



## The BT-7: Christie's concepts, Soviet style

By Hubert Chan

In the late 1920s, a combination of prideful attitudes, along with the failure for a joint compromise, ultimately resulted in the U.S. Army's rejection of John Walter Christie's revolutionary design, the M-1931. After the first world war, the United States was left in a poor economic state. The war had been a drain on morale and was very costly in human loss.

The U.S. Army at this time lacked the public and financial support it needed. Many senior ranks lacked a vision for armored warfare, and the country needed recovery time and was just not ready to reform its own military.

In contrast, during that same period, the Soviet

Union was very seriously attempting to modernize its own obsolete tank force, and the Christie M-1931 was a godsend.

Unlike the U.S, various Soviet design bureaus were given permission to use whatever resources necessary to seek out and adapt modern concepts in order to inspire new ideas for the coming generation of Soviet tanks. Therefore, two M-1931 prototypes were purchased from the United States in 1930 to help reform the Soviets' light/medium tank program. Bureau officials were so impressed with the Christie design that it prompted them to build a simplified copy of the new tank at the Komintern factory in Kharkov, designated the BT-1 (Bystrochodya Tank—fast tank) in 1931.

The new BT-1 prototype retained the M-1931's flexibility to be operated with the tracks removed. This feature allowed the track runs to be removed and placed along the top of the fenders. Once secure, the crew would then switch the vehicle's gears into a wheel drive position. The first set of the road

wheels were steerable and allowed the tank to maneuver conventionally without the tracks. This concept also enhanced the prospect of survivability in situations when the tracks were damaged and repair time was critical. The original Liberty V-12 aero-engine producing 298.5 W (400 bhp) was also copied and used for the design, which gave the BT-1 prototype an extraordinary speed of 64 km/h or 40 mph on tracks and a jaw-

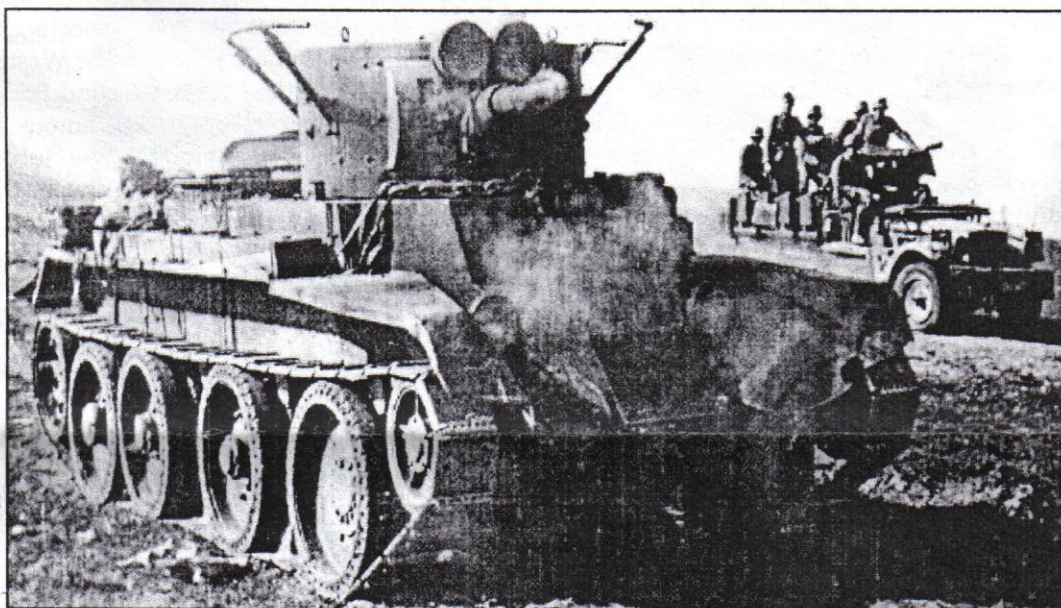
dropping 113 km/h or 70 mph while on its wheels. Performance was better than most cars of the period.

The real jewel of the design was its Christie Suspension System, which became common in contemporary tank designs all over the world. The new suspension system con-

sisted of four large road wheels which touched the tracks both top and bottom.

The wheels were mounted on pivoting lever arms sprung by large coil springs. This concept resulted in a robust system with enormous deflection, strength and durability. This allowed the BT-1 to stand up to the rigors of traversing and negotiating harsh and rough terrain like no other vehicle of its time.

Machine gun armament however, was not adequate on the prototype, so a new turret was designed for the BT-1. It mounted a 37mm (1.46in) main gun and was designated BT-2. It entered mass production in January 1932. Although the initial production model was a considerable leap in Soviet tank technology, it suffered mechanically and the armament was still not sufficient to cope with current requirements. Several improved and refined models—BT-3, 4, and 5—were pro-



German soldiers pass a knocked-out BT-7-V command tank on the Russian Steppes. While the BT-7 fared poorly in combat, its design was sound and it influenced the war-winning T-34.

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The Styrene Sheet is a monthly publication of the Silicon Valley Chapter of the International Plastic Model Society (IPMS). Articles and comments should be submitted to Chris Bucholtz, Editor, P.O. Box 361644, Milpitas, CA 95036, or by E-mail at bucholtzc@aol.com. Excerpts may be published only with the written permission of the editor.



## EDITOR'S BRIEF

This month, we will not be meeting at our usual location. Due to a last-minute scheduling problem, we will have to meet at Scenario Hobbies, the site used by the Fremont Hornets every month. Times will be the same, but if you have a folding chair there are a limited number of seats at Scenario. We'll be back in Milpitas for October and November.

Earlier this month, SVSM made a strong showing at the IPMS/Reno show, although few others did. It was rather disheartening to see that only one person had made it from Sacramento and that no one could make it from Fresno, yet SVSM could send eight or nine people. Ray Lloyd won the award for Best Aerobatic Aircraft, Mike Meek took the Award for Best Air racer, and best of show went to one of Howard Weaver's 1:32 Phantoms.

SVSM's attendance is important because it sows the seeds for our own successful contests. People are inclined to support clubs that support them and disinclined to support clubs who give them the cold shoulder. This is one reason the Kickoff Classic has done well for the last 10 years while other clubs have suffered at times. In addition to having a good time at these events, the members are doing us a big service by "showing the flag" and helping to generate goodwill for our club, and members do this regularly at contests spanning from Seattle to Orange County.

If you haven't gone "on the road" to one of these events,

remember that you can start small by going to the upcoming events in Vallejo or Sacramento, which are essentially day trips. OrangeCon and the Antelope Valley contests could serve as excuses for a family getaway. In either case, you can see a lot of good models, peruse the vendor tables and help SVSM build its reputation among fellow modelers.

In other news, it gives the editor great pleasure to announce that John Heck will begin to help with the graphic design of the Styrene Sheet. John is exceptionally talented and is sure to add a much-needed shot of visual excitement to the newsletter. This is a component of a transition plan on you editor's behalf; after 12 years on the job, he needs to take a break, for reasons beneficial both to him and to the club.

Finally, if you find yourself sitting at home on the first, second or third Friday of the month, you're doing something wrong. The third Friday is always our meeting, but on the first Friday, IPMS/North Field meets at the Western Aerospace Museum in Oakland and on the second Friday the IPMS/Hornets meet at Scenario Hobbies in Fremont. There's no rule that says you only have to belong to one club, so if you have a Friday free and you don't feel like bashing a model together, support one of our sister chapters.

That's it for now—your editor has to go glue together a Mosquito Mk. XVIII!

—The Editor

## CONTEST CALENDAR

Oct. 11, 2002: The event planned by the **IPMS/Redding Dambusters** has been cancelled.

Oct. 19, 2003: **IPMS/Orange County** hosts **OrangeCon 2003**, the Region 8 Regional and Convention, at the Sequoia Conference Center, 7530 Orangethorpe Ave. in Buena Park, California. For more information, call Nat Richards at (949) 631-7142 or e-mail him at [ocipms@aol.com](mailto:ocipms@aol.com).

Nov. 1: The **Antelope Valley Group** hosts **Desert Classic VII** at Antelope Valley College, 3041 West Ave. K in Lancaster, California. For more information, call Michael Warman at (661) 256-7069 or e-mail him at [michael.warman@imco.com](mailto:michael.warman@imco.com).

Nov. 15, 2003: **IPMS/Silver Wings** hosts its **annual contest** at the Joseph Kerr Middle School, 8865 Elk Grove Blvd., in Elk Grove, Calif. Special theme awards for Hawker Hurricanes and T-34 Tanks. For more information, e-mail Scott Bell at [SnJmodprods@aol.com](mailto:SnJmodprods@aol.com) or call him at (916) 428-7217.

Dec. 6, 2003: **IPMS/Mt. Diablo** hosts its **model contest** at the Vallejo Naval and Historical Museum, 734 Marin Street in Vallejo. The theme is "100 Years of Aviation History." For more information, contact Bill Nist at (510) 672-7154 or by e-mail at [nistisus@aol.com](mailto:nistisus@aol.com).

Feb. 22, 2004: **Silicon Valley Scale Modelers** host the eleventh annual **Kickoff Classic** at Napredak Hall, 770 Montague Expressway, San Jose. The theme is "Stars and Stripes." For more information, call Chris Bucholtz at (408) 723-3995.

March 27, 2004: **IPMS/Fresno Scale Modelers** host the **Region 9 Convention and Contest**, to be held at the Fresno Air National Guard station or, in the event of national defense conflicts, at an alternate site. More details to be announced.

May 1, 2004: **IPMS/Santa Rosa** hosts **Model Expo 2004**. More details to be announced.



