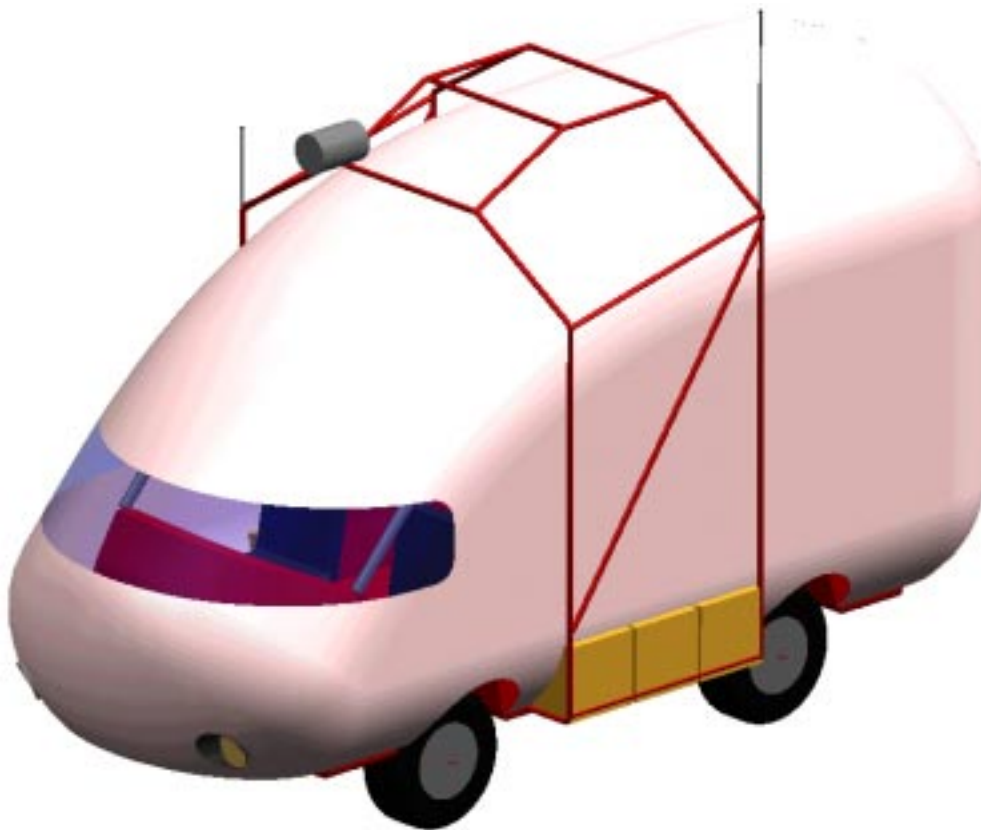




# **Project Marsupial**

## **Human Operations Prototype**

### **Press Kit**



**a project of**  
**The Mars Society Australia**

## PRESS RELEASE

### AUSTRALIAN TEAM AWARDED MARS ROVER PROJECT FUNDING

DATE: Wednesday, 1 November 2000

The Mars Society Australia will receive a grant of US\$10,000 (AU\$19,000) to begin construction on a prototype vehicle, part of an international effort to put humans on the planet Mars.

The prototype, designed by a team based at the University of Queensland, is known as the 'HOP' (Human Operations Prototype), and will allow researchers to undertake weeklong excursions in Australian Mars-like locations.

The grant, announced recently by the Mars Society International, means that the Mars Society Australia joins two other university-based recipients of the vehicle development grants, teams at MIT/University of Toronto and the University of Michigan. The grants will be awarded in two US\$5,000 instalments.

Australia has many locations within its central deserts that bear close resemblance to Mars. The HOP will assist researchers in exploring these regions whilst simultaneously providing human operations data for planning actual Mars surface missions.

"The Mars Society Australia's technical programme is focused on providing opportunities for Australians to play a greater role in international space activity. We are demonstrating concrete ways in which we can make a valued contribution," said Mars Society Australia Technical Coordinator, Jason Hoogland.

Professor Malcolm Walter, an astrobiologist at Macquarie University in Sydney, said, "For many years, Australia has been recognised as having sites useful as analogues to places on Mars. In our deserts, salt lakes and ancient hot springs we have sites analogous to planned exploration sites on Mars."

"One of these occurs in the northern Flinders Ranges in South Australia, where a 300 million-year-old hot spring system is being studied. Such sites are being targeted because it is considered that ancient hot springs on Mars are one of the best exploration targets in the search for life." Dr Walters said.

