

RT Volume 38, No. 2 Summer 2017 article text

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Cover Comment: Using the Mini-Art kit regular RT contributor Barry Maddin of Truro, NS, created a very sharp-looking and well-weathered Cdn Army WW II Armoured Bulldozer. See page 10 for the full build details.

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Editorial

Steve Sauvé, C#0323 RT@ipmscanada.com

I'm spending more time at the workbench, trying to be productive, but I find that I cannot function without a computer screen nearby. Skype is up and running in case one of the lads needs to talk to me, the tunes are playing constantly, and a bunch of windows and tabs are open to help me with whatever has my attention at the moment.

With the passing years I need a set of reading glasses for computer-distance work, and another set for modelling-distance work. I find myself flipping back and forth from screen to model, and the two sets of glasses are moving up and down as I need to switch viewing distances. Frustrating, but I don't think bifocals are the right answer for me. Anybody out there found a way to deal with this problem?

Writing vs. pub stories

As the editor of a 'paper' journal I find myself analyzing how the web-based competition compares and contrasts to what RT's authors do for their fellow IPMS Canada members. I was struck by this revelation while following one seriously impressive online build, and downloaded it for future reference. It's an impressive, book-sized build that is still ongoing as of this writing.

The big difference that I see is similar to how somebody would tell a great story in a pub amongst buddies, and how the same story would be recounted in a book. In the pub/forum you have your fans giving a continual series of 'atta-boys' and similar encouraging remarks as you go along with your story/build, while the publication author has to be more careful and structured about how the story and info is presented to future readers. This particular build is incredibly detailed and shows astounding scratchbuilding skills. I've been trimming it down in an MS Word document - removing the pure 'ooh' and 'ah' posts and all the extra non-productive 'schmata' that goes with all online communications, and it's still way over a thousand pages of material, and the model is not done! RT cannot compete with that kind of interactive experience and instant gratification for the builder, so I remain grateful to the stable of established contributors and to those new writers who are giving up the glamour of the Internet for the more modest goal of helping IPMS Canada and its members.

Aspiring contributors need to keep this in mind - your writing needs to be reasonably clear in explaining what you're doing, knowing that the readers can't ask you questions directly. It's a more disciplined and structured approach to sharing your material with others, but it can be done, folks.

Nats and more Nats

I've received domestic clearance to go to the US Nats in Omaha this July. I've also got clearance to head across the pond for my second trip to the IPMS(UK) Nats at Scale ModelWorld at Telford in November. Of course this puts me on the red side of the marriage ledger so I suspect I'll be paying for this long beyond the convention season. I hope to see some of you at one event or the other.

'Social?' media?

Through recent hobby forays into Facebook I've been reminded that there are some folks out there who really dislike IPMS Canada. I made an off-hand farewell remark about the lack of moderation in a Facebook group (that was not directly about modelling) and then got stomped on by non-IPMS'ers who decided that this was now an IPMS Canada 'thing' and they needed to lash out against the organization. Though, ironically, these non-members have been quite content to come to contests and events organized by IPMS groups. They're happy to crap on our branch, yet they continue to show up and enjoy the benefits of what IPMS has helped nurture over the years. Moral - be proud of your membership, but be careful what you say on social media, folks; even if you're not paranoid, there are still people out there who hate you...

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National Director

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NOTE: In this following column I've made a lot of generalizations. Please allow me that leeway, as I'm just spitballing here.

How often do we hear it? You know... the familiar, "youngsters today aren't building models or joining IPMS!" And that's usually followed by the gnashing of teeth and wringing of hands and expounding theories and proposals on what can be done about it. For the longest time IPMS/USA had a 'Make-n-Take' program in which youngsters were provided free kits and tools and guidance, and could take home their finished model. Sounds great. Unfortunately after many years and many thousands of dollars the program was not producing any new national members. And it's a worldwide IPMS problem.

Lately I've been wondering if we're looking at this the wrong way. I've now come to the conclusion that these youngsters are not the answer to IPMS's prayers. They will never join IPMS in any significant numbers! Yes, you heard right... these youngsters are not the future of IPMS. Perhaps I should explain my apparent heresy.

Youngsters today just aren't interested in sitting and building models. They have their own interests and past-times. There are the ubiquitous video games... now getting into the VR realm; there is living on social media; there are movies with even bigger explosions and even worse writing; there are shows full of zombies; there is hockey, there is what passes for music (OK... I'm starting to show my age now). Eventually, they'll start becoming attracted to the opposite sex (hmm... maybe video games wasn't such a bad thing after all!).

I know... I'm beating a very dead horse. So, then, where will the new IPMS members/modellers come from? I think we have to write off the youngsters, and look at those later in life. How much later?... Post high school? Post college? Post entering the workforce? Retirement? By this time many will, hopefully, have put aside their game controllers for more serious matters... like making a living and raising a family, and may well be looking for new recreational pastimes and diversions. I propose that this may really be IPMS's new source of modellers and potential members, and we should be directing our recruiting efforts here.

And what would these new modellers want to build? WW II aircraft and tanks? Probably not. If you accept that modellers tend to build what they are interested in and familiar with, that may well be subjects like cars or motorcycles, or civil aircraft, or space/sci-fi models, or whatever items make the evening news. Or possibly large-scale figures depicting characters and creatures from film and TV. Or maybe even dioramas, but more as an art form than a historical snapshot.

Anyway... this is all just a nascent theory which I haven't fully developed, and maybe I'm totally off base. Let me know what you think, and we'll present your ideas in an upcoming *beaverTales*.

Chapter & Member Liaison

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Ask Not What IPMS Canada Can Do For You...

I would like to ask you to take a moment to give thought as to why you are a member of IPMS Canada. For some, I am sure it is simply having access to our fine publication, **RT**. For many though, I suspect that belonging to an organization that shares a common interest in plastic modelling is the appeal. At least I am hoping that this is the case.

I am of the opinion that belonging to an organization, especially one that is non-work related, should be more than having access to a magazine or getting a discount at a hobby shop. Don't get me wrong, these are great perks and I enjoy them as much as everyone else. But to me, being a member of an organization like IPMS Canada is actually taking on responsibility for the wellbeing of that organization. Making sure it stays healthy and thrives.

