

SUSPENSION - REAR

1994 Volvo 960

1994 SUSPENSION
Volvo Suspension - Rear - RWD

960

DESCRIPTION & OPERATION

On 960 models, conventional rear suspension consists of coil springs, self-leveling gas-filled shocks and axle with longitudinal trailing arms. See Fig. 1. A stabilizer bar attaches to both trailing arms. In addition, a pair of trailing arms connect the differential to a subframe.

On 960 multi-link models, rear suspension consists of a subframe-mounted differential. See Fig. 2. Independent wheel bearing housings are located near upper and lower control arms, front support arms and rear track rods. Shock absorbers and coil springs are mounted between trailing arms and body.

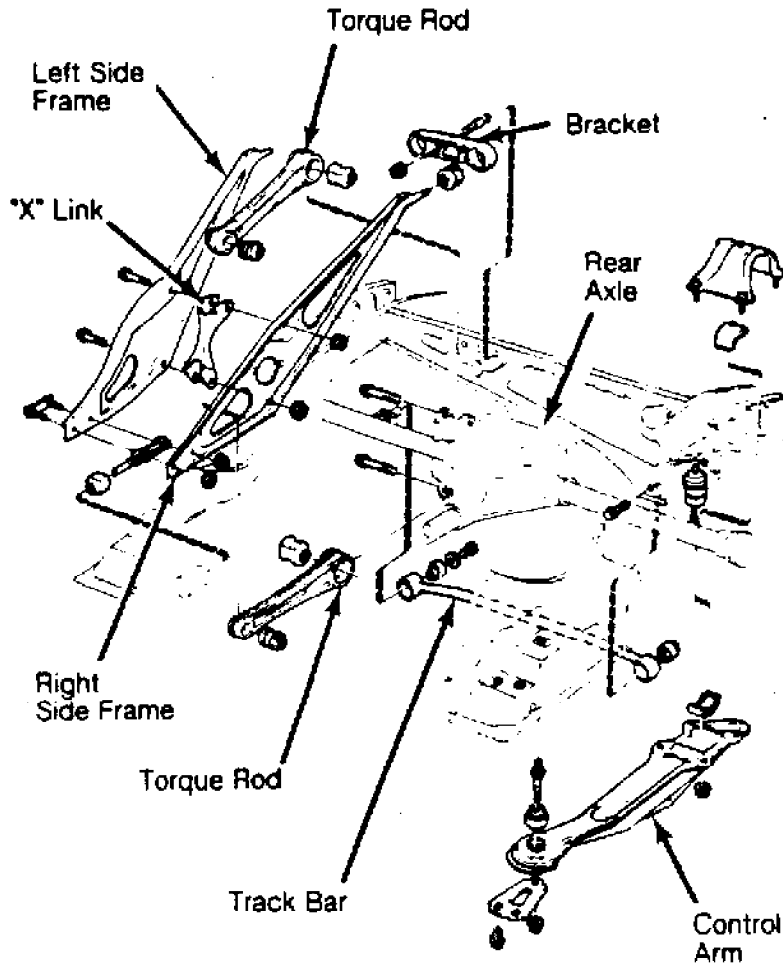


Fig. 1: Exploded View Of Rear Suspension (960)
Courtesy of Volvo Cars of North America

