

BobCat ind Historical Spacecraft Dept. Present:

«PROTON» LAUNCH VEHICLE (USSR)



Assembly and flight manual

DISCLAIMER

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HISTORICAL BACKGROUND

Basis of "Proton-K/RB" was the two-stage rocket UR-500, which was created in the early 60's as a fighting ICBM heavy class. The transition from the "Proton" LV UR-500 to the three-stage version of "Proton-K" SD-500 was carried out quickly (1965) and is relatively easy. He was as follows. In the second stage were increased volumes of fuel tanks and redesigned truss transfer compartment, connecting it with the first stage. The third stage was formed shortening the initial version of the second stage and it was set to one of the same liquid-propellant jet engine instead of four.

The fourth stage was added to the layout scheme missile early in its flight tests, which were combined in 1967-1970 with working and implementation of targeted programs for first unmanned flight around the moon, and then manned vehicles 7K-L1. To propel spacecraft to the base ship L1 orbit was used booster Block "D" (taken from another project - the lunar complex "H1-L3"), which serves equally well in the role of the booster vehicle, and as the fourth stage of the launch vehicle.

A three-stage version of "Proton-K" for the withdrawal of the orbit of heavy long-term orbital station "Salyut-1" ... "-7" (1971 - 1982), "Almaz" (1987 and 1991). "Mir" (DOS-7) , "Mir" modules and TKS "Cosmos-929 ", "-1267 ", "-1443 ", "-1686 "(1977 - 1986 years).

Four-stage "Proton-K" has been so successful to launch spacecraft on interplanetary trajectories, which has been widely used for AMS. AMS of a new generation of the Moon ("Moon - 15" ... "24", 1969 - 1976), Venus ("Venus-9" ... "16", 1975-1983. g) and Mars ("Mars-2" ... "-7", 1971 1973.).

"Proton-K" was the only domestic launch vehicle to launch satellites into geostationary orbit. The first such launch was performed March 25, 1974 ("Cosmos-637"). Since then, most of the rocket launches made for this purpose. Block "D" has been upgraded by installing it on a special instrument compartment, and since 1976 PH "Proton-K" with the upper stage always executes the geostationary orbit satellite communication and navigation.

INTRODUCTION

Our "Proton" consists of:

PARTS	NAME IN PACKAGE
Разделитель 1й и 2й ступеней Proton 1/2 Stage Decoupler	Proton_1-2decoupler
Разделитель 2й и 3й ступеней Proton 2/3 Stage Decoupler	Proton_2-3decoupler
Первая ступень Proton Core Oxidizer Tank	Proton_core_oxidizer_tank
Головной обтекатель Proton Payload Shroud	Proton_jettison
Разделитель полезной нагрузки Proton Payload Decoupler	Proton_payloadbase
РДТТ Proton Retro Booster	Proton_retrobooster
Вторая ступень Proton Second Stage	Proton_second_stage
Третья ступень Proton Third Stage	Proton_third_stage

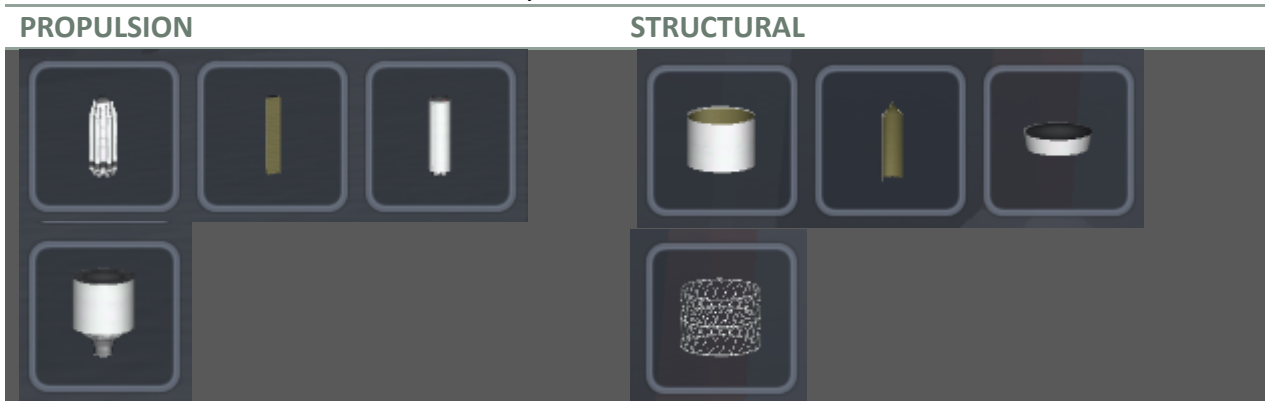
Additional plugins are required.

