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The 35 Year Story of SWEB Helicopter Unit

by Peter Lamb

To celebrate the 35 years of operation in October 1998 of the SWEB's Helicopter Unit, we print this history of the unit written by Peter Lamb.

This year will see the SWEB Helicopter Unit celebrate a major anniversary, their 35th year of operation from Bristol's Lulsgate Airport. SWEB were the first electricity supply undertaking in the UK to fly helicopters for maintenance of overhead power lines. This was seen as a more efficient alternative to "walking-the-line" inspections. What exciting times they have witnessed.

It was realised that low flying inspection by helicopter of overhead lines was feasible in the 1960's, but it was not until the new Chairman of SWEB, Mr. A.N."Bill" Irens, became involved that it became a reality. Bill Irens, whose previous job had been with Bristol Aeroplane Company being in charge of the whole of the electrical installation of the Filton complex, immediately took a personal interest in the concept by persuading the Electricity Council to provide money for a three year research project in the use of helicopters in the electricity supply industry. The next hurdle was to appoint a helicopter consultant/pilot. By coincidence BAC's Chief Helicopter Test Pilot, Charles "Sox' Hosegood, was available and he agreed to advise SWEB. He immediately looked around for a suitable aircraft. He settled for the American designed 4 seater Agusta Bell 47J-2 manufactured under licence in Italy. This caused some initial concern as it was not British, but it was the cheapest and most suitable machine for the performance needed.

A fascinating tale is told of how the Agusta Bell was brought back from Milan to Bristol. Surprisingly the Chairman, Bill Irens, chose to go with Sox Hosegood to take delivery of the helicopter in early October and to fly back as far as Gatwick taking 3 days. Mr. Irens said "it was the most exciting experience of his life" and related how they flew at little more than 150ft, following the coast line of the Italian and French Rivieras and then across France, stopping en route, not always where planned, for sleep and sustenance. The weather was warm and sunny and he was surprised how many people relaxed naked on roof gardens!

The first line patrol took place on 22nd October 1963 with Sox at the controls and Cedric Marshall acting as observer. An aircraft engineer, another pilot and observer were recruited operating from some wartime huts on the edge of Lulsgate Airfield rented from the Bristol Airport Authority. Sox Hosegood was persuaded to become the first Chief Pilot for the Unit. Within a short time they had their first outside contract to fly a VIP around Bristol Docks. This lead to the Port of Bristol Authority requiring a machine of their own. A year later an economical working arrangement was contrived such that the Unit gained another helicopter, but with PBA having first call.

The drawback of a single helicopter and crew had been soon realised if two conditions were to be satisfied, daily availability and the best use of good weather, since line inspections were not practical in high winds or poor visibility, except for emergencies. The two helicopter operation greatly enhanced the unit's flexibility and increased helicopter availability. However the operation of a large helicopter unit for an Area Board's sole use was uneconomic, a problem which was nearly solved by the arrangement with PBA. The severe winter of 1964/65 saw the helicopter operation tested to its utmost. The Western Daily Press gave front page coverage to their operation reporting that the helicopter pilots were the "toast of the snow-bound Mendips". At least two dozen lines had been brought down by the ice build-up and the pilots were required to fly the aircraft from dawn to dusk mainly to get men and equipment into inaccessible places. Other events contrived to place the Helicopter Unit in the public eye in the 1960's. A SWEB helicopter was used in the search of the Bristol suburbs for a missing boy of 7, long before the days of police helicopters. On separate occasions a body was located in the sea off the Mumbles in South Wales and a collision was averted in the English Channel between a Liberian tanker and a cable laying ship, which was carrying out repairs on a cross-channel cable.

From the outset the Helicopter Unit was concerned with the possible effects that low flying helicopters might have on animals. They therefore initiated a series of tests with Bristol University's Department of Animal Husbandry for trials with animals in fields and under cover, analysing behaviour and on milk and egg production. Very little effects were discovered, but ways were found how to avoid disturbing cattle unnecessarily. SWEB treated any complaints from landowners with understanding and generosity, since the CAA gave the necessary dispensation annually for the low flying required for the operation.

Shortly after the acquisition of the second machine, Sox Hosegood was asked to fly the

Transport Minister, Tom Fraser, around a tour of engineering projects in the Bristol area. Unfortunately at the end of the tour the fog came down rather dramatically in the afternoon and Mr. Fraser was unable to get to Lulsgate to catch his flight to London at 6.00pm. He was flown as close as possible, which turned out to be the car park of the Paradise Motel on the A38 a few miles from the Airport and the Minister continued his journey by car to the Airport. In thanking Sox, the Minister's comment was classic "I shall always remember you flying me to Paradise". Particularly during the association with the PBA, the Helicopter Unit was often entrusted to fly numerous VIP's around Again in the late 60's Sox was asked to fly the then Transport Minister, Barbara Castle around the Docks. Headlines in the local papers were obtained this time, since Mrs. Castle was threatening to nationalise the Docks and Bristol City Council were opposed to the idea. Other VIP's included the Duke of Beaufort, George Brown, Wedgwood Benn and many more too numerous to mention. Visits to SWEB by Electricity Council Chairmen were honoured with a flying tour around the south west area, Sir Norman Elliott in 1968 and Sir Peter Menzies in 1974. All were flown without incident or cancellations, with the exception of the "Paradise" landing, which speaks well for such a small unit.