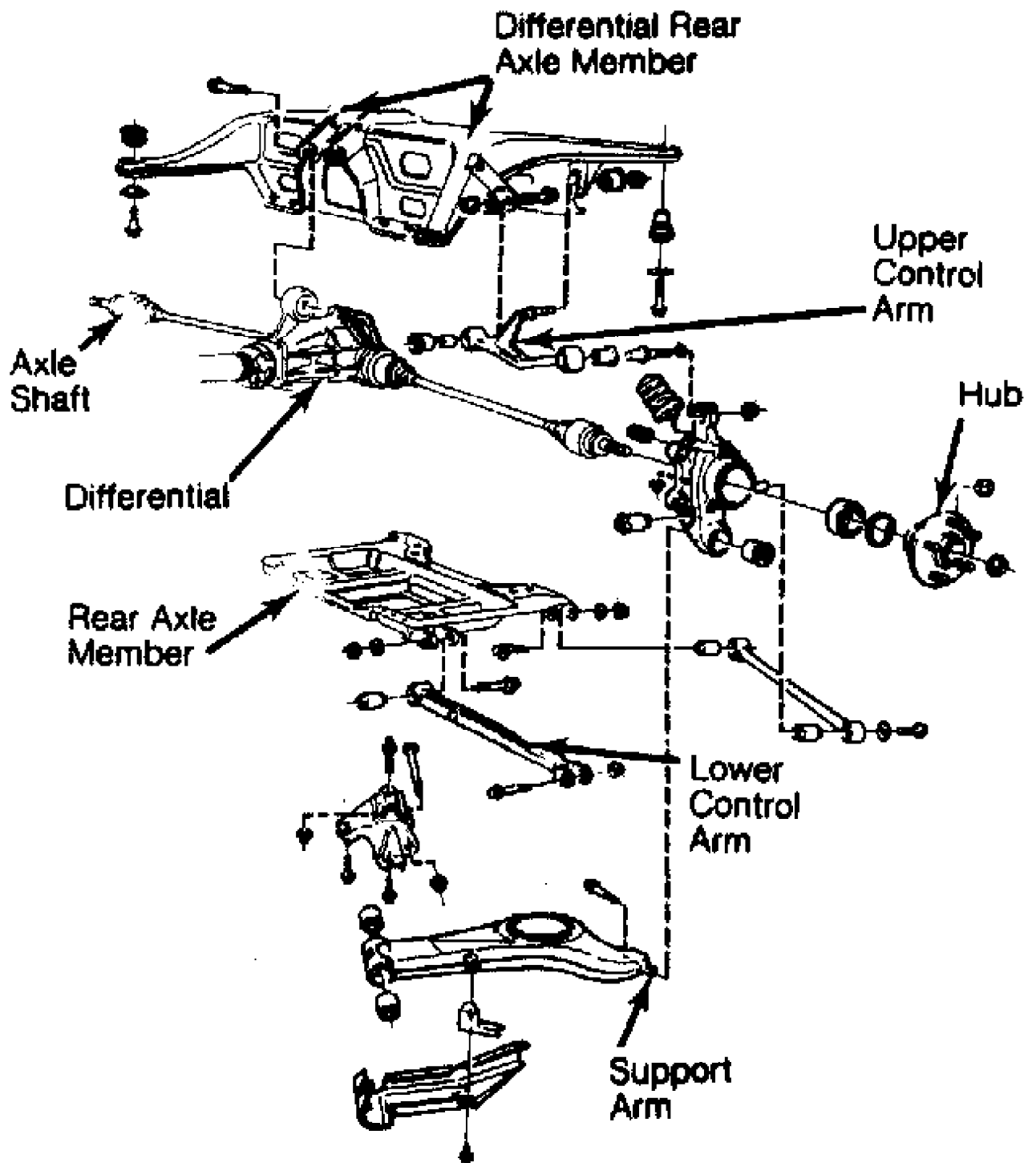


Fig. 2: Exploded View Of Multi-Link Rear Suspension (960)
 Courtesy of Volvo Cars of North America

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

NOTE: See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

REMOVAL & INSTALLATION

COIL SPRING

Removal

1) Raise and support vehicle. Remove rear wheels. Remove and support disc brake calipers. DO NOT disconnect brakelines. Disconnect drive shaft from differential.

2) Place jackstands under coil spring end of trailing arm. Remove anti-sway bar bolts. Remove shock absorber lower nut. Lower rear axle slowly to unload rear springs. Remove springs.

Installation

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

SHOCK ABSORBER

Removal

Raise and support vehicle. Remove wheel assembly. Use floor jack to raise rear axle. Using Spring Compressor (5040), compress spring until shock absorber can be detached. Remove upper and lower shock absorber retaining nuts. Remove shock absorber.

Installation

To install, reverse removal procedure. Ensure spacer sleeve is in correct position. Tighten all bolts and nuts to specification. See TORQUE SPECIFICATIONS.

LOWER CONTROL ARM & BUSHINGS

Removal (Multi-Link)

1) Raise and support vehicle. Remove rear wheels. Remove wheel bearing housing. See TRAILING ARMS & BUSHINGS under REMOVAL & INSTALLATION. Remove lower control arm.