# Wrestling a resin Panzerkampfwagen 38(t)

By Hubert Chan

In the dawn of March 15, 1939, by the order of the Führer, Germany occupied Czechoslovakia and garrisoned military units in the partitioned territory of the Czech-Moravian basin. This assured control over the country and its highly-developed industrial capability. There were two Czech companies credited with the development of the LT-38 tank (also known as TNHP or LTL-H), later to be designated the Panzerkampfwagen.38(t) by the Germans. The first was CKD (Ceskomoravska-Kolben-Daneck), a company produced industrial products and entire manufacturing complexes (refineries, mills, distilleries, etc.). The second was Skoda, which made both civilian and military products. Alexander Surin (a brilliant Russian engineer residing in Czechoslovakia) was said to be largely responsible for the new generations of tank designs for CKD.

The 9-ton LT-38 was viewed as the best light tank of its day. It mounted a 37mm L/48 main gun and a 7.92mm vz37 machine gun, the best weapon of its type.

The LT-38 had a road speed of 35 mph and a range of 150 miles. If the tank had a weakness, it was its riveted construction; because rivets have to be of relatively soft metal, they tended to break off and bounce around the inside of the tank with lethal results if a LT-38 was hit with a clean shot.

When Germany annexed Czechoslovakia, it brought large numbers of the tank into the Wehrmacht. In the early stages of the war, about 1,500 Panzer 38(t) tanks were employed by the German army. The vehicle was very popular among its German crews, and the initial type comprised of nearly the entire inventory of two Panzer divisions (7th and 8th) prior to the Battle of France.

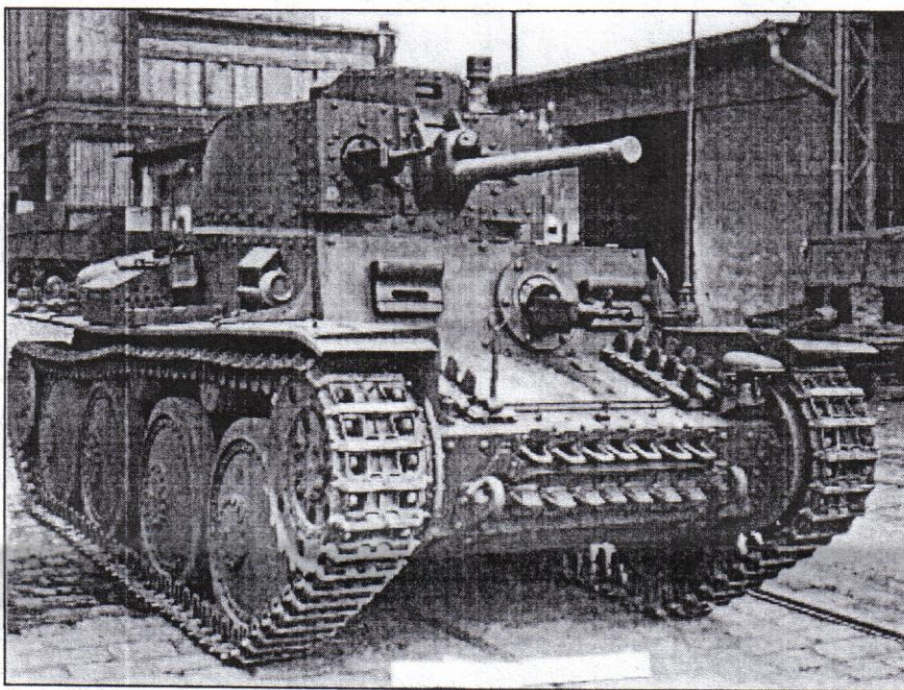
Experienced gained in the French campaign led to changes in the 38(t). Frontal armor was increased from 30mm to 40mm and the turret and side armor were increased. At the same time, better vision slits for the driver and gunner were added. The Wehrmacht accepted 525 Ausf E and F models between November 1940 and October 1941; this was followed by 50 Ausf G models, featuring welded construction and even heavier armor. The Germans also appropriated 320 tanks ordered by the Swedish government and operated them as PzKfw 38(t) Ausf S models.

At the beginning of the Russian offensive in 1941, the German army was equipped with approximately 800 tanks of

the type. However, soon after the invasion of the Soviet union, 38(t)s began to be phased out as tanks. This was not due to the design but to its inadequate firepower. The design found new life as an effective tank hunter as the Hetzer, and other specialized weapon platform types such as the SdKfz 138 Panzerjaeger Marder III.

The design consisted of four large road wheels with rubber tires, which greatly resembled a Christie suspension, and two return rollers above and between the first, second, and third road wheels. The wheels were actually mounted on horizontal

leaf spring assemblies that distributed the tank's weight evenly on each roller which proved to be efficient and durable. Like the Panzer 35(t), the of the vehicle was completely riveted. Weight was approximately 10.5 tons fully loaded, its length was 15 feet, the width was 6 feet 11 inches and the height was 6 feet 11 inches. The power plant was a six-cylinder Praga EPA engine with a displacement of 7754 cc, delivering 93kw (125hp) at 2200 rpms.



One of the last Panzer 38(t) examples to come off the assembly line, an up-armored Panzer 38(t) Ausf G.

The manufacturer of the kit my 38(t) was built from is *Criel* of Italy, and it is 100 percent resin. The kit had been out for a number of years already, before I purchased it for \$40 from a local kit collector. I discovered that the *Criel* model was a copy of the old *Italeri* Panzer 38(t) kit. However, the newer resin kit had been modified with corrections to the original layout which was found lacking on the *Italeri* 38(t) kit. The driver and radio/gun operator's hull hatch opening was left off the *Italeri* kit. The commander's cupola was in the wrong position along with some of its details. These changes were partly met in *Criel* kit.

Replacement road wheels were also included. However, the wheels lacked any backside detail. Pools of glue were present under rivets that had been removed and replaced on the master due to the corrections that were done in the resin kit. I addressed this by scraping off, sanding and replacing the rivets. A sink mark flaw was present on one of the two drive sprockets in the *Italeri* kit, and was faithfully reproduced in the *Criel* kit. I had to purchase the *Italeri* kit for the use of its one good drive sprocket and to supplement any other similar problems if they arose.

All the hatches were replaced with styrene sheet along with new hinges and handles made from brass wire and brass strip. They were topped off with some plastic rivets and resin



bolt details. Hatch padding was made with epoxy putty. Cloth was lightly pressed over the putty to replicate the texture of leather. Some button-shaped photoetched fasteners were then used as the snaps holding the padding in place.

The muffler also needed help. This was done with styrene tubing. Heating, stretching and bending of smaller tubing produced the exhaust pipes connecting to the muffler. The curved shield protecting the exhaust exit in the rear was made in a similar way with larger heated and curved plastic tubing that was cut to shape resembling a hollow U-shape cone. Supporting brackets were then made out of thin styrene strip. Recessed holes were drilled out on the brackets to support small photoetched screw heads which held the shield in place on the real vehicle. The pole-like sighting device mounted in front of the driver was made with a combination of drilled-out styrene tubing fitted over stainless steel tubing. The ring itself was made out of soldered brass wire, and the mount was made out of thin bits of plastic and photo etch bits from the *On the Mark* Panzer IV set.

The *Criel* kit's two machine guns had chunks of resin embedded in their ribbed surface areas. I couldn't find adequate replacements at the time and was forced to build them out of stainless steel tubing wrapped with copper wire. A small length of hollowed-out plastic tubing fit over the stainless steel tube was used as a sight attachment point, which were then sanded flat on top to accommodate the bent ends of modified photo etch wing nuts that were used as gun sights. The barrel mounts were then made out of styrene. The resin barrel was slightly warped, and looked like a reproduction of the *Jordi Rubio* barrel. I heated the gun barrel with a hair dryer, then bent it back to shape followed by an immersion in cold water. The kit was then painted along with the barrel. This worked initially, but later proved useless because the gun barrel returned to being

warped once again. A *Jordi Rubio* replacement was then used and a color match followed.

A metal shroud was present on the 38(t) adjacent to the main gun, partly covering the machine gun ball joint that was located on the right side of the turret. This was there possibly to prevent the gun from hitting the main gun with bullets. This detail was reproduced from brass sheet and resin rivets. A replacement horn with wiring and a bracket for the vehicle



**Panzerkampfwagen 38(t) of the Third Panzer Division on the move. The 38(t) was well liked by its crews and went on to provide the basis for the Hetzer and several self-propelled guns.**

jack was made from the *On the Mark* Panzer IV photo etch set. The Notek headlight and tail lights were added with electrical wiring. The vehicle tools and stowage bins are from the spare part box. The perforated stowage bin on the left of the vehicle was replaced with the *Italeri* kit part. It was sanded very thin and dressed up with latches by *Aber* which went on all of the bins. Brass strip were used to make the brackets for mounting the axe and *Verlinden* buckles and lead foil created ties for the rest of the tools and for the barrel cleaning rods. The jack block was a combination of *On the Mark* photoetch and a slice of wood from a chopstick. It was later finished with a drop of wood stain. A tow pin attached to a small photo etch chain was added to the towing joint in the rear. The engine screen was sized up and made from a fine stainless steel screen, and brass strip made up the frame around it. Handles for the engine

