Chapter 10 Suspension and steering systems

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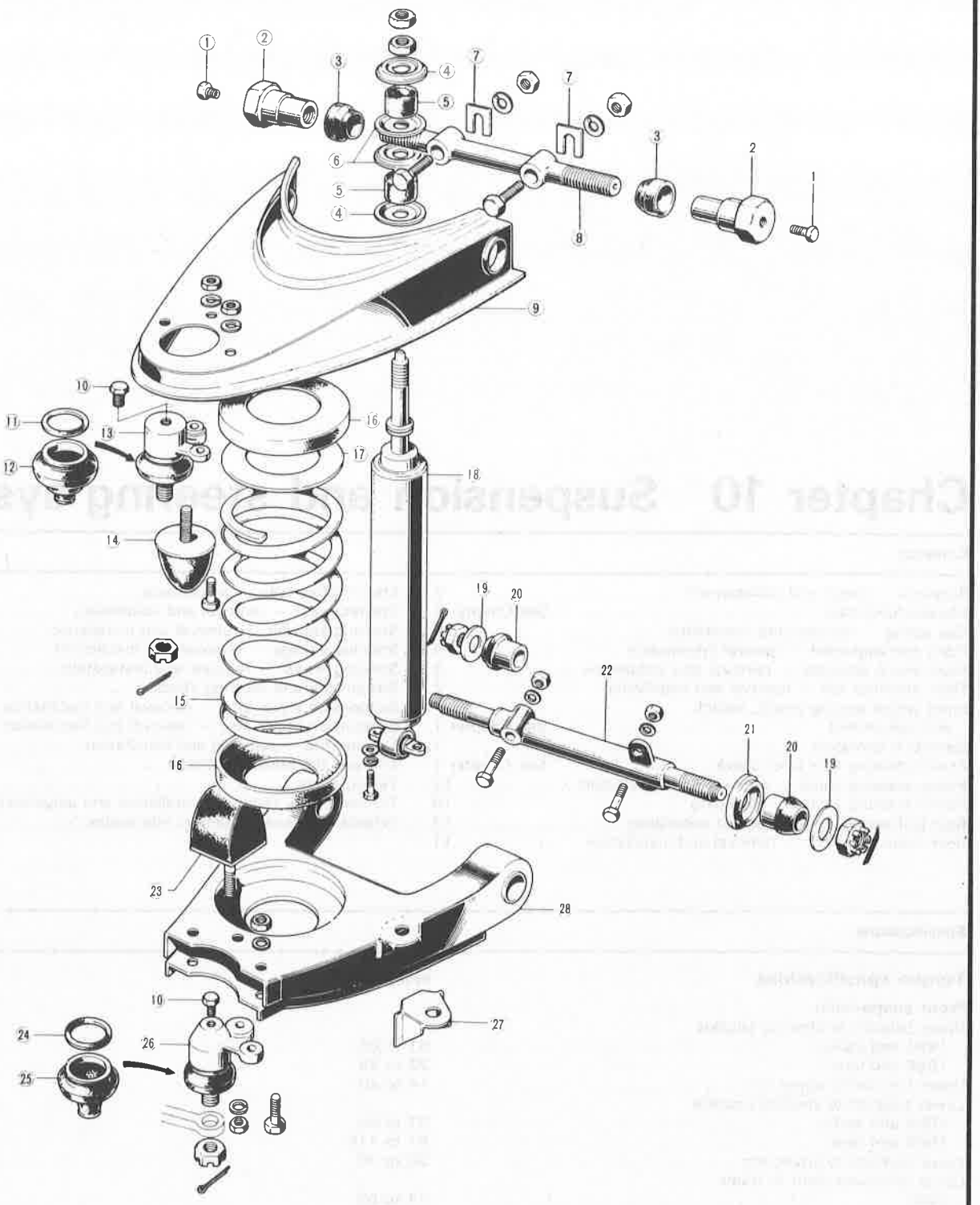

1.1a Exploded view of the front suspension components — coil spring type (1984 and earlier models)

1 *Plug*
2 *Threaded bushing*
3 *Dust seal*
4 *Concave washer*
5 *Bushing*
6 *Concave washer*
7 *Shim*
8 *Upper arm shaft*
9 *Upper arm*
10 *Plug*
11 *Set ring*
12 *Seal*
13 *Balljoint*
14 *Bump stop*
15 *Coil spring*
16 *Seat*
17 *Adjusting plate*
18 *Shock absorber*
19 *Washer*
20 *Bushing*
21 *Stopper*
22 *Lower arm shaft*
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24 *Set ring*
25 *Seal*
26 *Balljoint*
27 *Bracket*
28 *Lower arm*

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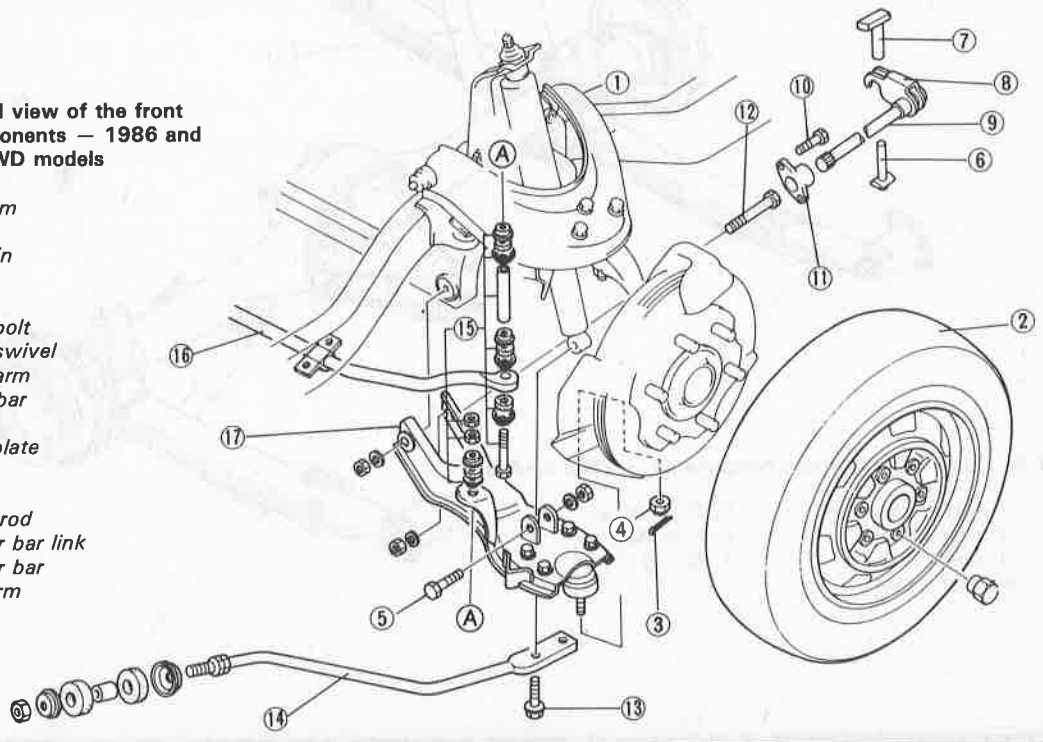
1 General information

Refer to illustrations 1.1a, 1.1b, 1.1c, 1.2a and 1.2b

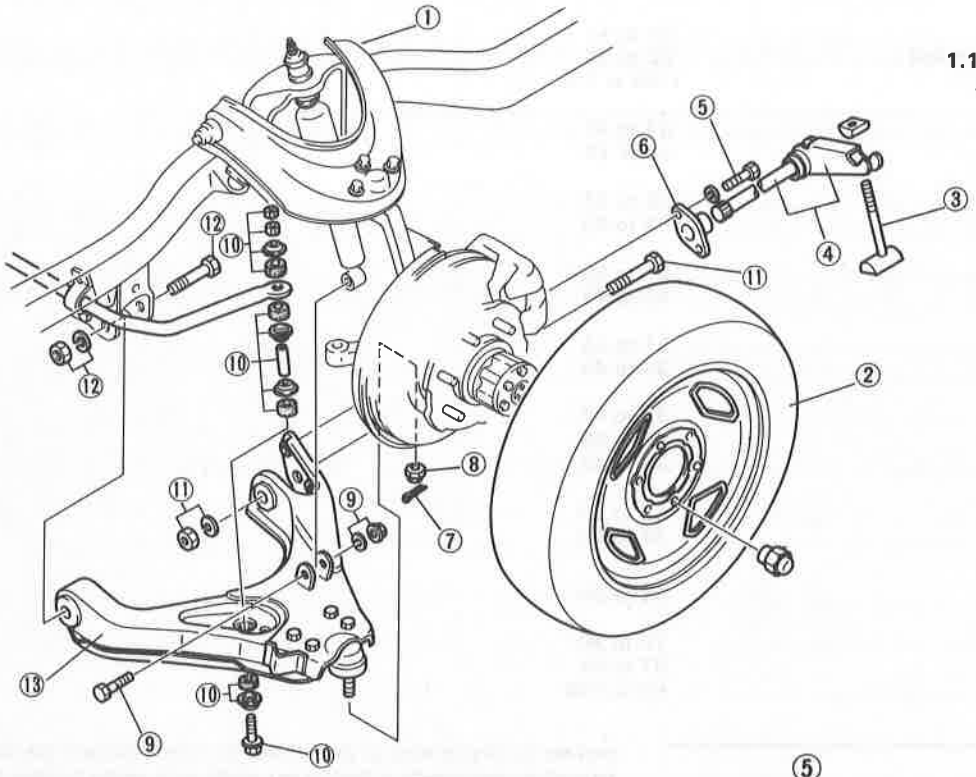
Warning: *Whenever any of the suspension or steering fasteners are loosened or removed, they must be inspected, and if necessary, replaced with new ones of the same part number or of original equipment quality and design. Torque specifications must be followed for proper reassembly and component retention. Never attempt to heat, straighten or weld any suspension or steering component. Instead, replace any bent or damaged part with a new one. Also, since most of the procedures involve jacking up the vehicle, be sure to support the vehicle securely on jackstands. If there is any doubt as to where to place them, refer to the Jacking and towing section at the front of this book.*

The front suspension on the vehicles covered by this manual is an independent type, made up of upper and lower control arms, coil springs (1984 and earlier models) or torsion bars (1986 and later models), ball-joint mounted steering knuckles and shock absorbers **(see illustrations)**. Some models are equipped with a stabilizer bar to limit body roll during cornering. Four wheel drive models use the same basic arrangement, but with the necessary modifications to accomodate the driveaxles.



