2000-01 SUSPENSION

Front - Corvette

DESCRIPTION

The major suspension components are made of high-strength, lightweight, forged aluminum alloy. A fiberglass single-leaf spring is mounted transversely below lower control arms. Pressurized gas (nitrogen) shock absorbers are mounted between frame shock absorber towers and lower control arms. Lower control arms have alignment cams for caster and camber adjustments.

NOTE: For information on electronic suspension system, see ELECTRONIC - REAL TIME DAMPING article.

ADJUSTMENTS & INSPECTION

WHEEL ALIGNMENT

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

WHEEL BEARINGS

NOTE: Hub and bearing assembly is sealed and non-serviceable. Replace as a complete assembly.

RIDE HEIGHT

Ride height is nonadjustable. For ride height specification, see appropriate SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT. If ride height of vehicle is incorrect after checking for proper tire pressure and allowing for tire wear, check frame and suspension components for wear, bending or metal fatigue. Ride height is not the same as trim height. See **TRIM HEIGHT ADJUSTMENT** .

TRIM HEIGHT ADJUSTMENT

Setting Vehicle Trim Height

1. Set tire pressure. Fill gasoline tank. Lift front bumper about 1.5" (38 mm), then gently remove hands and let suspension settle on its own. Do this 2 more times. Measure and record distance between center line of front lower control arm bushing and ground. See **Fig. 1** . This is distance "A". Measure and record distance between lowest point on ball joint housing (except grease fitting) and ground. This is distance "B".
2. Distance "A" minus distance "B" equals dimension "Z". For accuracy, repeat previous

step, but this time press down on bumper instead of lifting bumper. If dimension "Z" is now different from dimension "Z" measured previously, average both measurements for true dimension "Z".

3. Dimension "Z" is 1.5-1.9" (39-49 mm). If trim height is not within specification, use Spring Compressor (J-42854) to lift spring off lower control arm. Adjust dimension "Z" by turning spring adjuster bolt. One complete turn of spring adjuster bolt is equal to .07" (2 mm). Spring adjuster bolt gap is .07-.94" (2-24 mm), with .19" (5 mm) maximum difference side-to-side. See **Fig. 2** .

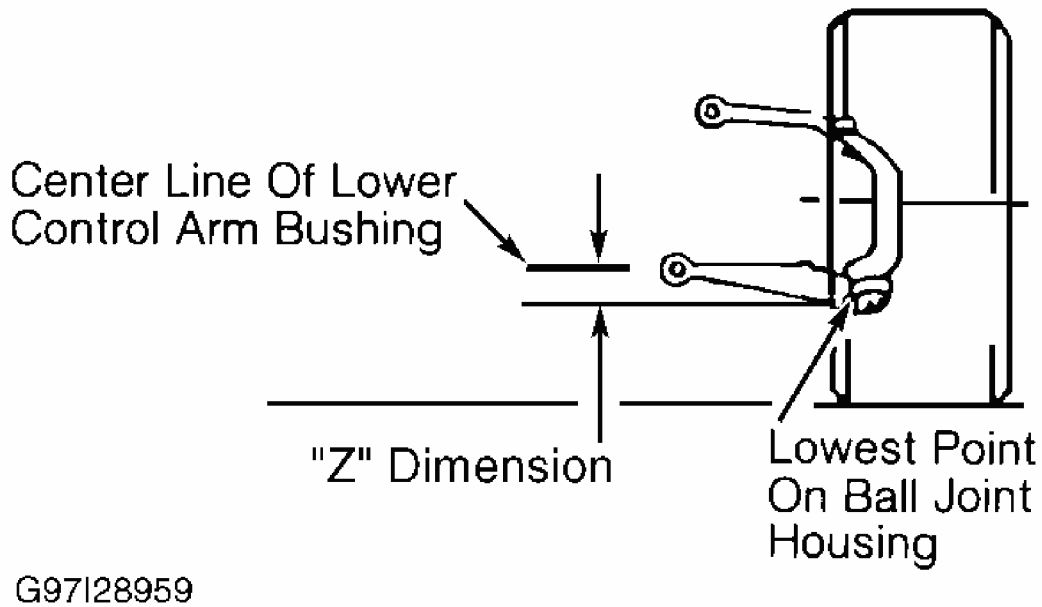

Fig. 1: Measuring Trim Height
Courtesy of GENERAL MOTORS CORP.

