

Aer Lingus 

DE HAVILLAND DH84 DRAGON

Iolar (Eagle)





THE ORIGINAL "IOLAR"

The first Aer Lingus aircraft was De Havilland DH84 Dragon EI-ABI named "Iolar" (Eagle) which was delivered to the newly formed airline from Blackpool and West Coast Air Services in May 1936. When the Irish government decided to proceed with the establishment of Aer Lingus and the launch of scheduled cross-channel air services it arranged with UK airline pioneer Gordon Olley to provide a turnkey service via one of Olley's companies, Blackpool and West Coast Air Services. This company provided the aircraft, the financing, the flight crew and the technical support for the new venture.

The Dragon was probably the ideal starter aircraft for Aer Lingus, having been designed for operation on routes with low traffic density without subsidy support, and so good economics were paramount. The aircraft turned out to be well suited to this target market, featuring low fuel consumption of just 13 gallons per hour and its basic, simple design ensured low maintenance costs. Its cruising speed was a rather sedately 110 mph, so it was really only practical on relatively short sectors, and the Dublin-Bristol route was nearing the limit of its capability. A total of 115 Dragons were built in the UK, of which 53 were of the improved Dragon II version, identifiable by its individually-framed cabin windows. Whilst production ceased in the UK in 1937, a further 87 were built in Australia during World War II as radio and navigation trainers. The initial UK production was undertaken at De Havilland's Stag Lane plant, but it moved to Hatfield in early 1934, and the aircraft destined for Aer Lingus, G-ACPY, was built at the latter location and its C of A was issued on 10 May 1934. It was first registered as G-ACPY in April 1934 to Railway Air Services Ltd., Croydon, and was delivered on 11 May 1934 to Olley Air Services Ltd., Croydon. It was re-registered to Blackpool & West Coast Air Services Ltd., Speke, on 28 February 1935.

On May 27 1936 the first Aer Lingus flight from Dublin (Baldonnel Military Aerodrome) to Bristol was operated by the Iolar, then the only aircraft in the Aer Lingus fleet. When the second Aer Lingus aircraft, a DH86A, went into operation in September of the same year on an extended Dublin-Bristol-London route, the Iolar was switched to the Dublin-Liverpool route, and it also operated seasonal services to the Isle of Man.

The original Iolar was sold in February 1938 back to Olley Air Services in part exchange for a slightly larger and faster Dragon Rapide, which took the name "Iolar II", and the Dragon was restored to the British register as G-ACPY. It flew in the livery of one of Olley's other companies, Great Western and Southern Airlines, and operated a service between Lands End and the Scilly Isles. At the outbreak of the war, Great Western and Southern lost most of its aircraft to the Air Ministry for use in France but the faithful Dragon was retained to operate the Lands End-Scilly Isles route. It was a unique service in that it was the only internal air route to be operated in England during the war, but sadly it became a casualty of war on Tuesday 03 June 1940. The Dragon left St. Mary's in the Scilly Isles, shortly after 1700 local on that day on its third (non scheduled) flight of the day, to Lands

End, but it failed to arrive at its destination. The aircraft had been shot down by a passing Luftwaffe Heinkel He-111 which mistook the Dragon for a military aircraft.

THE NEW "IOLAR"

The DH84 Dragon, now restored with loving care by Aer Lingus personnel at Dublin Airport, is a sister ship of the original Iolar. By a happy coincidence it, too, celebrates its 75th Anniversary in 2011 the year in which Aer Lingus celebrates its 75th Anniversary.

It was built in Hatfield, England, in 1936 and was test flown by the great Geoffrey de Havilland himself on April 18th of that year. Originally registered G-AECZ, it was flown by Western Airways and Scottish Airways until it was impressed into the RAF's 110 (Anti-Aircraft Cooperation) Wing in May 1940. It was badly damaged in a crash at Castle Bromwich in late 1940. Repairs were completed in 1942 and it was returned to the RAF. It was sold to Air Taxis at Croydon in March 1946 and to Wiltshire School of Flying in 1948.