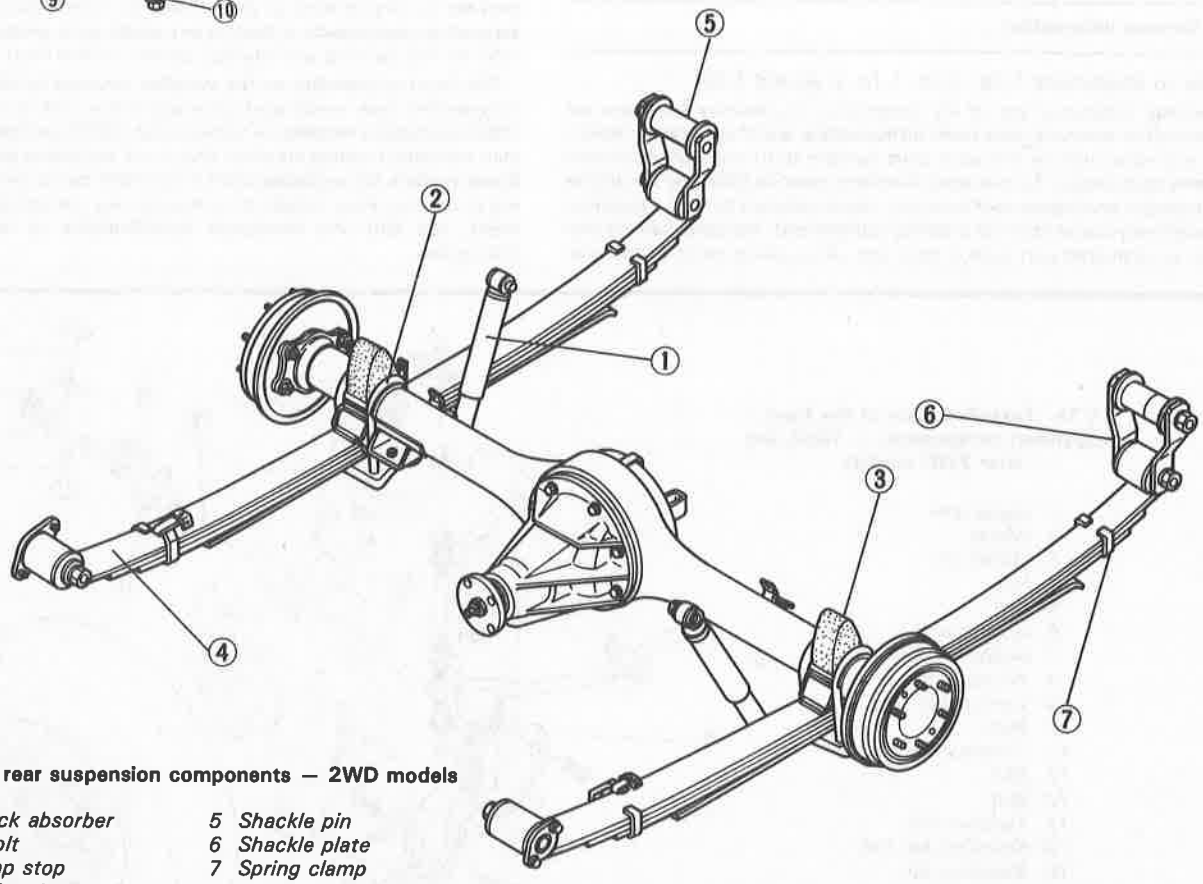
1.1b Exploded view of the front suspension components — 1986 and later 2WD models

1 Upper arm
2 Wheel
3 Cotter pin
4 Nut
5 Bolt
6 Anchor bolt
7 Anchor swivel
8 Anchor arm
9 Torsion bar
10 Bolt
11 Torque plate
12 Bolt
13 Bolt
14 Tension rod
15 Stabilizer bar link
16 Stabilizer bar
17 Lower arm



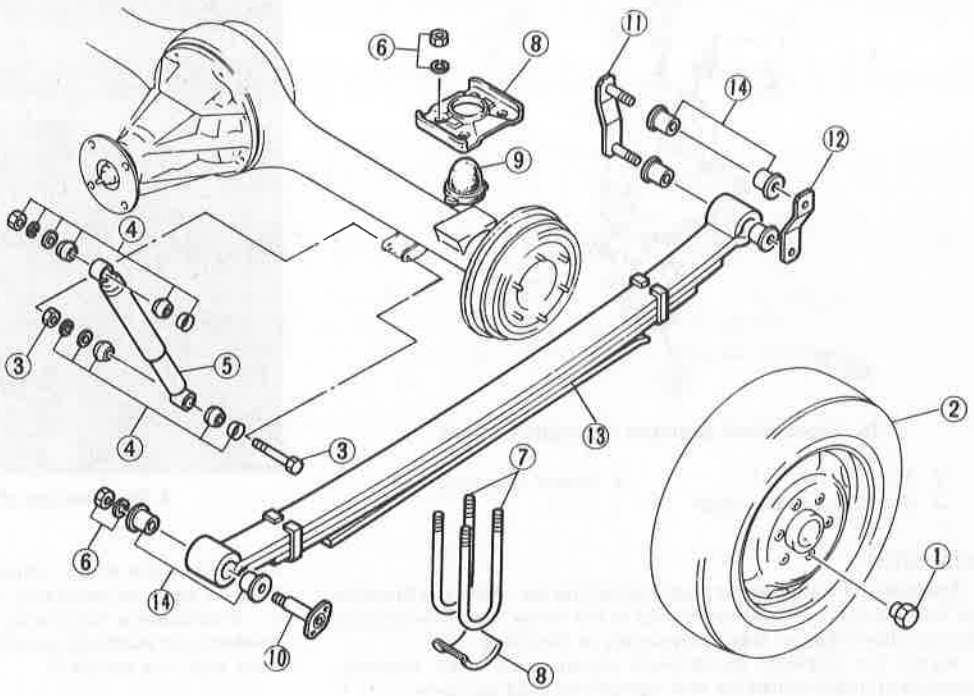
1.1c Exploded view of the front suspension — 4WD models

1 Upper arm
2 Wheel
3 Anchor bolt
4 Torsion bar and anchor arm
5 Bolt
6 Torque plate
7 Cotter pin
8 Nut
9 Bolt and nut
10 Stabilizer bar link
11 Bolt and nut
12 Bolt and nut
13 Lower arm



1.2a The rear suspension components — 2WD models

1 Shock absorber
2 U-bolt
3 Bump stop
4 Leaf spring
5 Shackle pin
6 Shackle plate
7 Spring clamp

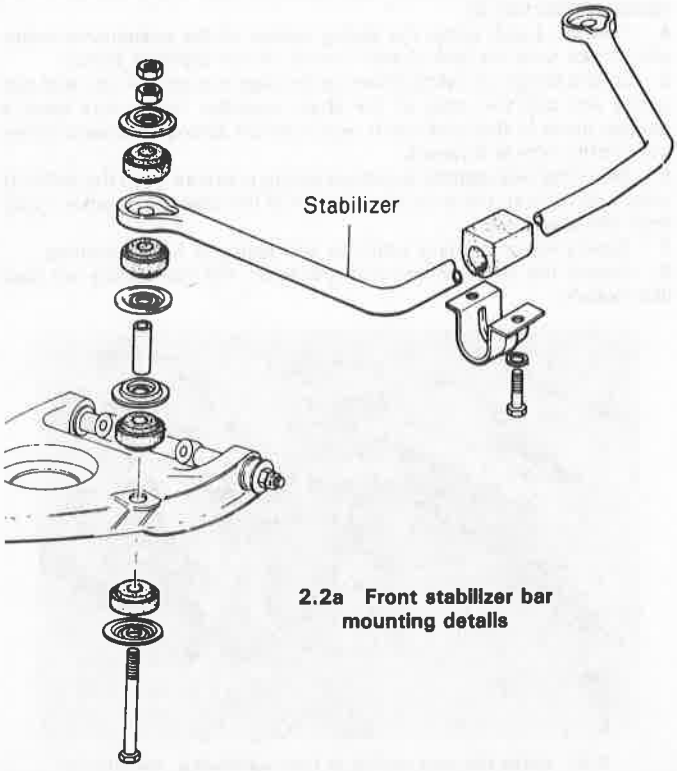


1.2b Exploded view of the rear suspension — 4WD models

1 Lug nut
2 Wheel
3 Bolt and nut
4 Nut, washers, retainers and bushings
5 Shock absorber
6 Nut and washer
7 U-bolts
8 Set plate
9 Bump stop
10 Spring pin
11 Shackle pin
12 Shackle plate
13 Leaf spring assembly
14 Bushings

The rear suspension consists of the rear axle housing, leaf springs and shock absorbers **(see illustrations)**. Information regarding axles and the rear axle housing can be found in Chapter 8.

The steering system is composed of a steering column, steering gear, center link, idler arm and two tie-rod assemblies. Some models feature power assisted steering, which includes a belt-driven pump and associated hoses to provide hydraulic pressure to the steering gear.



2.2a Front stabilizer bar mounting details

2 Front stabilizer bar — removal and installation

Refer to illustrations 2.2a and 2.2b

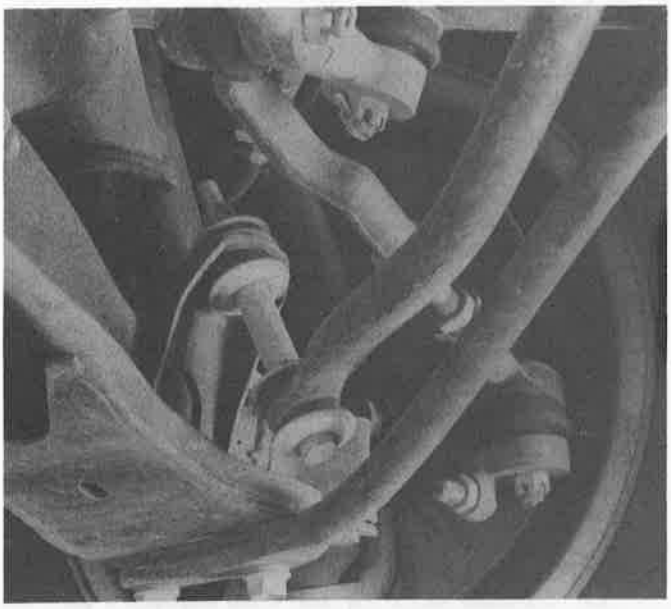
Removal

1 Raise the vehicle and support it securely on jackstands. Apply the parking brake.

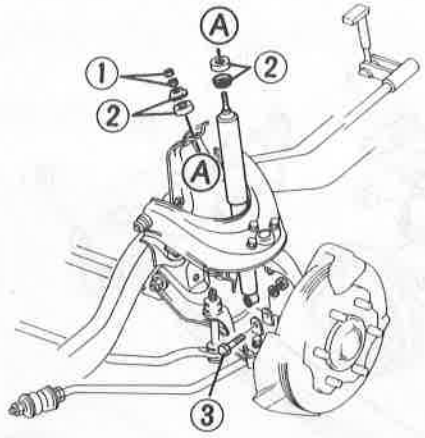
2 Remove the stabilizer bar-to-lower control arm nuts and bolts, noting how the spacers, washers and bushings are positioned **(see illustrations)**.

3 Remove the stabilizer bar bracket bolts and detach the bar from the vehicle.

4 Pull the brackets off the stabilizer bar and inspect the bushings for cracks, hardening and other signs of deterioration. If the bushings are damaged, replace them.