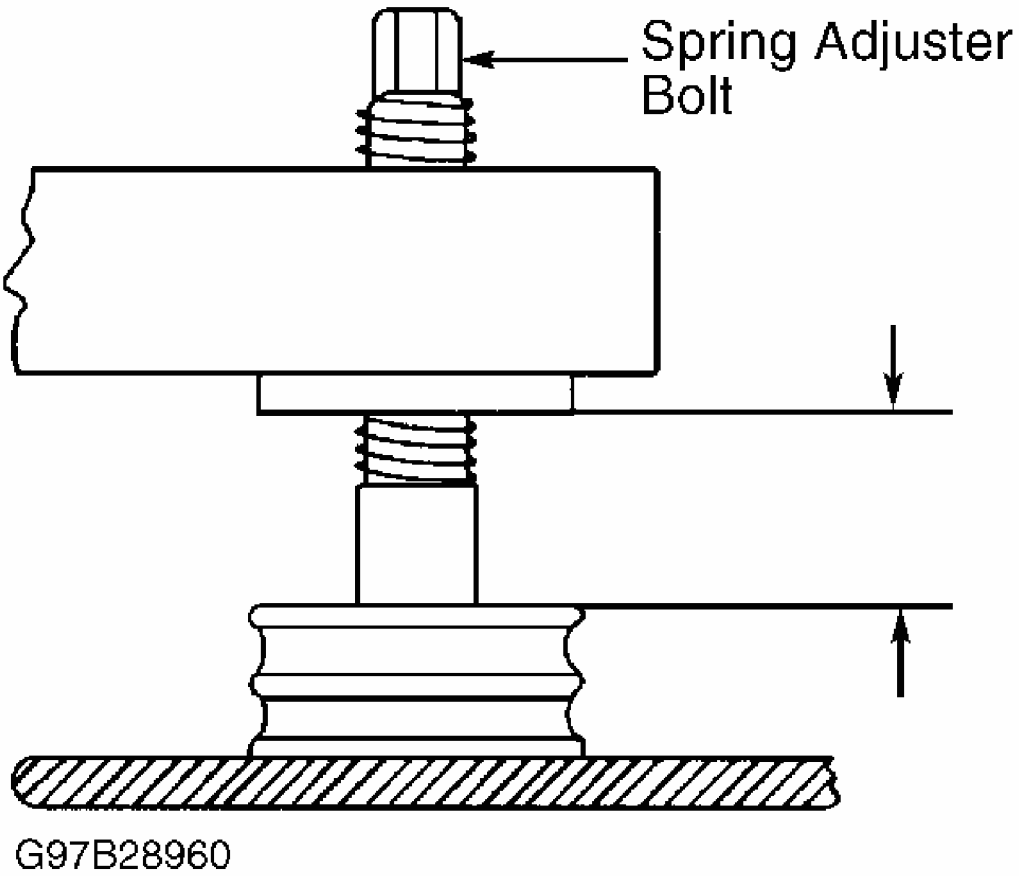

Fig. 2: Checking Spring Adjuster Bolt Gap
Courtesy of GENERAL MOTORS CORP.

REMOVAL & INSTALLATION

CAUTION: Carefully note routing, position, mounting and location of ABS components and wiring. Components are extremely sensitive to electromagnetic interference.

NOTE: Information on replacement of ball joints and control arm bushings is not available from manufacturer.

HUB & BEARING ASSEMBLY

Removal

Raise and support vehicle on frame rails to allow suspension to hang free. Remove wheel.

Remove brake caliper and rotor. Note position of wheel speed sensor harness for reassembly reference. See **Fig. 3** . At steering knuckle, disconnect speed sensor electrical connector, and remove harness bracket. Remove hub and bearing assembly bolts and nuts. Remove hub and bearing assembly.

