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Cover Comment: *Yves Fournier of St-Jean QC produced a lovely pair of 1/48 late-service CT-133 Silver Stars. See page 9 for the details of both builds.*

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Editorial

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We commonly think of our hobby and IPMS being mired in an uncomfortable negative growth mode. I'm not talking about a lack of products or kits or decals or books. We're fat and happy in that regard. I'm referring to the most important growth for the hobby and for IPMS - getting young people into modelling and into our clubs. Collectively we are getting as grey as the plastic in most kits these days. How can we reach the younger recruits for this great hobby?

Lego has become the biggest toy maker in the world. No surprise, it's an absolutely awesome toy system/obsession. It's pretty much the only kid's toy that Mrs. **RT** Editor insists that we hang on to for whenever grandchildren eventually show up on the scene. Our own kids loved it (so did I, truth be told), and we had an absolute ball building whatever our collective imaginations could come up with. And almost everything about Lego has direct parallels to our hobby - imagination, motivation, unassembled kit parts, planning, patience, assembly, history, kit-bashing, and the parts are made of PLASTIC!

I would hazard a guess that almost every kid in the developed world has owned or at least played with Lego at some point in their lives. So how do we make the connection or bridge that small gap between enjoying Lego and our style of model kits? At our IPMS Ottawa monthly building displays at the Canada Air and Space Museum I have made a point of counselling parents and kids that Lego is a great 'gateway' or starter medium towards scale modelling. Maybe all our club recruiting displays should include a Lego tank, aircraft or spaceship on display along with its scale model counterpart to help reinforce that connection. If we build it, they may come...

Free Decals!

Once again IPMS Canada members will be enjoying the first of two free decals sheets that come to you with this issue of **RT**. As repeatedly stated in the past, only current members get this benefit, and there is no plan to make them available to new members or people who are late rejoining. We can't make it clearer, folks - if you delay renewing and you forget to do so, then we won't have decals for you and we won't have any left-over **RT**s to make up the gap in your collection. We're really trying to stay out of the back-issue business, so there just won't be any left for the forgetful member. When you get the renewal card, or, failing that, when you get your last-chance email, go online and renew that day, or get a cheque out and stick it all in an envelope.

We ran into a couple of small, late-breaking reference issues with the T-Bird decals, but nothing too serious, so please enjoy them and the rest of this issue.

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National Director

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As many of you probably know, each year there is a "Best Canadian Subject" award, sponsored by IPMS Canada,

presented at the IPMS USA national convention. There's also a similar award presented at IPMS UK's Scale Model World each year. And then there are the "Best Canadian Subject" winners at various local or regional contests.

A while ago we received some email feedback from a member opining that perhaps some of the models in consideration at the last US Nats were not really "Canadian Subjects", while others which should have qualified may have been overlooked. All this again raises the question… Just what is a "Canadian Subject"?

Some hold that a "Canadian Subject" is something (an aircraft, ship, vehicle, etc.) which has been produced in Canada. In certain situations this makes perfect sense. e.g. a Snowbirds CL-41 Tutor or a Canadian Army LAV. But what about a Malaysian CL-41 Tebuan? Or the extreme example of a Saudi Arabian LAV? Should a Saudi armoured vehicle win a Best Canadian Subject award?

Years ago we first dealt with this situation and came up with a solution which, if not always perfect, has worked well for the national awards. To qualify, the entry has to be "identifiably and distinctly Canadian in its markings, or it can be clearly connected to being operated by Canadians".

Canadian Forces, Royal Canadian Air Force, Royal Canadian Navy and Canadian Army subjects would obviously qualify, irrespective of where the aircraft/ship/vehicle was built. A figure of an RCMP 'Mountie' would also seem obvious, as would a model of the Labatt Streamliner (look it up!).

Some other typical acceptable entrants would be: an RCMP police car; an Airbus A320 in Air Canada markings; a big 'Montreal canoe' full of voyageurs; Billy Bishop's aircraft in the Royal Flying Corps; a Canadian Churchill tank at Dieppe.

Some typical examples which would not qualify might be: a car which sports only a provincial license plate as its only "Canadian" identification; a Luftwaffe Canadair Sabre 6; a Ram tank used by the Dutch Army; a corvette of the Royal Navy.

If after all this you're still in doubt as to whether your model – or your prospective model – would qualify, send us an email and ask. Who knows... you may have come up with something that we haven't considered.

For example, at the 2015 US Nats there was a somewhat unusual entrant: Rochelle – (an animated character from the Disney film, 'Planes'). Admittedly this one really pushed the envelope! Nevertheless the Rochelle character does hail from Québec and she did have little maple leafs markings. The biggest deciding factor was that the model was built by a young lady junior modeller, so the rules were bent a bit to help encourage a youngster in the hobby.

Over the years there have been all sorts of models win as Best Canadian Subject – aircraft, vehicles, ships, and figures! So whatever you like to build, go Canadian! You could be the next winner.

Making Better Canopies and Turrets

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It seems we've come a long way since the early days of plastic modelling. Maybe I should re-word that and say, I HAVE come a long way since that time!

When modelling for me started back in 1949 or thereabouts, we dealt with wooden parts and a couple of those relics, in the form of crude turrets are shown in **Photo 1**, along with some early clear, well, clear at the time, turrets. As a matter of fact, the one on the right (circled) with a white colour in the machine gun travel tracks is actually an old turret that I resurrected for a new build. I glued a piece of thin plastic inside the turret and when vacuformed it replicated the 'canvas' fairings, filling in the gun elevation slots as seen in **Photo 2**. Don't ask me what the trapezoidal 'turret' is in the middle of the group because I don't remember. Suffice to say it came in a kit and was 'called' a turret.

Continuing the journey, **Photo 3** displays some progress in canopy moulding, with the old Aurora AT-6 canopy shown at the top of the photo, and **Photo 4** shows the vacuformed copy in place on that kit. I built that old kit in 1971 and it still sits on my shelf. The other canopies shown in **Photo 3** are from the Frog Blenheim, on the left, accompanied by the Airfix

Me 110 canopy, with the Monogram 1/48 Zero canopy at the bottom. Obviously, the frames on the Blenheim and Me 110 were 'painted' before I had a Mattel vacuform machine! Somewhere during that time, I had learned the art of masking and hand-painting canopies too, as the Zero's frames show. I won't speak to the accuracy of the colours, though.

