Building and Painting an GAZ-MM in 1/48 Scale

Armor Modeling Vol# 6

by Kevin Townsend

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Building and Painting a GAZ-MM

INTRODUCTION

Inspiration can come from many sources. And, as they say, imitation is the sincerest form of flattery. Many of my pieces were inspired by the late, great Shepherd Paine. This model was inspired by a somewhat lesser-know artist. A few years back, on the Track48 discussion forum, an excellent modeler by the name of Alan Wells posted a thread called "Blitz and Pieces". This imaginative piece featured a German Opel Blitz truck fitted with a flak gun and loaded with figures. His creation featured not only fine modeling work in the form of assembly and painting, but it also had an outstanding composition. Alan also built a great sense of motion into the piece. I was really taken by the amount of figures crammed into the vehicle, the action in the little scene, and the in-motion look he captured so well. Those were the aspects I "borrowed" for my little Russian truck.

With nearly all my previous quarter scale builds, it has been the model or models present in the scene that were the main focus. Figures and action served in supporting roles. Not so much here. In this case the main focus and the meat of the story is in the figures. The truck serves only as the "vehicle" (figuratively and literally) that carries the story. The story is also supported by groundwork and other elements that show the devastation of war.

In previous booklets in this series we have already looked in detail at my model, figure, groundwork, and composition modeling methods. Here, we will examine how those were applied to this piece. We will also review and feature some of the outstanding 1/48 replacement heads marketed by Phillip Young's company, "Figures With Attitude".

This shot, showing one of the Tamiya figures next to a ruler, illustrates how small these 1/48th scale pieces are. The kits are also generally somewhat less expensive and simpler than their larger 1/35th scale counterparts. Still, a modeler can pack almost as much detail into one of these little kits as they can the larger counterpart. These factors, combined with their compatibility with popular model aircraft and model railroad scales, make 1/48th an ideal armor modeling scale.

"Red Army Soldier: You are now on German soil. The hour of revenge has struck."

-Red Army Slogan

"Soon we will return home.
The girls will meet us,
And the stars of the Urals will shine for us.
Someday, we will remember these days.
Kamenets-Podolsk and the blue Carpathians.
The fighting thunder of the tanks.
Lvov and the steppe beyond the Vistula.
You won't forget this year.
You'll tell your children of it.
Someday, we will remember these days."

-Red Army Song Celebrating the End of the War

Note how the addition of a base, groundwork , and figures transform a simple model into one that tells a story. Although the model is the largest and most central element in this little diorama, it is the figures that are the main focus.


На К
Берлин
Смерть
фашистов!


На К
Берлин
Бей
фашистов!

The Real Thing

GAZ-MM:

Length: 17ft 6in
Wheelbase: 11ft 4in
Width: 6ft 8in
Height: 6ft 6in
Maximum Load: 1.5 tons

Powerplant: 3.3L GAZ M1
Transmission: 4-speed Manual

References:

- Wikipedia
- "WWII Military Vehicles" by G.N. Georgano
- "The Red Army of the Great Patriotic War 1941-45" by Steven J. Zaloga

THE REAL THING

The GAZ–MM was one of the Soviet Union's primary transport vehicles during the Second World War. It carried a maximum useable weight of 1.5 tones. Produced from the late 1930s through the war, it was a simplified version of the Ford Model AA that was license-built by GAZ. produced at the end of the 1930s and at the first part of the 1940s by GAZ in the Soviet Union. It is a simplified version of the Ford Model AA's Soviet license version. To simplify production, there were no door, front brakes, front bumpers, only one headlight, and the rounded stamped fenders were replaced with plain welded ones. Beginning in 1942, wooden doors with sliding windows were added.

Top: The GAZ MM truck

Bottom: Russian infantry in trucks (GAZ and Studebaker) advance during the Berlin campaign. The GAZ trucks are fitted with wooden doors

A winter showing the GAZ-MM carrying a load of infantry. The vehicle is identical to the Tamiya kit.

Trucks on the factory assembly line.

Trucks cross-loading fuel from rail-cars. The vehicles appear to have worn winter whitewash.

The Real Thing

THE REAL THING: The Red Army

According to historian Max Hastings in "Inferno: The World at War, 1939-1945", the Red Army was "the main engine of Nazi destruction… It was the Western Allies' extreme good fortune that the Russians, and not themselves, paid almost the entire "butcher's bill" for defeating Nazi Germany, accepting 95 per cent of the military casualties of the three major powers of the Grand Alliance." While exact numbers are unknown, an estimated 26 million Soviet citizens including 11 million soldiers died during the war. The following quotes about the Red Army during the Berlin Campaign are from the book "The Fall of Berlin, 1945" by Antony Beevor:

"Almost every Soviet soldier remembered vividly the moment of crossing the pre-1939 frontier into Germany. 'We marched out of a forest,' Senior Lieutenant Klochkov with the 3rd Shock Army recalled, 'and we saw a board nailed to a post. On it was written, 'Here it is - the accursed Germany.' We were entering the territory of Hitler's Reich. Soldiers began looking around curiously. German villages are in many ways different from Polish villages. Most houses are built from brick and stone. They have tidily trimmed fruit trees in their little gardens. The roads are good.' Klochkov, like so many of his fellow countrymen, could not understand why Germans, 'who were not thoughtless people', should have risked prosperous and comfortable lives to invade the Soviet Union.

"Several armies had large distances to cover and very little time. According to Soviet field regulations, a mechanized column was supposed to move 150 kilometers a day, but the 200th Rifle Division of the 49th Army managed to cover 358 kilometers in just twenty-five hours. In the 3rd Shock Army, which had been diverted for the Pomeranian operation, soldiers feared that they would never make it back in time and 'would only get to Berlin when everybody else would be picking up their hats to go home'. No true frontovik wanted to miss the climax of the war. He knew the jealousy which formations of the 1st Belorussian Front inspired in the rest of the Red Army."

"Most frontline rifle divisions demonstrated better discipline than, say, tank brigades and rear units. And a wide range of anecdotal evidence indicates that Red Army officers who were Jewish went out of their way to protect German women and girls. Yet it would appear that they majority of officers and soldiers turned a blind eye to Stalin's order of 30 April, issued through the Stavka, ordering troops to 'change their attitudes toward Germans...and treat them better'. Significantly, the reason given for the instruction was that "brutal treatment" provoked a stubborn resistance 'and such a situation is not convenient for us'".

"The quality of training left much to be desired. 'A large number of non-operational losses are due to the ignorance of officers and the bad training of the soldiers'… In one division alone, twenty-three soldiers were killed and sixty-seven wounded in a single month solely due to the mishandling of sub-machineguns."

"Many think the Red Army was given two weeks to plunder and rape in Berlin before discipline was exerted, but it was not nearly so simple as that. On 3 August, three months after the surrender of Berlin, Zhukov had to issue even tougher regulations to control 'robbery', 'physical violence', and 'scandalous events'…'Unsanctioned absences' had to cease. Sergeants and corporals were to check that their men were present every morning and every evening. Soldiers were to be issued with identity cards. Troops were not to leave Berlin without movement orders. In fact, the order contained a list of measures which any western army would have considered as normal even in barracks at home."

"The Red Army had improved in so many ways - its heavy weapons, the professionalism of its planning, the camouflage and control of operations which had frequently caught the Germans off balance - yet some weaknesses remained. The worst was the chaotic lack of discipline, which seems astonishing in a totalitarian state. Part of the problem came from the terrible attrition among young officers... Indiscipline also came from the dehumanizing way in which the Red Army soldiers were treated by their own authorities. And, of course, the strengths and weaknesses of the complex national character played its part to."

A Russian soldier confiscates a bicycle from a German woman—one of the less violent crimes the Red Army committed against German women.

This page: Soviet soldiers in Berlin at the end of the war. Note the variety of uniforms and foul weather gear being worn. Soldiers wear a mix of items including winter and summer uniforms, quilted coveralls, greatcoats, and rain capes. This matches well with the Tamiya figures in their Russian Infantry set.

Russian uniform and equipment were both basic and rugged. The Army issued a higher proportion of sub-machineguns than other armies. In motor rifle units, the majority of troops carried automatic weapons. Equipment was austere. Soldiers were issued a steel helmet and usually at least one ammunition pouch. Packs were a basic rucksack or an even simpler bag with a drawstring and shoulder straps. Some soldiers had entrenching tools and/or canteens. Gasmasks and bags were sometimes issued, but the masks were usually discarded and the bags used for ammunition, rations, or personal gear.

Uniforms were issued in varying shades of khaki drab in both summer and winter weights. After 1943, rank was indicated by shoulder boards. The uniform consisted of the "gymnastiorka": (a pullover jacket similar to the standard peasant shirt). This had a partial front fly. The version issued after 1943 had a standing collar with two buttons. Enlisted versions had no pockets. Earlier versions had two breast pockets. Elbows had reinforcing patches. "Sharovari" trousers had a flare at the hip like riding breeches and diamond-shaped reinforcing patches at the knee. Footwear was either high boots (leather or tarpauling material) or low boots with puttees. The high boots were most common, especially later in the war. Headgear was the "pilotka" side cap.

Foul weather and winter uniform included a greatcoat and a rain cape/shelter half. Padded jackets and trousers were also issued along with synthetic fur caps. In extreme cold, felt boots were often issued.

Issue of summer gear normally took place in May, so photos of the Berlin campaign show a mix of various uniform types.

The Kit

The Kits

Titled as a Russian "1.5 Ton Cargo Truck Model 1941" (probably to avoid licensing fees), Tamiya's 1/48 scale kit #32577 represents the GAZ MM, build in huge numbers and used throughout World War II. In addition to the truck itself, the kit includes a figures of a driver and four passenger figures. The little gem of a kit is quite simple – parts for the truck (including the driver) are included on two sprues and comprise only 47 pieces. Clear parts are included for the windshield and headlight lens. Decals are not supplied, which is fine considering these trucks often lacked markings. Any markings tended to be brushed-on political slogans. For those who want more detail, there are aftermarket detail and cargo sets available for this little truck.

The other figures come on two duplicate sprues of 19 parts each, but don't worry – none of the figures need be identical. Each sprue contains torsos and legs for two figures. But each also contains eight arms and four heads. However, parts breakdown (engineering) of the figures is different than those in the Russian Infantry set so parts interchangeability between the two kits is limited. The truck also includes a weapon/equipment sprue of 54 parts identical to the two included in the Infantry set.

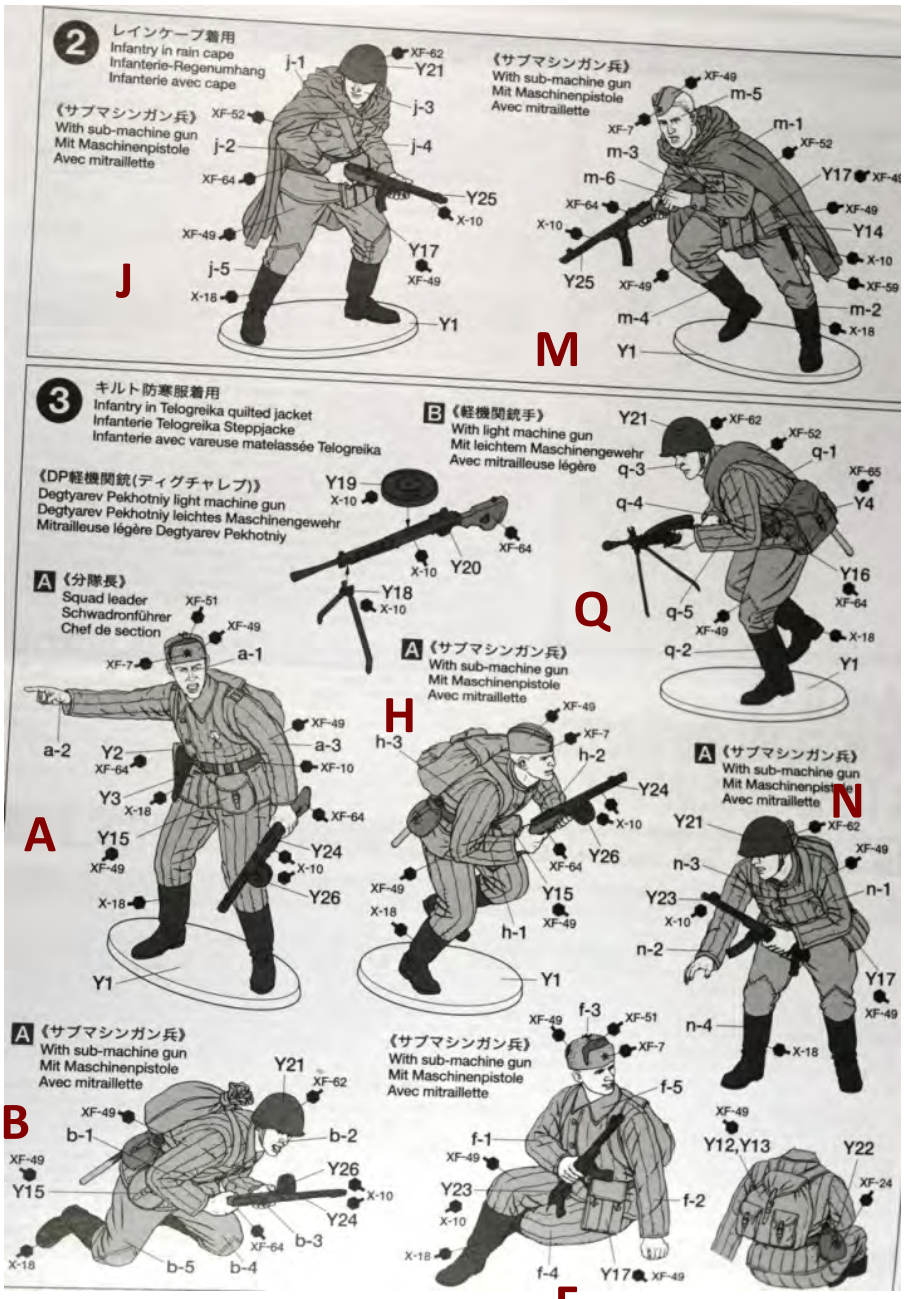
Like other models in Tamiya's 1/48 line, the kit is well engineered with great fit. It is easy to build and results in a nice model straight from the box. However, this ease means that there are some areas that can benefit from a bit of improvement from either aftermarket detail sets or made by the modeler.

This is another nice kit by Tamiya. Several variations were built, allowing scope for conversion. Thus, it lends itself to many diorama possibilities, including cross-over pieces with the aircraft modeling crowd.

The "Russian Infantry and Tank Crew" set (kit number 32521) includes two tankers and 13 infantry figures in a variety of mostly winter dress – padded overalls, greatcoats, and rain capes. The tankers are in coats. The figures are typical of Tamiya figure sets. Each figures comes in one or two basic pieces with arms and heads usually separate (but not always). This provides a degree of multi-pose capability. Also included are two sprues of weapons and equipment containing various machineguns, sub-machineguns, packs, bags, water bottles, magazine pouches, entrenching tools, and helmets. Not only did I have the set I purchased for this project, I also had a little over half a set left-over from a previous diorama I built. Some parts (such as arms, hands, etc.) can also be taken from other Tamiya figure sets, of which I have several.

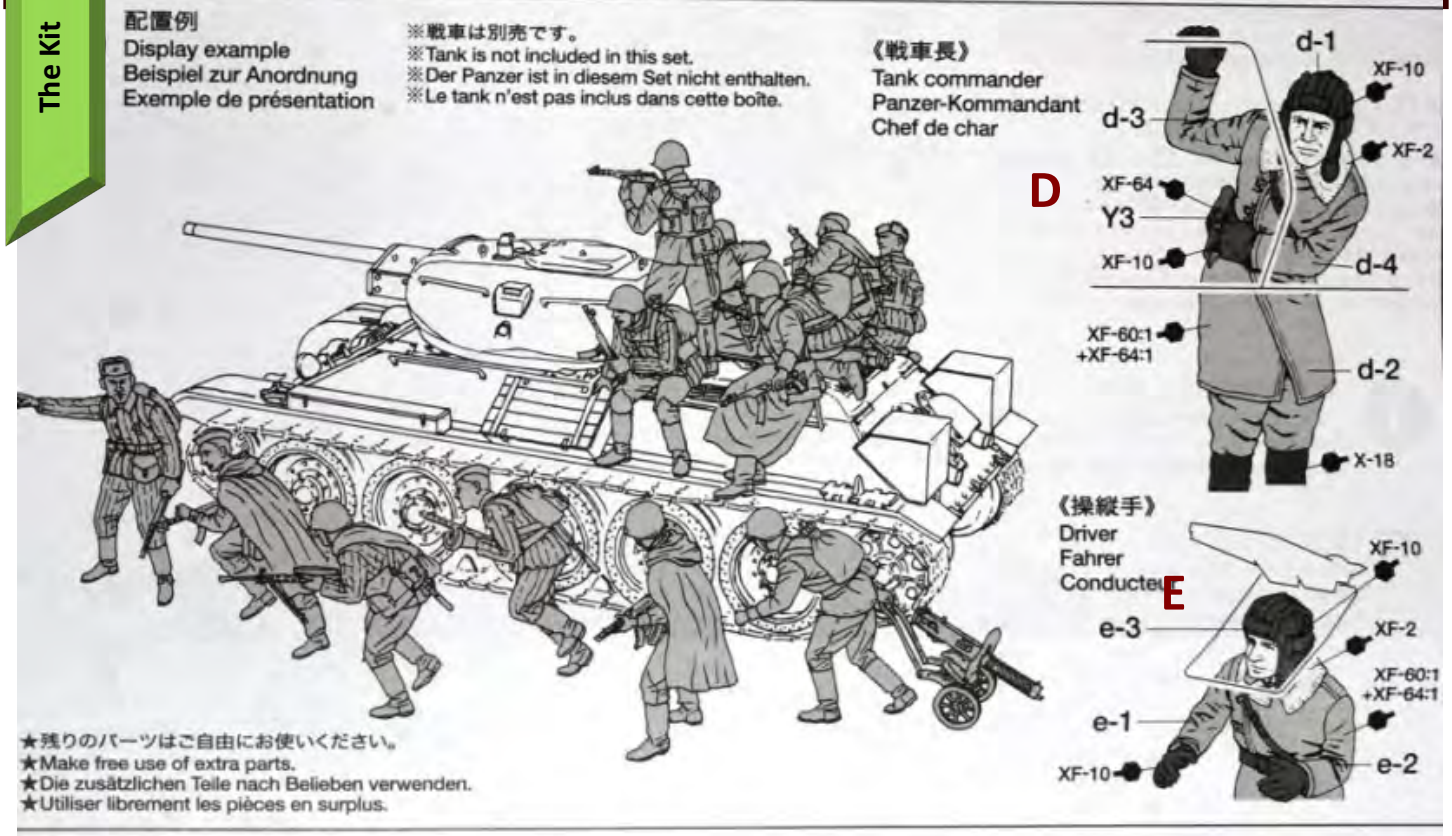
More information on the details of the truck kit can be found in the section on Construction and Detailing.

Top and center: The kits used to create the truck and Russian infantry. Parts from two of the Infantry sets were used—a complete set purchased for this project, and eight figures remaining from a set used for earlier projects. Bottom: The included sprue of Russian infantry weapons and equipment.



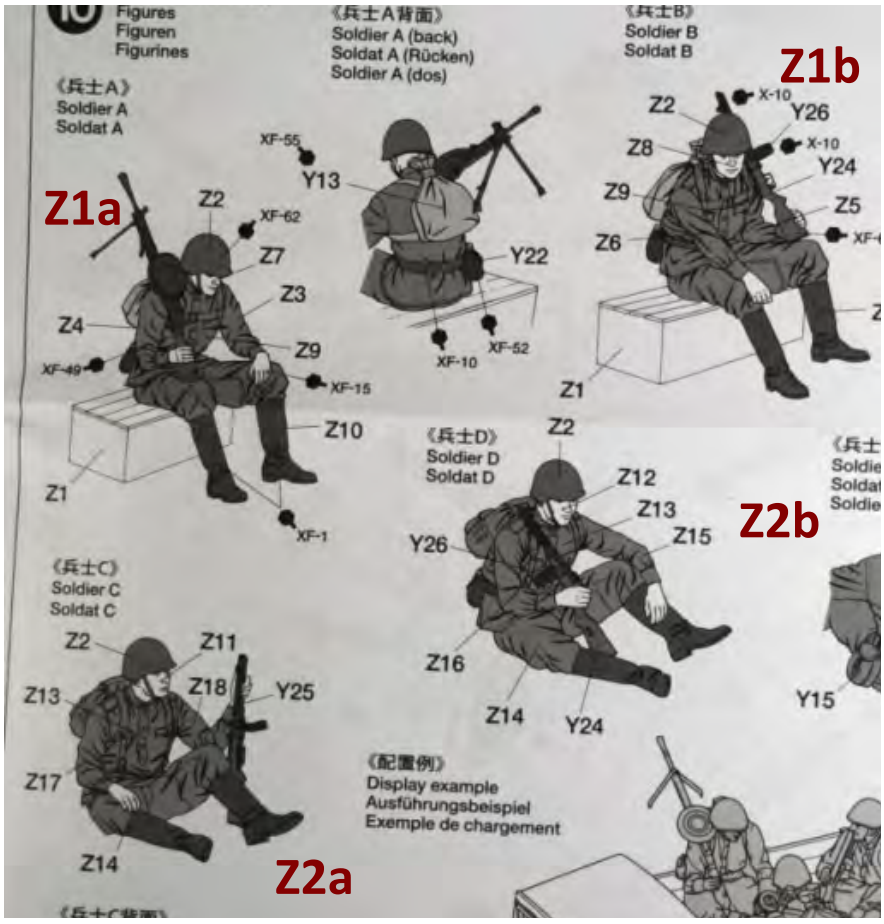
From the Tamiya instructions, these photos show the infantry figures from kit #32521 as Tamiya intended them to be built. The identifiers in red are my numbers (based mostly on the kit part numbers). I will use these numbers later in the section on figures to explain what parts were used for each man.

The Kit



Top: The two tanker figures from the Tamiya set. This photo also shows the figures posed on Tamiya's T-34. As the figures are intended as tank riders, a surprising number of them worked for this project built straight from the box or with little conversion! In fact, all the conversions needed for this project are well within the skills of most modelers.

Above and right: The figures included in the GAZ MM truck model.



Construction and Detailing

The vehicle was built in the sub-assemblies shown above (not all pieces are attached yet in this photo). Wheels were also left separate. These assemblies were glued together at various points in the painting process. After basic painting, but prior to weathering, the cab and bed were glued onto the chassis. The roof was not attached until after the cab interior was painted and cab figures glued into place. Wheels were only fitted after all painting and weathering was complete.

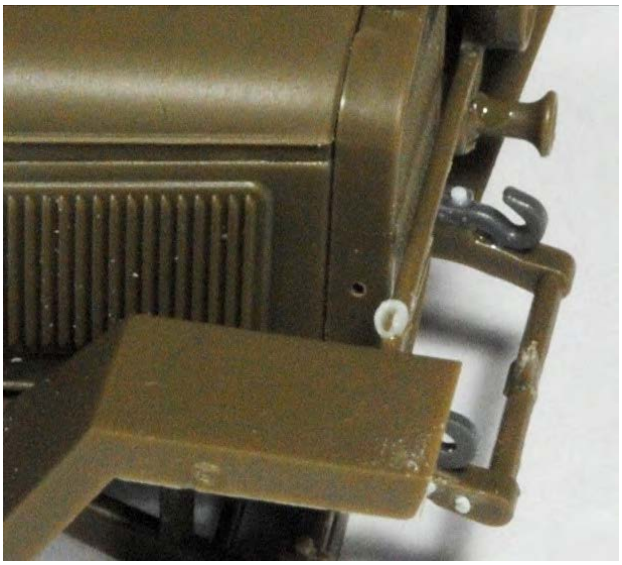
Prior to posing the figures, the truck needed to be built to the point figures would be able to fit inside. This mandated sub-assemblies that could be temporarily fitted together.

As stated previously, the little truck is really quite a simple kit. A few visible ejector pin marks are present (most notably in the cab and bed), but most of these are very small and shallow and can be easily scraped away. I resorted to putty on only a couple. It took less than two hours to get the truck assembled into the sub-assemblies needed to pose and fit the figures (shown in the photo above). Initial painting steps were done in the same sub-assemblies, with the parts being put together as weathering progressed.

Building the kit straight from the box results in a perfectly adequate little kit. However, as with most Tamiya kits, a bit of basic detailing can take it to the next level. Aftermarket detail sets are available and can be used, but are really not needed. I used no aftermarket parts on the truck itself. Basic detailing was done as shown here.

One area that could benefit from detailing, but that I did not touch, is the cab interior. The inside is quite sparse (as was the real truck). There are however a couple details missing. There are no pedals for the driver. Also, the brake and shift levers are over scale thickness. I did not bother correcting these issues because with a driver and passenger in the front seat the pedals will be invisible and the levers nearly so. However, if you are building your model with no figures in the cab, pedals can be made from small bits of styrene. The levers can be replaced with wire, using the bases and knobs cut from the kit levers.

With the truck basically assembled, we can now compose our scene and pose the figures.

