

655 Maintenance & Preservation Society



Issue No 41

Summer 2019

Corvette Car Club Line Up on Saturday 11th May 2019



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The Chairman's Introduction

Mike Pollitt

I was hoping to tell you about a successful series of systems checks that we were hoping to complete on 5th May, which included taxiing our beloved Vulcan. Unfortunately, after we had successfully started all four engines, twice, we couldn't get rid of a number of electrical gremlins that refused to let any of the alternators remain on the synchronising ring main busbar for load sharing purposes. This prevented us from taxiing her but nevertheless all four engines had started perfectly. We will be trying again soon.

I'm really sorry to inform you of the death of Richard Dick who passed away on 31st January. Richard had been seriously ill for quite some time. We owe Richard a great deal of gratitude for if it hadn't been for him, together with Derek Powell, who instigated the restoration of XM655 in the mid-nineties, we wouldn't have our wonderful aircraft today. Derek, a previous Chairman of XM655 MaPS, has paid a wonderful tribute to Richard Dick that appears in this Newsletter.

I'm also sorry to inform you that David Thomas our previous captain and retired Vulcan Display Pilot both in the RAF and later with the Vulcan to the Sky Trust is unwell. David has suffered with vascular dementia, which is a deteriorating illness that he has endured for a few years but recently his health has deteriorated more rapidly and now he is unable to walk. He is still bright and cheerful however, and is receiving wonderful care at home, principally from his loving wife Pam.

I must give a big round of applause to our volunteers who have worked tirelessly on several successful engineering projects during the Spring, which Eric will undoubtedly tell you about. Also, a big thank you to Damaris for arranging so many popular group visits to the Vulcan that has generated significant income at a time when we have been unable to have a Wings & Wheels event.

This inability to hold Wings & Wheels might change within the next 12 months or so. The Stratford-on-Avon District Council has commenced compulsory purchase order (CPO) proceedings to acquire Wellesbourne Airfield and preserve and develop it as a General Aviation and Business Aviation airfield. They have stated that they see the Vulcan as a definite asset to Wellesbourne Airfield and wish it to be retained. We at MaPS are not at all concerned by this development, as there are airfields within the UK that are council owned and successfully operated. At one time XL426, the Vulcan based at London Southend Airport, was owned by the local council before passing into the hands of the Vulcan Restoration Trust XL426. We have worked closely with the Stratford District Council previously, as they are responsible for ensuring that our high-speed runs during Wings & Wheels are conducted as safely as possible, as the event is open to the general public. They oversaw the event in 2016 and therefore, I am optimistic that Wings & Wheels events including a high-speed Vulcan run will return if the airfield becomes Council owned.

In the immediate future we have been assured by the owners of the airfield that the Vulcan is safe whatever happens to the airfield itself.

At present the airfield businesses have been allowed by the airfield owners to continue to operate until the end of September 2019. I am aware that a certain number of the businesses are hoping to extend their operation beyond September on a rolling monthly basis. We are in a period of uncertainty and for this reason we cannot possibly plan for a Members' Day event this year. Nevertheless, I remain very optimistic about our future.

I should like to thank all our members for their continued support and to all of you who have once again renewed your membership. Without your continued support we would not be able to maintain and preserve XM655 in the fine condition that she is in at the moment.



On that note Derek Powell and Fred Barter are continuing to paint the aircraft. Last year they completed the starboard wing and this summer they are to begin on the port wing.

On Saturday 4th May we held our AGM. You will recall from the Summer Newsletter 2018 that we have altered our constitution and that one of these alterations is that the appointments of the Chairman, Vice Chairman, Secretary and Treasurer will become electable to serve for a three-year term. We decided that the Chairman and Treasurer would stand for election this year, whilst the Vice Chairman and Secretary would stand for election at the AGM in 2020. I am delighted to inform you that your chairman, yours truly, and your Treasurer, Eric Ranshaw were elected this year to serve for a three-year term. I would like to thank all the committee members for their enormous contribution to MaPS, and I look forward very much to working with them in the future.

