RT Volume 40, No. 1 Spring 2018 article text

Cover Comment: *Barry Maddin, of Truro NS put a lot of effort and skill into producing a great-looking replica of a Canadian Armed Forces RG-31 Nyala as used in Afghanistan. See page 27 for the build article.*

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Editorial

Steve Sauvé, C#0323 RT@ipmscanada.com

Back to Telford!

The spring modelling season is on the horizon and New Year's hobby resolutions are being pursued or pushed back onto the 'shelf of doom' to join other shattered dreams. My 2017 plan of finishing two models got busted. No good excuses - towards the end of the year I got unfocused while getting revved up for the IPMS(UK) Nats in Telford, and then I was working like mad on the December **RT**. I lost some modelling 'mojo' momentum and haven't made any progress in way too many weeks now. So the plan is now pushed to me finishing two models in 2018. Stay tuned...

The Eyes Have It

Between getting articles ready for **RT** and looking over the photos that I have shot of beautiful models I've seen at contests, I find that most close-up photos do not do the subjects proper justice. Our eyes and minds take in a different and 'real' view of the model, while photographs can see too much and give you a distorted, if painfully faithful, representation of how the model looks to the camera. Things that your eyes just don't see can be revealed in photos. This view can disappoint builders and viewers, until they see the model in person and realize that it's a great build. 'Optivisor' magnifiers, that near-indispensible product which many of us need, even for the modelling basics, can be discouraging if you're looking at your work too closely, and then comparing what you see on the bench to what you see at the contests. I think the takeaway from this is that you shouldn't be too hard on yourself during your builds, particularly if you're shooting in-progress shots on the bench and then fretting because the close-ups reveal some flaws. Don't worry, none but the most discerning eagle-eyed critic will ever see them in real life.

And speaking of articles...

I do have a nice selection of articles ready for you to enjoy in future issues, but there's always room for you to get involved. **RT** and ***beaveRTales*** can use your builds, your research, your reviews and your stories. A huge part of what IPMS is about is members doing research, learning, maybe building a model and then sharing with fellow members what they learned and what they did.

Let me add a related observation - have a look at the authors listed on page 2 of this issue. Four out of the five have no IPMS Canada chapter affiliation. So why would they give of their hobby time to our organization? I believe that they simply

want to help fellow members, even though most are strangers to them, across the IPMS Canada realm. These great folks, along with all our other authors, are doing their part to help keep IPMS Canada healthy and growing.

So please talk to us and share what you're doing with your fellow members. We're all in this together...

National Director

Bob Migliardi, C#0490 box626@ipmscanada.com

Re email

For the longest time we've been having problems with our email system, thanks to issues with our current ISP. As you know, our main email address is *box626@ipmscanada.com* (though the **RT** editor and Chapter Liaison do have their own addresses). Nevertheless, you can send an email on any topic… **RT**, your membership, questions, the website, etc…. to the *box626@ipmscanada.com* address. It will find its way to the right person. You may also have noticed that ***beaveRTales*** is sent from a different address – *box626ipmscanada@gmail.com*. This is done purely for technical reasons because the main email server seems to have problems sending large numbers of emails with the PDF attachment (did I mention our ISP shortfalls?). That's also the address that your PayPal renewal goes to. It's all gotten a bit confusing! So, we're now trying out a new "E-communications Manager portfolio, that will be handled by former Exec intern **Igor Kabic**. Rather than the rest of us rooting around in the email boxes, Igor will check them a couple times a week and forward emails to the appropriate person. Think of him as a virtual mailroom manager. I will have to restrain myself, as I do like poking my nose in there to see what's come in! Hopefully all this will result in fewer missed or unintentionally ignored emails.

Re back issues

For several years now we have been trying to assemble a collection of all back issues of **RT** in digital, scanned, PDF format. Goodness knows we've bugged you enough about it here and in ***beaveRTales***! The purpose was to eliminate all stocks of printed back issues which have accumulated. We've managed to scan about six years' worth, but the project now seems to have petered out. I'm wondering if this is something that we should try to carry on with, or should we just wrap it up. True, much of the material in these older **RTs** is now dated and superfluous, especially given the availability of material on the net and plethora of great new kits. Still, there are some good bits of information in there, and it is a historical archive that provides a window into the early days of our hobby. An alternative approach might be to forego the early issues, and just put, say, the last ten years of **RT** on disk. This would actually be much easier to do, as most of it is already in digital format thanks to computerization of the design and layout process. I would like you to let us know what you think. Is this something that you would be interested in seeing and having? Scanning the older issues is proving to be a lot of work, and maybe we should channel the effort into other things. Email us... at the same time we can test out the new email system and kill two birds with one stone!

And a final note...

I've been asked to remind everyone that when you renew… either online or by snail-mail… please indicate which IPMS Canada chapter you belong if any. It's nothing nefarious. It will give us a better picture of how much our members are involved in their local modelling scenes.

Chapter & Member Liaison

Kerry Traynor, C#4083 CML@ipmscanada.com

Ah, a new year begins. The Christmas holiday is done and over, and with the ringing in of the New Year we start making plans as to what to do with the next 365 days. This is the time of year where some people like to make New Year's resolutions and others have given up on that tradition as the idea of setting themselves up for failure (again…) is hard on the self-esteem.

For me, I start to plan the year's adventures in earnest. This year, if all goes well, there will be two IPMS National events in my future. The IPMS USA Nationals in Phoenix and the IPMS UK Nationals later on in November. Both are months away so I can't get too excited; the trip to England is eight months away!

In the modelling world, the New Year always sparks some excitement as some model companies announce their future releases, and the hobby industry holds their trade shows in late winter and on into the spring. And of course, the New Year brings with it a new round of model shows. For those chapters planning a show for 2018, please send along the show information to us and we will be sure to promote it in our various mediums.

A growing tradition that has developed due to the internet are the chapters and individuals displaying the previous year's builds. Some of the models are amazing in their detail and finishes, and most leave me thinking that I need to get to my hobby desk more. As IPMS Canada is always looking for content for our ***beaveRTales***, if a chapter or member wants to see their work published, send along photos and a description of the model and modeller and we will see what we can do.

Another tradition that seems to be catching on at the chapters is the 'one year build' or the, um, 'modelling loser' award. This last one makes me a tad uncomfortable as I'm thinking I could be in the running for this one. Anyways, chapters run these little competitions to (a) get their members building, and (b), have some fun. If your chapter is looking for a way to get more built models out and to create some entertainment, this may be an option.

That's it for now. I hope to see some of you at upcoming shows and as always, any issues or concerns, please send them along to me and I will see what I can do.

Take care

Spitfire- Colour Me Blue!

by Frank Cuden
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Albert Lea, MN, USA

I've built a few Spitfires over the years but none like the recently-released 1:72 scale Airfix Spitfire Mk. XIX photographic reconnaissance version. I mean, it's not like we modellers have few choices when it comes to that elliptical-winged saviour of Britain during the early and dark days of World War II – far from it. Kits of all sorts are available in all scales so it's just a matter of choice. Schemes abound and can be found both on kit decal sheets and in the aftermarket arena. Flying restorations of them these days far exceed full squadron strength, and so, currently, they continue to grace the skies world-wide.

The Inspiration

So what drew me to this particular model? Why, of course, the distinctive overall PRU Blue colour scheme. Throw in fuselage invasion stripes on this reconnaissance version, and the recipe for a satisfying kit build was at the ready for me. The re-issued Airfix kit is a beaut and clear instructions facilitate the kit coming together

easily. Not being an out-of-the-box builder, I invested some shekels in the Pavla cockpit and external aftermarket set for the Airfix Spitfire PR XIX, #U 72-111 along with Xtradecal's Supermarine Spitfire PR. Mk. XIX #X72105.

Construction Begins

I began the build by spraying Testors Model Master RAF Interior Green on the Pavla and kit components, **Fig. 1**. Two detailed sidewalls, a replacement seat, cockpit tub and instrument panel lent themselves well to the fuselage halves, **Fig. 2**. A little 'coaxing' was necessary to get everything to fit correctly. Careful detail painting and the addition of a flare container made from plastic strip with holes drilled to accommodate the flares themselves was glued to the lower front of the seat pan and gave me a 'passable pit' overall. Shoulder and seat belts came from an Eduard set, however, were I to do it over, I would have animated the belts a bit by 'crinkling' them to better represent the heavy cloth of real ones. As per Spitfire Mk. XIX cockpit photos, no leather headrest was mounted to the rear bulkhead. The aircraft filled a reconnaissance role and so in **Fig. 3**, I've glued and filled the oblique camera housing part to the assembled fuselage halves.

