ROPS2

Roll Over Preventative System

Protecting our most valuable assets...

ConplantSafe

ROPS stands for **Roll Over Protective Structure**
ROPS2 goes one step further…

Figure 1.

Figure 2.

ROPS2* **is an early warning and function management system designed to reduce the risk of mobile plant roll over.**

ROPS2 measures axial machine angles, warns the operator of pending dangerous angles and implements measures to reduce the potential of roll over.

Although ROPS2 was developed for vibrating roller applications, the system can be fitted to most types of mobile plant.

ROPS2 is a 2 stage system. The first stage warns the operator that the machine is operating at a potentially dangerous angle. Should the angle and danger continue to increase, stage two will lock-out functions that may contribute to the risk of roll over.

An extra pair of eyes

Operator perception can often be inaccurate when assessing the risk of roll over. This is particularly the case for articulated vibrating rollers that also oscillate at their articulation joints. This is because the operator station is usually fitted to the rear section and on most rollers (particularly single drum rollers) a vibrating drum is fitted to the front section.

Therefore, when working on uneven ground and cambers such as road shoulders, the operator does not always move with the front section of the unit (there is often an axial angle variation between the two sections of the roller).

This issue is particularly a problem when the machine is reversing and the operator is looking in the direction of travel because the drum will not be in his/her field of vision. In this case ROPS2 fitted to the front section would warn the operator of a potentially dangerous angle.

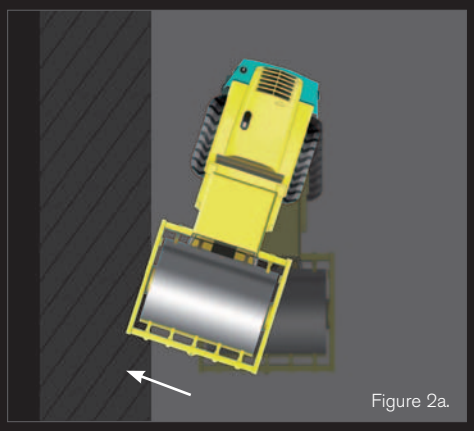

Figure 2a.

Figure 1.
Axial variation between the front and rear of the roller – the drum section can move independently to the rear.

Figure 2. & 2a.
Vibration lock-out improves machine control when reversing out of these situations.

Figure 3.
ROPS2 locks-out vibration and continues to warn the operator of roll over danger.

* Patented Technology

Figure 3.

Stage 1
Operator warning

A visual and audible alarm warns the operator when the front and/or rear section of the roller reaches potentially dangerous angles.

Stage 1 is designed to warn the operator so that immediate rectification action can be taken.

Sensors measure the axial angle which triggers the warning system through solid state electronics.

Stage 2
Function management

Stage 2 of ROPS2 locks-out the vibration function reducing the potential of rollover by:

- reducing drum drift/slide by maximising frictional contact of the drum with the ground (vibration reduces frictional contact).
- reducing the possibility of edge collapse under the force of vibration. This also ensures that if an edge is collapsing (eg road shoulder) the vibration does not accelerate the process. Vibration imparts force on the ground that can cause edge collapse.
- greater operator control.

ROPS2 also reduces the risks associated with operator:

- error
- complacency
- panic
- slow reaction time

If the operator panics this function ensures he/she is able to maintain control particularly where a change of direction is required. When a roller changes forward/reverse direction whilst vibrating, the drum impacts the ground many times in one area (eg a vibration frequency of 35Hz would result in 525 impacts with the ground if the roller was stationary for only 0.25 of a second).

Through the ROPS2 function management system the vibration remains locked-out until the roller has returned to a safe angle.

ROPS2 sensors can be fitted to one or more sections of the machine or its attachments to warn, limit or lock-out any of its functions.

Another functional management feature that can be fitted is a seat belt sensor that maintains park brake application and locks-out travel unless the seat belt is engaged.

ROPS2 is a Roll Over Preventative System. To maximise mobile plant safety, technology such as ROPS2 must be coupled with appropriate operator/supervisor and safety instruction.

For further details please contact Conplant.

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This machine was not fitted with ROPS2