FORD 2-WD COIL SPRING TYPE

"F" Models
"E" Models

DESCRIPTION

Front suspension consists of two "I-Beam" reverse Elliot type axles, mounted to a frame pivot bracket at one end, and to the steering knuckle and a radius arm at the other end. Steering knuckle is mounted to the axle by solid, constant diameter kingpin. Either Delrin or bronze bushings are pressed into steering knuckles to provide bearing surfaces for kingpin. Radius arm runs rearward from axle and is attached to a bracket, mounted to frame side rail, at the rear. Coil spring is seated on top of radius arm at bottom of spring, and in a bracket mounted to frame at the top. Hydraulic, double-action shock absorber is mounted between frame and radius arm to dampen road shock.

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

STEERING KNUCKLE

Removal (Forged & Stamped Front I-Beam Axle) – 1) Raise vehicle and support under front axle. Remove wheel and tire assembly. Remove brake caliper from mount and wire it up out of the way. Remove brake rotor, inner bearing cone and seal and brake dust shield. Disconnect steering linkage from spindle using tool 3290-C.

2) On forged I-beam remove nut and lock washer from locking bolt and remove locking bolt. Remove upper and lower pin plugs, then drive spindle out the top of the axle and remove spindle and bearing. Knock out the spindle pin seal.

3) On stamped I-beam remove the cotter pin from the upper ball joint stud. Remove the nut from the upper and lower ball joint stud. Strike the bottom of the spindle to pop the ball joints loose from the spindle. Remove the spindle.

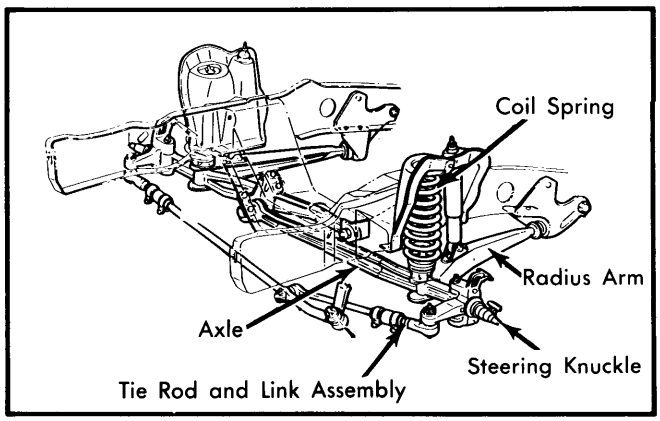

Fig. 1 F100/350 Front Suspension Assembly

NOTE – *Do not use a pickle fork to separate the ball joint from the spindle as it will damage the seal and the ball joint socket.*

Installation (Forged Front I-Beam) – Before installing steering knuckle, pack thrust bearing with chassis lubricant, and position bearing with open end (lip side) down against steering knuckle. Install kingpin in axle and steering knuckle, making sure notch in kingpin is aligned with lock pin hole in steering knuckle. Install king pin so that end with letter "T" stamped on it is up. Install a new lock pin and tighten nut. Install upper and lower spindle plugs. To complete installation, reverse removal procedure.

Installation (Stamped Front I-Beam) – Before assembly, make sure the upper and lower ball joints seals are in place. Place the spindle over the ball joints. Install the nut on the lower ball joint stud and tighten to specification. Install the nut on upper ball joint stud. Tighten to specifications, and continue to tighten the nut until it lines up with hole in stud. Install cotter pin. To complete installation, reverse removal procedure.

KINGPIN BUSHINGS

NOTE – *Delrin bushings do not require special tools for removal or installation, and should not be reamed.*

Removal – Remove steering knuckle from vehicle as previously outlined. Drive bushing out of bore in steering knuckle, using a tool slightly smaller in diameter than bore in steering knuckle. Clean bores in steering knuckle, and make sure lubrication grooves in knuckle are not plugged.

