August 9, 1999

Nebraska FACE Investigation 99NE018

SUBJECT:

Mechanic Crushed by Bus Falling off Jack

SUMMARY:

A 59-year-old mechanic was killed when a full size bus he was working on fell on him. He apparently had raised the bus with a 12-ton bottle jack and had crawled under the bus to work on the suspension. The bus slid off the bottle jack and the differential on the bus came to rest on the victim's chest and stomach, causing fatal injuries. The victim was declared dead at the scene.

The Nebraska Department of Labor Investigator concluded that to prevent future similar occurrences employers should:

* ensure all equipment, with a potential to fall, is properly jacked/blocked up prior to getting under it.

* ensure equipment is lifted and secured in accordance with manufacturers' instructions.

* develop, implement and enforce a comprehensive safety program that includes, but is not limited to, training in all hazard recognition and abatement.

PROGRAM OBJECTIVE:

The goal of the Fatality Assessment and Control Evaluation (FACE) workplace investigation is to prevent work-related deaths or injuries in the future by a study of the working environment, the worker, the task the worker was performing, the tools the worker was using, and the role of management in controlling how these factors interact.

This report is generated and distributed **solely** for the purpose of providing current, relevant education to employers, their employees and the community on methods to prevent occupational fatalities and injuries.

INTRODUCTION:

On May 13, 1999, at approximately 12:30 p.m., a 59-year-old mechanic was killed when the bus he was working on fell off of a 12-ton bottle jack and crushed his chest and stomach. The Nebraska Department of Labor was notified of the fatality on May 14, 1999, by OSHA. The Nebraska FACE Investigator met with personnel from OSHA and the Sheriff's Department on June 2, 1999. Photos taken by Sheriff's Department personnel who responded to the scene were reviewed and videotaped and copies of the Sheriff's reports were obtained. The FACE investigator also conducted a site visit on June 15, 1999, and spoke with the victim's supervisor.

The business where the incident happened is a towing and truck repair facility. They have been in business for five years and had been working at the incident location for one year. The company employs 13 people. The company does not have a safety manager or a written safety program. This was the first fatality in the history of the company.

INVESTIGATION:

On the morning of the incident, the victim clocked in at approximately 8:45 a.m. At the time of the incident, approximately 12:30 p.m., he was underneath a full size bus working on the rear suspension. The bus was a 1988 MCI tour bus weighing approximately 34,000 to 35,000 pounds. The bus needed new rear brakes and rubber bushings for the rear suspension. The victim was last seen alive when he came into the office and advised his supervisor that his air pressure gun was not working properly. His supervisor gave him a new air pressure gun and the victim then returned to the work area. The supervisor was in his office talking with another individual and heard noise from the air gun for a while after the victim left. After a short time they didn't hear any noise from the air gun and thought this was strange. The individual the supervisor was talking to was getting ready to go out on a tow job and said he would check on the victim on his way out. A short time later he returned to the office and informed the supervisor that the victim was trapped under the bus. Emergency rescue personnel were immediately called and the supervisor and the individual who discovered the victim ran back to him. They called out his name but got no response.

When rescue personnel arrived they observed the bus resting on the victim. The wheels on the right rear of the bus had been removed and the victim was under the right rear area of the bus. It appears the victim had jacked up the bus and removed the four right rear wheels. The other wheels (both front and left rears) were chocked with wood blocks so they pointed straight ahead. He then apparently crawled under the bus to perform maintenance. The bus was jacked up and supported by a 12-ton bottle jack that was placed under the differential. From scrape marks on the differential, the jack was probably positioned toward the front of the differential. After the incident a floor jack was noted approximately 7 feet from the bus and it is not known if this had been used by the victim to initially lift the bus. There were no marks on the wheel hub where it probably would have been used, and there were no other marks to indicate that it had been used. Also there were items between the bus and the floor jack that probably would have been knocked out of the way had the bus slipped off the floor jack causing it to roll backwards.

It appeared the victim was taking a bolt out that held a radius rod in place and when the rod fell to the ground the axle shifted forward causing the bottle jack to slide forward. The differential then fell on and crushed the victim. There was a scratch on the forward bottom of the differential indicating this was where the jack had slipped. One corner of the base of the bottle jack was also broken off. This would indicate that the differential slipped forward causing the base of the jack to break off and the jack to slip out from under the differential. The break was obviously new, as the metal at the break was very clean compared to the rest of the jack. The bottle jack, which belonged to the victim, was in good operating order, as it even worked well after the incident. However, it was taken out of service due to the broken base. The victim was pronounced dead at the scene.

CAUSE OF DEATH:

The cause of death, as stated on the death certificate, was blunt force trauma.

RECOMMENDATIONS/DISCUSSION:

Recommendation #1: Employers should ensure all equipment, with a potential to fall, is properly blocked/chocked up prior to getting under it.

Discussion: Any equipment with a potential to descend or fall should be adequately secured prior to anyone getting under it. Had the bus been blocked up with wood blocks or supported with adequate jack stands, this fatality could have been prevented. Both adequate jack stands and wood blocks were available for use at the incident location. The employer said bottle jacks were used on

occasion to initially lift a vehicle, but they were not supposed to be used to suspend the load.

Recommendation #2: **Employers should ensure equipment is lifted and secured in accordance with manufacturers' instructions.**

Discussion: There were no manufacturer's instructions with the vehicle regarding proper lifting and securing procedures for the bus. There was also no manufacturer's information on the bottle jack or the floor jack at the incident site. This information should be obtained and made available to all personnel using the jacks or working on the vehicle.

Recommendation #3: **Employers should develop, implement and enforce a comprehensive safety program that includes, but is not limited to, training in all hazard recognition and abatement.**

Discussion: A comprehensive safety program should have addressed the hazards of working under a bus that is not properly blocked/chocked up. Also, recommend that written procedures be developed for proper jacking of equipment (buses, trucks, etc.). Written consequences should also be developed and enforced for individuals who do not follow the proper procedures.

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