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National Aeronautics and
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International Space Station

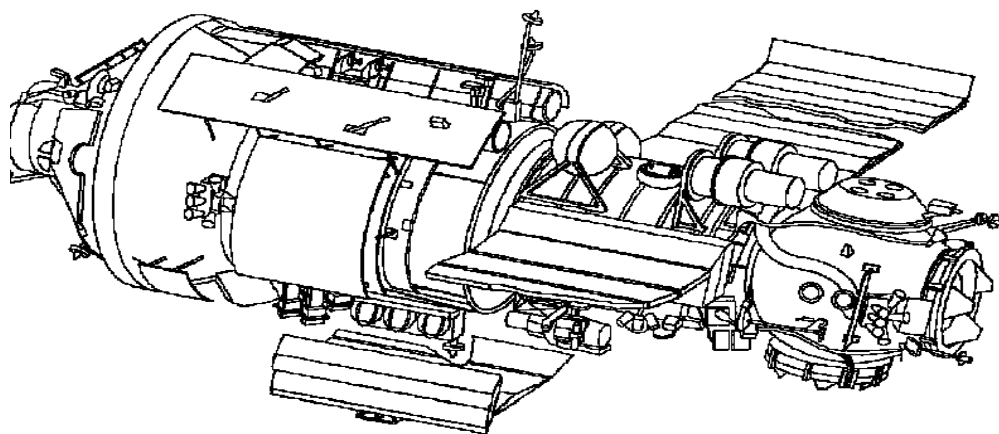
March 1998

CONTROL MODULE: FUNCTIONAL CARGO BLOCK (FGB) *The First International Space Station Component to Launch*

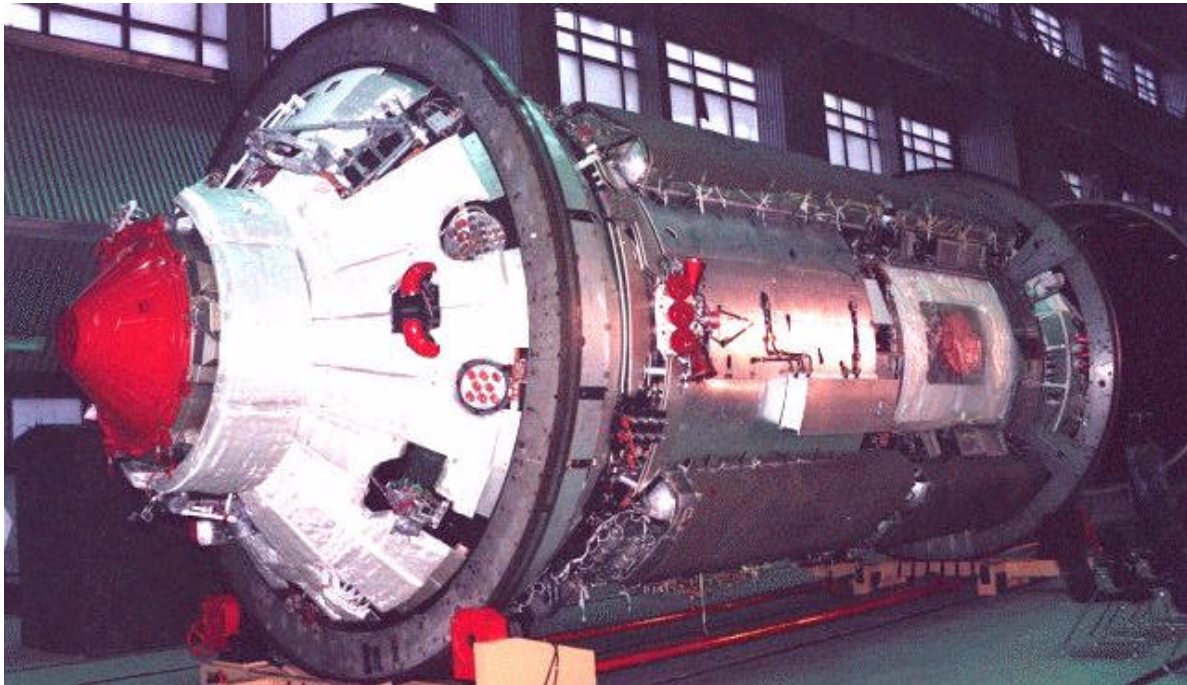
The Control Module, also known by the technical term Functional Cargo Block and the Russian acronym FGB, will be the first component launched for the International Space Station and provide the station's initial propulsion and power. The 42,600-pound pressurized module is scheduled to be launched on a Russian Proton rocket in June 1998.

