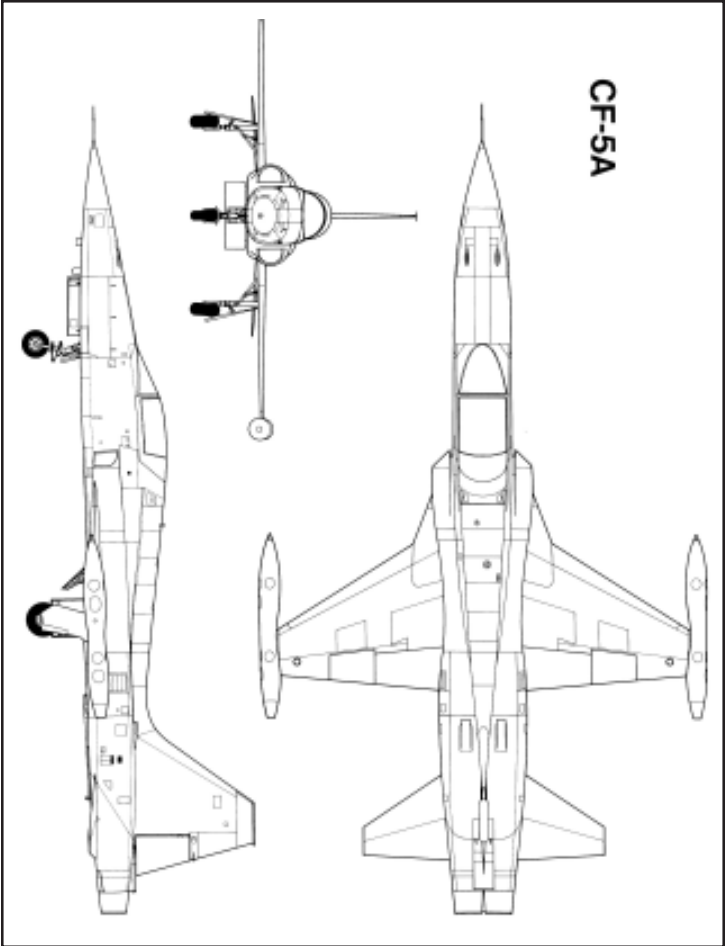


Belcher Bits BB-19: F-5A conversion 1/32



Background

The F-5A was intended as a low-cost fighter which would be of interest to a number of countries through the Military Assistance Program (MAP), as an alternative to the larger fighters then in US service such as the F4 Phantom II. It was not intended for use by the US, although the US Air Force did purchase 18 of them for evaluation in Vietnam under the Skoshi Tiger program.

In 1970, the USAF asked for bids for a follow-onto the MAP light fighter program with emphasis on air superiority rather than tactical support. The winner was the F-5E; it has many external similarities to the earlier versions, but the fuselage was lengthened and widened and its shape changed, and the wing leading edge root extensions were revised.

There has only ever been one kit of the F-5 released in 1/32 scale, and that is the F-5E by Hasegawa. (There is apparently a kit by Kangnam which is likely a knockoff of the Hasegawa kit)

This conversion will allow the builder to back-date that kit to a F-5A. These instructions are not completely step-by-step, but instead cover only those

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areas applying to the resin conversion. The rest of the assembly simply follows kit instructions.

First steps

Like all resin kits, this will benefit from a good scrub with detergent to remove any oils and mould release. Remember that resin sands easier than plastic, so be careful when seam filling. Always use wet sanding, since dry resin dust is not good for the lungs. Cyanoacrylate glues work very well, but fit the parts together, hold in position and then apply glue through capillary action. Finally, we strongly recommend the use of Tamiya spray primer as a first coat over all resin areas prior to painting.

Rear fuselage

Match the two resin rear fuselage halves together (its best to line up the panel lines on the fuselage spine) and glue together; don't worry too much if the two parts show a slight mismatch at the tail end. This is not sloppy work on the masters but rather the result of heat related issues during curing of the large resin castings. If there is a mismatch once the fuselage halves are together, file and sand the rear fuselage flat. Kit part number B25 can be glued on after to restore the tail end of the drag chute container. Clean up the forward flange area, tidying up the step.

Test fit the engine auxiliary inlets, having decided whether to use the open (B10 and B11) or closed (B8 and B9) panels. Because the wing trailing edge falls right below this area, it is not recommended to fit the open sets until after the wings are in place. Furthermore, it is probably not necessary to install the blanking plates (B17); just paint the inside of the recess black.

Exhaust.