As time marched on, Monogram models began issuing their 'stunning-at-the-time' 1/48 scale World War II American Naval fighters and bombers and those clear parts are shown in **Photo 5**, as well as the aft canopy for their original-issue T-28 Trojan. The exception on the left is my home-made canopy mould that was for the 1/48 AMT Birdcage Corsair. Adding plastic and filler to improve kit-provided outlines can provide more accuracy and that's what I was attempting to do with that canopy. Unfortunately, that model is long-gone from the showcase due to the advent of the beautiful Tamiya 1/48 scale Birdcage Corsair kit. Shown are the Monogram Corsair, Hellcat, Dauntless and Helldiver canopies along with the Avenger turret and the later-released T-28 frame and canopy combination. I was getting better at painting canopy frames but still, there was a long way to go.

One can use a kit canopy as a master to vacuform a replacement canopy and that's what I find myself doing these days, as in **Photo 6**. I use modelling clay as a mounting 'plinth' for the part to be vacuformed. As it's important to keep the part elevated, the height of the part above the plate can be adjusted above the surface, using that material and, in the case of an elongated canopy, using additional clay plinths ensures that even pressure is applied when the heated plastic comes down on top of the part. It's also important to keep the clay INSIDE the outer edges of the part to be vacuformed so as to allow a complete 'wrap-around'. **Epoxy Sculpt** can also be used as a mounting 'plinth', however, drying time for that medium slows things down. Note the tiny holes on the blue surface, in the same photo. It is through those holes that air is sucked out, thus allowing the heated plastic to conform to the part to be vacuformed. From time to time it is necessary to clean out the holes as the clay will clog some of them which, in turn, can reduce the amount of suction. While I'm sure that other materials can be used to support any given part, modelling clay seems to work best for me.

A friend of mine put me onto using a section of aluminum foil over the heating area of the machine. Covering the plastic and the heating element prevents heat from escaping the chamber and also heats the plastic a bit quicker at the same time. One must constantly monitor the extent of the plastic sheet's softness as if it gets too hot, the plastic will sag and melt when it touches the heating element's surface. I found that out the hard way. After using several brands of clear vacuform plastic, I have settled on **K&S** brand material. I use 0.010" for 1/72 scale models and 0.015", which is a bit thicker, for any 1/48 scale models I build. Having come up with a few pieces of Mattel vacuform original pre-cut and pre-holed coloured sheets, I use them as templates when cutting out measured clear sheets from the **9" x 12" K&S** product. Even though the clear plastic does not have holes around the perimeter of the pieces, squeezing the machine's plastic clamping mechanism tightly allows the teeth of the machine's frame to grab enough to hold the plastic in place during the heating time.

The last remaining parts grouping, **Photo 7**, is indicative of what some manufacturers are providing in some kits these days: pre-formed vacuformed canopies. At left top rests the 1/48 scale Czech Models T-34 Turbo Mentor canopy and at top right is the full canopy for the 1/72 scale Octopus TBY Seawolf kit. The bottom three vacuformed canopy sections were for a build of the 1/72 scale Special Hobby SB2A Buccaneer kit. **Photo 8** shows the finished Seawolf canopy in place on the model. Some manufacturers provide two vacuformed canopies so as to allow for errors if and when the modeller wants to cut and separate canopy sections. Those frames were masked individually, horizontally and vertically, then hand-painted, first with **Interior Green** and then with **Dark Sea Blue**. They are a long way from **Photos 1 and 2**.

Photos 9 through 12 show the vacuforming process. My wife was gracious enough to lend her hands for the 'hands-on' photo shoot. The secret to good vacuforming is to first make sure the plastic sheet is clamped tightly between the machine frames to allow enough time for the plastic to get very hot to the point that it sags, but not too hot so that it touches the heating element and lastly, to get good suction. If a good seal is not achieved, the plastic will not completely conform to the canopy. In that case, the process has to be repeated, using a new sheet of plastic.

Careful cutting is the name of the game from here on and in **Photo 10**, the excess plastic is being cut away with scissors. Removing most of the excess plastic makes the final trimming easier. I always use a fresh #11 X-acto blade in my knife at that point to ensure accurate cutting. If one is using the kit part as a master, remember that it is also plastic, and that care must be taken to not gouge the blade into the original canopy or turret part, lest an edge become crooked. Each edge of the canopy must be cut slowly and carefully with extreme care taken around, in this case, the back end of an F-4 Phantom canopy, **Photo 11**. That little protrusion is the mounting 'ear' for the canopy section and a slip of the knife can easily nip that piece off of the vacuformed canopy, resulting in a return to square one.

In **Photo 12**, all has been accomplished: the cut-away original plastic sheet, the left-over from the final cutting, the original kit part, and the brand new vacuformed canopy. Note also, the little dots around the edge of the plastic sheet – those are holes from the little spikes along the vacuform machine frame which come about as a result of pressing the 'sandwich' tightly together. A vacuformed canopy, while encompassing a little extra work, will add a lot to your finished model. I hope this short overview has shed some light on the process. Since the advent of the **Mattel Vacuform Machine**

all those years ago, I've come to understand that a new vacuform machine has been produced and is available through the **MicroMark** catalogue (**micromark.com**). From what I've heard, it does the same job very well.

Good modelling and especially, good 'vacuforming' to you!

T(-Birds) for Two...
...a pair of 1/48 CAF CT-133 Silver Stars

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A Knight and a Kiwi

30 December 2010, almost six years ago, is when I started building my first 1/48 CT-133 (affectionately and universally nicknamed the 'T-Bird'). I already had the **Academy/Hobbycraft** kits for a few years, and managed to scrounge up a long list of aftermarket items to get ready for this build.

I kept waiting to find some good variegated (a fancy word for disruptive pattern) camouflage scheme decals to do a European-based CAF 1 GTTF 'Kiwi' aircraft. I fell in love with that scheme when I saw a beautiful Peter Doll article in the excellent, but now defunct, french magazine **Air Action No. 33**. After having provided references to three Canadian decal manufacturers, both Bill Burns at **CanMilAir** (**canmilair.com**) and, more recently, David Winter at **Canuck Model Products** (**canuckmodels.com**)came through with great decal sets.

