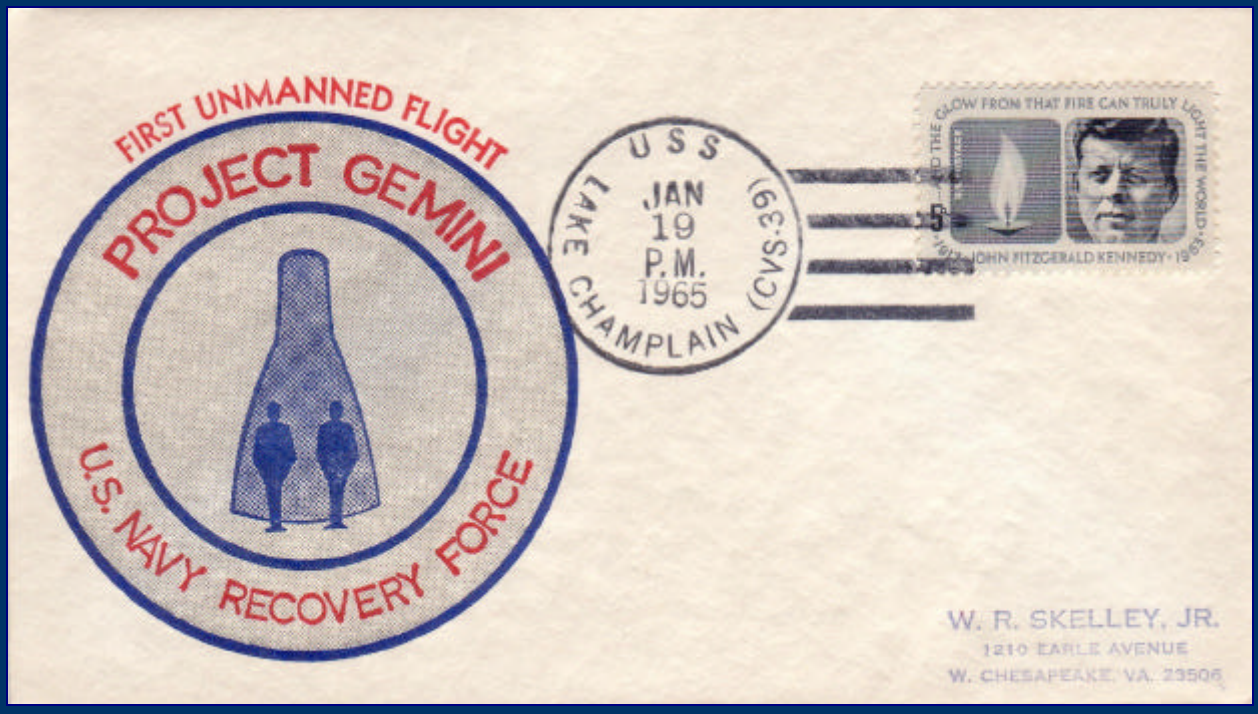
Project Gemini Sets the Pace



A rare unnumbered Morris W. Beck cacheted cover is shown for primary recovery ship USS Lake Champlain's recovery of the Gemini 2 spacecraft from the Atlantic Ocean on January 19, 1965.

by Steve Durst

Preface

If Project Mercury proved that Astronauts can achieve space flight, then its successor, Project Gemini, proves that Astronauts can live and work in space. Project Gemini additionally gives us the vantage point of seeing our solar system and the Earth traversing the universe in a fragile "spacecraft." All of us are, then, to some degree, Astronauts on Spaceship Earth. At once, we are both part of Earth and journeying as a traveler through the far reaches of the Universe.

As in my previous work, *Project Mercury Points the Way*, written earlier this year, I have relied heavily on original NASA source documents, historical accounts, and NASA photographs to highlight key Gemini precursor events, significant Gemini events, and development of an overall synopsis for each of the twelve flights of Project Gemini as seen through NASA documents, postal history, and astrophilately. I also have relied heavily upon NASA historians Barton Hacker and James Grimwood's excellent work for Project Gemini, *On the Shoulders of Titans: A History of Project Gemini*, underwritten by NASA and published in 1977. The authors' work is still very pertinent today and remains an epic work for this important space program that positioned the Apollo Program to send Astronauts to the Moon.

As before, I am indebted to my core group of fellow stamp and cover collectors in both the Universal Ship Cancellation Society and the American Philatelic Society and American Topical Association's Space Topics Study Group. This later group is more familiarly known in the collecting community as the Space Unit. The retro name of this group should not trip up the casual reader, though. The Space Unit accomplishes serious academic, independent research concerning both ship and space history topics. The group also publishes an independent astrophilatelic journal called the "Astrophile" on a bi-monthly basis concerning these topics for both new and veteran stamp and cover collectors. This group is worth checking out and has the unstated motto, "Knowledge is power." Indeed, it is.

Within the Universal Ship Cancellation Society, I am indebted to fellow collectors and exhibitors, Paul Huber and Dick Morain, both previous Presidents of the USCS, for their encouragement and support. Within the Space Unit, I have worked closely with President Emeritus Ben Ramkissoon, President Tom Steiner, correspondent for the *Astrophile*, Dennis Dillman, fellow independent researcher and historian, Ross Smith, and legendary space historian and independent researcher Jack McMahan. If a collector already has an excellent ship or space cover collection, it is hoped that this work will make the collection better and will help to tell the story about Project Gemini.

Steve Durst

July 2008

Millersville, Maryland

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Project Gemini Sets the Pace

NASA Astronauts for Group I and Group II; a Majority of These Astronauts Participate in Project Gemini, photo courtesy of NASA.

Group 1, First row, left to right: Gordon Cooper, Gus Grissom, Scott Carpenter, (center) Wally Schirra, John Glenn, Alan Shepard, and Deke Slayton.

Group 2, Second row, left to right: Ed White, Jim McDivitt, John Young, Elliot See, Pete Conrad, Frank Borman, Neil Armstrong, Tom Stafford, and Jim Lovell.

Dedication

Dedicated to the brave Astronauts, men, and women of NASA’s Space Program

Driving the Mark II, Early Events Related to Project Gemini

NASA Director Robert Gilruth calls it “Two-Man Mercury or Mercury Mark II,” but NASA Headquarters’ employee Alex Nagy wins the ad hoc naming contest and a bottle of Scotch whisky by naming it “Gemini.” NASA’s new Project is aptly named Gemini for its two-man Astronaut crew, anticipated rendezvous missions in space, and a distinct zodiac relationship to Mercury.[1] Nagy thinks, "Even the astronomical symbol ♊ for Gemini fits the former Mark II designation.”[2]

Preparing Gemini Spacecraft Model for Early Wind Tunnel Testing, photo courtesy of NASA.

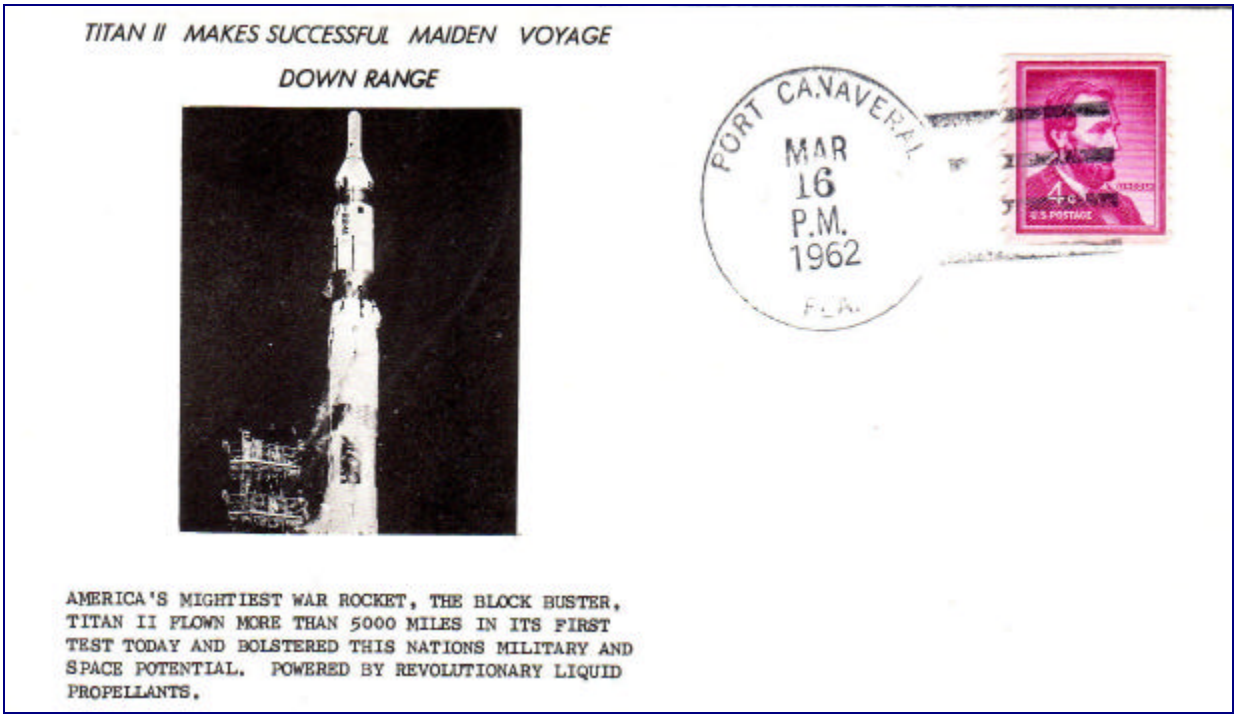
[1] Hacker, Barton, and Grimwood, James, “On the Shoulders of Titans: A History of Project Gemini,” NASA, Washington, DC, 1977; as cited, http://history.nasa.gov/SP-4203/ch1-1.htm.
[2] Ibid., and as cited, Letter, NASA’s Alex P. Nagy to George M. Low, December 11, 1961.

Rockets to Advance Space Exploration, Saturn TB, Gemini Titan II, and Atlas-Agena, photo courtesy of NASA.

Titan II is an intercontinental ballistic missile being developed by the Martin Company for the U. S. Air Force, but it also is planned to be used as a manned rocket booster in the Air Force's Dyna-Soar Program[3]. On May 8, 1961, Martin managers present a briefing to NASA officials at NASA Headquarters in Washington, DC. Martin staff think the rocket would be advantageous for use in NASA's new lunar mission, but NASA Director of Space Flight Programs, Abe Silverstein, recognizes the rocket booster as having potential for Project Gemini. Compared to other launch vehicles, Titan II is evaluated as having ample power with a total thrust two and a half times more powerful than the operational Mercury Atlas. It can easily lift the planned, heavier and redesigned Mercury Mark II (later called Gemini) spacecraft. The Titan II design feature of relative simplicity also makes the rocket a safer vehicle for manned space flight.[4]

[3] Hacker and Grimwood, Op. Cit.; as cited, http://www.hq.nasa.gov/office/pao/History/SP-4203/ch2-5.htm.
[4] Ibid., as cited; and James L. Decker, "A Program Plan for a Titan Boosted Mercury Vehicle," Vol. I, July 1961.

The Titan II rocket for Project Gemini has almost 2.5 times the thrust of Project Mercury's Atlas missile, and it also requires no ignition system due to use of hypergolic vice cryogenic fuels.[5] A static test, or captive test for the first Titan II rocket is completed March 9, 1962, at Cape Canaveral, Florida.[6]



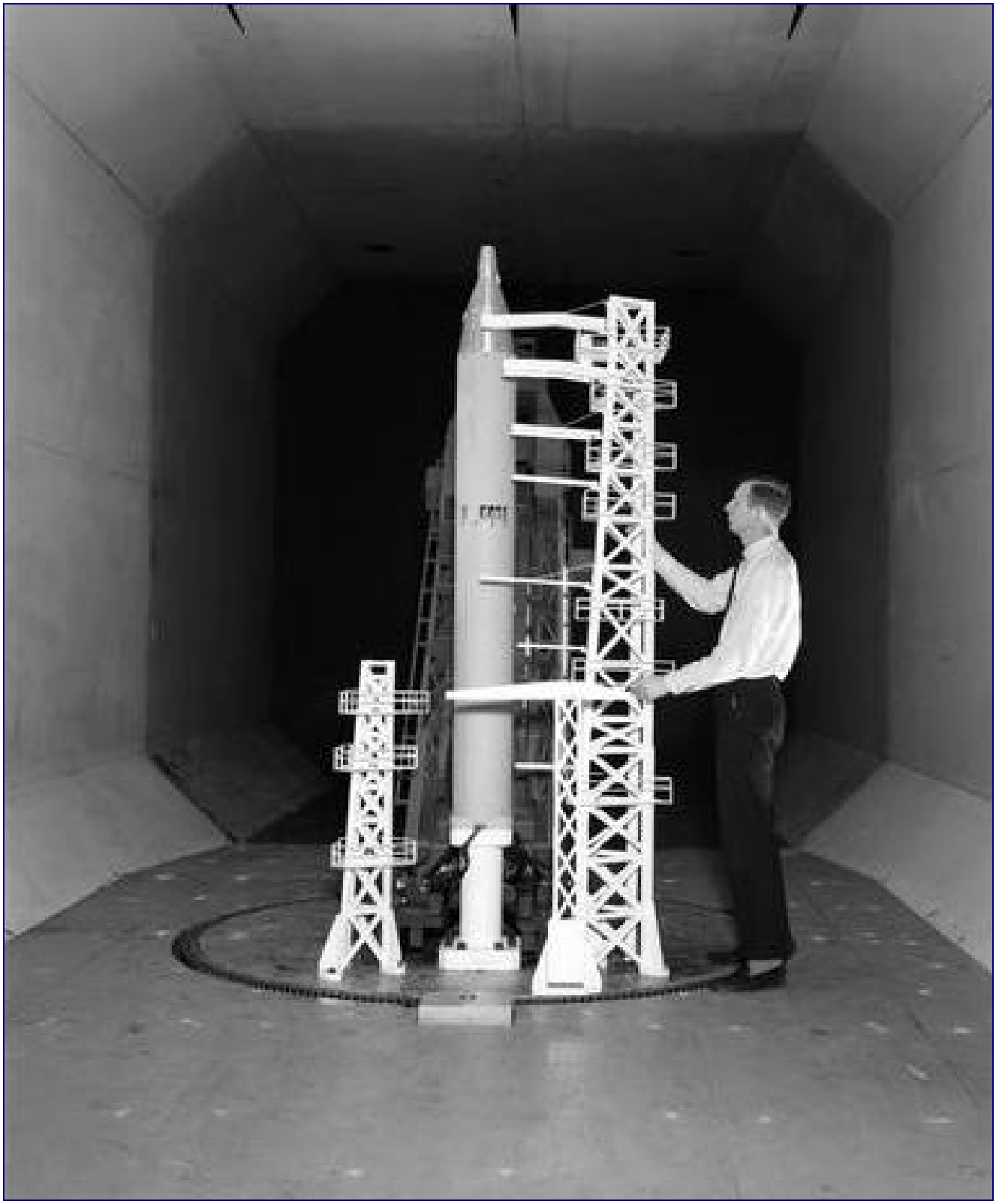
The Clyde Sarzin cover pictured is postmarked on the first flight of the Titan II rocket launched at Cape Canaveral, Florida, on March 16, 1962. This flight experiences severe longitudinal oscillation termed "pogo effect" which would endanger the lives of Gemini Astronauts on an actual flight. The Gemini Program Planning Board states that Titan II problems need to be addressed "with utmost urgency."[7]

[5] Ibid., http://history.nasa.gov/SP-4203/ch2-5.htm.
[6] Cleary, Mark, Historian, Patrick Air Force Base, Florida, in Email to Space Unit's Tom Steiner, May 29, 2007.
[7] Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch6-5.htm.

The fourth Titan II test flight involves increasing fuel tank pressure that cuts the pogo effect in half, but Titan II still does not meet specifications for man-rating Gemini flight.[8] The Sokolsky cacheted cover shown above records completion of this key Titan II test on July 25, 1962, at Cape Canaveral, Florida.

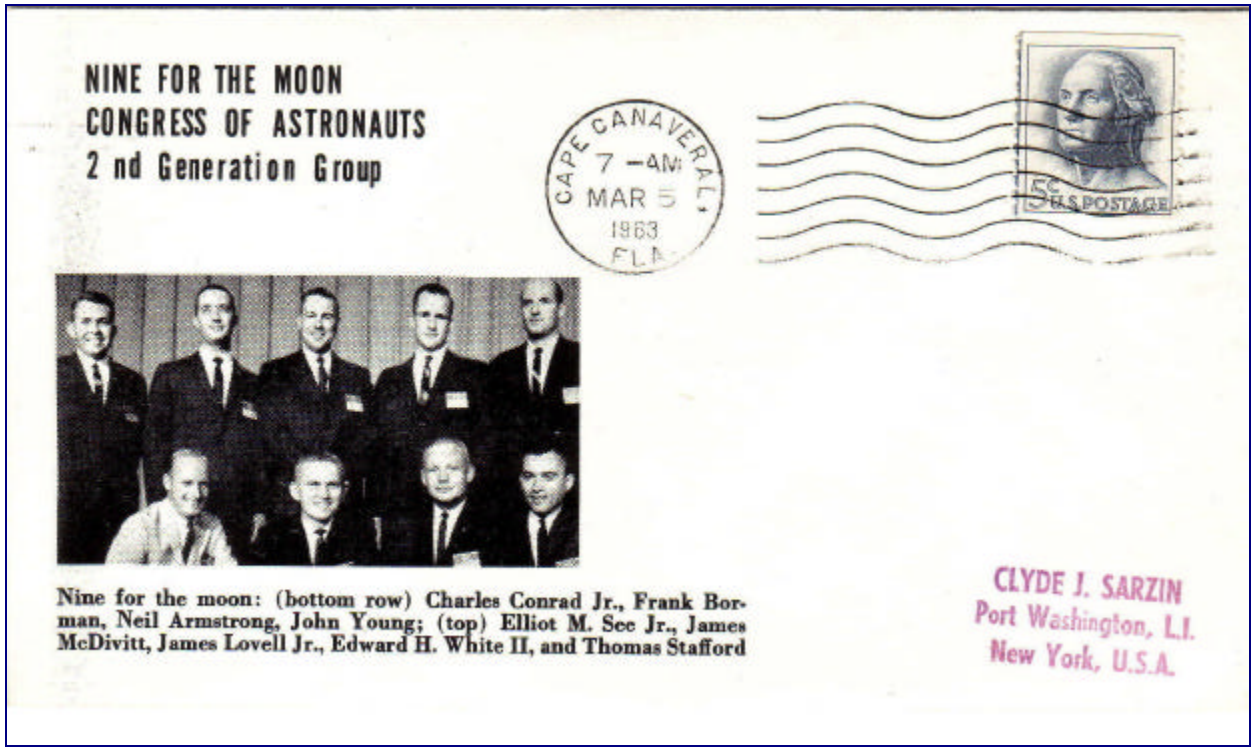
A Sarzin cover for several new space projects including Project Gemini is displayed above for a Titan II rocket test on September 12, 1962, at Cape Canaveral. A subsequent Gemini man-rating rocket test for Titan II is evaluated with poor results on December 6, 1962. Could the pogo effect be fixed, and would Titan II be ready in time?[9]

[8] Discussion concerning man-rating the Titan II rocket, between Dennis Dillman and Steve Durst, May 19, 2007.
[9] Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch6-4.htm.



Titan II Model with Gemini Spacecraft Model in the Transonic Dynamics Tunnel at Langley Research Center, photo courtesy of NASA.

