

Supermarine SPITFIRE Mk Vb TWEAKS LIST

TYPE: **Spitfire Mk Vb**

SCALE: **1/32**

COMPANY: **Hasegawa**

KIT NUMBER: ST2 for the original release

MOLD CREATION DATE: 1977

TWEAKS LIST VERSION 1.2 (publication date: June 2006)

Compiled by Thierry Laurent (reviewed and updated by Charles Metz, Edgar Brooks, Cees Broere & Tim Carroll)

The following list is intended to help modelers in improving scale accuracy of an airplane model replica. In no way is it intended to support or be offensive towards a scale model company.

As such, it is only the result of a progressive process and is in no way intended to be absolute or even comprehensive. Hence, it is intended to focus on commonly admitted discrepancies and will probably not cover some errors. It is up to the modeler to decide whether correcting the listed issues is worth the time and money he will have to invest in the quest for accuracy process.

No aftermarket correction or detail set is mentioned in this document as the availability of such items may be very variable. Hence, refer to other LSP sections to find relevant information. Moreover, aftermarket sets do not necessarily correct all listed issues. Please refer accordingly to relevant documentation.

General note:

1. NOTICEABLE FUSELAGE ISSUES (from front to rear)

- Even if they are reasonably thin, careful sanding of propeller blades edges is recommended. However, as cross section is too flat, they should first be made thicker by supergluing a strip of thin styrene sheet onto the rear face of each blade and sanding to shape. Align blades properly and set the correct pitch. Possibly use aftermarket ones. Note that full scale Rotol propeller Jablo wood blades had an armored leading edge that is not represented on kit parts. However, this is really a modification for nitpickers as, even in 1/32th scale, this is not easily distinguishable. It is nonetheless important to consider this to correctly weather the propeller of a battered airframe.
- Engine cowling panels' distinctive fasteners are not correctly represented.
- Vokes & Aboukir filters need a lot of sanding to obtain a clean joint. Possibly add fine wire mesh or aftermarket screen (depends on depicted airframe).
- Regarding the exhausts, careful sanding is necessary to blend last pipe separate part with main exhaust bank.
- Gun heat intensifier tubes are very poorly shaped. Remove raised molding on fuselage parts (behind the exhausts) and rebuild correct tubes with rod or use aftermarket exhausts with accurately depicted ones. Note that such tubes were generally retrofitted and as such were not present on all airframes.

- Add tank armor plate in front of cockpit with thin plastic or metal sheet. Note this fuselage area is possibly a little bit too flat. Detail the very visible fuel tank's filler plug area (forward to the windscreen): add two bolt heads and an engraved circular line in the recess.
- The canopy side walls need to be raised if the canopy is posed open. The kit has it too low to allow for a closed canopy. The slide rail needs to continue to the front windscreen on the starboard side so an insert will need to be added to allow this. The internal framing will need to be modified and extended as well. The access flap door needs to be re-built so that it is "taller" and includes the rail.
- D6 formation light part needs its rear to be trimmed to fit fuselage slot.
- Ninety gallon slipper tank (C20) is at least 3mm too long. To avoid fouling the flaps, it is necessary to shorten the part and sand round. Do not forget adding the two missing rear attachment lugs (on each side) and fuel lines ends in the front.
- Drill the two jack point's holes and add the missing fuel and oil drain pipes (on each side of the nose belly air intake).
- Drill out circular lamp position beneath the fuselage and add circular section of clear sprue, sand, polish and paint with clear amber paint.
- Tail planes needs careful positioning to be set with the correct angle. Cut and drop the tail elevators as they are generally in this position when the aircraft is parked.
- Improve tail rear navigation light (use sanded clear plastic sprue).
- Note that if you fit the kit-supplied radio, you should not fit an aerial from the mast to the fin. The radio, as supplied (TR1133/1143), is a VHF set, and had a whip aerial, which went inside the mast. Some aircrafts had later on a beam approach aerial added underneath the fuselage, behind the pilot's bulkhead. If you do not fit the I.F.F. aeriels from fuselage to tailplanes, a small bar aerial should be fitted under the starboard wing. Note that MTO airframes had no IFF because of the obvious lack of radar cover. If you choose an early radio requiring putting the main aerial wire (TR9D), do not forget to add dielectric insulator.

