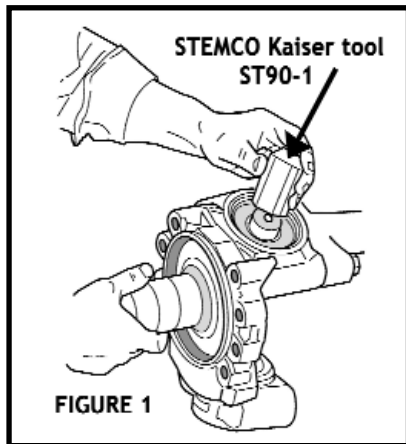


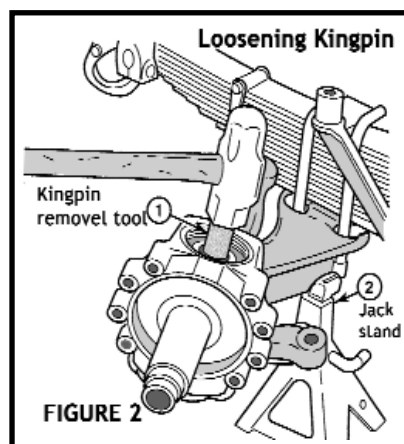
The following assembly instructions are recommended for completing the MACK & VOLVO FXL front steering axle king pin repair. This is a very unusual and unique designed axle in comparison to the majority of common axle assemblies. Reading and following these instructions is critical to successfully performing the king pin procedure!

- Set axle down on jack stands placing them under spring perches.
- Disconnect steering arms and remove grease fittings from top knuckle caps.
- Remove top and bottom caps.
- Remove nut from kingpin using an inch drive socket and breaker bar.
- Install kingpin removal tool ST90-1 on top of king pin. (FIG. 1)



- Strike the removal tool with a large hammer to break kingpin loose from axle eye. (FIG. 2)

- Remove the removal tool from kingpin.
- Using a suitable brass drift punch and hammer drive kingpin down through axle and spindle.
- Remove knuckle from axle.
- Remove lower seal from knuckle and discard. Clean knuckle thoroughly, so it is free of grease and dirt.
- Remove old nylon bushing from knuckle using a brass drift punch. Remove top bearing cup using a suitable steel drift punch.
- Measure the thickness of the bearing cup seat with a micrometer. (Measure in



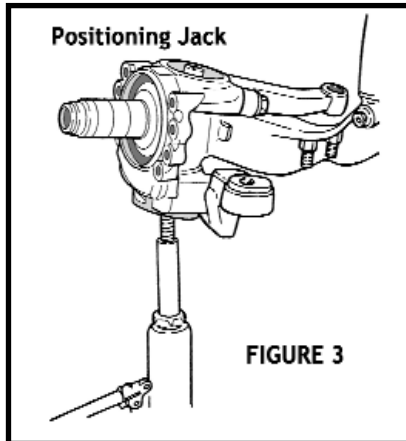
four places) Thickness should be between .392 and .394. If thickness is not within these specs replace knuckle.

- Inspect axle and knuckle for wear that might have been caused by faulty wheel bearings or kingpin components and replace if necessary.
- Install spiral bushing into lower knuckle bore.
- Coat the under ledge surface, in the area of the knuckle upper bearing, with grease. This allows the knuckle to slide onto the axle during later assembly. Clean all grease and dirt from axle eye thoroughly.
- Position a new lower seal on the knuckle (the white nylon insert inside the seal faces down against the knuckle). Do not coat lower seal with grease.
- Slide the knuckle onto the axle eye while pressing the lower seal down at the same

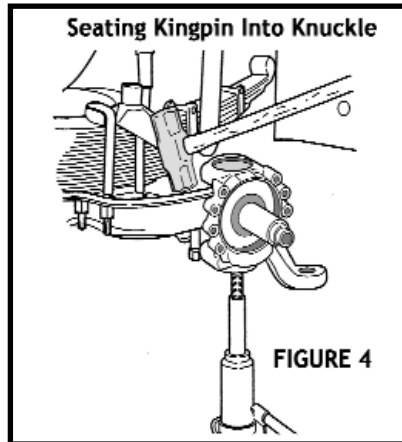
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time. Make sure lower seal is properly aligned when knuckle is installed. (Be sure the ABS sensor is on the front side. If it is on the rear side switch knuckle to the other side of the axle)

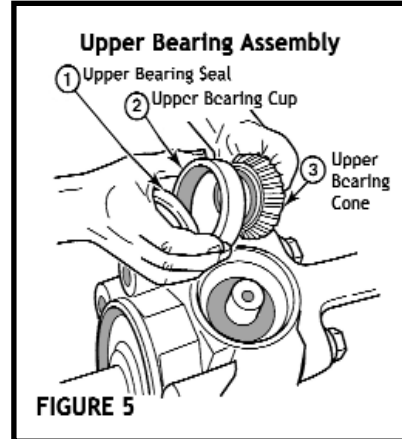
- Insert kingpin up from the bottom side of the knuckle firmly by hand slowly to be sure axle eye, knuckle and seal are properly aligned.
- Using a bottle jack against the bottom of the kingpin jack up until axle is lifted slightly off the jack stand (be sure the weight of the axle is supported by the kingpin on



the jack only) (FIG. 3). Strike the top of the axle with a large hammer just behind the knuckle to seat the king-

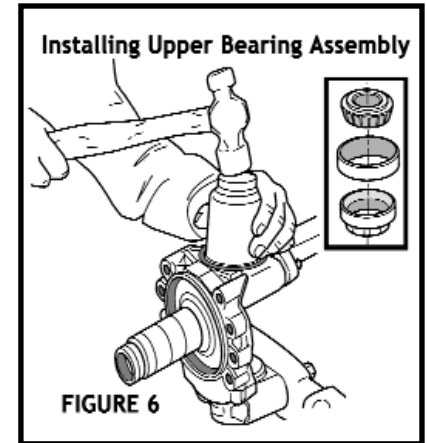


- pin into the axle eye (FIG. 4).
- Pack upper bearing with grease. Assemble bearing and cup with the new bearing seal on the flange of the bearing cup.
- Install bearing assembly (FIG. 5) in the knuckle using



a suitable bearing driver to "TAP" the bearing assembly into the knuckle far enough down the kingpin threads to get the nut started on the

kingpin (FIG. 6). Tighten nut



on kingpin to 200 ft. lbs. After tightening remove bottle jack from bottom of king pin. Rotate knuckle back and forth several times to make sure knuckle turns freely. If no binding occurs tighten kingpin to 600 ft. lbs.

- Install top cap with new o-ring (coat o-ring with grease before installing cap.) and tighten to 120 ft. lbs. At this time install grease fittings in cap.
- Repeat above procedure for lower cap.
- Grease top and bottom fittings while moving knuckle back and forth. (Be sure grease purges past upper and lower seals)
- Reconnect steering arms and wheel end components.