Apollo 50th Anniversary Posters Missions 7-17

Images and information courtesy of NASA.

Image enhancement and poster production by Tom R. Chambers, former research analyst at the Lunar Receiving Laboratory during Project Apollo, 1969-1972.



Apollo 11



Following orbital injection and separation from the S-IVB stage, the astronauts turned the Command Module around using its Reaction Control System thrusters, and Command Module Pilot Donn Eisele practiced a simulated Lunar Module rendezvous and docking, using a visual reference target mounted inside the spacecraft adapter in the same radial position it occupie<u>d on the lander.</u>

Apollo 7 1968-2018



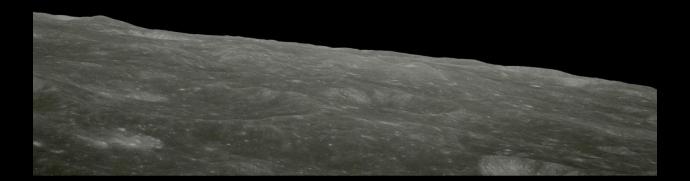
The S-IVB is the third stage on the Saturn V and second stage on the Saturn IB launch vehicles. Built by the Douglas Aircraft Company, it has one J-2 rocket engine. For lunar missions it is fired twice: first for Earth orbit insertion (EOI) after second stage cutoff, and then for translunar injection (TLI). Attitude control is provided by J-2 engine gimbaling during powered flight and by the two APS modules during coast. The APS modules each contain four thrusters providing 150 pounds-force (670 N) of thrust (three for roll, pitch, and yaw, and one for ullage).



"We came all this way to explore the Moon, and the most important thing is that we discovered the Earth."

William Anders, Lunar Module Pilot





"Exploration is really the essence of the human spirit."

Frank Borman, Commander



"We got to the Moon on Christmas Eve 1968, at the end of a poor year for this country. We had Vietnam. We had civil unrest. We had the assassinations of Robert Kennedy and Martin Luther King. But we went around the Moon and saw the far side for the first time. A script writer couldn't have done a better job of raising people's hope."

Far side of the Moon



Command Module Pilot James Lovell waves to well-wishers during the pre-dawn departure (December 21, 1968) to Launch Pad 39 for the six-day, lunar-orbital, Apollo 8 mission. He is accompanied by Commander Frank Borman (right) and Lunar Module Pilot William Anders (left).

A view from the Apollo 8 spacecraft showing nearly the entire Western Hemisphere, from the mouth of the St. Lawrence River, including nearby Newfoundland, extending to Tierra del Fuego at the southern tip of South America. Central America is clearly outlined. Nearly all of South America is covered by clouds, except the high Andes Mountain chain along the west coast. A small portion of the bulge of West Africa shows along the sunset terminator.

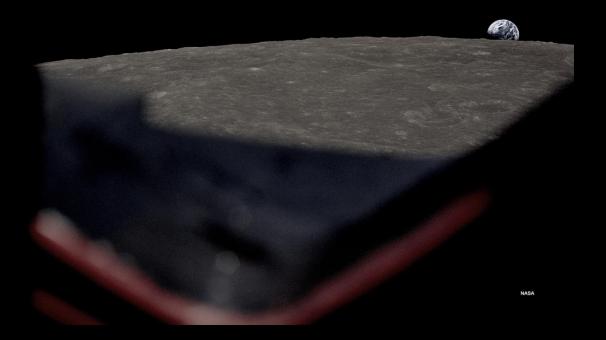


The Apollo 8 crew is seen inside the gondola during centrifuge training in MSC's Flight Acceleration Facility, Building 29. Left to right, are astronauts William A. Anders (lunar module pilot), James A. Lovell Jr., (command module pilot), and Frank Borman (commander).



High-oblique view of the Moon's surface showing Earth rising above the Lunar horizon, looking west-southwest, as photographed from the Apollo 8 spacecraft as it orbited the Moon. The center of the picture is located at about 105 degrees east longitude and 13 degrees south latitude.

The Command Module window offers a reference point as it relates to the spacecraft and the Lunar surface. It's one thing to see a photo of the Lunar surface, but it's another to see the Moon this way via the reference point ... an affirmation ... a statement asserting the existence or the truth of the spacecraft/humanity (astronauts) being up close and personal with the Lunar surface ... being there ... similar to looking through the window of a car/bus/train/plane as you "race" by and through that situation/moment. It's a powerful image in the sense that "yes, we (humanity) were there."





The Apollo 8 crew stands in the doorway of a recovery helicopter after arriving aboard the carrier USS Yorktown, prime recovery ship for the mission. Left to right: Frank Borman (commander), James A. Lovell Jr. (command module pilot), and William A. Anders (lunar module pilot). Apollo 8 splashed down at 10:51 a.m. (EST), December 27, 1968, in the central Pacific approximately 1,000 miles south-southwest of Hawaii.

Apollo 9 1969-2019

Command Module Pilot Dave Scott is seen standing in the hatch of "Gumdrop" as a part of his EVA. The photograph was made by Lunar Module Pilot Rusty Schweickart from "Spider" as a part of his EVA.

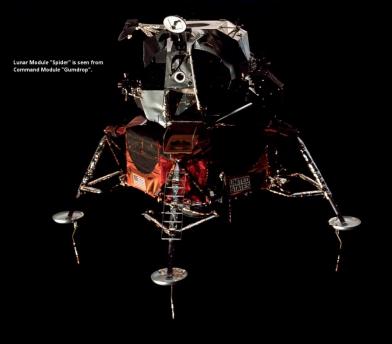




Apollo mission to be launched by a Saturn V rocket, and the first flight of the full Apollo spacecraft: the command and service module (CSM) with the Lunar Module (LM). The mission was flown to qualify the LM for lunar orbit operations by demonstrating its descent and ascent propulsion systems, showing that its crew could fly it independently, then rendezvous and dock with the CSM again.

Apollo 9 1969-2019





Flown in low-Earth orbit, it was the second crewed Apollo mission to be launched by a Saturn V rocket, and the first flight of the full Apollo spacecraft: the command and service module (CSM) with the Lunar Module (LM). The mission was flown to qualify the LM for lunar orbit operations by demonstrating its descent and ascent propulsion systems, showing that its crew could fly it independently, then rendezvous and dock with the CSM again.

Apollo 9 1969-2019

Apollo 9 1969-2019

Lunar Module Pilot Rusty Schweickart uses the Extravehicular Mobility Unit (EMU) backpack for the first time during his EVA. This includes the Portable Life Support System (PLSS), providing oxygen to the astronaut and water for the Liquid Cooling Garment (LCG), which helps prevent overheating during extravehicular activity.

