

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.

The Astronauts

CM Pilot	Commander	LM Pilot
Jack Swigert	Jim Lovell	Fred Haise

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3

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

CM Pilot	Commander	LM Pilot
Jack Swigert	Jim Lovell	Fred Haise

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5

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 !

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LEGO Apollo 13

APOLLO 13
LEGO Ideas Project
492 pcs

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LEGO Mission Control

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8

Apollo 13

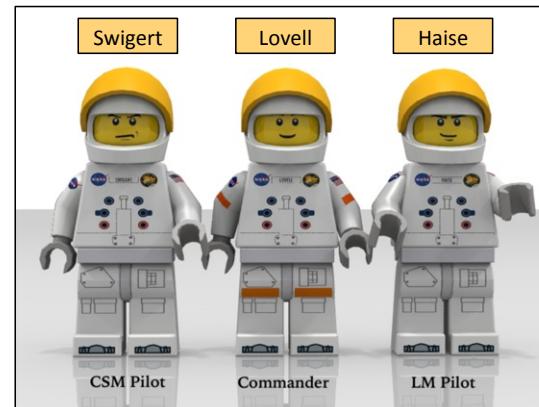
LEGO Mission Controllers



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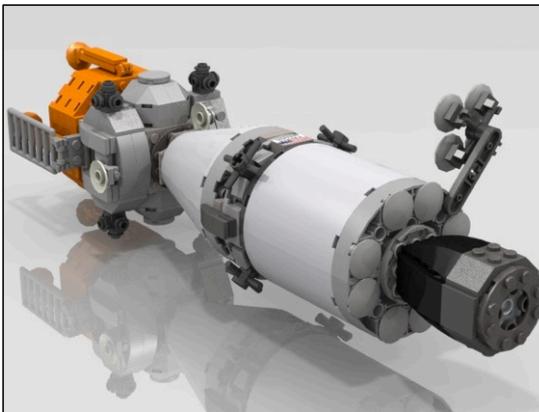
LEGO Astronauts



