

E-series large trucks on show at Bauma Conexpo Africa

Bell Equipment will introduce a prototype of its E-series large truck range at Bauma Conexpo Africa 2015 after having received positive market feedback at Intermat 2015 in Paris earlier this year where the company had a prototype of their B50E Articulated Dump Truck (ADT) on show.

The B50E will in time succeed the world's first production 50-tonner, the Bell B50D, and is a vital part of the second phase of the company's E-series development programme. This phase encompasses Bell Equipment's trucks in the 35, 40, 45 and 50 ton payload classes.

Bell Equipment's Product Marketing Manager, Tristan du Pisanie says: "Our smaller 20 to 30 ton E-series ADTs formed the first phase of development. They have been well accepted by the market so there has been no need for a change of approach with our larger trucks and we are excited to showcase our B50E prototype at Bauma Conexpo Africa. Importantly this family of trucks shares a platform that is conceptually the same and is an evolution of our D-series trucks, which have proven themselves as class leaders during their 12 years of operation all over the world."

Styling and Operator Cab

Giving a walk through the E-series large truck, Tristan explains that the distinctive and striking styling that was introduced with the small truck range has been carried through to the larger trucks. "The hood or bonnet now covers the air cleaner for a neater look while moving the lights into the bonnet and back from the front of the truck provides more protection of the lights."

The class-leading operator cab on the E-series is an important feature and operators will be pleased with the efficient and clean ergonomics, low noise levels, a full-colour driving screen incorporating the reverse camera display, B-drive automotive-style mouse navigation of the display screen, numerous storage areas including a cooled/heated compartment as well as sealed switch modules that are impervious to water and dust ingress.

Engine and Transmission

Under the hood Bell Equipment has chosen to continue using highly efficient Mercedes Benz engines. The Mercedes power plant is designed for trucking and ensures reliability, durability and lowest fuel burn without

any performance compromise. In the relevant power classes Mercedes Benz has moved from V engines to Straight 6 engines to meet the Stage IV/Tier 4 Final legislation in emissions-regulated markets. In non-regulated markets the engine will meet Stage 3a/Tier 3 engine emission levels. Says Tristan: "This change has been incorporated into our E-series large trucks resulting in an increase in kW/tonne to deliver better cycle times. The new engines from Mercedes Benz also show improvements over the outgoing 500 Series engines in the areas of emissions, power density, noise levels and fuel consumption; so we look forward to seeing these engines offer more value to our customers."

In terms of transmissions Bell has listened to their customers, who have universally praised the use of Allison transmissions in their ADTs. However, there are two noteworthy changes; firstly the transmission retarder has been removed to make space for the inline 6 engine and secondly the B50E has received a 7-speed transmission.

Operators have always been impressed with the powerful and automatic retardation offered by Bell ADTs and this will be maintained through an automatic retardation function in the cooled wet brakes. In addition the 7-speed transmission on the B50E gives an improvement in the ratio steps between gears, for better performance and fuel burn, thanks to optimised transmission shift points.



The Mercedes Benz power plants in the E-series large trucks are all Straight 6 engines that meet the Stage IV/Tier 4 Final legislation. These engines show improvements over the outgoing 500 Series engines in the areas of emissions, power density, noise levels and fuel consumption while also providing an increase in kW/tonne to deliver better cycle times.



While Bell has listened to their customers and retained the popular Allison transmissions in their E-series large ADTs, the transmission retarder has been removed to make space for the new inline 6 engine, and the B50E has received a 7-speed transmission.

Payload

The payloads and capacities of the B35E, B40E and B45E have also been increased to further strengthen Bell Equipment's competitive offering with their large trucks. Comments Tristan: "Matching payloads to loading tools and the number of passes by an excavator is still a key factor but we have seen that we need to shift the payload limits marginally to make room for those applications where the trucks are loaded with materials with differing densities."

Axles

To cater for the increased payload of the E-series large trucks the fabricated and machined axle housings have been strengthened accordingly. However, this has necessitated using separate oils for the wet brake system and the axle. Explains Tristan: "Using the wet brakes for the retarding function increases the heat load in the brake system so this has required a fully-flooded wet

brake system and significantly larger wet brake oil cooler. This separation has allowed Bell to choose the optimum commonly available oil for both the wet brake system and for the axle oil."

Cost per Tonne

"Throughout our large trucks there are many features and specs that differentiate a Bell ADT from competitor ADTs. Most importantly all of these features impact favourably on the cost per tonne of our trucks. Lowering the cost per tonne on our E-series truck was a major goal of the programme because a lower cost per tonne allows our customers to either be more profitable or be more competitive when tendering for projects. We have run comparative testing in various applications between our D-series and E-series trucks. This data, when combined with various financial scenarios that take into account the purchase, resale, repair and maintenance costs of a truck, shows a consistent improvement in cost per tonne for the E-series," says Tristan.



The E-series large ADTs have many features that differentiate them from competitor ADTs but Bell is most pleased that it has succeeded in lowering the cost per tonne of these trucks.



The prototype Bell B50E ADT was on show at Bell Equipment's stand at Intermat 2015, Paris and is destined to succeed the company's ground-breaking B50D.