



PREVOST

ENREGISTRÉ - REGISTERED
ISO 9001 & ISO 14001

MAINTENANCE Mi12-14 INFORMATION



DATE :	JUNE 2012	SECTION :	14 - Steering
SUBJECT :	PROPER SERVICING OF TIE ROD END & DRAG LINK END ON FRONT I-BEAM AXLE		

IMPORTANT NOTICE

This modification is recommended by PrevoSt to increase your vehicle's performance. Note that no reimbursement will be awarded for carrying out this preventive maintenance.

APPLICATION

Model	VIN	
All coaches equipped with offset tie rod ends and drag link end		

DESCRIPTION

This document is a reminder of the activities and procedures related to cleaning, lubrication and examination to keep the tie rod ends and the drag link end that is connected to the steering arm in operational condition.

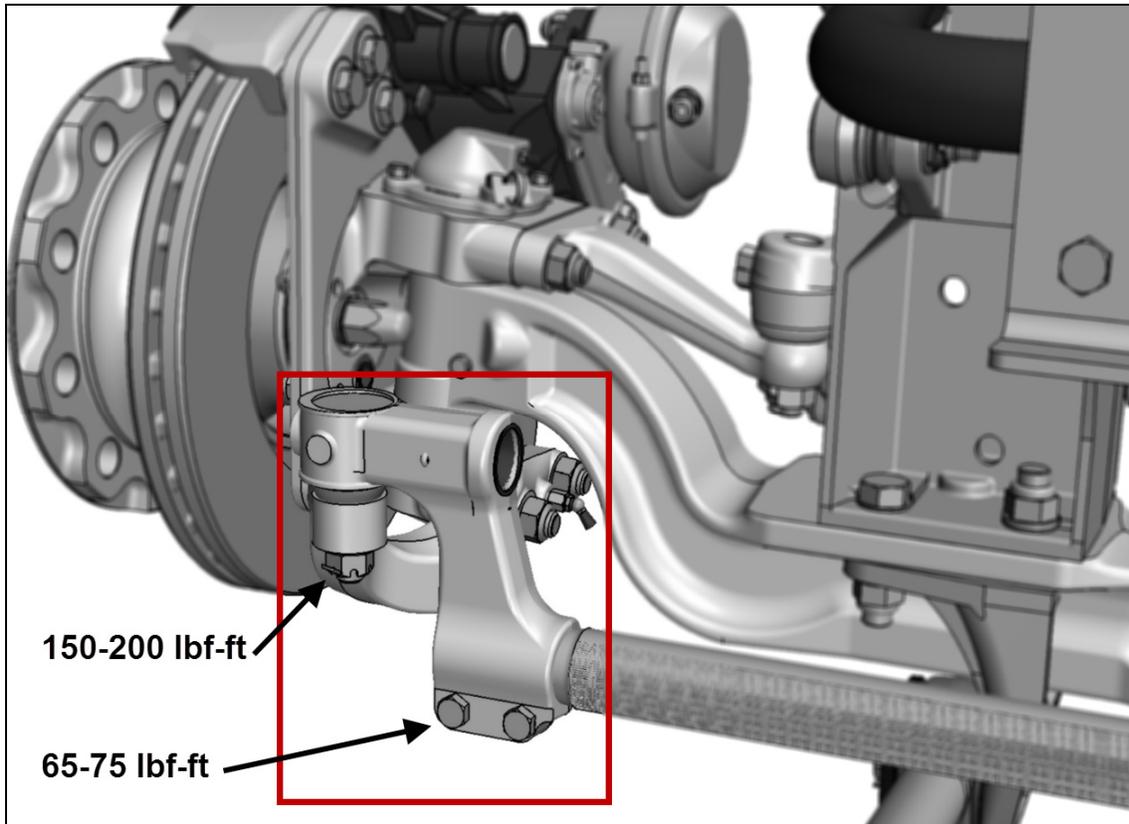
PROCEDURE



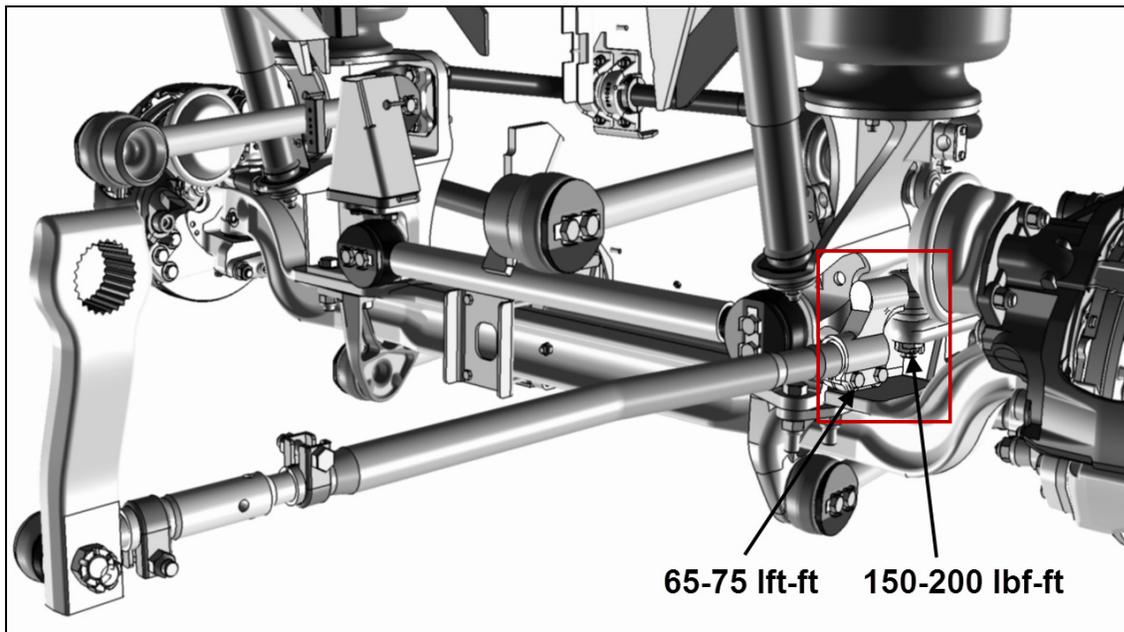
DANGER

Park vehicle safely, apply parking brake, stop engine and set battery master switch(es) to the OFF position prior to working on the vehicle.

TIE ROD END & DRAG LINK END



TIE ROD END CONNECTED TO THE STEERING KNUCKLE LOWER LEVER - FRONT I-BEAM AXLE



DRAG LINK END CONNECTED TO THE STEERING KNUCKLE ARM

LUBRICATION



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Tie rod ends and drag link end (ball joint) are provided with grease fittings for lubrication. These grease fittings should be serviced every:

Highway coaches ¹: **6,250 miles (10 000 km)** or **every 6 months** whichever comes first.

Commuter coaches ²: **6,250 miles (10 000 km)** or **every 3 months** whichever comes first.

To prevent corrosion from forming around the ball pin, remove the old grease bead and assure sufficient grease is applied to purge the old grease and fill the joint and dust seal.

Use good quality lithium-base mineral grease NLGI No. 1 and 2.

1: Total fuel consumption: medium engine operating condition, 6 mpg and above (below 39 L/100 km)

2: Total fuel consumption: heavy engine operating condition, 4.7 mpg up to 5.9 mpg (39 L/100 km up to 49 L/100 km)



BEFORE- REMOVE OLD GREASE



AFTER – OLD GREASE REMOVED

INSPECTION

Inspection of ball joints is important. Damaged sealing boots, salt and climatic conditions can cause loss of the corrosion protection coating applied at time of manufacturing.



