

Apollo 13



Apollo 13 Launch



The mission started as for Apollo 8, 10, 11 and 12 with a spectacular launch of the mighty Saturn V rocket.

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The Astronauts



Reality and Hollywood

The story of the Apollo 13 accident, and the heroic efforts of those in Mission Control to get the three astronauts safely back to Earth, was immortalised by Hollywood in the 1995 film ...

Apollo 13

The Actors

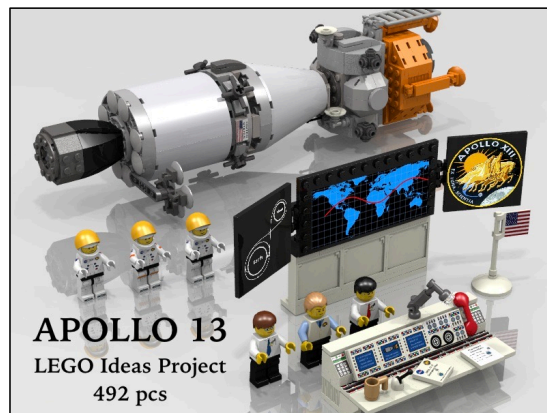


Reality and Hollywood

The story of the Apollo 13 accident, and the heroic efforts of those in Mission Control to get the three astronauts safely back to Earth, was immortalised by Hollywood and also by ...

LEGO !