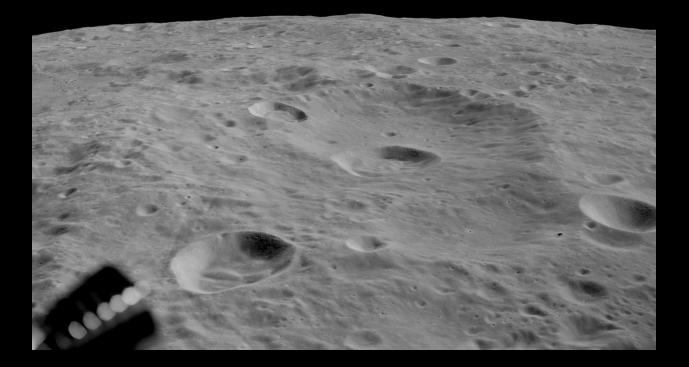
> unar Module "Spider"

Apollo 9 1969-2019

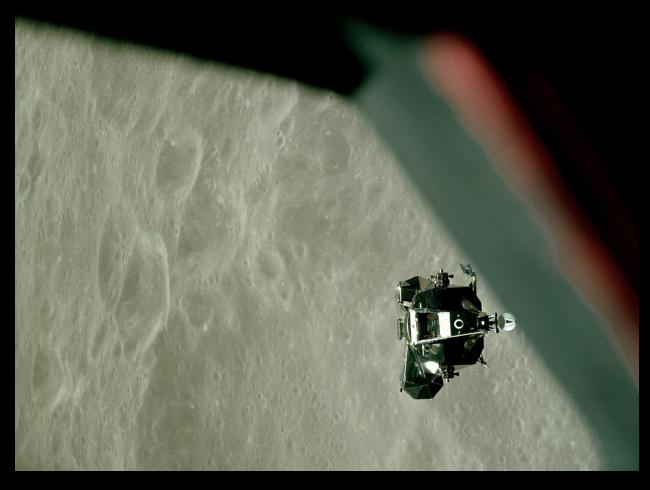
Earth from Command Module "Gumdrop".



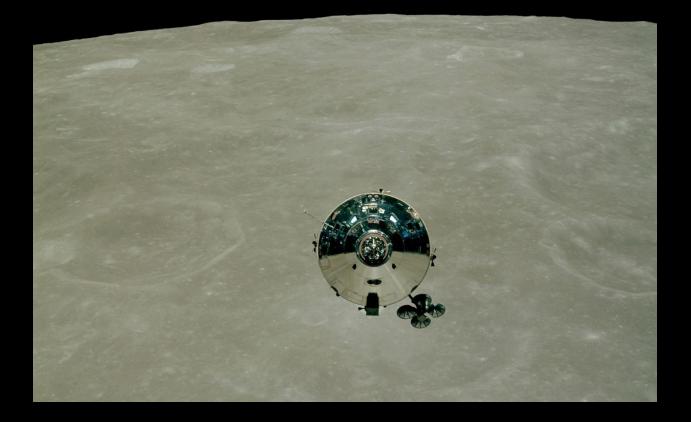
This photograph of the Moon was made from Lunar Module "Snoopy". One of the module's Reaction Control System (RCS) thrusters is seen bottom-left. This thruster can provide a small amount of thrust in any direction to assist the module with precise maneuvers and adjust its orientation.



Lunar Module "Snoopy" is seen returning to Command Module "Charlie Brown". The crew performed the descent orbit insertion maneuver by firing their descent engine, and tested their craft's landing radar as they approached the 50,000-foot altitude where the subsequent Apollo 11 mission would begin powered descent to actually land on the Moon.

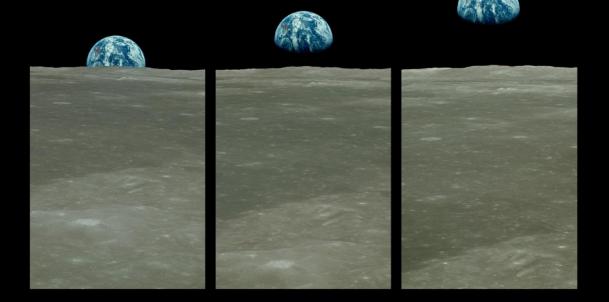


Command Module "Charlie Brown" is seen from Lunar Module "Snoopy" after separation. Commander Thomas Stafford and Lunar Module Pilot Gene Cernan undocked from the module, leaving Command Module Pilot John Young orbiting about 60 miles above the Moon.



"If you could see Earth illuminated when you were in a place as dark as night, it would look to you more splendid than the Moon." Gailtee Gailtei

View of Earth from the Command Module Columbia.

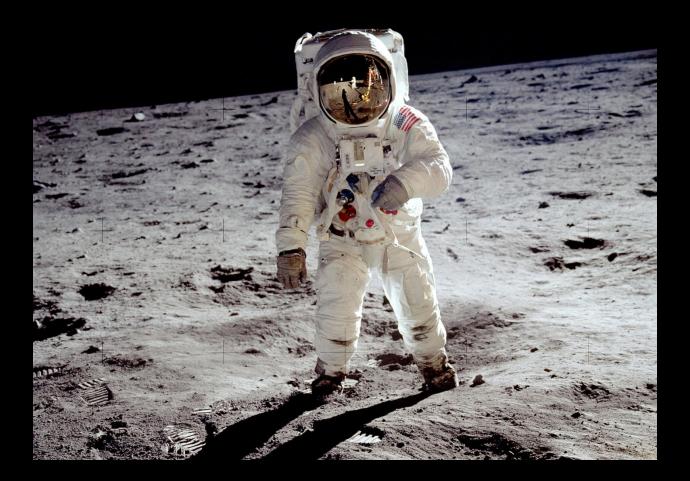


"Houston, Tranquility Base here. The Eagle has landed."

Neil Armstrong, Commander



Commander Neil Armstrong made this photograph of Lunar Module Pilot Buzz Aldrin standing on the Lunar surface. The reflection in Aldrin's helmet visor shows the solar wind collector, US flag, his shadow, Earth, Armstrong, and the Lunar Module (Eagle).

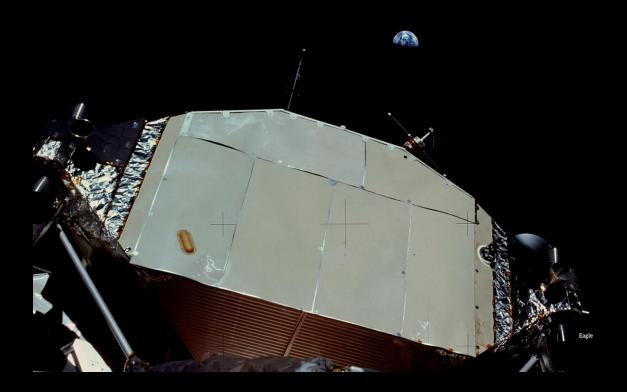


Commander Neil Armstrong made this photograph of Eagle

during his return from the rim of Little West Crater. His shadow is seen foreground left.

"It suddenly struck me that that tiny pea, pretty and blue, was the Earth. I put up my thumb and shut one eye, and my thumb blotted out the planet Earth. I didn't feel like a giant. I felt very, very small."

