Intelligent Vehicle Damage Assessment and Cost Estimator for Insurance Companies

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Literature Survey

[1] When the time comes to get an auto body repair estimate, you want a helpful tool, such as the collision repair cost calculator. While every job is different, it doesn't take a lot of work to figure out an approximate cost with a body shop estimate calculator. To help you with your collision cost estimator, we will look at the average repair costs, differences in job types, and rate some of the most expensive repairs.

[2] A revised damage analysis procedure for CRASH, which includes restitution effects, is described. The proposed calculation proce-dure has the potential capability of (1) im-proving the delta-V accuracy in low-speed collisions and (2) segregating stiffness and restitution properties. The analytical approach can provide a basis for refinement of the categorization of vehicles through its use of additional crush property descriptors. Sample results fromapplications of a prototype computer routine are presented and compared with corresponding results from the original damage routine of CRASH. The reported research has been supported by McHenry Consultants, Inc. SUMMARY AND CONCLUSIONS (1) Significant improvements in the re-construction accuracy of the CRASH3 damage algorithm can be achieved by means of a rela-tively simple revision that includes restitu-tion effects. (2) The existing A and B empirical stiffness coefficients of CRASH3 can be directly converted to those required for the proposed revision, with either (a) "represen-tative" or (b) individually measured restitu-tion effects integrated into the conversion process. Option (a) could serve to reduce systematic errors at low AV values. Option (b) could potentially achieve major improve-ments in reconstruction accuracy. (3) The four fitted constants of the revised damage algorithm, which segregate stiffness and restitution properties, can pro-vide a basis for refined categorization of vehicles. (4) The test data upon which the CRASH3 empirical fits of Reference 1 are based should be carefully re-examined. In the development of those fits, it has been assumed that common crush properties exist within each size cate-gory of vehicle, regardless of differences in the basic layouts of components and in overhang dimensions. The total numbers of included vehicles are limited, and substantial adjust-ments have been made in the results. A fresh look, with the CRASH4 data needs in mind, may define more proper categories on the basis of stiffness and restitution. Itmayalso elimin-ate any need for adjustment of the results.

[3] There have been several reviews of the costs to society of road traffic injuries. As far as methods for estimating costs are concerned, a main review was presented in 1994 by the European Commission, the action COST 313.

[4] Real world accidents analyzed in this paper are contained in the Crashworthiness Data System, (NASS CDS) database.

[5] For taking measurements of the damage area, commonly referred to as “taking crush measurements”, the measuring techniques commonly used are largely based on the measuring protocol outlined in Tumbas and sumith’s paper.

Reference

[1] https://phillongbodyshop.com/collision-repair-cost-calculator.html

[2] https://www.researchgate.net/publication/268260961_A_Revised_Damage_Analysis_Procedure_for_the_CRASH_Computer_Program

[3] Alfaro, J.L.etal. “Socio-economic cost of road accidents: final report of action COST 313”. Commission of the European Community, 1994

[4] NASS CDS database. Retrieved from http://www.nass.nhtsa.dot.gov/nass/cds/SearchForm.aspx.

[5] umbas et al. “Measuring Protocol for Quantifying Vehicle Damage from an Energy Point of View” SAE Paper 880072, 1988.