







How Space Shuttles Work



The **Space Shuttle** was a spacecraft which was used by the American National Aeronautics and Space Administration, or NASA. Space Shuttles were used to carry astronauts and cargo into space. Cargo such as satellites, parts of a space station or scientific instruments were taken up into space by the space shuttle. The Space Shuttle was made up of 3 parts. These were the orbiter, the external fuel tank and solid rocket boosters. with wings and a tail. This allowed the Space Shuttle to glide and land on a runway. This allowed the reusable part of the Shuttle to be very large. Many spacecraft which came before the Space Shuttle, like the Mercury, Gemini and Apollo used parachutes when landing, and landed on the ocean. People have said that the Shuttle was very much like a pickup truck because of its usefulness. The shuttle was launched out of Earth's gravity and into space by

3 rocket engines on the back of the orbiter along with help from 2 long white Solid Rocket Boosters (also called SRBs). External Fuel Tank (also called ET). Before the shuttle reached orbit, the SRBs were released and fell into the Atlantic Ocean where they were towed back to shore for reuse. The ET was also released but broke up and fell into the Indian Ocean and was not reused.airplane with wings and a tail. This allowed the Space Shuttle to glide and land on a runway. This allowed the reusable part of the Shuttle to be very large. Many spacecraft which came before the Space Shuttle, like the Mercury, Gemini and Apollo used parachutes when landing, and landed on the ocean. People have said that the Shuttle was very much like a pickup truck because of its usefulness. The shuttle was launched out of Earth's gravity and into space by 3 rocket engines on the back of the orbiter along with help from 2 long white Solid Rocket Boosters (also called SRBs). External Fuel Tank (also called ET). Before the shuttle reached orbit, the SRBs were released and fell into the Atlantic Ocean where they were towed back to shore for reuse. The ET was also released but broke up and fell into the Indian Ocean and was not reused.

Cargo Bay add-on:Orbiter had a payload bay for various missions rather than deploying satellites. They were the following:

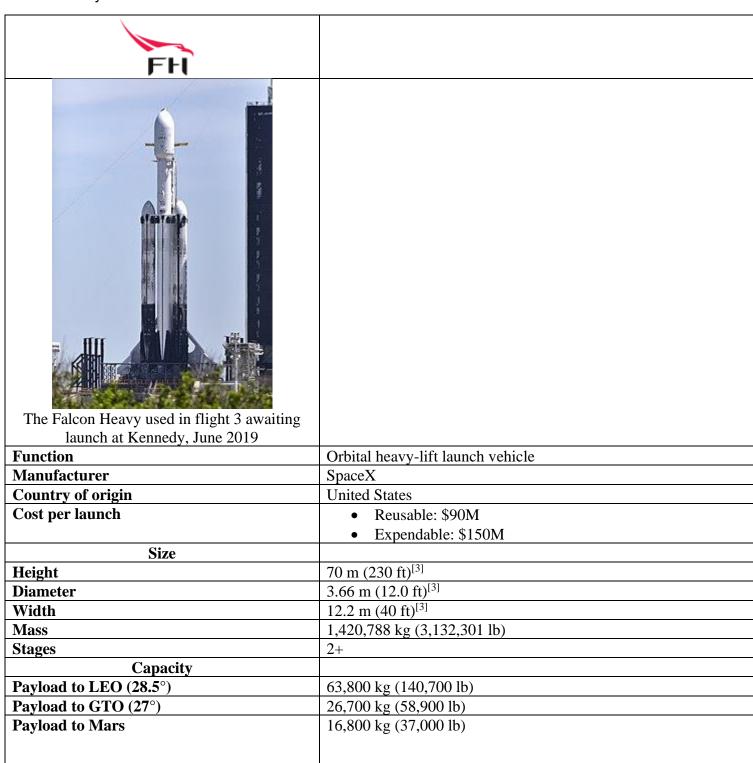
- Spacelab: A laboratory used for experiments in space.
- Spacehab: Similar to Spacelab, but it has multiple kinds.
- Inertial Upper Stage: Upper stage used for sending payloads into higher orbits.
- Payload Assist Module: Similar to IUS, but used solid propellants.
- Extended Duration Orbiter: Cryogenic kit used for extending the duration of the missions.
- Multi-Purpose Logistics Module: Cargo container used for supplying the cargos to International Space Station.
- Canadarm: Robotic arm used for any missions.

