



The IPMS Canada



PARTNERSHIP *continued*

Following up on the National/Local Partnership information presented in the last issue, we thought you'd like to see one of the new Local Chapter Charters. No... there is no chapter in Creeping Stubble, Sask. In fact, as far as I know there is no Creeping Stubble, Sask. at all (please correct us if we're wrong). It's a fictitious place with a fictitious chapter, but it serves for illustration purposes.

The new guidelines information for establishing an official IPMS Canada chapter is now being circulated to the interested parties for their input. Once it is finalized, copies will go out to the existing chapters,

Well... there goes the neighbourhood!



Yes, I'm afraid it's true. The National Director, Bob Migliardi, and the Chapter Liaison Commissar, Kerry Traynor, are moving their columns from **RT** to right here at *beaveRTales*! 'Why?', you might well ask. Actually, there is some logic to it. **RT** editor Steve Sauvé has been redesigning the magazine... shuffling columns around, redesigning the cover, etc. Moving Bob and Kerry to *beaveRTales* will free up at least another page in **RT** for the stuff you *really* want to read... modelling articles!

We've also decided that they need not have a column in every issue, but should only provide some-

IPMS CANADA Chapter Charter

IPMS Creeping Stubble

Is hereby formally recognized as a Chapter of IPMS Canada, and thus affirmed to be in the global association of the International Plastic Modellers Society.

In accepting this recognition they agree to uphold the basic principles of the Society, adhere to the Chapter Rules and Guidance for a Fully Constituted IPMS Canada Chapter, and promote the hobby of scale modelling by sharing skills, information, and knowledge.

By Modellers, For Modellers
16 November 2019

Bob Migliardi
National Director
IPMS Canada



Kerry Traynor
Chapter Liaison
IPMS Canada

as well as those new groups that want to establish chapters, and when endorsed, the new charters will be signed, sealed, and delivered by uniformed government employees.

(for additional info see page 2)

thing when they have relevant information to pass on to the membership. And if need be, they can use more space than would be normally available in **RT**.

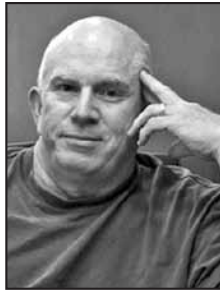
So... how's that? More modelling material in **RT**, and less administrative drivel at the same time! I guess the neighbourhood isn't looking so bad after all.



beaveRTales
is the e-newsletter
of IPMS Canada, which
supplements our printed
magazine, **RT**. To find out
more about our publications
or IPMS Canada, visit us at
www.ipmscanada.com

Chapter & Member Liaison

Kerry Traynor



You may remember reading in both **RT** and in earlier *beaverTales* that IPMS Canada was looking for ways to work together in promoting our hobby and IPMS Canada as well as strengthening the working relationship between IPMS Canada and the chapters. One of the areas that we are looking at is the promotion of IPMS Canada itself. One fact that stands out to us is that when we see our membership numbers increase, the benefits to both membership and chapters also increase.

An example of this is our decal sheets; this is a project that is highly popular with everyone, and obviously, it costs money. The number of decal projects we produce is directly related to the money available in the special projects budget. We have ONE stream of income; membership dues. So you can see why membership numbers are important to all members.

A factor that is worth mentioning is that the majority of IPMS Canada members are **NOT** affiliated with a chapter. A couple of years ago, we did a survey where most of the chapters (some chapters did not respond...) provided membership numbers, etc. and what we found was that on average, only 28% of the chapter membership were IPMS Canada members. If IPMS Canada and the chapters could work together to increase that number, everyone would benefit.

On another front, we are also reviewing the existing guidelines that IPMS Canada chapters use to govern their organizations to see if there are areas we can update and improve the guidelines so that both the chapters and IPMS Canada benefit. Some of the areas that are being reviewed include how a chapter maintains its IPMS credentials; the governance of the chapter; and chapter status reporting. I would like to stress that IPMS Canada is **NOT** looking to micro manage the chapters. However, IPMS Canada does have a responsibility to ensure that the chapters are following the guidelines which were originated by the International Plastic Modellers Society, and are followed by IPMS Canada and hence its chapters.

Of course, none of this moves forward without the participation of the chapters themselves. For a sense

of organization and clarity, I have broken out the 'goals' and what we hope to achieve as we move forward:

Goal 1 – Promotion of IPMS Canada

We would like to hear from all IPMS Canada members within the chapter on how we can promote membership in IPMS Canada. As mentioned, we are looking to increase membership in the National Branch, so we are looking for fresh ideas on how to do that.

We are also looking forward in hearing how the chapters can help us in promoting IPMS Canada at the 'grass roots' level.

Goal 2 – Promoting the Hobby

We would like to hear your ideas and thoughts on how we (both IPMS Canada together with the chapter) can better promote the hobby among the general public.

Goal 3 – Guidelines Update

The guidelines goal is really a two phase project. The first phase is to get your input on what the chapters would like to see with regard to how the chapters are established and organized. The second phase is where a draft copy of the document is circulated and commented on.

Here, we want to hear from you on how your chapter works, and comment on what would make it better. Please keep in mind that IPMS Canada would need to ensure that any suggestions could be applied to all chapters across the country.

Please note that we are looking at the guidelines document as a 'living' document and that this is not our only opportunity to review and edit the guidelines. If in the future one of the chapters comes up with an idea or questions, there will always be opportunity to make the document better.

Ideally we would like to see the guidelines document in place by the August 2020, and the membership and promotions aspect in place as soon as possible. So with this mind, if we could have your comments in by the March 30, 2020, that would be appreciated.

Please send all communications regarding Goals 1, 2 and 3 to: CML@ipmscanada.com.

If you have any questions or concerns about these projects, please do not hesitate to contact me at: CML@ipmscanada.com.

Kerry Traynor
Chapter and Member Liaison, IPMS Canada

From Gary Barling...

My article on the American M1917 tank based on the Meng Renault FT-17 appeared in **RT** Volume 41/4. As I noted in the article, “[The M1917] was a license-built near copy of the French Renault FT-17, and the US intended to equip the American Expeditionary Force in France with them.” Note the term, “near copy.” A list of the modifications made by the American builders include, for example: suspension amendments, relocation of external stowage, different cross-bracing on the tail and modified armour plating at the front of the



driver's compartment, among other changes. I incorporated most of the items on the list into my model. Then the build was done, the article was finished, photos taken and our Editor, Steve Sauvé, received the article/image package.

Later I found out that the doors on the turret rear were located differently from those on the Renault. I missed it completely, so I immediately incorporated the new information into the article (which you'll see on the **RT** page 14: text modifications and images 10 A, B and C).

However, while I got the article corrected, the original photos of the completed but incorrect model appeared at the end of the article. So what to do?... an explanation here in the hope that no one has gotten that far in their build yet.



This photo shows the M1917 model with the turret door panels moved to the correct side on the rear.

And speaking of Creeping Stubble...

With a future *beaveRTales* piece in mind, I was trying to find the old **RT** item which gave birth to this beloved IPMS Canada chapter, describing a typical chapter meeting. If memory serves (and it



often doesn't), I thought it appeared in an old *Uncle Freddie* column, as a 'letter' sent in by Wilf Chabun, though Ian Sibbald thinks it may have been from Larry Crawford. I just finished poring over the old UF columns but couldn't find any mention. Does anyone else remember it and where it might have been included? Unfortunately the **RT** index didn't help. Come on, whoever you are... fess up!

Uncommon RCAF Aircraft

The Bellanca Pacemaker

The Bellanca Pacemaker was renowned for its long range and reliability, as well as its heavy cargo capacity. A distinguishing feature of all Bellancas was the airfoil shape of the wing struts, which contributed additional lift and stability. In 1929, George Halde- man completed the first nonstop flight, New York to

If you'd like to add this military bush plane to your RCAF collection you have several options. In 1/72 scale there is a kit from Khee Kha which is vacu-form with some resin parts. With care it can build up into a very nice model, and in fact on the Khee Kha web- site (<http://opland-freeman.com/khee-kha/>) there is a long step-by-step building article. The kit comes with decals for several of 'Wop' May's aircraft produced by our own Thunderbird Models. The kit can be had with or without floats.

Alternately, there is an injection-moulded kit from Dora Wings (Ukraine) which looks very nice. It is available in several boxings. It comes with wheeled undercarriage, but Khee Kha offers a set of resin floats as a separate item if you want to model that version.

