DRIVE SHAFT & UNIVERSAL JOINTS

1993 Jeep Cherokee

1993 Drive Axles - Drive Shafts & Universal Joints

Cherokee, Grand Cherokee, Grand Wagoneer, Wrangler

DESCRIPTION

Drive shafts are balanced, one-piece, tubular steel shafts with universal joints at each end. Single Cardan universal joints contain a spider, 4 bearing caps with needle bearings, seals and clips. Double Cardan universal joints contains 2 spiders joined together, 8 bearing caps with needle bearings, seals and clips. See Fig. 1.

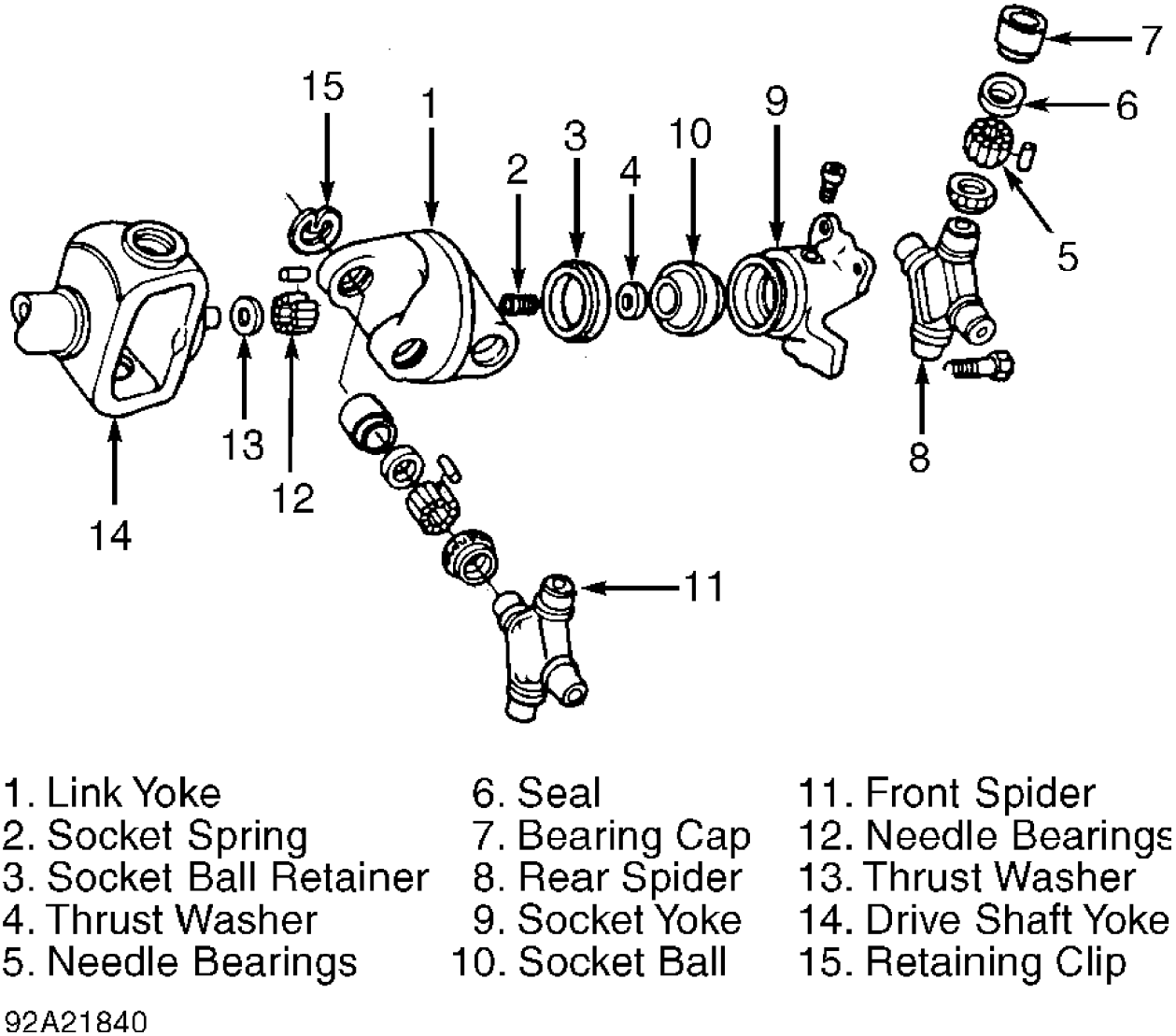

Fig. 1: Exploded View Of Double Cardan Universal Joint
Courtesy of Chrysler Corp.

