

SPACE TRANSPORTATION SOLUTIONS AND INNOVATIONS (D2)
Future Space Transportation Systems Technologies (5)

Author: Mr. Tetsuo Hiraiwa

Japan Aerospace Exploration Agency (JAXA), Japan, hiraiwa.tetsuo@jaxa.jp

Mr. Nobuyuki Azuma

Japan Aerospace Exploration Agency (JAXA), Japan, azuma.nobuyuki@jaxa.jp

Mr. Takeo Tomita

Japan Aerospace Exploration Agency (JAXA), Japan, tomita.takeo@jaxa.jp

Dr. Shinji Ishimoto

Japan Aerospace Exploration Agency (JAXA), Japan, ishimoto.shinji@jaxa.jp

Mr. Kenji Fujii

Japan Aerospace Exploration Agency (JAXA), Japan, fujii.kenji@jaxa.jp

Mr. Takao Munenaga

Japan Aerospace Exploration Agency (JAXA), Japan, munenaga.takao@jaxa.jp

CONCEPTUAL STUDY FOR THE ROCKETPLANE EXPERIMENT VEHICLE AND THE
PROPULSION SYSTEM

Abstract

JAXA has been studying for the reusable, sustainable space transportation systems and the technologies. The rocketplane experiment vehicle is one of the example for the activities. The vehicle is planned to accelerate with its rocket engine(s). For the demonstration for the vehicle operability, the engine should work with easy-treatment and environment-friendly propellant. In this program, ethanol/LOx propellant is selected. JAXA started the fundamental research work, such as injector-mixing, cooling capability and the material matching, from 2009. In 2010, a series of the firing test with a full-size chamber will be conducted. In this paper, the development status for the vehicle, scenario and the engine will be presented.