

SUMMARY

I. Subject

Altitude Engine Test Technology Development

II. Objectives and Necessities of the Research

If the performance test of an aero-engine under indigenous development is carried out at the test facility abroad, it might result in serious loss due to the unintended disclosure of the important information and technologies to foreign countries. The Altitude Engine Test Facility (AETF) at Korea Aerospace Research Institute (KARI) is an alternative solution which can prevent such a undesirable situation. Since its completion on 1999, the KARI's AETF has been continuously utilized for the development of local gas turbine engines. However, there has been an increasing demand from customers, specially from the Agency for Defense Development (ADD) for the improvement of the accuracy of the data measurements and the precision control. In order to accommodate afore-mentioned demand, this study has been conducted for the purpose of improving the measurement system and facility control.

III. Contents and Scope of the Research

The goal of this study consists mainly of two issues; “improvement and standardization of the measurement system” and “establishment of the control technology and improvement of the precision control.” In order to achieve the first goal, during the first year, the fundamental research was performed in the area of the measurement devices of temperature and pressure and a tare load measuring system which is critical for the accurate measurement of thrust. Also, a proper methodology was sought to improve the data acquisition system based on the validity verification of measurement methods, and the uncertainty analysis of the measurement of individual physical properties has been conducted.

The work scope for the second year included the development of