655 Maintenance & Preservation Society

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XM655 sports a special anniversary logo

In this issue

The Chairman's Introduction

Charles Brimson

It is now exactly five years since I took over the reins as Chairman of MaPS. As 2014 dawned, as far as my MaPS life was concerned, I was looking forward to celebrating the two significant anniversaries in the life of our Vulcan – and nothing much more…. You will read elsewhere in this edition of our newsletter about the first of these two celebrations, namely the 30th anniversary of the arrival of XM655 at Wellesbourne airfield in February 1984. However, no sooner had this happy anniversary been marked in style, than fate deposited a bucketful of unwelcome news on us in the shape of the airfield owner's intention to sell the entire airfield for development into 1,600 new houses. If you live in the West Midlands then the chances are you will have already heard, seen and read much about this proposal; if not then it is worth reflecting on what this development would mean for everyone at Wellesbourne airfield (and indeed Wellesbourne village itself) if it is allowed to go ahead. The proposal is for the owners to sell the *entire* site, which would include the airfield and runways, the airfield accommodation and many buildings that house the various businesses, the Saturday Market, the wartime museum and of course the space currently occupied by the Vulcan. This would have the effect doubling the size of the (already large) village of Wellesbourne. The continued existence of the aircraft itself would be, at best, uncertain as the Vulcan is owned by the airfield owner and it is extremely unlikely that whichever house builder is involved that would want to sacrifice however many houses can be squeezed into a Vulcan-sized space in order to preserve an old aeroplane in the middle of a housing estate.

Anyway, having grabbed your attention like no other opening paragraph in my nine newsletters to date, I should go on to tell you that the continuing existence and operation of Wellesbourne airfield is by no means a lost cause. There are, as you would imagine, a lot of people who are determined to fight off this unwelcome, unpopular and unnecessary closure of an extremely successful GA airfield with its associated businesses, flying schools, employment and iconic operational Vulcan bomber. Within days of the owners seeking inclusion of the airfield site as a part of the Stratford District Council's 17 year housing stock under the National Planning Policy Framework, interested parties at the airfield have set up "Wellesbourne Matters", an action group that is determined to fight off the plans to sell the airfield using all means at its disposal. This is where every member of 655 MaPS can become involved and the MaPS Committee recommends that each of you should join "Wellesbourne Matters" to show your support for the organisation that will do everything it can to try to protect the on-going existence of Wellesbourne as an airfield. There is a separate section on "Wellesbourne Matters" in this newsletter, where you will find details of how and where you can join.

Happily, there is some good news to report at this early stage of what will no doubt become a protracted and unpleasant period for everyone at Wellesbourne. Stratford District Council's ruling cabinet has in the last couple of weeks announced that the Wellesbourne proposal will not be included in their policy framework for the period to 2031, and this decision has been confirmed at a full council meeting held on 12 May, at which development at Gaydon and

Lighthorne Heath was selected as the council's strategy. Round 1 to Wellesbourne airfield! It would be naïve in the extreme to imagine for one moment that the owners and their agents will now give up in their desire to capitalise on their investment, but at least we have the moral high ground of knowing that Stratford District Council does not share the owners view for the future of the airfield and also we now have time on our side to effectively plan for the battle(s) ahead….

Rather overshadowed by the unwelcome news about the airfield has been another momentous occasion in the post-RAF life of XM655… Many of you will remember that back in 2009 a party of MaPS engineers made a trip to BAE Systems, Woodford, to recover two Olympus 301s from XM603 (at that point BAE had announced that '603 was likely to be scrapped, and we were very keen to obtain anything that we could, and two 'fresh' factory overhauled 301s fitted the bill rather nicely). When we arrived back at Wellesbourne with our two new 301s on their brand new MaPS-manufactured engine stands, we put them away very carefully in a dehumidified shipping container thinking that we might never actually need to use them as the four engines in situ on the aircraft are all relatively low-houred (albeit they have each been 'on wing' for over thirty years). As you will read in the Engineering Report, after we had removed, inspected and re-installed our original No 1 engine, we found it necessary to replace it with one of our two spares. The removal and replacement was completed in only four working days, and the engine was successfully run (for the first time in at least 30 years) in mid-April – another milestone passed for MaPS! You will all be able to see and hear it running (along with the other three) at Wings & Wheels on 15 June – you'll be able to tell which engine it is – it's the one that smokes less than the other three!

In this edition of our newsletter I am indebted to John Huggins, a former Vulcan co-pilot then captain, who has recently made contact with us through Len Hewitt (the two of them were stationed at Waddington at the same time), for providing some reminiscences of his time on Vulcans. John has promised to be with us again at Wings & Wheels, you'll be able to find him in the former aircrew and ground crew gazebo to which I refer in the Wings & Wheels 'teaser' elsewhere in this edition….