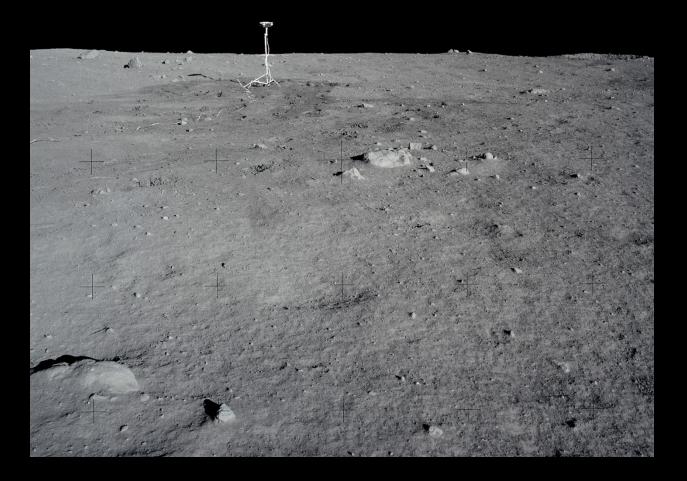
Neil Armstrong, Commander



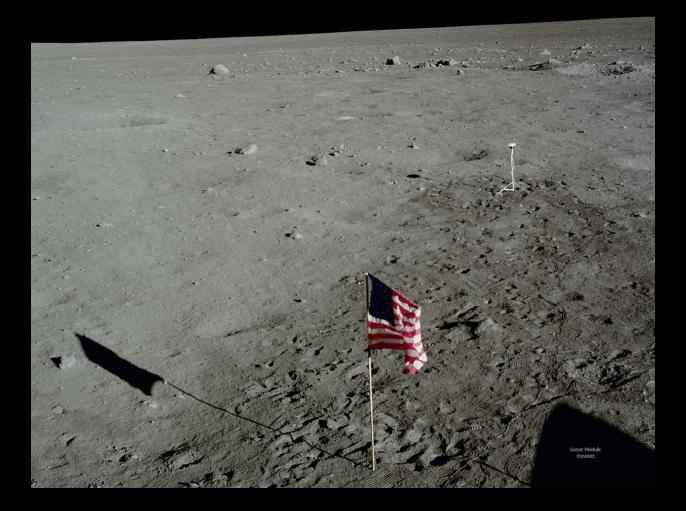
"At one point I remarked that the surface was 'Beautiful, beautiful. Magnificent desolation.' I was struck by the contrast between the starkness of the shadows and the desert-like barrenness of the rest of the surface."



The TV camera is seen as a part of Buzz Aldrin's (Lunar Module Pilot) photo pan. This Westinghouse camera provided live coverage of Apollo 11 activities.



Lunar Module Pilot Buzz Aldrin made this photograph from inside the Lunar Module after he and Commander Neil Armstrong finished their EVA. The US flag and TV camera are seen.



"I can look out through my docking reticle and see that they are steady as a rock as they drive down the center line of that final approach path." Michael Collins. Command Module Pilot







The Apollo 11 crew made this photograph of Earth during their trip home from the Moon.

"It's a very soft surface, but here and there, when I plug with the contingency sample collector, I run into a very hard surface that appears to be very cohesive material of the same sort. I'll try to get a rock in here ... here's a couple."



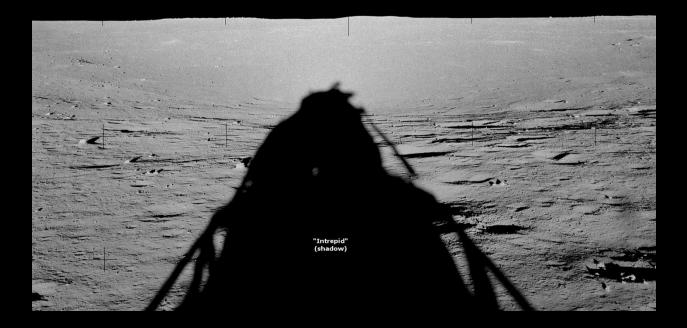
Commander Neil Armstrong Command Module Pilot Michael Collins Lunar Module Pilot Buzz Aldrin



Commander Pete Conrad and Lunar Module Pilot Alan Bean landed their Lunar Module "Intrepid" about 600 feet from "Surveyor 3".



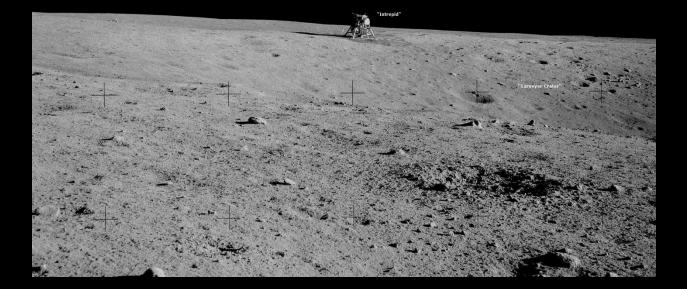
Lunar Module "Intrepid" lands in an area of the "Ocean of Storms" (Latin Oceanus Procellarum). The Lunar coordinates of the landing site are 3.01239° S latitude, 23.42157° W longitude.



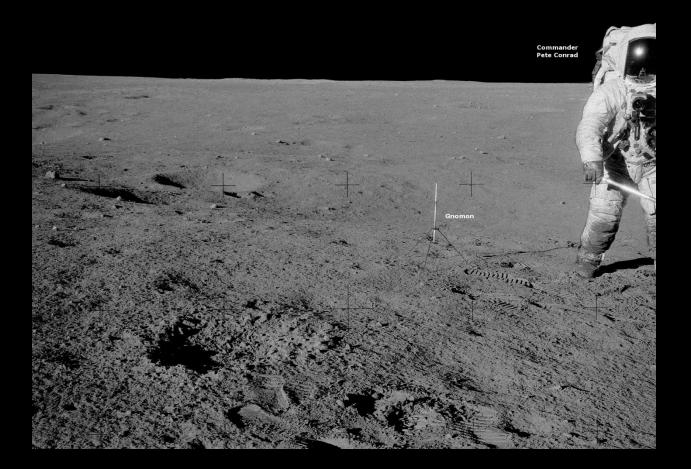
CDR Pete Conrad: "Doesn't that LM [Lunar Module] look neat, sitting on the other side of that crater?"

LMP Alan Bean: "Yeah. It does. We ought to get a shot of that."

CDR Pete Conrad: "Yeah. Get a shot of home."







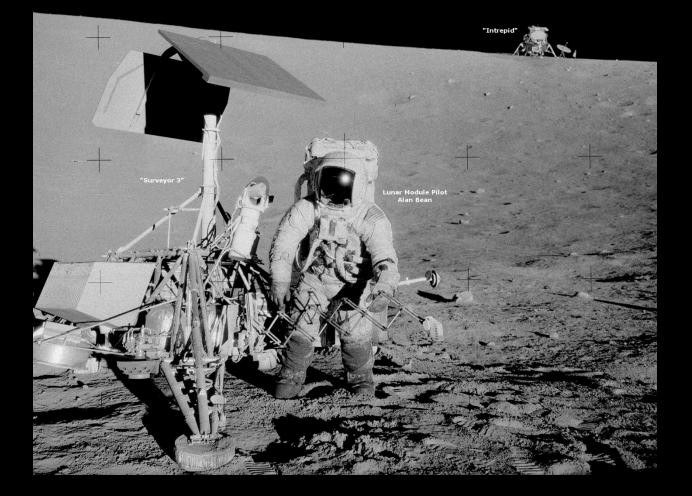
Command Module Pilot Dick Gordon made this photograph of "Intrepid" prior to its descent to the Lunar surface.

