

MAINTENANCE INFORMATION

MI18-45

DATE :	November 2018	SECTION : 10 FRONT AXLE
SUBJECT :	New Tie Rod 610052; Front I-beam Axle	

First Release

APPLICATION

Model	VIN
H3-41, H3-45 coaches Model Year : 2019-	Individual vehicles: 2PCH33497KC710481; 2PCH33499KC710482; 2PCH33492KC710484 And from 2PCH33493KC710512 up to ...
X3-45 coaches Model Year : 2019 -	From 2PCG33493KC736412 up to ...
	From 4RKG33498K9737583 up to ...

DESCRIPTION

Vehicles identified above will have updated S84U front I-beam steer axles featuring a new tie rod design. This new tie rod 610052 has updated ball joints and a fine adjuster sleeve.

Steering geometry values remain unchanged. However, new maintenance inspections and a new method to adjust toe-in are in effect.

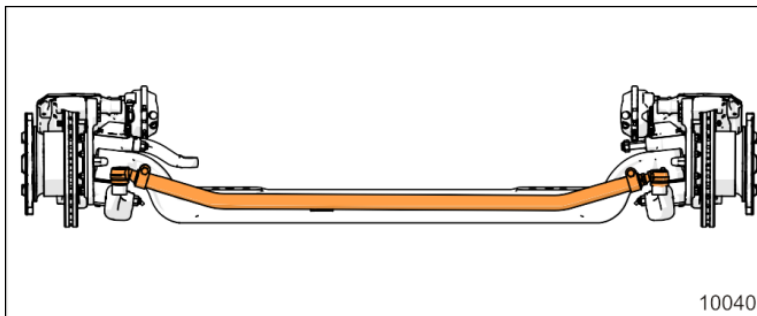


FIGURE 1: TIE ROD

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DANGER

Park vehicle safely, apply parking brake, stop engine. Prior to working on the vehicle, set the ignition switch to the OFF position and trip the main circuit breakers equipped with a trip button. On Commuter type vehicles, set the battery master switch (master cut-out) to the OFF position.

FRONT I-BEAM AXLE TIE ROD

The steering tie rod requires several visual and functional inspections. If any of these defects are found, a complete replacement of the tie rod assembly may be required.

The tie rod includes a fine adjustment sleeve on the curb side.

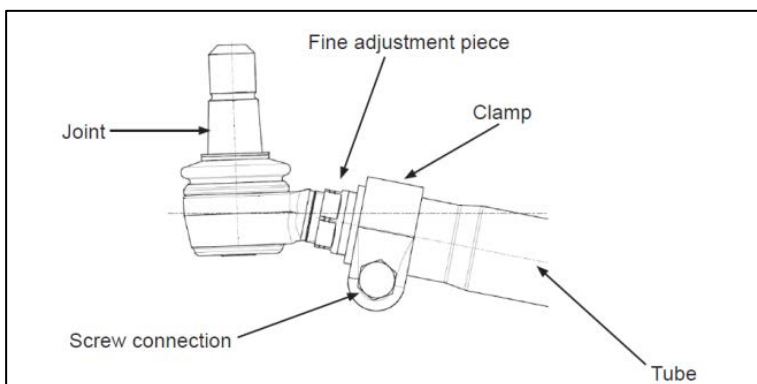


FIGURE 2: TIE ROD COMPONENTS

For additional details, refer to supplier information:

TRW Front Axle Steering Bar Service Information XSZ143 available on the PrevoSt Technical publications [website](#).

TUBE INSPECTION

Check the tube for damage. If there are signs of deformation, replace the tie rod assembly.

BALL JOINT INSPECTION

To inspect joint wear and play, turn the wheels alternately left and right until the wheels move. Perform this with the axle loaded normally. Replace the joint if the movement of the ball stud exceeds **0.5mm axially** in the housing.

