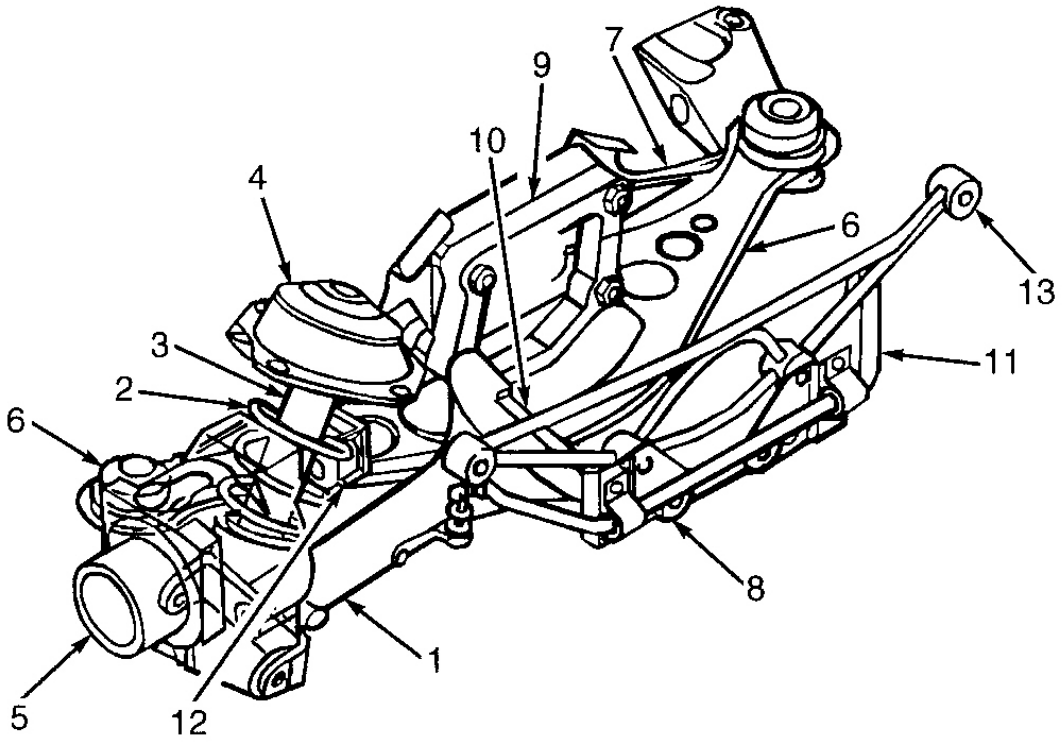
1999-2000 SUSPENSION

Rear - XJR & XJ8

DESCRIPTION

The XJR and XJ8 uses an independent coil spring-type rear suspension. Outer bearing carrier and hub assembly is supported by control arm at bottom, and utilizes axle shaft as upper support. Suspension is controlled by 2 coil spring/shock absorber assemblies. Fulcrum shafts are used to connect control arms to chassis and hub carrier. See **Fig. 1** .



1. Lower Wishbone
2. Suspension Spring
3. Damper
4. Upper Spring Seat
5. Hub Carrier
6. "A" Frame
7. Wide Mounting Frame
8. Wishbone Tie Assembly
9. Pendulum
10. Wishbone Fulcrum Pin
11. Stabilizer Bar
12. Bump Stop
13. Monostrut

98J12806

Fig. 1: View Of Rear Suspension Assembly
Courtesy of JAGUAR CARS, INC.

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT.

HUB BEARING PRELOAD

Hub bearing preload is controlled by shim adjustment between hub assembly and hub outer bearing. Shims are available in various thicknesses.

Checking

1. Raise and support vehicle. Remove wheel assembly. Clamp dial indicator mount to hub carrier. Ensure dial indicator pointer contacts hub flange.
2. Using 2 levers between hub and hub carrier, press hub outward. Note reading on dial indicator. The difference between dial indicator readings is preload of hub bearing. For adjustment, see **HUB CARRIER** under REMOVAL & INSTALLATION.

REAR SUSPENSION HEIGHT

1. Ensure vehicle has full fuel tank, all fluids are topped off and tire pressures correct. Roll vehicle about 30 feet on a level surface. Measure distance between differential support plate at both sides and ground. See **Fig. 2** .
2. Height measurement for coupe and convertible. If height is not within specification, check all bushings and replace as necessary. If bushings are okay, replace rear springs.