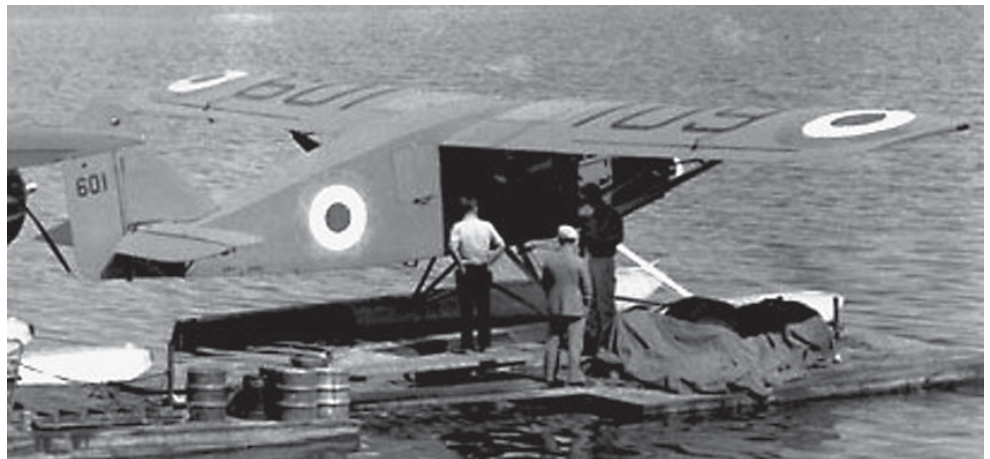


RCAF Pacemaker 609 on its wheeled undercarriage. These machines were reportedly finished overall yellow with black engine cowlings. This provides a good view of the broad airfoil struts.

Cuba in 12 hours, 56 minutes, flying an early CH-300 Pacemaker. In 1931, a Bellanca fitted with a Packard DR-980 diesel, piloted by Walter Lees and Frederick Brossy, set a record for staying aloft for 84 hours and 33 minutes without being refueled. This record was not broken until 55 years later. For all these reasons, the Pacemaker was a popular bush plane in Alaska and Canada. The RCAF operated 13 Pacemakers for aerial photography. Of the thirteen Pacemakers purchased by the RCAF, the last remained in service until 1940.

To build an RCAF version, you'll have to source the markings yourself. Do a little research, print out a set of drawings to scale, and figure out what size roundels and numbers/letters you'll need. An online search might yield something suitable from, e.g., Xtra-decal. Or... you could raise a huge public outcry for IPMS Canada to do some on one of our free decal sheets! If you want to take the easy way out you can always finish it as a civvy aircraft. Thunderbird Models offers its 'Wop' May decal sheet separately (www.thunderbirdmodels.com).

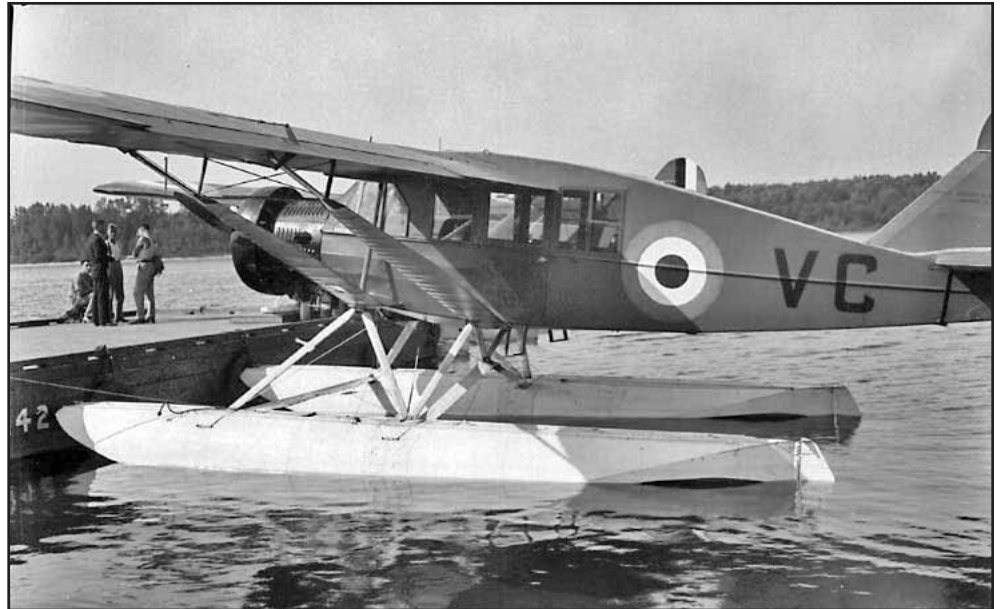
At present there are no kits of the CH-300 Pacemaker in 1/48. However... Dora Wings has announced and shown sprue layouts for a kit



Aircraft 601 on floats alongside a dock. Note the numbers atop the wing. The float would be unfinished natural metal.

which they say should appear late 2019 or early in 2020. Of course the same situation will exist re the RCAF markings. Perhaps once the kit is available some decal producers will provide markings for the RCAF or at least some bush plane operators.

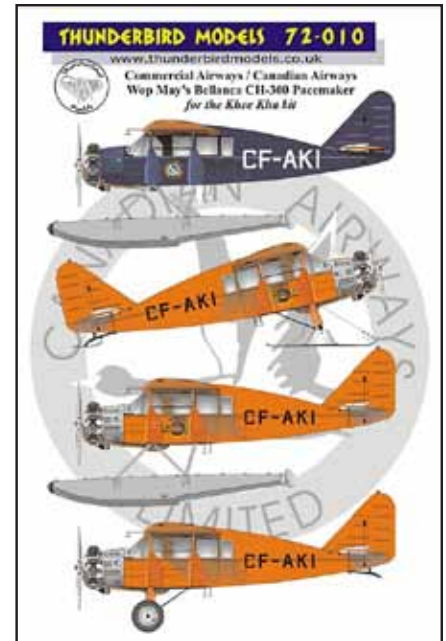
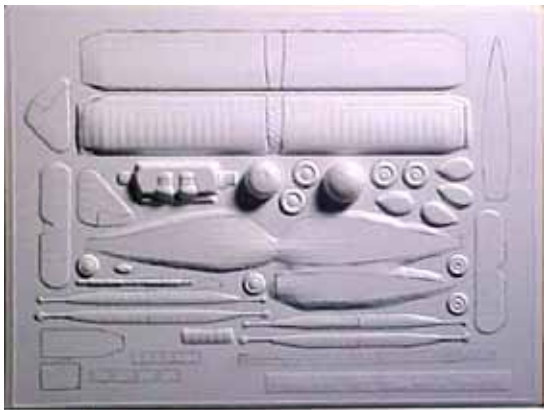
Before being assigned serial numbers, RCAF aircraft carried Air Board civil registrations. This is aircraft VC (G-CYVC)



Above: Aircraft VG (G-CY-VG) on its float dolly, apparently undergoing some engine maintenance. The floats appear to be unpainted aluminum.

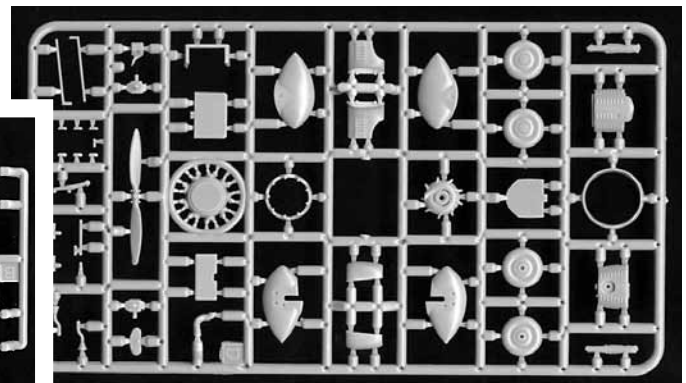
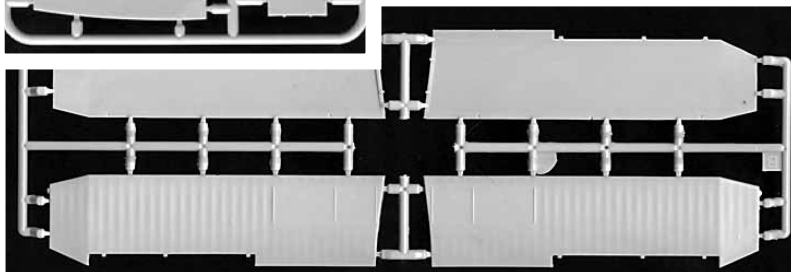
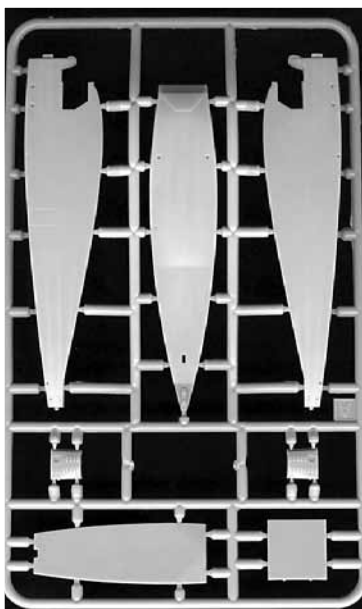
Right: Aircraft VA and VB at the shore of a lake somewhere in the boonies.





