

Atlas - Mercury

The Atlas rocket also was the first rocket that enabled American astronauts to achieve orbit instead of merely "space-hopping" in the Redstone. The Atlas D missile was the natural choice for launching astronauts into space under Project Mercury. It was the only launch vehicle in the US arsenal that could put the spacecraft into orbit and also had a large number of flights to gather data from.



The Atlas reliability was far from perfect, and Atlas launches ending in explosions were an all-too common sight at Cape Canaveral. Thus, significant steps had to be taken to human-rate the missile and make it safe and reliable unless NASA wished to spend several years developing a dedicated launch vehicle for crewed programs or else wait for the next-generation Titan II ICBM to become operational.

Prior to Project Mercury, there was no protocol for selecting astronauts. At the end of 1958, various ideas for the selection pool were discussed privately within the national government and the civilian space program, and also among the public at large. Although NASA planned an open competition for its first astronauts, President Dwight D. Eisenhower insisted that all candidates be test pilots. Because of the small space inside the Mercury spacecraft, candidates could be no taller than 5 feet 11 inches (180 cm) and weigh no more than 180 pounds (82 kg). Other requirements included an age under 40, a bachelor's degree or the professional equivalent, 1,500 hours of flying time, and qualification to fly jet aircraft.



Jerrie Cobb poses next to a Mercury spaceship capsule. Although she never flew in space, Cobb, along with twenty-four other women, underwent physical tests similar to those taken by the Mercury astronauts
Credit: NASA

Overleaf: Launch of Friendship 7, the first American manned orbital space flight on 20 February 1962
Credit: NASA

On April 9, 1959, NASA announced the first seven astronauts chosen to pilot its spacecraft, the "Mercury Seven", also referred to as the Original Seven or Astronaut Group 1. These seven original American astronauts were Scott Carpenter, Gordon Cooper, John Glenn, Gus Grissom, Wally Schirra, Alan Shepard, and Deke Slayton.

Members of the group flew on all classes of NASA manned orbital spacecraft of the 20th century – Mercury, Gemini, Apollo, and the Space Shuttle. Gus Grissom died in 1967, in the Apollo 1 fire. The others all survived past retirement from service. John Glenn went on to become a U.S. senator and flew on the Shuttle 36 years later to become the oldest person to fly in space. He was the last living member of the class when he died in 2016 at the age of 95.



View of Mercury Control Center prior to the Mercury-Atlas 8 (MA-8) flight of the Sigma 7. Photo credit: NASA
Credit: NASA

The NASA Quality Assurance Program meant that each Mercury-Atlas vehicle took twice as long to manufacture and assemble as an Atlas designed for uncrewed missions and three times as long to test and verify for flight. All of the six manned Mercury flights were successful, though some planned flights were cancelled during the project. The main medical problems encountered were simple personal hygiene, and post-flight symptoms of low blood pressure.