2.2b Stabilizer bar and control arm details



3.3a Front shock absorber installation details

1 Nuts
2 Washers and bushings
3 Lower mounting bolt

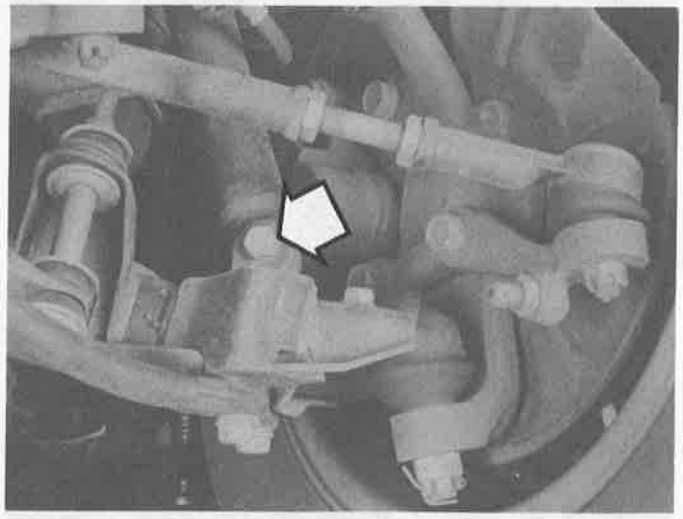
Installation

5 Position the stabilizer bar bushings on the bar. Push the brackets over the bushings and raise the bar up to the frame. Install the bracket bolts but don't tighten them completely at this time.
6 Install the stabilizer bar-to-lower control arm bolts, washers, spacers and rubber bushings and tighten the nuts securely.
7 Tighten the bracket bolts.

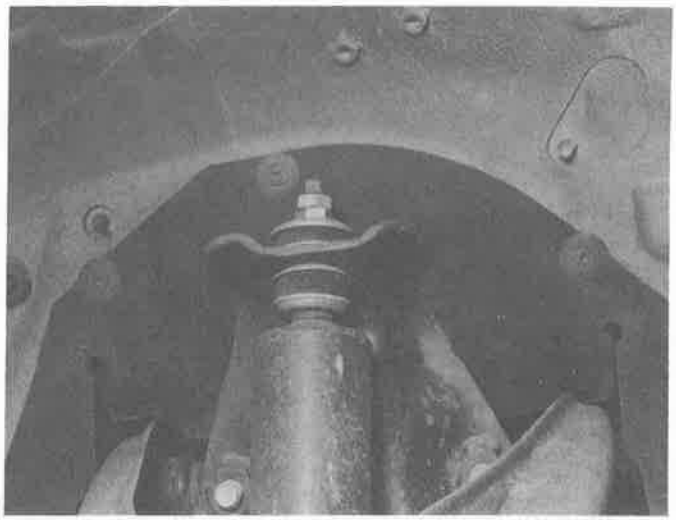
3 Front shock absorber — removal and installation

Refer to illustrations 3.3a, 3.3b and 3.5

1 Jack up the front of the vehicle and place it securely on jackstands.
2 Remove the front wheels.
3 Remove the nut(s) holding the shock absorber to the frame **(see illustrations)**. Clamp a pair of locking pliers to the flats at the top of the shock rod to prevent it from turning.
4 Remove the washers and the cushions from the shaft of the shock absorber.
5 Disconnect the shock from the lower arm by removing the two bolts (1984 and earlier models) or the single through bolt (1986 and later models) **(see illustration)**.
6 Fully compress the shock absorber.
7 Tilt the shock forward, turn it 90 degrees so the bushing is at right angles to the vehicle and pull it out.



3.5 The lower end of the front shock absorber — late model with a single securing bolt (arrow)



3.3b The top of the front shock absorber

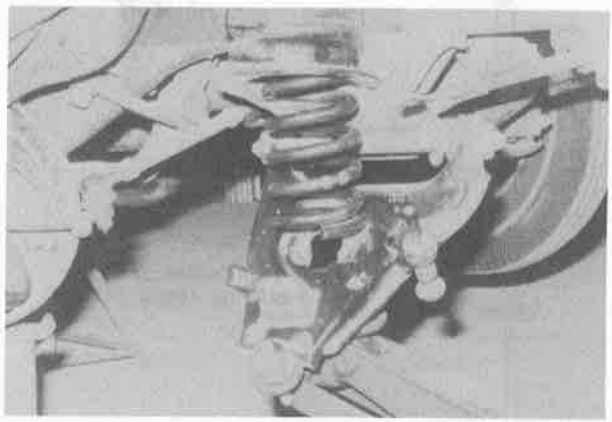
8 Inspect the shock components for wear, damage or oil leaks. Replace parts as necessary with new ones.
9 Installation is the reverse of the removal procedure. Make sure the washers and bushings are assembled in the proper order. Tighten the bolts and nuts securely.

4 Coil spring — removal and installation

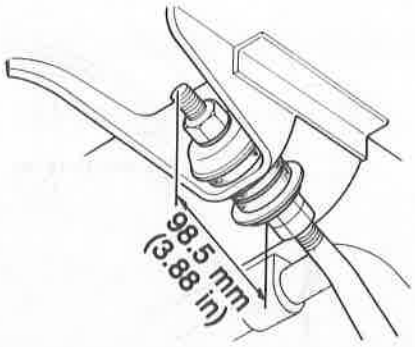
Refer to illustration 4.8

Removal

1 Loosen the wheel lug nuts, raise the vehicle and support it securely on jackstands placed under the frame. Apply the parking brake. Remove the wheel.
2 Remove the shock absorber (Section 3).
3 Disconnect the stabilizer bar from the lower control arm if so equipped (Section 2).
4 Position a jack under the spring pocket of the suspension lower arm. Make sure the jack doesn't cover up the balljoint bolts.
5 Loop a length of safety chain up through the control arm and coil spring and bolt the ends of the chain together. Make sure there's enough slack in the chain so it won't inhibit spring extension when the control arm is lowered.
6 Raise the jack slightly to relieve spring pressure from the balljoint bolts and remove the nuts and bolts. Pull the steering knuckle away from the lower arm.
7 Slowly lower the jack until the coil spring is fully extended.
8 Unbolt the safety chain and maneuver the coil spring out **(see illustration)**.



4.8 After the coil spring is fully extended, unbolt the safety chain and guide the spring out



5.6 When installed, the distance from the inner washer to the end of the tension rod should be 98.5 mm

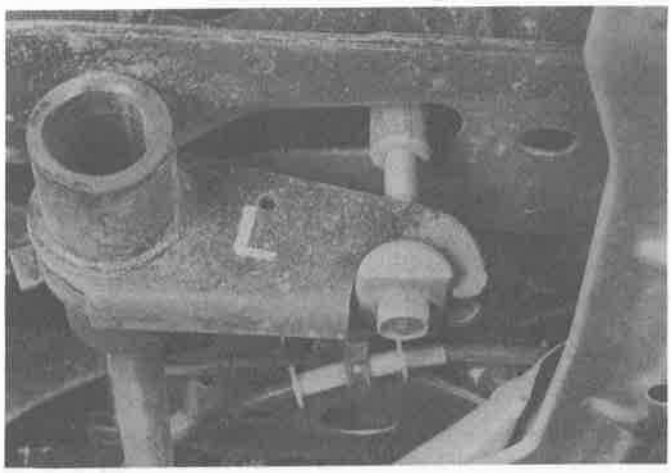
Installation

9 Place the insulators on the top and bottom of the coil spring.
10 Install the top of the spring into the spring pocket and the bottom in the lower control arm. The lower spring coil must be seated in the recessed portion of the spring seat.
11 Place the jack under the lower control arm, install the safety chain and slowly raise the control arm into place. Swing the steering knuckle and balljoint into position, then install the balljoint bolts and nuts. Tighten the nuts to the specified torque and remove the safety chain.
12 Install the shock absorber (Section 3).
13 Attach the stabilizer bar to the lower control arm (Section 2).
14 Install the wheel and lug nuts. Lower the vehicle and tighten the lug nuts to the specified torque.

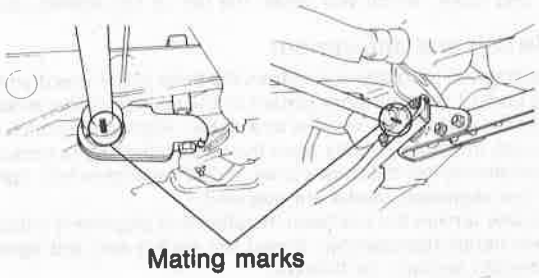
5 Tension rod — removal and installation

Note: *This procedure applies to 1986 and later models only.*
Refer to illustration 5.6.

1 Raise the vehicle and support it securely on jackstands.
2 Place alignment marks on the threaded portion of the tension rod and the inner nuts. If the position of the inner nut changes, the caster setting will be affected.
3 Remove the outer nut from the tension rod.
4 Remove the bolts holding the tension rod to the lower arm and remove the tension rod.
5 Inspect the tension rod and components for wear or damage. Replace parts as necessary with new ones.
6 Installation is the reverse of the removal procedure. Make sure to first thread the inside nuts onto the tension rod and align the marks made before removal. Tighten the bolts according to the torque figures in the Specifications. Tighten the outside nut until the distance between the end of the rod and the inner washer is as specified **(see illustration)**.



6.2a The rear end of the torsion bar — note that each torsion bar is clearly marked for either the Left (L) or Right (R) side of the vehicle



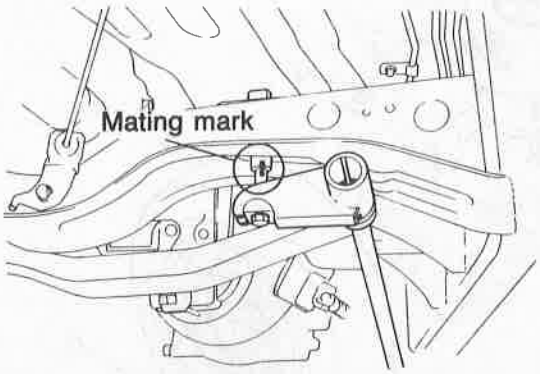
6.2b To simplify the installation and adjustment procedure, mark the relationship of the torsion bar to the anchor arm and the torque plate

6 Torsion bar — removal, installation and adjustment

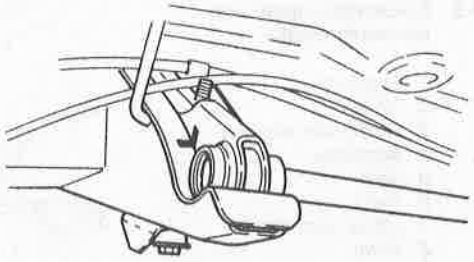
Refer to illustrations 6.2a, 6.2b, 6.3a, 6.3b, 6.10 and 6.11

Removal

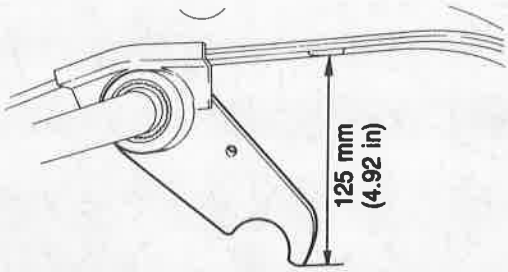
1 Loosen the wheel lug nuts, raise the vehicle and support it securely on jackstands. Remove the wheel.
2 Place alignment marks from the torsion bar to the anchor arm and torque plate **(see illustrations)**.
3 Place alignment marks on the threads of the anchor bolt **(see illustration)**, then remove the anchor bolt (on 4WD models, place the marks on the anchor arm and the bracket).