Falcon Heavy 2019

From Wikipedia, the free encyclopedia

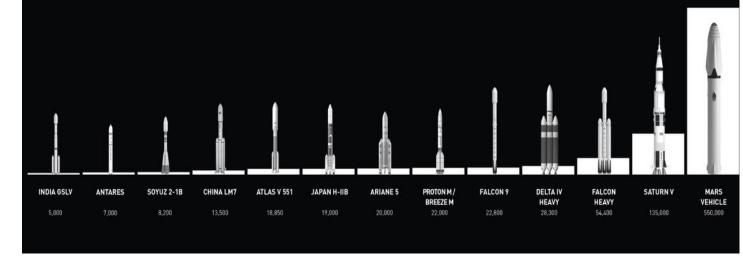
The **Falcon Heavy** is a partially reusable heavy-lift launch vehicle designed and manufactured by SpaceX. It is derived from the Falcon 9 vehicle and consists of a strengthened Falcon 9 first stage as the center core with two additional first stages as strap-on boosters.

Falcon Heavy





Payload to Pluto	3,500 kg (7,700 lb) ^[3]
Ţ	
Associated rockets	
Family	Falcon 9
Comparable	Delta IV Heavy
	• Long March 5
	New Glenn
	• Saturn C-3
	• Vulcan
Launch history	
Status	Active
Launch sites	Kennedy LC-39A
Total launches	3
Successes	3
Landings	1 center core landed / 3 attempted
	6 boosters landed / 6 attempted
First flight	February 6, 2018 ^[4]
· ·	
Boosters	
No. boosters	2
Engines	9 Merlin 1D per booster
Thrust	Sea level: 7.6 MN (1,700,000 lb _f) (each)
	Vacuum: 8.2 MN (1,800,000 lb _f) (each)
Total thrust	Sea level: 15.2 MN (3,400,000 lb _f)
	Vacuum: 16.4 MN (3,700,000 lb _f)
Specific impulse	Sea level: 282 seconds ^[5]
	Vacuum: 311 seconds ^[6]
Burn time	154 seconds
Fuel	Subcooled LOX / Chilled RP-1[7]
First stage	
Engines	9 Merlin 1D
Thrust	Sea level: 7.6 MN (1,700,000 lb _f)
	Vacuum: 8.2 MN (1,800,000 lb _f)
Specific impulse	Sea level: 282 seconds
	Vacuum: 311 seconds
Burn time	187 seconds
Fuel	Subcooled LOX / Chilled RP-1
Second stage	
Engines	1 Merlin 1D Vacuum
Thrust	934 kN (210,000 lb _f) ^[3]
Specific impulse	348 seconds ^[3]
Burn time	397 seconds ^[3]
Fuel	LOX / RP-1



From left to right, Falcon 1, Falcon 9 v1.0, three versions of Falcon 9 v1.1, three versions of Falcon 9 v1.2 (Full Thrust), three versions of Falcon 9 Block 5, **Falcon Heavy** and Falcon Heavy Block 5

The Falcon Heavy design is based on Falcon 9's fuselage and engines.

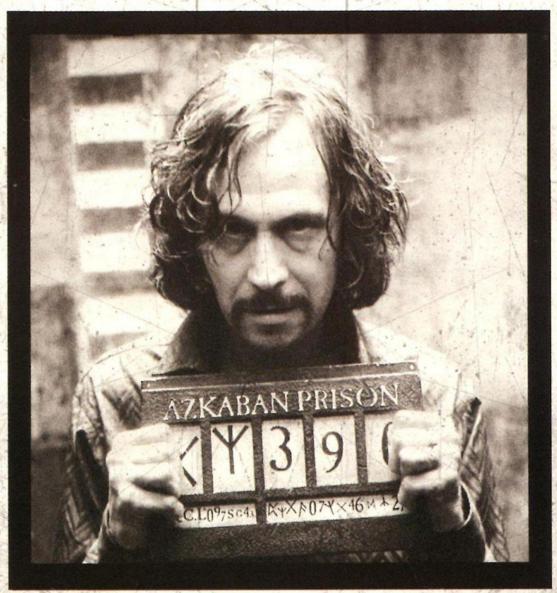
By 2008, SpaceX had been aiming for the first launch of Falcon 9 in 2009, while "Falcon 9 Heavy would be in a couple of years". Speaking at the 2008 Mars SocietyConference, Musk also indicated that he expected a hydrogen-fueled upper stage would follow 2–3 years later (which would have been around 2013).

