

FORD 2-WD COIL SPRING TYPE

Pickup, Van

DESCRIPTION

Front suspension has two "I-Beam" axles. These are mounted to a frame pivot bracket at one end, and to the steering knuckle and a radius arm at the other. Axles may be either stamped or forged. On forged axles, steering knuckle is mounted to the axle by a solid, constant diameter kingpin. Either Delrin or bronze bushings are pressed into steering knuckles to provide bearing surfaces for kingpin. On stamped axles, ball joints are used.

Radius arm runs rearward from axle to a bracket mounted on frame side rail. Coil spring is seated on top of radius arm and in a bracket mounted to frame. Hydraulic shock absorber is mounted between frame and radius arm to dampen road shock. A stabilizer bar is located in front of the axles.

ADJUSTMENT & CHECKING

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications & Procedures* in *WHEEL ALIGNMENT* Section.

WHEEL BEARING ADJUSTMENT

Tighten nut to 25 ft. lbs. (34 N.m) while turning rotor. Back off adjusting nut $\frac{1}{8}$ turn. Install retainer and cotter pin without loosening nut any more.

BALL JOINT OR KINGPIN CHECKING

Raise vehicle. Adjust wheel bearings. Grab each wheel and shake in and out while watching front spindle assembly. If assembly moves more than $\frac{1}{32}$ " (.8 mm), replace ball joints or install new kingpin bushings.

REMOVAL & INSTALLATION

STEERING KNUCKLE

Removal (Forged 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 tie rod end from knuckle using tool 3290-C.

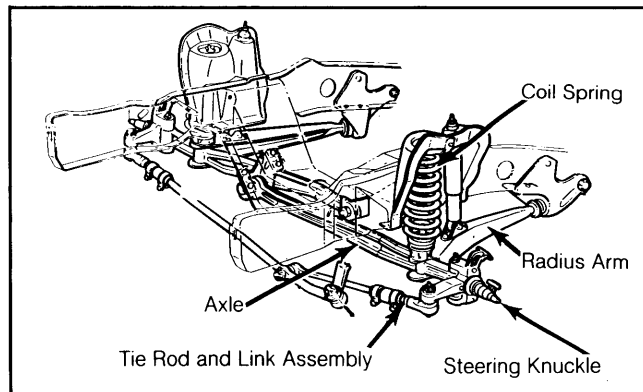
2) Remove nut and lock washer from locking bolt. Tap out locking bolt. Remove upper and lower pin plugs, then drive kingpin out the top of the axle and remove knuckle and bearing. Knock out the kingpin seal. Remove knuckle.

Installation (Forged Front I-Beam Axle)

1) Press kingpin seal into position. Before installing steering knuckle, pack thrust bearing with chassis lubricant. Position bearing with open end (lip side) down against steering knuckle.

2) Install kingpin in axle and steering knuckle, making sure notch in kingpin is aligned with lock pin hole in steering knuckle. Install kingpin so letter "T" stamped on it is up. Install a new lock pin and tighten nut. Install upper and lower plugs. To complete installation, reverse removal procedure.

Fig. 1: 2-WD Pickup Twin I-Beam Suspension Assembly



Removal (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 knuckle using tool 3290-C.

2) Remove the cotter pin from the upper ball joint stud. Remove the nut from the upper and lower ball joint studs. Strike the bottom of the knuckle to pop the ball joints loose. Remove knuckle.

Installation (Stamped Front I-Beam Axle)

Before assembly, make sure the upper and lower ball joints seals are in place. Place the knuckle over the ball joints. Install the nut on the lower ball joint stud and tighten. Install the nut on upper ball joint stud and insert a new 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 (Forged Front I-Beam Axle)

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. Clean bores in steering knuckle, and make sure lubrication grooves in knuckle are not plugged.

Installation

1) Position bushing in steering knuckle bore. Ensure 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).

2) 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. Install shims between top of axle and steering knuckle to obtain .003-.010" axle-to-knuckle clearance.

BALL JOINTS

Removal (Stamped Front I-Beam Axle)

Remove steering knuckle from vehicle. Remove snap ring from ball joints. Using "C" clamp tool,

Front Suspension

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press upper ball joint out of axle. Press out lower ball joint.

CAUTION: Do not use heat on ball joint or axle during removal and installation procedures.

Installation

Seat the lower 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 in the upper 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 and remove retainer. Remove nut securing lower spring retainer to spring seat and axle. Lower jack under axle and remove spring.

