CAT 789C TRUCK REBUILDS

AusIMM Conference

August 2023

POWER ON THE GROUND


TERRA
CAT


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WHY UNDERTAKE THIS SCALE OF REBUILD?

- Cat equipment is designed to give multiple lives.
- Extend the life of the asset, reducing overall costs.
- Return the asset to ‘like new’ reliability and availability.
- Perform current product updates, required for any ‘Certified’ rebuild work.
- Like new warranty support.
- It’s an opportunity to perform upgrades to the equipment using Cat upgrade kits which means they are designed for the job and supported.

WHAT WERE THE EARLY STAGES OF THE PROJECT?

What lead up to the decision to rebuild these trucks?

- The initial idea was discussed in 2019.
- Delivered new in 2002 and having been parked since 2014-15, and with 65,000-70,000 frame hours, the trucks were in a poor state and many parts had been removed, systems left exposed to the weather, and there were birds living in the cabs.
- The first step was to assess the condition of the main frames, what was the quantity and quality of old repairs, were there any obvious areas of concern?
- Originally it was intended to rebuild these to standard 789C configurations. Oceana Gold asked if we could upgrade them to the high horsepower engine to provide similar performance to the 789D fleet.


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WHAT SCALE OF REBUILD?

- Typical site-based work would be classed as a mix of **Level 2** with only some components rebuilt and some other tidy up work performed.
- Offsite machine rebuilds conducted in the past for Oceana Gold would fall into **Level 3** with all components rebuilt, surrounding systems repaired, and some frame repairs.
- The proposed work would be **Level 4** with a full Cat Certified Power Train (CPT) rebuild and systems replacement, and extensive frame inspection and repair.
- As the upgrade to the high horsepower engine is not a factory upgrade, we could not perform a full Cat Certified Rebuild.

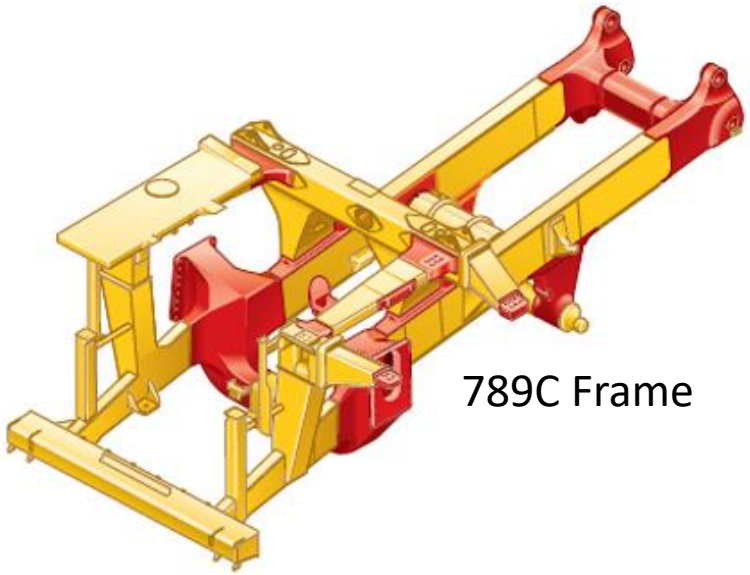
WAS TERRA CAT UP TO THIS WORK?

This project was going to be a significant investment, in time and money. Oceana Gold needed to have confidence that rebuild was the right decision.

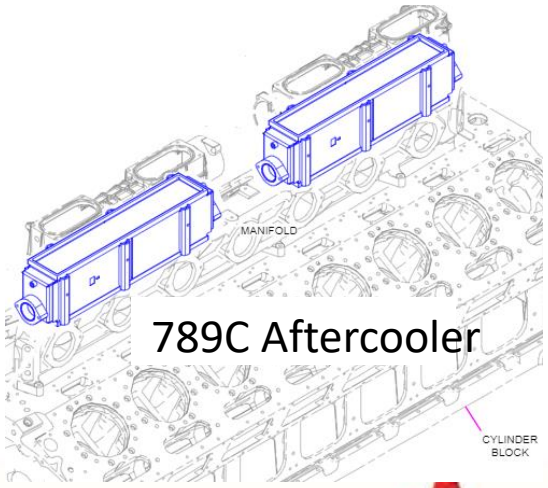
- We have performed many machine rebuilds to meet different customer needs, from mining machines to machines operating in Antarctica.
- The greater Sime Darby Industrial team have performed rebuilds on 200+ mining trucks. We leveraged off this experience in the initial stages of the project.
- In addition to our standard warranty on parts and workmanship, we were able to provide a 24-month/10,000-hour extended protection plan on the certified powertrain rebuild.

These factors, as well as a long-term relationship with Terra Cat gave Oceana Gold confidence to proceed with the project.

