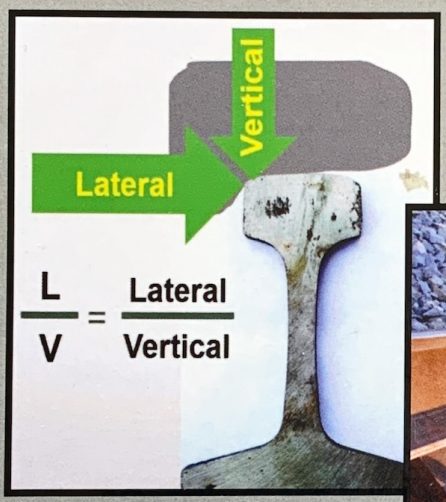
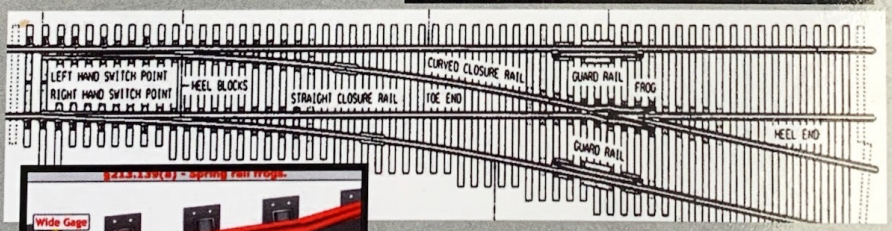
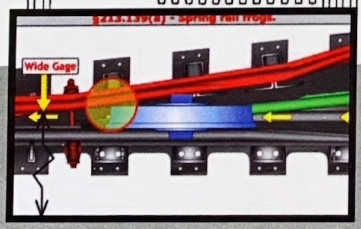
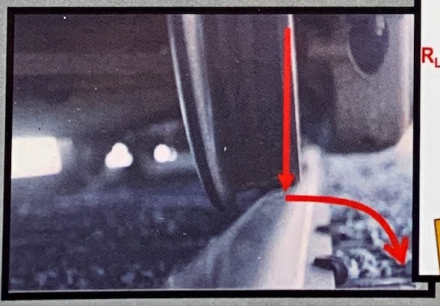
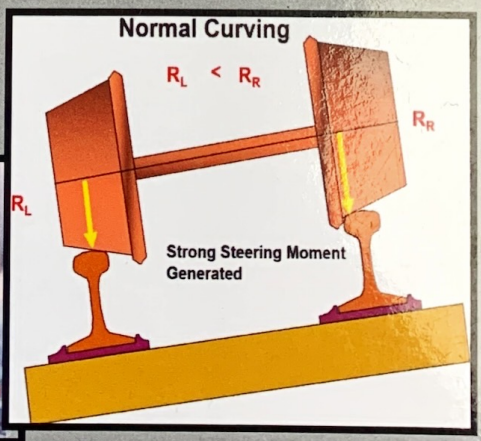
The Complete Field Guide to Modern Derailment Investigation