Note the small, thin intake (for supplying air to the cockpit pressurization air compressor) just below the port side exhaust pipe opening. I first removed it, thinking I could make a better one and the replacement can just be seen in **Fig. 4**. I then came to find out that not all Spitfire XIX's had that pressurization intake because the cockpit was pressurized only after the first 25 aircraft were produced (serial number RM643, the subject of my model, was one of those first unpressurized 25 Mk. XIX's), and so my efforts were for naught and I subsequently removed it.

The model went together easily, owing to Airfix's parts engineering and in **Fig. 5**, I've applied some Squadron White Putty to the horizontal tail joints and have also lathered on a coat of Mr. Surfacer 500 filler over the previously-filled fuselage and wing seams, **Fig. 6** shows that I've yet to remove the home-made cockpit pressurization intake and the additional Mr. Surfacer I applied to the underwing radiator seams. I didn't necessarily care for the one-piece landing gear legs/landing gear doors but I had to 'dance *with the girl that brung me'* and so precise detail painting later on would make them look the part.

I found an old tinlet of Humbrol PRU Blue in my paint stash so I took the liberty of adding a little white to the tin and **Fig. 7** shows the results. A gloss coating of Floquil Crystal Cote completed the basic paint job. Pavla's aftermarket set provided accurate propeller blades and in **Fig. 8**, I'm using my ever-faithful prop guide from IPMS Toronto to position the wider-than-the-kit blades before gluing them in place. Testors Gloss White was used as the base for the soon-to-be-added fuselage-only invasion stripes, **Fig. 9**. It's the only white paint that I found that will not yellow with age. I let that dry for a few days using the guide that if the paint still emits an odour, it isn't dry yet. In the meantime, I added soft lead pencil panel lines to the entire model, **Fig. 10 and 11**. About five days later, I measured, masked, and sprayed the stripes with Floquil Engine Black, thus completing the Normandy invasion markings. The two lower fuselage holes housed downward-looking cameras. They would be dealt with later. Also, note the addition of the fuselage intake on the lower wing and fuselage. Pavla provided a more accurate part in their set. In **Fig. 12**, I've carefully painted the landing gear legs using Testors Flat Silver (small square bottles). As is rarely the case, for some reason, I glued the under wing pitot tube in place after the basic airframe was together, not wanting to muck up the paint job by having to add it later. Amazingly, it survived all the handling and never once was bumped. How often does that happen?

I ordered and used Aviaeology's #AOD72509 Spitfire Airframe Stencil/Data set, as well a set from Techmod, #72062. They are visible in the photo. I also added the tail wheel, the tire having been painted with Tamiya's relatively new XF-85 Rubber Black colour. It is different than their NATO Black. I'll let the reader judge as to its colour appropriateness. The Xtradecal aftermarket decals went down well, **Fig. 13 and 14**, although I did have a little problem with a few of the stencils silvering. I eliminated that after the entire model was flat-coated and I'll address how I solved that problem in due course. I used the kit canopy to vacuform a new item and in **Fig. 15**; both are visible in addition to the five-bladed Rotol propeller. One of the reasons I purchased the additional Techmod stencil sheet was because the prop blade markings were included on the sheet. The blue dots signify that the prop was metal and not wood. Now, about removing the silvering, and this method requires a little courage.

A 'Silvering' Solution

Many years ago, a modelling friend showed me how to eliminate the problem even after a flat coat has sealed in the decals. First, slitting the decal with a sharp single-edged razor blade makes a space for a liquid to get into and under the offending decal. Using a minute amount of lacquer thinner on a very small brush, the thinner is gently touched on the slit and capillary action takes it from there, plain and simple. For some unknown reason, the lacquer thinner, if used sparingly, does not harm the decal. However, using that method means an additional spray with the flat finish of your choice as there will be a mark left behind from the thinner – nothing that a re-spray won't cure. I've used this technique many times and always, with the same good results, and this time, it held true with the stenciling having had some silvering left behind. Most of the stenciling shown in **Fig. 15** had some silvering in small areas and the lacquer thinner method of elimination worked well for me.

Fig. 16 onwards show the finished model. When I viewed the finished photos, I noticed that in **Fig. 16**, I had missed one decal on the lower cowling, forward of the wing. It subsequently got "the treatment". A combination of grey, brown and black pastel powder was used to show the restrained exhaust staining. A couple of years ago, I was lucky enough to find a bottle of now out-of-production Floquil Antique Bronze sitting on a hobby shop shelf and that colour was hand-painted on the exhaust banks. I highlighted random panel lines on the model and also around the spinner circumference, using dark grey pastel powder. If you use the product, go gently because less is more when it comes to weathering. A silver Prismacolor pencil provided some paint chipping primarily on the left wing, below the cockpit. I used MicroScale's Krystal Klear to fill in the camera housings on the fuselage side and on the belly of the model. White PVA glue took care of the navigation lights on the wing tips. A couple of applications built up the 'bulbs' and Tamiya Clear red, port, and Clear Green, starboard, was applied when the glue dried. That was followed by a dab of Tamiya Clear Gloss to finish the job. I replicated some blow-back from the wheels on the under wing with tan pastel streaking, **Fig. 21**. Since there is no load factor on the vacuformed canopy, a few dots of white glue secured it in place. Note the windshield on the Mk. XIX had framing only around the outside edges, unlike other earlier marks of Spitfires, as the windscreen was rounded (for streamlining) and did not carry the armoured glass in front of the pilot as seen in the fighter variants.

Conclusion

The new-issue Airfix 1:72 Spitfire is a very nice kit and with the addition of the Pavla aftermarket set, I was happy with the result. It gave me quite a few hours of modelling fun and that's as it should be. My desire to have a PRU Blue Spitfire in my collection is now realized. With its five-bladed prop, this mark of Spitfire takes on a brutish look along with perhaps the contradiction of that beautiful elliptical and graceful wing that is its unmistakable profile. I was initially tempted to build the 1:48 scale kit but in the end, space limitations prevailed and now, one of the few rests among the many, on my shelf.

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 five grandchildren complete the circle.

S.L.C. 200 'Maiale' Italian Manned Torpedo

By Glenn Cauley
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Introduction

The 'Maiale' Italian manned torpedo was created in 1935 and was based on a standard 533 mm (21-inch) torpedo, with detachable warheads clamped to the front. The two operators, clad in underwater suits & breathing gear, sat astride the Maiale and operated the controls to guide it to their quarry. Once in position below the keel of the target ship, the operators strung a steel cable between the ship's bilge keels, detached the warhead, and hung it on the cable. After activating the warhead detonation timer, the operators returned to their waiting Maiale and left. The explosion from the 230 kg Tritolital (also known as Torpex) warhead was enormous, crippling the ship.

Kudos to Italeri

Italeri makes some very interesting kits of 1:35 naval subjects, and their kit #5605 S.L.C. 200 'Maiale' is no exception. The kit is fairly simple, with only 48 plastic parts (including two operator figures), 21 photo-etch (PE) parts, and a small clear acetate sheet. The kit includes a wonderful Photographic Reference Material booklet containing numerous clear, detailed photographs. The instructions are easy to understand, and feature greyscale pictures of kit parts being assembled.

The moulding is fairly crisp with minimal flash, and plastic quality is good, though a bit on the soft side. Moulded details are fairly simple, but in some places were lacking or just plain incorrect. I knew that a little bit of time & effort spent on scratch building would make this a truly wonderful model.

Planning the Build

After reviewing the kit and numerous photographs, I planned to make some improvements:

- ◊ Remove & replace all moulded-on hose & conduit details
- ◊ Reshape the forward shield
- ◊ Add details to the rear tail planes
- ◊ Build a spare air tank rack
- ◊ Try different weathering techniques

Assembling the Body

The 'torpedo-ish' main body of the Maiale consists of three large pieces: left & right body halves, and a top section containing the crew seats. These parts went together easily, with only minimal seam filling required. I chose to install the long warhead, composed of two cylindrical halves and a round nose cone; this was then cemented onto the front of the main body, and all seams were filled and smoothed.

