

Heavy Mobile Plant Rebuilds

More than just some simple bodywork

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Within the Global Mining Industry the need to move enormous volumes of rock can be critical to production needs. Often the equipment scale is staggering with haul trucks being able to carry in excess of 400t payloads and holding dimensions equivalent to small buildings. Bidders, Dozers and Drill Rigs can also be enormous.

Subject to the prevailing commodity cycle and 'mining demand', such large machinery can be difficult to source, very expensive to purchase and, if damaged, critical to repair quickly and cheaply. Sadly from time to time these machines find themselves involved in major incidents due to unexpected haul road collapses, flooding of pits, rollovers due to operator error, mechanical failures and fires. Each of these types of Insurance claims can come with their own adjusting challenges in terms of repair, replacement and/or rebuild.

In this article **Andrew Hodkinson, Regional Head – Australia & New Zealand and Nigel Lloyd, Senior Engineering and Resources Adjuster of Charles Taylor** outline some typical adjusting challenges involved with such equipment and how such matters can be resolved to all involved parties' satisfaction.



Equipment Types

The Mining industry typically utilises large mobile plant as its primary method of transporting ore from the ground to the crushing, processing or loading facilities. Subject to the type of mining operation in place and the ore body, a mixture of machines such as haul trucks, bidders, loaders, dozers, shovels and drill rigs can be used. Most mines also utilise rail haulage to transport their product to port.

All of these machines tend to have a few things in common being:

- Large in scale;
- The weight of the machine and its payload are in the hundreds of tonnes;
- The Original Equipment Manufacturers (OEM's) often are involved in the maintenance under contract;
- Major components are expensive and take time to source;
- Most utilise hydraulic systems for lifting / dumping;
- The scale of drive train and engines / motor(s) can be huge – above 1500kW;
- Most require a highly qualified operator and some are now autonomous (remote control).

Consequently when things go wrong the damage can be substantial and difficult if not impossible to repair to operable standard and economically. The recovery of a stricken machine can be an extensive operation in its own right and fires can take hours to bring under control and extinguish.

Incident Examples

CTA handles a number of severe or total loss claims involving heavy mobile plant used at mines. Below are a few typical examples:



Excavator Rollover



Water Truck Fire



Locomotive derailment



Excavator fire

In addition to the above we have seen losses involving collision between two machines, submersion of machines into water trapped in pits, and mechanical failures that lead to substantial engine damage.

Reinstatement Challenges

Ostensibly one might think that the repair or replacement of such heavy machines is straightforward and something to be driven by the OEM and Insured. This however is not the case as issues involving warranties and machine value can drive certain behaviour that can unnecessarily increase the claim value.

Tires

The large tires used on off highway dump trucks stand several meters high and wide. They comprise a somewhat sophisticated combination of rubber and internal steel structure and can cost hundreds of thousands of dollars to replace.

The operation of the tires for the intended duty is critical to truck performance and tire life. Tires can be susceptible to sidewall cuts, over stress when run in ruts, deflection when under inflated, and so on.

Often the tires can be quite robust and can be re-used post incident, however if the tires are exposed to prolonged heat or fire then the tire wall can become compromised and/or contain a latent defect or damage which in time may manifest as with the tire leaking or worse – exploding.

Being an important item to the safe operation of the machine, OEM's and Insureds often take a cautious approach when considering whether the tires have suffered damage. Often in such cases it is difficult to argue an alternative position and Insurers should expect to see costs for tires in claims where a severe impact or fire has been sustained. That said, tires are wear items and incidents can often be a trigger for tire replacement so the issue of 'damage' is critical to whether replacement costs are claimable or not.



Engines & Transmission

When a machine rolls on its side, its engine should shutoff very quickly as the emergency shut-off system activates. This however does not always work as intended and some engines may 'run' for a short period of time when the machine is on its side. This can cause lubrication issues as the sump oil shifts from its normal position. Internal damage to cylinders and crankshafts can follow as normal lubrication is lost, or due to hydraulic lock.

The above is not controversial, however often during any necessary engine rebuild, it will make sense for certain components to be replaced. The question often arises as to whether the driving need for replacement is 'damage' or normal 'wear and tear'. Careful review of the components can assist the engineering adjuster in determining whether costs are to fall to uninsured maintenance or repair of insured damage. Often there will be components such as seals that are 'consumable' and will be necessarily replaced as part of any intrusive repair work.



Chassis

The chassis is the vital 'skeleton' of the machine and can often be the 'game changer' in a claim if confirmed to be substantially damaged.

When large mobile plant is involved in a roll-over or collision, scrutiny of the machine's structural frame occurs. Often non-destructive testing of welded plates or the steel beams themselves will be undertaken to ascertain if any cracks are present. On occasions some cracks may be pre-existing fatigue cracks which have formed over a long period of time rather than instantaneously from a high impact incident.