2. NOTICEABLE WING/WEAPONS ISSUES

- Hispano-Suiza 20mm gun barrels end must be drilled. Gun shrouds and ends need to be corrected and detailed (e.g. cooling slots are missing for earlier & shorter gun shrouds). Distinctive bolt-shaped gun end section (before the muzzle) should be reproduced.
- Fabric patches over .303 Browning gun ends are molded like thick plated metal sheets. They must be sanded and rebuilt with thin metal foil or decals after drilling gun ports. Do not forget the outer machine gun opening is not on the leading edge centre line but on the top of the wing slightly to the rear of the leading edge and is oval in shape. Note that if the .303 gun holes are covered, then so should the ends of the 20mm guns. If there was a shortage of the proper covers, a condom could be pressed into service!
- Gun camera window hole is missing in port wing front edge (near the wing root).
- Flaps are up. Note that Spitfires were rarely parked with the pneumatically operated flaps down (prone to damage as too close to the ground). By the way, flight manual clearly asked for rising up the flaps before taxiing. Nonetheless If you want to depict depressed flaps (e.g. for a maintenance scene), file away flaps area & scratchbuild new ones with hinges and stringers or use aftermarket ones. Moreover, do not forget adding opened small flap indicator on upper wing surface. Rebuild a new door on onboard edge and add projecting actuator rods.

- Ailerons have joints running down their center. Sand the glued parts carefully to obtain a seamless surface.
- The radiator is not correctly shaped: its side walls splay out as they mate with the wing and it gets wider to the rear. The radiator insert duct does not have the deepening "Meredith" effect, being flat and following the wing under surface. To correct this, borrow the part from the old Revell kit, copy it or purchase an aftermarket replacement part. Add fine wire mesh on the internal part faces. Remove and replace the rear flap with thinner sheet and add its actuating levers. Also add machine gun heating ducts in the rear (also visible in the opened flaps area) and L-shaped anti-freeze spray tube in the front.
- Do not forget adding mesh screen on oil cooler ends. Easiest way to do this asks for gluing mesh on both ends of a squashed tube (plastic/metal) put in the cooler fairing.
- Landing lights may be extended by means of cutting through the scored outline on the bottom of the wing. Unfortunately, this outline is a little bit too large. If lights are down, wing hole must be blanked and transparent wrap around cover installed from the drooped door edge to the wing. Note that such landing lights normally disappeared from May 1942.
- Ten out of the eighteen circular maintenance panels are missing near the wing bottom front edge.
- Browning machine guns shell ejection holes should be drilled through the wings bottom parts. Note that kit as no small deflector plate in front of each machine gun shell ejection holes. It was common practice to glue pieces of newspaper over the machine gun link chutes under the wing.
- The triangular holes, close to the wheel wells, need to be filled. These were boxes, into which the spent links, and cases, from the cannon, were fed. On return, these were opened, and the empties fell out. There was no chute under the 20mm guns in the Vb.
- If you want to engrave panel lines, take care as there are some errors in kit ones here and there (e.g. no flap operating cylinder access door and fantasy lines behind each wheel well under the wing, fantasy line perpendicular to fuselage axis between wing tip and gun bulge, etc.)
- Standard wing tips (C40-41) need heavy sanding to be smoothly blended in wing parts. If clipped wing tips are used, remove 3 mm of their leading edge and replace the removed area with clear red (port) and green (starboard) plastic sprue. File, sand and polish to mate the new lights with wing tips.
- Drill pitot tube end (part 29).
- Kit wing has no wing reinforcement strakes on upper wing parts (at the wheel well level). Nonetheless, this was not present on all airframes (early ones, made before November 1941, were later retrofitted). Check your references according to the chosen airframe and era.
- Even if they are generally not very noticeable, correctly scaled undercarriage indicators should be added on upper wings (in front of the wheel bulge).

3. NOTICEABLE COCKPIT ISSUES

- Kit cockpit is not built as the actual one. Kit has a solid floor whereas the actual airframe had only partial floor and visible belly rounded area. This has a major impact on some components that are either false or wrongly proportioned (instrument panel, floor, etc.). Nonetheless, except the seat issue mentioned in this section, this is generally not very noticeable.