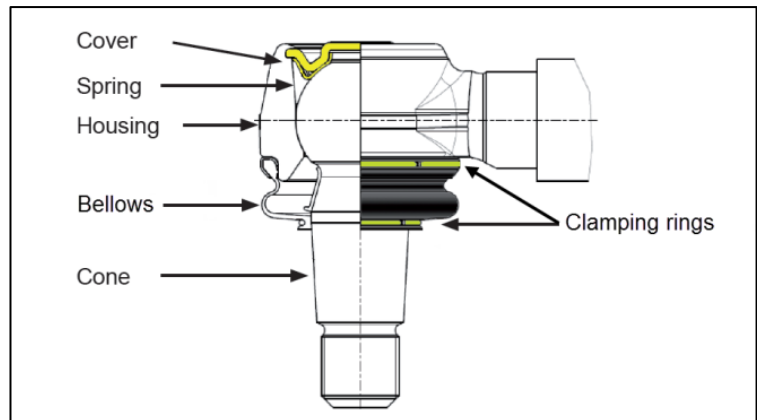


FIGURE 3 TIE ROD BALL JOINT CONSTRUCTION

In doubt, measure the distance with a caliper (Figure 4).

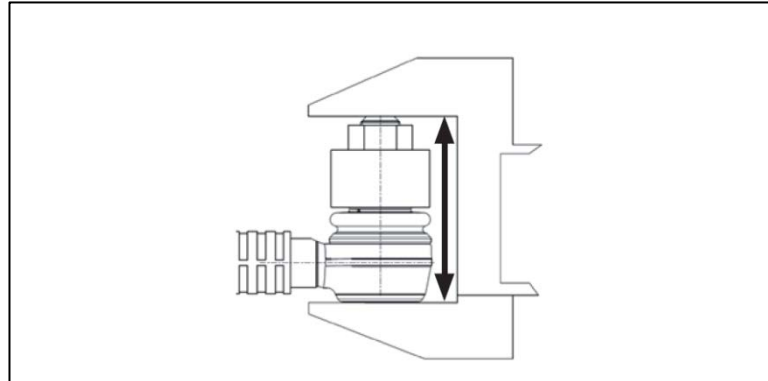


FIGURE 4: MEASURING AXIAL PLAY, TIE ROD JOINTS

FINE ADJUSTMENT SLEEVE INSPECTION

Turn the wheels alternately left and right while keeping a finger on the threads to feel any movement in the threads (Figure 5). If there is too much play in the sleeve, replace the tie rod

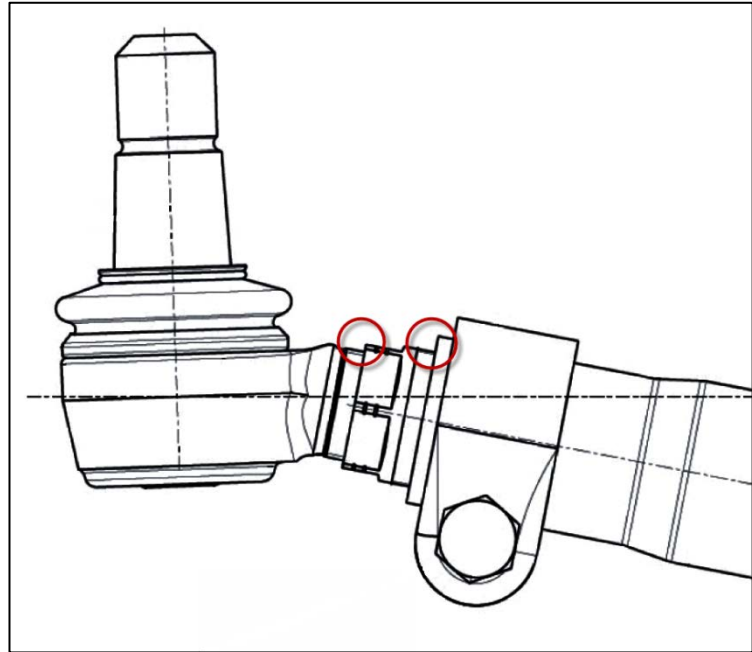


FIGURE 5:

TIE ROD BALL JOINT INSPECTION FOR CORROSION



MAINTENANCE

Inspect tie rod ball joints for corrosion once a year.

