

## RT Volume 40, No. 3 Fall 2018 article text

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**Cover Comment:** *The IPMS Canada 2018 'Best Canadian Subject' award went to Wolf Buddee of Abbotsford BC. He put a remarkable amount of effort and modelling skill into creating an exquisite 1:32 Spitfire Mk. IXc of 412 (RCAF) Sqn, piloted by F/Lt George 'Buzz' Beurling in 1944. See page 5 for more coverage of 'The Nats'.*

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### Page 3

## Editorial

Steve Sauvé, C#0323 [RT@ipmscanada.com](mailto:RT@ipmscanada.com)

### About the last issue...

Okay, nobody wrote in demanding our heads on pikes outside the castle walls, so that's a good thing. Why, you may ask? The last issue of **RT** got to you about a month late (*I think this is the first time this has happened since I came back onboard as editor*). Nevertheless, I want to extend my apologies to you all on that delay. We had a few small problems that tumbled together which resulted in getting the decals finalized, printed and delivered, along with the **RT** going through the same kind of last-minute challenges. The articles and the decals generated favourable comments from the members who provided their feedback (*we love hearing from you!*), and I want to thank you for your understanding and patience while we work these things out and try and keep the trains running on time. As you can see on page 36 there aren't that many of us on the National Executive, so we do what we can with the resources and time we have available. See Bob Mig's National Director's column for more on this.

### The NATS!

The IPMS/USA 2018 National Convention, held in Phoenix, Arizona, is now a pleasant memory. I managed to make the trip and had a great time. The organizers worked hard to give us a great event, the vendors provided many options to help strengthen the US economy, while the contest room showed us how much better our own modelling could be. The best part for me was reconnecting with old friends and even making new friends at the Nats. During the show I'd realized that there were several old friends that I saw and talked to only once, which was really disappointing. The same thing happened with new folks. For example I met a nice guy named Anthony from Queens, NY; we were grabbing breakfast before heading to the Pima Air and Space Museum and started chatting. It turned out that he was a Nats first-timer and he didn't know anybody at the show, so we continued to shoot the breeze on the way to Pima and then spent Thursday avoiding a brutal death in the murderous outdoor heat at the museum. When we got back to the hotel the plan was to

clean up and then meet up at the bar where I could introduce him to a few people. I got down there, joined a few fine reprobates from Albany for a quick pint while waiting for my new friend to show up, and then... nothing. I'm not sure where the wires got crossed, and I don't know where Anthony ended up, but we never crossed paths again during the Nats. Hopefully we'll meet up again in Chattanooga in 2019.

### **More of us is better than one of us...**

Pulling together some of the articles for **RT** can involve a lot of back and forth discussion and cooperation with the contributor. All **RT** writers will back me on that one. At some point during this process, occasionally a small light will go on in my editorial mind, and I'll get someone to pound together a support piece to compliment the main article. In the case of this issue, which is admittedly tank-heavy for once, the Leopard C2 article by Paul Colterman of New Brunswick, got some help from former CAF tanker, Anthony Sowards, of IPMS Edmonton. Anthony generously hopped on board to help add detailed reference material on the vehicle. Then I convinced Ed Storey of Ottawa to put together a short historical piece on the background of this complicated vehicle family. The result is a very solid trio of build and historical articles on this important and somewhat unique variant of the Leopard. This is all thanks to the cooperative contributions of the three dispersed members of our organization. To me, this is IPMS Canada at its best.

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## National Director

Bob Migliardi, C#0490 [box626@ipmscanada.com](mailto:box626@ipmscanada.com)

The members have spoken! Well... some of them have. A while ago I asked, in *beaveRTales* and in this column, whether IPMS Canada should consider transitioning into a democratically elected organization complete with constitution and by-laws, or if we should carry on as we have for the past fifty plus years. Of the replies we received (*you can read some in the July, 2018 edition of beaveRTales*), every single one opted for maintaining the status quo. So, I guess you're stuck with me for a while longer! Still, we will eventually need replacements for the various Exec positions. The bureaucrats call this "succession planning".

So help us out here. I'd rather not hang on beyond my "best by" date like Ceaușescu, or Gaddafi. Do you think you could contribute to the running of IPMS Canada? And no, don't expect to be National Director... at least not yet! We wouldn't mind a few people who could take on 'assistant' roles to learn the ropes (*yes, we do have our own peculiar way of doing things*). Some help with the website would be welcome. And someone to assist our RT editor (*I think he takes it with cream and sugar*). If you have an offbeat sense of humour, maybe you could help a bit by scrounging up *beaveRTales* material as an assistant 'beaver editor'. And there are a couple of projects that I'd like to get going, but haven't the time to do it myself.

