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Cover Comment: *Back in the days before there was a Belcher Bits conversion kit, IPMS London's Geoff Heyland was kickin' it old school and scratchbuilt the parts needed to produce a unique 1:72 B-47 Stratojet in RCAF markings. See page 4 for the award-winning build article.*

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Editorial
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Canadair CL-52

The U.S. Bomber that Canada Wrecked!

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History and Project Motivation

In 1958 Canada borrowed a Boeing B-47B from the U.S. Air Force and later returned it in such good shape that it was immediately flown to Davis-Monthan Air Force Base in Nevada and scrapped. As a headline, that's a pretty good start for a story, but the full picture is even more interesting, as any Avro Arrow fan will tell you.

The B-47 in question was, of course, the Canadair CL-52 - a modified testbed for the Orenda Iroquois jet engine designed to power the legendary CF-105 Avro Arrow. The Iroquois engine was a marvel of its time, outperforming most, if not all, contemporary powerplants and the fact that it was designed and built in Canada is something that Canadians should rightly be proud of, irrespective of the Arrow story. It was a huge engine for the time (the pod itself was over 30 feet long), requiring an equally large testbed aircraft to take it up for a flight test or two. The only potential candidate at the time was the Boeing B-47 – a stunningly beautiful aircraft that proves the rule that “if it looks right, it will be right”.

The B-47 was my image of a jet airplane in my childhood – sleek, podded engines to minimize the impact of engine fires (which happened a lot in the early years of jet technology), swept wings based on captured German research papers (and scientists), tandem crew placement like a fighter, weird landing gear placement – what was not to like? It has never been a very popular subject for model manufacturers – likely because it never fired a shot in anger (and hence no cool battle stories) and was the quintessential background nuclear deterrent at a time when ICBMs and nuclear-armed submarines were well into the future. It is hard to believe but the B-47 was designed in the late 1940's and was revolutionary at the time. It's not a hard case to make that this aircraft was the most influential in post-war history, given that most commercial airliners can draw a direct ancestral design link to it and it led to the iconic B-52 – the longest-serving military aircraft in history. Not bad.

But for me it's the fact that only one B-47 flew in non-U.S. colours: the Canadair CL-52. And we wrecked it! Cool! Polished aluminum and ratty day-glo paint scheme? Bonus! Massive scratchbuilt Orenda Iroquois engine and pod on the starboard rear fuselage? You had me at hello!

The Kit, Research and Associated Goodies

The only game in town for a 1:72 B-47 is the venerable Hasegawa B-47E, first released in 1968. It's a nicely moulded kit – a bit simplified, with raised panel lines, but the shape is right and the rivets and wing vortex generators are nicely scaled. The decals are weak, but I won't be using them. The interior and wheel wells are not detailed. I picked up the kit from a fellow IPMS London club member at a swap meet a few years ago and set it aside as it was missing the canopy. It gathered dust until I mentioned on a club COVID Zoom call that I was stuck for a canopy, and a well meaning “friend” sent me links to ways to spend money! I splurged for the Pavla resin interior (**Fig. 1**) which also conveniently came with a canopy!

The decals were old and bad, and not appropriate for the CL-52 of course! I obtained a set designed specifically for this aircraft from JBOT Decals (set 72-41-XX) (**Fig. 2**) before they ceased operating the decal business. I also trolled through my decal collection for random stencils, to try and add some more visual interest. You can't read them in this scale anyway!

For references I used the Arrowheads reference book “Avro Arrow” and Air Enthusiast 38, along with a number of magazine articles on the B-47 and several online images.

For those of you who toss out your RTs after reading, first - shame – they are excellent fire starters in our northern climes (kidding, Mr. Editor!) Second, there's gold in them thar issues! In late 2020 IPMS Canada released their RT Archive on a USB thumb drive and I obtained one, loaded it onto the laptop and started perusing. I didn't have dimensions for the Iroquois engine pod and was resigned to making an educated guess when I came across exactly what I needed in RT 30-1 – an article by the late Steve Bathy, IPMS Prince George, BC on his build of the CL-52! He had the engine pod turned in wood, but the article included a drawing with the dimensions I needed! We're off!

Building the Iroquois and Pod on the Cheap

I scrounged around for hollow tubular and rounded "jet-like" shapes that matched the dimensions. I found an old Space Shuttle solid fuel rocket that I convinced myself looked close. I wasted some time on that before I removed my rose-coloured glasses and saw that it was WAY too large. (Fig. 3) I found that a Highlighter marker that I used for ticking off the completed steps on instruction sheets matched the Iroquois dimension almost exactly (and the removable top looked a lot like an afterburner – bonus!) so I was looking for a tube it could fit into. I found a 1:24 scale underwing fuel tank in the scrap bin that, when sawed up, would serve as the basis for the intake and outlet, but no middle part! As is usually the case, when you stop looking you find it – I found an old clear plastic penny roll holder sitting on my 'whatnot shelf' right in front of me after a week of looking everywhere else and it was perfect. No – really – I applied my micrometer and IT WAS PERFECT! The Highlighter fitted perfectly, with a little room for greeblies, plumbing and wires too!

I glued the fuel tank parts to the front and back of the penny holder, using strip plastic to reinforce the joins internally. The overall length was right, but the intake shape was too gradual a slope. I kept gluing on bits of strip styrene to the intake area, sanding each layer roughly until I got the core shape I wanted. Then I applied several layers of Mr. Surfacer 500 with a spatula, followed by sanding with a nail file until it was almost right. This was going to be covered in Alclad, which shows every flaw of course, so this took a lot of work! I was concerned that hand sanding would create a wonky, non-uniform rounding of the intake, so I cobbled together a hand-powered "lathe" using my modeller's mitre box and some clamps. I rolled the piece with my left hand and applied the files with my right. (Fig. 5) I always apply some flat black paint after each layer of Mr. Surfacer so that I can easily see high and low points, and this approach really helped see where more lathe work was needed. It actually worked pretty well, but having a proper modeller's lathe would have been helpful for this project!

Once the pod shape was completed I wet sanded it using Goodman Models Sanding Blocks, available from Sean's Custom Model Tools seancustommodeltools.com. (Fig. 6) These are blocks of rigid acrylic with wet/dry sandpaper glued to the front and back, and they come in a set of different grades. The benefit is that the acrylic surface is dead flat, and properly applied you end up with a smooth, uniform finish (and if not, you clearly see where more filler is required to get you to that smooth, uniform finish). They are great for developing the basis for a natural metal finish.

After the wet sanding, I applied Tamiya polishing compound in Fine and Finish grades to get the pod to gleam. (Fig. 7) Then, after all that work, I had to face the task of cutting it open so I could install the Orenda Iroquois. I should point out at this point that all the foregoing work can be avoided now that Mike Belcher (belcherbits.com) has created and marketed a CL-52 detail and decal set, with a nicely done resin engine pod all ready for attaching to the Hasegawa kit. Of course I was doing all this messing about in the spring of 2021 during the height of COVID and had no idea that anyone was working on a retail detail set! Timing is everything... but I digress. Back to surgery!

Before cutting anything I wanted to finalize the dimensions of the engine itself, so I settled in for an evening of perusing photos and drawing up a scale diagram of the visible portion of the engine within the pod. I then mapped out the location of the engine access doors and pulled out the razor saw. After a very nervous session of sawing and cutting with a new #11 blade, I had the doors off and could start cutting up the pink Highlighter so it would fit into the pod opening. This took a little trial and error, as the Highlighter had to be the right length so it could slide in towards the back of the pod first, then drop fully down and slide forward enough so that the Highlighter fully filled the access panel area. Cut it too short and the front or back of the Highlighter would be visible – not ideal.