Back in 2010, I managed to overcome my fear of natural metal finishes and had just completed a CAF CF-5D in a silver scheme using **Alclad** paints. I loved the stuff, and there were a lot of great metal schemes for CAF T-Birds. So I decided to do a 414 Squadron (Sqn) bird in a natural metal finish scheme while waiting for the camo T-Bird decals to come out. **Leading Edge** (**lemdecal.com**) has decals for this aircraft and are very nice, with a complete set of stencils and instructions.

There were basically two types of aircraft flying with 414 Sqn, those modified for the electronic warfare (EW) role and those that were not, these were basic 'hack' (utility) aircraft. I chose to model the latter.

Kits and Aftermarket Goodies

Here is a list of T-33 model kits and aftermarket items that I had managed to amass over the years:

- **Academy T-33A kit**
- **Hobbycraft T-33A kit**
- **Hawk T-33 kit**
- **Monogram P-80 kit**
- **Airwaves Photo-etch set AW4040 T/RT-33**
- **Eduard Photo-etch set 48-193 T-33A Thunderbird**
- **KMC Resin Intakes**
- **KMC Resin & Photo-etch Update Set 48-4008**
- **True Details Resin Seats 48042**
- **True Details resin wheels (earlystyle) 48089**

Also, readily available today is the **True Details** cockpit set, which is apparently a copy of the **KMC** set, but I cannot confirm this.

The Academy/Hobbycraft kit vs. Canadair T-Birds

Do not be intimidated by online experts concerning the shape and accuracy issues of the **Hobbycraft/Academy T-33** kit. While they may be technically right, correcting them will sap all the fun out of modelling. Furthermore, the differences between a Canadair-built, Rolls-Royce Nene powered T-33 and a Lockheed built, Allison-powered T-33 are not as

overwhelming as one might think. Except where noted below, the kit provides most of what you need to build a Canadair machine. The differences found on a Canadair aircraft are:

 on the left side of the rear fuselage there is an **auxiliary air vent** for the Rolls-Royce Nene engine (this is not found on the kit, but **Leading Edge** provides a nice decal for this feature)

The following points need careful verification for your model, as the details may vary depending on date of operation:

 later in its service life all Canadian T-Birds had **NACA inlets** installed, low and forward on the armament bay doors on both sides of the nose (the inlet is located under the 'last three' of the serial number on the doors). Paired with this feature are the **exit air vents** on both armament doors, aft and up high on the door sides. The open face of the vents face to the rear on the aircraft. This pair of features is not seen on early RCAF aircraft, at least up to **1961**; photos do show it installed on aircraft in **1963**. *(Editor's comments - this modification must have been fitted to introduce more cooling air flow into the armament/avionics bay. Lockheed-built T-33's seem to have only a 'louvred' air vent at the rear of the door, with a smaller NACA inlet forward, but in a different position from what the RCAF/Canadair did with their jets)*

- check your undercarriage wheel hub style and detail (there were two different styles depending on the era, **True Details** has both early and late wheels on offer)
- there is a small **light mounted in the starboard engine intake** (this is a common T-33/CT-133 feature, but is not found on the kit)
- there was a **one-piece front windscreen** (wrap-around with no front frames fitted for some late-service CAF T-Birds (not supplied in kit)
- The antenna suite, instrument panel layout, navigation hood, tip tank strobe lights varied throughout the long Canadian military service life of the T-Bird. Check the date and source of your reference photos!

The Building(s) begin(s)..

Both builds progressed simultaneously on the 'production line'. Except where noted, where different aftermarket parts were used, the following points pertain to the two models in this article.

The layout of the cockpit instrument panels on Canadian CT-133 varied significantly over the years. The Canadair document layouts I have references on are accurate for early machines, likely into the late 1970's and early 80's. Although relatively accurate in terms of dial placement, the **KMC** resin instrument panels are unusable due to the poor raised detail of the resin casting for these pieces. The **Airwaves** set panels are also pure fantasy, at least for a CAF jet.

The kit instrument panels are actually pretty good and I settled on those and the **Eduard** set panels with the acetate backing for instruments.

For the cockpit tubs, I used the **KMC** for one aircraft and the kit tub for the other. The **KMC** is obviously a lot more accurate (although it seems to be missing a few knobs and switches...) according to the drawings, but you can use the photo-etch to enhance the kit part a little.

The **KMC** inlets are not really an upgrade that I feel is required so I will not use them. They do, however, include the light on the right side intake seen on Canadian T-Birds (which will have to be added if you use the kit intakes) and are as difficult to install as the kit inlets. It is very difficult to position the inlets correctly as they tend to protrude out of the air tunnel too much, I think I got one out of four correct... You also need to fill a lot of gaps so that the engine inlet air does not escape inside the fuselage!

I finished detailing the **Eduard** and kit instrument panels, sandwiching the **Eduard** acetate instruments in between the sanded down **KMC** resin panel painted white and the **Eduard** photo-etch part. The kit panels were glossed up to receive **Mike Grant's** instrument decals. Then a coat of **Aeromaster Flat** was airbrushed followed by clear gloss on all the dial faces.

I painted the **KMC** and the **True Details** seats. Both are pretty good, but they fail to show the correct attachment point of the seat belts right in the middle of the head rest. I chose to leave them as-is due to the high level of difficulty and my meager talent level. Note that very late model seats did not have the shoulder straps coming out of the head rest.

I added the ejector handles at the base of each seat with 0.030" lead wire painted up yellow and black. **KMC** furnished very nice sticks and throttles which I painted. The seat and cockpit assembly are very black and need careful dry brushing for the details to show up.

I installed the **Eduard** instrument panels on the **KMC** resin tub. I needed to remove a significant amount of resin on the front face of where the rear instrument panel would sit. Otherwise, it would sit much too close to the seat and would not

leave room for the stick. I glued only the rear panels of both the **KMC** and kit cockpit prior to gluing the tub assembly to the side of the fuselage. Installing the photo-etch rudder pedals was also tricky as they would interfere with the panels. Both tubs were then glued to the sidewalls, I glued the rear panel on the **KMC** tub and the front panel of the kit tub as, contrary to the other panels, these cannot be installed once the fuselage is closed.

