Mc Donnell Douglas RF-4C Phantom II

by Ben Brown & Thierry Laurent

TYPE: Mc Donnell Douglas RF-4C Phantom II (USAF)

SCALE: 1/32

COMPANY: Revell Germany (also released by Revell USA with other ANG decals)

KIT Number: 04702 (4662 for the Revell USA release)

MOLD CREATION DATE: 1994 for RF-4E parts 1995 for RF-4C sprue

TWEAKS LIST VERSION 1.0 (publication date: May 2005)

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.

1. NOTICEABLE FUSELAGE ISSUES (from front to rear)

• Replace pitot tube (too short).

• RF-4 nose radome shape is not totally correct. It is too pointy and a little bit too short but the discrepancies are acceptable.

• Cameras are correct but very simplified. This is fortunately not noticeable through the windows. However, it is at least necessary to add & detail camera lenses. The instruction sheet erroneously states that angle between side windows cameras is 48°. To avoid cameras pointing too much downwards, set them at 105°. Note they are also positioned a little bit too high in the fuselage and must be much closer to their windows. The camera windows parts 24 & 25 fit quite well but dry fit them first as they seemingly fit better in the opposite holes.

• Formation strip lights protrude about 0,5cm from the surface of the actual airframe. Use thinnest styrene strip you find or photoetched parts.

• Area between door 19 and the rear canopy is too short. Door 19 is the panel just behind the rear canopy with the IFF antenna, upper fuselage nav light, and SST-181X Beacon antenna on it. The humped part of Door 19 is a separate part in the kit whereas it is part of the same panel on the real airframe. Hence, the seam should be filled in. Small circle on door 19 should be a clear position light. Large circle is IFF antenna and should be black. Position light on door 19 and the two under the intakes didn't have reflectors, so the inside was just a black hole when the lights were not on.

• Engine air Intake parts are 2-3mm too long. Moreover, take care adjusting them correctly as the assembly is a little bit fiddly. Check access panel lines on the side of the intake trunks as they have several errors.

• Improve vari-ramps (air splitter plates) vents: thin edges and add two thin internal walls. The outboard panels of the vari-ramps were moveable, and they had a panel that slid over the inboard section on the top and bottom of the ramp. Made them with very thin styrene. Also note angle of top of vari-ramp too steep as it goes up to intake. The inboard edge of the ramp is angled down, not straight across like every F-4 kit ever produced has. The one on the underside is straight across. Last but not least, the parts have a hollow rear face when it should be solid, remove locating pins and use plastic card to fill the void.

• There is no intake duct part. Either use aftermarket parts, make them from plasticard or scratchbuild FODs to hide intake void. Probes mounts inside of intakes should be straight, not swept back. If you add ducts, note that part 40 should not be set vertically in the fuselage as engines have a positive angle. Hence, glue part upper edge behind the positioning tabs.

• Add some strips of plasticard (+/- 1,5mm) around the cut in part 58 where the front fuselage parts will have to be glued to ensure the nose section will be correctly located.

• If you use a centerline drop fuel tank, add on the belly its sway locks and their hinged doors. The locks are intended to secure the tank. Also add the missing plumbing hoses between the belly and the tank.

• Engine auxiliary air intakes on either side of the centerline belly rack are closed. Actually, they are opened on any parked Phantom. Open them, scratch them as well as their actuator and the undersides of the engines (with various pumps, pipes, and wiring added). Note that, except the doors, this area is far from being really visible on a model.

• The little triangular NACA intake forward of the right side auxiliary air door does not exist on the full scale airframe. Fill it.

• A small drain exhaust is missing on each fuselage side (above the root of the leading edge of the wing).

• Cautiously fill and sand seams around parts closing rear Sparrow wells slots (80-81) as this area is totally flat on the real airframe (no wells).

• Scribe on the panel lines of the photoflash cartridges bay doors in the back fuselage.

