



APOLLO 13 : MISSION CONTROL

CAN YOU BRING THEM HOME?



www.bats.co.nz

18th October - 1st November 2008

BATS Theatre

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www.hackman.co.nz

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Photo : NASA

WELCOME TO APOLLO 13 MISSION CONTROL

Feel free to use this schools pack however you like. It contains information and exercises that can be used as an introduction or a follow up to the Apollo 13 experience. I have included background material, such as the history of the Apollo program, as well as information about this production, including interviews with the creative team.

Mark Westerby
Producer



THE WONDERFUL WORLD OF HACKMAN

Hackman was formed in 2002 by three likeminded but diversely skilled gentlemen. Working together they produce products, productions and community events that everyone can enjoy. The aim of Hackman's theatrical productions is to create exciting, interactive experiences that engage an audience's imagination and passion. Too much theatre we see is like watching television. It's safe, passive and doesn't make you think. To us, theatre should be like no other experience possible. It can remind us of who we are, show us our differences, encourage us to question, force us to confront issues and we can do all this - live!



Photo : NASA

THE STORY

"Houston, we've had a problem."

It had been less than a year since man first walked on the Moon, but as far as the American public was concerned, Apollo 13 was just another "routine" space flight, until these words pierced the immense void of space.

Apollo 13 was the third manned lunar-landing mission, part of Project Apollo run by NASA in the United States. The crew members were Commander James A. Lovell, Command Module pilot John L. "Jack" Swigert, and Lunar Module pilot Fred W. Haise. It launched on April 11, 1970 at 13:13. Two days after the launch, the Apollo spacecraft was crippled by an explosion, caused by a fault in an oxygen tank. The explosion damaged

the Service Module, resulting in a loss of oxygen and electrical power. The crew used the Lunar Module as a "lifeboat" in space. The command module remained fully functional on its internal batteries, but they were needed for re-entry and landing so it was shut down shortly after the accident. Despite great hardship caused by severe constraints on power, cabin heat, and potable water, the crew successfully returned to Earth. The mission was thus called a "Successful Failure".

Apollo 13 is a story about survival and heroes. It reminds us that heroes aren't mythical characters blessed with special powers but rather everyday people unwilling and determined to never give up, even against the greatest odds.

THE EXPERIENCE

We decided to tell the Apollo 13 story from the point of view of mission control because we wanted everyone to feel the excitement of a high stakes moon mission.

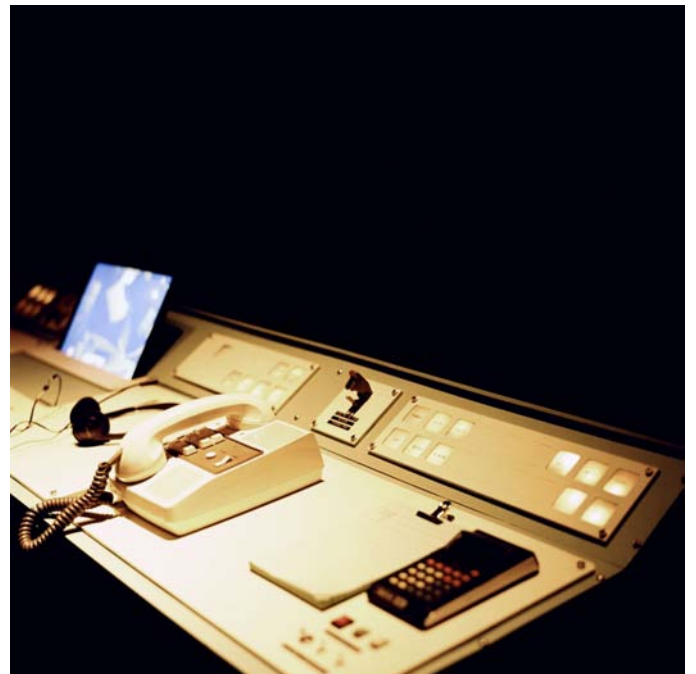
BATS theatre will be transformed into a detailed replica of the 1970 American space administration's control room in Houston, Texas complete with computer consoles, working telephones, large data screens and coffee machines. Each audience member, seated behind their own console, will be given the chance to interact with the Astronauts, members of the staff and each other.

Audience members will be part of the launch of the monster Saturn V rocket and will be responsible for working out the best way for the Command Module to return home. Volunteers will help build the CO2 filter to keep the astronauts alive and everyone will have a say in the vital power up procedure before re-entry. This is a show where the audience is in control as three men fight for their lives 200,000 miles above earth.

The audience's experience begins as soon as they walk into the foyer, where they will see a scale model of the Space Command Module (SCM). They will be encouraged to look through the plexiglass door and watch as the three astronauts beginning their pre launch checks.

The Audience will receive ID tags and be welcomed into Mission Control where NASA staff will show them to their personal consoles. Throughout the performance, the audience will be able to observe the astronauts in the SCM through monitors and headsets at their consoles. They will be asked to interact with their consoles by pushing lights, operating the phones, flicking switches, using the calculators and making notes. They will also be encouraged to talk with one another, search through folders and volunteer for tasks set by the staff.