2) Use sleeve and Counterhold (5990) to press bushing from lower control arm. Use chisel to remove edge of bushing on wheel bearing housing. Use sleeve and Counterhold (5343) to remove bushing.

Installation

1) Use Counterhold (5342) and Drift (5310) to install new bushing in wheel bearing housing. Use sleeve and Counterhold (5090) to install new bushing in lower control arm.

2) To complete installation, reverse removal procedure. Lower vehicle, and allow suspension to settle. Tighten nuts and bolts to specifications. See TORQUE SPECIFICATIONS (MULTI-LINK). Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT section.

UPPER CONTROL ARM & BUSHINGS (MULTI-LINK SUSPENSION)

Removal

1) Raise and support vehicle. Remove rear wheels and brake calipers. Secure calipers aside.

2) Remove support arm-to-wheel bearing housing bolt. Remove lower control arm-to-wheel bearing housing bolt and nut. Remove bolt, and pull track arm from wheel bearing housing.

3) Remove upper control arm-to-wheel bearing housing nut.

Note position of spacers for reassembly reference. Remove control arm-to-subframe rear nut. Remove control arm-to-subframe front nut and bolt. Remove control arm.

NOTE: When replacing left inner bushing (if necessary), lower subframe slightly.

4) Use Drift (5345) to remove outer bushing. Use drift and Counterhold (5343) to remove inner front bushing. Use Press Tool (5353-1 and 5353-2) to remove inner bushing from subframe.

Installation

1) Use Press Tool (5353-3 and 5353-4) to install new bushing in subframe. See Fig. 3.

2) Use Drift (2731) and Counterhold (2904) to install inner bushing on control arm. Use Drift (5090) and Counterhold (5087) to install new outer control arm bushing.

3) Reverse removal procedure to complete installation. Lower vehicle, and allow suspension to settle. Tighten nuts and bolts to specifications. See TORQUE SPECIFICATIONS (MULTI-LINK). Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