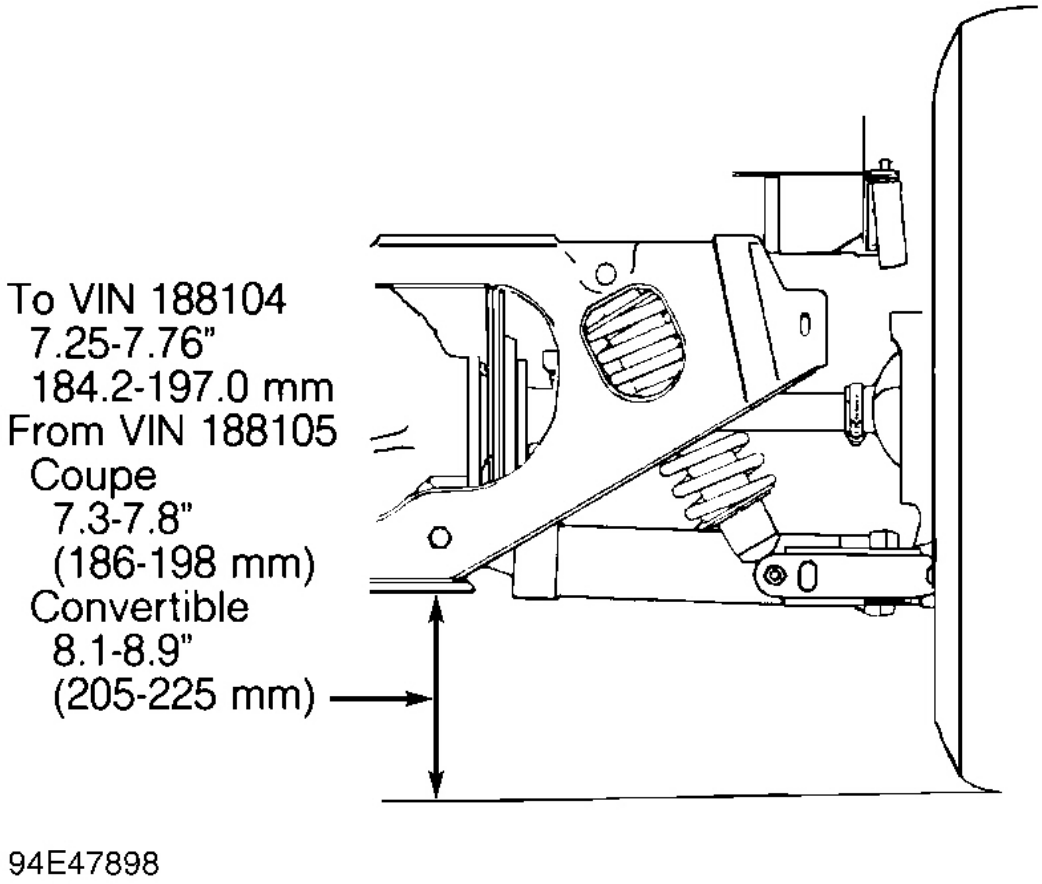


Fig. 2: Measuring Rear Suspension Height
Courtesy of JAGUAR CARS, INC.

REMOVAL & INSTALLATION

"A" FRAME

Removal

1. Raise vehicle and support with stands. Remove "A" frame to final drive unit rear bracket securing bolts and front bracket inner securing nuts and bolts. See **Fig. 3** .
2. Position a suitable wood and jack under final drive unit drive flange, operate jack to support final drive unit. Unscrew and remove both "A" frame outer bush to body and bracket securing bolts. See **Fig. 4** . Unscrew and remove "A" frame left and right outer bush bracket to body securing bolts.
3. Lower jack approximately one inchto improve access. Unscrew and remove "A" frame to final drive unit front bracket intermediate securing bolts. Unscrew and remove "A" frame to final drive unit front

mounting bracket and tie rod outer securing bolts. Support "A" frame by hand and remove to final drive unit casing securing bolts. Remove "A" frame from vehicle.