Once done though the pink Highlighter fitted quite nicely and it was time to add bits and pieces to make it look more like an Iroquois. My efforts at a scale pencil drawing helped here, as I find when I am just working from photo references it is easy to get lost. (Fig. 8) The drawing simplified the complex structure, allowing me to get the main elements in place before adding wiring, greeblies and the like. CA glue and accelerator were critical here as the plastic used in Highlighters does not react to Tamiya Extra Thin cement. I wrapped thin sheet styrene around the Highlighter in the areas that needed to be built up and attached it with CA. Further styrene layers could be added with Tamiya Extra Thin cement until I

eventually achieved the basic shapes of the engine. After I added each new layer I tested that it still fit into the opening in the pod, as it got progressively tighter each time.

Once satisfied with the core shapes I started work on the front compressor fan blades and bullet housing at the front of the engine. The blades would be barely visible, so I cut a circle from sheet styrene and scribed fan blade shapes into it, glued it to the front of the engine and painted it dark grey. The bullet housing was made by chucking a section of 1/4" diameter plastic sprue into my DeWalt drill and applying sanding sticks to it while turning at a moderate speed – another jury-rigged lathe to the rescue! (Fig. 9)

Once the shape looked about right I cut it to length and attached it to the 'fan,' adding some vanes for support, as in the real thing. The end result is fairly convincing, given that it is buried inside the pod intake area anyway. (Fig. 10)

The next step involved adding wiring, tubing, sheet styrene and whatever else I could find to replicate, generally, the complexity of the engine. (Fig. 11) It was easier to add most of this before installing the engine in the pod but again, test fit after each bit is attached to ensure it still fits! The real Iroquois was a tight squeeze inside the actual pod, so there won't be much space left. When scratchbuilding anything I tend to try and balance the appearance of realism against the insanity of trying to replicate everything in miniature. Some modellers have the attention span and capabilities to do the latter. I have neither, so I tend to lean more to the former – If it looks about right, I can live with that! I didn't bother painting the engine at this stage, as trying to mask it off when I get to the natural metal finish of the whole plane wasn't appealing and the tape likely would have pulled off some of the wiring and fiddly bits anyway. Most of the engine was natural metal anyway, so I would deal with it as part of the natural metal paint job, when I get to that!

I then sketched out the shape of the engine pod mounting pylon and cut it from sheet styrene, sanding and shaping it until it fit snugly along the length of the pod. (Fig. 12) With that done, I did the same thing to the other side until it fit snugly against the fuselage. I attached the pod to the pylon with CA and brass pins to ensure a solid bond, then did the same to attach the assembly to the fuselage. Voila!

Tail Surgery

The CL-52 had no need of the tail guns or extended stabilizer fairing on the B-47, so I cut off those areas and reshaped them with sanding sticks, knives and elbow grease, followed by various putties and Mr. Surfacer 500. As I got closer to the final finish, I roughly painted on some Tamiya Flat Black XF1 and then wet-sanded it to see if any black remained, identifying low spots that needed more work. (Fig. 13) Eventually when all the black paint is wet-sanded off you have a smooth surface.

Frame Stiffeners

The real aircraft needed external bracing to handle the lateral forces generated on the airframe by the Iroquois engine. I just grabbed some strip styrene in what looked to be the right size, measured it to length and glued it on with Tamiya Extra Thin using capillary action. The only tricky part was determining where to bend it and ensure it was the same on both sides. (Fig. 14)

Cockpit

The kit cockpit was woefully inadequate, even if you wouldn't see much after the canopy is installed. The Pavla Models details set is a beautiful resin gem that fits readily within the Hasegawa fuselage with the usual fussing and sanding. I assembled and painted it following the research material at hand. Almost nothing of it will be seen except the seats and instrument panels, but I still enjoyed the process. (Fig. 15) For me a big part of modelling is understanding how the machines are put together and what goes where, so adding invisible interior detail helps me do that. I take pictures to remind me of the work that was involved, and to show to disbelievers!

Wheel Wells

The kit wells were, shall we say, "spartan." "Empty" would be more accurate - and they needed some stuff in there to look interesting. I didn't want to go whole hog with accurate detailing - just insert some things to look busier than the kit provided. (Fig. 16-17)

Natural Metal Paint Effects

The real aircraft was not brand spanking new when it arrived – it had been an operational USAF aircraft but those markings had been removed. Apparently "ghosts" of the old American markings were visible as less-worn areas on the surface, but I wasn't able to find any photographs showing this so I didn't bother trying to replicate it. The surface was relatively worn in

spots though, and the many panels were visibly distinct, as were the flush rivet lines on the fuselage and wing. I really wanted to take a shot at achieving this look, but didn't want to mask the whole plane with 2 mm tape! I sketched out the overall main panel layout for the fuselage and wings and reviewed pictures to try and note which panels were darker, lighter, edged, etc. I decided to "pre-shade" by underpainting areas that would be duller (most of the fuselage) with a white base and the rest with a gloss black, the idea being that these would create different metallic effects after overspraying with Alclad II shades.

I decided early on not to attach the wings or the stabilizers until after painting, as the plane would be ungainly to work with and there would be a lot of masking and airbrushing ahead. I would face the risk of messing up the paint finish with glue later!

I also decided not to scribe any panel lines, as in 1:72 scale any lines would be invisible. PANELS would be apparent, but not the lines separating them. The panel work on this build would be entirely created by paint effects and not by panel washes.

I started with as smooth a surface as I could achieve with wet sanding followed by polishing with Tamiya Fine and Finishing Compound. I sprayed the white areas with Tamiya White Surface Primer mixed to a milky consistency with Mr. Colour Levelling Thinner. This gives a very smooth but "toothy" surface for subsequent coats, but for white areas I find I prefer the look of the Primer as it is! Once the white areas were masked off and any repolishing was complete I sprayed the black areas with Alclad II Gloss Black Base, starting with several light passes followed by a wetter pass.

Next came some more preshading of the white areas – just to try and get some subtle delineation of where panel lines should be. I masked and applied more Gloss Black around the pod and nose, then applied various gray shades to the fuselage, mottling the look a bit for variety. (Fig. 18) Honestly, most of this grey work was wasted as to my eye it had no effect on the end result. Sometimes "subtle" is just a fancy word for "invisible".

Next was to try the Alclad II base colour – Polished Aluminum ALC105. These go on in very light, misted coats, building up to the look you want. (Fig. 19) Over black you almost immediately get a chrome metallic look that gradually builds to a more opaque silver depending on how many coats you apply. The key is light coats – it dries quickly and you can recoat within minutes as long as they are done thinly. I find that metallic surfaces in the real world rarely look uniform, so having differences in tone, depth, and shading usually work out as happy accidents!

Alclad II has a broad range of metallic shades that are airbrush ready and very hard to beat for a natural metal finish, but they can be sensitive to masking and wherever possible I try to avoid having to. I used various shades to achieve differentiation between panels (Fig. 20), sometimes cutting masks out of paper, sometimes using post-it notes that I've pressed against my palm a few times to lower adhesion and sometimes using Parafilm M, a medical supply product usually used to seal test tubes and scientific glassware. I bought approximately 3000 years worth of this about 30 years ago, so I'm covered for another 2970 years! Some modellers use damp paper or tissue as a mask, but I've not had good luck with that technique.

Once I was reasonably satisfied with the overall panel differentiation I focused on how to achieve the elusive effect of rivet lines and the resulting panel dimples (most obvious on the B-52 and WWII bombers). These lines should be quite close together over the entire length of the fuselage and some wing panels. (Fig. 21)

I considered various options – drawing them on with a pencil, freehand airbrushing (not a chance!) masking everything (and likely lifting the Alclad II) – none seemed effective, consistent or repeatable. I had been posting some of my progress pictures to our IPMS London Facebook group and one member who had built his own CL-52 mentioned that he had used plastic straws grouped together with gaps between and then he airbrushed through them to generate a "picket fence" look. I tried that with sprue sections, which didn't work – the effect was too fuzzy at the edges. So I modified the approach by making a template from strip styrene. (Fig. 22)

This template could be held firmly against the fuselage, quickly spray a light coat over it and move it to overlap and spray the next section. I liked the effect, although there was some practicing and experimentation involved! (Fig. 23)

This is a time-intensive technique, and you don't want to start after a long day in the real world. It can be stressful too, as you really only get one shot at it. If you mess it up, you have to repaint the metallic layer and try again. Just settle in at the spray booth, have a clear idea of what area you want to work on, take a deep breath and give it a shot. Light coats again,

and less is more is the best advice I can give. Variation in depth of colour actually looks better than a consistent tone throughout. I used Alclad II Dark Aluminum ALC103, very lightly misted over the template.

