Building and Painting a BA-64B in 1/48 Scale

Armor Modeling Vol# 8

by Kevin Townsend

CONTENTS

Building and Painting a BA-64B

INTRODUCTION

The best laid plans of mice and men...

It had been my intention to build this kit straight from the box. Honest. In most of my previous builds, I have made statements to the affect that the kit in question could - straight from the box - produce a reasonably accurate and good-looking model. I normally make this statement right before I alter the bejeezus out of the kit. So, to prove it could make a great model straight from the box, I decided to do it. I still stand by my conviction that it can be done, but... But I decided I really didn't care for the single marking option the kit provided. I also decided I wanted to do the kit in winter whitewash. This drove me to replace the summer-clad figure. I also decided I wanted to make the driver visible through his open visor. So much for no changes. Still... none of this really altered the kit in any appreciable way. But, I also decided to add a couple small, niggling little details - simply because. So much for no changes. I did resist the temptation to scratch-build a complete interior and model the vehicle opened up, so I claim at least a little victory over my AMS (Advanced Modeler Syndrome). Like an addiction, I consider it a disease. Or maybe just a lack of will-power: some folks just can't leave well enough alone. But yes, if you like the marking option and the figure, you can build a very nice, accurate, and attractive model straight from the box. You can...even if I can't. My failure in this regard has nothing to do with the kit.

My previous works have shown my assembly, painting, and weathering procedures quite thoroughly. Therefore, here we will look primarily at the vehicle itself, the slight modifications made to the kit and the painting of the winter whitewash. We will also examine the methods used to create the snow and the pine trees. As for the trees, looking back through my other works - primarily those on the Sd.Kfz 251 - the interested reader can find several alternate methods to the ones shown here. All yield at least reasonable results.

In the final analysis, I am happy with the changes I made and the way the little vignette turned out. All I can say about my original intention is that the final result is different - but not better - than the result I'd have achieved building straight from the box. Maybe I can do that with the next kit...but I doubt it.

"During the liberation of the town of Druzhkovka, comrade Mishkin's crew rushed into the town center and discovered 3 enemy firing position, two of which were destroyed and 10 hitlerites killed by his machine-gun fire. His armored car's left tire was hit by fire. Despite the damage, the vehicle was safely evacuated from the battle field… During liberation of the settlement Nikolaevka comrade Mishkin's crew was ordered to rush into the town and draw enemy fire in order to reveal enemy positions. The crew reached Nikolaevka and was subjected to enemy artillery, mortar and tank fire. Despite being subjected to the hail of enemy fire for 30 minutes, comrade Mishkin returned to the company position with valuable information."

-From Guards Master Sergeant Mishkin Nilkolaj Emilyanovich's Red Star Citation. Mishkin was a "Car Commander" (BA-64) in the Reconnaissance Company of the 1st Guards Mechanized Brigade

"Outstanding Russian generals have always attached exceptional importance to reconnaissance in the defeat of an enemy… During the great Patriotic War, a great deal of necessary information was gathered by observation, enabling commanders and staffs to discover the enemy's plans in good time and to take appropriate steps to thwart them."

-From "Tactical Reconnaissance: A Soviet View"
By R.G. Simonyan and S.V. Grishin

The obligatory shot of the model in the hand shows how small these tiny vehicles are in 1/48th scale. Still, it's a big enough canvas to add detail and an uber-realistic finish.

Note how the addition of a base and groundwork transform an attractive model into an even more attractive vignette which provides setting context to the vehicle. These small compositions can tell elaborate stories, or, as here, they can simply showcase the vehicle performing its intended function.

THE REAL THING

The BA-64B. These version made of the overwhelming majority of vehicles produced. Although visually very similar to the BA-64, the slightly wider wheelbase of this version greatly enhanced lateral stability and largely mitigated the vehicle's tendency to roll over. This vehicle also featured a strengthened suspension and enhanced cooling. Perhaps the biggest visual difference between this version and the original is the addition of the vision/pistol ports on the upper hull either side of the driver. The BA-64 was the only Soviet armored car to be designed and built during the war. Although phases out of use by the Red Army in the early 1950s, it remained in service for decades after the war in some communist nations.

The little BA-64 was the standard Red Army light armored car in World War II. It was the Soviet's only all-wheel drive armored car. It was unique in that it was the only new Soviet armored car design to be produced during World War II. Up to 9110 were produced from 1942 to 1946, making it the most numerous Soviet wheeled armored fighting vehicle used during the war.

At the outbreak of the War, the Red Army's only light armored car was the inadequate BA-20M, which was poorly armored and whose rear-wheel drive chassis was not suitable for off-road travel. It was decided to replace this vehicle with a new design based on the all-wheel drive GAZ-64, a vehicle broadly similar to the U.S. Jeep. Based on experience gained from the study of German vehicles such as the Sd.Kfz 222, sloping armor was adapted. This required the redesign or relocation of the GAZ-64s internal components in order to fit everything inside the hull. The resulting vehicle, designated the BA-64, was accepted for service in March, 1942 with production beginning in April.

The vehicle performed a variety of tasks, chief among them being reconnaissance and liaison. The car was also used for officer transport on the frontline, close support of infantry and cavalry operations, and, due to its light weight, was considered suitable for airborne operations.

The hull was comprised of sheets of welded armor, with all surfaces sloped at an angle of at least 30 degrees, greatly enhancing the armor's protective abilities. Protection was adequate to protect against small arms at any range and even could defeat heavier 12.7mm (.5 in) bullets on some faces and from long ranges. The wheels could be equipped in combat with bullet-proof tires filled with foam rubber. However, they limited the top speed to a mere 40 km/h (24.85 mph) and increased fuel consumption, so in most instances conventional pneumatic tires were used instead. A spare tire was carried on the rear of the hull.

The two crew members were seated in tandem, with the turret gunner/commander seated behind and above the driver. Access was provided by a hatch on either side of the lower hull or through the open-top of the turret. The driver had a simple armored flap covering his vision area. The commander could view the battlefield through the gun aperture, over the top of the open turret, or through vision blocks on each side of the turret.

The Real Thing

BA-64B:

Length: 12ft
Width: 5ft 6in
Height: 6ft 3in
Weight: 2.4 tons
Crew: 2 (driver, commander/gunner)
Maximum Load: 1.5 tons

Powerplant: GAZMM 4-cylinder inline liquid-cooled engine, 50hp
Power/Weight: 21.2hp/ton
Transmission: Manual, 4 forward, 1 reverse
Fuel Capacity: 23.8 US Gallons
Range: 300 miles
Speed: 80kph/50mph

Ground Clearance: 8.3 inches
Gradient: 30%
Fording: 35 inches

Main Armament: 7.62mm DT machinegun (1,260 rounds) Manual traverse and elevation
Armor: 4-15mm

References:

- Wikipedia
- Tank Encyclopedia

Top: The GAZ-64 from which the BA-64 was derived.

Middle: An early prototype BA-64. Note the screens on the turret top and the cooling grill in the front of the hull. In this view, the machinegun is cranked-up for air defense.

Bottom: A standard production BA-64. The screens are no longer installed and cooling has been reconfigured.

