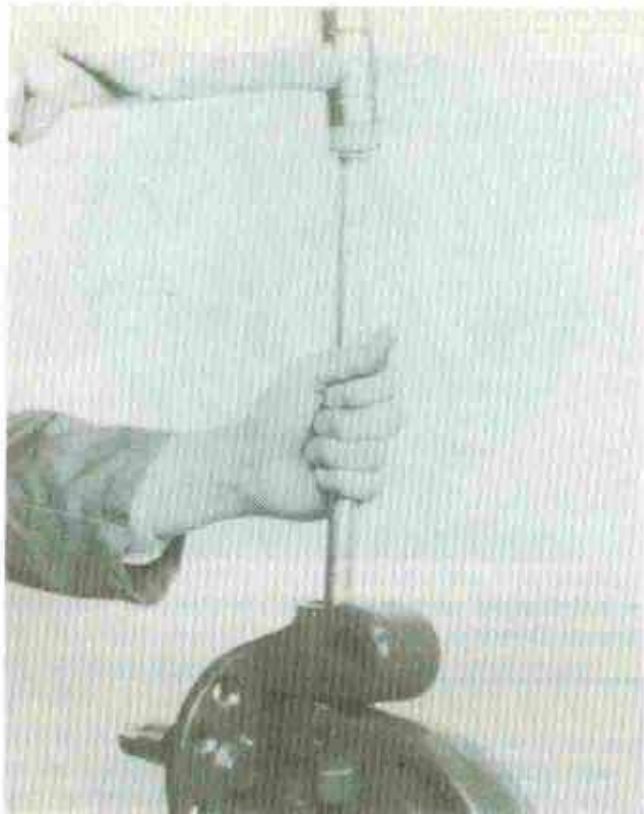
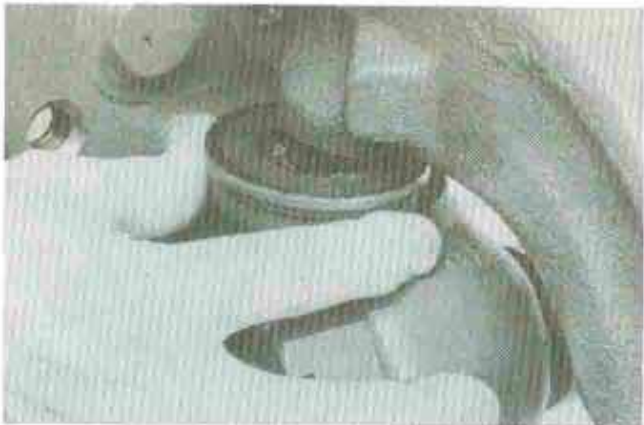


Knuckle and King Pin Disassembly (continued)

