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OECD Tractor Test Codes

- *current development of ROPS testing procedures*

Dr Andy Scarlett



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ROPS Testing

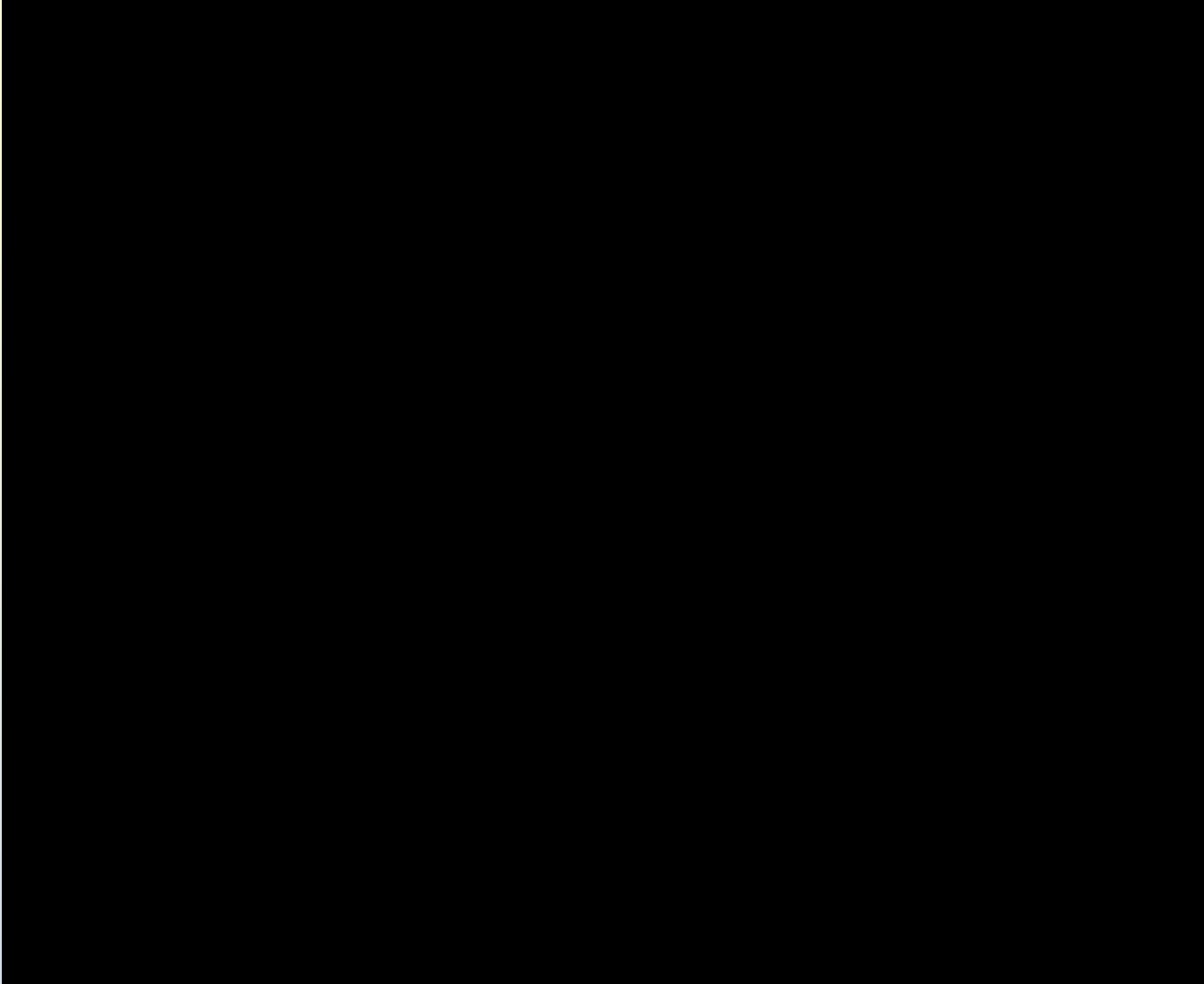


- Early ROPS performance assessment & test method development



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ROPS Testing & Approval





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ROPS Testing



- Detailed simulation & measurement of tractor roll-over behaviour
- Supported development of 'static' ROPS testing methods used today