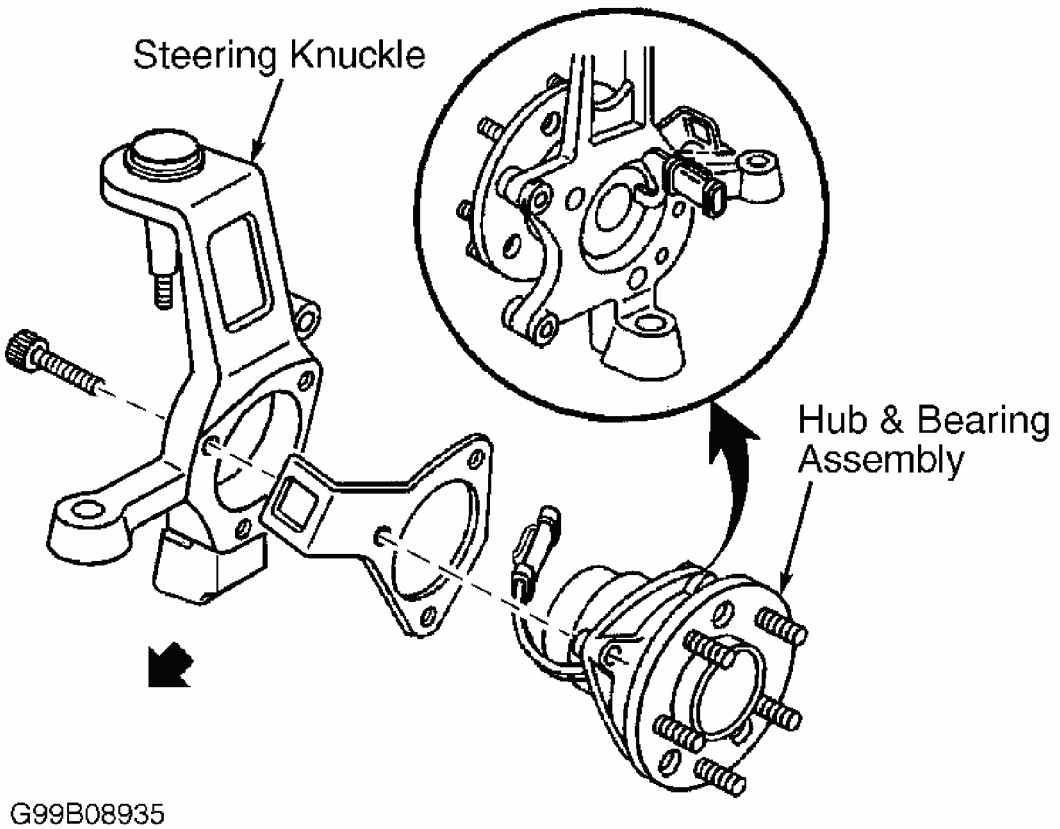

Fig. 3: Exploded View Of Bearing/Hub Assembly & Steering Knuckle
Courtesy of GENERRAL MOTORS CORP.

Installation

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

LOWER CONTROL ARM

Removal

1. Raise and support vehicle on frame rails to allow suspension to hang free. Remove wheel. Remove transverse spring. See **TRANSVERSE SPRING** . Support lower control arm with jackstand. Unbolt shock absorber and stabilizer link from lower control arm. Disconnect wheel speed sensor electrical connector.

2. Remove cotter pin and nut from lower ball joint stud. Separate lower ball joint from steering knuckle with Ball Joint Separator (J-42188). Mark location of adjustment cams for installation. Remove lower control arm cam bolts, jackstand and lower control arm.

Installation

To install, reverse removal procedure. See **TORQUE SPECIFICATIONS** . Before engaging lower ball joint stud into hole in steering knuckle, ensure cotter pin hole in stud is facing vehicle front and rear. Rotate stud with padded pliers, if necessary. DO NOT damage taper or thread. Install NEW cotter pin from rear toward front of vehicle. Align vehicle. See appropriate SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT.

STABILIZER BAR

Removal & Installation

Raise and support vehicle by frame. Remove front wheels. Disconnect stabilizer bar from insulator brackets at frame. Disconnect stabilizer bar from links at lower control arms. Remove stabilizer bar. To install, reverse removal procedure.

UPPER CONTROL ARM

Removal

1. Raise and support vehicle at frame, allowing suspension to hang free. Remove wheel. Support lower control arm with jackstand.
2. Disconnect wheel speed sensor electrical connector. See **Fig. 3** . Remove cotter pin and nut from upper ball joint stud. Separate upper ball joint stud from steering knuckle using Ball Joint Separator (J-33436). See **Fig. 4** . Note position and number of shims between upper control arm shaft and frame. Remove upper control arm bolts and upper control arm.