Next were the speed brakes. One of the biggest drawbacks of the **Hobbycraft** kit, as opposed to the **Monogram F-80** kit, is the absence of speed brakes. Considering 95% of all the CT-133 pictures I have seen show these open, I believe these are a must. **Eduard** gives photo-etch to represent both the speed brakes and the fuselage fairing box. **Airwaves** gives you some detail which goes on top of the plastic part which you need to cut out from the kit. **KMC** gives you a very nice resin speed brake and its actuating arm in photo-etch but nothing for the fuselage fairing box.

I took out my trusty **CMK** razor saw and removed the speed brakes from the kit fuselage following the recessed panel lines. I copied the **Eduard** box fairing with plasticard for use as my second option. Once installed, both these boxes require plasticard additions to the sides and aft to box everything in. To summarize, I will have, one **Eduard** photo-etch fairing box and a copy in plasticard. A set of resin speedbrakes from **KMC** with photo-etch actuating arms and a set of thinned down "kit" speed brakes with **Airwaves** photo-etch details.

When I started to glue the fuselage halves together, I found out I had to install the front instrument panel on the **KMC** resin tub, otherwise I would not be able to do it afterwards. I also had to cut out the top left hand side of the panel so it would fit under the canopy coaming. I glued using **Tamiya** liquid glue (green cap), going a little at a time.

The exhaust pipe, if installed as per kit instructions, fits too far inside, so I cut it off so I could fit it more rearwards after the fuselage halves are glued. The flaps from two horizontal stabilizers were removed, preparing them to receive the **KMC** resin flaps.

I used the **KMC** and **Eduard** photo-etch and the **KMC** resin detail of the canopy sides and canopy sill, bending, sanding and gluing as required. I wet-sanded down the canopy clear part with 4000, 6000, 8000 and 12000 grit sanding cloths. I then waxed one with **Model Detail Carnauba Wax** with a cotton rag; for the other, I dipped it in **Future** twice. Once dried, I covered them with **Tamiya** tape so as not to scratch them while handling them to glue on the photo-etch parts. I prepared all the doors, flaps, wheels and landing gears for painting; these will later get a coat of silver.

I spent a great deal of time with **Tamiya putty**, filling and sanding, mainly the wing joints but also numerous defects from what you can tell are aging **Hobbycraft** moulds. I sprayed **Alclad grey primer** straight out of the bottle, using a well ventilated spray booth and a good respirator mask (that stuff is strong!). I re-checked the seams, applied **Gunze Mr Surfacer 1000** with a toothpick where necessary, re-engraved some panel lines, let it dry 24 hours, then re-sanded, re-sprayed, re-checked, I did this three times. Once satisfied, I used an old cotton T-shirt to 'polish' the primer and get a good surface for the first coat of **Alclad**.

It was at this point that one of the models was set aside, waiting for the camouflaged GTTF decals, while the other was to be painted in the natural metal 414 Sqn scheme.

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414 Sqn 'Black Knights'

Between 1967 and 1992, the Black Knights were tasked with the Electronic Warfare Training role. 414 (EW) Sqn moved between RCAF Stn St-Hubert, Quebec, had a temporary stay at CFB Ottawa (Uplands), then moved to CFB North Bay, Ontario, and remained there until 1992. The squadron was then split in two, with one part going to CFB Comox, British Columbia as **414 Composite Sqn** and the other part going to CFB Greenwood, Nova Scotia as **434 Composite Sqn**. 414 was later redesignated as a **Combat Support Sqn** in 1993. Over the years 414 has used a wide variety of aircraft:

- **CT-133 Silver Stars** (utility)
- **CE-133 Silver Stars** (converted for the EW role)
- **CC-117 Falcons** (informally called **CE-117s**)
- **CE-144A Challenger-IEST** (Interim Electronic Support Trainer) (for EW)
- **CE-144C Challenger-EST** (Electronic Support Trainer) (for EW)
- **CF-100 Mk. 5C/D Canucks** (for EW)
- **CF-101F Voodoo** (for **EF-101B** pilot proficiency training) and
- the only **EF-101B Voodoo** ever made! (for EW)

The unit stood down in 2002 only to be resurrected in 2009 at Ottawa, Ontario. When required to conduct an EW training support mission for the CAF, the military EW specialists now operate from the back seat of commercially owned and flown **Dornier Alpha Jets** from **Top Aces** (now a subsidiary of **Discovery Air Defence Services**).

The Modelling continues...

The first shade of **Alclad** was **Aluminum**, this was sprayed all over. I soon found out it was not replicating the polished aluminum look I was looking for so I masked a few panels with **Tamiya tape** on the wings and fuselage (15-20%) and sprayed the rest **Polished Aluminum** (I also used **White Aluminum** in other areas). That was much better. When I removed the tape, however, I had three places where the **Alclad** was removed all the way down to the plastic. This was the start of a time consuming task of retouching peeled off areas as I sprayed more panels different shades of **Alclad**. I found that even if you sand down the peeled off area with 3200 to 12000 grade sanding cloths, the peeled area still shows through once you paint it over with **Alclad**. However, if you spray a coat of **Future** prior to the **Alclad** re-touch,let dry for 6 hours, then magic happens, and the following **Alclad** coat completely hides your mistakes. I guess I will be more careful in washing and sanding down the bare plastic model prior to the **Alclad** primer application the next time.

I painted the wing tips and tip tanks with **Tamiya Red**, masking with **Tamiya** tape whose tacky surface was rubbed a few times on my fingers to remove the tackiness. The dimension of the red panel on the wings was scaled off of a drawing from **Pat Martin's Canadian Forces markings book**. (visit **www.canmilair.com/books.htm**)

Next, I painted the flat black (**Gunze**) on the tip tanks, vertical tail and nose. I also trial-fitted the tanks on the wings, and the fit is tight. Doing this I found out the red paint was barely clinging onto the **Alclad**. So I decided to take no chances and oversprayed the whole model in **Future Floor Finish**. This is necessary protection for the follow-on decal and weathering application. I have done this before and found it did not tone down the metal scheme too much. I removed the paint from the tip of the tanks with an X-Acto (this tells you something about the paint adherence!) I used **Model Master Aluminium** to brush-paint the nose and tail of the tanks. The underside of all moveable surfaces as well as the gear legs were painted **Alclad White Aluminium**.

