OPEN STEERING KNUCKLES

Chrysler Corp., All Models
Ford Motor Co., Bronco & F100
General Motors, All Models
International Harvester, Scout & 150
Jeep, All Models

DESCRIPTION

Open steering knuckles on front drive axles give the advantage of a sharper turning angle which decrease vehicle's turning radius. All of the vehicle weight is borne by the axle housing and steering knuckle; the axle is free floating. The knuckles are mounted to the axle housing yoke in two different ways: Dodge uses spring-loaded, tapered roller bearings and pivot pins on the W300 (optional on W200). All other models use ball joints. Other than the unique parts required for front-wheel drive, these axle assemblies are mechanically identical to other models of Dana/Spicer axles. Open knuckle assemblies are used with both part-time and full-time transfer cases.

OVERHAUL

DISASSEMBLY

All Models With Ball Joints – 1) Remove wheel, brake drum (or disc brake assembly) and wheel hub. *See Locking Hubs in this Section.* Remove spindle. Examine axle bore of knuckle; if seal is present, drive out with punch from the inside. Slide axle shaft out through steering knuckle.

2) Disconnect steering rod(s) from knuckle. Remove nut from lower ball joint stud. Examine underside of knuckle; if a snap ring is present that retains lower ball joint socket, remove snap ring. Remove cotter pin from upper ball joint nut, then screw nut up until it is flush with top of ball joint stud. Using suitable adapter plate and pulling tool, loosen steering knuckle from axle-end yoke. Remove upper ball joint nut, and remove steering knuckle.

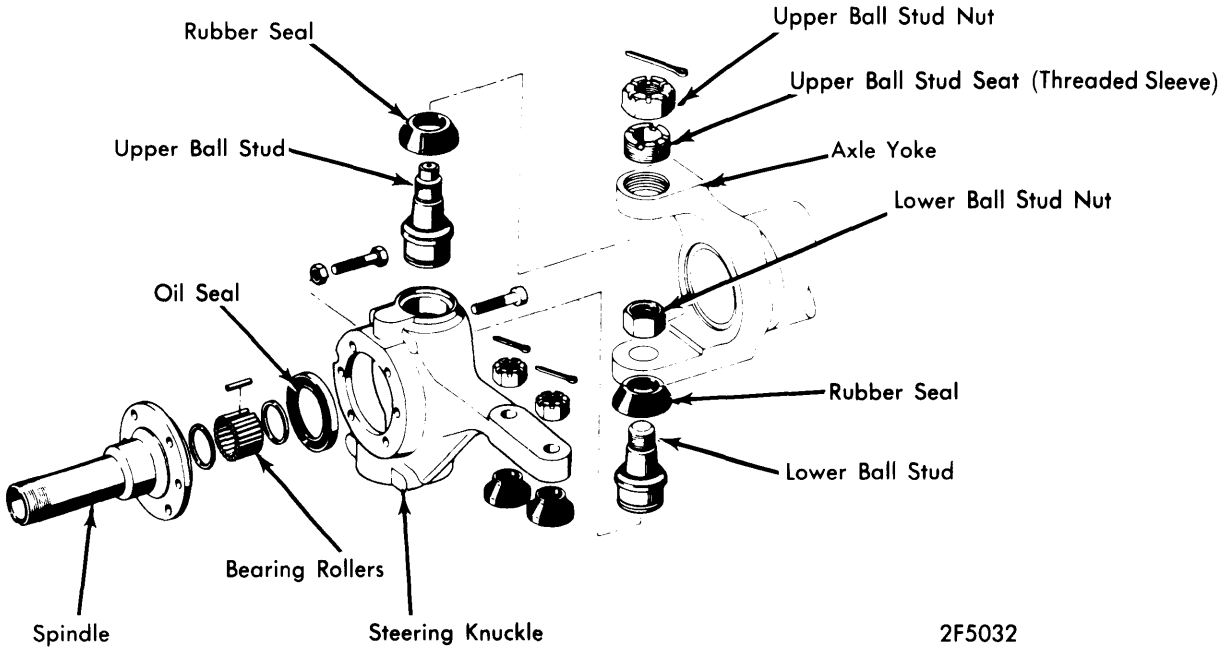
3) Using suitable tools, press ball sockets from knuckle. Remove threaded sleeve from yoke. Clean all components with suitable solvent and blow dry with compressed air. Inspect all parts for burrs, chips, wear, flat spots or cracks. Replace all damaged parts and parts showing excessive wear.