Weathered Day-Glo

The CL-52 had red/orange fluorescent paint on the tail and fuselage bands, but as the engine testing progressed the band was heavily worn off – not faded as is usual, but actually worn off. (**Fig. 24**) This was the effect I was going for.

Before attempting this I would have to pre-coat all that hard-won metal effect with something to protect it. I chose Alclad II Clear Gloss, applied in the same way as the gloss black; several light passes followed by a wetter pass. After masking off the area I applied Vallejo Chipping Medium with a small piece of packing sponge followed by Vallejo 70.733 Fluo Orange with a bit of Vallejo 71.078 Yellow RLM04 added to make it a bit more orange. This colour requires multiple coats to generate the depth of colour needed, so I just kept spraying until it looked right.

Once dry, I attacked it with a rough, short brush and water to wear off the paint that needed to go. I just kept looking at the reference pictures and had at it. (**Fig. 25**)

This isn't a scientific technique – you just have to get at it and work it until you get something you like.

Trompe L'Oeil

French for “fool the eye”, this is a fancy artistic term for being lazy. Instead of installing a marble wall, for example, you get someone to paint the wall to look like marble. Faster and cheaper! Applied to modelling I use the term to refer to techniques that get something to look like it's a lot more complicated than it really is.

On to the pod bay doors

In this case, I wanted to add lightening holes in the engine pod and doors and the landing gear. (**Fig. 26**) If you were a GOOD modeller, you would probably build a jig for a drill press and drill all those holes, perfectly aligned. I considered that, shook my head and thought “wouldn't a Sharpie create the same look?” Nothing ventured, nothing gained!

I grabbed an ultra-fine tip black permanent Sharpie marker and experimented a bit with scrap and painted plastic. It looked good enough to take a shot at the landing gear first (**Fig. 27**), then the pod and doors (**Fig. 28**). At this scale I think they do the job of “fooling the eye” into thinking it sees holes.

More weathering...

In a similar vein, I wanted to suggest worn panels on the vertical tail that clearly show up in contemporary photographs but, as previously noted, I am not a scribe! At this scale, such lines would be mere suggestions, given away mostly by weathering. Why not use an HB pencil to draw the lines on and follow up with AK Weathering Pencils? I couldn't think of a good reason not to, so that's what I did!

Using Weathering Pencils is easy and fun, once you realize that anything you don't like can be removed with water. These are essentially watercolour pencils after all, but in a colour range most useful for modellers. You can apply them in (at least) two ways: (1) applying some water to the colour tip of the pencil with a paintbrush and mix it until you get the depth of colour “paint” you want on your brush; or (2) drawing directly on the model with the pencil, then ‘smooshing’ it around with a paint brush dampened with water until you get the effect you want. Play around with a paint mule for a while first. They work best on matte finishes.

I drew on the panels that I could see in the photos with a sharp HB pencil, erased most of them and then applied some AK Streaking Dirt with a weathering pencil and brush. (**Fig. 29**)

Because the tail is mostly weathered day-glo orange, I added the decals then applied pigments in Vallejo European Earth and Rust until it looked suitably softer. I didn't want to go too far with this as the tail colours were not as badly affected as the fuselage!

Finishing up:

In the real world this build sat on the “shelf of shame” for almost two years as I pondered whether it needed more of this or that, how to apply the wing walk decals without messing them up, how to weather the vertical tail, how to attach the pod doors, and ultimately how to glue the wings on without messing up the existing metallic finish! After several “skill building” projects, I finally bit the bullet and got back at it (Mike Belcher launching his conversion set also fired me up, as I didn't want people to think I just bought it after all this effort!)

The wings and tail went on without too much fuss, although I did have to sand, polish and touch up the wing/fuselage joint and redo some of the wing walk decals. Even so, I was expecting a horror show, with glue everywhere, so I was pretty pleased!

I attached the main wheel bogies with CA glue, as well as the gear doors. The plane sat well on the main wheels - good. I then attached the outriggers to the double engine pods... not so good. I never have luck with outrigger gear, as either they are too high off the ground or too low, and the main wheels don't touch. Geez. (Fig. 30)

I snipped off the wheels and eyeballed how much to cut off of the gear - about 1/8" as it turned out. Then I reglued the outrigger wheels at the higher level and tested things. (Fig. 31)

I glued on the Iroquois pod doors and cut some wire for the upper door supports. The lower door is very exposed, and the glue joint broke several times. Best advice I can give is to leave these very exposed bits to the very end.

Over the finish line!

It took a couple of years, most of which involved sitting on the shelf taunting me, but finally this undertaking is done to my satisfaction. I am never sure when a model is "done", but when it gets to the point where I don't want to do anything more to it, that's probably as good an indication as any. Final pictures, and I can move on, guilt free, to another project!

Summing up, this build pushed me farther than any other to date - new techniques, new (cobbled together) tools and new painting approaches. All that and a new found willingness to redo something if I didn't find it satisfactory and I'm happy with the result. I highly recommend just jumping in to "build problem solving" with both feet and trying things out. Some won't work but some will surprise you, and as Monty Python said, "It's only a model!"

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About the author:

Geoff Heyland is a member and club secretary of IPMS London. He still has the first modelling award he ever received – the 1972 GEM Stores (anyone remember them?) Grand Prize for a 1:72 Airfix Lancaster which, in retrospect, sucked. His primary modelling interests are... call it eclectic. A retired in-house lawyer for a life insurance company, Geoff is still married to his first date, has three brilliant daughters and five (and counting) incredible grandchildren. Two grandsons in particular love visiting his workshop and "seeing" his models – usually using their fingers of course...

A Canuck in the ARVN

A C15TA Armoured Truck in South Vietnamese service

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Background

The C15TA armoured truck combined the GM Canada's C15 CMP chassis with an open-topped armoured body built by the Hamilton Bridge Company in Hamilton, Ont. The C15TA was intended to fill the same role of the US Army's M3A1 Scout Car. Just under 4,000 C15TAs were built, compared to nearly 21,000 M3A1s. They remained in service postwar with multiple European armies, as well as further afield.

I first came across a photo of a C15TA in Jim Mesko's 'Armor in Vietnam.' A small photo was captioned as "*South Vietnamese armored car, believed to be based on a Canadian chassis, awaits repair near Saigon.*" The story of how the C15TA ended up in South Vietnam is not clear. The vehicle in Mesko's book clearly shows modifications from a standard C15TA – the armoured sides of the rear crew area are raised to the same height as the driver's cab. This same modification is also apparent on several ex-Malaysian police vehicles currently on display in Malaysia. The South Vietnamese army (ARVN) used a number of vehicles that seem to have come from Malaysia, including Wickham armoured railway cars, and I strongly suspect the C15TAs came from the same source.

The Kit

IBG from Poland have released a number of CMP variants, and they followed these up with an Otter armoured car and the C15TA. The C15TA kit includes three sprues from previous CMP kits, plus an all-new sprue with the armoured body. There is quite the contrast in the quality of the parts – the CMP sprues are fairly crude with thick parts and little detail, while the new C15TA sprues are very crisply moulded with fine detail. Most of the CMP parts will be hidden away under the vehicle, with the notable exception of the wheels and tires. The kit includes two sets of tires – from the C60 kit on sprue A, and from the C15 kit on the unlettered sprue. The 10.50 x 20 C60 wheels are much nicer, but unfortunately are too big for the C15TA, which used 10.5 x 16 wheels and tires. The C15 wheels have very crude tread detail, plus they represent 9.00 x 16 wheels and tires and are too small for the C15TA.