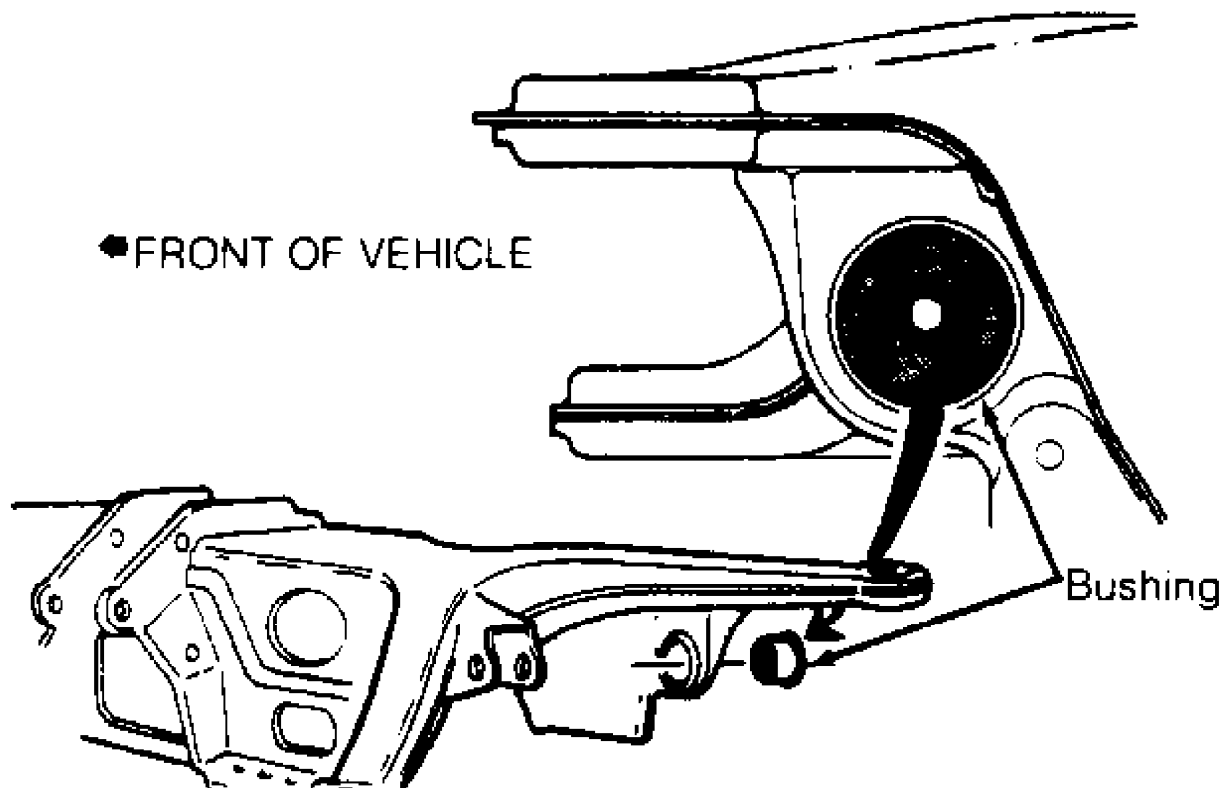


Fig. 3: Installing Multi-Link Control Arm Bushing (Multi-Link)
Courtesy of Volvo Cars of North America

Removal (Conventional)

Remove coil spring. See COIL SPRING under REMOVAL & INSTALLATION. Remove rear trailing arm bracket and rubber support bushings. Remove front trailing arm bracket, and remove trailing arm. Press front bushings out of trailing arm.

Installation (Conventional)

1) Press new bushings into trailing arms (tapered hole in bushing should face up). Ensure bushing is evenly spaced in trailing arm. Loosely install trailing arm front nuts.

2) Position rubber supports on rear axle. Coat spring ends with petroleum jelly. Guide spring into position on trailing arm. Lift trailing arm upward. Loosely install shock absorber and stabilizer.

3) Install trailing arm rear bracket and rubber support. Tighten bracket nuts. To complete installation, reverse removal procedure.

Removal (Multi-Link)

1) Raise and support vehicle. Remove rear wheels. Remove trailing arm guard and bolts and nuts at front and rear of arm. Separate trailing arm from wheel bearing housing.

2) Place jack and Fixture (5972) under trailing arm. Remove bolt at top of shock absorber. Lower assembly from vehicle, and remove spring and shock. Remove bracket at front of trailing arm. Use Drift (5347) and Counterhold (5346) to remove bushings.

3) Remove brake caliper, and tie it aside. Remove brake disc and handbrake cable. Remove track rod-to-wheel bearing housing bolt, and pull rod from housing. Remove hub nut. Remove upper control arm-to-wheel bearing hub nut. Retain spacers for reassembly, and remove housing.

4) Remove brake shield, and move it aside. Note bushing position. Use suitable sleeve and Counterhold (5343) to remove bushing.

NOTE: Install bushing with slot at top.

Installation (Multi-Link)

To install, reverse removal procedure. Lower vehicle, and allow suspension to settle. Tighten nuts and bolts to specifications. See TORQUE SPECIFICATIONS (MULTI-LINK).

TORQUE RODS & BUSHINGS (CONVENTIONAL SUSPENSION)

Removal

Raise and support vehicle. Remove torque rod(s). Press bushings from torque rods.

Installation

1) Coat bushing mating surfaces with petroleum jelly. Press new bushings into torque rod. Install torque rod with longer bolt in lower position.

2) Install rear of torque rod. Install front of torque rod. Remove front subframe mount to install front of torque rod (if necessary). Tighten front of torque rod. If removed, install and tighten front mount of subframe. Tighten rear of torque rod. See TORQUE SPECIFICATIONS (EXCEPT MULTI-LINK).

TRACK ROD BUSHINGS (MULTI-LINK REAR SUSPENSION)

Removal & Installation

Raise and support vehicle. Remove wheels and track rod. On bench, press out inner and outer track rod bushings. To install, press in new bushings. To complete assembly, reverse removal procedure.

Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

SUBFRAME BUSHINGS

Removal (Conventional)

1) Raise and support vehicle. Remove sub-frame front mount bolts. Pry out mount. Tap out front bracket using a hammer and drift. Remove torque rod front retaining bolts, "X" link and parking brake cable clamp.