Left: Khee Kha vacu-form/resin kit.
 Above: Thunderbird Models 'Wop' May decals which come with the Khee Kha kit, or are available separately.

Right: The Dora Wings 1/72 kit and some of the parts.
 Note it contains optional parts to build different versions. It's assumed the 1/48 kit will be similar.



Walter Wolf What-if



by Evan Jones C3372

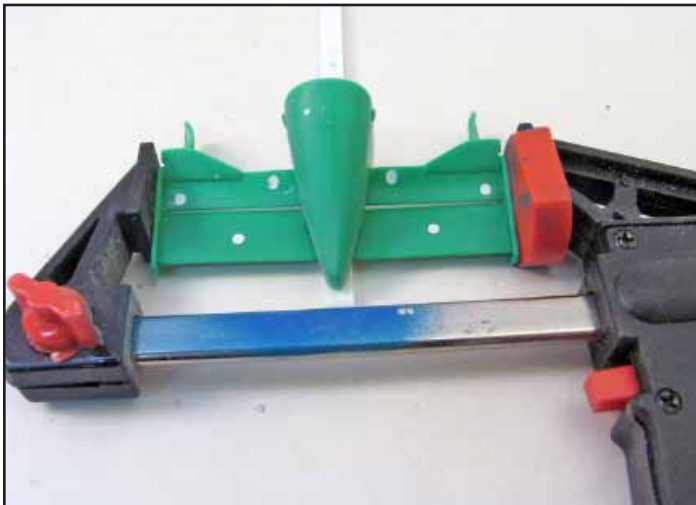
In *beaverRTales* issues for October 2018 and January 2019, I wrote a two piece article describing models of various Walter Wolf vehicles that were available. At the end of the article, there was a list of fantasy 'what-if' race vehicles. One of them was what if... Walter Wolf decided to get back into Formula 1 racing in 1989. He contacted Ford motor company and worked with them to build a new race car for the 1990 season. So instead of the Benetton Ford B190, we have the Walter Wolf Ford B190.

THE KIT

Hasegawa produced a 1:24 scale model of the Benetton Ford B190, which raced in the 1990 and 1991 seasons. The kit was re-released in April 2018 and is quite easily available. In terms of engineering, the kit shows it's age, but can still result in an acceptable model. There is a lack of details in both the cockpit (no seat belt) and engine (missing all lot of the plumbing and wiring)

THE BUILD

The model was built pretty much out of the box. Being 1:24 scale, the suspension is particularly delicate and needs to be handled with special care.



Clamping the front wing

There were a number ejection pins, located in very prominent locations on the bodywork, that needed to be dealt with. The joint on the top of the roll bar also needed some putty.

In order to ensure that the front and rear wings are square, some miniature bar clamps were used while the glue set.

The bodywork was airbrushed with decanted Tamiya TS-55 Dark Blue lacquer paint, then masked, airbrushed with Tamiya TS-21 Gold lacquer and then clear coated with Tamiya TS-13 clear.



Body parts waiting for masking

Various aftermarket decal sheets provided the Walter Wolf and sponsorship decals. In addition, an Eduard seat belt was added to the cockpit.

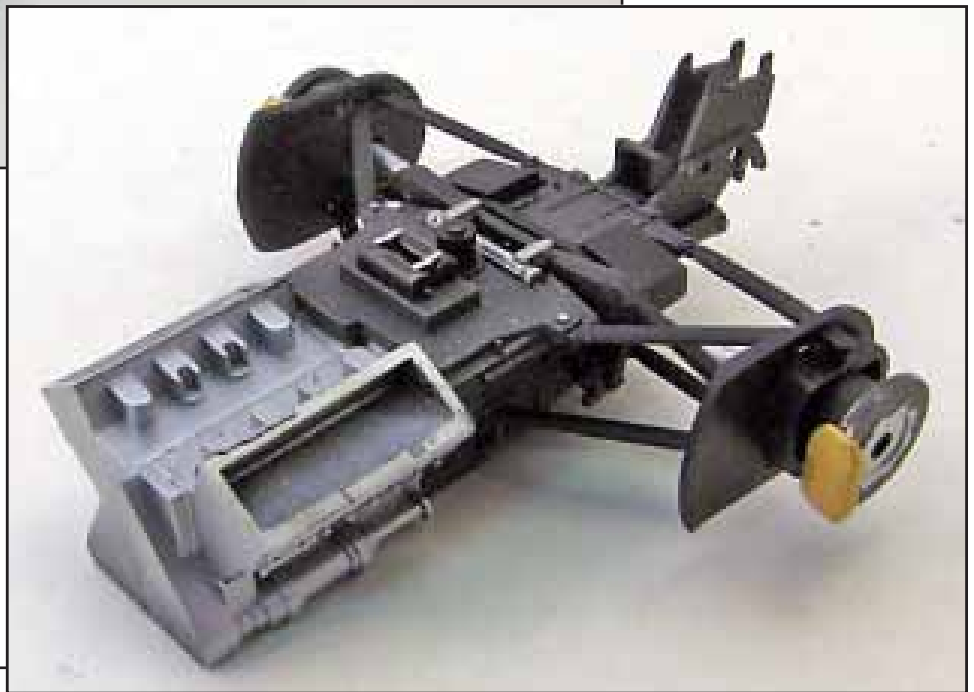
The suspension and chassis were airbrushed with acrylic semi-gloss black and Alcad aluminum. Various metallics (mostly Alclad) were used on the engine.

The following was done to add detail to the engine area:

- Radiator and oil cooler faces were improved with photoetch pieces cut from an aftermarket supplied sheet
- Most of the coolant plumbing, from various diameters of solder
- Plumbing joints were done with shrink wrap tubing and bare metal foil strips for the hose clamps
- Spark plug wires, from 0.5 mm diameter red wire
- Heat shielding from cigarette package liner paper, with rear section brush painted with gold acrylic
- Engine mounting brackets were made with aluminum duct tape and Meng bolt head details
- Other wires and tubing, based on some internet photos of the car



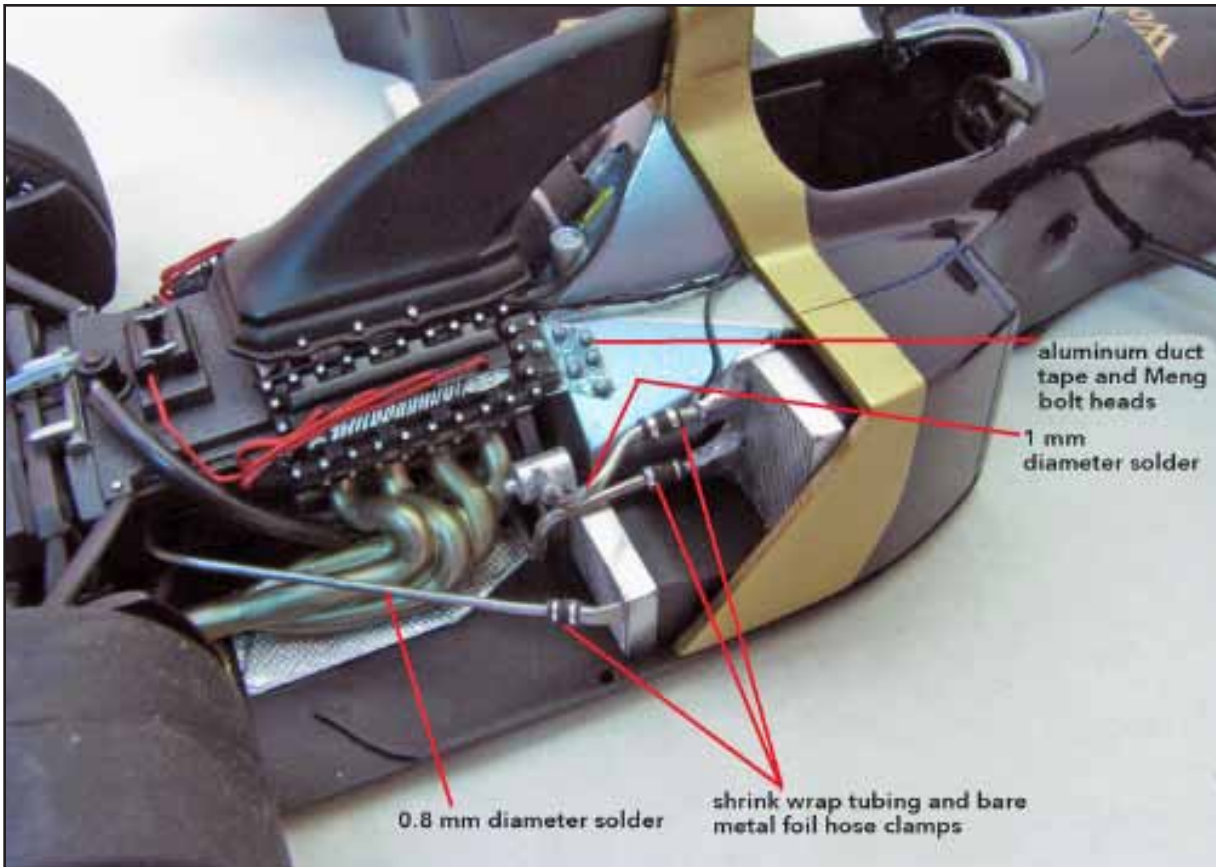
Body parts with most of the decals added