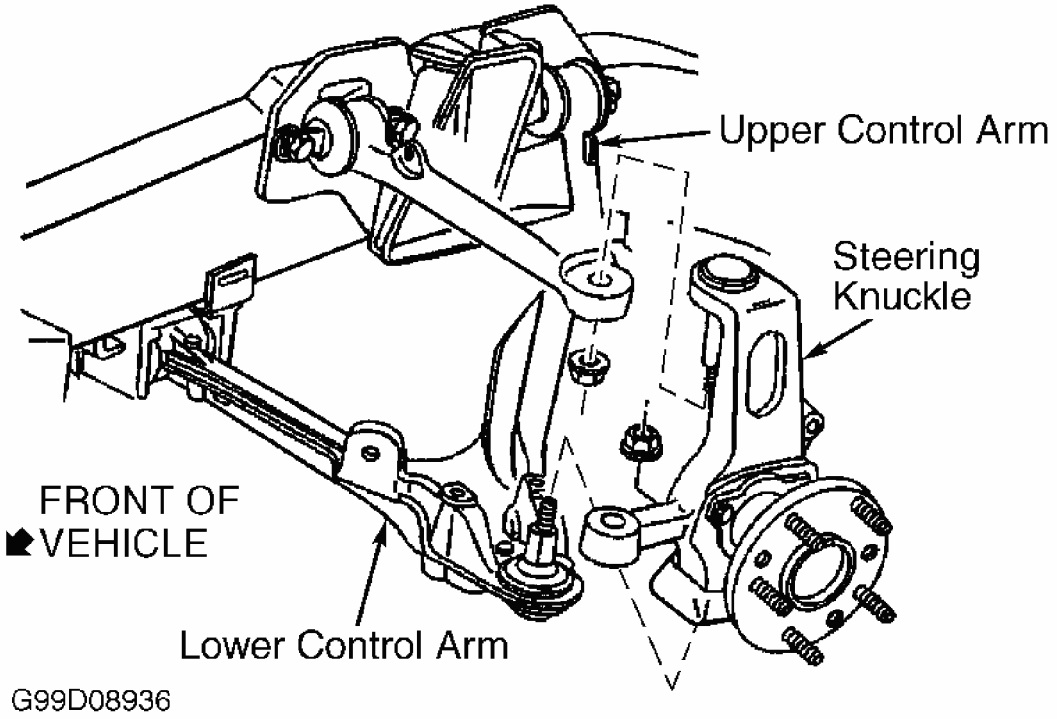

Fig. 4: Exploded View Of Controls Arms & Steering Knuckle
Courtesy of GENERAL MOTORS CORP.

Installation

To install, reverse removal procedure. Ensure shims are in original locations. Tighten nuts and bolts to specification. See **TORQUE SPECIFICATIONS** . Check wheel alignment. See appropriate SPECIFICATIONS & PROCEDURES article in WHEEL ALIGNMENT.

STEERING KNUCKLE

Removal

1. Raise and support vehicle on frame rails to allow suspension to hang free. Remove wheel. Remove brake caliper, and tie aside. Remove rotor. Note position of speed sensor wiring harness for reassembly reference. Disconnect speed sensor electrical connector and harness bracket from steering knuckle.
2. Remove hub and bearing assembly. See **HUB & BEARING ASSEMBLY** . Support lower control arm with jackstand. Remove cotter pins and nuts from upper and lower ball joints. Disconnect tie rod and upper and lower ball joints from steering knuckle using Ball Joint Separator (J-42188). Remove steering knuckle.

Installation

To install, reverse removal procedure. Tighten fasteners to specification. See **TORQUE SPECIFICATIONS** . Before engaging lower ball joint stud into hole in steering knuckle, ensure cotter pin hole in stud is facing vehicle front and rear. Rotate stud with padded pliers, if necessary. DO NOT damage taper or threads. Install NEW cotter pin from rear, pointing toward front of vehicle.

TRANSVERSE SPRING

CAUTION: DO NOT scratch or use corrosive cleaners, engine degreasers, solvents, etc. on or near fiberglass spring. Extensive damage can result.

Removal

1. Raise and support vehicle on frame rails to allow suspension to hang free. Remove wheels. If replacing spring, measure spring adjuster bolt gap for installation. See **Fig. 2** . Compress spring using Spring Compressor (J-33432-A) and Adapter (J-33432-88). See **Fig. 5** . Disconnect shock absorbers and stabilizer bar links from lower control arms. Remove cotter pins and nuts from lower ball joint studs.
2. Separate lower ball joints from steering knuckles using Ball Joint Separator (J-42188). Support lower control arm with jackstand. Mark lower control arm adjustment cam for installation. Remove lower control arm cam bolts. Remove lower control arm. Remove spring retainers. Release and remove spring compressor.

