

**CANADA AVIATION MUSEUM AIRCRAFT**  
**FAIREY SWORDFISH TH-M**



**Prepared by D. Glenn Cook**

## Introduction

It is difficult to summarize the SWORDFISH aircraft because it was a contradiction of extremes. On the one hand it's World War I design as a biplane, would not, at first sight, warrant employment in World War II. Its speed seldom exceeded 90 knots, it was extremely vulnerable to enemy fighters, and its weapon load was relatively low consisting of either a single underslung torpedo or bombs mounted on racks located under the lower wings.



In earlier versions the instrument panel was only marginally capable of providing the pilot with attitude information which would allow flying at night or without visual reference to the ground. Its ungainly stance and antiquated look gained it the nickname "STRINGBAG" which refers to shopping bags made of string used by English ladies during daily outings wherein all manner of objects could be carried. Remarkably lacking in any outward sophistication, the FAIREY SWORDFISH was nevertheless immensely capable for the role it was designed for.

## SWORDFISH Design

The SWORDFISH's design dated back to the early "thirties" to meet the requirement of "Specification S.9/30", which called for a fleet spotter-reconnaissance aircraft. The design evolution was influenced by the World War I biplane characterized by low wing loadings and a relatively low top speed. After several design improvements the TSR II (Torpedo Spotter Reconnaissance) label was attached to the aircraft and 2,392 aircraft were ultimately delivered to the Royal Navy: 300 Mk.Is, 1,080 Mk.IIs and 320 Mk.IIIs. Of this number ninety-nine Mk.IIs and six Mk.III were allocated for Canadian use. The technical specifications were as follows:

Description: Carrier based torpedo-spotter-reconnaissance.

Manufacturer: FAIREY Aviation Co. Ltd./Blackburn Aircraft Co. Ltd.

Power Plant: One 690 h.p. Bristol Pegasus III M.3 or 750 H.P. Pegasus XXX.

### Dimensions:

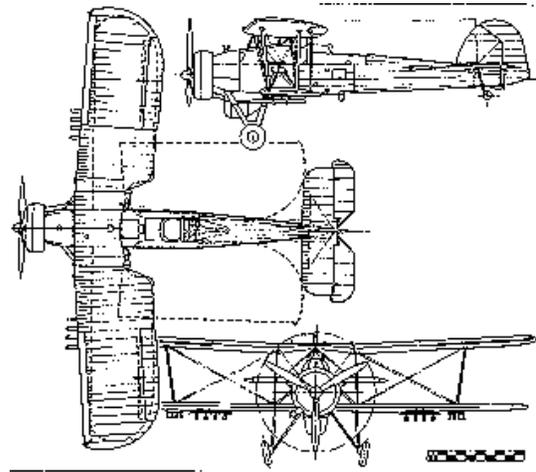
Wing Span	45 ft. 6 in. (17 ft. 3 in. Folded).
Length	36 ft. 4 in.
Height	12 ft. 10 in.
Wing Area	607 sq. ft.

### Weights:

Empty	5,200 lbs.
Loaded	8,330 lbs.

### Performance:

Maximum Speed	139 m.p.h.
Cruising Speed	104-129 m.p.h. (90-112 kts.)
Range	350 N.M.
Service Ceiling	15,000 ft.



Armament:

Defensive	One fixed Browning and one Lewis or Vickers K Gun aft.
Offensive	One 18" 1,610 lb. torpedo between fixed undercarriage; or One 1,500 lb. mine below fuselage; or Three 500 lb. bombs; or Two 500 lb. and two 250 lb. bombs; or Three Mk. VII depth charges; or Eight 60 lb. rockets.

Despite being ungainly the SWORDFISH became the single most successful aircraft in WW II when measured by the tonnage of enemy shipping sunk. Although slow, it was well adapted for torpedo attacks against large ships. There were several reasons for this. First, the aircraft was remarkably stable and could be positioned at low level abeam large targets with relative ease. Many warships could not depress their guns low enough to the surface of the water which often meant the SWORDFISH was flying underneath, and not into, a withering umbrella of gunfire. When used at night, as it was while based in Malta, the aircraft was all but invulnerable to German convoys bound for North Africa.

Finally, following operational missions it was relatively safe to land on carrier flight decks. While the flight decks were always moving often as much as sixty feet the "closing" speed was rather benign. With winds over the deck often running at 50 kts. and an aircraft approaching at 80 kts. the "closing" speed could often be as low as 30 kts. From a maintenance perspective it was a simple design permitting cannibalization of major parts at short notice. Indeed, the Museum Exhibit SWORDFISH is a compendium of components taken from several aircraft.

