TIMKEN

SPINDLE NUT INSTALLATION INSTRUCTIONS

INSTALLATION PROCEDURE FOR PRESET HUBS

Spindle nuts can be used with preset hub assemblies. When using the spindle nuts with preset hub assemblies, follow the hub manufacturer's installation instructions. Minimum torque specification for the spindle nut is 300 ft/lbs. when used to retain a preset hub assembly. Install the keeper into the spindle nut. If the keeper will not align with the spindle keyway and nut grooves, you must advance the spindle nut to engage the keeper. Never back off the spindle nut to align the keeper on a preset hub application.

INSTALLATION PROCEDURE TO SET BEARING ENDPLAY WITHIN 0.001" TO 0.005" (.025 TO .127 MM)

STEP 1: REMOVE KEEPER FROM THE SPINDLE NUT

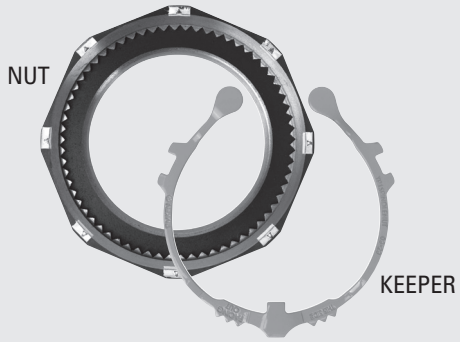
Carefully remove each side of the keeper from the groove on the spindle nut. DO NOT deform the keeper any further than necessary to remove it from the spindle nut.

⚠WARNING

Failure to observe the following warnings can result in separation of the wheel from the vehicle, creating a risk of death or serious injury.

The spindle nut is supplied as an assembly with the keeper in place. Do not attempt to install or adjust the spindle nut with the keeper in the spindle nut. Doing so may deform the keeper, resulting in the unthreading of the spindle nut during operation. Always follow the manufacturer's torque procedures for unitized hubs or spacer systems. It is not recommended to use a screwdriver to remove the keeper since this may damage the keeper.

Proper maintenance and handling practices are critical. Always follow installation instructions and maintain proper lubrication. Installation and service should only be performed by a qualified person.

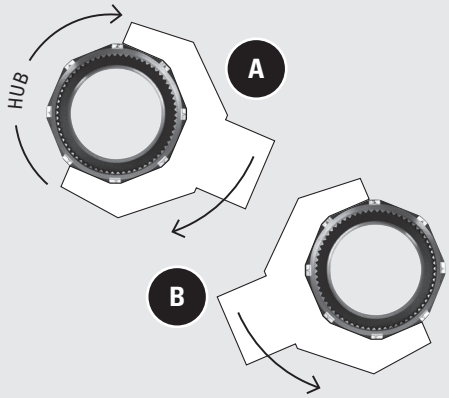


STEP 2: SEATING THE BEARING

A. Using a properly calibrated torque wrench, torque the spindle nut to the initial torque of 200 ft-lb while rotating the hub.

B. Back off the spindle nut 1 full rotation.

SPINDLE NUT	DESCRIPTION	SOCKET SIZE
FFT1SPINDLENUT	1.500" - 12 TPI	2-1/2" - 6 Point
FFD1SPINDLENUT	1.500" - 18 TPI	2-1/2" - 6 Point
RD1SPINDLENUT	3.250" - 12 TPI	4-3/8" - 8 Point
TN1SPINDLENUT	2.625" - 16 TPI	3-3/4" - 8 Point
TP1SPINDLENUT	3.480" - 12 TPI	4-13/16" - 8 Point



STEP 3: ADJUST THE BEARING

A. Using a properly calibrated torque wrench, torque the spindle nut to the initial torque of 100 ft-lb while rotating the hub.

B. Refer to the chart below. Back the spindle nut off to one white indicator mark.

SPINDLE NUT	BACKOFF
FFT1SPINDLENUT	1/4 Turn
FFD1SPINDLENUT	1/3 Turn
RD1SPINDLENUT	1/8 Turn
TN1SPINDLENUT	1/4 Turn
TP1SPINDLENUT	1/8 Turn