All Models With Pivot Pins – 1) Remove wheel, disc brake assembly, and hub cap. Using suitable tool (C-4020), remove snap ring. Remove drive flange and discard gasket. Remove locking devices, bearing adjusting nut, and outer wheel bearing. Carefully slide hub and rotor assembly from spindle. Remove inner brake shoe from adapter.

2) Remove nuts and washers holding brake splash shield, brake adapter, and spindle to steering knuckle. Remove spindle from knuckle. Slide inner and outer axle shaft out of axle housing. Remove steering linkage from knuckle. Remove pivot pin caps from knuckle. Remove spring and white nylon seat from upper pivot pin. To remove knuckle from housing, swing out at bottom, then lift up and off upper pivot pin. Using suitable tool (D-192), remove upper pivot pin. Remove seal. Using suitable tools, press lower pivot pin assembly from axle housing.

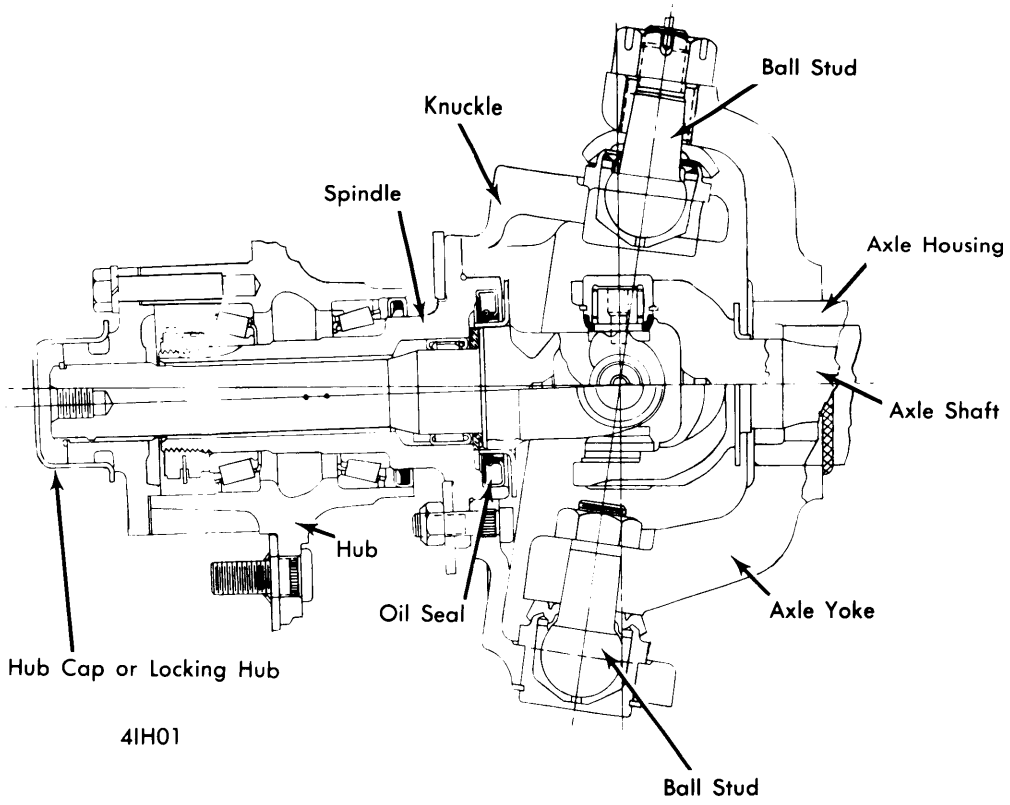
REASSEMBLY

All Models With Ball Joints – 1) Place new lower ball socket into position on knuckle. Lower socket has shorter shaft and no cotter pin hole. Using suitable adapter, press into place in bore. Check bore-to-socket clearance; it must be less than .0015". If snap ring was removed, reinstall. Install upper socket into knuckle; check clearance as with lower socket. Install threaded sleeve into axle-end yoke.

