

LOCK ON N°25
AIRCRAFT PHOTO FILE

Hawker HURRICANE Mk XII

by Francis GALLEMI
& Willy PEETERS



24
pages
Mini-file

898



Hawker Hurricane Mk XII
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 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

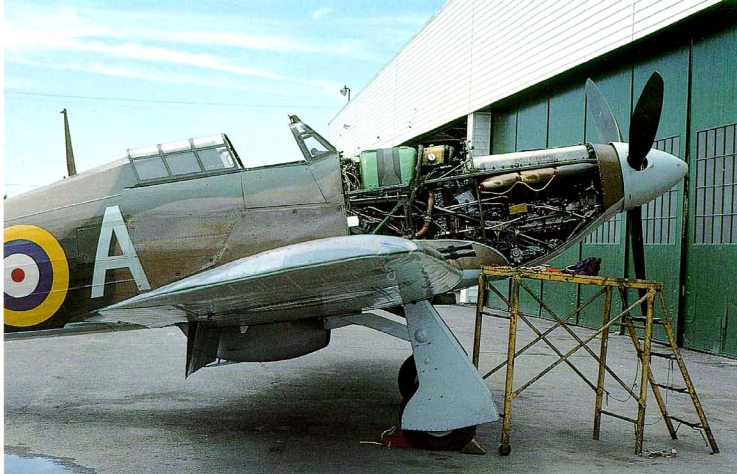
On February 1993, the Canadian Warplane Heritage Museum suffered a disastrous fire which destroyed some of their most valuable aircraft. Among the 'victims' of the blaze were a Spitfire, an Avenger and the Hurricane which was photographed two years earlier. This aircraft had an interesting history; it 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

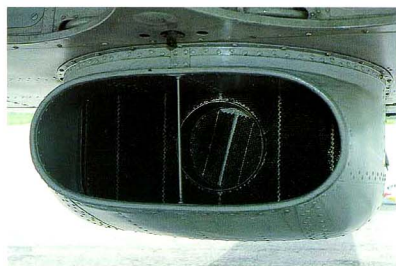
location for the same epic movie mentioned above. Also a MkXII, a type produced in Canada and serving entirely with Canadian fighter units, it flew off-shore patrol duties in WWII.

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.



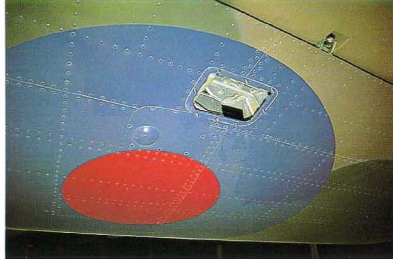
Forward right nose section with engine access panels removed, exposing the Rolls Royce Merlin XX. Note the complexity of the plumbing required to run the engine. The Merlin XX developed 1260 H.P. with a 3000 RPM setting at a 11,750 feet altitude.



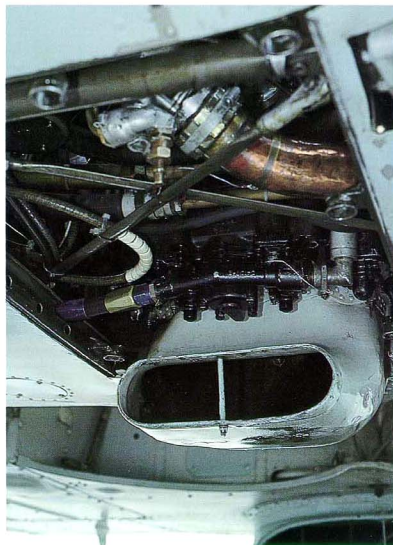
Front and rear view of the ventral oil and coolant radiator. The radiator fairing flap was generally open on parked aircraft.

