



Commercial Vehicle Safety Alliance

North American Standard Inspection Program

I N S P E C T I O N B U L L E T I N

2010-04

May 19, 2010

Bus Inspection Ramp Use/Procedures & Equipment Check List

Summary

This *Inspection Bulletin* provides guidance on the inspection and use of bus ramps during a North American Standard Level I or V Inspection.

Background

CVSA was alerted to a situation where a roadside inspector was injured while inspecting a motorcoach with an air ride suspension. During the inspection, the trail axle of the bus was in the raised position and unexpectedly dropped. The suspension accessory junction block and the trailing axle air spring dump valve will hold the axle up until the normal air bleed-off occurs, at which point the axle will lower. To prevent any future incidents, the Passenger Carrier Committee (PCC) recommended the reissuance of CVSA Safety Bulletin 97-4 and 02-04, *Bus Inspection Ramp Use Check List*. This *Inspection Bulletin* supersedes Safety Bulletin 97-4.

Inspection Guidance

Based in part on comments received from the field, CVSA members, and conference/workshop attendees, the PCC has been reviewing the use of ramps to conduct Level I and Level V inspections on passenger-carrying vehicles. It is the intent of the committee through this bulletin to pass along what we believe to be critical safety information to all persons placing buses on ramps for any purpose. The committee believes there is a need to reiterate what most inspectors already know but may, at times, take for granted. Further, as more air suspension systems are deployed on motorcoaches, including raising and lowering height, inspectors need to communicate with drivers on the proper height setting to ensure that a bus advances onto the inspection ramps without damage. A failure to make the following items part of the inspection routine may have severe or fatal consequences to inspection personnel or others who may be standing or working near or under a bus.

A recommendation to each jurisdiction that uses ramps for inspection should develop a written procedure to include necessary equipment, ramp maintenance, inspection, risk assessments, and mitigation measures.

1. Make certain that ramps are constructed with an adequate margin of safety to assure that the bus weight can be borne safely. A three times weight factor is normally recommended, however, if there are any doubts, consult a certified professional mechanical engineer for an opinion.
2. Always inspect ramps for damage before use. Whether ramps are metal or wood, they will be subject to normal wear and fatigue. Wood may crack or splinter and fastening hardware may become loose or worn. Similarly, metal ramps may fatigue or corrode to the point of failure. This may be exhibited by cracking or sagging in the ramp structure. Never use a ramp that exhibits any questionable wear or damage.

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3. Always use ramps on a level, hard surface. Any inclination of the vehicle while on ramps will place a tremendous load on the wheel chocks. At best, it will make it very difficult to remove the chocks after the inspection; at worst the chocks will be overridden and the bus will come down on anyone underneath, normally with serious consequences. Similarly, always place ramps on a surface capable of bearing the load of a fully laden bus. This is of particular importance when using metal ramps. The underside of the metal ramps only has the edges to sustain the weight. On a soft surface they may settle with unexpected speed. Communicate with drivers to ensure that the air suspension setting (if applicable) is set at normal height setting.
4. Always make certain that all wheels of the bus are centered on the ramp and that all wheels are fully supported. Reports from the field indicate it is possible for the trailing tag axle on three axle motorcoaches to partial or completely detach if the wheels are not supported by the ramps. If the wheels are left to hang in the air, tremendous force generated by the suspension air bags may cause the shock absorbers or their securement pins to fail, which can result in the axle assembly dropping. Besides the obvious serious damage to the vehicle, serious injury or death can result to anyone who happens to be underneath at the time. If all wheels cannot be supported during the inspection, then drain the air from the air bags prior to lifting. This will remove all but the force created by the direct axle weight. Ask the vehicle driver to assist if necessary. Reapply the system air to the air bags after the inspection is completed and before the bus is run off of the ramps. Proper use of jack stands is a viable option to mitigate risk.
5. Always use wheel chocks prior to getting under a bus. Of equal importance, only select and use chocks that have sufficient hardness and size to hold a bus when the brakes have been released. There have been a number of incidents reported of bus tires rolling over chocks if the bus is on a slight angle, the brakes are released, and the chocks are not hard or large enough to hold the wheels. Always chock wheels to prevent both forward and rearward movement. This means firmly placing the chocks between the ramp and wheel. It is recommended that 4 chock blocks be used. Placement should be made front and rear of drive axle on both sides of the vehicle. Remember, you will be under the bus with the parking brake released. The chocks are the only thing preventing the bus from rolling.

An inspector should never position him/herself between the coach body and axle components, or body points that could be considered unsafe should the coach lose air in the suspension air bellows. Suspension ride height is approximately 4 to 6 inches between its normal position and the lowest point without air pressure in the air bellows.

Please direct any further suggestions, comments or observations relating to the use of ramps and chocks during bus inspections to CVSA staff. This *Inspection Bulletin* may be subject to change based upon information as it is received.