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Author: Mr. Sergei Matvienko
Yuzhnoye SDO European Representation, Ukraine

INTERORBITAL TOW WITH POWER SUPPLY SYSTEM ON FUEL ELEMENTS.

Abstract

RPC "Kurs" since 60th years of the last century is engaged in working out and creation of equipment of rapprochement and joining "Needle" and "Kurs". Now our organisation develops new equipment of rapprochement and joining with reference to reusable to a tow which is equipped by electrojet engines. The developed interorbital tow should function actively in an orbit not less than 10 years during which it should provide not less than four operations a space vehicle with basic into a working orbit. Such operation has received the name Double start and is protected by patents of Ukraine. For the decision of all above-stated problems, the interorbital tow for maintenance of work of the block of mid-flight electrojet engines (20 pieces) should be equipped by system of power supply by capacity not less than 30 kw. Abundantly clear, that use of solar batteries for the decision of this problem not expediently in view of big the areas. RPC "Kurs" develops an alternative variant of an interorbital tow with system of power supply on the basis of fuel elements. Such power installations are developed also pre-production models already are issued at enterprise "ELMIZ". The basic advantage such is not sick weight of the battery of fuel elements. For example, the battery fuel capacity of 30 kw. Makes no more than 35 kg. The second essential advantage is possibility of repeated decomposition of water on hydrogen and oxygen, which then on the battery of fuel elements provide production necessary quantities of the electric power. Water decomposition can be carried out also by the battery of fuel elements. Time of decomposition of water for hydrogen and oxygen is defined by capacity of solar batteries and can make some months. However this time not so is critical in comparison in due course deducing space vehicle. Thus, use onboard an interorbital tow of system of power supply on the basis of fuel elements assumes original technology of functioning of an interorbital tow. The functioning scheme consists in fast enough (about one month) performance of operation of moving of a space vehicle with basic into a working orbit and long (about three months) a cycle of decomposition of water on hydrogen and oxygen. Such scheme of functioning excludes necessity of refuelling of an interorbital tow components of fuel and actually provides its reusable use.