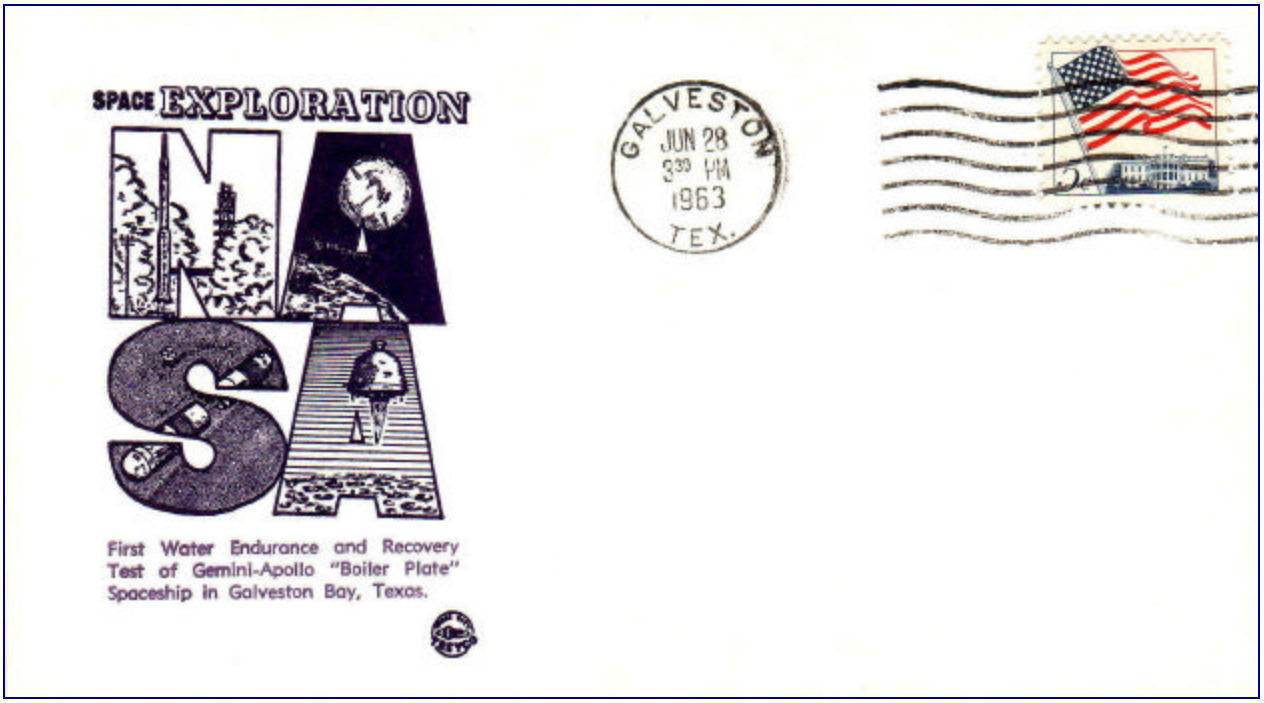
Problems involving longitudinal oscillation remain a serious problem. On May 29, 1963, after a successful Titan II flight five days earlier, a Titan II missile bursts into flames on liftoff, pitches over, and explodes. This flight had pogo suppression devices on the rocket's oxidizer and fuel lines, but failure of the missile prevents testing this fix.[10]



NASA selects nine new Astronauts for Project Gemini including Charles Conrad Jr., Frank Borman, Jr., Neil Armstrong, John Young, Elliot See, Jr., James McDivitt, James Lovell, Jr., Edward White, II, and Thomas Stafford. The Gemini Launch Vehicle Configuration Control Board also meets for the first time.[11]

[10] Hacker and Grimwood, Op. Cit., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch6-5.htm.
[11] Wade, Mark, Op. Cit., http://www.astronautix.com/lvs/titan2.htm.

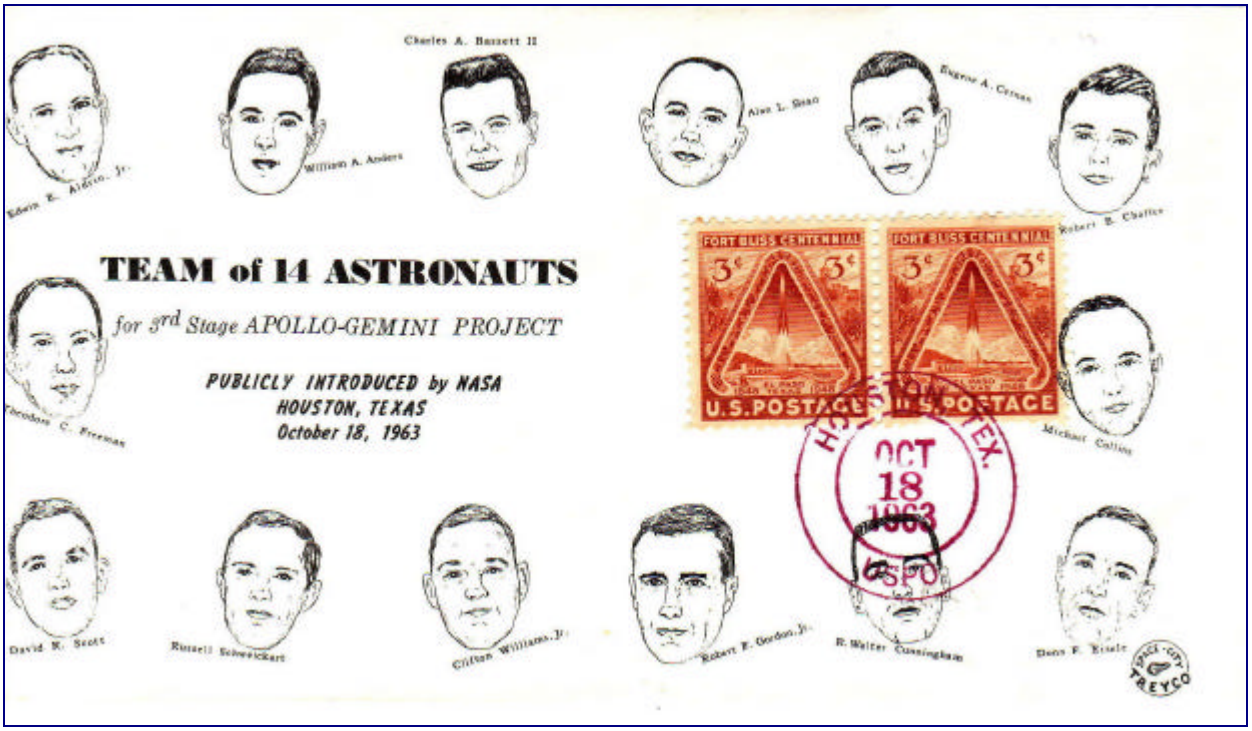
Gemini Spacecraft Endurance and Recovery Test, photo courtesy of NASA.



A water endurance and recovery test uses a boilerplate Gemini capsule in nearby Galveston Bay, Texas.[12] This early Gemini spacecraft water recovery test is followed-up with additional Gemini water recovery tests.

[12] McMahan, Jack, "McMahan's Philatelic History of the Conquest of Space," Houston, 1972, page 55.

Group 3 Astronauts Announced by NASA, October 18, 1963, in Houston, Texas, photo courtesy of NASA.



NASA selects 14 additional new Astronauts in Group Three, including Buzz Aldrin, Jr., William Anders, Charles Bassett, II, Alan Bean, Eugene Cernan, Roger Chaffee, Michael Collins, Donn Eisele, Walter Cunningham, Robert Gordon, Jr., Clifton Williams, Jr., Russell Schweickert, David Scott, and Theodore Freeman. NASA announces the Group Three Astronauts on October 18, 1963, in Houston, Texas.[13]

[13] Johnson Space Center, Houston, Texas web site, http://grin.hq.nasa.gov/ABSTRACTS/GPN-2000-001476.html.

Astronaut Tom Stafford flies a "zoom flight," a supersonic training flight in an F-102A fighter jet to experience weightlessness that he expects to encounter on a Gemini space flight. This **flown cover by Stafford** is dated January 22, 1964, Houston, Texas, although his zoom flight occurs October 16, 1963.[14]

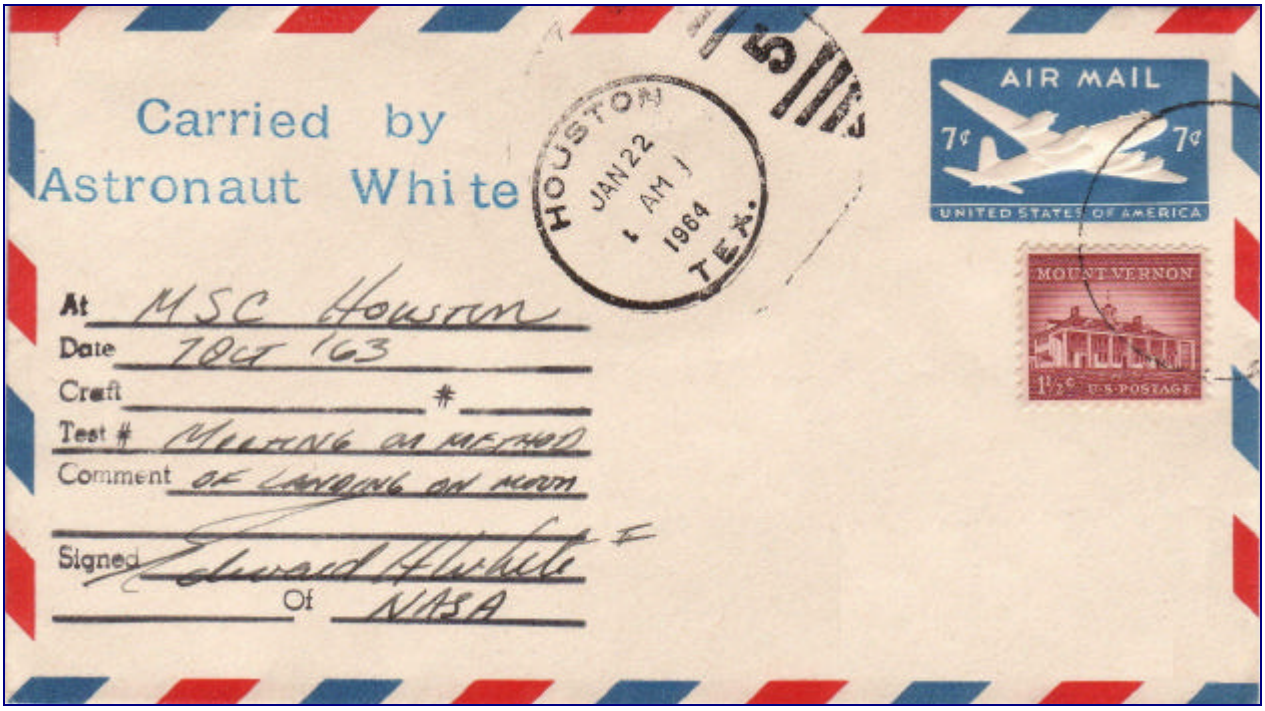
The Titan II flight of November 1, 1963, is listed as a research and development flight, having pogo suppression fixes installed on both the rocket fuel oxidizer and fuel lines to dampen longitudinal oscillation. Results of this successful flight show a reading of only ±0.11 g's due to these engineering changes. The Titan II's pogo effect finally registers well below the ±0.25 g's that NASA requires for Astronaut safety.[15]

[14] Smith, Robert, LCOL (USAF Ret.), http://www.nf104.com/aircraft/aircraft.html; see maximum zoom profile shown at this site, July 9, 1963.
[15] Hacker and Grimwood, Op. Cit., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch8-2.htm.

A subsequent Titan II research and development flight is launched from Vandenberg Air Force Base, CA, from Pad 395-C, November 9, 1963 and is successful.[16] Confirming the pogo effect corrected, the Gemini Program Office subsequently achieves an unbroken series of successful tests over the next five months.[17]

NASA selects veteran Astronaut Gus Grissom and rookie John Young as the first two-man Gemini flight crew and announces their backup crew as Astronauts Wally Schirra and Tom Stafford, April 13, 1964, Houston, Texas. The mission directive for the manned flight will assess, "capabilities of the spacecraft and launch vehicle system, and procedures for the support of future long-duration rendezvous missions."[18]

[16] Wade, Mark, "Encyclopedia Astronautica," web site: http://www.astronautix.com/chrono/19634.htm.
[17] Hacker and Grimwood, Op. Cit.
[18] NASA, "GT-3 Mission Directive," NASA Program Gemini Working Paper Number 5017A, 15 February 15, 1965, p. 2-1.

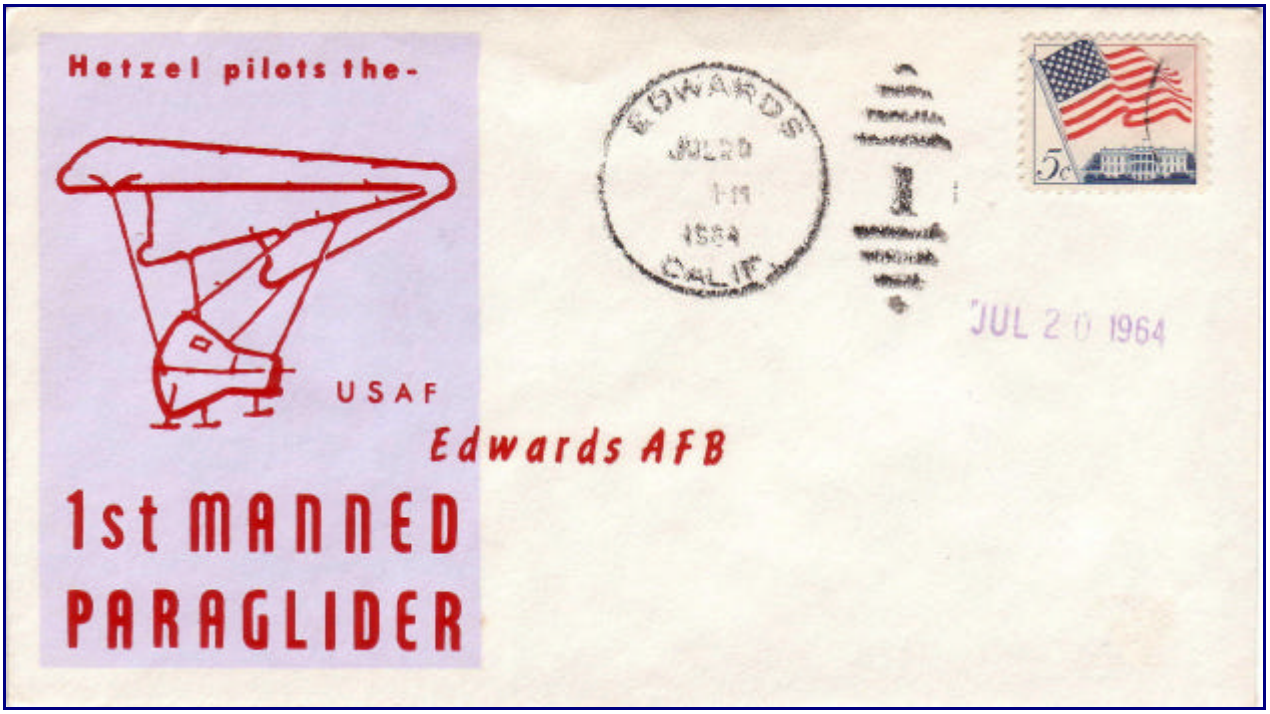


The Gemini Program Office analyzes the questions of "how well and how long man could survive and function beyond the reach of the gravity" in order to journey to the Moon."[19] **Project Gemini Astronaut Edward White hand-carries this cover to an October 7, 1963 meeting**, "Meeting on Method of Landing on Moon" held at the Manned Spaceflight Center (MSC), Houston, Texas.[20]

[19] Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch3-6.htm.
[20] Cover carried by Gemini Astronaut Edward White to "Meeting on Method of Landing on Moon," MSC, Houston, Texas, from the author's collection.

Project Gemini Paraglider Planned to be Used for Spacecraft Land Recovery, photo courtesy of NASA.

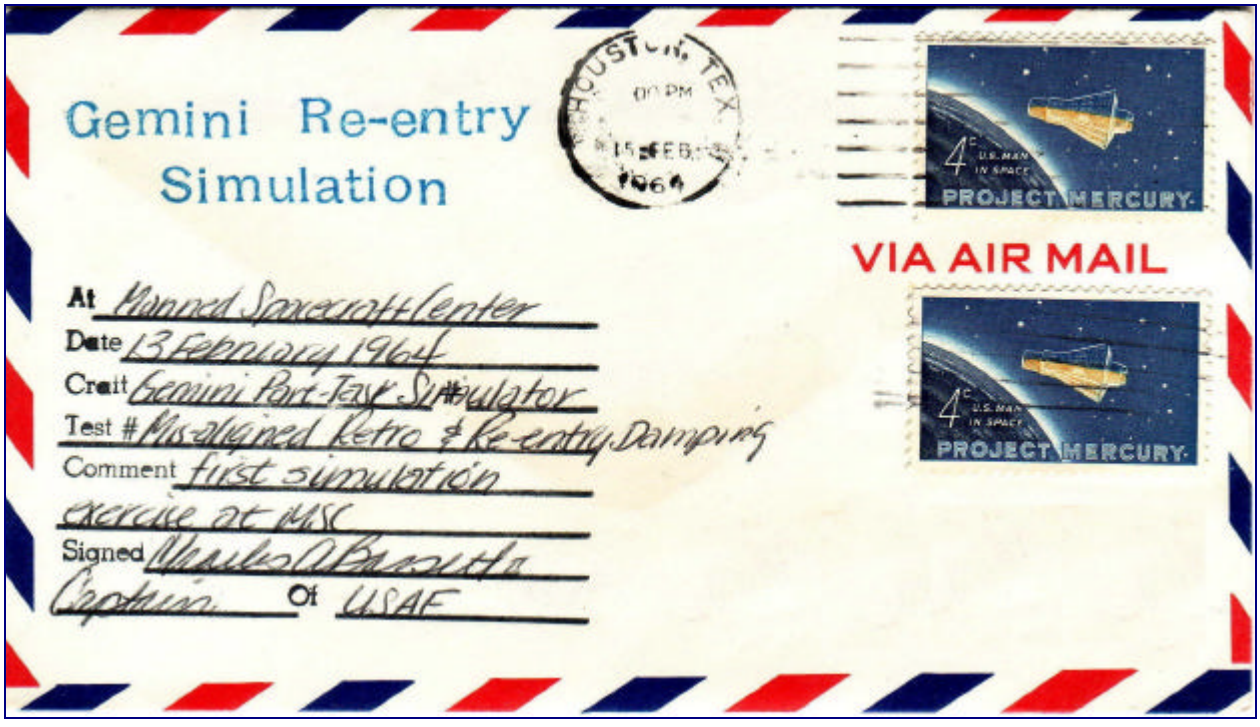
A key feature of Gemini is paraglider recovery of the spacecraft over land promoted by the U. S. Air Force. The cover depicted above is cancelled on the successful unmanned paraglider test date of May 28, 1964 at Edwards Air Force Base and also cancelled on the Gemini suborbital flight date of January 19, 1965.



