

# RR1085 – Exploring the human and physical factors associated with telescopic handler overturning risks

A combination of machine instability and various human factors elements are important precipitating factors in telescopic handler overturn incidents. Industry guidance makes a number of assumptions about the impact of operator “knowledge gaps”, however the link between operator knowledge gaps and overturn risk is, at present, hypothetical and remains empirically untested.

This study was done to identify:

- the full range of human factors issues that might potentially contribute to telescopic handler overturn incidents;
- the human factors issues that appear to be most important in terms of overturn risk and
- key operator knowledge gaps that could increase the probability of an operator overturning a machine.

The research indicates that a machine is more likely to overturn when its boom is raised and /or extended. Overturn incidents are also strongly related to lateral (in contrast to longitudinal) instability. As some operators were not aware of the overturn risk related to lateral instability, this implies the possibility of a knowledge gap among operators. Weaknesses in training and site management/supervision are also likely to increase overturn risk. The installation of lateral instability warning technology could reduce overturn risks by warning operators of dangerous situations before a critical threshold is reached.

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