IPMS Canada is an all-volunteer organization; the national executive members give freely of their time and skills; the same can be said for those who step up and ensure the smooth operation of the chapters. The model shows we enjoy going to every year? All organized by volunteers. The point I am making is that we need members to volunteer their time, effort and skill in making IPMS Canada what it is today, and more importantly, for the future. As with any organization, membership involvement brings fresh ideas and energy that keeps the organization relevant..

I started out this column by stating that by taking on membership in an organization is really taking on responsibility for that organization. I am not under any illusions that every member has the time or inclination to get involved in administering the chapter or organizing a model show. This is the good part; taking on responsibility comes in many forms. Being a good 'citizen' of the organization can come in the form of promotion; or in answering the questions from people looking into joining IPMS Canada.

If I was to be asked what I find to be the most frustrating aspect of my 'job' here at IPMS Canada, I would say that it is in the lack of understanding as to what IPMS Canada is. We do what we can to promote the cause and wave the flag, but what we really need is for members to help us in the promotion of who we are and why belonging to this organization is important to you, the member.

For information on IPMS Canada, you can visit our website, ipmscanada.com, or write to me.

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High-Viz Helo - Revell's 1:72 CH-135 Twin Huey

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Builders of Italeri's 1:72 UH-1N and CH-146 Griffon kits will be familiar with Revell's latest helicopter release, for it is in fact a re-box of the kit from Italy. The plastic found inside the end-opening box is therefore a known quantity, featuring white styrene with nicely engraved panel details and a minimum of flash. Because the kit offers two different modelling options, a close eye must be kept on the instructions and on your references to ensure one doesn't go down the wrong modelling road.

There are no secrets to building this model so most anyone will be able to tackle it right out of the box. For those of us with a touch of "advanced modellers syndrome" who just cannot leave well enough alone, some improvements can be made to the kit without too much effort or gnashing of teeth. Of course there is also the aftermarket industry if one really wants to go to town. In my case, I wanted to build a Canadian Armed Forces (CAF) CH-135 Twin Huey which required a few minor changes to the kit.

Genesis of the CH-135

The UH-1N started out as a Canadian design proposal. The CAF had previously ordered the single-engined UH-1D (the classic Bell 'Huey' of Vietnam fame) but wanted something with the reliability and lifting power of a twin-engine helicopter. Utilizing a Pratt & Whitney Canada PT6T Twin Pac® powerplant, the UH-1N made its first flight in April 1969, and Canada became the launch customer not long after. The CAF received the first of a fifty-aircraft order in May, 1971; serial numbers were 135101 to 135150. In US military service the helicopter was designated the UH-1N, while in Canada it was the CH-135. In the commercial world the Twin Huey was known as the Model 212, and it went on to world-wide fame, becoming one of Bell's best-selling products.

Construction

As with most aircraft builds, this one started with the interior. It is a simple affair, going together quickly. Enough of it can be seen through the cabin windows, however, that time spent adding a bit of detail, such as replacing the rather anaemic looking seat belts and painting up details in various colours, will pay off in the end (**Fig. 1 & 2**).

Plastic Surgery

Some cutting of plastic was going to be needed if an accurate-looking Twin Huey was to be achieved. Some of the minor changes needed for a Canadian machine was the filling in of the windows in the forward small cabin door (most CAF CH-135 helicopters did not have them, the two exceptions being serial numbers 135130 and 135150. These two aircraft were configured for VIP transport for service with 450 Sqn, Ottawa), moving the 'towel bar' antenna from the tail boom to the forward upper fuselage, and the filling in of the compartment on the right side of the tail boom (*this is in fact a CH-146 Griffon feature*). Regardless of the version one is building, however, the nose profile of the kit is wrong. The nose should in fact be turned downwards, not up as moulded in the kit. This would mean some work with a knife, but nothing requiring the skills of a Hollywood plastic surgeon.

To begin with, make a vertical cut using a razor saw inline with the forward edge of the downward viewing windows and upper nose inspection panels (**Fig. 3 & 4**). Add a piece of 0.010" sheet plastic to the cut edge to make up for the razor's width, then glue the nose back on upside down. Yes that's correct, upside down. Once set, clean-up the seam with a bit of putty and a sanding stick and you're done (**Fig. 5**).

The rest of the construction, including the scratch-built 'snow shoes' (**Fig. 6**) proceeded without any real shocks, although test fitting is paramount. (**Fig. 7**) Because the kit is designed to allow you to build one of two different helicopters, the fit of some parts is a bit of a compromise. The engine compartment, also known as 'the doghouse', required a certain amount of adjusting and tweaking to get a good fit, and even then a few small gaps remained that needed the attention of some putty. The same goes for the windows. I must say that they are brilliantly clear, a real high point, but care needs to be exercised when installing them.

Painting

Canadian Search and Rescue (SAR) aircraft are, not surprisingly, painted in a high-visibility gloss yellow and red scheme. For more recent aircraft, FS 13538 Insignia Yellow can be used, but for my build a slightly darker shade was needed. Just a few drops of International Orange did the trick, and as for the red, Guards Red was the answer. All airframe colours were applied using various paints from the Model Master line. (**Fig. 8 & 9**)

As most will know, paint is only half the story when it comes to a kit's livery, decals make up the other half. In my case, I could not have been better equipped than with Belcher Bits' Canadian Helicopters set (belcherbits.com/lines/decals/bd3.htm). These traditional screen-printed decals go on like a treat, responding well to decal setting solution. (**Fig. 10**) In no time the model had received all its markings and was ready for a coat of Future/Pledge floor finish ahead of a minor pin wash. (**Fig. 11, 12, 13**)

Coming in to home...

Of course the last little bit is to bring all the small parts and sub-assemblies together to create a completed model. Having good references is a must when building any model, and more so when departing from the kit instructions. Using these sources, all the final bits and pieces were mounted on the model in their correct location. In some cases they needed a little improvement, such as sanding down the overly thick cable cutters or using brass rod to make a new antenna. As a final finishing touch, the model was sprayed with a semi-gloss clear to give it that fresh, but not toy-like, appearance.

For fans of helicopters, this 1:72 kit will make a fine addition to your collection. Add to that the fact that it wore so many colour schemes in so many parts of the world, and you have the potential for much diversity. Personally I'm looking forward to making a camouflaged version next.

