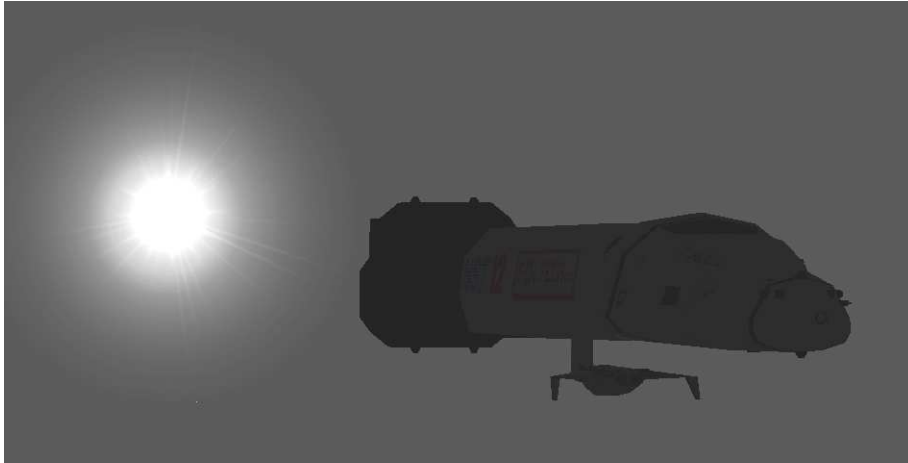


Heavy Space Truck 12 V1.1

FLIGHT MANUAL



HST12 is friendly designed, so this manual will be very thick.
HST12 is an ionic thrustered vessel. The propellant used is Xenon. Electrical power is supplied by a nuclear power plant, which isn't yet detailed.
Each ion thruster has a thrust force of 200N. You have eight of them, so a total thrust force of 1600N. You can for now use them at full thrust.
HST12 is not designed for atmospheric flight. Use the shuttle for landings.
As this is a flight test, there is still no payload available.

Managing Crew

The max crew is 5 members. You can add or remove people via the scenario file.

Thrust

You can't use joystick slider when one or more engines are shutdown. To be fully operational, you must first power the engines, then open the xenon valves and after that you can apply thrust.

Even if the RCS thrusters of HST12 are powerful, they have a nearly 1200 metric tons ship to manage. So the standard Nav mode manoeuvres will take some time. Don't panic. SoltTech's engineers certify that they will recover even the worse wild spin.

Nav Mode

There are two new nav mode : ortho+ and ortho-.

When activated, these modes put your vessel in an orthogonal direction w.r.t. your current velocity (prograde mode) in your orbital plan. To help these modes to get well initialised, it's sometimes useful to perform a prograde mode before, especially when your ship is far away from this direction.

Ortho+ points outward, ortho- points inward.

You can use these modes for two purposes :

First it will rotate your periapsis, counterclockwise for ortho+, clockwise for ortho-. Farther of apsis you are, more efficient it will be.

This isn't very sensitive when you are orbiting a planet, but will be when you will orbit Sun.

Second, when on close approach to a planet, it helps you to adjust your relative velocity. On a low thrust ship as HST12 "close approach" means as soon as you have entered the SOI.

Lookout Autopilot

The autopilot is designed for use under acceleration time.

Before you activate it, it's advised you switch to normal time.

When activated, the autopilot will take control of acceleration time.

Depending on which nav mode you choose, it will activate standard nav mode and handle it for a defined time. You should not interfere during its initialisation.

After initialisation, you can choose your acceleration time. Most of the time avoid 100 000X, or you would face some unstability.

Sometimes, the autopilot will reset. You will have to reselect your acceleration time.

ESCAPE MODE.

This special feature allows you to perform the speediest escape when orbiting a planet. It will rise your eccentricity in the most efficient way. Engage main thrust before selecting this mode. It's strongly recommended to use this feature for ejection manoeuvrings.

For injection manoeuvrings, they must began as soon as you enter the SOI of your target. Lock your Orbit HUD to your target, turn retrograde manually, and thrust under 10000X time acceleration. Make any correction required, if necessary by selecting another Nav mode. Keep your Ped close to your target, and your eccentricity as low as you can. Most of the time, they will vary in opposition. So you must switch between modes that allow you to correct them.

EMERGENCY BRAKING

If it's obvious that you will fail your injection manoeuvring, when you are at 300-400s of your periapsis time, engage prograde lookout autopilot and jump in the shuttle. Then use the DGIII (or any other shuttle you use) as a retro thruster. Of course, acting like that, don't hope for another command later.

Trim

When any ship is docked with HST12, especially the DGIII used as shuttle, the center of mass moves. Therefore, you must active it for automatic compensation.

EVA

To perform an EVA you must choose a crew member and an airlock with the (>) buttons.

Then hit (start) button, and follow instructions.

You can abort a beginning EVA with the (abort) button.

For ending an EVA you must be very close to an airlock with the outer door open. The return will be performed automatically.

DGIII and HST12 are compatible for all EVA events. You can complete crew from one ship to another, but you can't exchange complete crew.

Computer

Unfortunately, there is no navigation tool available for low thrust propulsion mode. So you will fix your launch window not before your flight, but after.

When you plan a flight to a planet, just do it as usual. Be aware that in most cases, it will be close to an Hohman transfert, but not exactly. As your thrust capacity is very low, you must encounter your target with a very low relative velocity, between 1000 and 2000 m/s. In consequence, your orbit at interception time must be more or less tangential to that of your target.

It's of course essential that your orbital plan and your target's plan are perfectly aligned, both in inclinaison and in longitude of ascending node.

When approaching your target, use the synchronise orbit MFD and fine tune it to a tangential encounter i.e. intercept1 and intercept2 must be equal.

When you are at 10-15 days of your arrival time for the inner planets including Mars, and 1-3 months for outer planets, save your flight in a file you can call "Arrival minus time".

When you are at your interception point, stop all thrust if any and set acceleration time to 0.1X. Then go to the lower panel and activate the (prog) button.

It will display a list of planet. Choose your target. It will display a new date and a delta time. Note the delta time, quit, and modify the current date of "Arrival minus time" file by substracting delta time (take care of the delta time sign).

Then launch it and you will see that your target is right in place for the encounter.

Now it's up to you to get captured.