The SWORDFISH, due to its low speed, was particularly vulnerable to enemy fighters. Consequently Royal Navy Commanders tended to operate them outside the range of German fighters which, almost exclusively, were flown from shore based airfields. In campaigns closer to land friendly fighter cover was provided either by shore based fighters or by fighter aircraft flown from parent aircraft carriers. No summary of the SWORDFISH would be complete without an outline of its early introduction and final successes. Formally Introduced into the Royal Navy for operations in July 1936 the first Fleet Air Arm Squadron converted was 825 Squadron. As aircraft production increased the following additional operational Squadrons were equipped:

Squadrons 812, and 823	Nov/Dec. 1936
Squadrons 813	Jan 1937
Squadrons 810, 820 and 821	mid 1938
Squadrons 822, 824 and 814	mid/end 1937
Squadrons 816 and 818	mid 1939
Squadrons 815, 819 and 829	early 1940.

## **SWORDFISH Operations**

### Beginnings

For the first nine months of the Word War II this amiable dowager of an aircraft was confined to routine convoy escort duties and therefore had little opportunity to reveal the more pugnacious side of its nature. This changed on 11 April 1940 when a co-ordinated torpedo attack was mounted on two German "cruisers" lying at anchor at Trondheim, Norway. The two "cruisers" turned out to be destroyers but much had been learned in ship/air coordination. This came into play when SWORDFISH did an extraordinary

job of spotting for the guns of the battleship HMS WARSPITE. During this battle the HMS WARSPITE, using information supplied by SWORDFISH observers provided information which allowed a single battleship to sink seven destroyers at Ofot Fjord. The Captain of HMS WARSPITE magnanimously attributed the success of this action to the SWORDFISH Squadron. Shortly afterwards these successes were followed by a dive bombing attack sinking the first U boat, the first for the Fleet Air Arm in Word War II.

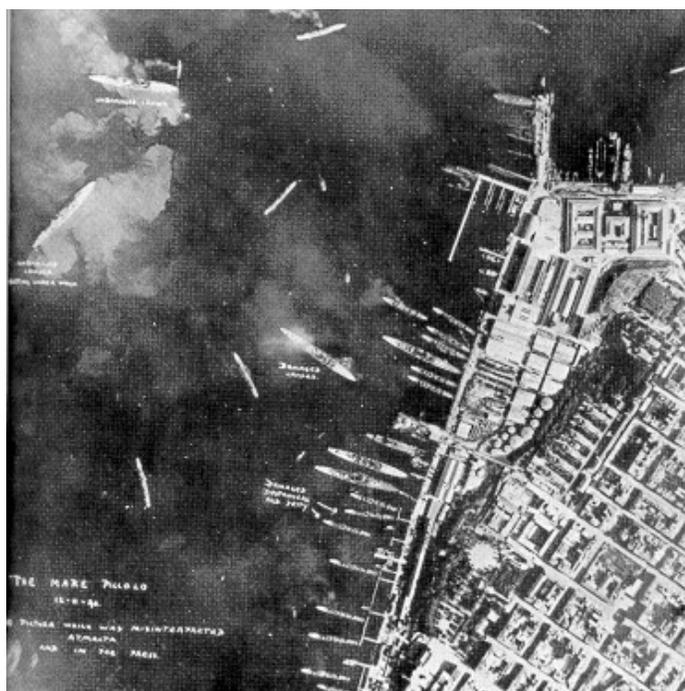
### Malta

With the war in the desert taking its toll on the British Army it was decided to locate a Squadron of SWORDFISH at Hal Far, Malta specifically to intercept German shipping supplies then headed for North Africa and Rommel's Afrika Corps. This was successfully accomplished in June 1940 and before the end of the year 830 Squadron had sunk 9,000 tons of enemy shipping. Between May and November 830 Squadron was to account for a further 110,000 tons of enemy shipping sunk including damaging another 130,000 tons, this being a record never to be equaled. In concert with other Squadrons 830 Squadron was to sink a further 400,000 tons by the end of 1942.

### Taranto

It was, of course the action at Taranto, the major Italian port located in the "boot" of Italy, that firmly established the SWORDFISH legend. This victory is a landmark in the history of naval air warfare, for it was the first time that aircraft had demonstrated they were capable of knocking out major portions of an entire enemy fleet, unaided. This altered the balance of power at sea.