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ROPS Testing





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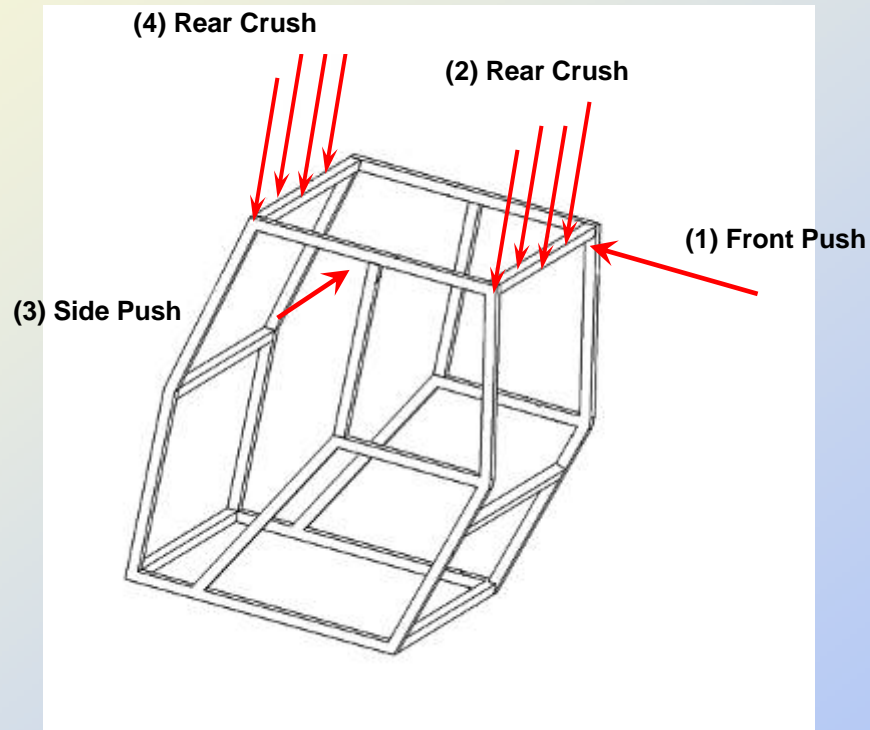
ROPS Testing & Approval



- 'Static' ROPS testing facility used today for testing vehicle ROPS to EC, OECD, ISO & SAE standards



