

TECHNICAL ASSISTANCE NOTE No. T-06-03



Department of Education
John L. Winn, Commissioner

School Business Services
School Transportation Management Section

Contact: Julie Wammack

**Safely Transporting Oxygen-Dependent Students
in School Buses**

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SC 205-9795

DATE: December 14, 2005

TO: School District Transportation Directors

FROM: Ronnie H. McCallister, Program Director
School Transportation Management Section

SUBJECT: Safely Transporting Oxygen-Dependent Students in School Buses

Ensuring access to educational programs requires that school districts safely transport students to and from school each day. Transporting oxygen-dependent students requires that school bus operators and school bus attendants be informed about their specific needs and trained to handle them appropriately. We encourage local school districts to collaborate with local health departments to develop training programs that cover the special considerations and services for these students. As with all students, safety must be the first priority.

Tragically, a bus evacuating nursing home residents fleeing Hurricane Rita caught fire on Interstate 45 just south of Dallas on September 23, 2005, and 23 of the 45 passengers were killed. Several passengers and the driver escaped from the fire, which authorities said was fed by 18 oxygen bottles in the passenger compartment and the cargo hold. A Texas Department of Public Safety report, based on an inspection two hours after the bus burned, found that brakes on the left rear wheel were "not maintained in good working order" and that a brake pad had "missing portions of lining" because it was so worn down.

This bus was not a school bus, and the apparent primary cause of the fire, faulty brakes, would not be a factor in Florida school districts, given the high standards for inspection of our buses. However, this tragedy emphasizes the importance of reviewing policies and procedures regarding the transportation of oxygen in school buses.

Oxygen itself does not burn, but it supports and accelerates combustion; therefore, the biggest hazard of oxygen is the increased risk of fire. In oxygen-enriched atmospheres, almost every material will burn. The more oxygen that is present, the easier it is for a fire to ignite, and the fire will be bigger, faster, and hotter than in "normal" air.

The U.S. Department of Transportation (DOT) recently released a document entitled “Guidance for the Safe Transportation of Medical Oxygen for Personal Use on Buses and Trains,” which can be accessed at the following website: <http://www.phmsa.dot.gov/news/gstomo.pdf>. The DOT’s Pipeline and Hazardous Materials Safety Administration recommends that bus and train operators take precautions to ensure that medical oxygen being transported for passengers’ personal use is handled and transported safely. School bus operators should adopt the following recommendations from the DOT’s document:

- Transport oxygen in a school bus only when medically necessary.
- Transport oxygen cylinders in accordance with the manufacturer’s instructions. The manufacturer’s instructions and precautions are usually printed on a label attached to the cylinder.
- Before allowing the oxygen cylinder on board, inspect each cylinder to ensure that it is free of cracks or leaks, including the area around the valve and pressure relief device. Listen for leaks; do not load leaking cylinders on the bus. Visually inspect the cylinders for dents, gouges, or pits. A cylinder that is dented, gouged, or pitted should not be transported.
- Limit the number of cylinders to be transported on board the bus to the extent practicable.
- Carry the cylinder carefully using both hands; oxygen cylinders are susceptible to valve damage if dropped. Do not drag or roll a cylinder, and never carry a cylinder by the valve or regulator.
- Secure each cylinder to prevent movement and leakage. Each cylinder should be loaded and secured in an upright position.
- Secure oxygen cylinders away from sources of heat or potential sparks, since the release of oxygen from a cylinder could accelerate a fire.

For securing oxygen cylinders, the “National School Transportation Specifications and Procedures, May 2000,” recommends that all portable equipment should be secured at the mounting location to withstand a pulling force of at least five times the weight of the item.

The Maryland State Department of Education, the Maryland Department of Health and Mental Hygiene, and the Maryland State School Health Council in June 2002, released a document entitled, “Maryland State Guidelines: Management of the Needs of the Oxygen Dependent Student.” This document covers all aspects of an oxygen-dependent student’s day, and Chapter 4 focuses on transporting the oxygen-dependent student and equipment. It can be accessed at the following website: <http://www.nasdpts.org/documents/MarylandOxygenGuidelines.pdf>.

School districts throughout the state are transporting an increasing number of students using liquid oxygen rather than compressed gas oxygen. The cylinders/containers holding liquid oxygen are smaller than the compressed gas cylinders and have some specific requirements for securement. The Maryland State Guidelines contain the following specific information regarding the transportation of liquid oxygen.

- Liquid oxygen containers should be secured in an upright position to prevent leakage.

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- Liquid oxygen containers should be secured to prevent contact with cryogenic material.
- Liquid oxygen containers must be stored in a well-ventilated area.
- All oxygen containers should be secured in a location that would allow all passengers free access to or egress from emergency exits.

District personnel may also wish to review the Department's previous Technical Assistance Note, No. T-94-15, issued on this subject in December 1993. Finally, we encourage district transportation departments to ensure that each school bus emergency evacuation plan takes into consideration how to handle oxygen-dependent students.

If you have questions or need more information, please contact Julie Wammack at Julie.Wammack@fldoe.org or (850) 245-9795.

RHM:jw

cc: Superintendents
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