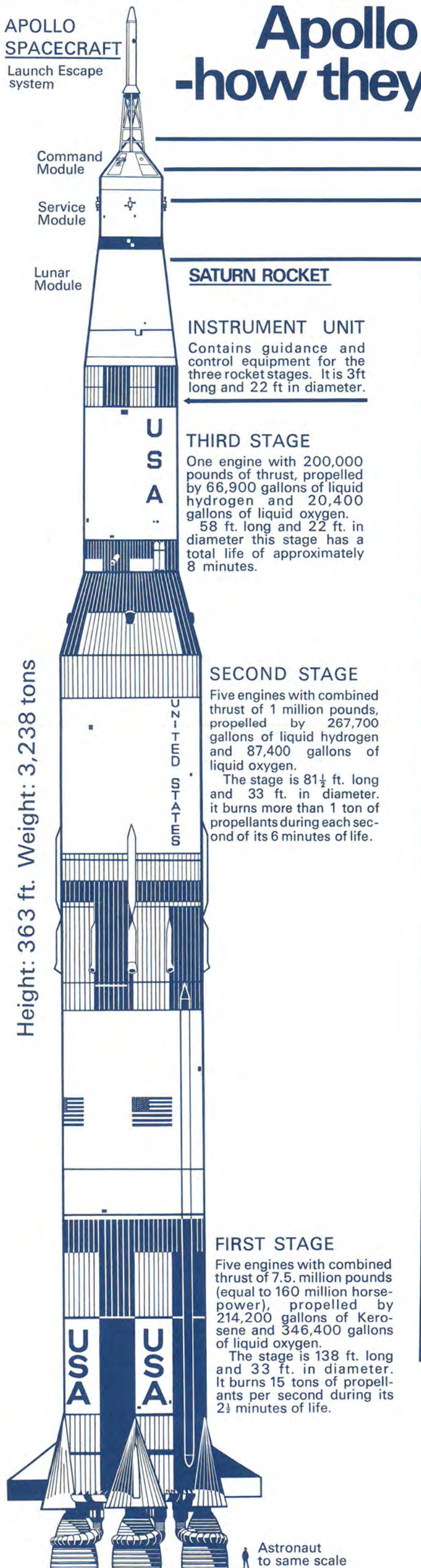


Fire cannot burn without oxygen. Since rocket engines operate in space where there is no oxygen, a supply must be carried.

All Saturn mainstage engines use liquid oxygen for this purpose, combining with kerosene in the first stage and with liquid hydrogen in the second and third stages.

**APOLLO SPACECRAFT**  
Launch Escape system

# Apollo & Saturn -how they fit together



Height: 363 ft. Weight: 3,238 tons

**SATURN ROCKET**

**INSTRUMENT UNIT**

Contains guidance and control equipment for the three rocket stages. It is 3ft long and 22 ft in diameter.

**THIRD STAGE**

One engine with 200,000 pounds of thrust, propelled by 66,900 gallons of liquid hydrogen and 20,400 gallons of liquid oxygen. 58 ft. long and 22 ft. in diameter this stage has a total life of approximately 8 minutes.

**SECOND STAGE**

Five engines with combined thrust of 1 million pounds, propelled by 267,700 gallons of liquid hydrogen and 87,400 gallons of liquid oxygen. The stage is 81½ ft. long and 33 ft. in diameter. It burns more than 1 ton of propellants during each second of its 6 minutes of life.

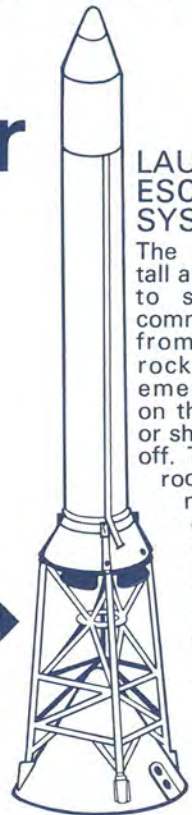
**FIRST STAGE**

Five engines with combined thrust of 7.5 million pounds (equal to 160 million horsepower), propelled by 214,200 gallons of Kerosene and 346,400 gallons of liquid oxygen. The stage is 138 ft. long and 33 ft. in diameter. It burns 15 tons of propellants per second during its 2½ minutes of life.

Astronaut to same scale

**LAUNCH ESCAPE SYSTEM (LES)**

The LES is 33 ft. tall and is designed to separate the command module from the Saturn rocket should an emergency occur on the launch pad or shortly after lift-off. The LES would rocket the command module containing the astronauts to a height sufficient to allow a parachute descent to earth at a safe distance from the launch pad.



**THE APOLLO SPACECRAFT**

Height 82 ft. Weight 45 tons.

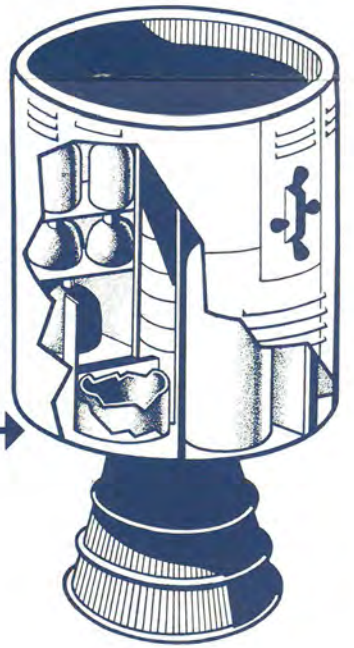
**THE COMMAND MODULE (CM)**

The CM is 13 ft. in diameter and 11 ft. high. It contains the crew's living compartment and all the "in-flight" controls.



**THE SERVICE MODULE (SM)**

The SM is 13 ft. in diameter and 24 ft. high. It contains the spacecraft's electrical power supply equipment and its primary propulsion system - a rocket of 20,500 pounds thrust.



**THE LUNAR MODULE (LM)**

The LM is that part of the spacecraft which will detach from the lunar-orbiting Command and Service modules and descend with two of the three astronauts to the lunar surface.

The LM is a two-stage vehicle. The bottom stage contains the rocket motor and legs for lunar landing. For lift-off from the moon this stage also acts as launch-platform for the upper stage which includes the cabin for the astronauts and the ascent rocket motor.