The model was now ready for decaling. The **Leading Edge** decals are pretty thick and the glue is not very strong, so you need to proceed carefully to ensure proper adhesion and no silvering. A good coat of **Future** helps. Taking no chances I also diluted a bit of **Kristal Kleer** in some **Micro Set** and applied to the model at the decal location to ensure enough glue was present. The glue dries with a bit of a hue but a coat of **Future** removes all of it. I also applied **Future** on the model where the decals would go. The decals are very good with only the 414 Sqn badge on the tail being a bit oversized. After a **Future** coat the black anti-slip wing walk and the front anti-glare panel decals were applied last, to retain their satin sheen.

A final coat of **Future** was spayed on the entire model and the small bits to get ready for a wash. I used 4000-6000 grade sanding cloths to take the sheen off of some panels. I had a lot of trouble to get the weathering wash to stick into the panel lines, I ended up using black dry pastel chalks with a paintbrush to highlight the panel lines just a bit.

Attachment of the gears and doors with thick cyano glue went fine, the airbrakes where a bit more tricky to align, patience is the key. Two antennas near the front gear well and one pitot tube were made from plasticard and installed, a red painted fuel dump vent is also required at the rear end of the fuselage, this was made with a small hollow brass tube cut to size.

A lot of work is required around the canopy and cockpit sill when fitting, painting and gluing the photo-etch parts; this takes time and patience. The front windscreen was glued using **Kristal Kleer** which was also used to fill in any gaps between it and the fuselage. Some touch-ups with flat black paint was required.

Kristal Kleer was used to make the position lights, top and bottom of the fuselage as well as the one just over the exhaust. The other lights on the wings and tip tanks were painted. Finally, photo-etch mirrors were attached inside the canopy, and the model was complete.

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1 GTTF 'Kiwis'

GTTF stands for Group Transient & Training Flight. Based at CFB Baden-Soellingen, (then West) Germany, starting in the late 1970's it used CT-133 Silver Stars to help keep CF-104 pilots proficient and to quickly move people and spare parts to and from wherever Starfighters were deployed or exercised. The Kiwi logo continued the tradition of flightless bird support units in Germany following Road Runner & Penguin units.

The 1/48 Kiwi T-Bird

The Black Knight T-Bird was finished in early 2012 and the **Canuck Models** decals for the Kiwi bird finally came out in early 2014. I would have started back then but first I had to move to a new house so that set me back to... September 2015. As described earlier, the model was left with its **Alclad grey primer** on, all that was left to do was paint and decals.

Dave Winters of **Canuck Models** did a great job with the decals considering the limited amount of references available.

The suite of stencils and their placement diagrams are adequate but not without some small errors and omissions. Among them, the camouflage pattern for my chosen aircraft, 133345, was not quite correct in many respects and I had to follow my references carefully. **Blue-Tac** 'sausages' were used to get sharp demarcation lines and **Eduard** masks were used on the canopy and windscreen.

As usual, my trusty **IPMS Canada Canadian Colours Guide** was used to determine the proper shades of **Tamiya** paints. This is not an easy task, as the colours in Europe were notorious for changing shades due to sun and pollution wear. The dark bluish-grey colour was especially important for me to get right. Combinations of **German Grey XF-63**, **Medium Blue XF-18** and some white paint were used to get the right shade of **1-GP-12c Grey 501-302**. For the green, **XF-51 Khaki Drab** and **XF-62 Olive Drab** were used to match **1-GP-12c Green 503-301**. **XF-19** was used for the bottom sides light grey, **1-GP-12c Grey 101-327**. Lighter colour variations were randomly applied by spraying heavily thinned paint randomly across the panels, favouring the centre areas. The model was then given a few coats of **Future Floor Finish** thinned with a few drops of **Windex** and the decals applied using **Micro Set** and **Micro Sol**. This was followed by another coat of **Future**. I used **AK Interactive's** black enamel aircraft panel line wash and a **Berol black pencil** to highlight the panel lines and draw in some missing ones. A flat coat of **Model Master Acrylic Flat** sealed everything.

Weathering was done using black dry-chalk pastels with **Post-It** notes delimiting the edges of panels. A **Berol silver pencil** was also used sparingly. The photo-etch cockpit sill was painted red, received some decals and silver pencil scratches. Photo-etch and resin was also used on the inside of the canopy, some of it needs to be removed to fit over the rear seat when the canopy is opened. The resin seats sit too low in the kit cockpit tub and need some plasticard underneath to lift them up at the right angle. The kit control columns got some added buttons. Position lights are from **Premiere**, except for the rear orange & white one above the exhaust. These were scratchbuilt, as were the two antennas close the front wheel. Installing the wheels, landing gear and doors went well, but getting the canopy and its hydraulic cylinder to sit properly above the seats demanded some patience. I used the front wheel from the old **Aurora** kit, as the kit ones are oversized and the **True Detail** resins ones too small and not the right design for the period. At the end, I realized that I had forgotten to include the gun camera inside the right intake... oh well, maybe next time...

And now, bring on the new **Great Wall Hobbies T-33 kit**...

IPMS Canada 2016 Decal Sheet

RCAF & RCN T-33 Silver Stars

With this issue of **RT** active members of IPMS Canada also receive the first of two new (and free!) decal sheets being provided to you as part of your IPMS Canada membership.

Note that the normal maintenance and safety markings on these jets will have to be sourced from elsewhere. This was done in order that we could provide both 1/72 and 1/48 basic and special markings for all three aircraft. The missing markings are relatively easy to find - they, or variations of them, can be found in your T-Bird kit decals, or in one of the aftermarket decals produced for Canadian aircraft of this era.

