ELECTRODYNAMICALLY INDUCED E.M.F.

I should like to make some comments on the points made by C. S. Evans (Letters, October issue). Taking first the issue of magnetic screening, it is clear that it would not work. I suspect that the reason for the confusion is a misapplication of the concept of lines of flux. Flux lines can move through the screening material — they don't become tangled up in it.

The answer is seen more clearly if the true nature of magnetic screening is recognised. An opposing magnetic field is developed in the screening material and this almost cancels the original field at the wire. When the aircraft is in motion, there is no induced e.m.f. arising from the magnetic field of the screen because the velocity of the conductor relative to the field of the screen is zero. Since the conductor is moving relative to the earth's field an e.m.f. is induced just as if the screen were not present.

The second method suggested wouldn't work either. As Mr Evans correctly states, the insulated wire is in no way shielded from the magnetic field. Therefore an e.m.f. is induced in it, opposing the e.m.f. developed in the wings. The potential difference between the wire ends depends, in a uniform field, only on the distance between the ends of the wires and not on the wing span.

Colin R. Masson,
Darwin College,
Cambridge.