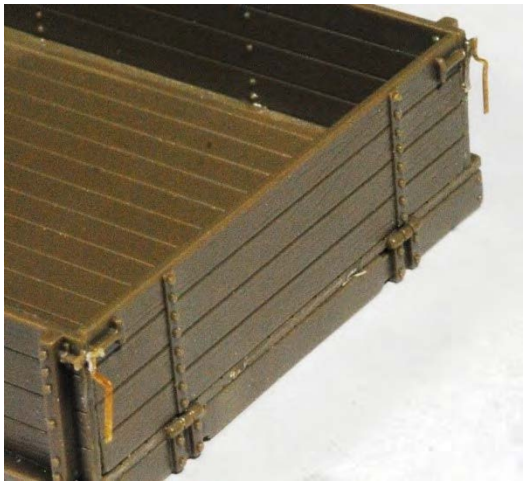


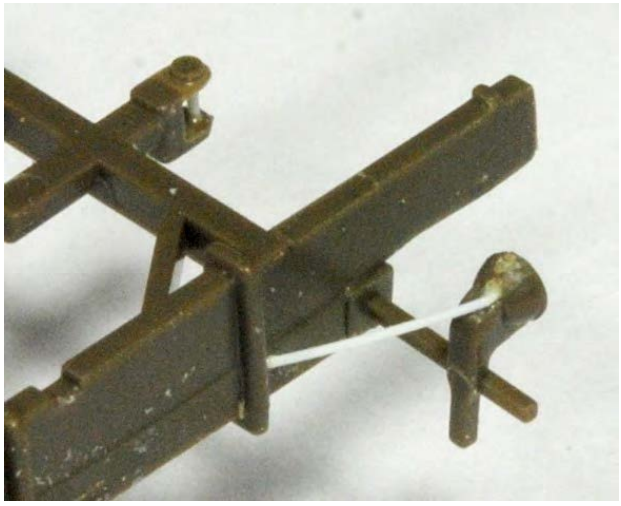
Photos show two tow hooks on the front of the frame. These are absent on the kit. The spare parts box provided the hooks and salami-slices of styrene rod provided the bolt detail on the hooks and frame. The missing head-light bracket was added with a slice of Styrene tube, and holes for the light conduits were drilled in the radiator cover. The headlight conduit was added from stretched sprue after the hood/radiator assembly was glued to the chassis/frame.

Construction

THE REAL THING

This beautifully restored vehicle shows a few modern touches, but it matches photos of wartime vehicles very closely. It also shows clearly a couple details I added to my kit. The left photo gives a good look at the tailgate latches. It also shows the spare tire absent in the kit. The right photo shows the tow hooks and bolts on the front of the frame. It also shows the headlight mounts to good effect. Note the bracket for the missing light and the hole for the conduit in the radiator cover. These details are easily-added to Tamiya's little gem of a kit.





Tailgate latches were cut from the kit part and replaced with bits of old Photo-Etched fret cut and bent to shape (above).

The tow hitch is molded as a solid block. This was opened using a rectangular file and fittings were added from Styrene rod. Stretched sprue served as the taillight conduit (above right).

The canvas top is molded as a single piece along with the rear of the cab. I added the "lip" where the top fits over the cab using Magic Sculpt epoxy putty. Snaps are bits of Salami-sliced plastic rod.

Composition

THE TEN COMMANDMENTS OF EFFECTIVE COMPOSITION

Effective composition is key to story telling, but is more than placing elements on a base. It requires careful planning. The viewer should quickly grasp what is going on. If not, the work has failed at some level. I use a tool I call my "Ten Commandments of Effective Composition" to transfer what I see in my "mind's eye" into a finished product. These are not carved in stone and do not all apply to every situation. They simply help transfer what I see in my mind's eye into the finished work. I do not consider them individually, but use them all in conjunction. They are not restrictive and do not take the place of imagination.

1. HAVE A SINGLE MAIN POINT. There can be several things going on at once, but like scenes in a movie, they should all work toward the main point. In a diorama or vignette, this is absolutely critical.

2. DIRECT THE VIEWER'S EYE. Large or prominent items are noticed first. Other things are generally viewed just as we read—from left to right. Things moving against the grain (right to left) will cause the viewer to pause. Viewers will naturally follow the glances and gestures of the figures. Arrange elements so viewers read the story in the proper order.

3. SHOW ACTION AND INTERACTION. Action is more appealing than static, but must be purposeful. Elements should interact in a meaningful way.

4. USE A TIGHT COMPOSITION. Tight compositions are visually more appealing than loose, open ones. They are better at conveying drama and stress.

5. HAVE BALANCE. Balanced compositions look better. Elements or action on one side of the composition should be or balanced by elements or action on the other side. A large item on one side could be balanced by several smaller ones on the other side for example. Note that balance and symmetry are NOT the same thing! Symmetrical work can look contrived.

6. USE ALL THE ELEMENTS. All elements such as models, figures, base, nameplate, groundwork, and method of display are important. These things should compliment, and not contradict, the main story.

7. MINIMIZE DEAD SPACE. Empty unoccupied space is boring and detracts from – or deadens – the final result. Use a smaller base or put something relevant in the space. Dead space should only be used if it helps tell the story.

8. USE SHAPES AND ELEVATIONS. The size and shape of the base, groundwork, and composition can compliment and enhance the composition, help direct the viewers' eye, and provide balance. It's also usually best not to align elements parallel with the edges of the base.

9. ARTISTIC LICENSE IS OK. Use artistic license to fill gaps in knowledge, create a more visually appealing piece, or simply due to style. Use it to assist in recreating the feel, emotion, and drama of an event – to capture the impression rather than just look.

10. PLAY WITH IT. I usually try different arrangements and various bases before I settle on a final composition.

What do you get when you mix a group of troops excited to be alive at the end of a war, a motor vehicle, weapons, and throw in some alcohol for good measure? You get this diorama.

The Battle of Berlin clearly was a monumental human tragedy, and the German population suffered indescribably at the hands of the vengeful Red Army (as Russian civilians had suffered at the hands of German forces). It is certainly not my intention to belittle or gloss-over any of that. Nor do my models make any kind of political statement. Here I simply chose to focus on a little bit of levity. I wanted the piece to be fun rather than poignant, somber, or depressing. Therefore my portrayal shows only a piece of good and does not directly show the bad. Call it artistic license (see the sidebar below).

For those interested in the Red Army during this period, the ordeal of the German Army, the nightmare the civilian population faced, or in the Berlin campaign in general, I highly recommend the book, "The Fall of Berlin, 1945" by Anthony Beevor. Many, if not most, of the detail in the diorama was extracted from the pages of that book. It "fleshed-out" the skeleton of the idea provided by Alan Wells' "Blitz and Pieces" diorama mentioned in the introduction.

Let's take a detailed look at how this diorama fulfills my "Ten Commandments of Effective Composition".

Ayn Rand on Art: From "The Romantic Manifesto"

"Art is a selective recreation of reality according to an artist's metaphysical value judgements."

"...out of the countless numbers of concretes—of single, disorganized and (seemingly) contradictory attributes, actions, and entities—an artist isolates the things which he regards as metaphysically essential and integrates them into a single new concrete that represents an embodied abstraction…"

"...Art brings man's concepts to the perceptual level of his consciousness and allows him to grasp them directly as if they were precepts."

"As a re-creation of reality, a work of art has to be representational; its freedom of stylization is limited by the requirement of intelligibility; if it does not present an intelligible subject, it ceases to be art."

Composition

"Blitz and Pieces" by Mr. Alan Wells. This diorama was a primary inspiration for my little Russian truck. Note only is the model built to a high standard, but the scene itself is great. Of particular note is the interaction between the soldiers in the truck and the dog running alongside. Even the driver appears to be looking in his mirror at the dog. Also of note is the sense of motion in the scene, provided by the tarp, ropes, and bucket as well as the running dog. The base is perfect for the scene and I like the way the color between the base and ground has been blurred. The figure poses appear very natural. We all have our own ideas what we like and what we don't. My beliefs are rolled into my "Ten Commandments of Effective Composition" This little diorama fits them to a "T". This little scene remains, probably, my all-time favorite 1/48th scale diorama. My diorama borrows (correction, blatantly steals) several aspects of Alan's fine piece.

1. Have a Single Main Point: There is one cluster of related action going on, and it takes up almost all the scene. That is, as I hope is obvious, the victorious soldiers celebrating as they speed into the enemy capital. One subplot exists—that is the dog chasing the truck with the soldiers either taunting or offering it treats. This subplot supports the main point by adding even more levity, amusement, and visual interest. It also helps provide action and interaction.

2. Direct the Viewer's Eye: See the graphic on the facing page.

3. Show Action and Interaction: This scene is all action. There is also plenty of interaction between the figures themselves and between the dog and several of the figures.

4,5,7. Use a Tight Composition, Have Balance, and Minimize Dead Space: All this is accomplished simply by tightly framing the scene around the truck.

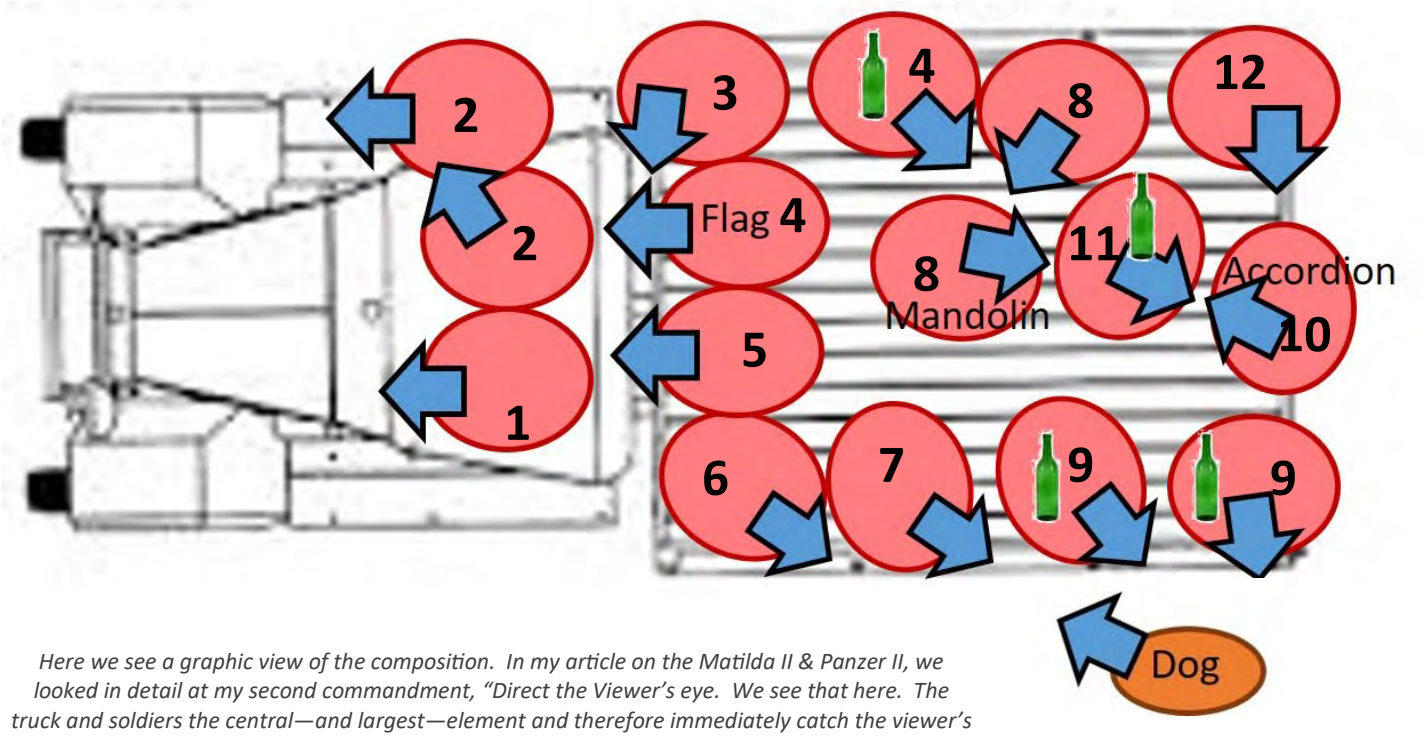
6. Use all the Elements: The truck and figures tell most of the story, but they need some help. The groundwork puts the action in context. The damaged building and rubble, along with the bullet-ridden sign indicating the Berlin city limits, tells us exactly where (and hence, when) the little scene is occurring.

8. Use Shapes and Elevations: The most obvious manifestation of this is that the base tightly frames the scene. Rather than put the scene on

level ground, I also chose to add a slope—I think this reinforces the sense of motion by going downhill and also adds visual interest. This, combined with the building and the action in both the truck bed and on the ground (the dog) provides multiple elevations adding even more visual interest.

9. Artistic License is OK: The scene is, or course, apocryphal. However, scenes such as this certainly happened. There are plenty of reports of Soviet soldiers demonstrating a marked lack of discipline during and in the wake of victory. As mentioned previously, I chose to tell only part of the story with this little scene—showing a bit of joyful celebration while not depicting the horrors or the crimes. These are only dimly alluded to in the groundwork and scenery.

10. Play With It: I had a very good idea of what I wanted to do when I started composing the scene. I even already had in mind the poses of several of the figures—the man on the running board, the soldier waving the flag, the troops with mandolin and according, and the interaction with the dog. I also knew I wanted some soldiers firing into the air and others drinking. The exact poses, locations, and fit was worked out as the figures were built. I started with the figures in the cab. Then I made the flag bearer, and the mandolin and accordion players. After than, I started work at the front of the bed and made/fitted figures as I proceeded toward the rear. Stowage and supplies in the bed were added as needed to get a proper fit of the figures to the truck and each other. That is the primary purpose of the stowage, but it also indirectly serves to fill in any open spaces in the bed and to add even more visual interest to the piece. I had originally planned to add another little subplot, showing German soldiers exiting the building surrendering to some more Russian infantry. I chose to delete this both for the reason mention in "Artistic License" above and because the subplot was not needed for the story and would have drawn attention away from the main point.



Here we see a graphic view of the composition. In my article on the Matilda II & Panzer II, we looked in detail at my second commandment, "Direct the Viewer's eye. We see that here. The truck and soldiers the central—and largest—element and therefore immediately catch the viewer's eye. As it fills most of the scene, it is in the visually position possible. The action is also moving from right to left. This is important because we view as we read—from left to right. Elements moving in that direction speed the viewer out of the composition while elements moving against the grain—from right to left—cause the eye to pause. Finally, the figures themselves help move the viewer around the scene. It is natural to follow the gestures and glances of figures. The arrows indicate the directions in which the figures are looking/acting. Note those in the front look primarily to the front—in the direction of action/travel. Those on the near side look at the dog, drawing the viewer to that little sub-plot. The dog looks right back, returning the viewer to the scene. The remainder of the figures in the bed look at other figures or back toward the viewer. No one takes the viewer out of the scene. While the scene looks random and chaotic, the gestures and glances of each figure were planned as meticulously as their locations, actions, poses, and fit. I also included in this graphic little wine bottles to indicate which soldiers are holding liquor bottles in the little scene. Some of these are prominent, but not all are readily visible unless the viewer looks for them. The numbers are the order in which they must be fitted into the vehicle to ensure everything fits properly. Note, some figures are "intertwined" or have overlapping feet, or otherwise affect the fit of another figure and must therefore be fitted simultaneously.

PLAY WITH IT!

This is not only a vital stage in the compositional process, it was also the key to figure posing and construction. It was my goal to fit as many figures as possible into the truck. I had hoped to fit 8-10 figures in the back of the truck. In the end I was able to fit 13 in addition to the 3 in the cab. This involved a good deal of experimentation and test-fitting.

After posing figures in the cab, I moved to the bed. Four figures were build to stand in the front. In the first iteration, I had the flagman in the second position (this page top). I eventually moved him to the third position (this page bottom). This was done for two reasons. One was so that the flag would mask as few other figures as possible. More importantly, by swapping him and the figure originally in the #3 slot, I was able to move the man behind, sitting on the side of the truck, closer to the front—his right foot was able to fit between the flagman's feet allowing me to slide him a quarter inch closer to the man standing in the front right corner of the bed. Little changes like this, saving a quarter inch here, an eighth-inch there, a half-inch somewhere else, is what allowed me to fit so many figures into such a small space.

Construction continued, working basically in a front-to-back manner. Note that all the various weapons and bits of gear are attached. The figures are fit so closely together that this was necessary. I did want things to fit perfectly, only to find that once gear was added, they no longer fit.

Stowage was added as needed. For example, a bunched up tarp (made from Magic Sculpt epoxy putty) was fitted under the feet of the flagman and the man to his left to ensure they fit level with their feet properly planted. The man playing the mandolin fit almost perfectly on a crate which, I believe, comes from the Tamiya "Africa Corps" set.

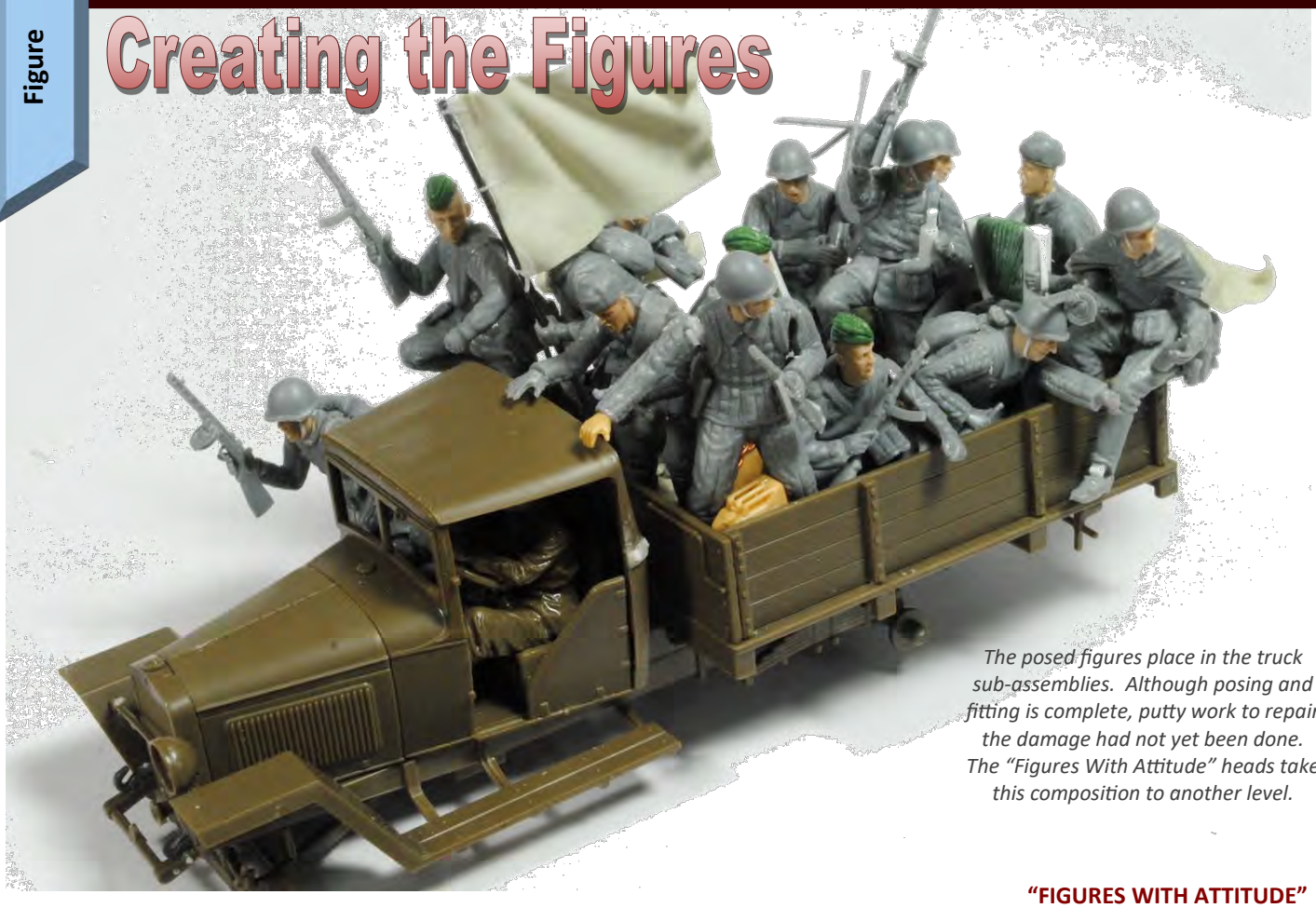
Other bits of stowage was added where it would fit to fill any empty space in the bed.

The photo below shows the bed with stowage in place, The wadded tarps on the floor, the rolled tarp, the tan plastic box, and the green resin container were all needed to fit figures. Other bits fill space. I probably could have placed another figure where the Maxim machinegun is, but I had run out of figure parts by that time!

While I would normally prefer to paint the stowage separately, it is permanently attached here. This is for the simple reason that exact placement is vital to fit. Therefore, it was permanently attached as parts were made and figures fitted. Stowage comes from various sources and was made as seen in previous build articles.

Figure

Creating the Figures



The posed figures place in the truck sub-assemblies. Although posing and fitting is complete, putty work to repair the damage had not yet been done. The "Figures With Attitude" heads take this composition to another level.

"FIGURES WITH ATTITUDE"

Figures are often prominent in my compositions—they provide a immediately recognizable sense of scale, are usually essential in story telling, can draw attention to certain features by being placed nearby, and of course they provide human interest. In this case, they are arguably the main focus of the diorama with the vehicle being only support. My figure philosophies, as well as my sculpting and painting methods were thoroughly described in my earlier build articles, most notably the StuG III Ausf G. and M4 Sherman build booklets. Here, we will look specifically at building and painting Tamiya's plastic figures and using Figures With Attitude Resin replacement heads.

For this project, I used the Tamiya 1/48 scale Russian Infantry set and the figures included in the truck model. I also had another, partial, set of the Russian Infantry. There are no aftermarket sets close to what I wanted, and the sets that are available are relatively expensive compared to Tamiya and would also require extensive conversion. Sculpting my own figures would also have been a possibility, but the large number needed would have been a major undertaking. The Tamiya set includes many figures, and they are compatible with the figures included with the truck. Tamiya's mini-men are not horrible (although they are often a bit small) and they come in several parts giving them a bit of multi-pose capability. In many cases, parts such as arms and hands can even be sourced from other Tamiya sets of which I have plenty. They are also quite easy to work with and convert.

The main problem with the Tamiya figures is the lack of facial expressions. My story demanded open-mouthed singing and yelling figures. While Tamiya's soft faces are fine when they are in the support role, they don't work as nicely when they are the story and their expressions and glances are so important. Direction of glances was also important to this story, and in many cases, the Tamiya heads were facing the wrong way. Phillip Young's outstanding **"Figures With Attitude"** sets to the rescue. Through Lu Rodriguez, I acquired several of the "FWA" heads—more than enough for this projects. "FWA" offers several figures and head sets. Those I have seen exhibit outstanding detail and casting. The facial features and expressions that are very finely rendered—in fact, they rival the quality of larger 1/35th and 1/32nd scale head sets by Hornet and Historex. The FWA figures certainly display attitude—they are loaded with character. The poses are very natural, as are gestures.

Other than the new heads, some figures were built stock but most were converted and/or kit-bashed. Perhaps surprisingly considering how different my scene is from the original intent of the figures, most conversions were minor and simple. A major reason for this is that most of the figures did not have to be fitted to the vehicle! Certainly, the driver, front seat passenger, and soldier on the running board directly interact with the vehicle and had to be fitted to the solid structure of the truck. Those in the bed, however, only had to "fit" with each other in the space available. As the truck would also carry cargo, various boxes, tarps, and bag, could be made to fit to both figures and the vehicle. In other words, the figures could be fitted into the bed by way of the cargo.

TAMIYA'S PLASTIC FIGURES

Since these figures are made from the same plastic as the kits, assembly is the same. Parts are removed from the sprue trees, cleaned-up, and assembled using the same methods and adhesives. Tamiya instructions for figures are more basic than for their vehicles, consisting simply of a drawing of the finished figure with part numbers indicated and color keys (for painting) present. Examine the parts and plan the assembly. Test fit the pieces without glue. This is an important step. Determine what order parts must be assembled in, where additional clean-up of parts to improve fit is needed, and where additional work will be required to fill gaps between mating surfaces. This is even more important for kit-bashed figures (using parts from more than one figure) and conversions than it is for the stock figures.

