

by Francis GALLEMI
& Willy PEETERS





Hawker Hurricane MkXII
The Fighter Collection
Duxford, England



Cover :

Banking high over the British countryside is Duxford based Hurricane XR O T finished in scheme "A" of Dark Earth and Green. The coat of arms can be seen below the exhaust pipes.
(Photo copyright The Fighter Collection/ John DIBBS).

Title Page :

The same aircraft in a different pose, trying to keep up with the chase plane. As can be noted it carries different markings on this side of the nose representing the colors of N°71 "Eagle" Squadron.
(Photo copyright The Fighter Collection/ Richard WINSLADE)

ACKNOWLEDGMENTS

I wish to express my sincere gratitude to the people at the Canadian Warplane Heritage Museum and specially Mr. Robert SCHWEYER, Assistant Curator, for providing me the opportunity to photograph their excellent airworthy example of the Hurricane. Thanks also to all those that helped me in locating valuable information on this aircraft.

Last but not least to my best friend and father who over the years has helped me in all my endeavors and travels in the name of modeling, to you I say thank you and dedicate this book.

Francis GALLEMI,
Canada, 01 March 1994

A sincere thanks is also due to the people of The Fighter Collection in Duxford, England for letting me cover their Mk XII, in the process of being refurbished for another season of air displays. This gave me a chance to photograph behind panels which are normally closed.

Special thanks to Mr. Stephen GREY and Mr. Peter RUSHEN of the Fighter Collection, Mrs. Carol STEARN of the Duxford Airfield Public Affairs Office and her boss Mr. Frank CROSBY, who answered my request positively.

Willy PEETERS,
Belgium, 01 March 1994

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INTRODUCTION

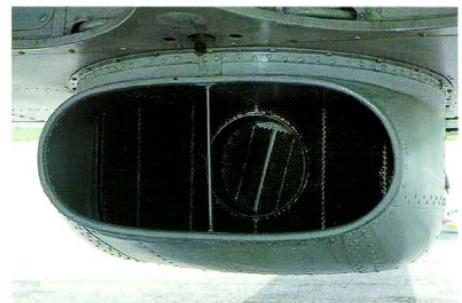
On February 1993, the Canadian Warplane Heritage Museum suffered a disastrous fire which destroyed some of their most valuable airworthy aircraft. Among the 'victims' of the blaze were a Spitfire, an Avenger and the Hurricane which was photographed two years earlier. This aircraft had an interesting history; it was built in Canada as a MkXII and served during the war in various units across the country. In 1967 it took part in the filming of the "Battle of Britain". Later, it was owned by Sir William ROBERTS and subsequently sold to the CWHM. While stationed there it was painted in the colors of N°1 Squadron, Royal Canadian Air Force which actually served during the Battle of Britain. Unfortunately, it now remains only as a photographic memory in this book. The other Hurricane in this book, which is still flying today, belongs to the Fighter Collection stationed at Duxford in Cambridgeshire, a former WWII fighter base which served as the

location for the same epic movie mentioned above. Also a MkXII, a type produced in Canada and serving entirely with Canadian fighter units, it flew off-shore patrol duties in WWII.

The Hurricane, although not as illustrious as its British counterpart, the Spitfire, was a rugged and reliable aircraft, numerically outclassing the Spit in the early days of WWII. Actually, it was the first monoplane to enter service with the Royal Air Force, having been designed as early as 1934, barely resembling the Hawker Fury biplane. However, the traditional Hawker biplane construction of structural tubing covered with fabric was maintained but the wings, because of the incorporation of 4 to 6 guns in each wing, were complete metal structures. Some 15 Hurricane types were developed, plus some variants of the Sea Hurricane (with complete arresting hook assembly) to be launched from naval vessels.



