

Jack's D.G.ENG BUGLE

Part 1

For those of you with a more practical bent, the following diatribe will be an extremely worthwhile read. Everyone else will just enjoy the story that Jack Cattle has to tell. His narrative is probably the longest article that the Bugle has published so far and I have agreed with Jack that we publish it in '2 Parts'. I trust that you will all delight in his excellent career review.



Jack Cattle – A schoolboy's dream comes true.

My first contact with aircraft and flying was in 1937 whilst on holiday at Littlestones. My father had wanted to experience flying so it was off to Lympe. The weather had been very good; we were dressed in light summer clothing and arrived at the airfield to find many other would-be-flyers. Lympe was at the top of a ridge and as with all airfields attracts the coldest of winds. The long wait and the low temperature curtailed any further delays in returning to Littlestones. So my first experience of flying, unknown to me, was to be followed by many more future disappointments. I believe however this experience sowed the seeds of enthusiasm throughout my life.

The Second World War, a tragedy for human life, came whilst I was at an impressionable age and the advancement of technology, especially aircraft and engines, was spectacular. We lived in Kenton, Middlesex close to Hendon, Northolt and Heston. Flying from these airfields was on a continuous basis. We experienced our fair share of the blitz, V1 flying bombs and V2 rockets. The most spectacular was the non-stop overflying of 1000 bomber raids to Germany. My efforts were concentrated on model aircraft but my first ambition was satisfied in about 1947 with a visit of the Wembley Model Club to Percival Aircraft

at Luton. On the day before our visit, first flight of the Merganser ('What was that', I hear you say?) took place. We toured the Percival factory and then spent time in the flight shed where they had Proctors on repair and the future RAF advanced trainer, the Prentice, on flight test. Then, we were offered a flight in a De-Havilland Rapide, joy of joys - this was it, my future was cast. I was accompanied by Arthur Ord-Hume who later became a writer in a/c magazines and an active team member at the Ultra Light Aircraft Association (ULAA) at Elstree. I learned some hard lessons with them i.e. power-to-weight ratio is a rather important factor in flight!

All this enthusiasm helped in the small technical content of my education but did nothing to progress the academic side. When it came to choosing a future career my ambitions of the last five years or so, had to be met. My contemporaries were seeking employment with banks, going in for accountancy, one to law and the fellow from ULAA to journalism. A lot of pressure was applied to take up a more 'acceptable' occupation but I was more than lucky in that my parents supported me all the way. I applied in January 1949 for an apprenticeship at The De-Havilland Engine Company at Stag Lane and two weeks later I was taken on. The undue rush was for the firm to benefit from a government education grant for under 17 year olds and my birthday was in March. The stay in the Technical School at Stag Lane was to be just over the year. Activities for all entries were in the Fitting shop, Machine (M/C) shop, Engine Accessory shop, Strip and build of engines (including the goblin that was awarded the first jet engine Type Approval, a Bristol Hercules and an Argus from the Fiesler Storch). This was all followed by a spell in the Drawing Office. I was fortunate that the intake included about 40% Servicemen who had taken Engineering degrees after demob; they certainly enhanced the level of competition. If performance in the fitting shop was to an acceptable standard students went forward to a higher level of M/C Shop. I made the grade and joined the team working on an example of the 1st Wright Flyer engine. This was built on No.3 of the original crankcase casting. De-Havilland, against competition from most of the UK industry, had won the contest to build a replica Wright Flyer plus an engine to be exhibited in the Science Museum for all to see. The original engine had, in accordance with the will of the Wright Brothers, been returned to the

Smithsonian Museum in 1947/48. Thanks to the standards set by the Engineering Students, which we all attempted to emulate, I was selected to the Engineering grade later the 1st year.

There were various sports and other activities encouraged outside of Stag Lane, but the one that attracted me was that of flying. I made an application early one week and was enjoying my 1st. lesson with Peter Dimmock (later head of BBC light entertainment) the following weekend. I progressed quite well and solo'd at 8½ hours, but it was not all fun. The Chief Flying Instructor was a most unpleasant fellow, to such an extent that some other pupils gave up. I continued and during the following August managed to get my Licence. This was achieved during a weekend of navigational events that more than doubled the normal flying time for this type of exercise. The intensity of the two days however taught me to fly to a reasonable standard.