By the end of the story, when the Astronauts return home safely, the audience will feel like they were able to make a difference in the Apollo 13 mission and that have truly been part of the American space administration's finest hour.



THE CONSOLES

One of the major features of the play will be the creation of the mission control consoles for all the audience members. Based on the ones used by the space administration's staff, the consoles will transport each audience member to Houston, Texas, 1970. Each console will have different functions giving everyone an entirely individual experience. All consoles will have headsets which will link them to the three astronauts in the Space Command Module situated in the foyer. Others will have working phones, notepads, video screens, usable switches and lights.

Brad (our designer) studied images from Mission Control to develop our own versions of the consoles that are easy to build, store and transport. As we plan to tour the show in the future, the consoles also need to be able to fit in different combinations. For this, Brad has created a two-seater and three-seater version, with individual panels that can be inserted. Also, as we don't have the budget that the real space administration does, they also need to be cheap.

The consoles are made out of everyday materials. The shell of the console and supports are made of MDF and hardboard that have been painted to give the appearance of steel. The lights are a combination of small circuits available at any electronic store as well as hundreds of fairy lights. Most of the switches, fan covers, phones, handles, microphones and monitors were bought at a computer recycling store and were salvaged from old 1960's computers. The pads, calculators, clips, pens and folders have been accumulated from numerous trips to second hand stores.





Photo : NASA

WHY SPACE?

I have been fascinated by space since I was a child; it satisfies my sense of curiosity. I am certainly not the first person to have questions about what is beyond the horizon – further than the human eye can see. It was curiosity that drew our ancestors out of Africa and curiosity that put Kupe on a waka to New Zealand. It was that same curiosity that taught us what was at the centre of the Amazon and what the world looks like at the top of Mount Everest. However, it is because of our sense of curiosity we have done all these things, we are no longer curious about them, the questions have been answered.

Space is the one last great frontier left, so big there is no way we could ever satisfy our curiosity. We are one planet orbiting one star of 100 billion in our galaxy. There are an equal number of galaxies in a universe so big we can't see the other side. There is much to explore and we have only just started. In the last fifty years people strapped to rockets bound for space have left the Earth's atmosphere, over 450 in all. Of those 450 people only 26 have seen Earth for what it truly is, a tiny blue sphere floating in the vacuum of space. Those 26 men are the only humans to journey beyond the Earth's gravity and they did it aboard a machine so complex it took more than 400,000 people to build and launch it. Their bravery, composure and trust in the people around them easily puts them in the same category as the great explorers like Cook, Columbus and Hillary. These are the people who inspire those who follow, driving their curiosity and the desire to push boundaries. I believe Apollo 13 is one of the great stories, with adventure, survival, technology and teamwork, and I am excited to be bringing it to New Zealand.

Brad Knewstubb, co-creator.

SPACE RACE TIMELINE

October 4, 1957 - Sputnik 1, the first man-made object to orbit the Earth, is launched by the U.S.S.R, it remains in orbit until January 4, 1958.

November 3, 1957 - Sputnik 2, carrying the dog Laika for 7 days in orbit, is launched by the U.S.S.R, it remains in orbit until April 13, 1958.

October 1, 1958 - N.A.S.A. is founded, taking over the existing National Advisory Committee on Aeronautics.

April 12, 1961 - Vostok 1 is launched by the U.S.S.R, carrying Cosmonaut Yuri A. Gagarin, the first man in space. He orbits the Earth once.



Photo : NASA



Photo : NASA

May 5, 1961 - Mercury Freedom 7 carries Alan B. Shepard, Jr, the first U.S. Astronaut into space, in a suborbital flight.

February 20, 1962 - Mercury Friendship 7 lifts off with John H. Glenn, Jr, the first American in orbit, and orbits the Earth three times.

June 16, 1963 - Vostok 6 carries Soviet Cosmonaut Valentina Tereshkova, the first woman in space and orbits the Earth 48 times.

March 18, 1965 - The first space walk is made from Soviet Voskhod 2 by Cosmonaut Alexei A. Leonov. Duration is 12 minutes.

March 23, 1965 - First manned flight of the Gemini program, Gemini 3 carrying Virgil I. Grissom and John W. Young. It makes three orbits around the earth.

June 3, 1965 - Edward White II makes the first U.S. space walk from Gemini 4. Duration is 22 minutes.

December 4, 1965 - Gemini 7 is launched carrying Frank Borman and James A. Lovell, Jr, making 206 orbits around the Earth and proving a trip to the Moon is possible.

December 15, 1965 - American astronauts Walter Schirra, Jr. and Thomas Stafford in Gemini 6 make the first space rendezvous with Gemini 7.

December 21, 1968 - Apollo 8 is launched with Frank Borman, James A. Lovell, Jr. and William A. Anders, the first Apollo to use the Saturn V rocket, and the first manned spacecraft to orbit the Moon, making 10 orbits on its 6-day mission.

