

JAGUAR

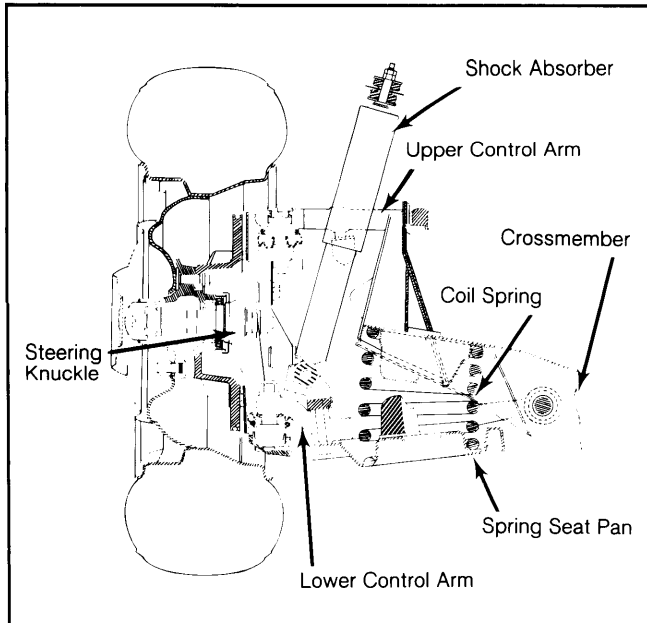
XJ6, XJS

DESCRIPTION

Front suspension consists of upper and lower control arms, double acting hydraulic shock absorbers, coil springs, stabilizer bar and steering knuckles. The upper control arms are mounted inboard to fulcrum shafts and are mounted outboard to steering knuckles by upper ball joint.

Lower control arms are mounted inboard to crossmember and outboard to steering knuckles by lower ball joint. Coil springs are mounted between lower control arms and crossmember. Shock absorbers are attached at the bottom to lower control arms and at the top to body. Stabilizer bar is attached to lower control arms and crossmember.

Fig. 1: Sectional View of Front Suspension Assembly



ADJUSTMENT

WHEEL ALIGNMENT SPECIFICATIONS & PROCEDURES

See *Wheel Alignment Specifications and Procedures* in **WHEEL ALIGNMENT** section.

WHEEL BEARING

While rotating hub, tighten nut until no end play is evident. Loosen nut a maximum of 120° to line up cotter pin and install new pin. Check end play with dial indicator. If end play is not .002-.006" (.05-.015 mm), adjust hub nut until correct end play is obtained.

BALL JOINT CHECKING

Inspect ball joints for any signs of excessive wear or damage. Replace as needed. Lower ball joint can be adjusted with shims. These shims are not to be used to compensate for worn ball joints, and are designed to provide adjustment during overhaul reassembly only.

REMOVAL & INSTALLATION

WHEEL BEARING

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Remove hub to rotor attaching bolts through holes in hub.

2) Remove grease cap, cotter pin, hub nut and washer. Remove hub. Remove grease seal and wheel bearings. Drive out bearing races.

Installation

To install, reverse removal procedures.

LOWER BALL JOINT

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Disconnect brake line from caliper and plug openings. Disconnect tie rod from steering arm.

2) Twist stub axle carrier to gain access to bolts securing upper ball joint to control arm and remove bolts. Note position and number of shims.

3) Remove nut retaining lower ball joint to control arm. Use removal tool (JD-24) to separate ball joint from control arm. Remove assembly from vehicle.

Disassembly

Pry back tab washers and remove screws retaining ball pin cap. Lift out ball pin. Release clip and remove upper socket from stub axle. Clean all components and inspect for excessive wear or damage.

Reassembly

1) Install new upper socket to stub axle. Fit lip of boot clip in recess in socket. Lip must be near lower face of clip. Install new boot to clip and attach with plastic retaining ring. Grease new ball pin and put into position.

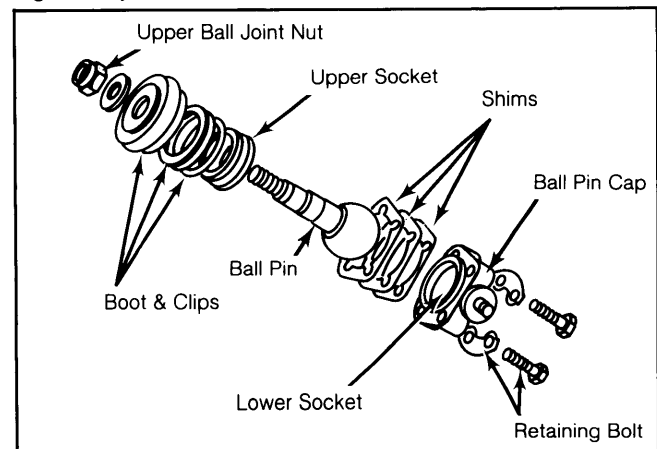
2) Put ball pin cap into vise and cut out lower socket. Clean shavings and fit new socket. Refit shims and replace ball cap. Fit set screws with lock tabs and tighten, continually checking ball joint movement.

3) If ball pin is loose in socket, remove shims. If pin is excessively tight, add shims until movement is correct. Movement should be slightly stiff.

Installation

Insert ball joint in lower control arm and tighten lock nut. Align stub axle with upper control arm and insert bolts (bolt heads must face front). Make sure packing

Fig. 2: Exploded View of Lower Ball Joint



Front Suspension

JAGUAR (Cont.)

pieces and shims are properly installed. Reconnect tie rod. Attach brake lines and bleed brakes. Check camber and caster angles.

UPPER BALL JOINT

NOTE: Upper control arm ball joint cannot be overhauled. If ball joint is excessively worn, assembly must be replaced.

