

## **Safety And Maximisation Of Tyre Life**

The mining industry is currently facing a worldwide shortage of Large Earth Moving Tyres.

Due to this shortage it is inevitable that operating companies will be seeking to maximise tyre life and to review tyre management and maintenance practices. This maximisation is not unreasonable but it will be seen to leave tyres in service that, before the shortage, would have "normally" been taken out of service based on appearance rather than actual condition. Therefore these tyres that were previously taken out of service may have still been 'fit for purpose' and may not have achieved their full potential service life. This change in our industry is a significant change and will throw up challenges that need to be effectively managed. The application of change management practices should form part of the strategy to address this emerging issue.

A move to extending tyre life can be safely managed if appropriate resources and knowledge are applied.

Issues to Consider: -

- A risk assessment process must be applied as a management tool to cater for this change in the industry. The process should ensure that the current controls are strengthened and new controls identified.
- Tyre wear and condition should not exceed the discard criteria as specified by the manufacturers.
- Appropriately trained, competent and knowledgeable people are required to inspect and make decisions on tyre condition. As the move to extend tyre life continues, the current inspection regimes for what was considered "normal" may need to be more intensive (e.g. daily as against weekly), and the level of expertise engaged for the inspections may need to be increased accordingly. (Refer to CSMH Regulation section 71 (a) (b) (i), MQSH Regulation section 108) It is beneficial to expand detailed training in tyre condition inspection to operators.
- Inspection reports and pressure checks need to be not just done, but also interpreted by skilled people so that a meaningful outcome can be derived and implemented. Inspection for the sake of inspection will not contribute to extending tyre life.
- Maintenance of suspension and steering components of haul truck and loader fleets will play an important role in any strategy to safely extend tyre life and must assume high importance.
- A strategy of short and long runs to reduce tyre overheating and possible ply separation failure.
- Adoption of a temperature monitoring regime using non intrusive methods such as thermal imaging or heat measuring guns.
- Good haul road design will need to be strictly adhered to and take into account such factors as:
  - Eliminating or minimising reverse camber corners.
  - Haul road grade, curvature and undulation.
  - Tyre specification and suitability for the hauling route.
  - Appropriate road construction materials and running surface material.
  - Minimising spillage through design.
- Haul road maintenance can and will play an important role in safely extending tyre life by ensuring that:
  - Spillage is dealt with quickly.
  - Haul road running surfaces are regularly graded.
  - An effective surface water management program is in place.
- Loading and dumping practices such as overloading, poorly maintained loading and dumping pads, and

reversing onto production material at loading faces all have a detrimental effect on tyre life and will see the tyre removed earlier from service due to damage rather than full service life wear. Regular 'dozing' of these areas will have a huge positive impact.

- Adopting a dump short and dozer push method on dumps will help in avoiding 'cut damage' to tyres, especially in wet conditions.
- Education of operators on what is acceptable tyre condition is a priority, especially considering that, unlike a passenger car or light truck, tyre baldness is not necessarily considered to be a discard criteria by the tyre manufacturer. Most manufacturers will recommend repositioning of the worn tyre to position 4 or 5 (inner tyres of the rear duals) and increased monitoring until the discard criteria as specified by the OEM are reached. If this strategy is adopted, the level of monitoring needs to be substantially increased and those carrying out the monitoring **must** have the requisite **knowledge** to make the correct informed decision regarding changing tyre position and ultimate discard.
- Tighter control of maintaining tread depth consistency across dual sets of wheels.
- Operator education on driving practices to enhance tyre life should be considered, as it is probably the front-line weapon in meeting this forthcoming challenge to our industry. Operators are in the best position to extend tyre life.
- Consideration of tyre repair to sidewall or tread lugs at an earlier stage of damage than is often undertaken at present. Use of knowledgeable repairers is essential to inspect and report expected tyre life after repair and heed recommendations regarding the placement of the tyre on the truck (e.g. position 4 as opposed to position 1).

As can be seen from the above issues, and not all have been discussed here, effective tyre life management requires many inputs and both the production and maintenance streams have important roles to play in safely extending tyre life in our operations.

Running tyres to destruction should not be an acceptable strategy to extend tyre life.

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