BALL JOINT CHECKING

FACTORY-RECOMMENDED METHOD

AMERICAN MOTORS

Upper Ball Joint (Except Pacer) – **1)** Lift front of vehicle until front wheels are off ground. Place safety stands under body side sills. Remove upper ball joint grease fitting and install threaded knurled nut of gauge tool (J-21240) into hole.

2) Place pry bar under tire and lift several times. Subtract minimum reading from maximum reading obtained. If difference is greater than .080", replace ball joint.

Lower Ball Joint (Except Pacer) – Raise and support front of vehicle. Move lower portion of wheel in and out. If lower ball joint has any lateral shake, replace ball joint.

Upper Ball Joint (Pacer) – Raise front of vehicle so wheels are off the ground. Move upper portion of wheel in and out, using a pry bar. Then move upper control arm up and down. If ball joint exhibits any looseness, replace it.

Lower Ball Joint (Pacer) – Remove grease fitting from ball joint and insert a stiff wire or thin rod into hole until it contacts ball stud. Scribe mark on wire where it aligns with outer edge of hole. Measure distance from end of wire to scribe mark. If distance is greater than 7/16", replace ball joint.

CHRYSLER CORP.

Lower Ball Joint (All Models) – **1)** Raise vehicle and place on safety stands so weight of vehicle rests on control arms, as far outboard as possible. Install dial indicator and clamp assembly to lower control arm. Zero indicator with plunger tip against knuckle arm.

2) Raise and lower wheel, using levering action under tire. Measure axial travel of knuckle arm. If movement of knuckle arm relative to lower control arm exceeds .030" (.050" on Omni and Horizon), replace lower ball joint.

Upper Ball Joint (All Models) – **1)** Raise vehicle clear of floor with jack under lower control arm. Remove hub cap, grease cap, and cotter pin from spindle. Tighten spindle nut to remove all bearing end play. Lower vehicle until it lightly touches floor.

2) Grasp the top of the tire and firmly apply in-and-out motion. Check for any movement at the ball joints between knuckle and upper control arm. If any lateral movement is observed, replace upper ball joint.

FORD MOTOR CO.

NOTE – *Three different types of front suspensions are used. Types are similar in design with the basic difference being in the location of the coil springs and shock absorbers. One type (enclosed coil) has the coil spring and shock absorber mounted between the lower and upper control arms. The second type (spring tower) has the coil spring and shock absorber mounted between the upper control arm and body. The third type has a single control arm. For further information and description, see appropriate article in SUSPENSION Section.*

Ford Suspension Systems

Application	Models
Enclosed Coil	Ford, Mercury, LTD II, Cougar Thunderbird, Continental Mark V Lincoln Continental, Pinto & Bobcat
Spring Tower	Granada, Monarch, & Versailles
Single Control Arm	Fairmont, Zephyr, Mustang & Capri

CAUTION – *Suspension control arms must be replaced as complete units. Do not attempt to replace only ball joints or other subcomponent parts. Ball joint seals MAY be replaced.*

NOTE – *Before inspecting ball joints, adjust front wheel bearings.*

Upper Ball Joint (Enclosed Coil) – Place floor jacks beneath lower control arms. Have assistant hold lower edge of tire, moving wheel in and out. Check for movement between upper end of spindle and upper control arm. Install new upper control arm if movement exists.

Lower Ball Joint (Enclosed Coil) – Place floor jacks under lower control arms. Attach a dial indicator to lower control arm so that plunger rests against inner side of wheel, next to lower ball joint. Holding tire at top and bottom, slowly move the tire in and out. If reading exceeds .250", replace lower control arm.

Upper Ball Joint (Spring Tower) – Place jacks under front crossmember, permitting wheel to drop to full-down position. Have assistant hold tire at top and bottom and slowly move tire in and out. Check for movement between upper end of spindle and upper control arm. Install new upper control arm if movement exists.

Lower Ball Joint (Spring Tower) – Place jacks under front crossmember, until wheel falls into the full-down position. Have assistant move lower edge of tire in and out, as you check for movement between the lower end of spindle and lower control arm. Install new lower control arm if movement exists.