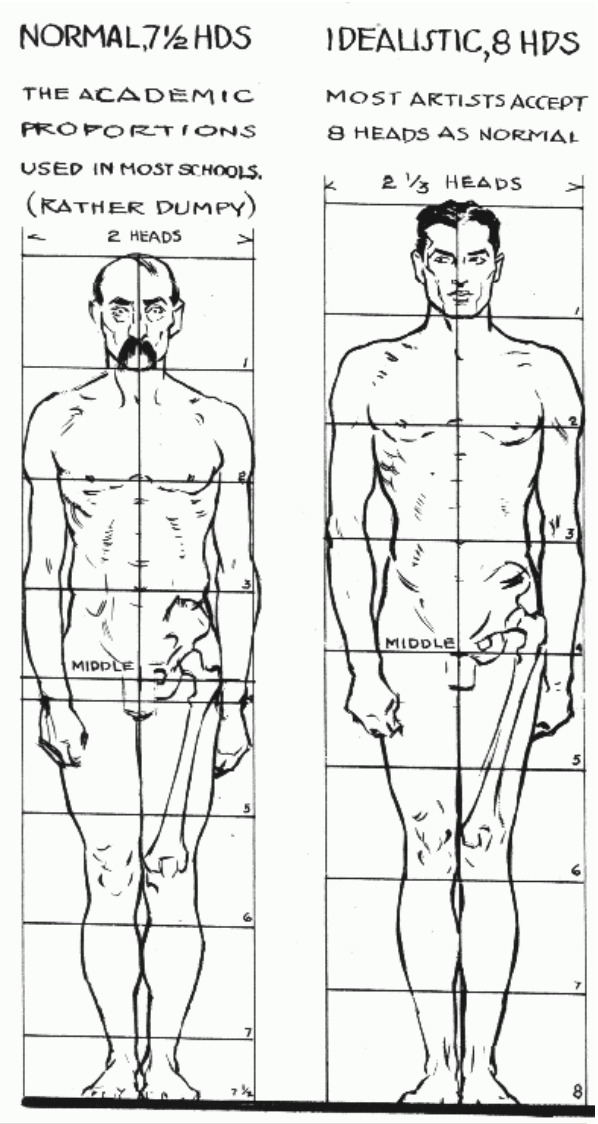
It is up to you how much of the figure you assemble prior to painting. Parts whose joints will require putty work should probably be assembled prior to painting if practical. In larger scales I often build in subassemblies and leave weapons and gear separate until after painting. However, I normally completely assemble small figures prior to painting since it is more difficult to glue all those tiny pieces onto a painted figure without damaging the finish. Completely assembling the figure prior to painting also ensures all shadows and highlights are consistent and fall at the same angles. But this is not a hard and fast rule – do to design or pose, you may find some figures must be built and painted in a certain order. In this instance, there is another reason to add all the weapons and equipment while building the figure. These items usually project from, or stand proud of, the figure. As such, they could interfere with fit of so many figures packed so close together. One wouldn't want to pose figures sans gear and then find out after attaching all the various bits that they no longer fit in with each other properly.

If planning and clean-up was done well, stock figures should go together with little or no trouble. But sometimes gaps may be present at joints. Gaps will almost certainly be present where conversion work has been done. Gaps, if minor, can be filled with thick super glue. Larger gaps can be filled with modeling putty such as Squadron "Green Stuff", but I prefer epoxy putty. As it is water soluble, a quick swipe with a damp finger will both remove excess and smooth the joint, removing the need for further sanding after the putty cures. In some instances, where limbs have been reposed, some re-sculpting of figure details may also need to be done. For this I also use epoxy putty.

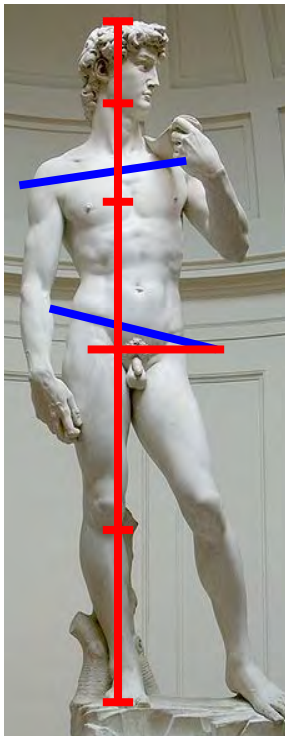
Although the Tamiya figures are not bad for their size, and, For the most part, can be built straight from the box, there are still some areas where they can use some help. While belts and some straps are molded onto the figures as needed, other straps – such as weapon slings- are often absent. These are easily added using paper, thin sheet plastic, putty, or other materials. I prefer to use strips of tape. For smooth leather, electrical tape works well. For courser materials, strips of blue painter's tape are my choice. Additionally Some detail is rather soft and can be enhanced with a bit of carving and cutting with a hobby knife (such as deepening undercuts around pocket flaps and jacket skirts or squaring off jacket cuffs around wrists, etc.).

ANATOMY, PROPORTION, AND POSE:

While we've covered this in other build logs, I will repeat it here as this information is the "bread and butter" of getting our conversions right. When converting a figure—no matter how simple or complex—the first and most vital step



Above: These drawing by Andrew Loomis show how to measure correct proportions using the size of the head as a measuring stick. A typical man with "idealistic" proportions will have a head that is 9 inches tall from the chin to the crown. Standing 8 heads tall gives him a height of 6 feet. Most figures use this proportion. Perhaps actually more typical are the normal proportions shown. The head is still 9 inches, but the man only stands 7 1/2 inches high. People come in different sizes, and you can mix and match figures from different manufacturers, but head size should remain relatively consistent and gear/equipment sizes should be absolutely identical.



Michelangelo's "David" is a classic example (pardon the pun). The figure stands 8 heads high. The bend-point at the waist is at the 4 head height point. Note the counter rotation of the hips and shoulders. The foot supporting the figure's weight is directly under the head, and the hip on that size is higher while the shoulder is lower.

is to get the anatomical proportions and pose correct. If these are off, no matter what else you do or how well you do it, the figure will never look right. Certainly, accurate measurements are important and tools such as calipers are useful for this, but the best judge of what is right or wrong is your trusty "Eyeball, Mark I". If it looks right, it is right. If it looks wrong, it is wrong.

I find the accompanying Loomis anatomy diagrams to be very useful. They can be found online, as well as his drawings showing female and child proportions. I reproduce these in the scale I am working with and use them as my guide. Proportions can vary from person to person, and with sex, and age, but we shouldn't stray too far from them. The human body is an amazingly complex form and recreating it is much more of an art than a science. People come in different sizes and shapes, but some things (like the size of a normal adult male head) are fairly consistent. Therefore, the head makes an ideal unit measurement.

Many miniatures use idealistic proportions where a man stands 8 heads tall. For an adult male, the head should be about 9 inches from chin to crown. This gives us a figure that stands 6 feet tall. The bottom of the knee is at a 2 head height. The crotch is at 4 heads. The navel is 5 heads off the ground and the nipples at 6 heads. Shoulders should be about 2 heads (or 18 inches) wide. When the arms hang straight, the finger tips should reach mid-thigh level. Our "bend point" is at the center of the body (4 heads high if using idealistic proportions). Model a shorter or taller individual by keeping the head the same size (more or less, depending on what looks right) and making the body and/or legs proportionally shorter or taller as needed. I have heard of modelers "correcting" the height of Tamiya figures by adding a wedge of plastic between the upper and lower torso halves. While this would make the figure taller, it would also skew the proportions – arms and legs would be too short relative to the body and the head would appear too small. While not specifically shown in the chart, there are some other basic measurements you can use to help ensure your figures look right. The size of hand is approximately the distance from the hairline to the chin—in other words the hand covers the face. Arms are about 3 1/2 heads long, with the forearm being about 1.7 hands long.

As you make your figure, ensure arms and legs are the same length, the correct length, and that knees and elbows are in the correct places. During conversions, as we cut and reposition our little figures, joints can tend to "migrate" and we must always be mindful to keep them in the right place. Make sure figures only bend in proper places—we do not want "spaghetti" arms or legs; limbs should be straight between joints.

The pose must be believable. Movement of one part of the body affects other parts. As we move, we shift our limbs, shoulders, and hips in opposition to each other to maintain balance. If an arm is held forward and up, the other arm might be held low and to the rear. Hips tilt in various poses. If one hip is raised, the shoulder on the same side will be lowered. If a hip is moved up and forward, consider moving the shoulder down and back. Note that the spine is S-shaped, and note how it bends. The neck does not project straight up from the shoulders, but rather is angled slightly forward. If standing in a balanced position, the head is positioned over the foot set to take the majority of the body's weight (the supporting foot). The hip on the supporting side will be higher than the other side. As we move, we constantly move our feet to maintain this relationship (closely watch someone walking). If we violate this rule, it should be for a good reason – a figure in mid stride or one that is jumping, falling, or braced to receive an impact.

Your best bet is to have a model (preferable of the same sex, age, and build of the figure you are creating) assume the pose and copy from life. Photos are another possible source of information. You can also always look in a mirror and assume the position yourself (ignore the laughter of your spouse). An advantage of using yourself is that you not only see, but also feel, how a pose works and how your joints and muscles move.

You can use all this to create motion in a figure. An off balance figure, one that couldn't hold its pose for more than a split second, is obviously in motion. Emphasize motion and action by exaggerating the pose. An exaggerated pose, with the limbs hyper extended, leaves no doubt about what motion the figure is performing and creates a dynamic composition. Exaggeration is often necessary when working in miniature to convey the intent of the gesture in the small size and through the various layers of clothing and equipment. It's the same concept as an actor exaggerating body language and facial expressions in the days of silent films to help portray emotions using only a visual medium.

I've devoted a great deal of space to this subject, and that is entirely appropriate—the more time you spend here making sure it's all correct, the better your finished figures will look! Does it all sound confusing? Don't worry, It's really quite simple—the average human body can be used quite easily to measure itself! Anatomy books, or books on how to draw people can be helpful, but are not required. Your BEST reference is people. Watch others. Have a friend pose for you. Try out the pose yourself. Be aware of body language and expression! Remember the story you are trying to tell and take account of the action being performed. Make sure everything matches and works together.

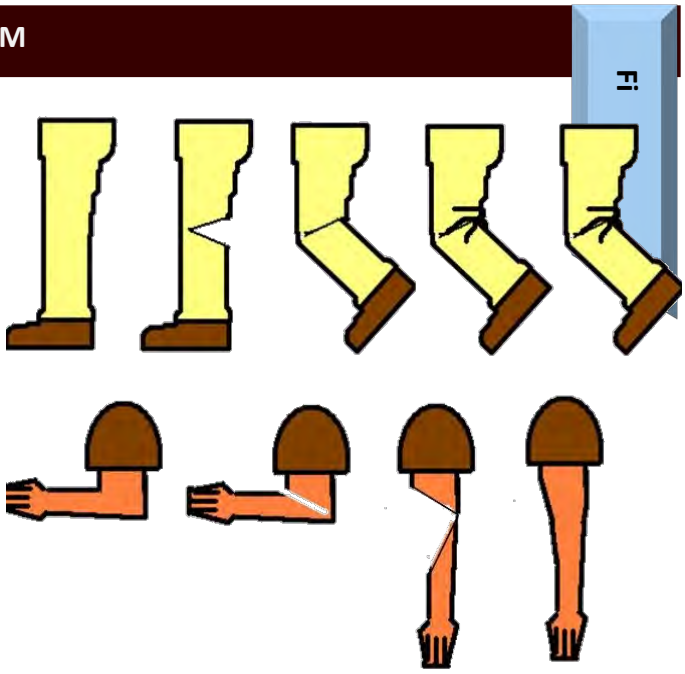
CONVERTING TAMIYA FIGURES:

Conversion can be simple - just a swap of a head, hand, or piece of equipment. They can be so complex that little of the original figure remains. Or they can be anywhere in between. Even if we are not building a figure entirely from scratch, we still normally have to remake or repair at least portions of the figure when doing any but the simplest parts swaps. Repairing anatomy, rebuilding joints, recreating clothing, etc. all require putty work. In other words, we need some basic sculpting skills. It's really quite easy if we remember and follow five cardinal rules:

1) Observe, observe, observe! Note how pose and movement affect the position of various parts of the body as we have already discussed. Look at how material folds and wrinkles. Heavy material will have only a few large folds and wrinkles—lighter weight cloth will have many more sharper wrinkles. Material that is being compressed will wrinkle differently than material that is being stretched. Don't just create a few random wrinkles and call it good—it will not look realistic. Note how clothing shows the basic forms of the body underneath. A strap supporting a heavy bag will not rest lightly on the shoulder, but will somewhat "sink" into clothing and/or the soft body tissue underneath. Study real examples of items you are sculpting. Mentally break them down in separate shapes and forms that can be easily made—and then make them!

2) Be aware that altering one area may affect others. For example, we can't just take an arm that is hanging loosely at a figure's side and reposition it so he is holding it over his head. If the arm raises, so must the shoulder. If the shoulder moves, so will the hips. As the body underneath moves, the wrinkle patterns in clothing will change. Thus, there is a practical limit to how far we can adjust the position of arms, legs, torsos, etc. without requiring a major resculpt of the figure. Likewise, adding or removing equipment may alter the way clothing fits or affect a figure's pose – a figure will show at least some strain when made to carry a heavy weight, for example.

3) How something is actually made or actually works is completely irrelevant! We are only concerned with how it *looks*! When determining how to make something, pay no attention to its actual function—it's all about the form! For example, if you need to make a buckle, don't try to make a scale working buckle! Simply create the basic shapes with putty or plastic. While not a real buckle, it will look far better (and be far easier to make).



Above: Most conversions in this diorama consist of parts swaps and reposed joints. To repose a plastic figure joint, simply cut it apart at the joints and put it back together in the pose you want! Refer to the diagram above. For instance, to close a straight arm or leg, cut out a "V" behind the knee or in front of the elbow and close the joint. To open a bent knee or elbow, cut almost through the part from in front of the elbow or behind the knee and straighten it. Ensure the limb stays the correct length. Always make sure anatomy remains correct—reposing one part may affect others. For example, if you raise an arm, the shoulder will also rise. Lifting a shoulder will cause one of the hips to lower, and so forth. Also make sure the pose appears natural. Getting pose and anatomy correct is the most important part of any conversion! Once the figure is reposed, simply repair the joint and any lost detail using epoxy putty or other preferred means.

Left: One of the most common conversions in this diorama was simply swapping parts—an arm or hand intended for one figure used another for example. All of the heads were replaced with resin "Figures with Attitude" heads. A close-up is shown here. A millimeter scale is used for size comparison. Note the level of detail, including visible teeth. These heads are far superior to the Tamiya plastic heads and greatly enhance the appearance of the figure. The finer detail also makes them easier to paint. The head in this photo looks very good even though it is about 11 times life size if viewed on a printed page!

Figure

Swapping the Tamiya heads for the superior FWA samples couldn't be easier. Most Tamiya heads are molded as part of the torso, so these need to be removed first. Use care to make sure collars or other uniform detail is not damaged or compromised.

The FWA heads include necks, so I use a drill bit in a pin vise to drill a hole for the neck into the Tamiya figure (Top).

After any needed trimming (determined by test-fits), the FWA head is glued in place. Take care to make sure it sits at the proper angle The heads are resin, so plastic model cement will not work. As they are small, lightweight, and non-loadbearing, I use superglue. Epoxy glue could also be used if you prefer.

4) We don't have to sculpt an item all in one sitting. Study the item and break it down into easy tasks. Use as many steps and putty applications as it takes.

5) Unless you are sculpting for future production, you do NOT have to make items that can be *convincingly* painted (such as most insignia in this small scale, for example).

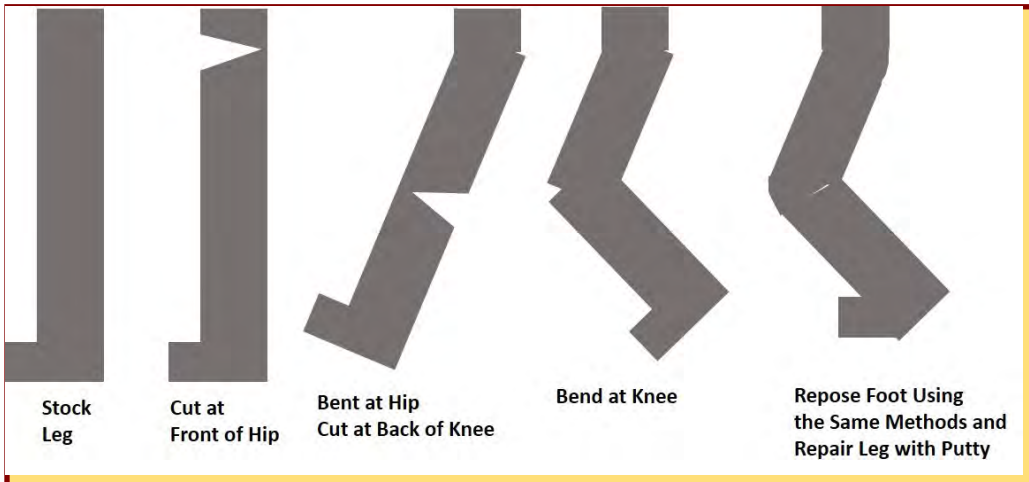
The simplest conversion is probably just swapping parts, such as a hand, arm, head, foot, etc. Often times, with the multi-pose nature of the Tamiya parts, we can just substitute parts when building the kit. Or we cut off and replace parts (hands, for example, are not molded separately but are attached to an arm). When replacing heads and hands, I like to slightly hollow out the collar or sleeve so the new part slides into place realistically. This is required for the FWA heads, as they include the neck, too. But, as we have seen, there are limits to parts swaps. Swapping that lowered arm for the raised one may also require us to swap the applicable torsos, too.

Equipment, straps, and belts can be carved away or added (using tape, paper, etc.), but this often requires more work since belts and straps alter the wrinkle patterns in the garments they contact and the weight usually causes equipment straps to sink into clothing rather than just rest on top of it.

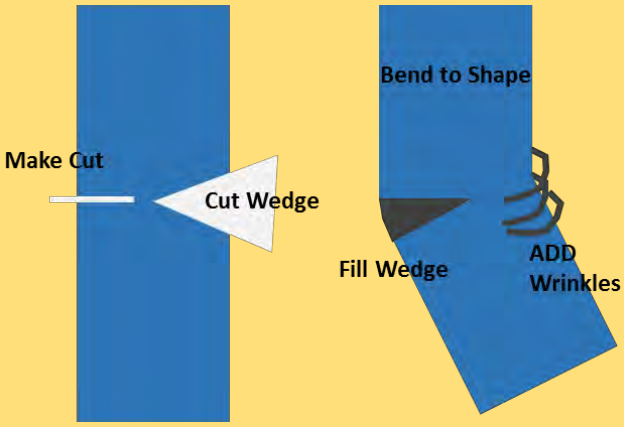
Another fairly easy conversion is bending a straight arm/leg or straightening a bent arm/leg. If repositioning a knee or elbow, make your cut on the inside of the joint to ensure the limb remains the correct length. Straight limbs can be bent by removing a wedge of material and closing the limb to the desired position. Bent limbs can be straightened by making a cut and opening to the desired angle. For plastic figures, you will have to cut almost all the way through the joint to be able to bend it to the desired position. You can also simply cut it in two and glue it back in the correct position. A piece of metal wire can be glued in holes in both pieces and the joint bent to shape – sort of like an articulated action figure. Make sure the limb remains the correct length and the joint remains in the correct position. Fix any damage with putty. Note that changing the position of arms and legs may affect the wrinkle pattern on clothing requiring even more conversion work. Normally, however, with the small size and simple detail of the Tamiya figures, this is not a significant issue. The same procedure can be used to bend a head at the neck or a torso at the waist, whether bend front to back or side to side.

While I have made some very radical changes to the Tamiya figures, these simple methods well all that was needed for most of the figures, combined with some creative swapping of parts among the various figures. The photos and captions show how it was done. More examples can be found on the following pages and in the build chapter on each variant.

Figure

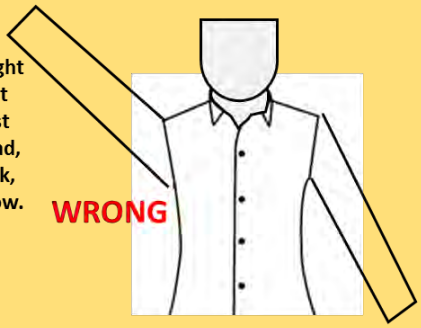


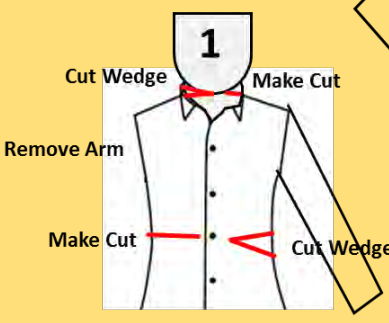
Top: The same technique to open or bend an arm/leg can be used on multiple joints on the same limb. Here, a leg is bent at both the hip and knee. If the foot is going to be resting on something, it can also be bent at both (or either) the ball or ankle. Keeping anatomy correct is the only limit.

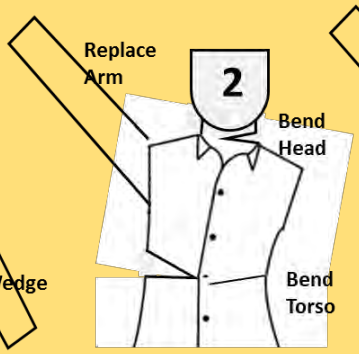


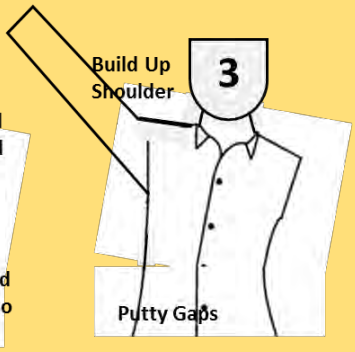
Middle: In this small scale, simply cutting a wedge and bending is usually enough. But for repositioning thick items (like a torso), we may need to both cut a wedge on the inside of the joint and a line on the outside of the joint. Otherwise, the part may be too hard to bend in to its new position. Putty then corrects the damage. Note that cloth will wrinkle up on the bent inside of the joint. This must be built up using putty—you cannot get away with simply carving new folds into the plastic, as it would not look realistic.

Let's say we want to raise the right arm of the man at left. If we just raise the arm as at right, the post just doesn't look natural. Instead, we must also reposition the neck, shoulders, and hips as seen below.





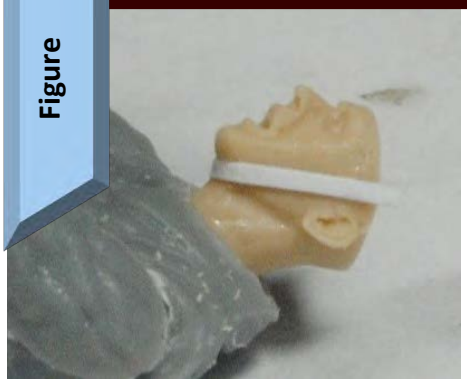




CORRECT

Add/Alter Wrinkles As needed

Bottom: There is a practicallimit to how far changes can be pushed before major changes or even resuclpting must be done. While it may seen easy to raise a lowered arm by simply cutting it off and repositioning it, there is a limit to how far it can be raised. In this example, raising the arm over the head also requires changes to the hips/waist, neck, and right shoulder. If the figure is wearing belts, straps, and equipment, this will alter the way they sit. It will also change the wrinkle pattern on the arm, waist, and right shoulder. The lower jacket skirts may also require alteration as may the legs. This is a major conversion. The lesson: Although Tamiya figures come in several parts, they are not truly multi-pose. Only certain parts will work together properly without further changes.



Above left: To add helmets or fur caps to the figures, the top of their heads were cut off flat at the point where the hat would be placed. Helmet straps were added as needed using a thin strip of paper attached with thin superglue. The Tamiya helmet (from the equipment sprue) or fur hat (cut from a Tamiya head) was then superglued into place.

Above center and right: To sculpt a hat, such as this pilotka, I used epoxy putty. In this case I used Duro (the green stuff) simply because the piece is so small. While I generally prefer Magic Sculpt, Duro is stickier, takes fine detail better, and easier to work in small bits without it coming apart or crumbling. A blob of putty was stuck in place, shaped with a putty spoon and damp brush. Details were added with my toothpick sculpting tool (see page 28).

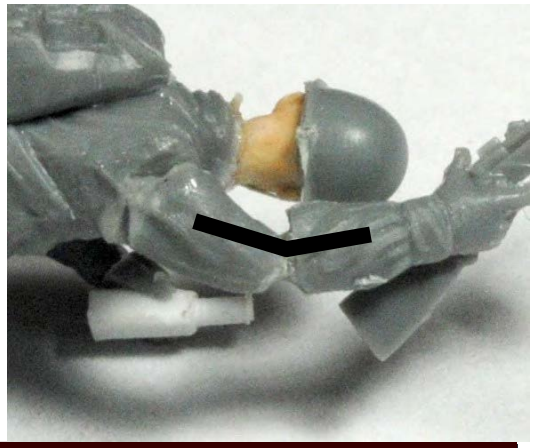
Left: Short hair can easily be painted on in this scale. It can also be added by smearing a very thin layer of epoxy putty in place, cutting it to shape with a hobby knife, and providing texture with your preferred sculpting tool.

Right: Although I ended up not using this figure, here is an example of closing a joint—in this case the arm. A wedge of plastic is removed and the arm closed.

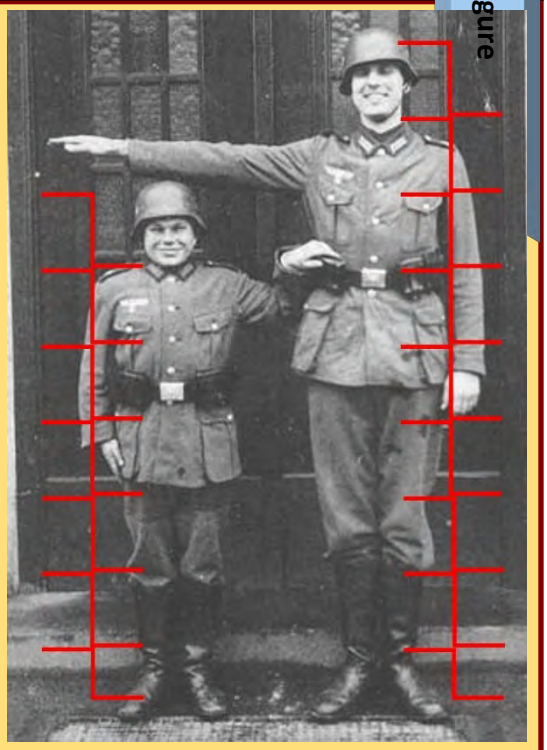
Below Left: To open a joint, such as this relaxed ankle, simply cut most of the way through the joint and bend it to an open position. A small wedge of plastic scrap was glued in place to provide strength.