North American Aviation Pilot, E. P. Hetzel completes a successful TTV towed paraglider test on July 29, 1964. However, a subsequent paraglider free flight test on August 7, 1964, spins out of control during a manned flight test, forcing Pilot Hetzel to bail out of his plummeting spacecraft and parachute to safety.[21] Five straight paraglider test failures result in NASA canceling paraglider recovery over land as part of the Project Gemini program on August 10, 1964.[22]

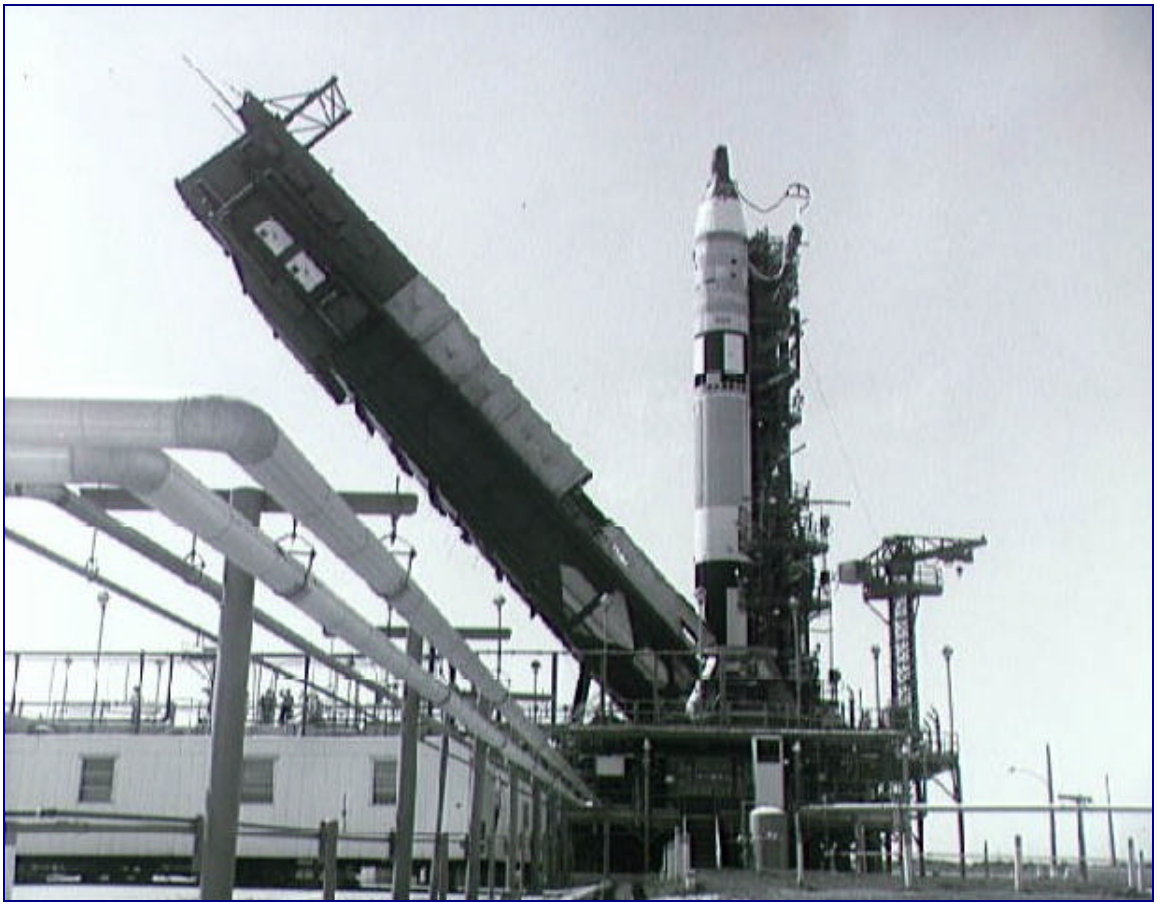
[21] Shayler, David, "Gemini-Steps to the Moon," Springer-Praxis, London, 2001, page 315.
[22] Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch8-2.htm; and, Shayler, David, Ibid.

A subsequent Titan II booster test on January 15, 1964, uses aerospace pogo oscillation dampers and proves that the pogo effect is controlled, clearing the way for a manned Project Gemini space flight to follow in the March-April time frame. The Jan. 15, 1963 Titan II test flight verifies the fix works, but more importantly, it verifies the fix works at reduced fuel tank pressure in the rocket booster which had been a major problem.[23]

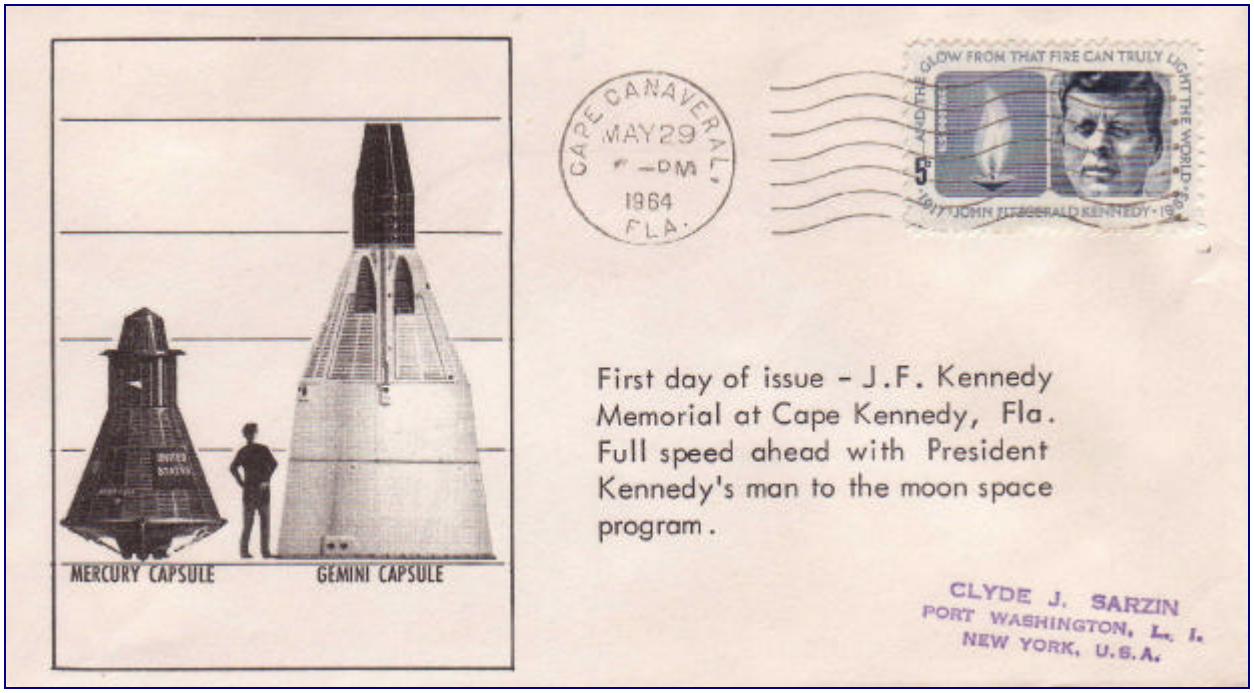


Gemini spacecraft reentry simulation training is conducted at the Manned Spacecraft Center by Astronaut Charles Bassett. This is also the first Gemini-Titan spacecraft simulation exercise conducted at MSC.[24] **Astronaut Charles Bassett hand-carries the cover and signs it at MSC**, Houston, February 13, 1964.

[23] Hacker and Grimwood, http://history.nasa.gov/SP-4203/ch8-2.htm.
[24] Project Gemini cover carried by Charles Bassett on first Gemini spacecraft simulation exercise, MSC, Houston, Texas, from the author's collection.

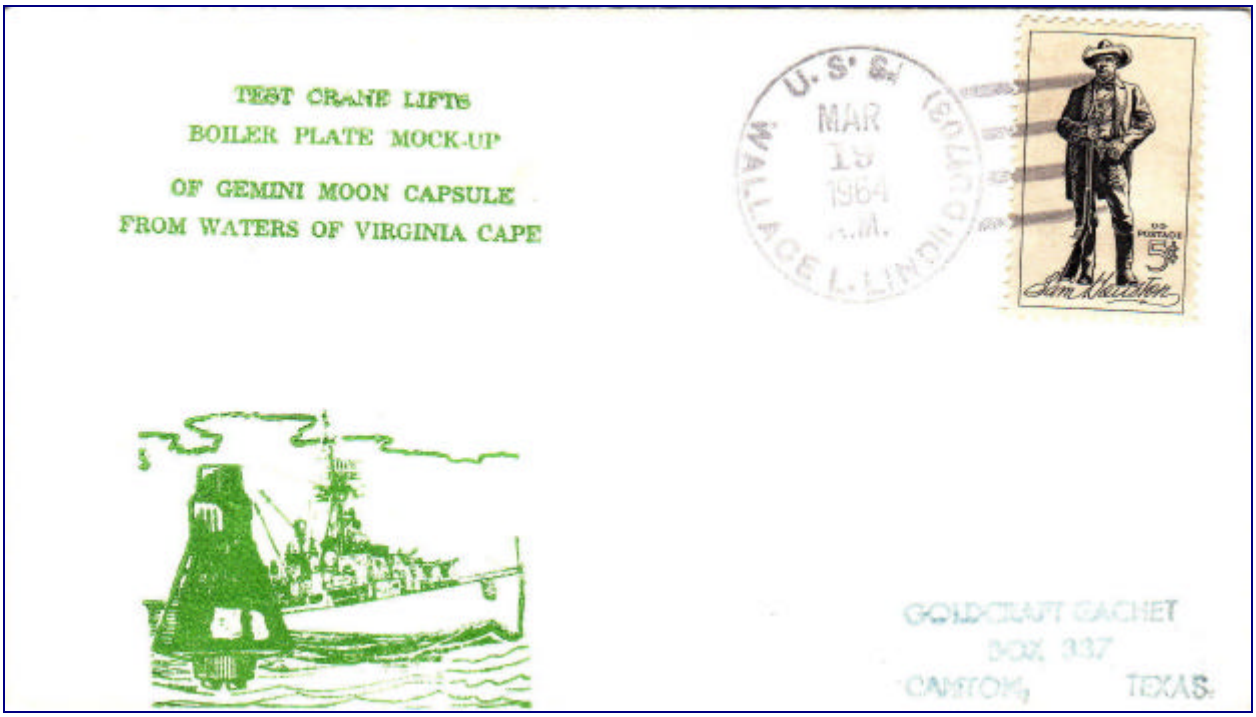


Gemini erector simulation tests prior to Gemini manned flight, photo courtesy of NASA.



This Sarzin cover shows the size difference comparing the Project Mercury spacecraft on the left with a six-foot man center, and the new Gemini space capsule on the right. This cover also commemorates the John F. Kennedy Memorial unveiled to the public at Cape Kennedy, Florida, on May 29, 1964.

USS Wallace L. Lind, DD-703, Underway at Twilight, photo courtesy of Marc Piché and Navsource.org.



Destroyer USS Wallace L. Lind, DD-703, practices Gemini spacecraft recovery at sea using a boilerplate capsule and spacecraft recovery gear in the Virginia Capes operating area near Norfolk, Virginia. This George Goldey Project Gemini recovery ship cover is postmarked March 19, 1964, onboard the Destroyer USS Wallace L. Lind, during Gemini recovery operation practice off the Virginia coast.

Who's on First? The Successful Orbital Flight of Gemini-Titan 1

Crew, Unmanned; Cape Canaveral, Florida, April 8, 1964; Splashdown April 12, 1964

Primary Recovery Ship, None Assigned

Testing has taken two weeks longer than planned, but all systems are "go" on the morning of April 8, 1964, one second after 11:00 am as Gemini 1 rockets into a hot and hazy Cape Canaveral sky and earth orbit. The mission of Gemini 1 is much shorter than its entire flight. Only the first three orbits will be evaluated by NASA for the spacecraft's planned three and a half day flight.[25]

Gemini 1 Launch Preparations at Cape Canaveral at Sunrise, photo courtesy of NASA.

[25] NASA Headquarters web site; Hacker, Barton, and Grimwood, James, "On the Shoulders of Titans: A History of Project Gemini," NASA SP-4203, 1977; as cited, http://www.hq.nasa.gov/office/pao/History/SP-4203/ch9-2.htm.

Launch of Gemini 1 at LC-19, Cape Canaveral, April 8, 1964, photo courtesy of NASA.[26]

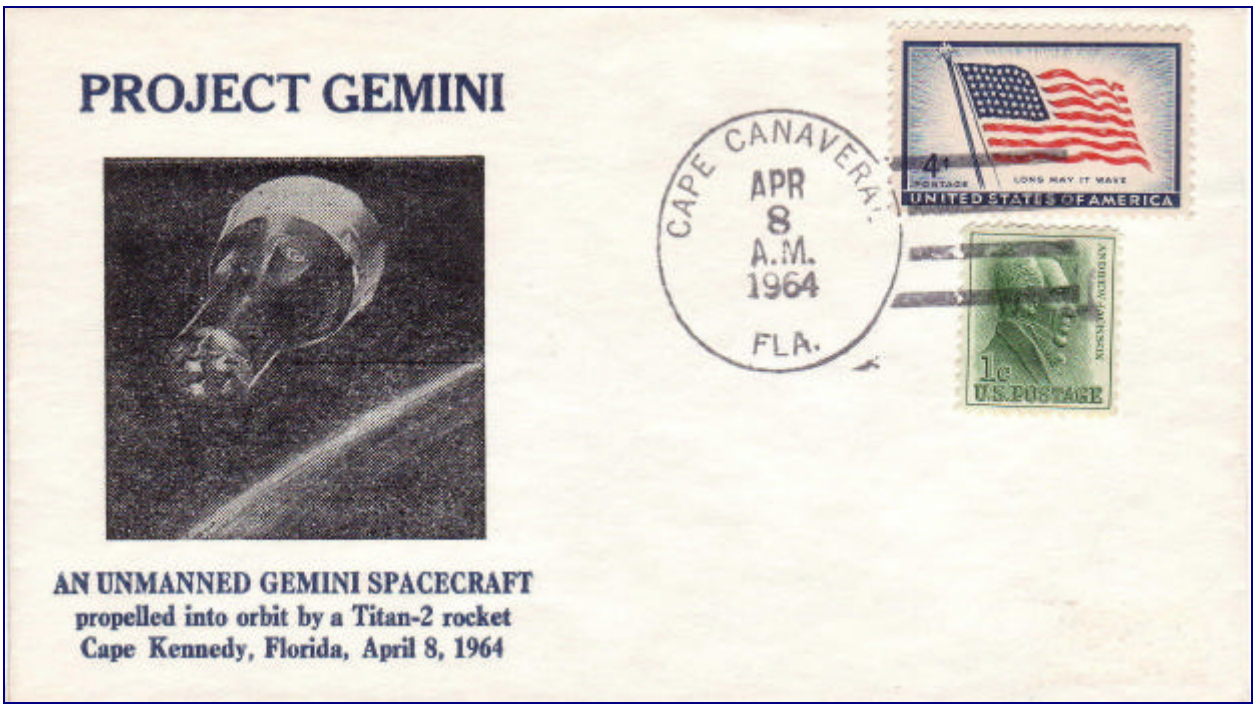
A higher than planned orbit of Gemini 1 lengthens its actual flight time to almost four days and results in a total of 64 orbits to complete its mission.[27] During this time, the Goddard Space Flight Center, Greenbelt, Maryland, coordinates tracking of the instrumented spacecraft with NASA's Manned Space Flight Network. On April 12, 1964, the spacecraft's orbit decays and the spacecraft splashes down in the Atlantic Ocean midway between South America and Africa. No recovery ships are assigned to the mission, and there is no recovery of the spacecraft.[28]

[26] Original NASA photo from the collection of Dennis Dillman.
[27] NASA, Kennedy Space Center web site; as cited, http://science.ksc.nasa.gov/history/gemini/gemini-1/gemini-1.html.
[28] Ibid.

Aerial View of the Gemini 1 Launch at Cape Canaveral, Florida, April 8, 1964, photo courtesy of NASA.

On a hot and hazy sunny morning, April 8, 1964 at Cape Canaveral, Florida, Gemini-Titan 1 blasts the first Project Gemini spacecraft into space on the first orbital flight of Project Gemini.[29] This critical unmanned test confirms NASA's nagging and problematic severe longitudinal oscillation problem, or, pogo effect, is corrected and ensures that a manned Gemini flight will proceed for early December 1964.[30]

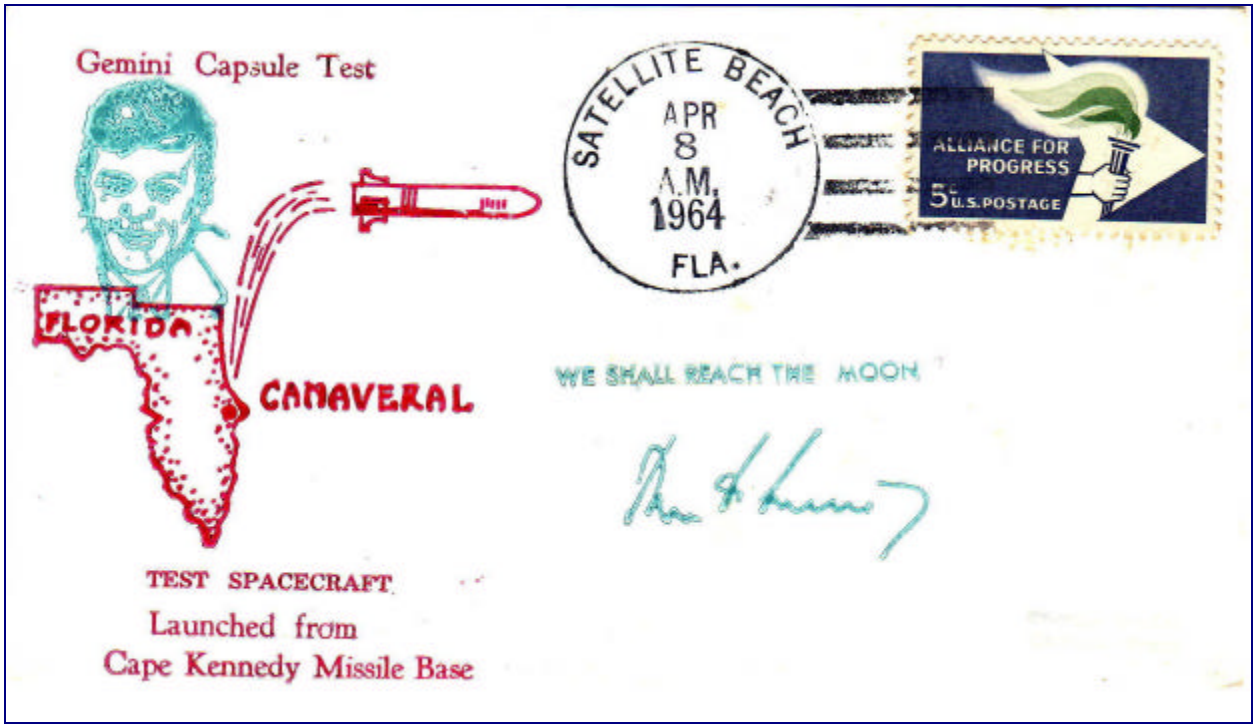
[29] McMahan, Jack, "McMahan's Philatelic History of the Conquest of Space," Houston, Texas, 1972, page 61.
[30] Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch8-2.htm.



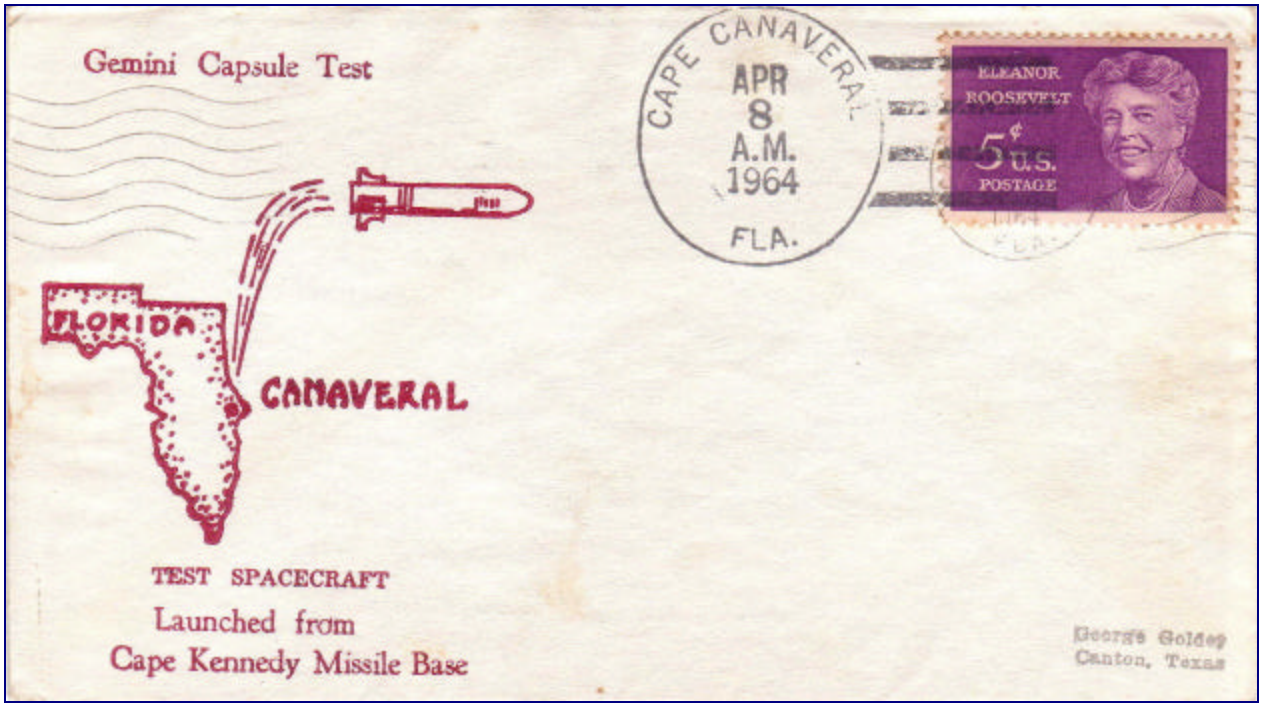
Three orbits, four hours and fifty minutes after launch, over Cape Canaveral, NASA officials state Gemini 1's mission is a success and completed. NASA continues to track and monitor the spacecraft via its Manned Space Flight Network. Due to its higher than planned orbit, the spacecraft stays up a half day longer than anticipated, finally splashing down on April 12, 1964 in the South Atlantic Ocean.

