



BLOODHOUND SSC

ENGINEERING ADVENTURE

THE TEAM

The BLOODHOUND Project team consists of some of the worlds most revered engineering talent, lead by Richard Noble, the individuals involved have been hand picked to ensure BLOODHOUND SSC is a global success, bringing together previous partnerships and fostering new talent in one of the most exciting engineering adventures the world has seen for many years.

CORE TEAM:

RICHARD NOBLE – PROJECT DIRECTOR

Against a background of today's low risk culture, Richard specialises in developing high risk ventures. Obviously not all of them can be successful, but the Thrust2 programme which brought the World Land Speed Record back to Britain in 1983 and the ThrustSSC first ever supersonic land speed record programme are the best known.

Other projects include the ARV Super2 light aircraft, the Atlantic Sprinter Blue Riband contender, Programme Funding, an original television funding company, and the last, Farnborough Aircraft, which is creating the first point to point taxi aircraft.

These projects all started very small and being original in concept attract only very limited resource.

WING COMMANDER ANDY GREEN - DRIVER

Day Job

"I have the World's Best day job, as a Fighter Pilot in the Royal Air Force. I was sponsored through Oxford University by the Royal Air Force (where I gained a love of flying, a First in Mathematics, experience of rowing for the University, and interests in beer and women), and then spent 3 years in flying training. Qualified as a Fighter Pilot, I was lucky enough to fly the F4 Phantom in Germany at the end of the Cold War. My final flying tours were on the Tornado F3, which included service over Bosnia, Iraq and the Falklands. Since then I've spent a year in Australia at Staff College, worked at the UK's Joint Headquarters running operations in Afghanistan and Iraq and run the Harrier airfield at Royal Air Force Wittering (including a spell as the Commander of the Royal Air Force detachment in Kandahar, Afghanistan). I'm currently working in the Ministry of Defence in Whitehall, supporting operations around the globe and wishing I was still flying...."



BLOODHOUND SSC

ENGINEERING ADVENTURE

Holiday Job

“I also have the World’s Best holiday job, working as part of a Land Speed Record team. In 1994 I responded to an understated article in the Sunday Times, which mentioned that Richard Noble was looking for a driver for Thrust SSC, and life has never been quite the same since. Two World Land Speed Records and 11 years later, Thrust SSC remains the world’s first and only supersonic record car. In the meantime, I was also lucky enough to get involved with the JCB DIESELMAX project, which aimed to find out how fast we could go with a pair of digger engines in close formation. The answer, in August 1996, was 350 mph, making a JCB by far the fastest diesel car in the world. Like Thrust SSC, the DIESELMAX project was a great statement about the quality, innovation and expertise of British engineering, and I am proud to have been able to help with both.”

Other Interests

“Captain of the Royal Air Force Cresta team, Yachtmaster, aerobatic pilot (sadly, my flying is only at weekends now, and at my own expense), Harley rider, skydiver – the usual stuff to keep me entertained when I’m not at work or involved with a record car.

I also have the best wife in the world. Emma is an eye specialist at Moorfields Eye Hospital and is fully supportive of all the unusual things I get up to in my spare time. When we met in 2007 she had never even heard of the World Land Speed Record. That’s changed!”

JOHN PIPER – ENGINEERING DIRECTOR

John Piper is well known in the Motorsport industry, having built an enviable reputation for his design, engineering and project management skills within the top echelons of the sport.

After graduating in Mechanical Engineering from Kingston University, his love of motorsport led him to David Price Racing in Formula Three, the Triplex Rover GpA Touring Car team and Formula 1.

John started at Williams Grand Prix as an F1 design engineer and was Nigel Mansell’s race engineer there in 1985, then became Design Project Leader on the prototype Metro 6R4 rally car.

John moved to Benetton in 1986 to work on transmissions and suspension dampers, and then to Prodrive Engineering as founding Technical Director on the Subaru rally programme. Following this success he was recruited as Chief Designer on TWR’s Le Mans-winning Jaguar V12 and the team later won the Sportscar World



BLOODHOUND SSC

ENGINEERING ADVENTURE

Championship with the Jaguar XJR14 Group C car in 1991 when he worked under Ross Brawn.

In 1994 Reynard Racing Cars recruited John as Technical Director, to head up the company's Special Vehicle Projects division. Over a three-year period with the company he led numerous projects – the Ford Indigo concept car, which won 1995 Detroit Motor Show Best Car at Show Award; 1997/97 Ford Mondeo BTCC Car programme; the Panoz GT1 Sportscar; and Strathcarron Sports Car Prototype.

John then ran his own design and engineering company employing 25 people from 1998 to 2005, undertaking product design, racing car and special vehicle projects for leading companies such as Virgin Atlantic, Aston Martin, Cadillac, BMW, Rolls-Royce, Suzuki motorcycles, and designing and building the first FPR World Superbike.