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10

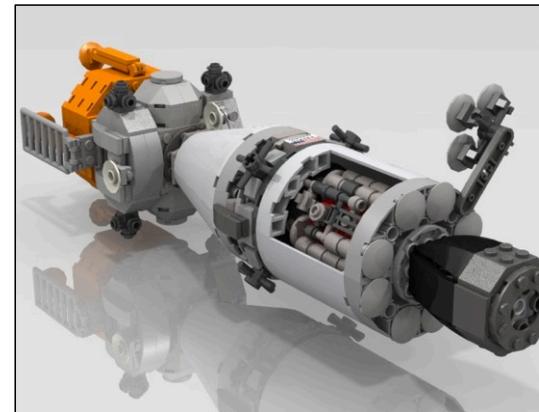
Pre-Explosion



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11

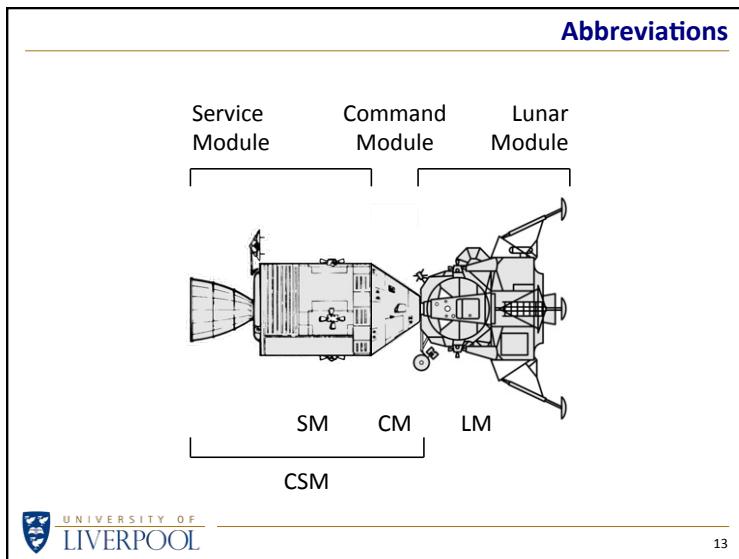
Post-Explosion



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12

Apollo 13



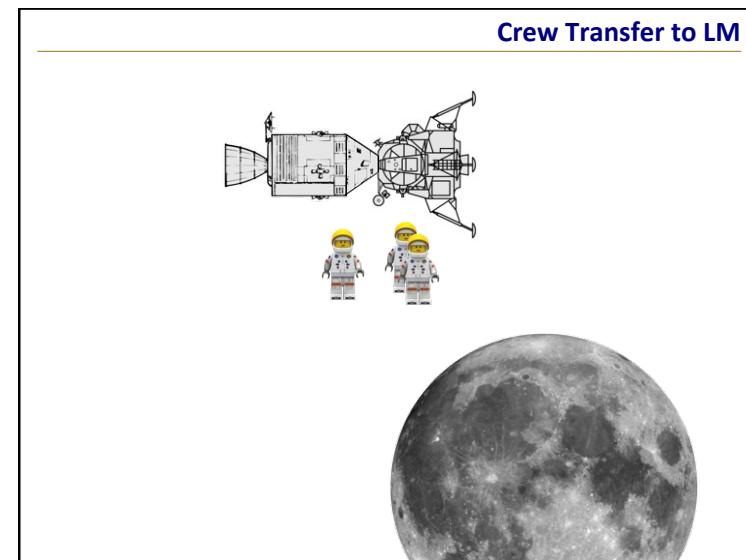
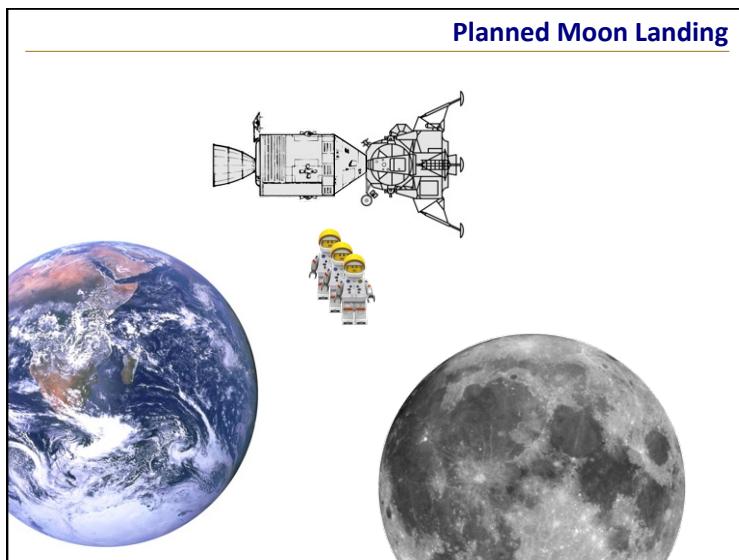
The Mission

The mission ...

... as it was supposed to happen

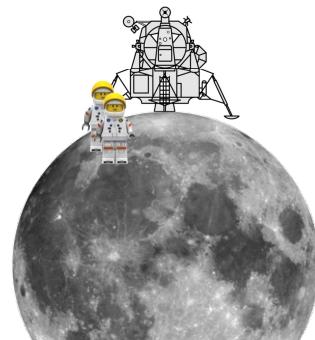
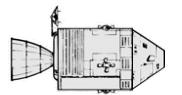
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14

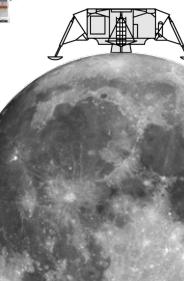
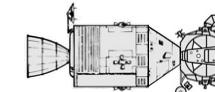