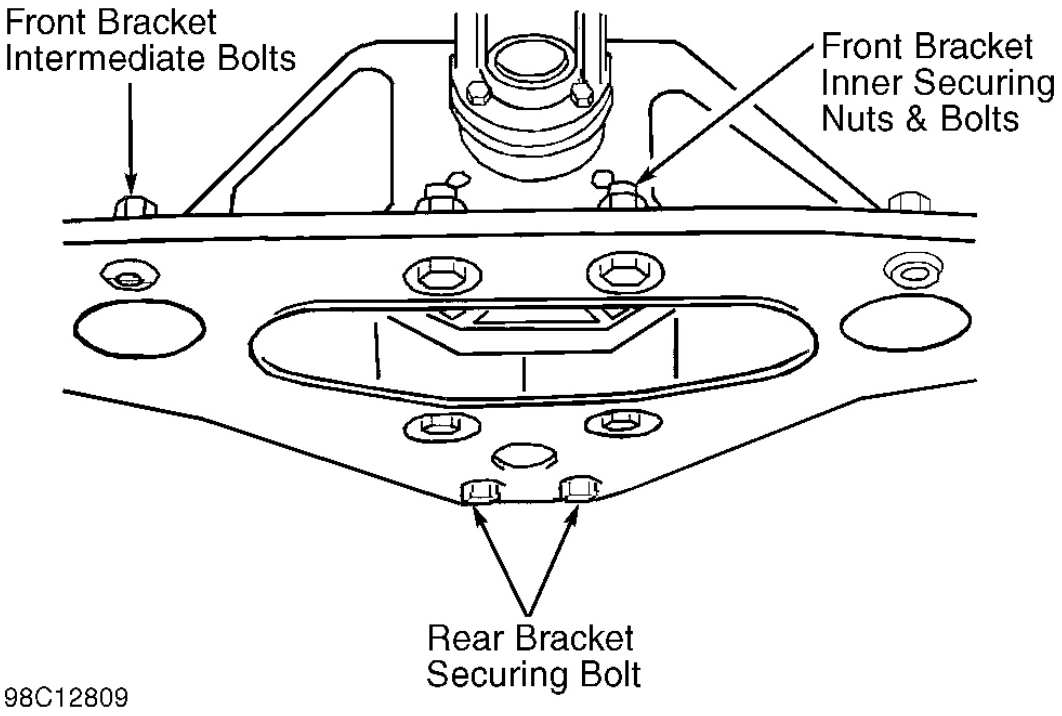


Fig. 3: Removing "A" Frame Assembly
Courtesy of JAGUAR CARS, INC.