He was chosen by JCB in 2005 to be Chief Designer leading the engineering project to set a new Land Speed Record for diesel power using JCB's own 444 engine. He established and controlled a 35-strong team of specialist designers, engineers, team management and technicians, innovating the concept and design of the car and leading it through detail design, manufacture and testing before directing the team on the Bonneville Salt Flats to achieve a new record of 350.092 mph in August 2006. His role entailed overall responsibility for project management of the engineering operations and coordinating JCB's own staff, Ricardo's engine development, and the car build, successfully achieving the task in only 10 months.

JCB DIESELMAX has since been awarded many accolades, including the RAC Dewar Trophy for engineering excellence.

BEN EVANS – CFD ENGINEER

Ever since he can remember, Ben Evans has been fascinated by mathematics and physics. Ben has always enjoyed asking the question '...but why does it happen like that?' and sought to find answers to these ponderings and solutions to problems.

Ben has a degree in Aerospace & Aerothermal Engineering from The University of Cambridge and a PhD from Swansea University in a field known as CFD (computational fluid dynamics).

It was the transition to Swansea that provided Ben with the opportunity to get involved with The BLOODHOUND Project and joining the design team to work on aerodynamics alongside Ron Ayers.

The Civil & Computational Engineering research team at Swansea University had already gained much trust due to their work on the ThrustSSC program and seemed



BLOODHOUND SSC

ENGINEERING ADVENTURE

the obvious choice for Ron and Richard Noble to be invited to get involved in the CFD research for BLOODHOUND SSC

BRIAN COOMBS – SENIOR DESIGN ENGINEER (MECHANICAL)

After studying for a BTEC First in Mechanical Engineering and an EITB certificate in machining skills, Brian worked as a toolmaker while completing a BTEC ONC mechanical engineering course at Hertford Regional College.

After completing the HND in Automotive engineering at Coventry University in 1995 Brian started working for Xtrac motorsport transmissions as a Design Engineer.

Brian's next role with RML was to design a 2 litre sports racing car, which won every race in its first season. Brian later became involved in the design of the Saleen S7 GTS Le Mans car, and the Corsa rally car for Opel.

In 2003, Brian began working for Jaguar F1 Racing/Red Bull Racing as a Transmission Design Engineer.

Brian then applied for a job with Visioneering and John Piper designing the JCB Dieselmex land speed record car. Since then I have worked as a freelance design engineer on many fascinating projects for companies large and small.

MARK CHAPMAN – SENIOR DESIGN ENGINEER (MECHANICAL)

Having graduated from Bath in '92 with a degree in Aeronautical Engineering, Mark has since been lucky enough to work on a wide range of projects, from designing the rotor control actuators for the AB139 helicopter, to a sewage works in Totnes, though this perhaps was pushing the limits for what could be termed fluid dynamics! However, for the main he's been involved with aerospace projects including a couple of years out in Seattle for Boeing with their Propulsion Systems Division, and quite a portion based at Rolls Royce in Bristol. Most recently he spent nearly 4 years as part of the design team on the STOVL system for the F-35 Lightning II, the Joint Strike Fighter.

Mark has been involved with Richard on a couple of previous ventures, and can safely say that they've never been dull. So when a call came about another, it didn't take long to say yes.

This is Mark's first foray into the world of motorsport, apart from his own attempts at driving a rally car – he managed to convince Katia (after a little wine or two) that for their honeymoon it would be a great idea to enter a Lancia Stratos' replica into the London-Athens World Cup rally, which was, to say the least, character forming – just don't mention Albania.



BLOODHOUND SSC

ENGINEERING ADVENTURE

Mark lives in a fantastic, slightly ramshackle, old farm cottage with Katia and their two children Thomas and Sophie, surrounded by what Katia variously describes as “projects” or scrap. An old car he started to restore has spawned into several more, so Mark suddenly finds himself with a garage and yard full, and seems to be project rich but time poor. A toddler, a two year old and a leaky, drafty house don’t seem to be lending themselves to evenings with a welder, so he’s been instructed to keep an eye on eBay.

ANNE BERRISFORD – DESIGN ENGINEER

Following a 1st Class Degree MEng in Mechanical Engineering at Birmingham University, Anne completed her graduate training at JCB Excavators. During this time she was chosen to be a member of the engineering team that set a new Diesel Land Speed World Record with the JCB Dieselmax car in 2006 at Bonneville Salt Flats, working with John Piper who was Chief Designer of that car.

Anne is a member of The BLOODHOUND engineering team, involved in developing the engineering design of the car. Her work will carry on through the design period and into the running of the car at initial airfield testing runs, to be conducted probably at Filton, and then for the record attempts themselves in the desert location that is ultimately chosen.