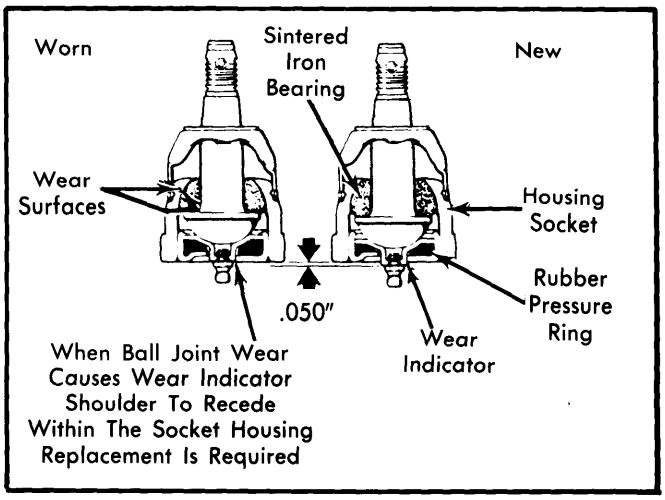

Fig. 1 Lower Ball Joint Wear Indicators (General Motors Illustrated) (Ford Fairmont, Zephyr, Mustang & Capri Similar)

BALL JOINT CHECKING (Cont.)

Lower Ball Joint (Single Arm) – With vehicle resting on normal driving surface, wipe ball joint grease fitting and checking surface free of all grease or dirt. The round boss into which the grease fitting is threaded (checking surface) should extend outside the ball joint cover. If round boss is inside cover, replace lower control arm assembly. *Similar to Fig. 1.* Ball joints and lower control arm bushings are not serviced separately. Replace entire control arm, bushing and ball joint assembly. Ball joint seals may be replaced, however.

GENERAL MOTORS

Lower Ball Joint (Riviera, Eldorado & Toronado) – **1)** Raise vehicle and position stands under lower control arms. Clamp self-locking pliers on hub to drive axle nut so pliers are in a horizontal position. Using a suitable stand, mount a dial indicator in a horizontal position so plunger contacts pliers.

2) Place pry bar between lower control arm and drive axle outer race. Pry down on bar. If reading on dial indicator is greater than .125", replace lower ball joint. Also replace if ball stud is disconnected from knuckle or if any looseness is noted. Replace ball joint if ball stud can be twisted in its socket with fingers.

Lower Ball Joint (Corvette) – **1)** Raise vehicle off ground and support weight under lower control arm. Measure distance from grease fitting to end of threaded stud. Record dimension.

2) Raise tire and knuckle assembly by levering under tire. This will seat ball stud internally. Remeasure. If difference in measurements exceeds 1/16", the ball joint is worn and must be replaced.

3) Check ball stud tightness in knuckle boss by shaking wheel and observing movement of stud end and/or nut at knuckle boss or by removing cotter pin and checking torque. Looseness can mean a bent stud or an "opened up" hole in knuckle. Replace defective parts if found.

Lower Ball Joint (All Other Models) – Raise vehicle and support under lower control arms. Visually inspect ball joint. Wear is indicated by position of 1/2" diameter nipple into which the grease fitting is threaded. On a new or unworn ball joint, the nipple will extend .050" beyond surface of ball joint cover. Normal wear will cause nipple to become flush or recessed into cover. Replacement is then required. See *Fig. 1.*

Upper Ball Joint (Oldsmobile) – Raise vehicle and position stands under front lower control arms (as close as possible to each lower ball joint). Position dial indicator against wheel rim. Push in on bottom of tire while pulling out on top. Then reverse procedure. Difference on dial indicator should not exceed .125". If so, replace ball joint.

Upper Ball Joint (All Other Models) – Raise the vehicle and support with stands beneath the lower control arms. Place stands between ball joint and spring pocket. Grasp wheel at top and bottom and move top of wheel firmly in and out. Any looseness observed, without movement of steering knuckle, indicates worn ball joints. Replace ball joints if they can be twisted by hand or if lateral shake is noted.