

The Near Tragedy of Gemini 8: How Neil Armstrong's First Mission was Almost His Last

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Gemini 8: an Altered Legacy

Gemini's First Docking Turns to Wild Ride in Orbit | NASA

<https://www.nasa.gov/feature/geminis-first-docking-turns-to-wild-ride-in-orbit> ▼

Mar 3, 2016 - **Gemini** VIII command pilot Neil Armstrong, left, and pilot David Scott, stand in

The Vomit-Inducing Gemini 8 Mission - Seeker

<https://www.seeker.com/the-vomit-inducing-gemini-8-mission-1765901684.html> ▼

Jul 30, 2012 - The Vomit-Inducing **Gemini 8** Mission. Neil Armstrong's successful Apollo 11

Thesis

The “moon-shot” was a rushed attempt that put unnecessary stress on engineers and astronauts. In order to make it to the moon by the deadline set by President Kennedy, NASA had to resort to an accelerated timeline. This involved managing risk against results, a dangerous game NASA almost paid the price for in Gemini 8. As a result of NASA’s accelerated schedule, this mission almost ended in a catastrophe if it weren’t for Armstrong’s quick actions.

President Kennedy
Declares US will go
to the moon

25 May, 1961

Gemini 8
Mission

16 March, 1966

Deadline Set
by Kennedy

1 January, 1970



Crossroads of Gemini

- Gemini 6's failure led to even faster timeline
- Congress had 'buyer's remorse'. Too many setbacks, not enough results
- "Gemini Program had arrived at a crossroads, and a turn down one direction (without Agena) threatened the full benefits that might be realized before the termination of the program."

Method of Approach

Direct ascent

- Taking a rocket and flying it directly to the moon and back
- Cons: Too much fuel to be feasible in time limit set by Kennedy

Earth Orbit Rendezvous

- Launch two separate rockets into Earth orbit, dock modules in orbit and then fly to the moon
- Cons: More rockets meant higher cost and higher chance of failure
- Require Docking

Lunar Orbit Rendezvous

- Launch one rocket into space, have the LEM and CSM dock, then fly to the moon landing only the LEM and then redocking with the CSM in moon orbit.
- Require Docking

Agena Target Vehicle



via Granath, NASA

Risk over Reliance

“Tight schedules and lack of anticipation meant some risks were overlooked...No one could afford to get sick or miss a day” – Dave Scott, Gemini 8 co-pilot

“Matthews...reluctantly had to tell the contractor to accelerate the testing program on the augmented target docking adapter”

Agena Testing finishes March 4th, 12 days prior to Launch

LMSC-A604913

GEMINI AGENA TARGET OPERATIONAL CAPABILITY HANDBOOK



Prepared by
LOCKHEED MISSILES & SPACE COMPANY
CONTRACT AF 04(695)-545

1 MAY 1965

HEADQUARTERS
SPACE SYSTEMS DIVISION
AIR FORCE SYSTEMS COMMAND
UNITED STATES AIR FORCE

OPERATIONAL REQUIREMENT

- an operation which should be performed. Failure to perform an OPERATIONAL REQUIREMENT may result in incorrect operation of the GAT. However, this incorrect operation will not result in an unrecoverable situation.

As used in the following constraints, an "emergency" is an abnormal situation which endangers the Gemini flight crew or endangers the mission to a degree which exceeds the risk of performing an operation outside the limits of the listed constraints. With each constraint, the pages are listed on which the constraint appears accompanied by an explanation of the cause of the constraint. Unless otherwise noted in the constraint, all constraints are applicable to both the undocked and docked configurations and for control by ground stations or by the Gemini flight crew.

THE AIR FORCE PROGRAM DIRECTOR AND LOCKHEED MISSILES AND SPACE COMPANY RECOMMEND THAT ALL PERSONNEL INVOLVED IN THE OPERATION OF THE GEMINI AGENA TARGET COMPLY WITH THE FOLLOWING OPERATIONAL CONSTRAINTS.

PROHIBITED OPERATIONS

PROHIBITED OPERATION

Firing the PPS in the docked configuration is **PROHIBITED** in any circumstances including emergencies. Severe vehicle instability may result if this restraint is not observed. (NOTE: This restraint is applicable to the first flight vehicle only; there is no restriction on vehicles 5003 and up.)