• The intake at the base of the fin (intended to cool the aft electronic bay) is wrong for an RF-4C. Under the horizontal "splitter" of RF-4C (as well as other early F-4s), there is no little ramp on each side that makes a smooth transition from the vertical "splitter" to the outside of the base of the fin. On RF-4C, the intake is divided both vertically and horizontally by "splitters," so there are openings both above and beneath the horizontal splitter.

• Small bare metal bleed air exhaust located on each fuselage side just above the engine exhaust is not totally correct but slots shape error is not very noticeable.

• Add details behind the little window located up to the front titanium area on the starboard fuselage (forward of the right elevator). This is door 62 on the full scale airframe. Add the arresting hook gear hydraulic oil servicing gauge and the air filler valve with a yellow cap: Some plastic sprue lengths with a spare gauge decal behind the transparent part will mimic this.

• Check that elevators have the correct 23° anhedral angle (use a paper template if necessary).

• Engrave missing panel lines (panel 106R) on the right side just aft of the stabililator pivot assembly.

• Fill access panel lines on the vertical fin right side (the round panels and the one just under the fin cap).

• Add missing small drain pipe under tail, between the elevators.

• Add V shaped part behind the arresting hook end (scratchbuilt or photo etched part).

• Add missing pull rod for opening the drag chute door, under the aft fuselage, between the stabs.

• The drag chute door/ aft fuselage cross section is too square, but not really noticeable.

• Afterburner nozzles are not very detailed. Detail them with photoetched parts or replace them with identical diameter resin ones. Afterburner cans are far too short. Replace them with home-made (not easy) or aftermarket parts.

• Reshape fin upper edge part 55 (too square top curve and fantasy up hill slope to correct).

## 2. NOTICEABLE WING/WEAPONS ISSUES

• Dihedral of outer wing panels is not correct on the instruction sheet: it should be 12.5 degrees, not 8.

• The panel lines on top of the wings outboard the wingfolds are also mostly incorrect.

• Aft ends of wing tips should be nav lights (red port, blue starboard).

• Cut out wing ailerons, add detail on their side edges and wing corresponding edges. Reinstall them in a slightly down position.

• Oval fuel tank vents just outboard of ailerons should be hollow.

• Move holes for the inboard pylons as they are supposed to line up with the rib that runs through each MLG wheel well (the pylon rear actually bolts to this rib on the real jet).

• Improve rear of AN/ALE 40 chaff dispensers mounted on inboard pylons sides: either open the rear end (make a square hole with a file) or add the cover plate with its four bolts.

• The 370 gallon wing tanks likewise are slightly too narrow but this is not really noticeable.

• The ALQ-119 ECM pod nose is a bit too blunt. Moreover, the pod mounts are located too far forward (+/- 15 mm) on the pylon. To correct this, use front one as the rear and move the rear one where it should be.

## 3. NOTICEABLE COCKPIT ISSUES

• Front instruments glare shield is not detailed. Add the strengthening ribs with strips of half-round section plasticard.

• Whereas F-4F kit has new parts, RF-4C kits only have “old” Mk-H7AF seats parts. Correct and detail them or use aftermarket resin seats.

• The cockpit floor is far too low (front tub: 6mm & rear tub: 9mm to remove!). To bring rear seats up above the cockpit sills, separate front and rear tubs and modify them to put them higher. Also modify rear bulkhead of aft cockpit as it should be vertical. In this case take care as the abovementioned 9mm refer to the incorrect sloped rear bulkhead. A correct vertical one will even be shorter. The slant of the rear wall in the front cockpit is also incorrect (too far forward). This results in the floor shifting forward which throws of any other details like instrument panel location. Another solution implies rebuilding more correctly sized cockpit tubs from scratch.

• Note that in the rear cockpit, the consoles did not go all the way back to the rear bulkhead, but stop about even with the middle of the seat. Aft of these, there were shelves with the various black boxes on them. Consequently, add missing black boxes at the rear of side instrument consoles and on rear bulkheads if you do not use an aftermarket cockpit.

• Cockpit sills are a little bit too narrow and have no holes corresponding to canopy hooks.