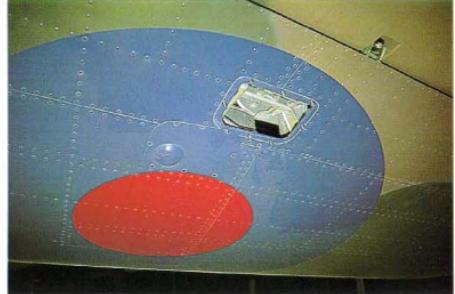
Forward right nose section with engine access panels removed, exposing the Rolls Royce Merlin XX. Note the complexity of the plumbing required to run the engine. The Merlin XX developed 1260 H.P. with a 3000 RPM setting at a 11,750 feet altitude.



Front and rear view of the ventral oil and coolant radiator. The radiator fairing flap was generally open on parked aircraft.

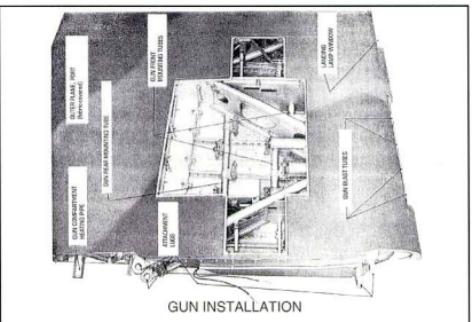
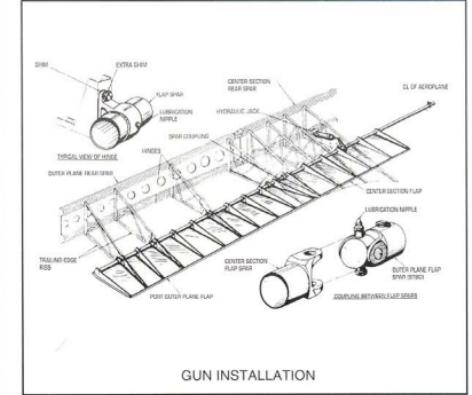


General view of the right wing upper surface with large two tone roundel. In the background can be seen the partially stripped fuselage and engine compartment. Contrary to the fuselage, the wing is an all-metal construction.

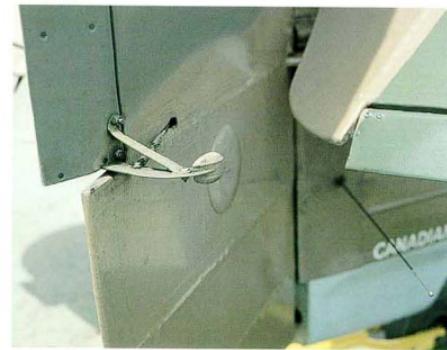
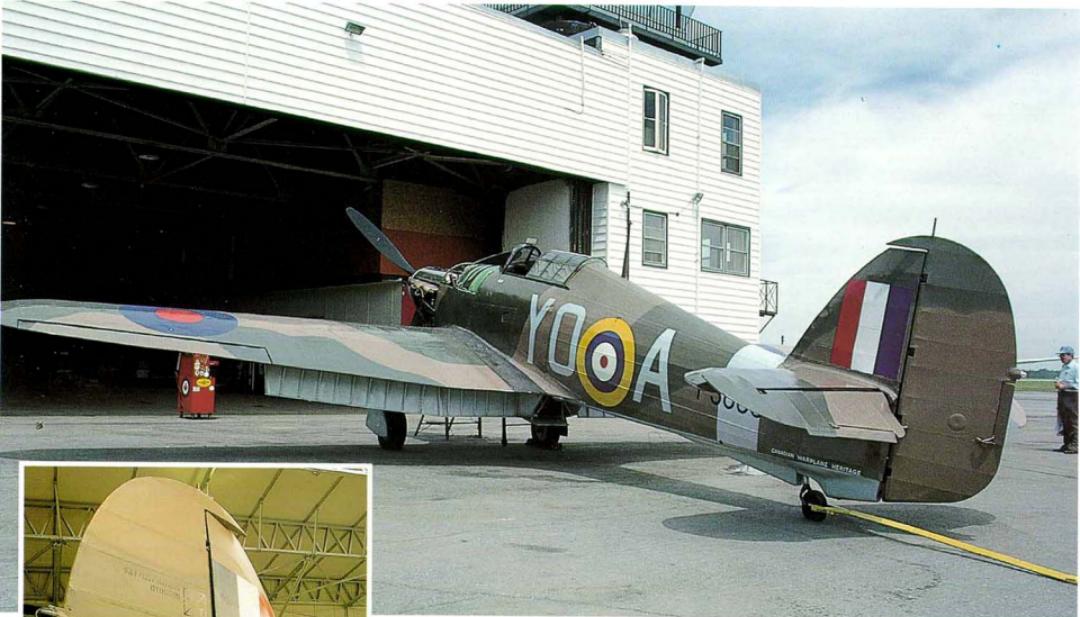