Unfortunately the days in the Technical School came to an end and transfer to the works was arranged. For the first time in that year luck was not to go with me - I had drawn the short straw. I was directed to report to the Plating Shop at Leavesden which turned out to be the biggest sweat shop of all. The shop was responsible for turning an uncomfortable back into a life long problem. The Company were in full production of both Goblin and Ghost engines where the main shaft of each was dimensionally similar and cadmium plated. The shafts were stood on one end with a lifting handle on the other. The shaft was about 36" long and had to be lifted vertically over the edge of the plating bath and lowered in to the obnoxious solution. The lift was in excess of 6ft. and with more than six shafts per day going home could not come quick enough. After 3 months in this black hole I was transferred for 3 month periods to the M/C Shop, Tool planning, Engine strip & assembly and thence to the Service Dept, for which I had voiced a preference at my initial interview. I was back on the preferred track.

The Department employed about 35 people, 15 in the offices at Leavesden and 20 Reps. around the world. A hangar was allocated to allow customers to have engines and airframes serviced. The hangar was home for the 2 company aircraft, a Proctor and a Dove. These aircraft were flown by the 3 fellows in Tech.Sales due to the pressure of work on the Department. Labour was provided from any spare person available at the time. I was allocated to the Gypsy Office initially but moved after a short while to the Ghost set-up. This was an ideal move as the Venom was just established with the RAF and some overseas customers, but the Comet was within months of entering Service with BOAC and other airlines. The Ghost 50 (first engine to receive a civil Type Approval signed by of all people, Eric Carlisle known to

many in recent years at Fields Aviation Croydon) was to enter service with a life of 125 hrs. The development programme was very active producing many modifications. In order that the production of Comets was not interrupted, modifications (Mods.) to installed engines were done during the weekend and so I joined groups at Hatfield working on the very first jet airliner with freedom to look over the whole thing. A recurring problem experienced on the Comet, but not the Venom, was that of engines running down after some time at a satisfactory condition. After many fuel system replacements which seemingly cured the problem and Defect Investigations (DI's.) at Lucas, the reason for the problem was accidentally solved. It was ice slush in the LP fuel filter causing a temporary partial fuel blockage due to lowering of fuel temperature after a long flight period - also experienced during Viscount Operation at times. We were within 2 weeks of starting operation with BOAC, but this problem precluded the carrying of passengers. The solution was to increase the filter area by a factor of about 2.5. We made the introductory date by making up 8 Mod. Sets. (i.e. 2 a/c sets allowing 2 aircraft to commence the service). A working party at London Airport (LAP) which included me, worked 4 days and nights swapping the Mod. Sets. from one incoming a/c to the next serviceable outgoing, to maintain the service. More Mod. sets came along and that panic was over. At Leavesden we were with the Repair Organisation setting up the repair/overhaul line that was to satisfy the needs of BOAC with this initially short life engine. I look at the resources available at Rolls-Royce to support customers and marvel that just 3 persons on the Ghost 50 could keep the Engineering Fleet Managers happy. Incidentally during the build I, an apprentice, was the sole person between BOAC and the repair line. The Comet fleet at BOAC was now becoming established, delivery of which was over one year ahead of schedule. The repair line became established in very little time as the Ghost 50 was very similar to that installed in the Venom, little did we know what was looming over the horizon. I spent time at Hatfield on the Air France (AF), Union Aiomartime de Transporte (UAT), Royal Canadian Air Force (RCAF) and Canadian Pacific Airways (CPA) aircraft - just 2 a/c for each customer. I seem to remember that the RCAF were the first to receive aircraft, operating outside of civil requirements and trail blazing flights across N. America exposing the short comings of the radar systems. They also, although received no publicity, operated across the Atlantic. I was at LAP when they landed on one occasion having completed the last part of the flight on two engines as the fuel situation was a trifle on the meagre side. UAT took delivery of their aircraft just before the disasters which left the 2 Air France a/c grounded at Hatfield.