If you're interested, there are a few qualifications we're looking for. Ideally you've been an IPMS Canada member for a while, and we know you... or at least know a bit about you. You should be keen to help IPMS Canada thrive and grow nationally. You would be expected to attend the monthly Exec meetings – by Skype if you're outside the Ottawa area. If you have some particular skills that can be applied to some aspect of the IPMS Canada executive, that's great. If you'd just like to help in whatever capacity you can, that's also fine. If the fit works out and we think you'd be a good addition to the team, we can ease you into it with some things to try your hand on. Now, don't all of you overload our e-mailbox with offers to help. But please give it some thought, and if you find the prospect interesting, do contact us at [box626@ipmscanada.com](mailto:box626@ipmscanada.com).

There was also the question of IPMS Canada creating an "Associate Membership". We explained the proposition on the IPMS Canada Facebook page a while ago, and while there weren't a lot of replies or comments, what was posted was overwhelmingly positive. Interestingly enough, a number seemed to be from modellers overseas. And of course that makes a lot of sense. Because of the heavy postage costs, IPMS Canada overseas membership is rather pricey... some would say exorbitant! An Associate Membership would provide a way to participate in IPMS Canada for a nominal cost. While they would not receive the great modelling info in RT, they could at least follow our shenanigans in *beaveRTales*. This is something we will brainstorm in the coming months and we'll let you know what we decide to do.

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## Chapter & Member Liaison

Kerry Traynor, C#4083 [CML@ipmscanada.com](mailto:CML@ipmscanada.com)

"So Kerry, how is your summer going?" Well, let me tell ya...

### I Have to Curb the Enthusiasm

So, for the first time in a long time, I am involved in a one-year 'challenge' build. One evening I was enjoying the company of some modelling friends in Ottawa when the idea of a one-year build came up. The aircraft of choice? Bf 110's. Models to be complete by May 2019. Sure I said, count me in. I know squat about 110's but, hey, how hard could it be?

As one of the circle was not enthused about 110's, and was not going to participate in the build, the topic of a second one-year build arises. The aircraft of choice? Spitfires. Coincidentally, the non-participant's all-time favourite aircraft. So, I ask, a second build? Yeah! It'll be great and it won't need to be finished until August 2019; lots of time. Sure I said, count me in. After all, how hard can it be?

Fast forward to August in the heat of Phoenix, Arizona; same guys plus a few more. Location: a steak house. One friend expresses that if we're doing Spitfires, then we also need to do 109's. Wait; as in Bf 109? Yeah! It'll be great and it won't need to be finished until August 2019; lots of time. Sure I said...

So, time to get the modelling mojo going. Stay tuned, because this could be fun!

### **Checking One off of the Bucket List**

One of the items on my bucket list was to fly in a World War Two aircraft. Well, the opportunity arose while my wife and I were visiting our daughter in Gatineau, Quebec. It turned out that a B-25J Mitchell was visiting Vintage Wings at the Gatineau Airport at the same time as our visit. A quick check on seat availability and bingo, I am booked for a flight.

For part of the flight I sat up in the bombardier's position located in the nose of the aircraft and for the rest of the flight I was seated just behind the cockpit. The day was perfect for flying and the whole experience from start to finish was awesome. Not a cheap endeavour, but so totally worth it.

Take care,

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# U.S.Nats 2018

**Photos and text by  
Steve Sauvé, RT Editor**

The IPMS/USA 2018 National Convention (the Nats) took place in Phoenix, Arizona at the downtown Phoenix Convention Center. This is the third time that the IPMS Craig Hewitt chapter has hosted the Nats and, except for the long lines at registration on Wednesday, everything seemed to run pretty smoothly.

The big contest subject numbers broke down as follows:

- ☐☐Contest entrants: **424**
- ☐☐Entries in contest: **2,723**
- ☐☐Display-only models: **800**
- ☐☐Junior entries: **70**
- ☐☐Aircraft: **670**
- ☐☐Military vehicles: **501**
- ☐☐Ships: **143**
- ☐☐Automotive: **257**
- ☐☐Space and Sci-Fi: **168**
- ☐☐Figures: **237**
- ☐☐Dioramas: **169**
- ☐☐Miscellaneous: **508**

The Canadian content entry numbers were up a bit from last year. We found a total of 21 models that we felt qualified to be judged for the award. *(We also figured out later that there was at least one more entry that we missed which, ironically, won the 'Best Diorama' award. Modellers have to sign up, folks; we can't find all of them on our own.)*

Our crack all-volunteer judging team (see below) went through them and eventually selected the spectacular 1:32 Spitfire Mk.IXc, of 401 Sqn, RCAF, which was built by Wolf Buddee of Abbotsford BC. Wolf received the highly-coveted IPMS Canada 'Best Canadian Subject' award; an engraved drinking vessel, capable of holding a variety of cold or hot beverages to suit the needs of the winner.

A few Canadians got brave and took in the all-day Pima Air and Space Museum on Thursday. A very impressive array of aircraft and displays, but the heat and sun were brutally tough on everybody, especially those from cooler climes. Do yourself a favour and visit this museum in January or February.

A first for many was experiencing a 'haboob' (an intense dust storm) that hit the south end of Phoenix on Thursday evening. Except for watching some serious winds whipping the trees and street signs around quite a lot, it didn't seem to affect the fun downtown. At least from the indoor viewpoint of the hotel bar!

