

FORD MOTOR CO. ENCLOSED SPRING

Ford, Mercury,
Lincoln Town Car, Mark VI

DESCRIPTION

The front suspension is a ball joint type with a coil spring located between the upper and lower control arms. The upper control arm pivots on bushings located on a shaft assembly which is bolted to the frame. The lower arm pivots on a bolt attached to the number 2 crossmember. This suspension is similar to the spring tower suspension used on other models except for the location of the coil spring. On the spring tower models the spring is located above the upper control arm. See *Ford Motor Co., Spring Tower* in this Section.

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 until tire clears floor. Remove grease cap from hub. Remove cotter pin and nut lock. Loosen adjusting nut 3 turns. Rock the wheel and hub and rotor assembly in and out several times. While rotating wheel, tighten adjusting nut to 17-25 ft. lbs. Loosen adjusting nut $\frac{1}{2}$ turn, then tighten to 10-15 INCH lbs. Place the nut lock on the adjusting nut so the castellations are in line with cotter pin hole in spindle. Install a new cotter pin. Check for free wheel rotation and install grease cap. Lower vehicle.

BALL JOINT CHECKING

See *Ball Joint Checking in WHEEL ALIGNMENT Section*.

REMOVAL & INSTALLATION

BALL JOINTS

NOTE — Upper and lower control arms must always be replaced as an assembly. Do not install ball joints or other components in used control arm.

STABILIZER BAR BUSHING

Removal — Raise vehicle on hoist. Remove nut, washer and insulator from lower end of stabilizer bar attaching bolt. Remove bolt, remaining washers, insulators and spacer.

Installation — Assemble cup washer and new insulator on attaching bolt. Insert bolt through stabilizer bar, then install new washer and insulator. Install spacer, cup washer and insulator on bolt. Install bolt through lower arm and install new insulator and cup washer. Install and tighten bolts.