LEGO Apollo 13

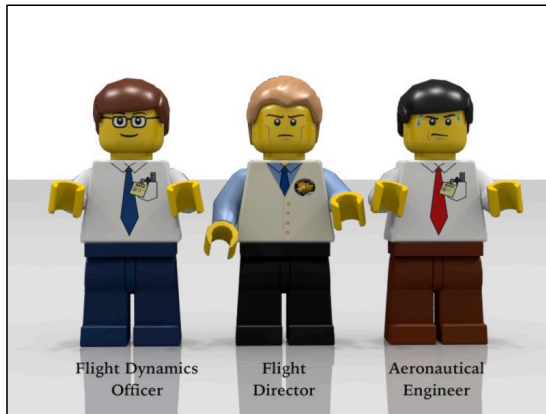


LEGO Mission Control

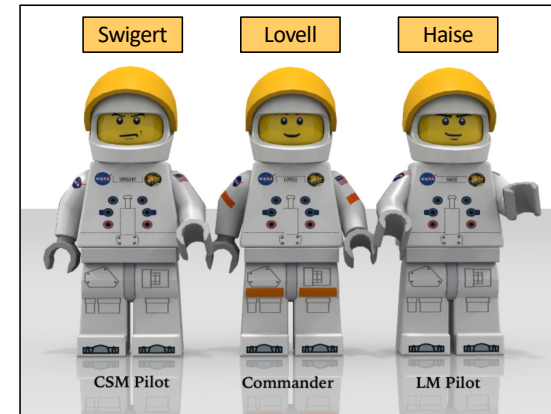


Apollo 13

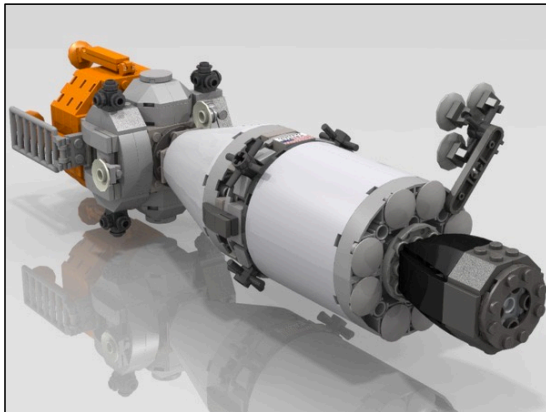
LEGO Mission Controllers



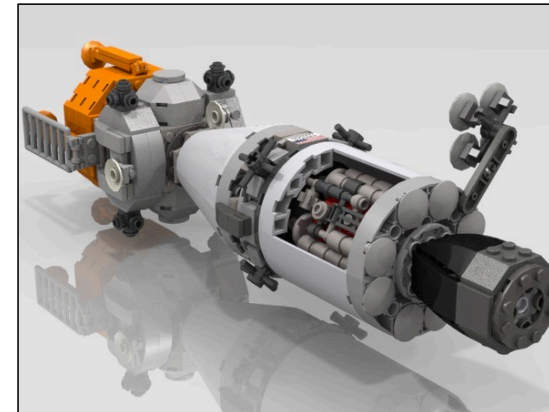
LEGO Astronauts



Pre-Explosion

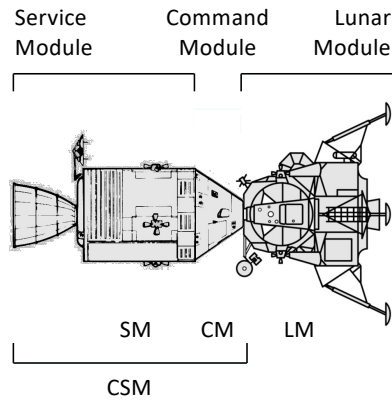


Post-Explosion



Apollo 13

Abbreviations

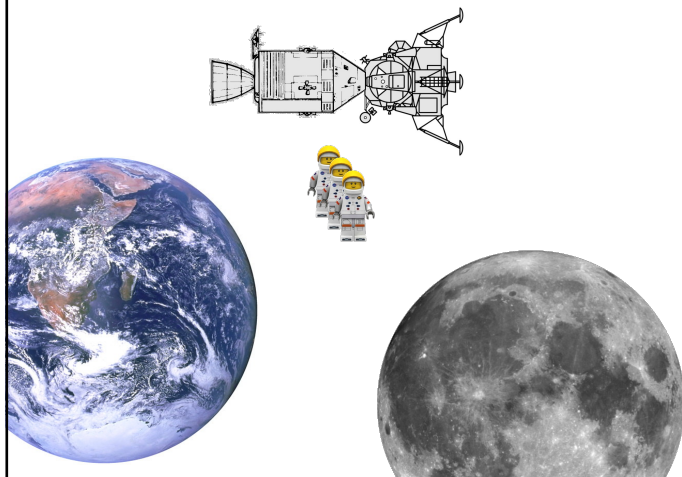


The Mission

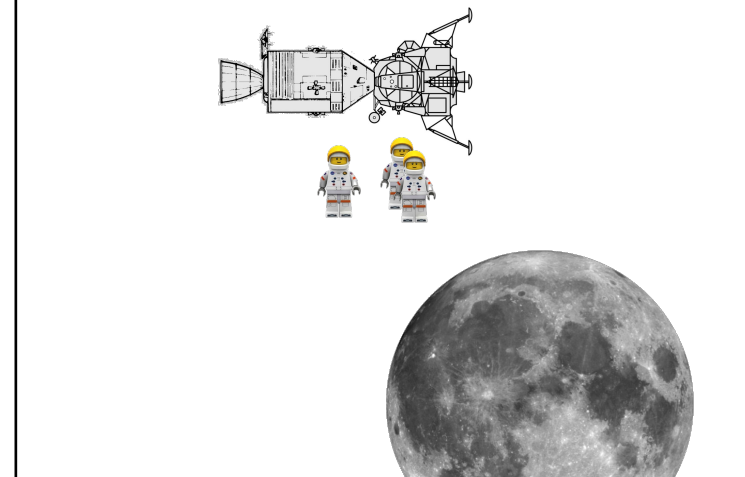
The mission ...