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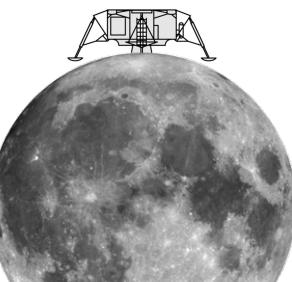
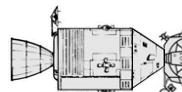
LM Descent



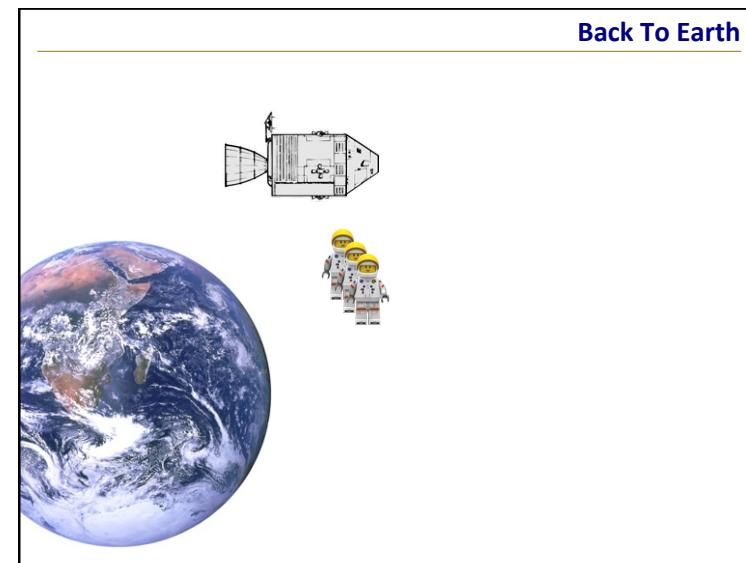
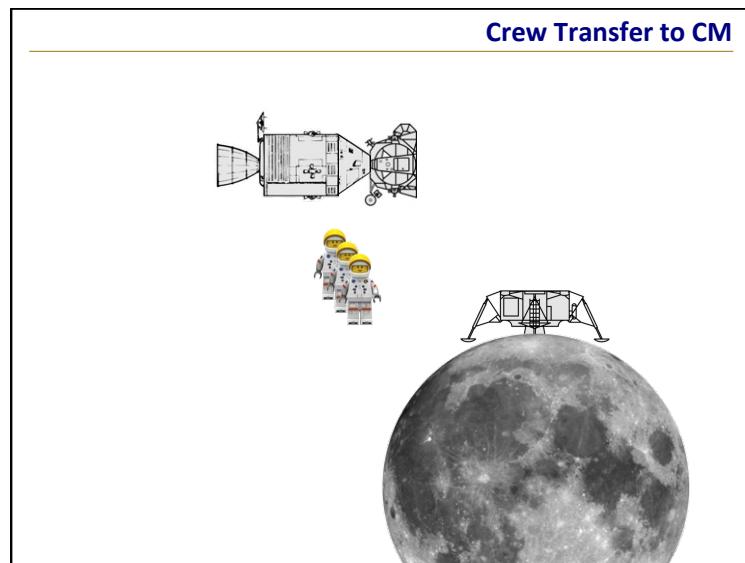
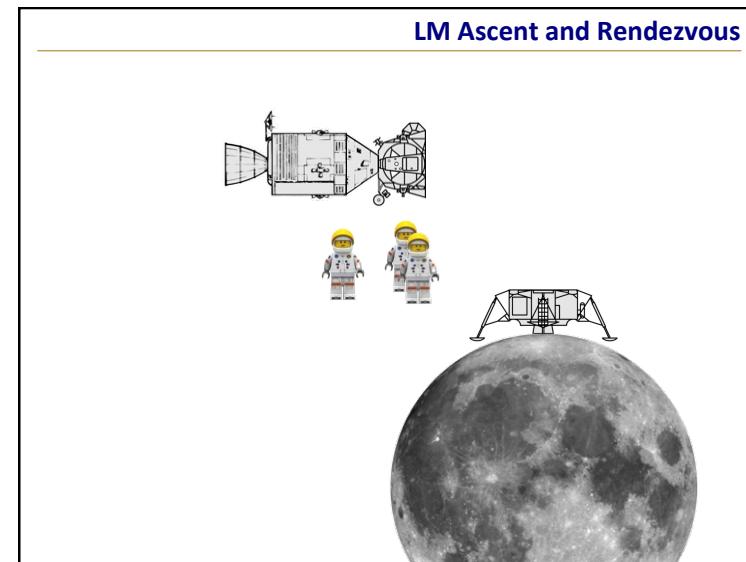
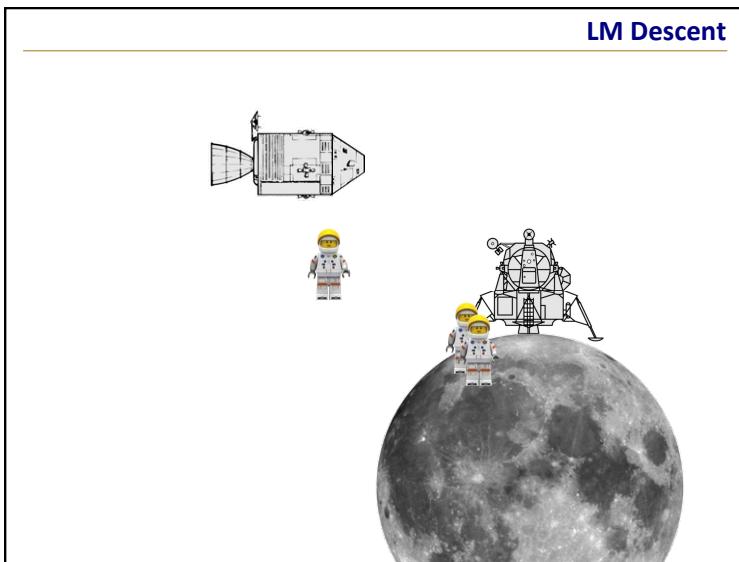
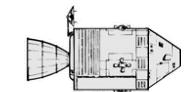
LM Ascent and Rendezvous