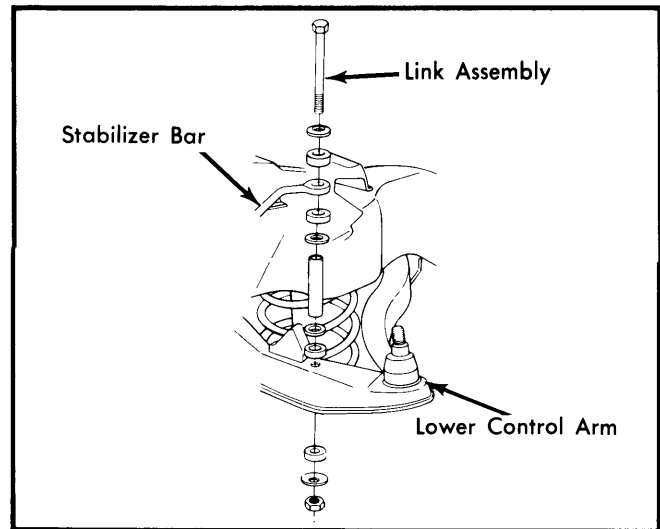


Fig. 1 Exploded View of Stabilizer Bar Bushings

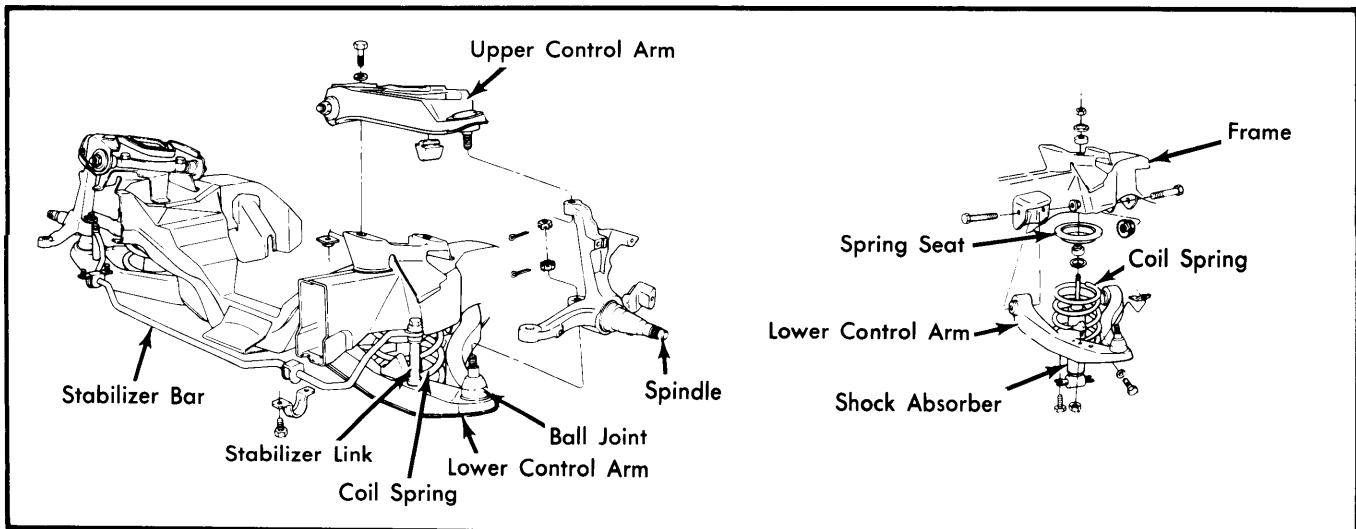


Fig. 2 Exploded Views of Ford Enclosed Spring Type Front Suspension

FORD MOTOR CO. ENCLOSED SPRING (Cont.)

STABILIZER BAR INSULATOR

Removal & Installation — Raise vehicle and support with safety stands. Disconnect stabilizer bar from each link, disconnect stabilizer attaching brackets and remove stabilizer. Cut insulators off bar. Using a suitable rubber lubricant, replace insulators on bar. To install, reverse removal procedure making sure that stabilizer link does not interfere with brake hoses.

NOTE — New stabilizer bar-to-lower control arm nuts and bolts should be installed each time bar is removed.

COIL SPRING

Removal — 1) Raise vehicle on hoist. Remove tire and wheel. Disconnect stabilizer bar link from lower arm. Remove shock absorber-to-lower arm assembly attaching bolts.

2) Remove upper nut, retainer and grommet from shock absorber and remove shock absorber. Remove steering center link from pitman arm. Support vehicle with safety stands under jacking pads and lower hoist for working room.

3) Using spring compressor tool (D-78P-5310-A), install one plate with pivot ball seat facing downward into coils of spring. Rotate plate so it is flush with upper surface of lower arm.

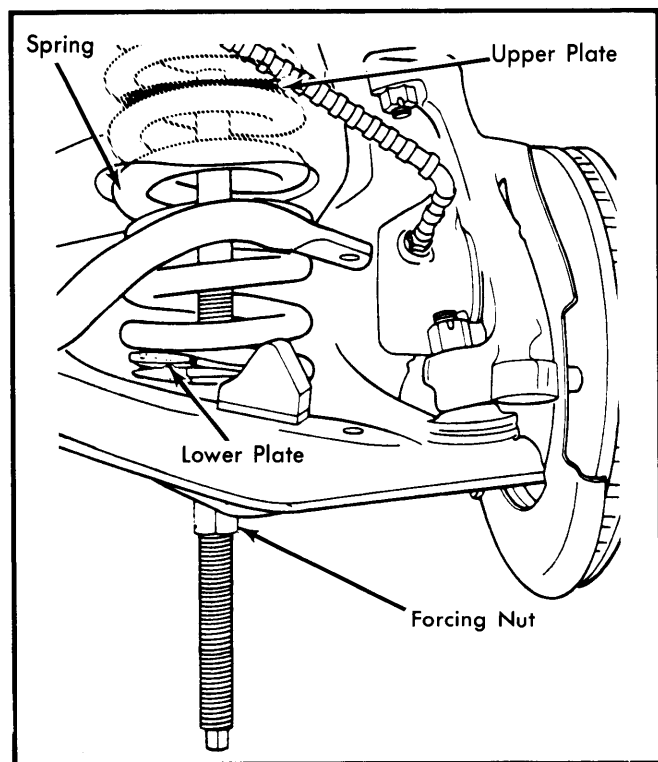


Fig. 3 Compressor Tool in Position for Removal

4) Install other plate with pivot ball seat facing up into coils of spring. Insert upper ball nut through coils of spring so nut rests in upper plate.