Pages 2.2-2, 3.2-21

All constraints in the following list and document dealing with firing the PPS in the docked configuration are invalid until deletion of the preceding **PROHIBITED OPERATION**.

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constraints in the following

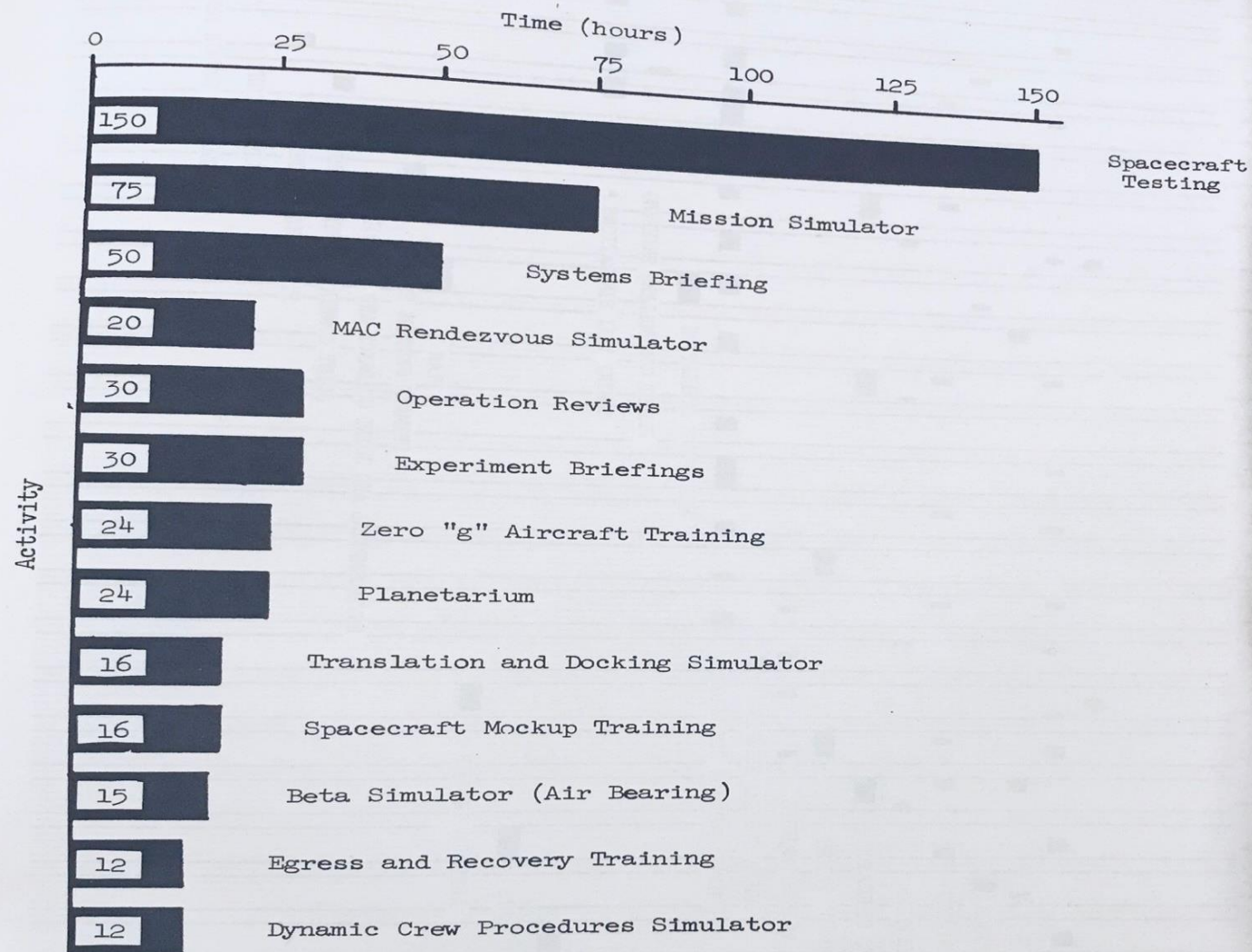
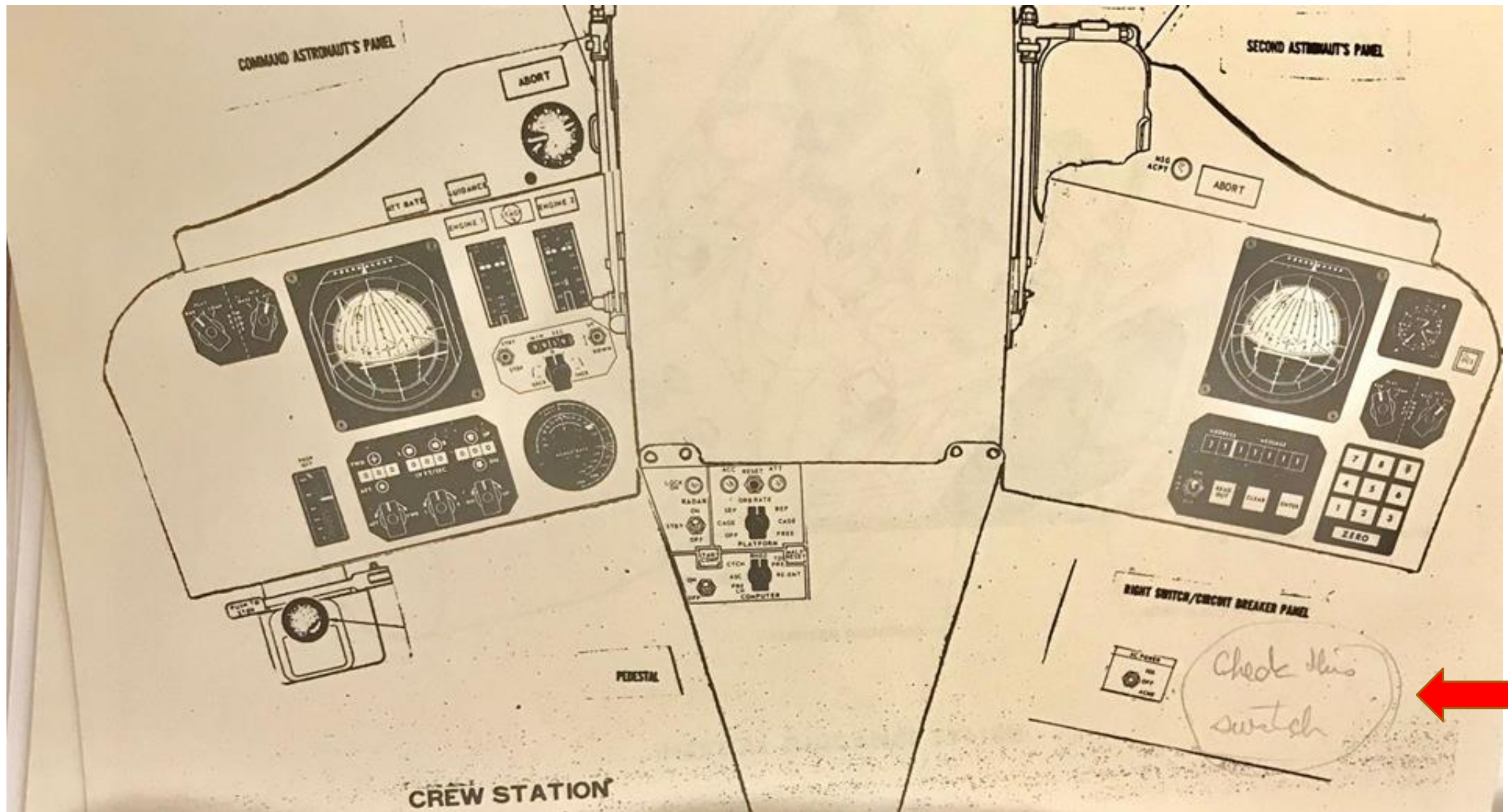


Figure 4-1.- Time spent by each crew member on training or related activities during preflight training period.



Armstrong's Artwork



Conclusion

NASA's dangerous game of risk versus results reached a breaking point during Gemini 8. If not for Armstrong's incredible ability as a pilot and an astronaut, Gemini 8 would have sent two astronauts to their graves, with the future of the space program with them.

Acknowledgements

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Questions

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