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## Repairs of Railway Lines Help Fighting Noise

Decreasing noise from railway operation is helped not only by modernisation of lines together with a complete exchange of tracks within global line modifications. Noise levels can also be positively influenced by exchanging worn-down rails with worsened technical parameters in connection with repairing their fastening to sleepers. Experience from the line Praha – Beroun confirms this.

Správa železniční dopravní cesty (SZDC) has almost finalised modernisation of all transit corridors as well as many important junctions. A major reconstruction is expected in the near future e.g. in the sections Praha – Beroun and Lysá nad Labem – Velký Osek where noise was increasing also due to their technical state.

Local inhabitants, self-governments as well as hygienic service requested repeatedly a fast and effective restriction of this noise burden. More specifically in case of the connecting line between Praha and Beroun along Berounka River, rails were exchanged in the last three years on more than a half of the railway line. Given their lifetime, new rails can be also used later in the given section during future modernisation. Only this year, necessary repairs were carried out between Smíchov Station in Praha and Radotín or between Karlštejn and Beroun. The noise burden decreased also in Černošice due to reparative rubbing of rails last year.

Repeated noise measurements demonstrated that the extent of noise burden reduction acquired by repair works can fluctuate, especially depending on the original state and parameters of the line. A decrease by three – five decibels is very positive already as it can be perceived also by the human ear. For instance in the Praha quarter Malá Chuchle, i.e. in the section between railway stations Praha-Smíchov and Praha-Radotín, the impact of repair works was noticeable indeed when the equivalent noise level decreased (compared to the limit) by more than ten decibels only by improving infrastructure parameters. The original noise exposure values of individual trains' passage reached up to a hundred decibels.

If it was relatively irrelevant from the point of view of noise emissions which type of train was running on an unrepaired line, suburban double-deck trains CityElefant with a decrease of noise exposure in average by 17 decibels belong now to the most silent trains. They are followed by express trains and fast trains with prevailing modernised coaches (–13 decibels). Emissions from operation of somewhat more noisy freight trains decreased approximately by four decibels.

Thanks to these results, SŽDC has confirmed the importance of carrying out repair works of larger extent wherever it may be needed. This contributes not only to an improvement of the railway infrastructure but to a noticeable decrease of the noise burden from passing trains. This is good news for all citizens living in the proximity of railway lines.

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