Engines stages combined with fuel tanks. If you like traditional KSP wobbling, the PROTON is not for you.

SPECIFICATION

As usual.

If the installation is successful, the VAB you can find:



SPECIFICATION

Proton Core Oxidizer Tank		Proton Second Stage	
Cost: 12500	Amount in Stock: 999	Cost: 12500	Amount in Stock: 999
Manufacturer: BobCat ind		Manufacturer: BobCat ind	
Description:		Description:	
Engine Max Power: 2400.00 Engine Min Power: 0.00 Isp at Sea Level: 280 Isp in Vacuum : 330 Propellants: - LiquidFuel (0.9) - Oxidizer (1.1) Flameout Threshold: 0.10 Thrust Vectoring enabled Vectoring Range = 0.30 Output at Full Power: - ElectricCharge (2.0/sec.)		Engine Max Power: 700.00 Engine Min Power: 0.00 Isp at Sea Level: 280 Isp in Vacuum : 330 Propellants: - LiquidFuel (0.9) - Oxidizer (1.1) Flameout Threshold: 0.10 Thrust Vectoring enabled Vectoring Range = 0.50 Output at Full Power: - ElectricCharge (2.0/sec.)	
Resources: LiquidFuel: 6600 / 6600 Oxidizer: 8065 / 8065 ElectricCharge: 0 / 0 Dry Mass: 30		Resources: LiquidFuel: 2000 / 2000 Oxidizer: 2444 / 2444 ElectricCharge: 0 / 0 Dry Mass: 4	
Total Mass: 103.325 Drag: 0.2 Max. Temp: 2900 Impact Tolerance: 6 Fuel Crossfeed Capable		Total Mass: 26.22 Drag: 0.2 Max. Temp: 2900 Impact Tolerance: 6 Fuel Crossfeed Capable	