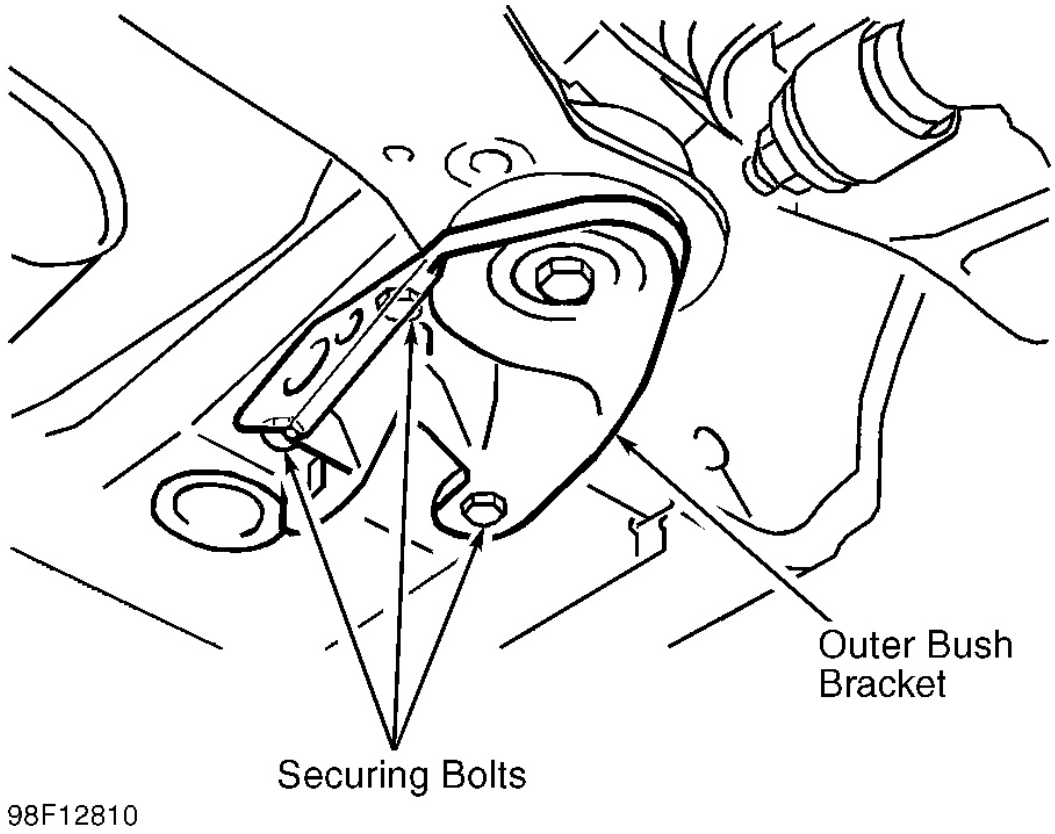


Fig. 4: Removing "A" Frame Outer Bush
Courtesy of JAGUAR CARS, INC.

Installation

1. Place and install "A" frame to final drive unit casing securing bolts, DO NOT fully tighten. Install "A" frame to final drive unit front bracket and tie rod outer securing bolts with captive spacers. DO NOT fully tighten. Install "A" frame to final drive unit front bracket securing bolts.
2. Install "A" frame to final drive unit front bracket inner securing nuts and bolts. DO NOT finally tighten. Install and tighten "A" frame to final drive unit rear bracket securing bolts. See **TORQUE SPECIFICATIONS** .
3. Fully tighten "A" frame to final drive unit front bracket and tie rod outer securing bolts, intermediate securing bolts, inner securing nuts and bolts. See **TORQUE SPECIFICATIONS** . Finally tighten "A" frame to final drive unit casing securing bolts.
4. Position one of outer bush brackets and raise bottle jack ram approximately 25 mm to seat "A" frame outer bushes onto tapered body locations. Install outer bush securing bolts, DO NOT tighten. Align and install outer bush bracket to body securing bolts, DO NOT tighten. Repeat procedure for remaining outer bush bracket.

5. Finally tighten outer bush bracket to body securing bolts of both outer bush brackets and both outer bushes. See **TORQUE SPECIFICATIONS** . To complete installations, reverse removal procedure.

COIL SPRING & SHOCK ABSORBER

Removal & Installation

1. Raise vehicle and support at lift points with stands. Position floor jack under control arm. Remove bolt retaining top of shock absorbers to suspension assembly crossmember.
2. Remove nuts retaining shock absorbers to lower mount. Using a drift, remove mounting piece. Remove shock absorber and coil spring assembly.
3. Using spring compressor and adapter, collapse spring until collets and spring seat can be removed. Release pressure and separate shock absorber from spring. To install, reverse removal procedure.

HUB CARRIER

Removal

1. Raise and support vehicle. Disconnect parking brake cable from hub carrier. Remove brake caliper, and wire aside. Release parking brake shoe adjuster. Remove brake disc. Position cutout in hub toward front parking brake shoe. Remove front parking shoe spring cup washer, spring and inner cup washer.
2. Position cutout in hub towards rear parking brake shoe. Remove rear shoe spring cup washer, spring and inner cup washer. Remove upper parking brake shoe adjuster and connecting spring. Remove lower parking brake shoe connecting spring.
3. Remove fulcrum shaft nut. Remove cotter pin, hub nut and washer from end of axle shaft. Place thread protector on end of axle shaft. Mount hub puller on hub. Disconnect hub and carrier from axle shaft. Remove fulcrum shaft. Remove hub carrier.

Bearing Replacement (Hub)

1. Place hub carrier in arbor press. Place hub tool on hub carrier assembly. Ensure parking brake expander locates into hub tool cutout. Place align button onto hub assembly.
2. Press hub from carrier. Remove inner bearing and collar. Using a drift, carefully remove outer hub seal, outer bearing, inner bearing, inner seal and bearing races. See **Fig. 5** .