Paint Used:

Model Master: Flint Grey, Dark Ghost Grey, Insignia Yellow, International Orange, Guards Red, Gunship Grey, Flat Black, Italian Olive Green, Semi-Gloss Clear Lacquer Finish

References:

- ◆ IPMS Canada **RT**, Vol. 22, No. 5
- ◆ Canada's Air Force, A Wings Commemorative Issue, Wings Magazine, Corvus Publishing Group, 1984
- ◆ Patrick Martin, Canadian Military Aircraft: Finish and Markings 1968 -2004, Martin Slides, 2004
- ◆ John McQuarrie, Canadian Wings: The Passion and the Force, McGraw-Hill Ryerson Ltd, 1990
- ◆ Internet and personal photographs

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.

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One Tough Caterpillar... A 1:35 WW II Canadian Army Armoured Bulldozer

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An Armoured Bulldozer?

The first armoured bulldozer was developed by the British during World War II. This was a conventional bulldozer fitted with armour to protect the driver and, to some degree, the engine. The armoured bulldozers were produced in preparation for the 1944 Normandy campaign with the anticipated tasks of clearing the invasion beaches of obstacles and quickly making roads accessible by clearing rubble, obstructions and filling in bomb craters. The Royal Canadian Engineers (RCE) during the Second World War (WW II) had a wide range of equipment to complete their missions, and armoured bulldozers were among them.

The Kit

The kit is MiniArt release # 35188. It represents a Caterpillar D7 dozer with a Mk. 2 armoured cab. The kit components consist of plastic parts moulded in light grey styrene, a small fret of photo etch, clear lenses for the headlights, and a nicely rendered decal sheet. The kit consists of 759 parts and many are very delicate. Lots of online comments discuss the breakage of the finer parts, either while still on the sprue or as they are being removed or cleaned.

Forewarned is forearmed and I carefully examined the fine parts and found a number of stress fractures and fine cracks. I addressed the problem by running a thin film of Tamiya Extra Thin Liquid Glue over the offending parts while they were still on the sprue. This seemed to repair and strengthen the fractures and cracks whereupon I only broke a couple of parts due to my clumsy handling during clean up. I did find that the sprue attachment points were on the thick side and my razor saw got a fine workout. The instruction booklet was easy to follow and used exploded view line drawings in 80 steps. All that being said, the detail in this kit is fantastic which makes for a complex build for the novice.

The Build

You start the bulldozer with construction of the engine, which is a kit in itself. The engine build covers the first 18 steps and are easy to follow. I found the fit to be very good with no filler needed at all. Taking your time and handling the small parts with care, such as the manifold locking tabs and bolts, will reduce the pain of searching the floor for dropped items. I got lucky and found everything I dropped, ... this time. The only things I added to the engine were:

- ◇ a gas line from the top tank to the pony engine carburetor,
- ◇ plug wires from the 'pony engine' spark plugs to the magneto housing,
- ◇ wire from the generator back to the regulator box,
- ◇ the fuel lines from the fuel pressure pump distributor to the injectors, and
- ◇ a fuel line from the fuel tank to the pressure pump.

I also added fuel, oil pressure and water temperature lines to the instrument gauge cluster (**Fig. 1 & 2**).

Just to clarify what the 'pony engine' is, to start the dozer the operator used a gas-powered two-cylinder engine to turn over the main diesel engine. The actual workings are a little more involved than that but this is the simple version of how it works. The operator turned a crank which started the pony engine and a clutch was engaged which started to turn over the main engine. The throttle valves were opened and once the air being compressed in the main engine cylinders was hot enough the diesel would burn and the engine would start. Simple.

With the engine completed I next fitted the engine in the frame and added the multitude of driver/operator levers provided. Transmission, steering, forward & reverse, high & low range, parking brake and throttle levers were all detailed out with the steering/brake pedals and linkages (**Fig. 3**).

Unfortunately, most of the linkage detail is hidden under the floor plates. In fact a lot of very fine detail is hidden in this kit. When installing the floor plates I cut plate C106 in half to facilitate its installation around the levers.

You next install the suspension unit leaf spring assembly and I had to trim the mounting slot slightly for a proper fit. The hydraulic tank was then installed on the right side fender and, with great care, the hydraulic lines were removed from the sprue, cleaned and glued in place. They are very delicate and I got them positioned without trouble.

You then install the under-chassis armour which covers all the lower engine and transmission detail. The operator's seat went together with no problems. I had read in a review that the arm rests stick out too far and can interfere with the installation of the armoured cab. I simply shifted the arm rests inward slightly and dry-fitted the cab sides to see if I had sufficient clearance. In step 38 the instructions have you installing a tool box on the left fender. The tool box actually gets installed on the rear of the armoured cab because if it is installed on the fender, you will not be able to open the cab door. This error is a leftover from the other dozer model kits that don't have the armoured cab.

I replaced the grab handles on the operator's seat with brass wire and then built up the rear winches. The instructions indicate you need to wrap rope (not supplied in the kit) around the winch drums. I decided to use 26 gauge nylon thread and wrapped several layers of the thread to bulk up the drums. Everything went together without problems but you should glue part Gb 14 onto the lever bar after you have built and installed the winch assembly or you will knock it off, maybe several times. I then installed the winch assembly on the dozer (**Fig. 4**).

Painting starts

At this point I decided to paint what I had already finished, realizing that I wouldn't be able to reach a lot of the areas when the cab and other fittings were in place:

I masked off the mounting areas for the cab and painted the engine assembly, lower frame and operator's position with Tamiya XF-62 Olive Drab (**Fig. 5**).

I then detailed painted the manifolds with Vallejo Panzer Aces 301 Light Rust and dusted them with Vallejo Pigment 73108 Brown Iron Oxide.

All the engine lever handles and oil filler caps were painted Vallejo 984 Flat Red.

I painted the radiator in Vallejo 950 Black along with all the lever handles in the cab.

The operator's seat was painted in Vallejo 871 Leather Brown and highlighted with Vallejo 846 Mahogany Brown.

The hydraulic line and connections and steering/brake pedals were done in Vallejo 864 Natural Steel.

Weathering starts

I washed the painted areas with Lamp Black acrylic craft paint and on various areas of the engine. I made fuel/grease stains with Vallejo 939 Smoke. On the cab floor I went over the raised plating with a silver pencil and worked in a mix of MIG P028 Europe Dust and Vallejo 73107 Dark Red Ochre and 73108 Brown Iron Oxide pigments. I also used the silver pencil on the wear points in and around the engine (**Fig. 6**).

Construction picks up again

I then assembled the cab except for the roof, rear wall and sloped front armour. I also left off the left-side door which I planned to have posed open. The cab went together without any problems with no filler needed. I glued the front and rear visors on in the 'open' position and carefully glued the delicate visor actuating arms in place.