Crew Transfer to CM



Back To Earth



Apollo 13

Splashdown



The Mission

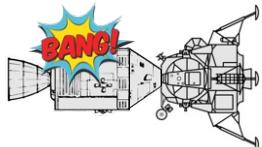
The mission ...

... as it actually happened

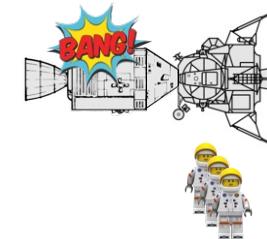


22

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.

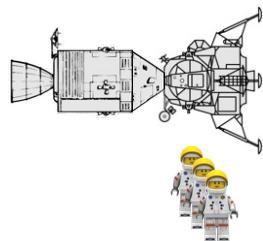


Into the LM Lifeboat

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.

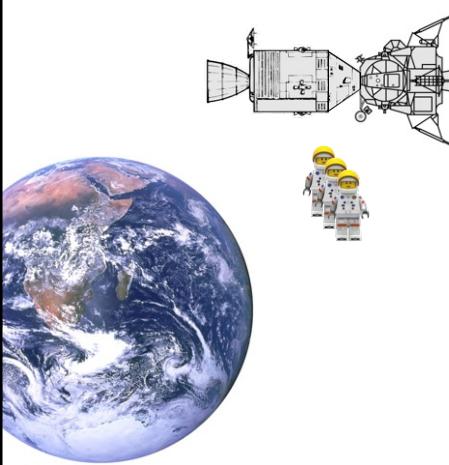
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Survival Mode