5) Insert compression rod into opening in lower arm through upper and lower plate and upper ball nut. Insert securing pin through upper ball nut and compression rod.

NOTE — Pin can only be inserted one way into upper ball nut because of a stepped hole design.

6) With ball nut secured, turn upper plate so it walks up coil and contacts upper spring seat. Back off $\frac{1}{2}$ turn. Install lower ball nut and thrust washer on compression rod and screw on forcing nut.

7) Tighten forcing nut until spring is compressed enough to be free in its seat. Remove 2 lower arm pivot bolts, disengage lower arm from frame crossmember, and remove coil spring.

8) If a new spring is to be installed, mark position of compression tool plates on spring with chalk. Loosen forcing nut to relieve spring tension and remove compression tool.

Installation — To install, reverse removal procedures, noting the following: Before compressing spring, be sure upper ball nut securing pin is inserted properly. Compress spring to same height as removal. Ensure that coil spring tail is positioned properly. See Fig. 4.

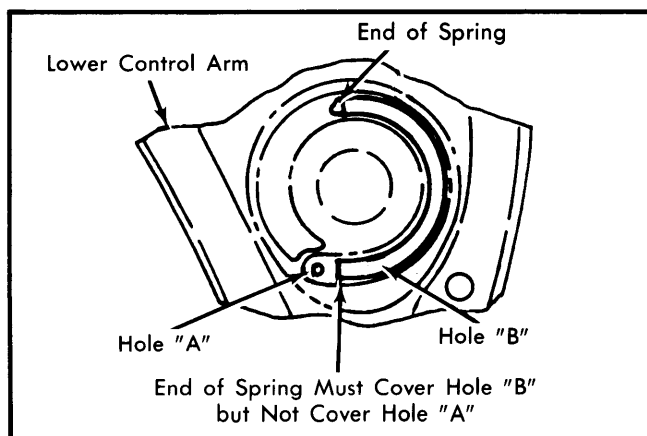


Fig. 4 Coil Spring Positioning on Lower Control Arm

LOWER CONTROL ARM

Removal — 1) Raise front of vehicle and place safety stands under both sides of frame just behind lower control arms. Remove wheel and tire.

2) Remove brake caliper, rotor and dust shield. Remove shock absorber. Disconnect stabilizer bar link from lower arm. Disconnect steering center link from pitman arm. Remove cotter pin from lower ball joint nut.

3) Loosen ball joint stud nut 1 or 2 turns. DO NOT remove nut from stud. Install ball joint press tool (T57P-3006-B) between upper and lower ball joint studs.

4) Using a wrench, turn adapter screw until stud is under tension. Tap spindle with a hammer near lower stud to loosen stud. Remove tool. Place floor jack under lower arm.

5) Install coil spring compression tool as outlined previously, and remove spring. Remove ball joint nut and remove lower control arm assembly.

FORD MOTOR CO. ENCLOSED SPRING (Cont.)

Installation — To install, reverse removal procedures noting the following: Position ball joint stud into spindle and tighten nut, installing a new cotter pin. Position coil spring in upper spring pocket and raise lower arm, aligning holes in arm with holes in crossmember. Ensure pigtail of lower spring coil is in proper position on seat.

UPPER CONTROL ARM

Removal — 1) Raise front of vehicle and position safety stands under both sides of frame just back of lower arms. Remove wheel and tire from hub, then loosen stud nut on upper ball joint one or two turns. DO NOT remove nut from stud at this time. Install suitable tool (T57P-3006-B) between upper and lower ball joint studs with adapter screw on top. Tool must be firmly seated against ends of both studs and NOT against stud nuts.

