



Undercarriage

Innovative “Dual Bushing Track”

Undercarriage Costs and Reduction Measures

Costs for repairing parts used in the undercarriage of bulldozers generally account for more than 30% of the total repair costs of bulldozers. As such, extending the undercarriage life can significantly reduce repair and maintenance costs.

In order to extend the life of undercarriage parts, it is important to select specifications suited to the jobsite and to engage in operation that avoids high-speed traveling and sudden turns. Nonetheless, it may be difficult to stop undercarriage parts from wearing quickly depending on the type of soil at a site. Substances such as silica (SiO₂) and alumina (Al₂O₂) are harder than the materials used for undercarriage parts, which can lead to faster-than-normal wear at sites with a high proportion of

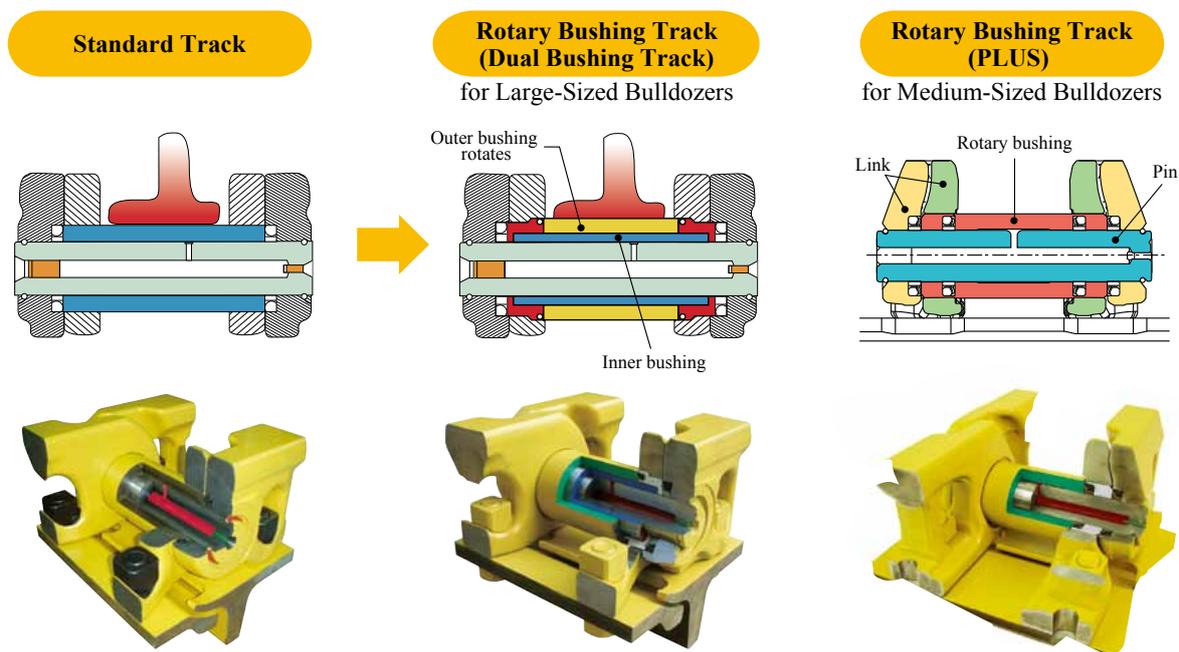
such elements. As a result, the bushing of the track shoe assembly may wear down in less than 1,000 operating hours.

Development of Rotary Bushing Tracks

During traveling, the bushing of the track shoe assembly generally comes into contact with and slides across the sprocket teeth as it rotates, causing the bushing to wear. However, it is possible to reduce this wear drastically if the bushing rotates in accordance with the sprocket teeth. In order to realize this principle, Komatsu developed two types of rotary bushing tracks, which have already been introduced to the market.

The first one is called PLUS (Parallel Link Undercarriage System), which was developed for

Structural Difference between Standard Track and Rotary Bushing Track

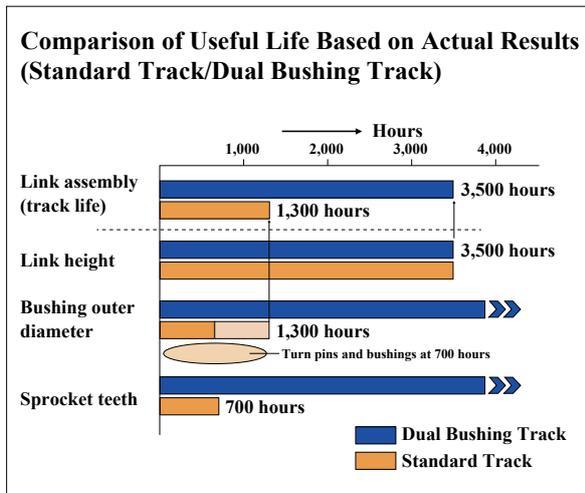


medium-sized bulldozers and is installed in the D51, D61 and D65 models (introduced in a 2008 issue of Views). The second is called the “Dual Bushing Track,” which was developed for large-sized bulldozers. Details regarding the Dual Bushing Track are featured herein.

Unlike PLUS (in which the bushing rotates around the pin), the Dual Bushing Track employs a double bushing structure in which the outer bushing rotates freely around the inner bushing. For that reason, it is highly effective at jobsites containing sand and soil that cause bushing to wear quickly, culminating in an extended life not only for the bushing but also for the sprocket teeth.

Ahead of the development of the Dual Bushing Track, customers expressed a strong desire for longer life of the undercarriage on the D275 and swift introduction. Accordingly, Komatsu sought to keep required changes to existing parts to a bare minimum and used the same standard parts for the links that form the mount for the track shoe assembly. The only new structural component in the design was the bushing. When switching from an existing track shoe assembly, it is also possible to replace the teeth as a set, making it easy to fit on bulldozers already in operation. The Dual Bushing Track has been commercialized for the D275, D375 and D475 so far.

* The Dual Bushing Track is not durable in withstanding impact shock. Therefore, it is advisable to avoid using at jobsites with rocky or rough ground.



Example and Effects of Applying Dual Bushing Track

The diagrams show a customer case in which the undercarriage life was significantly extended by using the Dual Bushing Track. The D275 bulldozer was in operation at a phosphorous mine. Although the bushing and teeth had worn down after 700 hours of operation on a standard track shoe assembly, fitting a Dual Bushing Track enabled 3,500 hours of operation. This equated to a 46% reduction in operating costs for the customer.

Standard Track	→ Operating hours	Operating hours: 700 hours		
	700 hours			
Dual Bushing Track	→ Operating hours	Operating hours: 900 hours		
	900 hours			
	→ Operating hours	Operating hours: 3,500 hours		
3,500 hours				



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