• Turn the pilot control column (part 10) through 180 degrees as it is depicted the wrong way round.

• Steps between the three horizontal sections of WSO front instrument part (304) should be deeper. Morever, there is no detail behind the part. Add lengths of sprues to mimic instruments rear faces or possibly use modified left-overs from a Tamiya kit. Add other details in front of rear side of upper WSO panel (many conduits and circuits wires are missing between the stations).

• Add similar wires behind the WSO station.

• Throttles part locators are too large for corresponding holes in RF-4C side consoles (parts 302-305).

• Add map reading lamp in each cockpit station (a length of sprue with a coiled wire).

• Add circuit breakers, other details and insulated panels on sidewalls if you do not use an aftermarket cockpit.

• Add oxygen hoses, map case as well as landing gear, brakes and other missing levers if you do not use an aftermarket cockpit.

4. NOTICEABLE CANOPY ISSUES

• Windscreen is slightly misshaped, front canopy is too short and rear canopy is too long. This is fortunately not really noticeable when canopies are opened. Canopies are also slightly squashed. The canopies can be displayed closed or open but in the latter case the hinges are so tiny they will not support the parts. The rams are best replaced but even then the leverage is too great so file an angle to match the raised frame between the hinge slots on the bridge and rear fairing and use a dab of superglue to fix them strongly.

• Add standby magnetic compass on the windscreen frame upper right side.

• Fit part 75 directly onto the bridge (part 74) not the control panel as suggested.

• There are no canopy hooks. Use photo-etched ones.

• Add canopy knives, data cards and other details on canopy internal sides.

• Add some rear-view mirrors. F-4s generally have the mirrors mounted to the underside of each canopy.

• The "Canopy Interdictor Block" (keeps the seat from firing until the canopy has been jettisoned) wire is missing. This is a small coiled wire that goes from the right rear of the ejection seat to the rear of each canopy.

5. NOTICEABLE LANDING GEAR ISSUES

• Do not use bulged tires. Just look at pictures and you will see that kit “weighted” tires rather depict deflated ones! Main wheels are a little bit too narrow but this is not really noticeable.

• The nose gear strut is much too thin. Either scratchbuild another one (look at the Tamiya one) or replace it with an aftermarket one. A lot of wiring and additional details are also missing.

• Nose wheel well is too shallow and needs detail added (lots of hydraulic lines, structural formers, CNI bay door, etc.). Alternately, use correction aftermarket set.

• Main landing gear struts are 3mm too long. Add hydraulic lines on gear legs.

• Main wheel wells are also too shallow. Cut away top surface and rebuild up sides with plasticard. Add wiring & linkages detail, hydraulic lines & servicing connectors, structural formers, uplock latches on rib, refuel control panel (right MLG) and communication panel (left MLG) in landing gear bays. Alternately, use a correction aftermarket set. The main landing gear door linkages (parts 110) will not fit as shown. It is necessary to drill a 1mm hole a little further outboard in the wheel bay, in line with the rivets.

• Possibly replace landing gear tie-down rings with new ones made from brass wire.

6. OTHER NOTICEABLE ISSUES & MISCELLANEOUS REMARKS

• The RF-4C kit is an adaptation of the RF-4E model with one new sprue frame containing nice cockpit engraved instrument panels and J-79-15 exhaust parts. Kit has all parts from RF-4E kit (including J-79-17 exhausts) with angled nose and unslatted wings. Both types of inboard pylons are included (RF-4C use straight ones).

• RF-4C kit has tan (RoG) or grey (Revell USA) parts with no or very little flash. Canopies parts are crystal clear and their fit to their frames is near perfect. Surface detailing is superb, all engraved with excellent fine lines to just the right depth. Fit of parts is generally very good.