2) Insert a bolt through front subframe mount hole. See Fig. 4. Pull subframe from rear mounting bracket using a "C" clamp. Remove rear mounting bracket from body. Use Bushing Remover (5329) to press bushings from mounting bracket.

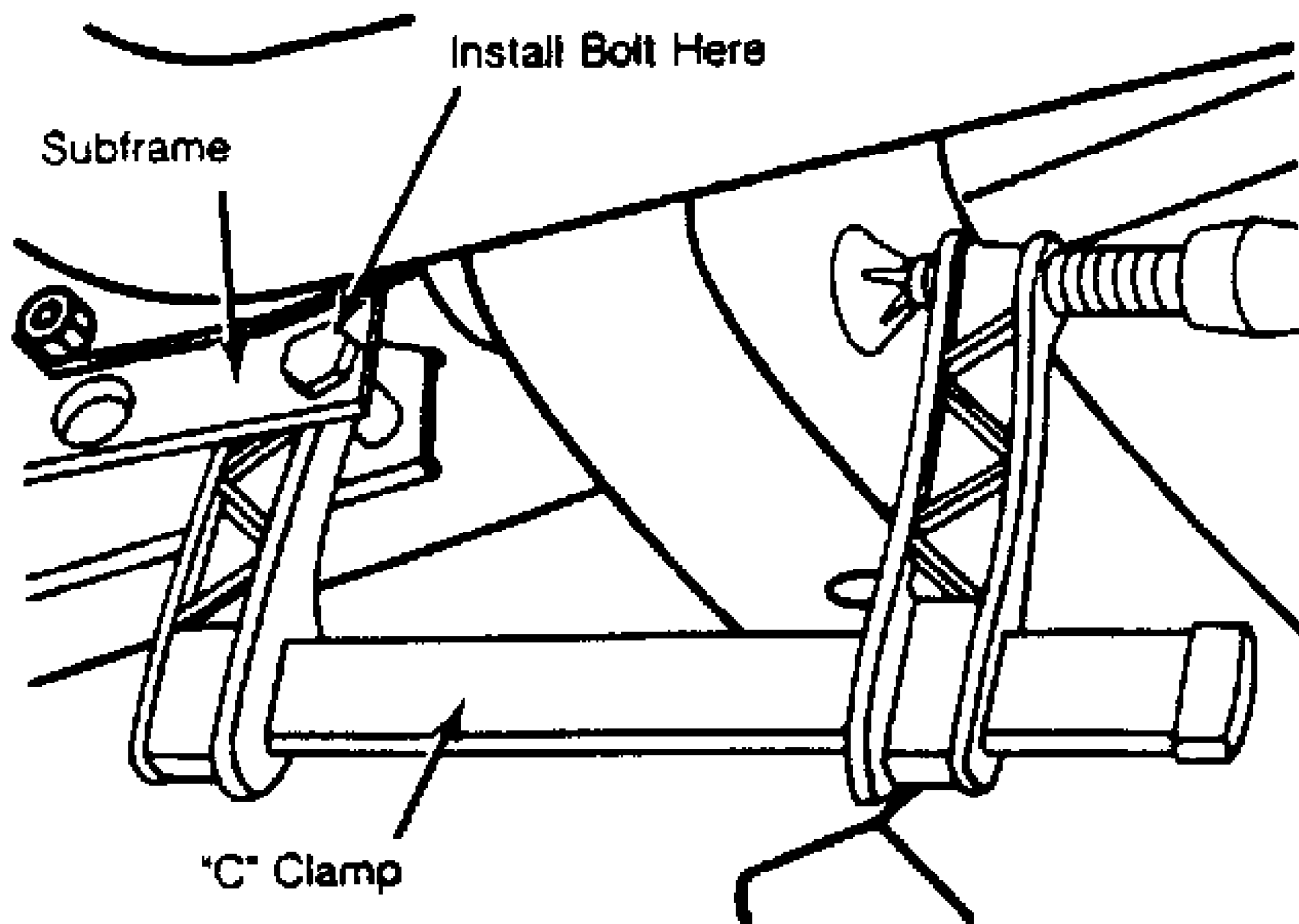


Fig. 4: Removing Subframe From Mounting Bracket (Conventional)

Installation (Conventional)

1) Coat bushing mating surfaces with petroleum jelly. Press new bushings into torque rod. Install torque rod with longer bolt in lower position.