July 20, 1969 - Neil Armstrong and Edwin Aldrin, Jr. make the first manned soft landing on the Moon, and the first moonwalk, using Apollo 11.

April 11, 1970 - Apollo 13 is launched, suffering an explosion in its oxygen tanks. Its Moon landing is aborted, and the crew, James A. Lovell, Jr, John L. Swigert, Jr. and Fred W. Haise, Jr, return safely.



Photo : NASA

THE SATURN V ROCKET

The Saturn V (pronounced 'Saturn Five', popularly known as the 'Moon Rocket' was a multistage liquid-fuel expendable rocket used by NASA's Apollo program between 1967 and 1973. NASA launched thirteen Saturn V rockets between 1967 and 1973. It remains the most powerful launch vehicle ever brought to operational status, from a height, weight and payload standpoint.

The "V" designation originates from the five powerful F-1 engines that powered the first stage of the rocket. The Saturn V remains the largest and most powerful U.S. expendable launch vehicle ever built. The Apollo spacecraft, including the Command Module (CM), Service Module (SM) and Lunar Module (LM) sat atop the launch vehicle. Above the CM was the emergency escape system.

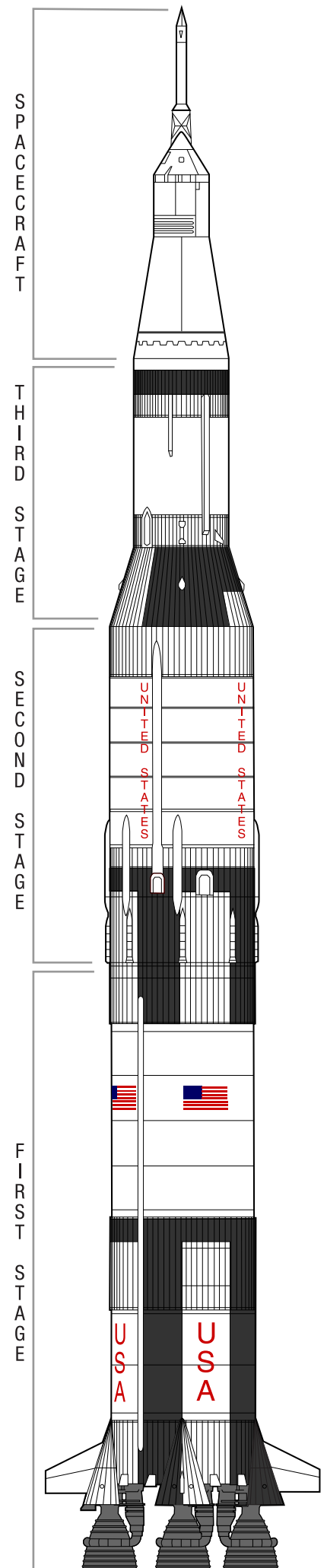
The complete assembly including the Apollo spacecraft and the Saturn launch vehicle stood 363 feet tall (110.6 meters) and weighed over 6 million pounds (2.7 million kg).

The Saturn V launch vehicle itself consisted of three stages:

First Stage (S-IC): The first stage includes the five F-1 engines producing nearly 7.7 million pounds of thrust. These powerful engines are required to lift the heavy rocket fast enough to escape Earth's gravity. The first stage engines are burned at liftoff and last for about 2.5 minutes taking the vehicle and payload to an altitude of 38 miles. The first stage then separates and burns up in the Earth's atmosphere.

Second Stage (S-II): The second stage contains five J-2 engines. After the first stage is discarded, the second stage burns for approximately 6 minutes taking the vehicle and payload to 115 miles altitude. The second stage is then also discarded.

Third Stage (S-IVB): The third stage contains one J-2 engine. This engine burns for 2.75 minutes boosting the spacecraft to orbital velocity of about 17,500 mph. The third stage is shut down with fuel remaining and remains attached the spacecraft in Earth orbit. The J-2 engine is reignited to propel the spacecraft into translunar trajectory (speed of 24,500 mph) before finally being discarded.



MERCURY, GEMINI, AND APOLLO PROGRAMS

Mercury, Gemini and Apollo were the first three programs that NASA launched to explore space. Each mission within each program had specific objectives that were designed to take them closer to their goal of putting a man on the moon.



MERCURY (1958-1963)

The goals of the first human spaceflight program, Mercury, begun in 1958, were to:

- Place a manned spacecraft in orbital flight around the Earth.
- Investigate a human's performance capabilities and our ability to function in the environment of space.
- Recover the crew and the spacecraft safely.

Ten manned spaceflights were accomplished as part of the 25-flight Mercury program. The Mercury program proved that a person could function as a pilot, an engineer, and an experimenter without adverse reactions or deteriorations of normal body functions for periods up to 34 hours of weightless flight.



GEMINI (1962-1966)

The second U.S. crewed space program was announced in January 1962. This program involved 12 flights, including two uncrewed flight tests of the equipment. The goals of the Gemini program were to:

- Subject humans and equipment to spaceflight up to 2 weeks, duration.
- Rendezvous and dock with orbiting vehicles and manoeuvre the docked combination by using the target vehicle's propulsion system.
- Perfect methods of entering the atmosphere and landing at a preselected point on land.