I taped the sloped front armour and cab rear wall in place and I masked off the mounting area under the cab and door hinges. I taped the roof to a stick with the interior side exposed and painted the interior of the cab and roof with Tamiya XF-62 Olive Drab (**Fig. 7**). I didn't apply a wash as there is little you can see through the open visors or door when the cab is installed.

Because I would not be able to properly access the inside of the engine hood, radiator cover, engine side covers, air filter housing and air filter cover, I painted their insides before installing them (**Fig. 8**). I then removed the cab rear panel and sloped front armour and mounted the cab to the frame. This took a little delicate fiddling around in getting the mounting rib on the right side of the cab past the hydraulic tank and sitting flush.

Part Gb 12 is a hydraulic tank lever which is fitted through a slot in the cab and I had to enlarge the slot in order to fit the lever handle through it. I dry-fit the air filter housing and had to trim a little from the sloped front panel so that the panel and housing fitted correctly. I glued the front engine shrouds in place and mounted the radiator grill. I then glued the engine hood in place and glued on the 'pony engine' crank and main engine exhaust stack.

With a # 78 drill bit I drilled a hole in each headlight and glued in a brass wire and mounted the headlights. I then touched up the paint on the floor of the cab where I had masked off the mounting areas and weathered it to match the rest of the floor. I glued the tool bin on the outside of the cab's rear wall and installed the wall. I then fit the roof in place and glued it down (**Fig. 9**).

I added a spot lamp on the left rear of the cab and ran the power wire down and under the cab. Using a length of U-channel from Evergreen I made a protective conduit over the spot lamp wire. I also added a hook to the right side of the cab to hang chains from (**Fig. 10**).

I next tackled the suspension units. The track rollers didn't pose any problems except step 53 misidentifies a couple of sequence numbers - 42 vs. 52, and 41 vs. 51, which was not difficult to spot. The return rollers D7 and D8 require that 0.4 mm be trimmed from their shafts, which is critical for them to fit with the track chain. Part Da6 is a coil spring which is the first injection-moulded coil spring that I have seen that is an actually a coil spring (**Fig. 11**). The detail on the suspension unit is great (**Fig. 12**), but as with lots of detail in this kit you end up covering it up when you install the rock guards (**Fig. 13**).

Track Assembly Technique

I didn't like the method the instructions provided to construct the track, so I worked out a way that I think simplified the track construction and worked for me. The track consists of chain links, link pins and track plates. I noticed a fracture line on several of the track plates so I ran a film of Tamiya Extra Thin Liquid Glue over them to prevent breakage when removing them from the sprue. After VERY carefully removing the parts of the track from the sprue I found under-sized pin holes (**Fig. 14**) on about half of the chain links that needed to be reamed out so that the pins would fit in the holes (**Fig. 15**). Don't force the pins in place, as the chain link WILL break. So starting with link Dc3 I glued a track pin in place

(**Fig. 16**) and repeated this step for all but one of the Dc3 links. It's important to ensure that you get the pins glued nice and straight in their holes, applying the glue only to the outside of the pin head in the link (**Fig. 17**). With a pinned link I strung the unpinned Dc3 and a Dc2 link running the opposite direction and locked the two loose links into place with a Dc2 link (**Fig. 18**). This technique enabled me to quickly build the track chain (**Fig. 19**) nice and straight with it remaining flexible (**Fig. 20**). You now have a chain tail and master link at each end (**Fig. 21**). You insert a track pin in the chain tail (**Fig. 22**) and fit the pin into the master link and glue the pin heads and the chain is complete. I dry-fitted the drive sprocket with the track chain and found I had to sand down the sprocket edges slightly (**Fig. 23**) to get a good fit with the chain (**Fig. 24**).

With the sprocket on the chain I fitted the chain over the Idler and on the return rollers and slipped the sprocket into place (**Fig. 25**). I then dry fitted the track plates on the locating pins. The pins are very short and the matching holes very shallow so I decided to shave off the locating pins on the chain links and set each plate by eye (**Fig. 26**). Laying the plates without the locating pins made it easier to ensure the track run was straight and spaced correctly (**Fig. 27**).

I repeated the process for the second suspension assembly except I trimmed the locating pins off the chain links as I did the cleanup.

The radiator cover guard has nice detail but I wanted to enhance it, so I decided to drill out all 793 vent holes (**Fig. 28**). With my sanity still somewhat intact I glued the guard in place (**Fig. 29**).

I glued the dozer blade mounting frame onto the suspension (**Fig. 30**) and built the dozer blade assembly (**Fig. 31**).

Finishing

I masked off the openings in the cab and the suspension mounting points (**Fig. 32**) and painted the suspension assemblies, blade assembly and dozer body with Tamiya XF-62 Olive Drab (**Fig. 33**).

I hand-painted the tracks with Vallejo 864 Natural Steel and gave them a wash of Red Oxide acrylic craft paint. I then mounted the suspension units on the cab. I added the hydraulic lines to the blade lifting rams and painted them Vallejo 950 Black. I then fit the blade assembly and making sure everything was level set the locking pins and glued everything in place. I detail painted the main engine exhaust with Vallejo Panzer Aces 301 Light Rust and dry brushed it with Vallejo 864 Natural Steel. I painted the headlight and spot light wires, radiator and pony engine fuel tank caps Vallejo 950 Black. I painted the inside of the headlights and spotlight Vallejo 997 Silver. I touched up the red on the engine filler caps and levers that had gotten a light dusting from overspray of the Olive Drab.

I applied the decals by floating them in a pool of Future Floor Finish then pressing them down into the Future and applying more Future over top. I find this method completely eliminates silvering and blends the decal to the surface, giving it a painted-on look. I then applied my silver pencil to wear points on the chassis and blade assembly.

To weather the dozer I made up my 'mud' mix from the following Vallejo Pigments:

- ◆ 7301 Titanium White
- ◆ 7303 Dark Yellow Ochre
- ◆ 7310 Burnt Umber
- ◆ 73111 Green Earth
- ◆ 73113 Light Slate Grey

I used Vallejo 520 Matt Varnish to bind the dry pigment mix together and applied it to the dozer blade and tracks. It went on well and there were no adhesion problems. The mix dried to a medium brown and I used MIG Pigment P028 Europe Dust on the track plates and dozer blade (**Fig. 34**). I also applied the same MIG Pigment to the underside of the fenders, on the suspension units and around the cab. I then applied Vallejo Pigment 73116 Carbon Black to the exhaust pipe opening.