Bottom wing detail at flap height. Below is a bottom view of the engine and the carburetor intake.





The flaps are activated by a hydraulic jack fitted to the port side. A universal joint connected each set of flaps.

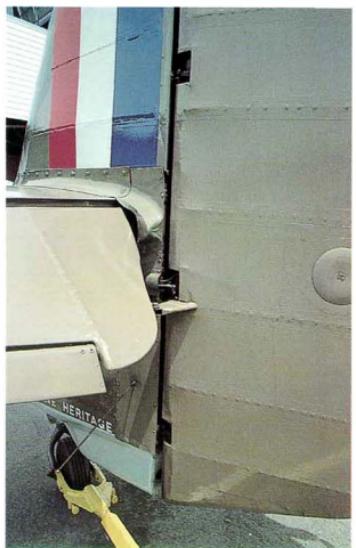


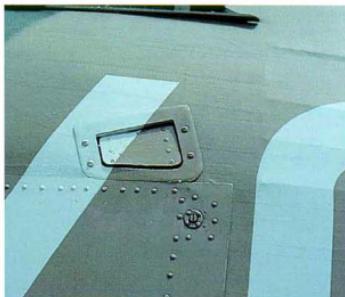
The elegant lines of the Hurricane can be studied in this rear quarter view of YO@A, clearly showing the neat appearance of the fabric, indicating a perfect restoration job.

(Far left & left) Close up of the rudder area and the counter weight on the vertical trim vane. The aerial below the horizontal tailplane in the photo at right is not WWII standard.



Detail view of the fabric covered port tail section. The large panel below the tailplane provides access to tailplane controls and tail wheel suspension. Note the trim vane on the tailplane trailing edge.





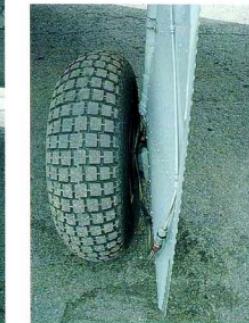
Boarding the aircraft is made easy by a retractable footstep in the bottom of the port wing fairing (bottom left) and a spring activated handhold on the right side of the step. To enter the cockpit another foot step is located halfway up the fuselage.

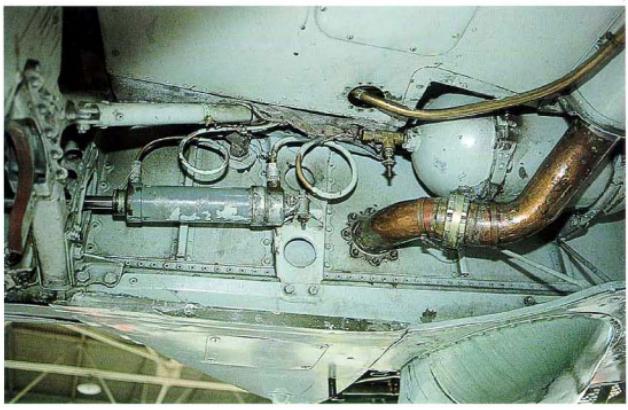


Detailed view of the pitot tube and port wing landing light at the mid wing section. Another one is mounted in the starboard side wing.



