UNIVERSAL JOINTS

► CHANGES, CAUTIONS & CORRECTIONS

► *UNIVERSAL JOINT DISASSEMBLY CAUTION* – Universal joints should not be disassembled or lubricated unless external leaking or damage has occurred. Before disassembly, scribe alignment marks on yoke and shaft so that shaft parts can be reassembled in their original position. If joints are rusted or corroded, apply penetrating oil before pressing out bearing cups or trunnion pin.

► *SLIP YOKE MAINTENANCE NOTE* – If slip yoke has a tendency to stick in extension housing seal, service as follows: Remove propeller shaft from vehicle and clean yoke with suitable solvent. Lubricate inside diameter of seal with synthetic oil seal lubricant and outside diameter of seal with transmission fluid. This procedure should also be followed whenever shaft is removed from vehicle.

CROSS AND ROLLER TYPE

NOTE – Two different retaining methods are used for bearing cups, snap ring or nylon retainers. Joints with snap rings may be taken apart and reassembled using same cross and bearings. Joints with nylon retainers are disassembled by breaking nylon retainers, therefore they must be replaced when they are serviced.

DISASSEMBLY

Disconnect yoke attaching bolts or flange attaching bolts and remove propeller shaft from vehicle. *CAUTION – Do not use pry bar or heavy tool to hold propeller shaft when loosening flange bolts or U-bolts to prevent damage to universal joint bearing seals.* Remove retaining strap (if used), remove bushing retainers from yoke and press out rollers and bushings. Remove last roller and bushing assembly by pressing on end of cross. Remove cross assembly from yoke. Do not remove seal retainers from cross. Cross and retainers are serviced as an assembly.

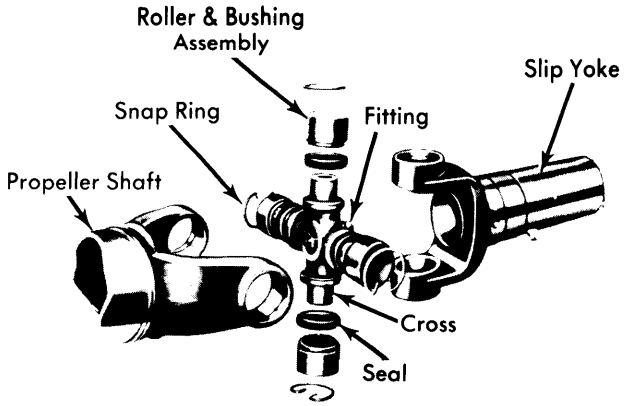

Fig. 2 Exploded View of Typical Cross & Roller Joint

REASSEMBLY

Coat roller and bearing assemblies with suitable lubricant and fill reservoirs in ends of cross. Place cross assembly in propeller shaft yoke and place roller and bushing assemblies into position. Press both bushing assemblies into yoke until retainers can be installed, being careful to keep cross aligned in center of bushings. Install retainers, then repeat procedure for remaining bushings. Install retaining strap (if used). Install propeller shaft in vehicle, making sure marks made prior to disassembly are aligned.

