



TECHNOLOGY DRIVEN. WARFIGHTER FOCUSED.

Integrated Mathematical Modeling Software Series of Vehicle Propulsion System: (1) Tractive Effort (T_{ew}) of Vehicle Road Wheel / Track Sprocket

P-11

Introduction: A Propulsion System Tractive Effort (T_{ew}) must balance or exceed the vehicle tractive Resistances of Rolling , Air, Gradient, and the inertia of the rotating elements which will be sub. Of next papers. The subject of this study is the Tractive Effort (T_{ew}). See **P11 for details.**

Innovations: introduces new method of **mathematical correlation of engine thermodynamics to the dynamics of the vehicle road wheel/sprocket.**

N_e is directly integrated into the vehicle wheel or sprocket tractive effort

The tractive effort equation is derived to work with both the Metric and British system of units. Incorporates the mech, effic. 1,2 & ic1,2 **of each component engaged**

Conclusion: Usage Scenarios: Put into service for use by:

- Propulsion system designers as a design tool.
- Acquisition personnel of new vehicle system procurement (Source Selection Evaluation Board).
- Vehicle users, in an embedded real-time vehicle diagnostic information display.
- University students in a Mechanical Engineering automotive course.