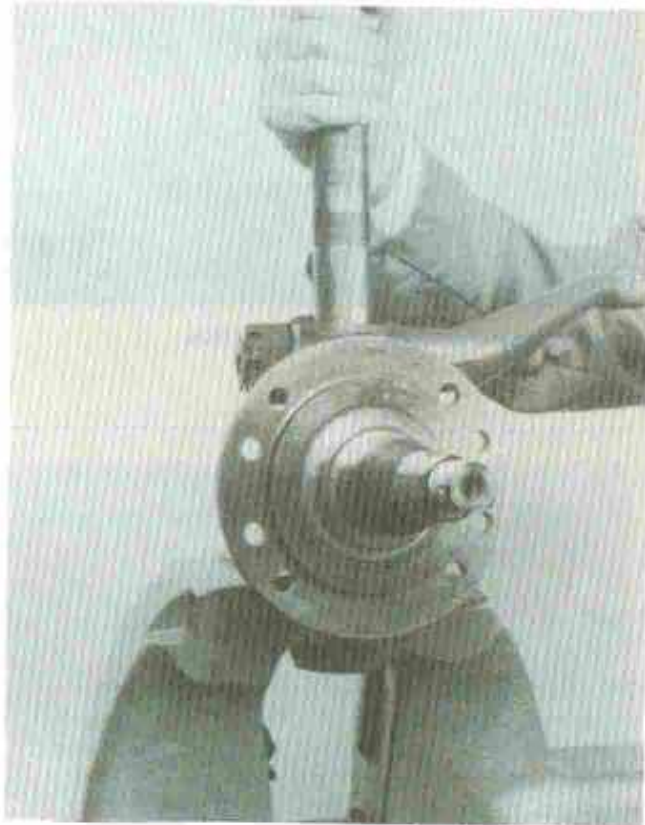


9. Drive out king pins, using a soft hammer and drift.
CAUTION: Do not heat I-beam end to aid removal of king pins.



10. Remove knuckles, thrust bearings, and position shims from I-beam.

11. Clean all parts thoroughly in cleaning solvent. Examine the steering knuckle carefully for any indication of damage, fatigue lines, or imperfections which might cause early failure. Replace any knuckle which is not in good condition.



12. Remove the old bushings, using an arbor or drift with proper adapter so damage to bore in spindle does not occur.

13. Inspect and measure king pin bores in I-beam. If measurement exceeds specified dimension, by .002 inch (.051 mm), (chart page 9) or rust and scale is evident, it will be necessary to hone the king pin bores and use .002 inch (.051 mm) oversized king pin kit.

NOTE: A self expanding wheel cylinder hone can be used to clean up the king pin bores.

CAUTION: If measurement exceeds specified dimension by more than .002 inch (.051 mm), axle I-beam must be replaced.

Knuckle and king pin disassembly complete.

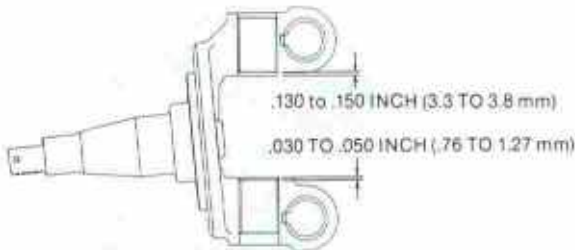
King pin bushing and reaming tools are available from:

Kent Moore Tools,
Heavy Duty Division
29784 Little Mack
Roseville, MI. 48066-2298
Telephone 313-774-9500

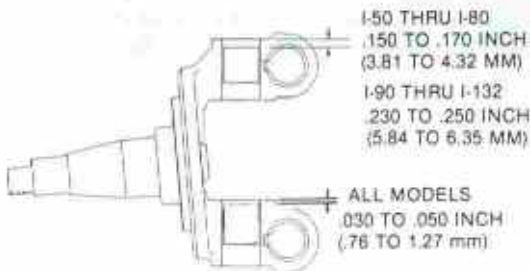
Knuckle and King Pin Assembly



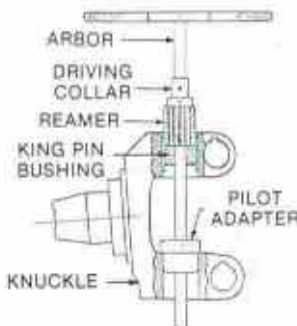
1. Install new bushings into the knuckle.



2A. The dimensions shown above are used when replacement bushings are full length. The measurements are taken from the machined surface of the knuckle that borders the king pin boss of I-beam (top) and the thrust bearing (bottom).

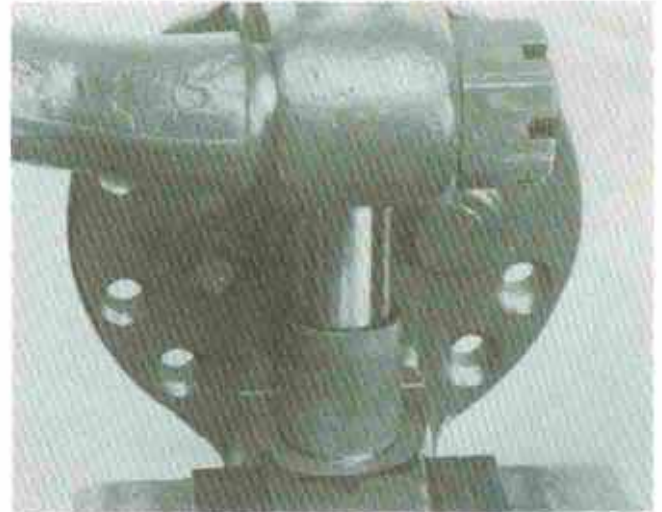


2B. When replacement bushings are 1.500 inch (38.10 mm) long composite, the measurements are taken from the top machined surfaces of the knuckle as shown above.