I hope that you all have a very enjoyable summer and if you're going away, a very enjoyable holiday. We will have a stall at the Avro Heritage Centre Wings and Wheels on 10th & 11th August so please come and meet some of our team if you're there.

Here's hoping the Summer is as good as 2018.

Visits to XM655

Damaris Tapp

The winter is always a slow time for big groups visiting XM655, particularly in the run up to Christmas. However, we were very glad to have the Planes Cameras Banter Facebook group brave a visit to Wellesbourne on an unsurprisingly cold day at the end November. We opened up as many panels as possible to give them a variety of angles and more unusual options for their cameras to capture the best shots of XM655. I just hope that our banter was on a par with the standard of our airplane!

After this, we didn't have a large group visit us until February, when we advertised the opportunity for a full visit, including systems demo, cockpit visit and talks on the Vulcan's role in the Cold War and the Falklands, to supporters via our own [Facebook page](#). We offer these visits intermittently, usually when we have a visit Saturday that doesn't have a large group booked in. If you would like to join one of these, or know someone who would, please keep an eye on our Facebook page.

In the middle of March, we had a visit from the Kings Cliffe Old Blokes Club, which turned out to be one of the afternoons our volunteers are as keen to listen to visitors as vice versa, as the group included ex-Vulcan air crew Jim Vinales and Rodger Barker. Jim and Rodger were two of the rear crew to have baled-out of XM610 before its crash at Wingate. Jim also took part in the Black Buck missions during the Falklands conflict, being part of the XM598 crew that had to turn back during Black Buck 1, due to the failed DV window seal. But going on to complete a subsequent mission a few days later.



We had in our shop a few copies of V Force Boys (compiled by Tony Blackman), which includes a chapter on the XM610 'event', aptly named Vulcan Bale Out. Jim and Rodger were kind enough to sign the copies we had, which immediately sold out! Both Rodger and Jim also provided copies of their log book entries for flights in XM655. This is something that we are always keen to receive from aircrew, as it can help us complete our record of the service history of our aircraft.

It would, seemingly, be hard to follow this visit, but the group we showed around XM655 a couple of weeks later were the Sir Armstrong Whitworth Association - a group largely made up of people who had worked at Bitteswell, servicing Vulcan for up to 12 years or more! Again, we were as eager to listen to their tales as to tell our own!



Spring really arrived at Wellesbourne in April and, with it, our visits started to include a range of unusual, special and always treasured cars.

The first club was the Morris Register, organised by our long-time supporter, Frank Ashley. This group are the winners of my favourite photo competition, although they were all so good, I have included 3!





The next visit was from the Midland Smart Car Owners Club, with so many cars, it was a struggle fitting them all on the pan ... It's a good thing they were relatively small.



Our last visit of the year, so far, was the Classic Corvette Club, driving up all the way from Surrey. Luckily, the South Warwickshire Flying School aircraft were away for the

day, which gave us plenty of room for the cars and enabled us to take some more unusual photos!

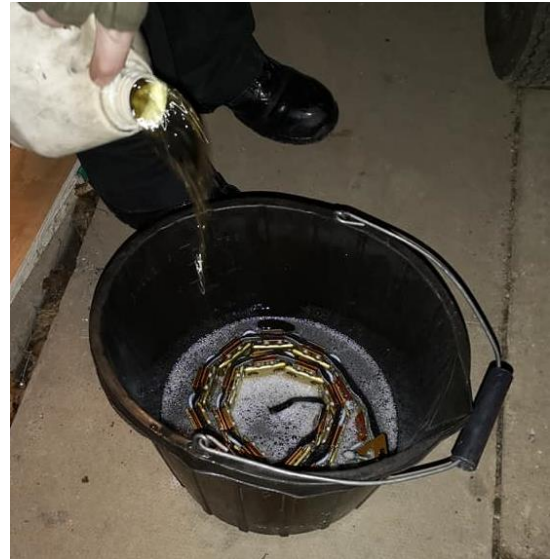


If you would like to bring a group to visit us, please let me know. We are taking bookings for 2020!

