



19 February 2021, Ref: 2021092

Accident Advisory: Fatal accident during machine repair

Ref: [2021081](#) WSH Alert Accident Notification dated 4 December 2020

On 2 December 2020, two workers were repairing a machine when its platen suddenly descended on one of the workers. The worker was pronounced dead at the scene by attending paramedics.



Figure 1: The machine that the worker was repairing.

Recommendations

Stakeholders in control of similar workplaces and work activities, such as occupiers, principals and employers, are advised to consider the following risk control measures to prevent similar accidents:

Safer machine by design

- Machines should be designed and built in such a way that workers are not placed at risk of injury during machine installation, operation, maintenance or repair.

Competent worker

- Deploy only authorised, trained and competent personnel to carry out specialised machine-related works such as installation, maintenance and repair; and
- Provide customised safety training (preferably by the manufacturer/authorised supplier of the machine) to workers tasked to perform potentially hazardous machine installation, maintenance or repair;

Energy isolation and safe machine access

- Isolate and/or de-energise all hazardous energy sources (e.g. electrical energy and any form of potential energy) properly before working on the machine;
- Lock-out and tag-out (LOTO) the hazardous energy source so that accidental activation is not possible;
- In this accident, the hazardous energy source came in the form of stored potential energy which was released when the platen fell due to gravity. If the platen cannot be securely locked in place (e.g. via the use of safety retaining pins), physical

- protective measures (e.g. custom-designed props or a safety block) may be used to restrict unplanned machine movement in preparation for worker access; and
- Place safety signs to alert workers of the machine hazards and danger zone(s).

Safe work procedure

- Establish and implement safe work procedures (SWP) for installing/ maintaining/ repairing the specific machine, detailing the hazards of the machine, steps to carry out the work safely and risk control measures (including LOTO procedure) that must be checked to be in place prior to work commencement;
- Instruct workers on the safe work positions to adopt and remind them never to insert any part of their body inside a machine so long as there is a risk that machine parts can move during the assigned task; and
- Provide the necessary on-site supervision to ensure that SWPs are strictly adhered to.

Risk Assessment

Occupiers, principals and employers are reminded to conduct a thorough Risk Assessment (RA) before carrying out machine installation, maintenance or repair. All identified hazards and foreseeable risks must be suitably addressed with risk controls implemented to protect workers from harm. The RA should cover, but not limited to the following areas:

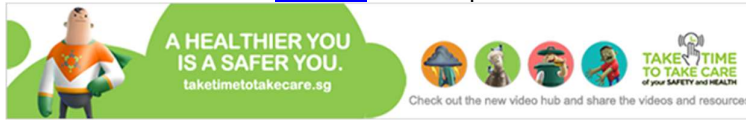
- Machine design and safeguards that can eliminate pinch points;
- Modes of machine operation e.g. in operation, maintenance mode, complete shutdown;
- Machine-related tasks e.g. inspection and troubleshooting, planned vs unplanned maintenance;
- Worst case accident scenarios e.g. caught in-between movable machine parts, release of hazardous energy; and
- Emergency response plan.

Further Information

1. Workplace Safety and Health Act
2. Workplace Safety and Health (Risk Management) Regulations
3. Workplace Safety and Health (General Provisions) Regulations
4. Code of Practice on Workplace Safety and Health Risk Management
5. Singapore Standard SS 537: 2008 Code of Practice for Safe Use of Machinery – Part 1: General Requirements
6. Singapore Standard SS 571: 2011 Code of Practice for Energy Lockout and Tagout
7. ISO 12100: 2010 Safety of Machinery – General Principles for Design – Risk Assessment and Risk Reduction
8. ISO 13855: 2010 Safety of Machinery – Positioning of Safeguards with respect to the Approach Speeds of Parts of the Human Body
9. ISO 14120: 2015 Safety of Machinery – Guards – General Requirements for the Design and Construction of Fixed and Movable Guards
10. WSH Guidelines on Safe Use of Machinery
11. Technical Advisory on Safe Use of Power Presses and Press Brakes
12. Workplace Safety and Health Guidelines on Contractor Management
13. WSH Council's Activity-Based Checklist on Working Safely with Machines
14. WSH Council's 6 Basic WSH Rules for Working with Machines

Information on the accident is based on preliminary investigations by the Ministry of Manpower as at 14 Dec 2020. This may be subject to change as investigations are still on-going. Please note that the recommendations provided here are not exhaustive and they are meant to enhance workplace safety and health so that a recurrence may be prevented. The information and recommendations provided are not to be construed as implying any liability on any party nor should it be taken to encapsulate all the responsibilities and obligations under the law.

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