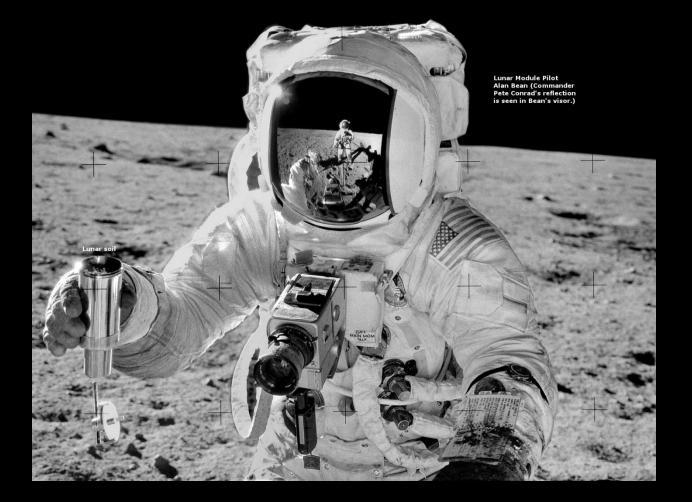




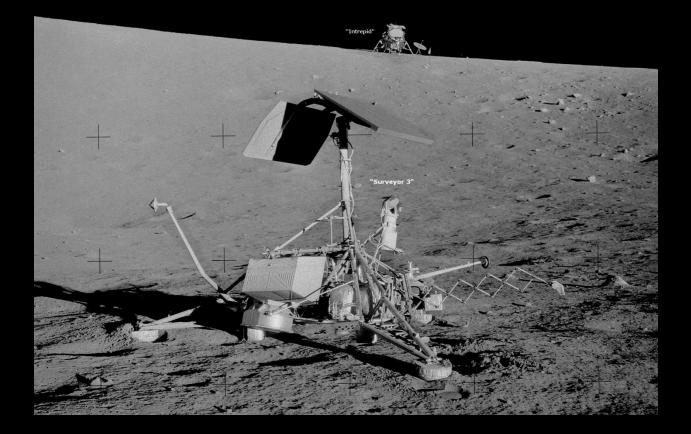
Commander Pete Conrad makes a photograph of "Sharp Crater" and his shadow as a part of his photo pan series.







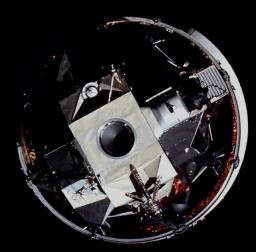
Commander Pete Conrad and Lunar Module Pilot Alan Bean's landing was an exercise in precision targeting. They landed their Lunar Module "Intrepid" about 600 feet from "Surveyor 3".





Commander Pete Conrad is using the Universal Handling Tool (UHT) to release the Central Station antenna gimbal assembly. The object in the foreground is the magnetometer, which Lunar Module Pilot Alan Bean will unfold when he deploys it.

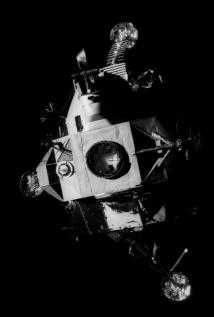




Command Module Pilot Jack Swigert performed the separation and transposition maneuvers before docking the Command Module "Odyssey" to the Lunar Module "Aquarius" (seen here tucked away in the third stage), and then the spacecraft pulled away leaving the stage to impact the Moon within range of the seismometer left there by Apollo 12.



The damaged Service Module is seen from the Command Module "Odyssey". The oxygen tank failure was caused by accidental ignition of damaged wire insulation inside it during a routine tank stirring operation. It soon lost all its oxygen, needed for breathing and for generating electrical power. Command Module power had to be shut down to conserve its remaining resources for reentry, forcing the crew to transfer to the Lunar Module "Aquarius" as a lifeboat.



The Lunar Module "Aquarius" is seen shortly after being jettisoned prior to reentry into Earth's atmosphere of the Command Module "Odyssey". "Aquarius" had been used as a "lifeboat" to return Commander Jim Lovell, Lunar Module Pilot Fred Haise, and Command Module Pilot Jack Swigert safely to Earth.



Command Module "Odyssey" regained radio contact and splashed down safely in the South Pacific Ocean, southeast of American Samoa and 3.5 nmi from the recovery ship, USS Iwo Jima. Astronauts (left to right) Fred Haise, Jim Lovell, and Jack Swigert are seen stepping out of the recovery helicopter.



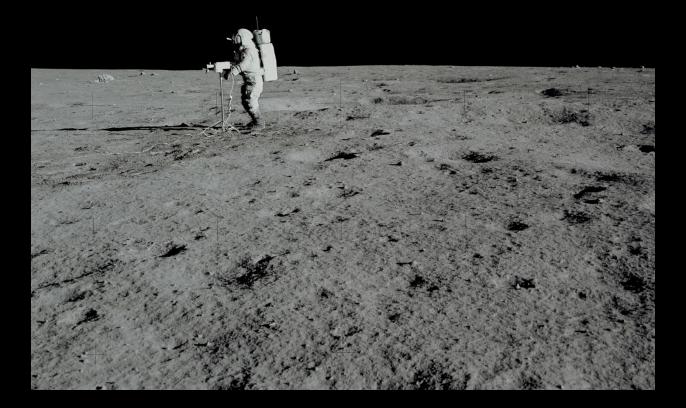
Astronauts (left to right) Fred Haise, Jack Swigert, and Jim Lovell are seen on the deck of the recovery ship USS Iwo Jima. They were in good condition except for Haise, who was suffering from a serious urinary tract infection because of insufficient water intake. The crew stayed overnight on the ship and flew to Pago Pago, Samoa, the next day. They flew to Hawaii, where President Nixon awarded them the Presidential Medal of Freedom, the highest civilian honor.

Commander Alan Shepard is seen holding the American flag. He is the only astronaut from Project Mercury (the original Mercury Seven astronauts) to reach the Moon. The mission was a personal triumph for Shepard, who had battled back from Ménière's disease which grounded him from 1964 to 1968.

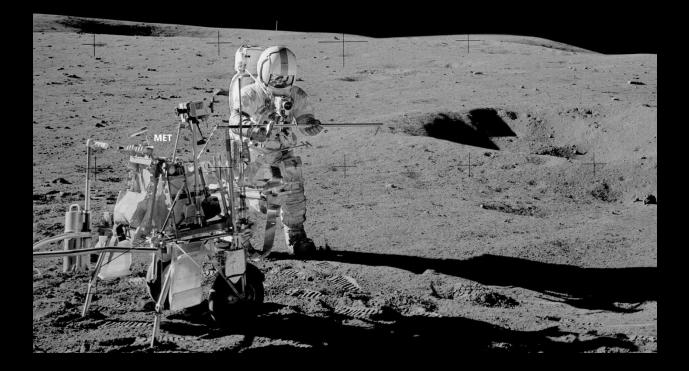




Lunar Module Pilot Ed Mitchell is seen adjusting and panning the Westinghouse color TV camera for Mission Control so they can see the Lunar surface and Mitchell's and Commander Alan Shepard's activities.