• RF-4C kit depicts an Eighties RF-4C (with reinforcement plates on wings & elevators). Nonetheless, it has no option such as LORAN or “ARNIE”. Upper UHF antenna located on the fuselage spine, offset to the right, was moved there from inside the fin in 1984. To build a pre-1984 RF-4C, delete this antenna. To do a Vietnam early era RF-4, remove reinforcement plates, file off the ARN-101 antenna mount, remove RHAW sensors on nose and tail cone drag chute door (for pre-68-69 planes) and replace seats with aftermarket MB Mk.5 seats (MB Mk.7 were fitted around 1968).

• Kit may be used to depict a late RF-4B. However, take care as many subtle changes have to be done (front landing gear lights, MLG rims, RIO cockpit, slotted elevators, air refueling system door, catapult hold back hooks, etc.). Morever, very few RF-4Bs had the bulged wings AND angled nose.

• Kit offer centerline drop tanks option (early “Royal Jet” or late “a la F-15” high-G style).

• The crew ladder has no "hooks" at the top to locate it into the cockpit. However, using it needs solving the air intakes length issue.

• No landing gear down locking jack is provided.

• Throttles should be put on the full aft (“idle/cut off”) position.

• Note: By default, all RF-4C were unarmed (even if theoretically they could deliver nuclear bombs). However, at the end of their service life, some RF-4Cs were wired to use AIM-9M sidewinders (used during “Desert Storm”).

• If you want to open the camera bay, note that there are not enough cameras: station 2 is missing the downward facing KS-87 camera and station 3 should have another KS-87 camera as well (or a single KA-55A panoramic one). Note “Desert Storm” RF-4C used the KS-127 long range camera that requires adding aiming devices on the rear canopy frames (Alabama/Nevada ANG).

• Revell Germany decals are good but color stability control is a regular issue (you find different colors according to the kit production batch). Decals in the Revell-Germany RF-4C kit are rather thick and both ANG options (Kentucky/Mississipi) refer to airframes with the more rounded nose section (where as the kit has the earlier sharper angle nose). Formation light strips have a too yellow color. It is recommended to paint them or replace them with aftermarket decals. Revell USA release has only one decal option: “Desert Storm” sharkmouth scheme (106th Tactical Recon Sqn, Alabama ANG).

The following sources were used to build this list.

Modelling essentials:

• Kinzey, Bert, F-4C, F-4D & RF-4C - F-4 Phantom II, Detail & Scale Vol. 43, Kalmbach/Squadron Signal Publications, 1994.

• Lake, Jon (editor), Mc Donnell F-4 Phantom, Spirit in the skies, Airtime Publishing, 2002.

• Miller, jay, Mc Donnell RF-4 variants, Aerofax Minigraph n°13, Aerofax Inc., 1984.

Scale plans and TM extracts:

• - , F-4 Phantom II USAF models, Famous Airplanes of the World n° 86, Bunrin-Do, 2001.

Colour pictures photofiles:

• Cupido, Joe, "Rhino" – The immortal Phantom II, Wings n°6, Windrow & Greene Publishing, 1993.

• Holmes, Tony, F-4 Phantom II, Osprey Publishing Limited, 1991.

• Mormillo, Frank, F-4 Phantom, Ian Allan Limited, 1990.

• Shaw, Robbie, F-4 Phantom – Guardian of the free world, Airlife, 1989.

• Soulaine, Daniel, Phantom Guardians – The F-4 in the Air national Guard, Osprey Aerospace, Osprey Publishing Limited, 1992.

Other used books:

• Thornborough, Anthony, Davies, Peter, The Phantom Story, Arms & Armour Press, 1997.

• -, Phantom – A tribute to the F-4 Phantom Combat Fighter, Classic Aircraft series N°1, Key Publishing Limited, 2004 (?).

• Kinzey, Bert, F-4 Phantom II Part 3 USN & USMC versions, Detail & Scale n°12, Kalmbach/Squadron Signal Publications, 1983. (for RF-4B camera pictures)

Other references:

• Some magazines articles (more particularly from Scale Models & Scale Aircraft Modeller International)

• Some web pages (more particularly LSP and various internet walkarounds such as ARC ones)

• “F4Sforever” newsgroup old posts