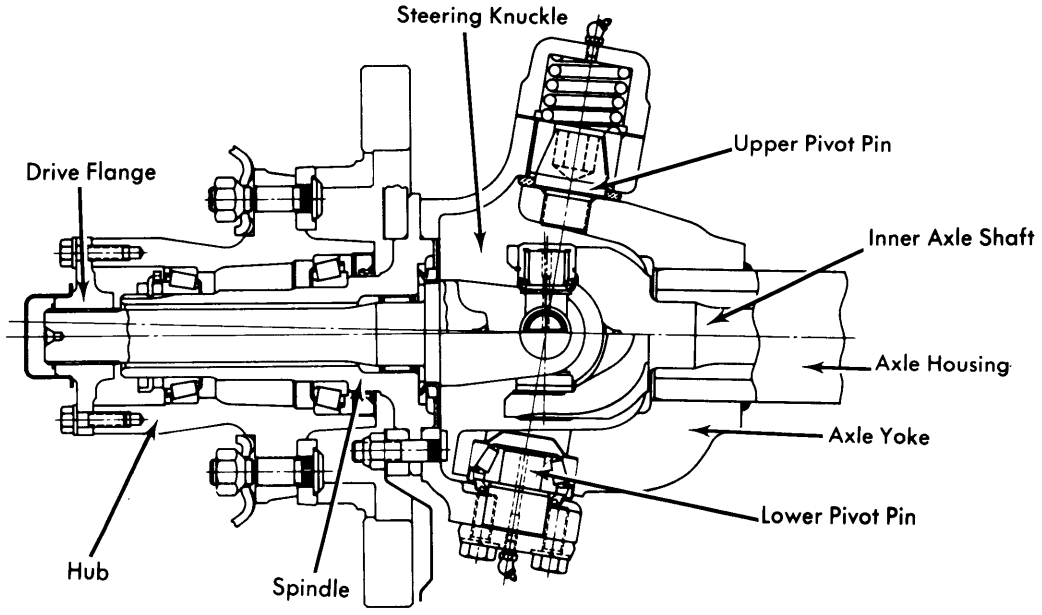


OPEN STEERING KNUCKLE ASSEMBLY (BALL JOINT TYPE)

OPEN STEERING KNUCKLES (Cont.)



OPEN STEERING KNUCKLE CROSS-SECTION (BALL JOINT TYPE)



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OPEN STEERING KNUCKLE CROSS-SECTION (PIVOT PIN TYPE)

OPEN STEERING KNUCKLES (Cont.)

2) Adjust threaded sleeve so that approximately two threads are exposed above top of yoke. Assemble knuckle to yoke. Install NEW nut on bottom ball joint and tighten to specifications. Tighten threaded sleeve to specifications (this loads ball joints correctly). Install ball joint upper nut and tighten to specifications. To complete reassembly, reverse disassembly procedure.

NOTE — When aligning upper ball joint nut to install cotter pin, always tighten nut to align. Never loosen nut to align holes.

All Models With Pivot Pins — 1) Lubricate lower pivot pin assembly with chassis lube. Using suitable tools, press seal and lower bearing cup into axle yoke. Using suitable adapter (D-192) and torque wrench (DD-994), install upper socket pin and tighten to 950 ft. lbs. to properly seat pin. Install seal over pin.

2) Position steering knuckle over socket pin. Fill lower socket cavity with chassis lube. Work lower knuckle cap into place on knuckle housing. Install attaching hardware and tighten. Lubricate upper socket pin with chassis lube. Align upper socket sleeve (white nylon) in keyway of steering knuckle and slide into position. Install new gasket over upper steering knuckle studs, then position spring over sleeve. Install cap and tighten bolts. *NOTE — There is no preload adjustment; the spring maintains proper preload.* To complete reassembly, reverse disassembly procedure.

ADJUSTMENT

TURNING ANGLE

Turning angle stop screws are located at rear of steering knuckle just above axle centerline. To adjust, loosen lock nut on turning angle stop screw. Using a turntable to measure angle, adjust stop screw to obtain specified angle, then tighten lock nut without changing setting.

Turning Angle Specifications

Application	Degrees
Jeep	
"CJ" Models	
W/Standard Tires	34-35
W/Oversize Tires	31
All Others	36-37
International Harvester	37-38

NOTE — Turning angle adjustment applies only to Jeep and IHC vehicles.

TIGHTENING SPECIFICATIONS

Application	Ft. Lbs.
Ball Joint Type	
Threaded Sleeve (Upper Ball Stud Seat)	
Ford & Chrysler Corp.	40
All Others	50
Upper Ball Joint Nut	
Chrysler Corp.	135
All Others	100
Lower Ball Joint Nut	
Chrysler Corp.	135
All Others	80
Pivot Pin Type	
Pivot Pin Cap Bolts	70-90
Drag Link to Steering Knuckle	60
Tie Rod to Steering Knuckle	45