CASE STUDY: STEERING INCIDENT

On 5th January 2022 at approximately 00:27, the operator of a loaded Caterpillar 785C reported an unexplained loss of steering after a left hand turn at a t-junction. Following the corner, the operator braked and came to a rolling stop into the berm (the incident). The 785C remained idling and, 17 minutes after coming to a stop, the truck broadcast steering oil temperature and low steering oil pressure alerts. No relevant alerts had been received prior to the incident.

LOCATION: Western Australia

YEAR: 2022

APPLIC.: Critical safety incident

SOLUTION: MaxMine Safety

CONTEXT:

Significant production was lost while the root cause was investigated. Ten days later, a prestart report was presented stating steering loss with an undetermined cause which resulted in further investigations to rule out any issues that could be relevant to other fleet vehicles, and led to more production losses. As a result of the ongoing investigations, the fleet was not at full capacity between January 5th and 25th with several days of zero production.

Site maintenance, together with an OEM subject matter expert and a reliability analyst spent a great deal of time, money, resources inspecting and investigating the whole fleet, however they were unable to:

- find proof of loss of steering on the truck in question, which is primarily determined by loss of pump hydraulic pressure; or
- find any steering issues across the fleet (they found other issues however these findings were inconclusive as to the cause of steering loss).

MAXMINE APPLICATION:

Seeking certainty around the cause of the incident, and any associated/ corresponding risks across the rest of the fleet, MaxMine was asked to help determine whether any conclusive evidence existed to determine whether the operator lost steering at the time of the incident.

The MaxMine findings were:

- On the corner, before the loss of steering, the operator was travelling at 23km/h - the fastest speed recorded for the shift and 8km/h faster than average;
- The operator was consistently faster than other operators on that corner throughout the shift;
- No relevant OEM alerts were raised prior to the incident, however steering oil temperature and low steering oil pressure alerts were broadcast by the truck 17 mins after it came to a stop;
- Steering oil pressure and temperature parameters were not broadcast by this truck and therefore MaxMine was not able to record and plot their values for this incident.

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Based on the data analysis, MaxMine recommended the following actions:

- Investigate and discuss the possible impact of high corner speed on steering oil pressure or temperature with an OEM specialist;
- If required, investigate which corners may increase the probability of steering oil pressure or temperature abnormalities and defining appropriate corner speeds; and
- If required, leverage MaxMine to help drive safe corner speed conformance.

RESULTS:

Following the MaxMine investigation into the incident, the Site has used MaxMine's operator league to **improve compliance with prescribed corner speeds and encourage safe driving practices.**

By adhering to the recommended safe cornering speeds, no further steering issues were reported and the site was able to return to full production with improved confidence in the safety of the fleet in relation to the previously unexplained steering loss.


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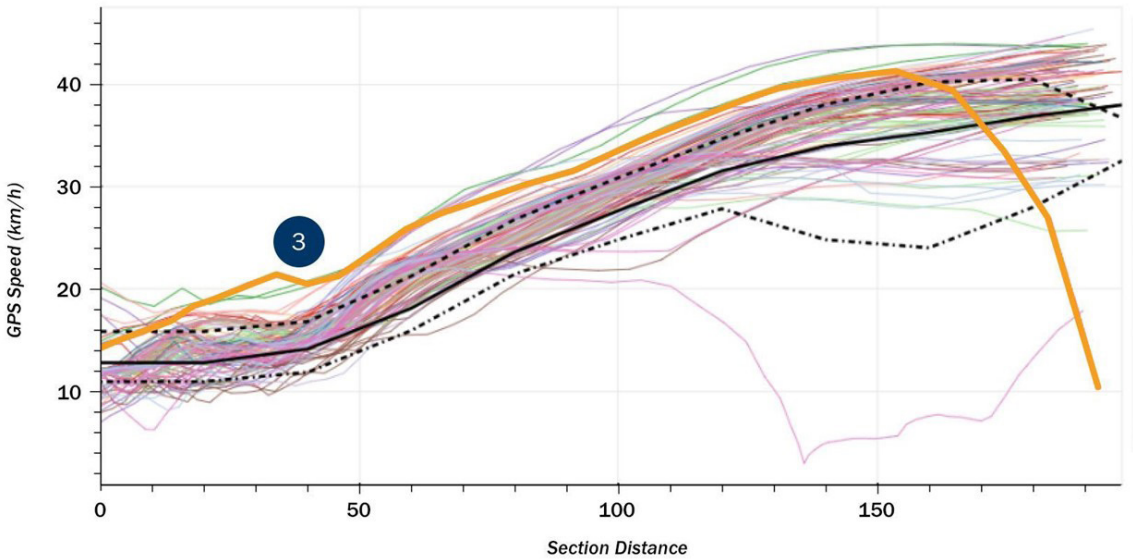
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