My initial thought was to replace the kit tires with a set of CMK Blitz Line CMP tires (set B72041 for Firestone or set B72040 for Dunlop tread). While these are beautifully detailed, they are 9.00 x 16 size wheels and tires, appropriate for the basic C15, but not the heavier C15TA. So I decided to design and 3D-print my own 10.5 x 16 wheels. This required four different parts – new front and rear hubs, to replace the poorly detailed kit parts, a wheel and tire with no hub, and a spare wheel with no hub and missing lug nuts (**Fig. 1**). These were printed on my Elegoo Mars printer, and gave me a significant improvement over the kit parts (**Fig. 2 & 3**)

Construction

The chassis was built up according to the kit instructions (**Fig. 4 & 5**). The instructions show no fuel tanks fitted to the model – I modified the C15 parts provided and attached them to the bottom of the body, hidden by the side armour plates.

The hull parts fit together very well, despite the complex shape of the body, with just a touch of filler needed at the rear corners. I added the extensions to the hull sides and rear with .020" Evergreen sheet, and cut out two view ports on each upper side panel and the upper rear door (**Fig. 6, 7, 8**). It's not apparent how these extended panels were supported on the real thing, though no rivets or welds are evident in the photos I've found.

Most ARVN C15TAs seem to have had the large stowage bins mounted over the rear wheels removed. Though these are separate parts in the kit, I had to modify the rear fenders and add angled outer sections similar to the front fenders.

The headlights are moulded solid in the kit, so I hollowed them out with a Dremel and added a clear epoxy lens after painting. I added scraps of .005" plastic sheet to represent the hood hinges and the bases for the wing mirrors, which again appear to have been omitted in ARVN service (**Fig. 9**). I added boarding steps to the side doors from wire – an essential aid for ARVN troops of short stature – the door sills on the C15TA are nearly a meter above the ground (**Fig. 10**).

Fine wire was used to add lifting eyes to the corners of the body. The towing eyes are moulded onto the nose of the hull – I carved them off and replaced them with wire as well.

I had no references to the interior layout of the ARVN C15TA, so I used the kit parts. I added some resin .30" cal ammo cans and an Armand Bayardi jerry can to the interior mesh stowage bins. Up front, I added a representation of the latches for the side window armour panels, and added the prominent levers that open and close the front armoured window covers (**Fig. 11**). Some of the Malaysian vehicles seem to have an armoured panel behind the driver, but this is not always evident in photos of ARVN vehicles. I left it off my model.

The bows for the canvas cover over the body are finely moulded, and almost impossible to remove from the sprue in one piece. I created a replacement from wire, and fitted only one in the front most position. One each side, I added a pintle mount for an M1919 .30" cal. machine gun. The gun barrels were lost wax brass castings from Mini World, while the conical flash hiders, receivers, pistol grips, ammo boxes and mounts were all scratch built (**Fig. 12**).

Painting

I use mostly Testor Model Master enamels (now sadly discontinued) for finishing. I painted and weathered the interior first (**Fig. 13**), then masked off the open top before painting the exterior. I started with an overall primer coat of flat black, making sure to get the paint into all the corners. I then built up the finish (Olive drab in this case) with multiple light coats of heavily thinned paint. I started with a mix of olive drab and black, then gradually changed to pure olive drab, then added Radome Tan. The final coats look nothing like olive drab in the colour cup, but they are applied so thinly they have only a very subtle effect on the final colour. I try to concentrate the most intense colour towards the centre of panels.

I used a black pin wash to highlight some of the moulded detail, along with selective drybrushing.

Markings

The markings are minimal – an ARVN serial number in black on a yellow rectangle. I used yellow decal film for the rectangle, and I designed my own font for the registration numbers using FontStruct and laser-printed them onto clear decal film (**Fig. 15-17**).

Weathering

Rather than covering the finish in the stereotypical Vietnam red dirt (which is only really applicable to certain parts of the country), I used a lighter dry mud pigment. I mixed it with isopropyl alcohol and sprayed it over the lower parts of the hull, and selectively removed it with a stiff brush after it had dried. I weathered the interior floor using the same pigments (**Fig. 18**).

Conclusion

The IBG C15TA makes into a really nice model of a distinctively-shaped subject. The kit is only let down by the poor wheels and tires. The C15TA saw service well into the 1960s in Europe, Africa and Asia, so there are plenty of finishing options available for this uniquely Canadian vehicle.

References

- ☐ Armor in Vietnam – A Pictorial History, by Jim Mesko
- ☐ warwheels.net/C15TAindex.html
- ☐ en.wikipedia.org/wiki/C15TA_Armoured_Truck

About the author:

Will Alcott lives in Toronto where he works in technical sales for a large engineering software company. Aside from a few years in the wilderness of 35th scale, he builds almost exclusively 72nd scale aircraft and armour, focusing on the wars in French Indochina and Vietnam from 1945-1975. Will has participated in model shows and contests in Canada, the US and UK, and been active in IPMS chapters in all three countries and is currently a member of IPMS Toronto. When not modelling he spends time with his wife, two kids and dog.

Avro 671 Rota

Autogyro

Barry Maddin

C#6000

Truro NS

Avro 671 Rota Mk. I

An autogyro form of aircraft, developed by Juan de la Cierva, was sufficiently advanced by 1934 for the Royal Air Force (RAF) to order a small number of C-30As for evaluation on army co-operation duties. The C-30A was the most widely produced Cierva autogyro design. Avro built the type under licence as the Avro Type 671 Rota, both for the civil and military market. Evaluation of the type took place at the School of Army Cooperation at RAF Old Sarum. Neither the C-30A nor the later C-40 was adopted by the RAF as an observation or communication aircraft, but the development of ground radar and in particular the need for a slow-flying aircraft for its calibration meant the Rota had a valuable wartime role.

The Kit

The kit is the Avro 671 Rota Mk I RAF # 41008 by MiniArt in 1:35 scale (**Fig. 1**). Consisting of 109 parts in grey styrene, two clear windshields, a photo-etch fret with 47 parts, and decals with markings for four airframes. The castings are excellent particularly the fuselage with crisp surface details like the fabric effect over the ribs, the stitching tapes and fasteners. The 12-page instruction book is composed of 3D drawings and full-page colour shots of the different paint schemes and decal placement. The instructions were very easy to follow and the parts placement indicators were very clear.

The Build

It all starts with the engine. The Avro 671 Rota was powered by the Armstrong-Siddeley Genet Major (Civet) 1A seven-cylinder air-cooled radial piston engine. It produced 140hp giving the Rota a maximum speed of 96 knots (180 km/h) with a cruising speed of 83 knots (153 km/h) and a range of 459 km. The kit engine was not a difficult build, except for the photo-etch details. The intake manifold and exhaust collector ring have small (read 'very small') gaskets for their attachment points on the cylinder heads (**Fig. 2**). I suppose one could leave them off but where would the fun be in that !? And besides the manifold and exhaust ring would leak on start up. In fact the attachment points on the photo-etch fret are very fine and cutting through them was a breeze and left no tabs on the edges to clean up. I carefully followed the drawings of the manifold and ring regarding the directional placement of the gaskets to make sure there would be no interference on the cylinder heads when I installed them. The next trick was the photo-etch pushrod tube braces which needs to be in place before installing the fourteen rocker arm covers and pushrod tubes. The cylinder heads are moulded with a stub representing a sparkplug but since I wanted to install plug wires I cut off the stub and with a #77 (.018") bit drilled out the plug holes. With .015" lead wire I added plug wires (two per cylinder) and ran them between the rocker arm covers at the top of the cylinders and down into the ignition conduits, which in the real thing lead to the magneto(s) behind the engine. Then using a # 79 (.0145") bit for each cylinder I drilled out a hole in the cylinder head and engine housing for the cylinder head oil line. I installed the oil lines using .010" copper wire. For the oil pump on the front of the engine I drilled out three

holes, two with my #74 (.0225") bit for the .020" lead wire oil lines and one with a #79 (.0145") bit for a .010" copper wire oil line (**Fig. 3**).