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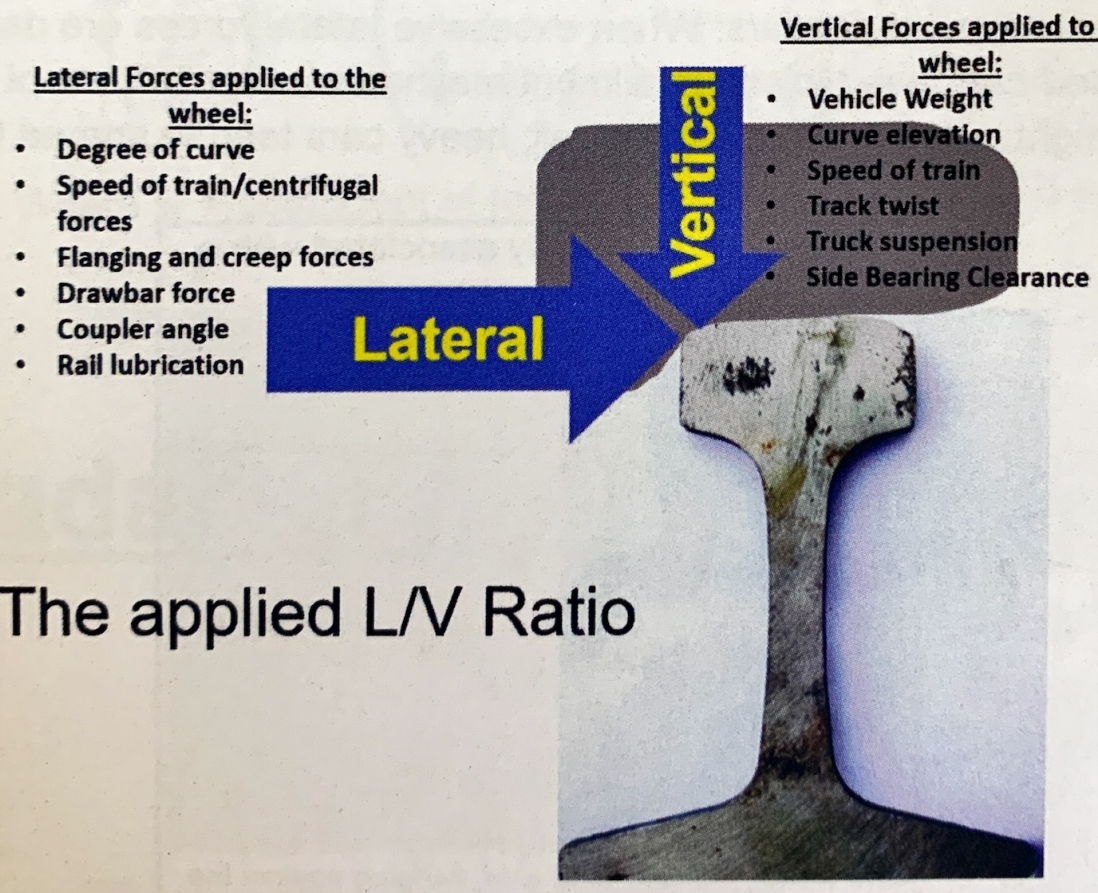
summary, it is evident that the development of wheelset lateral and rtical forces involves many complex, interrelated, factors. As a rail hicle traverses a curve, and is subject to track elevation, twist, and gnment irregularities, the wheelset forces change dynamically, foot-by-ot, second-by-second. This makes simple calculations of applied verti-l and lateral wheel forces near impossible. Only with the advent of mputer software, in the form of vehicle dynamics simulation programs, n these calculations be made in real time. This is why computer simu-tion analysis is the best method for understanding the root cause of railments. With simulation analysis, each factor can be isolated and its ntribution to the net wheelset force can be calculated with a high de-ee of precision.



e L/V index, or threshold, is the limiting value at which wheels that are bjected to some applied L/V ratio will either climb a rail or roll a rail tward. When dealing with the L/V index for wheel climb, it is primarily a nction of the angle between the wheel flange on the gage face of the il, and the friction present at the wheel-rail interface. The L/V index for

