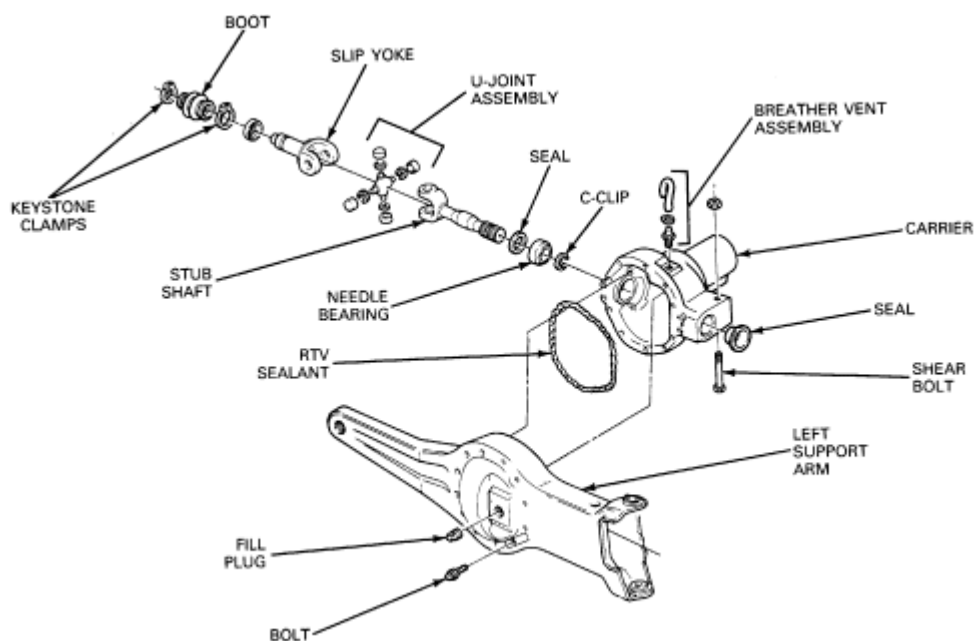


Section 05-03A: Axle, Front Drive, Dana 28 I.F.S.
REMOVAL AND INSTALLATION

1993 Aerostar/Ranger/Explorer Workshop Manual

Right Hand Slip Yoke and Stub Shaft Assembly, Carrier

Carrier Oil Seal and Bearing

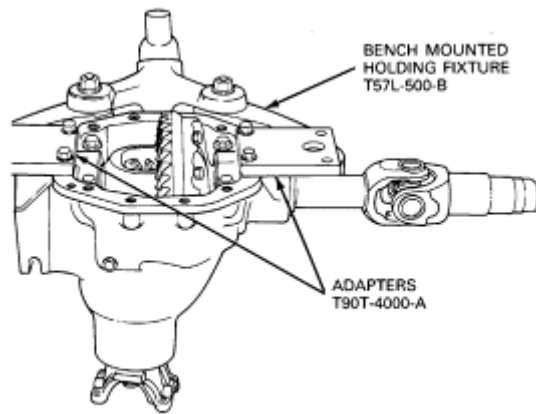


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Removal

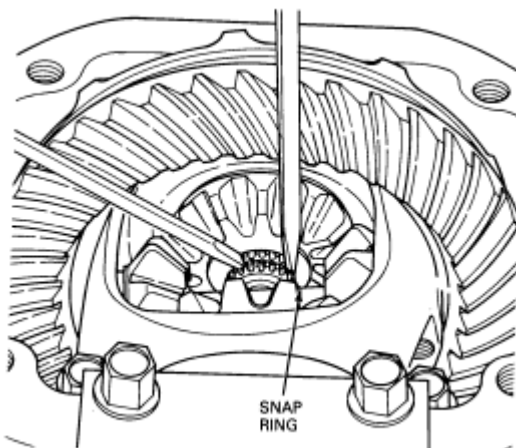
NOTE: Mark the pinion yoke and driveshaft to make sure the yoke and driveshaft are correctly aligned during assembly.