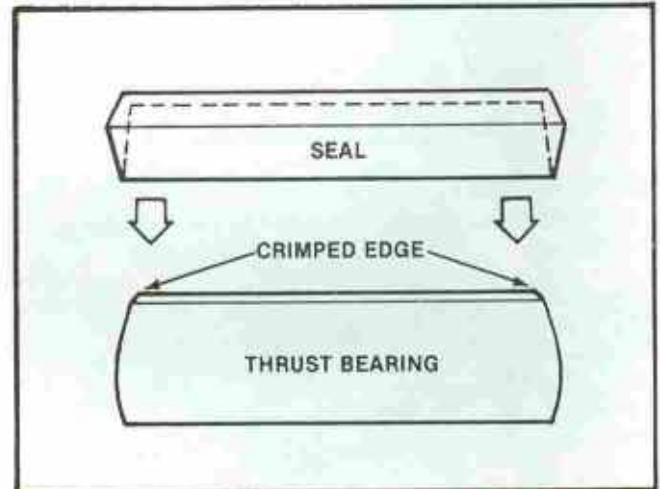


3. Line ream the new bushings to finished dimensions shown in specifications.

NOTE: Reamer must be equipped to pilot one bushing while reaming the other bushing.



4. Install upper grease seal into knuckle with lip down toward I-beam.



5. Position knuckle onto king pin boss of I-beam. Install lower seal over thrust bearing with crimped seam toward the seal.



6. Install bearing and seal between I-beam and knuckle with seal up.

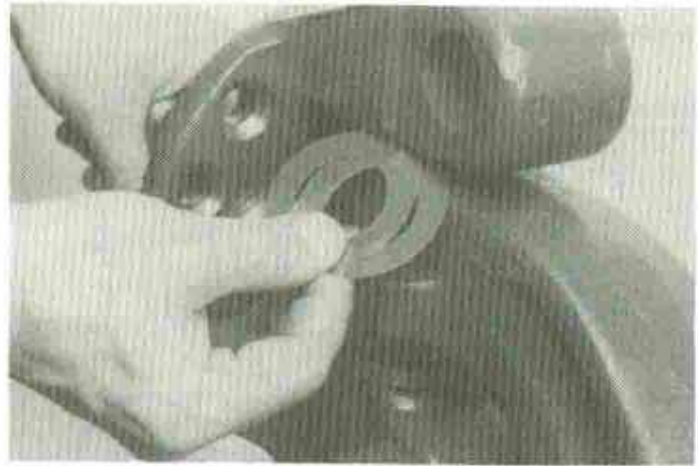
Knuckle and King Pin Assembly (continued)

7. Remove weight from knuckle and measure distance between knuckle and upper machined surface of the I-beam. Subtract .005 inch (.127 mm) from measurement. Round off to nearest .005 inch (.127 mm) and install shims totaling the calculated requirement. This establishes preferred vertical clearance of .005-.010 inch (.127-.254 mm).

