



Bloodhound Missile Preservation Group (BMPG)

Restoring and Preserving Bloodhound MKII

The story so far

Pete Harry – Founder of the BMPG

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The Bloodhound MKII missile system was a key part of the integrated UK air defences during the Cold War, a wholly British designed missile to counter nuclear armed, high flying bombers at long range. Bloodhound MKII became operational with the RAF in 1964 and continued to be improved as new technology became available with its operation role continually enhanced to include the countering of low level air strikes. Bloodhound MKII was withdrawn from RAF service in 1991, at the end of the Cold War. It is only right that such an important part of the UK's Cold War history is preserved for future generations.

The BMPG was formed with the objective of restoring items of the Bloodhound MKII missile system that are in the group's possession. Currently these are a Bloodhound Launch Control Post (LCP) and a Type 86 (T86) radar. The group's objectives also include supporting other organisations who display and restore Bloodhound missiles. What follows is a personal review of how and why the BMPG was formed and the group's restoration of a Bloodhound MKII simulator.



BMPG's Bloodhound MKII Simulator



Bloodhound MKII Missile with Radar Type 87 in the Background

How the BMPG are meeting its aims and objectives.

How it all began

I never intended to establish a Bloodhound preservation group but here I am. It all started after I visited various aviation museums and discovered the deteriorating condition of many Bloodhound exhibits. My first thoughts were; 'can anything be done to help'? Could I offer to provide a bit of TLC for the exhibits, perhaps washing the green mould from a missile, or make a donation so that such work could be done? For various reasons my enthusiasm was short lived, I found my intentions fell in to the 'too difficult' basket. Museums have rules, policies and procedures; you can't just pitch up and clean a missile. I also realised that financial donations to a museum are usually put in a pot and the museum decides what to do with those funds, not me. Add to this the usual health and safety, insurance requirements, etc. etc. and it all becomes very difficult. One museum curator also related to me a bad experience when 'enthusiasts' became involved with an exhibit, they were full of good intent but enthusiasm soon waned leaving the museum to

pick up the bits, literally. My initial enthusiasm to support Bloodhound exhibits was now somewhat dented but I did appreciate that every aviation museum curator would like to keep all their exhibits in A1 condition. Unfortunately there has to be priorities for funding and resources and Bloodhound was not necessarily a top priority. Understandable if your main reason for being a museum is based around aeroplanes.

Acquiring a Bloodhound MKII Launch Control Post (LCP)

During the initial period of my 'can I help' approach it became generally known that I was interested in Bloodhound which resulted in a phone call from the Bawdsey Radar Museum. An individual had been in contact with the museum offering some Bloodhound items, was I interested? Phone numbers were exchanged and after some delay I made contact. To my amazement what was being offered was a complete Bloodhound MKII Launch Control Post. The intention of the person offering the LCP was to break it up and sell the parts to electronic enthusiasts, or whoever, and then scrap the cabin. During a Sunday evening phone call I realised I could save or lose the LCP. I chose to save it. The original LCP owner more than happy that the LCP would now be preserved. I was somewhat puzzled during the negotiation for the LCP as to where it was located. I was only aware of two complete LCPs that remained; one at the RAF Museum Cosford the other at the Imperial War Museum, Duxford. The LCP I had just acquired was in fact part of the Bloodhound MKII section held by the RAF Museum at Cosford. The LCP had been disposed of by the RAF Museum and I was now to be its second private owner. The LCP was still located at Cosford but in a state that can only be described as abandoned.



BMPG's LCP Before Recovery

Today the LCP is located in a storage hangar at RAF Cosford, with the kind permission of the RAF. The hangar is a secure location and provides protection from the elements. Once the LCP was recovered a survey was carried out. The external appearance was poor the cabin was sound, the internal condition being dirty, full of cob webs and with signs of rodent activity. The good news was that the computer racks, display console and other electronics were 90% complete. Unfortunately two key items were missing from the display console, the top switch panel and the Engagement Controller's key pad with its tracker ball. All other items being present, including the Castell keys for closing the firing lines to the missiles and the original, early 1960's, Hoover Dustette vacuum cleaner!