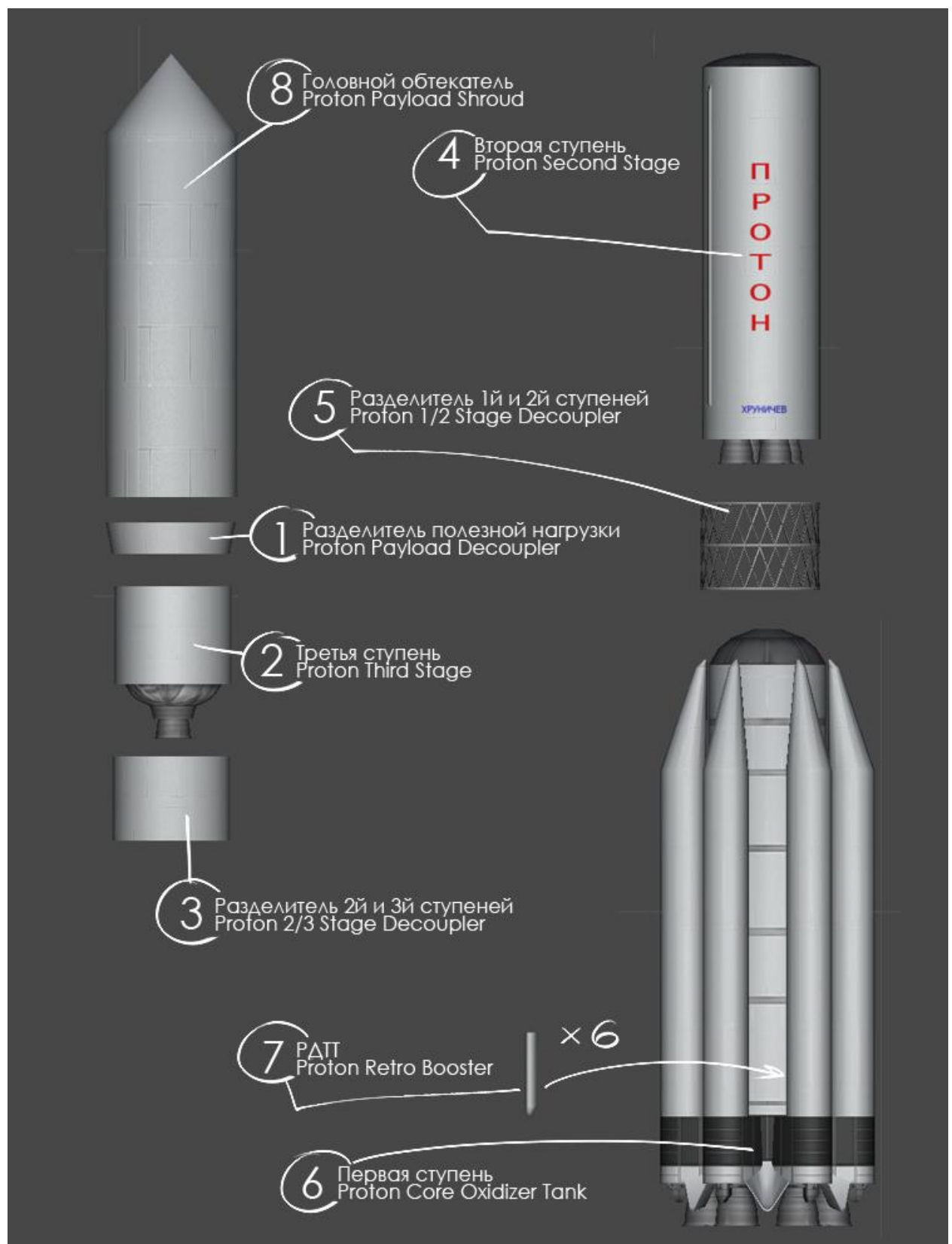
Proton retro booster	Proton Third Stage
Cost: 100	Cost: 12500
Amount in Stock: 999	Amount in Stock: 999
Manufacturer: BobCat ind	Manufacturer: BobCat ind
Description:	Description:
Engine Max Power: 20.00 Engine Min Power: 0.00 Isp at Sea Level: 100 Isp in Vacuum : 100 Propellants: - SolidFuel (1.0) Flameout Threshold: 0.10 Engine Cannot be ShutDown!	Engine Max Power: 280.00 Engine Min Power: 0.00 Isp at Sea Level: 280 Isp in Vacuum : 330 Propellants: - LiquidFuel (0.9) - Oxidizer (1.1) Flameout Threshold: 0.10 Thrust Vectoring enabled Vectoring Range = 0.50 Output at Full Power: - ElectricCharge (2.0/sec.)
Resources: SolidFuel: 9 / 9 Dry Mass: 0.15	Resources: LiquidFuel: 500 / 500 Oxidizer: 611 / 611 ElectricCharge: 0 / 0 Dry Mass: 4.3
Total Mass: 0.2175 Drag: 0.3 Max. Temp: 3600 Impact Tolerance: 7 Fuel Crossfeed Capable	Total Mass: 9.855 Drag: 0.2 Max. Temp: 2900 Impact Tolerance: 6 Fuel Crossfeed Capable

All settings can be changed in configuration files.

Proton is configured to lift the payload mass of ~ 13-14 tons into orbit ~ 70 km. Remaining fuel in the third grade can be used for drop from orbit and flooding her in the ocean. Or to bomb the neighbors on the planet.

