

SAFETY ALERT (ALT-004)

Mini Excavator Stability



BACKGROUND

Over recent years several incidents have occurred where mini-excavators have overturned whilst being operated. In some instances, the operator has escaped with minor injury, while in others, a major injury has been sustained either by the operator or other(s) working near to the machine.

Certain factors have been identified as having contributed to these incidents, for example:

- operating the machine on an incline;
- slewing the machine at high revs, which can lead to instability from machine inertia and / or from the rapid change in the machine's centre of gravity;
- operating on uneven or unstable ground conditions; and
- the collapse of excavations or trenches under the machine track.



PRACTICAL GUIDANCE

SAFE OPERATOR

Only fully trained, competent operators should operate mini excavators. The nationally recognised qualification for competence within Britain is a Scottish/ National Vocational Qualification (S/NVQ) Level II Plant Operations.

Operators should wear appropriate personal protective equipment. Restraint mechanisms such as seat belts, where provided, must always be used during machine operation.

SAFE EXCAVATOR

The mini excavator should be maintained so that it is working safely and efficiently and a machine inspection should be conducted by the operator at the start of each shift, with an appropriate record of this kept. Any maintenance or inspection undertaken should follow guidance as laid out by the Original Equipment Manufacturer (OEM).

Any safety devices fitted to the mini excavator, such as a safe load indicator or buried service detection equipment, must be used and monitored at all times.

The lifting capacities for the mini excavator, as issued by the OEM, must always be observed.

The mini excavator should be suitable for the task to be undertaken. For instance, machines with extending tracks may afford greater stability in some circumstances.

All operators and managers should acknowledge that there is no such thing as safe working on an incline. Where this is proposed, other methods of working should first be considered to 'design out' the risks and where this is not possible, then it may be appropriate to utilise a larger and more stable machine type. The decision taken will depend on the findings of the associated risk assessment.

SAFE WORK SITE

Site personnel should be excluded from the 'operational area' of the mini excavator. For a static machine operating on firm level ground, this area is deemed to be the maximum reach of the excavator bucket plus at least 2m. If the machine is operating under more extreme conditions, such as on an incline, then a risk assessment may require a greater distance to be maintained.

Before operating the mini excavator, the ground conditions should be checked to ensure that they are suitable for any load imposed upon them by the machine and its operator. Safe paths of machine travel should also be considered, avoiding significant obstacles, weak ground and severe inclines. If, in addition to their own visual inspection and experiential judgment, operators need further information (for example, relating to ground bearing capacity or site topography), then this may be obtained from engineers, local authorities or other statutory bodies.

When assessing ground conditions and machine stability, appropriate consideration should be given to prevailing or expected climatic conditions, such as wind, rain, snow, or ice.



Images for illustrative purposes only

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