

# Valve Protection System (VPS)



Century Mining Alliance





Century Mining Alliance

# Problem

- We identified potential for demountable rear rim assemblies on dump truck to spin on the hub.
- This can cause the valve extension at positions four or five to pull back under the spacer assembly which is between the rear dual assemblies
- Together, these things present a problem - how can the inside tyre be safely deflated before being safely removed?





# Past solutions

Century Mining Alliance

- Spike the tyre to deflate it. This leads to a multitude of potential safety issues not to mention the loss of a serviceable tyre.
- Inspect tyre and rim assembly to ensure that the locking ring is intact prior to work commencing.



# Safer solution



Century Mining Alliance

- The tyre bay team assessed the problem as part of Century Mining Alliance's continual improvement program.
- The team agreed to develop a valve protection and securing process, ultimately deciding to use a retainer system.
- The first prototype was developed using a cardboard template with input from the boiler making crew.



# VPS



Century Mining Alliance

- The resulting Valve Protection System (VPS) pulls the inside valve extension off the rim spud, deflating the tyre.
- The VPS attaches to the existing rim studs and provides not only a means of deflating the inside tyre should it spin on the hub, but also protects the valve extensions from rock damage.
- It also make pressure checking much easier



# VPS



Century Mining Alliance



**Original version of the VPS which, apart from basic reinforcement, has not changed**



# VPS



Century Mining Alliance



**VPS installed  
on 830E,  
secured to  
existing wheel  
studs**



# Results



Century Mining Alliance

- CMA has conducted more than 100 tests, to ensure that the valve will detach from the spud if the rim dose spin with a 100 per cent success.
- In all cases, when pressure is applied to the valve (to simulate rim spinning), the valve stayed connected to the VPS and pulled the valve extension off the inside valve spud.
- VPS costs \$120 to manufacture.





# Adaptability



Century Mining Alliance

- The VPS can be fitted to any 830 Komatsu truck. With minor modifications, the VPS could be fitted to any demountable rim assembly.



# Valve Protection System (VPS)



Century Mining Alliance

Thank  
you