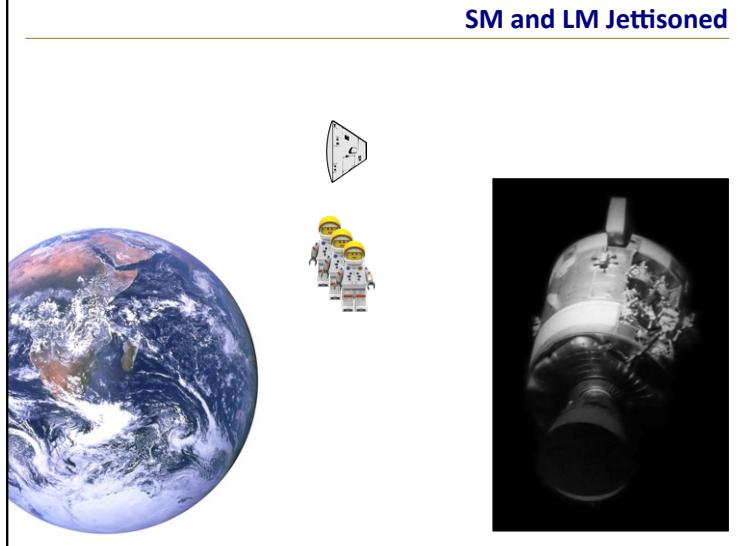


How could they ensure that the remaining oxygen, water and electrical power would last long enough to get them home safely?

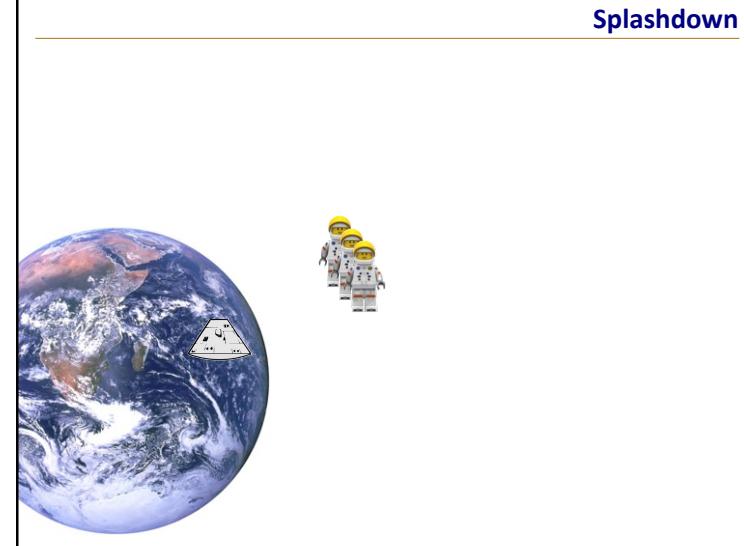
Crew Transfer to CM



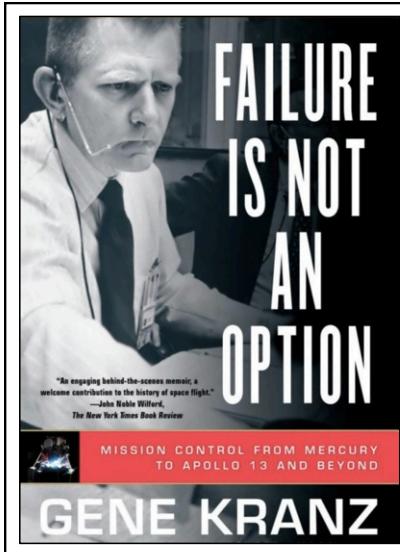
SM and LM Jettisoned



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.

29

What Happened To ...?

