TECHNICAL SERVICE BULLETIN

Addressing Memory Steer: Ford E Series and F Series – RWD

Issue: Ball Joint Replacement and Memory Steer on RWD Ford F Series and E Series

Publication:	TSB-20-018-01-01-E	**Product**	Ball Joints	**Date**	May 2020
Part Number(s)	Original Grade: GK80028, GK80197, GK80196, GK80027 Supreme: MK80028, MK80197, MK80196, MK80027, MS40060 TTX: TXK80028, TXK80197, TXK80196, TXK80027				

After installing ball joints with the following part numbers *(E-Series – Upper- GK80028/GK80196/MK80028/MK80196/TXK80028/TXK80196 and Lower- GK80197/MK80197/TXK80197) or (F-Series – Upper- GK80028/MK80028/TXK80028 and Lower- GK80027/MK80027/TXK80027)* on RWD Ford E Series vans or F Series Super Duty trucks, the vehicle operator may encounter a "memory steer" condition. This may be represented by poor or incomplete steering wheel return, a "tight" feel while centered and or increased difficulty rotating the steering knuckle. This may be the result of ball joint binding and reduced range of motion due to improper installation. Improper installation can reduce the performance and service life of the part.

To successfully install the ball joints and prevent a "memory steer" condition, it is imperative to adhere to the following:

- Discard old ball joint nuts and bolts. Do not reuse hardware. Ensure to renew hardware.
- Ensure the ball joint is even and square on the proper install axis. Correct seating and alignment are critical to part life longevity. This may require more than one reset of the tool position during install.
- Do not use a heat source to aid in removal. This can warp/distort or otherwise damage the knuckle bore or spindle ears.
- Do not use a hammer or apply blunt force to aid in removal or installation. This can warp/distort or otherwise damage the knuckle bore and or ball joint.
- If adjustable camber sleeve has been installed, mark position before removal.
- Only use a calibrated torque wrench for final fastening.

Before Installation of New Ball Joint

After removing old ball joint and before pressing-in new ball joint:

1. Ensure to check press-in diameters and tapered hole/stud tolerances. Replace all damaged or out of specification mating components.
   - If a broken, bent or loose ball joint stud is discovered, the knuckle must be replaced. If there is deformation, an out-of-round condition or damage to the tapered mating surfaces of the steering knuckle, it must be replaced (Figure 1).

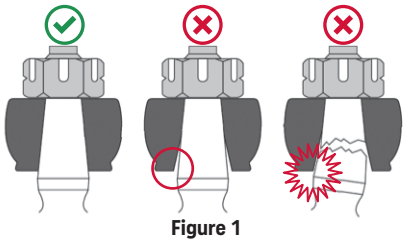


Figure 1

2. Inspect knuckle ear for abnormal wear, enlargement, "out of roundness" and or other damage. Replace knuckle if these are found (Figure 2).

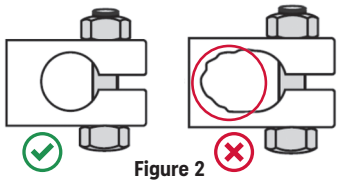


Figure 2

3. Remove and inspect camber sleeve for signs of abnormal wear, enlargement, "out of roundness" and or other damage (Figure 3). Replace if these signs are found with MS40060 (0 degree camber sleeve).
   - Remove all rust, burrs and other contaminants from the knuckle bore and mating surfaces.
   - Remove all rust, burrs and other contaminants from camber sleeve.

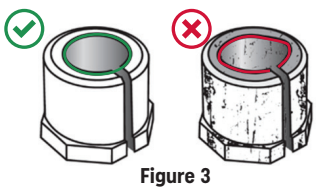


Figure 3

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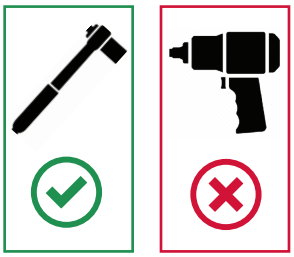
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INSTALLATION

- When pressing-in ball joint, ensure pressure is applied to the mounting flange and the not the ball joint back plate or lamination. Contact with either during installation may cause damage and limit part performance and service life.
- Ensure that when installing the camber sleeve, it does not contact the ball joint seal/boot. This may cause damage to the seal/boot.
- Ensure to follow the torque sequence as outlined below. It is recommended to perform this sequence with the steering knuckle in the straight-ahead position. This ensures steering knuckle is properly aligned to the axle assembly.

Installation Torque Sequence



1. Tighten lower ball stud nut to specified value as in factory service manual.
2. Ensure lower ball joint is completely tightened and the cotter pin inserted. Continue to tighten the nut to the next available slot. Never back off the nut to align hole in the stud for cotter pin insertion.
3. Tighten upper ball stud nut and pinch bolt to specified value as in factory service manual.
   - Do not over tighten upper ball stud nut and pinch bolt. This may cause damage to knuckle ears (Figure 4)

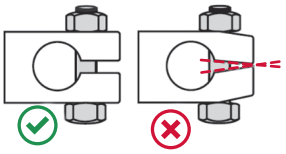


Figure 4

Additional

- During repair, ensure to inspect related components such as steering gear box, steering damper and tie rod assembly . These components being out of specification may mimic a “memory steer” condition.
- After repair, perform vehicle alignment.

AFFECTED VEHICLES	
FORD	2000-2005 Excursion
	2003-2014 E-150
	2003-2014 E-250
	1999-2019 E-350 SD
	2003-2019 E-450 SD
	1999-2019 F-250 SD
	1999-2019 F-350 SD
	1999-2019 F-450 SD

DISCLAIMER: Even though every attempt is made to ensure this information is complete and accurate, it is impossible to account for all possible circumstances or situations. Always refer to manufacturer's factory service manual. Be sure that your work is performed in accordance with such standards and that you do not disable any motor vehicle safety feature.