



Inspection Bulletin

North American Standard Inspection Program

2018-02 – Motorcoach Monocoque Frame/ Suspension Inspections

Created: April 12, 2018

Summary

This Inspection Bulletin provides guidance on motorcoach monocoque frame/suspension inspections. Most motorcoaches in North America are constructed using a monocoque structure design. As such, these motorcoaches do not exhibit the normal frame rail system of mounting engines, axles, suspension and load-carrying components, as typically found on trucks and school buses. This bulletin provides information for the accurate inspection of monocoque structure designed motorcoaches as it relates to the attachment of the suspension to the monocoque frame of the motorcoach.

Background

Monocoque structure design can be determined by a simple visual inspection of the undercarriage. Monocoque structure designs will not have frame rails for the entire length of the vehicle and usually no evidence of a “C” channel frame rail will be evident.

Body on chassis design, used on most school buses, will have standard frame rails with the bus body either bolted or welded to the chassis. Frame rails can, and usually do, run the entire length of the vehicle.

Guidance

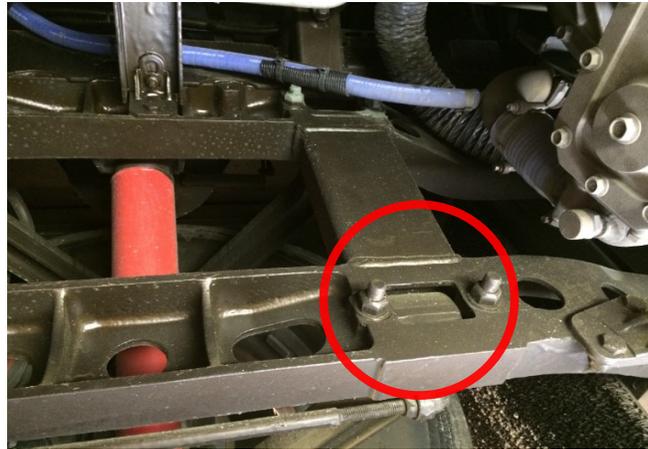
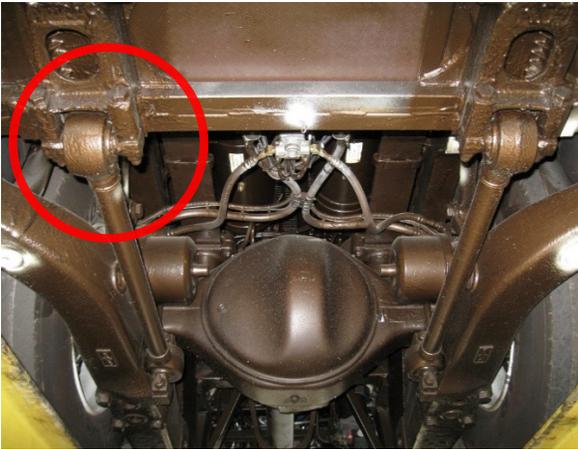
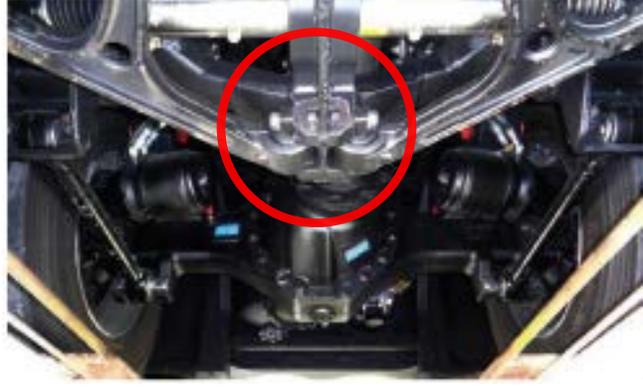
In an effort to provide an accurate inspection of monocoque structure designed motorcoaches, this additional information is offered:

- 1) Axle mounting torque rods and/or radius rods are normally mounted to heavy structures incorporated into the main coach integral structure on one end, while the other end is secured to an axle. These arms may be attached by single or double bolts securing a retaining plate which maintain pressure on a rubber bushing. Some torque rods are attached with two bolts on a shaft through a rubber bushing much like a truck uses upper torque arms on tandem axles.
- 2) Motorcoaches with bent, broken or detached torque arms, or radius rod arms, that have not been properly maintained should be declared out of service. Motorcoach structures near these attaching points should be inspected within a radius of approximately 18 inches. Any tubing or structure showing separation or cracking on more than 2 sides of a tube should be noted and placed out of service.

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Below are examples of motorcoach monocoque frame and axle support areas that may be seen during inspections.



Note

The CVSA North American Out-of-Service Criteria, Item 6, a. Frame Members, subdivisions (3), (4) and (5) do not apply to a motorcoach with monocoque structure designed frames.