... as it was supposed to happen

Planned Moon Landing

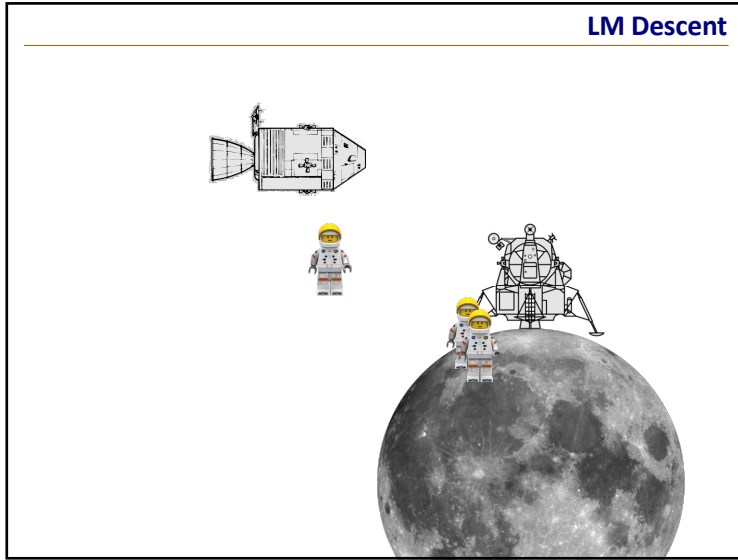


Crew Transfer to LM

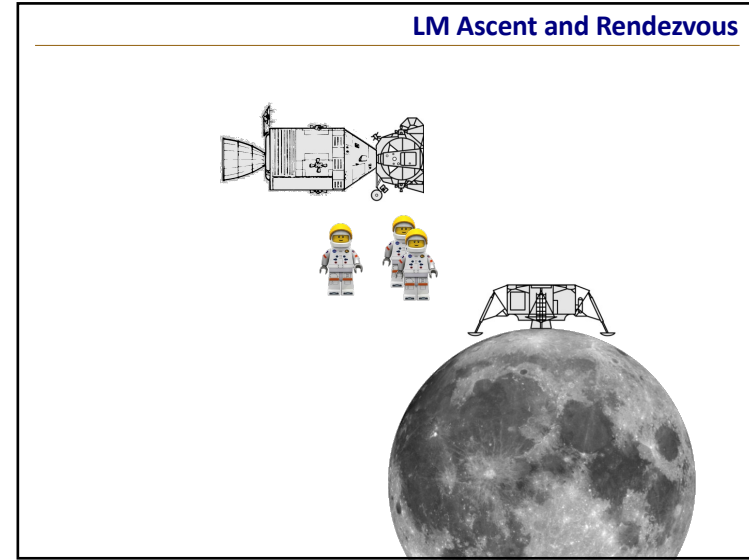


Apollo 13

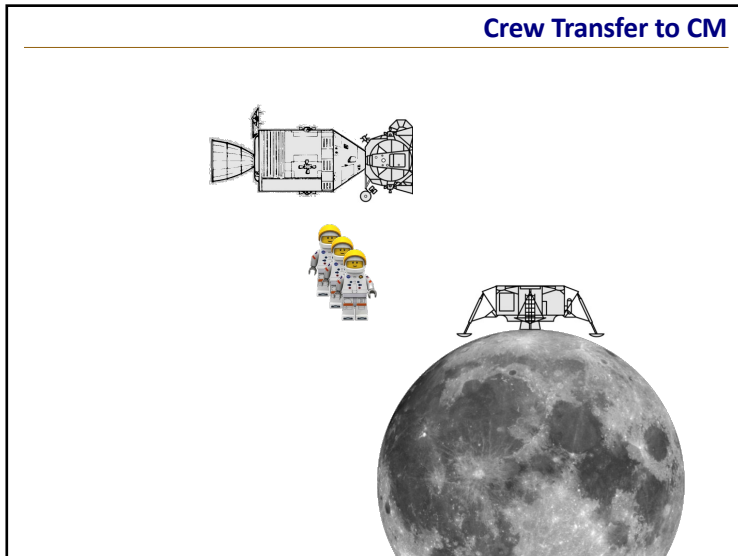
LM Descent



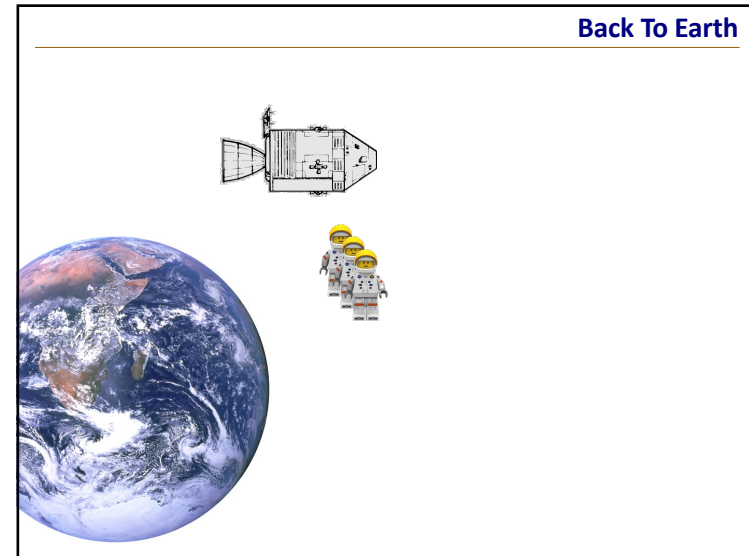
LM Ascent and Rendezvous



Crew Transfer to CM

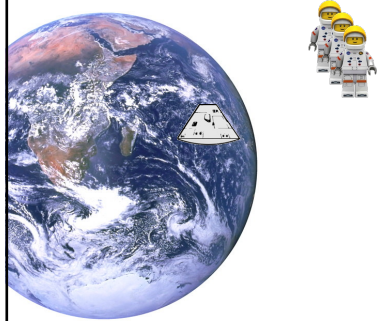


Back To Earth



Apollo 13

Splashdown

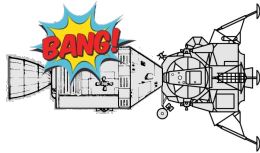


The Mission

The mission ...

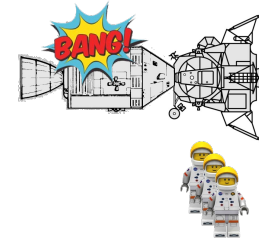
... as it actually happened

Houston, We've Had a Problem