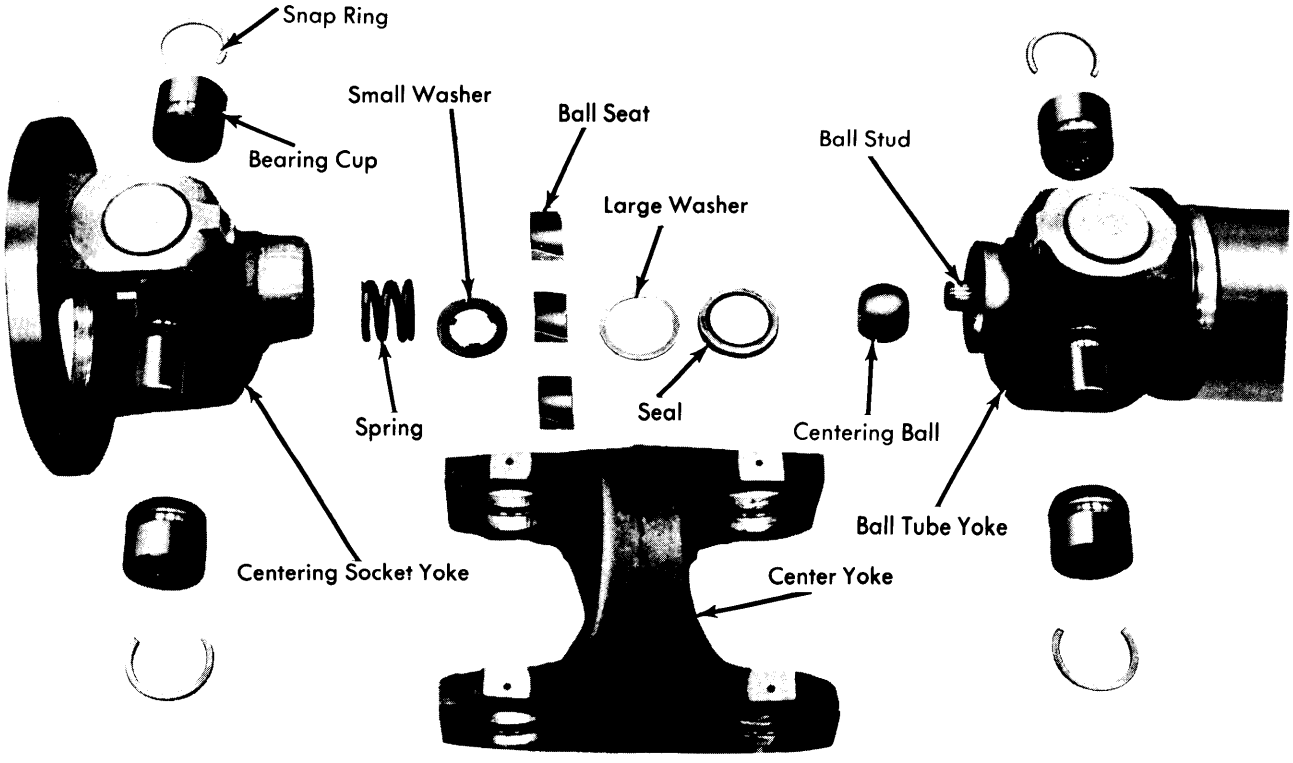

Fig. 1 Exploded View of General Motors & Jeep Type Constant Velocity Joint

UNIVERSAL JOINTS (Cont.)

CONSTANT VELOCITY TYPE

CAUTION — To prevent damage to constant velocity joint center ball when removing propeller shaft assembly or when handling shaft after removal, care must be taken to support shafts on both sides of constant velocity joint if shaft is moved horizontally. Do not allow one end of shaft to hang free or allow universal joint to bend at a sharp angle. Shaft assembly may be carried in a vertical position without damage to constant velocity joint.

GENERAL MOTORS & JEEP TYPE

Disassembly Disconnect yoke attaching bolts and flange attaching bolts and remove propeller shaft from vehicle. Mark joint so that center yoke, end yoke, and crosses will be reassembled in same relative position. Pry out all snap ring bearing retainers and press bearing out enough to allow bearing end to be clamped in a vise. With edge of bearing held tightly in vise, tap on yoke until yoke comes off bearing. Repeat procedure for remaining bearings. Remove remaining parts from center yoke assembly.

Reassembly — Pack all bearings with suitable grease and assemble center yoke components in reverse order of disassembly. Using arbor press or vise, press two opposing bearings into position at same time until all bearings are installed. *NOTE — Make sure that crosses and yokes are properly aligned.* Check for free movement of joint. If bind exists, seat bearings with a sharp rap on YOKES with a brass hammer. *CAUTION — Never tap on bearings.* Install propeller shaft in vehicle, making sure marks made prior to disassembly are aligned.

FORD (BRONCO) TYPE

Disassembly — 1) With propeller shaft removed from vehicle, position propeller shaft in a vise. Mark position of crosses, center yoke and center socket in relationship with stud yoke welded to propeller shaft tube. *NOTE — Crosses must be installed on bosses in original positions to obtain correct clearance.* Remove snap rings in the front of center yoke. Using a suitable "C" clamp type tool (CJ91B), tighten screw in tool until bearing protrudes $\frac{3}{8}$".