Installation

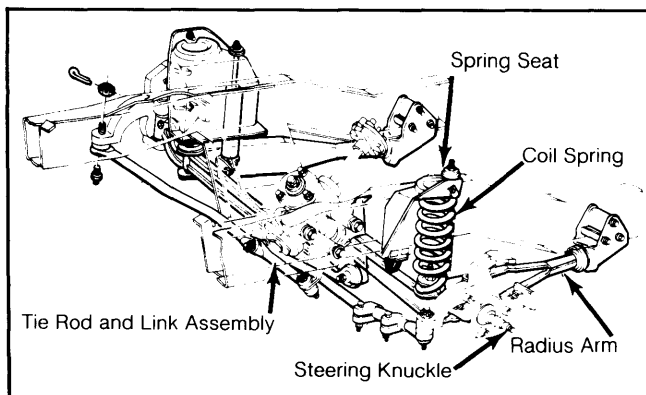
Place spring in position and raise front axle with jack. Place lower spring retainer over stud and lower seat, and tighten attaching nut. Place upper retainer over the spring and upper seat and tighten bolts. Connect lower shock absorber mount. Lower vehicle.

FRONT AXLE

Removal

Raise vehicle and position safety stands under frame. Remove steering knuckle and front spring. 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: Van Twin I-Beam Front Suspension Assembly



Installation

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

RADIUS ARM

Removal

Raise vehicle. Position safety stands under frame and a floor jack under axle. Disconnect lower shock absorber mount. Remove front spring. Remove lower

spring seat. Remove bolt holding 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 beam bracket.

2) Disconnect the retainer bolts and remove the stabilizer bar. Disconnect the stabilizer link assembly by loosening left and right locknuts from 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 Van Models (Exc. E250 and E350 Steering Knuckle)

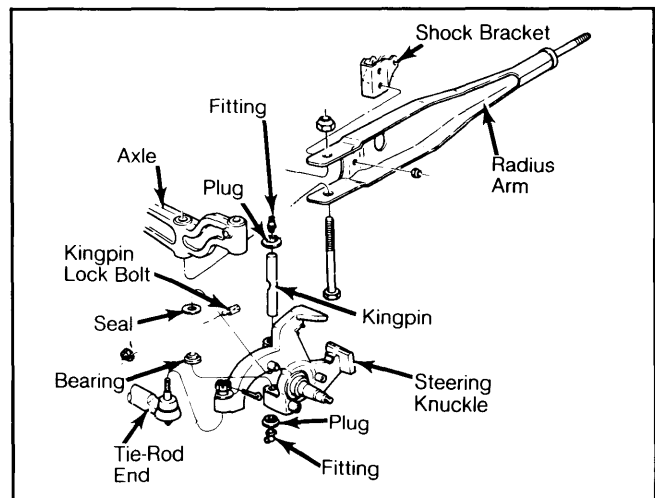
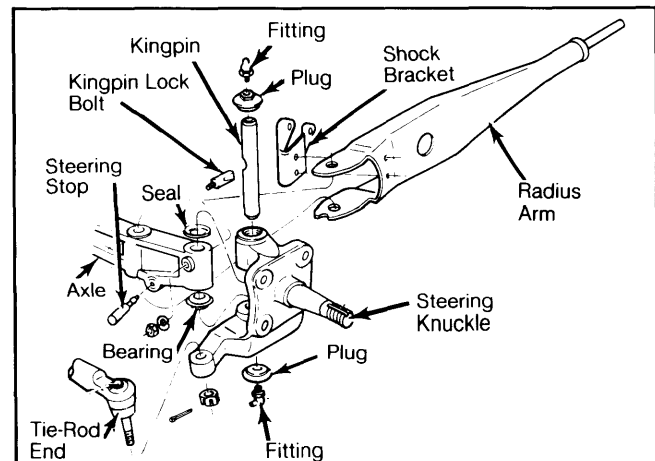


Fig. 4: Identification of Suspension Details Van Models (E250 and E350 Steering Knuckle)



Front Suspension

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SHOCK ABSORBER

Removal

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.

Installation

To install, reverse removal procedure. Install NEW rubber insulators.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Upper Shock Absorber Mount	15-25 (20-27)
Shock Absorber Bracket-to-Radius Arm	27-37 (37-50)
Upper Spring Retainer-to-Spring Seat ...	13-18 (18-24)
Lower Spring Retainer-to-Spring Seat ...	30-70 (41-95)
Radius Arm-to-Front Axle	240-320 (325-423)
Radius Arm-to-Bracket	80-120 (108-163)
Front Axle Pivot Bolt	120-150 (163-203)
Kingpin Lock Bolt	38-62 (51-84)
Kingpin Plug	35-50 (47-68)
Radius Arm-to-Axle	
Upper Stud	240-260 (325-352)
Lower Bolt	320-340 (434-461)
Radius Arm Bracket-to-Axle Screws	20-26 (27-35)
Stabilizer Bar-to-Frame	27-37 (37-50)
Stabilizer Bar Retaining Nuts	48-65 (65-88)
Upper Ball Joint	85-110 (115-150)
Lower Ball Joint	140-180 (190-244)