FORD 4-WD COIL SPRING TYPE

Bronco
F150

DESCRIPTION

Front suspension consists of a driving axle, two coil springs, two radius arms, a side strut bar and two hydraulic shock absorbers (some models may be equipped with optional dual quad shock absorbers). Radius arms attach to frame side rails and are clamped around axle housing. If vehicle is equipped with optional quad shock absorbers, the front clamp portion of the radius arm is also the lower shock mount.

Coil springs are mounted to radius arms directly over axle housing and to brackets attached to frame side rails. Standard equipment shock absorbers attach to frame side rails and radius arms behind coil spring. Optional dual quad shock absorbers mount in front of spring in same manner. The side strut bar, used to eliminate axle side movement, is attached to left frame rail and at right side of axle housing.

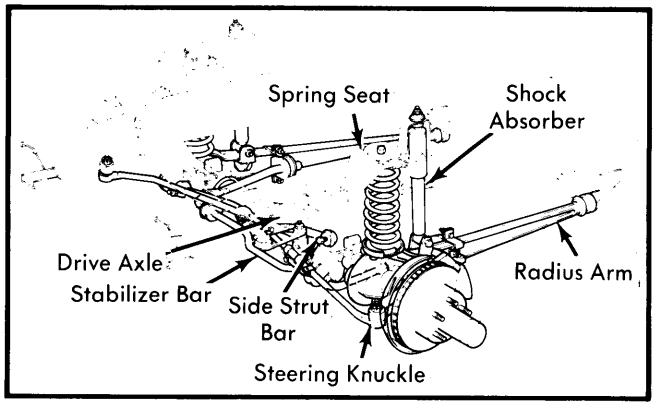

Fig. 1 Identification of Front Suspension Components Bronco & F150

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT Section.

WHEEL BEARING ADJUSTMENT

See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.

REMOVAL & INSTALLATION

COIL SPRING

Removal (Bronco & F150) – Raise vehicle. Remove shock absorber-to-lower bracket bolt and nut. Remove lower spring retainer nuts. Remove upper spring attaching screw and upper retainer. Place safety stands under frame rails and lower axle enough to relieve tension on spring. Remove spring and lower retainer from vehicle.

Installation – To install, reverse removal procedure. Tighten nuts and bolts to specifications.

RADIUS ARM

Removal (Bronco & F150) – Raise vehicle and place safety stands under frame side rails. Remove shock absorber attaching bolts and remove shock absorber from radius arm. Remove lower spring attaching bolt. Remove radius arm rear insulator. Lower axle and allow axle to move forward. Remove bolt and stud attaching radius arm to axle. Move axle forward and remove radius arm from axle. Pull radius arm from frame brackets.

Installation – Position washer and insulator on rear of radius arm and place radius arm into the frame bracket, loosely installing attaching nut. Position radius arm to axle. Install new bolts and stud and attach radius arm to axle. Position lower spring seat, insulator and retainer to spring and axle and attach. Tighten rear radius rod attaching nut. Install shock absorber and tighten nuts.

STEERING KNUCKLE

Removal & Installation – *See Steering Knuckles in DRIVE AXLE Section for removal and installation.*

DUAL QUAD SHOCK ABSORBERS

Removal – Remove self-locking nut, steel washer and rubber bushings from upper end of shock absorbers. Remove self-locking nut from lower end of shocks. Remove shock absorbers.

Installation – Replace rubber bushings when replacing shock absorbers. Place shock absorbers on mounting brackets with large diameter on top. Install bushings, steel washers and self-locking nuts and tighten.