Within 3 weeks of the grounding, which left the workforce at Hatfield paralyzed, production of T11 Vampires and single seat Venoms were in place. After a while we prepared the engines for flight of the Air France aircraft to RAF Kemble for storage. These aircraft were built to a very high specification and were to have become the flag carriers of the AF Aircraft fleet. With the establishment of Vampire and Venom production our work at Hatfield increased again. Besides normal trouble shooting we undertook initial engine runs and then daily runs prior to flight. I was spending about 60% of my time there and once again was in the right place for flights in troublesome Vampires, it was surprising how engine interest in flight became magnified. I can tell you that a Vampire in a spin can suddenly become inverted, still spinning. For devilment that appeared to become part of an extended requirement. An experience not to be missed.

At this time we began to experience an epidemic of front bearing oil seal failure on the Ghost 48 (Venom) which caused contamination of the air conditioning system. We had Working Parties (WPs) at most of the stations. The most troublesome station was Coltishall with 2 seater night fighter Venoms. One of their problems was National Service personnel who had little knowledge or inclination to do the work. They worked at 10% compared to our people, who really did make an effort. Sqn.Ldr. Barry Baring was the Station Technical Officer (STO) here and a most amusing fellow. We had many a laugh together. He was to rise to dizzy heights in the RAF. The Service had grand opinions of their abilities and one boast was that the Venom all weather fighter was the ultimate defender? On several occasions I referred to this brag when they were unable to air test because of mist. Another piece of equipment that was the subject of high praise was the radar both ground and airborne that could detect anything that moved. Little did they know that it was being put to test (unintentionally) by a near-by Aviator? The following was an interesting interlude:

I received a call from the Gipsy office at Leavesden: 'could I visit a chap at Clippesbie who had an Auster with engine problems'. Where was this? The STO chipped in and pointed to a church spire across the airfield about 2 miles away so I took the fellows phone number and agreed to go over. I asked the STO if there was a flying field nearby. A call by the STO to his friend in the control tower confirmed there was nothing in the vicinity; they would have seen activity with the equipment. So that afternoon, having made an appointment, I went to see Mr.Shewell. He

would not give an address; he described his bungalow and said that anybody would give directions. Over I went, asked a fellow to direct me which pulled him to attention and with a touch of the forelock he indicated 'Sir' to the right. It was a huge bungalow set back from the road on rising ground. I drove up, knocked on the door, no reply; I investigated some outbuildings and found a Model T Ford car and a fire engine from about 1920. Still nobody about. I prepared to walk away when a fellow in riding gear arrived, this was he! 'Should we have afternoon tea now or when we return', he asked? My reply, based on the supposition that the aircraft was not nearby, was to see the aircraft and then have tea. He explained the problem, excessive crankshaft endfloat for which he had tooling and a Dial Test Indicator (DTI) in his car which he preferred to use because of the lack of ground clearance of my car. By this time with a view of the church spire I had a rough idea of direction. We drove off going south but then turned to the right toward RA.F Coltishall. 'Where do you fly from I asked', 'just along this track was the reply'. The rough track opened out onto a cut field and there to the right was an aircraft shaped hangar. We pushed the aircraft into the light and did a physical push/pull with very little resistance. We measured the end float with the DTI and found that it was in limits. So all was well but I recommended that he did the check every few hours and to give Leavesden a ring if he was concerned. Would I give a hand to remove the radio which was soon done but checks were inconclusive, the battery was flat. He apologised because he was planning on taking me for a flight. We closed the hangar and stood talking. I asked him the direction of the prevailing wind, a wave of the arm indicated the direction. So, that's just about over that fence, what's on the other side? I asked. The reply had me chuckling for a long time. Oh! he said, that's the perimeter fence of RAF Coltishall. We returned to the bungalow and he told me that he flew about 3 times a week usually over the fence but the RAF was evidently not worried as they had never complained! We entered the bungalow which was huge. A central room had skylights with other rooms around the periphery. He excused himself and went to a room in the corner but was back in about 15 seconds. We talked about his flying and his collection of vehicles for some time. He then suddenly remembered tea, again going to the corner room he returned in about 10 seconds this time with a huge tray of scones and cakes (plus the accessories) but, what has always puzzled me, there was not a single sound from that corner room, so, who or what was there? Back at Coltishall the following morning the answers to my questions were met with accusations that my sense of humour had gone too far.

