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## INVESTIGATION ON HEAT TRANSFER CHARACTERISTIC OF PODS AT LOW TEMPERATURE

**Abstract**

The inter-tank section between cryogenic tanks, and the connecting support structure between cryogenic tanks and instrument cabin are the main factors of tank heat leakage, which will cause the evaporation of cryogenic propellant in the tank, resulting in considerable propellant loss. The new passive orbit-disconnect strut (pods), as a rod support that can effectively solve the contradiction between heat transfer and force of the traditional support structure by changing the transmission path of heat and force, uses the elastic deformation of materials and adopts passive structural design to bear large overload during the rising process of the launch vehicle, and some parts in the pods contact each other so as to bear overload, in this case heat is transferred through a shorter path; After entering the orbit, it bears a small overload, in which case the contact surface under force in the pods is automatically disconnected, and the heat is transmitted through a long path, so as to reduce the heat leakage of the overall structure. In order to deeply study the performance of pods under different working states, this test carries out heat transfer characteristic tests of pods samples in contact and non-contact working states.