1. Remove the nuts and U-bolts connecting the driveshaft to the yoke. Disconnect the driveshaft from the yoke. Wire the driveshaft out of the way, so it will not interfere in the carrier removal process.
2. Remove both spindles and the Left and Right Shaft and U-joint assemblies as described in the Removal and Installation portion of this Section under Spindle and Left and Right Shaft and U-joint Assemblies.
3. Support the carrier with a suitable jack and remove the bolts retaining the carrier to the support arm. Separate the carrier from the support arm and drain the lubricant from the carrier. Remove the carrier from the vehicle.
4. Place the carrier in a Holding Fixture, T57L-500-B with Adapters T90T-4000-A.



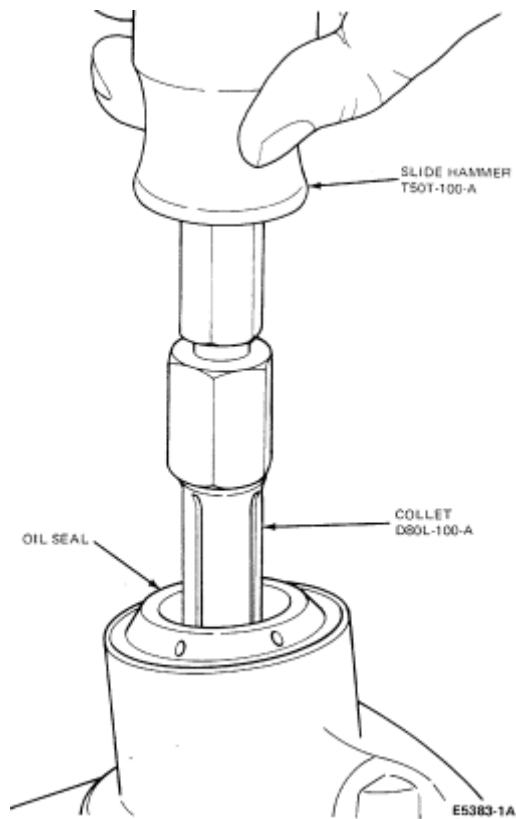
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5. Rotate the slip yoke and shaft assembly so the open side of the snap ring is exposed. Remove the snap ring from the shaft.



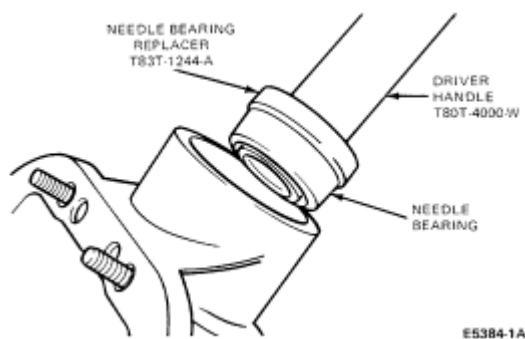
E5382-C

6. Remove the slip yoke and shaft assembly from the carrier.
7. Remove the oil seal and caged needle bearings at the same time, using Slide Hammer, T50T-100-A and Collet, D80L-100-A or equivalents. Discard the seal and needle bearing.

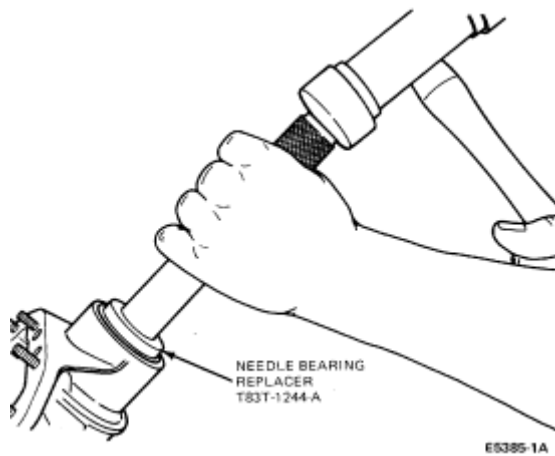


Installation

1. Make sure the bearing bore is free from nicks and burrs. Install a new caged needle bearing on Needle Bearing Replacer, T83T-1244-A with the manufacturer name and part number facing outward towards the tool. Drive the needle bearing until it is seated in the bore.