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Display Console with missing top switch panel and Engagement Controller's keyboard

What do you do with a Cold War relic – Restore it!

I was now the proud owner of a Bloodhound MKII LCP but what should I do with it? As one museum curator pointed out 'it's just a box, how can you interpret that (museum speak)?' Difficult to interpret a cabin it may be, but inside is the best Cold War computer game you'll ever find. Obvious conclusion; can the LCP and more specifically the Bloodhound MKII simulator it contains be restored? The challenges were going to be many. An impossible dream? Maybe, but I was going to give it a go.

My motivation in restoring the Bloodhound simulator were many fold. I was an RAF technician who worked on the Bloodhound missile system and believed that restoring a demonstrable component, the Bloodhound simulator, would be a fitting tribute to all who were involved in the development, design and the

operational deployment of Bloodhound MKII. A system that incorporated the very best of British aeronautical design, computer technology and electronic systems. The prime contractor for Bloodhound being the British Aircraft Corporation (BAC), who designed and developed the missile, while Ferranti Ltd were responsible for the computers and electronic systems. The heart of the Bloodhound LCP was initially a Ferranti Argus 200 computer, eventually replaced with the more powerful Argus 700.

A three year restoration project

The LCP and Bloodhound simulator restoration project has now taken three years and there is still a lot of work to do; but the simulator is operational once more. A period of remarkable progress with all the many challenges overcome, including the locating of missing parts. There has also been a great deal of good fortune including the recovery of the original RAF software which enables demonstrations of the actual Cold War exercises used for training Engagement Controllers. Looking back I am sure many would have said such a project was too great a challenge, there were too many 'how are we going to achieve that' questions? Reality today is that the BMPG team have successfully restored the LCP's Bloodhound MKII simulator. The simulator is operational once more, twenty three years after withdrawal from RAF service at the end of the Cold War. The details of the engineering and technical work carried out over the past few years would fill several volumes. One day I may get around to writing such a book but not now, I'm too busy restoring.

What made it possible?

The restoration of the simulator is a major achievement and has only been made possible with the commitment and support of members of the BMPG, private individuals and commercial companies. The support, donations of items and the specialist skills offered have been very generous, the restoration would not have been possible without them. All contributors to the simulator restoration project will be acknowledged and their contributions recorded in the LCP. The BMPG's 'hands on' team is mostly drawn from ex RAF technicians and Ferranti engineers who have also given generously of their time, knowledge and skills in carrying out the restoration work at RAF Cosford.



The BMPG 'Hands-on Team
L to R Pete Murray, Richard Vernon, Neil Cartman, Dave Scobbie
with Pete Harry kneeling

A bit of background on the LCP

The restored LCP, with its simulator is a MK2A, an upgraded version of the original Bloodhound MKII LCP. The original LCP featured an Argus 200 computer with an analogue display console for the Engagement Controller (E.C.) and Technical Supervisor (T.S.). Due to the limited power of the Argus 200 the original Bloodhound simulator was located in a separate cabin. The MK2A LCP upgrade replaced the Argus 200 for the more powerful Argus 700 from 1985 onwards. The MK2A LCP provided digital displays for the E.C. and T.S. Another significant change was the incorporation of the Bloodhound MKII simulator in to the operational MK2A LCP, a selection button on the display console allowing the E.C. to choose the operational or simulator roles.

The essential spares and manuals to keep the simulator running

It can be appreciated that the LCP was not simply 'switched on' and it all worked! Many items required repair and/or replacement so the hunt was on for spares but how do you obtain spares for long obsolete equipment? The answer lies in the generosity of third parties and members of the BMPG who had contacts in organisations that may still have Argus 700 and LCP parts. We were fortunate that the Argus 700 computer, used in the Bloodhound LCP, was a standard commercial grade computer, manufactured from standard 1980's solid state technology.

I have often been asked about manuals, Air Publications (AP's) in RAF terminology as the restoration of the LCP simulator would not have been possible without them. When I acquired the LCP it contained no manuals but today the BMPG have all the manuals and original manufacturer's documents required for the restoration and future maintenance of the Bloodhound LCP and the simulator. Several museums hold Bloodhound APs, not full sets of APs but collectively it gives the BMPG all the documents needed to run and maintain the LCP and simulator.

