

# Long rear frame solutions for Cat® Articulated Truck Bare Chassis

Cat® Articulated Dump Trucks are designed for dirt hauling. The body, wheelbase and rear frame are designed to appropriately load all three axles; thus, achieving maximum payload capacity and providing necessary steering, braking, ride and off-road mobility during both fully loaded and empty operating conditions (Figure 1).

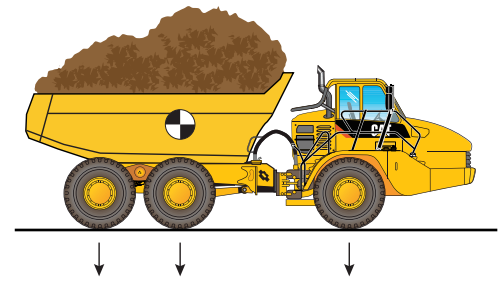
An engineering challenge arrives when the payload is something other than a heaped dirt load. For example, applications such as water trucks, coal or trash dump bodies, hook lifts or ISO container carriers where payloads must be spread out, requiring a longer container or body, a longer chassis is also required. Custom bodies for such applications often result in the payload Center of Gravity (CG) being pushed rearward (Figure 2).

This has the potential for negative results:

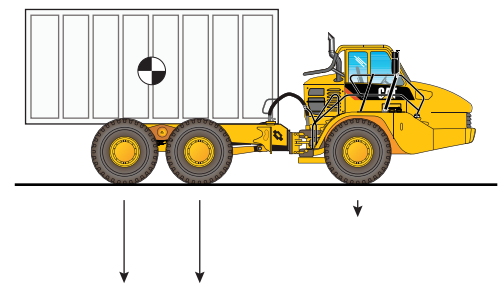
- Over-loading the rear axles and under-loading the front axle can affect steering and braking.
- Due to the payload CG being shifted rearward, the front axle capacity is not fully utilized, thus restricting the machine's total payload. For example, a machine designed to carry 30 ton (27 tonne) may need to be restricted to 26 ton (23.5 tonne).
- In tipping operations, the rear axles can sink excessively, causing the machine to get stuck and/or the front of the machine to be lifted off the ground.

To address the challenge of the payload CG shifting rearward, Caterpillar offers a longer rear frame as an option. These are called articulated truck (AT) long wheel base (LWB) bare chassis machines (Figure 3). There are machine performance reasons why Caterpillar designs and offers optional rear frames that are approximately 60 inches (1500 mm) longer than standard. This gives customers the best platform to install alternative attachments. Caterpillar OEM Solutions Group works with dealers, customers and OEMs to use these AT LWB bare chassis to achieve maximum machine capacity, while not comprising steering, braking, ride, or mobility during either fully loaded or empty operating conditions.

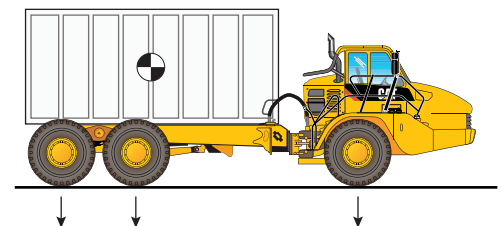
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**Figure 1.** Body, wheelbase and standard rear frame are designed for high-volume dirt hauling applications.



**Figure 2.** Installing a custom body that is longer than the typical dump body pushes the payload CG rearward, adversely affecting steering, braking, mobility, ride and frame loading.



**Figure 3.** Using a longer wheelbase rear frame addresses the payload CG being shifted rearward and allows loading all axles to achieve maximum machine payload capability.