Below Right: Another method is to cut the limb in pieces and connect them with a length of paperclip wire glued into holes drilled in each piece. Here, the wire is indicated by a black line.

In all these cases, the damage and gaps would be filled and repaired with epoxy putty.



Can the Size Problem with Tamiya Figures be Fixed? What About Using Tamiya Figures with Other Brands?



Figure

We have seen that Tamiya mini men are too small. Yes. Sort-of. The only critical dimension in which they are too small is one most of us won't notice. Even though we all come in various sizes, an adult male head is fairly consistent at about 9 inches tall (see the Loomis diagram). Thus a man who stands 8 heads tall is 72 inches, or 6 feet tall. I've included a photo of two Germans sized to match the Loomis diagram. Note the heads are the same height, but one man stands about 80 inches (just over 8.5 heads) while the other is 57 inches (just under 6.5 heads).

We are conditioned by seeing figures sculpted in "ideal" proportions. Most people fall short (pardon the pun). Data collected by the US during WWII shows the average height of a US soldier was 5 foot, 8 inches. Average weight 144 pounds. The hat was a size 7 or 7 1/2. Chest was 33 1/2 inches, waist was 31 inches. Shoes were size 9. German soldiers were, on average, about two inches shorter than US soldiers.

Some Tamiya figures scale out to only 5' 2" or 5'3". Some are nearly 6 feet. Most are in the 5'6-5'7" range. So they're not bad. However, as they are sculpted using ideal proportions their heads are actually a bit too small! Their gear is fine. So, in theory, you could correct the Tamiya figures by replacing heads with correctly scaled 1/48 aftermarket heads. But guess what, because we are conditioned to expect ideal proportions, they would appear as if the heads are too big!

So, can the Tamiya figures be fixed? Short answer - No. Long answer - yes, but it would be easier to sculpt a new figure from scratch! You could increase the height by adding a shim at the waist (most figures have separate upper and lower halves). B ut realistically, you could only gain a scale inch or two. If you added more, the arms and legs would appear too short. To correct this, arms and legs would have to be lengthened both above and below the elbow/knees. While this would give you a figure of correct height - they would be skeleton thin with a pin head. They simply could not be realistically fattened and still maintain any of the original figure.

Ok, so what can be done? Best bet is to use them "as is". They look fine. They only appear too small if that is what you are looking for. You can mix and match them with aftermarket quarter scale figures and/or wargame figures as long as the difference is not too extreme. But if you do this, keep in mind head size should be consistent and gear/weapons should be absolutely identical. So, if you mix/match, use the same size head on all figures and use the Tamiya gear and weapons. If you do, the height and weight differences will look perfectly normal. If you do as I did on this project and swapped the heads for aftermarket ones, all heads should be swapped (unless, of course, they are the same size as the Tamiya heads). Consistency is the key.

Not all figures are created equal—even from the same company! The photo at far left (not my photo—I downloaded it from the Armorama website—I do not know the photographer's identity) shows size differences between Alpine, Gaso.line, Rest Models, and Tamiya. At near left, we see two Tamiya figures! The shorter is from the Africa Corps set while the tallest is the from the Africa Corps Kubelwagen. Still, many of these figures could *be used together with no issues. Most could be as long as they were not posed near each other. The two Tamiya Africa figures, for example, are from my 251/6 diorama. Not only are they geographically separate on the base, one is inside a vehicle. All this serves to effectively camouflage the size difference. In a diorama such as the one covered in this booklet, if such differences existed (they don't), they would be harder to disguise due to the close proximity of the figures. Still, it could be somewhat mitigated by having the taller figures sitting.*

Figure

For those figures sitting on the edge of bed sides or tailgate, I carved away a bit of the plastic on the contact point. This was filled with Duro epoxy putty (the green stuff). While the putty was still soft, the figure was pressed into position leaving indents in the putty where the figure fits.

While you can use fancy purpose-designed tools, or various dental picks, needles, and such, I've found my most-used sculpting tool is a simple toothpick. I sand one end to a sharp point and round the other end. I coat it with superglue and sand it smooth. It only takes a few minutes to make and is easily replaceable. Still, I usually add red bands from a permanent marker so I don't get it confused with other toothpicks I use for a variety of purposes.

The methods, materials, and tools, used to repair damage and resculpt areas when doing conversions are the same ones I use when sculpting a figure mostly or entirely from scratch. In a nutshell, I use epoxy putty. My favorite brand is Magic Sculpt, although for small applications or fine details, Kneadatite or Duro (Green Stuff) can be used. The putty comes in two parts—resin and hardener—that are mixed in equal proportions to create a clay-like medium. Working time various, but for these brands is in the range of 30-45 minutes. It can be shaped and worked while soft, or carved once cured. I apply the putty with putty spoons or spatulas, my fingers, a brush, or other appropriate tool and work it into the general shape. For example, I am filling a large gap where the armpit should be due to altering the arm, I will fill the gap with putty so it correctly fills the empty space. I then blend and smooth the putty into the surrounding surfaces using a damp bush. The putty is water soluble, so this method smooths it well. Then, using an appropriate tool (usually the toothpick shown above), a add any folds, wrinkles, or seams that should be present, and then smooth the finished result again with the damp brush. If this has all been done correctly, no further sanding or shaped is needed.

Far Left: To repair damage caused by the conversions, fill any gaps or voids with epoxy putty (I use Magic Sculpt). Shape this with desired tools and smooth with a damp brush (it is water soluble)

Left: Then, using any desired tool, while the putty is still soft, re-sculpt any missing detail.

THE FIGURES:

With all the "how-to" information covered, let's turn our attention to the individual figures and look at how they were made. Part numbers are keyed to the figure numbers listed in the review section on pages 10-11. All the heads are from FWA—from either the replacement head set or the yelling head set.

DRIVER: *This figure was built stock with the exception of the head and a Tamiya helmet. I attached the steering wheel to the figure's hand for painting. We shall call him "Igor" (Archer's Bow)*

PASSENGER AND MAN ON RUNNING BOARD: *As these two had to fit precisely together and fit to multiple places on the vehicle (seat, floorboards, dashboard, running boards), they were built as one assembly. The photos at left show them both in and out of the vehicle. You can see all the conversion work that had been done. The photo bellows shows the duo after all putty work was completed.*

The passenger is primarily figure "N" with the left knee and foot repositioned; the right hip reposed; the left hand repositioned, and the right shoulder and hand repositioned. His back and buttocks were flattened to fit in the seat. Backpack straps were carved away.

The soldier on the running board is figure "H", with the left hip, left foot, left upper and lower arm repositioned. The right arm is from figure "Q" and the right hand from figure "P".

The figure on the running board is not miraculously balancing on the running board of a moving truck. He holds the underside of the dash board, one foot is inside the cab, and he is steadied by the right arm of the seated man.

Note the weapon sling made from painter's tape, as are all the slings.

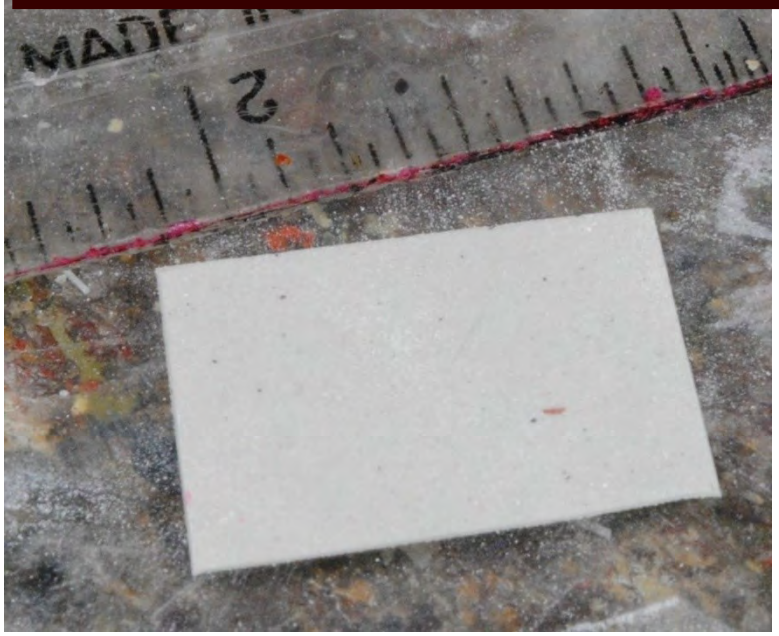
STANDING SOLDIER, FRONT RIGHT CORNER OF BED: *This figure is based on figure "P" with a left leg from figure "M" and a left arm from figure "C". The right foot has been repositioned.*

FLAG WAVER: *This figure is mostly figure "C"). The arms are spares, I believe from the British Infantry set. The hands are from the parts box. The flag was made from Magic Sculpt epoxy putty as shown here.*

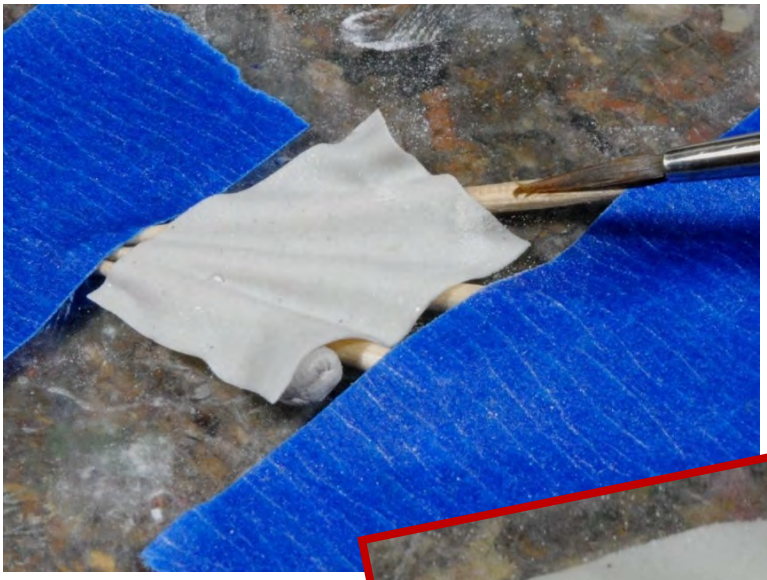
Magic Sculpt, or any epoxy putty, is a two part putty consisting of resin and hardener that are mixed together in equal proportions to form a clay-like substance.

To make something like a flag, I mix a ball of the putty and then roll it out flat on a piece of glass using a dowel rod. Plenty of talcum powder is used to avoid sticking (I've heard of folks using Vaseline, but this makes nothing but a gooey mess). The putty can be rolled out quite thin.

Figure



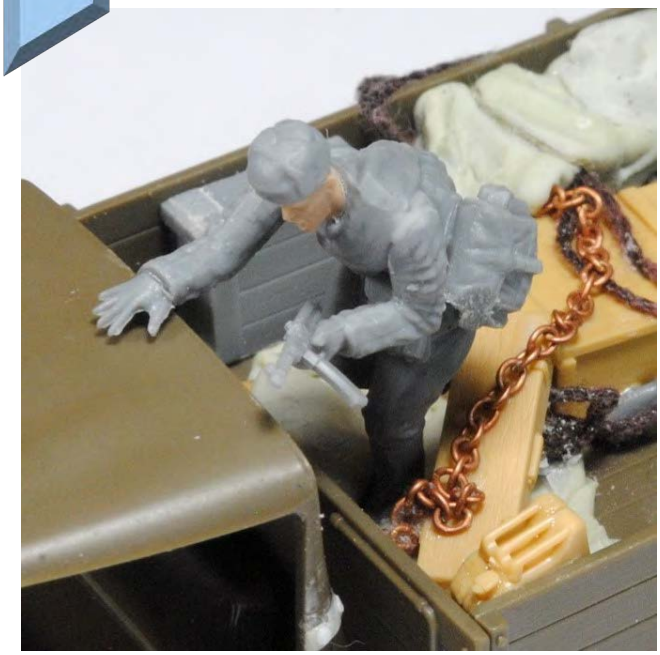
Once rolled-out, I let it set for about 30-45 minutes—until it starts to cure, but is still flexible. I then cut it to shape (in this case 1 inch x 3/4 inches).



The flag was shaped by placing it over a form made from toothpicks and poster putty. A damp brush was used to shape the putty over the form.

Once cured, you have a thin, finely shaped flowing flag. Handle it with care—the thin cured putty is fairly fragile.

The flag was superglued to the staff (a length of thin piano wire). Ties were added with short lengths of paper strip.



SOLDIER STANDING BY FLAGMAN: *ThIs man was made from figure "Q". His right are is from figure "M" with the hand repositioned.*

STANDING MAN, FRONT LEFT CORNER OF BED: *Figure "A" forms the bulk of this soldier. His right arm was repositioned and the hand replaced by one from the spares box. The left arm was replaced with one from figure "B"*

MAN SITTING ON RIGHT SIDEBOARD OF BED: *This figure features legs from figure "Z1" and upper torso and arms from figure "M". The right arm was slightly repositioned at the elbow to allow him to fit better with the other figures. The molded rain cape was cut away and replaced with one made from putty. This was made in the same manner as the flag. The alcohol bottle is from the British Infantry set.*

MANDOLIN PLAYER: *This figure is very close to stock. He is figure "Z2" from the truck set. Arms used are part numbers Z17 for the left arm (slightly repositioned at the elbow) and Z16 for the right arm. The body of the mandolin was made of Duro and the rest with styrene bits.*

Figure

LIGHT MACHINEGUNNER: *This is figure "F" with the left arm somewhat repositioned.*

THE REAL THING

Antique Russian Mandolin

SOLDIER WITH LEGS OVER BACK OF BED: *The torso and legs of this figure are from figure "N". His left arm is from figure "A" and right arm from figure "F" with a new hand. The panzerfaust (captured examples were often used by Russian soldiers is from the weapons and equipment sprue included with German infantry sets.*

SOLDIER STANDING IN BACK OF BED: *This figure combines the legs of figure "M" with the upper torso and right arm of figure "R". The right arm was repositioned at both the shoulder and elbow so the weapon points into the arm. The left arm is from figure "P" with a new hand. The bottle was carved from Styrene bar.*

FRONT KNEELING SOLDIER LEFT SIDE OF BED: *This figure, interacting with the dog, is mostly figure "P". He has a new right arm from the British Infantry set (part G-3) and right arm from the US Infantry set.*

REAR KNEELING SOLDIER LEFT SIDE OF BED: *This figure's torso and legs are figure "B". The left arm is from figure "F" repositioned at the shoulder. The right arm is from figure "Q". The bottle is from the British Infantry set.*

THE REAL THING

A young Russian soldier proudly poses for a photo with his accordion.

ACCORDION PLAYER: *This figure essentially the sitting figure from the truck kit, figure "Z1" with arm part numbers Z4 and Z5. The torso was slightly leaned back and the pack straps carved away. The left arm was repositioned at the shoulder, and the right arm was slightly turned out, too.*

Building the accordion. After the figure was posed and arms/waist repositioned, the ends of the accordion were made from Styrene stock and glued in place. The bellows is a piece of Duro cut to shape, textured with a hobby knife, and glued in place between the ends. To ensure the Duro piece was the correct size, and shape, I made a paper pattern and cut the sheet from a piece of rolled-out putty.

The rain cape was shaped to be flowing in the wind and was held in place with toothpicks as it cured.

MAN SITTING ASTRADDLE SIDEBOARD AT LEFT REAR OF BED: *This figure is quite a mash-up. His torso is from figure "J" with rain cape removed and replaced as before. His left leg is from "Q" with the foot repositioned (drooped). The right leg is from "M". Left and Right arms are from "J" and "M" respectively. The bottle is from the British Infantry set.*

THE DOG:

We have seen how posture and facial expression are vital for conveying the attitudes of our human actors and actresses. The same is equally true of dogs. Their pose, the position of their heads, their expressions, and the way they hold their tails are all indicators of what they are feeling. I wanted dogs in non-aggressive, playful running poses.

I was originally looking for two dogs, as that was what I envisioned. Finding appropriate dogs kits in quarter scale was problematic. Several model railroad manufacturers, such as Woodland Scenics and Bachman, make dog sets, but quality is not great and most of the poses are not even close to what I was looking for. At a model railroad show I picked up an "O Gauge" Dog in a sitting pose hoping to be able to use the nice head and paws in a sculpt of my own. However, when comparing the dog to the figures, I found it quite large—well over waist high in a sitting pose! It would probably work as a small to medium sized dog in 1/35th scale!

I finally found two very nice dogs in 1/48th scale. Detail was great, but poses weren't. One dog is from the Aerobonus set 480179 "Middle East Allied Pilot with Dog" and the other was included in ICM's 48081, "RAF Pilots and Ground Personnel 1939-45". Both kits, in addition to the dogs, have very nice figures and useful accessories. I had to alter the poses of the dogs as one was sitting and the other standing. It was done using the same methods as on the figures.

Even though I had planned for, and made, two dogs, during the final composition process I decided to include only one in the diorama. Still, for illustration purposes, I will show here how both were made.

1: *This O Gauge Dog is fairly nicely detailed and would have worked as a donor, providing the head and paws for a new sculpt. However, although close to 1/48th scale in theory, it was much too large.*

2: *ICM includes a dog in this kit, but unlike the depiction on the box art, the dog is standing, not running.*

3: *This shows the two dogs I selected, Aerobonus in grey resin and ICM in yellow plastic. Although not running, they are nicely detailed and served as the basis for the necessary conversions.*

4: *Here we see the dogs reposed. The plastic ICM dog was cut apart and repositioned in the same manner as the figures. The hanging ears were also sliced away. The resin Aerobonus dog had the head and one leg repositioned simply by heating the dog in hot water and bending to the desired shape. The other three legs were carved away and replaced with thin wire.*

5: *The complete Aerobonus dog. Duro putty was used to resculpt legs and tail over the wire forms.*

6. *The finished ICM dog. Damage due to repositioning was fixed with Magic Sculpt putty. Flapping ears were made from bits of Duro. In the final assembly stage, I decided against using this dog. Thus, the complete diorama only utilizes the Aerobonus dog.*

Figure

Figures in various stages of completion. The figures in the cab must be painted and attached before the roof is attached. The two figures near the rear of the vehicle are also complete. The others are partially so. All have the uniforms painted, but only some have equipment items finished and none yet have the flesh areas painted. I do not paint groups of figures in an "assembly line" fashion. For each painting task—uniforms, equipment, flesh, etc.—I paint the figures in small clusters of three to five. This makes it easy to realistically vary the colors on similar items. It also keeps me from getting bored when painting so many figures! For the unfinished figures, note that some are mounted to temporary painting bases by their mounting pins. Others are held by toothpicks fitted into holes drilled into their undersides. This allows the figures to be comfortably held while painting without needing to handle the figures themselves.

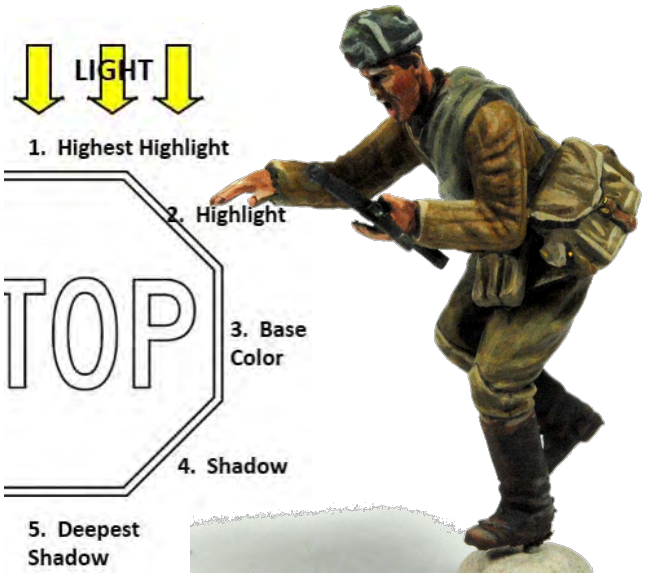
Painting the Figures

Figures are a focal point of any composition, so they should be painted to at least the same standard as our models. Good brushes and lighting are important, but the main ingredient for successful figure painting is simply attention to detail – be neat. My painting techniques were covered in detail in my other build booklets, but we will summarize them again here as figures are such a key ingredient of this diorama.

To paint effectively, good lighting is a must. The lights on and around my painting desk are daylight-balanced so my colors appear true. For fine detail work, I have a large magnifying glass with a light ring on an articulated arm. I mount the figure on a temporary painting base that is a comfortable size and weight to hold while I paint.

Without quality brushes, we cannot achieve quality work. I use the best sable brushes I can get. Synthetics are acceptable for many basic painting chores, but I've found they do not hold paint well and they tend to (permanently) bend double after painting into recesses. There are only a few I regularly use: 2/0, 0, 1, and 2 round brushes, and 2 and 4 flat brushes. A size 0 brush with a good point will handle nearly all fine detail applications, and I rarely use anything smaller than a 2/0. A tiny brush (3/0 or smaller) holds so little paint it is likely to dry on the bristles before you can deposit it on the figure. It is not the size of the brush, but the fineness of the point that counts—there is little you can do with a 3/0 that you can't also do with a fine-pointed 0. (Note: there is no standard on brush size. A size "0" from one manufacturer may be significantly larger or smaller than a size "0" from another manufacturer).

I paint figures with acrylic paints almost exclusively, primarily craft acrylics such as Delta Ceramcoat, Apple Barrel, and Folk Art. I have also used Vallejo, Andrea, Reaper, Jo Sonja, and other brands. The Vallejo Model Air colors I use for airbrushing can also be applied by brush. For metals, I use the excellent metallic paints by Liquitex,



Figures must be painted consistently with the models. Therefore, the same "Stop Sign" Rule we use with our models applied to the figures as well. This is often called "Overhead" or "Zenithal" lighting. It approximates the shadows cast at noon on an overcast day. The concept is shown above. Note that most of the shadows and highlights on the figure are painted on. This is what I call the "Concept of Scale Light". See the text for details.

Vellejo, and/or Andrea. All these various acyclic paints mix well together.

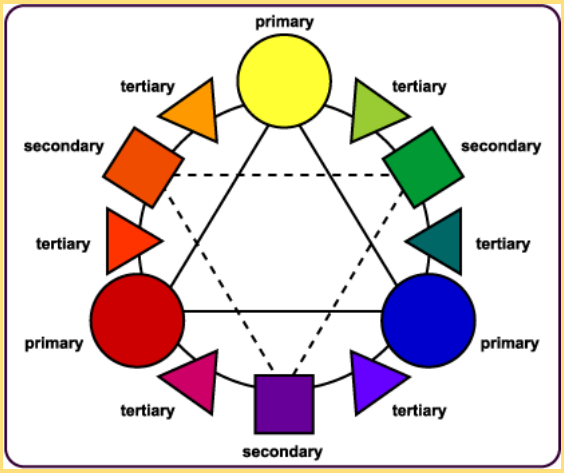
Before painting, carefully study the figure and plan the best approach – what must be painted before painting something else? How will parts to be added later affect highlighting and shading? If painting parts separately, take care to make sure shadows and highlights are consistent and fall in the same direction. Generally speaking, I paint from the inside to the outside. I start with inner garments and then paint outer garments and finally belts and equipment. Depending on the figure (and my mood) I paint flesh areas either first or last. This pre-planning is much more important than following an arbitrary rule such as "always paint the face first". Every figure is different and must be tackled in the way that best suits both it and the painter.

When working with larger scale, I often paint the figure in sub-assemblies, leaving some gear and parts separate. In these smaller scales, my normal procedure is to completely assemble the figure prior to painting. Tiny parts can be difficult to assemble without damaging paint with fingerprints or glue marks. Also, painting the assembled figure ensures shadows and highlights are consistent and always fall in the same direction.

Now that our figures are assembled and ready to paint, let's look at some basic concepts and methods before we pick up the brushes.

COLOR THEORY AND COLOR MIXING:

Having a practical understanding of color theory saves us time when choosing and mixing colors and helps us get better, more consistent results. I suggest getting a color wheel and learning how to use it.



-**Primary Colors** cannot be derived by mixing other colors. All color combinations come from them. The primary colors are red, yellow, and blue.

-**Secondary Colors** are created by mixing two primary colors. They are orange (red + yellow), green (yellow + blue) and purple (red = blue).

-**Tertiary Colors** are created by mixing a primary and secondary color.

-**Neutrals** are technically not colors and can not be mixed from other colors. These are white (the absence of color) and black (the presence of all colors). For practical purposes, we can include grey and brown as well. While these can be mixed, I've found it easier to have a few different browns and greys and mix others I need from them.

-**Complimentary Colors** are opposite each other on the wheel, for example purple and yellow, red and green, or blue and orange. When placed beside each other, they create the highest contrast, but when a color is mixed with its compliment it appears more subtle or muted. These colors can be used for shading. For example, purple is a great color with which to shade yellow.

-**Warm and Cool colors** can be used for certain effects. Warm colors are from the red side of the wheel, and cool colors from the blue side. These can be used to help convey emotion or even temperature (a winter scene would have lots of cool colors while a passionate scene could use warm colors). Normally, I prefer a warm palette unless doing a winter or a "dark" (as in evil) scene.