XM655's Arrival at Wellesbourne – 30th Anniversary Celebration

Damaris Tapp

As mentioned elsewhere in this newsletter, 2014 is a very special year for XM655 and the first significant day was 11 February when, on a cold and rather dull Sunday in 1984, XM655 appeared from the distance, performed two rollers followed by a full-stop landing deploying the tail brake parachute, for what was to be the last time ever at Wellesbourne Mountford Airfield.

The anniversary of such an event had to be celebrated in an appropriate manner, but the 11 February 2014 was mid-week – and was likely to be as cold and drab a day as 1984! MaPS volunteers, however, are used to spending every Saturday outside, working on the aeroplane throughout the winter, so this was not going to deter us – and we decided to invite a range of very special guests to celebrate the day with us.

As 11 February 2014 was a Tuesday, we decided the following Saturday, 15th, would be the best day for our celebration. A key person from 1984 was Roy Jacobsen, who bought XM655 from the RAF with the aim that at least one Vulcan be kept flying after all others at that time had, at best, been retired to museums with most having been scrapped. Although every attempt was made to find contact details for Roy Jacobsen, and every potential lead was followed up, we were unfortunately not able to find a way of inviting him to share in celebrating the operational status of 'his' aeroplane, 30 years on. Other important people from 1984 were the last air crew to fly XM655, on the delivery flight from Waddington to Wellesbourne. Contacting the air crew was slightly easier as we had, over the years, maintained contact with the delivery Captain, Sqn Ldr Joe L'Estrange, and, although he was unable to travel to Wellesbourne for the day himself, he was able to provide names for the other members of his 1984 crew and contact details for the Co-Pilot, Wilbur Wilson, and the Nav Plotter, Chris Hickson. I was the lucky person who made the phone calls – 'You don't know me, but I work on XM655 and I believe you flew it into Wellesbourne 30 years ago...' Both turned out to be really nice people who remembered the day clearly and were keen to hear the latest news about the aeroplane. Although Chris would have liked to have joined us, he was unable to do so (maybe Wings and Wheels, Chris?) but Wilbur was keen and, in the end battled through the worst of the February floods to join us on the day. The other two members of the crew, AEO, Flt Lt Dennis Cheetham, and Nav Rad, Flt Lt Paul Goddard, proved harder to contact and, as with Roy Jacobsen, we had to plan the day without them.

Wilbur, his wife and three year old son were joined on the day by other aircrew associated with XM655, including more recent pilots Wg Cdr Mike Pollitt and Sqn Ldr Martin Withers DFC and '655 stalwart AEO Sqn Ldr Barry Masefield. Also celebrating the day with us were MaPS volunteers, past and present, representatives of the Vulcan Restoration Trust at Southend, Vulcan to the Sky Trust at Doncaster and others who had been involved in the arrival in 1984. We were also delighted to be joined by the Chairman of Stratford District Council, Cllr Chris Mills and his wife Susan and the Chairman of Wellesbourne Parish Council, David Close together with his wife.

The weather was, true to form, rather damp, windy and chilly, so all were glad that the event began indoors, being entertained by MaPS Chairman, Charles Brimson, who told the story of the arrival of '655, the work to restore it to operational condition after being abandoned for many years and plans to maintain it in taxyable condition for as long as possible.

Following the presentation, Wilbur cut a cake baked to celebrate the occasion, after which it was time for him to reacquaint himself with the co-pilot's seat he had last occupied 30 years previously.

By now, the sun had come out (although it was still windy!) and the assembled company, guests and volunteers past and present, lined up in front of XM655 for a group photograph. It was then time for ground power to be applied and visitors were treated to a systems demonstration, with the powered flying controls, navigation lights, landing lights, bomb doors and airbrakes all being operated.

The celebration ended with visitors and volunteers chatting and eating cake under the Vulcan. Charles' presentation had prompted many thoughts and comments, including the whereabouts of our missing air crew from 1984. Unfortunately, Paul Goddard had died sometime previously, but Dennis Cheetham was known to be fit and well and living in Spain. Slightly too far to come for his piece of cake, this time, at least!

Engineering Report

Eric Ranshaw

Regular readers will recall that in the last newsletter we reported the removal of our No. 1 engine for inspection. This proved to be rather more of an epic than we expected. A close inspection of the LP compressor zero stage showed that we needed to replace a total of 10 stator blades due to cracking. This meant that we had to raid the seized engine (on loan to Wellesbourne Wartime Museum) for more spare blades. We also had to modify our tooling to allow the removal of blades from the bottom half of the engine, working between the zero and first stage rotor blades. The picture shows a stator from near the bottom of the engine being drawn out using a threaded rod and a bracket bolted into the blade track. This exercise was successful, and all the cracked blades were replaced.