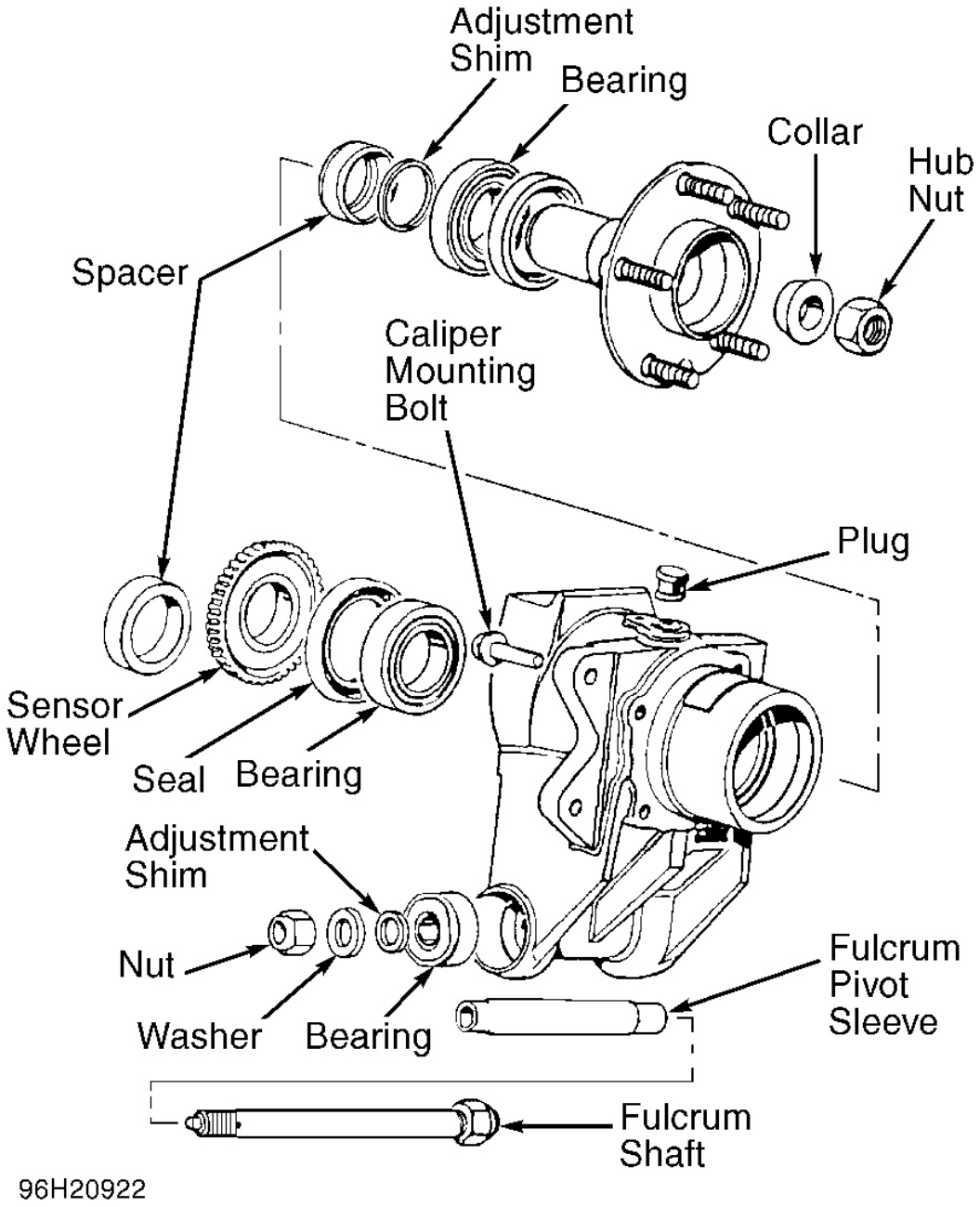


Fig. 5: Exploded View Of Hub Carrier
Courtesy of JAGUAR CARS LTD.

3. Clean and inspect all parts. Replace parts as needed. Reverse disassembly procedure while noting the following: when installing inner bearing to hub carrier, install shim between bearing and hub.
4. Mount dial indicator on hub carrier with pointer resting on end of hub. Use 2 levers between hub and hub

carrier, press hub outward. Note reading on dial indicator.