Opposite Top: A view into the turret. This vehicle mounts an SG-43 Goryunov MG instead of the standard DT.

Opposite Middle: Another view of the tiny turret. This shows to good effect the view ports on each side. The vision blocks on the inside of the viewport are not included in the Tamiya kit.

Opposite Bottom: A diagram showing the thickness and angle of the armor plates on the BA-64B. Compared to other light armored vehicles of the period, the BA-64 was relatively well protected—even being somewhat superior to the Sd.Kfz 222 which clearly influenced its design. It also presented a very small target. The downside was that it was very lightly armed.

The octagonal turret sat on a rotating column resting on the floor. On later vehicles, stability of the turret was improved by adding four rollers to the roof. Rotation was manual, and the turret could be locked in place with a hand clamp. Initially, the top could be covered with a folding metal screen, but this was soon eliminated. A canvas cover could be used to close the turret during foul weather.

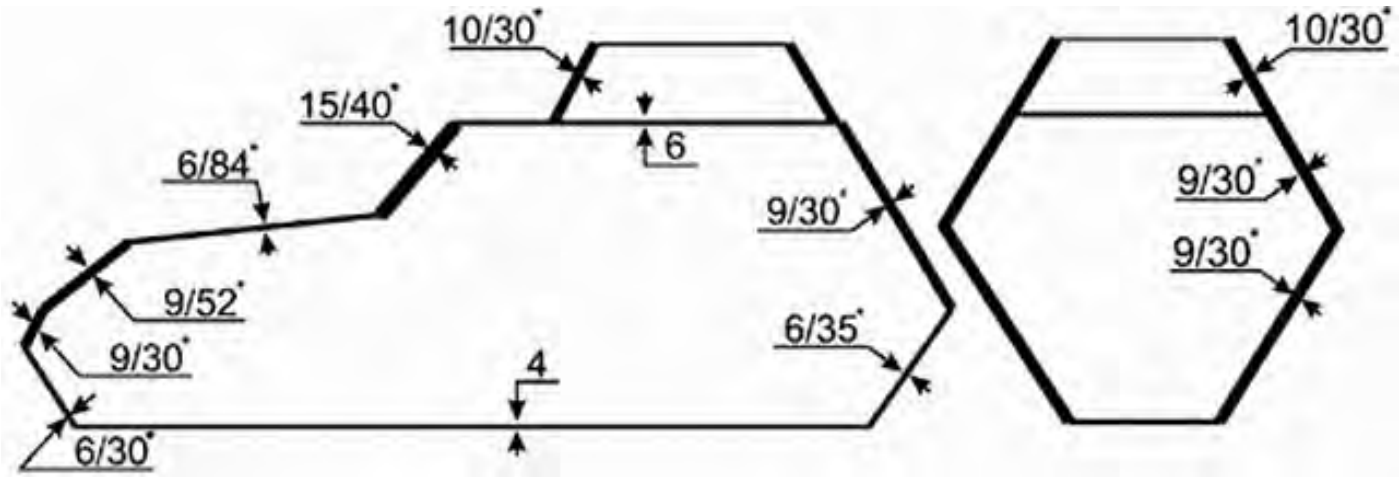
The vehicle was armed with a 7.62mm DT-29 light machinegun. This had a maximum rate of fire of 600 rounds per minute, with the practical rate of fire being 100 rounds per minute. The turret's vertical firing port allowed an elevation of -36° to +54°. A detachable bipod was provided for dismounted use. The sight allowed the gunner to deliver aimed fire at fixed distances of 400, 600, 800, and 1000m. For engaging air targets, the gun could be cranked-up above the top of the turret, allowing both increased elevation and free rotation. Ammunition supply was 1260 rounds stored in 20 drum magazines. This was reduced in the radio version to 17 magazines with 1,071 rounds. This light armament was only effective against infantry and soft targets. For close defense, the vehicle also carried 6 grenades and a PPSH sub-machinegun.

Few vehicles were fitted with radio systems.

The in-line 4-cylinder engine could burn very poor, low-octane gasoline (or even home heating oil in an emergency). The five-speed transmission was manual. As designed the BA-64's suspension on the front wheels were leaf springs and a basic shock absorber, while the rear wheels had just springs. The vehicle had a high power-to-weight ratio, and the placement of the wheels at the extreme corners of the chassis resulted in exceptional maneuverability

Following operational experience, changes were made. The folding screens over the turret were eliminated in June, 1942, and in the following month a vent was added in the driver's compartment roof. An adjustable ventilation hatch on the engine deck was added in September. The suspension was also strengthened.

One of the biggest shortcomings of the vehicle was a lack of lateral stability caused by narrowness and a high center of gravity. The vehicle was notoriously unstable on slopes and was prone to overturning if the driver was not careful. A wider vehicle, designated BA-64B, started production in early 1943



based on the GAZ-67 chassis and continued until production ceased in 1946. It was the most widely-produced version of the vehicle with over 5,000 being made. The extra width proved to be a major improvement for the BA-64.

In addition to being wider, the BA-64B also featured thicker armor, improvements to the engine, and increased fuel capacity. The BA-64B also had ports covered by armored flaps adjacent to the driver on each side of the hull. Tool stowage was somewhat different.

Referred to by its crews as "Bobik" (Bobby), the BA-64 was widely used by Soviet troops from the summer of 1942 until the end of the war, mainly as a reconnaissance vehicle but also in direct support of the infantry. It first saw action on the Don Front in 1942, and took part in the final phases of the Battle of Stalingrad. It was popular due to its speed, mobility, and relatively good protection. If properly deployed, the BA-64 could hold its own. Its agility and small size could be put to good use in the forward reconnaissance role or as a battlefield surveillance vehicle. Most vehicles went to the Army, but about 900 were issued to the NKVD, a Stalinist-era internal security force.

Postwar, it was mainly used for training, remaining operation in Soviet use until 1953. It was superseded by the BTR-40 and subsequently by the BRDM-1.

VARIANTS:

Several variants of the BA-64 were considered, but none saw series production.

The BASh-64 was a command version with a rearranged rear compartment and a raised superstructure. It was rejected for service as it could not accommodate the required radio equipment.

Other than the lateral instability, the biggest shortcoming of the BA-64 was its light armament. The BA-64D was intended to be fitted with a large-caliber 12.7-mm (0.5 in) DShK machinegun. Tests showed the vehicle could not cope with the powerful recoil stress during firing. Up-

This Page: Two views of the BA-64. Compare these to photos of the BA-64B. In addition to being wider than the BA-64, the BA-64B features pistol/view ports on the hull adjacent to the driver. Note also that pioneer tool stowage is a bit different. For example, on the BA-64B, the shovel was moved from above the rear right fender to the right hull front, and a saw was placed above the rear right fender. At the bottom we see the driver's vision port cover.

Opposite Top: A column of BA-64s. The guns are raised above the turret for air defense. The lead vehicle is also missing both front fenders.

Opposite Middle and Bottom: Two views of a recon patrol of BA-64s in worn winter whitewash. They all also carry two cables on the front of the hull. The vehicles are operating near the Chir river as part of the Soviet counteroffensive that destroyed the German 6th Army at Stalingrad.

grades were considered, but development was halted. Testing was also conducted using the PTRD-41 anti-tank rifle, but this too was dropped.

