



King Pin Installation & Preload Procedure (With Dampers)

General Notes

- New replacement components often require **more shims** than the original factory parts due to manufacturing tolerances.
- Your stated shim thickness is **within normal range**.
- Dampers are made of a **hard rubber compound**, but they will **crush easily** during installation—this is normal.
- Only the **upper king pin** uses shims.
- The **lower king pin** is seamless and serves to properly locate the steering knuckle on the axle housing.
- You may use a **combination of old and new shims** to achieve the correct preload.
- Do **not** install seals until final assembly, as they can be damaged during repeated preload checking.

Assembly Procedure (With Dampers Installed)

1. Install Damper Cups and Bearing Races

Install the damper cup and bearing race at both the **top and bottom** of each knuckle. These components hold the dampers in proper position during final assembly.

2. Install Bearings and Lower King Pin Cap

- Install the **upper and lower king pin bearings**.
 - Install the **lower king pin cap**.
 - Snug the lower king pin bolts just enough to seat the parts; do not torque yet.
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3. Begin Initial Shim Setup

- Install approximately **1/8 inch of shims** on the **upper king pin**.
 - Install and tighten the upper king pin.
 - Measure the knuckle rotation resistance.
 - **Target preload: 8–12 ft-lbs**
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4. Adjust Shim Pack

- Add or remove shims to reach the proper knuckle preload.
- Continue adjusting until **8–12 ft-lbs** is consistently achieved.

5. Disassemble After Preload Is Determined

Once the correct shim pack has been identified, remove the king pins to prepare for damper and seal installation.

6. Install Dampers, Washers, Bearings, and Seals

Install the components in the following order on both top and bottom:

1. **Damper** — wide portion facing the damper cup
 2. **Damper washer** — dimple facing into the damper
 3. **Greased king pin bearings**
 4. **Hammer in the seals** for top and bottom locations
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7. Install Knuckle and Lower King Pin

- Position the knuckle on the axle housing.
 - Install the **lower king pin** and start all mounting bolts.
 - Apply **thread locker** to all bolts.
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8. Install Upper King Pin With Shim Pack

- Install the **upper king pin** using the **previously determined shim pack**.
 - Start all four bolts with thread locker applied.
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9. Evenly Crush Dampers

Tighten both upper and lower king pin bolts **evenly and gradually**.

This ensures the dampers compress uniformly on both sides.

10. Final Torque and Preload Verification

- Torque all king pin bolts to factory specification.
- Re-check knuckle preload.
 - Final resistance should be **very close** to the preload achieved before damper and seal installation.
 - Minimal difference is normal.