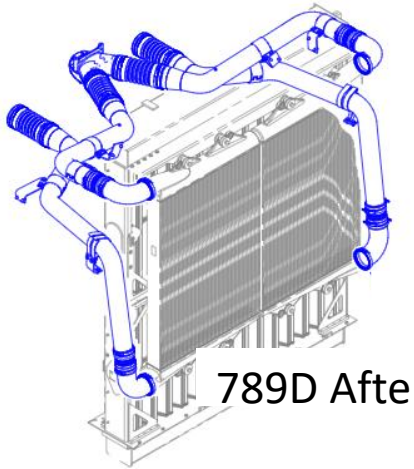
2,100HP 789D ENGINE - CAN THE 789C BE CONVERTED?



789C Frame



789C Aftercooler



789D Aftercooler

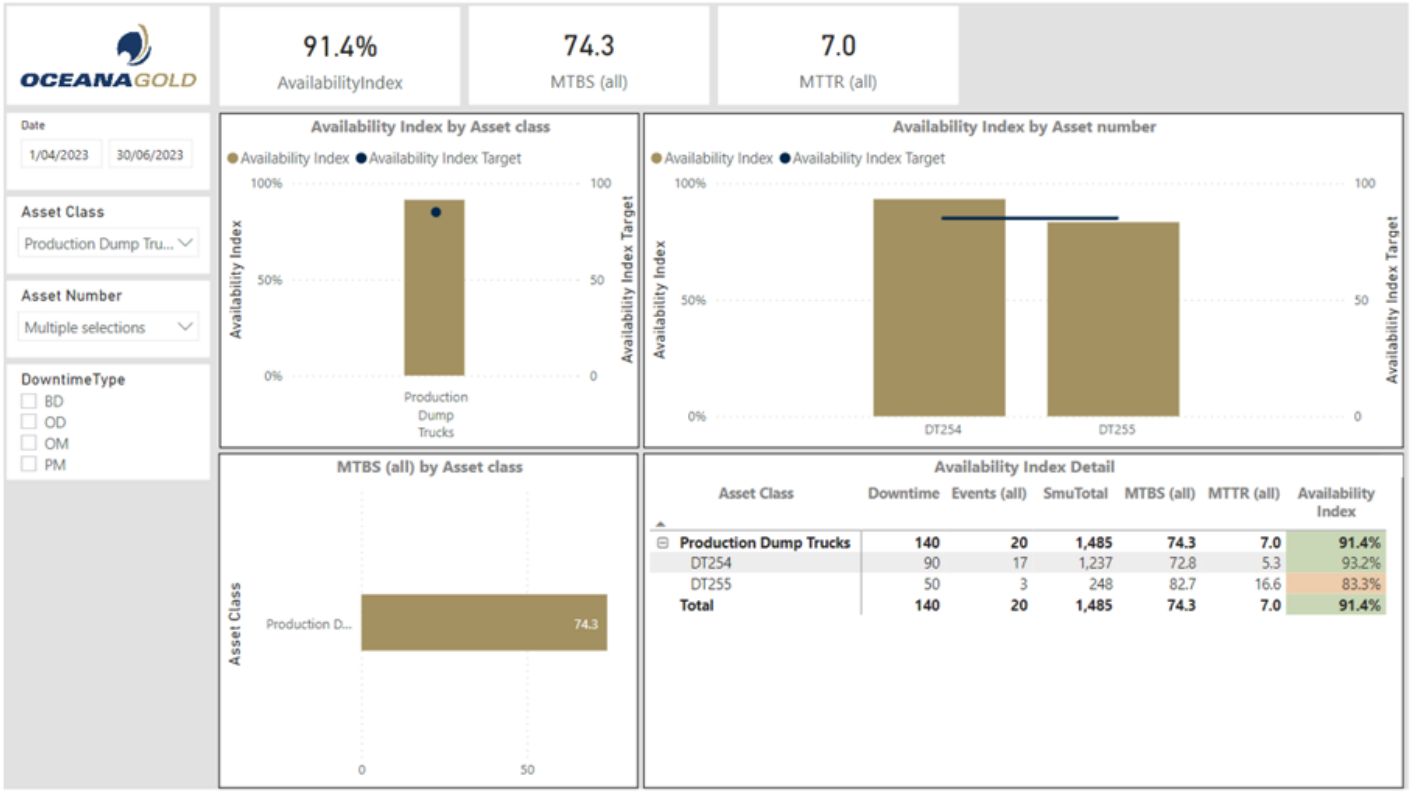
789D Frame

WHAT WERE SOME OF THE MAIN CHALLENGES?

- The timing from project approval to the completion of three truck rebuilds has taken approximately 12 months.
- Parts supply was an area we had to manage carefully. Across all industries there have been some hurdles.
- We needed to ensure we used parts that maintained the factory brake and steering systems to ensure we didn't compromise the certifications.
- The trucks are NOW fitted with 789D cabs, and the factory ROPS certifications on these cabs do not cover the 789C truck. The ROPS had to be recertified.
- Until the first truck was powered, we couldn't be completely sure how the 'D' electronic systems would interact with the few remaining 'C' systems.