Despite the great models on the tables and the vendors to help provide you with hopes and dreams for future workbench conquests, we still like to think that most attendees find the in-person social aspects of the Nats to be a highly-enjoyable part of the trip. A few people asked whether or not there would be a 'Royal Canadian Beer Blast' at Phoenix. Alas, with

the passing years, greying of hair, more legal exposure for the hosting clubs, and generally having to accept that we can't party like we used to, these 'kickin' it old school' blow-outs are a thing of the past that have left some great party memories. Social gatherings still happen, of course, but they're generally tied to hotel bar hours, and/or when the beer supply in your hotel room runs out. We'll try to put something low-key and simple together for IPMS Canada members and friends of IPMS Canada to come together in Chattanooga in 2019 (Maybe another 'red shirt' Friday gathering at the main hotel bar?). We'll keep you apprised through our various media outlets.

On the following pages you'll see the models that were judged for the Best Canadian Subject, along with some comments from folks that provided them to us for publication here. If you're looking at competing at a future Nats please consider building something for the award.

In 2019 the Nats will be in Chattanooga, Tennessee; a first for this group to host the big event. We hope to see you there! If you're going to be there and want to get involved with helping to make this award happen, please contact us at [box626@ipmscanada.com](mailto:box626@ipmscanada.com).

### **...Build details from Wolf's contest entry form at the Nats:**

- The cockpit was detailed with BarracudaCast resin pieces, plus some Eduard photo-etch and Waldron placards.**
- All wiring, pneumatic, hydraulic, and electrical leads added from copper & lead wire.**
- Instrument panel modified to accept Airscale instrument decals. The blind flying panel instrument bezels were made from copper wire.**
- RB Productions seatbelts.**
- Rudder cables added.**
- Tailwheel assembly rebuilt; it fully castors and the tow bar attachments were added.**
- Main landing gear was detailed with scratch-built details, including brake lines, retaining blocks for brake lines, nut and bolt detail and kit-supplied wheel covers added. BarracudaCast wheels. Photo-etch fasteners were added to each wheel cover.**
- Gun camera was scratch-built and added to starboard wing leading edge.**
- Master Brass cannon barrels added.**
- Radiator flap braces, actuators, linkages scratch-built.**
- Gun heating ducts scratch-built.**
- Wingtip position lights replaced with clear items.**
- Engine firewall plumbed & wired.**
- Engine completely detailed with fuel, oil, pneumatic, & electrical lines.**
- Throttle, supercharger, ignition, and carburetor linkages added.**
- Coolant elbows from cylinder heads to glycol header tank added & clamps scratch-built. Ignition leads, conduits & fuel primer lines added.**
- Air intake assembly & oil tank detailed.**
- All national insignia, squadron codes, serial numbers were masked and painted.**

More complete information can be found online at:

[forum.largescaleplanes.com/index.php?/topic/32822-tamias-big-spit/](http://forum.largescaleplanes.com/index.php?/topic/32822-tamias-big-spit/)

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# A 1:35 Canadian Leopard C2 MEXAS Mine Roller Tank in Afghanistan

by Paul Colterman  
C#3682  
Pointe Verte NB

## Introduction

This is my build of the excellent 1:35 Canadian Leopard C2 MEXAS kit from Takom. Along with the basic kit I utilized numerous aftermarket parts to strive for a Canadian Army "Combat" MEXAS, as one cannot be built straight from the box.

For background information on MEXAS (the Modular EXpandable Armour System) please visit:

[en.wikipedia.org/wiki/MEXAS](http://en.wikipedia.org/wiki/MEXAS)

[army-guide.com/eng/product3847.html](http://army-guide.com/eng/product3847.html)

I added sets from Legend, lenses from SKP Model, Echelon decals, and finally the Mine Roller assembly from Perfect Scale Modellbau (PSM) as well as using Anthony Seward's Canadian Leopard Project DVD set as my main reference on the build.

Starting with the list of numerous tweaks recommended by Anthony Seward's (see the sidebar later in this article and in the DVD set listed in the References section) to correct the Takom kit, I set out to build a representation of an MBT from combat during Canada's mission in Afghanistan but not a model of any specific vehicle. I did use markings for 1st Troop of 'B' Squadron, of Lord Strathcona's Horse (Royal Canadians) on the build.

## The build starts...

Assembly started with the kit-supplied tracks. Orochi supplied the tracks to Takom and are a gem of a set to build. Each side has approximately 75 links and requires ZERO glue.

After assembly the tracks are rather sturdy and hold up well to repeated handling. Since most of the track run is hidden by the side skirt armour I didn't worry too much about the accuracy of the tracks but they do look rather close to what is seen in my references.

## Hull and Turret construction

The basic hull and turret construction came next and I started the corrections there, and this is where the brunt of corrections are made on this kit.

Out came the Excellent Legend update set specifically for the Takom kit and it made a world of difference. Adding the Electronic Counter Measures (ECM) mounts and corrected panels on the turret as well as a myriad of other photo-etch bits really make a difference in the basic look of the MEXAS. I also added wire handles to replace the moulded-on bumps Takom supplies.