MAINTENANCE

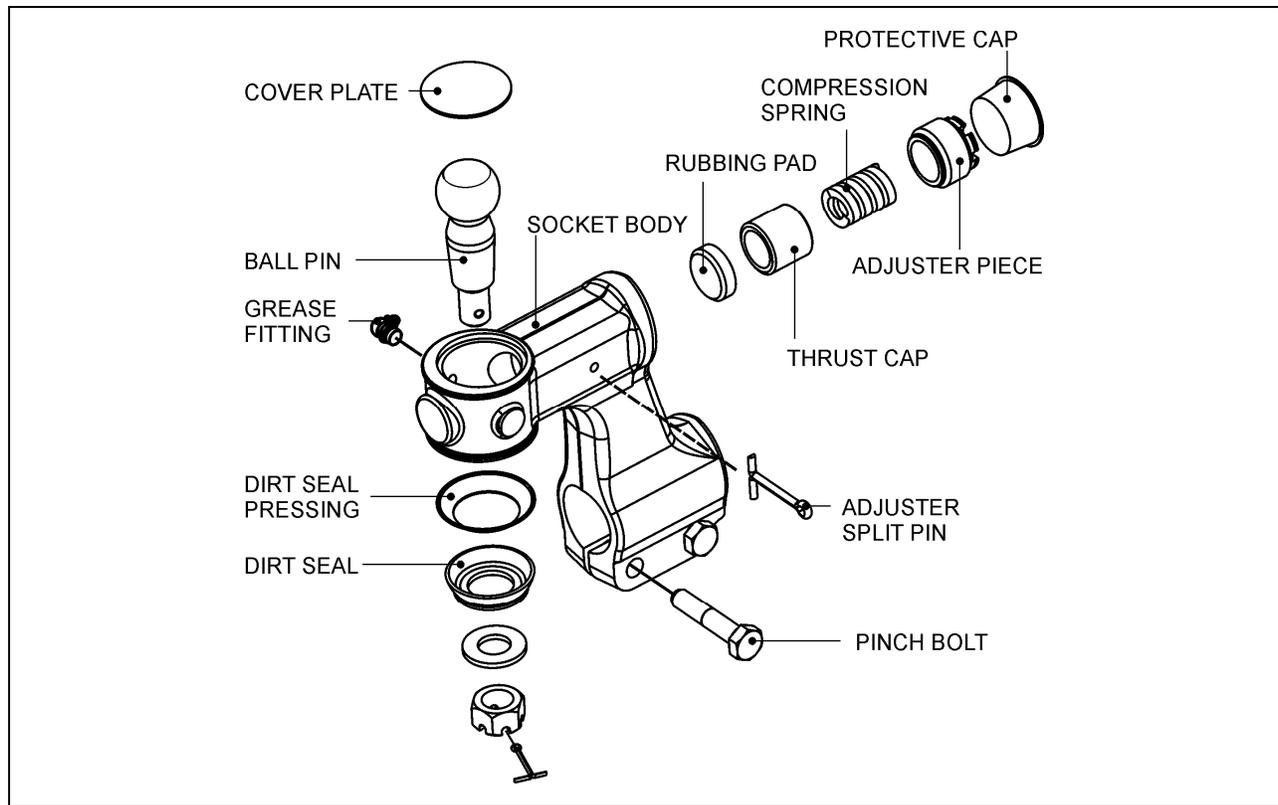
Inspect drag link end and tie rod end ball joints for corrosion **once a year**.

1. Carefully clean the dirt seal (or sealing boot if applicable) contact area to ensure that no contaminants can get under the dirt seal (or sealing boot) during the following inspection procedure.
2. Use an appropriate inspection tool (e.g. spatula with cut out) to push up (sealing boot) or down (dirt seal) the seal (without damaging it) until ball pin surface is visible. Degrease the ball pin surface and inspect carefully.



