartment. Use a bolt (see illustration) to plug the end of the hose to prevent further leakage.

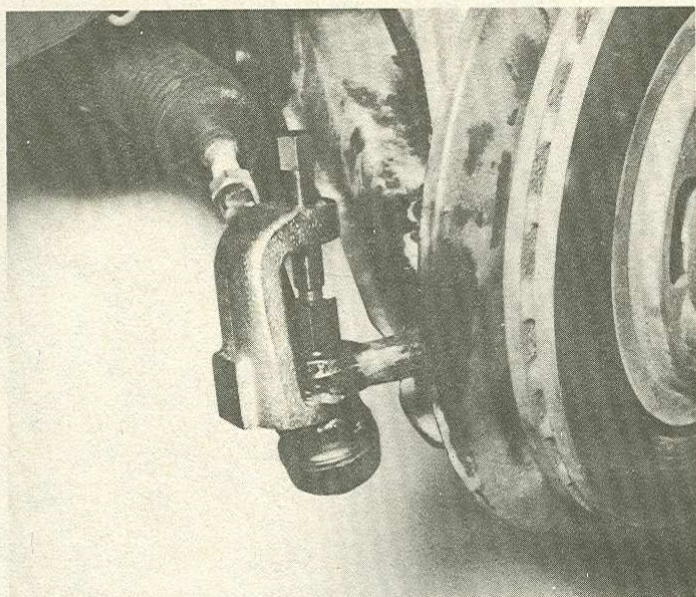
10 Install the return hose to the pump and secure with a hose clamp.

11 Install the pump on the engine block and tighten the two bolts.

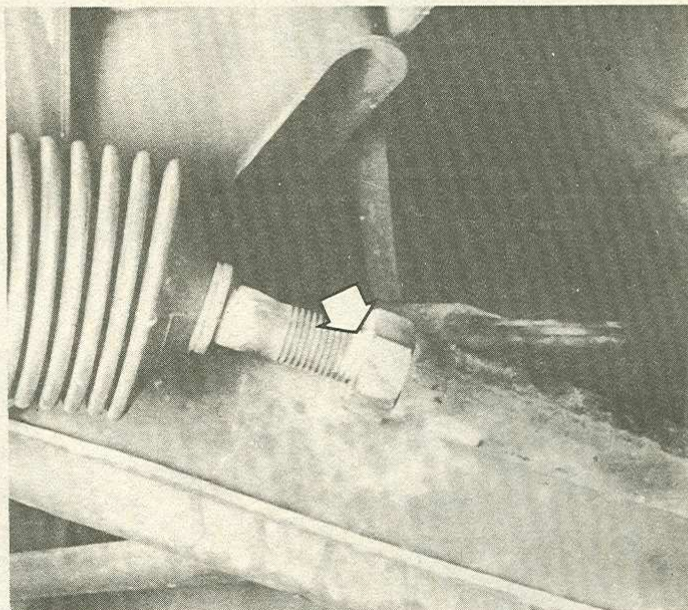
12 Install the banjo bolt fitting to the pump and tighten the bolt.

13 Install the engine lifting bracket.

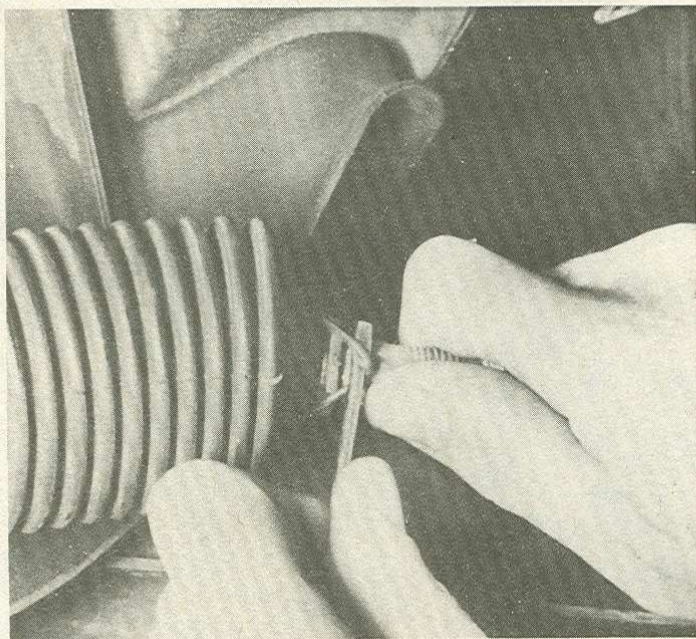
14 Connect the power steering pump electrical connector.