⚠WARNING

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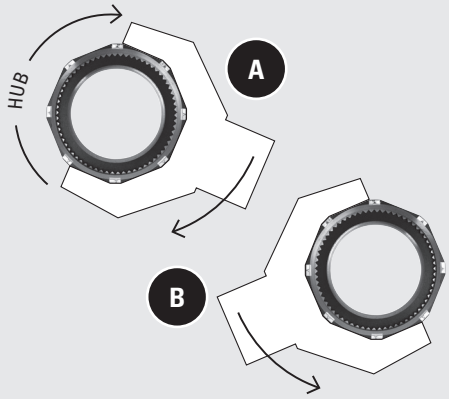
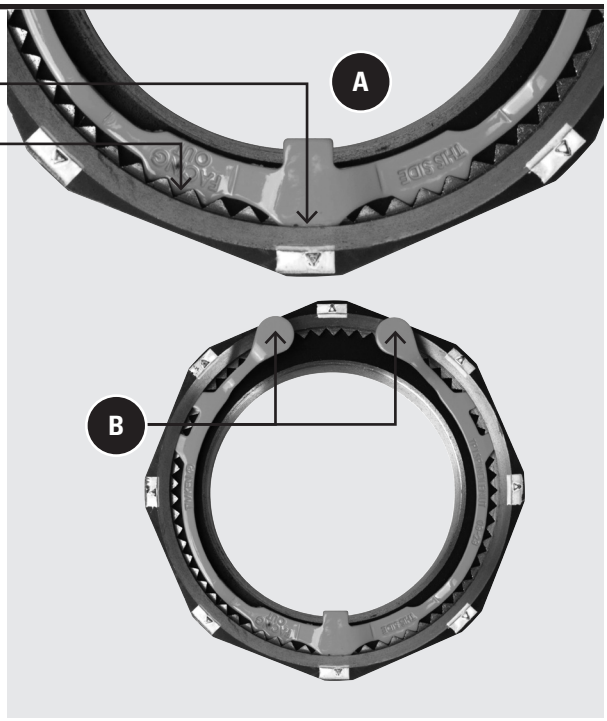
Failure to back off the spindle nut will cause the bearing to run hot and be damaged.



STEP 4: INSTALL THE KEEPER (WITH ORANGE SIDE FACING OUT)

A. (1) With the orange side facing out, insert the keeper tab into both the undercut groove of the spindle nut and the axle's keyway.
(2) Engage the mating teeth on the keeper and spindle nut.

B. Using your fingers, press the keeper paddles one at a time until each side of the keeper snaps into the spindle nut's under cut groove.



⚠WARNING
Failure to observe the following warnings can result in separation of the wheel from the vehicle, creating a risk of death or serious injury.

DO NOT bend or manipulate the keeper tab (tang) in any way since this may cause the tab to break off in service. Recommended practice is to replace the keeper each time the spindle nut is removed for service. The required keeper part numbers are shown in the table below.

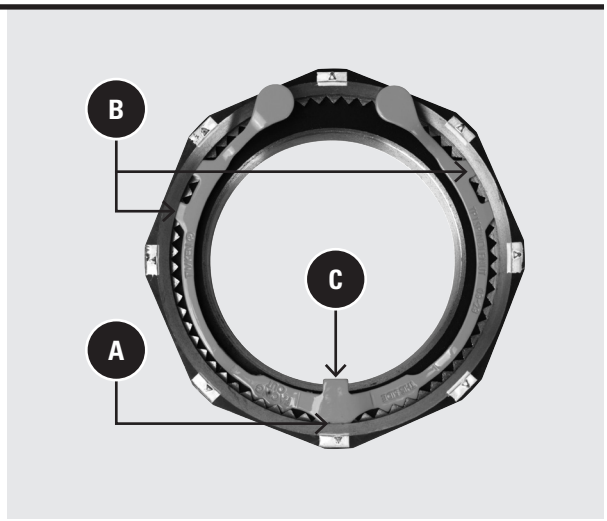
SPINDLE NUT	KEEPER PART NUMBER
FFT1SPINDLENUT	FFT1KEEPER
FFD1SPINDLENUT	FFD1KEEPER
RD1SPINDLENUT	RD1KEEPER
TN1SPINDLENUT	TN1KEEPER
TP1SPINDLENUT	TP1KEEPER

STEP 5: VERIFY THE FOLLOWING CONDITIONS ARE MET BEFORE PLACING WHEEL END INTO SERVICE

A. The keeper key is fully seated in the undercut groove.

B. The keeper tabs are seated into the spindle nut's undercut grooves.

C. The keeper key does not contact the bottom of the axle's keyway.
If this condition exists, replace the keeper. If a second attempt is made and the keeper key contacts the bottom of the axle's keyway then use a different type of spindle nut.



STEP 6: VERIFY ACCEPTABLE END PLAY

A dial indicator should be attached to the brake drum or hub using a magnetic base. The dial indicator should be adjusted so that the plunger is against the spindle end with its line of action parallel to the axis of the spindle. If it is not possible to mount the dial indicator on the spindle, it should be attached to the hub and aligned to indicate on the spindle.

Grasp the hub or wheel at the 3 o'clock and 9 o'clock positions, and push and pull the wheel end assembly in and out while oscillating the wheel about 45 degrees. Stop oscillating the hub so that the indicator is in the same position as it started. Read the total indicated inward and outward movement. Acceptable end-play is 0.001" - 0.005" (.025 - .127 mm).

DIAL INDICATOR TOOL PART NUMBERS	
Analog: BADG1	Digital: BADG2

Product warranty will be voided if using a different seal keeper with the spindle nut and/or utilizing an impact wrench for spindle nut installation.