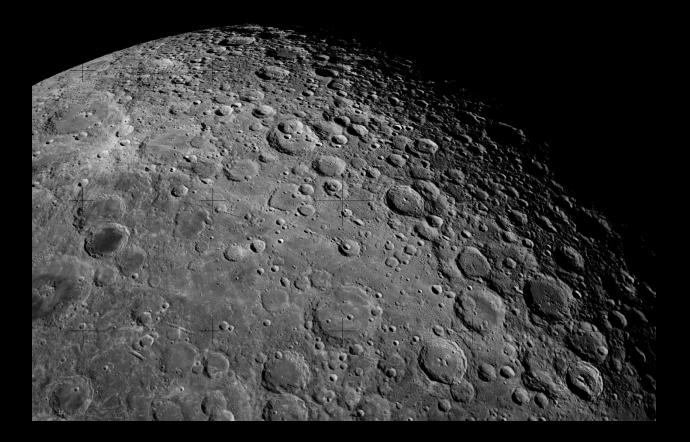
Commander Alan Shepard is seen with the core tube and extension handle. He is holding the hammer in his right hand. He has a pair of tongs tethered to his waist at the left side, with the handle on the outside of his left hip. This photograph is part of Lunar Module Pilot Ed Mitchell's Station A pan. The Modular Equipment Transporter (MET) is seen to Shepard's right. It is a portable workbench with a place for the Lunar handtools and their carrier, three cameras, two sample container bags, a Special Environmental Sample Container, spare film magazines, and a Lunar Surface Penetrometer.



Command Module Pilot Stuart Roosa makes this photograph of Lunar Module "Antares" from "Kitty Hawk" after undocking and separation. Commander Alan Shepard and Lunar Module Pilot Ed Mitchell ... inside "Antares" ... then make their descent to the Lunar surface.

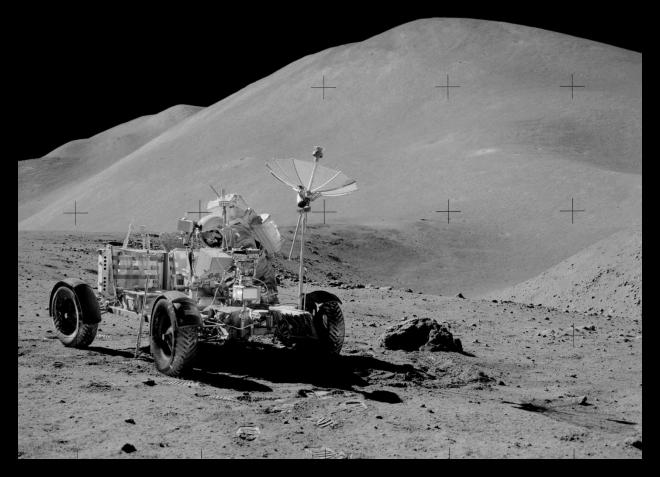


Command Module Pilot Stuart Roosa makes this photograph of the Moon from "Kitty Hawk".

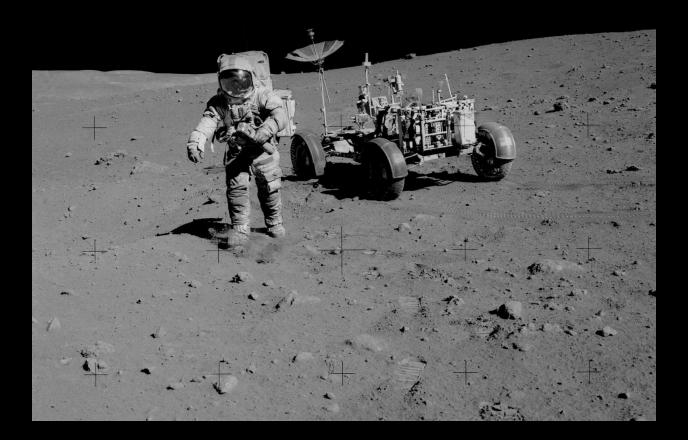




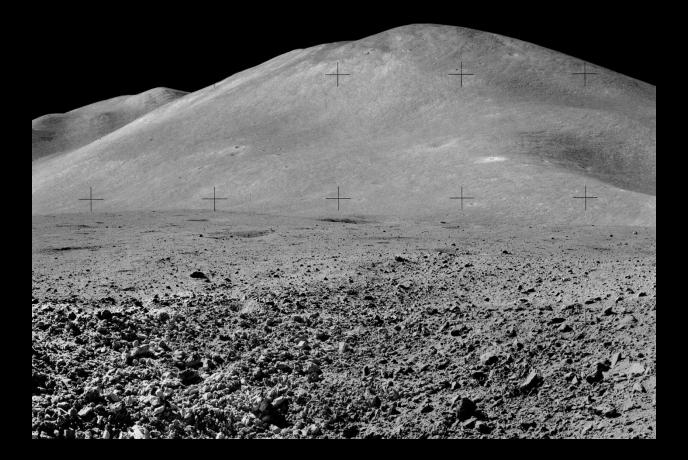
This photograph shows Lunar Module Pilot Jim Irwin's Station 9a pan of Commander Dave Scott reaching under his Lunar Roving Vehicle (LRV) seat to get the Hasselblad camera equipped with a 500-mm lens.



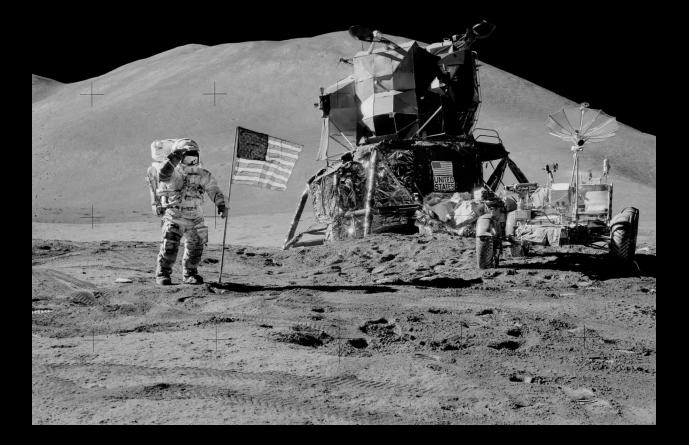
This photograph shows Lunar Module Pilot Jim Irwin's Station 10 pan of Commander Dave Scott moving toward Hadley Rille carrying the Hasselblad camera with the 500-mm lens.