'Static' ROPS Test Procedure

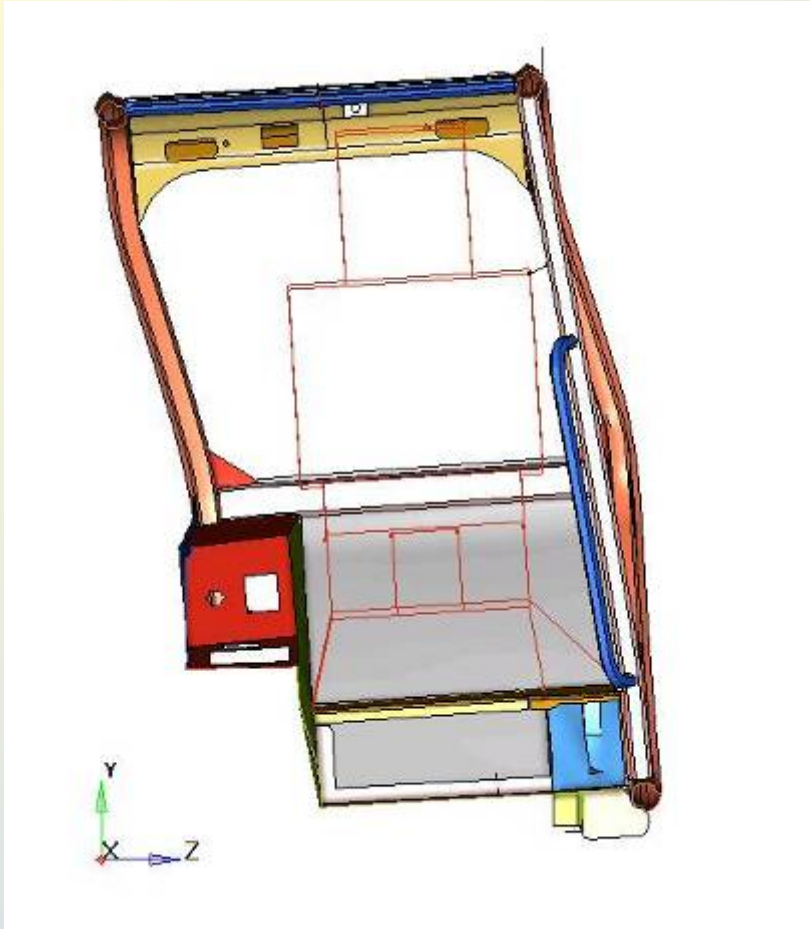


- Sequence of load application in OECD / EC or ISO 'Static' ROPS test



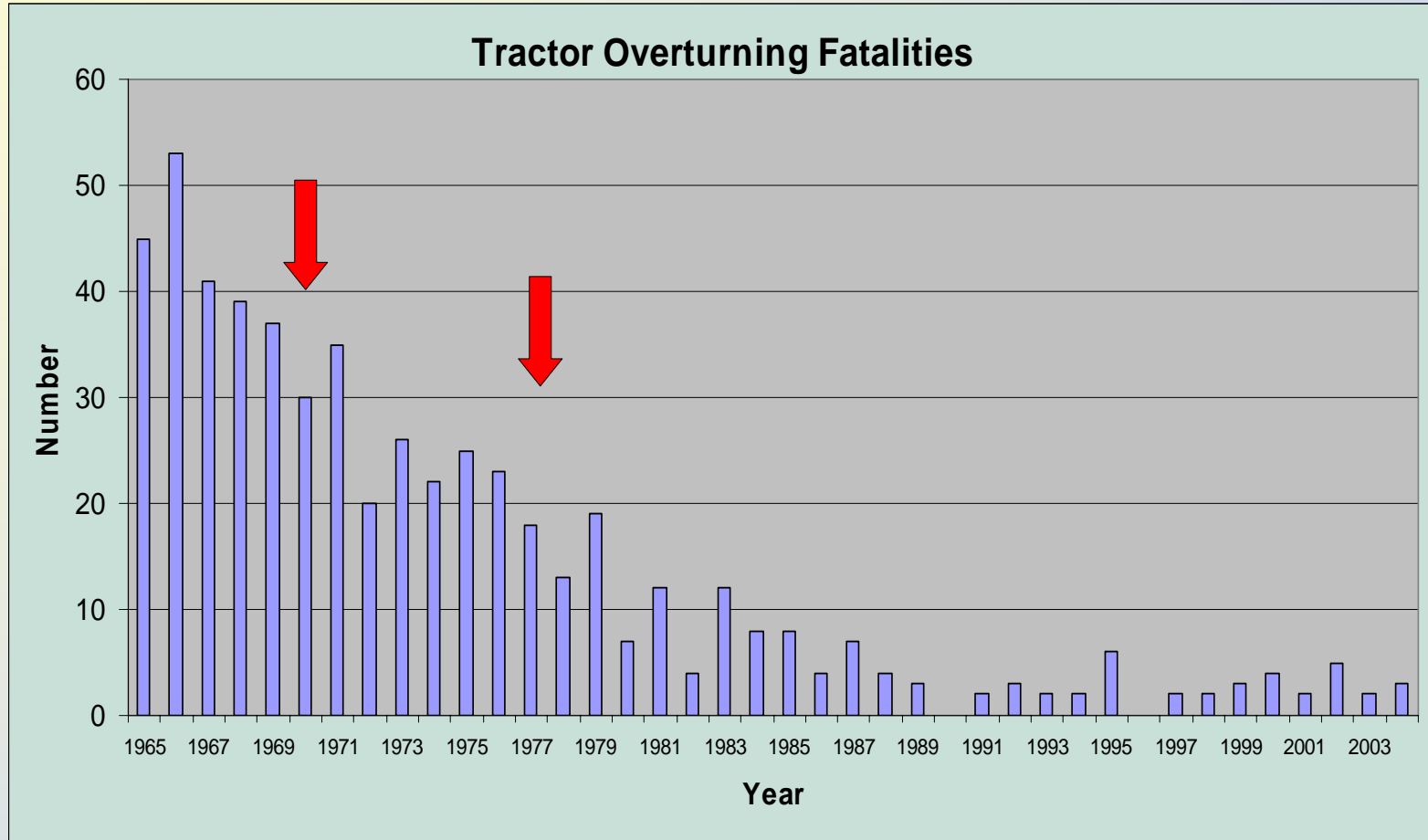
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'Static' ROPS Test Procedure





Are 'Safety' Cabs Effective?



- Dramatic reduction in tractor overturning fatalities since introduction of ROPS



Ag. Tractor ROPS Test Criteria



- Recent catastrophic ROPS failure during overturn caused fatality
- An isolated incident or an indication of an underlying problem?
- Tractor ballasted to 7590kg excl. 2600kg brush-cutter. Unladen mass = 4050kg
- ROPS test reference mass (manufacturer selected) = 5600kg
- Determines strain energy levels ROPS must absorb during (EU/OECD) approval testing
- Can be as low as the unladen mass