I turned my attention back to the engine which I primed with Krylon Grey. I then painted the manifold, exhaust collector ring, cylinders, rocker arm covers and pushrod tubes with Vallejo 950 Black and the main body of the engine with Vallejo 922 Neutral Grey. I picked out the plug wires with Vallejo 862 Black Grey and the various oil lines with Vallejo 998 Bronze, 999 Copper and 863 Gun Medal. I then gave the engine a strategic wash with Tamiya Panel Line Accent Colour (Black) (**Fig. 6**).

The cockpit interior. This was the next item with the seat platform consisting of foot controls and a lever mount with two levers. The foot controls utilize two very fine rods to connect the front and rear controls. I was concerned about breaking the rods during cleanup but the plastic was flexible enough to take the handling without breakage. I painted the platform Vallejo 922 Uniform Green and the foot controls Vallejo 863 Gun Metal. The seats are very basic and I could not find a reference picture of the interior of the Rota so with some artistic licence I made seat cushions and spine pads for the seats using .030" styrene sheet (**Fig. 4**).

The kit provides multi-piece photo-etch seat belts which were easy to assemble and I mounted them on the seats as per the drawing in the instructions. I painted the seats Vallejo 922 Uniform Green with the cushion and spine pad painted Panzer Aces 314 Canvas. The seat belts were painted in Vallejo 987 Medium Grey and the buckles using Vallejo 863 Gun Metal. The seat mounting frames were installed next. The frames had very fine segments but cleaned up without problems. The front and rear instrument panels are nicely detailed with gauge decals provided. I painted the panels with Vallejo 950 Black and applied a couple of coats of Future Floor Finish to the gauge faces. The decals went on without problems and settled down with an application of Micro Scale Decal Set. I sealed the decals with more Future and then the whole panel was sprayed with Testors Dullcote and I again applied Future to the glass faces of the gauges to finish them off. I then painted the frames Vallejo 922 Uniform Green and mounted them on the platform with the instrument panels. The tubular frames that surround the seat platform are very fine and have throttle and trim quadrants you mount on them. The throttles levers are photo-etch and look great when installed. The frame was painted Vallejo 922 Uniform Green and the quadrants painted Vallejo 950 black with the lever knobs done in Vallejo 957 Red and Vallejo 953 Yellow to add some colour to the cockpit. In front of the pilots seat is the compass housing which I painted Vallejo 950 Black and added a compass face decal and then painted the top ring of the compass with Vallejo 801 Brass (**Fig. 5**).

On the port side of the fuselage at the forward seat position is an access door that you can build either open or closed. The door on the real aircraft slides up and down not out like a regular hatch and I chose to have the door in the open position because it exposes more of the cockpit detail. There is also a step in the fuselage for use by the pilot which I drilled and filed out for greater detail. Dry fitting the cockpit between the fuselage halves revealed a nice snug fit. I painted the interior sides of the fuselage with Vallejo 922 Uniform Green and glued the cockpit assembly to the starboard side and touched up the paint (**Fig. 7**) I then glued the other half of the fuselage in place and needed only a little bit of Vallejo Plastic Putty on the bottom seam and at the tail. My hat's off to all those aircraft builders out there who achieve a seamless finish.

Rotor structure. I built the four-legged pyramid rotor mounting assembly, which houses the tilting rotor hub and a control column that extends into the two cockpits with which the pilot could change the rotor plane. Additionally there was a rotor drive shaft that ran up from a clutched gear box mounted behind the engine up to the rotor head in front of the forward seat position. I then installed the cowling in front of the cockpit and the rear wheel assembly. The rear wheel was steered by cables so based on photos I drilled out the wire supports with a # 72 (.0145") bit and two holes just aft of the grab handle mounts on the fuselage to run the wire. I also drilled out the grab handle mounting holes with a # 72 (.025") bit and replaced the plastic grab handles with 24-gauge florist wire.

As the result of the sag of the resting rotor the design of most autogyros resulted in the elimination a high vertical tail. The dorsal fin was made long and low, extending well aft of the tail plane like a fixed rudder and augmented by a ventral fin. The kit's ventral fin is positional so I mounted it angled to port.

I turned my attention to the tail planes that have elevators and turned up tips. Not being an aircraft builder I was confused by the appearance of the tail plane, however I discovered the port side of the tail plane had an inverted airfoil section to counter roll-axis torque produced by the propeller. I did have to apply some filler to the tail plane joints using Vallejo

Plastic Putty. The wide-track undercarriage was next and went together without problems although it was a little tricky getting it in place. I then installed the four-legged pyramid rotor mounting assembly I had built earlier (**Fig. 8**).

Priming and Painting. I filled the cockpits with quilt batting and using Tamiya XF-25 Light Sea Grey I primed the aircraft. I thought I had done a good job with the putty at the tail plane joints but the primer show different. I sanded off the offending area and using automotive spot putty I redid the joints and after sanding the area smooth I primed it again. This time everything was fine and I proceeded to apply the first colour using Tamiya XF-3 Flat Yellow on the undercarriage and under the tail planes. When dry and using Humbrol masking fluid and Tamiya tape I masked off the yellow and applied Tamiya XF-52 Flat Earth to the upper part of the aircraft (**Fig. 9**).

Using Silly Putty I masked off the earth colour following the instructions painting guideline and applied Tamiya XF-62 Olive Drab. After letting the paint cure for three hours I carefully removed the Silly Putty and masking tape. I then painted the tires Panzer Aces 306 Dark Rubber and in a couple of spots touched up the earth and olive colours. Lastly I painted the leather pads on the front and rear edges of the cockpit openings with Vallejo 940 Saddle Brown (**Fig. 10**).

Markings. I had painted the Rota to represent DR623 from No. 529 Squadron, a Radar Calibration unit based at RAF Halton in 1943-44, so I applied a couple of coats of Future to the areas where the decals were to go. The decals have a very thin carrier film and responded well to Micro Set and Sol, conforming nicely to the surface detail. I sealed the decals with another coat of Future and then toned everything down with a shot of Testors Dullcote.

Final Bits. I installed the tail wheel steering wires using .010" (.25 mm) Soft Touch braided wire from the Soft Flex Company. I next tackled the rotor, which on the real aircraft consisted of a three-blade rotor measuring in at 37 ft (11.3 m) in diameter. With the kit you have the choice of building the rotor in the flying or the transport position. I built the assembly in the flying position but in hindsight I should have chosen the transport position. I planned to have the Rota in a diorama scene and the folded rotor would have been a better fit for the scene and the physical space the rotor takes up. The last step was to glue the windshields in place. I painted the windshield frames with a silver Sharpie marker and glued them in place with Gator glue (**Fig. 11**).

The Display

I wanted to show the Rota in a setting that would have some interest so I planned to have the aircraft sitting in a field about to undergo maintenance. I had a Tamiya kit of a British Tilley light utility truck that I built and painted in Tamiya XF-50 Field Blue and marked as a RAF vehicle.

Additionally I had three Ultracast figures that could be made into RAF servicemen; one a squatting mechanic, one a Pilot Officer reaching into his pocket for a pack of cigarettes and the last one a Sergeant telling the Pilot Officer there is no smoking by the aircraft. In my spares box I had a work table and a tool box which I filled with tools. I also built a work stand using .030" plastic card and Evergreen strip and etched a wood grain into the plastic with the edge of my razor saw. I painted it with Vallejo 941 Burnt Umber and washed with Tamiya Panel Line Accent Colour (Black) to highlight the wood grain.