OK, this is more carpentry than modelling, but the holes for the exhaust nozzles need to be deepened considerably. Use a 1/2" drill (or start with a 1/4" drill and work up to 1/2") and deepen the holes about 10mm (3/8"); use a rotary tool grinder to tidy up the hole a bit so the kit nozzles will fit.

Forward fuselage

Build up as kit instructions say, but leave off part A11 for now. When the glue is dry, cut off all but 1mm (0.04") of the step on the after end. Do a little dry-fitting of this to the rear fuselage. Insert kit part A11 and dry fit again. You may

need to trim the corners of this part a bit. The small triangular-shaped bases for the intakes on the side need to be reduced in height a little (no more than 0.5mm or 0.02"/side) ... do this now as filing and sanding will be easier. Fit front and rear fuselages sections together, make sure they are perfectly in line and glue together.

Radome

The original release of the F-5E kit included the appropriate nose radome, but current release have the wider 'shark nose' as part A13. If you have the later release, no problem. We have included a copy of the original kit radome; simply cut off the stepped area of the nose, and glue this resin part in place.

Wings

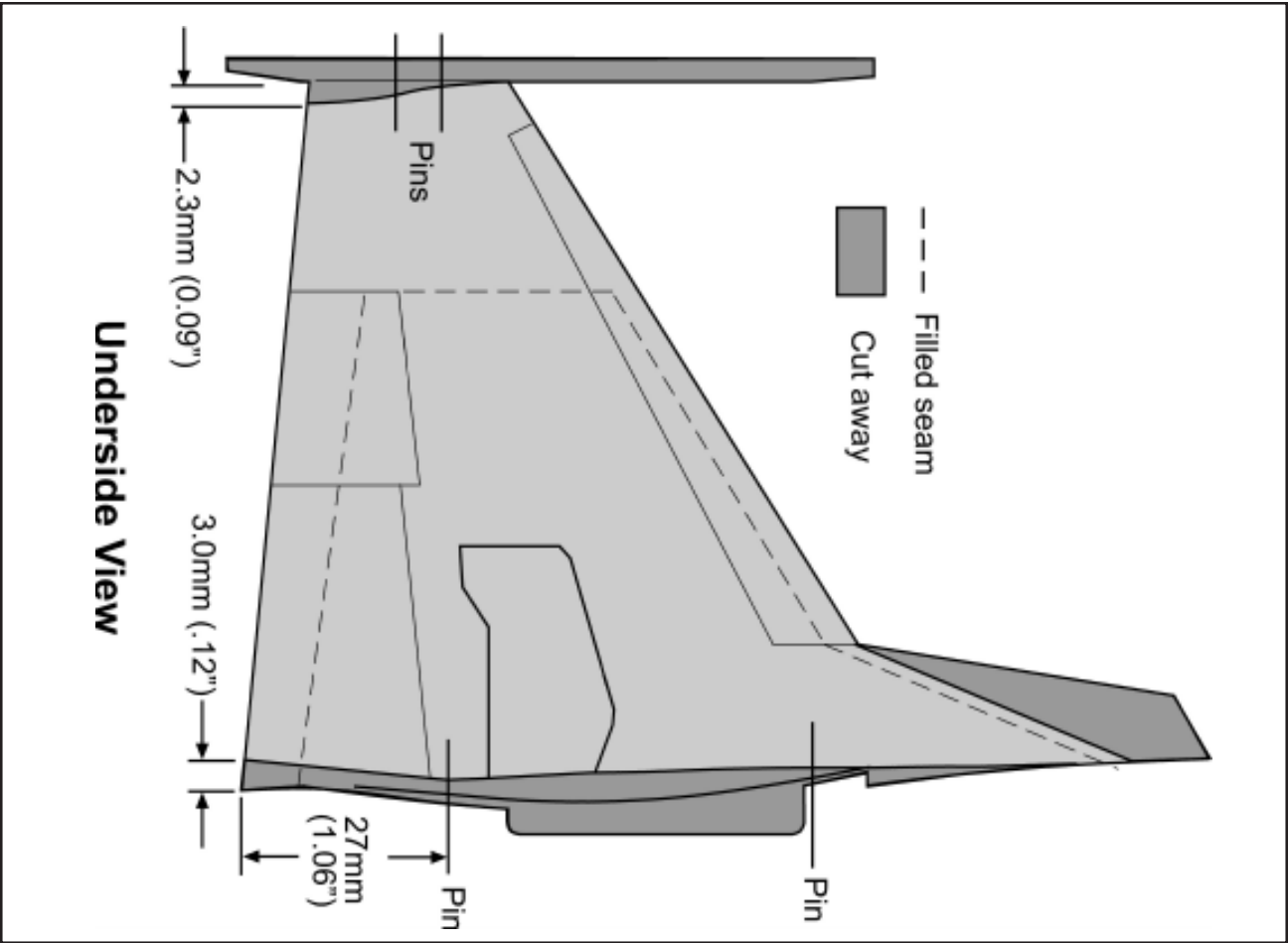
Modify the wings as shown in the drawing. First cut off the tab at the wing root. The inboard flap also area needs to have a small triangular section removed from the corner (3mm at the aft end x 27 mm long;see the sketch). The LEX needs to be cut down and its leading edge re-profiled. The outer tip needs the missile rail removed, and must be reshaped to fit the coke bottle tiptanks. Follow the drawing but also use a bit of cut and fit to make this joint as tight as possible. You will note that there is a large gap on the upper surface of the wing root even if the lower surface fits closely. That is a result of changing design partway through the process, where it was realized it was easier to trim the wing to a plain butt joint. The use of pins will help reinforce the joint and the gap can be filled with putty once the joint is set.