Example:

Measurement with feeler gauge	.056 in. (1.42 mm)
Desired vertical clearance	– .005 in. (.127 mm)
Required shims for .005 clearance	.051 in. (1.295 mm)
Rounded to nearest .005	= .050 in. (1.27 mm)

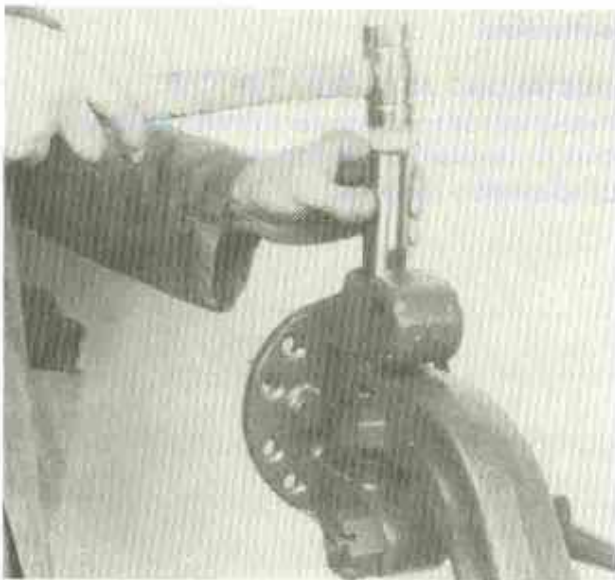
8. Assemble shims totaling .050 and install.



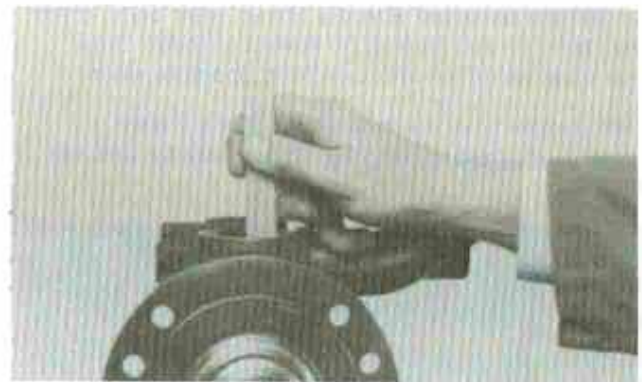
King Pin Installation

1. Be certain the king pin bore in knuckle, king pin bore in I-beam, shims, and thrust bearing are aligned properly. The machined flat surfaces on the side of the king pin must be aligned with the draw key holes in the I-beam.

NOTE: The machined flats are located closer to the top of the king pin to allow installation of the thrust bearing, while maintaining correct vertical position of king pin. The flats are also wider than the draw key allowing slight adjustment. The king pin must be vertically centered in the knuckle. This allows both top and bottom king pin end caps to be installed without interference.

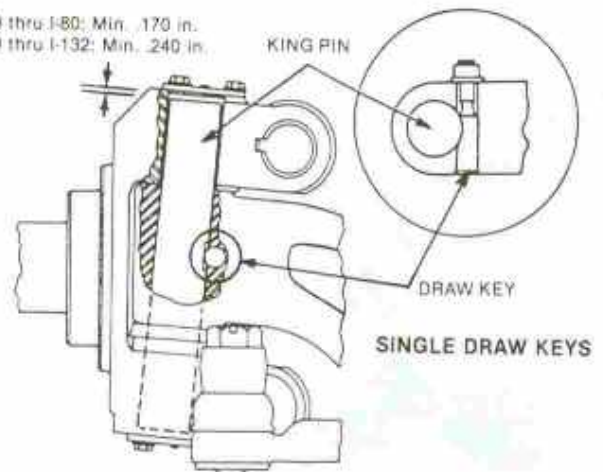


2. Prelube lower half of king pin with clean chassis grease. Align draw key flats with holes in I-beam and install king pin into upper spindle bore by hand, until it passes thru the bushing, upper seal, and shims. If king pin does not pass through freely to the I-beam, it must be removed and components re-aligned. After king pin starts through I-beam, a brass drift and hammer maybe used to assist installation.



Be certain thrust bearing and lower seal are positioned properly. Center king pin vertically in the knuckle, with minimum of .240 inch distance from top machined surfaces of knuckle on Models I-90 thru I-132 and .170 inch on Models I-50 thru I-80. This allows proper clearance for king pin end cap installation.