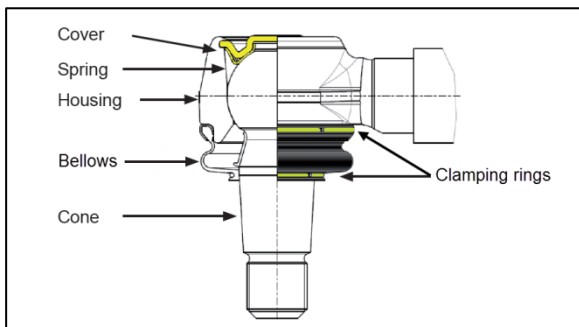


FIGURE 6: TIE ROD BALL JOINT CONSTRUCTION

1. Carefully clean the sealing boot contact area to ensure that no contaminants can get under the sealing bellows during the inspection procedure. Do not use cleaning agents or solvents, only use dry cloth or cotton wool.
2. **Housing:** The housing must not show any signs of deep rusting (depth of no more than approx. 1mm). Pay particular attention to the roll edge and cover, they must be rust free.

Clean corrosion on the axle steering lever contact faces also.

3. **Bellows:** They must be in perfect condition to protect from corrosion. Squeeze the bellows by hand and make sure no grease is expelled from the opening. Make sure the bellows is in good condition, without any holes, tears, scratches or chafing marks. Replace the joint if inspection result is not OK.

Tension rings and clamping rings must be well seated in their groove.

It must always be possible to turn the bellows on the housing by hand (do not use any tools). Hold the bellows in the area of the clamping ring and turn with a lot of manual force. Replace the tie rod if the result is not OK.

FRONT WHEEL TOE-IN

Wheel toe-in is the degree (usually expressed in fractions of an inch) where the forward part of the vehicle front wheels are closer together than the rear part, measured at wheel centerline height with the wheels in the normal "straight-ahead" position of the steering gear.

Incorrect toe-in results in excessive tire wear caused by side slippage and also steering instability with a tendency to wander. Toe-in may be measured from the center of tire tread or from the inside of the tires. Take measurements at both front and rear of axle (see "A" and "B" in Figure 7).

When setting toe-in adjustment, the front suspension must be neutralized; that is, all component parts must be in the same relative position when marking the adjustment as they will be when in operation.

To neutralize the suspension, the vehicle must be rolled forward, approximately ten feet.

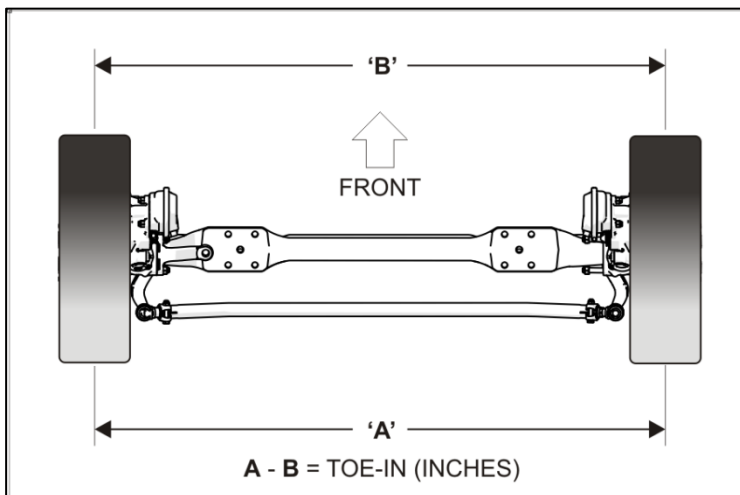


FIGURE 7: TOE-IN MEASUREMENT

For toe-in specifications, refer to table below.