I painted up and glued a gear bundle from Black Dog on the engine hood and sprayed the whole dozer with Testors Dullcote and retouched the wear areas with my silver pencil. I then installed the air filter cap. The air filter has an ether cup which aids in cold weather engine starts. Photos I had seen showed the ether cup as a glass cup threaded onto the

air filter cap. I modified the air filter cap by replacing part C49 ether cup with one fashioned from clear sprue (**Fig. 35**). Using Gator Glue I installed the head and spot light lenses. I treated a length of brass chain with Gun Blue which chemically changes the brass to a grey/brown colour. I attached two red-painted D-rings to the chain and glued the chain to the chain hook I had put on the cab (**Fig. 36**). The Armoured Bulldozer was then complete (**Fig. 37**).

Conclusion

The Armoured Bulldozer was a fun build. The complexity was increased by the number of very fine parts and their fragility. Lots of details are hidden in the end, which makes this kit a prime candidate for a diorama showing a dozer undergoing maintenance. I depicted the dozer as a Royal Canadian Engineers vehicle which I will be placing in a diorama, although it is a different configuration from a lot of reference photos of the armoured dozers used by the Royal Canadian Engineers in Normandy. However I found seven variations of armoured cabs on D7 Dozers used in North West Europe so it's possible this variant may have been used by Canadians. Well, that's my story and I'm sticking with it. Mirror Models do produce an Armoured Dozer that is the type used by the British and Canadian Engineers so someday I may build that one.

References

- ◆ nevingtonwarmuseum.com
- ◆ network54.com
- ◆ en.wikipedia.org/wiki/Armored_bulldozer

About the author:

Barry retired from the CF 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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An Elegant Boeing 737-200

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IPMS (UK) X55047
Albert Lea, MN, USA**

There once was a fellow in my modelling club who had a unique way of storing all of his accumulated kits. He'd remove all of the parts and place them in plastic bags without decals or instructions. Those, he had filed away elsewhere. When he passed on, back in the 1980's, his estate was practically giving away those bagged kits and I was able to acquire five of his Airfix Boeing 737 kits, sans decals and instructions. Over the years, I turned out four of them and this one is the last of the five. At this point I didn't need the instructions because I had built a number of them and was familiar with all the parts.

At some point during that same time period, I was buying aftermarket airliner decals. When I decided to build this kit, going through my stash, I came upon the old Rareliners aftermarket sheet for Eas tern Provincial Airways (EPA), which to me, is one of the more elegant schemes from that time period. Nowadays, anything goes for airliner schemes; there does,

however, remain an air of quiet elegance to the EPA markings. I was also able to come up with a set of Braz Models #B4KD28, Pratt & Whitney (P&W) JT8D resin replacement engines and a sheet of aftermarket decal windows, windshield, baggage doors, and passenger doors for the kit. Both came from DrawDecals. In addition, there were two good black and white side profile photos of the aircraft on the Rareliner's decal instruction sheet. The Internet also provided me with two very good opposite side colour photos of the EPA 737 carrying the P&W JT8D's, so with all of the gathering completed, I began the project.

The Build begins...

With the previous Airfix 737 kits I built, all had very ill-fitting passenger and baggage doors and this one was no exception. I began with **Fig. 1**, gluing the poor-fitting doors in place and adding sheet plastic and bracing from the inside to the left-rear door opening. Why, you may ask? Because that door was missing from the bagged kit and I didn't have a spare. The mis-fitting baggage and passenger doors, along with the addition of the new sheet plastic 'door' are quite visible in **Fig. 2**. I decided to use Tamiya Gray Putty as a filler, **Fig. 3**; judicious wet-sanding followed until I reached an acceptably smooth finish, **Fig. 4**.

Note the white flap actuator housing on the lower right wing. That kit part was also missing from the bag, and so I had to scratch-build a replacement, utilizing plastic strip. Airfix provided a clear windshield and I glued that in place, rough-sanded it to shape, and then added filler to refine it. I would be using darkened decal passenger windows so a windshield decal would match those much better than would an overly-thick clear part.

The kit engines, along with the replacement JT8D resin replacements are shown in **Fig. 5**. I drilled a hole in the attached resin pylons so I could insert a toothpick 'plinth' to hold them while they were in the painting stages. Having painted the intake and exhaust interiors, I stuffed small foam sponge sections in them to act as masks when I would later apply the natural metal finish. Note the different shapes between the kit and aftermarket products. Alclad II shades have been masked and sprayed in **Fig. 6** and toothpicks provided the plinths. At this point, I ran into trouble after spraying the model, **Fig. 7**. I found an ancient tinlet of Compucolour Boeing Gray which was to be applied to the horizontal tail and wing trailing edges. Everything went well during the painting process, however, the Compucolour colour refused to dry. It was the last colour I applied to the model and then, the waiting game began for the paint to dry. TWO WEEKS later, it was still somewhat tacky so I worked on other projects for yet another week. Finally, I took a chance and masked over the paint to apply the wing-box corrugard sections. Sure enough, when I pulled the tape, small sections of the Boeing Gray came up with the tape. Seeing that, I applied a coat of Testors Model Master Light Gray FS36492 which was a close match to the Boeing Gray. Giving that a couple of days to dry, I was able to resume operations and from then on, I experienced no paint pull-ups. All but the flying surface leading edges were finished and those would receive a coat of Floquil Old Silver and Alclad II's Polished Aluminum on the slats. Testors White Enamel provided the white crown to the fuselage. Needless to say, the Compucolour evidently had been on the shelf too long and just would not dry. (And that tiny tinlet now resides in a landfill somewhere.)

The underside view in **Fig. 8** shows the Old Silver finish on the bottom of the fuselage. Note also that I cut and fit a thin sheet of plastic into the nose wheel well as I have yet to find an effective technique to eliminate the recessed seam. As shallow as the wheel well is, the seam is gone. I've applied light pencil panel lines to the model in **Fig. 9**. Very small Pratt and Whitney (P&W) logos appear on the outsides of the engine nacelles.