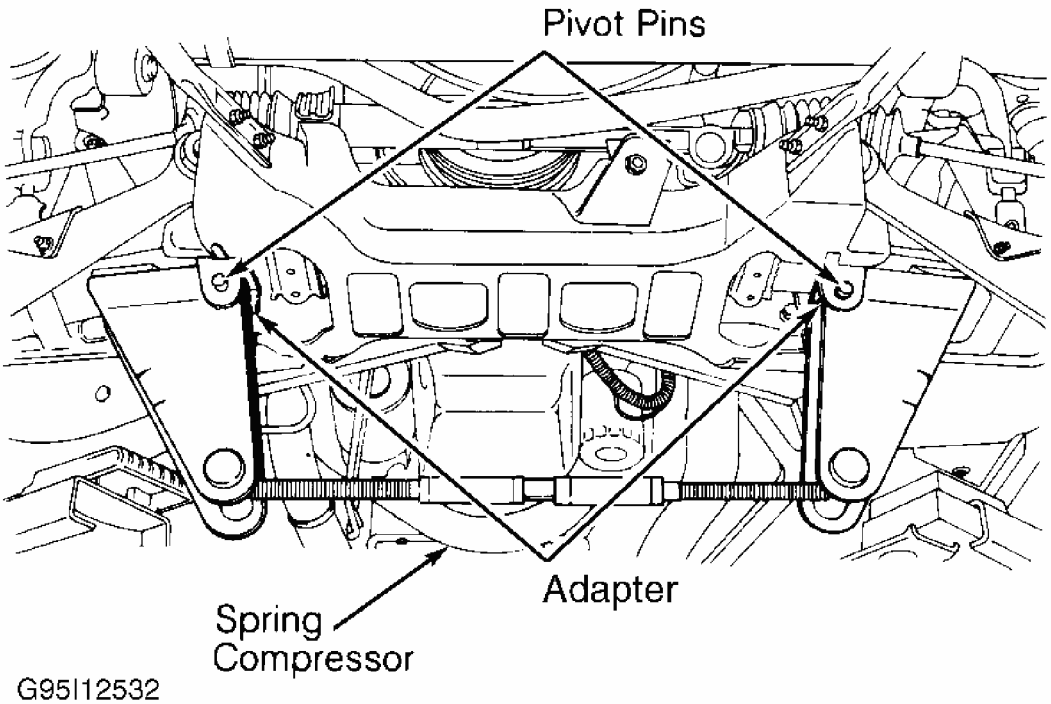

Fig. 5: Compressing Front Spring
Courtesy of GENERAL MOTORS CORP.

Installation

1. If spring was replaced, install spring adjuster bolts to measurement taken during removal. Install spring. Compress spring. Install spring retainers.
2. Install lower control arms, aligning marks on cams. Ensure cotter pin holes in lower ball joint studs are facing vehicle front and rear. Rotate studs with padded pliers, if necessary. DO NOT damage taper or threads. Engage studs into holes in steering knuckles. Install stud nuts. Tighten stud nuts to specification. See **TORQUE SPECIFICATIONS** . Install NEW cotter pins from rear toward front of vehicle.
3. Install shock absorbers. Connect stabilizer bar links. Remove spring compressor. Connect wheel speed sensor connector and install harness bracket. Remove jackstands below lower control arms. Install wheels. Lower vehicle. Adjust trim height. See **TRIM HEIGHT ADJUSTMENT** under ADJUSTMENTS.

TORQUE SPECIFICATIONS

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Application	Ft. Lbs. (N.m)
Ball Joint Stud Nut (1)	

Lower	
Step 1	15 (20)
Step 2	Additional 210 degrees
Step 3	52 (70)
Upper	
Step 1	15 (20)
Step 2	Additional 250 degrees
Step 3	41 (55)
Crossmember Mount Nut	81 (110)
Hub & Bearing Assembly Nut	96 (130)
Lower Control Arm Mounting Bolt (2)	125 (170)
Shock Absorber Bolt	
Lower	21 (28)
Upper	19 (26)
Spring Retainer Bolt (2)	46 (62)
Stabilizer Bar	
Insulator Bracket Bolt (At Frame) (2)	43 (55)
Link Nut (2)	53 (72)
Tie Rod Jam Nut	44 (60)
Tie Rod-To-Steering Knuckle Nut (1)	
Step 1	15 (20)
Step 2	Additional 160 degrees
Step 3	33 (45)
Upper Control Arm-To-Frame Nut	48 (65)
Wheel Lug Nut	100 (136)

(1) After tightening nut to specification, tighten nut further but only as far as necessary to align cotter pin holes. DO NOT loosen nut to align holes. Install cotter pin from rear toward front of vehicle.

(2) Tighten with vehicle at proper trim height.