The interim report on the Helicopter Project was published in 1965. It showed that the Helicopter Unit was an efficient means of inspecting and maintaining overhead lines. The major advantage was that problems could be located which could not be seen from a field inspection, thus potential faults could be eradicated. This was a major factor in SWEB changing its inspection policy from annually to biannually. Problems were discovered in inspecting a few lines near built-up areas, leaving 95% of SWEB's 33kV and 11kV lines to be successfully surveyed.

The helicopter operated for PBA (G-ASWR) had an engine failure on a test flight in June 1966 and on the subsequent heavy landing, suffered damage beyond economical repair, the crew managing to escape without injury. PBA purchased a new replacement machine (G-ASNV) as soon as possible after this unfortunate incident. In 1970 the PBA relinquished their interest in their helicopter and the machine was taken over by SWEB Fortunately SWEB were then in a position to operate two helicopters, since prior to that in 1968 two adjacent supply undertakings, Midland and South Wales, agreed to join a consortium to make use of the facility, with South Eastern joining two years later.

This prompted SWEB to purchase a third helicopter (G-AVYX) in 1968. This time it was to be a more powerful Agusta Bell the 206A JetRanger powered by an Allison gas turbine engine, which was again made in Italy under licence. This helicopter proved to be a vast improvement and could be considered ideal in every respect with the exception, that it had only one engine. It could transport heavy materials to inaccessible sites, which proved to be a valuable work-horse for the unit. The Units flying commitments increased sufficiently to warrant the purchase of a second JetRanger in 1980 and a third one in 1982, which enabled the Unit to increase their total annual flying hours to 1500 hours.

In 1983 their pioneering Chief Pilot, Sox Hosegood, retired after 20 years service with the Unit. At that time the SWEB Helicopter Unit had three helicopters, three pilots, three observers and three maintenance engineers operating from pretty crude buildings, which were old wartime single brick-built huts together with a very small hanger. Rod Hicks was immediately appointed to replace him, a job he did for five years. At the time of Sox's retirement and in recognition of his service to the Unit, in a small gathering at the Airport, the latest JetRanger helicopter was named "Spirit of Sox". A gesture he much appreciated, but was saddened when it crashed in 1986 and was judged to be beyond repair. Again no injuries occurred, which says much for the unit's safety record since 1963, in what must be considered a very exacting form of flying. Bob Malone has been in charge since 1989 and under his direction, SWEB Management were persuaded to provide better facilities at Lulsgate, so that a sizeable hanger and attached offices were built in 1990 at a cost of £1/4 Million, also a further electricity undertaking has been persuaded to join the consortium, that of Southern, making five i.n total and encompassing the whole of southern England and Wales. Four other regional electricity companies (REC's) use charter companies. Throughout the life of the Unit, they have occasionally carried out work on the Grid System originally for CEGB and latterly for National Grid Company. The National Grid have operated a small helicopter unit for 25 years with one pilot using hired machines, and since 1984 they have had their own helicopter.

With the retirement of the Agusta Bell 47J's helicopters and the acquisition of the JetRangcrs, there was still a need to increase the complement of helicopters to four, so eight years ago it was decided to purchase French Aerospatiale Twin Squirrels. These not only had two engines as the name implies, but also were very much more powerful, enabling additional work to be accommodated, but also being much safer machines. Therefore the number of pilots and observers has been increased to four with three maintenance engineers.

It may be of interest to note that the majority of helicopters purchased have been acquired secondhand, with the exception of the first Agusta Bell (G-ALSR), which was purchased at a total cost of £26,000, and no.4 JetRanger (G-AVYX). This may sound

surprising in view of the age of the present complement, but with the exception of the airframe, the parts are totally replaced at intervals depending upon component life,which is why the age of no.5 JetRanger (G-BARP), i.e. the oldest, which was manufactured in 1974, is not a problem!

Looking back to the beginning, it should be born in mind that normal aircraft are not allowed to fly lower than 500fi, so it was necessary to obtain low flying permission from the CAA, who from the start proved most helpful and gave encouragement for an operation that they considered worthwhile. In this connection the name of Bill Perry at the CAA Operations Division will always be remembered for without his co-operation and help in the early days the Unit would never have flourished.