I used Floquil SP Lettering Gray for the nose band in front of the cockpit and Floquil Engine Black for the front cap. Careful masking, also known as the 'Trial and Fit' method got the job done. The painted wing and tail leading edges show up well in the photo. Due to the design and positioning of the fuselage stripe, I tried as best I could to make sure the paint angle just aft of the cockpit would line up correctly. As luck would have it, I missed by a 'skosh' and I would deal with that discrepancy when I applied the decals. I painted the wing spoilers using Alclad II's Duralumin. The interesting shape of the under-fuselage centre sections has been masked and sprayed with the same Testors Model Master Light Gray FS36492 I used for the wing trailing edges. Cutting a thin strip of Tamiya tape and carefully applying it to the model yielded good results as can be seen in **Fig. 10**.

Two fuselage sections were masked and sprayed with Alclad II's Polished Aluminum for contrast. I felt it gave a good representation of a natural metal finish.

Decals

At this point, it was time for decals. After the Compucolour fiasco described above, and as an 'insurance policy', I coated the markings on the sheet with MicroScale's Liquid Decal Film as I didn't know if the decals would split and shatter when being soaked. Perhaps it was a wise move on my part because they held together. In **Fig. 11**, I've begun the process. I first cut the fuselage stripe into three sections to make application a bit easier. Unfortunately, I found out that I 'missed' a bit with my measurements and so, white decal stock came to the rescue. I had to patch in a small section just above the slant of the cheat line behind the cockpit decal on both sides of the model. Thankfully, all blended well with the aid of Solvaset decal setting solution.

The stripe is complete on the left side in **Fig. 12**. Note the white door outlines over the stripe which had to be added after the black door outlines were dry.

Rareliners provided decals for the colourful wing tip 'splashes' however they were very thin and transparent, **Fig. 13**. Titles have been added in **Fig. 14** and the results of having to first mask and paint the red wing tips can be seen. I had to rely, once again, on my decal stash to provide the black and white pin stripes at the edge of the 'red' tips. I put quotation marks around the word red because I had to match the paint to the not-pure-red decals. Luckily, Testors Chevy Engine Red was an exact match and so, I lucked out once again. Titles and the Canadian flag have also been applied.

Final Assembly

I glued the engines to the wings, added the wheels and also the wing escape route decals. The kit-provided gear doors were overly-thick so I carefully thinned the complex shape of the main gear doors and I made new nose gear doors from 0.010" sheet plastic. I reasoned that if the wing tip decals were transparent, most likely the wing escape route decals would be the same way and so, I cut white decal stock to fit and applied them first. Once dry, I added the Rareliners decals on top and I was right, because the backing helped a lot. One of the last decals to be applied was the elegant tail 'swoosh', **Fig. 15**, and that alone really 'made' the scheme. I made two small anti-collision beacons from stretched clear red sprue, and three home-made blade antennas festoon the fuselage, one on top, just aft of the beacon and two on the bottom, just aft of the wing. The underside view in **Fig. 16** shows the positioning of both the lower fuselage beacon and antenna spikes. My reference photos showed their placement. Also note the aircraft registration on the lower left wing. Wing root landing lights were made from decal – I applied a small gray rectangle to represent the framing and after that had dried, I applied a slightly smaller black rectangle to represent the housing onto the wing leading edge. Two small silver decal circles, to represent the lights, completed them. They are one-dimensional, but effective. I filed out a small depression on the forward wingtips and added navigation lights from stretched coloured clear red and green sprue. Holes were carefully drilled and the coloured sprue was glued in place. That was followed by a coat of Micro Scale's Krystal Kleer to represent the lenses; Finally, I coated them with clear acrylic. Black 'The Detailer' liquid was added to the lower fuselage air intakes and one on the aft right fuselage for accent.

The venerable old Airfix kit still holds its own in providing a close representation of the Boeing 737-200. Should I desire yet another 737 build, I will have to look elsewhere for a kit.

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.

Building Sweet's Small-Scale Gems: A pair of 1:144 FM-2 Wildcats

**by Massimo Santarossa
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Some time ago I had the opportunity to build two A6M2 Zero fighters from Sweet Models. As I recall, at the time I was not overly interested in building Japanese subjects and I was cool to the idea of working on a diminutive 1:144 scale single-seat fighter. After all, how much detail would be seen in such a small model? My preconceived notions could not have been more wrong. Those two Zero models were fantastic pieces of model engineering and a joy to build.

With those happy modelling memories still alive and well, I picked up another of Sweet's 1:144 scale kits on a recent trip to Japan knowing full well the pleasurable hours at the modelling bench that awaited me. For some variety, I chose the FM-2 Wildcat in order to build a couple of planes from the other side of the Pacific conflict.

I was not disappointed when I got the model home, as this rather small box packs quite the large punch. Each of Sweet's kits provides for two models, the classic two-for-one deal. The mouldings are crisp, any sign of flash has been banished from the factory, and the engraved detail is simply amazing for such a small model, on par or better than some larger scale kits in fact.

The kit decals also score highly, being produced by Cartograph. The sheet provides for five different subjects, covering three different paint schemes. For a good contrast, one plane was to be finished in overall Dark Sea Blue while the other would be an Atlantic machine in Dark Gull Grey over White. Such simple paint jobs were a snap to accomplish and in no time I was applying decals.

In Sweet's previous Zero release, pre-painted strips of decal were provided for the canopy framing. No such decals come in the Wildcat kit but masking the canopy could hardly have been simpler. The frame detail is well represented and by using Bare Metal Foil as a masking agent, the individual canopy panels were masked in no time and thus painted up.

It is difficult to write enough about a model that is simply so good. I could use all manner of adjectives like outstanding, superior, first-class, well designed, and so forth but you would quickly become bored, regardless of the fact that all those words apply. The only thing I regret is that I do not read Japanese as I am sure I would find the written portions of the instruction entertaining. Perhaps I might be able to learn why there are two cat figures included in the kit and who exactly is Yuki? So perhaps it is fitting that this article is small, simple, and straight to the point.

I was looking forward to having fun when I purchased this model and I was not let down. Some may be put off by the small scale but that is in no way a deterrent to this enjoyable and easy build. I can only hope that one day we will see Sweet release some twin-engine subjects. I can only imagine what they could do with a B-26 Marauder or G4M 'Betty'. I had a blast sinking my teeth into this kit. I guess you could say I have a '**Sweet**' tooth...

Paints used:

- ◇ Testors Model Master Enamels: Flat White, Dark Gull Grey, Dark Sea Blue, Interior Green, Flat Black, Matt Clear Lacquer Finish
- ◇ Winsor & Newton: Payne's Grey
- ◇ Van Gogh: Ivory Black

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.