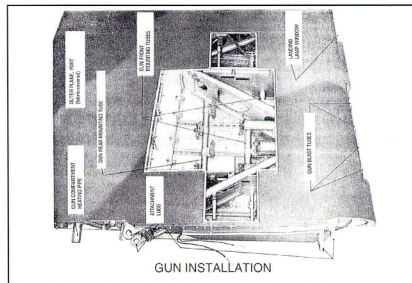
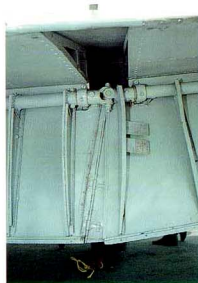
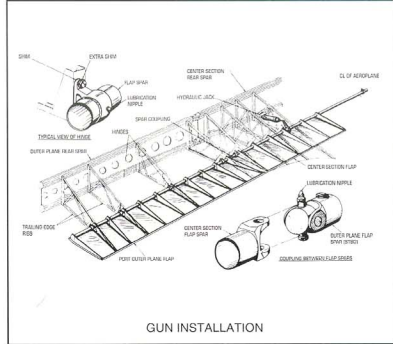


General view of the right wing upper surface with large two tone roundel. In the background can be seen the partially stripped fuselage and engine compartment. Contrary to the fuselage, the wing is an all-metal construction.



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





GUN INSTALLATION

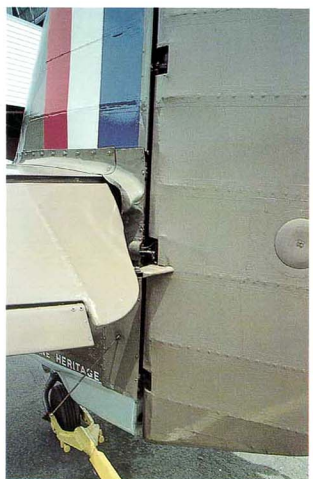


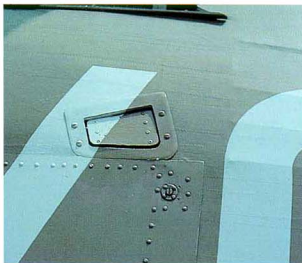
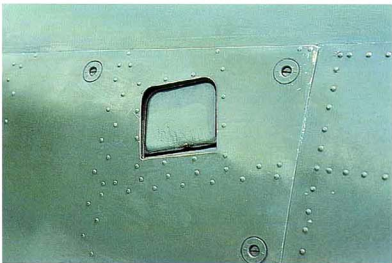
The elegant lines of the Hurricane can be studied in this rear quarter view of YO@A, clearly showing the neat appearance of the fabric, indicating a perfect restoration job.

(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.

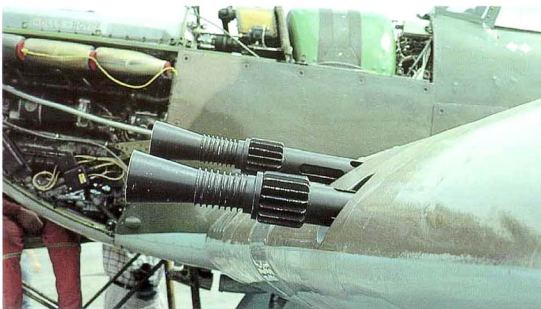




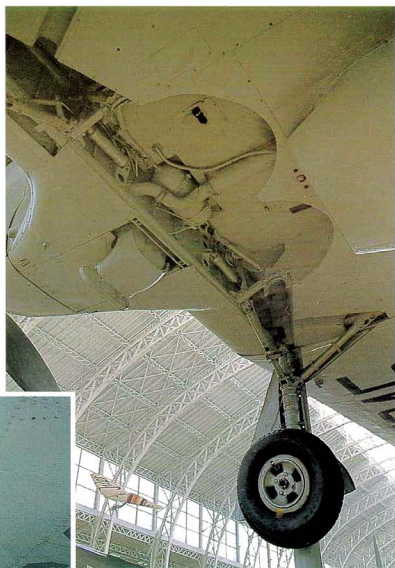
Boarding the aircraft is made easy by a retractable footstep in the bottom of the port wing fairing (bottom left) and a spring activated handhold on the right side of the step. To enter the cockpit another foot step is located halfway up the fuselage.

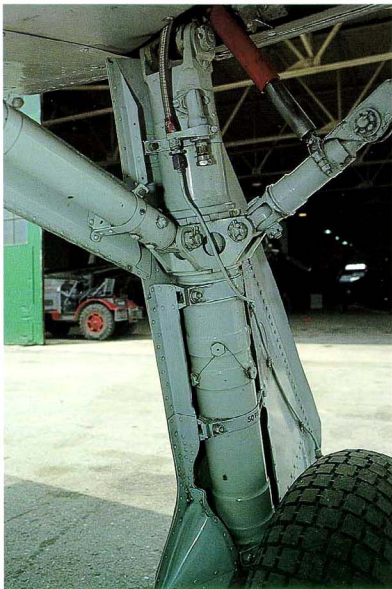


Detailed view of the pitot tube and port wing landing light at the mid wing section. Another one is mounted in the starboard side wing.