6.3a Mark the position of the anchor bolt to restore the original torsion bar setting during installation



6.3b On 4WD models, place alignment marks from the anchor arm to the bracket



6.10 If a new torsion bar is being installed (or if the original wasn't marked), set the angle of the anchor arm to obtain a distance of 125 mm from the crossmember to the tip of the arm (2WD models)

4 Unbolt the torque plate from the suspension lower arm **(see illustration 1.1b or 1.1c)** and remove the torsion bar assembly from the vehicle.

5 Inspect the torsion bar, anchor arm and torque plate splines for damage and wear. The fit between the bar and the torque plate and anchor arm should be snug, not loose. Inspect the bar for distortion, cracks and nicks, which will cause the bar to fail prematurely.

Installation and adjustment

6 Install the torque plate and tighten the bolts to the specified torque. Apply a coat of multi-purpose grease to the splines of the torsion bar.

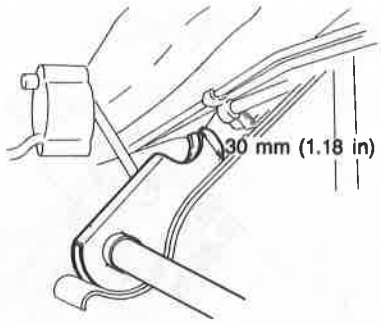
7 Slide the anchor arm onto the torsion bar, aligning the match marks.

8 Line up the match marks from the torsion bar to the torque plate and insert the bar into the torque plate. Install the anchor bolt, tightening it until the alignment marks are adjoined.

9 If a new torsion bar has been installed or if alignment marks were not made before disassembly, preset the anchor arm and tighten the bolt a certain amount, as follows:

10 On two-wheel drive vehicles, install the torsion bar into the torque plate then install the anchor arm onto the end of the torsion bar so that there is approximately 125 mm (4.92 in) between the crossmember and the tip of the anchor arm **(see illustration)**. Tighten the anchor bolt until the anchor arm contacts the anchor bolt swivel, then tighten it an additional 45 mm (1.77 in). Install the wheel then lower the vehicle and check the ride height. If the vehicle is not level from side to side, turn the anchor bolt in or out as necessary to even it.

11 On 4WD vehicles, install the torsion bar and anchor arm so that the distance between the anchor arm tip and the frame bracket is



6.11 On 4WD models, set the anchor arm so there is 30 mm clearance between the anchor arm tip and the frame bracket

30 mm (1.18 in) **(see illustration)**. Install the anchor bolt and tighten it. Install the wheel, then lower the vehicle. Tighten or loosen the bolt as necessary to level the vehicle from side-to-side.

7 Suspension upper arm — removal and installation

Refer to illustration 7.5

Removal

1 Loosen the wheel lug nuts, raise the front of the vehicle and support it securely on jackstands. Apply the parking brake. Remove the wheel.

2 Support the lower arm with a jack or jackstand. The support point must be as close to the balljoint as possible to give maximum leverage on the lower control arm.

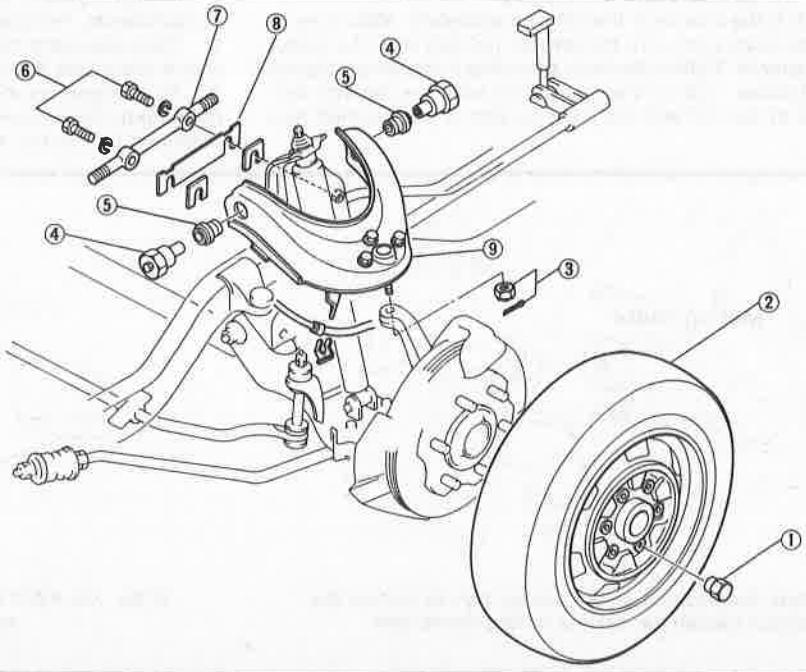
3 Disconnect the upper balljoint from the upper arm by removing the nuts and bolts. Separate the balljoint from the upper arm, but be careful not to let the steering knuckle/brake caliper assembly fall outward, as this may damage the brake hose.

4 If the threaded upper arm shaft bushings are to be replaced, loosen, but do not remove them at this time

5 Remove the upper arm-to-frame nuts and bolts, recording the position of any alignment shims. They must be reinstalled in the same location to maintain wheel alignment **(see illustration)**.

6 Detach the upper arm from the vehicle.

7 Unscrew the bushings if they are to be replaced.



7.5 Suspension upper arm mounting details

1 Lug nut
2 Wheel
3 Cotter pin and nut
4 Bushings
5 Seals
6 Bolts
7 Upper arm shaft
8 Shim
9 Upper arm assembly

Installation

8 Position the arm on the frame and install the bolts and nuts. Install any alignment shims that were removed. Tighten the nuts to the specified torque.
9 Connect the balljoint to the upper arm and tighten the nuts to the specified torque.
10 Install the wheel and lug nuts and lower the vehicle. Tighten the lug nuts to the specified torque.
11 Drive the vehicle to an alignment shop to have the front end alignment checked and, if necessary, adjusted.

8 Suspension lower arm — removal and installation

Removal

1 Loosen the wheel lug nuts, raise the vehicle and support it securely on jackstands. Remove the wheel.
2 On 1984 and earlier models, remove the shock absorber (Section 3). On 1986 and later models, disconnect the shock absorber from the lower arm only.
3 Disconnect the stabilizer bar from the lower arm, if so equipped (Section 2).
4 Remove the coil spring (Section 4) or torsion bar and torque plate (Section 6).
5 Loosen, but do not remove the lower arm pivot bolt(s).
6 Disconnect the balljoint from the lower arm by removing the nuts and bolts (torsion bar models).
7 Unbolt the lower arm from the frame by removing the pivot bolt nut(s) **(see illustration 1.1b or 1.1c)**. On early models, the lower arm has a pivot shaft that is held to the frame by three bolts **(see illustration 1.1a)**.

Installation

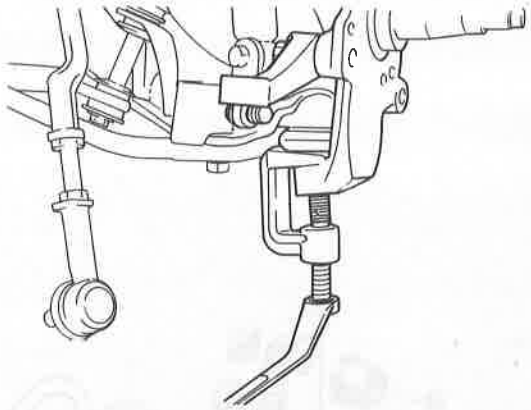
8 Position the arm to the frame and install the pivot bolts. The bolts on early styles (with a pivot shaft) may be tightened to the specified torque at this time.
9 On torsion bar models, raise the lower arm to simulate the normal ride angle then tighten the pivot bolt nut(s) to the specified torque. Connect the balljoint to the lower arm and install the bolts and nuts, tightening them to the specified torque. Now allow the arm to hang free and install the torque plate and torsion bar (Section 6).
10 Install the coil spring (1984 and earlier models) and connect the balljoint to the lower arm, tightening the fasteners to the specified torque.
11 Install the shock absorber (Section 3) and connect the stabilizer bar to the lower arm (Section 2).
12 Install the wheel and lug nuts. Lower the vehicle and tighten the lug nuts to the specified torque.
13 With the weight of the vehicle on the wheels, tighten the pivot bolt nuts to the specified torque.
14 Drive the vehicle to an alignment shop to have the front end alignment checked and, if necessary, adjusted.

9 Balljoints — check and replacement

Refer to illustration 9.7

Check

1 Raise the vehicle and support it securely on jackstands.
2 Visually inspect the rubber seal for cuts, tears or leaking grease. If any of these conditions are noticed, the balljoint should be replaced.
3 Place a large pry bar under the balljoint and attempt to push the balljoint upwards. Next, position the pry bar between the steering knuckle and the control arm and apply downward pressure **(see illustrations)**. If any movement is seen or felt during either of these checks, a worn out balljoint is indicated.
4 Have an assistant grasp the tire at the top and bottom and shake the top of the tire in an in-and-out motion. Touch the balljoint stud castellated nut. If any looseness is felt, suspect a worn out balljoint stud or a widened hole in the steering knuckle boss. If the latter problem exists, the steering knuckle should be replaced as well as the balljoint.