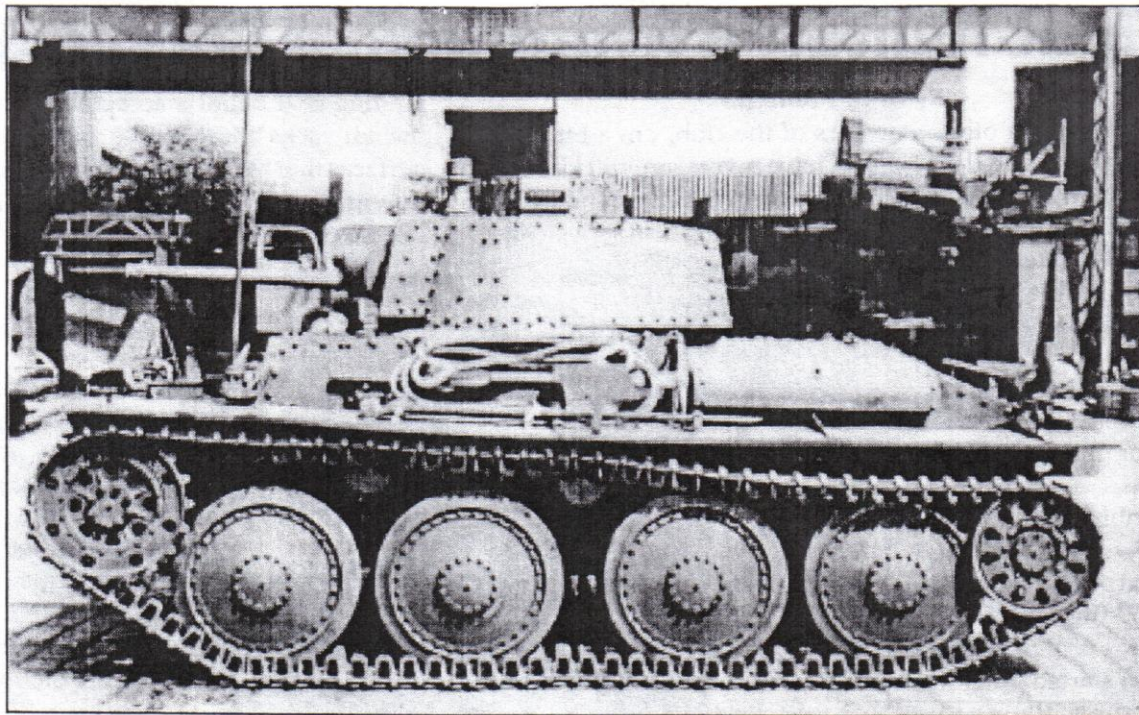
hatches were made with plastic rod. The ends were lightly heated, which created mushroom-shaped knobs. Small gauge bicycle gear shifting cables were annealed several times and bent into shape before being inserted into *Italeri's* drilled-out cable ends, which were then attached to the vehicle's rear towing hooks. Four mounting points were added to the turret deck corners made out of curved brass wire. *Italeri* German fuel cans were mounted on a fuel can rack made from soldered brass that was placed on the rear deck of the vehicle.

A set of injection molded *Maxim* Hetzer tracks were a close



match and replaced the kit's resin track sections. Hatch openings were also sealed off with styrene to accommodate the crew. The commander was an older *Verlinden* release and was a one piece resin figure. His head was removed and replaced with one from *Warriors*. Brass details were added to the joint assemblies along with copper wiring for the headset and throat microphones. The driver has a *Verlinden* torso and modified *Dragon* arms. The right arm was repositioned at the elbow and slightly altered on the attachment point at the shoulder. The left arm was slightly altered on the attachment point to the shoulder as well. Details were then smoothed out with epoxy putty where it was needed. A *Verlinden* right hand was used on this figure along with added details for the headset and throat microphones and wiring.

The crewman standing at the vehicle's right fender was a *Verlinden* figure with a replacement head from *Warriors*. The left shoulder attachment point on the arm was altered so that



**A profile shot of a PzKfw 38(t) Ausf G. The simple suspension stands in marked contrast to the complicated arrangements of later German tanks.**

the arm could rest on the tank's right fender. Three German helmets were used and rivets were added as details. *Verlinden* photo etch buckles and *Tamiya* masking tape made up the chin straps which were attached to three of the four mounting rings on the turret deck. The crewman standing made up for the fourth helmet. The coffee cup was made from a short piece of brass tubing that was soldered to a brass wire cup handle.

The model was airbrushed with a *Tamiya* dark gray acrylic base coat, followed with light shades of gray. The tracks were painted a *Tamiya* red/brown color and drybrushed with silver. The figure uniforms were painted *Tamiya* flat black with a little brown mixed in. They were then drybrushed with a light tan color. The flesh tones were painted with a *Humbrol* desert yellow followed with artist oils.

I tried using a *Verlinden* figure painting technique for this project. *Verlinden* dry transfers were used depicting a vehicle in the 7th Panzer division in Smolensk, Russia, 1941. More recently, I decided to mount this vehicle to a base with some groundwork. Well, a few parts fell off in the process, and one thing led to another. I ended up using an oil wash on the entire vehicle and revised the figures' flesh tones slightly to better match more recently built kits already on the shelf. All in all it was a good experience for a first time project in resin.



**A PzKfw 38(t) moves cautiously across a pontoon bridge during the invasion of France, 1940.**



# Float fighter: a hypothetical Corsair V in 1:72

By Greg Plummer

Like certain other members of the club, I'm a bit fond of flying boats and float planes. I have several unbuilt kits of said type in my collection but I never seem to get around to doing them. Lets face it, the early *Hasegawa* flying boat series (*Marlin*, "Emily," etc.) are not easy builds, and the *OKB* 1:144 *Be-12* I have looks positively nightmarish as tiny photoetched brass and poor instructions are not a winning combination.

I have a few floatplane kits also, including an *Aviation USK* *Fiat RS-14* that's been started, but I fear the sun will run out of hydrogen to burn before that one is done. Other floatplanes I have, such as *LS's* "Willow," may get done someday, but I was in the mood to do something quick, dirty, and most of all, cool. Most seaplanes, like the *Ar 96* for example, are not exactly sleek and sexy machines, so I started thinking hypothetical.

One day the idea struck me: why not put a Royal Navy *Corsair* on floats? I don't know where these ideas come from; I'm sure some of you wish you did, as then you may be able to stop them from coming. I suppose I could make up some "history" like they do at the universities these days,

but I'm not much interested in real aircraft development let alone fictitious stories. Let's just say the Brits wanted a kick-ass floatplane for their postwar cruisers. Before you could say "A *Corsair* on floats is a silly idea" I had my *Italeri* *F4U* already underway.

The *Italeri* series of 1:72 scale late model *Corsairs* is one of their better molds. (Ed. Note: well, with regards to accuracy, it's good enough to be converted to a floatplane!) The interior and

landing gear detail is acceptable, the overall fit is good, and the kit lacks the horrible fabric texturing on the control surfaces that many of *Italeri's* planes seem to have lately. The downside is a thick and ill-fitting kit canopy—more on that later. The plastic is also molded in dark blue; the standard

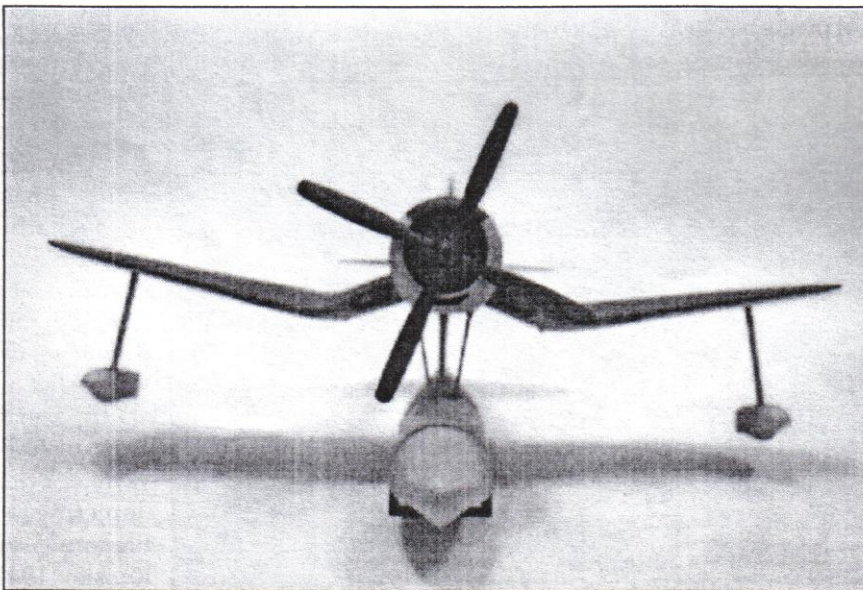
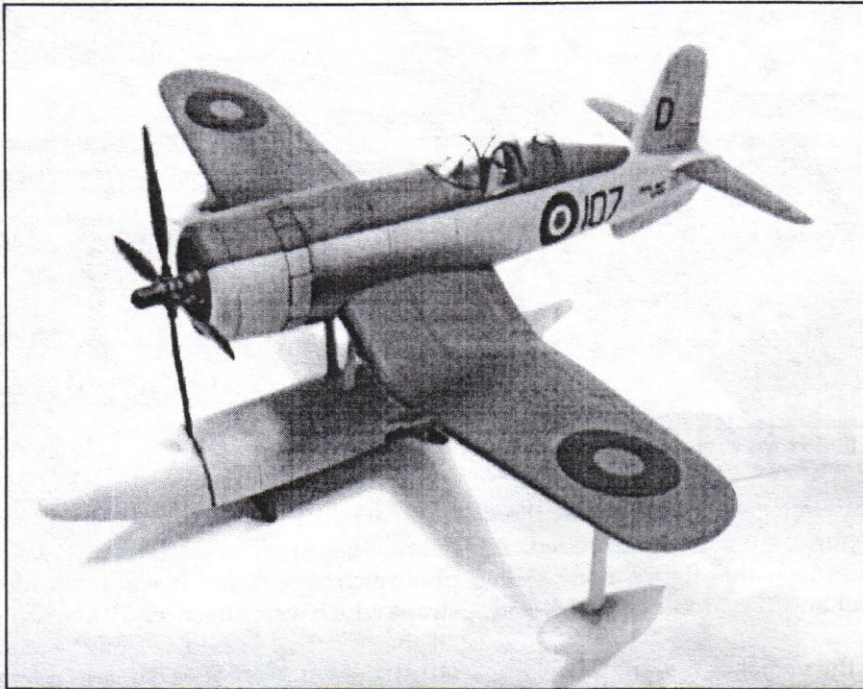
light gray would have been nicer here. The kit comes in a few versions, but they are all the same basic mold; my *F4U-7* kit had a painting of a French Navy bird on the top just for reference.

