CORVETTE

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DESCRIPTION

Ball joint independent type front suspension system with shock absorbers mounted within front coil springs and springs mounted between lower control arms and front suspension crossmember. Upper and lower control arm pivot shafts are bolted to a fixed suspension crossmember with shims provided between upper pivot shaft and crossmember for caster and camber adjustments. A front mounted stabilizer bar is linked to lower control arms.

ADJUSTMENT

CASTER & CAMBER

See Caster and Camber Adjustments and Specifications in WHEEL ALIGNMENT Section.

RIDING HEIGHT

See Riding Height Adjustments and Specifications in WHEEL ALIGNMENT Section.

FRONT WHEEL BEARINGS

See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.

BALL JOINT CHECKING

See Ball Joint Checking in WHEEL ALIGNMENT Section.

REMOVAL & INSTALLATION

COIL SPRING

Removal – Raise vehicle on hoist. With lower control arms hanging free, remove lower shock absorber mounting nuts and push shock up into coil spring. Place suitable spring removal tool (J-23028) in position (secure tool to a suitable jack). Remove stabilizer to lower control arm attachment. Raise jack to remove tension on lower control arm, install safety chain around spring and arm, and remove pivot bolts (remove rear bolt first). Slowly lower control arm and remove spring. **NOTE** – *Do not force coil spring out of seat; proper maneuvering will allow easy removal.*

Installation – Reverse removal procedures, remove safety chain, and ensure coil spring is installed with closely spaced coils, toward frame spring tower. Tighten nuts and bolts.

BALL JOINTS – UPPER & LOWER

Removal – Raise vehicle and support at frame rails. Remove wheel and ball stud cotter pin. Loosen, but do not remove ball stud nut. Using a suitable tool (J-23742-1) free stud from steering knuckle. Support lower control arm and remove ball stud nut, swing knuckle out of way. Chisel or grind heads off of rivets and punch out rivets and remove ball joint. **CAUTION** – *Do not damage control arm or ball joint seat.*

Installation – Position new ball joint in arm and attach with bolts and nuts supplied in service kit (insert bolts from bottom). Tighten bolts. Turn ball stud cotter pin hole fore and aft. Remove support from frame and control arm. Place ball stud in steering knuckle and install nut and tighten. Install cotter pin.

NOTE – *Do not back off nut to align cotter pin. Tighten nut to next slot to align with hole in stud.*

LOWER CONTROL ARM

Removal – Remove coil spring, as previously described. Detach steering knuckle from ball joint stud. Unbolt and remove control arm.

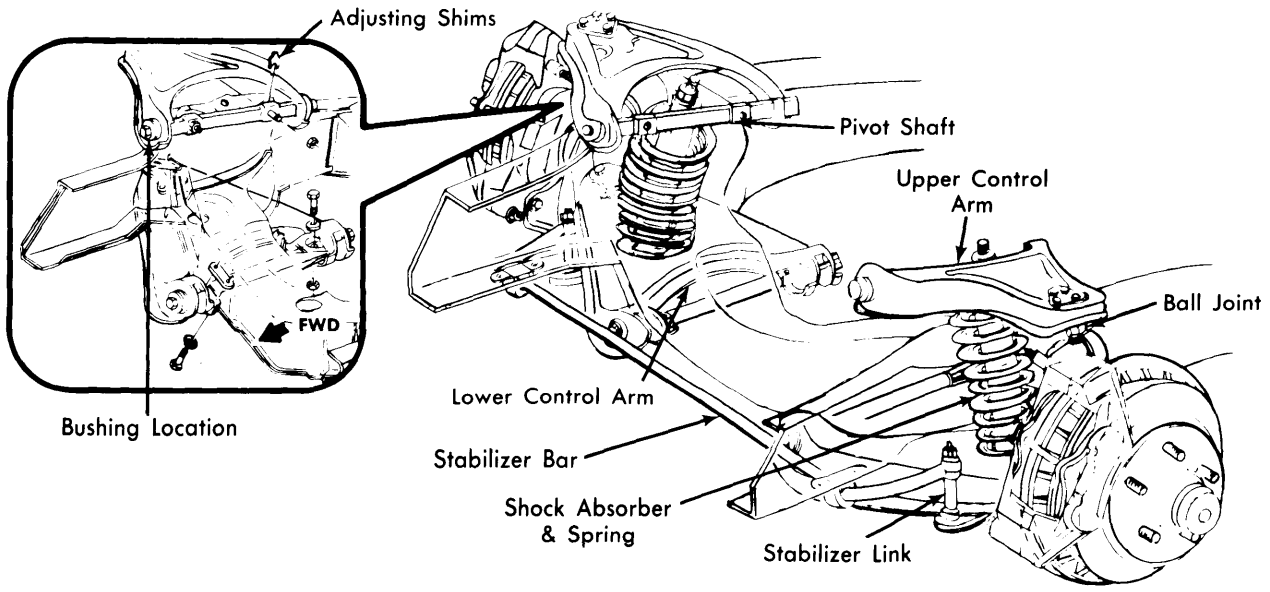

Fig. 1 Corvette Front Suspension Assembly

CORVETTE (Cont.)