9.7 Break the balljoint loose from the steering knuckle with a separating tool (don't try to hammer the balljoint stud through the knuckle boss)

Replacement

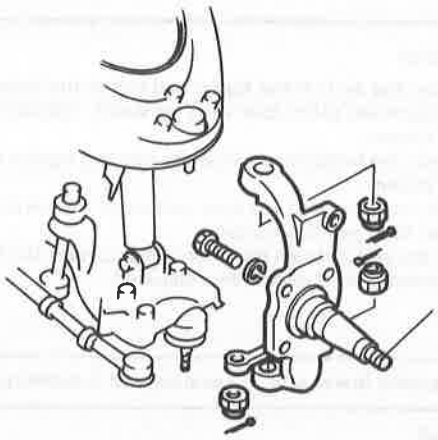
5 With the vehicle still raised and supported, position a floor jack under the lower arm — it must stay there throughout the entire operation. Remove the wheel.
6 Remove the cotter pin and loosen the castle nut a couple of turns, but don't remove it (it will prevent the balljoint and steering knuckle from separating violently).
7 Using a balljoint separating tool, separate the balljoint from the steering knuckle **(see illustration)**. There are several types of balljoint tools available, but the kind that pushes the balljoint stud out of the knuckle boss works the best. The wedge, or "pickle fork" type works fairly well, but it tends to damage the balljoint seal. Some two-jaw pullers will do the job, also.
8 Remove the castle nut and disconnect the balljoint from the steering knuckle. If the upper arm balljoint is being worked on, be careful not to let the steering knuckle/hub/brake assembly fall outward, because the brake hose might be damaged. If necessary, wire the assembly to the frame to prevent this from happening.
9 Remove the bolts (and nuts on early models) that retain the balljoint to the suspension arm, then detach the balljoint from the arm. Take note of how the balljoint is positioned on the arm — the new one must be installed the same way.
10 Position the new balljoint on the arm and install the bolts (and nuts), tightening them to the specified torque.
11 Insert the balljoint stud into the steering knuckle boss, install the castle nut and tighten it to the specified torque. Install a new cotter pin. If necessary, tighten the nut an additional amount to line up the slots in the nut with the hole in the balljoint stud (never loosen the nut to align the hole).
12 Install the wheel and lug nuts. Lower the vehicle and tighten the lug nuts to the specified torque.

10 Steering knuckle — removal and installation

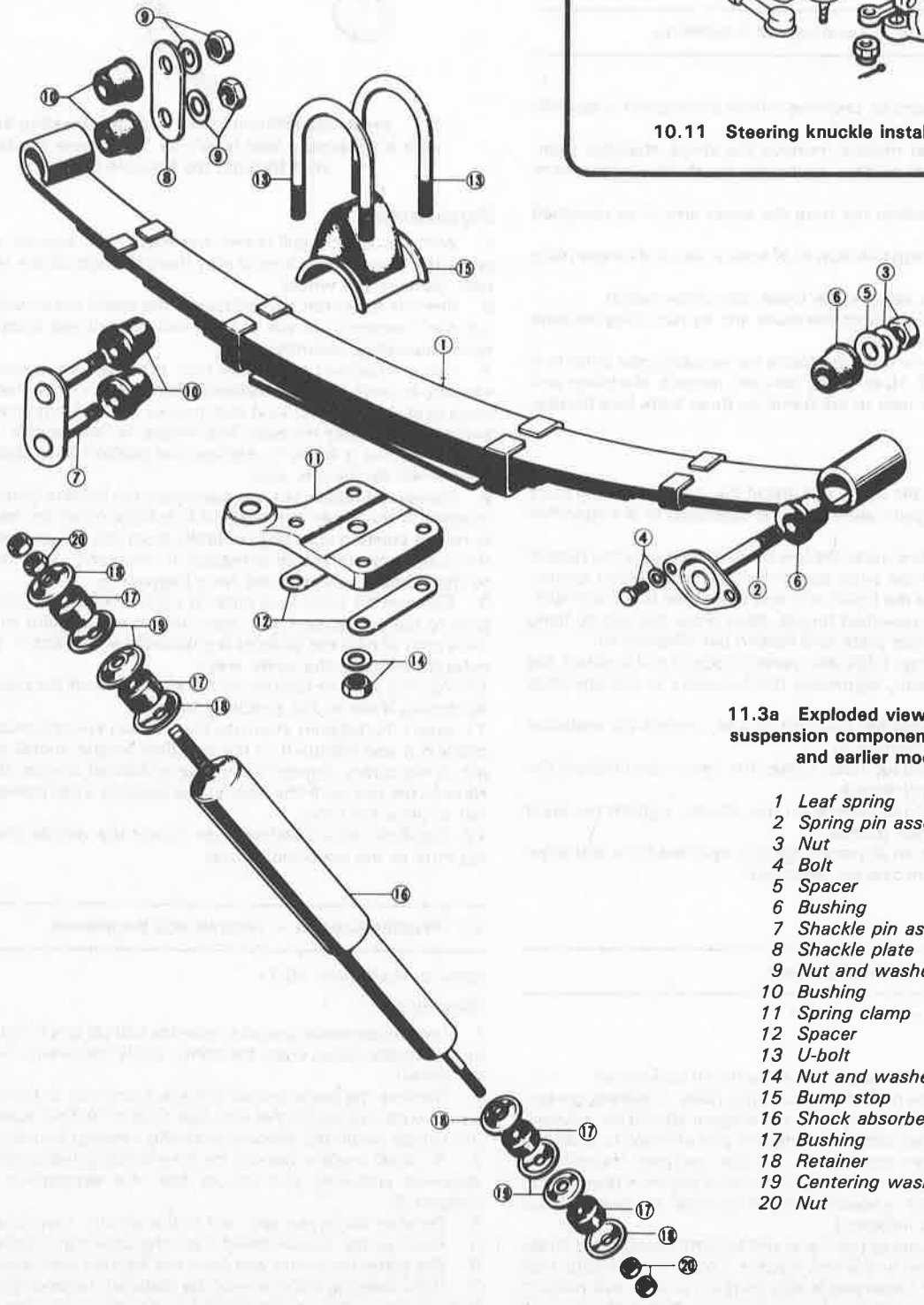
Refer to illustration 10.11

Removal

1 Loosen the wheel lug nuts, raise the vehicle and support it securely on jackstands placed under the frame. Apply the parking brake. Remove the wheel.
2 Remove the brake caliper and place it on top of the upper control arm or wire it up out of the way (see Chapter 9 if necessary). Remove the caliper mounting bracket from the steering knuckle.
3 On 4WD models, remove the freewheeling hub assembly and the driveaxle snap-ring and spacer (see the appropriate Sections in Chapter 8).
4 Remove the brake disc and hub assembly (see Chapter 1).
5 Remove the splash shield from the steering knuckle.
6 Separate the tie-rod end from the knuckle arm (see Section 14).
7 If the steering knuckle must be replaced, remove the knuckle arm from the knuckle by removing the two bolts. If it's damaged, replace it with a new one.

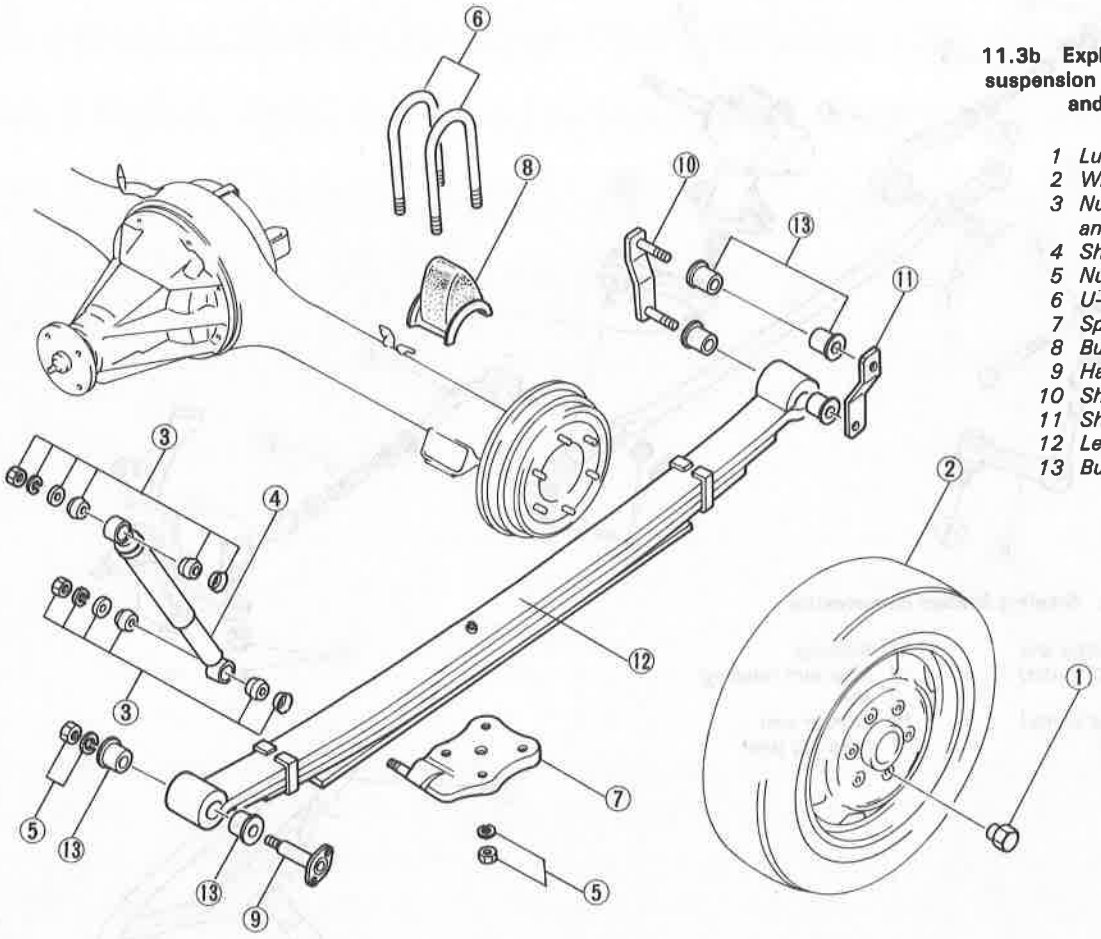


10.11 Steering knuckle installation details



11.3a Exploded view of the rear suspension components — 1984 and earlier models

1 Leaf spring
2 Spring pin assembly
3 Nut
4 Bolt
5 Spacer
6 Bushing
7 Shackle pin assembly
8 Shackle plate
9 Nut and washer
10 Bushing
11 Spring clamp
12 Spacer
13 U-bolt
14 Nut and washer
15 Bump stop
16 Shock absorber
17 Bushing
18 Retainer
19 Centering washer
20 Nut



11.3b Exploded view of the rear suspension components — 1986 and later models

1 Lug nut
2 Wheel
3 Nut, washer, retainer and bushing
4 Shock absorber
5 Nut and washer
6 U-bolts
7 Spring seat
8 Bump stop
9 Hanger pin
10 Shackle pin
11 Shackle plate
12 Leaf spring
13 Bushings

8 Position a floor jack under the lower suspension arm and raise it slightly to take the spring pressure off the suspension stop. The jack must remain in this position throughout the entire procedure.
9 Remove the cotter pins from the upper and lower balljoint studs and back off the nuts two turns each.
10 Break the balljoints loose from the steering knuckle (see Section 9).
11 Remove the nuts from the balljoint studs, separate the suspension arms from the steering knuckle and remove the knuckle from the vehicle **(see illustration)**.

