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## **Ways to Improve Efficiency of Braking System of Mine Contact Locomotives**

Poor efficiency is one of the key problems of modern mine locomotive transport. Aging of mine facilities resulting in approach of mining to mine-field boundaries factors into steady increase in route length, and change for the worse of horizontal line of mine track.

As a rule, loaded train moves downhill from loading points to a shaft. Nonobservance of tonnage rating or changes in grading of track within some working areas as a result of earth spring leads to braking difficulties. Increase in transport accident rate takes place. Only improving of braking system on mine locomotives can solve the problem.

Intensive and irregular wear of wheel roller face is a disadvantage of wheel and post brake in service. The fact affects traction and braking characteristics of locomotive; increase in dynamic loads on locomotive and track superstructure take place. It is possible to avoid wheel-set wearing and ingress of contamination into a contact area by means of using plate brakes. Brake plate being fastened down on both sides by means of friction discs placed in a sliding carriage is its key structural member. However, it is impossible to adopt directly plate brake system for mine locomotives. The matter is that narrow wheel spacing as well as tight gearbox integration on driving axles prevents brake plate placing on wheelset axle.

As a result, we can put forward a design on brake system of mine locomotive of a new engineering level which priority the application for a discovery confirms (№ 00033 от 02.01.2013 13:02:51). Thanks to new elements introducing, the ability is achieved to increase braking effort owing to friction factor stabilizing, dirt entry avoiding into an area of wheel contact and brake pads, decrease in probability of brake elements sticking as well as electric locomotive wheel functional surfaces. Current passed through zones of contact of friction discs and approach surfaces of wheel-sets, as well as rails and functional surfaces of wheel-set intensifies intermolecular interaction of contacting materials which improves friction factor between them, and improves the efficiency of locomotive brake system performance.