A fan inside one of the oxygen tanks had faulty wiring insulation, so when the tank was stirred a spark caused the oxygen tank to explode, damaging the fuel cells and blowing out a side panel of the SM.

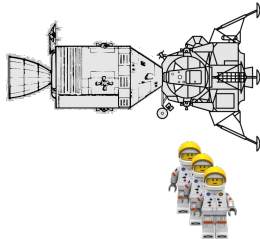
Into the LM Lifeboat



Contingency plans for a three-day flight returning from the Moon with a crippled CSM had been thought about, but Apollo 13 was at least four days from Earth.

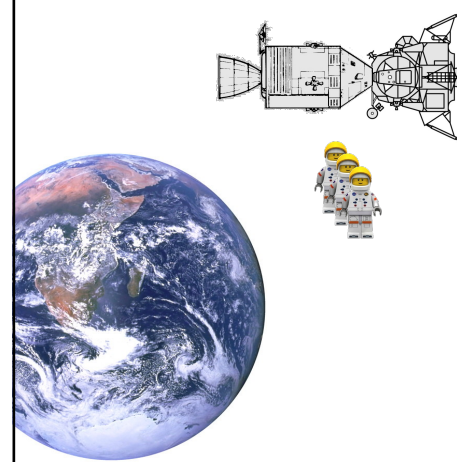
Apollo 13

Survival Mode

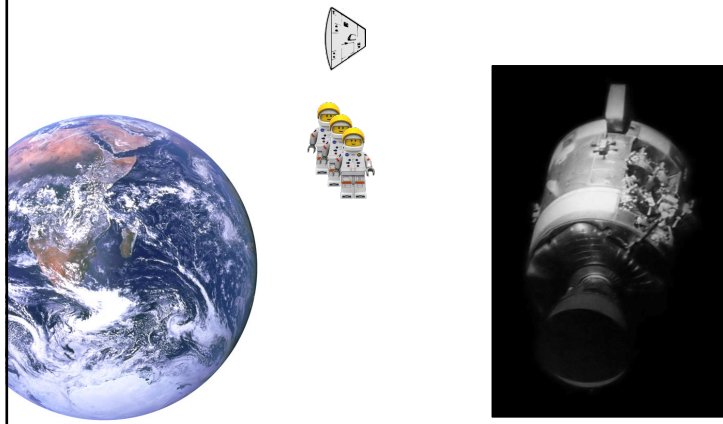


How could they ensure that the remaining oxygen, water and electrical power would last long enough to get them home safely?