Mock up gun muzzles of the two outer wing .303 Browning machine guns as carried only on MkIIb and Canadian MkIIb 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).



Spitfire Mk. IX, No. 21
The Fighter Collection
RAF Museum, Hendon
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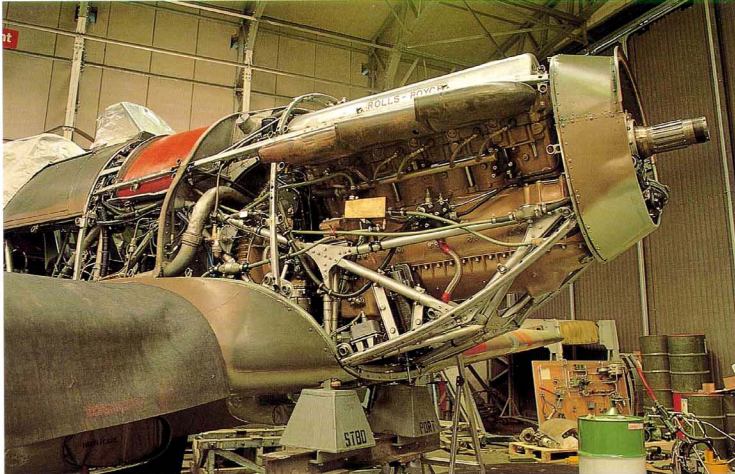


The rear of the wheel wells is devoid of accessories to better accommodate the main wheels. Above is the starboard side well while below is shown the port side wheel well. Note the absence of a center spar at fuselage skin level.

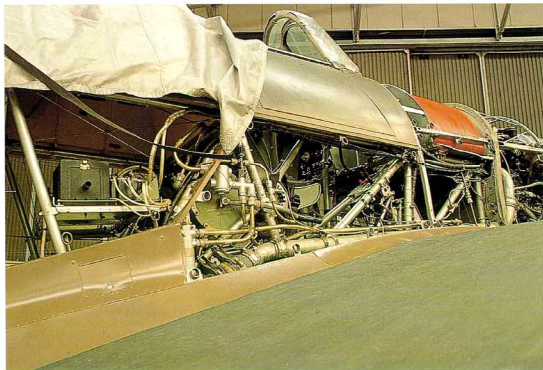
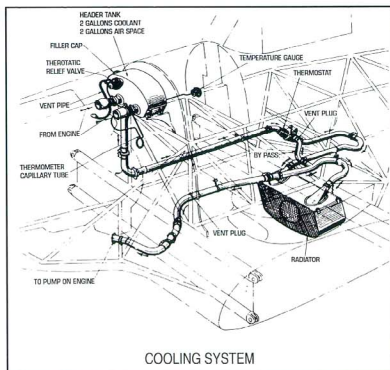


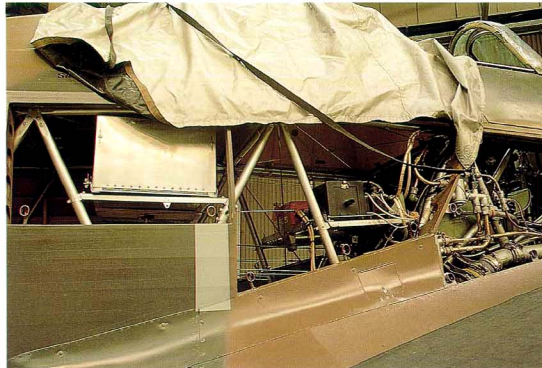
Hurricane stripped of all cowlings panels during engine overhaul in the Duxford maintenance facilities. The engine mounting is an integral part of the structural tubing of the fuselage but, unlike the latter, is not covered with fabric but with thin metal panels. Note the second type Rolls Royce exhaust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