2) Attach, but DO NOT tighten, rear of torque rod. Install front of torque rod. Remove front subframe mount to install front of torque rod (if necessary).

3) Tighten front of torque rod. If removed, install and tighten front mount of subframe. Tighten rear of torque rod. See

TORQUE SPECIFICATIONS (EXCEPT MULTI-LINK).

Removal (Multi-Link)

1) Raise and support vehicle. Remove rear wheels and brake calipers. Tie calipers aside. Remove bolts and nuts at front and rear of trailing arm.

2) Remove drive shaft-to-differential coupling bolts. Place jack and Fixture (5972) under assembly. Remove 4 upper subframe-to-floor bolts. Lower assembly slightly.

3) Use Press Tool (5344-1 and 5344-2) to remove front bushing. Use Press Tool (5352-1 and 5352-2) to remove rear bushing.

Installation

Use press tool to install front and rear bushing. See Fig. 5. To complete installation, reverse removal procedure. Lower vehicle, and allow suspension to settle. Tighten nuts and bolts to specifications. See TORQUE SPECIFICATIONS (MULTI-LINK). Check wheel alignment. See WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES article in the WHEEL ALIGNMENT section.

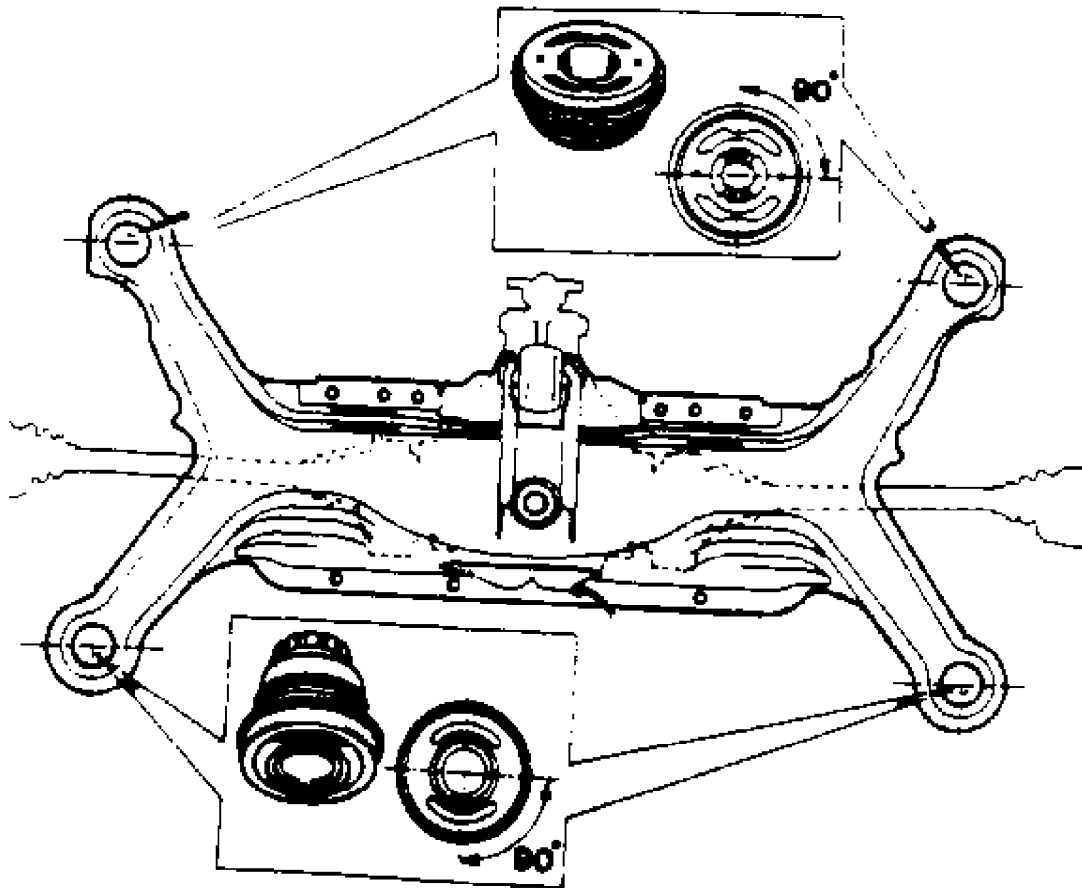


Fig. 5: Aligning Multi-Link Subframe Bushing (Multi-Link)
Courtesy of Volvo Cars of North America

