

1968-72 CHEVELLE, MONTE CARLO, NOVA, CAMARO, VENTURA II FRONT

Camaro (1968-70)
Chevelle (1968-72)
Chevy II & Nova (1968-72)
Monte Carlo (1970-72)
Pontiac Ventura II (1971-72)

DESCRIPTION

Short and long control arm suspension system with control arms bolted at the inner pivot points on frame or cross-member and using ball joints to attach the outer point on the control arms to the steering knuckle and front wheel spindle. Shock absorbers are inside coil springs which mount between lower control arm and frame side rail.

ADJUSTMENT

Caster & Camber - See "Wheel Alignment Specifications & Adjustment" in Section 9.

Front Wheel Bearings - See "Wheel Bearing Adjustment" in Section 9.

REMOVAL & INSTALLATION

► **BALL JOINT CHECKING:** See "Ball Joint Checking" in Section 9.

Ball Joint Replacement
(On Car)

1968-70 Upper Ball Joint Replacement - Support weight of car at outer end of lower control arm. Remove wheel and tire assembly. Remove cotter pin and nut from upper control arm ball stud. Remove stud from knuckle. Cut off ball joint rivets with a chisel and enlarge ball stud attaching holes in control arm to 21/64" to accept 5/16" bolts. Check bolts in control arm holes before enlarging holes. Install new joint using special nuts and bolts. Tighten nuts to 25 ft. lbs. **CAUTION** - Use only special hardened bolts furnished with replacement joint. **DO NOT** attempt to rivet replacement joint to control arm. Reassemble ball stud to steering knuckle.

1971-72 Upper Ball Joint Replacement - Raise vehicle on a hoist and remove wheel and tire. Support lower control arm with an adjustable floor jack and loosen upper ball stud nut but do not remove. Install Tool J-23742 between ball studs and turn threaded end until ball stud is free of steering knuckle. Remove tool and ball stud from knuckle. Remove rivets from upper control arm by using grinding

wheel. Install ball joint using bolts, nuts and washers supplied with new joint. Install a lube fitting in replacement ball joint after attachment to control arm is final. Torque joint-to-upper arm service replacement to 25 ft. lbs. Torque stud nut to 50 ft. lbs. Tighten to reach castellation for installation of cotter pin.

Lower Ball Joint Removal - Support lower control arm at outer end on floor jack, and clear of lower ball stud and remove the wheel. **NOTE** - On cars with disc brakes, remove caliper assembly. Remove the upper and lower ball stud nuts, free the ball studs from the steering knuckle and wire the knuckle and brake drum or disc assembly out of the way. Use a screwdriver to pry off the seal and retainer. Install suitable tool and press ball joint from lower control arm.

Lower Ball Joint Installation - Place new ball joint into control arm and install suitable tool. **NOTE** - Position air vent in rubber boot facing inboard. Press ball joint into lower control arm until it is seated properly in the control arm. Install the stud into the steering knuckle. Secure in place with attaching nut and install cotter pin. Tighten attaching bolts to 25 ft. lbs., and ball joint stud nut to 85 ft. lbs. (1968-69 except Camaro 65 ft. lbs.), 80 ft. lbs. (1970) or 90 ft. lbs. (1971-72). Install wheel and tire assemblies and disc brake caliper assembly if so equipped.

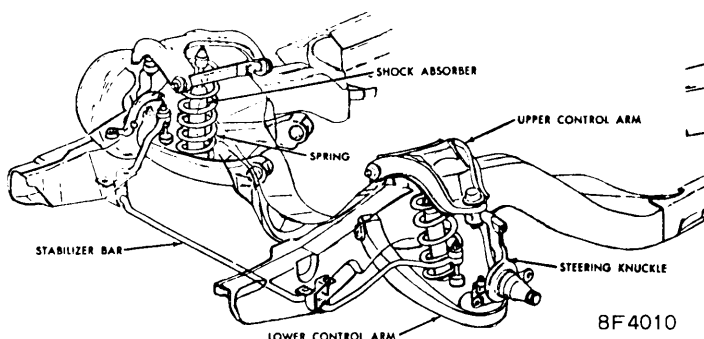
Shock Absorber

Removal - Hold the shock absorber upper stem from turning, and then remove the upper stem retaining nut, retainer, and rubber grommet. Remove two bolts retaining the lower shock absorber pivot to the lower control arm and pull the shock absorber assembly out from the bottom.

