CORVETTE

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

Raise vehicle and support at lower control arms. Remove hub cap, dust cap and cotter pin. Tighten spindle nut to 12 ft. lbs. while rotating wheel by hand. Back off nut until just loose, then hand tighten until snug. Back off enough to insert cotter pin (about ½ hex). Adjustment should provide about .001-.005" end play. Install cotter pin, dust cap and hub cap. Lower vehicle.

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 – **1)** Raise vehicle and support at frame rails. Remove wheel and ball stud cotter pin. Loosen, but do not remove ball stud nut. Tap on boss of knuckle with hammer while using heavy hammer or similar tool as backing to remove ball joint from steering knuckle.

2) Support lower control arm and remove ball stud nut, swing knuckle out of way. Chisel or grind heads off rivets and punch out rivets. 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.

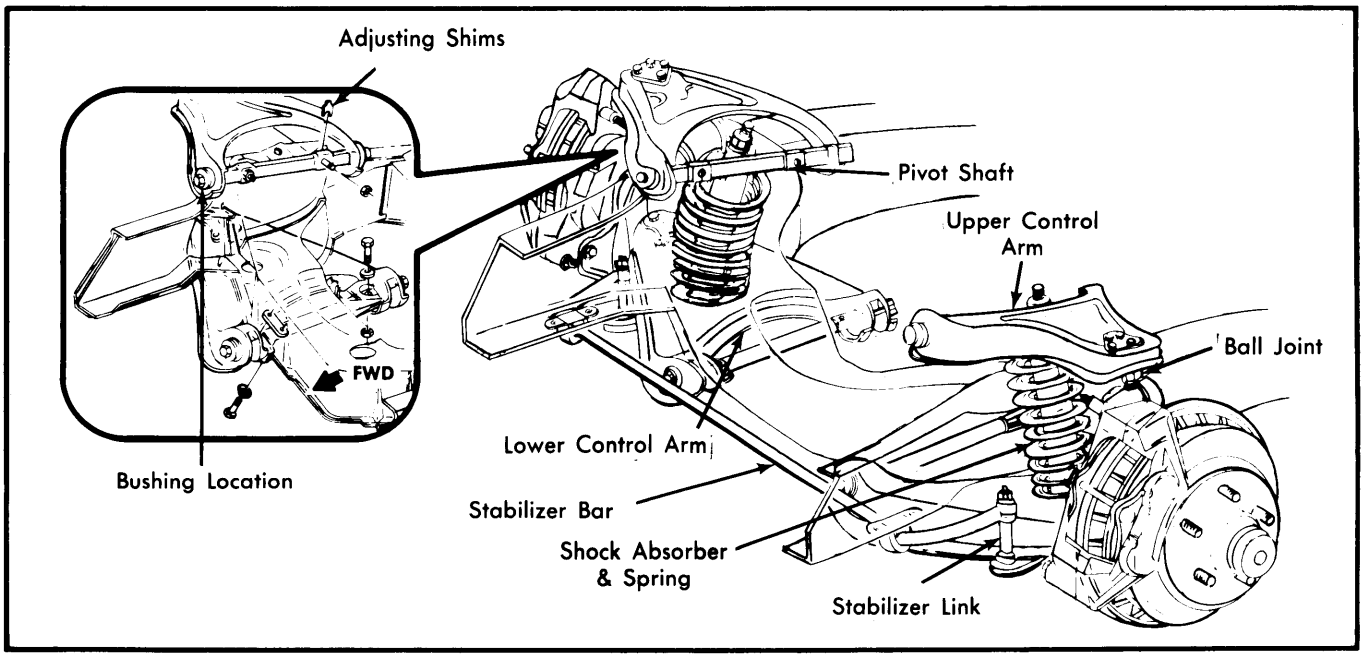

Fig. 1 Corvette Front Suspension Assembly

CORVETTE (Cont.)

Bushing Removal – Remove bolt, lock washer and collar from each end of cross shaft. Thread 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 tool (J-5888-3), apply pressure on capscrew until bushing is removed. Repeat procedure for other bushing.