Gemini Operations Director Walt Willams observes, "There's no question these (Gemini mission) objectives were met," in viewing the successful launch of Gemini 1. NASA engineers prove that the Titan II booster can do its job, and that the spacecraft and rocket booster combination is sound.[31]

[31] Ibid.



In this stylized cover, cachet maker George Goldey writes, “Test spacecraft launched from Cape Kennedy Missile Base,” concerning the Gemini 1 launch. Goldey also highlights the statement by President John F. Kennedy, “We shall reach the moon,” restating the challenge President Kennedy made in his 1961 address to Congress. Satellite Beach is a favorite spot for people to watch rocket launches at Cape Canaveral and is accessible to the general public.



A post office employee has overlaid the unreadable and truncated machine cancel on this Gemini 1 cover with an attractive and readable hand cancel for Cape Canaveral, Florida, April 8, 1964. George Goldey makes several variations of this classic cover using the basic theme of the Gemini capsule test pictured.

Multiple Photographic Exposure of Rendezvous Technique to be Used for the Spacecraft and Gemini Agena Hard Docking, photo by NASA.

Primary Recovery Ship for Gemini Titan-1			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
		PRS	Planned orbital flight without a primary recovery ship assigned.
		Splash Down	None known.

Note: A primary recovery ship is not assigned for the Gemini 1 orbital flight, and the Gemini spacecraft is not recovered upon splashdown, April 12, 1964, midway between South America and Africa in the Atlantic Ocean.

Secondary Recovery and Tracking Ships for Gemini Titan-1			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
		SRS*	None known.*
		Event* TS	No splashdown covers or tracking station covers for Gemini-Titan 1 are known. Gemini 1's splash-down date is April 12, 1964.*

* Note: No secondary recovery ship covers, tracking stations, or spacecraft splashdown covers are known for the reentry of Gemini 1.

NASA Mission Control Center Displaying Spacecraft Position and Tracking Station Coverage, photo courtesy of NASA.

Thunder Road, Gemini 2's Suborbital Flight

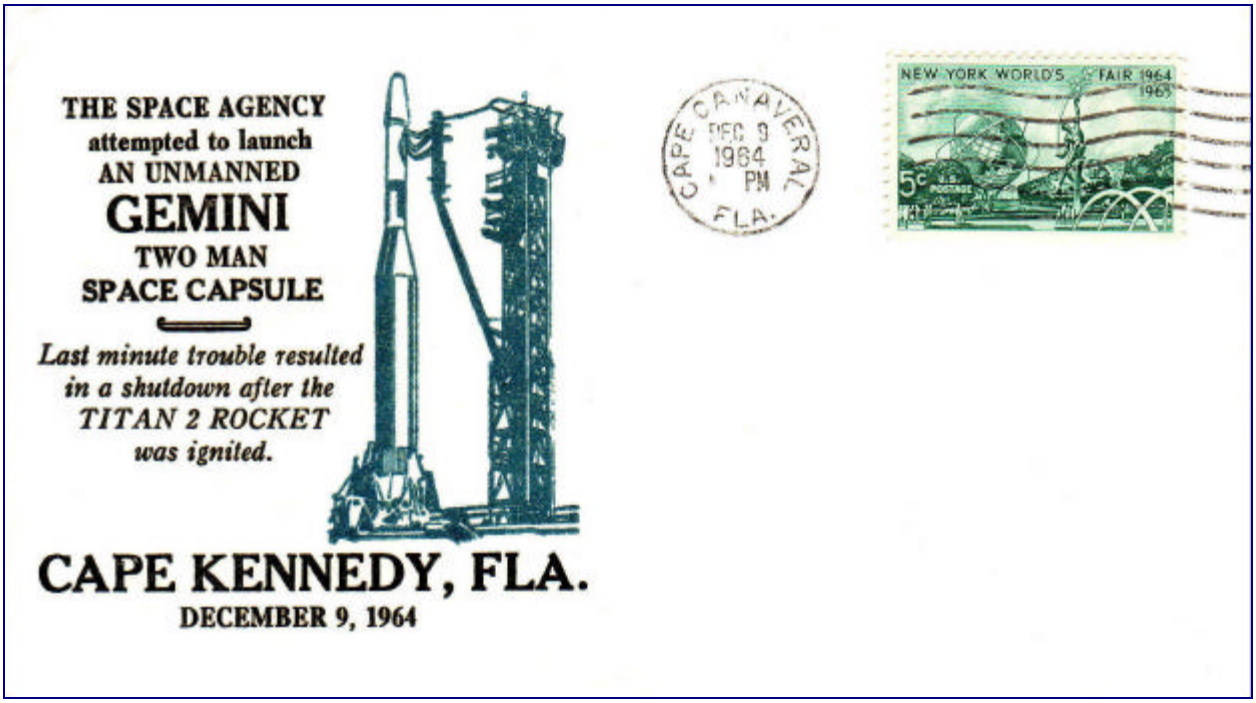
Crew, Unmanned; Cape Canaveral, Florida, Aborted Flight December 9, 1964; and, Later Launched on January 19, 1965

Primary Recovery Ship, USS Lake Champlain, CVS-39; Recovered January 19, 1965

On November 5, 1964, the Gemini 2 spacecraft is physically mated to its Titan II rocket booster at LC-19, Cape Canaveral, Florida. A full series of vital engineering tests and prelaunch checks are then conducted to ensure Gemini 2 is ready to launch. On November 9, electrical interface integrated validation is performed. On November 12, joint guidance and control test is completed. On November 17, combined systems tests after electrical mating is finished. On November 24, wet mock simulated launch is tested. On November 28, final spacecraft systems test is completed. On December 3, a simulated flight test is completed followed by start of the flight's launch precount on December 7.[32] Final countdown starts at 4:00 am on December 8, and all systems are go for Gemini 2's launch now scheduled for the morning of December 9, 1966.

Gemini 2 Wet Mock Simulated Launch Test, November 24, 1964, photo by NASA.

[32]Hacker and Grimwood, Op. Cit., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch9-4.htm; and, as referenced, "GT-2 Mission Report," pgs. 12-6, -7, -8, -17, -46; "History of GT-2 at KSC," pgs. 66-84.



On December 9, 1964, the attempt to launch the unmanned Gemini 2 spacecraft fails when the spacecraft's Master Operations Control Set (MOCS) shuts down the ignition of the Titan II rocket engines after the launch command is given.[33] *Redesigned replacement servo valve parts are urgently delivered to the Cape on January 6, 1965, so testing can resume. On January 14, 1965, the last major system test is completed and the launch sequence for Gemini 2 proceeds again.*[34]

At 11:41 am, Wednesday, December 9, 1966, the launch command is given and the Gemini Titan II first stage engines fire but then unexpectedly and suddenly shut down. Engineers and technicians scurry to determine the failure. After a few minutes, the failure is believed to be caused by an incomplete switchover from primary to secondary flight control during the 3.2 second interval between engine ignition and rocket liftoff.[35] Upon further analysis by the engineering team, though, the Master Operations Control Set (MOCS) has appeared to fail due to a blown-out servo valve, a rapid drop in system hydraulic pressure, subsequently followed by a failure of the Titan II's rocket booster engines to ignite. Gemini 2 and its rocket booster just sit there. It is eerily quiet.

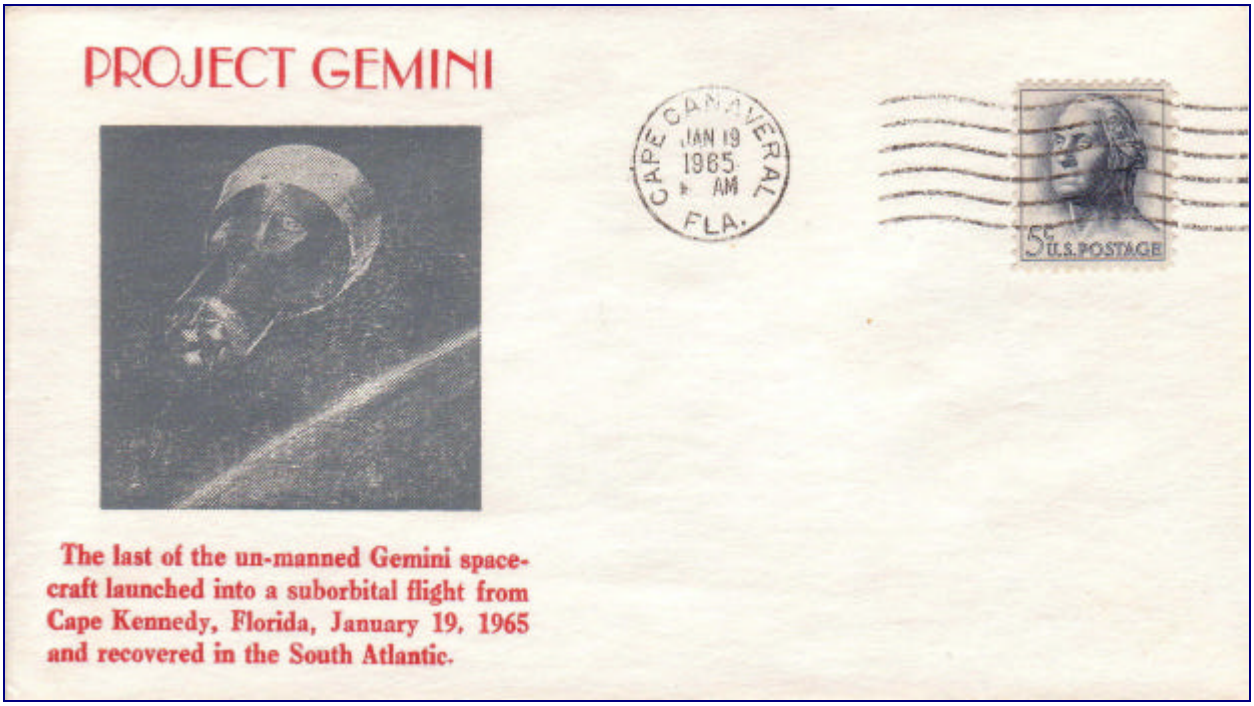
Just before noon, NASA Flight Director Chris Kraft cancels the flight, and the flight is officially scrubbed.[36] As Gemini 2 stands majestically on its launch pad, poised for flight, it also presents another major problem. With tons of propellant in the loaded rocket booster, the rocket also bristles with pyrotechnic devices and live peripheral equipment, all actively armed and energized for spaceflight. "Safing" the booster and unloading its propellant, and securing the rocket's pyrotechnic devices are simultaneously challenges and necessities. The safing process, however, goes remarkably well in spite of the failure to launch Gemini 2.

[33] Wade, Mark, http://astronautix.com/chrono/19644.htm; and Wade, Mark, "Encyclopedia Astronautica," http://astronautix.com/chrono/19644.htm; and Hacker and Grimwood, Op. Cit., http://history.nasa.gov/SP-4203/ch9-5.htm.
[34] Hacker and Grimwood, Ibid.
[35] Ibid.
[36] Ibid.

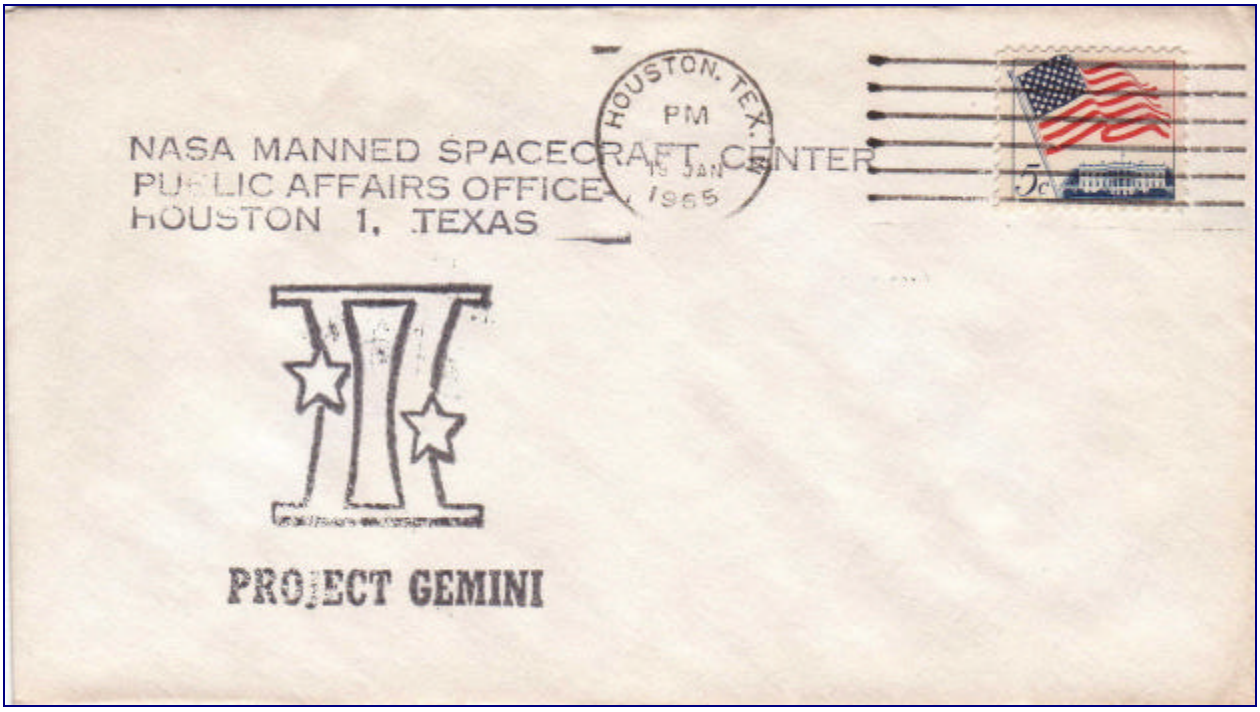
Preparations to Launch Gemini 2 at Cape Canaveral, Florida, photo courtesy of NASA.

The situation is very different the morning of January 19, 1965, as Gemini 2's engines ignites, its rocket booster roars to life, and Gemini 2 thunders into space at Cape Canaveral, Florida. During the rocket's 18 minute and 16 second suborbital flight down the Atlantic Missile Range, Gemini 2 flies to an apogee of 92.4 nautical miles in altitude and travels a distance of 2,131 miles before splashing down in the South Atlantic Ocean.[37] Recovery ship USS Lake Champlain is on station with other Task Force units and expertly recovers the unmanned Gemini 2 spacecraft.

[37] Ibid.; and McMahan, Jack, "McMahan's Philatelic History of the Conquest of Space," Houston, Texas, 1972, pg. 69.



At 9:04 am on January 19, 1965, Gemini 2 blasts-off from Cape Canaveral, Florida, down the Atlantic Missile Range on its 2,131 mile suborbital flight completing NASA's unmanned Project Gemini flight tests.[38] A Gemini crew would make the next space flight.



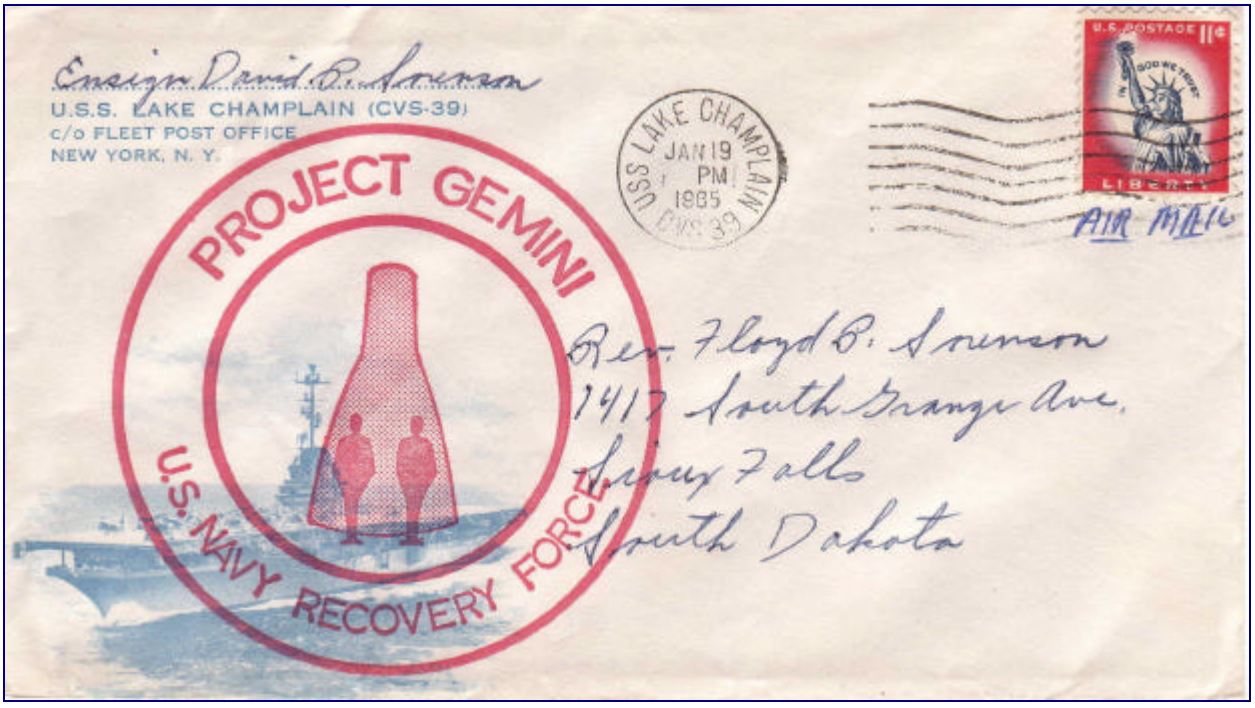
NASA transfers the Langley Space Task Group to Project Gemini's Manned Spacecraft Center to push its aggressive operational schedule and to solve remaining Gemini technical issues.[39] The cover shown is postmarked January 19, 1965 at the Manned Spacecraft Center on the suborbital flight date to test the Gemini spacecraft, its Titan II rocket booster, the Gemini network, and the recovery system.

[38] Ibid., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch9-5.htm.
[39] Ibid., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch8-1.htm; and Wade, Mark, http://www.astronautix.com/lvs/titan2.htm.

The Space Craft cover pictured is cancelled at Patrick Air Force Base, Cape Canaveral, Florida on the launch date for Gemini 2, January 19, 1965. The rocket booster for Gemini 2's flight is the original booster tested at Cape Canaveral in November and aborted in the rocket's December 9, 1964, attempt to launch.

