

SAFETY ALERT #413



Dated: Sunday, 21st FEBRUARY 2010

Title: MAN LIFT FATALITIES



Lesson Learned Summary: A double fatality occurred when a man lift toppled over at a construction site. The two men were operating a Genie S85 telescopic boom on uneven ground and had incorrectly positioned the Lift's counter weight on the downhill side of the slope.

Discussion of Activities: Two men were working on the east exterior façade utilizing the boom. The contractors began to reposition the boom uphill while standing on the platform with the arm extended, on an uneven slope, causing it to fall backwards, and resulting in the death of both individuals. Moving the boom lift while the boom is extended is not recommended per the Genie S85's operating manual. Local emergency responders arrived on the scene very quickly following an emergency call. Project operations were not restricted during the investigation for the non-affected work areas. However the project stood down for nearly a week after the accident to communicate the event and re-focus the workforce.

Analysis: At the time of the accident there were approximately 165 construction personnel working on site and over 232,000 construction hours had been worked without incident. Robust construction safety orientation program and practices were in place throughout the duration of the expansion project. Specifically, the two contractors had been through the contractor safety orientation where they also presented proof of training on generic lifts and booms, as required at the time. As required both workers along with their supervisor, prepared and signed off on a pre work safety plan the morning of the accident. Weather conditions were not a factor and were favourable for working. Both men were tied-off (harness & lanyard) while in the boom as required by applicable policies and operator manual. Multiple, different contractors had used that telescopic boom for four months prior to the accident, in the same general area without incident. While this subcontractor (including the two workers) had worked on the project in other areas since June 2008, work for this particular crew in this area using that boom, began the day of the accident.

Contributing Factors:

- **The work area where the boom was operating was not level:** Lifts / booms should only operate on a suitable, firm, level surface.
- **Counter weight and extension boom positioned improperly:** The contractors began to reposition the boom uphill while standing on the platform with the arm extended, on an uneven slope. The counter weight was located on the downhill side, shifting the centre of gravity to the downhill side, causing it to flip backwards.
- **Training competence:** Evidence shows failure to operate lift within specific operational parameters.
- **Failure of tilt sensor and audible alarm:** The tilt sensor is specifically designed to alert the operator(s) in the lift basket, via audible alarm, when an unsafe condition (non-level working orientation) is being approached. The resulting investigation discovered that the Tilt Alarm been disconnected, although when and by whom was never fully understood.
- **Pre-task Planning Effectiveness:** Existing contractor pre-task planning process was not robust enough to evaluate all tasks at an appropriate level of detail nor was that day's plan associated with the boom work completed in detail.

Recommendations:

- Only operate on suitable, firm and level surfaces.
- Never operate drive system while boom in extended position.
- Ensure Pre-Task planning accounts for all operating conditions and parameters related to the specific equipment being used:
 - Includes review of equipment operations manual.
 - Provides for pre-operation inspections, including safety systems integrity (e.g. tilt alarm is in proper working condition).
 - Incorporates review of specific site and area conditions.
 - Ensures next, immediate user of borrowed equipment is responsible for its readiness for use.
- Consider physical barriers to prevent boom lift movement in areas where unlevelled or unstable conditions are adjacent to planned work area.
- Training should be specific to the type and model of equipment being utilized.
- Robust maintenance and inventory program to ensure equipment is in appropriate working condition.

Vandalism of the tilt alarms is common and should be outlawed and monitored by users / supervisors and site management