What came next? A Bloodhound Type 86 radar

BMPG's Bloodhound LCP, with its working simulator, is only part of the BMPG story so far. In February 2013 the BMPG acquired a Bloodhound MKII Type 86 tracking radar which was being disposed of by the RAF Museum at Cosford. The radar needed a good home but no other organisation or museum was interested so with a lack of any other takers what was the BMPG to do? The T86 radar now stands next the LCP, under cover, and secure at RAF Cosford. When recovered the T86 looked to be in a poor condition but a survey showed the radar to be in a better condition than its general appearance would indicate. The T86 and LCP cabins are made of an aluminium alloy so there are no major corrosion issues.



Radar Type 86 as Recovered



First task – get the lights on!

While the focus has been on restoring the LCP and the Bloodhound simulator some restoration work has been carried out on the T86. The wooden decking on the radar's roof has now been replaced, the original decking being completely rotten. Inside the cabin the radar is 90% complete as several items, including the transmitter's klystron, were removed by the RAF before the T86 was donated to the RAF Museum. Long term plans for the T86 involve some functionality being returned to the radar but it will never transmit again. It is the intention to have some demonstrable functionality restored to the T86, as it has been for the LCP. Currently the LCP and T86 radar are not on public display but visits can be arranged, simply email the BMPG contact email.



LCP and Type 86 under cover at RAF Cosford

The provenance of the LCP and T86

What is known of the history of the BMPG's LCP and T86? The LCP, Serial No. 1022, was operational with 25 Squadron's B Flight, Yellow section, at RAF Wildenrath, Germany, in the 1970's. The LCP returned to the U.K. in 1983 and was again operational with 25 Squadron's B Flight, Kestrel section, at RAF Wyton. At some time between 1986 and 1989, 1022 was converted to a MK2A LCP variant and its history following the conversion is not known. The T86 radar, Serial No. 501, was originally in use with a Swedish Bloodhound unit. After returning to the U.K. it was converted to the RAF T86 standard. The T86 is known to have been operational with 85 Squadron's Yellow section at RAF Bawdsey, in the latter part of the 1980's.

BMPG's first public display

The BMPG took the opportunity to display its LCP and T86 to the public at the RAF Cosford Air Show on June 7th, 2013. Also displayed was a Bloodhound MKII missile, courtesy of the RAF Museum.



On public display, RAF Cosford Air Show, 7th June 2013

How the BMPG support other organisations

What has the BMPG been doing to help others? Two examples are the recovery of two Bloodhound MKII launchers from Switzerland, one launcher going to the Muckleburgh Collection and the other to the North east Aviation Museum. The BMPG were fortunate in recovering the launchers as they were destined for scrap.

Support in the form of parts has also been supplied to the Bristol Aero Collection Trust (BACT). The parts allowing the Trust to restore a Bloodhound MKII launcher and complete the external presentation of their MKII missile. Fuze aerials were also obtained for BACT's Bloodhound MKII missile making it the only externally complete Bloodhound in the UK. Fuze aerials were removed by the RAF from all missiles before being donated or sold to museums.



Two Bloodhound MKII launchers awaiting unloading at the Muckleburgh Collection. Courtesy of the BMPG

What the future holds for the LCP and T86

The BMPG are committed to the long term future of the LCP and T86 as items for public display and demonstration. The plan is to loan the LCP and T86 to the Bristol Aero Collection Trust for display at the new Bristol Aviation Centre being at Filton, Bristol. At Filton the LCP and T86 will join the Bristol Aero Collection Trust's Bloodhound MKII missile and launcher to create a complete Bloodhound MKII display, protected from the elements to ensure their long term preservation. Filton being a fitting location as the original home of the Bristol Aircraft Company who were the prime contractors for Bloodhound.

Are we a charity?

No. The legal entity for the BMPG is BMPG Ltd, a not for profit company limited by guarantee. This being preferred to becoming a charity. BMPG Ltd being the legal owners of the LCP and T86 radar.

Pete Harry

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