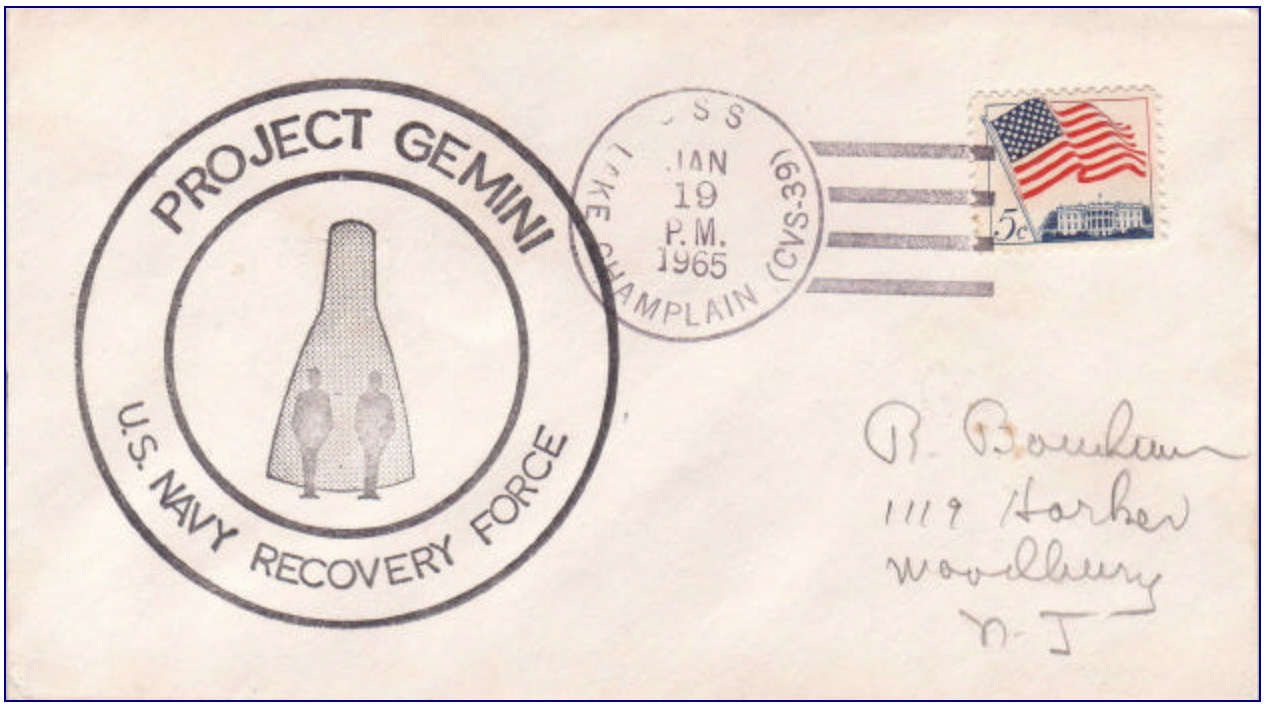
A companion Space Craft cover for the launch of Gemini 2 is shown for the launch of Gemini 2, January 19, 1965, and with a Cape Canaveral, Florida, hand cancellation. This second and last unmanned Project Gemini flight is a suborbital flight down the Atlantic Missile Range and successfully clears the way for the next flight, a manned orbital flight for Gemini 3 and Astronauts Gus Grissom and John Young.

Recovery of Gemini 2 Capsule by USS Lake Champlain's Helo, photo courtesy of U. S. Navy and Naval Historical Center.

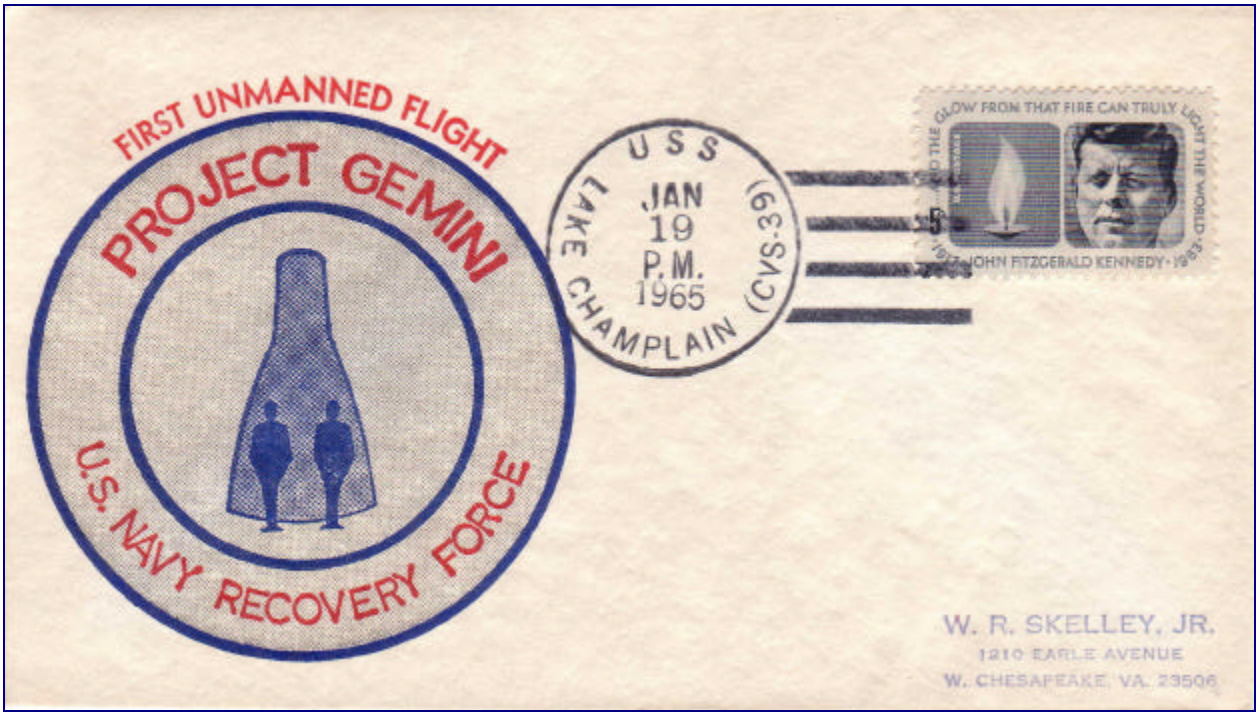


U. S. Navy Aircraft Carrier USS Lake Champlain recovers the unmanned Gemini-Titan 2 spacecraft after it splashes down in the South Atlantic Ocean.[40] This primary recovery ship cover is mailed from the ship on the recovery date, January 19, 1965, by ship's officer, Ensign David Sorenson, to his father. A USS Lake Champlain crew cover with this machine cancellation is a very difficult cover to find.

[40] McMahan, Jack, Op. Cit., page 69.



Of the three different colored rubber stamped cachets for this flight, the black USS Lake Champlain cachet is the most difficult. Morris W. Beck designed the popular cachets for each of the Project Gemini missions with a basic rubber stamped cachet as shown as well as printed cachets. Beck cachets vary in design for each flight in their printed and rubber stamped designs and the variations and changes in color make them a favorite cover to collect within the cover collecting community.[41]



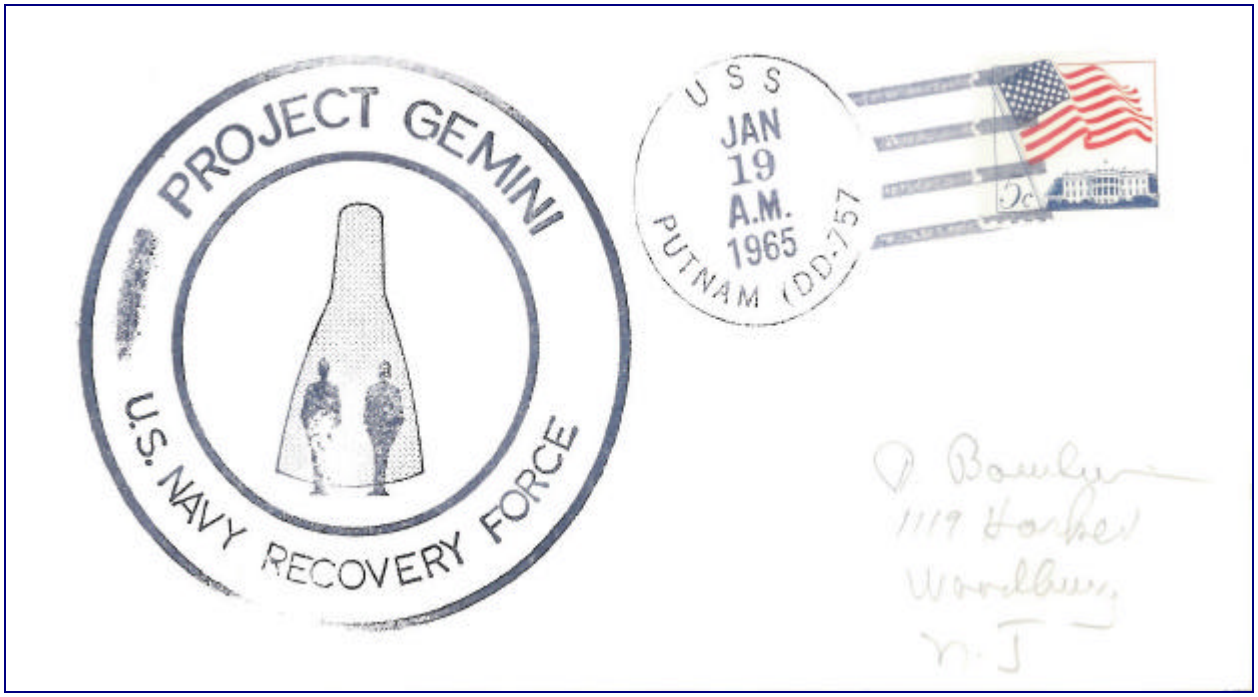
A rare **unnumbered** Morris W. Beck printed cachet is pictured for primary recovery ship USS Lake Champlain's recovery of the Gemini 2 spacecraft on January 19, 1965. The cover differs from the Beck rubber stamped cachet shown on the preceeding page. The cover is termed an unnumbered Beck cover as it does not have the usual Beck **"B"** number in the lower left corner of the cover to categorize it.

[41] Winick, Les, "The Beck Handbook of Printed Cachets," The Space Topics Study Group (Space Unit) and the Universal Ship Cancellation Society, Homewood, Illinois, 1995.

Primary Recovery Ship for Gemini-Titan 2			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
USS Lake Champlain, CVS-39, cover with a Beck printed cachet but without printed Beck number.	Rare / High	PRS	Covers exist, January 19, 1965. See the example above, page 37.
USS Lake Champlain, CVS-39, cover with a machine cancellation.	Very Difficult / High	PRS	Covers exist, January 19, 1965. See the cover on page 36.
USS Lake Champlain, CVS-39, cover with a printed cachet and hand cancellation.	Difficult / High	PRS	Covers exist, January 19, 1965.
USS Lake Champlain, CVS-39, cover with a Beck rubber stamped cachet.	Moderate / Medium	PRS	Covers exist, January 19, 1965. Covers with black cachets are the most difficult to find. See example of cover on page 37.

Note: In the tables in this book, PRS stands for primary recovery ship, SRS is secondary recovery ship, COMM is communications ship, SS is standby ship, and TS is tracking station (for a ship or land station).

A moderately difficult Beck numbered cachet along with an overlaid George Goldey printed cachet is pictured for secondary recovery ship, USS O'Hare, DD-889. The cover is cancelled on the recovery date of Gemini 2, January 19, 1965, for this second and last unmanned Gemini flight.



A secondary recovery ship cover for USS Putnam is shown on the Gemini 2 spacecraft recovery date of January 19, 1965. The USS Putnam secondary ship cover is a very difficult recovery ship cover to find.

Secondary Recovery and Tracking Ships for Gemini-Titan 2			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
USS Agile, MSO-421	Difficult / High-Medium	SRS	None known.
USS Bulwark, MSO-425	Difficult / High-Medium	SRS	None known.
USS Paiute, ATF-159	Difficult / High-Medium	SRS	None known.
USS O'Hare, DD-889	Moderate / Medium	SRS	Covers exist, Jan. 19, 1965.
USS Holder, DD-819	Moderate / Medium	SRS	Covers exist, Jan. 19, 1965.
USS Vogelgesang, DD-862	Moderate / Medium	SRS	Covers exist, Jan. 19, 1965. See example on next page.
USS Putnam, DD-757	Difficult / High-Medium	SRS	Covers exist, Jan. 19, 1965. See example above.
USS Forest Royal, DD-872	Moderate / Medium	SRS	Covers exist, Jan. 19, 1965.

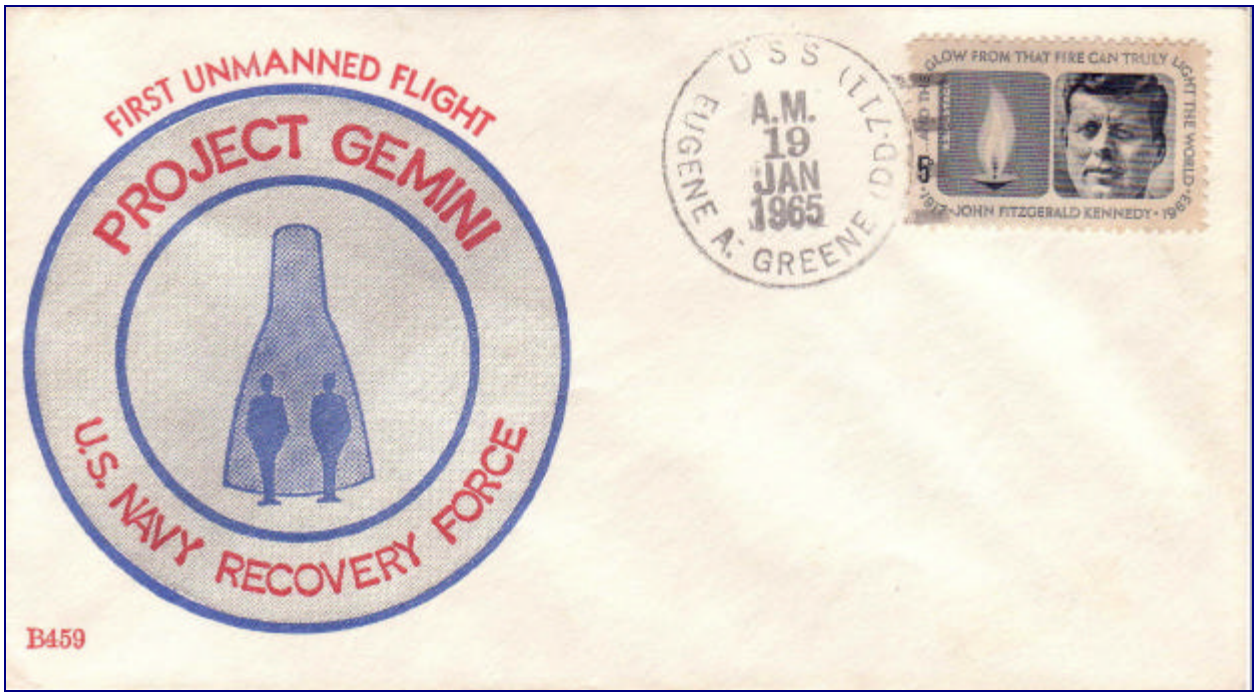
USS Eugene A. Greene, DD-711	Moderate / Medium	SRS	Covers exist, Jan. 19, 1965.
USNS Rose Knot, T-AGM 14, Tracking Station.	Very Difficult / High-Medium	TS	None known.
USNS Coastal Sentry, T-AGM 15, Tracking Station.	Very Difficult / High-Medium	TS	None known.

Note: U. S. Navy MSO and ATF secondary recovery ship covers, and USNS tracking station covers are not known for the suborbital flight of Gemini 2.

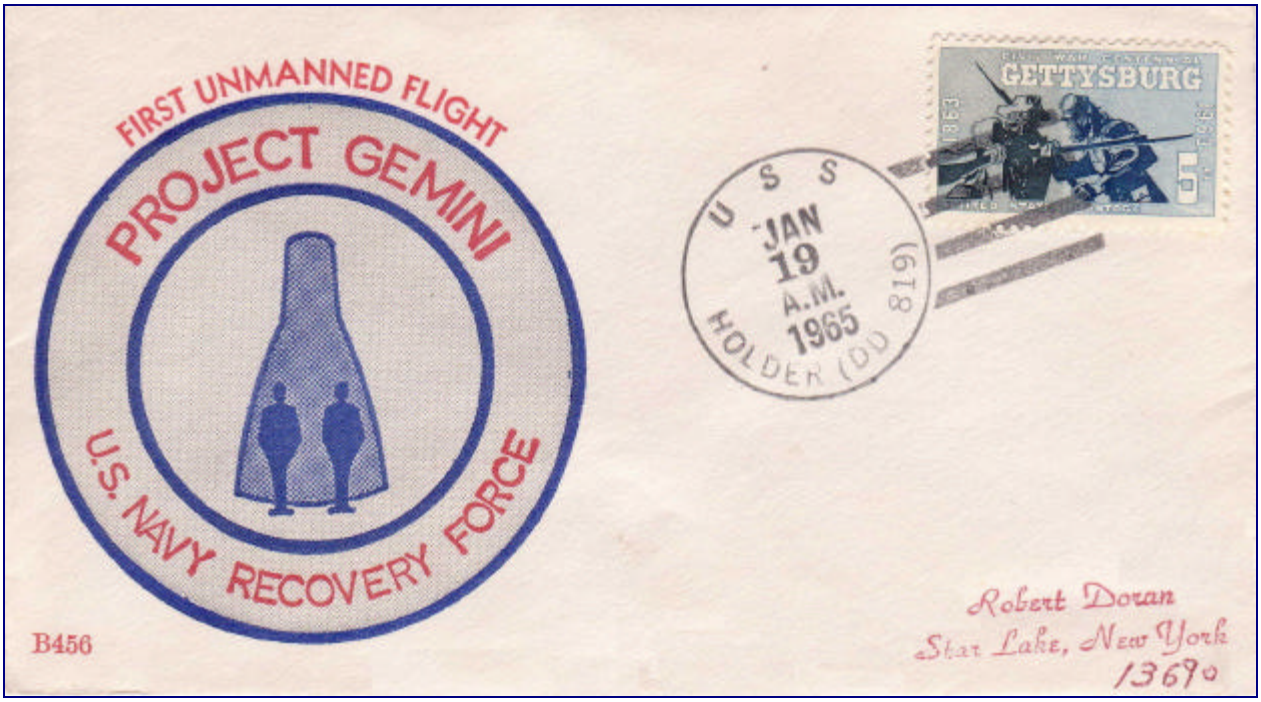
A Beck printed cacheted recovery ship cover for USS Vogelgesang is depicted for the ship's participation in Gemini 2's recovery operation. Cachet maker Morris W. Beck incorrectly notes that this flight is the "first unmanned flight" in his cachet artwork. The flight is the second unmanned flight of the Gemini Program. The Beck error, however, is on all versions of the Beck printed cachet for the Gemini 2's flight. Note, also, the error is corrected in the rubber stamped version of the cachet and the comment is removed.[42] An example of the Beck rubber stamped cachet without the error is seen on page 39.

[42] Ibid.

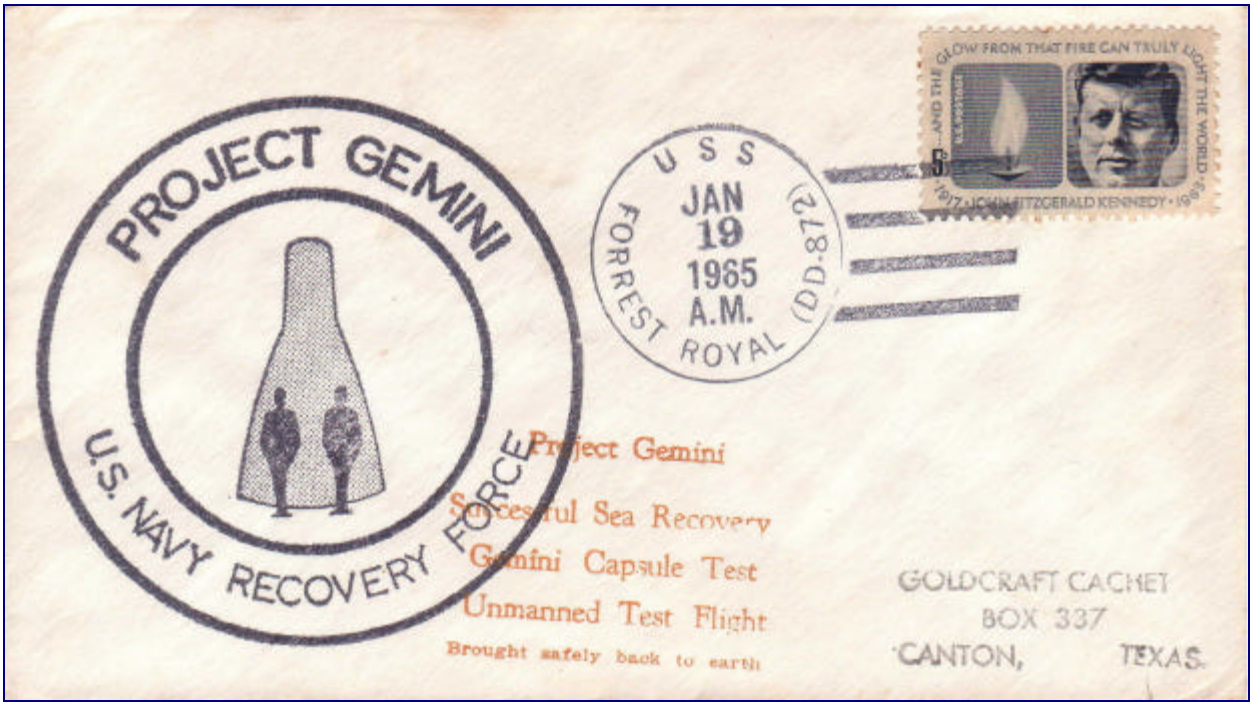
USS Eugene A. Greene, DD-711, secondary recovery ship for Gemini 2 Operation, photo courtesy of the U. S. Navy.