The kit cockpit was painted in a mix of bronze and light green paints to make, well, bronze green. Details were picked out in dark gray and metallic colors. Builders interested in making an "authentic" plane will probably want to replace the entire cockpit with a resin aftermarket set and paint it a real color, but that's besides the point. The fuselage halves and wings were superglued together with little fuss and filler needed. One nice touch—the front edge of the vertical stabilizer is molded off center just as on the real *Corsair*. This "twist" was put in to counteract engine torque.

Being a float plane, landing gear would not be needed obviously. The kit gear doors were forced on with liquid glue and clothespins. Polyester filler was need afterwards to fill the seams here, as *Italeri*

never intended to have a gear-up option on this model. Floatplanes also typically have additional or larger vertical stabilizers to conteract the areodynamic effects of the float. Keeping this concept in mind, I scratchbuilt a fin and added it below the tail. This also helped fill the gap left by the lack of an arrestor hook and tail gear. Additional filler was used at this joint also.

Now it was time for floats. They came from a *Hasegawa*



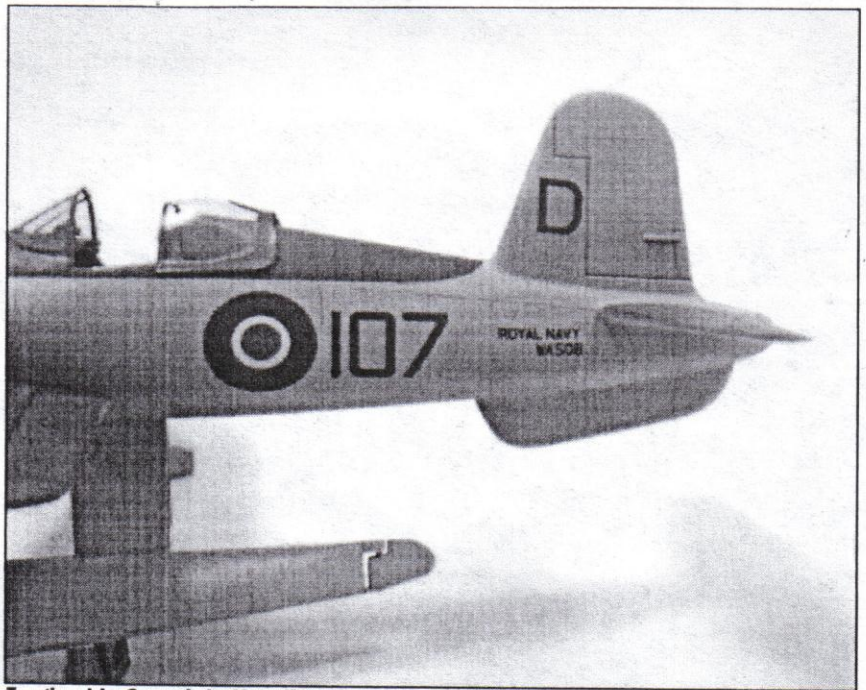
Pilots who were cursed with flying the *S03C Seagull* or *SC Seahawk* might weep at the sight of Greg's *Corsair* floatplane. The basic kit is an *F4U-7* by *Italeri*.



Kawanishi N1K1 "Rex" kit I got cheap at a swap meet. It was a shame to pirate parts from such a nice kit, but the *Corsair* had a fuselage waiting... There's also something strange about using Japanese floats on a *Corsair*, but I like irony. The wing tip floats were simply glued on, while the main float had to have its struts extended to clear the *Corsair's* large propeller. Yes, I did check the clearance before gluing the main float on. That brings up this point - hypothetical doesn't have to mean sloppy. All of the seams were filled on this model and the alignment of the main parts was set precisely. Well-done construction greatly adds to the believability of a model, which is, ironically, critical on a made up subject.

With the airframe done, it was time for painting. The model was first airbrushed in *Testors* RAF Sky, and then the upper wings, fuselage, and horizontals were masked off and sprayed Extra Dark Sea Gray—one of my favorite color combos and part of the inspiration to do this model. Those building a replica will have break out the Gloss Sea Blue - lotsa luck, suckers. An X-Acto knife tip was dragged through some of the engraved lines to let the dark plastic show through to good effect. The markings came mostly from an *Eastern Express* Supermarine *Attacker* kit (ex-*Frog*), with a few roundels from the spares box. The model was Dullcoted (a new verb?) as the canopy was being prepared.

As mentioned before, the kit canopy is thick and fits poorly on the fuselage. A *Squadron Corsair* canopy was cut out and I found it didn't fit too well either. I remember something about F4U-4 vs -7... Anyway, the rear canopy was carefully cut away and posed open; the final results were pleasing and definitely better than the kit alternative in this case. Final details included adding the well-done kit exhaust stacks and adding an all black propeller (no wussy yellow tips here—they're hard to



To give his *Corsair* better directional stability, Greg scratchbuilt a ventral fin. The floats from an N1K1 add nice rudder and panel line detail.

paint) Things I forgot: a pitot tube and navigation lights. Sue me.

Exhaust and cannon fire stains were added, though I'm not sure where a postwar RN *Corsair* would gather gun powder stains. Sans stripes, shooting up a fallafel stand in the Suez crisis maybe? Strafing members of the Labour Party? Anyway, a stand was made from strip plastic and parts from the Rex kit's beaching dolly.

I entered the model in the hypothetical category at the last Kickoff Classic, where it won 2nd or 3rd—I forget. What's important is that I had fun making the model, and there's not another like it, unless you make a float *Corsair*. Or you could try a *Hellcat*—they put the *Wildcat* on floats, after, all.



# The editor can be blamed for some things...

But he can't be blamed for a lack of articles! The Styrene Sheet is only as good as the material you provide; please help us keep up the quality of our newsletter by contributing.

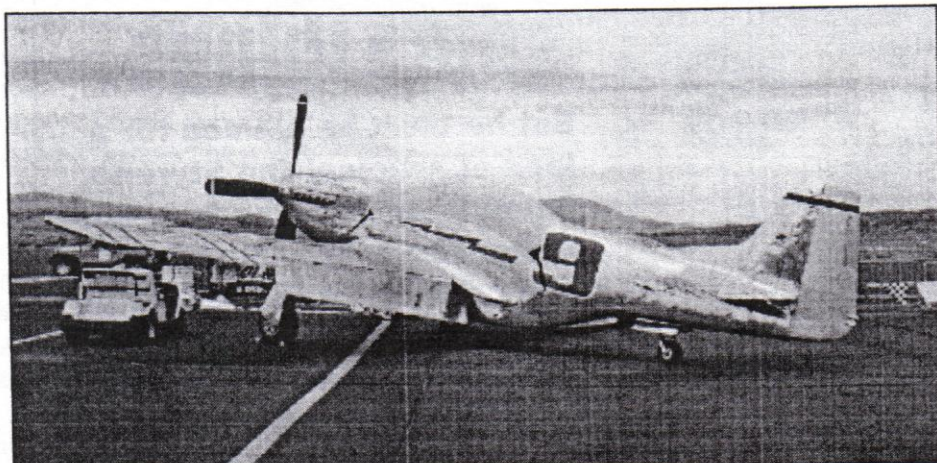
For information on how you can help, e-mail him at [bucholtzc@aol.com](mailto:bucholtzc@aol.com)