The U.S.-funded and Russian-built Control Module is a jointly contributed component of the station. The module was built by the Khrunichev State Research and Production Space Center (KhSC) in Moscow under a subcontract to The Boeing Co. for NASA. The launch of the module is being funded by Russia. Only weeks after the Control Module reaches orbit, the Space Shuttle Endeavour will rendezvous with it and attach a U.S.-built connecting module called Node 1. The Control Module will provide orientation control, communications and electrical power attached to the passive Node 1 for several months while the station awaits launch of the third component, a Russian-provided crew living quarters and early station core known as the Service Module. The Service Module will enhance or replace many functions of the Control Module. Later in the station's assembly sequence, the control module will be used primarily for its storage capacity and external fuel tanks.

The Control Module is 41.2 feet long and 13.5 feet wide at its widest point. It has an operational lifetime of at least 15 years. Its solar arrays and six nickel-cadmium batteries can provide an average of 3 kilowatts of electrical power. Using the Russian Kurs system, the Control Module will perform an automated and remotely piloted rendezvous and docking with



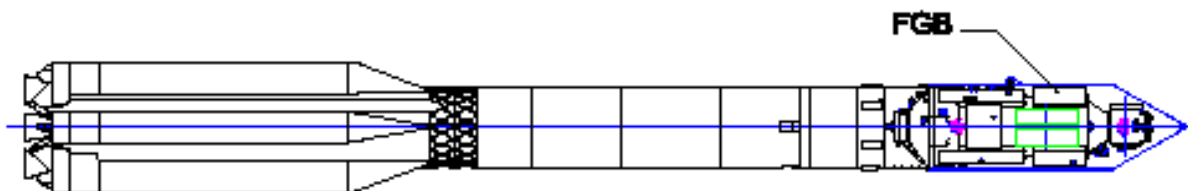
Flight 1A/R - The Control Module (Functional Cargo Block or FGB)



The Control Module, or FGB, readied for shipment from Moscow to the launch site

the Service Module in orbit. Its side docking ports will accommodate Russian Soyuz piloted spacecraft and unpiloted Progress resupply spacecraft. Each of the two solar arrays is 35 feet long and 11 feet wide. The module's 16 fuel tanks combined can hold more than 6 tons of propellant. The attitude control system for the module includes 24 large steering jets and 12 small steering jets. Two large engines are available for reboosting the spacecraft and making major orbital changes

Construction of the Control Module began at KhSC in December 1994. It was shipped to the Baikonur Cosmodrome, Kazakstan, launch site to begin launch preparations in January 1998. The three-stage proton rocket will launch the module into a 137 by 211 statute mile orbit. For launch, the module's systems will be in an idle mode to conserve battery power. After reaching the initial elliptical orbit and separating from the Proton's third stage, a set of preprogrammed commands will automatically activate the module's systems and deploy the solar arrays and communications antennas. After several days of operational tests, the module will be commanded to fire its engines and circularize its orbit at an altitude of about 240 statute miles, the orbit at which Endeavour will later rendezvous and capture the spacecraft to attach it to Node 1.



The Russian Proton rocket with the Control Module (FGB) ready for liftoff