NOTE – *Be sure bushing flange does not contact support.*

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. End of shaft with 2 bolt holes should be toward front of control arm. Install suitable tool over bushing, being certain 3-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 process on other bushing. After installation, shaft should be free enough to be rotated by hand. Install collar, lock washer and capscrew in each end of cross shaft. 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.

UPPER CONTROL ARM

Removal & Installation – Raise vehicle on hoist. Remove attaching nuts and bolts and remove control arm from vehicle. Tape shim pack together for proper reassembly. To install, reverse removal procedure.

Bushing Removal – Remove capscrews, lock washers and collars from both ends of cross shaft. Install 3/8" x 24 capscrew (furnished with tool J-5888) in one end of cross shaft. Install tools (J-5888-3 and 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. Cross shaft should be free enough to be rotated by hand. Install collar, lock washer and capscrew in ends of cross shaft. Do not tighten until installed in vehicle.

STEERING KNUCKLE

NOTE – *Use a suitable jack so the coil spring remains compressed, while the wheel and steering knuckle remain free.*

Removal – Raise vehicle and support lower control arm. Remove wheel and tire. Remove brake caliper, disc and splash shield. Hang caliper out of way. Remove upper and lower ball stud cotter pins. Remove ball studs from knuckle and remove knuckle.

Installation – To install, reverse removal procedure.

WHEEL BEARINGS

Removal – Raise and support vehicle. Remove hub and disc assembly. Discard cotter pin. Remove outer bearing assembly from hub with fingers. Pry out inner bearing lip seal assembly. Discard seal. Remove inner bearing assembly.

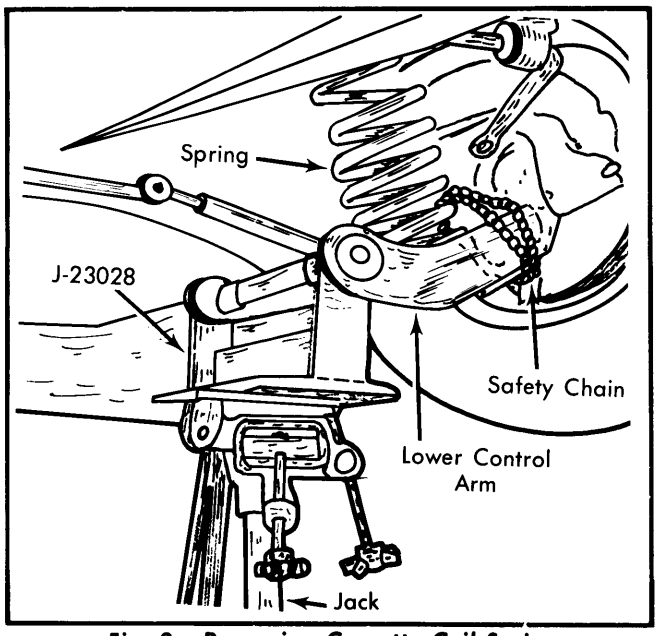

Fig. 2 Removing Corvette Coil Spring

Installation – 1) Apply a small amount of grease to spindle at bearing seat and at inner seat, shoulder and seal seat. Put a small quantity of grease inboard of each bearing cup in hub. Thoroughly grease bearing cone and roller assemblies. Place bearing inner cone and roller assembly into hub. Using finger, put additional grease outboard of bearing.

2) Install a new grease seal with flat plate. Seal should be flush with hub. Lubricate seal lip with thin layer of grease. Install hub and rotor assembly. Place outer cone and roller assembly in outer bearing cup. Install washer and nut and tighten to 12 ft. lbs. Put an additional amount of grease outboard of bearing. Adjust bearings. Install caliper, dust cap, wheel and tire. Lower vehicle.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N·m)
Ball Joint Stud	
Upper Stud	50 (68)
Lower Stud	80 (109)
Joint-to-Upper Arm	25 (34)
Steering Arm	70 (95)
Upper Control Arm Pivot-to-Frame	50 (68)
Cross Shaft Bolts	50 (68)
Stabilizer Bar	
Link Nuts	18 (24)
Bracket Bolts	10 (14)
Lower Control Arm Shaft-to-Crossmember	
Front	70 (95)
Rear	95 (129)

Application	INCH Lbs. (N·m)
Shock Absorber	
Upper End	90 (10)
Lower End	150 (17)