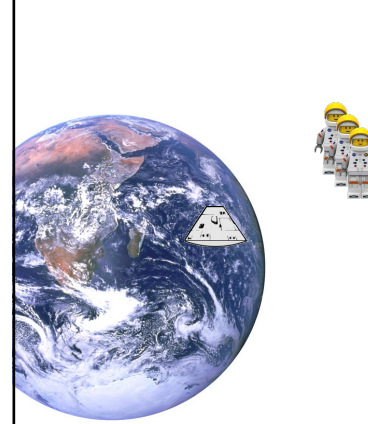
Crew Transfer to CM



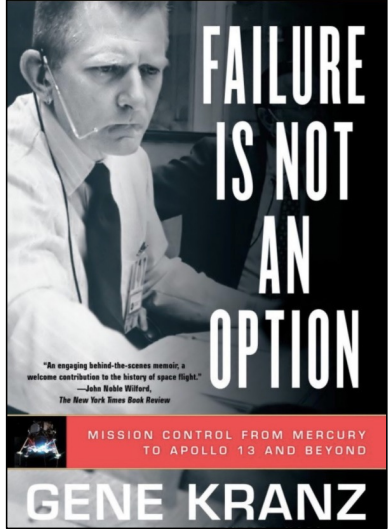
SM and LM Jettisoned



Splashdown



Apollo 13



Gene Kranz

That famous phrase was spoken by actor Ed Harris but not by Kranz himself.

However, Kranz used it for his autobiography because it reflected so succinctly the attitude of those working in Mission Control.

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What Happened To ...?

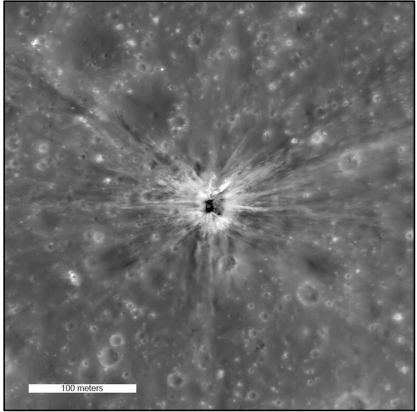
The Command Module (call sign 'Odyssey') made it safely back to Earth with its three occupants.

What about the rest of the Apollo hardware?

The third stage of the Saturn V rocket, after it had accelerated the CSM+LM spacecraft towards the Moon, was given one last task to perform ...

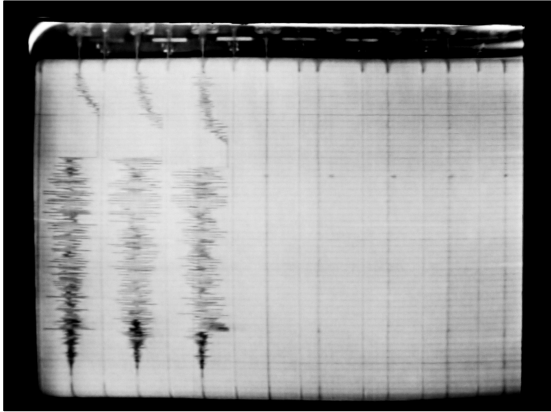
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Saturn S-IVB Impact Site



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Apollo 12 Seismometer



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Apollo 13

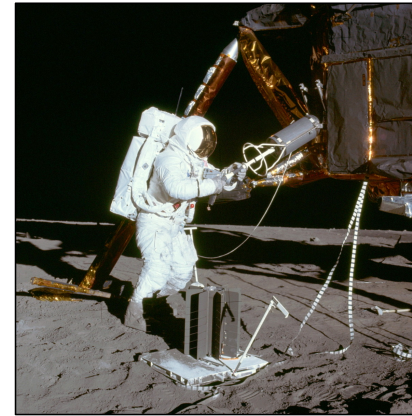
What Happened To Aquarius?

After the Lunar Module (call sign 'Aquarius') was jettisoned it re-entered the Earth's atmosphere and disintegrated.

