1117-68-207 **Paul Robert Stallings*** (paul@kubotekusa.com), 1506 Fisk Ct., Longmont, CO 80503. *A New Boundary Representation Boolean Algorithm.*

Abstract. One of the most useful ways to both create and modify parts is to unite, subtract or intersect one part with another, or Boolean them. The data structure I use in the paper is a boundary representation, or b-rep model. I have used a b-rep definition that is part way between the many formats in commercial use and inclusive of all the major format properties. Current Boolean algorithms, that operative on b-rep models, have not yet reached the formal level of proof that the well-defined algorithms of Computational geometry have. However, there is still a need to solve this very difficult problem along with the other difficult algorithms of blending, shelling, and surface creation that are needed in CAD to name a few. Since a Boolean algorithm depends on the use of several other algorithms, which together make up what is called a geometric modeler, this is a problem that academia does not have the resources to address and quite often the commercial world does not have the time to address. The algorithm presented here was developed by Kubotek Corporation over the last ten years at the cost of millions of. How the algorithm works, was developed and tested is presented. (Received January 14, 2016)