5. The difference between dial indicator readings, is preload of hub bearings. Adjust shim thickness to obtain preload.

Bearing Replacement (Fulcrum Pivot)

1. Place hub carrier in a vise. Using a drift, remove fulcrum shaft components. See **Fig. 6** . Fit extractor behind bearing race. Install slide hammer to extractor and remove bearing race. Loosen, but DO NOT remove, extractor cross bolt. Remove remaining bearing race in same manner.
2. Clean and inspect all parts. Replace parts as needed. Pack bearings with axle bearing grease. Install bearing and fully seat bearing races using handle and race installer.
3. Using equal thickness shims, obtain bearing preload. To reassemble, reverse disassembly procedure.

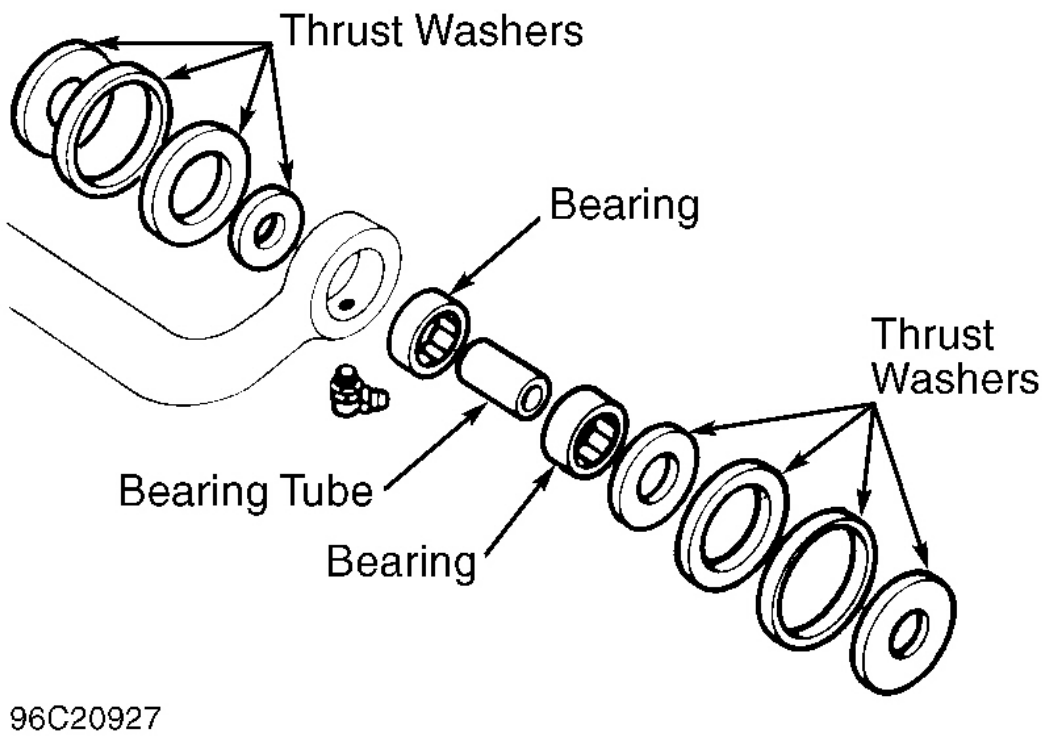


Fig. 6: Exploded View Of Inner Fulcrum Boss Assembly
Courtesy of JAGUAR CARS, INC.

Installation

To install, reverse removal procedure. Tighten all bolts to specification. See **TORQUE SPECIFICATIONS** .

LOWER CONTROL ARM

Removal

1. Raise vehicle and support with stands forward of radius arms. Remove wheel assembly. Remove lock nut and drive out hub carrier fulcrum shaft. Install dummy shaft for support. Note location of shims for installation reference. Collect shims and seal retainers.
2. Disconnect brake sensor lead from radius arm. Lift bearing carrier, clear of control arm. Keep carrier in position with heavy wire attached to subframe. Separate radius arm from body.
3. Remove bolts attaching support plate to subframe and inner fulcrum brackets. See **Fig. 7** . Separate shock absorbers from lower control arm. Drive out pivot pin. Separate inner fulcrum from control arm. Note location of thrust washers for installation reference. Remove control arm and radius arm.