Mock up gun muzzles of the two outer wing .303 Browning machine guns as carried only on MkIIB and Canadian MkXII Hurricanes. The MkIIB carried six guns in each wing.





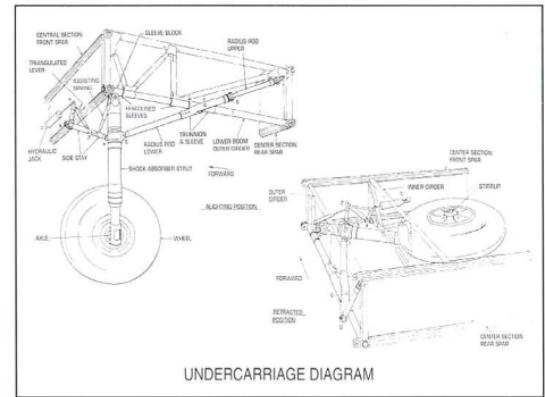
The rest of the photos on these pages focus on the starboard side undercarriage leg and wheel well. The main shock absorber strut is linked rearwards by an upper (inside wing) and lower radius rod connected in the middle by a trunnion and sleeve; and sideways by a side stay and assisting spring. The hydraulic jack mounted to the forward wheel well bulkhead retracts the gear making the trunnion to swivel, forcing the upper radius rod to a horizontal position inside the wing (see diagram on page 14).



Supermarine Spitfire Mk. XIX
The National Collection
National Air and Space
Museum & Smithsonian Institution, Washington, D.C.



The pneumatic system air bottle and glycol and oil cooling duct are mounted outboard inside the wheel well. Note the bottom pictures are starboard side wheel details.



UNDERCARRIAGE DIAGRAM

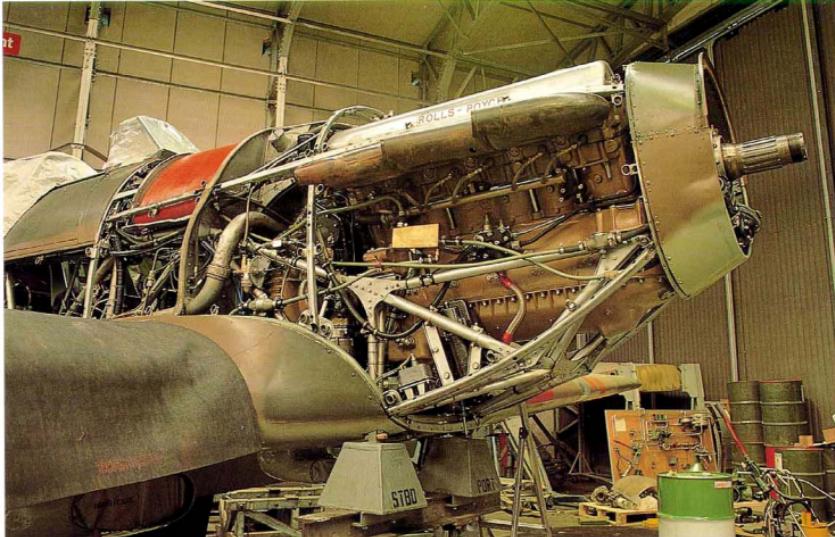


The rear of the wheel wells is devoid of accessories to better accommodate the main wheels. Above is the starboard side well while below is shown the port side wheel well. Note the absence of a center spar at fuselage skin level.