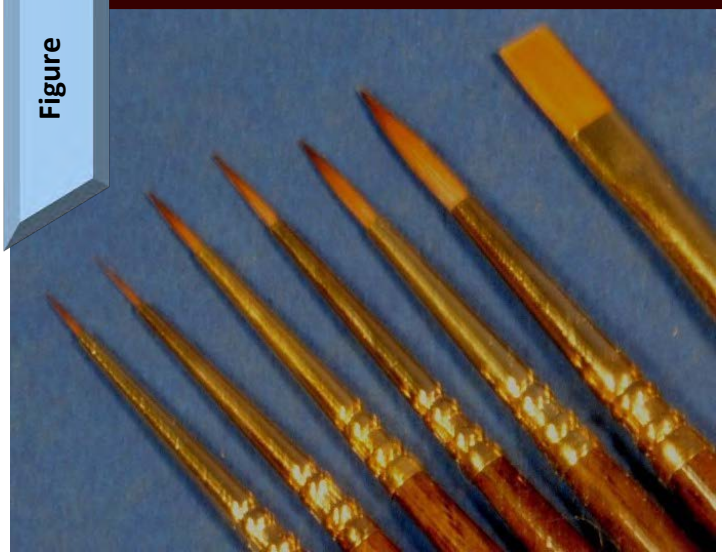
-Value or Shade is the relative lightness or darkness of a color. We use value to shade and highlight. In the below examples, the base color is marked "3". Highlights are to the left and shadows are to the right.

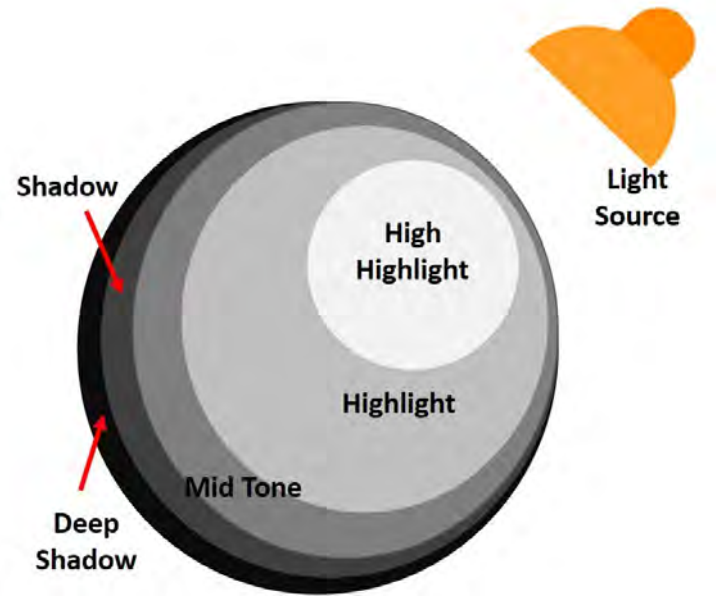
In theory, if you had the three primary colors, plus black and white, you could mix everything else you need. But in reality, it's better to have a wider selection of colors. Still, there will come a time when what you need isn't readily available, especially when using several values of the same color for shading and highlighting. It's far easier to mix these from a single base color than to match commercial colors.

It may seem common sense to highlight by adding white and shade by adding black, but this usually isn't a good answer. Adding white can make your color appear chalky, and black can muddy colors. For example, lighten red with a bit of flesh or orange, and add dark brown or dark green for shading. Lighten green with yellow or tan. Shade yellow with brown or purple. For white, start with an off-white made by adding blue, brown, grey, or green. Then you can add white for highlights and more of the other color for shades. Using different colors give different effects. Shading white with blue gives a very cold white, while shading with brown or grey results in a warmer color.

The best way to learn is to practice and experiment. A color wheel can help you predict results. It's not hard—you can probably become an expert with about an hour of practice.

Figure





Top: A selection of brushes including Vallejo rounds #4/0, 3/0, 2/0, 0, 1, 2 and a flat brush. The 4/0 is, in my opinion, almost useless. The flat brush is good for dry-brushing. Middle: The difference between a opaque base-coat and a semi-transparent glaze. The glazes are used for highlighting and shading. Bottom: This picture graphically shows how lighting and shading works. In scale figure modeling, some of this will be provided by natural light, but most will have to be painted on—this is the "Concept of Scale Light"

Scale Light: shadows and highlights help our brains determine shape. In real life, people are, of course, life-sized and so is the light. Our miniatures are much smaller than life-sized, yet our light does not shrink. This is why figures without painting highlights and shadows often look two-dimensional and unrealistic. This effect gets more pronounced as figures get smaller—more contrast between light and dark is needed on small scale figures. Transitions do not need to be as gradual and subtle. Since the figures are displayed with a model, make sure you are consistent—the figure should be shaded and highlighted to the same degree as the vehicle and vice versa (armor modelers often use the term "color modulation" for the process of shading and highlighting). While the methods an armor and figure modeler might use can be different, the end result is the same.

Scale Distance—it is our friend. Looking at a 1/48th scale figure at a viewing distance of one foot—about the closest our eye can actually focus on the figure— is the same as looking at a real person from about 18 feet. If we can't see it at that distance, it doesn't need painted. This means that on large scale figures (1/35th and above), we must paint all details of insignia and buckles. In 1/48th scale, the mere impression of detail is often enough. When painting faces in 1/35th scale and up, I paint detailed eyes. In this scale (especially with the eyes in shadow under hat or helmet brim) it can be sufficient to paint a dark line representing the upper lid and a dot for the iris—although the figures in this scale are certainly large enough to add more detail if desired.

Also, things appear lighter with distance. According to one popular theory, in this scale, our colors need to be about 10% lighter than the real thing to avoid looking too dark. Above 1/35th scale we really don't need to worry about this. There is no need for fancy formulas or measuring—if it looks right, it is right. If you apply this lightening principle to your vehicle, you must for the figures, too. I prefer more vivid, saturated colors and do not apply this principle to either my vehicles or figures.

It is important to prime figures before painting. Primer is designed to stick well to the underlying surface and provide a layer for the actual paint to adhere well to. I prime small figures in black. This ensures that any deep shadows inside creases and under equipment (places I may not be able to reach with a brush) will be a black deep-shadow color. Although black is my preference, many other primer colors, such as white, grey, and dark red, can also be used. The choice is yours.

Acrylics dry too quickly to allow blending of colors on the figure to achieve subtle highlights and shadows. Highlights and shadows must therefore be built up with multiple layers of thin glazes. The key is to make transitions between the highlight, base, and shadow colors smooth to enhance the realistic effect. No matter what I'm painting – be it a face, a shirt, a helmet, etc., I follow the same basic process.

First, the base color is applied. If the paint is thinned correctly, it usually takes two or three coats to get a smooth, solid, opaque layer of color. If the paint is too thick, it will display brush marks and can obscure fine detail. If too thin, it can fail to cover or run all over the place.

After the base coat is dry, I paint highlights. Highlights serve to

Figure

gradually lighten the base color on those areas receiving the most illumination from the overhead lighting. The number of highlights varies with the amount of light falling on the part in question. Some areas may only need one or two value changes through the use of highlights, others may need three or four. Each value change is a separately applied highlight. These highlights are usually applied through the application of thin, semi-transparent glazes of progressively lighter colors painted over the top of the base color and any previous highlights.

Shadows follow highlights. These I paint using thin, semi-transparent glazes of progressively darker color painted over the top of the base color. Like highlights, it can require multiple, darker applications of shadow color to build up to the desired effect. I use as many different highlights and shadows as needed to in order to get the effect I desire. My eye is the judge – if it looks right, it is right.

After all other highlighting and shading is done, the item is "outlined". Deep shadow areas in seams, under pocket flaps and collars, around belts, etc., are outlined with a thin line of very dark brown or black paint (or other color as appropriate). Then the top edges of collars, the tops of seams, etc. are painted in the highest highlight color. I have found that this little bit of extra highlighting and shading works wonders at enhancing the 3D aspect of my figures and really making the details "pop".

If contrasts are too harsh or stark, the colors can be somewhat visually blended by applying what I call a "Blending Wash". This is simply a filter of the base color to slightly darken highlights and/or lighten shadows.

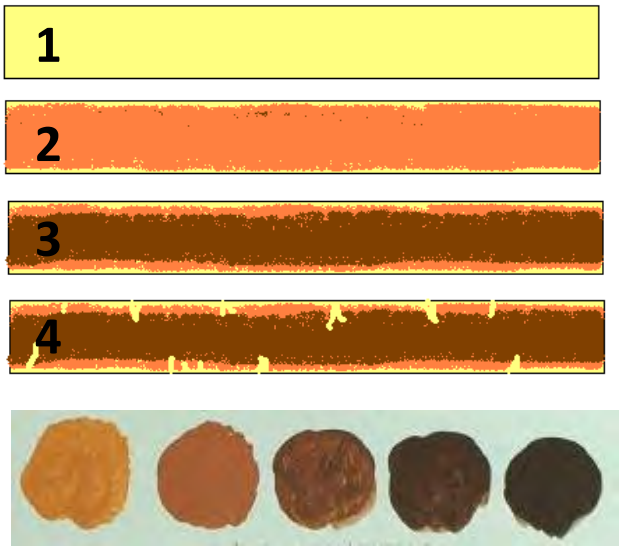
Finally, details such equipment, belts, insignia, buttons, etc. are painted. These details likewise usually require highlighting and shading.

There is an alternate method that sometimes lends itself well to painting certain dark items in this scale. That is to use the black primer as the base color and simply build up to the color you want by adding progressively lighter glazes on top of the black.

Various textures and surfaces can be recreated using different techniques. When recreating a rougher surface for example, I sometimes apply initial highlights by dry-brushing. Shadows are always applied with glazes. Highest highlights are still usually done with glazes. For smooth items like leather, never dry-brush unless you are trying to recreate suede or badly scuffed leather. Other textures and materials can be replicated by varying painting techniques such as making transitions to highlight/shadow more abrupt or by adding a bit of gloss or semi-gloss varnish into the paints. An example of creating textures with paint is worn leather, done as shown below. Even this small scale, woodgrain can also be convincingly painted. See the section on painting the truck for examples. The same is true for metals, but the paint must be smooth and the contrast between base coat, highlight, and shadow is usually greater to help recreate the reflective surfaces and the vast difference between gleaming highlights and deep shadows. Pencil lead (applied with a pencil, or powdered and rubbed on with a finger or cotton bud) can create a very realistic metal sheen. I grind it up on a piece of sandpaper and apply it with a fingertip or cotton bud (Q-Tip).

Whether flesh areas are painted first or last, the face is the most important painting task. It is generally what viewers look at most closely. It's the feature that makes a figure "human". The face will often, quite literally, make or break a figure. It's the face – and its expression – that gives the figure character and conveys, more than anything else, its "attitude". Nicely-detailed castings such as the "Figures With Attitude" heads used in this project make the task easier. While the techniques used to paint flesh are the same base coat, highlight, and shadow technique we've already seen, we must remember we are recreating flesh – not cloth or some other texture. The transitions between shades of light and dark must normally be more gradual and smooth. I normally use more highlights and shadows on the face than on any other area, with less value variation between applications. Carefully feather the edges together – smooth transitions here are vital to achieving a realistic effect. Consider the figure itself - obviously, a child's face is smoother than a weathered warrior.

When painting faces, I begin with the eyes. Both eyes should be the same size and looking in the same direction. I use the method shown



My method for painting worn leather is shown here. 1) I start with a light base color. 2-3) Using darker colors, I gradually add glazes of color, letting the previous, lighter, colors show in the worn areas. 4) Finally, I add scuff, and scratches and often high edges by using my first color or even a color somewhat lighter than my initial color. Below, a sample of some of the colors and the sequence of application I may use to create black leather. The colors, all acrylic craft paints, are from left to right: Golden Brown, Nutmeg Brown, Burnt Umber, Dark Burnt Umber and finally Dark Burn Umber + Black. Pure black may be used for shadow edging and perhaps khaki for edging on the highest edges. Obviously, different colors would be used to create different colors of leather.

for small-scale figures. In this small scale, considering that in the sunlight our figures may be doing the "Clint Eastwood" squint, we could probably get by with a dark line for the eye and a small black dot for the iris – especially if the eyes are in the shadow of a helmet brim or cap visor.

Once the eyes are painted, paint the rest of the face and any other visible flesh. Be careful when painting around the eyes. Leave a very small bit of the eyelid lines showing to outline the eye. Remember when mixing your flesh color that persons who spend a lot of time outside tend to be darker. Not everyone has the same complexion. There is no one "be-all-end-all" flesh tone mix. I often use several slightly different flesh mixtures when creating a multi-figure diorama to recreate this. Highlights are applied to the forehead, ridge of the nose and nostrils, chin, tops of cheekbones, lower lip, upper eyelid, top edge of bags under eyes, the ear lobes and edges, and tops of any folds or wrinkles in the skin. Apply shadows to the hairline, eye sockets, sides of nose, under the nose, under bottom lip, under the cheekbones and chin, under the jaw and behind the ears. The deepest shadows are in the eye sockets at the inside corner of the eye and under the chin. If the figure wears a hat, I plan in advance how this will affect the highlights and shadows and paint accordingly.

To help further blend and unify the colors together especially at this and larger scales, I sometimes add a "blending wash" of the base flesh color to help soften transitions.

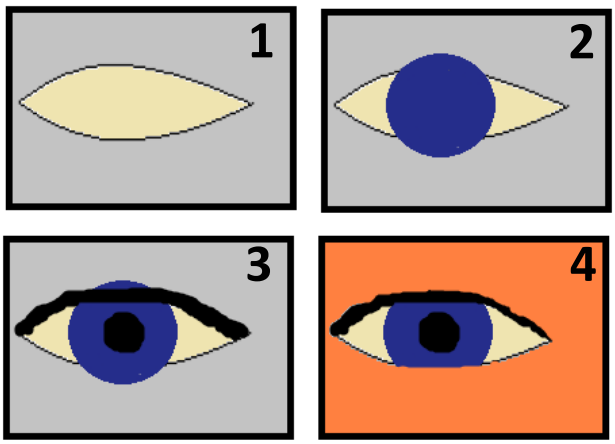
Next are any other details such as lips, teeth, etc. I usually add a glaze of reddish-pink to the lower lip. Often, a tiny bit of dark red feathered in just under the cheekbones and at the tip of the nose can give help give life to a figure. Figure nails are also painted at this point. I coat the nail with the medium shadow color, then paint the nail in a highlight color, leaving a border of the shadow color.

A five-o'clock shadow can enhance a figure when used appropriately. Mix a dark bluish-gray and add a very thin glaze – almost a wash - to the beard areas, heavier in shadow areas such as under the lower lip and under the jaw. Of course, this dark growth is not appropriate for a young blond-haired man, so use it sparingly.

The hair is last. Don't try to paint individual strands in this scale, but rather concentrate on forms and shapes in the hair. I base coat the hair in the darkest shadow color, and then progressively add lighter colors to get depth and highlight. Highest highlights are picked out with careful applications of glazes.

For painting different races of individuals, I use the same methods. Only the colors used are changed.

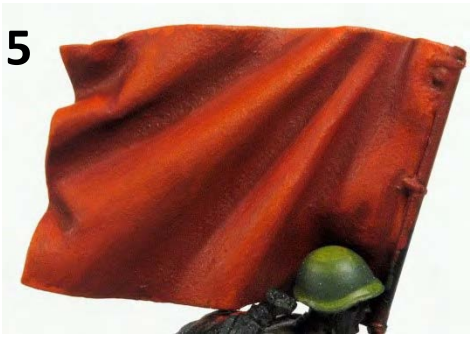
Now that we've looked in detail at my methods, let's pick up the brushes and start painting!

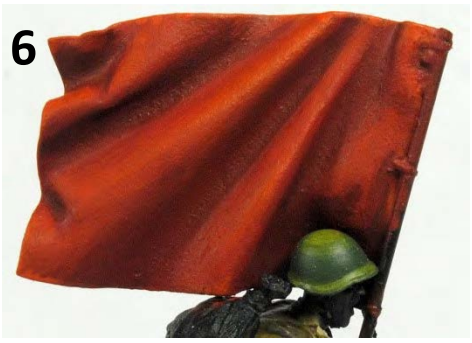


I start the face with the eyes. Not much detail is needed in 1/48 scale. Paint the whites a light flesh color (1). Do not use pure white—that is too stark in this scale. A dot of very dark blue, brown, or black makes an iris (2). A black line and a dot serve as the pupil and upper eyelid (3). The base flesh color is painted around the eye (4). I generally do not paint a "catchlight" (white dot on the eye to depict reflected light). I prefer to give the finished eye a coat of clear gloss to get a natural reflection.

This is a photo of a "Planes of the Head" art mannequin by John Asaro. (More photos, and information on ordering a mannequin can be found at "planes of the head.com") I find this or similar photos of heads with angular features (do a Google Image Search for "Planes of the Face") very helpful in determining where to add highlights and shadows to my painted faces.

My normal painting process is illustrated below. Note this is only a sample—each piece is somewhat different. For example, in some instances I use more levels of highlight than shadow and vice versa. Sometimes I may use only one or two levels of highlight or shadow, other times three, four, or even more. It all depends on the piece, the color, and the effect I am trying to achieve.

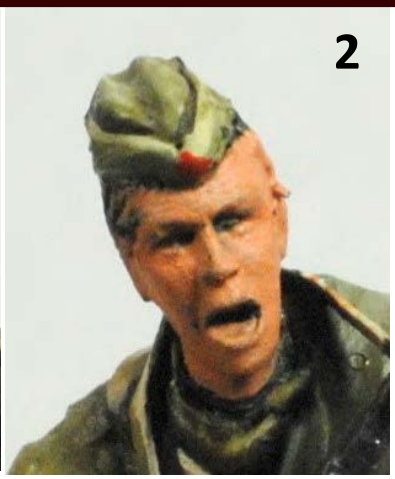




Here is the process applied to the banner. 1: The base color was built up with three thin coats of Barn Red. 2: The first highlight is a semi-transparent glaze of Bright Red. 3: For the second highlight, a mix of Bright Red and Orange was used. 4: The third highlight is Orange. 5: The first shade is a thin glaze of Candy Bar Brown. 6: Shade number 2 is Chocolate Bar. 7: Final details were then added. Edging was done with a Mix of Orange and Medium Flesh while outlining was done with Black. This edging and outlining really makes the piece "pop". The emblem was hand-painted to look as if it were embroidered. The base color is Antique Gold (non metallic) shaded with Raw Sienna. High edges were picked out using Sunbright Yellow while shadows under bottom edges were outlined with a mix of Chocolate Bar and Black.

Here we see the same process applied to a rain cape. In photo 1 the base color has been applied (Dark Green). In photo 2, three levels of highlight are in place. The first level is the base color plus Light Grey Green. The second adds Khaki, and the third—edging—is straight Khaki. The third photo shows the finished item after shadows have been added. The first shade is Olive Drab, the second shade is Olive Drab plus Black and the third shade—outlining—is Black.

Figure



Here we see the painting of the tiny head in much larger than life sized. 1: The eye has been painted as shown on page 42. In this scale the eye is very tiny with little white showing. 2: The base of Dark Flesh has been applied. 3: The first highlight is Medium Flesh. 4: The second light is Medium Flesh + Antique White. 5: The third light is straight Antique White. 6: The first shadow is Candy Bar Brown. 7: Shade number two is Chocolate Bar. 8: The third shade is Chocolate Bar + Black. 9: Details were then painted. Lips are Burgundy Rose with a Dusty Mauve highlight. Visible teeth are Parchment. A tiny bit of Red is blended onto the cheeks and under the tip of the nose to add some color. Hair is last, along with eyebrows. I start with the flesh dark shadow color and gradually built up to the hair color desired. Don't try to paint individual strands, concentrate on highlighting shapes and forms. The well-detailed FWA heads are much easier to paint than the poorly defined Tamiya features. In this photos, with the little head viewed much larger than life-size, the effect looks very stark. Viewed actual size, it is quite effective.

The tiny photo at right shows the head approximately actual size on a printed 8 1/2 x 11 inch-page

The hands were painted at the same time and using the same colors as the faces. Fingernails were painted by first painting the nail area in the medium shadow color. They were then highlighted using a mix of Medium Flesh and Dusty Mauve.

OTHER COLORS and COLOR MIXES USED:

Unless specified otherwise, colors are Delta Ceramcoat craft paint. Apple Barrel paints are identified with (AB), Folk Art (FA), Vellejo (V), Vellejo Model Air (VA), Andrea is (A). Key: B = Base Color, L = highlight (1L, 2L = 1st highlight and 2nd highlight), S = Shadow. For color mixes, if no ratio is listed, the colors were mixed "by eye" until they looked right! The colors for each item are generally listed in the order they were applied. Many of my other how-to and step-by-step works contain detailed information on figure painting and color mixes.

SOVIET UNIFORM:

As I often do, I greatly varied the uniform color from item to item. This is not only realistic to a degree, but it adds visual interest. The various base color mixes are shown here. Generally (but not always), the lightest colors were used for the padded garments while the darkest, greenest colors were used for the rain capes. To unify the various colors, helping to make them look like varous shades of the same color, highlighting on all items were created by adding colors such as Khaki (AB), Trail Tan, and Antique White. Shadows were created by using Nutmeg Brown (AB), Burnt Umber, Dark Burnt Umber, Dark Green (VA), Olive Drab (VA), and Black as appropriate. Shoulder board were painted with US Dark Green (VA). Piping is Burgundy Rose. Two examples should suffice to show the process:

Soviet Uniform Example 1:
B: US Field Drab (VA)
1L: B + Khaki (AB)
2L: 1L + Khaki (AB)
3L: Khaki (AB—edging)
1S: B + Olive Drab (VA)
2S: Olive Drab (VA)
3S: Black (outlining)

Soviet Uniform Example 2:
B: Timberline Green + Raw Sienna 2/1
1L: B + Khaki (AB)
2L: Khaki (AB)
3L: 2L + Antique White
1S: Dark Green (VA) + Nutmeg Brown (AB) 2/1
2S: Olive Drab (VA) + Burnt Umber
3S: Black (edging)

HEADGEAR:

Helmets were painted a mix of US Dark Green (VA) and Bronze Green (VA). Lights were created by adding Timberline Green and shades by adding Black. Soft caps were painted the same as uniforms. Fur caps had their outer crowns painted with Olive Drab (VA) highlighted with US Field Drab (VA) and then Khaki (AB). Shades were Black. The fur areas were painted Charcoal, highlighted with Pewter Grey (AB) and then Cadet Grey.

Mixes used for Flesh (see page 44).

WEBGEAR:

Like the uniforms, various mixes were used, but the web gear is generally lighter. Also like the uniform, two samples should suffice. For example, some were painted Light Grey Green (VA), highlighted with Trail Tan and shaded with Olive Drab (VA). Some were painting using a mix of US Field Drab (VA) and Mushroom (AB), highlighted with Khaki (AB), and shaded with Olive Drab (VA). Regardless of color, all outlining was done with Black and high edging with the highlight color plus Antique White.

WEAPONS:

Gunmetal areas were painted using a mix of Lead (A), Prussian Blue, and Black. Highlights were created using Steel (A) and/or Silver (A). Shades were created by adding Black. Outlining was done with Black. Wooden areas were base-coated with Raw Sienna and highlighted by adding Trail Tan. Grain was streaked on using a mix of Chocolate Bar and Burnt Umber.

LEATHER ITEMS:

These were base coated with Autumn Brown. Color was built-up to the darkness desired by adding thin glazes of Burnt Umber, Dark Burnt Umber, and Black. Lighter colors were allowed to show through in wear areas. Edges and areas of highest wear were given a glaze of Trail Tan.

Views of the finished figures.

Left: Many of the figures must be assembled in a particular order in order to allow all to fit properly. Some must even be fitted at the same time to avoid conflict. Here we see the first nine figures in place.

Here we see the truck painted and mostly weathered—only the application of pigments remain to be completed. At this point the cab roof and wheels are not yet permanently attached. The wheels will not be glued in place until after the pigments are applied. Pigments will not be put in place until the cab roof is attached. This cannot be attached until the three figures in the cab are in place. This is an example of the importance of pre-planning in our assembly and painting processes.

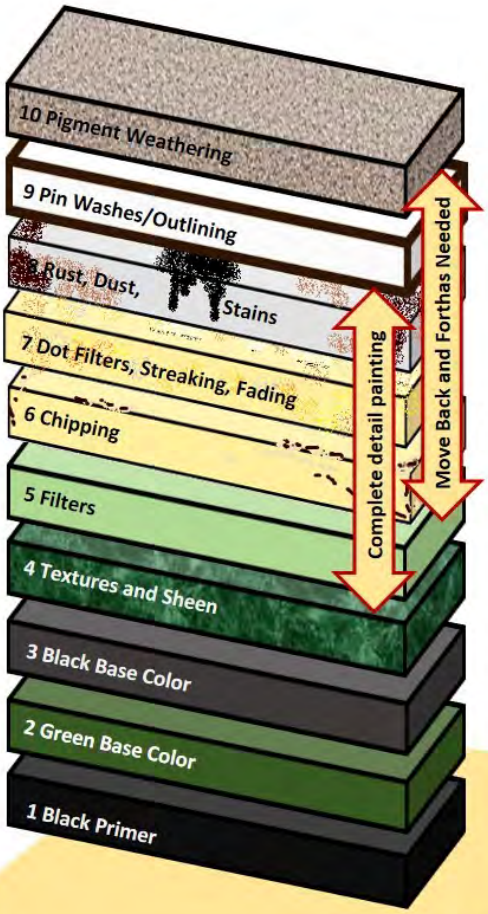
Each model is different—as are the effects we are trying to achieve, and, often times, our mood. As modelers, we "mature" as we gain experience, sometimes trying new techniques or changing the preferred way we do a particular task. For all these reasons it is rare I paint any two separate pieces using the exact same methods. This is clear to anyone who studies the "Painting and Weathering" diagrams (see next page) I post with my model builds will have already noted. For instance, sometimes I accomplish all my shading and highlighting with color modulation (as on this build, for example), while other times I start the process by painting the model first in black and white as a pre-shade (my StuG III build). There is no hard and fast rule for which I use on a particular model. Clearly, if the finish is multi-colored and multi-layered, such as a camouflaged vehicle, the pre-shade has less effect as it is covered by too many layers of paint to show through effectively. This build would have been a good candidate for the pre-shade, but I chose—personal preference only—to create all needed shadows and highlighting using only the color modulation steps reinforced by later filter steps.