The condition of the two engines we have previously inspected gave us the confidence that a borescope inspection of the HP compressor would be sufficient, and as this didn't reveal any defects, we didn't have to remove the top half casing.

Whilst the engine was out of the aircraft, Nick and Isi repainted the forward section of the engine bay. As with most of the airframe, the underlying metal and primer were found to be in excellent condition, but the most recent topcoat had completely broken down and was flaking off. The jet pipe end cap was fully stripped and recoated with heat-resistant silver paint by Av, who seemed at times to be lost in her work.

Re-installation of the engine proved to be somewhat troublesome due to the very tight fit of the Olympus 301 within the Vulcan airframe. The inner engines (Nos. 2 and 3) benefit from increased space above the engine due to the shape of the fuselage, but the top mounting at the front of Nos. 1 and 4 is very difficult to reach.

Here Roger is preparing the mounting and access is already very restricted, and at this point the engine still has to be hoisted a further 10 inches or more.

Having finally succeeded in fitting the front mounting bolt, we started to reconnect the plumbing to the engine, and discovered two problems. When we tested the fuel system for leaks, we noted that fuel was flowing from the engine drains despite the HP fuel cock being closed. This indicated a fault in the chassis-mounted fuel system (CMFS) with the HP cock leaking or being bypassed, allowing fuel to flow into the engine via the burners. A change of CMFS, which can be completed with the engine installed, would probably have cured this problem, but we also noted that fuel was flowing out of the engine not only from the normal drains but also from within the turbine blade containment ring.

The most probable cause is cracking or burning of the turbine casing or the combustion wrapper. As there is minimal indication that there had been hot air leakage when the engine was running, the hole is probably small but dismantling the containment shield to find it cannot be done in-situ, so the engine had to come out again. In view of the limited time available before Wings and Wheels, we decided to install one of our two spare zero-hours engines.

This has now been completed and an EGR carried out, and we are pleased to report that the "new" engine, which hadn't run for probably thirty years, performed faultlessly. We will dismantle and inspect the turbine end of the removed engine, and also address the fuel system problem, after the busy summer period is over.

From the end of February, repainting of the upper surface of the wings has been ongoing whenever the Saturday weather has been suitable. Many volunteers have worked on this, including Bry, Av, Isi, Edward, Hayley, Jon and Kay. It appears from the picture that duelling sanders may have been involved at some stage.

At the end of last year, we found ourselves in the fortunate position to be able to benefit both XH558 and XM655. Fuel tank problems left VTTST with a large amount of fuel onboard XH558 which had to be removed from the aircraft for the winter maintenance programme. Since removed fuel cannot be re-used for aviation, this meant that disposal had to be arranged. As there is no such limitation for a taxying aircraft, we arranged to purchase the fuel from VTTST at a price which was favourable to both parties.

The amount of fuel was too great for it all to be kept on XM655, so we had to source, purchase and clean 22 Intermediate Bulk Containers (IBCs). The fuel was generously transported by Imperial Tankers, and a refuelling adaptor was loaned by Wellesbourne airfield for use both at Finningley and on XM655. After the IBCs had been filled, the remainder was loaded onto XM655. The IBCs have been treated to minimise the effects of water absorption, and we have arranged for them all to be stored off-site for safety.

We have also purchased an electric pump and made up suitable pipework to allow us to easily load the fuel from the IBCs onto the aircraft, and as we go to press, the system has been tested successfully. We can now look forward to being self-sufficient for fuel for the next several years.

Following on from the electrical problems we reported in the last newsletter, we have carried out three complete tests of all the triple feeder fuses in the power bay, and happily no faults have been found, so it appears that the replacement of the incoming (GPU) contactor has done the trick. However, we are still having problems persuading the Rover AAPP to reliably carry electrical load, so further work is required.

During the very wet winter months, we became aware of increasing ingress of rain water into the bomb bay, particularly at the forward end where there is a lot of electrical distribution equipment. We kept the electrics dry by covering with polythene sheeting, and eventually identified the entry point to be a leak around the upper anti-collision light. When the fitting was removed, it was clear that the hole in the aircraft skin was the same size as the light, with no overlap which could be sealed. Bryan made up a replacement skin section with a more modest hole, and the fitting was sealed into place.

For some considerable time, XM655 has suffered from hydraulic leaks from the rod seals of the jacks which operate the undercarriage doors. The doors are not required to move, of course, as we will never need to retract the undercarriage, but the jacks are pressurised with the rest of the hydraulic system whenever the engines are run. Although never significant enough to cause problems, the leakage has the inevitable effect of messing up the paint and making things look untidy. We have recently obtained and installed replacement rod seals, and happily the last Engine Ground Runs revealed no leakage at all.