I painted the edge of a wood plaque with Nordic Blue acrylic craft paint and laid down a strip of white glue and sprinkled fine sand into the glue forming a segment of road. I masked off the blue edge and painted the plaque top and road with Burnt Umber acrylic craft paint. I applied a number of grass tufts from Gamer's Grass then brushed on a coating of white glue and laid down a layer of static grass. I airbrushed Tamiya XF-5 Green over the grass area and then added some variety to the grass colour with Tamiya XF-58 Olive Green and applied some MIG Pigments P028 Europe Dust to the road surface and spots on the grassy area.

After gluing a photo-etch wrench on the work stand and in the hand of the mechanic I mounted the work stand with the mechanic on it onto the grassy area along with the work table with the Pilot Officer leaning on it (**Fig. 12**). I dusted the lower body and wheels of the Tilley with the MIG P028 Europe Dust and set the Tilley and Sergeant figure into the scene (**Fig. 13**). Satisfied with the layout I then tested a couple of different angles for the Rota and once happy with a specific spot I glued the Rota in place (**Fig. 14**).

Conclusion

This was a very nice kit with fine parts and excellent detail and I really enjoyed building this kit and setting it into an interesting scene. I was lucky that there are several surviving units such as one at the Imperial War Museum Duxford

Aerodrome in England and at Fantasy of Flight in Polk City Florida which served as the reference for this build. The internet also has lots of shots of the C30A Rota and a lot of historical narrative. I think that MiniArt has produced a real winner with this kit and the other gyrocopter kits they produce.

Reference

☐ fantasyofflight.com

About the Author

Barry Maddin retired from the CAF in 2009 after a 37-year career as a Navy Stoker, an Army Vehicle Technician, and finally as an Army EME officer. He and his wife moved to Truro NS from Ottawa in 2009 where they built their retirement home, including a hobby workshop, which is strictly off limits to the cats. Barry started building models before he could spell 'plastic' and currently builds mostly 1/35 WW II armour and military vehicles, although he does dabble in other areas. He is a member of AMPS and has been a member of IPMS Canada since 2000.

Scale Model Colour Modulation

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In the beginning...

When I started modelling as a kid in the late 70s, I was limited to kits and glue. Model paint was a rare commodity for me, and part nippers, what were those? Fast forward to when I picked up the hobby again, and all these new and excellent tools and techniques are around.

Over the last couple of years I've embraced colour modulation – a technique, or maybe I should say a combination of techniques that involve pre-shading, post-shading, oil and pigment dotting. Modulation really brings life to models that sometimes end up looking flat or uninspired.

There are plenty of articles and YouTube videos on the application of modulation, and I am by no means an expert, as many of these folks are. This article demonstrates what a bit of any of these techniques can add to or enhance your basic modelling.

What is Colour Modulation?

Colour modulation is one of those controversies in modelling – some folks like it, some hate it, saying that it makes models look cartoonish or unrealistic. It is another tool on our belts we can use to change or enhance the model's appearance, aesthetic, or impression on the viewer. Like dry-brushing, pigmentation, filters and washing - any technique can add or remove from your model. It's all a matter of selection, practice and getting the end result you want to have.

For those who don't know about it – here is a simple primer on the colour modulation techniques I'll be showing to you in this article:

Pre-shading - involves painting some areas of the model with either dark or light undercoats before applying the colour layer. This is used to create artificial shadowed and highlighted areas for contrast, to show some fading or paint, etc.

Post Shading - painting areas of the model after the colour layer is applied. Again, this is used to both create and/or enhance shadows and highlight areas, similar to what the pre-shading step did.

Oil Dotting - applying tiny dots of different colours of oil paints and then carefully wiping them off in a direction or pattern related to the area being covered until only a light hint of the oil paint remains. Up-and-down wiping is used for vertical surfaces and a circular/tapping/rubbing motion is used on horizontal surfaces.

Pigment Dotting - similar to oil dotting, placing small dots of pigment where desired and then drawing them down or around as you see fit to show streaking, grime, shading, wear, etc.

The Project 'Canvas'

For today, I'm using Italeri kit #359, a T-26 Soviet Light Tank. (**Fig. 1**) This 1998 rebox of a Zvezda kit is something I picked up second-hand and approximately 2/3 built. There was a lot of putty used on the kit, and in spots where I couldn't

figure out why. The suspension was glued on, and the rubber band tracks were too tight to fit, so I moved the idler wheels forward. The handrail antenna supplied was very chunky, so I replaced it with a spare from a Tamiya BT-7. Also, the engine air intake was missing. I cut one out from a spare photo-etch.

Construction, i.e., assembly and repairs, was completed over the space of one weekend, only about five hours of work. **(Fig. 2)**

I washed the kit and planned to add a Verlinden resin fuel drum and to provide a bit of visual interest, a patriotic flag. Vehicle-mounted tools were painted separately.

For the T-26, all paints used were Tamiya:

- XF-1 Flat Black as a base coat
- XF-26 Deep Green for mid-points between the base & faded areas
- XF-4 Yellow Green for high points or faded areas
- Russian 4BO (mixed with Tamiya's recipe of 50:50 XF-4 Yellow Green and XF-58 Olive Green)
- XF-2 Flat White diluted 95:5 with X-20A Thinner for overspray

Paints were applied with an H&S Infinity airbrush set to approximately 20 lbs pressure, and all colours were mixed to a 50:50 ratio of paint:thinner.

The plan

Modulation can be just a couple of steps or it can be built up with multiple layers of primer, base coats, shadings, chipping medium and then more coats - to create the effects or the look desired - highlighted, weathered, worn, winter camo and so on.

Let's get started

In the first step, a black base coat is applied over the entire tank. Then the first coat of modulation is applied - thinned XF-26 Deep Green - to the high points and the flat surfaces on the top and side areas where I want to have with less shadow. **(Fig. 3-5)**

The second coat of shading is now added, this time being thinned XF-4 Yellow Green on the areas where I sprayed the previous Deep Green coat - to create further highlights, show no shadow and to create the illusion of faded paint. **(Fig. 6)**

Finally, the main colour - 4BO or the Tamiya XF-4/XF-58 in a 50:50 mix is applied in light coats until I get the depth that I am looking for. **(Fig. 7-10)**

Moving on - the top coats

Fully painted, the fun part starts - bringing it all together. Tools and the fuel drum were painted, as were the tracks and roadwheels. The exhaust received some extra work - these T-26 exhausts apparently became very hot. To make it look worn, I used a combination of paint and washes **(Fig. 11)**:

- Vallejo Black/brown base
- A layer of Testors Rust paint stippled on
- Lifecolour Rust 1 and 2 applied in light coats
- Citadel Rust dust paint
- Three layers of black wash applied - each between paint coats

To bring a bit of life to the kit, I decided to add a flag - propaganda or aerial recognition, your choice.

The flag was made using tissue paper cut to size and laid down with water and white glue (50:50 mix), and then I added a pair of spare decals (the slogan is "For Stalin") **(Fig. 12)**

Oil-dotting

The final piece of modulation to this tank was to oil-dot it. Using a mix of Winsor & Newton and Walmart oil paints. I added random dots in five colours. **(Fig. 13)** The colours used in this process were:

1. Cream
2. Ochre
3. Green
4. Blue
5. Burnt Umber

I then brushed them with a brush dampened with thinner in either straight lines for vertical surfaces and smears for horizontal surfaces until I had most of the paint removed and achieved the look I wanted.

I try to 'randomize' the colour dots but I do make sure to have a few more lighter colours higher up on vertical surfaces and near-natural high points on horizontal surfaces and darker where I expect to have shadows or to emphasize a feature, such as rivets, grime, and streaking.

Final Steps

After some chipping added via sponge and a pin wash, the final results are worth the effort: **(Fig. 14 - 16)**

Some Philosophy

There are many ways of modulating armour. Layering paint of different shades allows you to create the effect you wish to bring out - whether you pre-shade in black and white, or you post shade by applying highlights/low lights after the base colour, or oil dotting, or applying filters and washes.