Experimental railway modifications were also developed. The first version featured rail wheels replacing the standard wheels, but this proved unsuitable. A second version used lifts with small diameter rail wheels on the front and rear of the vehicle. This resolved the issues, but by that time the concept was considered unnecessary.

Prototype BA-64E Armored Personnel Carriers were developed in late 1942 and early 1943, spurred by a lack of such vehicles in the Red Army even though it was clear that the BA-64, with its narrow and cramped housing, was not suited to the task. The vehicle was accepted for testing, with between eight and eleven made, but it was not accepted into service.

The BA-64SKH was a proposed winter vehicle featuring a half -track rear and front skis. It was produced in prototype form only.

The BA-64-126 was turretless staff car variant that did not progress beyond the concept phase. However, a very similar vehicle was created by the Red Army as a field modification.

IN FOREIGN SERVICE:

During the war, German units often made use of captured vehicles. Czechoslovakia received ten BA-64s after the war. Small numbers were issued to the East German "People's Police", some serving into the early 1960s. The Soviets equipped several scout companies of the Mongol army with the BA-64, with some of these remaining in use at the end of the 1960s. Romania used the BA-64 on "three sides". When allied with Germany, the Romanian army received some captured BA-64s which it used against the Soviets. In 1944 when Romania switched sides, it was provided BA-64s by the Soviets. Finally a third batch was delivered during the Cold War. The last was withdrawn from service in 1958. In the closing months of the war, the Polish army was issued BA-64s which saw combat in the final campaign. These served until 1954. Like Poland, Yugoslavia began to receive BA-64s while the war was ongoing. The total transferred is uncertain but was not more than a few dozen. Yugoslavia retired the BA-64 to storage in 1953. None were known to have been used during the violent 1990s collapse of the country.

China and North Korea both obtained BA-64s. North Korea fielded numerous BA-64s during their initial invasion of South Korea, with several being lost. These were quickly replaced by China and the USSR. Very few survived the retreat north after the Allied landings at Inchon. North Korean BA-64s were rarely seen after early 1951, but the vehicle was encountered again after Chinese forces entered the ground war.

BA-64B

A patrol of what appears to be very early BA-64s. Note the screens on the turret roofs.

More BA-64s in winter white.

Below: BA-64s operating with British Universal Carriers provided to the Red Army through Lend Lease

Top: These photos provide a good overview of the features present on the BA-64B, the most common of the production versions. The wider stance helped improve lateral stability and decreased the chances of rolling over. The side ports improved driver visibility and the close defense capability of the vehicle. Note that the shovel is now stowed on the right hull front and a saw is placed above the right rear fender.

Middle Right: BA-64Bs on patrol. Again, the MGs are elevated above the turret line.

Above Left: A BA-64 operating with infantry in an ambush position.

Above Right: A BA-64B posing with infantry. This photo shows the crew access door in the lower hull to good effect. There was one on each side.

BA-64B

FS34257

FS34095

FS24052

SOVIET VEHICLE COLORS

The regulation color for all Red Army vehicles in WWII was "Protective Green 4BO". This was ordered in 1938, replacing the previous, nearly identical, 3B. There is debate about the exact nature of 4BO. This is not surprising. Mixing instructions specified Yellow Ochre 40-60%, Zinc Chromate 15-20%, Ultramarine 10%, and White 10-20%. This results in a range of fairly light greens close to Federal Standard FS34257, but surviving color chips seem to indicate the color was darker –close to FS34095. Further, the paint was unstable. Some sources state it tended to darken over time, and, of course, it would have been subject to normal fading and weathering. Note that if the paint did tend to darken over time, surviving color chips may be unreliable. This instability, when combined with inexact mixing and exposure to the elements, gives us a very wide range of possible color. For example, when the US Army evaluated a T-34, they noted the color as FS24052. Given all this, it is reasonable to assume that Soviet vehicles appeared in the whole gamut of yellow green and olive green shades (note the difference between the color used here and on my GAZ MM). Clearly, the Red Army had more important things to worry about than color exactness.

Although rarely seen, camouflage colors of Dark Earth Brown and/or Yellow Earth were authorized to be applied over the protective green base color, leaving about 50% of the vehicle in 4BO. Both colors were supplied in paste form. Depending on how much and with what they were diluted, the color could vary. Based on the photos in this section, it appears that most BA-64s were painted overall 4BO. I see no evidence of any of these vehicles painted in camouflage colors.

For winter camouflage, water-based paint (designated Flat White B) was issued. This was to be applied in a disruptive pattern, but these guidelines were rarely followed exactly and many vehicles were painted in overall white. As this was applied by the crews, there was little uniformity in quality, coverage or pattern.

Vehicles supplied via Lend Lease were generally not repainted by the Soviets, remaining in US Olive Drab or British Khaki Green (or whatever other colors they may have been supplied in).

Judging from photos, there appears to have been no standard method of identification, with unit markings and vehicle numbers determined by individual units.

As for interior colors, my references vary. Some say it would be the same green as the exterior while others state white. Based on good information on other vehicles, and on photos of surviving BA-64s, I believe the interior of the hull would be white, while the turret interior and the inside of hatches should be 4BO. For my purposes then, visible portions will be painted 4BO. The rest will be blacked out to avoid being able to see into the empty hull past the crew figures.

Facing Page:

Top: BA-64Bs loaded onto railcars.

Bottom: A BA-64 in early 1944.

This page: River Crossings.

Top: A BA-64B crosses an improvised bridge over a damaged span. Note the sentry and the traffic controller.

Middle: A BA-64B crosses a pontoon bridge.

Bottom: A BA-64 drives off a captured German barge.

BA-64B

Top: Old and new—A BA-64 passes a cavalry unit.

Left: A BA-64B in Vienna, 1945. This vehicle displays the markings included in Tamiya's kit. However, absent from the kit is the marking on the upper nose plate. This is a Polish vehicle in Germany during the final month of the war.

Opposite Top: A mixed unit of BA-64s, armor, and Infantry. Is that a stovepipe carried on the rear of the nearest vehicle?

Opposite Bottom: Yugoslavia. A BA-64 advances along with towed guns and a Lend Lease White Scout Car.


324

Above: A Yugoslav BA-64 operating with White M3A1 Scouts.

Right: The Battle of Belgrade, October, 1944. Yugoslav partisans pass a BA-64

Operation Bagration. A BA-64 in Vilnius, July 1944.

BA-64B

Rumania, 1944

Vehicles of the 36th Guards Brigade, Belgrade, 1944

A BA-64B moving through a Pomeranian town early in 1945

Top: A BA-64B and its commander, V. Ivanov, Vienna, 1945. Bottom: A Soviet reconnaissance unit with motorcycles and BA-64Bs in Germany, 1945. Note the very worn remains of the winter whitewash.

Top: Street fighting in Muhlhausen, Germany in March, 1945. The infantry is supported by BA-64s and Lend Lease White Scout cars. The BA-64 appears to have a very solid layer of white paint over the standard green.