17.4 A separating tool is required to separate the tie rod from the steering knuckle



17.6 Mark the location of the tie rod locking nut so toe-in will be close during installation



17.7 Use a small screwdriver to remove the O-ring on the small end of the boot

- 15 Connect the coolant reservoir electrical connector and secure the reservoir to the fender well.
- 16 Check the power steering fluid reservoir and add power steering fluid if necessary.
- 17 Connect the negative cable to the battery.

Power steering fluid reservoir

- 18 Remove the cap and lift out the fluid screen (see illustration). Use a small hand pump (see illustration) to siphon the fluid out of the reservoir.
- 19 Disconnect the hoses attached to the bottom of the reservoir, held on by hose clamps.
- 20 Remove the bolts securing the the reservoir to the fender well and lift the reservoir from the vehicle.
- 21 Install the reservoir onto the fender well.

- 22 Attach the hoses to the bottom of the reservoir and secure with hose clamps.
- 23 Replace the screen and fill the reservoir with power steering fluid.

16 Power steering system — bleeding

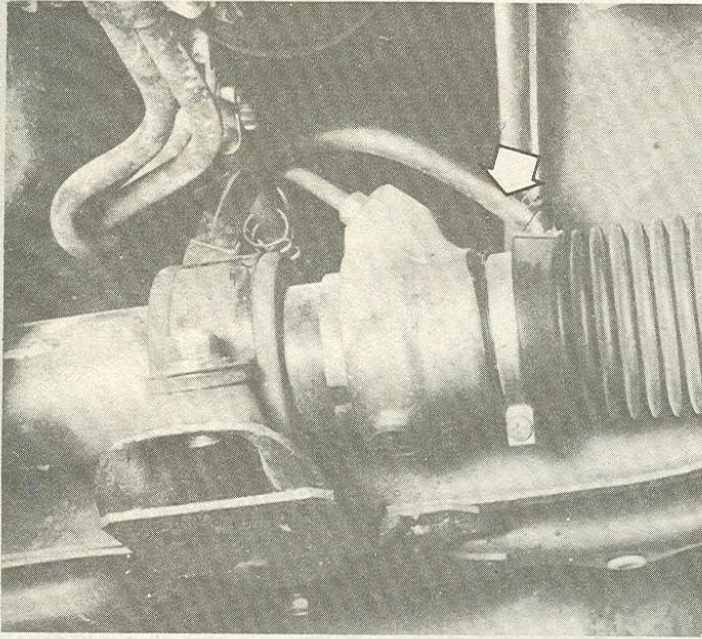
Note: Whenever a hose in the power steering system has been disconnected, it is quite probable, no matter how much care was taken to prevent air entering the system, that the system will need bleeding.

- 1 Raise the front of the vehicle until the front wheels are just clear of the ground and secure on jackstands.
- 2 While adding fluid to the reservoir, quickly turn the steering wheel all the way to the right lock and then the left lock. Do not allow the lock stoppers to be struck hard. This operation should be repeated about ten times or until correct fluid level is achieved in the reservoir.
- 3 Start the engine and allow it to idle. Repeat Step 2.
- 4 If the air bleeding is insufficient, the oil reservoir will be extremely foamy and the pump will be noisy. In this case, allow the foam in the reservoir to disperse, recheck the level and repeat the entire bleeding process.
- 5 If it becomes obvious, after several attempts, that the system cannot be satisfactorily bled, there is probably a leak in the system. Visually check the hoses and their connections for leaks. If no leaks are evident, the problem could be in the steering system itself and the only solution is to have the entire system checked by a Nissan dealer or other specialist.