Engineering Report

Eric Ranshaw

A lot of our efforts this winter have been expended on the commissioning of the new No.1 fuel tanks. We tested the capacitance belts which are used to measure the tank contents and got capacitance readings very different from the specified figures. As the belts are not accessible once the pump plate is fitted and the tank filled with fuel, we decided we had to put filling on hold whilst we sorted out the problem, and the belts were removed again for investigation. There didn't seem to be anything physically amiss with them, but the readings continued to be all wrong. After seeking advice from various people who had worked on them in service, we tried soaking them in Jet-A1 for a couple of weeks, which made no difference.

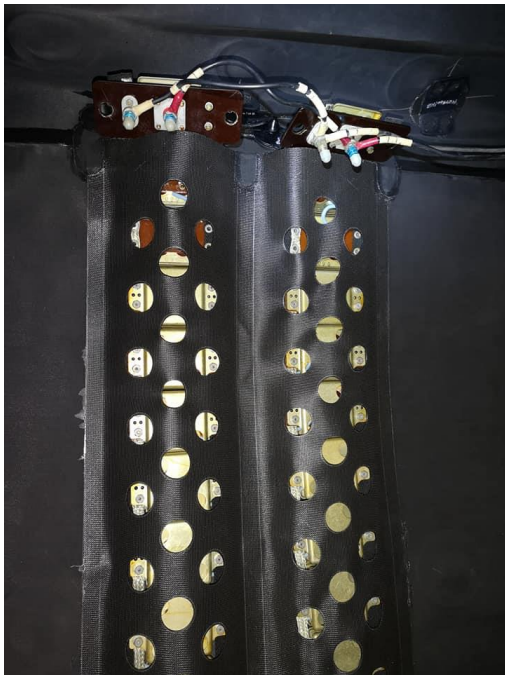


Eventually, one of our volunteers took a belt away to measure the capacitance on different equipment and got completely different results to what we had measured at Wellesbourne, but also still different to the specified figures. This suggested that the reading you get depends on how you measure the capacitance,

and we eventually realised that although they are always described as capacitance belts, each belt is in



fact a capacitor – inductor network, and the indicated capacitance depends on the working frequency of the equipment used to make the measurement. Of course, this “feature” isn't mentioned in any of our aircraft servicing manuals.



We re-installed the belts into the tanks, and when connected up they gave correct empty readings, so we decided to continue with tank commissioning and hope that everything was in

fact ok. After fitting the pump plates and re-connecting the pipework we transferred a measured quantity of fuel into each tank, and the contents indications in the cockpit tallied with the amount transferred, so we are now satisfied the system is

working properly. It is a shame we had to spend so much time chasing a fault we didn't actually have, but we learned a lot, and experience is never wasted. We still have a few very minor fuel weeps to sort out, but both of XM655's No.1 fuel tanks are now in service and holding fuel for the first time in many years.



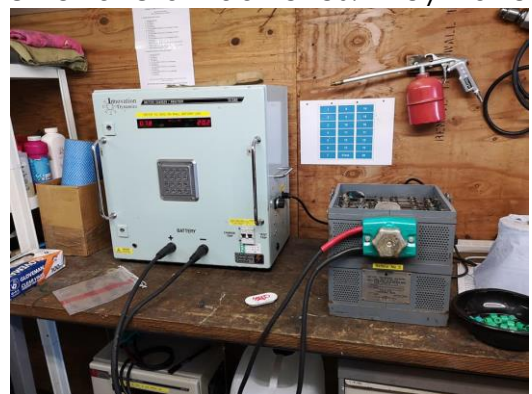
Also on the aircraft, all of the main landing gear wheels have been removed for inspection of the brake packs. One pack was removed to the workshop to have its hydraulic seals renewed, and then refitted. We also had to renew the seals in several of the walking joints which allow the brake pipes to accommodate the movement of the undercarriage, and all the brakes are now in satisfactory condition.

One of the main undercarriage rear doors has been removed to allow access for remedial work to some surface corrosion of the aircraft skin. The corrosion proved to be minor and was easily dressed out and repainted, and we took the opportunity to also blank off the bogie trim jack which has been leaking and is not required on a grounded aircraft. The door has now been replaced.