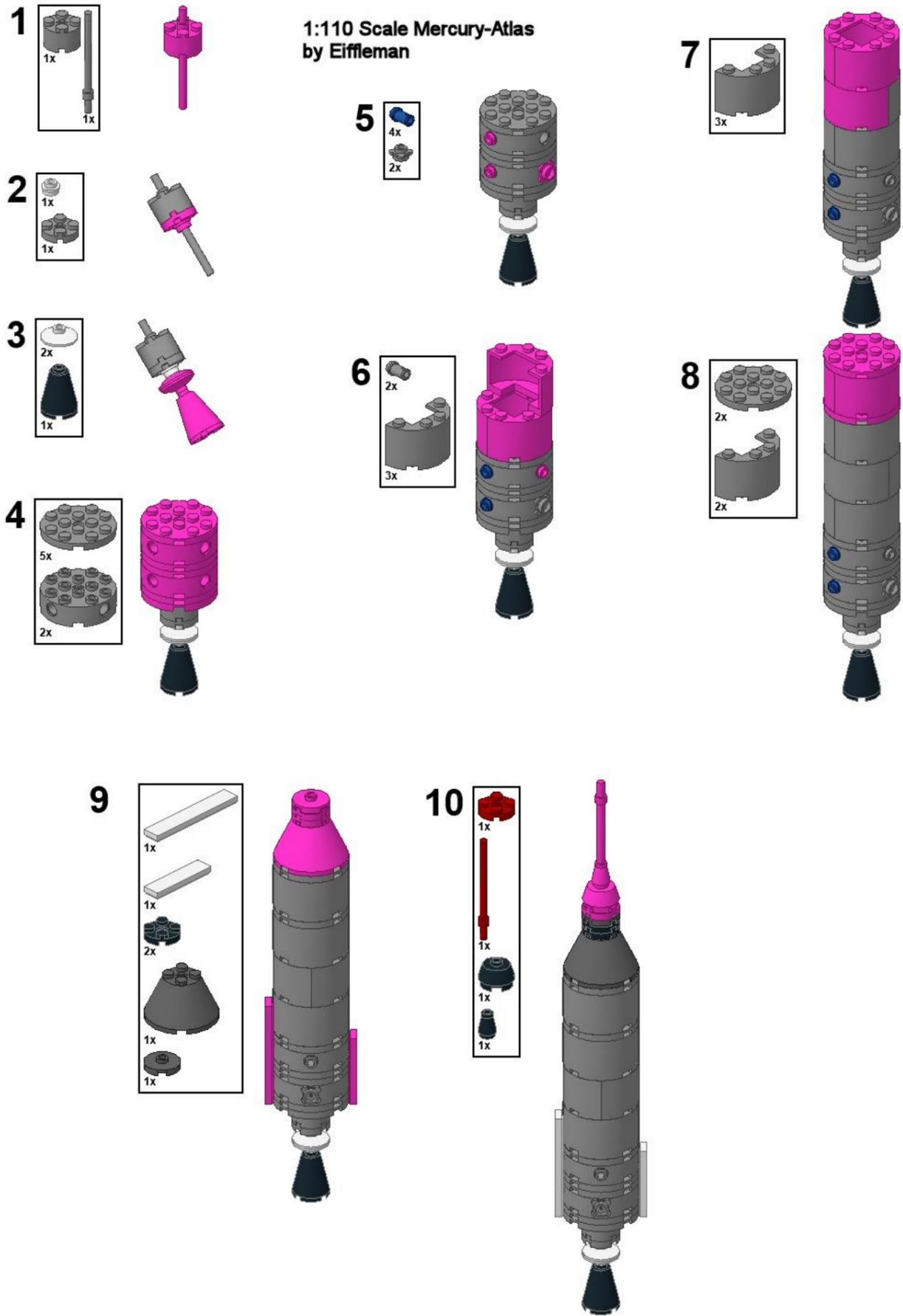
On April 12, 1961 the Soviet cosmonaut Yuri Gagarin became the first person in space on an orbital flight. Alan Shepard became the first American in space on a suborbital flight three weeks later, on May 5, 1961. John Glenn, the third Mercury astronaut to fly, became the first American to reach orbit on February 20, 1962, but only after the Soviets had launched a second cosmonaut, Gherman Titov, into a day-long flight in August 1961. Three more Mercury orbital flights were made, ending on May 16, 1963 with a day-long, 22 orbit flight.

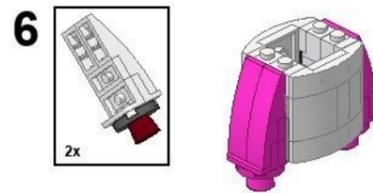
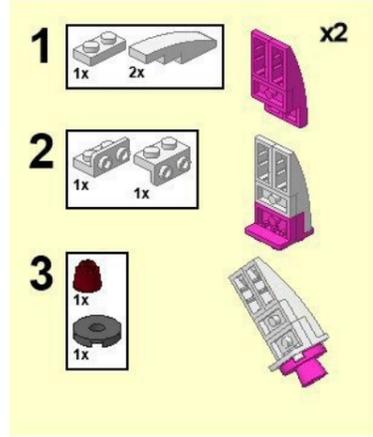
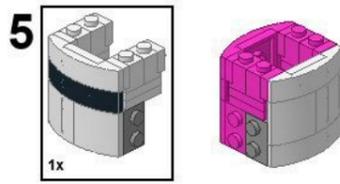
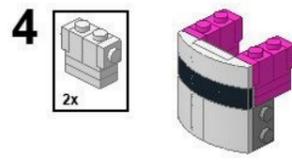
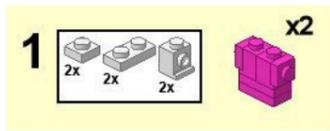
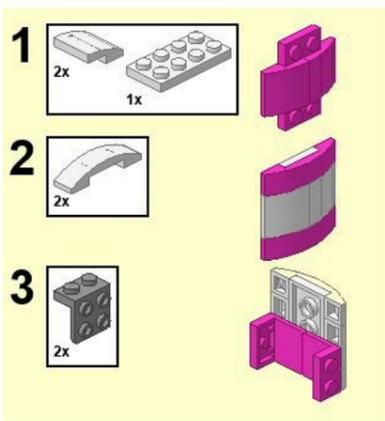
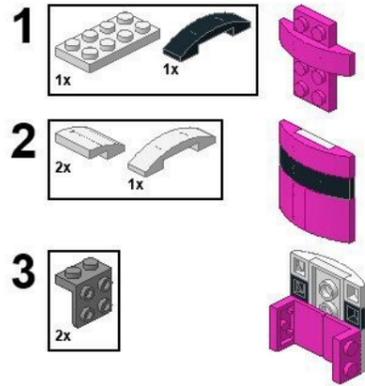