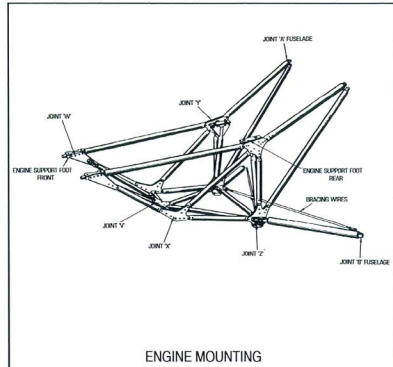


A good view of the stripped nose section revealing the position of the engine inside the cowling. Note that all side panels have been unscrewed and removed. The biggest asset of this design is the easy access to the various systems and flight controls inside. Not only did it lack cockpit side walls,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

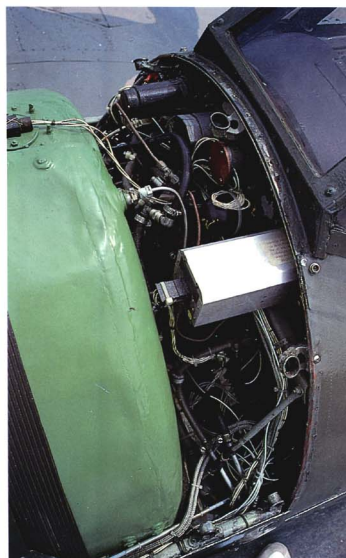
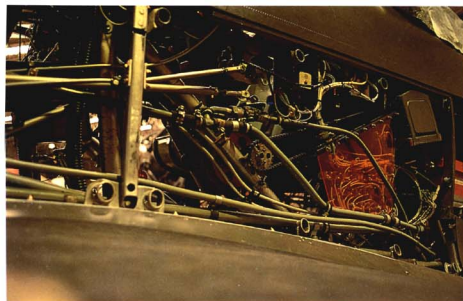




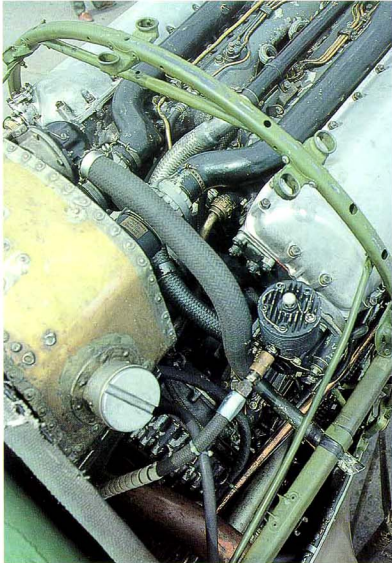
Detail of the aircraft cockpit area further aft with a radio inside the aft stowage bay.



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.



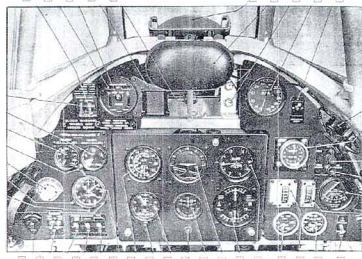
Top left is the area immediately below the port cockpit (Note the handhold at right). The picture above shows the integration of the flight instrument connectors between the fuselage fuel tank at left and the front windscreen.



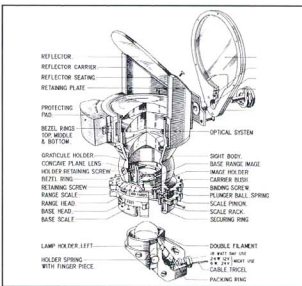
Engine coolant header tank with tubing and supply hoses (see also previous page) together with other engine related accessories and connectors.

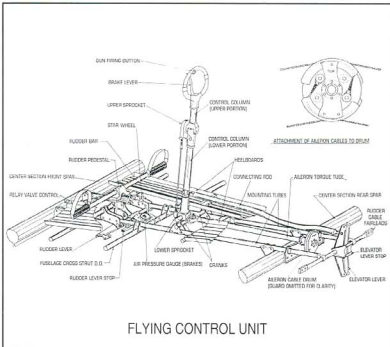


A view of the fuel tank and coolant reservoir from the rear. Capacity of the fuel tank was 28 Imperial gallons and served primarily as a reserve tank.

