

Group:	45-Steering
Bulletin No.:	SB-15-011
Issue Date:	02-04-2015

TECHNICAL SERVICE BULLETIN

2012MY-15MY COE Steering Gear Adjustment Procedure

OVERVIEW

The following TSB (Technical Service Bulletin) outlines the inspection method for steering wheel free play and the adjustment procedure of the steering gear.

NOTE: This procedure is provided as technical information and is not an authorization for a warranty repair.

SUBJECT VEHICLES

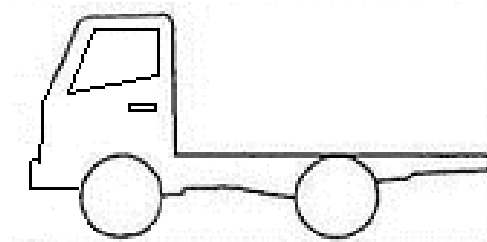
2012MY – 2015MY Hino COE (Cab Over Engine) trucks that were assembled at the Hamura, Japan assembly plant

BEFORE YOU BEGIN:

- Read and understand all instructions and procedures before you begin the work.
 - Read and follow all WARNINGS and NOTICES set forth in this publication. These alerts help to avoid damage to components, serious personal injury, or both.
 - Park the vehicle on a flat, level and solid surface.
 - Place the gear shift lever in "Neutral" or "Park".
 - Apply the parking brake firmly and confirm parking brake activation.
 - Turn off the engine and remove the key from the ignition switch.
 - Always wear safety glasses or goggles to protect your eyes.
- Place wheel chocks in front of and behind all the wheels to prevent the vehicle from moving.

VEHICLE PREPARATION:

1. Park the vehicle on level ground.



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2. Confirm the engine is stopped, the ignition switch in the off (LOCK) position and the key is removed.



3. Apply the parking brake.



4. Chock all of the wheels.



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INSPECTION PROCEDURE

1. Use a jack to raise the front axle off of the ground. Securely support the front end of the vehicle using jack stands under the frame rails and inspect for any loose or worn front end components. If any loose or worn front end components are found, these will need to be repaired or replaced prior to performing the inspection and adjustment procedure on the steering gear, below. If no loose or worn front end components are found, remove the jack stands and lower the front of the vehicle onto the ground. Proceed to step 2, below.

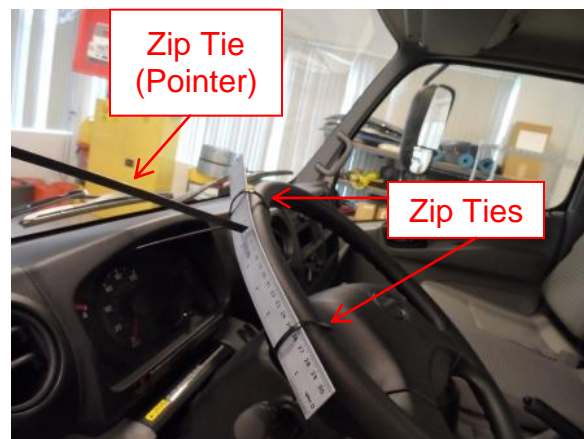
WARNING: NEVER lie underneath the vehicle if it is not securely supported by jack stands.

2. Securely attach a long zip tie around the grab handle so that the zip tie extends very close to the steering wheel. The zip tie is going to be used as a pointer towards the steering wheel. Trim the loose end as shown in the photograph on the right.



NOTICE: The vehicle must be parked on flat, solid level ground with the engine off and steering wheel centered.

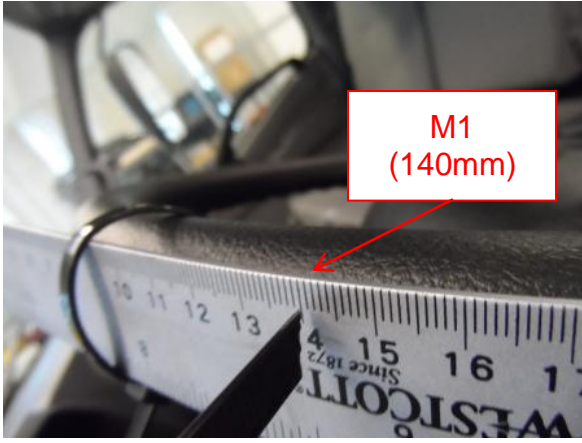
3. Securely attach a ruler to the steering wheel using 2 zip ties. The ruler should be positioned perpendicular to the loose end of the zip tie (used as a pointer) which is attached to the grab handle.



