Front Suspension

TOYOTA PICKUP

DESCRIPTION

An independent front suspension with torsion bars is used. Wheel is supported by steering knuckle mounted between upper and lower control arms by ball joints.

Upper and lower control arms pivot on shafts connected to frame. Torsion bars mount in anchor arms at frame and in torque arms mounted to lower control arms.

Strut bars mount at frame and at lower control arm ends. Shock absorbers mount between lower control arms and frame. A stabilizer bar is mounted to frame and connected at ends to lower control arms.

ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See Wheel Alignment Specifications & Procedures in WHEEL ALIGNMENT section.

WHEEL BEARING

1) Tighten outer bearing nut to 22 ft. lbs. (30 N.m). Turn hub to right and left 2 or 3 times. Loosen hub nut until it can be turned by hand.

2) Using a socket without handle, tighten hub nut as tight as possible by hand. Using a spring tension gauge, check bearing preload. Bearing preload should be 1.3-4.0 lb. (5.8-17.8 N).

3) Adjust preload by turning hub nut, recheck preload. If preload is excessive, loosen hub nut and recheck. Install nut lock and new cotter pin. Install dust cap.

BALL JOINT CHECKING

Raise vehicle with floor jack. Lift at lower control arm until wheel assembly is off the floor. Move wheel assembly up and down. Maximum ball joint vertical play should not exceed .091" (2.3 mm). Inspect ball joint dust cover for wear or damage, replace if necessary.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

Raise vehicle and support with safety stands. Remove wheel assembly. Remove dust cap, cotter pin and nut lock. Remove caliper and support out of the way. Remove hub nut, washer, outer bearing and hub. Remove grease seal from back of hub and remove inner bearing.

Installation

To install, reverse removal procedures.

UPPER CONTROL ARM & BALL JOINT

Removal

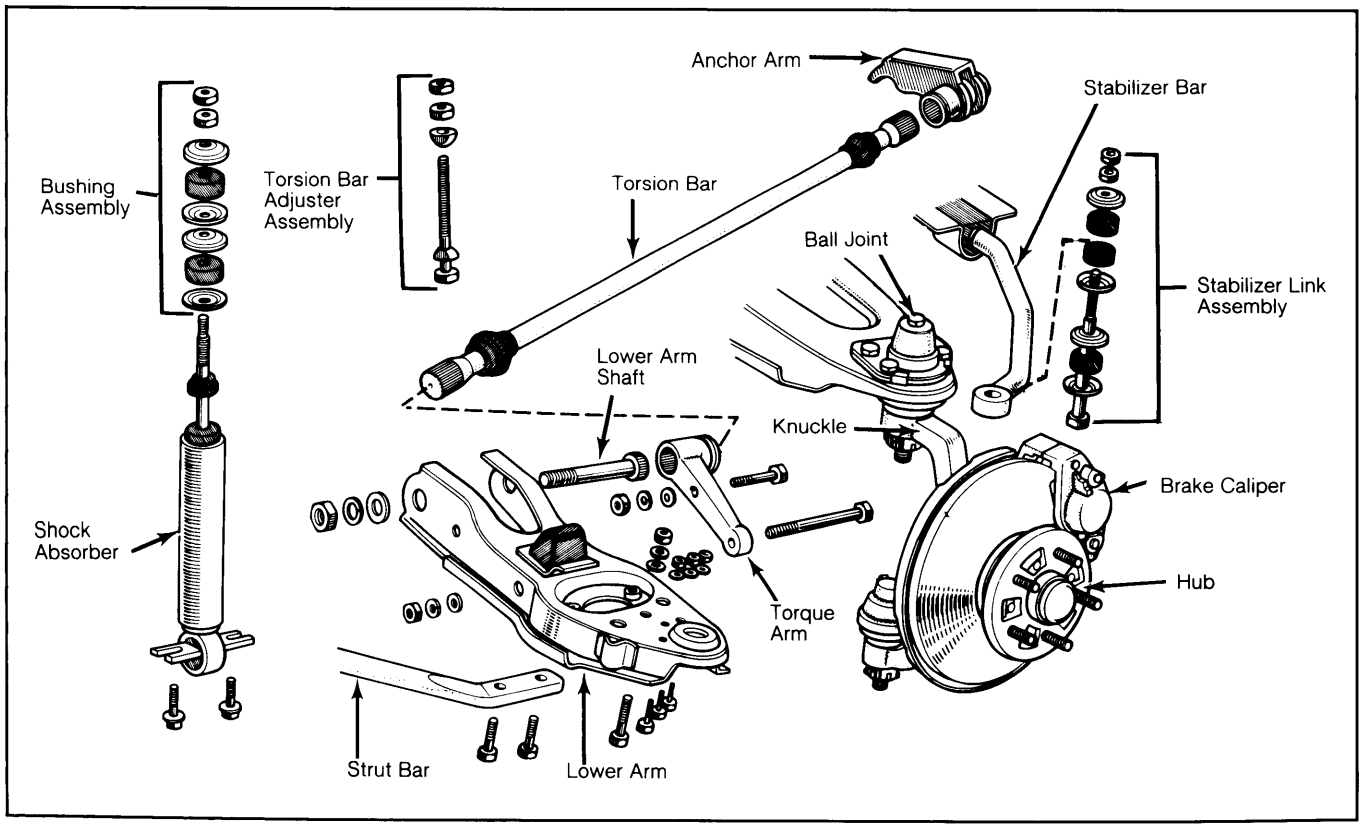
1) Raise vehicle by placing floor jack under lower control arm. Place stands under frame and leave floor jack in place. Remove wheel assembly.