TORQUE SPECIFICATIONS

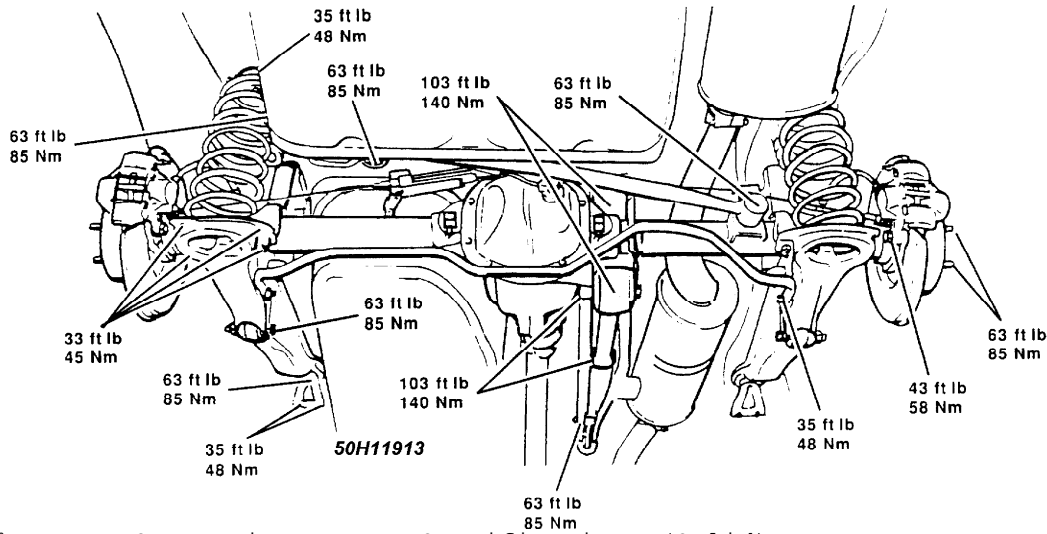
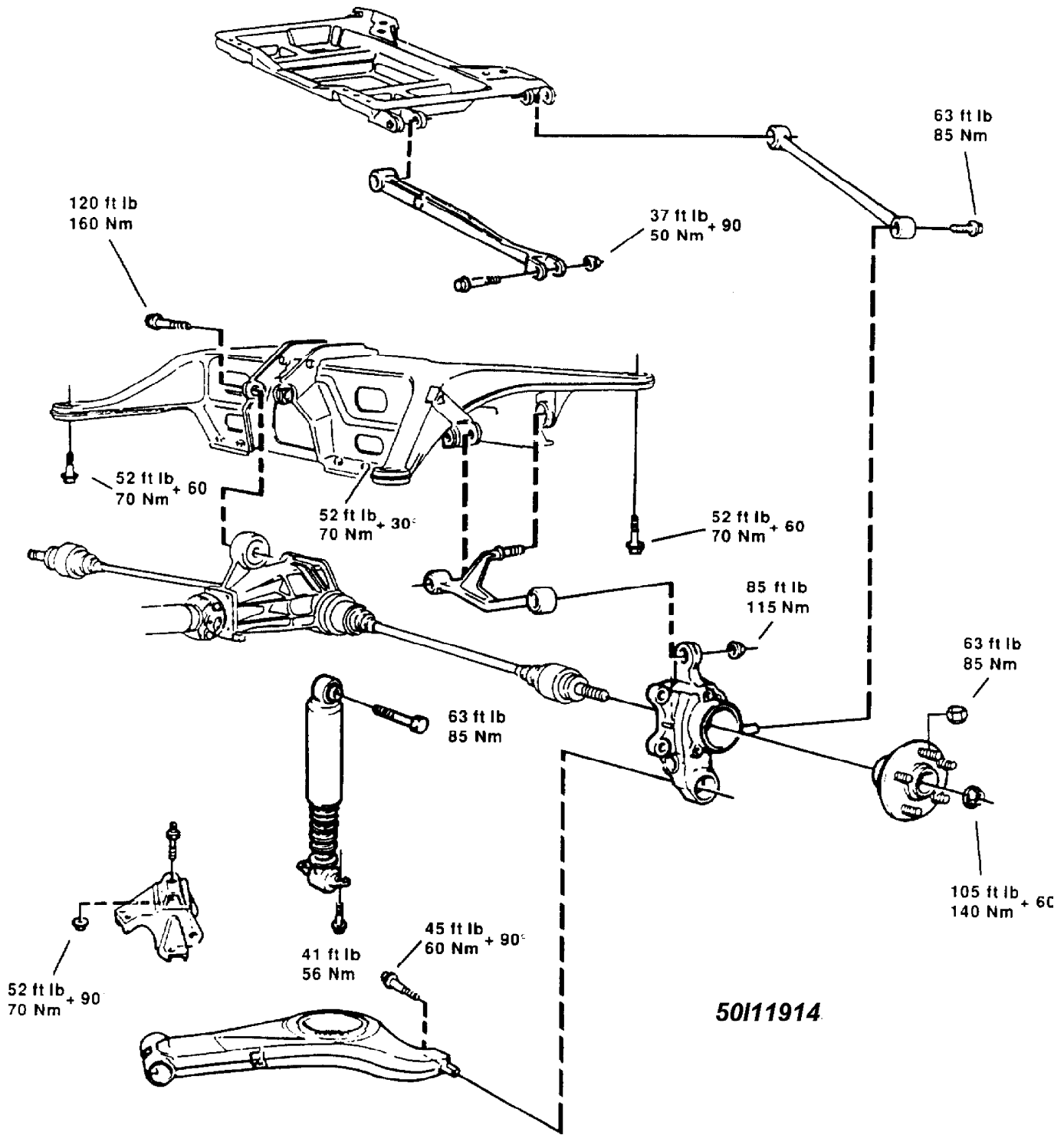