Engine partially assembled

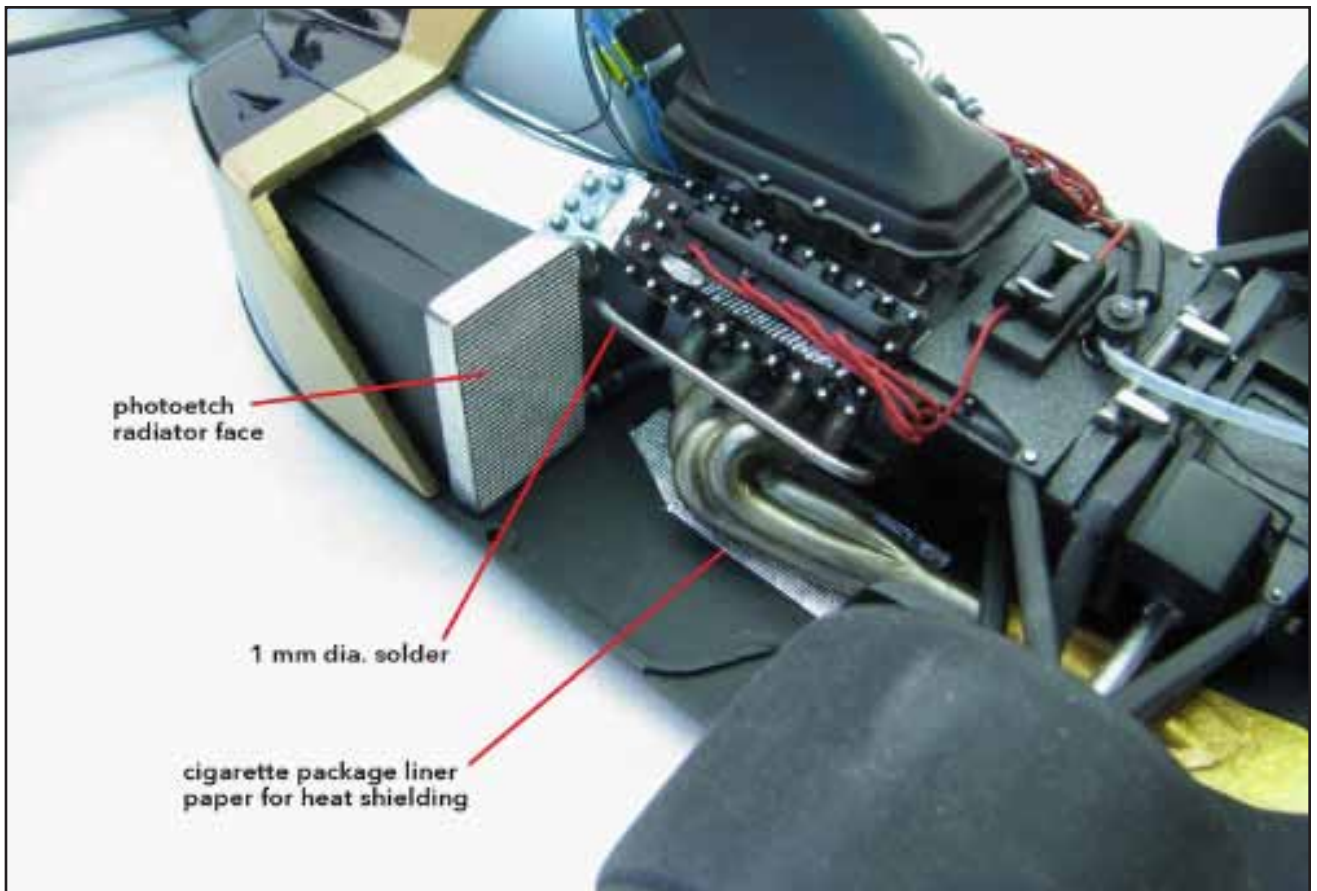


Heat shielding from cigarette package liner



Right side engine details

Left side engine details





Disk brake painted

A stand was built from styrene strip to mount the rear bodywork for display. It is interesting to see the reaction of race fans to the model as they usually do a double take to try and figure out whether this was a real car or not.





A preview of what you'll be seeing in future RTs!

"My First Time"

1:72 Gloster Gladiator Mk. II

By Massimo Santarossa
IPMS Canada C8652
Calgary AB

It was my first time building a 1:72 model. I was interested in building the 1:72 kit as it would be my training ground for the big scale built to follow. All the parts had come together in one piece, thus the project was not too daunting.

The Kit
Not surprisingly, construction started with the cockpit which comprised only a handful of parts. These are all well detailed including some interior framing and wooden cockpit balsa, which for this build were left glued.

The Night The Music Died...

A 1:48 model of an infamous 1947 Model 35 Beechcraft Bonanza

By Frank Caden
IPMS Canada C3473
IPMS USA 4311
IPMS IUM X55047
Albert Lea, MN, USA

The Story
Quite an oddball of a story with shock and disbelief occurred when it was disclosed that the '54 Model 35 had crashed in a mere field southwest of Chew Lake, home of Buddy Holly, J.P. Richardson, Charlene Krieger and 'The Big Bopper'. Richie Valens, and the airplane's pilot, they had planned to perform at the Surf Ballroom in Clear Lake that evening. As the time, and later a security guard saw in his own right that the plane had crashed behind, giving up his seat to The Big Bopper. The outcome of that storm has haunted Jennings for the rest of his life.

It was well before hearing when they took off heading right. The crash report later cited poor judgement on the part of the pilot. The plane was flying at a low altitude when it crashed into the trees. The plane was destroyed and the pilot was killed. The crash site is now a memorial to the 'Day After Tomorrow'.

The Details
When the April 22, 1977 issue of *Aviation* magazine published an article, 'The Day After Tomorrow', which detailed the crash of the Beechcraft Model 35, I immediately knew which model would be next on my list to begin with in the 1980's. A fellow club member of mine gave me a plastic bag containing the kit (1:48 scale). Model 35 Beechcraft Bonanza, M-2154. Somewhere along my modeling path, I bought the 1:48 scale Bonanza kit, unknown to me those days. The *Aviation* article inspired me to undertake this kit, ultimately producing the 'Holy Bonanza'.

One 'H' of a Mustang...

A 1:72 postwar P-51H in USAF service

By Frank Caden
IPMS Canada C3476
IPMS USA 4311
IPMS IUM X55047
Albert Lea, MN, USA

Introduction
The P-51 Mustang series underwent a number of improvements during the war years and beyond, from the addition of the H-1 and the H-2, with the H-2 being the most notable. While it is a one-up for me, I think the Mustang's further development, the H-2, is a great big step. With its improvements, it could out-climb, out-climb, and out-climb any other fighter of the war.

The subject
The aircraft I modeled served with the 357th Fighter Squadron, 58th Fighter Group, of the 48th Air Commando Wing from the ANG service.