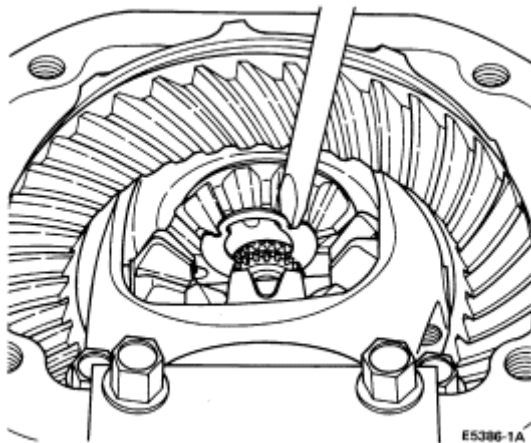


2. Coat the seal with High-Temperature Lubricant E8TZ-19590-A (ESA-M1C198-A) or equivalent. Drive the seal into the carrier using Needle Bearing Replacer T83T-1244-A.



3. Install the slip yoke and shaft assembly into the carrier so the groove in the shaft is visible in the differential case.
4. Install the snap ring in the groove in the shaft. Force the snap ring into position with a screwdriver. Remove the carrier from the holding fixture.

NOTE: Do not tap on the center of the snap ring. This may damage the snap ring.



5. Clean all traces of gasket RTV sealant from the surfaces of the carrier and support arm and make sure the surfaces are free of dirt and oil. Apply a bead of Silicone Rubber RTV sealant, D6AZ-19562-AA (clear) or BA (black) (ESB-M4G92-A and ESE-M4G195-A) or equivalent, in a bead between 6.35-9.53mm (1/4-3/8 inch) wide. The bead should be continuous and should not pass through or outside the holes.

NOTE: The carrier must be installed on the support arm within five minutes after applying the RTV sealant.

6. Position the carrier on a suitable jack and install it in position on the support arm using guide pins to align. Install the attaching bolts and hand tighten. Tighten the bolts in a clockwise or counterclockwise pattern to 54-68 Nm (40-50 ft-lb).
7. Install the shear bolt retaining the carrier to the axle arm and tighten to 102-129 Nm (75-95 ft-lb).

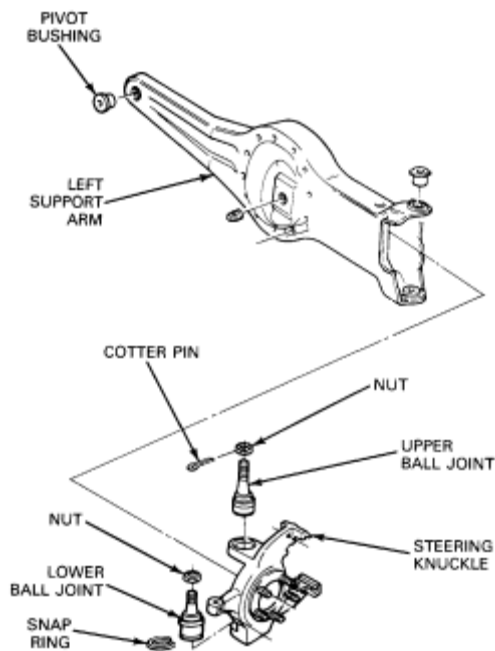
8. Install both spindles and the left and right shaft and joint assemblies as described in the removal and installation portion of this Section.
9. Connect the driveshaft to the yoke. Install the nuts and U-bolts and tighten to 11-20 Nm (8-15 ft-lb).