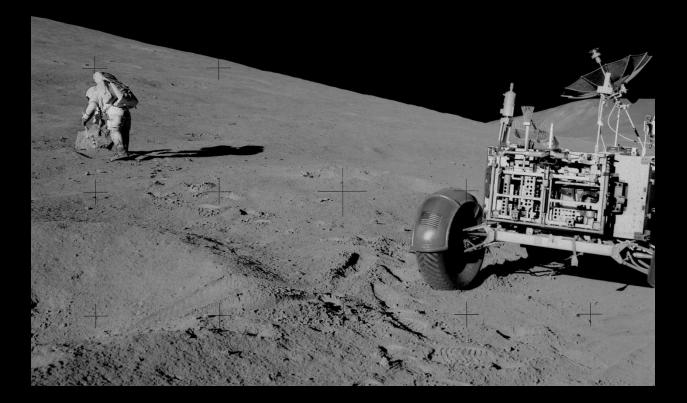
This photograph shows Commander Dave Scott's Station 9 pan of ejecta fragments from Station 9 crater with the Swann Range in the background.



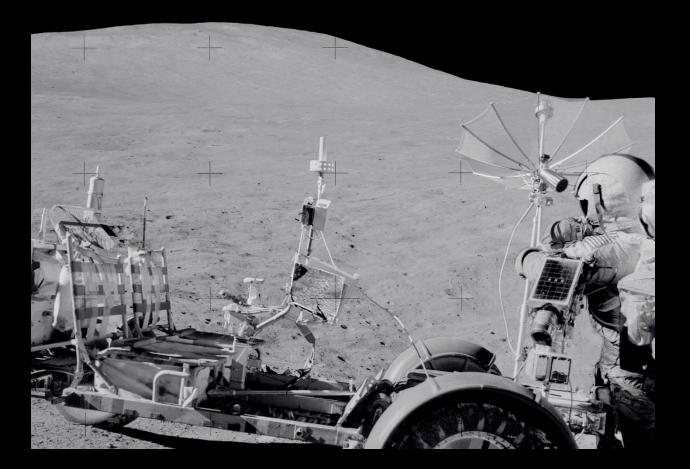
Commander Dave Scott makes this photograph of Lunar Module Pilot Jim Irwin saluting the flag. Lunar Module "Falcon" and the Lunar Roving Vehicle are seen to the right. Mount Hadley Delta is in the background.



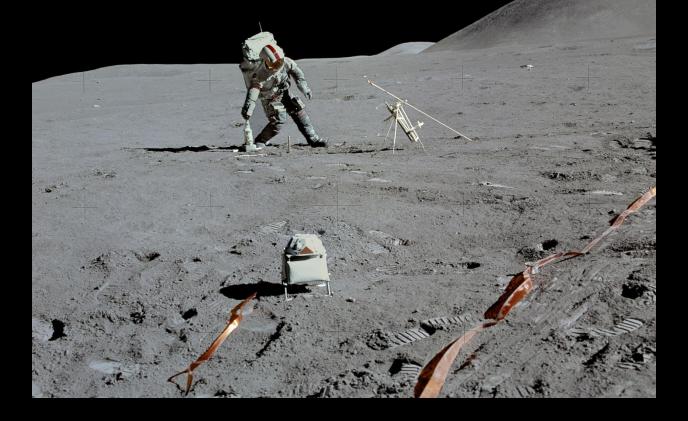
This photograph from Lunar Module Pilot Jim Irwin's Station 2 pan shows Commander Dave Scott examining the Station 2 boulder. He has both the gnomon and the tongs in his left hand. The Lunar Roving Vehicle is seen to the right.

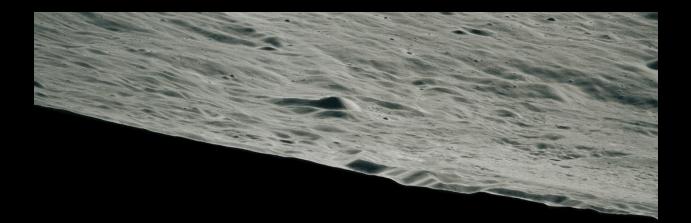


Commander Dave Scott uses the sighting scope on the high-gain antenna. The antenna produces a beam tight enough that an adequate TV signal can be received by 85-m dishes on Earth. Pointing the antenna with sufficient accuracy is tricky because, when pointed correctly, Earth nearly fills the field-of-view in the sighting scope.



Commander Dave Scott is seen leaning to his right and picking up the Apollo Surface Drill. It was a major part of the EVA equipment package. The purpose of the one-man electric drill was to use tungsten carbide bits to cut 10 ft (3 m) deep into the Lunar surface to place probes for the Heat Flow Experiment to measure the subsurface temperatures of the Moon at different times of day. In addition, it was used to take core samples for return to Earth for more detailed study by NASA's Lunar Lab. The Solar Wind Spectrometer is in the foreground.



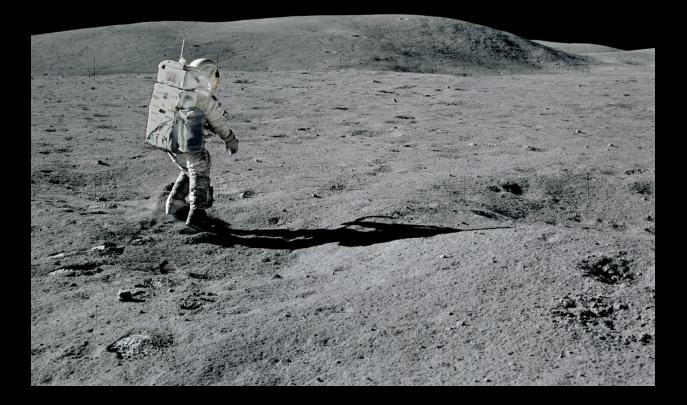




Earthrise from lunar orbit during revolution 70.

Apollo 15 1971-2021

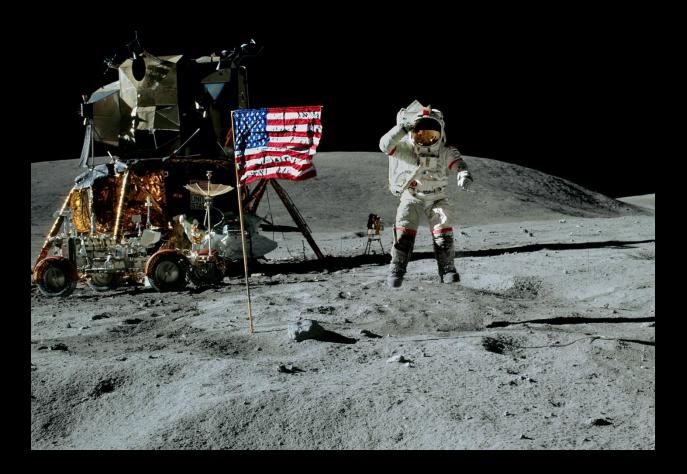
This photograph is from Commander John Young's Plum Crater pan showing Lunar Module Pilot Charlie Duke as he moves to the south to examine some angular blocks. Stone Mountain is in the background.