2) Remove cotter pin and castle nut from upper ball joint stud. Using a puller, separate ball joint from knuckle.

3) Remove bolts retaining upper control arm shaft, noting size and number of shims between pivot shaft and frame.

4) Remove control arm as an assembly. Remove bolts retaining ball joint to control arm. Remove ball joint. Press out bushings and remove shaft.

Fig. 1: Exploded View of Pickup Front Suspension



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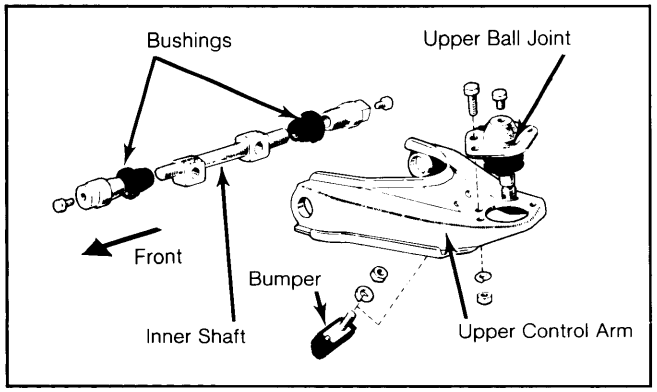
TOYOTA PICKUP (Cont.)

Fig. 2: Exploded View of Upper Control Arm Assembly



Installation

Inspect all components for wear or distortion. Install pivot shaft with offset mounting hole to front. Reverse removal procedures to complete installation. Make sure wheel alignment shims are installed in correct position. Check wheel alignment.

LOWER CONTROL ARM & BALL JOINT

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove torsion bar and shock absorber. Disconnect stabilizer bar and strut bar from control arm.

2) Remove cotter pin and nut from lower ball joint stud. Using a removal tool, separate ball joint from steering knuckle. Remove torque arm and pivot shaft from control arm.

3) Remove control arm from vehicle. Remove bolts, retaining ball joint to control arm and remove ball joint. Remove bushings from frame, (if necessary).

Installation

To install, reverse removal procedures. Tighten lower arm mount nut to specifications after vehicle has been lowered to floor. Check wheel alignment.

STEERING KNUCKLE

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Disconnect brake tube from brake caliper and plug openings. Remove caliper from knuckle.

2) Remove dust cap, cotter pin, nut lock. Remove hub nut and axle hub with rotor. Remove knuckle arm and dust cover.

3) Remove cotter pins and castle nuts from ball joint studs. Using a removal/installer tool separate ball joints from steering knuckle. Remove knuckle.

Installation

To install, reverse removal procedure. Check wheel alignment.

TORSION BAR

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove torsion bar boots at both ends and mark anchor arm and torque arm for correct spline alignment reassembly.

2) Remove adjuster bolt lock nut. Measure distance from end of adjuster bolt to lower face of adjusting nut. Record distance for use during installation.

3) Place a floor jack under the anchor arm and raise slightly. Remove adjusting nut, lower floor jack slowly and remove the anchor arm and torsion bar.

Inspection

Inspect all parts for wear or damage. Check all splines carefully. Note that left and right torsion bars are not interchangeable.

Installation

1) Grease splines prior to installation. When reusing old torsion bar, align marks on torsion bar with marks on torque arm and anchor arm and install.

2) When using new torsion bar, raise vehicle and block wheel assembly up to height of 7.09-7.87" (180-200 mm). Lower jack until clearance between spring bumper on lower arm and frame is .5" (13 mm).

NOTE: Place saftey stands under vehicle.

3) Install new torsion bar so adjusting bolt protrusion is .31-1.10" (7.87-27.94 mm) for 1/2 ton vehicles and .43-1.22" (11-31 mm) for 3/4 ton vehicles. Remove block from under wheel and lower front of vehicle until it rests on stands. Tighten adjusting nut until bolt protrudes 2.72-3.50" (69-89 mm).

4) On either old or new torsion bar, grease boot lips and install boots to torque arm and anchor arm. Remove stands and jounce vehicle several times to settle suspension. Adjust vehicle to standard height with adjusting nut. *See Riding Height Specifications in WHEEL ALIGNMENT section.* Use 2 wrenches, tighten lock nut.

NOTE: If bolt protrusion is not 2.72-3.50" (69-89 mm), change the position of anchor arm spline and reassemble.

SHOCK ABSORBER

Removal

1) Raise vehicle and support with safety stands, under vehicle body. Remove wheel assembly. Remove nuts retaining shock absorber to bracket. Remove washers and cushions from the shaft of shock absorber.

2) Remove bolts securing shock absorber lower mount to control arm. Fully compress shock absorber, tilt forward and remove from vehicle.

Installation

To install, reverse removal procedures.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Lower Ball Joint-to-Arm (8 mm)	15-21 (20-29)
Lower Ball Joint-to-Arm (10 mm)	29-39 (39-53)
Lower Ball Joint-to Steering Knuckle	87-122 (118-166)
Upper Ball Joint-to-Arm	15-21 (20-29)
Upper Ball Joint-to Steering Knuckle	66-94 (90-128)
Lower Arm-to-Frame	145-217 (197-295)
Upper Arm Shaft-to-Frame	51-65 (69-88)
Upper Arm-to-Shaft	62-79 (84-107)
Shock Absorber-to-Bracket	14-22 (19-30)
Shock Absorber-to-Lower Arm	11-15 (15-20)
Strut Bar-to-Lower Arm	55-75 (75-102)

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