Deviating from the kit assembly, I planned to not install the large housing behind the rear operator; rather, I would be installing a spare air tank rack. This required removing the back edge of the rear seat, and filling in the resulting cavity. (**Fig. 1**)

Following assembly step 4, I installed the forward controls and console. (**Fig. 2**)

Replacing Hoses & Conduits

At this point I deviated from the assembly sequence, replacing all moulded-on hose & conduit detail. After measuring all holes & conduits, I selected appropriate replacements from styrene rod, solder, and ultra-fine brass tubing.

I carefully removed moulded-on plastic details with cutters & a sharp hobby knife, drilled out some parts (as required), and sanded areas smooth before adding replacement details:

- ◊ Long hoses along the length of the body were replaced with 0.030" styrene rod. (**Fig. 3**)
- ◊ Curved hoses at the front & rear were replaced with 0.030" solder. For those parts that hoses fit into (such as the main "hose hub" (part #24A) amongst the forward controls), after cutting off the hoses I carefully drilled out the fittings with micro drill bits so as to accept the pieces of solder. The solder hoses were glued with CA. (**Fig. 4**)
- ◊ Long cable conduits ran aft of the rear seat. The kit parts (#29A) were simple plastic rods, but for more realistic replacements I used Griffon Model hollow brass tubing (0.8mm OD, 0.3mm ID), but I drilled out the inner diameter from 0.3 mm to a larger 0.55 mm(**Fig. 5**)
- ◊ I added a missing hose with inline valve (on the 'hose hub') using solder and styrene rod. (**Fig. 6**)

Reshaping the Forward Shield

The kit includes a heavily-ribbed forward shield with a small rectangular window; I chose to fill in the window and remove the ribs. A sandwich of strip styrene was used to fill the window opening, then sanded flush and smoothed with putty. All exterior ribs were sanded off. The final steps were to drill 11 top vents and thin the trailing edges of the shield to a more scale thickness. Installing the shield was left to the end of the build, after everything was assembled and painted. (**Fig. 7**)

Installing the Propeller & Tail Planes

Returning to the assembly steps, I then built & installed the PE propeller shroud & tail planes. Shaping the PE propeller shroud using a supplied template form was frustrating, and the three-blade PE propeller was very disappointing. Overall, installing all those pieces and aligning the tail planes at perpendicular angles was the least-enjoyable part of this build. (**Fig. 8**)

Detailing the Tail Planes

Detailing the tail planes went through several iterations until I was satisfied that everything more closely resembled those on an actual Maiale. Control cables went from the forward controls, through the two long cable conduits and running out the back of the rear seat, and then connected to rudder & dive plane via simple linkages.

Detailed linkages for the horizontal dive plane (**Fig. 9**) were made from brass wire (linkage arms), metal turnbuckles (from GasPatch), and styrene strip & rod (cable guides).

Detailed linkages for the rudder (**Fig. 10**) went through a few versions before I was finally satisfied. The two linkages were each created from brass wire, coil springs, aluminum rod, and styrene rod. These were grafted onto the kit's PE rudder arms.

Rudder cable tensioner. (**Fig. 11**) The idea for a rudder cable tensioner came from an obscure period photo and my imagination. The tensioner consists of a flat horizontal bar, placed forward on the centre of the upper fin, with a horizontal pulley on each end. Each rudder cable (left and right) passes through a pulley and attaches to a rudder linkage. The function is to keep tension on the cables to prevent slop. The tensioner was scratchbuilt from styrene strip & rod.

Building the Spare air tank Rack

Relying on period photos in the kit's **Photographic Reference Material**, I scratchbuilt a spare air tank rack behind the rear operator.

The rack frame was made from 0.040" styrene rod, and the rectangular platform from 0.040" sheet styrene. (**Fig. 12**) (**Fig. 13**)

Two air tanks were made from 0.150" hollow styrene tubing with rounded end caps. There were four clamps (two per air tank) made from curved PE strips soldered onto thin brass wire; the clamp wires passed through holes in the rack platform. (**Fig. 14**)

The rack cover was made from 0.002" aluminum foil, suitably warped and dented for added realism. (**Fig. 15**)

Completing Assembly

With the majority of the upgrades done, I completed the rest of the build using (mostly) kit parts with a few enhancements.

Central console (behind the forward operator) was built according to instructions, but all moulded-on detail on the forward face was removed. After installation, thin straps (**0.010" strip styrene**) were added to attach it to the main body. (**Fig. 16**)

PE leg braces were soldered together to give super-strong assemblies. These were attached to their mounting brackets using cyanoacrylate (CA) glue. (**Fig. 17**)

Priming, Painting, and Decaling

Considering the variety of materials on this model (plastic, brass, solder, aluminum foil), I needed a primer that would strongly adhere to everything. I decided to use Citadel 'Chaos Black' primer (available from Games Workshop). After decanting the primer into a jar, I airbrushed it on and let it set for 24 hours.

I mixed my own dark metallic green using Mr. Color (lacquer-based acrylic) #128 Dark Green + #28 Steel which gives a hint of fine metallic particles. (**Fig. 18**)

The inside of the console was painted black, and dial decals were applied. A clear acetate lens was added, and the PE lens frame was installed after being blackened with Blacken-It solution.

The wooden operators' seats were painted Mr. Color #43 Wood Brown, and then woodgrain decals from Uschi van der Rosten were applied. (**Fig. 19**)

Final Assembly

After the paint had dried for a few days, I completed the final assembly. I carefully added all the fine wire cabling (very fine steel-coloured metallic thread) at the front controls, and to the rear linkages (with cables going into the conduits). (**Fig. 20**) I also installed the forward shield.

Weathering

After using my tried & true weathering techniques of dark washes, highlights, and chipping, I decide to try artist oil paints… something completely new to me. After watching numerous tutorial videos online, I went to my local art store and bought the recommended oil paints & solvents.

I used the oils to add some subtle colour modulation to the main green colour, using blue & yellow dots blended in. I also added subtle grime & rust effects. When satisfied, I sealed everything with Alclad II Klear Kote Semi-Matt and let the model dry for two days. (**Fig. 21**)

Conclusion

What started out as a very simple kit became an exercise in scratchbuilding and new finishing techniques. Even given with the diminutive size of the completed model, I am very pleased with the way it turned out and the new skills that I learned and honed. (**Fig. 22**)

About the author:

Glenn Cauley, living just outside Ottawa, Ontario, is an IT Business Analyst in the health care field. Glenn started modelling at a very early age, built off and on for many years, and then returned to the hobby in 2005 after a long absence. He became President of IPMS Ottawa in 2009 and remains in that role to this day. Glenn has a penchant for submarine models - though he builds anything that catches his interest, in any scale - and he maintains a modelling blog site at gc-scalemodels.ca

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1:72 Cushman Model 39 Package-Kar

by Al Magnus,
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Airfix of late has been coming out with some very nice kits. Though they are primarily aircraft, a few are of interest to us members of the land-hugging crowd. One of the nicest releases in their new line is the 1:72 scale WWII USAAF Bomber Re-supply Set (kit no. A06304). It comes with a variety of ground support items like trailers, bombs and vehicles, one of which, the Cushman was of real interest to me. Knowing nothing about Cushman vehicles I figured I should at least find out what this little vehicle was called. As best as I can tell from my various web searches, it is a model 39 Package-Kar.

Now I could have built this in a military livery but what I really wanted was to make it as a civilian vehicle to enter in our local club's model car contest. For this I had no shortage of ideas, as the web is littered with numerous photos of Cushmans that have been converted for various roles. One I found particularly appealing, a conversion to a small bed-style carrier. For my build I didn't want to make an exact duplicate, just a reasonable facsimile that was more suited to my basic scratch building skills.

The building starts...

First of all, the base kit is quite small and comprises only 11 pieces, so with such a small parts count I figured I could devote more time towards modifications.