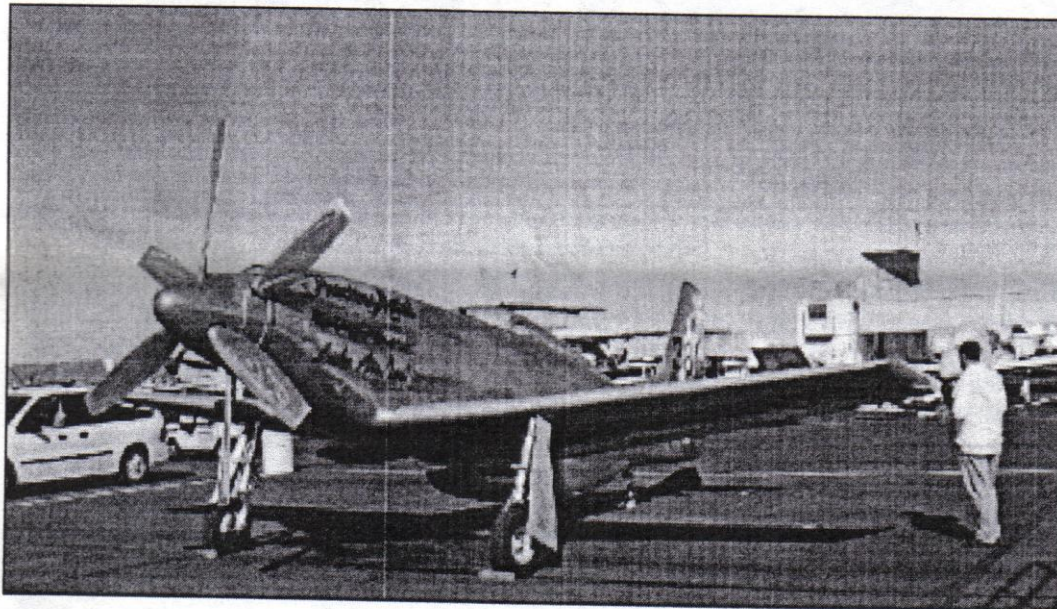
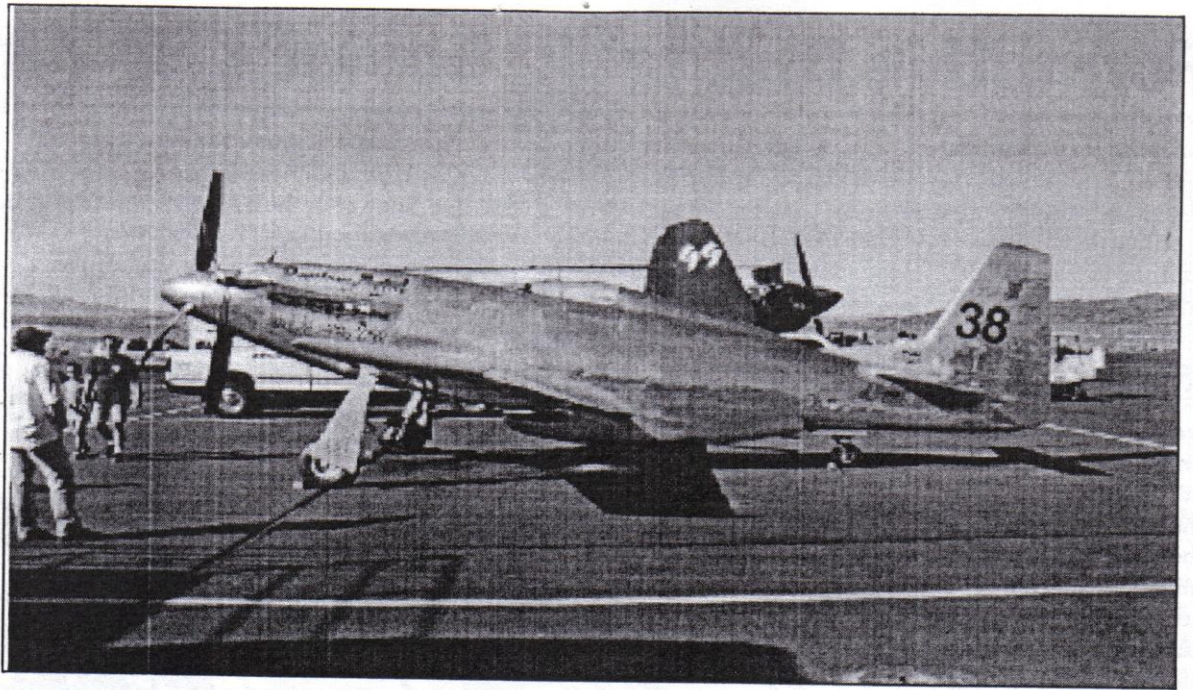
# *Before the Races*

The Saturday before the start of qualifying gives people a chance to examine the air racers at Reno up close in a relaxed atmosphere. After the contest in Reno, a group of modelers investigated the sights. Above, Brad Chun and son Travis stand in front of the F7F tigercat "Big Bossman," which did not compete. At right, Dago Red, the 2003 champion, has some last-minute work performed on her engine.



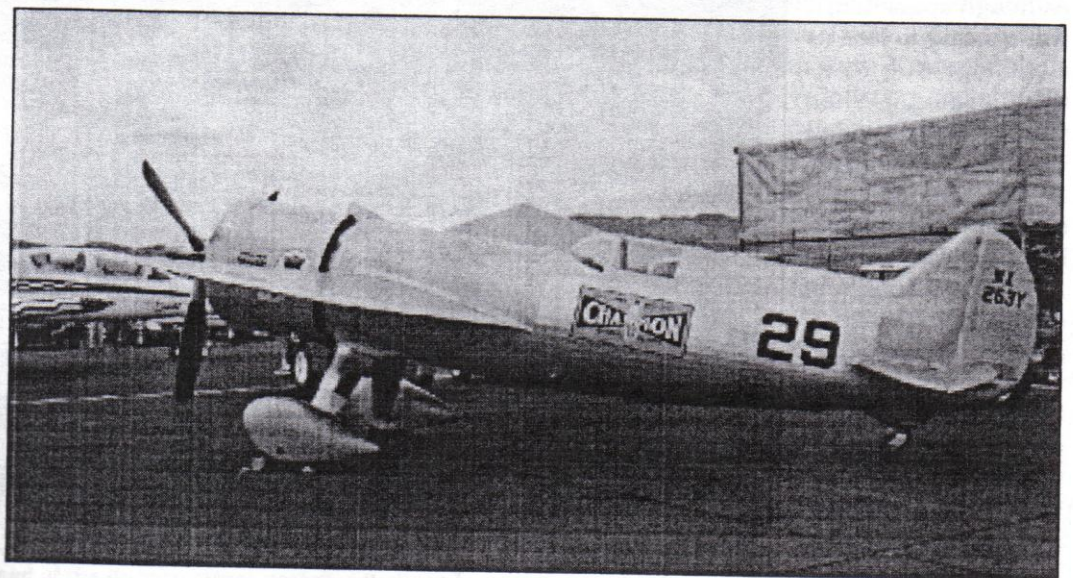
P-51 "Cloud Dancer," which finished second in Sunday's bronze race.





Two views of "Precious Metal," which won Sunday's bronze race with an average speed of 407 mph.

Skip Holm is often at the controls of this replica of Roscoe Turner's LTR-14.





# Formative fast tank: Soviet's BT-7 in 1:35

Continued from page 1

duced soon afterwards.

The Christie concept was a much simpler and cheaper design to build compared to its German counterparts. Its production was not hampered by numerous small and complicated parts or fittings, which took up valuable time and manpower. It didn't require expensive and complicated manufacturing practices, or a highly skilled work force for its production.

The BT-7 was the last and was the most refined model in the BT series. The armament was a 45mm (1.22in) main gun, along with two 7.62mm (0.3in) DT machine guns. The armor was also improved, and its automotive design was made

more powerful and reliable. The first few BT-7s had the old cylindrical BT-5 turret, but this was soon replaced with a new conical design with sloped armor.

In battle, BT-5s saw combat during the Spanish Civil War and also in Manchuria. The design proved itself to be superior to German, Italian, and Japanese tanks of the period. It was considered to be the best tank design in the mid-1930s.

However, in 1939 and 1940 during the battle for Finland, the BT-7 didn't show well. Although upgunned, it was starting to lose its advantage due to its thin armor. When Germany invaded Russia in June 1941, the BT was still an adequate combat vehicle. It got beaten up badly due to the poor standards of maintenance, tactics, and crew training.

Unfortunately for the United States, military planners failed to see the urgency in the J. Walter Christie project, and that it was truly a

brilliant engineering marvel equivalent to the P-51 in design genius. Sadly, it was dropped. Ironically, the design led the Soviet Union to the forefront of tank technology for years to come. Soon after the BT series came the initial development of the superlative T-34/76, designated T-34 model 1940, which was soon followed by the upgunned T-34/85. The T-34 is widely considered by many military historians to be the best

and most influential tank of WWII.

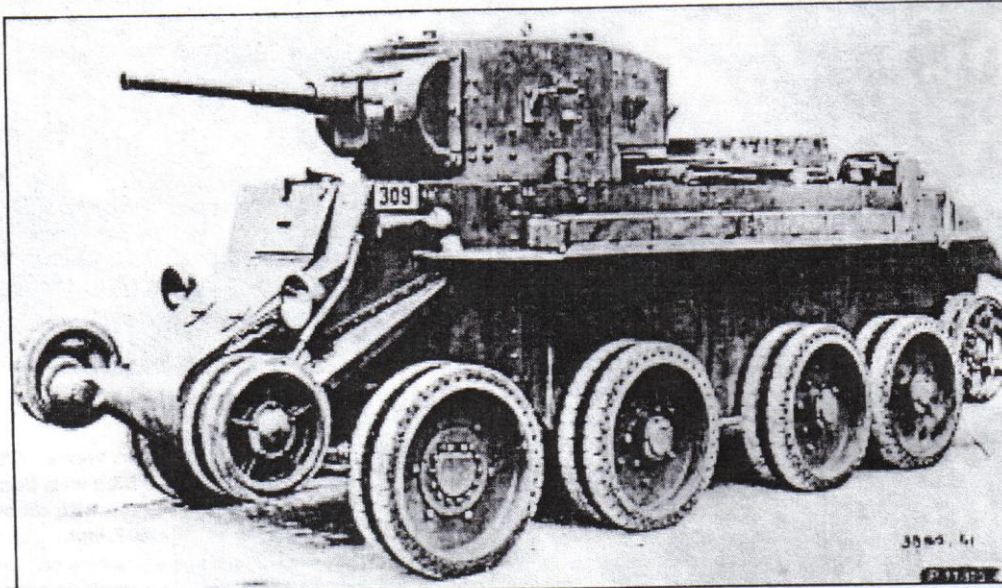
*Accurate Armor* released two versions of the BT-7 during the late '80s and early '90s. The first is the early variant with the BT-5 turret. The second has the newer sloped upgraded conical turret similar to that on the T-26. About six years ago I purchased one (second hand) for \$50 (around half of the original

cost) and was also lucky enough to find a set of *Modelkasten* tracks as well. I ended up with the early variant BT-7 and it consisted of a solid resin turret with separate hatches. The upper and lower sections of the hull along with other various details such as vehicle lights, tools, drivers hatches, etc, were in resin.

