expression (6) in the article of the RTRI report. Specifically, it can be understood that the resultant force Fa1 + Fq1 of a set of the left wheel and the left bearing of axle-box in the wheelset and the resultant force Fa2 + Fq2 of a set of the right wheel and the right bearing of axle-box in the wheelset are balanced through the axle. That is, the minus sign ("-") indicates a direction of force with respect to the center of the axle.

On the other hand, the resultant force Fa1 + Fq1 at the left side and the resultant force Fa2 + Fq2 at the right side are forces along the longitudinal direction of the axle (the above-mentioned crosswise direction). From this, Fa1 + Fq1 and Fa2 + Fq2 are balanced by the force in the longitudinal direction (axial force) applied to the axle.

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Specifically, when the force in the longitudinal direction (axial force) applied to the axle is defined as Fa3,

$$Fa1 + Fq1 = Fa3$$

$$Fa2 + Fq2 = Fa3$$

Therefore, lateral forces Fq1 and Fq2 applied to the rail from each wheel can be calculated from the expression "A" described below.

Expression "A":

$$Fq1 = Fa3 - Fa1,\ Fq2 = Fa3 - Fa2$$

Accordingly, when the force Fa3 in the longitudinal