The first full system test of Galactic Energy 50-ton liquid oxygen/kerosene engine was a complete success

近日，由星河动力航天公司自主研发的“苍穹”50吨级可重复使用液氧/煤油发动机全系统试车取得圆满成功！本次试车是“苍穹”发动机的首次全系统试车，目的是验证发动机起动关机时序、系统和结构方案可行性、各组合件工作协调性。试车过程中，发动机按预定程序起动，点火、起动和转级正常，各组件工作正常，燃烧稳定，喷管出口火焰明亮，主要参数与调整计算值一致，按程序关机，试后产品完整，试验取得圆满成功。本次试车成功，标志着我国民营商业航天领域最大推力的液氧/煤油发动机正式进入工程研制阶段。

Recently, the full system test of the "Welkin" 50-ton reusable liquid oxygen/kerosene engine independently developed by Galactic Energy Aerospace has achieved a complete success! This test run is the first system-wide test run of the Welkin engine. The purpose is to verify the timing of engine startup and shutdown, the feasibility of system and structure schemes, and the coordination of various components. During the test run, the engine started according to the predetermined program, ignition, starting and stage transfer are normal, each component works normally, combustion is stable, the nozzle outlet flame is bright, the main parameters are consistent with the adjusted calculation value, shutdown according to the program, the product is complete after the test, the test achieved a complete success. The success of the test marked that the liquid oxygen/kerosene engine with the largest thrust force in China's private commercial aerospace field officially entered the engineering development phase.

“苍穹”50吨级可重复使用液氧/煤油发动机是民营航天自主研制最大推力的液氧/煤油发动机，也是国内首款采用针栓式喷注技术的大推力液体火箭发动机，具备深度变推能力，是200-300吨级液体火箭垂直回收的最佳选择。除针栓喷注技术外，“苍穹”发动机采用的多回流涡球锥形燃气发生器、同轴双吸涡轮泵、多功能一体化组合阀均属国内首创，国际领先。此次试车的成功，为“智神星一号”中型重复使用液体运载火箭后续研制工作提供有力支撑，也为星河动力航天公司固液并举的商业模式奠定了坚实的基础！

The "Welkin" 50-ton reusable liquid oxygen/kerosene engine is the largest thrust liquid oxygen/kerosene engine independently developed by private aerospace industry. It is also the first large-thrust liquid rocket engine in China that adopts the pinch-bolt injection technology. With the capability of variable thrust in depth, it is the best choice for 200-300 ton liquid rocket vertical recovery. In addition to the needle plug injection technology, the multi-reflux vortex ball conical gas generator, coaxial double suction turbopump and multi-function integrated valve adopted by "Welkin" engine are the first domestic and international leading. The success of the test provides strong support for the follow-up development of the "Pallas-1" medium reusable liquid launch vehicle, and also lays a solid foundation for the business model of the company.