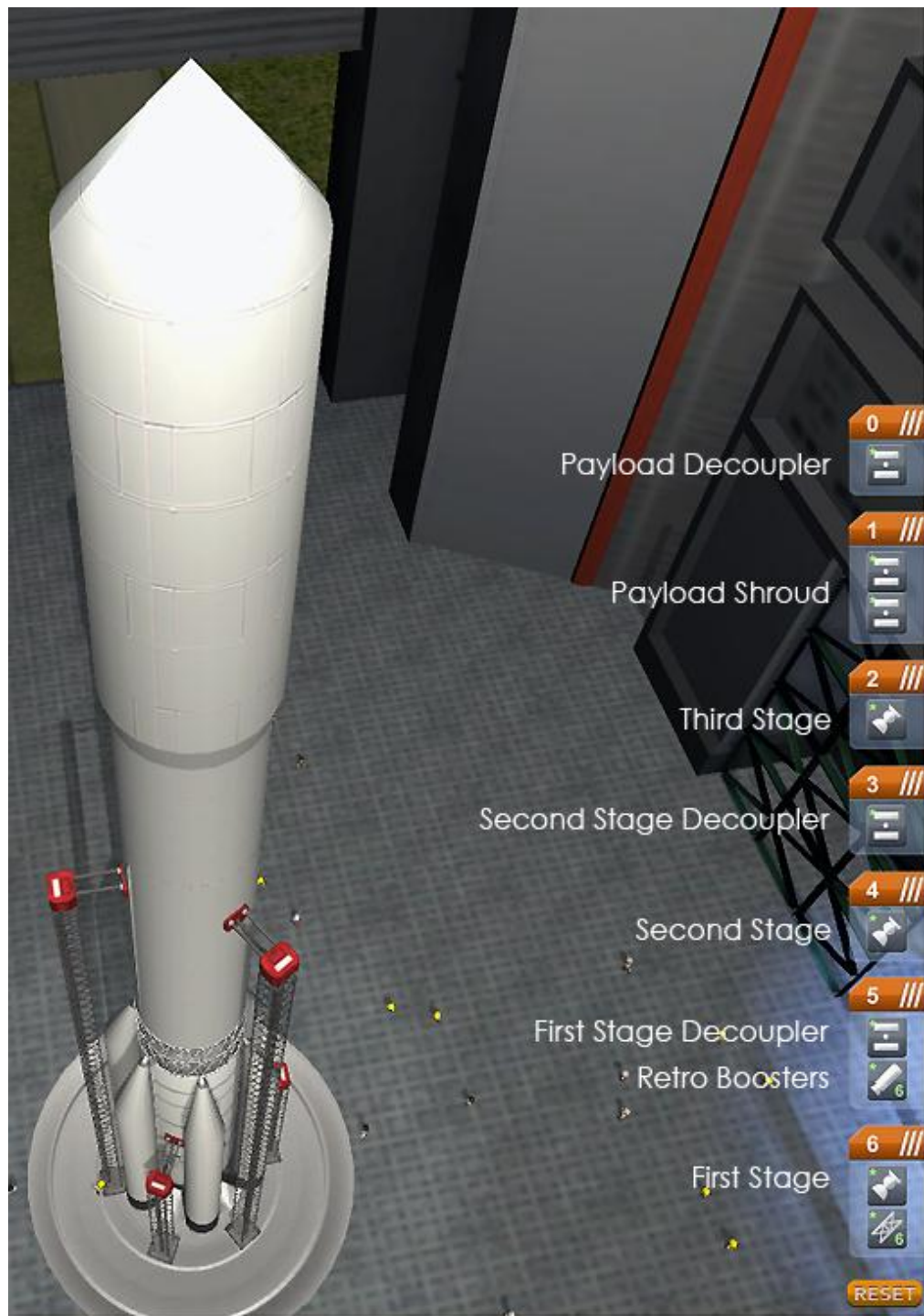
Keep the space clean.