2) Remove propeller shaft from vise. Tighten protruding part of bearing in a vise, then drive against center yoke with a hammer until bearing is removed from yoke. Remove bearings from cross. Reinstall "C" clamp tool and remove remaining two fron bearings in samemanner. Now remove cross from center yoke. Remove centering socket from stud and remove rubber seal from centering ball stud.

3) Remove snap rings from center and drive shaft yokes. Install "C" clamp tool and tighten screw until bearing is pressed outward and center yoke contacts slinger ring. *NOTE — Do Not press beyond this point as slinger ring can be damaged.* Clamp exposed end of bearing in a vise and drive against center yoke with a brass hammer until center yoke is free of bearing. Press aginst cross with "C" clamp tool to remove remaining bearing. Remove center yoke from cross and remove cross from propeller shaft using same procedure as used for removing other cross.

Reassembly — 1) Clean all components in a suitable solvent. Place cross in drive shaft yoke. Make sure cross bosses are installed in original position. *NOTE — If a repair kit is being installed, bosses will be lubrication plugs.* Press in bearings and install snap rings. Fill socket relief and ball with suitable lubricant (C2AZ-19590-B). Position center yoke over cross. Press in bearings and install snap rings.

2) Install a new seal on centering ball stud. Place centering socket over stud. Place front cross in yoke. Make sure cross bosses (lubrication plugs if kit is used) are installed in original position. Place cross loosely on center stop. Press first set of bearings in center yoke then install second set. Install snap rings. Apply pressure to center yoke socket and install remaining bearing cup. If a kit was installed, remove plugs and lubricate "U" joints. Reinstall plugs.

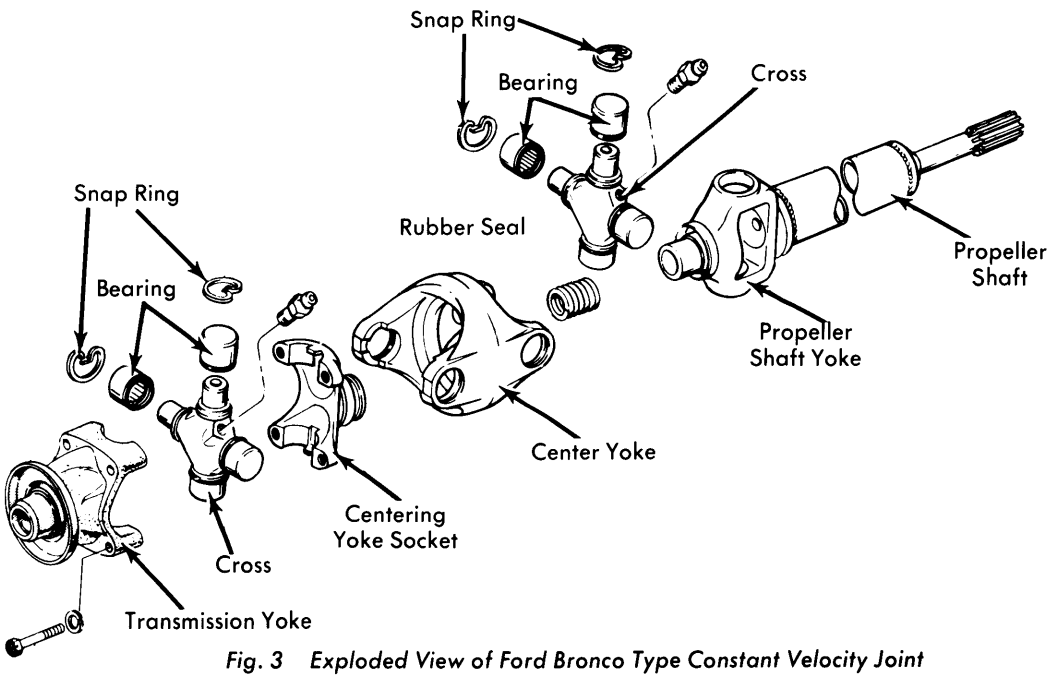

Fig. 3 Exploded View of Ford Bronco Type Constant Velocity Joint