The starboard forward bomb bay door jack has also been leaking for some time, but we weren't able to work on it during the summer because of the need to be able to open the doors during systems demonstrations for our many parties of visitors. The quiet winter period allowed us to remove the jack to the workshop for a complete overhaul with new seals throughout. It has now been refitted and is leak-free once again.



On the wet Saturdays last winter one of the more popular indoor tasks was to continue working through the servicing of our stock of aircraft batteries. They have all now been through multiple discharge and recharge cycles to ensure the electrolyte levels in the cells are correct and the capacity of the battery is satisfactory, and they have all now been transferred to our electrical store ready for use. Intelligent Charging Limited of Norwich have generously serviced and calibrated our large battery charger/analyser free-of-charge, and we are now ready for the next routine battery change on the aircraft.



Another winter indoors job has been the continuation of work on our Garrett Airesearch starter turbine in its new installation as a trailer mounted unit. The newly found generator has been installed, and a number of damaged bolts securing the turbine exhaust cone have been drilled out, re-tapped and replaced. A new framework to carry the batteries and support the control panel has been fitted, and dubious control wiring on the unit has been replaced. When the weather warmed up we rolled the unit out and successfully started it up for the first time in a number of years. We have further tests and adjustments to complete, but we expect the



Garrett will soon be available as an alternative to our hard-working Palouste air starter.

The Douglas Sentinel tug has also been receiving attention. A persistent overheating problem appears to have been due to the lack of a thermostat, which had been removed before we acquired the tug. As the system incorporates a radiator bypass, the thermostat is needed to blank off the bypass as the temperature rises, and a new unit has made the cooling much better. We also cleaned up the exhaust manifold flanges and fitted new studs, gaskets and nuts, and the engine is now somewhat quieter than before.



Richard Dick 1924 – 2019

Derek Powell

Richard Dick passed away on January 31st. He had been involved with XM655 MaPS at Wellesbourne from the very beginning. He had completed supporting the restoration of the F104 Starfighter at the Midland Air Museum at Coventry and was in need of a new challenge for his undoubted skills. He was, he said, not a technical person but he was a very accomplished scrounger. XM655 had suffered a long period of neglect stood in the corner of Wellesbourne airfield and needed some major restoration work which was obviously far beyond the pockets and engineering facilities of the small group of volunteers working on the aircraft. First on the list was the reskinning of the elevons and the rudder.

This, he decided, was just the sort of thing he was looking for and I was co-opted as his assistant. The brief was that he would set up a meeting with the Managing Director of a suitable company he had selected as his target and I would accompany him. Beagle Aircraft was the firm in his sights and the meeting was duly arranged. My instructions were very simple in as much as Richard would do the talking and I would field any technical questions which came my way.

Not without a considerable degree of apprehension I walked with Richard into the MD's office to be confronted by the MD, the Factory Manager and the Sales Director. Introductions over, Richard launched into a short account of his wartime flying experience (piloting DC3 aircraft in Burma and Malaya) and his post war experience as sales manager for Delta Metals, a company specialising in the production of aviation grade aluminium alloys. He had actually spent a long time in America selling to the American aircraft industry. This over, he informed the meeting that, now retired, he was very keen to be involved with the restoration and preservation of the Avro Vulcan at Wellesbourne. He gave a very detailed description of what would be required in the reskinning of a pair of very large elevons. All old skins would need removing, new ribs manufacturing and so on to a very long list of work and materials which would be required. At the end of producing the list Richard said "of course we had no money in our kitty so we would need all this work done without payment." This was the point where I expected security would be called and we would be escorted off the premises. It did not happen and over the course of a couple of hours an agreement was reached with the Beagle team that we would deliver the elevons to the factory to be repaired by the company apprentices who would learn and practice their basic engineering skills on sections of a live aircraft rather than on just pieces of metal. The success of this scheme can be judged by the fact that our taxi event with the elevons refitted, was attended by a minibus full of apprentices from Beagle at Christchurch.

This mutual benefit system worked very well with other firms and over subsequent years we had many tens of thousands of pounds worth of work done by a number of both National and International aerospace companies utilising this method. We were very rarely refused and never actually shown the door. The abiding rule of Richards' straight out philosophy was that he would never beat around the bush, never ask for money and he would never offer payment. Without Richards help it is difficult to see how we could have kept 655 out of the hands of the scrap man. With his passing, 655MaPS has lost a staunch supporter and I have lost a very good friend.