The drawing indicates where pins should be placed to help reinforce the joints. These pins will line up with holes in the resin fuselage and on the tiptanks. We recommend using 0.03" steel wire for the wing roots and finer wire (0.015") for the tip tanks ... the wingtips are very thin. Drill out the fuselage and tiptanks to fit the wire selected. The trailing edges of the wings should end up just underneath the cutouts for the auxiliary air intakes; the LEXes will sit in the recesses under the intakes with the forward point just even with the front of the recess.

Wings have no dihedral so lining up even and square with the fuselage is easy.

Intakes

The intakes simply glue on each side of the forward fuselage butted up against the resin rear fuselage. It is possible to get these on the wrong side The



correct orientation of the intake has the top lip extending out further than the bottom. Check the fit, sand the fuselage standoff if required and glue in place.

Tail

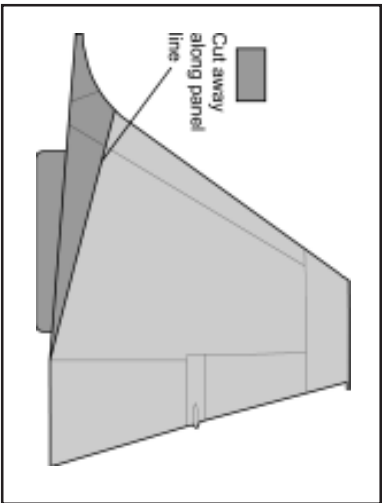
The kit vertical tail can be used with modification. Glue the kit parts (C19 and C20) together, and cut as shown in the drawing. With the tab removed, it is recommended to sandwich a scrap of plastic at the base to set the thickness and provide some support, especially if a pin is used to reinforce the joint. Glue in place on the resin rear fuselage.

Upper fuselage air scoops

The larger pair of resin scoops should have their bases sanded smooth, and glued in place centred 11mm (0.45") each side of centreline, with leading edge 11mm back from the trailing edge of the wing. See photo at right.

Tiptanks

Trim from the moulding riser and sand smooth. Note that the full scale tanks have red or green lights in their forward tips. If you want to represent these, you can trim off the forward 2.5mm (0.1"), glue on the appropriate clear red and green Plexiglas chips and re-profile the tip. Otherwise these can be painted in place. Drill out the pin mounting holes, and glue on the tanks, using fine steel wire to reinforce the joint. The shape of these tanks makes lining them up a bit difficult, but the outer edges of the tanks are parallel to the a/c centreline. Fill any gaps when set.



Lower fuselage modifications

a) **Speed brakes:** It is not immediately obvious from photos but the F-5A does have separate dive brakes although they move together and the gap between them is barely visible. Use the resin parts provided as a substitute for the kit parts C5 and C6. The actuating arms from the kits can be used.

b) **Main landing gear doors:** The gear doors of the F-5A do not have a hinge on their outer edge, so use the resin parts provided in lieu of kit parts B18 and B19.

c) **Arrestor hook:** OK, there is a hook in the kit, but this resin piece is a little better detailed. The hook should be lightly sanded to remove it from its casting flash, and the top of the hook arm can be sanded a bit more so it sits slightly off the under surface of the aircraft. The hook assembly is on the centreline of the aircraft, with its forward end lined up with the trailing edge of the wings.

d) **Lower cooling air scoops:** The two smaller resin scoops flank the arrestor hook mounting pad but they are not symmetrical about the centreline; they should be centred in front of the moulded-in intakes.

e) **Centreline pylon:** Slightly different in detail from that provided by the kit, this pylon is installed with its trailing edge lined up with the front of the speedbrake hinge arms..