These seven men, wearing spacesuits in this portrait, composed the first group of astronauts announced by the National Aeronautics and Space Administration (NASA). July 1960,
Credit: NASA

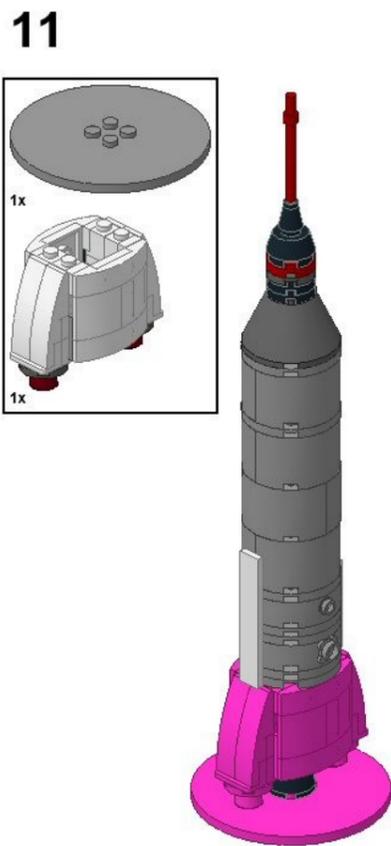
Datasheet Atlas Mercury

General		First stage	
Name	Atlas LV-3B	Engines	Atlas D 1 x XLR-105-5
Function	Crewed expendable launch system	Thrust	363.218 kN (81,655 lbf)
Manufacturer	Convair	Specific impulse	309 sec
Country of origin	United States	Burn time	303 sec
Cost per Launch		Fuel	LOX/Kerosene
Family	Atlas	Gross mass	113,050 kg (249,230 lb)
Size		Empty mass	2,347 kg (5,174 lb)
Height	32.10 m (105.30 ft)	Length	21.20 m (69.50 ft)
Diameter	10.0 feet (3.0 m)	Diameter	4.90 m (16.00 ft)
Width	3.05 m (10.00 ft)	Model	
Mass	140,000 kg (300,000 lb)	Year Created	2017
Stages	2½-4½	Author	Grant Passmore
Capacity		Parts count	82
Payload suborbital		Diameter	6,8 cm
Payload to LEO	2,200 pounds (1,000 kg)	Height	25,2 cm
Payload to GEO	1,540 pounds (700 kg)	Weight	67,3 g
Payload to TLI	850 pounds (390 kg)	Link	https://ideas.lego.com/projects/d061bd70-11e7-4805-b5a7-dcfa21d15030/updates?project_updates_page=3
Payload to escape	575 pounds (261 kg)		
Launch history			
Status	Retired		
Launch sites	CCAFS LC-14		
Total launches	9		
Successes	7		
Failures	2		
Partial failures			
First flight	29 July 1960		
Last flight	15 May 1963		
Notable payloads	Mercury		
Boosters	Atlas MA-2		
Engines	2 x LR-89-5		
Thrust	1,517.422 kN (341,130 lbf)		
Isp	282 s		
Burn time	135 s		
Fuel	LOX/RP-1		
Gross mass	3,050 kg (6,720 lb)		
Empty mass	3,050 kg (6,720 lb)		
Length	5,20 m (17.00 ft)		
Diameter	4.90 m (16.00 ft)		





1:110 Scale Mercury-Atlas
by Eiffleman



1:110 Scale Mercury-Atlas
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- 2x 99780
- 6x 3023
- 1x 85861
- 1x 6636
- 4x 11153
- 4x 4070
- 4x 15068
- 1x 2431
- 3x 93273
- 4x 3024
- 2x 99781
- 2x 3020
- 2x 4740

- 1x 63965
- 1x 4032
- 4x 4274
- 1x 98100
- 1x 93273
- 1x 4589
- 1x 14918
- 2x 4032
- 2x 85975
- 1x 4032
- 1x 6177
- 2x 4274

- 7x 60474
- 2x 33291
- 8x 24593
- 1x 63965
- 4x 44728
- 1x 6143
- 2x 6222
- 1x 3943
- 1x 18674
- 2x 15535

An Note on Parts

With the new Harry Potter Hogwarts sets Lego introduced a new 4x2x3 half cone (38317). This piece is better suited for the Mercury-Altas rocket. To use it with the existing build remove the 8 off 4x2x2 cylinders and 3 4x4 round plates that make up the upper section of the rocket. Rebuild just using the cylinder pieces and finish with the new half-cone pieces.

There are a couple of pieces which are available in new colours which would improve the model. The 2x2 round plate with one stud that holds the capsule in place is now available in black. The two smaller engines which used the dark red Fez pieces are also available in black. All of these pieces are fairly rare on the secondary parts market so they are a little more expensive.