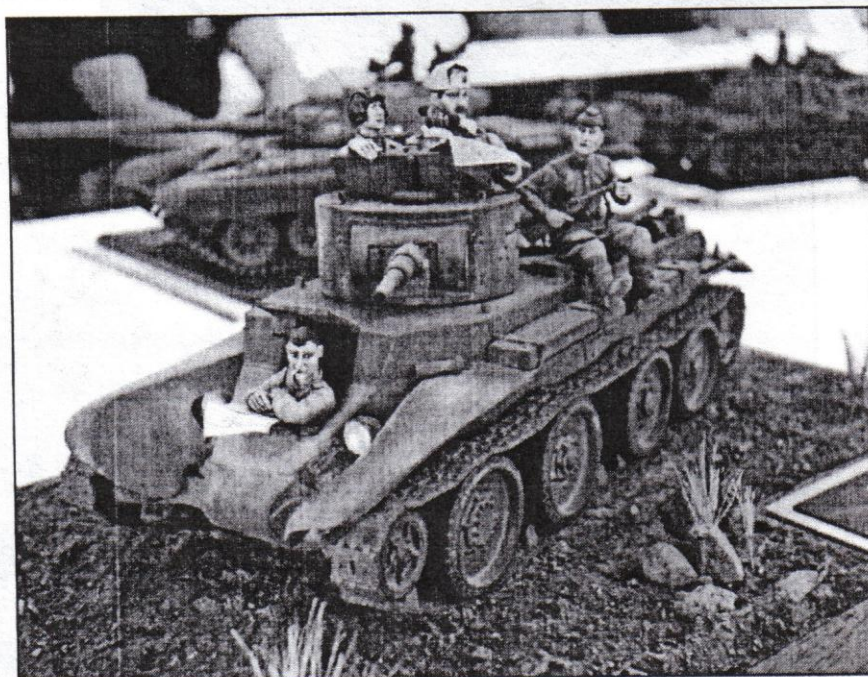
The wheels and steering assembly were white metal. A

small photoetch fret was also included providing a muffler guard (or exhaust screen) and its brackets, grab handles and rear mudguards. The kit tracks were not used; these were also in resin, and came in several fixed lengths.

The benefit of the kit's lack of parts were offset by the large amount of flaws that stood out and the time needed to correct them. The model was somewhat crude by today's standards. The fit was not the greatest due to some important surface areas being slightly warped, and



The Christie suspension allowed the BT-7 to be driven on prepared roads without its tracks, where it could move at 70 mph.



Hubert's BT-7 and crew in action on a well-built base.



there were numerous gap problems in regards to the two pieces that made up the hull. A gap on the front glacis plate needed to be addressed.

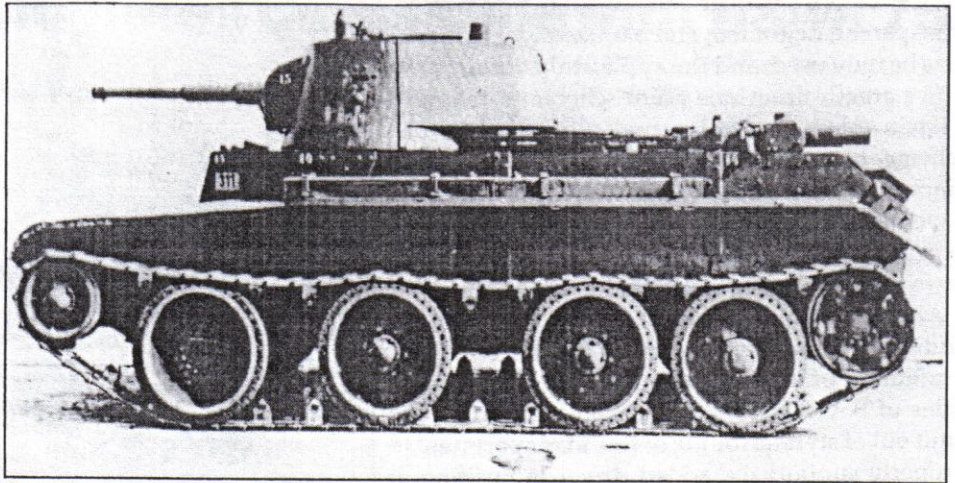
Weld bead detail was present on one part of the hull structure. The detail fell short and was not wide enough to mate flush against the other joining part on the glacis plate, and this left a gap to be dealt with.

The remedy was to scrape off and sand smooth out the weld detail, followed by a application of two-part epoxy putty to simulate a new and slightly wider replacement bead which covered the gap sufficiently. Plastic shim and super glue filled the gaps running just underneath the fenders in the rear of the vehicle where the halves of the structure join together. The correction was followed with some careful sanding, ending with consecutive layering of white glue used as a leveling agent.

A major gripe about the kit lies at the rear, were numerous air bubbles ruined the mood. The joining edges of the sections in the rear were not well rendered and were jagged and uneven. Repeated applications of super glue were followed with careful sanding.

This also resulted in the removal of all adjacent surface details such as rivets. Replacements were made by cutting and then heating small bits of stretched sprue and securing them with super glue. Other parts lacked interior detail and needed some help. Brass and plastic made up the details for the latch mechanisms and hinges for the turret hatches. Parts such as the vehicle jacks and fuel cells had air bubbles and surface imperfections that needed glue and sanding.

The storage bin on the rear deck had to be replaced. It was



**A profile showing the BT-7's clean lines and simple suspension. When the tracks were removed, they would be draped on top of the fenders.**

constructed with styrene. Brass sheet was used for its hinge plates, and it was finished off with the addition of rivets. Wiring for the horn and MV lenses in place of all lights proved to be well worth any additional hassle.

Surprisingly, cleaning up and constructing the set of *Modelkasten* tracks was a nice and welcome break from the rest of the project.

The kits barrel was badly flawed and warped. A replacement 45mm turned aluminum barrel was needed. *Jordi Rubio* solved this problem. The original gun support (or mount) had to be removed and a new one was made from plastic sheet in order to properly accommodate the new barrel. Rivets also had to be made and glued in place. Care was then taken when a new slot was drilled out for the mounting of the barrel.

For finishing, a pre-shading method was used with *Tamiya* acrylics and the base coat was approximately 25 percent *Tamiya* black green diluted with 75 percent isopropyl alcohol. Olive green was added to the mix and was applied sparingly

to center panels and surfaces. Straight olive green was then used again even more sparingly, and slightly closer towards the center of the previous painted surfaces. Finally, a mixture 30 percent dark yellow was added to 70 percent olive green. This created good contrast from light to dark, with starting points in the center of panels that were highlighted. This result also left the edges and crevasses a darker shade. The tracks were then painted a reddish brown shade to simulate rust and wear.

Varying shades of artist oils were then used as a wash to better blend



**BT-7s on parade before the war. The tank might have survived longer in Soviet service if it could have been used as a scouting vehicles, but the speed of the German attack precluded that use for the most part.**



all the colors together and to give a somewhat transparent, degraded, and oxidized look. Thinner was heavily used, and the application of colors can differ greatly from one paint scheme to the next. Certain colors for washes may work well for one scheme, but could easily ruin another, so a good amount of care was given because it really could have made a huge mess of things. The key was to experiment. Pre-selected zones for earth tone pastels were then applied to finished the job.

Although the BT-7 had a crew of three, an additional tank rider was added for interest. It was a common practice for them to ride on the back sides of Soviet armor. A blocked-off section was built out of styrene for the driver's compartment to properly support the added driver in position. It was also done to shore off any exposed open areas inside the kit. This had to be done in advance before gluing the two hull parts together. Some planning also had to be done to determine the proper depth of the compartment in relation to height, size, and the desired pose and positioning of the figure.

Parts for the driver came from the fairly recent *Tamiya* tank crew set for the T-34/85. The figure used was not designed to be mounted on a BT, and the level of detail was also moderate, so some improvements were made starting with the arms. The real challenge to this was creating a new pose. Putty was used for temporarily attaching the arms to the torso, then surface areas were earmarked in order to determine where the permanent changes were to be made. I then altered the surface mounting points of the arms by slicing, scraping and sanding. At this point, great care was taken to avoid overdoing the process. This was done in small increments of removal and numerous test fits. This ultimately resulted in a change in the original positioning of the arms, and created a different figure posture suitable to be mounted on the BT-7's driver's compartment. However, this time I was fortunate that the torso did not need the added work of alteration. Shoulder rank insignias were added with lead foil. *Verlinden* replacement parts were used for the head and hands, and were big improvements over the original parts.

Luckily, the turret had an existing trench-like hatch opening that was perfect for the accommodation of two figures. However, the opening was squared off, and had a rectangle shape. The problem with the figures was that the lower portion of their torsos (below the waist) needed to be properly squared in order to fit. Therefore, the figures needed to be altered accordingly.