The Gemini Program was conceived after NASA officials determined that an intermediate step was needed between Project Mercury and the Apollo Program. Its goals were also met, with the exception of a controlled landing that was cancelled in 1964.



APOLLO (1960-1972)

The goal of the Apollo program was simple. Get a man on the moon. Apart from the National pride associated with such a goal there were other objectives for the program:

- Establish the technology required to meet other national interests in space.
- Achieve preeminence in space for the United States .
- Carry out a program of scientific exploration of the Moon.
- Develop the human capability to work in the lunar environment.

The Apollo Program, was begun in 1962, flew human missions beginning in 1968. The first landing on the Moon occurred in 1969; and seven flights flew to the Moon between 1969 and 1972, accomplishing six successful landings.

INSIGNIA

The Apollo 13 logo featured three flying horses of Apollo's chariot across space and the number of the mission in Roman numerals, XIII. Commander Jim Lovell borrowed his old Navy Motto, *Ex Tridens scientia* (From the Sea, Knowledge) and changed it slightly to “*Ex luna, scientia*” (From the Moon, Knowledge.) It is one of two Apollo insignias not to include the names of the crew, which was fortunate, considering that Ken Mattingly, one of the original crew members, was replaced not long before the mission began due to measles. It was designed by artist Lumen Winter, who based it on a mural he had done for the St. Regis Hotel in New York.



13 – AN UNLUCKY NUMBER?

“Bringing one of humanity’s greatest scientific endeavours eyeball to eyeball with one of its most enduring superstitions had an irresistible appeal, and most people applauded the hubris, the c’mon-I-dare-you arrogance, of flying the mission anyway, and even embroidering a big, loud ‘XIII’ on the patches of the suits the astronauts would be wearing throughout the flight. During the weeks before the launch, the public went on a sort of 13 scavenger hunt, looking for

numerological omens portending disaster for the mission. The flight was scheduled to begin on April 11, 1970, or 4/11/70 – add a four, two ones, a seven and a zero, and you get 13. Liftoff was planned for 1:13 Houston time, which, if that wasn’t bad enough, is 13:13 military time. If the launch took place on schedule, the ship would pass into the moon’s gravitational field on April 13.” - An excerpt from “Lost Moon” by Jim Lovell and Jeffery Kluger.

Because of copyright issues our production of Apollo 13 is not allowed to feature the original mission insignia, NASA name or logo. We took this as an opportunity to develop our own logos and Brad has designed them to have a slightly New Zealand feel.

QUESTION

The mission insignia clearly shows an outline of New Zealand. What is the New Zealand reference on the HASA logo.



TASK

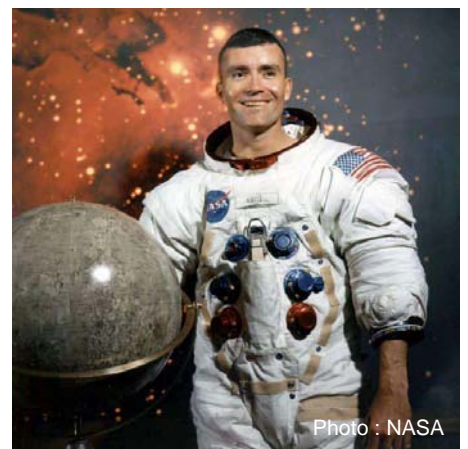
Each part of the mission insignia is carefully chosen. Colours, names, quotes and characters all combine to create an eye catching symbol for each extraordinary mission. Create your own insignia for the Apollo 13 mission.

THE REAL PEOPLE...

James "Jim" Arthur Lovell, Jr. (born: 1928) was the commander of the Apollo 13 mission. After leaving college, he joined the United States Naval Academy and, after graduating in 1952, entered the United States Navy where he served in the Korean War. He spent four years as a test pilot at the Naval Air Test Center, using the call sign "Shaky". Lovell was considered for the Mercury Seven programme but was turned down due to a medical technicality, later deemed irrelevant. He was then selected in 1962 for the second group of NASA astronauts. Lovell was the command module pilot of Apollo 8, the first Apollo mission to enter lunar orbit. Lovell is a recipient of the Congressional Space Medal of Honour and the Presidential Medal of Freedom. He is one of only 24 men to have flown to the Moon.



Fred Wallace Haise, Jr. (born: 1933) was the lunar module pilot of the Apollo 13 mission. He completed Naval flight training in 1954 and served as a United States Marine Corps fighter pilot. His NASA career began as an Aeronautical Research Pilot at the Lewis Research Center in 1959. Further assignments were held as a Research Pilot at NASA's Dryden Flight Research Center in 1963 and as an astronaut at the Johnson Space Center in 1966. He served on the back-up crew for the Apollo 8, Apollo 11, and Apollo 16 moon missions. He was also scheduled as commander for the cancelled Apollo 19 mission. In 1995, Haise was inducted into the Aerospace Walk of Honour.