12 Years a (mostly willing) Slave

Len Hewitt

Well not exactly, but there were times when it felt rather that way, although I wouldn't have missed it for the world!

Following Basic Training at RAF Swinderby and Mechanics Trade Training at RAF Cosford, my first Operational posting was to RAF Fairford where 30 Sqn and 47 Sqn had recently re-formed with brand new C130 Hercules aircraft. Fairford itself was still largely as the USAF had left it some years previously and having been on just care and maintenance very run down and short on airmen's accommodation.

Consequently, we were billeted at RAF South Cerney, a very pretty but small camp which, when I arrived, had a Parade Square completely surrounded by flowering cherry trees in full bloom. Each morning, evening and midnight RAF coaches ferried the next shift over to Fairford and brought the previous shift back.

We still had the normal ancillary duties at South Cerney and once as duty airman I learnt that I was to expect a 'phone call every two hours throughout the night from RAF Aston Down and if it failed to come in, I had to notify the Civilian Police! As a twenty-year old, it was the most responsibility I had ever been given.

After a few weeks the single Airmen's accommodation was declared acceptable (a somewhat questionable decision) and we left South Cerney.

In the October of that year I got married - which probably saved me from becoming an alcoholic - and we found a flat in Swindon, and by this time we had gone on to the worst shift system I ever worked - 4 days of 12 hours followed by 4 nights of 12 hours and then 4 days off. As my wife, who had previously worked for ICL, got a 9 'till 5 job computer programming at Vickers, we were seldom away from our respective work at the same time. Life was spent leaving notes for each other.

I did get a trip out to the 1968 Wildenwrath Air Show and was allowed on the C130's flight deck for the Friday practice day. The plan was for two Andovers to take off each carrying two Land Rovers and crews, and we were to follow with 2 Armoured Personnel Carriers plus crews and all meet up a few miles from the Airfield.

Each aircraft was then to do a tactical landing, reverse on the runway, unload freight and crews, followed by a swift tactical takeoff. We were to be the last aircraft to land, and we were at about 100 ft. over the threshold when one of the Land Rovers proceeded to cross the runway right in front of us. At this the pilot went to full throttle and proceeded to do a rapid climb to overshoot! As we levelled out the Air Quartermaster (later called Air Loadmasters) appeared up the cabin steps as white as a sheet. He went on to tell us that the APC Crews had started undoing the shackles holding the vehicles in position and as we went into the steep climb, he had witnessed the chain stretching on the rearmost APC, now only secured on a single shackle! Had that chain broken there is no doubt at all that we would all have been killed.

It was only about 12 months after that incident that I was posted to Cosford for my fitters' course, which lasted 13 months. At the end of the mechanics course we had been given the choice of which area of UK we would prefer, but there was no

choice on completion of the fitters' course. My posting came through as RAF Sealand home of 30 MU, and that was about the last place I wanted to work. Fortunately, another lad on the course was posted to RAF Waddington, and as he had been there as a mechanic, didn't want to go back, so we were able to swap.

It was now June 1970 and knowing that postings to the V-Force tended to be lengthy, and housing some of the cheapest in England we had decided to buy before I actually left Cosford. This decision was made even easier by the fact that on the week the course was promoted to Junior Tech on completion of the course, the Military Salary came in doubling my pay from £16.2.9 (£16.14 in today's money) including marriage allowance to £32.00 per week. My wife was still programming but for Tarmac Ltd. Whilst I was at Cosford, and for a little while we felt really well off!

On arrival at Waddington I was sent on the Vulcan Course and was 'camping out' in our new bungalow with minimal facilities. I would spend the evenings with a pickaxe, breaking up the rock-hard cracked earth where the builders' tipper trucks had been running up and down, followed by a walk to the village for a couple of pints and ham sandwiches.

By the end of the Vulcan course, my wife had joined me from Wolverhampton, and we started home building, whilst at work I was posted out to Line Sqn. We were under centralised servicing at the time and were looking after all the Waddington Wing aircraft, including our beloved XM655.