A printed Beck cover for USS Eugene A. Greene is pictured as well as a U. S. Navy photo highlighting the USS Eugene A. Greene's participation in the Gemini 2 recovery operation and cancelled for the recovery.



Destroyer USS Holder hand cancels this secondary recovery ship cover for it's participation in recovery operations for Gemini 2, the last suborbital flight of the Project Gemini series of tests. Holder is in company with the primary recovery ship, USS Lake Champlain upon the capsule's recovery January 19, 1965.



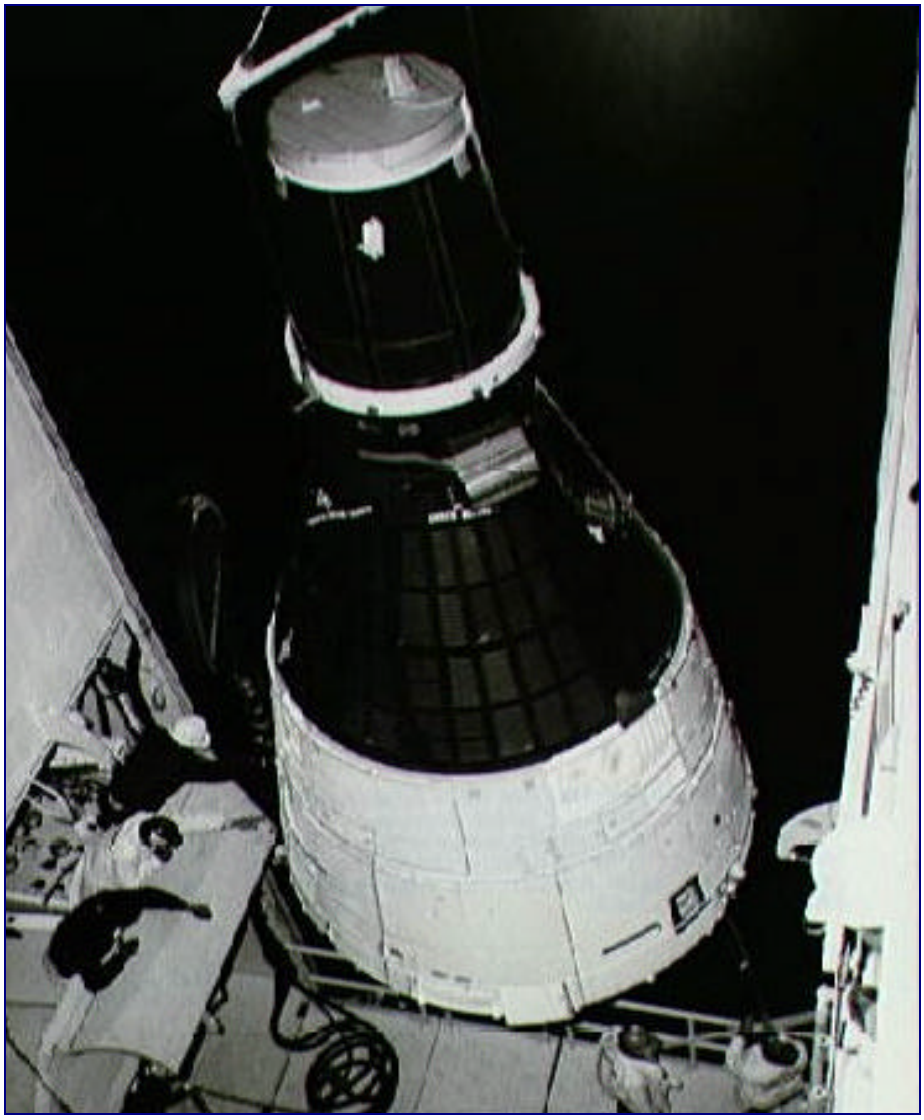
Cachet maker George Goldey has superimposed his printed orange cachet over a Beck rubber stamped cachet for USS Forrest Royal for the ship's role in Gemini 2 recovery operations. Note, also, George Goldey's address on this recovery ship cover being mailed to him at Goldcraft Cachets in Canton, Texas. The dual cachet combination is considered very desirable for both ship and space cover collectors.

Spacecraft Molly Brown and the Unsinkable Flight of Gemini-Titan 3

Crew, Gus Grissom and John Young; Cape Canaveral, Florida, March 23, 1965

Primary Recovery Ship, USS Intrepid, CVS-11, March 23, 1965

Only five weeks before its planned launch, NASA officials finally decide upon the primary objectives of the manned Gemini 3 mission in NASA's release of "GT-3 Mission Directive," with goals, "to demonstrate and evaluate the capabilities of the spacecraft and launch vehicle system, and the procedures necessary for the support of future long-duration and rendezvous missions."[43]



Gemini 3 Spacecraft "Molly Brown" is Hoisted into the White Room, photo courtesy of NASA.

The first manned Gemini flight by Astronauts Gus Grissom and John Young is further constrained by the Gemini Program Office noting that the Gemini tracking network is geographically limited and only can track a three-orbit flight.[44] How so short a mission can achieve its planned objectives seems elusive and frustrating. In a meeting with the press, an exasperated Gus Grissom matter of factly states to journalist Frank Macomber of "The Indianapolis Star," "We can do all the testing of the spacecraft we need in three trips."[45]

[43] Hacker and Grimwood, Op. Cit., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch10-4.htm.
[44] Ibid.
[45] Ibid.; also see footnote citing Macomber, Frank, "Grissom, Young to Orbit Thrice," *The Indianapolis Star,* 17 Jan. 1965; "Astronauts Ready Now."

Spacecraft Molly Brown and Gemini-Titan 3 Blast-Off at LC-19, photo courtesy of NASA.

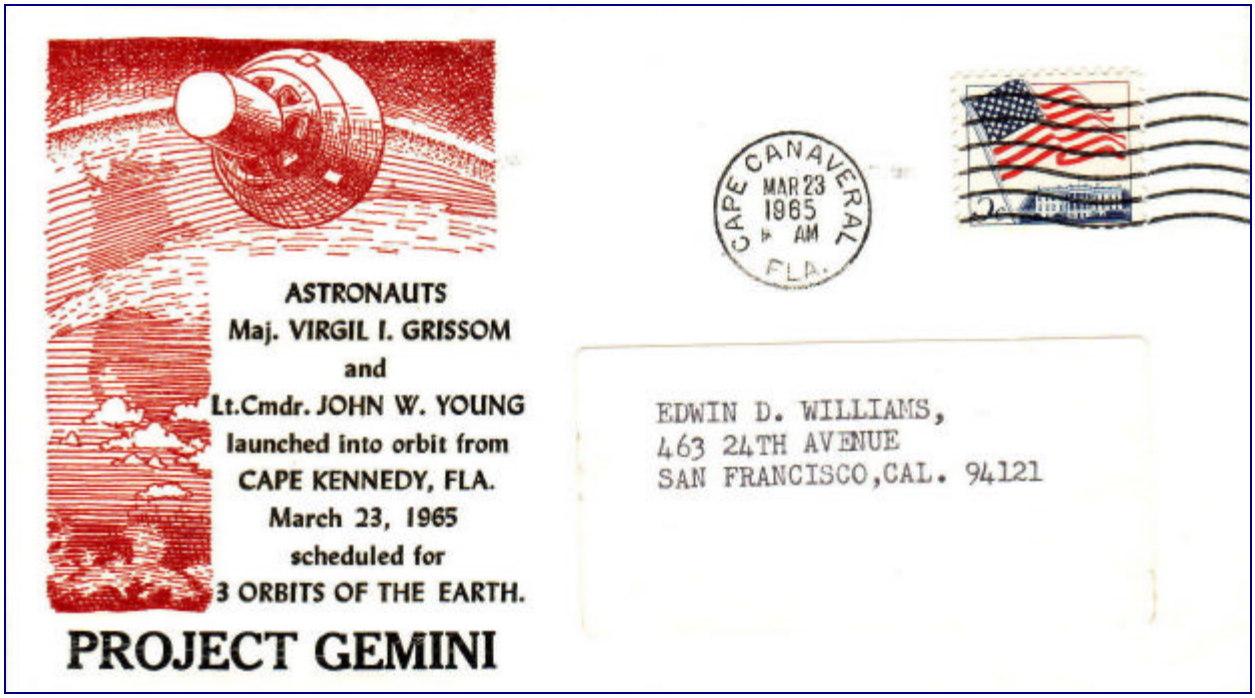
Astronaut Gus Grissom's earlier emergency escape from his sinking Liberty Bell-7 spacecraft cause him to conscientiously reflect on naming the spacecraft for the pending launch of Gemini-Titan 3. Grissom humorously decides upon the name "Molly Brown" after the title of the popular Broadway Musical, *"The Unsinkable Molly Brown,"* playing in New York at the time of his flight, to bring the crew good luck and for NASA to be attentive to keeping his spacecraft afloat this time after splashdown. When challenged by NASA management about the flippant name of the spacecraft, Grissom counters that he thought about naming the spacecraft "Titanic," management condescendingly decides to back down.[46]

After a brief hold for engineers to tighten a leaking first stage oxidizer fuel line, the Gemini flight countdown continues early on March 23, 1965. Gemini-Titan 3, blasts off the launch pad at 9:24 am into the clearing blue sky over Cape Canaveral, Florida. Mission CapCom Gordon Cooper cheers, "You're on your way, Molly Brown!"[47] Five and a half minutes after launch, Gemini-Titan 3's second stage shuts down and the rocketing spacecraft moves clear of its spent Titan II booster. Gus Grissom fires the spacecraft's after thrusters to accelerate the spacecraft into an elliptical orbit of 122 by 182 kilometers.[48]

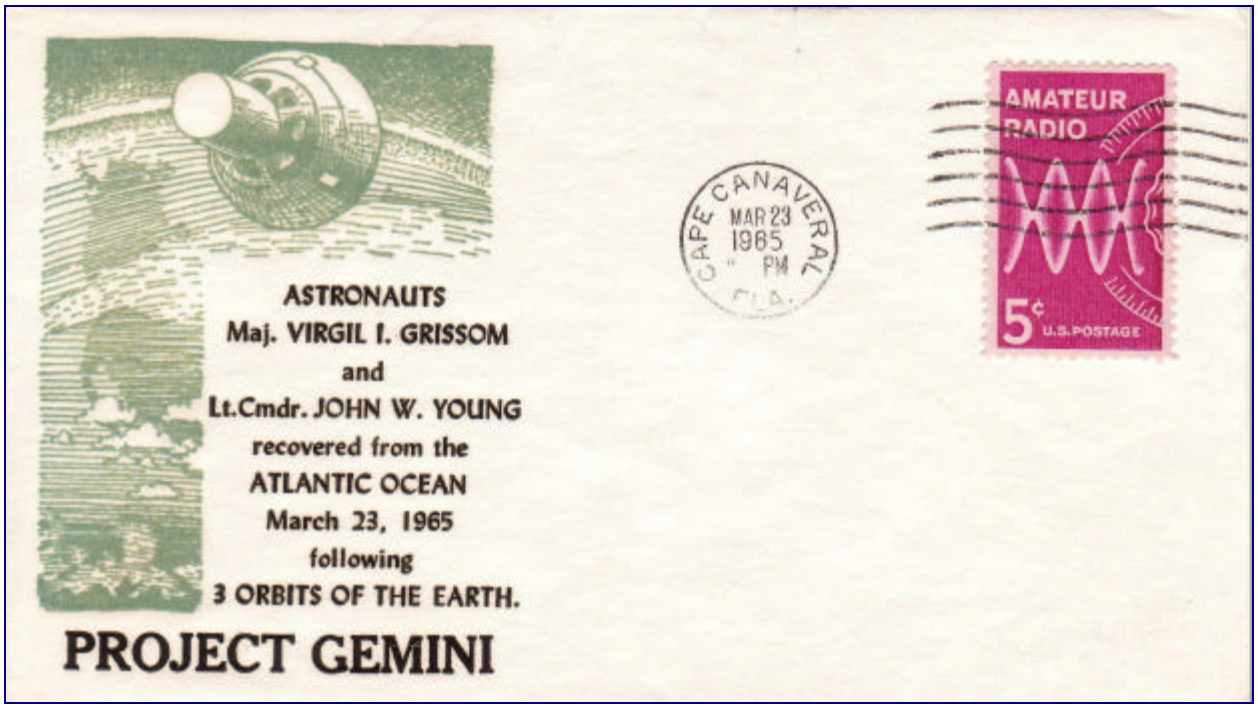
[46] NASA History web site; as cited, http://history.nasa.gov/Apollo204/zorn/grissom.htm.
[47] Hacker and Grimwood, Op. Cit., as cited, http://www.hq.nasa.gov/office/pao/History/SP-4203/ch10-5.htm#source43; and GT-3 mission commentary transcript, March 23, 1965, pgs. 1-5.
[48] Hacker and Grimwood, Op. Cit., http://www.hq.nasa.gov/office/pao/History/SP-4203/ch10-5.htm#source43.

Gemini 3 Astronauts John W. Young (left) and Virgil “Gus” Grissom (right) Wait Patiently, photo courtesy of NASA.

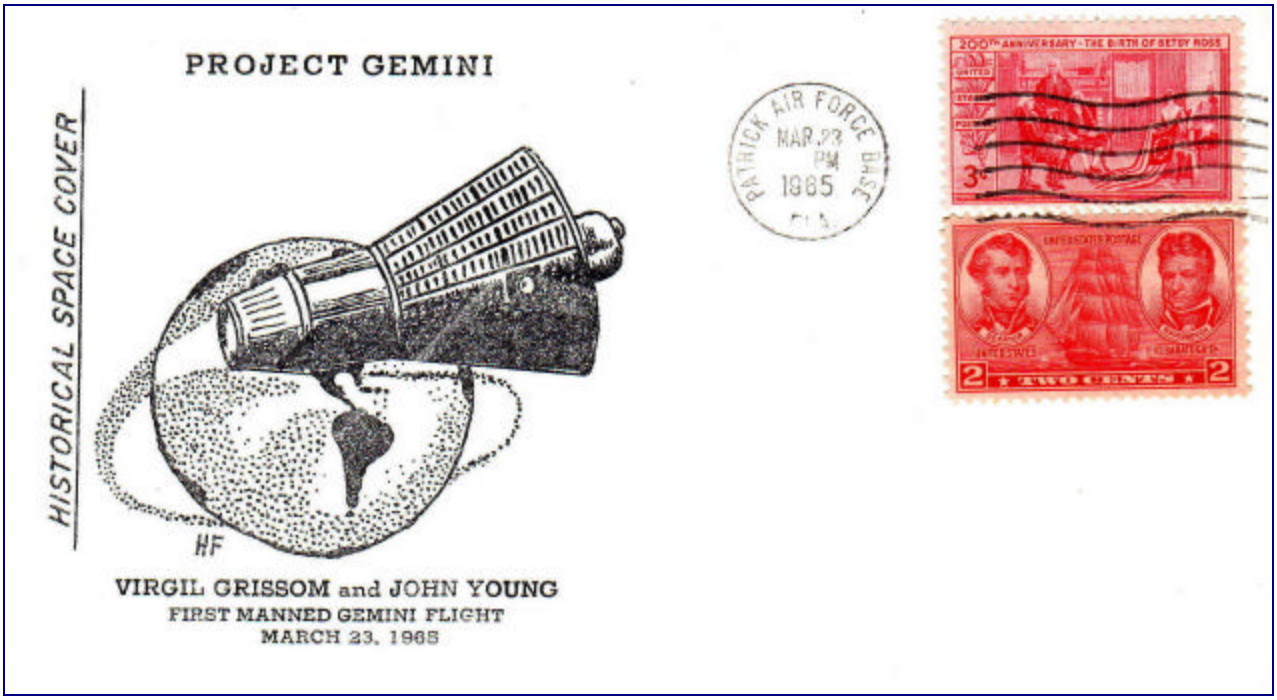
A Space Craft cacheted cover is shown for the smooth launch of Astronauts John Young and Gus Grissom in spacecraft “Molly Brown,” the morning of March 23, 1965, at Cape Canaveral, Florida. This is the first manned space flight of Project Gemini, with goals of giving Astronauts experience in making longer duration space flights and to polish their operational skills and piloting expertise to rendezvous on space flights.



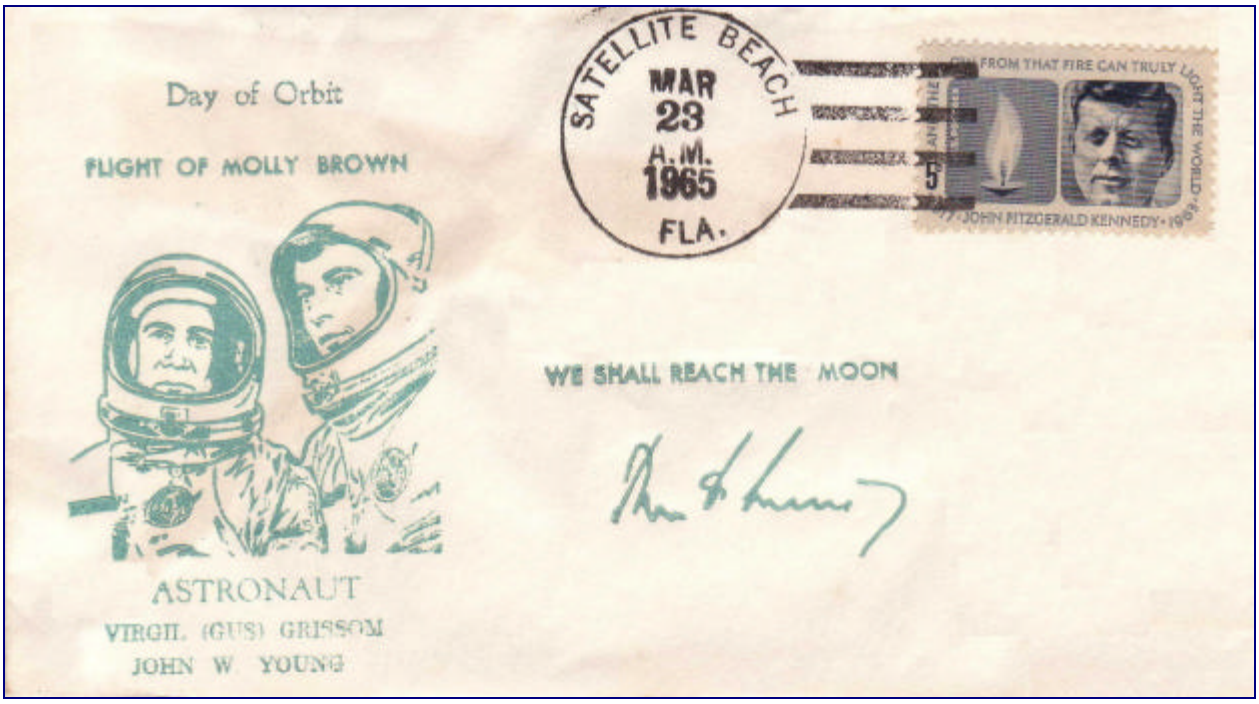
Centennial covers makes a pair of covers for the launch and recovery of Gemini 3, March 23, 1965, Cape Canaveral, Florida. The cachet accurately notes Gemini 3 being launched from Cape Kennedy, the new name for Cape Canaveral and that the spacecraft is scheduled to complete 3 orbits of the Earth.



The companion cover for the Centennial cover pair is displayed for the recovery of Gemini 3, the afternoon of March 23, 1965, in the Atlantic Ocean. The three orbit flight of Grissom and Young in Gemini 3 goes as planned. The Gemini 3 crew completes its 52,500 mile orbital journey in a speedy 4 hours 52 minutes.