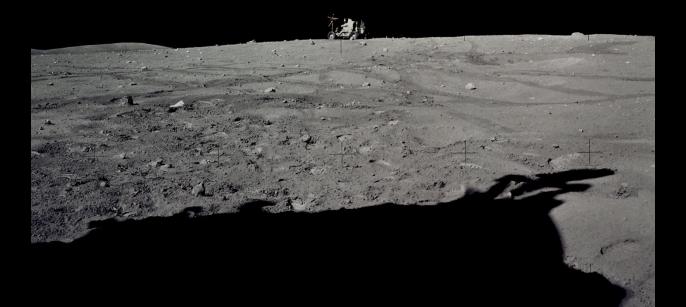
This photograph of Earth is made from Command Module "Casper" during translunar coast. Portions of the North American continent are seen with Baja California in the center of the image. The weather patterns are indicative of the month of April.



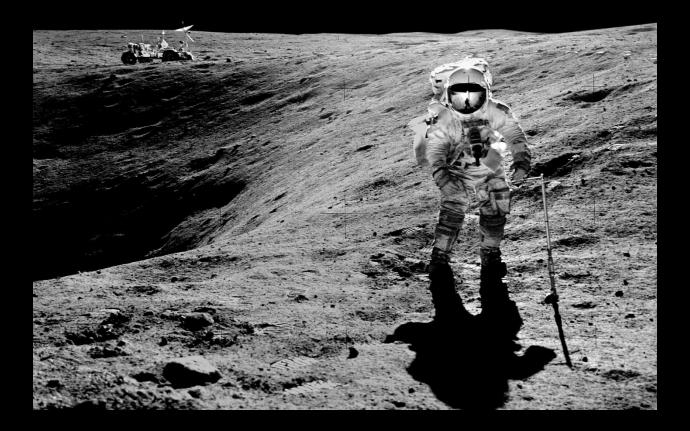
Commander John Young jumps, and salutes the flag. Lunar Module "Orion" and the Lunar Roving Vehicle are seen to the left.



Lunar Module Pilot Charlie Duke makes this photograph of the boot prints and rover tracks from the shadow of Lunar Module "Orion". Commander John Young is seen driving the Lunar Roving Vehicle.



Lunar Module Pilot Charlie Duke is seen as part of Commander John Young's pan. He plants the scoop on the surface. Plum Crater and the Lunar Roving Vehicle are seen in the background to the left.



Lunar Module Pilot Charlie Duke is seen saluting the flag. Lunar Module "Orion" and the Lunar Roving Vehicle are seen to the left.

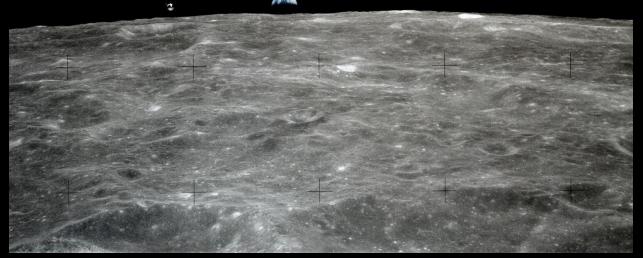


"Moon Glory": The American flag is planted on the Lunar surface by Commander John Young and Lunar Module Pilot Charlie Duke. The flag stands straight out, because there is a rod at the top holding it in position. Notice the boot prints and rover tracks.

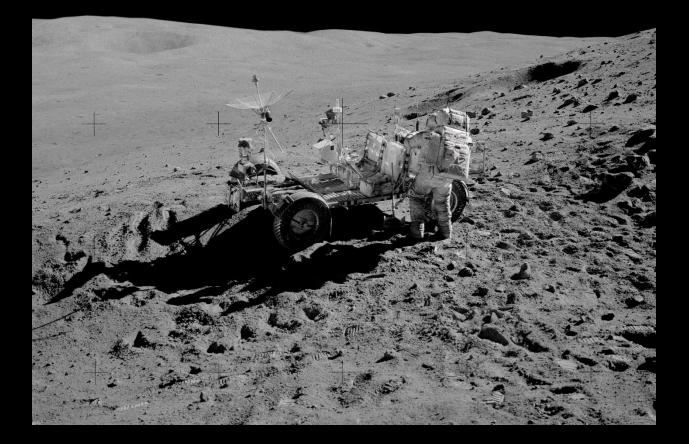


Command Module "Casper", its Service Module, and "Earthrise" are seen from Lunar Module "Orion", pre-landing.

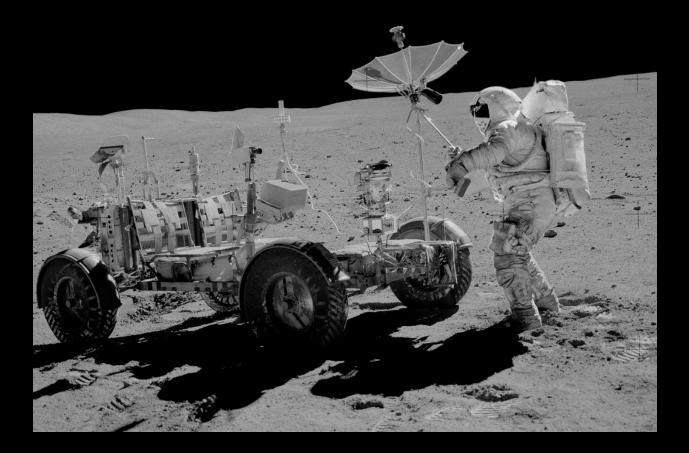




Lunar Module Pilot Charlie Duke's Station 4 photo pan shows Commander John Young working at the back of the Lunar Roving Vehicle.



Lunar Module Pilot Charlie Duke's Station 8 photo pan shows Commander John Young aligning the high-gain antenna on the Lunar Roving Vehicle. The antenna produces a beam tight enough that an adequate TV signal can be received by 85-m dishes on Earth.



Lunar Module Pilot Charlie Duke makes this photograph of Lunar Module "Orion". The ascent and descent stages are built to be as light as possible. Since they operate only in a vacuum, many things don't need to be sturdy, and their shapes don't matter. The insulation blankets covering the module have many layers, and contact points between the layers need to be minimized so that heat won't be passed through them by conduction.



Lunar Module Pilot Charlie Duke's Station 10 Prime photo pan shows Commander John Young with the Lunar Roving Vehicle in the background. The gnomon legs - all that remains of the instrument, is in the foreground.





Commander John Young and Lunar Module Pilot Charlie Duke return from the Moon's surface in the ascent stage of Lunar Module "Orion" to rendezvous with Command Module Pilot Tom Mattingly in Command Module "Casper". Mattingly makes this photograph.

Apollo 16 1972-2022

Commander Gene Cernan is seen posing with the flag. This closeup provides great detailing of Cernan's spacesuit and PLSS (Portable Life Support System). Cernan's face can be seen through the gold visor. The red arm bands distinguish him from Lunar Module Pilot Harrison Schmitt (no arm bands).