Although the artwork in the following pages (produced by our National Director, Bob Migliardi, who also did the decal artwork itself) tell you pretty much all you need to know for your model building, the following notes may shed further light on these aircraft:

Fluorescent paint

When deciding what shade of Fluorescent Red-Orange to use on your RCAF/RCN model, you should exercise extreme caution when using colour photos to help with the determination. Because of the way these colours work (visit **dayglo.com/who_we_are/fluorescent_color_theory** for a short, plain-language explanation) Day-Glo paint cannot be accurately recorded or reproduced by the photographic process. The savvy researcher should therefore not rely solely on the shades seen in reference photos when selecting a Day-Glo model paint off the rack.

21057 - The First Red Knight

Silver Star Mk. 3, 21057, the ‘Red Knight’, circa August 1958. This was the first scheme worn by the RCAF’s solo display aircraft. Three photos held by DND show 21057 in the 1958 version of the Red Knight scheme (all three are reproduced here). For the 1959 air show season 21057 was apparently completely repainted. Although the two schemes look generally similar, there are significant detail differences between the 1958 and 1959 paint jobs. The 1959 Red Knight scheme showed more attention to detail, and probably benefited from the lessons learned in the 1958 season.

Service History of 21057:
Canadair c/n: T33-57
1.9.53 - Taken On Strength by RCAF as Silver Star 3T (Trainer)
(date unknown) Converted to Silver Star 3PT (Pilot Trainer)
1958 - Sole Red Knight aircraft
1959 - Primary Red Knight aircraft
1960 - Primary Red Knight aircraft
1961 - Spare Red Knight aircraft
1962 - Primary Red Knight aircraft
1963 - Primary Red Knight aircraft
24.8.63 - Crashed (as Red Knight, but assigned to 2 AFS):
27.8.63 - Struck off strength by RCAF

21616 - Golden Hawks ‘Hack’

These markings caught the eye of IPMS Canada decal Art Director a while back, and so here it is for you now. We don’t know much about this Silver Star Mk. 3. T-Bird 21616, normally flew with 2 Advanced Flying School, RCAF Portage la Prairie, Manitoba, circa 1959 and it was also used as a support aircraft for the Golden Hawks. The support T-Birds for the team were to later wear their own version of the team’s **Sheffield Pale Gold** colour scheme and distinctive markings.

Service History of 21616:
Canadair c/n: T33-616
27.5.58 - Taken On Strength by RCAF as Silver Star 3PT
1961-62 - Golden Hawks support aircraft
11.11.70 - Re-serialled as CT-133 133616
26.2.73 - Struck Off Strength by CAF
26.3.73 - Sold to North West Industries, Edmonton
1973 - Sold to Bolivia
1973 - Taken On Strength by FAB as T-33AN, s/n FAB-603
29.10.73 - Departed NWI. Crashed somewhere en route during ferry flight to Bolivia, and was written off.

21558 - VU 32 with RCN/RCAF/ New Flag/Centennial markings

This Silver Star Mk. 3, 21558, is a Target Tug with VU 32 (Utility Squadron 32), HMCS/CFB Shearwater, Nova Scotiacirca 1967/early 1968. The aircraft, along with others during this period of change for Canada’s military, display a really interesting mix of markings and styles.

Although some of the photos reproduced here were certainly taken after CAF Unification in February 1968, 21558 and at least two other T-Birds at Shearwater are seen carrying the same mix of old roundels (both RCN and RCAF style), new Canadian flag and the 1967 Centennial markings. After CAF Unification, there would have been a deliberate move towards all CAF aircraft carrying the new-leaf roundel, which sports the same style maple leaf as our national flag. Yet there is solid proof that at least one VU 32 jet was still in RCN markings, including RCN roundels, flying in 1970, two-plus years after CAF unification!

Although converted to a target tug, the outer wing pylon-mounted **Del Mar** target towing system and **RADOP** (**RAD**ar/**OP**tical) towed gunnery targets, plus the system’s centreline-mounted cable reels were not carried at all times. For other tasks performed by VU 32 the aircraft would also be flown ‘clean’, or with empty wing pylons. Cargo pods would also be a routine fit for trips away from home base.

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RCN VU 32 Silver Stars

These DND photos show two other VU 32 T-Birds, **21499** and **21515**. They sport slight variations of **21558's** markings, but are contemporary images which will give you a lot of detail info to consider for that next big project. It is interesting to see the Canadian Centennial marking of 1967 was still in place on **'515** into 1970!

For the late-service RCN T-Birds, **21515** is a bit odd in that it is one of the few Silver Star target tugs that still carried '**RCN leaf**' roundels. This appears to be a simple conversion of the RCAF roundel leaf to the RCN style leaf. Other period photos show other RCN VU32 jets with straight RCAF roundels.

Photo Captions

An RCAF T-Bird target tug from an angle that provides a ton of modelling detail. Note the 70" wide Day-Glo anti-collision markings (yes, 1950's colour film gets fooled!), the white stripe yaw/drift reference strip on the nose, the red markings at the wing roots, the red stall warning devices on the leading edge, plus the red warning strip and 'NO STEP' markings over the wing flap area.

A 1970 holdout - captioned as the *"last T-33 jet with Navy markings"*, including RCN roundels, before then-new CAF markings are painted on it. The wing-mounted RADOP targets on the wings suggest that 21515 was going to make at least one more flight before going into the paint shop. Note that the CS2F-2 Tracker on the right also appears to still be in its RCN colour scheme. (DND photo SW70-154)

RCN Target Tug underwing markings - yeah, about that...

At the time of the decal artwork design we didn't have any photos of late-service RCN T-Birds that showed the underside markings. So we consulted the available scriptures and references, and 'assumed' that:

1. Based on a new 1965 specification, the Day-Glo wing panels for T-Bird target tugs should have been **38" wide**.

2. These being ex-RCAF aircraft, and still carrying RCAF roundels, well, they would have only naturally carried underwing markings in line with the period - **RCAF** - **123**, with no roundels. Seeing the **NAVY** side titles, however, it was certain that the **RCAF** would also have been replaced on the bottom, leaving just **NAVY** - **123**.

We patted ourselves on the back, lit some cigars and got the decals printed like that.