Steering Knuckle and Ball Joints

Removal

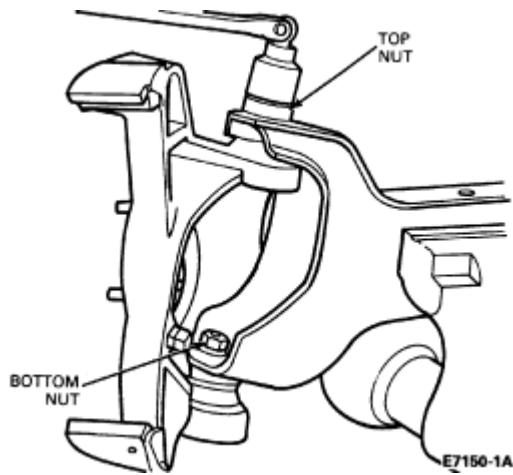
1. Remove the spindle and shaft and joint assembly as described in this Section.

NOTE: Refer to [Section 04-00](#) for Caster-Camber Adjustment.

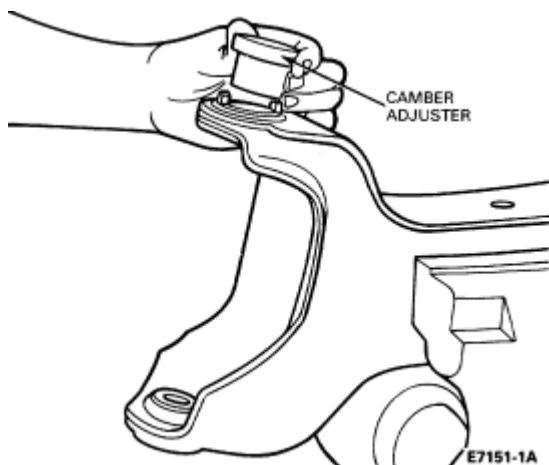


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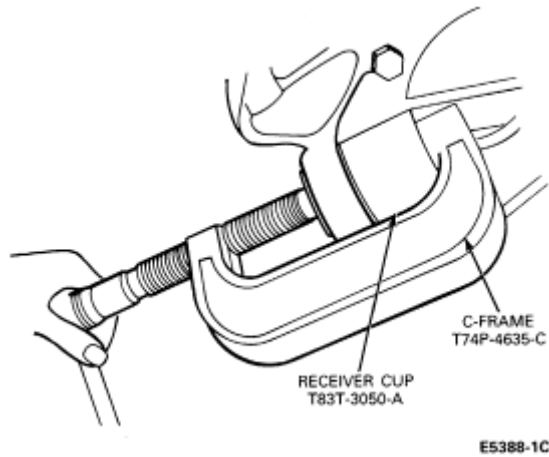
2. If the tie rod has not been removed, then remove cotter pin from the tie rod nut and then remove nut. Tap on the tie rod stud to free it from the steering arm.
3. Remove the upper ball joint cotter pin and nut.



4. Loosen the lower ball joint nut to the end of the stud.
5. Strike the inside of the knuckle near the upper and lower ball joints to break the knuckle loose from the ball joint studs.
6. Remove the camber adjuster sleeve. Note the orientation of the slot in the camber adjuster. The slot should be installed in the same position during reassembly to maintain alignment. If required, use Pitman Arm Puller, T64P-3590-F to remove the adjuster out of the knuckle.