I started at the rear tail light. It is moulded directly to one side of the cover. The fit isn't the best and the detail somewhat soft. After gluing the two cover pieces together I removed the tail light and bezel and filled the depression with plastic and smoothed everything with some filler. (**Fig. 1**) A pair of disks punched from plastic sheet made a new bezel. (see **Fig. 6**, later in article)

Next came the face of the engine cover/seat combination. Airfix moulded this with a solid face. On the real vehicle there is a square opening that exposes the engine.

I marked and cut out the necessary plastic. (**Fig. 2 & 3**) To fill the now conspicuous void I built a quick and dirty one cylinder engine from some rectangular plastic rod, thin plastic sheet and a cylinder shaved from a surplus aircraft radial engine. An exhaust system was fashioned from plastic rod for the muffler and tail pipe, and a short length of copper wire was bent into shape for the remainder of the pipe. Engine detail was kept to a minimum since it will be barely visible once it is put inside the cover. I also added the little platform the engine rests on.

(**Fig. 4**) Now that the frame part was off the sprue I also addressed the steering column. The kit part is on the thickish side with soft detail. A scratchbuilt column was made from plastic rod and copper wire, using the kit's column as a template. Handle grips were made from super glue dipped into baking soda a few times until it was built up to my liking, and then they were sanded to shape. I filled in the column's mounting slot since reference pictures showed a flat floor here and not the raised area the kit has. (**Fig. 4 and 5**)

I then returned to the engine cover. Under the top cover there is a small package compartment and beneath that a small fuel tank. I blanked off the compartment with plastic card (**Fig. 6**), and scrounged a small fuel tank from my spares box. It was a bit oversize, so I cut it down to fit.

Now that the easy stuff is done...

With the simpler changes done, I turned my attention to the more difficult platform. I started by finding a pair of new wheels in the spares box. I would have used the kit wheels but they unfortunately come with moulded-on fenders which wouldn't be easy to remove. Luckily the new wheels fit the axle stubs perfectly and I could friction-fit them into place while I worked on the platform. After calibrating my Mark I eyeball, I measured out the platform's floor on some sheet plastic and cut it out. I loosely placed the floor on the frame and noted where the wheels contacted the floor and marked where I estimated the fenders would sit on the floor. I then cut two pieces of plastic tube for the fenders and test fit them over the wheels. Much to my consternation the tube's arc was insufficient to clear the tires and I had to find a larger diameter tubing in my inventory. With the fenders sorted out I added backs to them. Then cuts were made in the floor to accommodate the fenders which were then glued in place.

Two sideboards were cut, their height based on the depth of wheel openings plus a little extra. The wheel openings were traced onto each sideboard at the appropriate spot and the opening cut out close to the pencil line and then sanded to size. Next the boards were glued to the floor and the rear board added. I noticed in my reference pictures that there were some plates mounted at the front of the bed to hold a removable board, which I also added.

Adding the wooden rack to the back wall completed the box. This was the easiest part, requiring only a few measured cuts to some flat plastic rod. They were then glued into place after I had scratched some simulated wood grain texture to their faces with the tip of my hobby knife blade. (**Fig. 7**)

Before painting I like to loosely assemble the pieces to make sure everything looked reasonable. (**Fig. 8, 9**) Satisfied with what I saw I proceeded with the painting.

Painting

I wanted the Cushman to represent a surplus vehicle purchased for use by a small business, possibly sometime not too long after the war. I used Testors enamels for all of my painting. After a primer coat of Light Grey, the body and frame got a coat of Olive Drab followed by the same Olive Drab lightened with a few drops of Flat White and sprayed in a 'cloud' pattern on the larger panels. The box was given another coat of Light Grey and highlighting done with Camouflage Grey sprayed in the corners and along a few of the edges. I scuffed up the bed with various other paint colours, applying the paint with the tip of a round toothpick. I painted wheels and tires black. Then everything got a coat of Glosscote sprayed directly from the can in preparation for the decals.

The fuel tank, engine and exhaust were sprayed flat black, followed by some Glosscote. The tank was given a coat of Alclad II Chrome lacquer and the engine was drybrushed with silver and Panzergrau. The exhaust system was sprayed with a light coat of Leather Brown, then rusted up with Tamiya Rust pigment powders.

Markings

With my word processing software and laser printer I made simple decals on a piece of Microscale blank decal sheet, and protected the images with a coat of Microscale Liquid Decal Film. The decals were applied and then soaked many times over with Micro Sol to get them to sit down nice and snug. A quick dry-brushing with light grey and an airbrushing of some Afrika Korps Dunkelgrau '42 toned down the scuffs and imparted a slightly-dirty look.

Final Details and Assembly

A search through my accessory stash gave me options for a load on the bed. I settled on a resin pail and small barrel from Armand Byardi. The pail was painted Burnt Umber and then given a wash of Tamiya Rust pigments. The barrel was painted Yellow and dirtied up with Tamiya Panel Line Accent Colour (Dark Brown).

Brengun supplied a tool box and tools. This is a beautiful set with top notch etchings showing some relief on one side. Assembling the tool box was easy - four folds, add some super glue along the edges for reinforcement, and a short piece of piano wire for the handle. It was painted red and dirtied up with more Tamiya Panel Line Accent Color.

The tools were more problematic. Beware, they are minute and easy to lose and the carpet monster will be well fed if you are not careful! Brengun could have made things a lot easier if they had etched these from silver metal, as I have seen other manufacturers do, and save me the trouble of having to paint them silver.

Getting the tools into the bottom of the box without marring the finish was a challenge. After some exasperating trials with super glue on a few pieces and damaging their finish, I found the easiest method was to put a small drop of Glosscote on the bottom and then plop a tool into the box. After the Glosscote had dried a bit I then added another minute drop of Glosscote and put in the next tool.

Following the painting, all of the subassemblies were joined. As I was placing the steering column into its locating hole it dawned on me that it was too close to the backside of the bed's rack. In this position on a real vehicle the operator wouldn't have been able to make much of a turn without barking his knuckles. So I modified the bracket that held the column to the box, touched it up with Olive Drab applied with a brush, and then glued it into place. Then the pail and barrel were glued to the bed. The last items added were a set of scratch made pedals on the floor. Then everything got a coat of Golden brand Hard MSA Varnish with UVLS (Matte) to dull the finish. I added the tool box last as I wanted it to remain somewhat glossy. And, last but not least, a tail light was punched from clear red plastic and super glued to the bezel.

The final result can be seen in the photos on this page.

About the author
Al Magnus was born in Regina where he has spent the majority of his life. His modelling got started during his pre-teen years, followed by about a 20-year hiatus. Returning to the hobby in the mid-1990s he joined the Regina Scale Modellers soon afterward. Al exclusively builds to 1:72 scale and his primary interest is armour, with some dabbling in aircraft, sea vessels and rockets/missiles. He retired in 2009 after 29 years as a public servant. Al and his wife Janice have been married for 34 years and they have a son and daughter.

AIRLINER REVISITED
Building the Latest Release of Airfix's '3-Holer'

by Massimo Santarossa
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The Boeing 727 holds special meaning for me as it was the first jet airliner I flew as a pilot. Equally, the 1:144 Airfix kit is special as I have been building it for many years. Both are classics, and both have been around for

about the same amount of time. There are those out there who will criticize the Airfix kit on several levels, with some justification, but the fact is that it does look the part.

There is no denying, however, that the kit is old. The model's lineage can be traced back to the 1960's, and this latest release has 1988 stamped on its parts. There is flash here and there, mould seams on most parts, a few technical errors and of course raised panel lines. This is still a good kit, however, needing just a little help to bring it up to current standards.

Weapons of Mass Construction

To get the exterior surface ready for its facelift, the cabin windows were sealed shut with plastic card from the inside and then putty was applied to fill in the holes (**Fig. 1**). Two-part putty works best for this type of job as it suffers from minimal or no shrinkage at all, and takes paint and primer well. Other putties, like Squadron White, will also work but usually need two coats.

Looking into the No. 2 (centre engine) intake one finds a rather hollow space, thus an 'S-duct' was fashioned out of lead foil to lend some intrigue to this area. (**Fig. 2**)

Once the two halves of the fuselage were glued together, several grits of wet-and-dry and multiple sanding sticks were employed to banish all surface detail from the model (**Fig. 3 and 4**), save for the rudder details and fin vortex generators. This left a smooth, fresh canvas to work from as surface details were re-established.