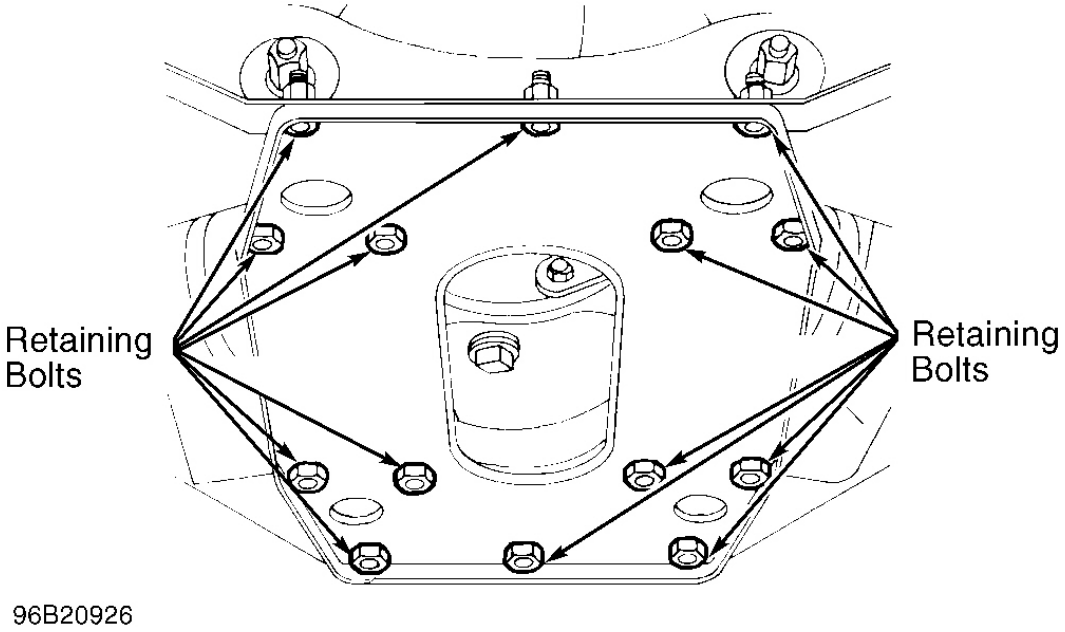


Fig. 7: Removing Support Plate
Courtesy of JAGUAR CARS, INC.

Installation

1. Apply grease to bearing cage and force bearing into lower control arm. Ensure casting mark on bearing cage faces outward. Insert bearing tube from other end, and force in opposite end bearing.
2. Assemble radius arm to control arm. Lightly coat thrust washers, NEW oil seals and seal retainers with grease. Fit assemblies into place on control arm. See **Fig. 6** . Insert control arm to inner fulcrum bracket. Ensure radius arm bracket faces front of suspension.
3. Insert dummy shaft from each end to position bearings and locate control arm in bracket. Slip in fulcrum shaft while pushing out dummy shaft. Install lock nut.
4. To complete installation, reverse removal procedure.

RADIUS ARM

Removal

1. Raise and support vehicle with stands placed forward of radius arms. Remove wheel assembly. Remove bolt and spring washer securing safety strap to body. Remove safety wire and bolt securing radius arm to body. Remove safety strap. See **Fig. 8** .
2. Remove forward lower shock absorber retaining pin. Using a drift, tap pin rearward. Bend tab washer and remove bolt retaining radius arm to control arm.

Installation

Replace any damaged radius arm bushings. When pressing bushings into radius arm, ensure bushings protrude from each side an equal amount. To complete installation, reverse removal procedure. Tighten all bolts and nuts to specification. See **TORQUE SPECIFICATIONS** .