Roger Parker has continued his marathon repainting of the interior of the bomb bay. This is a very fiddly task, with difficult access to all the nooks and crannies of the arched structure and the multiplicity of brackets and equipment supports. Roger's results are impressive, and have inspired Bob to improve the bomb bay lighting. Several floodlights have been installed giving a very atmospheric effect for those occasions when visitors are only able to see the interior via the forward access doors. Bob has also made significant improvements to the ground power wiring in the cockpit and power bay, which supplies our heaters and de-humidifiers.

As well as being able to help XH558 (and ourselves) by purchasing their unusable fuel, we have also been involved with the activities of two other aircraft preservation groups. The Vulcan Restoration Trust have recently borrowed our four 25T aircraft jacks to enable them to recuperate the liquid springs in the main undercarriage on XL426, and we have been able to assist the Nimrod Preservation Group with aircraft battery servicing for XV232. We are also trying to repair the AC voltage regulator from their ground power unit, but so far without success.

Our close association with both 150 (City of Oxford) Sqn and 240 Sqn (Darlaston) Air Cadets has continued with them joining us every month to provide us with practical assistance and them with training and experience. Their activities have

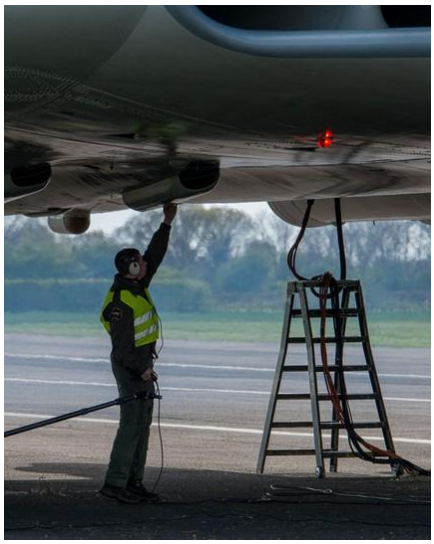
included instruction from Ian on the intricacies of aircraft wheels and tyres, and paint preparation on the Coleman Tug prior to finishing it in a fetching RAF blue.

The Coleman was also the cause of much head-scratching when the engine started to misbehave. As the picture shows, it drew a lot of attention, and a lot of different proposed solutions, but the problem was eventually located in the carburettor. A good clean and rebuild and all is now serviceable again.

Another item of ground equipment which has given a couple of problems of late has been the Palouste air starter. Initially, we thought the fault was in the cable connection from the aircraft, but diagnosis showed it was actually an air delivery valve defect. Strip and rebuild of the valve proved ineffective, and the problem was resolved by fitting a spare unit.

Having considered using this as a caption competition, I decided to put it here. Tim and I have spent some time looking deeply into a small problem with the Houchin GPU, and we are sure we will finally get to the bottom of it!!

During the winter, we have been training our youngest volunteer, Ben Tapp, to undertake the Crew Chief role, initially during system demonstrations for visitors, and then at our EGRs. In April he took charge of the long lead during taxy trials carried out by Mike Pollitt and Nick Dennis, and his excellent performance drew congratulations from Mike.



"Wellesbourne Matters" Action Group

Charles Brimson

As mentioned in my Introduction, "Wellesbourne Matters" is an action group set up by interested parties involved with Wellesbourne airfield to fight off proposals to sell the airfield for housing development, effectively ending the business of aviation (and also the Saturday Market, wartime museum and in all probability XM655 as well) at the airfield.

The Officers of the action group are:

Chairman:	Duncan Mackillop (Founder Moto Gymkhana Association)
Treasurer:	Bill Leary (Chairman AN-2 Club)
Secretary:	Frankie Stuart (Wellesbourne airfield employee, FISO and Wellesbourne Parish Councillor)

Legal representation is being provided by Jonathan Leary of Zyda Law in Stratford-upon-Avon. Additional support and advice is being provided by Tom Dunn who is the Founder and Chairman of Aeros, together with Sean Brown, Managing Director at Heli Air.

Every operating company at the airfield (including MaPS and the Museum) will also have a representative on the Committee. I am the MaPS representative. There will also be a representative from the villages of Wellesbourne, Loxley, Hampton Lucy and Charlecote.

The Wellesbourne Matters committee has decided that its approach will be attack one of the three 'legs' of the planning 'milking stool', which are the Financial, Environmental and Social consequences of the proposed development, the idea

being that a milking stool will topple if any one of the three legs is removed! We are going to target the Financial leg by focusing on the positive nature of employment and other benefits to Stratford District by keeping the airfield and market alive (obviously together with the Vulcan and the Museum). Our whole philosophy will be to focus on the POSITIVE nature of our campaign – I hope those of you who have seen any media coverage of this featuring interviews with (amongst others) me will recognise this is what we have been doing.

