



US005691482A

# United States Patent [19]

[11] Patent Number: 5,691,482

Nickerson, Jr. et al.

[45] Date of Patent: Nov. 25, 1997

[54] ADHESIVE SHEAR STRENGTH TEST APPARATUS

1280490 12/1986 U.S.S.R. .... 73/842

[75] Inventors: Earl S. Nickerson, Jr., Little Compton; Wayne C. Tucker, Exeter, both of R.I.

Primary Examiner—Elizabeth L. Dougherty  
Assistant Examiner—Max H. Noori  
Attorney, Agent, or Firm—Michael J. McGowan; Robert W. Gauthier; Prithvi C. Lall

[73] Assignee: The United States of America as represented by the Secretary of the Navy, Washington, D.C.

### [57] ABSTRACT

[21] Appl. No.: 682,898  
[22] Filed: Jul. 11, 1996

An apparatus for testing adhesive shear strength having a cylindrical adhesive bond between test specimens which is subjected to pure shear. The test specimens are two cylindrical rods. One rod has a bore and counterbore reamed into one end along its longitudinal axis. The other rod has a diameter essentially equal to the diameter of the bore. The adhesive to be tested is placed within the bore and counterbore and the smaller diameter rod is inserted into and seated at the base of the bore. The adhesive fills the space between the smaller rod and the counterbore, creating a uniform, cylindrical layer of adhesive between the exterior surface of the smaller rod and the inner surface of the counterbore. When the adhesive cures, the assembly is subjected to a tensile load along its longitudinal axis, tending to pull the inserted rod from the bore and subjecting the cylindrical adhesive bond to a pure shear load.

[51] Int. Cl.<sup>6</sup> ..... G01N 3/08  
[52] U.S. Cl. .... 73/842; 73/827  
[58] Field of Search ..... 73/841, 842, 845, 73/847, 826, 827

### [56] References Cited

U.S. PATENT DOCUMENTS

2,720,106 10/1955 Lippman ..... 73/842  
3,577,775 5/1971 Henderson ..... 73/827  
4,993,268 2/1991 Thompson ..... 73/842

### FOREIGN PATENT DOCUMENTS

0191847 8/1991 Japan ..... 73/842

11 Claims, 2 Drawing Sheets

