// ---- Launch Vehicle: Delta II Series ----

// ---- Information for all Delta II Series Vehicles:

I.) The Delta II 400 Series looks almost the same as it does in real life. Sadly, with the current tools that KSP has I can't accurately make a Delta II 500 Series, but I can make one that is close as possible that KSP will allow.

II.) This is the extra Delta-V that's needed to fully De-Orbit the final Upper Stage. You may need to remove a bit of mass from the payload to have the needed Delta-V for the De-Orbit burn:

A.) 175 m/s for LEO and SSO De-Orbit

B.) 145 m/s for GTO De-Orbit

C.) 445 m/s for a GEO De-Orbit

// ---- General Flight Plan ----

You should lift off the pad at full throttle. At 5 seconds into the flight, throttle back to a 1.65 Thrust-To-Weight Ratio (TWR) until all SRB's jettison. After the initial throttle sequence, the roll program should begin. Every flight plan's roll program will be different as each payload has its own specific trajectory. At 1.5 seconds before the final SRB separation sequence, you should be at full throttle. During flight, every time a TWR of 1.9 or greater is achieved, throttle back to a 1.5 TWR. When an altitude of 45 kilometers is met, or Main-Engine-Cut-Off (MECO) has occurred, halt this regime. Approximately 3.5 seconds before MECO the Reaction Control System (RCS) should be engaged. This a vital step for many reasons! Without this the second stage can't separate from the first stage, maintain atmospheric control, steer or even orientate itself! Once second stage ignition has occurred, maintain 100% throttle until the desired apoapsis is met, or you have circularized your orbit. The final step will be different for each flight as it depends on what that specific mission needs to be successful.

Optional:

If the extra power is needed, the flight may include more SRB's, or even a third stage. You may even need both! The third stage has a pressure fed engine that allows for multiple relights to occur. This allows for a multitude of complex orbital maneuvers.

//---- Vehicle Index ----

I.) No Third Stage:

A.) Delta II 7320

B.) Delta II 7420

C.) Delta II 7920

Payload Summary:

1.) LEO: 4,800kg - 8,450kg

2.) SSO: 1,900kg - 4,900kg

3.) GTO: 1,400kg - 4,350kg

4.) GEO: 500kg - 3,250kg

II.) Star-48\_B Third Stage:

A.) Delta II 7325

B.) Delta II 7425

C.) Delta II 7925

Payload Summary:

1.) LEO: 5,500kg - 9,000kg

2.) SSO: 2,550kg - 5,000kg

3.) GTO: 2,100kg - 4,900kg

4.) GEO: 1,150kg - 3,800kg

III.) Star-37\_FM Third Stage:

A.) Delta II 7326

B.) Delta II 7426

C.) Delta II 7926

Payload Summary:

1.) LEO: 5,600kg - 9,350kg

2.) SSO: 2,650kg - 5,000kg

3.) GTO: 2,200kg - 5,750kg

4.) GEO: 1,300kg - 4,100kg

//---- Vehicle Variations ----

I.) Delta II 7320

Price: $29,052 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 4,800kg - 6,800kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 1,900kg - 3,900kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 1,400kg - 3,400kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 500kg - 2,500kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

II.) Delta II 7420

Price: $29,942 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 5,150kg - 7,150kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,100kg - 4,100kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 1,600kg - 3,600kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 650kg - 2,650kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

III.) Delta II 7920

Price: $34,491 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 6,450kg - 8,450kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,900kg - 4,900kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,350kg - 4,350kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,250kg - 3,250kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

Star-48\_B Third Stage:

I.) Delta II 7325

Price: $36,017 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 5,500kg - 7,500kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,550kg - 4,550kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,100kg - 4,100kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,150kg - 3,150kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

II.) Delta II 7425

Price: $36,017 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 5,750kg - 7,750kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,550kg - 4,550kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,250kg - 4,250kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,300kg - 3,300kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

III.) Delta II 7925

Price: $36,017 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 7,000kg - 9,000kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 3,000kg - 5,000kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,900kg - 4,900kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,800kg - 3,800kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

Star-37\_FM Third Stage:

I.) Delta II 7326

Price: $30,791 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 5,600kg - 7,600kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,650kg - 4,650kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,200kg - 4,200kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,300kg - 3,300kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

II.) Delta II 7426

Price: $31,681 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 5,900kg - 7,900kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 2,900kg - 4,900kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 2,400kg - 4,400kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 1,470kg - 3,470kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s

III.) Delta II 7926

Price: $36,163 per Vehicle

Trajectories:

A.) Low Earth Orbit:

1.) Payload Weight: 7,350kg - 9,350kg

2.) Orbit: 120km @ 28° Inclination

3.) Delta-V: 3500 m/s

B.) Sun-Synchronous Orbit:

1.) Payload Weight: 3,000kg - 5,000kg

2.) Orbit: 120km @ 90° Inclination

3.) Delta-V: 4200 m/s

C.) Geosynchronous Transfer Orbit:

1.) Payload Weight: 3,750kg - 5,750kg

2.) Orbit: 2,868,750km x 150,000km @ 28° Inclination

3.) Delta-V: 4350 m/s

D.) Geosynchronous Earth Orbit:

1.) Payload Weight: 2,100kg - 4,100kg

2.) Orbit: 2,868,750km @ 28° Inclination

3.) Delta-V: 4700 m/s