The rapid deployment of a first class committee and the birth of the new action group should make everyone feel very positive about the strength of feeling and the quality of the arguments to support the on-going activities of Wellesbourne airfield. We do think we have a very good case!

Each airfield operator has been asked to do what it can to very rapidly grow the "Wellesbourne Matters" membership. In the case of MaPS, we intend to actively promote the action group to everyone who visits the pan, including organised visits and casual arrivals. We will also be promoting "Wellesbourne Matters" at other events we support, including the V-Force Reunion at Newark Air Museum. Information and membership forms will also be available at the MaPS stand at this year's Wings and Wheels.

As we go to press, the brand new "Wellesbourne Matters" website has been launched at www.wellesbournematters.org.uk. It is now possible to join the organisation via the website, and we encourage all supporters of XM655 to sign up as soon as possible. The cost of membership is just 50p one-off fee, although additional contributions will be gratefully received. We will be providing a link to "Wellesbourne Matters" on our own website as soon as soon as we can. You will also be able to join at Wings & Wheels if this is more convenient.

Visitors to XM655

Charles Brimson

We ended 2013 with a visit by a walking group of nearly 40 people organised by Jack Edwards who stopped by briefly to see the Vulcan on 7 December. Then immediately after Christmas we had the first of two visits this year from our friends at Spice Adventure Group based in Birmingham.

In early February we had a visit from Trevor Jackson, a former 44 Sqn Vulcan engineer and his son together with an ex-617 Sqn mate of his (also on Vulcans).

On 1 March we were joined by the Porsche Club (GB) and their organiser Nick Francis who were enjoying a weekend trip to Stratford, Gaydon and Wellesbourne.

On 22 March Wg Cdr Chris Reid (a former Nav Plotter on Vulcans) brought his family along to see his old Vulcan.

We were also delighted to have our fifth visit from the Bugatti Owners Club, as usual led by the indefatigable Frank Ashley.

Finally on 26 April we were joined by a group from the Fairford Classic Car Club organised by our very own MaPS member, Alastair Kinross.

Personal Reminiscences of a Vulcan B2 Co-Pilot and Captain (including my six trips on XM655)

John Huggins

As I progressed through my training as a pilot on the Vulcan it became an increasing worry to me, especially when I finally had my own crew at the tender age of 22, that no one had ever thought to teach me how to fight in combat with the aircraft! What did you do when a SAM (Surface-to-Air-Missile) was fired at you, how did you evade a fighter?

The single piece of advice was given in the target briefing material which was a part of top secret target study, and that was the low level fighter evasion manoeuvre. Many of you will be familiar from air shows of the curling trail of smoke and air behind the aircraft. This is called a Rams Head Vortex, the air coming off the back of a delta wing of the size of a Vulcan passes over several different wing forms and distance so that when it finally leaves the wing it forms that familiar pattern. Going into any aircraft's jet wash isn't pleasant, airliners for example are spaced apart on airways specifically to avoid this especially the larger jumbos. The aim of the manoeuvre was to judge the point at which the fighter was just about to open fire and then execute a hard climbing turn either left or right on full power. The fighter trapped in the vortex would be flipped upside down into the deck! A trial developing the technique using Sea Vixens in the role of attacker had reportedly splashed one of the Sea Vixens into the Bristol Channel! Now obviously you could not practice this with friendly fighters because of the danger to the fighter so you had to do it on your own, in fact it is one of the most popular parts of air displays.

As for everything else, SAM evasion, ECM (Electronic Counter Measures) and IRD (Infrared Decoy) tactics, then it was almost guess work! It would take many years before the RAF would 'get real again', those of us that wanted to were left to simmer!

I wrote a paper asking that the roundels be changed to WW2 pattern and the camouflage be continued underneath, at the time we were white underneath with a black radome under the nose. My CO sent it back to me asking, do you really think fighters use the roundel as an aiming point? I said I didn't want to give them the chance! It took a couple of years but eventually the paint scheme changed.

Something that didn't change though was the ECM aerial fit. During the early days at high level it was envisaged that all the V-Force would advance across the Warsaw Pact at extremely high level, 50,000 feet with all jammers working. This would effectively block out all communications and jam all radars, so all the aerials were positioned for this, under the aircraft in most cases, however when the attack plan changed to low level then this meant that the only thing the jammers were doing was jamming the ground about 400 yards around the aircraft!