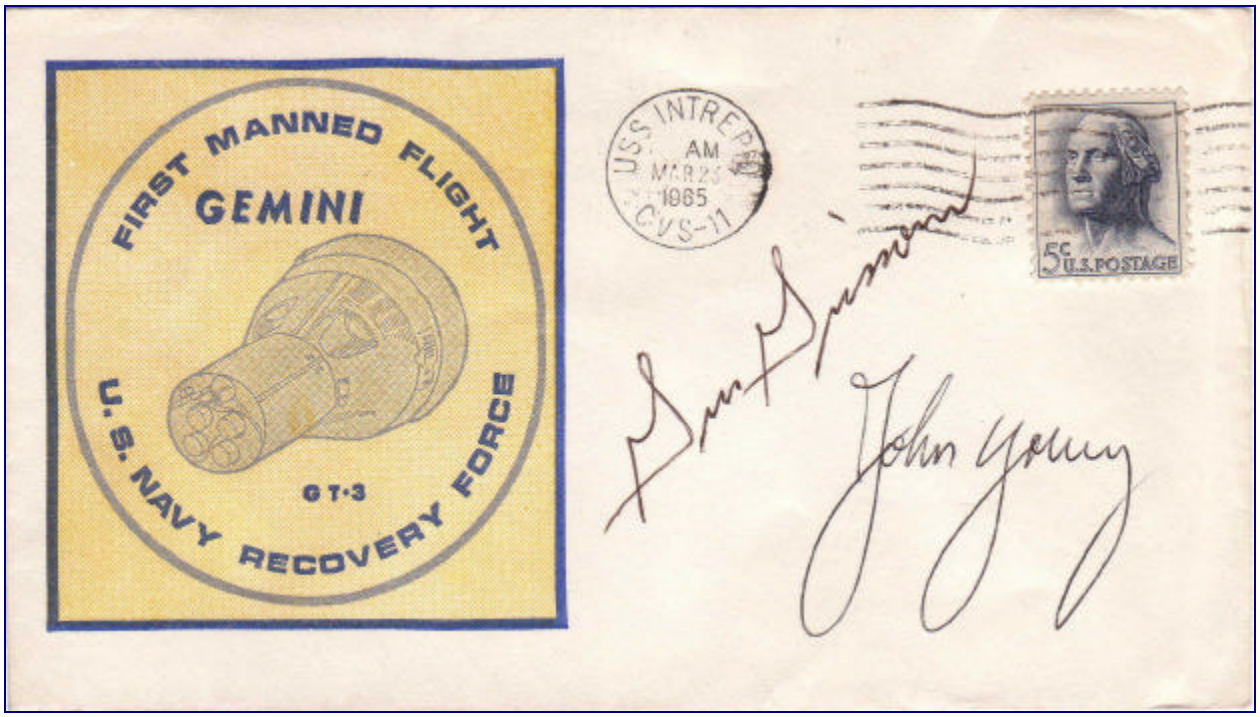


Gemini Astronauts, Gus Grissom and John Young are called “Space Twins” by the press after the seasonally seen constellation Gemini with twin stars “Castor” and “Pollux” in the Zodiac, on this first manned Gemini flight. The flight is the first of ten successful manned spaceflights in NASA’s Project Gemini flight series.



The name of the Eau Gallie, Florida, post office is changed to bring it up to date with the Space Age. The city becomes Satellite Beach, named in part for the location of beach locations for people to watch NASA’s latest satellite and rocket launches taking place at Patrick Air Force Base, Cape Canaveral, Florida. The cover above is cancelled on the launch date of Astronauts Gus Grissom and John Young in Gemini 3, March 23, 1965.

USS Intrepid, CVS-11, at Sea, photo courtesy of Larry Backus and www.navsource.org.

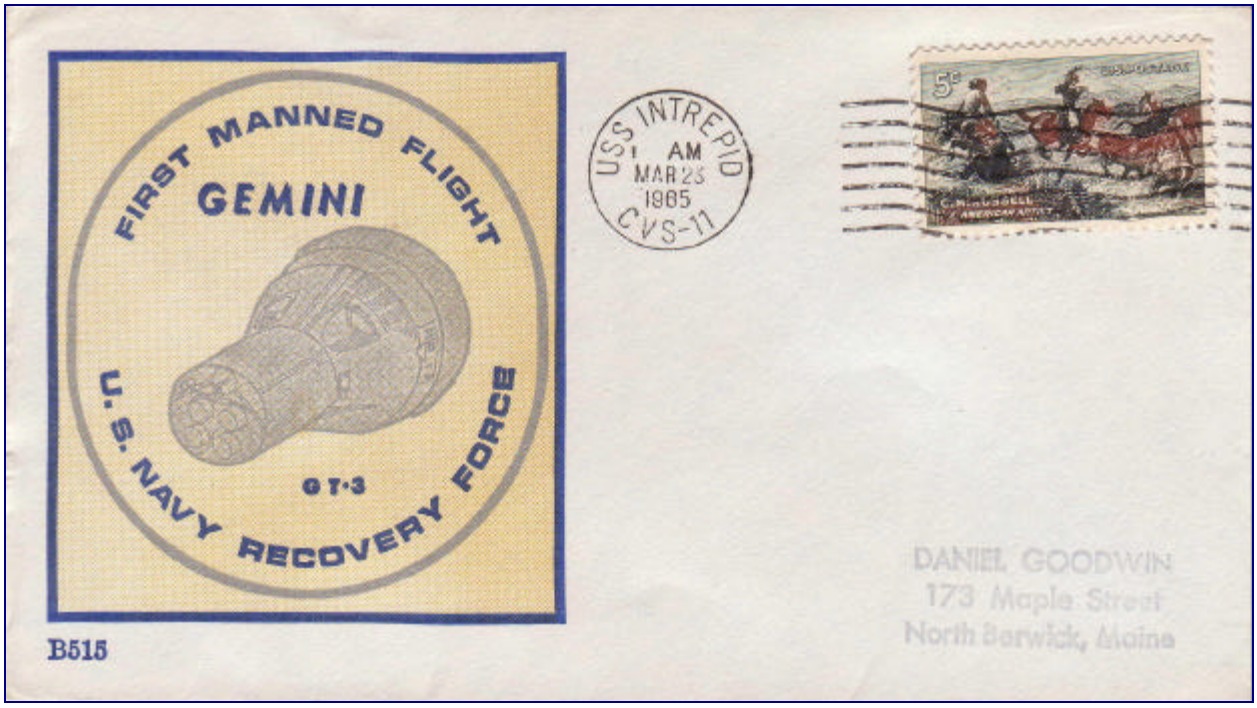


A rare unnumbered Beck printed cacheted cover is pictured for USS Intrepid's recovery of Gemini 3 Astronauts Gus Grissom and John Young on March 23, 1965 in the Atlantic Ocean near Grand Turk Island.[49] This unnumbered Beck cover is an extremely difficult Beck cover to find, and it is also signed by Gemini 3 Astronauts Grissom and Young.

[49] Case University web site; as cited, http://filer.case.edu/sjr16/advanced/20th_close_gemini.html.

Astronaut John Young in a Life Raft Awaits Helo Transfer to USS Intrepid With GT-3 Spacecraft Molly Brown, photo courtesy of NASA.

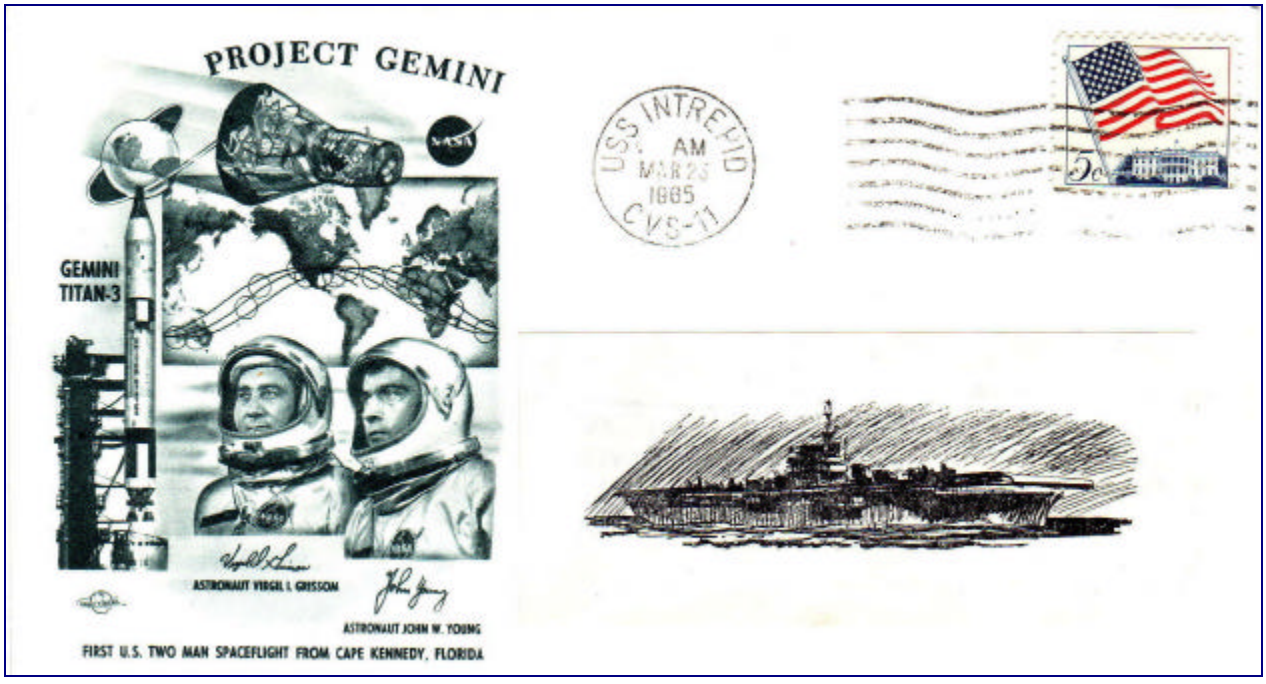
Primary Recovery Ship for Gemini-Titan 3			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
USS Intrepid, CVS-11, with a Beck unnumbered, printed cachet and machine cancellation.	Rare / High	PRS	Covers exist, March 23, 1965. See the example on page 48.
USS Intrepid, CVS-11, with a Beck numbered printed cachet and a hand cancellation.	Very Difficult / High-Medium	PRS	Covers exist, March 23, 1965. An example is shown in Ray Cartier's authoritative *PRS Cover Handbook* on page 17.
USS Intrepid, CVS-11, with a Beck numbered printed cachet, or other printed cachet, and machine cancellation.	Moderate / Medium	PRS	Covers exist, March 23, 1965. See example of cover on page 50.
USS Intrepid, CVS-11, with a Beck rubber stamped cachet.	Moderate / Medium	PRS	Covers exist, March 23, 1965. See cover example on next page.



Difficult Beck printed cachet B515 is shown for USS Intrepid's role as primary recovery ship of the Gemini 3 spacecraft and crew. However, USS Intrepid is not the first ship to arrive at the capsule. Coast Guard Cutter Diligence is the first ship to arrive on the scene. See the cover noting this on page 54.

A Beck rubber-stamped cachet for primary recovery ship USS Intrepid is pictured on the splashdown date of Gemini-Titan 3. This cover has a USS Intrepid machine cancel. Hand cancels for the USS Intrepid's recovery date exist and are very difficult to find. Also observe the difference in this Beck rubber stamped cachet with no box around the oval cachet and the capsule as compared to the Beck printed cachet above it with a box enclosing both the capsule and cachet.

Crew Members of USS Intrepid Look on Before the Spacecraft Molly Brown is Hoisted On Deck, photo courtesy of NASA.



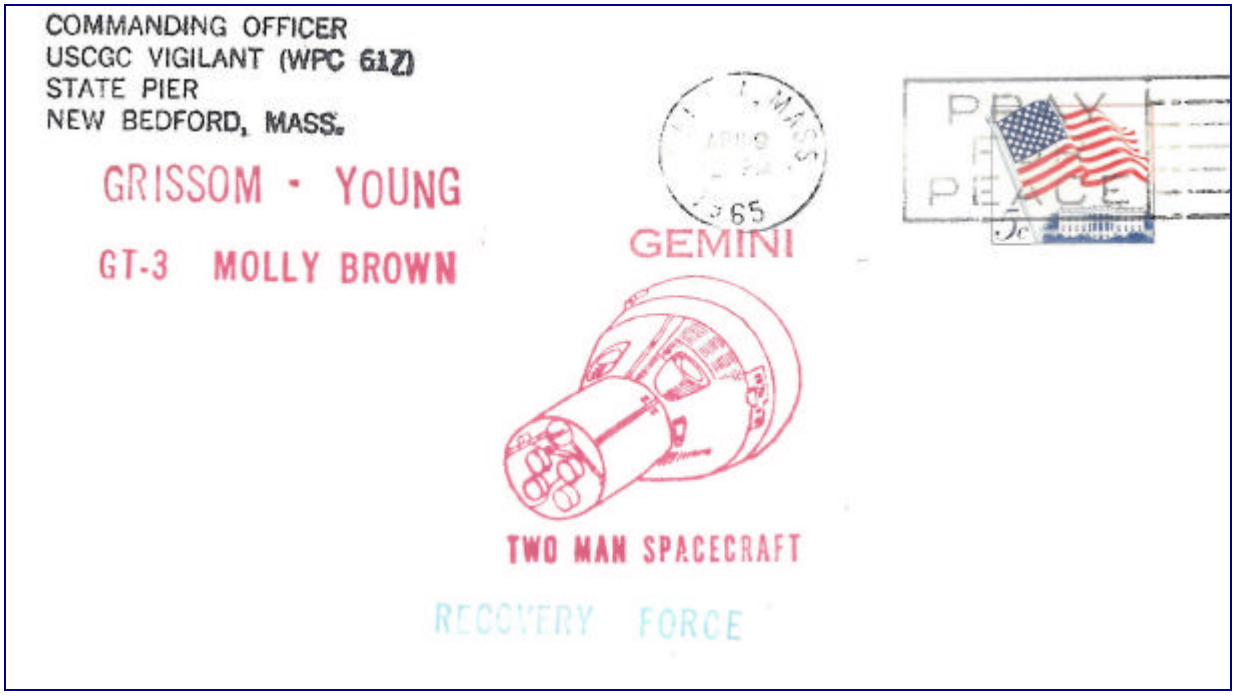
Orbit cacheted covers are popular with many cover collectors, but the ones cancelled on primary recovery ships for Project Gemini are especially sought after by both ship and space cover collectors. The cover above is cancelled on the date of Gemini 3's recovery by USS Intrepid. The cover also has a USS Intrepid Aircraft Carrier label applied in the right hand corner of the cover.

A generic Space Craft cacheted cover by Joe Fitzpatrick and Carl Swanson is cancelled on U. S. Navy Cruiser USS Boston to note its role in the Gemini 3 recovery operation of Gus Grissom and John Young. A Beck rubber stamped cachet for Gemini 3 also is stamped on the reverse side of the cover.

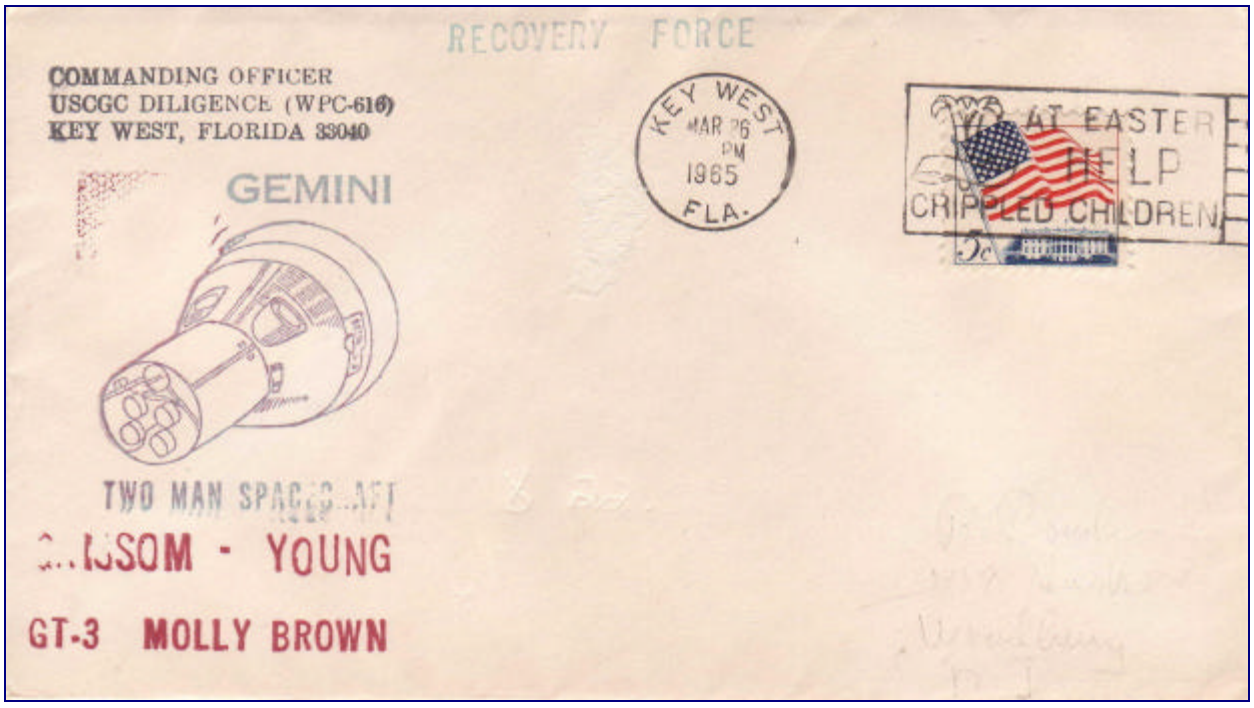
A similar Space Craft cover is serviced for Gemini 3 by secondary recovery ship USS Kankakee for GT-3's recovery date, March 23, 1965. Made by Space Craft Cover cachet makers Joe Fitzpatrick and Carl Swanson, collectors use this generic cachet to make their own covers for key space events.

Several versions of colorful hand cancellations and cachets are mailed by USS Harold J. Ellison such as this one for the Destroyer's participation in the Gemini 3's recovery on March 23, 1965. It is not known if Morris Beck especially produced these varietal light orange printed cachets for the ship.

USS Douglas H. Fox cancels this Beck printed cachet and secondary recovery ship cover, March 23, 1965, the recovery date of Astronauts Gus Grissom and John Young after their three orbit flight in GT-3.



The Coast Guard Cutter USCGC Vigilant, WPC-617, participates as a secondary recovery ship in the Gemini-Titan 3 recovery. The ship mails this cover on April 9, 1965, upon return to port at New Bedford with the cover subsequently cancelled at Salem, Massachusetts. This U. S. Coast Guard Cutter cover is a very difficult cover to find for the Gemini 3 recovery and is from the collection of Tom Steiner.