Fig. 6: Rear Suspension Torque Specifications (Solid)
 Courtesy of Volvo Cars of North America.

TORQUE SPECIFICATIONS TABLE (EXCEPT MULTI-LINK)

Application	Ft. Lbs. (N.m)
Conventional	
Brake Caliper Bolts	43 (58)
Rear Spring	
Rear Axle Bracket	33 (45)
Upper Attachment	35 (48)
Shock Absorber Nuts	63 (85)
Stabilizer Bar	35 (48)
Subframe	
Front Mount	63 (85)
Rear Bushing Bracket	63 (85)
Torque Rods	
Front Bolts-To-"X" Link	103 (140)
Rear Bolts	63 (85)
Track Rod-To-Body	63 (85)
Track Rod-To-Rear Axle	63 (85)
Trailing Arm	
Rear Axle Bracket	33 (45)
Front Bracket	
Bolts	35 (48)
Nuts	63 (85)
Wheel Lug Nut	63 (85)



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Fig. 7: Rear Suspension Torque Specifications (Multi-Link)
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TORQUE SPECIFICATIONS TABLE (MULTI-LINK)

Application	Ft. Lbs. (N.m)
Brake Caliper Bolts	44 (60)

Hub Nut	(1)	102	(140)
Lower Control Arm			
Rear Axle Member Nut	(2)	37	(50)
Wheel Bearing Housing Nut	(2)	37	(50)
Shock Absorber Nuts			
Lower		41	(56)
Upper		63	(85)
Subframe-To-Body Bolt	(1)	51	(70)
Track Rod			
Subframe Nut		51	(70)
Wheel Bearing Housing		63	(85)
Trailing Arm			
Body Nut	(2)	51	(70)
Bracket Nut	(3)	125	(91)
Wheel Bearing Housing Bolt	(2)	44	(60)
Upper Control Arm			
Subframe Front Nut	(1)	51	(70)
Subframe Rear Nut		63	(85)
Wheel Bearing Housing Nut		85	(115)
Wheel Lug Nut		63	(85)

- (1) - After tightening to specification, turn an additional 60 degrees.
 - (2) - After tightening to specification, turn an additional 90 degrees.
 - (3) - After tightening to specification, turn an additional 120 degrees.
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