No one ever thought to make this very simple change and in many ways this is a part of the problem I spoke of at the beginning. It wasn't just the RAF but as the USAAF was finding in Vietnam people had just drifted into peace time posture and

had forgotten basic tactics. Lancasters routinely carried out fighter affiliation with Spitfires, we couldn't get Lightnings to come up with us and when they did it was in a totally unrealistic scenario way up high with no use of ECM and limited angles of bank. What we needed was for the fighters to have freedom to attack us anywhere on the low level routes so it became part of the mission. This may sound petty but timing on the war routes was absolutely crucial, you could not afford to be late on target by more than a few seconds or off route by more than a few yards if you were to avoid being hit by a subsequent strike or straying into the missile engagement zone of a SAM battery. So yes we could outturn most fighters but every time you turned then you either went off track or lost time and so risked failing your mission parameters. In the end it all came down to very low flying as the best defence, 50 to 100 feet if visual and 200 to 300 feet if on terrain following radar (TFR). In later days as the USAAF learned its lessons from its failure in Vietnam it developed the Top Gun school for fighters and the Red Flag exercises for bombers where Soviet aircraft and radars were used to create realistic combat environments. Even in its later days the Vulcan excelled in these exercises but the RAF never developed them in the UK.

The picture shown here is my bomb strike photo, taken with the F95 camera, on USS Franklin Roosevelt on Exercise Dawn Patrol in 1971. It shows the centre point of a simulated stick of 21 x 1,000lb bombs right across her flight deck. If you look you can see the engines of the top group of fighters running trying to help push the ship in a hard turn to try and avoid me! I flew under the screen of Phantoms at 50 feet and was credited with destroying her on the first attack of the first day of the exercise!

Some argue that the Vulcan like the B52, if properly updated, could have gone on forever. The truth is it couldn't. The Vulcan was built using materials which would enable it to do 5,000 flying hours at high level. In fact most aircraft did much more than this, many over 7,000 hours and some at 9,000 hours and many of these at low level in an environment which broke the Victor and the Valiant main spars within a few months! The Vulcan's life is therefore an absolute, '558 is near the end of its allocated hours, and no matter how much money or effort spent on it, it cannot go over it.

On top of this consider the weapon load; early nukes were almost 26 feet long and filled the bomb bay. As the yield went up the size went down, Yellow Sun was a much smaller weapon and the final weapon the WE177 lay down bomb was no bigger than a thousand pounder yet 400 times more powerful than the first British atomic weapon Blue Danube. The extra space in the bomb bay could be used for extra fuel tanks to give it the range at low level. At war speed a Vulcan consumes 13,500 lbs of fuel an hour at low level. With precision guided weapons one guided weapon can guarantee a hit, however as the Stanley raid showed, of 21 bombs dropped only one hit the runway so the weight of conventional bombs is no longer needed.

A V Roe were reported as saying, if the RAF had asked for a long range low level nuclear bomber it wouldn't have looked like a Vulcan! Times and requirements change and the Vulcan was an aircraft supreme in its day but its day has passed. The fact that the Vulcan did do all that was asked of it is a testament to the remarkable strength of the aircraft and to the men who maintained and flew it. My navigator once described being low level in a Vulcan as sitting facing backwards in a sports car, with no suspension, going over a cobblestone street at 400 miles an hour! It took incredible stamina to sit in the back of a Vulcan with no windows, no means of escape at low level and then achieve incredible accuracy of bombing and navigation. I had the fun part, all I had to do was fly it!

Taxying the Vulcan could, at some airfields, be quite challenging. Bitteswell was always a bit awkward because of the narrow taxiways, only 50ft instead of 60ft so only a few of us were cleared to fly in there, it was a bit short too! I would often get the crew chief or the Nav Rad to go on the long lead and talk me round to be safe or get the co-pilot to look out front whilst I looked backward down through the crew door at the nosewheel and kept it on the centre line. The corners were especially dangerous, V bases had a 70ft sweep built into them to allow for the tracking. I loved delivery flights , especially when you had an air test because it was one of the few times you got to use full power on a 301 thereafter it was wire-locked back in cruise, i.e. 'only' about 98% of available power! I was at 8,000 feet altitude before I crossed the end of the runway at St Athan once, I had the AEO watch for it through the periscope! With the wind on the nose we almost went up vertically! Its why 558 is so impressive now with no nav kit, no ECM and a light fuel load.