## The hard work - the Mine Roller

Next came the most difficult and trying part of the build, the Mine Roller kit. While I am not new to using resin parts and conversions, this set really tested my abilities. Everything, even down to the chains, in the kit is reproduced in resin and the links have to be assembled individually! Although I did have to source my own chain, for the 'dog bone' between the roller assemblies out front.

The aftermarket mine roller kit is where I hit the most corrections I made in the build. I added everything from the 'L' and 'R' on each arm (which are cast onto the real thing), then the disconnect rods on the main bracket and also the (I assume) adjustment rods on the centre of each arm body.

## **MEXAS Armour upgrade**

I also learned that even though the kit is designed and marketed for both the Leopard 1 and 2, the MEXAS armour was not considered in the mine roller aftermarket kit's design. After much trimming, test-fitting, sanding, and more trimming, I finally had the basic assembly mounted to the front of the Leopard. This now meant having to remove and relocate the headlight mounts in the kit to clear the added armour around the bracket. At this point I also added chains to the assembly according to reference photos. I also added wiring for the lights.

## **External Additions**

The exterior of these tanks is where creativity can really show. There is a ton of storage in the Legend set, to the point I only utilized about HALF the set. I did keep careful watch on my references to make sure I didn't overdo the stowage. The Legend sets also include etch parts to make the exterior air conditioning units found on the MEXAS-fitted Leopards in-theatre, down to the hoses underneath the unit, a very nice touch indeed. Also the Legend sets offer replacement parts for most of the optics on the turret hull as Takom moulded them a bit too small.

At this point all of the additional photo-etch was added to the MEXAS armour and the jerrycan mounts were added. This is where I found an interesting complication. Legend has the photo-etch mounts for the jerrycans on the back of the turret in one aftermarket set, but with no cans, and resin cans in another set with the mounts moulded as part of the cans to make an entire assembly. Learn from me and choose which one to use early on. I chose to use the etch jerrycan mounts from the Legend upgrade set with the plain cans from the Legend stowage set.

## **Gun Barrel replacement**

I also picked up the Voyager metal barrel for the Leopard but for the life of me I could not get it to stay together!

Soldering was out of the question as the very front and very back of their barrel is aluminum. Thankfully the set is fairly inexpensive so I left it off. Reverting to using the kit-supplied barrel takes a bit of work on the seams and a light touch with a sander.

I also followed the tweak list (see later in the article) in Anthony Sowards' MEXAS reference DVDs and replaced the Muzzle Reference Sensor (MRS) moulded to the barrel with a small piece of brass rod that is approximately 50% larger than what it replaced.

Now comes my favourite part of armour modelling –

## **Painting and Weathering**

On this build I used Ammo by Mig products exclusively ([migjimenez.com](http://migjimenez.com)). Starting by pre-shading with matt black(A.Mig-046), I followed with the basic colour of NATO Green.(A.Mig-084)

After the base dried I started post shading and highlights of the same colour with white added, focusing on panel centres and high points.

Once I was happy I started with a 'filter' (see sidebar discussion on filters vs. washes) of a very heavily thinned NATO Camouflage Wash (A.Mig-1008), followed with a 'pin wash' of the same colour, undiluted. A pin wash being a colour that is close to the main colour of the model's base coat of paint, but a bit darker. It is applied with a pin or very small brush to specific areas like hatches, handles, etc. I applied this sequence three or four times to build it up slowly and carefully to get the final 'patina' I was after.

The main weathering was done with Dust (A.MIG-036) paint, misted on from about 10" away, not forgetting to spray from below the model so the paint lands like the real dust on the real vehicle. Once I was content I started adding pigments. I used Middle East Dust (A.Mig-3018) and Sand (A.Mig-3012) pigments as well as Rain Effects Streaks (A.Mig-1208) and Streaking Grime (A.Mig-1207) to blend everything together.

To finish it all off I added the final stowage items, consisting of ration boxes, a plastic 'Coleman' food and drink cooler, radio antennas with water bottle chem-light holders (from the Legend stowage set), tow cables, and finally the great lenses for the headlights and tail lights from SKP Model.

## **Conclusion**

While not a perfect build by any means I am rather happy with the result. Being a newcomer to armour modelling I am finding a lot of pleasure in attempting a realistic and convincing build of a great Canadian piece of equipment.

## **Acknowledgement**

I would also like to give thanks to Anthony Sowards of Edmonton, whose input during the build was invaluable to making this model better than my last.