However, it was important to ensure that its re-entry was controlled to ensure that any surviving components fell into the deepest Pacific trench.

In particular ...

Plutonium Power



Alan Bean (Apollo 12) removes the plutonium fuel cask from the LM to transfer it to the RTG in front of him that powers the experiments on the lunar surface.

RTG = Radioisotope
Thermoelectric
Generator

Jim Lovell and Tom Hanks



Read All About It!

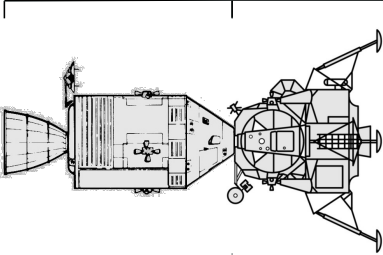


Apollo 13

Who Made What

Command and Service Modules

Lunar Module



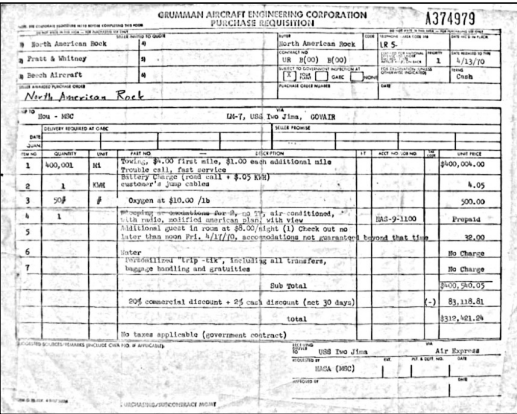
North American Rockwell

Grumman Aerospace

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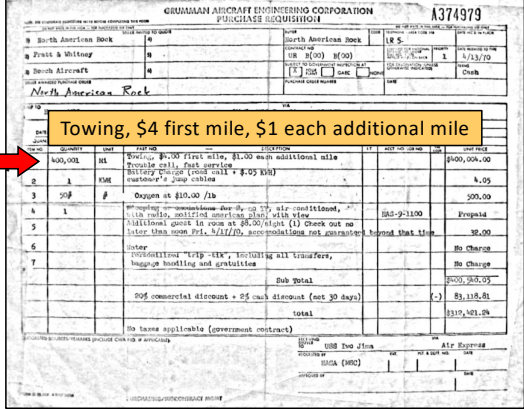
Grumman Invoice To North American



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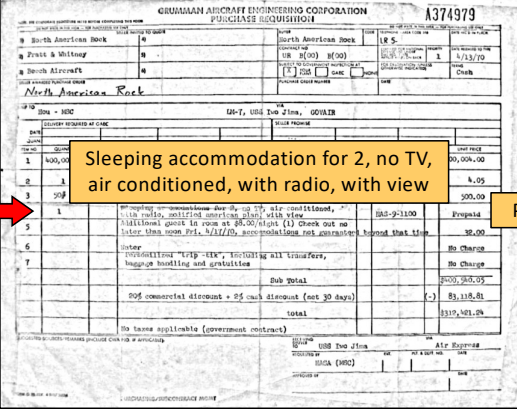
Grumman Invoice To North American



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Grumman Invoice To North American



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Apollo 13

Grumman Invoice To North American

GRUMMAN AIRCRAFT ENGINEERING CORPORATION PURCHASE INVOICE									
TO: North American Rock					FROM: Grumman Aircraft Engineering Corporation				
CITY: North American Rock					CITY: North American Rock				
STATE: North American Rock					STATE: North American Rock				
COUNTRY: North American Rock					COUNTRY: North American Rock				
QUANTITY: 1					UNIT PRICE: \$8.00				
TOTAL: \$8.00					TOTAL: \$8.00				
DATE: 1/1/70					DATE: 1/1/70				
TERMS: 1/1/70					TERMS: 1/1/70				
REMARKS: Additional guest in room at \$8/night					REMARKS: Additional guest in room at \$8/night				

Epilogue – Recovery of Odyssey



Epilogue – NASA's Finest Hour



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www.liverpool.ac.uk/~sdb/Talks

Dr Steve Barrett
SSS 26 Nov 2026