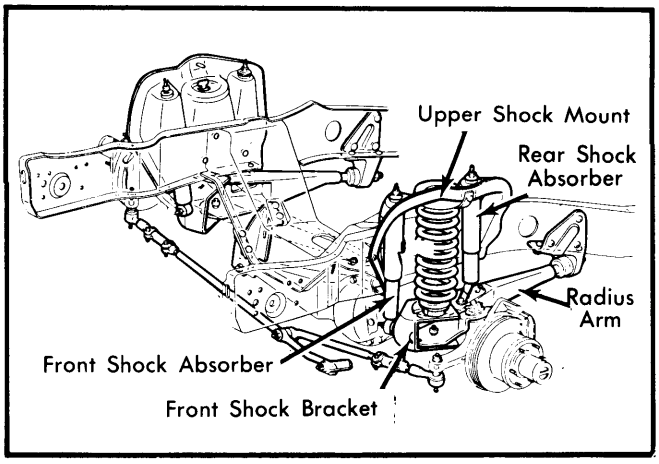

Fig. 2 Dual Quad Shock Absorber Components

STABILIZER BAR

Removal – 1) Remove nuts, bolts and washers connecting stabilizer bar to links. Remove nuts and bolts of stabilizer bar retainer. Remove stabilizer bar insulator assembly.

2) Remove coil spring and lower spring seat. Remove stabilizer bar mounting bracket attaching stud and bracket. Remove stabilizer bar.

FORD 4-WD COIL SPRING TYPE (Cont.)

Installation – **1)** Locate the brackets so that the locating tang is positioned in the radius arm notch (or quad shock bracket notch if vehicle has quad shocks).

2) Reposition the spring lower seat and reinstall the spring and retainer. To reinstall the stabilizer bar insulator assembly, assemble all nuts, bolts and washers to the bar, brackets, retainers and links loosely.

3) With the bar positioned correctly, torque retainer nuts, with retainer around the insulator. Then torque all remaining nuts at the link assemblies.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Upper Spring Retainer	13-18
Lower Spring Retainer	30-70
Radius Arm-to-Bracket	80-120
Shock Absorber Mounting Bolt	
Lower	40-60
Upper	15-25
Radius Arm-to-Axle	
Upper Stud	240-260
Lower Bolt	320-340
Radius Arm Bracket-to-Axle Screws	20-26
Stabilizer Bar-to-Frame	48-65
Stabilizer Bar Retaining Nuts	27-37

GENERAL MOTORS COIL SPRING TYPE

Chevrolet (2-WD Models)
GMC (2-WD Models)

DESCRIPTION

Independent front suspension consists of upper and lower control arms with steering knuckle mounted between by means of ball joints. Upper and lower control arms are mounted to crossmember by means of pivot shafts, through either rubber or threaded steel bushings. Coil springs are mounted between lower control arm and a formed seat in suspension crossmember. Hydraulic shock absorbers are mounted between lower control arm and frame at rear of suspension. A stabilizer bar is transversely mounted to frame side rails and is connected at ends to lower control arms by link units.

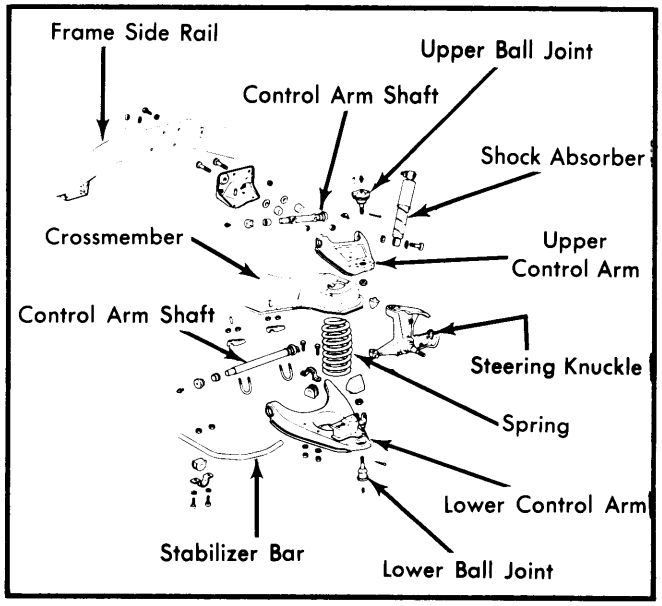

Fig. 1 Exploded View of Front Suspension Assembly

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT Section.

WHEEL BEARING ADJUSTMENT

See Wheel Bearing Adjustment in WHEEL ALIGNMENT Section.

BALL JOINT CHECKING

See Ball Joint Checking in WHEEL ALIGNMENT Section.