The high ranking commander came as a separate kit from *Verlinden Productions* and came with his own radio. The left arm was too long from shoulder to elbow, and was altered and reshaped. Torso detail supporting the left arm needed building up and detail was carefully sculpted with epoxy putty to closely match the flow of the existing detail. The gunner/loader had a *Verlinden* Russian tanker torso and heavily modified *DML* arms. The right shoulder and elbow were repositioned and altered. The head and hands were again by *Verlinden* with the exception of the facial detail. The facial detail was removed with a Dremel Tool, and a new face by *Hornet* was sized up and grafted on. The right hand was



**BT-7s advance toward the front in 1941. Already these tanks are covered with extra stowage and personal gear.**

modified at the wrist and brass wire was added to the left hand to simulate the grasping of the wiring for the radio. The Russian tank rider started out as a pure unaltered *Hornet* figure in white metal. However, the head somehow vanished and a *Warriors* replacement was used instead. Miscellaneous photo etch buckles and lead foil created the strap for the PPS 7.62mm submachine gun.

An acrylic automotive primer was used for the metal figure. Acrylic paints were used as a base coat for all the figures, followed by artist oils. The painting of the crew required some time. Painting figures is a difficult subject to explain or to master; it would take an entire book to properly cover the subject. Variations always occur, and are different from figure to figure. It would be safe to say it is more or less an art form.

Experimenting first was greatly beneficial in this part of the project. Starting out with proper reference material was a must. There's a lot of good books out on the subject, but one of the better ones is *Building and Painting Scale Figures* by Sheperd Paine, which covers broad areas along with different facets needed for figure painting. It would be too extensive to even try to cover this subject in full. The book is well worth the trip to the hobby shop and retails for around \$20 or so.

The base was made from wood purchased from Southern Lumber in San Jose. They carry most species of exotic wood and many varieties both in color and quality, and are well stocked for most wood base needs. The ground work was a combination of Durham's putty, Celluclay, curbside gravel, sawdust, white glue and grass details from *Woodland Scenics*. Methods for the ground work are thoroughly covered in another great Sheperd Paine book, *How to Build Dioramas*.

Finishing this kit was a challenge. This was partly due to the *Eastern Express* kit that came out at the halfway point during construction and left me with a serious temptation to buy it. They must have known I was building the *Accurate Armor* kit! Finishing it left me with an added appreciation of all the potential work needed in some of the other resin kits out there.



# Special Hobby completes Curtiss line with Hawk 75

By Mark Schnert

There have been a flurry of P-36 and early P-40 kits in 1:72 coming from various Czech companies lately, giving us some welcome upgrades over what came before. Now, *Special Hobby* has filled the last major gap in this Curtiss family tree by releasing a kit for the fixed-gear Hawk 75 export variants.

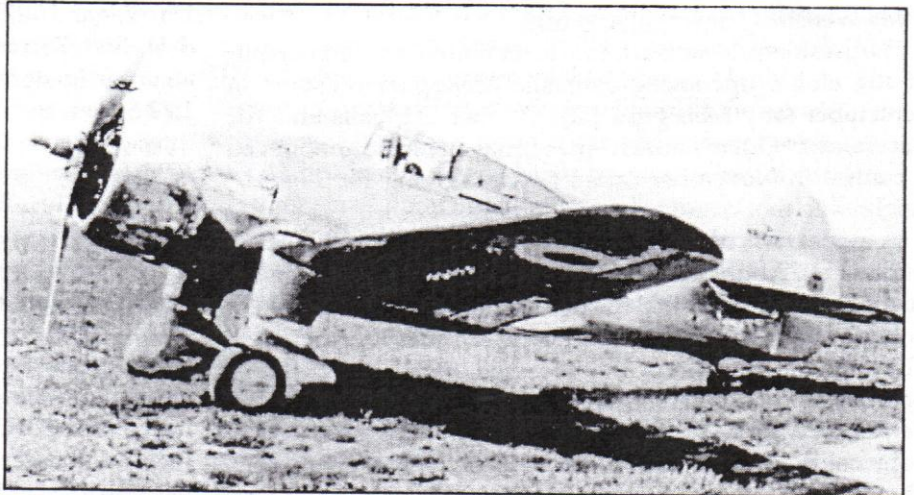
Curtiss diversified its business throughout the '30s, selling to the U.S. Navy, U.S. Army Air Corps, domestic customers, and to foreign governments. It was particularly prolific in its sales of fighters overseas, selling 137 *Hawk II* biplanes (essentially the Navy's F11C) to Bolivia, Chile, China, Colombia, Cuba, Norway, Siam, Turkey and even a couple to Ernst Udet, and 138 *Hawk III* biplanes (similar to the BF2C) to Argentina, China, Siam and Turkey. In an era of sour economies and few wars, they did a pretty fair business. By the time Curtiss came out with the sole *Hawk IV* biplane (merely a warmed-over *Hawk III* with an enclosed canopy,) it was obvious that the export market now required modern monoplanes.

Curtiss ended up with not one or two export monoplane fighters, but three. By far the most numerous were the various *Hawk 75A* series, which were export versions of the standard P-36, with engine and/or armament variations. Most of these were exported to western European nations. A second type based upon the CW-19R light attack/trainer, the CW-21, boasted a fairly big engine, light structure and light armament to optimize the interception role cheaply. A couple were used by the Chinese, and two dozen went to the Dutch in the East Indies.

The simplest in terms of maintenance and operation were the fixed-gear *Hawk 75s*. They shared a similar airframe to the P-36 line, but were generally lower-powered and dispensed with a retractable undercarriage, saving cost and reducing maintenance requirements. It was thought this would make them an attractive alternative for some of the same customers who had bought the earlier biplanes. The Chinese were first, buying 30 *Hawk 75M* (and a single 75H demonstrator) and the Chinese may have built as many as 82 more from kits supplied by Curtiss. Siam was next, buying a dozen 75N models, which

were apparently equipped with 23mm Madsen cannon under the wings. Argentina bought 29 75s and built another 20 under license. Most of the Chinese aircraft were lost in training accidents, the Thais fought the French with theirs, and the Argentines kept some of theirs in service into the '50s without sending them into combat.

Despite the substantial similarity among the three variants, *Special Hobby* has gone to some length to detail the kit to



A fixed-gear Hawk 75 destined for France awaits delivery somewhere in the U.S. This aircraft is unpainted.

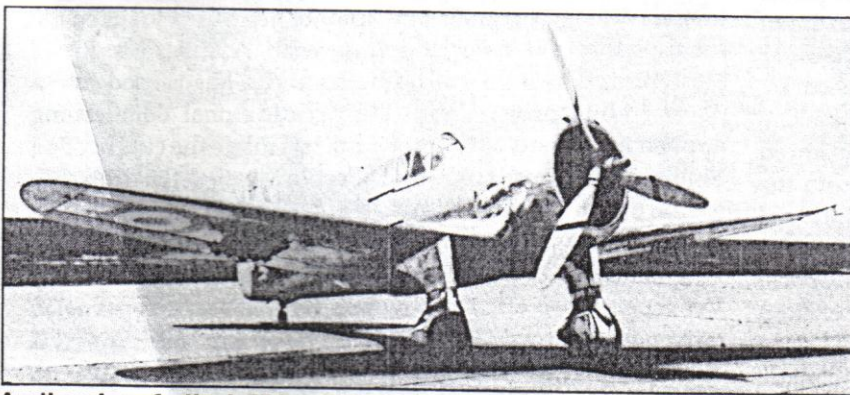
handle the versions. Each type had slightly different wheel pants, which is why the kit comes with ten wheel pant halves. The instructions are replete with notes like "75MO only" or "75N only." A modeler might inadvertently build a hybrid by missing some of these notes; my expectation if I build this kit is to first use an overlining pen to highlight all the notes in the instructions relevant to the specific variant I'm going to build.

The kit components are typical of the most recent Czech injection kits; the gates are smaller than previously, but there are still some flash issues. The engraving is delicate and matches up well with the drawings I have. Resin is supplied for the engine, tail wheel and larger cockpit components; photo etch is provided from some small cockpit detail, pitot, gun sight and dive brakes. Two identical vacuformed canopies are included, and two sets of transparent quarterlight panels as well. The only completely unusable parts are the wing guns; the barrels for the Madsen cannon are marginal.

Unlike a lot of the Czech kits, this one does not require you to scratch-build anything, but it does call for filling and sanding to get rid of detail that does not appear in one variant or another.

The decal sheet is in register, the colors look right, and the markings look accurate, particularly the two decals of the Siamese spirit, which are going to find their way onto either this kit or my *MPM Hawk III* kit.

The wing measures about four scale inches too wide; the length is right on. I don't see any shape errors either. All in all, this promises to build up into a fine model from one of the more obscure branches of the P-36/P-40 family tree.



Another view of a Hawk 75 bound for France. The Hawks acquitted themselves well in combat with the Germans.



# AUGUST MINUTES

The August meeting started with an update on some IPMS business. The amendments that were up for consideration have received the minimum number of votes to be formally considered; without receiving sufficient votes, these amendments would not have been considered at all. The Regional coordinated thanked the members of the club for their participation, and encouraged them to vote for officers in the current election for officers, which is underway now both through the written ballot in the Journal and through the IPMS Website ([www.ipmsusa.org](http://www.ipmsusa.org)).

The president, Mike Burton, also reminded the membership of the club's upcoming contests: *Monogram* Mastery in September (any *Monogram* kit); October Oddballs and Air Racers, and "Out to Launch" in February. He also announced a contest in November called "Thanksgiving for *Tamiya*," celebrating that manufacturer's models.

