962-47-832 **Ramesh V. Garimella*** (rgarimella@tntech.edu), Department of Mathematics, Box 5054, Tennessee Technological University, Cookeville, TN 38505, and **Voldymyr Hrynkiv** and **Yung-Way Liu** (ywliu@tntech.edu), Department of Mathematics, Box 5054, Tennessee Technological University, Cookeville, TN 38505. *On the Invertibility of some operators on Hilbert Spaces.* Preliminary report.

For any given bounded linear operator A on a complex Hilbert Space H, we give conditions to ensure the existence of a bounded operator B on H such that (1) $AB + BA$ is of rank one, and (2) $I + [e^{(xP(A)+tQ(A))}]B$ is invertible for all reals x, t where $P(A)$ and $Q(A)$ are polynomials in A. Our main result will provide a justification in general terms to a crucial step of the so-called operator method used by Aden, Carl, and Schiebold to solve non-linear partial differential equations like Kdv, modified Kdv, and Kadomstev-Petaviashvili equations. (Received September 27, 2000)