Middle: BA-64s watch over the German surrender in Czechoslovakia.

A BA-64B on occupation duty in Berlin at the end of the war.

BA-64B

The end of the war! A BA-64 in Prague. Note the early-style German Jerry Can attached to the front fender and the patriotic slogan on the hull front.

To celebrate, this BA-64 is bedecked with flowers and patriotic slogans.

Below: Ready for the VE Day (Victory, Europe) Parade in Berlin. The slogans read "Glory to Stalin", and "Caucasus—Berlin". A victory banner is attached to the fender. No weapon is fitted into the turret. Although battle weary, the vehicle has been cleaned up and white trim has been added to the fenders and wheel rims/hubs.

FIELD MODIFICATIONS

This page shows a few vehicles that been field modified by the owning units.

The top two photos show vehicles mounting anti-tank rifles. In both cases, the turret has been removed. In the lower of the two photos, it is apparent the entire roof of the fighting compartment has been taken off. It is impossible to tell in the top photo. In the top photo, the far vehicle has a canvas cover fitted over the turret while the near vehicle has a tarp covering the rifle.

At left we see two views of a BA-64 that has been converted into an armored staff car. The entire superstructure has been cut away and the interior reconfigured. The seats and windshield are from a captured German Schwimmwagen.

Here we see variants that never proceeded past the prototype/testing stages.

At top is a BA-64 fitted with an enlarged turret to house a 12.7mm heavy machinegun. This vehicle was designated the BA-64D. The weight and additional weight and recoil forces with the subsequent increased hull stress was too much for the light car.

The second photo shows a BA-64E armored personnel carrier. A door for troop access is present at the rear of the hull. The small size of the vehicle limited its usefulness as a troop carrier and the type never entered production.

VARIANTS

At top left we see the prototype BA-64SKH—essentially an armored snowmobile. This prototype was the only such vehicle produced.

Left: The original prototype for the railroad version simply replaced the standard wheels with railroad wheels. This proved unsuccessful due to the stresses put on the armored hull.

Bottom: The 2nd prototype BA-64ZhD. This used the arrangement shown. Although satisfactory, but the time it was complete and tested, the need for such a vehicle no longer existed.

CAPTURED VEHICLES

The Germans put captured vehicles to use. At top we see what appears to be a police unit, probably performing anti-partisan functions. Behind the lead vehicle is a captured BA-64 and behind that is a Steyr ADGZ (M35 Mittlerer Panzerwagen in German use).

Middle: Captured BA-64s (they may be photos of the same vehicle) in German use. Note the large, prominent German crosses on all faces of the vehicle—friendly fire was definitely a threat when operating enemy vehicles.

Right: An early production BA-64 put to use by the 4th Panzer Division. The vehicle in the background looks to be a Sd.Kfz 251/6 command vehicle.

BA-64B

Above: German troops perform maintenance on a captured BA-64. In the road is a Panzer III fitted with wide Winterketten tracks to increase flotation/mobility on soft ground.

Below: A captured BA-64 with German flag prominently displayed (friendly fire isn't friendly) moves past the hulk of a T-34

Top: A group photo around a captured BA-64 sporting a coat of winter whitewash.

Below: Kursk, July 1943. A captured BA-64 operated by the SS Das Reich division moves past a Tiger I.

IN FOREIGN SERVICE

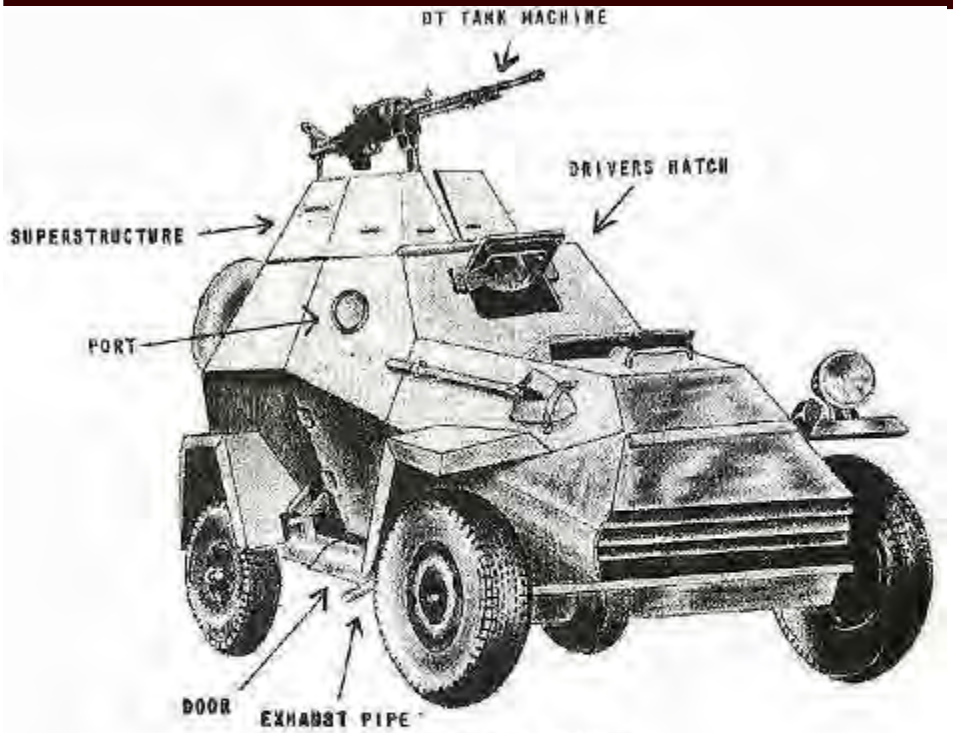
The little BA-64 continued to serve with many East Block nations after the war. These Polish vehicles take part in a military parade in the late 1940s.

The BA-64 also saw extensive use by the North Korean and Chines armies during the Korean War. The samples shown on this page were captured by US forces.

Top: This vehicle was captured by the US Army's 24th Infantry Division in September 1950. It was disarmed and used as a general-purpose "armored jeep" by the 24th Division's 21st Infantry Regiment until spare parts ran out. The driver's armored panel and the turret have been removed. The vehicle is also missing its fenders and most exterior fittings. The markings are interesting.

Middle: This shot provides a good view of the interior showing stowage racks on the doors and internal ammunition stowage for MG drum magazines.

Bottom: Another captured vehicle being inspected by US troops.



ARMORED CAR, BA-64 (SOVIET)

- 170 -

ARMORED CAR, BA-64 (SOVIET)

The BA-64 armored car is a lightly armored, highly mobile vehicle. It can easily be recognized by its sloping sides and the small turret on the top rear. It is a 4 x 4, liquid-cooled, gasoline engine powered vehicle. Provisions are made in the turret to mount a 7.62mm DT or DTM light machine gun.

Top: Page from a U.S. "Know Your Enemy" handbook issued during the Korean War describing the BA-64.