The build starts
With the original kit in hand, I began work by starting with the fuselage. The kit is a great one to build, and I highly recommend it to anyone who is interested in building a 1:72 scale model.

A1:35 CH-47A Chinook

By Barry Madala
IPMS Canada C6000
Trenton NJ

History
The CH-47 is an American twin-engine, tandem rotor helicopter. The all-weather CH-47A Chinook was developed and produced by Boeing Vertol in the early 1960s. It has a main rotor with 4 blades and a tail rotor with 3 blades. It has a maximum speed of 150 mph and a maximum altitude of 15,000 feet.

The Kit
The Trumpeter CH-47A (Chinook #09104) is a 1:35 scale kit. It is a very well packaged kit with 312 parts. The kit is mounted on a light grey styrene, with the white and red nose cone in clear plastic and a set of photo-etch is provided for the clear plastic and white. The two halves of the fuselage are mounted in separate pieces (Fig. 2). The clear nose cone, rubber tires, white metal landing gear and 13 skids are supplied separately (Fig. 3).

A German Navy

Br.1150 Atlantic 1

By Bernie Hengel
C4252
IPMS Toronto, Ontario

History
In 1958, NATO invited competitive bids to find a successor to the Lockheed C-124 Globemaster II for the air transport of troops and cargo. The competition for the production was made up of companies from France, Germany, Netherlands, Belgium, and the United States.

The Kit
The Revell model of the Atlantic was sent to me by a friend in Germany. The large kit was filled with eight sheets of 1:72 scale parts. The instruction booklet of 20 pages covers the 75 steps of the build.

This is a large model, similar in size to the C-130 Hercules or the C-141 Starliner. It is a very nice model and I highly recommend it to anyone who is interested in building a 1:72 scale model.

THE \$9.95* VACUUM-FORMING MACHINE

by Steve Foster



The following article first appeared in RT Vol 21, N° 1. It has been edited and updated to make it easier to understand and find the parts and materials today. We've also added some photos for additional clarification.

The demise of the Mattel Vac-u-Form machine has been much lamented by modellers over the years. Most attempts to build a homemade effort founder on lack of tools, skill and knowledge. Today the asking prices for the few remaining machines have climbed to ridiculous levels... \$200-\$300, and the toy simply isn't worth it.

We're here to change all that and introduce you to the world's cheapest, simplest, and most easily made vacu-form machine. Believe it or not, it is possible to build a serviceable vacuum forming machine in less than four hours with no more than an Xacto knife, a hand powered drill, and a coping saw! And a trip to one or two stores will get you all the parts you need. Further, constructing this machine will use knowledge and skills you already have, since it is constructed almost entirely from commercially available plastic parts. Very little cutting and filing is required. To operate this machine however, you will need access to a workable vacuum cleaner and an electric heat source such as a stove or hotplate.

The list of materials shows what you will need. The list of plumbing parts is tentative as some of them may not be available locally, and sometimes products or sizes may be discontinued. I have shown the most desirable parts to work with, i.e. the quickest and simplest to use. If one or more is not available, just keep poking through the bins and fitting parts together.

List of Materials

From an electronics supply shop (or if there are none locally, try radioshack.com):

- 1 only 5" x 5" Perfboard (or nearest larger dimension)

From a hardware or home reno supply store:

- 1 only ABS plastic connector, 4" to 1-1/2"
- 1 only 1-1/2" to 1-1/4" duo-ring plastic to metal pipe compression fitting
- 1 only small can of ABS cement

- 4 only 1-1/2" x 1/4" round head stove bolts
- 4 only 1/4" wing nuts (for above bolts)
- 1 only pkg. 1/4" flat washers
- 1 pc. Plywood, 6" x 6" x 1/2" thick
- 1 pc. Plywood, 6" x 12" x 1/2" thick
- 1 pc. 1"x 2" strapping about 12" long

Most building supply stores (e.g. Home Depot) have off-cut scrap bins where you might find the wood you need for dirt cheap. Otherwise, they usually sell 2' x 2' pieces that you can cut down. If you are into metal working, 1/8" aluminum plate and some 28 gauge sheet metal could be used in place of the plywood and strapping respectively.

For this article the four inch diameter version has been chosen for several reasons:

- a) It appeared to represent the best compromise in terms of size. (In fact, the old Mattel Vac-u-Form sheet size just fits within the confines of the 4" diameter.)
- b) It kept the cost low.
- c) It's buildable with simple of hand tools.



4" to 1-1/2" connector



Compression fitting

Smaller and larger sizes can be built. In fact I have a total of six different sizes now, including a rectangular one made from a Radio Shack experimenter's box. The four inch job was the one I built first and it has proved to be the one I use most frequently. If you go to the 6" diameter end cap (available through plumbing supply houses) you would gain a lot of usable space. To my way of thinking, if you want a larger size than that then you should probably go for one

* In 1990 dollars!

of the commercial offerings available. In any event I find the 4" or 6" is perfect for the casual builder who wants something handy and cheap to use a couple of times a year.

CONNECTING UP

You can get more power by working out a way to connect the machine directly to the hose inlet on the vacuum cleaner. This is not as difficult as it sounds, and there are various plumbing pipes elbows and adapters that will do the trick.

The simplest method, and the one I use, is to connect the plumbing pipe vacuum member to the vacuum cleaner hose via the duo-ring compression fitting. My G.E.'s hose had to be wrapped with masking tape to bring it up to the 1-1/2" diameter of the larger ring, but with the smaller ring installed the 1-1/4" hose of my Black & Decker fit perfect. Check your vacuum cleaner's size, as these are constantly being re-designed and changed. If you own a Shop-Vac canister type with the intake and exhaust on the top of the machine, you can purchase fittings which will enable you to attach the vacuum chamber directly to the intake. Doing so will enable you to take advantage of the full power of the motor.

Those wishing to build this device can assemble the parts listed above in the manner shown in the drawings. To give credit where it is due, the concept of using plumbing pipe parts to create a usable vacuum forming machine belongs to Charles Parsons, one of the founding members of the St. John's Chapter. Charlie also built the first prototype and in fact the canopy for my Sea Harrier conversion was done on it, an event witnessed by none other than Mike Belcher who was visiting St. John's at the time. The much revised holding frame for the plastic is my own contribution.