Gene Kranz (Born: 1933) was the lead flight director during the Apollo 13 Mission. His early fascination with flight was apparent in the topic of his high school thesis, entitled "The Design and Possibilities of the Interplanetary Rocket." Kranz graduated from Parks College of Saint Louis University in 1954, and received his commission as a Second Lieutenant in the U.S. Air Force Reserve, completing pilot training at Lackland Air Force Base in Texas in 1955. Kranz was sent to South Korea to fly the F-86 Sabre aircraft. He began his work at NASA in 1962, working on the Mercury and Gemini programs. He was the Flight Director for Apollo 11, during the moment when the Lunar Module 'Eagle' landed on the Moon on July 20, 1969. He is also famous for wearing waistcoats of different styles and materials during missions for which he acted as flight director.



WRITING A INSPIRING SPEECH...

Throughout history men and women have used speeches to inspire people to greater things. Whether it is on the battleground, classroom or sportsfield, these speeches remind us of our true potential and determine us to stand for nothing but our best. It was President John F Kennedy's speech that inspired America to get a man on the moon and Martin Luther King's speech that challenged us to live together. Barack Obama is currently using his skill as an inspirational speaker to motivate people to vote for him in this year's presidential election. When all seemed lost during the Apollo 13 mission, it was up to flight director, Gene Kranz, to inspire his staff to work harder than they had ever done before. It was a moment where his passion and hope had to be conveyed through words and conviction.



Famous quotes from speeches.

"I have a dream. I have a dream that my four children will one day live in a nation where they will not be judged by the colour of their skin but by the content of their character." *Martin Luther King*

"Ask not what this country can do for you. Ask what you can do for your country." *JFK*

"It is not the mountain we conquer but ourselves" *Edmund Hillary*

"Women's rights are human rights." *Hillary Clinton*

TASK

Inspiring speeches are an extraordinary way to bring people together. Write your own speech and try delivering it to your classmates.

Ideas for speeches

Your team is losing at halftime and it is up to you to inspire them to win.
You are about to march against some injustice and you need to rally the crowd.
A friend is lost and you must encourage all your exhausted companions to keep looking.
You need to defend to your parents your absolute need to sleep in everyday.

Tips for writing an inspiring speech.

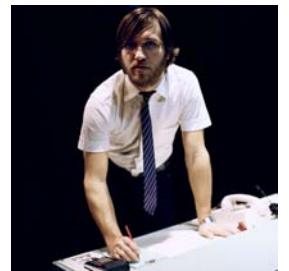
Use short sentences.
Ask rhetorical questions and answer those questions strongly.
Use emotive language. Search in a thesaurus for the words that conjures up the strongest feelings.
Use small stories or anecdotes to highlight a point.
Use alliteration to create a rhythm in your speech.
Build to a climax in your speech. This should be where your main point is made.
Believe in what you are saying.

THE APOLLO 13 TEAM

Mark Westerby is responsible for the marketing and production of Apollo 13. He will liaise with sponsors to create targeted campaigns to audience members as well as ensuring all elements of the show happen on time. Mark graduated with a Bachelor of Communication Studies (Theatre Major) in 2001 from University of Waikato. He is Director of Fringe New Zealand, responsible for the NZ Fringe Festival each year and also produces the Six O'clock Swill for the Mighty Mighty. He will also play a member of the staff for the Apollo 13 mission.



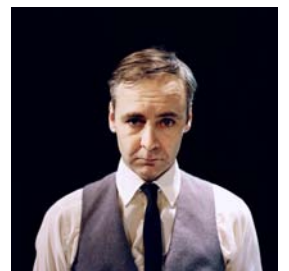
Brad Knewstubb has designed the world of Mission Control and has created all the technical elements for the show. Brad graduated from Victoria University in 2006 with a degree in industrial design (first class honours). In 2007, his design for a portable wind turbine was awarded an international Red Dot prize as well as a silver medal in the New Zealand Design Institute's Best Awards. He is the inventor of the Guinea Pig Loudspeaker for ipods, as well as designing all of Hackman's productions. He will play a staff member in the Apollo 13 mission.



Kip Chapman has adapted the story of Apollo 13 to focus on the people who work at Mission Control and to allow the audience to become part of the mission. Kip studied acting at UNITEC's School of Performing and Screen Arts, graduating in 2002. As an actor, Kip, has worked for most theatre companies in the country as well as appearing on Shortland Street and other television shows. He will play a staff member of the Apollo 13 mission.



Jason Whyte will play the lead role of Gene Kranz, the flight director at Mission Control. Throughout the mission he will lead his team and the audience through the up's and down's of this thrilling story. Jason has worked in theatre and film for over 20 years, including work with Trouble Theatre Company, Circa and Bats, as well Peter Jackson's King Kong.



Michael Whalley and **Rachel Forman** will play the astronauts trapped in their space command module thousands of miles above earth. Michael and Rachel will interact with the NASA staff, the audience members through video cameras and monitors as well as improvising with their guest astronaut each night. Both Michael and Rachel trained as actors at Toi Whakaari – The New Zealand Drama School. They have both won Chapman Tripp Theatre awards for their work in Wellington.



