

## **Carpenter School Bus Advisory** **June 2003**

On March 20, 2003 in Alachua County, Florida, an 83-passenger Carpenter school bus rolled over onto its roof, causing the roof to collapse down to the seat level. Inspection of the crash vehicle revealed numerous broken and defective welds in the roof and pillar structure. Normally, the National Highway Traffic Safety Administration would conduct a full-scale investigation and if a defect determination were made, would order the manufacturer to conduct a safety recall. However, since Carpenter is no longer in business, there is no one that NHTSA can hold accountable to develop a remedy for this problem.

However, NHTSA is concerned about this problem. The purpose of this advisory is to provide school districts and school bus operators with guidance on what to do if they have any of these buses within their fleets. Unfortunately, given the age and the type of weld failures occurring in these buses, there is no single repair that can assure adequate performance in a crash. Since NHTSA is not the vehicle manufacturer and does not know all the relevant details about the design and construction of these buses, it cannot recommend any particular modification or repair procedure.

At this time, we strongly encourage owners and operators of the Carpenter school buses described below to inspect them to determine if there are structural weld failures in the roof structure. The welds in question are located at the junction of the vertical side posts (between the windows) and the horizontal structural member (the “Carlin” rail) above the windows. The inspection will require the removal of interior panels as well as the removal of some of the windows. The following information is provided for your consideration and use:

1. The buses in question are Carpenter Type “A” “B” “C” and “D” school buses built in Mitchell, Indiana, prior to the plant closing in late 1995. It appears that the buses built at Carpenter’s Richmond, Indiana plant do not have similar problems.
2. There are noticeable differences between the rub rail locations for the two Carpenter plants. The rub rail at the floor line in all buses made at the Mitchell plant is interrupted at the wheel openings. The rub rail at the floor line in all buses made at the Richmond plant is continuous and is located just above the wheel opening. If the 6 digit body number starts with the number 4, then the bus was built in the Richmond, Indiana plant and utilized full length body bows.



**Figure 1: Mitchell built type “C”**



**Figure 2: Richmond built type “C”**

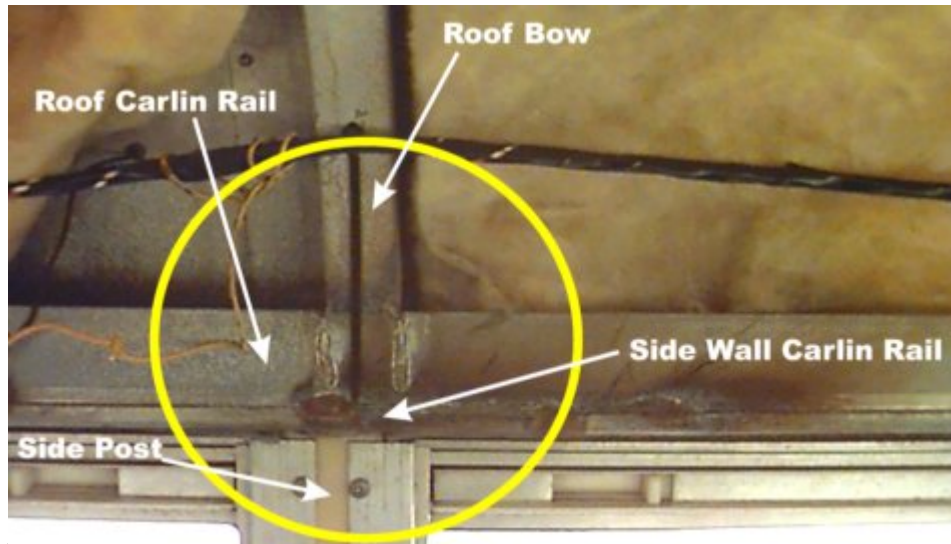


**Figure 3: Mitchell built type "D"**



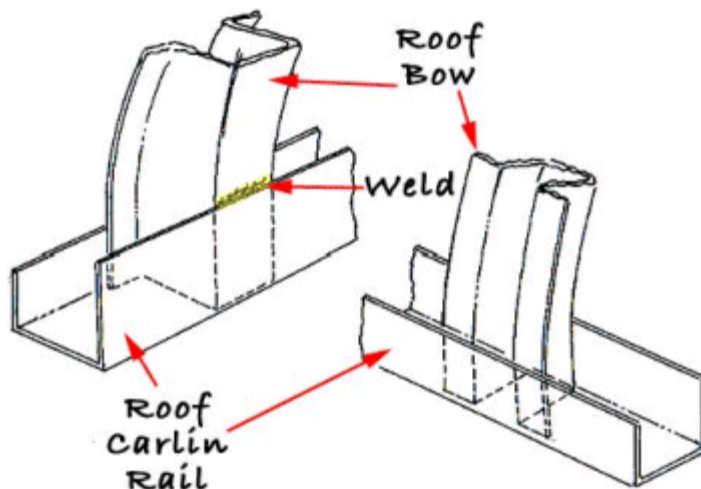
**Figure 4: Richmond built type "D"**

3. All Carpenter school buses built in Mitchell, Indiana, no matter what the body number, should be inspected for cracked or broken welds in the roof structure. The photograph below shows the locations of the components that are welded together.

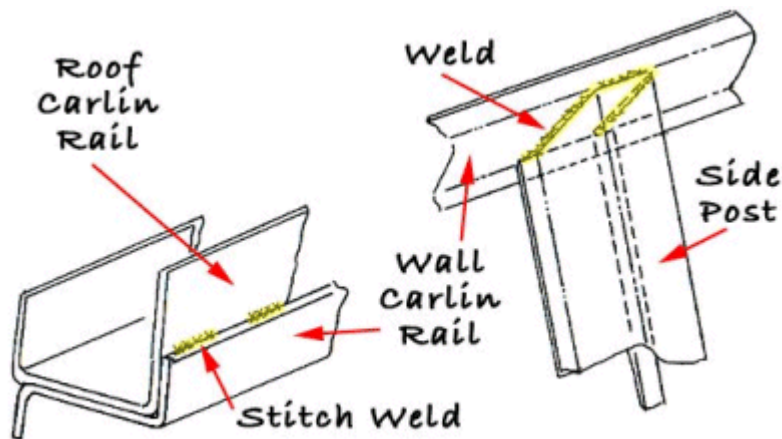


**Figure 5: Photo depicting weld locations**

4. Two diagrams showing the components and weld locations are shown below:



**Figure 6: Roof bow weld locations**



**Figure 7: Carlin rail weld locations**

Reports received from various states and school districts around the country indicate differences in the extent of the failures. Some reports reveal significant numbers of school buses with numerous cracked or broken welds, while other reports reveal few, if any, cracked or broken welds. Furthermore, in some cases, metal deterioration has occurred. Insufficient data exists to ascertain whether the failures are related to the environment, age, and/or mileage.

**NHTSA recommends that the following actions be taken with respect to any Carpenter school bus built in the Mitchell plant that has been found to have cracked or broken welds in the roof structure:**

**The bus should be taken out of service and replaced as soon as practicable.**

**If the bus must continue in use, the cracked or broken welds should be repaired as soon as possible by qualified service personnel.**

**In order to minimize the risk of a rollover, the bus should be used on routes that operate in low speed environments.**

Busses that are taken out of service should have “scrap” or equivalent language marked on their titles to preclude their sale to unsuspecting purchasers.

Transportation experts agree that school buses are among the safest of all modes of transportation. Statistics show that children are safer on a school bus than on other modes of transportation. With respect to the Carpenter bus weld problem, each State and school bus operator must assess its own situation and circumstances in deciding what actions to take.