Bottom: Not a BA-64, but rather the East German SK-1. This vehicle entered service with the Volks polizei "People's Police" in 1961. Although larger, it certainly appears it could have been influenced by either or both the BA-64 and the Sd.Kfz 222. Although larger than the BA-64, it features a very similar configuration and armament to the little Soviet car. In addition to the machinegun, it could also house a water cannon or tear gas grenade launcher. The small number built continued in use for the remainder of East Germany's existence.

The Kit

The Kit

This kit, #32756, shows why Tamiya is an industry leader. It is everything I have come to expect from this company—a good level of detail, perfect molding, great fit, ease of assembly, and complete, clear instructions. Clean-up is easy with only normal mold seam lines to remove. Most ejector pin marks are not located in visible areas. A very simple kit, this model would be a good starting point for a novice or returning modeler. It could be built straight from the box in just a couple hours. In fact, it would be a good weekend project.

Retailing for about $20, the kit consists of only 42 pieces on a single sprue, and four of those pieces make up the provided half-figure of the commander/gunner. This half-figure rests on a platform attached to the gun mount inside the turret. Although not noted in the instructions, if the figure is not used, this platform should be removed as it wasn't there in reality. The model features separate crew doors and driver's visor so that the model can be opened up if the builder so desires. However, there is no interior provided. If the hatches were posed open—in fact, even if the commander is not in the turret—the fact the vehicle has no interior would be very noticeable. If the vehicle is buttoned up and the crew is in place, lack of an interior is not an issue. The only detail that might possibly be visible in this instance would be the interior components of the turret view ports. I would recommend painting the interior of the hull black before joining the hull pieces to ensure nothing of the empty interior is visible around the commander figure.

Detail is good overall. Even the DT machinegun looks nice for the scale, and the hub/tread detail on the wheels is excellent. The chassis and leaf springs are a single part to which the rear axle and front suspension are attached. The front suspension is not posable. The bottom of the engine is molded as part of the chassis. The metal weights Tamiya often includes are absent from this kit. Tools and fittings are nice, but he saw is over scale thickness - but still doesn't look too bad. The figure is typical of Tamiya, and, while not horrible, isn't great and features some very prominent mold seam lines. In addition to the lack of interior vision block parts on the turret, the only missing details are the small tow hooks on either side of the nose. The headlight lens is molded separately, but is not a clear part. This will either have to painted (hard to do convincingly) or replaced with an aftermarket lens from a source such as MV.

Although I did not use it, an option available to modelers is Hauler's detail set for the model, part number 48343. This retails for about $15 (almost as much as the model) and basically includes photo-etched parts for the turret, fenders, vents, bullet splash guards, and a few other miscellaneous parts. Although nice, in my opinion the extra cost and effort does not translate into a noticeably better finished model. The most useful part (my opinion) is the replacement saw!

In typical Tamiya fashion, the instructions are comprehensive, complete, and logical. Decal options are for only one vehicle (see photo page 14). The marking visible on the nose of this vehicle is not included on the decal sheet. To my knowledge, there is at least one aftermarket decal sheet available. Handl Model Accessories offers a set containing markings for several Czech vehicles.

The model goes together well, without issues. Fit of the various pieces is perfect, or nearly so.

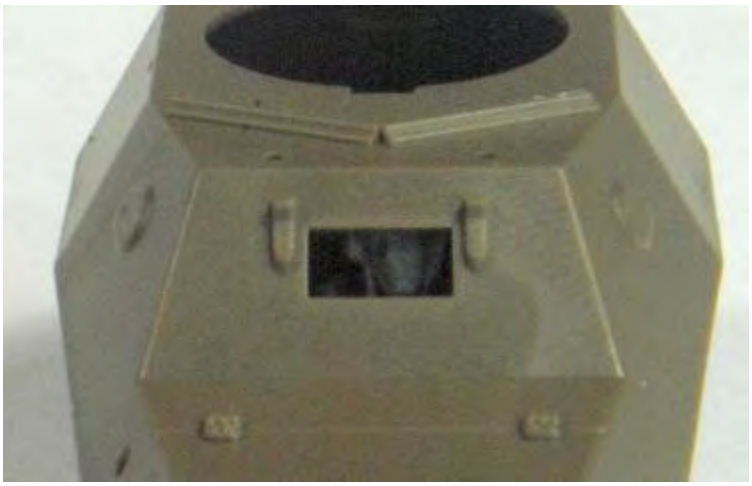
Overall, this is a nice (stress free) kit of an attractive little vehicle. It is quite small—the finished model measures only 3 x 1.4 x 1.6 inches. If offers lots of potential in dioramas or vignettes. Although I know of no aftermarket interior set, the relatively simple and sparse interior would not be hard to scratch-build if the modeler wanted to pose the vehicle opened up. As seen by the photos in the "Real Thing" section of this build-log, there is plenty of potential for different marking and conversion options. For example, the captured vehicle being reused by US Forces (see photo at the top of page 26) would make an interesting build.

I recommend this kit to modelers of all skill levels.

Construction and Figures

This kit could easily have been built straight from the box but I chose to make a couple changes and add a few details. The biggest change was the swap of the commander figure and the addition of a visible driver. These were made from Tamiya's Russian Infantry and Tank Crew set (#32521). I added a platform on the floor on which to fit the driver. I also added details on the inside of the driver's visor and turret. Prior to joining the hull halves, the interior was painted black and the painted driver was glued into place. The black ensures nothing of the inside will be visible past the driver and commander, and it would be impossible to fit the driver figure after the hull was assembled.

Other than these simple changes, the kit was built per the instructions.



Left: The driver positioned in the vehicle. While I added arms, the only thing that will really be visible through the small vision port opening is the face. Still to be done is removing the shoulder strap. I also added a piece of sheet plastic behind the engine deck vent to prevent vision into the empty crew compartment through the vehicle.

Above: The commander fitted into the little turret.

The driver and the commander's torsos and heads are from Tamiya's Russian Infantry and Tank Crew set. The commander's arms are from the BA-64 kit. The figure is only posed at this point—removal of mold seam lines and putty work on the joints still remains to be done.

Top: A few details were added. Perhaps the only "glaring" omission from the kit are the front tow hooks. These were sources from the spares box (from a Tamiya 1/48th Sd.Kfz 251 that had served as a donor kit to help update the old Bandai halftrack). The vision blocks on the inside of the turret will be largely masked by the vehicle commander, so only the basic shapes of these were needed. Styrene strip sufficed to make these. Finally, due to the open driver's visor, detail of his viewport was created using styrene bits and some left-over fret from a brass photo-etch set.

Middle: Before the hull halves could be joined, the driver had to be painted. Here we see both figures finished. These were painted using my normal methods.

Bottom: The vehicle assembled in sub-assemblies ready for painting. The pins in two of the wheels are for mounting the vehicle to the base.