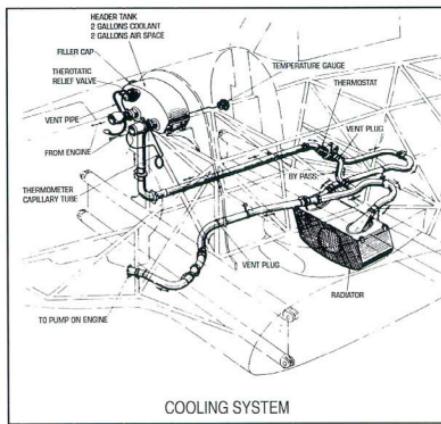


Hurricane stripped of all cowling panels during engine overhaul in the Duxford maintenance facilities. The engine mounting is an integral part of the structural tubing of the fuselage but, unlike the latter, is not covered with fabric but with thin metal panels. Note the second type Rolls Royce exhaust pipes.



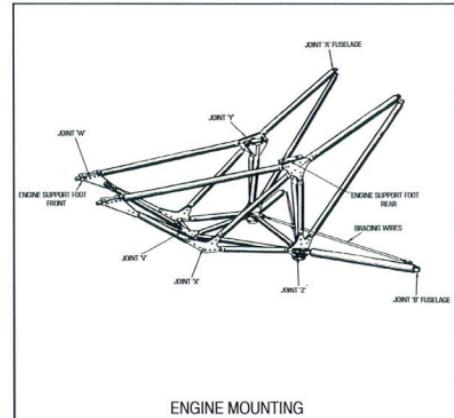


A good view of the stripped nose section revealing the position of the engine inside the cowling. Note that all side panels have been unscrewed and removed. The biggest asset of this design is the easy access to the various systems and flight controls inside. Not only did it lack cockpit side walls, the Hurricane had no cockpit floor. Seat, flight controls and instrument panels were all attached to the structural tubing one way or another.





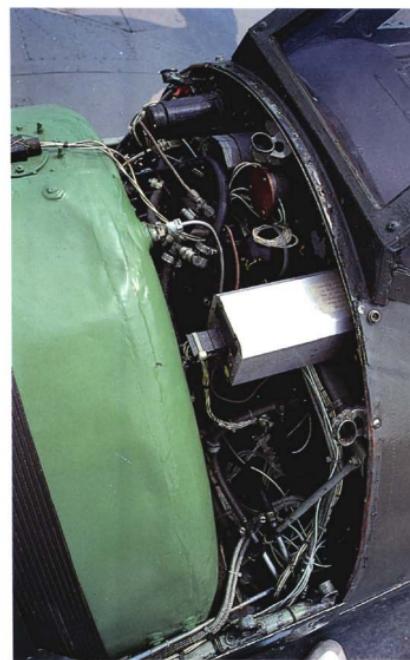
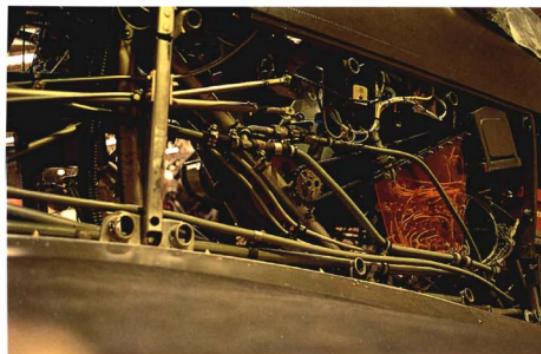
Detail of the aircraft cockpit area further aft with a radio inside the aft stowage bay.