I also often use multiple clear layers of paint in my builds. Some of this is due to decals—they have a gloss layer both below and above them all deadened by another matt layer on top. Further, Dullcote is often applied at some stages as a barrier to prevent solvent used on one painting step from negatively affecting the painting steps underneath it. In this build, these clear layers were not used to the same degree. The reasons for this are twofold. One, I wanted to depict different textures of metal and wood. This required different amounts of sheen ranging from matt through semi-gloss to gloss. Obviously, additional layers of clear varnishes would ruin this effect. Second, this vehicle uses no decals—the various layers of gloss and matt needed for this process could be dispensed with.

Other than these differences, most of my painting methods including my preferred methods and mediums remained the same. The following pages show how these were applied to this build.

PAINTING & WEATHERING

B	P
B	O
B	O
B	O
B	A
B	A O
A	A B
A	B
A	A
A	A



KEY

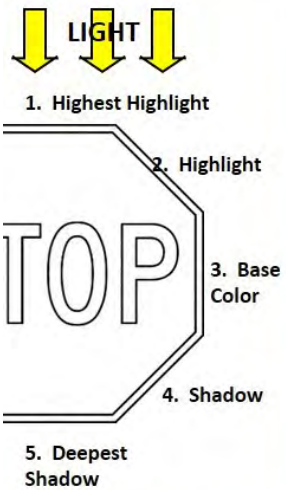
Method of Application

- A — Airbrush
- B — Brush

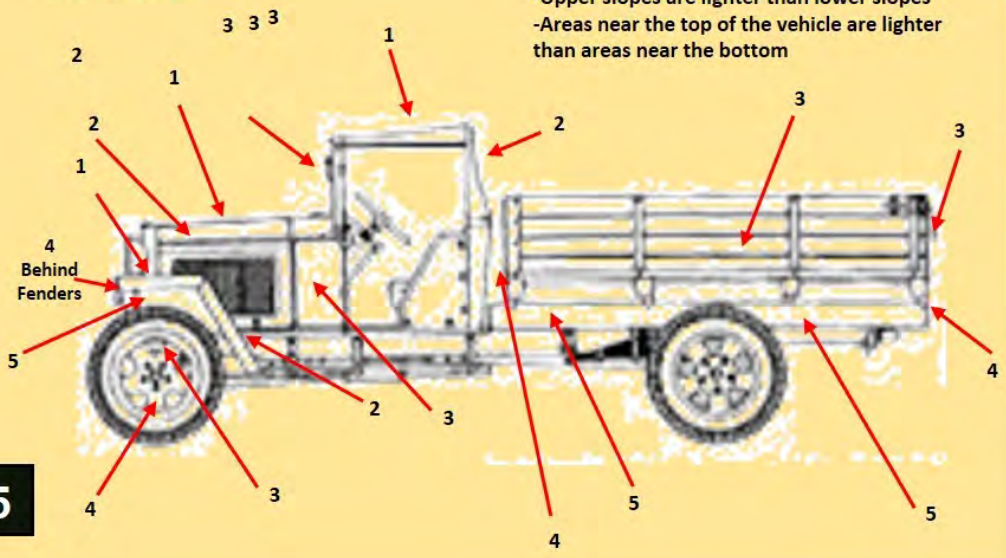
Type of Paint

- A — Acrylic
- O — Oil
- P — Pigment

Color Modulation Using the Stop Sign Rule (Step 2-5).



1	2	3	4	5



MODULATION BASICS:

-Upper surfaces are lighter than lower surfaces
-Horizontal surfaces are lighter than vertical surfaces
-Upper slopes are lighter than lower slopes
-Areas near the top of the vehicle are lighter than areas near the bottom

STEPS 1 –4: PRIMING, BASE COLORS, TEXTURES

The first three steps followed my normal procedures. Priming was done in Black and the base green and black colors were applied using a "modulation" process of painting from dark to light. The only difference being that the green was airbrushed as normal while the black areas on the frame and chassis were brush painted. This was done simply to avoid the complex masking that would have been required to paint these areas with an airbrush.

The one key difference with this build is that I wanted to show the texture difference between the metal body and wooden bed. While they would have been painted the exact same color, the materials would have reflected light somewhat differently based on direction of wood grain, roughness of the individual boards, smoothness of the metal, and so on. These texture differences were created largely by varnishes—wood areas being matt while metal areas are semi-gloss or gloss. Wooden textures were further enhanced by using slightly different color filters on individual boards. The canvas roof adds yet another texture.

CHOSING THE COLOR:

World War II era color photos of these trucks are pretty much non-existent. Color photos of restored and museum vehicles show colors all over the spectrum from the dark green one would expect of Russian military vehicles to lighter yellow greens. Those familiar with my previous works know that I take a "Nuclear Weapons" philosophy toward tactical vehicle color—close is usually accurate enough. Part of this stems from my decades of military service where I've seen the wide variety of supposedly uniform colors present in any motor pool. Part of it is certainly artistic license—selecting the "most attractive" color from the range of possibility. In this instance, "range of possibility" doesn't necessarily mean "range of probability". Looking at photos of surviving vehicles, kit box art, and built models, I found myself drawn to the brighter greens rather than the likely more accurate darker greens and olive greens. Not only did I think they looked more attractive, but such colors would contrast nicely with the bed full of khaki drab figures. It is, of course, possible, that there was some lack of uniformity in Soviet colors. After all, different vehicles were painted at different times in different factories by different workers using paints from different manufacturers. That said, I tend to think that in reality Soviet colors were relatively standardized. Still, if anything were painted in brighter and/or glossier colors, soft skins such as this truck would be good candidates.

So, inspired by Tamiya's box art and photos such as the one above showing a museum vehicle in Russia, I chose to go with a brighter, yellower green.

Here we see the colors used to paint the green:

-Olive Green
-Cam. Green
-Bronze Green
-Tank Ochre
-Gold Yellow

At the top of the facing page are the color mixes used, from dark to light, keyed to the painting diagram on the previous page.

Below are the colors and mixes used to create the black on the frame and chassis

-Black Primer
-Black Grey
-Intermediate Blue.

The green areas were airbrushed while the smaller black areas were brush painted.

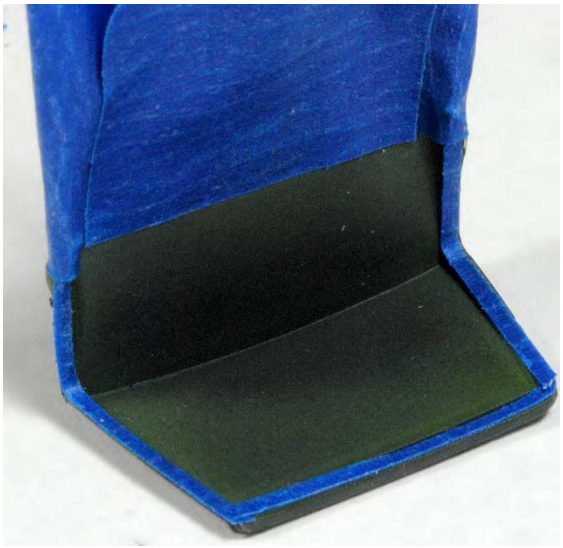
As a first step in the texturing process, the wooden areas were left matt while green metal areas were sprayed with Future Floor Polish. Black areas were painted with a mix of Semi-Gloss and Matt to create an "eggshell" level of sheen. Further texturing of wood areas will be done in the "Fliters" step by slightly varying the colors of individual boards using filters. While all areas would have been painted in the exact same colors, they would reflect light differently due to texture, roughness, etc. This is recreated in scale by using slightly different colors and sheens.

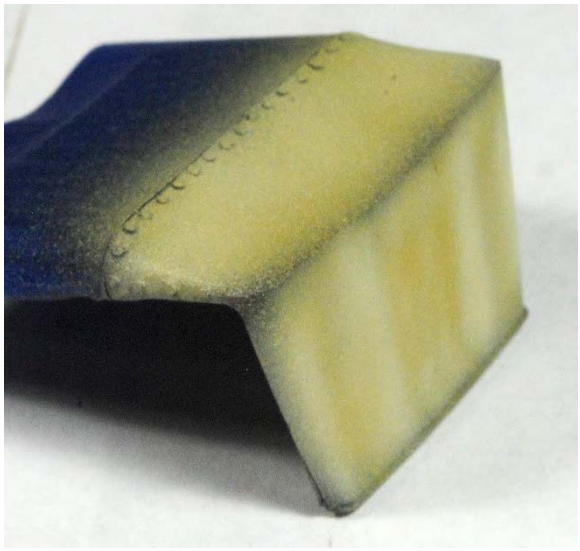
The radiator grill was painted Black and lightly dry-brushed with the Black highlight color.

Another texture prevalent on the model is canvas, primarily being the roof and doors. Colors used are shown below:

-Cam, Med Brown
-Dark Yellow
-Sand
-White Grey

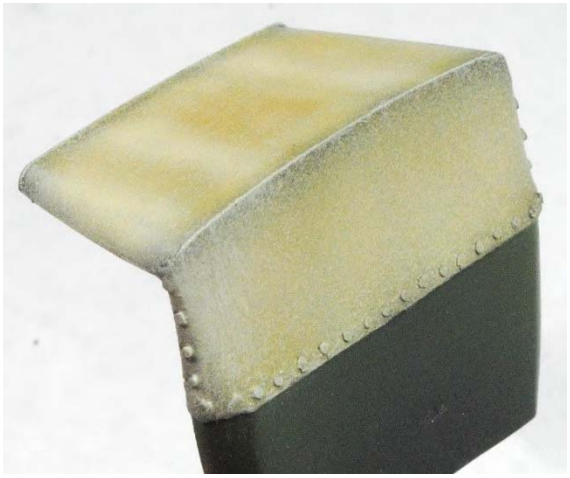
The photos show how it was done. The rolled doors were brush-painted at a later stage similar colors.

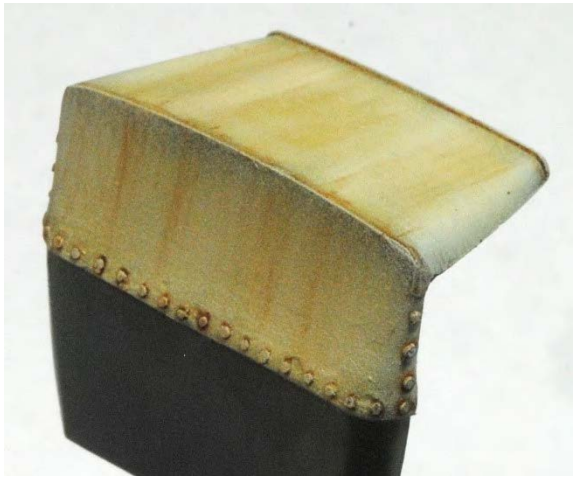




Far Left: The metal parts of the piece, primarily the rear of the cab, were masked. Don't forget to mask the metal frame the roof fits over!

Left: Basic colors were airbrushed. Over the Black Primer was added Cam Med Brown. Over the top of this was sprayed Dark Yellow, leaving the brown showing through on edges. Next, a mix of Sand and Dark Yellow was sprayed on highlight areas, leaving the Dark Yellow showing in shadows. The final air-brushed step was to spray Sand on only the highest highlights.





Above Left: Turning to the brush, a mix of Sand and White Grey was dry-brushed in a cross-hatched pattern (front to back, left to right, front to back) to hit the highlights and provide a bit of roughness and texturing. Above Right: Next, using a mix of Burnt Umber and Neutral Grey oil paints thinned with mineral spirits, some outlining and streaking was done. On the inside of the cab roof which is in deep shadow, I used only the Cam. Med Brown, the Dark Yellow, and the oil colors.

STEPS 5: FILTERS

I normally apply almost all of my filters using oil paints. Here, I started with acrylic colors to reinforce the texture painting by slightly varying the color of individual boards on the wooden areas of the vehicle—running boards and bed. These were made from acrylic mixes thinned with water and applied to selected areas; very similar to the glazes we have seen used when painting the highlights and shadows on figures, only in this case they serve to vary color rather than depict lighting.

Once these filters were dry, I switched to oil colors, applying filters as normal both to individual panels and boards and to entire areas. These served the dual purpose of toning down the brightness and contrasts on the base color modulation and varying the colors on different parts of the vehicle. They also served to slightly deaden, or matt, the gloss of the Future—but didn't eliminate it entirely, leaving the texture sheen intact. As such, they served as a transition between the color modulation and weathering processes.

Several acrylic filters were applied to individual boards to reinforce the texture step. Made from the above colors, the filters were:

-Olive Green
-Cam Green + Tan Ochre
-US Dark Green
-US Dark Green + Light Grey Green
-Bronze Green + Olive Green

The wooden bed after the application of acrylic filters.

Oil filters, thinned with Mineral Spirits were mixed from these colors and consisted of:

-Sap Green
-Faded Green
-Dark Green (A mix of Yellow Ochre and French Ultramarine Blue)
-Neutral Grey

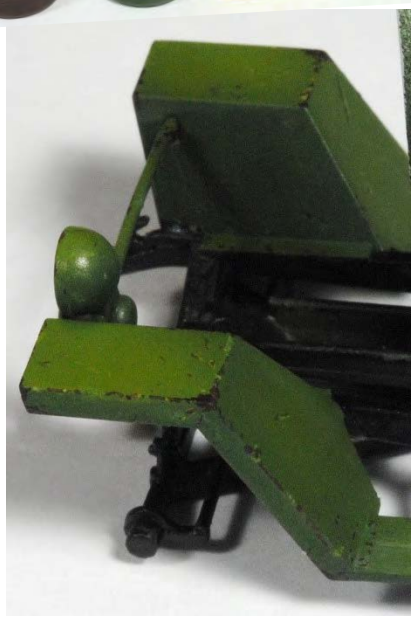
The green colors were applied to all areas, while the Neutral Grey was selectively applied only to some wooden areas.

The cab and bed after the Filter Step.

The frame, chassis, and fender assembly to this point. (The plastic rod is a length of styrene glued into the hollow engine to serve as a handle for painting—it will be snipped off flush with the top of the engine before the cab assembly is glued in place).

STEPS 6: CHIPPING

Chipping was applied using my normal colors and methods. Chipping was applied both with a sponge and with a fine brush. Although more time consuming, using the brush allows for better control and more exact placement. The sponge was used in heavily chipped areas, while the brush was used in all others. Chipping consisted of both light chips and scratches in a lighter color than the base and deeper gouges revealing the bare metal and/or primer underneath. Different colors were used to depict the underlying material whether metal or wood.



Above: The Colors used for chipping metal areas. A dark color made from Black, Black Grey, and Armour Brown was put in place using a piece of sponge. As normal, this was dabbed in the paint, most of the paint was removed by dabbing it on a piece of paper, and then clusters of chips were added by dabbing it on the model in selected areas. Next, light colored chips and scratches were created using a couple different mixes of Cam Green, Gold Yellow, and Portland Stone. This were applied with a fine brush. Finally, using the original dark color, more chips were added with a fine brush. Many of these were placed inside the light color chips to provide depth to the chips and scratches. Right: The effect on the front fenders of the truck. Chipping should not be random, chips should be placed where they would logically occur on wear and high-traffic areas.

The colors used to create chips on the wood areas are shown at right. Paint can soak into and stain wood, therefore light chips were created using pale green (a mix of Cam Green and Gold Yellow) as part of the mix.

Chip colors were a variety of shades made from this mix with the addition of Dark Yellow, USAF Light Grey and White Grey. As with the metal areas, some areas were extensively chipped using a sponge. The effect of this on both the running boards and the top edges of the bed sidewalls can be clearly seen in the photos at left and below. Other chips and scratches were more "surgically" applied using a brush.

STEPS 7: DOT FILTERS, STREAKING AND FADING

Dot filters usually play a significant role in my painting and weathering steps. These consist of dots of various oil colors being placed in appropriate places on the model and then blended into the surrounding areas or streaked down the sides using a brush moist (not wet) with Mineral Spirits. For example, paint can be given a chalky or faded effect by blending white onto upper surfaces. White, yellow, and brown mixes can be used for dust collected in crevices. Various greys, umbers and siennas can be used to create general "grundge" on undercarriages. It can also be used to subtly change the colors of individual panels and to add visual interest simply by providing some color variation.

In this case, I used the oil paints and mixes shown at left. The Sap Green was applied randomly to green painted areas. The light greens, white, and three tone fading were added primarily to upper surfaces. The dark, Faded Green color and the blue were added primarily on lower surfaces and shadow areas. Yellow ochre was applied randomly, but mostly in areas where dust and dirt would collect. Yellow Ochre was also, along with Neutral Grey and the light greens, added randomly to wooden areas. In all cases, the dots were blended almost entirely away and/or streaked down the sides of the vehicle. The results can be seen in the vehicle photos showing the next steps on the following pages.

Prior to further weathering, details inside the cab and on the frame/ chassis (below) as well as the tires were painted. These areas must be painted before further weathering as they will have to exhibit the same level of wear and dirtiness.

Prior to further weathering, the windshield was added. Using painter's tape, the path of the windshield wiper was masked. Then the window was sprayed with Dullcote to give it a slightly foggy, dirty look. Some spatters and streaking was added using thinned dust-colored acrylic paint. The headlight lens was given the same treatment.

Once dry, the glass was attached using white glue (Aileen's Original Tacky Glue). Superglue can cause the clear plastic to frost and fog. Plastic model cement is fine, but if any gets on the clear areas, it would be impossible to remove. The white glue can be cleaned up with water and a brush.

Once in place, the wiper was added from styrene bar stock and the wiper arm from a piece of stretched sprue. Note that the wiper is not included in the kit, although the wiper motor is molded as part of the windshield frame.

STEPS 8-9: DUST, RUST, STAINS, PIN WASHES

Rusty areas consisted primary of the muffler and tail pipe. This was colored in my normal fashion—painted with Brown Iron Oxide and stippled with rust-colored pigments. Rust streaks, such as those from some of the larger chips, were added from Burnt Sienna oil paint. Some oil and fuel stains in the bed (probably the vehicle carried oil drums at some point) were added from a thinned oil paint mix of Sap Green and Black.

Dust was added using various oil paint mixtures made from the following colors: Yellow Ochre, Titanium White, Neutral Grey, German Three Tone Fading, and Burnt Umber. Not only were various color used, they were mixed in various thicknesses ranging from filters, through washes and glazes, to dot filters. These were applied by brush to appropriate areas where dust and dirt would gather.

As a final oil-painting step, pin washes and outlining was done. "Open" joints, such as those around the hood, tailgate, etc., were outlined using a mix of Black and Burnt Umber oil paints. Other seams as joints, such as those between individual boards on the bed were outlined using a mix made from Faded Green, Burnt Umber, and Black.

Dust and dirt were created using various mixes and thicknesses of oil paints. These were mixed from the colors shown at left: Yellow Ochre, Burnt Umber, Titanium White, Neutral Grey, and German Three Tone Fading. These mixes were used to create dust, dirt, and mud on the truck. The various colors not only adds visual interest, but also adds realism. Each application of dust and dirt was a slightly different color. Heavier applications, and the darker colors, were used primarily on the chassis and undercarriage. Both the amount and the color lightened the farther I moved up the truck. The interior of the bed was also given a fairly heavy treatment.

Pin washes—thin applications of dark oil paint applied by brush to panel and seam lines—were added from two different oil color mixes. A mix of Black and Burnt Umber outlined things that could be opened such as the hood (bonnet for my British friends), and tailgate. Other panels and fittings were outlined with a mix of dark green created by adding Faded Green to the same pin wash color mix.

The cab to this point. All details have been painted and the windshield and wiper added. Chipping, dot filters, dust and dirt, and pin washes have been put in place.

The wheels after the same treatments.

With the cab and frame/chassis largely complete, these two sub-assemblies were glued together. Note the headlight lens has also been glued into place. On the cab floor, after the dirt and dust was applied, some ground-up pencil lead was rubbed in place with a Q-Tip (cotton bud), to recreate the worn metal on the floor.

FINISHING THE DETAIL PAINTING:

Only one step in the painting process remains. That is the addition of pigments and/or pastel chalks to simulate the rest of the built-up dirt and mud. Before this can be done, the vehicle—with the exception of the wheels—should be fully assembled. After all, mud and dirt collects on an entire vehicle—not just components of it. This mandates the cab be finished which requires the three figures in the cab to be painted and attached. The bed also has to be in place. As it is much easier to paint the mass of gear inside while the bed is still separate, this was done prior to attaching the bed. The remainder of the figures can be installed at any time after this is complete. I found it easiest to attach the remaining figures after the vehicle was fully assembled but before it was attached to the finished base.

Above left: Items in the bed were painted while the bed was still separate. Color mixes for the various items can be found on the facing page. I also decided to add graffiti to the sides and rear of the bed (it is only started in this photo). This was done with oil paints. Their long working time made correcting mistakes easier. Above right: Prior to the rear of the cab/roof piece being attached, the figures inside the cab must be painted and permanently fitted in place. There is no way to get them inside with the cab complete.

COLORS and COLOR MIXES Used to Paint the Stowage and Cab Details:

Colors not specified otherwise are Delta Ceramcoat acrylic craft paint. Apple Barrel paints are identified with (AB), Folk Art (FA), Vellejo (V), Vellejo Model Air (VA), Andrea is (A), and AK Interactive is (AK). Key: B = Base Color, L = highlight (1L, 2L = 1st highlight and 2nd highlight), S = Shadow. For color mixes, if no ratio is listed, the colors were mixed "by eye" until they looked right. The colors are generally listed in the order they were applied. Items are not listed were painted as in my other builds.

Tan Tarp:
B: Coffee Bean (FA)/Trail Tan/Straw in a 3/2/2 ratio
1L: B + Straw/Trail Tan
2L: 1L + Trail Tan/Antique White
3L: 2L + Antique White
1S: Coffee Bean
2S: Dark Burnt Umber
3S: Black

Green Tarp:
B: Olive Drab (VA)
1L: B + US Field Drab (VA)
2L: US Field Drab (VA)
3L: Khaki (AB)
1S: Dark Olive Drab (VA)
2S: Black

Grey/Brown Tarp:
B: Burnt Umber/Pewter Grey (AB) 1/1
1L: B + Pewter Grey (AB)/Khaki (AB)
2L: Pewter Grey (AB)/Khaki (AB)
3L: Khaki (AB)
1S: Pz Dark Grey (VA)/Burnt Umber
2S: 1S + Black
3S: Black

Sand Bag:
B: Pewter Grey (AB)/Burnt Umber/Khaki (AB)
1L: B + Khaki (AB)
2L: Khaki (AB)
1S: Burnt Umber
2S: 1S + Black
Tie: Nutmeg Brown (AB)

Captured Jerry Cans: (Early War Style Captured from the Germans)
B: Panzer Dark Grey (VA)
L: B + Intermediate Blue (VA)
S: Black Grey (VA)

Oil Can:
B: Dark Olive Drab (VA)
1L: Olive Drab (VA)
2L: Olive Drab Light Base (AK)
1S: B + Black
2S: Black

Metal Box Back Right Corner of Bed:
B: German Green (VA)
1L: Bronze Green (VA)
2L: 1L + Tank Ochre (VA)
3L: Tank Ochre (VA)
1S: B + Black
2S: Black
Chipping: As normal. Bare metal chips were done with Steel (A).

Green Crate Front Right Side of Bed:
B: Cam Green (VA). Some individual boards picked out in a mix of Cam Green (VA) and Light Grey Green (VA)
L: B + USAF Light Grey (VA)
Chipping: Wood showing through was painted in a mix of Raw Sienna and Trail Tan highlighted with Trail Tan

Other Wooden Crates and Boxes: Each of these was painted a different color. For variation, visual interest, and realism, some individual boards were painted in slightly different color. Base colors used were mixes of Burnt Umber, Pewter Grey (AB), Nutmeg Brown (AB), and Khaki (AB). Highlights were created by adding Antique White or Khaki (AB). Each crate was then streaked with a heavy glaze of oil paint made from Neutral Grey, Black, and varying amounts of Burnt Umber. Chipping and worn areas were created along edges and corners using a mix of Raw Sienna and Trail Tan highlighted with Trail Tan. Outlining was done in Black

Chains: These were painted with Brown Iron Oxide. They were then given a wash of Black. Highlights were picked out using Lead (A) or by being rubbed with ground pencil lead

Ropes: These were painted in various dark brown colors and highlighted using Khaki

Green Portions of Maxim Machinegun
B: Bronze Green (AV)/Olive Green IVA 5/1
1L: B + Tank Ochre
2L: Tank Ochre
1S: B + Olive Green
2S: Black

Weapons: Metal portions of weapons were base-coated with a mix of Black, Midnight Blue, and Lead (A). Wear was added to varying degrees using Lead (A), Steel (A), and/or Silver. (A). Different pieces (such as magazines, feed trays, etc. were sometimes painted slightly different gunmetal colors. Outlining was accomplished with washes of Black. Wooden stocks were pained Raw Sienna with darker browns and red-browns streaked on as needed to represent grain. Highlighting was accomplished by mixing Khaki (AB) with the Raw Sienna.