ONCE REBUILT, HOW DID THEY PERFORM?

- On return to site and final assembly, the trucks passed the expected performance criteria.
- At this stage two trucks are in service and the third is undergoing final assembly and testing in Christchurch before being transported to site.



SUSTAINABILITY

- Caterpillar mining trucks have proven durability, with frame lives exceeding 180,000 hours at numerous site around the world. The only major casting replaced in these 789C frames was the torque tube, all other areas of the frame were repaired and reused.
- The engine, torque converter, transmission, differential, rear axle housing, suspension cylinders, and final drives were all rebuilt (Cat Reman or by Terra) and reused.
- The later engine meets improved emissions standards.
- These trucks have been returned to service for ~69-73% of the cost of a new truck. This has delivered a financially sustainable option as well as an environmental good news story.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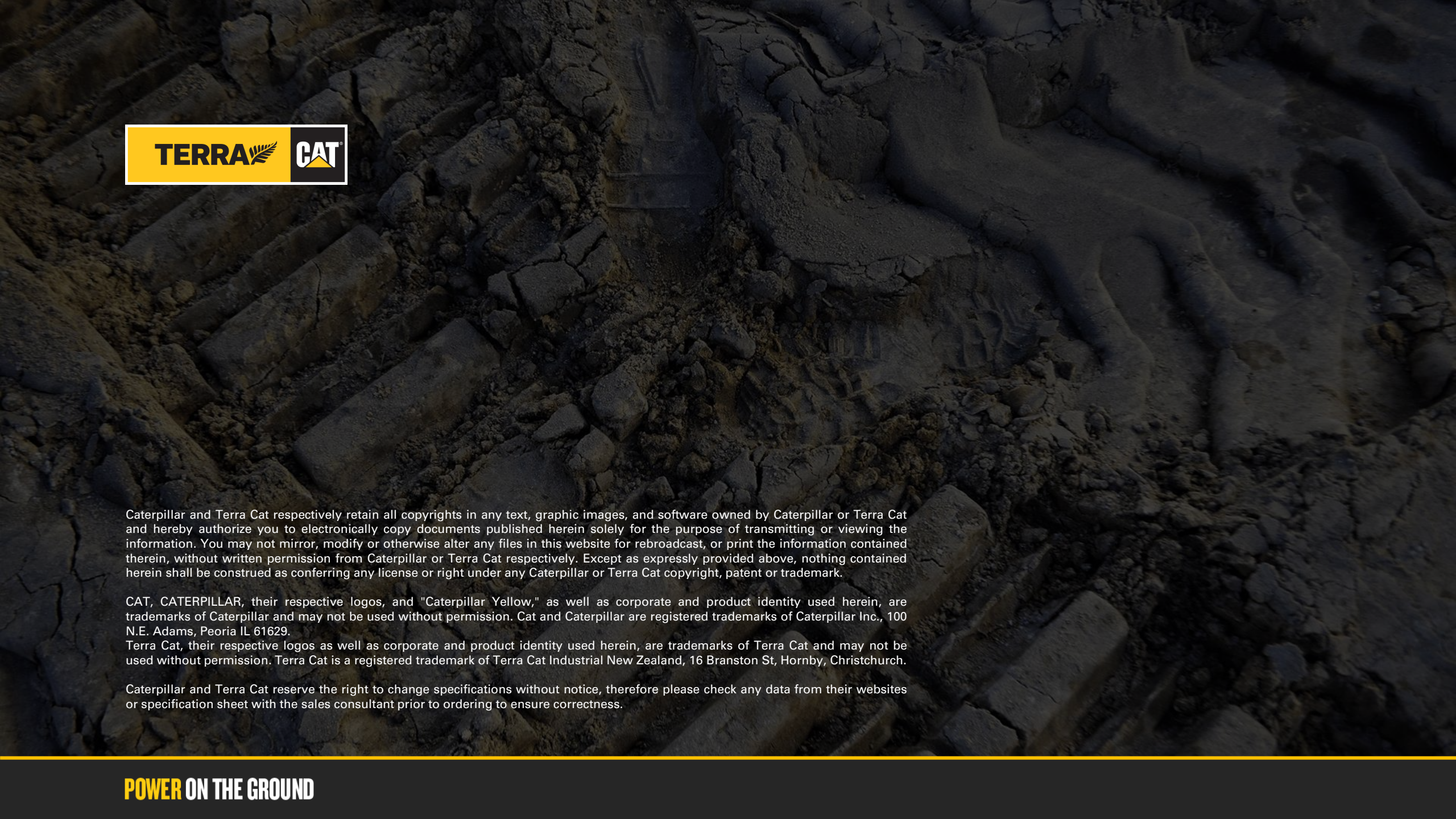

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