I flew XM655 six times during my time on Vulcans as both a Co-pilot and, later, Captain. The first flight was on 11 January 1968, co-pilot on Jack Manners Spencer's crew, we collected her from Cottesmore to deliver to Waddington for 101 Sqn conversion from B1As to B2s. We were the first B2 crew on the squadron and the station took on the Far East reinforcement role from Cottesmore whose

crews were going out to Akrotiri. The 300 series engines with double drum bomb bay fuel tank fits were needed for the role because of the increased outside air temperatures which decreased the effective thrust so a 200 series would have needed more runway. The FEAF role also involved using Yellow Sun nukes so we had to do special last minute loading drills training for them. The warhead was inserted with a special tool just before take-off. The double drum fit was because of the distance between Singapore and Guam in the west about route which could take up to 6hrs 40mins or so dependent upon winds.

Second trip was 16 January 1968 Exercise Kinsman to Machrihanish. Kinsman exercises were done to keep the dispersal airfields up to speed, there were 17 nominated airfields each of which would get 4 Vulcans on force dispersal so that we could not be knocked out in one counter strike on Waddington. Each dispersal had a sergeant permanently on station and the crews would fly the aircraft in then go on standby and scramble when ordered by Bomber Command (later Strike Command after 1968). The cost of upkeep was high as a direct landline connected each dispersal pan to High Wycombe, I can't imagine the cost of that from High Wycombe to Machrihanish or Aldergrove! On this dispersal one of the crew chiefs parked the Houchin on the grass near his aircraft instead of keeping it on the concrete. Machrihanish is built on a bog so in the morning all you could see were the leads from the Houchin coming out of the ground and no Houchin! It had sunk right down. Didn't fly her again as a co-pilot, I think she was on NDT testing then a refit at St Athan for a while then a repaint.

My first trip as a Captain on 50 Sqn was December 22 1970 in XM655 when we did our 500ft low level conversion sortie with the Squadron QFI.

Next trip was 26 May 1971 when I flew as 1st Pilot with the Sqn low level QFI on my conversion to 300 feet 325kt low level. As time went by the Russians were bringing in more and more mobile and fixed SAMs with better low level capability. SAM 2 couldn't acquire targets below 1500 feet but the 3s and 6s were more line of sight so we had to get lower. War speed had always been 325 knots, we normally trained at 240 knots but we complained it was unrealistic to expect us to do something for the first time on our one and only war sortie! 240 knots was normal because it kept the fatigue life expenditure down and it was an easy speed for Navigators, 4 nautical miles a minute, so special parts of the low level route were cleared for this and only Senior rated crews were allowed on them. By now I was the youngest Captain to have a senior rated crew on the whole force, I was 24! War attack speed was 425 knots and max escape speed was 475 – that's pretty fast , around 650 mph, but when you have a 400 kiloton nuke going off 30 seconds behind you after you have dropped it, it wouldn't get you far away from the bang, only about 6 miles!

Next trip was 28 May 1971 when I flew with the Sqn TFR trainer, TFR was just cleared for use and again normally used at 500 or 1000 feet at night. We were chosen to trial it down to 300 feet, operationally you could go down to 200 feet. '655 was one of the first to have it fitted. The trip was eventful because we got a transient down demand half way up a mountain in Wales which would have killed us if I hadn't trusted the Nav Rad's commentary, he was still giving me cut off so I ignored the TFR and climbed. I had to write a report when I came back and the instrument guys spent hours trying to reproduce the fault to fix it. Ops tried to get

me to drop the report as it was slowing down the TFR roll out but I stuck with it, God knows how many could have been killed if I hadn't!

Last trip was later on May 28th, I landed and picked up Tony Dale the Instrument Rating examiner and qualified for my Green Card Instrument rating. This meant I could descend in cloud on instrument approaches to the aircraft's minimum break off height which was 200 feet. You don't realise how low this is until you relate it as being less than two wing spans of the Vulcan. I tell people when they are looking at the Lancaster that they have to realise the Dambusters flew the whole route at one wingspan equivalent height and did the attack at almost half that i.e. distance between the fuselage and the wing.

My AEO, Jimmy Moore, had started life in the RAF as an air gunner and done his training on Handley Page Heyfords with Lewis guns! He was probably the most decorated AEO; he had won the DFM on the Tarranto raids in the Second World War and the DFC during the Berlin Airlift after the war with a string of campaign medals. He was a complete reprobate and got me into no end of trouble! To celebrate Jimmy's 50th Birthday, I took him up to 50,000ft. On landing Jimmy said "God, I hope I retire before I'm 55!"

A Date for your Diary

Charles Brimson

We are delighted to announce that Wings & Wheels this year will be on Sunday 15 June 2014 – remaining with our 'usual' choice of FATHER'S DAY for our big event.

Our aircrew for the day will be Wg Cdr Mike Pollitt (RAF Retired) as captain, ably assisted by Gp Cpt John Laycock as co-pilot and Sqn Ldr Barry Masefield (RAF Retired) sitting in the AEOs seat. Sqn Ldr David Thomas (RAF Retired) will also be in the cockpit 'on the ladder' keeping his usual eagle eye on proceedings.