Installation – Position bushing in steering knuckle bore, making sure lubrication hole in bushing is aligned with lubrication fitting in steering knuckle, and open end of oil groove is toward axle. Using a driver which pilots in bushing, drive bushing into place in knuckle (Delrin bushings can be forced into place by hand). Ream bronze bushings until inside diameter of bushing is .001-.003" larger than outside diameter of kingpin. Clean all metal shavings from bushing after reaming. Lubricate bushing and kingpin, and install steering knuckle on vehicle as previously described. Install shims between top of axle and steering knuckle, to obtain .003-.010" axle-to-knuckle clearance.

BALL JOINTS

Removal – Remove steering knuckle from vehicle as previously outlined. Support the upper jaw when pressing out the upper ball joint. Press out lower ball joint.

Installation – Seat the upper ball joint squarely in the hole by hand. Using ball joint installation tool, press the ball joint in until firmly seated. Use the same procedure for pressing the lower ball joint. Axle jaw must be supported before pressing in the ball joint. To complete installation, reverse removal procedure.

COIL SPRING

Removal – Raise front of vehicle, place safety stands under frame and a floor jack under axle. Disconnect lower shock absorber mount. Remove bolts securing upper spring retainer

FORD 2-WD COIL SPRING TYPE (Cont.)

and remove retainer. Remove nut securing lower spring retainer to spring seat and axle. Lower jack under axle and remove spring.

Installation – Place spring in position and raise front axle with jack. Place lower spring retainer over stud and lower seat, and tighten attaching nut. Place upper retainer over the spring and upper seat and tighten bolts. Connect lower shock absorber mount. Remove jack, and safety stands, and lower vehicle.

FRONT AXLE

Removal – Raise vehicle and position safety stands under frame. Remove steering knuckle and front spring as previously outlined. Remove stabilizer bar if equipped. Remove lower spring seat from radius arm. Remove bolt connecting radius arm and bracket to front axle. Remove axle pivot bolt and remove axle.

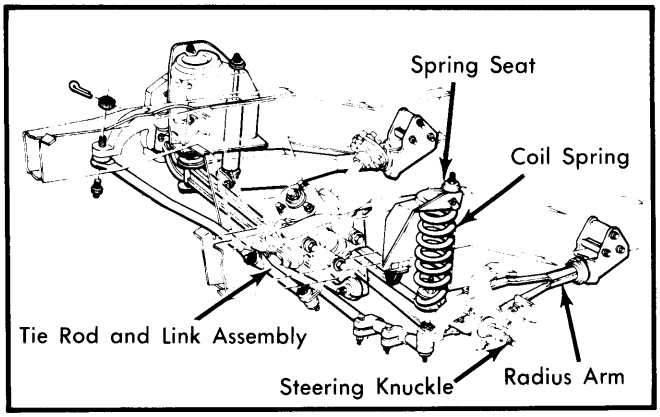

Fig. 2 E100/350 Front Suspension Assembly

Installation – Position axle and install pivot bolt and nut finger tight. Connect radius arm and front bracket, and install and tighten bolt. Install lower spring seat, making sure it aligns over radius arm bolt. Install coil spring as previously outlined. Tighten axle pivot bolt. Install steering knuckle as previously outlined, and stabilizer bar if equipped.

RADIUS ARM

Removal – Raise vehicle and position safety stands under frame and a floor jack under axle. Disconnect lower shock absorber mount. Remove front spring as previously outlined. Remove lower spring seat and remove bolt securing radius arm to axle. Remove nut, rear washer and insulator from rear radius arm mount. Disconnect tie rod and remove radius arm.

Installation – To install radius arm, reverse removal procedure.

STABILIZER BAR

Removal – 1) Disconnect left and right ends of front stabilizer bar from the link assembly attached to the "I" beam bracket.

2) Disconnect the retainer bolts and remove the stabilizer bar. Disconnect the stabilizer link assembly by loosening left and right locknuts from I-beam brackets.

Installation – 1) Loosely assemble the entire assembly with both links outboard of the stabilizer bar. Pull stabilizer bar rearward and install bar ends to the links and install link bolts with threads pointing outward.