## **References**

☐☐ [leopardclub.ca](http://leopardclub.ca)

☐☐ Anthony Sowards' Canadian Leopard Project DVD set. Available from Trackjam Models - [trackjam.com/anthonysewards/AS002.htm](http://trackjam.com/anthonysewards/AS002.htm)

### **About the author:**

**Paul Colterman is a retired member of the CAF, last serving at 4 Wing Cold Lake as a Plumbing/Heating Technician, now living in New Brunswick. He began building models at age seven and was known for being a car guy, delving into the realm of WW II ships about 8-10 years ago. Seeking a new challenge he picked up an old Panzer kit and the rest is history. Spending most of his time building armour he still builds a few ships as well. He is always looking for ways to be more active in the modelling community. This is his first article for RT.**

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# TAKOM 1:35 Leopard C2 Tweak List

by Anthony Swards, C#3808, Edmonton AB, (IPMS Edmonton):

*(Editor's note - Anthony's list of tweaks and fixes should be considered as a great starting point for your own Leopard research and modelling. Finding photos that illustrate the detailed points below will help you to better understand the many small changes needed to create a proper CAF Leopard C2. See the Reference section of the preceding article for a source of a comprehensive DVD of CAF Leopard material)*

- 1) The MRS (muzzle reference sensor) located at the tip of the main gun barrel is too small and is the wrong size. It should be 50% bigger than it is on the kit. This problem was nicely addressed in the resin Leopard update set produced by Legends Models.
- 2) The main gun canvas (or plasticized canvas on some later-service vehicles) mantlet cover is incorrect for a C2 version. It should have Velcro-edged panels for the vehicle maintainers to gain access to work on the mantlet. The mantlet 'sim-fire' plate should be 25% larger and have L-shaped brackets added.
- 3) The commander's TRP independent panoramic sight cover is under-sized, and needs to be 25% larger. The TRP rubber seals need to be split apart to look like two flat rings.
- 4) The turret top should have a coat of anti-skid finish added.
- 5) The turret-mounted smoke grenade launchers are missing the retaining chains for the rubber caps and the launcher wiring.
- 6) The crew commander's area is missing one of the episcopes. Both turret hatches are missing the combat lock hinges.
- 7) The antenna mounting units (AMU's) are not the correct type for a Canadian vehicle, they will need to be replaced to represent the type seen in photos of CAF vehicles.
- 8) The turret is missing the flag post mounts on the left and right sides. These are located near the AMU's.
- 9) The GPS antenna and mount is wrong and will need to be modified. Both will need to be reduced in size as the kit part is larger than the actual scale version.
- 10) The top cover of the rear bins on the back of the turret require a coat of anti-skid finish.
- 11) The turret is missing the antenna stowage bag located under the bin at the back. (not all Leopards had them mounted)
- 12) The kit-supplied jerry cans are incorrect in shape in general; they are too high and narrow.
- 13) The road wheels require backing plates as there is zero detail provided on the back sides of the wheels. This is visible on the front and rear wheels on each side. The wheels hubs are the wrong shape. Leopard Club makes an excellent replacement set of wheels, item no. LW-012. You can find these at [leopardclub.ca](http://leopardclub.ca).
- 14) The armoured covers for the driver's episcopes require the cleaning wiper cable to be added.
- 15) The kit is missing the fording plug posts, which are located on the left side of the upper front hull.
- 16) The hull is missing the electrical cables for the headlights and horn.
- 17) The tow cables' hull attachment points are too thick; thinning down the kit parts or using photo-etch replacements would fix this problem.
- 18) The driver's tool box, mounted on the rear of the hull, is missing the locking chain and stowage bracket; the box hinges are also incorrect.
- 19) The track adjuster tool mounted on the rear deck is wrong for a C2; Canada operated with a modified type due to the MEXAS side armour. Note that it was never mounted there; it was mounted on the left rear fender tool mount.

20) The gun crutch (also called a travel lock) is undersized by 25%.

21) The tank telephone handle, located at the rear end of the hull on the right side of the vehicle, will need to be replaced. They are very noticeably L-angled.

22) Drill out the gun crutch alternate position brackets on the upper rear hull. The bracket is found to the rear of the hull; the crutch holds the main gun barrel while the vehicle is in transit.

23) The rear side skirts are missing the half-moon brackets on both sides of the rear hull.

24) The turret top C6 7.62 mm machine gun mount requires a gun travel lock. Note that there are a couple of C6 variations that can be used on the Leopard. Such as spade grips or the standard wooden buttstock. The kit MG barrel is missing the barrel carrying handle.

### **Incorrect markings in the kit instructions and some other observations**

The second set of markings supplied in the kit is incorrect, as they mention C Sqn, Royal Canadian Dragoons, call sign **34A**. This tank, CFR 85-78072, belonged to A Sqn 2nd troop in 2003, thus applying the call sign of **12A** on the back bin would be correct. This is a minor bit of confusion but no big worries.

Also, there should have been painting notes for the **red-painted guide markers** provided for personnel mounting or dismounting the hull. The side skirt hinges above each foot step opening should each be a section painted red; this is a visual aid to help locate the foot holds in varying light conditions. The road wheel hub centre plugs should be painted red as well.

The issued vehicle tool wooden handles should be in light mahogany wood colour with a clear protective finish, not a dark yellow colour. All metal areas on the tools should be a very dark natural gunmetal or steel.