Scribing (Figs. 5 to 10)

Using a spare kit, the ghost lines left behind after sanding, and various drawings, panel lines were re-instated with a scriber, along with some new ones for good measure. I have gone through a number of scribers over time, even making my own, in search of one I like the best. Although opinions will vary, the key point is that a good quality scribing tool should remove plastic from a panel line, not just dig a furrow. This makes all the difference in the world.

The whole process of rescribing the kit was one that proceeded much quicker than anticipated, and, much to my surprise, was a rather enjoyable exercise. Preparation is the key here, not just having good references, but also the right tools and a good surface to work on. (**Fig. 5**) The Airfix plastic is soft enough that just a few light passes with the scribing tool were enough to do the job. (**Fig. 6**)

Other upgrades

Updating the surface of the kit was only the start of the project. It is no secret that Airfix have put the wing fences on backwards so this had to be dealt with, which is easier than one might think. After dispatching the old fence, a slot was cut into the leading edge of the wing with a razor saw and a piece of plastic card glued in place (**Fig. 11**). This card was then progressively shaped until the correct profile was achieved. (**Fig. 12**) The whole procedure took only a few minutes, with most of the time spent waiting for the glue to set up.

(**Fig. 13**) The kit's pod engines have, in general, a nice shape to them, but their compressor faces look rather anaemic, thus the spares box was raided for some replacements. The kit parts were not wasted, however, as they were recycled into turbine fans in the rear of the nacelles. Waste not, want not. With the wings then mated to the fuselage, and any gaps addressed, it was off to paint.

Kit Colours

White is one of my least favourite colours to paint. Done wrong, it will show any colour variation under it and will take many layers to build up into a dense, opaque coating. A primer coat is most definitely required here, for which a bottle of Flat White was called for. Flat paint is much easier to work with initially than gloss, covers well, and makes any errors readily apparent. Satisfied that all looked well, the model was sanded with 3200 grit to smooth the surface, after which two thin layers of gloss Model Master Classic White were applied.

For the belly and wings, Model Master Canadian Voodoo Grey is a good match for Boeing Gray. Sadly, this paint is no longer manufactured, but FS16515 is a good match. Once all the gloss shades were applied, they were brought to a high lustre with the use of Novus Polishing Compounds. All that was left were the leading

edges and the engine nacelles to address, and for this Alclad paint was used, this being a very durable and easy to work with product.

Airfix offers two liveries in this kit, Alitalia and Air Canada. I must admit that I was leaning heavily towards the former, the scheme being very clean and simple, and not without a bit of nostalgia on my part. In the end, though, I was talked into going with the maple leaf. I always get a little nervous when I see one massive decal that is supposed go over the entire fin, but the Airfix markings are well produced and responded nicely to decal setting solution. I did find it odd, however, that decals for the cabin windows were provided yet there was nothing for the cockpit. To remedy this situation, and to round out the build as a whole, a set of 727 detail decals was employed to give the model that little extra something to fully complete it.

Box Top Boeing

The latest generation of Airfix models feature, amongst other things, some very attractive and evocative box art. It was an easy decision to display their 727 in flight, much as did their in-house artist. It also makes for a nice change from the usual gear-down kits in the display case. One can either buy an aftermarket stand or make their own much as I did. If 'wheels down' on the shelf is more your style, the landing gear will have to be reworked or replaced with aftermarket items to be correct. The only other final additions made were some blade antennas fashioned out of sheet styrene and secured in place with white glue.

The thought of rescribing an entire model was one that did not sound appealing at first. In fact, it was quite the opposite. In the end, however, reality was very different from perception. As it turned out, the rescribing of this kit was actually one of the most enjoyable parts of the project. As a canvas for a first effort in the world of rescribing older kits, the Airfix 727 is an excellent option. If airliners are your thing, or indeed if you are looking to branch out and try something new, this kit is a very buildable one with minimal challenges. You will not be lacking for markings either as the 727 was used around the world for decades so decal options abound. The only thing better would be a new tool 727, so I am keeping my fingers crossed.

Paints Used

- ◇ Model Master Enamels - Flat White #1768, Classic White #2720, Flat Black #1949, Canadian Voodoo Grey #2039
- ◇ Alclad - Dark Aluminum, White Aluminum, Steel, Stainless Steel

Additional Parts Used:

- ◇ Avigraphics Boeing 727 Details #AG4092

About the author:

Like most plastic afflicted individuals, Massimo has been building since he was a young boy. He considers himself an omnivorous modeller, building everything from planes to ships, tanks to trucks, although he does has a soft spot for aviation, usually with a maple leaf on it. This may stem from the fact that for the last 30 years he has flown one type of airplane or another, the latest being the Boeing 787. Originally from British Columbia, he now calls Calgary home, along with his wife and daughter.

RG-31 Mk3 Nyala

by Ed Storey
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History

The Canadian military's employment of mine-resistant ambush protected (MRAP) vehicles began with the Mamba. The original Mamba 4 × 2 (a four-wheeled vehicle with two 'powered' wheels) vehicle was developed in South Africa by Mechem Consultants, part of the Denel Group, and a number of production vehicles were manufactured. Further development by Reumech OMC (Olifant Manufacturing Company) resulted in the Mamba Mk2 (4×4) (a four-wheeled vehicle with four 'powered' wheels), which was some 70 mm higher than the earlier two-wheel drive version. The Mamba was named after the feared, fast-moving venomous snake native to various regions in sub-Saharan Africa.

Between 1993 and 1997 a total of 653 Mamba vehicles were manufactured for the South African domestic and export markets, with production ranging from three vehicles a week up to four vehicles a day. Canada purchased three Mamba Mk2 vehicles from Reumech in 1999 for Combat Engineer reconnaissance tasks. After a relatively short service life they were disposed of in 2006, with at least one having seen service in Bosnia with Canada's NATO SFOR (Stabilization FORce) contingent.

Mamba Mk2 Details

The monocoque V-shaped hull of the Mamba Mk2 was of all-welded steel armour construction; this provided a very high degree of protection against anti-tank mines as well as small arms fire and shell fragments. According to the manufacturer the standard Mamba Mk2 steel hull and armoured glass provided protection against NATO 5.56 mm × 34 mm and 7.62 mm × 51 mm standard ball ammunition, with optional additional protection against NATO 7.62 mm × 51 mm armour-piercing ammunition. The vehicle's protection level also included resistance or protection from:

- a single anti-tank landmine detonation under any wheel station
- a centre-hull detonated anti-tank landmine
- mortar/artillery shell fragments
- incendiary devices and limpet mines

If required by the customer, the Mamba's windows could also be provided with integral firing ports.

The drivetrain and suspension of the Mamba Mk2 was from Germany's well-known Mercedes-Benz UNIMOG 416 (4×4) range of cross-country vehicles, which is in worldwide civil and military service. This gave the Mamba exceptional cross-country mobility.

The vehicle layout was conventional, with a Mercedes-Benz diesel engine at the front of the vehicle, the commander's position on the front right side, the driver's position on the front left side and the troop compartment at the rear.

The normal means of entry and exit is through a large door at the rear of the vehicle that is hinged to open towards the left side. Nine troops could be carried, with five seated on the left side and four on the right side, facing each other on individual seats which were equipped with full four-point harness seat restraints. Above and behind the commander's and driver's positions are square roof hatches that open to the rear and which could be locked in the vertical position, with additional roof hatches provided in the rear troop compartment. These were located three on either side of the vehicle, were hinged to open towards the outside side and could also be locked in the vertical position. The vertical locked position of these hatches offered additional protection to the troops standing in the open troop compartment.

Stowage lockers were located on the exterior of the hull. Mounted at the rear was a trailer towing hitch with a standard seven-pin electrical connector. A spare wheel and tire could be located on the left side of the hull, just to the rear of the front road wheels.

Standard equipment included a 100-litre drinking water tank. Optional equipment included:

- an air conditioning system
- a roof-mount for a light machine gun

- firing ports in the troop compartment windows
- run-flat inserts for the tires
- a higher level of armour protection
- various communication equipment configurations
- customized internal layout
- a 5-tonne electric winch mounted at the front of the vehicle
- various seating arrangements.