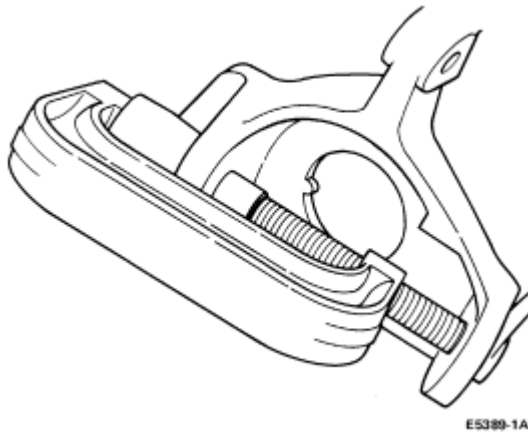


7. Remove lower ball joint nut.
8. Place knuckle in vise and remove snap ring from bottom ball joint socket if so equipped.
9. Assemble C-Frame, T74P-4635-C, and Ball Joint Remover, T83T-3050-A on the lower ball joint.



10. Turn forcing screw clockwise until the lower ball joint is removed from the steering knuckle.
11. Assemble C-Frame, T74P-4635-C and Ball Joint Remover T83T-3050-A on the upper ball joint.
12. Turn forcing screw clockwise until the upper ball joint is removed from the knuckle.

NOTE: Always remove lower ball joint first.



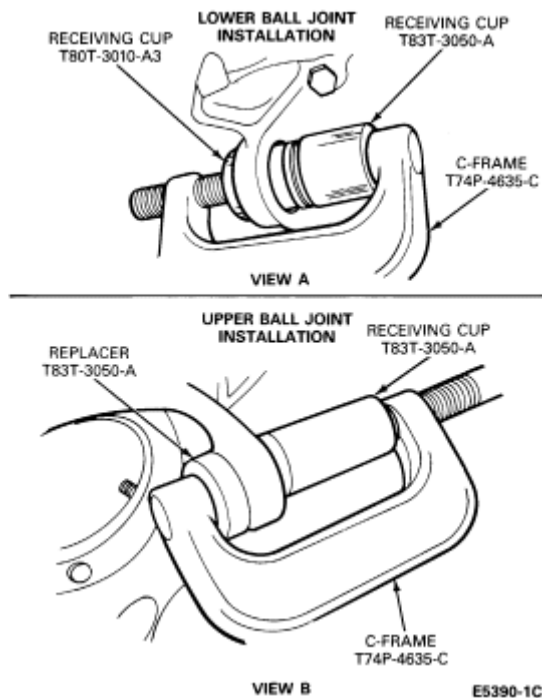
Installation

NOTE: The lower ball joint must always be installed first.

1. Clean the steering knuckle bore and insert lower ball joint in knuckle as straight as possible. The lower ball joint doesn't have a cotter pin hole in the stud.
2. Assemble C-Frame, T74P-4635-C, Ball Joint Installer, T83T-3050-A and Receiver Cup T80T-3010-A3 to install the lower ball joint.
3. Turn the forcing screw clockwise until the lower ball joint is firmly seated. Install the snap ring on the lower ball joint.

NOTE: If the ball joint cannot be installed to the proper depth, realignment of the receiver cup and C-Frame tool will be necessary.

- To install the upper ball joint, install the C-Frame, T74P-4635-C, Ball Joint Installer, T83T-3050-A and Replacer, T80T-3010-A3 in the knuckle. Turn the forcing screw clockwise until the ball joint is firmly seated.



- Install the camber adjuster into the support arm. Orientate the slot in the original position.



CAUTION: The following torque sequence must be followed exactly when securing the knuckle. Excessive knuckle turning effort may result in reduced steering returnability if this procedure is not followed.

- Install a new nut on the bottom ball joint stud and tighten to 47 Nm (35 ft-lb).
- Install a new nut on the top ball stud and tighten to 136 Nm (100 ft-lb), then advance nut until castellation aligns with cotter pin hole and install cotter pin.
- Finish tightening the lower nut to 129-149 Nm (95-110 ft-lb).

NOTE: The camber adjuster will seat itself into the spindle at a predetermined position during the tightening sequence. DO NOT attempt to adjust this position.