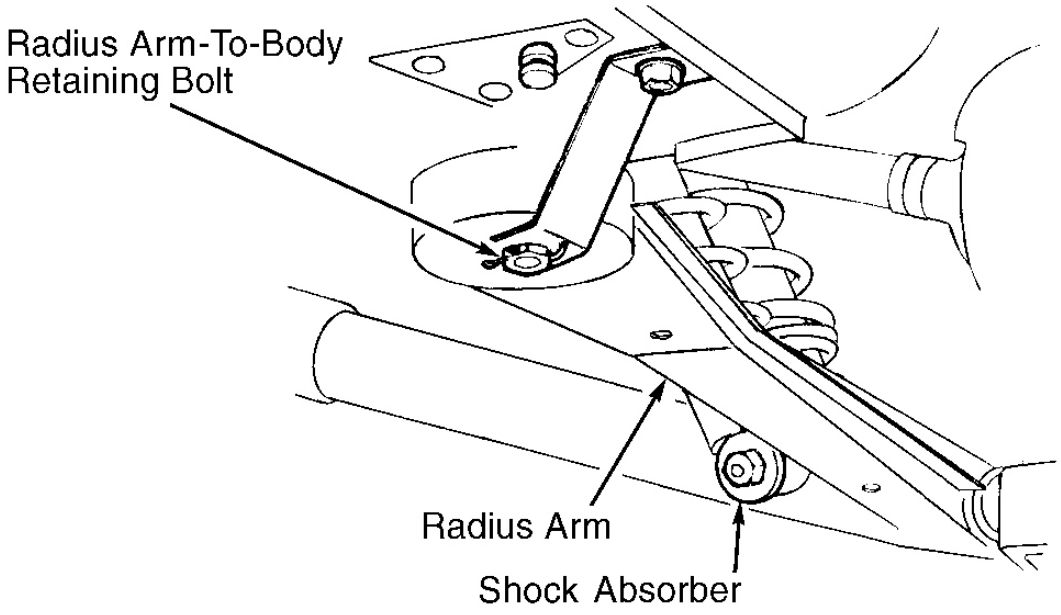


Fig. 8: Removal & Installation Of Radius Arm
Courtesy of JAGUAR CARS, INC.

REAR SUSPENSION ASSEMBLY

Removal & Installation

1. Remove spare tire from trunk. Remove left side trim panel. Disconnect speedometer sensor connector.

Push sensor wiring harness back through grommet in floor.

2. Raise rear of vehicle. Place stands in front of radius arms. Remove rear wheels. Remove both brake sensors. Remove rear mufflers and tail pipes. Remove intermediate pipe. Remove safety strap and front radius arm. Remove sway bar link bolts from radius arm.
3. Disconnect brakeline at body bracket, and plug openings. Disconnect parking brake cable from parking brake calipers. Mark drive shaft flanges for installation reference. Disconnect drive shaft. Position jack (with adapter to hold suspension assembly) under suspension assembly.
4. Slightly raise jack. Remove bolts/nuts from suspension mounts. Carefully lower jack and rear suspension assembly. To install, reverse removal procedure. Bleed brake system. Tighten radius arm bolts with weight of vehicle on wheels.

NOTE: Replace suspension bushings in pairs.

TORQUE SPECIFICATIONS

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Application	Ft. Lbs. (N.m)
"A" Frame-To-Final Drive Unit Rear Bracket Bolts	63-85 (85-115)
"A" Frame-To-Final Drive Unit Front Bracket And Tie Rod Outer Bolts	63-85 (85-115)
"A" Frame-To-Final Drive Unit Front Bracket Intermediate Bolts	63-77 (85-105)
"A" Frame-To-Final Drive Unit Front Bracket Inner Nuts/Bolts	63-77 (85-105)
"A" Frame-To-Final Drive Unit Casing Bolts	66-81 (90-110)
Axle Shaft-To-Hub Nut	224-248 (304-336)
Lower Wishbone Fulcrum Bolt Nut	59-74 (80-100)
Lower Wishbone-To-Hub Carrier Nut	66-81 (90-110)
Lower Wishbone Tie-To-Monostrut Nut	63-77 (85-105)
Lower Mounting Bracket-To-Body Bolts	59-74 (80-100)
Outer Bushing Mounting Bracket-To-Body Bolts	59-74 (80-100)
Outer Bushing Bolt	59-74 (80-100)
Rear Damper Lower Mounting Bolt	59-74 (80-100)
Rear Damper Top Nut	23-29 (31-39)
Rear Damper Mounting Plate-To-Body Bolts	13-24 (17-23)
Stabilizer Bar-To-Wishbone Tie Assembly Bolt	29-38 (39-51)
Stabilizer Bar-To-Drop Link Nut	22-30 (30-40)