Roll forward to early February 2016 and the photos at the top of the page surfaced, showing that these jets were not painted to match the RCAF specification of the day. The trouble is, that, based on the conflicting official paint specifications and the obvious variations seen in the period photographic evidence, now we just don't know for sure.

Now, based on the available evidence, we can't say for certain one way or the other how the wings and the bottom of **21558** was painted in 1967-1970 (i.e., prior to being painted in CAF markings), but it's quite possible that it was painted similar to the photos, with a **70" wide Day-Glo panel and underwing roundels**. So, while you do have the underwing

codes to do either option, you don't have four extra **silver-outlined RCAF roundels** to do this... at least on the decal sheet. So here are a couple of solutions to consider:

1. Fortunately, 24" RCAF roundels are fairly easy to come by. You will, however, still need to mask out the 1.5" (3.8 cm) natural metal clearance given to markings that encroached on Red or Day-Glo panels. For the T-Bird roundels, these masks would be a scale 27" diameter.

2. If you don't want to go to that trouble of cutting out circular paint masks, and you're not keen on the other schemes that are included on the sheet, you can sacrifice the silver-outlined roundels we have provided for the other schemes and use them on the RCN T-Bird. A tough choice and we're sorry about that, but those are the best suggestions we have to address this issue.

Del Mar and Day-Glo

On this page are a few different views of two aspects of our T-Bird decal schemes - **Fluorescent/Day-Glo paint** and the **Del Mar RADOP target towing system**.

The colour photos nicely illustrate one of the major problems with fluorescent paints of that period - they weathered badly and quickly faded to an unsightly state. The labour intensive and costly application process of this paint, combined with its poor serviceability and high maintenance led to its eventual withdrawal from general use in the RCAF. Except for its special uses, such as target tugs and SAR aircraft, it was eventually replaced on most aircraft by a return to the previously-used colour, **1-GP-12b Red 9-2**, which was renumbered under **1-GP-12c** as **Red 509-102**. This occurred in 1965, when aircraft painting drawings were changed to switch to the new Canadian flag, the new-leaf roundel, and the RCAF colour notations were changed to reflect those found in **1-GP-12c**.

The **Del Mar Engineering RADOP target towing system** comprised three main components:

- the **RADOP** towed target.
- the wing-mounted **pylon/launcher** which housed the RADOP target and fed it out behind the aircraft. Note that the **Del Mar** pylon is not the same as the regular T-33 wing pylon, and is positioned further out on the wing.
- the fuselage-mounted **cable reel pods** (one for each side that a RADOP was mounted on) were air-driven by a four-bladed propeller at the front of the reel pod.

The cable was fed from the side of the reel pod directly to the launcher basket, just aft of the wing trailing edge. The cable can just be discerned in the photo at left.

Building a Gap for your Bailey Bridge Diorama*

*Although intended for a Bailey bridge, these techniques may be adapted to other dioramas and bridge types... ☺

By Barry Maddin
IPMS Canada C#6000
Truro NS

Having built the Bronco Bailey Bridge (see **RT** Vol. 36, No. 2, Summer 2015 - Ed.) I needed some way to display it. Sure, I could just mount it on a wood plaque but that would be boring, so I decided to build a diorama to go with the Bailey Bridge. Having limited display space I couldn't build the grandiose scene that I had created in my head, so I scaled things down somewhat. I also decide to mount the bridge as though the engineers had a well-prepared position and not a hasty combat crossing. I also wanted to portray some unusual traffic on the bridge.

The Gap

A bridge needs to cross something so I had to construct a gap for it to span. I measured the bridge span and the total length of the bridge with the entry/exit ramps in place and decided to make the diorama a little longer in length and slightly wider than the whole bridge. I had a length of pine board and after taking numerous measurements I cut it to size. Using pink insulating expanded polystyrene foam I cut two pieces to form the gap and a mounting surface for the bridge (**Photo 1**). Being a prepared position I wanted the bridge footings to sit on rock cribs at the edge of the gap. A rock crib is

simply a timber form to hold rocks that form a stable surface for the footing to rest upon. I built the cribs out of craft match sticks (**Photo 2**) and positioned them by the gap to mark out their location (**Photo 3**). Next I stained and sealed the pine board on all sides to prevent warping. I then glued the foam into place and glued the cribs into place. Using 'clean' kitty litter I filled the cribs with rock and used diluted white glue to soak the rocks to lock them in place (**Photo 4**). I had some plaster rocks that I had made with **Woodland Scenics rubber rock moulds** and glued them into place in the gap (**Photo 5**). I then mixed up a batch of **Woodland Scenics Mold a Scene Plaster** to which I added a goodly amount of white glue. This helped with adhesion and reduced the tendency of the plaster to curl at the edges. I applied the mixture directly to the wood base in the gap and cleared a path for a small stream (**Photo 6**). To help it to be a better bonding surface I scored the surface of the foam in a criss-cross pattern in preparation for the application of the ground material. I used **Celluclay**, an instant papier-mâché, mixed with water and carpenter's glue. I spread the mixture over the ground surface with a small spatula, trying to get a uniform coating without it looking like cake icing. I cut some wooden beverage stir sticks slightly longer than the width of the bridge ramps and laid them in the **Celluclay** at both ends where the ramps would sit. With model railroad ballast I added a gravel road bed (**Photo 7**) at one end of the ramp area and placed weights on the stir sticks to keep them from warping while everything dried. In the stream bed I brushed on a thick coat of white glue and sprinkled on fine beach sand (**Photo 8**). When everything had dried I brushed off the excess sand and road gravel.

A bump in the (river) bed...

I then got a surprise. As the drying **Celluclay** shrank, which I had expected, it was so well bonded to the foam that it curled the foam, and the glue holding the foam to the wood debonded. I have used that glue before without any problems but this time it didn't stay adhered to the foam. So I lifted the foam pieces off both ends of the wood, rescored the foam and using **Gorilla White Glue** secured the foam in place leaving the clamps on for several days (**Photo 9**).

The foam stayed in place this time and I test fitted the bridge assembly to make sure everything still lined up (**Photo 10**). Now it was time to put some paint to the project.

Painting the Scene

I use hand painted acrylic craft paint for all my diorama painting except when I air brushed for shadow effects or on foliage.