REMOVAL & INSTALLATION

SHOCK ABSORBERS

Removal – Remove nuts and eye bolts securing upper and lower ends of shock absorber, and remove shock absorber from vehicle.

Installation – Position shock absorber over mounting bolts or into mounting brackets and install eye bolts. Tighten all bolts and nuts.

STABILIZER BAR

Removal – Raise vehicle, and remove nuts and bolts attaching stabilizer bar brackets to frame. Remove link bolts and bushings at lower control arm and remove stabilizer bar from vehicle.

Installation – Position stabilizer bar on frame and loosely install frame bushings and brackets. Install link units at lower control arms, and tighten all nuts and bolts. Lower vehicle.

COIL SPRINGS

Removal – Raise vehicle and support under frame so that control arms hang free. Disconnect shock absorber and stabilizer bar at lower control arm. Install a suitable support tool (J-23028) onto jack and position tool under lower control arm shaft so that shaft seats in grooves of tool. Install a safety chain through lower control arm and spring. Raise jack to relieve tension on lower control arm shaft and remove control arm shaft bolts. Carefully lower jack until all tension is released from spring, and remove spring from vehicle.

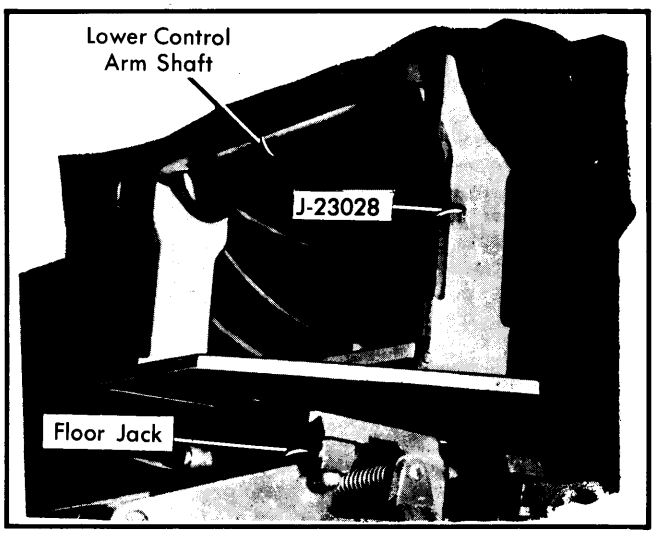

Fig. 2 Coil Spring Removal Using a Floor Jack and Special Tool

Installation – To install coil spring, reverse removal procedure, noting the following; On models with air cylinders in coil springs, check for leaks and damage before installation.

STEERING KNUCKLE

NOTE – *It is recommended that front of vehicle be supported with a twin-post hoist so the front coil spring remains compressed, yet the steering knuckle is accessible. If a frame hoist is used, support lower control arm with a jackstand to safely retain spring in its curb height position.*

Removal – Raise and support vehicle as described above. Remove wheel, hub, disc rotor and caliper. Remove disc splash shield. Remove upper and lower ball joint cotter pins and LOOSEN nuts. Using suitable tool (J-23742), free steering knuckle from ball studs. Remove ball stud nuts and withdraw steering knuckle.

GENERAL MOTORS COIL SPRING TYPE (Cont.)

Installation – Clean all parts thoroughly, and inspect for damage. To install, reverse removal procedure and tighten all nuts and bolts.

CAUTION – *When installing ball joint nuts, do not loosen nut to install cotter pin. If necessary, tighten one extra notch.*

UPPER BALL JOINT

Removal – Raise vehicle and support front of vehicle on safety stands positioned under lower control arms. Remove cotter pin from upper ball stud and LOOSEN nut 2 turns. Remove brake caliper and suspend it from frame. Do not hang caliper by brake line. Install tool J-23742 between the ball studs. Loosen ball stud and remove tool and stud nut. Drill out rivets and remove ball joint assembly.

Installation – To install, reverse removal procedure. Use nuts and bolts in place of rivets to attach ball joint to control arm.