ENGINE MOUNTING



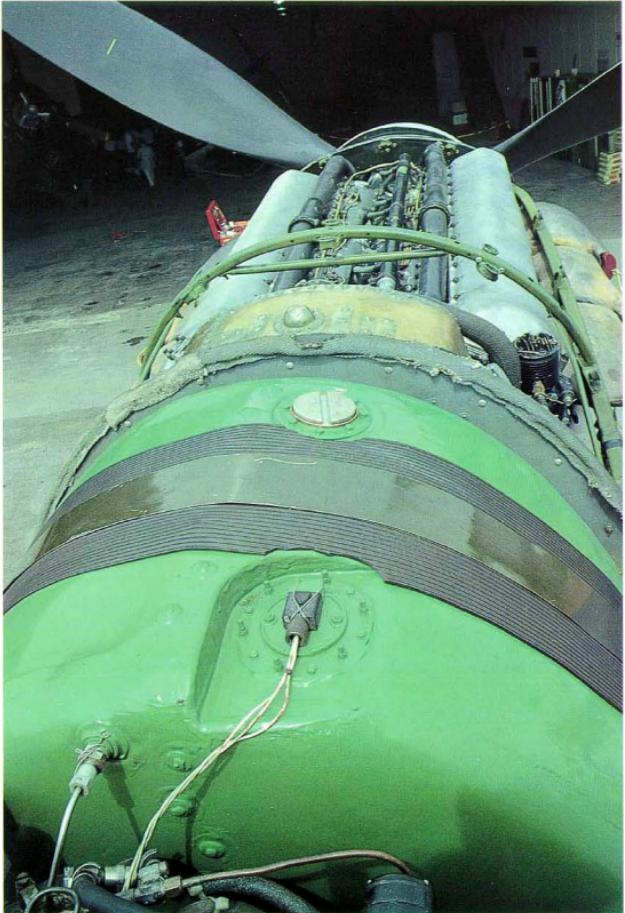
The Rolls Royce engine inside its mount viewed from the port side. Note the complex structure of the wing/fuselage fairing and the thickness of the wing (i.e. compared to the Spitfire wing). Also note the jacks underneath the nose/wing section joint as a safety precaution.



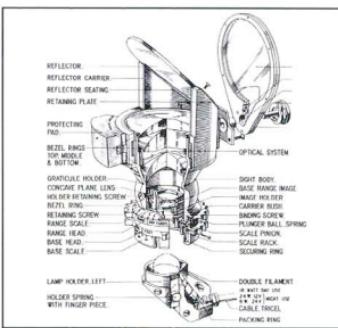
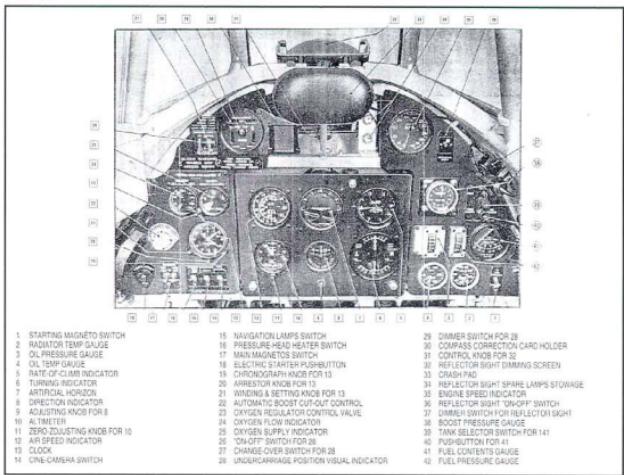
Top left is the area immediately below the port cockpit (Note the handhold at right). The picture above shows the integration of the flight instrument connectors between the fuselage fuel tank at left and the front windscreens.