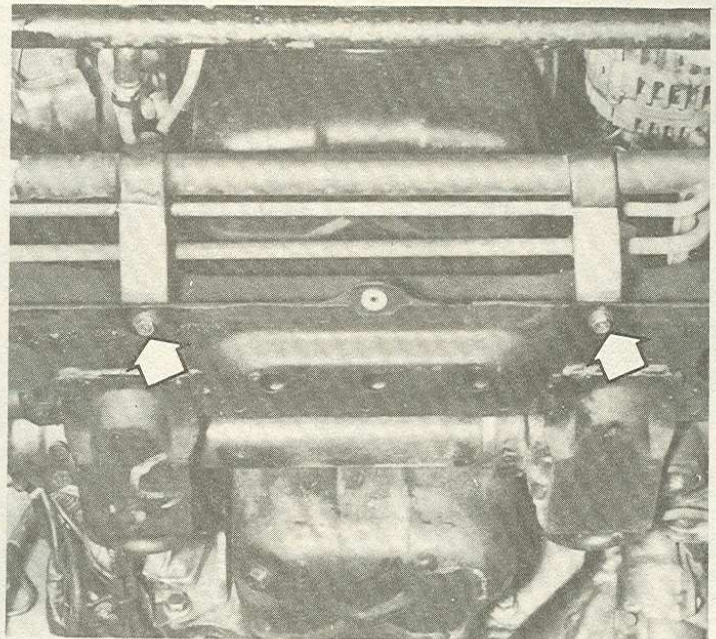
17 Tie rod and boot — removal and installation

Refer to illustrations 17.4, 17.6, 17.7 and 17.8

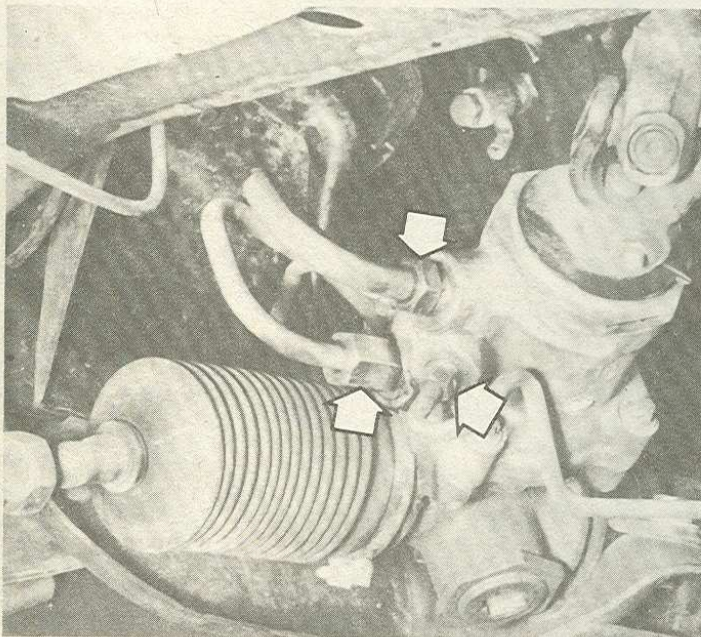
- 1 Raise the front of the vehicle and support it securely on jackstands.
- 2 Remove the splash shield retaining bolts and remove the shield.
- 3 Remove the cotter pin and nut securing the tie rod to the steering knuckle.
- 4 Use an appropriate separating tool (see illustration) to separate the tie rod from the steering knuckle.
- 5 Remove the clamp securing the rubber boot to the rack and pinion.
- 6 Use paint to mark the location of the tie rod locknut (see illustration). Loosen the tie rod locknut one-quarter turn and remove the tie rod by turning it counterclockwise to remove it.
- 7 Remove the rubber O-ring from the small end of the boot (see illustration).



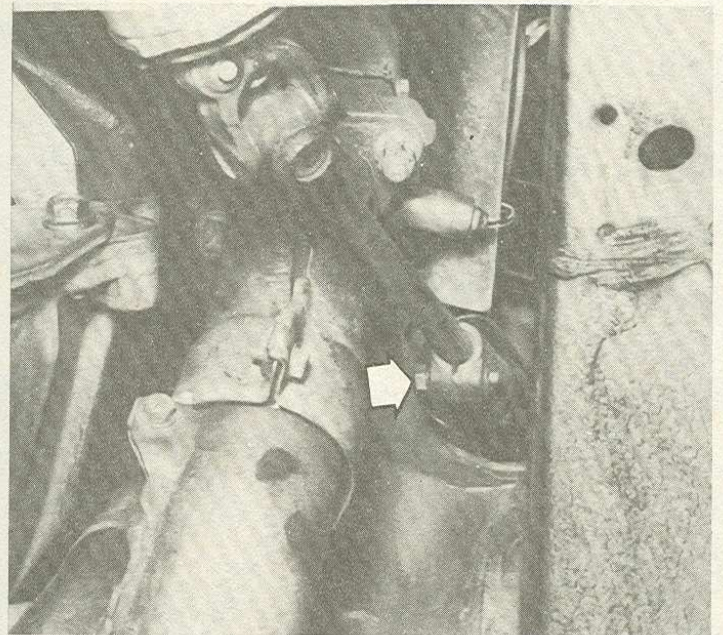
17.8 Disconnect the breather hose (arrow) from the boot