On the night of 11 November 1940 the aircraft carrier HMS ILLUSTRIOUS launched two strike forces of SWORDFISH against the very modern Italian Fleet anchored at Taranto. The first strike force of 12 aircraft was launched in the early evening with the second strike force of nine aircraft launched one hour later. With a full moon the SWORDFISH pilots successfully evaded the barrage balloons strategically placed around the perimeter of the port and sunk the battleship CONTE de CAVOUR severely damaging the DUILIO and ITALIA. As well, the cruiser TRENTO and the destroyers LIBECCIO and PESSANGO were seriously damaged. Although the Italians fired over 13,000 rounds of ammunition only two SWORDFISH aircraft and one crew were lost.



The significance of this raid was not lost on the Japanese. In early 1941, following this successful attack, a delegation of Japanese naval officers visited Italian officials to survey the harbor and to determine the tactics used in the destruction of a major portion of the Italian Fleet. Their analysis confirmed that the aircraft flown from aircraft carriers, particularly against closely moored ships alongside or at anchor in closed harbors were splendid targets for attack. The Taranto "model", suitably modified, was therefore used by the Japanese in their attack on Pearl Harbor on 7 December 1941. This paved the way for the entry of America into World War II, and, as events unfolded was, for the axis powers, "the beginning of the end".

On reflection no one could have seen the cause and effect relationship between the use of a small fragile biplane against the Italian Fleet at Taranto, the Japanese attack on Pearl Harbor and eventually the



demise and shift of world balance of power that eventually transpired.

### Cape Matapan and Bismarck

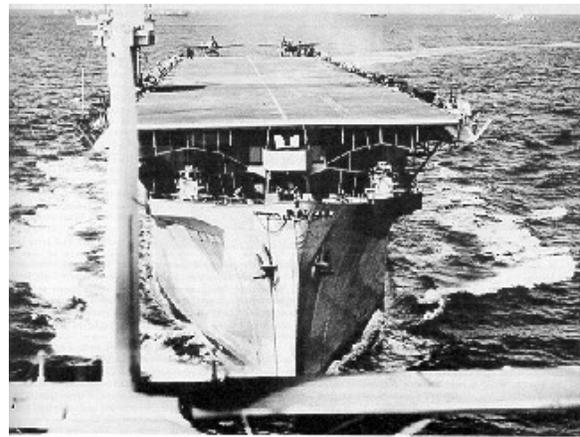
Finally, SWORDFISH of 815 Squadron participated in the Battle of Cape Matapan, disabling the Italian cruiser POLA on 28 March 1941. In May, flying from Cyprus, 815's SWORDFISH struck Vichy shipping and shore targets in Syria. Meanwhile out in the Atlantic 818 Squadron led by LCdr. T.P. Coode, flying from the aircraft carrier HMS ARK ROYAL succeeded in making

two torpedo hits on BISMARCK which crippled her steering and finally enabled the Fleet to intercept and sink her with gunfire and surface torpedoes. The actual photograph of the SWORDFISH used in the raid against the Bismarck is shown. The aircraft are being ranged aft on the flight deck where armament is being up-loaded. Although several SWORDFISH were damaged in the attack on BISMARCK all returned to the carrier.

### MAC Ships

While the SWORDFISH were performing superbly in direct combat roles they were also being prepared for a less visible but most important mission. This had to do with convoy escort operations. Throughout 1940/41 merchant ships with cargoes bound for England were being sunk at a rate that could not long be sustained. During this period air cover could be supplied from the East coast of North America and from bases located in Ireland and Scotland but could not be provided through a 1400 mile gap located South of Iceland. It was in this location that German submarines could charge their batteries during daylight preparatory to attacks on convoys made at night. And all without any fear of air attack whatsoever.

German submarine successes were many until Allied Forces decided on a two prong method of providing air cover in this 1400 mile geographic area. The first was to locate large LIBERATOR bombers in Iceland and the second was to convert old merchant vessels with primitive flight decks from which up to four SWORDFISH aircraft could operate and provide the necessary anti-submarine surveillance. These converted merchant ships were known as Merchant Aircraft Carriers or MAC Ships. A photograph of one of these MAC ships is seen at inset; the photo was taken from a SWORDFISH immediately after take-off for an Anti Submarine patrol.



A large number of these ships were converted in American shipyards and since the SWORDFISH were built in England they were shipped to the Air Station located at Dartmouth, Nova Scotia where they were assembled and subsequently test flown. Aircrews accompanying the aircraft from the U.K. would then board their respective MAC ships then loading in Halifax harbour. Sailing in large convoys with the SWORDFISH to provide air cover "closed" this 1400 mile mid ocean air cover gap and from this point forward merchant ship losses became substantially less.