INSPECTION

VIBRATION

Tires & Wheels

Check tire inflation and wheel balance. Check for foreign objects in tread, damaged tread, mismatched treads or tire sizes. Check for tires that are out of round. Replace or repair as necessary.

Engine & Transmission Mounts

Tighten mounting bolts. Replace mounts if soft or separated.

Drive Shaft

Check shaft for damage or dents. Check for undercoating on shaft. If present, clean shaft.

Universal Joints

Check for defective or damaged "U" joints. Check for loose bolts and worn bearings.

DRIVE SHAFT RUNOUT

Remove any dirt from area around shaft where dial indicator is placed. Measure shaft runout about 3" from weld-seam on each end of shaft. With dial indicator mounted perpendicular to drive shaft, rotate shaft several times. Record runout measurement. Repeat the procedure at the opposite end and center of the drive shaft. See DRIVE SHAFT RUNOUT table. If runout is not equal to or less than specification, replace drive shaft.

DRIVE SHAFT RUNOUT TABLE

Application	In. (mm)
Front & Rear of Shaft	.010 (.25)
Center of Shaft	.015 (.38)

DRIVE SHAFT ANGLE

NOTE: If drive shaft angle is excessive, vibration may result.

1) Check condition of springs, engine and transmission mounts. Ensure all mounting fasteners are tight. To ensure proper riding height, fuel tank should be full and vehicle should be empty of cargo. Raise and support vehicle so suspension bears weight of vehicle and wheels can rotate freely.

2) Remove clips from "U" joint cap bore. Ensure bearing caps are clean. Joint bearing cap to be measured must be straight down. Place Inclinometer (J-23498-A) on bearing cap. Center bubble in sight glass. Record measurement. Rotate drive shaft 90 degrees. Repeat procedure. Subtract smaller figure from larger figure to obtain "U" joint angle.

3) Repeat procedure outlined in step 2) at opposite end of drive shaft. Compare "U" joint angle measurements. Difference of "U" joint angles MUST be within specification. See UNIVERSAL JOINT ANGLE table. If not with specification, adjust "U" joint angle. See SHAFT ANGLE under ADJUSTMENTS.

UNIVERSAL JOINT ANGLE TABLE

Application	Specification
Double Cardan Universal Joint	0-2.5°

Single Cardan "U" Joint ..... 0-1.5°

ADJUSTMENTS

SHAFT ANGLE

Front - Except Wrangler

1) Adjust drive pinion gear shaft angle "A" at the lower suspension arms with shims. Adding shims will decrease pinion gear shaft angle "A" but will increase caster angle. See Fig. 2.

2) Adjustment of angle "A" is more important than caster angle. When angle "A", angle "B" and vehicle height are correct, angle "C" will also be correct.