It came to Ireland in March 1950, registered EI-AFK, when it was sold to Mr. J. Cleary of Mullingar. Five months later it went to Captain Darby Kennedy of Weston Aerodrome near Dublin and was used for light charter work and pleasure flying. It was withdrawn from service in January 1959.

In 1967 the Dragon was purchased by Aer Lingus painted in the colours of the original Iolar and flown to Dublin Airport by Captain Kennedy on the 1st of September. In 1971 it escorted the first Aer Lingus Jumbo jet along the taxiways at Dublin Airport when it landed after its delivery flight. Subsequently it was displayed at an aeronautical exhibition in the Departures Hall at the airport.

THE EAGLE FLIES AGAIN

When the first plans for the Fiftieth Anniversary of Aer Lingus were being prepared, John Molloy, then Quality Insurance Inspector in the airline's Maintenance and Engineering Department and a keen private flyer, suggested that the Dragon could be made airworthy again as part of the celebrations. He approached colleague Captain J. J. Sullivan, a pilot on the company's Boeing 747 fleet and, like himself, a private flyer of small aircraft. They put the proposal to Aer Lingus which readily agreed to finance the restoration work.

The main structure of the aircraft was in good condition. The frame is made of high quality spruce and only a small number of wing ribs needed repair or replacement. Metal areas were x-rayed, some minor areas of corrosion treated and some landing wires and control cables replaced. Brendan O'Donoghue of the Irish Air Corps was responsible for the replacement of the plywood floor and side wall panels and John Molloy replaced the original linen covering with polyester-based fibre. Other work was carried out by enthusiastic members of the airline's Maintenance and Engineering Department. Surprisingly, spares were common to other vintage aircraft.

In August 1985 the Dragon was officially re-registered EI-ABI, which was the registration of the





original lolar. It was flight tested and received its Certificate of Airworthiness in 1986. Between then and May 1991 it was used extensively by Aer Lingus for promotional purposes, attending various air displays and fly-ins as well as commemorative functions marking significant events in the airline's history. After a period of storage it was restored to airworthy status in time for the airline's 60th anniversary in May 1996, and it remained active up until November 2004, at which stage it was put into storage at the Aer Lingus Commuter hangar on the west side of Dublin Airport.

In December 2009 Aer Lingus' newly-appointed Chief Executive, Christoph Mueller, decided to have the Dragon restored to airworthy state in time for the airline's 75th anniversary in May 2011 using a team of volunteers. John Molloy, now retired from Aer Lingus, agreed to oversee the work again, which was undertaken by a team of volunteers in Aer Lingus' Hangar 6. The work involved was significant, and involved removal of the outer and inner wings so as to replace the wing attachment tie rods as well as extensive inspection and repair of the aircraft's structure and fittings. On the afternoon of 24 February 2011 the lolar took to the air again at Dublin Airport on its initial post-restoration test flight, which was fully satisfactory.

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Extracts from a Sales Brochure produced by

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THE DE HAVILLAND DRAGON “AN AIRLINER IN MINIATURE”

In the early days of Commercial Aviation, when the question of subsidized air lines was under discussion, a distinguished politician laid down the dictum “Civil aviation will have to fly by itself”.

That was some fourteen years ago and yet it is only recently that the first essential of unsubsidized commercial flying – a commercial aeroplane capable of really economical operation – has been produced. Hitherto the cost per passenger seat of commercial aircraft has been high, and high pay load has only been obtained at the expense of performance. Moreover all commercial aircraft have been fitted with engines of high power, and therefore high cost, with consequent adverse effect upon running costs.

There is, however, now available the De Havilland Dragon, which combines low horse-power, low first costs, low running costs. Low maintenance costs, high performance and high carrying capacity; the details of this machine are given in the following description:

BRIEF SPECIFICATION – TWIN-ENGINED PASSENGER BIPLANE

WINGS: Of wooden construction, wire braced and arranged to fold. Fabric covered. Ailerons on all four wings operated by D.H. patent differential control.