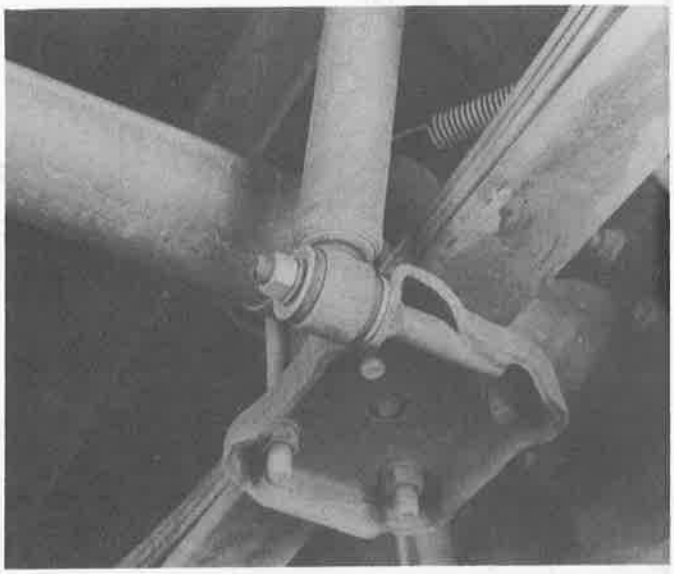
Installation

12 Place the knuckle between the upper and lower suspension arms and insert the balljoint studs into the knuckle, beginning with the lower balljoint. Install the nuts and tighten them to the specified torque. Install new cotter pins, tightening the nuts slightly to align the slots in the nuts with the holes in the balljoint studs, if necessary.
13 Install the splash shield.
14 Connect the tie-rod end to the knuckle arm and tighten the nut to the specified torque. Be sure to use a new cotter pin.
15 Install the brake disc and adjust the wheel bearings following the procedure outlined in Chapter 1.
16 On 4WD models, install the driveaxle spacer, snap-ring and the freewheeling hub assembly (Chapter 8).
17 Install the brake caliper mounting bracket and caliper (Chapter 9).
18 Install the wheel and lug nuts. Lower the vehicle to the ground and tighten the nuts to the specified torque.

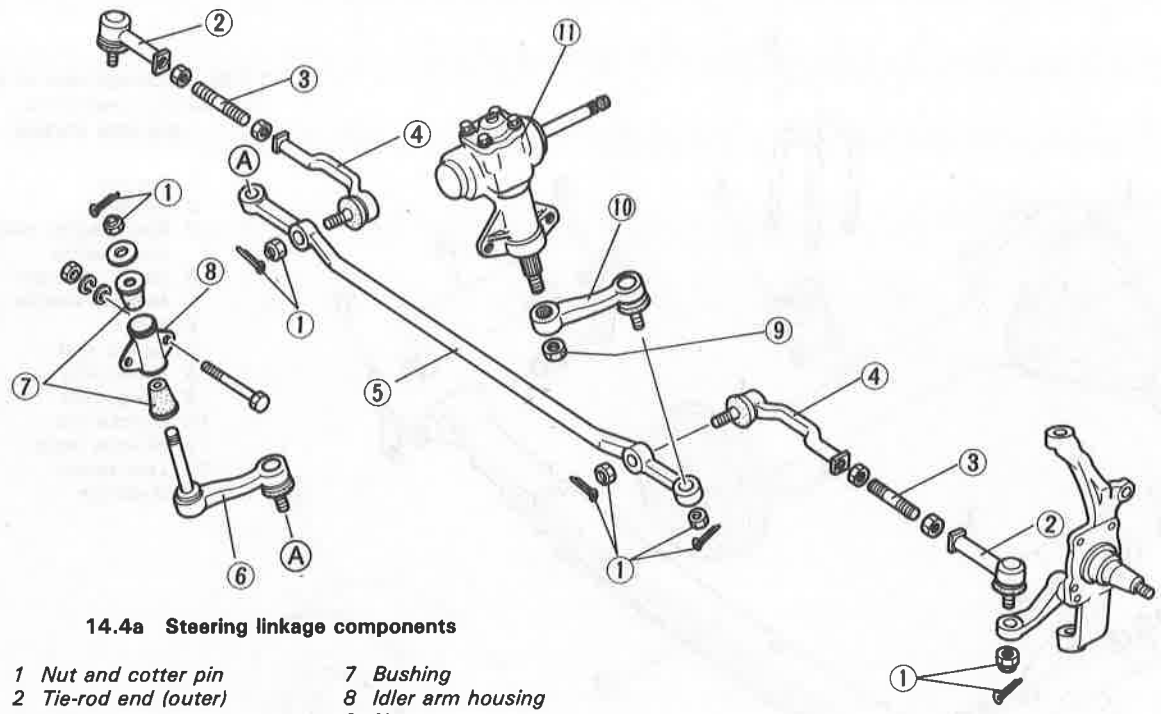
11 Rear shock absorber — removal and installation

Refer to illustrations 11.3a, 11.3b, 11.3c and 11.4

1 If the shock absorber is to be replaced with a new one, it is recommended that both shocks on the rear of the vehicle be replaced at the same time.
2 Raise and support the rear of the vehicle according to the jacking and towing procedures in this manual. Use a jack to raise the differential until the tires clear the ground, then place jackstands under the axle housing. *Do not attempt to remove the shock absorbers with the vehicle raised and the axle unsupported.*
3 Unscrew and remove the lower shock absorber mounting nut to disconnect it at the spring seat **(see illustrations)**.

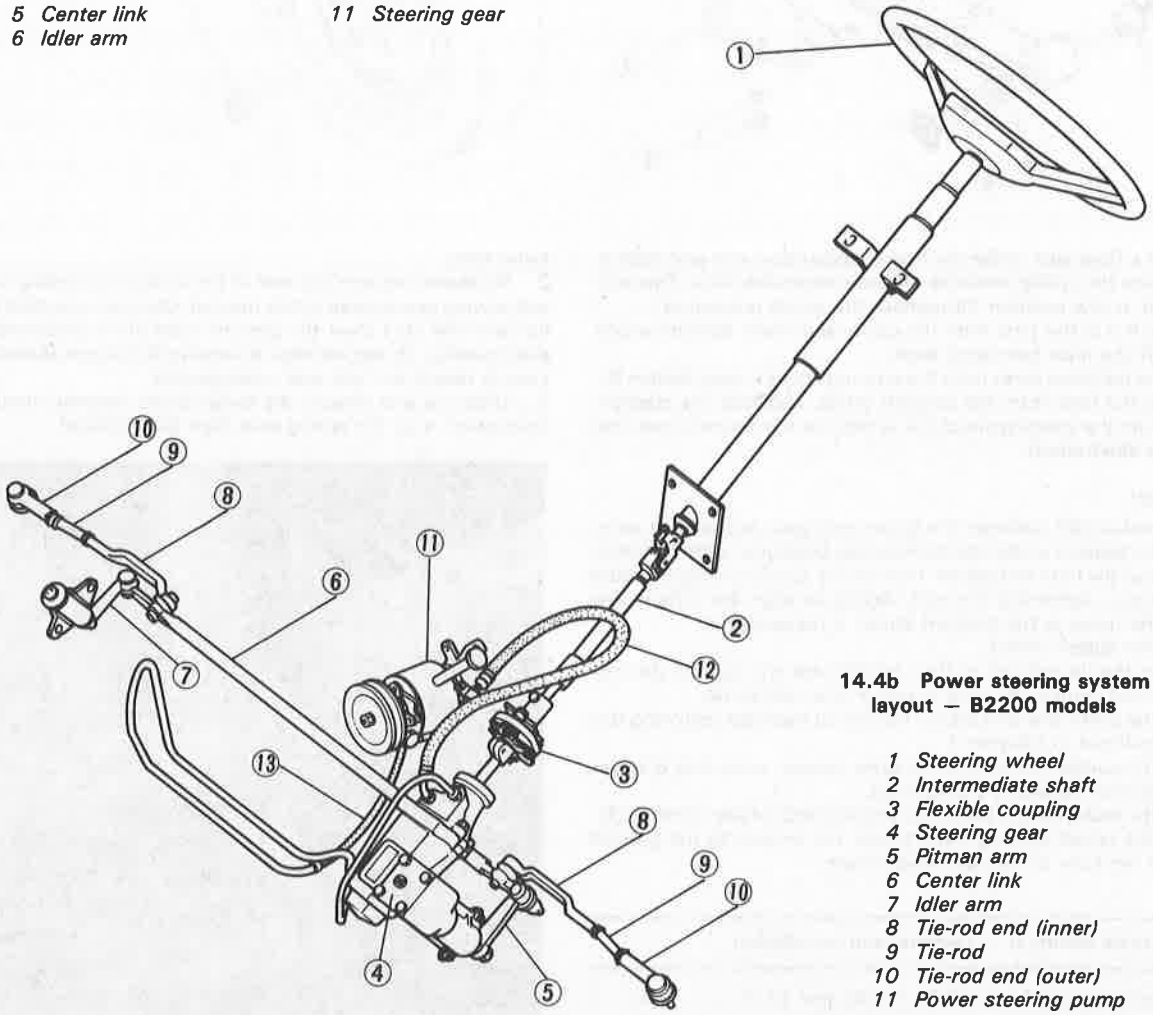


11.3c The lower end of the rear shock absorber



14.4a Steering linkage components

1 Nut and cotter pin
2 Tie-rod end (outer)
3 Tie-rod
4 Tie-rod end (inner)
5 Center link
6 Idler arm
7 Bushing
8 Idler arm housing
9 Nut
10 Pitman arm
11 Steering gear



14.4b Power steering system layout – B2200 models

1 Steering wheel
2 Intermediate shaft
3 Flexible coupling
4 Steering gear
5 Pitman arm
6 Center link
7 Idler arm
8 Tie-rod end (inner)
9 Tie-rod
10 Tie-rod end (outer)
11 Power steering pump

11.4 The upper end of the rear shock absorber

4 Unscrew and remove the upper mounting nut at the frame and remove the shock absorber **(see illustration)**.
5 If the unit is defective, it must be replaced with a new one. Replace worn rubber bushings with new ones.
6 Install the shocks in the reverse order of removal, but let the vehicle be free standing before tightening the mounting bolts and nuts.
7 Bounce the rear of the vehicle a couple of times to settle the bushings into place, then tighten the nuts to the specified torque.

12 Rear leaf spring — removal and installation

Refer to illustration 12.10

1 Jack up the vehicle and support the frame securely on jackstands.
2 Remove the rear wheels and tires.
3 Place a jack under the rear differential housing.
4 Lower the axle housing until the leaf spring tension is relieved, and lock the jack in this position.
5 Disconnect the shock absorber from the spring seat.
6 Remove the U-bolt mounting nuts **(see illustration 11.3a or 11.3b)**.
7 Remove the spring seat and U-bolts.
8 Unbolt and remove the shackle pin and hanger pin assemblies.
9 Remove the rubber bushings from the spring ends and frame, then remove the spring.
10 Installation is the reverse of the removal procedure. Lubricate the shackle pins, hanger pin and bushings with lithium base grease **(see illustration)**. When installing the U-bolt nuts, the hanger pin and shackle pin nuts, tighten them to the specified torque values.