By rolling the vehicle forward, all tolerances in the front suspension are taken up and the suspension is then in its normal operating position. Neutralizing the front suspension is extremely important, especially if the vehicle has been jacked up in order to mark the tires. Otherwise, the front wheels will not return to their normal operating position due to the tires gripping the floor surface when the vehicle jack is lowered.

INSPECTION AND ADJUSTMENT

Before checking front wheel toe-in, first check the camber angles and make the necessary corrections.

1. Measure the toe-in.
2. If the toe-in measurement is not within the specified tolerance, carry out the following procedure :
 - a. Loosen the pinch bolt on the right hand (curb side) tie rod end where the adjuster sleeve is located.
 - b. Turn the adjuster sleeve (Figure 8) until the specified toe-in measurement is obtained.
 - c. Tighten the pinch bolt nuts

TORQUE: 107-129 lb-ft (145-175 Nm)

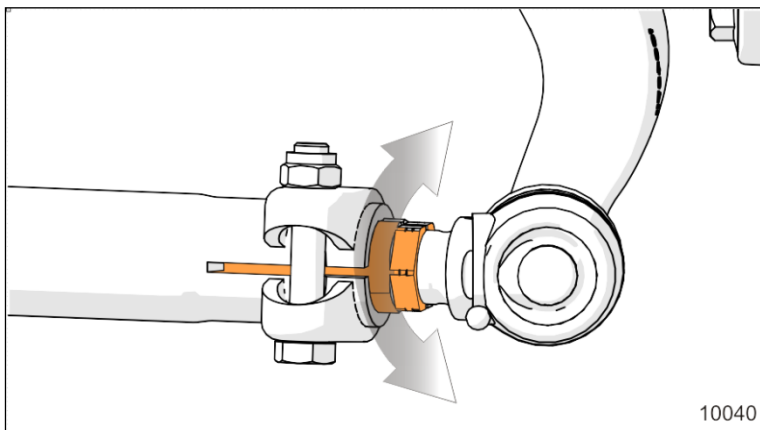


FIGURE 8: FINE ADJUSTER SLEEVE ON TIE ROD

Use static wheel alignment systems which work with angle measurements only, such as Josam or Hunter systems. Static alignment specifications are listed in the following table:

FRONT WHEEL ALIGNMENT SPECIFICATIONS WITH I-BEAM AXLE			
Front Wheel Alignment	Minimal	Nominal	Maximal
Camber R.H. and L.H. * (degrees)	-0.250	0.125	0.375
Caster R.H. and L.H. (degrees)	2	2.75	3.5
Total toe (Figure 7) (A minus B) (degrees)	0.04	0.06	0.08

TORQUE REFERENCE

- 1 Tie rod end ball pin nuts - I-Beam Axle
155-170 lb-ft (210-230 Nm)
- 2 Tie rod end clamp bolts - I-Beam Axle
107-129 lb-ft (145-175 Nm)

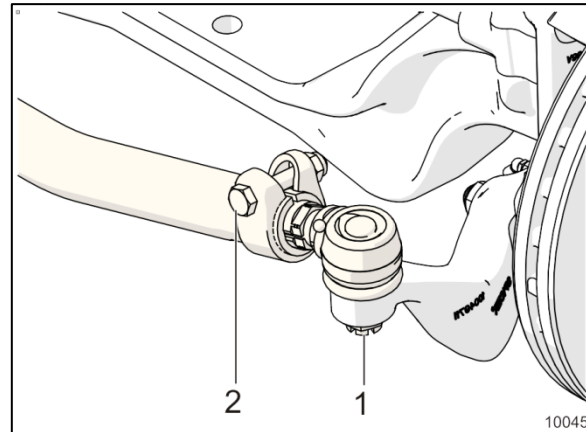


FIGURE 9: 610052 TORQUE REFERENCE

PARTS / WASTE DISPOSAL

Discard according to applicable environmental regulations (Municipal/State[Prov.]/ Federal)

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Or scan the QR-Code with your smart phone

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