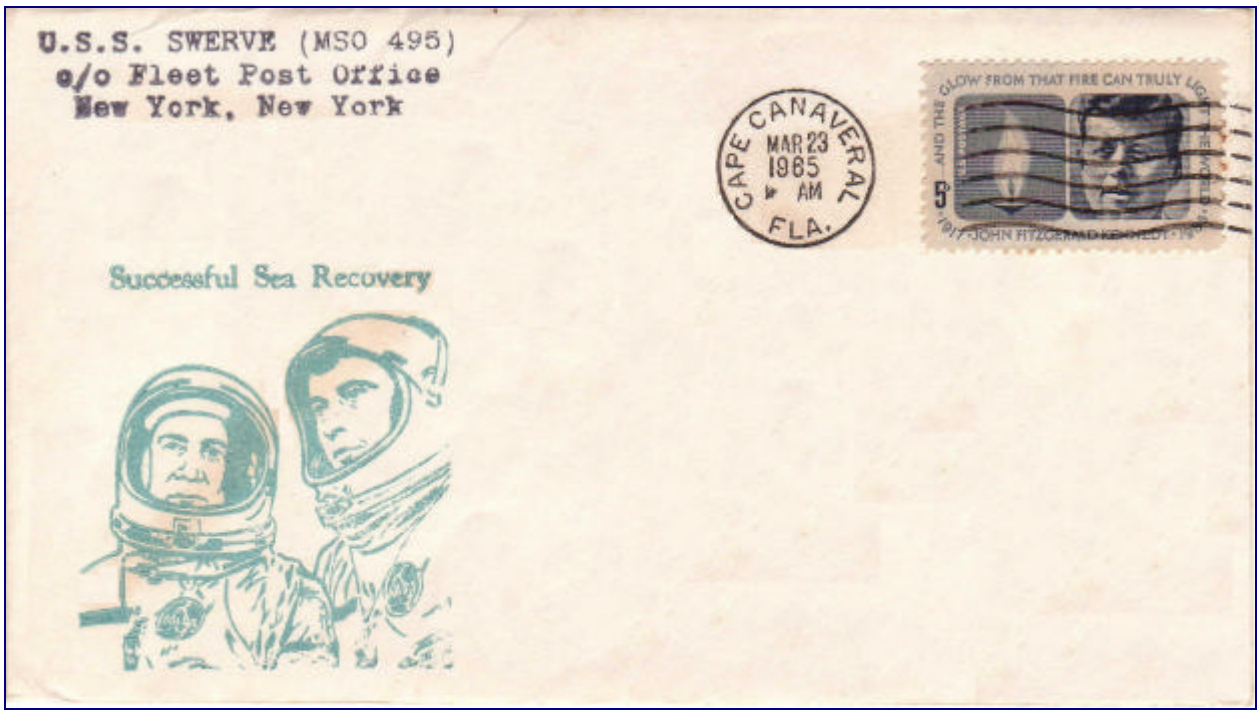


U. S. Coast Guard Cutter Diligence is the first ship to arrive at the splashdown position of spacecraft Molly Brown, and although the Coast Guard Cutter could not recover the capsule due to not having recovery gear, the ship acts as on-scene Commander for the recovery of the spacecraft.[50]

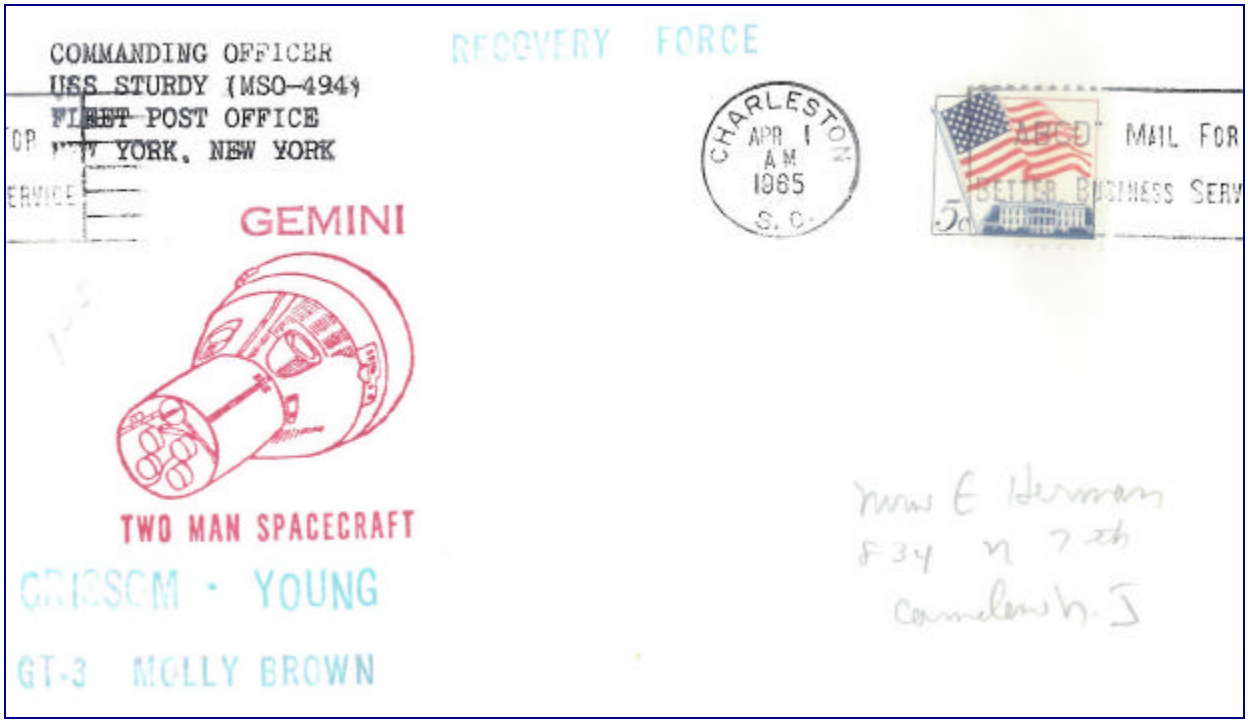
[50] Bizub, Eddie, Dillman, Dennis, and Durst, Steve, "The USCGC Diligence (WPC-616) and the Gemini 3 Recovery," *Astrophile*, Space Unit, Maspeth, New York, pages 180-181, July-August 2005. The USCGC Diligence recovery cover shown is from the author's collection.

Secondary Recovery and Tracking Ships for Gemini-Titan 3			
Ship, Hull Number	**Difficulty / Value**	**Type**	**Comment**
USS Swerve, MSO-495	Difficult / High-Medium	SRS	Covers exist, March 23, 1965, Cape Canaveral, Florida.
USS Sturdy, MSO-494	Difficult / High-Medium	SRS	Covers exist, April 1, 1965, Charleston, South Carolina.
USS Nipmuc, ATF-157	Difficult / High-Medium	SRS	Covers exist, March 24, 1965, Cape Canaveral, Florida.
USS Sarsfield, DD-837	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Robert A. Owens, DD-827	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Bigelow, DD-942	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Douglas H. Fox, DD-779	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Robert L. Wilson, DD-847	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Boston, CA-69	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Harwood, DD-861	Difficult / High-Medium	SRS	Not known.
USS Kankakee, AO-39	Difficult / High-Medium	SRS	Covers exist, March 23, 1965.
USS Rich, DD-820	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Cony, DD-508	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Ault, DD-698	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Harold J. Ellison, DD-864	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS John Paul Jones, DDG-32	Moderate / Medium	SRS	Covers exist, March 23, 1965.
USS Mullinix, DD-944	Moderate / Medium	SRS	Covers exist, March 23, 1965.

USNS Coastal Sentry, T-AGM 15, Tracking Station, Indian Ocean.	Very Difficult / High-Medium	TS	Covers exist, April 3, 1965, Honolulu, Hawaii, see example page 58.
USAF Rose Knot, T-AGM 14, Tracking Station, Between Hawaii and California.	Very Difficult / High-Medium	TS	Covers exist, March 27, 1965, from Redondo Beach, and also Hermosa Beach, California.
USNS Kingsport, T-AG 164, Communications Ship, Indian Ocean.	Very Difficult / High-Medium	COMM	Covers exist, April 6, 1965, San Francisco, California.
USCGC Vigilant, WPC-617	Very Difficult / High-Medium	SRS	Covers exist, April 9, 1965, Salem, Massachusetts, see example on page 54.
USCGC Diligence, WPC-616, First ship on scene.	Rare / High	SRS	Covers exist, Key West, Florida, March 26, 1965. First ship at the spacecraft's position. See cover example on page 54.

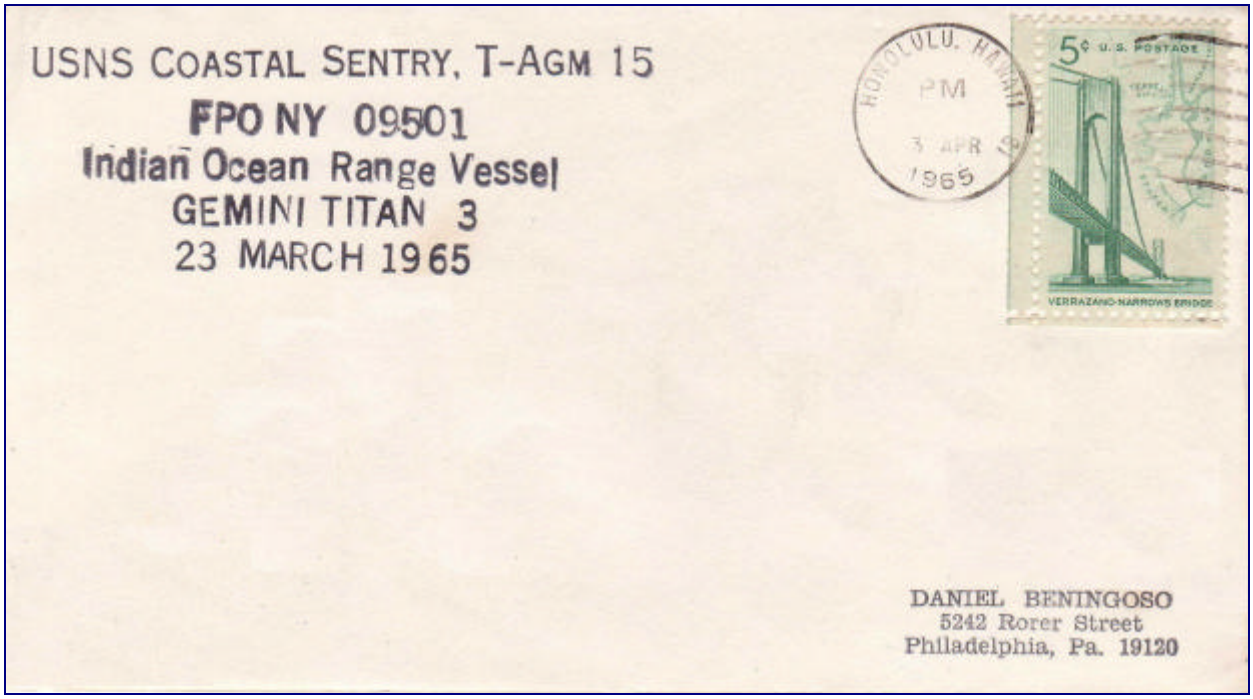


A USS Swerve secondary recovery ship cover is displayed showing the ship's corner card information with an added George Goldey blue-green printed cachet noting, "Successful Sea Recovery." The USS Swerve secondary recovery ship cover is cancelled on the Gemini 3 recovery date of March 23, 1965, with a Cape Canaveral, Florida, machine cancellation.

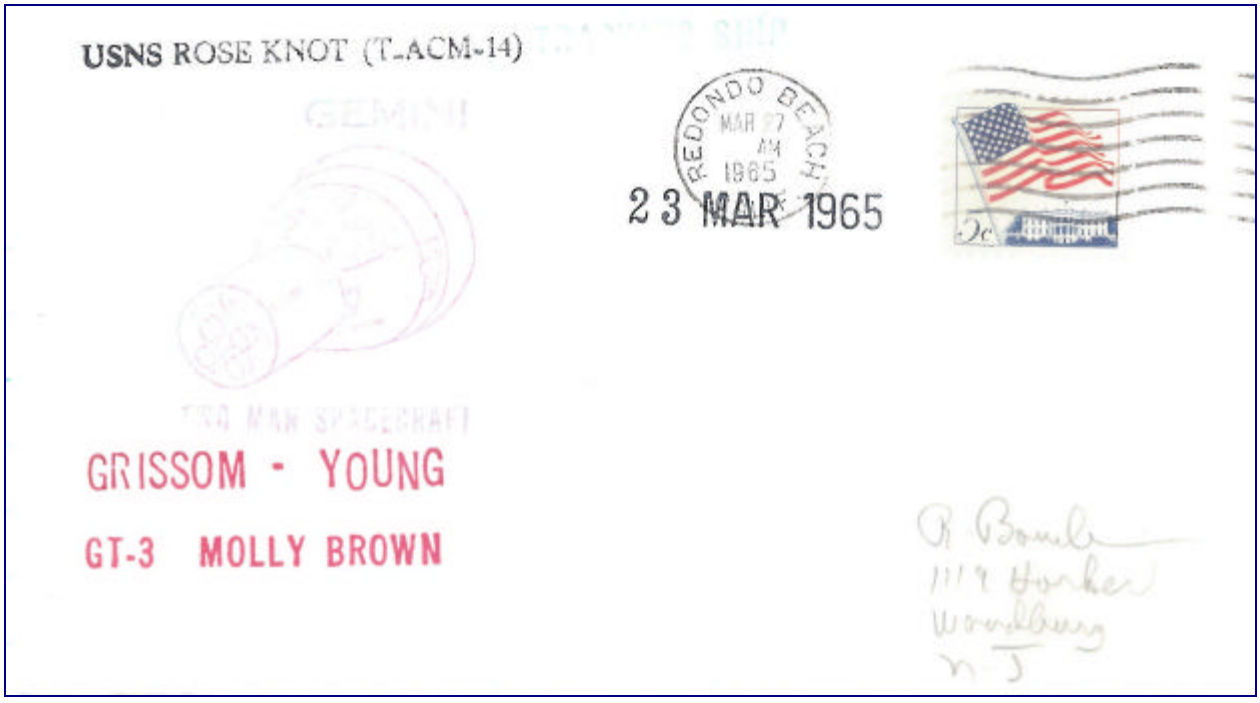


A second Ocean Minesweeper, the USS Sturdy, is involved in recovery operations for Gemini 3. The Captain's cover for the USS Sturdy, MSO 494, is pictured above and cancelled on the ship's return to port April 1, 1965, at Charleston, South Carolina.

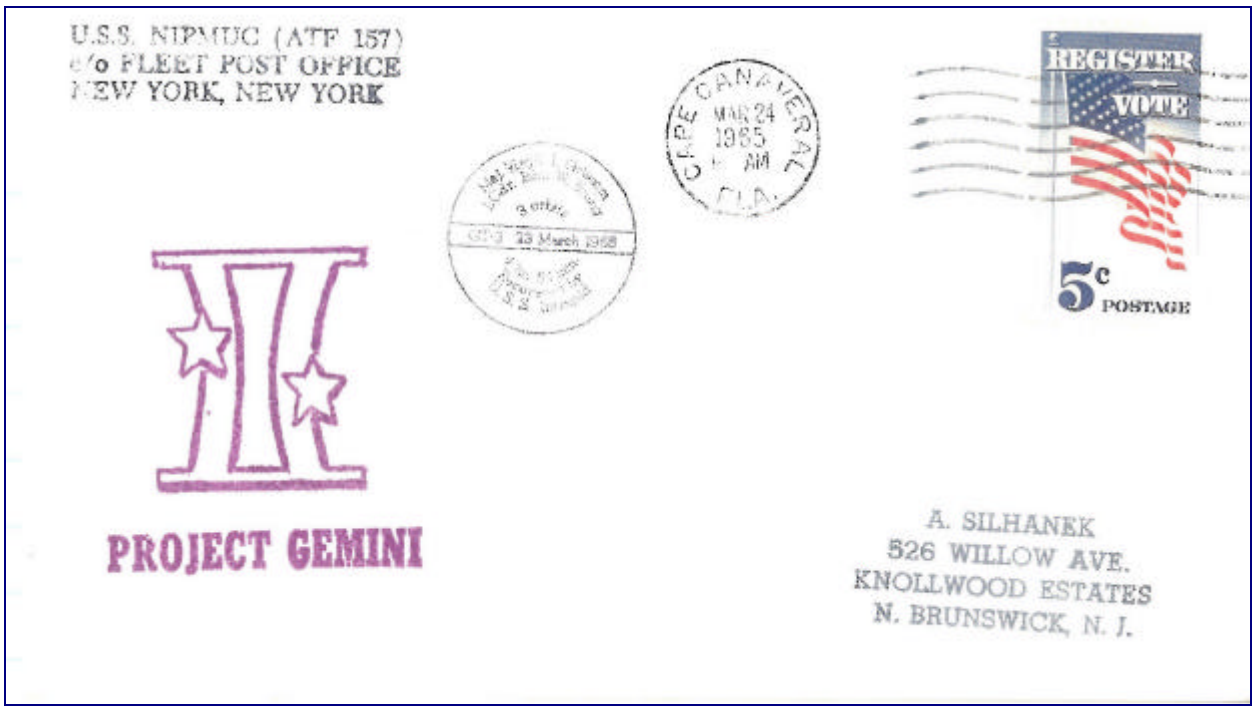
Satellite Communications Ship USNS Kingsport is positioned in the Indian Ocean to act as a communications relay for the first manned Gemini flight. The ship's distinctive ship's cachet includes the Syncom satellite which it uses to provide real time communications with Gemini 3 Astronauts Gus Grissom and John Young.



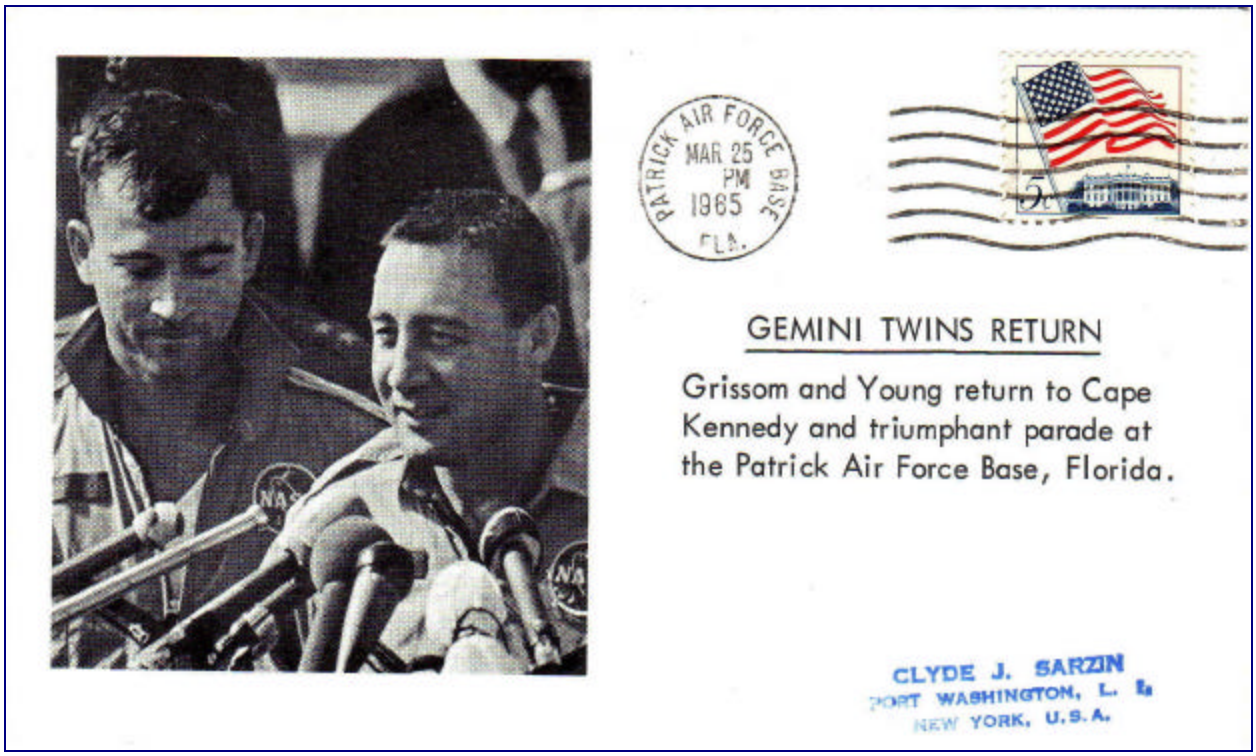
A secondary recovery ship cover is pictured for veteran tracking station USNS Coastal Sentry, T-AGM 15, stationed in the Indian Ocean for the Gemini 3 flight. Coastal Sentry fulfills a key role as a tracking station in this flight and posts the cover in the mail upon its return to port in Honolulu, Hawaii, on April 3, 1965.



Another tracking station, USNS Rose Knot, T-AGM 14, is stationed in the Pacific Ocean near Hawaii for the Gemini-Titan 3 flight. USNS Rose Knot posts the cover pictured on its return to port at Redondo Beach, California, on March 27, 1965. Secondary recovery ship covers for USNS Rose Knot are also cancelled at Hermosa Beach, California, on the return to port date of March 27, 1965.



A Navy Fleet Tug USS Nipmuc secondary recovery ship cover is shown with a Cape Canaveral, Florida, cancel for the ship's return to port, on March 24, 1965. In addition to the ship's corner card information citing New York as its Fleet Post Office, the cover also has a sound Project Gemini rubber stamped cachet with the symbol for the constellation Gemini in the Zodiac with its twin stars Castor and Pollux.



A Clyde Sarzin cover is shown for the welcome home parade and postflight speeches by Astronauts John Young and Gus Grissom at their uplifting homecoming at Patrick Air Force Base, Florida, March 25, 1965.