CONSTRUCTION NOTES

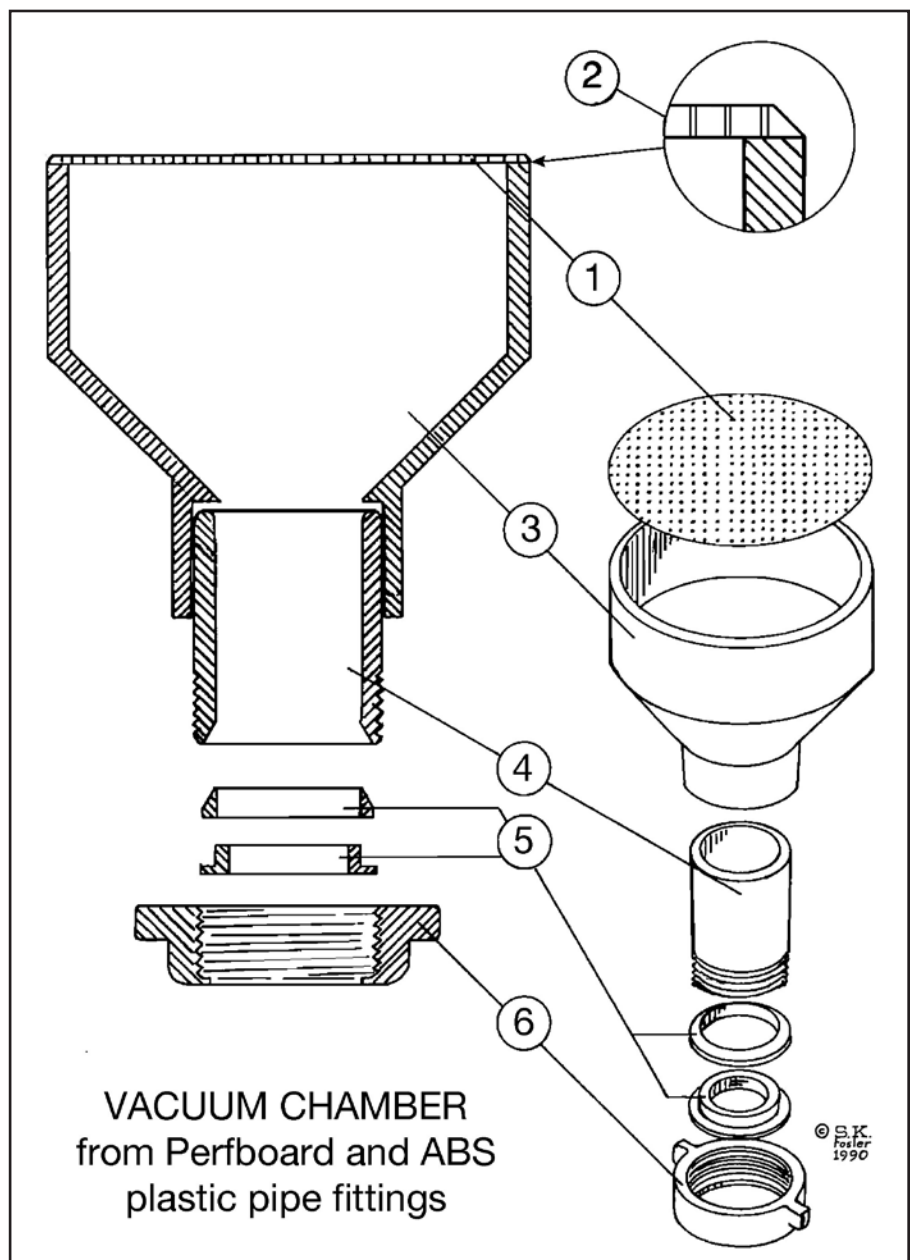
The Vacuum Chamber

1) Perfboard cut to match the outside diameter of the large end of the coupling. Perfboard is a hard, heat-resistant plastic board perforated with small holes at regular intervals. It is used in

the electronics field for building up circuits from various components and wires.

2) There are two ways to join the Perfboard to the coupling. Charles Parsons, the originator of the Idea, used tape, accepting the corresponding loss of surface area in the process. I glued mine on using a superglue, then I filed the edge flush with the coupling, and bevelled it about 45 degrees as shown in the scrap view enlargement in Fig. 1. This was to prevent it from snagging on the carrier frame when in use.

3) 4" to 1-1/2" coupling, ABS plastic. These couplings come in a number of sizes based on the 4" pipe size. The 4" to 1-1/2" size, while it does exist, is not common and may be difficult to find. Your plumbing parts dealer may be able to special order one. Or you could go with, say, a 4" to 2" reducer,

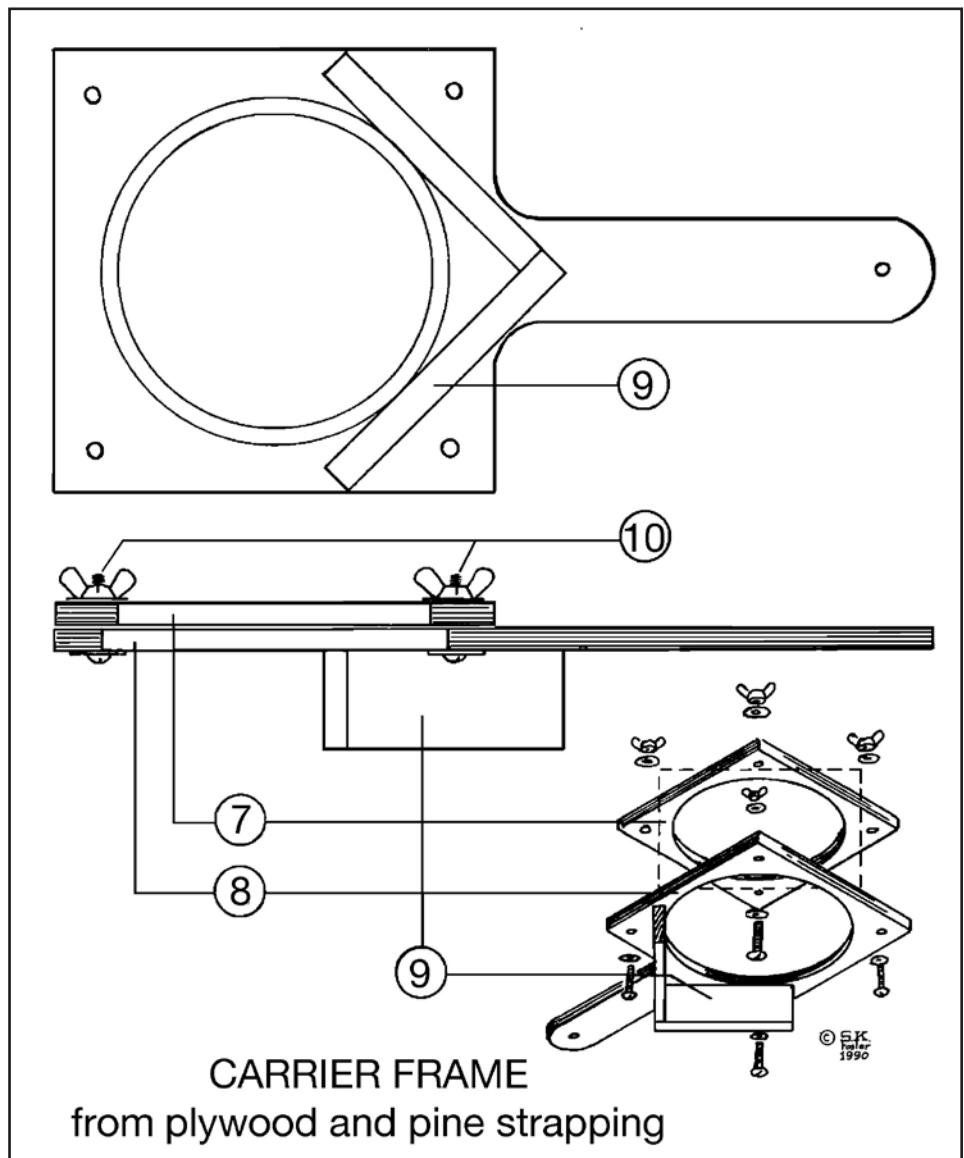


and then add a 2" to 1-1/2" one onto that. Basically what you want is a combination that will take you from a 4" opening at one end to a 1-1/2" (or 1-1/4") opening at the other. The plastic pipe system is designed to do this and many other things besides, and when assembled with the proper glue it will give you a watertight, ergo airtight joint with little effort. Show the assembly drawing to your dealer and explain what you want and he/she will help you find what you need.

4, 5, & 6) are the component parts of the ABS plastic duo-ring compression fitting. Part 4 is the short length of pipe. The coupling (part 3) should be selected so that this part fits snugly into the small end. When ready to assemble, wipe each area with a cloth dampened with lacquer thinner to clean off any mold release agent, then coat both surfaces with ABS cement. Quickly fit the pieces together, twist them one quarter turn, and leave to dry. Cements other than ABS will work for this, but the proper cement has good gap filling properties and thus ensures a tight joint. The best substitute is contact cement if you have some on hand and don't want to buy the ABS stuff for what is admittedly a one time use. Just use a generous amount and fit the joint together wet. Contact cement, in this case, must be the solvent-based variety not the latex-based one. The two compression rings labelled 5 have to be selected to match the nozzle diameter of the vacuum cleaner you will be using. If the nozzle diameter needs to be 1-1/4", both compression rings should be fitted to part 4 along with the nozzle and held in place by part 6. If you are using a machine with a larger diameter nozzle, the smaller ring would be omitted. It may be necessary to wrap the nozzle with masking tape to bring it up to the 1-1/2" diameter of the compression ring. If this is inconvenient, the smaller ring could be inserted then reamed out to size using a sharp X-acto knife. This is in fact what I did. Again, your plumbing parts dealer will be able to suggest the best solution.

The Carrier Frame

7 and 8) The carrier frame will probably take the longest of any of the parts to make, especially if you are limited to hand tools. A power jigsaw would make fairly short work of the circular holes in the plywood, but if you don't have one, a hand coping saw can be used. It just takes longer. The hole in part 7 should be equal to the inside diameter of the connector you are using. The hole in part 8 should be about 1/8" larger than the outside diameter of the connector at its widest end. Be sure to check the fit on this one, as the pipe should fit through the hole with plenty of room. You should also layout and cut the handle on part 8, which is made from the 6" x 12" piece of plywood. This is important as your hands could get pretty hot if you have to hold on to the frame portion while heating the plastic. Wearing oven mitts is not a good idea either, as they could catch fire.