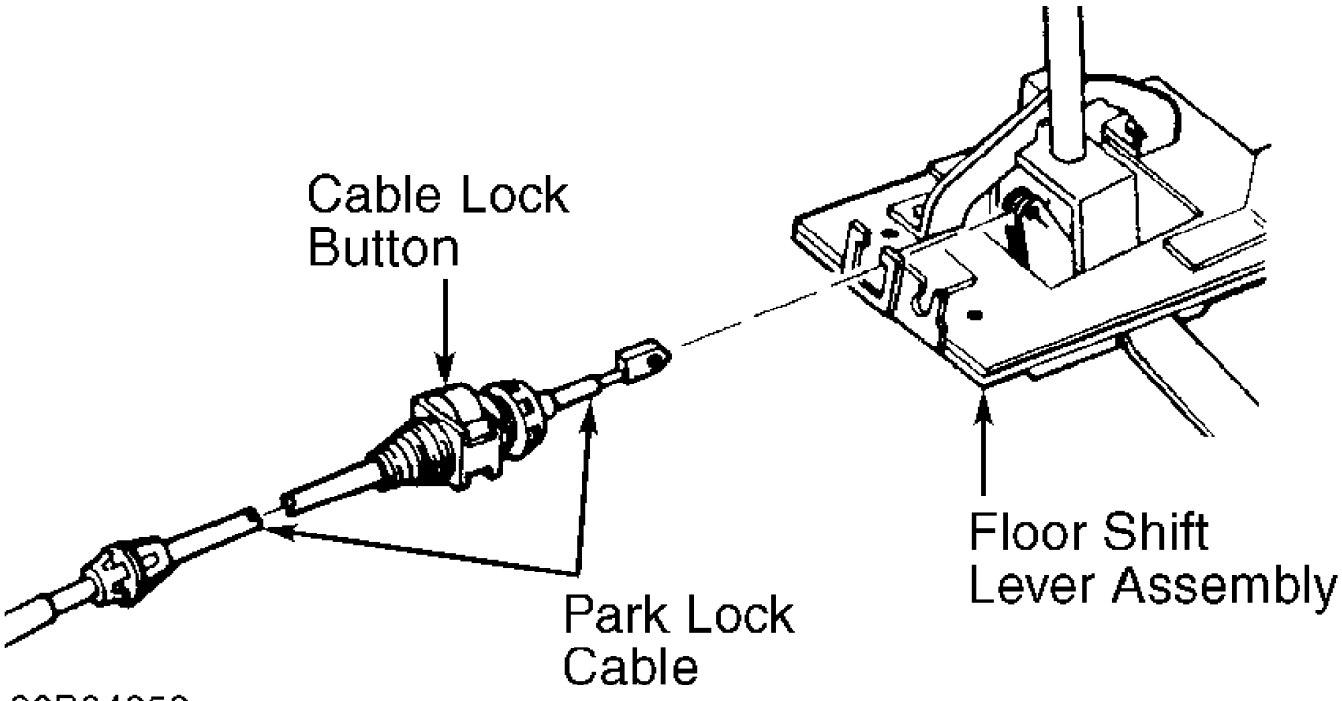

Fig. 2: Front Drive Shaft Angle (Except Wrangler)
Courtesy of Chrysler Corp.

Front - Wrangler

1) Raise vehicle and place jack stands under frame. Place a hydraulic jack under differential housing. Raise jack to support weight of axle.

2) Loosen spring "U" bolt nuts, and install tapered shims between springs and axle spring bracket to correct angle. Tighten spring "U" bolt nuts to 52 ft. lbs. (70 N.m) for Cherokee or 100 ft. lbs. (136 N.m) for all others.

NOTE: Adjustment procedure for rear shaft angle not available from manufacturer.

OVERHAUL

NOTE: If joints are rusted or corroded, apply penetrating oil before disassembly.

SINGLE CARDAN UNIVERSAL JOINT

Disassembly

Scribe or paint marks on yokes and drive shaft for reassembly reference. Remove bearing cap retainer clips. Using sockets and vise as a press, remove bearing caps retaining spider to drive shaft and yoke. Remove spider. Inspect caps for cracks or defective needle bearings. Check spider for scoring or excessive wear. If defective, replace complete unit.

CAUTION: DO NOT place shaft or slip yoke tube in vise. Clamp only the forged portions in vise.

Reassembly

1) Clean universal joint bores and yoke. Apply grease to yoke bores, bearing caps, bearings and spider contact surfaces.

2) Place spider into yoke and tap bearing cap, seal and bearings into yoke far enough to hold spider. Place a socket (smaller than cap) on side cap and place in vise.

3) Tighten vise until caps are seated in yoke. Rotate spider to make sure no binding occurs. Install cap clips and repeat procedure on remaining caps.

DOUBLE CARDAN UNIVERSAL JOINT

NOTE: Double cardan universal joints are not serviceable. If defective, replace as an assembly.

Disassembly

1) Scribe or paint marks on yokes and drive shaft for reassembly reference. Remove bearing cap retainer clips. Using sockets and vise as a press, remove bearing caps retaining front spider to link yoke. Remove drive shaft yoke from link yoke. See Fig. 1.

2) Remove bearing caps retaining rear spider in link yoke. Remove rear spider and socket yoke from link yoke. Remove bearing caps retaining front spider in drive shaft yoke. Remove front spider from drive shaft yoke.

Inspection

Check all component for cracks, scores and excessive looseness. If any defect is found, replace complete "U" joint assembly.

Reassembly

1) Ensure alignment of reference marks made during disassembly. Use extreme pressure (EP) lithium grease to aid in assembly. Place bearing caps on both ends of rear spider and secure with tape. Spider will mate with transfer case yoke. Assemble socket yoke and rear spider.

2) Install rear spider and socket yoke in link yoke. Insert bearing caps in yoke bores. Using sockets and a vise, press caps into bores Install retaining clips. Install front spider in drive shaft yoke. Insert bearing caps in yoke bores. Press caps into bores. Install retaining clips.

3) Install thrust washer on drive shaft yoke. Align and install ball socket on drive shaft yoke. Install front spider in link yoke. Insert bearing caps in yoke bores. Press caps into bores. Install retaining clips. Check "U" joint for binding. Install drive shaft.