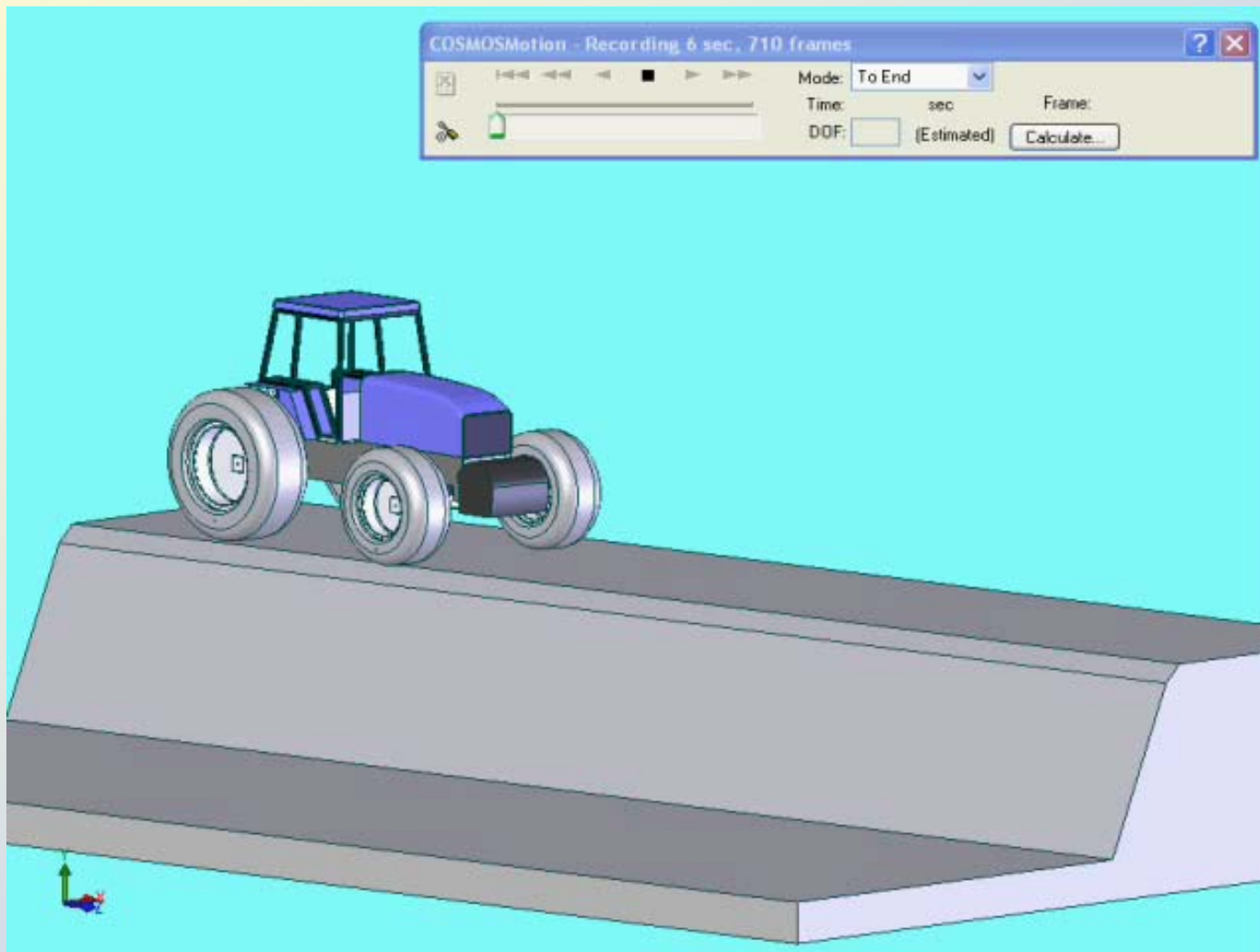
Ag. Tractor ROPS Test Criteria

- Have changes in tractor design, engine power, linkage lift capacity and usage changed the typical unladen : max. permissible mass relationship over last 15 years?
- Modern tractor max permissible mass can frequently approach ULW + 60-80%
- Do current ROPS test criteria, based upon unladen mass (& less implement mass) continue to provide an adequate factor of safety to accommodate significantly higher max permissible masses?
- Does accident evidence exist to corroborate this suspicion?
- Is it appropriate to:-
 - Increase tractor ROPS test reference masses?
 - Limit tractor maximum permissible masses?
 - Tighten ROPS test criteria / requirements?
- Research now underway by OECD Technical WG to:-
 - Identify roll-over accident trends (if any);
 - Determine adequacy of current ROPS test criteria and modify (if necessary);
 - Identify tractor operational limitations (if necessary)



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Ag. Tractor Roll-over Simulation





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Ag. Tractor Roll-over Simulation