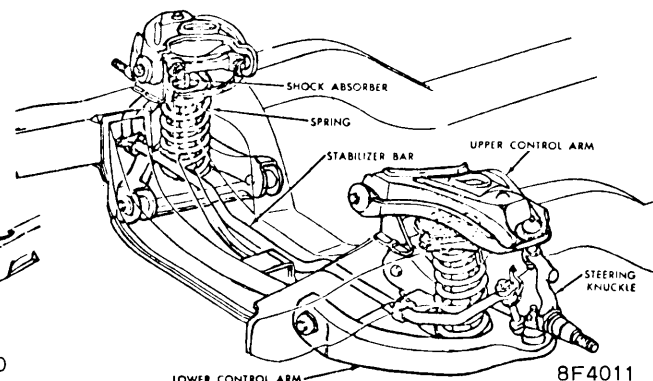
Installation - Reverse removal procedure. Tighten absorber upper nut to 8 ft. lbs., and shock absorber lower attachment 20 ft. lbs. Tighten Chevy II bracket to spring tower nut to 9 ft. lbs.

Coil Springs (1968-70)

Removal - Remove shock absorber (see above). Support car by frame so that control arms hang free, remove wheel and tire and disconnect stabilizer bar at lower control arm link. Bolt Tool J-22739 to a suitable jack and place tool under lower control arm bushings so that control arm bushings seat in grooves of tool. **NOTE** - A jack may be used without tool, but for safety install a chain through spring and lower control arm. Raise jack slightly to remove tension off lower control arm and remove spring.



CHEVELLE & MONTE CARLO SUSPENSION



NOVA & VENTURA II SUSPENSION

1968-72 CHEVELLE, MONTE CARLO, NOVA, CAMARO, VENTURA II FRONT, (Cont.)

Installation - Properly position spring on control arm. Position control arm into crossmember and install pivot bolts. Lower jack. Replace stabilizer bar link, shock absorber and wheel. Lower car and torque shock absorber lower control arm pivot nuts to 80 ft. lbs.

Coil Springs (1971-72)

Removal - Raise car on hoist, remove shock absorber, remove stabilizer bar, and bolt tool J-23028 to a suitable jack. Place tool under lower control arm bushings so that bushings seat in grooves of tool. Raise jack to relieve tension on the lower control arm pivot bolts and remove nuts and bolts. (Remove rear bolt first). Install a chain around the spring and through control arm as a safety measure. Lower control arm by slowly releasing jack until spring can be removed.

Installation - To install, reverse removal procedure making sure that spring is properly positioned on control arm. When installing pivot bolts, install front bolt first. Torque bolts to 90 ft. lbs. (except 1972 Chevrolet, 110 ft. lbs.).

Upper Control Arm

Removal - Raise vehicle on hoist and support lower control arm with a jack stand. Separate upper control arm ball stud from steering knuckle. See "Ball Joint Replacement". Remove two nuts securing upper control arm shaft to frame bracket. Tape shims together and mark them for reinstallation. Remove bolts attaching control arm to frame and remove control arm.

Installation - Reverse removal procedure and make sure shims are correctly installed. Tighten control arm shaft bolts to specifications listed below.

Application	Ft. Lbs.
Control Arm Shaft Bolts (1968-70)	50
(1971)	40
(1972 Chevrolet)	60
(1972 Pontiac)	50
Control Arm Pivot to Frame (1968-69 Exc. Chevy II)	45
(1968-69 Chevy II)	50
(1970)	50
(1971-72)	55

Upper Control Arm Bushings (1968-71)

Removal - **NOTE** - If a new pivot shaft is to be installed, also install pivot shaft bushings. Remove cap screws, lockwashers and collars from both ends of cross shaft. Install a 3/8-24 cap screw in one end of cross shaft. Place control arm in an arbor press on Tool J-5888-3. **CAUTION** - Be certain flange of bushing does not contact support. Press out bushing, invert control arm and repeat process on other bushing. Remove cap screw from cross shaft.