Once the holes are cut, the two pieces of plywood should be brought together, clamped in some manner, (I used a couple of small nails) then drilled to take the bolts and wing nuts. Make sure that the connector can pass through the larger hole and bottom on the smaller one before drilling the bolt holes. If you've done it right, just the rim of the connector will be in contact with the edge of the smaller hole. After drilling and fitting the bolts, remove the nails and separate the pieces. I marked mine to make sure I always put them back together the same way.

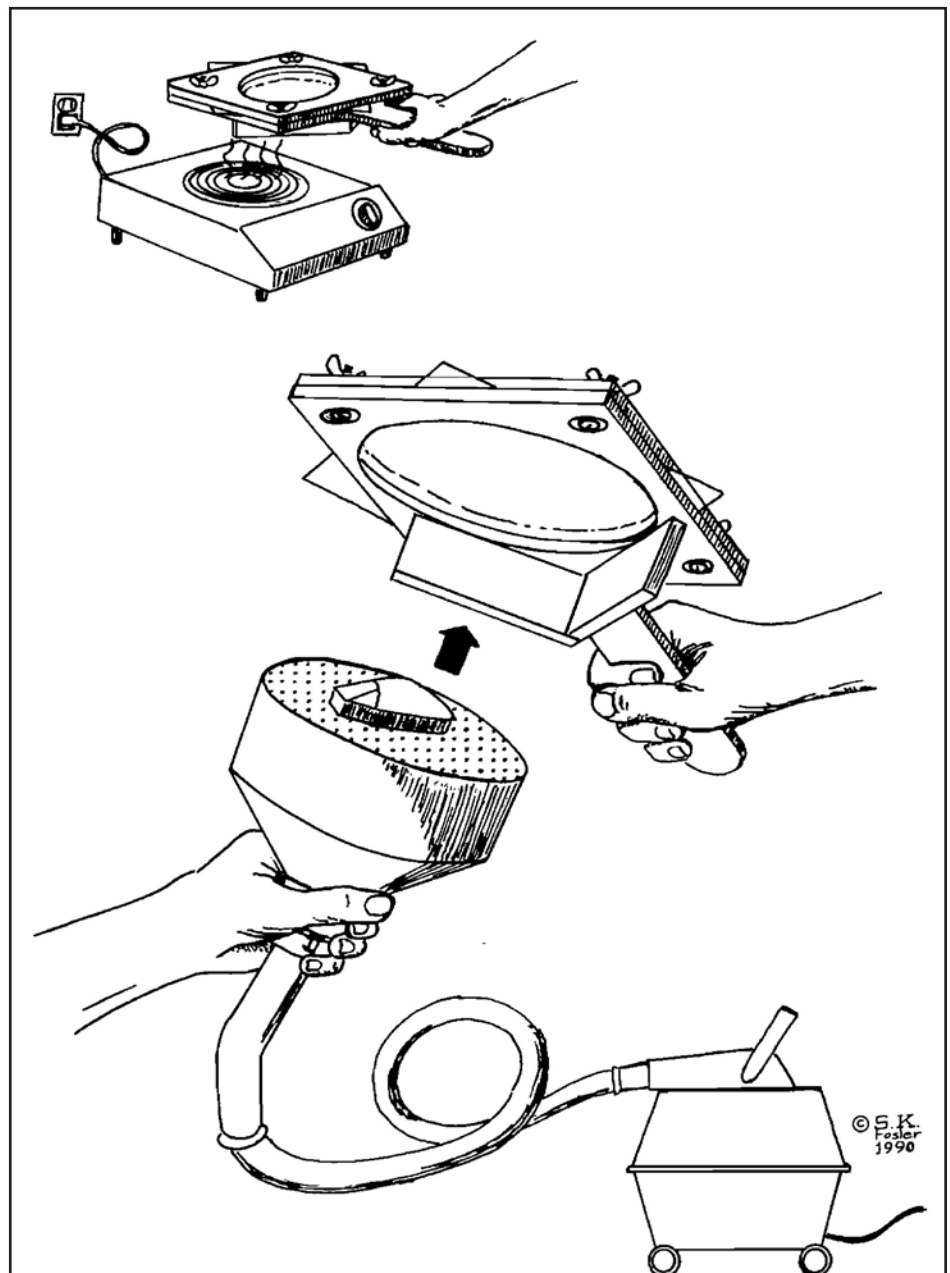
At this stage you should install the pieces of 1" x 2" strapping, labelled 9 on the diagrams. These are intended to guide the connector-cum-vacuum chamber to the proper position in the carrier frame for the forming operation to take place. The 1" x 2" strapping should be installed in such a way that they form a right angled V, with the arms of the V tangent to the edges of the larger diameter hole in the frame part marked 8 in the diagrams. Nails and glue are fine as fasteners. Check the fit again. You should be able to lay the connector in the V and quickly slide it up to bottom on the frame part with the smaller hole. This is important, as it will be the method by which a seal is formed when vacuum forming the hot plastic. If there is an obstruction, sand or file it away so that the connector will slide easily through the hole. Once you've done this, the apparatus is ready for use.

USING THE DEVICE

For those who have never used a vacu-form machine before, perhaps a few notes are in order.

First, vacuum forming sheet plastic as a parts making process for model building takes two distinct forms: 1 – Drawing the plastic down over a male mold; and 2 – Drawing the plastic into a female mold. This discussion will be concerned with the preparation and use of the male mold; female molds generally require a more complete vacuum than is possible with a domestic vacuum cleaner and the mold preparation is a much more complex process.

In addition to kit parts male molds can be made from a variety of materials such as plaster, wood, and even modelling clay. Pretty much anything that can be carved or built up can be used as a mold. As with all mold based model parts production, there are certain limitations. The method does not lend itself to the production of very small parts or space frames (such as bridges or Bell 47 tail booms). Male molds, particularly, do not mold surface detail very well. When I construct or carve a male mold, as for the Sea Harrier conversion I did several years ago, I concern myself with outline accuracy and either scribe in or add on the requisite details afterward. The machine is capable of some types of small work though; one of our chapter members constructed a small one consisting of the duo-ring connector with



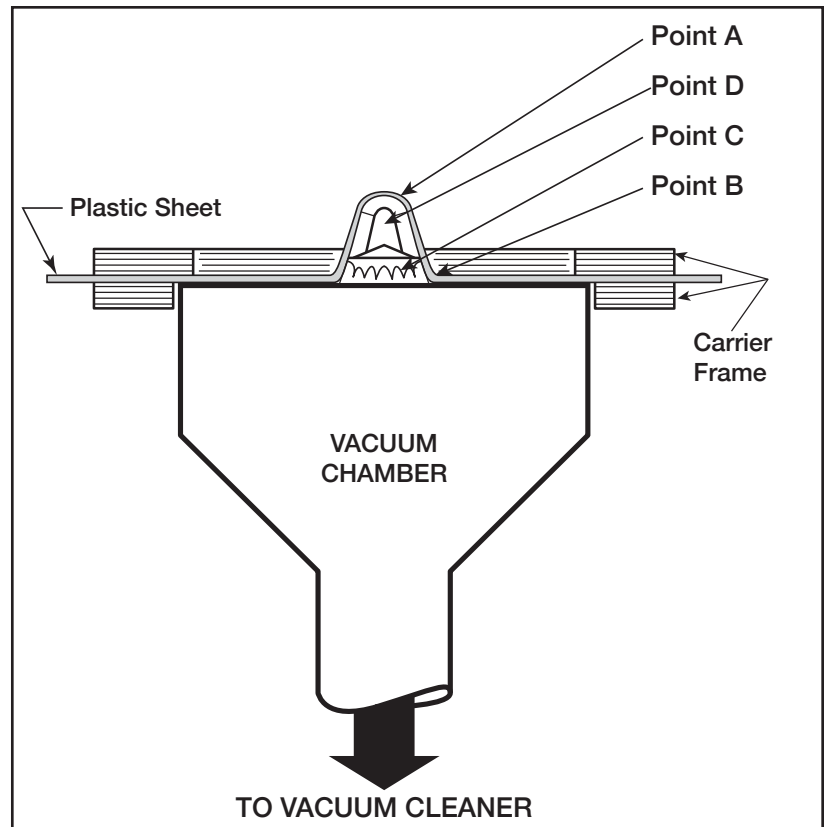
a piece of Perfboard glued to the un-threaded end. He's an armour nut and he uses this thing with .010" plastic to make pistol holsters and helmets In 1/35 scale! Yes, you can fit your 1/35 scale Luger or .45 into the holsters. He speculates that open packs and mess tins are possible with this method, but to date he hasn't tried it As you can see, even accepting the limitations of the process, some remarkable work can be accomplished with this very simple tool.