The big change for this year will be the appearance for the first time of a new commentator – John Tye. Our regular commentator over the last ten or so years, Dave Rowland, is taking a well-earned break from the role, and I'm delighted to tell you that John comes with Dave's blessing as they worked together for some time on the British Airways Concorde fleet, where Dave was firstly a captain and then fleet manager and John was a first officer. John is now a training captain on BA's 777 fleet and we're thrilled that he has agreed to help us at Wings & Wheels this year. John will also be accompanied by a friend of his – Gary Edmonds – who will be helping with the 'wheels' side of the commentating. And as if we're not spoilt enough with two commentators, we will also be joined by Sqn Ldr Andy 'Sponge' Marson (RAF Retired) who will add some V-Force experience to the commentating team. Andy, as a Vulcan Nav Plotter, was involved with the Black Buck planning on Ascension Island during the Falklands War.

Tony Blackman, former Avro test pilot and celebrated aviation author, will be with us once again. He will have copies of his brand new book – "Vulcan Boys" (hardback) – which he will be signing as well as selling during the show for the special price of £18.

We will stick to our tried and tested basic running order for the day – but with one big exception; this year we aim to have (serviceability allowing) not one but two high speed taxy demonstrations during the event. This has been made possible by the plentiful supply of AVTUR made available to us at a very attractive price by the Vulcan to the Sky Trust just before Christmas when they needed to drain all the fuel from their aircraft whilst carrying out winter servicing. We will continue with the 'Town Square' layout that we have employed for the last three years and make things even better by introducing more exhibitors and traders than ever before.... Look out too for the return of our popular prize raffle with some brilliant prizes, especially for aviation buffs.

For the first time we will have a gazebo set aside as a reception area for any former Vulcan aircrew or ground crew to meet and chat amongst themselves as well as with our visitors.

Avril Magill (our Secretary) and her partner, Bryan Hull, (from our engineering team) have taken on the challenge of further improving the Classic Car and Military Vehicles displays this year. At the time of going to press, their efforts are paying off handsomely with by far the largest field of classic cars and military vehicles that we have ever booked for Wings & Wheels.

I am delighted to announce that, serviceability and weather permitting, the Battle of Britain Memorial Flight will be providing their Dakota to give us three orbits and flypasts of the airfield at some point during the show. Watch out, too, for the return of Dave Johnson's large model Vulcan which will, hopefully, be flying at least once during the show. It is also hoped that Tony Hooper will be able to fly his large model Avro Lancaster as well!

I hope that we will also have several exotic and historic aircraft flying in for the day and being displayed in the static display area at the northern end of RWY 05/23. It all promises to be a great day – and as usual it is all free for MaPS Members, and you will find your ticket(s) enclosed with this newsletter (or sent under separate cover if you receive your copy of the newsletter in PDF format via email). Please encourage all your friends, neighbours and family members to come to the show – the entrance fee for non-members is an astonishingly low £5 and they can then also join MaPS at the special show price of only £10 for the first year (individual membership).

See you all there!

Financial Report

Eric Ranshaw

This is the report for the last financial year, approved by the elected auditor, which was presented and adopted at the Annual General Meeting on 3th May 2014.

FINANCIAL REPORT OF 655 MAINTENANCE AND PRESERVATION SOCIETY
for financial year 1st April 2013 to 31st March 2014

	2013/2014	2012/2013
Income		
Donations	£7,492.80	£7,774.28
Membership	£5,435.36	£4,528.00
Sale of Merchandise inc P & P	£4,381.36	£4,037.50
Run Day Income 2012		£10,931.16
Run Day Income 2013	£15,231.37	£335.00
Run Day Income 2014	£600.00	
Interest	£17.43	£15.34
Misc. Income	£0.00	£205.23
Total	£33,158.32	£27,826.51
Expenses		
Merchandise Purchase	£4,089.87	£3,303.26
Aircraft Spares & Repairs	£2,488.06	£3,972.59
Aircraft Fuel	£19,091.23	£5,134.50
Run Day Expenses 2012		£2,369.58
Run Day Expenses 2013	£2,497.23	£10.00
Run Day Expenses 2014	£44.98	
Ground Equipment	£738.33	£224.44
Ground Equipment Fuel	£633.38	£344.01
Membership Expenses	£654.26	£701.62
Buildings, Residence etc	£4,264.54	£2,362.36
Tools, Consumables etc	£2,066.89	£1,685.62
Public Relations	£587.80	£249.88
Museum and Display Items	£455.00	£1,437.09
Total	£37,611.57	£21,794.95
Surplus (Deficit)	(£4.453.25)	£6,031.56

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