FUSELAGE: of special wooden ply construction, covered with fabric and embodying a special scheme of anti-climatic protection.

TAIL UNIT: of orthodox monoplane design and wooden construction; fabric covered. Rudder is balanced; elevators unbalanced. Adjustable tail plane. Full castor tail wheel with pneumatic tyre and auxiliary springing.

UNDER-CARRIAGE: Divided semi-cantilever type. Track 12 feet. Only two moving parts are employed. Dunlop medium pressure tyres and Bendix brakes.

ENGINES: Two 130 b.h.p. Gipsy Major inverted engines housed, with petrol and oil tanks, on inner sections of lower planes.

ACCOMMODATION: Pilot in nose, in glazed cockpit totally enclosed. Passenger cabin aft of pilot’s cockpit with accommodation for six passengers





(normal arrangement) or equivalent weight of freight; door on port side. Cabin dimensions 9 feet 9 inches by 4 feet 6 inches by 4 feet. Separate luggage compartment 45 cubic feet; door on starboard side. Lavatory may be fitted as an extra.

DIMENSIONS:

- Span (wings extended) 47 feet, 4 inches
- Span (wings folded) 25 feet, 4 inches
- Length overall 34 feet, 6 inches
- Height 9 feet, 4 inches

WEIGHT PERFORMANCE:

See separate data.

CABIN

The cabin measures approximately 9ft. 9in. x 4ft. 6in. x 4ft. 6in high, and has therefore a total cubic capacity of some 175 cubic feet (excluding the luggage compartment).

The ample floor space of nearly 40 square feet permits an almost indefinite variety of seating and furnishing arrangements. For short flights seating accommodation for ten passengers may be installed: six passengers can be carried in luxurious adjustable armchairs; if a lavatory is fitted there is space for five passengers and, of course, for the private owner the Dragon is an ideal machine in which to carry a party of four in long and deep lounge chairs. There is also plenty of room for a cocktail and refreshment buffet with a seat for a steward without affecting the lavatory or luggage accommodation (details of the latter are given below).

With the cabin stripped of its furniture and appointments, space is available for 1,300 to 1,400 lbs. of freight or mails (210 cubic feet).

A further interesting development of the Dragon appears in its ready adaptability to what has come to be known as the "type colonial"; this term is intended to mean a type of machine which can be used as a normal passenger or goods aircraft, but which can also be employed for the disciplining of unruly tribes in case of need. The development of the Dragon for this purpose entails the extension of the cabin space to include the luggage compartment, the fitting of a gunner's platform with gun ring in the roof of the cabin, an alternative gun position in the floor, a fixed gun firing forward from the pilot's cockpit, the fitting of bomb racks, release gear and sights, wireless, and rough seating for troops or police. In this form, as in the normal cabin space, the Dragon can easily accommodate stretcher cases. It is also ideally suited for bombing training.

Moreover, the absolutely unobstructed downward and forward view (the undercarriage being of the split type, leaving the underside of the fuselage clear, and the pilot being seated right forward with no engine in front of him) makes the Dragon an admirable machine for survey, mapping and aerial photography.

The cabin is warmed by a special heating device, whereby warm air from the engine is distributed over the floor, and a controllable air duct is fitted to each seat for the admission of fresh air.

PILOT'S COCKPIT

The pilot is seated in a comfortable cockpit in the extreme nose of the fuselage and, having no engine in front of him, enjoys an absolutely unobstructed view in all directions. The cockpit is totally enclosed with Triplex Glass and Cellon, and is separated from the cabin by a bulkhead in which are two doors. By means of these a change-over of pilots in the air is facilitated.