The design of the Mamba Mk2 (4×4) vehicle was such that it could undertake a wide range of specialized roles in addition to its basic role as an armoured personnel carrier.

The RG-31 NYALA

The RG-31 is a 4×4 multi-purpose MRAP infantry mobility vehicle which was initially manufactured in South Africa by Land Systems OMC, a division of the South African state-owned Denel SOC LTD, located in Benoni, South Africa, and in Turkey by FNSS Defence Systems. Following a number of corporate take-overs, BAE Systems Land Systems OMC, a multi-national defence contractor specializing in aerospace, defence and information security, has become the primary manufacturer of the RG-31. Slightly larger than its predecessor, the RG-31 is based on the initial Reumech Mamba APC design from TFM Industries.

The official name of this vehicle is RG-31 Mk3 Nyala (there are other versions of this vehicle) and is classified as both an Armoured Fighting Vehicle (AFV) as well as a MRAP vehicle. 'RG' stands for Royal Guard and '31' is the production variant designation. The RG-31 was given the name Nyala after the South African spiral-horned antelope.

RG-31 Details

Typical of South African mine-protected vehicles, the RG-31 was built with a V-shaped all-steel welded armour monocoque hull and high suspension; this provided excellent small-arms and mine blast protection. The vehicle was designed to resist a blast equivalent to two Soviet/Russian TM-57 anti-tank mines detonating simultaneously. The vehicle could accommodate a complement of 8 or 10 soldiers, including the driver, depending on the model. Rapid dismounting was provided via a large rear door and two front doors.

The Mamba had eight square hatches, one each over the driver and commander positions and six over the rear crew compartment. The two Canadian RG-31 versions had a different hatch arrangement – see below.

RG-31in Canadian Service

The name Nyala was familiar to Canadians even before the Mamba was introduced to the CF vehicle fleet. Five RG-31s were purchased in 1995 with some of them seeing service in Bosnia, Kosovo, East Africa and Afghanistan before the last of these early vehicles was disposed of in 2009.

It was in 2006 that 50 RG-31 Nyalas were purchased to support Canada's NATO ISAF (International Security Assistance Force) mission in Afghanistan, (eventually the total number was increased to 79 units). These vehicles differed from the earlier 1995 Nyalas in their armament and hatch arrangement. The 1995 Nyalas had two square roof hatches, one each over the driver's and commander's positions with a forward central circular hatch and four square hatches over the rear crew compartment. The 2006 vehicles had a centrally mounted Remote Weapon Station (RWS) over the driver/commander compartment with a central circular hatch and only two rear-mounted square hatches over the crew compartment. Like the Mamba, the square hatches all opened outwards. The 1995 Nyalas also had gun ports in their armour glass and the added firepower of the Norwegian Kongsberg Protector M151 RWS. The RWS could mount either a:

- 40 mm Grenade Launcher

- C6 7.62 mm General Purpose Machine Gun (GPMG) or a
- M2HB 0.50” cal. Heavy Machine Gun.

It was also armed with four M6 smoke grenade launchers. The M151 RWS is well-known from its use on the US M1126 Stryker Infantry Carrier Vehicle (ICV) and it will also be employed on the new Canadian Textron Tactical Armoured Patrol Vehicle (TAPV).

The RG-31 was a 4×4 vehicle powered by a 123 hp 5.7 litre 6-cylinder Daimler OM352A6 diesel motor. The vehicle had an operational range of around 560 miles (900 km). Like its predecessors the RG-31’s hull (and armoured glass) protected the occupants against rifle-calibre bullets but it was also designed to deflect a blast from below. This feature worked well against traditional land mines and pressure-plate activated improvised explosive devices (IEDs) but was less-successful against side-blast IEDs or the very large devices designed to counter tanks.

Stowage lockers were located on the exterior of the hull and there was a trailer towing hook with a standard seven-pin electrical connector as well as a 5-tonne front-mounted electric winch. A replacement wheel and tire mount could be located on either side of the hull.

The basic technical details of the RG-31 were as follows:

- Length: 6.4 m
- Width: 2.47 m
- Ground Clearance: 322 mm
- Range: 900 km
- Speed: 100 km/h
- Weight: >7.3 tonnes
- Engine: 123 hp 5.7 litre 6-cylinder Daimler OM352A
- Transmission: automatic, with four forward and one reverse gear
- Payload: 1600 kg

Upon completion of Canada’s mission in Afghanistan, all of the in-theatre RG-31s were sent to Bagram Airfield (BAF) where the US Defense Logistics Agency (DLA) would demilitarize them by dismantling them with plasma cutting torches. The M151 RWS was removed for shipment back to Canada and once the vehicles were declared free from bio-hazardous material and radiation the Kevlar spall liner was removed from each vehicle, which took from between 6-8 hours for each unit. The demilitarization process required that all major components be rendered completely inoperable. Specific parts were intentionally critically damaged and the hull was cut up into pieces not exceeding 60 cm x 60 cm. This was a very labour-intensive task and required 10-12 hours per vehicle to complete. As an aside point, for every RG-31 that Canada sent to BAF for destruction, the US military sent 40 of their own MRAPs for destruction.

The RG-31 served its intended purpose for Canada during its operational employment in Afghanistan. It was widely considered to be an exceptional tactical armoured vehicle which offered superb protection for Canadian personnel. Commanders relied on it to conduct a multitude of mission types in support of Canadian operations. The legacy of the RG-31 includes the inclusion of some of its design elements and capabilities in newer platforms such as the TAPV.

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About the author:

Ed Storey has been a military vehicle enthusiast and militaria collector since the mid-1970s and has authored numerous articles for several magazines including both IPMS RT and MAFVA Tankette as well as “Wheels and Tracks”. Ed is retired from a 35-year CAF career with the Canadian Military Engineers and lives in Ottawa with his wife and family.

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RG-31 Mk3 ‘Nyala’

by By Barry Maddin
IPMS Canada C#6000
Truro NS

(Editor’s note: the author’s RG-31 was entered in the CAMS (Capital Area Modellers Society) 28th Annual Spring Classic Model Show in Fredericton, NB on 28 May 2016 and won a Gold medal and the Best in Category in Military Light Class at the show.)

Vehicle History

In November 2005 the Canadian government contracted General Dynamics Land Systems Canada (GDLS-C) to supply 50 RG-31 Mine Protected Vehicles, with an additional 25 vehicles being procured from BAE* in 2006. With a combat weight of 8,400 kg (18,900 lbs) the RG-31 Mk3 4 x 4 Mine Protected Armoured Personnel Carrier (APC) is built from an all-steel welded armour monocoque hull. This isproviding excellent ,protected vehicles-typical of South African mine Russian /equivalent to two ‘stacked’ Soviet is designed to resist a blast 31-the RG ;arms and mine blast protection-small .tank mines detonating simultaneously-Anti 57-TM

The Kongsberg PROTECTOR M151 Remote Weapon Station (RWS) equipped with a day and night sighting system, which allows the operator to control and fire the weapon while remaining protected within the vehicle, was integrated into the Canadian RG-31 Mk3 platform.

The Kit

Kinetic kit # 61010 represents the Canadian RG-31 Mk3 (**Fig. 1**), offering 203 parts moulded in tan-coloured styrene, 25 clear parts, 20 black vinyl parts, and a fret of 13 photo-etch parts, along with decals from Cartograf. The instructions come as a 28-page booklet with exploded-view line drawings. There are a few errors in the instructions that I will cover in the build narrative that follows.

I found that some of the sprue tabs were rather thick and there were sink marks on a number of parts that needed filling. The few ejector pin marks that needed attention were protruding, making them easier to address.

The kit-supplied RWS comes with a poor rendition of a 0.50” calibre Browning Heavy Machine Gun (HMG) whereas almost all of the CAF RG-31 photos I have from Afghanistan show the C6 7.62 mm General Purpose Machine Gun (GPMG) (the CAF version of the FN MAG-58) mounted on the RWS.