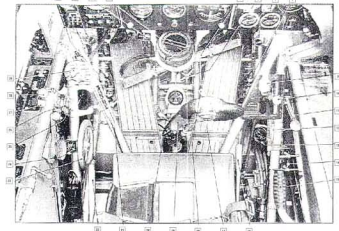


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|--------------------------------|---|---|
| 1. STARTING MAGNETO SWITCH | 18. NAVIGATION LAMPS SWITCH | 39. DIMMER SWITCH FOR 28 |
| 2. RADIATOR TEMP GAUGE | 19. PRESSURE HEAD HEATER SWITCH | 40. COMPASS CORRECTION CARD HOLDER |
| 3. OIL PRESSURE GAUGE | 20. MAIN MAGNETOS SWITCH | 41. CONTROL KNOB FOR 32 |
| 4. OIL TEMP GAUGE | 21. ELECTRIC T-HATCH DISH/BUITON | 42. REFLECTOR RIGHT DIMMING SCREEN |
| 5. RATE OF CLIMB INDICATOR | 22. CIRCUMGRAPH KNOB FOR 13 | 43. CRASH PAD |
| 6. TURNING INDICATOR | 23. AMBUSTOR KNOB FOR 13 | 44. REFLECTOR RIGHT SPARE LAMPS STORAGE |
| 7. ARTIFICIAL HORIZON | 24. WINDING & SETTING KNOB FOR 13 | 45. ENGINE SPEED INDICATOR |
| 8. ALTITUDE INDICATOR | 25. AUTOMATIC BOOST CUT-OUT CONTROL | 46. REFLECTOR RIGHT "ON-OFF" SWITCH |
| 9. ADJUSTING KNOB FOR 10 | 26. OXYGEN REGULATOR CONTROL VALVE | 47. DIMMER SWITCH FOR REFLECTOR LIGHT |
| 10. ALTIMETER | 27. OXYGEN FLOW INDICATOR | 48. BOOST PRESSURE GAUGE |
| 11. ZERO ADJUSTING KNOB FOR 10 | 28. OXYGEN SUPPLY INDICATOR | 49. TANK SELECTOR SWITCH FOR 141 |
| 12. AIR SPEED INDICATOR | 29. "ON-OFF" SWITCH FOR 28 | 40. PUSHBUTTON FOR 41 |
| 13. CLOCK | 30. CHANGE OVER SWITCH FOR 28 | 41. FUEL CONTENTS GAUGE |
| 14. "ON" CAMERA SWITCH | 31. UNDERCARRIAGE POSITION VISUAL INDICATOR | 42. FUEL PRESSURE GAUGE |