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# A short history of the Canadian Leopard C2 Tank

by Ed Storey, C#2712

Ottawa, ON

with additional information and photos

by Anthony Swards, C#3808

Edmonton AB

## Background story

The Leopard C2 Main Battle Tank (MBT) was a Canadian upgrade of the Krauss-Maffei manufactured German Leopard 1A3. Canada had originally purchased 127 Leopard 1A3 MBTs in 1978 and these were designated as Leopard C1 in CAF service. In order to extend the service life of the Canadian Leopard C1 tanks an announcement was made in 1996 that 114 would be upgraded to the C2 standard (although in the end only 66 C2's were produced), and this was completed in 2001. In 2003 there were plans for the CAF to replace the Leopard with the wheeled M1128 Stryker Mobile Gun System (MGS), which was based on the Canadian LAV III armoured vehicle. However, even after several Leopard C2s had either been sold or scrapped as targets, the MGS project plan was cancelled in 2006.

## C2 production and dispositions

A total of 123 Leopard 1A5 turrets were purchased which would have allowed for all of the 114 Canadian C1 tanks to be fitted with the new turret, although ultimately only 66 tanks were completed to the C2 standard. The Leopard C2 official roll out took place on 23 November, 1999, at CFB Gagetown, New Brunswick, at the Royal Canadian Armoured School. Of the remaining C2 turrets, five were used as gunnery training turrets, two as complete spares for the EMES 18 fire control system and two as maintenance test beds. The status of the remaining turrets is not known as of this writing, but it is likely that some of them became the source of spare parts for the operational tank fleet.

## Leopard C2 modifications

The Leopard C2 update involved replacing the existing Canadian C1 turrets with complete German Army Leopard 1A5 turrets purchased from German Ministry of Defence. The Leopard 1A5 turret was fitted with the following Observation, Sighting and Fire Control Equipment:

- Krupp-Atlas Elektronik EMES 18 Integrated Fire Control System,
- The SABCA system which consisted of a:
  - TZF-3A Secondary Fire Control System,
  - TRP-5A Commander's Fire Control System with TEW2A Night Fire Control System, and
  - PZB-200 passive aiming and observation device,
- AN/PVS-501 Driver's Night Observation device, and
- AN/VVS-502 turret-mounted Night Observation device

The German gun barrels in the Leopard 1A5 turrets were replaced with Canadian Leopard C1 original L7A3 105 mm guns barrels, which were in better condition. The new turret's ballistic computers were reprogrammed to match the 105 mm Canadian ammunition. The L7A3 105 mm rifled gun is fully-stabilized and can fire while the tank is on the move. A total of 59 rounds are carried with ammunition types consisting of:

- Armour-Piercing Fin Stabilized Discarding Sabot (APFSDS),
- High Explosive Squash Head (HESH) and
- White Phosphorus Smoke (WP).

Secondary armament consisted of two C6 7.62 mm machine guns; one mounted coaxially with the main gun, while the other was located on top of the turret at the tank commander's or the loader's position. Both weapons had a combined total of 5500 rounds of 7.62 mm ammunition at their disposal. There were also eight smoke or high-explosive grenade launchers with two clusters of four launchers mounted in a row on each side of the turret.

The Leopard 1A5 turret rebuild was carried out in Germany and commenced in June 1997 with the first turret being shipped to Canada in December 1997. Prime contractor was the German company GLS (Gesellschaft für logistischen Service mbH), a specialist in manufacturing spare parts for armoured wheeled and tracked vehicles which also creates modernization programmes for armoured tracked vehicles. Total value of the C2 contract was estimated to be C\$145 million. The unneeded Leopard 1A5 chassis were retained by GLS and sold as spares. Fifty-five of the original Leopard C1 turrets and some of the surplus C1 hulls were sold by Canada to Australia.

GLS refurbished the 1A5 turret, removed the German 105 mm gun, modified the turret where required, and installed the new Canadian radios, Radio Sets RT-504 and RT-841/TRC-77, ordered under the CAF Tactical Command, Control and Communications System (TCCS) project. The turrets were then shipped to Canada where the Canadian Forces 202 Workshop in Montreal installed the 105 mm L7A3 barrels and mounted the modified turret on the existing C1 chassis for final delivery back to the army. Approximately six turrets a month were upgraded with each turret taking six months to modify. The program was completed by late 2001.

## **Leopard C2 details**

The Leopard C2 tank is powered by the MTU MB 838 CaM-500 multi-fuel diesel, developing 830 hp. This gives the vehicle a top speed of 65 km/h and an operating range of 600 km. Engine and transmission are mated in one block and can be replaced within 20 minutes in field conditions. The Leopard C2 can be fitted with a dozer blade, mine plough or mine roller and is also capable of submerged fording. The C2 can be airlifted by the CC-177 (C-17) or Il-76 transport aircraft. The upgraded Leopard C2 has increased armour protection; it is fitted with Nuclear, Biological, Chemical (NBC) protection and an automatic and manually-actuated Halon fire suppression system.