2) Turn adapter screw with wrench until tool places stud under tension. Tap spindle near upper stud with hammer to loosen stud in spindle. DO NOT loosen stud from spindle using tool pressure only. Remove tool from between ball joint studs and place floor jack under lower arm. Remove upper arm attaching bolts, and remove upper arm assembly.

Installation — To install reverse removal procedures noting the following: Transfer bumper from old arm to new arm. Adjust caster, camber and toe-in to specification.

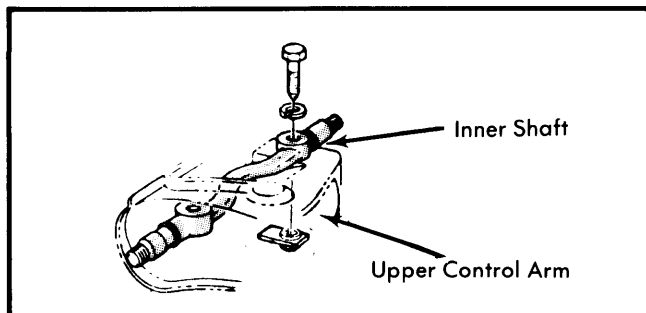


Fig. 5 Exploded View of Upper Control Arm Inner Shaft

UPPER CONTROL ARM BUSHINGS

Removal — Remove nuts and washers from both ends of upper control arm shaft. Using suitable tool (T74P-3044-A-1), remove bushings from control arm. Repeat procedure for other side.

Installation — Position shaft and new bushings in upper control arm and press bushings into upper control arm. Position inner shaft so that serrated side contacts frame. Install inner washer, rear bushing only, and 2 outer washers with new nuts on each end of inner shaft.

NOTE — Front bushing is larger than rear. Use adapter tool (T79P-3044-A2), to install rear bushing.

FRONT WHEEL SPINDLE

Removal — 1) Raise vehicle and place safety stands under both sides of frame just behind lower arm. Remove wheel and tire. Remove brake caliper, rotor and dust shield. Disconnect tie rod end from spindle with tool (3290-C or equivalent).

2) Remove cotter pins from both ball joint stud nuts. Loosen nuts one or two turns, but DO NOT remove nuts at this time. Position ball joint remover tool between upper and lower ball joint studs. Tool should seat firmly on ball joint studs and NOT on stud nuts.

3) Turn tool with a wrench until tool places studs under considerable pressure. With a hammer hit the spindle near studs to break them loose in spindle. DO NOT attempt to loosen studs with tool pressure only. Position a floor jack under the lower arm. Remove upper and lower ball joint stud nuts, lower jack and remove spindle.

Installation — To install, reverse removal procedure. If spindle is being replaced because of accident damage, check wheel alignment.

WHEEL BEARINGS

Removal — Raise and support vehicle. Remove wheel and tire. Remove caliper from spindle and wire out of way. Remove grease cap from hub. Remove cotter pin, nut lock, adjusting nut and flat washer from spindle. Remove outer bearing cone and roller assembly. Pull hub and rotor off spindle. Using grease seal remover (1175-AC or equivalent) remove grease seal. Remove inner bearing cone and roller assembly from hub.

Installation — If inner or outer bearing cups were removed, install new cups. Thoroughly pack bearing with grease. Place inner bearing cone and roller assembly into inner cup. Apply a light film of grease to lips of grease retainer. Install retainer. Install hub and rotor assembly on spindle. Install outer bearing cone and roller assembly and flatwasher on spindle. Install adjusting nut finger tight. Adjust wheel bearings. Install caliper assembly. Install wheel and tire and lower vehicle.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N·m)
Lower Arm-to-Crossmember	120-140 (163-190)
Upper Arm-to-Frame	120-140 (163-190)
Lower Arm-to-Bumper	30-35 (41-48)
Stabilizer Bar-to-Lower Arm	10-12 (14-16)
Ball Joint-to-Spindle	
Upper	75-90 (102-122)
Lower	100-120 (136-163)
Stabilizer Bar-to-Frame	14-26 (19-35)
Shock Absorber	
Upper	26-30 (35-41)
Lower	15-18 (20-24)