- Kit cockpit sides give major elements: undercarriage & throttle levers, radio, remote contractor switchbox, oxygen & CO2 bottles, etc. Nonetheless, many small details on such items are missing or should be refined. If you want to improve details of sides, it is easier to replace parts A12 & A13 with plasticard. Use such parts as templates to build replacement parts matching the original ones. The bravest will rebuild as well the missing curved belly section. Carefully cut elevator trim wheel to reposition on port cockpit side and add structural details with plastic strips, the numerous missing pipes visible on the cockpit sides, wiring details, ribbed oxygen hose and harness quick release control on starboard sidewall, etc. Possibly use unpainted copper wire to depict missing tubes going from landing gear control (starboard side) to front cockpit (under the front instrument panel).
- If you use the long-range jettisonable fuel tank, do not forget adding the cock control and jettison lever (on cockpit starboard side, near the seat front edge).
- Note that a lot of visible wires should run under the "floor" components. Cockpit "star wheel" adjuster on rudder pedal piston is represented by plain disks that should be carefully filed or replaced to obtain a more correct shape.
- Note that full-scale instrument flying panel protrudes from the main instrument panel and that there is a generally visible open seam between both panels. A5 part is nicely engraved but both abovementioned panels are not separated. As they are molded together with a slight step between them, engraving a seam will already improve the look. Do not forget adding missing details on the lower area such as the fuel priming pump or the fuel cock (plastic strip) with a plastic rod lever below the main panel.
- Rudder pedals are a little bit oversized. The top curved portions were webbing or rubber straps, and many pilots dispensed with them. From June 1941, they were finally discontinued. Pedals are located far behind the level of the instrument panel. As they were movable, they may be located up to immediately behind this panel.
- Reflector gun sight transparent D3 part is quite good. Superdetailers may nonetheless detail it a little bit more as this is a very prominent part. At least adding the missing power cable would improve the look.
- Compass under the main instrument A5 part is too simplified with bulky details. The decal intended to improve definition of the part will not solve this. It is accordingly recommended to rebuild the whole part including its side supports.
- Improve control column (replace molded compressed air lines). Note that if ailerons are not in neutral position, it is necessary to cut control column upper section & tilt it either left or right. Control column handle was generally covered with anti-grip material that may be replicated with putty or rolled fine wire.
- Cockpit access door A9 part is very basic and should be detailed. It is probably easier to rebuild it, add structure, crowbar and locking levers. Note that the crowbar was added to the production line, as a modification during the Mk V run. It was painted silver, black or even green during wartime period. Theoretically, it was not fitted on airframes using a jettison type hood. However, practice shows just the opposite!
- Seat is horribly oversized and located too high. Moreover, back cushion, dinghy pack storage recess, Sutton harness and oval port side for harness are missing. Seat should be completely scratchbuild or replaced with a correctly-sized aftermarket item. Holes in seat mounting brackets should be drilled. According to the plane manufacturer, Seafire type flare cartridges support frame has possibly to be added at the seat front (as this was the case for Westland-built airframes). Seats were made from red-brown bakelite. This is a point to consider to correctly weather the cockpit. Note that landing gear warning horn is missing behind the seat.
- Sutton harness with buckles and clasps must be added. Note that it goes through rear cockpit section (between formers 11 & 12) to be linked to tensioning cables through pulleys.

- Pilot headrest is molded integrally with rear bulkhead. Check if its presence is valid as it was removed on some airframes and was normally discontinued from June 1942.
- Kit has rear cockpit bulkheads and pneumatic system air bottles but no internal fuselage structure, nor other details behind the seat. Add linking valves and detail tubes on air bottles (inversed U-shaped-like mechanism).
- Drill lightening holes through all bulkhead/former parts. Sand to decrease thickness of rearmost cockpit former (part A6) or replace it with thinner plastic card using the original part as a template.
- Kit offers voltage regulator option parts (C8 & C18). Check which one should be used. Add the missing wires running down both rear sides of the bulkhead (from the voltage regulator on the port side).
- Before attaching rear canopy part (D9), add from plastic strip a missing longitudinal rectangular sectioned bracing strut running between the upper sections of the two bulkheads (A4 & A6), above the armored plate.