The Leopard C2 was assigned the Canadian Forces Equipment Configuration Code (ECC) 116103 with the vehicles falling within the Canadian Forces Registration (CFR) number range 78-85049 to 78-85127. The Leopard C2 Driver Trainer was ECC 116104, with vehicles within the CFR 78-85126 to 78-85162 range, and the C2 Hull without turret was ECC 116105, falling within the CFR 78-85051 to 78-85130 range.

## **Combat deployment**

In the fall of 2006 Canada sent a squadron of Lord Strathcona's Horse (Royal Canadians) to Afghanistan. The squadron was equipped with fifteen Leopard C2 tanks (plus two spares as an operational reserve) with MEXAS appliqué armour, as well as four Taurus armoured recovery vehicles (ARV) and four Badger armoured engineer vehicles (AEV).

## **MEXAS**

The Modular Expandable Armor System (MEXAS) is a composite armour system of specialized Nylon covering a layer of ceramic tiles which are backed by Kevlar. This was from the Kevlar developed by the German company IBD Deisenroth Engineering. MEXAS also includes a spall-liner and, depending on the user's requirements, a mine-protection kit. MEXAS was introduced in 1994 and has been applied on over 20,000 combat vehicles worldwide. The successor of MEXAS is the Advanced Modular Armor Protection (AMAP). The Leopard C2 was equipped with the MEXAS (Heavy) version which provided additional protection against Rocket Propelled Grenades (RPGs) armed with High Explosive Anti-Tank (HEAT) warheads and Improvised Explosive Devices (IEDs).

## **Damn, this tank is hot!**

The first squadron deployed just with the up-armoured Leopard C2 MEXAS. After an initial assessment of the performance of the Leopard C2 MEXAS in Afghanistan, it was determined that the lack of adequate air conditioning in them (essential in the searing heat of Afghanistan) was degrading the tank crew's war fighting ability. To combat the heat, in mid-July 2007 a thermal cover (more of a heat shield) for the turret and hull, and an active cooling unit with crew individual cooling vests was added to the tanks.

## **The end of the C2 and the debut of the Leopard 2 in the Canadian Army**

In April 2007 Canada decided to invest in Leopard 2 tanks with the first new Leopard 2A6M arriving in August 2007, entering combat operations in September in Afghanistan.

With the need for a new tank fleet the Canadian government purchased more Leopard 2's. The CAF now operates a mixed fleet of Leopard 2A4's (unmodified tanks used for training), with 2A4M's and 2A6M's as operational vehicles. The majority are based in Alberta, Canada with the Lord Strathcona's Horse (Royal Canadians ) and with C Squadron, The Royal Canadian Dragoons at CFB Gagetown.

The Leopard C2's worked hard and have trained many CAF armoured crewman over the years and helped them prepare for multiple tours in Afghanistan. The last Leopard C2's still in operation were out west with the Strathconas, used for mounting the specialized implements like the mine roller, mine plough and the dozer blade. With the delivery of the Leopard 2 Tank Mobility Implements (the improved mine plough, mine rollers and dozer blade) in the fall of 2017, the last Leopard C2 tanks were parked for good in the spring of 2018, awaiting potential sale to another country.

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# The 'Italian Job' - a 1/48 Macchi 205 'Veltro'

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I think I can count on one hand, the number of non-American aircraft models I have built during my modelling career. A couple of German fighters and a couple of Japanese fighters completed my foray into all things foreign when it came to modelling aircraft from other countries. Recently, I became intrigued with the Macchi 205 Veltro, if only because I had read of the precise construction and tolerances the Italian aircraft engineers came up with before the start of World War II and as they applied to their fighter aircraft. Conducting extensive ops in desert conditions, the aircraft manufacturers and engineers soon realized what blowing sand can do to fine tolerances. Nonetheless, I thought it fitting that I include an Italian representative in my collection and Hasegawa provided me with that outlet in 1/48 scale with kit #09243. I also used the Jaguar Macchi 205 centre wheel well plug, True Details #48454 resin cockpit set and Third Group Decals #48-013.

A friend of mine had the kit and after reasonable price negotiations, the kit became mine. Moulded in medium grey plastic, it had all the parts needed to make a fine model of it, however I went a couple of steps further with the plug for the centre section of the main gear wheel well, as well as the aftermarket cockpit interior. The Third Group decals sheet provided the markings for an Italian aircraft that had a mid-war German paint scheme on it. Conveniently, my friend had stuffed those two sets and decals in the box so it was off to the bench to construct the sleek fighter. I've not been able to determine just why that particular Veltro sported a German scheme; however it evidently was due to a Luftwaffe directive.

## The Build begins...

To add a bit of animation to the model, **Photo 1**, I removed the rudder from the fin and the elevators from the stabilizers as they would later be shown off-set and down. Testors Model Master Pale Green, FS 34227 was a good match for Italian Interior Green. Detail painting popped the cockpit components and the fuselage plug. I used Mike Grant's individual instrument decals for the panel, **Photo 2**. In **Photo 3**, the True Details sidewalls are in place and it was time to button up the fuselage halves. A little cutting and adjusting made for a good fit and **Photo 4** shows the exposed wheel well centre plug secured.

