

DISCUSSION

G. R. Halford¹ (written discussion)—The block loading produced numerous small hysteresis loops within the major loops. Tensile and compressive mean stress were present. How were the mean stress effects on life accounted for in assessing fatigue damage?

J. Polák, A. Vašek, and M. Klesnil (authors' closure)—Since the spectrum of the strain peaks was symmetrical to zero, the mean stresses were not high; moreover, the number of smaller loops with tensile and compressive mean stresses was approximately equal. Even if some damage law taking into account the mean stress effects were adopted, the effect on the fatigue life prediction would be, in this case, negligible for all histories investigated. Therefore the mean stresses were not considered in life prediction.

M. Nazmy² (written discussion)—(1) Do you think that the cyclic stress-strain diagrams depend on the block size as well as on the maximum strain amplitude in the block?

(2) Have you tried to apply the double damage rule, developed by Halford and Manson, to your results?

J. Polák, A. Vašek, and M. Klesnil (authors' closure)—(1) The cyclic stress-strain diagrams, or, as we prefer to call them, the “service stress-strain curves,” depend considerably on the maximum strain amplitude in the block. The dependence on the block size has not been investigated, but it can be expected that it will be weak for reasonable block sizes.

(2) Not in the form presented by Halford and Manson. The modified version of the double linear damage rule is being developed, and the predictions will be compared with room temperature data on several materials. The results will be published elsewhere.

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