2) Install link-to-stabilizer bar washers and tighten retaining nuts. Tighten stabilizer bar-to-frame mounting nuts while pushing bar forward to swing the links away from the axle mounting brackets.

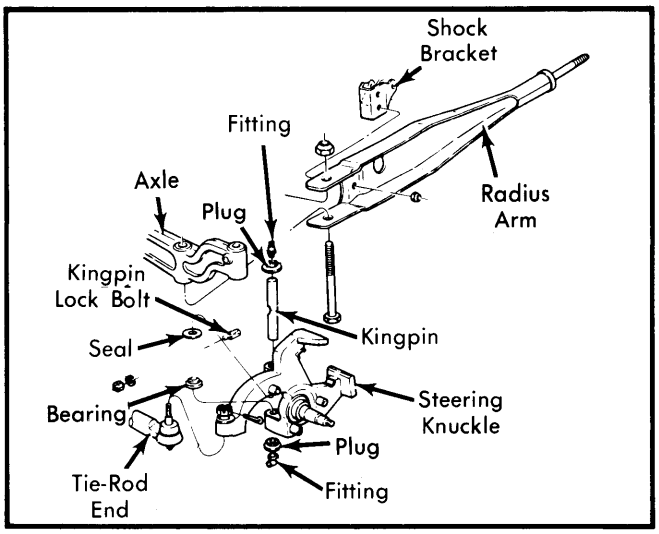

Fig. 3 Identification of Suspension Details "E" Models (Exc. E250 and E350 Steering Knuckle)

3) Ensure that stabilizer bar insulators are properly seated and that bar is centered in vehicle.

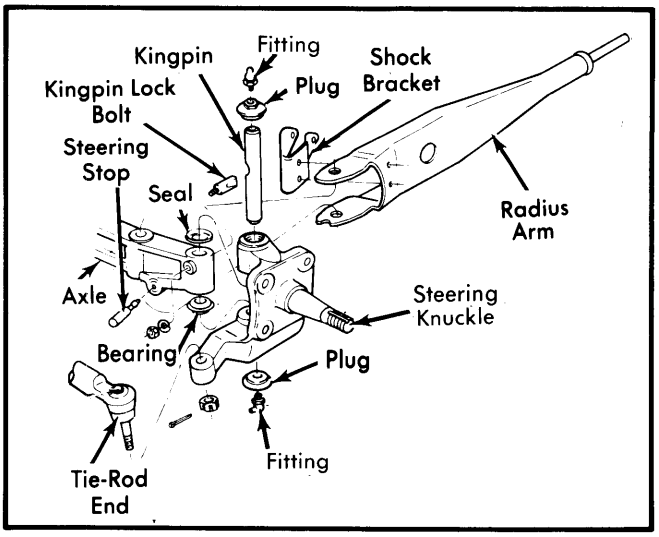

Fig. 4 Identification of Suspension Details E250 and E350 Steering Knuckle

FORD 2-WD COIL SPRING TYPE (Cont.)

SHOCK ABSORBER

1) Insert a wrench from the rear side of the spring upper seat to hold shock upper retaining nut. Loosen the stud by turning the hex on the exposed lower part of the stud.

2) Disconnect the lower end of the shock absorber from the lower bracket bolt and nut. Remove shock absorbers, washers and rubber insulators.

3) To install, reverse removal procedures, making sure to install NEW rubber insulators.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Upper Shock Absorber Mount	15-25
Shock Absorber Bracket-to-Radius Arm	27-37
Upper Spring Retainer-to-Spring Seat	13-18
Lower Spring Retainer-to-Spring Seat	30-70
Radius Arm-to-Front Axle	240-320
Radius Arm-to-Bracket	80-120
Front Axle Pivot Bolt	120-150
Kingpin Lock Bolt	38-62
Kingpin Plug	35-50
Radius Arm-to-Axle	
Upper Stud	240-260
Lower Bolt	320-340
Radius Arm Bracket-to-Axle Screws	20-26
Stabilizer Bar-to-Frame	27-37
Stabilizer Bar Retaining Nuts	48-65
Upper Ball Joint	85-110
Lower Ball Joint	140-180