FLYING CONTROL UNIT

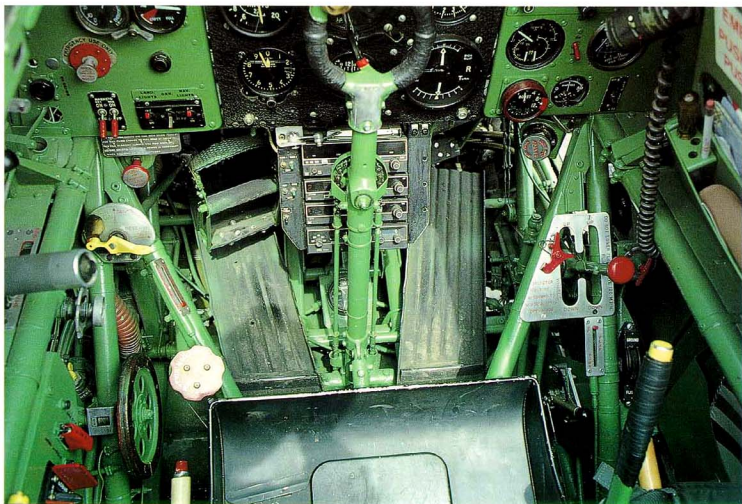


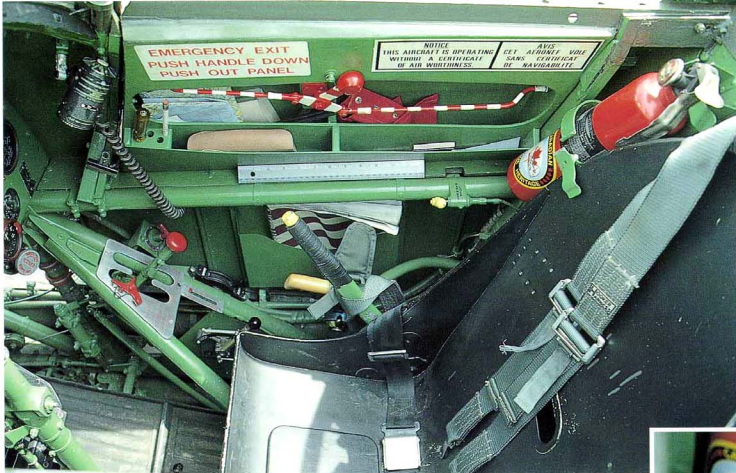
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|---------------------------------|---------------------------------------|---|
| 2 UNDERCHARGE EMERGENCY RELEASE | 19 HYDRAULIC SELECTOR VALVE | 25 RAKE AIR PRESSURE GAUGE |
| 3 SLOW RUNNING OUT-CONTROL | 19 HYDRAULIC CONTROL LEVER | 26 TRIMMER PAIR POSITION INDICATOR |
| 4 COCKPIT FLOODAMP | 19 FLAPS POSITION INDICATOR | 26 TRIMMER PAIR POSITION CONTROL |
| 5 COMPASS | 19 HYDRAULIC PRESSURE GAUGE | 26 RADIATOR TRIMMING TABS CONTROL WHEEL |
| 6 RUDDER BAR | 19 PARACHUTE RELEASE RELEASES | 26 RADIATOR TRIMMING POSITION INDICATOR |
| 7 RUDDER BAR ADJUSTING WHEEL | 19 HYDRAULIC HANDPUMP OPERATING LEVER | 27 FRICTION ADJUSTER FOR 28 |
| 8 FUEL PRIMING PUMP | 19 SEAT ADJUSTING LEVER | 27 FRICTION ADJUSTER FOR 27 |
| 9 UNDERCHARGE EMERGENCY RELEASE | 19 GUN PIVOT BUSH | 27 MIXTURE CONTROL LEVER |
| 10 STAYDOWN CONTROL LEVER | 19 BRACKETS CONTROL LEVER | 27 TRIMBLE CONTROL LEVER |
| 10 SAFETY CATCH FOR 10 | 19 CONTROL COLUMN | 27 FUEL COCK CONTROL |

(Previous page, top left)
Armored glass windscreen 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.

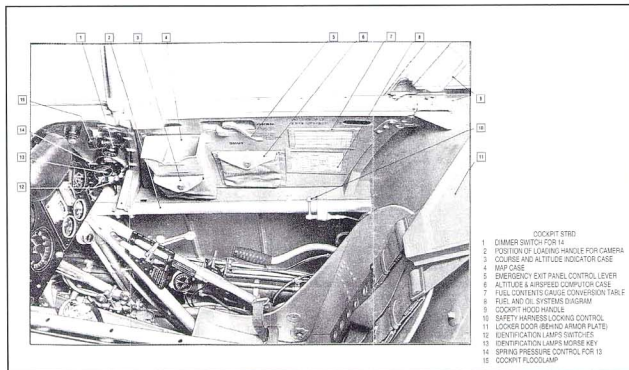
As mentioned before, no cockpit floor is present. The entire flying control unit is connected to the structural tubing. The control column is of typical British design and was incorporated in most fighter planes of its era. Note the center panel below the main panel is of recent design (WWII aircraft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

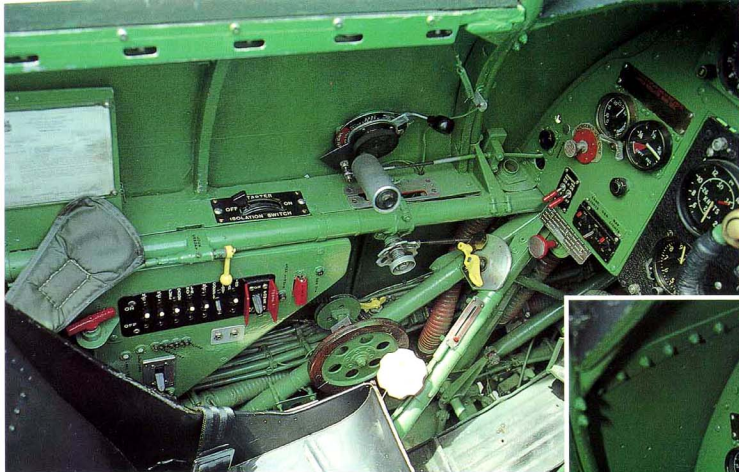




General view of the sliding canopy and handholds. Note the rearface fireproof bulkhead.

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.