I want my work to look realistic - not overly weathered, but also not showroom fresh. I have adopted the techniques I've learned from various sources (e.g, YouTube, online posts, magazines) that suit me.

When I first got back into the hobby in the early 2000s, I just did a base coat with some pigment work - this was all I had done before and all I knew to do. As I progressed, these other techniques were exposed to me, and as I learned, I saw a pretty startling difference.

Moving on

The following is a comparison to show what one or more of the steps and techniques used can do to enhance any kit, from older ones to less-detailed makes all the way to today's high-end multi-media models from manufacturers like RFM, Meng or Asuka.

For this, I've used the Italeri T-26 I just completed with multiple layers of modulation and compared it to only Russian/Soviet armour (so, like-to-like comparison) built over the last 14 years by me. **(Fig. 17 - 18)**

A Trumpeter KV-1 kit that was only base-coated and then had various pigments applied. I also included my first scratch flag and tarp stowage - both made using Kleenex and white glue/water. The KV placed 1st and 2nd in two shows for its category. **(Fig. 19)**

This Tamiya T-34.85 kit was my first attempt at getting fancy. I had read about using paint powder to enhance kits and had been given a copy of Tony Greenland's book Panzer Modelling Masterclass which, if you are aware of his work, is just amazing to look at. I wanted to replicate that highlighted look Mr. Greenland makes, and my dry brushing just wasn't up to the task in those days. **(Fig. 20)**

Using tempera paint powder, which is a kid-safe paint you can get at any store with a crafts section, I liberally applied the powder in the low areas that I wanted to shadow. I worked the powder into the paint with a stubby brush, blowing off excess as needed until I got the effect in **Fig. 21**.

The tempera-based post shading (yes, post-shading) dramatically enhanced the kit and made it look more worn and realistic. **(Fig. 22 - 25)**

Fig. 25 is a rogue's gallery of Soviet light armour I've made, demonstrating the differences that colour modulation can do for the look and feel of your models. All four of these were built between 2019 and 2021. All are painted in 'Russian green', or 4BO, which has shown to be a wide array of shades. A web search of Russian armour graveyards will show

wide variations in the colour, and I try to show this by using variations of green and then changing up the types of modulation and colours to use. **(Fig. 26)**

Each of the models in **(Fig. 27 - 29)** show different levels of modulation done, yet each stands out, whether in a group shot or by itself.

I don't often build with an idea of what the final kit will look like, beyond representing the actual piece, of course. I'll look at the decal sheet to give me a starting point and then let my mind wander. Where the piece was historically, how it was used, older, newer, lousy weather, mistreated, or what season it's in - these are all things I consider as I am taking it off the sprue and assembling. For me, each piece brings out a story out in my head. I'll research it online or in my reference books, speak to fellow hobbyists or ask one of my kids their opinion. The different methods allow me to express the final look I want effectively.

KV-2s are a favourite for me. These monstrous tanks have huge vertical surfaces, specifically the turret, and it just begs to be highlighted, weathered, battered and abused. My early ones were just base-coated and put on a shelf. As I learned more and more ways to affect the look of my kits, I acquired more and started experimenting. Some examples follow.

First off, a pair of 1:48 scale KV-2s - a Tamiya and a HobbyBoss. With the Tamiya kit, I wanted to simulate a winter camo scheme. I base-coated the tank Testors Russian Armour Green. Once dry, I applied globs of Elmer's Rubber Cement over the kit and then laid a rough coat of white - spraying in uneven coats and somewhat scattered about.

After removing the glue, *(I peeled it off using my thumb to gently rub the cement until is loosened)* to expose the base coat underneath, I then added positive and negative chipping - I stippled on my base-coat green for wear on the whitewash (positive chipping) and the when over that by stippling white over the green and also on the whitewash (negative chipping) to add depth. **(Fig. 30)**

The HobbyBoss kit was only pre-shaded using black and yellow under the base coat and then I added some rust to the tracks (and at the turret base for some reason which I can't recall). I haven't done anything further yet as I really like the contrast I had created. It's a bit bright, and I'll eventually tone it down, but as an example of what using a pre-shade for modulation can create visually, it really stands out.

Still using KV-2s as an example of the contrast when choosing to modulate, here we have a Tamiya 1:35 KV-2 done in two-tone camo with no paint modulation done in front of the Hobby Boss 1/48, which was modulated. Visually, the difference between the two is remarkable **(Fig. 31)**

Regardless of your skill level or even your budget, adding any modulation techniques will provide you with various results that can really bring out your tank. Besides a weathered or worn appearance, if done in light coats can give depth and contrast to areas of the tank where you want to draw the viewer's attention - to a detail or to an effect you want to have highlighted. **(Fig. 31 - 36)**

Conclusion

I love how this hobby lets us explore new ideas and techniques and allows us, if we choose, to experiment and express ourselves in our work. Sure it's great to make that specific vehicle on that day in that theatre but to take a subject and just make it look the way you want. I didn't do any modulation when I got back into the hobby, and I was usually happy with the results I got..well, OK, some stayed on the shelf, and some were binned, but then we don't win a lotto every day either!. More often than not, I found myself satisfied with each completed kit and then pushed to expand my skills and make my work even better. **(Fig. 37 - 38)**

Build, whether for shows or for yourself and enjoy the fruits of your work regardless of what systems, techniques, products or styles you use.

Materials Used

The following kits were documented in this article:

1:35 scale

- Academy M3A1 Stuart Light Tank, Kit No. 1398
- Hobby Boss T-18 Light Tank MOD1927, Kit No. 83873
- Italeri T-26, Kit No. 359

- Takom Soviet Heavy Tank KV-5, Kit No. 2006
- Tamiya BT-7 Model 1935, Kit No. 35309
- Tamiya KV-2 Gigant, Kit No. MM163
- Tamiya SU-85, Kit No. MM72
- Tamiya T-34/85, Kit No. 35138
- Tamiya T-72M1, Kit No. 35160
- Tamiya Valentine Mk.II/IV, Kit No. 35352
- Trumpeter KV-1 (model 1942 Heavy Cast Turret), Kit No. 00359
- Trumpeter KV-1S/85, Kit No. 01567
- Trumpeter PT-76, Kit No. 00379
- Trumpeter SU-152, Kit No. 015711

1:48 scale

- Hobby Boss KV "Big Turret" Tank, Kit No. 84815
- Tamiya KV-2 Gigant, Kit No. 32538

Paints

- Tamiya XF series acrylics
- Testors Russian Armour Green
- Citadel Miniatures Paint - various
- Oil Paint - Winsor & Newton and Royal & Langnickel
- Vallejo Acrylic Paints

Washes

- AK Wash - For NATO Vehicles
- AK Wash - For Green vehicles

Pigments

- Tempera Paint Powder - used as a pigment, not mixed
- Doc O'Brien's - from Micro-Mark
- Mig Pigments
- Pastel Chalk - ground up by hand
- Bragdon's Pigments bragdonent.com/weather.htm

About the author:

Frank Donati was born in West Germany and spent his formative years as a Canadian Army brat bouncing between Europe and Canada. Frank is a professor at Fanshawe College in London ON teaching Fire and Life Safety. He has spent the last 25 years in the industry, both with municipal fire services and in the private sector. An avid modeller since 1978 when his father bought him a Matchbox 1/72 Bf 109, Frank models armour and military vehicles from any era, but if provided with a kit - he would give anything a go! Frank is married to Chantal, and they have two grown sons, plus a son and daughter still in the nest.

A Classic:

Canadian Pacific DC-4

Frank Cuden

IPMS Canada C3476

IPMS/USA 4311

IPMS (UK) X55047

Albert Lea, MN, USA

Visiting the Vintage Flyer Decals website (vintageflyerdecals.com), I came upon their set for a classic Canadian Pacific Air Lines DC-4. I consulted Wikipedia and found that the airline was in commercial service from 1942 until 1987 under that name, with the DC-4 beginning its service in 1951. It was followed by the DC-6B in 1953. The airline was based at the Vancouver International Airport in Richmond, British Columbia, and the airline became CP Air in 1968.