Removal

1) Raise vehicle and place on safety stands. Remove wheel assembly. Twist steering to full lock position. Wire stub axle to crossmember to prevent tension on brake hose when ball joint is separated.

2) Remove bolt retaining upper ball joint to control arm. Note number of shims and position of packing pieces. Remove ball joint lock nut and separate ball joint from control arm. Remove assembly from vehicle. Withdraw ball joint from stub axle.

Installation

Apply grease to replacement ball joint and place in position in stub axle. Hold ball joint against taper fit washer and tighten retaining nut. Refit upper control arm retaining bolts (bolt heads must face forward) and caster shims. Check wheel alignment.

FRONT SUSPENSION ASSEMBLY

Removal

1) Disconnect battery and remove air cleaners. Disconnect the upper end of shock absorber. Drain and discard power steering fluid. Disconnect and plug power steering inlet and outlet hoses.

2) Remove nuts securing engine mounts to brackets on frame crossmember. Disconnect rear crossmember retaining bolts, and separate stabilizer bar from link. Turn steering column until pinch bolt holding lower "U" joint to pinion shaft is accessible. Remove pinch bolt.

3) Return steering to straight ahead position. Set ignition to "LOCK" and remove key. Separate lower steering column from upper "U" joint, and separate from pinion shaft.

4) Raise vehicle and support with safety stands. Remove front wheel assembly. Disconnect brake hoses and lines. Detach ground strap from engine. Remove suspension retaining bolts. Collect and note location of all washers, spacers and bushings. Remove suspension assembly from vehicle

Installation

1) To install, reverse removal procedures. Be sure brake lines and hoses are properly routed without bends or kinks. It may be helpful to remove protective heat shield covering boot on rack and pinion steering prior to positioning suspension into place.

2) Be sure power steering reservoir is full before starting engine after installation. If additional information is required on steering column installation, see appropriate article in STEERING Section. Bleed brake system.

SHOCK ABSORBERS

Removal

Detach upper shock absorber retaining bolts. Raise vehicle and support with safety stands. Remove wheel assembly, (if necessary for access to lower

mounting). Remove lower shock absorber retaining bolts and remove from vehicle.

Installation

To install, reverse removal procedure.

COIL SPRINGS

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Fit a spring compressor (JD-6D & adaptor JD-6D-1) and collapse spring coil enough to allow load on pan seat to be relieved.

2) Remove hardware mounting spring pan to lower control arm. Slightly loosen spring compressor and remove complete assembly.

NOTE: Be sure to note number and location of any packing shims.

Installation

To install, reverse removal procedures. Floor jack can be placed under lower ball joint to aid in aligning spring pan bolt. A maximum of 3 packers may be placed in spring pan and no more than 2 can be fitted on crossmember.

LOWER CONTROL ARM

Removal

1) Remove complete suspension assembly as previously described. With assembly on bench, detach tie rod ball joints from steering knuckle. Detach and remove steering rack from crossmember.

2) Use spring compressor to remove coil spring. Separate upper ball joint, noting location of all caster shims. Detach lower ball joint.

3) Remove stabilizer bar support bracket and shock absorber lower retaining bolts. Remove cotter pin and pivot shaft nut. Drive pivot shaft from crossmember and collect spacers. Remove lower control arm.

Installation

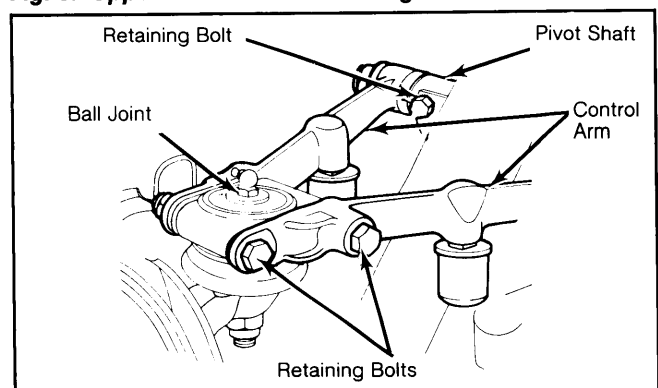
To install, reverse removal procedure. Do not tighten pivot shaft nut until vehicle is resting on floor at full curb weight.

UPPER CONTROL ARM

Removal

1) Raise vehicle and support with safety stands. Remove wheel assembly. Detach upper ball joint from control arm. Note number of all caster adjusting shims present.

Fig. 3: Upper Control Arm Mounting Points



Front Suspension

JAGUAR (Cont.)

2) Wire steering knuckle to coil spring and remove bolts holding upper control arm pivot shaft to vehicle. Note number and location of camber adjusting shims. Remove control arm from vehicle.

Installation

To install, reverse removal procedures. Check wheel alignment.

STABILIZER BAR

Removal

Raise vehicle and support with safety stands. Remove wheel assemblies. Detach both ends of stabilizer bar from links. Remove both brackets from frame. Remove all bushings from bar. Detach 1 tie rod end from steering knuckle and remove stabilizer from vehicle.

Installation

To install, reverse removal procedures. Fully tightening stabilizer bar-to-link nuts after vehicle is resting on floor.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs. (N.m)
Upper Pivot Shaft-to-Crossmember	49-55 (67-75)
Upper Ball Joint-to-Arm	26-32 (35-44)
Pivot Shaft-to-Upper Arm	45-55 (61-75)
Pivot Shaft-to-Lower Arm	32-50 (44-68)
Upper Shock Absorber	27-32 (37-44)
Lower Shock Absorber	45-50 (61-68)
Spring Pan	27-32 (37-44)
Stabilizer-to-Link	14-18 (19-24)
Tie Rod Nut	35-50 (48-68)