From Line squadron I had a 3 month detachment to RAF Gaydon doing NBS height mods to improve the low level performance and then back to the line until November '73 when I was posted to RAF Newton on a Flight Simulator course at the end of which I was posted back to the Vulcan Flight Simulator, yes, back at Waddington and now with a Vulcan Simulator Q annotation, screened for a further 5 years.

In June 1974 I received notification of an overseas posting to the Vulcan Flight Simulator at Akrotiri, Cyprus. My wife was really looking forward to a 2 year 'holiday' in the sun. However, a month later, the Turks invaded the island, all postings in were cancelled and the two Vulcan Squadrons, 35 and 9, were also returned to the UK, 9 Sqn to Waddington and 35 Sqn to Scampton.

Whilst I thoroughly enjoyed flying 'the box', I did not at all enjoy working in the Simulator. Before joining the RAF, I had done a 3 year apprenticeship with Post Office Telecoms and was working in a repeater station, with concrete walls, no windows, grey boxes and fluorescent lighting, an environment I had found oppressive, and the Simulator was exactly the same, but with lots of personality clashes.

Knowing this, when an urgent vacancy for a Flight Systems NCO came up in MEAS ('the hangar'), my previous Trade Boss on the Line nominated me as a temporary

replacement, which I jumped at. It was great to be working back on 'proper' aircraft.

At the time following a long history of digestive problems, I had been medically downgraded as "unfit situational stress". I had by this time applied for a last tour on 50 Sqn, but this was turned down on the grounds of the 5-year Simulator screening. When this happened, I played the 'health card' by going to see the M.O. and quite truthfully telling him that since back working on aircraft I had had no indigestion or gastric reflux and feared a return to the Sim would see a recurrence. The M.O. said that only myself could say what I found stressful, so to stay where I was in MEAS.

A few months later I was "borrowed" by 9 Sqn who needed a Flight Systems NCO for a two-week detachment to Malta, and on my return found that I had been posted. At this point I didn't know where to, and with only another 2 1/2 years to do, I really didn't relish a posting! Dashing across to the MEAS office I found SROs for the preceding week and saw "Cpl Hewitt posted 50 Sqn RAF Waddington no physical move"! I had my chosen last tour!

Back on the Squadron amongst a lot of old friends from Line Squadron days, and back on first line servicing out in the fresh air was heaven in comparison to the Simulator, and the real bonus was being one of those chosen for the 1978 Giant Voice Bombing Competition over in Barksdale LA, but that is another story.

So, having joined the RAF to see the world, 9 1/2 years of my 12 years service were spent at Waddington.

MORE TALES FROM THE HANGER FLOOR

Mark Bumford

Those of you who have a copy of the Haynes Workshop Manual on the Vulcan will have seen the picture on page 25 of XH556 with a broken back. This was caused by the main undercarriage legs retracting during the engine start sequence due to a stray electrical feed. None of my Vulcan books can shed any further light on this, or whether any remedial action was taken to prevent a further occurrence, but could it happen again.....?

It is the mid 1970's and a nice sunny day at British Aerospace, Bitteswell, some 7 miles north of Rugby. The flight shed have completed the checks on the delivery Vulcan which is parked on the edge of the quite extensive apron. The next aircraft for the modification (mod) programme is on finals over the 'Cross in hand' round-about, it lands, taxies in and is marshalled to its stand by 'Dick the chock' resplendent in his white overalls. Dick then goes up into the cockpit to assist with the safety pins for the canopy and seats, then hands the undercarriage ground locks and pitot covers to the flight shed lads who have already begun the after flights checks.

As it is a fine day with little or no wind, the aircraft will be de-fuelled and the canopy, ejection seats and dingy pack removed outside. Meanwhile the flight crew will go to the inspection office to complete the inevitable paperwork before coffee, a tour around the hangars and lunch in the 'executive' canteen (you remember all this Mike?).

After lunch it's crew in, pre-start checks and start the first engine. The engine winds up – then winds down again – for some unexplained reason the starboard main undercarriage door has closed! The undercarriage ground locks are hurriedly fitted followed by a great deal of head scratching.