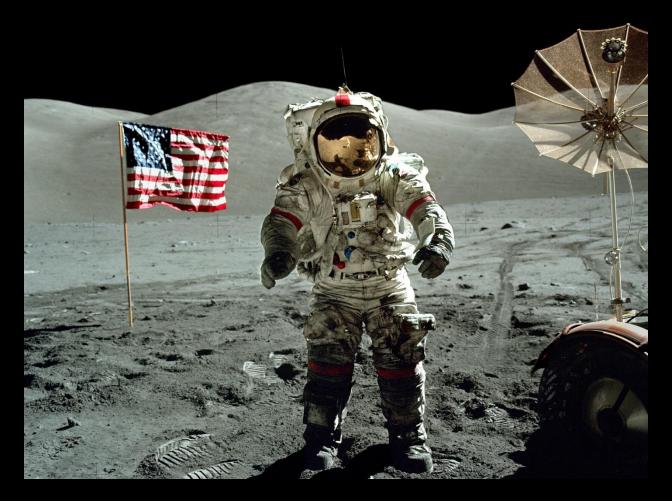


Lunar Module Pilot Harrison Schmitt poses with the flag and Earth.





Commander Gene Cernan strikes a pose as Lunar Module Pilot Harrison Schmitt makes this photograph. Schmitt's reflection and Earth are seen in Cernan's visor.



Lunar Module Pilot Harrison Schmitt makes this photograph of Commander Gene Cernan test driving the Lunar Roving Vehicle. Lunar Module "Challenger" is seen in near background.



Commander Gene Cernan is seen as a part of Lunar Module Pilot Harrison Schmitt's photo pan. Cernan is sitting in the left seat of the Lunar Roving Vehicle at the start of EVA-2. The North Massif is in the background.

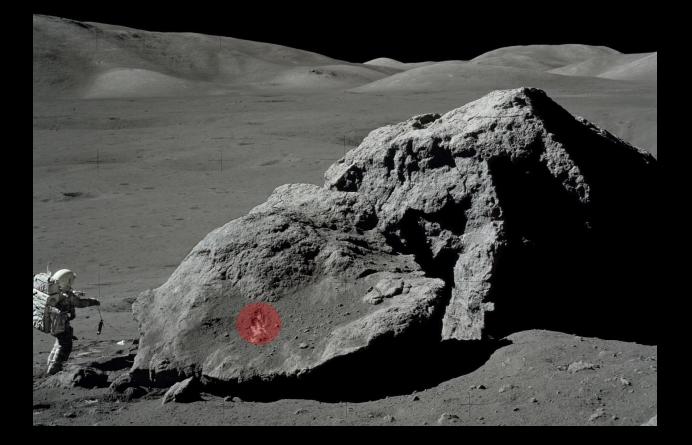


Commander Gene Cernan is parked. He is zeroing the distance and range counters while Lunar Module Pilot Harrison Schmitt makes this photograph of the transmitter and the Lunar Roving Vehicle for use by the experimenters. Lunar Module "Challenger" is seen in the background. The Surface Electrical Properties transmitting antenna is seen foreground-left.





Commander Gene Cernan's Station 6 pan shows Lunar Module Pilot Harrison Schmitt heading around the south side of Station 6 boulder ("Split Rock") for the rover. He is holding the gnomon in his right hand. Earlier, Cernan stepped to the northeast corner of fragment 1, and swept a sample bag twice from his right to his left, leaving furrows (circled). As a result of astronaut Alan Bean's painting, the Station 6 boulder was called "Tracy's Rock". Tracy is Cernan's daughter, who was nine years old at the time of the mission.





Commander Gene Cernan's Station 5 pan shows Lunar Module Pilot Harrison Schmitt running back to the Rover, carrying the scoop in his left hand. Bear Mountain is above right-center and the East Massif is on the left horizon.

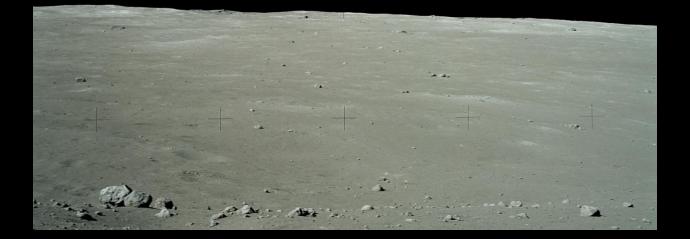


Lunar Module Pilot Harrison Schmitt's photo pan shows Commander Gene Cernan placing the Traverse Gravimeter Experiment on the surface behind the Lunar Roving Vehicle.





Commander Gene Cernan makes this photograph of Earth standing on the Moon's surface.



Lunar Module Pilot Harrison Schmitt's EVA-3 photo pan shows Commander Gene Cernan working at the Lunar Roving Vehicle. Wessex Cleft is in the distance.



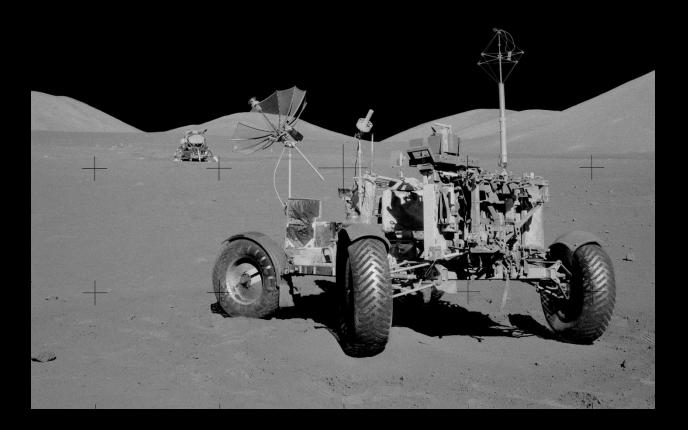
Lunar Module Pilot Harrison Schmitt makes this photograph of Lunar Module "Challenger"and flag on his way back from the ALSEP site for close-out at the end of EVA-3. The East Massif is in the background.



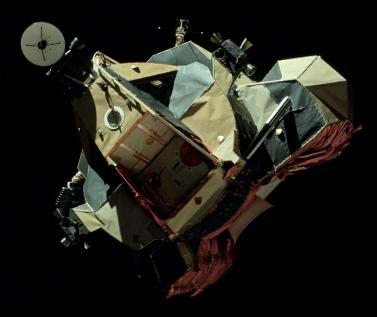


Lunar Module Pilot Harrison Schmitt is

Commander Gene Cernan parks the Lunar Roving Vehicle in its "final resting place" (VIP site) so there will be live TV coverage from the rover's camera of Lunar Module "Challenger's" ascent stage liftoff. He makes this photograph of the NASA "hardware".



Commander Gene Cernan and Lunar Module Pilot Harrison Schmitt return from the Moon's surface in the ascent stage of Lunar Module "Challenger". Command Module Pilot Ron Evans makes this photograph from Command Module "America".



Images and information courtesy of NASA.

Image enhancement and poster production by Tom R. Chambers (former research analyst at the Lunar Receiving Laboratory during Project Apollo, 1969-1972).

These posters can be downloaded at:

http://tomrchambers.com/mga_posters_2.html

http://tomrchambers.com/mga_posters_3.html

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