HACKMAN IS...

James Milne – Musician aka Lawrence Arabia, The Reduction Agents. Writer and Cricketer.

Kip Chapman – Actor and Writer. Embroider and Baker.

Brad Knewstubb – Award winning Industrial Designer. Inventor and Space Enthusiast.



The Volcano! - Wellington Christmas Parade 2008.

We are currently working with Wellington City Council on creating a new float for this year's Christmas Parade. On the back on a truck we will build a huge, brown volcano. Using a fog machine, we will pump smoke out of the crater rim and pour dry ice down the sides creating the magical image of an erupting volcano. We will also have two dancers, dressed in red, dancing in the crater performing the choreographed dance piece, entitled 'Fire and Lava.'

The Guinea Pig Loudspeaker – A vintage, powerless, ipod speaker.

We invented this speaker because we were sick of the power sucking big rigs currently available on the market. We wanted to create a speaker that ran off the power of the ipod and looked awesome. Our first batch of speakers sold out and were featured in Home & Entertaining Magazine as well as being included in the Butterfly Net collection.

The Mount Albert Beautification Society – The Annual Letterbox of the Year Competition

In 2005 we created the group called The Mount Albert Beautification Society and used it to run events in the Auckland suburb. Our letterbox competition ran over two years and was sponsored by local businesses and featured in community newspapers. The winners still proudly display the brass plaques they were awarded on their letterboxes.

Arohaotearoa (Love New Zealand) – The Lo-Fi Spectacular with Lawrence Arabia!

Arohaotearoa explored being an ordinary New Zealander caught up in the extraordinary history of New Zealand. Based on the Hackman collection of 1960's New Zealand slides the sketch comedy has been performed over 60 times in Auckland, Wellington, Christchurch, Akaroa, Hastings and the Nelson Region.

In development....

The Man with the Pickle Face A site specific theatre play where we will turn a Toyota Hiace into a working Ambulance and a patio in a scale model of Port Nicholson.

Advance in Order – The Auckland City Council from Centenary to Reorganisation 1971 – 1989 A dramatic dramatisation of Graham Bush's epic work on the Auckland City Council.

PUTTING ON A SHOW...

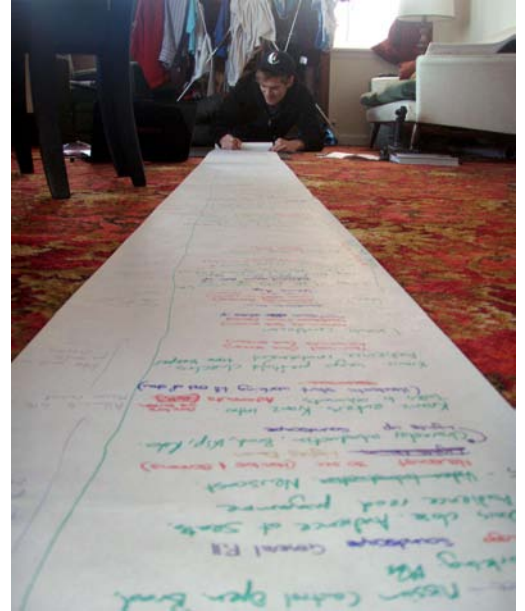
Putting on show like Apollo 13 requires months of planning and teamwork. As well as the creative side of the show the production side has to be planned with military precision.

The creative side....

Apollo 13 is part written, part devised and part improvised.

The written elements will introduce characters, highlight important plot points and include rousing speeches. This will create a solid and dependable structure for the devised and improvised elements.

Devising is where the script is developed in collaboration with the performers. As an example, Kip will work with the Astronauts in creating a script for their part of the Apollo 13 story. Before working with them he will have developed a rough timeline of their story, important plot points that must be included, moments where they interact with mission control and some key dialogue. They will then work together by improvising scenes, discussing structure and exploring their character's personalities. The result will be complex, interesting characters that the actors will feel a real connection with.



Because the audience become members of Mission Control, with dialogue to speak and problems to solve, there will be a huge amount of improvisation. Improvisation means performing spontaneously, often using what the audience is suggesting. During the rehearsal period our actors will exercise their improvisational skills such as listening, confidence, and performing instinctively. They will also develop game plans (like in sport) to be ready for anything the audience may suggest.

Creation. Planning! Planning! Planning!



To fully immerse our audience in the world of Apollo 13 we realised we would need a large and detailed set. Brad then set about creating design plans for mission control and the space command module. From these models were built to so that we could all see the idea in real form and discuss ways to use it and problems that may occur. After approving the design, prototypes were made of a number of the complex parts of the set such as the console and the Astronauts helmets. By making these prototypes we have worked out the most efficient ways to build, store and assemble the set.

Apollo 13 requires a huge and complex set that takes a long time to build. By having a detailed and thought out timeline, elements can be made and stored months ahead of the planned production. Sometimes it seems a little strange to be creating stationary or collecting switches so early but it is valuable to have as much done as early on as possible.

