



US006290505B1

78,887

(12) **United States Patent**  
**Garcia**

(10) Patent No.: **US 6,290,505 B1**

(45) Date of Patent: **Sep. 18, 2001**

(54) **BALLISTIC PERFORMANCE SIMULATOR**

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(\* ) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 0 days.

(21) Appl. No.: **09/320,360**

(22) Filed: **Apr. 19, 1999**

**Related U.S. Application Data**

(60) Provisional application No. 60/080,571, filed on Apr. 3, 1998.

(51) Int. Cl.<sup>7</sup> ..... **G09B 23/06**; B64G 1/40; B64G 1/42; F02G 1/00; F02G 3/00

(52) U.S. Cl. .... **434/300**; 244/172; 60/200.1

(58) Field of Search ..... 434/118, 300, 434/302; 244/158 R, 172; 60/200.1, 721

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(57) **ABSTRACT**

Rocket/Missile flight simulation requires the thrust-versus-time profile of a rocket motor conditioned to a specific temperature. The use of program, preferably carried in an Excel spreadsheet, is disclosed to instantly generate interpolated thrust-versus-time profiles of any rocket motor, at any operating temperature. The spreadsheet is based on statistical data of total impulse and action time at the temperature extremes, and one thrust-versus-time curve. The spreadsheet works by proportionally expanding or contracting a given baseline thrust-versus-time curve until it fits a desired area under the curve and action time duration, which gives an excellent correlation between the thrust-versus-time curve from other firings (at various temperatures) to the curves generated by this spreadsheet. Thus, the program can be used to generate thrust-versus-time profiles for other rocket motors with minimum amount of time and data required.

3 Claims, 5 Drawing Sheets