Installation - Install arm in arbor press with Tool J-21482 in place and press in one bushing using J-7052-5 while control arm is supported on Tool J-5888-3. Install cross shaft in arm and invert control arm and press in second bushing. **NOTE** - Cross shaft should be able to be turned by hand. Install collar, lock in washer and cap screw in ends of cross shaft. **CAUTION** - Pivot shaft bolts must be in horizontal position (toward centerline of car) before tightening nuts.

Upper Control Arm Bushings (1972)

Removal & Installation - Using suitable tools (J-2269-5, J-5888-3, J-23514-1 Chevrolet) or (J-22899, J-9502-3, and arbor press, Pontiac) press bushings out of control arm. To install, reverse removal procedure using additional tool J-23514 or equivalent (Chevrolet) or J-7167 or equivalent (Pontiac).

Lower Control Arm

Removal - Remove the front coil spring (see coil spring removal). Remove lower control arm ball stud from the steering knuckle boss (see lower ball joint removal). Remove the lower control arm assembly.

Installation - Install lower control arm ball stud into steering knuckle boss. Install the coil spring (see coil spring removal & installation). Tighten all bolts and nuts to specifications listed below.

Application	Ft. Lbs.
Pivot Nut (1968-70)	80
(1971)	90
(1972 Chevrolet)	110
(1972 Pontiac)	90
Lower Ball Stud Nut (1968-70 Exc. Camaro)	80
(1968-69 Camaro)	65
(1970 Camaro)	85
(1971)	90
(1972 Chevrolet)	90
(1971 Pontiac)	70

Lower Control Arm Bushings

CAUTION - A spacer (J-21474-12 or J-22323-1) must be used in end of control arm and around bushing outer sleeve to avoid control arm distortion when pressing on bushings.

Front Bushing Removal - Using suitable tools (J-22323-1, J-21899-1, J-21474-3, 4, 5, 6, 8, 12 & 13) press bushing out of control arm.

Front Bushing Installation - Using suitable tools (J-22323-1, J-21894-1 & 2, J-21474-2, 3, 4, 5, 12 & 13) press bushing into control arm. **NOTE** - After installation on Chevrolet Models, the front bushing outer sleeve must be tack welded (arc weld only) in two places to control arm.

Rear Bushing Removal - Using suitable tools (J-22323-1, J-21894-1, J-21474-3, 4, 5, 6, 12 & 13) press bushing out of control arm.

Rear Bushing Installation - Using suitable tools (J-22323-1, J-21894-1 & 2, J-21474-3, 4, 5, 8, 12 & 13) press bushing into control arm.

Steering Knuckle

Removal - Raise car and place a floor jack under lower control arm. Remove brake drum and hub and disconnect brake shoe return springs. Remove brake shoes and clamp wheel cylinder, then remove brake anchor pin and two bolts securing brake backing plate and steering arm to steering knuckle. Remove brake backing plate and steering arm from knuckle and wire backing plate to underbody

Front & Rear Suspension

1968-72 CHEVELLE, MONTE CARLO, NOVA, CAMARO, VENTURA II FRONT, (Cont.)

member. If equipped with disc brakes, remove brake caliper and brake disc. Hang unit out of the way. Do not allow it to hang by brake line. *NOTE - Do not disconnect brake hose.* Remove lower control arm ball joint stud nut and strike steering knuckle boss to loosen stud and disengage steering knuckle. Disengage upper ball joint stud from knuckle in same manner, then remove steering knuckle.

Installation - Reverse removal procedure and tighten ball joint stud nuts to specifications (see "Ball Joint Replacement").

Front Stabilizer

Removal - Raise car and support at frame. Disconnect stabilizer bar from links and brackets from frame and remove stabilizer bar.

Installation - Reverse removal procedure and tighten bracket bolts to specifications listed below.

Application	Ft. Lbs.
Link Bolts (1968-69 Exc. Camaro)	15
(1968-69 Camaro)	8
(1970) ..	15
(1971 Nova & Ventura II)	20
(1971 All Others)	12
(1972)	15
Bracket Bolts (1968-70)	15
(1968-72)	25