

SpaceX's next idea: Catch Super Heavy boosters with the launch tower

January 12 2021, by Matt Williams



Credit: SpaceX

SpaceX is getting closer and closer to realizing the design for its Starship and Super Heavy launch system. Once complete, it will be the world's first fully reusable launch system and will facilitate trips to low Earth orbit (LEO), the moon and Mars. Construction began on the system's booster element (Super Heavy) this past summer and, according to a recent tweet by Musk, will be "caught" by its launch tower.

The tweet came (as they often do) in response to a question from one of Musk's followers. In this case, it was a space designer who goes by the Twitter handle Erc X (@ErcXspace) who produced a video that illustrates what the Super Heavy might look like as it returns to its [landing site](#). The video is captioned with a question: "Accurate Super Heavy Descent profile?"

Accurate Super Heavy Descent profile?
pic.twitter.com/MxIJ0zLzKn

— Erc X (@ErcXspace) [December 30, 2020](#)

Musk responded by tweeting:

"We're going to try to catch the Super Heavy Booster with the launch tower arm, using the grid fins to take the load... Saves mass & cost of legs & enables immediate repositioning of booster on to launch mount—ready to re-fly in under an hour."

The following day, a 3-D designer (Youtube handle Mini3D) created an animation based on this description. It depicts the launch tower with a harness, which takes hold of the Super Heavy booster after it lowers itself into the arms. The harness then lowers the [booster](#) to a landing pad, thus eliminating the need for landing legs and increasing the odds of a safe recovery.

As Musk indicated, this catch system is also part of what he hopes will amount to regular trips to space. In the past, Musk has hinted that his long-term vision is to scale-up production of the Starship to the point where they can build 100 a year for ten years (creating a fleet of 1000). This fleet, he claimed, could transport 100 megatons of cargo or 100,000 people to Mars every 26 months (when Earth and Mars are closest in their orbits).

With that kind of capacity for hauling supplies, equipment, robots and passengers, Musk would be able to realize his dream of constructing a colony on Mars by the late 2020s. Whether or not that highly ambitious goal will be achieved in this decade (or ever, for that matter) remains to be seen. But in the meantime, Musk could make good on a number of things he's mentioned in the past.

For starters, SpaceX could deploy batches of Starlink satellites much more rapidly and create the fabled megaconstellation that will bring broadband internet to every corner of the world. It could also fulfill Musk's plan to provide intercontinental commercial flights here at home, giving travelers the ability to fly halfway around the world in less than an hour.

The ability to launch Starships with such rapid turnaround will also facilitate SpaceX's goal of making regular trips to the moon. As per their contractual obligations with NASA—through the [Cargo Transportation and Landing by Soft Touchdown](#) (CATALYST) program—SpaceX will be sending cargo and crews to the moon in support of Project Artemis.

Provided by Universe Today

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