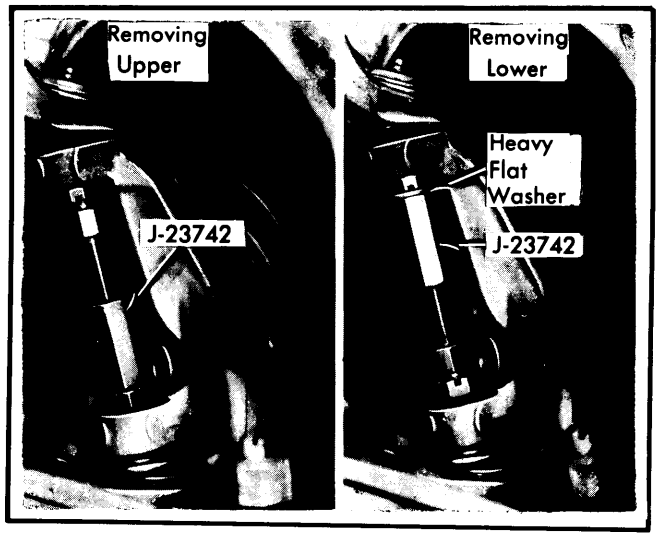

Fig. 3 Removing Upper and Lower Ball Joints

LOWER BALL JOINT

Removal – Raise vehicle and support front of vehicle with safety stands positioned under lower control arms. Remove wheel and tire. Remove lower stud cotter pin and LOOSEN stud nut 2 turns. Remove brake caliper and suspend out of way. Do not suspend by brake line. Install tool J-23742 between the ball studs, and loosen ball stud. Remove tool and ball stud nut. Pull the brake disc and steering knuckle assembly up off the ball stud and support upper control arm with a block of wood. Press lower ball joint out of its seat and remove from vehicle.

Installation – Using tools (J-9519-10 and J-9519-16) install new ball joint into the control arm. Reverse removal procedure, to complete installation.

UPPER CONTROL ARM

Removal – Raise vehicle and support front of vehicle with safety stands positioned under lower control arm. Remove cotter pin from upper ball joint and LOOSEN nut. Remove brake caliper and suspend out of way. Do not suspend by brake line. Using suitable tool (J-23742), loosen ball joint in steering knuckle. Remove tool and ball joint nut, then raise control arm to clear steering knuckle. Remove nuts and bolts attaching control arm shaft to frame member, and remove control arm from vehicle.

Installation – To install, reverse removal procedure and check wheel alignment. *See WHEEL ALIGNMENT Section*

LOWER CONTROL ARM

Removal – Raise vehicle and place safety stands under frame side rails. Remove coil springs as previously outlined. Support inboard end of control arm after springs are removed. Remove cotter pin from lower stud and LOOSEN stud nut 1 turn. Remove brake caliper and suspend out of way. Do not suspend from brake line. Using suitable tool (J-23742), position large cupped end of tool over upper ball stud nut and pilot threaded end of tool on the lower ball stud. Loosen ball stud, then remove tool and stud nut. Remove nuts attaching control arm to vehicle and remove control arm.

Installation – To install, reverse removal procedure, tighten all nuts and bolts, and check wheel alignment. *See WHEEL ALIGNMENT Section.*

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Lower Control Arm-to-Frame	
G10, 1500, 20, 2500	65
All Others	85
Upper Control Arm-to-Frame	
C & P10, 1500, G10, 1500, 20, 2500	70
All Others	105
Control Arm Rubber Bushings	
C & P10, 1500, G10, 1500, 20, 2500 Only	115
Upper Control Arm Steel Bushings	
C & P20, 2500, 30, 3500, G30, 3500	
New	190
Used	115
Lower Control Arm Steel Bushing	
C & P20, 2500, 30, 3500, G30, 3500	
New	280
Used	130
G10, 1500, 20, 2500, 30, 3500	
W/Spacer	280
W/O Spacer	130
Upper Ball Joint Nut	
C & P10, 1500, G10, 1500, 20, 2500	50
C & P20, 2500, 30, 3500, G30, 3500	90
Lower Ball Joint Nut	90
Stabilizer Bar	25
Shock Absorber Upper Nut	
C & P Models	140
G Models	75
Shock Absorber Lower Nut	
C & P Models	60
G Models	75