The Vulcan undercarriage is controlled by eight hydraulic selectors, two in each undercarriage bay, one for leg up/down the other for door(s) open/close. The remaining two are single sided selectors mounted on the front face of the main legs and are only energised on 'up' selection to withdraw the down locks. There is a third selector in the nose wheel bay for the nose wheel steering but is not connected to the undercarriage electrical system.

Each 'double' selector has two electrical solenoids that are fed from the aircraft 28-volt electrical system via a four-pin plug and socket. However, only three pins are used as the earths from the solenoids are 'commoned' onto one pin.

Scattered throughout the airframe are 'earth posts' varying in size from 2BA upwards depending on the electrical load to be earthed. These earth posts consist of a threaded brass rod, an inch to an inch and a half long bolted and bonded electrically to the airframe to act as an earth return in the same way that the body shell on your car acts as an earth return to the battery. Earth cables from various circuits are then stacked on these posts by ring ends, secured with a self-locking nut and coated with 'earth point blue' oil-based paint to seal out moisture.

The conclusion of the aforementioned head scratching was that the earth post serving the door selector had developed a high resistance contact between it and the airframe and that an electrical 'spike' on engine start instead of going to earth had triggered the close solenoid of the selector.

This resultant mod involved the removal of the six leg/door selectors to enable the earths from the solenoids to be put on their own pins. The re-wiring of the plugs with an additional earth cable AND the dismantling of every earth post on the aircraft for cleaning and re-bonding.

I subsequently heard of no other instance of a similar undercarriage mal function. The bomb door selectors by the way were unaffected by this mod, I checked the last time I was on the pan and they still had only three cables to their plugs.

Vulcan MK2s were manufactured under four separate contracts: 17 x XH, 8 x XJ, 24 x XL and 40 x XM. However, the first flight and delivery dates for XH555 and XH556 did not happen until well into the XL contract. Can anyone shed any light on this?

Financial Report

Eric Ranshaw

This is the report for the last financial year, as approved by the elected auditor, which was presented and adopted at the AGM held on 4th May 2019.

FINANCIAL REPORT OF XM655 MAINTENANCE AND PRESERVATION SOCIETY **for the financial year 1st April 2018 to 31st March 2019**

	Current Year	Prior Year
<u>Income</u>		
Casual Donations	5,393.05	3,848.07
Organised Visits	4,269.60	4,475.00
Member Donations	958.55	1,373.58
PayPal Donations	110.15	241.30
Membership Subscriptions	5,517.36	6,958.43
Sale of Merchandise	6,548.39	8,163.40
Interest	54.55	31.33
Xmas Lunch	1,112.10	724.35
Photoshoot	4,264.31	4,500.00
Members Day	388.26	639.13
Memorabilia Sales	29.39	462.57
Lectures and Talks	90.00	
Sale of Scrap	20.00	
Total	28,755.71	31,417.16
<u>Expenditure</u>		
Merchandise Purchase + Postage	3,476.17	3,029.26
Aircraft Spares & Repairs	3,702.16	3,992.74
Fuel Tank Project	71.89	52,474.22
Aircraft Fuel	113.40	819.00
Ground Equipment	1,963.70	1,632.86
Ground Equipment Fuel	458.50	450.38
Membership Expenses	986.61	1,066.40
Domestic Consumables etc	187.72	313.24
Office costs	637.99	246.70
Insurance	1,245.00	1,225.00
Utilities	2,241.65	2,486.51
Building Improvements	680.01	414.18
Event Equipment	370.42	485.00
Tools, Consumables etc	1,183.66	2,053.44
Volunteer Equipment & Training	0.00	227.99
Public Relations	217.00	307.90
Xmas Lunch	989.00	724.35
Photoshoot	293.50	286.09
Members Day	821.72	873.75
Memorabilia Sales Costs	1.04	15.00
Total	19,641.14	73,124.01
<u>Surplus/(Deficit)</u>	9,114.57	-41,706.85

PHOTO CREDITS

All photographs not crediting their photographer are taken by 655MaPS volunteers.