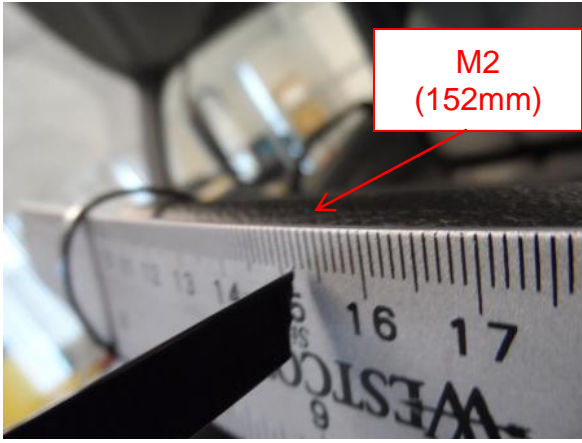
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4. Using one finger while exerting light pressure, rotate the steering wheel counter-clockwise until the steering wheel stops turning and light resistance is felt. The steering linkage and tires should not be moving during this inspection. Identify the location of the zip tie (used as a pointer) in reference to the ruler and record this measurement as M1 (Measurement 1).



5. Using one finger while exerting light pressure, rotate the steering wheel clockwise until the steering wheel stops turning and light resistance is felt. The steering linkage and tires should not be moving during this inspection. Identify the location of the zip tie (used as a pointer) in reference to the ruler and record this measurement as M2 (Measurement 2).



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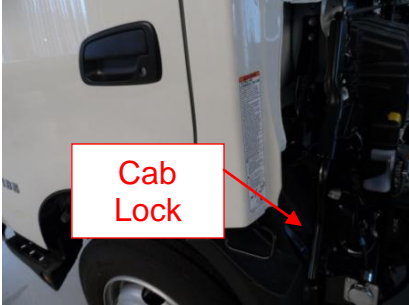
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6. The difference between M1 and M2 is the total steering wheel free play. The specification for steering wheel free play is less than 35mm (1 3/8 inch). Based on the measurement in the example illustrated above, the result is 12mm. If the amount of free-play is 35mm (1 3/8 inch) or less, do not proceed with this TSB. If the amount of free play is greater than 35mm (1 3/8 inch), proceed to the adjustment procedure, below.

Steering Wheel Free Play Specification: 35mm (1 3/8 inch) or less

ADJUSTMENT PROCEDURE

1. Release the cab lock, raise the cab, and set the cab lock safety latch in place.



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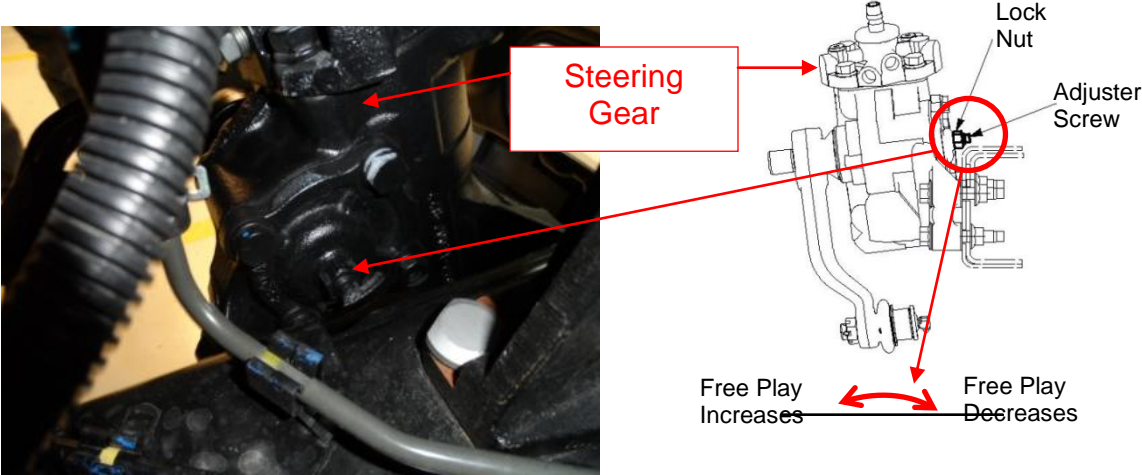
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2. Loosen the lock nut on the steering gear. To reduce steering wheel free play, turn the adjuster screw clockwise 1/8 turn then tighten the lock nut to the specified torque. Perform steps 4 through 6 in the inspection procedure, above, to recheck the amount of steering wheel free play. If steering wheel free play is less than 35mm (1 3/8 inch), proceed to step 3, below.