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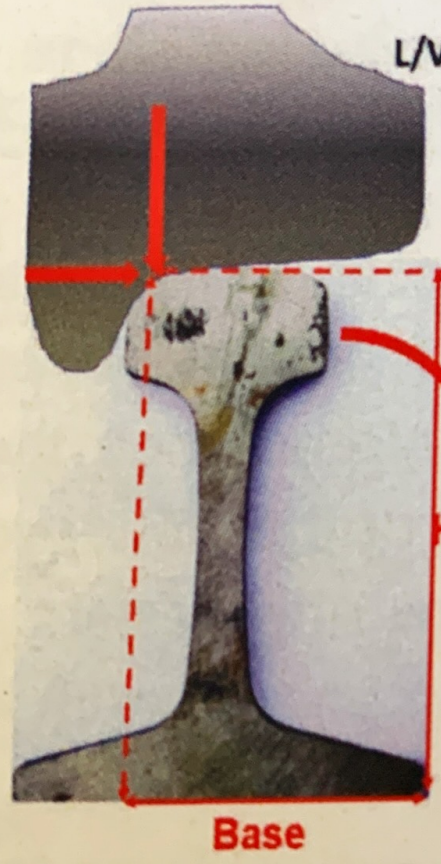
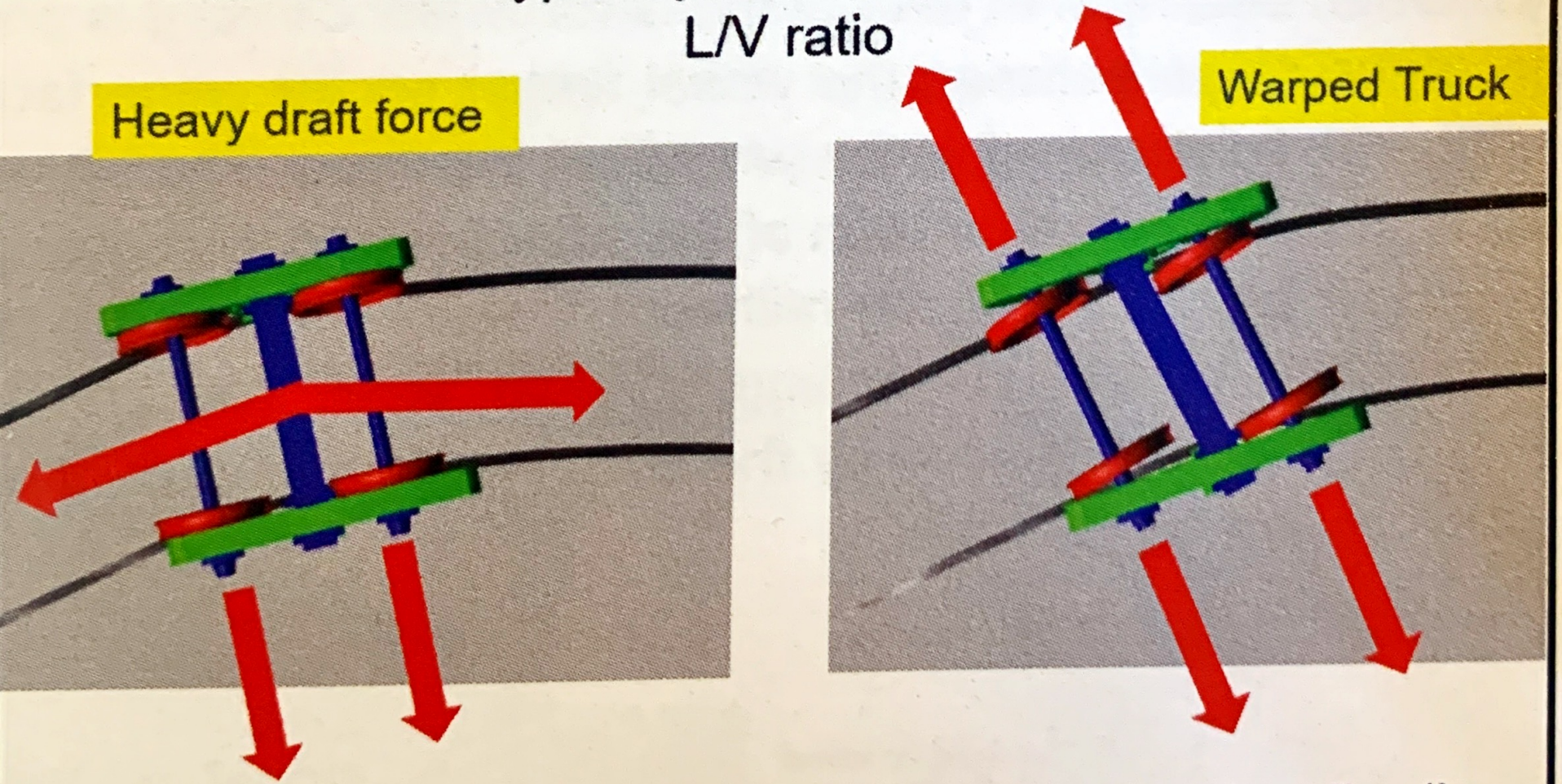


L/V for rail rollover is a function of:

- Wheel/rail contact points for vertical and lateral loads
- Height of rail and base dimension of rail (called B/H ratio)
- Wear of the rail head and wheel surface

Rail rollover is typically a truckside L/V (two axles), Usually a lead truck

Rail rollover typically associated with a truckside L/V ratio



Both axles of a truck acting to spread gage or roll rail