18.3 Disconnect the hydraulic lines attached to the front crossmember



18.4 Use a flare nut wrench to loosen the flare nuts where the hydraulic lines enter the pinion assembly (arrows)



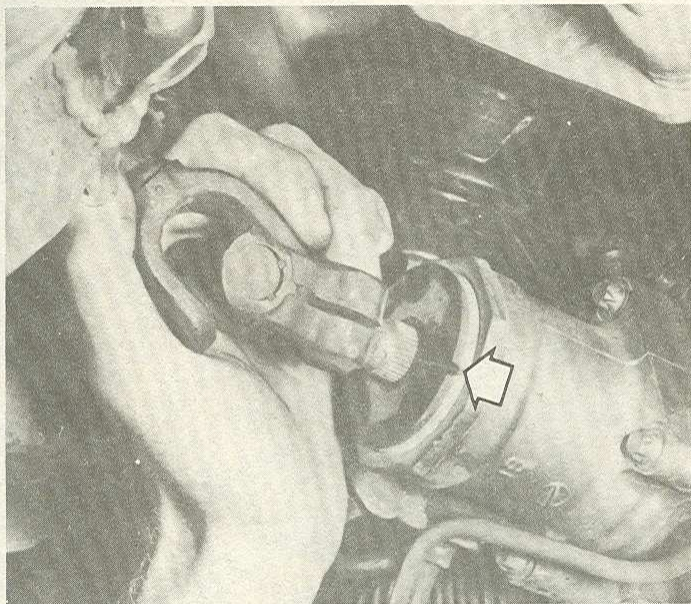
18.5 Remove the bolt securing the upper end of the lower joint shaft to the steering column (arrow)

- 8 Remove the clamp securing the breather hose attached to the boot (see illustration).
- 9 Slide the boot off the rack and pinion unit.
- 10 When installing the boot be sure it is installed with the breather nipple facing upward.
- 11 Use a new O-ring on the small end of the boot.
- 12 Install the tie rod end. If the locknut was loosened only one-quarter turn the toe-in should be close when the tie rod is brought up to the locknut.
- 13 Install the nut and cotter pin securing the tie rod to the steering knuckle.
- 14 Install the splash shield.
- 15 Remove the jackstands and lower the vehicle.
- 16 Have the toe-in set by your Nissan dealer or other front end specialist.

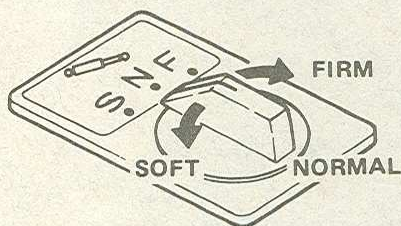
18 Rack and pinion unit — removal and installation

Refer to illustrations 18.3, 18.4, 18.5, 18.6 and 18.8

- 1 Raise the front of the vehicle and support it securely on jackstands.
- 2 Remove the splash shield.
- 3 Remove the bolts attaching the hydraulic lines to the crossmember (see illustration).
- 4 Place a drain pan under the rack and pinion and disconnect the flare nuts where the hydraulic lines enter the rack and pinion (see illustration). Allow the fluid to drain into the pan. Plug all the openings to prevent the entry of foreign matter into the system.
- 5 Remove the bolt securing the upper end of the lower joint shaft to the steering column (see illustration).
- 6 Disconnect the bolt securing the lower joint to the rack and pinion



18.6 Remove the through bolt and separate the lower steering column joint shaft from the pinion gear. Arrow indicates the alignment mark to the match groove on the lower joint coupling



20.1 The adjustable shock absorber control switch is located on the console and offers three selections of damping force

gear and separate the two pieces (see illustration). Note that the alignment spacer is aligned with the lower joint coupling retraction groove.
7 Remove the cotter pins and nuts securing the tie rods to the steering knuckles. Using a suitable separating tool, separate the tie rods from the knuckles.