When cracks are found it is therefore important to ascertain the nature and therefore the cause of the cracks as some will be insured whilst others may not. It can become a complicated discussion when a fatigue crack has been exacerbated from an impact incident. Nonetheless it should not be assumed that all discovered cracks relate to the Insured incident.

It can also be the case that when a machine is disassembled for repair that its frame may release stress by deforming. This can result in a re-assembly challenge. Whilst a reasonably rare situation it can however occur if the impact was severe. The difficulty that then presents is whether the frame can be returned to its normal configuration in a cost effective manner. Sometimes damage such as this to a frame can be dire for the machine and it may simply become scrap if repairs are uneconomical.

Finally one last aspect which can be a hidden problem is heat damage to the steel structure. Prolonged exposure to fire where temperatures are significant can affect the parent alloy's yield strength and stiffness. Welded connections in particular are susceptible to softening and movement when exposed to prolonged and severe heat.

In some cases rather than abandoning the structure because of its exposure to heat, there can be an option of installing supporting braces to the existing structure. Whilst a dramatic solution, this may be more cost and time effective than seeking a replacement machine of similar capacity, particularly in the case of extremely large and valuable equipment.

CTA has been involved in many machine rebuilds where the above issues require consideration.



Cabs

The control centre for the machine is the cab. It not only houses most of the instrumentation displays but is also a safety critical item which protects the operator and which is subject to strict safety codes.

When Cabs are involved in impacts, fires or exposed to water it is often difficult to rebuild them economically. Insurers should expect to see cabs replaced when involved in significant incidents.

Hydraulics

The hydraulics fitted to machines utilise a large number of hoses and are operated under high pressure. The hydraulic systems tend to be of interest in insurance claims because of two reasons being:

1. High pressure hydraulic fluid is flammable and often the fuel load which feeds an on-board fire; and
2. A number of fires will start with a hose failure and to this end may represent a subrogation potential if it is shown that the hose is defective or was installed by a third party in a deficient manner.

An engineering adjuster would be well placed to secure evidence early when a fire claim involves hydraulic hoses.

Ancillaries

The electrics and other on-board systems can be damaged in impacts and fires. Their collective costs can be substantial and again the main issue will be for the adjuster to determine what might be replaced because of maintenance rather than damage.

Policy indemnity value requirement

Finally, one interesting and sometimes vexing issue with heavy mobile plant claims is the stipulation by most policies to settle total loss claims where the machine is greater than a certain number of years in age at market value.

Market value is a variable proposition as the machine can often be rare (as is the case for certain drill rigs) and the condition, use and maintenance can vary considerably from unit to unit, with few reference sales available for direct comparison. Immediately this can draw the value discussion into potential dispute.

In these situations CTA takes care to establish a full baseline of maintenance and overhaul data for the subject machine before we seek valuations from various sources. In this way a transparent discussion can take place such that a fair and reasonable market value is determined which both the Insured and Insurers can accept.

Conclusion

The tension between repair versus replacement can often drive claims costs upwards. With careful assessment by suitable engineering experts coupled with identification of appropriate repairers, it is possible to control costs and ensure a reinstatement which meets standards and saves money and time.

An experienced engineering adjuster who is familiar with the mechanical, structural and electrical / hydraulic systems can be invaluable in guiding the reinstatement to a cost effective solution which sits within the cover afforded under the Policy.

CTA has been involved with many losses over the years involving large mining mobile plant. Early appointment of engineering adjusters to be involved in the repair scope and reinstatement monitoring can be useful in reducing the overall loss quantum.

About Us

CTA is one of the leading loss adjusting businesses in the market. We provide loss adjusting services across energy, marine, aviation, property, casualty and special risks along with average adjusting services for ship owners. The business primarily focuses on larger and more complex commercial losses arising from major insured incidents and claims. CTA is a business of Charles Taylor Plc (www.ctplc.com) which is quoted on the London Stock Exchange (CTR).

Charles Taylor plc is a leading provider of professional services to clients across the global insurance market. The Group has been providing services since 1884 and today employs over 1,700 staff in 72 offices spread across 29 countries in the UK, the Americas, Asia Pacific, Europe the Middle East and Africa.

The Group offers services, principally on a fee-based model and operates through three businesses – Management, Adjusting and Insurance Support Services. It also own insurers in run-off. Charles Taylor's vision is to become the professional services provider of choice to the global insurance market.

CTA Expertise

CTA has qualified engineers on staff throughout all Australian offices with diverse backgrounds ranging from “big picture” Project Engineering / Construction right through to detailed design work. Our Engineering Adjusters hold Adjusting qualifications and are members of the Australian Institute of Chartered Loss Adjusters (AILCA), the Australian & New Zealand Institute of Insurance and Finance (ANZIIF), or other UK-based professional bodies of equivalent or higher standards.

We ensure outcomes are concisely reported to Insurers to match their requirements in documenting the circumstances of the loss in a clear and logical manner, allowing them to reach a conclusion in respect to policy response.



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