Painting and Weathering

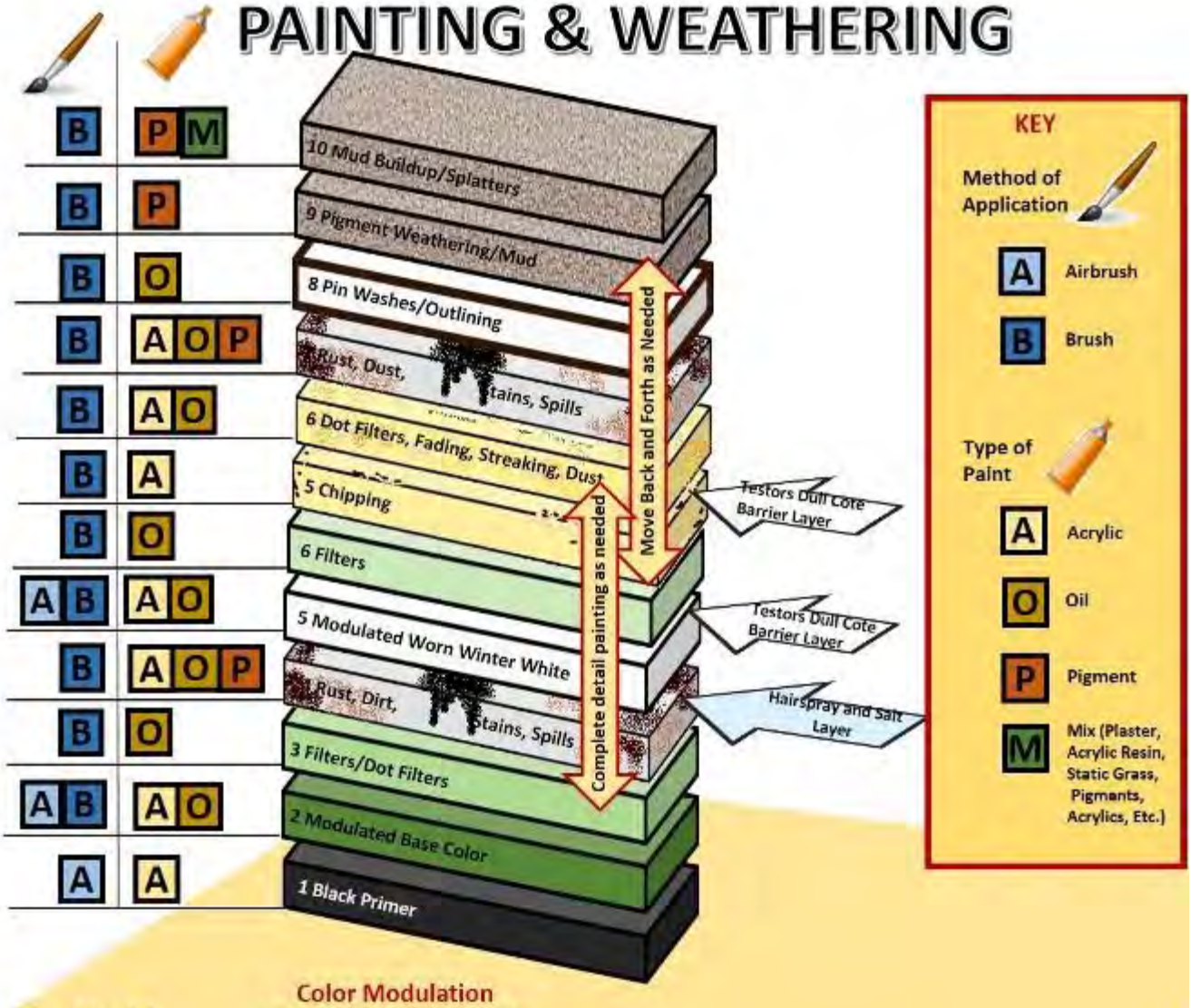
I chose to paint this vehicle in a disruptive winter white over the standard 4BO green. In my earlier build log on the Sd.Kfz 250/10, we looked at using a combination of the "salt" and "hairspray" weathering methods to create an extremely worn winter whitewash. Here, I used similar methods to create a not-so worn finish. The underlying green was painted, and initial weathering applied, using my normal methods. In this section, we will look in depth at how the winter white was added.

Top: The finished model. Note especially the variety of colors that make up the white, from a very dirty brownish-white to pure white. Note also how the finish is worn or transparent in some areas but very solid in areas. These effects were accomplished with a variety of acrylic paints (Vallejo Model Air) both airbrushed and brushed along with various applications of oil colors and pigments.

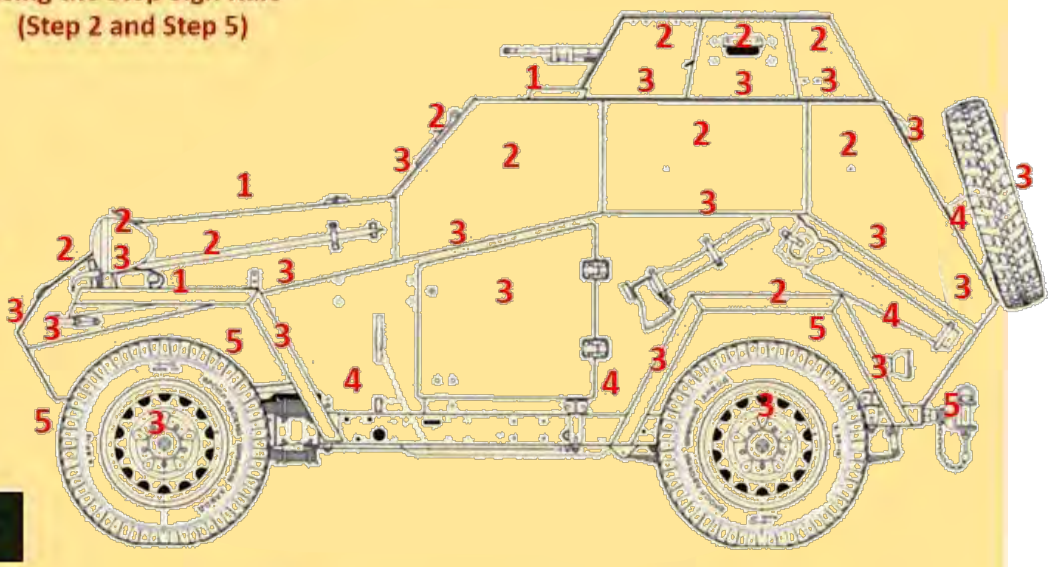
Above: Prior to adding the white, the 4BO green was painted. This was applied in a "modulated" fashion using my normal method.

The model was primed in black. The 4BO green was applied using these colors. Deep shadows were made by mixing Black Grey and Russian Green 4BO. Shadows were made by adding more green. The base color is Russian Green 4BO. Highlights were created by adding Tank Ocre and high highlights are straight Tank Ocre.

PAINTING & WEATHERING



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



After the basic green color was airbrushed, various filters and dot filters were applied using oil colors. Weathering continued with the initial application of chipping, rust, streaking, spills, and stains. Further weathering will be done after the application of the white. Thus, just as in reality, the various colors and weathering effects are built up in multiple layers.

Below: Areas to remain green were masked with tape and/or Mig "Panzer Putty" (reviewed in the M4 Sherman Build Log and in Chapter 4 of my Project 251 log). A coat of hairspray was added. Sea salt (for the irregular sizes and shapes of the grains) was sprinkled on the wet hairspray in areas of heavy wear.

Below Right: Once the hairspray was dry, the modulated white paint was applied.