The Build

Following the instructions, I started the build with construction of the front axle. On the axle you need to shorten the pins at the ends of the axle so that the steering knuckle pieces fit properly. I added differential drain and filler plugs and air lines to the brake pods. With the rear axle mounts you have a choice of plastic or photo-etch and I chose the photo-etch because of its more accurate scale thickness. The base of the photo-etch mounts have small tabs that need careful bending (**Fig. 2**). The mounts can then be carefully bent into shape (**Fig. 3 & 4**).

I then assembled the rest of the undercarriage, drilling out the ends of the air tanks for air lines I would install later. I dry-fitted the rear axle to ensure I got the rear axle mounts glued in the correct position (**Fig. 5**). I then built up the fenders, leaving one of the stowage compartment doors open to have some personal kit showing.

The kit gives you three options regarding the final variant to be modelled of the RG-31, which dictates which type of antenna mount that should be used, and I decided to use the T-bar antennas. The T-bars are nicely rendered including the small access hatch that allows the user to connect the antenna cables from the hull to terminals inside the antenna mount. However in Step 7 as you build the two T-bar antenna mounts you should only use one of the antenna base rings, Part K32, on one antenna base as the other base ring is required in Step 14. The antenna base ring needed for the second T-bar is already moulded on part F25. Part F25 is a disc with two antenna base rings attached which is a means to provide the proper spacing for the base rings on the roof. However after you glue F25 in place you need to fill in the circular gap as there is no such gap on the real vehicle. I drilled out the base of the antennas and external terminals on the T-bars and installed antenna wires.

Part E16 is the platform under the RWS access hatch and I drilled out the holes for a better appearance since I intended to have the hatch open. Based on my photos I opened up the slots in the bulkhead behind the RWS operator's seat by drilling a series of small holes and trimming away the excess material with a #11 blade (**Fig. 6**). A little work with a jeweller's file finished the job and I then glued the RWS operator's seat to the bulkhead (**Fig. 7**).

The interior would have to be built and painted before the top and bottom halves were glued together. I built the driver's dashboard assembly and painted it, picking out all the switches, dash lights and dials. The dashboard was painted with Vallejo 950 Black and the dashboard base was done in Vallejo 869 Basalt Gray. I also added a grab handle, heater vent and engine cut-off 'T' handle to the transmission shifter housing and mounted them in the chassis (**Fig. 8**).

Inside the chassis the two seat mounting slots in front of the mounting slot for the RWS controller needs to be filled in. The seats in the kit are nice but need seatbelts. I punched out small discs from plastic sheet and fashioned belts from Frog tape, folded sticky sides together and cut to width. I built five-point restraint harnesses with a disc punched from 0.010" sheet to make the quick-release buckle for the crew seats. The lap belts for the front seats were made the same as the crew seats, with plastic strip shaped to resemble seat belt buckles (**Fig. 9**). I then painted the seat cushions Vallejo 862 Black Gray, the seat frames Vallejo 869 Basalt Gray and the seat belts Vallejo 950 Black (**Fig. 10**).

I assembled the radio shelves, which are moulded with a representation of two of the Canadian Military Type A Radios and a Canadian Military Type C Radio and added the appropriate radio cables. To represent the grounding straps normally found on a shelf assembly I flattened 0.015" lead wire and with Grandt Line nuts and washers I glued the straps in place. I painted the radios Vallejo 893 US Dark Green and the radio shelves Vallejo 950 Black. I scratch-built a handset with a couple of punched-out discs and Evergreen strip; by coiling fine copper wire around another small 'mandrel' core wire I made the handset cord and then glued the handset on to the top of the radio shelf. The radio and shelf ground cables were painted Vallejo 864 Natural Steel. I painted the chassis interior with Vallejo 969 Basalt Gray leaving the area bare where the radio shelf was to go later.

I glued the seats into place and dry fitted the air conditioning (A/C) plenum and RWS access platform into their positions in order to properly fit and glue the radio shelf in place. The instructions are vague regarding the exact placement of the radio shelf, but with everything else in place you can easily fit the radio shelf where it needs to go without interfering with the placement of other items later. I then touched up the paint around the radio shelf.

Next I painted the RWS access platform Vallejo 969 Basalt Gray with the support posts Vallejo 884 Stone Gray and glued it in place. I painted the end of the RWS controller Vallejo 993 White Gray and the joystick Vallejo 950 Black (**Fig. 11**).

Using brass wire I added air lines to the air tanks and with Evergreen strip and rod I made an air distribution valve for the end of each air tank and added the applicable air lines and pull ring on the relief valves (**Fig. 12**). I then glued the rear of the cabin in place.

I turned my attention to the top half of the RG-31. Having installed the radio cables in the lower half I had to expand the radio suite to the upper half. I planned to add junction boxes (J-boxes), radio speakers and cabling. I began by building the J-boxes with Evergreen Strip # 168 (0.080" x 0.188") and # 124 (0.020" x 0.080"). The speakers were made from Evergreen Strip # 8608 (0.066" x 0.090") and a 0.010" disc. I placed a J-box on the left side centre post with a speaker above it. Another J-box went on the door frame beside the crew commander's seat and a speaker behind the driver on the A/C plenum. I positioned the last J-box and speaker on the right side of the A/C plenum tower. I put together the RWS control screen, added a power cable and after detail painting glued it in place on the cabin ceiling. I detailed painted the A/C plenum and installed it. I used fine copper wire to connect the J-boxes and speakers in a ring main back to the radios. Using Evergreen 0.020" rod I cut lengths to be used as cabin internal lights and glued them in place based on my photo references. Wanting to pose the sentry hatches open I had to make the hatch hydraulic lift cylinders and mounts. I made the mounts using Evergreen # 143 (0.040" x 0.060") strip cut to 1/16" blocks and drilled through with a # 73 (0.024") drill bit. I then used the # 73 bit to drill the ends out of a length of Evergreen 0.040" rod to accept lengths of 24-gauge florist wire. I glued the cylinder mounts to the sentry hatches and to the inside of the hatch openings. I'll install the cylinders after I glue the hatches in place. I also installed a grounding cable to each hatch.

My pictures showed footman loops on the roof inside and out so using fine copper wire, passed through a candle flame to soften and make it pliable, I used my footman loop template and made several lengths of footman loops (**Fig. 13**). I installed footman loops to the rooftop and a small length of footman loops on the centre ceiling rib inside the cabin.

I then detailed painted the interior, first by painting a stripe in the centre of the interior lights with Vallejo 997 Silver and painted the remainder the base colour of Vallejo 969 Basalt Gray with the J-boxes and speakers painted Vallejo 893 US Dark Green. I picked out the cabling with Vallejo 950 Black and installed a fire extinguisher painted Vallejo 957 Flat Red as a CO_2 fire extinguisher on the A/C plenum. I also made, painted and installed a rear view mirror on the windshield centre rib (**Fig. 14**). I wrapped brass wire with thinner brass wire and installed them as power cables to the base of the RWS mount on the roof.

Before I glued the top on I added a couple of Canadian IMP (Individual Meal Pack) ration boxes, a box of commercial bottled water, two 'camel backs' (which is a personal water supply carried in a small backpack) and two stray water bottles to the vehicle interior (**Fig. 15**). Fitting the top on would have been easier if I had had two additional hands. As I aligned the locating pins I found there was a slight warp to the top and I also had to ensure the RWS access platform posts ends were fitting into their locating holes. Once everything was aligned I clamped the two halves together and applied Tamiya extra thin liquid glue, allowing the capillary action to carry the glue along the mating edges (**Fig. 16**).

The RG-31's armoured glass has a green tint to it, so I mixed Tamiya X-25 Clear Green with a small amount of Tamiya X-20A Thinner. I mounted the glass on bamboo sticks with Blue Tack and airbrushed the inside surface and edges of the glass. There was a small amount of overspray on the outside surface of the glass which I removed with a Q-tip soaked in windshield washer fluid (**Fig. 17**). Painted this way, the glass maintains its lustre on the outside surface just like real glass.

