System Identification of Structural Acoustic System
Using the Scale Correction
Woo Seok Hwang* and Doo Ho Lee**

ABSTRACT

This paper examines the problem of system identification for a structural acoustic system. The system identification technique can be used to make a mathematical model of a coupled system such as the structure-fluid or the structure-acoustic system. However, the responses from each system of the hybrid system show different characteristics from each other. If we try to identify the system from those responses, we meet a very embarrassing situation. The scales of those signals are so different that the system identification will concentrate on the modeling of the large signals. Therefore, a scale correction process is introduced to adjust the order of those signals. The scale factor is calculated and multiplied to the signal. When the scale correction is applied, the responses regenerated from the identified system model are similar with the original ones. This method will be useful for the other hybrid systems.

Key Words: System Identification(시스템 인식), Finite Element Method(유한요소법), Scale Correction(스케일 보정), Coupled System(연성 시스템)