13 Steering wheel — removal and installation

Refer to illustration 13.4

Removal

1 Disconnect the cable from the negative battery terminal.
2 Using a small screwdriver, pry off the horn button or center pad.
3 Mark the steering wheel hub and the column shaft with paint to ensure correct repositioning during reassembly.
4 Unscrew the steering wheel nut and remove the wheel using a steering wheel puller **(see illustration)**. **Note:** *Do not hammer on the wheel or the shaft to separate them.*

Installation

5 Realign the steering wheel and the column shaft using the match marks. Install and tighten the retaining nut to the specified torque, then attach the horn button or center pad.
6 Hook up the negative battery cable to the battery.

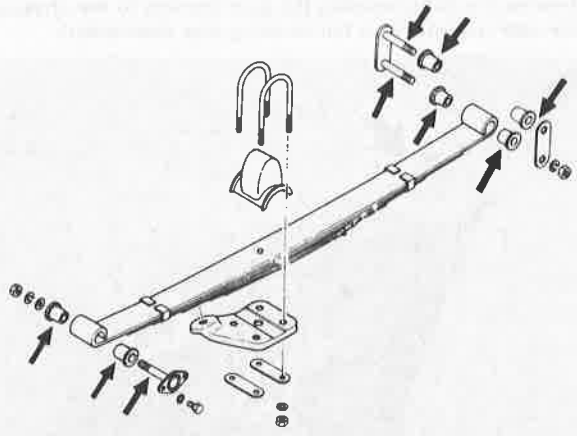
14 Steering linkage — removal and installation

Refer to illustrations 14.4a, 14.4b, 14.4c, 14.5 and 14.10

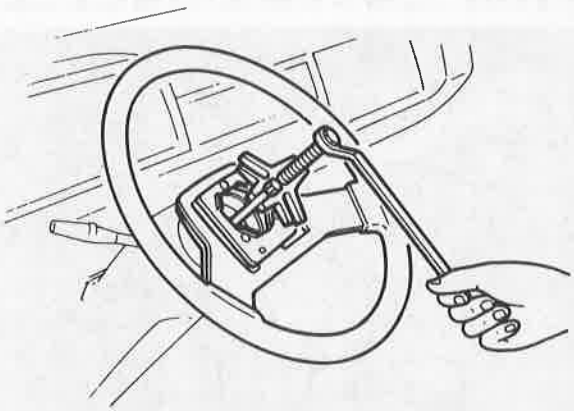
1 All steering linkage removal and installation procedures should be performed with the front end of the vehicle raised and placed securely on jackstands.
2 Before removing any steering linkage components, obtain a balljoint separator. It may be a screw-type puller or a wedge-type tool, although the wedge-type tool tends to damage the balljoint seals. It is possible to jar a balljoint taper pin free from its eye by striking opposite sides of the eye simultaneously with two large hammers, but the space available to do so is usually very limited.
3 After installing any of the steering linkage components, the front wheel alignment should be checked by a reputable front end alignment and repair shop.

Pitman arm

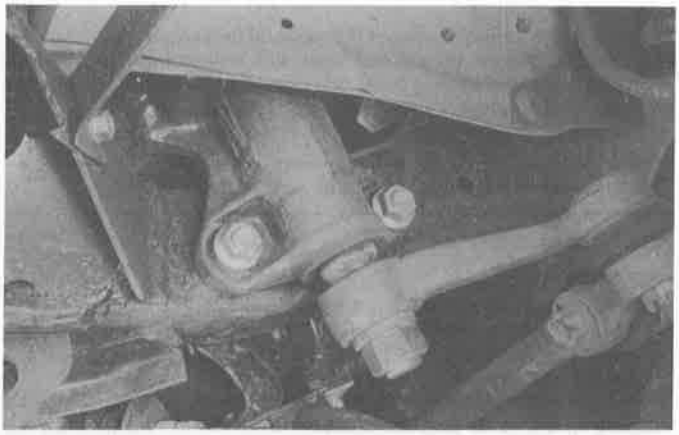
4 Remove the nut securing the Pitman arm to the steering gear sector shaft **(see illustrations)**.
5 Scribe or paint match marks on the arm and shaft. The Pitman arm has one larger groove that corresponds to one larger spline on the steer-



12.10 Apply lithium base grease to the points indicated by arrows



13.4 Remove the steering wheel from the shaft with a puller — DO NOT hammer on the shaft!



14.4c The Pitman arm and its connection to the steering gear box and the center link is shown here

ing gear sector shaft, making it possible for the arm to be installed in only one position **(see illustration)**. The match marks will, however, make installation easier.

6 Using a puller, disconnect the Pitman arm from the shaft splines.

7 Remove the cotter pin and castle nut securing the Pitman arm to the center link.

8 Using a puller, disconnect the Pitman arm from the center link.

9 Installation is the reverse of the removal procedure. Be sure to tighten the nuts to the specified torque.

Tie-rod

10 Remove the cotter pins and castle nuts securing the tie-rod to the center link and knuckle arm **(see illustration)**.

11 Separate the tie-rod from the center link and knuckle arm with a puller.

12 If a tie-rod end is to be replaced, loosen the jam nut and mark the relationship of the tie-rod end to the tie-rod with white paint. When installing the new rod end, thread it onto the tie-rod until it reaches the mark, then turn the jam nut until it contacts the rod end. Don't tighten if fully at this time.

13 Turn the tie-rod ends so they are at approximately 90° angles to each other, then tighten the jam nuts to lock the ends in position.

14 The remaining installation steps are the reverse of those for removal. Make sure to tighten the castle nuts to the specified torque.

Center link

15 Remove the cotter pins and castle nuts securing the tie-rod ends to the center link **(see illustration 14.4a)**.

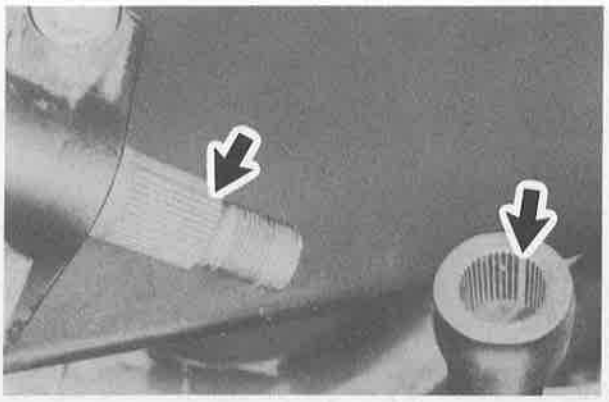
16 Remove the cotter pin and castle nut securing the center link to the Pitman arm.

17 Remove the cotter pin and castle nut securing the center link to the idler arm.

18 Using a puller, separate the center link from the tie-rod ends, Pitman arm and idler arm.

19 Installation is the reverse of the removal procedure. Be sure to tighten all nuts to the specified torque.

14.5 The Pitman arm has a groove which corresponds with a larger spline on the steering gear sector shaft (arrows)



14.10 The tie-rod and its connection to the knuckle arm

Knuckle arm

20 Remove the cotter pin and castle nut securing the tie-rod end to the knuckle arm.

21 Using a puller, separate the tie-rod end from the knuckle arm.

22 Unbolt the knuckle arm from the steering knuckle and remove it.

23 Installation is the reverse of the removal procedure. Be sure to tighten all nuts and bolts to the specified torque.

15 Steering gear — removal and installation

Refer to illustration 15.4

Note: *If you find that the steering gear is defective, it is not recommended that you overhaul it. Because of the special tools needed to do the job, it is best to let your dealer service department overhaul it for you (or replace it with a factory rebuilt unit). However, you can remove and install it yourself by following the procedure outlined here.*

The removal and installation procedures for manual steering and power steering gear housings are identical except that the inlet and outlet lines must be removed from the steering gear housing on power steering-equipped models before the housing can be removed.

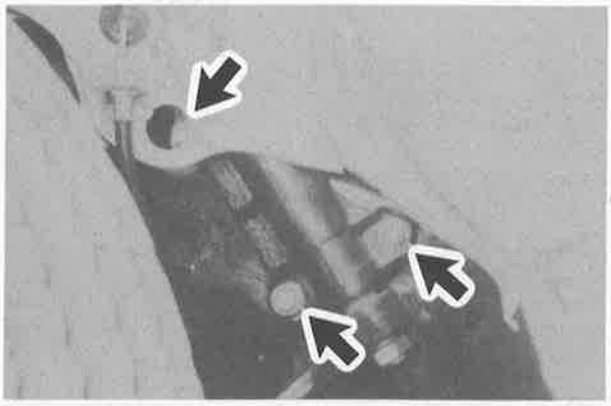
The steering system should be filled and power steering systems should be bled after the gear housing is reinstalled (see Section 18).

1 Raise the front of the vehicle and place it securely on jackstands.

2 Place an alignment mark on the steering coupling and the gear housing worm shaft to assure correct reassembly, then remove the coupling bolt.

3 Remove the Pitman arm (Section 4).

4 Remove the bolts securing the gear housing to the chassis and pull the gear housing from the coupling **(see illustration)**.



15.4 The steering gear is fastened to the frame by three bolts (1984 and earlier style shown, others similar)

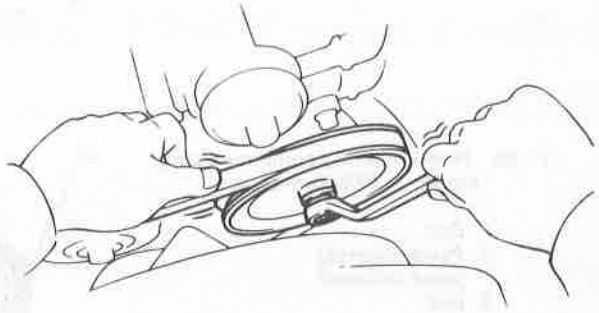
16.6 When tightening the adjusting screw locknut, be sure to hold the screw from turning, otherwise the adjustment will be affected

5 Installation is the reverse of the removal procedure except that the Pitman arm nut should be tightened before the Pitman arm is connected to the center link. Be sure to tighten all nuts and bolts to the specified torque.

16 Steering free play — adjustment

Refer to illustration 16.6

1 Raise the vehicle with a jack so that the front wheels are off the ground and place the vehicle securely on jackstands.
2 Point the wheels straight ahead.
3 Using a wrench, loosen the locknut on the steering gear.
4 Turn the adjusting screw clockwise to decrease wheel free play and counterclockwise to increase it. **Note:** *Turn the adjusting screw in small increments, checking the steering wheel free play between them.*
5 Turn the steering wheel halfway around in both directions, checking that the free play is correct and that the steering is smooth.
6 Hold the adjusting screw so that it will not turn and tighten the locknut **(see illustration)**.
7 Remove the jackstands and lower the vehicle.