After the fuselage halves were mated, I used Squadron White Putty to fill the wing-to-fuselage seams, **Photo 5**. Having had some tricky sanding to perform after gluing the fuselage halves together, I lost some detail, most notably some of the small cowling teardrop-shaped 'bumps'. The solution is visible in **Photo 6** as I found suitable replacements from CMK #7031 Navigation Lights set.

Also note the small circular air intake damper that I made from thin sheet plastic. I added small diameter plastic tubing 'gun barrels' to the gun troughs and one is visible in the photo. After adding an aiming 'pipper' on the top of the cowling, landing gear legs and tail wheel, and wing guns, I vacuformed a new canopy and used the kit canopy as a mask prior to the painting process, **Photo 7**.

**Photo 8** shows the belly radiator glued in place with chunks of soft foam serving as wheel well masks. I also stuffed some of the foam, sponge-like material into the open areas, front and back, on the radiator when I applied the finish coat of Model Master RLM 76 Hellblau in **Photo 9**.

The rear of the Veltro canopy was not a tight fit on the prototype, a rather unusual feature on that aircraft, and in **Photo 10** one can see the small bits of green foam that I stuffed into the openings prior to spraying. To mark out the fuselage camouflage separation, I drew on the pattern with a pencil line, also visible in the photo.

## Painting

The camouflage spraying is well underway in **Photo 11**. I taped the elevators to the stabilizers and masked both so the pattern would line up properly. It took a couple of spray sessions to tweak the camouflage separations to scale.

**Photos 12 through 16** show the completed German camouflage scheme. Using a very small opening on my Binks airbrush, I applied the 'mottling dots' along the fuselage sides. **Photo 14** reveals the openings on the rear of the canopy. I can't help but wonder what those openings would have allowed to have happened, were the fighter hit during combat, with perhaps a fire starting in the cockpit and the suction causing the flames to spread toward the pilot.

All of my work on the exposed centre wheel well section shows up well in **Photo 15**. I read that some Velcro centre wheel well sections were covered with a sheet metal insert while others were left exposed.

When I attempted to gloss-coat the model, using Testors Glosscote, I evidently used too much of their Universal thinner because no evidence of gloss appeared as I sprayed. I then switched to Floquil Crystal Cote which glossed things up nicely, **Photo 16**.

An application of 'The Detailer' liquid Brown filled in between the baffles on the fuselage air intake but I would do more later. The venturi tube was installed on the right side of the fuselage and painted black, **Photo 17**. I masked and sprayed the white fuselage band, using Testors White enamel. Wheels and exhausts were added at that point as well. The landing gear yokes had been half-moulded to the legs with the other half having to be glued to the gear leg once the wheels were glued in place. Thankfully, the tiny seam on the front and back was easily removed with a gentle sanding.

Note also the small aiming 'pipper' that was made from thin florist's wire, glued in place and painted black. **Photo 18** shows the small fuselage tank fuel cap just behind the cockpit on the left side. I used the interior colour to paint the aft edges of the tail surfaces which would later receive the rudder and elevators. In **Photo 19** I took the time to add penciled panel lines to the model which broke up the overall camouflage scheme and also provided more detail to the model.

## Decals

I began applying the Third Group decals in **Photos 20 and 21**. The wing fasces were 'handed' and I'm glad I took the time to check that out before I began to soak and apply them.

A third of the prop spinner was painted white, **Photo 22**, and the remaining kit parts were gathered in their finished state for the photo. Note the small decal on the spinner as well as the 3<sup>rd</sup> Stormo markings on the landing gear doors. I sprayed the prop tips with Floquil Railbox Yellow prior to masking and spraying the blades using Floquil Engine Black.

## Final Assembly

Elevators were glued in place, initially, using Gator Grip White glue. I braced them with items from the workbench. When they dried, I applied Tenax 7R liquid cement to the undersides of the elevators to secure them for good, **Photo 23**. **Photo 24** shows the final touches being added to the kit. Notches in the wing tips would later receive white glue and then a coat of Tamiya Clear Green and Red to represent the navigation lights. A final coat of Tamiya Acrylic Clear gave them the 'lens shine'.

Main gear doors, a coat of Dullcote over the entire model, the retractable tail wheel doors, and the installation of the finished propeller left only the windshield and canopy to be installed.

I vacuformed the canopy, using 0.015" K & S clear plastic sheet with my trusty old Mattel Vacuform machine.

## Weathering

Slight weathering was accomplished with pastel exhaust staining as well as some accentuating on various panels and some streaking on the underside which gave it the look I wanted to portray. I added both black and brown pastel to the baffles on the air intake. A silver Prismacolor pencil showed off some scuffing on the left wing root and on the canopy rails as a finishing touch.

## Conclusion

For my first foray into one of Mussolini's prime fighter aircraft, this 'Italian Job' proved to be a satisfying build, and *'that's amore'*, my fellow modellers.

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