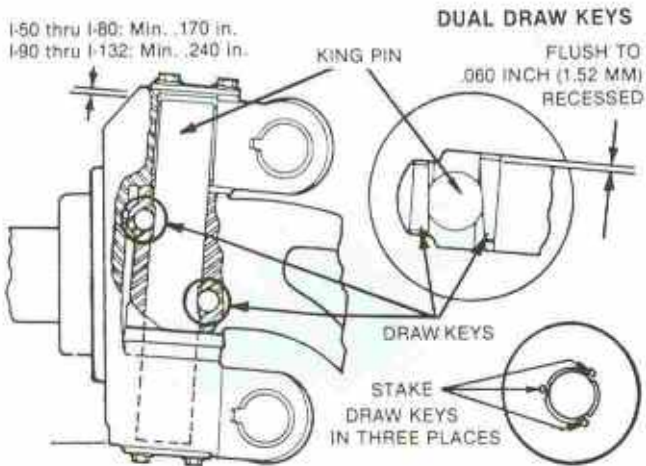
I-50 thru I-80: Min. .170 in.
I-90 thru I-132: Min. .240 in.



3. Install draw keys. The single draw keys are installed with the nut and lock washer to the front side of the axle. Torque to 25-30 ft. lbs. (27-37 N-m). Tap unthreaded end of draw key sharply with a hammer and re-torque the draw key nut.

(continued on next page)

King Pin Installation (continued)

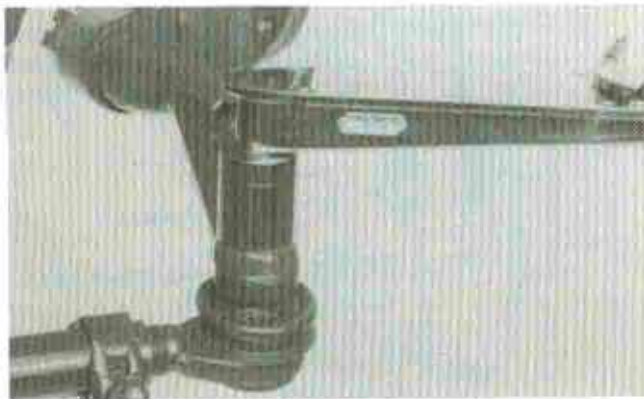


4. The dual keys are supplied in various lengths. Select the proper key so that large end is flush to .060 inch (0 to 1.52 mm) recessed with the I-beam after being driven into place, or they cannot be staked properly. Draw keys must be driven into axle from opposite sides.

5. After draw keys are in position, stake I-beam material adjacent to each key in 3 places to lock key into place.



6. Install king pin end caps and O rings. Torque bolts to 12-16 ft. lbs. (16-22 N-m).



7. Reinstall tie rod ends into tie rod arms and torque to 85-105 ft. lbs. (115-140 N-m) minimum on I-50 thru I-80 axle, and 140-160 ft. lbs. (190-215 N-m) minimum on I-90 thru I-132 axle. If cotter pin cannot be installed after minimum torque is attained, the nut must be tightened until cotter pin can be installed.



8. Reinstall brake backing plate or caliper mounting bracket. Torque mounting nuts to 110-120 ft. lbs. (149-163 N-m) on the medium duty axles and 220-240 ft. lbs. (298-325 N-m) on the heavy duty axles.

NOTE: It is important that the nuts are torqued, and not the bolts, since the mounting holes in the knuckle are of conical design. These mating conical nuts have a smooth cone surface and the torque values are considerable higher than torque values for regular nuts or bolts.

9. Lubricate wheel bearings, replace seals, and install hub assemblies onto the knuckles. Follow procedures outlined in wheel bearing repacking section of this manual.

10. Lubricate upper and lower king pin bushings.

NOTE: If axle was not removed from vehicle, replace wheels and tires and remove vehicle from floor stands. Check and adjust toe-in to vehicle manufacturer's specifications.

REINSTALLING AXLE INTO VEHICLE

Follow vehicle manufacturer's recommended procedure for reinstalling axle into vehicle.

Axle reassembly complete.