Producing

To get people to come to our show we have had to develop a marketing and publicity campaign that will inspire and excite the public. There are many ways to do this but firstly you must work out what your show is about and who would want to see it?

The target audience's for Apollo 13 are:

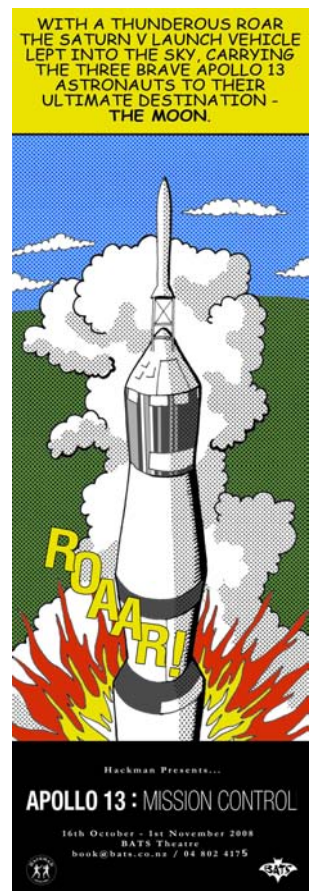
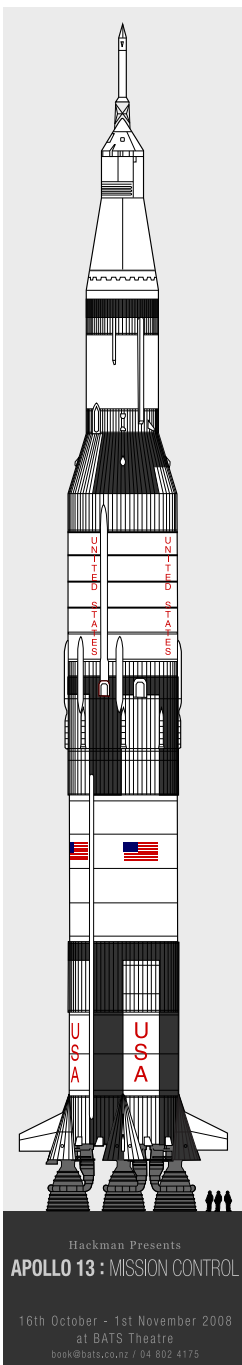
1. *The traditional theatre going public*
2. *Space / science enthusiasts*
3. *18-35 y/o adventure-seeking types*
4. *School groups*

Given we are faithfully recreating an historical event, this production is great for school groups. As well as being an experience in history, it also builds social interaction, problem solving and leadership skills.

As well as advertising in newspapers, radio and magazines we plan to launch a poster campaign intended to capture the mystery, excitement and the scale of the Apollo 13 mission and spaceflight in general.

Large Saturn V rockets (over 2m tall) will dominate the urban Wellington landscape, posted on bollards around the city.

The A2 posters have a playful, comic book aesthetic intended to stir the imagination and create a sense of the unreal, the fantasy and the science fiction elements of space travel. They are based on paintings by Roy Lichtenstein, the famous pop artist of the 1960's.



BRAD KNEWSTUBB

Co-creator of Apollo 13 and designer of Mission Control

How did you get into theatre designing?

At high school I was involved in the theatre department, working as a stage manager and technician on a few productions and I was also interested in media studies. I began working as a graphic designer but was interested in more tactile design - I wanted to make stuff people could use. This led me to studying Industrial Design at Victoria University. I have a lot of friends who are involved in the arts and they are always doing interesting projects so I started thinking about ways that I could do something with them.



Why the Apollo 13 story?

space so a highlight was going to the Kennedy Space Centre. On a tour we visited a room which was a replica the mission control room for the Apollo 8 mission. We started discussing the great stories and sets involved with space and we thought how well they could be transferred to the stage. The entire idea was born on a ten minute bus trip at the space centre. We also thought that because the sets are so cool we didn't want to limit the experience to just the actors; we wanted the audience to have a chance to play with them and experience what it was like working at mission control.

What have you learnt so far about putting on a production?

Sticking to a budget is probably the hardest thing. I have never worked with a budget for design. Your imagination is always a lot larger than the budget so you have to find ways to make your idea affordable without compromising your vision.

A lot of the skills I learnt at high school and university have been really important in the development of this project, such as designing, focussing on the essence of your concept and planning.

What do you want the audience's experience to be for Apollo 13

I hope that we will provide an environment where the audience can suspend their disbelief and transport themselves to another world. I hope the experience makes people realise that it takes a whole team with different skills to create, run and fully complete any type of project – whether that's getting a man on the moon or putting on a show like this. It's an incredibly exciting story and if we are able to provide an experience for our audience that matches that excitement then I'll feel like I've succeeded.

JASON WHYTE

Actor. Playing the role of Flight Director, Gene Kranz

How important is research to you as an actor?

Very. I feel I need to read as much material about the subject that I can get my hands on. I need to know the character inside out and the world of the play. I got handed a lot of research material when I was cast, which I have been trawling through. The show is quite scientific and technical so there is a lot of jargon to learn and memorise. Research helps me get into Kranz's head and the world of mission control.