By April 2011, the capabilities and performance of the Falcon 9 vehicle were better understood, SpaceX having completed two successful demonstration missions to LEO, one of which included reignition of the second-stage engine. At a press conference at the National Press Club in Washington, DC. on April 5, 2011, Musk stated that Falcon Heavy would "carry more payload to orbit or escape velocity than any vehicle in history, apart from the Saturn V Moon rocket ... and Soviet Energiarocket".

In 2015, SpaceX announced a number of changes to the Falcon Heavy rocket, worked in parallel to the upgrade of the Falcon 9 v1.1launch vehicle.



HAVE YOU SEENTHIS WIZARD?



APPROACH WITH EXTREME CAUTION!

DO NOT ATTEMPT TO USE

MAGIC AGAINST THIS MAN!

Any information leading to the arrest of this man shall be duly rewarded

Notify immediately by owl the Ministry of Magic - WitchWatchers Dept.



ick still t

Sirius Black, possibly the most infamous prisoner ever to be held in Azkaban fortress, is still eluding capture, the Ministry of Magic confirmed today. "We are doing all we can to recapture Black," said the Minister of Magic, Cornelius Fudge, this morning, "and we beg the magical community to remain calm." Fudge has been criticized by some members of the International Federation of Warlocks for informing the Muggle Prime Minister of the crisis. "Well, really, I had to, don't you know," said an irritable Fudge. "Black is mad. He's a danger to anyone who crosses him, magic or Muggle. I have the Prime Minister's assurthat he will not breathe a ance of Black's true identity to word And let's face it — who'd him if he did?" While anvone. believe Muggles Black is have been told that carrying a gun la tal wand that Mugkind of megles use to kill each other, the magical community lives in cre like that of fear of a massatwelve years ago, when Black murdered thirteen people with a single curse. The membered by all, was event, reone of the many isolated events violence which followed the fall of You-Know-Who at the hands of infant Harry Potter. It was reported, thirteen years ago, that Peter
Pettigrew of Smunning Gardens was murdered at the hands of Black in a crowded
Muggle street. The nature of the grudge between the two Wiz-

7 August 1003

the as emerged after a press conference with the Minister for Margic Comellius Fidels that a more week before his sign, the Minister switch the Mi

ards remains unclear however it is widely believed that Pettigrew hunted Black down for revenge. Black who is now rumored to have been You-Know-Who's most faithful Death Eater - story continues on page 3.

Ministry of Magic Employee Scoops Grand Prize

EVERY WIZARDING TEXT COLD CAN BUY! Arthur Weasley, Head of the Misuse of Muggle Artefacts Office at the Ministry of Magic, has won the annual Daily Prophet Grand Prize Galleon Draw. A Delighted Mr... Weasley told the Daily Prophet, "We will be spending the gold on a summer holiday in Egypt, where our eldest son, Bill, works as a curse breaker for Gringotts Wizarding Bank." The Weasley family will be spending a month in Egypt, returning for the start of the new school year at Hogwarts, which five of the Weasley children currently attend.

Agamot the Nmistry Nagion just August. Podmore was arrested by Nmistry of watchwizard Eric who found him at the found him at the form don't him at morning. Pod. and was a salar morning. Pod. and was a salar was charges and sentence to six more, who refused to speak in Jown defense, was convicted has appeared in apham,







Our staff of highly trained Goblins will repair ANY cauldron that is presented to us. Simply shout "Bronzehook" into your floo gate to contact us.

