

Automotive TechTips

TIMKEN
Where You Turn

Volume 6 • Issue 4 Part 3 of a 3-Part Series

INSTALLING A HUB UNIT BEARING ASSEMBLY AND STEERING KNUCKLE

Guidelines for a Passenger Car Front Wheel-End Application



Timken continues to lead the hub unit bearing evolution by providing assemblies that are uncompromised in quality, reliability and consistency. Proper hub unit bearing removal and installation procedures can enhance the performance and life of hub unit bearings, axles, wheels, brakes and other components. Following are guidelines for removing and installing a hub unit bearing assembly on a passenger car front wheel-end application.



1. Inspect the surface of the axle shaft, spline teeth and tone wheel for wear. Use a fine file, wire brush, emery cloth or honing stone as appropriate to remove any debris, nicks or burrs.

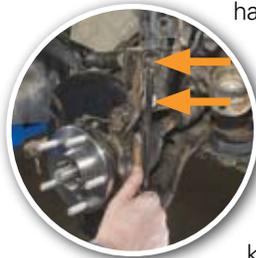
as appropriate to remove any debris, nicks or burrs.



2. Carefully check the positioning of the splines on the axle shaft while installing the steering knuckle.

The proper positioning of these two

components is critical so that the splines are not damaged. NOTE: Never force the hub unit bearing assembly onto the shaft or strike with a hammer.



3. Install the strut mounting bolts that attach the steering knuckle to the strut assembly and torque them to the vehicle manufacturer's specifications using a torque wrench.

the vehicle manufacturer's specifications using a torque wrench.



4. Install the bolts that attach the

lower ball joint to the lower control arm and torque them to the vehicle manufacturer's specifications using a torque wrench.



5. Attach the lower ball joint to the lower control arm and install the nut. Torque the nut to the vehicle

manufacturer's specifications using a torque wrench.

6. Secure the nut using a new cotter pin.



7. If applicable, be sure to properly attach the ABS sensor cable to the vehicle. Connect the sensor to its mating connection point.



8. Ensure that the brake rotor, caliper mounting bracket and caliper are free of debris and burrs. Install the brake rotor. Follow the vehicle manufacturer's recommendations for rotor inspection and reuse.



9. Install the caliper mounting bracket. Torque the bolts to the vehicle manufacturer's specifications.



10. Next, install the caliper on the caliper mounting bracket, being careful not to damage the rubber boots. Place the manufacturer's recommended lubricant on the caliper bolts. Install the bolts to the vehicle manufacturer's torque specifications.



11. Prior to installing the axle nut, apply the brake to prevent axle rotation or damage to transmission and transaxle components. This can be accomplished by using either a brake pedal depressor or having an assistant depress the brake pedal.



12. Install the axle nut. Follow the vehicle manufacturer's instructions for proper tightening of the axle nut.



13. Secure the axle nut with the locking procedure specified by the vehicle manufacturer.



14. Replace the wheel and tire assembly. Install the lug nuts. Follow the vehicle manufacturer's instructions for lug nut



tightening sequence, torque specifications and, if applicable, retorquing requirements.

Other TechTips in this 3-Part Series:

Volume 6, Issue 2 (Part 1 of a 3-Part Series)

Removing a Hub Unit Bearing Assembly and Steering Knuckle: Guidelines for a Passenger Car Front Wheel-End Application

Volume 6, Issue 3 (Part 2 of a 3-Part Series)

Bearing Removal and Installation: Guidelines for a Passenger Car Front Wheel-End Application

⚠ WARNING Failure to follow these warnings could create a risk of serious injury.

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication.
Never spin a bearing with compressed air. The rolling elements may be forcefully expelled.

TechTips is not intended to substitute for the specific recommendations of your equipment suppliers.

Every reasonable effort has been made to ensure the accuracy of the information contained in this writing, but no liability is accepted for errors, omissions or for any other reason.

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- 1.** Raise the vehicle. If applicable, remove the wheel cover to access the lug nuts. Remove the lug nuts and the wheel and tire assembly.

- 2.** Next, remove the caliper and the



caliper mounting bracket. To prevent damage to the brake line due to the weight of the caliper, make sure the caliper is properly supported with either an "S" hook or a piece of wire.

- 3.** Remove the brake rotor. Follow the vehicle manufacturer's recommendations for rotor inspection and reuse.



- 4.** Using an axle nut socket, remove the axle nut. Always refer to the vehicle manufacturer's instructions regarding nut replacement.



- 5.** Remove the upper tie rod using the proper tool.



6. If applicable, disconnect the ABS sensor wire from its mating connector point and secure the sensor cable to prevent it from being damaged.



7. Remove strut mounting bolts.



8. Remove the lower ball joint bolts.



9. A puller may be necessary to separate the axle shaft from the hub unit bearing assembly and remove the knuckle assembly from the vehicle.



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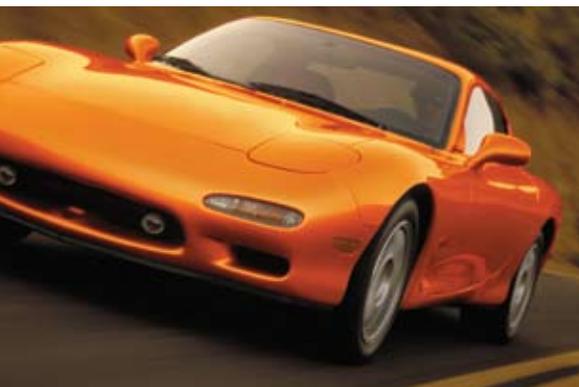
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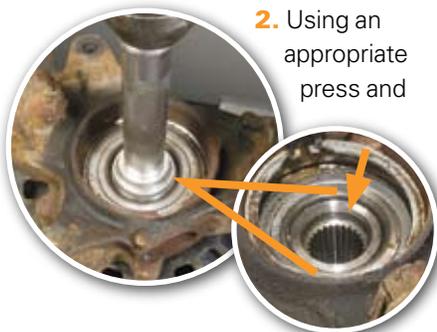
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Removal

1. Using a pair of snap ring pliers, remove the bearing retaining snap ring from the steering knuckle.



2. Using an appropriate press and



support fixture, remove the hub stud from the bearing.

3. Remove the disk brake dust cover.



4. Using an appropriate press and support fixture, remove the bearing from the steering knuckle.



Installation

1. Clean the steering knuckle of any debris or burrs. Carefully use a fine file, wire brush, emery cloth or honing stone as appropriate to remove any debris, nicks or burrs. Inspect the surfaces against which the new bearing will seat for wear and burrs.



2. Using an appropriate press and support fixture, press the new bearing into the steering knuckle. The out-



side diameter of the tooling surface must be large enough to support the outer race of the bearing assembly when applying force.

3. Using a pair of snap ring pliers, install the new bearing



retaining snap ring into the steering knuckle.

4. Install the disc brake dust cover. Torque the bolts to the vehicle manufacturer's specifications using a torque wrench.



5. Using an appropriate press and support fixture, press the new hub stud assembly (supplied with the kit) into the new bearing assembly.



NOTE: The bearing inner race must be supported when pressing the new hub stud assembly into the new bearing assembly. Failure to follow this note could cause damage to the bearing rolling elements and raceways.

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