

BOC Group Press Release

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BOC gives 'lift and life' to QinetiQ 1

UK's attempt to beat world altitude record for a manned balloon

BOC, the leading global gases company, is to support this summer's QinetiQ 1 attempt to beat the world altitude record for a manned balloon. As an associate sponsor and official supplier to QinetiQ 1, BOC Gases will provide high purity gaseous helium to fill the balloon and high purity breathing oxygen for the pilots - providing 'lift and life' to the mission.

The two British pilots, Andy Elson and Colin Prescott will attempt to break the world altitude record for a manned balloon by ascending to 132,000 feet (25 miles) above the earth. The current altitude record of 113,740 feet, which was set in 1961 by the US, has remained unbroken for over 40 years. This attempt to set a new record for Britain is sponsored by UK science and technology company QinetiQ, formerly the major part of DERA (Defence Evaluation and Research Agency).

The QinetiQ 1 balloon will be the biggest manned balloon in history - seven times higher than Nelson's Column in Trafalgar Square, London, and as tall as the Empire State Building. With a volume of over one million cubic metres, it is 400 times the size of a normal hot air balloon and will take around two hours to inflate.

There is so little air at 100,000 ft (30,000 m) and above, that the balloon needs to be huge to displace enough air to give the balloon lift. It will stop ascending at the height where the mass of the balloon is equal to the mass of the air it displaces. The balloon envelope is being built by the QinetiQ 1 technical team in Glastonbury, and will be made of polyethylene. Andy Elson and his team have designed it to face a hostile environment where temperatures may drop down to -70° Celsius (-94° Fahrenheit).

BOC's helium will be piped into the balloon from several high-pressure bulk tube trailers. The helium will be shipped from the US to the UK in an 11,000-gallon bulk liquid container. Once in the UK the high purity liquid helium will be vaporised and compressed before filling. The gaseous helium tube trailers will then be transported to the launch site. In addition, BOC will supply smaller quantities of helium to enable test flights to take place before the main attempt.

Andy and Colin will sit on an open flight platform throughout the flight, which will set a further record for effectively the longest 'space walk' in history. The QinetiQ 1 pilots will be wearing fully pressurised spacesuits, which will keep the pilots alive by supplying high purity oxygen to breathe and maintaining a pressurised environment, equivalent to that around 35,000 ft.

Without the spacesuits to keep them alive, by supplying high purity oxygen to breathe and maintaining a pressurised environment, the mission would be impossible. At above 40,000 ft (12,192 m) without a pressurised suit, breathing 100% oxygen would no longer be sufficient to support human life, because the partial pressure in the lungs would be so low that the body could not absorb enough oxygen to stay alive. This would lead to hypoxia and ultimately death. At about 63,000 ft (19,202 m), the air pressure is so low that theoretically blood will boil.

BOC will be providing high purity oxygen, of the sort that is also supplied to the Ministry of Defence in the UK. This will be stored in specially designed cylinders on the flight platform.

Tony Isaac, Chief Executive of The BOC Group commented: "This is a very exciting project and we are delighted to be supplying gases to help this attempt. We look forward to a successful outcome in the summer."

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Notes for Editors:

The BOC Group

- Serving two million customers in more than 50 countries, The BOC Group is one of the largest and most global of the world's leading gases companies. It employs some 43,000 people and had annual sales of over £4 billion in 2001.
- For more than a century BOC's gases and expertise have contributed to advances in many industries and aspects of everyday life, including steel-making, refining, chemical processing, environmental protection, wastewater treatment, welding and cutting, food processing and distribution, glass production, electronics and health care.
- Three significant businesses have grown in parallel with BOC's industrial gases activities. BOC Edwards supplies ultra-high purity gases and associated equipment to the semiconductor industry and is also world-famous for its vacuum pumps. Gist is a specialist logistics company operating principally in the UK, serving a number of major customers, including Marks & Spencer. The third is Afrox hospitals in South Africa - the largest supplier of private healthcare in Africa and one of the largest outside the US.

QinetiQ

- QinetiQ, formerly the larger part of DERA (Defence Evaluation and Research Agency) incorporates the bulk of the MoD's non-nuclear research, technology and test and evaluation establishments in its heritage. QinetiQ is one of Europe's largest science and technology solutions providers. Among its staff it employs many leading scientists and internationally acclaimed experts. It offers a unique range of services, consultancy advice and test facilities. These include indoor and outdoor ranges for air, land and sea launched weapon effectiveness trials, wind tunnels, underwater target ranges and marine testing facilities, automotive test tracks and climatic testing laboratories.
- In July 2000 the Government agreed to a programme that would see the bulk of DERA being set up as a Public Private Partnership (PPP). In July 2001, three-quarters of the agency became a wholly government owned plc called QinetiQ (pronounced ki' ne tik as in 'kinetic energy'). In March 2002, the MoD announced that it would be seeking to find a strategic partner to invest in QinetiQ as a stepping stone to an eventual flotation.
- As DERA its pioneering research and development last century included the invention of liquid crystal displays (LCDs), carbon fibre, the technology for flat panel speakers, infra-red sensors and microwave radar, as well as Chobham armour, and shaped charges. DERA combined and inherited the technology and expertise from Government defence research sites throughout the UK.

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