4. NOTICEABLE CANOPY ISSUES

- Kit has Triplex/armored windscreens and flat-side/Malcolm hoods. Note that flat side canopy should have an oval knock-out panel. Some kits have a decal to depict this. There is no easy way to accurately re-create this separate panel. This clear view push-out panel was theoretically discontinued from November 1941.
- Airframes with Malcolm hood had a visible jettison pull cable on lower edge of each hood side.
- Add the missing hood release catch mechanism as well as its ball-shaped hood jettisoning emergency rubber knob (painted in red, yellow or blue).
- Canopy external mirror shape and support are simplified and may be improved or replaced. Note that there were different types.
- ETO Spitfires with armored windscreen normally had a de-icer diffuser at the base of the windscreen. Drill two very thin holes and add a de-icer replica made from a bent copper wire section. Later ones (with internal armor) simply had a de-icer diffuser strip that may be reproduced by engraving 19 very small holes and a contour line.

5. NOTICEABLE LANDING GEAR ISSUES

- Main landing gear wells are much too shallow. Wells also have a dished appearance unlike actual ones. The bravest will rebuild them from scratch with deeper vertical walls. Strengtheners strips are too thin. They should be thicker with a T section. Note that there are quite prominent rivet heads on the walls. Add missing landing gear warning horn contactor wire.
- Landing gear leg wells are opened. They should be boxed and dressed up with at least the small bulkhead bridging the well leg section and plastic card to simulate wells roof missing structure.
- Wheels have good rim details but tires have no thread: check and engrave or replace them if necessary. Do not forget painting inner face of wheels before assembling them because of the holes between hub spokes.

- Undercarriage legs are good. However, their fit is rather sloppy. Hence, take care to glue them to the correct angle (almost straight from the front). Drill a small hole (0,4mm) in the upward locking lug. Add air and oil filler plugs on each side of each leg upper section (with hex nuts). Add the missing safety lock rod bent on the strut. Also add swivel point details and linkages (such as hydraulic jack end).
- Add the missing brake line running down the rear of the undercarriage door, against the gear leg.
- Tail wheel part has also a sloppy fit. Note that angle of this castor wheel may be changed (saw it off above the fork). Unfortunately, fork and wheel are depicted by a single part. As separating the wheel from its yoke is not an easy job, at least engrave the seam to simulate different parts.

6. OTHER NOTICEABLE ISSUES & MISCELLANEOUS REMARKS

- General kit dimensions are nearly perfect. This is even one of the very few Spitfire kits that depict correctly the gully-shaped under fuselage.
- Molding and overall fit are excellent. Nonetheless, some kits have a nasty sink line forward of the upper wing trailing edge and wing root seam is also an issue on some kits.
- Transparent parts are thin and crystal clear.
- All panel lines are raised. Some raised rivets are molded to simulate cowling fasteners. Fabric surfaces are smooth and good (no heavy stitch or heavy weave pattern). As some airframes had metal elevators, check and smooth off if necessary.
- Many optional parts are included. Kit has two different styles of windshield and canopy, Aboukir and Vokes sand filters, Rotol wood and De Havilland metal propellers, auxiliary tank, normal or clipped wing tips and choice of voltage regulators.
- Some releases have “not-for-use” MkVI specific parts (4 blades Rotol type propeller, extended wing tips, Marshall pressurization supercharger nose intake and Coffman cartridge starter nose bulge).
- Pilot figure should be politely forgotten.
- Up to now, kit has already been (re-)released many times (by Frog, Hasegawa and Minicraft) with different markings options:
 - ST2 Supermarine Spitfire Mk Vb:
 - EP689 (Aboukir) UF-X, 601st Sq., Sicily, 1943
 - AB183 RF-A, 303th Sq. (Polish), spring 1942
 - AB326 (Vokes), 145th Sq., Helwan, May 1942
 - ST2X Spitfire Mk. Vb:
 - W3834 YO-Q, 401st Sq. (RCAF), July 1943
 - AR335 RF-M 303th Sq. (Polish)
 - Stefan Witozenc A853 CW-X 2nd Polish Fighter Wing, Dieppe, July 1942.
 - 08118 Spitfire Mk Vb « I.R. Greed »:
 - Ian R. Gleed AB502 (Aboukir) IR-G, 244th Wing, Tunisia, 1943
 - Adolf Malan AG-M 74th Sq.
 - 08132 Spitfire Mk Vb « Night fighter »:
 - Peter Durford, JU-H 111th Sq., Debden December 1941
 - EP166 JU-N “O Bandeirante” 111th Sq.
 - 08160 Spitfire Mk Vb USAAF:

- Maj. Levine ER570 WD-Q (Vokes) 4th FS , Tunisia
 - Don Gentile MD-T "Buckeye's Don" (Vokes) 336th FS, Tunisia
- Minicraft Spitfire Mk Vb:
- (Vokes) VF-D US FS, Tunisia

Note that in some cases, the kit will need some modifications to accurately depict to chosen airframe:

- Regarding Ian R. Gleed's AB502, this airframe had been prepared for Mediterranean service in Egyptian RAF workshops. "Aboukir" clipped wing tips were made locally out of wood, without navigation lights and with contours slightly different from the original metal factory item made in the UK (more pointed cross section contour). Moreover, chin part in front of the sand filter was more bulbous on this plane (because of the larger oil tank). Exhausts also seem to be of the fishtail type.
- Regarding the Debden night fighter, this black airframe flew without wing roundels. Moreover, an antiglare-shield was added on each side of the fuselage between the fishtail-shaped exhausts and the windshield (height: 4,7mm & length: 26,2mm).
- Check color accuracy of roundels and codes. Generally roundels colors are too light and bright and sky codes are too green...

The following sources were used to build this list:

Modelling essentials:

- Cross & Scarborough, *Spitfire*, Airfix Classic Aircraft Series, Patrick Stephens Limited, 1971.
- Humphreys, *The Supermarine Spitfire –part 1: Merlin powered*, Modeller's Datafile N°3, SAM Publications, 2000.
- Kolesa, Vraj, *Supermarine Spitfire Mk V*, Zlinek, N°1, Vol. IV, Zlinek publications.
- Nohara & Ohsato, *Vickers - Supermarine Spitfire MkI-V*, Aero Detail series, N°8; Dai-Nippon Kaiga Co. Ltd., 1993.
- Matusiak, *Spitfire Mk V*, Mushroom model magazine special Vol.1, N° 6111, 2004.
- Rimell, Chesneau, *Spitfire: Supermarine Spitfire Mk V*, Aeroguide Classics series, No. 1, Linewrights, 1985.
- Tanner (ed.), *The Spitfire V Manual*, RAF Museum series, No. 1, Arms and Armour Press, 1976.
- ---, *Supermarine Spitfire*, Model Art Special Issue series N°387, Model Art, 1992.
- **CD-Rom:** ---, *The Spitfire Mk V explored*, Flying zone publications, 2005. (best available photofile)

Note that photo file references dedicated to other marks are also VERY useful for common details:

- Koran, Danda, Martinek, Khol, *Spitfire LF Mk IX in detail*, Wings & Wheel publications, 1999. (excellent photofile for common details).
- Szymanowski, Szlagor, *Spitfire LF Mk. XVIe*, Kagero, 11016, 2005. (good photofile for common details).
- Nohara, Yamada, *Vickers - Supermarine Spitfire Mk VI - XVI*, Aero Detail series, N°27, Dai-Nippon Kaiga Co. Ltd., 2000.

Other used references:

- Destrebeck, Vinck, Marchand, *La chasse belge 1936-1946 Tome 1 – Les Spitfire Mk. I – Mk. V*, Les Ailes de la Gloire N°11, Editions d'Along, 2003.
- Freeman, *Spitfire Mk. I to VI in the European Theatre of Operations*, On Target profiles N°4, Model Alliance, 2003.
- Donald, *Messerschmitt Bf 109 – Supermarine Spitfire – Supermarine Seafire*, Air Combat Legends Vol.1, Airtime Publishing, 2005.
- Matusiak, Zumbach's Donalds, Model Detail photo monograph N°5, Rossagraph. (large wartime pics)
- Patterson, *Spitfire – RAF fighter*, Airlife Publishing, 1977.
- Scutts, *Spitfire in Action*, Aircraft in Action series, N° 39, Squadron Signal Publications, 1980.
- ---, *Supermarine Spitfire*, Famous Airplanes of the World No. 25, Bunrin-Do, 1990.
- ---, *Supermarine Spitfire*, Famous Airplanes of the World No. 102, Bunrin-Do, 2003.
- CD-Rom: ---, *Supermarine Spitfire*, Cassel & Co – Tamiya, 2000.
- some magazines articles (more particularly from Replic, Scale Models, Wingmasters & SAMI)
- some web pages (more particularly LSP & HLJ.com)