3. If there is corrosion of the ball pin or the sealing boot has deteriorated through ageing or is damaged, replace the ball joint.
4. If there is corrosion of the steering knuckle arm or the steering knuckle lower lever area which is in contact with the dirt seal (or sealing boot), clean and eliminate all surface irregularities.
5. If there is no corrosion or damage to the dirt seal (or sealing boot), smear the steering arm and steering knuckle lower lever with Lithium grease and push seal back into its properly seated position.

When dismantling tie rod or drag link, ensure that no damage is caused to the sealing boots, dirt seals or ball joint housings.



TIE ROD ENDS & DRAG LINK END PLAY ADJUSTMENT

1. Should an end play exist with the vehicle in loaded condition, readjustment is necessary.
2. Remove protective cap, using a suitable tool ie: a 1" x 1/8" x 9" long flat bar, tighten adjuster piece fully home (SOLID) locating thrust cup onto ball pin.
3. Still with tool located on adjuster piece, back off carefully (LEAST AMOUNT) until adjuster piece cotter pin is allowed to pass through body, then remove tool.
4. Reinstall protective cap.

DISMANTLING TIE ROD END & DRAG LINK END

1. Remove dirt seal and dirt seal pressing from ball pin.
2. Slacken pinch bolt nut then unscrew and remove ball socket assembly from tie rod having first marked ball socket body and tie rod to enable tracking on re-assembly.
3. Remove adjuster split pin from ball socket body.
4. Remove cap then using a suitable tool ie: a piece of 1"x1/8"x 9" flat bar, unscrew and remove adjuster piece. Waggle ball pin to free thrust cap.
5. Remove compression spring and thrust cap from ball socket body.
6. Relieve peening on socket body top then using a hide faced mallet, tap ball pin out of body. This operation will also remove cover plate from body.
7. The rubbing pad can now be removed from body.

Thoroughly clean all parts and check for wear, renewing where necessary.

ASSEMBLING TIE ROD END & DRAG LINK END

1. Apply a bead of Loctite 638 sealant to mating corner of rubbing pad in socket body then knock rubbing pad into its recess in ball socket body.
2. Thoroughly grease rubbing pad and ball pin with Shell Retinax LX or equivalent.
3. Insert ball pin into body.
4. Insert thrust cap, compression spring and adjuster piece into body.
5. Tighten adjuster piece fully home (SOLID) locating thrust cup onto ball pin.
6. Still with tool located on adjuster piece, back off carefully (LEAST AMOUNT) until adjuster piece split pin is allowed to pass through body, and that ball pin shank can be moved by hand, then remove tool.

NOTE: If ball pin does not rotate when re-adjusted in line with above instructions, this suggests that ball pin has local worn **flats**. In this instance ball pin, thrust cup and rubbing pad **MUST** be replaced, if not FAILURE could occur in service, i.e. ball pin not being able to move in assembly when turning from lock to lock.

7. Fit cover plate into top of ball socket body; re-peen using a cold chisel to secure.
8. Screw assembled ball socket onto tie rod. Lining up marks on both body and tie rod previously made, or retracking using manual instructions.
9. Fit pinch bolts and nuts then tighten nuts alternately and progressively to 65- 75 lbf-ft (88- 102 Nm.) thus securing ball joint to tie rod.
10. Fit dirt seal (pressing) and dirt seal (rubber) onto ball pin.
11. Locate ball socket and tie rod assembly with lever, carefully align and fit ball pin into hole in the lever.

NOTE: Ball pin and ball pin tapers in levers must be clean, dry and free from oil prior to assembly.

12. Fit pin washer onto ball pin.
13. Screw pin nut onto ball pin then tighten to 175 lbf-ft (237 Nm) torque.
14. Using a 2lb hammer, tap lever to "shock" ball pin into taper hole.
15. Re-torque pin nut to 175 lbf-ft (237 Nm).
16. Fit split pin, if slot/hole are not in line, tighten slightly up to next slot.

Pin nut torque 175 lbf-ft, max pin nut torque 200 lbf-ft.

Re-charge ball socket with Shell "Retinax LX" or equivalent grease through grease fitting.