The hectic life of the mid fifties was beginning to slow down. My apprenticeship was over and I had become a permanent member of the

Department, but ever onward I agitated to obtain the full status of a Representative. I always thought that the next full task would be the test for suitability to promotion. I was posted to RAF Hendon to sort out engine problems on Devons of The Metropolitan Communications Flight. The aircraft were used to ferry VIP's and high ranking officers around the country and to the continent. The engines were in a terrible state of neglect. It took about 3 weeks to improve the situation to near 100% serviceability. The biggest problem was again, not technical, but that of National .Service personnel. Hendon was only about 500 yds from a Northern line tube station with access to the West End in about 20 mins. The 'Erks' only thoughts were what happened last night and what was going on for tonight.

One aircraft in particular was a problem to the pilot. He complained of intermittent vibration which he considered to be engine related. We carried out thorough analyses of reports, engine ground runs and flights. There were few restrictions in the air at that time so it was a case of where shall we go. We did a flight from Southend following the Thames up through Oxford until the river just disappeared. Another extravagant flight was to RAF Dishforth to collect a very urgent parcel. On arrival the pilot requested for one of us to jump down to collect the package from the driver of a Land Rover waiting for us. I jumped down, latched the door open, but not positively. I was amazed therefore to hear and see the Devon accelerating up the peritrack. The Air Traffic Control (ATC) was alert and saw that I was not aboard and warned the pilot after a run of a few yards. I then jumped onboard and we trundled back to Hendon, having enjoyed an airborne picnic of dry curled up sandwiches and cold tea. After closing down the engines, the pilot invited us to open the package; it contained RAF flags which are flown from an aircraft on landing with a high ranking officer aboard. During these flights the pilot would alert us to vibration periodically but nothing was felt in the cabin. We refused to reject the engine and from that point onward I experienced, for the first time, the internal politics of both the RAF and De-Havilland. The problem was reported on high in both organizations. The outcome was that a test pilot from Hatfield, Geoffrey Pike, would complete an acceptance flight test. Considering that the complaints had. risen to high levels I was warned not to contact Geoffrey, who I had known from Venom and Vampire days at Hatfield, .before the test. Without our knowledge, Geoffrey arrived and duly completed the test flight. We were alerted by a bit of a skirmish when next a Land Rover arrived to take a towing bar down to the other end of the runway where you could just see the Devon with its wings not in the horizontal plane. Geoffrey also arrived back by car and disappeared almost immediately. He met up with us some time later in not a very pleasant mood.

He had a snag sheet report longer than I had ever seen before. The engines received a full bill of health but the airframe was severely criticised. Not the least; a lack of brakes, the A/C only stopping at the end of the runway by running into rough grass just before climbing the embankment of the Midland railway line. The periodic vibration was confirmed to be coming through the rudder pedals. The a/c was put on jacks and, on arrival the following morning, we were shown the rudder which had been removed to show that of the three hinges the two lower ones had cracked through allowing the rudder to flap around. We were recalled to Leavesden the following day and promotion was not mentioned again.

The future for De-Havilland did not look promising. The Gipsy piston engine range was well past its sell-by date and the 1st generation gas turbine engines were being overtaken by more efficient axial compressor types. In this class of engine De-Havilland were well represented with the then massive Gyron and the Junior Gyron. Interest was being shown by Hawker for the Gyron for the P1157 and by Blackburn Aircraft Company for the Junior in the NA39 - later to be named the Buccaneer. The immediate future was therefore with the development side of the business. I made application but was turned down through lack of engine test bed experience. I was then contacted by the Rocket Division who had an opening for me. I got the job but was confined to Stag Lane for approx 2 months, for general familiarisation, bearing in mind that there were few people with the necessary knowledge of rocket motors.

During this period I was approached to take on the flight test observers duties in the flight approval programme of the Spectre 1A for the Saunders Roe SR 53. Flight proving was to be staged in Canberra VN813, the second prototype which, due to the shaky development of our competitors' Avon engine, was fitted with Nene engines. Although Nene's were down on performance, they were 100% reliable over the whole proving programme. Having accepted the flying job I also took on the responsibility for build, test bed running and preparation of the flight test batch of engines for the Canberra and the SR53. At this time I had not seen a Spectre running in the test cell. A spell at Hatfield on general development running quickly made me realise why I was in the hot seat - literally.

That is the first part of the story leaving Jack in the hot seat at this juncture and returning later to continue with his absorbing yarn.

Part 2 will be published soon.

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