17.1 Push down on the power steering pump drivebelt to prevent the pulley from turning while loosening the nut

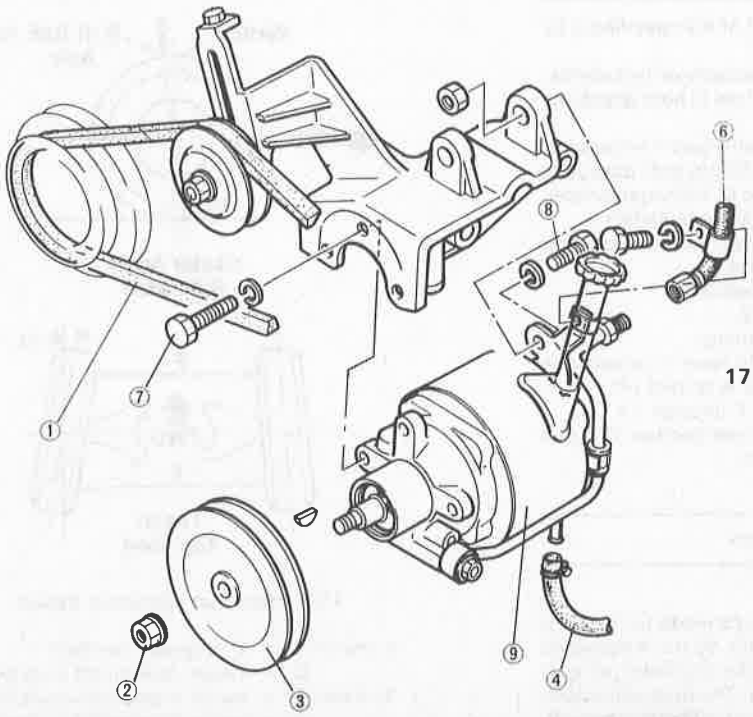
17 Power steering pump — removal and installation

Refer to illustrations 17.1, 17.3a and 17.3b.

Note: *If you find that the steering pump is defective, it is not recommended that you overhaul it. Because of the special tools needed to do the job, it is best to let your dealer service department overhaul it for you (or replace it with a factory rebuilt unit). However, you can remove it yourself using the procedure which follows.*

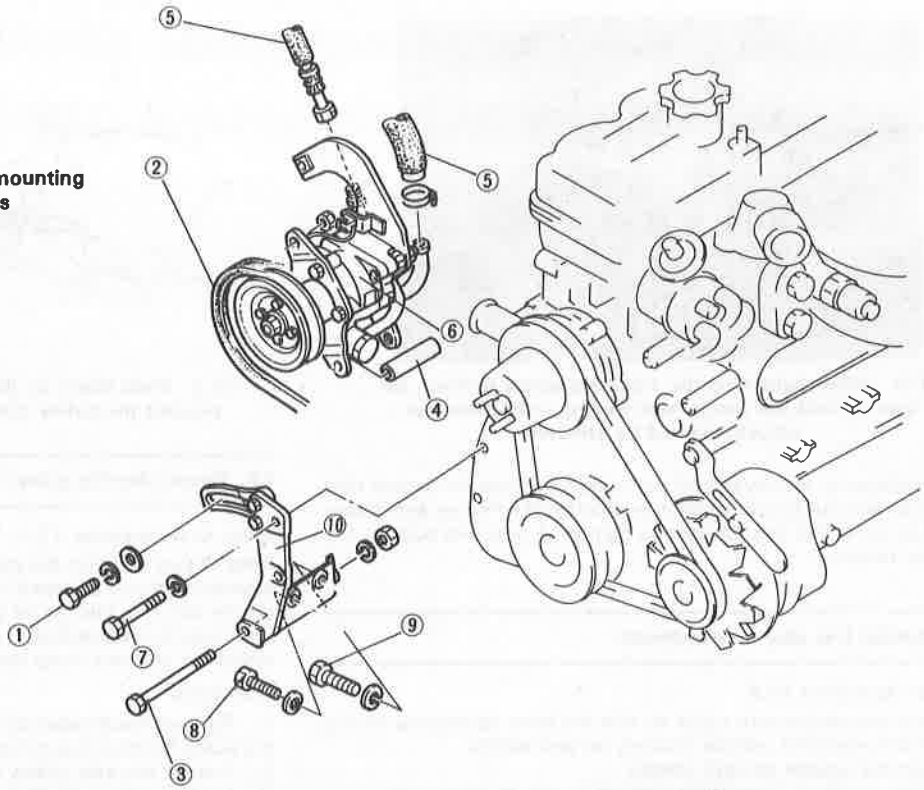
Removal

1 Push on the drivebelt to increase its tension sufficiently to prevent the pulley from turning and loosen the drive pulley nut **(see illustration)**.
2 Loosen the idler pulley nut (B2200 models).
3 Loosen the adjusting bolt and remove the drivebelt **(see illustrations)**.
4 Remove the drive pulley nut and the drive pulley.
5 Disconnect the pressure hose from the pump body. Position a container to catch the pump fluid and plug the hose to prevent contamination.
6 Loosen the return line hose clamp, pull off the hose and plug it to prevent contamination.
7 Remove the pump mounting bolts and lift the pump out of the engine compartment.



17.3a Power steering pump mounting details — B2200 models

1 Power steering pump drivebelt
2 Nut
3 Power steering pump pulley
4 Return hose
5 Bolt
6 Pressure hose
7 Bolt
8 Bolt
9 Power steering pump



17.3b Power steering pump mounting details — B2600 models

1 Bolt
2 Power steering pump drivebelt
3 Bolt
4 Spacer
5 Hoses
6 Power steering pump
7 Bracket mounting bolt
8 Bracket mounting bolt
9 Bracket mounting bolt
10 Power steering pump mounting bracket

Installation

8 Installation is the reverse of the removal procedure. When installing the pressure line, make sure there is sufficient clearance between the line and the exhaust manifold.
9 To adjust the drivebelt tension, see Chapter 1.
10 Fill the power steering fluid reservoir with the specified fluid and bleed the power steering system (see Section 18).
11 Check for fluid leaks.

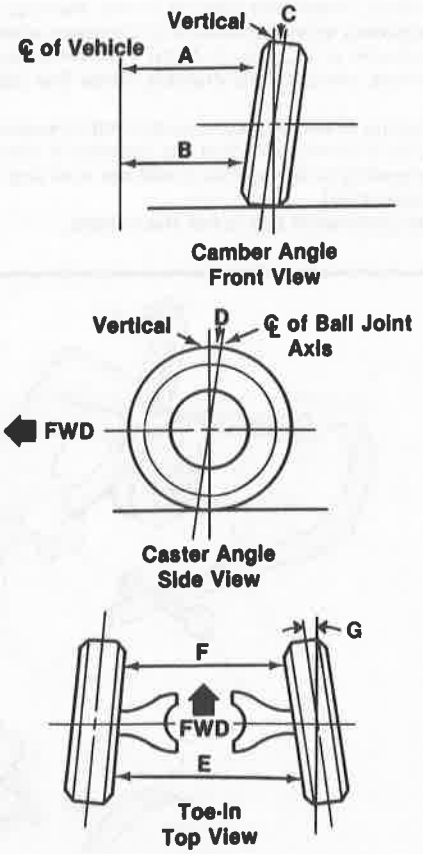
18 Power steering system — bleeding

1 Check the fluid in the reservoir and add fluid of the specified type if it is low.
2 Jack up the front of the vehicle and place it securely on jackstands.
3 With the engine off, turn the steering wheel fully in both directions two or three times.
4 Recheck the fluid in the reservoir and add more fluid if necessary.
5 Start the engine and turn the steering wheel fully in both directions two or three times. The engine should be running at 1000 rpm or less.
6 Remove the jackstands and lower the vehicle completely.
7 With the engine running at 1000 rpm or less, turn the steering wheel fully in both directions two or three times.
8 Return the steering wheel to the center position.
9 Check that the fluid is not foamy or cloudy.
10 Measure the fluid level with the engine running.
11 Turn the engine and again measure the fluid level. It should rise no more than 0.20 in (5 mm) when the engine is turned off.
12 If a problem is encountered, repeat Steps 7 through 11.
13 If the problem persists, remove the pump (see Section 17), and have it repaired by a dealer service department.

19 Front end alignment — general information

Refer to illustration 19.1

A front end alignment refers to the adjustments made to the front wheels so they are in proper angular relationship to the suspension and the ground. Front wheels that are out of proper alignment not only affect steering control, but also increase tire wear. The front end adjustments normally required are camber, caster and toe-in **(see illustration)**.



19.1 Front end alignment details

A minus B = C (degrees camber)
D = caster (measured in degrees)
E minus F = toe-in (measured in inches)
G = toe-in (expressed in degrees)

Getting the proper front wheel alignment is a very exacting process, one in which complicated and expensive machines are necessary to perform the job properly. Because of this, you should have a technician with the proper equipment perform these tasks. We will, however, use this space to give you a basic idea of what is involved with front end alignment so you can better understand the process and deal intelligently with the shop that does the work.

Toe-in is the turning in of the front wheels. The purpose of a toe specification is to ensure parallel rolling of the front wheels. In a vehicle with zero toe-in, the distance between the front edges of the wheels will be the same as the distance between the rear edges of the wheels. The actual amount of toe-in is normally only a fraction of an inch. Toe-in adjustment is controlled by the tie-rod end position on the inner tie-rod. Incorrect toe-in will cause the tires to wear improperly by making them scrub against the road surface.

Camber is the tilting of the front wheels from the vertical when viewed from the front of the vehicle. When the wheels tilt out at the top, the camber is said to be positive (+). When the wheels tilt in at the top the camber is negative (–). The amount of tilt is measured in degrees from the vertical and this measurement is called the camber angle. This angle affects the amount of tire tread which contacts the road and compensates for changes in the suspension geometry when the vehicle is cornering or travelling over an undulating surface.

Caster is the tilting of the front steering axis from the vertical. A tilt toward the rear is positive caster and a tilt toward the front is negative caster. Caster angle affects the self-centering action of the steering, which governs straight-line stability.

Caster is adjusted by moving shims from one end of the upper control arm mount to the other.

20 Wheels and tires – general information

Wheels can be damaged by an impact with a curb or other solid object. If the wheels are bent, the result is a hazardous condition which must be corrected. To check the wheels, raise the vehicle and set it on jackstands. Visually inspect the wheels for obvious signs of damage such as cracks and deformation.

Tire and wheel balance is very important to the overall handling, braking and ride performance of the vehicle. Whenever a tire is dismounted for repair or replacement, the tire and wheel assembly should be balanced before being installed on the vehicle.

Wheels should be periodically cleaned, especially on the inside, where mud and road salts accumulate and eventually cause rust and, ultimately, possible wheel failure.

Tires are extremely important from a safety standpoint. The tread should be checked periodically to see that the tires have not worn excessively, a condition which can be dangerous, especially in wet weather.

To equalize wear and add life to a set of tires, it is recommended that they be rotated periodically. When rotating, check for signs of abnormal wear and foreign objects in the tread or sidewalls (refer to Chapter 1, Routine Maintenance).

Proper tire inflation is essential for maximum life of the tread and for proper handling and braking.

Tires that are wearing in an abnormal way are an indication that their inflation is incorrect or that the front end components are not adjusted properly. Take the vehicle to a reputable front end alignment and repair shop to correct the situation.