СБОРКА



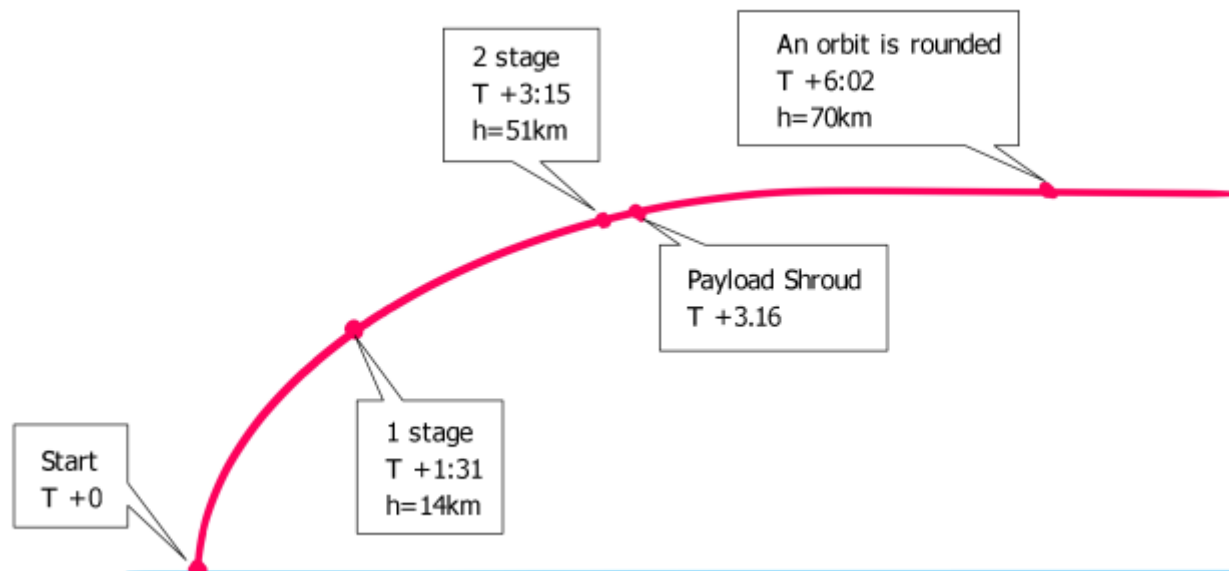
Action Groups are required. Stage work up to running out of fuel.

Last check before running



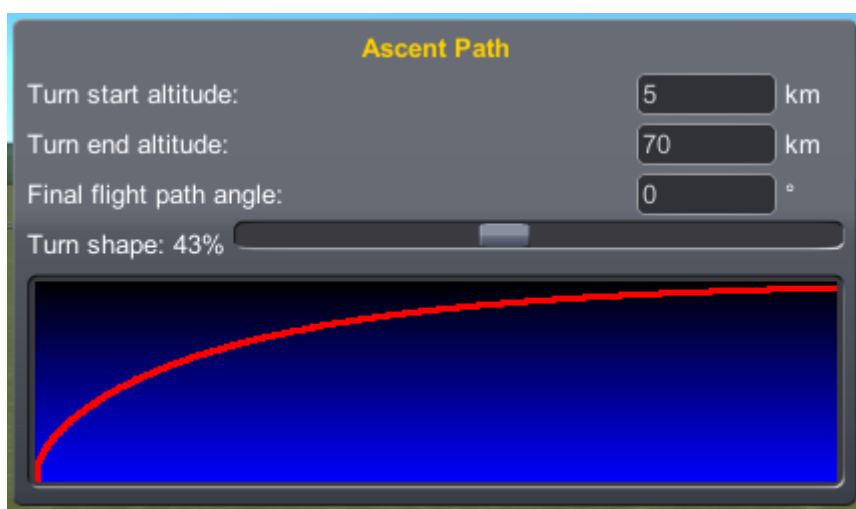
OPERATION

PROTON ASCENT PROFILE



	TIME min:sec	HEIGHT km
Start	0	
Stage 1 separation	1:31	14
Stage 2 separation	3:15	51
Payload Shroud jettisoned	3:16	52
Rounding orbit	6:02	70

Recommended ascent path



3D modeling, Texturing, Testing and Tuning - BobCat

Programming – CrashnBurn

Documentation, Testing and Tuning – CCCP

Testing -- BlazingAngel665

Used information from website:

<http://voencom.net/>