8 Loosen, but do not remove, the bolts securing the rack-and-pinion to the crossmember (see illustration).

9 Remove the nuts attaching the front engine mounting insulators to the crossmember (Chapter 2A).

10 Securely connect an engine hoist to the lifting eyes on the engine and lift the engine slightly until the weight is taken off the engine mounts.

11 Lift the engine slowly and keep a careful check on clearances around the engine while it is being lifted. Check especially the fan shroud, vacuum lines leading to the engine and the rubber ducts connected to the air flow meter.

12 Remove the rack and pinion mounting bolts and lift the unit from the crossmember.

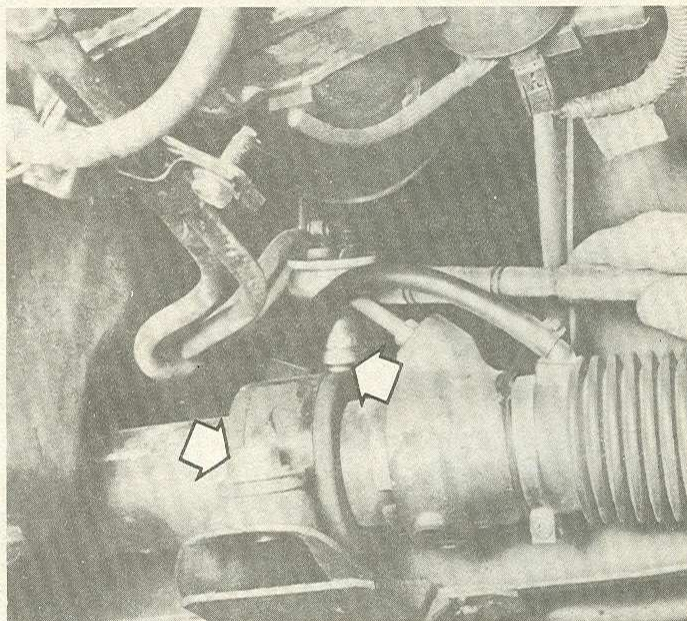
13 If the rack and pinion unit needs to be overhauled, this should be done by a Nissan dealer or other qualified mechanic.

14 Install the rack and pinion onto the crossmember and install the mounting bolts.

15 Carefully lower the engine, making sure the engine mounts align with their insulators and install the insulator nuts.

16 Install the tie rods to the steering knuckles and secure with the nuts and cotter pins.

17 Install the top of the lower steering column joint shaft but do not



18.8 Loosen but do not remove the bolts securing the rack and pinion to the crossmember

install the through bolt until the lower end is installed.

18 Install the lower end of the steering column lower joint shaft, making sure the groove in the coupling is aligned with the notch on the pinion housing. Install the upper end through bolt.

19 Connect the metal hydraulic fluid lines to the pinion housing.

20 Connect the fluid lines to the crossmember.

21 Replace the splash shield.

22 Remove the jackstands and lower the vehicle.

19 Steering wheel play — adjustment

Due to the special tools and knowledge required, it is advised that you have your Nissan dealer or other qualified specialist make adjustments to the steering rack unit.

20 Adjustable suspension (turbo models) — general description

Refer to illustration 20.1

Some models come equipped with a three-way adjustable suspension system. The system is electronically controlled by a switch located on the console (see illustration). The dampening force of the shock absorbers is set by turning the switch to the S, N, or F settings. The letters denote S for soft, N, for normal and F, gives a firm ride.

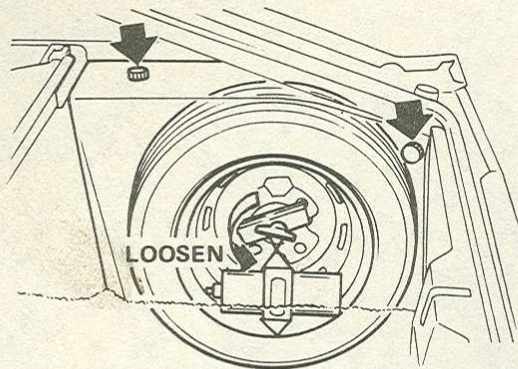
The switch can only be activated when the ignition switch is on. An indicator light will come on below the letter selected. If there is an abnormality in the system all the indicator lights will flicker. If this should occur the system should be checked by your Nissan dealer or other service facility.