I started with the bottom of the gap painting the ground **Autumn Brown** and dry brushing the surface with **Maple Sugar** (the colour) and **Raw Sienna**. I gave the stream bed, gravel road and the rocks in the cribs a heavy wash of **Lamp Black** and dry brushed with **Storm Cloud Gray**. The gap walls and rocks were painted **Terrain Beige** and also dry brushed with **Maple Sugar** (**Photo 11**).

The rock cribs and the ramp timbers on the ground were painted in **Charcoal Gray** and dry brushed with **Raw Sienna** (**Photo 12 & 13**). I then painted the remaining ground surface with **Burnt Umber** and dry brushed it with **Autumn Brown** (**Photo 14**).

Scenery

Inside the gap, using a nail, I punched holes in the ground work and glued small bunches of **Woodland Scenics** tree foliage and clumps of tall grass into place (**Photo 15**). On the upper ground surface I made holes and installed clumps of tall grass and small tree stumps which I made from tree roots and a small **Woodland Scenics** tree. With diluted white glue I brushed on a thick coat and sprinkled on a mix of course sand and small stones. I patted the mixture down to ensure good adhesion with the glue (**Photo 16**). I brushed diluted white glue on the ground in the gap and sprinkled on fine sand (**Photo 17**).

Again on the upper surface diluted glue was brushed on selected areas and a secret mix of herbs and spices, *oh sorry - wrong recipe*, a mix of **sage, basil, crushed leaves and broken up pine needles** was sprinkled on the glue. I spotted small areas with the diluted glue and applied static grass, covering almost the entire upper surface. Back in the gap I applied the diluted glue to the ground areas I had left bare and sprinkled on static grass. When everything was dry I brushed off the excess material and sprayed the ground areas with hair spray to help bind the surface in place. I find this helps to keep the fine material from breaking loose. Using a heavy wash of **English Yew Green** I washed the static grass to break up the bright green colour and painted the sides of the foam and exposed wood **Lamp Black**. All of this was given a good coat of **Testors Dullcote** sprayed directly from the can (**Photo 18 and 19**).

Before I could mount the bridge I had to make the small stream that was running through the gap. I used **Woodland Scenics Water Effects** to make a sealing dam at each end of the stream and mixing a drop of **Tamiya X-25 Clear Green** to some **Woodland Scenics Realistic Water** I poured the water for the stream. When dry I gave the water a good coat of **Future** to get a nice glossy look (**Photo 20**).

I wanted to use the walkways on the bridge but the bridge kit didn't come with walkway ramps, so using craft stir sticks and match sticks I made four walkway ramps (**Photo 21**). I painted them with **Charcoal Gray** and dry brushed them with **Raw Sienna** (**Photo 22**). I added a small tree from **Woodland Scenics** (**Photo 23**) and the scene was ready for the bridge (**Photo 24**).

Bridge Traffic

I wanted something unique crossing the bridge. I settled on the **Academy** kit of a horse-drawn **German Gulaschkanone (Field Kitchen)** under escort crossing the bridge heading toward the rear. Perhaps the **Gulaschkanone** was heading to the POW cages to help feed the masses of prisoners the Allies had collected. The crossing against the normal traffic flow causes problems for the Military Provost who controls the traffic at various choke points. I also wanted infantry and Engineers to be walking across the bridge on the walkways. I had built the **Gulaschkanone** some time before but never mounted the horses. It was a simple kit and to improve the detail I shaved off the molded on harnesses from the horses and replaced them with harnesses made from plastic strip. I used dental floss, coloured with a brown **Sharpie**, for the cross brace harness and the reins. The German soldier on the **Gulaschkanone** comes with the kit and I replaced his head with a **Hornet Head** and his Canadian guard is an **Ultracast** figure. The walking infantry, heading toward the front, are **Tamiya** figures from their **British Infantry on Patrol** set with **Hornet Heads** and the Engineers, responsible for routine bridge maintenance, are from the **Dragon Commonwealth Infantry Italy 1943** kit with **Ultracast** heads. I threaded **Artesania Latina (Item # 8145)** scale rope through the walkway guide rope supports and using the optional brass posts from the bridge kit I dipped them in gun blue and painted red and white strips on them. I drilled out equidistant holes on the vehicle ramp curbs and glued the posts in place. I glued the **Gulaschkanone** and figures in place and dry fit the ramps (**Photo 25**).

Mounting the Bridge

After test fitting the position of the bridge several times I then glued the bridge footings onto the rock cribs. I glued the vehicle and walkway ramps in place and tied off the walkway ropes to posts I installed at the base of the foot ramps. I used ribbon style dental floss to replicate mine tape and ran lines from the bridge end posts looping them around the striped posts to a peg in the ground along the vehicle ramps. In real applications the white mine tape was used provide a guide to the vehicle ramps in low light conditions. I also glued the vehicle ramp supports, which I had mounted to supporting planks, into position under the ramps. I added two more figures on the ground at each end of the walkway and I positioned a **Tamiya** Jeep, I had built some time ago with an **Ultracast** figure by the tree waiting for the bridge to clear (**Photo 26 and 27**). I dusted the roadway leading to the bridge ramps with **MIG Pigments** to match the pigments I had previously used on the ramps and bridge.

I made a sign (**Photo 32**) like one I had seen in a picture of a bridge crossing and mounted it at the bridge entrance and mounted another infantryman on the walkway.

The scene needed traffic control so I used a motorcycle, dispatch rider and Provost captain from the excellent **Bronco kit # CB-35035** (**Photo 28**). I then **Dullcoted** all the spots where I had installed a figure or item to kill any shine from the glue used.

Conclusion

With the Bailey bridge, the options for a scenic layout are endless. Even keeping it limited, as I tried to do, you end up with a sizeable diorama. Bailey bridges were a key asset in the Allies' campaigns throughout Europe, built by the Combat Engineers of several nations.

I tried to use commonly available materials to build the scene and keep the scale of the project manageable. Striking a balance with figures and vehicles was a challenge as I didn't want to draw the viewers focus from the bridge but enhance the character of the bridge. Overall I enjoyed building the scene and giving the bridge a gap to span and adding a unique piece to my collection.

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