Mars Society Australia President Guy Murphy said, "The question, 'Was there or is there life on Mars?' sums up one of the most exciting scientific inquiries of this new century. By involving Australian students, universities and businesses in Mars research we seek to stake a claim in this international endeavour."

The Mars Society Australia is part of an international non-profit organisation formed to promote and support the human exploration of Mars.

The HOP complements the Mars Society International's programme of research in Mars-like locations around the world. The Society's Flashline Mars Arctic Research Station, constructed in July on Devon Island in the Canadian Arctic, received extensive media attention, including coverage by the Discovery Channel.

## THE PROJECT MARSUPIAL HOP

### *FROM THE RED CENTRE TO THE RED PLANET*

The Human Operations Prototype (HOP) is the first stage of Project Marsupial. The goals of Project Marsupial are to design, test and operate a high-fidelity rover for an actual human Mars mission, based on the experience gained from the HOP.

Activities at the test sites provide data on how astronauts will use a vehicle in a mission to the Red Planet. The human factors are recognised as the greatest challenges to Mars missions, and the HOP will contribute to meeting these challenges.

For simplicity in design and construction, the HOP will be based on an existing four-wheel drive van, modified to look and feel like a Mars rover. The vehicle will be outfitted to allow two crew to live and work inside it for periods of up to one week.

Construction will take place in four stages (see figures 1-3):

1. Most of the base vehicle's cabin will be removed;
2. Five major support bars will be added for strength;
3. A fibreglass shell will be added, increasing the volume of the vehicle's useable space;
4. Bunks, workstations, air conditioning, power supply, toilet, galley and an analogue airlock will be added, bringing the HOP to operational status.

The following table gives a summary of the vehicle:

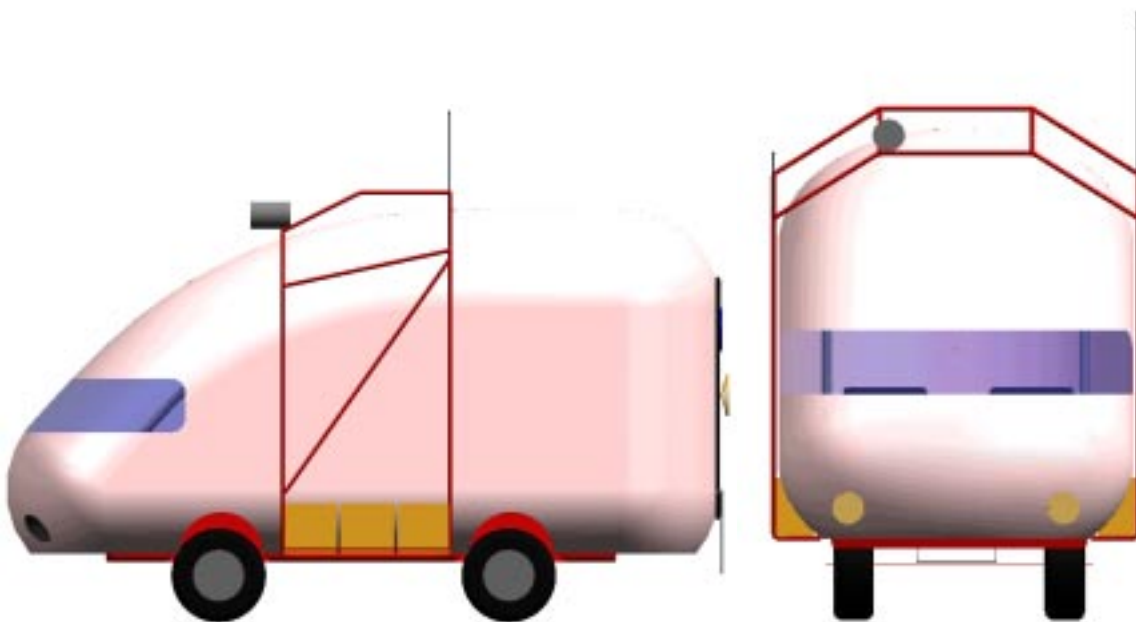
The Project Marsupial HOP	
<b>Length</b>	5.29 m (fig. 8)
<b>Width</b>	2.20 m (fig. 10)
<b>Height</b>	3.08 m (fig. 9)
<b>Vehicle Weight</b>	Approximately 1500 kg 'dry' weight (without fuel, food, etc.)
<b>Engine</b>	Petrol or diesel
<b>Range</b>	320 km one way
<b>Speed</b>	32 kph over easy terrain to 8 kph over difficult terrain
<b>Terrain</b>	Up to standard 4WD terrain
<b>Crew</b>	Two maximum
<b>Mission Duration</b>	Up to 1 week