Truck Bench Seat:
B: Panzer Dark Grey
1S: Black Grey
2S: Black
1L: B + Raw Sienna
2L: 1L + Raw Sienna

Rolled Canvas Doors: Two Doors were painted using the same colors as for the roof (see page 52). The other two doors used slightly different mixes—One was base-coated with Cam Med Brown (VA) and the other with US Field Drab (AB). Bother were highlighted by adding Khaki (AB) and shaded first using Olive Drab (VA), second by adding Black, and finally with Black. Leather retaining straps were painted Raw Sienna with a Trail Tan highlight.

Tires:
B: Black Grey (VA)
L: Panzer Dark Grey (VA)
S: Black

Graffiti: Patriotic slogans on the bed walls were hand-painted using various mixes of Titanium White and Neutral Grey oil paints.

STEP 10: PIGMENT WEATHERING:

The final step in the weathering process is the application of pigments. These were applied to the undercarriage and wheels. Unlike many of my track-laying models where I add a heavy layer of mud, it was kept to a minimum on the truck as it would operate mostly on roads. Still, there are no mudguards (fenders) over the rear wheels, so any mud, dirt, and filth they would throw up from the road surface would be splattered on the underside of the vehicle. Pigments are ideal to recreate this type of mud buildup. Let's examine how this was done.

As we have discussed in previous build logs, we have choices when it comes to pigment powders. We can use commercially available pigments such as the sample from Mig shown. While I have, and use, a selection of these, I will more often than not use ground-up pastel chalks. These sticks can be purchased relatively inexpensively at the local hobby shop. I grind them into powder on sandpaper. Pigments can be applied wet or dry, and can be mixed with water, rubbing alcohol, mineral spirits, or purpose-made pigment fixer. For normal use, as we have seen in other build logs, I apply them dry, fix them with rubbing alcohol, and then blend them using a stiff brush. This was also done on the underside of the little GAZ. In this case, I also went a step further. With no mudguards (fenders) over the rear wheels, the tires would throw grime and mud up onto the underside of the vehicle. To create this spatter, I mixed pigments dry, and then added rubbing alcohol to make a slurry. This was picked -up with an old brush and, using a toothpick to flick the brush, was spattered onto the underside of the truck. Practice first on a piece of paper to determine where the spatters go and to learn how to control them.

The road grime/dirt/mud spatter was build up using several different colors. Fresher dirt and mud is darker, so the colors were applied working from the lightest (above left) to the darkest (above right). The wheels were "painted" with pigments mixed with water. Once dry, the excess was rubbed off, leaving nicely dirty wheels.

The Hidden Hobby:

Many view scale modeling as a fairly small hobby. But is it? Modeling isn't the world's most popular or fastest growing pastime, but I believe it is far more popular than most imagine. This isn't apparent because unlike many other hobbies and sports, it's not a public activity. Modeling is a solitary activity. Few of us go about boasting about the tanks, ships, or planes that we build, and when a model is completed it often simply goes on display in our own home or is put in a box for storage. There are likely people in our lives who spend their spare time modeling without us even being aware.

It's hard to know how large the hobby is, but there are clues. Look at the number of exhibitions and shows that are held regularly – sometimes attracting thousands of visitors and dozens of vendors. While the local hobby shop may be in decline, looks at the number of online shops and products available. Every model produced spurs the development of a dozen aftermarket products. And look at the number of kits – more than at any other time. Plastic kits are expensive to produce—a manufacturer will only do so if they are sure they can sell thousands. And the resin market is thriving. Somebody is buying all this product! And while modeling magazines may be in decline, look at the large number of websites, forums, Facebook groups, books, and DVDs that cater to scale modeling - some fairly generalized while others specialize in military vehicles, ships, planes, cars, etc. Osprey does many hundreds alone, each concentrating on a specific subject.

On the debit side, the average age of the modeler *seems* to be getting older. Will the hobby diminish as fewer youth get into it? Or is it alive and well in this age bracket, too? That is another discussion…

The completed truck awaiting only the addition of the thirteen figures in the bed.

BASE AND GROUNDWORK

The finished base prior to the attachment of the model, figures, and dog. The entire construct is built inside a length of PVC pipe attached to a round flat wooden base! Note how the details support our story—the "Berlin" sign, the damage on the structure, the graffiti, the rubble, the downed lines, and the architecture itself (appropriate to the time and location)

In my other 1/48th scale builds, we've already seen a variety of bases used. These include not only home-made and finished bases; but also professionally made plinths, pedestals and bases; and even photo frames. The key point is that the base must compliment the model and be at least of the same quality. As the legendary Shep Paine always said, the base is the frame of our picture—we don't want to put our masterpiece on a shoddy base. While this seems obvious, I have often seen beautifully-made models on sub-standard bases that were clearly an afterthought. The same principle holds true for our groundwork. We want all aspects of our finished piece—models, figures, groundwork, base, and any supporting materials to be of the same quality. Like the weakest link or the lowest common denominator, our work will only be as good as the poorest component of it.

This piece features a homemade base. Materials are where we find them… what works is what we want to use. In this case, that meant a piece of… (drumroll, please)… PVC pipe. With some creative cutting, this formed not only the base but also the rear face of all structures. To give it a more attractive shape and increase stability, it was mounted on a low round wooden base that had been picked-up very cheaply at the local craft store. The key to making it look good was ensuring the outside was smooth and blemish free and then giving it an attractive and durable, finish. The "durable" part is extremely important—the piece is handled by the base; therefore the base needs to handle handling. I initially thought about a matt dark grey, brown, or black, but decided against this finish as finger oils can smudge, show, or leave glossy areas on the matt paint. Instead, I opted for an attractive textured finish meant for indoor/outdoor use available in a rattle can from the local DIY store. This is not only a tough and attractive finish, but the texturing served to hide any minor blemishes on the underlying surface.

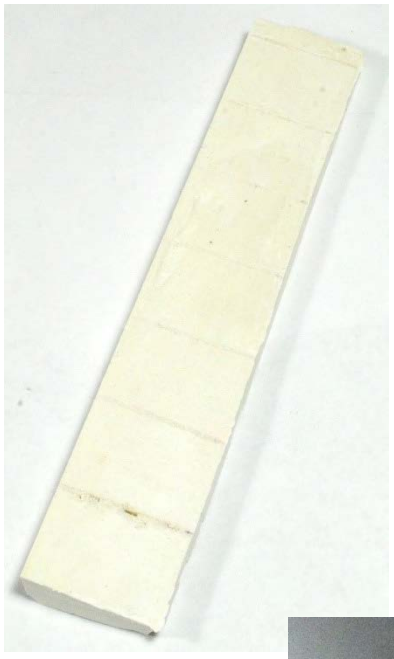
This piece is meant to be viewed primarily from a single angle, and, in fact, if viewed from the rear would look odd due to the blank rear face of the building. Therefore, it would perhaps work best on a square or rectangle base. Still, there are no absolutes—a great deal of what we do is up to personal preference, and I preferred a round base for this particular composition.

The groundwork is also more complex than we have so far examined in this series. Let's look at how it was built and painted.

Sometimes ideas come hard –only after lots of thinking, planning, research, and soul-searching. Other times they come in a flash of inspiration. This one is an example of the latter. While sitting in my workshop looking at my stock of round pedestal bases trying to decide which would work best for this diorama, my eye fell on a short length of PVC pipe sitting in the corner. Immediately I "had a vision" of the finished model. Fairly detailed plan drawings and mock-ups allowed me to cut the pipe (I used a coping saw) to the desired length and shape. It was attached, both with epoxy and screws, to an old flat round base I had in my "scrap bases" box.

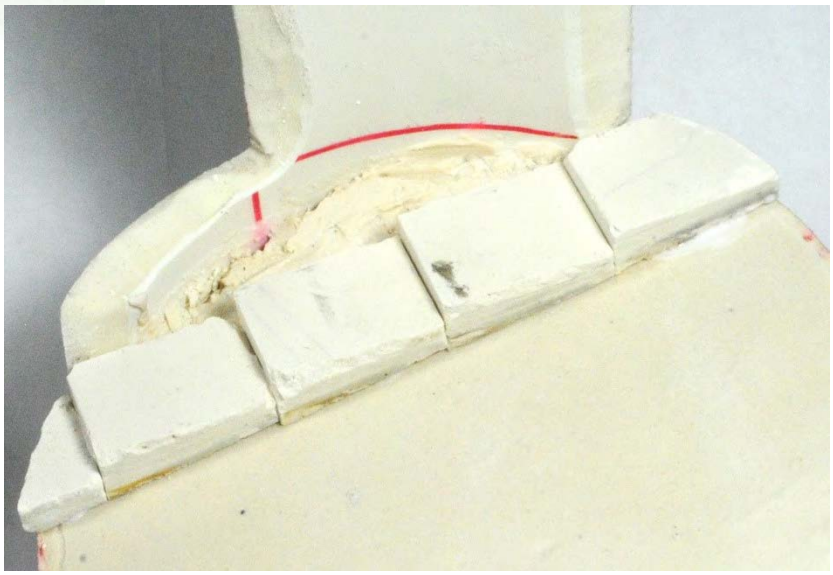
I had originally purchased the pipe as part of the above construction project—making a tank to fit on the dogs' stroller. Lengths of the pipe do duty as the wheels and gun barrel. (By the way, the main armament is functional—a fully automatic bubble gun). This crew has no need to fear Panthers, Tigers, or any cat!

The first step was to fill the pipe with plaster. This will eventually be carved to represent the cobbled street.



Made next was the sidewalk. Styrene strip glued to a piece of sheet plastic formed a mold box (as we saw in the Dingo build) and the plaster was poured into this. Once dry, the piece was removed from the mold box and cut into inch-long sections. Spraying the mold box with mold release makes this process easier. Note the angle needed to fit the slope of the street was cast into the pieces.

The sidewalk sections were glued into place and the ends were cut to match the curvature of the base. A final plaster pour (not shown) filled the area between the sidewalk and the edge of the base. This will form the building foundation, a patch of ground, and a retaining wall.

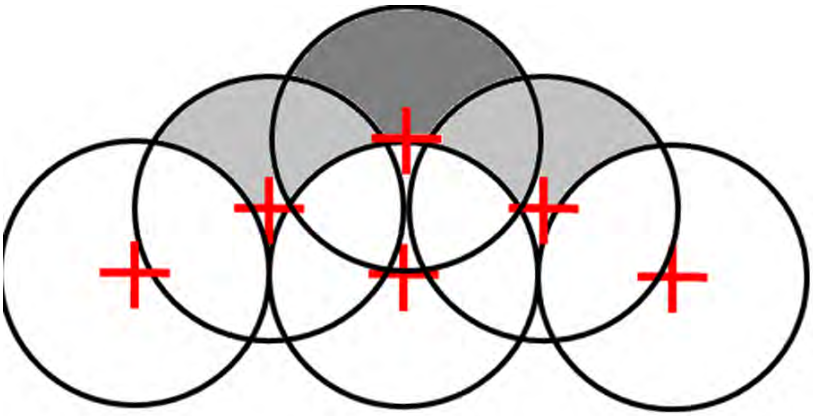


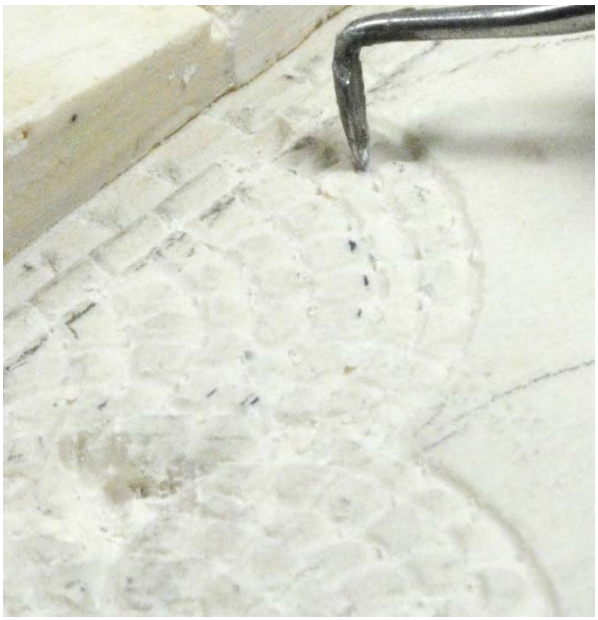
The area of higher ground between the sidewalk and the edge of the base was filled with plaster next. This will serve as the building foundation and a retaining wall for the bit of earth that will be present.

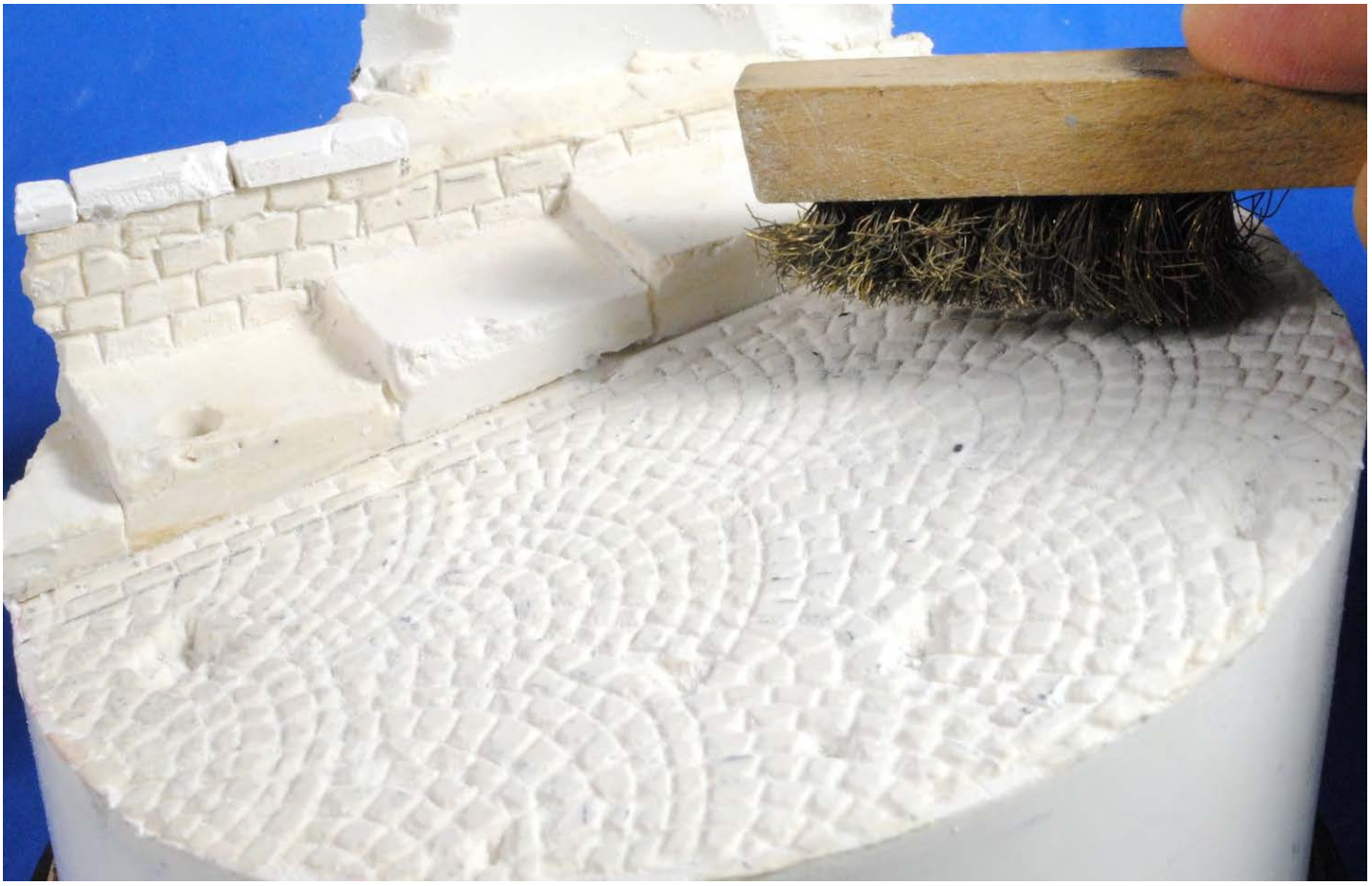
Along the top of the retaining wall, capstones were carved from old plaster scraps and glued in place. The individual large stone blocks that make up the wall were scribed in using the tool shown at left.

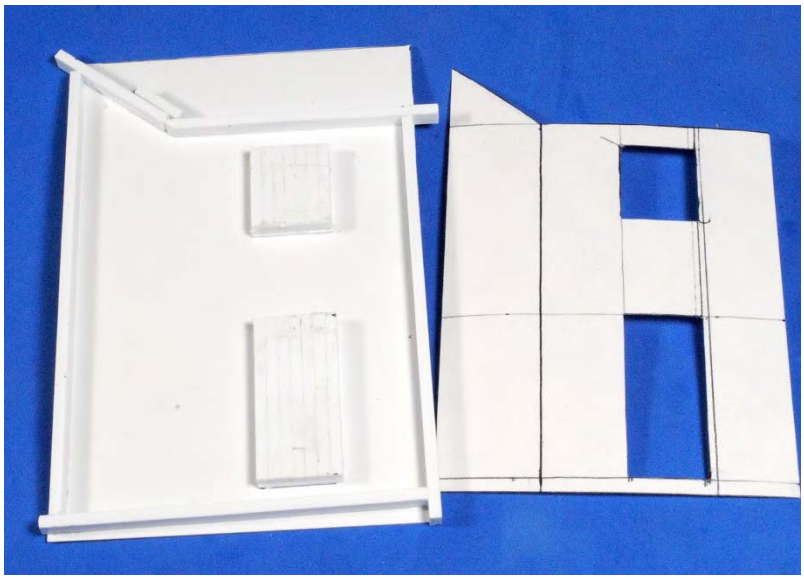
Also visible in this photo are pencil lines on the plaster street showing gutter stones and the cobblestone fans that will be put in place.

While it may look complex, the "fan pattern" of cobblestones is quite easy. As my drawing below left shows, it is simply a series of overlapping the circles with the cobbles laid in each fan. Below Right: As I did with the retaining wall, the individual cobbles were scribed in with the tool shown. It's not difficult, just time consuming. The result is shown at the bottom. Note that, as this is a damaged urban scene, several of the cobbles were carved away leaving potholes. To give a rougher stone texture to the surface of the street, it was scrubbed with a wire brush.









An index card mock-up of building (near left) served as a pattern to make the mold box (far left). Both walls were included as were hollows for the door and window. Once cast and removed from the mold box, the two walls were cut apart.

The walls were glued together using superglue. Here we see the building in a test fit on the base. Note how the PVC pipe itself form the rear face of the building.

There are commercially available buildings that could have been used. However, they most likely would have required significant modification to fit in my composition. Plus, I prefer to make my own for other reasons. Not only do I enjoy the process and get exactly what I want, I also get a unique piece that will not also be seen in other dioramas on the display tables. Finally, many commercial offerings are very basic. By making my own, I can get a more detailed and realistic structure that most of what is available on the market.

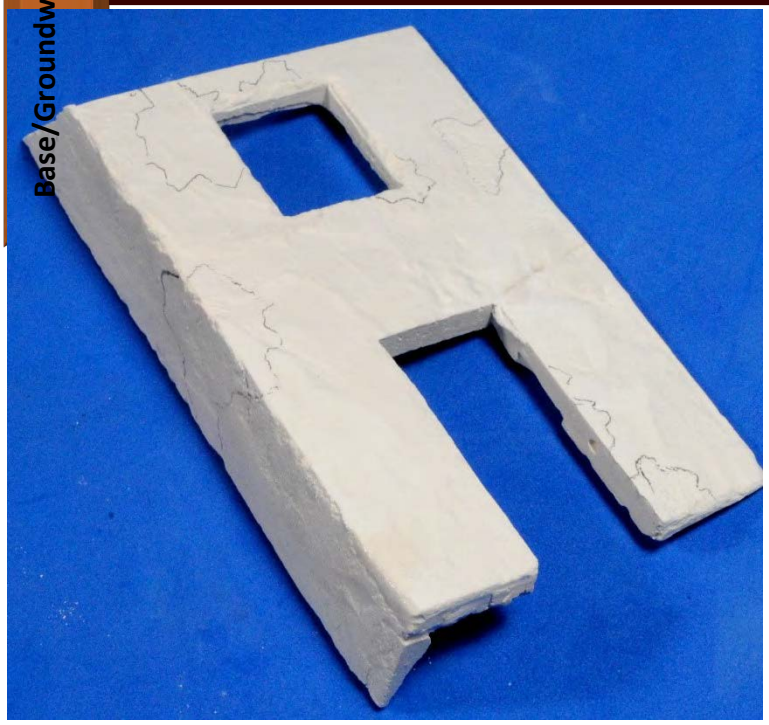
BUILDINGS AND SCALE: HOW BIG IS IT? HOW BIG SHOULD IT BE?

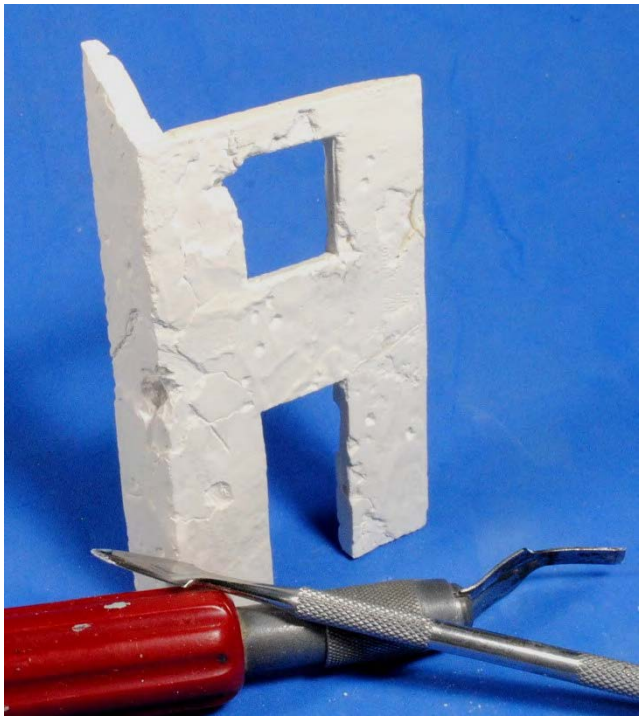
1/48th is 1/48th, right? No so fast. On page 27 we discussed figures and scale. We saw how to fix the Tamiya mini-men shortness by using an appropriately-sized head. This creates an accurate figure, albeit one that is less than 6 scale feet tall. Looking at scale and model structures we find another perhaps surprising truth that can help the appearance of our dioramas.

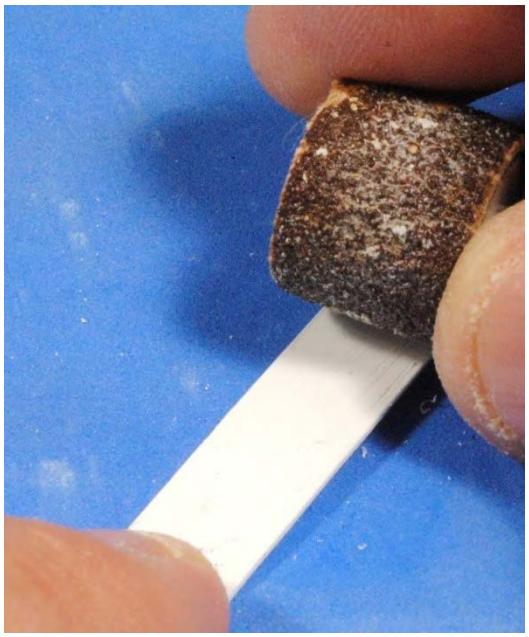
When making buildings, I usually intentionally make them a bit too small. Ironically, I've found that if made strictly to scale, they often appear to be too big! This is especially true of multi-floor buildings. In that instance, I normally shorten each successive floor by a scale foot (or even a bit more)! This is because we are used to viewing tall buildings from ground level where they seem to get smaller as they rise. This shortening of successive floors helps to recreate this perspective even though we look at models from above! It seems strange, but it works. Obviously, if figures are present on these upper floors or standing in doorways, they can only be compressed so much. These subtle reductions not only ensure our scene looks right, but they keep our composition slightly smaller, and help ensure background buildings remain in the background in a supporting role and do not, by virtue of size alone, steal the show.

The building in this diorama is a case in point. I actually compressed this building slightly more than I normally would. As the building is on raised ground and no figures are present in or adjacent to it, there are no immediately available visual clues to give this away. The door is only 1.5 inches high or 6– scale feet. The entire second floor is also only 6 scale feet tall! In fact, from foundation to the top of the front wall, the building is only 14 scale feet tall! If you do the math, you will find the building is actually made to 1/56 scale sizing. How does this affect the appearance of the finished diorama? Not a single person who has viewed the diorama has noticed this—most can't even see it after it is pointed out. The point is that it *looks* right. It actually takes a close look, and most likely a ruler, to discover the building is too small.

The lessons are simple: Accuracy is in the eye of beholder, and like a good magic show, part of diorama making is effective illusion. This once again proves my compositional point that, "Artistic License is Okay."