21 Tire changing procedure

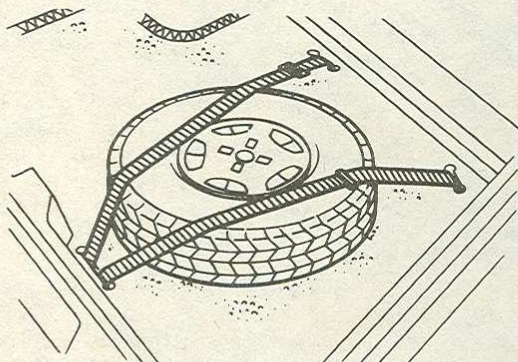
Refer to illustration 21.3, 21.4 and 21.12

1 The car should be on level ground with the transmission in Park (P), if equipped with an automatic transmission, or in Reverse (R) on manual equipped transmissions.

2 Set the parking brake and block the front and rear of the wheel of the wheel diagonally opposite of the wheel to be changed to prevent the car from rolling.



21.3 Remove the spare tire and jack from its storage area by removing the plastic trim cover and freeing the wheel and jack retaining wing nut

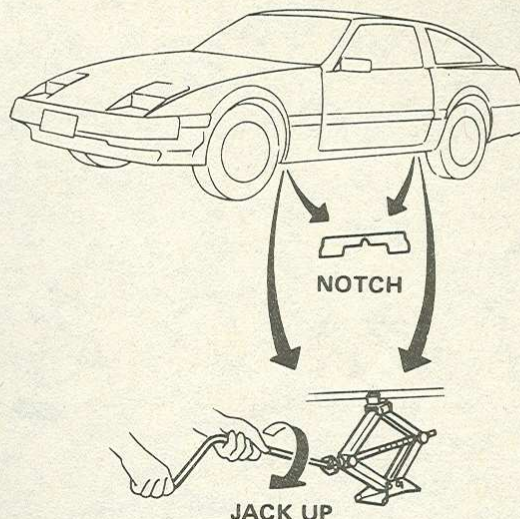


21.12 Secure the flat tire before traveling to prevent the tire from becoming a dangerous projectile in the event of an accident

3 Remove the spare tire and jack from the storage area (see illustration) by removing the two retainers holding the plastic cover to the side of the luggage compartment. Turn the center wing nut counter-clockwise to release the spare tire and lift out the jack.

4 Position the jack at the appropriate jacking point (see illustration) and insert the jack head notch into the body rail.

5 Use the wheel nut wrench to loosen the the wheel nuts one or two turns. **Caution:** Do not remove wheel nut until the tire is off the ground.



21.4 Position the jack near the wheel to be changed and be sure the jack head notch engages in the body rail

6 Slowly turn the jack handle in a clockwise motion and be attentive to any shifting in the weight of the vehicle.

7 Once the wheel has cleared the ground, remove the wheel nuts and carefully remove the the wheel by pulling it towards you. **Warning:** Never get under a vehicle supported only by the jack. Do not start or run the engine while the vehicle is on the jack.

8 Lay the flat tire on the ground near you and mount the spare tire by aligning the holes in the wheel with the wheel lugs and sliding it onto the wheel hub.

9 Replace all the wheel nuts by hand, making sure to replace the washers between the nuts and the wheel. **Caution:** If mounting the spare wheel onto the hub, use the special steel wheel lug nuts provided in the tool kit located under the carpet in the luggage compartment.

10 Use the wheel nut wrench and slightly tighten each wheel nut alternately and evenly until there is no wheel play.

11 Lower the vehicle slowly until the wheel touches the ground, then tighten the wheel nuts. **Caution:** As soon as possible after changing the wheel it is advisable to have a technician tighten the wheel nuts to the specified torque.

12 Lower the vehicle the rest of the way to the ground. **Warning:** Always secure the flat tire (see illustration) and jacking equipment after use to prevent them from becoming dangerous projectiles in the event of an accident.