The salt was knocked off and the masking removed.

Top: As the underlying layer of hairspray is water soluble, and water can reach the hairspray layer through the areas that been covered by the salt masks, it is an easy manner to create additional wear with a stiff, damp brush. Simply rub off as little or as much of the winter white as needed. Additional chips and scratches can be added with a damp toothpick!

Middle and bottom: Further variation in the white can be added with various oil filters and dot filters, as well as additional applications of acrylic paint or even pigments. My aim was for not only worn paint, but also areas where the paint was still intact. I also wanted to depict a range of white ranging from clean and bright to dirty and dingy. From this point, weathering proceeds as normal with additional filters, dot filters, streaking, chipping, stains, spills, rust and dirt.

After this, details such as tools, mufflers, lights, the machinegun, etc., can be painted and weathered normally.

All of these methods and techniques have been covered in detail in my other build logs.

Finally, following my normal procedures, we add mud build-up using my homemade textured acrylic paint as we saw in the Tiger I build log. Areas of wet are created by mixing Future floor polish into the mix. Additional Future can be applied as needed to create various levels of wetness.

The finished vehicle ready to be mounted on the base.

T-34s of the 1st Guards Tank Brigade in the snow. The entire vehicle has been given a coat of winter white. Geometric designs can be seen on the upper hull and turret that resemble tire tracks. The purpose was possibly to help the vehicles blend into wheel ruts.

RUSSIAN CAMOUFLAGE PAINTING IN WINTER

(Extracted from a US Intelligence Report from January 1943. The report is a translation of a document written by a Russian Colonel. As with all wartime intelligence, date may be incomplete or inaccurate)

"…Winter conditions (as has been shown by combat experience) create considerable difficulties for the camouflage of tank units. In winter the principal characteristics of a region are its uniform white background, a lack of outline, and an almost complete absence of color. The only exceptions are small settlements, woods, and thick underbrush. Forests whose dense foliage provides perfect concealment in the summertime lose their masking qualities completely in the winter. In winter, on an even, white blanket of snow, camouflage is very difficult. Almost all methods of camouflage employed in summer prove inapplicable. It is necessary to make wide use of special winter covering for the vehicles, and to paint them with winter paint: all one color (protective coat) or in large spots (disruptive)…

In winter, tanks are painted all white when the aim is to avoid observation, and in two colors with large spots when the aim is to avoid identification. As a rule, all-white paint is employed in level, open country characterized by a lack of variegated color. Two-color disruptive winter paint is used where the ground presents a variety of color, where there are forests, underbrush, small settlements, thawed patches of earth, etc.

One-color camouflage paint is applied to all parts of the tank in one or two coats. For the paint, zinc white or titanium white is used only with an oil base, and slight amounts of ultramarine coloring. For the lack of anything better, the tanks may be painted with chalk dissolved in water. Painting in two colors with large spots can be undertaken in two ways: one is to paint only part of the tank surface, leaving about 1/4 or 1/3 of the tank's surface in the original green; another is to repaint the tank entirely in two colors, either white and dark gray, or white and gray-brown.

When the weather is cold, painting should take place in a warm place, since paint applied when the temperature is 10° below zero Fahrenheit is too hard to be applied.

In winter, as in summer, it is necessary to avoid mechanical repetition of patterns and colors. For example, in painting the tanks of a platoon, one or two tanks are painted white, a third in white irregular stripes leaving parts of the protective green paint as it is, the fourth with white and dark gray spots, and finally, the fifth with white and grayish-brown spots…

Generally speaking, winter conditions make it necessary to move along existing roads. Since winter roads appear to the aerial observer as dark strips, tanks which have an all-white winter paint stand out fairly clearly. In view of the fact that vehicles can be spotted by the shadow they cast, they should move on the side of the road nearest to the sun so that their shadow falls on the road, which is darker than the snow next to the road. Movement along the roads, especially at great speeds and over fluffy dry snow, gives itself away by clouds of snow dust. For this reason, movement of vehicles in wintertime should be at low speeds, especially over new-fallen snow… The reflection from the lenses of the tank headlights will also give away their movement. In order to prevent this, it is necessary to cover the headlights with white fabric covers, or some other material… "

In "The Real Thing" historical section of this build log, we've already seen several examples of the BA-64 in winter white. On these page are photos of other Soviet vehicles showing a sampling of the vast amount of variation seen. As this paint was normally applied by the crews, note the differences in quality and styles of the applied paint.

Top: SU-76 assault guns sit on the edge of a forest. White paint has been applied over the entire vehicle in a broken pattern. The T-40 advancing with snow-suit clad infantry are in overall white.

Middle: A BT-7 fires on the enemy. It is in overall white. The T-34 has also been painted white except for, apparently, the wheels. Markings have been applied over the white paint (or left unpainted).

Bottom: These T-34s are in an unusually pattern that appears to consist of white lines and spots over the vehicle base color. Likewise, the BA-10's white paint leaves curving lines of the base color visible.

Groundwork

This "sketch" confirms the composition and shows the overall layout of the vignette. It also shows the first step in making the trees. Dowel rods (and cocktail) sticks of various lengths and diameters were sanded to a taper.

The small sapling (below) was made from a bundle of copper wire. The wire was twisted together with branches projecting at intervals. This made the bundle gradually smaller, resulting in a realistically-tapered tree. This is the same process we saw in the Dingo Build Log.

The difficulty of modeling a winter scene can be summed-up in one word: Snow. Snow must lay convincingly on the ground, must be fine enough to appear "in scale", must appear "cold", and it helps if it has a subtle sparkle (unless it's melting, dirty snow). We compound the challenge when we add different terrain types to the mix—such as the trees and muddy trail present in this scene. Still, like modeling any subject, if we always keep our desired end result in mind, and plan what we are doing before we do it, winter scenes are really no more difficult than any other season...just different.

To make snow, I use one of three materials—or a combination of them—depending on the effect I want to achieve.

- If modeling deep snow, where the underlying ground does not show through, the basic groundwork material serves as the snow base. I use Sculpt-A-Mold instead of normal Celluclay if modeling deep snow. The only reason for this is that Sculpt-A-Mold is white while the Celluclay is grey.
- I am very fond of "Snow" by Hudson and Allen. I use this outstanding project sparingly as it can be hard to find. This is a fine white powder that contains a small bit of something that gives it a subtle sparkle in the light. This product can be applied dry over hairspray or a clear medium (see the sidebar on "Snow Variations"). It can also be mixed with water to form a paste.
- Also useful is "Snow" by Woodland Scenics. This is a more granular powder similar to the "microballoons" often used as a thickener in epoxies. I use this product in the same manner as the Hudson and Allen offering. In fact, I often mix them together to stretch the more valuable Hudson and Allen snow. This product will also readily "wick up" paint, so it is useful to model dirty or muddy snow at the fringes of roads and trails.

All three of these were used to create the snow in this scene. Let's look at how it was created.

Top: In my opinion, one of the best and most useful snow products is "Snow" by Hudson & Allen Studios (see description in the text). Sadly, it can be very difficult to find.