**FIGURES**

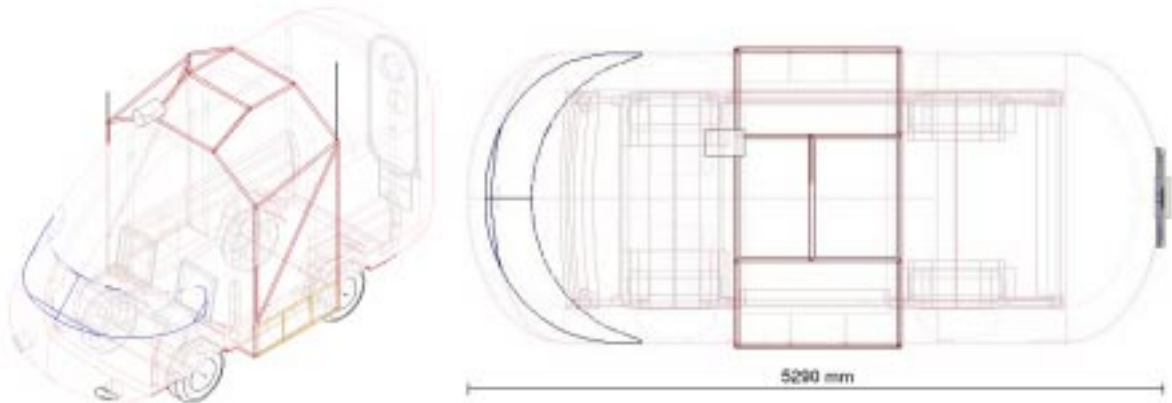
**Figures 1-3. The HOP; from the base vehicle to the final structure.**



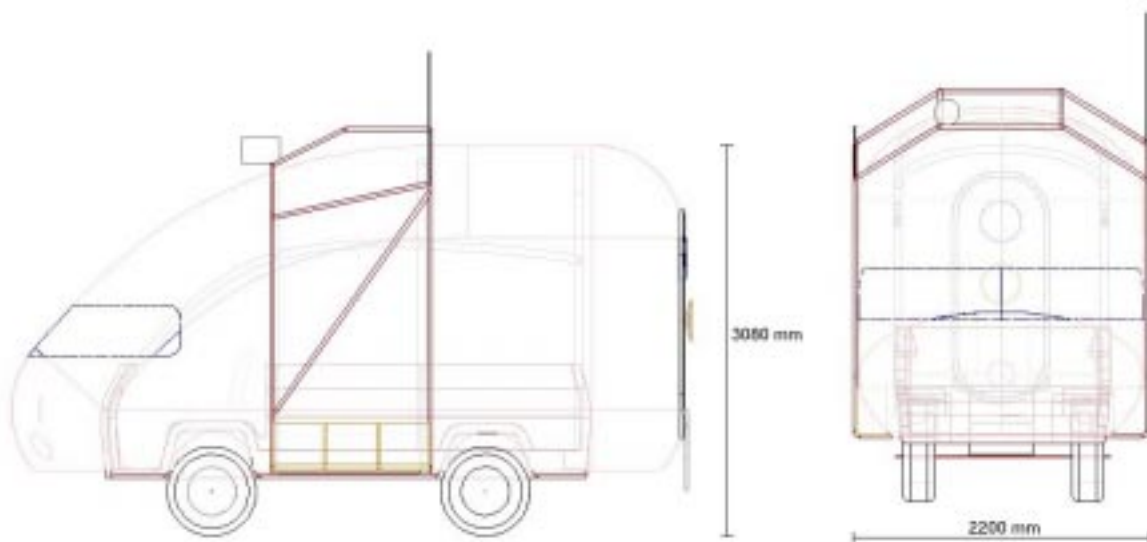
**Figure 4. A rear view of the HOP. The vehicle will include a simulated airlock.**



**Figures 5-6. Side and top views of the HOP.**



**Figures 7-8. Wireframe views of the HOP, showing the base vehicle under the shell.**



**Figures 9-10. Side and top wireframe views, with dimensions.**

## REFERENCES

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*Copies of 3D drawings used in this document:*

[http://www.mech.uq.edu.au/aluminate/msa\\_tech/hop.htm](http://www.mech.uq.edu.au/aluminate/msa_tech/hop.htm)

*Other links:*

The Mars Society Australia – <http://www.marssociety.org.au/>  
The Mars Society International – <http://www.marssociety.org/>