In model talk, newcomer Dmitry Shapiro showed his S-37 Berkut in 1:72, built from a Russian kit whose fit was somewhat suspect. Dmitry wrestled the decals into place with the aid of Solvaset. John Heck's *Tamiya* 1:48 F-117 goes together well, although he questions the recessed panel lines. John's backdating the model to depict a preproduction model. Bill Ferrante's *MPM* PT-19 is dressed in a lovely coat of yellow paint courtesy of the new line from *White Ensign*. Bill said the chrome yellow is accurate in color and covers very nicely. Bert McDowell says his 1:350 *Trumpeter* U.S.S. *Yorktown* has a fit like a giant snap-together kit; he's a little disappointed, but this is his first 1:350 kit and he's sure to get past this initial issue. Ralph Patino turned two cardboard mailing cartons into large scale rocket models; his Redstone features a nosecone made from a brochure from a Nissan dealership, and his Atlas was scaled up to 1:48 and mounted on a launch pad made from stretched sprue and *Evergreen* styrene strip. Roy Sutherland is building two of the new *Tamiya* P-47D razorbacks for industrial purposes; he says it's one of the best kits he's ever built. Roy painted his models using *Tamiya* spray aluminum. Ron Wergin added a pilot figure by *Prieser* to his *Hasegawa* Fw 190A, and he finished the model using *Gunze Sangyo* and *Tamiya* paints. Ron also built a 1:48 *Tamiya* P-51D *Mustang*, and gave it a natural metal finish using the tried and true method of applying Rub and Buff. Vladimir Yakubov's T-27 tankette is a variation of the Cardin-Lloyd model that was popular between the wars. It's also entirely photoetched, and it's in 1:72 scale! The suspension on one side has 45 parts! Vladimir is converting a *Heller* kit of the *Aurora* back to the fit it had at the battle of Tsushima Straits, and he has two other Russian warships from the Russo-Japanese War in the works. On display were four models—two cruisers, the submarine K-21 described in the last Styrene Sheet, and a BA-6 armored car—that all brought home awards from Vladimir from the nationals. Matt Reich's 1:32 *Academy* F/A-18C wears markings from the U.S.S. *Independence's* Operation Desert Shield cruise and has a CAM resin seat in the cockpit. Matt says the toughest part of this kit is fitting the intakes. Andy Kellock never liked the back-end of the Coyote (the car seen on the show Hardcastle and McCormack), so he cut off the end of his model and made a new one from scratch, then added a large block Chevrolet engine and styled it as a Can-Am car. Andy also built a

Porsche racer, but the white paint has yellowed over the years. Kent McClure recommended adding a drop of blue to white paint to avoid this from happening. Mark Schynert bought *Matchbox's* British 1-ton truck for the Bofors gun it came with, but he's now built the little truck as an RAF repair vehicle. Mark said dryfitting the truck was tough, but it now looks good in its blue paint scheme. Kent McClure had a herd of characters on the table from his various role-playing pursuits, including a robot butler, news crew, Hagar the Horrible and medieval combat-equipped Snoopy. From Kent's desk, literally, comes a Victorian Steam Punk tank made from an unfortunate tape dispenser. Kent is also building a *Tamiya* 1:72 *Seiran*, and has applied a wash and drybrushing to the interior thus far. Vince Hutson is lavishing attention on an ICM 1:48 *Spitfire* IXe, adding parts from *Cooper Details* and *Ultracast*. Chris Bucholtz is still working on the interior of his *Azur* Martin 167 *Maryland*, and his *MAC Distribution* V-1 won second in single-engine jet aircraft at the Fresno contest. Chris is also working on a filletless conversion tail for the *Tamiya* 1:72 P-51D that allows the builder to do a P-51D-5. Ben Pada says all you people who have a hard time with metal finishes are making thing hard for yourselves, and as if to rub our noses in it he brought in a *Hasegawa* F-86F Sabre, a *Monogram* F-86D with a scratchbuilt cockpit and a *Tamiya* P-51D, all in natural metal finishes. Ben uses *SnJ* for his natural metal paint jobs. Buddy Joyce is looking for markings information for his large, heavy 1:72 metal model of a C-133 *Cargomaster*. Braulio Escoto's collection of Moffett Field-related aircraft includes a pair of F-8 *Crusaders* in 1:48, built from the *Monogram* kit. Hubert Chan added a *Czechmaster* barrel to his *DML* StuG IIF, then dressed the model up with *Aber* brass and crewed it with figures that sport heads from *DML* and *Warriors*. Hubert also likes Italian, as in an *Italeri* Fiat 13/40 that's getting a *Model Victory* conversion added to it, and Japanese in the form of a *Tamiya* Type 97 Chi-Ha that has new scratchbuilt hatches. Lou Orselli obtained custom details for the B-29 *Superfortress* used for cosmic ray research and he's converting a 1:48 *Monogram* kit into a flying laboratory to wear these colorful markings. Laramie Wright is close to putting his Loire-Nieuport 411 in paint; his first task in finishing the *Azur* kit is the tail stripes. Laramie is also at work on a trio of *Spitfires*: a *Tamiya Spitfire* Vb with a *Cooper Details* interior, a *Monogram* IX built as it would have been built when it was the state of the art, and a second *Monogram* Spit IX decked out with a *Tamiya* interior longer landing gear and a new spinner. John Carr thanked the membership for infecting him with A.M.S.; his *Revell* Superbird, which he's building as a gift, has turned into a never-ending project, with lots of additional detail being applied inside and out. Cliff Kranz has made the cuts needed to convert *Academy's* B-29 into "Fertile Myrtle," the drop ship for the Bell X-1, and he has a 12-Squared X-1 to go with it. Cliff is using drawings and photos from *Wings* and *Airpower* magazines as a reference. Gabriel Lee has built many Venezuelan aircraft, and now he's working on a Venezuelan tank, namely an AMX-30 from the *Heller* kit. Mike Burton is embracing the *Monogram* Mastery contest with a vengeance, and he brought his inspiration: a *Spitfire* IX he built when he was 10! Mike had two other *Spitfires*, an *Airfix Spitfire* 24 and



a *Falcon 22*, both in 1:48. Next to these was a large-scale R-1820 radial built from the old *Revell* kit, which has won Mike numerous awards. Mike has had some time for vacuform kits, as is evidenced by his *Rareplanes AJ-2P Savage* and his *Pucara*. He's also had time for a more mainstream *Hasegawa P-47D*

bubbletop. And the model of the month goes to... Scott Nagle, who constructed *Monogram's A-10 Thunderbolt II* with a Black Box cockpit, then dropped the flaps, closed the spoilers and painted it in a WinterEx scheme. The load of ordnance came via a suggestion from Dana Bell.

## SVSM BOOKSHELF

*Walk Around U.S. Tank Destroyers Squadron/Signal Publications*

Standard Squadron/Signal walk around format of 78 pages covering the U.S. M10, M36 and M18 tank destroyers. For those who have yet to see a walk around book, they are a quick and cheap reference on a certain item. No history or in-use photos are included. Most of the photos in this book are of restored vehicles.

changes made to the stowage when it was built. Some people think the ammo was stored under the floor in modified bins in place of the standard M4A3 ammo storage tubes. Others think the ammo was stored in the sponsons like early M4s. Unfortunately there are no interior photos. I realize the photographer may not have been allowed inside the vehicle or the vehicle may have been gutted (it might even not be an actual M36B1 but just a display). So the photos are of little use. Another small point about most walk around books: I wish the photographers would start adding reference scales to some photos. It's hard to determine on some kits if the part is the right size or if the manufacturer fudged the size to get it to fit in the kit. A nice scale reference on some items would be very helpful.

The book contains 30 pages of photos of the M10, 20 pages of the M36 and 20 pages on the M18. There are three pages of color profiles of the vehicles, most of them being M10s, plus the cover and rear drawings. Most of the photos are well chosen but some I thought were useless. An example is an assortment of photos of a cutaway M10 transmission. I don't know how that will help you detail a kit unless you plan on doing a diorama of a destroyed M10 with the tyranny parts spread everywhere. Another issue I had with the book is they included some exterior photos of a rare M36B1 (M36 turret on a Sherman hull) that is on display at Fort Hood, Texas. There has been an on going discussion about this vehicle and the

If this book had come out 10 years ago it would have been a must have to fix *Tamiya's* M10 or M36 kits or the resin M10 and M18 kits that were available. Now I would only recommend it if you a hardcore U.S. armor fan or plan to have a major AMS attack building either the *Academy* or *AFV Club* kits.

—Kent McClure

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JUST LOOK AT THAT SCALE, HARRY!

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IT'S ABOUT TIME I FIXED THINGS UP HE'S NEVER JOINED NUTHIN' IN HIS LIFE, SO I GOTTA GET HIM JOINED IN SOMETHING.... THIS "INTERNATIONAL PLASTIC MODELERS SOCIETY" MIGHT DO THE JOB.

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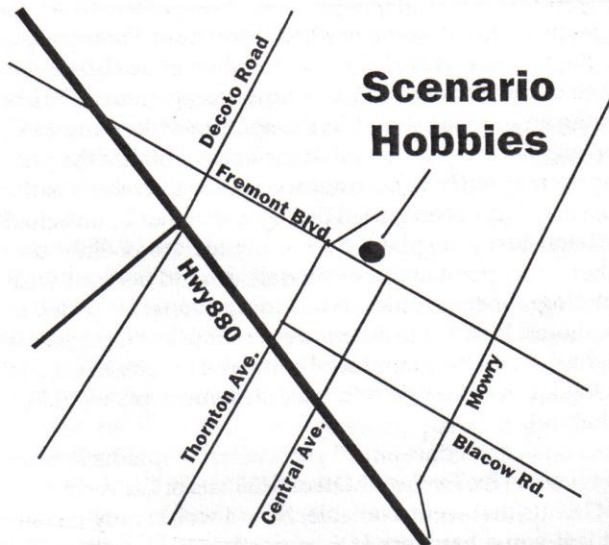
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