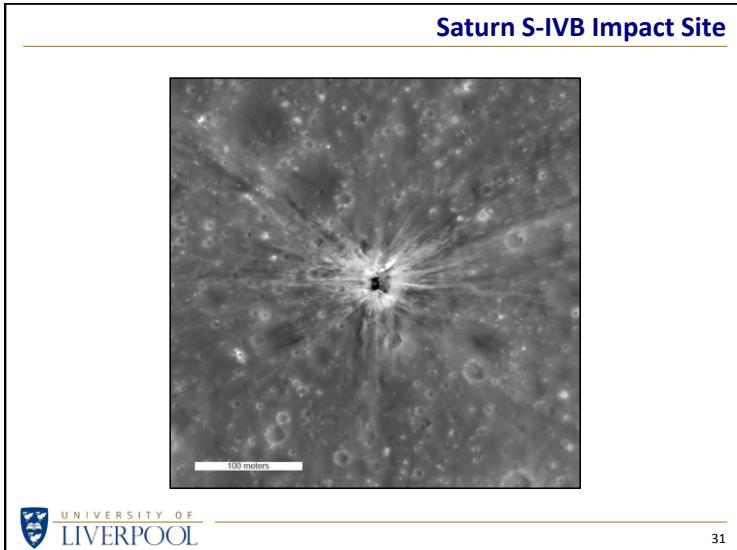
The Command Module (call sign 'Odyssey') made it safely back to Earth with its three occupants.

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 ...

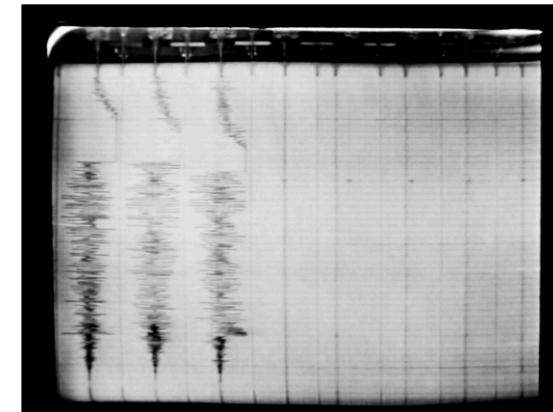


30



Saturn S-IVB Impact Site

31



Apollo 12 Seismometer

32



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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 ...



33

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



34

Jim Lovell and Tom Hanks



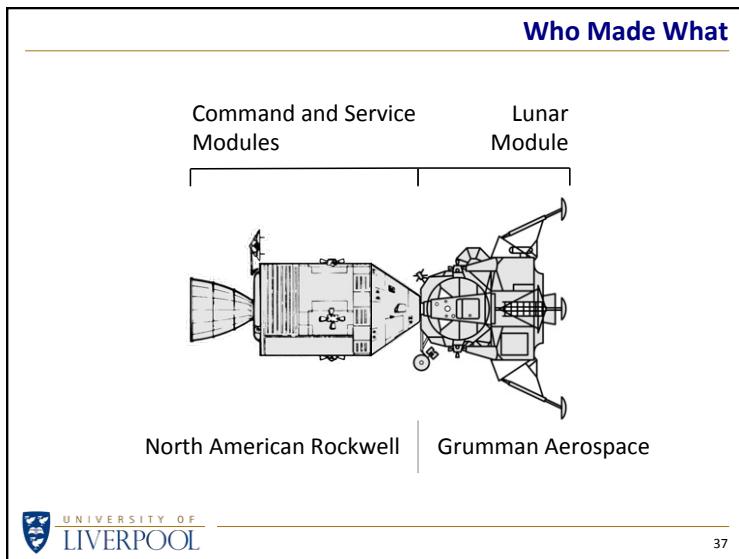
35

Read All About It!



36

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3



111

Grumman Invoice To North American



39

Grumman Invoice To North American



5

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Grumman Invoice To North American

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41

Epilogue – Recovery of Odyssey



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4

Epilogue – NASA's Finest Hour



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Duke, Lovell, Haise, Kranz, Lunney, Griffin, Brand, Lousma, Kerwin (2015)

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



Dr Steve Barrett

WU3A 18 Mar 2021