By Richard Clairoux
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We continue the author's Avro Arrow build that started in the last issue. Note that the photo numbering sequence continues on from Part 1.

The Wings and Tail

Plastic beams were glued just like real wing spars to solidify the wing structure and upper fuselage (**Photo 28**). The resin main gear bays from MasterCasters added significant detail but they are very fragile; stiffeners were torn-off and had to be replaced with plastic strips. The upper wing had to be thinned from the inside down to 1/32" thick so they could fit-in! Additional cables & piping were added using copper and white metal wires (**Photo 29**).

The kit's mid-wing aerodynamic fairings are inaccurate and were sanded off. They would now consist of an Evergreen strip with a half-round shape on top (**Photo 30**). Both ends of the half-round were given sharp tips through careful sanding. Three small, oval-shaped fairings were added in front of the ailerons (**Photo 31**).

A stiffener is also required on the inboard flaps and is angled about 20° towards the fuselage. Finally, droplet-shaped lights were added at the wingtips. The wing trailing edge thickness was thinned-down significantly. Wing fit to the fuselage was good with upper surface joints filled with CA glue while the lower wing-fuselage joints got treated with Squadron putty.

Main Landing Gear

The main landing gear was the scariest part of the project! It was obvious that the MasterCasters fragile resin struts would never support my heavy Arrow kit ... but they give nice detail compared to the Hobbycraft examples (**Photo 32**). Thus I decided to combine parts of the resin struts with K&S Engineering brass tubing. The resin middle section was cut-out and drilled-through to insert a 1/16" brass rod. Then 1/8" and 3/32" brass tubing were inserted on the brass rod to replace the weak resin struts. Additional brass rods were then glued to build-up the triangular structure at the pivot point (**Photo 33**).

The resin wheel bogies were stiffened using 1/16" wide brass plates on the wheels (hidden) side. The strut height was reduced by about 1/4" in order to give the Arrow its characteristic 6° nose-up angle on the ground. The bogies were attached at the correct rotation angle so that the twin wheels lie parallel to the fuselage centreline. (**Photo 34**) The hydraulic brake lines were added (copper wires) and stiffener rings were represented with 1/16" white metal bands. The side-arm actuators were also replaced by 1/16" brass rod and 3/32" tubing with white metal rings. I added small support blocks on the struts and in the gear bay to ensure that the landing gear and actuators would be strong both vertically and laterally. The Arrow's tandem wheel bogie arrangement was chosen so the wheels would fit horizontally in the thin delta wing, but that makes the gear weaker to lateral loads. It is no wonder that the Arrow landing gear collapsed twice in landing incidents during flight testing... I will need to be careful when carrying my Arrow to model shows!

The main gear bays were painted white with silver tubing. The struts, actuators, bogies and wheel hubs were painted Tamiya Chrome Silver X11 and tires are black.

For a short while during the winter of 1958-1959, white photo calibration marks were painted on RL-203's main tire sidewalls. I used homemade masks to get the proper shapes.

The MasterCasters resin main gear doors seen in **Photo 35** are much better than the Hobbycraft examples. But they suffer from the same disease as the other resin doors: the very thin door edges break-off just by looking at them! Again I added doubler strips to repair the edges. The outboard door support pins and the inboard door retraction actuators were replaced by copper tubing. Landing gear, doors and bays were weathered with a dark grey wash and pigments.

Vertical Fin

Photo 36 shows where the kit's vertical stabilizer details were improved. First, the two pitot tubes were replaced by K&S Engineering 'telescoped' brass tubes of 3/64" and 1/16" diameter. Then two streamlined lights were added at the tip trailing edge. Rudder hinges and fairings were made using plastic strips (the pattern is not the same on both sides). All panel lines were re-scribed and missing lines were added. Some material was removed below the rudder trailing edge to get a steeper angle.

The stabilizer had to be glued to the fuselage before painting since the kit's joint point is about 1/16" higher than the CF-105 actual panel line. Again, the fit was poor and the joint required filler strips, CA glue and much sanding (**Photo 37**). The proper panel line at the spine junction was then scribed through the smooth joint using Dymo tape to follow the local curvature.

A sobering 'reality check' moment...

It was about at this time in the build that my modelling buddies and I decided that we would go to the IPMS/USA Nationals in Columbus, Ohio in July 2015... I realized I had only four months left to finish my Arrow!

Painting the Arrow

My Arrow was the first model on which I used acrylic paints and I liked it right away. All colours were mixed 50% with Tamiya thinner. As all modellers know, white is not an easy colour to paint as it takes several coats to get an acceptable result. I was concerned that the brown-yellowish resin would stand-out underneath the white paint. Thus, I first painted a grey primer coat (Tamiya Sky Grey XF-19) and this contributed to having a uniform background colour. The grey primer was also used for a dielectric panel located under the right inlet, which was masked-off for the remaining colours (**Photo 38**).

Two coats of Tamiya Flat White XF-2 were then applied and this required no less than six 10 ml bottles (**Photo 39**)! In particular, the huge wings required a lot of Iwata airbrush passes for good coverage. Flat white was selected in order to have better adhesion and to avoid paint drips. However, this caused a 'salt' finish at the wing-spine and the under wing-fuselage junctions. 'Salt' roughness is a result of the airbrushed paint particles bouncing around in the air stream/vortex between perpendicular surfaces. I was able to remove most of the undesired particles by carefully wet sanding the paint with 6000-8000 grade soft sanding cloth. Looking back, a simpler solution may have been to paint the wings separately by masking the fuselage and vice-versa. Next time, I may also try gloss white paint using multiple light coats to avoid paint drips and runs. I guess that there is no perfect solution for white paint!

Flat black was the next colour: the nose cone, anti-glare panel, air inlet ramps, spine rear panels, fin tip and a few dielectric panels underneath were painted Tamiya Black XF-1 after careful masking using Tamiya tape (**Photo 40**). I just love the Tamiya tape as it is easy to work with and is so thin! It reduces the paint build-up to a minimum.

Next were the exhaust nozzles and two of the spine panels to be painted Tamiya XF-56 Metallic Grey (**Photos 41 and 42**). I found that this colour captured well the burnt iron tone of the Arrow nozzles. The second spine panel, inlet ramp leading edge and BLC panel were painted Tamiya X-11 Chrome Silver.