What does Kranz's job as Mission Control Flight Director entail?

Well, I've learnt that Kranz need to know a little about everyone's jobs. It's his responsibility to get them up to the moon, on the moon and back. It's also his responsibility to call it quits if that can't happen at any stage. He has to look out for the lives of the astronauts. He has to be in charge when things are going well and he needs to be in charge when things are going badly.

In your opinion, what are the qualities of a leader?

I think leaders must be unflappable, centred and able to hide their emotions. Showing a mission control room fear, in a life and death situation, may mean the staff will not be able to do their job as well. It is about keeping people calm. A leader also has to motivate people past a point that they thought they couldn't achieve. With the right prompting and motivation people can do anything - solve problems they thought were too hard. In my opinion a good leader is generous enough to share the praise for something that has gone well and humble enough to take full responsibility when something goes badly.

With so much improvisation in the show anything could happen. How do you prepare?

Over the rehearsal period I will learn strategies to deal with a tough (shy or rowdy) audience as well as watching some improvisation. I suppose it is about getting used to being relaxed in front of a group of people. It's also about getting into the personality of Kranz and into the zone of mission control. When you are in the zone you don't have to answer the questions from the crowd, you can let your character do it..



KIP CHAPMAN

Co-creator of *Apollo 13*. Responsible for adapting the story.

What drew you to the story of Apollo 13?

To be honest, I was never really been interested in space. It just didn't catch my attention. But when I was in the United States last year, Brad taught me a lot about astronomy and told me about the history of space exploration. What grabbed me was the courage and determination of the astronauts - willing to lay down their lives in the pursuit of science. I always enjoyed stories about heroes and it really seems to me that astronauts fit the mould of a hero.

How did you go about adapting the story?

Luckily, there is a huge amount of material available about the space race and the Apollo 13 story. The day we came up with the idea we watched the Apollo 13 movie starring Tom Hanks – but I have been careful not to watch that again as I don't want to steal their ideas. Jim Lovell (the commander of the mission) wrote a book which has been invaluable. We also have around five documentaries about Apollo 13. NASA has been extremely good about recording everything they have done so I have also been able to read a 930 page transcript of everything that was said during the mission – it took a while but was really worth it.

Have you created this kind of play before?

Yes. This is the third play I worked on. I used to write with a friend, James Milne, but he is overseas so I am battling away on my own this time. However, the piece does have a lot of devising in it so I will be able to meet with the actors to discuss and include ideas that they have. This is the second piece that I have written which has been adapted. Adapting a story for the stage means you already know the major plot points which gives you a really good structure to play with.

You're an actor as well as a writer. Is your writing improved by this?

Absolutely. As an actor I am used to saying other people's words and have learnt what feels natural to say and what feels clunky. I can draw this knowledge into my writing. Actors also like to work with scripts that are as dramatic as possible so I am constantly reminding myself to make sure I am squeezing all the drama out of the story. Since we are asking the audience to be heavily involved in the project I also have to keep an eye on how they can be used and what (as a shy audience member) I would be comfortable doing or saying. As an actor I am keen to do pretty much anything but I realise that other people aren't, so a balance has to be achieved.



GUEST ASTRONAUT

Two days before the real Apollo 13 mission Ken Mattingly had to be replaced by Jack Swigert because he had been exposed to the measles. Mattingly never ended up getting the measles but the risk of an astronaut getting sick 200,000 miles from earth was too great a risk for the space administration's staff. We decided it would be fun to offer people the chance to become an astronaut so each performance of Apollo 13 will feature a guest astronaut who will work with the two actors playing commander Jim Lovell and Lunar module pilot Fred Haise.

We are looking for a guest astronaut to fill the role Ken Mattingly for your performance of Apollo 13. The successful applicant will spend the performance in the space command module in the foyer of the theatre. They will work with the two other trained astronauts and they will be personally responsible for docking the command module, stirring the oxygen tanks and delivering the famous line, "Houston, we've had a problem."

Because of the module's size the applicants must be comfortable in small spaces for long periods of time and must be under 5' 10"

Applicants must be a specialist in some field and complete the application form correctly.





HACKMAN AERONAUTICAL AND SPACE ADMINISTRATION GUEST ASTRONAUT APPLICATION FORM



Name _____

Call sign (your code name) _____

Age _____

Height _____

Specialist (please choose one of the following)

Math Science Geography Art History Sport Drama English Music Fashion

Are you comfortable in a small spaces yes no

Do you have any current medical conditions? _____

Please complete ONE of the following in the space provided below:

- a) I want to go to the moon because...
- b) Space themed art/design
- c) The large fuel tank has a steadily flowing intake and 10 outlet valves, the latter being all of the same size. With 10 outlets open, it takes two and one half hours to empty the tank; with 6 outlets open it takes five and one half hours to empty the tank. After the tank is empty and with all 10 outlets closed, how long will it take to fill the tank?

Completed application forms must be handed to your teacher for processing.