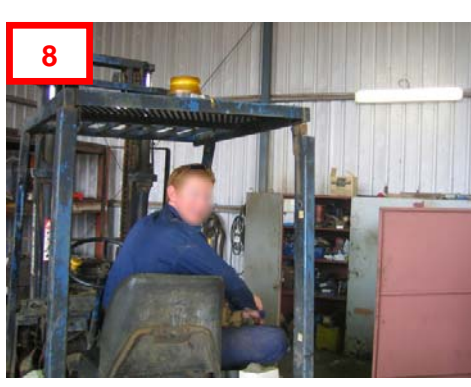


Risks to be mitigated



14. Operator Workstation (V1.3 2008)	
Objective	The objective is to minimise the risk of injury or illness related to the design of the operator workstation to ALARP, including consideration in design for foreseeable human error.
General outcome	<p>The intended design outcome should include a design that minimises injury or health risks related to the workstation in all operating conditions for all operators.</p> <p>The intended design outcome should consider:</p> <ul style="list-style-type: none"> ▪ The operator's seat, the workstation layout, and clearances ▪ Adjustability of seat, controls & displays to promote healthy work postures ▪ Forces exerted by operators ▪ Whole-body & hand/arm vibration ▪ Fatigue (mental and physical) contributory factors ▪ Ergonomically suitable entry and egress
Risks to be mitigated	<ol style="list-style-type: none"> 1. Risk of operator injury or illness due to poor work postures <ul style="list-style-type: none"> ▪ Poor head / neck posture due to restricted visibility and the placement of controls and displays ▪ Poor hand/wrist posture due to grasp of controls ▪ Poor shoulder and back posture due to extended reach to controls • Poor posture due to lack of adjustability to seat, pedals, steering wheel / controls, monitors/displays 2. Risk of operator injury or illness due to seat design, including seat belts <ul style="list-style-type: none"> ▪ Poor posture due to inadequate lumbar support and lack of adjustability ▪ Discomfort due to inadequate or worn seat cushioning ▪ Transmission of whole-body vibration due to seat designs that fail to minimize exposure • Injury or illness due to inadequate seat belt designs and lack of operator utilization 3. Risk of operator injury or illness due to excessive forces needed to operate buttons, triggers and hand & foot controls 4. Risk of operator injury or inadvertent operation due to insufficient hand/arm clearance and path around controls 5. Risk of operator injury due to inadequate whole-body access openings and cab height 6. Risk of operator injury or illness due to hand/arm vibration via the controls 7. Risk of operator injury or illness from fatigue (physical or mental) caused by contributory factors such as temperature, uncomfortable seating, poor postures, glare/lighting, humidity, noise levels, vibration and ventilation/dust. 8. Risk of injury due to poorly designed roll-over protection structure (ROPS) 9. Risk of injury and illness due to the lack of accommodation of the 5th percentile female to 95th percentile male body dimensions in seat design, controls and workstation structures 10. Risk of operator injury due to poor cab illumination and/or glare from reflective sources
Examples of industry attempts to mitigate risks	<ol style="list-style-type: none"> a. Adjustable seats, monitors and steering wheel b. Frequently-used equipment within comfortable reach zones for all operators c. Low/appropriate force required to activate controls or adjust equipment d. Adequate clearance around safety critical controls e. Physical and mental fatigue contributory factors minimized, for example, by allowing temperature in the workstation to be set by the operator f. Lumbar support in seats

Industry attempts to mitigate risks