Bottom: Also useful is "Snow" by Woodland Scenics—a product intended for model railroads.

BA-64B

Left: Branches were made in the same manner that we made the saplings. Anywhere from two to seven strands of copper wire were twisted together at the base and then branched out to form the limbs.

Below Left: Branches were glued using 5-minute epoxy into holes drilled into the trunks. After drying, they were shaped as needed.

Below Center: To "flesh" out the trees and tie everything together, each tree was painted with a thin mix of plaster, and water. This was tinted with some Pewter Grey craft paint mixed in.

Below Right: Additional detail painting was done using washes and dry-brushing. Note that tree trunks and branches are more of a grey color than a brown. Colors uses were a Black, Pewter Grey, and Nutmeg Brown mix of craft paint, followed by washes of Black and/or Burnt Umber oil paints.

Left: Moss and lichens were stippled on using various pale green colors (Vallejo Model Air Light Grey Green, Russian Green, Int. Grey Green, and Duck Egg Green.

Note that areas of bare wood were painted in lighter colors of the base color. Areas of missing bark were given a shadow outline of black around the edges.

Far Left: The colors used for the lichens and moss growing on the trees.

Left: For the foliage, I used Blended Turf from Woodland Scenics. This is a fine material that can be used to replicate pine branches in this scale. Although close to an appropriate color, like static grass, it is a bit to "garish" and will need painting.

Left: White glue was painted onto the branches were I desired foliage, and the turf sprinkled on and allowed to dry.

Above: Once dry, the foliage was further painted and highlighted with an airbrush following my normal methods demonstrated in previous build logs. This photo, much larger than life-sized on the printed page, shows the effect of the foliage. While it would fail in large scales, in small scales the effect is quite good.

A snow mix was made from a mixture of Woodland Scenics "Snow", a bit of the Hudson & Allen "Snow" (I have a limited supply of this wonderful stuff and it can be hard to find, so I use it sparingly), white glue, a bit of Future for a melting, wet look, and finally water.

This snow mixture forms a paste that can be "painted" on the trees and ground as needed. I used the same spatula I mixed the snow with to apply it to the tree branches. If it starts to stick to the tool, clump, or otherwise get difficult to work with, just add a bit of water.

Right: The final result on one of the trees.

SNOW VARIATIONS

Like mud and grass (and most everything else in nature), there is no one "answer" for snow. Snow can be deep or simply a dusting. It can be wet and heavy or dry and fluffy. Wind can sculpt it into drifts and ripples. This, combined with thaw and re-freeze can create all manner of shapes and textures. New snow can overlay old snow. And on and on. In this build, I was after a fairly heavy, wet snow. We saw how I achieved that effect both on the ground and on the tree branches. But what if want to do something else?

Simple variations of how we apply the same materials can often let us achieve the effect we are after as the photos on this page show. For more on snow, the reader is referred to my in-depth project to create multiple variants of the Sd.Kfz 251. Snow effects are looked at in the build of the Sd.Kfz 251/3, 251/11, and 251/21. Each takes a different approach for different effects.

In the build shown above right, we see the snow piled rather deeply in the crevices, but only a dusting is present on upper surfaces of the rocks. The deeper snow was applied with a thick paste of the Woodland Scenics snow The dusting was accomplished by painting the desired areas with Matt Medium (gloss medium could be used for a wet look) and sprinkling them with the Woodland Scenics snow product. After it dried, excess was gently blown off.

If larger areas needed a uniform covering with this light dusting, these could be sprayed with hairspray and the snow sprinkled on. For a subtle glitter, use the H&A product instead of the Woodland Scenics. Multiple layers can be built up in this fashion. The tree at right was covered with snow in this way. A final layer of hairspray or clear Matt locks everything in place.

Methods can even be combined. Consider the detail below (from my Sd.Kfz 251/21 build below). A deep, heavy snow layer was created using Sculpt-A-Mold, painted white once cured. Once dry, a fresh, light layer was added using the hairspray and sprinkled Woodland Scenics snow.

For many other methods, you can look online. Model Railroad books and magazines are also a great source of methods that work well in this scale.

COMPOSITION

In my previous build logs, we've discussed, in depth, my "Ten Commandments of Effective Composition" (see sidebar). These are most useful when planning a diorama or vignette that has a story to tell. Here, there really is no story other than the vehicle performing a task it was designed to carry out. Even so, the commandments can be of use to ensure we get the best possible piece out of our model. Let's quickly examine how they apply, or not, to this particular vignette.

There is no particular story, but there is a single main point—the vehicle itself. As the vehicle is really the only thing present in the composition other than the groundwork, there is really nothing other than the main point for the viewer to look at.

Likewise, the action is the vehicle maneuvering along a winter forest road. As it isn't important for the composition, I leave it to the viewer what the little car is doing—scouting, attacking, advancing, retreating, etc.

By keeping the base small, dead space is eliminated and both balance and a tight composition are assured.

The groundwork sets the scene and season. The trees add an attractive vertical element to the scene. Viewer's will no doubt note that the little car is almost "lost" in the woodland scene, and that the colors on the vehicle and the groundwork are very similar, if not identical. This does two things for us. It makes the vehicle look as if it belongs in the scene. Closely related to this, it clearly demonstrates the purpose of camouflage—to either prevent observation or, failing this (it is rather hard to hide a vehicle by paint alone) to make identification more difficult.

What we have done with this build—using the same colors and patterns for the groundwork as on the vehicle—is a useful technique for armor modelers to demonstrate both the purpose and usefulness of camouflage. Here, we see my Sd.Kfz 251/2. Note only are colors and patterns similar, but the foliage placed on the vehicle matches that in the scene.

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.

The groundwork was applied in stages. First, the muddy road was applied. This was added using pre-colored Celluclay as a base using my usual methods. It was then painted to represent wet mud as seen in many of my earlier works, notably the Tiger I diorama and my Sd.Kfz 251 project (specifically the Sd.Kfz 251/3). The wet look was accomplished using Future floor polish.

With the muddy road in place, the heavy layer of snow was put in place. Sculpt-A-Mold was used to add the deep layer of snow. The earlier made trees, stumps, and logs were also added at this stage. Although the Sculpt-A-Mold is white, I over-painted the dried material with another layer of white as I wanted to avoid any possible yellowing of the material over time (NOTE: I'm just being paranoid—I've never had it yellow on me before).

The same snow mixture used to add snow to the tree branches was added over the top of the Sculpt-A-Mold.

BA-64B

At the margins where the mud and snow join, some of the mud color was lightly applied to the snow and painted on in splatter pattern. The paint will soak into and diffuse through the snow mixture, so it only takes small bits of color to achieve the desired effect. Slushy areas on the margins were added using the snow mix with extra Future and a tiny bit of the mud color mixed in.

The final result.

The "stakes" are simply marker poles made of toothpicks to prevent the holes for the vehicle's mounting pins from becoming clogged with groundwork material. These will be removed when the vehicle is put in place.

Building and Painting a

BA-64B

in 1/48 Scale

In this booklet we examine the creation of a
little vignette featuring this small armored car.
We dicuss painting the winter white
and creating snowy winter scenes.

by Kevin Townsend