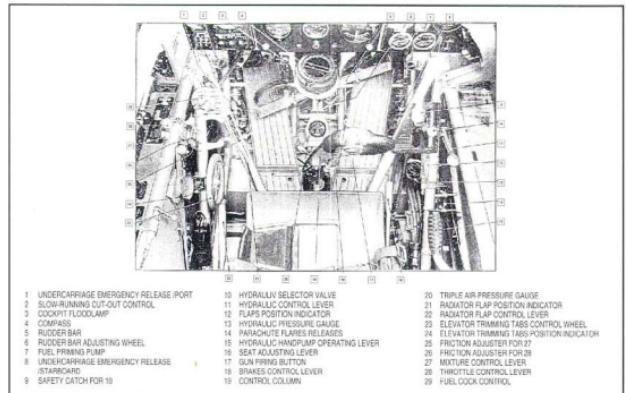
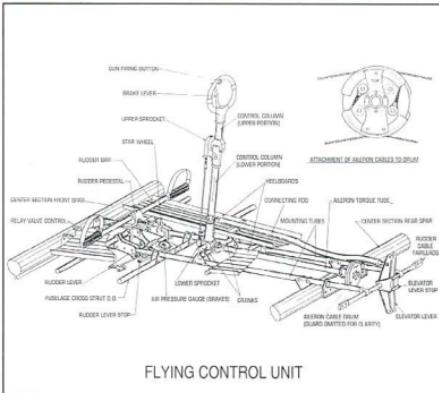


Engine coolant header tank with tubing and supply hoses (see also previous page) together with other engine related accessories and connectors.



A view of the fuel tank and coolant reservoir from the rear. Capacity of the fuel tank was 28 Imperial gallons and served primarily as a reserve tank.

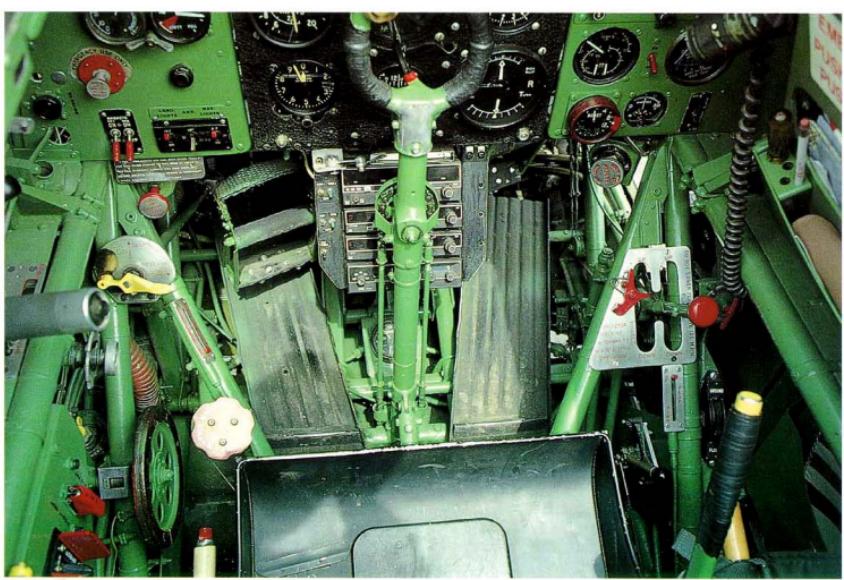




(Previous page, top left)
Armored glass windscreens protected the pilot from head-on attacks. Note the crash pad and the rear view mirror.

(Previous page, bottom)
The main instrument panel of this museum piece is quite authentic, only missing the compass and the gun sight. Instrument location differs slightly from WWII birds as noted in the diagram.

As mentioned before, no cockpit floor is present. The entire flying control unit is connected to the structural tubing. The control column is of typical British design and was incorporated in most fighter planes of its era. Note the center panel below the main panel is of recent design (WWII aircraft featured a compass).





Right side of the cockpit with the undercarriage and flap selector lever, hydraulic hand pump and map case. Note the latter is also not authentic as indicated in the diagram at bottom left.

Below is shown the area aft of and to the right of the seat, featuring a recently added fire extinguisher not found in WWII aircraft.





General view of the sliding canopy and handholds. Note the rearface fireproof bulkhead.

Below is the opposite side of the cockpit with radiator flap control lever and elevator trim tab control wheel. The little knob next to the wheel is the rudder trimming tab control.





Comparison between the photo and the diagram explains the additions to the Canadian heritage model like the small circuit breaker panel.