### **The Canadian Connection**

During the fall and winter of 1941 East Camp, Yarmouth, Nova Scotia was built on a 25 acre swamp site to prepare RAF aircrews to fly an assortment of bomber aircraft. In addition, this camp was to train Telegraphist Air Gunners (TAGS) at the Naval Air Gunners School for active duty on Naval Torpedo Bomber aircraft including the SWORDFISH. The first units of the Fleet Air Arm arrived in early 1942. By the time it closed in 1945 the School had graduated over 700 Fleet Air Arm Air Gunners who went on to serve world wide in Fleet Air Arm Air Squadrons.

The SWORDFISH, therefore, had its North American debut at Yarmouth, Nova Scotia. The open cockpit design of the SWORDFISH turned out to be a problem in the cold Canadian climate. Three Mk IV versions were Taken on STRENGTH (TOS). This version was produced locally by fitting the Mark II's with an enclosed canopy. By 1945 fifty-nine (59) SWORDFISH had been converted to the MK IV standard.

Several factors saw the SWORDFISH as one of the first aircraft to be used by the post war Royal Canadian Navy (RCN). First, they were already located in Canada and indeed, following shipping from Britain, were test flown at Dartmouth, Nova Scotia later to be commissioned as HMCS SHEARWATER. Secondly, in December 1945 the Canadian Cabinet gave approval to build-up Canada's Naval Aviation component at this location. This decision was taken coincident with decisions to procure an aircraft carrier, HMCS WARRIOR then being constructed in Ireland. Until this decision RCN Fleet Air Arm pilots flew primarily with the Royal Navy.

The SWORDFISH aircraft used by the RCN at HMCS SHEARWATER following the cessation of hostilities were provisionally Taken on Charge. The Royal Navy decided that they could be left in Canada for use by the fledgling air branch of the RCN as the cost of returning them to Britain was unwarranted. The SWORDFISH did not remain long as they were soon replaced by the U.K. designed FAIREY FIREFLY and SUPERMARINE SEAFIRE, the Naval derivative of the SUPERMARINE SPITFIRE.

In July 1946 the Royal Canadian Navy announced that the SWORDFISH aircraft were to be withdrawn from operational use. Six would be retained at Dartmouth for flying duties, where they were flown by a reformed No. 743 Squadron from September 1946 until November 1948. The remainder were scrapped except for eleven which were flown to Naval Reserve Divisions across Canada for ground instructional purposes. The first to be allocated reached Uplands Airport, Ottawa on 24 July 1946 for use at HMCS *Carleton* Dow's Lake, Ottawa and the remainder were flown to airports nearest to naval divisions at Calgary (HMCS *Tecumseh*), Edmonton (HMCS *Nonsuch*), Hamilton (HMCS *Star*), Port Arthur (HMCS *Griffon*), Regina (HMCS *Queen*), Saskatoon (HMCS *Unicorn*), Toronto (HMCS *York*), Vancouver (HMCS *Discovery*), Windsor (HMCS *Hunter*), and Winnipeg (HMCS *Chippawa*).



Most of the others were disposed of as scrap, seven being bought for \$50.00 each by a Mr. Ernest Simmons of Tillsonburg Ontario, a somewhat eccentric collector of war surplus vehicles and mechanical artifacts.

### **The Museum SWORDFISH Exhibit**

The lineage of the existing museum FAIREY SWORDFISH exhibit is not easily determined. Following retirement of the aircraft in 1947 most SWORDFISH were disposed of by Crown Assets through auction. As earlier noted several of these aircraft were purchased by Mr. Simmonds and stored at his farm at RR #6 Tillsonburg, Ontario where they deteriorated. A photograph of the SWORDFISH purchased at a public auction on Saturday September 5, 1965 by the Canadian War Museum is shown at right. These "parts" were grafted into a single SWORDFISH by RCN Dartmouth, Nova Scotia with the assistance of FAIREY

Aviation of Canada Limited. The markings selected for this exhibit were those of SWORDFISH NS122 with the fuselage code "**TH - M**".

Like the Museum exhibit the SWORDFISH NS 122 was an open cockpit MK III version. It was delivered from the Blackburn Aircraft Company, East factory On 22 July 1944. Tested at Worthy Down it was Taken on Charge (TOC) by the RCN on 20 February 1945 for Air Component Training at the Naval Air Station, HMCS SHEARWATER, Shearwater, Nova Scotia. It flew from 20 March 1946 until 1 November, 1948 when it was Struck Off Strength