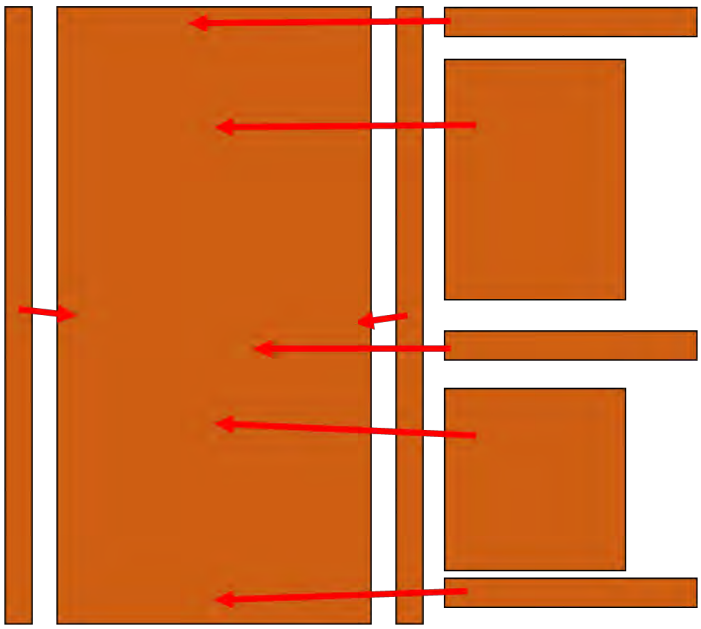


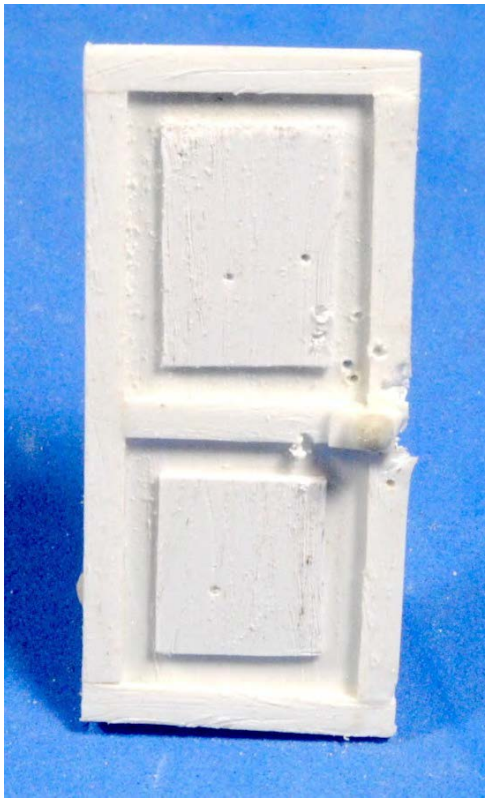
Top Left: Any visible joints gaps where the building walls joined together were repaired with another application of plaster. At this point I also drew on the walls, using a pencil, areas where the plaster covering would be gone revealing the bricks underneath.

Top Right: These areas were then carved away/recessed using an X-Acto chisel blade. The visible bricks will be carved in later using a variation of the same method we saw on the street. Shell and bullet holes were gouged into the plaster using the pointed putty spoon shown.

Bottom Left: Window and door sills and lintels were added from Magic Sculpt epoxy putty. A rocky texture was lightly pressed into the soft putty using… a rock!

Bottom Right: An easy trick for adding woodgrain to plastic: Hold the plastic in place and drag—NOT roll—a course sanding drum repeated over the surface. Roughness of the resulting grain is dependent on how much pressure you apply, the grade of the sanding drum, and the number of passes made.





The door was made of several bits of plastic bar stock and sheet as shown at top. The result is above. The locking mechanism is another length of styrene with a ball of putty serving as a knob. Note the bullet holes and the broken wood around the lock. Someone, whether it be defending forces, looters, or the Red Army, has helped themselves to this building. Note the woodgrain scratched into the plastic.

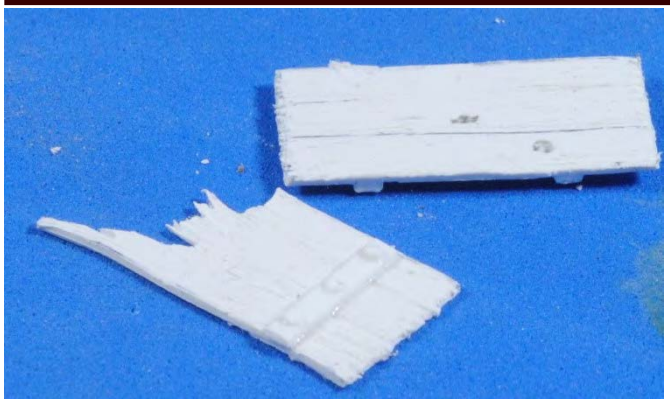
Other details were then added to the building. Door and window frames were made from Styrene strip with woodgrain added as shown previously. Note the frame on the upstairs window is damaged—most likely by the same shell that smacked into the wall near the top of the window. Note also the remains of the window itself, also fashioned from Styrene stock. Finally, note the door is slightly ajar—open, but not enough that it shows there is nothing behind it.

The white "We Surrender" sheet and the remains of the curtains were made from Magic Sculpt using the same methods we saw with the Soviet banner. These not only add visual interest, they help mask that the inside of the building is non-existent. Finally, the hanging sheet and curtains help reinforce the truck's sense of motion—these things hang limp while the flag and capes in the truck flutter in the wind.

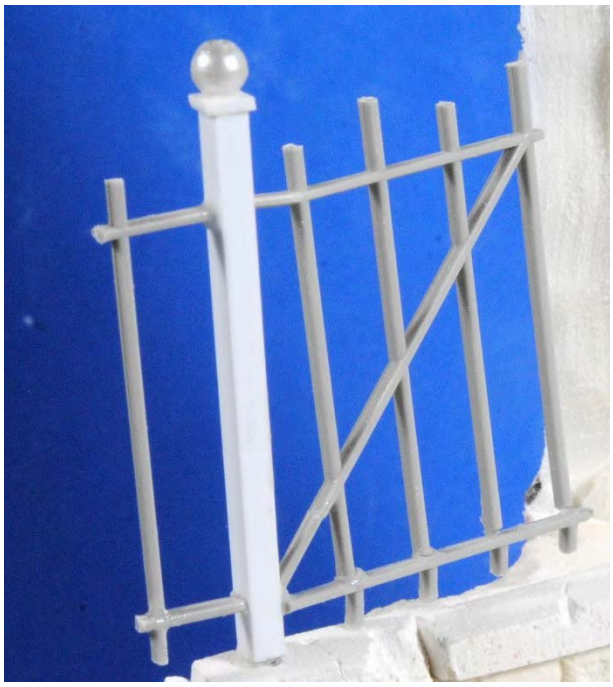
The basis for the roof was a piece of sheet plastic glued in place on the walls and trimmed to match the curve of the edge of the PVC pipe base.

To make the shingles, strips of sheet plastic were cut using pinking shears. These are scissors the blades of which are saw-toothed rather than straight that cut a zigzag line. The strips were then applied to the roof. These can be scribed so that each strip contains numerous shingles, or the shingles can be individually cut from the strips. As I was modeling a damaged roof with many shingles missing, broken, or out of place, I used both methods.

With the shingles complete, the underside of the roof was detailed. This consists merely of the ends of rafters and laths that were cut from Styrene stock and glued into place.

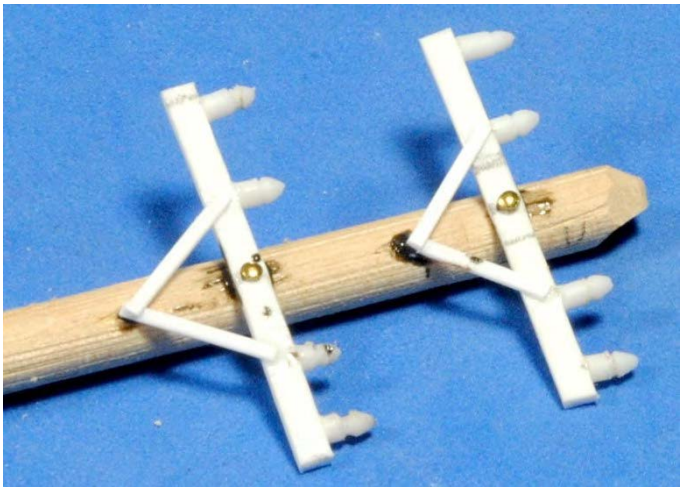


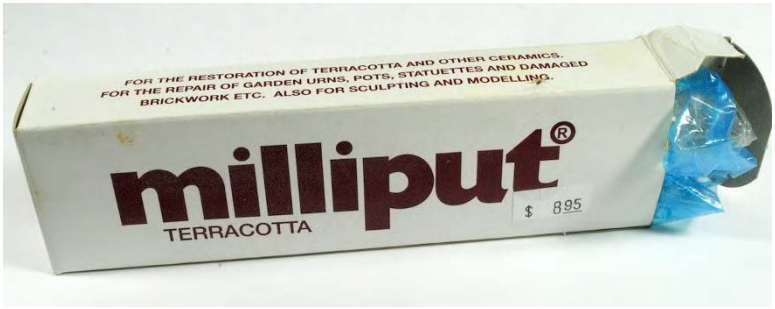
The shutters were made using the same processes as already seen. The basis for each shutter is a single piece of sheet plastic with the individual boards scribed in place. Bracing, bolt heads, and hinges were also fashioned from bits of styrene. One shutter hangs loose on the building while the other has been severely damaged and blown off by the blast of the hit near the window. It will be part of the rubble and debris on the ground.



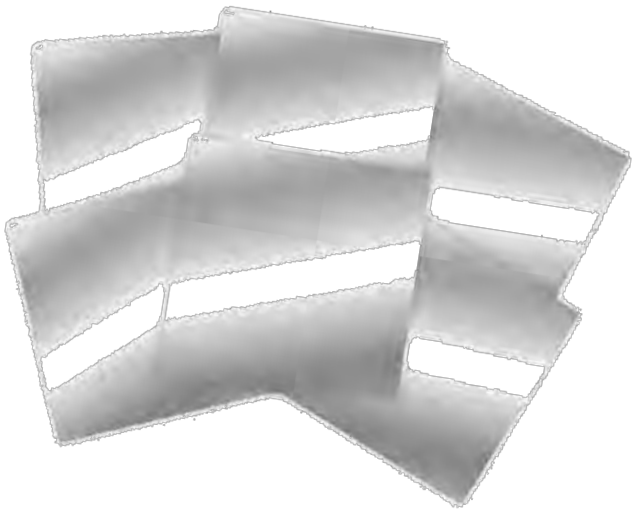
A damaged fence and post runs from the house along the retaining wall. The fence post is made from Styrene stock with a bead as the ornament on top. The fence itself is the remains of an old 1/35th scale fence that has been cut down to the appropriate size.

Below: The utility pole was formed from a dowel with more, and rougher, woodgrain added using the same methods as with plastic. Crossbeams and braces are lengths of Styrene bar stock. The insulators were carved from bits of styrene bar stock.





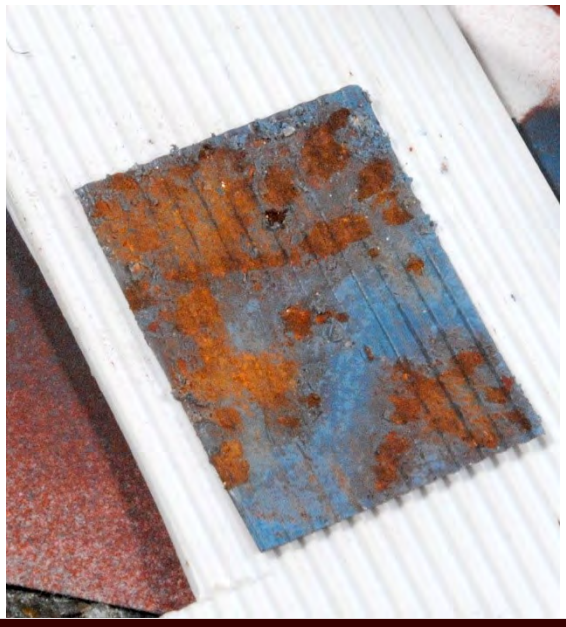
Debris took many forms as we shall see. Bricks and brick rubble were made from Milliput Terracotta epoxy putty. This has a rougher texture than many putties. It was mixed, rolled out to 1.5mm thickness, and then cut into 2mm strips. The strips were then cut into 4mm lengths, creating the individual bricks.



The sheet of corrugated steel laying in the road was made from a small piece of embossing foil (available at the local craft store).

This stuff is very thin and prone to damage, so I painted it prior to adding the corrugations. It was first sprayed in a rust color. In areas where I wanted the paint to be chipped and peeled, I added a bit of water and sprinkled on sea salt

Once this had dried, the piece was painted. When the salt was removed, it left areas of rust showing through the paint. More rust, in the form of pigments, was then applied.



To add the corrugations, I used two pieces of Plastruct corrugated Styrene. The foil sheet was sandwiched between the plastic sheets.

When removed, I had a nice rusty piece of corrugated steel. This can then be bent and further damaged as desired.

Above: To create the bricks on the building itself, I first painted the brick areas in a suitable color (a mix of Brown Iron Oxide and Chocolate Bar craft paints). Once dry, individual bricks were scribed using the tool shown. In later painting stages, many of the bricks will be painted in slightly different colors for both realism and visual interest. But this process makes a nice foundation for later painting.

Above Right: Prior to attaching the building to the base, the interior was painted black so that anything visible would be in deep shadow.

The building was glued to the base using two-part epoxy. A final application of plaster ensured it blended seamlessly into the PVC base. The entire base was then sanded smooth and sprayed with Satin Black.

Once dry, the textured paint shown at right was added in several coats over the base. The result is seen at far right—the wood scrap and PVC pipe now appear to be a single piece, professionally-made base that seamlessly transitions to the groundwork.

Here we see the ground-work ready for painting. The pole, sign on the pole, and the shutter on the building are all remov-able for painting. All else will be painted in place.

In the small corner of the base beside the building, a bit of Cellu-clay "earth" and grass have been added using my normal methods.

Note the variety of debris. Much of this is broken-up plaster bits, pieces of Kitty Litter (clean, of course), and some of the bricks and corrugated metal we saw earlier. Boards are made from Styrene with woodgrain scratched in. Wadded up sheets of paper (propaganda leaflets, no doubt) are bits of paper. Cloth, including a discarded Nazi Flag in the street, are piec-es of rolled-out Magic Sculpt epoxy putty.

In addition to the dam-age, there is other evidence German forc-es have retreated through here. Among the debris are a halftrack road wheel, discarded 20mm flak magazine, a German helmet placed on the fence, and a dropped canteen in the grass. All of these are Tamiya pieces.

Left Brain/Right Brain: Realist vs. Artist When Selecting Colors and Methods

As we pause prior to painting the groundwork, let's look at some color selection thoughts and ideas I use when selecting the colors and methods with which to paint my models, figures, groundwork, and other items.

The left side of my brain is a "realist". It wants to paint what I *see* using the most accurate colors possible. But the right side of my brain is an "artist". It wants to paint what I *feel* using an expressive approach to color. My compromise is to allow the right to be creative and expressive within the bounds of acceptable probability/possibility set by the left. The right brain is the "dog", wandering to and fro, sniffing everything on the daily walk, while the left brain is the "owner" that holds the leash.

The "owner" choses the trail through research. What colors were specified? What were actually applied, and – most importantly – how much variation was there? What environments did they operate in? How were they weathered? How did all this affect color? This research determines how much slack in the leash the "dog" can have. For example, many modelers express frustration at incomplete or conflicting color information. I revel in it – it gives the "dog" more freedom to roam. And more freedom means more squirrels, sticks, and "pee-mails". Let's be clear – there is nothing wrong with the left brain's "paint what we see" approach. In many, if not most, historical applications, it is the most practical method. However, followed dogmatically it unnecessarily limits our options and suppresses personalization and individual expression. Therefore, what my left brain sees is only a beginning point. That does NOT mean we ignore our sources. It means that we can take some liberty within historical parameters to please our wandering Right Brain dog.

Let's start with a couple examples that are quite common (almost standard) in the armor modeling world. Amusingly, even those who take a strong stand against any artistic license often practice them without realizing, I suppose, that they are in fact applying artistic license.

We apply a base color that matches our references using a "modulation" method whereby certain aspects, facings, and panels receive lighter or darker *values* of this color to help portray the effects of light and shadow on a scale model. Normally, the lighter values are applied to highlight areas while darker values are applied in shadows. This is what I call the "Concept of Scale Light" (see page 40). On a related note, the concept of "scale distance" states that colors fade toward neutral grey as an object gets farther from us. What this means in scale modeling is that, in theory, we should fade our colors, too – about 10-15% in quarter scale. While I usually practice the modulation, I rarely (if ever) fade my colors. My right brain prefers more vivid, saturated color. Please note that neither of these techniques necessarily change the base color in any way except in values of highlight and shadow. So we please both sides of our brain.

We can use filters – thin transparent layers of color - to subtly alter the tone or value of color in certain aspects or areas. Not only does this add some artistic visual interest, it also can help reinforce our modulation techniques. Filters are also useful for creating faded or dusty paint. Dark blue or purple filters help in shadow areas. As an example take an area of green. Apply first a filter of yellow and then a filter of blue. What you have is still green. But the filters give you a variety and liveliness of tones and hues that no amount of mixing on the pallet or in the airbrush can ever hope to match. Mr. Left Brain is satisfied with the realistic weathered look, and Mr. Right Brain dances with joy.

There are other useful color techniques. Let's start with complimentary colors. Ying and Yang meet Left and Right Brain. These are colors that are opposite each other on the color wheel. Examples include Green and Red, Purple and Yellow, Blue and Orange. Complimentary colors look great together, offering the highest amount of contrast. Complimentary colors are a good choice when we want high contrast or want to make something "pop". Granted, we are often limited by the "range of possible" when painting our vehicles – after all, how often do we see tanks in orange and blue camouflage, but have more possibility when we add stowage, groundwork, and civilian clothing if present. However, another use for complimentary colors is very applicable. Beside one another, complimentary colors create high contrast, but mixed they are muted and subdued. We can use green to shade red, purple to shade yellow, blue to shade orange, and so on. Try shading Yellow with a variety of colors such as Black, Brown, and Purple. Black will make it look muddy or even greenish. Brown and purple create different effects, but you will notice that with the purple, the apparent color will appear most consistent with only the value changing as it gets darker.

Other color wheel aspects are helpful too, especially when we are not as limited in what colors we can use. One is the color "triad" that uses a color from all three sides of the color wheel – Red, Yellow, and Blue. This works best when using one as the main color with the other two as accents. For example, our Dark Yellow German tank looks good shaded with Purple filters and featuring Green camouflage. Another color wheel trick is an "analog" color scheme where we use colors adjacent to one another on the color wheel for our pallet. An example would be a Dark Yellow German tank camouflaged with Brown and parked amid autumn leaves.

Consider color temperature. While it's easy to see Yellow is warm and Blue is cool, beyond this it gets confusing to many people because there no absolutes. Colors can be warm (from the Red/Yellow sides of the color wheel) or cool (from the Blue side of the color wheel). Temperature is relative because a Blue mixed with a bit of Red is warmer than one mixed with a bit of Green. Reddish Yellow is warmer than a Bluish Yellow and a Yellow Green is warmer than a Blue Green. ALL colors – even Black and White – can be warm or cool. White with a touch of blue, for example, is cooler than White with a touch of Brown. Color temperature *can* affect the way our product looks. Warm colors imply warmth, passion, and joy. They grab your attention and appear closer. Cool colors and more subdued and can even appear cold. Cool colors look as though they recede. I must admit, color temperature normally has NOTHING to do with my color mixes…other than the fact I generally prefer warm over cool color options. I do consider color temperature if I want to reinforce mood (passionate vs calculating) or actual weather conditions (warn vs. cold). It is also useful to draw attention – paint your main focus in warm colors while using a cooler pallet for the background groundwork. As a practical example, take a Panzer Grey vehicle. Thin filters of Red, Yellow, or Orange will make it warmer without altering the base color substantially while Blue or Green filters will cool it. Again, Right brain is happy and Left Brain isn't too offended.

If you haven't already figured it out, there is no secret formula for choosing your paint brands, colors, palettes, and methods. The only perfect palette is one that works for you. But even that is transient as each project has different needs. In fact, for anyone interested in color, I recommend getting a nice color wheel and learning how to use it. Not only will it help keep your Left Brain satisfied, your Right Brain will have a field day with the tricks mentioned here and others as well!

For the most part, painting followed my normal processes. Let's look at how those methods were applied to this diorama.

Left: Although the bricks had been pre-painted, color variation was applied by painting several bricks in different colors including Chocolate Bar, Red Iron Oxide, Brown Iron Oxide, Dark Brown, Raw Sienna, and Chocolate Bar + Black.

Below: The same process was applied to the cobblestone street. The entire street was painted Pewter grey and then various cobbles were picked out in other appropriate colors including Charcoal, Mushroom, Khaki, Khaki + Pewter Grey, Khaki + Timberline Green, Pewter Grey + Dark Brown, and other mixes of these colors.

While it possible to color plaster items using a variety of washes and dry-brushing techniques (and I have seen modelers get excellent results with these methods), I prefer using more opaque colors applied in a more exacting fashion. As always, there is more than one method that can be used for any modeling task.

Opposite top: The block wall and sidewalk sections were painted using similar methods and appropriate colors. After all this variation was applied, the edges of many of the stones and bricks were given a highlight of a lighter color. Finally, thin washes of Dark Burnt Umber and/or Dark Burnt Umber + Black were applied as necessary to add depth and shading. This highlighting of edges combined with the dark outlining provided by the washes really helps to make details pop.

Opposite bottom left: Several mixes of color were applied to the plaster covering on the building. Over a base of Khaki were applied glazes of Khaki + Raw Sienna, Khaki + Antique White, and Khaki + Burnt Umber. Lighter colors were applied in highlight areas while darker colors were used in the shade. Muddy colors were applied near the ground.

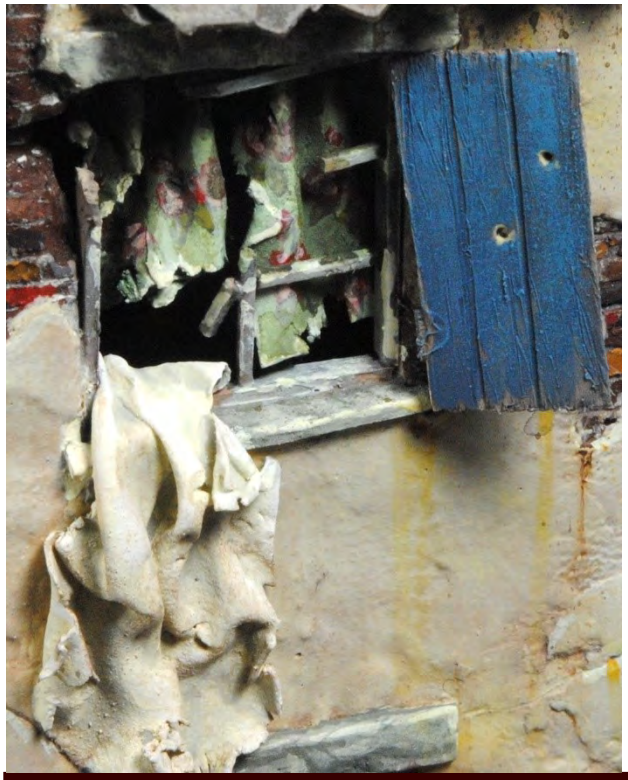
Opposite bottom right: Brick areas were given a dark wash of the same colors used on the street to tone down the stark white of the mortar. A high-highlight of Antique White was applied to the broken edges of the plaster covering and the dark wash mix was painted in the cracks. Again, this combination of high-highlight and outlining make these details pop.

Not shown, the final step was adding dot filters and streaking using oil paints—Titanium White, Neutral Grey, Yellow Ochre, and Sap Green and Burnt Umber (near the ground). The result can be seen in the photo of the finished base on page 63. These were applied using the same methods as on the models. Consistency is important—it makes a finished model appear to be a unified whole, rather than disparate pieces thrown together.

The shingles were painted using the same methods as we saw with the bricks and cobbles—an overall brown/grey mix made from Burnt Umber + Pewter Grey was applied and then individual shingles were picked out in similar colors. The roof was then given a wash of Dark Walnut and was lightly dry-brushed with Khaki. Edges were then picked out with Trail tan and outlining was done with Black.

As a final step on the street and sidewalk, pigment powders were brushed in place to provide a dusty/dirty look. The same colors as were used on the vehicle were applied using a soft brush and gently rubbed in.

Below: The sign is made from a bit of sheet plastic. Rub-on lettering provided the city name.



Shutters were initially painted the same wood color as the shingles. Blue was built up first using Night Blue and then a lighter Williamsburg Blue. Shading was done with Midnight Blue. While on the door and window frames was applied over the wood color first with USAF Light Grey and then with Antique White.

A floral pattern was added to the curtains. The leaves are Dark Green with a Dark Green + Straw highlight. The roses are Red Iron Oxide with Pink highlights. Overall highlighting was done with thin glazes of Antique White while shading is was accomplished using thin glazes of Charcoal.


Berlin
„ПОБЕДА"

Building and Painting a

GAZ-MM

in 1/48 Scale

In this booklet we examine the creation of a diorama of victorious Soviet soldiers advancing on Berlin. We look in detail at the model, composition, figures, and groundwork.

by Kevin Townsend