Day-Glo Paint

The fluorescent red day-glo panels of the nose, wingtips and fin were next (**Photo 43**). The problem is: fluorescent red cannot be applied directly on white as it would come-up as a washed-out, pinkish hue. To solve this problem, all you need to do is to apply a bright yellow coat before the fluorescent red (**Photo 44**). This creates a wonderful effect as it seems that the day-glo red is illuminated! Tamiya Lemon Yellow X-8 was applied after another round of careful masking, this time using various Arrow photos to get the exact width of the wing panels and the particular fin zig-zag.

After a review of paints available, I found that Testors ModelMaster enamel "Fluorescent Red" FS28915 was the closest match for the Arrow day-glo red (**Photos 45 and 46**). It has a deeper red colour than the typical day-glo orange used worldwide on trainers. After discussions with fellow modellers, it was concluded that enamel can be painted on acrylic but not the opposite! I proceeded very carefully and it gave good results. A coat of Tamiya Gloss Varnish X-22 was applied all over as the decals were next.

Weathering and Decals

I decided to weather the Arrow before applying the decals and it worked out well. As Avro kept their Arrow prototypes in pristine condition, the weathering mainly consisted of panel line 'accent'. Rembrandt Dark Grey artist oil paint was mixed with Pebeo mineral spirit to get a wash which was freely applied in all panel lines and intersecting edges (**Photo 47**). After an hour or so, the excess wash was removed with a cloth dampened with mineral spirit. Hydraulic leak streaks underneath the rear fuselage were also applied using the same technique with Sienna Earth colour.

The Canuck Models decal sheet WVD48003 is simply marvelous as it captures perfectly the old-style maple leaf roundels and large RL-203 lettering! As usual, I applied MicroSol and MicroSet products to improve decal softening into the panel lines (**Photo 48**). Wing walkway black lines required more work as each individual segment had to be cut to its proper length (**Photo 49**). By the way, RL-203 was the only Arrow having walkway lines forward of the ailerons and flaps. Unfortunately, the Canuck Models sheet does not include **NO STEP** and **WALKWAY** stencils located along the walkway lines (28 stencils on each wing...).

With help from a modelling friend (merci Alex G!), I prepared homemade decals for the missing stencils including the AVRO ARROW lettering on the engine intake and exhaust nozzle covers. The appropriate computer font and size was found by trial and error. Then the page was printed on a virgin decal carrier sheet using appropriate laser printer settings. Finally, I sealed the stencil ink by carefully applying MicroScale Liquid Decal film with a small brush. The resulting decals were great and only a few broke on application but I had printed more just in case... Data plates from the excellent Mike Grant decal sheet CKP 048 were added on the ejection seat headrests and on the intake and exhaust covers. The decals and weathering were then sealed with Vallejo Satin Varnish 70-522 topcoat.

Final Bits

The landing gear was glued in place and that produced a few surprises: the nose gear strut was angled too much to the rear, and the rear main gear wheels did not touch the ground! I carefully cut the nose gear actuator and reduced its length to get the proper nose strut angle (**Photo 50**). Then I sheared off the rear main wheels and glued them back on with the aircraft on a level surface. This ensured that all wheels had good ground contact (**Photo 51**). With the tandem wheel arrangement and the Arrow's nose-up angle on the ground, it was close to impossible to get it right the first time!

The clamshell cockpit doors required extra work to get them aligned properly. I had to glue-on small plastic strips on the cockpit sills such that the doors would have a good bonding surface (**Photo 52**).

The doors actuators were also a handful to get the proper alignment in a three-dimensional space... Cockpit neutral grey paint and weathering had to be applied on the new parts after assembly. The nose boom, air brakes and gear doors were glued with a lot of patience (**Photo 53**).

'**REMOVE BEFORE FLIGHT**' red streamers were added to the engine intake and exhaust nozzle covers; they were made from Tamiya tape painted red (there was no lettering on the Arrow's streamers). They were attached with small photo-etch triangles from an old Reheat photo-etch fret sheet (**Photo 54**).

Display Scene

I prepared a display base to show Arrow RL-203 resting on Avro's Malton tarmac (now Pearson International Airport in Toronto) during the winter of 1958-1959 (**Photo 55**).

An artist's mat board was cut to size to fit on top of a varnished wood base. Concrete panel lines were lightly scribed using an X-Acto knife and the whole tarmac was painted light grey. Concrete lines were then highlighted using a black marker with fine tip. Then I created a snow bank in the top left corner using vacu-form scenery from Woodland Scenics (**Photo 56**).

The scenery ridges and bumps well represent snow that would have been pushed aside. I applied white glue and sprinkled Woodland Scenics Fine Turf T43 to get the desired snow texture. The snow bank was painted by spray can Tamiya Flat White. Gloss varnish was applied with a fine brush on the concrete next to the snow bank to represent water from the melting snow. The scratch-built ladder comes from Montréal modelling friend, Jean-Marc Perreault. (Merci J-M!) The tractor and tow-bar are from Skunk Works Models (**Photo 57**). They are not exactly the types used by Avro at that time but they are quite close and capture the scene spirit that I was looking for. The ladder, tractor and tow bar were painted Tamiya Lemon Yellow X-8. Mike Grant data plate decals were added-on at a few locations on the tractor and tow bar. The Arrow was finally finished on the eve of the IPMS/USA 2015 National Convention!

Conclusion

Building a good replica of the Avro Arrow required much more work than I envisioned at the start of the project. Along the way, I developed new techniques and used new products thanks to the guiding help of my Montréal modelling friends. The resin improvement kits from MasterCasters and North Star definitively helped to improve the level of detail. However, several scratch-built add-ons were needed in the end. The Canuck Model decals arrived on the market just at the right time and thanks to Dave Winter for their excellent quality! A few days after completion, the Arrow won the Best Canadian Subject at the 2015 IPMS USA Nationals and first place in its contest category.

I hope that we never forget that the Avro Arrow was one of the greatest achievements in Canadian aeronautical history. Hopefully this Arrow build article will contribute to the Avro Arrow memories.

About the author

Richard Clairoux has been building aircraft models since boyhood with 1/48 scale fighter jets as a preference. He works in the aerospace industry as an aircraft performance engineer in Bombardier's Flight Sciences Department. He learns new tricks and gets good tips at his monthly IPMS Montréal meetings. He enjoys travelling to Canadian and American modelling shows with his fellow modelling buddies. He lives in Laval, Québec with his wife and two daughters.

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