Bushing Removal – Remove bolt, lockwasher and collar from each end of cross shaft, then thread a 7/16" x 20 capscrew (furnished with tool J-5888) to bottom of threads in one end of cross shaft. With control arm in arbor press on suitable tool (J-5888-3), press on capscrew until bushing is removed. NOTE – *Be sure bushing flange does not contact support.* Repeat procedure for other bushing.

Bushing Installation – With cross shaft in control arm and suitable tool (J-7052-1) in position, place control arm on suitable tool (J-5888-3), and hand start bushing into control arm and over end of cross shaft. NOTE – *End of shaft with two bolt holes should be toward front of control arm.* Install suitable tool over bushing, being certain three-piece spacer is not overlapping bushing holes in control arm. Press bushing into control arm until flange contacts control arm, then invert arm in press and repeat same process on other bushing. NOTE – *After installation, cross shaft should be free enough to be rotated by hand.* Install collar, lockwasher and capscrew in each end of cross shaft. NOTE – *Do not tighten until installed in vehicle.*

Installation – Position lower control arm and insert lower ball joint stud into steering knuckle. Install nut, tighten and install cotter pin. Install coil spring, as previously described, tighten nuts and bolts.

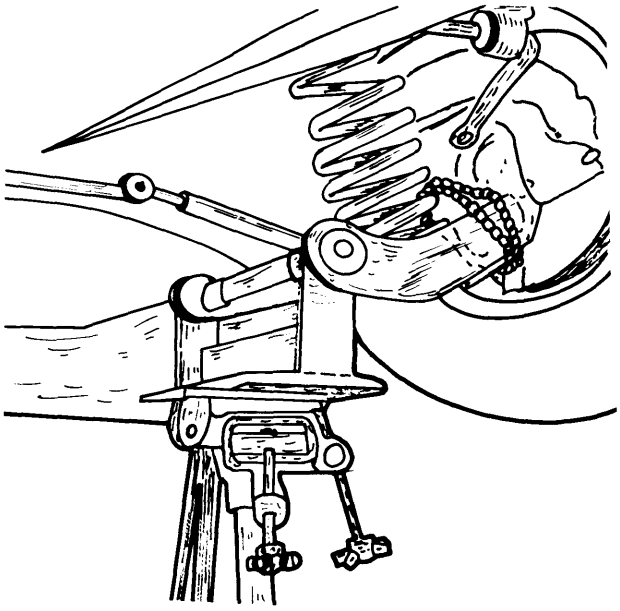

Fig. 2 Removing Corvette Coil Spring

UPPER CONTROL ARM

Removal – With car raised and supported at outer end of lower control arm, remove wheel and tire assembly, then remove nut from upper control arm ball stud. Remove ball stud from steering knuckle. Remove two nuts retaining upper control arm shaft to frame bracket, and note number of shims at each bolt, then remove control arm.

Bushing Removal – Remove capscrews, lock washers, and collars from both ends of cross shaft. Install 3/8 x 24 cap screw in one end of cross shaft. Install suitable tools (J-5888-3 & J-7052-2) on control arm and position in arbor press. Press out and discard bushing. Repeat procedure on other end of control arm. Remove capscrew from cross shaft. NOTE – *During removal do not allow flange of bushing to contact support.*

Bushing Installation – With control arm in arbor press and suitable tool (J-7052-2) in place, press in one bushing while arm is supported by suitable tool (J-5888-3). Install cross shaft in arm, invert in press, and press in second bushing. NOTE – *Cross shaft should be free enough to be rotated by hand.* Install collar, lockwasher and capscrew in ends of cross shaft. NOTE – *Do not tighten until installed in vehicle.*

Installation – Position control arm in vehicle and install bolts and nuts retaining cross shaft to frame. Install shims in original position, and tighten nuts. NOTE – *Tighten thinner shim pack nuts first, for improved torque retention.* Install ball stud through knuckle and tighten nut. Install wheel and tire assembly and lower vehicle. With full vehicle weight on suspension, torque shaft retainer bolts or nuts.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Ball Joint Stud	
Upper Stud	50
Lower Stud	80
Joint-to-Upper Arm	25
Steering Arm	70
Control Arm Pivot-to-Frame	
Upper	50
Upper Control Arm Shaft	60
Shock Absorber	
Upper End	7.5
Lower End	12.5
Stablizer Bar	
Link Nuts	18
Bracket Bolts	10.5
Lower Control Arm Shaft-to-Crossmember	
Front	70
Rear	95
Disc Brake Caliper	120