I then tackled the RWS, building it as per the instructions. My photos of several RWS mounted on RG-31's show some painted NATO Green or Sand, with the grenade launchers still painted in green but most were painted totally in Sand. Based on my pictures I added the power cables for the day/night sighting systems and to the grenade launchers. I also added small chain to the grenade launcher caps. Additionally a number of RWS had a shell casing and machine gun link catch basin mounted on the front and rear of the RWS. I fashioned the basket frames from brass wire; after drilling mounting holes I glued the frames to the RWS. Using lead foil I made the two basins and glued them to the brass frames. Flaps are used to secure the basins to their frames so using small strips of foil I set them in place and folded them over the top of the frame and glued them to the basins. To represent the mounting snaps I punched out small discs from 0.010" sheet and glued them in place on the flaps (**Fig. 18**). As I mentioned earlier the kit comes with a 0.50" cal HMG for the RWS. The kit .50 is a poor rendition and almost all the Canadian RG-31's mount the 7.62 mm C6 GPMG on the RWS. I had a C6 with a soft mount in my spares box so I glued the soft mount on the RWS. I mixed up a base colour of Tamiya XF-59 Desert Yellow with about 40% Tamiya XF-2 Flat White and airbrushed the RWS. I picked out the grenade launcher

caps and soft mount components with Vallejo 862 Black Gray. I painted the catch basins with Vallejo 823 Luftwaffe Camouflage Green and picked out the snaps with Vallejo 950 Black. After drying for a couple of days I gave the ammo box a coat of Future Floor Finish and when dry I applied the kit decals to the ammo box. The decals responded well to Micro Set and Micro Sol and I sealed them with a final coat of Future and then brushed on a coat of Testors Dullcote (**Fig. 19**). I painted the C6 GPMG with Vallejo 950 Black and the butt stock in Vallejo 984 Flat Brown and glued it in place on the RWS (**Fig. 20**).

I next tackled the spare wheel and mounting plate shaving off the moulded-on mounting plate nut lever and using my reference pictures I make one from copper wire and added a fine chain to the base nut. I also added the tire air valve extension and then painted it the base colour and assembled the spare tire (**Fig. 21**). The kit includes a storage rack which crews added in-theatre for additional fuel and water cans mounted where the extra spare wheel would normally be. As with the spare wheel mounting plate I replaced the mounting plate nut lever and added a chain to the base nut. I also added tie-down rings fashioned from brass wire to the rack and painted it (**Fig. 22**). I then weathered it by dry brushing it with Vallejo 864 Natural Steel and Panzer Aces 301 Light Rust. Canadian jerry cans are very distinct; the fuel cans employ identification bands to indicate the type of fuel, red for gasoline and yellow for diesel fuel. I had some of the excellent Maple Leaf Models Canadian fuel and water jerry cans so I painted up a couple of fuel cans using Panzer Aces 304 Track Primer with the identification rings painted Vallejo 953 Flat Yellow. Canadian water jerry cans originally came moulded in black plastic. However, in the hot sunny climate of Afghanistan your black jerry can will only provide you with hot water - OK for washing but not so much for drinking. As a result water cans were produced in a tan colour which reduced the heating effect. I painted one water can Vallejo 950 Black and the other one Panzer Aces 340 Highlight Afrika Corps (**Fig. 23**). I made tie-down straps from Frog tape coloured with a green Sharpie ink marker and added small plastic buckles. I also made a ration case from the sheet provided in the Trumpeter LAV III kit. I glued the jerry cans and ration case in place and installed the tie-down straps (**Fig. 24**).

The rear door was next and I assembled it as per the instructions but the locating arrow for part C23 places the door handle in the wrong spot. The handle needs to be placed in the hole in the rectangular door latch, not the hole at the base of the door. Using my reference pictures I painted the door with the base colour mix and detail painted the doors hydraulic ram and locking lever mechanism. I glued the armoured glass in place with Gator Glue and realized that the door lever mechanism was missing the upper locking bar so I made the part from small scraps of plastic strip and glued it in place with CA glue (**Fig. 25**). I then painted the upper locking bar and added the kit decals to the door inside and out. I then glued the second kit extinguisher, painted as a dry chemical extinguisher, to the door (**Fig. 26**).

I next worked on the wheel assembles drilling out the small stud on the wheel hub that represents the valve stem and replacing it with a length of wire for a better appearance and then painted the outer wheel halves the base colour and the inside half Vallejo 893 US Dark Green. I had to trim a small amount of flash from the inside of each vinyl tire to get the halves to fit properly. I then weathered the wheel assemblies with MIG P037 Gulf War Sand (**Fig. 27**). I returned to the RG-31 and installed the fenders, tow bars, ECPK panels (Extra Crew Protection Kit) which are armoured panels added to the area around the air sentry hatches to provide additional protection for personnel in case of an IED blast), air sentry hatches, spare tire winches, rear antenna mounts, folding steps and the RWS access hatch cover. I also added a scratch-built GPS and mount with cable to the left front fender (**Fig. 28 & 29**).

Finishing

Using Tamiya tape and Humbrol Masking Fluid I masked off the window, hatch and rear door openings and the attachment points for the wheels, RWS, and spare tire mounts. I then painted the RG-31 with my mix of Tamiya XF-59 Desert Yellow and XF-2 Flat White (**Fig. 30 & 31**).

With the base coat dry I installed the sentry hatch hydraulic cylinders I had made earlier and began the detail painting. I painted the sentry hatch locking latches, RWS access hatch latch, all the chassis stowage hatch hinges and the GPS disc Vallejo 950 Black. I painted the sentry hatch hydraulic cylinders Vallejo 961 White and the rams Vallejo 864 Natural Steel. I also touched up the Vallejo 969 Basalt Gray around the hatches where the base colour had snuck past the masking tape. I painted the insets for the external lights with Vallejo 997 Silver with Vallejo 950 Black around the headlight frames. I painted the backside of the tail lights with Tamiya X- 26 Clear Orange and X-27 Clear Red leaving a small strip between the red and orange for the

reverse/back-up light. The rear marker light was painted Tamiya Clear Red and the front side markers and signal lights were painted Tamiya Clear Orange.

The decals are well printed, thin and went down very nicely as I applied them by floating them in a pool of Future then pressing them down into the Future and applying more Future over top. I then installed the spare tire, POL storage rack and the antenna T-bars and masking off the rear door window I gave everything a coat of Tamiya TS-80 Flat Clear. I next installed the armoured glass and the external lights using a small amount of Gator Glue and the rear door with CA glue. I then glued on the photo etch light guards that I had painted earlier, which in the case of the headlight guards, proved to be the most challenging part of the build, aaaaargh. I started the weathering process by created fuel stains around the fuel inlet cover and jerry cans with Tamiya X-19 Smoke. I mixed MIG Pigment P030 Beach Sand with Vallejo 520 Matte Varnish and applied clumps of dirt/sand to the undersides of the fenders. When that was dry I dusted the chassis with MIG Pigment P037 Gulf War Sand. In Afghanistan the vehicles were usually covered with fine dust which got everywhere but I wanted to keep the weathering on the light side. Finally I added the wheels, making sure they were straight and level.

I wanted to display the RG-31 with a couple of Black Dog F35018 'Canadian Soldier Team Afghanistan' figures that I had previously pinned and painted. After contemplating several ideas I decided to paint a plaque in the Regimental Colours of the Royal Canadian Regiment (RCR). I primed the plaque with Krylon White and after measuring and marking off three bands I painted the central band Tamiya XF-3 Flat Yellow. When dry I used Frog tape to mask off the top and bottom bands and painted them Tamiya XF- 8 Flat Blue and Tamiya XF-1 Flat Black. After the paint had dried for three days I gave the plaque two coats of Future. I marked the position of the vehicle and figures on the plaque and drilled two small holes to fit the figures' brass mounting pins. Using 5-minute epoxy I glued the RG-31 and figures in place on the plaque, along with a resin copy of a RCR hat badge from my collection.

Conclusion

I enjoyed this build and the kit went together well apart from the small errors in the instructions. The kit makes a nice model of the RG-31 Mk 3 built out-of-the-box but it just begs for additional detail, well to me at least. It's nice to see a modern Canadian military subject without having to scratch build the Canadian specific aspects of the vehicle. It would be a fine addition to anyone's Canadian armour collection.

References

- www.kongsberg.com
- personal photographs

About the author
Barry 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. In 2009 he and his wife moved to Truro NS from Ottawa 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.

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