Readers may be interested in more details of how a helicopter line inspection is achieved, bearing in mind the considerable experience that the SWEB team have now gamed over a long period. The helicopter flies at 30mph alongside the overhead line as close as is practical for the observer to note details of each pole top. The observer is equipped with an ordnance survey map, scale 1:50000, with the line network overlaid, a tally counter and tape recorder. It has been found not practical to patrol lines for more than 2 1/2 hours without a break, so five hours maximum is allowed per day. The team thus averages about 140km per day, which compares with a foot patrol of 10km per day. Two days patrol work will generate enough taped material to transcribe in one day afterwards. Any urgent repair work is immediately relayed to the customer by telephone.

It has been found possible to carry out many other tasks not initially envisaged mainly associated with construction activity. These include stringing lines across heavily wooded valleys, delivering poles and overhead line equipment to inaccessible places and helping repair teams under emergency conditions both in location of faults and subsequent repairs. The more powerful helicopters have provided an opportunity to carry heavier loads up to 900kg. Taking advantage of this, a considerable advance has been made with the stringing of lines by using a specially designed cable winch, which is attached to the underside of the helicopter. The technique has been perfected with the assistance of MANWEB construction teams. The new procedure reduces the possibility of land damage and therefore the likelihood of compensation claims from landowners. One of the most exciting developments has been the use of the infra-red sensitive thermal camera, which can locate hot-spots in the connections. This then leads to the replacement of the faulty parts, thus reducing the incidence of faults and contributing to a good preventive maintenance policy.

The helicopters are painted bright red with the word "electricity" boldly indicated in order to gain instant recognition. It is essential that farmers and other landowners realise, who is operating in their vicinity to avoid any unnecessary misunderstandings. Although not courting publicity the SWEB helicopters have been featured in many newspapers as mentioned at the outset, occasionally this still occurs. As recently as 1988 a SWEB helicopter alerted the rescue services to a ship on fire in the Bristol Channel.

The SWEB Helicopter Unit has now been operating for 35 years and last year notched up 2000 flying hours, with an anticipated 2400 hours for the current year. Throughout that time there have been no fatalities nor any serious injury, although there have been several forced landings. On once such occasion, the crew were met by a farmer wielding a pick-axe handle. Fortunately his attitude was not directed at the crew but in order to protect them from an enraged bull! The Unit has survived many reorganisations, including privatisation and the purchase by the American Company, Southern Electric International of Atlanta, Georgia, USA. Judging by press reports at the time, the

Americans were initially a bit sceptical of the value and efficiency of using helicopters for line maintenance, but have now been convinced of the importance of the Unit. The SWEB Helicopter Unit is a unique enterprise within the distribution companies and has proved itself to be a vital resource in the maintenance of power lines for the five regional electricity companies of the consortium with the comparable costings continuing to beat the cost of foot patrols. It is the continuing aim to promote the service outside that of the existing consortium and to encourage other undertakings to make use of this expertise in modem technology.

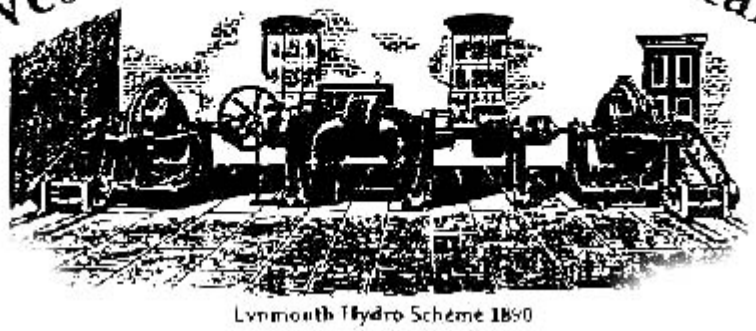
Peter G. Lamb
10-3-98

DETAILS OF HELICOPTERS No. 4 G-AVYX Agusta-Bell 206A JetRanger 1968

Withdrawn :- 1985 operation :- 17 yrs
No. 1 G-ASLR Agusta-Bell 47J2 1963
Withdrawn :- May 1971 operation :- 8 yrs
No. 2 G-ASWR Agusta-Bel147J2 1964
Written off :- 1966 operation :- 2 yrs
No. 3 G-ASNV Agusta-Bell 47J2 1966
Withdrawn :- 1982 operation :- 16 yrs

No. 4 G-AVYX Agusta-Bell 206A JetRanger 1968
Withdrawn :- 1985 operation :- 17 yrs
No. 5 G-BARP Bell 206B JetRanger 1980
Still in service operation :- 18 yrs
No. 6 G-JGFF Agusta-Bell 206B JetRanger 1982
Withdrawn :- 1986 operation :- 4 yrs
No. 7 G-MFMF Bell 206B JetRanger 1985
Still in service operation :-13 yrs
No. 8 G-LECA Aerospatiale 355 Twin Squirrel 1987
Still in service operation :- 11 yrs
No. 9 G-OHMS Acrospatiale 355 Twin Squirrel 1990
Still in service operation :- 8 yrs

South Western Electricity Historical Society



Lynmouth Hydro Scheme 1890

This document comes from the
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