(Optional) 125 gallon Centreline tank

That's 125 imperial gallons ... about 150 US gallons. Note that the front of the tank is indicated on the moulding riser; be sure to mark the front of the tank before removal. Sand smooth, cut fins according to the drawing from 0.5mm (0.02") plastic card, and glue in place.

(Optional) Weapons pylons

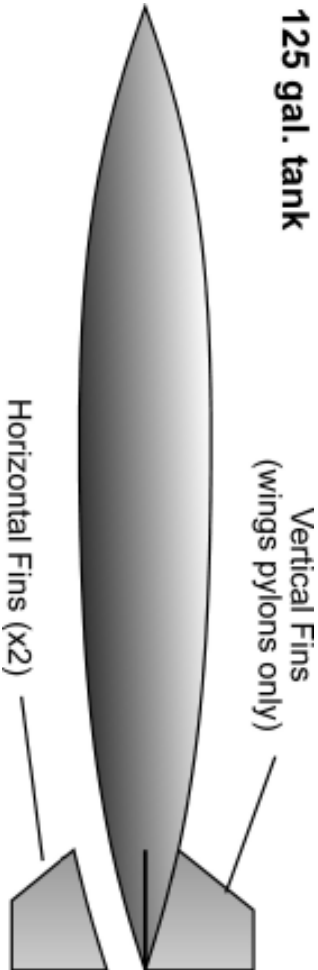
The current release of the F-5E kit provides the pylons but no instructions on use. Parts C7 and C8 are inboard, C17 and C18 are outboard. Parts D13 and D11 are the corresponding sway braces.

The drop tanks provided in the kit (parts B21-B24 and B28-B31) are not appropriate for the F-5A.

(Optional) Refueling probe installation

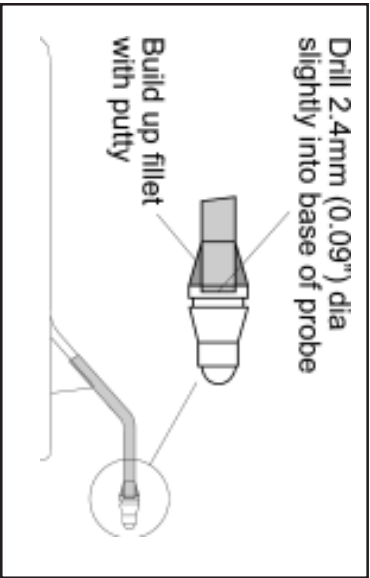
If made in one piece, this would be a fragile item even in plastic, but in brittle resin, it is a repair waiting to happen. For this reason, we have designed the part to use a length of brass rod (supplied) for the exposed probe pipe.

There is a good solid seat for the brass rod in the resin base; you should be able to lift the whole model by the probe when completed (but please don't).



Glue the probe base in place on the fuselage. The forward end is even with the vertical panel line forward of the canopy. and the whole unit is positioned 6mm (0.25") down from the canopy rail; this means the probe sticks out at approximately 45 degrees from the fuselage.

Cut the brass rod to 33mm (1.3") long and bend (fairly sharply) in the middle so it matches the drawing. Glue the base end into the resin piece; the nose of the pipe should be lined up with the aircraft centreline when viewed from above, but point slightly down when viewed from the side. Drill a shallow hole into the base of the probe tip, glue it on the end of the brass rod and when dry, fair the step with a fillet of putty.



Markings
Basic decals are provided for an operational CF-5A in the period 1973-1980. In this period, the aircraft were camouflaged green 503-301 (FS 34064) and grey 501-302 (FS 36099) over light grey 101-327 (similar to FS 36463). There were no wing markings. The RESCUE

text is separate so that the yellow arrow can be used on either side, as the markings are symmetrical.

Thanks
Much of the credit for this kit goes to John Lumley from Winnipeg, who prepared the basic masters with assistance from Scott Anningson. John was both patient and persistent in getting this set from that stage to this. Thanks also to Tony Stachiw who is a deep font of knowledge about most CAF aircraft and the F-5 in particular, and Tony provided a lot of help to John during preparation of the masters.

- References**
1. **Canadian Armed Forces Aircraft Finish & Markings 1968-1997**, Patrick Martin, self published, 1997
 2. **In Canadian Service; Canadair CF-5**, Tony Stachiw, Vanwell Publishing, 2003.
 3. **Canadian Profile Canadair CF5**, Bob McIntyre, Sabre Model Supplies Publishing, 1985