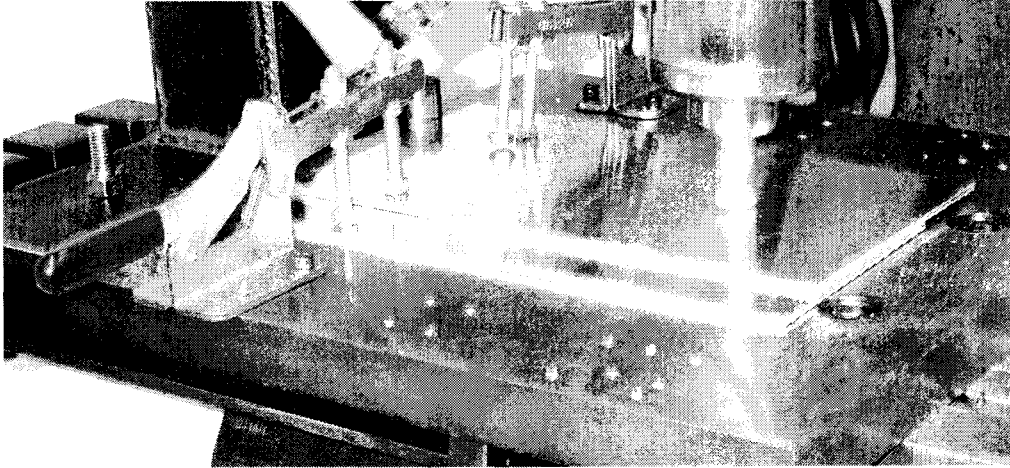


# Title: Friction Stir Welding Hole Defects in Aluminum Alloys

Semester: Fall 2002

Spring 2002



FSW laboratory at the Applied Research Center

This project investigates the critical size of hole-defects that can be resolved by a stir tool without compromising the mechanical properties of the weld. Hole-defects may occur during tool breakage or from solidification impurities in a work-piece. Results from these experiments will determine the critical size of hole-defects as a function of the nib diameter. Up to a critical size, hole – defects are virtually invisible to the stir tool, and the goal is to examine how larger hole – defects affect porosity and strength properties in the weld nugget. We will conduct experiments on lap welds in Aluminum 1100 and 3000 series alloys by "over-stirring" machined holes of various diameters. The study will also investigate the links between a critical hole – depth and the tool geometry.

No. of Students: 3 – 4 students

Name of Professor: Dr. Keith M. Williamson

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Signature