Having three Minicraft 1:144 scale kits in my stash, **Fig. 1**, I chose one to become the Canadian Pacific model with its classic scheme, using the tried and true “Eenie, Meenie, Minie, Mo” method. It seemed appropriate to build one of the pioneers in Canadian airline history.

The Build begins

I began to build the model by gluing the three-piece wing together, and after mating the fuselage halves I added the clear canopy section part in **Fig. 2**. Rather than having to mask the cockpit windows, I choose to use the provided window decals instead because not much, if anything, would have been seen in the cockpit. That’s the nice thing about building an airliner: there are no cockpits to detail, and every once in awhile, I like to go the airline route with my modelling adventures because the builds go a lot quicker and they are quite colourful when compared to some Military aircraft schemes. **Fig. 3** shows the airframe complete with filler, having been sanded and with the main landing gear attached. Minicraft made a simple good-fitting kit so things progressed easily and rapidly.

Fig. 4 shows the nose gear leg, and being out of scale, I chose to modify it a bit. The side support retraction struts were represented by solid pieces of plastic which I cut and removed. I later added plastic rod to represent those struts. The oleo scissors were also solid and had to be removed, and in **Fig. 5**, I’ve added thin sheet plastic to replicate them in scale. The modified nose gear strut is visible in **Fig. 6**, and **Fig. 7** shows the strut and its additional detail in place on the model.

The fragile propellers are shown in **Fig. 8** as I’ve begun refining them with sanding sticks. I had to be very careful and as it was, I managed to break off one of the blades while I was working on them.

The engine fronts were next on the list of things to do, **Fig. 9**, and I chose to leave them on the sprue tree, first hand-brushing them with Floquil Engine Black and then dry-brushing the thin cylinder vanes with Tamiya Flat Aluminum. I painted the crankcase housings with Testors Gray enamel. The fronts were too small to justify adding sparkplug wires because not much would be seen with the props in place. They would later be added to the cowlings.

Painting

With the airframe and landing gear having been constructed and glued in place, I sprayed the entire model with Floquil's Old Silver, **Fig. 10**. I use that as a base for my natural metal finishes because it grabs the surface well and hardens in a short amount of time so it can be masked over after about an hour or so.

I've begun masking the wing panels in **Fig. 11**. A home-made mix was made by adding about 30% of Alclad II's Duralumin to their Aluminum shade.

Dull Aluminum was sprayed on the control surfaces and the results and differentiation in paneling can be seen in **Fig. 12**. I also made a slightly lighter mix and that was used on the flaps. In the photo the white crown has been sprayed on the model using Testors enamel White. I have found that their white paint doesn't yellow over time. Once the painting was completed, I ran a soft lead pencil over all of the indented panel lines and they can be seen in the finished model photos.

I also masked and sprayed the nacelle panels right behind the cowlings using Alclad's Duralumin and a few fuselage panels were painted with my home made mixes along with Dull Aluminum and High-Speed Silver.

Using Panzer Aces acrylic Dark Rust, I hand-painted the exhaust pipes and they are visible in the finished photos.

The prop blades had de-icer boots on them and in **Fig. 13**, small pieces of thin black decal striping are being applied to their cutting edges. A coat of Solvaset made them secure and any gaps between the decals were touched up with Engine Black.

Markings

Using the Vintage Flyer decals, **Fig. 14**, the CP markings are being applied to the model. I had glued the engine cowlings to the nacelles before I began the decaling process. Due to their thinness, I segmented the cheat lines to make them easier to apply. Given how fragile they were, it didn't take long for me to see how easily they folded over the backing paper when I started to slide them onto the model. Soon after the sectioning, I learned how to apply them without problems and they really add to the model, given their high quality. Initially using a rounded paint brush to move them from the backing sheet, I later changed to a wider square-tipped brush and that allowed them to move easier and without the danger of them folding under the backing paper. Once they moved a little, I could hold the decal on its backing paper with the brush while using tweezers to gently begin sliding the decal onto the model. They snuggled down well after receiving a coat of Solvaset, and I used MicroSet on the model's application areas before I laid down the sections.

Weathering and Panel Lines

I used a soft lead pencil to highlight the cowl flaps on the cowlings and they have been glued in place in the photo. All of the markings have been applied in **Fig. 15**. Special care was needed to apply the cargo door outline decal, so as to prevent any wrinkles from appearing. I decided to use the wing walk decals from the Minicraft kit and I punched out a small black circle that rests on the base of the housing for the astrodome. I did that to trick the eye into seeing depth beneath the dome. The U-shaped antenna came in the kit and I drilled a small pilot hole into the fuselage to accept its mounting pin. It was later painted with Testors enamel Steel. When I tried to apply the wing de-icing boot decals, I had difficulty getting them to conform to the leading edges so after a few foiled attempts, I decided to break out the Floquil Engine Black as I hand-painted them onto the leading edges of the flying surfaces. I took my time and braced my hand to achieve the straight lines that appear in the photo. I'm sure that Lady Luck also played a role in making them look good and straight. Note also the cockpit window decals in place. I used an old ScaleMaster silver striping sheet to apply the thin wing leading edge de-icer boot separations.

Lady Luck was also with me when I was able to match the left and right cheat line stripes to form a 'V' on the nose tip, **Fig. 16**. The black circle under the astrodome shows up well in the photo. to give the illusion of depth.

Final Steps

After attaching the thin black stripes to the props to represent de-icer boots, I carefully cut out the small prop logos and applied them to the blades. They can best be seen in **Fig. 21**, and note that they are horizontal and not vertical - perhaps something unique to the CP DC-4 blades. Normally, they are parallel with the blades. Also note the absence of painted propeller tips on the blades. The photo shows all landing gear doors in place and I had to remove two of the mounting extensions from the nose gear doors as they would not fit properly had I not done that. I used Gator Grip white glue to tack them in place and when the glue dries, it still allows parts to be slightly adjusted so they were tweaked into the correct positions. I then applied thin super glue to the connection points to secure them permanently. Trim tabs on the ailerons and elevators were hand-painted for contrast using Testors enamel Steel. In the last photo, below, the brightness of Floquil's Old Silver shows up well on the cowlings. My last modelling act was to apply small dots of Elmer's White Glue

to the wingtips which, when painted with Tamiya Clear Red and Green, would serve as navigation lights. When they were dry, they were coated with Tamiya clear acrylic to make them shine.

Conclusion

All in all, a fun and simple build as I added yet another airliner to my showcase. For me, the world of airline modelling is a nice diversion from a constant diet of military aircraft modelling. I never have dabbled in anything other than aircraft modelling with one exception, when I built a ship model, the Destroyer USS The Sullivans, but that's another story in itself. Having been at this hobby of ours for a lot of years, today's kits are a far cry from the old Dynavector and Strombecker all wood kits and the following Monogram Speedee-Built plastic and wood combination kits. By comparison, today's kits seem to just fall together although some would differ with that statement, from what I've read on Internet modelling sites. Still, we've come a long way. Thankfully companies like Sword and Special Hobby have produced kits of lesser-known, and yet significant aircraft, so there are many to still pick from for the next project. The Minicraft kit is well-done and with the exception of the nose gear doors and out-of-scale nose gear leg, everything fit properly, and that's more than half the battle right there. This DC-4 makes four of those kits that I've built and none has caused me any problems. Thanks, Minicraft!

About the author:

With the completion of his first model in the early 1950's, Frank Cuden has continued in the hobby over the years. 1:48, 1:72 and 1:144 are his scales of choice and he enjoys adding extra detail to each kit. He also enjoys e-correspondence with modellers world-wide, and enjoys improving his writing skills with each article he writes. Since retirement in 1999, he's enjoyed modelling at will, and becoming more fun as time goes by. Wife Marilyn, three children and six grandchildren complete the circle.

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