Based at the design office in Bristol, Anne’s role is help create the operational sequence of engineering events that allows the car to function properly. She will gather information from all of the various engineers and their respective sections of the car and compile this into a document that can be interrogated by the engineering team to check that they’ve got everything working in the right order. It’s especially important to know that it’s possible to turn the car around in the hour and get it serviced and ready for the return run, otherwise we won’t get the record.

Some of her work will also lead into an engineering risk mitigation study, so that the team have considered and responded to all of the “what if this doesn’t work” issues for the car’s operation.

RON AYERS – CHIEF AERO ENGINEER

Ron Ayers has been an engineer since January 1950, when he commenced an engineering apprenticeship at Handley Page Ltd. One of the aircraft Ron worked on during this time was the first prototype of the Victor Bomber. Alongside his apprenticeship, Ron also studied for a degree in Aeronautical Engineering. Ron



BLOODHOUND SSC

ENGINEERING ADVENTURE

subsequently continued his education at the (then) College of Aeronautics at Cranfield, now known as Cranfield University.

In 1956 Ron joined the Guided Weapons division of the Bristol Aeroplane Company (before it became part of the British Aircraft Corporation) as an aerodynamicist. During his 11 years at that company Ron held several positions including, for five years, that of Chief Aerodynamicist. One of the principal projects Ron was involved with was the Bloodhound surface-to-air anti-aircraft missile.

Starting in 1967, for twenty years Ron was involved in the design and manufacture of printing machines and associated equipment.

During a period of retirement Ron worked as a volunteer researcher at the Brooklands Museum in Weybridge. Whilst there, he found in the archives, a batch of Vickers Armstrong wind tunnel reports from the 1920s and 30s concerning research conducted on the great pre-WW2 speed record cars such as Golden Arrow, Bluebird and the Railton Special. This sparked Ron's interest in record breaking. In 1992, following a chance meeting with Richard Noble who was already planning to repeat his Thrust2 success, but this time had ambitions to exceed the speed of sound. When he found that Ron had, in an earlier career, specialised in high-speed aerodynamics his powers of persuasion he recruited Ron to the team.

Ron subsequently became the aerodynamicist on the JCB DIESELMAX project, which achieved an International Land Speed Record for diesel cars of 350 mph in 2006.

DANIEL JUBB – FALCON PROJECT (ROCKET ENGINES)

Daniel Jubb was born in Manchester in 1984 and has been interested in rockets from an early age. After launching hundreds of model rockets, Daniel then decided that he wanted to make much larger rockets to try and reach higher altitudes. In 1995 Daniel, along with his grandfather Sid Guy, co-founded The Falcon Project.

Between 1996 and 1998 Daniel and Sid built and launched a number of rockets from the army ranges at Otterburn, Northumberland. The capabilities of the rockets quickly exceed the maximum permitted altitude for launches from Otterburn, which was 20,000 feet. The test programme moved to ranges in the US, where it continues today. The early rockets used commercially available rocket motors, however the team soon realised that to achieve the objective of reaching higher altitudes they would need to manufacture their own rocket motors.

The Falcon Project set up a manufacturing facility in the US and began manufacturing solid propellant rocket motors for commercial and military applications. A research programme was also set up, looking into liquid and hybrid propellant rocket engines. The Falcon Project Ltd now designs and manufactures custom solid,



BLOODHOUND SSC

ENGINEERING ADVENTURE

liquid and hybrid propellant rocket systems at facilities in the US and UK, with applications ranging from mine disposal and target drones to high altitude research rockets. I became involved with The BLOODHOUND Project in November 2005.

BJORN RÖDDE – DESIGN ENGINEER

From the age of 11, Bjorn competitively raced karts at various levels, both nationally and internationally. Bjorn is an avid fan of any form of motorsport and loves driving – for him, motorsport has provided fantastic engineering challenges, with the thrill and adrenalin of driving at speed, and working in a focused team environment.

Bjorn comes from a long line of Engineers – his farther is an Engineer and his grandfather was a Stress Engineer in the Aircraft Industr. Bjorn's Great Grandfather was the inventor of the self-tapping screw whilst working at Westland Helicopters in the 1930's! Through all levels of his education, Bjorn was always involved in the latest engineering project, whether it was part of the curriculum or something to take on in my own time. The last of those was the Formula Student project which provided a fantastic environment to develop my skills as an engineer.

Bjorn has worked in Swansea University since graduating there with a Mechanical Engineering degree in 2005. Employed by Swansea University's Institute of Innovation, Bjorn was delighted to attend the University's first meeting about The BLOODHOUND Project in May 2007. Bjorn was quickly seconded to the project full-time. Prior to this, his experience includes working as an Engineer in a Formula Renault Team; setup and driver tuition in kart racing; welding and fabrication; and a year before undergraduate study working in a Rally Team, building and maintaining Group-N and Group-A Rally cars.