LUGGAGE AND LAVATORY SPACE

At the rear end of the cabin is a luggage compartment of a capacity of 35 cubic feet, which is reduced to 25 cubic feet when a lavatory is fitted. This provides ample accommodation for 290 lbs. Of luggage, which can be carried by six passengers (48 lbs. per passenger)

CONTROLS

An outstanding feature of the Dragon is the ease with which the controls can be inspected and maintained. All the flying controls are led through the floor of the cockpit and are housed in a false bottom to the fuselage. This consists of fabric laced by "Zipfasteners", which run from end to end of the fuselage, and when these fasteners are undone all the controls are immediately accessible. The aileron control is by means of a wheel on the top of the control column, which works the elevators by means of cables. Ball bearings are used at all important working points.

WINGS

The wings are of special section, wooden construction, wire-braced and fabric covered.

ENGINES

The power plant consists of two air-cooled Gipsy Major engines of inverted type, developing 130 b.h.p. each, and, in view of the well proven reliability of this type, it is not proposed to indulge in a technical description.

The two Gipsy Majors are mounted in the Dragon on the fixed inner sections of the lower planes, driving tractor screws and housed in engine nacelles. Each of these nacelles contains also a petrol tank of 30 gallons capacity, from which fuel is fed to the engine through duplicated fuel pumps. In the lower cowling of each engine is contained an oil tank of two gallons capacity.

The standard airscrews are of wood, but metal airscrews may be fitted at the option of the purchaser.

The engines are mounted on rubber blocks in steel tube structures which are attached to the wings at four points. Vibration is kept to a minimum and is completely insulated from the wing structure.

EQUIPMENT

The normal standard equipment includes wiring for navigation lighting, but no lamps, batteries or switches.

Wireless and cabin lighting may be fitted at the option of the purchaser, and among many other special fittings and refinements which can be supplied are special de luce chairs of adjustable type, lavatory, automatic Air Log and sun-blind for the pilot's cockpit.

RANGE

Standard petrol tankage is, as has been said, 60 gallons, and this gives a range of some five hours or about 500 miles at 110 m.p.h.

PERFORMANCE

Maximum speed at sea level is in the neighbourhood of 130 m.p.h., and cruising speed 110 m.p.h., both of which, even by modern standards, are fast.

But even more remarkable figures appear when take-off and climb are considered. The wing loading has been kept purposely low and, consequently a quick "unstuck" and rapid rate of climb are achieved. The official requirements for the take-off test demand a height of 66 feet at a distance of 546 yards from the rest. The Dragon achieved a height of 145 feet in this distance. THE DRAGON WILL FLY FULLY LOADED ON ONE ENGINE. When these figures are considered as applying to aerodromes at sea level and in a temperate climate, it will be appreciated that the Dragon is an ideal machine for operation from high altitude aerodromes in tropical countries.

The all-up weight of the Dragon, with furniture for six passengers, is 4,200 lbs., and as the tare weight is about 2,285 lbs., the disposable load is about 1,915 lbs. In other words, the Dragon is equipped as a passenger machine carries the astonishing load of 82.5 per cent of its own weight as normal disposable load; as a freighter, without chairs or cabin furniture, the disposable load is about 2,015 lbs., or 92 per cent of its unladen weight.

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GENERAL

At the beginning of these notes the phrase “Civil Aviation will have to fly by itself” was recalled, and it was shown that the first essential of a self-supporting commercial flying industry – an aeroplane which combines speed, economy and a high pay load – has hitherto been lacking.

The Dragon not only converts what has for fourteen years been nothing more than a “pious hope” into a relative certainty, but it has achieved this without sacrificing speed or operational economy to pay load – or indeed any of these desirable features to any other. It goes, indeed, a considerable step further.

The travelling public has for a long time been accustomed by motor coach travelling to a certain luxury appointment and furniture; in other words, it has enjoyed, and now demands, first class comfort for third class fare. On some of the big aeroplanes of the regular subsidized air lines this has been realised in recent years, but luxurious interiors are even now the exception rather than the rule. The Dragon provides a vehicle which amply satisfies the most critical traveller, and at the same time puts the operator of unsubsidized air services in a position not only to inaugurate new services which have hitherto been impossible, but even to compete with existing subsidized services.

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