I use the vacu-form machine most frequently to make clear thin canopies for aircraft models, and in this role it excels. I generally use the kit canopy as a mold and vacuum form over it, though if I want a different type, I will carve the desired one from pine.

The preparation of a male mold for vacuum forming is much the same regardless of whether you are doing canopies, turrets, helmets, drop tanks, or nose, fuselage, or wing sections. In all cases you have to work around the characteristics of sheet polystyrene as they develop under heat and pressure. This method, for example, does not produce moldings of uniform thickness, a fact that is not always understood. A study of the adjacent Figure will make clear a number of these points.

The first thing to notice is that the plastic is illustrated as being thinner at the mold's high point (point A), and thicker at the base of the mold (point B). In the process of forming, the plastic actually stretches down over the mold rather than deforming evenly around it, hence, the thinnest part of any vacuum formed component is always that point which was farthest from the floor of the vacuum chamber. The relative thickness of this point is also determined by the surface area of the mold at that location. Canopies or engine cowlings usually aren't too bad as there is a certain amount of resistance to the flow of plastic over the surface area of the mold. This causes the stretching to spread a little more uniformly as a result. Propeller spinners are quite another matter. The small surface area at the tip means that the part will be very thin and fragile at that point. If the spinner or other component is really sharp pointed it will often puncture the plastic during the process, thus limiting the usefulness of the part.

There are two ways of dealing with this. One is to control the heating of the plastic so that it is not quite as pliable as is normally desired for this type of op-



eration. Unfortunately, the definition will be reduced as the plastic will be too cool to conform very closely to the mold, and the plastic may not even draw all the way down over the mold. The second, and most commonly used alternative is to simply vacuum form the part then reinforce it from the inside with a few drops of five minute epoxy cement This material is useful for reinforcing vacu-formed parts as it bonds well with polystyrene yet does not destroy it as lacquer based body fillers would do. Nor does it shrink when curing. This latter property is important as it means the reinforced part will remain as molded.

Referring to point B on the diagram, you should also notice that In addition to being thicker the plastic has also 'bridged' at that point and has not molded tightly to the sides of the mold and the floor of the vacuum chamber. This phenomenon is always present to a greater or lesser extent when vacu-forming male molds. Point C indicates the cure; the canopy pictured has been glued to a base about 1/8" thick, thus raising it above the area where the bridging occurs. While I usually use blocks of wood about 1/8" or 3/16" thick (3-5mm), there are other alternatives... pieces of sprue, or plastic sheet can be used with the same effect.

Point D on the diagram needs to be considered next. It refers to filling the kit part with some substance to prevent collapse from either heat or pressure. The

thinner canopies sometimes supplied in kits generally need to be reinforced as the transparent polystyrene used to form them is quite brittle. I'm aware of two methods in common use for such purposes. One is to jam some modelling clay into the interior and allow it to cool back to room temperature. You have to be careful here as you could end up splitting the part you were trying to protect. The second, and gentlest, is to mix and pour some plaster into the part. This hardens in a few minutes and yet is removable should you need to use the part as well. In fact if you surround the canopy edges with masking tape, you can protect the part and pour your base at the same time. When the plaster has cured you simply remove the tape dam and trim away any excess.

If you use other kit parts as molds there is another reason to reinforce with plaster. The heat generated by draping a sheet of hot plastic over a kit part may actually be enough to soften and distort the kit part. I found this out the hard way when I ruined two Japanese Zero cowlings while attempting to make duplicates for a Lockheed 14 conversion I was working on at the time. Hot .020" plastic can do mean things to unsuspecting kit parts!

Of course, if you plan to do most of your vacu-forming from wood or plaster molds you will have no such problems. However, you must sand them as smooth as possible, and seal the surface, otherwise the grain pattern or other surface defects will mold onto the surface of the plastic. I have a couple of 'wood grain' canopies in my collection to prove it.

When planning a mold another thing to watch for is 'undercuts', places where the plastic can grip in such a way that the mold cannot be removed without cutting it apart. Occasionally one can make use of undercuts though, as I did on a rescue operation for one of the chapter members. He had just purchased the Tamiya Lancaster, and was examining it, when his brother picked up the canopy, dropped it on the floor, then stepped on it while looking for it! I glued the pieces back together, installed the side blisters, then taped and poured plaster as described above. After filling and sanding seams caused by the

breakage I vacu-formed it. Normally vacu-forming undercuts is bad news, but the shape of the Lancaster canopy allowed it in this case. I trimmed the part's base around the mold, then lifted the plastic off starting at the back of the canopy, the point farthest from the blisters. The clear acetate, commonly found in stationary supply stores, was flexible enough to spring off in this case. I made three copies for the chap, just in case his brother showed up again.

I mentioned material briefly in the previous paragraphs so perhaps a few notes on where to get sheet styrene are appropriate. Polystyrene sheet stock is today generally available from most hobby supply outlets, both local and online, in convenient smaller sizes. You can also try plastics supply firms. Check what's available in your area by searching online. Polystyrene sheet is available in a wide variety of thicknesses from a paper thin .005" up to 3/16". The machine here can handle thicknesses up to .030" for most work.

When all is said and done, the best way to learn about vacu-forming as a modelling technique is to build the machine and try it. I use the machine frequently in my work, and have found it to be very liberating in my approach to the hobby. Virtually all aircraft models I build now feature vacu-form canopies, and these are so thin and clear that every detail in the cockpit is visible. In addition, I have used it to make a number of conversions that would not have otherwise been done. The ability to take parts from one kit and use them as molds for the modification of another, without losing either to the scrap box is very useful. I have even used the machine to make instant molds for casting parts like bombs, wheels, and even engines in resin. The molds for plaster craft work, you see for sale in craft stores are made by vacu-forming. Remember, the best surface detail from a male mold is on the inside of the plastic, which is right where you want it for best casting.

I hope this article will encourage more to try the technique. I've found it to be a useful addition to my repertoire of tricks and while it won't solve all of your modelling problems (no single technique), it will definitely broaden your horizons.

— Cover-your-ass disclaimer —

If you decide to try this, please be careful. Sheet plastic is flammable, so all you want to do is soften it enough to vacu-form it. Too much heat will melt it, and it will probably drip onto a hot burner, and ignite. It is advised that you only try this over an electric stove element, not a gas burner which will be more difficult to control. It's also a good idea to have a small aerosol fire extinguisher handy 'just in case'.

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IPMS Canada Award

Charles Detheridge, our usual ‘man in the UK’, unfortunately could not attend IPMS UK’s Scale Model World this year, and so was unable to get



any photos or additional info on the winner of the IPMS Canada Award. It was a model of a CMP Quad tractor built by Steve Jones. If anyone who was there has photos of this model, or if this somehow reaches Mr. Jones (he’s not an IPMS Canada member), please email us, as we’d like to include the info in the next *beaverTales*.

Barry Gerrard asks:

“I’m looking for 1/700 and 1/350 naval ship hull numbers. Does anyone know where you can purchase them? I would prefer black numbers mostly with the odd white numbers. Recently Shapeways has produced numerous Canadian Naval ships in 1/700. I know the Resin Shipyard produced sheets but I believe they are out of business. Another question I have is where can one purchase paint for Canadian warships?”



Contact Barry at: bgerrard@ns.sympatico.ca

Lockheed Vega help! — Mark Ejdrygiewicz emails:

“I’m trying to get a copy of the old IPMS US Quaterlies from 1979/1980 (Vol.15 Q2 and Vol. 15 Q3) that dealt with Amelia Earhart’s Lockheed Vega 5B. I was hoping someone might have these articles, as I’m having a heck of a time locating them.”

If you have these issues please contact Mark at: m.ejdrygiewicz@gmail.com





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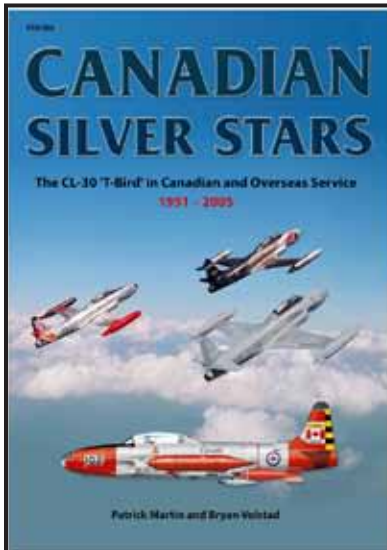
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