If steering wheel free play is still more than 35mm (1 3/8 inch), loosen the lock nut again, turn the adjuster screw clockwise an additional 1/8 turn, then tighten the lock nut to the specified torque. Perform steps 4 through 6 in the inspection procedure, above, to recheck the amount of steering wheel free play. Repeat this process until the free play is less than 35mm (1 3/8 inch). Once the correct amount of free play is achieved, proceed to step 3, below.

Specified Torque: 50 lb-ft (68 Nm)

NOTICE: Do not force the adjuster screw. If binding or high resistance is felt when turning the adjuster screw clockwise, stop tightening the adjuster screw, rotate the screw 1/8 turn counterclockwise, then tighten the lock nut to the specified torque.



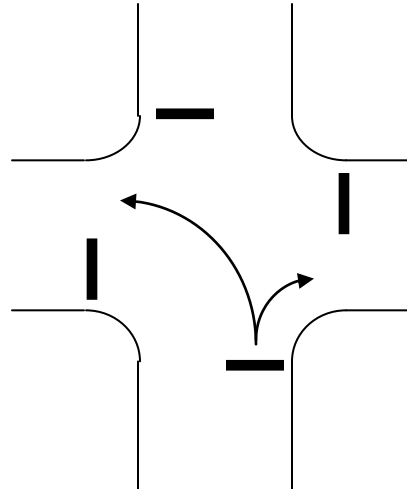
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3. Release the safety latch, lower the cab, and engage the cab lock. Remove the 2 zip ties and ruler from the steering wheel. Remove the pointer zip tie from the grab handle. Remove the wheel chocks.



4. In a parking lot intersection, confirm that the vehicle steers smoothly after making left and right turns. If the steering is satisfactory, proceed to step 5, below. If the steering is binding, the adjustment performed in step 2 may be too tight. Increase the amount of free play by backing off the adjuster screw then retightening the lock nut as outlined above. The amount of free play should still be 35mm (1 3/8 inch) or less.



5. Drive the vehicle at highway speeds to confirm that the steering and stability is comparable to a like vehicle. Confirm that steering behavior is normal when driving straight and when changing lanes. The steering wheel should return to center after making turns with minimal to no assistance. Verify that characteristics such as steering kick back, when hitting bumps in the road, does not differ significantly than when compared to the behavior before the steering adjustment. If the vehicle drives normally, proceed to the final inspection procedure, below.



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FINAL INSPECTION

1. To complete this procedure, review the TSB and confirm the following:
 - The amount of steering wheel free play is less than 35mm (1 3/8 inch).
 - The adjuster lock nut has been tightened to the specified torque.
 - The vehicle steers smoothly and the steering wheel returns to center normally after turns during a road test.

NOTE: This procedure is provided as technical information and is not an authorization for a warranty repair.

CLAIM APPLICATION:

** Reimbursable in accordance within the terms and policies of the Hino Truck limited warranties.*

Steering Gear Adjustment:

- a) Labor charge: 1.0 hour
- b) Warranty code: 41219
- c) Trouble code: 72
- d) Operation code: 41250AOT
- e) Original part number: 9999999999